

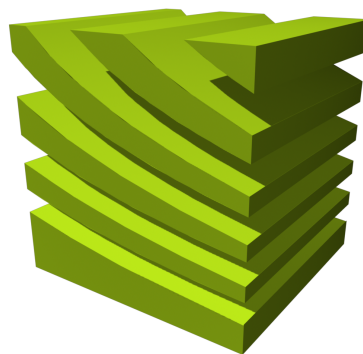


## MADRIX 3 Help and Manual

[Software User Guide]

Version: MADRIX 3.6e

Date: February 2017



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# //PART A

*Introduction*

# 1 Introduction



## Welcome to MADRIX


MADRIX is an outstanding tool for modern LED control.

This software is an advanced LED lighting controller. MADRIX combines stunning real-time effects with an easy to use user interface that will allow you to create unique lighting patterns very easily. A wide range of software features allow for [nearly] endless possibilities and many options available to you. Please use this user guide to learn how to operate the software and its various tools. Thank you for choosing MADRIX!

## How To Use This User Guide

- Press **F1** on your keyboard while working with the application to quickly call up the MADRIX Help and Manual.
- **LINKS** are displayed in orange. Simply click through and you will be taken to the corresponding part within the same topic.



- »[LINKS](#) will take you away from the topic which you are currently reading to another section in this guide or to an external website.
-  - Shows new or updated topics for this MADRIX software release version. This manual refers to MADRIX 3.6e
- This user guide is available in English.

## Topics Of This Chapter

- »[Glossary](#)
- »[System Requirements](#)
- »[MADRIX KEY \[Software License\]](#)
- »[Update From MADRIX 2.X To MADRIX 3.X](#)
- »[Supported Fixtures \[LED Products\]](#)
- »[Supported DMX512 And Art-Net Interfaces](#)
- »[Web Links](#)

## 1.1 Glossary

### 2D

MADRIX makes it possible to control numerous LED fixtures, also of different kinds, and to position them according to your needs in nearly any form or shape. This could be LED walls, arch shapes, ceilings, stripes, tiles, dance floors, etc. You can control pixel by pixel [pixel mapping].

### 3D

MADRIX supports volumetric pixel rendering as well [voxel mapping]. That means, MADRIX also allows you to control real 3D LED matrices. This approach is fundamentally different to the 3D projections or the physical layout of 2D surface areas that are widely known nowadays.

### Art-Net

Art-Net is a communication protocol that allows to distribute DMX512 data over Ethernet network. Often, so-called Art-Net nodes then act as Ethernet-to-DMX512 converters and hardware interfaces. MADRIX LUNA is such an Art-Net node, for example.

### Art-Net Remote

Art-Net Remote refers to DMX512 input that is sent and received over Ethernet network.

### CITP

Is another communication protocol for exchanging information, often used between media servers, lighting consoles, and visualizers.

### Colorlight 5A, Colorlight A8, Colorlight T9, Colour Smart Link

Are network-based communication protocols to control compatible LED fixtures and classified as DVI-based output in MADRIX.

### DMX512 [DMX-OUT]

DMX512, often abridged to DMX, is an unidirectional communication protocol used mainly to control stage lighting, which uses 5-pin XLR connectors as defined by the standard. 3-pin connectors are also common, but not defined as standard connectors.

When working with DMX-based products, each fixture needs a specific attribution via its DMX channel and its DMX universe. With the specific DMX channel and DMX universe, the LED product can be identified directly for a correct communication with the fixture.

## DMX-IN

You can send or receive DMX512 data. DMX-IN refers to DMX512 input, which you can receive in MADRIX.

## DMX Channel

A total of 512 DMX channels is available per DMX universe. Each DMX channel is an individual control channel. Valid values range from 0 to 255, with a total of 256 values.

## DMX Universe

A DMX universe contains 512 DMX channels and represents 1 DMX line. To control more than 512 DMX channels, more than 1 DMX universes need to be used. For example, 2 DMX universes represent 1024 DMX channels.

For example, you can control 170 **RGB** fixtures per DMX universe. That means, calculating 170 fixtures x 3 channels results in 510 DMX channels. Therefore, channel 511 and 512 will be left empty.

And if you are using more than 170 fixtures, those DMX channels will be assigned to a new DMX universe [e.g., DMX universe 2].

## DVI

DVI is another way to output a video signal for your LEDs. Certain LED products use this type of communication. MADRIX features 2 DVI outputs, which are 1-to-1 output windows. You can then send the DVI outputs to any graphics card port [such as, VGA, HDMI, DVI, etc.]. Other solutions use screen-capturing to capture such a DVI output window and send them to the LED controller via Ethernet.

## Eurolite T9

Is a network-based communication protocol to control compatible LED fixtures and classified as DVI-based output in MADRIX.

## Fixture

When talking about an LED product, the specific product is often called fixture. When talking about fixtures, often you will automatically get the information about the number of color channels [e.g., RGB] and the number of pixels.

## Input

MADRIX can send data out, but at the same time data can be sent to MADRIX. That means data is sent to the MADRIX PC through various means [mostly USB or network]. MADRIX can then be controlled remotely by you, or you can merge or use incoming signals, etc.

## Insta / ROBE protocols

The manufacturers Insta and ROBE launched several, specific products that were controlled with their own communication protocols. MADRIX natively supports these two communication protocols.

## IP Address

Is an identifier for devices that enables network communication. When using network protocols, it needs to be set up for each individual sender or recipient in the network.

## KiNET

KiNET, the Philips Color Kinetics network protocol, is another communication protocol. It transfers data over Ethernet network as well. Only declared Philips Color Kinetics products work with this type of protocol.

## MAC Address

Is a unique, technical identifier for interfaces in a network.

## MA-Net

Is a proprietary communication protocol from MA Lighting between compatible products in a network.

## MIDI

MIDI is short for Musical Instrument Digital Interface, a well-known technical standard that provides standardized ways for equipment to communicate. In case of MADRIX, MIDI can be used for MIDI Time Code, MIDI notes, or other MIDI hardware, such as DJ/VJ controllers.

## Output

To control your LEDs, MADRIX needs to send data to the LEDs. In this way it communicates with your controllers and/or your LEDs. This is referred to as output. There are different ways on how this process can work [e.g., protocols]. But most importantly, you need to configure which output method MADRIX should use in order to control your LED products.

## Pixel

A pixel refers to one lighting point. When using RGB LEDs, one pixel usually includes 1 [or 2] red LEDs, 1 blue LED, and 1 green LED. 1 control channel is required for each color [3 in total per pixel], but as a total they represent one pixel. LED fixtures often have a certain number of pixels per unit.

## Remote HTTP

Remote HTTP is a way to control MADRIX remotely using standards known from the internet [HTTP - Hypertext Transfer Protocol].

## RGB

The acronym stands for Red, Green, Blue. The 3 colors are the main colors for additive color mixing of LED fixtures. As a result, a vast number of colors can be mixed.

## RGBW

The acronym stands for Red, Green, Blue, White. The 4 colors are also used for additive color mixing of LED fixtures. As a result, a vast number of colors can be mixed.

## Streaming ACN [sACN / E1.31]

Streaming ACN or sACN or E1.31 is another communication protocol that allows DMX512 data to be transmitted over Ethernet. Data is broadcasted by MADRIX to recipients in the network.

### Subnet Mask

Is a technical grouping mechanism for network devices. When using network protocols, it needs to be set up for each sender or recipient in the network for correct data routing.

### Virtual LED Matrix

MADRIX needs to know how your LED installation looks like and which fixtures you want to use. [You can use the Matrix Generator or the Patch for this task.] In the end you will have configured the virtual LED matrix with its total pixel count in X, Y, and Z set up as the Matrix Size as well as the position and location of each pixel or fixture. The virtual LED matrix represents your LED installation in MADRIX.

### Volume Rendering

MADRIX contains an effect generator as well as a graphics render engine that support pixel rendering for 2D effects and volume rendering for 3D effects.

### Voxel

Voxel is short for volumetric pixel. In addition to its pixel mapping features [2D], MADRIX can control 3D LED matrices, which is called voxel mapping. Lighting effects are correctly mapped to each voxel of a 3D LED matrix.

### XLR Pin Layout

XLR connectors are used for DMX512. There are different types.

5-Pin, Female



5-Pin Male



Pin Assignment

- 1 Ground
- 2 Data -
- 3 Data +
- 4 Spare
- 5 Spare

3-Pin, Female



3-Pin, Male



## 1.2 System Requirements

This topic includes:

- [Minimum System Requirements](#)
- [Supported Operating Systems](#)
- [Optimal Computer Specifications](#)
- [Guidelines](#)
- [Using NVIDIA Quadro Graphics Cards](#)

### Minimum System Requirements

- 2.0 GHz dual-core CPU
- OpenGL 2.1 graphics card [NVIDIA recommended]
- 2 GB RAM
- 1 GB free harddisk space
- 1280 x 768 screen resolution
- Network card
- Sound card
- USB 2.0
  
- [Guidelines](#)

### Supported Operating Systems

- Microsoft Windows 7
- Microsoft Windows 8
- Microsoft Windows 8.1
- Microsoft Windows 10
  
- Please keep the system up to date.

- Compatible with 32 bit and 64 bit.



## Optimal Computer Specifications

While MADRIX will run under the minimum system requirements described above, the optimal system specifications will vary greatly depending on your usage. The performance of the MADRIX software on your computer system will depend mainly on these factors:

- Pixel resolution [2D], voxel resolution [3D], and total Matrix Size.
- Type of output [DVI output usually requires more performance. DVI-based MADRIX KEY software licenses often allow to put out a higher number of pixels.]
- MADRIX Effects in use and their individual settings [Different effects in MADRIX require different performance. For example, SCE Fluid, SCE Metaballs, and SCE Plasma are among the effects that require the most performance.]
- Number of Layers in use per Storage Place.
- Number of Storage Places in use [1 or 2] and render mixing via the Crossfader.
- Map Settings [The Matrix Size, and thus the pixel resolution on which effects are rendered, can easily scaled up to twice the size, for example. This will increase the performance requirements of an effect considerably.]
- Previews used in 3D Mode [3D Mode requires considerably more performance of the graphics card than 2D Mode does.]

The more pixels/voxels, Layers, and Storage Places are used, the more computer performance is required. If you aren't sure if your configuration is sufficient, use the MADRIX demo version to test the software prior to purchase.



## Guidelines

### Important Information

- Please always pay attention to the minimum system requirements as well.
- The MADRIX software generally runs on notebooks/laptops as well as desktop computers. Desktop computers are recommended since their available components usually provide more performance and better component cooling.
- The more performance the system provides, the better.
- The recommendations below can usually be found in so-called 'Gaming PCs' or 'Workstations' should you prefer a pre-configured system.
- Necessary input or output devices and accessories, such as computer mouse, keyboard, monitor, or cables are usually necessary, but not listed separately.
- The recommended computer components, as listed below, refer to the two latest product generations. This is especially true for the main processor [CPU] and the graphics card [GPU].
- The recommendations and guidelines are based on the latest information from manufacturers [such as Intel]. Changes of information and data are possible at any time.
- Please pay special attention to the details of product names and product descriptions! Often, unobtrusive abbreviations [such as single letters] can make a huge difference towards the provided performance of a product [such as desktop edition or mobile edition].
- The base frequency of the CPU is very important. As an example, a CPU with fewer cores and a higher base frequency might then outperform a CPU with more cores and a much lower base frequency per core.
- Based on our experience regarding stability and performance, Windows 7 would be our general recommendation for the operating system. BUT:  
According to Microsoft, the latest CPU generations [such as Intel's 6th generation processors called Skylake] are only fully supported by Windows 10. As such, Windows 10 may be preferable.
- Using external media [such as video files in HD or Full-HD resolution and using them in a high number] will use a lot of RAM.

- **Solid-state drives [SSD] allow you to quickly load files, especially video files, by providing very high read speeds.**
- **Network-based communication protocols do require a network card.**  
**You may share data load/network traffic across several network cards [in case of Art-Net, for example].**
- **When using DVI output, you might require a graphics card with at least 2 monitor outputs to**
  - A] drive the monitor,
  - B] connect to the LED controller/video processor,
  - C] connect possibly even more devices.
- **When using an NVIDIA Quadro graphics card, it is necessary to change the driver settings for optimal performance. Learn more [Using NVIDIA Quadro Graphics Cards](#)**
- **When using 2D fixtures with a high pixel resolution as well as 3D fixtures in one, single Patch, the system requirements can extremely increase. Please contact inoage/MADRIX for more information!**
- **It is possible to use several MADRIX KEYS in order to increase the number of available DMX universes to more than 256 DMX universes. Please contact inoage/MADRIX for more information!**
- **Make sure to check** »[PC Power Management](#)
- **Make sure to follow** »[Tips \[Microsoft Windows / Networks / USB\]](#)
- **We cannot provide a guaranty that your requirements are met by the recommendations given below as they can drastically vary depending on each individual scenario.**
- **Error and omissions excepted.**

## General Guidelines

- The following guidelines and examples can help assess the required computer performance of your project.
- To evaluate the required performance for your needs, it is recommended to test the software beforehand.

Minimum Requirements	Example 1	Example 2	Example 3
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<ul style="list-style-type: none"> <li>▪ 2.0 GHz dual-core CPU</li> <li>▪ OpenGL 2.1 graphics card [NVIDIA recommended]</li> <li>▪ 2 GB RAM</li> <li>▪ 1 GB free harddisk space</li> <li>▪ 1280 x 768 screen resolution</li> <li>▪ Sound card</li> <li>▪ USB 2.0</li> </ul>	<ul style="list-style-type: none"> <li>▪ 3.0 GHz dual-core CPU [e.g., desktop-class Intel Core i3]</li> <li>▪ OpenGL 2.1 graphics card [NVIDIA recommended]</li> <li>▪ 4 GB RAM</li> <li>▪ 1 GB free harddisk space or higher</li> <li>▪ 1280 x 768 screen resolution</li> <li>▪ Network card</li> <li>▪ Sound card</li> <li>▪ USB 2.0</li> </ul>	<ul style="list-style-type: none"> <li>▪ 3.0 GHz quad-core CPU [e.g., desktop-class Intel Core i5]</li> <li>▪ OpenGL 2.1, dedicated, mid-performance graphics card [dedicated NVIDIA GPU recommended] [an integrated/shared graphics processing unit is not recommended]</li> <li>▪ 8 GB RAM</li> <li>▪ 1 GB free harddisk space or higher</li> <li>▪ 1280 x 768 screen resolution or higher</li> <li>▪ Network card</li> <li>▪ Sound card</li> <li>▪ USB 2.0</li> </ul>	<ul style="list-style-type: none"> <li>▪ 4.0 GHz quad-core CPU with Hyper-Threading [e.g., desktop-class Intel Core i7]</li> <li>▪ OpenGL 2.1, dedicated, high-performance, gaming graphics card [dedicated NVIDIA GPU recommended] [an integrated/shared graphics processing unit is not recommended]</li> <li>▪ 8 - 16 GB RAM</li> <li>▪ SSD with 1 GB free harddisk space or higher</li> <li>▪ 1280 x 768 screen resolution</li> <li>▪ Network card</li> <li>▪ Sound card</li> <li>▪ USB 2.0</li> </ul>
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<ul style="list-style-type: none"> <li>▪ Allows you to use SCE, S2L, and M2L Effects</li> <li>▪ Allows you to use only a few Layers per side</li> <li>▪ Can sufficiently run 16 DMX universes [MADRIX KEY basic]</li> <li>▪ Can run low DVI resolutions [e.g., 75 x 75]</li> <li>▪ Can only run very low 3D resolutions, incl. Previews in 3D Mode [e.g., 5 x 5 x 5]</li> </ul>	<ul style="list-style-type: none"> <li>▪ In addition:</li> <li>▪ Allows you to use network-based protocols [due to the network card]</li> <li>▪ Allows you to use several Layers [depending on the MADRIX Effects, Map Settings, etc.]</li> <li>▪ Can run 64 DMX universes [MADRIX KEY professional]</li> <li>▪ Can run medium DVI resolutions [e.g., 200 x 200]</li> <li>▪ Can run low 3D resolutions, incl. Previews in 3D [e.g., 10 x 10 x 10]</li> </ul>	<ul style="list-style-type: none"> <li>▪ In addition:</li> <li>▪ Allows you to run up to 256 DMX universes [MADRIX KEY ultimate]</li> <li>▪ Allows you to use multiple Layers [depending on the MADRIX Effects, Map Settings, etc.]</li> <li>▪ Can run higher DVI resolutions [e.g., 350 x 300]</li> <li>▪ Can run medium 3D resolutions, incl. Previews in 3D Mode [e.g., 30 x 30 x 30]</li> </ul>	<ul style="list-style-type: none"> <li>▪ In addition:</li> <li>▪ Allows you to quickly load video files thanks to the SSD</li> <li>▪ Allows you to run up to 256 DMX universes or higher [MADRIX KEY ultimate]</li> <li>▪ Allows you to use multiple Layers [depending on the MADRIX Effects, Map Settings, etc.]</li> <li>▪ Can run high DVI resolutions [e.g., 640 x 480 or higher]</li> <li>▪ Can run higher 3D resolutions, incl. Previews in 3D Mode [e.g., 50 x 50 x 50]</li> </ul>
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### System Recommendations Based On MADRIX Products

- The following recommendations are based on MADRIX products and may provide further guidelines regarding the computer specifications according to your requirements.
- For more information on available products and software licenses, please see »[MADRIX KEY \[Software License\]](#)
- Last update: October 2016

License / MADRIX Product		MADRIX KEY start / MADRIX NEO	MADRIX KEY dvi start
	<i>Output Based On</i>	<ul style="list-style-type: none"> <li>▪ DMX</li> </ul>	<ul style="list-style-type: none"> <li>▪ DVI</li> </ul>
	<i>DMX Channels / DMX Universes</i>	<ul style="list-style-type: none"> <li>▪ 512 / 1</li> </ul>	-
	<i>DVI Pixels</i>	-	<ul style="list-style-type: none"> <li>▪ 512</li> </ul>
<b>Recommendations</b>			
	<i>Processor [CPU]</i>	<ul style="list-style-type: none"> <li>▪ At least Intel Core i3 - Desktop model</li> </ul>	<ul style="list-style-type: none"> <li>▪ At least Intel Core i3 - Desktop model</li> </ul>

	<i>Graphics Card [GPU]</i>	<ul style="list-style-type: none"> <li>OpenGL 2.1 graphics card</li> </ul>	<ul style="list-style-type: none"> <li>OpenGL 2.1 graphics card</li> </ul>
	<i>Main Memory [RAM]</i>	<ul style="list-style-type: none"> <li>At least 2 GB RAM</li> </ul>	<ul style="list-style-type: none"> <li>At least 2 GB RAM</li> </ul>
<b>Notes</b>			
		-	-

License / MADRIX Product		MADRIX KEY entry / MADRIX PLEXUS	MADRIX KEY dvi entry
	<i>Output Based On</i>	<ul style="list-style-type: none"> <li>DMX</li> </ul>	<ul style="list-style-type: none"> <li>DVI</li> </ul>
	<i>DMX Channels / DMX Universes</i>	<ul style="list-style-type: none"> <li>2048 / 4</li> </ul>	-
	<i>DVI Pixels</i>	-	<ul style="list-style-type: none"> <li>4096</li> </ul>
<b>Recommendations</b>			
	<i>Processor [CPU]</i>	<ul style="list-style-type: none"> <li>At least Intel Core i3 - Desktop model</li> </ul>	<ul style="list-style-type: none"> <li>At least Intel Core i3 - Desktop model</li> </ul>
	<i>Graphics Card [GPU]</i>	<ul style="list-style-type: none"> <li>OpenGL 2.1 graphics card</li> </ul>	<ul style="list-style-type: none"> <li>OpenGL 2.1 graphics card</li> </ul>
	<i>Main Memory [RAM]</i>	<ul style="list-style-type: none"> <li>At least 2 GB RAM</li> </ul>	<ul style="list-style-type: none"> <li>At least 2 GB RAM</li> </ul>
<b>Notes</b>			
		-	-

License / MADRIX Product		MADRIX KEY basic	MADRIX KEY dvi
	<i>Output Based On</i>	<ul style="list-style-type: none"> <li>DMX</li> </ul>	<ul style="list-style-type: none"> <li>DVI</li> </ul>
	<i>DMX Channels / DMX Universes</i>	<ul style="list-style-type: none"> <li>8192 / 16</li> </ul>	-
	<i>DVI Pixels</i>	-	<ul style="list-style-type: none"> <li>307200</li> </ul>
<b>Recommendations</b>			
	<i>Processor [CPU]</i>	<ul style="list-style-type: none"> <li>At least Intel Core i5 - Desktop model</li> <li>With 2 cores [with Hyper-Threading to 4 threads]</li> <li>Each core should have at least a base frequency of 3.2 GHz</li> </ul>	<ul style="list-style-type: none"> <li>At least Intel Core i7 - Desktop model</li> <li>With 6 cores [with Hyper-Threading to 12 threads]</li> <li>Each core should have at least a base frequency of 3.6 GHz [with a max. turbo frequency of 3.9 GHz]</li> </ul>

	<i>Graphics Card [GPU]</i>	<ul style="list-style-type: none"> <li>▪ OpenGL 2.1 graphics card</li> <li>- Dedicated [not integrated or shared]</li> <li>- NVIDIA GeForce GTX series recommended</li> </ul>	<ul style="list-style-type: none"> <li>▪ OpenGL 2.1 graphics card</li> <li>- Dedicated [not integrated or shared]</li> <li>- NVIDIA GeForce GTX 900 series recommended [GTX 960 and higher]</li> </ul>
	<i>Main Memory [RAM]</i>	<ul style="list-style-type: none"> <li>▪ At least 4 GB RAM</li> </ul>	<ul style="list-style-type: none"> <li>▪ At least 8 GB RAM</li> </ul>
<b>Notes</b>			
		-	- Depending especially on the used MADRIX Effects and the number of Layers per Storage Place, the system requirements may be higher.

<b>License / MADRIX Product</b>		<b>MADRIX KEY professional</b>	<b>MADRIX KEY professional</b>
	<i>Output Based On</i>	<ul style="list-style-type: none"> <li>▪ DMX</li> </ul>	<ul style="list-style-type: none"> <li>▪ DVI</li> </ul>
	<i>DMX Channels / DMX Universes</i>	<ul style="list-style-type: none"> <li>▪ 32768 / 64</li> </ul>	-
	<i>DVI Pixels</i>	-	<ul style="list-style-type: none"> <li>▪ 786432</li> </ul>
<b>Recommendations</b>			
	<i>Processor [CPU]</i>	<ul style="list-style-type: none"> <li>▪ At least Intel Core i7</li> <li>- Desktop model</li> <li>- With 4 cores [with Hyper Threading to 8 threads]</li> <li>- Each core should have at least a base frequency of 3.6 GHz [with a max. turbo frequency of 3.8 GHz]</li> </ul>	<ul style="list-style-type: none"> <li>▪ PC system including several physical CPUs</li> <li>- For example: Multiple Intel Xeon E5-2643 V4</li> </ul>
	<i>Graphics Card [GPU]</i>	<ul style="list-style-type: none"> <li>▪ OpenGL 2.1 graphics card</li> <li>- Dedicated [not integrated or shared]</li> <li>- NVIDIA GeForce GTX 900 series recommended [GTX 960 and higher]</li> </ul>	<ul style="list-style-type: none"> <li>▪ OpenGL 2.1 graphics card</li> <li>- Dedicated [not integrated or shared]</li> <li>- NVIDIA GeForce GTX 980 or NVIDIA GeForce GTX 1080 recommended</li> </ul>
	<i>Main Memory [RAM]</i>	<ul style="list-style-type: none"> <li>▪ At least 8 GB RAM</li> </ul>	<ul style="list-style-type: none"> <li>▪ At least 16 GB RAM</li> <li>- Fast RAM [with a high frequency combined with low CL timings] is recommended</li> </ul>
<b>Notes</b>			

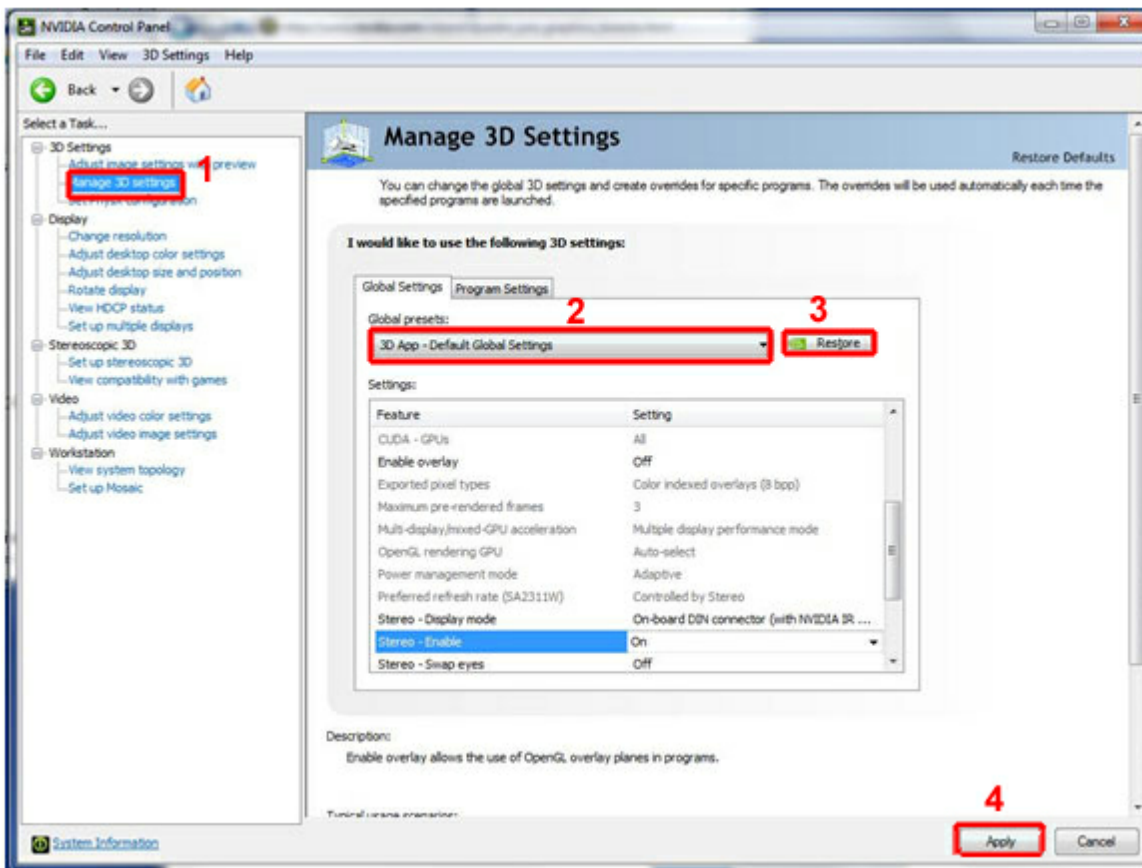
		- Depending mainly on the size of the Patch and the number of Layers per Storage Place, the required CPU performance may be higher. The more offset/space is set between fixtures, the higher the Matrix Size and the more system performance is required.	- Depending especially on the used MADRIX Effects and the number of Layers per Storage Place, the system requirements may be higher or you might need to lower the frequency [FPS] of the DVI output [Previews/ External Previews].
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License / MADRIX Product		MADRIX KEY ultimate	MADRIX KEY ultimate
	<i>Output Based On</i>	<ul style="list-style-type: none"> <li>DMX</li> </ul>	<ul style="list-style-type: none"> <li>DVI</li> </ul>
	<i>DMX Channels / DMX Universes</i>	<ul style="list-style-type: none"> <li>131072 / 256</li> </ul>	-
	<i>DVI Pixels</i>	-	<ul style="list-style-type: none"> <li>1310720</li> </ul>
<b>Recommendations</b>			
	<i>Processor [CPU]</i>	<ul style="list-style-type: none"> <li>At least Intel Core i7                             <ul style="list-style-type: none"> <li>- Desktop model</li> <li>- With 6 cores [with Hyper Threading to 12 threads]</li> <li>- Each core should have at least a base frequency of 3.6 GHz [with a max. turbo frequency of 3.9 GHz]</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>PC system including several physical CPUs                             <ul style="list-style-type: none"> <li>- For example: Multiple Intel Xeon E5-2643 V4</li> </ul> </li> </ul>
	<i>Graphics Card [GPU]</i>	<ul style="list-style-type: none"> <li>OpenGL 2.1 graphics card                             <ul style="list-style-type: none"> <li>- Dedicated [not integrated or shared]</li> <li>- NVIDIA GeForce GTX 980 or NVIDIA GeForce GTX 1080 recommended</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>OpenGL 2.1 graphics card                             <ul style="list-style-type: none"> <li>- Dedicated [not integrated or shared]</li> <li>- NVIDIA GeForce GTX 980 or NVIDIA GeForce GTX 1080 recommended</li> </ul> </li> </ul>
	<i>Main Memory [RAM]</i>	<ul style="list-style-type: none"> <li>At least 16 GB RAM                             <ul style="list-style-type: none"> <li>- Fast RAM [with a high frequency combined with low CL timings] is recommended</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>At least 16 GB RAM                             <ul style="list-style-type: none"> <li>- Fast RAM [with a high frequency combined with low CL timings] is recommended</li> </ul> </li> </ul>
<b>Notes</b>			
		- Depending mainly on the size of the Patch and the number of Layers per Storage Place, the required CPU performance may be higher. The more offset/space is set between fixtures, the higher the Matrix Size and the more system performance is required.	- Depending especially on the used MADRIX Effects and the number of Layers per Storage Place, the system requirements may be higher or you might need to lower the frequency [FPS] of the DVI output [Previews/ External Previews].

## Using NVIDIA Quadro Graphics Cards

When using an NVIDIA Quadro graphics card, please set up the following settings:

- **Windows Start > Control Panel > NVIDIA Control Panel > 3D Settings > Manage 3D settings > Global Settings > Global presets:** > Choose **Workstation App - Dynamic Streaming** > Click **Restore** > Click **Apply**



MADRIX will show a message to you on the first start should you not have activated the preset yet.

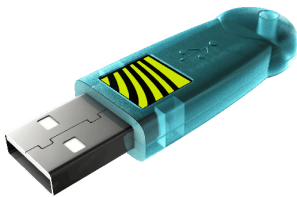


## 1.3 MADRIX KEY [Software License]

This topic includes:

- [Overview](#)
- [Software License For MADRIX NEO And MADRIX PLEXUS](#)
- [Demo Version](#)
- [Important Information](#)
- [Interruption-Free Operation](#)
- [Which MADRIX Product Do I Own?](#)
- [Updates And Upgrades](#)
- [How To Update Your MADRIX KEY](#)

### Overview



The MADRIX KEY is a USB dongle.

This USB key needs to be connected to your computer. It then activates the full license of the software. You will receive your personal MADRIX KEY, when purchasing the software product.

The MADRIX KEY is available as:

- MADRIX KEY start
- MADRIX KEY dvi start
- MADRIX KEY entry
- MADRIX KEY dvi entry
- MADRIX KEY basic
- MADRIX KEY dvi
- MADRIX KEY professional

- MADRIX KEY ultimate

The MADRIX KEY is used for software protection. Thank you for your understanding!

## **Software License For MADRIX NEO And MADRIX PLEXUS**

Both interfaces, MADRIX NEO and MADRIX PLEXUS, automatically activate their software license when connected to a computer that runs the MADRIX software. The software protection mechanism is already included in the interfaces. MADRIX may need a couple of minutes before the license is fully recognized by the software.

**The MADRIX KEY is not necessary for the MADRIX NEO or MADRIX PLEXUS.**

## **Demo Version**

MADRIX offers a demo mode. As such, you can download MADRIX for free at »[www.madrix.com](http://www.madrix.com)

What are the features of the Demo Mode?

- You can test MADRIX for free.
- The software is fully functional.
- Data output is available for 256 DMX universes and 1,310,720 DVI pixels by default.
- You can test your devices [DMX512, Art-Net, KINET, Insta/ROBE, Streaming ACN, DVI, T9, MIDI, etc.].
- Demo Mode is useful for computer and other hardware performance tests.
- Files and settings of demo mode are fully compatible with the full version [it is the same software].
- MADRIX runs in Demo Mode if you do not connect a MADRIX KEY, MADRIX NEO, or MADRIX PLEXUS to your computer.

What are the limitations of the Demo Mode?

- All 3 live Previews will display "! NO MADRIX KEY !"
- Data output will stop after each minute for a short period.
- The middle Preview goes black each minute for a short period.
- DVI, T9 output has a color-changing, rotating cross on top and goes black each minute for a short period.
- Data output fully stops after 1 hour. MADRIX needs to be restarted.
- The middle Preview goes permanently black after 1 hour. MADRIX needs to be restarted.

## Important Information

- **The MADRIX KEY is the most important item when you buy MADRIX. Do not lose it!**
- **Several MADRIX KEYs can be combined and used with one, single computer. The product features will add up and their combined possibilities will be available to you. Often, this means that the available DMX output increases. For example, MADRIX NEO and MADRIX KEY start used together would offer 2x DMX-based output.**
- **A MADRIX KEY is not bound to one computer and can be used with each of your computers individually.**
- **Please always connect the MADRIX KEY before you start the software. If you connect the MADRIX KEY during runtime, please restart MADRIX.**
- **Please do not connect the MADRIX KEY to your computer before installing the MADRIX software.**

## Interruption-Free Operation

To ensure interruption-free operation of the software and devices, please make sure to check the power saving settings of Windows. Learn more »[PC Power Management](#)

## Which MADRIX Product Do I Own?

- Go to **Help > About...**

A new window will open. You can check your MADRIX version and product serial numbers.

**If you see the message *Blocked* in this window, please restart MADRIX. You need to connect the MADRIX KEY before you start the software.**



## Updates And Upgrades

The MADRIX KEY is available in several license versions:

- MADRIX KEY start
- MADRIX KEY dvi start
- MADRIX KEY entry
- MADRIX KEY dvi entry

- MADRIX KEY basic
- MADRIX KEY dvi
- MADRIX KEY professional
- MADRIX KEY ultimate

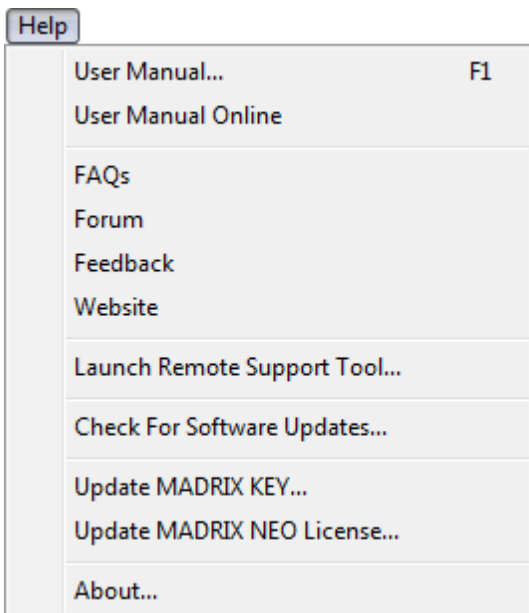
All MADRIX KEYS [except for MADRIX KEY ultimate] may be upgraded at any time. The MADRIX KEY simply needs to be updated. This can be done on your computer. Upgrades are possible at any time.

Please contact your MADRIX dealer/supplier if you would like to purchase an upgrade for your MADRIX software product. Also, follow the steps below.

## How To Update Your MADRIX KEY

You can update or upgrade your MADRIX KEY using the MADRIX software.

- 1]** Connect exactly one MADRIX KEY to your computer!
- 2]** Start MADRIX 3.
- 3]** Go to **Help > Update MADRIX KEY...**



And a new window will open.



- 3]** Click **Create RTC File**. This file needs to be sent in by e-mail to your supplier/dealer. Use **View Dir** to directly open the directory where you just saved the file.
- 4]** You will receive a new RTU file from your supplier. Save it onto the harddisk of your computer.
- 5]** Go again to **Help > Update MADRIX KEY...** Now, click **Update MADRIX KEY**
- 6]** Select the RTU file on your harddisk and click **OK**
- 7]** Restart MADRIX.
- 8]** Double-check if the update or upgrade was successful under **Help > About...**

## 1.4 Update From MADRIX 2.X To MADRIX 3.X

This topic includes:

- [Introduction](#)
- [MADRIX License Version](#)
- [MADRIX KEY License Update](#)
- [MADRIX NEO License Update](#)
- [MADRIX PLEXUS License Update](#)
- [How To Convert MADRIX 2 Setup Files Into MADRIX 3 Setup Files](#)
- [How To Convert MADRIX 2 Fixture Library Files Into MADRIX 3 Fixture Library Files](#)

### Introduction

MADRIX 3.6e is a version of the MADRIX 3.X software range. Before that, the MADRIX 2.X software range was available for several years. Users may choose to update their software license from MADRIX 2.X to MADRIX 3.X. As such, this topic summarizes key points to remember when updating.

### MADRIX License Version

You can check which MADRIX license version your product supports.

- Start MADRIX 3.
- Go to **Help > About...**

- A new window will open.



- **Serial Number** - Shows the serial number of your product.
- **DMX** - Shows how many DMX universes your license supports.
- **DVI** - Shows if your license supports DVI output.
- **Version** - Shows which MADRIX KEY license version or MADRIX product you own.
- **MADRIX** - Shows the supported MADRIX series of the license.
  - 2.X** - Means that your product is only valid for the MADRIX 2.X software range.
  - 3.X** - Means that your product is valid for the MADRIX 3.X software range.

## MADRIX KEY License Update

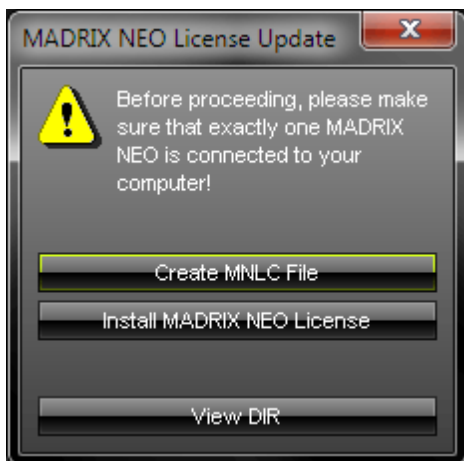
- Check if your MADRIX KEY is already valid for MADRIX 3.X as described above.
- If you do not own a valid MADRIX 3.X license, you can purchase a license update. For more information, please contact your local dealer.



- Users who bought a MADRIX KEY on 21.03.2012 or any later date are entitled to a free update. For more information, please contact your local dealer.
- The update process is possible by e-mail.
- For the update process, you will have to send in an update file.  
Learn more »[MADRIX KEY \[Software License\]](#)

## MADRIX NEO License Update

- Check if your MADRIX NEO is already valid for MADRIX 3.X as described above.
- If you do not own a valid MADRIX 3.X license, you can purchase a license update. For more information, please contact your local dealer.
- Also, follow these steps:
  - 1]** Connect your MADRIX NEO to your computer.
  - 2]** Start MADRIX 3.
  - 3]** Go to **Help > Update MADRIX NEO License...**
  - 4]** A new window will open.



- 5] Click **Create MNL File**. Enter a name for the file and press **Save**.
- 6] Please send this file to your supplier/dealer. Use **View Dir** to directly open the directory where you just saved the file.

When receiving a new file from your dealer, follow the next steps to install the license:

- 7] Save the file on your computer [of the file type \*.mnl].
- 8] Start MADRIX as Administrator.
  - In order to save files as a user that is logged-in into Windows, you need to have the permissions set by Windows to do so.
  - When you do not have the right permissions, saving files can lead to errors.
  - To circumvent such issues, you can run the MADRIX software as administrative computer user, the so-called administrator.
  - Perform a **right mouse click** on the **MADRIX.exe** [or a shortcut to the MADRIX software] and choose **Run as administrator**
  - **Note:** You need to have access to the administrator account (i.e., password).
- 9] Go to **Help > Update MADRIX NEO License...**
- 10] Click **Install MADRIX NEO License**. Choose the file on your computer [of the file type \*.mnl].
- 11] MADRIX automatically installs the valid license on your harddisk into the MADRIX installation directory.
- 12] Restart MADRIX.

**If you want to uninstall or reinstall MADRIX or use the MADRIX NEO on a different computer, you will have to install the MADRIX NEO License again [Steps 7 to 11].**

## MADRIX PLEXUS License Update

- Every MADRIX PLEXUS that runs firmware 1.04.3578 or higher will automatically work with MADRIX 3.X.
- You only need to use the latest MADRIX PLEXUS firmware. No further action is required.
- Learn how to update the MADRIX PLEXUS firmware in the **MADRIX PLEXUS User Manual**

## How To Convert MADRIX 2 Setup Files Into MADRIX 3 Setup Files

MADRIX 3 uses its own file types. Please follow these steps to convert your MADRIX 2 Setup file into a MADRIX 3 Setup file:

- Install MADRIX 2.14i [or higher].
- Start MADRIX 2 and load your current Setup [of the file type \*.ms2].  
[Go to **File > Open Setup...**]
- Go to **File > Export > Export for MADRX3... > Setup...**
- A new window opens. Simply enter a name for the file and click **Save**
- Start MADRIX 3 and load your newly created MADRIX 3 Setup file [of the file type \*.msz].  
[Go to **File > Open Setup...**]

## How To Convert MADRIX 2 Fixture Library Files Into MADRIX 3 Fixture Library Files

MADRIX 3 uses its own file types. Please follow these steps to convert your MADRIX 2 Fixture Library file into a MADRIX 3 Fixture Library file:

- Install MADRIX 2.14i [or higher].
- Start the MADRIX 2 Fixture Editor and load your currently used Fixture Library [of the file type \*.mfl].  
[Go to **File > Open Library...**]
- Go to **File > Export Library for MADRX3...**
- A new window opens. Simply enter a name for the file and click **Save**
- Start the MADRIX 3 Fixture Editor and load your newly created MADRIX 3 Fixture Library [of the file type \*.mflx].  
[Go to **File > Open Library...**]

## 1.5 Supported Fixtures [LED Products]

This topic includes:

- [Overview](#)
- [Communication With LED Products](#)
- [MADRIX Fixture Library](#)
- [MADRIX Fixture Editor](#)
- [Additional Support](#)

### Overview

The MADRIX software already includes a very large selection of configuration for various lighting fixtures. This includes 1 channel fixtures, RGB and RGBW fixtures, LED Tubes, LED sticks, LED panels, and curtains to name a few. All fixture profiles are stored in the so-called MADRIX Fixture Library. The software has access to this library and thus knows all included fixture configurations. Learn more about the MADRIX Fixture Library below.

### Communication With LED Products

- Depending on your LED product, communication with your LEDs is done through interfaces, controllers, drivers, or directly with the fixture.
- MADRIX supports various industry-wide communication standards to send data to your LEDs.
- These standards include DMX512, DVI, Art-Net, Streaming ACN [E1.31], the Philips Color Kinetics [KiNET] and Insta/ROBE protocols, Eurolite T9, ColourSmart Link, and Colorlight 5A.
- Learn more »[OUTPUT Settings](#)

### MADRIX Fixture Library

The MADRIX Fixture Library is a file that includes all current fixture profiles. The library will be updated with every new MADRIX version as well.

The library includes profiles for products by #G-LEC, Acclaim Lighting, Acme, Alkalite, American DJ, Blizzard Lighting, Botex, BriTeQ, CHAUVET, Chroma-Q, Chromlech, Clay Paky, CLS, Coemar, Color Kinetics, Creative Consultants, Designgroup, Ehrgeiz, Elation Professional, EUROLITE, EXPOLITE, Extra Dimensional Technologies, Futurelight, GLP, Highlite, Ilumenite, img Stage Line, INSTA, LEDWalker, Lightmaster, Litecraft, Magic Led, magiclights Eventtechnology, Martin Professional, Mega Lite, Neo-Neon, Nova Vision NY, PixelRange, QuadLED, ROBE, Room Division, Schnick Schnack, Showtec, Stairville, Teko, TRAXON, Varytec, Yifeng Light, and many more!

You can create your virtual LED matrix in MADRIX using fixtures with the help of the »[Matrix Generator](#) or »[Patch Editor](#). If you do not find your fixture in the library, you can create your own fixtures. Learn more about the MADRIX Fixture Editor below.

## **MADRIX Fixture Editor**

The MADRIX Fixture Editor is a separate application that will be automatically installed together with MADRIX. You can simply configure your own fixture profiles using this handy tool. In this way MADRIX ensures the support of [nearly] all available fixtures on the market. Learn more »[MADRIX Fixture Editor](#)

## **Additional Support**

We constantly want to make sure that we support all available products on the market. And we want to support your fixtures. If you have a lighting fixture that is currently not supported by MADRIX or if you need help with your fixture, please contact us! »[Imprint And Copyright](#)

## 1.6 Supported DMX512 And Art-Net Interfaces

This topic includes:

- [Supported DMX512 Interfaces](#)
- [How To Test DMX512 Interfaces](#)
- [Supported Art-Net Interfaces](#)
- [How To Test Art-Net Interfaces](#)

### Supported DMX512 Interfaces

This list may not be complete and support may vary depending on the product.

#### MADRIX

- **MADRIX USBone** - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN
- **MADRIX NEO** - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN
- **MADRIX PLEXUS** - USB 2.0 interface, 1024x DMX-OUT, or 1024x DMX-IN, or 512x DMX-IN and 512x DMX-OUT, live or stand-alone
- **MADRIX LUNA 4** - USB 2.0 interfaces, 2048x DMX-OUT, 512x DMX-IN
- **MADRIX LUNA 8** - USB 2.0 interfaces, 4096x DMX-OUT, 512x DMX-IN
- **MADRIX LUNA 16** - USB 2.0 interfaces, 8192x DMX-OUT, 512x DMX-IN
- **MADRIX NEBULA** - USB 2.0 interfaces, 4096x OUT
- **MADRIX STELLA** - USB 2.0 interface, 1024x DMX-OUT, or 1024x DMX-IN, or 512x DMX-IN and 512x DMX-OUT

#### Daslight

- **DVC2 512** - USB 2.0 interface, 512x DMX-OUT and 512x DMX-IN
- **DVC2 ECO 512** - USB 2.0 interface, 512x DMX-OUT and 512x DMX-IN
- **DVC2 Gold** - USB 2.0 interface, 1024x DMX-OUT
- **DVS 3D** - USB 2.0 interface, 512x DMX-IN

## e:cue

- **butler** - Ethernet-to-DMX gateway, 2x 512x DMX-OUT [via e:net]

## Elation Professional

- **Compu 1024EC** - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN [via DasHard2006]
- **Compu 2048FC** - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN [via DasHard2006]
- **Compu 2048FC+** - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN [via DasHard2006]

## FTDI

- FTDI drivers can be used for devices that are commonly using a chip by FTDI [Future Technology Devices International Limited].
- **Support and functionality may vary depending on the product and cannot be guaranteed.**
- **In general, input is not supported [DMX-IN]. Only output is available in MADRIX [DMX-OUT].**
- **The driver could be used for the following devices [list may not be complete]:**
  - **DMXking ultraDMX RDM Pro** - USB 2.0 interface, 512x DMX-OUT
  - **DMXking ultraDMX Pro** - USB 2.0 interface, 512x DMX-OUT
  - **ENTTEC Open DMX USB Interface** - USB 2.0 interface, 512x DMX-OUT
  - **ENTTEC DMX USB Pro** - USB 2.0 interface, 512x DMX-OUT
  - **EUROLITE USB-DMX512 Interface** - USB 2.0 interface, 512x DMX-OUT
  - **STRATUS LIGHT Interface converter USB-DMX 512 / Light Open DMX** - USB 2.0 interface, 512x DMX-OUT

- **USBDMX.com Interface** - USB 2.0 interface, 512x DMX-OUT

[Requires: FTDI driver version 1.6 or higher; FTDI drivers included in MADRIX are recommended; the original USBDMX.com driver is not recommended]

## Nicolaudie - Sunlite

- **SLESA** - USB interface, 512x DMX-OUT
- **SLESA-IP1** - Ethernet interface, 512x DMX-OUT [via Art-Net mode]
- **SLMEV** - USB interface, 512x DMX-IN

## peperoni-light

- **Rodin1** - USB 2.0 interface, 512x DMX-IN or 512x DMX-OUT
- **Rodin2** - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN
- **RodinT** - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN

## Soundlight

- **SLESA-IP** - Ethernet interface, 512x DMX-OUT [via Art-Net mode]
- **USBDMX-ONE** - USB 2.0 interface, 512x DMX-IN or 512x DMX-OUT
- **USBDMX-TWO** - USB 2.0 interface, 1024x DMX-OUT, or 1024x DMX-IN, or 512x DMX-IN and 512x DMX-OUT

## How To Test DMX512 Interfaces

Please follow these steps to see if your interface works correctly with MADRIX:

- 1]** Connect the interface you want to test with your computer.



- 2] Make sure that Windows recognizes the interface and that all necessary drivers have been installed correctly.
- 3] Start MADRIX.
- 4] In MADRIX, activate the correct drivers for your interface. Learn more »[Devices USB](#)
- 5] Check if the interface is recognized by MADRIX and assign the correct output settings for your device. Learn more »[DMX512 \[DMX-OUT\]](#)

## Supported Art-Net Interfaces

### MADRIX

- MADRIX PLEXUS
- MADRIX LUNA 4
- MADRIX LUNA 8
- MADRIX LUNA 16
- MADRIX NEBULA
- MADRIX STELLA

### Third Parties

All interfaces that are fully compatible with Art-Net [Art-Net I, Art-Net II, Art-Net III] will work with MADRIX. Support is defined by compatibility with Art-Net and not limited to specific brands.

## How To Test Art-Net Interfaces

Please follow these steps to see if your interface works correctly with MADRIX:

- 1] Set up the correct network settings in Windows.

2] Connect the interface you want to test with your computer via network.

3] Start MADRIX.

4] Activate Art-Net in MADRIX and add your devices.

Learn more »[Art-Net \[DMX Over Ethernet\]](#)

## 1.7 Web Links

This topic includes:

- [Overview](#)

### Overview

You can find a selection of useful internet links here:

- MADRIX Website  
»[www.madrix.com](http://www.madrix.com)
- Windows Drivers  
»<http://www.madrix.com/en/home/download/madrix-software.html#Drivers>
- FAQ [Frequently Asked Questions]  
»<http://www.madrix.com/en/home/support/faq.html>
- User Guides [Online And Downloadable PDF]  
»[help.madrix.com](http://help.madrix.com)
- Hardware Quick Start Guides / Technical Manuals [Downloadable PDF]  
»[help.madrix.com](http://help.madrix.com)
- Online Forum  
»<http://www.madrix.com/en/home/forum.html>
- Software Release Notes  
»<http://www.madrix.com/en/home/products/madrix/release-notes.html>
- Tutorials  
»<http://help.madrix.com/tutorials/html/index.html>

## //PART B

*Getting Started*

## 2 Getting Started

This topic includes:

- [Introduction](#)
- [Topics Of This Chapter](#)

### Introduction

Learn in this chapter how to

- install MADRIX.
- get started quickly.
- configure audio input.
- create a stable operation environment.

### Topics Of This Chapter

- »[Installation Process](#)
- »[Language Settings](#)
- »[5-Step Quick Start](#)
- »[Audio Configuration And ASIO](#)
- »[PC Power Management](#)
- »[Tips \[Microsoft Windows / Networks / USB\]](#)
- »[Using The Mouse](#)
- »[Keyboard Shortcuts \[Hotkeys\]](#)
- »[Examples](#)
- »[2D Or 3D \[X, Y, Z\]](#)

## 2.1 Installation Process

This topic includes:

- [Important Notes](#)
- [Using A MADRIX CD-ROM](#)
- [Downloading The Software Online](#)
- [Setup Process](#)
- [Using A MADRIX KEY Instead Of MADRIX NEO Or MADRIX PLEXUS](#)
- [Software Update](#)

## Important Information

- **Please note regarding Purchased Products, Demo Version, Updates:**
  - The MADRIX software can be downloaded from »[www.madrix.com](http://www.madrix.com). Regular updates of the software are also available online. Our demo version of the software is fully functional and includes the software with every single feature, but it restricts output. The full version will be activated once you connect the USB software protection dongle to your computer or use a MADRIX hardware product with integrated software license. Learn more » [MADRIX KEY \[Software License\]](#)
- **It is highly recommended to always use the latest software update.**

## Using A MADRIX CD-ROM

When using a MADRIX CD-ROM for the installation process, please insert the CD into the CD-ROM drive of your operational computer. The MADRIX setup will start automatically using an Auto Installer. Please wait until the setup has fully loaded. Then, proceed with the [Setup Process](#) as described below. When the Auto Installer does not launch, please navigate to the CD in Windows and manually start the setup process by performing a double-click on **MADRIX\_Install.exe**

## Downloading The Software Online

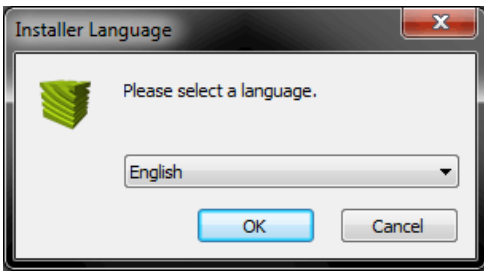
- Download MADRIX\_Full\_Install.exe from »[www.madrix.com](http://www.madrix.com)
- After downloading the MADRIX\_Full\_Install.exe, please double-click with your mouse on this file in order to start the setup process.
- Please wait while the Auto Installer is loading the setup.
- Afterwards, proceed with the [Setup Process](#) as described below.

## Setup Process

Please make sure to:

- 1]** Log into Windows as administrator [Admin].
- 2]** Let the computer process the setup. This may take some minutes depending on the speed of your computer.
- 3]** Allow Windows to install all drivers. Windows may ask for your permission to install drivers and expects your input. Please search for such pop-up windows; they might covered by other windows.

**Please install the MADRIX software before you connect a MADRIX KEY or a MADRIX hardware interface.**



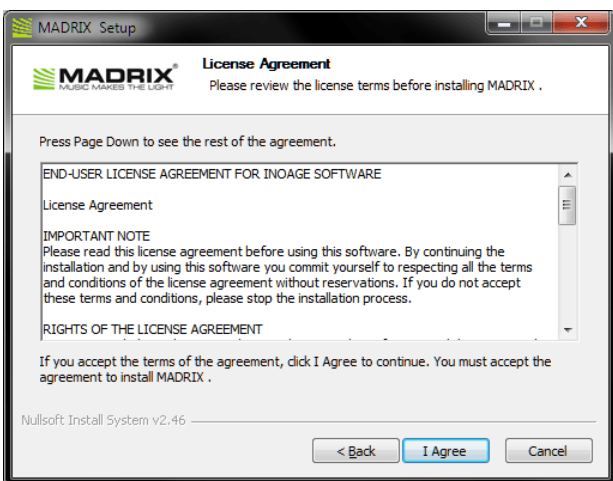
**Step 1]**

- Please select your preferred language and confirm with **OK**
- You can always quit the setup by choosing **Cancel**
- Click **Back** in order to return to a previous step during the setup process.



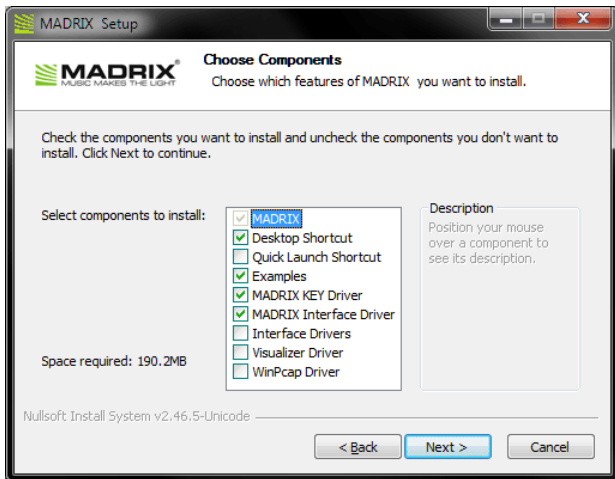
**Step 2]**

- Click **Next** to start the installation.



**Step 3]**

- The **License Agreement** will appear. It outlines the terms you are agreeing to by installing the software. You must accept these terms in order to continue.
- Please click **I Agree**



**Step 4]**

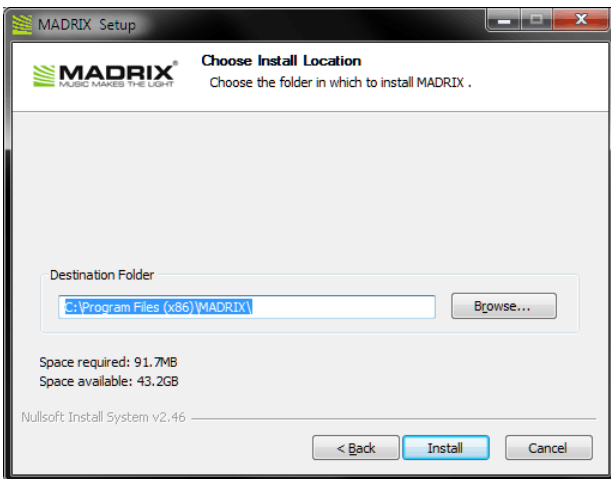
- This window allows you to select which components and which drivers you want to install. A description is given for each item.
- **MADRIX** - This component is always required and refers to the MADRIX software and all additional software tools.
- **MADRIX Interface Driver** - Includes the drivers for all MADRIX hardware interfaces, such as MADRIX NEO, MADRIX PLEXUS, MADRIX LUNA, etc.
- **Desktop Shortcut** - Select if you wish to create a shortcut to the MADRIX software on your Windows desktop.
- **Quick Launch Shortcut** - Select if you wish to create a shortcut to the MADRIX software in your Windows taskbar.
- **Examples** - Select if you wish to install examples including setups, effects, scripts, etc. [Learn more »](#)  
[Examples](#)
- **MADRIX KEY Driver** - Select if you wish to use MADRIX KEY start, dvi start, entry, dvi entry, basic, dvi, professional, or ultimate. This installs the driver for the USB software protection dongle.
- **Interface Drivers** - Select in order to copy drivers for various DMX interfaces. The drivers can be found in the MADRIX installation directory of MADRIX then. This component is not necessary if you only want to use the MADRIX NEO or PLEXUS interface.



- **Visualizer Driver** - Select if you wish to install the WYSIWYG driver in order to use the Visualizer software WYSIWYG together with MADRIX. Learn more »[WYSIWYG Visualizer](#)
- **WinPcap Driver** - Select if you wish to use the EuroLite T9 or ColourSmart Link protocol.
- **Next** - Click Next after choosing the components in order to continue.

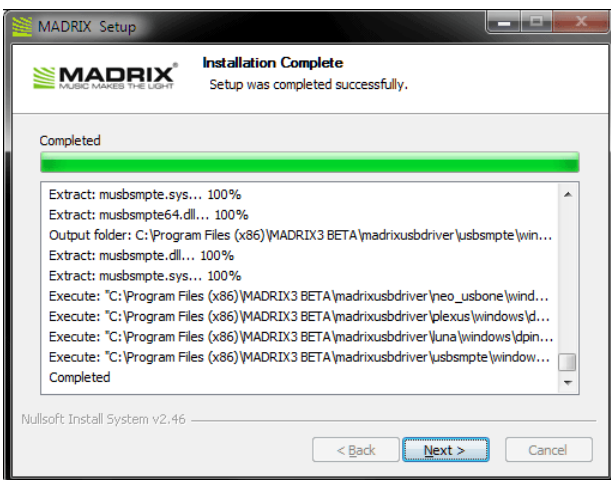
**Step 5]**

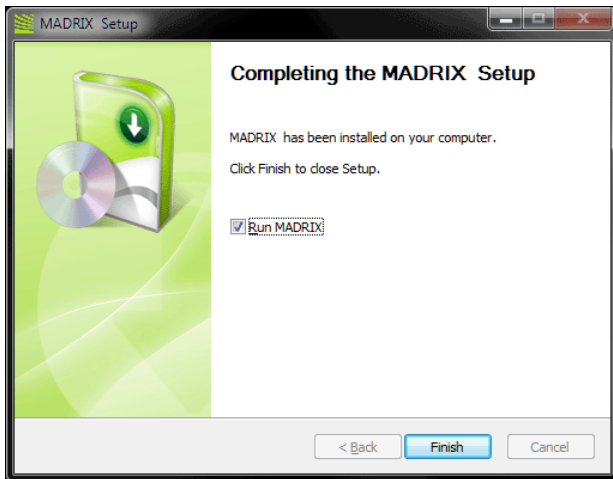
- Choose an installation directory on your harddisk where the software will be installed. A default **Destination Folder** will automatically be provided by the setup.
- **Browse...** - Click to change the folder.
- **Install** - Click to start the installation process.



**Step 6]**

- The installation process may take a few minutes.
- **Installation Complete** - Click **Next** when this message shown.





### Step 7]

- **Run MADRIX** - Deselect if you do not wish to start the software now.
  - **Finish** - Click to quit the setup.
- When starting MADRIX for the first time, please make sure to learn more about working with Windows. Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)

## Using A MADRIX KEY Instead Of MADRIX NEO Or PLEXUS

The Quick Start Guides of MADRIX NEO or MADRIX PLEXUS interfaces describe which software elements should be installed when you wish to use such hardware interfaces. If you want to use a MADRIX KEY [e.g., MADRIX basic], please re-install the software and choose the necessary software components. You will need to install at least the **MADRIX KEY Driver** [When using only a MADRIX interface, this software component is not necessary]. Other components may be necessary according to your requirements. Learn more [Setup Process](#)

## Software Update

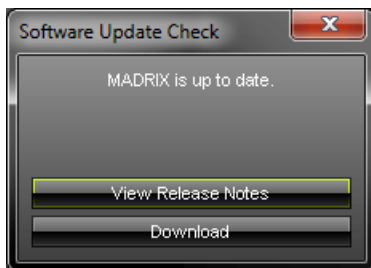
### Checking For New Software Version

MADRIX can search for new software updates.

- Select **Help > Check For Software Updates...**

Or let MADRIX automatically search for updates.

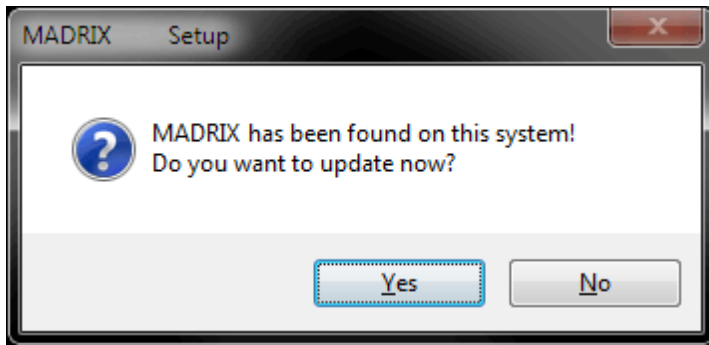
- To do so, select **Preferences > Options... > Startup > Check For Software Updates**
- Choose **Skip Update** if you would like to skip a particular version.
- **View Release Notes** - Is a link that will open your default web browser and launch the MADRIX website to show all changes and improvements of MADRIX software updates.
- **Download** - Is a direct link to quickly download the latest MADRIX software version.



## Installing New Software Versions

When a new software version has been released, please update your current MADRIX installation to the newest version.

- Check and download the latest MADRIX software directly as described above.
- You can also directly download it from »[www.madrix.com](http://www.madrix.com)
- It is not required to deinstall MADRIX before you install a new software version.
- Instead, follow the process described under [Downloading The Software Online](#)
- The installer will ask you if you would like to update your current MADRIX software installation. Confirm with **Yes**

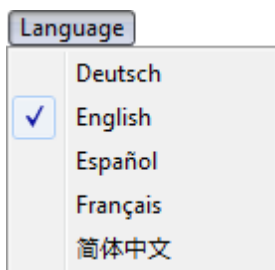


## 2.2 Language Settings

This topic includes:

- [Changing The User Interface Language](#)

### Changing The User Interface Language



Before starting work with the MADRIX software, you can choose the language of the user interface. Navigate to the main menu at the top of the software window.

- In the menu **Language**, choose from:
  - **Deutsch** [German]
  - **English**
  - **Español** [Spanish]
  - **Français** [French]
  - 简体中文 [Simplified Chinese]

[This user manual is only written in English.]

## 2.3 5-Step Quick Start

This topic includes:

- [Introduction](#)
- [First Use](#)

### Introduction

If you want to quickly start using MADRIX, we recommend to at least set up the following initial configuration.

### First Use

#### **Step 1] Configure The Virtual LED Matrix**

You need to tell MADRIX how your LED installation looks like and how many fixtures [or pixels, voxels] you wish to use. Start by using the Matrix Generator for this task or use the default configuration. By default, MADRIX will have set up 50 x 50 x 1 DMX-based RGB pixels.

Learn more »[Matrix Generator](#)

#### **Step 2] Configure Audio Input**

Many MADRIX Effects work without audio input. But many MADRIX Effects do require audio input. Configure audio input to see stunning S2L or M2L effects that react to the music in real time.

Learn more »[Audio Configuration And ASIO](#)

#### **Step 3] Configure Output**

MADRIX needs to communicate with your LED fixtures. The software is very versatile and supports many industry standards and communication protocols to put out data. Because of this, you need to configure which output method MADRIX should use to control your LEDs.

Learn more »[OUTPUT Settings](#)

## Step 4] Basic User Interface And The Crossfader

MADRIX is very easy to use. To quickly see results, it is recommended learn a few basics about the user interface first.

Learn more »[Crossfader And Main Output](#)

## Step 5] MADRIX Effects

There is a whole variety of stock effects and lighting visuals available to you. And you can customize all of them. Begin to use the creative power of MADRIX and start using the built-in MADRIX Effects.

Learn more »[Effects](#)

## 2.4 Audio Configuration And ASIO

This topic includes:

- Introduction
- Audio Sources
- Why A Professional Sound Card?
- Why ASIO?
- Testing
- Configuration
- How To Set Up Audio Input In MADRIX
- How To Set Up Your Audio Source In Windows
- How To Set Up ASIO
- Activating The Audio Analysis
- Startup Options
- Audio Performance
- Troubleshooting

### Introduction

There are 3 main types of MADRIX Effects:

- **SCE** - Static Color Effects
- **S2L** - Sound2Light Effects [require Audio Input]
- **M2L** - Music2Light Effects [require Audio Input]

As you can see, two 2 of 3 types of effects require audio input to work. MADRIX can work with an audio signal and it can work without an audio signal. But audio input is highly recommend. S2L and M2L Effects will create unique real-time effects based on sound, which will take your lighting display to the next level.

**MADRIX cannot play back audio. Instead, the software uses incoming audio signals to create lighting effects.**



## Audio Sources

Audio input can come from different sources [internal or external]. It is just a matter of configuration. MADRIX will allow you to set up every device that the Microsoft Windows operating system offers for recording.

Internal sources:

- Software MP3 players [including other audio file types or music tracks]
- Other music or audio applications
- Microphone [e.g., built into notebooks]
- Audio-CD
- Stereo Mix
- Others

External sources:

- Line-In
- Microphone
- SPDIF
- Others

## Why A Professional Sound Card?

We recommend to use a professional sound card—preferably with ASIO support—to get the best results from the MADRIX audio analysis. MADRIX also natively supports the Windows Audio Session API [WASAPI]. This method automatically delivers very good results [even without ASIO].

## Why ASIO?

Sound cards that provide an ASIO driver can provide excellent results. The MADRIX audio analysis will be very fast and precise. Sound2Light and Music2Light effects will look even better. It is therefore recommended to use a sound card with native ASIO support. However, this is not a requirement.

## Testing

In order to make sure that your sound card works properly, we suggest testing it with MADRIX:

- Start the MADRIX Demo Version. Learn more »[MADRIX KEY \[Software License\]](#)
- Make sure to configure audio input in MADRIX.
- Activate the [Audio Analysis](#) via the Audio button while playing some music on your PC, for example.
- Open the »[Task Watcher](#) [ **Tools > Task Watcher...** ]
- Check the entry for **Audio Capturing**
  - **FPS** shows the currently used value as it is and as (targeted).
  - Values of 100 or higher are preferable [lower values might also work well].

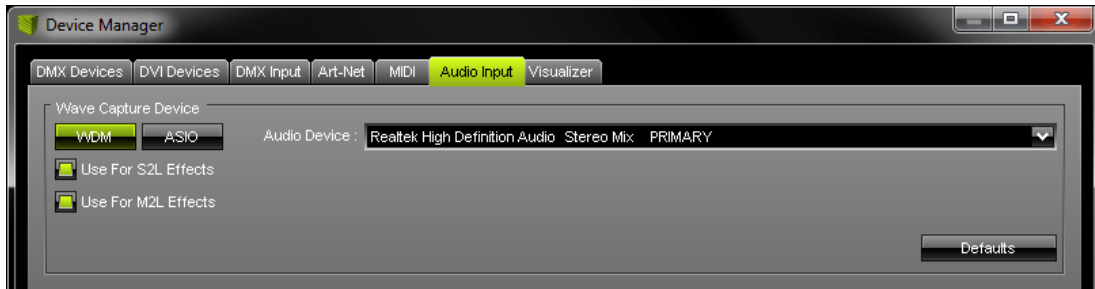
## Configuration

The general case is that MADRIX automatically finds a primary audio device and is able to work properly right from the first start. Often that means that you will not have to configure audio.

- If audio input does not work, read [below](#)
- If you want to configure ASIO, see [How To Set Up ASIO](#)

## How To Set Up Audio Input In MADRIX

- Go to **Preferences > Device Manager... > Audio Input**  
[Keyboard shortcut: **F4 > Audio Input**]



**WDM**

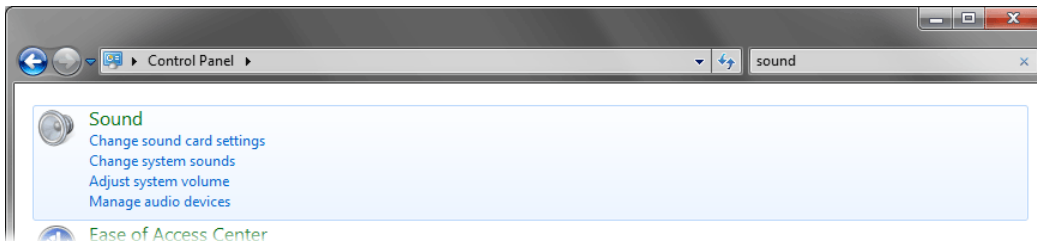
- Enables the standard Windows audio drivers. It is activated by default.

- **Audio Device** - The software scans your system and the Windows Audio Mixer Control for recording devices available for audio input. You can properly assign your Line In, Microphone, or other specific devices by selecting the device from the drop-down list. Labels vary according to manufacturers and sound cards but often include "CD-Player", "Microphone", "Wave", etc.
  - **Stereo Mix** is the accumulation of all channels and often is used as default. [This setting is recommended.]
  - If you cannot select your preferred audio device, make sure it is correctly set up in Windows. Learn more [How To Set Up Your Audio Source In Windows](#)
- **Use For S2L Effects** - Is activated by default. Deactivate this option if incoming audio signals should not be used for MADRIX S2L Effects [not recommended].
- **Use For M2L Effects** - Is activated by default. Deactivate this option if incoming audio signals should not be used for MADRIX M2L Effects [not recommended].

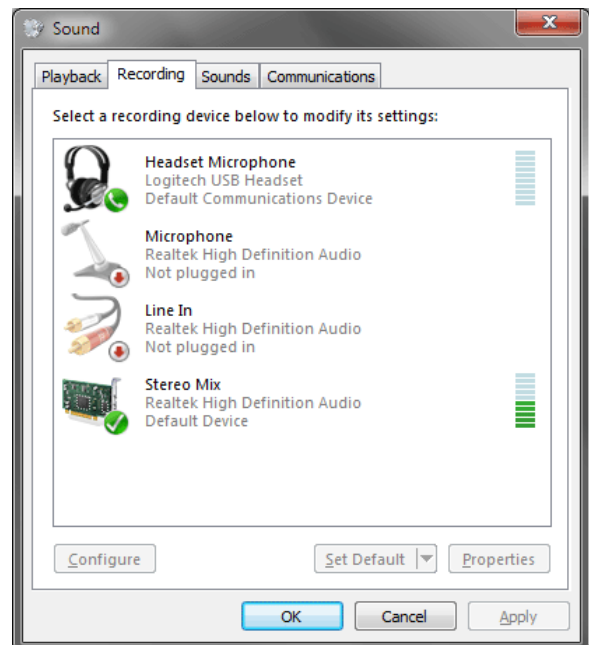
## How To Set Up Your Audio Source In Windows

If MADRIX should use an audio input signal, you have to define the proper audio source in the Windows control panel first.

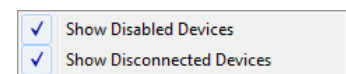
- Please close all running applications.
- In Windows, navigate to **Control Panel > Sound**  
[Depending on the operating system, the entries described below may have been named differently.]



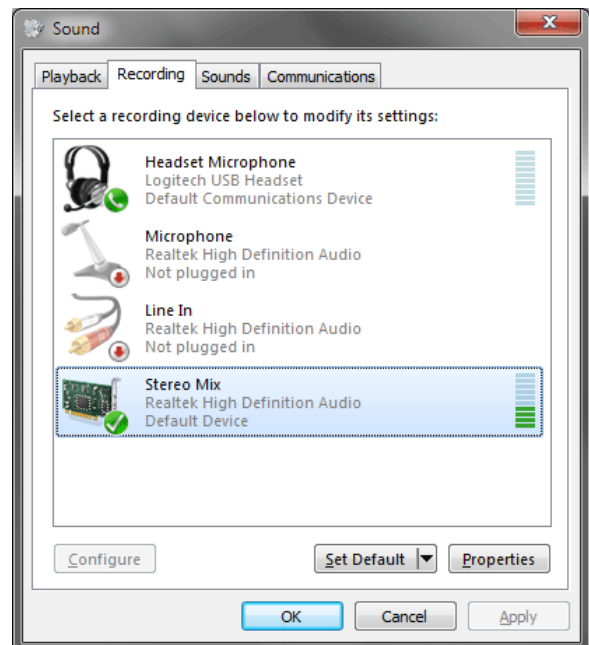
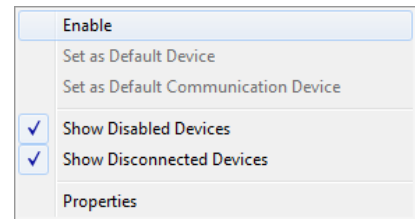
- A new window will open.
- Select **Recording**



- Call up the context menu by using a right click with your mouse in this window [**Right Mouse Click**].
- Enable **Show Disabled Devices**
- Enable **Show Disconnected Devices**



- **Right Mouse Click** on **Stereo Mix** and choose **Enable**
  - Afterwards, also click **Set as Default Device** in the context menu.
  - Stereo Mix is recommended.
- Or you can use any other input source.
  - **Right Mouse Click** on the input source [e.g., Line In] and choose **Enable**
  - [You may have to plug an audio jack into Line In before it gets activated in Windows.]
- Finally, **Stereo Mix** [or any other input source] is activated and correctly set as recording source.
- MADRIX can now analyze your music from software applications [such as Windows Media Player or Winamp] or use the signal from your defined input source.
- Click **OK**
- Continue with [How To Set Up Audio Input In MADRIX](#)



## How To Set Up ASIO

### Introduction



ASIO [Audio Stream Input/Output] is a widely known audio standard.

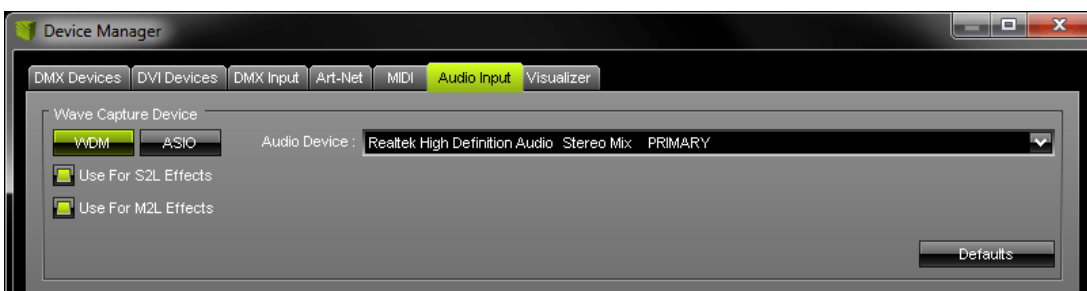
Above all, the standard provides low latency; a feature often requested by professionals. When using ASIO, the MADRIX audio analysis will be faster and more precise. ASIO is a registered trademark of Steinberg Media Technologies GmbH.

### Important Notes

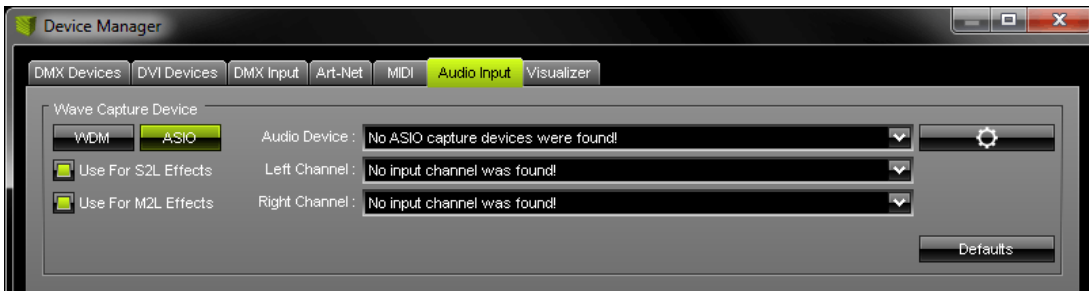
- Before using ASIO with MADRIX, please make sure that the ASIO drivers are installed on your computer. If the drivers are not installed, MADRIX will not be able to find the ASIO audio hardware.
- It is recommended to connect external ASIO hardware [a USB sound card, for example] directly to a USB controller of your PC. It is not recommended to use a USB hub or the front-USB of your computer.
- Use USB 2.0.

### Configuration

- Go to **Preferences > Device Manager... > Audio Input**  
[Keyboard shortcut: **F4 > Audio Input**]



- Click **ASIO**
- The audio configuration window will change.



Configure the following settings:

- **Audio Device** - Select your interface or sound card in this drop-down list.
- **Left Channel** - Select the appropriate device for the left audio channel. If you are seeing the message **No input channel was found!** [like shown in the screenshot above], please connect your ASIO device.
- **Right Channel** - Select the appropriate device for the left audio channel If you are seeing the message **No input channel was found!** [like shown in the screenshot above], please connect your ASIO device.
- **Use For S2L Effects** - Is activated by default. Deactivate this option if incoming audio signals should not be used for MADRIX S2L Effects [not recommended].
- **Use For M2L Effects** - Is activated by default. Deactivate this option if incoming audio signals should not be used for MADRIX M2L Effects [not recommended].



Will let you configure your ASIO device further if advanced settings are available. Usually, the ASIO drivers that come with your interface will be launched. Make sure that your ASIO hardware is connected. Or else, no configuration window may be launched.

- In this configuration window you can set various settings. The music analysis will be more precise if the latency / amount of samples is as low as possible. Often, this setting is called 'Buffersize'. You can achieve milliseconds with ASIO. 1000 frames represent 1 ms. 500 frames represent 2 ms. 250 frames represent 4 ms, and so on. You will be able to see the number of frames that is captured in the Task Watcher.
- Click **Apply** to save the settings.

## Activating The Audio Analysis

## You need to activate the audio analysis in order to use it!

- Activate **Audio** on the MADRIX user interface.

Learn more »[Master / Audio Input Level](#)

## Startup Options

The Audio button can be automatically activated every time you start MADRIX.

- Go to **Preferences > Options... > Startup**
- Enable **Start Audio Input**
- Click **Apply**
- Click **OK** to close the window.





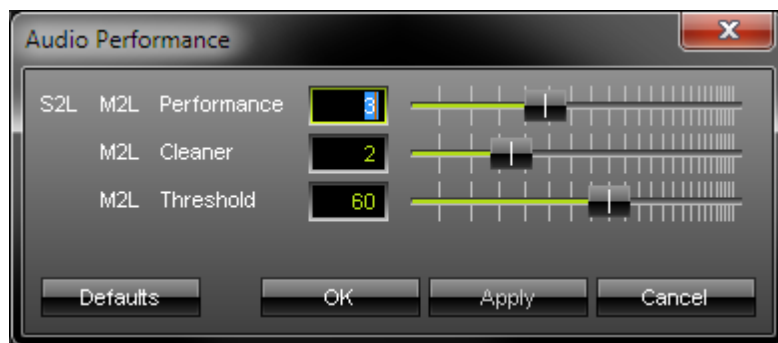
## Audio Performance

The results of the audio analysis are mainly influenced by the following factors:

- Computer speed.
- Level of the audio signal.
- Audio Performance settings.

You are able to adjust parameters for the audio analysis.

- Go to **Preferences > Audio Performance...**  
[Keyboard shortcut: **Ctrl+Alt+A**]
- A new window will open.



- **S2L M2L Performance** - Defines how much data is available for the audio analysis. The default value is 3.
  - The higher the value, the more data is available and the more precisely especially M2L Effects can be. That also means that the delay increases [in ms]. If the value is too high, it can affect the performance of MADRIX/of the computer.
- **M2L Cleaner** - Works only for M2L Effects and harmonic frequencies. It cleans the incoming audio signal for resonances and secondary frequencies to filter out unwanted tones.
  - The higher the value, the more likely a note/tone has in fact occurred in the music. But the higher the value, the more notes will be filtered out as well.

- **M2L Threshold** - Works only for M2L Effects and defines a threshold value.
  - The higher the value, the more likely a certain note/tone has in fact occurred in the music.
  - The lower the value, the more notes will be used for M2L Effects.
  - **Setting up a very low M2L Sensibility value [such as 0] can require a lot of computer performance and might negatively affect the display of S2L Effects and M2L Effects. Increase the value again if you are experiencing any issues.**
  
- **Defaults** - Restores the default settings.
  
- **OK** - Applies any changes and closes the window.
- **Apply** - Applies any changes without closing the window. [In this way, this allows you to quickly test different settings. Change the settings, click Apply, and observe the results for S2L and M2L Effects.]
- **Cancel** - Disregards any changes and closes the window.

Different styles of music may require different Audio Performance settings for an optimal display.

## Troubleshooting

If you are having problems with the audio configuration, try the following:

- Select **Preferences > Device Manager... > Audio Input > Defaults** to restore the default settings. Alternatively, select the correct audio device [e.g., Stereo Mix]. Then, click **Apply**. Click **OK** to close the window.
- Check if the **Audio** button is activated.
- Check the Windows audio settings using the Windows Mixer if your recording device is configured correctly.
- Check the installation of the [latest] drivers of your sound card.
- Check the installation of Microsoft DirectX®.
- Test with a different sound card.
- If you are encountering problems with ASIO [when effects freeze or single frequencies overmodulate], change the latency settings. A higher latency can solve the problem.



## 2.5 PC Power Management

This topic includes:

- [Why Is Power Management Important?](#)
- [Usage](#)
- [Activate High Performance](#)
- [How To Change USB Power Settings](#)

### Why Is Power Management Important?

**We strongly recommend to deactivate all power saving options in Microsoft Windows in order to ensure an interruption-free operation of MADRIX.**

Microsoft Windows operating systems offer a wide variety of power management options. In most cases, PCs, laptops, notebooks, and netbooks benefit from a longer battery life if a good power management is in use. But certain problems might occur because of computer power savings nevertheless:

- After a while your MADRIX KEY cannot be identified by the software anymore.
- Your hardware interfaces are suddenly deactivated.

### Usage

Make sure to set up power-saving settings especially if you are using:

- A MADRIX KEY [USB dongle]
- MIDI controllers [via USB]
- USB hardware interfaces [such as MADRIX NEO]
- A notebook/laptop to run MADRIX

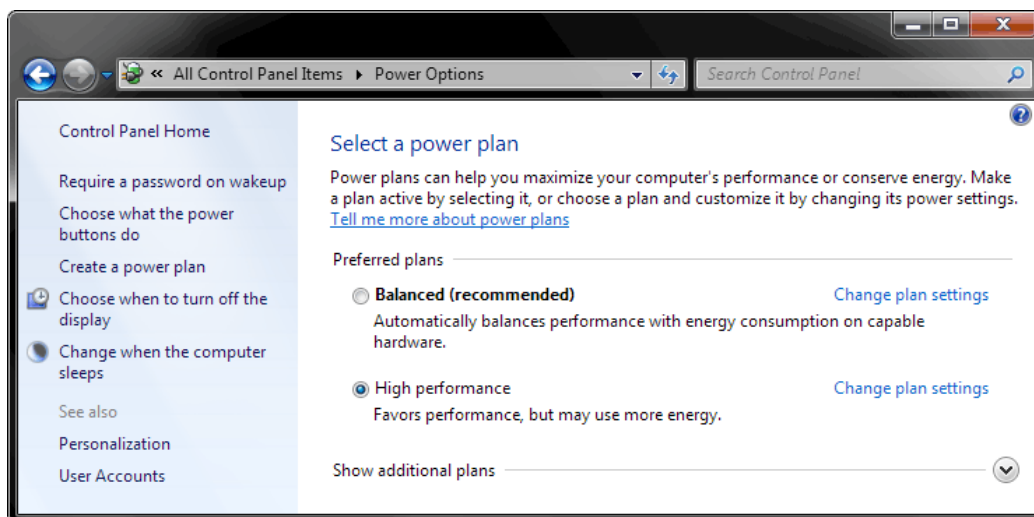
Additionally:

- Make sure to change the USB power settings.
- Especially for notebooks, we recommend to activate the High performance power plan.

## Activate High Performance

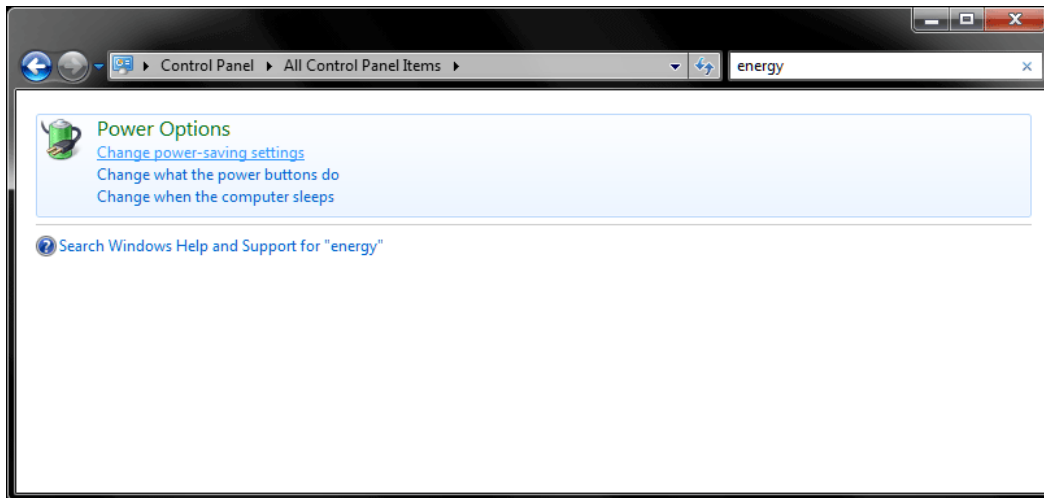
This setting will make sure that your notebook or laptop will have all its potential performance available for MADRIX.

- In Windows, select **Start > Control Panel > Power Options**, and change the power plan to **High performance**  
[You might need to click on **Show additional plans**].

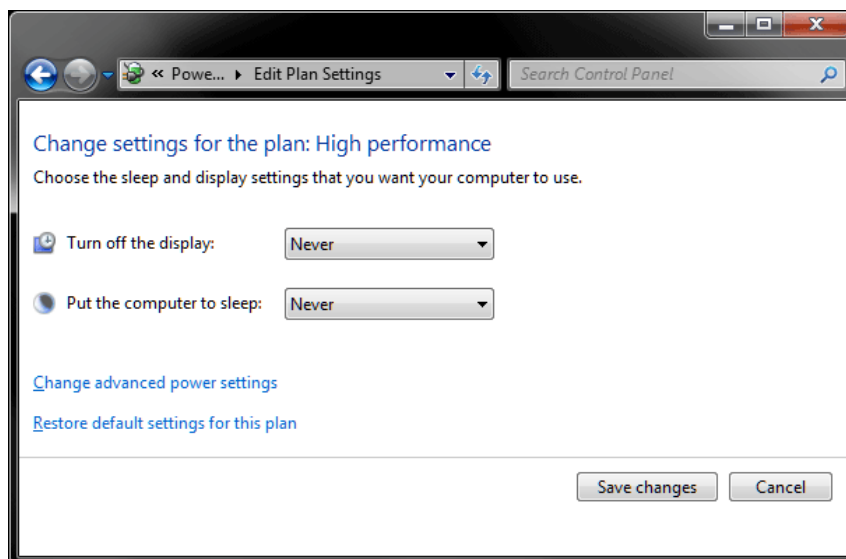


## How To Change USB Power Settings

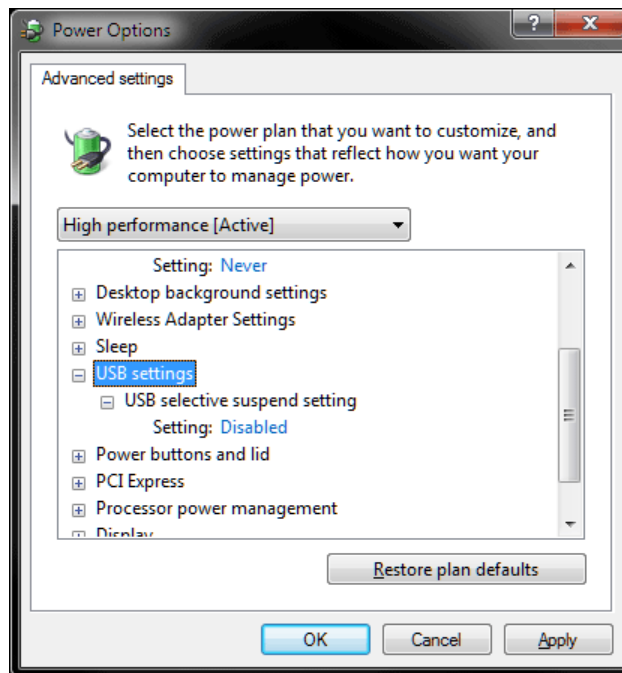
- In Windows, select **Start > Control Panel > Power Options > Change power-saving settings**



- Click **Change advanced power settings**



- Especially the **USB settings** are important. Disable the suspend settings!



- Change any other settings that might interrupt the operation as required [Choose **Change advanced power settings**].

## 2.6 Tips [Microsoft Windows / Networks / USB]

This topic includes:

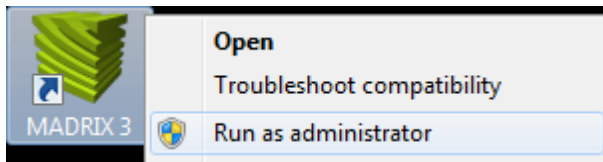
- [Errors When Saving Files](#)
- [USB](#)
- [The Windows Firewall](#)
- [Working With Ethernet Networks](#)
- [Changing The Priority Of Network Adapters](#)
- [Working With Files](#)
- [Operating System Security](#)
- [Windows Restart / Shut Down](#)
- [Monitoring Computer Performance](#)

### Error When Saving Files

If you are experiencing issues when trying to save files, there are two solutions to this problem:

- **Right Click > Run as administrator**

- In order to save files as a user that is logged-in into Windows, you need to have the permissions set by Windows to do so.
- When you do not have the right permissions, saving files can lead to errors.
- To circumvent such issues, you can run the MADRIX software as administrative computer user, the so-called administrator.
- Perform a **right mouse click** on the **MADRIX.exe** [or a shortcut to the MADRIX software] and choose **Run as administrator**
- **Note:** You need to have access to the administrator account (i.e., password). Logging in as administrator grants extensive rights for any computer changes. If you are not familiar with Windows or computers, please seek advice.





- **Choose A Different Directory**

- When you are experiencing issues and running as administrator is not an option, choose a different directory on your harddisk to save the files.

- There are locations on your computer/harddisk where you will have the permission to save files. Choose such a location.

- Examples are:

**C:\Users\USERNAME\Desktop**

**C:\Users\USERNAME\Documents**

[ **USERNAME** specifies your Windows account name.]

## USB

Among others, USB is an important way to work with MADRIX, MADRIX KEYS, MADRIX hardware interfaces, MIDI controllers, etc. In order to ensure a stable work environment, we highly recommend setting up corresponding USB settings in Windows.

Learn more »[PC Power Management](#)

## The Windows Firewall

### Correct Settings

The primary purpose for the Windows Firewall [or any other firewall] is to block any unwanted incoming or outgoing data and access. But this can lead to problems, when data that should go through is automatically blocked.

MADRIX will automatically set the correct firewall settings for you during the installation process.

Please follow the steps below if this Windows message appears when you start MADRIX for the first time.



Select and set a checkmark for

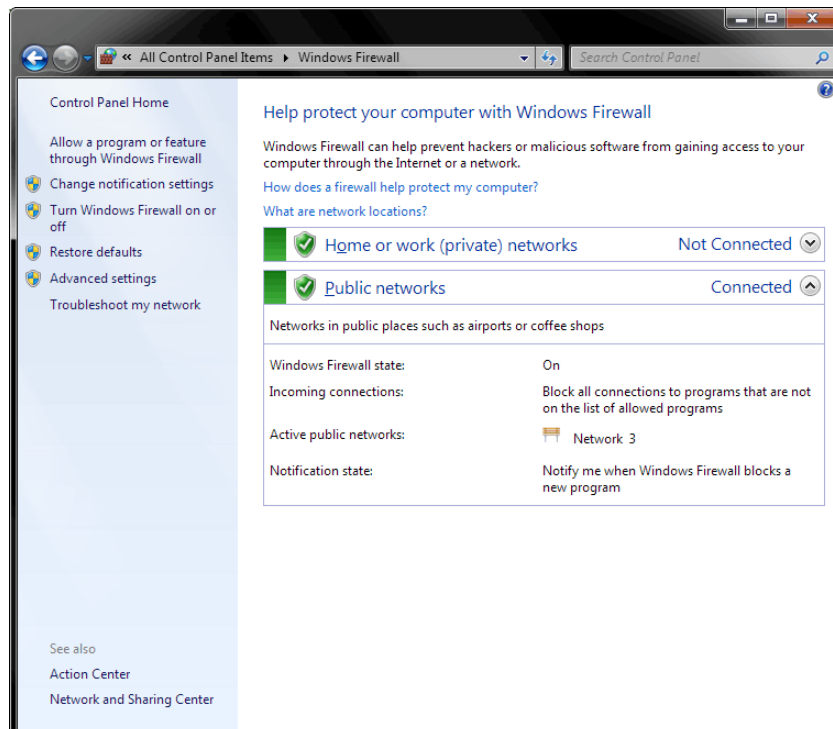
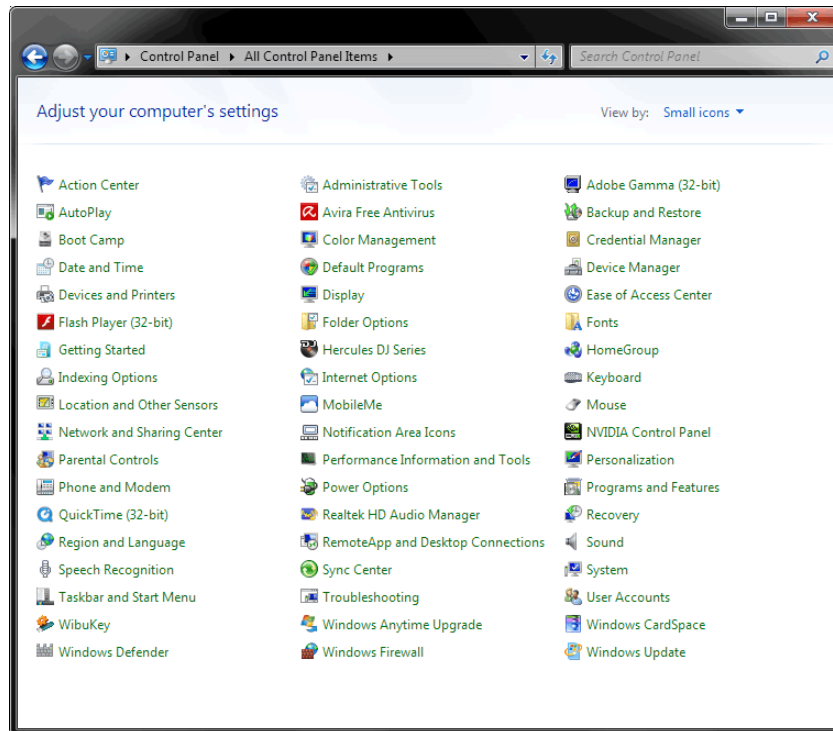
- **Private networks**
- and
- **Public networks**
- 
- Click **Allow access** to confirm.

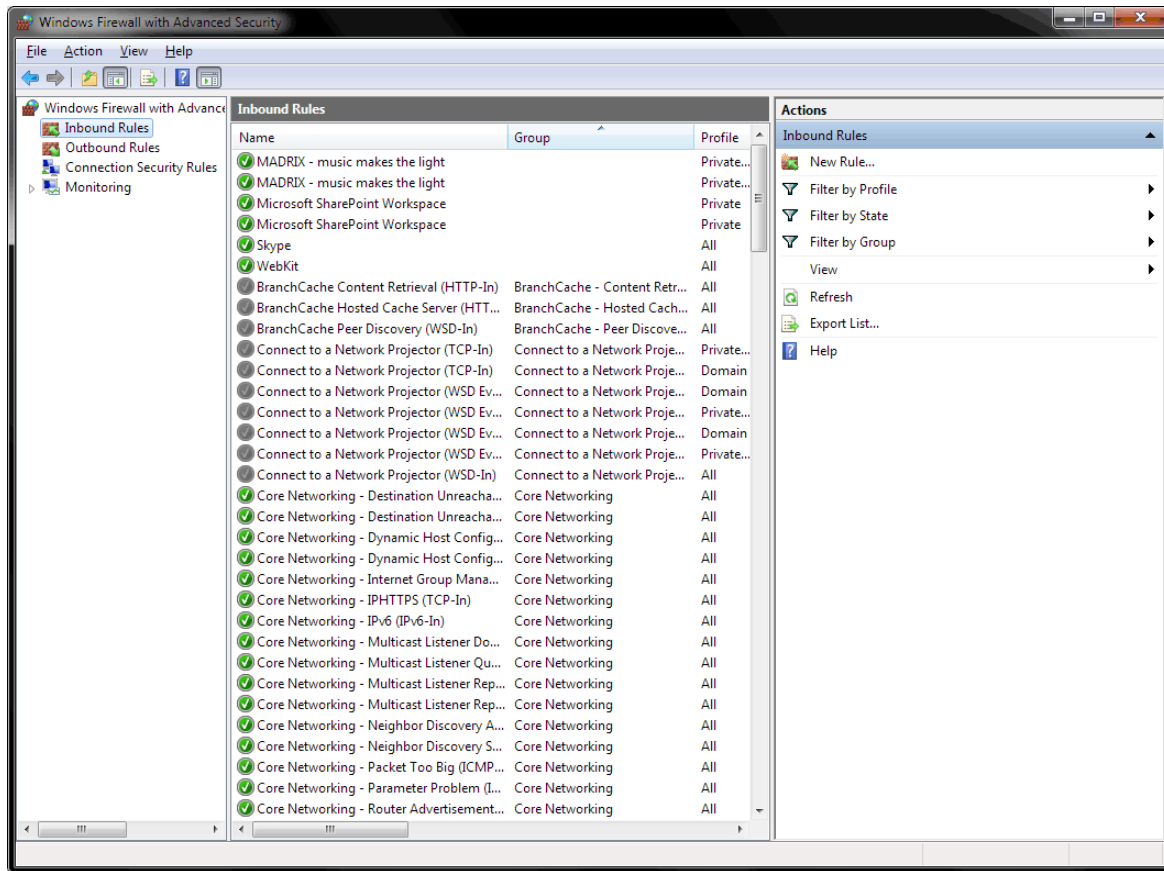
**Not selecting both options can cause problems with network communication.**

## Resetting The Settings

If you have already chosen the wrong options MADRIX, you can delete the settings and choose again.

- Go to **Windows Start > Control Panel > Windows Firewall > Advanced settings > Inbound Rules**





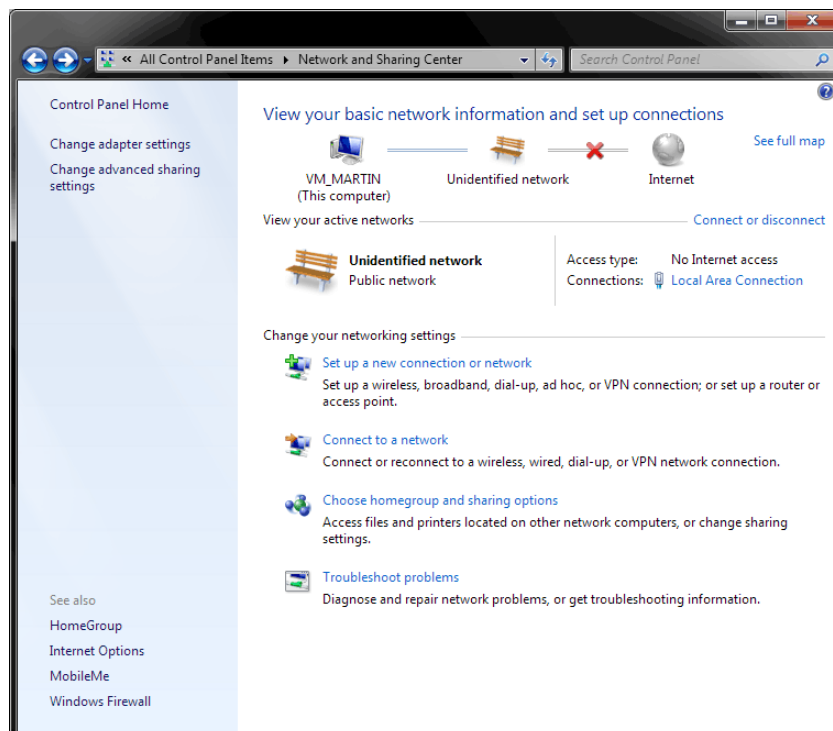
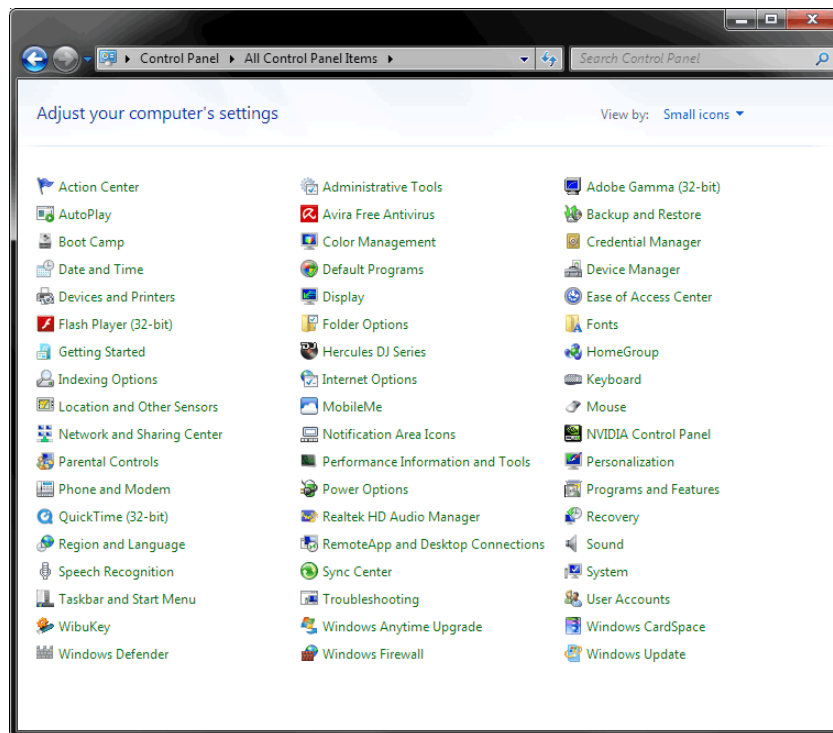
- Select and delete any entries relating to MADRIX [e.g., madrix.exe or MADRIX - music makes the light].
- With your next start of MADRIX, select both options as described above.

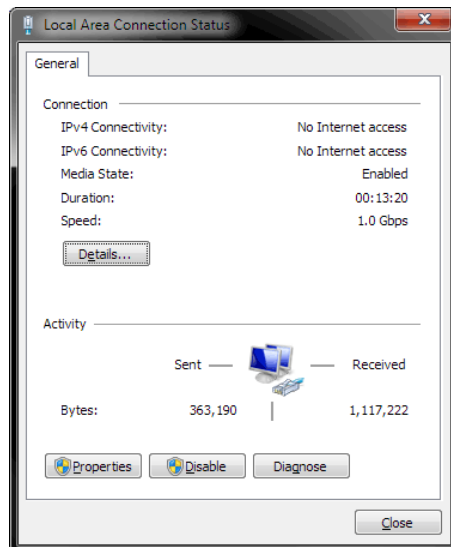
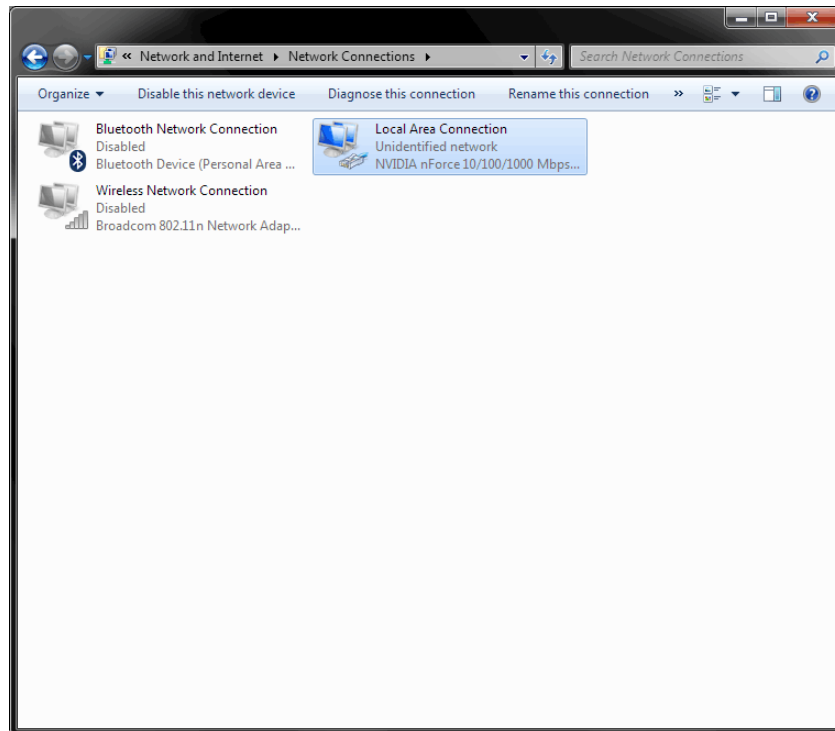
## Working With Ethernet Networks

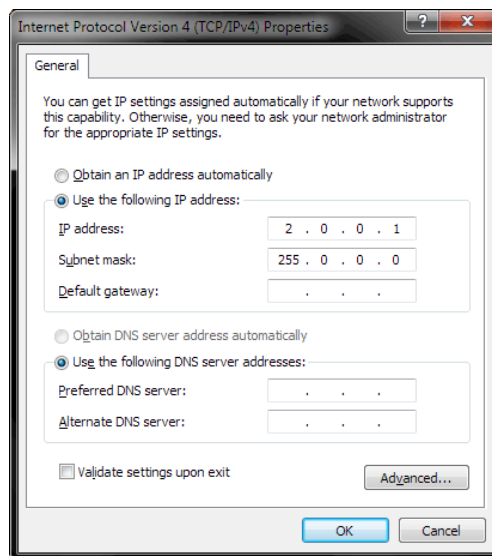
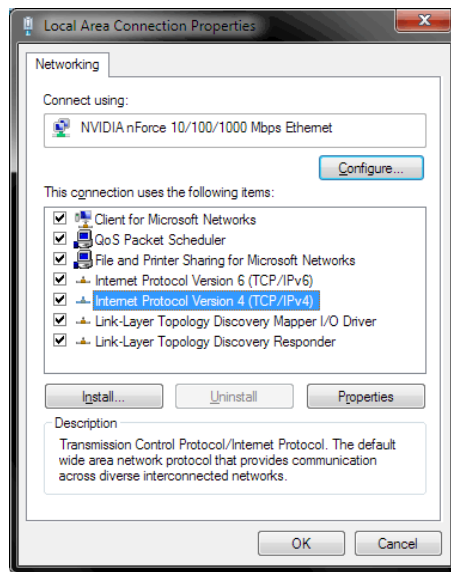
### Configuration Of Network Settings

When working with network-based products and MADRIX [for example, Art-Net, KiNET, sACN, etc.], you will have to set up the IP address of your network card in Windows. Learn how to set it up here.

- Go to **Windows Start > Control Panel > Network and Sharing Center > Change adapter settings > Local Area Connection > Properties > Internet Protocol Version 4 (TCP/IPv4) > Properties**







Set up the following settings:

- **IP address** - Sets the IP address for this computer and this network card. If you have several network cards in your computer, you can set up an individual address for each network card. An IP address has 4 parts. Enter the complete address as explained in the specific chapter of this user guide [e.g., 2.0.0.1]. You only have to enter the numbers.
- **Subnet mask** - Sets up the Subnet mask for this computer. This is an important part of the network settings, just as the IP address. An Subnet mask has 4 parts. Enter the complete address as explained in the specific chapter of this user guide [e.g., 255.0.0.0]. You only have to enter the numbers.

- **OK** - Click to save your settings. [Make also sure to close the **Local Area Connection Settings** with **OK** and close the **Local Area Connection Status** window with **Close**.]
- Restart MADRIX if you have changed any network settings!

Learn more below.

## Using Several Devices In A Network

Usually, you will use at least 2 devices in a network [for example, 1 MADRIX PC and 1 Art-Net node or 1 MADRIX PC and 1 console]. As explained above, you will need to configure various network settings not only for your MADRIX PC but also for the other devices.

To be able to communicate with each other, all devices have to be in "the same network". That means:

- All devices need to be physically connected with each other [through network equipment, such as hubs or switch and/or network cables]
- All devices need to have compatible network settings

Using several devices in a network does not mean that all should have the same IP address. That will not work! Instead, follow these rules:

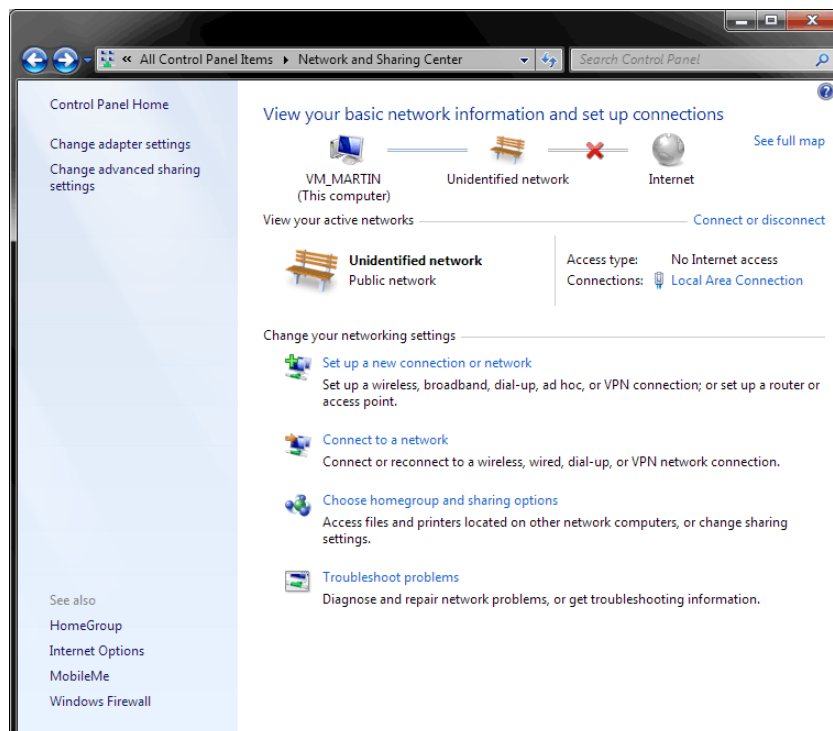
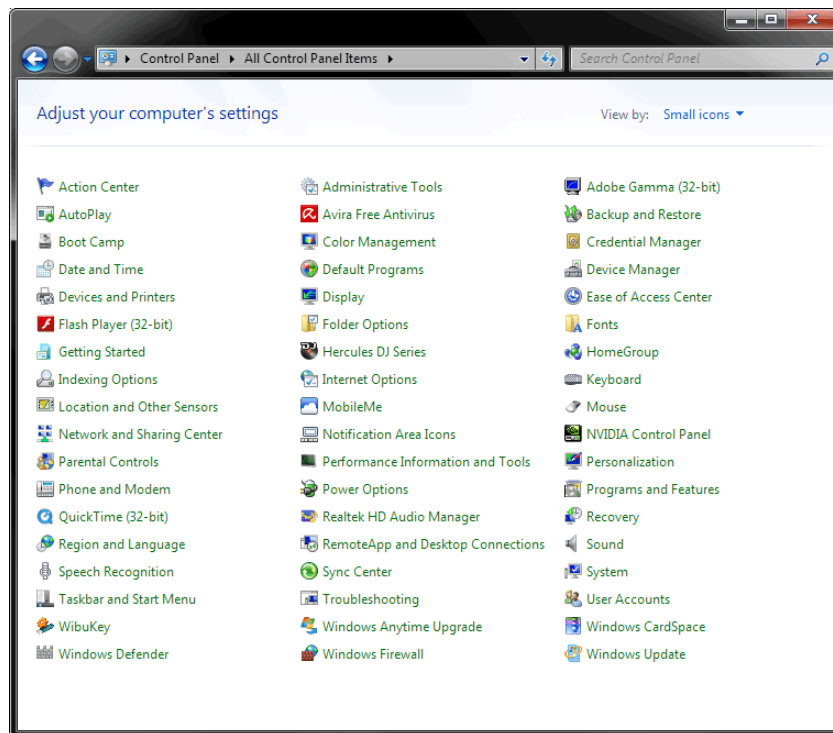
- **Set up all devices within the same IP address range, but never with the same IP address [for example, MADRIX PC: 10.204.226.101 and Art-Net node: 10.204.226.102]**
- **Set up all devices with the same Subnet mask e.g., 255.0.0.0]**
- **If recommended, set up all devices with the same Default gateway [e.g., 10.0.0.1]**

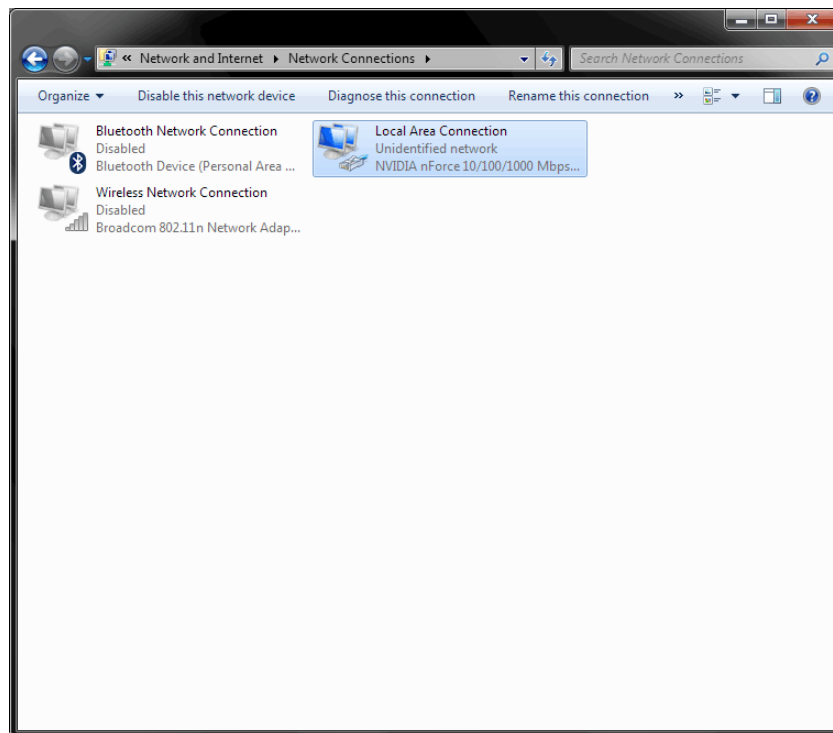
## Changing The Priority Of Network Adapters

You can change the order in which Windows and MADRIX accesses your network adapters. By changing the order, you can specify which network adapter [network card] is used first and as the main connection.

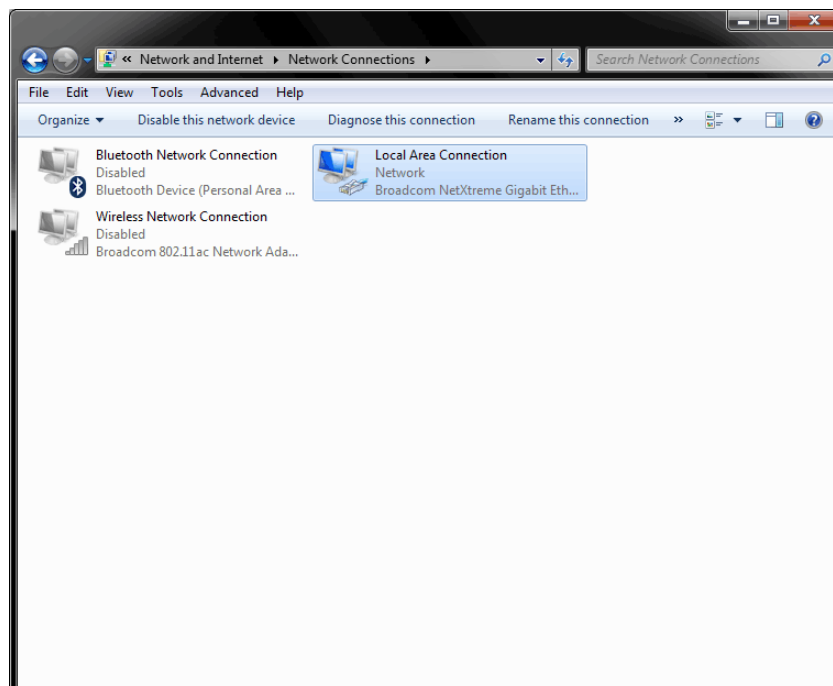
- **1]** Go to **Windows Start > Control Panel > Network and Sharing Center > Change adapter settings**



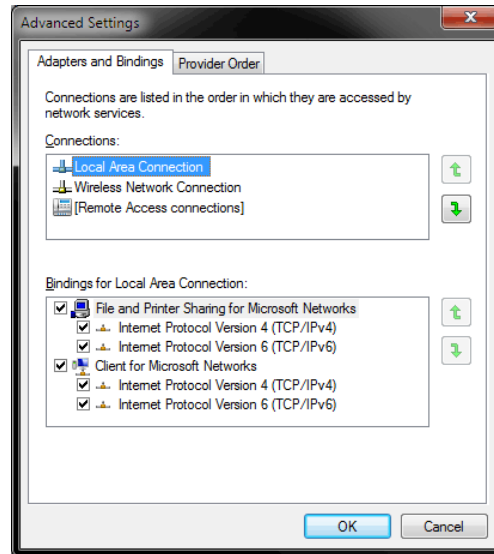




- 2] Press **Alt** on your keyboard.
  - A menu appears at the top, which is otherwise hidden.



- **3]** Go to **Advanced > Advanced Settings...**
  - A new window opens.



- **4]** Select your preferred network connection[s] in the list of **Connections:**
- **5]** Change the order by clicking on the **green up and down arrow buttons** on the right hand side.
  - The connection which is listed on top, is the first and prioritized adapter.
- **6]** Click OK to confirm.
- **7]** Restart your computer.

## Working With Files

When working with computers in general, you should be aware that any digital data is sensitive and prone to failure and hardware errors.

We recommend

- to save regularly when creating a show in MADRIX.
- to make backup copies of your show files from time to time [MADRIX Setup files]

- to make backup copies to different or external storage mediums [e.g., USB stick/thumbdrive].

## Operating System Security

It is recommended

- to keep Windows up-to-date by installing security updates using **Windows Update**
- to use a virus detection software when working with files from external sources.

## Windows Restart / Shut Down

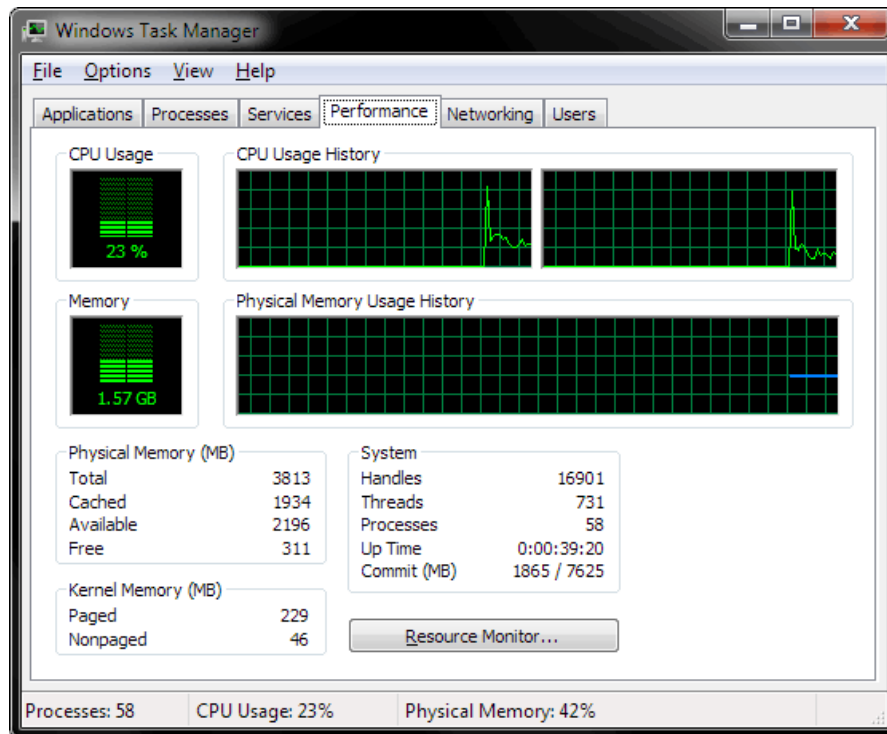
According to the requirements of Windows, MADRIX will behave in the following way:

- MADRIX will be closed instantly, when you trigger a Restart or Shut Down of Windows.
- **Make sure to save your files before executing a Restart or Shut Down!**

## Monitoring Computer Performance

Windows allows you to monitor the overall performance of your computer.

- Press **Ctrl + Alt + Del** and choose **Start Task Manager**  
[German shortcut: Strg + Alt + Entf]
- A new window opens [Windows Task Manager].
- Go to **Performance**



- You can now monitor the **CPU Usage** as well as the **Memory** usage.
- MADRIX has its own monitoring tools.  
Learn more »[Tools](#)

## 2.7 Using The Mouse

This topic includes:

- Overview

### Overview

The mouse is the main input device to work with a software like MADRIX. In this topic various general functionalities are provided as an overview.

Deviating functionality is explained throughout this manual when necessary. Some controls on the user interface can support several of the functionalities described below.

#### Left Mouse Click

- Click once on the left mouse button to perform various actions:

**Selection** - Selects a button, fader, list item, text, number, on the user interface.

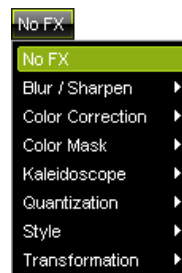
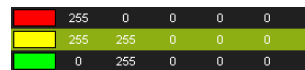
**Open Window** - Opens a window that grants access to another part of the software.

**Show Selection Menu** - Opens a submenu for you to choose and select a different item from the provided options.

**Activate / Deactivate** - Activates or deactivates a button or check box in order to enable or disable the corresponding functionality.

**Action** - Activates a button once to perform a specific action.

#### Examples



**Left Mouse Click And Hold**

- Click once on the left mouse button, continue to hold the button, and finally release the mouse button to perform various actions:

**Move** - Moves a control, such as a fader, to a different position in order to set a different value.

**Increase / Decrease** - Select a number in an input field and move the mouse up or down while continuing to hold the left mouse button in order to increase or decrease the selected value.

**Show Control** - Shows the full control, such as a vertical slider or color control, for you to set a different value.

**Activate Temporarily** - Activates a specific functionality only as long as you continue to hold the mouse button.

**Drag And Drop** - Click with the left mouse and hold. A small + appears. Continue to hold and move your mouse to the same kind of control. Release the mouse button to paste a copy onto the other control.

**Examples**



**Examples**

**Left Mouse Double-Click**

- Quickly click twice on the left mouse button to perform various actions:

**Restore Default Value** - Double-click on a control, such as a fader, to restore the default value.



**Left Mouse Double-Click**

- Quickly click twice on the left mouse button to perform various actions:

**Edit Value** - Allows you to edit an item in a list.

**Examples**



**Activate Permanently** - Double-click on a control, such as a button, to activate the functionality until you click on the control again to deactivate it.



**Right Mouse Click**

- Click once on the right mouse button to perform various actions:

**Context Menu** - Shows the corresponding context menu and hence allows you to perform further actions.

**Examples**



**Edit Value** - Allows you to edit an item in a list or multiple items when multiple items have been selected first.



**Restore Default Value** - Right click on a control, such as a fader, to restore the default value.





## 2.8 Keyboard Shortcuts [Hotkeys]

This topic includes:

- [Overview](#)

### Overview

You can use various shortcuts on the computer keyboard, while working with MADRIX.

Specific Functionality:

<b>New Setup</b>	<b>Ctrl+N</b>
<b>Open Setup...</b>	<b>Ctrl+O</b>
<b>Save Setup</b>	<b>Ctrl+S</b>
<b>Save Setup As...</b>	<b>Ctrl+Shift+S</b>
<b>Matrix Generator [open and close]</b>	<b>F2</b>
<b>Patch Editor [open and close]</b>	<b>F3</b>
<b>Device Manager [open and close]</b>	<b>F4</b>
<b>Audio Performance</b>	<b>Ctrl+Alt+A</b>
<b>Remote HTTP</b>	<b>Ctrl+Alt+H</b>
<b>Options</b>	<b>Ctrl+Alt+O</b>
<b>Cue List [open and close]</b>	<b>F7</b>
<b>Group Control [open and close]</b>	<b>F9</b>
<b>Recording</b>	<b>Ctrl+Alt+R</b>
<b>Touch Screen [open and close]</b>	<b>F8</b>
<b>Full Screen Mode [open and close]</b>	<b>F11</b>
<b>Task Watcher [open and close]</b>	<b>F5</b>
<b>Logfile [open and close]</b>	<b>F6</b>
<b>DMX Watcher</b>	<b>Ctrl+Alt+D</b>
<b>MIDI Watcher</b>	<b>Ctrl+Alt+M</b>
<b>DMX Fader Tool</b>	<b>Ctrl+Alt+F</b>
<b>PLEXUS Configuration</b>	<b>Ctrl+Alt+P</b>
<b>MADRIX Device Configuration</b>	<b>Ctrl+Alt+L</b>

<b>Move [DVI Full Screen or Touch Screen] To Next Screen</b>	<b>Tab [Tabulator]</b>
<b>Restore Default Preview View</b>	<b>Space</b>
<b>Quit MADRIX</b>	<b>Alt+F4</b>

General Functionality:

<b>Help And Manual [User Guide]</b>	<b>F1</b>
<b>Various functions [e.g., Reset, Color value 0 or 255, Selection, etc.]</b>	<b>Space</b>
<b>Select all characters of a number, word, etc. / Select all items of a list</b>	<b>Ctrl+A</b>
<b>Confirm your selection</b>	<b>Enter</b>
<b>Remove items from list</b>	<b>Backspace, Del [Delete]</b>
<b>Move items in list [Up, Left, Down, Right]</b>	<b>W, A, S, D [QWERTY] Z, Q, S, D [French AZERTY]</b>
<b>Cancel</b>	<b>Esc [Escape]</b>
<b>Close a window [e.g., Cue List, Fader Box, Macro Editor, etc.]</b>	<b>Alt+F4</b>

## 2.9 Examples

This topic includes:

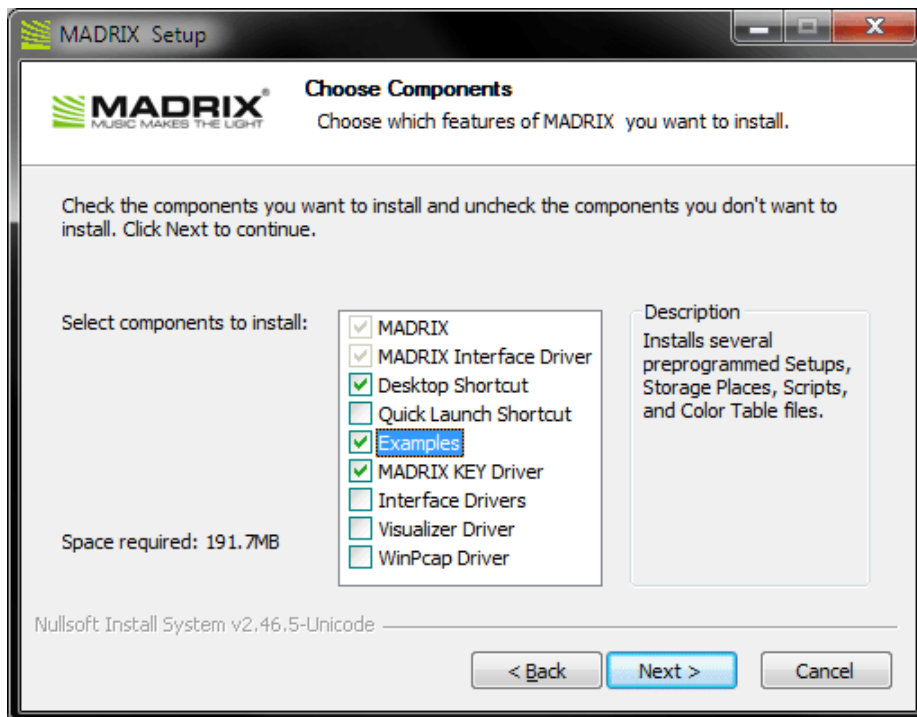
- [Installation](#)
- [More Information](#)

## Installation

During the MADRIX installation process, you can choose to install various examples. These samples include:

- Setups,
- Effects,
- Scripts,
- And Color Tables.

During the setup, choose **Examples** from the list of components.



After the installation, you can find the examples on your hard disk.

- Navigate to C:\Users\USERNAME\Documents\MADRIX3 Samples\  
[Please insert your Windows username for USERNAME].

## **More Information**

MADRIX uses a variety of different kinds of files.

Learn more »[File Types](#)

## 2.10 2D Or 3D [X, Y, Z]

This topic includes:

- [Introduction](#)
- [Settings](#)
- [2D \[X-Axis And Y-Axis\]](#)
- [3D \[X-Axis, Y-Axis, And Z-Axis\]](#)

### Introduction

MADRIX is a versatile and powerful software that can control 2D and/or 3D LED installations.

You can use MADRIX

- to map and control pixel by pixel [pixel mapping, 2D].
- to map and control volumetric pixels, i.e. voxels [voxel mapping, 3D].
- to combine both options.

### Settings

#### Virtual LED Matrix

You automatically choose to work with a 2D or 3D project by configuring the virtual LED matrix in the Matrix Generator or Patch Editor.

- If Z is 1, then you are automatically working in 2D.

- If Z higher than 1, then you are automatically working in 3D.

Learn more »[Matrix Generator](#)

Learn more »[Patch Editor](#)

## Workflow

In addition, many other parts of the software can work in 2D mode or in 3D mode. For example:

- Previews
- Effects
- Mapping

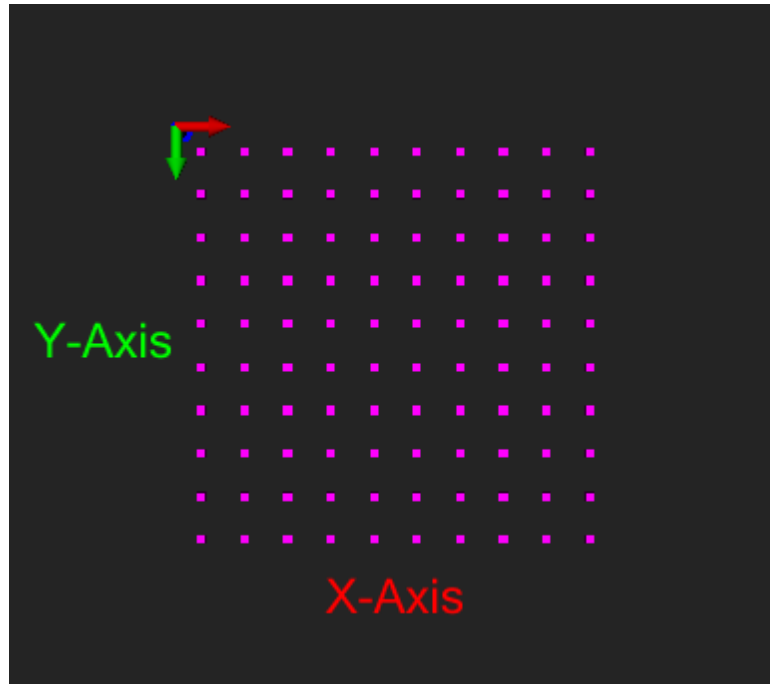
Learn more »[3 Previews](#)

Learn more »[MADRIX Effects](#)

Learn more »[Mapping / Tiling / Rotation](#)

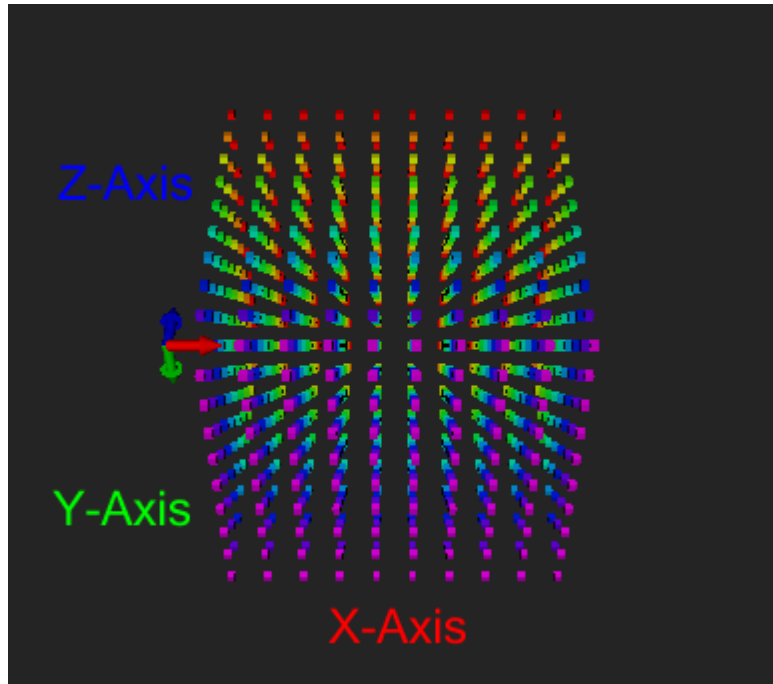
## 2D [X-Axis And Y-Axis]

- In 2D, only 2 axes are involved:
  - X-Axis [horizontal]
  - Y-Axis [vertical]



### 3D [X-Axis, Y-Axis, And Z-Axis]

- In 3D, 3 axes are involved:
  - X-Axis [horizontal]
  - Y-Axis [vertical]
  - Z-Axis [depth] [Z-levels]





**//PART C**

*User Interface [GUI]*

## 3 User Interface [GUI]

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Topics Of This Chapter](#)

### Introduction

The user interface is what you see of the software.

You will immediately see it when starting MADRIX for the first time. This graphical user interface [abbr.: GUI] provides visual feedback, controls, and information for you.

The GUI is one of the most important parts of MADRIX. We designed it with you—the user—in mind and to provide great usability, easy to use controls, and the most efficient ways to operate the software. The following topics will help you get to know the different parts and individual elements of the layout.

### Overview

The GUI of MADRIX is divided into different parts. The following image provides a short overview.



## Topics Of This Chapter

- [»Menu](#)  
This topic introduces the menu bar of the software found at the top of the screen.
- [»Work Areas \[Left/Right\]](#)  
MADRIX is a software that allows you to switch between two work areas, Left and Right.
- [»3 Previews](#)  
3 Preview Windows [Preview Left, Preview Right, and Preview Output] will show you a preview of your lighting effects. They are explained in detail here.
- [»Crossfader And Main Output](#)  
Learn how to use the Crossfader, Fade Types, the Color Filter, and more in the Fade Area.
- [»Controls \[Left/Right\]](#)  
Quickly set up the global speed.
- [»Storages](#)  
A brief overview will introduce all the controls of Storage Left and Storage Right.
- [»Storage Places \[256 x 256\]](#)  
Learn how to manage and organize your visuals.
- [»Effect Areas \[Left/Right\]](#)  
How can I use Effects? Effect Area Left and Right will be explained here.
- [»Cue List Section](#)  
These buttons are used to control the automatic playlist feature of MADRIX.
- [»Master / Audio Input Level](#)  
How do these two buttons and faders work? It is explained in this topic.
- [»Full Screen Mode](#)  
You can use the full size of your monitor to display the user interface of MADRIX.
- [»Touch Screen](#)  
An additional touch screen interface is built right into MADRIX. Learn more about it in this topic.

## 3.1 Menu

This topic includes:

- Introduction
- Extra Information Displayed
- File Menu
- Edit Menu
- Preferences Menu
- Window Menu
- Tools Menu
- Previews Menu
- Help Menu

### Introduction

Several menus are located at the top of the MADRIX window. In addition, there are several sub-menus to choose from.



File Edit Preferences Window Tools Previews Language Help

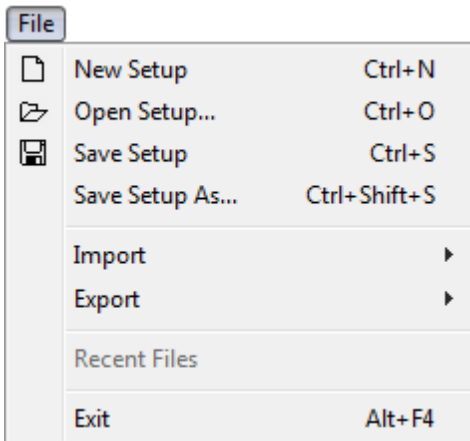
### Extra Information Displayed

**Ctrl+N** - This represents a keyboard shortcut that will perform the action directly rather than using the menu.

... - Indicates that a new window will open on top of the MADRIX window.

▶ - Indicates that this entry has sub-entries.

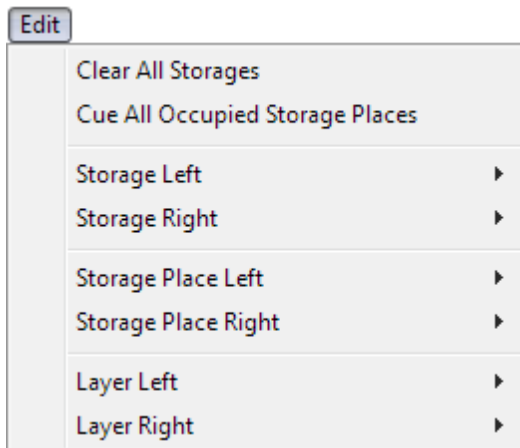
### File Menu



- **New Setup** - Creates a new MADRIX Setup file. This file will include your entire show and certain configurations of the software. A new Setup file is empty.
- **Open Setup...** - Loads a previously saved Setup file [of the file type \*.msz or \*.msx].
- **Save Setup** - Saves your show settings in an external file [of the file type \*.msz or \*.msx] in order to preserve them.
- **Save Setup As...** - Saves your Setup file as a separate, duplicate file. And you can choose a different name.
- **Import** - Loads different parts of a show into your currently opened Setup file.  
You may load a complete **Storage** [including all of its Storage Places], a single **Storage Place**, a **Patch**, the **Group Control**, **DMX Device Settings**, and **DVI Device Settings** [These items will be explained throughout this user guide.]
- **Export** - Saves the above described parts of a show into external files.  
You may save a **Storage**, a **Storage Place**, a **Patch**, the **Group Control**, **DMX Device Settings**, and **DVI Device Settings**  
Choose **Export > Storage Place > All...** to save all occupied Storage Places, all in separate files.
- **Recent Files** - Displays Setup files that were used last. Click on an entry to quickly load this Setup file.
- **Exit** - Closes the software.

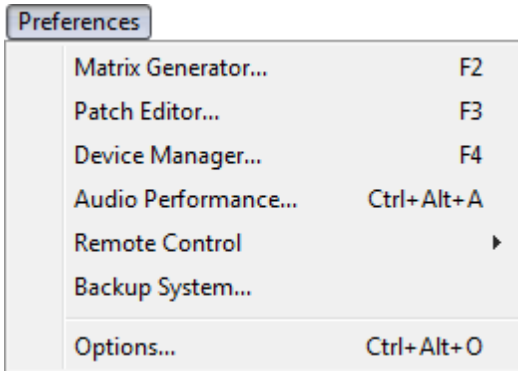
Learn more »[File Types](#)

## Edit Menu



- **Clear All Storages** - Removes all Storage Places [including customized Effects and Layers] and replaces them with the default Effect [SCE Color with color Black].
- **Cue All Occupied Storage Places** - Adds all customized Storage Places to the Cue List. Default Storage Places [SCE Color with Black color] will not be added.
- **Storage Left** - Opens the context menu for the Storage on the left side.
- **Storage Right** - Opens the context menu for the Storage on the right side.  
Learn more »[Storages](#)
- **Storage Place Left** - Opens the context menu for the currently selected Storage Place on Storage Left.
- **Storage Place Right** - Opens the context menu for the currently selected Storage Place on Storage Right.  
Learn more »[Storage Places \[255 x 255\]](#)
- **Layer Left** - Opens the context menu for the currently selected Layer of the Storage Place on Storage Left.
- **Layer Right** - Opens the context menu for the currently selected Layer of the Storage Place on Storage Right.  
Learn more »[Layers](#)

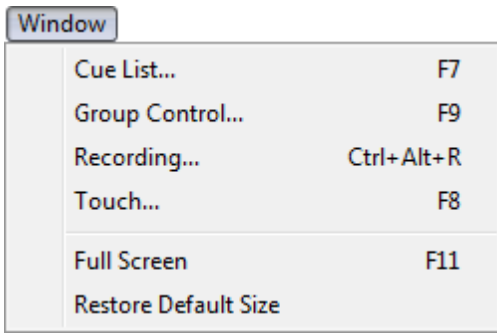
## Preferences Menu



- **Matrix Generator...** - Setting up your virtual LED matrix is a required step. This tool is the easiest way to do that. Learn more »[Matrix Generator](#)
- **Patch Editor...** - Is an advanced tool to set up your virtual LED matrix, which is required. The Patch Editor offers much more options than the Matrix Generator. Learn more »[Patch Editor](#)
- **Device Manager...** - Is the main tool to configure your [hardware] devices. Learn more »[OUTPUT Settings](#), »[INPUT And Remote Control](#), »[WYSIWYG Visualizer](#), »[Audio Configuration And ASIO](#)
- **Audio Performance...** - Offers advanced options for the audio analysis. Learn more »[Audio Configuration And ASIO](#)
- **Remote Control...** - Offers different options for controlling MADRIX remotely [incl. HTTP, DMX, and MIDI]. Learn more »[INPUT And Remote Control](#)
- **Backup System...** - Allows you to set up a fallback solution. Learn more »[Backup System](#)
- **Options ...** - Allows you to configure various important settings for the software. Learn more »[Options](#)

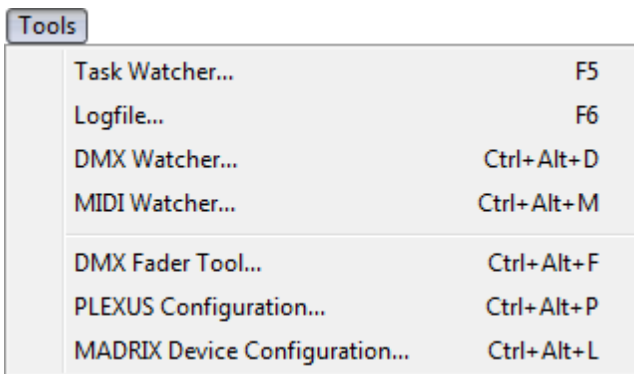
## Window Menu





- **Cue List...** - Opens the Cue List. Learn more »[Cue List](#)
- **Group Control...** - Opens the Group Control. Learn more »[Fixture Groups](#)
- **Recording...** - Opens a tool to record MADRIX Effects. Learn more »[Recording](#)
- **Touch...** - Opens the additional touch screen user interface to control MADRIX via a touch screen panel. Learn more »[Touch Screen](#)
  
- **Full Screen** - Maximizes the graphical user interface to fit the entire screen of your monitor. Learn more »[Full Screen Mode](#)
- **Restore Default Size** - Applies the default window size. As such, it resets any changes in size you made to the MADRIX window by moving its borders with the mouse.

## Tools Menu



- **Task Watcher...** - Provides detailed operational information.

- **Logfile...** - Keeps track of all warnings and error messages as well as information about the computer system.
- **DMX Watcher...** - Allows you to monitor any DMX Output or DMX Input.
- **MIDI Watcher...** - Allows you to monitor incoming MIDI signals.
  
- **DMX Fader Tool...** - Allows you to send individual DMX values on top of any other data output.
- **PLEXUS Configuration...** - Is a tool to configure and manage MADRIX PLEXUS interfaces.
- **MADRIX Device Configuration...** - Is a tool to configure and manage MADRIX LUNA, MADRIX NEBULA, and MADRIX STELLA interfaces.

Learn more »[Tools](#)

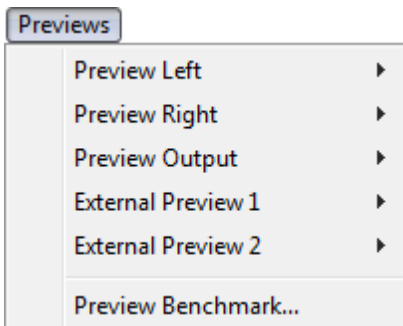
Learn more »[MADRIX PLEXUS](#)

Learn more »[MADRIX LUNA](#)

Learn more »[MADRIX NEBULA](#)

Learn more »[MADRIX STELLA](#)

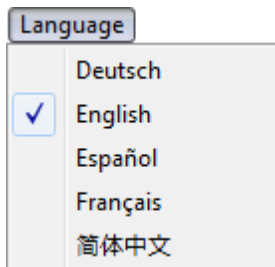
## Previews Menu



MADRIX features a number of Preview Windows. These sub-menus give access to their context menus.

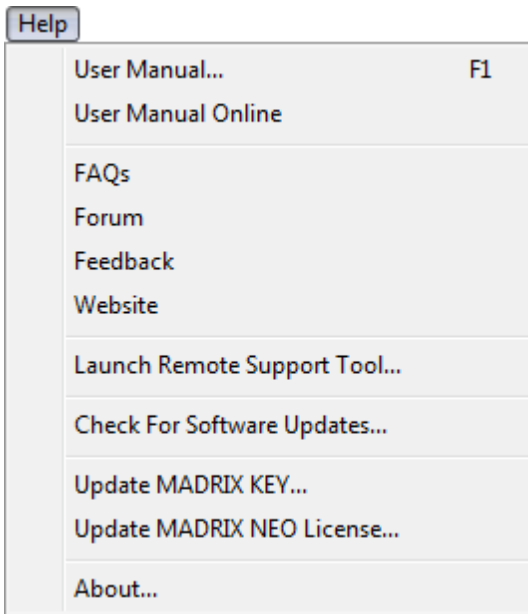
Learn more »[3 Previews](#)

## Language Menu



- **Deutsch** - Activates the German language for the software user interface.
- **English** - Activates the English language for the software user interface.
- **Español** - Activates the Spanish language for the software user interface.
- **Français** - Activates the French language for the software user interface.
- 简体中文 - Activates the **Simplified Chinese** language for the software user interface.

## Help Menu



- **User Manual...** - Opens this user guide, locally on your computer.
- **User Manual Online** - Opens this user guide online by calling up a website using your default web browser. This requires an internet connection.
- **FAQs** - Is an online link to frequently asked questions about the software. This requires an internet connection.
- **Forum** - Is an online link that will take you to the MADRIX Online Forum, where users and developers exchange ideas about MADRIX. This requires an internet connection.
- **Feedback**- Is an online link that will open your web browser with the MADRIX Contact Form. If you wish, please enter your comments into the form and send it to us. Thank you! This requires an internet connection.
- **Website** - Is an online link for the MADRIX website »[www.madrix.com](http://www.madrix.com). This requires an internet connection.
- **Launch Remote Support Tool...** - Opens the external support tool provided by MADRIX. This requires an internet connection. MADRIX technical support may request that you launch this tool for further assistance.
- **Check For Software Updates...** - Checks online if a software update is available for downloading. This requires an internet connection.
- **Update MADRIX KEY...** - Allows you to upgrade or update the MADRIX KEY. Learn more »[MADRIX\\_KEY \[Software License\]](#)

- **Update MADRIX NEO License...** - Allows you to update the MADRIX 2.X license of your MADRIX NEO to a MADRIX 3.X license. Learn more »[Update From MADRIX 2.X To MADRIX 3.X](#)
- **About...** - Provides information about the MADRIX software, the MADRIX products you own, and legal information.

### 3.2 Work Areas [Left/Right]

This topic includes:

- Introduction
- Hierarchy
- Workflow Example

### Introduction

The user interface of MADRIX is arranged in a specific way.



While there seem to be a lot of different areas, the GUI can be divided into 3 main sections:

- **Left [Effect Pipeline Left]**
- **Middle Section [Main Output]**
- **Right [Effect Pipeline Right]**

This screenshot clarifies the layout of the 2 pipelines [Effect Pipeline Left is shown in yellow / Effect Pipeline Right is shown in green] and the middle section:



That means you can work independently on the left side or on the right side of MADRIX. You could compare this workflow with the A/B setup of a DJ.

## Hierarchy

Furthermore, you can find a distinct visual and logical hierarchy for each effect pipeline:



**Left**

**Preview**

[Preview Left, including Submaster Left, Color Filter Left, Filter Left, Current Storage Place Left, Speed Master Left]

**Storages  
Storage Places**

[Storage banks 1 to 256, including Storage Places 1 to 256 each]

**Middle Section**

**Logo**

**Preview Main Output**

**Crossfader**

[Fade Area]

**Right**

**Preview**

[Preview Right, including Submaster Right, Color Filter Right, Filter Right, Current Storage Place Right, Speed Master Right]

**Storages  
Storage Places**

[Storage banks 1 to 256, including Storage Places 1 to 256 each]

**Layers**

[Effect Area Left including Layers]

**Cue List****Master And Audio Input Level****Layers**

[Effect Area Right including Layers]

- Your visuals are customized and set up in Layers.
- A Storage Place can contain one or multiple Layers.
- To use a variety of effects, you can use many Storage Places to store your visuals.
- Storage Places are organized in Storages.
- A Preview shows what current Storage Place is selected on the current Storage to preview an effect.
- The Crossfader and Master define the final output towards your LEDs.

In the following chapters, the different parts will be explained in more detail:

- A Preview provides a live display of the currently used effects and lighting visuals.  
Learn more »[3 Previews](#)
- Different controls allow you to change visuals on demand for a whole pipeline.  
Learn more »[Controls \[Left/Right\]](#)
- A Storage contains Storage Places to help you organize, manage, and store your effects.  
Learn more »[Storages](#)
- An Effect Area offers all the controls to choose and customize effects.  
Learn more »[Effect Areas \[Left/Right\]](#)

## **Workflow Example**

Thanks to the features of MADRIX, you can flexibly work in many ways.

A possible live work-flow could look like this, for example:

- Select an effect on the left side and put it out onto the LEDs.
- Prepare the next effect on the right side.



- Switch to the right side [using the Crossfader].
- Prepare the next effect on the left side.
- Etc.

### 3.3 Crossfader And Main Output

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Crossfader](#)
- [Fade Types](#)
- [Main Output Color Filter](#)
- [Main Output Strobe](#)
- [Main Output Macro](#)

#### Introduction



The Fade Area, including the important Crossfader, is positioned in the middle of the MADRIX user interface; between both Effect Pipelines [[Learn more »Work Areas \[Left/Right\]](#)]. This section of the user interface serves different purposes, as explained below.

#### Overview



**Fade Type** - Is part of the Crossfader. It specifies how the fade will look like. Perform a right mouse click to reset to the default value [XF]. [Learn more Fade Types](#)



**Color-Fade Color** - Is part of the Crossfader. It specifies the color used only for the Color-Fade. Perform a right mouse click to reset to the default value [Black]. Learn more [Crossfader](#)



**Color Filter** - Applies an additive color filter to the Main Output. Perform a right mouse click to reset to the default value [White]. Learn more [Color Filter](#)



**Filter** - Applies special filters to quickly change your visuals. Learn more »[Filters \[FX\]](#)



**Crossfader** - Determines which Effect Pipeline is send to the output, i.e. visuals from which side. Perform a right mouse click to reset to the default value [50%]. Learn more [Crossfader](#)



**Fade To Left** - Is part of the Crossfader. It triggers an automatic fade to the left and applies the currently set Fade Time and Fade Type.



**Fade To Middle** - Is part of the Crossfader. It triggers an automatic fade to the middle and applies the currently set Fade Time and Fade Type.



**Fade To Right** - Is part of the Crossfader. It triggers an automatic fade to the right and applies the currently set Fade Time and Fade Type.

**Skip To Left** - Is part of the Crossfader. Perform a double-click in order to immediately skip to the left [without applying a Fade Time or Fade Type].

**Skip To Middle** - Is part of the Crossfader. Perform a double-click in order to immediately skip to the middle [without applying a Fade Time or Fade Type].

**Skip To Right** -Is part of the Crossfader. Perform a double-click in order to immediately skip to the right [without applying a Fade Time or Fade Type].

Learn more [Crossfader](#)



**Fade Time** - Is part of the Crossfader. It specifies the duration of the fade, when an automatic fade is triggered. [To change the time, select the value via left double-click first. Then, enter a value using the keyboard, use the mouse wheel, or use a left mouse click and hold while dragging the mouse up or down.] Learn more [Crossfader](#)



**Automatic Fade** - Is part of the Crossfader. It triggers an automatic fade and applies the currently set the Fade Time and Fade Type from left to right or right to left. Learn more [Crossfader](#)



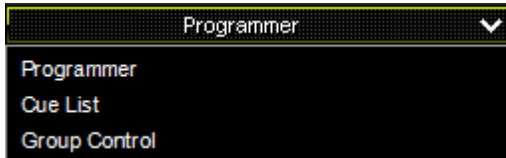
**Strobe** - Activates a strobe on top of the Main Output. Perform a right mouse click to choose the color. Learn more [Strobe](#)



**Main Output Macro** - Controls the Main Output Macro Editor. Learn more [Main Output Macro](#)



**View** - Changes the view of the MADRIX user interface. The following views are available:



- **Programmer** [Default View]
- **Cue List** [Learn more » [Cue List](#)]
- **Group Control** [Learn more » [Fixture Groups \[Group Control\]](#)]

## Crossfader

### Overview

The Crossfader specifies which effect [from Effect Pipeline Left or Effect Pipeline Right] is displayed on Preview Output. As such, the Crossfader specifies the source of the final output. The Preview Output will show you the results and the final output towards your LEDs.

- Set the Crossfader to the far left to show only the effect of Effect Pipeline Left [Preview Left/Storage Left].
- Set the crossfader to the far right to show only the effect of Effect Pipeline Right [Preview Right/Storage Right]
- Any position in between is also possible to mix both effects.

### Automatic Fades

- **FADE** - Starts an automatic fade.
  - The fader will automatically fade to the other side according to the Fade Time and the Fade Type.
  - If the fader is positioned on the right side, it will automatically move to the left side. If the fader starts on the left side, it will move to the right side.

- **Fade Time** - Defines the duration of the automatic fade.
  - Set the time using seconds and tenths of seconds.
  - To change the time, select the value via left double-click first. Then, enter a value using the keyboard, use the mouse wheel, or use a left mouse click and hold while dragging the mouse up or down.
  - Example: Enter '2.5' for a fade duration of 2.5 seconds.
- **Fade To Left / Fade To Middle / Fade To Right** - Click on the arrow buttons to fade to a specific position: left, middle, right.

## Manual Fades

- **Left Mouse Click And Hold And Drag** - Click with your left mouse button on the Crossfader, continue to hold, and move your mouse in order to change its position. You can fade manually in this way.
- **Left Mouse Click** - Click with your left mouse button directly on the Crossfader panel to instantly change the position to the mouse location.
- **Left Mouse Double-Click** - Perform a double-click with your left mouse button directly on the Crossfader panel to reset the Crossfader to 50%, i.e. to the exact middle position between Left and Right.
- **Right Mouse Click** - Perform a right click with your mouse on the Crossfader to reset the Crossfader to 50%, i.e. to the exact middle position between Left and Right.
- **Skip To Left / Skip To Middle / Skip To Right** - Perform a double-click on the arrow buttons to instantly skip to a specific position: left, middle, right.

## Examples

Crossfader To The Left



Crossfader To The Right



## Fade Types

All fades [manual and automatic] are of a certain type. By changing the Fade Type, you can change how a fade will look like.

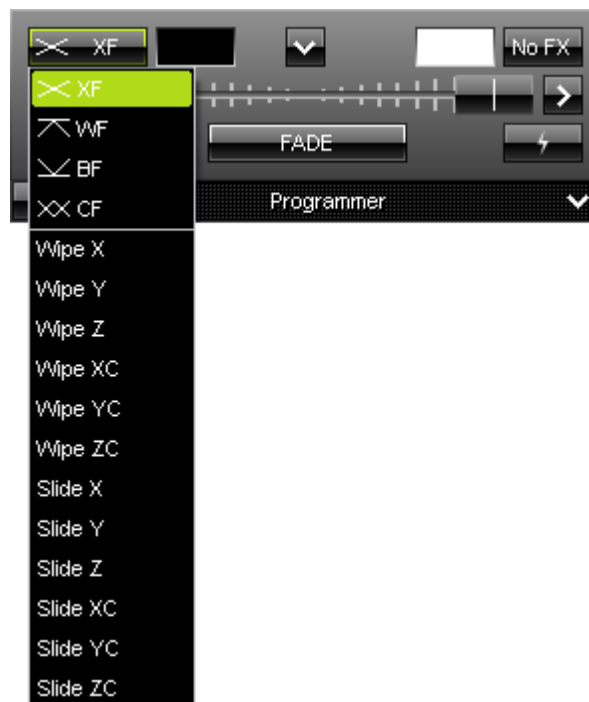
Learn more [Fade Types](#)

## Fade Types

### Introduction

The Crossfader creates a fade between Effect Pipeline Left and Effect Pipeline Right. You can specifically control the visual result of the fade:

- You can choose from different types of fades using the drop-down list as shown below.
- The fade types will influence how Effect Left is mixed with Effect Right during the fade or vice versa.



### Overview

The following table describes how the different fade types work.

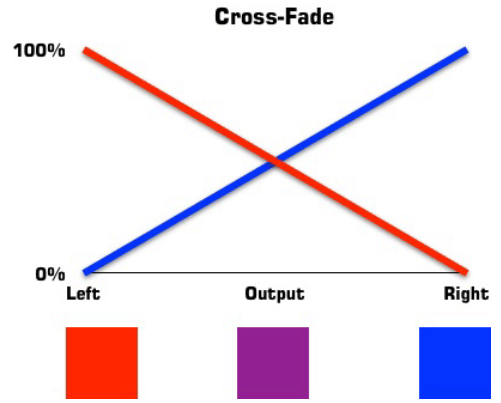
For these examples, let us assume that Effect Left is currently playing and that you would want Effect Right to be displayed next. So we will fade from Preview Left to Preview Right.



**Cross-Fade**

A Cross-fade starts by dimming Effect Left linearly from 100% to 0% during the fade time. But at the same time, Effect Right starts to fade in until it is fully shown at the end of the fade. As a result an interpolation of the colors of Left and Right will be used during the fade.

At the beginning of the whole fade procedure, Effect Left stands at 100%, while Effect Right is not displayed [0%]. Halfway through, both effects are dimmed to 50%, as you can see in the picture. Neither Effect Left nor Effect Right are displayed with 100%. That is why the cross-fade appears to be darker. At the end of the fading procedure, Effect Left stands at 0%, while Effect Right is shown with 100%.



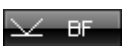
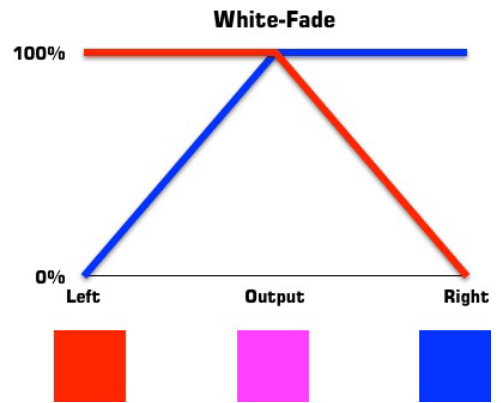




**White-Fade**

A White-fade is the opposite of a black-fade. It starts with Effect Left being shown at 100% for the first half of the fade time. At the same time, Effect Right fades in during the first half until it is also shown with 100%. Afterwards, Effect Right remains at 100% for the rest of the fade procedure, while Effect Left is dimmed from 100% to 0%.

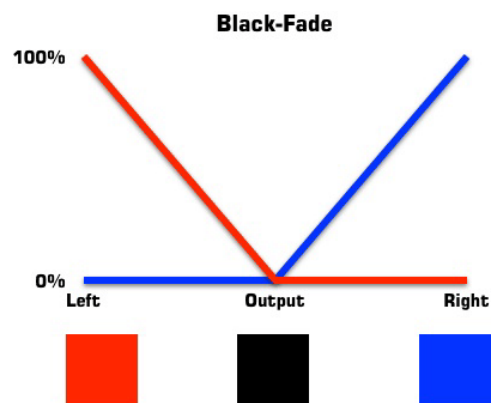
Halfway through, both effects are shown with 100%. Because of that, a white-fade does not necessarily display a white color in middle position. Instead, this fade type uses addition of all color values. For example, if your are using a SCE Color in pure red on Effect Left [255, 0, 0] and SCE Color in turquoise/cyan on Effect Right [0, 255, 255], the result will indeed be a pure white halfway trough as it adds up to 255, 255, 255. But using a SCE Color in pure red on Effect Left [255, 0, 0] and SCE Color in pure green [0, 255, 0], this results in pure yellow in the middle of the fade procedure [255, 255, 0], for example.



**Black-Fade**

A Black-fade starts with dimming Effect Left from 100% to 0% for the first half of the fade time. Effect B remains at 0% during this time. Then, halfway through the fade procedure, Effect Right starts to increase until 100% shown. Effect A was already at 0% and remains at this level for the rest of the fade.

Since both effects are shown with 0% in the middle of the fade, this always results in a black output, and therefore the name.



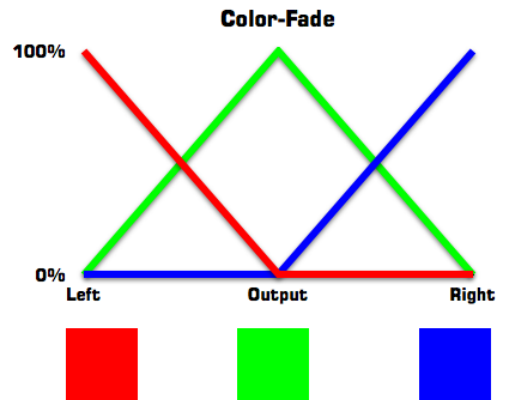


**Color-Fade**

Essentially, a Color-Fade in MADRIX does imitate a black-fade [see above]. Effect Left is dimmed to 0% first and afterwards Effect Right increases linearly from 0% to 100%.

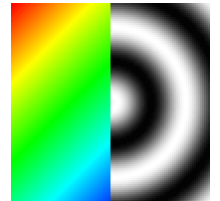
But on top of that, a color is added. While Effect Left is reduced in intensity, the color C gains intensity. In the middle of the fade Effect Left and Effect Right stand at 0%, but color C stands at 100%. When Effect Right reaches 100%, color C is reduced to 0% again.

In the middle position you will not see Effect Left or Right, but only the color you picked. The **Fader Box** button or the Color Picker enable you to choose the color for the color-fade.



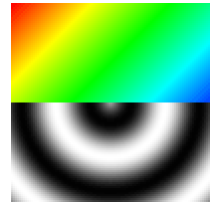
**Horizontal Wipe**

Wipes one side over another horizontally [from the right or left side]. The currently active effect stays and will be shown in the background until the new effect fully covers the output.



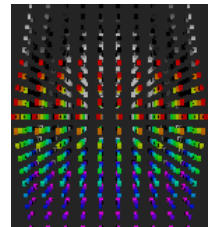
**Vertical Wipe**

Wipes one side over another vertically [from above or below]. The currently active effect stays and will be shown in the background until the new effect fully covers the output.



**Depth Wipe**

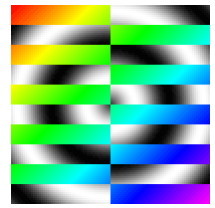
Wipes one side over another vertically [from back or front]. The currently active effect stays and will be shown in the background until the new effect fully covers the output.



Wipe XC

**Horizontal  
Cross Wipe**

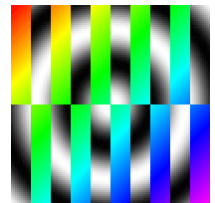
Wipes one side over another horizontally [from the right and the left side] and splits the new effect at the same time during the fade. The currently active effect will be shown in the background until the new effect fully covers the output.



Wipe YC

**Vertical  
Cross Wipe**

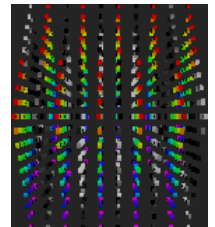
Wipes one side over another vertically [from the top and the bottom side] and splits the new effect at the same time during the fade. The currently active effect will be shown in the background until the new effect fully covers the output.



Wipe ZC

**Depth  
Cross Wipe**

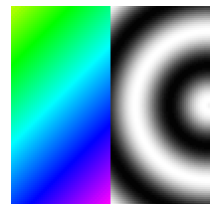
Wipes one side over another vertically [from the back and the front] and splits the new effect at the same time during the fade. The currently active effect will be shown in the background until the new effect fully covers the output.



Slide X

**Horizontal  
Slide**

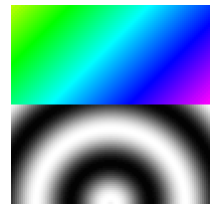
Pushes the old effect out of the frame horizontally [from the left to the right and vice versa]. The currently running effect will move accordingly to the side until it vanishes.



Slide Y

**Horizontal  
Slide**

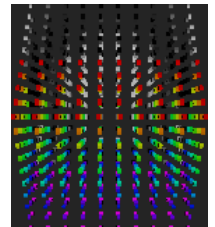
Pushes the old effect out of the frame vertically [from the top to the bottom and vice versa]. The currently running effect will move accordingly to the top or bottom until it vanishes.



Slide Z

**Depth Slide**

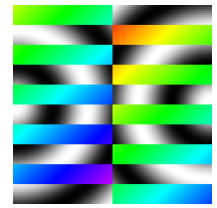
Pushes the old effect out of the frame vertically [from the back to the front and vice versa]. The currently running effect will move accordingly to the top or bottom until it vanishes.



Slide XC

**Horizontal  
Cross Slide**

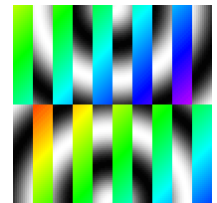
Pushes the old effect out of the frame horizontally [from the left to the right and vice versa] and splits both effects at the same time during the fade. The currently running effect will move accordingly until it vanishes.



Slide YC

**Vertical  
Cross Slide**

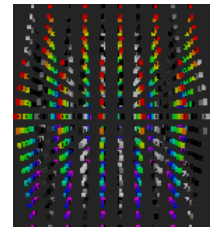
Pushes the old effect out of the frame vertically [from the top to the bottom and vice versa] and splits both effects at the same time during the fade. The currently running effect will move accordingly until it vanishes.



Slide ZC

**Depth  
Cross Slide**

Pushes the old effect out of the frame vertically [from the back to the front and vice versa] and splits both effects at the same time during the fade. The currently running effect will move accordingly until it vanishes.



## Main Output Color Filter



**Color Filter** - Filters the colors of the Main Output.

- Simply select the color using the Color Picker or the Color Fader Box in the upper right corner of the Fade Area to activate the Color Filter.
- White is the default color and means that no filter is active.

- The Color Filter works in multiply mode [additive mode].
  - That means that the colors of the effects are multiplied with the colors of the filter [Effect x Color Filter].
  - Both, effect and filter, are represented through RGB or RGBW mode [RGB(W) x RGB(W)].
  - Moreover, every single color of the effect will be multiplied with the corresponding color of the filter [R x R, G x G, B x B, W x W]. You will see the relation in the following table.
  - Please note that below calculations are examples to show how it works.
  - In MADRIX, color values might be converted to always ensure a maximum color value of 255. [E.g., without the conversion 255 x 255 would not result in 255].

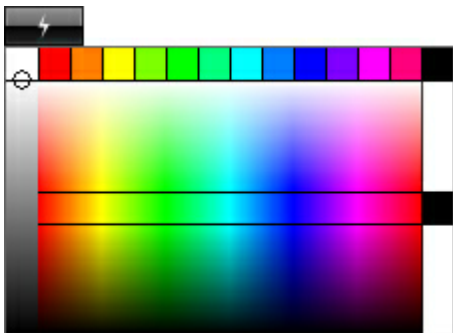
Effect	x	Color Filter	<i>The colors of the effects are multiplied with the colors of the filter.</i>	
<b>results in</b>				
RGB(W)	x	RGB(W)	<i>Effect and filter are represented through RGB or RGBW mode.</i>	
<b>results in</b>				
R	x	R	<i>Every single color of the effect will be multiplied with the corresponding color of the filter.</i>	
G	x	G		
B	x	B		
(W)	x	(W)		
<b>Example 1 in RGB Mode</b>				
SCE Color	x	Color Filter	=	Result
Yellow		Green		Green
255	x	0	=	0
255	x	255	=	255 [after conversion]
0	x	0	=	0
<b>Example 2 in RGB Mode</b>				
SCE Color	x	Color Filter	=	Result
Red		Green		Black
255	x	0	=	0
0	x	255	=	0
0	x	0	=	0
<b>Example 3 in RGB Mode</b>				

SCE Color	x	Color Filter	=	Result
Turquoise		Pink		Blue
0	x	255	=	0
255	x	0	=	0
255	x	255	=	255 [after conversion]

## Main Output Strobe

This strobe applies directly to the Main Output.

- **Left Mouse Click and Hold** - Activates the strobe. Continue to hold as long as the strobe should be active [Flash button].
  - Simply release the mouse button to deactivate the strobe again.
  
- **Right Mouse Click and Hold** - Allows you to choose the color of the strobe.
  - Simply hover over the new color with your mouse and release the mouse button to select the color.



- The speed [i.e. the frequency] of the strobe can be set up in the Options.
  - How the strobe works can be set up in the Options.
- Learn more »[Performance](#)

## **Main Output Macro**

The Main Output Macro is 1 of 4 locations to apply a Macro. A Macro is a Script written to further influence the functionality of the effect or output. A Macro is not necessary, but can add further functionality to your project.

The Main Output Macro is a Macro that affects the entire main output.

Learn more »[Macros And Scripts](#)

## 3.4 3 Previews

This topic includes:

- [Introduction](#)
- [2D Or 3D Mode](#)
- [Working With Previews](#)
- [More Information](#)
- [Options](#)
- [Preview Benchmark](#)
- [DVI Output And External Previews](#)
- [Troubleshooting](#)

### Introduction



MADRIX features 3 main Previews.

That means that you can have a look at your effects and visuals before they are displayed on your LED installation. These are live previews and they show everything in real time.

- **Preview Left**
  - **Preview Right**
  - **Preview Output**
- **Preview Left / Preview Right** - Located to the upper left and to the upper right of the user interface. They represent the two preview windows for the 2 Effect Pipelines. [[Learn more »Work Areas \[Left/Right\]](#)]
  - **Preview Output** - Is located in the middle. This window is a preview of the actual data output that is sent to your interfaces/LEDs.



- A MADRIX Preview is a technical representation of your installation. You will see the individual pixels/voxels and how the effects will look on your LEDs, but not realistic renderings of your projects you may know from visualizers.
- DVI output is explained at the end of this topic. Learn more [DVI Output And External Previews](#)

## 2D Or 3D Mode

As explained earlier, you can use MADRIX to control 2D and/or 3D projects. [Learn more »[2D Or 3D \[X, Y, Z\]](#)]

The 3 Previews support a 2D mode and a 3D mode to adequately represent your LED installation. In this way, they are an important part of your workflow when working with your project.

- Go to **Previews > Preview Left/Right/Output > 2D Mode** to choose 2D mode for the left/right/middle Preview.



- Go to **Previews > Preview Left/Right/Output > 3D Mode** to choose 3D mode for the left/right/middle Preview.



- MADRIX can run a benchmark to test your computer's performance with regards to the recommended maximum 3D voxel resolution.

Learn more [Preview Benchmark](#)

**You can use the Previews in 3D Mode, even if your virtual LED matrix is only 2D.  
And you can use the Previews in 2D Mode, even if your virtual LED matrix is in 3D.**

## Working With Previews

### Overview

You have different options of working with each Preview. It depends on 2D mode or 3D mode which options are available to you.

### 2D Mode

#### Using The Mouse

[*Stretch Pixels* needs to be deactivated.]

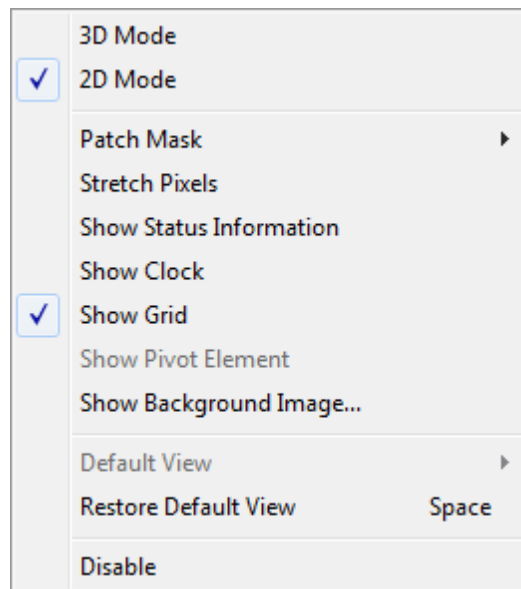
- **Left Mouse Click And Hold And Move** - Click with your left mouse button on a Preview, continue to hold, and move your mouse in order to move and relocate the Preview.
- **Middle Mouse Click And Hold And Move** - Click with your middle mouse button on a Preview, continue to hold, and move your mouse in order to move and relocate the Preview.
- **Right Mouse Click And Hold And Move** - Click with your right mouse button on a Preview, continue to hold, and move your mouse in order to zoom in or to zoom out.
- **Left Mouse Double-Click** - Perform a double-click with your left mouse button to reset the Preview to its default view. This removes any changes, such as zoom or relocation.
- **Right Mouse Click** - Calls up the context menu as explained below.

- **Scroll Wheel** - Click on a Preview to focus it. Then, use the scroll wheel of your mouse to zoom in or to zoom out.

## Keyboard Shortcuts

- **Space Bar** - Use the space bar on your keyboard to reset the Preview to its default view. This removes any changes, such as zoom or relocation.

## Context Menu



- **3D Mode** - Switches to 3D mode.
- **2D Mode** - Is activated in 2D mode.
- **Patch Mask** - Is only available for Preview Output. Learn more [More Information](#)
- **Stretch Pixels** - Extends the Preview to the full size. The content [i.e., the effects] will also be stretched.
- **Show Status Information** - Provides further information and displays the name of the Preview, the current size of the virtual LED matrix, the current frames per second of this preview [FPS], and which Storage [e.g., S1] and which Storage Place [e.g., P1] are currently selected.
- **Show Clock** - Will display the system time in the preview.
- **Show Grid** - Activates an optical raster separating the single pixels. If the resolution or the zoom level is too high, the grid will not be visible anymore.

- **Show Background Image...** - You may load \*.bmp, \*.gif, \*.jpg, \*.png, \*.tif, or \*.tiff files as background images for your Previews. They will replace the standard gray background color.
- **Restore Default View** - Resets the Preview to the default size and position. This removes any changes, such as zoom or relocation.
- **Disable** - Deactivates a Preview. This can be helpful to save computer resources and increase performance.

## 3D Mode

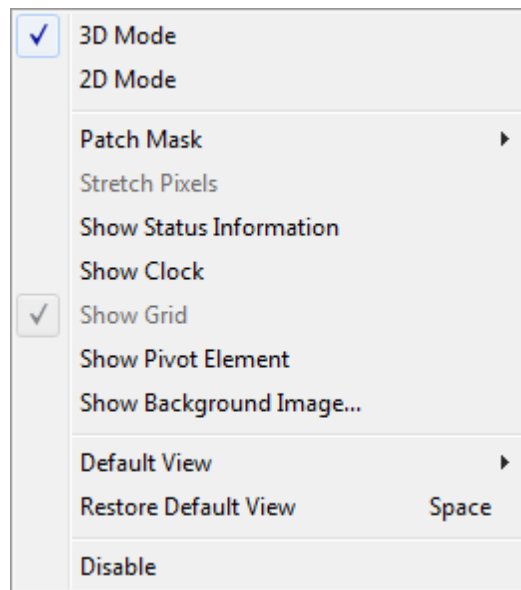
### Using The Mouse

- **Left Mouse Click And Hold And Move** - Click with your left mouse button on a Preview, continue to hold, and move your mouse in order to rotate the 3D Preview. You can also add a spin and let the Preview rotate constantly.
- **Middle Mouse Click And Hold And Move** - Click with your middle mouse button on a Preview, continue to hold, and move your mouse in order to move and relocate the Preview.
- **Right Mouse Click And Hold And Move** - Click with your right mouse button on a Preview, continue to hold, and move your mouse in order to zoom in or to zoom out.
- **Left Mouse Double-Click** - Perform a double-click with your left mouse button to reset the Preview to its default view. This removes any changes, such as zoom or relocation.
- **Right Mouse Click** - Calls up the context menu as explained below.
- **Scroll Wheel** - Click on a Preview to focus it. Then, use the scroll wheel of your mouse to zoom in or to zoom out.

### Keyboard Shortcuts

- **Space Bar** - Use the space bar on your keyboard to reset the Preview to its default view. This removes any changes, such as zoom or relocation.

### Context Menu



- **3D Mode** - Is activated in 3D mode.
- **2D Mode** - Switches to 2D mode.
  
- **Patch Mask** - Is only available for Preview Output. Learn more [More Information](#)
- **Show Status Information** - Provides further information and displays the name of the Preview, the current size of the virtual LED matrix, the current frames per second of this preview [FPS], and which Storage [e.g., S1] and which Storage Place [e.g., P1] are currently selected.
- **Show Clock** - Will display the system time in the Preview.
- **Show Pivot Element** - Displays a helpful icon for visual guidance. Three arrows are always shown at position X=0, Y=0, Z=0 [not matter if the Preview is rotated]. The X-axis is red [horizontal; width], the Y-axis is green [vertical; height], and the Z-axis is blue [level; depth].
- **Show Background Image...** - You may load \*.bmp, \*.gif, \*.jpg, \*.png, \*.tif, or \*.tiff files as background images for your Previews. They will replace the standard gray background color.
  
- **Default View** - Choose your point of view and the default view for this Preview.
- **Restore Default View** - Resets the Preview to its Default View. This removes any changes, such as zoom or relocation.
- **Disable** - Deactivates a Preview. This can be helpful to save computer resources and increase performance. Especially, 3D mode requires a lot of computer performance.

- **Clear Message** - Only the Preview Output offers this option. MADRIX may show information or error messages in the Preview Output.
  - **x** - Discards any messages that MADRIX shows. The messages will not be displayed anymore.
  - Such a message could look like this:



## More Information

The Previews mainly show your effects and visuals. Depending on different settings and requirements they convey additional information. **Note:** The different scenarios explained below can apply at the same time.

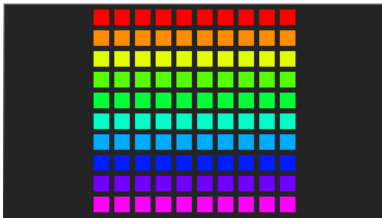
## Intensity

When controlling LED lighting, the intensity of the light output makes up a large factor of the light design. The Previews will represent your intensity settings.

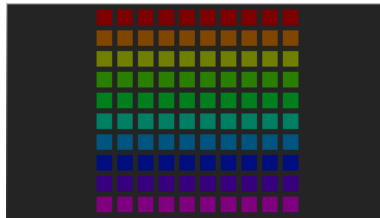
There are many ways how to control the intensity in MADRIX. The main examples are:

- **Master**, including **Blackout**  
Learn more »[Master / Audio Input Level](#)
- **Storage Place Submaster**  
Learn more »[Storages](#)
- **Layer Submaster**  
Learn more »[Effect Areas \[Left/Right\]](#)
- **Layer Opacity**  
Learn more »[Layers](#)
- **Colors**  
Learn more »[Using Colors And Intensity](#)

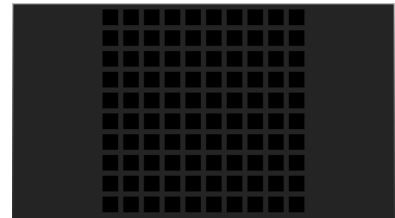
**Master Set To 255**



**Master Set To 127**



**Master Set To 0 / Blackout**

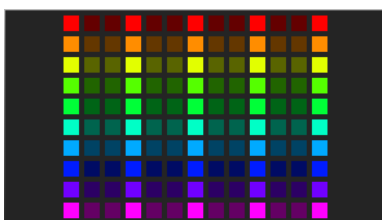


## Rendering

One of the main features of MADRIX is that it renders visuals and effects live in real time. Regarding the overall performance, you can define a specific setting in the Options that will also influence the Previews. Depending on your settings, MADRIX will include all voxels in the rendering process or only the ones that are patched.

Learn more »[Performance](#)

**Included Voxels: All**



**Included Voxels: Patched Only**

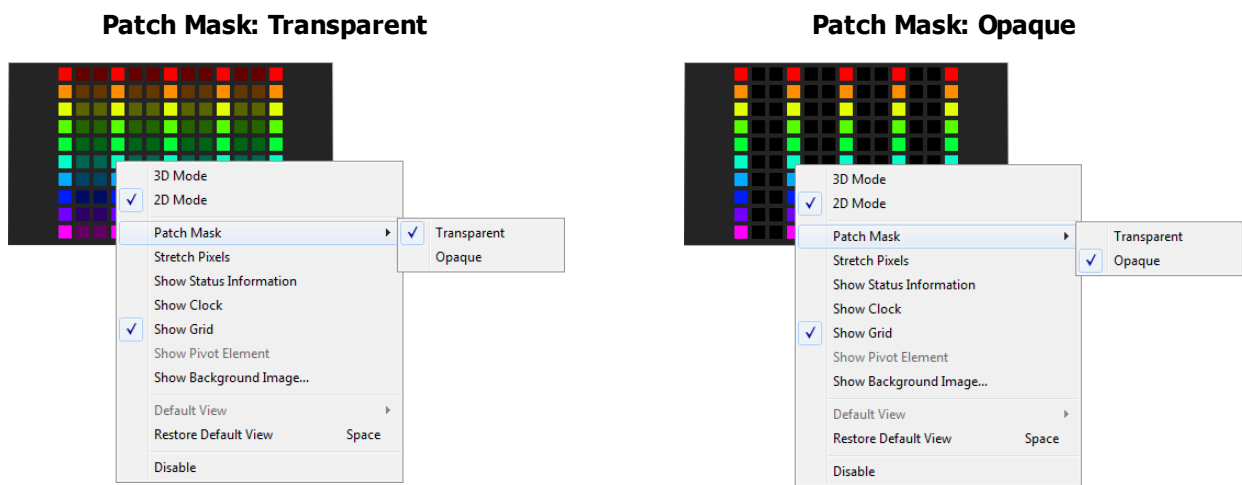


## Patch Mask

When letting MADRIX render all voxels, you can further decide how the Previews work. Voxels that are used [a fixture is set up at this position] are displayed brighter than voxels without LED fixtures. Compared to this, MADRIX offers two choices in order to show or hide voxels that are not used. This will influence all 3 Previews. Positions without fixtures will be dark gray or they will not be shown and set to black.

**Note:** The Patch Mask will only fully apply, when your performance settings include all voxels, as explained above. If your performance is set to only include patched voxels, the voxels will always be shown opaque. Changing the Patch Mask setting will not influence the Previews anymore.

- **Right Mouse Click** on the **Preview Output > Patch Mask > Transparent/Opaque**
- Or go to **Previews > Preview Output > Patch Mask > Transparent/Opaque**



## MADRIX License

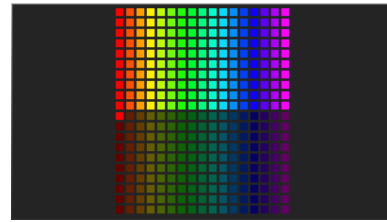
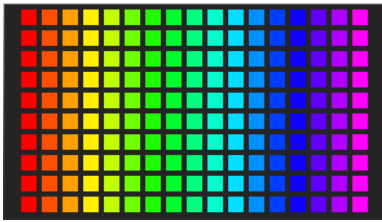
The Previews will indicate if you are using a higher output [as set by the virtual LED matrix in the Matrix Generator or Patch Editor] than your MADRIX license version provides. Unlicensed areas will be shown darker.

Select **Help > About...** to check your MADRIX license version and product serial numbers.

**Output Fully Covered By License**

**Output Not Fully Covered By License**

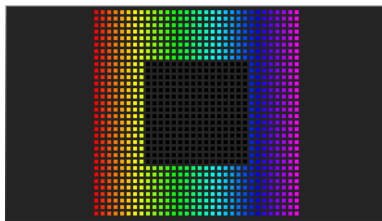




### Individual Patch

When setting up an individual Patch in the Patch Editor, there might be areas where no fixtures are located according to your LED installation. These areas without any fixtures will automatically be displayed darker to indicate that this area is not in use.

**Preview Example**



**Corresponding Patch Example**

	10	20	30	
10	U001 C001	U001 C193	U002 C001	U002 C193
20	U006 C193			U003 C001
30	U006 C001			U003 C193
40	U005 C193	U005 C001	U004 C193	U004 C001

### Options

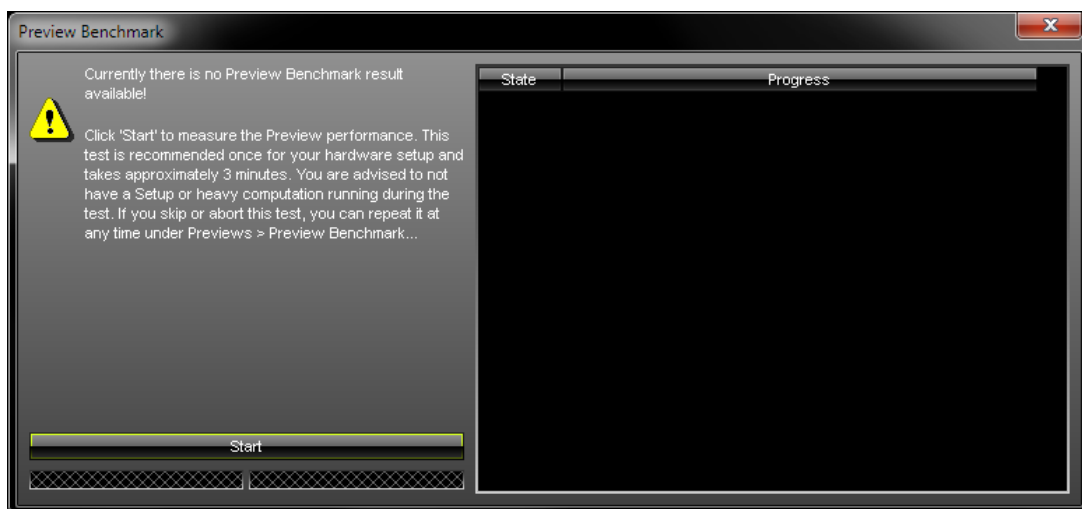
You can change further settings of the Previews.

Learn more »[User Interface](#)

Learn more »[Performance](#)

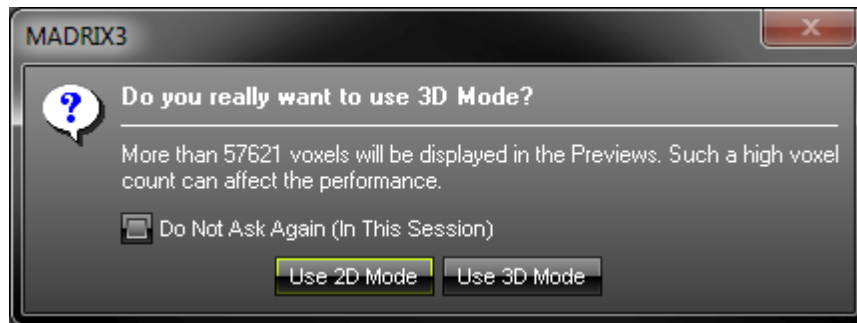
## Preview Benchmark

- When running MADRIX for the first time, you will be asked to perform a short benchmark test for the Previews.
- Or go to **Previews > Benchmark...**
- Click **Start**



- Since using the Previews in 3D Mode can require a certain computer performance, MADRIX allows you to run the Benchmark to see the recommended maximum 3D voxel resolution for your computer.
- It is recommended to run this test once for your computer setup.
- Please close other programs, windows, and background tasks during the test since they can negatively affect the performance and outcome.

- More Information:
  - MADRIX mainly uses the computer's main processor [CPU] for the effect rendering process.
  - MADRIX mainly uses the computer's graphics card [GPU] to display these effects in the Previews.
  - The Benchmark evaluates the performance of the computer system regarding the Previews. This means that it mainly tests the performance of the graphics card.
  - The Benchmark result does not necessarily represent the overall computer performance. The CPU might be able to handle a higher resolution than the graphics card can display smoothly in the Previews.
  - The Benchmark evaluates the performance of the Previews in 3D Mode. The result of the Benchmark will show the total number of voxels your computer should be able to display with sufficient performance when using one or more Previews in 3D Mode.
  - The Benchmark result does not represent the performance for 2D.
  - You can save overall computer performance when using a 3D Matrix Size by setting the Previews to 2D Mode.
  - The Benchmark result does not refer to each Preview independently, but for all Previews in total. That means by default it is assumed that all three Previews are enabled as well as set to 3D Mode.
  - You can save computer performance by only setting one Preview to 3D Mode and setting the other two Previews to 2D Mode or disabling them, for example. [When disabling one or several Previews, a single Preview can sufficiently display a higher resolution.]
  - The Benchmark result is an information. It shows what is recommended and not necessarily what is possible.
  - When exceeding the recommended 3D voxel resolution, MADRIX will ask you if you are sure to use the Preview in 3D Mode. In this way, poor performance can be avoided:



- Examples:

Benchmark Result Examples	Assumed Activated Previews	Recommended 3D Preview Resolution Per Preview [X x Y x Z]	Calculation
10,125 Voxels	3	15 x 15 x 15	$15 * 15 * 15 * 3 = 10,125$
24,000 Voxels	3	20 x 20 x 20	$20 * 20 * 20 * 3 = 24,000$

46,875 Voxels	3	25 x 25 x 25	$25 * 25 * 25 * 3 = 46,875$
52,728 Voxels	3	26 x 26 x 26	$26 * 26 * 26 * 3 = 52,728$
59,049 Voxels	3	27 x 27 x 27	$27 * 27 * 27 * 3 = 59,049$

## DVI Output And External Previews

The 3 Preview windows explained above are technical representations of the effects MADRIX creates for you. But they are not pixel-perfect outputs.

DVI is another way to work with LED products which requires such a correctly sized output. To use DVI, MADRIX offers other options.

The following MADRIX software license versions offer DVI output:

- MADRIX KEY dvi start
- MADRIX KEY dvi entry
- MADRIX KEY dvi
- MADRIX KEY professional
- MADRIX KEY ultimate

DVI output allows you to easily control large LED pixel walls or use screen-capturing, for example.

Learn more »[DVI](#)

## Troubleshooting

### Invalid OpenGL Version

MADRIX might show the following error message:

- **Preview Disabled**

**Invalid OpenGL Version : 1.1**

**Minimum Required Version : 2.1**

If the Previews show this error message, it means that there is a problem with the graphics card of the computer:

- The graphics card might be too old and might not support OpenGL 2.1.
- The driver of the graphics card for the Windows operating system might be outdated.

To solve the issue:

- Check if your computer's graphics card supports OpenGL 2.1. If it is not supported, your computer/the graphics card does not meet the minimum requirements of MADRIX 3. Please upgrade to a newer graphics card, which supports OpenGL 2.1.
- Download and install the latest driver version for your graphics card in order to update the driver. [You might need to restart the computer afterwards.]

## 3.5 Controls [Left/Right]

Topics of this chapter:

- [Overview](#)
- [Submaster Left/Right](#)
- [Color Filter Left/Right](#)
- [Filter \[FX\] Left/Right](#)
- [Current Storage Place Left/Right](#)
- [Speed Master Left/Right](#)

### Overview

Next to Preview Left and next to Preview Right you will find different controls that affect the outcome of an entire effect pipeline [[»Work Areas \[Left/Right\]](#)]. They are available to you per side, as explained below.



### Submaster Left/Right



- **Submaster** - Controls the intensity of the entire Effect Pipeline Left or Right.

- It will affect the visual outcome on Left or Right, independently of which Storage, Storage Place, or Layer is selected.
- **Left Mouse Click And Hold** - Select the required value by moving the fader with the help of your mouse. Release the mouse button to set up the specific value [The fader will disappear automatically].
- A value of 255 means full intensity.
- A value of 0 means no intensity and will render the effect completely black.
- The tooltip shows the currently set value.

## Color Filter Left/Right



- **Color Filter** - Filters the colors of the entire Effect Pipeline Left or Right.
- **Left Mouse Click And Hold** - Select the color using the Color Picker to activate the Color Filter.
- **Right Mouse Click** - Restores the default color.
- White is the default color and means that no filter is active.
- The Color Filter works in multiply mode [additive mode].
- The Color Filter Left/Right works in the same way as the Main Output Color Filter. Learn more »[Crossfader And Main Output](#)

## Filter [FX] Left/Right



- **Filters FX** - Special filters can be applied to an entire Effect Pipeline Left or Right to quickly change your visuals.
- Learn more »[Filters \[FX\]](#)

## Current Storage Place Left/Right



- **Current Storage Place** - Shows the currently selected Storage Place.
- **Left Mouse Click** - Reveals the currently selected Storage Place by changing Storages and scrolling the user interface to it when necessary.
- Learn more »[Storage Places \[256 x 256\]](#)

## Speed Master Left/Right

### Overview



- **Speed Master Left/Right** - Allows you to speed up or slow down effects.
- Each Speed Master influences the speed of the entire Effect Pipeline Left or Right.
- The Speed Masters work as a multiplier of the current speed of an effect [that includes the BPM of a Layer, the Pitch of a Layer, and the Pitch of a Storage Place.]



- Example: A Speed Master of 2.0 will double the current speed.

## How To Use

- Move the fader upwards to increase the speed.
- Move the fader downwards to decrease the speed.
- The default value is 1.0 [which is normal speed].
- A value of 0.0 will stop the effects.
- The highest value is +10.
- The lowest value is -10.
- Negative values will reverse the direction of effects [if possible].
- Double-click or right-click on the Speed Master button to reset to the value of 1.0

## Pause



- **Pause** - Will halt the effect.
- **Left Mouse Click And Hold** - Pauses the effect as long as you hold the mouse button [temporarily].
- **Left Mouse Double-Click** - Pauses the effects permanently. A single click deactivates the permanent stop again.

## 3.6 Storages

This topic includes:

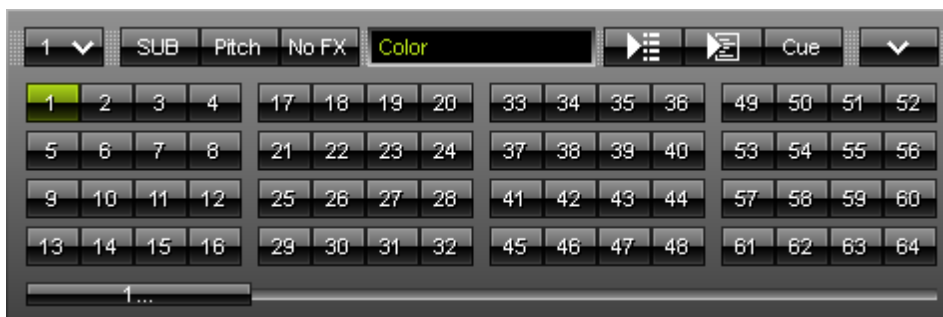
- [Introduction](#)
- [Overview](#)
- [Selecting A Storage](#)
- [Submaster](#)
- [Storage Options](#)

### Introduction

MADRIX features 2 separate Storage Areas [Storage Left and Storage Right]. They are positioned directly below Preview Left and Preview Right.

As will be explained in the next chapter, you can use so-called Storage Places to organize your lighting effects. In addition, all Storage Places and further options are managed with the help of Storages.

- MADRIX features a total of 256 Storages.
- 1 Storage includes 256 Storage Places.



### Overview



**Storage Selection** - Select which Storage you would like to use. Learn more [Selecting A Storage](#)



**Submaster** - Calls up the Submaster of the Storage Place to adjust the intensity of the complete effect including all of its Layers. It applies only to the currently selected Storage Place and can be set up for every Storage Place individually. Learn more [Submaster](#)



**Speed Pitch** - Calls up the Pitch slider of the Storage Place to adjust the speed of the complete effect including all of its Layers. It applies only to the currently selected Storage Place and can be set up for every Storage Place individually. The tooltip shows the currently set value.



**Filters/Effects FX** - Special filters can be applied to a Storage Place including all of its Layers in order to quickly change your visuals. Learn more »[Filters \[FX\]](#)



**Description** - Includes a description for each individual Storage Place. You can change this label as you wish. The label will also be used for other MADRIX features, such as the Touch Screen or Cue List.



**Storage Place Parameter Chaser** - Controls the Storage Place Parameter Chaser for advanced customization of effects. It applies only to the currently selected Storage Place and can be set up for every Storage Place individually. Learn more »[Chaser](#)



**Storage Place Macro Editor** - Controls the Storage Place Macro Editor to add macros to the effect. It applies only to the currently selected Storage Place and can be set up for every Storage Place individually. Learn more »[Macros And Scripts](#)



**Cue** - Automatically adds the currently selected Storage Place to the Cue List. The newly created Cue List entry will include all applied parameters, like the description or the fade duration and fade type of the crossfader. Learn more »[Cue List](#)



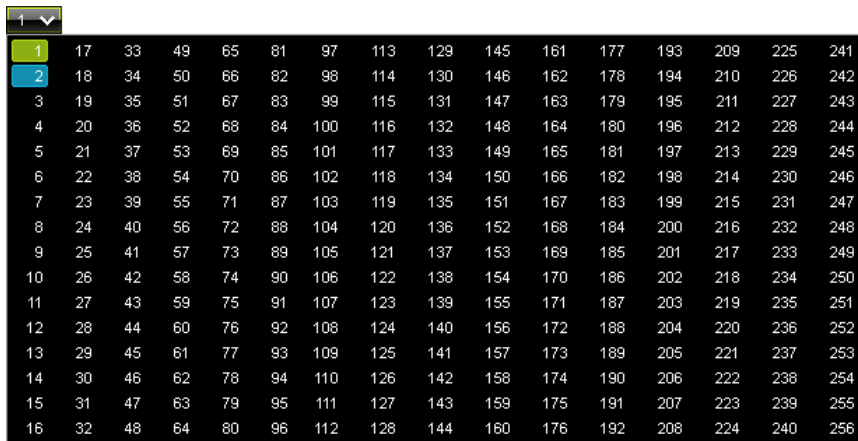
**Storage Options** - Calls up various options for Storages. Learn more [Storage Options](#)



**Storage Place** - Represents a single Storage Place. Learn more »[Storage Places \[256x256\]](#)

## Selecting A Storage

- You can freely choose which Storage to use on the left side or the right side of MADRIX.  
Learn more »[Work Areas \[Left/Right\]](#)
- Click on the Storage Selection Button and a submenu will open. Simply select which Storage you would like to use [Numbers 1 to 256].
- The currently selected Storage is shown in green.
- Occupied Storages [which include customized Storage Places] are shown in blue.
- **When switching to another Storage, MADRIX will not automatically select a specific Storage Place for you. The currently selected Storage Place remains selected until you selected the next one.**



1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255
16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256

## Submaster



- **Submaster** - intensity of a selected Storage Place including all of its Layers. It only works for the Storage Place you have currently selected.
- **Left Mouse Click And Hold** - Select the required value by moving the fader with the help of your mouse. Release the mouse button to set up the specific value [The fader will disappear automatically].
- A value of 255 means full intensity.
- A value of 0 means no intensity and will render the effect completely black.
- The tooltip shows the currently set value.

[The Storage Submaster does not control the main output brightness. If you want to adjust the overall intensity, you need to use the »[Submaster Left/Right](#) or the »[Master](#)]

## Storage Options

### Overview

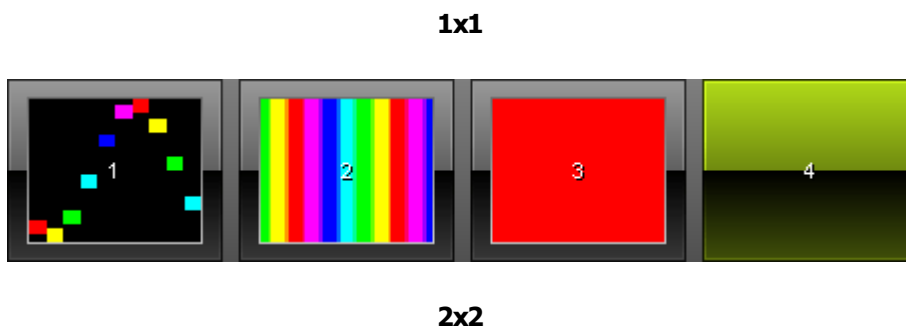
- Click on the **Storage Options** button to open a submenu.
- Or go to **Edit > Storage Left / Storage Right**



- **Open...** - Loads a complete MADRIX Storage from a previously saved, external file [of the file type \*.mstz or \*.mstx].  
A new window opens for you to select the file on your harddisk.
- **Save...** - Saves the current Storage including all of its Storage Places in an external file [of the file type \*.mstz or \*.mstx]. Simply enter a **File name** when the new window opens, choose a location, and click **Save**
- **Copy** - Copies the current Storage into the clipboard as a duplicate.
- **Cut** - Copies the current Storage into the clipboard and applies a **Clear**.
- **Paste** - Inserts a copy of a Storage from the clipboard into the currently selected Storage.
  
- **1x1** - Selects a different view with very large Storage Place buttons. Please see below.
- **2x2** - Selects a different view with large Storage Place buttons. Please see below.
- **4x4** - Selects a different view with normal-sized Storage Place buttons. This is the default view. Please see below.
- **8x8** - Selects a different view with small Storage Place buttons. Please see below.
  
- **Clear** - Removes the current Storage including all of its Storage Places and restores the default, blank Storage.

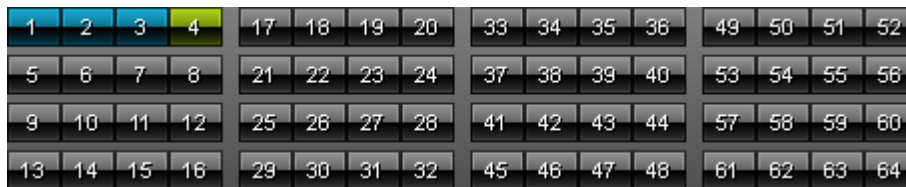
## Views

The Storage Options allow you to select one of 4 different views.





**4x4 [Default]**



**8x8**



## 3.7 Storage Places [256 x 256]

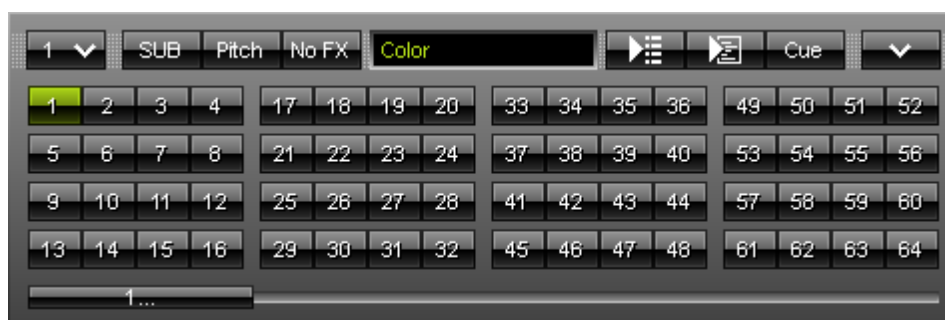
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Workflow](#)
- [Controls](#)
- [Working With Storage Places](#)
- [Context Menu](#)
- [Thumbnails](#)
- [Export / Import](#)
- [Important Information](#)

### Introduction

MADRIX uses so-called Storage Places [storage bins] to store and organize your lighting visuals.

- Storage Places are part of a Storage.  
[Because of this, a Storage offers options that affect a single Storage Place or all of its included Storage Places.]
- The screenshot below shows the complete **Storage Left** including the **numbered Storage Places** [Storage Place 1 to 64 can be seen by default]. Learn more »[Storages](#)





## Overview

- A single Storage contains 256 Storage Places. And MADRIX offers up to 256 Storages.
- In total, you have therefore access to 256 x 256 Storage Places.

## Workflow

- Storage Places allow you to access, manage, and organize your different lighting visuals.
- In order to use MADRIX Effects and light effects, you need to set them up first.

Learn more »[Effect Areas \[Left/Right\]](#)

## Controls



- Shows an empty Storage Place with its default configuration.  
[The default MADRIX Effect is: SCE Color with the color Black.]



- Shows a preselected Storage Place, which is not active yet.



- Shows the currently selected Storage Place. This Storage Place is active on the selected Storage.



- Shows that this Storage Place contains visuals configured by you. The Storage Place is occupied and not empty.



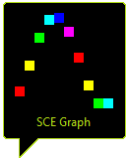
- Shows a Storage Place that is currently selected on the other side. You can only select a Storage Place once on either side. This Storage Place is shown already on the left or the right side and cannot be accessed.



- You can increase the size of a Storage Place as shown on the user interface [Learn more » [Storages](#)]. When the size is large enough, MADRIX will include a small Thumbnail preview of the MADRIX Effect that is stored in the Storage Place. Learn more below.



- You can decrease the size of a Storage Place as shown on the user interface [Learn more » [Storages](#)]. When the size is too small, MADRIX will only show small icons.



- Shows a Thumbnail. Hover with your mouse over a single Storage Place in order to see a small preview of the MADRIX Effect that is stored in the Storage Place. The Thumbnail can be generated automatically or manually. Learn more [below](#)



- The Preview Windows will show you which Storage [e.g., S1] and which Storage Place [e.g., P42] you have currently selected.



- The scroll bar at the bottom shows the lowest Storage Place that is currently visible on the Storage Place panel. You can also use it for scrolling through the panel.



- Is part of the scroll bar and shows the location of occupied Storage Places.




- Is part of the scroll bar and shows the location of the currently selected Storage Place.

## Working With Storage Places

### Using The Mouse

- **Left Mouse Click** - Click with your left mouse button directly on a single Storage Place to select and activate it. MADRIX will automatically fade to the new Storage Place according to the Fade Time and Fade Type of the crossfader.
- **Left Mouse Double-Click** - Perform a double-click with your left mouse button directly on a single Storage Place to select and activate it immediately without using the Fade Time and Fade Type of the crossfader.
- **Right Mouse Click** - Calls up the context menu as explained below.
- **Left Mouse Click And Hold And Swipe/Drag** - Click with your left mouse button in the general direction of the Storage Place panel, continue to hold, and move your mouse in order to swipe and drag the entire panel. This allows you to navigate through the Storage Place panel. [You can also use the scroll bar at the bottom.]

- **Scroll Wheel** - Click in the the general direction of the Storage Place panel to focus it. Then, use the scroll wheel of your mouse to scroll through the panel.
-  Click with your left mouse on this scroll bar to scroll through the Storage Place panel.

## Automatic Fade

- MADRIX automatically applies an automatic fade according to the Fade Time and Fade Type of the Crossfader when you are switching from one Storage Place to another Storage Place within one, single Storage.
- Example: S1 P34 is currently selected. Now, select S1 P22 and MADRIX will automatically do a crossfade for you [incl. Fade Time and Fade Type].
- [Perform a Left Mouse Double-Click to not use the automatic fade. This will activate the next Storage Place without a crossfade.]

## Drag And Drop [Copy/Cut/Paste]

### Copy And Paste

- **Left Mouse Click and 2 Sec. Hold** - You can perform a Copy and Paste with the mouse.  
Use a left mouse click on a Storage Place and continue to hold for 2 seconds. A small **+** appears. Continue to hold and move your mouse to another Storage Place. Release the mouse button to paste a copy onto the new Storage Place.

### Cut And Paste

- **Left Mouse Click and 2 Sec. Hold + Shift** - You can perform a Cut and Paste with the mouse.  
Use a left mouse click on a Storage Place and continue to hold for 2 seconds. Press Shift in addition. A small rectangle appears. Continue to hold the buttons and keys and move your mouse to another Storage Place. Release the mouse button to move the previously selected Storage Place to the new position.

## Keyboard Shortcuts

- **Arrow Keys** - Use the 4 arrow keys on your computer keyboard to navigate and in order to preselect a specific Storage Place.

- **Spacebar/Enter** - Press the Spacebar or Enter key on your keyboard to actively select a preselected Storage Place.
- **Page Up/Page Down** - Press the Page Up and Page Down keys to scroll through the Storage Place panel back and forth.
- **Home/End** - Press the Home key to instantly display the first Storage Place [P1]. Press the End key to instantly display the last Storage Place [P256].
- **F** - Press F to instantly jump back to your currently selected Storage Place and to bring it into focus.

## Context Menu

There are several options available for each Storage Place via a context menu.

- **Right Mouse Click** on a Storage Place to call up the context menu.
- Or go to **Edit > Storage Place Left/Right**
- A small window will be shown.



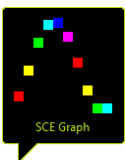
You can use the following options:

- **Cue** - Adds the currently selected Storage Place to the Cue List.
- **Open...** - Loads a previously saved MADRIX Storage Place file [of the file type \*.mspz or \*.mspx]. A new window opens for you to select the file on your harddisk.

- **Save...** - Saves the current Storage Place configuration to an external file [of the file type \*.mspz or \*.mspx]. A new window opens for you to select a location on your harddisk. Simply enter a name and click **Save**
- **Copy** - Copies the current Storage Place configuration into the clipboard as a duplicate.
- **Cut** - Copies the current Storage Place configuration into the clipboard and applies a **Clear**
- **Paste** - Inserts a copy of a Storage Place from the clipboard into the currently focused Storage Place.
- **Thumbnail** - Defines how MADRIX manages the Thumbnail of the currently selected Storage Place. Learn more [below](#)
- **Clear** - Removes the current Storage Place configuration and restores the default, blank Storage Place.

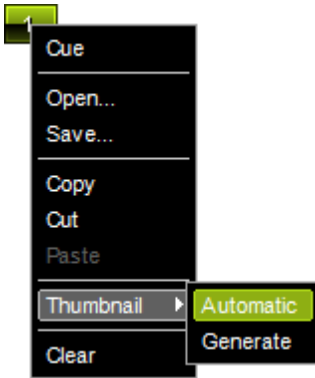
## Thumbnails

Hover with your mouse over a single Storage Place in order to see a small preview of the MADRIX Effect that is stored in the Storage Place.



When using the context menu of a Storage Place, you can set up how MADRIX manages the Thumbnail of each individual Storage Place. First, make sure that the currently selected Storage Place is also the active Storage Place of this Storage.

- **Right Mouse Click** on a Storage Place to call up the context menu.  
[Or go to **Edit > Storage Place Left/Right > Thumbnail**]
- A small window will be shown.
- Navigate to **Thumbnail**



- **Automatic** - Is activated by default. MADRIX will automatically generate a new Thumbnail each time you leave this Storage Place and switch to another Storage Place. That means the Thumbnail preview will always be up to date and show the last visual status.
- **Generate** - Allows you to manually generate a new Thumbnail at this moment. Automatic will then be deactivated as a result. Once a manual Thumbnail has been generated, MADRIX will use this Thumbnail until you manually generate a new Thumbnail or activate Automatic again.

## Export / Import

### Import

Learn more »[File Types](#)

### File Menu

- Go to **File > Import > Storage Place > Storage Left/Right...**
- You can import previously saved MADRIX Storage Place file [of the file type \*.mspz or \*.mspx] onto the currently selected Storage Place on the left or on the right side. A new window opens for you to select the file on your harddisk. [This is the same functionality as Open... from the context menu.]

### Drag And Drop

- **File Drag And Drop** - You can select a MADRIX Storage Place file [of the file type \*.mspz or \*.mspx] in Windows and drag it to a Storage Place of your choice in MADRIX in order to load it in MADRIX.

## Export

### File Menu

- Go to **File > Export > Storage Place > Storage Left/Right...**

You can export the currently selected Storage Place to an external file [of the file type \*.mspz or \*.mspx]. A new window opens for you to select a location on your harddisk. Simply enter a name. [This is the same functionality as Save... from the context menu.]

- Go to **File > Export > Storage Place > All...**

You can export all currently occupied Storage Place to individual, external files [of the file type \*.mspz or \*.mspx]. A new window opens for you to select a location on your harddisk. Simply enter one name and MADRIX will automatically add the Storage Place number to the file as well.

## Important Information

- **Make sure to save your MADRIX Setup file after configuring your MADRIX Effects [and working with Storage Places].**
- **When switching to a different Storage, MADRIX will not automatically select a new Storage Place for you. When switching to another Storage, you need to actively select a different Storage Place if that is what you want.**

## 3.8 Effect Areas [Left/Right]

This topic includes:

- Overview
- Programmer View
- Effect Selection
- Individual Controls [Effect Settings]
- Universal Controls [Layer Settings]

### Overview

The MADRIX Effects are one of the most important parts of the software. The user interface offers dedicated work areas for you to work with visuals [Effect Area Left and Effect Area Right].

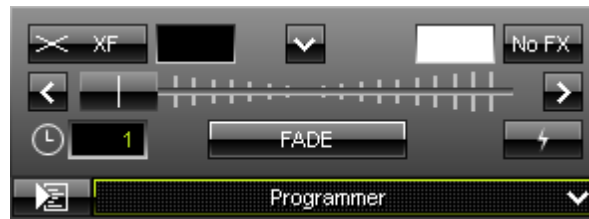
When you select an empty Storage Place, the corresponding Effect Area will look like this by default:



### Programmer View

- **In order to have access to the Effect Areas, make sure to select the Programmer View first!**





## Effect Selection

- **Effect Selection**

- **Left Mouse Click** - Allows you to select a specific MADRIX Effect from the library of stock effects.



- SCE Color is the default setting.

- Learn more »[Effects \[Visuals\]](#)

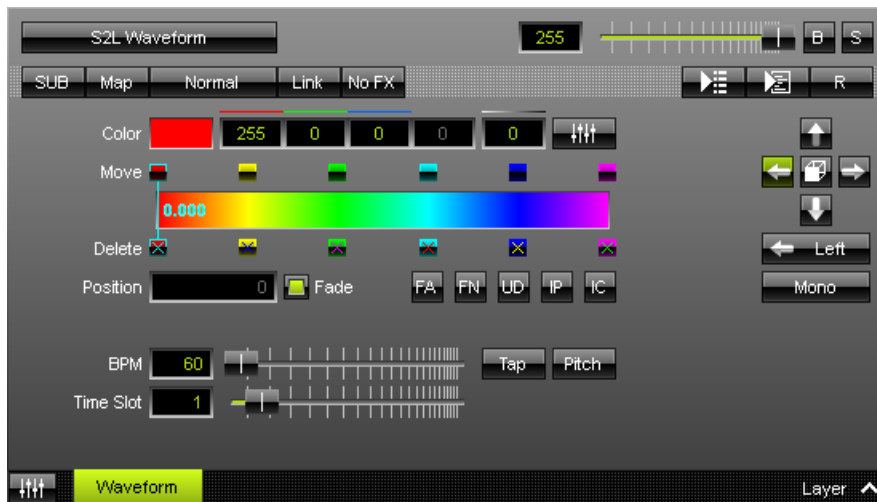
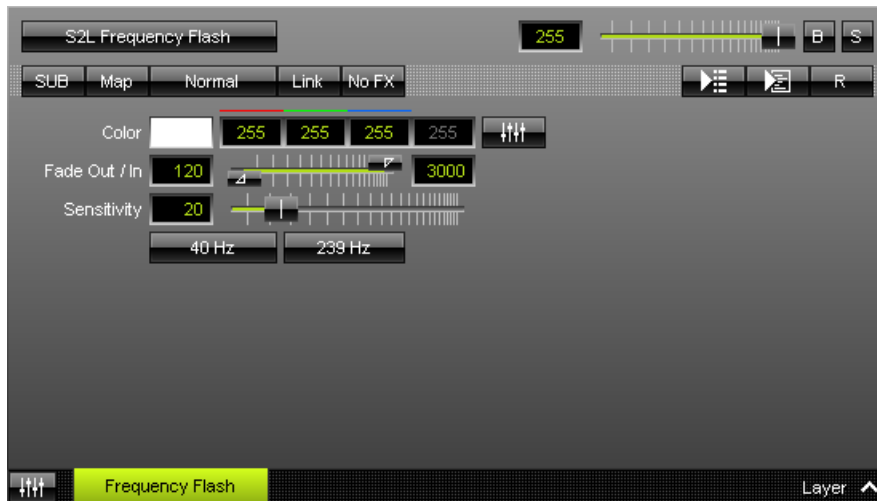
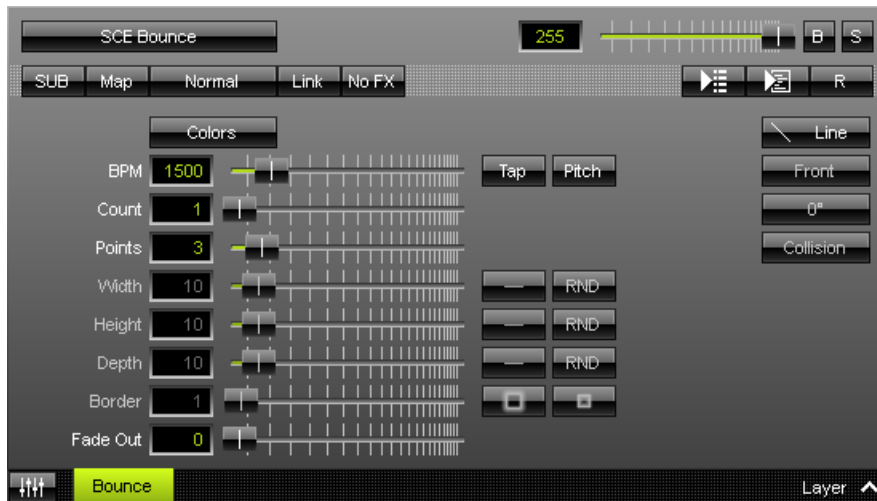
- Learn more »[MADRIX Effects](#)



## Individual Controls [Effect Settings]

Each MADRIX Effect has its own buttons and controls. In this way you can customize your visuals as you wish.

Have a look at the 3 examples below and you will see that the standard controls [see below] are always there, while the rest of them changes with every effect.



## Universal Controls [Layer Settings]

At the same time, a standard set of controls is available for each MADRIX Effect [i.e. each Layer] for additional customization. Learn more »[Layers](#)



## 3.9 Cue List Section

This topic includes:

- [Overview](#)
- [Controls](#)
- [More Information](#)

### Overview



The MADRIX user interface offers 4 quick access buttons to control the Cue List.

### Controls



**Go** - Skips to the next Cue List entry.



**Back** - Goes back to the previous Cue List entry.



**Play/Pause** - Starts or stops the Cue List.



**Progress** - Shows the progression of the current Cue regarding its Duration with the help of a progress bar.



**Cue List** - Opens a new window, which is the Cue List itself. More options will be available to you then.

## More Information

You need to configure a Cue List in order to use the Cue List features.

Learn more »[Cue List](#)

## 3.10 Master / Audio Input Level

This topic includes:

- [Introduction](#)
- [Master](#)
- [Audio Input Level](#)

### Introduction

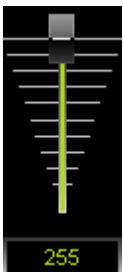
Master and Audio Input Level are two central controls of the MADRIX user interface.

- The Master controls the overall brightness of the Main Output [i.e. of the LED fixtures].  
You will see the result in the Preview Output.
- The Audio Input Level controls the maximum sound level to be used for the MADRIX real-time audio analysis.

### Master



**Freeze** - Puts the output on hold [pauses it]. Click and hold the mouse button to freeze temporarily. Double-click it to freeze it permanently; click again to deactivate.



**Fader** - Use the fader to directly control the intensity.  
By default the Fader is set to 255, the maximum value.

**Input Field** - Directly enter a value ranging from 0 to 255.  
The Input Field will also display the currently set up value.



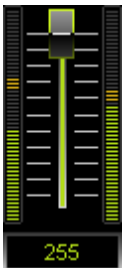
**Blackout** - Forces an immediate blackout on the output. Click it once to render the output completely black. When activated, the button will pulsate in red. Click again to deactivate the function. The blackout does not affect the value of fader.

## Audio Input Level

### Overview



**AGC** - Activates Automatic Gain Control. When activated, the button will glow green and MADRIX will automatically and constantly increase or decrease the input level to get the optimal sound level.



**Fader** - Use the fader to directly control the input level. The Fader will limit the incoming level. By default the Fader is set to 255, the maximum value.

**Input Field** - Directly enter a value ranging from 0 to 255. The Input Field below will display the currently set up value.



**Audio Analysis** - Activates the audio input as well as the real-time audio analysis. When activated, the button will glow green. MADRIX automatically activates Audio, if you select a MADRIX S2L Effect or MADRIX M2L Effect.

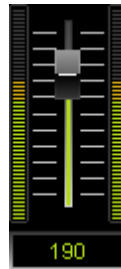
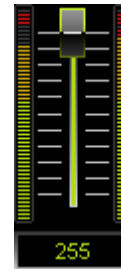
## Optimal Input Level

To get optimal results from the audio analysis, it is recommended to set up the audio input level correctly.

- Adjust the audio signal to the orange/yellow level to get best results.



- Levels that are too low will negatively affect the quality of the audio analysis.
- Red lights indicate that levels are too high.
- Use the **AGC** [Automatic Gain Control] for automatic control.

**Audio Input Too Low****Optimal Input Level****Audio Input Too High**

## More Information

Learn more » [Audio Configuration And ASIO](#)

## 3.11 Full Screen Mode

This topic includes:

- [Overview](#)
- [Options](#)

### Overview

- Go to **Window > Full Screen**  
[Keyboard shortcut: **F11**]
- Press **F11** again to deactivate Full Screen mode.

The graphical user interface [GUI] can be extended to fill the entire size of your monitor. This mode is called Full Screen. There is a difference between maximizing the user interface window or enabling Full Screen mode:

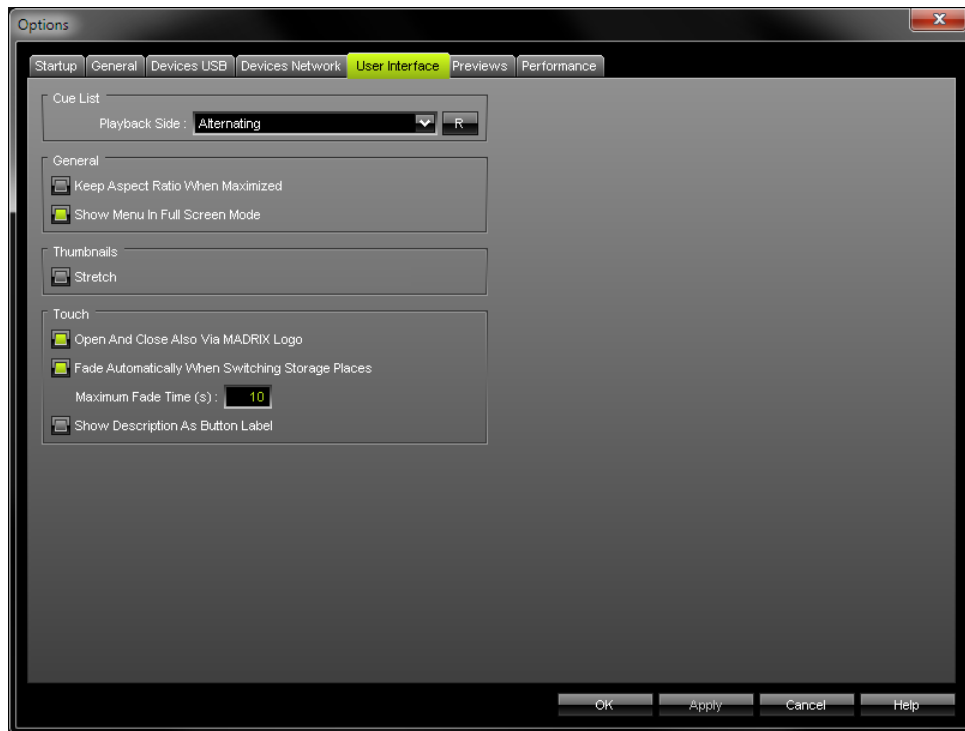
- The title bar will not be visible anymore in Full Screen mode, which saves space for the user interface.
- In addition, you can choose to show the menu bar or to hide the menu bar to save further space. Change the setting as described below. By default, the menu bar is shown.
- MADRIX will also automatically hide the taskbar in full screen mode.

[Use the Windows key on your keyboard to temporarily access the Windows taskbar again.]



## Options

- Go to **Preferences > Options... > User Interface**



- **General > Show Menu In Full Screen Mode** - Shows the menu bar also in Full Screen mode. Deactivate this option to hide the menu in Full Screen mode. [By default, the menu is shown in Full Screen mode.]

## 3.12 Touch Screen

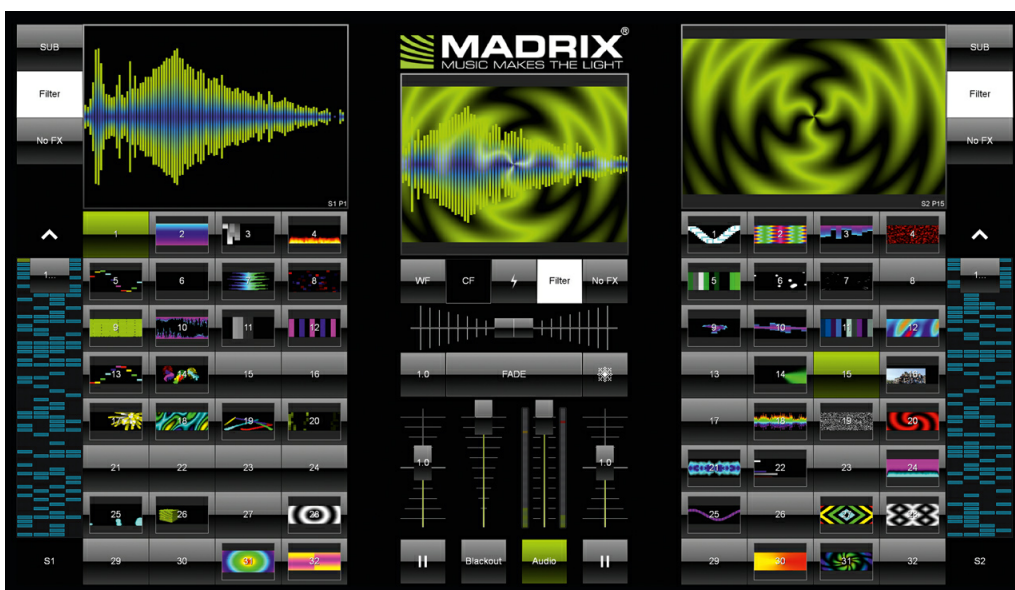
Topics of this chapter:

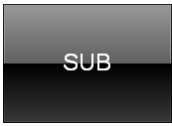
- Overview
- Important Notes
- Options
- Moving The Touch Screen To A Different Monitor

### Overview

- Go to **Window > Touch...**  
[Keyboard shortcut: **F8**]
- Or when enabled in the settings, you can open/close the touch screen window by clicking on the **MADRIX logo**.

The touch screen interface was especially designed to provide you with an intuitive and easy to use interface. It was designed for touch screen panels, but can also be used with the help of the mouse.





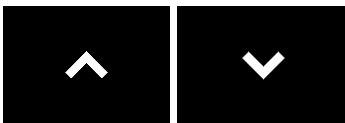
**Submaster Left/Right** - Regulates the overall intensity of an entire Storage. Learn more »[Controls \[Left/Right\]](#)



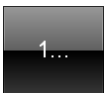
**Color Filter Left/Right** - Applies a color filter to the entire Storage. Learn more »[Controls \[Left/Right\]](#)



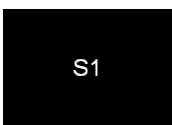
**Filter [FX] Left/Right** - Applies a special filter to the entire Storage. Learn more »[Controls \[Left/Right\]](#)



**Close/Open Preview** - Opens or closes Preview Left or Preview Right.



**Storage Place Scroll** - Scrolls through the 256 Storage Places of a single Storage.



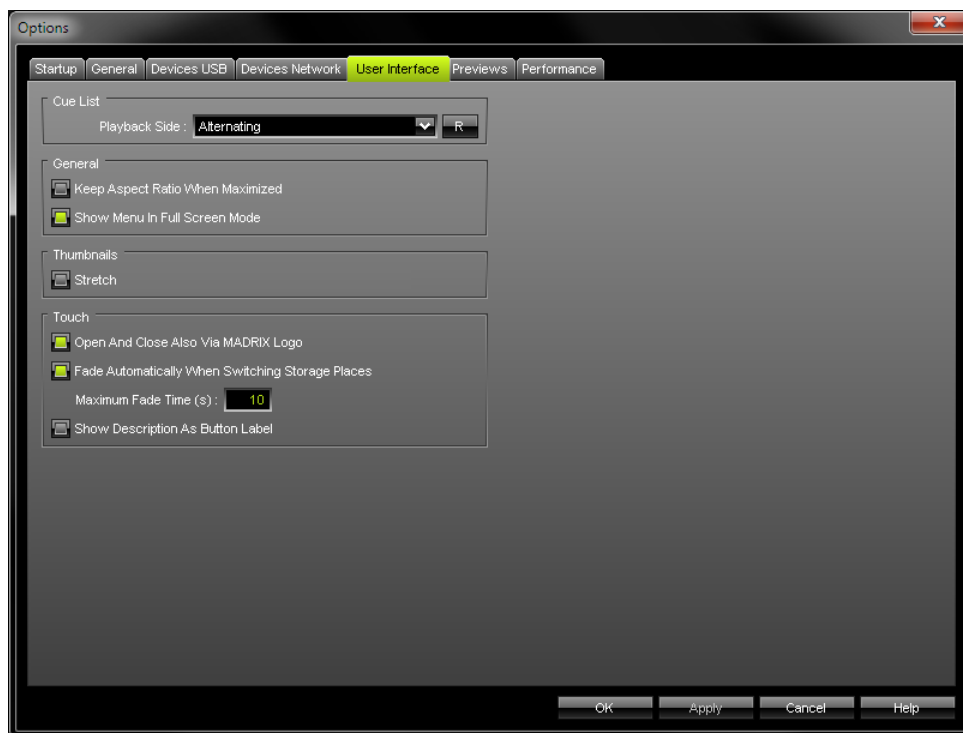
**Storage Selection** - Allows you to select the Storage.

## Important Notes

- All 3 Previews of the main MADRIX user interface will be disabled, when the Touch Screen is activated and has the focus. This ensures high performance. However, they will be activated again when the user interface has the focus again [click on the user interface to get the focus].
- The Cue List is not available, when using the Touch Screen. / The Touch Screen is not available when the Cue List is running.

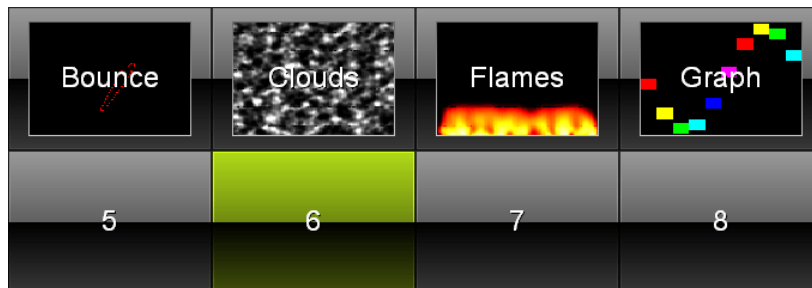
## Options

- Go to **Preferences > Options... > User Interface**



- **Touch:**
- **Open And Close Also Via MADRIX Logo** - Allows you to open or close the Touch Screen Window by clicking on the MADRIX logo.

- **Fade Automatically When Switching Storage Places** - Activate this option if the Crossfader should make an automatic crossfade when you select a new Storage Place on the opposite Storage [e.g., from S1 P1 to S2 P1].
- **Maximum Fade Time (s)** - Defines the maximum Fade Time in seconds you can set up in the Touch Screen for the automatic fade of the Crossfader.
- **Show Description As Button Label** - Will show the individual Description of a Storage Places on the Touch Screen interface instead of the standard numbering [1, 2, 3, etc]. If the Storage Place has the standard Description **Color**, the standard numbering will be shown.



## Moving The Touch Screen To A Different Monitor



**Tab** - Use the Tabulator key on your keyboard [repeatedly] to move the Touch Screen interface to your first, second, third, etc. computer monitor or display.



## //PART D

*Using The Software*

## 4 Using The Software

This topic includes:

- [Introduction](#)
- [Topics Of This Chapter](#)

### Introduction

MADRIX already is an easy-to-use, user-friendly, and reliable Windows software.

You can use it to create complex lighting scenes and entire shows from a normal computer or laptop. You can learn how to use MADRIX in this chapter.

### Topics Of This Chapter

- » [Matrix Generator](#)
- » [Patch Editor](#)
- » [DVI Patch](#)
- » [Fixture Groups \[Group Control\]](#)
- » [Effects \[Visuals\]](#)
- » [Filters \[FX\]](#)
- » [Layers](#)
- » [Mapping / Tiling / Rotation](#)
- » [Chaser](#)
- » [Tools](#)
- » [Backup System](#)
- » [File Types](#)
- » [Recording](#)



## 4.1 Matrix Generator

This topic includes:

- Introduction
- When To Use The Matrix Generator
- Overview
- Step-By-Step Configuration
- Settings
- Examples For Start Corner, Main Orientation, and Snake Mode
- 2D DMX Configuration
- 2D DVI Configuration
- 3D DMX Configuration
- 3D DVI Configuration
- Important Notes
- Further Configuration
- Further Tips

### Introduction

You need to tell MADRIX

- 1] which LED fixtures you are going to use.
- 2] how many LED fixtures you are going to use.
- 3] how they are placed.

This configuration of the virtual LED matrix is stored in a so-called Patch file.

**Setting up the virtual LED matrix/the Patch file is a requirement! It is necessary for the initial configuration of MADRIX.**

MADRIX offers 2 tools for this task:

- **Matrix Generator**
- **Patch Editor**

## When To Use The Matrix Generator

The Matrix Generator helps you to generate a virtual LED matrix automatically according to your settings. This automatic process can be very helpful, when your LED installation is set up in a very simple, logical, or linear way and only uses 1 fixture type. The Patch file will be automatically generated by MADRIX for you.

The Patch Editor is a graphical editor to directly create the Patch file. The Patch Editor offers the same functions as the Matrix Generator and many more options. It allows you to configure your virtual matrix in great detail. You can place LED fixtures freely and individually. If you have more than 1 kind of fixture, use the Patch Editor.

This topic explains the Matrix Generator.

## Overview

- Go to **Preferences > Matrix Generator...**  
[Keyboard shortcut: **F2**]
- A new window will open.



- Now, configure your virtual LED matrix according to the following settings.

## Step-By-Step Configuration

To work with the Matrix Generator, follow these steps:

- 1]** Open the Matrix Generator.
- 2]** Set up all settings, including **Fixture**, **Placement**, and **Addressing**.
- 3]** Click **Apply** to confirm your settings and MADRIX will create the Patch file for you.

- Click **OK** to confirm your settings and to close the Matrix Generator.
- Click **Cancel** to discard any changes and to close the Matrix Generator.

## Settings

In this user guide it is not possible to give universal recommendations for the required settings, because every LED project is different. You need to configure the settings of the Matrix Generator according to your individual LED setup.

### 1] Fixture

This section defines which fixtures you want to use.

- **Protocol** - First, choose the general type of LED fixture you are using [**DMX** or **DVI**]. DMX-based fixtures include DMX512, Art-Net, Streaming ACN [sACN / E1.31], Philips Color Kinetics [KiNET], and Insta/ROBE products. DVI-based fixtures include DVI, Eurolite T9, ColourSmart Link, and Colorlight 5A products. If you wish to use both fixture types at the same time, please configure your virtual LED matrix with the help of the »[Patch Editor](#)  
**Note:** If **DVI** is selected, all controls that are not relevant to DVI fixtures will be disabled.
- **Product** - Second, choose your exact LED product.
  - You can use the downward triangle to call up the complete list of fixtures.
  - Perform a left mouse click and you can use the input field as a filter to type in the fixture you are looking for.
  - If your fixture is not yet available, please see »[Supported Fixtures \[LED Products\]](#)
- **Start Fixture ID** - Defines where MADRIX starts indexing fixtures. The Fixture ID is a unique identifier for each fixture that is added.
  - The default value is 1.
  - When using the Matrix Generator, the default setting is also recommended setting.
- **A general option for DMX:** Select **!generic RGB Light 1 pixel** for any LED product with RGB LEDs and 3 DMX channels.
- **A general option for DMX:** Select **!generic RGBW Light 1 pixel** for any LED product with RGBW LEDs and 4 DMX channels.
- **A general option for DVI:** Select **!generic DVI 1x1 RGB** for any DVI-based LED product and simply enter the pixel resolution under **Placement**

## 2] Placement

This section defines how many fixtures you want to use and how they are placed.

- **Rotation** - Uses the original rotation of the fixtures, as defined in the »[MADRIX Fixture Editor](#). Or you can add to all of your fixtures a rotation of 90°, 180°, 270°.
- **Count X / Y / Z** - Defines the number of LED fixtures you are using.
  - **X** sets the number of fixtures on the X-axis [horizontal; width].
  - **Y** sets the number of fixtures on the Y-axis [vertical; height].
  - **Z** sets the number of fixtures on the Z-axis [level; depth].
  - **Please set up the number of fixtures you are using. Do not enter the total number of pixels. All fixtures are already implemented with their specific number of LED pixels.**
  - **When setting up a 2D virtual LED matrix, Z should be 1. If Count Z is higher than 1, you will automatically create a LED matrix.**
  - **Merge Fixtures** - Is only available for the **Protocol > DVI**. Activate this option if all your DVI fixtures, should be merged to one fixture. This can save computer performance. Deactivate this option, if you want to be able to manage all your DVI fixtures separately, for example when creating a »[DVI Patch](#)
- **Offset X / Y / Z** - Adds spacing [gaps] to your virtual LED matrix separately for the X-axis, Y-axis, and Z-axis. The value defines the size of the gaps between fixtures in pixels. A value of 0 means that all fixtures are placed next to each other without spacing. For example, a value of 1 means that 1 pixel spacing is added between fixtures.
- **Note:** When using DMX-based products, please pay attention to the maximum number of DMX channels according to your MADRIX license version and according to the performance of your PC.
- **Note:** When using DVI-based products, please pay attention to the maximum number of supported DVI pixels according to your MADRIX license version and according to the performance of your PC.

## 3] Addressing

This section defines the numbering of fixtures [DVI] and addressing of fixtures [DMX]. Since MADRIX will do this automatically, certain parameters need to be specified by you on how MADRIX should number or address fixtures automatically.

To assist you, a graphic is shown. [Imagine to look directly at the LED products in camera view.]




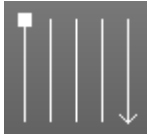
- **Start Corner** - Defines where the automatic addressing starts and works together with Main Orientation. Learn more [Examples](#)
- **Main Orientation** - Defines if MADRIX automatically addresses fixtures in a horizontal or vertical way. Addressing will start at the Start Corner and continue to the opposite direction [e.g., from left to right]. Please see the example below. Learn more [Examples](#)
- **Snake Mode** - Without Snake Mode, MADRIX will address row by row or column by column [e.g., left to right, left to right, left to right, etc.]. With Snake Mode, MADRIX will use alternate directions for each row or column [e.g., left to right, right to left, left to right, etc.]. Learn more [Snake Mode](#)
- **Apply Fixture Rotation** - Only works when Snake Mode is enabled. Rotates fixtures in each alternating row by 180°.
- **Z-Order** - Is only available for 3D. Defines if addressing in 3D starts with the first Z-axis in front [**Front To Back**] or with the last Z-axis in the back [**Back To Front**].
- **Snake Mode Z** - Is only available for 3D. Automatic addressing of fixtures on the Z-axis is done level by level. Activate this option if the Start Corner for each alternating level should be different.
  - **Flip H** - Switches the Start Corner horizontally [e.g., from Top Left to Top Right].
  - **Flip V** - Switches the Start Corner vertically [e.g., from Top Left to Bottom Left].
  - Activate both, Flip H and Flip V, to assign the complete opposite Start Corner [e.g., from Top Left to Bottom Right].
- **DMX Start Channel** - MADRIX will start the addressing using this DMX channel and automatically increment the DMX channel for each fixture.
- **DMX Start Universe** - MADRIX will start addressing using this DMX universe and automatically increment the DMX universe for fixtures when necessary. [A total of 512 DMX channels is available per DMX universe. If your fixtures If fixture addressing is greater than 512, MADRIX will automatically assign a new DMX universe and start at DMX channel 0 in this new universe again.]


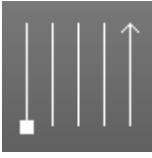

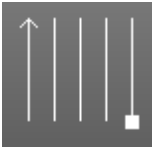
## 4] Confirmation

- Press **Apply** to confirm your settings.
- Press **OK** to close the window.

## Examples For Start Corner, Main Orientation, and Snake Mode

### Start Corner And Main Orientation

DMX Start Corner	Main Orientation: Horizontal	Main Orientation: Vertical
<p>Top Left</p>	 <p>Addressing:</p> <ul style="list-style-type: none"> <li>- Downwards</li> <li>- From Left to Right</li> <li>- From Left to Right</li> <li>- From Left to Right</li> <li>- etc.</li> </ul>	 <p>Addressing:</p> <ul style="list-style-type: none"> <li>- To the Right</li> <li>- From Top to Bottom</li> <li>- From Top to Bottom</li> <li>- From Top to Bottom</li> <li>- etc.</li> </ul>
<p>Top Right</p>	 <p>Addressing:</p> <ul style="list-style-type: none"> <li>- Downwards</li> <li>- From Right to Left</li> <li>- From Right to Left</li> <li>- From Right to Left</li> <li>- etc.</li> </ul>	 <p>Addressing:</p> <ul style="list-style-type: none"> <li>- To the Left</li> <li>- From Top to Bottom</li> <li>- From Top to Bottom</li> <li>- From Top to Bottom</li> <li>- etc.</li> </ul>

<p>Bottom Left</p>	 <p>Addressing:</p> <ul style="list-style-type: none"> <li>- Upwards</li> <li>- From Left to Right</li> <li>- From Left to Right</li> <li>- From Left to Right</li> <li>- etc.</li> </ul>	 <p>Addressing:</p> <ul style="list-style-type: none"> <li>- To the Right</li> <li>- From Bottom to Top</li> <li>- From Bottom to Top</li> <li>- From Bottom to Top</li> <li>- etc.</li> </ul>
<p>Bottom Right</p>	 <p>Addressing:</p> <ul style="list-style-type: none"> <li>- Upwards</li> <li>- From Right to Left</li> <li>- From Right to Left</li> <li>- From Right to Left</li> <li>- etc.</li> </ul>	 <p>Addressing:</p> <ul style="list-style-type: none"> <li>- To the Left</li> <li>- From Bottom to Top</li> <li>- From Bottom to Top</li> <li>- From Bottom to Top</li> <li>- etc.</li> </ul>

## Snake Mode

- Without Snake Mode, MADRIX will address row by row or column by column [e.g., left to right, left to right, left to right, etc.].
- With Snake Mode, MADRIX will use alternate directions for each row or column [e.g., left to right, right to left, left to right, etc.].
- In this example we configured a virtual LED matrix of 4 x 5 pixels using **Snake Mode**
- The **Matrix Generator** settings would look like this:



- In theory, the LEDs are arranged as follows: 3 pixels per LED [due to RGB], 4 fixtures per row, and a total of 5 rows. Please see the picture below:

1		4		7		10
2	→	5	→	8	→	11
3		6		9		12
						↓
22		19		16		13
23	←	20	←	17	←	14
24		21		18		15
						↓
25		28		31		34
26	→	29	→	32	→	35
27		30		33		36
						↓
46		43		40		37
47	←	44	←	41	←	38
48		45		42		39
						↓
49		52		55		58
50	→	53	→	56	→	59
51		54		57		60

## 2D DMX Configuration

To configure a 2D LED matrix with DMX-based fixtures, follow these steps:

- 1] Choose **Protocol > DMX**
- 2] Choose your **Product**
- 3] Set up **Rotation** if required
- 4] Set up **Count X** and **Count Y**
- 5] Set **Count Z** to **1**
- 6] Set up **Offset X** and **Offset Y** if required
- 7] Set **Offset Z** to **0**
- 8] Set up **Start Corner** and **Main Orientation**
- 9] Set up **Snake Mode** and **Apply Fixture Rotation** if required
- 10] Set up **DMX Start Channel** and **DMX Start Universe**

## 2D DVI Configuration

To configure a 2D LED matrix with DVI-based fixtures, follow these steps:

### Merge Fixtures

- 1] Choose **Protocol > DVI**
- 2] Choose your **Product**
- 3] Set up **Rotation** if required
- 4] Set up **Count X** and **Count Y**
- 5] Set **Count Z** to **1**

### Separate Fixtures

- 1] Choose **Protocol > DVI**

- 2] Choose your **Product**
- 3] Set up **Rotation** if required
- 4] Set up **Count X** and **Count Y**
- 5] Set **Count Z** to **1**
- 6] Set up **Start Corner** and **Main Orientation** if required
- 7] Set up **Snake Mode** and **Apply Fixture Rotation** if required

## **3D DMX Configuration**

To configure a 3D LED matrix with DMX-based fixtures, follow these steps:

- 1] Configure all Settings as described under [Settings](#)

## **3D DVI Configuration**

To configure a 3D LED matrix with DVI-based fixtures, follow these steps:

### **Merge Fixtures**

- 1] Choose **Protocol > DVI**
- 2] Choose your **Product**
- 3] Set up **Rotation** if required
- 4] Set up **Count X** and **Count Y** and **Count Z**
- 5] Set up **Z-Order** and **Snake Mode Z**

### **Separate Fixtures**

- 1] Configure all Settings as described above, except DMX Start Channel and DMX Start Universe.

## Important Notes

LED Fixtures	Comments
<b>EUROLITE LSD</b>	The fixtures are pre-patched and included with their amount of pixels. Please only define how many fixtures you are using and not the total number of pixels.
<b>Color Kinetics eW Flex SLX, Color Kinetics iColor Flex SLX</b>	If your are using a PDS-150, a sPDS-480ca, or a PDS-60ca with one or two strings per controller, please select the correct fixture.

## Further Configuration

- MADRIX offers many more options to configure your virtual LED matrix.  
Learn more »[Patch Editor](#)
- If your fixture is not yet available or if you would like to add it,  
please see »[Supported Fixtures \[LED Products\]](#)

## Further Tips

**Make sure to save your MADRIX Setup File after the configuration process.**

## 4.2 Patch Editor

This topic includes:

- Introduction
- When To Use The Patch Editor
- Step-By-Step Configuration
- Examples
- User Interface Of The Patch Editor
- Menu
- Options
- Patch Properties Overview
- 2D Or 3D
- Working With The Patch Editor
- Fixture Configuration
- How The Patch Affects The Live Previews
- DMX Map
- Merging Patches
- Further Tips

### Introduction

You need to tell MADRIX

- 1] which LED fixtures you are going to use.
- 2] how many LED fixtures you are going to use.
- 3] how they are placed.

This configuration of the virtual LED matrix is stored in a so-called Patch file.

**Setting up the virtual LED matrix/the Patch file is a requirement! It is necessary for the initial configuration of MADRIX.**

MADRIX offers 2 tools for this task:

- **Matrix Generator**
- **Patch Editor**



## When To Use The Patch Editor

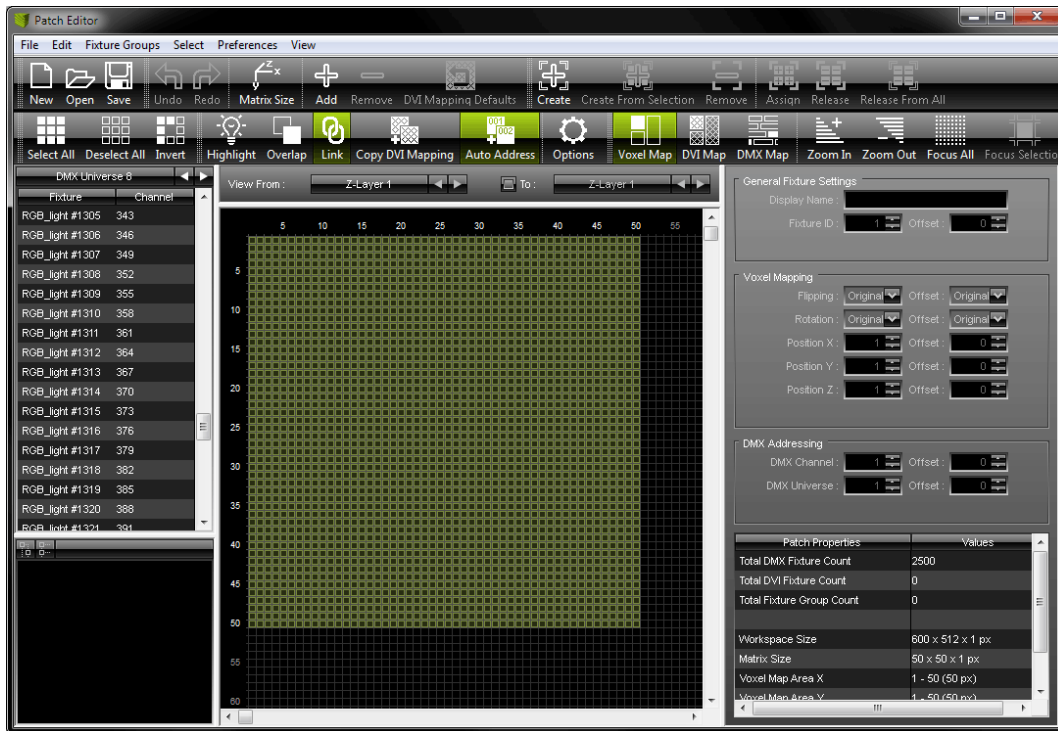
The Matrix Generator helps you to generate a virtual LED matrix automatically according to your settings. This automatic process can be very helpful, when your LED installation is set up in a very simple, logical, or linear way and only uses 1 fixture type. The Patch file will be automatically generated by MADRIX for you.

The Patch Editor is a graphical editor to directly create the Patch file. The Patch Editor offers the same functions as the Matrix Generator and many more options. It allows you to configure your virtual matrix in great detail. You can place LED fixtures freely and individually. If you have more than 1 kind of fixture, use the Patch Editor.

This topic explains the Patch Editor.

**Note:** If you want to use DVI fixtures, please read this chapter and the chapter »[DVI Patch](#)

[The chapters Patch Editor and DVI Patch are about one and the same tool. The term DVI Patch specifically refers to working with DVI fixtures.]



## Step-By-Step Configuration

To work with the Patch Editor, follow these steps:

- 1] Open the Patch Editor.
- 2] Delete all currently included fixtures [except when they are needed].
- 3] Add and configure all fixtures you require.
- 4] Set up the Matrix Size.
- 5] Close the Patch Editor.

### 1] Open The Patch

- Go to **Preferences > Patch Editor...**  
[Keyboard shortcut: **F3**]

- A new window will open.
- The Patch Editor is a separate window. Hence, you will be able to control MADRIX while working with the Patch Editor.

## 2] Delete Fixtures

- Click **Select All** to select all fixtures or single-handedly select unnecessary fixtures.  
[Keyboard shortcut: **Ctrl+A**]
- Click **Delete** - to delete the selected fixtures from the workspace.  
[Keyboard shortcut: **Del**]
- You can also click **New** to create a new Patch file and remove all fixtures at once.  
[Menu **File > New Patch**; Keyboard shortcut: **Ctrl+N**]

## 3] Add And Configure Fixtures

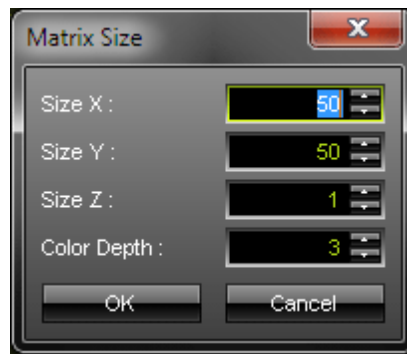
- Click **Add +** to add new fixtures to the workspace.  
[Keyboard shortcut: **Ins**]
- A new window will open.
- Add your fixtures as explained in the chapter »[Matrix Generator](#) and consider the following settings additionally:
  - The **Start Fixture ID** needs to be a number that is not yet occupied by fixtures in the Patch. Each fixture needs its own, unique Fixture ID. MADRIX will automatically provide the next number that is free to use. [You will not be able to add new fixtures if an ID is not unique.]
  - You can choose not to set up all **Addressing** in the Add Fixtures window. The Patch Editor allows you to configure each fixture individually later.
  - But make sure to set up **Start Position X / Y / Z**. This will position fixtures correctly on the workspace and prevent fixtures to overlap. [You will not be able to add new fixtures if their positions overlap. However, you can intentionally allow overlapping fixtures if you want to as explained below.]
- Click **Add** to add your fixtures.

- Configure your fixtures further if needed. [Please see below]
- Repeat the steps to add more fixtures or fixtures of different types.
- The Patch Editor is very flexible. Fixtures can simply and are often required to be rearranged, readdressed, added, and deleted later. Adding fixtures is an initial step to create the individual Patch for your individual LED installation.
- Click **Close** to close the window.



## 4] Set Up The Matrix Size

- After you have set up and configured all of your fixtures, it is important to define the Matrix Size.
- Click **Matrix Size**  
[menu **Edit > Matrix Size...**]
- A new window will open.



The virtual LED matrix represents your LED fixtures. Therefore, it is the area on which the MADRIX Effects are rendered and displayed, and ultimately sent to your output. MADRIX needs to know in pixels/voxels how large your LED project is in total.

Set up the Matrix Size according to all of these parameters:

- **Size X** - Defines the total size of the virtual LED matrix in X in pixels/voxels [horizontal; width].
- **Size Y** - Defines the total size of the virtual LED matrix in Y in pixels/voxels [vertical; height].
- **Size Z** - Defines the total size of the virtual LED matrix in Z in pixels/voxels [level; depth].
  - Choose **Size Z = 1** to work in 2D.
  - Choose a value higher than 1 and MADRIX will automatically create a virtual matrix in 3D.
- **Color Depth** - Defines the number of color channels your LED fixtures use.  
[For example, a color depth of 3 resembles RGB and a color depth of 4 represents RGBW.]
  
- Confirm your changes with **OK**

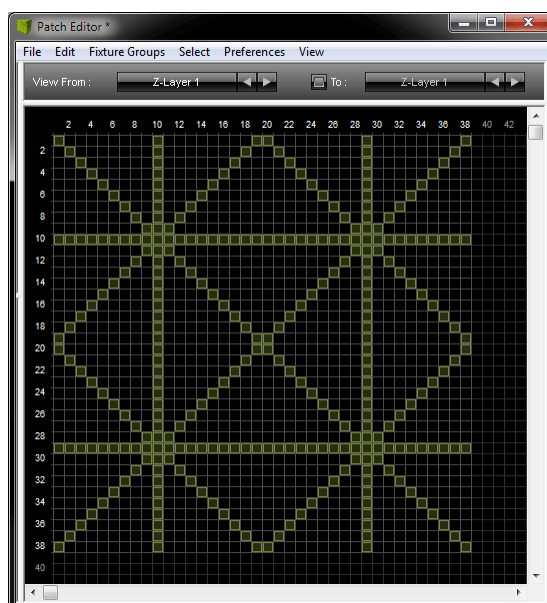
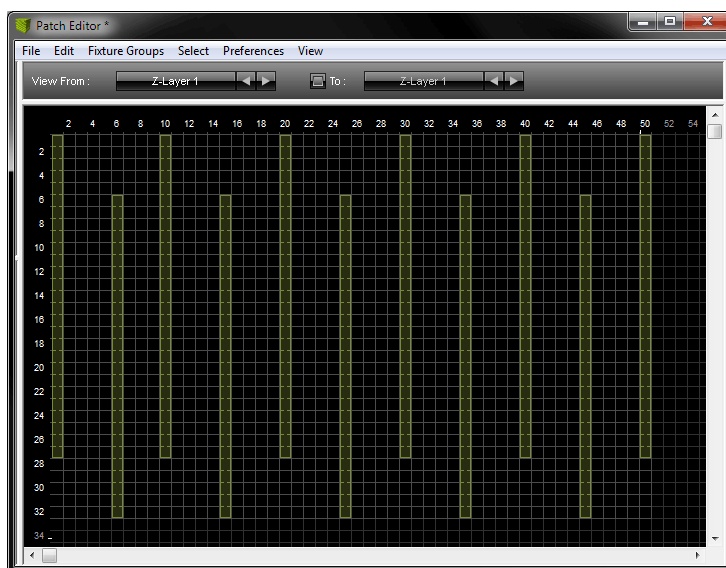
## 5] Close The Patch Editor

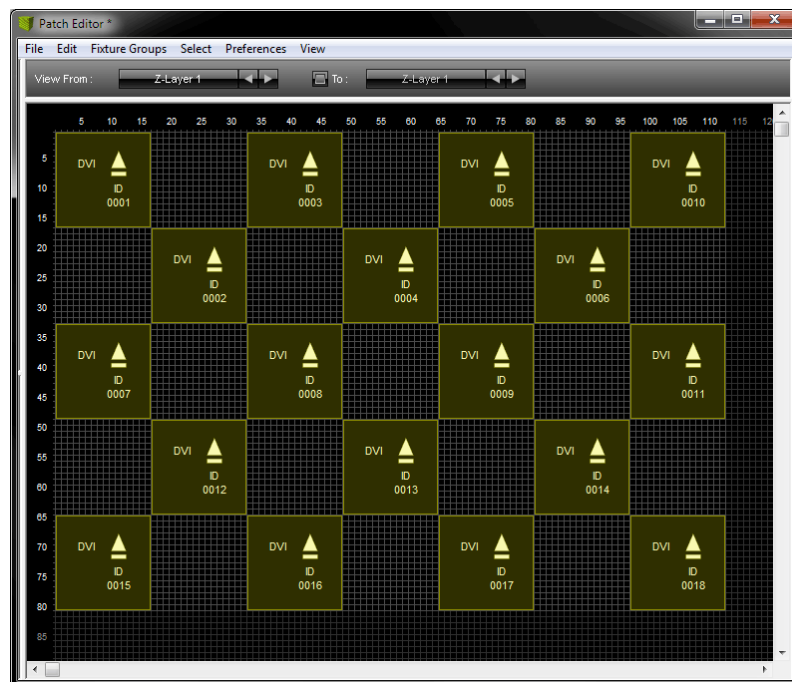
- Close the Patch Editor when you have fully set up and configured your Patch correctly.  
[Continue to learn how to work with the Patch Editor below.]
  
- When you want to close the Patch Editor, click **X**  
or go to the menu **File > Close** when you want to close the Patch Editor.  
[Keyboard shortcut: **F3**]
  
- When you save your MADRIX Setup file, the Patch file is automatically included.

## Examples

- **Note:** Each LED project is different. That is why each Patch in the Patch Editor will look different. There are no general settings that can be applied to every project. Instead, please make sure that the Patch is set up in MADRIX according to your individual LED installation.

- Here are just a few examples of how a Patch could look like:





## User Interface Of The Patch Editor

### Overview

The user interface of the Patch Editor is divided into several, different parts.

- On top, you will find the menu.
- Below the menu, you see the toolbar.
- Below the toolbar, 3 sections are available.
- On the left side, you see the Fixture List.
- The middle section represents a graphical version of your workspace and of your virtual LED matrix. [There are three different view modes available for this section. Learn more below.]
- On the right side, you can use various settings for the fixture configuration.
- Rearrange the width of each section by dragging the section edges.



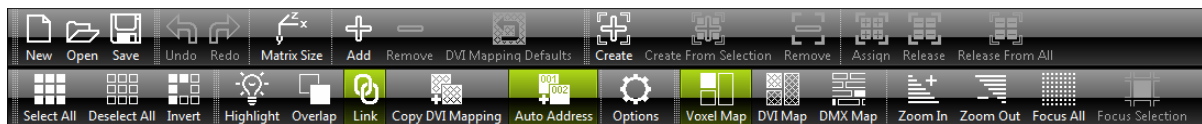
- Hide the left section or the right section by dragging their edge to the outer border of the Patch Editor window. Display them again by dragging the border back.

**Choose *View > Restore Default Window Layout* in order to reset the layout of the Patch Editor to its original settings [or if you are experiencing graphical glitches].**

## Menu And Toolbar

The Patch Editor has a separate menu and a toolbar for shortcuts:

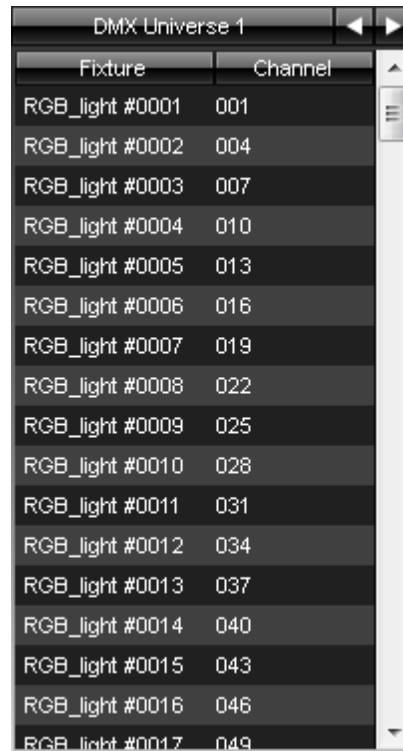
- All items of the menu are explained below.
- The toolbar provides shortcuts to convenient tasks and includes the majority of options that are also included in the menu.
  - You can rearrange the toolbar using **Left Mouse Click And Drag And Drop**



## Fixture List [Left Side]

The left side of the Patch Editor shows the Fixture List:

- The Fixture List provides information and allows you to select specific fixtures.
  - You can choose to show DVI fixtures [**DVI**] and DMX fixtures [**DMX Universes**]. Select it if you want to see DVI fixtures or which particular DMX universe.
  - DMX fixtures are shown with their name, index number, and DMX start channel.
  - DVI fixtures are shown with their index number, and if DVI Mapping is active.
  - Select fixtures with your mouse and they will be automatically selected in the graphical middle section. Select several fixtures by using the **Shift** or **Ctrl** button in addition.
  - Select the Fixture List and use the **Left Arrow Key** and the **Right Arrow Key** to navigate through all DMX Universes and DVI.



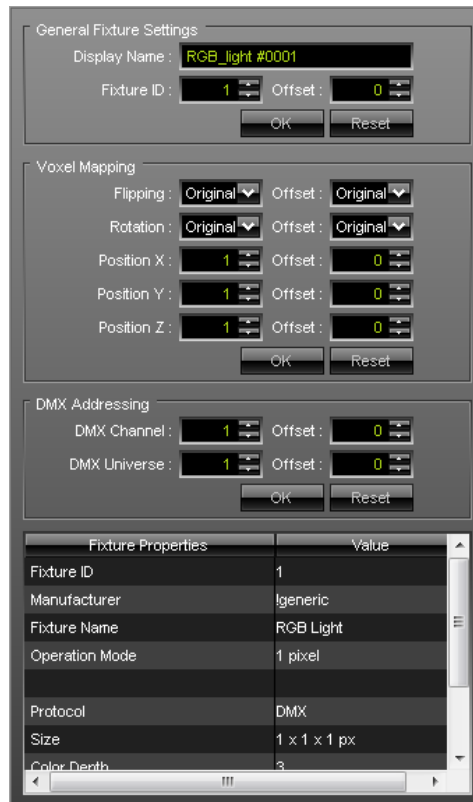
The screenshot shows a window titled "DMX Universe 1" containing a table with two columns: "Fixture" and "Channel". The table lists 17 rows of data, each representing a fixture and its corresponding channel number. The fixtures are labeled "RGB\_light #0001" through "RGB\_light #0017". The channel numbers are 001, 004, 007, 010, 013, 016, 019, 022, 025, 028, 031, 034, 037, 040, 043, 046, and 049. The table has a scroll bar on the right side.

Fixture	Channel
RGB_light #0001	001
RGB_light #0002	004
RGB_light #0003	007
RGB_light #0004	010
RGB_light #0005	013
RGB_light #0006	016
RGB_light #0007	019
RGB_light #0008	022
RGB_light #0009	025
RGB_light #0010	028
RGB_light #0011	031
RGB_light #0012	034
RGB_light #0013	037
RGB_light #0014	040
RGB_light #0015	043
RGB_light #0016	046
RGB_light #0017	049

## Fixture Configuration [Right Side]

The right side of the Patch Editor is a context-sensitive panel that shows different items depending on your selection [fixtures, fixture groups, no selection].

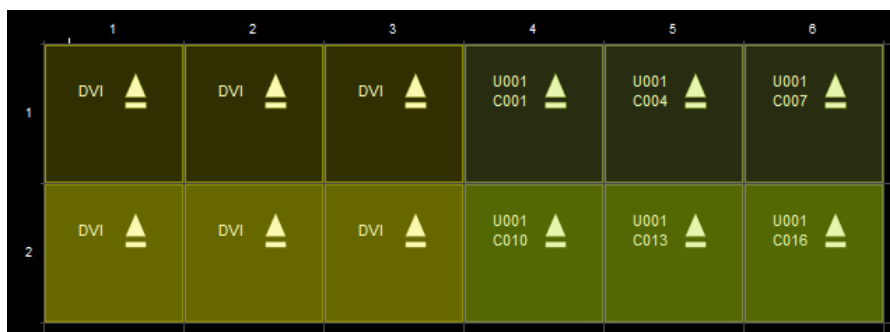
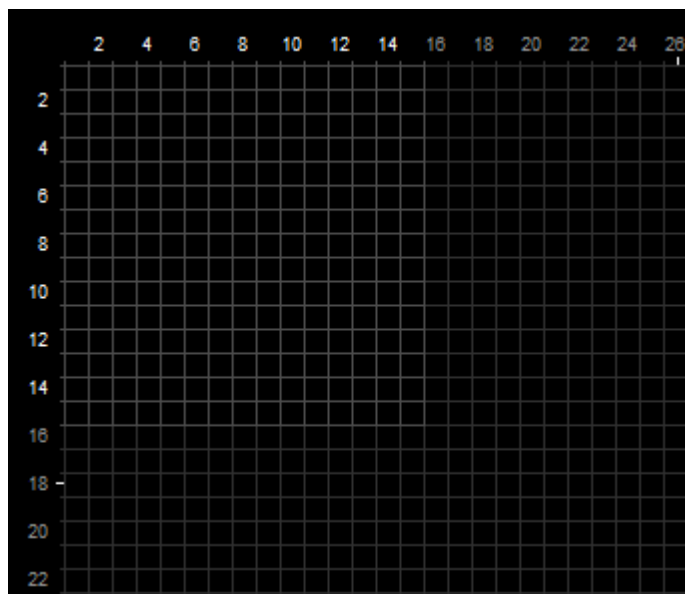
- Learn more about the right section to configure your fixtures below.




### Graphical Overview [Middle Section]

- The middle section is the most important section.
- 3 view modes are available for the graphical overview:
  - **Voxel Map** - Is the default view mode to work with the Patch Editor. The following explanations mainly reference this view mode!
  - **DVI Map** - Is only relevant when working with DVI fixtures. Learn more »[DVI Patch](#)
  - **DMX Map** - Allows you to view the Patch with regards to occupied and used DMX channels. This mode will be explained separately. Learn more [DMX Map](#)

- The Voxel Map shows fixtures and settings in the following ways:
  - The size of the virtual LED matrix [Matrix Size] is shown with the help of a light gray grid.
  - The total workspace you can work on is shown with the help of a dark gray grid.
  - You can see the position of fixtures.
  - DVI fixtures are displayed in dark yellow.
  - Selected DVI fixtures are displayed in yellow.
  - DMX fixtures are displayed in dark green.
  - Selected DMX fixtures are displayed in green.
  - There is an integrated system for error and information messages. A message box will be displayed at the bottom of the middle section. Close the message with **x**



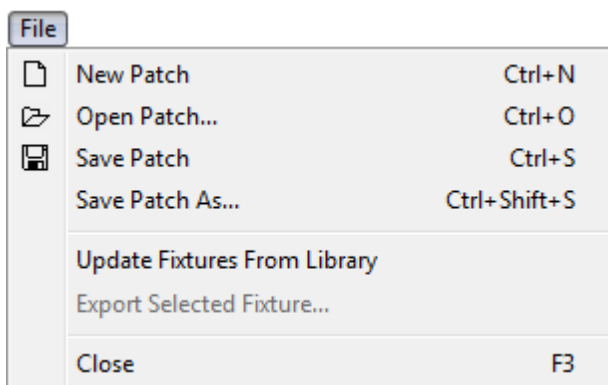
 The fixtures' positions overlap! Please change the settings or allow fixtures to overlap explicitly

The following work-flows are mainly relevant for the view mode *Voxel Map*, but can also work selectively in the *DMX Map*.

## Menu

- **Ctrl+N** - This is a keyboard shortcut that will perform the action directly rather than using the menu.
- ... - Indicates that an extra window will open on top of the Patch Editor window.

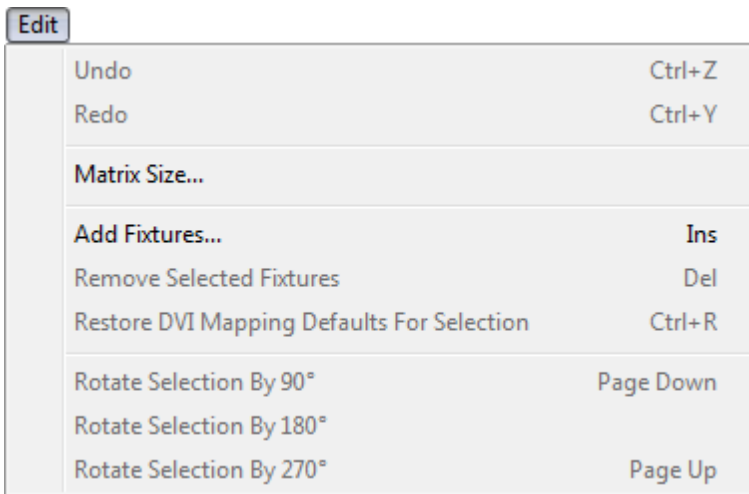
## File Menu



- **New Patch** - Removes all fixtures and creates a new and empty workspace [MADRIX can only have one Patch file at a time].
- **Open Patch...** - Loads a previously saved patch file.
- **Save Patch** - Saves the Patch file in its current state.
- **Save Patch As...** - Saves the Patch file as a new file; a copy.

- **Update Fixtures From Library** - Allows you to refresh all fixture profiles in the Patch from the currently loaded MADRIX Fixture Library, in case you changed fixture profiles that are included in the Fixture Library with the help of the Fixture Editor. Changing the fixture profiles after creating the Patch can sometimes be necessary and is often easier than creating the Patch again from the beginning [MADRIX will not update fixtures under certain circumstances. That is the case, when the Fixture Library does not contain the fixture type, i.e. the unique fixture ID is not included (UUID), or when a DVI fixture is made out of more voxels than defined in the Fixture Library, for example when having chosen Merge Fixtures while adding them.]
- **Export Selected Fixture...** - Allows you to save a fixture directly from the Patch to an external file [of the file type \*.mfix] without using the Fixture Editor. Simply select a fixture in the Patch Editor first. Then, choose a name.
- **Close** - Closes the Patch Editor.

## Edit Menu



- **Undo** - Restores the previous state of the Patch and reverts your last actions.
- **Redo** - Recreates the state again after having performed an Undo.
- **Matrix Size...** - Defines the main settings of the Patch file [as explained above].
- **Add Fixtures...** - Opens a new window in order to add fixtures to the workspace.
- **Remove Selected Fixtures** - Removes the selected fixtures from the workspace.

- **Restore DVI Mapping Defaults For Selection** - Is only relevant when working with DVI fixtures. Learn more » [DVI Patch](#)
- **Rotate Selection By 90°** - Changes the rotation of the selected fixtures by 90°.
- **Rotate Selection By 180°** - Changes the rotation of the selected fixtures by 180°.
- **Rotate Selection By 270°** - Changes the rotation of the selected fixtures by 270°.
  - When rotating multiple fixtures, these 3 functions will rotate the entire block of fixtures. The position of each fixture will change as they are rotated using the central point of all fixtures.
  - Therefore, it is different to the **Rotation** that can be applied in the section **Fixture Settings**. That function will rotate each fixture individually and not change the positions.

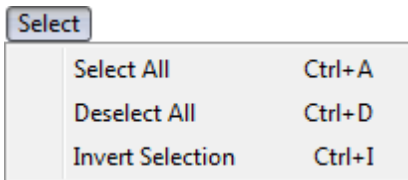
## Fixture Groups Menu



- **Create Empty Fixture Group** - Creates a fixture groups which does not contain any fixtures yet.
- **Create Fixture Group From Selected Fixtures** - Creates a fixture group that automatically includes all fixtures that have been selected before.
- **Remove Selected Fixture Groups** - Removes all fixture groups that are currently selected from the Patch.
- **Assign Selected Fixtures To Selected Fixtures Groups** - Adds all currently selected fixtures to all fixture groups that are currently selected.
- **Release Selected Fixtures From Selected Fixture Groups** - Releases all currently selected fixtures from all fixture groups that are currently selected.
- **Release Selected Fixtures From All Fixture Groups** - Releases all currently selected fixtures from all fixture groups that they are assigned to.

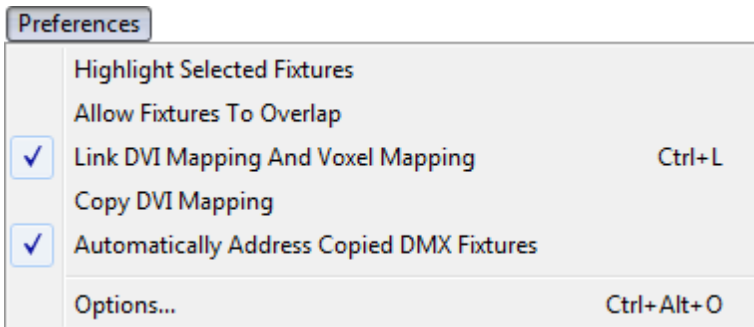
- Learn more »[Fixture Groups \[Group Control\]](#)

## Select Menu



- **Select All** - Selects every single fixture that is included in your Patch. At the same time, all fixtures will be selected in the Fixture list on the left.
- **Deselect All** - Unselects all currently selected fixtures.
- **Invert Selection** - Selects every fixture except the ones you have currently selected.

## Preferences Menu

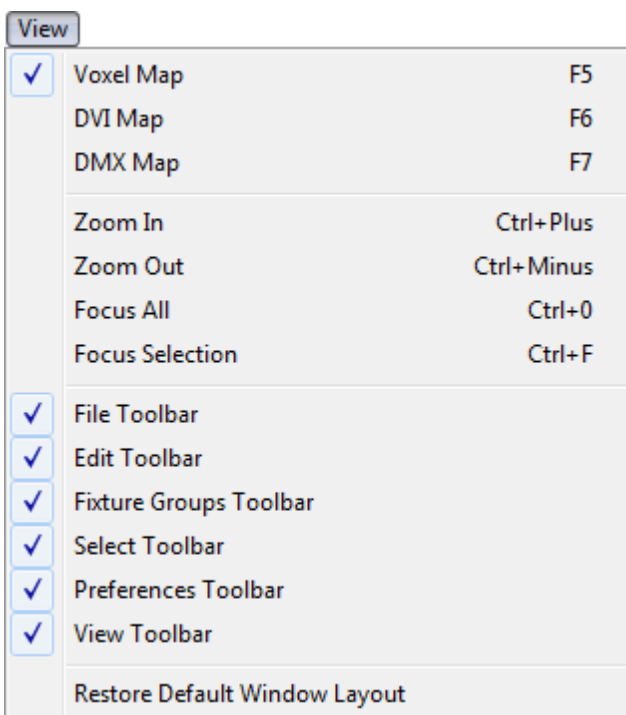


- **Highlight Selected Fixtures** - Makes selected fixtures flash with white color. This makes it easier to identify and see them on stage. This feature is available for DMX-based fixtures.
- **Allow Fixtures To Overlap** - Allows fixtures as well as their DVI Mapping to be arranged on top of each other on the virtual LED matrix. If deactivated, you cannot place any fixture on a position that is already occupied by another fixture.
- **Link DVI Mapping And Voxel Mapping** - Is only relevant when working with DVI fixtures. Learn more »[DVI Patch](#)



- **Copy DVI Mapping** - Is only relevant when working with DVI fixtures. Learn more »[DVI Patch](#)
- **Automatically Address Copied DMX Fixtures** - Enables that MADRIX automatically sets up the DMX addresses for DMX fixtures that are copied. Learn more below.
- **Options...** - Will open a new window in order to change various options of the Patch.

## View Menu



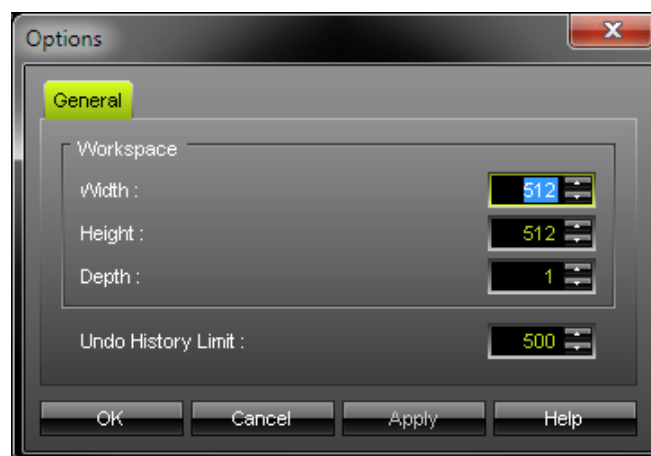
- **Voxel Map** - Is one of three view modes. It is the default view mode to work with the Patch Editor.
- **DVI Map** - Is one of three view modes. It is only relevant when working with DVI fixtures. Learn more »[DVI Patch](#)
- **DMX Map** - Is one of three view modes. Allows you to view the Patch with regards to occupied and used DMX channels. Learn more [DMX Map](#)
- **Zoom In** - Determines the level of detail. Zoom in to see single fixtures, their assigned universe, channel, and rotation.
- **Zoom Out** - Determines the level of detail and allows you to see more of the workspace.

- **Focus All** - Automatically adjusts the zoom level to show all fixtures on the workspace.
- **Focus Selection** - Automatically adjusts the zoom level to show all currently selected fixtures.
  
- **File Toolbar** - Shows or hides the corresponding toolbar and icons.
- **Edit Toolbar** - Shows or hides the corresponding toolbar and icons.
- **Fixture Groups Toolbar** - Shows or hides the corresponding toolbar and icons.
- **Select Toolbar** - Shows or hides the corresponding toolbar and icons.
- **Preferences Toolbar** - Shows or hides the corresponding toolbar and icons.
- **View Toolbar** - Shows or hides the corresponding toolbar and icons.
  
- **Restore Default Window Layout** - Restores the default user interface and layout of the Patch Editor.

## Options

### Overview

- In the Patch Editor, go to **Preferences > Options...**  
[Keyboard shortcut: **Ctrl+Alt+O**]
- In the options, you can change the size of the workspace and the history size for undo and redo.



## Workspace

The workspace allows you to freely position fixtures and work with them on a grid.

By default, the workspace size is set to 512 x 512 x 1 pixels [X x Y x Z].

- If needed, change the size of the workspace according to your needs by adjusting **Width**, **Height**, and **Depth**
- MADRIX will automatically increase the size of the workspace if you are adding fixtures to positions that are outside of the current workspace size.

**Note:** The workspace is the large grid you are working on. In contrast, the virtual LED matrix [i.e., Matrix Size] tells MADRIX the total size of the fixtures and the LED installation.

## Undo And Redo

You can use Undo and Redo to revert actions while working in the Patch Editor.

By default, the Patch Editor allows 500 steps to be reversed.

- If needed, change this so-called **Undo History Limit** according to your needs.

## Patch Properties Overview

The Patch Editor can provide a useful overview over the most important settings, such as Matrix Size and Workspace.

The overview is provided in the lower right corner. First, make sure that no fixture is selected!

Patch Properties	Values
Total DMX Fixture Count	0
Total DVI Fixture Count	1
Total Fixture Group Count	0
Workspace Size	600 x 512 x 1 px
Matrix Size	50 x 50 x 1 px
Voxel Map Area X	1 - 50 (50 px)
Voxel Map Area Y	1 - 50 (50 px)
Voxel Map Area Z	1 (1 px)
DVI Map Area X	1 - 50 (50 px)
DVI Map Area Y	1 - 50 (50 px)
DVI Map Area Z	1 (1 px)

- **Patch Properties** - The following information is available to you:
  - **Total DMX Fixture Count** - Shows the overall number of DMX fixtures that are currently included in your Patch file.
  - **Total DVI Fixture Count** - Shows the overall number of DVI fixtures that are currently included in your Patch file.
  - **Total Fixture Group Count** - Shows the overall number of Fixture Groups that are currently included in your Patch file.
  
  - **Workspace Size** - Shows the currently set up size of the [Workspace](#)
  - **Matrix Size** - Shows the currently set up [Matrix Size](#)
  - **Voxel Map Area X** - Shows the size of the area on which fixtures are patched and located in X, independently of the Matrix Size that is defined.
  - **Voxel Map Area Y** - Shows the size of the area on which fixtures are patched and located in Y, independently of the Matrix Size that is defined.
  - **Voxel Map Area Z** - Shows the size of the area on which fixtures are patched and located in Z, independently of the Matrix Size that is defined.
  - **DVI Map Area X** - Is only visible when DVI fixtures are included in the Patch. Shows the size of the area on which DVI fixtures with DVI Mapping are patched and located in X. »[DVI Patch](#)
  - **DVI Map Area Y** - Is only visible when DVI fixtures are included in the Patch. Shows the size of the area on which DVI fixtures with DVI Mapping are patched and located in Y. »[DVI Patch](#)
  - **DVI Map Area Z** - Is only visible when DVI fixtures are included in the Patch. Shows the size of the area on which DVI fixtures with DVI Mapping are patched and located in Z. »[DVI Patch](#)

## 2D Or 3D

### Overview

- MADRIX can control 2D projects as well as 3D projects.  
Learn more »[2D Or 3D \[X, Y, Z\]](#)
- You automatically choose to work in 2D or in 3D, when you add new fixtures or set up the virtual LED matrix [Matrix Size].  
Learn more [above](#)

### Z-Levels

**Make sure to select the view mode *Voxel Map* first.**

- The Patch Editor only provides a 2D, graphical representation, even if you are working in 3D.
- To access and configure all fixtures of a 3D project, you can select the different Z-levels that make up your project.
- When working in 2D, only one Z-level is needed and available [**Z-Layer 1**].



- When working in 3D, you can select and view each Z-level according to your needs.

**A]** You want to select only one Z-level:

- 1] **View From** - Select the **Z-Layer** you wish to see and work with.
- 2] Leave **To** deactivated.
- 3] You will be able to select and work with the fixtures of only 1 Z-level at a time.

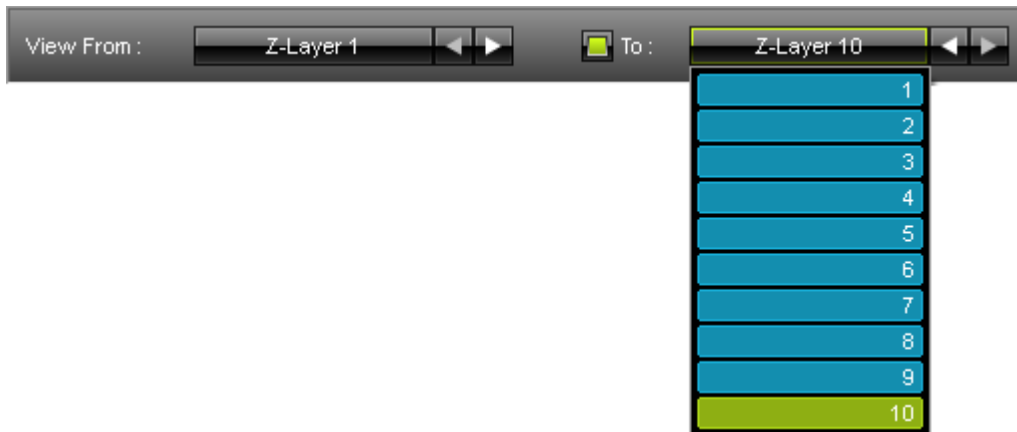


**B]** You want to select several [if not all] Z-levels at once:

- 1] **View From** - Select the first **Z-Layer** you wish to see and work with.
- 2] **To** - Activate it. Then, select the last **Z-Layer** you wish to work with.
- 3] All Z-levels and their corresponding fixtures within that range of Z-levels will be selectable.

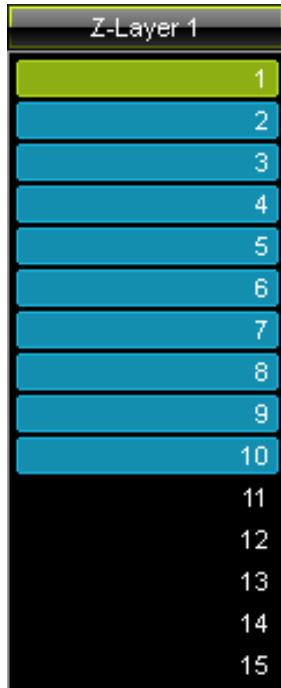
**Example:**

If you want to select and work with all fixtures of your 3D project that features 10 Z-levels, set up **View From Z-Layer 1 To Z-Layer 10**



- If you now want to select all fixtures, click **Select All**[or press **Ctrl+A**].
- If you want to select one fixture, simply click on it.
- If you want to select a fixture and all other corresponding fixtures on the same position on each Z-level, make sure to use the ways of selecting multiple fixtures as described below [e.g., rectangular selection mode via Shift].
- If you are selecting multiple fixtures on the Z-level you currently see, all corresponding fixtures on each Z-level will also be selected.
- Use the Fixture List [on the left side of the Patch Editor] to double-check which fixtures you have currently selected.

- More Information:



- Z-Layers with a **green** background show the currently selected Z-level.
- Z-Layers with a **blue** background show the currently occupied and used Z-levels. There are fixtures patched on those Z-Layers.
- Z-Layers with a **black** background show Z-levels that are set up in the Matrix Size, but there are no fixtures patched on those Z-levels.

## Working With The Patch Editor

The following work-flows are mainly relevant for the view mode *Voxel Map*, but can also work selectively in the *DMX Map*.

### Overview

- **Selection**

- A] Left click on a single fixture in the graphical middle section in order to select it.
- B] Left click a fixture in the Fixture List and it will automatically be selected in the graphical middle section.

### ▪ **Multiple Selection**

A] Left click on fixtures while holding Ctrl on your keyboard in order to select several fixtures.

B] Hold Shift on your keyboard. Then, hold your left mouse button and drag your mouse. A selection mask will become visible. It is displayed with the help of a dotted line.

Additionally, hold the Ctrl button and you will be able to select different areas of the Patch which will be added to your selection.

C] Hold Shift, left-click the first fixture, then left-click the last fixture, and applying a rectangular selection mode, every single fixture between the first and the last fixture will be selected.

Hold Ctrl and Shift at the same time and you can select different fixtures each time, while the previously selected fixtures remain selected.

D] Select several fixtures via Shift+Left click or Ctrl+Left click in the Fixture List and they will be automatically selected in the graphical middle section.

### ▪ **Zoom**

- Use the scroll wheel to zoom in or to zoom out.

### ▪ **Navigation**

- Press Space and left click in order to drag the graphical middle section for navigation. [You can also use the scroll bars.]

### ▪ **Position [Drag And Drop]**

- Select a fixture and hold the mouse button. Then, move your cursor. Your selection will stand out from the rest of the Patch. Drop it on the new position and it will automatically snap to this position according to the grid.

- This also works with multiple fixtures.

- Use drag and drop in combination with Ctrl to copy fixtures and the DMX universe and DMX channel will be automatically adjusted [if this option is activated in the menu]. Learn more [Copying Fixtures](#)

### ▪ **Position [Keyboard]**

- Select one or several fixtures and use the arrow keys on your keyboard to move them to a different position.

### ▪ **Rotation**

- Select multiple fixtures and use Page Up or Page Down on your keyboard to rotate the entire block of fixtures. They will be literally rotated using the central point of all fixtures. Hence, the position will be changed automatically. [In contrast, if you select several fixtures and adjust the Rotation in the Fixture settings, each fixture will be rotated individually. Their positions will not change. ]

## Copying DVI Fixtures

### Single DVI Fixtures



- Select a single DVI fixture while holding Ctrl. Then, continue to hold Ctrl and the left mouse button and drag your mouse and a copy of the DVI fixture will be created. Simply release the mouse at the fixture's new position.

## Multiple DVI Fixtures

- Select multiple DVI fixtures while holding Ctrl. Now hold down the left mouse button at the same time on any of the selected fixtures. Drag your mouse and copies of the DVI fixtures in a corresponding pattern will be created. Simply release the mouse at the fixtures' new position.

## Copying DMX Fixtures [Auto Addressing]

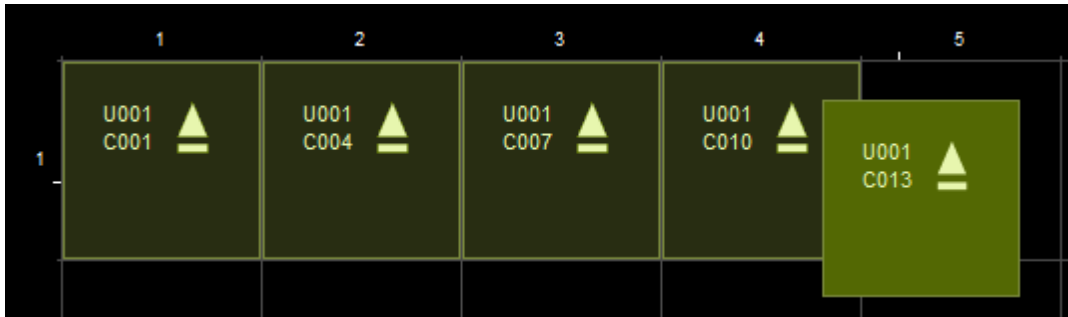
### Overview

**Pay attention when using auto addressing and double-check if each fixture is addressed correctly!**

- Copying DMX fixtures has been improved by adding auto addressing.
- If auto addressing is enabled, MADRIX will automatically increase the DMX channel [and DMX universe] of the copied fixture.
- In the Patch Editor, go to **Preferences > Automatically Address Copied DMX Fixtures** to activate auto addressing.
- Disable this feature and the copied fixtures will have the same DMX channel and universe as their sources.

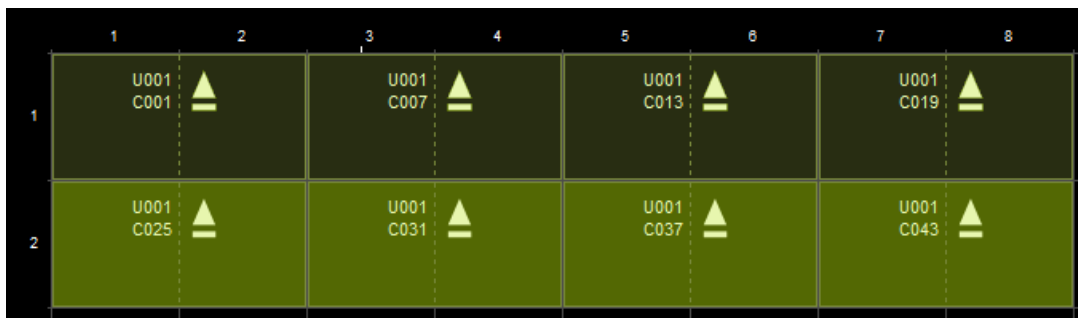
### Single Fixtures

- Select a single DMX fixture while holding Ctrl. Then, continue to hold Ctrl and the left mouse button and drag your mouse and a copy of the DVI fixture will be created. Simply release the mouse at the fixture's new position.
- The DMX channel and the DMX universe will be automatically adjusted if auto addressing is enabled.
- **Example:** The original fixture at position 1,1 is patched to DMX universe 1 and channel 1. It requires 3 DMX channels. Therefore the first copy, fixture number 2, is automatically set to channel 4, and so on.

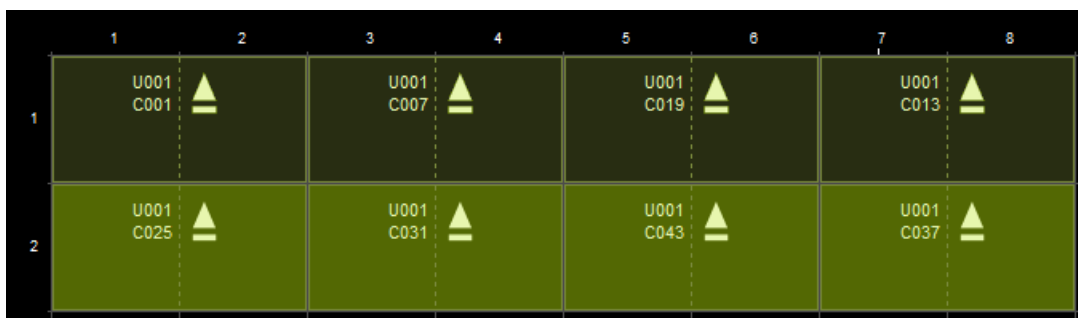


### Multiple Fixtures

- If you select several DMX fixtures, auto addressing also works. The intelligent function calculates the next free DMX address for each of the copied DMX fixtures and automatically adjusts the DMX channel and the DMX universe for each fixture.
- **Example 1:** A row of four linearly addressed fixtures shall be copied at once [6 DMX channels per fixture]. Result: Each fixture will be addressed to the next free DMX address in comparison to the previous fixture.



- **Example 2:** A row of four linearly addressed fixtures shall be copied at once, while fixture number 3 has a higher address than fixture number 4 [6 DMX channels per fixture]. Result: Fixture number 7 has also a higher DMX address than fixture number 8.



- **Example 3:** A row of three linearly addressed fixtures should be copied at once, while spacing and an offset is added to fixture number 3 [6 DMX channels per fixture]. Result: Fixture number 6 continues with the next free addressing of fixture number 5 and does not have an additional offset, while keeping the spacing.

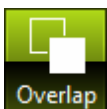
	1	2	3	4	5	6	7	8
1	U001 C001	▲	U001 C007	▲			U001 C013	▲
2	U001 C019	▲	U001 C025	▲			U001 C031	▲

## Highlight Selected Fixtures



- Makes corresponding fixtures flash for better identification. This makes it easier to see them on stage/in your LED installation. That means, if you select one or several fixtures within the Patch Editor, the corresponding LED fixtures in your installation will light up completely white.
- This feature is available for DMX-based fixtures without restrictions.
- Highlighting DVI-based fixtures is possible. For the feature to work, make sure that the External Previews are set to DVI Map Mode.

## Allow Fixtures To Overlap



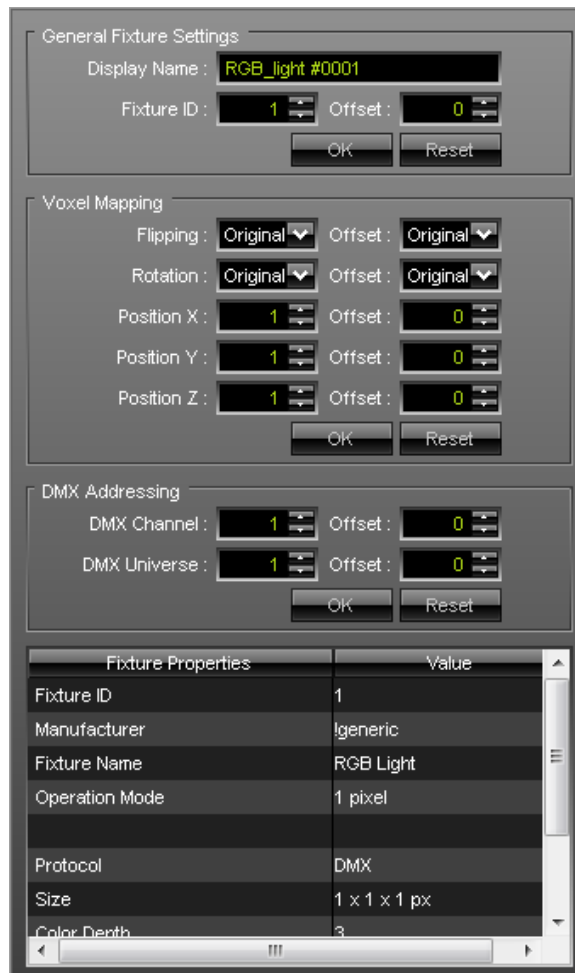
- This feature allows fixtures to overlap. In order to rearrange the Patch, a fixture may be dragged/repositioned to the position of another fixture.

## Fixture Configuration

The following work-flows are mainly relevant for the view mode *Voxel Map*, but can also work selectively in the *DMX Map*.

### Overview

- In order to configure a fixture in the Patch Editor, select it first.
- The corresponding information will be displayed in the third column.
- When selecting multiple fixtures, settings can be confirmed with **OK** and will apply to each fixture individually.
- **Configure each fixture according to your requirements!**

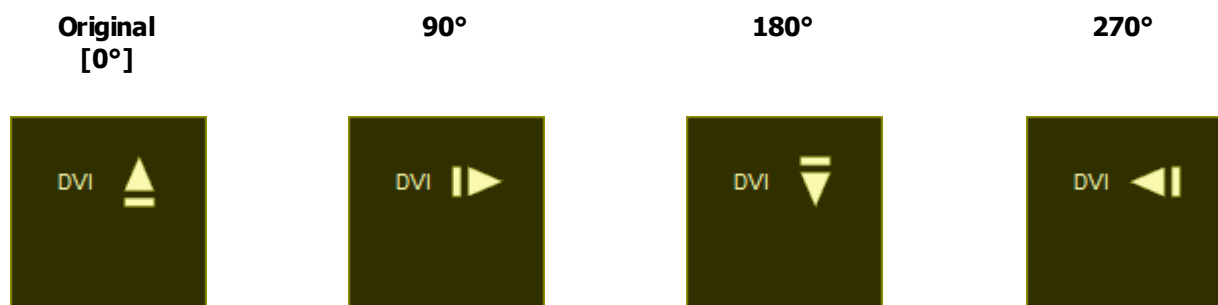


- **General Fixture Settings**
  - **Display Name** - Defines a label for the fixture.
  - **Fixture ID** - Defines the unique identifier for this fixture. Each fixture needs its own, unique Fixture ID.
  - Always confirm with **OK**
  
- **Voxel Mapping** - Includes settings that refer especially to pixel mapping and voxel mapping [e.g., the position of fixtures].
  - **Flipping** - Allows you to flip a fixture horizontally, vertically, or both. Learn more [below](#)
  - **Rotation** - Allows you to rotate a fixture. Learn more [below](#)
  - **Position X** - Defines the horizontal position of the fixture.
  - **Position Y** - Defines the vertical position of the fixture.
  - **Position Z** - Defines the depth position of the fixture.
  - Always confirm with **OK**
  
- **DMX Addressing** - Includes settings that refer especially to the DMX address of a fixture.
  - **DMX Channel** - Defines the first part of the DMX address of DMX fixtures. Usually, each fixture has a specific and unique DMX address. Learn more »[Glossary](#)
  - **DMX Universe** - Defines the second part of the DMX address of DMX fixtures. Usually, each fixture has a specific and unique DMX address. Learn more »[Glossary](#)
  - Always confirm with **OK**
  
- **Offset** - Allows you to quickly add or subtract values from a setting. For example, if you have multiple fixtures selected and want to increase all their DMX channels by 3, simply add an Offset of 3.
  
- **OK** - Always confirm any changes with OK.
- **Reset** - Allows you to discard changes before having confirmed any changes in order to use the values that were set up last.

- **Fixture Properties** - Provides basic information about the fixture profile of the currently selected fixture.
  - **Fixture ID** - Shows the unique identifier of the fixture.
  - **Manufacturer** - Shows the name of the manufacturer of the fixture as defined in the MADRIX Fixture Editor.
  - **Fixture Name** - Shows the name of the fixture as defined in the MADRIX Fixture Editor.
  - **Operation Mode** - Shows the mode of the fixture as defined in the MADRIX Fixture Editor.
  
  - **Protocol** - Shows the type of the fixture as defined in the MADRIX Fixture Editor.
  - **Size** - Shows the amount of pixels/voxels of the fixture as defined in the MADRIX Fixture Editor.
  - **Color Depth** - Shows the color depth of the fixture as defined in the MADRIX Fixture Editor.
  - **DMX Channel Count** - Shows the number of DMX channels that the fixture uses as defined in the MADRIX Fixture Editor.
  - **Valid DMX Address Range** - Shows the lowest and highest possible DMX channel address for the fixture as defined in the MADRIX Fixture Editor.
  
  - **DVI Mapping** - Shows if an individual DVI Mapping is configured for the DVI fixture.
  
- **DVI Mapping** - Is only relevant for DVI fixtures. Learn more »[DVI Patch](#)

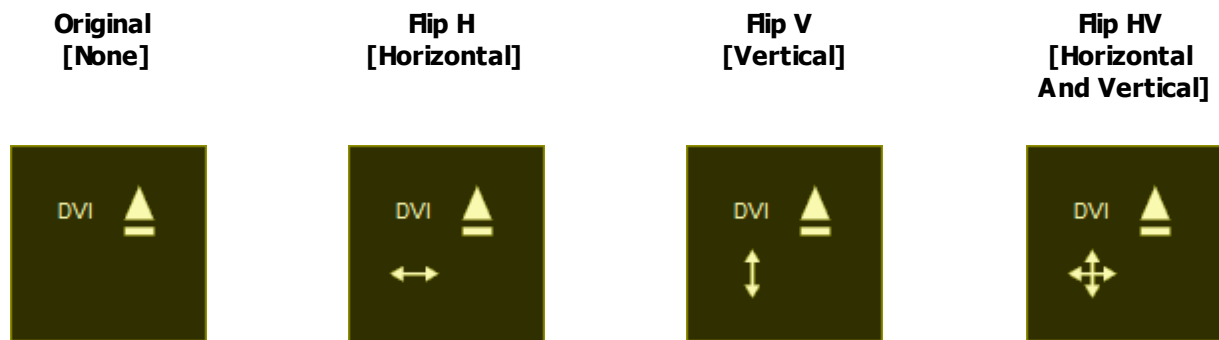
## Fixture Rotation

- Fixture rotation is shown for both DMX and DVI fixtures with the help of a solid arrow.
- A small baseline indicates the opposite direction of the direction the arrow shows for better identification.



## Fixture Flipping

- Fixture flipping is shown for both DMX and DVI fixtures with the help of a double arrow [two-way symbol].
- If a fixture is not flipped, no symbol will be shown.
- **Flipping is applied to the original fixture position, before rotation.**



## How The Patch Affects The Live Previews

- All Previews [including Preview Left, Preview Right, Preview Output as well as External Preview 1 and External Preview 2] are affected by your individual Patch [i.e. virtual LED matrix].
- The Patch represents your LED installation on a more technical level.
- The Previews will represent the Patch and in this way your LED installation.
- Learn more » [3 Previews](#)

## DMX Map

The DMX Map is one of three view modes that are available for the Patch Editor.

- **Voxel Map** - Is the default view mode in order to work with the Patch Editor and the Patch.
- **DVI Map** - Is only relevant when working with DVI fixtures. Learn more » [DVI Patch](#)

- **DMX Map** - Allows you to view the Patch with regards to occupied and used DMX channels.

- To display DMX Channel mode, click **DMX Map**

[menu **View > DMX Map**]

[Keyboard shortcut: **F7**]

	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	+11	+12	+13	+14	+15
1:	U001 C001			U001 C004			U001 C007			U001 C010			U001 C013			U001 C016
17:			U001 C019			U001 C022			U001 C025			U001 C028			U001 C031	
33:		U001 C034			U001 C037			U001 C040			U001 C043			U001 C046		
49:	U001 C049			U001 C052			U001 C055			U001 C058			U001 C061			U001 C064
65:			U001 C067			U001 C070			U001 C073			U001 C076			U001 C079	
81:		U001 C082			U001 C085			U001 C088			U001 C091			U001 C094		
97:	U001 C097			U001 C100			U001 C103			U001 C106			U001 C109			U001 C112
113:			U001 C115			U001 C118			U001 C121			U001 C124			U001 C127	
129:		U001 C130			U001 C133			U001 C136			U001 C139			U001 C142		
145:	U001			U001			U001			U001			U001			U001

- The DMX Map:

- Is a separate view mode. But it is not independent from the Voxel Map. If you change something here, the corresponding settings will also change in the Voxel Map.
- Shows all 512 DMX channels per DMX universe.
- Shows the fixtures not based on their pixel/voxel count, but on the DMX channels they use.
- Shows 16 DMX addresses per row. If a fixtures uses DMX channels that are located on several rows, the Patch Editor will display such a fixture with the help of a split arrow.
- Is another way to work with DMX fixtures. It will be empty if you are only using DVI fixtures.
- Can be used to work with DMX fixtures. A lot of the work-flows of the Voxel Map will work here as well.

- In order to work in a specific DMX universe, select the particular **DMX Universe** first.





## Merging Patches

### Overview

While the Patch Editor can only load and activate 1 Patch at a time, it allows you to merge Patches together. That means you can combine separate Patch files into one Patch file.

- The Patch Editor allows you to merge 2 Patches in one procedure.
- By repeating the procedure, you can merge more than 2 Patches.

Merging several Patches can be useful, for example, when:

- Working on a large LED installation and first creating and testing the Patch for each section separately.
- Having different team members create different parts of an overall Patch.
- Wanting to join two separate LED projects into one larger project later.

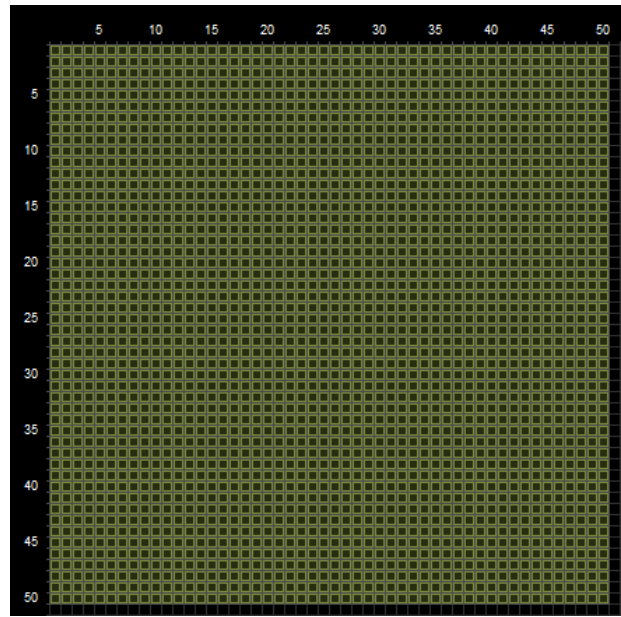
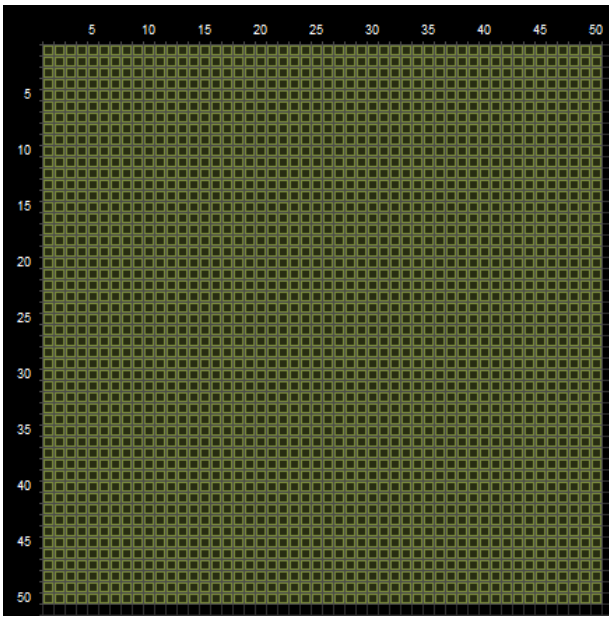
### Step-By-Step Instructions

#### 1] Create Your Patches

- In order to merge two Patches, the different Patches need to be ready and available first.
- Make sure to have all Patch files saved and available in one location, such as the hard drive of your computer.

**Patch 1 Example**

**Patch 2 Example**

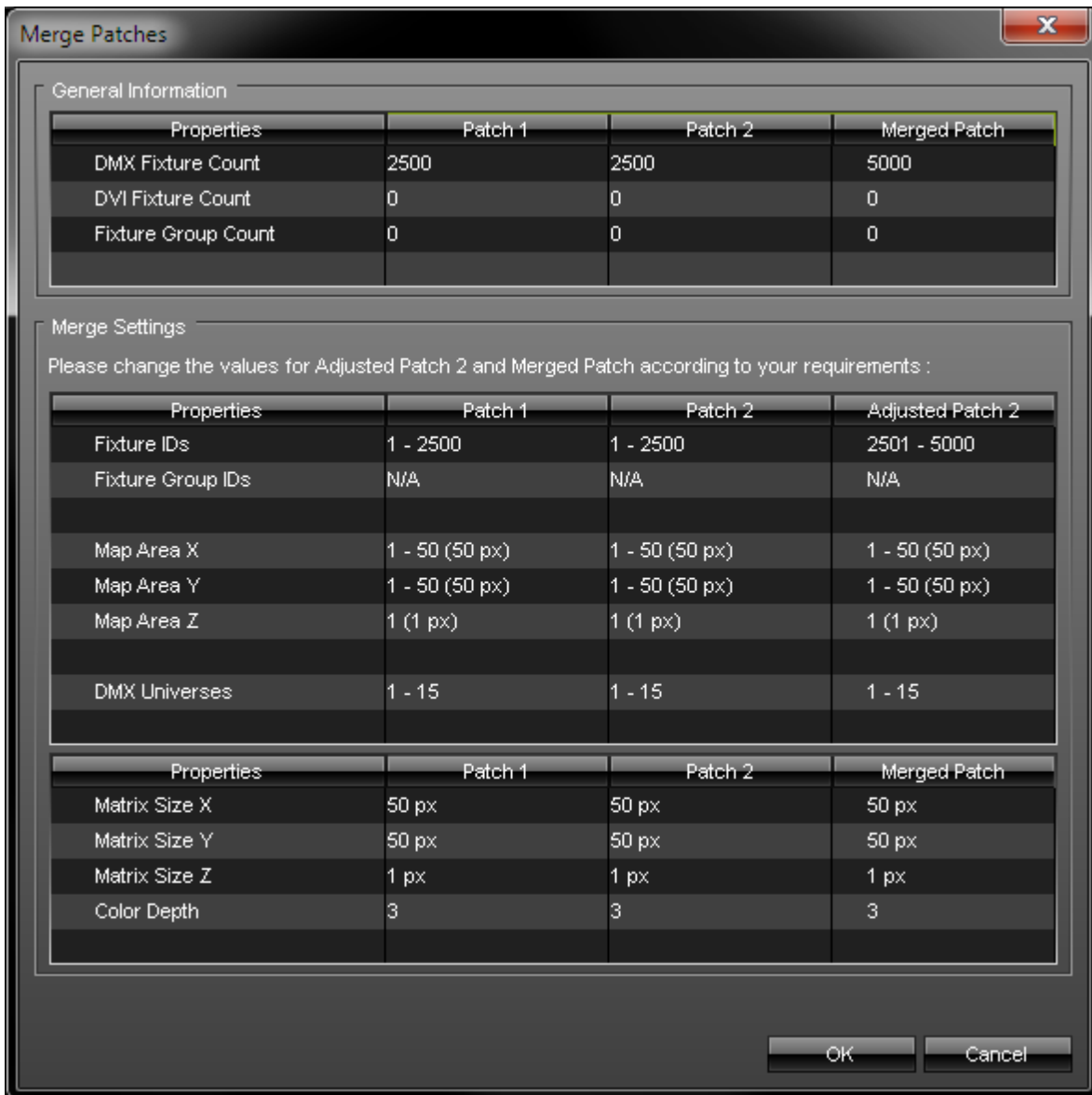


## 2] Load Patch 1

- Load Patch 1 in the Patch Editor [**Preferences > Patch Editor... > File > Open Patch...**].
- Or load Patch 1 as part of a MADRIX Setup [**File > Open Setup...**].

## 3] Activate The Merge Patches Feature

- Go to **Preferences > Patch Editor... > File > Merge Patches...**
- Select Patch 2 from its stored location, such as the hard drive of your computer.
- A new window will open.



#### 4] Adjust The Settings

- The Merge Patches windows provides information about Patch 1 and Patch 2 and it requires you to adjust several settings in order that both Patches are merged according to your requirements.
- See the following table for more information:

<b>General Information</b>			
<b>Properties</b>	<b>Patch 1</b>	<b>Patch 2</b>	<b>Merged Patch</b>
DMX Fixture Count	2500	2500	5000
DVI Fixture Count	0	0	0
Fixture Group Count	0	0	0

<b>DMX Fixture Count</b>	Shows the total number of DMX fixtures included in Patch 1.	Shows the total number of DMX fixtures included in Patch 2.	Shows the total number of DMX fixtures that will be included when the Patches are merged into one Patch.
<b>DVI Fixture Count</b>	Shows the total number of DVI fixtures included in Patch 1.	Shows the total number of DVI fixtures included in Patch 2.	Shows the total number of DVI fixtures that will be included when the Patches are merged into one Patch.
<b>Fixture Group Count</b>	Shows the total number of fixture groups in Patch 1.	Shows the total number of fixture groups in Patch 2.	Shows the total number of fixture groups that will be included when the Patches are merged into one Patch.

<b>Merge Settings</b>			
<b>Properties</b>	<b>Patch 1</b>	<b>Patch 2</b>	<b>Adjusted Patch 2</b>
<b>Fixture IDs</b>	Shows the unique identifiers for fixtures included in Patch 1.	Shows the unique identifiers for fixtures included in Patch 2.	<ul style="list-style-type: none"> <li>- Since all Fixture IDs need to be unique, the settings for Patch 2 need to be adjusted here.</li> <li>- Adjust this setting as needed.</li> <li>- MADRIX will automatically provide a sensible suggestion for you [<b>Space</b> - Restores this automatic value].</li> <li>- Please enter the first Fixture ID and MADRIX will automatically set up the range of values.</li> </ul>

<p><b>Fixture Group IDs</b></p>	<p>Shows the unique identifiers for fixture groups included in Patch 1.</p>	<p>Shows the unique identifiers for fixture groups included in Patch 2.</p>	<ul style="list-style-type: none"> <li>- Since all Fixture Group IDs need to be unique, the settings for Patch 2 need to be adjusted here.</li> <li>- Adjust this setting as needed.</li> <li>[ <b>Left Mouse Double-Click</b> - Allows the value to be edited. <b>Enter</b> - Applies the edited values.]</li> <li>- MADRIX will automatically provide a sensible suggestion for you [ <b>Space</b> - Restores this automatic value].</li> <li>- Please enter the first Fixture Group ID and MADRIX will automatically set up the range of values.</li> </ul>
<p><b>Map Area X</b></p>	<p>Shows where fixtures are mapped in Patch 1 along the X-axis (e.g., position <b>1 - 50</b>) and how many pixels are mapped in X in total (e.g., <b>50 px</b>).</p>	<p>Shows where fixtures are mapped in Patch 2 along the X-axis (e.g., position <b>1 - 50</b>) and how many pixels are mapped in X in total (e.g., <b>50 px</b>).</p>	<ul style="list-style-type: none"> <li>- Defines the adjusted position of Patch 2 in X.</li> <li>- Allows you to position Patch 2 to the left, to the right, or overlapped on top of Patch 1.</li> <li>- Adjust this setting as needed.</li> <li>[ <b>Left Mouse Double-Click</b> - Allows the value to be edited. <b>Enter</b> - Applies the edited values.]</li> <li>- Please enter the first position in X and MADRIX will automatically set up the value range.</li> </ul>

<p><b>Map Area Y</b></p>	<p>Shows where fixtures are mapped in Patch 1 along the Y-axis (e.g., position <b>1 - 50</b>) and how many pixels are mapped in Y in total (e.g., <b>50 px</b>).</p>	<p>Shows where fixtures are mapped in Patch 2 along the Y-axis (e.g., position <b>1 - 50</b>) and how many pixels are mapped in Y in total (e.g., <b>50 px</b>).</p>	<ul style="list-style-type: none"> <li>- Defines the adjusted position of Patch 2 in Y.</li> <li>- Allows you to position Patch 2 above, below, or overlapped on top of Patch 1.</li> <li>- Adjust this setting as needed.</li> <li>[ <b>Left Mouse Double-Click</b> - Allows the value to be edited. <b>Enter</b> - Applies the edited values.]</li> <li>- Please enter the first position in Y and MADRIX will automatically set up the value range.</li> </ul>
<p><b>Map Area Z</b></p>	<p>Shows where fixtures are mapped in Patch 1 along the Z-axis (e.g., position <b>1</b>) and how many pixels are mapped in Z in total (e.g., <b>1 px</b>).</p>	<p>Shows where fixtures are mapped in Patch 2 along the Z-axis (e.g., position <b>1</b>) and how many pixels are mapped in Z in total (e.g., <b>1 px</b>).</p>	<ul style="list-style-type: none"> <li>- Defines the adjusted position of Patch 2 in Z.</li> <li>- Allows you to position Patch 2 in front, behind, or overlapped on top of Patch 1.</li> <li>- Adjust this setting as needed.</li> <li>[ <b>Left Mouse Double-Click</b> - Allows the value to be edited. <b>Enter</b> - Applies the edited values.]</li> <li>- Please enter the first position in Z and MADRIX will automatically set up the value range.</li> </ul>
<p><b>DMX Universes</b></p>	<p>Shows which DMX universes are used in Patch 1.</p>	<p>Shows which DMX universes are used in Patch 2.</p>	<ul style="list-style-type: none"> <li>- Defines the adjusted DMX universes for Patch 2.</li> <li>- Allows you to re-address your fixtures.</li> <li>- Adjust this setting as needed.</li> <li>[ <b>Left Mouse Double-Click</b> - Allows the value to be edited. <b>Enter</b> - Applies the edited values.]</li> <li>- Please enter the first DMX universe and MADRIX will automatically set up the value range.</li> </ul>

<b>Properties</b>	<b>Patch 1</b>	<b>Patch 2</b>	<b>Merged Patch</b>
<b>Matrix Size X</b>	Shows the total number of DMX fixtures included in Patch 1.	Shows the total number of DMX fixtures included in Patch 2.	- Defines the Matrix Size in X that will be set when the Patches are merged into one Patch. - Adjust this setting as needed. [ <b>Left Mouse Double-Click</b> - Allows the value to be edited. <b>Enter</b> - Applies the edited values.] - MADRIX will automatically provide the maximum value as a suggestion for you [ <b>Space</b> - Restores this automatic value]. - Make sure that all fixtures from Patch 1 and Patch 2 will be included in the final Matrix Size.
<b>Matrix Size Y</b>	Shows the total number of DVI fixtures included in Patch 1.	Shows the total number of DVI fixtures included in Patch 2.	- Defines the Matrix Size in Y that will be set when the Patches are merged into one Patch. - Adjust this setting as needed. [ <b>Left Mouse Double-Click</b> - Allows the value to be edited. <b>Enter</b> - Applies the edited values.] - MADRIX will automatically provide the maximum value as a suggestion for you [ <b>Space</b> - Restores this automatic value]. - Make sure that all fixtures from Patch 1 and Patch 2 will be included in the final Matrix Size.

<p><b>Matrix Size Z</b></p>	<p>Shows the total number of fixture groups in Patch 1.</p>	<p>Shows the total number of fixture groups in Patch 2.</p>	<p>- Defines the Matrix Size in Z that will be set when the Patches are merged into one Patch.</p> <p>- Adjust this setting as needed.</p> <p>[ <b>Left Mouse Double-Click</b> - Allows the value to be edited. <b>Enter</b> - Applies the edited values.]</p> <p>- MADRIX will automatically provide the maximum value as a suggestion for you [ <b>Space</b> - Restores this automatic value].</p> <p>- Make sure that all fixtures from Patch 1 and Patch 2 will be included in the final Matrix Size.</p>
<p><b>Color Depth</b></p>	<p>Shows the maximum color depth as defined in Patch 1.</p>	<p>Shows the maximum color depth as defined in Patch 2.</p>	<p>- Defines the color depth that will be set when the Patches are merged into one Patch.</p> <p>- Adjust this setting as needed.</p> <p>[ <b>Left Mouse Double-Click</b> - Allows the value to be edited. <b>Enter</b> - Applies the edited values.]</p> <p>- MADRIX will automatically provide the maximum value as a suggestion for you [ <b>Space</b> - Restores this automatic value].</p> <p>- Make sure to use the maximum color depth from Patch 1 and Patch 2 in order to allow for all possible fixtures.</p>

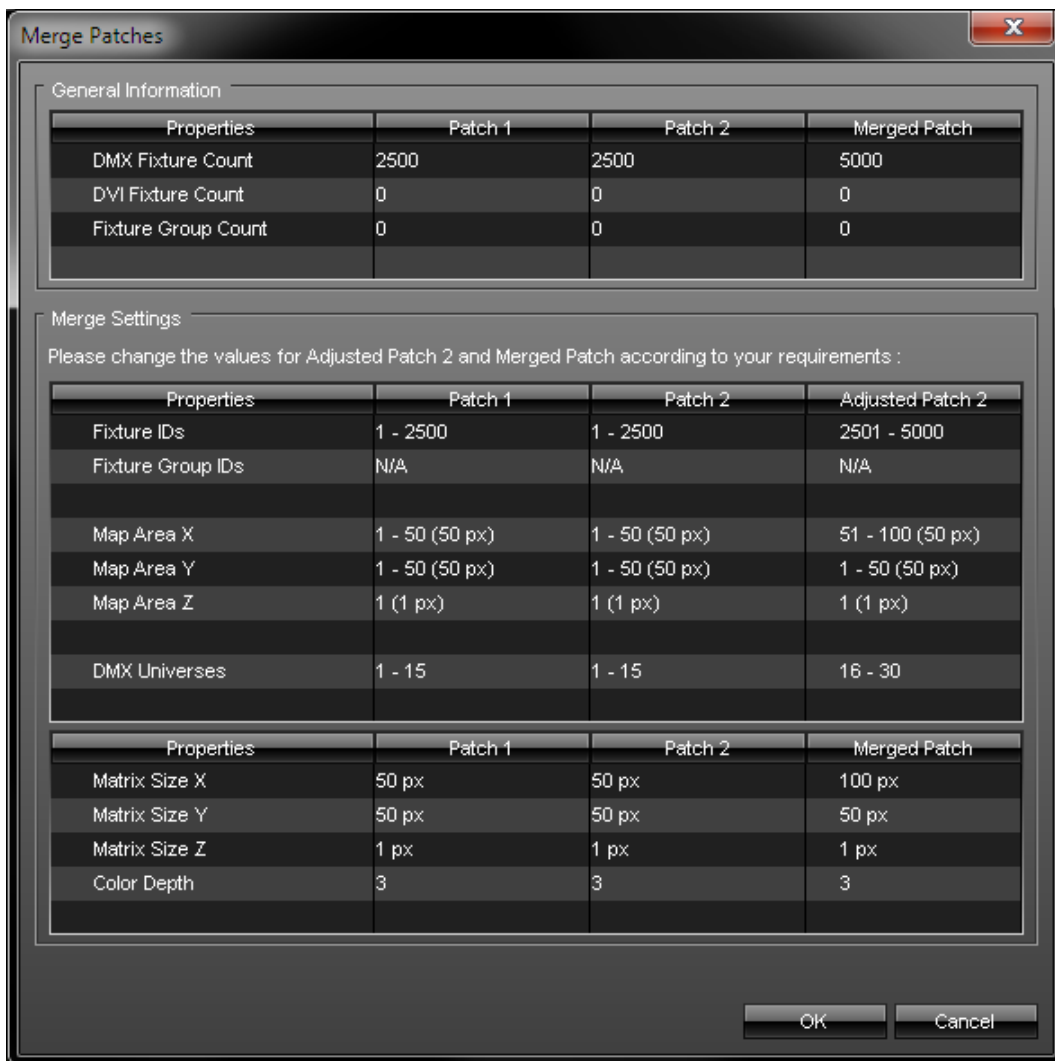
- Please set up all settings of the column **Adjusted Patch 2** as required and confirm with **OK**
- You can abort the process at any time with **Cancel**

**5] Result**

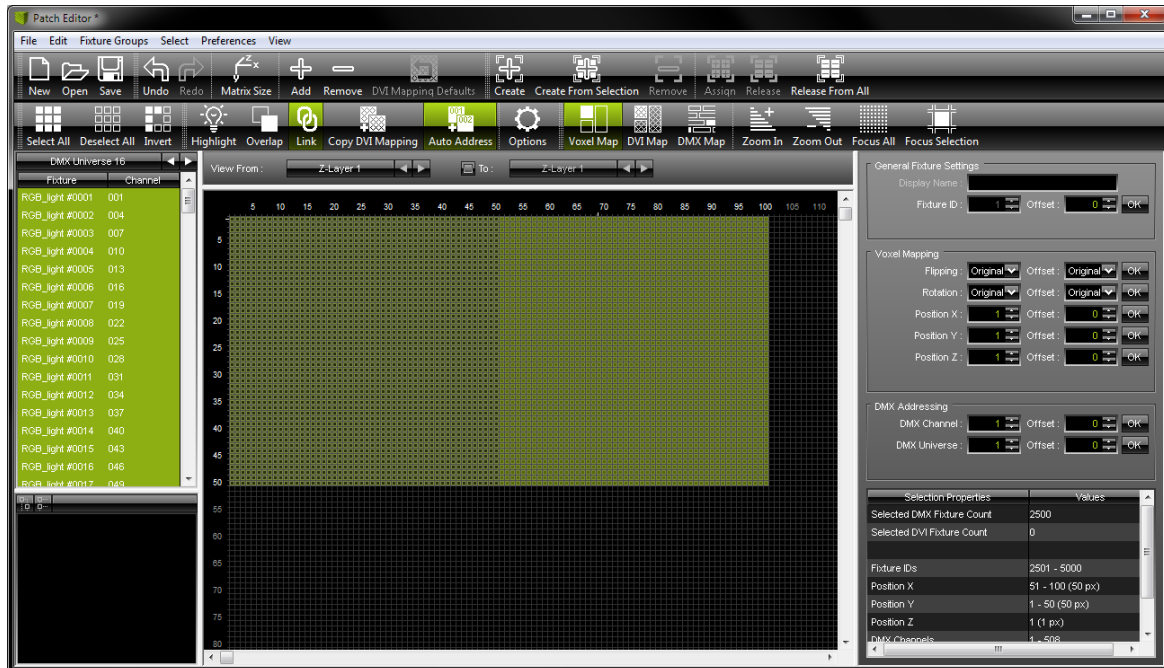


- As a result of the Merge Patches procedure, you will now have created 1 Patch out of 2 Patches.
- **Overlapping** will be activated in the Patch Editor automatically if needed.
- The **Workspace** of the Patch Editor will be extended automatically if needed.
- All imported fixtures of Patch 2 will be automatically selected for you after the procedure.
- You can use **Undo** or **Redo** to rewind the procedure or apply it again after a rewinding.
- Make sure to save your Patch or MADRIX Setup afterwards!

**Merge Settings Result Example**



**Merged Patch Result Example**



## Further Tips

Make sure to save your MADRIX Setup file after the configuration process.

You may also save and/or export the Patch file [of the file type \*.mpz or \*.mpx] separately. In the Patch Editor, go to *File > Save Patch As...*

## 4.3 DVI Patch

This topic includes:

- [Introduction](#)
- [Usage](#)
- [How DVI Hardware Controllers Work](#)
- [Step-By-Step Configuration](#)
- [DVI Mapping](#)
- [Important Information](#)
- [Activating DVI Map Mode For The External DVI Outputs](#)
- [Example](#)

### Introduction

This chapter is an addition to the chapter »[Patch Editor](#)

Please read the chapter Patch Editor in order to learn more about the Patch in general. This chapter focuses on working with DVI fixtures.

**Patch Editor and DVI Patch are about one and the same tool. The term DVI Patch specifically refers to working with DVI fixtures.**

- Go to **Preferences > Patch Editor**

[Keyboard shortcut: **F3**]

### Usage

On the one hand, working with DMX-based fixtures is relatively easy and can be managed with the help of the Patch Editor without much difficulty. You can simply add fixtures, rotate them, or add space between fixtures, for example. Without the DVI Patch, on the other hand, it would not be possible to add rotation or spacing to DVI-based fixtures, because of how DVI hardware controllers work.

The DVI Patch allows you to add

- rotation
- flipping
- spacing

to your LED installations with DVI fixtures.

The DVI Patch can be used when working with DVI fixtures and the following output methods:

- [»DVI](#)
- [»Proprietary DVI Devices \[5A / A8 / T9\]](#)

## How DVI Hardware Controllers Work

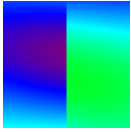
DVI controllers receive a signal [input] and map it to the LED fixtures [output]. But due to their construction, DVI controllers usually need to receive the input images in a linear way, in one whole block of information [often like a rectangle] — no matter how the actual LED installation looks like.

You could also say that DVI controllers expect DVI fixtures to be installed in a predefined way. If you install the DVI fixtures differently, you need to change the input, too.

In other words, when your LED installation looks like this for example:



Then, your DVI controller will probably need the input signal to look like this:



This is no problem for MADRIX. It will transform the signal for your DVI controller according to your Patch configuration.

While the DVI fixtures represent your LED installation in MADRIX and its Previews, you can customize their DVI Mapping settings for the controller that receives the signal. As shown above, DVI fixture settings and their DVI Mapping often are two different things **if** you add rotation, flipping, or spacing. That is why you will have to configure the normal DVI fixture settings and their DVI Mapping settings separately.

The Patch Editor provides three view modes. Regarding the DVI Patch the **DVI Map** is of special importance, since makes it possible to configure the required DVI Mapping of the DVI fixtures.

## Step-By-Step Configuration

In order to work with DVI fixtures, follow the instructions below:

- 1]** Position your DVI fixtures in the graphical workspace of the Patch Editor according to your LED installation [using the view mode **Voxel Map**].
- 2]** Set up the size of your virtual LED matrix [the **Matrix Size**]. Normally, the area it defines should include all of your DVI fixtures.
- 3]** Activate the view mode **DVI Map** [Keyboard shortcut: **F6**] in the Patch Editor.
- 4]** Adjust the DVI Mapping of every single DVI fixture according to the requirements of your DVI hardware controller. [The DVI Mapping of the first DVI fixture normally starts at position X:1, Y:1.]
- 5]** When using »[DVI](#), activate the DVI Map Mode of the external DVI Outputs. When using »[Proprietary DVI Devices \[5A / A8 / T9\]](#), Step 5 is not required.

Step 1 and 2 are explained in the chapter »[Patch Editor](#)

Step 3, 4, and 5 will be explained below.

**Step 3, 4, and 5 are only necessary, if you wish to add spacing, rotation, or flipping to your Patch that includes DVI fixtures.**

## DVI Mapping

### Overview



The DVI Mapping of DVI fixtures represents the fixture configuration for the DVI hardware controller. DVI Mapping settings can include their own position, rotation, and flipping settings. In order to work with DVI Mapping, you need to activate the DVI Map of the Patch Editor.

- In the Patch Editor, select **View > DVI Map**  
[Keyboard shortcut: **F6**]

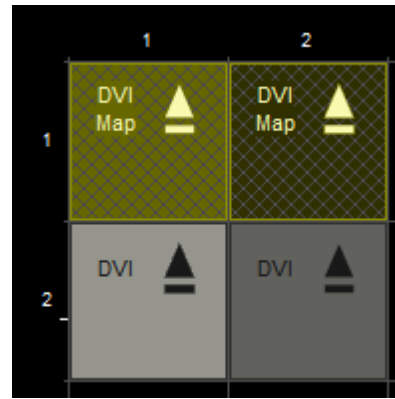
**You only need DVI Mapping if you are using DVI fixtures in a different way than what the DVI controller expects.**

### Comparison Of Voxel Map And DVI Map

<b>DVI Mapping Shown In The Voxel Map</b>	<b>DVI Mapping Shown In the DVI Map</b>
---	---



DVI Mapping is inactive in the Voxel Map. It is shown in gray with a diagonal grid.  
 [Column 1 shows a selected DVI fixture and its DVI Mapping. Column 2 shows a non-selected fixture and its DVI Mapping.]



DVI Mapping is active in the DVI Map. It is shown in yellow with a diagonal grid.  
 [Column 1 shows a selected DVI fixture and its DVI Mapping. Column 2 shows a non-selected fixture and its DVI Mapping.]



When DVI fixture and its DVI Mapping have the same position, the DVI fixture is shown.



When DVI fixture its DVI Mapping have the same position, the DVI Mapping is shown.



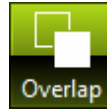
By default, DVI fixture and DVI Mapping settings are linked together. If a setting, such as rotation, is changed for the fixture or the DVI Mapping, the opposite setting [DVI Mapping or fixture, respectively] will receive the same change or a corresponding offset. Deactivate the feature in the menu **Preferences > Link DVI Mapping And Voxel Mapping** [Keyboard shortcut: **Ctrl+L**]. If activated, the icon glows green in the toolbar.



By default, DVI fixture and DVI Mapping settings are not linked together. If a setting, such as rotation, is changed for the fixture or the DVI Mapping, the opposite setting [DVI Mapping or fixture, respectively] will not receive the same change or a corresponding offset. Deactivate the feature in the menu **Preferences > Link DVI Mapping And Voxel Mapping** [Keyboard shortcut: **Ctrl+L**]. If deactivated, the icon glows gray in the toolbar.



DVI fixtures can overlap. That means that one fixture can be positioned over another fixture. You need to activate the feature in the menu **Preferences > Allow Fixtures To Overlap**. If activated, the icon glows green in the toolbar.



DVI fixtures with adjusted DVI Mapping settings can overlap. That means that one Map can be positioned over another Map. You need to activate the feature in the menu **Preferences > Allow Fixtures To Overlap**. If activated, the icon glows green in the toolbar.



DVI fixtures can be copied very easily. Before copying a DVI fixture, you can decide how its DVI Mapping is handled during the copy process. Enable or disable the feature in the menu **Preferences > Copy DVI Mapping**

**A]** Disabled: If a DVI fixture is copied, the DVI Mapping is reset to its default settings. That means it will have the settings of the newly copied DVI fixture. In fact, the copied DVI fixture has its own DVI Mapping.

**B]** Enabled: If a DVI fixture is copied, the DVI Mapping includes the same settings as the DVI Mapping of the source or the settings plus a corresponding offset.

If activated, the icon glows green in the toolbar.

In the DVI Map, DVI Mapping settings cannot be copied like DVI fixtures. Please switch back to the Voxel Map.



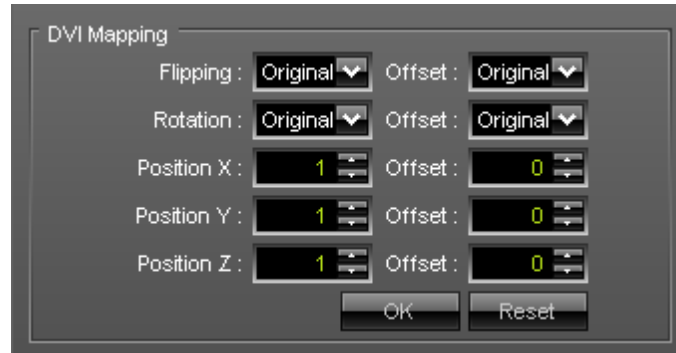


Restore the default DVI Mapping settings of selected DVI fixtures by choosing **Edit > Restore DVI Mapping Defaults For Selection** [Keyboard shortcut: **Ctrl+R**]. If clicked, the icon shortly flashes green in the toolbar.



Restore the default DVI Mapping settings of selected DVI fixtures by choosing **Edit > Restore DVI Mapping Defaults For Selection** [Keyboard shortcut: **Ctrl+R**]. If clicked, the icon shortly flashes green in the toolbar.

## Interaction And Settings



- The DVI Mapping of DVI fixtures can be used and interacted with in the Patch Editor just as any other fixture. In other words, it can be positioned with the mouse or keyboard, for example.  
Learn more »[Patch Editor](#)
- You may also edit the DVI Mapping settings directly.
  - Make sure view mode **DVI Map** is active.
  - Select the DVI Mapping of a DVI fixture and go to the section **DVI Mapping** to the right.
  - You may change the **Flipping**, **Rotation**, or **Position X**, **Position Y**, **Position Z**.
  - You can also add or subtract an **Offset** for each of these items.
  - Always confirm with **OK**Learn more »[Patch Editor](#)
- At the same time, the section **Fixture Properties / Value** shows all necessary information for the DVI Mapping.

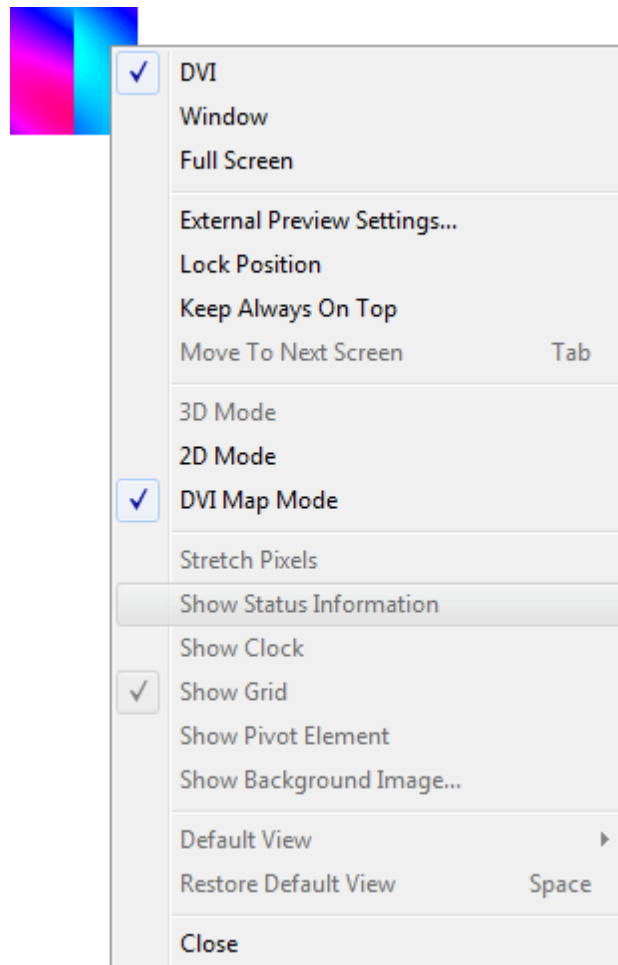
## Important Information

- **When working in 2D, make sure to position your DVI fixtures and their DVI Mapping always on the first Z-level. That means Position Z must be 1!**
- Learn more »[Patch Editor](#)

## Activating DVI Map Mode For The External DVI Outputs

Please activate *DVI Map Mode* for your external DVI output.

Activating DVI Map Mode for the external DVI output is only necessary for screen-capturing.



- **The external DVI outputs offer a number of additional configuration settings. Make sure to configure everything as needed!**

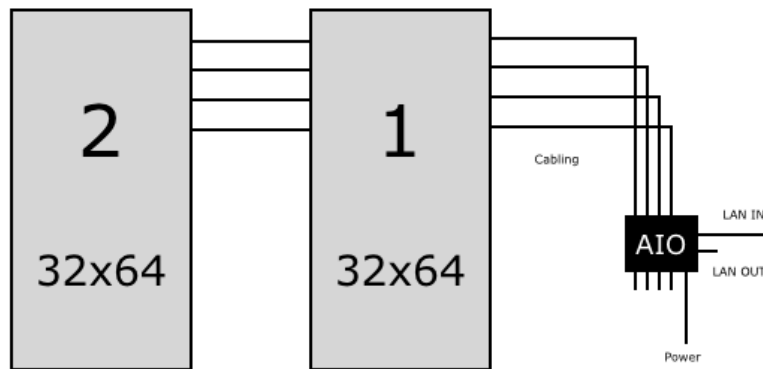
Learn more »[DVI](#)

## Example

### How To Configure Two Rotated EUROLITE LSD 37.5

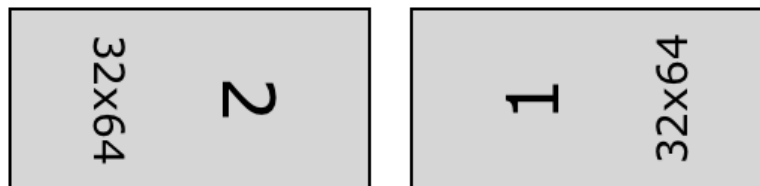
#### Normal Setup

The normal setup of two EUROLITE LSD 37.5 fixtures looks like this [schematic]:



#### Sample Setup

In this example, we will configure the two fixtures to be installed like this [schematic; without space]:

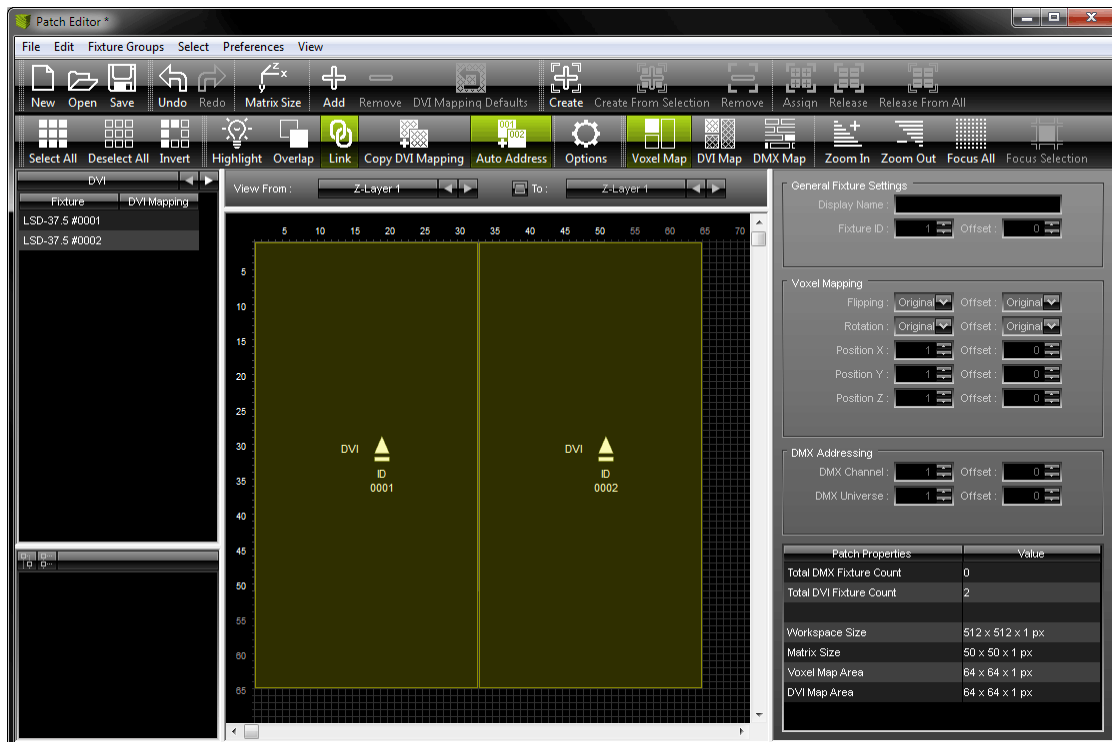


#### Step 1] Adding DVI Fixtures

- 1] Create a new Patch. Select **File > New Patch** [Keyboard shortcut: **Ctrl+N**].
  - 2] Add the two fixtures. Select **Edit > Add Fixtures...** [Keyboard shortcut: **Ins**]. Make sure to **not** select **Merge Fixtures**
- Use the settings as shown in the screenshot:



3] The Patch will look like this:



**4]** We need to rotate both fixtures to match the LED installation. The left fixture is rotated by 90°. The right fixture is rotated by 270°.

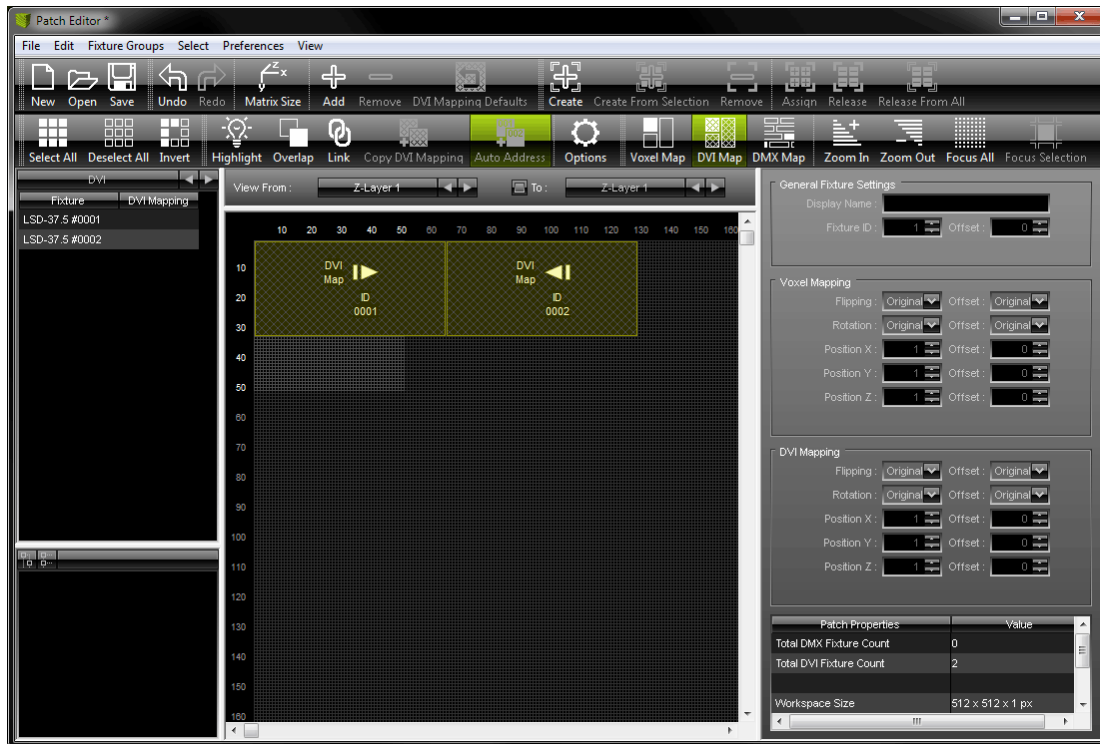
[If you receive an error message about the fixtures being out of range, move your fixture towards a free location on your workspace. Then, rotate them and move them back.]



## Step 2] DVI Map

**5]** Switch to the DVI Map. Select **View > DVI Map**

[Keyboard shortcut: **F6**]



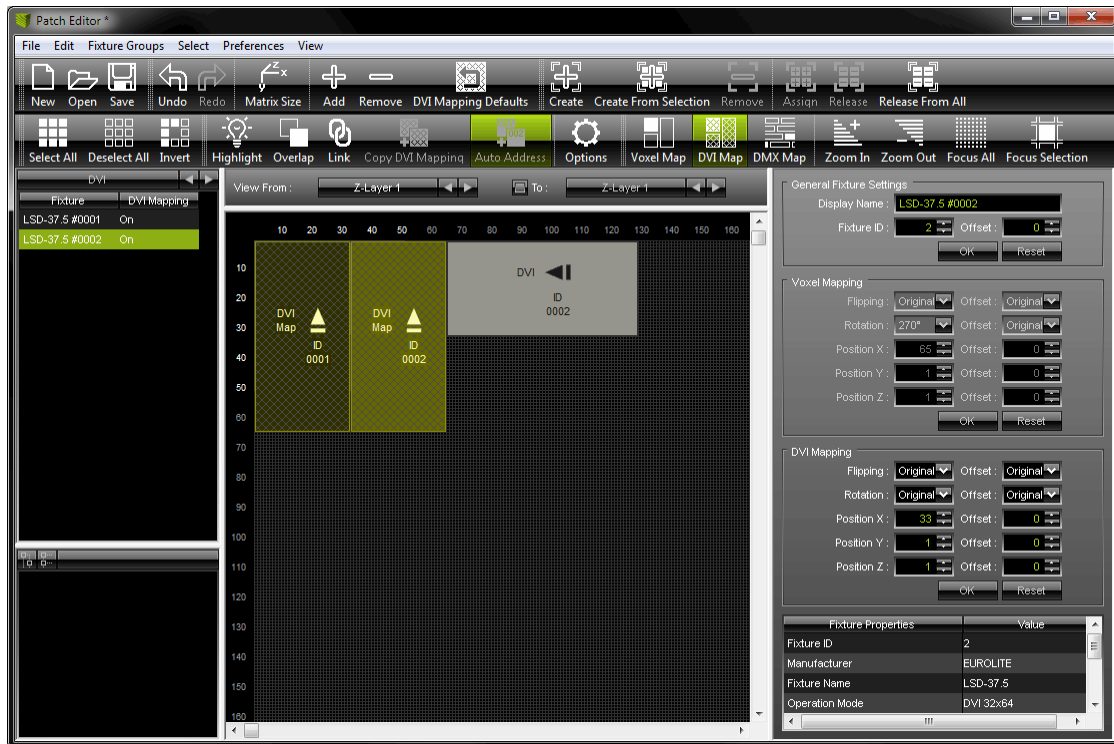
### Step 3] DVI Mapping

6] Deactivate **Link**

7] Select the first DVI fixture with its DVI Mapping and position it in the center of your workspace. In the section **DVI Mapping**, change **Rotation** to **Original** and click **OK**

8] Select the second DVI fixture with its DVI Mapping and position it in the center of your workspace. In the section **DVI Mapping**, change **Rotation** to **Original** and click **OK**

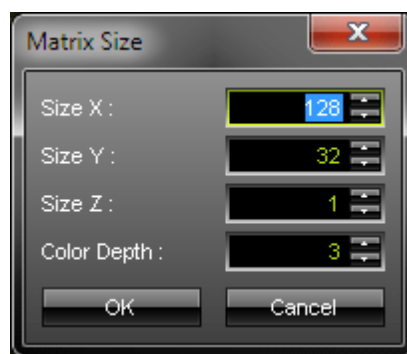
9] Arrange both DVI fixtures with their DVI Mapping next to each other in the upper left corner. The DVI Mapping of DVI fixture 1 is positioned at **Position X: 1, Position Y: 1, Position Z: 1**. The DVI Mapping of DVI fixture 2 is located at **Position X: 33, Position Y: 1, Position Z: 1**.



10] Switch back to the Voxel Map. Select **View > Voxel Map** [Keyboard shortcut: **F5**].

### Step 4] Matrix Size

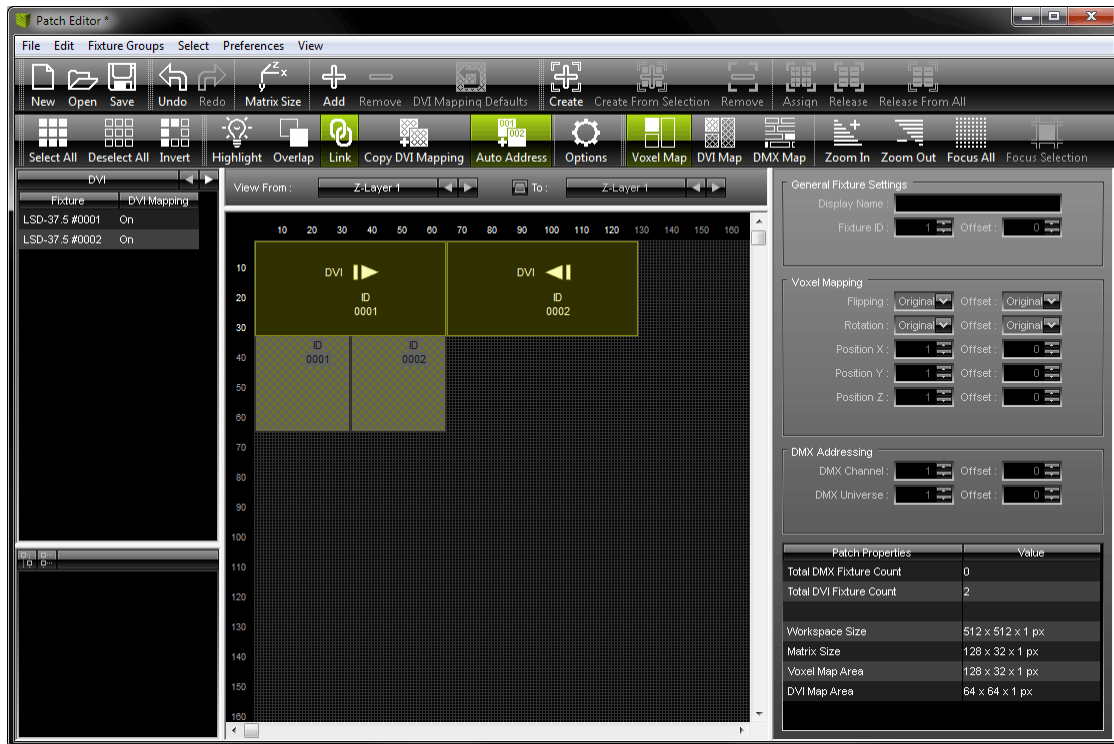
11] Select **Edit > Matrix Size....** Enter **Size X: 128**, **Size Y: 32**, **Size Z: 1**, and **Color Depth: 3**. The virtual LED matrix now matches the size of both fixtures in total.



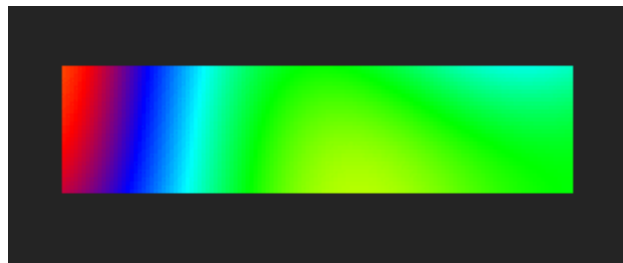
### Step 5] Result

12] Your final Patch should look like this:





12] The DVI fixtures and therefore the 3 Previews will represent your LED installation:



- It was necessary to configure the DVI Mapping of the fixtures separately because the DVI hardware controller expects to receive the input signal like this [also shown above in the [Normal Setup](#)].
- The EUROLITE LSD 37.5 works with the EuroLite T9 protocol. No screen-capturing is needed and therefore DVI Map Mode does not need to be activated for the external DVI output window for this example.
  - [In most cases, you should activate DVI Map Mode for the external DVI output window for other fixtures and controllers.]

**Tips**

- Make sure that DVI Mapping and DVI fixtures are not linked in the DVI Map [Disable **Linkmode**].

- If you receive an error message about the fixtures being out of range, then move your fixture towards a free location on your workspace.

## **Further Tips**

Please make sure to save your MADRIX Setup file after the configuration process.

You may also save and/or export the Patch as a separate file [of the file type \*.mpz or \*.mpx].

## 4.4 Fixture Groups [Group Control]

This topic includes:

- [Introduction](#)
- [Managing Fixture Groups](#)
- [Controlling Fixture Groups](#)
- [Using Fixture Groups As Map Settings Preset](#)
- [Calling Group Presets Using The Cue List](#)

### Introduction

Fixture groups allow you to organize fixtures that are included in your Patch in clusters and then to control them together as a group.

**Note:** Fixture groups are part of the Patch. Changing the Patch will likely result in changes to the Fixture Groups as well.

To work with fixture groups, follow these steps:

- 1] Manage your fixture groups.
- 2] Control your fixture groups.

### Managing Fixture Groups

#### Overview

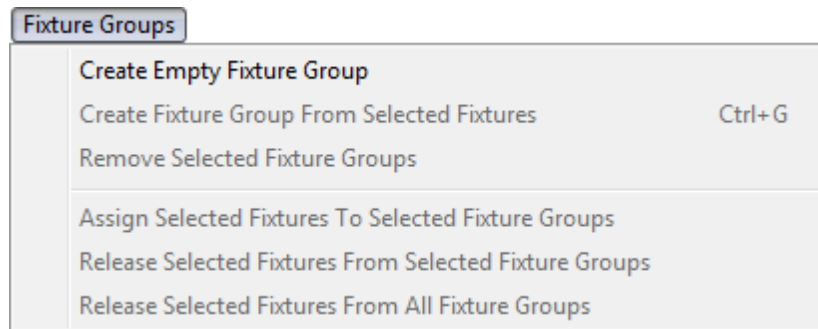
Fixture Groups are managed in the Patch Editor.

- Go to **Preferences > Patch Editor**  
[Keyboard shortcut: **F3**]

## Menu

Within the Patch Editor, a dedicated menu is available.

- Go to **Fixture Groups**



## Toolbar

All items from the menu shown above are also available for quick access in the toolbar of the Patch Editor.

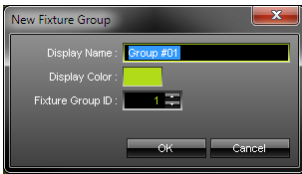


## Creating Fixture Groups

### A] Creating An Empty Fixture Group



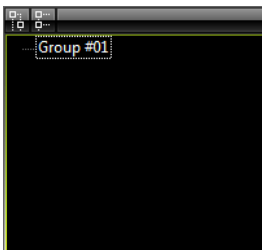
- 1] Go to **Fixture Groups > Create Empty Fixture Group**  
[Toolbar: **Create**]



2] A new window opens.

- Enter a **Display Name**
  - Choose a name that helps you easily identify the fixture group later.
- Set the **Display Color**
  - This color is useful to distinguish between fixture groups when controlling them in the Group Control. Learn more [Controlling Fixture Groups](#)
- Set the **Fixture Group ID**
  - The ID is a unique identifier for this specific fixture group.
  - Each fixture group must have a different ID!

[The Fixture Group ID is different to the Display Name of the fixture group. Several fixture groups can have the same Display Name, but the ID must be different.]

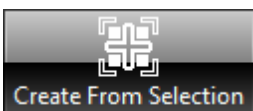


- The new fixture group will be created. The fixture group will not yet include any fixtures.  
[See the bottom left of the Patch Editor.]

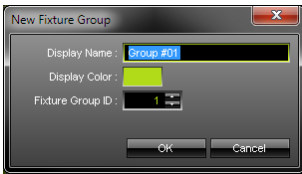
## B] Creating A Fixture Group From Currently Selected Fixtures



1] First, select all the fixtures you wish to include in the fixture group.  
Learn more »[Patch Editor](#)



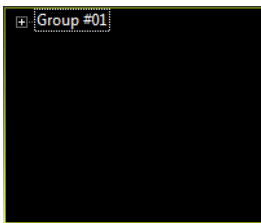
2] Go to **Fixture Groups > Create Fixture Group From Selected Fixtures**  
[Keyboard shortcut: **Ctrl+G**]  
[Toolbar: **Create From Selection**]



3] A new window opens.

- Enter a **Display Name**
  - Choose a name that helps you easily identify the fixture group later.
- Set the **Display Color**
  - This color is useful to distinguish between fixture groups when controlling them in the Group Control. Learn more [Controlling Fixture Groups](#)
- Set the **Fixture Group ID**
  - The ID is a unique identifier for this specific fixture group.
  - Each fixture group must have a different ID.

[The Fixture Group ID is different to the Display Name of the fixture group. Several fixture groups can have the same Display Name, but the ID must be different.]



- The new fixture group will be created. All previously selected fixtures will already be assigned to the fixture group.  
[See the bottom left of the Patch Editor.]

## Working With The Fixture Group List

The Patch Editor will show your fixture groups in the bottom left. Use the following options to work with the list of fixture groups:



**Expand List** - Shows the fixture groups including the fixtures that are assigned to the fixture groups.



**Collapse List** - Shows only the fixture groups.

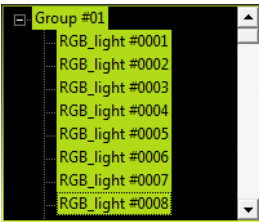


**Expand Item** - Shows the fixture group and extends the list to show the fixtures assigned to this particular fixture group.

**- Collapse Item** - Shows the fixture group but hides the fixture assigned to this particular fixture group.



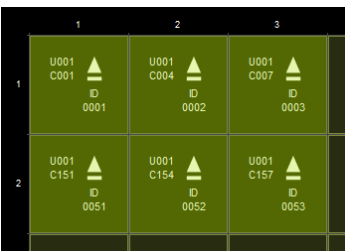
**Fixture Group Selection** - Shows the currently selected fixture group.



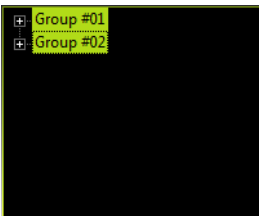
**Fixture Selection** - Shows the currently selected fixtures of a fixture group.  
- At the same time, the fixture will be selected in the list of fixtures in the general Patch Editor. Learn more »[Patch Editor](#)

## Assigning Fixtures To A Fixture Group

Follow these steps if you wish to assign fixtures to an empty fixture group or if you wish to add more fixture to a fixture group that already includes fixtures:



**1]** Select all fixtures you wish to assign to an existing fixture group.



**2]** Select the fixture group or multiple fixture groups in the fixture group list in the bottom left of the Patch Editor. Both, fixtures and fixture groups, will now be selected in the Patch Editor.



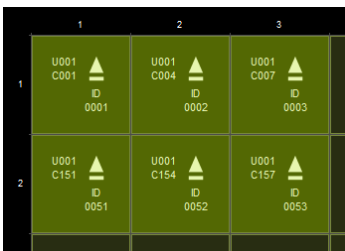
**3]** Go to *Fixture Groups > Assign Selected Fixtures To Selected Fixture Groups*

[Toolbar: **Assign**]

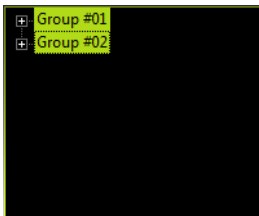
- The Patch Editor will assign all selected fixtures to the selected fixture groups.

## Releasing A Fixture From A Fixture Group

Follow these steps if you want to revoke the assignment of a fixture from a single fixture group or multiple fixture groups:



**1]** Select all fixtures you wish to release.



**2]** Select the fixture group or multiple fixture groups in the fixture group list in the bottom left of the Patch Editor. Both, fixtures and fixture groups, will now be selected in the Patch Editor.



**3]** Go to *Fixture Groups > Release Selected Fixtures From Selected Fixture Groups*

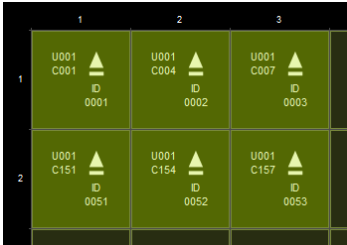
[Toolbar: **Release**]

- The Patch Editor will release all selected fixtures from all selected fixture groups.

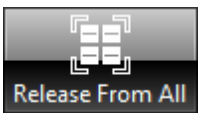


## Releasing A Fixture From A Fixture Group

Follow these steps if you want to revoke the assignment of a fixture from a single fixture group or multiple fixture groups:



**1]** Select all fixtures you wish to release.



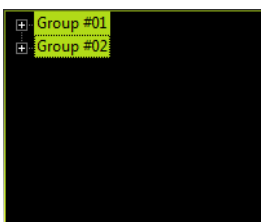
**2]** Go to **Fixture Groups > Release Selected Fixtures From All Fixture Groups**

[Toolbar: **Release From All**]

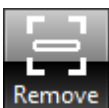
- The Patch Editor will release all selected fixtures from all the fixture groups they are currently assigned to.

## Removing Fixture Groups

Follow these steps if you want to remove fixture groups from the Patch:



**1]** Select all fixture groups you wish to remove.



**2]** Go to **Fixture Groups > Remove Selected Fixture Groups**

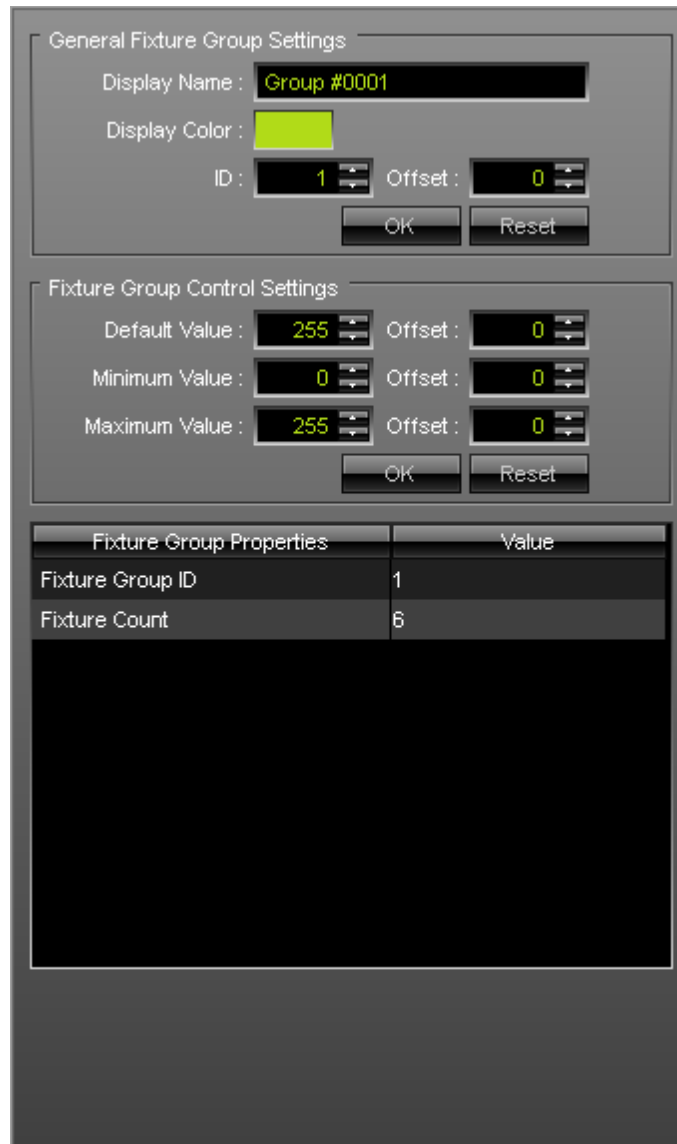
[Toolbar: **Remove**]

- The Patch Editor will remove all selected fixture groups from the Patch.

## Fixture Group Settings

### Overview

- Select a fixture group [to the left of the Patch Editor] in order to change its settings [to the right of the Patch Editor].
- You can also select multiple fixture groups in order to change their settings.



### General Fixture Group Settings

- **Display Name** - Allows you to change the name for the fixture group. [Or use the default name provided by MADRIX.]
- **Display Color** - Allows you to change the individual color for the fixture group.
  - This color is useful to distinguish between fixture groups when controlling them in the Group Control view.
  - Learn more [Controlling Fixture Groups](#)
- **ID** - Defines the unique identifier for the selected fixture group.

## Fixture Group Control Settings

- **Default Value** - Defines the standard value of a fixture group fader. This is important when launching the Group Control for the first time and when restoring the default values in the Group Control view.
  - Valid values range from 0 to 255 [0% to 100% intensity]. By default, the default is set to 255.
- **Minimum Value** - Defines the lowest value a fixture group can be set to.
  - Setting a fixture group fader to 0 will set the intensity to this Minimum Value.
  - Valid values range from 0 to 255 [0% to 100% intensity]. By default, the default is set to 0.
- **Maximum Value** - Defines the highest value a fixture group can be set to.
  - Setting a fixture group fader to 255 will set the intensity to this Maximum Value.
  - Valid values range from 0 to 255 [0% to 100% intensity]. By default, the default is set to 255.
- Learn more [Controlling Fixture Groups](#)
- **OK** - Always confirm any changes with OK.
- **Reset** - Allows you to discard changes before having confirmed any changes in order to use the values that were set up last.

## Controlling Fixture Groups

### Creating Fixture Groups

- **First, make sure to create fixture groups in the Patch Editor.**
  - **Otherwise, the Group Control view will be empty and no fixture group can be controlled.**
  - Learn more [Managing Fixture Groups](#)

### Overview

Fixture groups are controlled in the Group Control view.

You can open the Group Control in 3 ways:

- Go to **Window > Group Control...**
- Press **F9**
- Or click **Programmer > Group Control** on the user interface.

To close the Group Control and change back to the Programmer view:

- Go to **Window > Group Control...**
- Press **F9**
- Or click **Group Control > Programmer** on the user interface.



- The Group Control view will include a fader for each fixture group you have created.
- Each individual fader will be shown with the color you have set up as the fixture group's **Display Color**
- Each individual fader will be shown with the label you have set up as the fixture group's **Display Name**

## Controlling A Fixture Group

### Control

- Use the fader of a fixture group to control its intensity.

## Fixture Group Faders

- Each fader regulates the intensity of a single fixture group.
  - You can set the fader to a specific position.
  - You can enter a value in the input field.
  - You can flash the fader.

## Important Information

- **You will immediately see the changes in the Preview Output.**
- **When controlling fixture groups, your settings will be immediately applied and visible on the output/the LEDs!**

## Mouse Control And Keyboard Shortcuts

- **Single Selection**
  - A single fader regulates the intensity of a single fixture group.
  - **Left Arrow / Right Arrow** - Quickly switch between faders by using the left or right arrow key.
- **Multiselection**
  - Use **Ctrl + Left Mouse Click** to select multiple faders at the same time. A green outline will show that a Layer is selected. When multiple faders are selected, you can control them at the same time.
  - Use **Shift + Left Mouse Click** to select multiple faders at the same time. A green outline will show that a Layer is selected. When multiple faders are selected, you can control them at the same time.
  - **Ctrl+A** - Selects all faders of the Group Control.
  - **Ctrl+D** - Deselects the current fader selection.
- **Flash**
  - Use the button showing the fixture group's Display Name or the keyboard shortcut **Space**
  - It instantly sets the intensity to 255 as long as you hold the button/key down.
  - To use this feature, the fader needs to be set to a lower value than 255 first.

- **Restoring The Default Value**

- **Left Mouse Double-Click** - Perform a double-click with your left mouse button directly on a single or multiple faders to restore the **Default Value**
- **Right Mouse Click** - Perform a click with your right mouse button directly on a single or multiple faders to restore the **Default Value**

## Minimum Values And Maximum Values

- A fixture group fader in the Group Control view always ranges from 0 to 255, independently of what Minimum Value or Maximum Value you have defined for the fixture group.
- Setting a fixture group fader to 0 will set the lowest intensity for this fixture group as defined by **Minimum Value**.
  - That means that a fader set to 0 will not necessarily set the intensity of the fixture group to 0. Instead, it will be set to the minimum value you defined.
- Setting a fixture group fader to 255 will set the highest intensity for this fixture group as defined by **Maximum Value**.
  - That means that a fader set to 255 will not necessarily set the intensity of the fixture group to 255. Instead, it will be set to the maximum value you defined.

## Restoring The Default Fixture Group Values

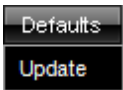
Quickly reset any changes and set all fixture group faders to their default values in the Group Control view:



- Restores the default fixture group values for all fixture groups as defined by their **Default Value**

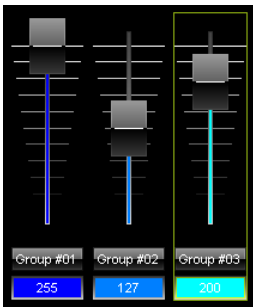
## Updating The Default Fixture Group Values

Quickly update all default fixture group values using the Group Control view:



- Overwrites the **Default Value** as defined in the Patch Editor with the current fader position of the Group Control for each fixture group individually.

## Saving a Fixture Group Preset



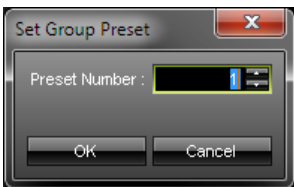
1] Set each fixture group fader to its required position.



2] Enter a description for the Group Preset.

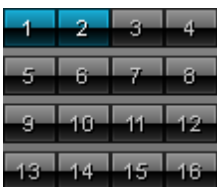


3] Click **Set**



4] A new window opens.

- Define the **Preset Number**
  - Your Group Preset will be saved there.
  - Valid values range from 1 to 256.
  - MADRIX will automatically suggest the next free Group Preset number [which is one number higher than the currently highest preset number].



5] MADRIX will save the currently set fader positions as a Group Preset.

- Saved presets will be shown as blue on the left side of the Group Control view.
- Empty Group Presets are deactivated and shown in gray.

## Calling A Saved Group Preset





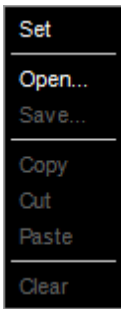
- **Left Click** - Calls a previously saved Group Preset. MADRIX will automatically fade according to the Fade-In Time.
  - Make sure to click on preset number shown in blue.
  - An activated Group Preset will be shown in green for a short while. This indicates that it has been activated.
  
- **Left Mouse Double-Click** - Calls a previously saved Group Preset and activate it immediately without using the Fade-In Time.
  - Make sure to click on preset number shown in blue.
  - An activated Group Preset will be shown in green for a short while. This indicates that it has been activated.
  
- **Note:** MADRIX will not automatically overwrite a Group Preset!  
 [When changing group values, you need to save the current values again as a Group Preset or overwrite an existing Group Preset if you want to store the new values.]

## Fading Between Group Presets



- Fade-In Time** - Defines the duration of the automatic fade between fader positions [in s], when selecting a different Group Preset.
- To change the time, select the value via left double-click first. Then, enter a value using the keyboard, use the mouse wheel, or use a left mouse click and hold while dragging the mouse up or down.
  - A value of 0 means that no fade-in is applied. Faders will be set immediately to their new positions [using a hard transation].

## Group Preset Context Menu



- **Right Mouse Click** on a Group Preset number to quickly perform various actions.

**Set** - Saves the current group values as Group Preset to this Group Preset number.

**Open...** - Loads a previously saved MADRIX Group Preset file [of the file type \*.mgpz or \*.mgpx]. A new window opens for you to select the file on your harddisk.

**Save...** - Stores a previously saved Group Preset as an external file [of the file type \*.mgpz or \*.mgpx]. A new window opens for you to select a location on your harddisk. Simply enter a name and click **Save**

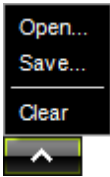
**Copy** - Copies a previously saved Group Preset into the clipboard as a duplicate.

**Cut** - Copies a previously saved Group Preset into the clipboard and then applies a Clear

**Paste** - Inserts a copy of a Group Preset from the clipboard into the currently focused Group Preset.

**Clear** - Removes the currently focused Group Preset.

## Group Control Options



- Click on the **Group Control Options** button to open a submenu.

**Open...** - Loads a previously saved MADRIX Group Control file [of the file type \*.mgcz or \*.mgcx]. A new window opens for you to select the file on your harddisk.

**Save...** - Saves the Group Control to an external file [of the file type \*.mgcz or \*.mgcx]. This includes all Group Presets and the Fade-In Time. A new window opens for you to select a location on your harddisk. Simply enter a name and click **Save**

**Clear** - Removes all Group Presets and restores the default Fade-In Time.

## Chasing Group Values



**Group Value Chaser** - Allows you to chase group values.

- The Group Value Chaser will also be saved when saving a Group Preset.
- Learn more »[Chaser](#)

## Drag And Drop [Copy/Cut/Paste]

### Copy And Paste

- **Left Mouse Click And 2 Sec. Hold** - You can perform a Copy and Paste with the mouse.

Use a left mouse click on a Group Preset and continue to hold for 2 seconds. A small + appears. Continue to hold and move your mouse to another Group Preset number. Release the mouse button to paste a copy onto the new Group Preset.

### Cut And Paste

- **Left Mouse Click And 2 Sec. Hold + Shift** - You can perform a Cut and Paste with the mouse. Use a left mouse click on a Group Preset and continue to hold for 2 seconds. Press Shift in addition. A small rectangle appears. Continue to hold the buttons and keys and move your mouse to another Group Preset number. Release the mouse button to move the previously selected Group Preset to the new position.

## Drag And Drop

- **File Drag And Drop** - You can select a MADRIX Group Preset file [of the file type \*.mgpz or \*.mgpx] in Windows and drag it to a Group Preset of your choice in MADRIX in order to load it in MADRIX.

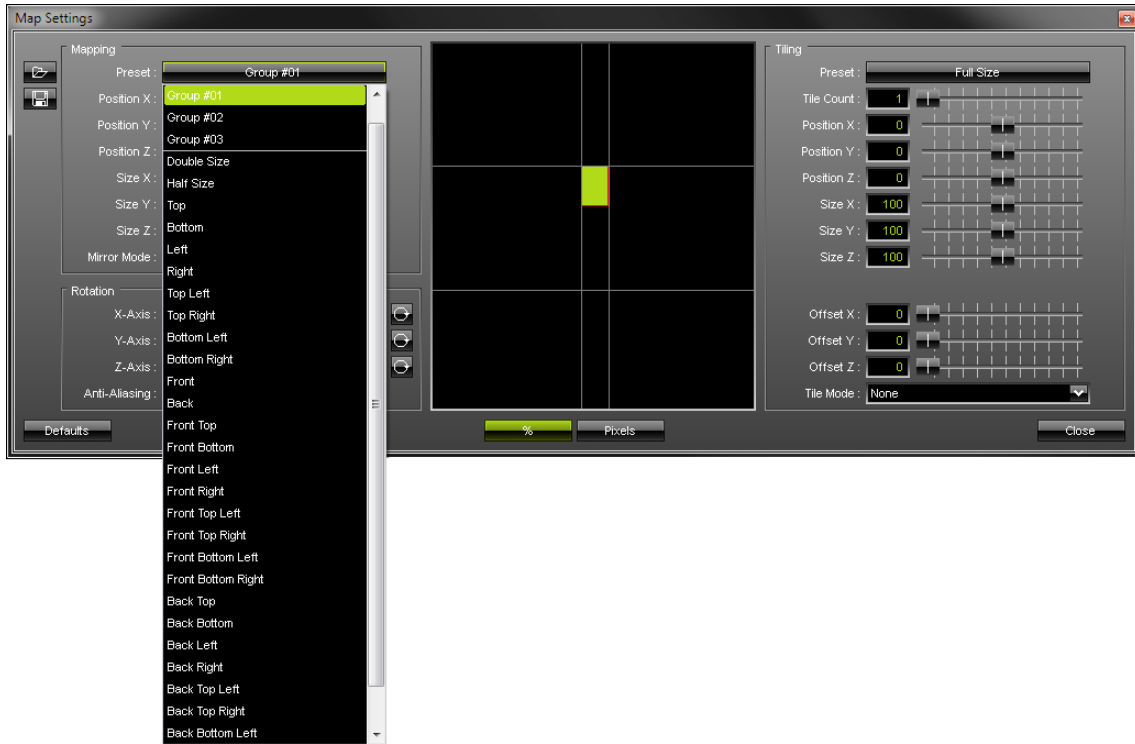
## Using Fixture Groups As Map Settings Preset

In addition to controlling fixture groups directly in the Group Control, you can use fixture groups in other ways. Since fixture groups include specific fixtures, these fixtures cover a well-defined area of the Patch. As such, you can use a fixture group as preset for the Map Settings of a Layer.

- Click **Map**



- A new window will open.
- Go to **Mapping > Preset** or **Tiling > Preset**
- The list will include an item for each fixture group you have created by using the fixture group's **Display Name** [You will find these items below **Full Size**]
- Select the fixture group from the list.
- MADRIX will automatically set the correct Map Settings.
  - The Mapping or Tiling will be repositioned and resized according to the fixture group.
  - The adjusted Map Settings will always be a rectangular selection since MADRIX uses the bounding box of the fixture group with only its largest dimensions in X, Y, and Z.



- Learn more » [Mapping / Tiling / Rotation](#)

## Calling Group Presets Using The Cue List

Controlling fixture groups in the Group Control view is mainly a live feature that works independently of other controls, such as Storage Places for example. But you can further integrate Group Presets into your workflow. You can use the Cue List to trigger Group Presets for each Cue.

- Open the **Cue List** and make sure to set up the **Group Preset** for a Cue where required.
  - Valid values range from 1 to 256.



- Learn more »[Cue List](#)

## 4.5 Effects [Visuals]

This topic includes:

- [MADRIX Effects](#)
- [Selecting An Effect](#)
- [Variety Of Effects](#)
- [Configuration Of Effects And Layers](#)
- [Using Several Effects And Saving Effects](#)

### MADRIX Effects

MADRIX allows you to quickly produce an extraordinary light show. This is the purpose and probably most important part of the software.

- The term MADRIX Effects includes all lighting visuals and patterns you can create with MADRIX and display on your LEDs.
- MADRIX is a unique LED lighting controller. It is an effect generator with a graphics render engine and also includes media server features.
- You can use the integrated effects of the effect generator or external content [such as images or video files].
- MADRIX allows you can create stunning real-time lighting visuals with ease.

### Selecting An Effect

- Choosing a lighting effect is simple.
- Thanks to its user interface layout, MADRIX includes 2 dedicated areas [Effect Area Left and Effect Area Right].
- By default, SCE Color is selected.
- A drop-down list allows you to select a MADRIX effect.
- Simply click on **SCE Color** to select a MADRIX stock effect from the list.
- Click on the MADRIX Effect in order to select it.



## Variety Of Effects

MADRIX offers a large variety of effects. All MADRIX Effects are arranged into 4 distinct categories with various features:

- **SCE** - Static Color Effects
- **S2L** - Sound2Light Effects
- **M2L** - Music2Light Effects
- **MAS** - MADRIX Script Effect

Learn more »[MADRIX Effects](#)



## Configuration Of Effects And Layers

- Every single MADRIX Effect has different controls to easily customize how the effect looks and behaves.  
Learn more »[Effect Areas \[Left/Right\]](#)
- Extra settings provide further option for customization. In addition, you can combine each effect with every other effect. This allows you to create an unlimited amount of different lighting effects.  
Learn more »[Layers](#)

## Using Several Effects And Saving Effects

MADRIX offers certain possibilities to manage and organize your effects.


- Effects will be automatically saved in the selected Storage Place.
- MADRIX offers 256 x 256 Storage Places. Hence, you will be able to create a lot of effects and storing is automatically handled by the software.  
Learn more »[Storage Places \[256x 256\]](#)
- On the other hand, Storage Places and other configurations are ultimately saved in MADRIX Setup files.  
**Do not forget to regularly save your MADRIX Setup file!**  
Learn more »[File Types](#)

## 4.6 Filters [FX]

This topic includes:

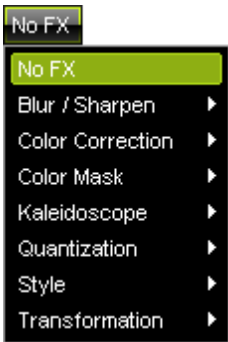
- [Introduction](#)
- [Overview](#)

### Introduction

 - Applies a special filter to quickly change your visuals.

- You can choose to quickly change your visuals with the help of filters.
- There are several categories to choose from. Each category contains several options to change the visual appearance of your effect.
- MADRIX offers filters in 4 distinct locations, but they can be activated at the same time if needed.
- **Main Output Filter** - Applies the filter to the Main Output. That means that the overall and final output is affected. Learn more »[Crossfader And Main Output](#)
- **Filter Left / Filter Right** - Applies the filter to an entire effect pipeline, Left or Right. That means that all Storages, Storage Places, and Layers will be affected. Learn more »[Controls \[Left/Right\]](#)
- **Storage Place Filter** - Applies the filter to a single Storage Place and its Layers. That means that the Storage Place and all of its included Layers will be affected. Learn more »[Storages](#)
- **Layer Filter** - Applies the filter to a single Layer. That means that only the single Layer will be affected. Learn more »[Layers](#)
- **Right Mouse Click** - Resets the filter to its default value [ **No FX**].

### Overview



**No FX** - Disables all additional filters. The effect will be displayed as normal.



**Blur / Sharpen** - Includes 5 modes to blur/smudge and 1 mode to sharpen the effect.

- **Blur** softens the visuals.
- **Blur B-Spline** softens the visuals.
- **Blur Catmull Rom** softens the visuals.
- **Blur Gauss** softens the visuals.
- **Blur Mitchell** softens the visuals.
  
- **Sharpen** increases the contrast.



**Color Correction** - Includes 4 modes to change the colors of your effect.

- **Brighten** increases the intensity.
- **Darken** decreases the intensity.
- **Grayscale** uses only shades of gray.
- **Invert Color** inverts the color values.



**Color Mask** - Includes various modes to filter colors.

- **R** shows only red color values.
- **G** shows only green color values.
- **B** shows only blue color values.
- **W** shows only white color values.
  
- **RG** shows only red and green color values.
- **RB** shows only red and blue color values.
- **GB** shows only green and blue color values.
- **RW** shows only red and white color values.
- **GW** shows only green and white color values.
- **BW** shows only blue and white color values.
  
- **RGB** shows only red, green, and blue color values.
- **RGW** shows only red, green, and white color values.
- **RBW** shows only red, blue, and white color values.
- **GBW** shows only green, blue, and white color values.



**Kaleidoscope** - Includes 3 modes to change the style of your effect.

- **6x** applies triangular mirrors.
- **8x** applies rectangular mirrors.
- **12x** applies triangular mirrors and adds additional mirroring.



**Quantization** - Includes 3 modes to change the colors of your effect.

- **Low** summarizes adjacent colors slightly to create a comic-like style with harder edges.
- **Middle** summarizes adjacent colors to create a comic-like style with harder edges.
- **High** summarizes adjacent colors a lot to create a comic-like style with harder edges.



**Style** - Includes 4 modes to highlight the edges of effects or to add an imprinted visual style.

- **Edges** highlights the edges of objects and colors.
- **Edges Popup** highlights the edges of objects and colors.
- **Emboss** creates bevels and imprints of objects.
- **Emboss Popup** creates bevels and imprints of objects.



**Transformation** - Includes 7 modes to flip the effect quickly.

- **Mirror H** flips the effect horizontally.
- **Mirror V** flips the effect vertically.
- **Mirror HV** flips the effect horizontally and vertically.
- **Mirror D** flips the effect regarding the depth.
- **Mirror HD** flips the effect horizontally and regarding the depth.
- **Mirror VD** flips the effect vertically and regarding the depth.
- **Mirror HVD** flips the effect horizontally, vertically, and regarding the depth.

## 4.7 Layers

This topic includes:

- [Introduction](#)
- [Layer Tabs](#)
- [Context Menu](#)
- [Layer Settings](#)
- [Layer View](#)

### Introduction



- MADRIX Effects and Layers are closely related.
- Layers can be used to combine visuals and to create completely new effects.
  
- By default, only 1 Layer is created and shown.
- You can choose to use only 1 Layer at a time or multiple Layers. Using multiple Layers can alter the displayed visuals immensely.
- MADRIX supports an unlimited number of Layers.  
[The actual number of Layers available for use depends on your computer performance and Matrix Size.]
  
- This chapter describes ways to work with Layers in particular.
  - A general overview about the controls for Layers and MADRIX Effects is provided in a previous chapter. Learn more »[Effect Areas \[Left/Right\]](#)

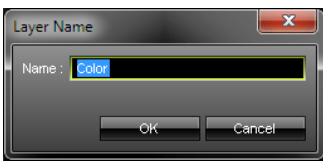
### Layer Tabs



- Every Layer is represented by a Layer Tab.



- **Layer Order**
  - < > - Changes the order of Layers.
    - When changing the order, you change the visual outcome of your effect.
    - Click < to move the Layer to the left.
    - Click > to move the Layer to the right.



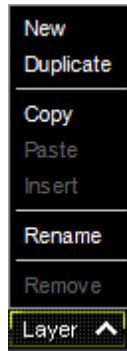
- **Layer Name** - You can change the Layer's label.
- **Right Mouse Click > Rename or Double-Click on Layer Tab** - Allows you to rename the description label of the Layer tab. Simply enter a new name and click **OK**

## Context Menu

A context menu offers various options when working with Layers.

You can access the Layer context menu in 3 ways:

- Click **Layer**
- Or **Right Mouse Click** on a Layer Tab
- Or go to **Edit > Layer Left / Layer Right**



- **Layer Left/Right > New** - Creates a new Layer.
- **Layer Left/Right > Duplicate** - Creates a exact copy of the currently selected Layer.
  
- **Layer Left/Right > Copy** - Copies the Layer into the clipboard of the computer.
- **Layer Left/Right > Paste** - Applies all settings of the Layer in the clipboard to the currently selected Layer.
- **Layer Left/Right > Insert** - Creates a new Layer and applies all settings of the Layer in the clipboard to the currently selected Layer.
  
- **Layer Left/Right > Rename** - Allows you to change the label of the Layer.
  
- **Layer Left/Right > Remove** - Removes the currently selected Layer entirely.

## Layer Settings

### Overview

Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer:



- [Opacity](#)



- [Blind And Solo](#)
- [Submaster](#)
- [Map Settings](#)
- [Mix Modes](#)
- [Link](#)
- [Filters \[FX\]](#)
- [Stepped Rendering](#)
- [Effect Parameter Chaser](#)
- [Layer Macro](#)

## Opacity



**Layer Opacity** - Makes the Layer transparent. This is mainly useful when using at least 2 Layers or more.

- If you are using only 1 Layer, the submaster controls the Layer brightness.
- The default value is 255 [100%].
- Perform a right-click to reset to 255 [100%].

**Input Field** - Allows you to directly enter a value. Valid values range from 0 to 255.

## Blind And Solo

Blind Mode and Solo Mode are 2 modes to quickly hide or show Layers. You can quickly include or exclude them from the visual end result of your effect.



**Blind** - Hides the currently selected Layer.

- The Layer will not be visible anymore in the Previews and Output, but you will still be able to adjust its settings. In this way, you may have a look at your created effect excluding certain Layers.
- Blind Mode will stay activated even if you switch to other Layers or Storage Places.
- The Layer tab will pulsate in red if Blind Mode is active.
- Blind Mode also affects Link Mode. A Layer with an activated Link Mode will also be set to Blind Mode if Blind Mode is activated for the Layer it is linked to.



**Solo** - Hides every Layer except the currently selected Layer. Hence, this Layer is the only one that will be displayed.

- Solo Mode will stay activated even if you switch to other Layers or Storage Places.
- The Layer tab will pulsate in green if Solo Mode is active.
- Solo Mode overrides Blind Mode.

## Submaster

A small black rectangular button with the text "SUB" in white.

**Submaster** - Regulates the intensity of an effect.

- Click **SUB** and the button extends into a fader.
- Make sure to click and continue to hold the mouse button at the same time.
- Afterwards, simply move the fader with the help of your mouse.
- Release the mouse button to set up the specific value [The fader will disappear automatically].
- A value of 255 means full intensity.
- A value of 0 means no intensity and will render the effect completely black.
- The tooltip shows the currently set value.

The Submaster allows you to solely adjust the intensity of the running effect or Layer. To adjust the intensity of all running effects you have to use the Master. Learn more »[Master / Audio Input Level](#)

## Map Settings

Modifying the Map Setting allows to freely resize, reposition, and further modify every MADRIX Effect.

Learn more »[Mapping / Tiling / Rotation](#)

## Mix Modes

### Overview

Just like an image-editing software, you can use different Mix Modes to mix Layers with each other. This results in diverse color combinations and often completely new effects.

### How Mix Modes Work

- Mix Modes are based on basic mathematical calculations.

- As such, Mix Modes combine the color values [tonal values] of 2 Layers in different ways. A foreground Layer and a background Layer are used.
- All Mix Modes, except for Mask, work pixel by pixel and color channel by color channel.
  - Each single pixel of the foreground Layer is combined with the corresponding pixel of the background Layer.
  - Each color channel of a single pixel is combined with the equivalent color channel of the corresponding pixel.

### Applying A Mix Mode

- You can use Mix Modes if you have at least 2 Layers [foreground and background]. Then, you can apply the Mix Mode to the second Layer.
- In MADRIX, the second Layer is positioned to the right. It is the foreground Layer. In MADRIX, the last Layer is on top.
- If you apply the Mix Mode to the first Layer, nothing will happen.
- You can decrease [or increase] the impact that each Layer has on the visual result by using the Opacity slider.
- In the example below, Mix Mode **XOR** is selected.



- By default, **Normal** is selected.
- **Right Mouse Click** - Resets the filter to its default value [**Normal**].



### List Of Mix Modes



**Normal** - Is the default setting.

If you do not wish to use a Mix Mode or if you want to deactivate a selected Mix Mode, choose **Normal**.

**Normal** is also a Mix Mode and the default way of how Layers are mixed together. Since it is the default Mix Mode, you can only use the Opacity Slider to change the visual outcome. If you set Opacity of Layer 2 to 50%, you will create a result like a cross-fade between the two Layers.

If you change the position of one Layer with the position of the other Layer, the result will not look the same.



**Darken** - Compares both Layers and only uses the darkest color value for each color channel per pixel [this will be the lower color value].

The result will look the same if you change the position of one Layer with the position of the other Layer.



**Multiply** - Multiplies the color values of each pixel of Layer 2 with the color values of each pixel of Layer 1.

[Values are converted to always ensure a maximum color value of 255].

The Color Filter of the Main Output works like this.

The result will look the same if you change the position of one Layer with the position of the other Layer.



**Color Burn** - Is the inversion of Color Dodge.

Layer 1 will be darkened by Layer 2. The darker Layer 2, the darker the result.

If you change the position of one Layer with the position of the other Layer, the result will not look the same.

**Linear Burn**

**Linear Burn** - Is subtractive color mixing.

The color values of both Layers will be added up. But when the result is lower than 255, the values will be set to 0 [black].

The result will look the same if you change the position of one Layer with the position of the other Layer.

**Lighten (HTP)**

**Lighten (HTP)** - Is the inversion of Darken.

It compares both Layers and only uses the brightest color value for each color channel per pixel [this will be the higher color value].

Is at the same time the Mix Mode HTP, applying the Highest Takes Precedence principle for DMX values.

The result will look the same if you change the position of one Layer with the position of the other Layer.

**Screen**

**Screen** - Is the inversion of Multiply.

Layer 2 and Layer 1 will be negatively multiplied and often brighten each other.

The result will look the same if you change the position of one Layer with the position of the other Layer.

**Color Dodge**

**Color Dodge** - The brighter Layer 2, the brighter will be Layer 1.

A completely black Layer 2 will not change Layer 1.

A completely white Layer 2 will brighten every color channel, except for black color values.

If you change the position of one Layer with the position of the other Layer, the result will not look the same.

**Linear Dodge**

**Linear Dodge** - Will simply add up the color values of both Layers.

The result will look the same if you change the position of one Layer with the position of the other Layer.

**Overlay**

**Overlay** - Is a combination of Multiply and Screen.

The result depends the intensity of Layer 1. If Layer 1 is darker than 50% Gray, the color values of both Layers will be multiplied. If Layer 1 is brighter than 50% Gray, the color values will be negatively multiplied and the amount will be doubled. A Layer 2 with 50% Gray will have no affect on Layer 1.

If you change the position of one Layer with the position of the other Layer, the result will not look the same.

**Soft Light**

**Soft Light** - Layer 2 will modulate the color values of Layer 1 and create soft mixtures in areas of highlights and shadows.

[Overlay is quite similar, but creates sharp contrasts instead.]

If you change the position of one Layer with the position of the other Layer, the result will not look the same.

**Hard Light**

**Hard Light** - Creates the result of Overlay, when changing the position of Layer 2 with the position of Layer 1.

It compares the intensity of both Layers.

If Layer 2 is brighter than 50% Gray, Layer 1 will be brightened.

If Layer 2 is darker than 50% Gray, Layer 1 will be darkened.

If you change the position of one Layer with the position of the other Layer, the result will not look the same.

**Vivid Light**

**Vivid Light** - Will mainly increase the contrast of highlights and shadows.

The result is like a combination of Color Burn for shadows and Color Dodge for highlights.

If you change the position of one Layer with the position of the other Layer, the result will not look the same.



**Linear Light**

**Linear Light** - Increases the contrast.

It is similar to Linear Burn, but color values of Layer 2 have greater affect.

If you change the position of one Layer with the position of the other Layer, the result will not look the same.

**Pin Light**

**Pin Light** - Is like a combination of Darken and Lighten.

It compares the color values of both Layers and creates one of three results. Average color values will often remain unaffected.

The result can be twice the brightness of Layer 2 darkened by a full 255 if Layer 1 is darker than that.

The result can also only be Layer 1 if Layer 1 is brighter than the first result and darker than the third result.

Or the result can be twice the brightness of Layer 2 if Layer 1 is brighter than that.

If you change the position of one Layer with the position of the other Layer, the result will not look the same.

**Hard Mix**

**Hard Mix** - Only uses the six primary colors red, green, blue, yellow, cyan, magenta, or black, or white.

Color channels will be mixed and either be set to 0 or 255. [255 will be set for every color channel result from 1 to 254. 0 will be set, when the color channel result is 0.]

The result will look the same if you change the position of one Layer with the position of the other Layer.

**Difference**

**Difference** - Will calculate the difference between color values for each pixel.

[If the result is negative, it will be multiplied by -1 to always have positive color values.]

Differences in color values will be easily visible for each pixel. If both pixels are identical, the difference will be 0 and thus black could be the maximum result for a pixel.

The result will look the same if you change the position of one Layer with the position of the other Layer.

**Exclusion**

**Exclusion** - Bright color areas will invert the color values of the corresponding area of the other Layer.

White areas will completely invert the color.

Very dark areas [black] will change nothing on the other Layer.

Average gray values will heavily change the contrast, up to a complete gray.

The result will look the same if you change the position of one Layer with the position of the other Layer.

**AND**

**AND** - Is a logical operator.

Color values are converted into 8-bit binary form and thus an eight-digit value [using either 0 or 1 for each digit] will be created. Values will be compared pixel by pixel, channel by channel, bit by bit, with a result of either 0 or 1.

AND will only result in 1, when both bits have a value of 1.

It is recommended to only use Layers with solid colors, because otherwise color transitions will create artifacts.

The result will look the same if you change the position of one Layer with the position of the other Layer.

**OR**

**OR** - Is a logical operator.

Color values are converted into 8-bit binary form and thus an eight-digit value [using either 0 or 1 for each digit] will be created. Values will be compared pixel by pixel, channel by channel, bit by bit, with a result of either 0 or 1.

OR will always result in 1, except when both bits have a value of 0.

It is recommended to only use Layers with solid colors, because otherwise color transitions will create artifacts.

The result will look the same if you change the position of one Layer with the position of the other Layer.

**XOR**

**XOR** - Is a logical operator.

Color values are converted into 8-bit binary form and thus an eight-digit value [using either 0 or 1 for each digit] will be created. Values will be compared pixel by pixel, channel by channel, bit by bit, with a result of either 0 or 1.

XOR will result in 1, when both bits are not identical.

It is recommended to only use Layers with solid colors, because otherwise color transitions will create artifacts.

The result will look the same if you change the position of one Layer with the position of the other Layer.

**NAND**

**NAND** - Is a logical operator. It is the inversion of AND.

Color values are converted into 8-bit binary form and thus an eight-digit value [using either 0 or 1 for each digit] will be created. Values will be compared pixel by pixel, channel by channel, bit by bit, with a result of either 0 or 1.

NAND will always result in 1, except when both bits have a value of 1.

It is recommended to only use Layers with solid colors, because otherwise color transitions will create artifacts.

The result will look the same if you change the position of one Layer with the position of the other Layer.



**NOR** - Is a logical operator. It is the inversion of OR.

Color values are converted into 8-bit binary form and thus an eight-digit value [using either 0 or 1 for each digit] will be created. Values will be compared pixel by pixel, channel by channel, bit by bit, with a result of either 0 or 1.

NOR will only result in 1, when both bits have a value of 0.

It is recommended to only use Layers with solid colors, because otherwise color transitions will create artifacts.

The result will look the same if you change the position of one Layer with the position of the other Layer.



**Mask** - Uses the alpha channel of Layers.

It will merge the Layers together. The result will only be visible on areas where the two Layers overlap. The rest will be set to black.

The result will look the same if you change the position of one Layer with the position of the other Layer.

## Link

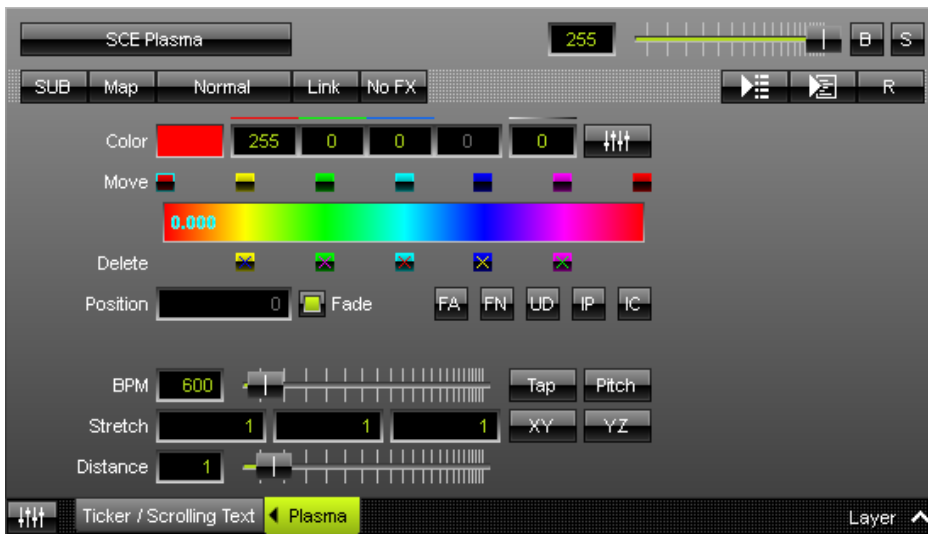
### Overview



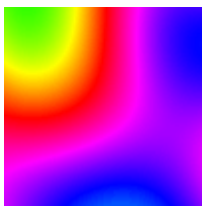
- **Link** - Combines 2 Layers with each other.
- If you activate Link mode, the currently selected Layer will be linked to the Layer underneath. It means that it will be linked to the **Layer left to it**.

### Example 1

**1]** Select a Storage Place and create 2 Layers . Choose SCE Ticker / Scrolling Text for Layer 1. Choose SCE Plasma for Layer 2.

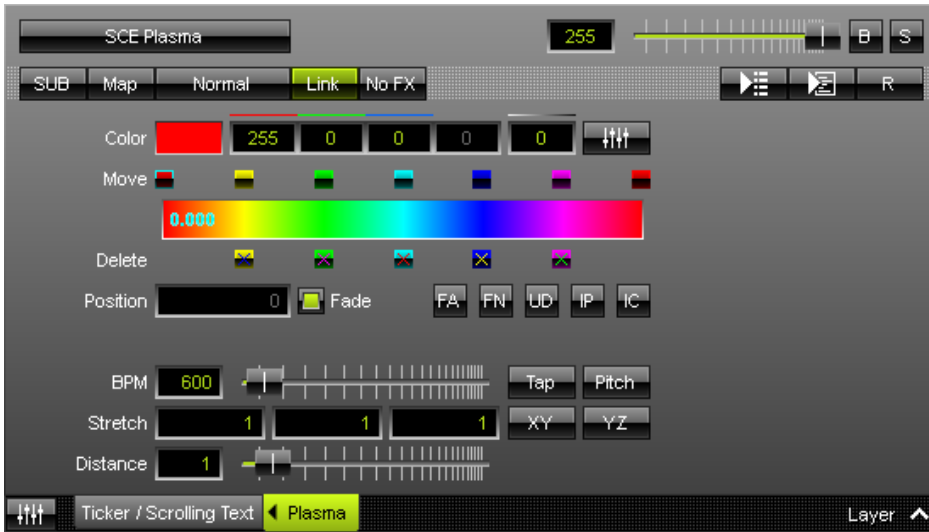


**2]** As a first result, you will see the following image in the Previews. Because of the standard settings, the Layer order, and the 2 Layers, only SCE Plasma is visible.



Without Link Mode

3] Activate Link Mode. The button glows green.



4] As a result, both Layers will be merged and the preview looks completely different. The text will be filled with the Plasma effect and in this way, both Layers are used to create a new effect.

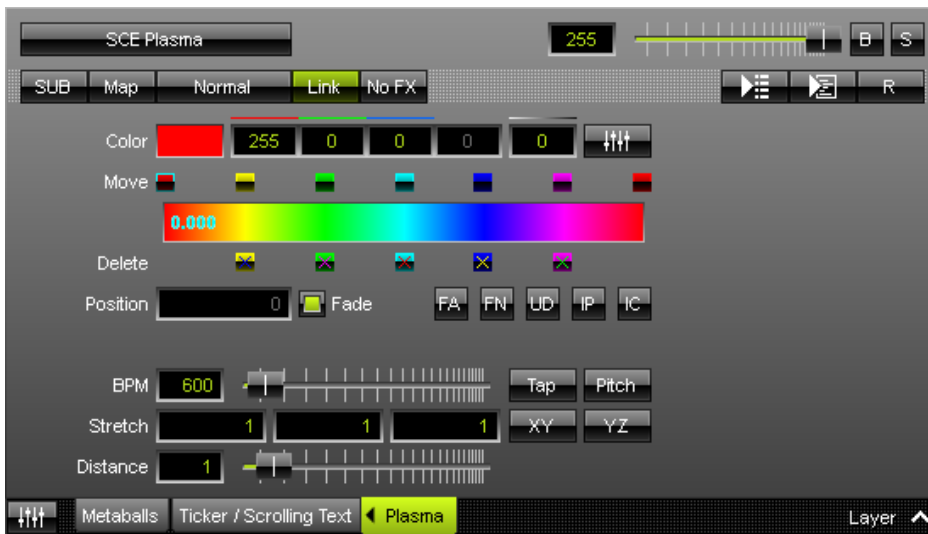


With Link Mode

### Example 2

- You could describe Link Mode differently.
- As previously described, effects may be build out of several Layers. Each Layer can contain a different MADRIX Effect.
- All Layers of that effect will be used to render the visual outcome. When rendering the visuals, Mix Modes, Opacity, position of Layers, etc. will all be included in the render process.
- Because of this, Link Mode can also be very useful when using more than two Layers.
- Use Link Mode and MADRIX will handle two linked Layers like one Layer in the render process.

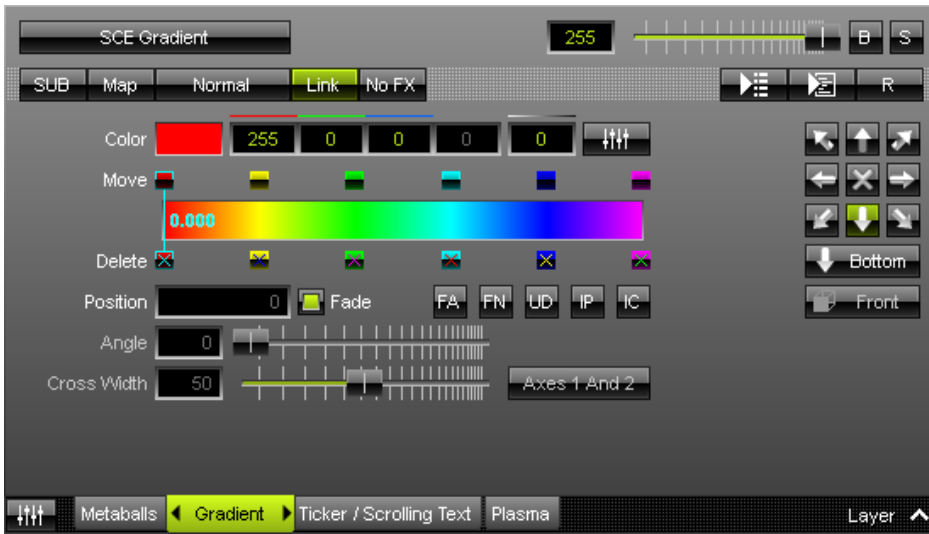
**1]** Select a Storage Place and create 3 Layers. Choose SCE Metaballs for Layer 1. Choose SCE Ticker / Scrolling Text for Layer 2. Choose SCE Plasma for Layer 3 and activate Link Mode for Layer 3.



**2]** As a result, you can see that the Plasma effect of Layer 3 is only visible on the text of Layer 2. The Metaballs effect [Layer 1] has not been affected at all.



3] If we now add a fourth Layer [SCE Gradient at Layer position 2] and activate Link Mode for this Layer, we will see that the text looks still the same. But the Metaballs effect [Layer 1] now has the colors of the Color Gradient.



### Filters [FX]



**Filters** - Special filters can be applied to Layers in order to quickly change your visuals.

Learn more » [Filters \[FX\]](#)

### Stepped Rendering



 Step

**Stepped Rendering** - Is only available for specific MADRIX Effects. It only applies to any movement of the input, i.e. when a Direction other than Stop is activated. Instead of creating a smooth transition for the movement from one voxel to the next voxel [sub-pixel rendering], MADRIX will move the input from voxel to voxel and from step to step without this transition. This might create a rougher overall movement, but it can produce a visually better outcome on the LEDs in certain cases [such as slow movement of large text].

## Effect Parameter Chaser



**Effect Parameter Chaser** - Controls the Effect Parameter Chaser to add playlist functionality to the Layer. Learn more »[Chaser](#)

## Layer Macro



**Effect Macro Editor** - Controls the Effect Macro Editor to add scripting functionality to the Layer. Learn more »[Macros And Scripts](#)

## Layer View

### Overview

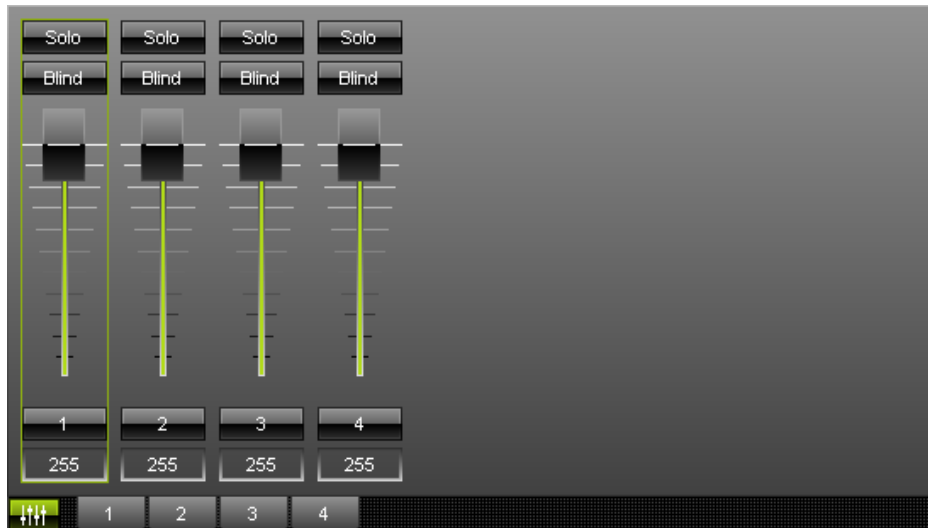
You can switch between 2 views.

- By default, the regular Effect Area is shown.

Learn more »[Effect Areas \[Left/Right\]](#)



- **Layer View** - Activates the second view available for Layers.
  - The user interfaces changes as shown below [4 Layers are currently active in this example].



## Solo And Blind

- **Solo** - Activates Solo Mode for the corresponding Layer.
- **Blind** - Activates Blind Mode for the corresponding Layer.

## Faders

- Each fader regulates the Opacity of a single Layer.
  - You can set the fader to a specific position.
  - You can enter a value in the input field.
  - You can flash the fader.

## Mouse Control And Keyboard Shortcuts

- **Single Selection**
  - A single fader regulates the Opacity of the corresponding Layer.
  - **Left Arrow / Right Arrow** - Quickly switch between faders by using the left or right arrow key.

**▪ Multiselection**

- Use **Ctrl + Left Mouse Click** to select multiple faders at the same time. A green outline will show that a Layer is selected. When multiple faders are selected, you can control them at the same time.
- Use **Shift + Left Mouse Click** to select multiple faders at the same time. A green outline will show that a Layer is selected. When multiple faders are selected, you can control them at the same time.
- **Ctrl+A** - Selects all faders of all Layers.
- **Ctrl+D** - Deselects the current fader selection.

**▪ Flash**

- Use the button showing the Layer's Name or the keyboard shortcut **Space**
- It instantly sets the intensity to 255 as long as you hold the button/key down.
- To use this feature, the fader needs to be set to a lower value than 255 first.

**▪ Restoring The Default Value**

- **Left Mouse Double-Click** - Perform a double-click with your left mouse button directly on a single or multiple faders to restore the **Default Value**
- **Right Mouse Click** - Perform a click with your right mouse button directly on a single or multiple faders to restore the **Default Value**

## 4.8 Mapping / Tiling / Rotation

This topic includes:

- Introduction
- Important Information
- Overview
- Mapping
- Mapping Example
- Using Fixture Groups As Mapping Preset
- Rotation
- Rotation Example
- Tiling
- Tiling Example
- Using Fixture Groups As Tiling Preset
- Saving And Loading
- Drag And Drop [Copy And Paste]
- Context Menu

### Introduction

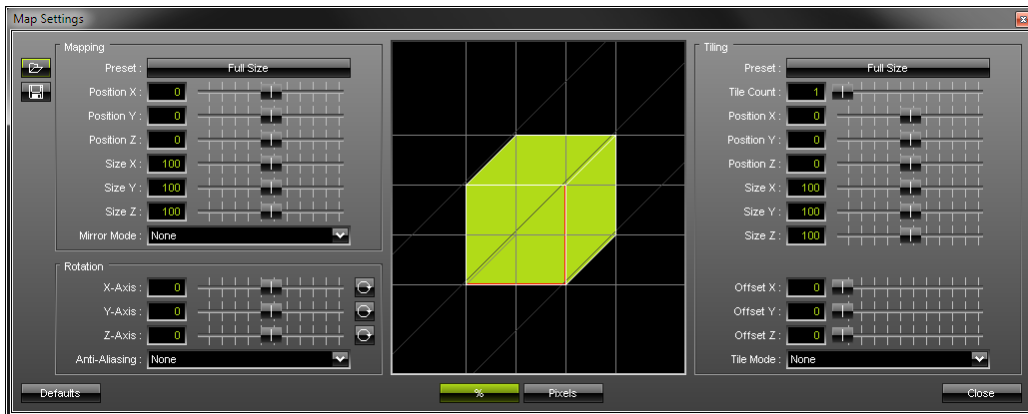
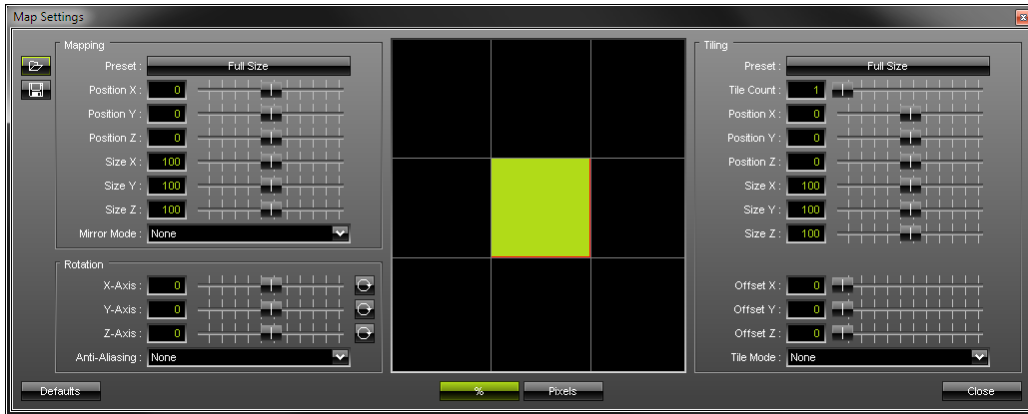
You can resize, reposition, and further modify every MADRIX Effect; independently of your configuration in the Matrix Generator or Patch Editor.

By default, every Layer [i.e. every MADRIX Effect] is shown on the complete virtual LED matrix [Matrix Size]. It is mapped to the complete LED installation. You can change that.

- Click **Map**



- A new window will open [in 2D or 3D view according to the Matrix Size].



## Important Information



Before you start making any changes, choose between relative values in percent [%] or absolute values in pixels [Pixels].

## Overview

The Map Effect window has 4 sections:

- [Mapping](#)
- [Rotation](#)
- [Tiling](#)
- and a graphical overview showing you the consequences of your changes.
  - You will see a graphical 2D or 3D model of the virtual LED matrix.
  - Because you can change the size and position of a Layer, the graphical model will change accordingly.
  - Various guidelines referring to all edges of the graphical model will help you with the perspective [e.g., through parallel shift].
  - You can also use the mouse to position the graphical model.
  - The graphical model represents your virtual LED matrix, which is your LED installation.
- All 3 options can be used in combination [Mapping / Rotation / Tiling].
- All 3 options are powerful ways to customize visuals.
- All options refer to the virtual LED matrix [Matrix Size] you have configured in the Matrix Generator or Patch Editor.
- You can save Map Settings to an external file or load previously saved settings from an external file.  
Learn more [Saving And Loading](#)
- Click **Defaults** to cancel any changes and restore the default settings.
- Click **Close** to close the window.

## Mapping

Mapping allows you to change the size and position of a Layer.

In this way, you can assign different MADRIX Effects to different areas of your LED installation [and also different fixtures].

- **Preset** - Instead of adjusting the below values manually, you can decide to use these presets. MADRIX will then automatically adjust the above settings accordingly. The default value is Full Size.
- **Position X** - Defines the horizontal position of the Layer.
- **Position Y** - Defines the vertical position of the Layer.

- **Position Z** - Defines the position of the Layer in the depth.
- **Size X** - Defines the horizontal size of the Layer.
- **Size Y** - Defines the vertical size of the Layer.
- **Size Z** - Defines the size of the Layer in the depth.
- **Mirror Mode** - Mirrors the Layer [flipping]. You can choose to not apply mirroring [**None**], to mirror horizontally [**Mirror H**], vertically [**Mirror V**], regarding the depth [**Mirror D**], or in any combination [e.g., **Mirror HVD**]. The default value is None.

## Mapping Example

- Set up a virtual LED matrix of 100 x 100 x 1.
- Create 2 Layers.
- For Layer 1, choose **SCE Plasma** and the preset **Left** in the section **Mapping**
- For Layer 2, choose **SCE Wave / Radial** and the preset **Right** in the section **Mapping**
- The result could look like this:



## Using Fixture Groups As Mapping Preset

Fixture groups, when configured in the Patch Editor, are available as presets for Mapping and Tiling.

Learn more » [Fixture Groups \[Group Control\]](#)

**1]** Go to **Mapping > Preset**

- When your Patch includes Fixture Groups, as configured in the Patch Editor, the list of presets will include an item for each fixture group you have created. You will see the fixture group's Display Name.

- You will find these items below **Full Size**

**2]** Select the fixture group from the list.

**3]** MADRIX will automatically set the correct settings.

- The Mapping will be set according to the fixture group.

- The adjusted Map Settings will always be a rectangular selection. MADRIX uses the bounding box of the fixture group with its largest dimensions in X, Y, and Z.




## Rotation

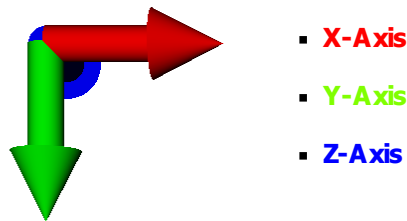
This section allows you to rotate a Layer.

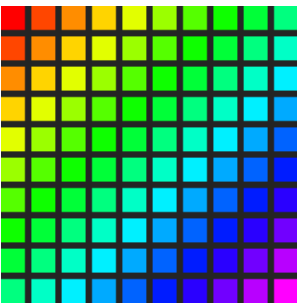
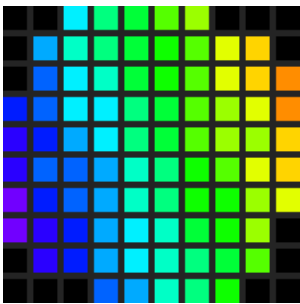
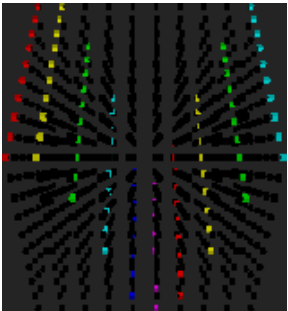
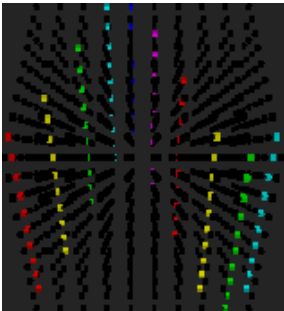
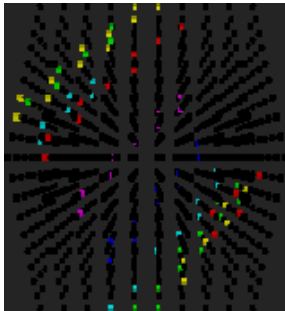
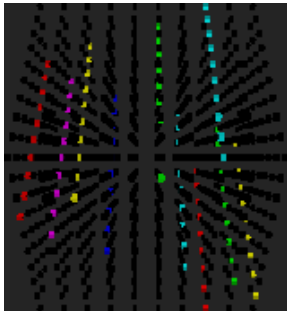
You can rotate layers once or continuously.

- **X-Axis** - Defines the clockwise or counter-clockwise rotation of the Layer in percent **around** the X-axis.
- **Y-Axis** - Defines the clockwise or counter-clockwise rotation of the Layer in percent **around** the Y-axis.



- **Z-Axis** - Defines the clockwise or counter-clockwise rotation of the Layer in percent **around** the Z-axis.
- **Anti-Aliasing** - Rotating a MADRIX Effect can produce hard edges for certain visuals. Anti-aliasing improves the image quality by reducing the hard edges.
  - Choose **None, 2x, or 4x**
  - [The higher the setting, the more performance will be required.]
  - The default value is None.
-  - Animates the Layer and rotates it around the corresponding axis permanently.



No Rotation	X-Axis Rotation [Around the X-axis]	Y-Axis Rotation [Around the Y-axis]	Z-Axis Rotation [Around the Z-axis]
	-	-	
			

## Rotation Example

- Set up a virtual LED matrix of 100 x 100 x 1.
- Use only 1 Layer.
- For Layer 1, choose **SCE Graph** and set **Z-Axis** to **45** in the section **Rotation**
- The result could look like this:



## Tiling

This section allows you to duplicate the Layer and its content.

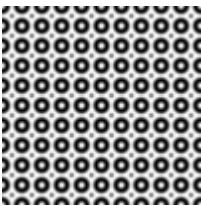
You can use it to create new repeating or mirrored patterns [Depending on the settings it might remind you of a kaleidoscope]. It also means that you can show the same content, and the same MADRIX Effects, on different parts of your LEDs or different LED fixtures.

- **Preset** - Instead of adjusting the below values manually, you can decide to use these presets. MADRIX will then automatically adjust the below settings accordingly [except for Tile Count]. The default value is Full Size.
- **Tile Count** - Scales the Layer to a fraction of its size and therefore creates the number of tiles as set by this value. Is an automatic way to tile the Layer and influences the sizes below and always centers the positions. Tile mode **Repeat** is automatically activated. E.g., a Tile Count of 4 will reduce the size to 25% and create 4 Layers.
- **Position X** - Defines the horizontal position of the Layer.
- **Position Y** - Defines the vertical position of the Layer.
- **Position Z** - Defines the position of the Layer in the depth.
- **Size X** - Defines the horizontal size of the Layer.
- **Size Y** - Defines the vertical size of the Layer.

- **Size Z** - Defines the size of the Layer in the depth.
- **Offset X** - Defines the spacing between repeated or mirrored sections regarding the X-axis and only works when a Tile Mode other than None is selected.
- **Offset Y** - Defines the spacing between repeated or mirrored sections regarding the X-axis and only works when a Tile Mode other than None is selected.
- **Offset Z** - Defines the spacing between repeated or mirrored sections regarding the X-axis and only works when a Tile Mode other than None is selected.
- **Tile Mode** - You can choose to not apply tiling [**None**], to tile repeatedly [**Repeat**], horizontally [**Mirror H**], vertically [**Mirror V**], regarding the depth [**Mirror D**], or in any combination [e.g., **Mirror HVD**]. The default value is None.

## Tiling Example

- Set up a virtual LED matrix of 100 x 100 x 1.
- Use only 1 Layer.
- For Layer 1, choose **SCE Wave / Radial** and set **Tile Count** to **11** in the section **Tiling**
- The result could look like this:



## Using Fixture Groups As Tiling Preset

Fixture groups, when configured in the Patch Editor, are available as presets for Mapping and Tiling.

Learn more » [Fixture Groups \[Group Control\]](#)

**1] Go to *Tiling > Preset***

- When your Patch includes Fixture Groups, as configured in the Patch Editor, the list of presets will include an item for each fixture group you have created. You will see the fixture group's Display Name.

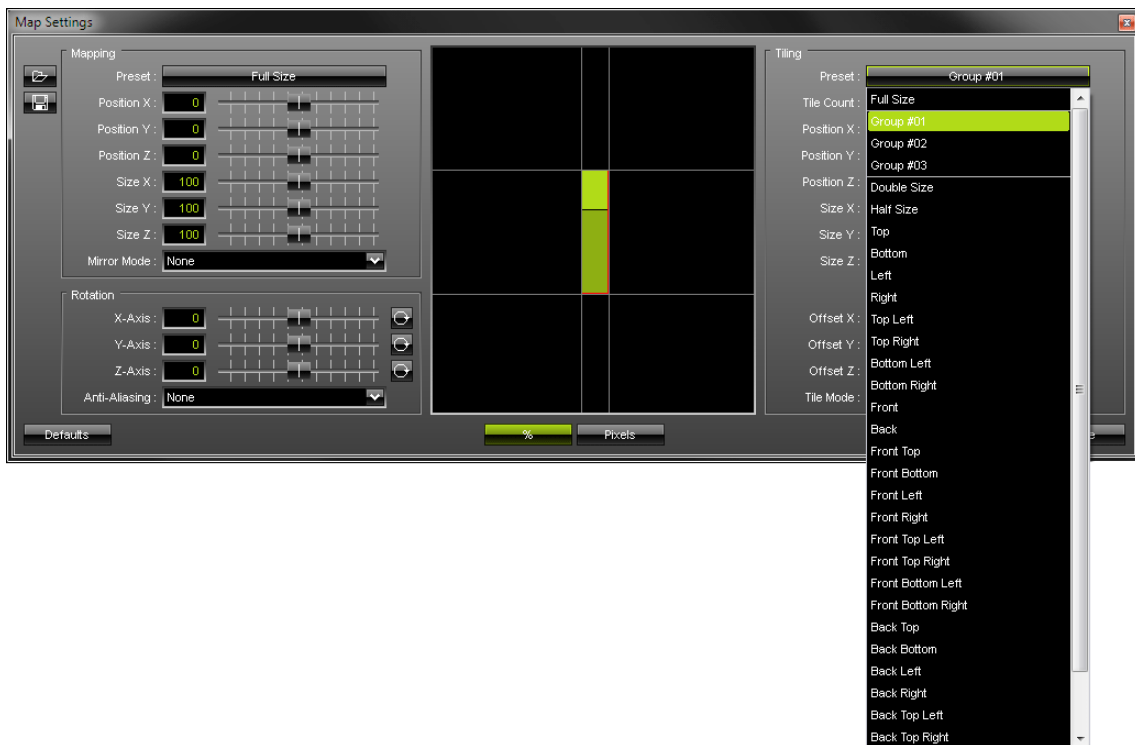
- You will find these items below **Full Size**

**2] Select the fixture group from the list.**


**3] MADRIX will automatically set the correct settings.**


- The Tiling will be set according to the fixture group.

- The adjusted Map Settings will always be a rectangular selection. MADRIX uses the bounding box of the fixture group with its largest dimensions in X, Y, and Z.



## Saving And Loading

-  - Loads Maps Settings from a previously saved, external file [of the file type \*.mmapx]. A new window opens for you to select the file on your harddisk.

-  - Saves the current Map Settings, including all mapping, tiling, and rotation settings, in an external file [of the file type \*.mmapx]. Simply enter a **File name** when the new window opens, choose a location, and click **Save**

## Drag And Drop [Copy And Paste]

- **Left Mouse Click And Hold** - You can perform a Copy and Paste with the mouse.  
Click with the left mouse button on the **Map** button and hold for 3 seconds. A small **+** appears. Now, continue to hold and drag the mouse to another **Map** button of another Layer and release the mouse to instantly copy the settings to the other Layer.

## Context Menu

- **Right Mouse Click** - You can call up the context menu by performing a right mouse click on **Map**
- A small window will be shown.



You can quickly perform the following actions:

- **Edit...** - Opens the Map Settings window [in the same way you can open the window by clicking on **Map** with the left mouse button].
- **Open...** - Loads Maps Settings from a previously saved, external file [of the file type \*.mmapx].  
A new window opens for you to select the file on your harddisk.

- **Copy** - Copies all your mapping, tiling, and rotation settings for this Layer into the clipboard.
- **Paste** - Applies all settings that are stored in the clipboard to this Layer. [In this way, you can quickly copy and paste Map Settings from one Layer to other Layers.]
  
- **Clear** - Clears all changes and restores the default settings [in the same way you can restore the default settings by clicking **Defaults** in the Map Settings window].

## 4.9 Chaser

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Example](#)
- [Creating A Chaser](#)
- [Fade Time And Animations](#)
- [Starting And Pausing A Chaser](#)
- [Context Menu](#)
- [Drag And Drop \[Copy And Paste\]](#)
- [More Information](#)

### Introduction

A Chaser is a powerful and creative tool within MADRIX. It offers a lot of possibilities to further customize visuals or your workflow in MADRIX.




You can set up a Chaser to remember specific settings. MADRIX can then automatically chase them or can manually load and control them as needed.

A Chaser:

- Can be used as a playlist to change and customize visuals.
- Is a list of Steps played back as a sequence.
- Can be time-controlled or controlled manually.
- Each Step remembers the settings as you configured them.
- Can even be used to create animations.

### Overview

MADRIX offers 3 different Chasers:

Effect Parameter Chaser	Storage Place Parameter Chaser	Group Value Chaser
<ul style="list-style-type: none"> <li>▪ Can be configured for Layers only. Learn more »<a href="#">Layers</a></li> <li>▪ Can be configured for every single Layer.</li> <li>▪ Visuals can be customized by chasing MADRIX Effect settings and Layer settings.</li> <li>▪ Can be seen as an easy way to customize effects instead of using a Macro. Learn more »<a href="#">Macros And Scripts</a></li> <li>▪ Is different to the Cue List. Each Cue in the Cue List references a single Storage Place. An Effect Parameter Chaser can be used independently from the Cue List and can be set up for each single Layer.</li> <li>▪ </li> </ul>	<ul style="list-style-type: none"> <li>▪ Can be configured for Storage Places, including their Layers. Learn more »<a href="#">Storage Places [256.x 256]</a></li> <li>▪ Can be configured for every single Storage Place and can include every single Layer of that Storage Place.</li> <li>▪ Visuals can be customized by chasing Storage Place settings and Layer settings.</li> <li>▪ Can be seen as an easy way to customize effects and workflows instead of using a Macro. Learn more »<a href="#">Macros And Scripts</a></li> <li>▪ Is different to the Cue List. Each Cue in the Cue List references a single Storage Place. A Storage Place Parameter Chaser can be used independently from the Cue List and can be set up for each single Storage Place.</li> <li>▪ </li> </ul>	<ul style="list-style-type: none"> <li>▪ Can be configured in the Group Control to further control fixture groups. Learn more »<a href="#">Fixture Groups [Group Control]</a></li> <li>▪ Can only be used to chase fixture group values.</li> <li>▪ </li> </ul>

## Example

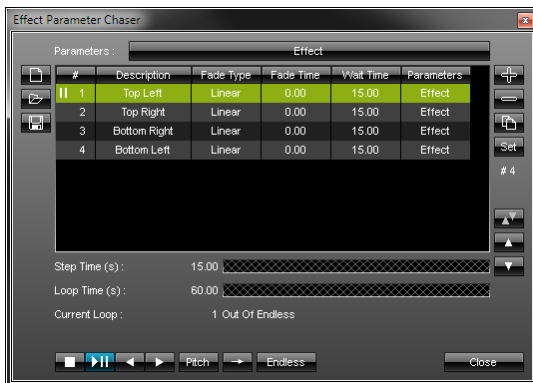


An Effect Parameter Chaser, for example, offers many ways to customize visuals. In this first example, we will use the Effect Parameter Chaser to set 4 different movement directions for SCE Color Scroll within 60 seconds.

**Step 1]**

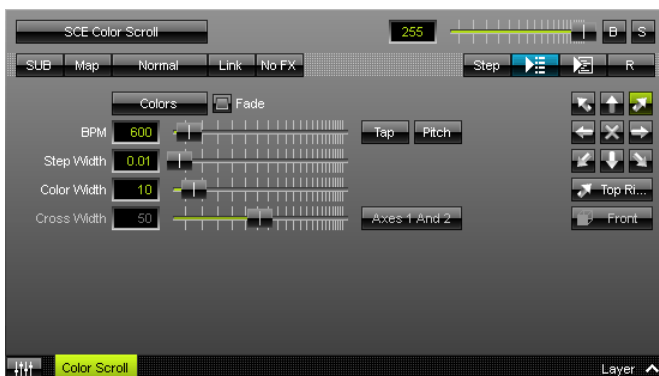


For the first 15 seconds, MADRIX should show SCE Color Scroll with the **Direction Top Left**

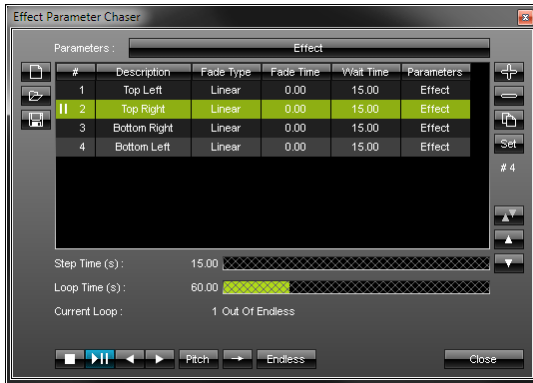


**Preview**

**Step 2]**

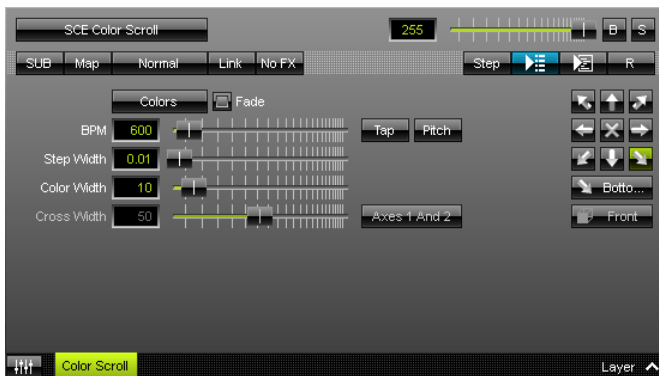


For the next 15 seconds, MADRIX should show SCE Color Scroll with the **Direction Top Right**

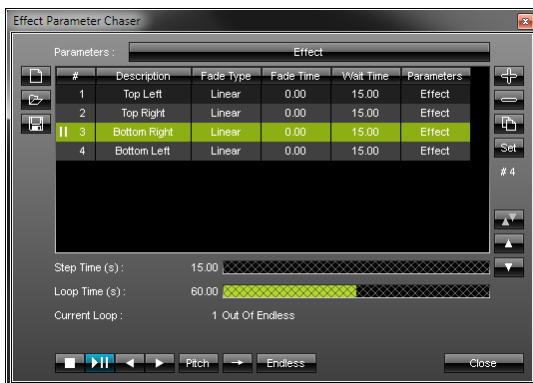


**Preview**

**Step 3]**



For the next 15 seconds, MADRIX should show SCE Color Scroll with the **Direction Bottom Right**



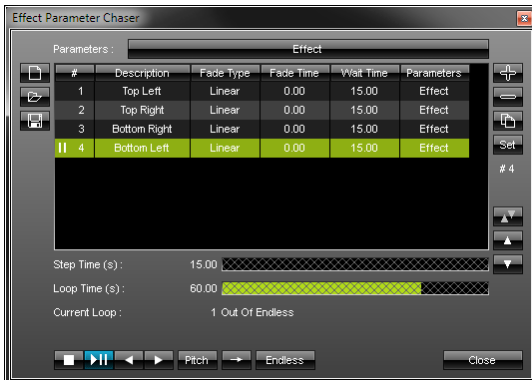


**Preview**

**Step 4]**




For the last 15 seconds, MADRIX should show SCE Color Scroll with the **Direction Bottom Left**



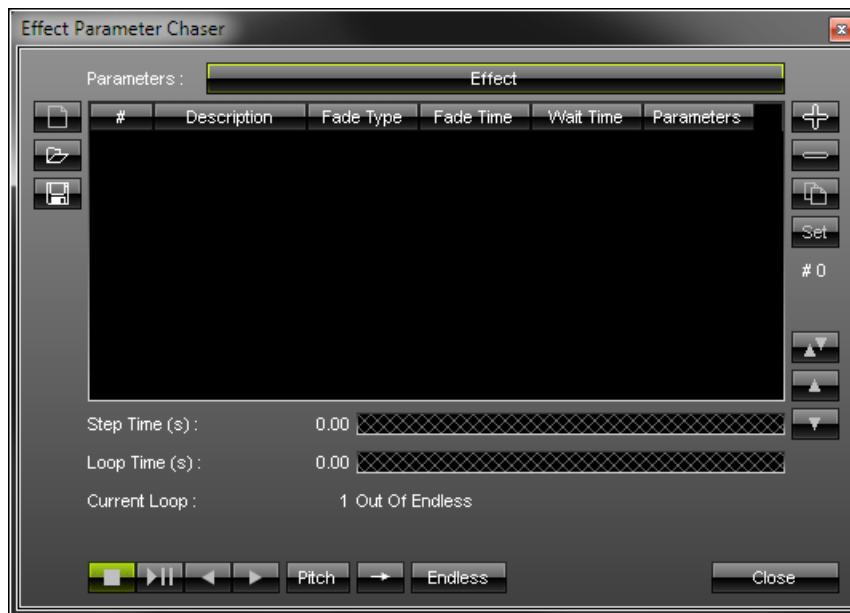
**Preview**

**Creating A Chaser**

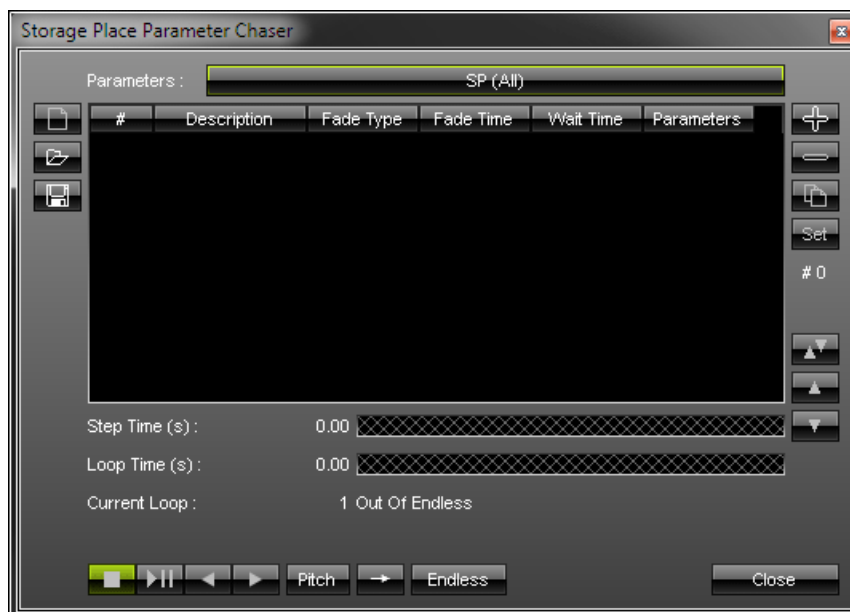
## Overview

- **Right Mouse Click** on  > **Edit...**
- A new window will open.

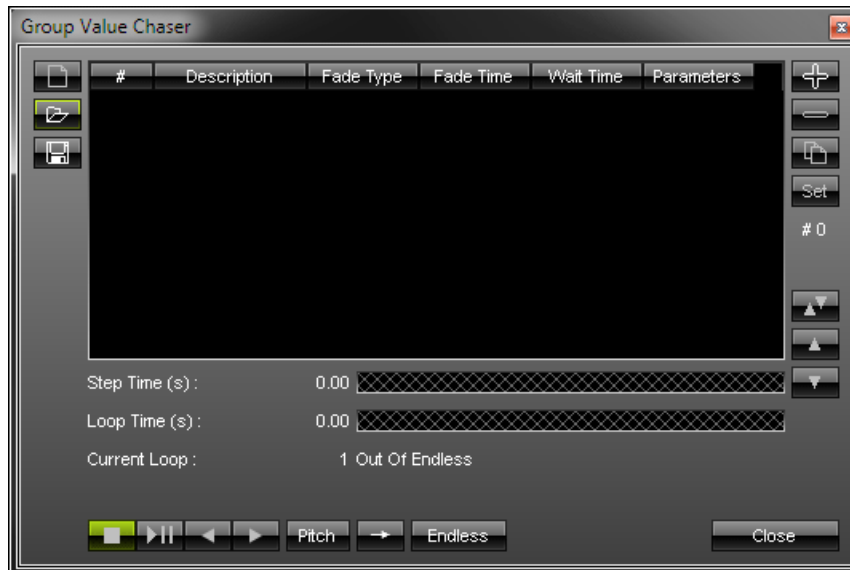
### Effect Parameter Chaser



### Storage Place Parameter Chaser



## Group Value Chaser



### Step-By-Step Configuration

- 1] Select which kind of Parameters to include for a Step.
- 2] Add Steps.
- 3] Control the Chaser playback.

#### 1] Selection Of Parameters

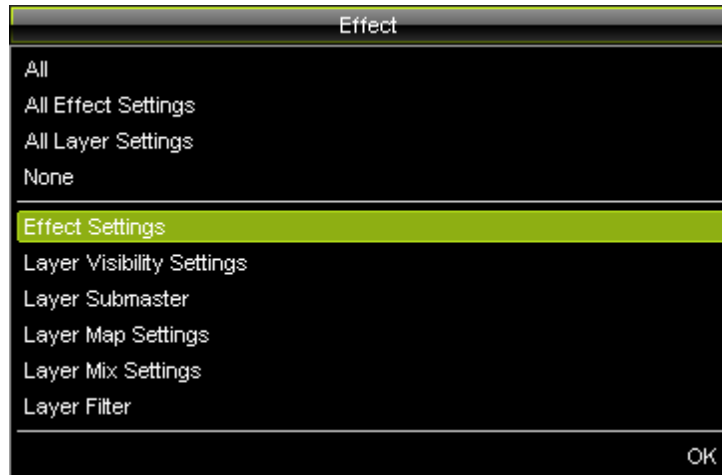
You can use each Step to change a variety of settings.

- You can freely choose which kind of Parameters should be included in a Step.
- Each Step can include different kind of Parameters.
- That also means that you can exclude certain kind of Parameters for each Step.
- Only the kind of Parameters that has been selected and is therefore included in a Step will be chased.
- Parameters that are not included in a Step will not be chased and can still be used in the normal way.
- Any combination of the settings described below is possible.

- **Parameters**

- **Left Mouse Click** - Opens the Parameters submenu for selection.

### Effect Parameter Chaser

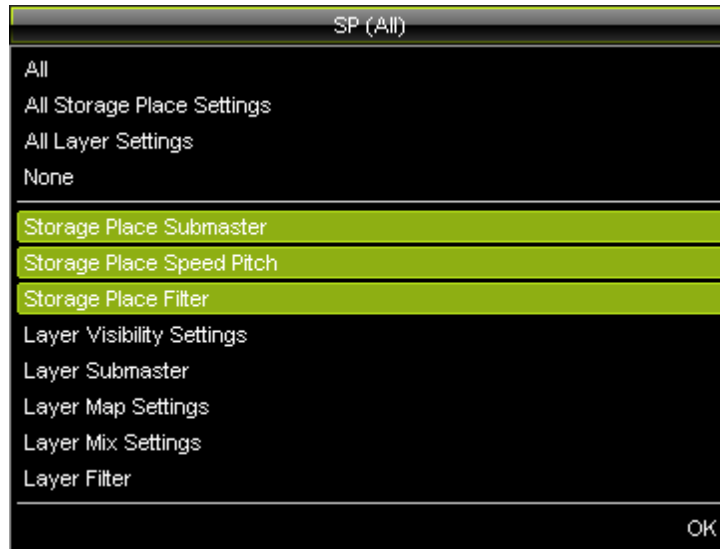


- **All** - Includes all available Parameters in a Step [Effect Settings, Layer Visibility Settings, Layer Submaster, Layer Map Settings, Layer Mix Settings, Layer Filter].
- **None** - Includes no Parameters [can be used to add empty Steps/pauses, for example].
- **Effect Settings** - When selected, includes all the individual settings of a MADRIX Effect that are exclusive to this effect.
  - This can be any effect setting, such as colors, directions, modes, etc.
  - You can change single effect settings or multiple effect settings at the same time.
  - For example: Stretch, Contrast, and Detail for SCE Clouds. Learn more »[SCE Clouds](#)
  - **Note: Steps that include Effect Settings as Parameters will only fully work for the same kind of MADRIX Effect! The Effect Settings of such a Step will be ignored by other MADRIX Effects.**
- **Layer Visibility Settings** - When selected, includes the visibility settings of this Layer, including **Opacity**, **Blind**, and **Solo**.
  - Learn more »[Layers](#)
- **Layer Submaster** - When selected, includes **submaster** of this Layer.
  - Learn more »[Layers](#)
- **Layer Map Settings** - When selected, includes the **Map Settings** of this Layer.
  - Learn more »[Mapping / Tiling / Rotation](#)
- **Layer Mix Settings** - When selected, includes the **Mix Mode** and **Link Mode** settings of this Layer.
  - Learn more »[Layers](#)

- **Layer Filter** - When selected, includes the **Filter [FX]** settings of this Layer.
  - Learn more »[Layers](#)
  
- **OK** - Confirms your selection of Parameters and closes the Parameters submenu.



### Storage Place Parameter Chaser



- **All** - Includes all available Parameters in a Step [Storage Place Submaster, Storage Place Speed Pitch, Storage Place Filter, Layer Visibility Settings, Layer Submaster, Layer Map Settings, Layer Mix Settings, Layer Filter].
- **All Storage Place Settings** - Includes all available Storage Place Parameters in a Step [Storage Place Submaster, Storage Place Speed Pitch, Storage Place Filter].
- **All Layer Settings** - Includes all available Layer Parameters in a Step [Layer Visibility Settings, Layer Submaster, Layer Map Settings, Layer Mix Settings, Layer Filter].
- **None** - Includes no Parameters [can be used to add empty Steps/pauses, for example].
- **Storage Place Submaster** - When selected, includes the **submaster** of the Storage Place.
  - Learn more »[Storages](#)
- **Storage Place Speed Pitch** - When selected, includes the **speed pitch** of the Storage Place.
  - Learn more »[Storages](#)
- **Storage Place Filter** - When selected, includes the **Filter [FX]** of the Storage Place.
  - Learn more »[Storages](#)
- **Layer Visibility Settings** - When selected, includes the visibility settings of all Layers, including **Opacity**, **Blind**, and **Solo**.
  - These are the same Layer settings, which the Effect Parameter Chaser can control for a single Layer.
- **Layer Submaster** - When selected, includes **submasters** of all Layers.
  - These are the same Layer settings, which the Effect Parameter Chaser can control for a single Layer.

- **Layer Map Settings** - When selected, includes the **Map Settings** of all Layers.
  - These are the same Layer settings, which the Effect Parameter Chaser can control for a single Layer.
- **Layer Mix Settings** - When selected, includes the **Mix Mode** and **Link Mode** settings of all Layers.
  - These are the same Layer settings, which the Effect Parameter Chaser can control for a single Layer.
- **Layer Filter** - When selected, includes the **Filter [FX]** settings of all Layers.
  - These are the same Layer settings, which the Effect Parameter Chaser can control for a single Layer.
  
- **OK** - Confirms your selection of Parameters and closes the Parameters submenu.

#### **Group Value Chaser**

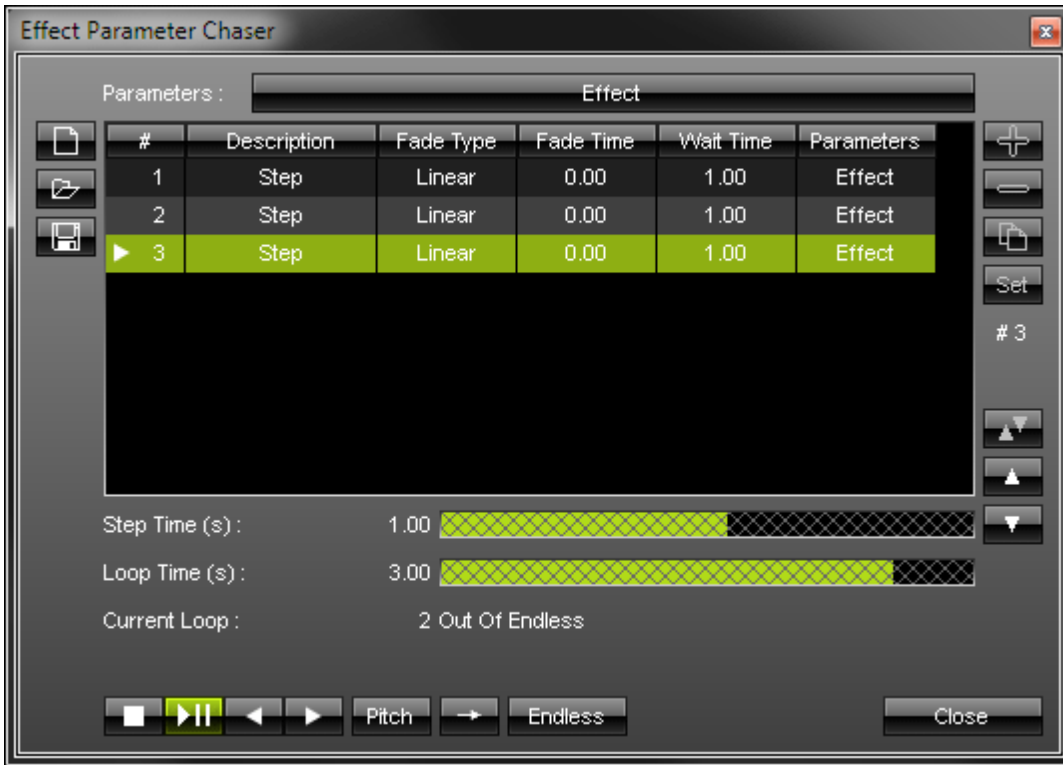
- It is not necessary to select any Parameters, since only one set of Parameters can be chased [fixture group values].

## **2] Adding New Steps Or Editing Steps**

### **Overview**

A Chaser is represented by a list of Steps in the Chaser window.

- Add and configure or edit Steps as needed.
- A Chaser normally runs through the list in a sequence. The order is defined by the Playback Mode.  
[The direction may also be reversed when using negative values for the Speed Pitch or the Speed Masters. Learn more below.]
- When a loop is set up, the Chaser repeats.



### Adding Or Editing Steps

Use the following controls on the right side of the Chaser window:



**Add Step** - Adds a new Step to the list.

- The newly added Step includes all currently set Parameters [according to your **Parameters** selection. Learn more [Selection Of Parameters](#)].
- A newly added Step will be created with the default values for Fade Time, Fade Type, Wait Time, and Description.
- First, make sure that the visuals look as intended, that all settings are defined as required, and then add the Step.
- Please stop the Chaser if it is currently running.



**Remove Steps** - Removes all currently selected Steps from the list.



**Duplicate Steps** - Copies the currently selected Steps and adds them as new Steps to the list.



**Set** - Updates the Step by overwriting the saved settings in the Step with the current settings.

- **Note:** Before updating a Step, make sure that your current settings are correctly set. This includes all settings on the user interface as well as the selection of **Parameters** of the Chaser window. It is therefore highly recommended to 1) first load the Step [if a Fade Time is set up, wait until the Step has fully loaded and stopped], 2) second to change all required settings, and 3) update the Step via **Set**. Learn more [Activating A Step / Loading A Step](#)

**Synchronize Parameter Selection** - Is only visible when necessary and if a Step is selected. Shows that your current selection of **Parameters** [learn more [Selection Of Parameters](#)] is different to the Parameters of the selected Step [learn more [Parameters](#)]. In order to set the selection of Parameters to the Parameters of the Step, click the equal sign.



# 3

▪ Shows the total number of Steps in the Step list. An empty list shows # 0



**Swap Position** - Swaps the position of Steps in the Step list when several Steps are selected first.



**Position Up** - Changes the order, and positions currently selected Steps one item higher up in the list.



**Position Down** - Changes the order, and positions currently selected Steps one items lower down in the list.

## Configuring Steps In the Step List

Use the following columns of the Step list:

- #**
- Shows the index number of this Step in the list.
    - This index number cannot be edited in the list.
    - But you can change the order of Steps by changing the position of Steps via **Swap Position**, **Position Up**, and **Position Down**
- Description**
- Allows you to provide a label for the specific Step. Perform a left mouse double-click and enter any name or text.
    - The default value is Step.
- Fade Type**
- Defines how the Step is faded in, when a Fade Time has been set.
    - You can choose from a variety of types [**Linear**, **Ease In Bounce**, **Ease Out Bounce**, **Ease In Out Bounce**, **Ease In Circular**, **Ease Out Circular**, **Ease In Out Circular**, **Ease In Cubic**, **Ease Out Cubic**, **Ease In Out Cubic**, **Ease In Sinusoidal**, **Ease Out Sinusoidal**, **Ease In Out Sinusoidal**, **Ease In Exponential**, **Ease Out Exponential**, **Ease In Out Exponential**].
    - The default value is Linear.
- Fade Time**
- Defines how long the Step is faded in [in s]. Change it to any time. This creates an automatic transition from one Step to another Step.
    - When possible a smooth transition is automatically created by gradually increasing or decreasing values for Parameters.
    - Certain Parameters **can** be used for a smooth transition.
    - Certain Parameters **cannot** be used for a smooth transition and will be selected or switched on or off at the beginning of the Fade Time.
    - The transition is affected by Fade Type and Fade Time.
    - Valid values range from 0.0 to 99999.99.
    - The default value is 0.0 [which means that there is no transition/fade-in by default].
    - Learn more [Fade Time And Animations](#)
- Wait Time**
- Defines how long the Step is shown before skipping to the next Step in the list [in s].
    - Is separate from the Fade Time, which means it does not include the Fade Time.
    - Valid values range from 0.0 to 99999.99.
    - The default value is 1.0.
- Parameters**
- Shows which Parameters were included for this specific Step.
    - This column cannot be edited in the list.
    - But you can specify the values by selecting the **Parameters** before adding a new Step via **+** or before changing an existing Step via **Set**

## Monitoring The Duration

See the following controls at the bottom of the Chaser window:

- Step Time (s)** ▪ Shows the duration of the currently selected or currently running Step in seconds as well as graphically as a progress bar.
- Loop Time (s)** ▪ Shows the duration of the overall loop including all Steps in seconds as well as graphically as a progress bar.
- Current Loop** ▪ Shows in which loop the Chaser currently is. Only when an overall loop has been completed, the count will be increased.

## Managing Chasers

Use the following controls on the left side of the Chaser window:



**New** - Immediately removes all items from the list.



**Open** - Loads a previously saved Chaser from an external file [of the file type \*.mepcz or \*.mepcx for Effect Parameter Chasers; of the file type \*.msppcz or \*.msppcx for Storage Place Parameter Chasers; of the file type \*.mgvcz or \*.mgvcx for Group Value Chasers].  
- A new window opens for you to select the file on your harddisk.



**Save** - Saves the Chaser to an external file.

## 3] Controlling The Chaser Playback

Control the Chaser playback using the following controls at the bottom of the Chaser window:



**Stop** - Stops the Chaser.



**Stopped** - Shows that the Chaser has been stopped.



**Play/Pause** - Starts the Chaser or pauses the playback and remembers the current position.

- Playback will start from the beginning if the Chaser has not been started before or if the playback has been stopped via **Stop**

- Playback will continue from the current position if the Chaser has been paused.



**Playing** - Shows that the Chaser is currently running.



**Paused** - Shows that the Chaser has been paused.



**Previous Step** - Returns to the previous Step and plays back that Step.

- If the Chaser has not been running, playback will stop after the Fade Time of this Step has passed.

- If the Chaser is running, playback will continue with the following Step automatically.



**Next Step** - Skips to the following Step and plays back that Step.

- If the Chaser has not been running, playback will stop after the Fade Time of this Step has passed.

- If the Chaser is running, playback will continue with the following Step automatically.

## Pitch

**Pitch** - Defines the overall speed of the Chaser and the Step List. It works as a multiplier/a factor.

- Example: A pitch of 2.0 will double the current speed.
- Move the fader upwards to increase the speed.
- Move the fader downwards to decrease the speed.
- The default value is 1.0 [which is normal speed].
- A value of 0.0 will stop the Chaser.
- The highest value is +10.
- The lowest value is -10.
- Negative values will reverse the playback direction. When setting a negative pitch during playback, the current Step will be fully played and only after its Step Time is over, the following Step will be chased.  
[The playback direction depends on the Playback Mode.]
- Right-click on the Pitch button to reset to the value of 1.0
- The tooltip shows the currently set value.



**Playback Mode** - Defines in which order Steps are played back. This only affects the order in the Step List, not the playback direction of a Step itself.

- **Forward** - Steps will be played back in the order of the Step List.
- **Backward** - Steps will be played back as configured in the Step List but backwards.
- **Ping Pong** - Steps will be played from top to bottom in the Step List and then from bottom to top again. The first and last Step will be played only once every time.
- **Random** - Steps will be chosen randomly and only once during a single loop. The random order remains when pausing playback. Only when stopping the Chaser, the order will be randomly created again.

## Endless

**Loop Count** - Defines how often the Chaser is being played.

- **Endless** - The Chaser will always run until you manually stop or pause it.
- **1x** - The Chaser will run once and automatically stop at the end of the last Step.
- **2x to 100x** - The Chaser will run multiple times as indicated by the loop number.



## Activating A Step / Loading A Step

- **Left Mouse Double-Click** - Perform a double-click with your left mouse button directly on the **index number** of a Step [as shown in the column # of the Step list].
  - **Activating a Step** is possible at any time when the Chaser is running. Playback will automatically continue with the following Step.
  - **Loading a Step** and therefore loading its settings is recommended before updating the Step via **Set**. Stop or pause the Chaser first. Playback will stop at the end of the Step if the Chaser has been stopped or paused. Learn more [Set](#)

## Resizing The Window

- You can resize the window according to your needs by dragging the window borders outwards or inwards.

## Closing The Window



**Close** - Closes the window.

## Fade Time And Animations

### Overview

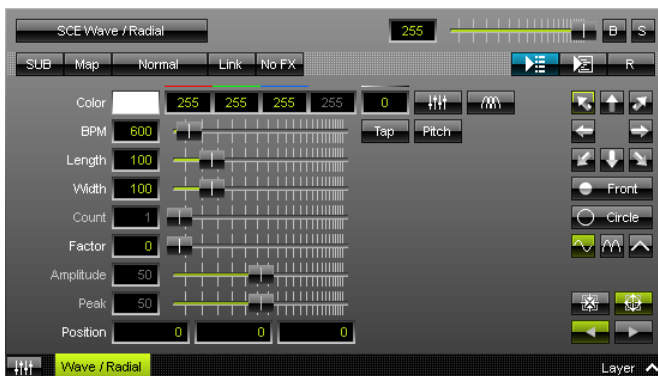
- When configuring Steps in the Step list, you can choose to set up a specific Fade Time and Fade Type.
  - When setting up a Fade Time that is higher than 0.0, MADRIX will automatically create a transition from one Step to another Step [fade-in].
  - A transition/fade-in is specified by the Fade Time and the Fade Type.
  - When leaving the default value of 0.0 [or when manually setting up a Fade Time of 0.0], the Step will not be faded in.

- When possible a smooth transition is automatically created by gradually increasing or decreasing values for Parameters. In this way, you can create animations.
- Certain Parameters **can** be used for smooth transitions:
  - Horizontal sliders that allow you to set a specific range of possible values. Example: **SCE Ticker / Scrolling Text > BPM** or **Layer Opacity**
  - Input fields that allow you to enter a specific range of possible values. Example: **SCE Wave / Radial > Position X, Y, Z**
  - Certain colors. Example: **SCE Color > Color**
- Certain Parameters **cannot** be used for smooth transitions and will be selected once or switched on or off at the beginning of the Step:
  - Colors in Color Tables or Color Gradients. Example: **SCE Drops > Colors**
  - Any settings that can only be activated or deactivated. Example: **S2L EQ / Spectrum > Mirror**
  - Any settings or modes where only one selection is possible at a time. Example: **Direction, Look-At Type, Shape, Shape Alignment, Filter [FX]**, etc.
- Many **Effect Settings** can be used to create transitions/animations.
- Many **Map Settings** are very suitable to create transitions/animations.
- Such a procedure may be similar to a Key Frame Animation, where each Step in MADRIX represents a key frame of the animation.

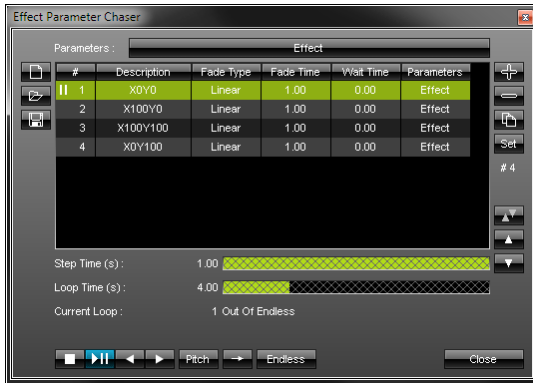
## Animation Example

The following example shows a simple animation in 4 Steps by using an Effect Parameter Chaser and only changing the Effect Setting **Position** of SCE Wave / Radial [while all other Parameters remain unchanged with their default values].

### Step 1]



**Effect Settings** - The animation starts in the upper left corner with **Position 0, 0, 0**

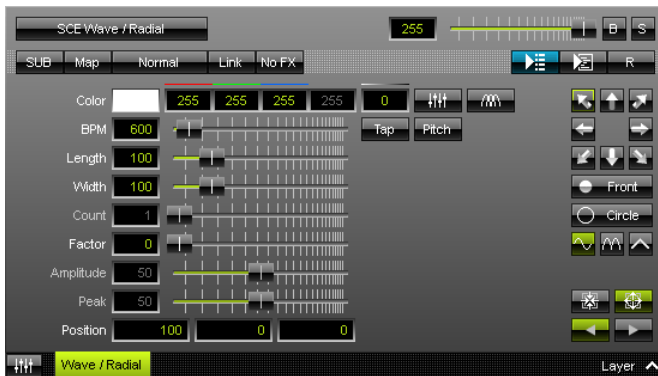


**Effect Parameter Chaser** - The **Fade Time** is set to **1.0** and the **Fade Type** is set to **Linear**. The **Wait Time** is set to **0.0**. This means that MADRIX will automatically create a smooth animation, when possible. In this example, it is possible.

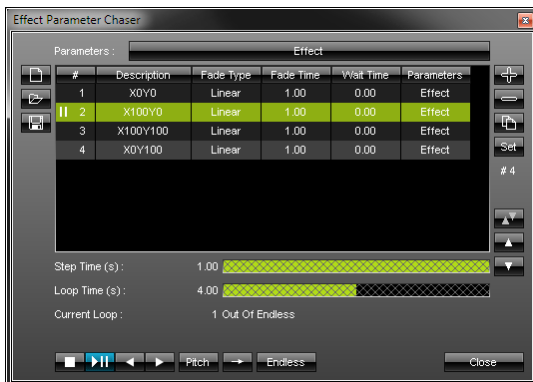


**Preview**

**Step 2]**



**Effect Settings** - The animation continues to the upper right corner with **Position 100, 0, 0**

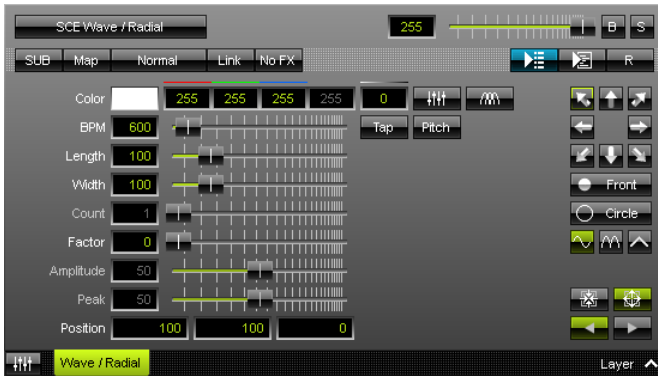


**Effect Parameter Chaser** - The **Fade Time** is set to **1.0** and the **Fade Type** is set to **Linear**. The **Wait Time** is set to **0.0**. MADRIX will gradually increase the value of **Position**, until the values of Step 2 are reached. In this example, the center of the SCE Wave /Radial effect will be moved to the left. Two seconds have past.

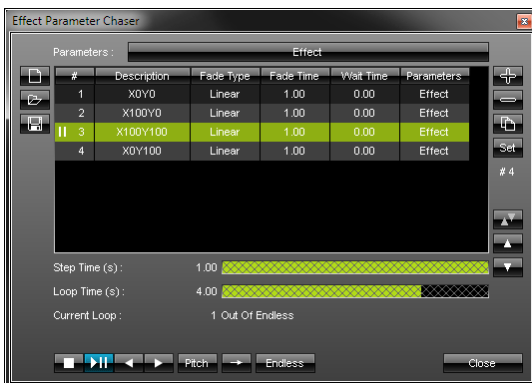


**Preview**

**Step 3]**



**Effect Settings** - The animation continues to the lower right corner with **Position 100, 100, 0**



**Effect Parameter Chaser** - The **Fade Time** is set to **1.0** and the **Fade Type** is set to **Linear**. The **Wait Time** is set to **0.0**. MADRIX will gradually increase the value of **Position**, until the values of Step 3 are reached. In this example, the center of the SCE Wave /Radial effect will be moved to the bottom. Three seconds have passed.

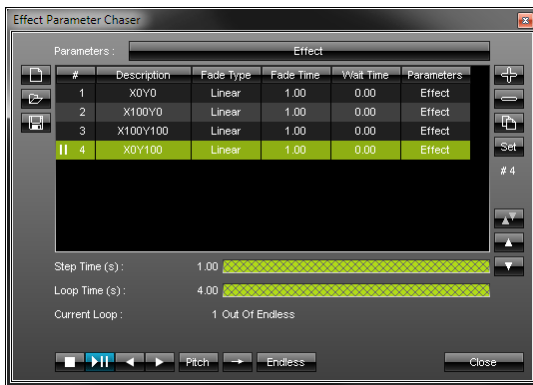


**Preview**

Step 4]



**Effect Settings** - The animation ends at the lower left corner with **Position 0, 100, 0**



**Effect Parameter Chaser** - The **Fade Time** is set to **1.0** and the **Fade Type** is set to **Linear**. The **Wait Time** is set to **0.0**. MADRIX will gradually increase the value of **Position**, until the values of Step 3 are reached. In this example, the center of the SCE Wave /Radial effect will be moved to the left. Four seconds, which is the total **Loop Time**, have passed.




**Preview**

**Endless Loop** Since the **Loop Count** is set to **Endless**, MADRIX will continue with Step 1 again. In this example, the center of the SCE Wave /Radial effect will be moved to the top. This means the animation runs smoothly and endlessly.

**Starting And Pausing A Chaser**

### A] Using The User Interface

- **Left Mouse Click** - You can control the Chaser playback by performing a left mouse click on 



- Shows that the Chaser is currently running and being played.



- Shows that a Chaser has been set up, but it is currently paused.

### B] Using The Context Menu


- Open the context menu and use the playback options of the context menu.
- Learn more [Context Menu](#)

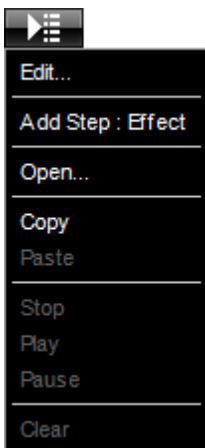
### C] Using The Chaser Window

- Open the Chaser window and use the provided playback controls.
- Learn more [Controlling The Chaser Playback](#)

## Context Menu

The main options are also available via a context menu.

- **Right Mouse Click** - You can call up the context menu by performing a right mouse click on 
- A small window will be shown.



You can use the following options:

- **Edit...** - Opens the Chaser window. Learn more [Creating A Chaser](#)
  
- **Add Step :** - Immediately adds a new Step to the Step list of the Chaser. The currently chosen Parameters that will be included in the Step are shown after the colon [e.g., **Add Step : Effect** shows that the **Effect Settings** are included for an Effect Parameter Chaser, for example].
  
- **Open...** - Loads a previously saved Chaser file.
  - Effect Parameter Chaser files of the file type \*.mepcz or \*.mepcx.
  - Storage Place Parameter Chaser files of the file type \*.msppcz or \*.msppcx.
  - Group Value Chaser files of the file type \*.mgvcz or \*.mgvcx.
  - A new window opens for you to select the file on your harddisk.
  
- **Copy** - Copies the current Chaser into the clipboard as a duplicate.
  
- **Paste** - Inserts a copy of a Chaser from the clipboard into the currently selected Chaser.
  
- **Stop** - Stops the Chaser.
  
- **Play** - Starts the Chaser.
  - Playback will start from the beginning if the Chaser has not been started before or if the playback has been stopped via **Stop**
  - Playback will continue from the current position if the Chaser has been paused via **Pause**
  
- **Pause** - Pauses the playback and remembers the current position.
  
- **Clear** - Removes any Steps and restores an empty, default Chaser.

## Drag And Drop [Copy And Paste]

You can perform a Copy and Paste with the mouse:

- **Left Mouse Click And 2 Sec. Hold** - Use a left mouse click on an Effect Parameter Chaser button or Storage Place Parameter Chaser button and continue to hold for 2 seconds. A small + appears. Continue to hold and move your mouse to another Layer and Effect Parameter Chaser button or Storage Place and Storage Place Parameter Chaser button. Release the mouse button to paste a copy onto the new Chaser.

## More Information

### **The following information can be very important when working with a Chaser in general:**

- A Chaser should contain at least 1 Step in the Step list.
- When setting up a Fade Time of 0.0 as well as a Wait Time of 0.0 for a Step, MADRIX will **not** ignore such a Step in the Step list. Although, this configuration says that this Step should not be displayed, MADRIX will use it as starting point for the transition to the next Step [if the next Step includes a Fade Time]. In this way, a Step with a total Step Time of 0.0 will influence the visual outcome of the transition.
- When a Chaser is playing, the user interface will be deactivated according to the Parameters selection of the Step.
  - For example, if the Step includes Map Settings, the Map button will be deactivated.
  - Any controls that are not deactivated, can be used in the normal way.
- Regarding the Loop Count and Current Loop, MADRIX counts from the beginning again, if the playback had been stopped beforehand.
  - Only complete loops will be counted. Inverting the Speed Pitch during a loop, will not count towards the Loop Count.
  - The Current Loop will be reset when performing a Clear, New, or manually removing all Steps from the Step List.

### **The following information can be very important when working with the Effect Parameter Chaser:**

- Should it be necessary to calculate random values, MADRIX will generate random values once at the beginning of a Step.



- A Chaser should contain at least 1 Step in the Step list.
  - Including only 1 Step can be useful when chasing an Effect Setting that generates random values [such as **RND**], for example. As explained above, MADRIX will generate random values once at every beginning of a Step.
  - Including 2 Steps or more is probably the usual case to chase Parameters.
- The following Layer Settings will still be available, even when an Effect Parameter Chaser is running. That also means that they cannot be chased with the Effect Parameter Chaser.
  - **Step** - Stepped Rendering
  - **Effect Macro Editor**
  - **R** - Restore Default Layer Settings

- The following Parameters will still be available, even when an Effect Parameter Chaser with Effect Settings as Parameters selection is running. That also means that they cannot be chased with the Effect Parameter Chaser.
  - SCE Capture
    - **Open** [i.e. loaded streams]
    - **SL**
  - SCE Clouds
    - **Generate**
  - SCE Counter
    - **Start**
  - SCE Graph
    - **X-Axis Registers** [X1, X2, X3]
    - **Z-Axis Registers** [Z1, Z2, Z3]
    - **Phase Registers** [P1, P2, P3]
  - SCE Image
    - **Open** [i.e. loaded images]
    - **Images** [i.e. loaded images]
  - SCE Noise
    - **Generate**
  - SCE Screen Capture
    - **SL**
    - **Screen Capture Configuration > Capture Frame Rate > FPS / R**
  - SCE Video
    - **Open** [i.e. loaded video files]
    - **SL**
    - **Position**
    - **Skip To Start**
    - **Step 1 Frame Back**
    - **Skip 1 Frame**
    - **Skip To End**
  - MAS Script
    - **Load**
    - **MAS Effect Script Editor**
    - **Limit Script Execution**
    - **ASYNC**

- When chased, the following Effect Settings will cause the corresponding MADRIX Effect to start again from the beginning. Chasing these Effect Settings might therefore provide limited possibilities.
  - SCE Fill Drops
    - **Direction**
    - **Size X [Width]**
    - **Size Y [Height]**
    - **Size Z [Depth]**
    - **Pitch 1**
    - **Pitch 2**
    - **Position Origin Type**
  - SCE Fill Random
    - **Size X [Width]**
    - **Size Y [Height]**
    - **Size Z [Depth]**
    - **Pitch X**
    - **Pitch Y**
    - **Pitch Z**
    - **Position Origin Type**
  - SCE Fill Snake
    - **Size X [Width]**
    - **Size Y [Height]**
    - **Size Z [Depth]**
    - **Pitch X**
    - **Pitch Y**
    - **Pitch Z**
    - **Position Origin Type**
    - **Start Corner**
    - **Orientation Mode**
    - **Circle Mode**
    - **Center Mode**
    - **Mirror Mode**
- An Effect Parameter Chaser is applied to the current Layer. The Chaser will still be there even when changing the MADRIX Effect for this Layer.
  - Please note: Depending on your configuration, the Chaser might then work or not work for the newly selected MADRIX Effect.
  - To avoid problems, select another Storage Place or clear the Effect Parameter Chaser first.
  - When changing the MADRIX Effect for this Layer, the Chaser will be stopped.

- In order to configure a Chaser, the associated Layer needs to be active on the MADRIX user interface. If you change to another Layer or Storage Place, for example, the Effect Parameter Chaser window will be closed automatically.
- Even during Chaser playback, you will be able to control certain functionality of the Effect Parameter Chaser window [such as playback or managing the Step list].
- The Speed Masters do affect the Effect Parameter Chaser.
  - As a result, playback speed can be increased, decreased, and the Chaser can also be played backwards [when the Speed Master has a negative value].
  - A Speed Master with a negative value will let the Chaser play backwards, which means that the Steps will be played back in reversed order [and according to the Playback Mode].
  - A Speed Master with a negative value will not change a fade-in [as set via Fade Time].
  - Learn more »[Controls \[Left/Right\]](#)

**The following information can be very important when working with the Storage Place Parameter Chaser:**

- The Storage Place Parameter Chaser can chase Layer settings, but not MADRIX Effect settings. [That means that you will be able to switch to another MADRIX Effect or change the MADRIX Effect settings, while a Storage Place Parameter Chaser is running.]
- The following Layer Settings will still be available, even when a Storage Place Parameter Chaser is running. That also means that they cannot be chased with the Effect Parameter Chaser.
  - **Step** - Stepped Rendering
  - **Effect Parameter Chaser**
  - **Effect Macro Editor**
  - **R** - Restore Default Layer Settings
- When playing a Storage Place Parameter Chaser, you are also able to run an Effect Parameter Chaser per Layer. In addition, you are able to override the Layer settings of the Storage Place Parameter Chaser with the Layer settings of an Effect Parameter Chaser.
- When deleting a Layer after a Storage Place Parameter Chaser has been created, the Parameters of this Layer will be removed from the Chaser.
- When adding a Layer after a Storage Place Parameter Chaser has been created, the Parameters of this Layer will always be set to the default values in each Step.
- When swapping the position of two Layers after a Storage Place Parameter Chaser has been created, the Parameters of these Layers will be kept and will be correctly applied to the Layers in their new order.

- A Storage Place Parameter Chaser is applied to the current Storage Place. The Chaser will still be there even when changing the Storage Place.
- In order to configure a Chaser, the associated Storage Place needs to be active on the MADRIX user interface. If you change to another Storage Place, for example, the Storage Place Parameter Chaser window will be closed automatically.
- Even during Chaser playback, you will be able to control certain functionality of the Storage Place Parameter Chaser window [such as playback or managing the Step list].
- The Speed Masters do affect the Storage Place Parameter Chaser.
  - As a result, playback speed can be increased, decreased, and the Chaser can also be played backwards [when the Speed Master has a negative value].
  - A Speed Master with a negative value will let the Chaser play backwards, which means that the Steps will be played back in reversed order [and according to the Playback Mode].
  - A Speed Master with a negative value will not change a fade-in [as set via Fade Time].
  - Learn more »[Controls \[Left/Right\]](#)

## 4.10 Tools

This topic includes:

- [Introduction](#)
- [Task Watcher](#)
- [Logfile](#)
- [DMX Watcher](#)
- [MIDI Watcher](#)
- [DMX Fader Tool](#)
- [PLEXUS Configuration](#)
- [MADRIX Device Configuration](#)

### Introduction

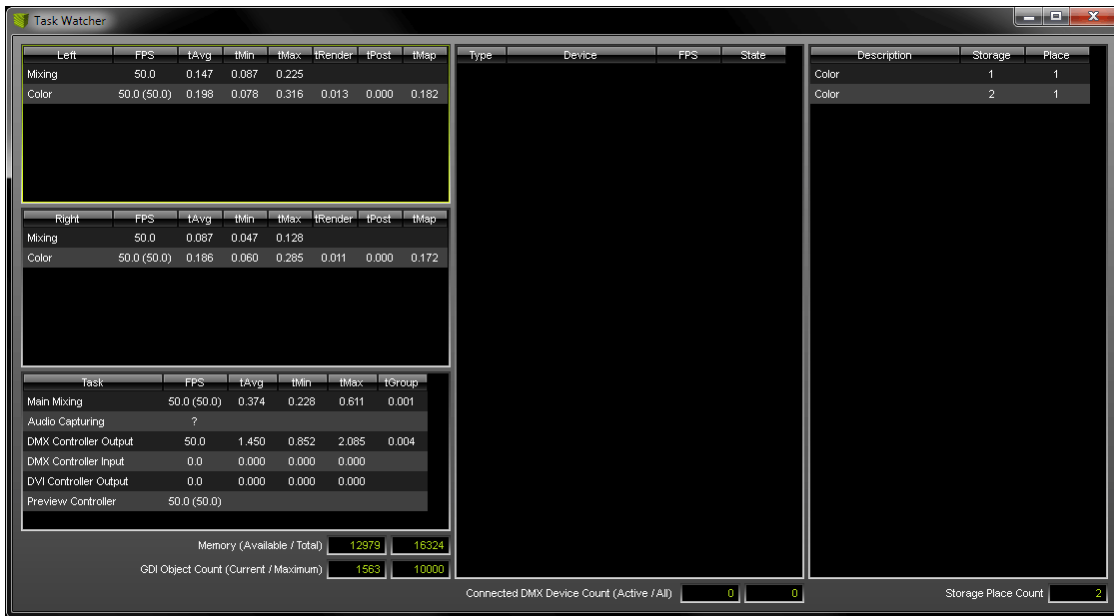
MADRIX provides several helpful monitoring tools for various tasks.

### Task Watcher

The Task Watcher is an important monitoring tool that provides detailed technical information, mainly about the performance.

- Go to **Tools > Task Watcher...**

[Keyboard shortcut: **F5**]



- The Task Watcher is mainly divided into 3 parts.
- You can resize the window according to your needs by dragging the window borders outwards or inwards.
- The first part shows how fluently effects can be rendered:
  - **Left** - Shows which effects and Layers are active on the Left side [Left Effect Pipeline].
  - **Right** - Shows which effects and Layers are active on the Right side [Right Effect Pipeline].
  - **Task** - Shows various render tasks that MADRIX manages in the background.
  - **FPS** - Displays the currently rendered frame rate [Frames Per Second] as well as the target frame rate [in brackets ()].
  - **Memory (Available / Total)** - Shows the the available memory of the computer's RAM as well as the total memory.
  - **GDI Object Count (Current / Maximum)** - Shows the currnent number of graphical objects used for the MADRIX user interface and software as well as the maximum number, which is set in the operating system.
- The second part shows connected devices:
  - **Type** - Displays if the devices is a DMX- or DVI-based device.
  - **Device** - Displays the name and description of the device.
  - **FPS** - Displays the currently rendered frame rate [Frames Per Second].

- **State** - Displays if the device is working [ **Sending** or **Receiving**] or not [ ?].
- **Connected DMX Device Count (Active / All)** - Shows the number of connected DMX devices that are active and a total number.
  
- The third part shows active and occupied Storage Places:
  - **Description** - Displays the Storage Place Description.
  - **Storage** - Displays on which Storage the effect is stored.
  - **Place** - Displays on which Storage Place the effect is stored.
  - **Storage Place Count** - Shows the total number of occupied and used Storage Places.

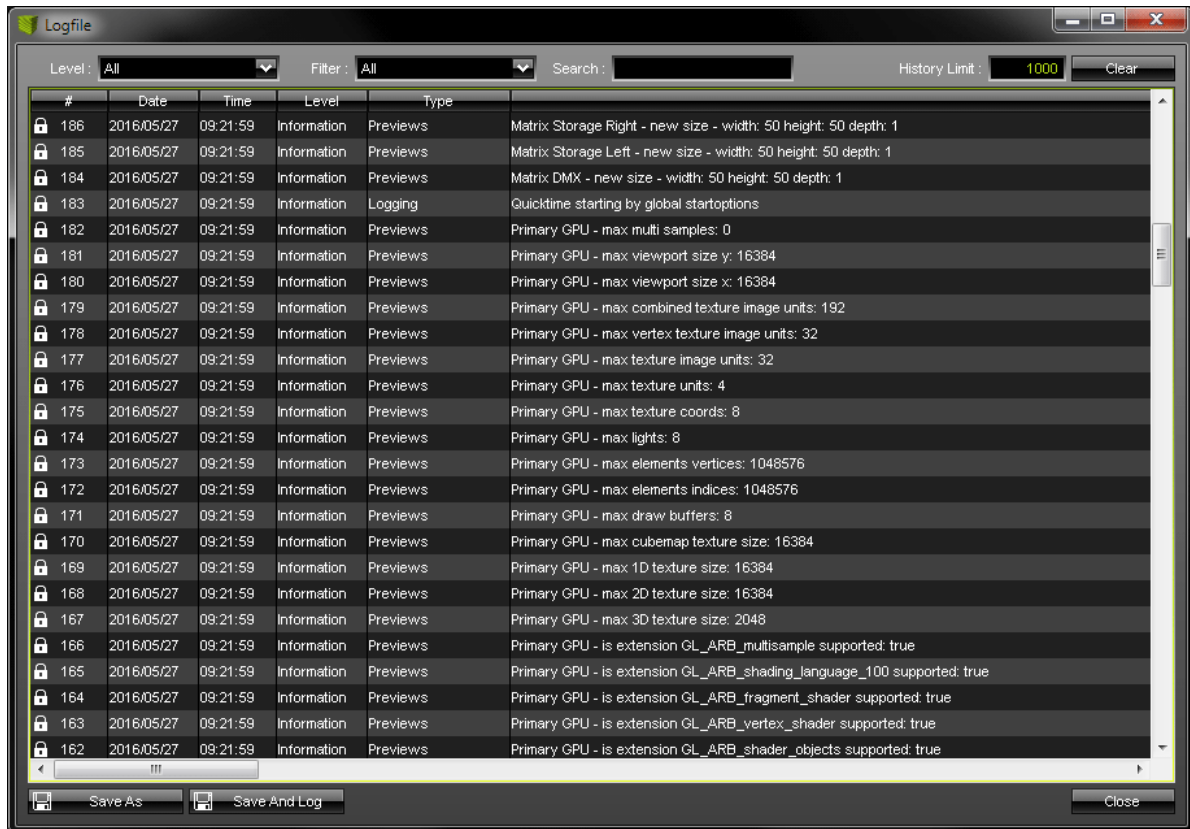
## Logfile

The Logfile keeps track of all warnings and system information.

**If you search for an error and are unable to locate the problem, please check the logfile first. This Logfile is also needed for every support request.**

- Go to **Tools > Logfile...**  
[Keyboard shortcut: **F6**]



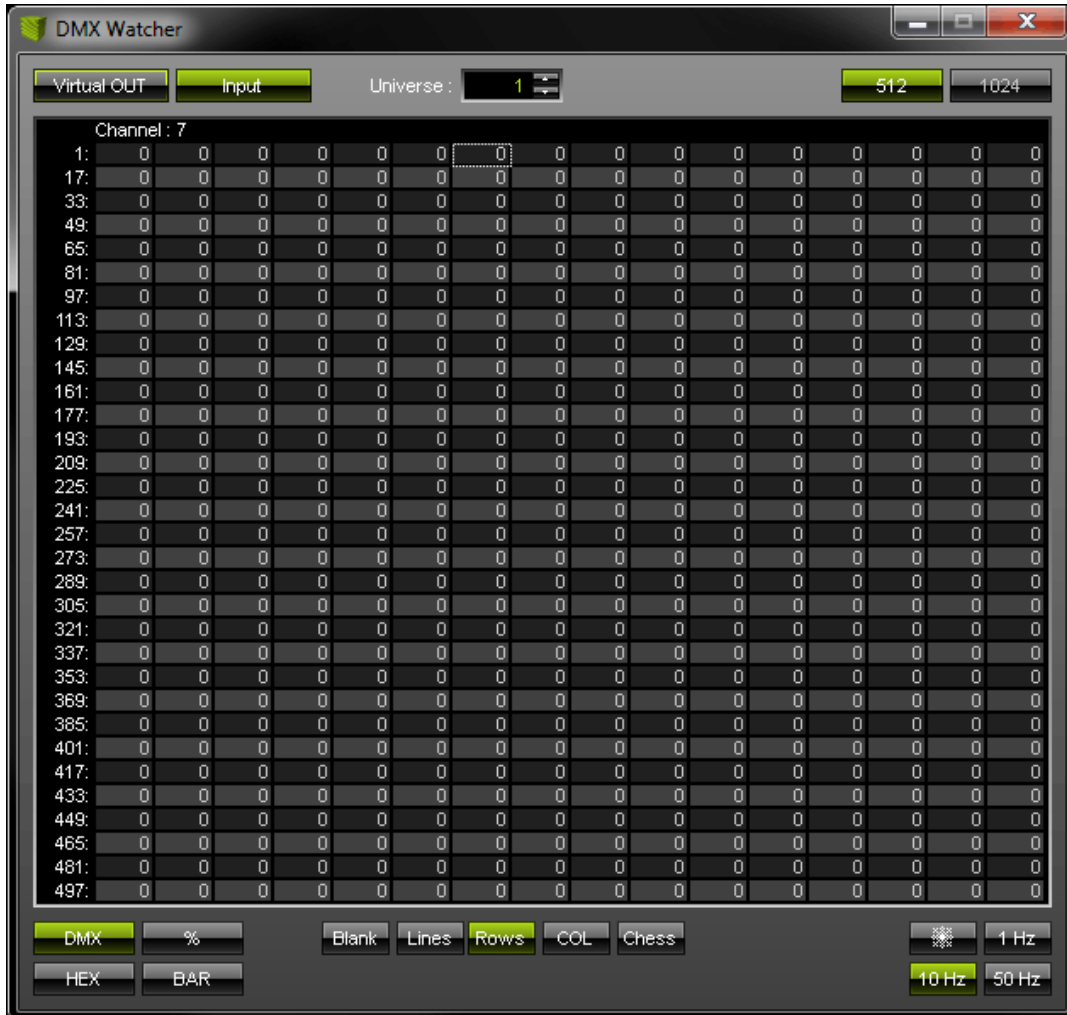


- **Level** - Defines which kind of information is shown, including only information, warnings, and errors.
- **Filter** - Allows you to only show specific messages for certain features and topics.
- **Search** - Allows you to enter keywords or text you are looking for.
- **History Limit** - Defines the maximum number of list items.
- **Clear** - Removes all entries from the list [except items that are locked].
- **Save As** - Saves the current list as an external file. All entries logged up to this point will be included.
- **Save And Log** - Creates a file and keeps track of messages until MADRIX is closed. [The button will be shown in green when activated.]
- **Close** - Closes the window.

## DMX Watcher

The DMX Watcher allows you to monitor your DMX output or DMX input in MADRIX.

- Go to **Tools > DMX Watcher...**  
[Keyboard shortcut: **Ctrl+Alt+D**]



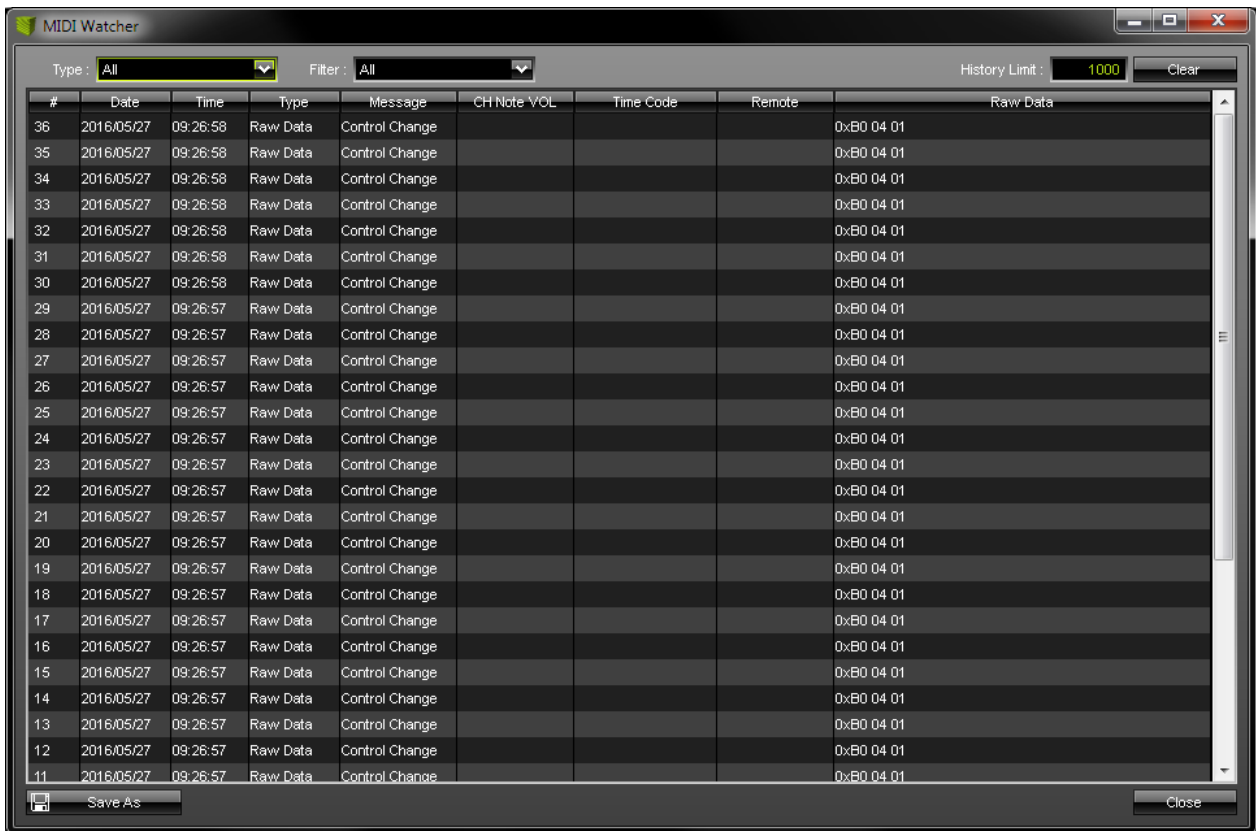
- **Virtual OUT** - Activates monitoring of data output, which is the data that is created by MADRIX in order to be sent to your hardware.
  - It is the point in time before the data is actually delivered to the DMX hardware.
- **Input** - Activates monitoring of the current data input.
  - New data, i.e. data that was just received will be displayed green. It fades to white after a short while, when the data has not changed during that period of time.
- **Universe** - Defines the DMX universe you are currently looking at. Adjust the number to your requirements!
- **512** - Activates 512-channel mode for normal fixtures that use 512 DMX channels per universe. This is the standard and default mode.
- **1024** - Activates 1024-channel mode. Use this mode for fixtures that require more than 512 channels per universe. The manufacturer specified these settings.
  - For example, Insta instalight 2022 panels, ROBE StageQubes 324, and GLP ion.tubes.
  - MADRIX supports these products and allows you to monitor the data likewise.
  - This mode is not available for regular DMX512-based fixtures.
  
- **DMX** - Displays data with the help of DMX values [0 to 255].
- **%** - Displays data with the help of percentage values [0 to 100].
- **HEX** - Displays data with the help of HEX values [0 to FF].
- **BAR** - Displays data with the help of graphical bars.
  
- **Blank** - Leaves the background blank [i.e., black].
- **Lines** - Shows cell borders of the data table.
- **Rows** - Displays a gray background for all rows for better identification.
- **COL** - Displays a gray background for all columns for better identification.
- **Chess** - Displays an alternating, gray background for rows and columns for better identification.
  
- **Freeze** - Stops refreshing of data. The last data sent or received will be shown.
- **1 Hz** - Defines the refresh rate of how fast data is shown.
- **10 Hz** - Defines the refresh rate of how fast data is shown.
- **50 Hz** - Defines the refresh rate of how fast data is shown. This is the fastest mode.

Per 512 DMX channels, 170 RGB fixtures can be controlled. That means, calculating  $170 \text{ fixtures} \times 3 \text{ color channels}$  results in 510 DMX channels. Therefore, channel 511 and 512 will be left empty, because they are simply not in use.

## MIDI Watcher

The MIDI Watcher allows you to check your MIDI connection when you are using any MIDI device. The MIDI Watcher is a useful tool in order to start your search if problems occur with your MIDI connection.

- Go to **Tools > MIDI Watcher...**  
[Keyboard shortcut: **Ctrl+Alt+M**]



- **Type** - Allows you to specify the type of messages shown.
- **Filter** - Allows you to only show specific MIDI messages.
- **History Limit** - Defines the maximum number of list items.
- **Clear** - Removes all entries from the list.
- **Save As** - Allows you to save the current list into an external file.
- **Close** - Closes the window.

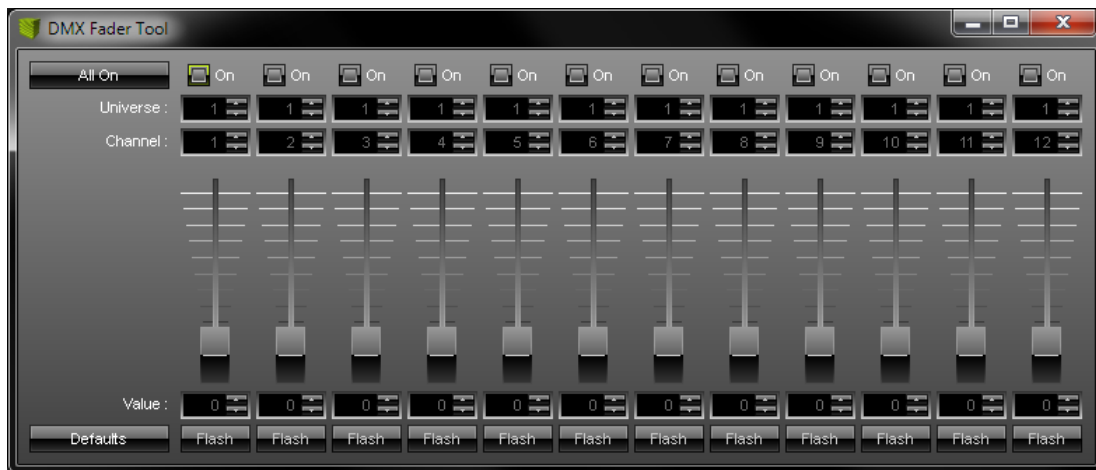
## DMX Fader Tool

The DMX Fader Tool provides access to twelve different DMX channels, which you can choose individually. The DMX Fader Tool can be used to send output signals using these DMX channels. This feature can be very useful if you want to test single fixtures individually.

**The DMX Fader Tool will overwrite any DMX data that is regularly sent to your LEDs by MADRIX. The Main Output will be overwritten on the particular channels.**

- Go to **Tools > DMX Fader Tool...**

[Keyboard shortcut: **Ctrl+Alt+F**]



- **On** - Activates the channel.
- **Universe** - Defines the DMX universe that will be used.
- **Channel** - Defines the DMX channel that will be used.
- **Fader** - Allows you to control the DMX values from 0 to 255.
- **Value** - Allows you to set up a specific DMX value.
- **Flash** - Sets the value of the channel instantly to 255, the maximum value. Release the Flash button to set the previous value again. In order to work, the value [i.e. the Fader] must be lower than 255.
- **All On** - Activates all 12 channels with one mouse click.
- **All Off** - Deactivates all 12 channels with one click.
- **Defaults** - Restores the default values and resets all DMX values and faders back to 0.

## **PLEXUS Configuration**

The PLEXUS Configuration window is an important tool to work with the MADRIX PLEXUS hardware interface.

Learn more »[MADRIX PLEXUS](#)

## **MADRIX Device Configuration**

The MADRIX Device Configuration window can be used to configure MADRIX LUNA, MADRIX NEBULA, and MADRIX STELLA hardware interfaces.

Learn more »[MADRIX LUNA](#)

Learn more »[MADRIX NEBULA](#)

Learn more »[MADRIX STELLA](#)

## 4.11 Backup System

This topic includes:

- [Introduction](#)
- [Important Note](#)
- [Overview](#)
- [How To Connect Master And Slave](#)
- [Example 1: How To Use The Backup System And Art-Net](#)
- [Example 2: How To Use The Backup System And Art-Net \[Low-Budget Alternative\]](#)
- [Example 3: How To Use The Backup System And USB DMX512 Interfaces](#)

### Introduction

The MADRIX Backup System is a type of communication protocol between two or more MADRIX computers in order to set up a reliable backup solution.

- A backup solution should get involved as soon as the main control solution fails.
- Regarding the MADRIX Backup System, so-called keep-alive messages are sent by one MADRIX computer to other computers to check if the connection between the computers is working properly.
- If the Master fails, i.e. if the Master does not send keep-alive-messages in a certain time interval [in seconds], the Slave is automatically activated and sends the output data to the LEDs.
- Similarly, the Slave is sending keep-alive messages.

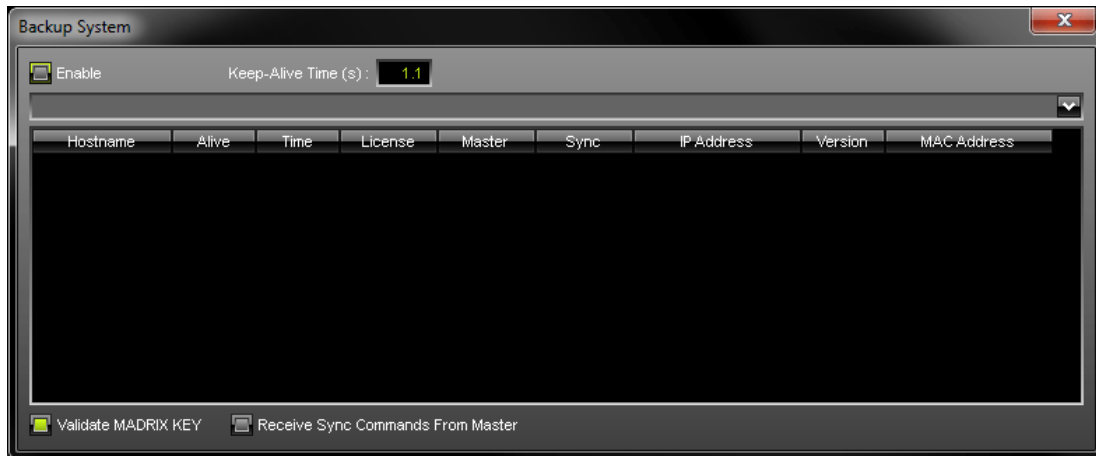
### **Important Note**


- **Make sure that all computers are equipped with a MADRIX software license [i.e. a MADRIX KEY] and the same MADRIX software version!**



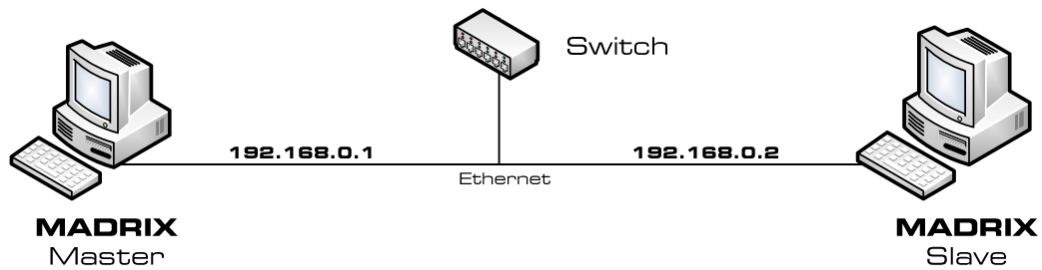
## Overview

- Go to **Preferences > Backup System...**
- A new window will open.



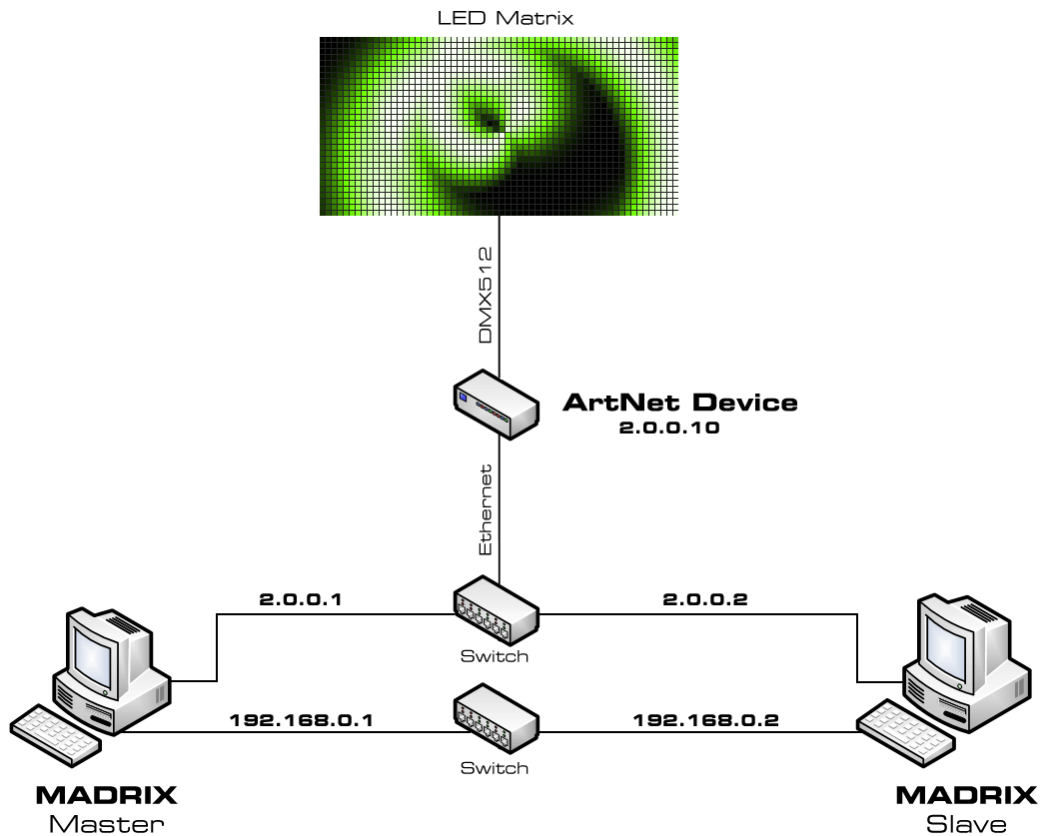
- **Enable** - Activates the backup system.
- **Keep-Alive Time (s)** - Defines the time range between keep-alive messages [in seconds]. Valid values range from 0.1 to 25.6.
- **Drop-Down List** - Allows you to choose the correct network card if your computer or laptop is equipped with more than one network card.
- **Validate MADRIX KEY** - MADRIX automatically monitors if the MADRIX KEY is plugged into the Master.
- **Receive Sync Commands From Master** - Activates that the computer receives synchronization signals from the Master. [This is mainly useful for the Cue List. It is a useful feature to play back Cue Lists synchronously.]
- **Change Master** - Allows you to select another computer in the list of found network computer and set this computer as the Master. You are not allowed to select your local computer as Master. You will have to choose a remote computer.
-  - Allows you to manually remove outdated list entries.

## How To Connect Master And Slave



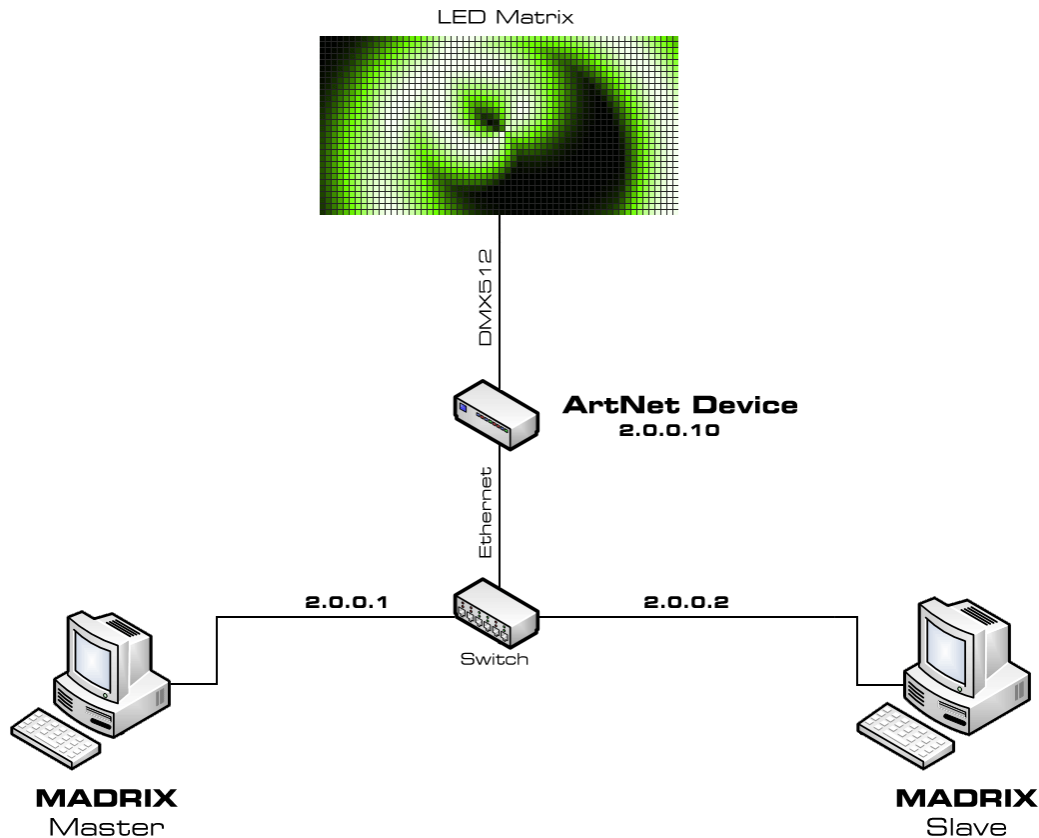
- You can utilize your network card with an Ethernet port to connect two or more computers using a network switch.
- Set up the IP addresses from the computers like in the picture above.
- Both computers have to be in the same network address area [e.g., 192.168.0.1 to 192.168.0.254].

## Example 1: How To Use The Backup System And Art-Net



- It is recommended to always use two separate networks with two network cards if you want to sync Master and Slave and use Art-Net at the same time.
- Minimum requirements for this set-up are:
  - 2 computers
  - 2 Ethernet switches
  - 1 or more Art-Net devices
  - Ethernet cables
  - DMX cables.
- Apart from that, both computers need to have two network cards installed. The set-up for the first network is 192.168.0.X and the second is 2.0.0.X
  - The former will be used as the backup system, the latter is transferring Art-Net data.

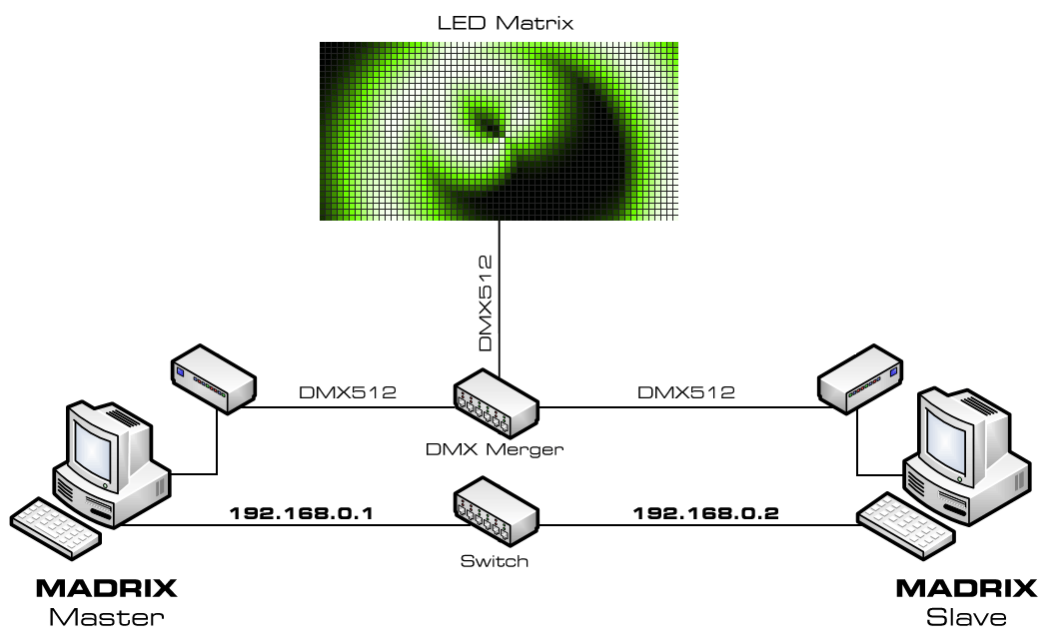
## Example 2: How To Use The Backup System And Art-Net [Low-Budget Alternative]



- In addition, you may use a variation of the example above.
- Depending on your installation, it can be possible to do the setup without the second network. It is a smaller budget alternative and in this case only the Art-Net network will be used.
- At the same time this means that traffic from both Art-Net and the backup system will be transferred over this single network. In larger installations this might cause network problems due to high data traffic!
- Connecting this backup system to the internet is not recommended because problems with the internet connection are likely to occur [such as connection errors, dropouts, etc.]. WiFi-nodes are also not recommended. The Art-Net data will simply interfere with the internet data in the 2.0.0.X network.
- If your Art-Net interfaces support the 10.0.0.X network, you may establish an internet connection since the Art-Net data may be blocked by your router and does not interfere with the internet connection.

Such an installation is at your own risk.

## Example 3: How To Use The Backup System And USB DMX512 Interfaces



- If you are going to use an USB DMX512 interface, you can work with one network card to sync Master and Slave.
- Minimum requirements for this set-up are:
  - 2 computers
  - 1 Ethernet switch
  - 1 DMX merger
  - 2 DMX512 devices
  - Ethernet cables
  - DMX cables
- Apart from that, both computers need to have a network card installed. The set-up for this network is 192.168.0.X. Only this card/network will be used for the backup system.

## 4.12 File Types

This topic includes:

- [Introduction](#)
- [MADRIX 3 File Types](#)
- [Images And Videos](#)
- [Loading A MADRIX Setup File](#)

### Introduction

You will come across several file types, while working with MADRIX. This chapter explains which file type belongs to which function or which part of the software.

### MADRIX 3 File Types

*.msz	<b>MADRIX Setup</b>
*.msx	<p><b>MADRIX Setup Uncompressed</b></p> <p>Your whole show will be saved. It stores relevant data in one single file; including but not limited to Patch, effects, settings, Cue List, images, etc.</p> <p><b>Note:</b> Videos will not be included in this file, for example.</p>
*.mpz	<b>MADRIX Patch</b>
*.mpx	<p><b>MADRIX Patch Uncompressed</b></p> <p>Stores your Patch. »<a href="#">Patch Editor</a></p>

<b>*.m flx</b>	<p><b>MADRIX Fixture Library</b></p> <p>Stores the whole Fixture Library. »<a href="#">MADRIX Fixture Editor</a></p> <p><b>Note:</b> The madrix.mflx is being overwritten with an updated version every time a new MADRIX version [software update] is installed.</p>
<b>*.m fxx</b>	<p><b>MADRIX Fixture</b></p> <p>Stores one single fixture. »<a href="#">MADRIX Fixture Editor</a></p>
<b>*.m stz</b>	<p><b>MADRIX Storage</b></p>
<b>*.m stx</b>	<p><b>MADRIX Storage Uncompressed</b></p> <p>Stores a complete Storage including all of its Storage Places [i.e., effects]. »<a href="#">Storages</a></p>
<b>*.m spz</b>	<p><b>MADRIX Storage Place</b></p>
<b>*.m spx</b>	<p><b>MADRIX Storage Place Uncompressed</b></p> <p>Stores one single Storage Place, and thereby one effect you created. »<a href="#">Storage Places [256 x 256]</a></p>
<b>*.m dmxx</b>	<p><b>MADRIX DMX Device Settings</b></p> <p>Stores all relevant settings for your [connected] DMX devices. »<a href="#">OUTPUT Settings</a></p>
<b>*.m dvix</b>	<p><b>MADRIX DVI Device Settings</b></p> <p>Stores all relevant settings for your [connected] DVI devices. »<a href="#">OUTPUT Settings</a></p>
<b>*.m visx</b>	<p><b>Visualizer Device Settings</b></p> <p>Stores all relevant settings for a configured 3rd-party visualizer. »<a href="#">WYSIWYG Visualizer</a></p>
<b>*.m pdx</b>	<p><b>MADRIX PLEXUS Device Settings</b></p> <p>Stores all relevant settings for a MADRIX PLEXUS interface. »<a href="#">MADRIX PLEXUS</a></p>
<b>*.xml</b>	<p><b>MADRIX PLEXUS Configuration</b></p> <p>Stores a PLEXUS Configuration, i.e. show, for a MADRIX PLEXUS interface. »<a href="#">MADRIX PLEXUS</a></p>

<b>*.mldx</b>	<p><b>MADRIX LUNA Device Settings</b></p> <p>Stores all relevant settings for a MADRIX LUNA interface. »<a href="#">MADRIX LUNA</a></p>
<b>*.mndx</b>	<p><b>MADRIX NEBULA Device Settings</b></p> <p>Stores all relevant settings for a MADRIX NEBULA interface. »<a href="#">MADRIX NEBULA</a></p>
<b>*.msdx</b>	<p><b>MADRIX STELLA Device Settings</b></p> <p>Stores all relevant settings for a MADRIX STELLA interface. »<a href="#">MADRIX STELLA</a></p>
<b>*.mmrx</b>	<p><b>MADRIX MIDI Remote Configuration</b></p> <p>Stores a MIDI Remote Configuration [MIDI map] for a MIDI controller for the MIDI Remote Editor. »<a href="#">MIDI-IN</a></p>
<b>*.mdrx</b>	<p><b>MADRIX DMX Remote Configuration</b></p> <p>Stores a DMX Remote Configuration for DMX-IN for the DMX-IN Remote Editor. »<a href="#">DMX-IN And Art-Net Remote</a></p>
<b>*.mrec</b>	<p><b>MADRIX Record</b></p> <p>Stores recorded effects. »<a href="#">Recording</a></p>
<b>*.dxd</b>	<p><b>MADRIX DMX Data</b></p> <p>Stores DMX data for the MADRIX PLEXUS hardware interface. »<a href="#">Recording</a></p>
<b>*.mclx</b>	<p><b>MADRIX Cue List</b></p> <p>Stores the Cue List and its entries as well as settings. »<a href="#">Cue List</a></p>
<b>*.csv</b>	<p><b>Comma-Separated Values</b></p> <p>A file format that can be used for the Cue List. »<a href="#">Cue List</a></p>
<b>*.mgcz</b>	<p><b>MADRIX Group Control</b></p>
<b>*.mgcx</b>	<p><b>MADRIX Group Control Uncompressed</b></p> <p>Stores the Group Control including fade-in time, Group Presets, and current values. »<a href="#">Fixture Groups</a></p>



<b>*.mitz</b>	<b>MADRIX Image Table</b>
<b>*.mitx</b>	<b>MADRIX Image Table Uncompressed</b> Stores an Image Table for the SCE Image effect including the images. » <a href="#">SCE Image</a>
<b>*.mctx</b>	<b>MADRIX Color Table</b> Stores color information [Color Table, Gradient, M2L Color Table, etc.] for various MADRIX effects. » <a href="#">Using Colors And Intensity</a>
<b>*.mstrx</b>	<b>MADRIX String Table</b> Stores a String Table including its strings and characters for the SCE Counter effect. » <a href="#">SCE Counter</a>
<b>*.mepcz</b>	<b>MADRIX Effect Parameter Chaser</b>
<b>*.mepcx</b>	<b>MADRIX Effect Parameter Chaser Uncompressed</b> Stores an Effect Parameter Chaser including its Step list for a Layer. » <a href="#">Chaser</a>
<b>*.msppcz</b>	<b>MADRIX Storage Place Parameter Chaser</b>
<b>*.msppcx</b>	<b>MADRIX Storage Place Parameter Chaser Uncompressed</b> Stores an Effect Parameter Chaser including its Step list for a Layer. » <a href="#">Chaser</a>
<b>*.mgvcz</b>	<b>MADRIX Group Value Chaser</b>
<b>*.mgvcx</b>	<b>MADRIX Group Value Chaser Uncompressed</b> Stores an Group Value Chaser including its Step list for the Group Control. » <a href="#">Fixture Groups</a>
<b>*.mmapx</b>	<b>Map Settings</b> Stores all settings regarding a Layer's mapping, tiling, and rotation. » <a href="#">Mapping / Tiling / Rotation</a>
<b>*.mfelx</b>	<b>MADRIX File Extension List</b> Stores a File Extension List for the HTTP Remote Control web server. » <a href="#">Remote HTTP</a>
<b>*.log</b>	<b>Log File</b> A logging file created with the MADRIX Logfile tool or the MIDI Watcher. » <a href="#">Tools</a>

<b>*.mas</b>	<b>MADRIX Script File</b> A script for the MAS Script Effect. » <a href="#">MAS Script Effect</a>
<b>*.macs</b>	<b>MADRIX Script Encrypted</b> A compiled and encrypted script for the MAS Script Effect. » <a href="#">MAS Script Effect</a>
<b>*.mms</b>	<b>MADRIX Effect Macro</b> A Macro for an effect, a Storage Place Macro, or a Main Output Macro. » <a href="#">Macros And Scripts</a>
<b>*.mcm</b>	<b>MADRIX Effect Macro Encrypted</b> A compiled and encrypted Macro for an effect, a Storage Place Macro, or a Main Output Macro. » <a href="#">Macros And Scripts</a>
<b>*.rtc</b>	<b>MADRIX KEY File</b> Required if the MADRIX KEY should be upgraded or updated. » <a href="#">MADRIX KEY [Software License]</a>
<b>*.rtu</b>	<b>MADRIX KEY Update File</b> Required to upgrade or update the MADRIX KEY eventually. » <a href="#">MADRIX KEY [Software License]</a>
<b>*.mnlc</b>	<b>MADRIX NEO License Context File</b> Required if the MADRIX NEO license should be updated. » <a href="#">Update From MADRIX 2.X To MADRIX 3.X</a>
<b>*.mnl</b>	<b>MADRIX NEO License Update File</b> Required to update the MADRIX NEO license eventually. » <a href="#">Update From MADRIX 2.X To MADRIX 3.X</a>

## Images And Videos

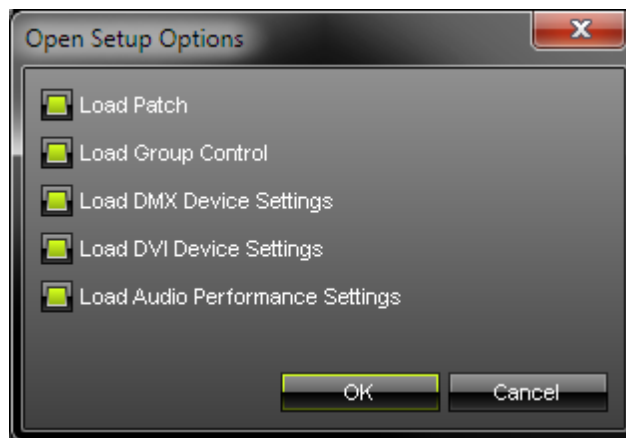
Furthermore, MADRIX supports every image and video type that is supported by your Windows PC. In most cases, a specific video codec needs to be installed on your computer.

- Images  
Examples: \*.bmp, \*.gif [including animated GIFs], \*.jpg, \*.png, \*.tif, \*.tiff  
Learn more »[SCE Image](#)
- Videos  
Examples: \*.avi, \*.mpg, \*.mov, \*.wmv, \*.asf, \*.divx, \*.vob, \*.flv, etc.  
Learn more »[SCE Video](#)

**If you are encountering problems using such files, please install the required video codec or image codec on your PC.**

## Loading A MADRIX Setup File

As described above, a MADRIX Setup File stores a lot of information. When loading a Setup, you have different choices to make:



- **Load Patch** - Will load the pre-defined virtual matrix and Patch settings from this Setup. This overwrites your current Patch. If you deselect this option, your current Patch will be used.
- **Load Group Control** - Will load the Group Control from this Setup. This overwrites the current Group Control. If you deselect this option, your current Group Control settings will be used.

- **Load DMX Device Settings** - Loads all settings regarding DMX devices from this Setup. This can overwrite your current settings. Deselect this option if you have configured your own DMX settings.
- **Load DVI Device Settings** - Loads all settings regarding DVI devices this Setup. This can overwrite your current settings. Deselect this option if you have configured your own DVI devices settings.
- **Load Audio Performance Settings** - Loads all settings regarding audio this Setup. This can overwrite your current settings. Deselect this option, if you wish to keep your own audio settings.

## 4.13 Recording

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Records](#)
- [File Information](#)
- [Recording](#)
- [Record Editing](#)
- [PLEXUS Conversion](#)
- [How To Play Back A Record File Using SCE Video](#)

### Introduction

You can use the Recording window to create MADRIX Record files [of the file type \*.mrec].

This file type can be used in 2 ways:

- **A]** \*.mrec files can be converted to create Stand-alone Shows for MADRIX PLEXUS.  
Learn more »[MADRIX PLEXUS](#)
- **B]** \*.mrec files can be played just like a video using SCE Video [as described in this topic].  
Learn more »[SCE Video](#)

### Overview

- Go to **Window > Recording...**  
[Keyboard shortcut: **Ctrl+Alt+R**]
- A new window will open.



## Records

### Working With Records

#### Directory



- Defines a directory on your harddisk/computer. All record files will be saved in this folder. By default, a useful folder is automatically already chosen for you [For example C:\Users\USERNAME\Documents\MADRIX\records].

- Use ... to choose a different folder.

#### Filter

- Simply enter a name/word and the filter will only show files that include these characters in their file name. Delete any input to show all files again.

**List**

- Files, i.e. records, will be displayed in the large list of the Recording window. If you did not create any records yet, the list is empty [as shown above].



- Shows all MADRIX Record files [of the file type \*.mrec] in the list that could be found in the specified directory. When activated, the button is green. Disable the option to hide all Record files.



- Show all DMX Data files [of the file type \*.dxd] in the list that could be found in the specified directory. When activated, the button is green. Disable the option to hide all DMX Data files.



- Refreshes the list of records. Please make sure to select your preferred records directory first.

**File**

- Shows the name of the record and its file type [of the file type \*.mrec or \*.dxd]. Double-click on the list entry to change the name of the file.

**Date - Time**

- Shows the time and date when the record was created.

**Matrix Size**

- Shows the size of the virtual matrix [Matrix Size] used for this record. Learn more »[Patch Editor](#)

**Duration**

- Shows the length of the record, i.e. how long it is. The format is HH:MM:SS:FF [Hours:Minutes:Seconds:Frames].

**KF**

- Stands for Key Frames. MADRIX will automatically optimize the file size of records if recorded frames are identical. Hence, the total number of frames can be different to the number of recorded key frames. For example, a color change [without a fade] might use only two colors. In this case, the record may have 400 frames in total, but just 2 key frames.

**FPS**

- Stands for Frames Per Second. Shows the number of frames recorded per second of the record file.



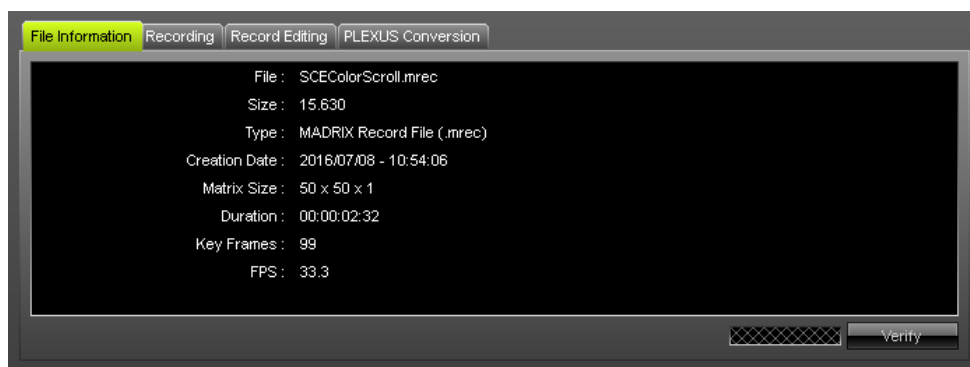
- Deletes selected files from your harddisk. You can also use the **Del** key on your keyboard.

## Window Size

In order to increase the size of the Recording window, please drag the bottom border of the window until the best size is reached. In this way you can see more files in the list.

## File Information

- Select a file in the list.
- Go to the tab **File Information** to show detailed information about the file you have created.



## Recording

### Overview

- Go to the tab **Recording** to create a new record.

## Initial Configuration



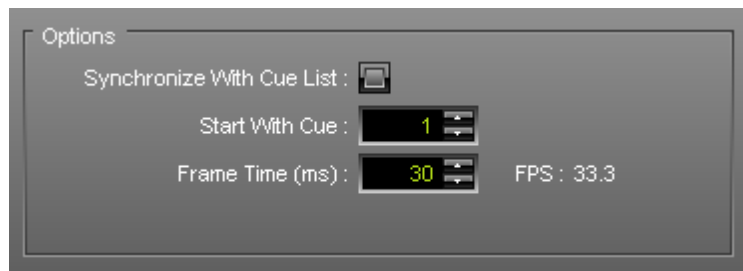
Please configure your virtual LED matrix with the help of the »[Matrix Generator](#) or »[Patch Editor](#) to define the correct resolution for your record.

## Important Note

- **Only the Main Output will be recorded. Make sure that your content is displayed on Preview Output before you start to record.**

## Options

Configure the following options before recording:



- **Synchronize With Cue List** - Creates a record according to your preprogrammed Cue List. If this option is activated, the Cue List will automatically start to play when the Recording is started [by pressing the button **Start** ].
- **Start With Cue** - Defines which Cue List entry should be used first, when you wish to use the function **Synchronize With Cue List**
- **Frame Time (ms)** - Defines the frame rate of the record.
  - **Please adjust the settings according to the requirements of your LED fixtures and devices!**
  - **A frame rate [FPS] that is too high might cause problems [e.g., visual issues on your LEDs].**

## Creating A Record File

**Make sure to configure all available options before recording [see above].**

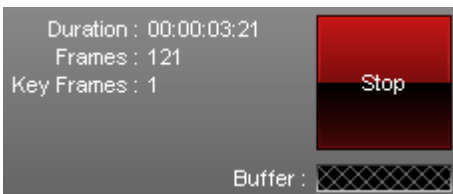


**Step 1]**

- Click **Start** to start recording. MADRIX will begin to record the Main Output.

**Note:**

- When recording without a Cue List, you can change Storage Places, use the crossfader, change the Opacity, use the Master, etc. in order to customize your record.
- When creating a Record file to be played via SCE Video, SCE Video will ignore intensity changes by the Master. However, a Blackout will be recorded and played back as such by SCE Video.

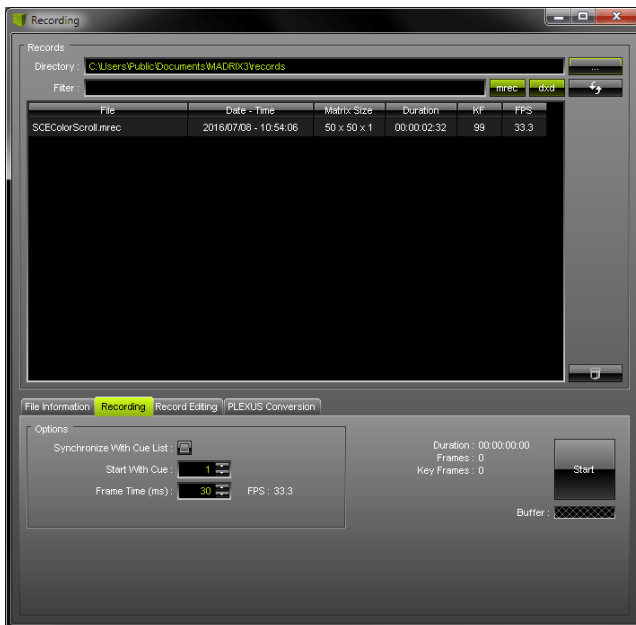


**Step 2]**

- Various information will be displayed during recording.
  - Duration** - Is displayed in HH:MM:SS:FF [Hours: Minutes:Seconds:Frames].
  - Frames** - Displays the total number of recorded frames.
  - Key Frames** - Displays the number of key frames. MADRIX will automatically optimize the file size of records if recorded frames are identical. Hence, the total number of frames can be different to the number of recorded key frames. For example, a color change [without a fade] might use only two colors. In this case, the record may have 400 frames in total, but just 2 key frames.

**Step 3]**

- Simply click **Stop** to end the process.
  - Please wait a few seconds to let MADRIX process the data. Afterwards you will need to enter a name for the new record.

**Step 4]**

- Afterwards, you will see your record in the list.

## Record Editing

After creating a record, you can edit the record.

- Select your Record file in the list.
- Select the tab **Record Editing**



- A small preview window is provided in the lower left to inspect the record.
- **Please note:** If you see the message **!NO MADRIX KEY!** in the preview window, that means that you are using MADRIX in demo mode. However, this is no problem. Your record will NOT include this text!
- Use the provided controls to edit your record:



- Use the slider to select a specific frame.
- Use the small, white triangles to manually set up the In Frame [start frame] and the Out Frame [end frame] for the record.



- This field displays the current frame that is also shown in the small preview window. Enter a number to jump directly to this frame.



- Start or stop the preview playback.



- Rewind or forward one frame per click.



- Skip directly to the In Frame or the Out Frame.



- Skip to the beginning or the end of the record.



- Enter a number or use the slider to select a specific frame. Then, use the **S** button to set the In Frame [start frame].



- Enter a number or use the slider to select a specific frame. Then, use the **S** button to set the Out Frame [end frame].



- MADRIX will search the Record File in order to find a segment that is loopable. It will automatically set the In Frame and Out Frame afterwards. Use the button **Export** to export your loop. Before that, you can also insert Blend Frames.



- Insert **Blend Frames** into your record if you want to.
  - First, enter the number of frames you wish to use. This defines the length.
  - Second, choose the fade mode [**XF**: Cross-Fade, **WF**: White-Fade, **BF**: Black-Fade, Learn more »[Crossfader And Main Output](#)].
  - Third, click **Blend**.
  - Fourth, use **Play/Pause** to preview the edited record.
  - Fifth, use the button **Export** to export your loop.

**Note:** The beginning of your record will be cut by the defined frame number. This is indicated by a red line below the slider.

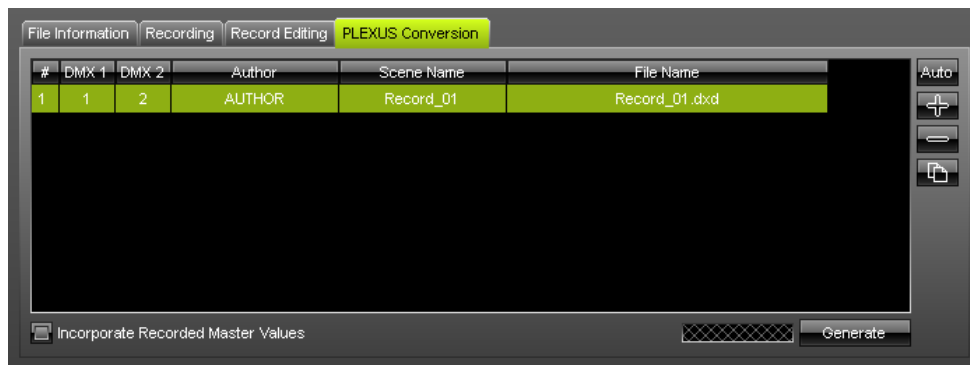
Example: If you enter **100** frames, MADRIX will create the fade using the first 100 frames and the last 100 frames. Those frames will blend into each other. To have a smooth fade, the record is then cut by 100 frames and starts at frame 101.



- Use this button to export the edited record. Choose a name in the second step.

## PLEXUS Conversion

- Use this tab to convert MADRIX Record files [of the file type \*.mrec] into DMX Data files [of the file type \*.dxd].  
Learn more »[MADRIX PLEXUS](#)



## How To Play Back A Record File Using SCE Video

1] Select the effect SCE Video.



2] The controls of the SCE Video effect become available as a result.

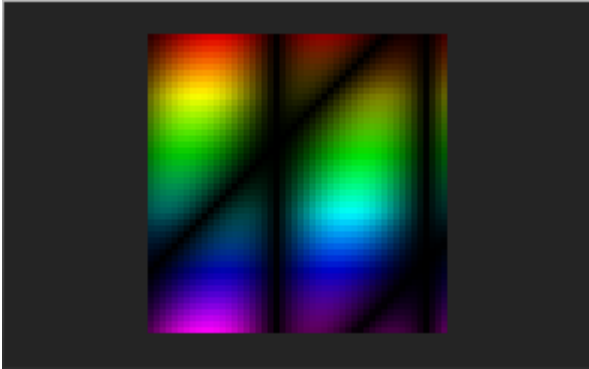


**3]** Load your MADRIX Record file [of the file type \*.mrec].



Use **Open** and select the file you wish to play.

**4]** The SCE Video effect will play your Record File.





**//PART E**

*Options*

## 5 Options

This topic includes:

- [Introduction](#)
- [Topics Of This Chapter](#)

### Introduction

You can set up specific options for MADRIX.

**To ensure optimal operation, we highly recommend to set up MADRIX Options.**

### Topics Of This Chapter

MADRIX Options include the following topics:

- [»Startup](#)
- [»General](#)
- [»Devices USB](#)
- [»Devices Network](#)
- [»User Interface](#)
- [»Previews](#)
- [»Performance](#)

## 5.1 Startup

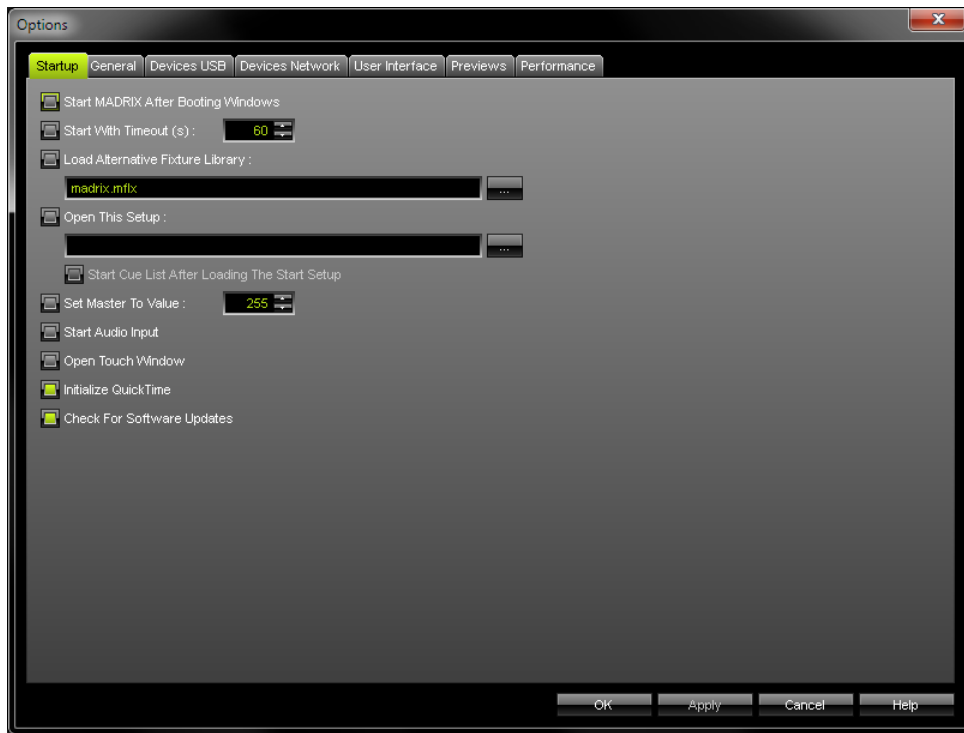
This topic includes:

- [Overview](#)
- [Important Notes](#)

### Overview

MADRIX provides various settings to choose which features should be enabled when the software or your computer starts.

- Go to **Preferences > Options... > Startup**  
[Keyboard shortcut: **Ctrl+Alt+O > Startup**]



- **Start MADRIX After Booting Windows** - Starts MADRIX automatically once you log in into Windows.
- **Start With Timeout (s)** - Starts the software with a delay. You can define a time frame in seconds. MADRIX will not fully start until the time has passed.  
A new loading window will appear before the software starts. It shows a countdown and 2 options:
  - **Start Now** - Start the software immediately.
  - **Cancel Startup** - Cancels the startup and MADRIX will not be launched.This timeout is particularly useful when using network devices with MADRIX. Windows needs some time to initialize such devices first. But MADRIX might be already loaded completely and as a result may not detect the devices. This option prevents that.
- **Load Alternative Fixture Library** - Automatically loads a separate MADRIX Fixture Library and not the default library provided by MADRIX.
  - Choose the file via the button ...
  - Learn more »[Fixture Editor](#)

- **Open This Setup** - Automatically loads a specific MADRIX Setup File.
  - Choose the file via the button ...
- **Start Cue List After Loading The Start Setup** - Is only available when Open This Setup is activated. Automatically starts the Cue List once your Setup File has been loaded [if a Cue List has been included by you in the Setup File]. Automatically disables Open Touch Window since the Touch Window cannot be opened when the Cue List is running.
- **Set Master To Value** - Automatically adjusts the Master to a specific value. Simply type on the required value into the input field. [Valid values range from 0 to 255].
- **Start Audio Input** - Automatically activates the **Audio** button on the user interface. This activates the audio analysis required for S2L or M2L MADRIX Effects.
- **Open Touch Window** - Loads the Touch Screen interface when MADRIX starts. Automatically disables Start Cue List After Loading The Start Setup since the Touch Window cannot be opened when the Cue List is running. Learn more »[Touch Screen](#)
- **Initialize QuickTime** - Automatically loads the QuickTime codecs when MADRIX starts. This improves loading times of QuickTime movie files, when opened with SCE Video. Learn more »[SCE Video](#)
- **Check For Software Updates** - Automatically searches for software updates. This requires an internet connection.

## Important Notes

- **All Startup options will be saved locally on your computer. These settings will not be saved in your MADRIX Setup file.**

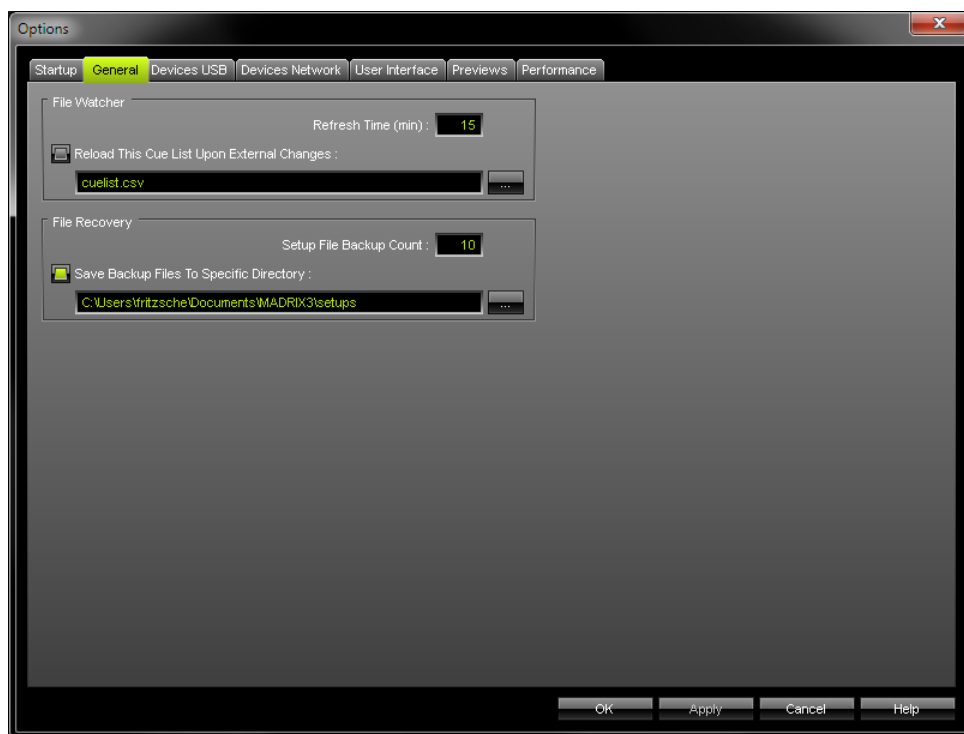
## 5.2 General

This topic includes:

- [Overview](#)
- [File Watcher](#)
- [File Recovery](#)
- [Important Notes](#)

### Overview

- Go to **Preferences > Options... > General**  
[Keyboard shortcut: **Ctrl+Alt+O > General**]



## File Watcher

### Overview

MADRIX can automatically and regularly reload a Cue List within a pre-defined refresh time.

- Activate **Reload This Cue List Upon External Changes**
- Select the Cue List file via the button ...
- Enter the **Refresh Time (min)** in minutes.

### Usage

The File Watcher with its Automatic Cue List Reloading feature is very useful if you are using an external program that creates a Cue List in the \*.csv file format.

- If this Cue List is changed, you are easily able to access the new Cue List without modifying settings within MADRIX.
- In order to work with this feature, simply create a new Cue List, save it using the \*.csv file format and open the file with a text editor or other appropriate software.
- MADRIX can save its Cue List also in \*.csv file format.

Here is an example with two Cue List entries:

```
MADRIX;CSV;CUELIST;FILE;;;;;;;;;
VERSION;50331648;;;;;;;;;
TIMECODE FORMAT;1;SYSTIME;0;EXTERN;0;;;;;;;;;
CUE;DESCRIPTION;DATE;TIMECODE;DURATION;FCUE;STORAGE;PLACE;FADETYPE;FADETIME;R;G;B;W
1;"Color Change";"daily";-1;20000;0;0;0;0;1.00;0;0;0;0
2;"Flames";"daily";-1;40000;0;1;0;5;3.00;0;0;0;0
```

Learn more »[Cue List](#)

## File Recovery

MADRIX can automatically create a backup copy of your MADRIX Setup file whenever you choose to save your Setup file. That means, before the new Setup file is saved, the previous state will be stored as a backup. [Should the saving process fail, you can access your Setup file again in the state it was saved last.]

- **Setup File Backup Count** - Sets the maximum number of backup files that are created. The default value is 10. [MADRIX creates separate copies to minimize the chance that a valid backup is overwritten by an invalid Setup file.]
- **Save Backup Files To Specific Directory** - Enable this option if you want to set up a specific directory where the backup files should be stored. This can be external drives. If this option is disabled, MADRIX will save the backups in the same directory as the Setup files.
  - Choose the directory via the button ...
  - By default, MADRIX automatically chooses a user directory for Setup files.

MADRIX will save a backup in the following way:

***Filename\_Date\_Time.msz.msbackup***

In order to restore a Setup file, remove ***.msbackup*** from the file name. The restored Setup file should then have a name, such as ***Filename\_Date\_Time.msz***

## Important Notes

- **All General options will be saved locally on your computer. The settings described in this topic will not be saved in your MADRIX Setup file.**



## 5.3 Devices USB

This topic includes:

- [Overview](#)
- [Supported MADRIX Devices](#)
- [Supported Third-Party Devices](#)
- [Further Configuration](#)
- [Important Information](#)

### Overview

MADRIX allows to activate or deactivate drivers for various hardware interfaces, such as MADRIX NEO and others.

- Go to **Preferences > Options... > Devices USB**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices USB**]



- Activate the required drivers for your hardware interfaces.

- [When activated, MADRIX automatically searches for supported devices at startup.]

## Supported MADRIX Devices

- »[MADRIX USBone](#)
- »[MADRIX NEO](#)
- »[MADRIX PLEXUS](#)
- »[MADRIX LUNA](#)
- »[MADRIX NEBULA](#)
- »[MADRIX STELLA](#)
- »[MADRIX I/O](#)
- »[MADRIX USB SMPTE](#)

## Supported Third-Party Devices

MADRIX also supports a number of 3rd-party interfaces.

Learn more »[Supported DMX512 And Art-Net Interfaces](#)

Learn more »[GamePort](#)

## Further Configuration

Further configuration is needed:

- Devices USB only activates the required drivers.

- Make sure to enable and configure your hardware interfaces also according to your requirements.

Learn more »[DMX512 \[DMX-OUT\]](#)

## Important Information

- **If you only activate drivers for devices which you are effectively going to use,**
  - **you can speed up the loading/starting time of MADRIX.**
  - **you can avoid problems with other interfaces.**
  - **you can avoid problems with other software running on your computer which also controls such DMX interfaces.**
- **All options of *Devices USB* will be saved locally on your computer. The settings described in this topic will not be saved in your MADRIX Setup file.**

## 5.4 Devices Network

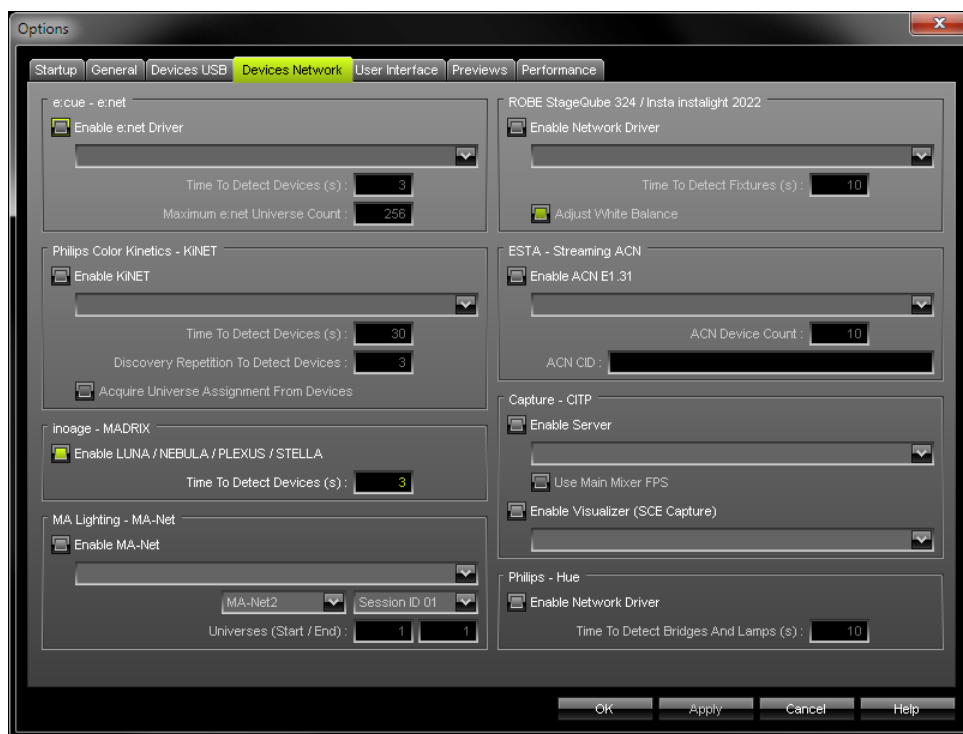
This topic includes:

- [Overview](#)
- [Further Configuration](#)
- [Important Notes](#)

### Overview

MADRIX allows to activate or deactivate drivers or network communication protocols for various products.

- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices Network**]



- Activate the required drivers.
- [When activated, MADRIX automatically searches for supported devices at startup.]

You can enable 6 particular network drivers here:

- **e:cue - e:net**
- **Philips Color Kinetics - KiNET**
- **inoage - MADRIX** [for MADRIX LUNA, MADRIX NEBULA, MADRIX PLEXUS, and MADRIX STELLA]
- **MA Lighting - MA-Net**
- **ROBE StageQube324 / Insta instalight 2022**
- **ESTA - Streaming ACN**
- **Capture - CTP**
- **Philips - Hue**

**When activating a driver, please always make sure that you have selected the correct network card.**

## Further Configuration

Further configuration is needed:

- Devices Network only activates the required drivers and often the corresponding network card.
- Make sure to configure your hardware interfaces also according to your requirements.

Learn more

- »[e:net from e:cue](#)
- »[Philips Color Kinetics \[KiNET\]](#)
- »[MADRIX LUNA](#)
- »[MADRIX NEBULA](#)
- »[MADRIX PLEXUS](#)

- »[MADRIX STELLA](#)
- »[MA-Net](#)
- »[ROBE StageQube 324 \[ROBE Protocol\]](#)
- »[Insta instalight 2022 - LED-Panel RGB 324 \[Insta Protocol\]](#)
- »[ESTA - Streaming ACN \[sACN / E1.31\]](#)
- »[CITP](#)
- »[Philips Hue](#)

## Important Notes

- **Only activate the drivers you require. In this way, you can speed up the loading/starting time of MADRIX.**
- **All options of *Devices Network* will be saved locally on your computer. The settings described in this topic will not be saved in your MADRIX Setup file.**

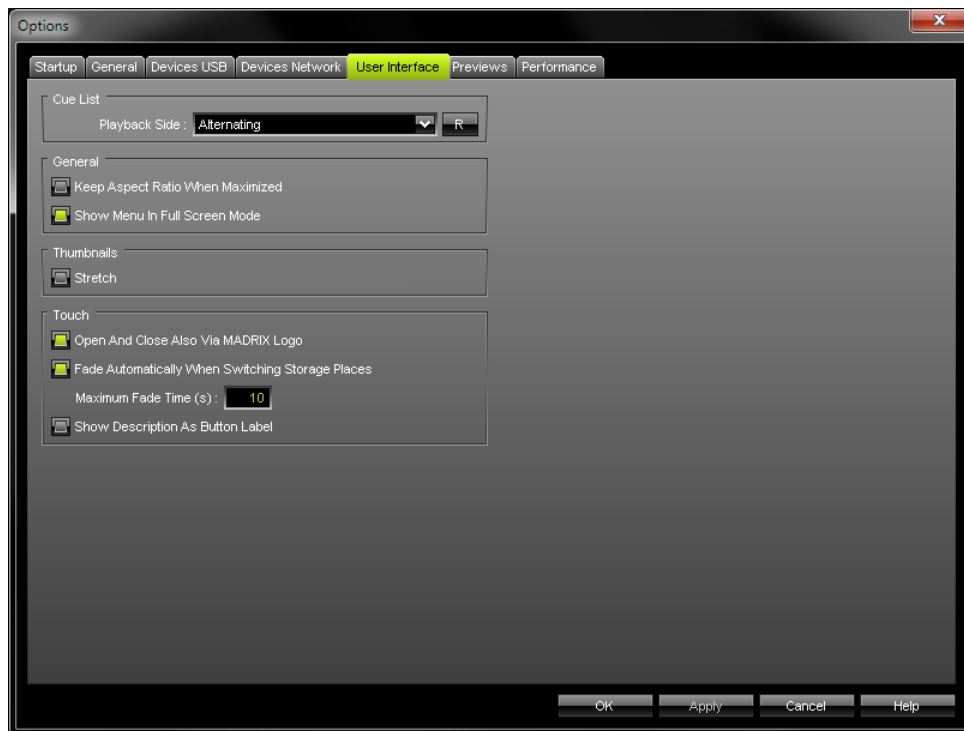
## 5.5 User Interface

This topic includes:

- [Overview](#)
- [Cue List](#)
- [General](#)
- [Thumbnails](#)
- [Touch](#)
- [Important Notes](#)

### Overview

- Go to **Preferences > Options... > User Interface**  
[Keyboard shortcut: **Ctrl+Alt+O > User Interface**]



- Set up user interface options as explained below.

## Cue List

You can choose how MADRIX manages the user interface when playing back the Cue List.

Learn more »[Cue List](#)

## General

- **Keep Aspect Ratio When Maximized** - Keeps the original aspect ratio of the user interface if you maximize the window of MADRIX. That means when maximized, the window will be scaled according to the original dimensions.

Aspect Ratio On



Aspect Ratio Off



- **Show Menu In Full Screen Mode** - Allows you to display or hide the menu bar in full screen mode. Learn more »[Full Screen Mode](#)



## Thumbnails

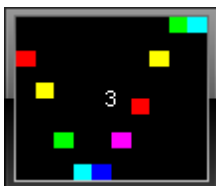
MADRIX provides thumbnails to preview Storage Places and their included visuals on the main user interface »[Storage Places \[256 x 256\]](#) as well as on the touchscreen interface »[Touch Screen](#).

Since these buttons are usually square-like, it depends on the aspect ratio of your virtual matrix how much button space is used. When using a very rectangular matrix, the thumbnail is often shown very wide, but not very high. You can change that and activate the option to stretch the thumbnails to the full button size.

- **Stretch**

For example:

**Stretch Activated**



**Stretch Deactivated**

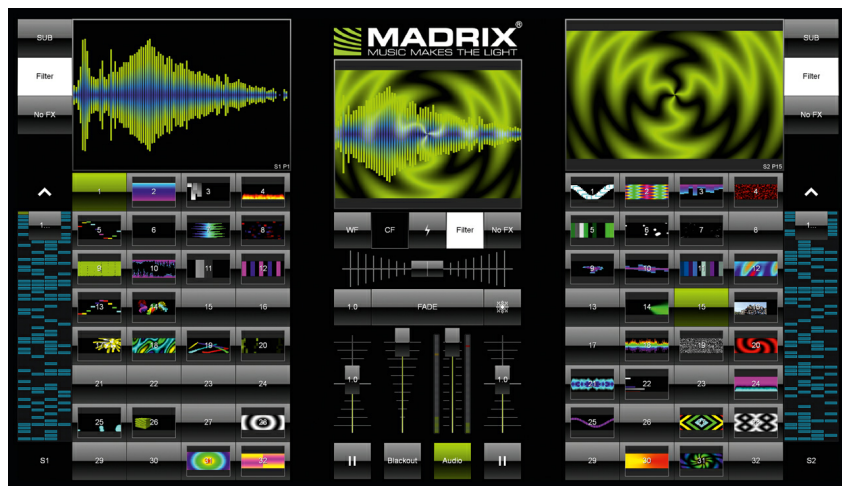


**Please note:** According to the way thumbnails are generated, your thumbnails need to be up to date before the stretch option is applied. They will be updated when switching to another Storage Place to always show the last visual state.

## Touch

MADRIX features a special Touch Screen window to control the software via a touch screen panel. You can set up certain options for this extra panel.

Learn more »[Touch Screen](#)



## Important Notes

- All options of *User Interface* will be saved locally on your computer. The settings described in this topic will not be saved in your MADRIX Setup file.

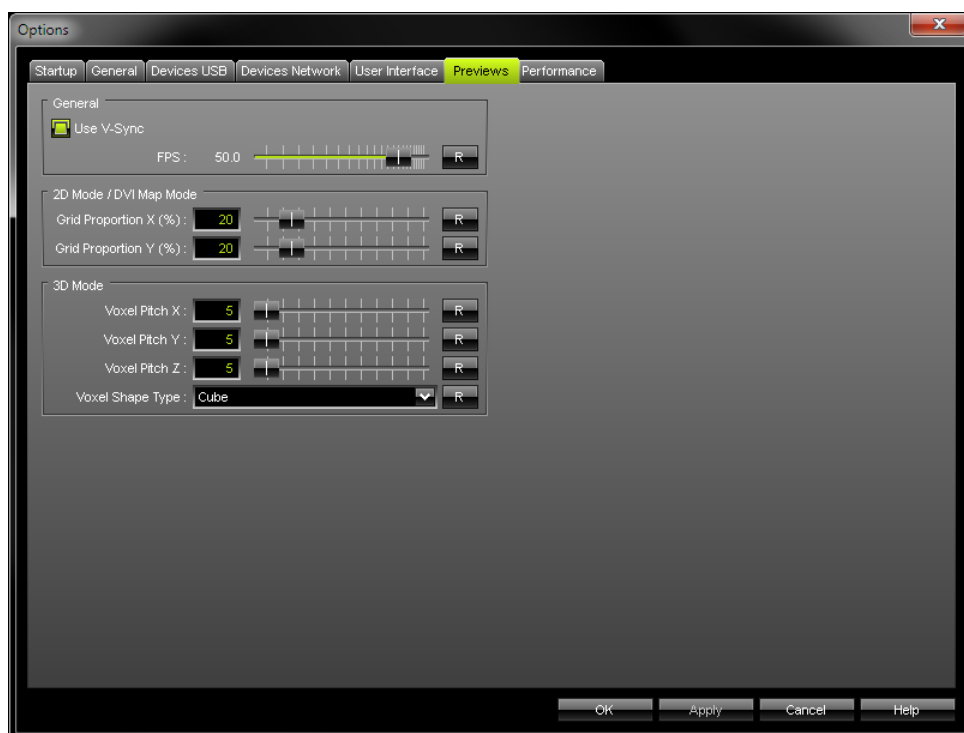
## 5.6 Previews

This topic includes:

- [Overview](#)
- [General](#)
- [2D Mode / DVI Map Mode](#)
- [3D Mode](#)
- [Important Notes](#)

### Overview

- Go to **Preferences > Options... > Previews**  
[Keyboard shortcut: **Ctrl+Alt+O > Previews**]



- Set up options for the live Previews as explained below.

## General

- **Use V-Sync** - Activates the Vertical Synchronization function of your graphics card for your display monitor or output device. V-Sync is activated by default.
- **FPS** - Allows you to manually set the frame rate of the 3 Previews and 2 External Previews in Frames Per Second.
  - A higher number of frames generates smoother results, but requires much more computer performance.
  - This option can be set independently of V-Sync. But if V-Sync is activated, the maximum frame rate will be set by the highest possible V-Sync frame rate of your monitor or output device, even if you entered a higher number.
- **R** - Restores the default settings. The default value is 50.0 FPS.

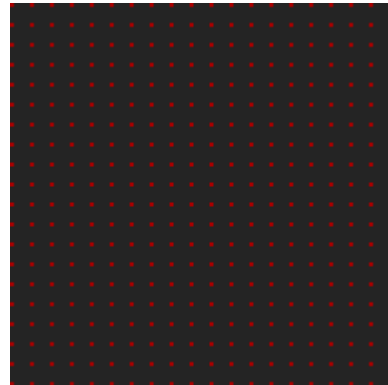
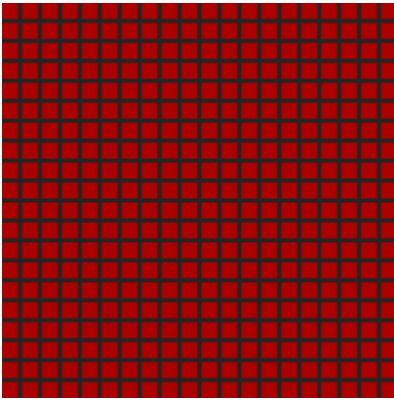
## 2D Mode / DVI Map Mode

You can influence how the Previews display your effects. By changing the grid proportions, you can influence the size of the displayed pixels.

- **Grid Proportion X (%)** - Defines the horizontal space between pixels in the Previews.
  - **R** - Restores the default settings. The default value is 20%.
- **Grid Proportion Y (%)** - Defines the vertical space between pixels in the Previews.
  - **R** - Restores the default settings. The default value is 20%.
- These settings only work for the Previews in 2D Mode [as well as DVI Map Mode for the External Previews].

**20% Grid Proportion [Default]**

**99% Grid Proportion [Example]**



## 3D Mode

The following settings only work for Previews in 3D Mode. Learn more »[3 Previews](#)

In this way, you can better adjust the display mode to the physical layout of your LED fixtures.

- **Voxel Pitch X** - Defines the horizontal spacing factor between voxels in the Previews [as multiple of the voxel size]. A value of 1 means that there is no spacing.  
**R** - Restores the default settings. The default value is 5.
- **Voxel Pitch Y** - Defines the vertical spacing factor between voxels in the Previews [as multiple of the voxel size]. A value of 1 means that there is no spacing.  
**R** - Restores the default settings. The default value is 5.
- **Voxel Pitch Z** - Defines the spacing factor between voxels in the Previews regarding the depth [as multiple of the voxel size]. A value of 1 means that there is no spacing.  
**R** - Restores the default settings. The default value is 5.
- **Voxel Shape Type** - Changes how voxels are shown in the Previews. Choose from 4 different types [**Square**, **Circle**, **Cube**, **Sphere**].
  - Square and Circle are flat 2D shapes, while Cube and Sphere show voxels as actual 3D shapes.
  - The default Voxel Shape Type is Cube.
  - Voxel Shape Tape Square offers the highest performance, then Circle, then Cube, then Sphere.

## Important Notes

- All options of *Previews* will be saved locally on your computer. The settings described in this topic will not be saved in your MADRIX Setup file.

## 5.7 Performance

This topic includes:

- [Overview](#)
- [Main Mixing](#)
- [Main Output Strobe](#)
- [Rendering](#)
- [Virtual DMX Universes](#)
- [Important Notes](#)

### Overview

- Go to **Preferences > Options... > Performance**  
[Keyboard shortcut: **Ctrl+Alt+O > Performance**]



- Set up performance options for the 3 sections [Main Mixing, Main Output Strobe, Virtual DMX Universes] as explained below.

## Main Mixing

MADRIX includes effect generators and graphics render engines. Rendering is done in FPS [Frames Per Second].

- **FPS** - Defines the frame rate of the Main Mixing, the high-level render process. Normally you do not need to change this setting.
  - R** - Restores the default settings. The default value is 50.0 FPS.
- **Only change this value if it is really necessary!**

## Main Output Strobe

- **Hz** - Defines the frequency of the Main Output Strobe.
  - R** - Restores the default settings. The default value is 16.7 Hz.
  - Learn more »[Crossfader And Main Output](#)
- **Strobe Mode** - Defines how the main output strobe works. You can choose from 3 different modes:  
[Depending on the visual result you want to achieve, one mode might be more favorable than the others.]
  - Output And Strobe Color** - Strobes between the regular output and the strobe color you have chosen. As such, it will affect the effects that are put out. But if for the most part the output has the same color as the strobe, the actual strobe effect might be difficult to see. Learn how to chose the strobe color »[Crossfader And Main Output](#)
  - Output And Black** - Strobes between the regular output and the color black. The strobe color you have chosen will be ignored. Choose this mode if you want to make sure that the output itself is strobed.
  - Black And Strobe Color** - Strobes only between the color black and the strobe color you have chosen. The output will be ignored. Chose this mode if you want to achieve a pure strobe that is independent of the output and will always be clearly visible.



## Rendering

This performance setting refers to the overall rendering process in MADRIX.

- **Included Voxels** - Defines which voxels of the virtual LED matrix will be included in the rendering process. You can choose from 2 modes:
  - All** - Includes all voxels of the virtual LED matrix as defined by the Matrix Size in the Patch Editor. This includes all voxel positions with placed fixtures or without placed fixtures. Learn more »[Patch Editor](#)
  - Patched Only** - Includes only voxels where fixtures are patched. Voxel positions where no fixtures are patched will be excluded from the rendering process. [This can improve the overall performance considerably.]
  - R** - Restores the default settings. The default value is Patched Only.

## Virtual DMX Universes

- **Output** - Defines the number of virtual universes which MADRIX can address.
  - Change this value if you need to use more virtual universes than actual DMX universes in your Patch.
  - It is possible to use more virtual DMX universes than actual DMX universes by using less than 512 DMX channels per universe.
  - R** - Restores the default settings. The default value is 256 DMX universes.
- **If you are expanding your MADRIX product license, make sure to set up the correct Output values.**
- **Please remember that your MADRIX KEY [MADRIX product] limits the number of actual DMX universes for Output.**
  
- **Input** - Defines the number of universes which MADRIX can use for input [**Preferences > Device Manager... > DMX Input**].
  - R** - Restores the default settings. The default value is 8 DMX Input universes.
  - Learn more »[DMX-IN And Art-Net Remote](#)

## Important Notes

- All options of *Performance* will be saved locally on your computer. The settings described in this topic will not be saved in your MADRIX Setup file.

**//PART F**  
*OUTPUT Settings*

## 6 OUTPUT Settings

This topic includes:

- [Topics Of This Chapter](#)
- [MADRIX Hardware Products](#)
- [Supported 3rd-Party Interfaces](#)
- [Restrictions Of Demo Mode](#)

### Topics Of This Chapter

You need configure the output that MADRIX should use.

There are several ways on how MADRIX controls LEDs. Please collect information on how MADRIX can communicate with your LED products. MADRIX supports a lot of well-known industry standards. In the following chapters each output method will be explained.

- [»DVI](#)
- [»Art-Net \[DMX over Ethernet\]](#)
- [»DMX512 \[DMX-OUT\]](#)
- [»e:net From e:cue](#)
- [»ROBE StageQube 324 \[ROBE Protocol\]](#)
- [»Insta instalight - LED-Panel RGB 324 \[Insta Protocol\]](#)
- [»Philips Color Kinetics \[KINET\]](#)
- [»ESTA - Streaming ACN \[sACN / E1.31\]](#)
- [»Proprietary DVI Devices \[5A / A8 / T9\]](#)
- [»Philips Hue](#)

### MADRIX Hardware Products

The MADRIX range of products includes several hardware interfaces.

- »[MADRIX USBone](#)
- »[MADRIX NEO](#)
- »[MADRIX PLEXUS](#)
- »[MADRIX LUNA](#)
- »[MADRIX NEBULA](#)
- »[MADRIX STELLA](#)
- »[MADRIX I/O](#)

## **Supported 3rd-Party Interfaces**

In addition to MADRIX hardware products, the MADRIX software supports a number of 3rd-party interfaces.

Learn more »[Support DMX512 And Art-Net Interfaces](#)

## **Restrictions Of Demo Mode**

MADRIX can run in demo mode. For this reason, there are certain limitations to the available output.

Learn more »[MADRIX KEY \[Software License\]](#)

## 6.1 DVI

This topic includes:

- [Introduction](#)
- [Topics Of This Chapter](#)

### Introduction

MADRIX offers DVI output.

DVI output is useful when using a video beamer, a DVI wall, the software LED Studio, on-screen capturing, or when using it in similar fields of application.

**The term DVI does not refer to DVI only.**

**DVI output in MADRIX can also be used for VGA, HDMI, and other graphic card output ports.**

### Topics Of This Chapter

- [»DVI](#)
- [»DVI Examples](#)

### 6.1.1 DVI

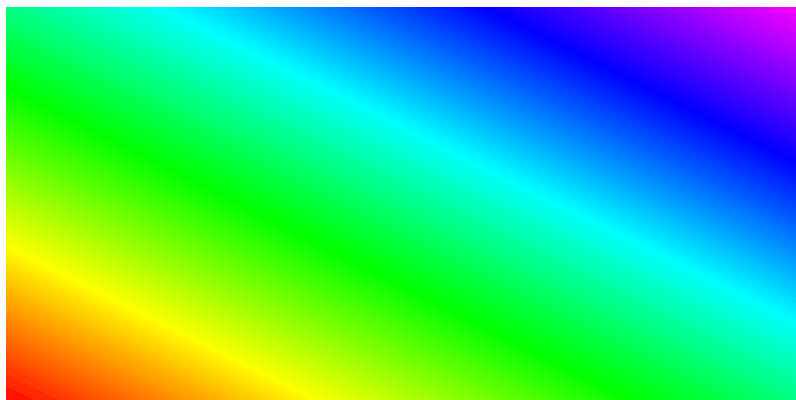
This topic includes:

- [Overview And Usage](#)
- [Restrictions Of Demo Mode](#)
- [Configuration Of Microsoft Windows](#)
- [Initial Setup](#)
- [DVI Outputs](#)
- [Step-By-Step Configuration](#)
- [Slice Alignment](#)
- [More Information](#)
- [Switching Screens In Full Screen Mode](#)
- [Scaling](#)
- [Further Configuration](#)
- [Important Information](#)

## Overview And Usage

MADRIX can control DVI-based LED products.

DVI output is particularly useful when using a video beamer [VGA or DVI, for example], a DVI video wall, the software LED Studio, on-screen capturing, or in similar fields of application.



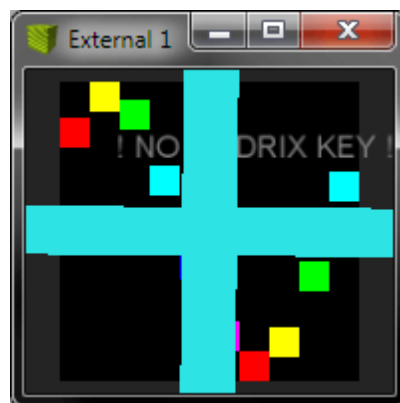
The following MADRIX products support DVI output:

- **MADRIX KEY dvi start** supports up to 512 native DVI pixels, for example 32x16 pixels.

- **MADRIX KEY dvi entry** supports up to 4,096 native DVI pixels, for example 64x64 pixels.
  - **MADRIX KEY dvi** supports up to 307,200 native DVI pixels, for example 640x480 pixels.
  - **MADRIX KEY professional** supports up to 786,432 native DVI pixels, for example 1024x768 pixels.
  - **MADRIX KEY ultimate** supports up to 1,310,720 native DVI pixels, for example 1280x1024 pixels.
- 
- Stretching and scaling to higher resolutions is possible with all these products.
  - Please pay attention to other restricting factors, such as hardware limitations.
- Learn more »[System Requirements](#)

## Restrictions Of Demo Mode

- If you do not connect a MADRIX KEY or a MADRIX interface to your computer, MADRIX will run in demo mode.
- In demo mode, every single feature will be available to you. MADRIX even sends output data [such as DMX512, Art-Net, etc.]; only the data output will be deactivated after each minute for a short period.
- Additionally, the following restrictions apply:
  - DVI output is overlaid by a colorful, rotating grid/cross.
  - You can see "NO MADRIX KEY".
  - The data output fully stops after 1 hour. You will need to restart the software to send restricted data again.



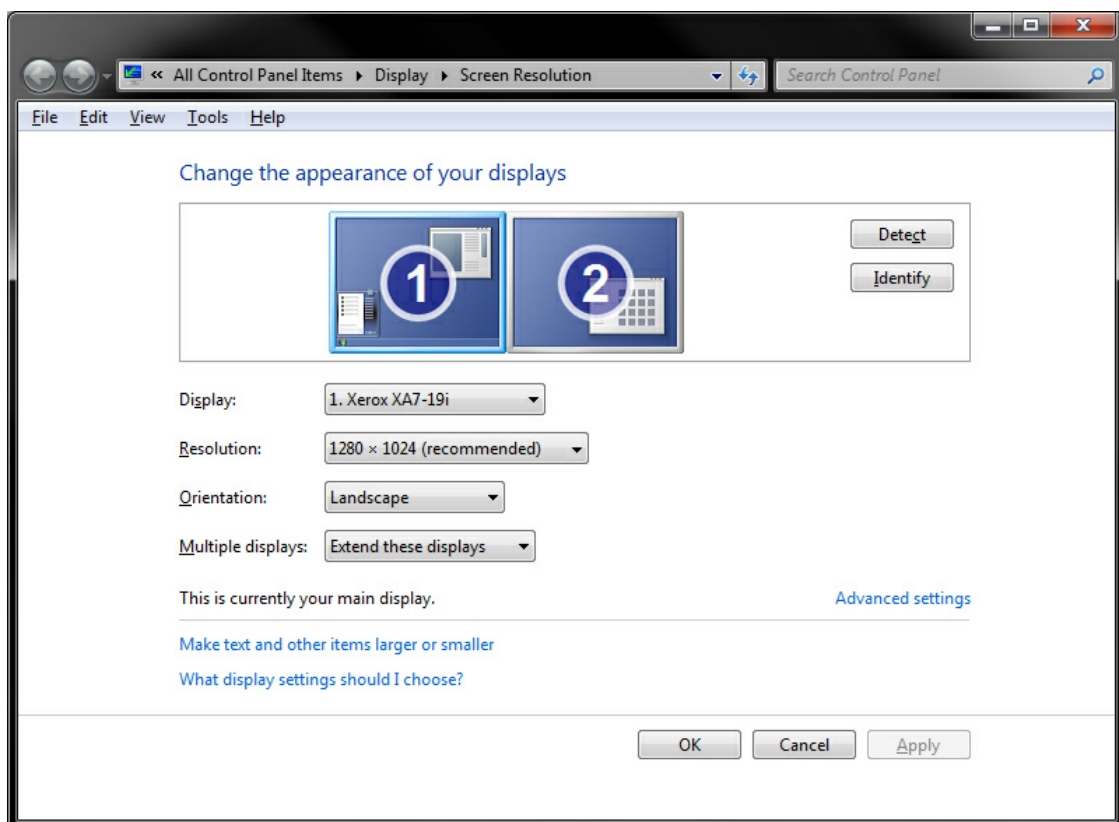
Learn more »[MADRIX KEY \[Software License\]](#)



## Configuration Of Microsoft Windows

**When using DVI output, make sure to configure the graphic card outputs in Windows first!**

- In Windows, go to **Start > Control Panel > Display > Change display settings**
- Windows shows all detected graphic card output ports
  - Click **Detect** to search for undetected outputs.
- **Resolution** - Defines the pixel resolution of this output port.  
[When working with DVI, it is often necessary to position the DVI output precisely and exactly where needed. The resolution is an important information that helps you set up your DVI output.]
- **Multiple displays** - Defines the display mode. The recommended setting is **Extend these displays**
- Confirm any changes with **Apply**
- Close the window with **OK**



## Initial Setup

Make sure to configure your virtual LED matrix in MADRIX before using DVI output.

**Configuration of the virtual LED matrix is a requirement!**

You can use the Matrix Generator or the more advanced Patch Editor for this task.

Learn more »[Matrix Generator](#) or »[Patch Editor](#)

## DVI Outputs

MADRIX features 2 DVI outputs.

- **External Preview 1**
- **External Preview 2**

Moreover, there are 3 modes available for DVI output:

- **DVI**
  - **Window**
  - **Full Screen**
- 
- **DVI** - Activates a floating, borderless DVI window. This is the most important DVI output. It is especially useful when using on-screen capturing.  
A well know example is the software LED Studio, which uses screen capturing.
  - **Window** - Opens a floating window with a border. This might be a useful option if you choose to use DVI output as an additional preview window.
  - **Full Screen** - Enables a floating, borderless full screen window to fit the entire output device. This is particularly useful for output devices, such as projectors, beamers, monitors, and large TV screens.

- Often, 1 DVI output will be enough for your LED project. But in certain cases you might need 2 DVI outputs [for example when your DVI video processor needs 2 inputs to drive a large number of pixels].
- If you do not need the second DVI output, you may simply use it as another preview window or not use it at all.

## **Step-By-Step Configuration**

- 1]** Activate DVI Output.
- 2]** Configure DVI Options.
- 3]** Configure External Window Settings.

### **1] Activating DVI Output**

**To activate DVI output:**

- Go to **Previews > External Preview 1 > DVI**
- Or choose **Previews > External Preview 1 > Window**
- Or choose **Previews > External Preview 1 > Full Screen**

To activate the second DVI output:

- Go to **Previews > External Preview 2 > DVI**
- Or choose **Previews > External Preview 2 > Window**
- Or choose **Previews > External Preview 2 > Full Screen**

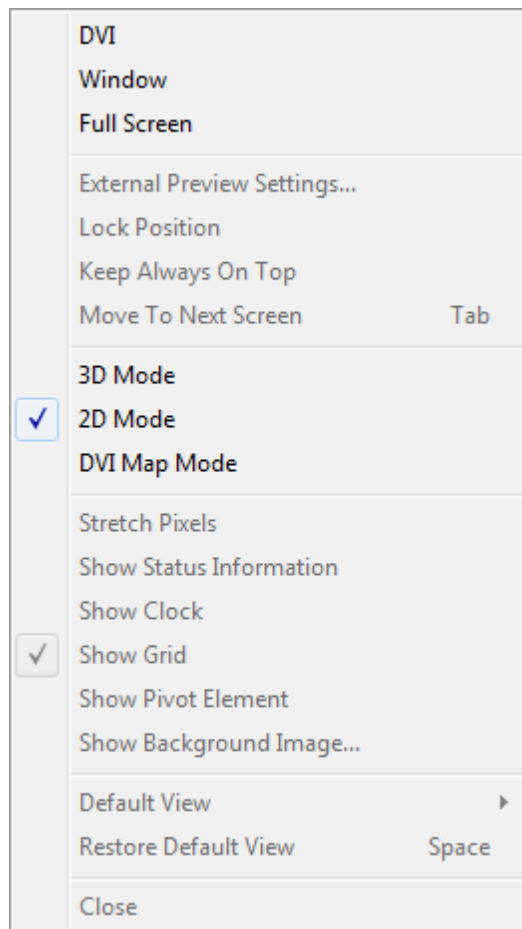
### **2] DVI Options**

Each of the DVI outputs has a context menu.

This menu makes various options available to you for External Preview 1 and External Preview 2, respectively.

**Note:** Should an option be grayed out, it is not available at this moment or for this particular DVI output.

- Go to **Previews > External Preview 1**  
[or **Right Mouse Click** on the DVI window]



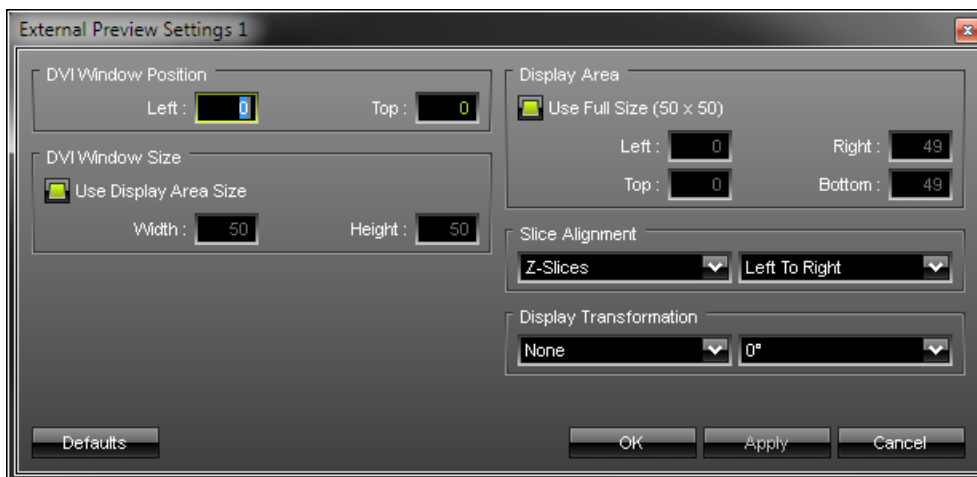
- **DVI** - Is explained above.
- **Window** - Is explained above.
- **Full Screen** - Is explained above.
  
- **External Preview Settings...** - Opens a new window with very useful and important settings for DVI output. Learn more [External Preview Settings](#)

- **Lock Position** - Locks the DVI output to the current position. It cannot be moved around with the mouse anymore. You can still change the position in the External Window Settings.
- **Keep Always On Top** - Brings the DVI output in front of all other windows at all times. No other window will overlap the DVI output.
- **Move To Next Screen** - Moves the output to the next monitor or graphics card output port. This option is only available for **Full Screen**. Learn more [Switching Screens In Full Screen Mode](#)
  
- **3D Mode** - Activates the 3D mode for the output. This option is only available for **Window** and **Full Screen**
- **2D Mode** - Activates the 2D mode for the output. This is the default mode.
- **DVI Map Mode** - Enables an individual DVI Patch, including DVI Mapping. This option is only required if you are using a DVI Patch. Learn more »[DVI Patch](#)
  
- **Stretch Pixels** - Scales the content to the maximum size of your preview window. This option is only available for **Window** and **Full Screen**
- **Show Status Information** - Displays extra information of the DVI output, such as the size of the matrix or the frame rate. This option is only available for **Window** and **Full Screen**
- **Show Clock** - Shows the time on the DVI output. This option is only available for **Window** and **Full Screen**
- **Show Grid** - Overlays the DVI window with a grid to show the individual pixels. This option is only available for **Window** and **Full Screen**
- **Show Pivot Element** - Displays a helpful icon for visual guidance. Three arrows are always shown at position X=0, Y=0, Z=0 [not matter if the Preview is rotated]. The X-axis is red [horizontal; width], the Y-axis is green [vertical; height], and the Z-axis is blue [level; depth]. This option is only available for **Window** and **Full Screen**
- **Show Background Image...** - Allows you to use a picture instead of the gray background. This option is only available for **Window** and **Full Screen**
  
- **Default View** - Choose your point of view and the default view for this output. This option is only available for **3D Mode**
- **Restore Default View** - Resets the Preview to its Default View. This removes any changes, such as zoom or relocation.
  
- **Close** - Closes the DVI output.

### 3] External Preview Settings

External Preview Settings are an important part of the DVI output configuration!

- Go to **Previews > External Preview 1 > External Preview Settings...**  
[or **Right Mouse Click** on the DVI window > **External Preview Settings...** ]



- DVI Window Position** - Defines the exact position of the DVI output for **DVI**
  - The coordinate system used for this starts with 0,0 at the top left of the entire screen/monitor. In this way, **Left:** defines the X coordinate and **Top:** represents the Y coordinate.
  - Valid values range from -10,000 to 10,000.
- DVI Window Size** - Determines the actual size of the DVI output for **DVI**
  - Activate **Use Display Area Size** to set the size of the window to the settings of **Display Area**, which determines what is shown of your matrix.
  - Using different values for **Width** and **Height** than the maximum size of the Display Area will stretch or compress the content [you can make the window size smaller or bigger, but the pixel resolution will stay the same resulting in an image that is stretched or compressed.
  - The pixel resolution is set using the »[Matrix Generator](#) or »[Patch Editor](#)].

- **Display Area** - Defines what is shown in the DVI output. This option is available for all 3 DVI output modes.
  - Activate **Use Full Size** and your complete LED matrix will be displayed. Or you can select a certain cut-out and specify which details of your matrix will be shown. You can choose the start coordinates and the end coordinates of this area.
  - **Left** and **Top** define the start coordinates in a coordinate system that starts with 0,0 in the top left corner. For example, for the default matrix with 50x50 pixels, Left and Top are 0 by default and Right and Bottom are 49, by default.
  - **Right** and **Bottom** define the end coordinates. The end coordinates cannot be higher than the full size of the matrix. For example, for the default matrix with 50x50 pixels, Left and Top are 0 by default and Right and Bottom are 49, by default.
- **Slice Alignment** - Is particularly relevant when using 3D and DVI-based LED fixtures that require a 2D input signal. This option is available for all 3 DVI output modes. Learn more [Slice Alignment](#)
- **Display Transformation** - Allows you to flip or rotate the DVI output. This option is available for all 3 DVI output modes.
  - **None** does not flip the output, **Flip H** flips it horizontally, **Flip V** flips it vertically, **Flip HV** flips it horizontally and vertically.
  - Rotate the output by **0°** degrees [no rotation], **90°** degrees, **180°** degrees, or **270°** degrees clock-wise. This rotation applies to the Display Area.
- Click **Apply** to confirm your changes. Click **OK** to close the window.
- **Defaults** - Restores the default settings. [These settings represent a standard 1:1 DVI window.]
  - If you have set up custom settings, MADRIX will show a check mark in front of **External Window Settings...** in the menu.

## Slice Alignment

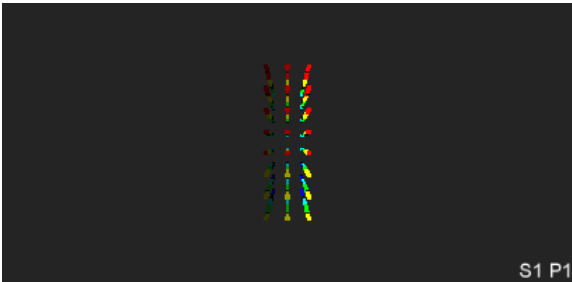
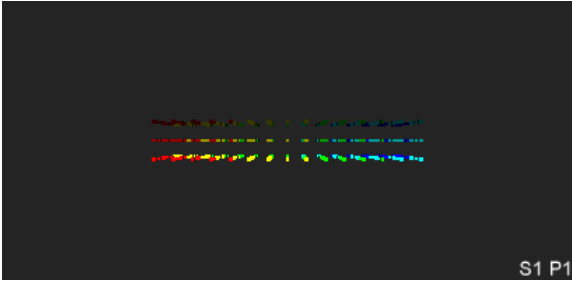
### 3D Mapping For DVI

- MADRIX can control 2D projects as well as 3D projects.  
Learn more »[2D Or 3D \[X, Y, Z\]](#)

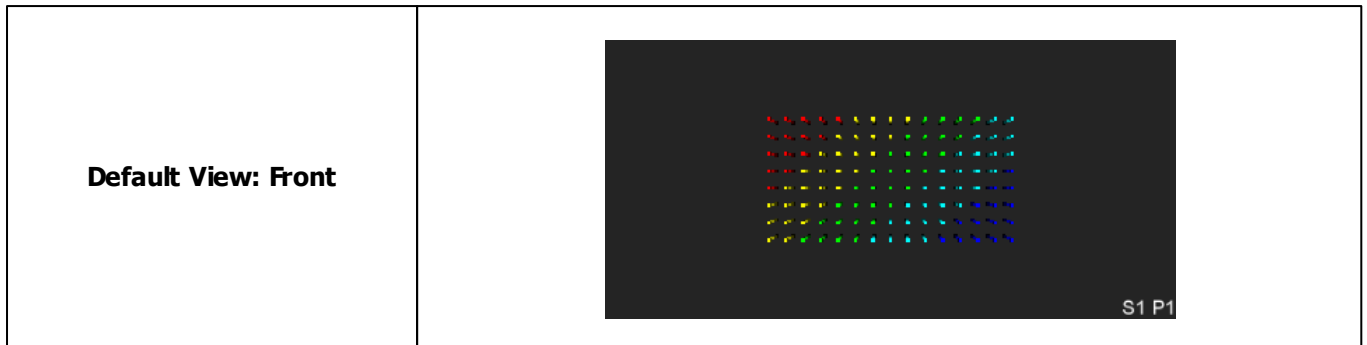
- The chapters »Patch Editor and »DVI Patch already explained that DVI-based fixtures are often used in combination with a DVI controller. Such a DVI controller might require to receive the incoming single in a specific way to receive the correct image on the LEDs. This is true for 2D and controlling a 3D project adds further complexity.
- DVI controllers usually do not accept any 3D input image. That is why, you will often need to send a 2D signal to the DVI controller, even though your project might be in 3D.
- MADRIX can create **Slices** to produce such a 2D signal for 3D projects.
- By default, each Z-level is placed beside the previous Z-level from left to right.
- You can change the Slice Alignment for **DVI, Window**, as well as **Full Screen**.

### Example

- The following example was chosen to explain Slice Alignment and 3D mapping for DVI.
- A virtual LED matrix of 15x8x3 is used.
- The first Z-level is the brightest, while the second and third Z-level have their Opacity increasingly reduced.
- A color gradient is applied as lighting effect.

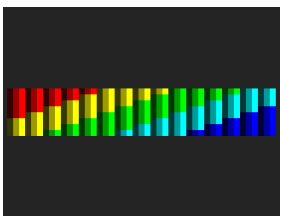
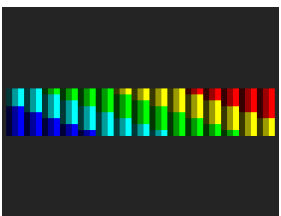
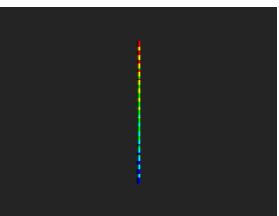
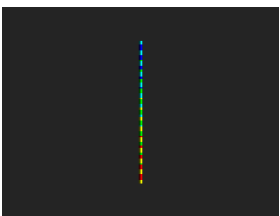
View	3D Mode [Preview Left]
<p><b>Default View: Left</b></p>	
<p><b>Default View: Top</b></p>	

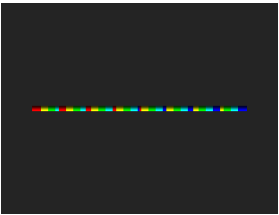
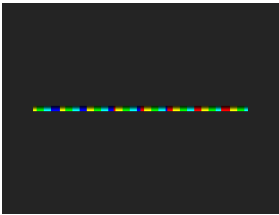
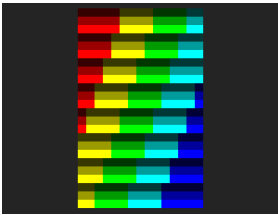
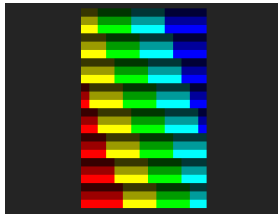
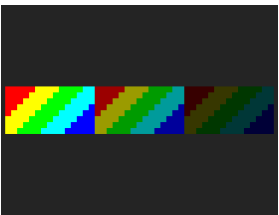
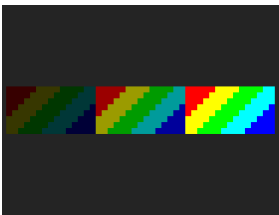
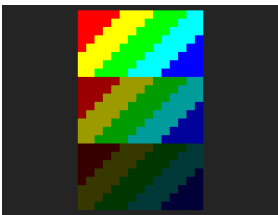
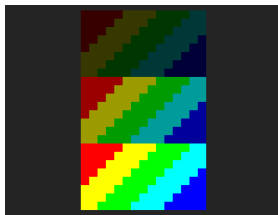




### Slice Alignment Settings

- Go to **Previews > External Preview 1 > External Preview Settings... > Slice Alignment**
- You can set up the **Slice Type**. Choose from **X-Slices**, **Y-Slices**, or **Z-Slices**
- You can set up the **Slice Order**. Choose from **Left To Right**, **Right To Left**, **Top To Bottom**, or **Bottom To Top**
  
- **X-Slices** - MADRIX produces slices along the X-axis. Since X = 15 regarding the virtual LED matrix in the example above, 15 slices are produced below. Above, **Default View: Left** can be used to imagine the different slices from the front to the back.
- **Y-Slices** - MADRIX produces slices along the Y-axis. Since X = 8 regarding the virtual LED matrix in the example above, 8 slices are produced below. Above, **Default View: Top** can be used to imagine the different slices from the front to the back.
- **Z-Slices** - MADRIX produces slices along the Z-axis. Since X = 3 regarding the virtual LED matrix in the example above, 3 slices are produced below. Above, **Default View: Front** can be used to imagine the different slices from the front to the back.
  
- **Z-Slices / Left To Right** is the default setting.

	Left To Right	Right To Left	Top To Bottom	Bottom To Top
X-Slices				

<p>Y-Slices</p>				
<p>Z-Slices</p>	 <p>[Default]</p>			

## More Information

- Each DVI Output is a Preview at the same time. That means you have various options to work with them as DVI output or Preview.  
Learn more »[3 Previews](#)
- This manual includes additional examples on how to set up DVI output.  
Learn more »[DVI Examples](#)

## Switching Screens In Full Screen Mode

You may want to send your **Full Screen** DVI output to another screen that is not the one you are using MADRIX on. This could be a second monitor or a projector, for example.

### One Monitor

- Use the keyboard shortcut **Alt + Tab** to switch to the Full Screen Output.
- Use the **Alt + Tab** again to switch back to the MADRIX user interface.

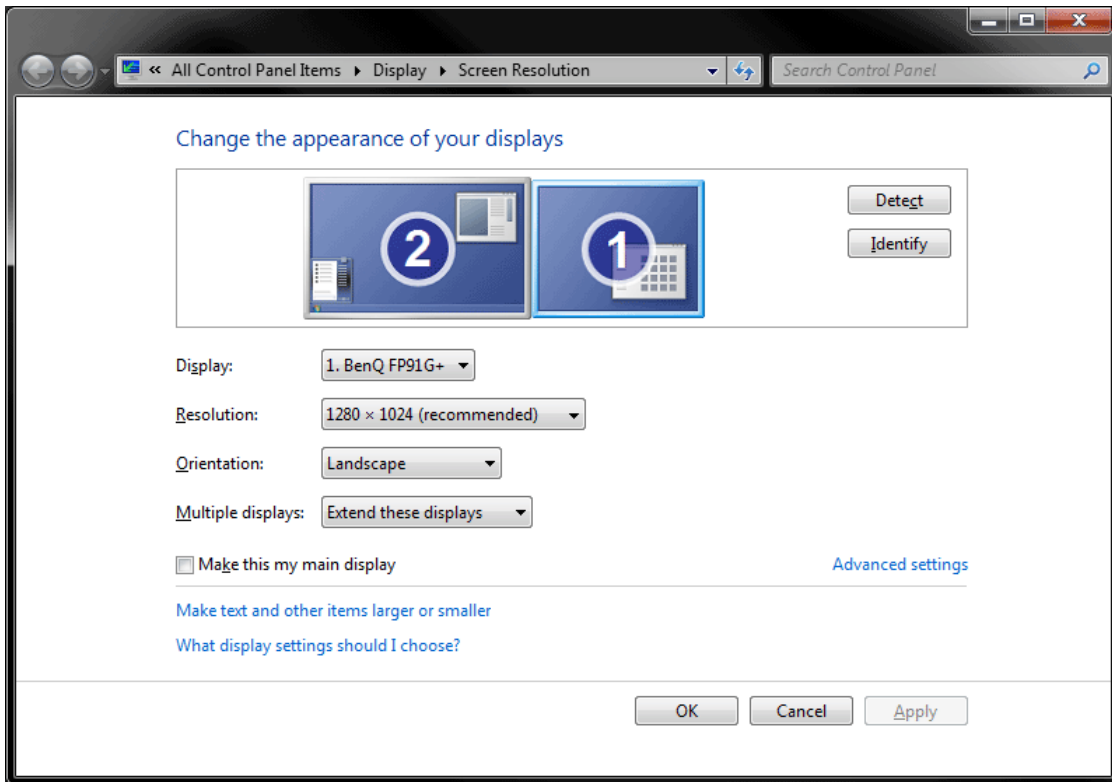
## Several Monitors

- Make sure to select the full screen DVI output with your mouse [left mouse click].



- Press the **Tabulator key [Tab]** on your keyboard to simply move the full screen window to an additional monitor or beamer.
- Or choose **Right Mouse Click > Move To Next Screen**
- In this way you can use the **Full Screen** mode to completely visualize effects on your second monitor or output device, while you are working with MADRIX on your first screen.

**You must install and configure your graphics card and monitors correctly in Windows first to use this feature!**



## Scaling

You can upscale or downscale the DVI Output.

That means you can increase or decrease its size without changing the native pixel resolution [as defined in the Matrix Generator or Patch Editor].

- Activate a DVI output as described above.
  - For example, go to **Previews > External Preview 1 > DVI**
- Go to **Previews > External Preview 1 > External Preview Settings...**
- Deactivate **Use Display Area Size** in the section **DVI Window Size**
- Set up **Width** as well as **Height** according to your requirements.
  - Use larger values to upscale the output.
  - Use smaller values to downscale the output.

- It is recommended to use multiples of the native pixel resolution [in order to not stretch the output].
  - Example: Your virtual LED matrix might have a pixel resolution of 50x50 pixels. Enter 25x25 or 100x100 to use multiples of that resolution.
- Upscaling requires less performance than using a native pixel resolution but negatively affects the image quality in most cases.

## **Further Configuration**

Further settings are available in the MADRIX Options.

Learn more »[Performance](#)

## **Important Information**

- **Please make sure to save your MADRIX Setup file after the configuration process.**

## 6.1.2 DVI Examples

This topic includes:

- [Overview](#)
- [Example: Screen-Capturing With 1 Monitor](#)
- [Example: Screen-Capturing With 2 Graphic Card Output Ports](#)
- [Example: Using Beamers/Projectors/TVs](#)

### Overview

This topic presents various scenarios how DVI output can be used.

### Example: Screen-Capturing With 1 Monitor

- You might only have 1 monitor [1 monitor output on the graphics card]. But you need to use MADRIX and the DVI output at the same time.
- In this case, it is recommended to use the MADRIX interface and the DVI output next to each other on your main monitor.
- Your main monitor has a certain pixel resolution [e.g., 1920 x 1080]. Learn more »[DVI](#)
- Position MADRIX in the upper, left corner.
- Go to **Previews > External Preview 1 > DVI** to activate the DVI output.
- Go to **Previews > External Preview 1 > External Preview Settings...**
- Set up **Left** and **Top** under **DVI Window Position** [e.g., 1300 and 0] .
  - The standard size of the MADRIX user interface is 1280 x 768.
- Activate **Previews > External Preview 1 > Lock Position**
- Activate **Previews > External Preview 1 > Keep Always On Top**



### Graphics Card Output 1 [Monitor 1]

- MADRIX GUI [Normal window size]
- **Previews > External Preview 1 > DVI**

## Example: Screen-Capturing With 2 Graphic Card Output Ports

- When using screen-capturing, it is usually recommended to use a graphics card with 2 monitor outputs.
- In this case, you can use the complete monitor 1 for the MADRIX user interface. The DVI output is simply positioned on the monitor output 2.
- Your main monitor has a certain pixel resolution [e.g., 1920 x 1080]. Learn more »[DVI](#)
- Position MADRIX on your main monitor. Use the normal window size, maximize the window, or use Full Screen mode for MADRIX.
- Go to **Previews > External Preview 1 > DVI** to activate the DVI output.
- Go to **Previews > External Preview 1 > External Preview Settings...**
- Set up **Left** and **Top** under **DVI Window Position**. Make sure to use values that are outside of Monitor 1; Monitor 1 starts at 0,0 instead of 1,1 [e.g., 1920 and 0].
- Activate **Previews > External Preview 1 > Lock Position**
- Activate **Previews > External Preview 1 > Keep Always On Top**



**Graphics Card Output 1 [Monitor 1]**

- MADRIX GUI [Maximized Window]



**Graphics Card Output 2 [Monitor 2]**

- **Previews > External Preview 1 > DVI**

## Example: Using Beamers/Projectors/TVs

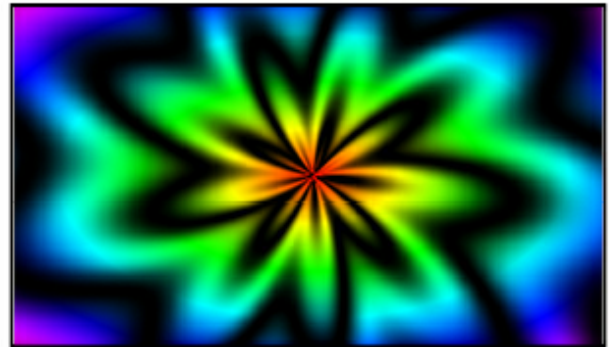
- You might want to bring MADRIX Effects to external equipment, such as projectors, beamers, or large TVs.
- Often, the Full Screen DVI output is needed in this case.
- Also, projectors, beamers, and TVs often require a high pixel resolution.
  - The pixel resolution can be set up using the »[Matrix Generator](#) or »[Patch Editor](#)
  - The higher the pixel resolution, the more computer performance is required. Learn more »[System Requirements](#)
- Position MADRIX on your main monitor. Use the normal window size, maximize the window, or use Full Screen mode for MADRIX.
- Go to **Previews > External Preview 1 > Full Screen** to activate the DVI output.
- Click on the DVI output with your mouse to focus it. Now, perform a **Right Mouse Click > Move To Next Screen**
- Activate **Previews > External Preview 1 > Keep Always On Top**
- If required, activate **Previews > External Preview 1 > Stretch Pixels**
- Activate other options as required. Learn more »[DVI](#)





### Graphics Card Output 1 [Monitor 1]

- MADRIX GUI [Maximized Window]



### Graphics Card Output 2

- *Previews > External Preview 1 > Full Screen*
- *Move To Next Screen*

## 6.2 Art-Net [DMX Over Ethernet]

This topic includes:

- [Introduction](#)
- [Network Equipment](#)
- [Step-By-Step Configuration](#)
- [Art-Net Device Settings](#)
- [Additional Functionality](#)
- [Important Information](#)
- [Troubleshooting](#)

### Introduction



Art-Net is a communication protocol that allows to distribute DMX512 data over Ethernet network [DMX over Ethernet].

Art-Net has been invented by Artistic Licence and has now been published into the public domain. Often, so-called Art-Net nodes then act as Ethernet to DMX512 converters and hardware interfaces. Especially, long distances can be covered using Ethernet cabling.

MADRIX is compatible with

- Art-Net I
- Art-Net II
- Art-Net III

- MADRIX supports all devices that are fully compatible with Art-Net.
  - You can use these nodes either as output or input devices.

## Network Equipment

It is highly recommended to only use Gigabit Ethernet network components [such as network card, switches, network cabling, etc].

## Step-By-Step Configuration

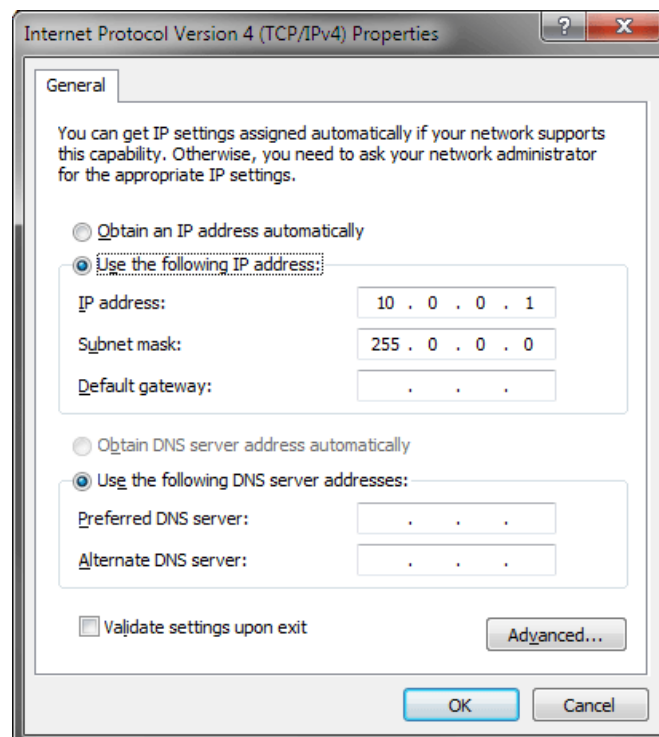
- 1]** Set up the correct network settings in Windows.
- 2]** Activate Art-Net in MADRIX.
- 3A]** Add your Art-Net devices automatically.
- 3B]** Add your Art-Net devices manually.
- 4]** Edit the settings of your devices.
- 5]** Activate your devices.
- 6]** Assign the correct DMX universes.
- 7]** Set up the Frame Time.
- 8]** Choose to send optimized frames or full frames.

- Repeat steps 4] to 8] for each of your devices.

### **1] Windows Network Settings**

Art-Net is a network-based protocol. MADRIX will use the network card of your computer to send data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, Art-Net might not work!**
- **The IP addresses of your computer and your Art-Net devices need to be different.**
  
- Set up an individual **IP address** in the following IP address range:
  - **2.0.0.1 ... 2.255.255.254** or
  - **10.0.0.1 ... 10.255.255.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**
  
- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**
- **Check the settings of the Windows Firewall.** Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)
  
- Example for PCs that are running MADRIX:



## 2] Activating Art-Net In MADRIX


- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Activate the checkbox **Enable** [in the upper, right corner].



- MADRIX will automatically create the entry **ArtNet Remote**  
This device is used only for Remote Control. Learn more »[Art-Net Remote](#)


### 3A] Adding Devices Automatically

MADRIX can automatically add devices using the ArtPoll Reply functionality if supported by the Art-Net device.

- Click   
[MADRIX will automatically search the network for connected Art-Net devices. MADRIX will scan even across multiple network cards. Devices that are found will appear in the list.]  
[Please make sure that your devices also have the correct network settings.]

### 3B] Adding Devices Manually

Some interfaces might not support ArtPoll Reply in order to add them automatically. Then, you need to add your devices manually.


- Click 
- A new window will open.

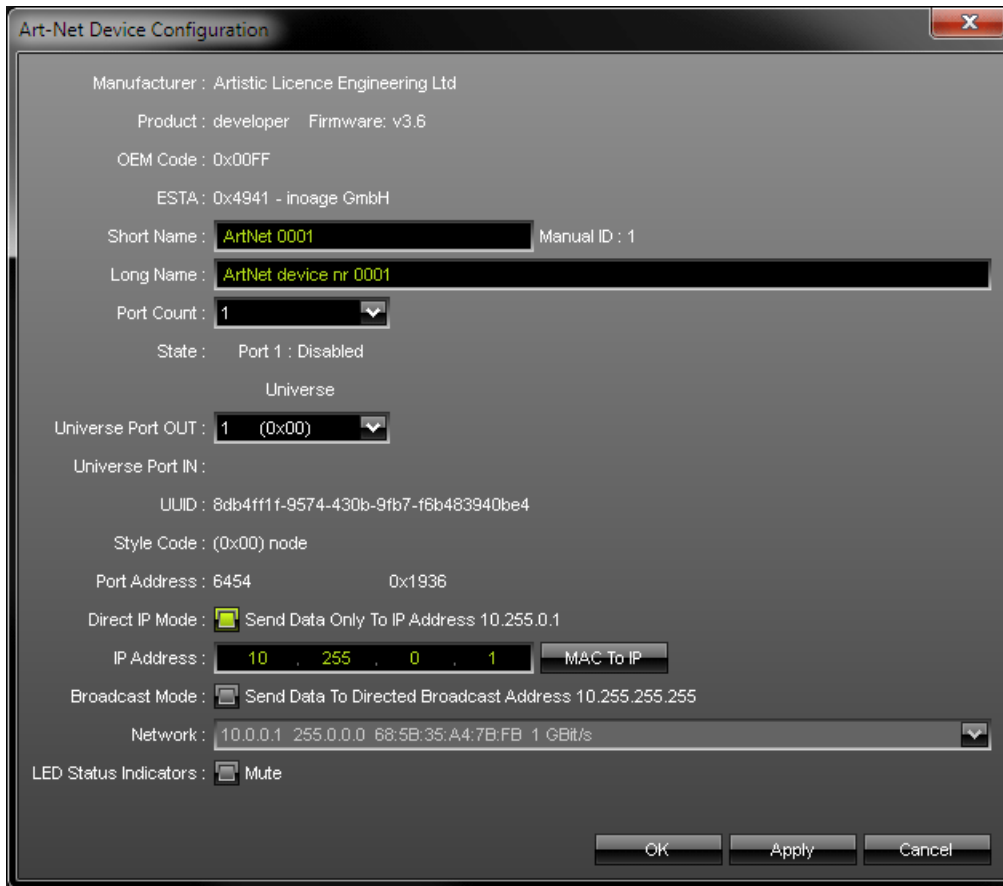


- **Number Of New Devices** - Enter the number of devices you wish to add.
- **Port Count Per Device** - Enter the number of ports each newly created device should have. Per device a maximum number of 4 ports is available.  
**- In order to create an 8-port node, set up 2 devices with 4 ports each. In most cases the same IP address should be entered then for both devices.**
- **Enable Direct IP Mode** - Activates Direct IP Mode for all newly created devices. This setting can be changed later again. Learn more below.
- **Send Full Frames** - Activate this option if devices should always send a single data frame including a full number of 512 channels. If this option is disabled, MADRIX will automatically send optimized frames that reduce network traffic. Learn more below.



## 4] Device Settings

- Select your device in the list.
- Click 
- A new window will open [**Art-Net Device Configuration**].



Set up specific settings for your device.

- The following settings are available [this depends if the device was added automatically or manually]
- **Short Name** - Represents a short description of your device.
- **Long Name** - Represents a long description of your device.
- **Port Count** - Represents the number of ports for this particular device.
- **State** - Displays if the ports have been activated under **Preferences > Device Manager... > DMX Devices**. Learn more below.
- **Universe Port OUT** - Defines the general allocation of DMX universe and device port for output. E.g., the eighth DMX universe is sent to port 8.
- **Universe Port IN** - Defines the general allocation of DMX universe and device port for input.
- **Direct IP Mode** - Activates Direct IP Mode. Learn more below.
- **IP Address** - Defines the IP address of the Art-Net device when data is sent via Direct IP Mode.

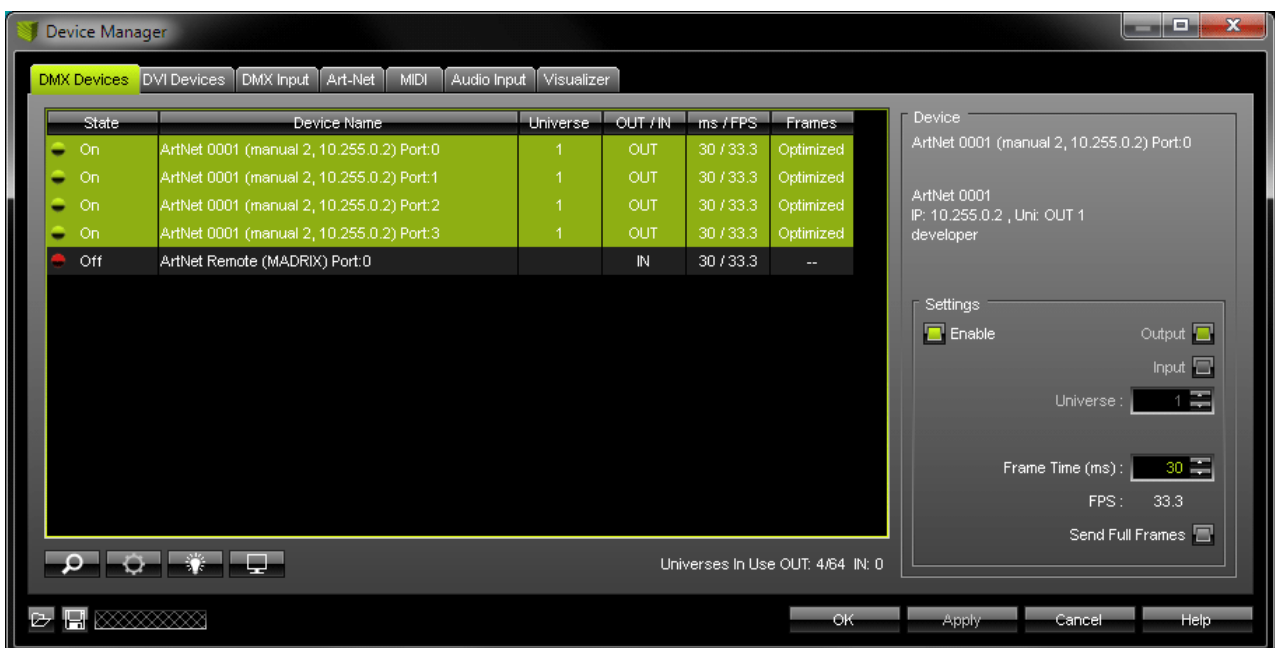


- **Broadcast Mode** - Activates Broadcast Mode. Learn more below.
- **Network** - Defines the network card that is used for Broadcast Mode. Learn more below.
- **LED Status Indicators** - Allows you to switch of all LED status indicators of a device if supported by the device via **Mute**

## 5] Activating Devices

Each of your Art-Net devices need to be activated.

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- Select your devices in the list.
- Activate **Enable**
- Activate **Output**
- Click **Apply**



## 6] DMX Universe

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**

- Set up **Universe**
  - Enter the specific DMX universe number
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.
- **Make sure the correct universe is assigned according to your requirements.**  
Learn more »[Glossary](#)
- Click **Apply**

## 7] Frame Time

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**

## 8] Optimized Frames Or Full Frames


- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Activate or deactivate **Send Full Frames**
  - Per DMX512 standard, MADRIX only sends the number of DMX channels that is configured. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe [Optimized Frames].
  - Activate Send Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels].
  - **Activating Send Full Frames is recommended if problems with the data output of your devices occur.**
- Click **Apply**

## Art-Net Device Settings

It is very important to set up the correct settings of your devices!

### Broadcast Mode Or Direct IP Mode

MADRIX can send Art-Net data in 2 ways to your Art-Net devices:

- **Broadcast Mode** - Means that every packet sent from a single transmitter will be received by all recipients in the network. MADRIX will send data to all devices in the network.
    - Advantage: The same data [e.g., DMX universe 1 and 2] can be made available at different points of your setup.
    - Disadvantage: A potentially huge number of data packages will be sent over the network. This can reduce the overall network performance and cause data issues or instability.
  - **Direct IP Mode** - Means that the specific data will only be sent to the specified recipient.
    - Advantage: Data traffic is reduced immensely, which means that a larger number of Art-Net devices can be used in one network. Reduced network traffic increases the performance and stability.
    - Disadvantage: The network settings of all devices need to be 100% correct.
- 
- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
  - Select your device in the list.
  - Click 
  - A new window will open.
  - **A]** Choose **Direct IP Mode** to activate Direct IP mode:
    - Make sure to enter the correct **IP Address** of your device that should receive the Art-Net data.
    - MADRIX will send the corresponding data only to this device.

- **B]** Choose **Broadcast Mode** to activate Broadcast Mode:
  - Make sure to select the correct **Network** card of your computer that should send the Art-Net data.
  - MADRIX will send data to the whole Art-Net network.
- Click **Apply**

Direct IP Mode is recommended in general.

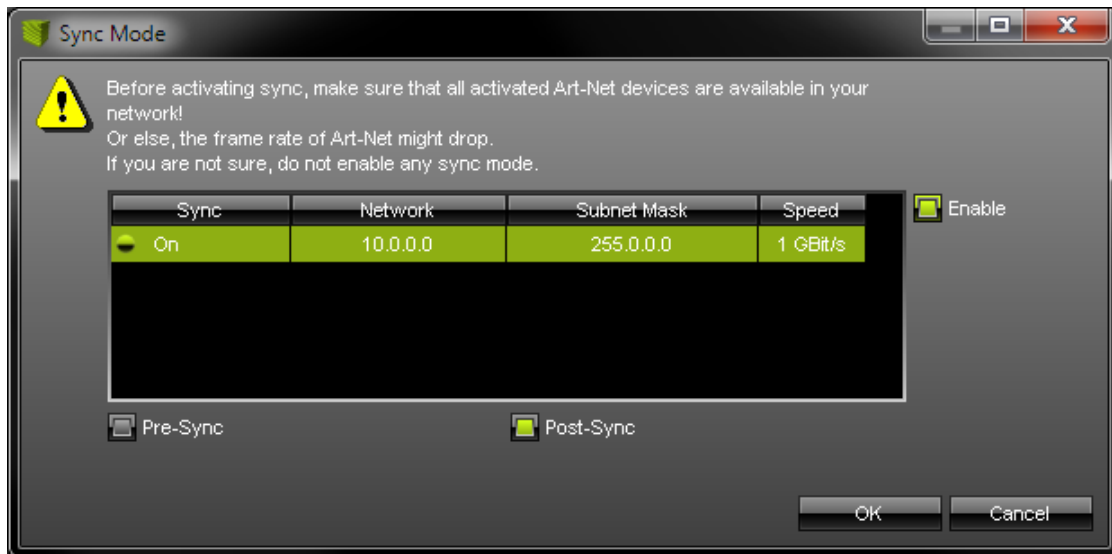
## Sync Mode



**Sync Mode** - Allows you to activate or deactivate the usage of sync packages for Art-Net.

- **Before activating sync, make sure that all activated Art-Net devices are available in your network! Else, the frame rate of Art-Net might drop. If you are not sure, do not enable any sync mode.**
- **This Sync Mode is not conform to Art-Net. To work properly it needs to be implemented by the manufacturer. Please check the manual of your Art-Net node if this option is available to you.**
- **Even if your Art-Net hardware does not support Pre Sync or Post Sync mode, it might be advisable to activate it in MADRIX. In this way, data packages will be sent one after another and will not get mixed up. The data will be sent more precisely.**
- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Click **Sync...**
- A new window will open.
- Select the network for which you want to activate Sync Mode.
- Click **Enable** to activate the Sync Mode for the selected network.
- **A]** Choose **Pre-Sync** to send sync packages before Art-Net data.
- **B]** Choose **Post-Sync** to send sync packages after Art-Net data.

- Click **OK**



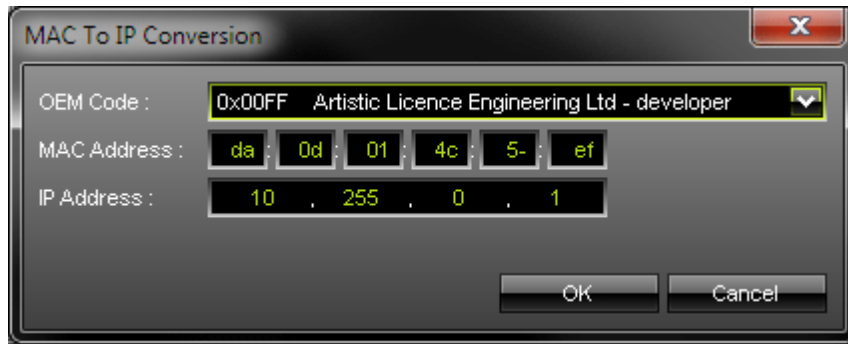
- To disable sync mode, click **Sync...** again, select the correct network, and deactivate **Enable**. Confirm with **OK**

## MAC To IP Conversion




**MAC To IP** - Allows you to includes a tool to convert MAC addresses to IP addresses, and vice versa.

- Go to **Preferences > Device Manager... > Art-Net > [gear icon] > MAC To IP**
- A new window will open.
- **OEM Code** - Choose the manufacturer of the device.
- **A] MAC Address** - Enter the MAC address of the device and the tool automatically converts it into the correct IP address.
- **B] IP Address** - Enter the IP address of the device and the tool automatically converts it into the correct MAC address.

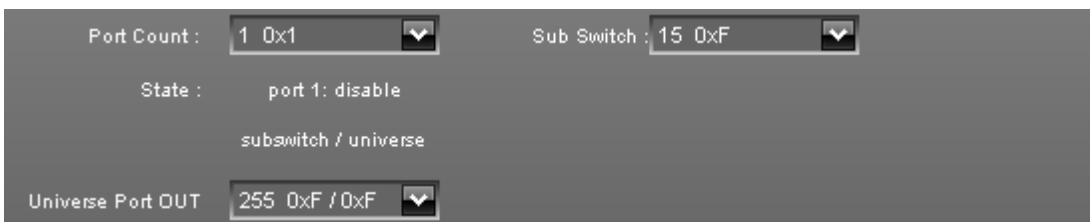


### Subswitch

If your Art-Net device is equipped with a subswitch, MADRIX is able to recognize this feature.

- This feature is for your information only.
- Go to **Preferences > Device Manager... > Art-Net >** 
- Check if your Art-Net device is equipped with a subswitch or not.
- The window will include several informative elements. In this way, you will be able to see the configuration of your interface within MADRIX.

#### Subswitch available:



#### Subswitch not available:



## Additional Functionality

### Managing Devices



**Refresh Device List** - Communicates with connected devices to see if there have been any changes to update them in MADRIX accordingly.



**Duplicate Devices** - Duplicates the selected devices to quickly add new similar devices.



**Remove Devices** - Removes the selected devices from the list. [Keyboard shortcut: **Del / Delete**]

### Web Configuration



**HTTP Configuration** - Allows you to configure your Art-Net device remotely with the help of a web browser if this feature is supported by your device. If this feature is available, a new browser window will be opened using the specified IP address. This offers you access to the configuration of your Art-Net device. If this is not possible, a message box will be displayed in MADRIX.

## Status Indicators [ArtAddress]

In order to use these features, please **Enable** ArtAddress first.

[Please make sure that your nodes fully support this Art-Net feature, such as MADRIX LUNA, MADRIX NEBULA, MADRIX PLEXUS, MADRIX STELLA. You will also get notified by a message box. Confirm the message with **OK** or abort via **Cancel**.]



**Mute Status Indicators** - Switches off and disables all built-in status indicators of a device over Art-Net [ArtAddress > AcLedMute].



**Operate Status LEDs Normally** - Allows the built-in status indicators of a device to operate normally again, after having them switched off [ArtAddress > AcLedNormal].



**Highlight Device** - Activates the highlight mode [ArtAddress > AcLedLocate]. Select one or more interfaces and click the button. The corresponding status indicators of the selected interfaces will flash for a better identification or tests. This makes it easier to see them on site/stage. It considerably speeds up the procedure of programming or testing the selected interfaces.

## DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input.

Learn more »[Tools](#)

## Resizing The Window



If wish to resize the window of the Device Manager to see more devices in the list, simply move your mouse pointer to the bottom of this window. Then, select the border and hold the left mouse button, while moving your mouse downwards.

## Important Information

- **Remember to configure your light matrix. Learn more »[Matrix Generator](#) or »[Patch Editor](#)**
- **Make sure to save your MADRIX Setup file after the configuration process.**
- **Keep in mind that network devices, if activated, cause network traffic!**
- **If you are using a network-based output protocol and if the Startup option *Start MADRIX After Booting Windows* is activated, it is highly recommended to also activate the Startup option *Start With Timeout (s)* with a value of 30.**
- **When activating Art-Net, MADRIX will create a so-called shared socket and not an exclusive socket. Therefore, other software on the computer has the chance access Art-Net using the same socket, when running MADRIX and another software at the time.**
- **It is not recommended to operate Art-Net and access to the World Wide Web/Internet in the same network! It is recommended to run it in a separate network without internet access.**

## Troubleshooting

**If you are encountering problems, please work through the following checklist:**

- Double-check the settings of your network card [IP address, Subnet mask].
- Make sure to set up the Windows Firewall correctly or deactivate the Windows Firewall if possible [only if no connection to the internet is available]. Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)
- If MADRIX does not use the correct network card for Art-Net Remote, change the order of network adapters and set a higher priority for your preferred network. Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)
- Double-check the settings of the Art-Net devices in MADRIX.

- Use the DMX Watcher to monitor outgoing data. Learn more »[Tools](#)
- Use only GIGABIT [1Gbit/s or 1000 Mbit/s] network components [such as, switches and network cards].
- Use high-quality network components [cables, switches, cards, etc.].
- Remove any routers from the network.
- Check all other IP addresses and cabling. Having the same IP address in the network causes problems. Make sure that the network is not forming a ring, were the start point is also the end point, and that data is not sent back to the source [the computer].
- Use **Start With Timeout (s)** in the MADRIX Options to make sure network is initialized correctly before MADRIX starts. Learn more »[Startup](#)
- If output problems occur, decrease the output frame rate [FPS] in the Device Manager.
- Make sure that Art-Net is set up as an individual network and separate from the Internet.

## 6.3 DMX512 [DMX-OUT]

This topic includes:

- [Overview](#)
- [Configuration Of Devices](#)
- [Step-By-Step Configuration](#)
- [Additional Functionality](#)
- [Important Information](#)

### Overview

- Go to **Preferences > Device Manager... > DMX Devices**

[Keyboard shortcut: **F4**]

MADRIX supports various communication protocols and hardware interfaces. The majority of these communication protocols is based on DMX512. That is why these interfaces will be listed here.



## Configuration Of Devices

- Depending on your hardware interface further configuration may be required.
- Make sure to read the corresponding chapter of this user guide regarding the correct output settings.  
Learn more »[OUTPUT Settings](#)

## Step-By-Step Configuration


- 1] Enable drivers in MADRIX.
- 2] Activate your device.
- 3] Choose if you want to use Input or Output.
- 4] Set up the correct DMX universe.
- 5] Set up the Frame Time.
- 6] Choose to send optimized frames or full frames.

### 1] Enable Drivers In MADRIX

- First, make sure to activate the required USB or network drivers in MADRIX.  
Learn more »[Devices USB](#)  
Learn more »[Devices Network](#)

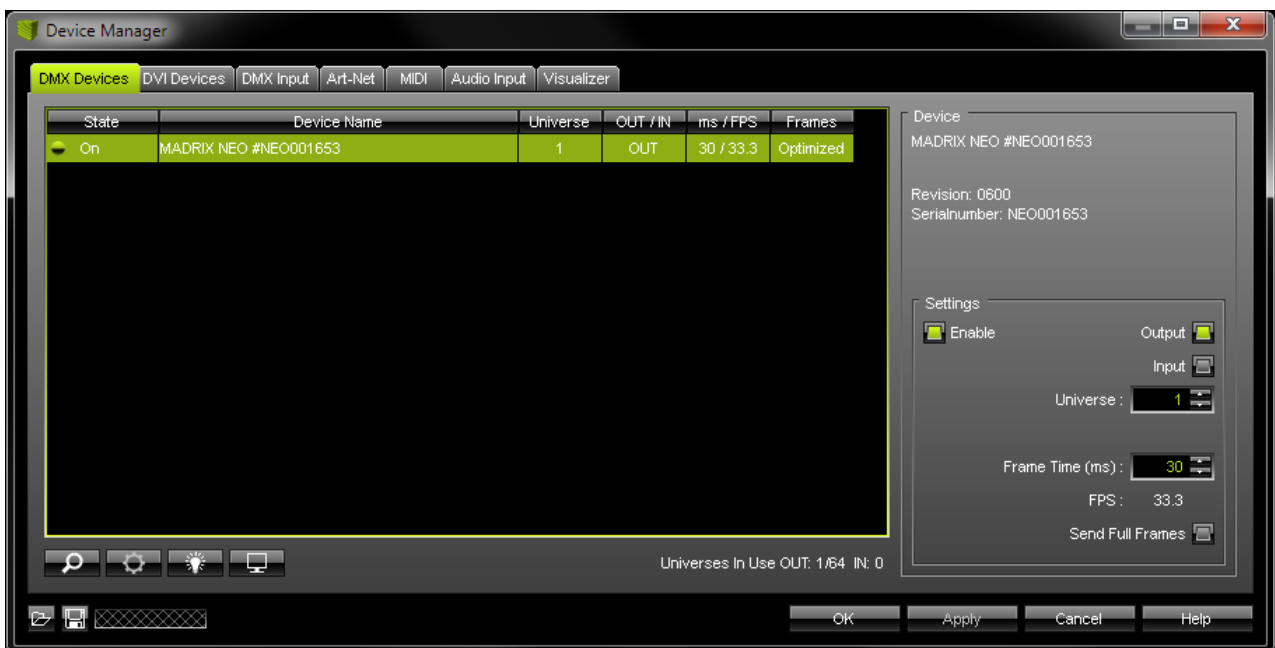
### 2] Activating Devices

- Go to **Preferences > Device Manager ...> DMX Devices**  
[Keyboard shortcut: **F4**]
- The tab **DMX Devices** will be selected automatically.

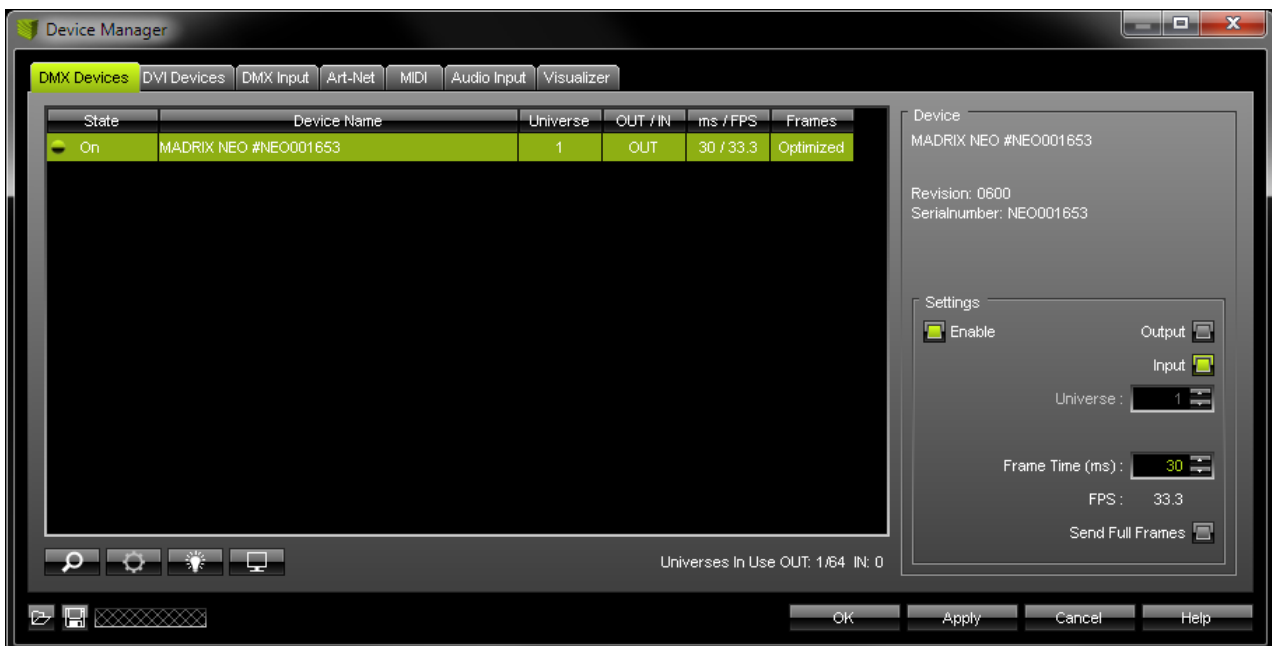
- Click 
  - MADRIX disconnects all DMX512, Art-Net, and other devices and starts to search for new or newly connected devices.
  - **Do not rescan for devices if all of your interfaces have been found correctly.**
- Select your device in the list.
- Activate **Enable**
- Click **Apply**

### 3] Output or Input

- Make sure that your device is still selected.
- **A]** Enable **Output** if you wish to send data to this device in order to put it out onto your LED fixtures.
- Click **Apply**



- **B]** Enable **Input** if you wish to receive incoming data through this device.  
Learn more » [DMX-IN](#)
- Click **Apply**



## 4] DMX Universe

- Make sure that your device is still selected.
- Set up **Universe**
  - Enter the specific DMX universe number
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.
- **Make sure the correct universe is assigned according to your requirements.**  
Learn more »[Glossary](#)
- Click **Apply**

## 5] Frame Time

- Make sure that your device is still selected.

- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**

## 6] Optimized Frames Or Full Frames

- Make sure that your device is still selected.
- Activate or deactivate **Send Full Frames**
  - Per DMX512 standard, MADRIX only sends the number of DMX channels that is configured. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe.
  - Activate Send Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels].
  - **Activating Send Full Frames is recommended if problems with the data output of your devices occur.**
- Click **Apply**

## Additional Functionality

### Highlight Mode



**Highlight** - Activates the highlight mode for the selected interface and universe under **Preferences > Device Manager... > DMX Devices**. Select one or more interfaces and click the button. The corresponding fixtures at the selected interfaces will flash for a better identification or tests. This makes it easier to see them on stage. It considerably speeds up the procedure of programming or testing the selected DMX512/Art-Net interfaces.

## DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input under **Preferences > Device Manager... > DMX Devices**

Learn more »[Tools](#)

## Resizing The Window

If wish to resize the window of the Device Manager to see more devices in the list, simply move your mouse pointer to the bottom of this window. Then, select the border and hold the left mouse button, while moving your mouse downwards.

## Important Information

- **Remember to configure your light matrix. Learn more »**[Matrix Generator](#) **or »**[Patch Editor](#)
- **Make sure to save your MADRIX Setup file after the configuration process.**
- **Make sure to have the correct drivers enabled in the MADRIX Options. Learn more »**[Options](#)



## 6.4 e:net From e:cue

This topic includes:

- [Introduction](#)
- [Note](#)
- [Supported Products](#)
- [Step-By-Step Configuration](#)

### Introduction

MADRIX supports the e:cue butler interface and the corresponding e:net network protocol.

Learn more »[Supported DMX512 And Art-Net Interfaces](#)

### Note

There are several steps required to set up e:net products in MADRIX. This chapter is only part of the process. You need to set up other configurations as well [such as virtual LED matrix, DMX Devices, MADRIX Effects, Audio, etc.].

### Supported Products

The following e:net products are supported:

- e:cue butler

## Step-By-Step Configuration

- 1] Set up the correct network settings in Windows.
- 2] Activate e:net in MADRIX.
- 3] Activate your devices.

### 1] Windows Network Settings

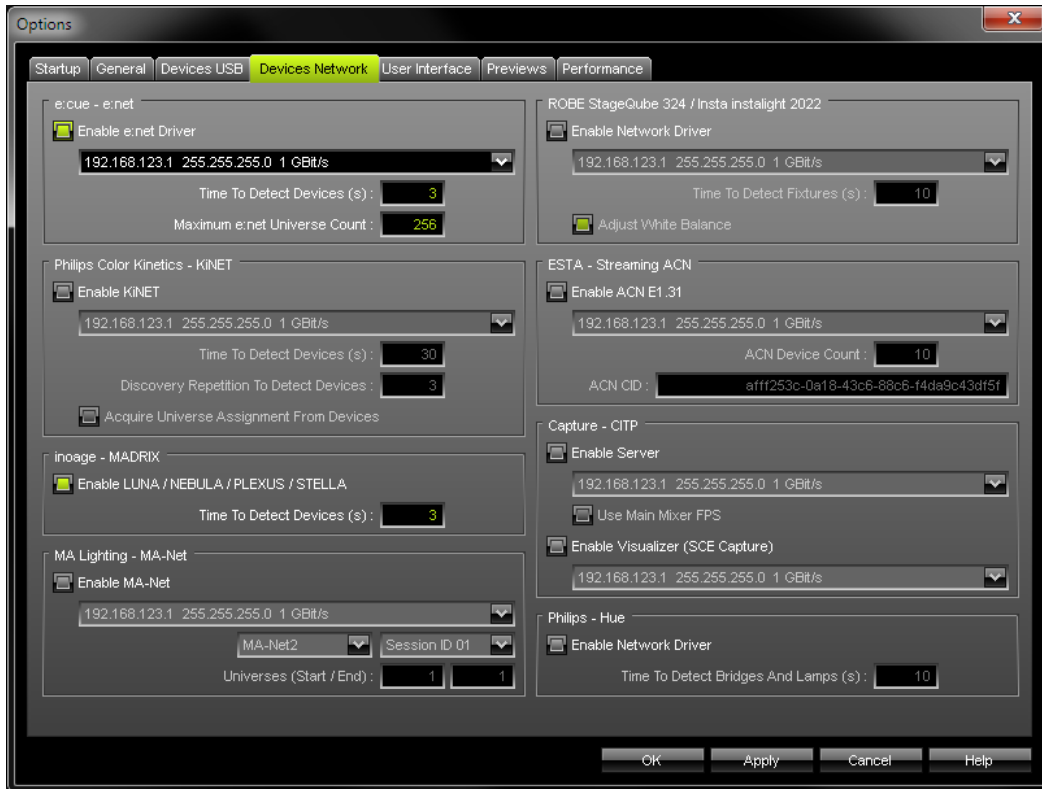
e:net is a network-based protocol. MADRIX will use the network card of your computer to send data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, e:net might not work!**
- **The IP addresses of your computer and your e:net devices need to be different.**
  
- The standard butler interface has a predefined IP address and subnet mask. [ **192.168.123.X / 255.255.255.0** ]
- Set up an individual **IP address** for your computer:
  - **192.168.123.X**
  - For example: **192.168.123.1**
- Set up the corresponding **Subnet mask**
  - **255.255.255.0**
  
- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**
- **Check the settings of the Windows Firewall.**
- Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)

### 2] Enabling e:net In MADRIX

- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices Network**]
- Activate **Enable e:net Driver**

- Choose the correct network/network card from the drop-down list.
  - **Always make sure that you have selected the correct network. Otherwise, the network device might still be found. But no data can be sent.**



- **Time To Detect Devices (s)** - Defines how long MADRIX searches the network for e:cue devices during startup. Type in a value in seconds.
  - **We recommend to utilize at least a value of 3 to allow for a sufficient search. Higher values are recommended for larger installations.**
- **Maximum e:net Universe Count** - Defines how many DMX universes you wish to use in total.
  - **Please keep the standard settings of you do not have any specific requirements. Only change the universe count if your requirements exceed the standard value of 256.**

### 3] Further Configuration

- You need to activate your DMX interfaces.
  - Learn more » [DMX512 \[DMX-OUT\]](#)



## 6.5 ROBE StageQube 324 [ROBE Protocol]

Topics of this chapter:

- [Introduction](#)
- [Overview](#)
- [Note](#)
- [Gigabit Network Components](#)
- [Step-By-Step Configuration](#)
- [Additional Functionality](#)
- [Important Notes](#)
- [Further Configuration](#)

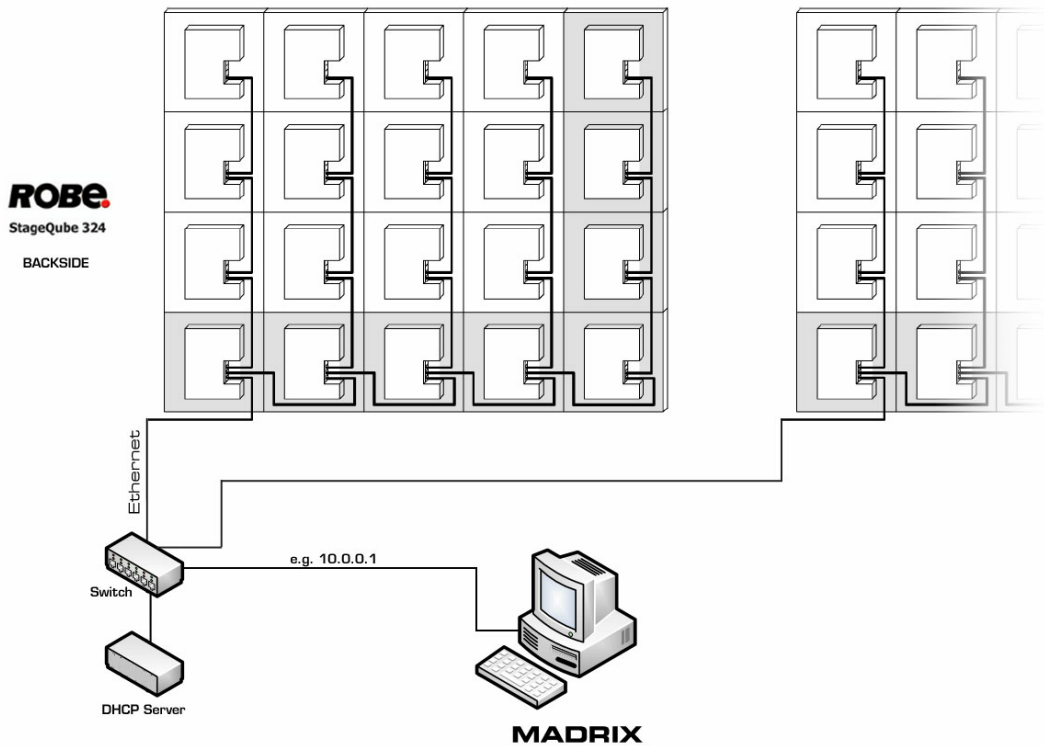
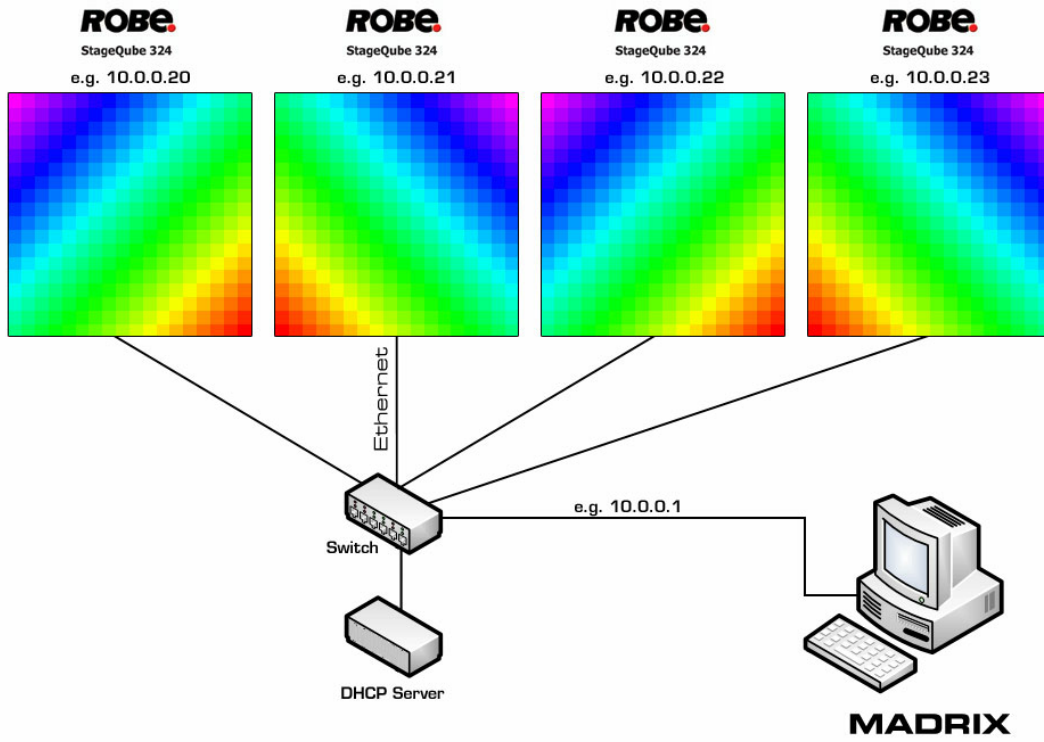
### Introduction



MADRIX natively supports the ROBE Protocol for ROBE StageQube 324™ LED panels.

### Overview

- **To use ROBE StageQube 324, you need to have a separate DHCP server.**
- This can be a software or hardware DHCP server, which handles the IP addresses of the ROBE LED panels and the MADRIX computer.
- It is recommended that the DHCP server binds MAC addresses to IP addresses.



## **Note**

There are several steps required to set up ROBE products in MADRIX. This chapter is only part of the process. You need to set up other configurations as well [such as virtual LED matrix, DMX Devices, MADRIX Effects, Audio, etc.].

## **Gigabit Network Components**

**It is recommended to only use 1000 MBit/s network components. That means 1000 MBit/s network cards in your computer, 1000 MBit/s switches and a DHCP server with support of 10/100/1000 MBit/s if your setup looks like the configuration shown above.**

## **Step-By-Step Configuration**

- 1]** Configure network settings in Windows.
- 2]** Enable ROBE Drivers in MADRIX.
- 3]** Activate devices.
- 4]** Configure devices.
- 5]** Set up the correct DMX universe.
- 6]** Set up the Frame Time.

### **1] Windows Network Settings**

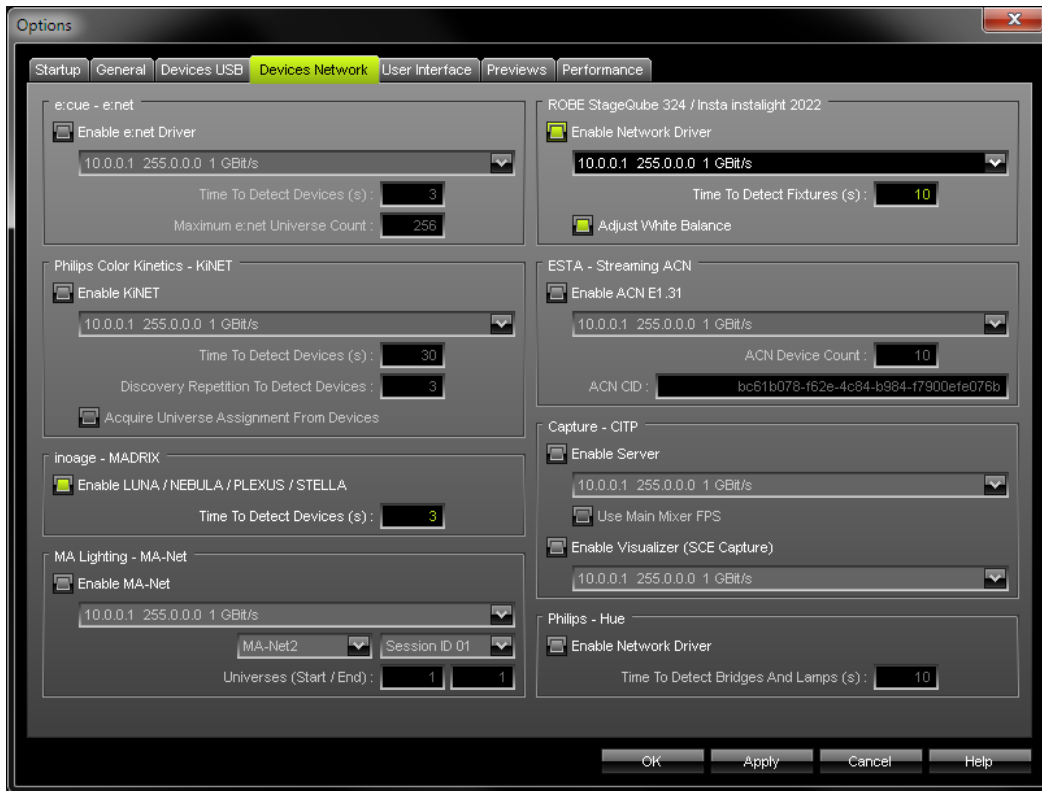
The protocol from ROBE is a network-based protocol. MADRIX will use the network card of your computer to send data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings.**
- **The IP addresses of your computer and your ROBE devices need to be different.**
  
- Set up an individual **IP address** in the following IP address range:
  - **10.0.0.1 ... 10.255.255.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**
  
- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**
- **Check the settings of the Windows Firewall.**
- Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)

## 2] Enabling Drivers In MADRIX

- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices Network**]
  - Activate **Enable Network Driver**
  - Choose the correct network/network card from the drop-down list.
    - **Always make sure that you have selected the correct network. Otherwise, the network device might still be found. But no data can be sent.**






- **Time To Detect Devices (s)** - Defines how long MADRIX searches the network for devices during startup. Type in a value in seconds.  
**- We recommend to utilize at least a value of 10 to allow for a sufficient search. Higher values are recommended for larger installations.**
- **Adjust White Balance** - Activate and MADRIX automatically performs this automatic calibration on startup. Connected panels will adjust their white value to the maximum value possible in the installation to ensure a similar color temperature. If the adjustment takes longer than 100 seconds, MADRIX will send data nevertheless. Uncheck this option if you want to deactivate it.


### 3] Activating Device

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- MADRIX automatically adds network devices it has found during startup to the list.

- Click  if the devices have not been found.
  - MADRIX disconnects all DMX512, Art-Net, and other devices and starts to search for new or newly connected devices.
  - **Do not rescan for devices if all of your interfaces have been found correctly.**
- Select your devices in the list.
- Activate **Enable**
- Activate **Output**
- Click **Apply**



### 4] Configuration Of Devices

- Select a device in the list and click 
- A new window will open.



Set up the following settings for your device [for the Left Panel Half as well as the Right Panel Half]:

- **Brightness** - Defines the maximum output intensity.
- **Contrast** - Defines the color contrast.
- **Luminesce Time** - Defines the luminesce tine of the panel.
- **Frequency** - Defines the frequency of the panel.
- **Red** - Defines the maximum red color intensity.
- **Green** - Defines the maximum green color intensity.
- **Blue** - Defines the maximum blue color intensity.
- **Enable Live Preview** - Activates the reception of parameters live from the device.
- **Defaults** - Restores the default settings.

## 5] DMX Universe

- Make sure that your device is still selected.
- Set up **Universe**
  - Enter the specific DMX universe number
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.

- **Make sure the correct universe is assigned according to your requirements.**

Learn more »[Glossary](#)

- Click **Apply**

## 6] Frame Time

- Make sure that your device is still selected.
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**

## Additional Functionality

### Rescan For Devices



**Rescan For Devices** - MADRIX disconnects all DMX512, Art-Net, and other network devices and starts a new search for devices.

### Highlight Mode



**Highlight** - Activates the highlight mode for the selected interface and universe under **Preferences > Device Manager... > DMX Devices**. Select one or more interfaces and click the button. The corresponding fixtures at the selected interfaces will flash for a better identification or tests. This makes it easier to see them on stage. It considerably speeds up the procedure of programming or testing the selected DMX512/Art-Net interfaces.

## DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input under **Preferences > Device Manager... > DMX Devices**

Learn more » [Tools](#)

## Resizing The Window

If wish to resize the window of the Device Manager to see more devices in the list, simply move your mouse pointer to the bottom of this window. Then, select the border and hold the left mouse button, while moving your mouse downwards.

## Important Notes

- **Keep in mind that network devices, if activated, cause network traffic!**
- **When using a network-based output protocol and when the Startup option *Start MADRIX After Booting Windows* is used, it is highly recommended to also activate the Startup option *Start With Timeout (s)* with a value of 30 or higher.**

- **It is not recommended to use communication over the Insta/ROBE protocols and KiNET in the same network!**
- **It is not recommended to operate the ROBE protocol and access to the World Wide Web/Internet in the same network! It is recommended to run it in a separate network without internet access.**

## Further Configuration

Remember to configure your light matrix in the »[Matrix Generator](#) or »[Patch Editor](#)

Make sure to save your MADRIX Setup after the configuration process.

## 6.6 Insta instalight 2022 - LED-Panel RGB 324 [Insta Protocol]

Topics of this chapter:

- [Introduction](#)
- [Overview](#)
- [Note](#)
- [Gigabit Network Components](#)
- [Step-By-Step Configuration](#)
- [Additional Functionality](#)
- [Important Notes](#)
- [Further Configuration](#)

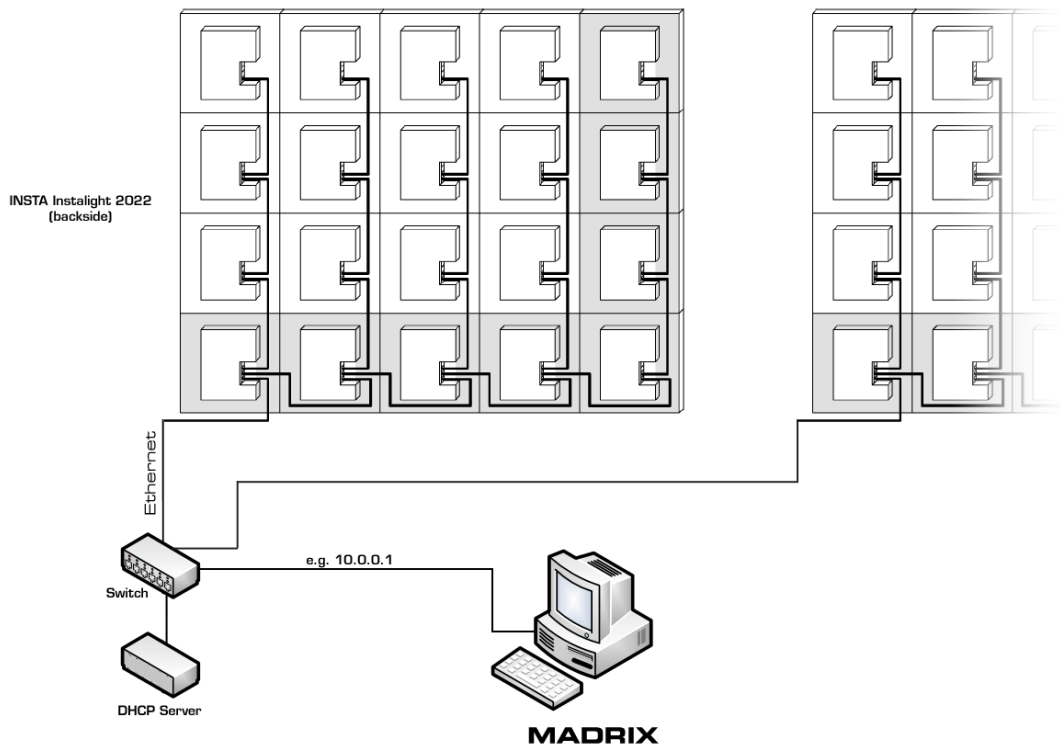
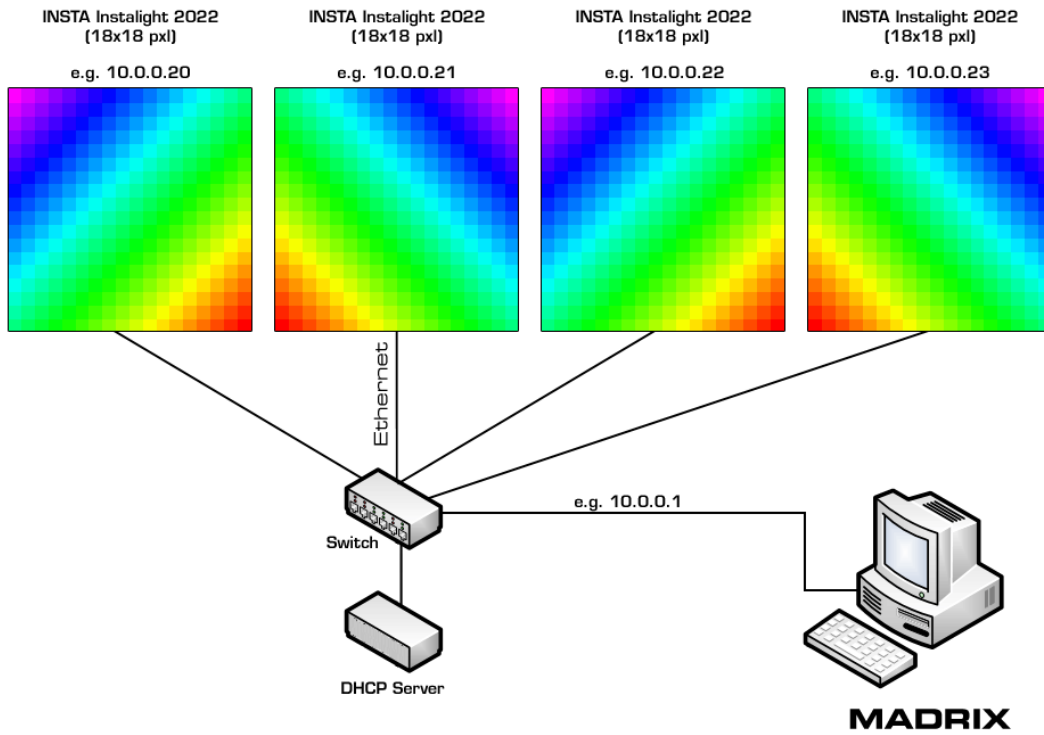
### Introduction

# INSTA

MADRIX natively supports the Insta Protocol for Insta instlight 2022® LED panels.

### Overview

- **To use Insta instalight 2022 LED panels, you need to have a separate DHCP server.**
- This can be a software or hardware DHCP server, which handles the IP addresses of the Insta LED panels and the MADRIX computer.
- It is recommended that the DHCP server binds MAC addresses to IP addresses.





## **Note**

There are several steps required to set up Insta products in MADRIX. This chapter is only part of the process. You need to set up other configurations as well [such as virtual LED matrix, DMX Devices, MADRIX Effects, Audio, etc.].

## **Gigabit Network Components**

**It is recommended to only use 1000 MBit/s network components. That means 1000 MBit/s network cards in your computer, 1000 MBit/s switches and a DHCP server with support of 10/100/1000 MBit/s if your setup looks like the configuration shown above.**

## **Step-By-Step Configuration**

- 1]** Configure network settings in Windows.
- 2]** Enable Insta Drivers in MADRIX.
- 3]** Activate devices.
- 4]** Configure devices.
- 5]** Set up the correct DMX universe.
- 6]** Set up the Frame Time.

### **1] Windows Network Settings**

The protocol from Insta is a network-based protocol. MADRIX will use the network card of your computer to send data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings.**
- **The IP addresses of your computer and your Insta devices need to be different.**
  
- Set up an individual **IP address** in the following IP address range:
  - **10.0.0.1 ... 10.255.255.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**
  
- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**
- **Check the settings of the Windows Firewall.**
- Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)

## 2] Enabling Drivers In MADRIX


- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices Network**]
  - Activate **Enable Network Driver**
  - Choose the correct network/network card from the drop-down list.
    - **Always make sure that you have selected the correct network. Otherwise, the network device might still be found. But no data can be sent.**

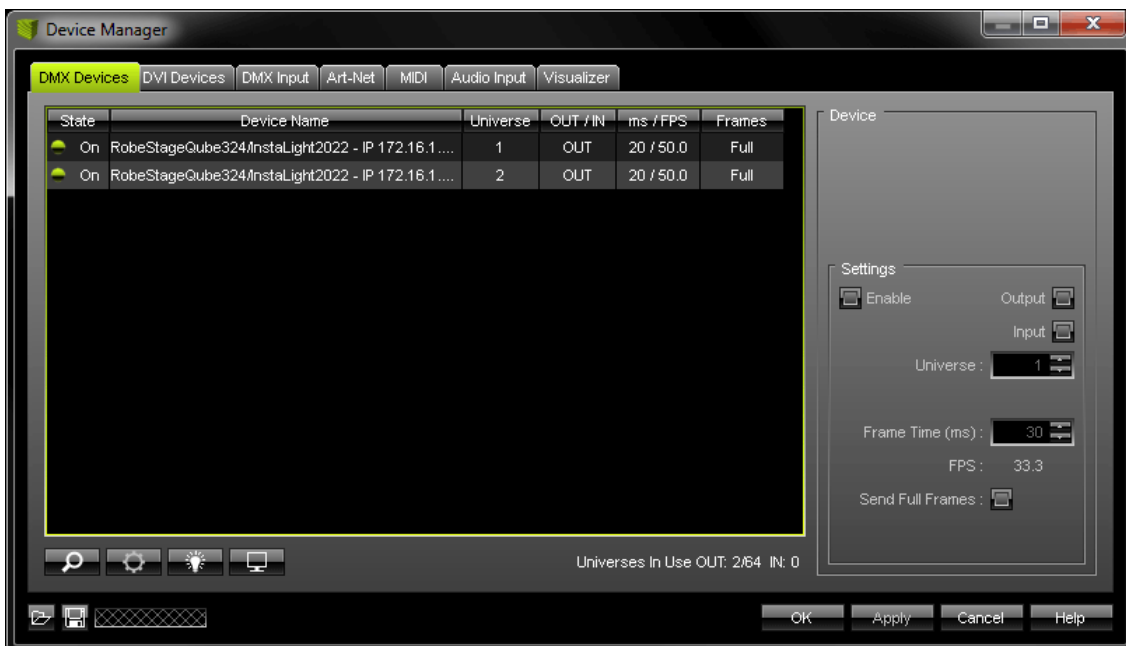


- **Time To Detect Devices (s)** - Defines how long MADRIX searches the network for devices during startup. Type in a value in seconds.  
**- We recommend to utilize at least a value of 10 to allow for a sufficient search. Higher values are recommended for larger installations.**
- **Adjust White Balance** - Activate and MADRIX automatically performs this automatic calibration on startup. Connected panels will adjust their white value to the maximum value possible in the installation to ensure a similar color temperature. If the adjustment takes longer than 100 seconds, MADRIX will send data nevertheless. Uncheck this option if you want to deactivate it.


### 3] Activating Device

- Go to **Preferences > Device Manager... > DMX Devices**  
 [Keyboard shortcut: **F4**]
- MADRIX automatically adds network devices it has found during startup to the list.

- Click  if the devices have not been found.
  - MADRIX disconnects all DMX512, Art-Net, and other devices and starts to search for new or newly connected devices.
  - **Do not rescan for devices if all of your interfaces have been found correctly.**
- Select your devices in the list.
- Activate **Enable**
- Activate **Output**
- Click **Apply**



### 4] Configuration Of Devices

- Select a device in the list and click 
- A new window will open.



Set up the following settings for your device [for the Left Half Panel as well as the Right Half Panel]:

- **Brightness** - Defines the maximum output intensity.
- **Contrast** - Defines the color contrast.
- **Luminesce Time** - Defines the luminesce tine of the panel.
- **Frequency** - Defines the frequency of the panel.
- **Red** - Defines the maximum red color intensity.
- **Green** - Defines the maximum green color intensity.
- **Blue** - Defines the maximum blue color intensity.
- **Enable Live Preview** - Activates the reception of parameters live from the device.
- **Defaults** - Restores the default settings.

## 5] DMX Universe

- Make sure that your device is still selected.
- Set up **Universe**
  - Enter the specific DMX universe number
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.

- **Make sure the correct universe is assigned according to your requirements.**

Learn more »[Glossary](#)

- Click **Apply**

## 6] Frame Time

- Make sure that your device is still selected.
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**

## Additional Functionality

### Rescan For Devices



**Rescan For Devices** - MADRIX disconnects all DMX512, Art-Net, and other network devices and starts a new search for devices.

### Highlight Mode



**Highlight** - Activates the highlight mode for the selected interface and universe under **Preferences > Device Manager... > DMX Devices**. Select one or more interfaces and click the button. The corresponding fixtures at the selected interfaces will flash for a better identification or tests. This makes it easier to see them on stage. It considerably speeds up the procedure of programming or testing the selected DMX512/Art-Net interfaces.

## DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input under **Preferences > Device Manager... > DMX Devices**

Learn more » [Tools](#)

## Resizing The Window

If wish to resize the window of the Device Manager to see more devices in the list, simply move your mouse pointer to the bottom of this window. Then, select the border and hold the left mouse button, while moving your mouse downwards.

## Important Notes

- **Keep in mind that network devices, if activated, cause network traffic!**
- **When using a network-based output protocol and when the Startup option *Start MADRIX After Booting Windows* is used, it is highly recommended to also activate the Startup option *Start With Timeout (s)* with a value of 30 or higher.**

- **It is not recommended to use communication over the Insta/ROBE protocols and KiNET in the same network!**
- **It is not recommended to operate the Insta protocol and access to the World Wide Web/Internet in the same network! It is recommended to run it in a separate network without internet access.**

## Further Configuration

Remember to configure your light matrix in the »[Matrix Generator](#) or »[Patch Editor](#)

Make sure to save your MADRIX Setup after the configuration process.



## 6.7 Philips Color Kinetics [KiNET]

Topics of this chapter:

- [Introduction](#)
- [Note](#)
- [Step-By-Step Configuration](#)
- [Additional Functionality](#)
- [Further Configuration](#)
- [Important Notes](#)
- [Troubleshooting](#)
- [Additional Information](#)

### Introduction



MADRIX natively supports Philips Color Kinetics [KiNET]. The protocol is implemented in the software, which makes it easy to use Color Kinetics fixtures and Color Kinetics power supplies with MADRIX.

MADRIX supports

- KiNET V1
- KiNET V2

### Note

There are several steps required to set up KiNET products in MADRIX. This chapter is only part of the process. You need to set up other configurations as well [such as virtual LED matrix, DMX Devices, MADRIX Effects, Audio, etc.].

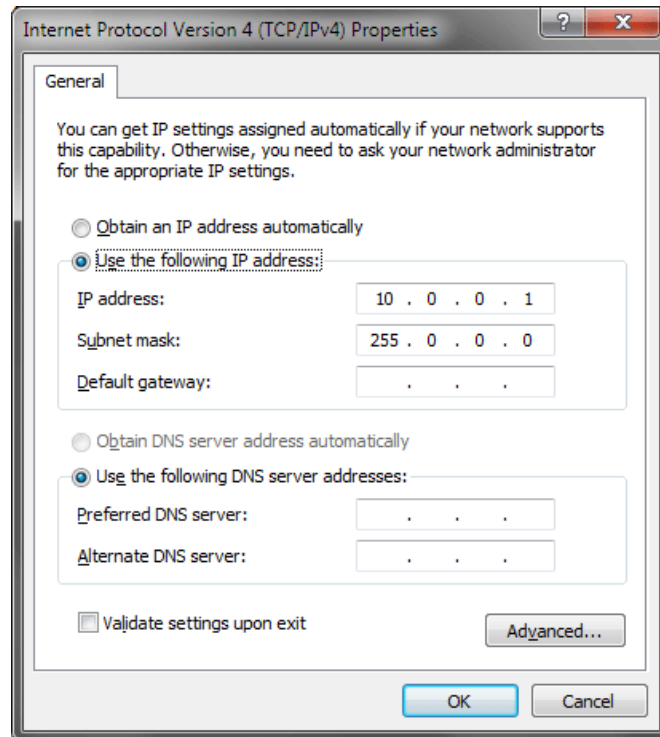
## Step-By-Step Configuration

- 1] Set up the correct network settings in Windows.
- 2] Enable drivers in MADRIX.
- 3] Activate your devices.
- 4] Set up the DMX universe.
- 5] Set up the Frame Time.

### 1] Windows Network Settings

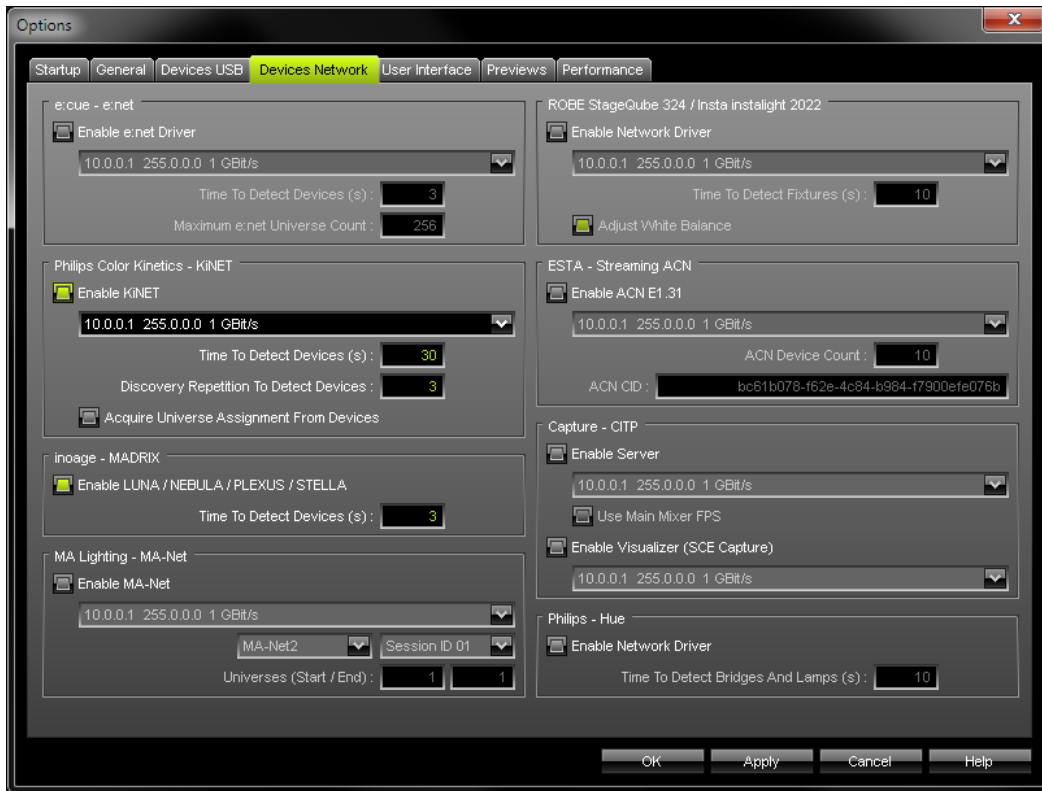
KiNET is a network-based protocol. MADRIX will use the network card of your computer to send data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, KiNET might not work!**
- **The IP addresses of your computer and your KiNET devices need to be different.**
  
- Set up an individual **IP address** in the following IP address range:
  - **10.0.0.1 ... 10.255.255.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**
  
- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**
- **Check the settings of the Windows Firewall.**
- Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)
  
- Example for PCs that are running MADRIX:



## 2] Enabling Drivers In MADRIX


- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices Network**]
  - Activate **Enable KiNET**
  - Choose the correct network/network card from the drop-down list.
    - **Always make sure that you have selected the correct network. Otherwise, the network device might still be found. But no data can be sent.**



- **Time To Detect Devices (s)** - Defines how long MADRIX searches the network for devices during startup. Type in a value in seconds.
  - The default value is 15.
  - **We recommend to utilize at least a value of 15 to allow for a sufficient search. Higher values are recommended for larger installations.**
- **Discovery Repetition To Detect Devices** - Defines how often MADRIX repeats to search for and discover devices in the network within the Time To Detect Devices (s).
  - The default value is 3.
- **Acquire Universe Assignment From Devices** - If activated and if KINET devices have been fully configured, MADRIX reads the assigned DMX universe from newly found devices and automatically sets it in the Device Manager for these devices.

### 3] Activating Device

- Go to **Preferences > Device Manager... > DMX Devices**  
 [Keyboard shortcut: **F4**]

- MADRIX automatically adds network devices it has found during startup to the list.
  - Click  if the devices have not been found.
    - MADRIX disconnects all DMX512, Art-Net, and other devices and starts to search for new or newly connected devices.
    - **Do not rescan for devices if all of your interfaces have been found correctly.**
  - Select your devices in the list.
  - Activate **Enable**
  - Activate **Output**
  - Click **Apply**
- There is a difference between KINET V1 and V2. KINET V2 makes sure that the panels will receive the data at the same time. This is particularly useful for large installations.
- Please see the Color Kinetics documentation to see which protocol is supported by your power supply.



## 5] DMX Universe

- Make sure that your device is still selected.

- Set up **Universe**
  - Enter the specific DMX universe number
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.
- **Make sure the correct universe is assigned according to your requirements.**  
Learn more »[Glossary](#)
- Click **Apply**

## 6] Frame Time

- Make sure that your device is still selected.
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**

## Additional Functionality

### Rescan For Devices



**Rescan For Devices** - MADRIX disconnects all DMX512, Art-Net, and other network devices and starts a new search for devices.

## Highlight Mode



**Highlight** - Activates the highlight mode for the selected interface and universe under **Preferences > Device Manager... > DMX Devices**. Select one or more interfaces and click the button. The corresponding fixtures at the selected interfaces will flash for a better identification or tests. This makes it easier to see them on stage. It considerably speeds up the procedure of programming or testing the selected interfaces.

## DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input under **Preferences > Device Manager... > DMX Devices**

Learn more »[Tools](#)

## Resizing The Window

If wish to resize the window of the Device Manager to see more devices in the list, simply move your mouse pointer to the bottom of this window. Then, select the border and hold the left mouse button, while moving your mouse downwards.

## Further Configuration

LED Fixtures	Comments
--------------	----------

<b>Color Kinetics eW Flex SLX</b> <b>Color Kinetics iColor Flex SLX</b>	If you are using a PDS-60ca with one or two strings per controller, a PDS-150, or sPDS-480ca, please select the correct fixture in the » <a href="#">Matrix Generator</a>
--	---

Remember to configure your virtual LED matrix in the » [Matrix Generator](#) or » [Patch Editor](#)

Make sure to save your MADRIX Setup after the configuration process.

## Important Notes

- **Keep in mind that network devices, if activated, cause network traffic!**
- **When using a network-based output protocol and when the Startup option *Start MADRIX After Booting Windows* is used, it is highly recommended to also activate the Startup option *Start With Timeout(s)* with a value of 30 or higher.**
- **It is not recommended to use KiNET and communication over the Insta/ROBE protocols in the same network!**
- **It is not recommended to operate KiNET and access to the World Wide Web/Internet in the same network! It is recommended to run it in a separate network without internet access.**

## Troubleshooting

**If you are encountering problems, please work through the following checklist:**

- Check if all network cables are connected and if Gigabit network components are used.
- Check if your light matrix is configured correctly in the **Matrix Generator** or **Patch Editor**



- Have all devices been found under **Preferences > Device Manager... > DMX Devices**?  
If not,
  - 1] Check if the IP address and Subnet mask are configured correctly in Windows and your devices.
  - 2] Go to the **Preferences > Options > Devices Network**. Select **Enable KiNET**
  - 3] Go to the **Preferences > Options > Devices Network**. Select the correct network card in the section **Philips Color Kinetics - KiNET**
  - 4] Go to the **Preferences > Options > Devices Network**. Increase the value for **Time To Detect Devices (s)** in the section **Philips Color Kinetics - KiNET**
  - 5] Click **Rescan For Devices** under **Preferences > Device Manager... > DMX Devices**.
  - 6] Try and deactivate your Firewall in Windows.
  - 7] Make sure that the network is not forming a ring, were the start point is also the end point, and that data is not sent back to the source [the computer].
- Are all devices activated under **Preferences > Device Manager... > DMX Devices**?  
Check if **Enable** and **Output** are activated.
- Check if all ports you are using on your device are configured correctly. Please check if ports, that are not used, are deactivated in MADRIX.
- Check if the DMX addressing and DMX universes are assigned correctly. Also check the **Patch**.
- Test if MADRIX is connected to the devices. Use **Highlight Device** for each of your devices.
- Go to **Tools > Task Watcher**. Check if the devices are sending data.
- Go to **Tools > Logfile**. Check if any error or warnings occur regarding the network or KiNET.
- Make sure all power supplies and controllers are working correctly.
- Remove any routers from the network.

## Additional Information

### Addressing And Configuration

- Regarding the configuration and addressing of Philips Color Kinetics lighting fixtures and power supplies, the company offers extensive information on the following website: »<http://www.colorkinetics.com/support/addressing/>

- In addition, there is a software tool called QuickPlay Pro for configuration and multiple addressing. Here is an excerpt from the website:

"With QuickPlay Pro, you can:

- Use serial numbers to program fixtures with light numbers or DMX addresses
- Assign base light numbers to power / data supplies, allowing automatic fixture configuration
- Test light numbers and DMX channels
- Demonstrate a lighting system using four built-in light shows: fixed color, color wash, rainbow, and streak"
- For example, the tool can be used to change the IP addresses of Color Kinetics lighting fixtures.
- **Please note: Working with such a tool is only recommended for advanced users because settings can easily be adjusted wrong!**
- You can download the tool on the website mentioned above or at »<http://www.colorkinetics.com/support/downloads/>
- The download archive for older products can be found at »<http://www.colorkinetics.com/support/downloads/archive/>

## Information About PDS-60ca Power Supplies

The PDS-60ca is a well-known and often used power/data supply from Philips Color Kinetics. Three different versions are offered:

- PDS-60ca PREPROGRAMMED
- PDS-60ca DMX
- PDS-60ca ETHERNET

You can identify your version of the device using the following item numbers written on the case of the PDS-60ca:

- 109-000016-00 [Pre-programmed]
- 109-000016-01 [DMX]
- 109-000016-02 [Ethernet]

- The PDS-60ca DMX supports DMX512 via an extra interface [controlled by MADRIX] or Color Kinetics DMX controllers.

The PDS-60ca ETHERNET uses KiNET and can be controlled via MADRIX without an extra interface.

And the PDS-60ca PREPROGRAMMED does not support external data input.

## Information Update

The official website now only lists two PDS-60ca. The second power supply now automatically switches between DMX and Ethernet mode.

- 109-000020-00 PDS-60ca 12V [Pre-programmed]
- 109-000020-03 PDS-60ca 12V [DMX / Ethernet]

## 6.8 ESTA - Streaming ACN [sACN / E1.31]

This topic includes:

- [Introduction](#)
- [Note](#)
- [Step-By-Step Configuration](#)
- [Additional Functionality](#)
- [Important Notes](#)
- [Troubleshooting](#)
- [Further Configuration](#)

### Introduction



Streaming ACN [sACN/E1.31] is a protocol that transfers DMX data over Ethernet. It is another network-based DMX protocol. It is a standard created by ESTA [Entertainment Services and Technology Association; web link >[www.esta.org](http://www.esta.org)].

### Note

There are several steps required to set up Streaming ACN products in MADRIX. This chapter is only part of the process. You need to set up other configurations as well [such as virtual LED matrix, DMX Devices, MADRIX Effects, Audio, etc.].

## **Step-By-Step Configuration**

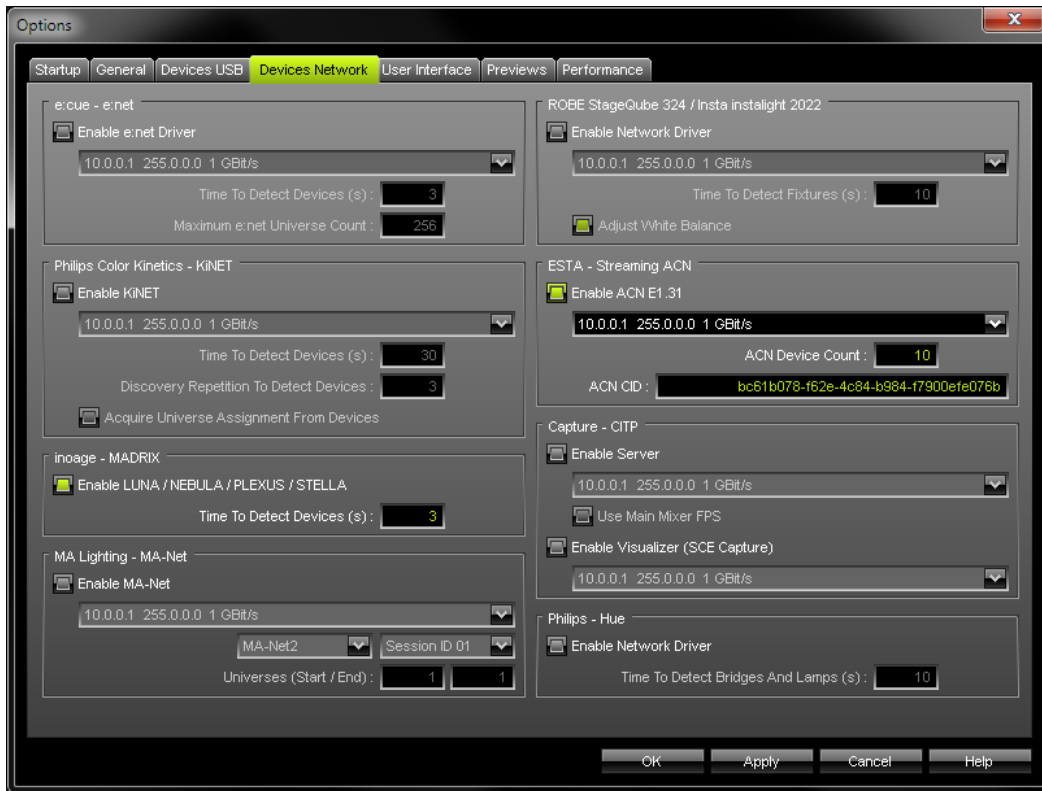
- 1]** Configure network settings in Windows.
- 2]** Activate Streaming ACN in MADRIX.
- 3A]** Configure single DMX devices.
- 3B]** Configure multiple DMX devices.
- 4]** Choose if you are going to use your devices as output or input interfaces.
- 5]** Set up the correct DMX universe.
- 6]** Set up the Frame Time.

### **1] Windows Network Settings**

- MADRIX automatically sets up Streaming ACN network settings for you.  
[MADRIX supports multicast Streaming ACN. Data is automatically sent to all corresponding sACN devices in the network.]
- You only need a computer with a network card and a valid IP address.
  
- **You do not have to change the IP address settings in Windows for Streaming ACN!**
- **The IP address range for sACN devices is 239.255.X.X according to the Streaming ACN specifications.**  
[Even if your sACN devices are set to a different IP address range, you may try the connection from MADRIX to your devices. You can use the MADRIX demo version to test the software prior to purchase.]
- **Make sure that your Firewall does not block data of the 239.255.X.X IP address range!**
- **Check the settings of the Windows Firewall.**
- Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)

## 2] Activating Streaming ACN

- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices Network**]
- Activate **Enable ACN E1.31**
- **Choose your network card** from the drop-down list. Make sure to select the correct network adapter that will be used for Streaming ACN!  
[The IP address and Subnet mask label should help you select the correct adapter. It is not necessary to change any of these networks settings.]
- **ACN Device Count** - Set up how many you are going to use.  
[This is the total amount of OUT and IN devices. Please set the exact number of devices you are using. If the count is higher, this creates unnecessary network traffic.]
- Press **Apply**

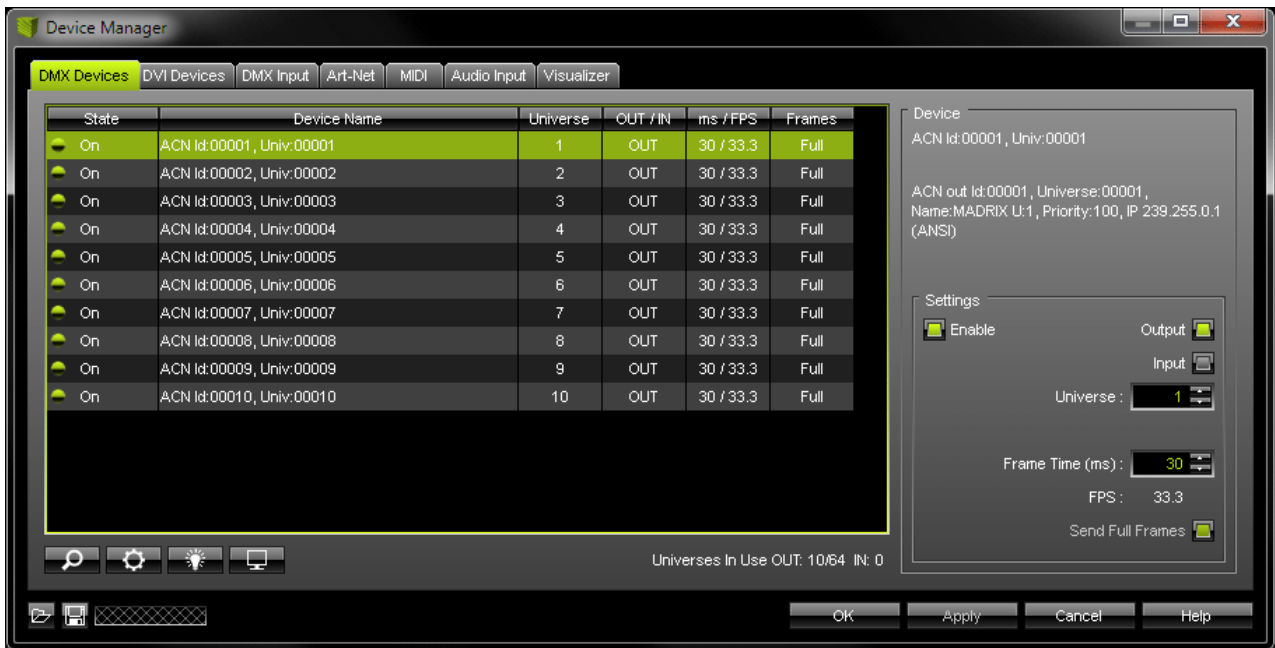



- **ACN CID** - Being a network protocol, Streaming ACN sends a so-called CIDs [Component Identifier].
  - Every single ACN device has such a unique ID.
  - When using Streaming ACN, your MADRIX software is one of those devices.
  - When you start MADRIX for the first time, this ID will be generated automatically for you. From this point onwards it will be used on your PC.
  - With this ID your MADRIX software can be easily identified in the network. Interfaces can detect this unique ID and can be configured to receive data from this particular device. Please note that the ACN interface must support this feature.
  - **Do not change the ACN CID, unless you are an experienced user!**
- Press **OK** to close the window.

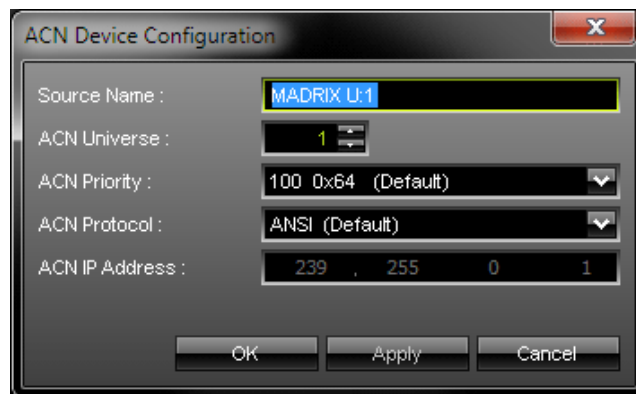
### 3A] Configuration Of Single DMX Devices

- Go to **Preferences > Device Manager... > DMX Devices**  
 [Keyboard shortcut: **F4**]

- MADRIX automatically creates and adds the number of interfaces to the list.  
[according to **ACN Device Count**]



- Select a device in the list and click 
- A new window will open.




Set up the following settings for your devices:

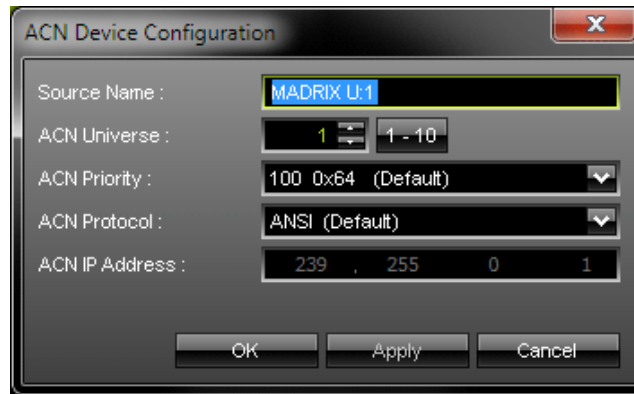
- **Source Name** - Allows you to set up a specific name for the device. This name is send via network as well. Therefore, interfaces may be able to retrieve this name and can be configured to receive data from this source.
  - If you are using the default name **MADRIX U:X**, the universe will automatically be displayed in the name [represented by X: 1, 2, 3, etc.].



- **ACN Universe** - Defines the DMX universe of the device.
  - **Set up the same universe that is set up in your sACN device.**
  - According to the Streaming ACN specifications, MADRIX will automatically change the ACN IP Address according to the ACN Universe.
- **ACN Priority** - Was implemented for backup solutions. Valid values range from 0 to 200, which is the highest priority.
  - For example, you may have set up two MADRIX PCs. One gets a priority of 100. The second PC gets a priority of 50. If the first PC fails and only if it malfunctions, data will be automatically received from PC #2.
  - Data will always be received from the device with the highest priority. Please note that the ACN device must support this feature.
- **ACN Protocol** - Allows you to choose the protocol version. The official version is called **ANSI**. This option is selected by default.
  - If you are using an older device that is using the Draft version, you may select **BSR**.
  - **Do not change the protocol unless you are certain.**
- **ACN IP Address** - Displays the IP address of the device as automatically assigned by MADRIX according to the Streaming ACN specifications. The last 2 digits match the assigned DMX universe.
  
- Press **Apply** to confirm your changes.
- Press **OK** to close the window.

### 3B] Configuration Of Multiple DMX Devices

- You can configure **several interfaces** at the same time.
- Follow the steps of 3A, but select multiple devices and press 
- A new window will open.



- Set up the settings as described under 3A].
- For **ACN Universe** you have now additional options for **Auto Numbering**:



Leave this button deactivated and every device will get the same number of universes.

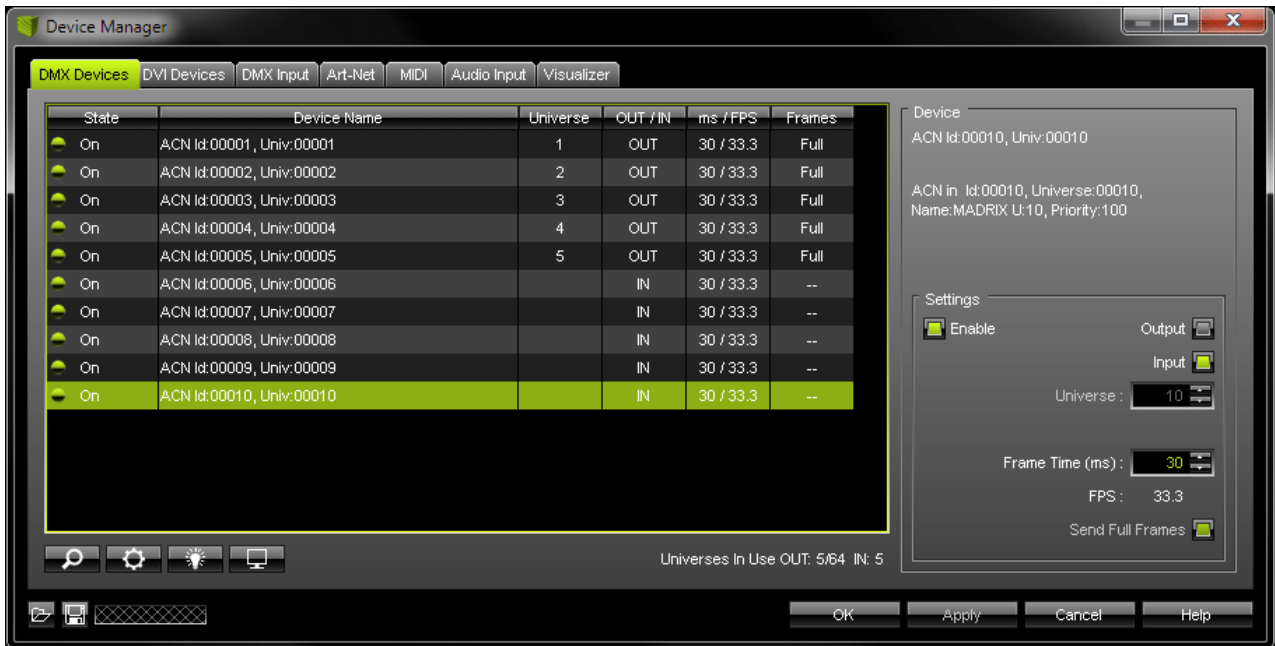


Activate the button and MADRIX will automatically increase the number for all the selected devices, starting with the ACN Universe value you entered.

- Press **Apply** to confirm your changes.
- Press **OK** to close the window.

## 4] Output or Input

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**.
- **A]** Enable **Output** if you wish to send data to this device in order to put it out onto your LED fixtures.
- Click **Apply**
- **B]** Enable **Input** if you wish to receive incoming data through this device.
- Click **Apply**
- In DMX-IN mode, you will not be able to select the ACN protocol. MADRIX will automatically select the correct protocol version.
- Learn more »[DMX-IN](#)



- **Note: If you are loading a MADRIX Setup, please check if the number of ACN devices in your setup corresponds with the number that is activated. The Setup stores the number of devices. But if you changed the amount and then loaded the Setup, the newly defined number will be activated.**

## 5] DMX Universe

- Make sure that your device is still selected.
- Set up **Universe**
  - Enter the specific DMX universe number
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.
- **Make sure the correct universe is assigned according to your requirements.**
- Learn more »[Glossary](#)
- Click **Apply**

## 6] Frame Time

- Make sure that your device is still selected.

- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**

## Additional Functionality

### Rescan For Devices



**Rescan For Devices** - MADRIX disconnects all DMX512, Art-Net, and other network devices and starts a new search for devices.

### Highlight Mode



**Highlight** - Activates the highlight mode for the selected interface and universe. Select one or more interfaces and click the button. The corresponding fixtures at the selected interfaces will flash for a better identification or tests. This makes it easier to see them on stage. It considerably speeds up the procedure of programming or testing the selected DMX512/Art-Net interfaces.

### DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input

Learn more » [Tools](#)

## Resizing The Window

If wish to resize the window of the Device Manager to see more devices in the list, simply move your mouse pointer to the bottom of this window. Then, select the border and hold the left mouse button, while moving your mouse downwards.

## Important Notes

- **Please switch off your Firewall or configure your Firewall accordingly. sACN might not work with a Firewall!**
- **It is recommended to run sACN in a separate network without internet access. Else, the internet connection may not work properly.**
- **Keep in mind that network devices, if activated, cause network traffic!**
- **When using a network-based output protocol and when the startup option *Start MADRIX After Booting Windows* is used, it is highly recommended to also activate the Startup option *Start With Timeout (s)* with a value of 30 or higher.**

## Troubleshooting

**If you are encountering problems, please work through the following checklist:**

- Make sure to set up the Windows Firewall correctly or deactivate the Windows Firewall if possible [only if no connection to the internet is available]. Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)

- Use **Start With Timeout (s)** in the MADRIX Options to make sure network is initialized correctly before MADRIX starts. Learn more »[Startup](#)
- If output problems occur, decrease the output frame rate [FPS] in the Device Manager.
- Make sure that sACN is set up as an individual network and separate from the Internet.
- Double-check if routers and switches in the network allow communication and IP address forwarding for the 239.255.X.X range of IP addresses.
- Double-check if your sACN devices support multicast Streaming ACN and are configured accordingly.

## Further Configuration

Remember to configure your light matrix in the »[Matrix Generator](#) or »[Patch Editor](#)

Make sure to save your MADRIX Setup after the configuration process.

## 6.9 Proprietary DVI Devices [5A / A8 / T9]

This topic includes:

- [Introduction](#)
- [Initial Configuration](#)
- [Note](#)
- [Gigabit Network Card](#)
- [Step-By-Step Configuration](#)
- [Further Configuration](#)
- [Important Notes](#)
- [Troubleshooting](#)

### Introduction

Certain DVI hardware is equipped with proprietary protocols. MADRIX has implemented a range of products that are natively supported because of this.

MADRIX currently supports the following DVI device types:

- Colorlight 5A
- Colorlight A8
- Colorlight T9
- EuroLite T9
- ColourSmart Link

## Initial Configuration

Before you can use MADRIX, please make sure that you have configured your LED fixtures and hardware correctly.

## Note

There are several steps required to set up proprietary DVI products in MADRIX. This chapter is only part of the process. You need to set up other configurations as well [such as virtual LED matrix, DMX Devices, MADRIX Effects, Audio, etc.].

## **Gigabit Network Card**

- **Only use a GIGABIT network card [1 GBit/s or 1000 MBit/s]. 100 MBit/s network cards or lower will not work!**
- **It is only recommended to use a wired network connection. Using wireless transmission will not work!**

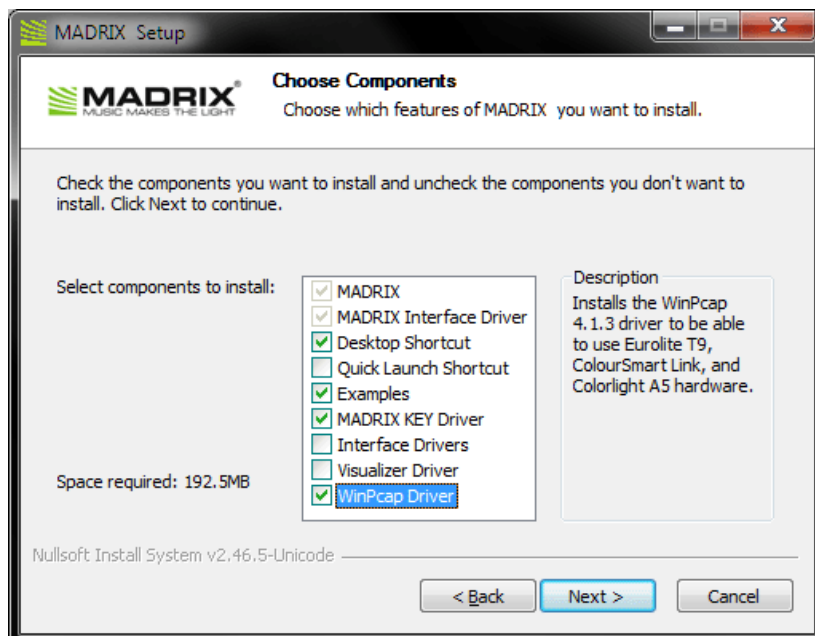


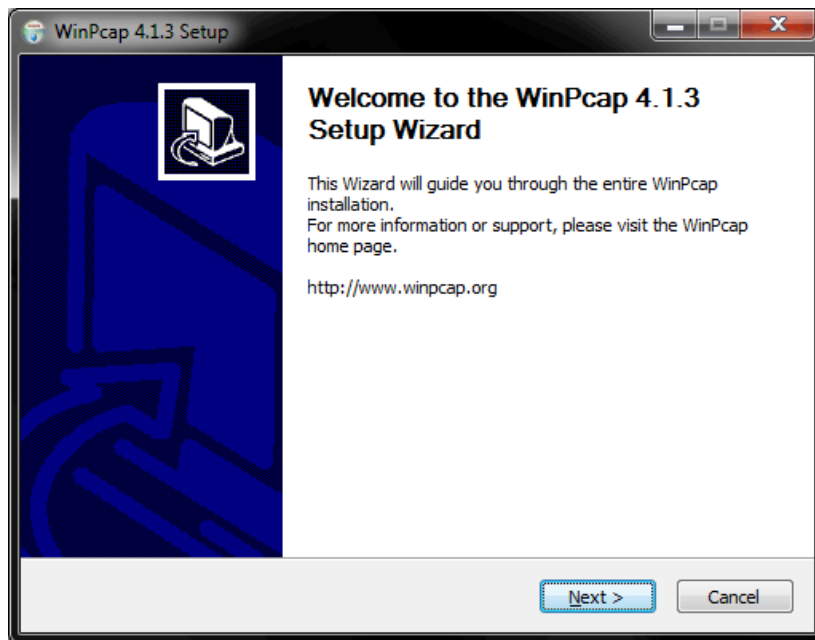
## Step-By-Step Configuration

- 1] Install the correct driver.
- 2] Activate the DVI device in MADRIX.
- 3] Configure various settings.

### 1] Installing The WinPcap Driver

- To use DVI devices with MADRIX, you have to install the correct driver first.
- During the MADRIX installation process, make sure to select the check box **WinPcap Driver**
- If you have already installed MADRIX without this component, re-install MADRIX.
- The WinPcap driver will be installed using a second installer. Confirm this setup wizard to install the driver.
- Learn more »[Installation Process](#)





## 2] Activating The DVI Device

- Go to **Preferences > Device Manager... > DVI Devices**  
[Keyboard shortcut: **F4 > DVI Devices**]



- **A]** Add devices automatically.

- Click 

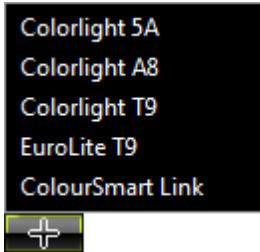
[MADRIX will automatically search for connected devices. It will also search across multiple networks if there is more than one network card is available.]

[Note: Automatic search will default to EuroLite T9 for all T9 devices found, incl. ColourSmart Link, EuroLite T9, and Colorlight T9.]

- **B]** Add devices manually.

- Click 

- A small selection list will be opened above the button.

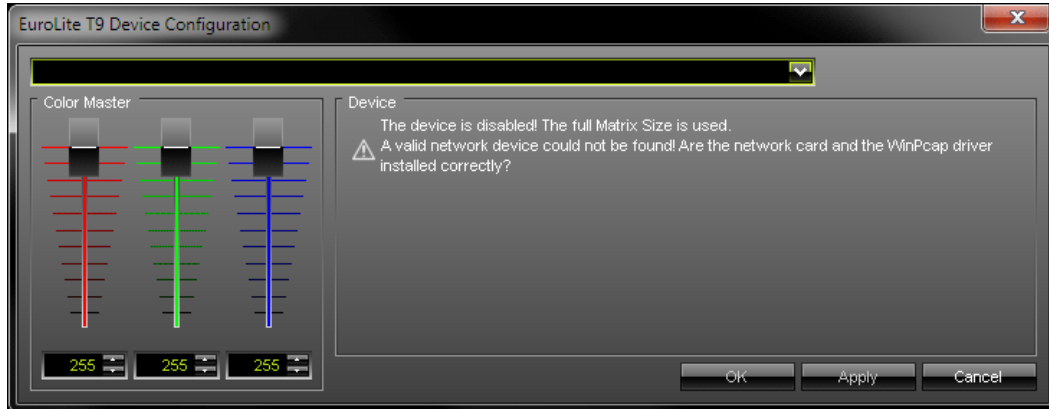


- Select your DVI device type now.

- A new window will open [ **Device Configuration** ].

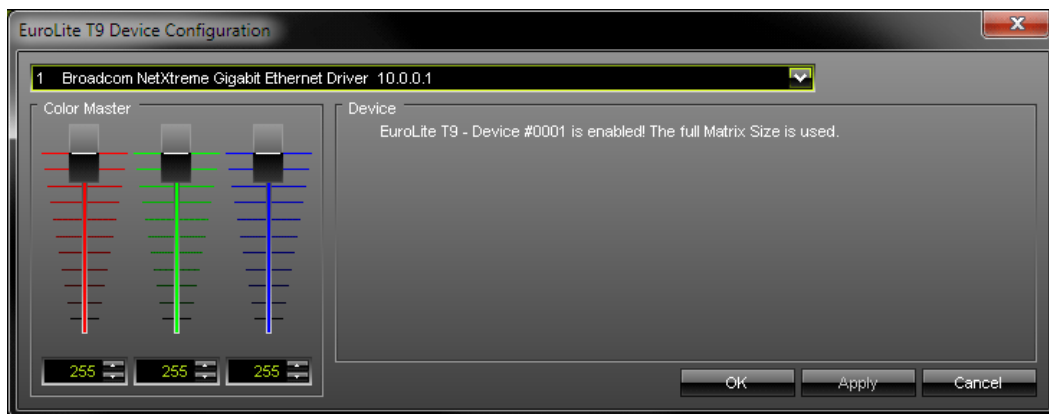
**1]** If the drop-down list at the top of the Device Configuration window does not contain an entry, there is either no network card available or the WinPcap driver is not installed properly.

- If you are receiving this error message, please resolve these issues and run the MADRIX installer again to install the required drivers [ **WinPcap Driver** ].

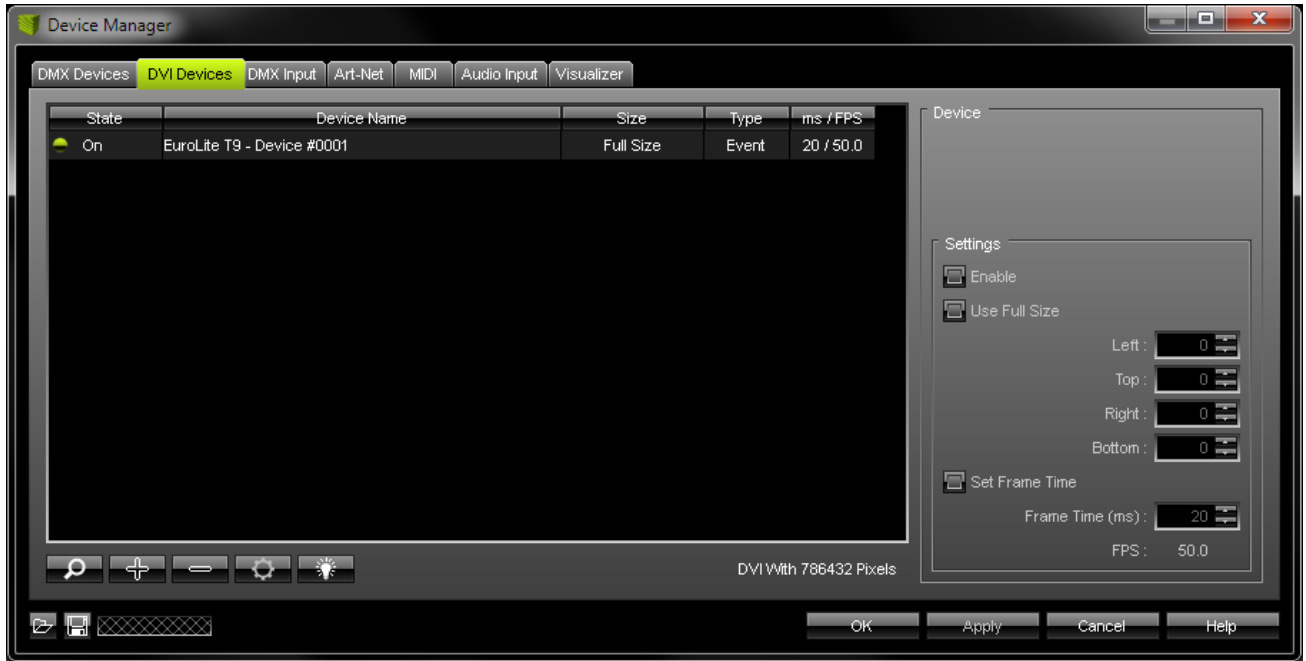


**2]** If everything is installed properly, select the network device that communicates with your DVI fixture in the drop-down list at the top of the Device Configuration window.

- Do not change any other settings here [such as, **Color Master**] unless you are an experienced user.
  - Advanced users may adjust the color settings via the Color Master if the DVI device renders colors incorrectly.
  - When adding Colorlight 5A devices, you may choose an additional **Screen Number**. Set up the same index number as is configured in your 5A device. Leave the default setting if you are not sure.
- Click **OK**



- The new DVI device will appear in the list after it has been added automatically or manually.






### 3] Settings

There are different Settings available for further configuration. By default, all settings should be set up correctly already.

- If you change a setting, always click **Apply** to confirm the changes.
- **Enable** - Activates or deactivates the currently selected DVI device. This is activated by default. It needs to be activated in order to work correctly.
- **Use Full Size** - Displays the full Matrix Size on the device. This is activated by default and the recommended setting.
  - Deactivate if you want to set up a certain cut-out and specify which details of your matrix will be shown. You can choose the start coordinates and the end coordinates of this area. **Left** and **Top** define the start coordinates in a coordinate system that starts with 0,0 in the top left corner. **Right** and **Bottom** define the end coordinates.

**Scaling is not available.**  
**Your virtual LED matrix will not be stretched or compressed in order to fit the DVI device or vice versa.**

- **Set Frame Time** - Activate in order to set a different frame time in milliseconds. By default, the DVI device is set to be an **Event** type with a frame rate of 50 FPS.
  - If you manually set a new frame time, the output might judder.
  - It is not recommended to set a higher frame rate than 50 FPS. But if your hardware controller requires a frame rate that is lower than 50 FPS, adjust the value to these requirements. Then, the type of your device will be set to **Frame** in the list.
-  - Removes the currently selected DVI device.
-  - Calls up the configuration window again.
-  - Makes your device flash and will set all pixels instantly to white for testing purposes.

## Further Configuration

Remember to configure your light matrix in the [»Matrix Generator](#) or [»Patch Editor](#)

Make sure to save your MADRIX Setup after the configuration process.

## Important Notes

Device Type	Comments
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<p><b>All DVI Device Types</b></p>	<p>1] Please do not use a network hub or switch. Please only use a direct network connection.</p> <p>2] Use only Gigabit network cards.</p> <p>3] Only connect via network cabling. A wireless connection [WiFi] will not work!</p> <p>4] A maximum of 75 m of network cabling is recommended. When covering higher distances, data issues can occur.</p> <p>5] Please note that the hardware controller needs to be configured correctly, before MADRIX can be used.</p> <p>6] The configuration cannot be rotated. If you have rotated fixtures in your installation, please use the rotation features provided by each MADRIX effect.</p> <p>7] Do not use different DVI device types on the same network! Always use a separate network for each proprietary DVI device type.</p>
<p><b>EuroLite T9</b></p>	<p>1] Before using MADRIX, please make sure that you have configured your EUROLITE LED fixture and hardware correctly. The configuration is described in the EUROLITE user manual. Repeat the steps if necessary.</p> <p>2] You can only create and use one single DVI device in MADRIX per network card. This means that a maximum of 56 controllers connected in series can be used per one network card with a maximum of 128x128 pixels for each controller.</p> <p>3] Please note: Configure only one hardware controller at a time with the software EUROLITE LED Show T9. Please do not connect several controllers while setting the parameters.</p> <p>4] See web link »<a href="http://www.eurolite.de">www.eurolite.de</a> for the latest documentation.</p>

## Troubleshooting

If you are encountering problems, please work through the following checklist:

- Check if all network cables are connected correctly. Please do not use a network hub or switch.
- Check if your hardware is working without MADRIX.
- Check if you have installed the **WinPcap Driver** during the installation of MADRIX.



- Check if your light matrix is configured correctly in the **Matrix Generator** or **Patch Editor**
- Go to the menu **Preferences > Device Manager... > DVI Devices**. Check if you have added a new DVI device.
- Check if **Enable** and **Use Full Size** are activated for your device under **Preferences > Device Manager... > DVI Devices**
- Configure your hardware controller again if this seems to be necessary.
- Always configure only one hardware controller. Do not connect two or more controllers while setting the parameters.
- When using LED Show T9,
  - 1] repeat the steps described in the manual.
  - 2] make sure to click **Send** two times in order to save the **parameter set** on your PC and on your controller.
  - 3] download the configuration file again [for example, **Presets T9.DAT**] and use this default configuration file to configure your controller again.
  - 4] uninstall the software and then install it again. Reconfigure all settings.

## 6.10 Philips Hue

Topics of this chapter:

- [Introduction](#)
- [Note](#)
- [Step-By-Step Configuration](#)
- [Additional Functionality](#)
- [Further Configuration](#)
- [Important Notes](#)
- [Additional Information](#)

### Introduction

MADRIX natively supports Philips Hue.

The protocol is implemented directly in the software, which makes it easy to use Philips Hue bridges and lamps with MADRIX.

### Note

There are several steps required to set up Philips Hue products in MADRIX. This chapter is only part of the process. You need to set up other configurations as well [such as virtual LED matrix, DMX Devices, MADRIX Effects, Audio, etc.].

### Step-By-Step Configuration

- 1]** Set up the correct network settings in Windows.
- 2]** Enable drivers in MADRIX.

- 3] Authorize A Bridge.
- 4] Set up the DMX universe.
- 5] Set up the Frame Time.

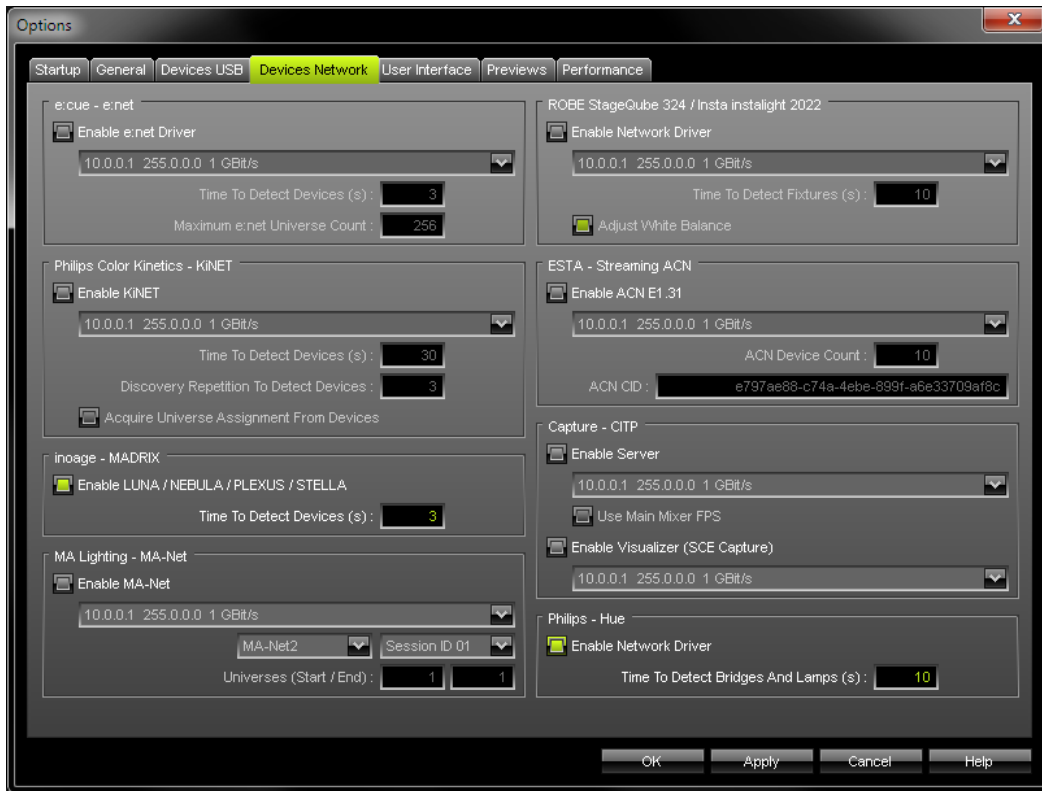
## 1] Network Settings

Philips Hue is a network-based protocol. MADRIX will use the network card of your computer to send data to the bridges.

- **Connect the computer that runs the MADRIX software and your Philips Hue bridges with the same computer network.**
- **To use Philips Hue, you need to have a separate DHCP server.**
- This can be a software or hardware DHCP server, which handles and assigns the IP addresses to the Hue bridges and to the MADRIX computer.
- It is recommended that the DHCP server binds MAC addresses to IP addresses.


## 2] Enabling Drivers In MADRIX

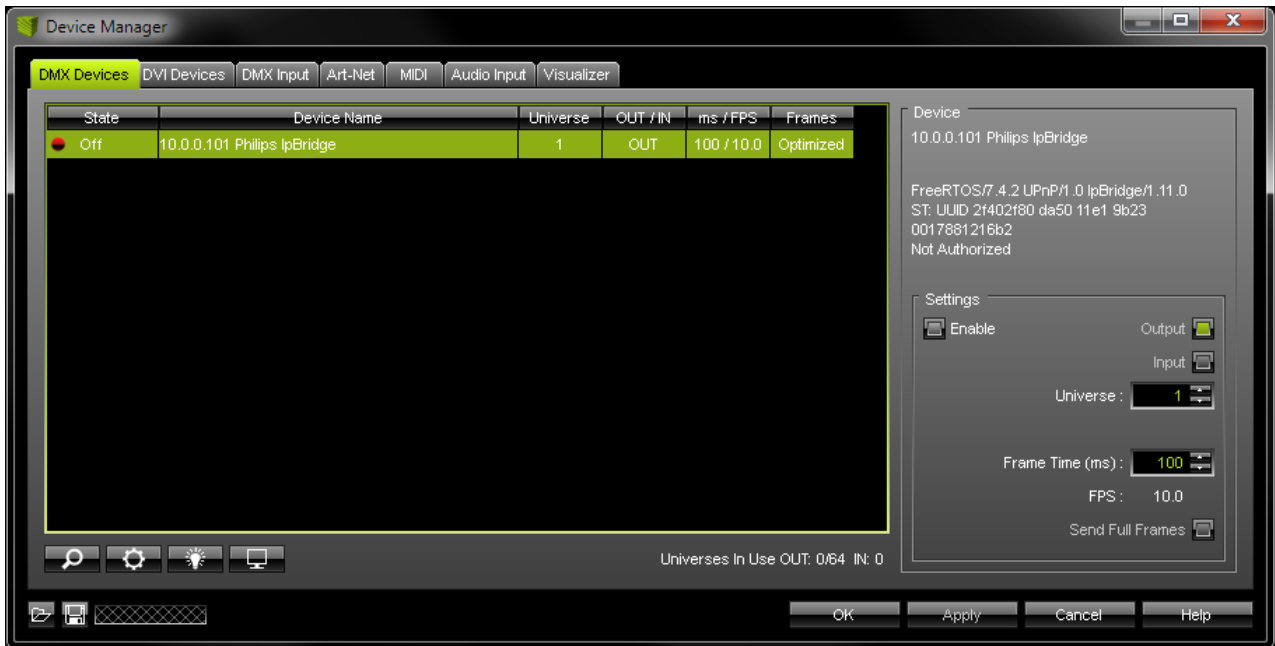
- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices Network**]
  - Activate **Philips Hue > Enable Network Driver**



- **Time To Detect Bridges And Lamps (s)** - Defines how long MADRIX searches the network for devices during startup. Type in a value in seconds.
  - The default value is 10.
  - **We recommend to utilize at least a value of 10 to allow for a sufficient search.**

### 3] Authorize A Bridge

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- MADRIX automatically adds network devices it has found during startup to the list.
- Click  if the devices have not been found.
  - MADRIX disconnects all devices and starts to search for new or newly connected devices.
  - **Do not rescan for devices if all of your interfaces have been found correctly.**

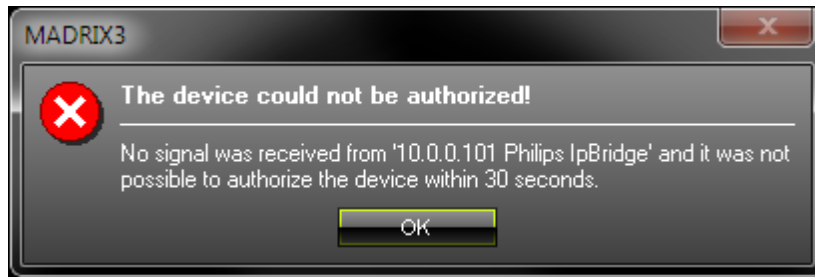


- Select your device in the list.
- Activate **Enable**
- Confirm with **Apply**

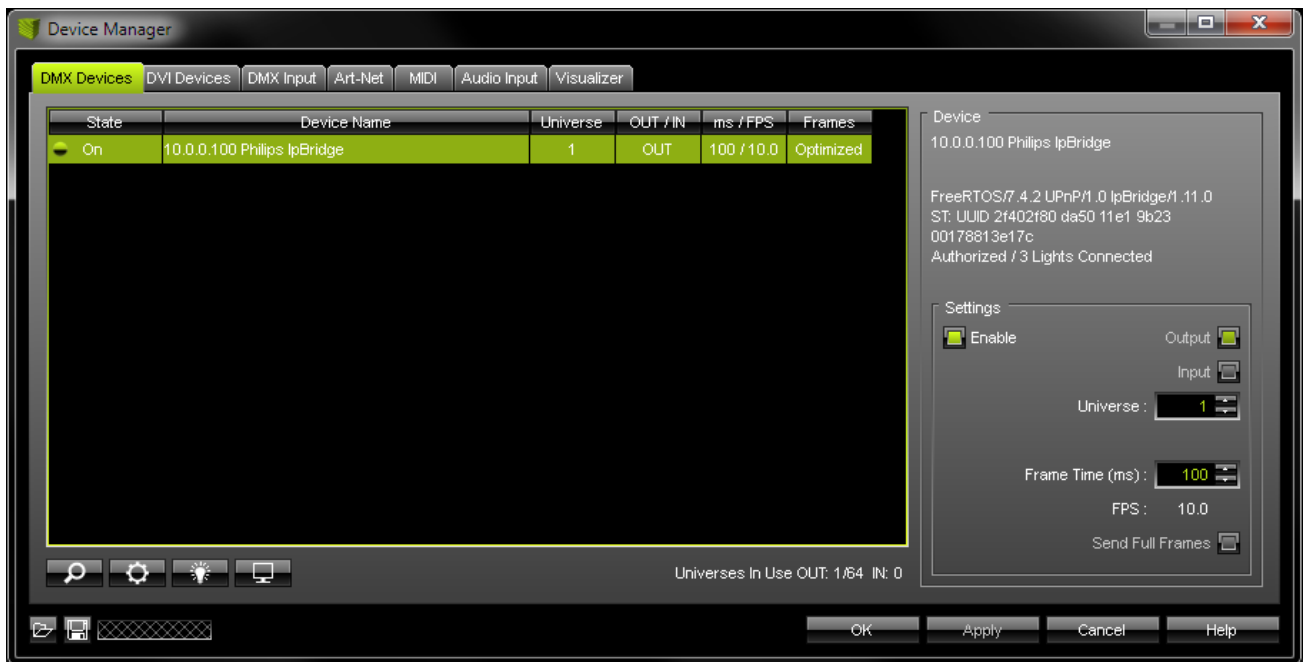
**1]** When connecting a Hue bridge to MADRIX for the first time, you need to authorize the bridge first. MADRIX will ask you to authorize it:



- 2]** In order to authorize the bridge, press the large Link button on the bridge itself.
- 3]** Click **OK** in MADRIX in order to confirm that you have pressed the button on the bridge.
- 4]** The authorization process starts. MADRIX will wait up to 30 seconds for the device to respond.
- 5A]** When unsuccessful, MADRIX will provide an error message that the authorization process failed. If that is the case, please try to authorize it again.



5B] When successful, the bridge will be authorized and enabled in MADRIX.



- If you wish to deactivate a bridge, select in in the **Device Manager > DMX Devices** and deactivate **Enable** und **Settings**. Confirm with **Apply**

### 5] DMX Universe

- Make sure that your device is still selected.
- Set up **Universe**
  - Enter the specific DMX universe number
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.

- **Make sure the correct universe is assigned according to your requirements.**

Learn more »[Glossary](#)

- Click **Apply**

## 6] Frame Time

- Make sure that your device is still selected.
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default and recommended value is 100 ms / 10 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**

## Additional Functionality

### Rescan For Devices



**Rescan For Devices** - MADRIX disconnects all devices and starts a new search for devices.

### Highlight Mode



**Highlight** - Activates the highlight mode for the selected interface and universe under **Preferences > Device Manager... > DMX Devices**. Select one or more interfaces and click the button. The corresponding fixtures at the selected interfaces will flash for a better identification or tests. This makes it easier to see them on stage. It considerably speeds up the procedure of programming or testing the selected interfaces.

## DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input under **Preferences > Device Manager... > DMX Devices**

Learn more »[Tools](#)

## Resizing The Window

If wish to resize the window of the Device Manager to see more devices in the list, simply move your mouse pointer to the bottom of this window. Then, select the border and hold the left mouse button, while moving your mouse downwards.

## Further Configuration

Remember to configure your virtual LED matrix in the »[Matrix Generator](#) or »[Patch Editor](#)

Make sure to save your MADRIX Setup after the configuration process.



## Important Notes

- **Keep in mind that network devices, if activated, cause network traffic!**
- **When using a network-based output protocol and when the Startup option *Start MADRIX After Booting Windows* is used, it is highly recommended to also activate the Startup option *Start With Timeout(s)* with a value of 30 or higher.**

## Additional Information

- A Hue bridge often has several status LEDs. Please consult the Hue manuals for more information. In general, they usually show these statuses:
  - Power LED Off: No power supplied.
  - Power LED Permanently On: Power supplied.
  - Network LED Off: No network connected.
  - Network LED Blinking: No IP address assigned.
  - Network LED Permanently On: IP address successfully acquired.
  - Internet LED Off: No network connected.
  - Internet LED Blinking: No internet access available.
  - Internet LED Permanently On: Internet connection successfully established.
- You can use the official Philips Hue mobile App to update the firmware of your Philips Hue bridges.

## //PART G

*INPUT And Remote  
Control*

## 7 INPUT And Remote Control

This topic includes:

- [Introduction](#)
- [Topics Of This Chapter](#)

### Introduction

You can receive data in MADRIX through various ways. That means you can use another controller or device:

- to send data to the software and use this data.
- to send commands to the software for Remote Control.
- to route incoming data onto your output [also know as Mapping/Merging/DMX-Thru].

### Topics Of This Chapter

There are several possibilities for input and remote control:

- [»Art-Net Remote](#)  
The Art-Net protocol includes Art-Net Remote. In this way, you can use a console for example to access certain software features remotely.
- [»DMX-IN](#)  
Several protocols are implemented into MADRIX for remote control over DMX-IN. Any DMX console or desk can easily be used then to gain full control over the software.
- [»MIDI-IN](#)  
MIDI controllers are an accessible and popular way to trigger the software. Learn how to configure your MIDI device in this section.
- [»MA-Net](#)  
The MA-Net protocol is the direct connection to MA Lighting products that support MA-Net.

- »[Time Code \[Art-Net / MIDI / SMPTE / System Time\]](#)

Various types of Time Code can be received with MADRIX to synchronize equipment and devices with each other.

- »[GamePort](#)

The GamePort is a device port to connect 3rd-party controllers.

- »[CITP](#)

MADRIX supports CITP. This is a useful feature when controlling MADRIX remotely, especially when using it in a combination with a lighting desk.

- »[Remote HTTP](#)

MADRIX offers remote control with every internet browser. An internal web server is implemented in the software and can be started if required to gain external access.

## 7.1 DMX-IN And Art-Net Remote

This topic includes:

- [Overview](#)
- [DMX-IN](#)
- [Art-Net Remote](#)
- [Art-Net Remote Troubleshooting](#)
- [Protocols \[Overview\]](#)
- [Important Notes](#)

### Overview

MADRIX can receive incoming data or can be controlled remotely [DMX Input].

That means you can use another controller or device:

- to send data to the software and use this data [e.g., for Scripts, Macros, or tests].
- to send commands to the software [Remote Control].
- to route incoming data onto your output [also known as Mapping/Merging/DMX-Thru].

**In general, 2 options are available to you:**

- [DMX-IN](#) [Receiving DMX input data, including reception of Streaming ACN data]
- [Art-Net Remote](#) [Receiving Art-Net data]

### DMX-IN

#### Step-By-Step Configuration

- 1]** Enable drivers for your DMX device [e.g., a DMX controller].
- 2]** Activate your DMX device.

3] Enable DMX-IN.

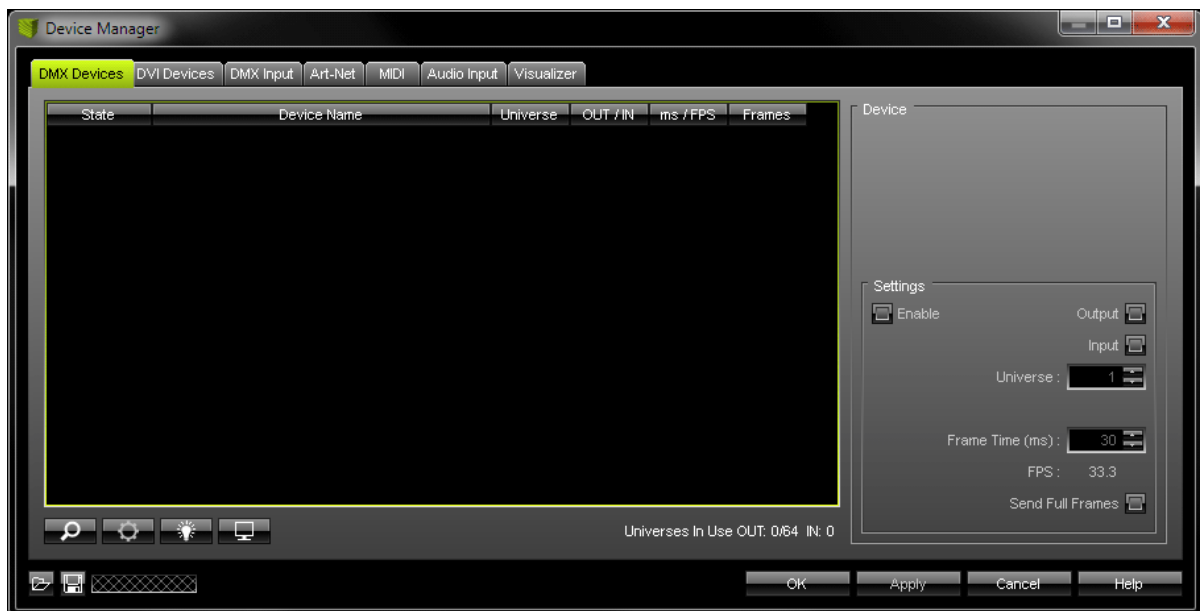
4] Choose how to use incoming signals [as data, for Remote Control, or for Mapping].


## 1] Enable Drivers For Your DMX Device

- Go to **Preferences > Options...**  
[Keyboard shortcut: **Ctrl+Alt+O**]
- A new window will open.
- Choose **Devices USB** or **Devices Network** to enable your device.  
Learn more »[Options](#)

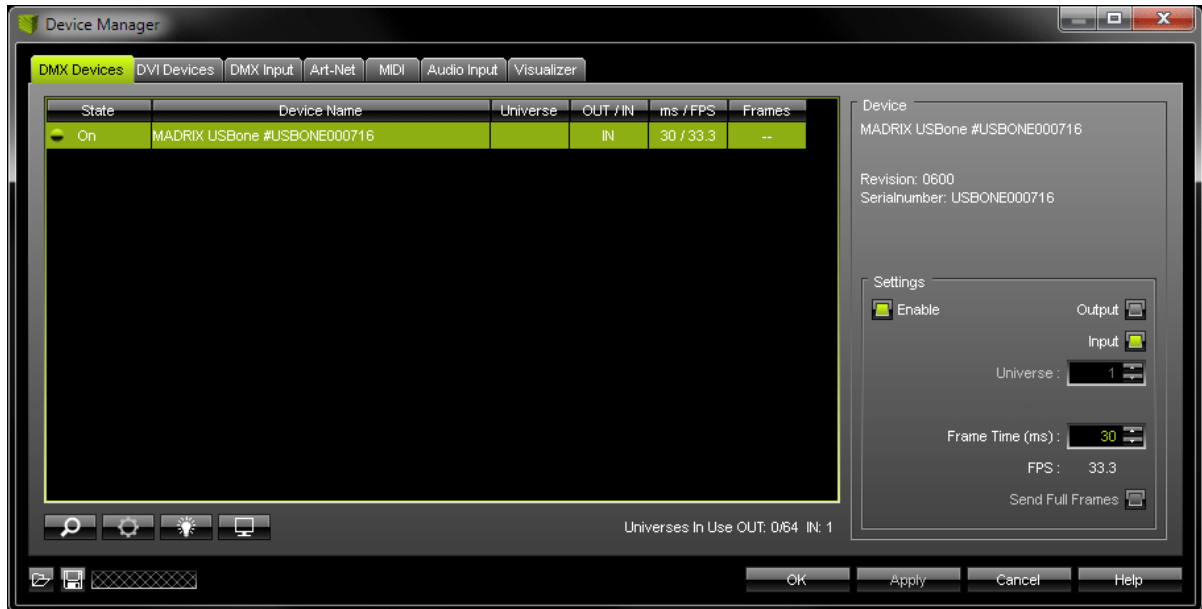
## 2] Activate Your DMX Device

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- A new window will open.



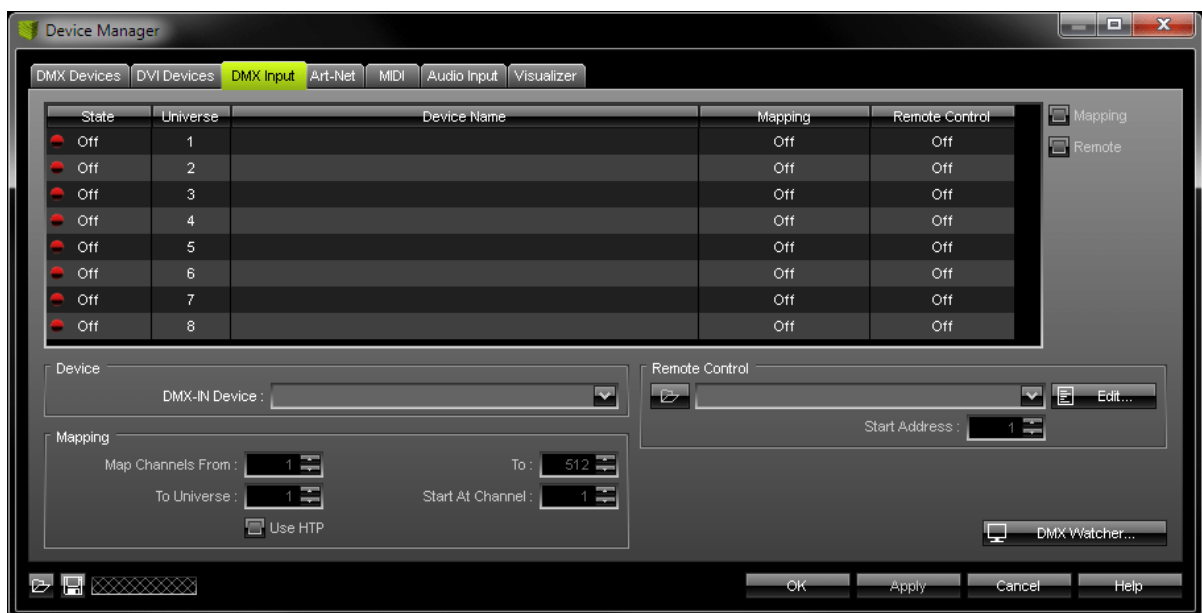
- MADRIX may have already found your connected DMX devices. They will be shown in the list.
- Click  if your DMX devices are not shown in the list.

- Select your DMX device in the list.
- Activate **Enable**, and activate **Input** in the section **Settings**
- Click **Apply** to confirm.

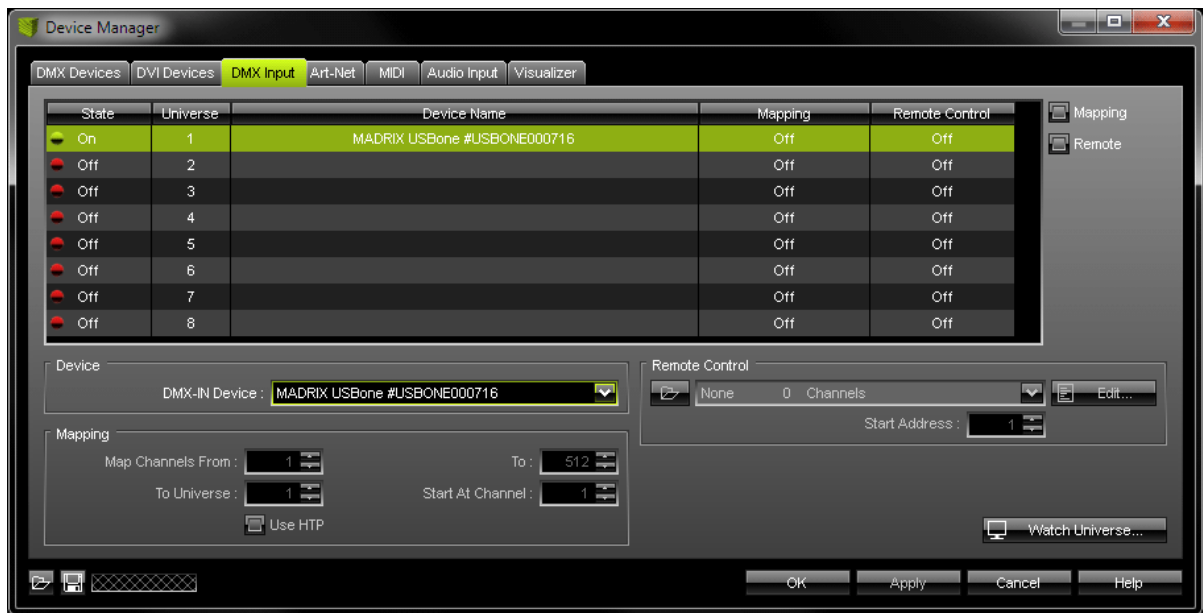


### 3] Enable DMX-IN

- Go to **Preferences > Device Manager... > DMX Input**



- Select your preferred DMX **Universe** in the list.  
[By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting. Learn more »[Performance](#)]
- Choose your **DMX-IN Device** in the section **Device**



- [If needed, you can disable DMX-IN by deselecting the device under **DMX-IN Device** and choose the list entry that is empty or disable the interface under **Device Manager... > DMX Devices**]

## 4] Choose How To Use Incoming Signals

### Data

- At this point, MADRIX is now already receiving any incoming data.
- You can now use this data, for example for Scripts and Macros. Learn more »[Macros And Scripts](#)
- If you want to monitor incoming signals, select your DMX universe/DMX device in the list and click **Watch Universe...** Learn more »[Tools](#)

### Remote Control



- If you want to control MADRIX remotely, first select your device in the list.
- Activate **Remote**
- Select one of the built-in protocols in the section **Remote Control**[as explained below] or create your own remote configuration. Learn more »[DMX-IN Remote Editor](#)



**Open** - Loads a previously saved MADRIX DMX Remote Configuration file [of the file type \*.mdrx].



**Protocols** - Choose from a pre-configured protocol [configuration].

Learn more [Protocols \[Overview\]](#)



**DMX-IN Remote Editor** - Allows you to modify a configuration or create a new configuration.

Learn more »[DMX-IN Remote Editor](#)



**Start Address** - Defines on which particular DMX channel the protocol should start. The whole protocol will be mapped to this new address area.



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input

**Watch Universe...** - Appears when you have selected a list item. The DMX Watcher will open with the particular DMX Universe already entered.

Learn more »[Tools](#)

### Mapping

- If you want to route incoming DMX signals through MADRIX to your output [DMX-Thru], first select your device in the list.
- Activate **Mapping**
- This feature maps incoming data to the specified DMX universe and channels.



- Configure the following settings in the section **Mapping**
  - **Map Channels From** - Defines which incoming channels are used. This is the start channel to specify the range of channels.
  - **To** - Defines which incoming channels are used. This is the end channel to specify the range of channels.
  - **To Universe** - Defines onto which output DMX universe MADRIX should map the specified range of incoming channels.
  - **Start At Channel** - Defines the first DMX channel of the output DMX universe MADRIX should use.
  - **Use HTP** - Activates the Highest Takes Precedence feature. You can map incoming data to a DMX address range that MADRIX already controls. Use HTP and MADRIX will compare incoming values with the DMX data it sends to the DMX output. As a result, MADRIX will only use the highest of both values on a particular channel and send it to the output.
- Click **Apply** to confirm.

You will need a MADRIX KEY that supports a DMX-based output license in order to be able to use Mapping.

## Art-Net Remote

### Overview

An Art-Net device can be used for DMX-IN as well. This feature is called Art-Net Remote.

### Step-By-Step Configuration

- 1] Set up network settings in Windows.
- 2] Activate Art-Net.
- 3] Activate the Art-Net Remote device.
- 4] Enable DMX-IN.
- 5] Choose how to use incoming signals [as data, Remote Control, Mapping].

## 1] Set Up Network Settings In Windows

Art-Net is used to send DMX512 data over Ethernet network. Because of this, you need to configure the settings of your network card in Windows first.


- Configure your network card in Windows.
- Use an **IP address** from the following address range:  
**2.0.0.1 ... 2.255.255.254**  
or  
**10.0.0.1 ... 10.255.255.254**
- Use the following **Subnet mask**  
**255.0.0.0**
- Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)

**You must use this address area! Art-Net may not work otherwise.**

## 2] Activate Art-Net

- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- A new window will open.
- Activate the checkbox **Enable** [in the upper, right corner].
- MADRIX will automatically create a new device in the list called **ArtNet Remote**



- Select **ArtNet Remote** in the list.
- Click 
- A new window will open.



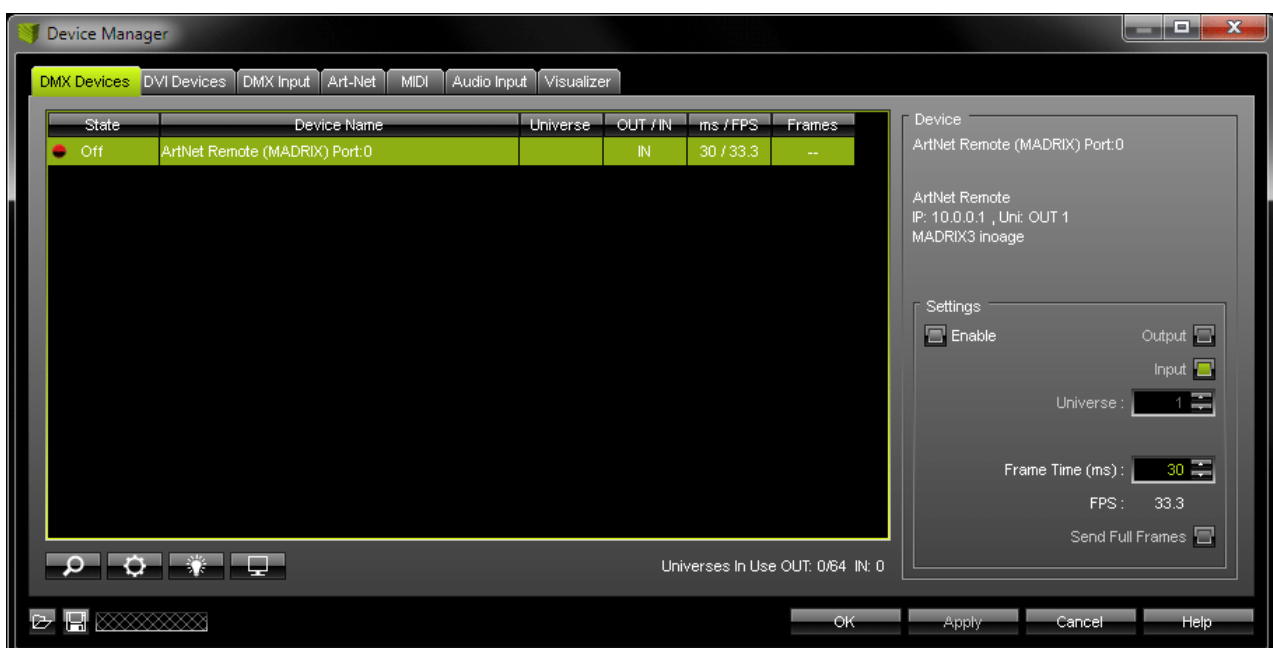
- Configure the following settings:
- **Port Count** - Defines how many DMX universes can be received by MADRIX. You can choose 1, 2, 3, or 4. [MADRIX can receive a maximum of 4 universes regarding Art-Net Remote.]
- **Universe Port OUT** - Defines from which DMX universe MADRIX receives the data.
  - Choose the universe on which your Art-Net device is sending the data!
- **Direct IP Mode** - If activated, MADRIX will only receive data from the specified IP address. This is the recommended setting.
- **IP Address** - Needs to be set up if Direct IP Mode is activated.
  - **Enter the IP address of the device that is sending data to MADRIX. Do not enter the IP address of your MADRIX PC!**
- **Broadcast Mode** - If activated, MADRIX can receive data from all network addresses in the network.
  - [Any Art-Net device, such as an lighting desk, can send data to MADRIX].

- Click **Apply** to confirm.
- Click **OK** to close the window.

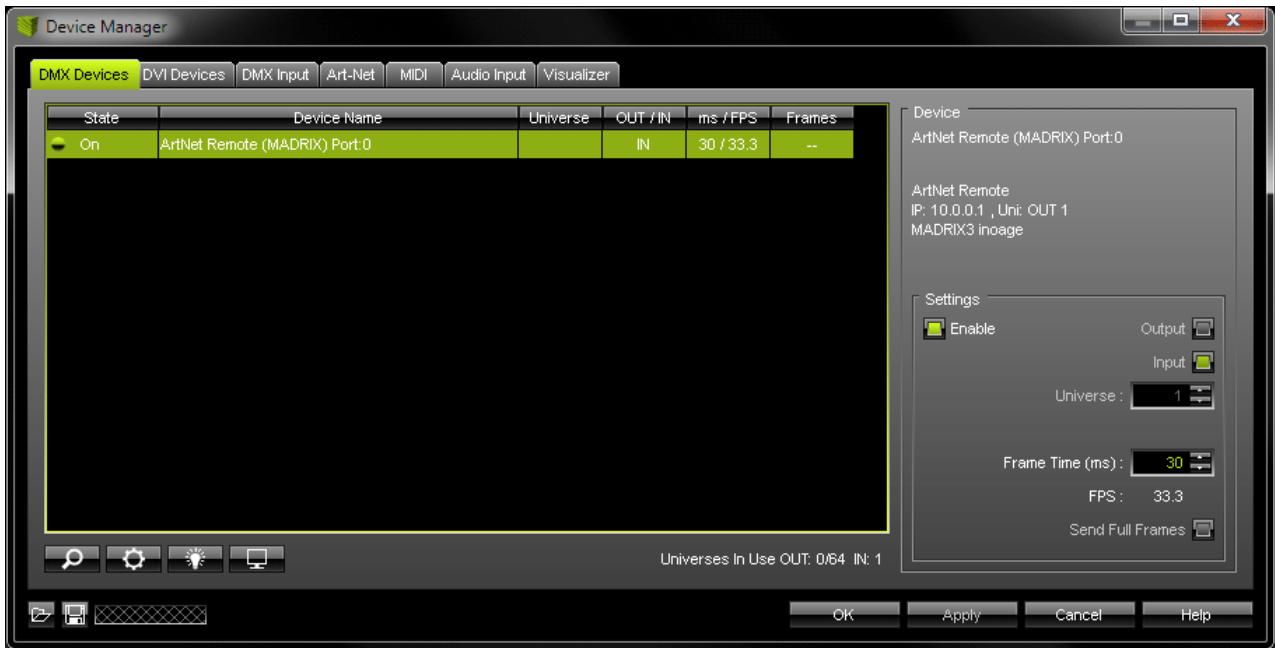
### 3] Activate The Art-Net Remote Device

- Go to **Preferences > Device Manager... > DMX Devices**
- Your **ArtNet Remote** device will be shown in the list.

[If the **Port Count** above is set to 2, 3, or 4, you will see up to 4 devices in the list.]

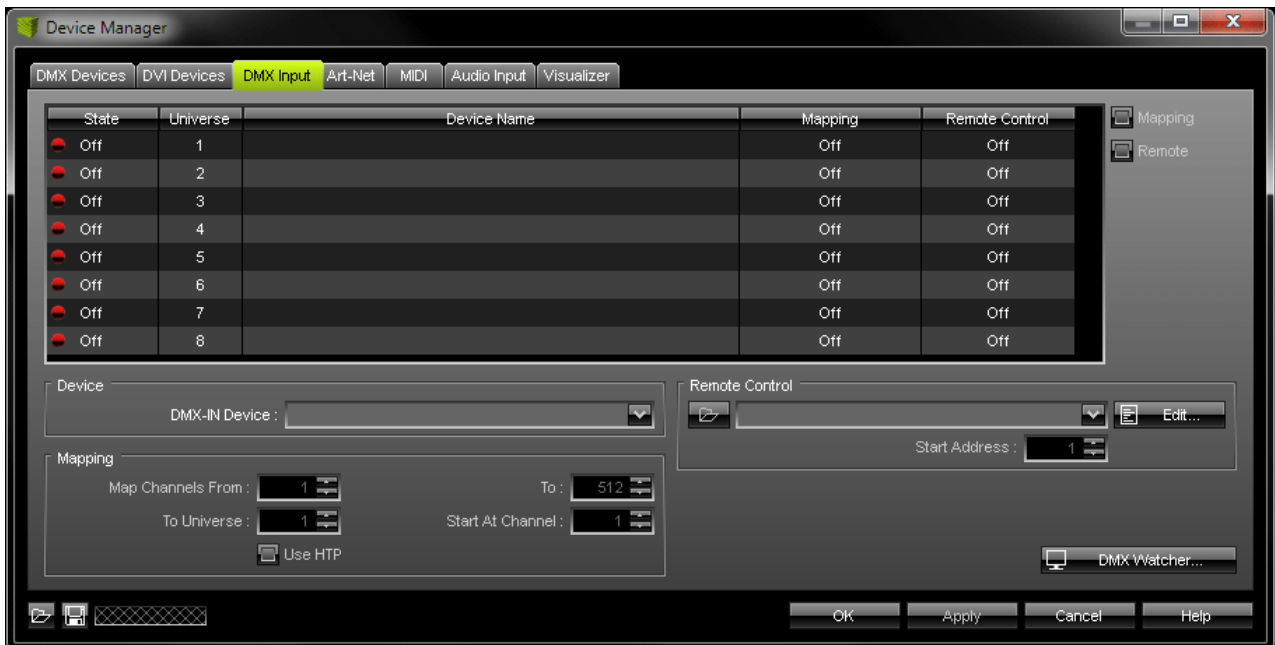


- Select your devices in the list.
- Activate **Enable** in the section **Settings**.  
[**Input** is automatically selected.]
- If needed, adjust **Frame Time (ms)** to increase or decrease the **FPS**[Frames Per Second].
- Click **Apply** to confirm.



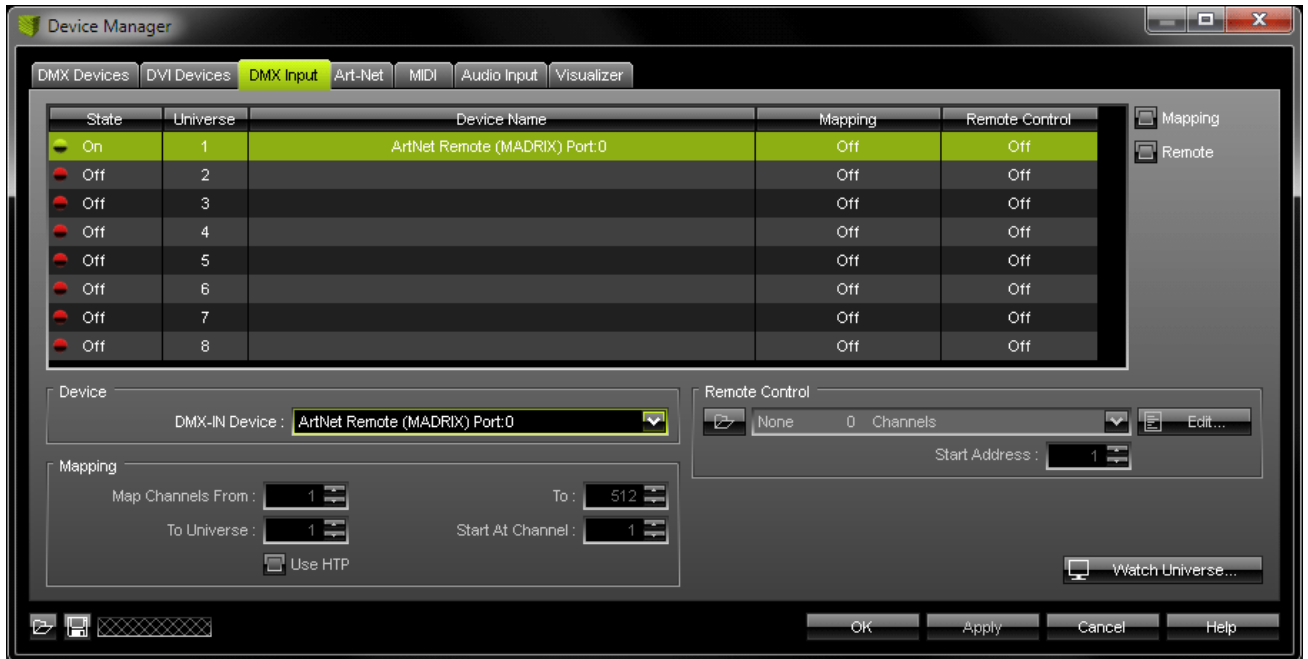
#### 4] Enable DMX-IN

- Go to **Preferences > Device Manager... > DMX Input**





- Select your preferred DMX **Universe** in the list.  
[By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting. Learn more »[Performance](#)]
- Select your **DMX-IN Device** in the section **Device** by choosing the **ArtNet Remote** device.



- [If needed, you can disable DMX-IN by deselecting the device under **DMX-IN Device** and choose the list entry that is empty or disable the interface under **Device Manager... > DMX Devices.**]

## 5] Choose How To Use Incoming Signals

### Data

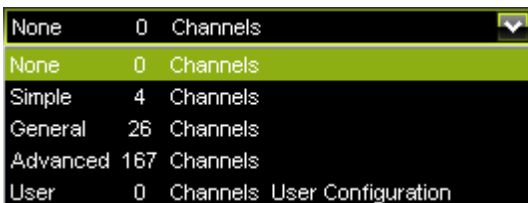
- At this point, MADRIX is now already receiving any incoming data.
- You can now use this data, for example for Scripts and Macros. Learn more »[Macros And Scripts](#)
- If you want to monitor incoming signals, select your DMX universe/DMX device in the list and click **Watch Universe...** Learn more »[Tools](#)

### Remote Control

- If you want to control MADRIX remotely, first select your device in the list.
- Activate **Remote**
- Select one of the built-in protocols in the section **Remote Control**[as explained below] or create your own remote configuration. Learn more »[How To Assign DMX-IN Freely](#)



**Open** - Loads a previously saved MADRIX DMX Remote Configuration file [of the file type \*.mdrx].



**Protocols** - Choose from a pre-configured protocol [configuration].  
Learn more [Protocols \[Overview\]](#)



**DMX-IN Remote Editor** - Allows you to modify a configuration or create a new configuration.  
Learn more »[DMX-IN Remote Editor](#)



**Start Address** - Defines on which particular DMX channel the protocol should start. The whole protocol will be mapped to this new address area.



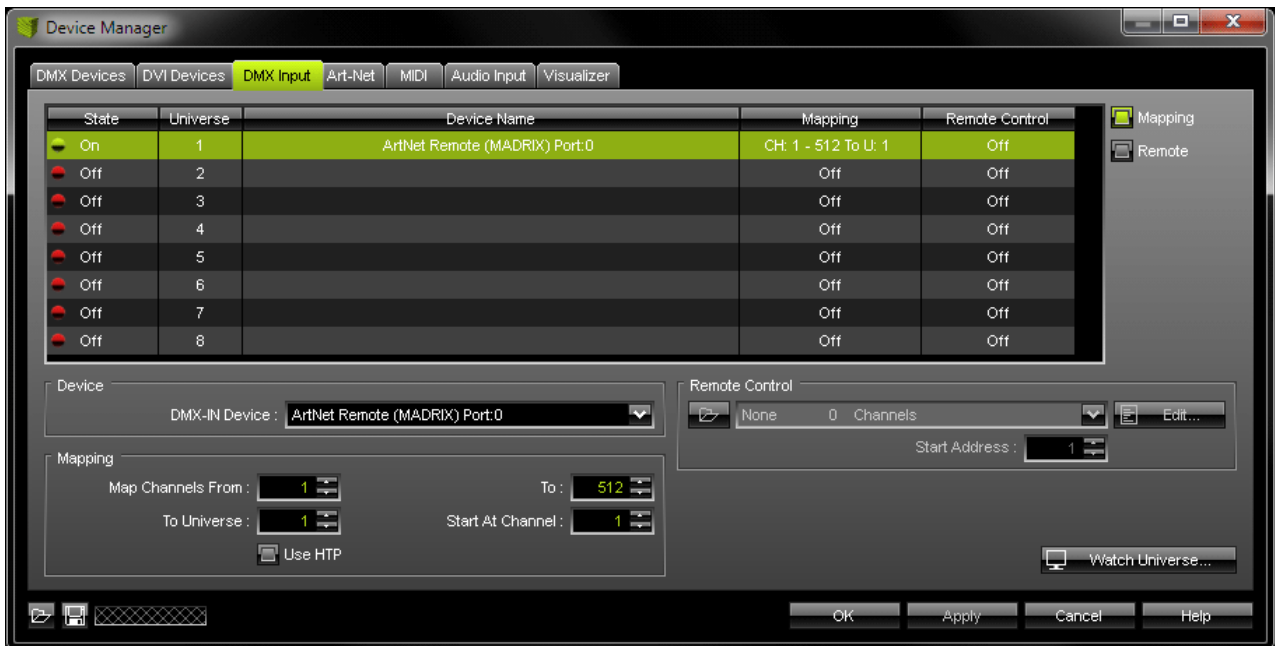
**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input

**Watch Universe...** - Appears when you have selected a list item. The DMX Watcher will open with the particular DMX Universe already entered.

Learn more »[Tools](#)

### Mapping

- If you want to route incoming DMX signals through MADRIX to your output [DMX-Thru], first select your device in the list.
- Activate **Mapping**
- This feature maps incoming data to the specified DMX universe and channels.



- Configure the following settings in the section **Mapping**
  - **Map Channels From** - Defines which incoming channels are used. This is the start channel to specify the range of channels.
  - **To** - Defines which incoming channels are used. This is the end channel to specify the range of channels.
  - **To Universe** - Defines onto which output DMX universe MADRIX should map the specified range of incoming channels.
  - **Start At Channel** - Defines the first DMX channel of the output DMX universe MADRIX should use.
  - **Use HTP** - Activates the Highest Takes Precedence feature. You can map incoming data to a DMX address range that MADRIX already controls. Use HTP and MADRIX will compare incoming values with the DMX data it sends to the DMX output. As a result, MADRIX will only use the highest of both values on a particular channel and send it to the output.
- Click **Apply** to confirm.

You will need a MADRIX KEY that supports DMX-based output in order to be able to use Mapping.

## Art-Net Remote Troubleshooting

If you are encountering problems, please work through the following checklist:

- Double-check the settings of your network card.
- Make sure to set up the Windows Firewall correctly. Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)
- Double-check the settings of the ArtNet Remote device in MADRIX.
- Use the DMX Watcher to monitor incoming data.

## Protocols [Overview]

There are preprogrammed DMX protocols you can choose from:

- »[DMX-IN \[Simple Protocol\]](#)
- »[DMX-IN \[General Protocol\]](#)
- »[DMX-IN \[Advanced Protocol\]](#)
- »[DMX-IN \[User\]](#)

## Important Notes

- **Please make sure to save your MADRIX Setup file after the configuration process.**

## 7.1.1 DMX-IN [Simple Protocol]

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Other Protocols](#)

### Introduction

The Simple protocol is a pre-configured DMX protocol [or profile] you can use for Remote Control.

- Simple Protocol uses 4 DMX channels.
- Valid incoming DMX values are 0 - 255.

### Overview

DMX Channel	Remote Control Function	DMX Values	Functionality	Comment
01	Storage Left Storage ID	0 - 255	Storage, Left, 1 - 256	Choose Storage 1 to 256 on the Left side.
02	Storage Left Place +Fade	0 - 255	Storage Place, Left, 1 - 256	Choose your Storage Place in the selected Storage on the Left side. A fade of the crossfader is applied automatically according to the Fade Time.
03	Fade Time In 1/10 Seconds	0 - 255	Fade Time, 0 - 10s 0 = 0s 127 = 5s 255 = 10s Steps of 2 or 3 = 0.1s	Set up the Fade Time of the crossfader in tenths of a second.

04	Global Master	0 - 255	0 - 255	Control the overall intensity.
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## Other Protocols

There are other preprogrammed DMX protocols you can choose from:

- [»DMX-IN \[Simple Protocol\]](#)
- [»DMX-IN \[General Protocol\]](#)
- [»DMX-IN \[Advanced Protocol\]](#)
- [»DMX-IN \[User\]](#)

## 7.1.2 DMX-IN [General Protocol]

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Other Protocols](#)

### Introduction

The General protocol is a pre-configured DMX protocol [or profile] you can use for Remote Control.

- General Protocol uses 26 DMX channels.
- It includes the Simple Protocol.
- Valid incoming DMX values are 0 - 255.

### Overview

DMX Channel	Remote Control Function	DMX Values	Functionality	Comment
01	Storage Left Storage ID	0 - 255	Storage, Left, 1 - 256	Choose Storage 1 to 256 on the Left side.
02	Storage Left Place +Fade	0 - 255	Storage Place, Left, 1 - 256	Choose your Storage Place in the selected Storage on the Left side. A fade of the crossfader is applied automatically according to the Fade Time.



03	Fade Time In 1/10 Seconds	0 - 255	Fade Time, 0 - 10s 0 = 0s 127 = 5s 255 = 10s Steps of 2 or 3 = 0.1s	Set up the Fade Time of the Crossfader in tenths of a second.
04	Global Master	0 - 255	0 - 255	Control the overall intensity.
05	Global Blackout	0 - 127 128 - 255	= Off = On	Activate or deactivate the overall Blackout.
06	Fade Type	0 - 15	0 = XF 1 = WF 2 = BF 3 = CF 4 = Wipe X 5 = Wipe Y 6 = Wipe XC 7 = Wipe YC 8 = Slide X 9 = Slide Y 10 = Slide XC 11 = Slide YC 12 = Wipe Z 13 = Wipe ZC 14 = Slide Z 15 = Slide ZC	Set up the Fade Type of the crossfader.
07	Fade Color Red	0 - 255	Color value, 0 - 255	Set up the red color values for the Color Fade.
08	Fade Color Green	0 - 255	Color value, 0 - 255	Set up the green color values for the Color Fade.
09	Fade Color Blue	0 - 255	Color value, 0 - 255	Set up the blue color values for the Color Fade.
10	Fade Color White	0 - 255	Color value, 0 - 255	Set up the white color values for the Color Fade.
11	Global Filter Red	0 - 255	0 - 255	Set up the red color values for the Main Output Color Filter.

12	Global Filter Green	0 - 255	0 - 255	Set up the green color values for the Main Output Color Filter.
13	Global Filter Blue	0 - 255	0 - 255	Set up the blue color values for the Main Output Color Filter.
14	Global Filter White	0 - 255	0 - 255	Set up the white color values for the Main Output Color Filter.
15	Global Output Freeze	0 - 127 128 - 255	= Off = On	Activate or deactivate the overall Main Output Freeze.
16	Audio Input Level	0 - 255	0 - 255	Control the maximum audio input level.
17	Audio Automatic Gain Control	0 - 127 128 - 255	= Off = On	Activate or deactivate the Audio Gain Control.
18	Global Output Strobe	0 - 127 128 - 255	= Off = On	Activate or deactivate the Main Output Strobe.
19	Global Output Strobe Color Red	0 - 255	Color value, 0 - 255	Set up the red color values for the Main Output Strobe.
20	Global Output Strobe Color Green	0 - 255	Color value, 0 - 255	Set up the green color values for the Main Output Strobe.
21	Global Output Strobe Color Blue	0 - 255	Color value, 0 - 255	Set up the blue color values for the Main Output Strobe.
22	Global Output Strobe Color White	0 - 255	Color value, 0 - 255	Set up the white color values for the Main Output Strobe.
23	Cue List Play / Pause Toggle	0 - 127 128 - 255	= Off = On	Start or halt the Cue List.
24	Cue List Go	0 - 127 128 - 255	= Off = On	Skip to the next Cue List entry.
25	Cue List Back	0 - 127 128 - 255	= Off = On	Go back to the previous Cue List entry.

26	Cue List Goto	0 - 255	Cue, 1 - 256	Directly skip to the corresponding Cue List entry.
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## Other Protocols

There are other preprogrammed DMX protocols you can choose from:

- »[DMX-IN \[Simple Protocol\]](#)
- »[DMX-IN \[General Protocol\]](#)
- »[DMX-IN \[Advanced Protocol\]](#)
- »[DMX-IN \[User\]](#)

### 7.1.3 DMX-IN [Advanced Protocol]

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Other Protocols](#)

## Introduction

The Advanced protocol is a pre-configured DMX protocol [or profile] you can use for Remote Control.

- Advanced Protocol uses 167 DMX channels.
- It includes the Simple Protocol as well as General Protocol.
- Valid incoming DMX values are 0 - 255.

## Overview

DMX Channel	Remote Control Function	DMX Values	Functionality	Comment
01	Storage Left Storage ID	0 - 255	Storage, Left, 1 - 256	Choose Storage 1 to 256 on the Left side.
02	Storage Left Place +Fade	0 - 255	Storage Place, Left, 1 - 256	Choose your Storage Place in the selected Storage on the Left side. A fade of the crossfader is applied automatically according to the Fade Time.

03	Fade Time In 1/10 Seconds	0 - 255	Fade Time, 0 - 10s 0 = 0s 127 = 5s 255 = 10s Steps of 2 or 3 = 0.1s	Set up the Fade Time of the crossfader in tenths of a second.
04	Global Master	0 - 255	0 - 255	Control the overall intensity.
05	Global Blackout	0 - 127 128 - 255	= Off = On	Activate or deactivate the overall Blackout.
06	Fade Type	0 - 15	0 = XF 1 = WF 2 = BF 3 = CF 4 = Wipe X 5 = Wipe Y 6 = Wipe XC 7 = Wipe YC 8 = Slide X 9 = Slide Y 10 = Slide XC 11 = Slide YC 12 = Wipe Z 13 = Wipe ZC 14 = Slide Z 15 = Slide ZC	Set up the Fade Type of the crossfader.
07	Fade Color Red	0 - 255	Color value, 0 - 255	Set up the red color values for the Color Fade.
08	Fade Color Green	0 - 255	Color value, 0 - 255	Set up the green color values for the Color Fade.
09	Fade Color Blue	0 - 255	Color value, 0 - 255	Set up the blue color values for the Color Fade.
10	Fade Color White	0 - 255	Color value, 0 - 255	Set up the white color values for the Color Fade.
11	Global Filter Red	0 - 255	0 - 255	Set up the red color values for the Main Output Color Filter.

12	Global Filter Green	0 - 255	0 - 255	Set up the green color values for the Main Output Color Filter.
13	Global Filter Blue	0 - 255	0 - 255	Set up the blue color values for the Main Output Color Filter.
14	Global Filter White	0 - 255	0 - 255	Set up the white color values for the Main Output Color Filter.
15	Global Output Freeze	0 - 127 128 - 255	= Off = On	Activate or deactivate the overall Main Output Freeze.
16	Audio Input Level	0 - 255	0 - 255	Control the maximum audio input level.
17	Audio Automatic Gain Control	0 - 127 128 - 255	= Off = On	Activate or deactivate the Audio Gain Control.
18	Global Output Strobe	0 - 127 128 - 255	= Off = On	Activate or deactivate the Main Output Strobe.
19	Global Output Strobe Color Red	0 - 255	Color value, 0 - 255	Set up the red color values for the Main Output Strobe.
20	Global Output Strobe Color Green	0 - 255	Color value, 0 - 255	Set up the green color values for the Main Output Strobe.
21	Global Output Strobe Color Blue	0 - 255	Color value, 0 - 255	Set up the blue color values for the Main Output Strobe.
22	Global Output Strobe Color White	0 - 255	Color value, 0 - 255	Set up the white color values for the Main Output Strobe.
23	Cue List Play / Pause Toggle	0 - 127 128 - 255	= Off = On	Start or halt the Cue List.
24	Cue List Go	0 - 127 128 - 255	= Off = On	Skip to the next Cue List entry.
25	Cue List Back	0 - 127 128 - 255	= Off = On	Go back to the previous Cue List entry.

26	Cue List Goto	0 - 255	Cue, 1 - 256	Directly skip to the corresponding Cue List entry.
27	Storage Right Storage ID	0 - 255	Storage, Right, 1 - 256	Choose Storage 1 to 256 on the Right side.
28	Storage Right Place +Fade	0 - 255	Storage Place, Right, 1 - 256	Choose your Storage Place in the selected Storage on the Rights side. A fade of the crossfader is applied automatically according to the Fade Time.
29	Storage Left Place	0 - 255	Storage Place, Left, 1 - 256	Choose your Storage Place in the selected Storage on the Left side.
30	Storage Right Place	0 - 255	Storage Place, Right, 1 - 256	Choose your Storage Place in the selected Storage on the Right side.
31	Storage Left Submaster	0 - 255	Storage Submaster, Left, 0 - 255	Control the Storage Submaster on the Left side.
32	Storage Right Submaster	0 - 255	Storage Submaster, Right, 0 - 255	Control the Storage Submaster on the Right side.
33	Storage Left Speed	0 - 255	Speedmaster, Left, -10 to 10 0 = -10 127 = 0.0 255 = 10 Steps of 1 or 2 = 0.1	Control the overall Speedmaster on the Left side.
34	Storage Right Speed	0 - 255	Speedmaster, Left, -10 to 10 0 = -10 127 = 0.0 255 = 10 Steps of 1 or 2 = 0.1	Control the overall Speedmaster on the Right side.
35	Storage Left Speed Pause	0 - 127 128 - 255	= Off = On	Activate or deactivate the overall Pause function of the Speedmaster Left.

36	Storage Right Speed Pause	0 - 127 128 - 255	= Off = On	Activate or deactivate the overall Pause function of the Speedmaster Right.
37	Fade Value	0 - 255	Crossfader, Left to Right 0 = Left 127 = 50%, middle position 255 = Right	Control the Crossfader.
38	Fade Automatic	0 - 127 128 - 255	= Off = On	Trigger an automatic fade of the Crossfader.
39	Fade Value	0 - 254	Crossfader, Skip Left 0 -254 = Left	Directly skip the Crossfader to the Left.
40	Fade Value	1 - 255	Crossfader, Skip Right 255 = Right	Directly skip the Crossfader to the Right.
41	Layer Left Layer	0 - 255	Layer, Left 0 = Layer 1 1 = Layer 2 2 = Layer 3 3 = Layer 4 etc.	Select the corresponding Layer on the Left side.
42	Layer Right Layer	0 - 255	Layer, Right 0 = Layer 1 1 = Layer 2 2 = Layer 3 3 = Layer 4 etc.	Select the corresponding Layer on the Right side.
43	Layer Left Opacity Current Layer	0 - 255	0 - 255	Control the Opacity of the currently selected Layer on the Left side.
44	Layer Left Opacity Layer 1	0 - 255	0 - 255	Control the Opacity of Layer 1 on the Left side.
45	Layer Left Opacity Layer 2	0 - 255	0 - 255	Control the Opacity of Layer 2 on the Left side.
46	Layer Left Opacity Layer 3	0 - 255	0 - 255	Control the Opacity of Layer 3 on the Left side.



47	Layer Left Opacity Layer 4	0 - 255	0 - 255	Control the Opacity of Layer 4 on the Left side.
48	Layer Left Opacity Layer 5	0 - 255	0 - 255	Control the Opacity of Layer 5 on the Left side.
49	Layer Left Opacity Layer 6	0 - 255	0 - 255	Control the Opacity of Layer 6 on the Left side.
50	Layer Left Opacity Layer 7	0 - 255	0 - 255	Control the Opacity of Layer 7 on the Left side.
51	Layer Left Opacity Layer 8	0 - 255	0 - 255	Control the Opacity of Layer 8 on the Left side.
52	Layer Right Opacity Current Layer	0 - 255	0 - 255	Control the Opacity of the currently selected Layer on the Right side.
53	Layer Right Opacity Layer 1	0 - 255	0 - 255	Control the Opacity of Layer 1 on the Right side.
54	Layer Right Opacity Layer 2	0 - 255	0 - 255	Control the Opacity of Layer 2 on the Right side.
55	Layer Right Opacity Layer 3	0 - 255	0 - 255	Control the Opacity of Layer 3 on the Right side.
56	Layer Right Opacity Layer 4	0 - 255	0 - 255	Control the Opacity of Layer 4 on the Right side.
57	Layer Right Opacity Layer 5	0 - 255	0 - 255	Control the Opacity of Layer 5 on the Right side.
58	Layer Right Opacity Layer 6	0 - 255	0 - 255	Control the Opacity of Layer 6 on the Right side.
59	Layer Right Opacity Layer 7	0 - 255	0 - 255	Control the Opacity of Layer 7 on the Right side.
60	Layer Right Opacity Layer 8	0 - 255	0 - 255	Control the Opacity of Layer 8 on the Right side.
61	Layer Left Submaster Current Layer	0 - 255	0 - 255	Control the Submaster of the currently selected Layer on the Left side.
62	Layer Left Submaster Layer 1	0 - 255	0 - 255	Control the Submaster of Layer 1 on the Left side.

63	Layer Left Submaster Layer 2	0 - 255	0 - 255	Control the Submaster of Layer 2 on the Left side.
64	Layer Left Submaster Layer 3	0 - 255	0 - 255	Control the Submaster of Layer 3 on the Left side.
65	Layer Left Submaster Layer 4	0 - 255	0 - 255	Control the Submaster of Layer 4 on the Left side.
66	Layer Left Submaster Layer 5	0 - 255	0 - 255	Control the Submaster of Layer 5 on the Left side.
67	Layer Left Submaster Layer 6	0 - 255	0 - 255	Control the Submaster of Layer 6 on the Left side.
68	Layer Left Submaster Layer 7	0 - 255	0 - 255	Control the Submaster of Layer 7 on the Left side.
69	Layer Left Submaster Layer 8	0 - 255	0 - 255	Control the Submaster of Layer 8 on the Left side.
70	Layer Right Submaster Current Layer	0 - 255	0 - 255	Control the Submaster of the currently selected Layer on the Right side.
71	Layer Right Submaster Layer 1	0 - 255	0 - 255	Control the Submaster of Layer 1 on the Right side.
72	Layer Right Submaster Layer 2	0 - 255	0 - 255	Control the Submaster of Layer 2 on the Right side.
73	Layer Right Submaster Layer 3	0 - 255	0 - 255	Control the Submaster of Layer 3 on the Right side.
74	Layer Right Submaster Layer 4	0 - 255	0 - 255	Control the Submaster of Layer 4 on the Right side.
75	Layer Right Submaster Layer 5	0 - 255	0 - 255	Control the Submaster of Layer 5 on the Right side.
76	Layer Right Submaster Layer 6	0 - 255	0 - 255	Control the Submaster of Layer 6 on the Right side.
77	Layer Right Submaster Layer 7	0 - 255	0 - 255	Control the Submaster of Layer 7 on the Right side.
78	Layer Right Submaster Layer 8	0 - 255	0 - 255	Control the Submaster of Layer 8 on the Right side.

79	Layer Left Mix Mode Current Layer	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Normal 1 = Darken 2 = Multiply 3 = Color Burn 4 = Linear Burn 5 = Lighten (HTP) 6 = Screen 7 = Color Dodge 8 = Linear Dodge 9 = Overlay 10 = Soft Light 11 = Hard Light 12 = Vivid Light 13 = Linear Light 14 = Pin Light 15 = Hard Mix 16 = Difference 17 = Exclusion 18 = AND 19 = OR 20 = XOR 21 = NAND 22 = NOR 23 = Mask	Set up one out of 24 mix modes for the currently selected Layer on the Left side.
80	Layer Left Mix Mode Layer 1	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 1 on the Left side.
81	Layer Left Mix Mode Layer 2	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 2 on the Left side.
82	Layer Left Mix Mode Layer 3	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 3 on the Left side.

83	Layer Left Mix Mode Layer 4	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 4 on the Left side.
84	Layer Left Mix Mode Layer 5	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 5 on the Left side.
85	Layer Left Mix Mode Layer 6	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 6 on the Left side.
86	Layer Left Mix Mode Layer 7	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 7 on the Left side.
87	Layer Left Mix Mode Layer 8	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 8 on the Left side.

88	Layer Right Mix Mode Current Layer	0 - 23 [Repeats afterwards]	Mix Mode, Right 0 = Normal 1 = Darken 2 = Multiply 3 = Color Burn 4 = Linear Burn 5 = Lighten (HTP) 6 = Screen 7 = Color Dodge 8 = Linear Dodge 9 = Overlay 10 = Soft Light 11 = Hard Light 12 = Vivid Light 13 = Linear Light 14 = Pin Light 15 = Hard Mix 16 = Difference 17 = Exclusion 18 = AND 19 = OR 20 = XOR 21 = NAND 22 = NOR 23 = Mask	Set up one out of 24 mix modes for the currently selected Layer on the Right side.
89	Layer Right Mix Mode Layer 1	0 - 23 [Repeats afterwards]	Mix Mode, Right 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 1 on the Right side.
90	Layer Right Mix Mode Layer 2	0 - 23 [Repeats afterwards]	Mix Mode, Left 0 = Mix Mode Normal ... 23 = Mix Mode Mask	Set up one out of 24 mix modes for Layer 2 on the Right side.
91	Layer Right Mix Mode Layer 3	0 - 23 [Repeats afterwards]	Mix Mode, Right 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 3 on the Right side.

92	Layer Right Mix Mode Layer 4	0 - 23 [Repeats afterwards]	Mix Mode, Right 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 4 on the Right side.
93	Layer Right Mix Mode Layer 5	0 - 23 [Repeats afterwards]	Mix Mode, Right 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 5 on the Right side.
94	Layer Right Mix Mode Layer 6	0 - 23 [Repeats afterwards]	Mix Mode, Right 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 6 on the Right side.
95	Layer Right Mix Mode Layer 7	0 - 23 [Repeats afterwards]	Mix Mode, Right 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 7 on the Right side.
96	Layer Right Mix Mode Layer 8	0 - 23 [Repeats afterwards]	Mix Mode, Right 0 = Normal ... 23 = Mask	Set up one out of 24 mix modes for Layer 8 on the Right side.
97	Layer Left Blind Current Layer	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for the currently selected Layer on the Left side.
98	Layer Left Blind Layer 1	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 1 on the Left side.
99	Layer Left Blind Layer 2	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 2 on the Left side.
100	Layer Left Blind Layer 3	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 3 on the Left side.
101	Layer Left Blind Layer 4	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 4 on the Left side.

102	Layer Left Blind Layer 5	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 5 on the Left side.
103	Layer Left Blind Layer 6	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 6 on the Left side.
104	Layer Left Blind Layer 7	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 7 on the Left side.
105	Layer Left Blind Layer 8	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 8 on the Left side.
106	Layer Right Blind Current Layer	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for the currently selected Layer on the Right side.
107	Layer Right Blind Layer 1	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 1 on the Right side.
108	Layer Right Blind Layer 2	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 2 on the Right side.
109	Layer Right Blind Layer 3	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 3 on the Right side.
110	Layer Right Blind Layer 4	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 4 on the Right side.
111	Layer Right Blind Layer 5	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 5 on the Right side.
112	Layer Right Blind Layer 6	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 6 on the Right side.

113	Layer Right Blind Layer 7	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 7 on the Right side.
114	Layer Right Blind Layer 8	0 - 127 128 - 255	= Off = On	Activate or deactivate the Blind Mode for Layer 8 on the Right side.
115	Layer Left Solo Current Layer	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for the currently selected Layer on the Left side.
116	Layer Left Solo Layer 1	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 1 on the Left side.
117	Layer Left Solo Layer 2	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 2 on the Left side.
118	Layer Left Solo Layer 3	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 3 on the Left side.
119	Layer Left Solo Layer 4	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 4 on the Left side.
120	Layer Left Solo Layer 5	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 5 on the Left side.
121	Layer Left Solo Layer 6	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 6 on the Left side.
122	Layer Left Solo Layer 7	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 7 on the Left side.
123	Layer Left Solo Layer 8	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 8 on the Left side.



124	Layer Right Solo Current Layer	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for the currently selected Layer on the Right side.
125	Layer Right Solo Layer 1	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 1 on the Right side.
126	Layer Right Solo Layer 2	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 2 on the Right side.
127	Layer Right Solo Layer 3	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 3 on the Right side.
128	Layer Right Solo Layer 4	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 4 on the Right side.
129	Layer Right Solo Layer 5	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 5 on the Right side.
130	Layer Right Solo Layer 6	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 6 on the Right side.
131	Layer Right Solo Layer 7	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 7 on the Right side.
132	Layer Right Solo Layer 8	0 - 127 128 - 255	= Off = On	Activate or deactivate the Solo Mode for Layer 8 on the Right side.

133	Layer Left Filter Current Layer	0 - 35 [Repeats afterwards]	Filter/Effect FX, Right 0 = No FX 1 = Blur 2 = Blur B-Spline 3 = Blur Catmull Rom 4 = Blur Gauss 5 = Blur Mitchell 6 = Sharpen 7 = Brighten 8 = Darken 9 = Grayscale 10 = Invert Color 11 = R 12 = G 13 = B 14 = W 15 = RG 16 = RB 17 = GB 18 = RW 19 = GW 20 = BW 21 = RGB 22 = RGW 23 = RBW 24 = GBW 25 = 6x (Kaleidoscope) 26 = 8x (Kaleidoscope) 27 = 12x (Kaleidoscope) 28 = Edges 29 = Edges Popup 30 = Emboss 31 = Emboss Popup 32 = Mirror H 33 = Mirror V 34 = Mirror HV 35 = Mirror D 36 = Mirror HD 37 = Mirror VD	Set up one out of 35 filters for the currently selected Layer on the Left side.
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			38 = Mirror HVD	
134	Layer Left Filter Layer 1	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 1 on the Left side.
135	Layer Left Filter Layer 2	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 2 on the Left side.
136	Layer Left Filter Layer 3	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 3 on the Left side.
137	Layer Left Filter Layer 4	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 4 on the Left side.
138	Layer Left Filter Layer 5	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 5 on the Left side.
139	Layer Left Filter Layer 6	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 6 on the Left side.
140	Layer Left Filter Layer 7	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 7 on the Left side.
141	Layer Left Filter Layer 8	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 8 on the Left side.

142	Layer Right Filter Current Layer	0 - 35 [Repeats afterwards]	Filter/Effect FX, Right 0 = No FX 1 = Blur 2 = Blur B-Spline 3 = Blur Catmull Rom 4 = Blur Gauss 5 = Blur Mitchell 6 = Sharpen 7 = Brighten 8 = Darken 9 = Grayscale 10 = Invert Color 11 = R 12 = G 13 = B 14 = W 15 = RG 16 = RB 17 = GB 18 = RW 19 = GW 20 = BW 21 = RGB 22 = RGW 23 = RBW 24 = GBW 25 = 6x (Kaleidoscope) 26 = 8x (Kaleidoscope) 27 = 12x (Kaleidoscope) 28 = Edges 29 = Edges Popup 30 = Emboss 31 = Emboss Popup 32 = Mirror H 33 = Mirror V 34 = Mirror HV 35 = Mirror D 36 = Mirror HD 37 = Mirror VD	Set up one out of 35 filters for the currently selected Layer on the Right side.
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			38 = Mirror HVD	
143	Layer Right Filter Layer 1	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 1 on the Right side.
144	Layer Right Filter Layer 2	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 2 on the Right side.
145	Layer Right Filter Layer 3	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 3 on the Right side.
146	Layer Right Filter Layer 4	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 4 on the Right side.
147	Layer Right Filter Layer 5	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 5 on the Right side.
148	Layer Right Filter Layer 6	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 6 on the Right side.
149	Layer Right Filter Layer 7	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 7 on the Right side.
150	Layer Right Filter Layer 8	0 - 35 [Repeats afterwards]	Filter/Effect FX, Left 0 = No FX ... 38 = Mirror HVD	Set up one out of 35 filters for Layer 8 on the Right side.
151	Group Control Value Group 1	0 - 255	0 - 255	Control the (intensity) value of Group 1.
152	Group Control Value Group 2	0 - 255	0 - 255	Control the (intensity) value of Group 2.

153	Group Control Value Group 3	0 - 255	0 - 255	Control the (intensity) value of Group 3.
154	Group Control Value Group 4	0 - 255	0 - 255	Control the (intensity) value of Group 4.
155	Group Control Value Group 5	0 - 255	0 - 255	Control the (intensity) value of Group 5.
156	Group Control Value Group 6	0 - 255	0 - 255	Control the (intensity) value of Group 6.
157	Group Control Value Group 7	0 - 255	0 - 255	Control the (intensity) value of Group 7.
158	Group Control Value Group 8	0 - 255	0 - 255	Control the (intensity) value of Group 8.
159	Group Control Flash Group 1	0 - 127 128 - 255	= Off = On	Flash the value for Group 1.
160	Group Control Flash Group 2	0 - 127 128 - 255	= Off = On	Flash the value for Group 2.
161	Group Control Flash Group 3	0 - 127 128 - 255	= Off = On	Flash the value for Group 3.
162	Group Control Flash Group 4	0 - 127 128 - 255	= Off = On	Flash the value for Group 4.
163	Group Control Flash Group 5	0 - 127 128 - 255	= Off = On	Flash the value for Group 5.
164	Group Control Flash Group 6	0 - 127 128 - 255	= Off = On	Flash the value for Group 6.
165	Group Control Flash Group 7	0 - 127 128 - 255	= Off = On	Flash the value for Group 7.
166	Group Control Flash Group 8	0 - 127 128 - 255	= Off = On	Flash the value for Group 8.
167	Group Control Value Default Group All	0 - 127 128 - 255	= Off = On	Restore the default (intensity) values of all Groups.

## Other Protocols

There are other preprogrammed DMX protocols you can choose from:

- »[DMX-IN \[Simple Protocol\]](#)
- »[DMX-IN \[General Protocol\]](#)
- »[DMX-IN \[Advanced Protocol\]](#)
- »[DMX-IN \[User\]](#)

## 7.1.4 DMX-IN [User]

This topic includes:

- [Introduction](#)
- [Other Protocols](#)

### Introduction

The protocol DMX-IN [User] describes individual configurations you can create as a user.

That means you can assign DMX-IN freely and create your own configuration. Set up your own configuration by using the DMX-IN Remote Editor.

Learn more »[DMX-IN Remote Editor](#)

### Other Protocols

There are other preprogrammed DMX protocols you can choose from:

- »[DMX-IN \[Simple Protocol\]](#)
- »[DMX-IN \[General Protocol\]](#)
- »[DMX-IN \[Advanced Protocol\]](#)
- »[DMX-IN \[User\]](#)



## 7.1.5 DMX-IN Remote Editor

This topic includes:

- [Introduction](#)
- [Initial Configuration](#)
- [Overview](#)
- [Keyboard Shortcuts](#)
- [Configuration](#)
- [Modifiers](#)
- [Examples](#)

### Introduction

Any DMX input signal can be used to control MADRIX remotely. While you can use preconfigured DMX protocols, you can also set up such a configuration according to your needs with the help of the **DMX-IN Remote Editor**. This topic describes how to use the DMX-IN Remote Editor.

### Initial Configuration

- **Make sure to configure your DMX device first.**  
[For example, DMX devices can be consoles, DMX desks, fader boards, other DMX interfaces, etc.]
- Set up DMX Input.
- Learn more »[DMX-IN And Art-Net Remote](#)

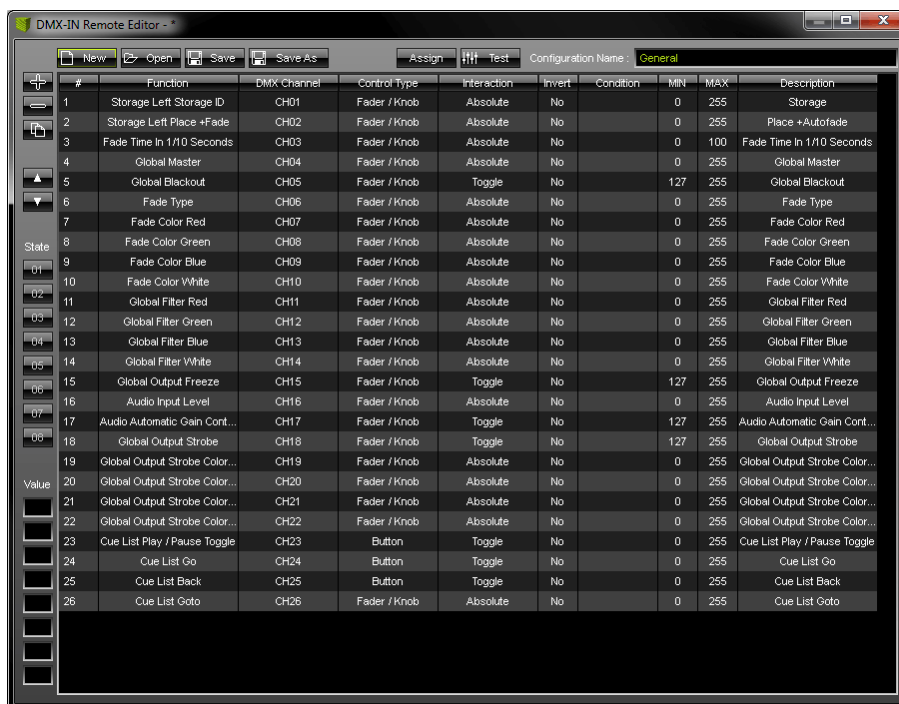
### Overview

- Go to **Preferences > Device Manager... > DMX Input**



- Click **Edit...** to open the **DMX-IN Remote Editor**

- A new window will open.
- If you are creating a new DMX protocol, the list will be empty.
- If you are modifying an existing DMX protocol map, the list will already contain all preconfigured settings.



**Add** - Adds a new item to the list.

**Remove** - Removes the currently selected list items.



**Duplicate/Copy** - Copies and duplicates the currently selected list item. The new item will be added to the list right after the selected item. You can change its settings afterwards.



**Navigation** - Allows you to select the next or previous list item.



**New** - Creates a new configuration while deleting all previous list items with your permission.

- Allows you to create an empty DMX Remote Configuration [**Empty**] or load a preconfigured DMX protocol [**Simple, General, Advanced**].



**Open** - Loads a previously saved DMX Remote Configuration file into the DMX-In Remote Editor from an external file [of the file type \*.mdrx].



**Save** - Saves the current DMX Remote Configuration to an external file [of the file type \*.mdrx].

**Save As** - Save the current DMX Remote Configuration to another external file [of the file type \*.mdrx]. Simply enter a name and click Save.



**Assign** - Allows you to assign a control of your DMX controller to a function in MADRIX.

- **1**] Activate **Assign**, select an list item you created and move the control of your DMX controller.

- **2**] In most cases, MADRIX will automatically recognize the identify the DMX Channel, Control Type, and Interaction for the control.

Learn more [Configuration](#)



**Test** - Allows you to test single list items and their functionality on the MADRIX user interface, while having the DMX-IN Remote Editor still opened.

- Activate Test, then use the control on your DMX controller. You can see if the control works as expected on the MADRIX user interface.
- If Test is activated, MADRIX will receive the signal directly and not the DMX-IN Remote Editor.

- Test is also useful for testing modifiers. Learn more [Modifiers](#)

Configuration Name : **General**

**Configuration Name** - Allows you to type in an individual description for your DMX Remote Configuration.

- Once saved, you will be able to select your DMX Remote Configuration under Preferences > Device Manager... > MIDI > Remote Control and MADRIX will use this label.

## Keyboard Shortcuts

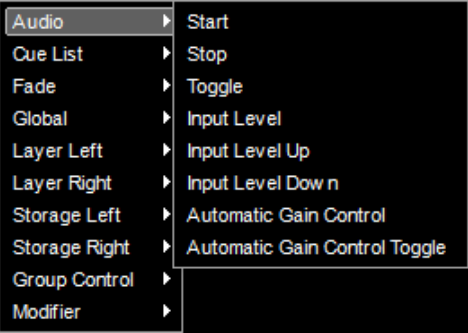
<b>Ctrl + A</b>	Selects all items in the list.
<b>Ctrl + E [hold]</b>	Activates <b>Assign</b> , while holding this shortcut.
<b>Ctrl + N</b>	Creates a new configuration.
<b>Ctrl + O</b>	Opens a configuration.
<b>Ctrl + S</b>	Saves a configuration.
<b>Ctrl + T [hold]</b>	Activates <b>Test</b> , while holding this shortcut.
<b>Del</b>	Removes selected items from the list.


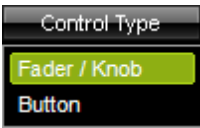
<b>Arrow Up</b>	Navigates upwards in the list.
<b>Arrow Down</b>	Navigates downwards in the list.
<b>Double-click on an item</b>	Calls up the context menu for the column.
<b>Double-click on a head row of the list</b>	Sorts the list alphabetically according to the column [ascending or descending].

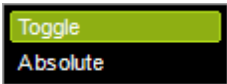

## Configuration


### Overview

- Each list item represents 1 DMX remote functionality using 1 DMX control [i.e., button, fader, etc.].
- Configure each list item as required.
- Configure each column of an list item.
- Add or remove list items to add or remove the functionality you require.

<p><b>Function</b></p>		<p><b>1]</b> Create a new item with + Or select a list item and perform a double-click with your mouse on the column <b>Function</b></p> <p><b>2]</b> Select the general topic [e.g., <b>Audio</b>]</p> <p><b>3]</b> Select the exact function you wish to configure [e.g., <b>Volume</b>]</p>
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<p><b>DMX Channel</b></p>		<p><b>A]</b> Click <b>Assign</b>, select a list item and use a control on your DMX controller. In most cases, MADRIX will automatically recognize the DMX Channel, Control Type, and Interaction.</p> <p><b>B]</b> Or first select a list item and perform a double-click with your mouse on the column <b>DMX Channel</b>. Second, enter the correct DMX channel [e.g., CH01 for channel 01].</p>
<p><b>Control Type</b></p>		<p><b>A]</b> Click <b>Assign</b>, select a list item and use a control on your DMX controller. In most cases, MADRIX will automatically recognize the DMX Channel, Control Type, and Interaction.</p> <p><b>B]</b> Or first select a list item and perform a double-click with your mouse on the column <b>Control Type</b>. Second, select the type of the control of your DMX controller [e.g., Button].</p> <ul style="list-style-type: none"> <li>▪ <b>Fader / Knob</b> - Defines a fader or knob control that has a wide range of available values with starting point and end point.</li> <li>▪ <b>Button</b> - Defines a button control that has two states [On or Off]; often as switch, push button, or button.</li> </ul>

<p><b>Interaction</b></p>		<p><b>A]</b> Click <b>Assign</b>, select a list item and use a control on your DMX controller. In most cases, MADRIX will automatically recognize the DMX Channel, Control Type, and Interaction.</p> <p><b>B]</b> Or first select a list item and perform a double-click with your mouse on the column <b>Interaction</b>. Second, select the mode [e.g., Toggle].</p> <p><b>Toggle</b> - Defines that the Control Type only has two states [On or Off]. Is usually used for Button.</p> <p><b>Absolute</b> - Defines that the Control Type uses all available values [e.g., 0 to 255]. Is usually used for Fader / Knob.</p>
<p><b>Invert</b></p>		<p><b>1]</b> Select a list item and perform a double-click with your mouse on the column <b>Invert</b></p> <p><b>2]</b> The item will change between <b>No</b> and <b>Yes</b></p> <ul style="list-style-type: none"> <li>- If Yes is selected, all values of this control will be inverted. That means for example that 0 becomes 255 and 255 becomes 0.</li> <li>- No is the default value. No values will be inverted.</li> </ul>

<p><b>Condition</b></p>		<p><b>1]</b> Select a list item and perform a double-click with your mouse on the column <b>Cond.</b></p> <p><b>2]</b> Select the condition [e.g., None].</p> <ul style="list-style-type: none"> <li>- If you select a <b>State</b>, click <b>Yes</b> or <b>No</b></li> <li>- If you select a <b>Value</b>, select the according <b>number</b></li> </ul> <p>Learn more <a href="#">Modifiers</a></p>						
<p><b>MIN, MAX, Description</b></p>	<table border="1" data-bbox="264 972 705 1043"> <thead> <tr> <th>MIN</th> <th>MAX</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>255</td> <td>Place +Autofade</td> </tr> </tbody> </table>	MIN	MAX	Description	0	255	Place +Autofade	<ul style="list-style-type: none"> <li>▪ Select an item and perform a double-click with your mouse on the column <b>MIN</b>, <b>MAX</b>, or <b>Description</b>. Enter the desired value or text.</li> <li>▪ <b>MIN</b> - Defines a minimum value for this functionality. The default value is 0.  <b>MAX</b> - Defines requires a maximum value for this functionality. <ul style="list-style-type: none"> <li>- For example, the Master Fader has a maximum value of 255, or you may want to set the maximum Fade Time to 10 seconds.</li> </ul> </li> <li>▪ <b>Description</b> - Allows you to enter a text to describe the functionality. <ul style="list-style-type: none"> <li>- [By default, the name of the function will automatically be entered].</li> </ul> </li> </ul>
MIN	MAX	Description						
0	255	Place +Autofade						

**Modifiers**



## Overview

The DMX-IN Remote Editor allows you to create advanced DMX configurations.

- Modifiers allow you to set certain conditions.
- In general, these are the steps to follow:
  - 1] Create a new item with + or select a list item and perform a double-click with your mouse on the column **Function**
  - 2] Select **Modifier**
  - 3] Select a **State** or **Value**
  - 4] Create a new list item and configure its **Function** or use an existing list item
  - 5] Assign the condition to this function.

Learn more [Condition](#)

## State

- **State** - Creates a requirement/condition that is required before the function will work.
- You can define up to 8 States.
- Valid values are Yes [Value = 1] or No [Value = 0].
- Example:
  - List item 1 defines a button as a **Modifier, State 1** to be toggled. When pressed, State 1 is active [On, Yes]. When not pressed, State 1 is not active [Off, No] .
  - List item 2 is a function to control the Master [**Global Master**]. A **Condition** was set up for this functionality. If MADRIX receives value 1 [Yes] from **State 1**, the function can be used.
  - Because of the Condition, the Master Fader can only be used when the button is pressed at the same time:

#	Function	DMX Channel	Control Type	Interaction	Invert	Condition	MIN	MAX	Description
1	Modifier State 1	CH01	Button	Toggle	No		0	255	Modifier State 1
2	Global Master	CH02	Fader / Knob	Absolute	No	State 1 = Yes	0	255	Global Master

- If no condition is assigned, the fader can be moved and the Master Fader of MADRIX will always respond accordingly:

#	Function	DMX Channel	Control Type	Interaction	Invert	Condition	MIN	MAX	Description
1	Global Master	CH02	Fader / Knob	Absolute	No	State 1 = Yes	0	255	Global Master

- When **Test** is activated, MADRIX shows the status of a State in the MIDI Remote Editor. A green button indicates status Yes, a gray button indicates status No.



**Value**

- **Value** - Allows to add several functions to one or more controls of the MIDI controller by combining it with other available controls.
- You can define up to 8 Values.
- Valid values range from 0 to 255.
- Example:
  - Your DMX controller may only have 2 faders.
  - But you would want to control the Master, the Speed Master Left, and the Speed Master Right with these two faders.
  - In this example, we have configured the first fader to activate three different configurations for the second fader.
  - If fader 1 is set to 0, the second fader will act as the Master.
  - If fader 1 is set to 127, the second fader will act as Speed Master Left.
  - If fader 1 is set to 255, the second fader will act as Speed Master Right.
  - Depending on how the first fader is set up, the modifier value changes from 0 to 255. MADRIX checks this value and allows the fader to control the corresponding function on the MADRIX user interface.
- **Note:** Always assign the correct values to modifier and function.

#	Function	DMX Channel	Control Type	Interaction	Invert	Condition	MIN	MAX	Description
1	Modifier Value 1	CH01	Fader / Knob	Absolute	No		0	255	Modifier Value 1
2	Global Master	CH02	Fader / Knob	Absolute	No	Value 1 = 000	0	255	Global Master
3	Storage Left Speed	CH02	Fader / Knob	Absolute	No	Value 1 = 127	0	255	Storage Left Speed
4	Storage Right Speed	CH02	Fader / Knob	Absolute	No	Value 1 = 255	0	255	Storage Right Speed

- When **Test** is activated, MADRIX shows the status of a Value in the DMX-IN Remote Editor.



## Examples

### Example 1

- You wish to use single buttons of your DMX controller for each Storage Place.
- Use + to create a new function.
- Select **Storage Left > Place +Fade**
- Use **Assign** to match your button to this function. Disable Assign again when done.
- Set **MAX** to **0** in order to trigger Storage Left S1 P1 [Storage 1 Place 1].
- Repeat the steps and set up **MAX** for each Storage Place you wish to control.
  - **MAX** will always have a value that is -1 compared to the actual Storage Place index number [e.g., set MAX to 6 in order to control S1 P7]
- Use **Storage Right > Place +Fade** and repeat the steps accordingly to control the Storage Places on the right side.

## 7.2 MIDI-IN

This topic includes:

- [Introduction](#)
- [Interruption-Free Operation](#)
- [Step-By-Step Configuration](#)
- [MIDI Audio](#)
- [MIDI Remote Control](#)
- [MIDI Time Code](#)
- [MIDI Watcher](#)
- [Important Notes](#)

### Introduction



MIDI [short for Musical Instrument Digital Interface] is a widely-known communication standard and digital interface.

In MADRIX, there are mainly 3 areas of application for MIDI:

- Using MIDI controllers for Remote Control
- Using MIDI devices for audio input via MIDI
- Using MIDI Time Code

MIDI devices are often simply connected directly via USB or via a MIDI-to-USB interface to the computer.

MIDI Time Code will be explained in the next chapter. Learn more [»»Time\\_Code\\_\[Art-Net\\_/MIDI\\_/SMPTE\\_/System Time\]](#)

## Interruption-Free Operation

To ensure interruption-free operation of the software and devices, please make sure to check the power-saving settings of Windows.

Learn more »[PC Power Management](#)

## Step-By-Step Configuration

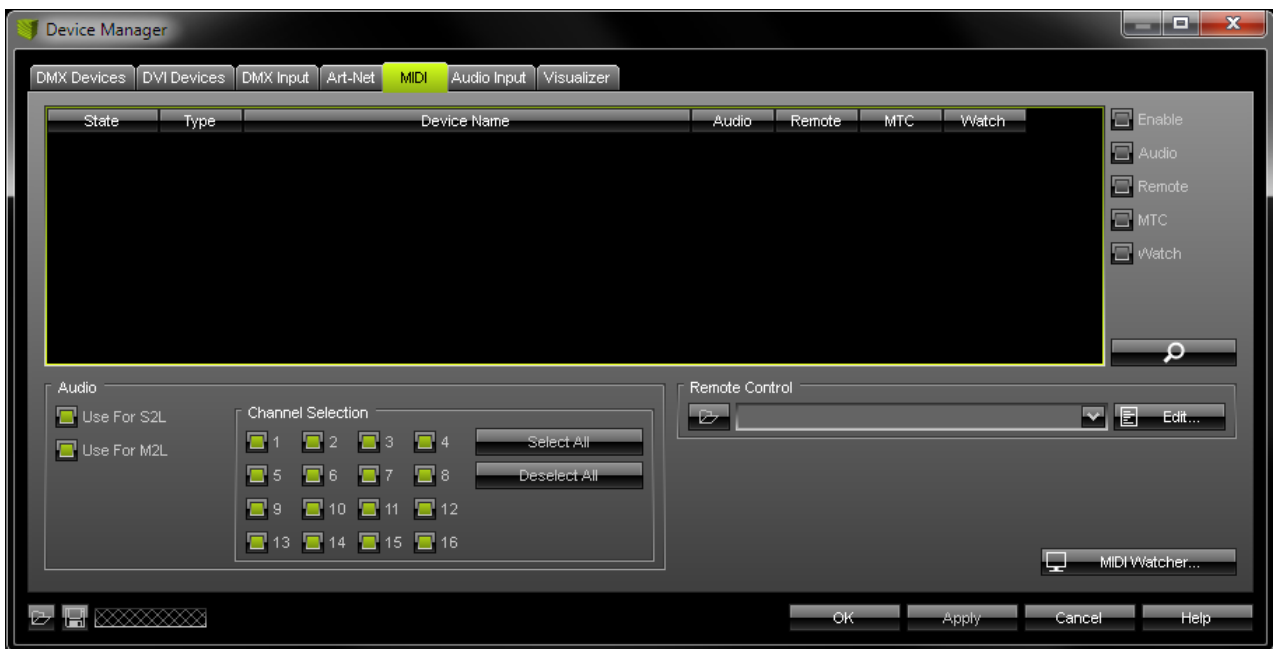
- 1] Connect your MIDI device.
- 2] Set up MIDI and enable your device.
- 3] Choose how to use the device and incoming signals.


### 1] Connect Your MIDI Device

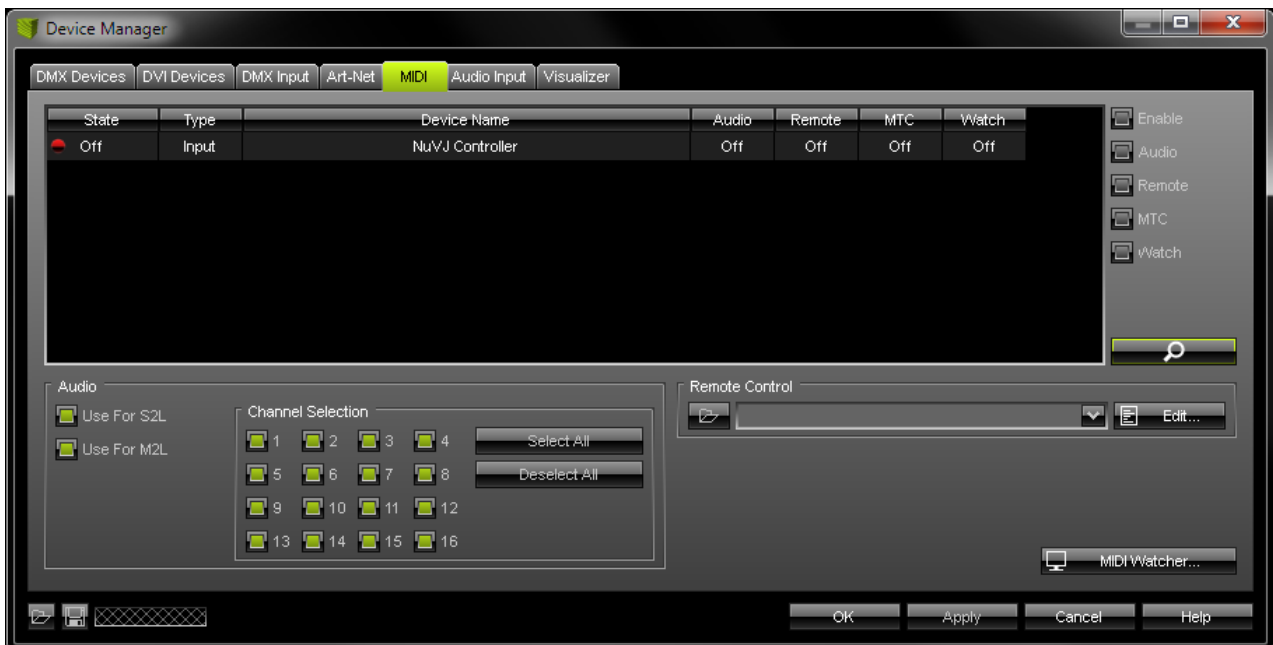
- Connect your controller to the computer.
- Make sure that Windows recognizes the device and install drivers if necessary.

### 2] Set Up MIDI

- Go to **Preferences > Remote Control > MIDI..**  
or **Preferences > Device Manager... > MIDI**  
[Keyboard shortcut: **F4 > MIDI**]
- A new window will open.



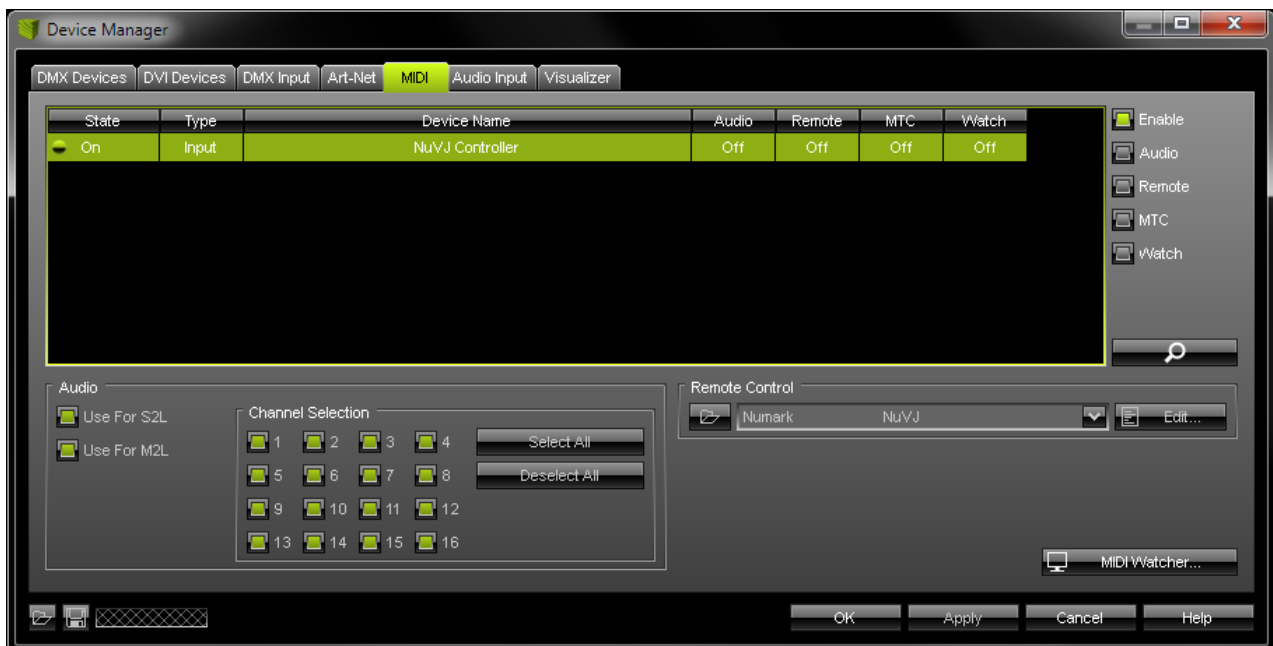
- Click .  
MADRIX will automatically search for connected devices.  
Your MIDI device will be shown in the list.



- Select your device in the list.

- Activate **Enable**

[Please note that the **State** in the list will change from **Off** to **On**.]



### 3] Choose How To Use MIDI

Now, several options are available to you:

- **Audio** - Activates your MIDI device to be used as audio source [a MIDI keyboard, for example].  
Learn more [MIDI Audio](#)
  - **Remote** - You can use your MIDI VJ/DJ controller or console to control MADRIX remotely.  
Learn more [MIDI Remote Control](#)
  - **MTC** - You can use MADRIX to receive external MIDI Time Code.  
Learn more [MIDI Time Code](#)
  - **Watch** - Launches the MIDI Watcher to monitor incoming signals or troubleshoot.  
Learn more [MIDI Watcher](#)
- You can activate several MIDI devices at the same time.
  - You can use all options at the same time [Audio, Remote, MTC, Watch].

## MIDI Audio

- Activate your MIDI device as explained above.
- Again, go to **Preferences > Remote Control > MIDI..**  
or **Preferences > Device Manager... > MIDI**  
[Keyboard shortcut: **F4 > MIDI**]
- A new window will open.
- Select your device in the list.
- Activate **Audio**  
[Please note that **Audio** in the list will change from **Off** to **On**.]
- Now, the **Audio** section below will be activated.



- **Use For S2L** - Activates the audio analysis of incoming MIDI signals for Sound2Light effects. This option is activated by default.
- **Use For M2L** - Activates the audio analysis of incoming MIDI signals for Music2Light effects. This option is activated by default.



- **Channel Selection** - Defines which MIDI channel will be scanned and used by MADRIX.
  - In general, MIDI offers 16 channels. You can configure each MIDI device to send on a particular channel. Make sure that this channel is also selected in this section here.
  - If you wish to filter a channel, deselect the according number. As a result, the channel will not be used for MIDI-IN in combination with MADRIX.
  - By default, all 16 channels are activated and will be used by MADRIX.

## MIDI Remote Control

### Configuration

- Activate your MIDI device as explained above.
- Again, go to **Preferences > Remote Control > MIDI...**  
or **Preferences > Device Manager... > MIDI**  
[Keyboard shortcut: **F4 > MIDI**]
- A new window will open.
- Select your device in the list.
- Activate **Remote**  
[Please note that **Remote** in the list will change from **Off** to **On**.]
- Now, the **Remote Control** section below will be activated.



**Open** - Loads a previously saved MADRIX MIDI Remote Configuration file [of the file type \*.mmrx].



**MIDI Maps** - Choose from a pre-configured MIDI map [configuration].

Learn more [MIDI Maps \[Overview\]](#)

- If you wish to create a new MIDI map, choose **USER User**.
- You can edit every MIDI map. Learn more »[MIDI-IN Remote Editor](#)



**MIDI Remote Editor** - Allows you to modify a configuration or create a new configuration. Learn more »[MIDI-IN Remote Editor](#)

## MIDI Commands

MADRIX can receive the following MIDI command types:

- Control Change
- Note
- Pitch Bend
- Program Change

## MIDI Maps [Overview]

MADRIX includes a number of preprogrammed MIDI maps. Learn more in the following chapters.

- »[Akai Professional APC40](#)
- »[Akai Professional APC40 MKII](#)
- »[Akai Professional APCkey25](#)
- »[Akai Professional APCmini](#)
- »[Akai Professional LPD8](#)
- »[Akai Professional LPK25](#)
- »[Akai Professional MIDIMIX](#)
- »[Akai Professional MPK249](#)
- »[Akai Professional MPK261](#)
- »[Akai Professional MPKmini MKII](#)
- »[Behringer BCD3000](#)
- »[Behringer BCF2000](#)
- »[Behringer BCR2000](#)
- »[Creative Prodikeys PC-MIDI](#)
- »[Elation Professional MIDICON](#)
- »[Hercules DJ Console Rmx](#)
- »[Hercules DJ Control MP3 And DJ Console MK2](#)
- »[Hercules DJ Control MP3 e2](#)
- »[KORG nanoKONTROL](#)
- »[KORG nanoKONTROL2](#)
- »[Livid Instruments Ohm64](#)
- »[M\\_AUDIO Code 49](#)
- »[M-AUDIO Oxygen 8 v2](#)
- »[M-AUDIO Torq Xponent](#)
- »[MIDI Keyboards](#)
- »[MIDI Universal](#)
- »[Novation Launchpad](#)
- »[Numark NuVJ](#)
- »[Numark Omni Control](#)

- »[Numark Stealth Control](#)
- »[Numark Total Control](#)
- »[Omnitronic MMC-1](#)
- »[Stanton SCS.3d](#)
- »[USER User](#)
- »[Vestax VCI-100](#)
- »[Vestax VCM-100](#)

## MIDI Time Code

- Activate your MIDI device as explained above.
- Again, go to **Preferences > Remote Control > MIDI...**  
or **Preferences > Device Manager... > MIDI**  
[Keyboard shortcut: **F4 > MIDI**]
- A new window will open.
- Select your device in the list.
- Activate **MTC**  
[Please note that **MTC** in the list will change from **Off** to **On**.]
- Now, you can receive MIDI Time via the Cue List.  
Learn more »»[Time Code \[Art-Net / MIDI / SMPTE / System Time\]](#)

## MIDI Watcher

- Activate your MIDI device as explained above.

- Again, go to **Preferences > Remote Control > MIDI...**  
or **Preferences > Device Manager... > MIDI**  
[Keyboard shortcut: **F4 > MIDI**]
- A new window will open.
  
- Select your device in the list.
- Activate **Watch**  
[Please note that **Watch** in the list will change from **Off** to **On**.]
  
- It is now possible to monitor incoming MIDI signals.
- Click **MIDI Watcher...**
- A new window will open.
- You can now check incoming signals.  
Learn more » [Tools](#)

## Important Notes

- **Before using a MIDI device, please make sure that your MIDI device is connected to your computer and that all necessary drivers are installed.**
- **Please also make sure to save your MADRIX Setup after following configuration process.**

## 7.2.1 MIDI Remote Editor

This topic includes:

- [Introduction](#)
- [Initial Configuration](#)
- [Overview](#)
- [Keyboard Shortcuts](#)
- [Configuration](#)
- [Examples](#)

### Introduction

MIDI controllers are often used to control MADRIX remotely. While you can use preconfigured MIDI maps [i.e., a MIDI Remote Configuration], you can also set up such a configuration according to your needs with the help of the **MIDI Remote Editor**. This topic describes how to use the MIDI Remote Editor.

### Initial Configuration

- **Make sure to configure your MIDI device first.**
- Set up MIDI Remote Control.
- Learn more »[MIDI-IN](#)

### Overview

- Go to **Preferences > Remote Control > MIDI...**  
or **Preferences > Device Manager... > MIDI**  
[Keyboard shortcut: **F4 > MIDI**]



- Click **Edit...** to open the **MIDI Remote Editor**
- A new window will open.
- If you are creating a new MIDI map, the list will be empty.
- If you are modifying an existing MIDI map, the list will already contain all preconfigured settings.

#	Function	MIDI Command	Control Type	Interaction	Invert	Condition	MIN	MAX	Factor	Description
1	Storage Left Place	CH01.CC.000	Fader / Knob	Absolute	No		0	59		Storage Left Place
2	Storage Right Place	CH01.CC.001	Fader / Knob	Absolute	No		0	59		Storage Right Place
3	Storage Left Place +Fade	CH01.CC.002	Fader / Knob	Absolute	No		0	59		Storage Left Place...
4	Storage Right Place +Fade	CH01.CC.003	Fader / Knob	Absolute	No		0	59		Storage Right Plac...
5	Storage Left Place Up	CH01.CC.004	Button	Toggle	No		0	1		Storage Left Place...
6	Storage Left Place Down	CH01.CC.005	Button	Toggle	No		0	1		Storage Left Place...
7	Storage Right Place Up	CH01.CC.006	Button	Toggle	No		0	1		Storage Right Plac...
8	Storage Right Place Down	CH01.CC.007	Button	Toggle	No		0	1		Storage Right Plac...
9	Storage Left Place Up +Fade	CH01.CC.008	Button	Toggle	No		0	1		Storage Left Place...
10	Storage Left Place Down ...	CH01.CC.009	Button	Toggle	No		0	1		Storage Left Place...
11	Storage Right Place Up +F...	CH01.CC.010	Button	Toggle	No		0	1		Storage Right Plac...
12	Storage Right Place Down ...	CH01.CC.011	Button	Toggle	No		0	1		Storage Right Plac...
13	Storage Left Submaster	CH01.CC.016	Fader / Knob	Absolute	No		0	255		Storage Left Sub...
14	Storage Right Submaster	CH01.CC.017	Fader / Knob	Absolute	No		0	255		Storage Right Sub...
15	Storage Left Submaster Up	CH01.CC.018	Button	Toggle	No		0	1		Storage Left Sub...
16	Storage Left Submaster D...	CH01.CC.019	Button	Toggle	No		0	1		Storage Left Sub...
17	Storage Right Submaster Up	CH01.CC.020	Button	Toggle	No		0	1		Storage Right Sub...
18	Storage Right Submaster ...	CH01.CC.021	Button	Toggle	No		0	1		Storage Right Sub...
19	Storage Left Speed	CH01.CC.032	Fader / Knob	Absolute	No		0	255		Storage Left Speed
20	Storage Left Speed Up	CH01.CC.033	Button	Toggle	No		0	1		Storage Left Spee...
21	Storage Left Speed Down	CH01.CC.034	Button	Toggle	No		0	1		Storage Left Spee...
22	Storage Left Speed Reset	CH01.CC.035	Button	Toggle	No		0	1		Storage Left Spee...
23	Storage Left Speed Pause	CH01.CC.036	Button	Absolute	No		0	1		Storage Left Spee...
24	Storage Left Speed Pause	CH01.CC.037	Button	Absolute	Yes		0	1		Storage Left Spee...
25	Storage Left Speed Play	CH01.CC.038	Button	Toggle	No		0	1		Storage Left Spee...
26	Storage Right Speed	CH01.CC.040	Fader / Knob	Absolute	No		0	255		Storage Right Spe...
27	Storage Right Speed Up	CH01.CC.041	Button	Toggle	No		0	1		Storage Right Spe...
28	Storage Right Speed Down	CH01.CC.042	Button	Toggle	No		0	1		Storage Right Spe...
29	Storage Right Speed Reset	CH01.CC.043	Button	Toggle	No		0	1		Storage Right Spe...
30	Storage Right Speed Pause	CH01.CC.044	Button	Absolute	No		0	1		Storage Right Spe...



**Add** - Adds a new item to the list.

**Remove** - Removes the currently selected list items.



**Duplicate/Copy** - Copies and duplicates the currently selected list item. The new item will be added to the list right after the selected item. You can change its settings afterwards.



**Navigation** - Allows you to select the next or previous list item.



**New** - Creates a new MIDI Remote Configuration while deleting all previous list items with your permission.

- Allows you to create an empty MIDI map [**Empty**] or load a preconfigured MIDI map.



**Open** - Loads a MIDI Remote Configuration into the MIDI Remote Editor from an external file [of the file type \*.mmrx].



**Save** - Saves the current MIDI Remote Configuration to an external file [of the file type \*.mmrx].

**Save As** - Save the current MIDI Remote Configuration to another external file [of the file type \*.mmrx]. Simply enter a name and click Save.



**Assign** - Allows you to assign a control of your MIDI console to a function in MADRIX.

- **1]** Activate **Assign**, select an list item you created and move the control of your MIDI controller.

- **2]** In most cases, MADRIX will automatically recognize the MIDI Command, Control Type, and Interaction for the control. Learn more

[Configuration](#)



**Test** - Allows you to test single list items and their functionality on the MADRIX user interface, while having the MIDI Remote Editor still opened.

- Activate Test, then use the control on your MIDI controller. You can see if the control works as expected on the MADRIX user interface.

- If Test is activated, MADRIX will receive the signal directly and not the MIDI Remote Editor.

- Test is also useful for testing modifiers. Learn more [Modifiers](#)



Configuration Name : **Universal**

**Configuration Name** - Allows you to type in an individual description for your MIDI configuration.

- Once saved, you will be able to select your MIDI configuration under Preferences > Device Manager... > MIDI > Remote Control and MADRIX will use this label.

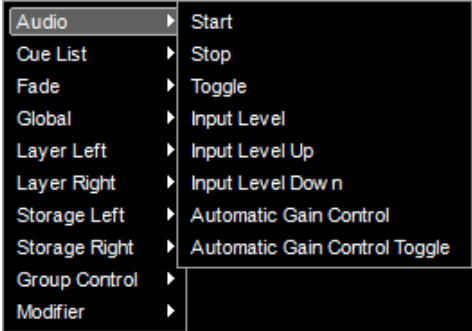
## Keyboard Shortcuts

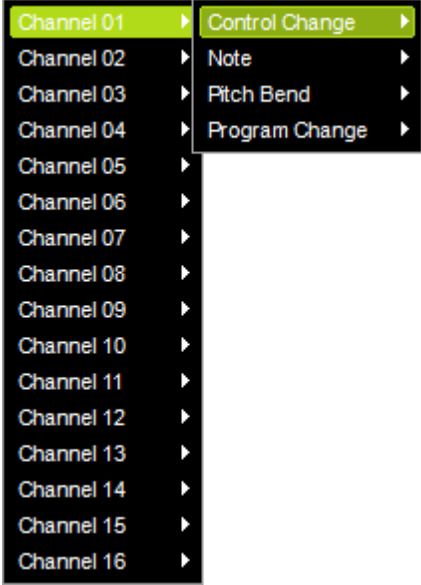
<b>Ctrl + A</b>	Selects all items in the list.
<b>Ctrl + E [hold]</b>	Activates <b>Assign</b> , while holding this shortcut.
<b>Ctrl + N</b>	Creates a new MIDI map.
<b>Ctrl + O</b>	Opens a MIDI map.
<b>Ctrl + S</b>	Saves a MIDI map.
<b>Ctrl + T [hold]</b>	Activates <b>Test</b> , while holding this shortcut.
<b>Del</b>	Removes selected items from the list.
<b>Arrow Up</b>	Navigates upwards in the list.
<b>Arrow Down</b>	Navigates downwards in the list.
<b>Double-click on an item</b>	Calls up the context menu for the column.
<b>Double-click on a head row of the list</b>	Sorts the list alphabetically according to the column [ascending or descending].


## Configuration

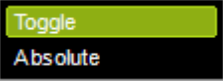
### Overview



- Each list item represents 1 MIDI remote functionality using 1 MIDI control [i.e., button, fader, note, etc.].
- Configure each list item as required.
- Configure each column of an list item.
- Add or remove list items to add or remove the functionality you require.

<b>Function</b>		<p><b>1]</b> Create a new item with + Or select a list item and perform a double-click with your mouse on the column <b>Function</b></p> <p><b>2]</b> Select the general topic [e.g., <b>Audio</b>]</p> <p><b>3]</b> Select the exact function you wish to configure [e.g., <b>Volume</b>]</p>
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<p><b>MIDI Command</b></p>	 <p>The screenshot shows a vertical list of MIDI channels from Channel 01 to Channel 16. Channel 01 is highlighted in yellow. A sub-menu is open for Channel 01, listing 'Control Change', 'Note', 'Pitch Bend', and 'Program Change'. 'Control Change' is also highlighted in yellow.</p>	<p><b>A]</b> Click <b>Assign</b>, select a list item and use a control on your MIDI controller. In most cases, MADRIX will automatically recognize the MIDI Command, Control Type, and Interaction.</p> <p><b>B]</b> Or first select a list item and perform a double-click with your mouse on the column <b>MIDI Command</b>. Second, select the MIDI channel [e.g., Channel 01]. Third, select the MIDI type [e.g., Control Change]. Fourth, select the value [e.g., 011]</p> <p>- In general, MIDI offers 16 channels. You can configure each MIDI device to send on a particular channel. Make sure that this <b>Channel</b> is also selected here.</p> <p>MADRIX can receive the following MIDI command types:</p> <ul style="list-style-type: none"> <li>▪ <b>Control Change</b></li> <li>▪ <b>Note</b></li> <li>▪ <b>Pitch Bend</b></li> <li>▪ <b>Program Change</b></li> </ul>
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<p><b>Control Type</b></p>		<p><b>A]</b> Click <b>Assign</b>, select a list item and use a control on your MIDI controller. In most cases, MADRIX will automatically recognize the MIDI Command, Control Type, and Interaction.</p> <p><b>B]</b> Or first select a list item and perform a double-click with your mouse on the column <b>Control Type</b>. Second, select the type of the control of your MIDI controller [e.g., Button].</p> <ul style="list-style-type: none"> <li>▪ <b>Fader / Knob</b> - Defines a fader or knob control that has a wide range of available values with starting point and end point.</li> <li>▪ <b>Encoder / Jogwheel</b> - Defines a knob or wheel control that has a wide range of available values that functions endlessly without a starting point or endpoint.</li> <li>▪ <b>Button</b> - Defines a button control that has two states [On or Off]; often as switch, push button, or button.</li> </ul>
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<p><b>Interaction</b></p>		<p><b>A]</b> Click <b>Assign</b>, select a list item and use a control on your MIDI controller. In most cases, MADRIX will automatically recognize the MIDI Command, Control Type, and Interaction.</p> <p><b>B]</b> Or first select a list item and perform a double-click with your mouse on the column <b>Interaction</b>. Second, select the mode [e.g., Toggle].</p> <ul style="list-style-type: none"> <li>▪ <b>Toggle</b> - Defines that the Control Type only has two states [On or Off]. Is usually used for Button.</li> <li>▪ <b>Relative Signed</b> - Is a mode how encoders / jogwheels can work. Use Assign to automatically detect the mode or consult the manual of the MIDI controller.</li> <li>▪ <b>Relative Signed 2</b> - Is a mode how encoders / jogwheels can work. Use Assign to automatically detect the mode or consult the manual of the MIDI controller.</li> <li>▪ <b>Relative Binary Offset</b> - Is a mode how encoders / jogwheels can work. Use Assign to automatically detect the mode or consult the manual of the MIDI controller.</li> <li>▪ <b>Relative Signed 2's Complement</b> - Is a mode how encoders / jogwheels can work. Use Assign to automatically detect the mode or consult the manual of the MIDI controller.</li> <li>▪ <b>Absolute</b> - Defines that the Control Type uses all available values [e.g., 0 to 255]. Is usually used for Fader / Knob.</li> </ul>
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<p><b>Invert</b></p>		<p><b>1]</b> Select a list item and perform a double-click with your mouse on the column <b>Invert</b>.</p> <p><b>2]</b> The item will change between <b>No</b> and <b>Yes</b></p> <ul style="list-style-type: none"> <li>- If Yes is selected, all values of this control will be inverted. That means for example that 0 becomes 255 and 255 becomes 0.</li> <li>- No is the default value. No values will be inverted.</li> </ul>
<p><b>Condition</b> <b>n</b></p>		<p><b>1]</b> Select a list item and perform a double-click with your mouse on the column <b>Cond.</b></p> <p><b>2]</b> Select the condition [e.g., None].</p> <ul style="list-style-type: none"> <li>- If you select a <b>State</b>, click <b>Yes</b> or <b>No</b></li> <li>- If you select a <b>Value</b>, select the according <b>number</b></li> </ul> <p>Learn more <a href="#">Modifiers</a></p>

<b>MIN, MAX, Factor, Description</b>	MIN	MAX	Factor	Description
	0	255		Fade Color Red
	0	255		Fade Color Green

- Select an item and perform a double-click with your mouse on the column **MIN**, **MAX**, **Factor**, or **Description**. Enter the desired value or text.
- **MIN** - Defines a minimum value for this functionality. The default value is 0.
- **MAX** - Defines a maximum value for this functionality.
  - For example, the Master has a maximum value of 255, or you may want to set the maximum Fade Time to 10 seconds.
- **Factor** - Valid values range from -127 and +127. 0 is the default value. Use this factor to slow down [-127 to -1] or speed up [+1 to +127] controls of your MIDI controller.
  - For example, a jog wheel might be too fast to select mix modes of MADRIX. Slow it down by entering a negative value.
- **Description** - Allows you to enter a text to describe the functionality.
  - [By default, the name of the function will automatically be entered].

## Modifiers

### Overview

The MIDI Remote Editor allows you to create advanced MIDI configurations.

- Modifiers allow you to set certain conditions.

- In general, these are the steps to follow:
    - 1] Create a new item with + or select a list item and perform a double-click with your mouse on the column **Function**
    - 2] Select **Modifier**
    - 3] Select a **State** or **Value**
    - 4] Create a new list item and configure its **Function** or use an existing list item
    - 5] Assign the condition to this function.
- Learn more [Condition](#)

### State

- **State** - Creates a requirement/condition that is required before the function will work.
- You can define up to 8 States.
- Valid values are Yes [Value = 1] or No [Value = 0].
- Normally, you should set up MIN = 0 and MAX = 1 for the corresponding State.
- Example:
  - List item 1 defines a button as a **Modifier, State 1** to be toggled. When pressed, **MAX** defines that a value of 1 is send to MADRIX. When not pressed, **MIN** defines that value 0 is sent to MADRIX.
  - List item 2 is a function to control the Master [**Global Master**]. A **Condition** was set up for this functionality. If MADRIX receives value 1 [Yes] from **State 1**, the function can be used.
  - Because of the Condition, the Master Fader can only be used when the button is pressed at the same time:

#	Function	MIDI Command	Control Type	Interaction	Invert	Condition	MIN	MAX	Factor	Description
1	Modifier State 1	CH01.Note.012	Button	Toggle	No		0	255		Modifier State 1
2	Global Master	CH01.CC.010	Fader / Knob	Absolute	No	State 1 = Yes	0	255		Global Master

- If no condition is assigned, the fader can be moved and the Master will always respond accordingly:

#	Function	MIDI Command	Control Type	Interaction	Invert	Condition	MIN	MAX	Factor	Description
1	Global Master	CH01.CC.010	Fader / Knob	Absolute	No		0	255		Global Master

- When **Test** is activated, MADRIX shows the status of a State in the MIDI Remote Editor. A green button indicates status Yes, a gray button indicates status No.





**Value**

- **Value** - Allows to add several functions to one or more controls of the MIDI controller by combining it with other available controls.
- You can define up to 8 Values.
- Valid values range from 0 to 127.
- Example:
  - Your MIDI controller may only have 1 fader and a number of buttons.
  - But you would want to control the Master, the Speed Master Left, and the Speed Master Right with this one fader.
  - In this example, we have configured 3 buttons that activate three different configurations for the fader.
  - If button 1 is pressed one time, the fader will act as the Master.
  - If button 2 is pressed one time, the fader will act as Speed Master Left.
  - If button 3 is pressed one time, the fader will act as Speed Master Right.
  - Depending on which button is pressed, the modifier value changes between 1, 2, or 3. MADRIX checks this value and allows the fader to control the corresponding function on the MADRIX user interface.
- **Note:** Always assign the correct values to modifier and function.
  - For example if your modifier is assigned to Value 1 and Max. value 2, the function needs to have Value 1=002 as a Condition. In this case, Value 2=002 will not work!

#	Function	MIDI Command	Control Type	Interaction	Invert	Condition	MIN	MAX	Factor	Description
1	Modifier Value 1	CH01.Note.012	Button	Toggle	No		0	1		Modifier Value 1
2	Modifier Value 1	CH01.Note.012	Button	Toggle	No		0	2		Modifier Value 1
3	Modifier Value 1	CH01.Note.012	Button	Toggle	No		0	3		Modifier Value 1
4	Global Master	CH01.CC.010	Fader / Knob	Absolute	No	Value 1 = 001	0	255		Global Master
5	Storage Left Speed	CH01.CC.010	Fader / Knob	Absolute	No	Value 1 = 002	0	255		Storage Left Speed
6	Storage Right Speed	CH01.CC.010	Fader / Knob	Absolute	No	Value 1 = 003	0	255		Storage Right Spe...

- When **Test** is activated, MADRIX shows the status of a Value in the MIDI Remote Editor.



## Examples

### Example 1

- You wish to use single buttons of your MIDI controller for each Storage Place.
- Use + to create a new function.
- Select **Storage Left > Place +Fade**
- Use **Assign** to match your button to this function. Disable Assign again when done.
- Set **MAX** to **0** in order to trigger Storage Left S1 P1 [Storage 1 Place 1].
- Repeat the steps and set up **MAX** for each Storage Place you wish to control.
  - **MAX** will always have a value that is -1 compared to the actual Storage Place index number [e.g., set MAX to 6 in order to control S1 P7]
- Use **Storage Right > Place +Fade** and repeat the steps accordingly to control the Storage Places on the right side.

### 7.2.2 Akai Professional APC40



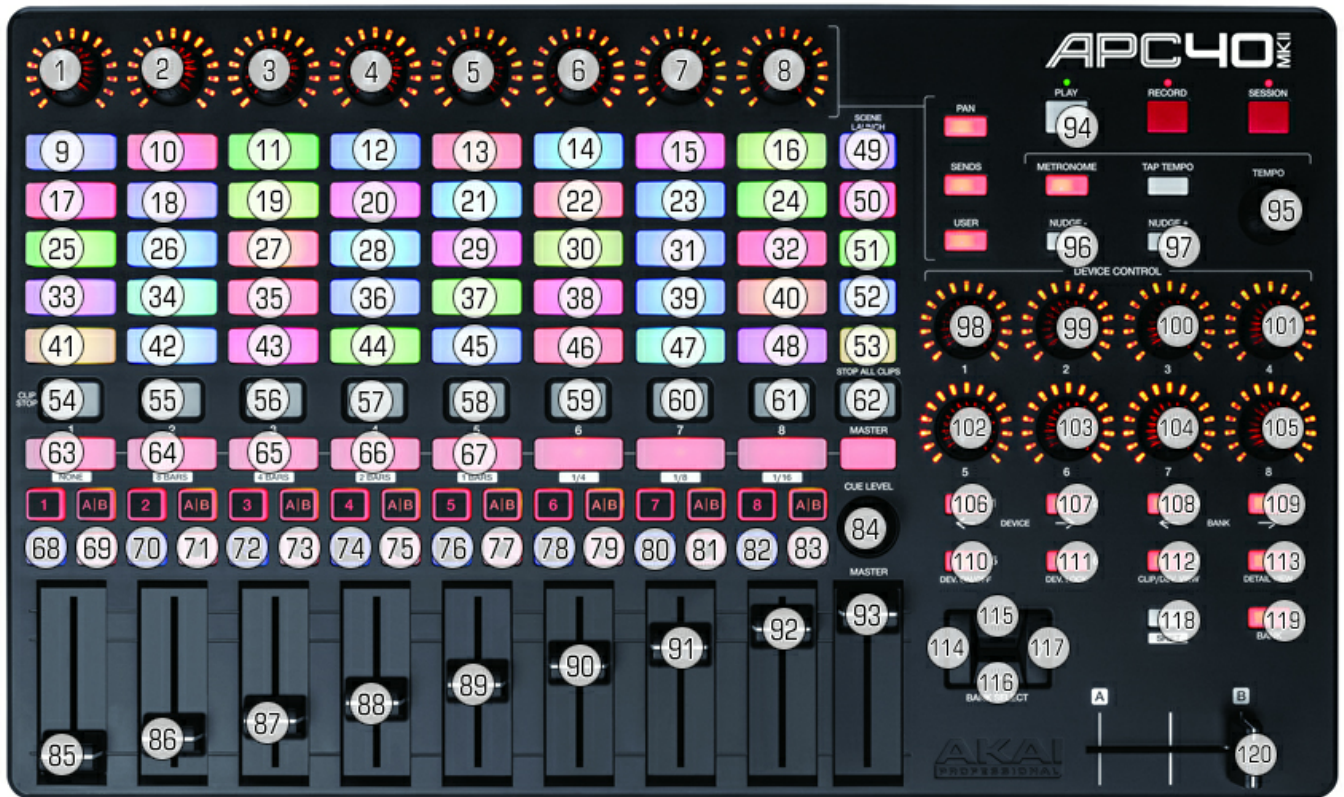
<b>[26] Mode: 1 (Required)</b>
<b>[45] Cue Storage Place Left</b>
<b>[46] Cue List Open</b>
<b>[47] Cue List Close</b>
<b>[48] Cue Storage Place Right</b>

<b>[1] - [16] Storage Place Left/Right P1 - P16</b>	<b>[30] Audio Input Level</b>	<b>[41] Speed Master Left Pause</b>
<b>[17] Storage Place Left/Right DOWN</b>	<b>[31] Master</b>	<b>[42] Blackout</b>
<b>[18] Storage Place Left/Right UP</b>	<b>[32] Color Filter color RED</b>	<b>[43] Main Output Freeze</b>
<b>[19] Layer Left/Right DOWN</b>	<b>[33] Color Filter color GREEN</b>	<b>[44] Speed Master Right Pause</b>
<b>[20] Layer Left/Right UP</b>	<b>[34] Color Filter color BLUE</b>	<b>[49] Cue List Back</b>
<b>[21] + [27] Storage Submaster Left/Right</b>	<b>[35] Color Filter color WHITE</b>	<b>[50] Cue List Play/Pause</b>

[22] + [27] Frame ID Left/Right	[36] Crossfader Fade Type UP	[51] Cue List Go
[23] + [27] Layer Submaster Left/Right	[37] Color-fade color RED	[52] Crossfader
[24] + [27] Layer Opacity Left/Right	[38] Color-fade color GREEN	[53] Storage ID Left S1 – S128
[25] Audio Input ON/OFF	[39] Color-fade color BLUE	[54] Storage ID Left S129 – S256
[28] Speed Master Left	[40] Color-fade color WHITE	[55] Storage ID Right S1 – S128
[29] Speed Master Right		[56] Storage ID Right S129 – S256

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.3 Akai Professional APC40 MKII



[1] Speed Master Left
[2] Color Filter Storage Left color RED
[3] Color Filter Storage Left color GREEN
[4] Color Filter Storage Left color BLUE
[5] Color Filter Storage Right color RED
[6] Color Filter Storage Right color GREEN
[7] Color Filter Storage Right color BLUE
[8] Speed Master Right
[54] Speed Master Pause Left ON/OFF
[55] Storage Place Left DOWN
[56] Storage Place Left UP
[59] Storage Place Right DOWN
[60] Storage Place Right UP

[61] Speed Master Pause Right ON/OFF
[62] Blackout
[63] Mode: General
[64] Mode: Storage Left
[65] Mode: Storage Right
[66] Mode: Group Control
[67] Mode: Cue List
[84] Audio Level
[93] Master Level
[94] Cue List Play/Pause
[95] Fade Time
[96] Cue List Back
[97] Cue List Go
[118] Crossfader Automatic Fade ON/OFF
[119] Main Output Strobe ON/OFF
[120] Crossfader

Mode: General ([63] is activated)	Mode: Storage Left ([64] is activated)	Mode: Storage Right ([65] is activated)	Mode: Group Control ([66] is activated)	Mode: Cue List ([67] is activated)
[9] Storage Place Left 1	[9] Storage Place Left 1	[9] Storage Place Right 1	[9] Group Preset 1	[9] Cue List Goto 1
[10] Storage Place Left 2	[10] Storage Place Left 2	[10] Storage Place Right 2	[10] Group Preset 2	[10] Cue List Goto 2
[11] Storage Place Left 3	[11] Storage Place Left 3	[11] Storage Place Right 3	[11] Group Preset 3	[11] Cue List Goto 3
[12] Storage Place Left 4	[12] Storage Place Left 4	[12] Storage Place Right 4	[12] Group Preset 4	[12] Cue List Goto 4
[13] Storage Place Right 1	[13] Storage Place Left 5	[13] Storage Place Right 5	[13] Group Preset 5	[13] Cue List Goto 5
[14] Storage Place Right 2	[14] Storage Place Left 6	[14] Storage Place Right 6	[14] Group Preset 6	[14] Cue List Goto 6
[15] Storage Place Right 3	[15] Storage Place Left 7	[15] Storage Place Right 7	[15] Group Preset 7	[15] Cue List Goto 7
[16] Storage Place Right 4	[16] Storage Place Left 8	[16] Storage Place Right 8	[16] Group Preset 8	[16] Cue List Goto 8
[17] Storage Place	[17] Storage Place	[17] Storage Place	[17] Group Preset 9	[17] Cue List Goto 9

Left 5	Left 9	Right 9		
[18] Storage Place Left 6	[18] Storage Place Left 10	[18] Storage Place Right 10	[18] Group Preset 10	[18] Cue List Goto 10
[19] Storage Place Left 7	[19] Storage Place Left 11	[19] Storage Place Right 11	[19] Group Preset 11	[19] Cue List Goto 11
[20] Storage Place Left 8	[20] Storage Place Left 12	[20] Storage Place Right 12	[20] Group Preset 12	[20] Cue List Goto 12
[21] Storage Place Right 5	[21] Storage Place Left 13	[21] Storage Place Right 13	[21] Group Preset 13	[21] Cue List Goto 13
[22] Storage Place Right 6	[22] Storage Place Left 14	[22] Storage Place Right 14	[22] Group Preset 14	[22] Cue List Goto 14
[23] Storage Place Right 7	[23] Storage Place Left 15	[23] Storage Place Right 15	[23] Group Preset 15	[23] Cue List Goto 15
[24] Storage Place Right 8	[24] Storage Place Left 16	[24] Storage Place Right 16	[24] Group Preset 16	[24] Cue List Goto 16
[25] Storage Place Left 9	[25] Storage Place Left 17	[25] Storage Place Right 17	[25] Group Preset 17	[25] Cue List Goto 17
[26] Storage Place Left 10	[26] Storage Place Left 18	[26] Storage Place Right 18	[26] Group Preset 18	[26] Cue List Goto 18
[27] Storage Place Left 11	[27] Storage Place Left 19	[27] Storage Place Right 19	[27] Group Preset 19	[27] Cue List Goto 19
[28] Storage Place Left 12	[28] Storage Place Left 20	[28] Storage Place Right 20	[28] Group Preset 20	[28] Cue List Goto 20
[29] Storage Place Right 9	[29] Storage Place Left 21	[29] Storage Place Right 21	[29] Group Preset 21	[29] Cue List Goto 21
[30] Storage Place Right 10	[30] Storage Place Left 22	[30] Storage Place Right 22	[30] Group Preset 22	[30] Cue List Goto 22
[31] Storage Place Right 11	[31] Storage Place Left 23	[31] Storage Place Right 23	[31] Group Preset 23	[31] Cue List Goto 23
[32] Storage Place Right 12	[32] Storage Place Left 24	[32] Storage Place Right 24	[32] Group Preset 24	[32] Cue List Goto 24
[33] Storage Place Left 13	[33] Storage Place Left 25	[33] Storage Place Right 25	[33] Group Preset 25	[33] Cue List Goto 25
[34] Storage Place Left 14	[34] Storage Place Left 26	[34] Storage Place Right 26	[34] Group Preset 26	[34] Cue List Goto 26
[35] Storage Place Left 15	[35] Storage Place Left 27	[35] Storage Place Right 27	[35] Group Preset 27	[35] Cue List Goto 27
[36] Storage Place Left 16	[36] Storage Place Left 28	[36] Storage Place Right 28	[36] Group Preset 28	[36] Cue List Goto 28

[37] Storage Place Right 13	[37] Storage Place Left 29	[37] Storage Place Right 29	[37] Group Preset 29	[37] Cue List Goto 29
[38] Storage Place Right 14	[38] Storage Place Left 30	[38] Storage Place Right 30	[38] Group Preset 30	[38] Cue List Goto 30
[39] Storage Place Right 15	[39] Storage Place Left 31	[39] Storage Place Right 31	[39] Group Preset 31	[39] Cue List Goto 31
[40] Storage Place Right 16	[40] Storage Place Left 32	[40] Storage Place Right 32	[40] Group Preset 32	[40] Cue List Goto 32
[41] Storage Place Left 17	[41] Storage Place Left 33	[41] Storage Place Right 33	[41] Group Preset 33	[41] Cue List Goto 33
[42] Storage Place Left 18	[42] Storage Place Left 34	[42] Storage Place Right 34	[42] Group Preset 34	[42] Cue List Goto 34
[43] Storage Place Left 19	[43] Storage Place Left 35	[43] Storage Place Right 35	[43] Group Preset 35	[43] Cue List Goto 35
[44] Storage Place Left 20	[44] Storage Place Left 36	[44] Storage Place Right 36	[44] Group Preset 36	[44] Cue List Goto 36
[45] Storage Place Right 17	[45] Storage Place Left 37	[45] Storage Place Right 37	[45] Group Preset 37	[45] Cue List Goto 37
[46] Storage Place Right 18	[46] Storage Place Left 38	[46] Storage Place Right 38	[46] Group Preset 38	[46] Cue List Goto 38
[47] Storage Place Right 19	[47] Storage Place Left 39	[47] Storage Place Right 39	[47] Group Preset 39	[47] Cue List Goto 39
[48] Storage Place Right 20	[48] Storage Place Left 40	[48] Storage Place Right 40	[48] Group Preset 40	[48] Cue List Goto 40
[49] Storage Left/ Right 1	[49] Storage Left 1	[49] Storage Right 1	[68] Group 1 Flash ON/ Off	[49] Cue List Play
[50] Storage Left/ Right 2	[50] Storage Left 2	[50] Storage Right 2	[70] Group 2 Flash ON/ Off	[50] Cue List Pause
[51] Storage Left/ Right 3	[51] Storage Left 3	[51] Storage Right 3	[72] Group 3 Flash ON/ Off	[112] Group Control Toggle
[52] Storage Left/ Right 4	[52] Storage Left 4	[52] Storage Right 4	[74] Group 4 Flash ON/ Off	[113] Cue List Toggle
[53] Storage Left/ Right 5	[53] Storage Left 5	[53] Storage Right 5	[76] Group 5 Flash ON/ Off	[114] Cue List Back
[85] Group Value Group 1	[68] Layer Left Layer 1 Solo	[68] Layer Right Layer 1 Solo	[78] Group 6 Flash ON/ Off	[117] Cue List Go
[86] Group Value Group 2	[69] Layer Left Layer 1 Blind	[69] Layer Right Layer 1 Blind	[80] Group 7 Flash ON/ Off	
[87] Group Value	[70] Layer Left Layer	[70] Layer Right	[82] Group 8 Flash ON/	

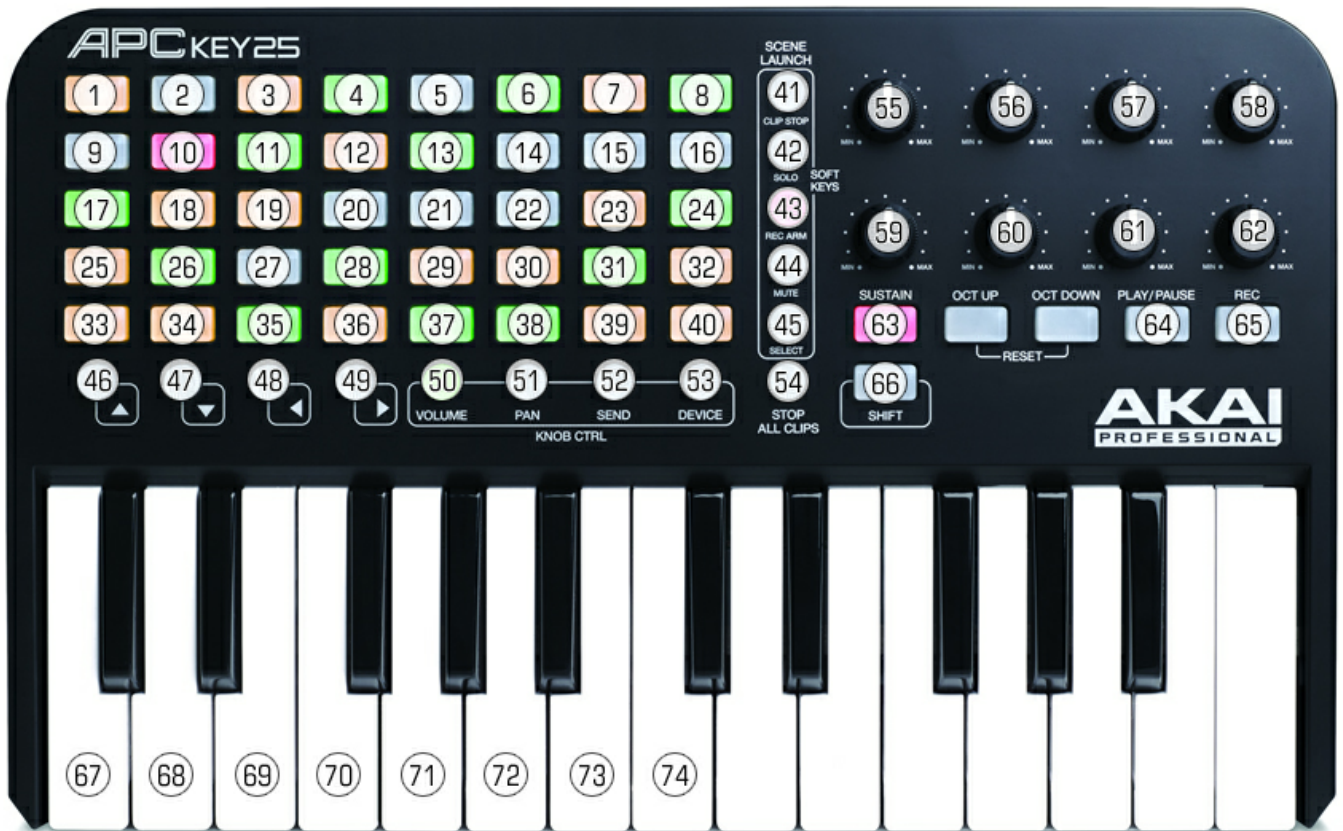


<b>Group 3</b>	<b>2 Solo</b>	<b>Layer 2 Solo</b>	<b>Off</b>	
<b>[88] Group Value Group 4</b>	<b>[71] Layer Left Layer 2 Blind</b>	<b>[71] Layer Right Layer 2 Blind</b>	<b>[85] Group Value Group 1</b>	
<b>[89] Group Value Group 5</b>	<b>[72] Layer Left Layer 3 Solo</b>	<b>[72] Layer Right Layer 3 Solo</b>	<b>[86] Group Value Group 2</b>	
<b>[90] Group Value Group 6</b>	<b>[73] Layer Left Layer 3 Blind</b>	<b>[73] Layer Right Layer 3 Blind</b>	<b>[87] Group Value Group 3</b>	
<b>[91] Group Value Group 7</b>	<b>[74] Layer Left Layer 4 Solo</b>	<b>[74] Layer Right Layer 4 Solo</b>	<b>[88] Group Value Group 4</b>	
<b>[92] Group Value Group 8</b>	<b>[75] Layer Left Layer 4 Blind</b>	<b>[75] Layer Right Layer 4 Blind</b>	<b>[89] Group Value Group 5</b>	
<b>[98] Fade Color RED</b>	<b>[76] Layer Left Layer 5 Solo</b>	<b>[76] Layer Right Layer 5 Solo</b>	<b>[90] Group Value Group 6</b>	
<b>[99] Fade Color GREEN</b>	<b>[77] Layer Left Layer 5 Blind</b>	<b>[77] Layer Right Layer 5 Blind</b>	<b>[91] Group Value Group 7</b>	
<b>[100] Fade Color BLUE</b>	<b>[78] Layer Left Layer 6 Solo</b>	<b>[78] Layer Right Layer 6 Solo</b>	<b>[92] Group Value Group 8</b>	
<b>[101] Fade Color WHITE</b>	<b>[79] Layer Left Layer 6 Blind</b>	<b>[79] Layer Right Layer 6 Blind</b>	<b>[112] Group Control Toggle</b>	
<b>[102] Color Filter Main Output RED</b>	<b>[80] Layer Left Layer 7 Solo</b>	<b>[80] Layer Right Layer 7 Solo</b>	<b>[113] Cue List Toggle</b>	
<b>[103] Color Filter Main Output GREEN</b>	<b>[81] Layer Left Layer 7 Blind</b>	<b>[81] Layer Right Layer 7 Blind</b>	<b>[114] Group Preset DOWN</b>	
<b>[104] Color Filter Main Output BLUE</b>	<b>[82] Layer Left Layer 8 Solo</b>	<b>[82] Layer Right Layer 8 Solo</b>	<b>[117] Group Preset UP</b>	
<b>[105] Color Filter Main Output WHITE</b>	<b>[83] Layer Left Layer 8 Blind</b>	<b>[83] Layer Right Layer 8 Blind</b>		
<b>[106] Main Output Strobe Color RED OFF</b>	<b>[85] Layer Left Layer 1 Value</b>	<b>[85] Layer Right Layer 1 Value</b>		
<b>[107] Main Output Strobe Color GREEN OFF</b>	<b>[86] Layer Left Layer 2 Value</b>	<b>[86] Layer Right Layer 2 Value</b>		
<b>[108] Main Output Strobe Color BLUE OFF</b>	<b>[87] Layer Left Layer 3 Value</b>	<b>[87] Layer Right Layer 3 Value</b>		
<b>[109] Main Output Strobe Color WHITE OFF</b>	<b>[88] Layer Left Layer 4 Value</b>	<b>[88] Layer Right Layer 4 Value</b>		
<b>[110] Fade Type DOWN</b>	<b>[89] Layer Left Layer 5 Value</b>	<b>[89] Layer Right Layer 5 Value</b>		

<b>[111] Fade Type UP</b>	<b>[90] Layer Left Layer 6 Value</b>	<b>[90] Layer Right Layer 6 Value</b>		
<b>[112] Group Control Toggle</b>	<b>[91] Layer Left Layer 7 Value</b>	<b>[91] Layer Right Layer 7 Value</b>		
<b>[113] Cue List Toggle</b>	<b>[92] Layer Left Layer 8 Value</b>	<b>[92] Layer Right Layer 8 Value</b>		
<b>[115] Storage Left/ Right UP</b>	<b>[106] Chaser Current Layer Left Play/Pause</b>	<b>[106] Chaser Current Layer Right Play/Pause</b>		
<b>[116] Storage Left/ Right DOWN</b>	<b>[110] Chaser Current Layer Left Previous</b>	<b>[110] Chaser Current Layer Right Previous</b>		
	<b>[111] Chaser Current Layer Left Next</b>	<b>[111] Chaser Current Layer Right Next</b>		
	<b>[112] Layer Left DOWN</b>	<b>[112] Layer Right DOWN</b>		
	<b>[113] Layer Left UP</b>	<b>[113] Layer Right UP</b>		
	<b>[114] Storage Place Left DOWN</b>	<b>[114] Storage Place Right DOWN</b>		
	<b>[115] Storage Left UP</b>	<b>[115] Storage Right UP</b>		
	<b>[116] Storage Left DOWN</b>	<b>[116] Storage Right DOWN</b>		
	<b>[117] Storage Place Left UP</b>	<b>[117] Storage Place Right UP</b>		

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.4 Akai Professional APCkey25



<b>[50] Mode: General</b>
<b>[51] Mode: Storage Left</b>
<b>[52] Mode: Storage Right</b>
<b>[53] Mode: Group Control</b>
<b>[54] Crossfader Automatic Fade ON/OFF</b>
<b>[63] Main Output Strobe</b>
<b>[64] Cue List Play/Pause</b>
<b>[65] Group Control Toggle</b>
<b>[66] Blackout</b>

<b>Mode: General ([50] is activated)</b>	<b>Mode: Storage Left ([51] is activated)</b>	<b>Mode: Storage Right ([52] is activated)</b>	<b>Mode: Group Control ([53] is activated)</b>
[1] Storage Place Left 1	[1] Storage Place Left 1	[1] Storage Place Left 1	[1] Group Preset 1

[2] Storage Place Left 2	[2] Storage Place Left 2	[2] Storage Place Left 2	[2] Group Preset 2
[3] Storage Place Left 3	[3] Storage Place Left 3	[3] Storage Place Left 3	[3] Group Preset 3
[4] Storage Place Left 4	[4] Storage Place Left 4	[4] Storage Place Left 4	[4] Group Preset 4
[5] Storage Place Right 1	[5] Storage Place Left 5	[5] Storage Place Right 5	[5] Group Preset 5
[6] Storage Place Right 2	[6] Storage Place Left 6	[6] Storage Place Right 6	[6] Group Preset 6
[7] Storage Place Right 3	[7] Storage Place Left 7	[7] Storage Place Right 7	[7] Group Preset 7
[8] Storage Place Right 4	[8] Storage Place Left 8	[8] Storage Place Right 8	[8] Group Preset 8
[9] Storage Place Left 5	[9] Storage Place Left 9	[9] Storage Place Right 9	[9] Group Preset 9
[10] Storage Place Left 6	[10] Storage Place Left 10	[10] Storage Place Right 10	[10] Group Preset 10
[11] Storage Place Left 7	[11] Storage Place Left 11	[11] Storage Place Right 11	[11] Group Preset 11
[12] Storage Place Left 8	[12] Storage Place Left 12	[12] Storage Place Right 12	[12] Group Preset 12
[13] Storage Place Right 5	[13] Storage Place Left 13	[13] Storage Place Right 13	[13] Group Preset 13
[14] Storage Place Right 6	[14] Storage Place Left 14	[14] Storage Place Right 14	[14] Group Preset 14
[15] Storage Place Right 7	[15] Storage Place Left 15	[15] Storage Place Right 15	[15] Group Preset 15
[16] Storage Place Right 8	[16] Storage Place Left 16	[16] Storage Place Right 16	[16] Group Preset 16
[17] Storage Place Left 9	[17] Storage Place Left 17	[17] Storage Place Right 17	[17] Group Preset 17
[18] Storage Place Left 10	[18] Storage Place Left 18	[18] Storage Place Right 18	[18] Group Preset 18
[19] Storage Place Left 11	[19] Storage Place Left 19	[19] Storage Place Right 19	[19] Group Preset 19
[20] Storage Place Left 12	[20] Storage Place Left 20	[20] Storage Place Right 20	[20] Group Preset 20
[21] Storage Place Right 9	[21] Storage Place Left 21	[21] Storage Place Right 21	[21] Group Preset 21
[22] Storage Place Right 10	[22] Storage Place Left 22	[22] Storage Place Right 22	[22] Group Preset 22
[23] Storage Place Right 11	[23] Storage Place Left 23	[23] Storage Place Right 23	[23] Group Preset 23
[24] Storage Place Right 12	[24] Storage Place Left 24	[24] Storage Place Right 24	[24] Group Preset 24
[25] Storage Place Left 13	[25] Storage Place Left 25	[25] Storage Place Right 25	[25] Group Preset 25
[26] Storage Place Left 14	[26] Storage Place Left 26	[26] Storage Place Right 26	[26] Group Preset 26
[27] Storage Place Left 15	[27] Storage Place Left 27	[27] Storage Place Right 27	[27] Group Preset 27
[28] Storage Place Left 16	[28] Storage Place Left 28	[28] Storage Place Right 28	[28] Group Preset 28
[29] Storage Place Right 13	[29] Storage Place Left 29	[29] Storage Place Right 29	[29] Group Preset 29
[30] Storage Place Right 14	[30] Storage Place Left 30	[30] Storage Place Right 30	[30] Group Preset 30
[31] Storage Place Right 15	[31] Storage Place Left 31	[31] Storage Place Right 31	[31] Group Preset 31
[32] Storage Place Right 16	[32] Storage Place Left 32	[32] Storage Place Right 32	[32] Group Preset 32
[33] Storage Place Left 17	[33] Storage Place Left 33	[33] Storage Place Right 33	[33] Group Preset 33
[34] Storage Place Left 18	[34] Storage Place Left 34	[34] Storage Place Right 34	[34] Group Preset 34

[35] Storage Place Left 19	[35] Storage Place Left 35	[35] Storage Place Right 35	[35] Group Preset 35
[36] Storage Place Left 20	[36] Storage Place Left 36	[36] Storage Place Right 36	[36] Group Preset 36
[37] Storage Place Right 17	[37] Storage Place Left 37	[37] Storage Place Right 37	[37] Group Preset 37
[38] Storage Place Right 18	[38] Storage Place Left 38	[38] Storage Place Right 38	[38] Group Preset 38
[39] Storage Place Right 19	[39] Storage Place Left 39	[39] Storage Place Right 39	[39] Group Preset 39
[40] Storage Place Right 20	[40] Storage Place Left 40	[40] Storage Place Right 40	[40] Group Preset 40
[41] Storage Left/Right 1	[41] Storage Left 1	[41] Storage Right 1	[48] Group Preset DOWN
[42] Storage Left/Right 2	[42] Storage Left 2	[42] Storage Right 2	[49] Group Preset UP
[43] Storage Left/Right 3	[43] Storage Left 3	[43] Storage Right 3	[55] Group Value Group 1
[44] Storage Left/Right 4	[44] Storage Left 4	[44] Storage Right 4	[56] Group Value Group 2
[45] Storage Left/Right 5	[45] Storage Left 5	[45] Storage Right 5	[57] Group Value Group 3
[46] Storage Left/Right UP	[46] Storage Left UP	[46] Storage Right UP	[58] Group Value Group 4
[47] Storage Left/Right DOWN	[47] Storage Left DOWN	[47] Storage Right DOWN	[59] Group Value Group 5
[55] Group Value Group 1	[48] Storage Place Left DOWN	[48] Storage Place Right DOWN	[60] Group Value Group 6
[56] Group Value Group 2	[49] Storage Place Left UP	[49] Storage Place Right UP	[61] Group Value Group 7
[57] Group Value Group 3	[55] Layer Left Layer 1 Value	[55] Layer Right Layer 1 Value	[62] Group Value Group 8
[58] Group Value Group 4	[56] Layer Left Layer 2 Value	[56] Layer Right Layer 2 Value	[67] Group 1 Flash
[59] Group Value Group 5	[57] Layer Left Layer 3 Value	[57] Layer Right Layer 3 Value	[68] Group 2 Flash
[60] Group Value Group 6	[58] Layer Left Layer 4 Value	[58] Layer Right Layer 4 Value	[69] Group 3 Flash
[61] Group Value Group 7	[59] Layer Left Layer 5 Value	[59] Layer Right Layer 5 Value	[70] Group 4 Flash
[62] Group Value Group 8	[60] Layer Left Layer 6 Value	[60] Layer Right Layer 6 Value	[71] Group 5 Flash
[67] Group 1 Flash	[61] Layer Left Layer 7 Value	[61] Layer Right Layer 7 Value	[72] Group 6 Flash
[68] Group 2 Flash	[62] Layer Left Layer 8 Value	[62] Layer Right Layer 8 Value	[73] Group 7 Flash
[69] Group 3 Flash			[74] Group 8 Flash
[70] Group 4 Flash			
[71] Group 5 Flash			

[72] Group 6 Flash			
[73] Group 7 Flash			
[74] Group 8 Flash			

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.5 Akai Professional APCmini



<b>[69] Mode: General</b>
<b>[70] Mode: Storage Left</b>
<b>[71] Mode: Storage Right</b>
<b>[72] Mode: Group Control</b>
<b>[86] Group Control Toggle</b>
<b>[87] Main Output Strobe</b>
<b>[88] Crossfader Automatic Fade ON/OFF</b>
<b>[89] Blackout</b>
<b>[90] Master</b>

<b>Mode: General ([69] is activated)</b>	<b>Mode: Storage Left ([70] is activated)</b>	<b>Mode: Storage Right ([71] is activated)</b>	<b>Mode: Group Control ([72] is activated)</b>
[1] Storage Place Left 1	[1] Storage Place Left 1	[1] Storage Place Left 1	[1] Group Preset 1

[2] Storage Place Left 2	[2] Storage Place Left 2	[2] Storage Place Left 2	[2] Group Preset 2
[3] Storage Place Left 3	[3] Storage Place Left 3	[3] Storage Place Left 3	[3] Group Preset 3
[4] Storage Place Left 4	[4] Storage Place Left 4	[4] Storage Place Left 4	[4] Group Preset 4
[5] Storage Place Right 1	[5] Storage Place Left 5	[5] Storage Place Right 5	[5] Group Preset 5
[6] Storage Place Right 2	[6] Storage Place Left 6	[6] Storage Place Right 6	[6] Group Preset 6
[7] Storage Place Right 3	[7] Storage Place Left 7	[7] Storage Place Right 7	[7] Group Preset 7
[8] Storage Place Right 4	[8] Storage Place Left 8	[8] Storage Place Right 8	[8] Group Preset 8
[9] Storage Place Left 5	[9] Storage Place Left 9	[9] Storage Place Right 9	[9] Group Preset 9
[10] Storage Place Left 6	[10] Storage Place Left 10	[10] Storage Place Right 10	[10] Group Preset 10
[11] Storage Place Left 7	[11] Storage Place Left 11	[11] Storage Place Right 11	[11] Group Preset 11
[12] Storage Place Left 8	[12] Storage Place Left 12	[12] Storage Place Right 12	[12] Group Preset 12
[13] Storage Place Right 5	[13] Storage Place Left 13	[13] Storage Place Right 13	[13] Group Preset 13
[14] Storage Place Right 6	[14] Storage Place Left 14	[14] Storage Place Right 14	[14] Group Preset 14
[15] Storage Place Right 7	[15] Storage Place Left 15	[15] Storage Place Right 15	[15] Group Preset 15
[16] Storage Place Right 8	[16] Storage Place Left 16	[16] Storage Place Right 16	[16] Group Preset 16
[17] Storage Place Left 9	[17] Storage Place Left 17	[17] Storage Place Right 17	[17] Group Preset 17
[18] Storage Place Left 10	[18] Storage Place Left 18	[18] Storage Place Right 18	[18] Group Preset 18
[19] Storage Place Left 11	[19] Storage Place Left 19	[19] Storage Place Right 19	[19] Group Preset 19
[20] Storage Place Left 12	[20] Storage Place Left 20	[20] Storage Place Right 20	[20] Group Preset 20
[21] Storage Place Right 9	[21] Storage Place Left 21	[21] Storage Place Right 21	[21] Group Preset 21
[22] Storage Place Right 10	[22] Storage Place Left 22	[22] Storage Place Right 22	[22] Group Preset 22
[23] Storage Place Right 11	[23] Storage Place Left 23	[23] Storage Place Right 23	[23] Group Preset 23
[24] Storage Place Right 12	[24] Storage Place Left 24	[24] Storage Place Right 24	[24] Group Preset 24
[25] Storage Place Left 13	[25] Storage Place Left 25	[25] Storage Place Right 25	[25] Group Preset 25
[26] Storage Place Left 14	[26] Storage Place Left 26	[26] Storage Place Right 26	[26] Group Preset 26
[27] Storage Place Left 15	[27] Storage Place Left 27	[27] Storage Place Right 27	[27] Group Preset 27
[28] Storage Place Left 16	[28] Storage Place Left 28	[28] Storage Place Right 28	[28] Group Preset 28
[29] Storage Place Right 13	[29] Storage Place Left 29	[29] Storage Place Right 29	[29] Group Preset 29
[30] Storage Place Right 14	[30] Storage Place Left 30	[30] Storage Place Right 30	[30] Group Preset 30
[31] Storage Place Right 15	[31] Storage Place Left 31	[31] Storage Place Right 31	[31] Group Preset 31
[32] Storage Place Right 16	[32] Storage Place Left 32	[32] Storage Place Right 32	[32] Group Preset 32
[33] Storage Place Left 17	[33] Storage Place Left 33	[33] Storage Place Right 33	[33] Group Preset 33
[34] Storage Place Left 18	[34] Storage Place Left 34	[34] Storage Place Right 34	[34] Group Preset 34



[35] Storage Place Left 19	[35] Storage Place Left 35	[35] Storage Place Right 35	[35] Group Preset 35
[36] Storage Place Left 20	[36] Storage Place Left 36	[36] Storage Place Right 36	[36] Group Preset 36
[37] Storage Place Right 17	[37] Storage Place Left 37	[37] Storage Place Right 37	[37] Group Preset 37
[38] Storage Place Right 18	[38] Storage Place Left 38	[38] Storage Place Right 38	[38] Group Preset 38
[39] Storage Place Right 19	[39] Storage Place Left 39	[39] Storage Place Right 39	[39] Group Preset 39
[40] Storage Place Right 20	[40] Storage Place Left 40	[40] Storage Place Right 40	[40] Group Preset 40
[41] Storage Place Left 21	[41] Storage Place Left 41	[41] Storage Place Right 41	[41] Group Preset 41
[42] Storage Place Left 22	[42] Storage Place Left 42	[42] Storage Place Right 42	[42] Group Preset 42
[43] Storage Place Left 23	[43] Storage Place Left 43	[43] Storage Place Right 43	[43] Group Preset 43
[44] Storage Place Left 24	[44] Storage Place Left 44	[44] Storage Place Right 44	[44] Group Preset 44
[45] Storage Place Right 21	[45] Storage Place Left 45	[45] Storage Place Right 45	[45] Group Preset 45
[46] Storage Place Right 22	[46] Storage Place Left 46	[46] Storage Place Right 46	[46] Group Preset 46
[47] Storage Place Right 23	[47] Storage Place Left 47	[47] Storage Place Right 47	[47] Group Preset 47
[48] Storage Place Right 24	[48] Storage Place Left 48	[48] Storage Place Right 48	[48] Group Preset 48
[49] Storage Place Left 25	[49] Storage Place Left 49	[49] Storage Place Right 49	[49] Group Preset 49
[50] Storage Place Left 26	[50] Storage Place Left 50	[50] Storage Place Right 50	[50] Group Preset 50
[51] Storage Place Left 27	[51] Storage Place Left 51	[51] Storage Place Right 51	[51] Group Preset 51
[52] Storage Place Left 28	[52] Storage Place Left 52	[52] Storage Place Right 52	[52] Group Preset 52
[53] Storage Place Right 25	[53] Storage Place Left 53	[53] Storage Place Right 53	[53] Group Preset 53
[54] Storage Place Right 26	[54] Storage Place Left 54	[54] Storage Place Right 54	[54] Group Preset 54
[55] Storage Place Right 27	[55] Storage Place Left 55	[55] Storage Place Right 55	[55] Group Preset 55
[56] Storage Place Right 28	[56] Storage Place Left 56	[56] Storage Place Right 56	[56] Group Preset 56
[57] Storage Place Left 29	[57] Storage Place Left 57	[57] Storage Place Right 57	[57] Group Preset 57
[58] Storage Place Left 30	[58] Storage Place Left 58	[58] Storage Place Right 58	[58] Group Preset 58
[59] Storage Place Left 31	[59] Storage Place Left 59	[59] Storage Place Right 59	[59] Group Preset 59
[60] Storage Place Left 32	[60] Storage Place Left 60	[60] Storage Place Right 60	[60] Group Preset 60
[61] Storage Place Right 29	[61] Storage Place Left 61	[61] Storage Place Right 61	[61] Group Preset 61
[62] Storage Place Right 30	[62] Storage Place Left 62	[62] Storage Place Right 62	[62] Group Preset 62
[63] Storage Place Right 31	[63] Storage Place Left 63	[63] Storage Place Right 63	[63] Group Preset 63
[64] Storage Place Right 32	[64] Storage Place Left 64	[64] Storage Place Right 64	[64] Group Preset 64
[65] Storage Left/Right UP	[65] Storage Left UP	[65] Storage Right UP	[67] Group Preset DOWN
[66] Storage Left/Right DOWN	[66] Storage Left DOWN	[66] Storage Right DOWN	[68] Group Preset UP

[73] Group Value Group 1	[67] Storage Place Left DOWN	[67] Storage Place Right DOWN	[73] Group Value Group 1
[74] Group Value Group 2	[68] Storage Place Left UP	[68] Storage Place Right UP	[74] Group Value Group 2
[75] Group Value Group 3	[73] Layer Left Layer 1 Value	[73] Layer Right Layer 1 Value	[75] Group Value Group 3
[76] Group Value Group 4	[74] Layer Left Layer 2 Value	[74] Layer Right Layer 2 Value	[76] Group Value Group 4
[77] Group Value Group 5	[75] Layer Left Layer 3 Value	[75] Layer Right Layer 3 Value	[77] Group Value Group 5
[78] Group Value Group 6	[76] Layer Left Layer 4 Value	[76] Layer Right Layer 4 Value	[78] Group Value Group 6
[79] Group Value Group 7	[77] Layer Left Layer 5 Value	[77] Layer Right Layer 5 Value	[79] Group Value Group 7
[80] Group Value Group 8	[78] Layer Left Layer 6 Value	[78] Layer Right Layer 6 Value	[80] Group Value Group 8
[81] Storage Left/Right 1	[79] Layer Left Layer 7 Value	[79] Layer Right Layer 7 Value	
[82] Storage Left/Right 2	[80] Layer Left Layer 8 Value	[80] Layer Right Layer 8 Value	
[83] Storage Left/Right 3	[81] Storage Left 1	[81] Storage Right 1	
[84] Storage Left/Right 4	[82] Storage Left 2	[82] Storage Right 2	
[85] Storage Left/Right 5	[83] Storage Left 3	[83] Storage Right 3	
	[84] Storage Left 4	[84] Storage Right 4	
	[85] Storage Left 5	[85] Storage Right 5	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.6 Akai Professional LPD8



[9] Group Value Group 1
[10] Group Value Group 2
[11] Group Value Group 3
[12] Group Value Group 4
[13] Group Value Group 5
[14] Group Value Group 6
[15] Group Value Group 7
[16] Group Value Group 8
[17] Program change (Program 1 must be activated)
[18] Mode: Storage Left
[19] Mode: Storage Right
[20] Mode: Group Control

Mode: Storage Left ( [18] is activated)	Mode: Storage Right ( [19] is activated)	Mode: Group Control ( [20] is activated)
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<b>[1] Storage Place Left UP</b>	<b>[1] Storage Place Right UP</b>	<b>[1] Group 1 Flash</b>
<b>[2] Storage Left UP</b>	<b>[2] Storage Right UP</b>	<b>[2] Group 2 Flash</b>
<b>[3] Cue List Play/Pause</b>	<b>[3] Cue List Play/Pause</b>	<b>[3] Group 3 Flash</b>
<b>[4] Crossfader Automatic Fade ON/OFF</b>	<b>[4] Crossfader Automatic Fade ON/OFF</b>	<b>[4] Group 4 Flash</b>
<b>[5] Storage Place Left DOWN</b>	<b>[5] Storage Place Right DOWN</b>	<b>[5] Group 5 Flash</b>
<b>[6] Storage Left DOWN</b>	<b>[6] Storage Right DOWN</b>	<b>[6] Group 6 Flash</b>
<b>[7] Crossfader Skip Left</b>	<b>[7] Crossfader Skip Left</b>	<b>[7] Group 7 Flash</b>
<b>[8] Crossfader Skip Right</b>	<b>[8] Crossfader Skip Right</b>	<b>[8] Group 8 Flash</b>

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.7 Akai Professional LPK25



[26] Octave DOWN
[27] Octave UP
[28] Crossfader Automatic Fade ON/OFF

Octave	Storage Place	Storage
-4	[1] – [15] Storage Place Left 1 – 15	[16] – [25] Storage Left 1 – 10
-3	[1] – [15] Storage Place Left 8 – 22	[16] – [25] Storage Left 6 – 15
-2	[1] – [15] Storage Place Left 15 – 29	[16] – [25] Storage Left 11 – 20
-1	[1] – [14] Storage Place Left 22 – 35	[16] – [25] Storage Left 16 – 25
0	[1] – [7] Storage Place Left 29 – 35	[16] – [20] Storage Left 21 – 25
0	[8] – [15] Storage Place Right 1 – 8	[21] – [25] Storage Right 1 – 5
+1	[1] – [15] Storage Place Right 1 – 15	[16] – [25] Storage Right 1 – 10
+2	[1] – [15] Storage Place Right 8 – 22	[16] – [25] Storage Right 6 – 15
+3	[1] – [15] Storage Place Right 15 – 29	[16] – [25] Storage Right 11 – 20
+4	[1] – [14] Storage Place Right 22 – 35	[16] – [25] Storage Right 16 – 25

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.8 Akai Professional MIDIMIX



[1] Speed Master Left	[27] Storage Place Left DOWN
[2] Color Filter Storage Left color RED	[28] Storage Place Left UP
[3] Color Filter Storage Left color GREEN	[29] Storage Right DOWN
[4] Color Filter Storage Left color BLUE	[30] Storage Right UP
[5] Color Filter Storage Right color RED	[31] Storage Place Right DOWN
[6] Color Filter Storage Right color GREEN	[32] Storage Place Right UP
[7] Color Filter Storage Right color BLUE	[33] Group 1 Flash
[8] Speed Master Right	[34] Group 2 Flash
[9] Layer Left Layer 1 Value	[35] Group 3 Flash
[10] Layer Left Layer 2 Value	[36] Group 4 Flash
[11] Layer Left Layer 3 Value	[37] Group 5 Flash
[12] Layer Left Layer 4 Value	[38] Group 6 Flash
[13] Layer Left Layer 5 Value	[39] Group 7 Flash

[14] Layer Left Layer 6 Value	[40] Group 8 Flash
[15] Layer Left Layer 7 Value	[41] Group Value Group 1
[16] Layer Left Layer 7 Value	[42] Group Value Group 2
[17] Layer Right Layer 1 Value	[43] Group Value Group 3
[18] Layer Right Layer 2 Value	[44] Group Value Group 4
[19] Layer Right Layer 3 Value	[45] Group Value Group 5
[20] Layer Right Layer 4 Value	[46] Group Value Group 6
[21] Layer Right Layer 5 Value	[47] Group Value Group 7
[22] Layer Right Layer 6 Value	[48] Group Value Group 8
[23] Layer Right Layer 7 Value	[49] Main Output Strobe
[24] Layer Right Layer 8 Value	[50] Crossfader Automatic Fade ON/OFF
[25] Storage Left DOWN	[51] Blackout
[26] Storage Left UP	[52] Master

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)



### 7.2.9 Akai Professional MPK249



- Please choose Preset 1 (LiveLite) and work on Octave 0.

[1] Master
[2] Mode: Storage Left
[3] Mode: Storage Right
[4] Mode: Group Control
[5] Mode: Cue List
[22] Cue List Back
[23] Cue List Go
[24] Cue List Pause
[25] Cue List Play
[26] Cue List Cue All
[27] Speed Master Left
[28] Color Filter Storage Left color RED
[29] Color Filter Storage Left color GREEN
[30] Color Filter Storage Left color BLUE
[31] Color Filter Storage Right color RED
[32] Color Filter Storage Right color GREEN
[33] Color Filter Storage Right color BLUE

[34] Speed Master Right
[35] Group Value Group 1
[36] Group Value Group 2
[37] Group Value Group 3
[38] Group Value Group 4
[39] Group Value Group 5
[40] Group Value Group 6
[41] Group Value Group 7
[42] Group Value Group 8
[43] Group Control Toggle
[44] Cue List Toggle
[45] Storage Left DOWN
[46] Storage Left UP
[47] Storage Place Left DOWN
[48] Storage Place Left UP
[49] Storage Right DOWN
[50] Storage Right UP
[51] Storage Place Right DOWN
[52] Storage Place Right UP
[53] Group Preset DOWN
[54] Group Preset UP
[55] Main Output Strobe
[56] Blackout
[57] Crossfader Automatic Fade ON/OFF
[58] Crossfader Skip Left
[59] Crossfader Skip Right

<b>Mode: Storage Left ([2] is activated)</b>	<b>Mode: Storage Right ([3] is activated)</b>	<b>Mode: Group Control ([66] is activated)</b>	<b>Mode: Cue List ([67] is activated)</b>
[6] Storage Place Left 1	[6] Storage Place Right 1	[6] Group Preset 1	[6] Cue List Goto 1
[7] Storage Place Left 2	[7] Storage Place Right 2	[7] Group Preset 2	[7] Cue List Goto 2
[8] Storage Place Left 3	[8] Storage Place Right 3	[8] Group Preset 3	[8] Cue List Goto 3
[9] Storage Place Left 4	[9] Storage Place Right 4	[9] Group Preset 4	[9] Cue List Goto 4
[10] Storage Place Left 5	[10] Storage Place Right 5	[10] Group Preset 5	[10] Cue List Goto 5

<b>[11] Storage Place Left 6</b>	<b>[11] Storage Place Right 6</b>	<b>[11] Group Preset 6</b>	<b>[11] Cue List Goto 6</b>
<b>[12] Storage Place Left 7</b>	<b>[12] Storage Place Right 7</b>	<b>[12] Group Preset 7</b>	<b>[12] Cue List Goto 7</b>
<b>[13] Storage Place Left 8</b>	<b>[13] Storage Place Right 8</b>	<b>[13] Group Preset 8</b>	<b>[13] Cue List Goto 8</b>
<b>[14] Storage Place Left 9</b>	<b>[14] Storage Place Right 9</b>	<b>[14] Group Preset 9</b>	<b>[14] Cue List Goto 9</b>
<b>[15] Storage Place Left 10</b>	<b>[15] Storage Place Right 10</b>	<b>[15] Group Preset 10</b>	<b>[15] Cue List Goto 10</b>
<b>[16] Storage Place Left 11</b>	<b>[16] Storage Place Right 11</b>	<b>[16] Group Preset 11</b>	<b>[16] Cue List Goto 11</b>
<b>[17] Storage Place Left 12</b>	<b>[17] Storage Place Right 12</b>	<b>[17] Group Preset 12</b>	<b>[17] Cue List Goto 12</b>
<b>[18] Storage Place Left 13</b>	<b>[18] Storage Place Right 13</b>	<b>[18] Group Preset 13</b>	<b>[18] Cue List Goto 13</b>
<b>[19] Storage Place Left 14</b>	<b>[19] Storage Place Right 14</b>	<b>[19] Group Preset 14</b>	<b>[19] Cue List Goto 14</b>
<b>[20] Storage Place Left 15</b>	<b>[20] Storage Place Right 15</b>	<b>[20] Group Preset 15</b>	<b>[20] Cue List Goto 15</b>
<b>[21] Storage Place Left 16</b>	<b>[21] Storage Place Right 16</b>	<b>[21] Group Preset 16</b>	<b>[21] Cue List Goto 16</b>

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

## 7.2.10 Akai Professional MPK261



- Please choose Preset 1 (LiveLite) and work on Octave 0.

[1] Master
[2] Mode: Storage Left
[3] Mode: Storage Right
[4] Mode: Group Control
[5] Mode: Cue List
[22] Cue List Back
[23] Cue List Go
[24] Cue List Pause
[25] Cue List Play
[26] Cue List Cue All
[27] Speed Master Left
[28] Color Filter Storage Left color RED
[29] Color Filter Storage Left color GREEN
[30] Color Filter Storage Left color BLUE
[31] Color Filter Storage Right color RED
[32] Color Filter Storage Right color GREEN
[33] Color Filter Storage Right color BLUE

[34] Speed Master Right
[35] Group Value Group 1
[36] Group Value Group 2
[37] Group Value Group 3
[38] Group Value Group 4
[39] Group Value Group 5
[40] Group Value Group 6
[41] Group Value Group 7
[42] Group Value Group 8
[43] Group Control Toggle
[44] Cue List Toggle
[45] Storage Left DOWN
[46] Storage Left UP
[47] Storage Place Left DOWN
[48] Storage Place Left UP
[49] Storage Right DOWN
[50] Storage Right UP
[51] Storage Place Right DOWN
[52] Storage Place Right UP
[53] Group Preset DOWN
[54] Group Preset UP
[55] Main Output Strobe
[56] Blackout
[57] Crossfader Automatic Fade ON/OFF
[58] Crossfader Skip Left
[59] Crossfader Skip Right

<b>Mode: Storage Left ([2] is activated)</b>	<b>Mode: Storage Right ([3] is activated)</b>	<b>Mode: Group Control ([66] is activated)</b>	<b>Mode: Cue List ([67] is activated)</b>
[6] Storage Place Left 1	[6] Storage Place Right 1	[6] Group Preset 1	[6] Cue List Goto 1
[7] Storage Place Left 2	[7] Storage Place Right 2	[7] Group Preset 2	[7] Cue List Goto 2
[8] Storage Place Left 3	[8] Storage Place Right 3	[8] Group Preset 3	[8] Cue List Goto 3
[9] Storage Place Left 4	[9] Storage Place Right 4	[9] Group Preset 4	[9] Cue List Goto 4
[10] Storage Place Left 5	[10] Storage Place Right 5	[10] Group Preset 5	[10] Cue List Goto 5

<b>[11] Storage Place Left 6</b>	<b>[11] Storage Place Right 6</b>	<b>[11] Group Preset 6</b>	<b>[11] Cue List Goto 6</b>
<b>[12] Storage Place Left 7</b>	<b>[12] Storage Place Right 7</b>	<b>[12] Group Preset 7</b>	<b>[12] Cue List Goto 7</b>
<b>[13] Storage Place Left 8</b>	<b>[13] Storage Place Right 8</b>	<b>[13] Group Preset 8</b>	<b>[13] Cue List Goto 8</b>
<b>[14] Storage Place Left 9</b>	<b>[14] Storage Place Right 9</b>	<b>[14] Group Preset 9</b>	<b>[14] Cue List Goto 9</b>
<b>[15] Storage Place Left 10</b>	<b>[15] Storage Place Right 10</b>	<b>[15] Group Preset 10</b>	<b>[15] Cue List Goto 10</b>
<b>[16] Storage Place Left 11</b>	<b>[16] Storage Place Right 11</b>	<b>[16] Group Preset 11</b>	<b>[16] Cue List Goto 11</b>
<b>[17] Storage Place Left 12</b>	<b>[17] Storage Place Right 12</b>	<b>[17] Group Preset 12</b>	<b>[17] Cue List Goto 12</b>
<b>[18] Storage Place Left 13</b>	<b>[18] Storage Place Right 13</b>	<b>[18] Group Preset 13</b>	<b>[18] Cue List Goto 13</b>
<b>[19] Storage Place Left 14</b>	<b>[19] Storage Place Right 14</b>	<b>[19] Group Preset 14</b>	<b>[19] Cue List Goto 14</b>
<b>[20] Storage Place Left 15</b>	<b>[20] Storage Place Right 15</b>	<b>[20] Group Preset 15</b>	<b>[20] Cue List Goto 15</b>
<b>[21] Storage Place Left 16</b>	<b>[21] Storage Place Right 16</b>	<b>[21] Group Preset 16</b>	<b>[21] Cue List Goto 16</b>

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.11 Akai Professional MPKmini MKII



[26] Octave DOWN
[27] Octave UP
[30] Cue List Play/Pause
[31] Crossfader Automatic Fade ON/OFF
[34] Crossfader Skip Left
[35] Crossfader Skip Right
[36] Group Value Group 1
[37] Group Value Group 2
[38] Group Value Group 3
[39] Group Value Group 4
[40] Group Value Group 5
[41] Group Value Group 6
[42] Group Value Group 7
[43] Group Value Group 8
[44] Mode Switch

**[45] Prog. Change (must be activated to control the PADs)**

<b>[44] Must be illuminated GREEN (Mode: Storage Left)</b>	<b>[44] Must be illuminated RED (Mode: Storage Right)</b>
[28] Storage Place Left UP	[28] Storage Place Right UP
[29] Storage Left UP	[29] Storage Right UP
[32] Storage Place Left DOWN	[32] Storage Place Right DOWN
[33] Storage Left DOWN	[33] Storage Right DOWN

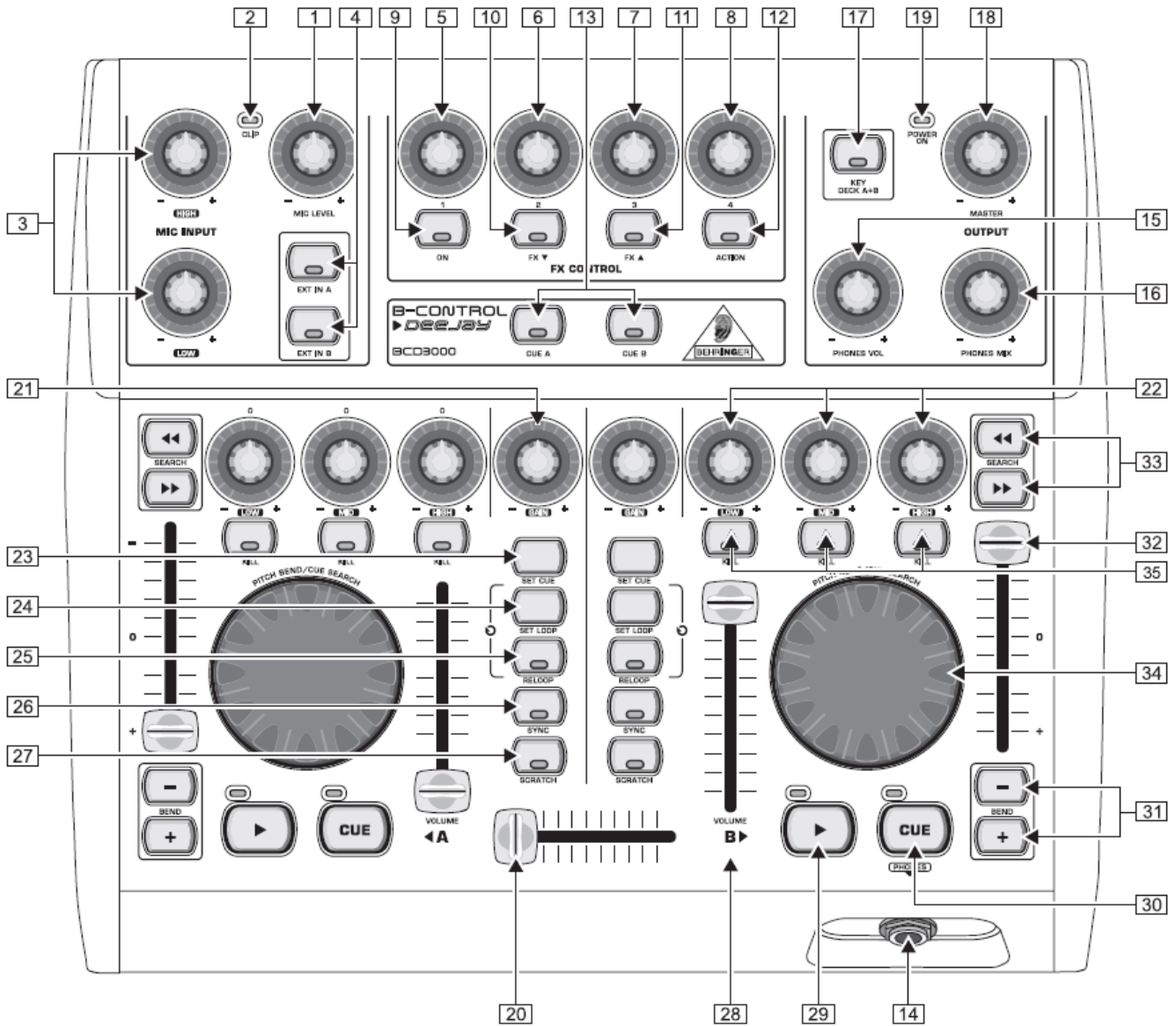
Octave	Storage Place	Storage
-4	[1] – [15] Storage Place Left 1 – 15	[16] – [25] Storage Left 1 – 10
-3	[1] – [15] Storage Place Left 8 – 22	[16] – [25] Storage Left 6 – 15
-2	[1] – [15] Storage Place Left 15 – 29	[16] – [25] Storage Left 11 – 20
-1	[1] – [14] Storage Place Left 22 – 35	[16] – [25] Storage Left 16 – 25
0	[1] – [7] Storage Place Left 29 – 35	[16] – [20] Storage Left 21 – 25
0	[8] – [15] Storage Place Right 1 – 8	[21] – [25] Storage Right 1 – 5
+1	[1] – [15] Storage Place Right 1 – 15	[16] – [25] Storage Right 1 – 10
+2	[1] – [15] Storage Place Right 8 – 22	[16] – [25] Storage Right 6 – 15
+3	[1] – [15] Storage Place Right 15 – 29	[16] – [25] Storage Right 11 – 20
+4	[1] – [14] Storage Place Right 22 – 35	[16] – [25] Storage Right 16 – 25

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)



### 7.2.12 Behringer BCD3000

Also known as BCD 3000 / BCD-3000.



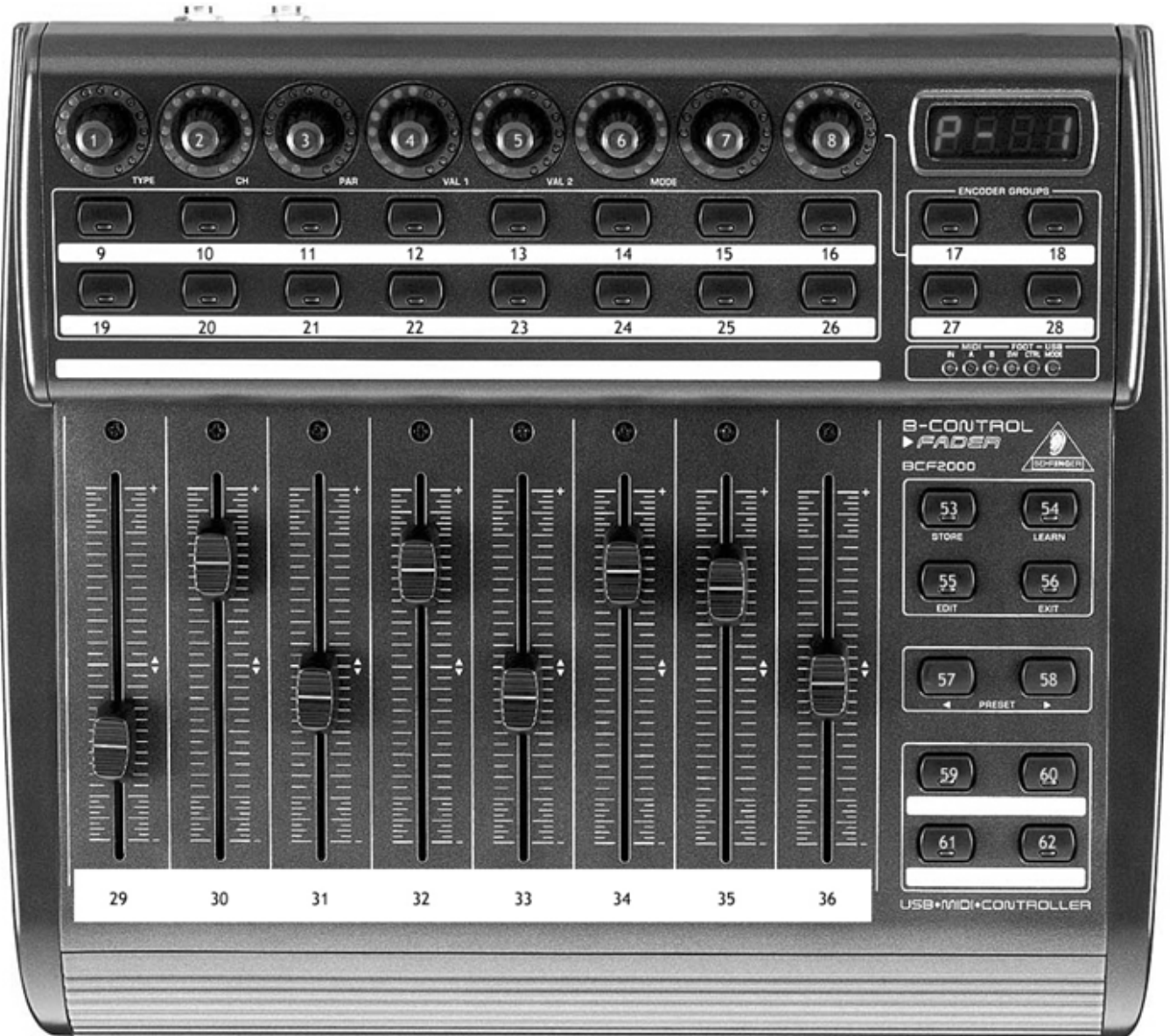
[1] No MIDI function	[13] FREE	[25] Layer Mix Mode UP
[2] FREE	[14] FREE	[26] Layer Mix Mode DOWN
[3] No MIDI function	[15] No MIDI function	[27] Crossfader Skip to Left/Skip To Right
[4] Cue List Open/Close	[16] FREE	[28] Master / Audio Input Level
[5] Color RED for Color Filter or Color-fade	[17] Crossfader Automatic Fade	[29] Audio Input ON/OFF / Cue List Play/Pause

(see [11] and [12])		
[6] Color GREEN for Color Filter or Color-fade (see [11] and [12])	[18] No MIDI function	[30] Cue Storage Place
[7] Color BLUE for Color Filter or Color-fade (see [11] and [12])	[19] POWER LED / NO MIDI function	[31] Layer UP/DOWN
[8] Color WHITE for Color Filter or Color-fade (see [11] and [12])	[20] Crossfader	[32] Speed Master
[9] Crossfader Fade Type DOWN	[21] Crossfader Fade Time	[33] Storage Place UP/ DOWN
[10] Crossfader Fade Type UP	[22 Low Knob] Storage ID S1 – S128	[34] + [35] Storage Submaster
[11] Mode: Color Filter (Default)	[23] Cue List Go/Back	[34] + [35] Layer Submaster
[12] Mode: Color-Fade	[24] Cue List Play/Pause	[34] + [35] Layer Opacity

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.13 Behringer BCF2000

Also known as BCF 2000 or BCF-2000.



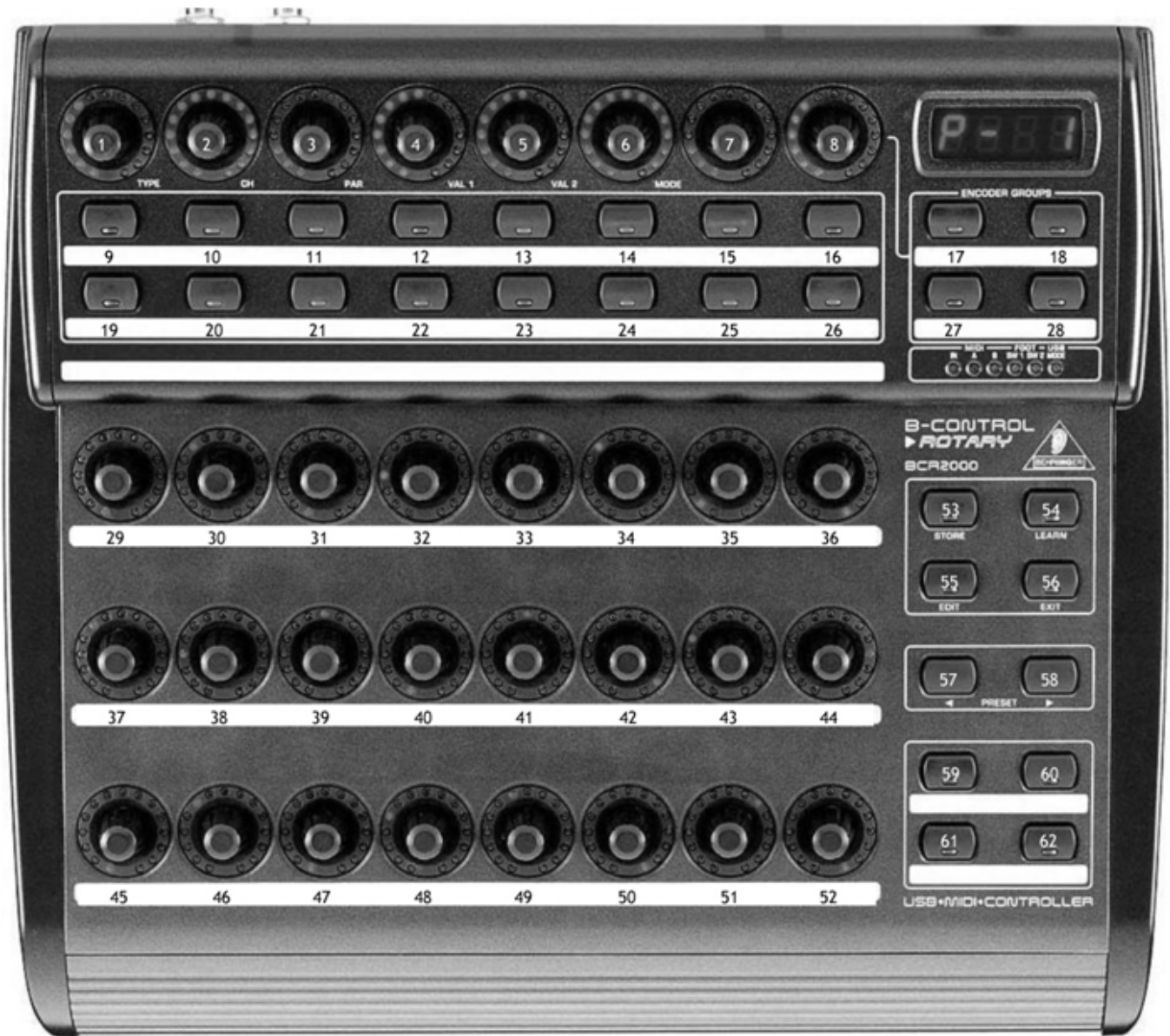
[1] Color RED for Color Filter or Color-Fade (see [9])	[24] Speed Master Right Pause
[2] Color GREEN for Color Filter or Color-Fade (see [9])	[25] Storage ID Right DOWN
[3] Color BLUE for Color Filter or Color-Fade (see [9])	[26] Storage ID Right UP
[4] Color WHITE for Color Filter or Color-Fade (see [9])	[29] Crossfader
[8] Crossfader Fade Time	[30] Storage Place Left UP/DOWN
[9] Mode: Color Filter (Default) or Color-Fade	[31] Speed Master Left

<b>[11] Speed Master Left Reset</b>	<b>[32] Master</b>
<b>[14] Speed Master Right Reset</b>	<b>[33] Audio Input Level</b>
<b>[19] Storage ID Left DOWN</b>	<b>[34] Speed Master Right</b>
<b>[20] Storage ID Left UP</b>	<b>[35] Storage Place Right UP/DOWN</b>
<b>[21] Speed Master Left Pause</b>	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.14 Behringer BCR2000

Also known as BCR 2000 or BCR-2000.



[1] Color RED for Color Filter or Color-Fade (see [9])	[24] Speed Master Right Pause
[2] Color GREEN for Color Filter or Color-Fade (see [9])	[25] Storage ID Right DOWN
[3] Color BLUE for Color Filter or Color-Fade (see [9])	[26] Storage ID Right UP
[4] Color WHITE for Color Filter or Color-Fade (see [9])	[29] Crossfader
[8] Crossfader Fade Time	[30] Storage Place Left UP/DOWN
[9] Mode: Color Filter (Default) or Color-Fade	[31] Speed Master Left

<b>[11] Speed Master Left Reset</b>	<b>[32] Master</b>
<b>[14] Speed Master Right Reset</b>	<b>[33] Audio Input Level</b>
<b>[19] Storage ID Left DOWN</b>	<b>[34] Speed Master Right</b>
<b>[20] Storage ID Left UP</b>	<b>[35] Storage Place Right UP/DOWN</b>
<b>[21] Speed Master Left Pause</b>	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

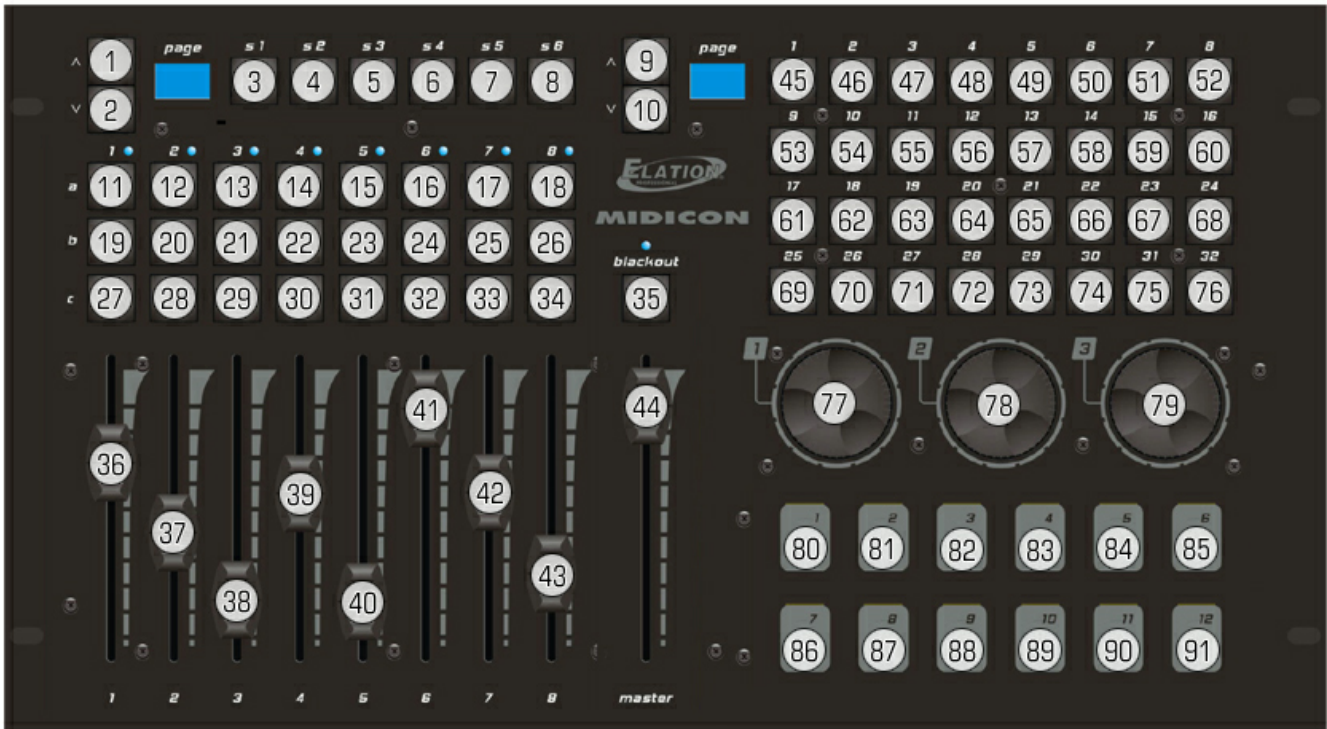
## 7.2.15 Creative Prodikeys PC-MIDI



[1] Cue List Back (MIDI note #53)	[8 – 17] Storage Place Left P1 – P10
[2] Cue List Play/Pause	[18] + [8 – 17] Storage Place Left P11 – P20
[3] Cue List Go	[19] + [8 – 17] Storage Place Left P21 – P30
	[18] + [19] + [8 – 17] Storage Place Left P31 – P40
[4] Storage ID Left DOWN	
[5] Storage ID Left UP	[20 – 29] Storage Place Right P1 – P10
[6] Storage ID Right DOWN	[30] + [20 – 29] Storage Place Right P11 – P20
[7] Storage ID Right UP	[31] + [20 – 29] Storage Place Right P21 – P30
	[30] + [31] + [20 – 29] Storage Place Right P31 – P40
[32] Crossfader Skip to Left	
[33] Crossfader Automatic Fade	[35] Crossfader Fade Type DOWN
[34] Crossfader Skip to Right	[36] Crossfader Fade Type UP
	[37] Cue List Back (see [1]) (MIDI note #89)
	[38] Audio Input ON/OFF (Sustain on MIDI keyboards)

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.16 Elation Professional MIDICON



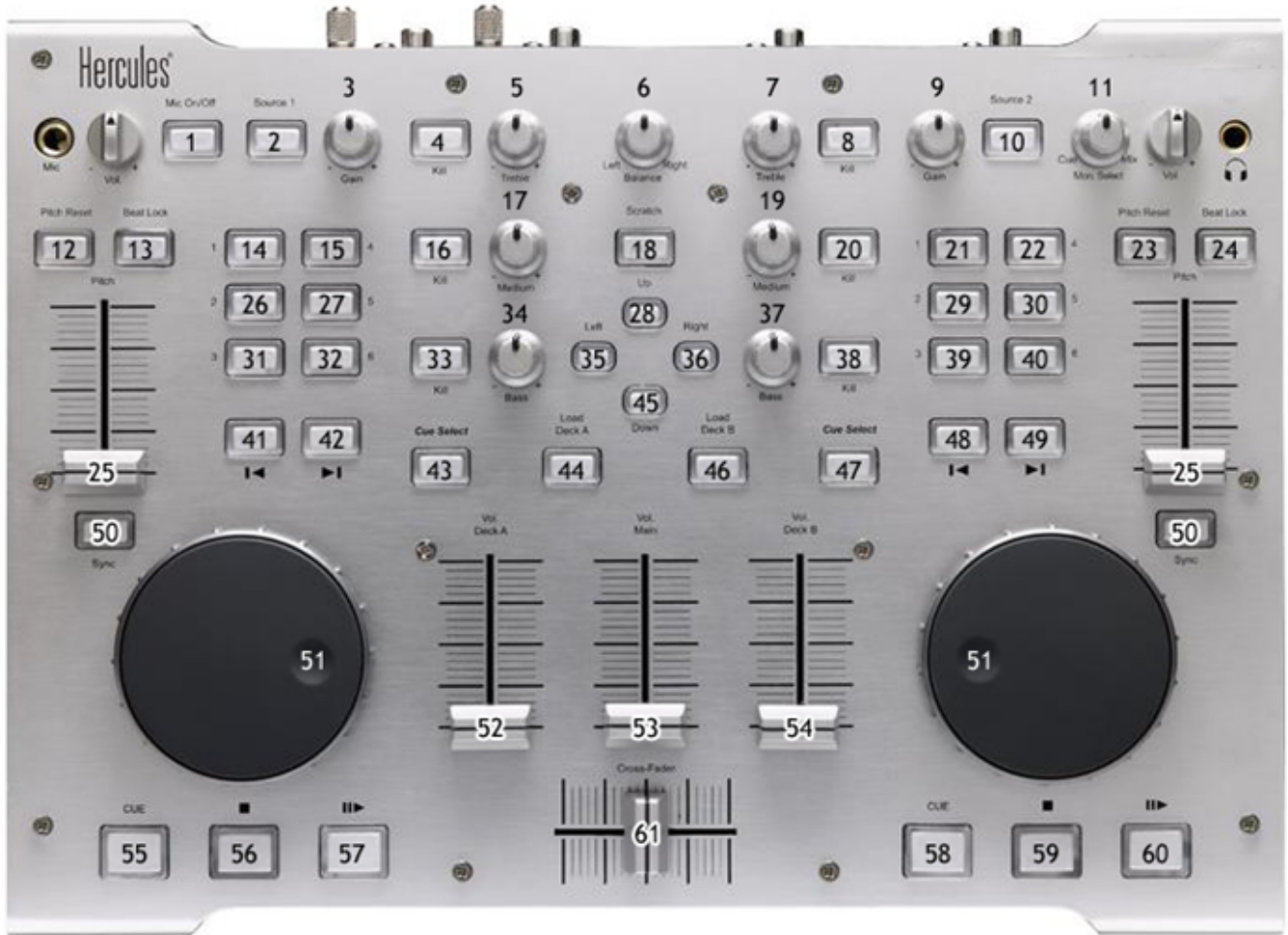
[3] Cue Storage Place Left	[52] Speed Master Right Pause
[8] Cue Storage Place Right	[56] Cue List Open/Close
[11] Layer Left DOWN	[57] Cue List Play/Pause
[12] Layer Left UP	[62] Storage Place Left UP (Arrow key behavior)
[13] Color-Fade color RED (ON/OFF)	[64] Storage ID Left DOWN
[14] Color-Fade color GREEN (ON/OFF)	[65] Storage ID Left UP
[15] Color-Fade color BLUE (ON/OFF)	[67] Storage Place Right UP (Arrow key behavior)
[16] Color-Fade color WHITE (ON/OFF)	[69] Storage Place Left LEFT (Arrow key behavior)
[17] Layer Right DOWN	[70] Storage Place Left DOWN (Arrow key behavior)
[18] Layer Right UP	[71] Storage Place Left RIGHT (Arrow key behavior)
[19] Layer Left Solo Mode	[72] Storage ID Right DOWN
[20] Layer Left Mix Mode UP	[73] Storage ID Right UP
[25] Layer Right Mix Mode UP	[74] Storage Place Right LEFT (Arrow key behavior)
[26] Layer Right Solo Mode	[75] Storage Place Left DOWN (Arrow key behavior)
[27] Layer Left Blind Mode	[76] Storage Place Left RIGHT (Arrow key behavior)
[28] Layer Left Mix Mode DOWN	[77] Speed Master Left UP/DOWN



[33] Layer Right Mix Mode DOWN	[77 Push] Speed Master Left Reset
[34] Layer Right Blind Mode	[78] Crossfader
[35] Blackout	[78] + [89] Crossfader Fade Time UP/DOWN
[36] Layer Left Opacity	[78] + [91] Audio Input Level UP/DOWN
[37] Layer Left Submaster	[78 Push] Crossfader Automatic Fade
[38] Color Filter color RED	[79] Speed Master Right UP/DOWN
[39] Color Filter color GREEN	[79 Push] Speed Master Right Reset
[40] Color Filter color BLUE	[80] Speed Master Left Pause (Hold)
[41] Color Filter color WHITE	[82] Crossfader Skip to Left
[42] Layer Right Submaster	[83] Crossfader Skip to Right
[43] Layer Right Opacity	[85] Speed Master Right Pause (Hold)
[44] Master	[86] Main Output Freeze (Hold)
[45] Speed Master Left Pause	[87] Main Output Freeze (Permanently)
[48] Cue List Go	[88] Crossfader Fade Type DOWN
[49] Cue List Back	[90] Audio Input ON/OFF

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.17 Hercules DJ Console Rmx



[1] Cue List Open/Close	[22] FREE	[41] Storage Place Left DOWN
[2] Mode: Color Filter (Default)	[23] Speed Master Right Reset	[42] Storage Place Left UP
[3] Storage Place Left UP/DOWN	[24 HOLD] Speed Master Right Pause	[43] Cue List Back
[4] Layer Left Mix Mode UP	[25] Speed Master Left/Right	[44] Crossfader Skip to Left
[5] Color RED for Color Filter or Color-Fade (see [2] and [10])	[26 HOLD + 51] Layer Submaster Left	[45] Crossfader Fade Type DOWN
[6] Crossfader Fade Time	[27] FREE	[46] Crossfader Skip to Right
[7] Color WHITE for Color Filter or Color-Fade (see [2] and [10])	[28] Crossfader Fade Type UP	[47] Cue List Go
[8] Layer Right Mix Mode UP	[29 HOLD + 51] Layer Submaster Right	[48] Storage Place Right DOWN
[9] Storage Place Right UP/DOWN	[30] FREE	[49] Storage Place Right UP
[10] Mode: Color-Fade	[31 HOLD + 51] Layer Opacity Left	[50 HOLD + 51] Fast Forward / Rewind Left/Right

[11] FREE	[32] FREE	[51] See [14] [21] [26] [29] [31] [39]
[12] Speed Master Left Reset	[33 HOLD + 48] Storage ID Left DOWN	[52] FREE
[13 HOLD] Speed Master Left Pause	[33 HOLD + 49] Storage ID Left UP	[53] Master
[14 HOLD + 51] Storage Submaster Left	[34] Color BLUE for Color Filter or Color-Fade (see [2] and [10])	[54] Audio Input Level
[15] FREE	[35] Crossfader Fade Type DOWN	[55] Cue Storage Place Left
[16] Layer Left Mix Mode DOWN	[36] Crossfader Fade Type UP	[56] Cue List Stop
[17] Color GREEN for Color Filter or Color-Fade (see [2] and [10])	[37] FREE	[57] Cue List Play/Pause
[18] Crossfader Automatic Fade	[38 HOLD + 48] Storage ID Right DOWN	[58] Cue Storage Place Right
[19] FREE	[38 HOLD + 49] Storage ID Right UP	[59] Audio Input OFF
[20] Layer Right Mix Mode DOWN	[39 HOLD + 51] Layer Opacity Right	[60] Audio Input ON/OFF
[21 HOLD + 51] Storage Submaster Right	[40] FREE	[61] Crossfader

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)



## 7.2.18 Hercules DJ Control MP3 And DJ Console MK2





[1] + [40] Storage Submaster Left	[16] Audio Input ON/OFF	[31] Crossfader Automatic Fade
[2] + [40] Layer Submaster Left	[17] Cue Storage Place Right	[32] Color-Fade color WHITE
[3] + [40] Layer Opacity Left	[18] Layer Left DOWN	[33] Audio Input Level
[4] + [41] Storage Submaster Right	[19] Layer Left UP	[34] Crossfader Fade Time
[5] + [41] Layer Submaster Right	[20] Layer Right DOWN	[35] Storage Place Left UP/DOWN
[6] + [41] Layer Opacity Right	[21] Layer Right UP	[36] Color-Fade color BLUE
[7] Crossfader Fade Type DOWN	[22] Layer Mix Mode Left DOWN	[37] Color-Fade color GREEN
[8] Crossfader Fade Type UP	[23] Layer Mix Mode Left UP	[38] Color-Fade color RED
[9] Cue List Back	[24] Layer Mix Mode Right DOWN	[39] Storage Place Right UP/DOWN
[10] Cue List Go	[25] Layer Mix Mode Right UP	[40] See [1], [2], [3]
[11] + [40] Fast Forward / Rewind Left	[26] (Left Mouse Button)	[41] See [4], [5], [6]
[12] + [41] Fast Forward / Rewind Right	[27] (Right Mouse Button)	[42] (Mouse control)

<b>[13] Crossfader</b>	<b>[28] Speed Master Left</b>	
<b>[14] Cue List Play/Pause</b>	<b>[29] Speed Master Right</b>	
<b>[15] Cue Storage Place Left</b>	<b>[30 + 40] Master</b>	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.19 Hercules DJ Control MP3 e2



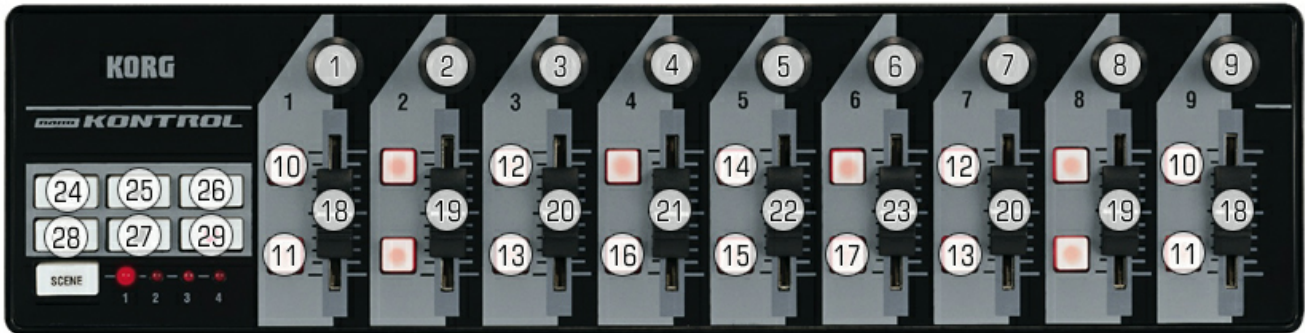
[1] Main Output Freeze (Hold)	<b>Mode: Storage</b>	<b>Mode: Layer</b>	[30] <b>Mode: Layer Left / Storage Left</b>
[2] Main Output Freeze (Permanently)	[20] Speed Master Left Pause	[20] Layer Mix Mode Left NEXT	[31] <b>Mode: Layer Right / Storage Right</b>
[3] Cue List Back	[21] Speed Master Right Pause	[21] Layer Mix Mode Right NEXT	
[4] Cue List Open/Close	[22] Speed Master Left	[22] Layer Opacity Left	[46 ] Cue Storage Place Left
[5] Cue List Play/Pause	[23] Speed Master Right	[23] Layer Opacity Right	[47 ] Cue Storage Place Right
[6] Cue List Go	[24] Storage Submaster Left DOWN	[24] Layer Submaster Left DOWN	[48 + 44] Fast Forward / Rewind Left (Storage Mode)
[7] Color-Fade color RED	[25] Storage Submaster Right DOWN	[25] Layer Submaster Right DOWN	[49 + 45] Fast Forward / Rewind Right (Storage Mode)
[8] Color-Fade color GREEN	[26] Storage Submaster	[26] Layer Submaster Left	[48 + 44] Layer Fast



	Left UP	UP	Forward / Rewind Left (Layer Mode)
[9] Color-Fade color BLUE	[27] Storage Submaster Right UP	[27] Layer Submaster Right UP	[49 + 45] Layer Fast Forward / Rewind Right (Layer Mode)
[10] Color-Fade color WHITE	[28] Storage Submaster Left Reset	[28] Layer Submaster, Mix Mode, Opacity Left Reset	
[11] FREE	[29] Storage Submaster Right Reset	[29] Layer Submaster, Mix Mode, Opacity Right Reset	
[12] Crossfader Fade Time	[32] Storage Place Left P1	[32] Layer 1 Left	
[13] Blackout	[33] Storage Place Right P1	[33] Layer 1 Right	
[14] Crossfader Automatic Fade	[34] Storage Place Left P2	[34] Layer 2 Left	
[15] Crossfader Fade Type NEXT	[35] Storage Place Right P2	[35] Layer 2 Right	
[16] Audio Input ON/OFF	[36] Storage ID Left DOWN	[36] Layer 3 Left	
[17] Master	[37] Storage ID Right DOWN	[37] Layer 3 Right	
[18] Audio Input level	[38] Storage ID Left UP	[38] Layer 4 Left	
[19] Crossfader	[39] Storage ID Right UP	[39] Layer 4 Right	
	[40] Storage Place Left DOWN	[40] Layer Left DOWN	
	[41] Storage Place Right DOWN	[41] Layer Right DOWN	
	[42] Storage Place Left UP	[42] Layer Left UP	
	[43] Storage Place Right UP	[43] Layer Right UP	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.20 KORG nanoKONTROL



▪ Please always select Scene '1'.

[1] Color-Fade color RED	[10] Crossfader Skip Left/Right	[18] Storage Place Left/Right
[2] Color-Fade color GREEN	[11] Cue Storage Place Left/Right	[19] Storage Submaster Left/Right
[3] Color-Fade color BLUE	[12] Speed Master Left/Right Reset	[20] Speed Master Left/Right
[4] Color-Fade color WHITE	[13] Speed Master Left/Right Pause	[21] Master
[5] Crossfader Fade Time	[14] Crossfader Fade Type DOWN	[22] Crossfader
[6] Color Filter color RED	[15] Crossfader Automatic Fade	[23] Audio Input Level
[7] Color Filter color GREEN	[16] Blackout	[24] Storage ID Left/Right DOWN (see [29])
[8] Color Filter color BLUE	[17] Audio Input ON/OFF	[25] Cue List Play
[9] Color Filter color WHITE		[26] Storage ID Left/Right UP (see [29])
		[27] Cue List Stop
		[28] Cue List Open/Close
		[29] Mode: ON = Storage Left; OFF = Storage Right

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.21 KORG nanoKONTROL2



[1] Group Value Group 1	[17] Group Value Flash Group 1	[33] Cue List Back
[2] Group Value Group 2	[18] Group Value Flash Group 2	[34] Cue List Go
[3] Group Value Group 3	[19] Group Value Flash Group 3	[35] Cue List Pause
[4] Group Value Group 4	[20] Group Value Flash Group 4	[36] Cue List Play/Pause
[5] Group Value Group 5	[21] Group Value Flash Group 5	[37] Group Control Open/Close
[6] Group Value Group 6	[22] Group Value Flash Group 6	[38] All Groups Default Value
[7] Group Value Group 7	[23] Group Value Flash Group 7	[39] Fade-In Time -1 Second
[8] Group Value Group 8	[24] Group Value Flash Group 8	[40] Fade-In Time +1 Second
[9] Group Value Group 9	[25] Group Value Flash Group 9	[41] Group Preset DOWN +Fade
[10] Group Value Group 10	[26] Group Value Flash Group 10	[41] Group Preset UP +Fade
[11] Group Value Group 11	[27] Group Value Flash Group 11	
[12] Group Value Group 12	[28] Group Value Flash Group 12	
[13] Group Value Group 13	[29] Group Value Flash Group 13	
[14] Group Value Group 14	[30] Group Value Flash Group 14	
[15] Group Value Group 15	[31] Group Value Flash Group 15	
[16] Group Value Group 16	[32] Group Value Flash Group 16	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.2 Livid Instruments Ohm64



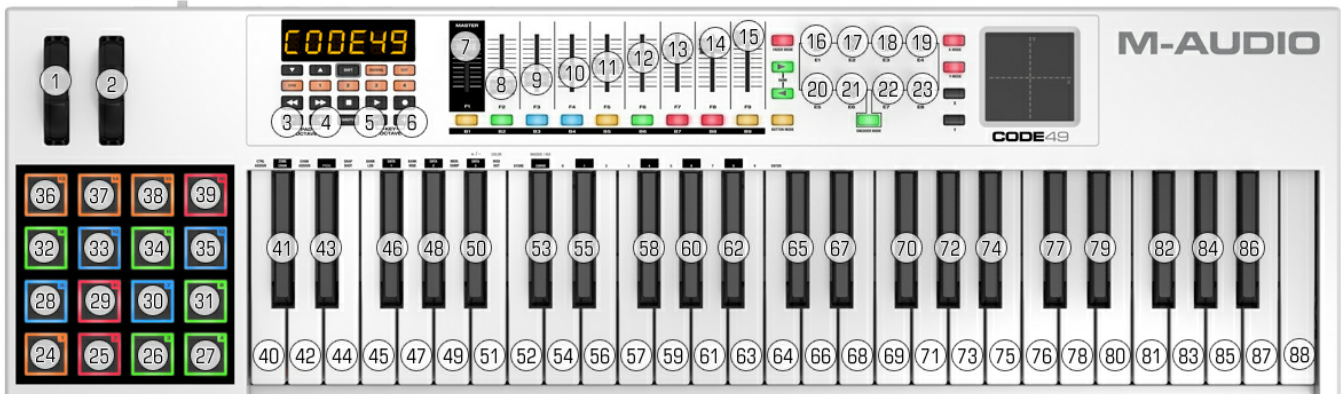
<b>[92] Mode: Storage Left</b>	<b>[94] Mode: Storage Right</b>
[1] – [56] Storage Place Left P1 – P56	[1] – [56] Storage Place Right P1 – P56
[59] Layer Left UP	[59] Layer Right UP
[60] Speed Master Left Pause (Permanently)	[60] Speed Master Right Pause (Permanently)
[95] Storage ID Left DOWN	[95] Storage ID Right DOWN
[96] Storage ID Left UP	[96] Storage ID Right UP
[97] Storage Place Left DOWN	[97] Storage Place Right DOWN
[98] Storage Place Left UP	[98] Storage Place Right UP

[61] Crossfader Fade Type UP/DOWN	[73] Main Output Freeze	[84] Layer 1 Opacity (Left/Right)
[62] Crossfader Fade Time	[74] Crossfader Automatic Fade	[85] Layer 2 Opacity (Left/Right)
[63] Master	[75] Cue List Go	[86] Layer 3 Opacity (Left/Right)
[64] Audio Input Level	[76] Cue List Back	[87] Layer 4 Opacity (Left/Right)
[65] Color-Fade color RED	[77] Cue List Open/Close	[88] Layer 1 Blind Mode (Left/Right)
[66] Color-Fade color GREEN	[78] Cue List Play/Pause	[89] Layer 2 Blind Mode (Left/Right)

[67] Color-Fade color BLUE	[79] Blackout	[90] Layer 3 Blind Mode (Left/Right)
[68] Color-Fade color WHITE	[80] Storage Submaster Left	[91] Layer 4 Blind Mode (Left/Right)
[69] Color Filter color RED	[81] Speed Master Left	[93] Crossfader
[70] Color Filter color GREEN	[82] Speed Master Right	
[71] Color Filter color BLUE	[83] Storage Submaster Right	
[72] Color Filter color WHITE		

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.23 M-AUDIO Code 49



▪ Please choose Preset 10 and work with RED illuminated Encoder Mode.

[1] Speed Master Left/Right
[2] Audio Input Level
[3] PAD Octave DOWN
[4] PAD Octave UP
[5] KEY Octave DOWN
[6] KEY Octave UP
[7] Master
[8] Group Value Group 1
[9] Group Value Group 2
[10] Group Value Group 3
[11] Group Value Group 4
[12] Group Value Group 5
[13] Group Value Group 6
[14] Group Value Group 7
[15] Group Value Group 8
[16] Color Filter Main Output RED
[17] Color Filter Main Output GREEN
[18] Color Filter Main Output BLUE
[19] Color Filter Main Output WHITE
[20] Color Fade Color RED
[21] Color Fade Color Green
[22] Color Fade Color BLUE

## [23] Color Fade Color WHITE

<b>PAD Octave</b>	<b>Storage Place</b>
-3	[24] – [39] Storage Place Left 1 – 16
-2	[24] – [39] Storage Place Left 13 – 28
-1	[24] – [39] Storage Place Left 25 – 40
0	[24] – [39] Storage Place Left 37 – 52
+1	[24] – [39] Storage Place Left 49 – 64
+2	[24] – [39] Storage Place Left 61 – 76
+3	[24] – [39] Storage Place Left 73 – 88
+4	[24] – [39] Storage Place Left 85 – 100
+5	[24] – [39] Storage Place Left 97 – 112

<b>KEY Octave</b>	<b>Storage Place</b>
-3	[40] – [88] Storage Place Right 1 – 49
-2	[40] – [88] Storage Place Right 13 – 61
-1	[40] – [88] Storage Place Right 25 – 72
0	[40] – [88] Storage Place Right 37 – 85
+1	[40] – [88] Storage Place Right 49 – 97
+2	[40] – [88] Storage Place Right 61 – 109
+3	[40] – [88] Storage Place Right 73 – 121
+4	[40] – [88] Storage Place Right 85 – 121
+5	[40] – [83] Storage Place Right 97 – 128

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.24 M-AUDIO Oxygen 8 v2



- Make sure to activate Preset 1 [General MIDI] and c 01 with button [6].

[1] UP: Automatic Fade Enabled (Default); DOWN: Disabled	[23] Storage Place Left P1 (If Octave -4)	[35] Storage Place Right P1 (If Octave -4)
[2] Master	[24] Storage Place Left P2 (If Octave -4)	[36] Storage Place Right P2 (If Octave -4)
[3] Storage Place Area (Octaves)	[25] Storage Place Left P3 (If Octave -4)	[37] Storage Place Right P3 (If Octave -4)
[4] No MIDI function	[26] Storage Place Left P4 (If Octave -4)	[38] Storage Place Right P4 (If Octave -4)
[5] No MIDI function	[27] Storage Place Left P5 (If Octave -4)	[39] Storage Place Right P5 (If Octave -4)
[6] No MIDI function	[28] Storage Place Left P6 (If Octave -4)	[40] Storage Place Right P6 (If Octave -4)
[7] FREE	[29] Storage Place Left P7 (If Octave -4)	[41] Storage Place Right P7 (If Octave -4)
[8] FREE	[30] Storage Place Left P8 (If Octave -4)	[42] Storage Place Right P8 (If Octave -4)



[9] Storage ID Left S1 – S128	[31] Storage Place Left P9 (If Octave -4)	[43] Storage Place Right P9 (If Octave -4)
[10] Storage ID Right S1 – S128	[32] Storage Place Left P10 (If Octave -4)	[44] Storage Place Right P10 (If Octave -4)
[11] FREE	[33] Storage Place Left P11 (If Octave -4)	[45] Storage Place Right P11 (If Octave -4)
[12] Audio Input Level	[34] Storage Place Left P12 (If Octave -4)	[46] Storage Place Right P12 (If Octave -4)
[13] Crossfader		
[14] Speed Master Left	[23] Storage Place Left P13 (If Octave -2)	[35] Storage Place Right P13 (If Octave -2)
[15] Speed Master Right	...	...
[16] Crossfader Fade Time	[34] Storage Place Left P24 (If Octave -2)	[46] Storage Place Right P24 (If Octave -2)
[17] Main Output Freeze		
[18] Cue List Back	Select the Octave with [3]	Select the Octave with [3]
[19] Cue List Go		
[20] Cue List Stop		[47] Automatic Fade (If Octave 5)
[21] Crossfader Fade Type (Toggle)		
[22] Crossfader Skip to Left/Right		

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.25 M-AUDIO Torq Xponent



[3] Crossfader Skip to Left	[27] Crossfader Automatic Fade	[46] Storage ID Left S129 – S256
[4] Crossfader Skip to Right	[28] Crossfader Automatic Fade	[49] Storage ID Right S1 – S128
[5] Color-Fade color WHITE	[29] Main Output Freeze	[50] Storage ID Right S129 – S256
[6] Color-Fade color BLUE	[30] Audio Input ON/OFF	[61] Cue List Play / Pause
[7] Color-Fade color GREEN	[31] See [33], [34], [35], [36]	[62] Cue Storage Place Left
[8] Color-Fade color RED	[32] See [37], [37], [39], [40]	[63] Storage Place Left DOWN
[9] Color Filter color WHITE	[33] + [31] Storage Submaster Left	[64] Storage Place Left UP
[10] Color Filter color BLUE	[34] + [31] Layer Opacity Left	[65] Cue List Play/Pause
[11] Color Filter color GREEN	[35] + [31] Layer Mix Mode Left	[66] Cue Storage Place Right
[12] Color Filter color RED	[36] + [31] Layer Submaster Left	[67] Storage Place Right DOWN
[13] Crossfader Fade Time	[37] + [32] Storage Submaster Right	[68] Storage Place Right UP
[19] Fade Type Color-Fade	[38] + [32] Layer Opacity Right	[69] Speed Master Left
[20] Fade Type Black-Fade	[39] + [32] Layer Mix Mode Right	[70] Speed Master Right
[21] Fade Type White-Fade	[40] + [32] Layer Submaster Right	[71] Cue List Go

[22] Fade Type Cross-Fade	[41] Layer Left DOWN	[72] Cue List Back
[23] Mode: USB or MIDI	[42] Layer Left UP	[73] Cue List Open/Close
[24] Master	[43] Layer Right DOWN	[74] Cue List Go
[25] Audio Input Level	[44] Layer Right UP	[75] Cue List Back
[26] Crossfader	[45] Storage ID Left S1 – S128	[76] Cue List Open/Close

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

## 7.2.26 MIDI Keyboards



MIDI Note	Value	MIDI Note	Value
#48	Crossfader Skip to Left	#84	Storage ID Left DOWN
#49	Crossfader Automatic Fade	#85	Storage ID Left UP
#50	Crossfader Skip to Right	#86	Storage ID Right DOWN
#51	Crossfader Fade Type DOWN	#87	Storage ID Right UP
#52	Crossfader Fade Type UP	#88	
#53	Cue List Back	#89	
#54	Cue List Play/Pause	#90	
#55	Cue List Go	#91	
#56	Storage Place Left DOWN	#92	
#57	Storage Place Left UP	#93	
#58	Storage Place Right DOWN	#94	
#59	Storage Place Right UP	#95	
#60...#69	Storage Place Left P1 – P10		
#60...#69 + #70	Storage Place Left P11 – P20		
#60...#69 + #71	Storage Place Left P21 – P30		
#60...#69 + #70 + #71	Storage Place Left P31 – P40		

#72...#81	Storage Place Right P1 – P10		
#72...#81 + #82	Storage Place Right P11 – P20		
#72...#81 + #83	Storage Place Right P21 – P30		
#72...#81 + #82 + #83	Storage Place Right P31 – P40	Control Change 0x40 (0xB0 0x40 0x00)	Audio Input ON/OFF

Octave #	Note Numbers											
	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
-1	0	1	2	3	4	5	6	7	8	9	10	11
0	12	13	14	15	16	17	18	19	20	21	22	23
1	24	25	26	27	28	29	30	31	32	33	34	35
2	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59
4	60	61	62	63	64	65	66	67	68	69	70	71
5	72	73	74	75	76	77	78	79	80	81	82	83
6	84	85	86	87	88	89	90	91	92	93	94	95
7	96	97	98	99	100	101	102	103	104	105	106	107
8	108	109	110	111	112	113	114	115	116	117	118	119
9	120	121	122	123	124	125	126	127				

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

## 7.2.27 MIDI Universal

- Do not use MIDI channels/controllers that are currently not assigned. These entries are reserved for future features.

### MIDI Message Type 0xb0 [Controller 0xb, Channel 1]

Controller	Value
#00	Storage Place Left
#01	Storage Place Right
#02	Storage Place Left +Fade
#03	Storage Place Right +Fade
#04	Storage Place Left UP
#05	Storage Place Left DOWN
#06	Storage Place Right UP
#07	Storage Place Right DOWN
#08	Storage Place Left UP +Fade
#09	Storage Place Left DOWN +Fade
#0A	Storage Place Right UP +Fade
#0B	Storage Place Right DOWN +Fade
#10	Storage Submaster Left
#11	Storage Submaster Right B
#12	Storage Submaster Left UP
#13	Storage Submaster Left DOWN
#14	Storage Submaster Right UP
#15	Storage Submaster Right DOWN
#20	Speed Master Left
#21	Speed Master Left UP
#22	Speed Master Left DOWN
#23	Speed Master Left Reset
#24	Speed Master Left Pause
#25	Speed Master Left Pause (Hold)
#26	Speed Master Left Play
#28	Speed Master Right

Controller	Value
#29	Speed Master Right UP
#2A	Speed Master Right Down
#2B	Speed Master Right Reset
#2C	Speed Master Right Pause
#2D	Speed Master Right Pause (Hold)
#2E	Speed Master Right Play
#30	Storage Left Frame ID UP
#31	Storage Left Frame ID DOWN
#32	Storage Right Frame ID UP
#33	Storage Right Frame ID DOWN
#3A	Main Output Freeze ON
#3B	Main Output Freeze OFF
#3C	Main Output Freeze (Hold)
#40	Layer Left
#41	Layer Right
#42	Layer Left UP
#43	Layer Right DOWN
#44	Layer Right UP
#45	Layer Right DOWN
#50	Layer Opacity Left
#51	Layer Opacity Right
#52	Layer Opacity Left UP
#53	Layer Opacity Left DOWN
#54	Layer Opacity Right UP
#55	Layer Opacity Right DOWN
#60	Layer Submaster Left
#61	Layer Submaster Right
#62	Layer Submaster Left UP
#63	Layer Submaster Left DOWN
#64	Layer Submaster Right UP
#65	Layer Submaster Right DOWN
#70	Layer Mix Mode Left

Controller	Value
#71	Layer Mix Mode Right
#72	Layer Mix Mode Left UP
#73	Layer Mix Mode Left DOWN
#74	Layer Mix Mode Right UP
#75	Layer Mix Mode Right DOWN

## MIDI Message Type 0xb1 [Controller 0xb, Channel 2]

Controller	Value
#00	Layer Frame ID Left UP
#01	Layer Frame ID Left DOWN
#02	Layer Frame ID Right UP
#03	Layer Frame ID Right DOWN
#10	Crossfader Fade Time
#12	Crossfader Automatic Fade
#13	Crossfader
#14	Crossfader Step Left
#15	Crossfader Step Right
#16	Crossfader Skip to Left
#17	Crossfader Skip to Right
#1A	Master
#1B	Master UP
#1C	Master Down
#20	Crossfader Fade Type UP
#21	Crossfader Fade Type DOWN
#22	Crossfader Fade Type Cross-Fade
#23	Crossfader Fade Type White-Fade
#24	Crossfader Fade Type Black-Fade
#25	Crossfader Fade Type Color-Fade
#40	Color-Fade color RED
#41	Color-Fade color RED UP



#42	Color-Fade color RED DOWN
#43	Color-Fade color GREEN
#44	Color-Fade color GREEN UP
#45	Color-Fade color GREEN DOWN
#46	Color-Fade color BLUE
#47	Color-Fade color BLUE UP
#48	Color-Fade color BLUE DOWN
#49	Color-Fade color WHITE
#4A	Color-Fade color WHITE UP
#4B	Color-Fade color WHITE DOWN
#50	Cue Storage Place Left
#51	Cue Storage Place Right
#52	Delete Cue List Entry VALUE
#53	Delete CURRENT Cue List Entry
#54	Cue List Play
#55	Cue List Stop
#56	Cue List Play/Pause
#57	Cue List Go
#58	Cue List Back
#59	PLACEHOLDER
#5A	Cue List Goto
#5C	Cue List Open
#5D	Cue List Close
#5E	Cue List Open/Close
#60	Audio Input ON
#61	Audio Input OFF
#62	Audio Input ON/OFF
#63	PLACEHOLDER
#64	PLACEHOLDER
#65	PLACEHOLDER
#66	Audio Input Level
#67	Audio Input Level UP
#68	Audio Input Level DOWN

#70	Color Filter color RED
#71	Color Filter color RED UP
#72	Color Filter color RED DOWN
#73	Color Filter color GREEN
#74	Color Filter color GREEN UP
#75	Color Filter color GREEN DOWN
#76	Color Filter color BLUE
#77	Color Filter color BLUE UP
#78	Color Filter color BLUE DOWN
#79	Color Filter color WHITE
#7A	Color Filter color WHITE UP
#7B	Color Filter color WHITE DOWN

### MIDI Message Type 0x80 [Note OFF]

#0 ...	Storage Place Left P1 +Fade	#6 0 ...	Storage Place Right P1 +Fade
#59	Storage Place Left P60 +Fade	#1 19	Storage Place Right P60 +Fade
#12 4	Storage Place Left +Fade DOWN	#1 26	Storage Place Right +Fade DOWN
#12 5	Storage Place Left +Fade UP	#1 27	Storage Place Right +Fade UP

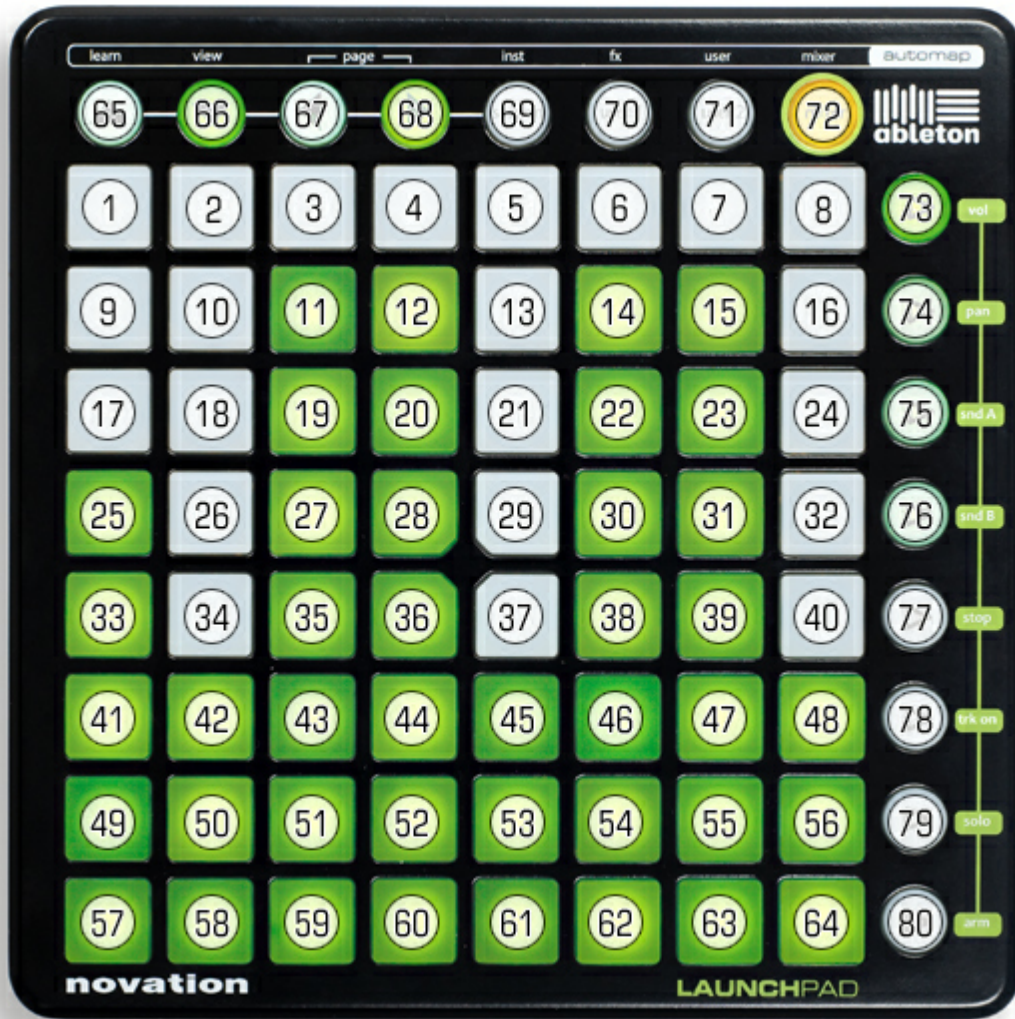
### MIDI Message Type 0x90 [Note ON]

#0 ...	Storage Place Left P1	#60 ...	Storage Place Right P1
#59	Storage Place Left P60	#11 9	Storage Place Right P60
#12 4	Storage Place Left DOWN	#12 6	Storage Place Right DOWN

#12 5	Storage Place Left UP	#12 7	Storage Place Right UP
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You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.28 Novation Launchpad



[70] Mode: Storage Left

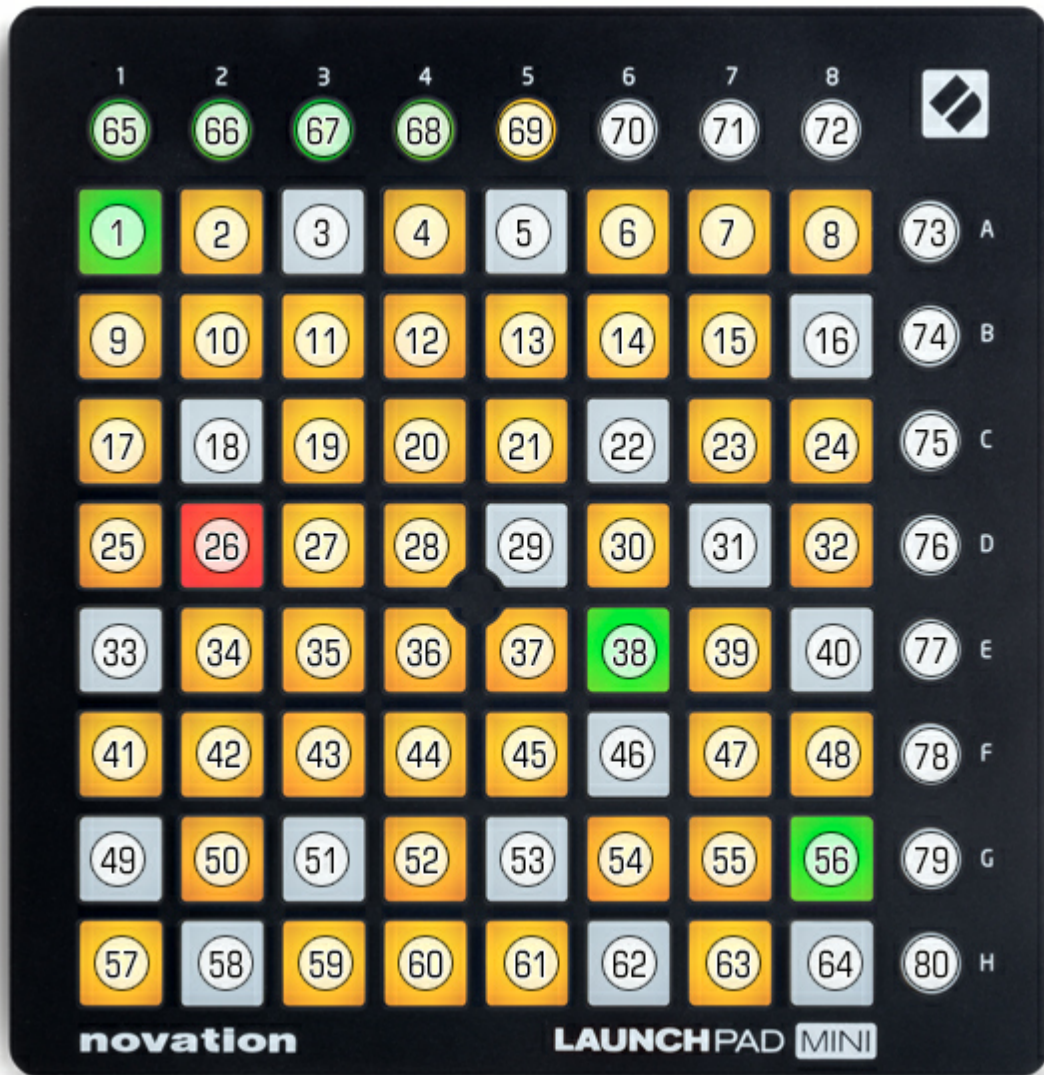
[71] Mode: Storage Right

[1] – [56] Storage Place P1 – P60 (Left/Right)	[68] Crossfader Skip to Right
[57] Storage ID DOWN (Left/Right)	[69] Crossfader Fade Type DOWN
[58] Storage ID UP (Left/Right)	[72] Crossfader Automatic Fade
[59] Storage Place DOWN (Left/Right)	[73] Cue List Go
[60] Storage Place UP (Left/Right)	[74] Cue List Back
[61] Layer UP (Left/Right)	[75] Cue List Play/Pause
[62] Layer Mix Mode UP (Left/Right)	[76] Cue List Open/Close

<b>[63] Layer Blind Mode (Left/Right)</b>	<b>[77] Audio Input Level UP</b>
<b>[64] Layer Solo Mode (Left/Right)</b>	<b>[78] Audio Input Level DOWN</b>
<b>[65] Crossfader Fade Time UP</b>	<b>[79] Speed Master UP (Left/Right)</b>
<b>[66] Crossfader Fade Time DOWN</b>	<b>[80] Speed Master DOWN (Left/Right)</b>
<b>[67] Crossfader Skip to Left</b>	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.29 Novation Launchpad Mini



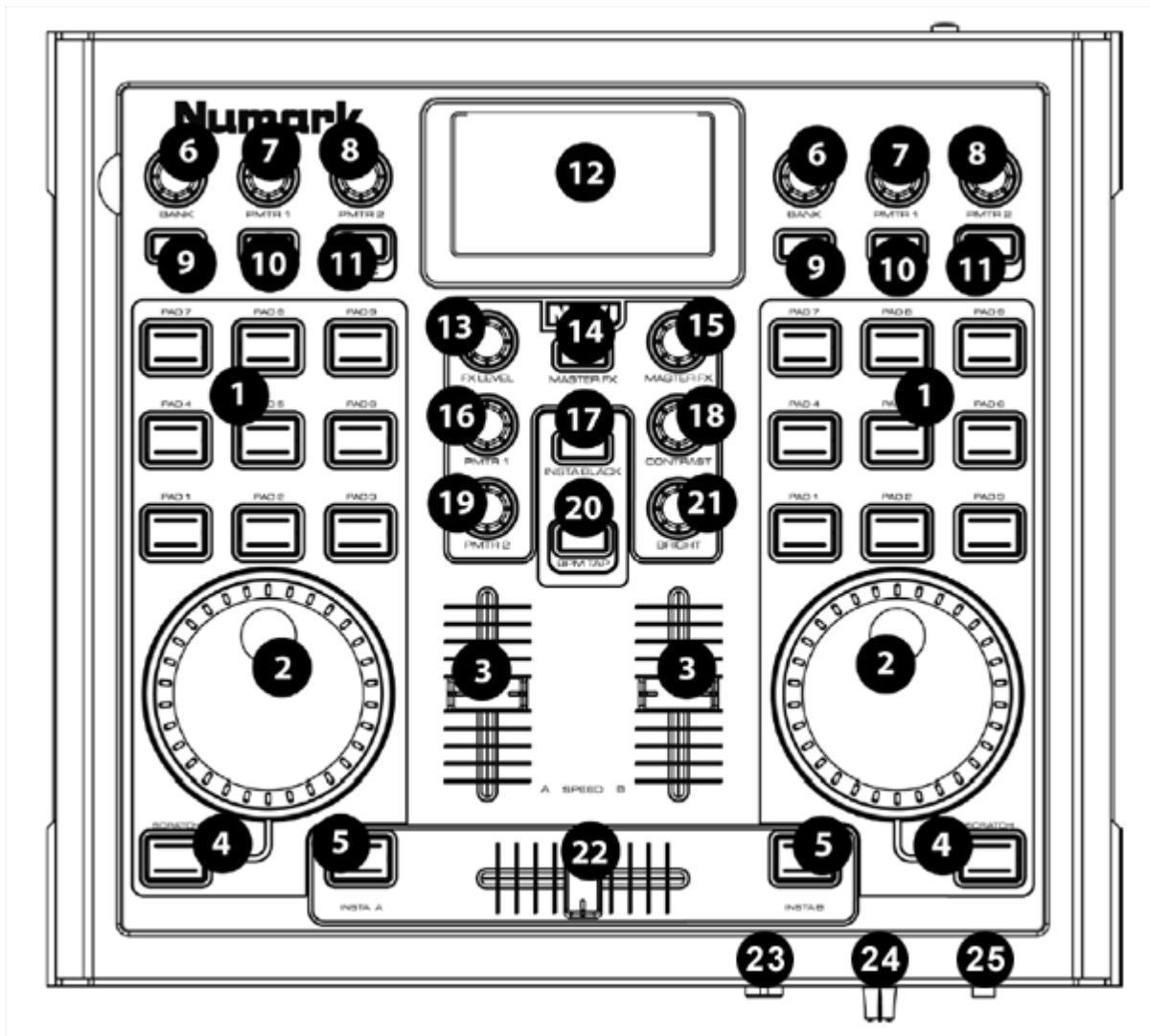
<b>[70] Mode: Storage Left</b>
<b>[71] Mode: Storage Right</b>

<b>[1] – [56] Storage Place P1 – P60 (Left/Right)</b>	<b>[68] Crossfader Skip to Right</b>
<b>[57] Storage ID DOWN (Left/Right)</b>	<b>[69] Crossfader Fade Type DOWN</b>
<b>[58] Storage ID UP (Left/Right)</b>	<b>[72] Crossfader Automatic Fade</b>
<b>[59] Storage Place DOWN (Left/Right)</b>	<b>[73] Cue List Go</b>
<b>[60] Storage Place UP (Left/Right)</b>	<b>[74] Cue List Back</b>
<b>[61] Layer UP (Left/Right)</b>	<b>[75] Cue List Play/Pause</b>

[62] Layer Mix Mode UP (Left/Right)	[76] Cue List Open/Close
[63] Layer Blind Mode (Left/Right)	[77] Audio Input Level UP
[64] Layer Solo Mode (Left/Right)	[78] Audio Input Level DOWN
[65] Crossfader Fade Time UP	[79] Speed Master UP (Left/Right)
[66] Crossfader Fade Time DOWN	[80] Speed Master DOWN (Left/Right)
[67] Crossfader Skip to Left	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.30 Numark NuVJ



<b>[9] Mode: Layer / Storage</b>	
<b>Mode: Layer</b>	<b>Mode: Storage</b>
[1] Layer 1 – 9 (Left/Right)	[1] Storage Place P1 – P9 (Left/Right)
[2] + [4] Layer UP/DOWN (Left/Right)	[2 + 4 HOLD] Fast Forward / Fast Rewind (Left/Right)
	[4] Speed Master Pause ON/OFF (Left/Right)
[6] Layer Mix Mode UP/DOWN (Left/Right)	[6] Storage Place UP/DOWN (Left/Right)
[6 PUSH] Layer Mix Mode Reset	[6 PUSH and TURN] Storage ID UP/DOWN (Left/Right)
[7] Layer Submaster (Left/Right)	[7] Storage Place Submaster (Left/Right)
[8] Layer Opacity (Left/Right)	[8] Speed Master (Left/Right)
[10] Layer Submaster Reset (Left/Right)	[10] Storage Place Submaster Reset (Left/Right)
[11] Layer Opacity Reset (Left/Right)	[11] Speed Master Reset (Left/Right)



<b>GLOBAL</b>
<b>[3] Master / Audio Input Level</b>
<b>[5] Cue List Back/Go</b>
<b>[13] Crossfader Fade type UP/DOWN</b>
<b>[14] Cue List Open/Close</b>
<b>[15] Color Filter color RED</b>
<b>[17] Cue List Play/Pause</b>
<b>[18] Color Filter color GREEN</b>
<b>[19] Color Filter color WHITE</b>
<b>[20] Crossfader Automatic Fade</b>
<b>[21] Color Filter color BLUE</b>
<b>[22] Crossfader</b>
<b>[24] Crossfader Fade Time</b>

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

## 7.2.31 Numark Omni Control



To use the Numark Omni Control, please refer to the MIDI MAP of the »[Numark Total Control](#)

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

## 7.2.32 Numark Stealth Control



To use the Numark Stealth Control, please refer to the MIDI MAP of the »[Numark Total Control](#)

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.33 Numark Total Control



[1] Cue List Go/Back	[20] Speed Master Reset (Left/Right)
[1 PUSH] Cue List Play/Pause	[21] Storage Place Submaster (Left/Right)
[2] Crossfader Fade Type DOWN/UP	[22] Submaster Storage Place Reset (Left/Right)
[3] Cue List / Audio Input ON/OFF	[23] Layer Mix Mode UP/DOWN (Left/Right)
[4] Cue List Open/Close / Audio Input ON/OFF	[24] Layer Mix Mode Reset (Left/Right)
[5] Cue Storage Place (Left/Right)	[25] Layer Submaster (Left/Right)
[6] Master / Audio Input Level	[26] Storage ID DOWN (Left/Right)
[7] Speed Master	[27] Layer Opacity (Left/Right)
[8] Speed Master Pause	[28] Storage ID UP (Left/Right)

[10] Crossfader Automatic Fade	[29] Color-Fade color RED
[11] Storage Place UP/DOWN (Left/Right)	[30] Color-Fade color GREEN
[12] Layer UP/DOWN (Left/Right)	[31] Color-Fade color BLUE
[15] Crossfader	[32] Color-Fade color WHITE
[16] Crossfader Fade Time	[33] Color Filter color RED
[17] FREE	[34] Color Filter color GREEN
[18] FREE	[35] Color Filter color BLUE
[19] + [9] Fast Forward / Fast Rewind	[36] Color Filter color WHITE

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.34 Omnitronic MMC-1

- **Please power on the console with every new start!**



<b>[21 B HOLD] + [37] Mode: Color Filter (Default)</b>
<b>[21 A HOLD] + [36] Mode: Color-Fade</b>
<b>[39] Color RED for Color Filter or Color-Fade</b>
<b>[40] Color GREEN for Color Filter or Color-Fade</b>
<b>[41] Color BLUE for Color Filter or Color-Fade</b>
<b>[42] Color WHITE for Color Filter or Color-Fade</b>

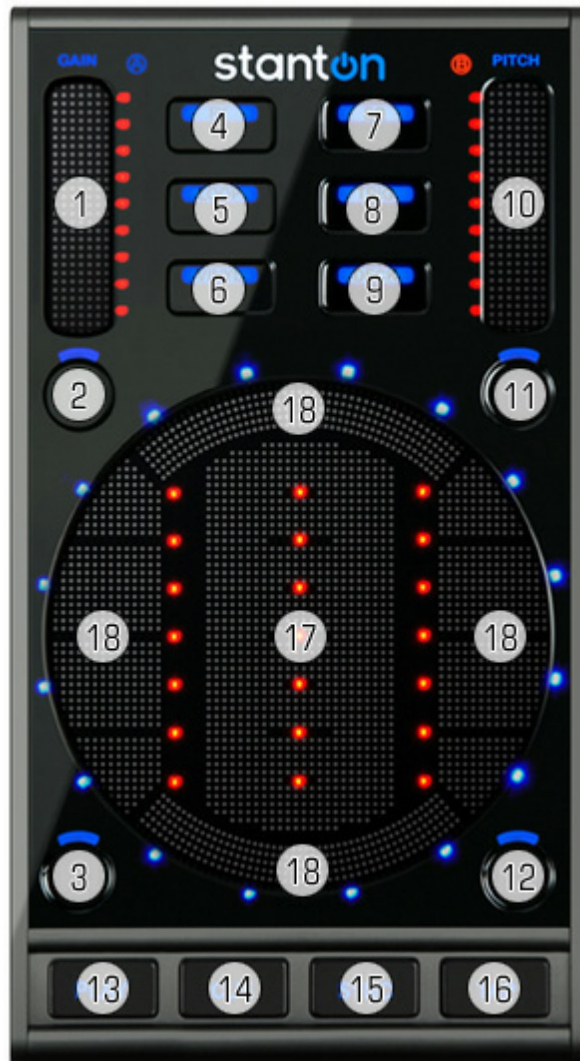
	[22]	[22 PUSH]
[2] Mode 1	Layer Opacity (Left/Right)	Layer Opacity Reset
[3] Mode 2	Layer Submaster (Left/Right)	Layer Submaster Reset
[4] Mode 3	Layer Mix Mode UP/DOWN (Left/Right)	Layer Mix Mode Reset
[5] Mode 4	-	-

[1] Power On	[21 HOLD] + [19] Cue List Open/Close	[31] Speed Master Pause (Permanently) (Left/Right)
[10] Layer 1 (Left/Right)	[21 HOLD] + [20] Cue List Back	[32 HOLD] Speed Master Pause (Hold) (Left/Right)

[11] Layer 2 (Left/Right)	[23] Storage Submaster (Left/Right)	[33] Storage ID DOWN (Left/Right)
[12] Layer 3 (Left/Right)	[23 PUSH] Storage Submaster Reset (Left/Right)	[34] Storage ID UP (Left/Right)
[13] Layer 4 (Left/Right)	[24] Storage Place UP/DOWN (Left/Right)	[35] Speed Master (Left/Right)
[14] Layer DOWN (Left/Right)	[21 HOLD] + [24] Skip 5 Storage Places UP/DOWN (Left/Right)	[36] Crossfader Skip to Left
[15] Layer UP (Left/Right)	[24 PUSH] Storage Place P1 (Left/Right)	[37] Crossfader Skip to Right
[16] Layer Solo Mode (Left/Right)	[25] Cue List Play/Pause	[38] Crossfader Fade Type
[17] Layer Blind Mode (Left/Right)	[26] Cue List Go	[43] Crossfader Fade Time
[18] Solo Mode/Blind Mode OFF	[27] Cue List Open/Close	[45] Master
[19] Cue Storage Place (Left/Right)	[28] Cue List Back	[46] Audio Input Level
[20] Cue List Go	[29] Frame ID (Left/Right)	[47] Crossfader
	[30] Speed Master Reset (Left/Right)	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.35 Stanton SCS.3d



<b>[4] Mode: Main Mode</b>
<b>[5] Mode: Storage Left</b>
<b>[6] Mode: Storage Right</b>

<b>Mode: Main Mode</b>	<b>Mode: Storage Left/Right</b>
<b>[1] Master</b>	<b>[1] Speed Master</b>
<b>[2] Blackout</b>	<b>[2] Speed Master Reset</b>
<b>[3] Crossfader Fade Type</b>	<b>[3] Storage Place DOWN</b>
<b>[7] FREE</b>	<b>[7] FREE</b>



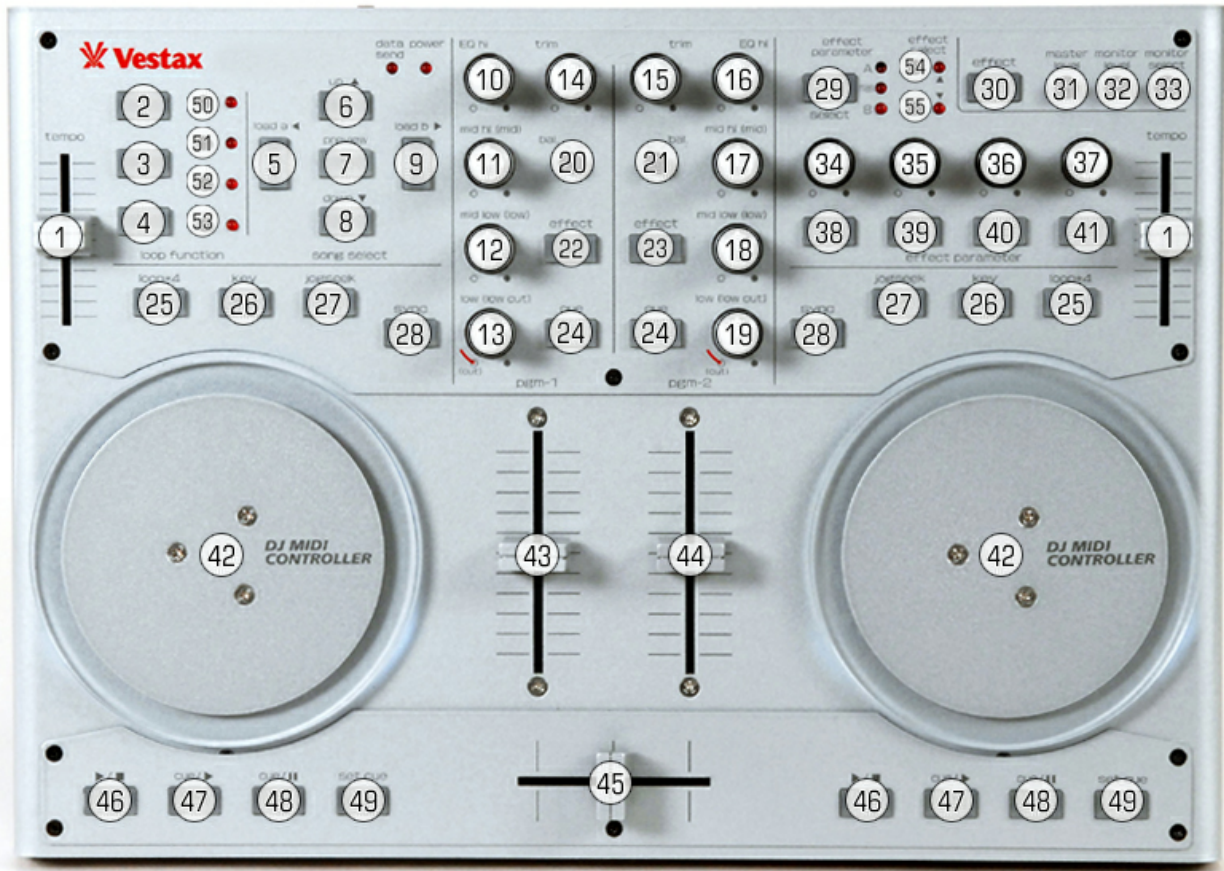
<b>[8] FREE</b>	<b>[8] Storage ID UP</b>
<b>[9] Main Output Freeze</b>	<b>[9] Storage ID DOWN</b>
<b>[10] Audio Input Level</b>	<b>[10] Storage Submaster</b>
<b>[11] Audio Input ON/OFF</b>	<b>[11] Storage Submaster Reset</b>
<b>[12] Crossfader Automatic Fade</b>	<b>[12] Storage Place UP</b>
<b>[13] Cue List Open/Close</b>	<b>[13] Speed Master Pause</b>
<b>[14] Cue List Back</b>	<b>[14] Cue Storage Place</b>
<b>[15] Cue List Stop</b>	<b>[15] Layer Mix Mode NEXT</b>
<b>[16] Cue List Go</b>	<b>[16] Layer NEXT</b>
<b>[17] Crossfader Fade Time</b>	<b>[17] Layer Submaster</b>
<b>[18] Crossfader</b>	<b>[18] Layer Opacity</b>

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.36 USER User

- In order to learn how to assign MIDI freely and how to program your own MIDI map, please read the chapter » [MIDI-IN Remote Editor](#)
- You can get an overview over all preprogrammed MIDI maps in the chapter » [MIDI-IN](#)

### 7.2.37 Vestax VCI-100



<b>[27] Mode: Layer / Storage</b> (Storage Mode = light on)	
<b>Mode: Layer</b>	<b>Mode: Storage</b>
[25] + [42] Layer Submaster	[25] + [42] Storage Submaster
[26] + [42] Layer Opacity	[42] Frame ID
[42] Switch Layers	[48] + [42] Storage ID S1 – S256
[49] + [42] Layer UP/DOWN	[49] + [42] Storage Place P1 – P256

[1] Speed Master Left/Right	[19] Color Filter color WHITE	[47] Speed Master Pause (Hold)
[5] Cue List Stop	[22] Crossfader Automatic Fade	[50] Fade Type Cross-fade
[6] Cue List Back	[23] Main Output Freeze	[51] Fade Type White-fade
[7] Cue List Open/Close	[24] Cue Storage Place Left/Right	[52] Fade Type Black-fade
[8] Cue List Go	[28] Crossfader Skip to Left/Right	[53] Fade Type Color-Fade
[9] Cue List Go + Start	[29] Must be value "mas."! If "A" or "B" is selected, select "mas.", then	

	<b>disconnect and reconnect the VCI100.</b>	
<b>[14] Crossfader Fade Time</b>	<b>[43] Master</b>	
<b>[16] Color Filter color RED</b>	<b>[44] Audio Input Level</b>	
<b>[17] Color Filter color GREEN</b>	<b>[45] Crossfader</b>	
<b>[18] Color Filter color BLUE</b>	<b>[46] Speed Master Pause (Permanently)</b>	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)

### 7.2.38 Vestax VCM-100



[1] Speed Master Left/Right	[12] Color Filter color RED	[24] Speed Master Pause (Permanently) Left/Right
[2] Storage Place Left/Right P1 – P128	[13] Color Filter color GREEN	[25] Speed Master Pause Left/Right
[3] Storage Place Left/Right P129 – P256	[14] Color Filter color BLUE	[26] Speed Master Pause (Hold) Left/Right
[4] Storage ID S1 – S128	[15] Crossfader Skip to Left	[27] Cue Storage Place Left/Right
[4] FREE	[16] Crossfader Skip to Right	[28] Storage Place DOWN Left/Right
[6] Crossfader Fade Time	[17] Master	[29] Storage Place UP Left/Right
[7] FREE	[18] Audio Input Level	[30] Crossfader
[8] FREE	[19] Cue List Stop	[31] Crossfader Automatic Fade
[9] Blackout	[20] Cue List Back	[32] Crossfader Fade Types
[10] Audio Input ON/OFF	[21] Cue List Start + Go	[33] FREE
[11] FREE	[22] Cue List Go	[34] Main Output Freeze (Permanently)
	[23] Cue List Open/Close	

You can get an overview over all preprogrammed MIDI maps in the chapter »[MIDI-IN](#)



## 7.3 MA-Net

This topic includes:

- [Introduction](#)
- [Step-By-Step Configuration](#)
- [Protocols \[Overview\]](#)
- [Important Notes](#)
- [Troubleshooting](#)

### Introduction

MA-Net from MA Lighting is a proprietary Ethernet network protocol. MADRIX supports it natively.

MADRIX supports:

- MA-Net 1
- MA-Net 2

### Step-By-Step Configuration

- 1]** Set up networking for your MA product.
- 2]** Set up the correct network settings in Windows.
- 3]** Enable drivers in MADRIX.
- 4]** Activate the devices.
- 5]** Set up remote control.

#### **1] Setting Up MA Networking**

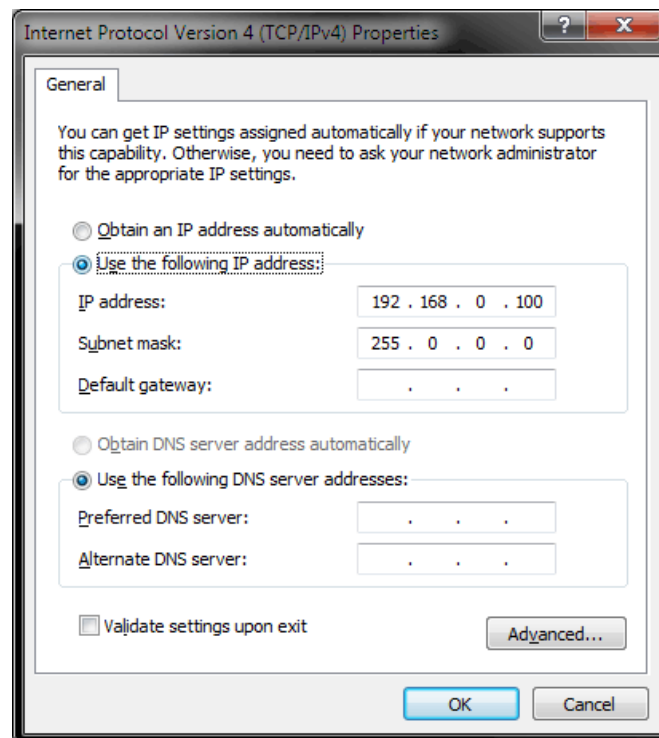


- Make sure to connect your MA devices and the MADRIX computer in the same Ethernet network over network cabling [and possibly a network switch]!  
[For example, use the **Ethernet 1** port for products of the grandMA 2 series and the network card of the computer that runs the MADRIX software.]
- Consult the user manual of your MA product to set up the correct settings for MA-Net for your MA product.
- Start Networking for your MA product.  
[For example, go to **Setup > Network** to start or join a session for products of the grandMA 2 series.]

## 2] Windows Network Settings

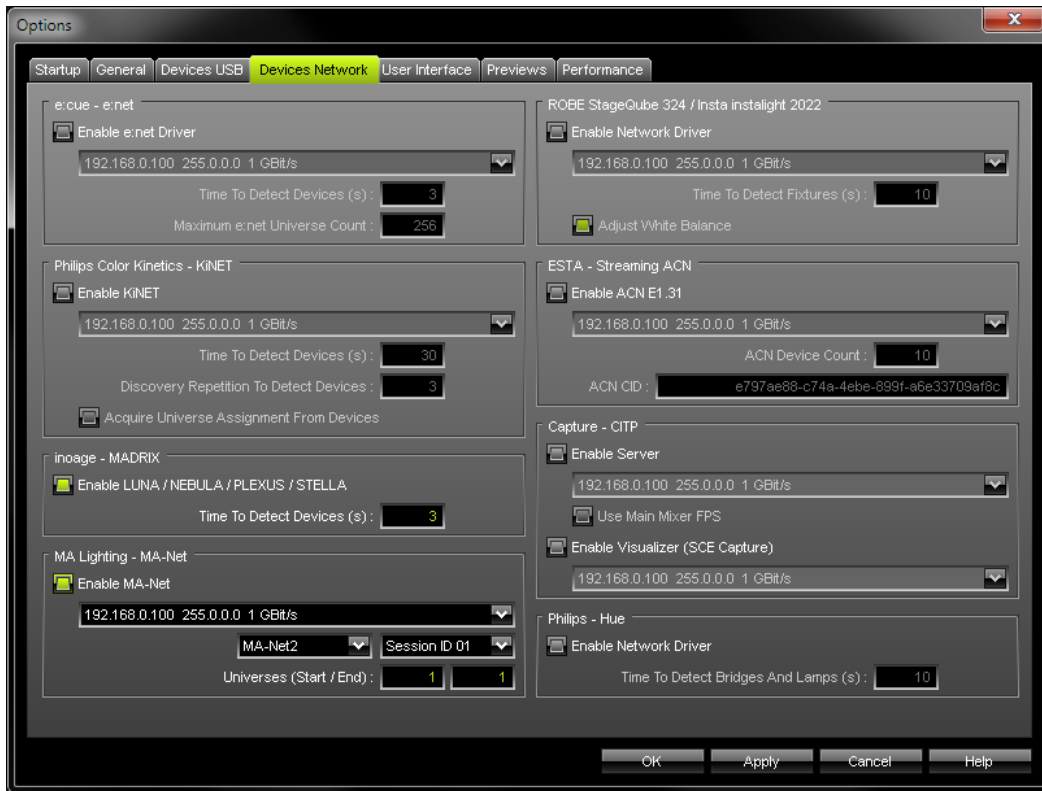
MA-Net is a network-based protocol. MADRIX will use the network card of your computer to receive data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use the correct IP address and Subnet mask settings. Otherwise, MA-Net might not work!**
- **The IP addresses of your computer and your MA-Net devices need to be different.**
  
- Set up an individual **IP address** according to the IP address range of your MA product.
  - Make sure that the first, second, and third part of the IP address are the same. The fourth part must be different from your MA product.
  - A general recommendation is:
    - **192.168.X.1 ... 192.168.X.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**
  
- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**
- **Check the settings of the Windows Firewall.**
- Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)
  
- Example for PCs that are running MADRIX:



### 3] Enabling Drivers In MADRIX

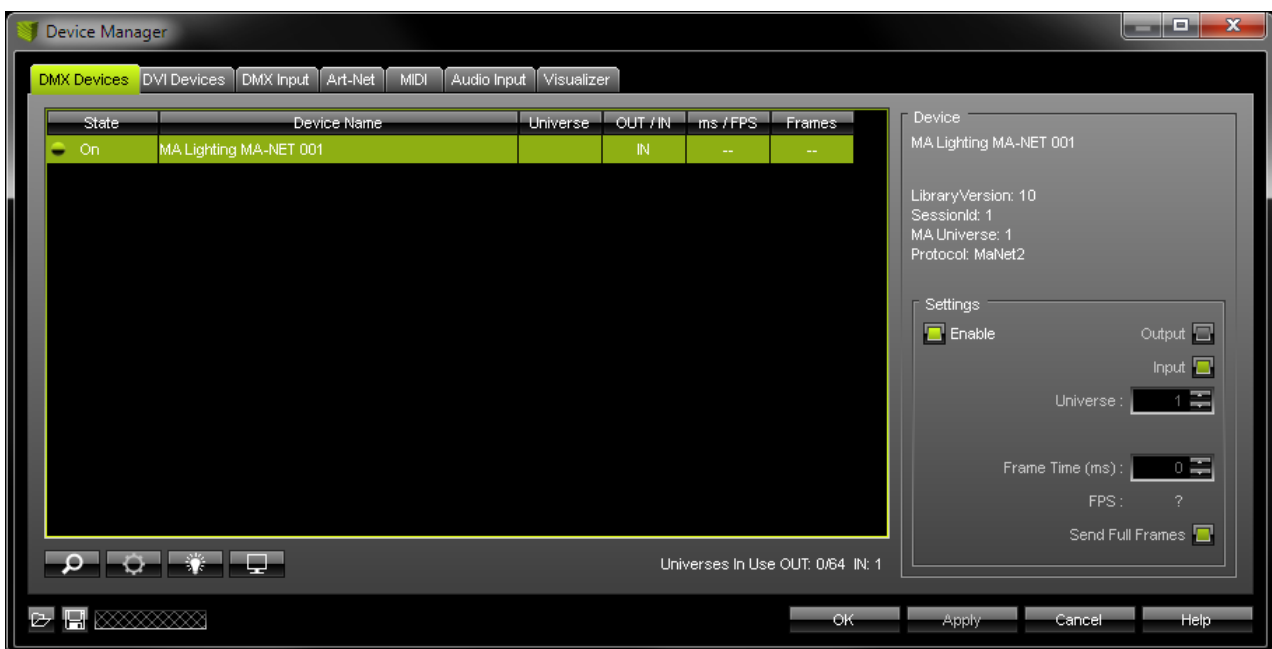
- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices Network**]
- Activate **Enable MA-Net**



- Choose the correct **network/network card** from the drop-down list.
  - **Always make sure that you have selected the correct network. Otherwise, no data can be received.**
- **MA-Net2** - Defines the protocol version.
  - Choose the correct MA-Net here [ **MA-Net 1** or **MA-Net 2** ].
  - MA-Net 1 is used by the grandMA1 series.
  - MA-Net 2 is used by the grandMA2 series.
- **Session ID** - Defines the session you want to work in. Choose the session you have set up in your MA product also here.
- **Universes (Start / End)** - Defines the universe or universe you wish to receive.
  - The default **Start Universe** is **1** and the default **End Universe** is **1**, which means that one DMX universe will be received.

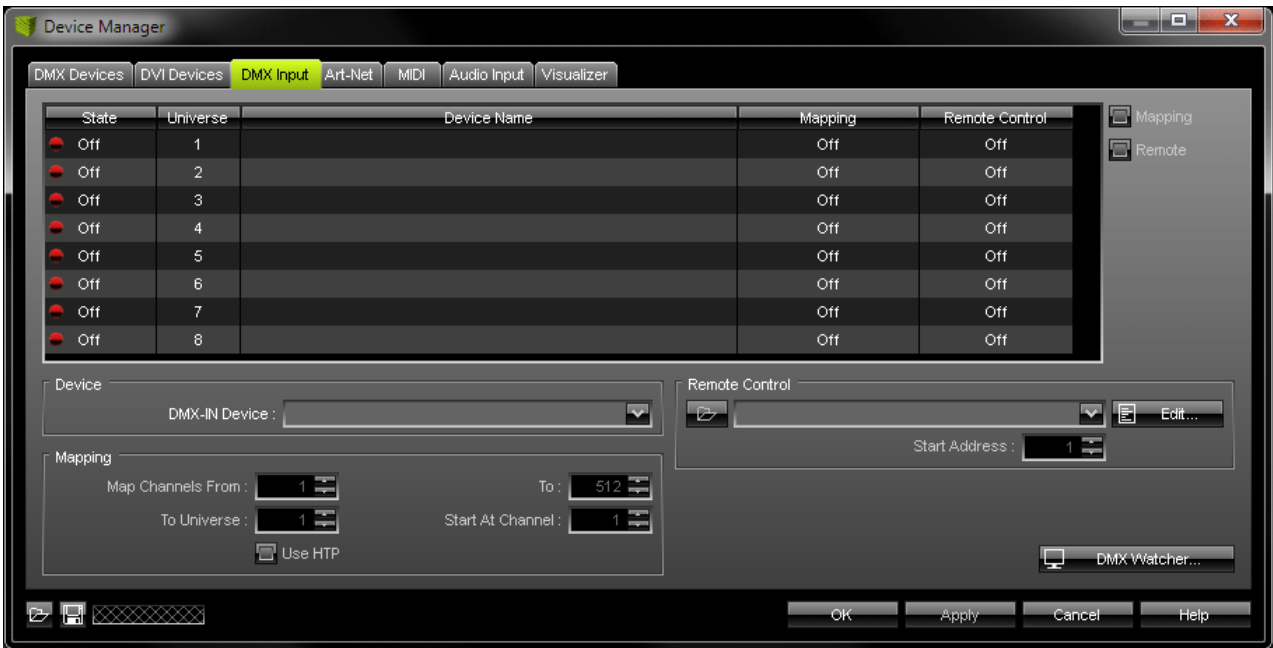
## 4] Activating Devices

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- MADRIX automatically adds the number of MA-Net universes/devices according to your settings for **Start Universe** and **End Universe**
- Your devices are automatically activated.
- If it is no activated, select your devices in the list, activate **Enable**, and click **Apply**
- **Input** is automatically activated.
- Since MADRIX will receive data, the **Frame Time** and **FPS** [Frame Rate] are managed automatically by MADRIX.  
[Please note when checking incoming data via the Task Watcher: A maximum frame rate of 30 Hz will be sent by your MA product over MA-Net.]



## 5] Setting Up Remote Control

- Go to **Preferences > Device Manager... > DMX Input**



- Select your preferred DMX **Universe** in the list.  
[By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting. Learn more »[Performance](#)]
- Select your **DMX-IN Device** in the section **Device** by choosing the **MA Lighting MA-Net** device.



- [If needed, you can disable DMX-IN by deselecting the device under **DMX-IN Device** and choose the list entry that is empty or disable the interface under **Device Manager... > DMX Devices.**]

- Make sure that your device is still selected in the list.
- Activate **Remote**
- Select one of the built-in protocols in the section **Remote Control**[as explained below] or create your own remote configuration. Learn more »[DMX-IN Remote Editor](#)



**Open** - Loads a previously saved MADRIX DMX Remote Configuration file [of the file type \*.mdrx].



**Protocols** - Choose from a pre-configured protocol [configuration].

Learn more [Protocols \[Overview\]](#)



**DMX-IN Remote Editor** - Allows you to modify a configuration or create a new configuration.

Learn more »[DMX-IN Remote Editor](#)



**Start Address** - Defines on which particular DMX channel the protocol should start. The whole protocol will be mapped to this new address area.



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input

**Watch Universe...** - Appears when you have selected a list item. The DMX Watcher will open with the particular DMX Universe already entered.

Learn more »[Tools](#)

**Mapping is not available for MA-Net and cannot be enabled.**

## Protocols [Overview]

There are preprogrammed DMX protocols you can choose from:

- »[DMX-IN \[Simple Protocol\]](#)
- »[DMX-IN \[General Protocol\]](#)
- »[DMX-IN \[Advanced Protocol\]](#)
- »[DMX-IN \[User\]](#)

## Important Notes

- **Always make sure to have a valid network card active! Otherwise, MADRIX cannot receive MA-Net [even when using MADRIX and MA on PC on the same computer].**
- **Always make sure to have a valid license for your MA product to send out Ethernet data or use a console.  
[MA on PC requires an MA 2Port Node or MA onPC command wing, for example.]**
- **Please make sure to save your MADRIX Setup file after the configuration process.**

## Troubleshooting

**If you are encountering problems, please work through the following checklist:**

- Double-check the settings of your network card.
- Make sure to set up the Windows Firewall correctly. Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)
- Double-check the settings of the MA-Net devices in MADRIX.
- Double-check the configuration of your MA product.
- Check if your MA product has a valid license to send out Ethernet data.
- Use the DMX Watcher to monitor incoming data.



## 7.4 Time Code [Art-Net / MIDI / SMPTE / System Time]

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Time Code](#)
- [Cue List](#)
- [More Information](#)

### Introduction

Time Code is a useful way to integrate time synchronization across devices in order to synchronize the equipment with each other.

Small messages will be sent in regular intervals and every device thereby knows the overall time of the system.

MADRIX can receive

- [MIDI Time Code \[MTC\]](#)
  - [Art-Net Time Code](#)
  - [SMPTE Time Code](#)
  - [System Time](#)
- 
- If such a time code is sent in the network, through MADRIX USB SMPTE or through other interfaces, they will be received by MADRIX if the feature is activated as explained below.

### Overview

Time Code can be received as:

- **24 FPS**

- **25 FPS**
- **30 Drop** [30/1.001 FPS]
- **30 FPS**

## Time Code

### MIDI Time Code [MTC]

You need to activate your MIDI device in MADRIX and activate MTC reception.

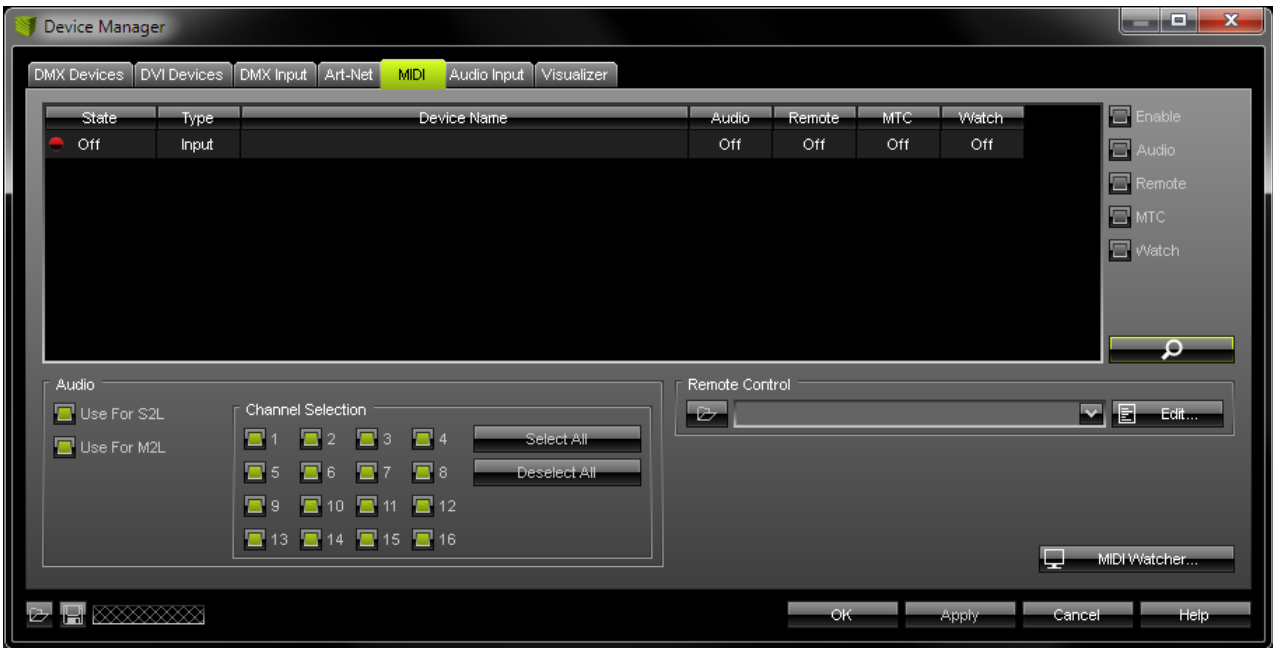
- Go to **Preferences > Remote Control > MIDI...**  
or **Preferences > Device Manager... > MIDI**  
[Keyboard shortcut: **F4 > MIDI**]
- A new window will open.



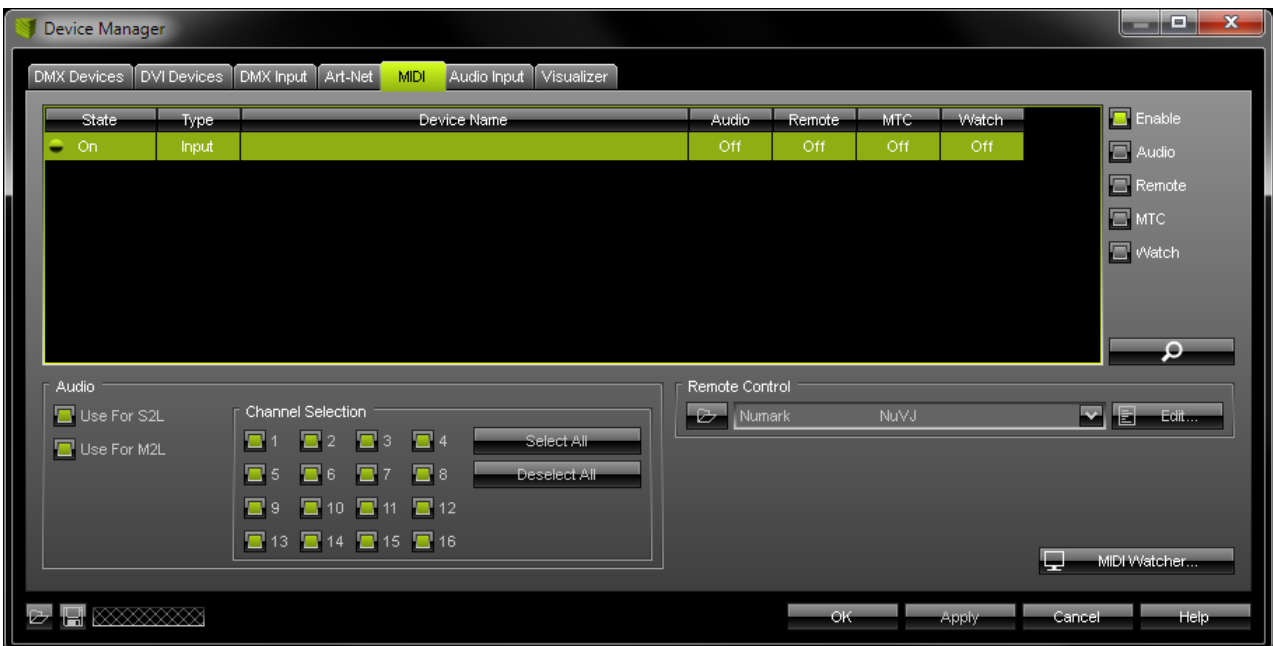
- Click 

MADRIX will automatically search for connected devices.

Your MIDI device will be shown in the list.



- Select your device in the list.
- Activate **Enable**  
[Please note that the **State** in the list will change from **Off** to **On**.]
- Activate **MTC**  
[Please note that the **MTC** in the list will change from **Off** to **On**.]



## Software Sending MTC

- You might want to work with another software that sends MIDI Time Code.
- Often, that also means that you want to run MADRIX and the other software on one computer.
- Various 3rd-party programs are available to create virtual MIDI devices and use them to connect MADRIX and the other software.
- Configure MADRIX as explained [above](#)

## Art-Net Time Code

- To send Art-Net Time Code, it is recommended to use the MADRIX Time Code Sender, separate tool that is automatically installed together with MADRIX.  
Learn more »[MADRIX Time Code Sender](#)
- To receive Art-Net Time Code, you need to activate Art-Net first.  
Learn more »[Art-Net \[DMX Over Ethernet\]](#)

## MADRIX USB SMPTE

- The MADRIX USB SMPTE hardware interface allows you to receive SMPTE time code with MADRIX.  
Learn more »[MADRIX I/O](#)

## System Time

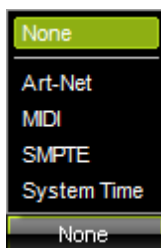
- You can use the clock of your computer to generate Time Code.  
Learn more [below](#)

## Cue List

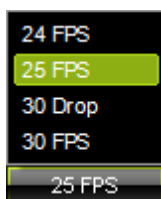
You can use Time Code in the Cue List.

- Configure your Time Code sender first and set up MADRIX to receive Time Code as explained [above](#)
- Go to **Window > Cue List...**
- Press **F7**
- Or click **Programmer > Cue List...** on the user interface
- Or click **Cue List** on the user interface

- Select the **Time Code Source**



- Select the **Time Code Format**

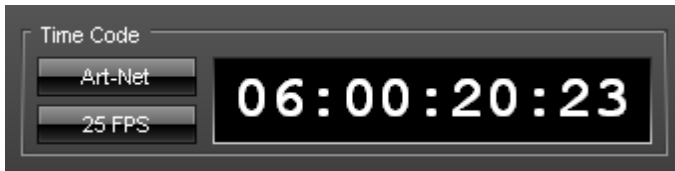


- MADRIX will automatically start receiving external Time Code.
- The Time Code format is **HH:MM:SS:FF** [hours:minutes:seconds:frames]

Example:

- 10 o'clock and 20 minutes, 30 seconds, and 10 frames will be shown as

**10:20:30:10**



- Configure the column **Time Code** for your Cue List entries.
- Add or edit more entries according to your requirements.

## More Information

Learn more »[Cue List](#)

## 7.5 CITP

This topic includes:

- [Introduction](#)
- [Usage](#)
- [Network Settings](#)
- [Configuration Of MADRIX As Server](#)
- [Configuration Of MADRIX As Visualizer](#)
- [Configuration Of Other Devices](#)

### Introduction

CITP [abbr., Controller Interface Transport Protocol] is a communication protocol often used between media servers, lighting consoles, and visualizers.

The main reasons for using CITP are:

- SDMX
- Browsing
- Streaming media between devices
- To display preview images [Thumbnails]

### Usage

#### Overview

MADRIX supports

- CITP version 1.0 with MSEX version 1.0 and MSEX version 1.1  
[Features of higher versions are not supported.]

As a media server, MADRIX is sending CITP data and making information available to other devices. For example, MADRIX will not show Thumbnails from other devices.

CITP is used between **at least two devices** [or possibly more].

If you want to use CITP, you need a second device [hardware or software] to actually see the result. You will usually not see the result in MADRIX, but mainly on the other device [e.g., a lighting console or visualizer].

Your second device needs to support CITP. Otherwise, the connection will not work.

Moreover, not every product might support all of the features the CITP protocol has to offer. Please refer to the user manual of your other devices to learn more about the features available to you.

In MADRIX, you can use CITP

- to show preview images [Thumbnails]
- to stream media [Streaming]
- to use it as visualizer to show a stream from another CITP server [Stream Visualizer]

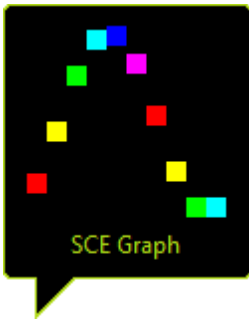
## Supported File Formats

- Supported file formats for Thumbnails are: JPEG, RGB8
- Supported file formats for Streaming are: RGB8

## Thumbnails

Showing Thumbnails is a useful feature, when you are using a lighting desk to control MADRIX remotely [for example via »[Art-Net Remote](#)]. You may not have direct access to the PC that runs the MADRIX software and thus would like to preview the effects and visuals that you preconfigured.





MADRIX generates Thumbnails for every Storage Place [Learn more »[Storages](#)]. On the graphical user interface of MADRIX, you have access to a total of 256 x 256 Storage Places. When you hover over a Storage Place with your mouse cursor, you will see the preview image [Thumbnail].

- You can use CITP to display those preview images [Thumbnails] directly on your lighting desk.
- Please make sure that MADRIX has created these Thumbnails. Thumbnails are created when leaving [or re-selecting] a Storage Place. If no preview image has been generated for a Storage Place, you will only see a black image for this Storage Place on your console when using CITP.
- **Important Note: When using CITP 1.0 with MSEX version 1.0 or MSEX version 1.1, you will only be able to use up to 255 Storages and up to 255 Storage Places due to a restriction in the MSEX 1.0 and MSEX 1.1 specifications.**

## Streaming

While Thumbnails provide a static preview of MADRIX Effects, you may use Streaming to directly preview the Main Output [Preview Output]. MADRIX features three live Preview windows to show your effects. The Main Output [Preview Output] will show the visuals that are sent to your LEDs [Learn more »[3 Previews](#)].

You can use CITP to stream, i.e. show, the Main Output [Preview Output] directly on your lighting desk [It will not look like a static image, but like a fluent video.] The maximum frame rate for Streaming via CITP in MADRIX is 10 FPS by default [If you want to capture Streaming with a higher frame rate, you can adjust this frame rate to the Main Mix FPS as described below. The default frame rate is sufficient for operators and usage in combination with consoles.].

**Due to the supported file format [RGB8], a maximum of 21,823 pixels can be streamed.**

Not every product may support this feature.

## Visualizer

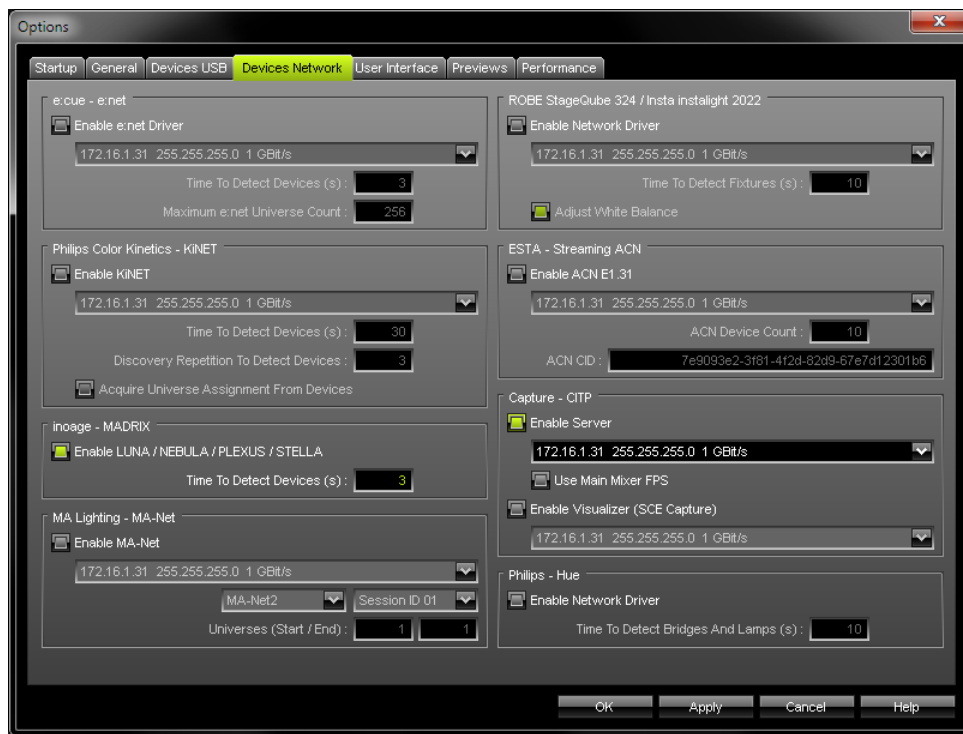
In addition, you can use MADRIX as a visualizer to show the media stream of another CITP server. Instead of streaming the Main Output of MADRIX to another CITP device, MADRIX can receive a stream from another CITP server and show it in MADRIX using the SCE Capture effect.

## Network Settings

- Devices, that should communicate with each other via CITP, should be configured to be in the same network!  
Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)
- The network protocol of CITP does not have any special restrictions.

## Configuration Of MADRIX As Server

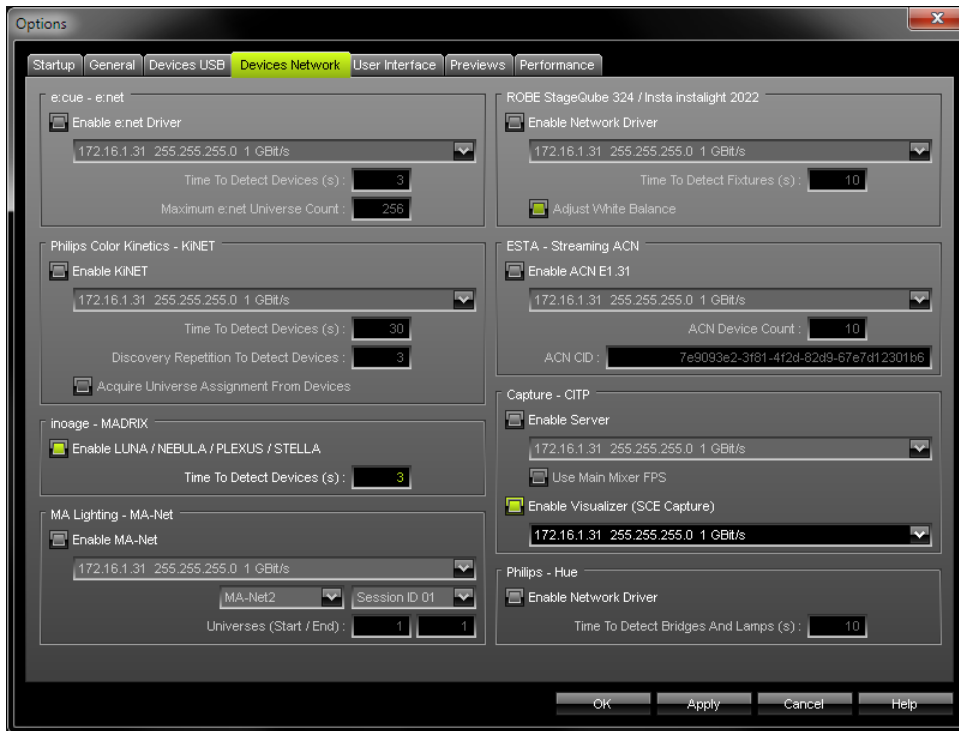
- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+0 > Devices Network**]




- Activate **Enable Server** in the section **Capture - CITP**  
[The checkbox will change from gray to green.]
- **Choose your network card** from the drop-down list. Make sure to select the correct network adapter that will be used for CITP!  
[The IP address and Subnet mask label should help you select the correct adapter. It is not necessary to change any of these networks settings.]
- No further steps are required to configure MADRIX as CITP server.
- **Use Main Mixer FPS** - Removes the 10 FPS limit for Streaming and couples the frame rate to the frame rate of the Main Mixer of MADRIX. The Main Mixing FPS is 50 FPS by default.  
Learn more »[Performance](#)

## Configuration Of MADRIX As Visualizer

- Go to **Preferences > Options... > Devices Network**  
[Keyboard shortcut: **Ctrl+Alt+0 > Devices Network**]



- Activate **Enable Visualizer (SCE Capture)** in the section **Capture - CITP**  
[The checkbox will change from gray to green.]
- **Choose your network card** from the drop-down list. Make sure to select the correct network adapter that will be used for CITP!  
[The IP address and Subnet mask label should help you select the correct adapter. It is not necessary to change any of these networks settings.]
- Click **OK** to close the window.
- Now, choose an empty Storage Place on the user interface of MADRIX and set it up as effect **SCE Capture**
- In **SCE Capture**, make sure to connect the CITP server via 

## Configuration Of Other Devices

- Once CITP is enabled in MADRIX, your lighting console [or any other second device] should be able to find MADRIX in the network.
- In order to enable CITP for the device that you want to connect to MADRIX, please consult the user manual of the other device.



## 7.6 Remote HTTP

This topic includes:

- [Introduction](#)
- [Network Settings](#)
- [Web Server Configuration](#)
- [Testing The MADRIX Web Server](#)
- [Connecting To The MADRIX Web Server](#)
- [Creating Your Individual HTML Page](#)
- [Help File And Commands](#)
- [Where To Find](#)
- [Troubleshooting](#)

### Introduction

MADRIX can be controlled remotely using Remote HTTP and the integrated web server.

Connect MADRIX to a TCP/IP network and you can control MADRIX remotely [from a remote location] using a device with internet or network access [such as computer, tablet, smartphone] via the **HTTP Remote Control** function.

### Network Settings

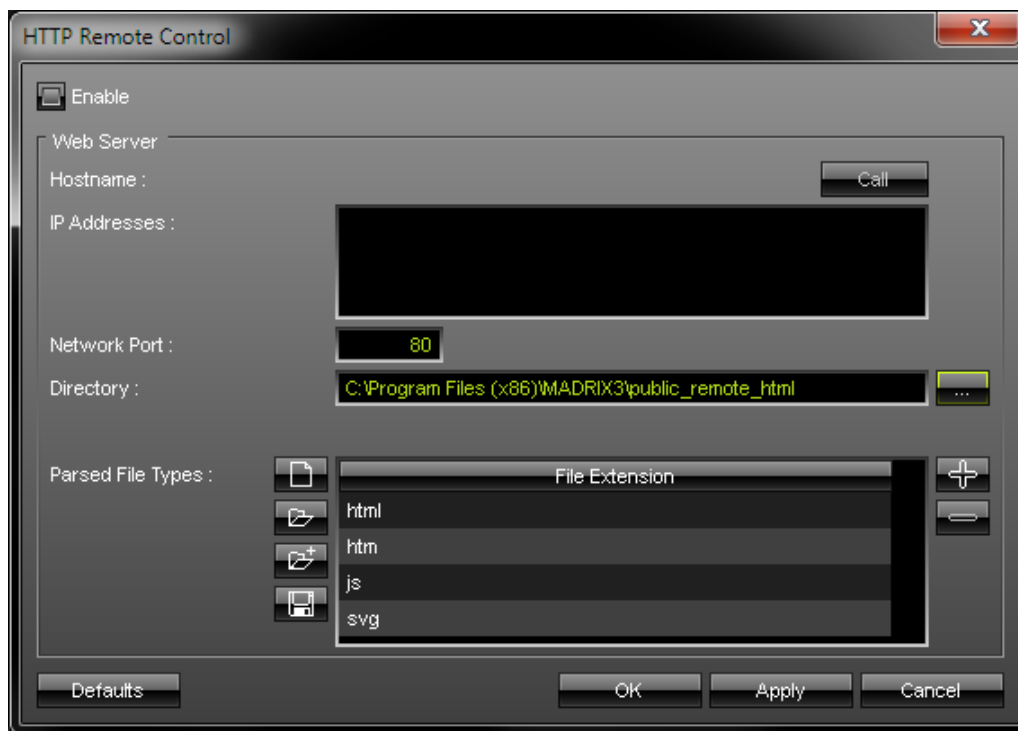
- Devices, that should communicate with each other via HTTP, should be configured to be in the same network!
  - Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)
- When you wish to access the HTTP remote control via WiFi, make sure that both, the computer that runs the MADRIX software as well as the remote control device, are connected to the same WiFi network [by using a WiFi router, for example].

## Web Server Configuration

- Go to **Preferences > Remote Control > HTTP...**

[Keyboard shortcut: **Ctrl+Alt+H**]

- A new window will open.



- **Enable** - Activates the web server.
  - The web server is needed for remote control via HTTP.
- **Hostname** - Shows the name of the computer / the name of the host of the web server. [Usually, this will be your computer's name.]
  - Call - Allows you to test the configuration. Learn more [below](#).
- **IP Addresses** - Shows the IP address of the web server.
  - Since the web server is started in MADRIX and MADRIX runs on your computer, your computer's IP address will be shown.
  - When multiple networks are available on your computer, multiple IP addresses will be shown in the list. [Usually, only one network will be used for Remote HTTP.]

- **Network Port** - Defines the protocol port on which the web server will be running.
  - Always click **Apply** to confirm any changes.
  - **Note:** Other software [e.g., SKYPE or similar clients with the same principle] might block the port you have selected. To solve the problem, please use the alternative ports suggested below or close other software.

Recommended Ports	Alternative Ports
80 3128 8080 8081	If you are encountering problems, please enter any port higher than 1024.

- **Directory** - Defines the location of the HTML start pages.
  - These HTML pages will be provided by the web server and can be accessed as a website through connected remote control devices.
  - By default, select the folder **public\_remote\_html** in your MADRIX installation folder.  
[E.g., C:\Program Files (x86)\MADRIX3\public\_remote\_html]
  - If you have created individual HTML pages and have saved them in a different location, use the button ... to locate the directory where the files are saved.
  - Always click **Apply** to confirm any changes.



- **Parsed File Types** - Allows you to define how file types will be processed by the web server.
  - By default, file types with the following file extension will be parsed:
    - \*.html
    - \*.htm
    - \*.js
    - \*.svg
  - Files that are not parsed will still be provided by the web server. But these files will not be analyzed for remote control commands.
  - Files that are parsed will be processed and analyzed for remote control commands to be able to trigger MADRIX remotely via HTTP.
  - Not parsing files can save performance and memory usage.



- Removes all file types from the list.



- Loads a previously saved File Extension List from an external file [of the file type \*.mfelx or \*.csv]. A new window opens for you to select the file on your harddisk.



- Loads a previously saved File Extension List from an external file [of the file type \*.mfelx or \*.csv] and adds it to the current list.



- Saves a File Extension List in an external file [of the file type \*.mfelx or \*.csv].



- Adds a new file type / file extension to the list.



- Removes currently selected items from the list.

- Always click **Apply** to confirm any changes.

- **Defaults** - Restores the default settings.
- **OK** - Applies any changes and closes the window.
- **Apply** - Applies any changes without closing the window.
- **Cancel** - Disregards any changes and closes the window.

## Testing The MADRIX Web Server

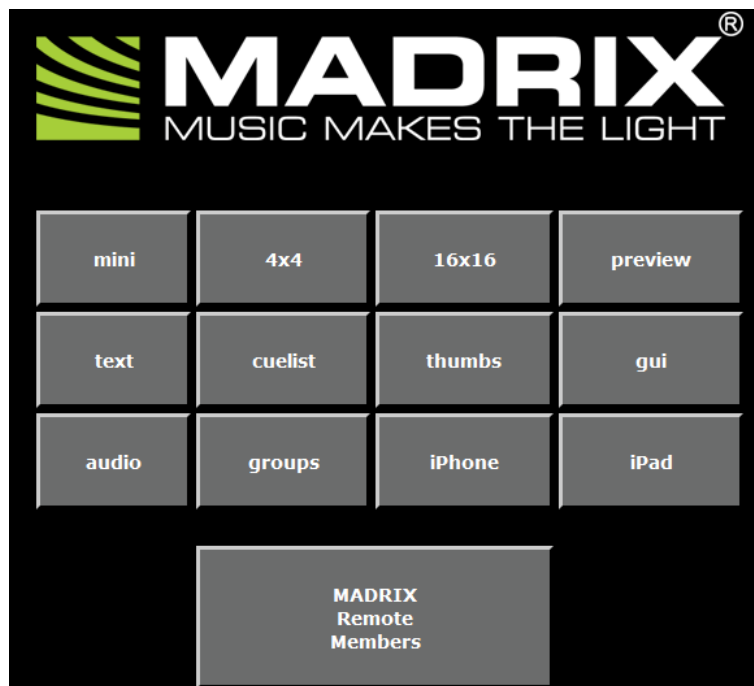
**1]** First, make sure that you have configured the web server correctly as explained above!

**2]** Select one or more **IP Addresses** and click **Call**

- Your default web browser will open.
- MADRIX will open a new tab for each IP Address separately.

**3]** Choose the HTML interface:

- The web server will now access the **Directory** and the web browser will display the HTML files included in this directory.
- By default, the web browser will display the default overview as shown below.
- MADRIX already offers several interfaces that can be used with Remote HTTP. Choose from the provided interfaces [such as 4x4, 16x16, etc.]. Use the interface that is the best for your needs.
- When creating a custom HTML website instead of using the default configuration, MADRIX will now show your custom website.
- In this way, you can test and use the web server locally using the web browser on your computer.



## Connecting To The MADRIX Web Server

- Make sure that devices, which should communicate with each other via HTTP, are connected in the same network!
- Connect to the web server using the remote control device.
  - Often, this will mean that you will use a web browser on the remote control device.
  - Open the web browser and type in the IP Address that shown in the web server configuration [[Web Server Configuration](#)].
  - Make sure to use the correct IP Address, since it is possible that multiple networks are available on the computer that runs the MADRIX software. Usually, only one network will be used for HTTP remote control.

## Creating Your Individual HTML Page

MADRIX already provides a range of interfaces for HTTP remote control. These HTML examples do work and at the same time they are a demonstration to show what is possible.

You can modify or create your own HTML files to integrate them in your own setups. [An example is the integration with the DJ Software »[ULTRAMIXER](#).]

- Create your own HTML websites using the full set of commands.
  - Learn more [Help File And Commands](#)
- Learn from the provided interfaces and use these HTML sites as starting point or templates.
  - Learn more [Where To Find](#)

**Please note: You should name your individually created HTML start page 'index.html'.**

## Help File And Commands

A full range of commands is available for remote control. To create a custom layout and remote control interface, information about all available commands is needed. MADRIX provides this information in the following way:

**1]** Call the MADRIX web server as explained above.

- [Testing The MADRIX Web Server](#)

**2]** Click on **MADRIX Remote Members**

- A full list and documentation of remote commands [remote members] is shown.

## Where To Find

The original HTML files including all provided interfaces can be found in the MADRIX installation directory:

- C:\Program Files (x86)\MADRIX3\public\_remote\_html

## Troubleshooting

- If the internet browser is opening [and closing] with no visible result, please change the port.
- Make sure to use / type in the correct IP Address of the web server. When multiple IP addresses are shown, use the network that the devices are connected to [including web server and device accessing the web server].
- Note that other software [e.g., SKYPE or similar clients with the same principle] might block the port you have selected. To solve the problem, please use the alternative ports suggested above or close other software.
- Make sure that the **Directory** points to the right location on your harddisk or the medium where your HTML files are stored.
- Press **Apply** to confirm any changes you have made.
- When using **MADRIX Remote Members** and individual communication [via a 3rd-party HTTP sender] or custom layouts, please note that commands are case-sensitive! You need to pay attention to the use of capital or small letters. [That does not apply to any parameters you want to pass. They are used as strings and will be passed as written.]
- To connect to the MADRIX Remote HTTP functionality via a 3rd-party device, make sure that both are connected to the same TCP/IP network. Make also sure that no required port is blocked and that devices are able to find each other in the network.
- You can check the Logfile for errors [go to **Tools > Logfile...**].



## 7.7 GamePort

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Step-By-Step Configuration](#)
- [Monitoring Incoming DMX Data](#)
- [Example 1](#)
- [Example 2](#)

### Introduction

MADRIX supports the GamePort.

The GamePort is a device port to connect 3rd-party controllers [such as Joysticks or GamePads] to computers. It used to be a physical, serial connector [often found on sound cards]. Nowadays, it is mainly implemented in Microsoft Windows as software interface to connect such game controllers simply via USB.

### Overview

- The GamePort supports up to 32 individual buttons and up to 6 axes.
- A maximum of 16 GamePorts can be used at the same time as per DirectX.
- Using buttons directly translates to DMX data in MADRIX [button off = DMX value 0; button on = DMX value 255].
- Using an axis directly translates to DMX data in MADRIX [axis center = DMX value 127; axis one direction = DMX value 0; axis opposite direction = DMX value 255].

### Step-By-Step Configuration

- 1] Connect your controller.
- 2] Enable drivers in MADRIX.
- 3] Enable your device.
- 4] Set up DMX Input.
- 5] Choose how to use incoming data.

## 1] Connect Your Controller


- Connect your controller to the serial GamePort of your computer or to a free USB port.
- Make sure that Windows recognizes the device and install drivers if necessary.
- Calibrate your controller. This will ensure that all buttons and axes work properly. It is important to have calibrated and centered axes.

## 2] Enable Drivers In MADRIX

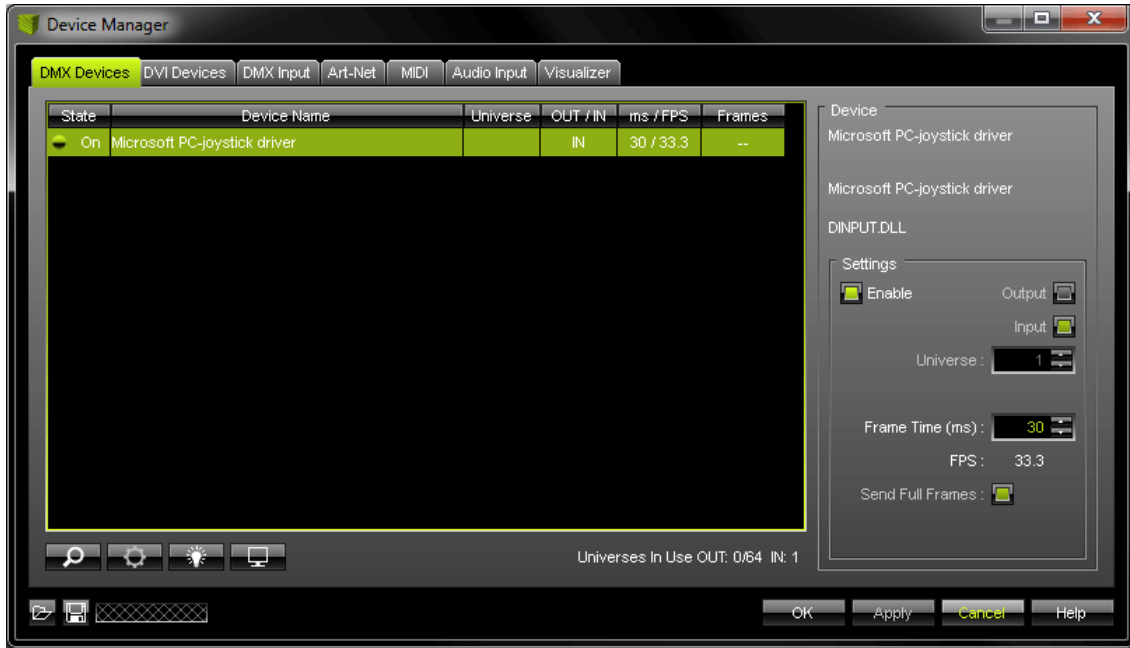
- Go to **Preferences >Options... > Devices USB**
- Enable **GamePort**
- Click **Apply** and **OK**



### 3] Enable Your Device

- Go to **Preferences > Device Manager... > DMX Devices**
- Click  if your device is not shown in the list.
- Select your device in the list [usually shown as **Microsoft PC-Joystick driver**] and select **Enable** in the section **Settings**
- Click **Apply**
- Now, in the list the **State** will switch to **On** [indicated by green light].





### 4] Set Up DMX Input

- Go **Preferences > Device Manager... > DMX Input**
- Select one entry in the list [e.g., **Universe 1**] and go to the section **Device**. Choose your device [e.g., **Microsoft PC-Joystick driver**] under **DMX-IN Device**
- MADRIX will now receive DMX data via your controller.



## 5] Choose How To Use Incoming Data

Now you have several options to choose from:

**A]** You can activate **Remote** and choose a protocol in the section **Remote Control**. This will allow you to control MADRIX remotely using your controller. Learn more »[DMX-IN And Art-Net Remote](#)

**B]** You can use incoming data in a Script or Macro. Learn more »[Macros And Scripts](#)

**C]** You can activate **Mapping** and route incoming DMX signals through MADRIX to your output [DMX-Thru]. Learn more »[DMX-IN And Art-Net Remote](#)

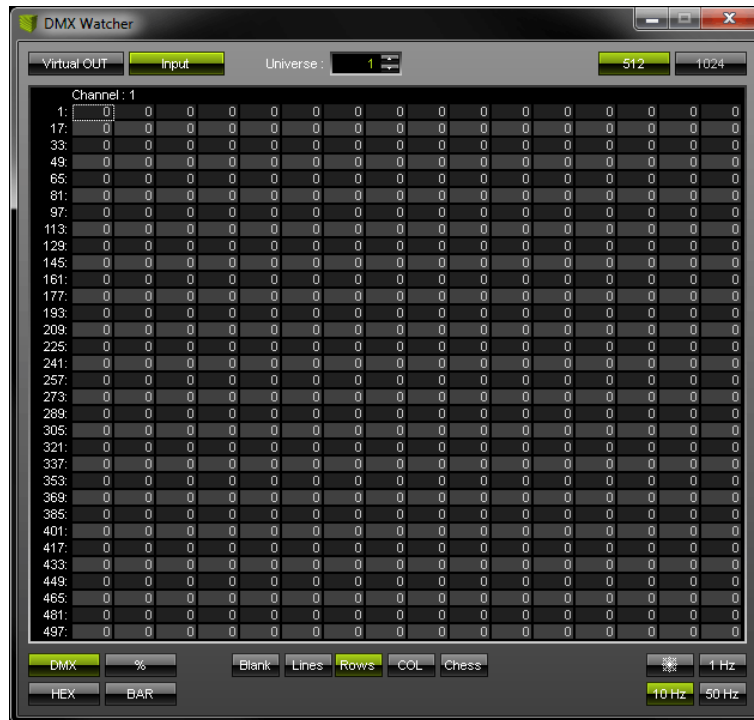
**D]** You can monitor incoming DMX data in the DMX Watcher. Select your device in the list and click **Watch Universe...** Learn more below.

Close the Device Manager with **OK**

## Monitoring Incoming DMX Data

To effectively work with incoming DMX data from your controller, you can use the DMX Watcher to monitor incoming signals. Learn how to read the data in the tables below.

- Open the DMX Watcher as explained above or go to **Tools > DMX Watcher...**
- Select **Input**
- Set up the correct **Universe**
  - This is the same number as you have chosen in the list under **Preferences > Device Manager... > DMX Input** [e.g., **Universe 1**].



- **Channels 1 to 32** will display incoming DMX data for up to 32 buttons of your controller [DMX value 0 = Off or 255 = On].
- **Channels 33 to 44** will display incoming data for up to 6 axes.  
 Each axis is divided into two directions on two DMX channels. This shows the deviation of the axis towards the center position [e.g., channel 33: left to center and channel 34: center to right].  
 A DMX value of 0 shows that the axis is located at the center. A DMX value of 255 shows that the axis is fully moved in the one direction.
- **Channels 49 to 60** will display incoming data for up to 6 axes.  
 Incoming DMX data is separated into two DMX channels, the main value and a decimal place. Because of this, both channels can be seen as one value.  
 A value of 127.0 [e.g., Channel 49 and Channel 50] shows that the axis is located at the center. A DMX value of 0.0 shows that the axis is fully moved in one direction [e.g., left], while a DMX value of 255.255 shows that the axis is fully moved to the opposite direction [e.g., right].

The following chart shows which function is assigned to which DMX channel, starting with DMX channel 1.

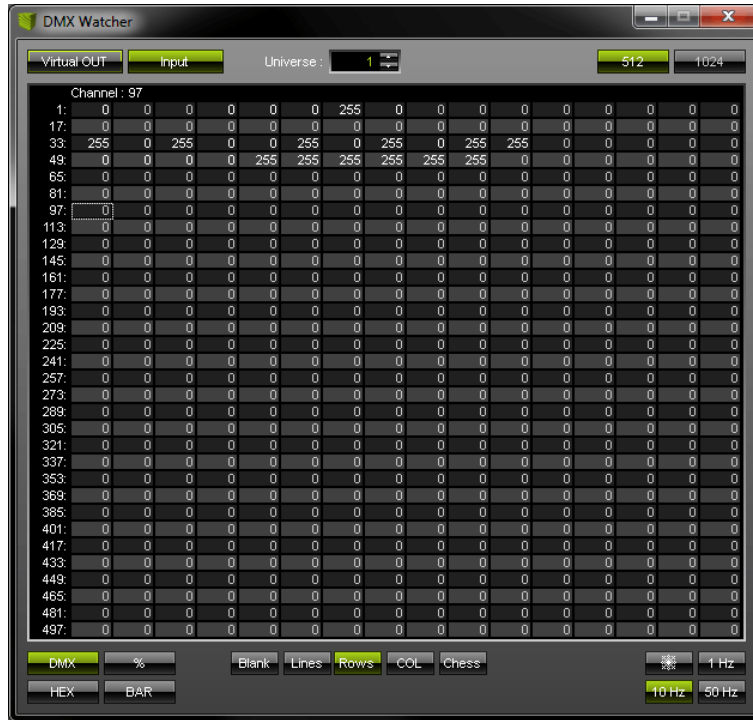
CH 1 -	Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	Button
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------

<b>16</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	
	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	
<b>CH 17 - 32</b>	<b>Button 17</b>	<b>Button 18</b>	<b>Button 19</b>	<b>Button 20</b>	<b>Button 21</b>	<b>Button 22</b>	<b>Button 23</b>	<b>Button 24</b>	<b>Button 25</b>	<b>Button 26</b>	<b>Button 27</b>	<b>Button 28</b>	<b>Button 29</b>	<b>Button 30</b>	<b>Button 31</b>	<b>Button 32</b>	
	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	Valid values are 0 or 255.	
<b>CH 33 - 48</b>	<b>Axis 1</b>	<b>Axis 1</b>	<b>Axis 2</b>	<b>Axis 2</b>	<b>Axis 3</b>	<b>Axis 3</b>	<b>Axis 4</b>	<b>Axis 4</b>	<b>Axis 5</b>	<b>Axis 5</b>	<b>Axis 6</b>	<b>Axis 6</b>	-	-	-	-	
	Direction 1	Direction 2	Direction 1	Direction 2	Direction 1	Direction 2	Direction 1	Direction 2	Direction 1	Direction 2	Direction 1	Direction 2					
	Shows the deviation of this direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of the opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of this opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of the opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of this opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of the opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of this opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of the opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of this opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of the opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of this opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of the opposite direction towards the center position. The further away from the center, the higher will be the DMX value.	Shows the deviation of this opposite direction towards the center position. The further away from the center, the higher will be the DMX value.				
	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.					

CH 49 - 64	Axis 1	Axis 1	Axis 2	Axis 2	Axis 3	Axis 3	Axis 4	Axis 4	Axis 5	Axis 5	Axis 6	Axis 6	-	-	-	-
	Main value	Decimal place	Main value	Decimal place	Main value	Decimal place	Main value	Decimal place	Main value	Decimal place	Main value	Decimal place				
	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.	Valid values range from 0 to 255.				

- Channels 33 to 44 divide each axis into two DMX channels.
- Channels 49, 51, 53, 55, 57, 59 will show the main value of an axis and thus represent each axis as one value.
- Regarding axes, some joysticks may only use the decimal place due to technical reasons. Then, the main value might not be useful to you and you should use channel 50, 52, 54, 56, 58, and 60 instead.
- If you are using more than 1 controller, channel 65 to 124 will be used for the second controller, etc.

## Example 1



- Buttons 1 to 6 are not pressed [0].
- Button 7 is pressed [255].
- Buttons 8 to 32 are not pressed [0].
- Axis 1 is fully moved to one direction [255 / 0].
- Axis 2 is fully moved to one direction [255 / 0].
- Axis 3 is fully moved to the opposite direction [0 / 255].
- Axis 4 is fully moved to the opposite direction [0 / 255].
- Axis 5 is fully moved to the opposite direction [0 / 255].
- Axis 6 is fully moved to one direction [255 / 0].
- Axis 1 is fully moved to one direction [0.0].
- Axis 2 is fully moved to one direction [0.0].
- Axis 3 is fully moved to the opposite direction [255.255].
- Axis 4 is fully moved to the opposite direction [255.255].
- Axis 5 is fully moved to the opposite direction [255.255].
- Axis 6 is fully moved to one direction [0.0].

## Example 2

When monitoring an axis, there are 4 main modes that can be seen:

Fully moved in one direction [e.g., left]		Fully moved in the opposite direction [e.g., right]		Centered		Not available	
Channel 33 <b>255</b>	Channel 34 <b>0</b>	Channel 33 <b>0</b>	Channel 34 <b>255</b>	Channel 33 <b>0</b>	Channel 34 <b>0</b>	Channel 33 <b>0</b>	Channel 34 <b>0</b>
Channel 49 <b>0</b>	Channel 50 <b>0</b>	Channel 49 <b>255</b>	Channel 50 <b>255</b>	Channel 49 <b>127</b>	Channel 50 <b>0</b>	Channel 49 <b>0</b>	Channel 50 <b>0</b>

**//PART H**

*MADRIX Effects*



## 8 MADRIX Effects

This topic includes:

- [Introduction](#)
- [Topics Of This Chapter](#)

### Introduction

MADRIX offers a large variety of effects. All MADRIX Effects are arranged into 4 distinct categories with various features [SCE, S2L, M2L, MAS] .

### Topics Of This Chapter

- [»Static Color Effects \[SCE\]](#)  
Static Color Effects produce a multitude of creative lighting patterns and visuals. No extra input or content is necessary. In addition, they provide the tools to load images or video files.
- [»Sound2Light Effects \[S2L\]](#)  
Sound2Light Effects require an audio input signal. As a result, amazing light effects that are synchronized to the music will be generated!
- [»Music2Light Effects \[M2L\]](#)  
Music2Light Effects require an audio input signal. M2L Effects go one step further than S2L Effects and analyse music theoretical parameters to create truly unique representations of the music.
- [»MAS Script](#)  
The powerful Script Editor, which is included in the software, allows you to program your own effects. The script language allows you to easily realize ideas for effects of your own.
- [»Macros And Scripts](#)  
You can control and manipulate running effects using the script language.
- [»Using BPM Control](#)  
Many MADRIX Effects use the BPM Effect Setting to control the speed.

- [»Using Colors And Intensity](#)

Learn how to use the different color options of the MADRIX Effects.

- [»Using Directions](#)

Many MADRIX Effects allow you to choose a specific movement direction.

## 8.1 Static Color Effects [SCE]

This topic includes:

- [Introduction](#)
- [Topics Of This Chapter](#)

### Introduction

Static Color Effects [SCE] produce a multitude of creative lighting patterns and visuals. No extra input or content is necessary.

In addition, they provide the tools to load images or video files.

### Topics Of This Chapter

MADRIX includes the following Static Color Effects:

- [»SCE Bounce](#)
- [»SCE Capture](#)
- [»SCE Clouds](#)
- [»SCE Color](#)
- [»SCE Color Change](#)
- [»SCE Color Scroll](#)
- [»SCE Counter](#)
- [»SCE Drops](#)
- [»SCE Explosions](#)
- [»SCE Fill Drops](#)
- [»SCE Fill Random](#)
- [»SCE Fill Snake](#)

- »[SCE Fill Solid](#)
- »[SCE Fire](#)
- »[SCE Flames](#)
- »[SCE Fluid](#)
- »[SCE Gradient](#)
- »[SCE Graph](#)
- »[SCE Image](#)
- »[SCE Level Color Simulator](#)
- »[SCE Metaballs](#)
- »[SCE Noise](#)
- »[SCE Plasma](#)
- »[SCE Pulse / Stroboscope](#)
- »[SCE Screen Capture](#)
- »[SCE Shapes](#)
- »[SCE Simple Shape](#)
- »[SCE Starfield](#)
- »[SCE Swarm](#)
- »[SCE Ticker / Scrolling Text](#)
- »[SCE Tubes](#)
- »[SCE Video](#)
- »[SCE Wave / Radial](#)

## 8.1.1 SCE Bounce

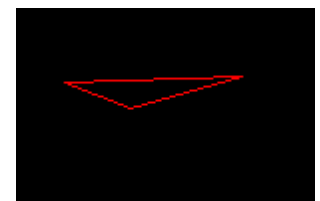
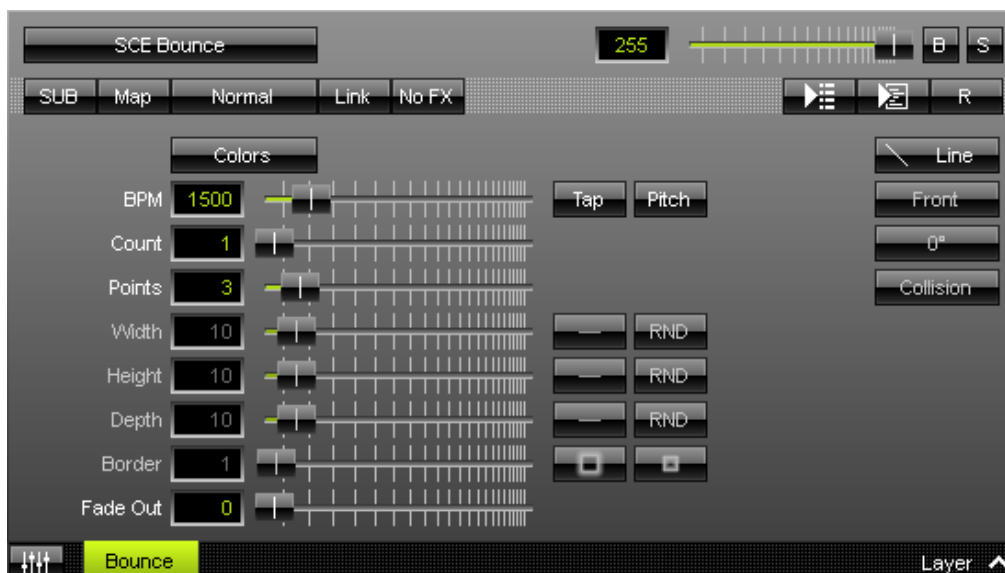
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

SCE Bounce displays flying objects that bounce off of the outer boundaries or each other.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Count** - Defines the number of bouncing objects. The default value is 1. Valid values range from 1 to 100.
- **Points** - Defines the number of edges [points] an object is made of. The default value is 3. Valid values range from 1 to 20.
- **Width** - Defines the width of objects [in %]. It is only available for certain Shapes. The default value is 10. Valid values range from 0.01 to 100.
- **Height** - Defines the width of objects [in %]. It is only available for certain Shapes. The default value is 10. Valid values range from 0.01 to 100.
- **Depth** - Defines the depth of objects [in %]. This is mainly relevant for 3D. It is only available for certain Shapes. The default value is 10. Valid values range from 0.01 to 100.
- **Border** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines how thick the outer line [border] of objects is. The default value is 1. Valid values range from 0.01 to 100.
- **Fade Out** - Adds a visual tail to objects and fades them out slowly. The default value is 0. Valid values range from 0 to 1000.



**Distribution** - Allows you to choose a certain Distribution Mode for the specific parameter. Often, you can then define a minimum value and a maximum value.

**Uniform** - Each object has the same size.

**Linear** - A linear distribution is used to increase the size regularly.

**Quadratic** - The majority of objects will be smaller than the rest.

**SQRT** - Using a square root function the majority of objects will be larger.

**Cubic** - Uses a cubic distribution with mixed sizes.

**Random** - Sizes will be generated randomly.



**RND** - Generates random object sizes each time. This automatically activates Random Distribution Mode.



**Outer Glow / Inner Glow** - Is only available for specific Shapes. Defines the outer shimmer or inner gleam of objects. The default values are 0.00. Valid values range from 0.01 to 100.



**Shape** - Allows you to choose a specific shape as bouncing objects. The default Shape is Line.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°**, **90°**, **180°**, **270°**, **Random**].



**Collision** - Is not available for Shape Line or Curve. Activates or deactivates if objects collide and bounce off of each other. The default mode is Off.

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].



## 8.1.2 SCE Capture

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)
- [Slices](#)

### Introduction

SCE Capture allows you to use any video signal of capture devices in MADRIX for live video feeds, such as installed webcams or TV-cards. Such devices need to provide the required Windows driver.

- Several capture devices can be used at the same time. For every single Layer a different capture device or the same capture device can be utilized.
- If your device offers the correct drivers and is recognized in Windows as a capture device, MADRIX will also have access to the device.

[In MADRIX 2, SCE Capture was part of SCE Video.]

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Filter** - Defines a filter color. The default color is White.
  - **GS** - Activates grayscale mode to show the input only in gray shades. The Filter is independent of this mode.
  - **RGBW** - Converts the input into RGBW. This is useful when using RGBW fixtures to convert from the standard RGB color values of the input. If the option is disabled when using RGBW fixtures, the input will appear darker since the White channel is not used. The W color channel of the Filter only works if RGBW is activated.

Learn more »[Using Colors And Intensity](#)

- **BPM** - Defines the speed [when using a direction/movement]. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Position** - Defines the position of the object in **X**, **Y**, and **Z** [in %]. The default values are 0, 0, 0. Valid values range from -1000 to 1000.
- **Extrusion** - Adds depth to the input; i.e. duplicates the input image [in % of the Matrix Size]. This is mainly relevant for 3D. The default value is 100. Valid values range from 0.01 to 100.



**Open** - Allows you to connect a capture device. A new window opens for you to select your device. First, select the device. Second, click OK.



**Deinterlace Mode** - Allows you to choose from several Deinterlace Modes. [Is available when a capture device has been opened and connected.]

Often digital cameras, digital broadcasting, or digital filming is done via interlacing. In order to get 25 frames per seconds, 50 pictures are shot and merged/mixed with one another. You receive 25 odd frames [frame set 1] and 25 even frames [frame set 2] that contain different picture information [alternating pixel lines]. In order to get an undisturbed picture, proper deinterlacing is necessary.

**None** - Deactivates deinterlacing.

**Bob** - Uses one set of 25 frames [even or odd] and copies missing information from the pictures provided. Pixel lines are copied to create a full image. Activate **Top Field First** in order to choose odd frames to be processed.

**Bob Linear** - This is the recommended deinterlace mode. It uses one set of 25 frames, but builds an average for the missing pixel lines. Activate **Top Field First** in order to choose odd frames to be processed.

**Blend** - Renders an average image from frame set 1 and frame set 2.

**Discard** - Simply dismisses missing information. Thereby, pixel lines are excluded. This results in half of the original resolution for the final image. Activate **Top Field First** in order to choose odd frames to be processed.



**Slices** - Is a way to bring 2D content to 3D LED matrices by slicing the content into different parts and applying each slice to X-levels, Y-levels, or Z-levels as required. Learn more [Slices](#)



**Configuration** - Allows you to configure the connected device further if such configuration is provided by the device and its driver. [Is available when a capture device has been opened and connected.]



**Filtering** - Defines how input is processed and displayed. Mainly affects the visual outcome when the input is scaled up or down [e.g., when choosing a different mode for Stretching / Aspect Ratio]. Choose from 2 different modes. The default setting is None.

- **None** - Prioritizes processing speed over image quality.
- **Linear** - Prioritizes image quality over processing speed. This mode may affect performance.



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is None.



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Rotation** - Allows you to rotate the input [**0°**, **90°**, **180°**, **270°**]. The default value is 0.



**Tile** - Allows you to tile and duplicate the input and thereby generating patterns.



**Seamless** - Activates or deactivates a continuous stream of the input image. MADRIX will automatically display the input image again to create a continuous display.



**Stretching / Aspect Ratio** - Allows you to choose the aspect ratio of the input. The default value is Matrix.

**None** - Disables stretching.

**Matrix** - Stretches to the current aspect ratio of the virtual LED matrix.

**Original** - Stretches to the original aspect ratio of the source.

**4:3** - Applies a 4:3 aspect ratio.

**16:9** - Applies a 16:9 aspect ratio.

## Restoring The Default Settings



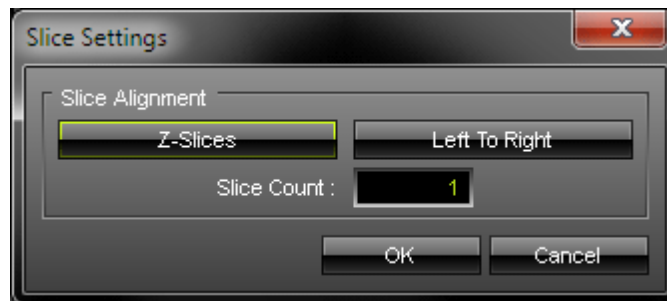
**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Slices



**SL** - Calls up **Slice Settings**



- **Slice Settings** - Is a way to bring 2D content to 3D LED matrices by slicing the content into different parts and applying each slice to X-levels, Y-levels, or Z-levels as required. [You will get the most benefit out of this feature when using content that are made up of different parts and are especially created for this area of application.]

**Example:** Your virtual LED matrix is 10 x 8 x 4. Now, you have prepared a video feed and want to display it not only on the first Z-level or use Extrude, but on all 4 Z-levels. Then, you would let MADRIX create 4 slices.

- **Slice Type** - Defines the 3D orientation of how slices are applied to your LED matrix.
  - **X-Slices** - Uses slices to fill the LED matrix; always starting from left to right.
  - **Y-Slices** - Uses slices to fill the LED matrix; always starting from top to bottom.
  - **Z-Slices** - Uses slices to fill the LED matrix; always starting from front to back.
  
- **Slice Order** - Defines how your source content is processed.
  - **Left To Right** - MADRIX slices the content starting left.  
[The first, left slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Right To Left** - MADRIX slices the content starting right.  
[The first, right slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Top To Bottom** - MADRIX slices the content starting top.  
[The first, top slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Bottom To Top** - MADRIX slices the content starting bottom.  
[The first, bottom slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  
- **Slice Count** - Defines in how many slices the content is divided. A value of 1 means that no slices are created and that the video feed is used as one. [A value of 4, for example, will create 4 slices that each make up 25% of the source content.]
  
- The settings with the highest performance are **Z-Slices** and **Top To Bottom**
  
- Confirm with **OK**, reset to default settings via **Default**, or abort the process using **Cancel**
  
- Learn more »[SCE Image](#)

### 8.1.3 SCE Clouds

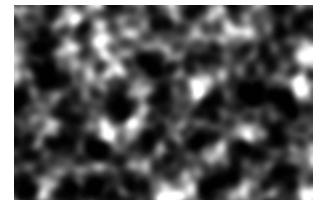
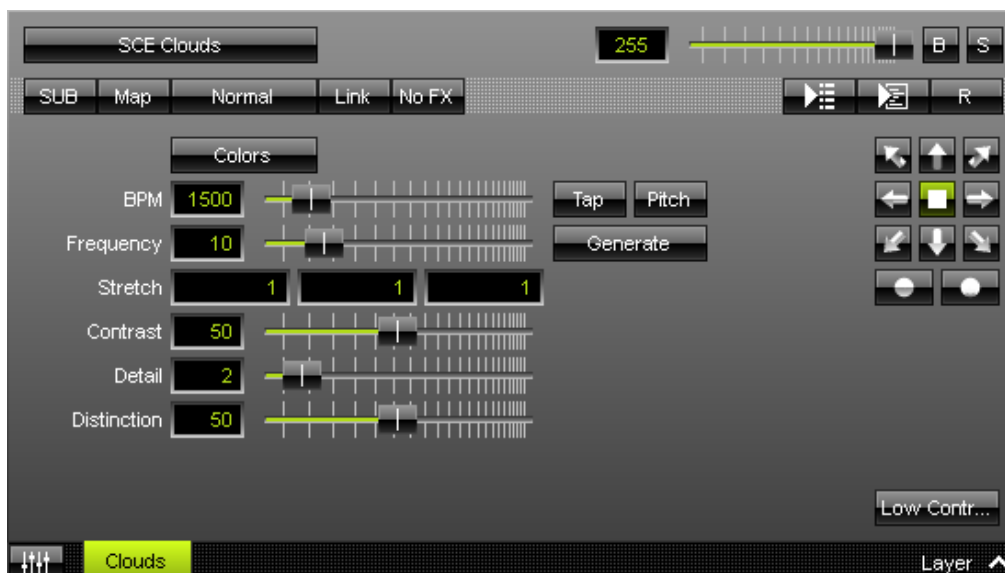
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

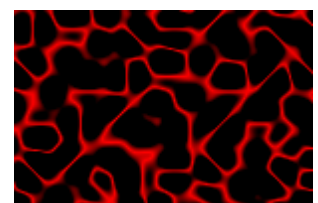
## Introduction

SCE Clouds creates random, organic visuals that are reminiscent of clouds.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Gradient to specify the colors. The default color is White, Black.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed [when using a direction/movement]. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Frequency** - Defines the rate at which new, organic visuals are created [in Hz]. The default value is 10. Valid values range from 0 to 50.
- **Stretch** - Defines the stretch or compression factor at which the visuals are displayed [X, Y, Z]. The default values are 1, 1, 1. Valid values range from 0.01 to 1000.
- **Contrast** - Defines the visual differentiation of colors and shapes [in %]. The default value is 50. Valid values range from 1 to 1000.
- **Detail** - Defines the sharpness [in %]. The higher the Detail, the more computer performance is required. The default value is 2. Valid values range from 1 to 10.
- **Distinction** - Defines the cohesiveness of the effect [in %]. The default value is 50. Valid values range from 1 to 100.

A rectangular button with a dark background and the word "Generate" in white text.

**Generate** - Creates the effect anew to produce different visuals. [This is mainly useful when setting a Frequency of 0.]





**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is None. Learn more » [Using Directions](#)



**Display Mode** - Allows you to choose how the effect mainly looks [**Low Contrast, Medium Contrast, High Contrast, Outline, Cluster**]. The default mode is Low Contrast.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.4 SCE Color

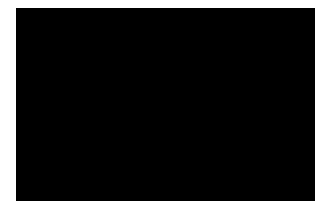
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

SCE Color displays a simple, plain color.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is Black.

Learn more »[Using Colors And Intensity](#)

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.

- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.5 SCE Color Change

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

SCE Color Change automatically changes colors.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. You can either use BPM or Time. The default value is 60. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Time** - Defines the time interval a color is displayed [in s]. You can either use BPM or Time Slot. The default value is 1. Valid values range from 0.01 to 9999.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.6 SCE Color Scroll

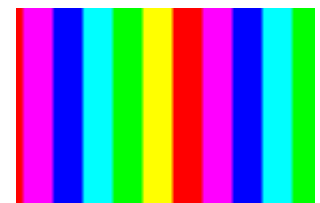
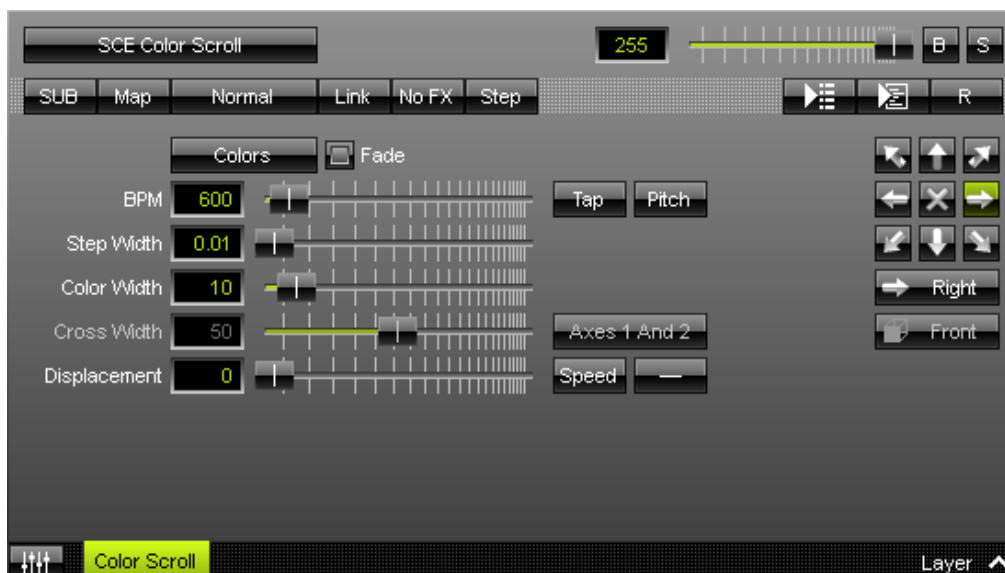
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

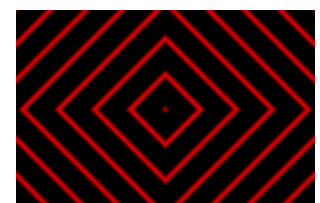
### Introduction

SCE Color Scroll displays various, moving colors. This MADRIX Effect is extremely versatile.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 600. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Step Width** - Defines the number of pixels the effect should scroll/skip in the direction per frame [in % of the Matrix Size]. The default value is 0.01. Valid values range from 0.01 to 100.
- **Color Width** - Defines the width of a single color [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Cross Width** - Is only available for Cross Mode [[»Using\\_Directions](#)]. Defines the size of crossing colors [in %]. The default value is 50. Valid values range from 0.01 to 100.
- **Displacement** - Defines the amount of distortion. The default value is 0. Valid values range from 0 to 100.

Axes 1 And 2

**Cross Mode Axes** - Is only available for Cross Mode. Allows you to choose to which axis Cross Mode applies [**Axes 1 And 2**, **Axis 1**, or **Axis 2**]. The default mode is Axes 1 And 2.

Speed

**Displacement Speed** - Is only available for Displacement. Allows you to choose to speed in which the distortion affects the visuals. The default value is 10.0.



**Displacement Distribution** - Is only available for Displacement. Is applied in dependence of the direction that is chosen. Allows you to choose the area the distortion is applied to [**Uniform, Linear Increasing, Linear Decreasing, Triangle**]. The default value is Uniform.



**Direction/Mode** - Allows you to choose the direction of the movement, including Cross Mode. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Right. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].



## 8.1.7 SCE Counter

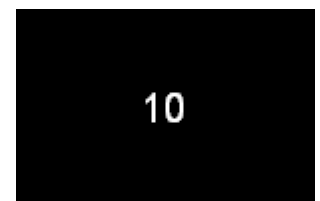
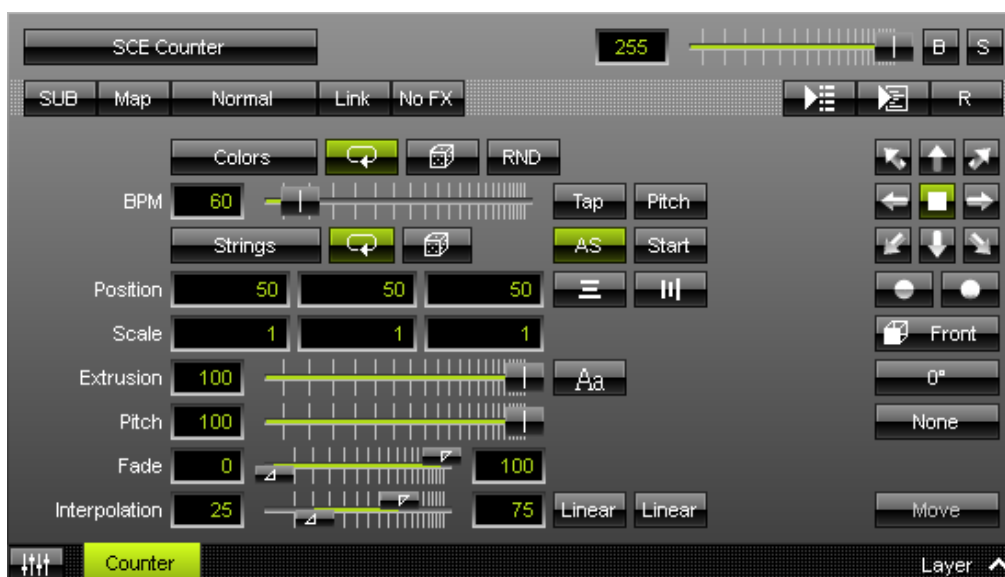
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)
- [String Table](#)
- [Important Details](#)

### Introduction

SCE Counter shows any characters/text in sequence [strings]. One of its main uses is the countdown.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed, i.e. how long strings are displayed. The default value is 60. Valid values range from 0 to 600. [60 BPM represent 1 second, while 600 BPM represent a tenth of a second.]  
Learn more »[Using BPM Control](#)
- **Position** - Defines the position of the strings in **X**, **Y**, and **Z** [in %]. The default values are 50, 50, 50. Valid values range from 0 to 100. [Make sure to set up Vertical Alignment and Horizontal Alignment as well.]
- **Scale** - Defines a scale factor that determines if strings are scaled in **X**, **Y**, and **Z**. In this way, you can add an animation to characters of the String Table and upscale or downscale the individuals elements. Scaling mainly references the font size set up via Aa [Font]. It also influenced references how long characters are displayed as set up via BPM and for the animation the Interpolation and the two Interpolation Types. The default values are 1, 1, 1. Valid values range from 0.01 to 9999. [Values lower than 1 decrease the size, while values higher than 1 increase the size. If you change the value for Scale Z to a value higher than 1, make sure to reduce the Extrude value as well.]
- **Extrusion** - Adds depth to the characters [in % of the Matrix Size]. This is mainly relevant for 3D. The default value is 100. Valid values range from 0.01 to 100.
- **Pitch** - Defines the distance between elements of the String Table. The smaller the Pitch, the more elements will be displayed at the same time. Pitch affects how long elements are displayed within the time set up via BPM. The default value is 100. Valid values range from 0.01 to 999.

- **Fade** - Defines if a Fade In and Fade Out is added to the characters. Fade references how long characters are displayed as set up via BPM. The bottom fader defines how long the Fade In takes. The upper fader defines how long the Fade Out takes. The default values are 0, 100. Valid values range from 0 to 100.

[A Fade of 0, 100 means that no Fade In and no Fade Out is added and elements are fully visible at 100% of the set up time. A Fade of 50, 50 means that the Fade In takes 50% of the set up time and that the Fade Out also takes 50% of the set up time. A Fade of 0, 50 means that elements are immediately visible, stay visible for 50% of the set up time and fade out 50% of the set up time. A Fade of 50, 100 means that elements are faded in and it takes 50% of the set up time and they stay fully visible for the rest of the time.]

- **Interpolation** - Affects Scale and the movement set up via Direction. In this way, it determines how these animations looks like. It basically divides the animations into three parts. The bottom fader defines the first phase, which is the start phase. The second phase is the phase inbetween the bottom and the upper fader. The upper fader defines the third phase, which is the end phase. Interpolation references how long characters are displayed as set up via BPM. It is also directly affected by Interpolation Type 1 for the start phase and Interpolation Type 2 for the end phase. The default values are 25, 75. Valid values range from 0 to 100.

[An Interpolation of 25, 75 means that the start phase and the end phase take 25% of the set up time, while 50% of the time no animation is displayed. An Interpolation of 50, 50 means that the animation start phase is directly followed by the animation end phase. An Interpolation of 0, 50 means that there is no animation at first and that the animation end phase starts at 50% of the set up time. An Interpolation of 0, 100 means that there is no animation displayed at all.]



**Open String Table** - Opens the String Table, a window that includes all characters [i.e., letters, words, symbols, numbers, etc.] you wish to display. Learn more [String Table](#)



**Loop Mode** - All strings of the String Table will be looped, that means the content of the String Table will constantly be repeated. It is activated by default. Can be used together with Shuffle Mode.



**Shuffle Mode** - Creates an internal list that orders elements randomly to show next. Deactivate and activate again to create a new random list. Can be used together with Loop Mode.



**Autostart** - If activated, the effect will automatically start when the corresponding Storage Place is selected. It is activated by default.



**Start** - Force-starts the effect to start again from the beginning.



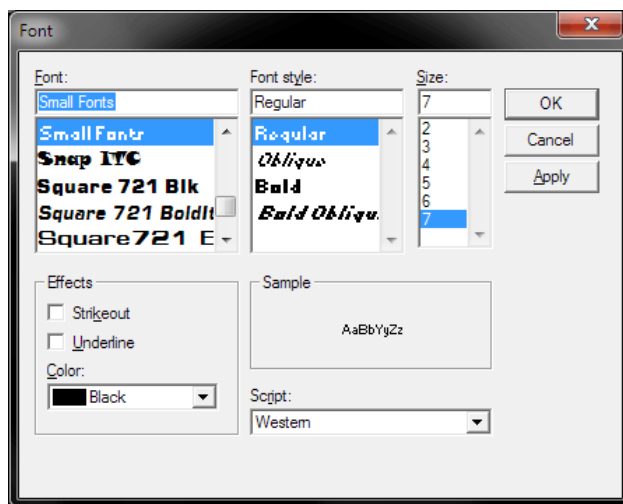
**Vertical Alignment** - Defines the vertical alignment of characters [**Left, Center, Right**] in relation to the Position. The default value is Center.



**Horizontal Alignment** - Defines the vertical alignment of characters [**Top, Center, Bottom**] in relation to the Position. The default value is Center.



**Font** - Opens a new window and allows you to choose a specific font, font size, and other font settings. [Any color set up in this window will be ignored. Use the MADRIX color controls instead.]



**Interpolation Type 1 / Interpolation Type 2** - Determine how the animation of Scale and the movement via Direction look like [**Linear, Ease In Bounce, Ease Out Bounce, Ease In Out Bounce, Ease In Circular, Ease Out Circular, Ease In Out Circular, Ease In Cubic, Ease Out Cubic, Ease In Out Cubic, Ease In Sinusoidal, Ease Out Sinusoidal, Ease In Out Sinusoidal, Ease In Exponential, Ease Out Exponential, Ease In Out Exponential**]. You can set them up individually. The default value is Linear.



**Last Element Mode** - Is only available when Loop Mode of the String Table is disabled. Defines what happens to the last element of the String Table once it has been displayed. The default value is Move.

**Move** - Moves the last element in the same way the previous elements have been displayed and moved.

**Stay** - Leaves the last element on display.

**Clear** - Makes the last element disappear without an animation.



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is None. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Rotation** - Allows you to rotate the elements [**0°**, **90°**, **180°**, **270°**]. The default value is 0.



**Filtering** - Defines how input is processed and displayed. Mainly affects the visual outcome when the input is scaled up or down [e.g., when choosing a different mode for Stretching / Aspect Ratio]. Choose from 2 different modes. The default setting is None.

- **None** - Prioritizes processing speed over image quality.
- **Linear** - Prioritizes image quality over processing speed. This mode may affect performance.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## String Table

## Overview

SCE Counter allows you to show any characters/text you want. Use the String Table to manage all elements that should be displayed.

By default, the String Table includes the elements from 10 to 0 [as a countdown].



- **Left Mouse Click** - Selects an item in the list.
- **Ctrl + Left Mouse Click** - Allows you to select several elements in the String Table at different positions.
- **Shift + Left Mouse Click** - Allows you to select several elements by selecting 1] the first element, 2] the last element, 3] and all elements in-between will be selected automatically.

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**Element** - Allows you to change an element or enter a new one. To change an element, select it first. To add a new element, use Add Element first.

Split Into Characters

**Split Into Characters** - Is an automatism that helps you to split the element you have just added or changed into separate elements. Select an element in the list first and it will be split into several list entries [incl. word spaces], each with a single character instead of the complete word.



**Split Into Words** - Is an automatism that helps you to split the element you have just added or changed into separate words. Select an element in the list first and it will be split into several list entries, each with a single word instead of the complete sentence. Word spaces will be ignored, except if you enter two word spaces in a row.



**New** - Removes all elements from the list.



**Open** - Loads a previously saved MADRIX String Table from an external file [of the file type \*.mstrtx].



**Open And Attach** - Loads a previously saved MADRIX String Table from an external file [of the file type \*.mstrtx] and adds the new elements to the elements that are already included.



**Save** - Saves the String Table to an external file [of the file type \*.mstrtx].



**Add Element** - Allows you to add a new element to the String Table. Make sure to enter the correct characters for the element next.



**Remove Element** - Allows you to remove one or several images from the Image Table. First, select the images in the list.



**Duplicate Images** - Copies the currently selected elements and adds them as new items to the String Table.

# 11

- Shows the total number of elements in the String Table. An empty list shows # 0



**Swap Position** - Swaps the position of elements in the list when several elements are selected first.



**Position Up** - Changes the order, and positions currently selected elements one step higher up in the list.



**Position Down** - Changes the order, and positions currently selected elements one step lower down in the list.



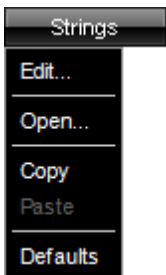
**Defaults** - Restores the default elements of the String Table.



**Close** - Closes the String Table window.

## Context Menu

- **Right Mouse Click** - You can call up the context menu by performing a right mouse click on **Strings**
- A small window will be shown.



You can quickly perform the following actions:

- **Edit...** - Opens the String Table [in the same way you can open the window by clicking on **Strings** with the left mouse button].
- **Open...** - Loads a previously saved String Table from an external file [of the file type \*.mstrtx].  
A new window opens for you to select the file on your harddisk.



- **Copy** - Copies the current elements into the clipboard as a duplicate.
- **Paste** - Applies all elements from the clipboard to the currently focused String Table [**Strings**].
- **Defaults** - Restores all default elements of the String Table.

## Important Details

### Typefaces

Typefaces can be grouped into two main categories:

- Serif [Such fonts contain small features at the end of strokes within letters]
- Sans-serif [Such fonts have a clearer, simple appearance]

**Serif Font**

AaBbCc

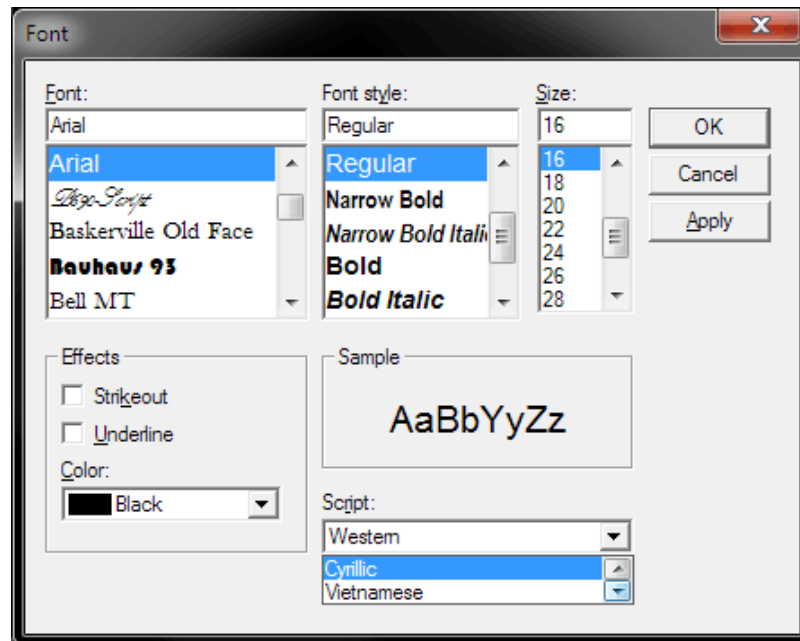
**Sans-Serif Font**

AaBbCc

### How To Use Other Languages [Such As Russian Or Chinese]

- In Windows, go to **Start > Control Panel > Region and Language > Keyboards and Languages**
- Set up the language you want to use [Russian, Chinese, etc.].
  - Regarding Windows 7, only when using Windows 7 Ultimate you are allowed to install additional languages in addition to the standard language.
- In MADRIX, select **SCE Counter**
- Click **Aa** to open the Font window.

- Choose a universal, extensive font, such as **Arial**
- Choose **Cyrillic** [or Chinese, etc.] under **Script**
- Close the Font window.
- Input any elements into the **String Table**



## 8.1.8 SCE Drops

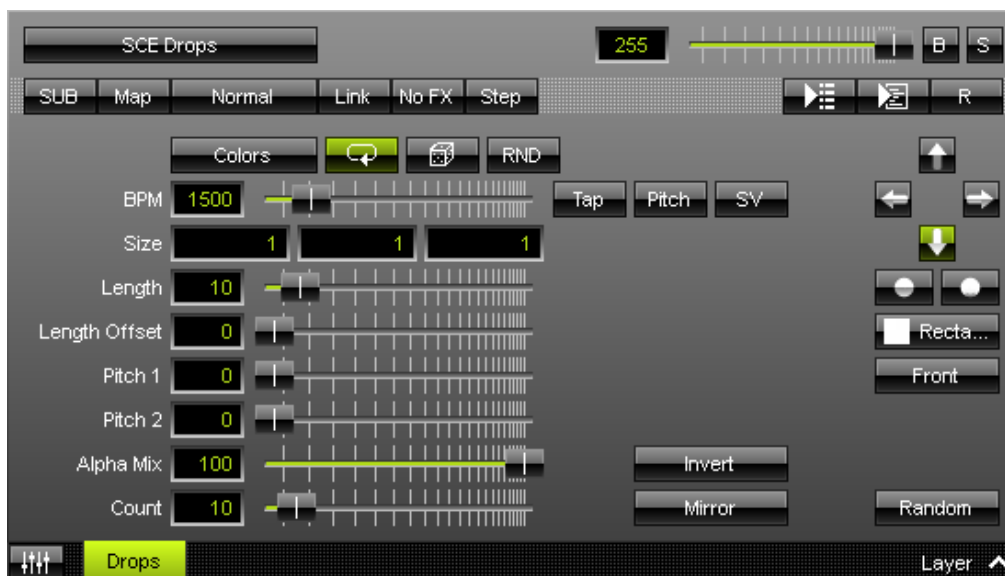
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

SCE Drops displays [falling] drops.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Size** - Defines the size of objects [Width, Height, Depth]. The default values are 1, 1, 1. Valid values range from 0.1 to 1000.
- **Length** - Defines how long the trace of a drop is [in % of the Matrix Size]. The default value is 10. Valid values range from 0 to 100.
- **Length Offset** - Defines if an offset is added to the trace of a drop [in % of the Matrix Size]. The default value is 0. Valid values range from 0 to 100.
- **Pitch 1** - Defines the first distance between objects depending on the direction [in % of the Matrix Size]. The default value is 0. Valid values range from 0 to 100.
- **Pitch 2** - Defines the second distance between objects depending on the direction [in % of the Matrix Size]. The default value is 0. Valid values range from 0 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each drop [in %]. Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.
- **Count** - Defines the number of objects displayed at once. The default value is 10. Valid values range from 1 to 100.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Direction** - Allows you to choose the direction of the movement. The default Direction is Down. Learn more »[Using Directions](#)



**Direction** - Allows you to choose the direction of the movement [**To The Front** or **To The Back**]. This is mainly relevant for 3D. The default Direction is Down. Learn more »[Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Rectangle Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Mode** - Allows you to choose the mode in which way objects are generated [**Random**, **Linear**, or **Ping Pong**]. The default Mode is Random.



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Restoring The Default Settings

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**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.9 SCE Explosions

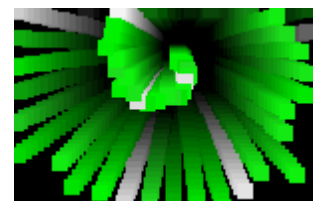
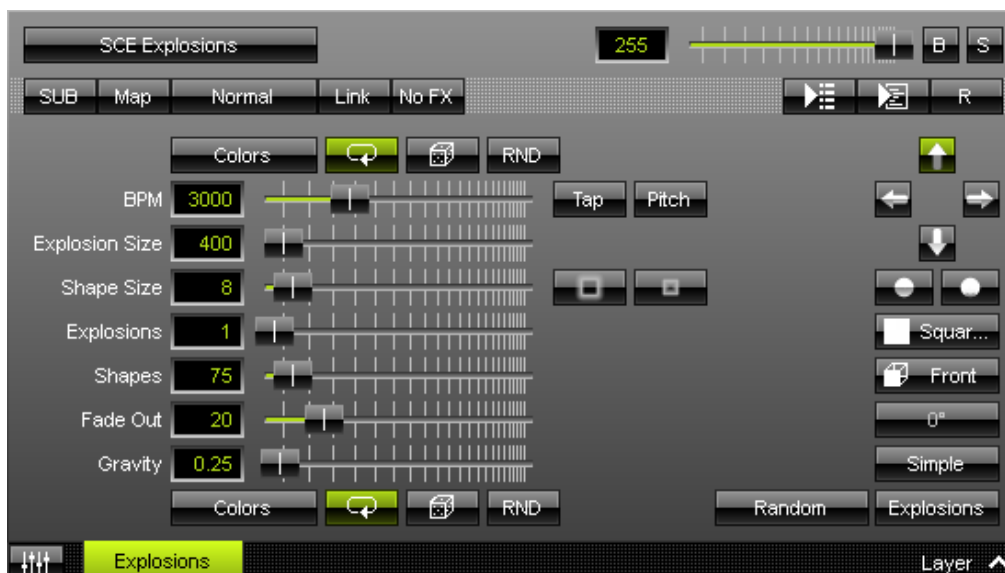
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

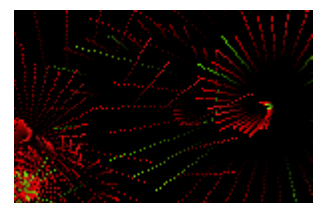
### Introduction

SCE Explosions displays all kinds of explosions as well as fireworks.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 3000. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Explosion Size** - Defines the magnitude of each explosion. The default value is 400. Valid values range from 1 to 9999.
- **Shape Size** - Defines the size of each object within an explosion. The default value is 8. Valid values range from 1 to 100.
- **Explosions** - Defines how many explosions are displayed at the same time. The default value is 1. Valid values range from 1 to 100.
- **Shapes** - Defines the number of single objects a single explosion includes. The default value is 75. Valid values range from 1 to 1000.
- **Fade Out** - Defines how fast MADRIX displays objects. The default value is 20. Valid values range from 0 to 1000.
- **Gravity** - Defines how strong objects are pulled to the bottom depending on the direction [in %]. The default value is 0.25. Valid values range from 0 to 100.
- **Colors** - Opens a second Color Table to define the second colors of each explosion. The default color is White.  
Learn more »[Using Colors And Intensity](#)





**Outer Glow / Inner Glow** - Is only available for specific Shapes. Defines the outer shimmer or inner gleam of objects. The default values are 0.00. Valid values range from 0.01 to 100.



**Explosion Shape** - Allows you to choose a specific shape for explosions [**Sphere, Sphere Glow, Spiral, Radial, Diamond, Star, Random**]. The default Explosion Shape is Random.



**Direction** - Allows you to choose the direction of the movement. The default Direction is Up. Learn more »[Using Directions](#)



**Direction** - Allows you to choose the direction of the movement [**To The Front** or **To The Back**]. This is mainly relevant for 3D. The default Direction is Up. Learn more »[Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Square Filled.



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°, 90°, 180°, 270°, Random**].



**Rendering Mode** - Defines how objects are rendered. Each mode may enable additional settings [such as additional Shapes]. Choose from 2 different modes. The default setting is Simple.

- **Simple** - Prioritizes processing speed over rendering possibilities.
- **Extended** - Prioritizes rendering possibilities over over processing speed. This mode may require more performance.



**Mode** - Allows you to choose the mode [**Explosions** or **Fireworks**]. The default Mode is Explosions.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.1.10 SCE Fill Drops

This topic includes:

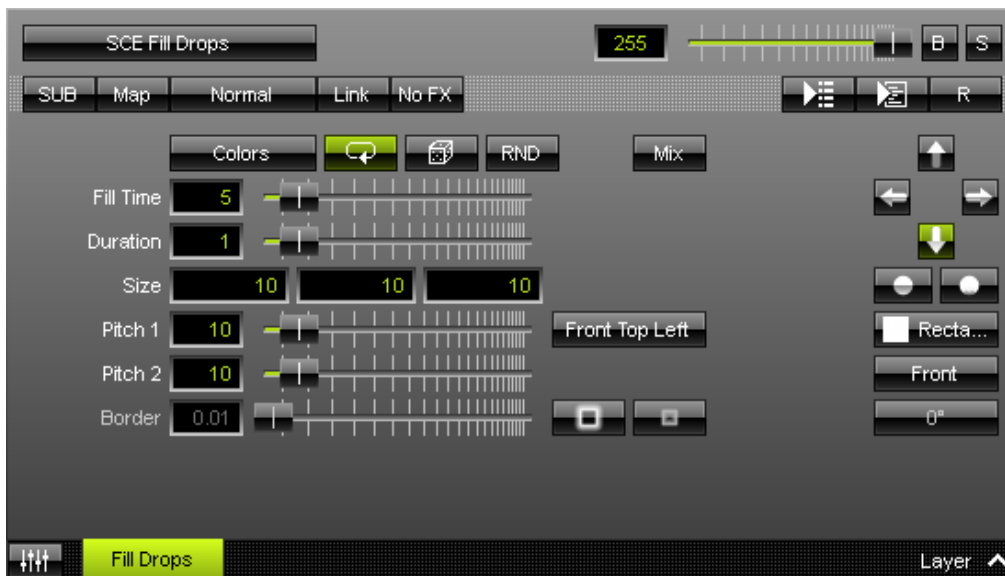
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

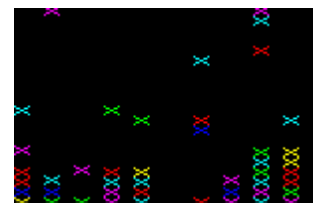
SCE Fill Drops creates randomly falling objects.

[In MADRIX 2, SCE Fill Drops was part of SCE Color Fill.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **Fill Time** - Defines the time how long it takes to fill the complete LED matrix with shapes [in s]. The default value is 5. Valid values range from 0.01 to 3600.
- **Duration** - Defines the time the complete matrix is shown in solid color until the next round of objects begins to fill the matrix [in s]. The default value is 1. Valid values range from 0 to 3600.
- **Size** - Defines the size of objects [Width, Height, Depth]. The default values are 10, 10, 10. Valid values range from 0.01 to 1000.
- **Pitch 1** - Defines the first distance between objects depending on the direction [in % of the Matrix Size]. The default value is 0. Valid values range from 10 to 100.
- **Pitch 2** - Defines the second distance between objects depending on the direction [in % of the Matrix Size]. The default value is 0. Valid values range from 10 to 100.
- **Border** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines how thick the outer line [border] of objects is. The default value is 0.01. Valid values range from 0.01 to 100.

Front Top Left

**Position Origin Type** - Defines the point of origin of Shapes [and hence their relative position].



**Outer Glow / Inner Glow** - Is only available for specific Shapes. Defines the outer shimmer or inner gleam of objects. The default values are 0.00. Valid values range from 0.01 to 100.



**Direction** - Allows you to choose the direction of the movement. The default Direction is Down. Learn more »[Using Directions](#)



**Direction** - Allows you to choose the direction of the movement [**To The Front** or **To The Back**]. This is mainly relevant for 3D. The default Direction is Down. Learn more »[Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Rectangle Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°**, **90°**, **180°**, **270°**, **Random**].

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.1.11 SCE Fill Random

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

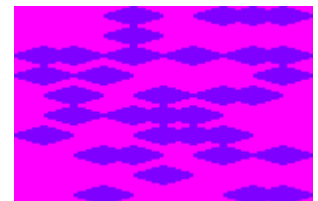
SCE Fill Random continuously adds new objects until the whole LED matrix is filled.

[In MADRIX 2, SCE Fill Random was part of SCE Color Fill.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **Fill Time** - Defines the time how long it takes to fill the complete LED matrix with shapes [in s]. The default value is 5. Valid values range from 0.01 to 3600.
- **Duration** - Defines the time the complete matrix is shown in solid color until the next round of objects begins to fill the matrix [in s]. The default value is 1. Valid values range from 0 to 3600.
- **Size** - Defines the size of objects [Width, Height, Depth]. The default values are 10, 10, 10. Valid values range from 0.01 to 1000.
- **Pitch** - Defines the distance between objects for all 3 axes. The default values are 10, 10, 10. Valid values range from 0 to 100.
- **Border** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines how thick the outer line [border] of objects is. The default value is 0.01. Valid values range from 0.01 to 100.

Front Top Left

**Position Origin Type** - Defines the point of origin of Shapes [and hence their relative position].



**Outer Glow / Inner Glow** - Is only available for specific Shapes. Defines the outer shimmer or inner gleam of objects. The default values are 0.00. Valid values range from 0.01 to 100.



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Rectangle Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°**, **90°**, **180°**, **270°**, **Random**].

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].



### 8.1.12 SCE Fill Snake

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

SCE Fill Snake fills the matrix in a snake-like mode.

[In MADRIX 2, SCE Fill Snake was part of SCE Color Fill.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **Fill Time** - Defines the time how long it takes to fill the complete LED matrix with shapes [in s]. The default value is 5. Valid values range from 0.01 to 3600.
- **Duration** - Defines the time the complete matrix is shown in solid color until the next round of objects begins to fill the matrix [in s]. The default value is 1. Valid values range from 0 to 3600.
- **Size** - Defines the size of objects [Width, Height, Depth]. The default values are 10, 10, 10. Valid values range from 0.01 to 1000.
- **Pitch** - Defines the distance between objects for all 3 axes [in % of the Matrix Size]. The default values are 10, 10, 10. Valid values range from 0 to 100.
- **Border** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines how thick the outer line [border] of objects is. The default value is 0.01. Valid values range from 0.01 to 100.

Front Top Left

**Position Origin Type** - Defines the point of origin of Shapes [and hence their relative position].



**Outer Glow / Inner Glow** - Is only available for specific Shapes. Defines the outer shimmer or inner gleam of objects. The default values are 0.00. Valid values range from 0.01 to 100.



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Rectangle Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°**, **90°**, **180°**, **270°**, **Random**].



**Start Corner** - Defines where the snake movements starts [**Front Top Left**, **Front Top Right**, **Front Bottom Left**, **Front Bottom Right**, **Back Top Left**, **Back Top Right**, **Back Bottom Left**, **Back Bottom Right**]. This setting is available for 2D, but only in 3D all options are viable.



**Orientation Mode** - Defines the general movement direction [**XYZ Orientation**, **XZY Orientation**, **YXZ Orientation**, **YZX Orientation**, **ZYX Orientation**, **ZXY Orientation**]. This setting is available for 2D, but only in 3D all options are viable.



**Circle Mode** - Activates a circular snake movement.



**Center Mode** - Starts movement from the center instead of the outer edge.



**Mirror Mode** - Duplicates the effect by mirroring it.

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.1.13 SCE Fill Solid

This topic includes:

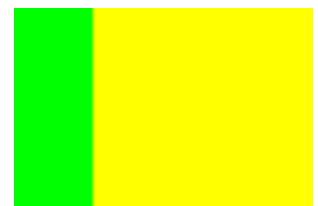
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

SCE Fill Solid constantly fills the matrix with a new color.

[In MADRIX 2, SCE Fill Solid was part of SCE Color Fill.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **Fill Time** - Defines the time how long it takes to fill the complete LED matrix with shapes [in s]. The default value is 5. Valid values range from 0.01 to 3600.
- **Duration** - Defines the time the complete matrix is shown in solid color until the next round of objects begins to fill the matrix [in s]. The default value is 1. Valid values range from 0 to 3600.
- **Step Width** - Defines the number of pixels the effect should scroll in the direction per frame [in %]. The default value is 0.01. Valid values range from 0.01 to 100.
- **Color Width** - Is only available for Color Mix Mode [[»Using Colors And Intensity](#)]. Defines the width of a single color [in %]. The default value is 10. Valid values range from 0.01 to 100.
- **Cross Width** - Is only available for Cross Mode [[»Using Directions](#)]. Defines the size of crossing colors [in %]. The default value is 50. Valid values range from 0.01 to 100.



**Cross Mode Axes-** Is only available for Cross Mode. Allows you to choose to which axis Cross Mode applies [**Axis 1 And 2**, **Axis 1**, or **Axis 2**]. The default mode is **Axis 1 And 2**.



**Direction/Mode** - Allows you to choose the direction of the movement, including Cross Mode. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Right. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.1.14 SCE Fire

This topic includes:

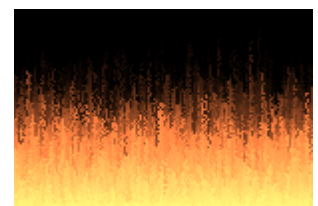
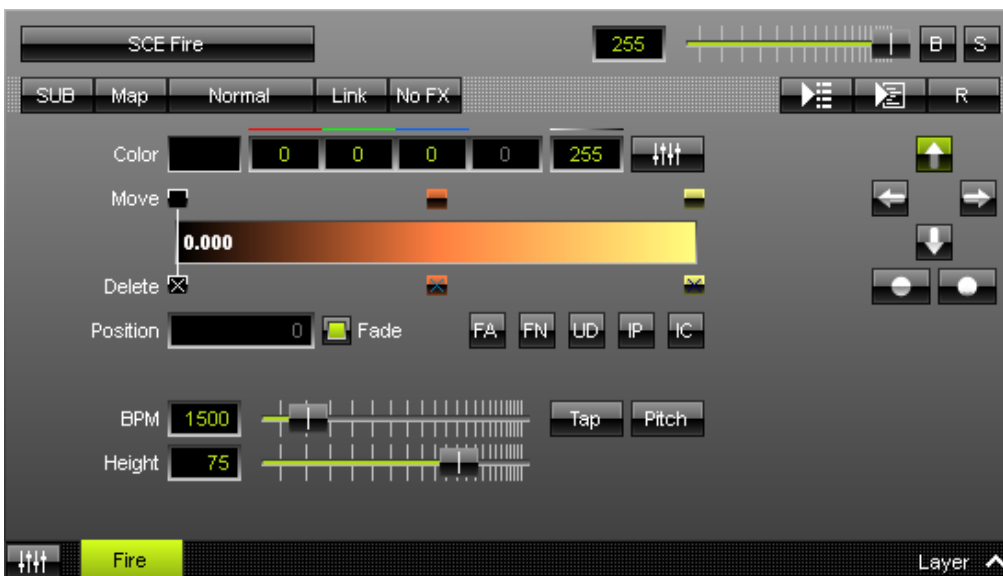
- Introduction
- Overview
- Layer Settings
- Effect Settings
- Restoring The Default Settings
- Context Menu

## Introduction

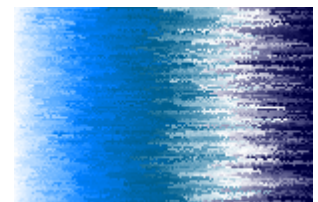
SCE Fire is one of two fire effects.

[In MADRIX 2, SCE Fire was a mode of SCE Fire, together with SCE Flames.]

## Overview



Default Settings



Customized Example



## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color via a Color Gradient and various options.

Learn more »[Using Colors And Intensity](#)

- **BPM** - Defines the speed. The default value is 1500. Valid values range from 0 to 9999.

Learn more »[Using BPM Control](#)

- **Height** - Defines the height of the flames [in %]. The default value is 75. Valid values range from 1 to 1000.



**Direction** - Allows you to choose the direction of the movement. The default Direction is Up.

Learn more »[Using Directions](#)



**Direction** - Allows you to choose the direction of the movement [**To The Front** or **To The Back**]. This is mainly relevant for 3D. The default Direction is Up. Learn more »[Using Directions](#)

## Restoring The Default Settings



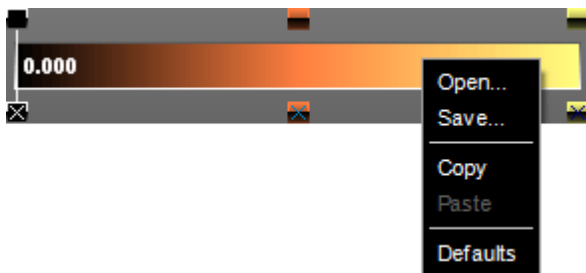
**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Context Menu

A context menu allows you to quickly make changes to the colors.

- **Right Mouse Click** - Click with your right mouse button on the color gradient to call up the context menu.



- **Open...** - Loads a previously saved Color Table file from an external file [of the file type \*.mctx].
- **Save...** - Saves the current colors as a Color Table file [of the file type \*.mctx].
- **Copy** - Copies the current colors into the clipboard as a duplicate.
- **Paste** - Applies all colors from the clipboard to the currently focused color control [**Colors, M2L Colors**].
- **Defaults** - Restores all default gradient colors.

## 8.1.15 SCE Flames

This topic includes:

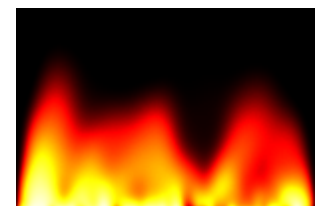
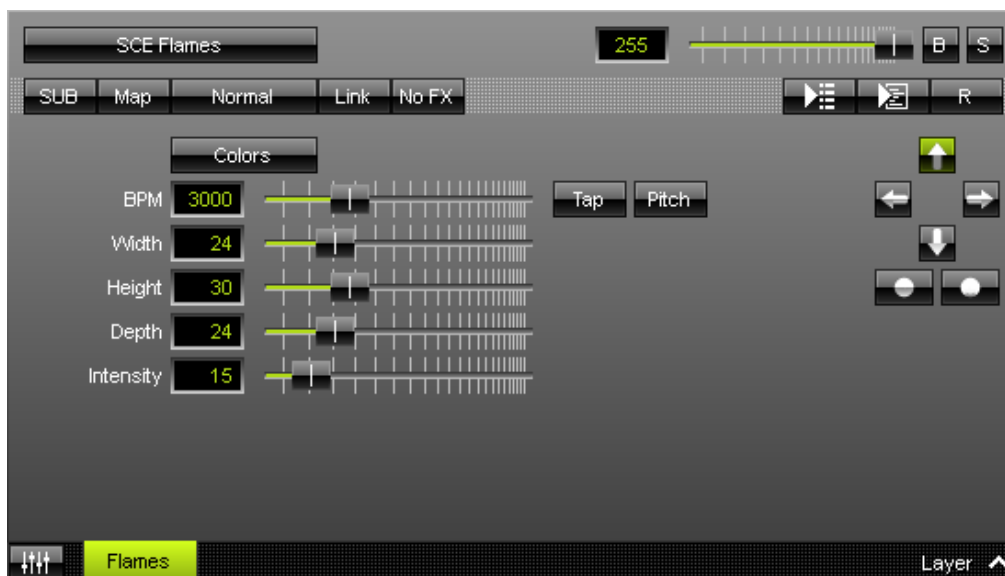
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

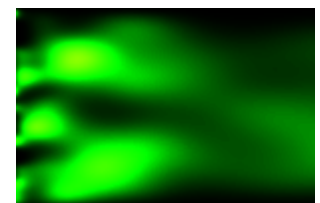
SCE Flames is one of two fire effects.

[In MADRIX 2, SCE Flames was a mode of SCE Fire.]

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Gradient to specify the colors. The default color is Black, Red, Yellow, White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 3000. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Width** - Defines the size of the flames [in %]. The default value is 24. Valid values range from 0 to 100.
- **Height** - Defines the height of the flames [in %]. The default value is 30. Valid values range from 0 to 100.
- **Depth** - Defines the depth of the flames [in %]. This is mainly relevant for 3D. The default value is 24. Valid values range from 0 to 100.
- **Intensity** - Defines the thickness of flames [in %]. The default value is 15. Valid values range from 0 to 100.



**Direction** - Allows you to choose the direction of the movement. The default Direction is Up.  
Learn more »[Using Directions](#)



**Direction** - Allows you to choose the direction of the movement [**To The Front** or **To The Back**]. This is mainly relevant for 3D. The default Direction is Up. Learn more »[Using Directions](#)

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.16 SCE Fluid

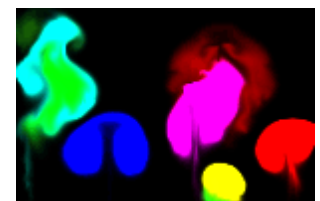
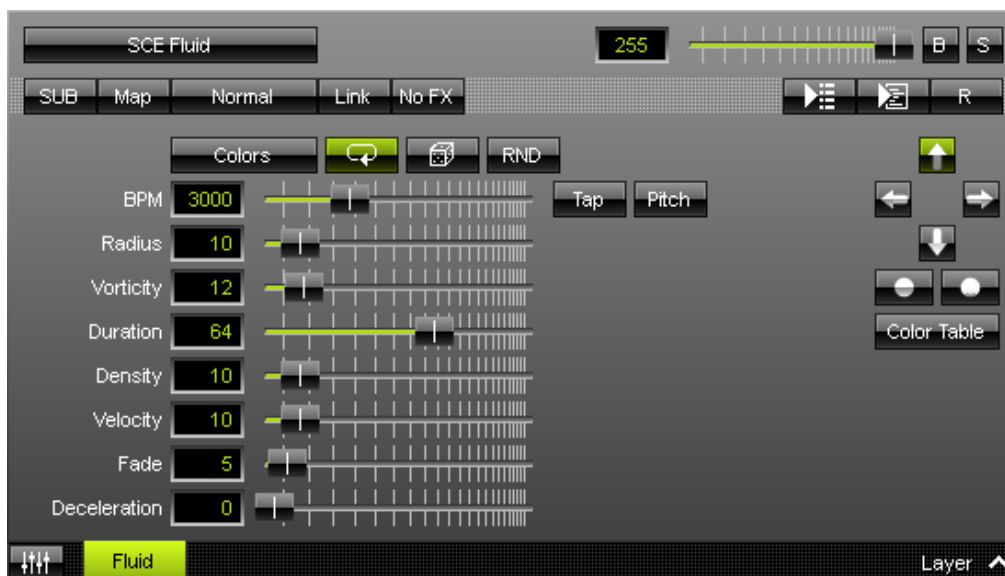
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

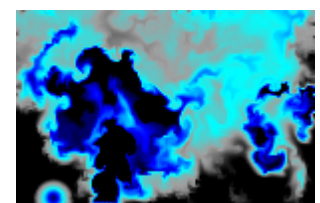
### Introduction

SCE Fluid simulates gas or liquids.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table or Color Gradient depending on the Color Mode. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 3000. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Radius** - Defines the size of impulses [in %]. The default value is 10. Valid values range from 0 to 100.
- **Vorticity** - Defines how much impulses can swirl in the gas [in %]. The default value is 12. Valid values range from 0 to 100.
- **Duration** - Defines how long impulses can move through the gas [in %]. The default value is 64. Valid values range from 0 to 100.
- **Density** - Defines the thickness of the gas [in %]. The default value is 10. Valid values range from 0 to 100.
- **Velocity** - Defines how fast impulses can move through the gas [in %]. The default value is 10. Valid values range from 0 to 100.
- **Fade** - Defines how quickly impulses evaporate [in %]. The default value is 5. Valid values range from 0 to 100.
- **Deceleration** - Slows down the movement of impulses [in %]. The default value is 0. Valid values range from 0 to 100.



**Direction** - Allows you to choose the direction of the movement. The default Direction is Up. Learn more »[Using Directions](#)



**Direction** - Allows you to choose the direction of the movement [**To The Front** or **To The Back**]. This is mainly relevant for 3D. The default Direction is Up. Learn more »[Using Directions](#)



**Color Mode** - Allows you to choose the color mode [**Color Table** or **Color Gradient**]. The default Color Mode is Color Table.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].



### 8.1.17 SCE Gradient

This topic includes:

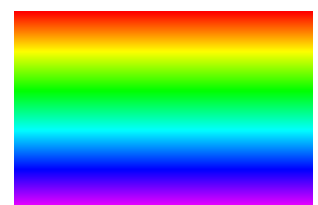
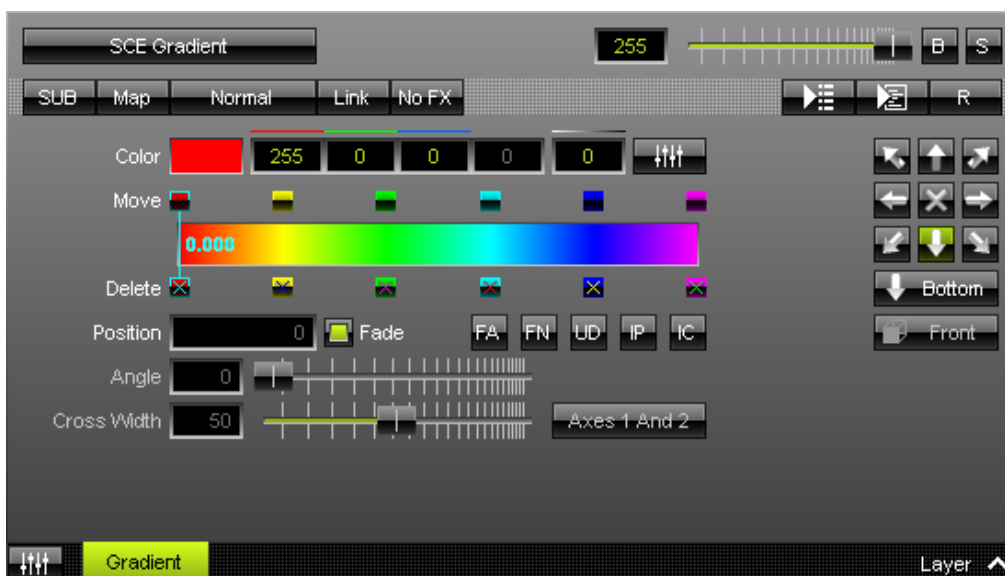
- Introduction
- Overview
- Layer Settings
- Effect Settings
- Restoring The Default Settings
- Context Menu

## Introduction

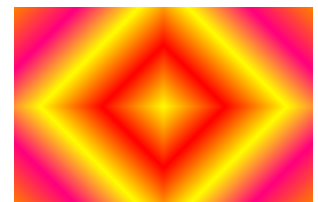
SCE Gradient is all about creating various color gradients.

[In MADRIX 2, SCE Gradient was named SCE Color Ramp.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color via a Color Gradient and various options.  
Learn more »[Using Colors And Intensity](#)
- **Angle** - Allows you to change the angle in which the effect is displayed [in °]. Is only available for Mode Radial. The default value is 0. Valid values range from 0 to 359.
- **Cross Width** - Is only available for Cross Mode [[»Using Directions](#)]. Defines the size of crossing colors [in %]. The default value is 50. Valid values range from 0.01 to 100.



**Cross Mode Axes** - Is only available for Cross Mode. Allows you to choose to which axis Cross Mode applies [**Axes 1 And 2**, **Axis 1**, or **Axis 2**]. The default mode is Axes 1 And 2.



**Direction/Mode** - Allows you to choose the direction, including Cross Mode. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Bottom. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)

## Restoring The Default Settings



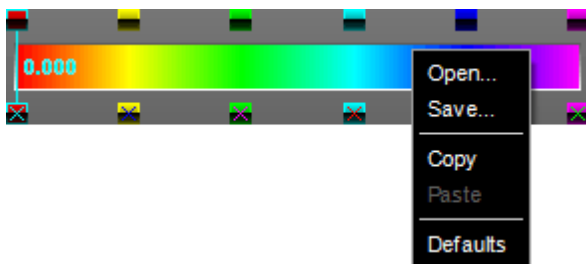
**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Context Menu

A context menu allows you to quickly make changes to the colors.

- **Right Mouse Click** - Click with your right mouse button on the color gradient to call up the context menu.



- **Open...** - Loads a previously saved Color Table file from an external file [of the file type \*.mctx].
- **Save...** - Saves the current colors as a Color Table file [of the file type \*.mctx].
- **Copy** - Copies the current colors into the clipboard as a duplicate.

- **Paste** - Applies all colors from the clipboard to the currently focused color control [**Colors**, **M2L Colors**].
  
- **Defaults** - Restores all default gradient colors.

## 8.1.18 SCE Graph

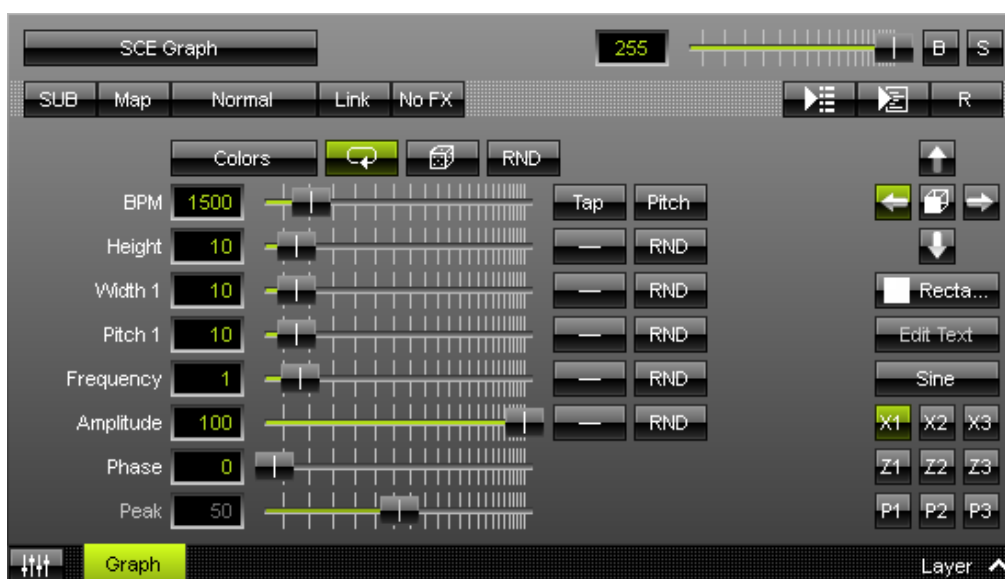
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)
- [Edit Text](#)

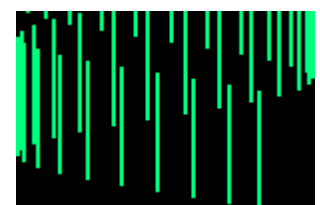
### Introduction

SCE Graph effect creates trigonometric graphs. This MADRIX Effect is extremely versatile.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Height** - Defines the height of elements depending on the direction [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Width 1** - Defines the width of elements depending on the direction [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Pitch 1** - Defines the distance between elements depending on the direction [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Width 2** - Is available when selecting Register Z1, Z2, or Z3. Defines the width of elements [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Pitch 2** - Is available when selecting Register Z1, Z2, or Z3. Defines the distance between elements [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Frequency** - Defines the rate. A value of 1 means that the complete wave is shown. The default value is 1. Valid values range from 0 to 100.
- **Amplitude** - Defines the maximum oscillation of the elements in relation to the baseline. The default value is 100. Valid values range from -1000 to 1000.

- **Phase** - Defines an offset that allows you to shift the waves compared to each other when combining at least 2 graphs in order to avoid overlapping [in % of the wave length]. The default value is 0. Valid values range from 0 to 100.
- **Peak** - Defines the peak of the wave [in % of the wavelength]. It is only available for Draw Mode Triangle and Square. The default value is 50. Valid values range from 0 to 100.



**Distribution** - Allows you to choose a certain Distribution Mode for the specific parameter. Often, you can then define a minimum value and a maximum value.

**Uniform** - Each object has the same size.

**Linear** - A linear distribution is used to increase the size regularly.

**Quadratic** - The majority of objects will be smaller than the rest.

**SQRT** - Using a square root function the majority of objects will be larger.

**Cubic** - Uses a cubic distribution with mixed sizes.

**Random** - Sizes will be generated randomly.



**RND** - Generates random object sizes each time. This automatically activates Random Distribution Mode.



**Direction/Mode** - Allows you to choose the direction, including Look-At Type. This includes all directions for 2D and 3D mode. The default Direction is Left. Learn more »[Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. This heavily influences the visual outcome of the effect. The default Shape is Rectangle Filled.



**Edit Text** - Allows you to freely enter any text to display when Shape Text is selected first. A new window opens. Learn more [Edit Text](#)



**Draw Mode** - Allows you to change the graph form, which influences how the effect is drawn [**Sine**, **Absolute Sine**, **Cosine**, **Triangle**, **Square**]. The default Draw Mode is Sine.



**X-Axis Registers** - Allows you to combine up to 3 graphs with each other regarding the X-Axis. Each Register influences the visual outcome. Simply choose a **Draw Mode** for each Register and set up the **Amplitude**. More settings will be available then for this Register. [**Right Mouse Click > Reset** restores the default settings of a Register.]



**Z-Axis Registers** - Allows you to combine up to 3 graphs with each other regarding the Z-Axis. Each Register influences the visual outcome. Simply choose a **Draw Mode** for each Register and set up the **Amplitude**. More settings will be available then for this Register. This is mainly relevant for 3D. [**Right Mouse Click > Clear** restores the default settings of a Register.]



**Phase Registers** - Allows you to combine up to 3 graphs with each other regarding the extruded phase. Each Register influences the visual outcome. Simply choose a **Draw Mode** for each Register and set up the **Amplitude**. More settings will be available then for this Register. This is mainly relevant for 3D. [**Right Mouse Click > Clear** restores the default settings of a Register.]

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Edit Text



- Choose Draw Mode **Text** in order to use text as elements of the graph.
- Click **Edit Text** to change the text settings.

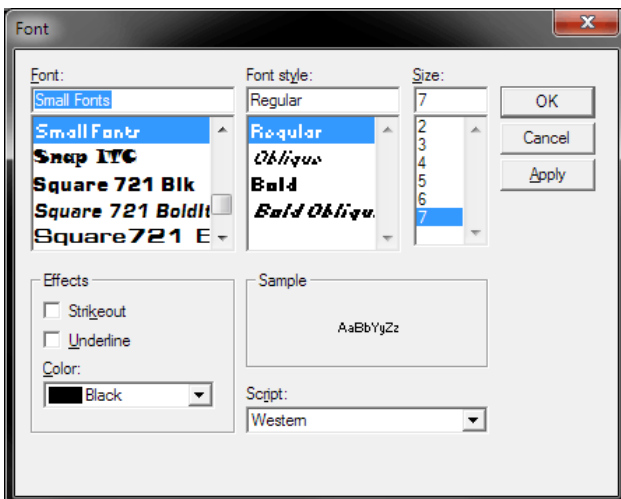


- A new window opens.



Change the following settings as required:

- **Text** - Allows you to enter any text. Simply write something via your keyboard.
- **Aa** - Opens a new window and allows you to choose a specific font, font size, and other font settings.



- **Rotation** - Allows you to rotate the text [0°, 90°, 180°, 270°]. The default value is 0.

- **Splitting** - Allows you to split your text.
  - None** - Is the default value and does not apply any splitting.
  - Words** - Splits your text using each word, adds line breaks, and displays each word below the other.
  - Characters** - Splits your text using each character [letter], adds line breaks, and displays each character below the other.
- **Repeat Text** - Uses your text continuously for each element of the graph.
- **Reverse Words** - Displays the words of your text in reverse order.
- **Reverse Characters** - Displays your complete text in reverse order, character by character.

## 8.1.19 SCE Image

This topic includes:

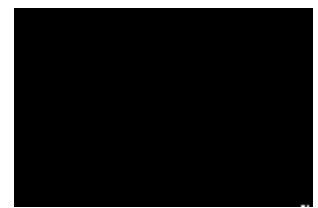
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)
- [Supported File Types](#)
- [Image Table](#)
- [Image Import Settings](#)
- [Important Notes](#)

### Introduction

SCE Image allows you to load and display one or several images, pictures, logos, etc. on your LEDs. And you can add certain animations to them.

[In MADRIX 2, SCE Image was named SCE Bitmap.]

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Filter** - Applies a multiplicative color filter to the image. The default value is White.
  - **GS** - Activates grayscale mode to show the input only in gray shades. The Filter is independent of this mode.
  - **RGBW** - Converts the input into RGBW. This is useful when using RGBW fixtures to convert from the standard RGB color values of the input. If the option is disabled when using RGBW fixtures, the input will appear darker since the White channel is not used. The W color channel of the Filter only works if RGBW is activated.

Learn more »[Using Colors And Intensity](#)

- **BPM** - Defines the speed [when using a direction/movement]. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Position** - Defines the position of the image in **X**, **Y**, and **Z** [in %]. The default values are 0, 0, 0. Valid values range from -1000 to 1000.
- **Playback Rate** - Defines the speed of the Image Table and how fast images are changed. Valid values range from 0 to 50.
  - The default value is 1, which means that the Duration of the Image Table for each image is used. A rate of 2 doubles the speed and cuts the Duration in half, for example.
- **Extrusion** - Adds depth to the input; i.e. duplicates the input image [in % of the virtual LED matrix]. This is mainly relevant for 3D. The default value is 100. Valid values range from 0.01 to 100.



**Open** - Allows you to load an image into MADRIX. Select the file on your computer or another source. Continue with [Image Import Settings](#)



**Open Image Table** - Opens the Image Table, a window to organize multiple images. Learn more [Image Table](#)



**Filtering** - Defines how input is processed and displayed. Mainly affects the visual outcome when the input is scaled up or down [e.g., when choosing a different mode for Stretching / Aspect Ratio]. Choose from 2 different modes. The default setting is None.

- **None** - Prioritizes processing speed over image quality.
- **Linear** - Prioritizes image quality over processing speed. This mode may affect performance.



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is None. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Rotation** - Rotates the image [**0°**, **90°**, **180°**, **270°**]. The default value is 0.



**Tile** - Tiles and duplicates the input and thereby generating patterns.



**Seamless** - Activates or deactivates a continuous stream of the input image. MADRIX will automatically display the input image again to create a continuous display.



**Stretching / Aspect Ratio** - Defines the aspect ratio of the image. The default value is Matrix.

**None** - Disables stretching.

**Matrix** - Stretches to the current aspect ratio of the virtual LED matrix.

**Original** - Stretches to the original aspect ratio of the source.

**4:3** - Applies a 4:3 aspect ratio.

**16:9** - Applies a 16:9 aspect ratio.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Supported File Types

SCE Image supports the following file types:

- BMP [of the file type \*.bmp]
- GIF and Animated GIF [of the file type \*.gif]
- JPG [of the file type \*.jpg]
- PNG [of the file type \*.png]
- TIFF [of the file type \*.tif or \*.tiff]
  
- MADRIX Image Table [of the file type \*.mitz]
- MADRIX Image Table Uncompressed [of the file type \*.mitx]

## Image Table

### Overview

SCE Image allows you to load one image or multiple images at a time. Use the Image Table to manage multiple images as described below.



- **Left Mouse Click** - Selects an image in the Image Table.
- **Double-Click Left Mouse Button** - Immediately chooses and activates the selected image and displays it on the LEDs. In this way, you can define which image to show next. MADRIX will automatically continue in the list then, beginning with this image.
- **Ctrl + Left Mouse Click** - Allows you to select several images in the Image Table at different positions.
- **Shift + Left Mouse Click** - Allows you to select several images by selecting 1] the first image, 2] the last image, 3] and all images in-between will be selected automatically.
- **Automatic Loop** - When the last image of the Image List is shown, MADRIX will automatically loop back to the first image and start from the beginning again.



**Preview** - Displays a small preview of the loaded or currently selected image.




**Name**                   ▪ Shows the file name of the image.


**Duration**               ▪ Defines how long an image is displayed [in s]. Select one or multiple images to adjust the value.


**Fade Time**             ▪ Defines how long it takes to fade from one image to the next [in s]. Select one or multiple images and then adjust the value.


 **Rotation** - Rotates the image [**0°**, **90°**, **180°**, **270°**]. The default value is 0°.


 **New** - Immediately removes all items from the list.

 **Open** - Loads a previously saved MADRIX Image Table from an external file [of the file type \*.mitz or \*.mitx].

 **Open And Attach** - Loads a previously saved MADRIX Image Table from an external file [of the file type \*.mitz or \*.mitx] and adds the new images to the images that are already loaded.

 **Save** - Saves the Image Table to an external file [of the file type \*.mitz or \*.mitx].  
- The MADRIX Image Table File includes the images as well as the settings for Duration, Fade Time, and Rotation.

 **Add Images** - Adds and appends one or several images to the Image Table. Choose the files from your harddisk or another storage location. Continue with [Image Import Settings](#)

 **Remove Images** - Removes one or several images from the Image Table. First, select the images in the list.



**Duplicate Images** - Copies the currently selected images and adds them as new items to the Image Table.

#5

- Shows the total number of images in the Image Table. An empty list shows # 0



**Swap Position** - Swaps the position of images in the Image Table when several images are selected first.



**Position Up** - Changes the order, and positions currently selected images one step higher up in the list.



**Position Down** - Changes the order, and positions currently selected images one step lower down in the list.



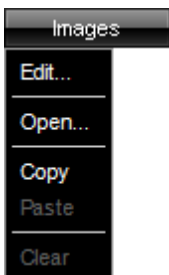
**Export** - Exports the currently selected image or images from the Image Table as an external image file [of the file type \*.bmp].



**Close** - Closes the Image Table window.

## Context Menu

- **Right Mouse Click** - You can call up the context menu by performing a right mouse click on **Images**
- A small window will be shown.



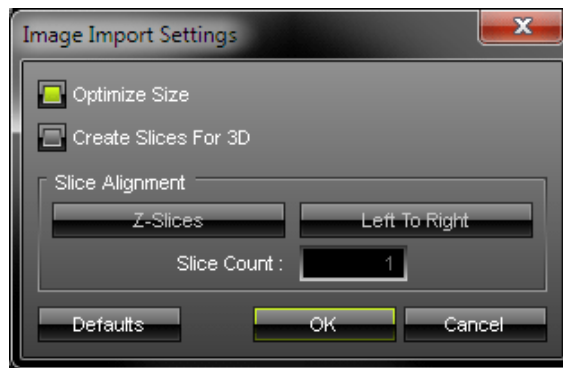
You can quickly perform the following actions:

- **Edit...** - Opens the Image Table [in the same way you can open the window by clicking on **Images** with the left mouse button].
  
- **Open...** - Loads images or a previously saved Image Table from an external file [of the file type \*.mitz or \*.mitx].  
A new window opens for you to select the file on your harddisk.
  
- **Copy** - Copies the current images into the clipboard as a duplicate.
- **Paste** - Applies all images from the clipboard to the currently focused Image Table [**Images**].
  
- **Clear** - Removes all images from the Image Table.

## Image Import Settings

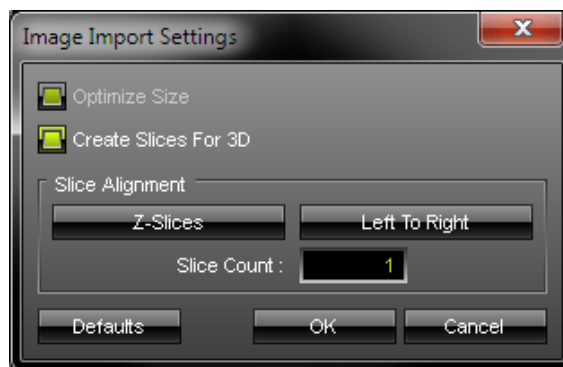
After opening an image or loading it into the Image Table, please use the following options to finally import your images into MADRIX. [When importing an image, a copy will be created and used within MADRIX. Your original content will not be changed.]

## Optimize Size



- **Optimize Size** - When activated, MADRIX automatically optimizes the file size of images loaded into MADRIX. If the image has a larger pixel resolution than your virtual LED matrix in MADRIX, the software automatically reduces the pixel resolution of the image to fit the virtual LED matrix. Thereby the file size is reduced, which in turn reduces the required space in the local memory of your computer [RAM]. This increases performance and stability of the software and computer. It is recommended to activate Optimize. Learn more [Important Notes](#)
- Confirm with **OK**, restore the default settings via **Defaults**, or abort the process using **Cancel**


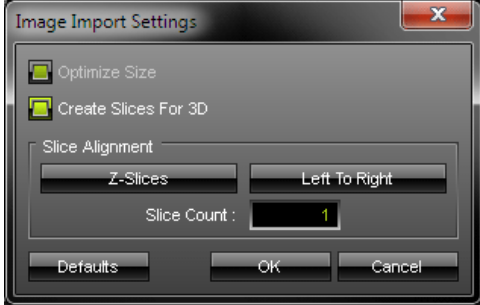
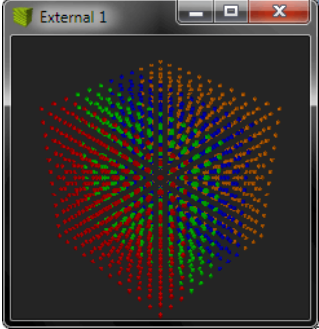

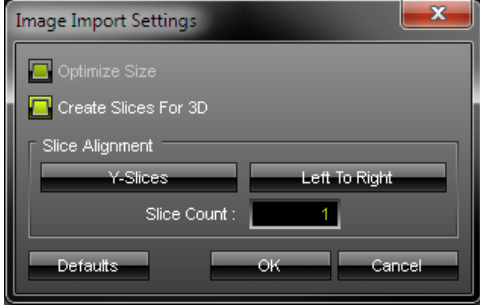
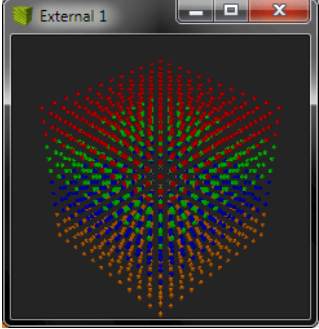

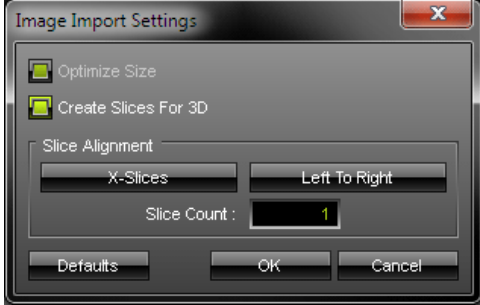
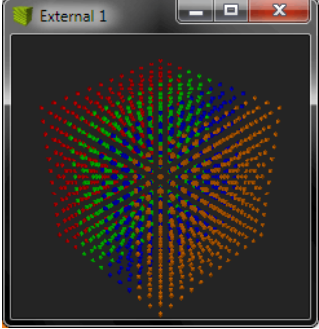

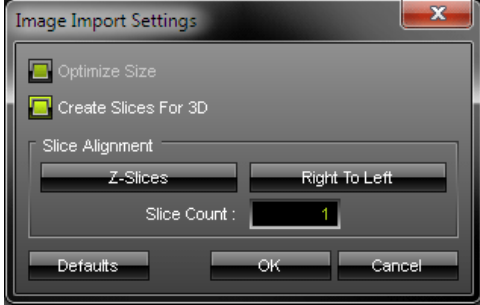
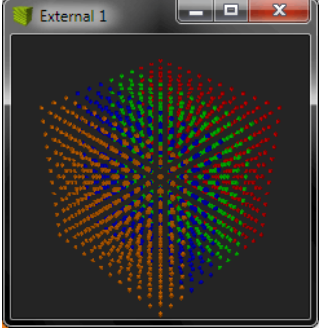
### Create Slices For 3D

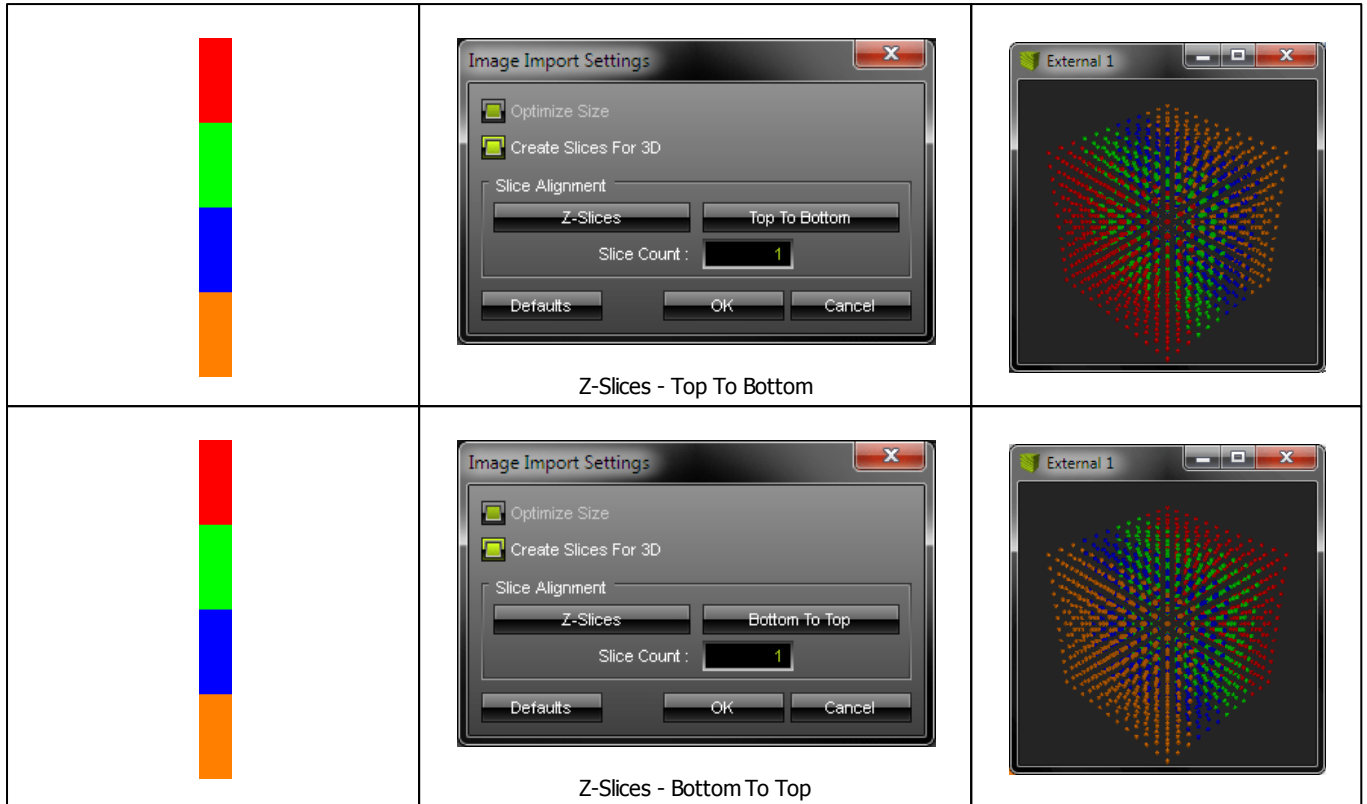


- **Create Slices For 3D** - Is a way to bring 2D content to 3D LED matrices by slicing the image into different parts and applying each slice to X-levels, Y-levels, or Z-levels as required. [You will get the most benefit out of this feature when using images that are made up of different parts and are especially created for this area of application.]

**Example:** Your virtual LED matrix is 10 x 8 x 4. Now, you have prepared an image and want to display it not only on the first Z-level or use Extrude, but on all 4 Z-levels. Then, you would let MADRIX create 4 slices.

- **Slice Type** - Defines the 3D orientation of how slices are applied to your LED matrix.
  - **X-Slices** - Uses slices to fill the LED matrix; always starting from left to right.
  - **Y-Slices** - Uses slices to fill the LED matrix; always starting from top to bottom.
  - **Z-Slices** - Uses slices to fill the LED matrix; always starting from front to back.
- **Slice Order** - Defines how your source image is processed.
  - **Left To Right** - MADRIX slices the image starting left.  
[The first, left slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Right To Left** - MADRIX slices the image starting right.  
[The first, right slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Top To Bottom** - MADRIX slices the image starting top.  
[The first, top slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Bottom To Top** - MADRIX slices the image starting bottom.  
[The first, bottom slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
- **Slice Count** - Defines in how many slices an image is divided. A value of 1 means that no slices are created and that the image is used as one. [A value of 4, for example, will create 4 slices that each make up 25% of the source image.]
- The settings with the highest performance are **Z-Slices** and **Top To Bottom**
- Confirm with **OK**, restore the default settings via **Defaults**, or abort the process using **Cancel**

Original 2D Image	Image Import Settings	MADRIX 3D Output
	 <p>Z-Slices - Left To Right</p>	
	 <p>Y-Slices - Left To Right</p>	
	 <p>X-Slices - Left To Right</p>	
	 <p>Z-Slices - Right To Left</p>	



## Important Notes

- **Please do use pictures with a pixel resolution according to the size of your LED matrix!**
- **It is not useful to use a resolution of 3000x2000 pixels if your LED matrix has a size of 192x128, for example. Please resize your pictures before using them in MADRIX. Please do also use 72 DPI. Both means will improve performance considerably. At the same time, you will avoid that the RAM of your computer will overload.**
- **Optimize Size - When activated, MADRIX automatically optimizes the file size of images loaded into MADRIX. If the image has a larger pixel resolution than your virtual LED matrix in MADRIX, the software automatically reduces the pixel resolution of the image to fit the virtual LED matrix. Thereby the file size is reduced, which in turn reduces the required space in the local memory of your computer [RAM]. This increases performance and stability of the software and computer.**

### 8.1.20 SCE Level Color Simulator

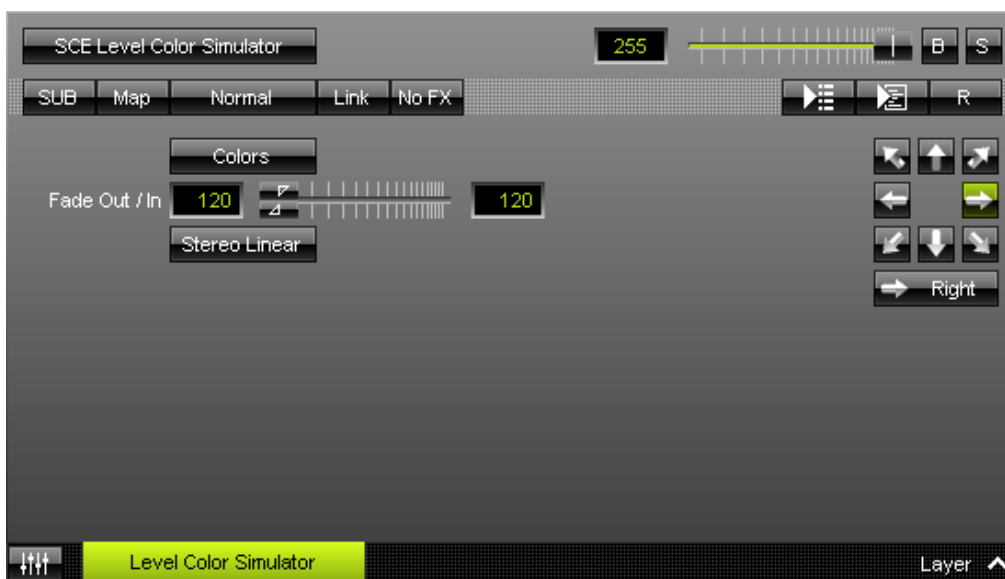
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

#### Introduction

SCE Level Color Simulator simulates audio input and displays the loudness of the input with the help of color. The more input, the brighter the effect.

#### Overview



Default Settings



Customized Example



## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Gradient to specify the colors. The default color is White, Black.  
Learn more »[Using Colors And Intensity](#)
- **Fade Out / In** - Defines how fast MADRIX displays color. You can specify the fade-in speed as well as the fade-out speed. The default values are 120 and 120. Valid values range from 1 to 3000.



**Mode** - Allows you to choose the mode [**Mono**, **Stereo Linear**, **Stereo Radial**]. This heavily influences the visual outcome of the effect.



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is Right. Learn more »[Using Directions](#)

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.21 SCE Metaballs

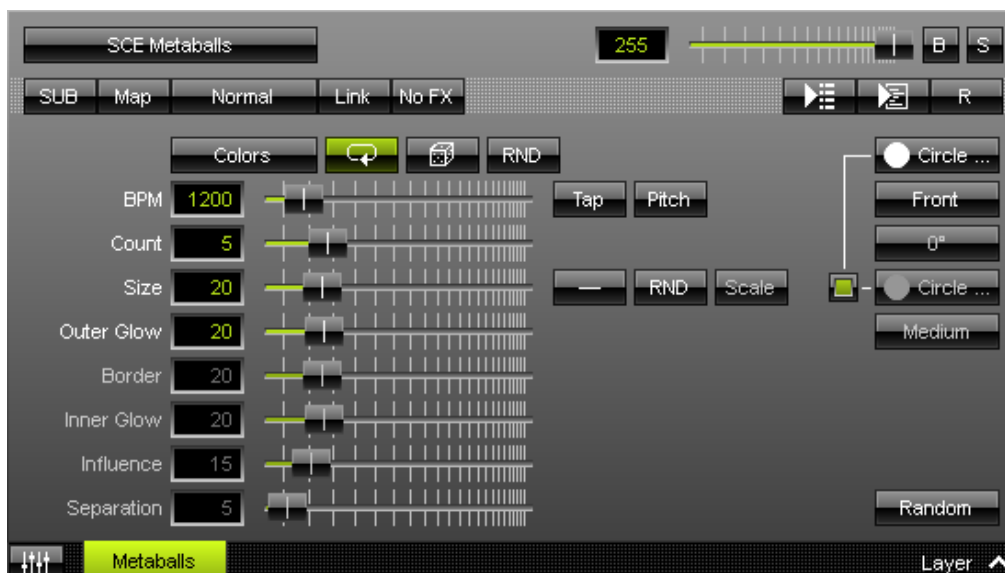
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

SCE Metaballs creates objects that morph into each other creating a fluent animation.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 1200. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Count** - Defines the number of objects. The default value is 5. Valid values range from 1 to 20.
- **Size** - Defines the size of objects [in %]. The default value is 20. Valid values range from 1 to 100.
- **Outer Glow** - Defines the outer shimmer of objects. The default value is 20. Valid values range from 1 to 100.
- **Inner Glow** - Defines the inner gleam of objects which are not filled. The default value is 20. Valid values range from 1 to 100.
- **Border** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines how thick the outer line [border] of objects is. The default value is 20. Valid values range from 1 to 100.
- **Influence** - Is only available for Motion Type **Swarm**. Defines a radius in which objects influence other objects [in %]. The higher the value, the more visible the swarm behavior. The default value is 15. Valid values range from 0 to 100.
- **Separation** - Is only available for Motion Type **Swarm**. Defines how close objects can be to each other [in %]. The higher the value, the more space will be between objects. The default value is 5. Valid values range from 0 to 100.



**Distribution** - Allows you to choose a certain Distribution Mode for the specific parameter. Often, you can then define a minimum value and a maximum value.

**Uniform** - Each object has the same size.

**Linear** - A linear distribution is used to increase the size regularly.

**Quadratic** - The majority of objects will be smaller than the rest.

**SQRT** - Using a square root function the majority of objects will be larger.

**Cubic** - Uses a cubic distribution with mixed sizes.

**Random** - Sizes will be generated randomly.



**RND** - Generates random object sizes each time. This automatically activates Random Distribution Mode.



**Scale** - Is only available for Random Distribution Mode. It allows you to generally increase or decrease the size of objects.



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Mode is Circle Filled.

- Set up at least **2 colors** if you want to define a second shape. Both shapes and both colors will then be morphed together. By default, the second shape equals the first shape.

- Deselect **Auto Adjustment [Color Mixing Link]** to set up a different, second shape.

- When using at least 2 colors or using the Color Table Random Mode [RND], you can set up the **Color Mixing Sharpness**. It allows you to choose how intensely the colors are mixed [**Very Blurry, Blurry, Slightly Blurry, Medium, Slightly Clear, Clear, or Very Clear**]. The default Color Mixing Sharpness is Medium.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°, 90°, 180°, 270°, Random**].

Random

**Motion Type** - Choose how objects move and behave. The default value is Random.

**Random** - Objects move randomly and independently of each other.

**Swarm** - Objects react according to a swarm intelligence and thus imitate their movement behavior.

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.1.22 SCE Noise

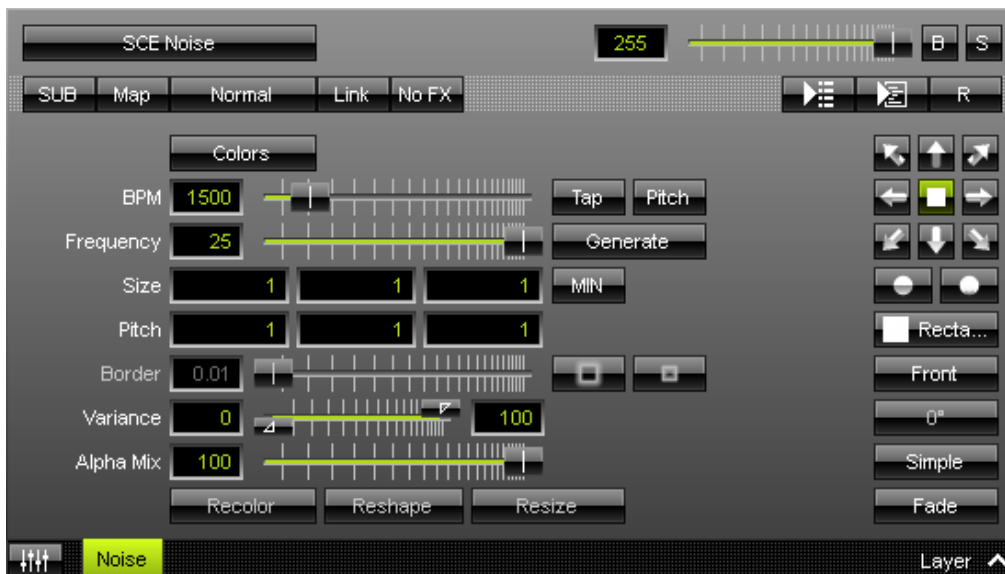
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

SCE Noise displays by default objects with different shades to create an effect that is often referred to as visual noise.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed [when using a direction/movement]. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Frequency** - Defines the rate at which new visuals are created [in Hz]. The default value is 25. Valid values range from 0 to 50.
- **Size** - Defines the size of objects [Width, Height, Depth] [in % of the Matrix Size]. The default values are 1, 1, 1. Valid values range from 0.01 to 1000.
- **Pitch** - Defines the distance between objects for all 3 axes [in % of the Matrix Size]. The default values are 1, 1, 1. Valid values range from 0.01 to 100.
- **Border** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines how thick the outer line [border] of objects is. The default value is 0.01. Valid values range from 0.01 to 100.
- **Variance** - Refers to the colors that are specified in the Color Table. Defines the minimum and maximum color variability of colors and objects, i.e. shades [in %]. The default values are 0 and 100. Valid values range from 0 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each object [in %]. Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.





**Recolor** - Is only available when setting up at least 2 colors in the Color Table. Assigns a new color to an object every time the effect is generated anew; either automatically via the Frequency or manually via Generate.



**Reshape** - Is only available when using the Shape **Random**. Assigns a new, random Shape to objects every time the effect is generated anew; either automatically via the Frequency or manually via Generate.



**Resize** - Is only available when setting up a Minimum Size that is lower than 100 [0 to 99]. Assigns a new, random Size to objects every time the effect is generated anew; either automatically via the Frequency or manually via Generate.



**Generate** - Creates the effect anew to produce different visuals. [This is mainly useful when setting a Frequency of 0.]



**Minimum Size** - Refers to Size. Defines the minimum size of objects [in %]. The default value is 100. Valid values range from 1 to 100.



**Outer Glow / Inner Glow** - Is only available for specific Shapes. Defines the outer shimmer or inner gleam of objects. The default values are 0.00. Valid values range from 0.01 to 100.



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is None. Learn more »[Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Rectangle Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°**, **90°**, **180°**, **270°**, **Random**].

Simple

**Rendering Mode** - Defines how objects are rendered. Each mode may enable additional settings [such as additional Shapes]. Choose from 2 different modes. The default setting is Simple.

- **Simple** - Prioritizes processing speed over rendering possibilities.
- **Extended** - Prioritizes rendering possibilities over over processing speed. This mode may require more performance.

Fade

**Fade** - Activates or deactivates fading between colors.

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.23 SCE Plasma

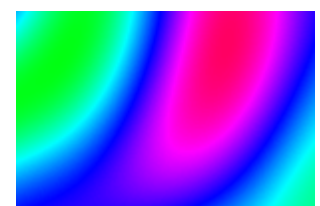
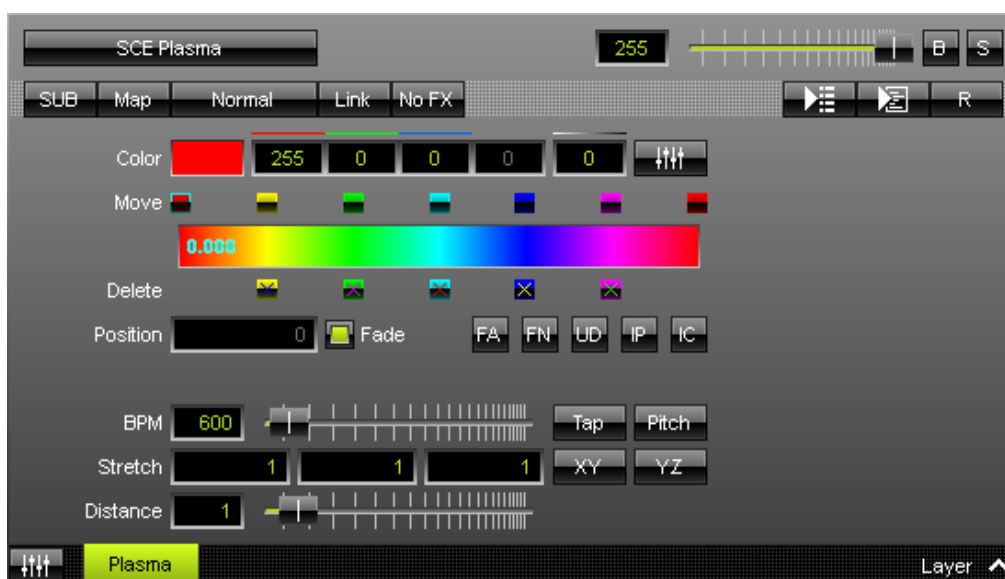
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)
- [Context Menu](#)

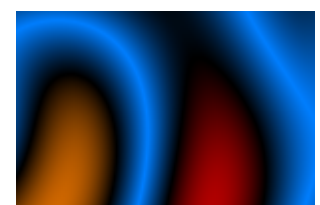
### Introduction

SCE Plasma creates a liquid and moving color gradient.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color via a Color Gradient and various options.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 600. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Stretch** - Defines the stretch or compression factor at which the visuals are displayed [X, Y, Z, XY, YZ]. The default values are 1, 1, 1, 1.00, 1.00. Valid values range from 0.01 to 10.
- **Distance** - Defines how much of the visuals are displayed; like a zoom level. The default value is 1. Valid values range from 0.01 to 10.

## Restoring The Default Settings



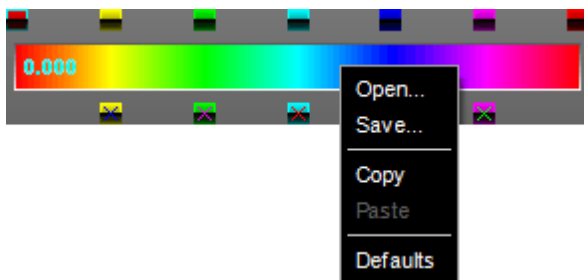
**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Context Menu

A context menu allows you to quickly make changes to the colors.

- **Right Mouse Click** - Click with your right mouse button on the color gradient to call up the context menu.



- **Open...** - Loads a previously saved Color Table file from an external file [of the file type \*.mctx].
- **Save...** - Saves the current colors as a Color Table file [of the file type \*.mctx].
- **Copy** - Copies the current colors into the clipboard as a duplicate.
- **Paste** - Applies all colors from the clipboard to the currently focused color control [**Colors**, **M2L Colors**].
- **Defaults** - Restores all default gradient colors.

## 8.1.24 SCE Pulse / Stroboscope

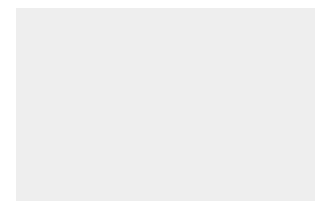
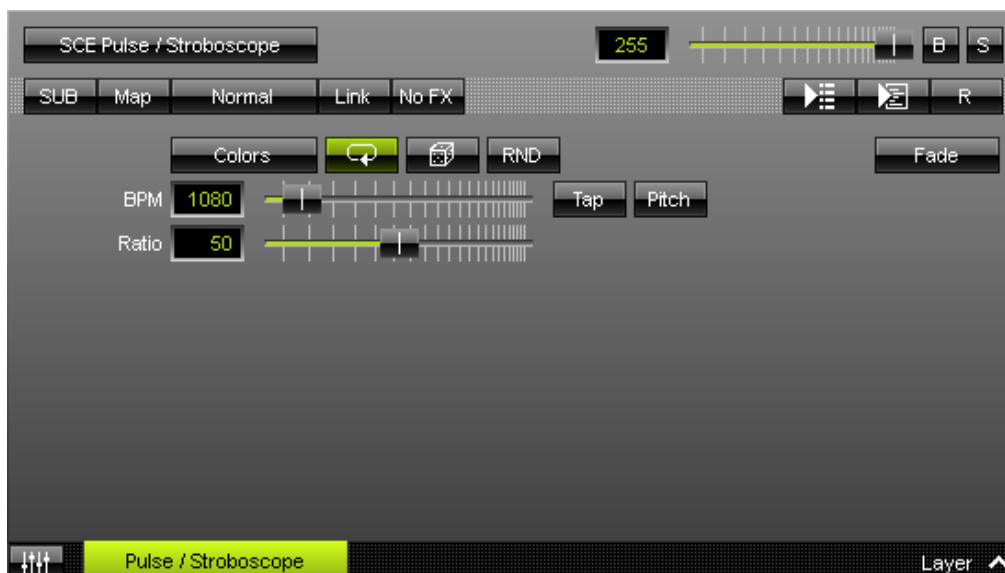
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

SCE Pulse / Stroboscope produces a stroboscope or pulsating effect.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 1080. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Ratio** - Defines the ratio and relation between Fade In and Fade Out [in %]. The default value is 50. Valid values range from 0 to 100.
  - A Ratio of 50 means that Fade In and Fade Out have the same duration.
  - A Ratio of 0 means that there is a Fade In, but no Fade Out.
  - A Ratio of 100 means that there is no Fade In, but a Fade Out.



**Fade** - Activates or deactivates fading between colors.

- When activated, the effect pulses.
- When deactivated, the effect strobesc.

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].



## 8.1.25 SCE Screen Capture

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)
- [Configuration](#)
- [Slices](#)

### Introduction

SCE Screen Capture allows you to use any area of your Windows Desktop / Monitor / Screen and capture its content in order to directly bring it into MADRIX. In this way, you can integrate any other software and their output into MADRIX [such as visualizers, presentations, and more]. Basically anything that you can show on your monitor can also be brought into MADRIX.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Filter** - Defines a filter color. The default color is White.
  - **GS** - Activates grayscale mode to show the input only in gray shades. The Filter is independent of this mode.
  - **RGBW** - Converts the input into RGBW. This is useful when using RGBW fixtures to convert from the standard RGB color values of the input. If the option is disabled when using RGBW fixtures, the input will appear darker since the White channel is not used. The W color channel of the Filter only works if RGBW is activated.

Learn more »[Using Colors And Intensity](#)

- **BPM** - Defines the speed [when using a direction/movement]. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Position** - Defines the position of the object in **X**, **Y**, and **Z** [in %]. The default values are 0, 0, 0. Valid values range from -1000 to 1000.
- **Extrusion** - Adds depth to the input; i.e. duplicates the input image [in % of the Matrix Size]. This is mainly relevant for 3D. The default value is 100. Valid values range from 0.01 to 100.



**Configuration** - Allows you to configure the effect. It is highly recommended to adjust the settings. Learn more [Configuration](#)



**Slices** - Is a way to bring 2D content to 3D LED matrices by slicing the content into different parts and applying each slice to X-levels, Y-levels, or Z-levels as required. Learn more [Slices](#)



**Filtering** - Defines how input is processed and displayed. Mainly affects the visual outcome when the input is scaled up or down [e.g., when choosing a different mode for Stretching / Aspect Ratio]. Choose from 2 different modes. The default setting is None.

- **None** - Prioritizes processing speed over image quality.
- **Linear** - Prioritizes image quality over processing speed. This mode may affect performance.



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is None.



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Rotation** - Allows you to rotate the input [**0°**, **90°**, **180°**, **270°**]. The default value is 0.



**Tile** - Allows you to tile and duplicate the input and thereby generating patterns.



**Seamless** - Activates or deactivates a continuous stream of the input image. MADRIX will automatically display the input image again to create a continuous display.



**Stretching / Aspect Ratio** - Allows you to choose the aspect ratio of the input. The default value is Matrix.

**None** - Disables stretching.

**Matrix** - Stretches to the current aspect ratio of the virtual LED matrix.

**Original** - Stretches to the original aspect ratio of the source.

**4:3** - Applies a 4:3 aspect ratio.

**16:9** - Applies a 16:9 aspect ratio.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

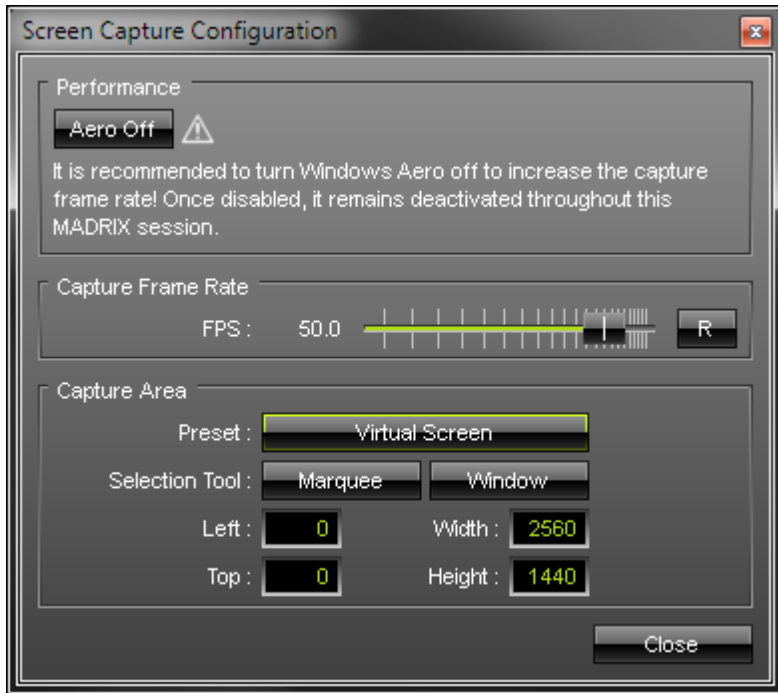
## Configuration

### Overview



In order to use this MADRIX Effect, click **Configuration** first.

- A new window opens.



- Configure the **Screen Capture Configuration** as required and as explained below.

## Performance

These settings affect the performance of the screen capturing. Screen capturing can require a considerable amount of computer performance!

### **Aero Off**

- Turns off the Windows desktop composition system called Aero in Windows Vista and Windows 7 [which is used for visual effects of the Windows user interface]. MADRIX will check first if the Aero is enabled.
  - **It is recommended to turn Aero off. This increases the capture frame rate!**
  - If you activate Aero Off, it will be turned on again once you close the MADRIX software.

## Capture Frame Rate

- **FPS** - Defines the frame rate with which MADRIX captures the content.
- **R** - Restores the default settings. The default value is 50.0 FPS.

## Capture Area

These settings define the screen area that is used for the screen capturing.

### **Preset**

- Allows you to choose a preset for your capture area:
  - **Custom Size** - Defines a custom area as the capture area.
    - Is automatically selected if you use a **Selection Tool** or define a **Custom Area**.
  - **Monitor** - Defines a complete output of one monitor as the capture area. The available selection choices depend on the configuration of monitors in Windows [e.g., if one or more monitors are installed].
  - **Virtual Screen** - Defines the complete screen output of Windows as the capture area. This often includes all monitors, for example.

**Selection Tool**

- Allows you to define a Custom Area using one of two tools:



**Marquee** - Allows you to define a capture area via your mouse and keyboard.

- Click Marquee and an overlay will be shown.
- You can freely move the overlay around in order to position it correctly.
- To do so, use the mouse [left mouse click and hold and drag the overlay window].
- Or use the arrow keys on your keyboard [Left, Right, Up, Down].
  
- You can freely change the size of this overlay in order to set up the correct size.
- To do so, use the mouse and drag the edges of the overlay.
- Or use the following keyboard shortcuts:
- Shift + Up/Down - Reduces the Height.
- Ctrl + Up/Down - Increases the Height.
- Shift + Left/Right - Reduces the Width.
- Ctrl + Left/Right - Increases the Width.
  
- The upper left coordinates of the overlay [Left, Top] are always displayed in the upper left corner.
- The lower right coordinates of the overlay [Right, Bottom] are always displayed in the lower right corner.
- The Width and the Height of the overlay are always displayed in the center.
  
- **Escape / Enter / Left Mouse Double-Click** - Confirms your selection.
  
- Window** - Allows you to quickly choose a specific window to use as capture area.
- Click Window and an overlay will be shown that covers complete windows.
- You can freely choose which window should be used as screen capture area.
- Move the mouse to select the window via the overlay.
- Use Ctrl + left mouse click in order to select specific parts of a window [e.g., to select only a specific area of an application].
  
- **Escape / Enter / Left Mouse Double-Click** - Confirms your selection.



**Custom Area**

- Define an individual screen capture area by using the four input fields.

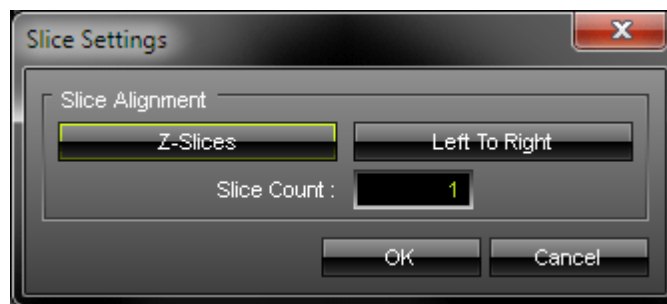
**Left** and **Top** - Define the start coordinates in a coordinate system that starts with 0,0 in the top left corner.

**Width** - Defines the total horizontal size of the screen capture area in X.

**Height** - Defines the total vertical size of the screen capture area in Y.

## Slices

**SL** **SL** - Calls up **Slice Settings**



- **Slice Settings** - Is a way to bring 2D content to 3D LED matrices by slicing the content into different parts and applying each slice to X-levels, Y-levels, or Z-levels as required. [You will get the most benefit out of this feature when using content that are made up of different parts and are especially created for this area of application.]

**Example:** Your virtual LED matrix is 10 x 8 x 4. Now, you have prepared a video feed and want to display it not only on the first Z-level or use Extrude, but on all 4 Z-levels. Then, you would let MADRIX create 4 slices.

- **Slice Type** - Defines the 3D orientation of how slices are applied to your LED matrix.
  - **X-Slices** - Uses slices to fill the LED matrix; always starting from left to right.
  - **Y-Slices** - Uses slices to fill the LED matrix; always starting from top to bottom.
  - **Z-Slices** - Uses slices to fill the LED matrix; always starting from front to back.

- **Slice Order** - Defines how your source content is processed.
  - **Left To Right** - MADRIX slices the content starting left.  
[The first, left slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Right To Left** - MADRIX slices the content starting right.  
[The first, right slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Top To Bottom** - MADRIX slices the content starting top.  
[The first, top slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Bottom To Top** - MADRIX slices the content starting bottom.  
[The first, bottom slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  
- **Slice Count** - Defines in how many slices the content is divided. A value of 1 means that no slices are created and that the video feed is used as one. [A value of 4, for example, will create 4 slices that each make up 25% of the source content.]
  
- The settings with the highest performance are **Z-Slices** and **Top To Bottom**
  
- Confirm with **OK**, restore the default settings via **Defaults**, or abort the process using **Cancel**
- Learn more »[SCE Image](#)

### 8.1.26 SCE Shapes

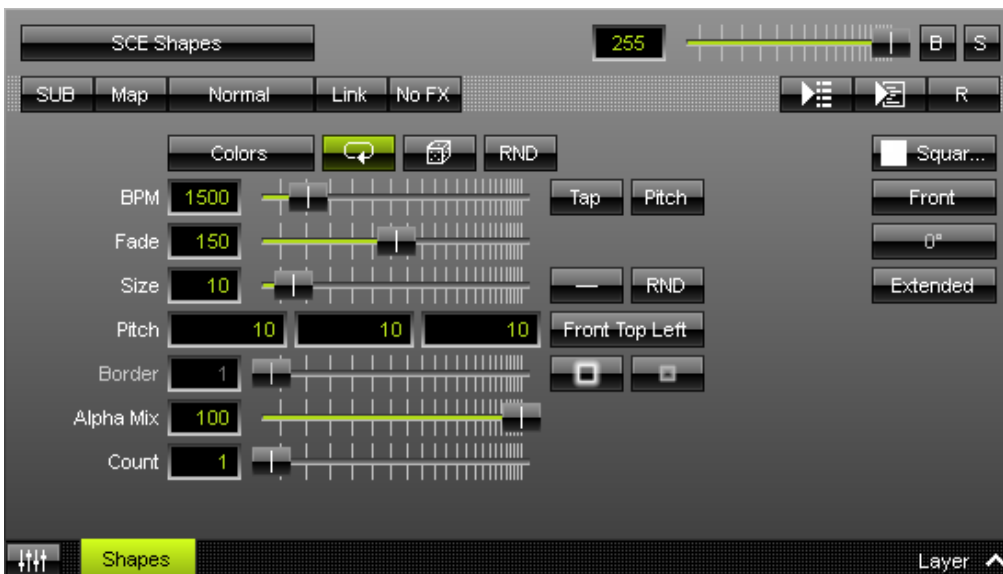
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

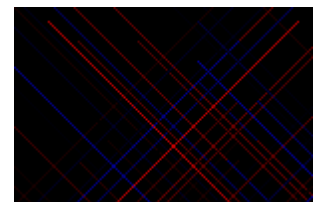
## Introduction

SCE Shapes creates various objects at random positions.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Fade** - Defines how fast objects disappear. The default value is 150. Valid values range from 1 to 3000.
- **Size** - Defines the size of the objects [in % of the Matrix Size, depending on the Shape Alignment]. The default value is 10. Valid values range from 0.01 to 1000.
- **Pitch** - Defines the distance between objects for all 3 axes [in % of the Matrix Size]. The default values are 10, 10, 10. Valid values range from 0.01 to 100.
- **Border** - Defines the size of an object's border [in % of the shape size]. The default value is 1. Valid values range from 0.01 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each object [in %]. Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.
- **Count** - Defines the number of objects created at once. The default value is 1. Valid values range from 1 to 100.



**Distribution** - Allows you to choose a certain Distribution Mode for the specific parameter. Often, you can then define a minimum value and a maximum value.

**Uniform** - Each object has the same size.

**Random** - Sizes will be generated randomly.



**RND** - Generates random object sizes each time. This automatically activates Random Distribution Mode.



**Outer Glow / Inner Glow** - Is only available for specific Shapes. Defines the outer shimmer or inner gleam of objects. The default values are 0.00. Valid values range from 0.01 to 100.



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Square Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°**, **90°**, **180°**, **270°**, **Random**].



**Rendering Mode** - Defines how objects are rendered. Each mode may enable additional settings [such as additional Shapes]. Choose from 2 different modes. The default setting is Extended.

- **Simple** - Prioritizes processing speed over rendering possibilities.

- **Extended** - Prioritizes rendering possibilities over over processing speed. This mode may require more performance.

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.1.27 SCE Simple Shape

This topic includes:

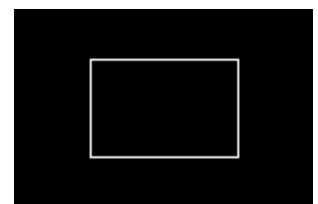
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

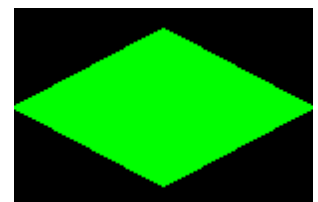
SCE Simple Shape displays very basic objects.

This effect is particularly useful for 3D or in combination with other Layers and Mix Modes.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **Position** - Defines the position of the object in **X**, **Y**, and **Z** [in %]. The default values are 25, 25, 25. Valid values range from -1000 to 1000.
- **Size** - Defines the size of objects [Width, Height, Depth] [in %]. The default values are 50, 50, 50. Valid values range from 0.01 to 1000.
- **Rotation** - Defines the rotation of objects in **X**, **Y**, and **Z** [in °]. The default values are 0, 0, 0. Valid values range from -180 to 180.
- **Outer Glow** - Defines the outer shimmer of objects. The default value is 25. Valid values range from 1 to 100.
- **Border** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines how thick the outer line [border] of objects is. The default value is 25. Valid values range from 0.01 to 100.
- **Inner Glow** - Defines the inner gleam of objects which are not filled. The default value is 25. Valid values range from 1 to 100.
- **Proportion** - Is only available for Cross and Cross Straight Shapes. Defines the size of arms in relation to the overall size of the Shape. The default value is 37.5. Valid values range from 0.01 to 100.
- **Diagonals** - Is only available for certain Cross and Star Shapes. Defines the length of the diagonal arms in relation to the overall size of the Shape. The default value is 70.7. Valid values range from 0.01 to 100.



Front Top Left

**Position Origin Type** - Defines the point of origin of the Shape [and hence its relative position].

Center

**Rotation Origin Type** - Defines the point of origin of the applied rotation.

Linear

**Interpolation Type** - Defines how the Outer Glow will look like [**Linear, Ease In Bounce, Ease Out Bounce, Ease In Out Bounce, Ease In Circular, Ease Out Circular, Ease In Out Circular, Ease In Cubic, Ease Out Cubic, Ease In Out Cubic, Ease In Sinusoidal, Ease Out Sinusoidal, Ease In Out Sinusoidal, Ease In Exponential, Ease Out Exponential, Ease In Out Exponential**]. The default value is Linear.

Linear

**Interpolation Type** - Defines how the Inner Glow will look like [**Linear, Ease In Bounce, Ease Out Bounce, Ease In Out Bounce, Ease In Circular, Ease Out Circular, Ease In Out Circular, Ease In Cubic, Ease Out Cubic, Ease In Out Cubic, Ease In Sinusoidal, Ease Out Sinusoidal, Ease In Out Sinusoidal, Ease In Exponential, Ease Out Exponential, Ease In Out Exponential**]. The default value is Linear.

Recta...

**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Rectangle Outlined.

Front

**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.

0°

**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°, 90°, 180°, 270°**].

Extended

**Rendering Mode** - Defines how objects are rendered. Each mode may enable additional settings [such as additional Shapes]. Choose from 2 different modes. The default setting is Extended.

- **Simple** - Prioritizes processing speed over rendering possibilities.
- **Extended** - Prioritizes rendering possibilities over over processing speed. This mode may require more performance.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.28 SCE Starfield

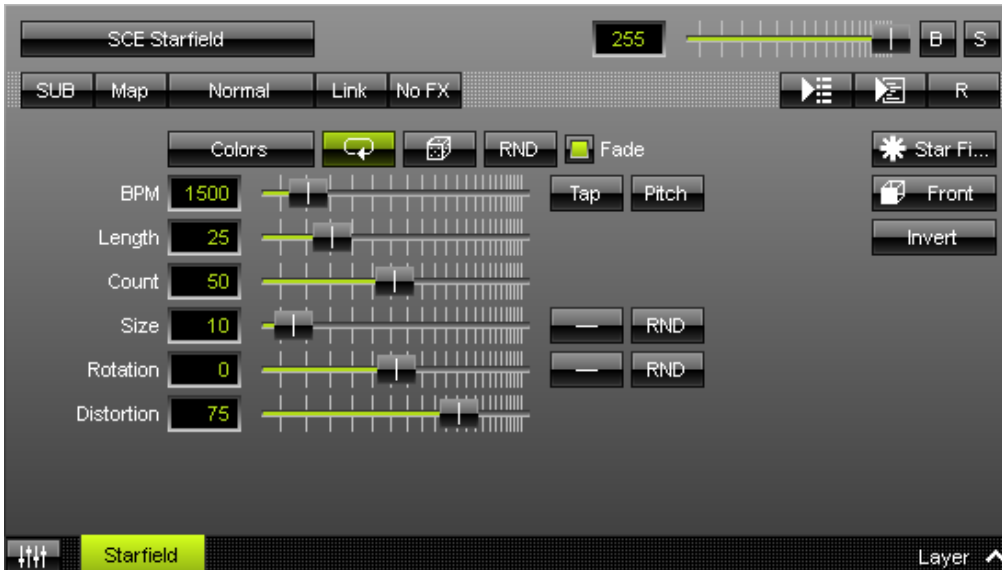
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

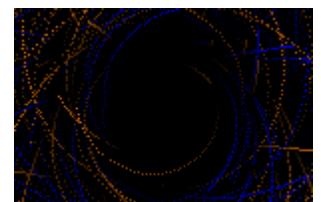
### Introduction

SCE Starfield mainly simulates a field of stars streaming towards the viewer from the center. This creates a depth effect.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Length** - Defines the length of objects' trace. The default value is 25. Valid values range from 1 to 1000.
- **Count** - Defines the number of displayed objects. The default value is 50. Valid values range from 1 to 1000.
- **Size** - Defines the size of objects [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 1000.
- **Rotation** - Defines if the objects rotate around the center [in °]. The default value is 0. Valid values range from -3600 to 3600.
- **Distortion** - Defines the distortion towards the center creating the depth effect [in %]. The default value is 75. Valid values range from 1 to 100.



**Distribution** - Allows you to choose a certain Distribution Mode for the specific parameter. Often, you can then define a minimum value and a maximum value.

**Uniform** - Each object has the same size.

**Random** - Sizes will be generated randomly.



**RND** - Generates random object sizes each time. This automatically activates Random Distribution Mode.



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Star.



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Invert** - Inverts the direction of the effect [from outwards to inwards/from near to far].

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.29 SCE Swarm

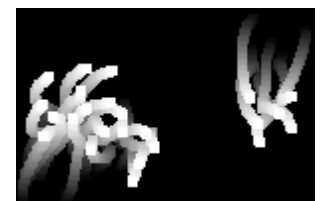
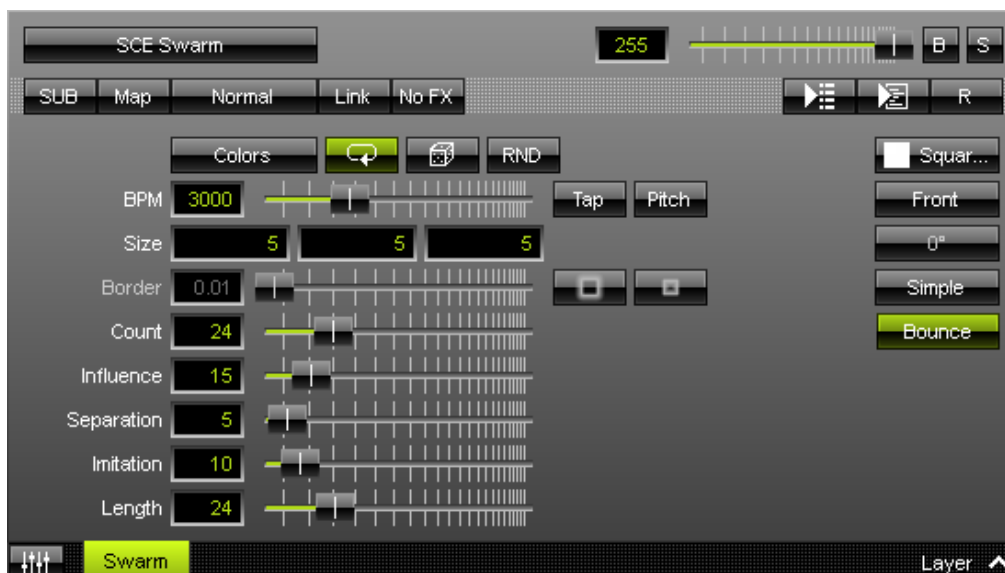
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

SCE Swarm creates moving objects that react according to a swarm intelligence and thus imitate movement behavior.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **Size** - Defines the size of objects [Width, Height, Depth]. The default values are 5, 5, 5. Valid values range from 0.1 to 100.
- **Border** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines how thick the outer line [border] of objects is. The default value is 1. Valid values range from 0.01 to 100.
- **Count** - Defines the number of objects. The default value is 24. Valid values range from 1 to 100.
- **Influence** - Defines a radius in which objects influence other objects [in %]. The higher the value, the more visible the swarm behavior. The default value is 15. Valid values range from 0 to 100.
- **Separation** - Defines how close objects can be to each other [in %]. The higher the value, the more space will be between objects. The default value is 5. Valid values range from 0 to 100.
- **Imitation** - Defines how closely objects imitate the movement of other objects [in %]. The default value is 10. Valid values range from 0 to 100.
- **Length** - Defines the length of objects and their tail [in %]. The default value is 30. Valid values range from 0 to 100.



**Outer Glow / Inner Glow** - Is only available for specific Shapes. Defines the outer shimmer or inner gleam of objects. The default values are 0.00. Valid values range from 0.01 to 100.



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Square Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [**0°**, **90°**, **180°**, **270°**, **Random**].



**Rendering Mode** - Defines how objects are rendered. Each mode may enable additional settings [such as additional Shapes]. Choose from 3 different modes. The default setting is Simple.

- **Simple** - Prioritizes processing speed over rendering possibilities.
- **Extended** - Prioritizes rendering possibilities over over processing speed. This mode may require more performance.
- **Blobby** - Prioritizes rendering possibilities over over processing speed and produces blobby objects. This mode may require more performance.



**Bounce** - When activated, objects will bounce of the boundaries of the virtual LED matrix. Deactivate it and objects will appear on the opposite side when crossing a boundary.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].



### 8.1.30 SCE Ticker / Scrolling Text

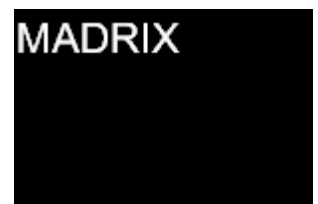
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)
- [Important Details](#)

## Introduction

SCE Ticker / Scrolling Text allows you to bring any text message to your LEDs.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

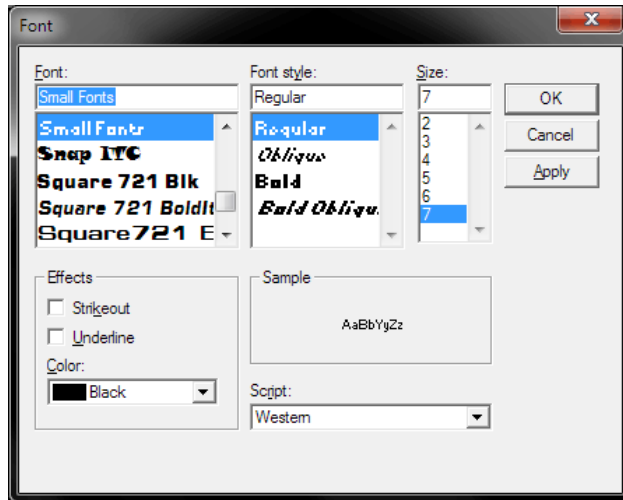
## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed [when using a direction/movement]. The default value is 600. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Position** - Defines the position of the text in **X**, **Y**, and **Z** [in %]. The default values are 0, 0, 0. Valid values range from -1000 to 1000.
- **Extrusion** - Adds depth to the text [in % of the Matrix Size]. This is mainly relevant for 3D. The default value is 100. Valid values range from 0.01 to 100.
- **Text** - Allows you to enter any text. Simply write something via your keyboard. The default text is MADRIX.
- **Splitting** - Allows you to split your text.
  - None** - Is the default value and does not apply any splitting.
  - Words** - Splits your text using each word, adds line breaks, and displays each word below the other.
  - Characters** - Splits your text using each character [letter], adds line breaks, and displays each character below the other.
- **Reverse Words** - Displays the words of your text in reverse order.
- **Reverse Characters** - Displays your complete text in reverse order, character by character.



**Font** - Opens a new window and allows you to choose a specific font, font size, and other font settings. [Any color set up in this window will be ignored. Use the MADRIX color controls instead.]



**Filtering** - Defines how input is processed and displayed. Mainly affects the visual outcome when the input is scaled up or down [e.g., when choosing a different mode for Stretching / Aspect Ratio]. Choose from 2 different modes. The default setting is None.

- **None** - Prioritizes processing speed over image quality.
- **Linear** - Prioritizes image quality over processing speed. This mode may affect performance.



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is Left. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Rotation** - Allows you to rotate the text [**0°**, **90°**, **180°**, **270°**]. The default value is 0.



**Tile** - Allows you to tile and duplicate the text and thereby generating patterns.

 Seamless

**Seamless** - Activates or deactivates a continuous stream of text. MADRIX will automatically display the text again, when the main text has ended. Otherwise, MADRIX will display the complete text first, before displaying it again.

 None

**Stretching / Aspect Ratio** - Allows you to choose the aspect ratio of the text. The default value is None.

**None** - Disables stretching.

**Matrix** - Stretches to the current aspect ratio of the virtual LED matrix.

**Original** - Stretches to the original aspect ratio of the source.

**4:3** - Applies a 4:3 aspect ratio.

**16:9** - Applies a 16:9 aspect ratio.

## Restoring The Default Settings

 R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Important Details

### How To Create Smoother Text Movements

Depending on your LEDs, the pixel pitch, and other factors, you might have the impression that text is not moving as fluently and smoothly as it should.

**Follow these steps to create a better perceived image quality.**

In general, stuttering effects are perceived to be less,

- the smaller the pixel pitch of your LED products is,
- the faster the text is scrolling [**BPM**],
- and the wider and larger the text is.

**1]** Choose a BPM value that makes the SCE Ticker Effect look good. Some recommended speeds are: 300 BPM, 350 BPM, 600 BPM, 750 BPM, 1500 BPM, and 3000 BPM.

**2]** Choose a font that is bold. Please avoid fine fonts or italics.

**3]** Try to choose a font that automatically has Anti-Aliasing applied to it. Not every font family automatically supports Anti-Aliasing. Anti-Aliasing reduces hard edges and makes the font smoother.

**4]** Reduce the overall tonal contrast of the Effect and image output. For example, white text on black background creates one of the highest contrasts. The higher the contrast, the more the text seems to be flickering.

## Typefaces

Typefaces can be grouped into two main categories:

- Serif [Such fonts contain small features at the end of strokes within letters]
- Sans-serif [Such fonts have a clearer, simple appearance]

**Serif Font**

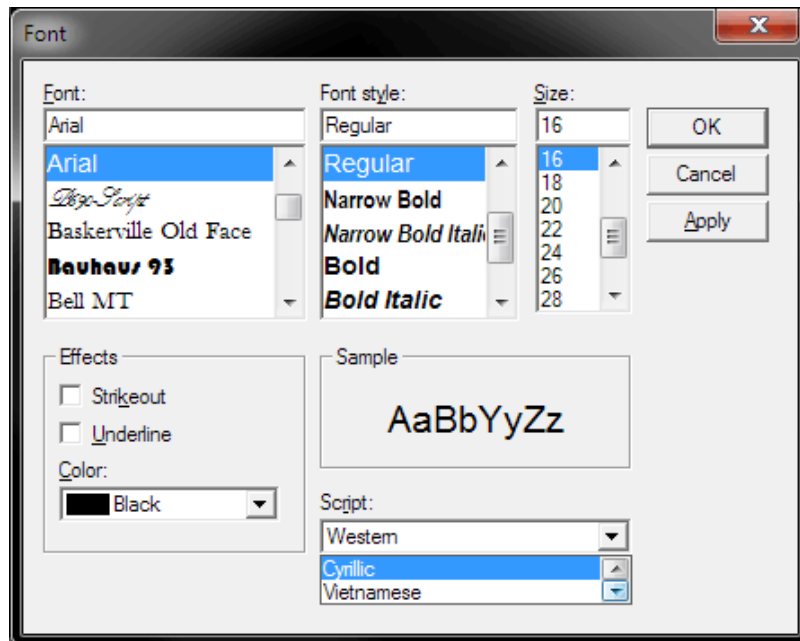
AaBbCc

**Sans-Serif Font**

AaBbCc

## How To Use Other Languages [Such As Russian Or Chinese]

- In Windows, go to **Start > Control Panel > Region and Language > Keyboards and Languages**
- Set up the language you want to use [Russian, Chinese, etc.].
  - Regarding Windows 7, only when using Windows 7 Ultimate you are allowed to install additional languages in addition to the standard language.
- In MADRIX, select **SCE Ticker / Scrolling Text**
- Click **Aa** to open the Font window.
- Choose a universal, extensive font, such as **Arial**
- Choose **Cyrillic** [or Chinese, etc.] under **Script**
- Close the Font window.
- Input any text into **Text**



### 8.1.31 SCE Tubes

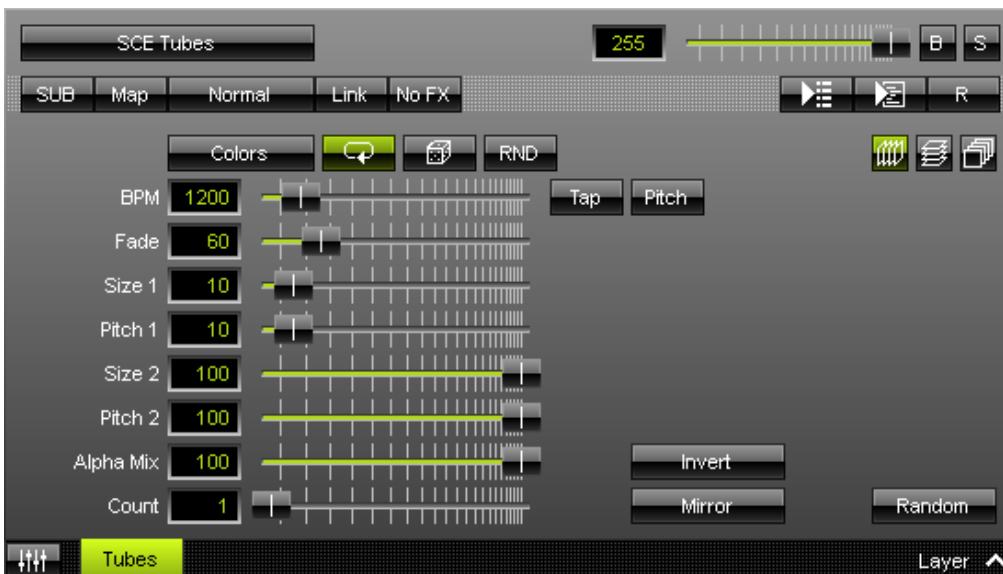
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

SCE Tubes displays various kinds of tubes at various positions.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 1200. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Fade** - Defines how fast MADRIX displays the effect [in %]. The default value is 60. Valid values range from 1 to 3000.
- **Size 1** - Defines the first size of tubes depending on the direction [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Pitch 1** - Defines the first distance between tubes depending on the direction [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Size 2** - Defines the second size of tubes depending on the direction [in % of the Matrix Size]. The default value is 100. Valid values range from 0.01 to 100.
- **Pitch 2** - Defines the first distance between objects depending on the direction [in % of the Matrix Size]. The default value is 100. Valid values range from 0.01 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each object. Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.
- **Count** - Defines the number of objects. The default value is 1. Valid values range from 1 to 9999.



**Invert** - Inverts the position of objects.





**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Vertical Mode** - Activates or deactivates the use of vertical objects. All 3 modes can be used at the same time.



**Horizontal Mode** - Activates or deactivates the use of horizontal objects. All 3 modes can be used at the same time.



**Depth Mode** - Activates or deactivates the use of objects in the depth. All 3 modes can be used at the same time.



**Mode** - Allows you to choose the mode in which way objects are generated [**Random**, **Linear**, or **Ping Pong**]. The default Mode is Random.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.1.32 SCE Video

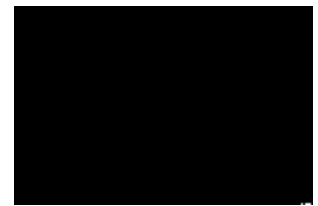
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)
- [Slices](#)
- [No Audio Track / Sound Playback](#)
- [Important Notes](#)
- [Video Codecs](#)
- [Using Videos In Your MADRIX Setup](#)
- [MADRIX Record Files](#)

### Introduction

SCE Video allows you to load a video file into MADRIX and display it on your LEDs.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Filter** - Applies a multiplicative color filter to the image. The default value is White.
  - **GS** - Activates grayscale mode to show the input only in gray shades. The Filter is independent of this mode.
  - **RGBW** - Converts the input into RGBW. This is useful when using RGBW fixtures to convert from the standard RGB color values of the input. If the option is disabled when using RGBW fixtures, the input will appear darker since the White channel is not used. The W color channel of the Filter only works if RGBW is activated.

Learn more »[Using Colors And Intensity](#)

- **BPM** - Defines the speed [when using a direction/movement]. The default value is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Position** - Defines the position of the image in **X**, **Y**, and **Z** [in %]. The default values are 0, 0, 0. Valid values range from -1000 to 1000.
- **Playback Rate** - Defines the speed of the Image Table and how fast images are changed.
  - The default value is 1, which means that the Duration of the Image Table for each image is used. A rate of 2 doubles the speed and cuts the Duration in half, for example.
  - Is only supported by specific video codecs [such as, QuickTime].
- **Extrusion** - Adds depth to the input; i.e. duplicates the input image [in %]. This is mainly relevant for 3D. The default value is 100. Valid values range from 0.01 to 100.



**Open** - Allows you to load a video into MADRIX. Select the file on your computer or another source.



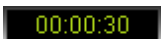
**Start Time** - Displays the Start Time of the video. The time format is hours:minutes:seconds [HH:MM:SS].

- When loading a video file, MADRIX automatically displays the Start Time, which is normally **00:00:00**
- Also allows you to enter an individual Start Time to begin the video at a different position.

**Spacebar** - Resets to the default value.



**Set Start Time** - Allows you to define an individual Start Time to begin the video at a different position. First, please enter a different Start Time.



**End Time** - Displays the End Time of the video. The time format is hours:minutes:seconds [HH:MM:SS].

- When loading a video file, MADRIX automatically displays the End Time for the loaded video file.
- Also allows you to enter an individual End Time to let the video end/stop at a different position.

**Spacebar** - Resets to the default value.

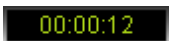


**Set End Time** - Allows you to define an individual End Time to let the video end/stop at a different position. First, please enter a different End Time.



**Position Slider** - This slider shows the current position of the video.

- You can use the slider to set a different position.
- You can use the white triangles to define a different Start Time and End Time.



**Current Position** - Displays the current position of the video. The time format is hours:minutes:seconds [ **HH:MM:SS** ].



**Skip To Start** - Instantly skips to the Start Time of the video.

**Step 1 Frame Back** - Allows you to go 1 frame backward. Is only supported by specific video codecs [such as, QuickTime].

**Play Backwards** - Allows you to play the video backwards. Is only supported by specific video codecs [such as, QuickTime].



**Play** - Starts the video playback.

**Skip 1 Frame** - Allows you to go 1 frame forward. Is only supported by specific video codecs [such as, QuickTime].

**Skip To End** - Instantly skips to the End Time of the video.



**Pause** - Allows you to pause video playback. The video stops at the current position.

**Playback Mode** - Allows you to define the playback behavior.



**Once [Set Position To End Frame]** - Plays back the video normally, one time, from start to end. The Position will remain at the End Time.



**Once [Set Position To Start Frame]** - Plays back the video normally, one time, from start to end. The Position will jump back to the Start Time.



**Loop [Default]** - Activates forward [or backwards] looping. The video file will be played back repeatedly in a loop.



**Bounce** - Activates changing the playback direction when reaching the video End Time or Start Time. Is only supported by specific video codecs [such as, QuickTime].

AS

**Autostart** - Automatically starts the video after it has been loaded into MADRIX or after changing a Storage Place.

None

**Filtering** - Defines how input is processed and displayed. Mainly affects the visual outcome when the input is scaled up or down [e.g., when choosing a different mode for Stretching / Aspect Ratio]. Choose from 2 different modes. The default setting is None.

- **None** - Prioritizes processing speed over image quality.
- **Linear** - Prioritizes image quality over processing speed. This mode may affect performance.

DI

**Deinterlace Mode** - Allows you to choose from several Deinterlace Modes.

Often digital cameras, digital broadcasting, or digital filming is done via interlacing. In order to get 25 frames per seconds, 50 pictures are shot and merged/mixed with one another. You receive 25 odd frames [frame set 1] and 25 even frames [frame set 2] that contain different picture information [alternating pixel lines]. In order to get an undisturbed picture, proper deinterlacing is necessary.

**None** - Deactivates deinterlacing.

**Bob** - Uses one set of 25 frames [even or odd] and copies missing information from the pictures provided. Pixel lines are copied to create a full image. Activate **Top Field First** in order to process the frame set with the first pixel line first.

**Bob Linear** - This is the recommended deinterlace mode. It uses one set of 25 frames, but builds an average for the missing pixel lines. Activate **Top Field First** in order to process the frame set with the first pixel line first.

**Blend** - Renders an average image from frame set 1 and frame set 2.

**Discard** - Simply dismisses missing information. Thereby, pixel lines are excluded. This results in half of the original resolution for the final image. Activate **Top Field First** in order to process the frame set with the first pixel line first.

SL

**Slices** - Is a way to bring 2D content to 3D LED matrices by slicing the content into different parts and applying each slice to X-levels, Y-levels, or Z-levels as required. Learn more [Slices](#)



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is None.



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Rotation** - Allows you to rotate the input [**0°**, **90°**, **180°**, **270°**]. The default value is 0.



**Tile** - Allows you to tile and duplicate the input and thereby generating patterns.



**Seamless** - Activates or deactivates a continuous stream of the video image. MADRIX will automatically display the video image again to create a continuous display.



**Stretching / Aspect Ratio** - Allows you to choose the aspect ratio of the video. The default value is Matrix.

**None** - Disables stretching.

**Matrix** - Stretches to the current aspect ratio of the virtual LED matrix.

**Original** - Stretches to the original aspect ratio of the source.

**4:3** - Applies a 4:3 aspect ratio.

**16:9** - Applies a 16:9 aspect ratio.

## Restoring The Default Settings

R

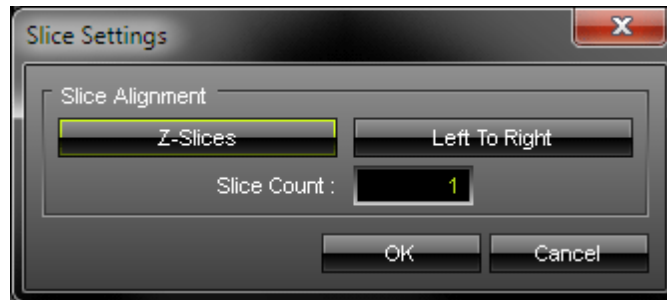
**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Slices

SL

**SL** - Calls up **Slice Settings**



- **Slice Settings** - Is a way to bring 2D content to 3D LED matrices by slicing the content into different parts and applying each slice to X-levels, Y-levels, or Z-levels as required. [You will get the most benefit out of this feature when using content that are made up of different parts and are especially created for this area of application.]

**Example:** Your virtual LED matrix is 10 x 8 x 4. Now, you have prepared a video and want to display it not only on the first Z-level or use Extrude, but on all 4 Z-levels. Then, you would let MADRIX create 4 slices.

- **Slice Type** - Defines the 3D orientation of how slices are applied to your LED matrix.
  - **X-Slices** - Uses slices to fill the LED matrix; always starting from left to right.
  - **Y-Slices** - Uses slices to fill the LED matrix; always starting from top to bottom.
  - **Z-Slices** - Uses slices to fill the LED matrix; always starting from front to back.



- **Slice Order** - Defines how your source content is processed.
  - **Left To Right** - MADRIX slices the content starting left.  
[The first, left slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Right To Left** - MADRIX slices the content starting right.  
[The first, right slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Top To Bottom** - MADRIX slices the content starting top.  
[The first, top slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  - **Bottom To Top** - MADRIX slices the content starting bottom.  
[The first, bottom slice will then be applied to the left for X-Slices, to the top for Y-Slices, and to the front for Z-Slices.]
  
- **Slice Count** - Defines in how many slices the content is divided. A value of 1 means that no slices are created and that the video is used as one. [A value of 4, for example, will create 4 slices that each make up 25% of the source content.]
  
- The settings with the highest performance are **Z-Slices** and **Top To Bottom**
  
- Confirm with **OK**, restore the default settings via **Defaults**, or abort the process using **Cancel**
- Learn more »[SCE Image](#)

## No Audio Track / Sound Playback

MADRIX and the SCE Video Effect do not support playing the audio track of video files or providing sound output.

## Important Notes

- **To play back video, a video codec is required. Each video file format requires a special video codec.**
- **Windows already provides a number of codecs, but often additional codecs are necessary.**
- **If some features described above are not available, the video codec might simply not support this feature.**
- **Learn more below.**

## Video Codecs

### Overview

- All video codecs that are installed on your computer are automatically supported by MADRIX.
- If you are experiencing problems, read below.

### Apple QuickTime

- If you want to use all the features of the SCE Video effect [such as frame skipping or backward playback ], use Apple QuickTime videos.
- Apple QuickTime videos are of the \*.mov or \*.qt file types.
- Make sure that Apple QuickTime 6.0 or above is installed.
- MADRIX can automatically activate and load QuickTime when MADRIX starts.  
Learn more: »[Startup](#)
- Web Link: »[Apple QuickTime](#)

## Solving Codec Problems

- **If MADRIX is not able to play back a video file, make sure to install the appropriate video codec on your computer.**

- **Make sure to install Apple QuickTime.**
- Collections of video codecs are available in so-called video codec packs.
- **If you install a new codec pack, make sure to uninstall a previously installed codec pack first. Often, it also makes no sense to install multiple codec packs since similar codecs may not work correctly anymore.**
- The following codec packs can be recommended for download:
  - Web Link: »[K-Lite Codec Pack](#)
  - Web Link: »[LAV Filters](#)

## Using Videos In Your MADRIX Setup

- When using video files, MADRIX will automatically locate these files on your harddisk. It also saves the folder location internally to access the video file.
- But MADRIX will not save the videos in your MADRIX Setup File!
- In order to play the setup on a different computer, you will need to copy your videos, too. Make sure that they are placed in the same folder location.

## MADRIX Record Files

- The SCE Video effect is also able to play back MADRIX Record Files [of the file type \*.mrec].  
Learn more »[Recording](#)

### 8.1.33 SCE Wave / Radial

This topic includes:

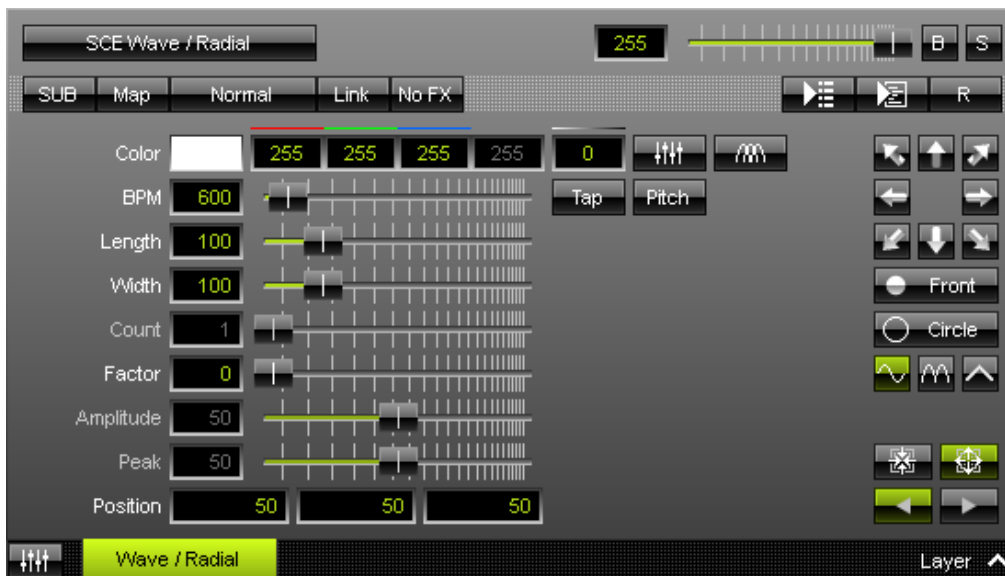
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

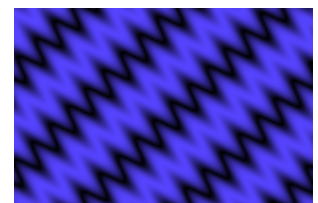
SCE Wave / Radial displays various linear or circular waves.

[In MADRIX 2, SCE Wave / Radial was split into two effects, SCE Wave and SCE Radial.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 600. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Length** - Defines the length of the wave. The default value is 100. Valid values range from 1 to 500.
- **Width** - Defines the width of the wave. The default value is 100. Valid values range from 1 to 500.
- **Count** - Defines the number of extensions for mode **Radar** and **Helix**. The default value is 1. Valid values range from 1 to 50.
- **Factor** - Influences how the wave is drawn and bends the wave [in %]. The default value is 0. Valid values range from 0 to 100.
- **Amplitude** - Defines the intensity of **Factor**. The default value is 50. Valid values range from 0 to 100. Factor needs to be higher than 0 to use Amplitude.
- **Peak** - Defines the position of the peak of the wave for Draw Mode **Triangle**. The default value is 50. Valid values range from 0 to 100.
- **Position** - Defines the position of the center in **X**, **Y**, and **Z** [in %]. The default values are 50, 50, 50. Valid values range from -1000 to 1000.



**Direction** - Allows you to choose the direction of the movement. This includes all directions for 2D and 3D mode. The default Direction is Front. Learn more »[Using Directions](#)



**Mode** - Allows you to choose the main mode. This heavily influences the visual outcome of the effect [**Linear**, **Circle**, **Square**, **Diamond**, **Radar**, **Helix**, **3D Sphere**, **3D Cube**, **3D Octahedron**]. The default Mode is Circle.

- **Make sure to adjust the Direction as required [especially for Mode Linear]!**



**Draw Mode** - Allows you to change the wave form, which influences how the effect is drawn [**Sine**, **Absolute Sine**, or **Triangle**]. The default Draw Mode is Sine.



**Movement** - Allows you to choose the movement direction [**Inwards** or **Outwards**]. The default Movement is Outwards.



**Rotation** - Allows you to choose the rotation direction [**Clockwise** or **Counter-clockwise**]. The default Rotation is Clockwise.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.2 Sound2Light Effects [S2L]

This topic includes:

- [Introduction](#)
- [Performance Adjustments](#)
- [Topics Of This Chapter](#)

### Introduction

Sound2Light Effects [S2L] require an audio input signal. As a result, amazing light effects that are synchronized to the music will be generated!

### Performance Adjustments

You are able to adjust parameters for the audio analysis and influence how S2L Effects work.

Learn more »[Audio Configuration And ASIO](#)

### Topics Of This Chapter

MADRIX includes the following Sound2Light Effects:

- »[S2L Drops](#)
- »[S2L EQ / Spectrum](#)
- »[S2L Frequency Flash](#)
- »[S2L Level Color](#)
- »[S2L Level Color Scroll](#)

- »[S2L Level Meter](#)
- »[S2L Level Shape](#)
- »[S2L Shapes](#)
- »[S2L Tubes](#)
- »[S2L Waveform](#)
- »[S2L Wavegraph](#)



## 8.2.1 S2L Drops

This topic includes:

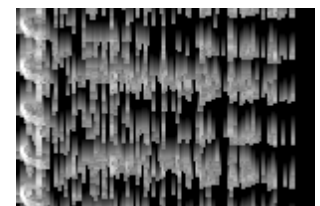
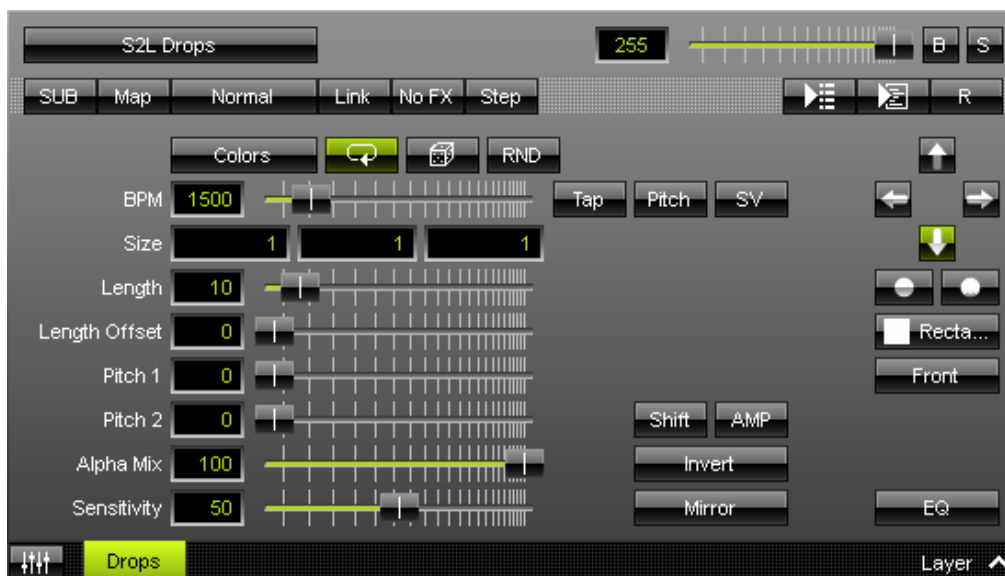
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

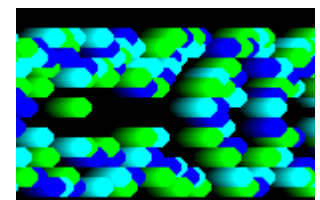
S2L Drops displays drops according to the audio input.

[In MADRIX 2, S2L Drops was named S2L EQ Drops.]

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default speed is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Size** - Defines the size of objects [Width, Height, Depth]. The default values are 1, 1, 1. Valid values range from 0.01 to 1000.
- **Length** - Defines how long the trace of a drop is [in % of the Matrix Size, depending on the direction]. The default value is 10. Valid values range from 0 to 100.
- **Length Offset** - Defines if an offset is added to the trace of a drop [in %]. The default value is 0. Valid values range from 0 to 100.
- **Pitch 1** - Defines the first distance between objects depending on the direction [in % of the Matrix Size]. The default value is 0. Valid values range from 0 to 100.
- **Pitch 2** - Defines the second distance between objects depending on the direction [in % of the Matrix Size]. The default value is 0. Valid values range from 0 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each drop [in %]. Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.
- **Sensitivity** - Defines how quickly and accurately MADRIX reacts when such frequencies occur [in %]. The default value is 50. Valid values range from 0 to 100.



**Shift** - Shifts the position of equalizer bands [in %]. By default, lower frequencies are shown to the left and high frequencies are shown to the right. The default value is 0. Valid values range from 0 to 100.



**Amplification** - Amplifies the audio input and as a result increases the visual intensity [in %]. The default value is 0. Valid values range from 0 to 100.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Direction** - Allows you to choose the direction. The default Direction is Down. Learn more » [Using Directions](#)



**Direction** - Allows you to choose the direction of the movement [**To The Front** or **To The Back**]. This is mainly relevant for 3D. The default Direction is Down. Learn more » [Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Rectangle Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Mode** - Allows you to choose the mode in which way objects are generated [**EQ**, **Level Mono**, or **Level Stereo**]. The default Mode is EQ.

## [Restoring The Default Settings](#)

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.2.2 S2L EQ / Spectrum

This topic includes:

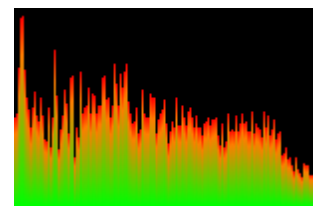
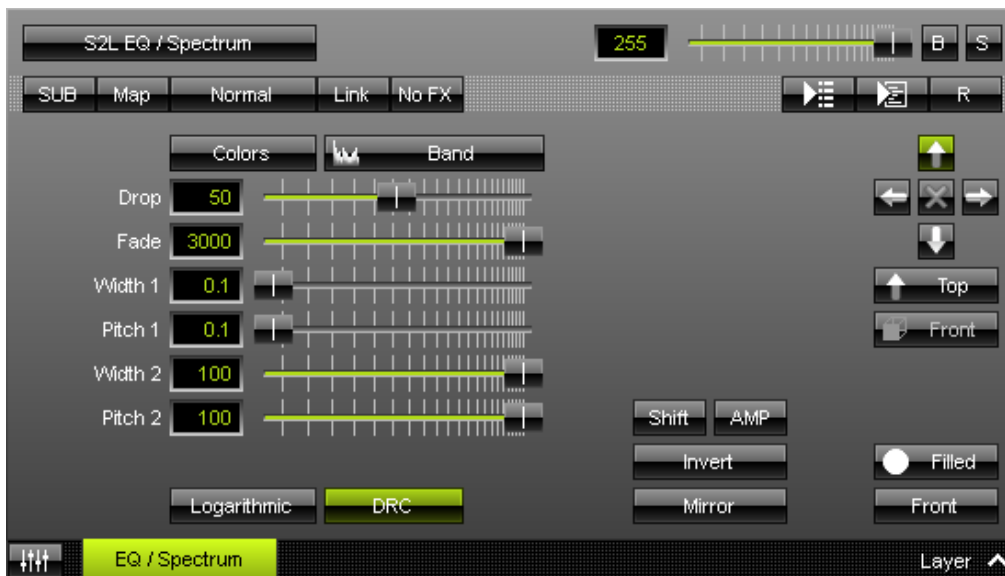
- Introduction
- Overview
- Layer Settings
- Effect Settings
- Restoring The Default Settings

## Introduction

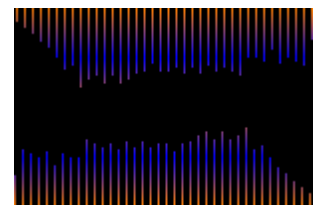
S2L EQ / Spectrum displays a real-time equalization and visualization of the audio signal [i.e., audio spectrum].

[In MADRIX 2, S2L EQ / Spectrum was named S2L Equalizer.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Gradient to specify the colors. The default color is Red, Orange, Green.  
Learn more »[Using Colors And Intensity](#)
- **Drop** - Defines how quickly spectrum bars are not displayed any more and drop out of the matrix [in %]. The default value is 50. Valid values range from 1 to 100.
- **Fade** - Defines how fast MADRIX displays the effect [in %]. The default value is 3000. Valid values range from 1 to 3000.
- **Width 1** - Defines the first size of spectrum bars depending on the direction [in % of the Matrix Size]. The default value is 0.1. Valid values range from 0.01 to 100.
- **Pitch 1** - Defines the first distance between spectrum bars depending on the direction [in % of the Matrix Size]. The default value is 0.1. Valid values range from 0.01 to 100.
- **Width 2** - Defines the second size of spectrum bars depending on the direction [in % of the Matrix Size]. The default value is 100. Valid values range from 0.01 to 100.
- **Pitch 2** - Defines the first distance between spectrum bars depending on the direction [in % of the Matrix Size]. The default value is 100. Valid values range from 0.01 to 100.

Logarithmic

**Logarithmic** - Displays the spectrum in a logarithmic way.



**Dynamic range Control** - Visually amplifies and balances frequencies to get a more interesting spectrum.



**Shift** - Shifts the position of equalizer bands [in %]. By default, lower frequencies are shown to the left and high frequencies are shown to the right. The default value is 0. Valid values range from 0 to 100.



**Amplification** - Amplifies the audio input and as a result increases the visual intensity [in %]. The default value is 0. Valid values range from 0 to 100.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Direction/Mode** - Allows you to choose the direction, including Cross Mode. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Top. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].



## 8.2.3 S2L Frequency Flash

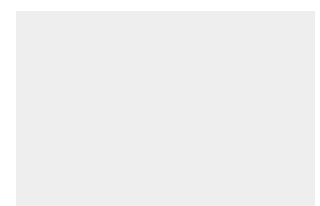
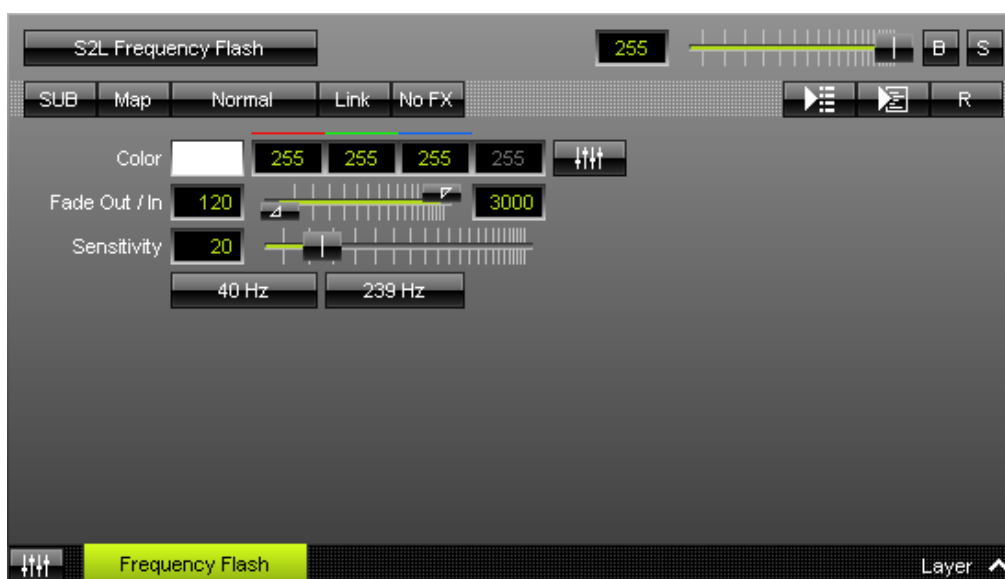
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

S2L Frequency Flash analyzes the audio input for certain frequencies and flashes the LED matrix when such frequencies occur in the audio input.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **Fade Out / In** - Defines how fast MADRIX flashes [in %]. You can specify the fade-in speed as well as the fade-out speed. This value represents Beats Per Minute [BPM]. The default values are 120 and 3000. Valid values range from 1 to 3000.
- **Sensitivity** - Defines how quickly and accurately MADRIX reacts when such frequencies occur [in %]. The default value is 20. Valid values range from 1 to 100.

A dark grey rectangular control knob with the text "40 Hz" in white.

- Defines the lower limit of the analyzed frequency spectrum. If a frequency in this range occurs, MADRIX will flash the matrix.

A dark grey rectangular control knob with the text "239 Hz" in white.

- Defines the upper limit of the analyzed frequency spectrum. If a frequency in this range occurs, MADRIX will flash the matrix.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.2.4 S2L Level Color

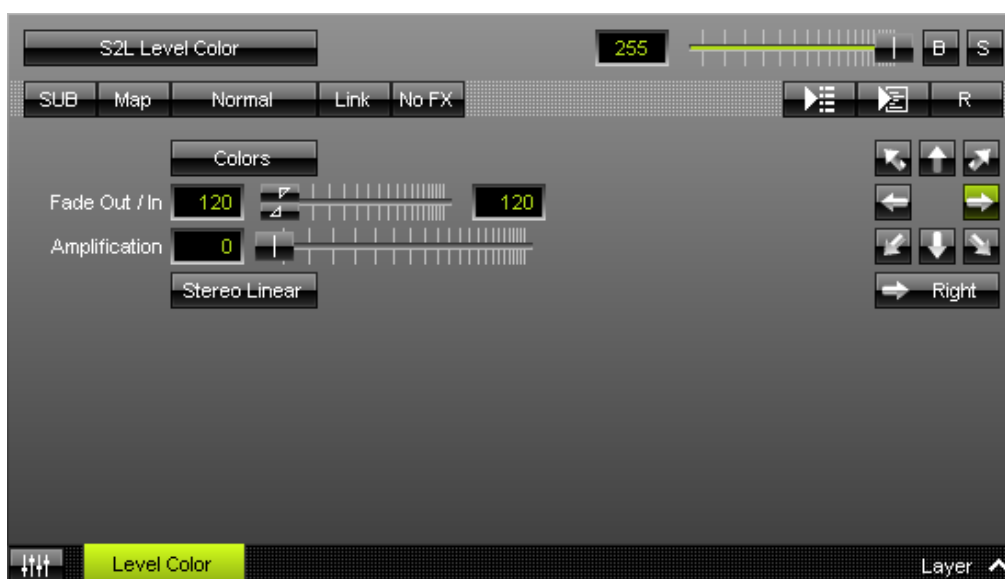
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

S2L Level Color displays the loudness of the audio input with the help of color. The louder the input, the brighter the effect.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Gradient to specify the colors. The default color is White, Black.  
Learn more »[Using Colors And Intensity](#)
- **Fade Out / In** - Defines how fast MADRIX displays color. You can specify the fade-in speed as well as the fade-out speed. The default values are 120 and 120. Valid values range from 1 to 3000.
- **Amplification** - Amplifies the audio input and as a result increases the visual intensity [in %]. The default value is 0. Valid values range from 0 to 100.



**Mode** - Allows you to choose the mode [**Mono**, **Stereo Linear**, **Stereo Radial**]. This heavily influences the visual outcome of the effect.



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is Right. Learn more »[Using Directions](#)

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.2.5 S2L Level Color Scroll

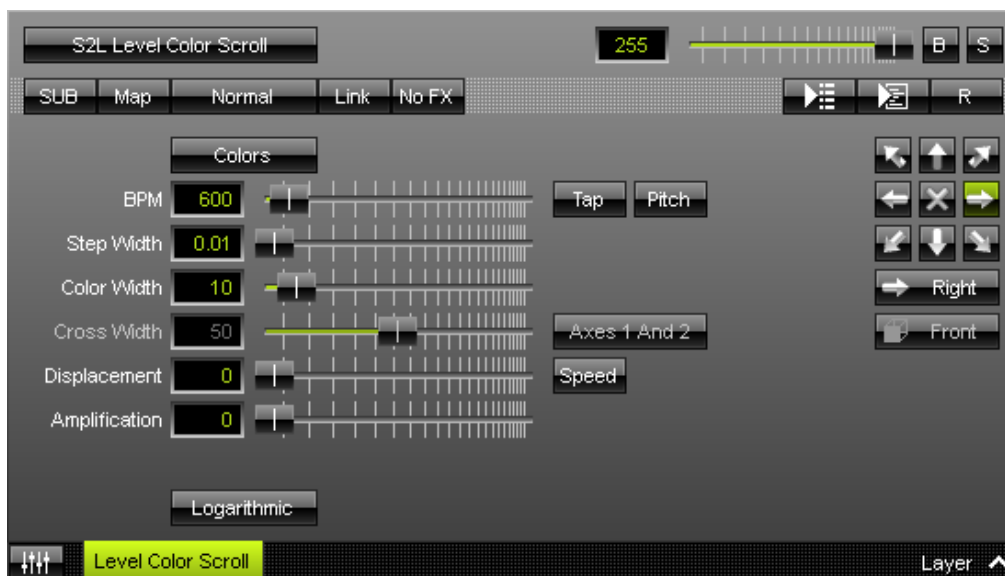
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

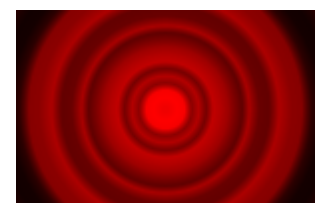
### Introduction

S2L Color Scroll displays moving colors based on incoming audio.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default colors are White, Black.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 600. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Step Width** - Defines the number of pixels the effect should scroll in the direction per frame [in %]. The default value is 0.01. Valid values range from 0.01 to 100.
- **Color Width** - Defines the width of a single color [in %]. The default value is 10. Valid values range from 0.01 to 100.
- **Cross Width** - Is only available for Cross Mode [[»Using Directions](#)]. Defines the size of crossing colors [in %]. The default value is 50. Valid values range from 0.01 to 100.
- **Amplification** - Amplifies the audio input and as a result increases the visual intensity [in %]. The default value is 0. Valid values range from 0 to 100.
- **Displacement** - Defines the amount of distortion. The default value is 0. Valid values range from 0 to 100.

Axes 1 And 2

**Cross Mode Axes-** Is only available for Cross Mode. Allows you to choose to which axis Cross Mode applies [**Axes 1 And 2**, **Axis 1**, or **Axis 2**]. The default mode is Axes 1 And 2.

Speed

**Displacement Speed** - Is only available for Displacement. Allows you to choose to speed in which the distortion affects the visuals. The default value is 10.0.





**Logarithmic** - Displays the effect in a logarithmic way.



**Direction/Mode** - Allows you to choose the direction of the movement, including Cross Mode. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Right. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.2.6 S2L Level Meter

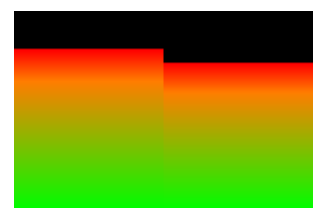
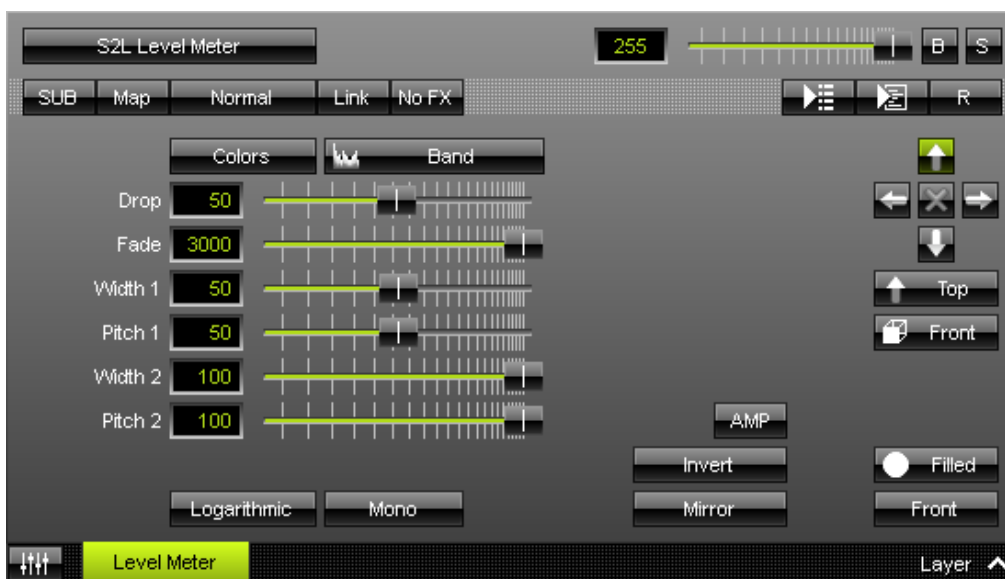
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

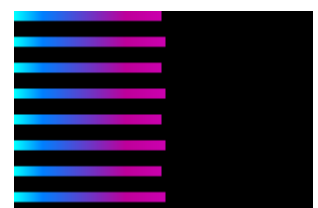
## Introduction

S2L Level Meter displays the audio input level. By default, the left audio channel and the right audio channel are shown.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Opens the Color Gradient to specify the colors. The default color is White, Black.  
Learn more »[Using Colors And Intensity](#)
- **Drop** - Defines how quickly the effect is shown. The default value is 50. Valid values range from 1 to 100.
- **Fade** - Defines how fast MADRIX displays the effect [in %]. The default value is 3000. Valid values range from 1 to 3000.
- **Width 1** - Defines the first size of spectrum bars depending on the direction [in % of the Matrix Size]. The default value is 50. Valid values range from 0.01 to 100.
- **Pitch 1** - Defines the first distance between objects depending on the direction [in % of the Matrix Size]. The default value is 50. Valid values range from 0.01 to 100.
- **Width 2** - Defines the second size of spectrum bars depending on the direction [in % of the Matrix Size]. The default value is 100. Valid values range from 0.01 to 100.
- **Pitch 2** - Defines the first distance between objects depending on the direction [in % of the Matrix Size]. The default value is 100. Valid values range from 0.01 to 100.

Logarithmic

**View Logarithmic** - Displays the effect in a logarithmic way.

Mono

**Mono** - Deactivates Stereo and only uses 1 audio channel.



**Amplification** - Amplifies the audio input and as a result increases the visual intensity [in %]. The default value is 0. Valid values range from 0 to 100.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Direction/Mode** - Allows you to choose the direction, including Cross Mode. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Top. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. The default Shape is Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.2.7 S2L Level Shape

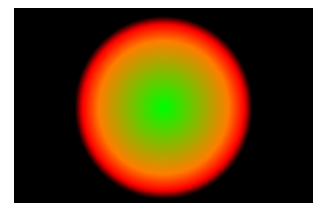
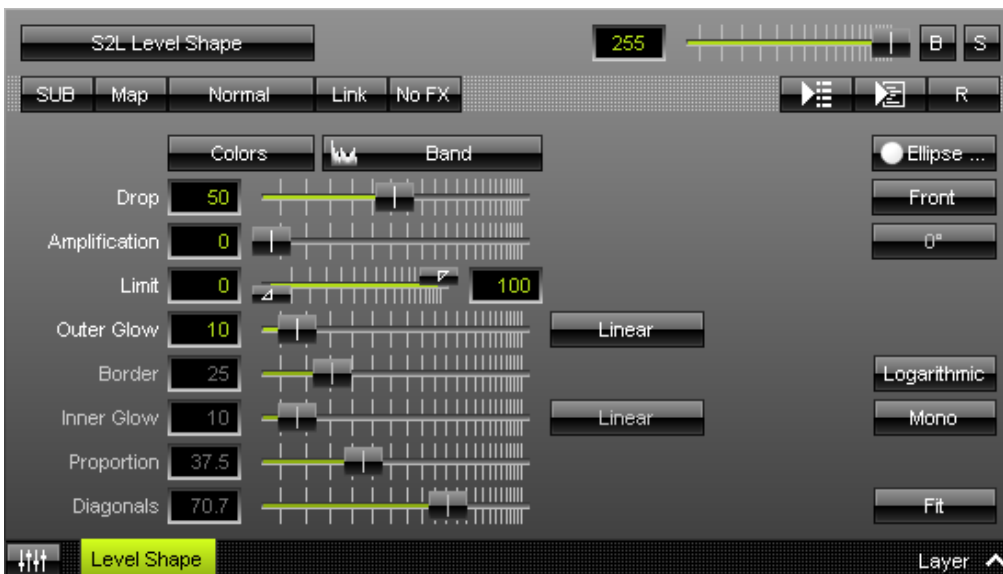
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

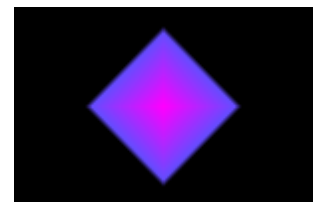
### Introduction

S2L Level Shape represents the incoming audio level.

### Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default colors are Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **Drop** - Defines how quickly the effect is shown. The default value is 50. Valid values range from 1 to 100.
- **Amplification** - Amplifies the audio input and as a result increases the visual intensity [in %]. The default value is 0. Valid values range from 0 to 100.
- **Limit** - Acts as a compressor and defines the minimum and maximum level [size] of the effect depending on the actual audio input. The default values are 0 and 100. Valid values range from 0 to 100.
- **Outer Glow** - Defines the outer shimmer of objects. The default value is 10. Valid values range from 1 to 100.
- **Border** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines the border size of outlined or unfilled objects. The default value is 25. Valid values range from 1 to 100.
- **Inner Glow** - Is only available for 2D outlined shapes or 3D unfilled shapes. Defines the inner gleam of objects which are not filled. The default value is 10. Valid values range from 1 to 100.
- **Proportion** - Is only available for certain Cross, Cross Straight, and Star Shapes. Defines the size of arms in relation to the overall size of the Shape. The default value is 37.5. Valid values range from 0.01 to 100.
- **Diagonals** - Is only available for certain Cross and Star Shapes. Defines the length of the diagonal arms in relation to the overall size of the Shape. The default value is 70.7. Valid values range from 0.01 to 100.

Linear

**Interpolation Type** - Defines how the Outer Glow will look like [*Linear, Ease In Bounce, Ease Out Bounce, Ease In Out Bounce, Ease In Circular, Ease Out Circular, Ease In Out Circular, Ease In Cubic, Ease Out Cubic, Ease In Out Cubic, Ease In Sinusoidal, Ease Out Sinusoidal, Ease In Out Sinusoidal, Ease In Exponential, Ease Out Exponential, Ease In Out Exponential*]. The default value is Linear.

Linear

**Interpolation Type** - Defines how the Inner Glow will look like [*Linear, Ease In Bounce, Ease Out Bounce, Ease In Out Bounce, Ease In Circular, Ease Out Circular, Ease In Out Circular, Ease In Cubic, Ease Out Cubic, Ease In Out Cubic, Ease In Sinusoidal, Ease Out Sinusoidal, Ease In Out Sinusoidal, Ease In Exponential, Ease Out Exponential, Ease In Out Exponential*]. The default value is Linear.

Ellipse ...

**Shape** - Allows you to choose a specific shape for objects. The default Shape is Ellipse Filled.

Front

**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.

0°

**Shape Rotation Type** - Is only available for specific Shapes. Defines the angle in which objects are rotated [*0°, 90°, 180°, 270°*].

Logarithmic

**Logarithmic** - Displays the effect in a logarithmic way.

Mono

**Mono** - Deactivates Stereo and only uses 1 audio channel.

Fit

**Display Mode** - Defines how the effect is shown. The default Display Mode is Fit.

**Clip** - The maximum size of the effect is determined by the largest side of the virtual LED matrix.

**Fit** - The maximum size of the effect is determined by the smallest side of the virtual LED matrix.

**Stretch** - The effect is stretched to be fully shown on the virtual LED matrix.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].



### 8.2.8 S2L Shapes

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

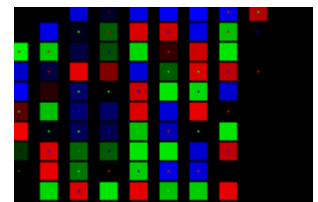
S2L Shapes are a real-time equalization of the audio signal using a variation of shapes to display the audio input. By default low frequencies will be displayed at the bottom of the matrix and high tones at the top.

[In MADRIX 2, S2L Shapes was named S2L EQ Shapes.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **Fade** - Defines how fast objects disappear. This value represents Beats Per Minute [BPM]. The default value is 150. Valid values range from 1 to 3000.
- **Size** - Defines the size of the objects [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Pitch** - Defines the distance between objects for all 3 axes [in % of the Matrix Size]. The default values are 10, 10, 10. Valid values range from 0.01 to 100.
- **Border** - Defines the size of an object's border [in % of the shape size]. The default value is 1. Valid values range from 0.01 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each object [in %]. Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.
- **Sensitivity** - Defines how quickly and accurately MADRIX reacts to the music [in %]. The default value is 50. Valid values range from 0 to 100.



**Distribution** - Allows you to choose a certain Distribution Mode for the specific parameter. Often, you can then define a minimum value and a maximum value.

**Uniform** - Each object has the same size.

**Random** - Sizes will be generated randomly.



**RND** - Generates random object sizes each time. This automatically activates Random Distribution Mode.



**Shift** - Shifts the position of equalizer bands [in %]. By default, lower frequencies are shown to the left and high frequencies are shown to the right. The default value is 0. Valid values range from 0 to 100.



**Amplification** - Amplifies the audio input and as a result increases the visual intensity [in %]. The default value is 0. Valid values range from 0 to 100.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Square Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.2.9 S2L Tubes

This topic includes:

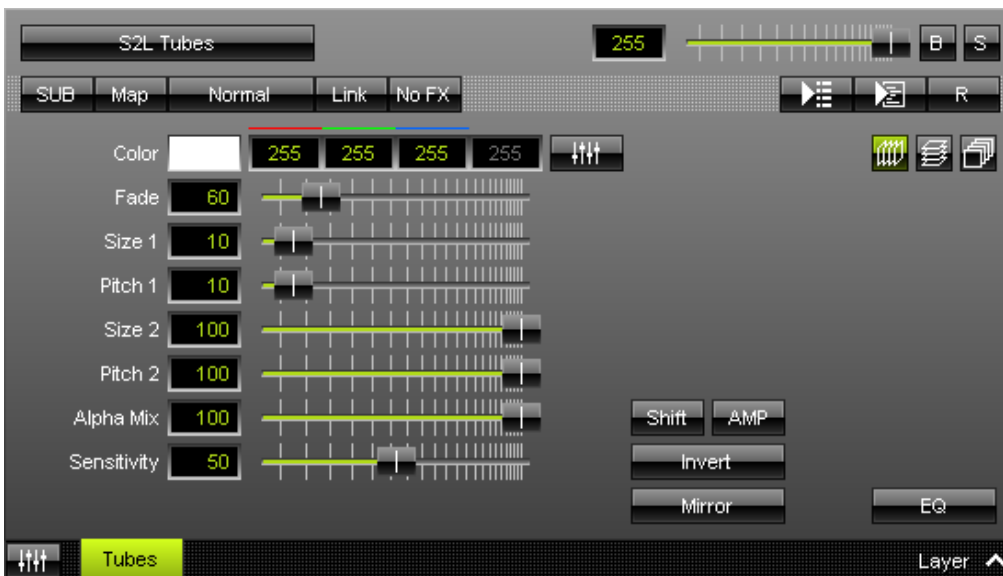
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

S2L Tubes display the frequencies of the audio signal in form of various tubes.

[In MADRIX 2, S2L Tubes was named S2L EQ Tubes.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **Fade** - Defines how fast MADRIX displays the effect [in %]. The default value is 60. Valid values range from 1 to 3000.
- **Size 1** - Defines the first size of tubes depending on the direction [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Pitch 1** - Defines the first distance between tubes depending on the direction [in % of the Matrix Size]. The default value is 10. Valid values range from 0.01 to 100.
- **Size 2** - Defines the second size of tubes depending on the direction [in % of the Matrix Size]. The default value is 100. Valid values range from 0.01 to 100.
- **Pitch 2** - Defines the second distance between objects depending on the direction [in % of the Matrix Size]. The default value is 100. Valid values range from 0.01 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each object [in %]. Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.
- **Sensitivity** - Defines how quickly and accurately MADRIX reacts to the audio input [in %]. The default value is 50. Valid values range from 0 to 100.



**Shift** - Shifts the position of equalizer bands [in %]. By default, lower frequencies are shown to the left and high frequencies are shown to the right. The default value is 0. Valid values range from 0 to 100.



**Amplification** - Amplifies the audio input and as a result increases the visual intensity [in %]. The default value is 0. Valid values range from 0 to 100.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Vertical Mode** - Activates or deactivates the use of vertical objects. All 3 modes can be used at the same time.



**Horizontal Mode** - Activates or deactivates the use of horizontal objects. All 3 modes can be used at the same time.



**Depth Mode** - Activates or deactivates the use of objects in the depth. All 3 modes can be used at the same time.



**Mode** - Allows you to choose the mode in which way objects are generated [**EQ**, **Level Mono**, or **Level Stereo**]. The default Mode is EQ.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.2.10 S2L Waveform

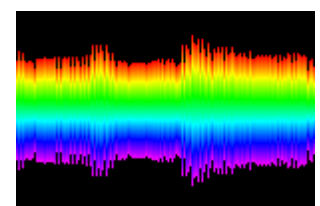
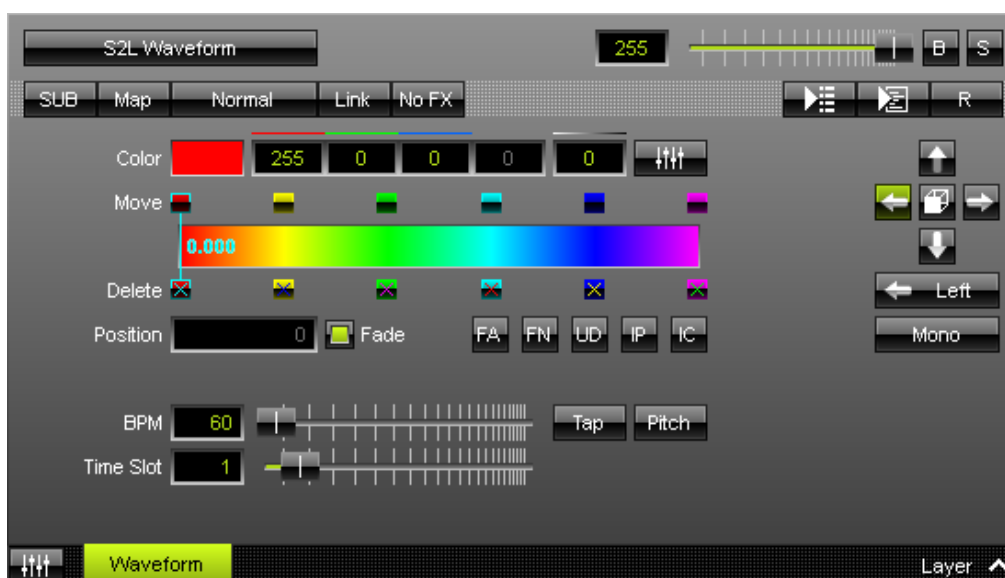
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)
- [Context Menu](#)

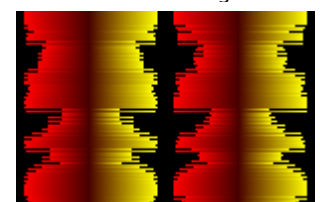
### Introduction

S2L Waveform displays the audio input graphically. It is a timeline representation.

### Overview



Default Settings



Customized Example



## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color using a Color Gradient control. The default color is Red, Yellow, Green, Cyan, Blue, Magenta.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default speed is 60. You can either use BPM or Time Slot. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Time Slot** - Defines the time interval [in s]. The default value is 1. You can either use BPM or Time Slot. Valid values range from 0.01 to 9999.



**Direction/Mode** - Allows you to choose the direction, including Look-At Type. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Left. Learn more »[Using Directions](#)



**Channel** - Allows you to choose the displayed audio channels [**Stereo**, **Mono**, **Left**, **Right**]. The default value is Mono.

## Restoring The Default Settings



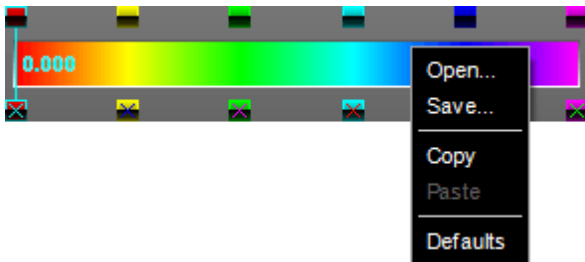
**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## Context Menu

A context menu allows you to quickly make changes to the colors.

- **Right Mouse Click** - Click with your right mouse button on the color gradient to call up the context menu.



- **Open...** - Loads a previously saved Color Table file from an external file [of the file type \*.mctx].
- **Save...** - Saves the current colors as a Color Table file [of the file type \*.mctx].
- **Copy** - Copies the current colors into the clipboard as a duplicate.
- **Paste** - Applies all colors from the clipboard to the currently focused color control [**Colors**, **M2L Colors**].
- **Defaults** - Restores all default gradient colors.

### 8.2.11 S2L Wavegraph

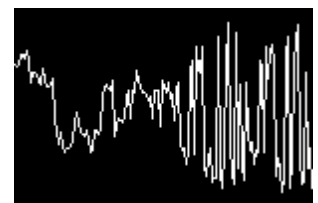
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

S2L Waveform displays the audio input as a graph.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default speed is 6000. You can either use BPM or Time Slot. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Time Slot** - Defines the time interval [in s]. The default value is 0.01. You can either use BPM or Time Slot. Valid values range from 0.01 to 9999.



**Direction/Mode** - Allows you to choose the direction, including Look-At Type. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Left. Learn more »[Using Directions](#)



**Channel** - Allows you to choose the displayed audio channels [**Stereo**, **Mono**, **Left**, **Right**]. The default value is Mono.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.3 Music2Light Effects [M2L]

This topic includes:

- [Introduction](#)
- [Performance Adjustments](#)
- [Topics Of This Chapter](#)

### Introduction

Music2Light Effects [M2L] require an audio input signal. M2L Effects go one step further than S2L Effects and analyse music theoretical parameters to create truly unique representations of the music.

### Performance Adjustments

You are able to adjust parameters for the audio analysis and influence how M2L Effects work.

Learn more »[Audio Configuration And ASIO](#)

### Topics Of This Chapter

MADRIX includes the following Music2Light Effects:

- »[M2L Color Change](#)
- »[M2L Color Scroll](#)
- »[M2L Drops](#)
- »[M2L Note Flash](#)
- »[M2L Shapes](#)

- »[M2L Single Tone Spectrum](#)
- »[M2L Tubes](#)

### 8.3.1 M2L Color Change

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

M2L Color Change automatically changes the color according to the music. This effect analyzes the key of the music and shows different colors for different keys in the music [i.e., the mood].

[In MADRIX 2, M2L Color Change was named M2L Color Fade.]

## Overview



Default Settings



Customized Example



## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Base Color** - Defines the background color of the effect. If no audio input or music is available, this color is shown. The default color is Black.  
Learn more »[Using Colors And Intensity](#)
- **Fade** - Defines how fast MADRIX changes colors [in %]. The higher the value, the slower MADRIX fades from one color to the next color. The default value is 20. Valid values range from 1 to 100.
- **M2L Colors** - Opens the M2L Color Table to specify which color is shown for which key.  
Learn more »[Using Colors And Intensity](#)

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.3.2 M2L Color Scroll

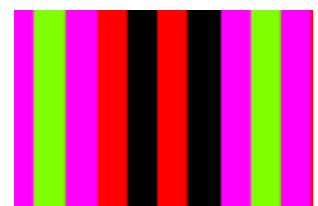
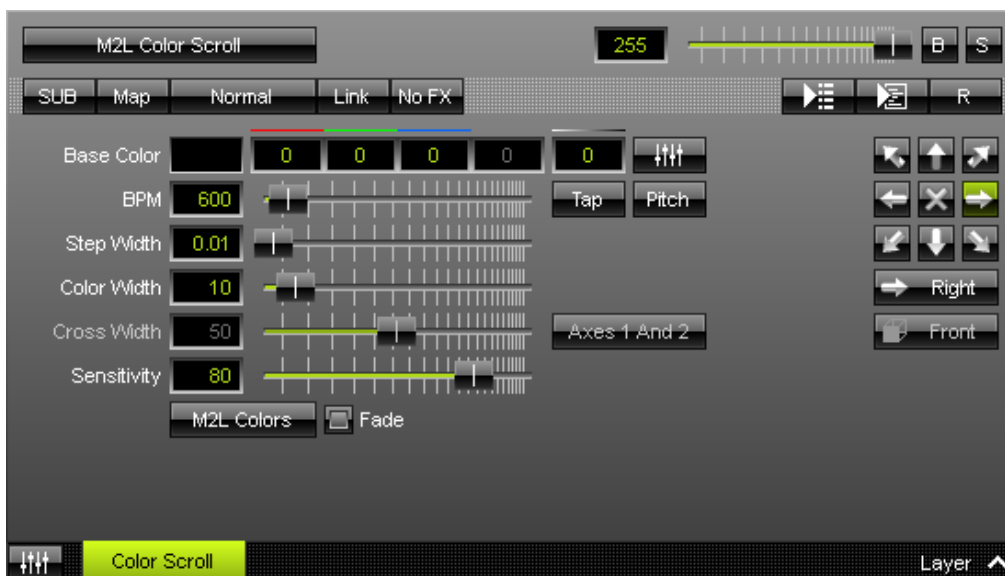
This topic includes:

- Introduction
- Overview
- Layer Settings
- Effect Settings
- Restoring The Default Settings

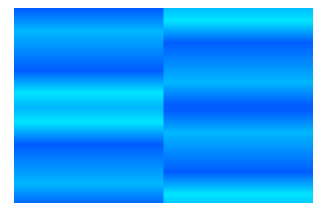
## Introduction

M2L Color Scroll displays moving colors based on the incoming audio.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Base Color** - Defines the background color of the effect. If no audio input or music is available, this color is shown. The default color is Black.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default value is 600. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Step Width** - Defines the number of pixels the effect should scroll in the direction per frame [in %]. The default value is 0.01. Valid values range from 0.01 to 100.
- **Color Width** - Defines the minimum width of a single color [in %]. The default value is 10. Valid values range from 0.01 to 100.
- **Cross Width** - Is only available for Cross Mode [[»Using Directions](#)]. Defines the size of crossing colors [in %]. The default value is 50. Valid values range from 0.01 to 100.
- **Sensitivity** - Defines how accurately MADRIX reacts when notes occur [in %] or if notes are filtered out. The default value is 80. Valid values range from 0 to 100.
- **Displacement** - Defines the amount of distortion. The default value is 0. Valid values range from 0 to 100.



**Cross Mode Axes** - Is only available for Cross Mode. Allows you to choose to which axis Cross Mode applies [ **Axes 1 And 2**, **Axis 1**, or **Axis 2**]. The default mode is Axes 1 And 2.



**Displacement Speed** - Is only available for Displacement. Allows you to choose to speed in which the distortion affects the visuals. The default value is 10.0.



**Direction/Mode** - Allows you to choose the direction of the movement, including Cross Mode. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Right. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.3.3 M2L Drops

This topic includes:

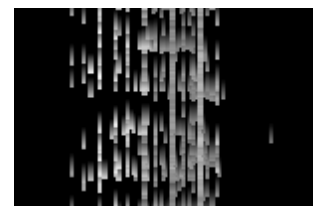
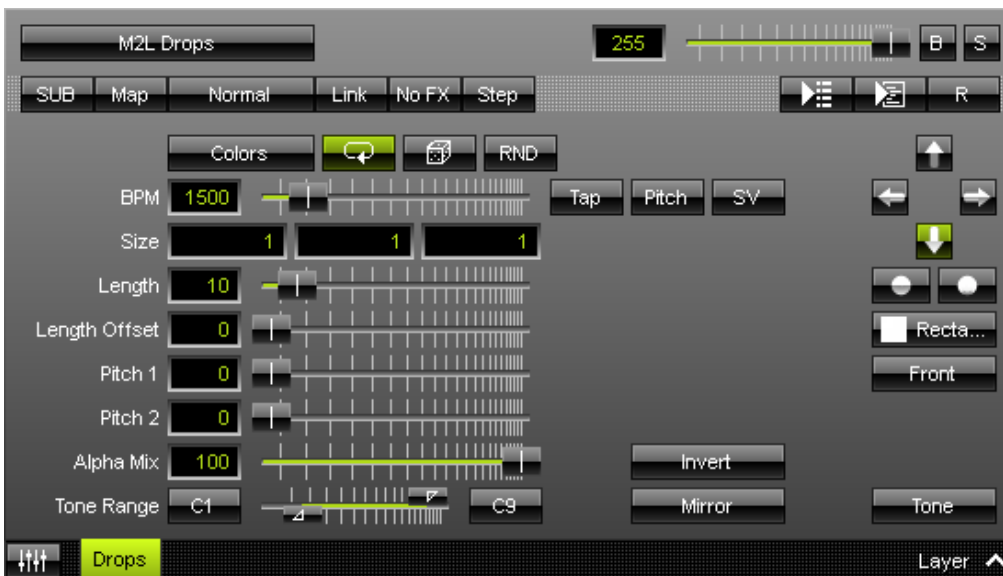
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

M2L Drops analyzes the intervals of the music and displays in form of moving drops.

[In MADRIX 2, M2L Drops was named M2L Interval Drops.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **BPM** - Defines the speed. The default speed is 1500. Valid values range from 0 to 9999.  
Learn more »[Using BPM Control](#)
- **Size** - Defines the width, height, and depth of the drops. The default values are 1, 1, 1. Valid values range from 0.01 to 1000.
- **Length** - Defines how long the tail of a drop is [in %]. The default value is 10. Valid values range from 0 to 100.
- **Length Offset** - Defines if an offset is added to the tail of a drop. The default value is 0. Valid values range from 0 to 100.
- **Pitch 1** - Defines the first distance between tubes depending on the direction [in %]. The default value is 0. Valid values range from 0 to 100.
- **Pitch 2** - Defines the second distance between objects depending on the direction [in %]. The default value is 0. Valid values range from 0 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each drop [in %]. Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.
- **Tone Range** - Defines the range of tones analyzed and used by setting a minimum and a maximum value. Narrow the range if your audio signal does not include a wide range of tones to avoid a lot of empty space where no objects are shown. The default values are C1 and C9. Valid values range from C-1 to G9.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Direction** - Allows you to choose the direction. This includes all directions for 2D and 3D mode. The default value is Down. Learn more »[Using Directions](#)



**Direction** - Allows you to choose the direction of the movement [ **To The Front** or **To The Back**]. This is mainly relevant for 3D. The default Direction is Down. Learn more »[Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Rectangle Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.



**Mode** - Allows you to choose which musical parameter is used [ **Tone**, **Interval**, **Base Type** ].

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.3.4 M2L Note Flash

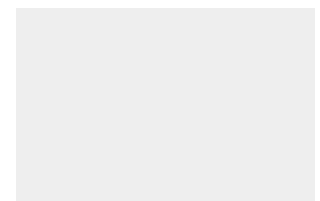
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

### Introduction

M2L Note Flash analyzes the music for certain notes and flashes the LED matrix when such notes occur in the music.

### Overview



Default Settings



Customized Example



## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **Fade Out / In** - Defines how fast MADRIX flashes [in %]. You can specify the fade-in speed as well as the fade-out speed. The default values are 120 and 3000. Valid values range from 1 to 300.
- **Sensitivity** - Defines how quickly and accurately MADRIX reacts when such notes occur [in %]. The default value is 50. Valid values range from 1 to 100.

C0 (16.4 Hz)

- Defines the lower limit of the analyzed frequency spectrum. If a note in this range occurs, MADRIX will flash the matrix.

B1 (61.9 Hz)

- Defines the upper limit of the analyzed frequency spectrum. If a note in this range occurs, MADRIX will flash the matrix.

## Restoring The Default Settings

R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.3.5 M2L Shapes

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

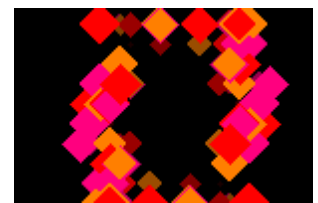
M2L Shapes displays various objects available in different shapes according to the music.

[In MADRIX 2, M2L Shapes was named M2L Single Tone Shapes.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Table to specify the colors. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **Fade** - Defines how fast MADRIX displays objects [in %]. The default value is 150. Valid values range from 1 to 3000.
- **Size** - Defines the size of the objects [in %]. The default value is 10. Valid values range from 0.01 to 100.
- **Pitch** - Defines the distance between objects for all 3 axes [in %]. The default value is 10, 10, 10. Valid values range from 0.01 to 100.
- **Border** - Defines the size of an object's border [in %]. The default value is 1. Valid values range from 0.01 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each object. Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.
- **Sensitivity** - Defines how quickly and accurately MADRIX reacts to the music. The default value is 50. Valid values range from 0 to 100.
- **Tone Range** - Defines the range of tones analyzed and used by setting a minimum and a maximum value. Narrow the range if your audio signal does not include a wide range of tones to avoid a lot of empty space where no objects are shown. The default values are C1 and C9. Valid values range from C-1 to G9.



**Distribution** - Allows you to choose a certain Distribution Mode for the specific parameter. Often, you can then define a minimum value and a maximum value.

**Uniform** - Each object has the same size.

**Random** - Sizes will be generated randomly.



**RND** - Generates random object sizes each time. This automatically activates Random Distribution Mode.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Square Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.3.6 M2L Single Tone Spectrum

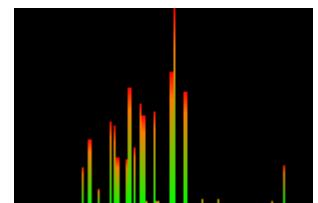
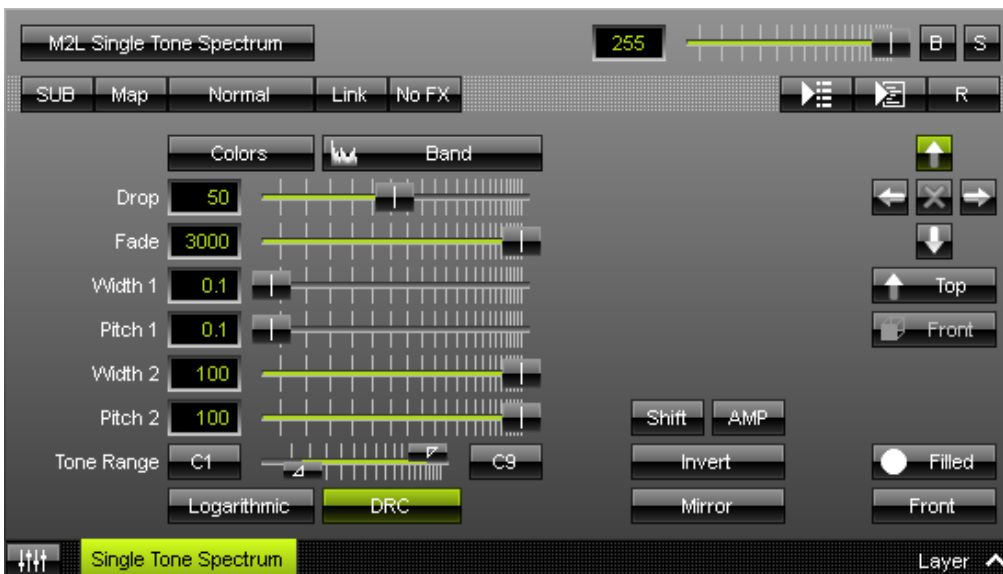
This topic includes:

- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

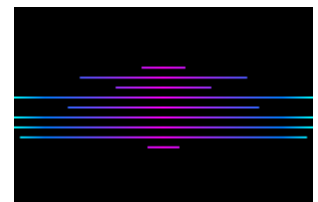
## Introduction

M2L Single Tone Spectrum displays all notes based on the A440 pitch standard if they occur in the music.

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.

Learn more »[Effect Areas \[Left/Right\]](#)

Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Colors** - Opens the Color Gradient to specify the colors. The default color is Red, Orange, Green.  
Learn more »[Using Colors And Intensity](#)
- **Drop** - Defines how quickly spectrum bars are not displayed any more and drop out of the matrix. The default value is 50. Valid values range from 1 to 100.
- **Fade** - Defines how fast MADRIX displays the effect [in %]. The default value is 3000. Valid values range from 1 to 3000.
- **Width 1** - Defines the first size of spectrum bars depending on the direction [in %]. The default value is 0.1. Valid values range from 0.01 to 100.
- **Pitch 1** - Defines the first distance between objects depending on the direction [in %]. The default value is 0.1. Valid values range from 0.01 to 100.
- **Width 2** - Defines the second size of spectrum bars depending on the direction [in %]. The default value is 100. Valid values range from 0.01 to 100.
- **Pitch 2** - Defines the first distance between objects depending on the direction [in %]. The default value is 100. Valid values range from 0.01 to 100.
- **Tone Range** - Defines the range of tones analyzed and used by setting a minimum and a maximum value. Narrow the range if your audio signal does not include a wide range of tones to avoid a lot of empty space where no objects are shown. The default values are C1 and C9. Valid values range from C-1 to G9.

Logarithmic

**Logarithmic** - Displays the spectrum in a logarithmic way.



**Dynamic Range Control** - Visually amplifies and balances frequencies to get a more interesting spectrum.



**Shift** - Shifts the position of equalizer bands [in %]. By default, lower frequencies are shown to the left and high frequencies are shown to the right. The default value is 0. Valid values range from 0 to 100.



**Amplification** - Amplifies the audio input and as a result increases the visual intensity [in %]. The default value is 0. Valid values range from 0 to 100.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Direction/Mode** - Allows you to choose the direction, including Cross Mode. This includes all directions for 2D and 3D mode. This heavily influences the visual outcome of the effect. The default Direction is Top. Learn more »[Using Directions](#)



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D. The default value is Front. Learn more »[Using Directions](#)



**Shape** - Allows you to choose a specific shape for objects. A certain Size is required before a shape becomes visible. The default Shape is Filled.



**Shape Alignment** - Allows you to choose to which side objects are aligned to. This is mainly relevant for 3D. The default Shape Alignment is Front.

## Restoring The Default Settings



R

**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

### 8.3.7 M2L Tubes

This topic includes:

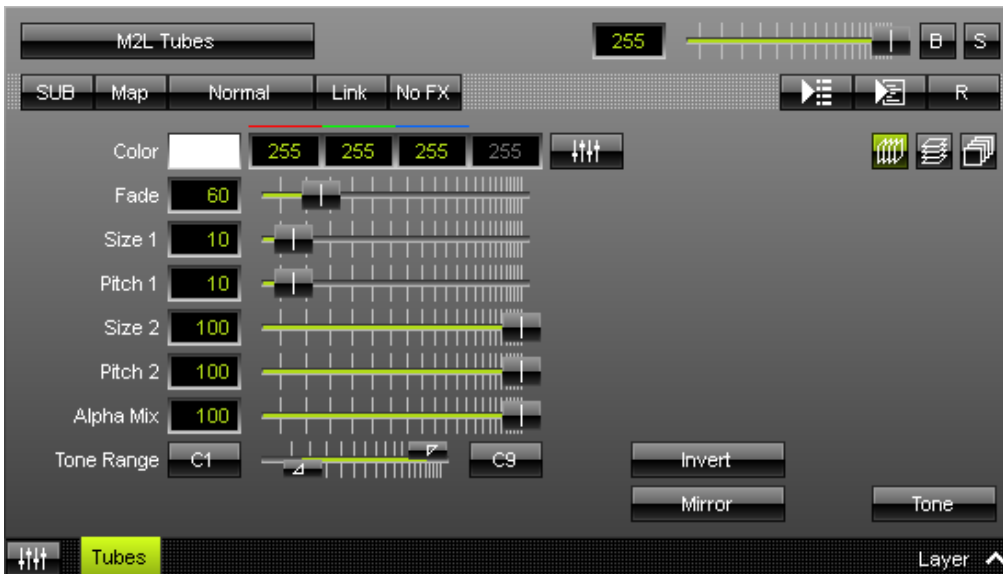
- [Introduction](#)
- [Overview](#)
- [Layer Settings](#)
- [Effect Settings](#)
- [Restoring The Default Settings](#)

## Introduction

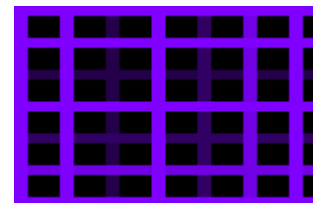
M2L Tubes displays the music in form of tubes.

[In MADRIX 2, M2L Tubes was named M2L Interval Tubes.]

## Overview



Default Settings



Customized Example

## Layer Settings

- Various buttons and controls have universal functions. They are available for each MADRIX Effect / Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)  
Learn more »[Layers](#)

## Effect Settings

This MADRIX Effect uses the following, individual controls:

- **Color** - Defines the color. The default color is White.  
Learn more »[Using Colors And Intensity](#)
- **Fade** - Defines how fast MADRIX displays the effect [in %]. The default value is 60. Valid values range from 1 to 3000.
- **Size 1** - Defines the first size of tubes depending on the direction [in %]. The default value is 10. Valid values range from 0.01 to 100.
- **Pitch 1** - Defines the first distance between tubes depending on the direction [in %]. The default value is 10. Valid values range from 0.01 to 100.
- **Size 2** - Defines the second size of tubes depending on the direction [in %]. The default value is 100. Valid values range from 0.01 to 100.
- **Pitch 2** - Defines the first distance between objects depending on the direction [in %]. The default value is 100. Valid values range from 0.01 to 100.
- **Alpha Mix** - Defines the upper limit of how much alpha is added to each object [in %] . Alpha Mix will be visible when using additional Layers. The default value is 100. Valid values range from 0 to 100.
- **Tone Range** - Defines the range of tones analyzed and used by setting a minimum and a maximum value. Narrow the range if your audio signal does not include a wide range of tones to avoid a lot of empty space where no objects are shown. The default values are C1 and C9. Valid values range from C-1 to G9.



**Invert** - Inverts the position of objects.



**Mirror** - Mirrors objects by creating duplicates on the opposite position.



**Vertical Mode** - Activates or deactivates the use of vertical objects. All 3 modes can be used at the same time.



**Horizontal Mode** - Activates or deactivates the use of horizontal objects. All 3 modes can be used at the same time.



**Depth Mode** - Activates or deactivates the use of objects in the depth. All 3 modes can be used at the same time.



**Mode** - Allows you to choose which musical parameter is used [**Tone**, **Interval**, **Base Type** ].

## Restoring The Default Settings



**Restore Default Layer Settings** - Restores the default settings of the Layer.

- All Layer Settings and Effect Settings will be restored to their default values.
- This does not include the MADRIX Effect selection, the Effect Parameter Chaser [which will be paused], or the Layer Macro [which will be stopped].

## 8.4 MAS Script

This topic includes:

- [Introduction](#)
- [Controls](#)
- [More Information](#)

### Introduction

MADRIX offers numerous effects to create a stunning light show. MAS Script is an addition to that. It allows you to program your own effects.



The MADRIX Scripting language is an advanced topic, but allows you to realize very unique and customized effects.

The Script Help [user manual] is for all those who want to develop light effects with MADRIX Script. However, this does not require much knowledge of programming. The different parts of this language will be explained with various examples. We recommend for your first steps into this area to work through these examples. In a second step you might want to try to alter the settings of those examples. In this way you will get a feeling for the programming language and the syntax.

## Controls



**Load** - Allows you to open a previously saved script from an external file [of the file type \*.mas or \*.macs].



**MAS Effect Script Editor** - Opens the Script Editor to edit any MAS Script.



**Play/Pause** - Starts or pauses the execution of a script.



**Limit Script Execution** - Can be a helpful option if you run a script with a very long execution time. MADRIX will stop the execution of a script and runs it from the beginning if it takes up too much processing time or is stuck in a loop. This option ensures the stability and performance of MADRIX.

### **BPM**

- Defines the speed. The default value is 1200. Learn more »[Using BPM Control](#)



**Asynchronous Rendering** - Allows you to choose the Synchronization Mode.

- Activate **ASYNC** to control the render frequency using BPM.
- Deactivate **ASYNC** to synchronize the render frequency with the Main Mixer [50 FPS by default].

## **More Information**

The complete MADRIX Script Language is described in the MADRIX Script Help. In the Windows Start Menu, go to:

- ***Start > All Programs > MADRIX 3 > Documentation > MADRIX Script Help***

## 8.5 Macros And Scripts

This topic includes:

- [Introduction](#)
- [Usage](#)
- [How To Use](#)
- [More Information](#)

### Introduction

MADRIX features its own scripting language. With this programming language you can create scripts or macros for MADRIX.

- You can use it to create your own light effects, as was described in the previous chapter.
- In addition, it may be used to control and manipulate running effects.

### Usage



**Editor** - Controls the corresponding Macro Editor.

There are 4 possibilities to use Macros in MADRIX:

- **MAS Script Effect**  
The first option to create a new effect from scratch.
- **Macros for Effects**  
The second option involves modifying the settings of an MADRIX Effect. This includes all SCE, S2L, M2L, and MAS effects.
- **Main Output Macro**  
The third possibility controls the main output directly.



- **Storage Place Macro**

Fourth, you can use storage place macros to control every single storage place individually.

- On the one hand, macros can be used to manipulate the outcome of an effect. Examples include rendering parts of effects transparent or changing the color via a gray filter.
- On the other hand, macros can be used to change settings of an effect. A macro can set the text of the SCE Ticker effect to current time, for example.
- Each effect is equipped with a **Macro** button that opens the Macro Editor. Use the window to write, load, and edit existing macros.
- Each Storage Area has one macro button.
- The Fade Area includes the button to the Main Output Macro.
- The MAS Script Effect does have one button for scripts and a standard button for a macro.

## How To Use



**Macro** - Allows you to configure and manage a Macro. At the same time this means that no Macro is running or included.



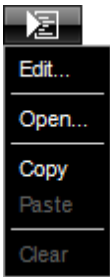
**Deactivated [Macro Included]** - A macro is included/inserted in the Macro Editor, but the macro is currently not running.

**Left Mouse Click** - Click once to activate the Macro.



**Activated** - A macro has been compiled and is currently running.

**Left Mouse Click** - Click once to deactivate the Macro.



**Right Mouse Click** - Opens the context menu.

**Edit...** - Opens the Macro Editor to write, edit, include, and compile Macros.

**Open...** - Loads a Macro from an external file [of the file type \*.mms or \*.mcm]. Once loaded, the Macro will automatically be activated.

**Copy** - Copies the Macro to the clipboard of the computer.

**Paste** - Pastes the Macro from the clipboard into the currently selected Macro Editor.

- If the copied Macro is running, the new Macro will be automatically activated as well.
- If the copied Macro is deactivated, the new Macro will be automatically deactivated as well.

**Clear** - Removes all content from the Macro Editor and thereby deactivates and erases any Macro. The default content will be restored.

## More Information

The complete MADRIX Script Language is described in the MADRIX Script Help. In the Windows Start Menu, go to:

- **Start > All Programs > MADRIX 3 > Documentation > MADRIX Script Help**

## 8.6 Using BPM Control

This topic includes:

- [Introduction](#)
- [Overview](#)

### Introduction

The BPM control for MADRIX Effects is the main control to increase or decrease the speed of effects.

### Overview



- Represent the standard controls to control the speed. Use the controls in the following way:

**Slider** - Move the slider to increase or decrease the speed.

**Input Field** - Enter the BPM speed directly.

- Valid values range from 0 to 9999.
- 60 BPM = 1 second.



**Tap** - Allows you to set the speed manually. Use it to get synchronous movements of effects to the beat of the music. Click this button at least four times in a row according to the beat of the music [1/4 notes]. MADRIX will calculate the BPM value automatically.

**Pitch**

**Speed Pitch** - Allows you to change the speed further. It works as a multiplier/a factor.

- Example: A Speed Master of 2.0 will double the current speed.
- Move the fader upwards to increase the speed.
- Move the fader downwards to decrease the speed.
- The default value is 1.0 [which is normal speed].
- A value of 0.0 will stop the effects.
- The highest value is +10.
- The lowest value is -10.
- Negative values will reverse the direction of effects [if possible].
- Right-click on the Pitch button to reset to the value of 1.0
- The tooltip shows the currently set value.

**SV**

**Speed Variance** - Adds variety to the speed of each individual object.

- If activated, each object will have a different speed.
- The higher the value, the larger the differences in speed between objects.
- Valid values range from 0 to 500.
- The default value is 0.
- Right-click on the SV button to reset to the value of 0.

## 8.7 Using Colors And Intensity

This topic includes:

- [Introduction](#)
- [Overview](#)
- [Color](#)
- [Color Table](#)
- [Color Gradient](#)
- [Music2Light Colors](#)
- [Intensity](#)

### Introduction

Choosing the right colors is an important part when creating the lighting visuals you wish to use.

- This chapter explains the different ways of working with MADRIX Effects and colors.
- Different MADRIX Effects have different color controls.
- This chapter lists all possible controls. Not all controls are used for each MADRIX Effect.

### Overview

- MADRIX controls up to 4 channels per pixel/voxel.

For example:

- 1-channel fixtures
- 2-channel fixtures
- RGB fixtures
- RGBW fixtures

- MADRIX automatically adjusts the color selection tools according to the number of channels used by your fixtures.

For example:



- Every color channel can have a value between 0 and 255.
- 0 is the lowest value.
- 255 is the highest value.
- Additive color mixing is used to produce a whole variety of different colors.

▪ Examples:

**White**

255, 255, 255



**Black**

0, 0, 0



**Red**

255, 0, 0



**Green**

0, 255, 0

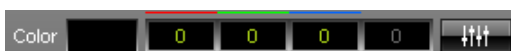


**Blue**

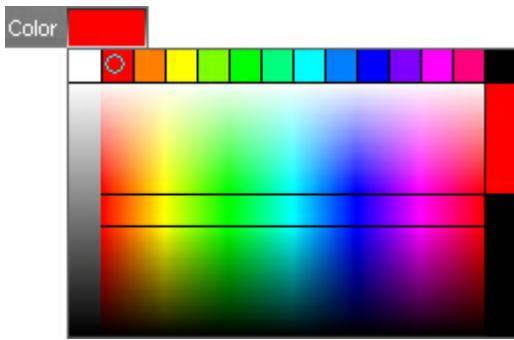
0, 0, 255



## Color



- Represent the standard controls to choose the color. Use the controls in the following way:



**Color Picker** - You can control the intelligent Color Picker simply with the mouse.

- 1]** Click inside the color field next to **Color** and hold the mouse button.
- 2]** While holding the mouse button, you can easily navigate inside the color field and pick your preferred color.
- 3]** If you have chosen a color, release the mouse button.
  - 14 presets are available at the top to quickly choose the most common colors.



**Input Fields** - You can use these input fields to choose a color. Use one of 3 ways:

- A]** Click into an input field and enter a number between 0 and 255 for each channel.
- B]** Click into an input field and use the spacebar to set a value to either 0 or 255.
- C]** Click into an input field and continue to hold the mouse button. Then, move your mouse up or down to adjust the value.
  - Up to 4 color channels [R, G, B, W] are available depending on the settings of your virtual LED matrix [Color Depth].

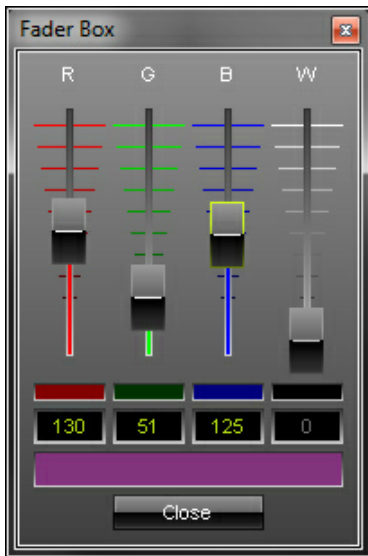


**Alpha** - Is only available for certain MADRIX Effects. Defines an individual Opacity for a single color. The color becomes transparent and blends with the background.



**Fader Box** - Opens the Fader Box.

- Use the fader for each color channel separately to adjust the color.
- The color mixing and the final color will be shown at the bottom.
- **Close** - Closes the Fader Box.



**Phase Mode** - Uses all color channels separately to define the colors.

## Color Table

### Overview

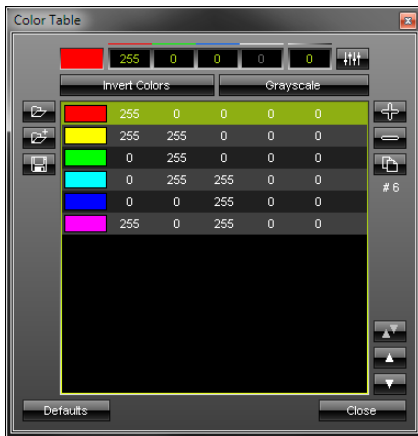


- Represent the standard controls to choose the color using the Color Table. Below you will find a description of each item.





**Colors** - Opens the Color Table.







**Color Table** - Contains a list of different colors. Each of the colors is used in the effect. Simply adjust the color values as described above and work with the Color Table in the following way:


 - Adds a new color to the list according to the color settings at the top.


 - Removes currently selected colors from the list.


 - Duplicates currently selected colors in the list.


**#6** - Shows the total number of colors in the list.


 - Inverts the whole list. Or swaps the position of colors in the list when several colors are selected first.

 - Moves currently selected colors one item up in the list.

 - Moves currently selected colors one item down in the list.

 - Loads a previously saved Color Table from an external file [of the file type \*.mctx]. A new window opens for you to select the file on your harddisk.

 - Loads a previously saved Color Table from an external file [of the file type \*.mctx] ] and adds the new colors to the colors that are already included.

 - Saves a Color Table in an external file [of the file type \*.mctx].



- Inverts the currently selected colors to quickly create the complimentary colors.



- Converts the currently selected colors quickly to grayscale colors.

**Defaults** - Restores the default colors.

**Close** - Closes the Color Table.



**Loop Mode** - Activates Loop Mode for the Color Table. All colors in the Color Table will be used in their respective order [from top to down].



**Shuffle Mode** - Activates Shuffle Mode for the Color Table. All colors in the Color Table will be used but randomly selected without a specific order.



**Random Mode** - Activates Random Mode for the Color Table. Only randomly generated colors will be used. The colors in the Color Table will be ignored.



**Fade** - Adds a smooth transition between colors with the help of intermediate colors instead of switching with hard cuts between colors.

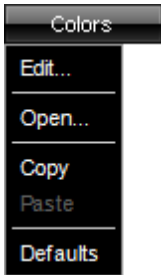


**Mix Mode** - Activates Mix Mode for the Color Table. All colors in the Color Table will be used at the same time but randomly selected without a specific order.

## Context Menu

- **Right Mouse Click** - You can call up the context menu by performing a right mouse click on **Colors**

- A small window will be shown.



You can quickly perform the following actions:

- **Edit...** - Opens the Color Table [in the same way you can open the window by clicking on **Colors** with the left mouse button].
- **Open...** - Loads a previously saved Color Table from an external file [of the file type \*.mctx].  
A new window opens for you to select the file on your harddisk.
- **Copy** - Copies the current colors into the clipboard as a duplicate.
- **Paste** - Applies all colors from the clipboard to the currently focused color control [**Colors**, **M2L Colors**].
- **Defaults** - Restores all default colors.

## Drag And Drop [Copy And Paste]

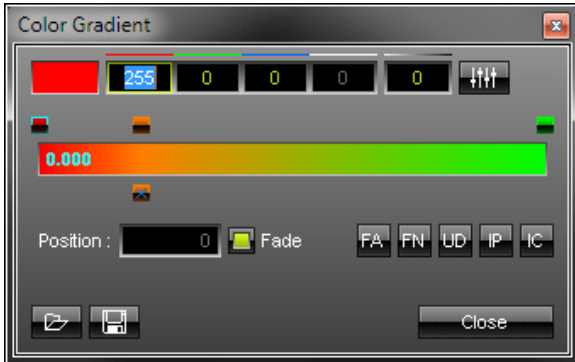
- **Left Mouse Click And Hold** - You can perform a Copy and Paste with the mouse.  
Click with the left mouse button on the **Colors** button and hold for 3 seconds. A small + appears. Now, continue to hold and drag the mouse to another color control [**Colors**, **M2L Colors**, **Color Table**, **Color Gradient**] and release the mouse to instantly apply the colors.

## Color Gradient

## Overview

- The Color Gradient control is available in two versions:

**Color Gradient Window**



**Color Gradient Effect Control**



**Add** - Click inside the large colored area to create a new color at this particular position with the particular color you picked. Simply drag and drop it afterwards to change its position. Change the color values as described above.

**Relocate** - Select and hold a color [using the small square button] and move the mouse if you want to relocate a color.

**Remove** - Click the small x-button at the bottom of a color to remove it.

**Position** - Defines the position of a color on the Color Gradient.



**Fade** - Adds a transition between colors with the help of intermediate colors instead of switching with hard cuts between colors. This option is available separately for each color of the Color Gradient.



**Fade All** - Activate smooth color transitions for all colors.



**Fade None** - Deactivates smooth color transitions for all colors.



**Uniform Distances** - Make sure that all colors have the same distance to each other.



**Invert Position** - Change and inverses the position of all colors.



**Invert Colors** - Inverts each color and thus creates the complementary equivalents of the colors before.



**Open** - Allows you to open a previously saved Color Table from an external file [of the file type \*.mctx].



**Save** - Allows you to store a Color Table configuration in an external file [of the file type \*.mctx].



**Close** - Closes the Color Gradient window.



**Color Mode** - Allows you to choose the Color Mode.

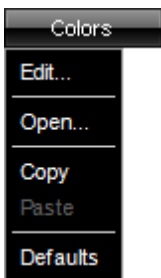
**Monochrome** - Displays the effect only in White [and Black].

**Band** - Applies the colors of the Color Gradient to each object individually [e.g., an EQ band].

**Matrix** - Applies the colors of the Color Gradient to the virtual LED matrix and the effect as a whole.

## Context Menu

- **Right Mouse Click** - You can call up the context menu by performing a right mouse click on **Colors**
- A small window will be shown.



You can quickly perform the following actions:

- **Edit...** - Opens the Color Gradient [in the same way you can open the window by clicking on **Colors** with the left mouse button].
- **Open...** - Loads a previously saved Color Table from an external file [of the file type \*.mctx].  
A new window opens for you to select the file on your harddisk.
- **Copy** - Copies the current colors into the clipboard as a duplicate.
- **Paste** - Applies all colors from the clipboard to the currently focused color control [**Colors, M2L Colors**].
- **Defaults** - Restores all default colors.

## Drag And Drop [Copy And Paste]

- **Left Mouse Click And Hold** - You can perform a Copy and Paste with the mouse.

Click with the left mouse button on the **Colors** button and hold for 3 seconds. A small **+** appears. Now, continue to hold and drag the mouse to another color control [ **Colors**, **M2L Colors**, **Color Table**, **Color Gradient** ] and release the mouse to instantly apply the colors.

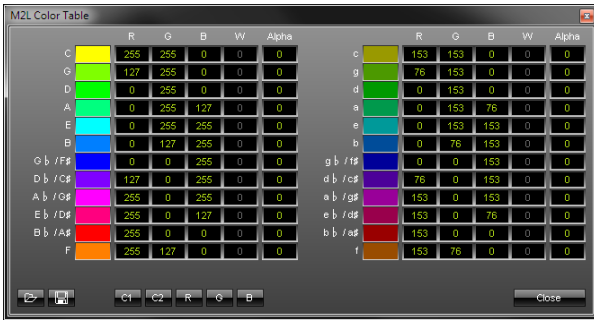
## Music2Light Colors

### Overview

- Certain Music2Light Effects use special Music2Light Colors.
- You can decide which color is assigned to which key.



**M2L Colors** - Opens M2L Color Table.



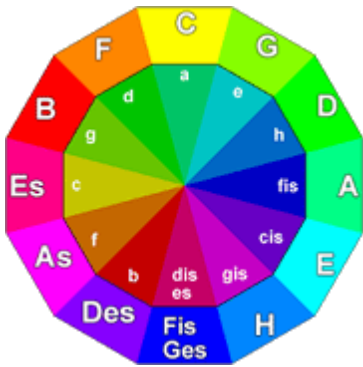
**M2L Color Table** - Allows you match colors to specific keys.

- Major keys are listed in the left part of the window.
- Minor keys are listed in the right part of the window.
- For example:
  - **C** [written in capital letters] represents C-major and has a pure yellow as its color value [RGB: 255, 255, 0].
  - **C-minor** [written as lower case **c**] has a darker yellow assigned [RGB: 153, 153, 0].
- **Open** - Allows you to open a previously saved Color Table from an external file [of the file type \*.mctx].
- **Save** - Allows you to store a Color Table configuration in an external file [of the file type \*.mctx].
- **C1** - Loads the default Color Table configuration.
- **C2** - Loads another Color Table preset.
- **R** - Loads another Color Table preset, starting with Red.
- **G** - Loads another Color Table preset, starting with Green.
- **B** - Loads another Color Table preset, starting with Blue.
- **Close** - Closes the Color Table window.



**Fade** - Adds a smooth transition between colors with the help of intermediate colors instead of using hard cuts between colors.



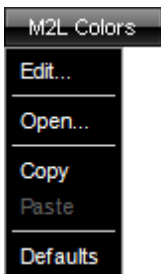


**Default Color Table** - The **Circle of Fifths** from music education is used for the default M2L Color Table. Starting with C, this notion describes a circle. Because of that, the relationship of the keys is visible from the arrangement.

- Adjacent keys are named parallel keys. The greater the distance between two keys, the less related they are. To support this fact, complementary colors are used in MADRIX.
- The outer ring of the circle describes the major keys, the inner ring the minor keys.
- While colors describe the tonality, the scale of the color is being expressed with the help of the brightness.

### Context Menu

- **Right Mouse Click** - You can call up the context menu by performing a right mouse click on **M2L Colors**
- A small window will be shown.



You can quickly perform the following actions:

- **Edit...** - Opens the M2L Color Table [in the same way you can open the window by clicking on **Colors** with the left mouse button].
- **Open...** - Loads a previously saved Color Table from an external file [of the file type \*.mctx].  
A new window opens for you to select the file on your harddisk.

- **Copy** - Copies the current colors into the clipboard as a duplicate.
- **Paste** - Applies all colors from the clipboard to the currently focused color control [**Colors**, **M2L Colors**].
- **Defaults** - Restores all default colors.

## Drag And Drop [Copy And Paste]

- **Left Mouse Click And Hold** - You can perform a Copy and Paste with the mouse.  
Click with the left mouse button on the **Colors** button and hold for 3 seconds. A small **+** appears. Now, continue to hold and drag the mouse to another color control [**Colors**, **M2L Colors**, **Color Table**, **Color Gradient**] and release the mouse to instantly apply the colors.

## Intensity

The user interface of MADRIX mainly provides 4 options to control the brightness:

- **Master** - Controls the overall brightness.  
Learn more »[Master / Audio Input Level](#)
- **Storage Place Submaster** - Controls the complete brightness of the entire Storage Place, including all of its Layers.  
Learn more »[Storages](#)
- **Layer Submaster** - Controls the complete brightness of the Layer.  
Learn more »[Effect Areas \[Left/Right\]](#)
- **Layer Opacity** - Makes the Layer transparent. This is mainly useful when using at least 2 Layers or more. If you are using only 1 Layer, the Submaster controls the Layer brightness.  
Learn more »[Layers](#)

## 8.8 Using Directions

This topic includes:

- [Introduction](#)
- [Overview](#)

### Introduction

MADRIX Effects have various controls to set up the preferred direction of effects.

- Directions include all options, including 2D and 3D directions.
- 3D directions can be selected even when you are working in 2D Mode. But they only work correctly in 3D Mode.
- Especially for 3D a multiple of choices is available. That includes so-called Look-At Types.

### Overview



**Direction** - Simply choose a direction by selecting it. The arrows will point towards the direction the effect will take.

- In the example to the left, the effect will move from up to down.



**Front / Back** - Allows you to choose the direction as well. This is mainly relevant for 3D.

**To The Front** - The effect will start in the back and move to the front.

**To The Back** - The effect will start in the front and move to the back.



**Look-At Type** - Allows you to choose from which side you want to look at the effect. This is mainly relevant for 3D.

**Front** - Positions the effect to see it mainly from the front.

**Back** - Positions the effect to see it mainly from the back.

**Left** - Positions the effect to see it mainly from the left.

**Right** - Positions the effect to see it mainly from the right.

**Top** - Positions the effect to see it mainly from the top.

**Bottom** - Positions the effect to see it mainly from the bottom.



**Cross Mode** - Activates Cross Mode. Certain MADRIX Effects can display the effect in two or more directions at the same time. [In addition, the **Cross Width** defines how much space each direction takes up].

- Example 1: SCE Color Scroll with Cross Mode and a Cross Width of 50% will display 2 color scrolls moving in opposite directions.
- Example 2: SCE Color Scroll with Cross Mode and a Cross Width of 20% will display 5 color scrolls moving in opposite directions.



**None** - Stops any movement.

**//PART I**

*Cue List*

## 9 Cue List

This topic includes:

- [Introduction](#)
- [Topics Of This Chapter](#)

### Introduction

The Cue List is an automated playlist and scheduler. It offers the possibility to precisely manage the automatic playback of effects.

### Topics Of This Chapter

- [»Cue List](#)

## 9.1 Cue List

This topic includes:

- [Introduction](#)
- [Basic Controls](#)
- [How To Work With The Cue List](#)
- [Setting Up Cues](#)
- [Time Code](#)
- [Important Notes](#)
- [Playback Side](#)
- [Live Control](#)
- [File Watcher \[Automatic Cue List Reloading\]](#)

### Introduction

The Cue List is an automated playlist.

It offers the possibility to precisely manage the automatic playback of effects. Once the Cue List is started, MADRIX will automatically play back your visuals according to your configuration and schedule. That means MADRIX switches from Storage Place to Storage Place [i.e. from effect to effect].

You can open the Cue List in 4 ways:

- Go to **Window > Cue List...**
- Press **F7**
- Or click **Programmer > Cue List** on the user interface.
- Or click **Cue List** on the user interface.

To close the Cue List and change back to the original MADRIX user interface:

- Go to **Window > Cue List...**
- Press **F7**
- Or click **Cue List > Programmer** on the user interface.

## Basic Controls

The main user interface offers 4 control buttons for the Cue List.



**Go** - Skips to the next Cue.



**Back** - Returns to the previous Cue.



**Play/Pause** - Starts or holds playback.



**Cue List** - Opens the actual Cue List window. This is the Cue List itself. Use it to set up your Cue List configuration.

## How To Work With The Cue List

### **Cue List Window**

The Cue List window can be used in 2 modes:

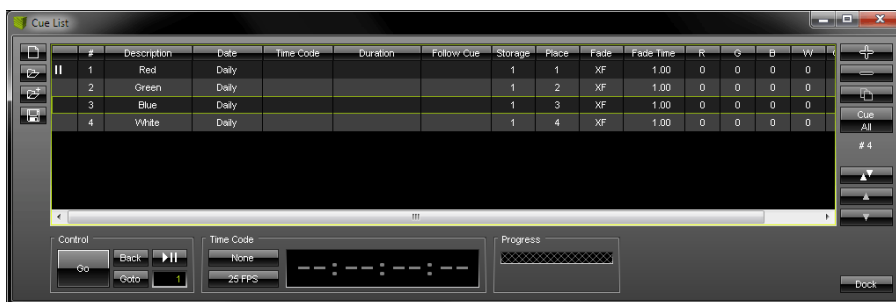
- **A]** The Cue List is part of the MADRIX user interface. You can switch between different views [e.g., Programmer View, Cue List View, Group Control view].
- **B]** The Cue List can be undocked and used freely as a separate window.



**A] Cue List Docked**



**B] Cue List Undocked**



**Controls**



**New** - Creates a new Cue List. It also clears all entries from the current Cue List!

**Open** - Loads an already existing Cue List [of the file type \*.mclx or \*.csv]. Choose the file from your harrdisk.

**Open And Attach** - Loads an already existing Cue List [of the file type \*.mclx or \*.csv] and adds it to the current Cue List.

**Save** - Stores your Cue List in an external file. You can choose to save in standard \*.mclx file format; or to save in \*.csv file format in order to easily edit the file with a text editor, for example.



**Add Cue** - Adds a new cue to the Cue List. When a Time Code is received, MADRIX will also automatically add the currently received Time Code to the cue [by filling in the column Time Code].

**Remove cues** - Removes all currently selected cues from the list.

**Duplicate cues** - Copies the currently selected cues and adds them as new cues to the list.

**Cue All** - Adds new Cue List entries for all Storage Places that have a MADRIX Effect customized and stored.

**# 4** - Displays the total number of cues in the Cue List.



**Swap Position** - Swaps the position of cues in the list when several cues are selected first.

**Position Up** - Changes the order, and positions currently selected cues one item higher up in the list.

**Position Down** - Changes the order, and positions currently selected cues one item lower down in the list.

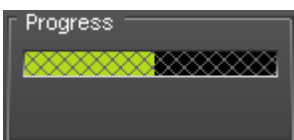


**Go** - Skips to the next cue.

**Back** - Returns to the previous cue.

**Goto** - Jumps to the specified cue. Make sure to enter the correct number in the nearby input field.

**Play/Pause** - Starts or holds playback.



**Progress** - Shows you the relative time progression of the current cue in a progress bar.



**Undock** - Allows you to undock the Cue List and use in a separate window.



**Dock** - Allows you to integrate the Cue List back into the user interface of MADRIX when undocked.

Time Code	Duration
00:00:02:00	
00:00:03:00	4s

**Double-Click / Right Mouse Click** - Perform a double-click or right click with the mouse onto an entry into the specific column and you will be able to enter and change the values.

**Multiple Selection** - The list allows you to select and modify more than one entry at a time. Select several entries by using **Shift + Left Mouse** or **Ctrl + Left Mouse** or **Shift + Arrow Keys**. Then, right click into the column you want to change.

**Spacebar** or value of **-1** - Removes all values or restores the default values.



**Double-Click** - Perform a double-click on the very first column of the Cue List in order to start playing from this cue [thus performing a **Goto**]. Make sure to only double-click in the first column. You can even jump to specific cues during Cue List playback in this way.

## Setting Up cues

**1]** Add new cues to the Cue List by using

- A] **Cue** on the user interface,
- B] **+** in the Cue List window, or
- C] **Cue All** in the Cue List window.

**2]** Change each cue as explained in the list below.

- Change values as described above in the section [Controls](#)
- You can even edit the Cue List while it is playing.

**- Make sure to change the settings for each cue according to your requirements!**

	<ul style="list-style-type: none"><li>▪ The first column shows the current playback state [Playing, Pause] and can also be used to perform a <b>Goto</b> with the mouse. Perform a double-click on the column in order to start playing from this cue. You can even jump to specific cues during Cue List playback in this way.</li></ul>
<b>#</b>	<ul style="list-style-type: none"><li>▪ MADRIX automatically numbers each cue consecutively with an index number, beginning with 1.<ul style="list-style-type: none"><li>- <b>Note:</b> Change this index number in order to quickly change the order of cues. MADRIX will automatically rearrange the list.</li></ul></li></ul>
<b>Description</b>	<ul style="list-style-type: none"><li>▪ Automatically fills in a label. This label is based on the Description field of the Storage Place on the user interface. You can change the label if you wish.</li></ul>

<p><b>Date</b></p>	<ul style="list-style-type: none"> <li>▪ Defines if the entry will be played at a specific date. You can enter 3 different types:             <ul style="list-style-type: none"> <li>▪ <b>Daily</b> - This is the default value. Enter <b>0</b>, <b>d</b>, or <b>D</b> and the cue will be considered every single day.</li> <li>▪ A weekday - Enter <b>m</b> or <b>M</b> for Monday, <b>t</b> for Tuesday, <b>w</b> or <b>W</b> for Wednesday, <b>T</b> for Thursday, <b>f</b> or <b>F</b> for Friday, <b>s</b> for Saturday, <b>S</b> for Sunday.</li> <li>▪ A specific date - Use one of the following formats: [Year Month Day] <b>2013/12/31</b> <b>2013:12:31</b> <b>2013;12;31</b> <b>2013-12-31</b> <b>13-12-31</b></li> </ul> </li> </ul> <p>[Specific Day of Current Month of Current Year] <b>01</b> - First day of this month of this year <b>02</b> - Second day etc.</p> <p>[Specific Day of Specific Month of Current Year] <b>01-01</b> - First day, first month of this year <b>01-02</b> - Second day, second month etc.</p>
--------------------	--

<p><b>Time Code</b></p>	<ul style="list-style-type: none"> <li>▪ Defines a specific time the cue should be played. Use the hours:minutes:seconds:frames format to enter the time: <b>HH:MM:SS:FF</b></li>   <li>Example             <ul style="list-style-type: none"> <li>- 10 o'clock and 20 minutes, 30 seconds, and 10 frames</li> <li>- Use one of the following formats:                 <ul style="list-style-type: none"> <li><b>10203010</b></li> <li><b>10:20:30:10</b></li> <li><b>10,20,30,10</b></li> <li><b>10.20.30.10</b></li> <li><b>10/20/30/10</b></li> <li><b>10h20m30s10f</b></li> </ul> </li> </ul> </li>   <li>[Short versions for single items]             <ul style="list-style-type: none"> <li><b>10h</b></li> <li><b>20m</b></li> <li><b>30s</b></li> <li><b>10f</b></li> </ul> </li>   <li>▪ Offset             <ul style="list-style-type: none"> <li>- Works for single or multiple cues.</li> <li>- Use <b>Shift + Right Mouse Click</b> and enter a number to add an Offset. [Otherwise you are entering the Time Code anew.]</li> <li>- Use <b>Ctrl + Right Mouse Click</b> and enter a number to subtract an Offset. [Otherwise you are entering the Time Code anew.]</li> </ul> </li>   <li>▪ Automatic Completion             <ul style="list-style-type: none"> <li>- MADRIX will automatically fill in the Time Code when adding a new cue [if a Time Code is received at the time].</li> </ul> </li> </ul>
<p><b>Duration</b></p>	<ul style="list-style-type: none"> <li>▪ Defines how long an effect is going to be played. The <b>Fade Time</b> is calculated as part of the Duration [and is thus a fade in]. Leave the Duration empty if the effect should be active as long as you do not control the Cue List manually [via <b>Go, Back, Play/Pause, or Goto</b>]. Use the hours:minutes:seconds:frames format to enter the time: <b>HH:MM:SS:FF</b> as explained under <b>Time Code</b></li> </ul>

<b>Follow Cue</b>	<ul style="list-style-type: none"> <li>You can assign a certain cue to be played after another. As such, a Follow cue assigns the next cue the Cue List should play right after this cue. Follow cues allow you to define a certain order in which cues should be played by the Cue List. Simply enter the number of the cue that should follow. Leave empty if not required.</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>Defines in which Storage the effect is located. Enter a number between <b>1</b> and <b>256</b></li> </ul>
<b>Place</b>	<ul style="list-style-type: none"> <li>Defines the exact Storage Place, where the effect is located. Enter a number between <b>1</b> and <b>256</b></li> </ul>
<b>Fade</b>	<ul style="list-style-type: none"> <li>Defines the <b>Fade Type</b> for the crossfader when the Cue List automatically fades from one effect to another. All Fade Types of the crossfader are available here. Learn more »<a href="#">Crossfader And Main Output</a></li> </ul>
<b>Fade Time</b>	<ul style="list-style-type: none"> <li>Defines the length of the automatic fade for the crossfader and thus creates a fade in. Enter a value in seconds:milliseconds format: <b>SS:MM</b>. Learn more »<a href="#">Crossfader And Main Output</a></li> </ul>
<b>R</b>	<ul style="list-style-type: none"> <li>Defines the Red color value for the Fade Type <b>Color-Fade</b>. Learn more »<a href="#">Crossfader And Main Output</a></li> </ul>
<b>G</b>	<ul style="list-style-type: none"> <li>Defines the Green color value for the Fade Type <b>Color-Fade</b></li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>Defines the Blue color value for the Fade Type <b>Color-Fade</b></li> </ul>
<b>W</b>	<ul style="list-style-type: none"> <li>Defines the White color value for the Fade Type <b>Color-Fade</b></li> </ul>
<b>Group Preset</b>	<ul style="list-style-type: none"> <li>Defines which Group Preset is triggered together with this cue. [The Fade Time of the Cue List will automatically be used as the Fade-In Time of the Group Control.] Enter a number between <b>1</b> and <b>256</b>. Leave empty if not required. Learn more »<a href="#">Fixture Groups [Group Control]</a></li> </ul>

## Time Code

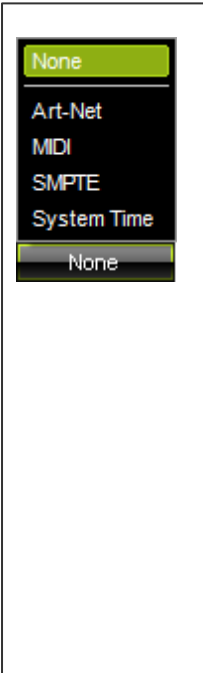
### Overview



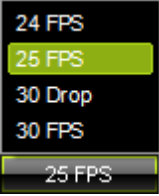
Time Code is a useful option to trigger effects at certain times of the day or at certain points in time. For example, you might want to trigger Storage Place S1 P1 at 10:00 a.m. or when 3 minutes have passed after the start. Time Code is a convenient way to synchronize independent equipment of your LED installation with each other. This could be external audio equipment, other MADRIX computers, or even the same computer. You might want to set up a time-controlled show in sync with timelines of lighting effects of MADRIX and sound.

Receiving Time Code is possible with all MADRIX software license versions [including all MADRIX KEYS, MADRIX NEO, and MADRIX PLEXUS].

### Configuration

	<ul style="list-style-type: none"><li>▪ <b>Time Code Source</b> - Select from which source Time Code should be received.<ul style="list-style-type: none"><li>- <b>None</b> - Deactivates the usage of Time Code.</li><li>- <b>Art-Net</b> - Receives Art-Net Time Code from an Art-Net source [for example, a console, another software, the »<a href="#">MADRIX Time Code Sender</a>, etc.]. You need to activate Art-Net first. Learn more »<a href="#">Art-Net [DMX Over Ethernet]</a></li><li>- <b>MIDI</b> - Receives MIDI Time Code from a MIDI source. You need to activate MIDI first. Learn more »<a href="#">MIDI-IN</a></li><li>- <b>SMPTE</b> - Receives SMPTE Time Code from the MADRIX USB SMPTE hardware interface. Learn more »<a href="#">MADRIX I/O</a></li><li>- <b>System Time</b> - Uses the internal computer clock [i.e. the clock of the operating system] to generate the Time Code. If the time of your computer system is 10:00 a.m., the generated Time Code will be 10:00:00:00, for example.</li></ul></li></ul>
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	<ul style="list-style-type: none"> <li>▪ <b>Time Code Format</b> - Allows you choose between different Time Code formats. When receiving Time Code from an external source, use the format sent by the external source. You can choose from:             <ul style="list-style-type: none"> <li>- <b>24 FPS</b></li> <li>- <b>25 FPS</b></li> <li>- <b>30 Drop</b> [30/1.001 FPS]</li> <li>- <b>30 FPS</b></li> </ul> </li> </ul>
<p><b>00:00:00:00</b></p>	<ul style="list-style-type: none"> <li>▪ Displays the currently used Time Code. The hours:minutes:seconds:frames format is used: <b>HH:MM:SS:FF</b></li> </ul>

Learn more »[Time Code \[MIDI / Art-Net / SMPTE / System Time\]](#)

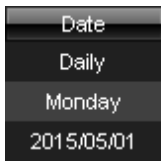
## Stop

According to your configuration, you may have to set the Time Code Source to *None* to fully stop the Cue List.

## Important Notes

- Do not forget to save your Cue List or the complete MADRIX Setup file.
- When you are using Date, Time Code, and/or Duration, logical routines are implemented to determine which cue should be currently active. These routines are explained in more detail below.

## Date



If you are setting up a Date for a cue, 3 options are available to you:

- Daily,
- A specific weekday,
- Or an explicit date.

If you are using a mixture of those three options, a cue will be favored and activated according to the following hierarchy if applicable:

**An explicit date overrides a weekday entry. And a weekday entry overrides a daily entry.**

For example, daily will activate a cue every single day. But on Mondays, another cue should be activated and it will be. But 2010/04/19 is also a Monday and this cue will be activated this day instead of the daily cue and instead of the Monday cue.

## Time Code Without Duration

- If you are using the column Time Code without the column Duration, a cue will only be activated if the Time Code passes this predefined time.
- If the Time Code of a cue [without Duration] has already passed that deadline, the cue will not be activated.

## Time Code With Duration

**A]** If you are using the column Time Code and the column Duration, a cue will be activated when the current Time Code falls into this time window.

- A cue using Time Code and Duration will be activated if it falls into the time window.

- In addition, the logical routine will check if the Date needs to be considered according to the information above [Date].

For example, if your daily cue should start at 8 o'clock for 8 hours and the current Time Code says 10 o'clock, the cue will be activated.

**B]** When using Time Code and Duration, you should be aware of what should happen when the Duration is over. A cue with a Time Code and Duration will expire eventually.

- When a cue with Time Code and Duration is over or has expired, MADRIX will automatically select the next cue; regardless of what the next cue is.
- MADRIX will not check if the next cue is valid or logic. If you do not want MADRIX to select the next cue, use Follow cues for example or make sure the next cue is set up correctly!

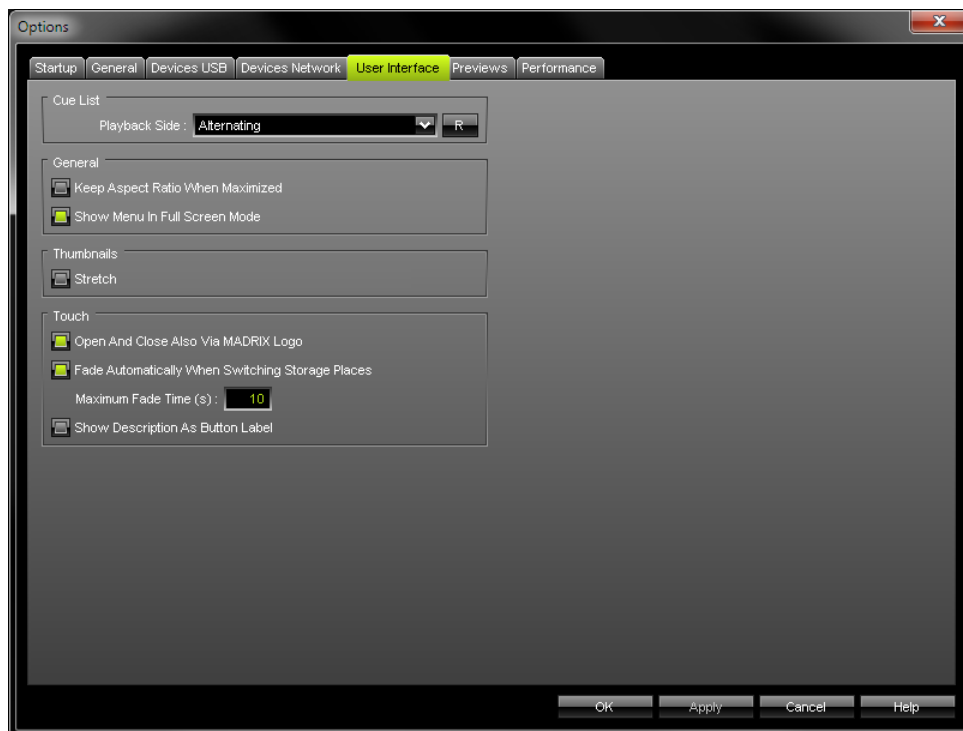
## Loop Function

- If all cues have been assigned a Duration, the Cue List will automatically start from the beginning again after the last cue.
- If a cue inside the Cue List does not have a pre-defined duration, the Cue List will stop at this cue.
- If you want to stop the Cue List with the last entry, you only have to remove the duration for the last cue in your Cue List.

## Playback Side

You can choose how MADRIX manages the user interface when playing back the Cue List.

- Go to **Preferences > Options... > User Interface**  
[Keyboard shortcut: **Ctrl+Alt+O > User Interface**]



- **Playback Side** - Defines which sides are used during Cue List playback. Choose from 2 modes:
  - Alternating** - MADRIX automatically switches from side to side between the Left Side and the Right Side.
    - Example: The first Cue will be played on the Left Side of the user interface, the second Cue on the Right Side, the third Cue on the Left Side again, and so on.
  - By Storage ID Parity** - MADRIX will decide which side to use depending on the Storage ID.
    - Cues that refer to an odd Storage ID [e.g., Storage 1 or Storage 3] will be played back on the Left Side only.
    - Cues that refer to an even Storage ID [e.g., Storage 2 or Storage 4] will be played back on the Right Side only.
  - [When using only Storage 1 and Storage 2, this behaviour closely resembles how MADRIX 2 played back the Cue List.]
  - R** - Restores the default settings. The default value is Alternating.
  
- Click **Apply** to confirm.
- Click **OK** to close the window.

## Live Control

The majority of controls in MADRIX is disabled while the Cue List is running. The following control controls are available to you even during Cue List playback:

- Cue List and Cue List controls
  
- Submaster Left/Right
- Color Filter Left/Right
- Filter Left/Right
- Speed Masters Left/Right, including Pause

Learn more »[Controls \[Left/Right\]](#)

- Crossfader
- Main Output Color Filter
- Main Output Filter
- Main Output Strobe

Learn more »[Crossfader And Main Output](#)

- Master, including Freeze and Blackout
- Audio Input Level, including AGC and Audio

Learn more »[Master / Audio Input Level](#)

- Group Control

Learn more »[Fixture Groups \[Group Control\]](#)

## File Watcher [Automatic Cue List Reloading]

MADRIX can automatically reload a Cue List within a predefined refresh time.

Learn more »[General](#)

## //PART J

*Extra Tools And  
3rd-Party Software*

## 10 Extra Tools And 3rd-Party Software

This topic includes:

- [Introduction](#)
- [Topics Of This Chapter](#)

### Introduction

A number of separate tools [programs] are automatically installed together with MADRIX. They serve different purposes and are very useful when working with MADRIX.

Additionally, MADRIX can work together with certain 3rd-party applications.

### Topics Of This Chapter

Learn more about separate tools:

- »[MADRIX Fixture Editor](#)
- »[MADRIX Restore](#)
- »[MADRIX Time Code Sender](#)
- »[MADRIX PLEXUS Updater](#)
- »[MADRIX LUNA Updater](#)

Learn more about 3rd-party applications:

- »[WYSIWYG Visualizer](#)



## 10.1 MADRIX Fixture Editor

This topic includes:

- Introduction
- Usage
- Where To Find
- Important Notes
- More Information

### Introduction

LED fixtures are implemented using the MADRIX Fixture Editor. The fixtures are stored in the MADRIX Fixture Library [madrix.mfx].



## Usage

With the help of the MADRIX Fixture Editor, you can

- see how fixtures are integrated in MADRIX,
- see how many and which fixtures are already included,
- adjust settings to your requirements,
- implement and add fixtures to the library yourself.

## Where To Find

MADRIX Fixture Editor is included in the MADRIX Installer. After installing MADRIX, you can find the link to the tool in the Windows Start menu:

- **Start > All Programs > MADRIX 3 > Fixture Editor**

The original, executable program can be found in the MADRIX installation directory:

- C:\Program Files (x86)\MADRIX3

## **Important Notes**

- **Always make a backup of the madrix.mflx before and after applying any changes.**
- **When updating your MADRIX version, the Setup [Auto Installer] will automatically create a "madrix.mflx.bak". This file is a backup of your old MADRIX Fixture Library. Moreover, the Setup will overwrite the current madrix.mflx completely to update the library.**
- **Please quit MADRIX before using the Fixture Editor and making any changes to the MADRIX Fixture Library.**

## **More Information**

- You can learn more in the separate user guide for the MADRIX Fixture Editor.

## 10.2 MADRIX Restore

This topic includes:

- [Introduction](#)
- [Usage](#)
- [Where To Find](#)

### Introduction

Along with MADRIX a separate tool for MADRIX is provided. It is called **MADRIX 3 Restore**



### Usage

MADRIX 3 Restore should mainly be used, when it is impossible for you to start the MADRIX software for any reason.

**MADRIX Restore is a tool including advanced options and should not be used without reason!**

- MADRIX 3 Restore is used for all settings that are locally stored on your computer and written into the Windows Registry.  
Often, such settings can be configured in the Options. Learn more »[Options](#)
- MADRIX 3 Restore is not a tool to manage your MADRIX files, whichever files that may be [e.g., MADRIX Setup files].

MADRIX 3 Restore can be used for several, specific tasks.



**Version** - Allows you to select the kind of software version you are using. The default version is MADRIX3.

- **MADRIX3** - Includes any final release version of MADRIX 3.
- **MADRIX3 RC** - Includes any version of MADRIX 3 that is labeled as Release Candidate test version [**RC**].
- **MADRIX3 BETA** - Includes any version of MADRIX 3 that is labeled as BETA test version [**BETA**].
- **MADRIX3 Fixture Editor** - Includes the MADRIX 3 Fixture Editor.

Reset To Default Settings

**Reset To Default Settings** - Resets all settings of MADRIX, just like installing MADRIX on a computer for the first time.

Reset To Fail-Safe Settings

**Reset To Fail-Safe Settings** - Resets all settings of MADRIX and at the same time deactivates any settings that might prevent MADRIX to start fully. For example, **Initialize QuickTime At Startup** will be deactivated. This is the recommended setting to choose, when MADRIX does not start.



**Open** - Loads settings from an external file. [In this way you can open a backup of your settings or transfer settings from one computer to another computer].



**Save** - Saves MADRIX settings to an external file in order to store them. [In this way you can create a backup of your settings or transfer settings from one computer to another computer].

## Where To Find

MADRIX 3 Restore is included in the MADRIX Installer. After installing MADRIX, you can find the link to MADRIX 3 Restore in the Windows Start menu:

- **Start > All Programs > MADRIX 3 > Tools > MADRIX Restore**

The original, executable program can be found in the MADRIX installation directory:

- C:\Program Files (x86)\MADRIX3

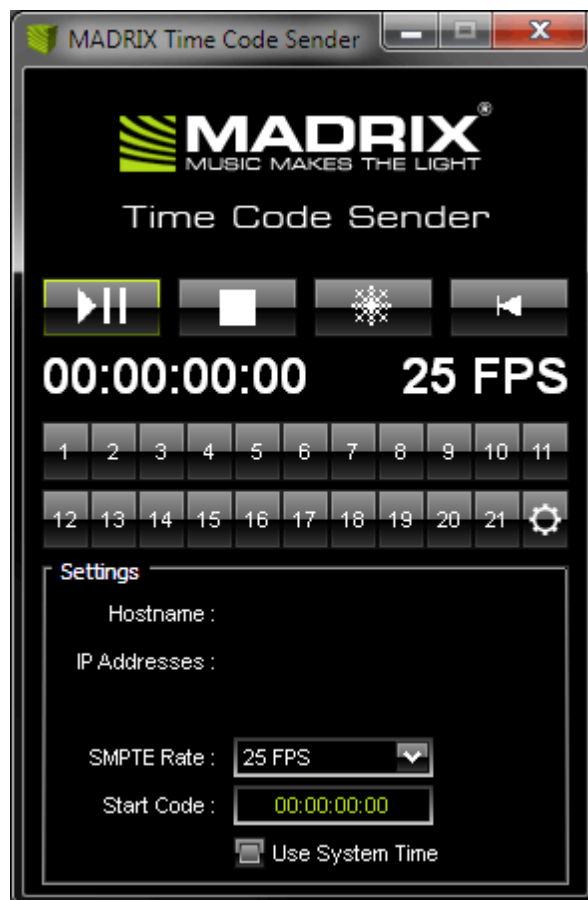
## 10.3 MADRIX Time Code Sender

This topic includes:

- [Introduction](#)
- [Usage](#)
- [Step-By-Step Instructions](#)
- [Configuration](#)
- [Where To Find](#)

### Introduction

MADRIX Time Code Sender is a separate tool.



The small application sends out Time Code. This is particularly useful in combination with the Cue List.

- Time Code is a convenient way to synchronize independent equipment with each other.
  - This could be external audio equipment, other MADRIX computers, or even the same computer.
  - You might want to set up a time-controlled show in sync with timelines of sound and lighting effects of MADRIX.
- The Cue List is the automated playlist feature of MADRIX.
  - When using the Cue List, you can use Time Code to trigger effects at certain times of the day or at certain points in time.
  - For example, you might want to trigger Storage Place S1 P1 at 10:00 a.m. or when 3 minutes have passed after the start, for example.
- In the Cue List, you can choose to receive Time Code [**None, Art-Net, MIDI, SMPTE, System Time**].
- Receiving Time Code is possible with all MADRIX software license versions [including all MADRIX KEYS, MADRIX NEO, and MADRIX PLEXUS].
- You can use the MADRIX Time Code Sender to generate such Time Code.

Learn more »[Cue List](#)

## Usage

You can use MADRIX Time Code Sender to produce Time Code [i.e. Art-Net Time Code] and send it to devices in an Ethernet network. The data will be sent via Broadcast to all receivers in the network. As explained above, MADRIX can be such a recipient.

### **Example 1**

- You are using two MADRIX computers to control two independent areas of LED products. [Although you could control both areas with one MADRIX computer, it makes sense to use two computers because of the distance between the areas.] At night, both LED areas should show similar effects and you wish to synchronize the Cue List of both computers.
- You can use the MADRIX Time Code Sender to synchronize the Cue Lists of both computers.



## Example 2

- You wish to create a time-controlled show on one computer that starts at 00:00 and runs for 10 minutes. Using the System Time would not help you in this case, but the MADRIX Time Code Sender will be useful.

## Step-By-Step Instructions

- 1]** Configure the MADRIX software according to your needs [including all Effects, etc.].
- 2]** Activate »[Art-Net \[DMX Over Ethernet\]](#): In MADRIX, go to **Preferences > Device Manager... > Art-Net**. Activate the checkbox **Enable** [in the upper, right corner]. Close the window afterwards.
- 3]** Create a »[Cue List](#) [including Time Code and/or Duration].
  - If you want to synchronize multiple MADRIX computers, set up a Cue List for each MADRIX software.
- 4]** Choose the **Time Code Format** in the Time Code section of the Cue List [**24 FPS, 25 FPS, 30 Drop, 30 FPS**].
- 5]** Start sending Time Code with the help of the MADRIX Time Code Sender. Learn more [Configuration](#)

**It is not important if you open MADRIX or the MADRIX Time Code Sender first, and then the other program.**

## Configuration

Please set up the MADRIX Time Code Sender according to the following parameters:



**Play/Pause** - Starts or pauses sending Time Code.



**Stop** - Fully stops sending Time Code. And automatically resets the Time Code to zero [00:00:00:00] or to the corresponding Start Code.



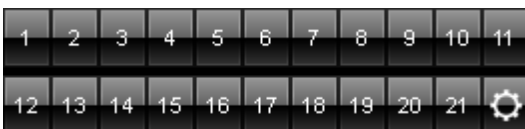
**Freeze** - Freezes the Time Code generation and the display, but the Time Code will still be generated in the background. Deactivate the button to see and send the current Time Code again. You can also stop generating new Time Code when Freeze is active.



**Rewind** - Rewinds the Time Code back to zero [00:00:00:00] or to the corresponding Start Code; even if Time Code is running.



**Time Code** - The generated Time Code is displayed in the following format: **HH:MM:SS:FF [00:00:00:00]** , meaning **hours : minutes : seconds : frames**.



**Presets** - You can use 21 presets to quickly set up and utilize individual Start Codes.

**Preset Configuration** - Use the configuration button to set up the Start Code presets.

**Host Name**

- Displays the name of the computer.

**IP Addresses**

- Displays the IP address of the computer. Several addresses are shown when the computer has multiple network cards.

**SMPTE Rate**

- Provides four modes on how the Time Code is generated.

**24 FPS** [Standard frame rate for films]

**25 FPS** [Standard frame rate for PAL video]

**30 Drop** [30/1.001 FPS drop-frame time code for color NTSC video]

**30 FPS** [Monochrome NTSC video]

**Start Code**

- You can define a start time, when the Time Code counter should start. By default it starts at 00:00:00:00.

**Use System Time**

- You can use the local clock of your computer to generate Time Code. The computer time will be used.

## Where To Find

MADRIX Time Code Sender is included in the MADRIX Installer. After installing MADRIX, you can find a link to the tool in the Windows Start menu:

- ***Start > All Programs > MADRIX 3 > Tools > MADRIX Time Code Sender***

The original, executable program can be found in the MADRIX installation directory:

- C:\Program Files (x86)\MADRIX3

## 10.4 MADRIX PLEXUS Updater

This topic includes:

- [Introduction](#)
- [More Information](#)

### Introduction

MADRIX PLEXUS Updater is a separate tool only for MADRIX PLEXUS.



### More Information

You can find more information about MADRIX PLEXUS and MADRIX PLEXUS Updater in the separate user guide:

- ***MADRIX PLEXUS User Manual***

## 10.5 MADRIX LUNA Updater

This topic includes:

- [Introduction](#)
- [More Information](#)

### Introduction

MADRIX LUNA Updater is a separate tool only for MADRIX LUNA.



### More Information

More information about MADRIX LUNA and MADRIX LUNA Updater is available in this user manual.

Learn more » [MADRIX LUNA](#)

## 10.6 WYSIWYG Visualizer

This topic includes:

- [Introduction](#)
- [Step-By-Step Configuration](#)
- [More Information](#)

### Introduction



WYSIWYG is a 3rd-party visualizer software by CAST Software. MADRIX has been officially implemented into WYSIWYG since WYSIWYG R23.

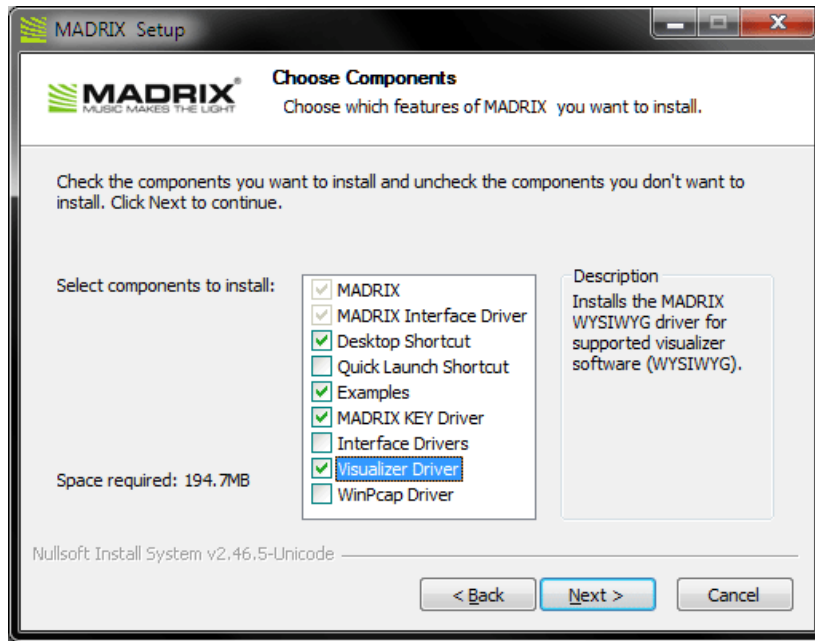
### Step-By-Step Configuration

- 1] Install the WYSIWYG driver for MADRIX.
- 2] Activate WYSIWYG in MADRIX.
- 3] Connect MADRIX with WYSIWYG.

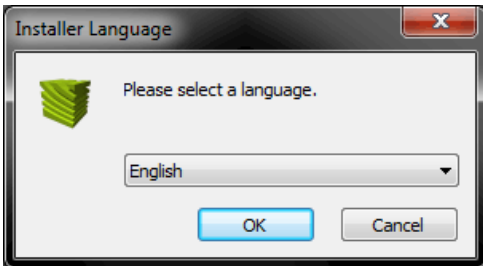
#### 1] Installing The MADRIX WYSIWYG Driver

- To use WYSIWYG with MADRIX, you have to install the MADRIX WYSIWYG driver first.
- During the MADRIX installation process, make sure to select the check box **Visualizer Driver**
- If you have already installed MADRIX without this component, re-install MADRIX.

Learn more »[Installation Process](#)



- During the MADRIX installation process, a second setup wizard will be launched for the MADRIX WYSIWYG driver.
- Follow these steps:



**Step 1]**

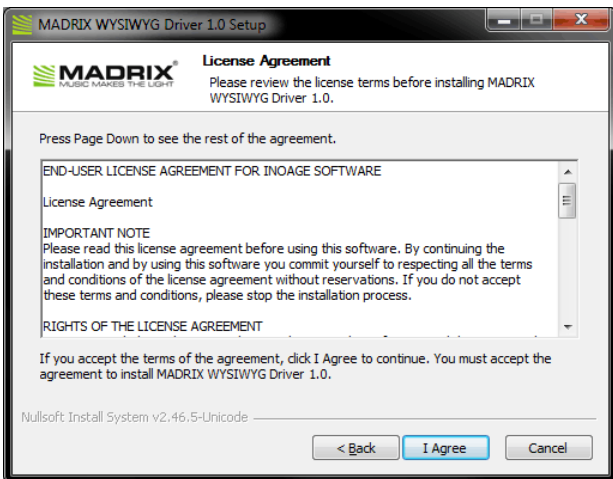
- Please select your preferred language and confirm with **OK**
- You can always quit the setup by choosing **Cancel**
- Click **Back** in order to return to a previous step during the setup process.





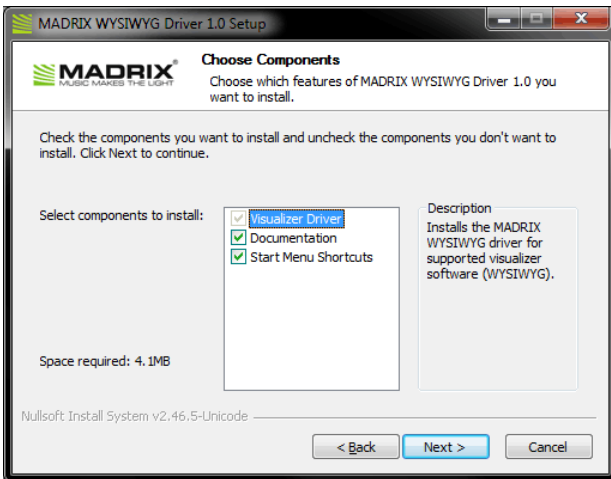
**Step 2]**

- Click **Next** to start the installation.



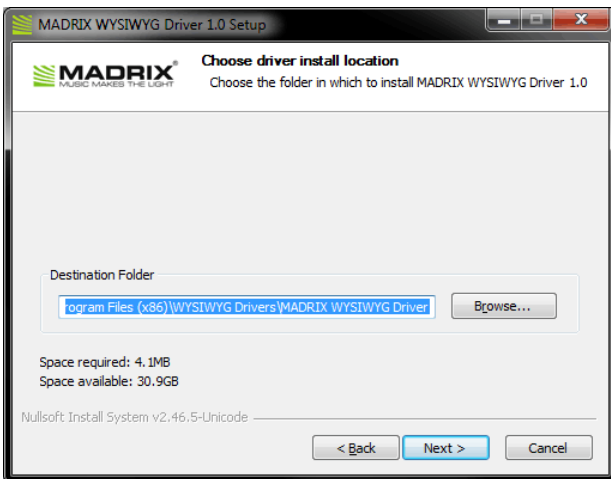
**Step 3]**

- The **License Agreement** will appear. It outlines the terms you are agreeing to by installing the software. You must accept these terms in order to continue.
- Please click **I Agree**



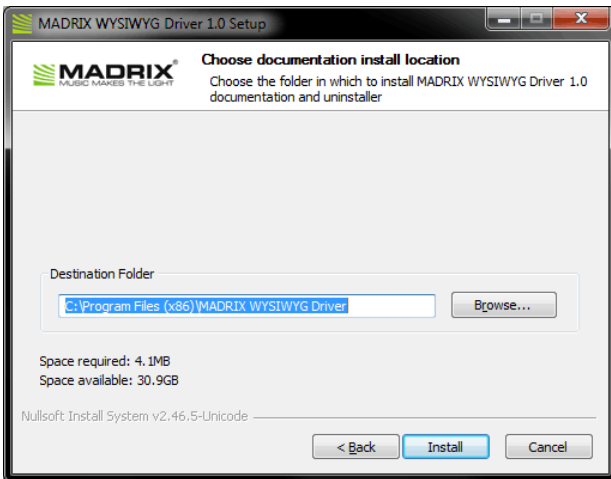
**Step 4]**

- This window allows you to select which components and which drivers you want to install. A description is given for each item.
- **Visualizer Driver** - It is always required to install this component.
- **Documentation** - Select if you wish to install this user guide as a separate document.
- **Start Menu Shortcuts** - Select if you wish to install short cuts in the Windows Start menu.
- **Next** - Click Next after choosing the components in order to continue.



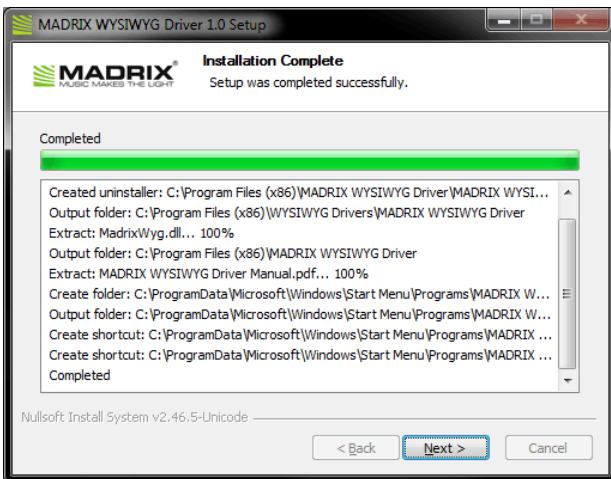
**Step 5]**

- Choose an installation directory [**Install Location**] on your haddisk where the driver will be installed. A default **Destination Folder** will automatically be provided by the setup.
- **Browse** - Click to change the folder.
- **Next** - Click to start the installation process.



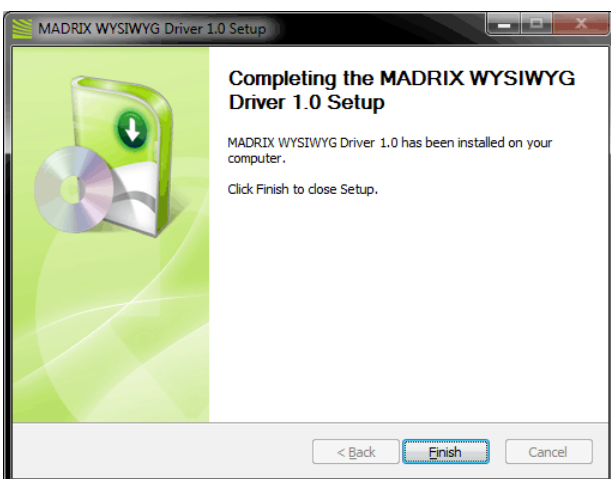
**Step 5]**

- Choose an installation directory [**Install Location**] on your harddisk where the documentation will be installed. A default **Destination Folder** will automatically be provided by the setup.
- **Browse** - Click to change the folder.
- **Next** - Click to start the installation process.



**Step 7]**

- **Installation Complete** - Click **Next** when this message shown.



**Step 8]**

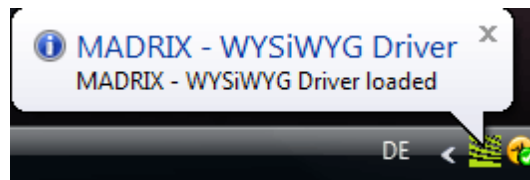
- **Finish** - Click to quit the setup.


## 2] Activating WYSIWYG In MADRIX

- Go to **Preferences > Device Manager... > Visualizer**  
[Keyboard shortcut: **F4 > Visualizer**]
- Activate **Enable**

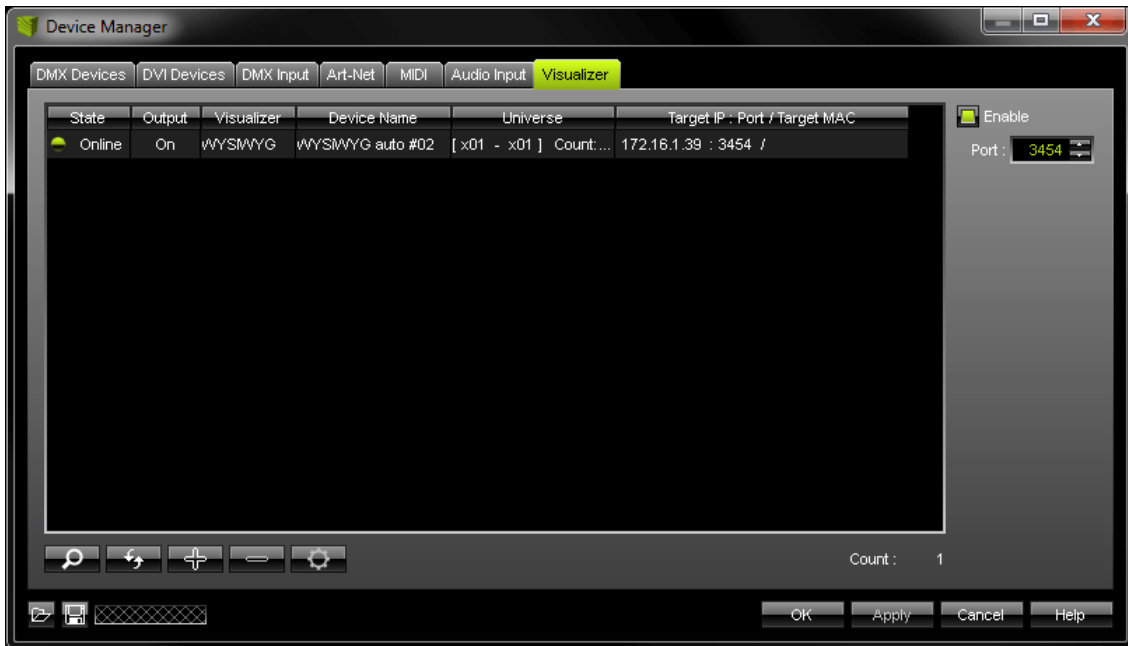


- **Port** - Make sure that the port number matches the port number in MADRIX WYSIWYG Driver Configuration window. The default Port is 3454.  
[To open the MADRIX WYSIWYG Driver Configuration window, you have to double-click the tray icon in the Windows system tray of the computer that WYSIWYG is running on.]




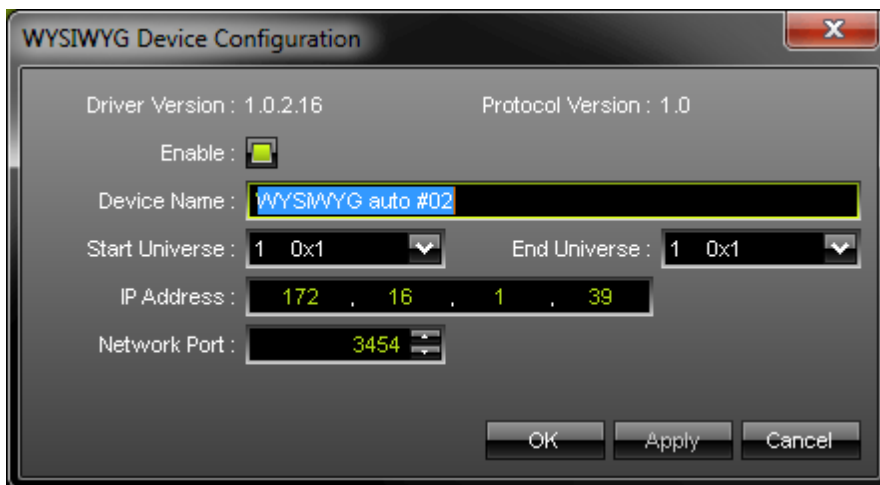
- **A]** Click   
[MADRIX will automatically search for running WYSIWYG devices on your local computer or in the network. Make sure that the port number matches the port number in the MADRIX WYSIWYG Driver Configuration window.]

- Your WYSIWYG device should appear in the list [displaying **State Online**].



**B] New** - Allows you to manually add a WYSIWYG device.

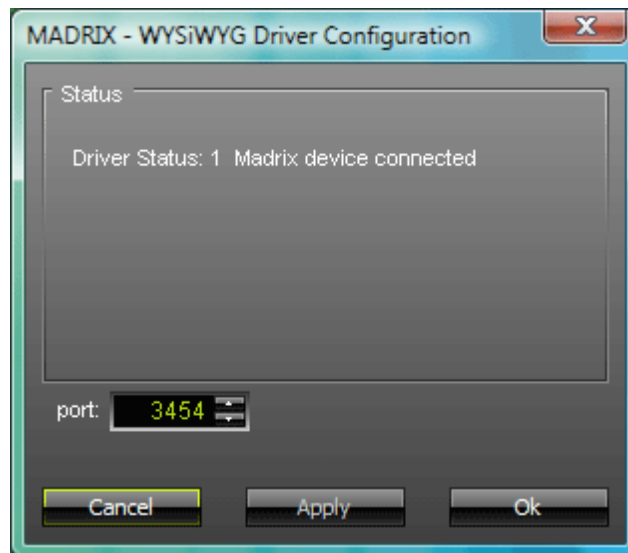
- Configure your manually added devices as described next.
- Select your device in the list and click  in order to configure your device.
- A new window will open [**WYSIWYG Device Configuration**].



- **Enable** - Activates or deactivates DMX output to the WYSIWYG device.
- **Device Name** - Allows you to change the label of the device in MADRIX.
- **Start Universe** - Defines which data is sent to the WYSIWYG device starting with this DMX universe. Please set up this setting!
- **End Universe** - Defines which data is sent to the WYSIWYG device ending with this DMX universe. Please set up this setting!
- **Pay special attention to the End Universe. Make sure to set it up correctly and corresponding to WYSIWYG!**
- **IP Address** - Enter the correct IP address of the WYSIWYG device. If the device was detected automatically, you do not need to change it.
- **Network Port** - Enter the correct network port of the target computer, on which WYSIWYG is running. If the device was detected automatically, you do not need to change it.

You can only enable DMX Output if the State of WYSIWYG Device is Online. In other words, the WYSIWYG driver must be up and running on the same computer or in the network.

- If the connection is established, a message will be display that reads **X MADRIX device(s) connected** in the WYSIWYG Driver Configuration.



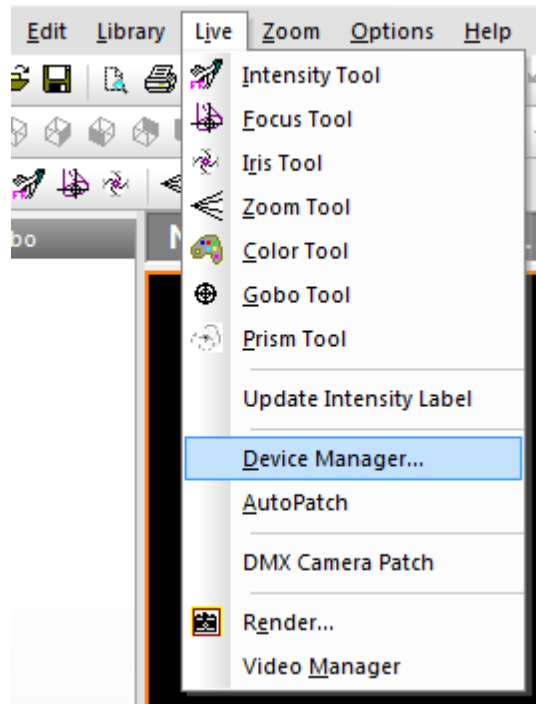
WYSIWYG can connect up to 20 computers running MADRIX and vice versa.

### 3] Connecting To MADRIX In WYSIWYG

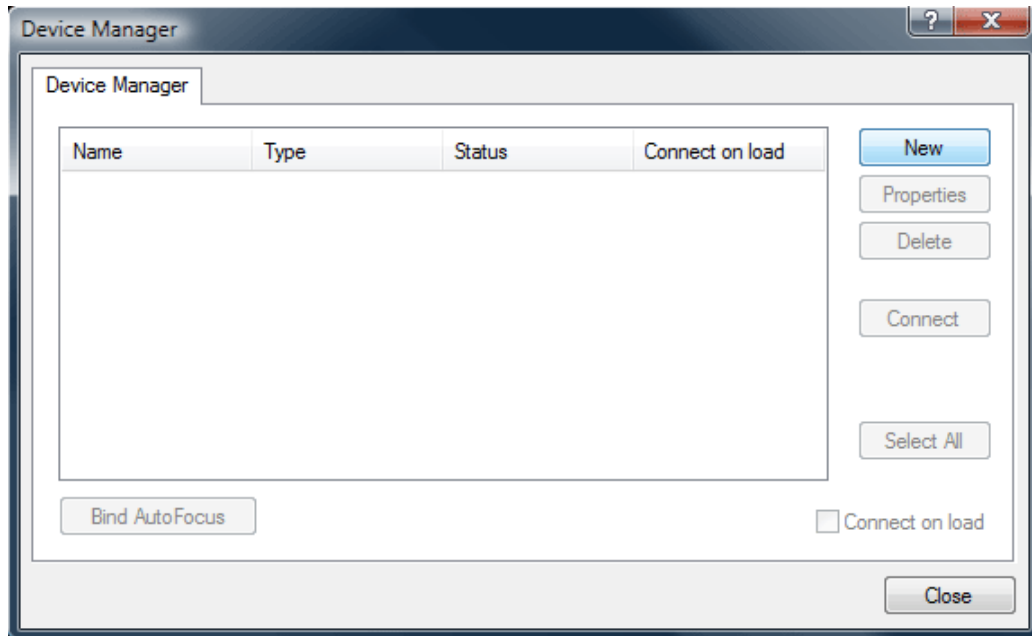
- Start WYSIWYG.
- Switch to **LIVE** mode.



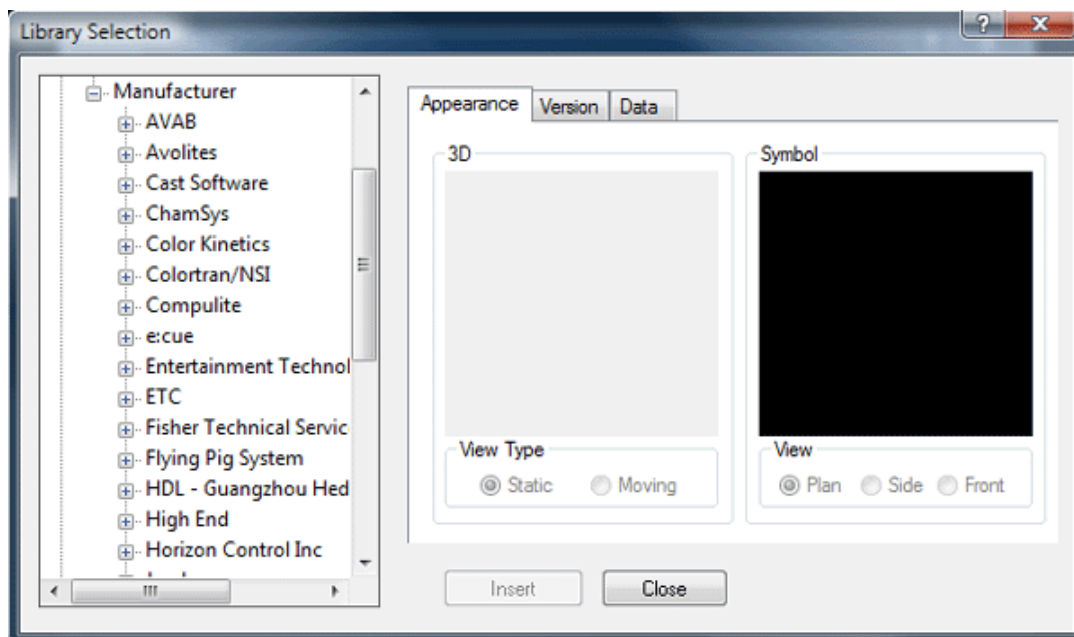
- Open the **LIVE** menu.
- Choose **Device Manager...**



- A new window box will be displayed.



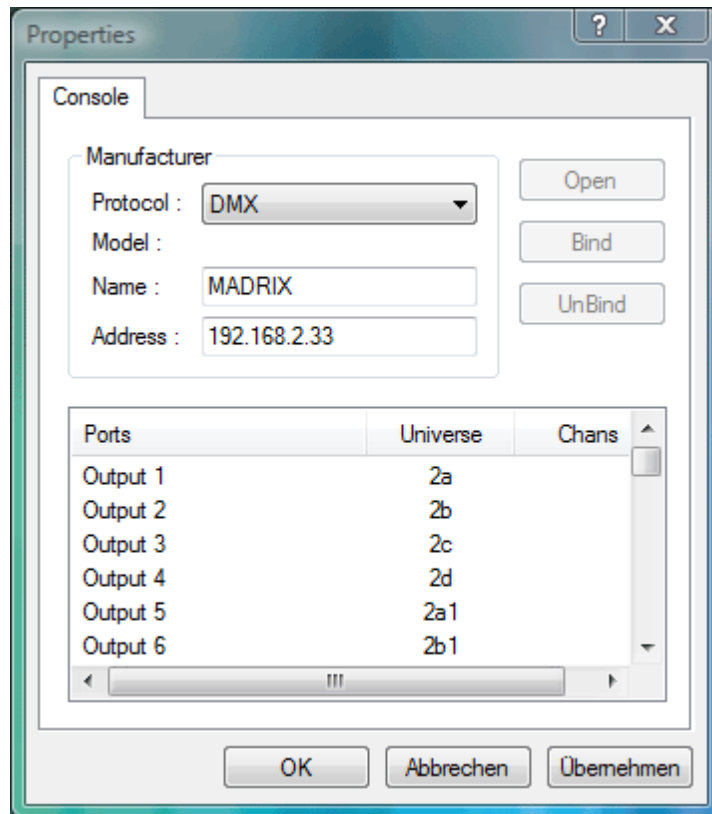
- Click **New > Consoles**
- Navigate through the console library until you find **MADRIX**. Select **MADRIX** and then click **Insert**



- Now, the **MADRIX** console should appear in the **Device Manager**
- Select it and click on **Properties**



- **Address** - In the Property window box fill in the IP address of the computer that runs MADRIX [e.g., 192.168.2.33].
  - If MADRIX and WYSIWYG run on the same computer, enter 127.0.0.1



- Confirm with **OK**
- Click **Connect** in the Device Manager window box.

## More Information

For more information on how to create and edit patches, please refer to the WYSIWYG documentation.

**//PART K**

*MADRIX USBone*

## 11 MADRIX USBone

This topic includes:

- [Overview](#)
- [Loading The Drivers](#)
- [Using DMX Output Or DMX Input](#)
- [Interruption-Free Operation](#)
- [Important Information](#)

### Overview



MADRIX USBone is a USB 2.0 DMX512 interface. It can be used for input [DMX-IN] or output [DMX-OUT].

The MADRIX USBone allows you to control 512 DMX channels using MADRIX. But an additional MADRIX KEY [i.e. a software license] is necessary.

### Loading The Drivers

- Go to **Preferences > Options... > Devices USB**



- Activate **MADRIX USBone / MADRIX NEO**
- Click **Apply** to confirm.
- Click **OK** to close the window.

## Using DMX Output Or DMX Input

The MADRIX USBone allows you to send or receive data via MADRIX using 512 DMX channels.

- The USBone features a 5-pin, female XLR connector.
- If you want to use DMX-IN, please use a 5-pin XLR male to 5-pin XLR male gender changer.
- Please pay attention to license requirements as stated below.

Learn more »[DMX512 \[DMX-OUT\]](#)

Learn more »[DMX-IN And Art-Net Remote](#)

## Further Configuration

Remember to configure your light matrix in the »[Matrix Generator](#) or »[Patch Editor](#)

Make sure to save your MADRIX Setup after the configuration process.

## Interruption-Free Operation

To ensure interruption-free operation of the software and devices, please make sure to check the power-saving settings of Windows.

Learn more »[PC Power Management](#)

## Important Information

- **Regarding the USBone, a MADRIX software license is not included. The MADRIX KEY is necessary for the USBone if you want to use DMX Output [DMX-OUT]. No license is required for DMX Input [DMX-IN].**
- **Up to 60 interfaces can be connected to a USB host controller without having any frame rate problems. Please connect every USBone to an active USB 2.0 port or use a USB 2.0 hub with a power supply.**

**//PART L**

*MADRIX NEO*

## 12 MADRIX NEO

This topic includes:

- [Overview](#)
- [MADRIX 3.X Minimum System Requirements](#)
- [MADRIX 3.X Supported Operating Systems](#)
- [Loading The Drivers](#)
- [Using DMX Output or DMX Input](#)
- [Further Configuration](#)
- [Interruption-Free Operation](#)
- [Using A MADRIX KEY Instead Of A MADRIX Interface](#)
- [Important Information](#)

### Overview



MADRIX NEO is a USB 2.0 DMX512 interface. It can be used for input [DMX-IN] or output [DMX-OUT]. The MADRIX software license for 512 DMX channels is already included.



## Important Note

- **Make sure to read the provided MADRIX NEO Quick Start Guide first!**

»[help.madrix.com](http://help.madrix.com)

## MADRIX 3.X Minimum System Requirements

- 2.0 GHz dual-core CPU
- OpenGL 2.0 graphics card [NVIDIA recommended]
- 2 GB RAM
- 1 GB free harddisk space
- 1280 x 768 screen resolution
- Sound card
- USB 2.0

## MADRIX 3.X Supported Operating Systems

- Microsoft Windows Vista
- Microsoft Windows 7
- Microsoft Windows 8
- Microsoft Windows 8.1
- Microsoft Windows 10
  
- Compatible with 32 bit and 64 bit

## Loading The Drivers

- Go to **Preferences > Options... > Devices USB**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices USB**]



- Activate **MADRIX USBone / MADRIX NEO**
- Click **Apply** to confirm.
- Click **OK** to close the window.

## Using DMX Output Or DMX Input

The NEO allows you to send or receive data via MADRIX using 512 DMX channels.

- The MADRIX NEO features a 5-pin, female XLR connector.
- If you want to use DMX-IN, please use a 5-pin XLR male to 5-pin XLR male gender changer.

Learn more »[DMX512 \[DMX-OUT\]](#)

Learn more »[DMX-IN And Art-Net Remote](#)

## Further Configuration

Remember to configure your light matrix in the »[Matrix Generator](#) or »[Patch Editor](#)

Make sure to save your MADRIX Setup after the configuration process.

## Interruption-Free Operation

To ensure interruption-free operation of the software and devices, please make sure to check the power-saving settings of Windows.

Learn more »[PC Power Management](#)

## **Using A MADRIX KEY Besides A MADRIX Interface**

When using a MADRIX KEY in addition to a MADRIX hardware interface, please make sure to install the required software components during the installation process [MADRIX KEY Driver].

Learn more »[Installation Process](#)

## **Important Information**

- **MADRIX NEO already includes the MADRIX software license for 512 DMX channels. The data output [the license] is automatically activated when you connect the PLEXUS to a computer that has the MADRIX software installed and running and the USB drivers enabled in the software.**
- **The MADRIX KEY is not necessary for the MADRIX PLEXUS.**
- **The MADRIX KEY is not necessary for the MADRIX NEO.**
- **Up to 60 NEOs can be connected to a USB host controller without having any frame rate problems. Please connect every NEO to an active USB 2.0 port or use a USB 2.0 hub with a power supply.**

**//PART M**

*MADRIX PLEXUS*

## 13 MADRIX PLEXUS

This topic includes:

- [Overview](#)
- [Important Notes](#)
- [Using A MADRIX KEY Besides A MADRIX Interface](#)
- [MADRIX 3.X Minimum System Requirements](#)
- [MADRIX 3.X Supported Operating Systems](#)
- [More Information](#)

### Overview



MADRIX PLEXUS is a USB 2.0 DMX512 interface or Art-Net node.

The device can be used as a live controller [Live Mode] or stand-alone interface [Stand-Alone Mode].

### Important Notes

- **MADRIX PLEXUS** already includes the **MADRIX** software license for 1024 DMX channels. The data output [the license] is automatically activated when you connect the PLEXUS to a computer that has the **MADRIX** software installed and running and the USB and/or Ethernet drivers enabled in the software.
- The **MADRIX KEY** is not necessary for the **MADRIX PLEXUS**.

## Using A MADRIX KEY Besides A MADRIX Interface

When using a MADRIX KEY in addition to a MADRIX hardware interface, please make sure to install the required software components during the installation process [MADRIX KEY Driver].

Learn more »[Installation Process](#)

## MADRIX 3.X Minimum System Requirements

- 2.0 GHz dual-core CPU
- OpenGL 2.0 graphics card [NVIDIA recommended]
- 2 GB RAM
- 1 GB free harddisk space
- 1280 x 768 screen resolution
- Network card
- Sound card
- USB 2.0

## MADRIX 3.X Supported Operating Systems

- Microsoft Windows Vista
  - Microsoft Windows 7
  - Microsoft Windows 8
  - Microsoft Windows 8.1
  - Microsoft Windows 10
- 
- Compatible with 32 bit and 64 bit

## **More Information**

MADRIX PLEXUS offers a lot features. Because of this, a separate, complete guide is available. You can find the majority information about the MADRIX PLEXUS in

- **MADRIX PLEXUS Quick Start Guide**
  - **MADRIX PLEXUS User Manual**
- »[help.madrix.com](http://help.madrix.com)



**//PART N**

*MADRIX LUNA*

## 14 MADRIX LUNA

This topic includes:

- [Overview](#)
- [Operating Modes](#)
- [3rd-Party Controllers](#)
- [Important Note](#)
- [DMX-OUT Via Ethernet Network \[Art-Net\]](#)
- [Sync Mode](#)
- [Additional Art-Net Device Settings](#)
- [DMX-OUT Via USB](#)
- [DMX-IN Via Ethernet Network \[Art-Net Remote\]](#)
- [DMX-IN Via USB](#)
- [Status Indicators \[ArtAddress\]](#)
- [DMX Watcher](#)
- [Automatic HTP Merging](#)
- [Reset To Factory Default Settings](#)
- [Firmware Updates](#)
- [LED Status Codes](#)
- [Web Configuration](#)
- [MADRIX Device Configuration](#)
- [MADRIX LUNA Updater](#)

### [Overview](#)



MADRIX LUNA is an easy-to-use and reliable Art-Net node or DMX512 USB interface.

The MADRIX LUNA reliably distributes DMX512 data over long or short distances using Ethernet network or USB. The exclusive MADRIX Sync Mode makes sure that lighting effects look their best on the LEDs.

An additional MADRIX KEY [i.e., a software license] is required for usage with MADRIX.

3 versions are available:

- MADRIX LUNA 4
- MADRIX LUNA 8
- MADRIX LUNA 16

## Operating Modes

You can mainly use 4 operating modes together with MADRIX:

- [DMX-OUT Via Ethernet Network \[Art-Net\]](#)
- [DMX-OUT Via USB](#)
- [DMX-IN Via Ethernet Network \[Art-Net Remote\]](#)

- [DMX-IN Via USB](#)

#### Notes:

- DMX-OUT and DMX-IN can be used at the same time.
- You always have 1 to 4/8/16 output ports available [DMX 1 - 4/8/16].
  - In total, 2048 DMX channels can be sent per LUNA 4 unit.
  - In total, 4096 DMX channels can be sent per LUNA 8 unit.
  - In total, 8192 DMX channels can be sent per LUNA 16 unit.
- You always have 1 DMX input port available per unit [DMX-IN].
  - In total, 512 DMX channels can be received per unit.

## 3rd-Party Controllers

MADRIX LUNA is a standard Art-Net node. Because of this, you can use the device with applications, consoles, desks, or controllers that are compatible with Art-Net to distribute Art-Net data via Ethernet network.

## **Important Note**

- **Make sure to read the provided MADRIX LUNA Quick Start Guide first!**  
» [help.madrix.com](http://help.madrix.com)

## DMX-OUT Via Ethernet Network [Art-Net]

## Overview

You can connect the LUNA via Ethernet network to the network card of your computer that runs the MADRIX software. Data is sent to the LUNA via network [Ethernet] and distributed to the XLR output ports [DMX 1 - 4/8/16].

## 1] Initial Configuration

- Connect your LED controllers or fixtures to the XLR ports of MADRIX LUNA [DMX 1 - 4/8/16].
- Connect MADRIX LUNA to power.  
[Please see safety instructions in the MADRIX LUNA Quick Start Guide!]
- Connect MADRIX LUNA to your computer using network cabling.
- It is highly recommended to only use Gigabit Ethernet network components [network card, switches, etc.].

## 2] Windows Network Settings

Art-Net is a network-based protocol. MADRIX will use the network card of your computer to send data.

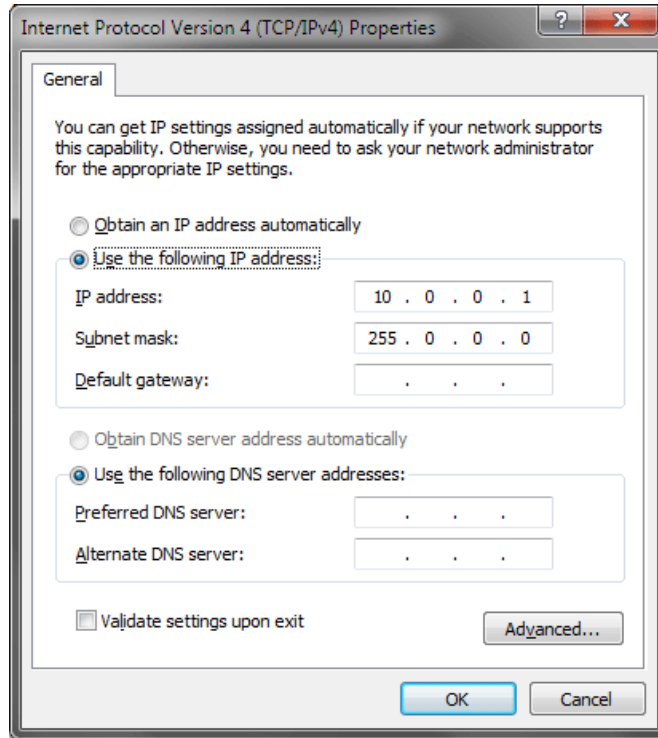
- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, Art-Net might not work!**
- **The IP addresses of your computer and your MADRIX LUNA devices need to be different.**

- Set up an individual **IP address** in the following IP address range:
  - **2.0.0.1 ... 2.255.255.254** or
  - **10.0.0.1 ... 10.255.255.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**

[Via factory default settings, MADRIX LUNA devices will have an IP address in the 10.x.x.x network range, such as 10.206.224.100, for example].

- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**

- Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)
- Example for PCs that are running MADRIX:



### 3] Fixture Configuration In MADRIX

- Start MADRIX.
- Configure the virtual LED matrix using the »[Matrix Generator](#) or »[Patch Editor](#)

### 4] Activating Art-Net


- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Activate the checkbox **Enable** [in the upper, right corner].



- MADRIX will automatically create the entry **ArtNet Remote**  
This device is used only for Remote Control. Learn more [DMX-IN Via Ethernet Network \[Art-Net Remote\]](#)

## 5] Adding Devices Automatically

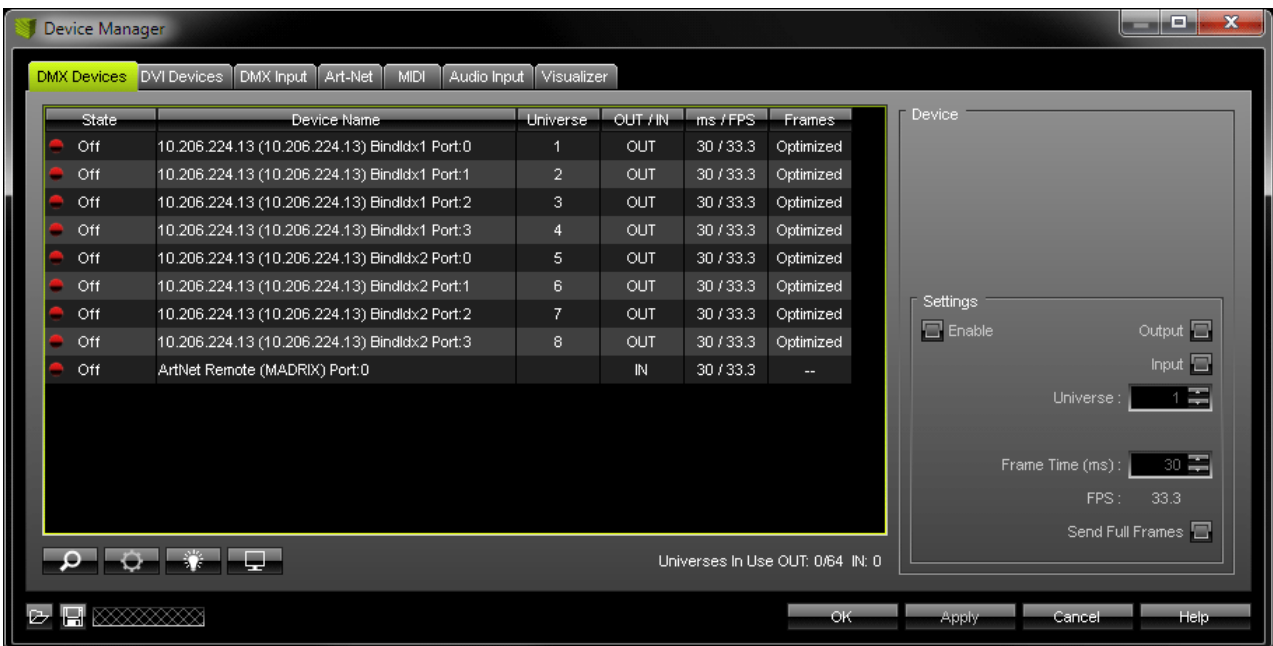
MADRIX can automatically add your MADRIX LUNA devices.

- Click   
[MADRIX will automatically search the network for connected MADRIX LUNA devices. Devices that are found will appear in the list. A number of entries will be created in the list for each LUNA device.]  
[The Art-Net standards only supports a maximum of 4 output ports per device. Since LUNA 8 features 8 ports, 2 list items are created in MADRIX, for example. 1 entry will be shown for LUNA 4. 4 entries will be shown for LUNA 16.]



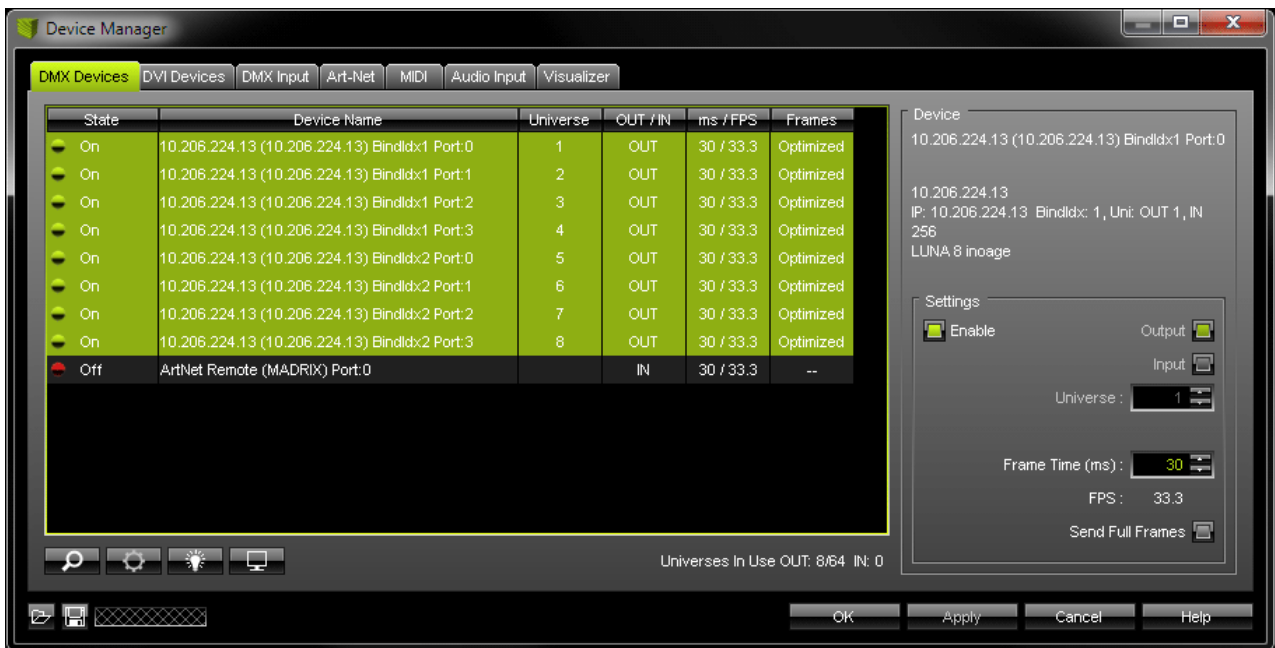
## 6] Activating Devices

Each of your MADRIX LUNA devices and its ports need to be activated. By default, they are still deactivated. 4 ports will be shown for LUNA 4, 8 ports will be shown for LUNA 8, and 16 ports will be shown for LUNA 16.





- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- Select your devices and their ports in the list.
- Activate **Enable**
- **Output** is activated by default.
- Click **Apply**



- [In the screenshot above, one LUNA 8 is connected. If more devices are connected, please use the different IP addresses of different devices to identify them in the Device Manager. You can also click on **Device Name** as well as **Universe** or other columns to sort the list accordingly.]

## 7] Configuration Of DMX Output

- Make sure that your devices are still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Universe**
  - Enter the specific DMX universe number.
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.

- **Make sure the correct universe is assigned according to your requirements.**

Learn more »[Glossary](#)

- Click **Apply**
  
- By default, DMX universe 1 - 4/8/16 are assigned to the ports DMX 1 - 4/8/16 when using one MADRIX LUNA:

<b>LUNA Output Port</b>	<b>Name under <i>Device Manager... &gt; DMX Devices</i></b>
DMX 1	BindIdx1 Port:0
DMX 2	BindIdx1 Port:1
DMX 3	BindIdx1 Port:2
<b>DMX 4</b>	<b>BindIdx1 Port:3</b>
DMX 5	BindIdx2 Port:0
DMX 6	BindIdx2 Port:1
DMX 7	BindIdx2 Port:2
<b>DMX 8</b>	<b>BindIdx2 Port:3</b>
DMX 9	BindIdx3 Port:0
DMX 10	BindIdx3 Port:1
DMX 11	BindIdx3 Port:2
DMX 12	BindIdx3 Port:3
DMX 13	BindIdx4 Port:0
DMX 14	BindIdx4 Port:1
DMX 15	BindIdx4 Port:2

<b>DMX 16</b>	<b>BindIdx4 Port:3</b>
---------------	------------------------

## 8] Frame Time

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**
- [When using Art-Net, the Frame Time [ms] can be individually set for each port. But it cannot be set individually for each port, when Sync Mode is activated. Learn more below.]

## 9] Optimized Frames Or Full Frames

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Activate or deactivate **Send Full Frames**
  - Per DMX512 standard, MADRIX only sends the number of DMX channels that is configured. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe [Optimized Frames].
  - Activate Send Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels].
  - **Activating Send Full Frames is recommended if problems with the data output on your LEDs occur.**
- Click **Apply**
- In addition, you can activate Full Frames for the device and each MADRIX LUNA output port separately.  
Learn more [MADRIX Device Configuration](#)

## Sync Mode

MADRIX LUNA can use the special sync mode of MADRIX.

- Large LED projects require dependable data distribution. The MADRIX software and LUNA hardware allow you to synchronize data output for all 4/8/16 DMX ports and even across multiple LUNA devices to get an optimal image on the LEDs.
- When MADRIX Sync mode is activated, MADRIX and MADRIX LUNA will automatically handle the synchronization of data.

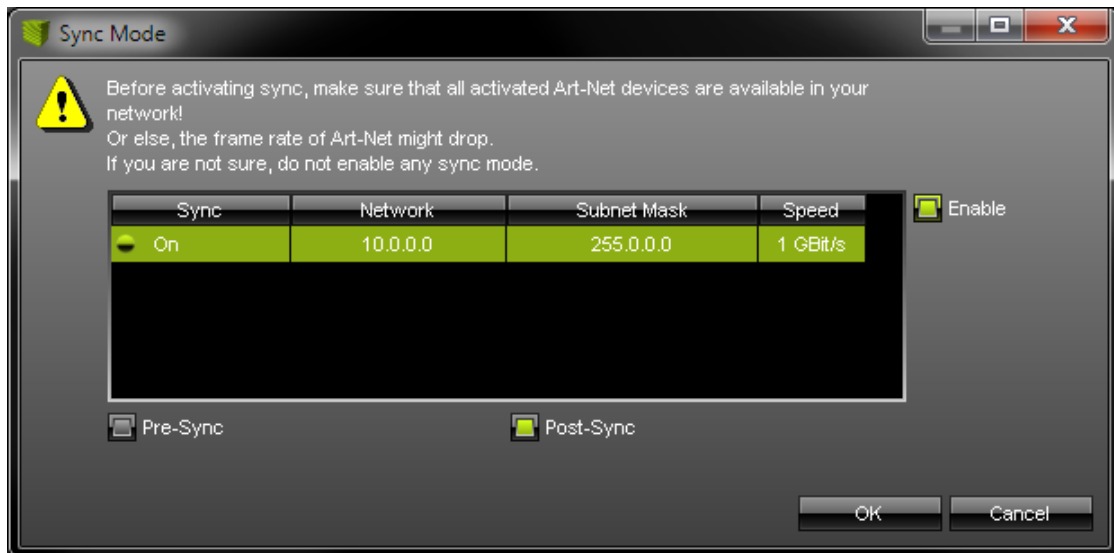
**MADRIX Sync Mode is highly recommended for MADRIX LUNA!**



**Sync Mode** - Allows you to activate or deactivate the usage of sync packages for Art-Net.

**Before activating sync, make sure that all activated Art-Net devices are available in your network! Else, the frame rate of Art-Net might drop. If you are not sure, do not enable any sync mode.**

- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Click **Sync...**
- A new window will open.
- Select the network for which you want to activate Sync Mode.
- Click **Enable** to activate the Sync Mode for the selected network.
- **A]** Choose **Pre-Sync** to send sync packages before Art-Net data.
- **B]** Choose **Post-Sync** to send sync packages after Art-Net data.
- Click **OK**



- To disable sync mode, click **Sync...** again, select the correct network, and deactivate **Enable**. Confirm with **OK**

## Additional Art-Net Device Settings


**It is very important to set up the correct settings for your devices!**

### Broadcast Mode Or Direct IP Mode

MADRIX can send Art-Net data in 2 ways to your Art-Net devices:

- **Broadcast Mode** - Means that every packet sent from a single transmitter will be received by all recipients in the network. MADRIX will send data to all devices in the network.
  - Advantage: The same data [e.g., DMX universe 1 and 2] can be made available for different points of your setup.
  - Disadvantage: A potentially huge number of data packages will be sent over the network. This can reduce the overall network performance and cause data issues or instability.
- **Direct IP Mode** - Means that the specific data will only be sent to the specified recipient.
  - Advantage: Data traffic is reduced immensely, which means that a larger number of Art-Net devices can be used in one network. Reduced network traffic increases the performance and stability.
  - Disadvantage: The network settings of all devices need to be 100% correct.

**Direct IP Mode is recommended in general.**

- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Select your device in the list.
- Click 
- A new window will open.
- **A]** Choose **Direct IP Mode** to activate Direct IP mode:
  - Make sure to enter the correct **IP Address** of your device that should receive the Art-Net data. When MADRIX LUNA has been automatically found by MADRIX, the IP address will be pre-configured for you.
  - MADRIX will send the corresponding data only to this device.

- **B]** Choose **Broadcast Mode** to activate Broadcast Mode:
  - Make sure to select the correct **Network** card of your computer that should send the Art-Net data. When MADRIX LUNA has been automatically found by MADRIX, the correct network will be pre-configured for you.
  - MADRIX will send data to the whole Art-Net network.
- Click **Apply**

## More Information About Art-Net

Learn more »[Art-Net \[DMX Over Ethernet\]](#)

## DMX-OUT Via USB

### Overview

You can connect the LUNA directly via USB to the computer that runs the MADRIX software. Data is sent to the MADRIX LUNA via USB and distributed to the XLR output ports [DMX 1 - 4/8/16].

### 1] Initial Configuration

- Connect your LED controllers or fixtures to the XLR ports of MADRIX LUNA [DMX 1 - 4/8/16]
- Connect power to MADRIX LUNA.  
[Please see safety instructions in the MADRIX LUNA Quick Start Guide!]
- Connect MADRIX LUNA to your computer via USB.  
[Use the provided USB cable.]
- Make sure to check the power management options of Windows. Learn more »[PC Power Management](#)

### 2] Fixture Configuration In MADRIX

- Start MADRIX.
- Configure the virtual LED matrix using the »[Matrix Generator](#) or »[Patch Editor](#)


### 3] Enabling Drivers In MADRIX

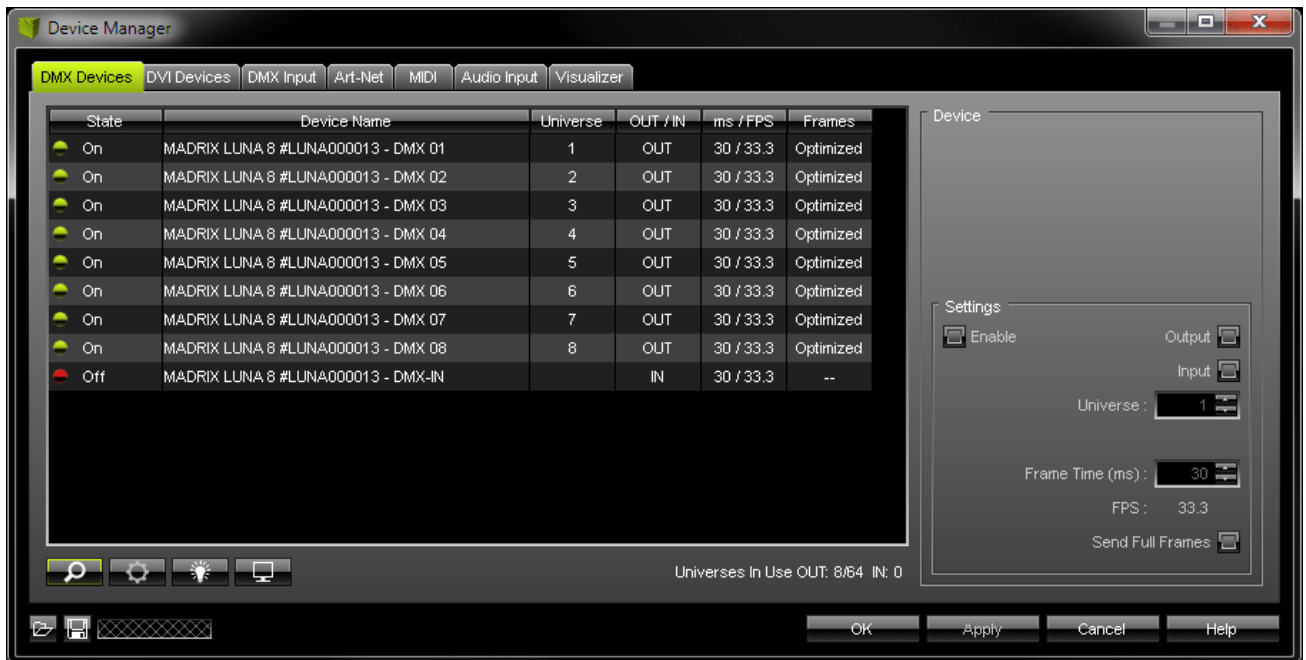
- Go to **Preferences > Options... > Devices USB**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices USB**]
- Activate **MADRIX LUNA**
- Click **Apply**
- Close the window with **OK**





### 4] Activating Devices

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- Your LUNA devices and all of their ports [4/8/16 output ports, 1 input port] will appear in the list.
- If your devices are not in the list, click   
[In the screenshot below, one LUNA 8 is connected.]
- By default, all output ports are activated [ **State On**].



- If your device and ports are not activated, do the following:
- Select the device/port in the list.
- Activate **Enable**
- Activate **Output**
- Click **Apply**

### 5] Configuration Of DMX Output

- Make sure that your devices are still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Universe**
  - Enter the specific DMX universe number.
  - This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.
  - By default, DMX universe 1 - 4/8/16 are assigned to the ports DMX 1 - 4/8/16 when using one MADRIX LUNA.
  - **Make sure the correct universe is assigned according to your requirements.**  
Learn more »[Glossary](#)
- Click **Apply**

## 6] Frame Time

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**
- [When using USB, the Frame Time (ms) will be automatically set to the same value for all output ports.]

## 7] Optimized Frames Or Full Frames

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Activate or deactivate **Send Full Frames**
  - Per DMX512 standard, MADRIX only sends the number of DMX channels that is configured. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe [Optimized Frames].
  - Activate Send Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels].
  - **Activating Send Full Frames is recommended if problems with the data output of your devices occur.**
- Click **Apply**
  
- In addition, you can activate Send Full Frames for the device and each MADRIX LUNA output port separately.  
Learn more [MADRIX Device Configuration](#)

## More Information About DMX Output

Learn more »[DMX512 \[DMX-OUT\]](#)

## DMX-IN Via Ethernet Network [Art-Net Remote]

### Overview

You can connect MADRIX LUNA via Ethernet network to the network card of your computer that runs the MADRIX software. Data is sent into the LUNA via DMX-IN [XLR] and from the LUNA to MADRIX via Ethernet network.

## 1] Initial Configuration

- Connect your external DMX controller to the DMX-IN port of MADRIX LUNA.
- Connect MADRIX LUNA to power.  
[Please see safety instructions in the MADRIX LUNA Quick Start Guide!]
- Connect MADRIX LUNA to your computer via network cabling.
- It is highly recommended to only use Gigabit Ethernet network components [network card, switches, etc.].

## 2] Windows Network Settings

Art-Net is a network-based protocol. MADRIX will use the network card of your computer to receive data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, Art-Net might not work!**
- **The IP addresses of your computer and your MADRIX LUNA devices need to be different.**

- Set up an individual **IP address** in the following IP address range:
  - **2.0.0.1 ... 2.255.255.254** or
  - **10.0.0.1 ... 10.255.255.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**

[Via factory default settings, MADRIX LUNA devices will have an IP address in the 10.x.x.x network range, such as 10.206.224.100, for example].

- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**
- Learn more » [Tips \[Microsoft Windows / Networks / USB\]](#)


## 3] Activating Art-Net

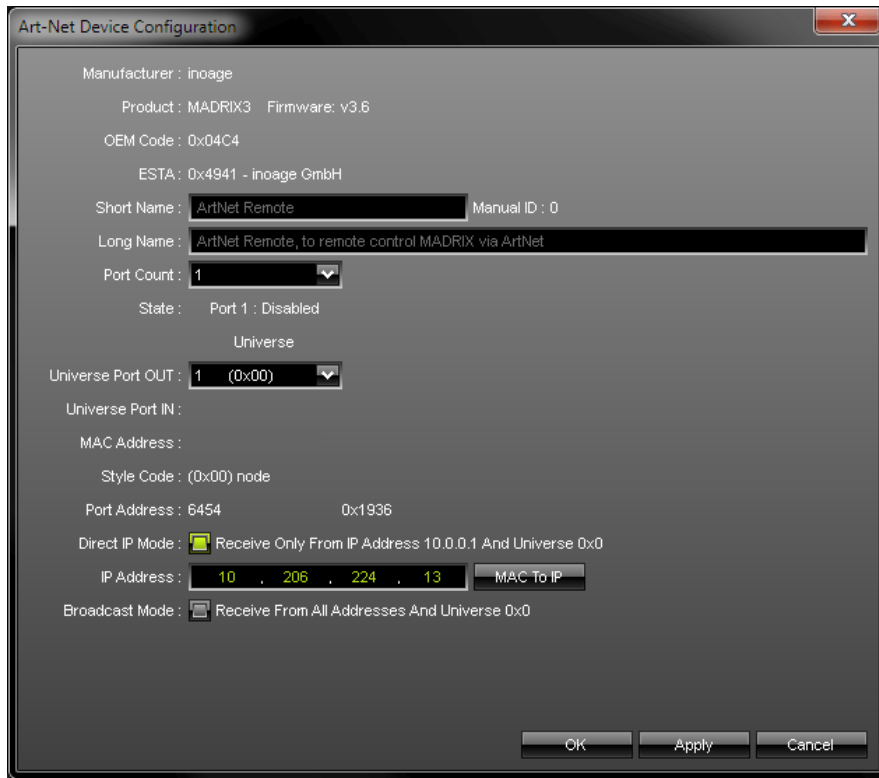
- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Activate **Enable**



- MADRIX will automatically create the entry **ArtNet Remote**  
This device is used only for Remote Control.

## 4] Configuration Of Art-Net Remote

- Select **ArtNet Remote** in the list.
- Click 
- A new window opens [**Art-Net Device Configuration**].

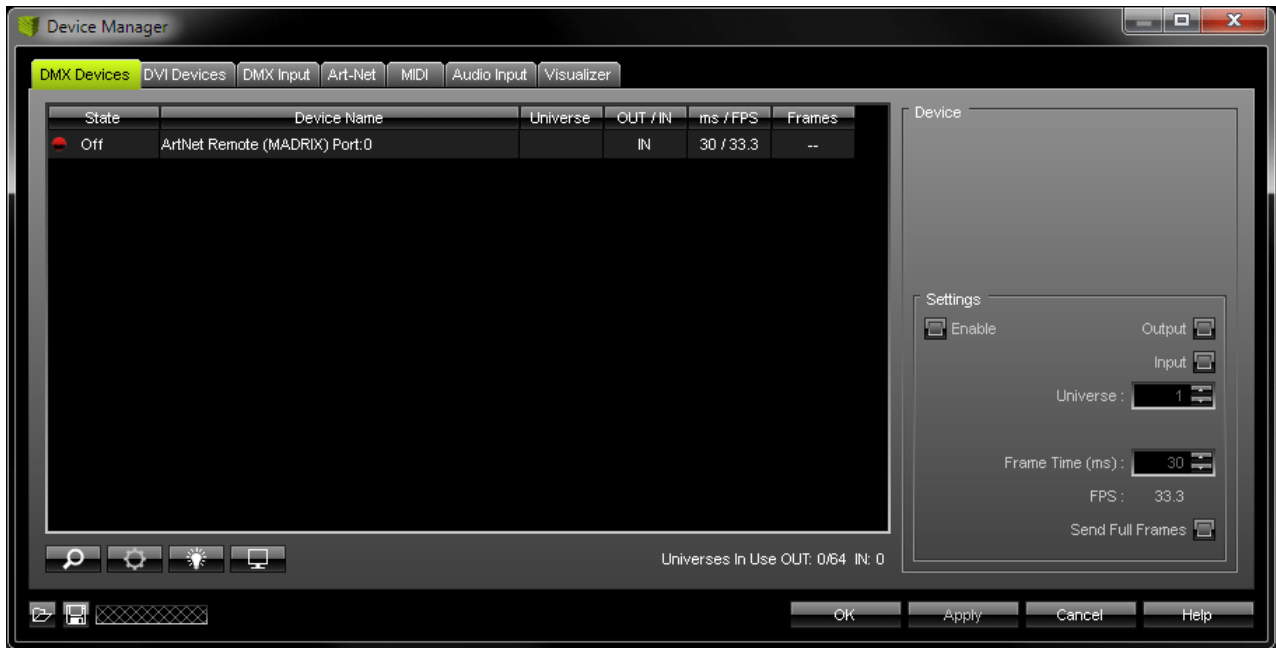


- Set **Universe Port OUT** to **256**, which is Art-Net universe 256. Confirm with **Apply**  
**[By default, MADRIX LUNA sends DMX-IN data to Art-Net universe 256. You can change these settings in the Web Configuration or MADRIX Device Configuration window if required. If you have changed the settings, enter the exact same Art-Net universe here!]**
- Activate **Direct IP Mode** and enter the **IP Address** of your MADRIX LUNA. Confirm with **Apply**  
[E.g., 10.206.224.14]
- [You can also activate **Broadcast Mode**. In this mode, MADRIX will receive any DMX data that is sent in the network on this particular Art-Net universe.]
- Press **OK**

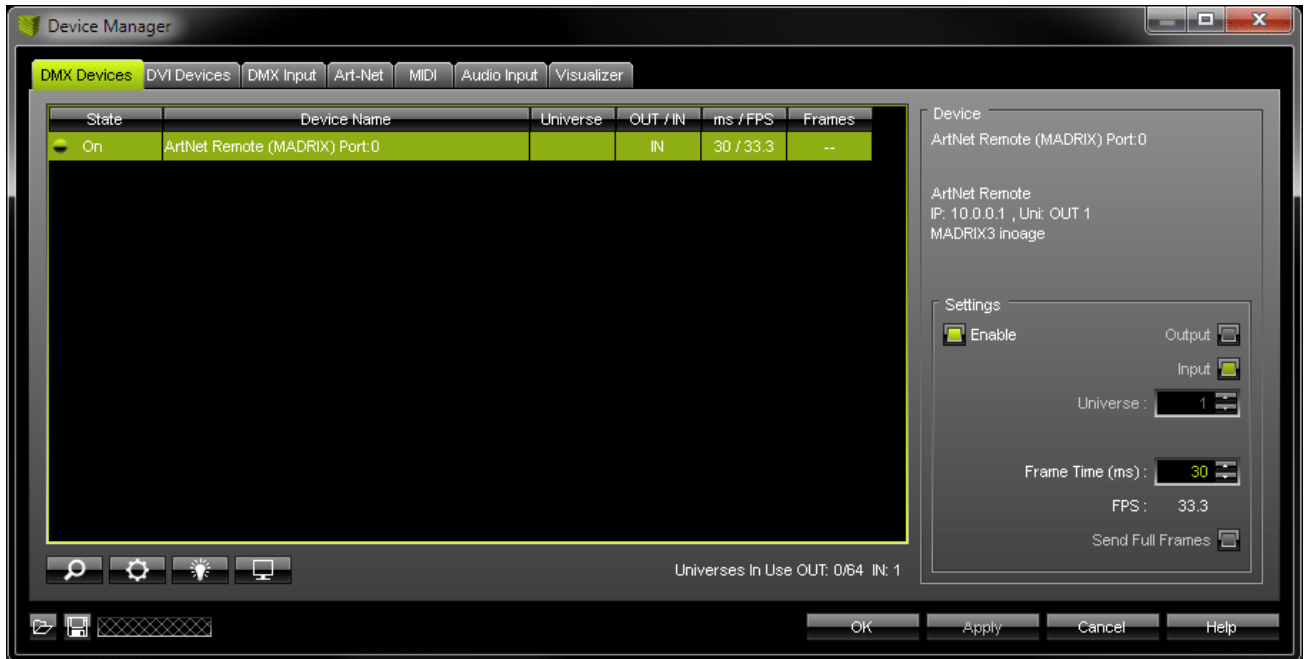
## 5] Activating Art-Net Remote

You need to activate the Art-Net Remote device. Art-Net Remote is still deactivated.

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]



- Select **ArtNet Remote** in the list.
- Activate **Enable**
- **Input** is automatically selected.
- Click **Apply**

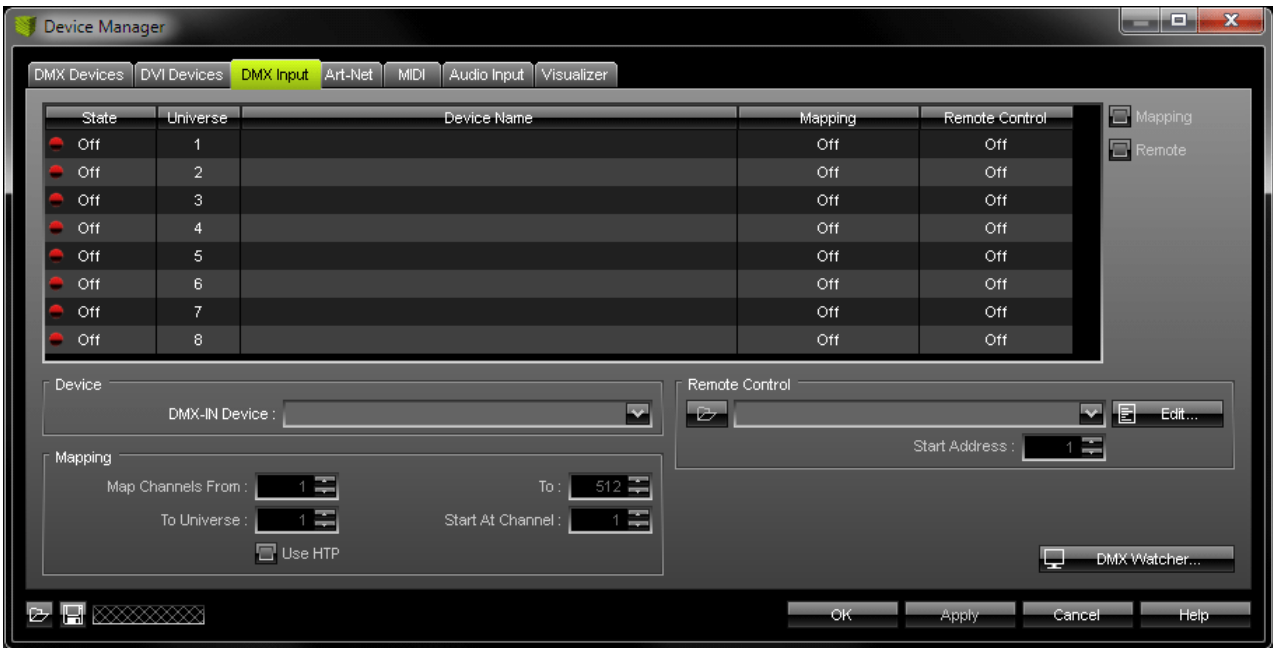


- If required, change the **Frame Time (ms)**  
 The higher the Frame Time, the lower the FPS will be. The lower the Frame Time, the higher the FPS will be.  
 The default Frame Time is 33.  
 Press **Apply** to confirm.

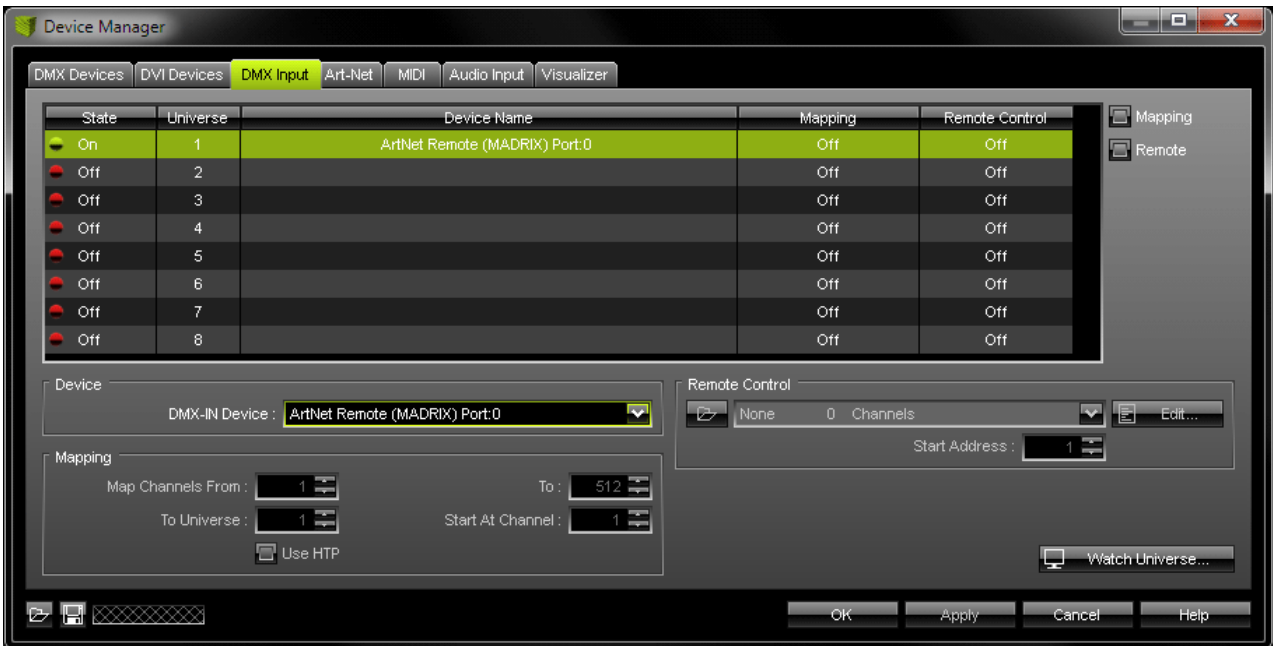
## 6] Activating DMX Input

- Go to **Preferences > Device Manager... > DMX Input**





- Select your preferred DMX **Universe** in the list.  
[By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting. Learn more »[Performance](#)]
- Choose your **DMX-IN Device** in the section **Device**. Select **ArtNet Remote**



- Art-Net Remote is now activated. MADRIX can already receive DMX data.

- Now, choose how to use incoming data. Learn more »[Art-Net Remote](#)

## DMX-IN Via USB

### Overview

You can connect the LUNA directly via USB to the computer that runs the MADRIX software. Data is sent into the MADRIX LUNA via DMX-IN [XLR] and from the LUNA to MADRIX via USB.

### 1] Initial Configuration


- Connect your external DMX controller to the DMX-IN port of MADRIX LUNA.
- Connect MADRIX LUNA to power.  
[Please see safety instructions in the MADRIX LUNA Quick Start Guide!]
- Connect MADRIX LUNA to your computer via USB.  
[Use the provided USB cable]
- Make sure to check the power management options of Windows. Learn more »[PC Power Management](#)

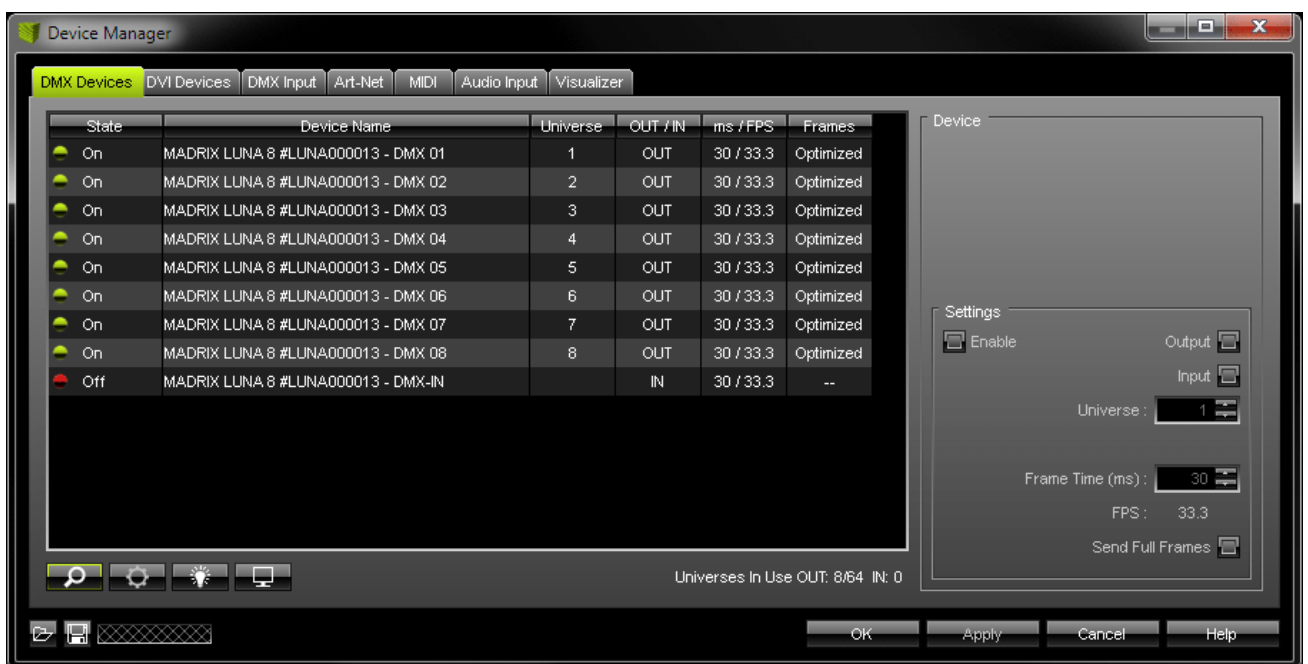
### 2] Enabling Drivers In MADRIX

- Go to **Preferences > Options... > Devices USB**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices USB**]
- Activate **MADRIX LUNA**
- Click **Apply**
- Close the window with **OK**

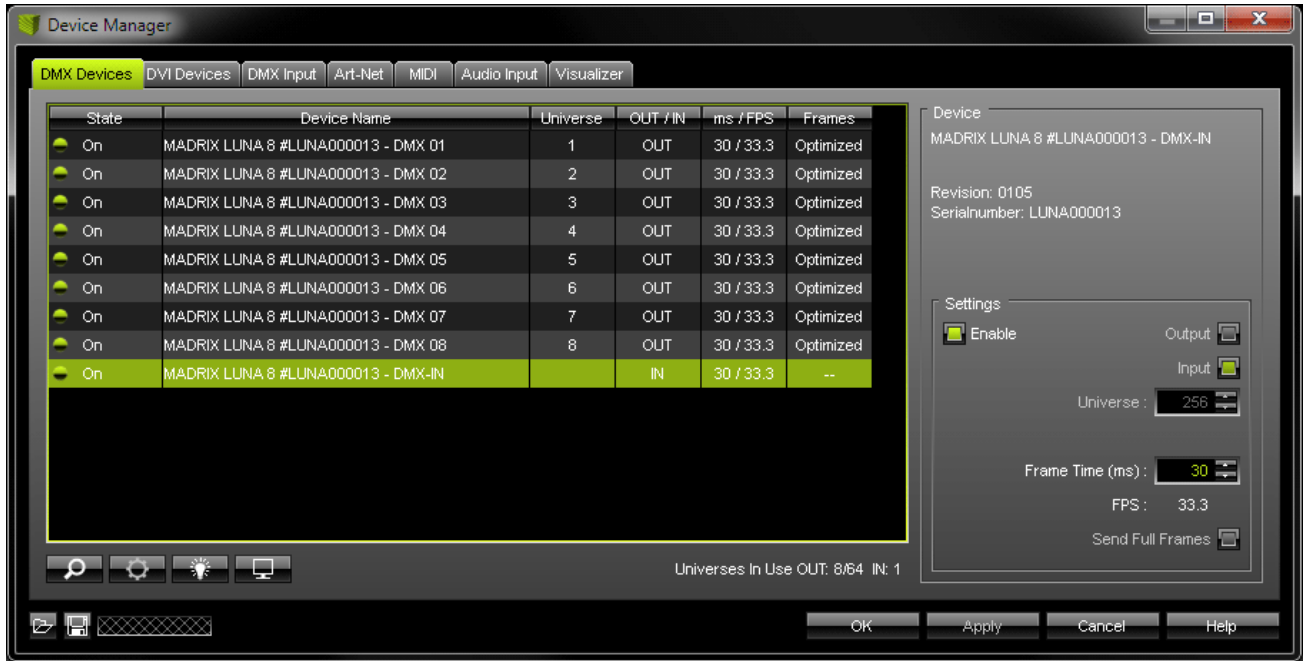


### 3] Activating Devices

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- Your LUNA devices and all of their ports [4/8/16 output ports, 1 input port] will appear in the list.
- If your devices are not in the list, click   
[In the screenshot below, one LUNA 8 is connected.]



- Select **MADRIX LUNA DMX-IN** in the list.
- Activate **Enable**
- **Input** is automatically selected.
- Click **Apply**



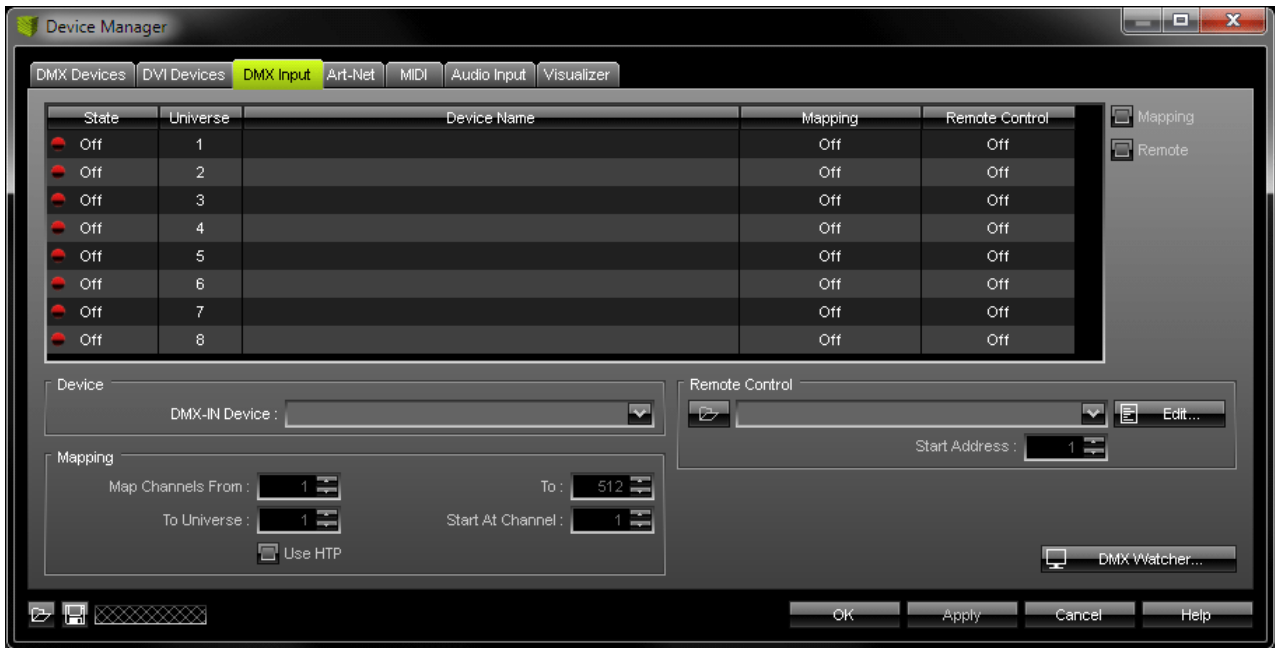
- If required, change the **Frame Time (ms)**

The higher the Frame Time, the lower the FPS will be. The lower the Frame Time, the higher the FPS will be. The default Frame Time is 33.

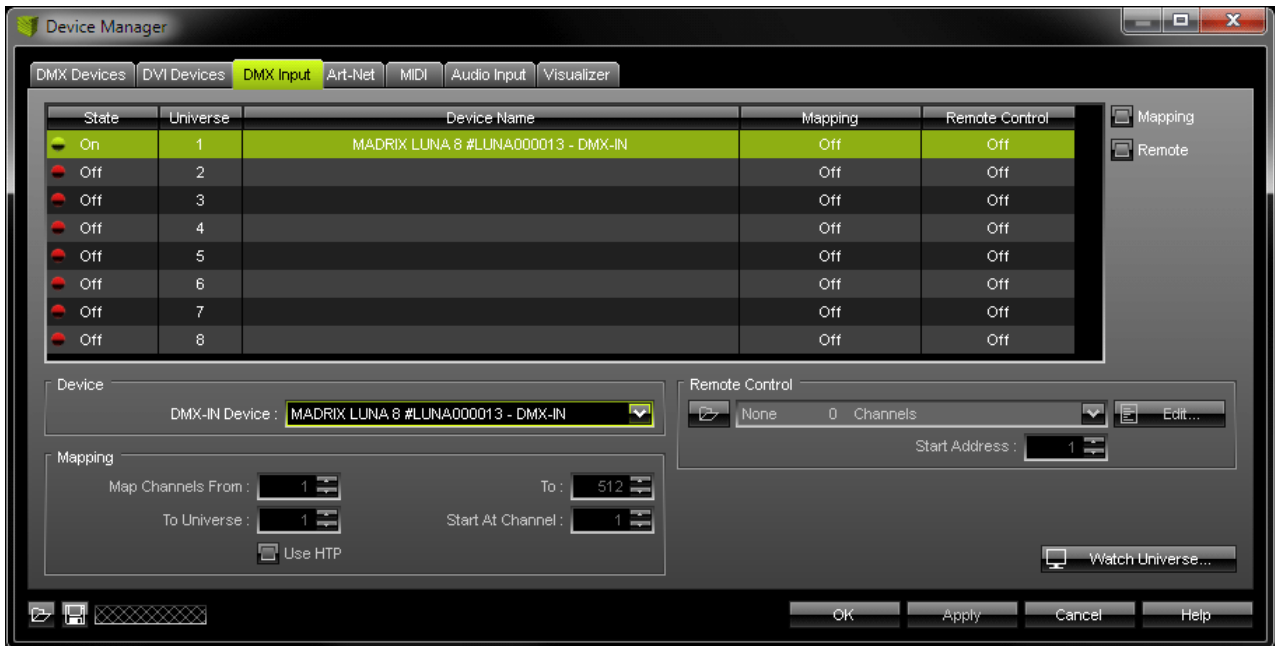
Press **Apply** to confirm.

## 6] Activating DMX Input

- Go to **Preferences > Device Manager... > DMX Input**



- Select your preferred DMX **Universe** in the list.  
[By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting. Learn more »[Performance](#)]
- Choose your **DMX-IN Device** in the section **Device**. Select **MADRIX LUNA - DMX-IN**



- DMX-IN is now activated. MADRIX can already receive DMX data.
- Now, choose how to use incoming data. Learn more »[DMX-IN](#)

## Status Indicators [ArtAddress]

In order to use these features, please **Enable** ArtAddress first.

[Please make sure that your nodes fully support this Art-Net feature, such as MADRIX LUNA, MADRIX NEBULA, MADRIX PLEXUS, MADRIX STELLA. You will also get notified by a message box. Confirm the message with **OK** or abort via **Cancel**.]



**Mute Status Indicators** - Switches off and disables all built-in status indicators of a device over Art-Net [ArtAddress > AcLedMute].



**Operate Status LEDs Normally** - Allows the built-in status indicators of a device to operate normally again, after having them switched off [ArtAddress > AcLedNormal].



**Highlight Device** - Activates the highlight mode [ArtAddress > AcLedLocate]. Select one or more interfaces and click the button. The corresponding status indicators of the selected interfaces will flash for a better identification or tests. This makes it easier to see them on site/stage. It considerably speeds up the procedure of programming or testing the selected interfaces.

## DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input under **Preferences > Device Manager... > DMX Devices**



**Watch Universe** - Appears when you have selected a list item. The DMX Watcher will open with the particular DMX Universe already entered.

Learn more » [Tools](#)

## Automatic HTP Merging

### Overview

- MADRIX LUNA features automatic HTP merging from 2 Art-Net sources.

[Usually, the first source will be MADRIX. The second source could be a console, for example.]

- Data from both source will be merged together and sent out as 1 signal. This happens across all 8 output ports and by using the HTP principle.
- **HTP** - Is the acronym for Highest Takes Precedence. Data from both sources will be compared for each individual channel. The higher value wins per channel.
- **Example:** We are using an LED fixture with a total of 5 control channels [3 color channels and 2 movement channels]. MADRIX should provide the color data for channels 1 to 3 and the console should provide the movement data for channels 4 and 5. Using the MADRIX Fixture Editor, we could create a corresponding fixture where channel 4 and 5 are set up as **Fixed** channel using always a value of **0**. On the other hand, the console will always send a value of **0** for the first 3 channels of each fixture. This will ensure that the data from the console will always provide the higher value on channels 4 and 5, while MADRIX provides the color data. Due to the automatic HTP merging of the device, the LED fixture will receive correct data from both sources as desired.

### Configuration And Recommendations

- 1] Correctly set up and enable Art-Net for each source.
- 2] Make sure to activate **Sync Mode** for Art-Net in MADRIX. Learn more [Sync Mode](#)



**3]** Make sure that MADRIX has a **lower IP address** compared to the second source.

[E.g., 2.0.0.1 compared to 2.0.0.20]

**4]** Always use **Direct IP Mode** to directly send data to the correct IP addresses of your MADRIX LUNA devices.

[It is not recommend to have any of the two sources or any other source in the network to send data via Broadcast Mode.]

## **Reset To Factory Default Settings**

### **Reset Via Reset Button**


- Disconnect MADRIX LUNA from power.
- Use a suitable tool to press the reset button on the unit's back side.
- Continue to press the reset button and connect to power again.
- Continue to press the reset button and wait until all status LEDs on the front of the device flash repeatedly or wait 10 seconds.

### **Reset Via USB [MADRIX LUNA Updater]**



- Connect MADRIX LUNA to power.  
[Please see safety instructions in the MADRIX LUNA Quick Start Guide!]
- Connect MADRIX LUNA to your computer via USB.  
[Use the provided USB cable.]
- Close the MADRIX software.
- Start the separate MADRIX LUNA Updater tool.  
[In Windows, go to **Start > All Programs > MADRIX 3 > Tools > MADRIX LUNA Updater**]
- In the MADRIX LUNA Updater, click **Reset To Factory Default Settings**
- Wait for the reset process to end [usually it takes only seconds].  
Learn more [MADRIX LUNA Updater](#)

## Firmware Updates

### Update Via USB

- Connect MADRIX LUNA to power.  
[Please see safety instructions in the MADRIX LUNA Quick Start Guide!]
- Connect MADRIX LUNA to your computer via USB.  
[Use the provided USB cable.]
- Start the MADRIX software.
- Open the MADRIX Device Configuration window. Go to **Tools > MADRIX Device Configuration...**
- Click  to search for connected devices and your device will appear in the list.
- Select your device in the list and click **Firmware**
- Wait for the process to end [usually it takes only seconds].
- Disconnect MADRIX LUNA from power and connect again.
- [You can also use the MADRIX LUNA Updater. Learn more [MADRIX LUNA Updater](#)]

### Update Via Ethernet

- Connect MADRIX LUNA to power.  
[Please see safety instructions in the MADRIX LUNA Quick Start Guide!]
- Connect MADRIX LUNA to your computer via Ethernet network.
- In MADRIX, go to **Preferences > Device Manager... > Art-Net**
- Activate **Art-Net**
- Click   
Learn more [DMX-OUT Via Ethernet Network \[Art-Net\]](#)
- Select the device in the list. Click . A new window opens.
- Click **Firmware**  
The update process will start.  
The MADRIX logo on the front of the device will start to flash and the firmware will be updated.

- Wait for the process to end [usually it takes only seconds].

## LED Status Codes

The following tables describe the LED status codes on the front of the device.

STATUS	POWER
<i>Powered off</i>	Power cable not connected. → The device has no power.
<b>Permanently green</b>	Connected to power. → The power is on.

STATUS	ETHERNET	USB
<i>Powered off</i>	Ethernet not connected or the device has no power.	USB not connected or the device has no power.
<b>Permanently green</b>	Connected to Ethernet. → No data is sent or received over Ethernet.	Connected to USB. → No data is sent or received over USB.
<b>Blinking green</b>	Communicating over Ethernet. → Sending or receiving data over Ethernet.	Communicating over USB. → Sending or receiving data over USB.

STATUS	DMX-IN	DMX-OUT
<i>Powered off</i>	DMX not connected or the device has no power.	DMX not connected or the device has no power.
<b>Blinking green</b>	Receiving data via DMX-IN. → The device works correctly.	Sending data to DMX OUT. → The device works correctly.

## Web Configuration


When connected to Ethernet network, you can easily configure MADRIX LUNA using a web configuration interface.

You have 2 options to access the web interface:

**A]** Open your web browser and enter the IP address of MADRIX LUNA.

[Both, LUNA and your computer, need to be in the same network.]

**B]** Use MADRIX.

- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Select your MADRIX LUNA device in the list.
- Click  HTTP
- Your default web browser will open.
- Now, you have access to various information and settings.



# LUNA

Device Information	
Model	MADRIX LUNA 8
Serial Number	LUNA000013
Firmware	1.5.6298
Hardware	1.0
Build Date	Sep 6 2016 14:00:19
IP Address	10.206.224.13
MAC Address	40:D8:55:05:E0:0D

**Device Name**

MADRIX LUNA 8

Set

**Device Settings**

IP Address: 10 . 206 . 224 . 13

Subnet Mask: 255 . 0 . 0 . 0

Set

**DMX Output Settings**

Output Port	Art-Net Universe	Send Always Full Frames (512 CH)
DMX 1	1	<input type="checkbox"/>
DMX 2	2	<input type="checkbox"/>
DMX 3	3	<input type="checkbox"/>
DMX 4	4	<input type="checkbox"/>
DMX 5	5	<input type="checkbox"/>
DMX 6	6	<input type="checkbox"/>
DMX 7	7	<input type="checkbox"/>
DMX 8	8	<input type="checkbox"/>

Set

**DMX Input Settings**

DMX-IN Port: Send To Art-Net Universe 1

Full Frames:  Send Always Full Frames (512 CH) to Art-Net

Broadcast Mode:

Direct IP Mode:  255 . 255 . 255 . 255

Set

Refresh

**Device Information**

This section displays various details about the device, including:

- **Model** [Device type]
- **Serial Number**
- **Firmware** [Current firmware version]
- **Hardware** [Hardware model]
- **Build Date** [Firmware creation date]
- **IP Address** [Current IP address]
- **MAC Address** [A permanent, unique address]

**Device Name**

You can change the description of the device. Enter a name and confirm your input with **Set**. This label is only shown in this web interface.

**Device Settings**

You can change the IP address and Subnet Mask. Enter the specific addresses and confirm with **Set**.

**DMX Output Settings**

This section shows specific settings for the DMX output ports [DMX 1 - 4/8/16].

By default, Art-Net universe 1 - 4/8/16 are assigned to DMX 1 - 4/8/16. [This is the recommended setting when using one MADRIX LUNA].

If you are broadcasting data for a large number of Universes [using Broadcast Mode instead of using Direct IP Mode] with MADRIX or a 3rd-party controller for example, you can assign different DMX universes to each LUNA device with these settings. Each MADRIX LUNA will then only receive data from the specific Art-Net universe and send it to its specified output port. Example: You can set up that LUNA 8 #1 only listens to Art-Net universe 1 - 8, while LUNA 8 #2 listens to Art-Net universe 9 - 16, and LUNA 8 #3 listens to Art-Net universe 17 - 24, and so on.

**Send Always Full Frames (512 CH)** - Is another specific setting. The XLR DMX output port will always send out 512 channels, even if the data sent to LUNA includes less than 512 channels for this port and universe. LUNA automatically sends values of 0 on channels that are not used.

### **DMX Input Settings**

This section allows you to specify settings for DMX input.

When data is received through the DMX-IN port, MADRIX LUNA will automatically forward it to Ethernet network.

LUNA can receive 512 channels via the DMX-IN port. Use **Send To Art-Net Universe** to specify on which Art-Net universe those 512 channels are sent. By default, **256** is selected. Valid values range from 1 to 256.

**Send Always Full Frames (512 CH) To Art-Net** - Is another specific setting. The XLR DMX input port will always send out 512 channels, even if the data sent to LUNA includes less than 512 channels for this port and universe. LUNA automatically sends values of 0 on channels that are not used.

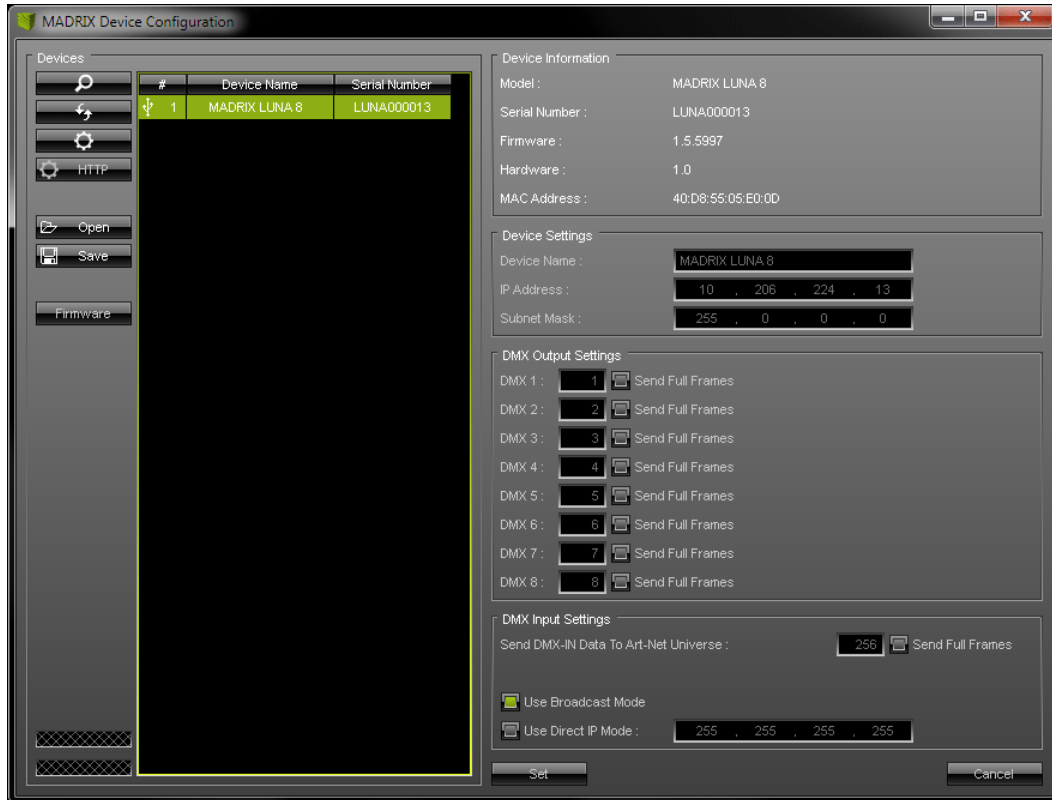
Additionally, choose to how MADRIX LUNA sends the data into the network:

- Use **Broadcast Mode** if LUNA should sent to all IP addresses in the network.
- Use **Direct IP Mode** to specify one recipient, e.g. your MADRIX computer [Enter the IP address of your MADRIX computer].
- Confirm with **Set**

## **MADRIX Device Configuration**

You can access all information and settings of the web configuration in MADRIX using the MADRIX Device Configuration window.

- In MADRIX, go to **Tools > MADRIX Device Configuration...**  
[Keyboard shortcut: **Ctrl+Alt+L**]



- Scans the USB ports of your computer and the network for connected MADRIX LUNA devices. If devices are found, they will be shown in the list.
  - To see USB devices, you need to enable LUNA USB drivers first [they are activated by default]. Learn more »[Devices USB](#)
  - To see network devices, you need to enable LUNA networking drivers [they are activated by default] and connect MADRIX LUNA and your computer to the same network first. Learn more »[Devices Network](#)



- Refreshes already connected devices and brings the information in the list up to date.



- Allows you to change the settings of your device. Apply your changes by confirming with **Set**





- Enables remote access to the web configuration as explained above. MADRIX LUNA needs to be connected via Ethernet [network connection required]. First, connect your computer and the MADRIX LUNA to one and the same network. Second, select your MADRIX LUNA in the list. Third, click this button. A web browser opens automatically.



- Imports the MADRIX LUNA Device Settings from an external file [of the file type \*.mldx]. Use this option to easily restore all device settings from a file [as described below].



- Exports the MADRIX LUNA Device Settings to an external file [of the file type \*.mldx]. Use this option to easily store all device settings in a file. Simply enter a name in the window that opens and click 'Save'.



- Updates the firmware of your MADRIX LUNA if a newer firmware is available [USB connection required].

Learn more [Web Configuration](#)

## MADRIX LUNA Updater

### Overview

MADRIX LUNA Updater is a separate tool only for MADRIX LUNA.

### Usage



MADRIX LUNA Updater can be used for several, specific tasks.



- Updates the firmware of all LUNA devices that are connected to the computer via USB. First, select the correct firmware in the list above this button [Example: **LUNA 1.0.000 Type V1.0 MADRIX 3.0**]. Second, click the button. Third, disconnect the power after updating in order to restart the device.



- Resets all settings of all LUNA devices that are connected to the computer via USB to the standard values. Use this function to restore the original settings of the device.

- Additional information on the status of the performed functions will be given on the right side of the window. Information is displayed from down to top [the latest information is shown at the top].

### Available Firmware Updates

LUNA Firmware	MADRIX Version	Release Date
1.00.4547	MADRIX 3.0	July 2013
1.01.4555	MADRIX 3.1	November 2013
1.02.4946	MADRIX 3.2	March 2014

1.03.5043	MADRIX 3.3	November 2014
1.04.5298	MADRIX 3.3a	December 2014
1.05.5501	MADRIX 3.4	June 2015
1.05.5997	MADRIX 3.6	May 2016
1.05.6298	MADRIX 3.6b	September 2016
1.05.6996	MADRIX 3.6d	December 2016

## Important Notes

- **If new drivers and a new firmware are available for the MADRIX LUNA, please always update the firmware first and then the drivers!**
- **MADRIX LUNA Updater does not work when MADRIX is running. Please close MADRIX and restart MADRIX LUNA Updater.**

## Where To Find The MADRIX LUNA Updater

The MADRIX LUNA Updater is included in the MADRIX Installer. After installing MADRIX, you can find a link to the MADRIX LUNA Updater in the Windows Start menu:

- **Start > All Programs > MADRIX 3 > Tools > MADRIX LUNA Updater**

The original, executable program can be found in the MADRIX installation directory:

- C:\Program Files (x86)\MADRIX3

**//PART 0**  
*MADRIX NEBULA*

## 15 MADRIX NEBULA

This topic includes:

- [Overview](#)
- [3rd-Party Controllers](#)
- [Supported LEDs](#)
- [Putting The Device Into Operation](#)
- [Web Configuration](#)
- [MADRIX Device Configuration](#)
- [Operating Modes](#)
- [Data Output Over Ethernet \[Art-Net\]](#)
- [Sync Mode](#)
- [Additional Art-Net Device Settings](#)
- [Status Indicators \[ArtAddress\]](#)
- [DMX Watcher](#)
- [Automatic HTP Merging](#)
- [Data Output Over USB](#)
- [LED Status Codes](#)
- [Reset To Factory Default Settings](#)
- [Firmware Updates](#)
- [Important Information](#)

### [Overview](#)



MADRIX NEBULA is a flexible interface to directly control a wide range of digital LEDs.

The MADRIX NEBULA directly connects to your LED pixels. This advanced SPI decoder receives control data over USB or Art-Net over Ethernet network and is built to provide excellent image quality.

An additional MADRIX KEY [i.e., a software license] is required for usage with MADRIX.

## 3rd-Party Controllers

MADRIX NEBULA is a standard Art-Net node. Because of this, you can use the device with applications, consoles, desks, or controllers that are compatible with Art-Net to distribute Art-Net data via Ethernet network.

## Supported LEDs

MADRIX NEBULA supports the following LEDs [as of February 2017 with firmware version 1.2.7014]:

- APA101
- APA102
- APA104
- APA106
- GW6201
- LPD6803
- LPD8806
- MBI6120
- P9883
- SM16703
- SM16716
- SK6812
- SK6822
- TLS3001
- TLS3008
- TM1804
- TM1809
- TM1812
- TM1814
- TM1829
- UCS1903
- UCS512B3
- WS2801
- WS2803
- WS2811
- WS2812
- WS2812B
- WS2813
- WS2818
- WS2822S
- WS2822S Addressing

## **Putting The Device Into Operation**

### **1] Connecting Your LEDs**

Please see the MADRIX NEBULA Quick Start Guide & Technical Manual on how to connect your LEDs to MADRIX NEBULA.

»[help.madrix.com](http://help.madrix.com)

### **2] Connecting To Power And Data**

Please see the MADRIX NEBULA Quick Start Guide & Technical Manual on how to connect to power and data.

»[help.madrix.com](http://help.madrix.com)



### 3] Setting The Output Protocol

In order to put MADRIX NEBULA fully into operation, it is necessary to set the correct output protocol according to the LEDs you have connected.

You can set the output protocol in different ways:

- [Web Configuration](#)
- [MADRIX Device Configuration](#)

### Web Configuration


When connected to Ethernet computer network, you can easily configure MADRIX NEBULA using a web configuration interface.

You have 2 options to access the web interface:

**A]** Open your web browser and enter the IP address of MADRIX NEBULA.

[Both, NEBULA and your computer, need to be in the same network.]

**B]** Use MADRIX.

- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Select your MADRIX NEBULA device in the list.
- Click  HTTP
- Your default web browser will open.
- Now, you have access to various information and settings.



# NEBULA

---

**Device Information**

Model	MADRIX NEBULA
Serial Number	NEBULA000086
Firmware	1.2.7014
Hardware	1.0
Build Date	Feb 8 2017 12:39:05
IP Address	10.77.64.86
MAC Address	CC:D3:1E:80:40:56
Voltage	Input: 0.0 V / Port 1: 0.0 V / Port 2: 0.0 V

---

**Device Name**

MADRIX NEBULA

---

**Device Settings**

IP Address	<input type="text" value="10"/> <input type="text" value="77"/> <input type="text" value="64"/> <input type="text" value="86"/>
Subnet Mask	<input type="text" value="255"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>

---

**Output Settings**

Output Port	Art-Net Universe	Output Protocol	Channels Per Universe
1	<input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="3"/> <input type="text" value="4"/>	WS2811, 400 kHz	Automatic
2	<input type="text" value="5"/> <input type="text" value="6"/> <input type="text" value="7"/> <input type="text" value="8"/>	WS2801, 1 MHz	Automatic

For more information visit [www.madrix.com](http://www.madrix.com)

**Device Information**

This section displays various details about the device, including:

- **Model** [Device type]
- **Serial Number**
- **Firmware** [Current firmware version]
- **Hardware** [Hardware model]
- **Build Date** [Firmware creation date]
- **IP Address** [Current IP address]
- **MAC Address** [A permanent, unique address]
- **Voltage** [The current voltages for Input as well as Port 1 and Port 2.]
- **Temperature** [The current ambient temperature.]

**Device Name**

You can change the description of the device. Enter a name and confirm your input with **Set**. This label is only shown in this web interface.

**Device Settings**

You can change the IP address and Subnet Mask. Enter the specific addresses and confirm with **Set**.

## Output Settings

This section shows specific settings for the output ports [Port 1 and Port 2].

**Art-Net Universe** - By default, Art-Net universes 1 - 4 are assigned to Port 1 and Art-Net universes 4 - 8 are assigned to Port 2.

- If you are broadcasting data for a large number of Universes [using Broadcast Mode instead of using Direct IP Mode] with MADRIX or a 3rd-party controller for example, you can assign different DMX universes to each device with these settings. Each MADRIX NEBULA will then only receive data from the specific Art-Net universe and send it to its specified output port.

- Example: You can set up that NEBULA #1 only listens to Art-Net universe 1 - 8, while NEBULA #2 listens to Art-Net universe 9 - 16, and NEBULA #3 listens to Art-Net universe 17 - 24, and so on.

**Output Protocol** - In order to put MADRIX NEBULA fully into operation, it is necessary to set the correct output protocol according to the LEDs you have connected. You can set it up here.

- **Choose a signal frequency according to the specifications of your LEDs.**

- **If you do not have this information, choose a signal frequency that works for your LEDs. If the refresh rate is set too high, you will usually notice that your LEDs flicker uncontrollably. If that is the case, choose a lower frequency.**

- **Certain LEDs need to be addressed first. If your LEDs need to be addressed and have not been addressed yet, please address them first.**

[Learn More](#)

**Channels Per Universe** - Allows you to define how many DMX channels are sent per DMX universe for each port. This option enables you to adjust the device settings to the controller and LEDs you are using.

- **Automatic**: The number of channels that is received is also sent out. This is the default value. This is also the recommended setting when using NEBULA in combination with the MADRIX software.

- **1 - 512**: Limits the number of output channels to this value. If your controller sends more channels than set up here, any channels that are higher than this value will be discarded. If your controller sends fewer channels, NEBULA will fill up the rest of the channels with values of 0 [Black].

- Using RGB LEDs: 170 RGB LEDs can be controlled with one single DMX universe. That means a maximum of 510 DMX channels is used. Depending on your controller [please see below], the recommended setting is **Automatic** or **510**.

- Using RGBW LEDs: 128 RGBW LEDs can be controlled with one single DMX universe. That means a maximum of 512 DMX channels is used. Depending on your controller [please see below], the recommended setting is **Automatic** or **512**.

- Using 1-channel LEDs: 512 single color LEDs can be controlled with one single DMX universe. That means a maximum of 512 DMX channels is used. Depending on your controller [please see below], the recommended setting is **Automatic** or **the number of LEDs used**.

- Using MADRIX: By default, MADRIX sends optimized frames as set up in the Device Manager. That means according to the number of channels used by the fixtures and Patch, MADRIX and then NEBULA will send out the correct number of channels to the LEDs.

- Using a 3rd-party controller: When your controller is only able to send full frames [which means that it always sends 512 DMX channels per single frame], it is recommended to set up a specific value here as described above in order to correctly work with MADRIX NEBULA and your LEDs. Recommendation: If using RGB LEDs, set up 510 channels per universe.

## Please Note Regarding LEDs That Need Be Addressed First

Certain LEDs need to be addressed first. Please check the below table to see if your LEDs might need to be addressed.

- If they are already addressed with another tool, you do not need to address them again.
- If your LEDs are not yet addressed, please address them:
  1. Connect your LEDs [as described above](#).
  2. Connect to power and data [as described above](#).
  3. Choose the corresponding Addressing Protocol as Output Protocol of the MADRIX NEBULA. Confirm with 'Set'. You only have to do this once for your each LED tape.
  4. Once your LEDs are addressed, continue by selecting the correct Output Protocol according to your LEDs.

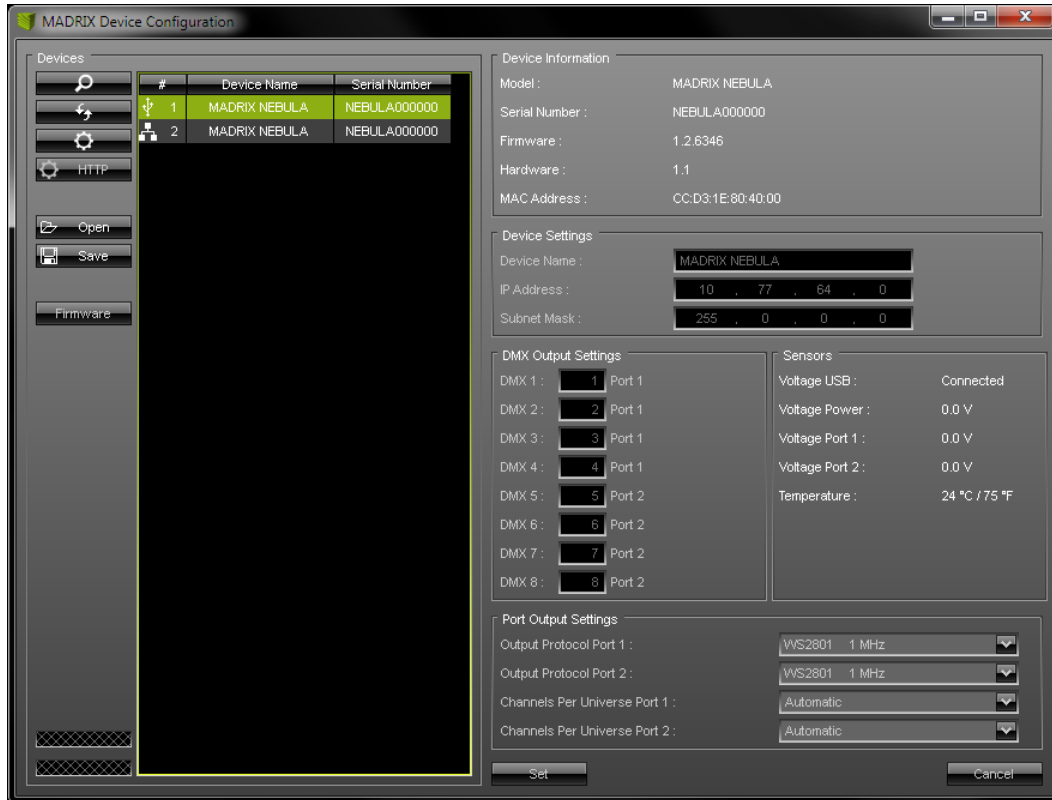
**LED****Addressing Protocol**

- WS2822S
  - Choose the Addressing Protocol 'WS2822S Addressing' in order to address your LEDs.

## MADRIX Device Configuration

You can access all information and settings of the web configuration in MADRIX using the MADRIX Device Configuration window.

- In MADRIX, go to **Tools > MADRIX Device Configuration...**  
[Keyboard shortcut: **Ctrl+Alt+L**]



- Scans the USB ports of your computer and the network for connected MADRIX NEBULA devices. If devices are found, they will be shown in the list.
  - To see USB devices, you need to enable NEBULA USB drivers first [they are activated by default]. Learn more »[Devices USB](#)
  - To see network devices, you need to enable NEBULA networking drivers [they are activated by default] as well as connect MADRIX NEBULA and your computer to the same network first. Learn more »[Devices Network](#)



- Refreshes already connected devices and brings the information in the list up to date.



- Allows you to change the settings of your device. Apply your changes by confirming with **Set**



- Enables remote access to the web configuration as explained above. MADRIX NEBULA needs to be connected via Ethernet [network connection required]. First, connect your computer and the MADRIX NEBULA to one and the same network. Second, select your MADRIX NEBULA in the list. Third, click this button. A web browser opens automatically.



- Imports the MADRIX NEBULA Device Settings from an external file [of the file type \*.mndx]. Use this option to easily restore all device settings from a file [as described below].



- Exports the MADRIX NEBULA Device Settings to an external file [of the file type \*.mndx]. Use this option to easily store all device settings in a file. Simply enter a name in the window that opens and click 'Save'.



- Updates the firmware of your MADRIX NEBULA if a newer firmware is available [USB connection required].

Learn more [Web Configuration](#)

## Operating Modes

You can use 2 operating modes together with MADRIX:

- [Data Output Over Ethernet Network \[Art-Net\]](#)
- [Data Output Over USB](#)

## Data Output Over Ethernet Network [Art-Net]

### Overview



You can connect the NEBULA over Ethernet network to the network card of your computer that runs the MADRIX software. Data is distributed to the device over network cabling [Ethernet] and sent to the output ports [Port 1 and Port 2].

## 1] Initial Configuration

- Put MADRIX NEBULA into operation by connecting the LEDs, supplying power, and setting the output protocol as described above. Learn more [Putting The Device Into Operation](#)
- Connect MADRIX NEBULA to your computer using Ethernet network cabling.
- It is highly recommended to use Gigabit Ethernet network components [network card, switches, etc.].

## 2] Windows Network Settings

Art-Net is a network-based protocol. MADRIX will use the network card of your computer to send data.

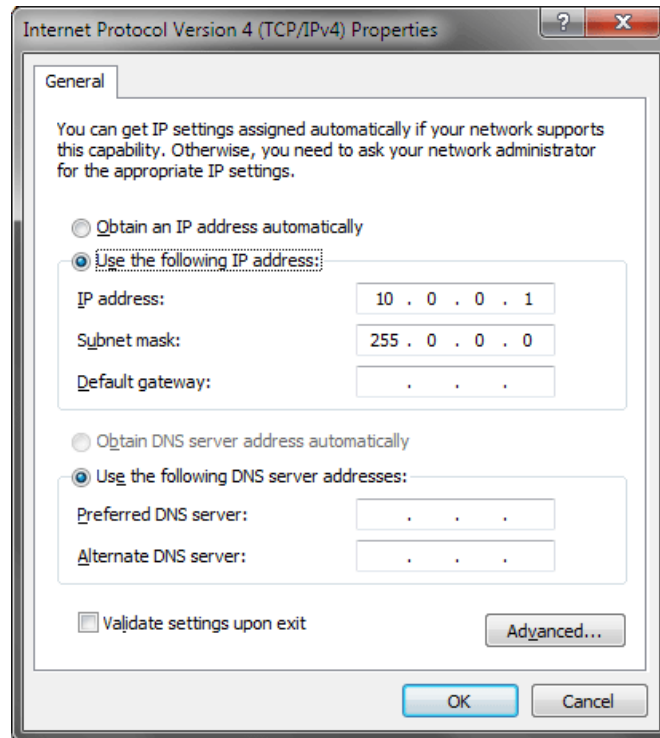
- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, Art-Net might not work!**
- **The IP addresses of your computer and your MADRIX NEBULA devices need to be different.**

- Set up an individual **IP address** in the following IP address range:
  - **2.0.0.1 ... 2.255.255.254** or
  - **10.0.0.1 ... 10.255.255.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**

**[Via factory default settings, MADRIX NEBULA devices will have an IP address in the 10.x.x.x network range, such as 10.77.64.86, for example].**

- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**
- Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)

- Example for PCs that are running MADRIX:



### 3] Fixture Configuration In MADRIX

- Start MADRIX.
- Configure the virtual LED matrix using the »[Matrix Generator](#) or »[Patch Editor](#)

### 4] Activating Art-Net


- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Activate the checkbox **Enable** [in the upper, right corner].



- MADRIX will automatically create the entry **ArtNet Remote**  
This device is used only for Art-Net Remote Control. Learn more »[DMX-IN And Art-Net Remote](#)

## 5] Adding Devices Automatically

MADRIX can automatically add your MADRIX NEBULA devices.

- Click   
[MADRIX will automatically search the network for connected devices. Devices that are found will appear in the list. Two entries will be created in the list for each NEBULA device.]  
[The Art-Net standards only supports a maximum of 4 output ports per device. Since NEBULA features 2 ports, 2 list items are created in MADRIX.]

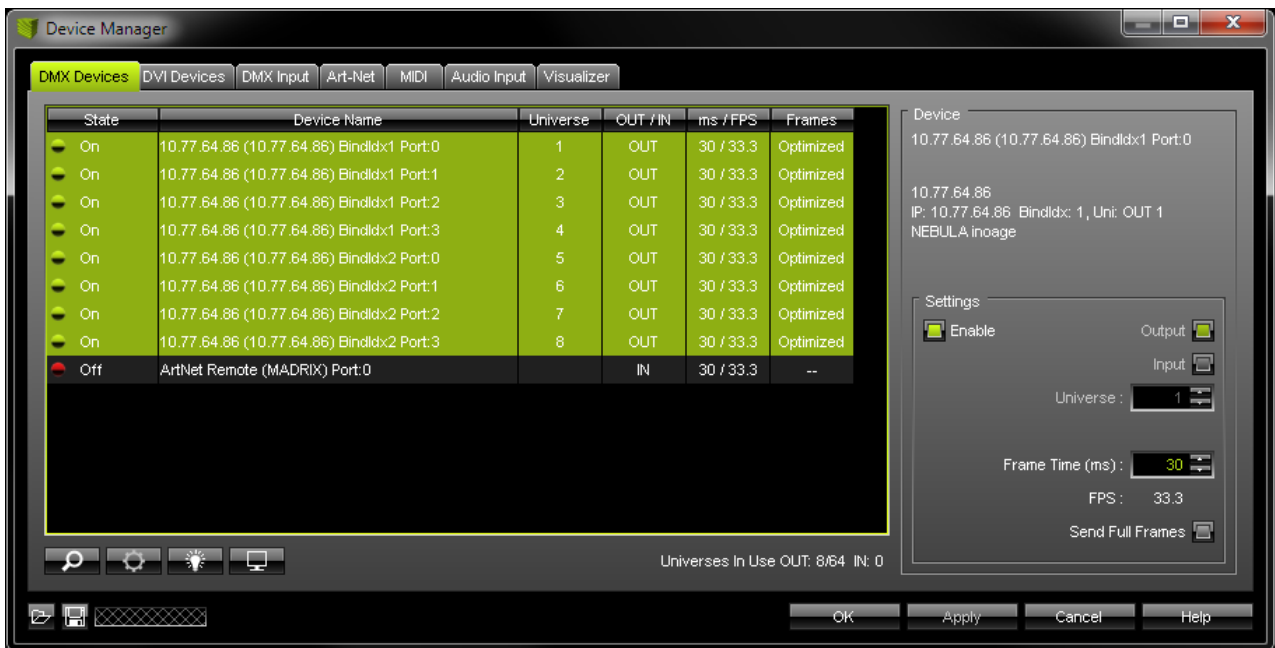


## 6] Activating Devices

Each of your MADRIX NEBULA devices and its ports need to be activated. By default, they are still deactivated.



- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- Select your devices and their ports in the list. 8 output universes will be shown.
- Activate **Enable**
- Click **Apply**



- [In the screenshot above, one NEBULA is connected. If more devices are connected, please use the different IP addresses of different devices to identify them in the Device Manager. You can also click on **Device Name** as well as **Universe** or other columns to sort the list accordingly.]

## 7] Configuration Of DMX Output

- Make sure that your output port is still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Universe**
  - Enter the specific DMX universe number.
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.

- **Make sure the correct universe is assigned according to your requirements.**

Learn more »[Glossary](#)

- Click **Apply**
  
- By default, DMX universe 1 - 8 are assigned when using one MADRIX NEBULA.

<b>NEBULA Output Universe</b>	<b>Device Manager... &gt; DMX Devices &gt; Device Name</b>
DMX 1	BindIdx1 Port:0
DMX 2	BindIdx1 Port:1
DMX 3	BindIdx1 Port:2
DMX 4	BindIdx1 Port:3
DMX 5	BindIdx2 Port:0
DMX 6	BindIdx2 Port:1
DMX 7	BindIdx2 Port:2
DMX 8	BindIdx2 Port:3

## 8] Frame Time

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**
- [When using Art-Net, the Frame Time [ms] can be individually set for each port. But it cannot be set individually for each port, when Sync Mode is activated. Learn more below.]

## 9] Optimized Frames Or Full Frames

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Activate or deactivate **Send Full Frames**
  - Per DMX512 standard, MADRIX only sends the number of DMX channels that is configured. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe [Optimized Frames].
  - Activate Send Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels].
  - **When using only single-color or RGBW fixtures in the Patch, activating Send Full Frames is recommended if problems with the data output on your LEDs occur.**
- Click **Apply**
- In addition, you can activate Full Frames for the device and each MADRIX NEBULA output universe separately.

## Sync Mode

MADRIX NEBULA can use the special sync mode of MADRIX.

- Large LED projects require dependable data distribution. The MADRIX software and NEBULA hardware allow you to synchronize data output for all ports and even across multiple devices to get an optimal image on the LEDs.
- When MADRIX Sync mode is activated, MADRIX and MADRIX NEBULA will automatically handle the synchronization of data.

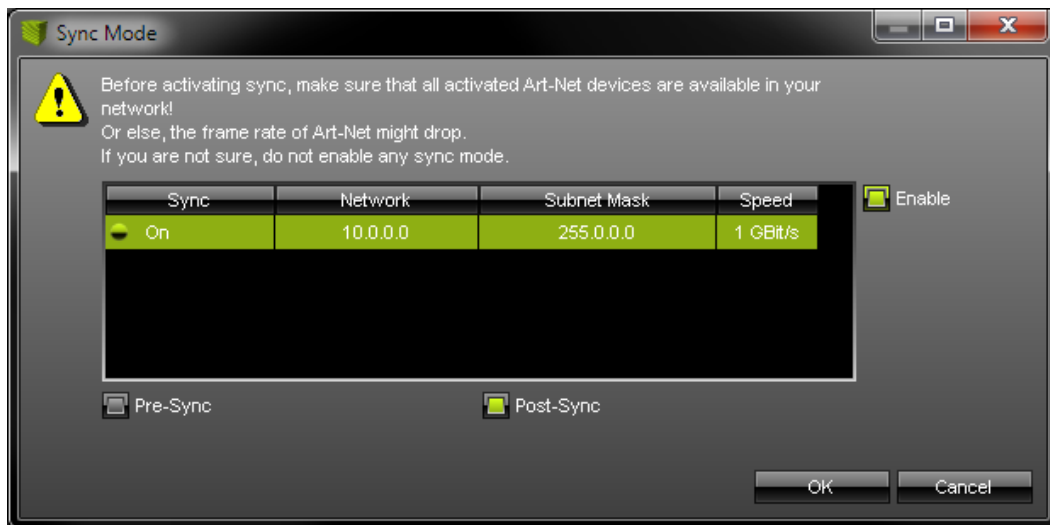
**MADRIX Sync Mode is highly recommended for MADRIX NEBULA!**

Sync...

**Sync Mode** - Allows you to activate or deactivate the usage of sync packages for Art-Net.



- **Before activating sync, make sure that all activated Art-Net devices are available in your network! Else, the frame rate of Art-Net might drop. If you are not sure, do not enable any sync mode.**
- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Click **Sync...**
- A new window will open.
- Select the network for which you want to activate Sync Mode.
- Click **Enable** to activate the Sync Mode for the selected network.
- **A]** Choose **Pre-Sync** to send sync packages before Art-Net data.
- **B]** Choose **Post-Sync** to send sync packages after Art-Net data.
- Click **OK**



- To disable sync mode, click **Sync...** again, select the correct network, and deactivate **Enable**. Confirm with **OK**

## Additional Art-Net Device Settings


**It is very important to set up the correct settings for your devices!**

## Broadcast Mode Or Direct IP Mode

MADRIX can send Art-Net data in 2 ways to your Art-Net devices:

- **Broadcast Mode** - Means that every packet sent from a single transmitter will be received by all recipients in the network. MADRIX will send data to all devices in the network.
  - Advantage: The same data [e.g., DMX universe 1 and 2] can be made available for different points of your setup.
  - Disadvantage: A potentially huge number of data packages will be sent over the network. This can reduce the overall network performance and cause data issues or instability.
- **Direct IP Mode** - Means that the specific data will only be sent to the specified recipient.
  - Advantage: Data traffic is reduced immensely, which means that a larger number of Art-Net devices can be used in one network. Reduced network traffic increases the performance and stability.
  - Disadvantage: The network settings of all devices need to be 100% correct.

**Direct IP Mode is recommended in general.**

- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Select your device in the list.
- Click 
- A new window will open.
- **A]** Choose **Direct IP Mode** to activate Direct IP mode:
  - Make sure to enter the correct **IP Address** of your device that should receive the Art-Net data. When MADRIX NEBULA has been automatically found by MADRIX, the IP address will be pre-configured for you.
  - MADRIX will send the corresponding data only to this device.
- **B]** Choose **Broadcast Mode** to activate Broadcast Mode:
  - Make sure to select the correct **Network** card of your computer that should send the Art-Net data. When MADRIX NEBULA has been automatically found by MADRIX, the correct network will be pre-configured for you.
  - MADRIX will send data to the whole Art-Net network.
- Click **Apply**

## More Information About Art-Net

Learn more »[Art-Net \[DMX Over Ethernet\]](#)

## Status Indicators [ArtAddress]

In order to use these features, please **Enable** ArtAddress first.

[Please make sure that your nodes fully support this Art-Net feature, such as MADRIX LUNA, MADRIX NEBULA, MADRIX PLEXUS, MADRIX STELLA. You will also get notified by a message box. Confirm the message with **OK** or abort via **Cancel**.]



**Mute Status Indicators** - Switches off and disables all built-in status indicators of a device over Art-Net [ArtAddress > AcLedMute].



**Operate Status LEDs Normally** - Allows the built-in status indicators of a device to operate normally again, after having them switched off [ArtAddress > AcLedNormal].



**Highlight Device** - Activates the highlight mode [ArtAddress > AcLedLocate]. Select one or more interfaces and click the button. The corresponding status indicators of the selected interfaces will flash for a better identification or tests. This makes it easier to see them on site/stage. It considerably speeds up the procedure of programming or testing the selected interfaces.

## DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your data output under **Preferences > Device Manager... > DMX Devices**

Learn more »[Tools](#)

## Automatic HTP Merging

### Overview

- MADRIX NEBULA features automatic HTP merging from 2 Art-Net sources.

[Usually, the first source will be MADRIX. The second source could be a console, for example.]

- Data from both source will be merged together and sent out as 1 signal. This happens across all output ports and by using the HTP principle.
- **HTP** - Is the acronym for Highest Takes Precedence. Data from both sources will be compared for each individual channel. The higher value wins per channel.
- **Example:** We are using an LED fixture with a total of 5 control channels [3 color channels and 2 movement channels]. MADRIX should provide the color data for channels 1 to 3 and the console should provide the movement data for channels 4 and 5. Using the MADRIX Fixture Editor, we could create a corresponding fixture where channel 4 and 5 are set up as **Fixed** channel using always a value of **0**. On the other hand, the console will always send a value of **0** for the first 3 channels of each fixture. This will ensure that the data from the console will always provide the higher value on channels 4 and 5, while MADRIX provides the color data. Due to the automatic HTP merging of the device, the LED fixture will receive correct data from both sources as desired.

### Configuration And Recommendations

- 1] Correctly set up and enable Art-Net for each source.
- 2] Make sure to activate **Sync Mode** for Art-Net in MADRIX. Learn more »[Sync Mode](#)

**3]** Make sure that MADRIX has a **lower IP address** compared to the second source.

[E.g., 2.0.0.1 compared to 2.0.0.20]

**4]** Always use **Direct IP Mode** to directly send data to the correct IP addresses of your MADRIX NEBULA devices.

[It is not recommend to have any of the two sources or any other source in the network to send data via Broadcast Mode.]

## Data Output Over USB

### Overview

You can connect the NEBULA directly via USB to the computer that runs the MADRIX software. Data is distributed to the MADRIX NEBULA over USB and sent to the two output ports [Port 1 and Port 2].

### 1] Initial Configuration

- Put MADRIX NEBULA into operation by connecting the LEDs, supplying power, and setting the output protocol as described above. Learn more [Putting The Device Into Operation](#)
- Connect MADRIX NEBULA to your computer via USB.  
[Use the provided USB cable.]
- Make sure to check the power management options of Windows. Learn more »[PC Power Management](#)

### 2] Fixture Configuration In MADRIX


- Start MADRIX.
- Configure the virtual LED matrix using the »[Matrix Generator](#) or »[Patch Editor](#)

### 3] Enabling Drivers In MADRIX

- Go to **Preferences > Options... > Devices USB**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices USB**]
- Activate **MADRIX NEBULA**
- Click **Apply**
- Close the window with **OK**



### 4] Activating Devices

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- Your NEBULA devices and all of their output universes will appear in the list.
- If your devices are not in the list, click   
[In the screenshot below, one NEBULA is connected.]
- By default, all output ports are activated [ **State On**].



- If your device and ports are not activated, do the following:
- Select the device/port in the list.
- Activate **Enable**
- Click **Apply**

### 5] Configuration Of DMX Output

- Make sure that your output port is still selected under **Preferences > Device Manager... > DMX Devices**

- Set up **Universe**
  - Enter the specific DMX universe number.
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.
- By default, DMX universe 1 - 8 are assigned when using one MADRIX NEBULA.
- **Make sure the correct universe is assigned according to your requirements.**
  - Learn more »[Glossary](#)
- Click **Apply**

## 6] Frame Time

- Make sure that your output port is still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**
- [When using USB, the Frame Time (ms) will be automatically set to the same value for all output ports.]



## 7] Optimized Frames Or Full Frames

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Activate or deactivate **Send Full Frames**
  - Per DMX512 standard, MADRIX only sends the number of DMX channels that is configured. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe [Optimized Frames].
  - Activate Send Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels].
  - **When only using single-color or RGBW fixtures in the Patch, activating Send Full Frames is recommended if problems with the data output on your LEDs occur.**
- Click **Apply**
- In addition, you can activate Full Frames for the device and each MADRIX NEBULA output universe separately.

## LED Status Codes

The following tables describe the LED status codes of the device.

STATUS	POWER
<i>Powered off</i>	Power not connected. → The device has no power.
<b>Permanently green</b>	Connected to power. → The power is on.
<b>Blinking green</b>	Bootloader activated. → Reset the device to factory default settings.

STATUS	USB
<i>Powered off</i>	USB not connected.
<b>Red + blinking green</b>	Communicating over USB. → Sending or receiving data over USB. The USB port works.

<b>Fading between red + green</b>	Connected to USB; Drivers installed correctly. → No data is sent over USB.
<b>Orange</b>	Connected to USB; No drivers installed. → Reinstall software and drivers or try a different USB port.

<b>STATUS</b>	<b>Port 1</b>	<b>Port 2</b>
<b>Powered off</b>	No data is sent.	No data is sent.
<b>Blinking green</b>	Sending data to Port 1. → The output port works.	Sending data to Port 2. → The output port works.

<b>STATUS</b>	<b>ETHERNET</b>
<b>Green off</b>	10 MBit/s connected.
<b>Green on</b>	100 MBit/s connected.
<b>Orange on</b>	Network connected.
<b>Orange blinking</b>	Sending or receiving data. → The Ethernet port works.

## Reset To Factory Default Settings

In rare cases you might need to do a reset to factory default settings, for example to reset to the device to its default IP address as shown on the side of the device:

### Reset Via Reset Button


- 1]** Disconnect all connections from the device [power, data, LEDs].
- 2]** Use a suitable tool to press the reset button [between Port 1 and Port 2].
- 3]** Continue to press the reset button and supply power again over 'Power' or USB.
- 4]** Continue to press the reset button and wait until all status LEDs of the device flash repeatedly or wait 10 seconds.

[Simply repeat these steps should the process fail.]



## Firmware Updates

It is highly recommended to update the firmware of the device should a new firmware version become available. You can do so in different ways.

### Update Via USB

- 1] Connect MADRIX NEBULA to your computer over USB.  
[Use the provided USB cable.]
- 2] Start the MADRIX software.
- 3] Open the MADRIX Device Configuration window. Go to **Tools > MADRIX Device Configuration...**
- 4] Click  to search for connected devices and your device will appear in the list.
- 5] Select your device in the list and click **Firm ware**
- 6] Wait for the process to end [usually it takes only seconds].
- 7] Disconnect MADRIX NEBULA from USB and connect again.

### Update Via Ethernet

- Connect MADRIX NEBULA to power.
- Connect MADRIX NEBULA to your computer over Ethernet network.
- In MADRIX, go to **Preferences > Device Manager... > Art-Net**
- Activate **Art-Net**
- Click   
Learn more [Data Output Over Ethernet Network \[Art-Net\]](#)
- Select the device in the list. Click . A new window opens.
- Click **Firm ware**  
The update process will starts.
- Wait for the process to end [usually it takes only seconds].

## Available Firmware Updates

NEBULA Firmware	MADRIX Version	Release Date	Highlights
1.0.6127	MADRIX 3.6 RC	May 2016	<ul style="list-style-type: none"> <li>▪ Initial Release</li> </ul>
1.1.6147	MADRIX 3.6	May 2016	<ul style="list-style-type: none"> <li>▪ Added new supported LEDs: P9883.</li> <li>▪ Added new supported LEDs: SK6812.</li> <li>▪ Added new supported LEDs: SK6822.</li> </ul>
1.1.6168	MADRIX 3.6a	July 2016	<ul style="list-style-type: none"> <li>▪ Web configuration tool: Added Voltage to the Device Information section.</li> <li>▪ Web configuration tool: Added the Refresh button to always show the latest information that was last saved on the device in the web browser [instead of using a browser refresh which may change settings again].</li> <li>▪ Web configuration tool: Streamlined spelling of output protocols.</li> </ul>

<p>1.2.6346</p>	<p>MADRIX 3.6d</p>	<p>December 2016</p>	<ul style="list-style-type: none"> <li>▪ Added new supported LEDs: GW6201.</li> <li>▪ Added new supported LEDs: TM1814.</li> <li>▪ Added new supported LEDs: WS2813.</li> <li>▪ Added new supported LEDs: WS2818.</li> <li>▪ Changed name of supported LEDs: From TLS3001 To TLS3001 Linear.</li> <li>▪ Added supported LEDs: TLS3001 Quadratic [For 12-bit LEDs].</li> <li>▪ Output settings: Added the option to define the number of channels sent per universe for each port [Channels Per Universe].</li> <li>▪ Sensor data: Devices can now report back if voltage is connected/disconnected over USB [Voltage USB].</li> <li>▪ Sensor data: Devices can now report back which voltage is used for Power, Port 1, and Port 2 [Voltage Power, Voltage Port 1, Voltage Port 2].</li> <li>▪ Sensor data: For NEBULA models V1.1 and higher, devices can now report back the ambient temperature [Temperature].</li> </ul>
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			<ul style="list-style-type: none"> <li>▪ Fixed an issue that could make the device become unresponsive under certain circumstances when connecting, disconnecting, and calling up the website several times in a row.</li> <li>▪ Fixed an issue that could produce display issues with the built-in web configuration tool when confirming changes via 'Set'.</li> </ul>
1.2.7014	MADRIX 3.6e	February 2017	<ul style="list-style-type: none"> <li>▪ Added new supported LEDs: MBI6120.</li> <li>▪ Added new supported LEDs: WS2822S.</li> <li>▪ Added new supported LEDs: WS2822S Addressing [To linearly address LEDs that haven't been initialized yet].</li> <li>▪ Added new supported LEDs: UCS512B3.</li> </ul>

## Important Information

- **In general, it is recommended to always activate all output universes. SPI communication is based on strictly serial protocols, which means that data is always sent in succession. For example, when having output universe 1 and 4 activated and having output universe 2 and 3 deactivated, the data for output universe 4 will be sent directly after the data for output universe 1.**

**//PART P**  
*MADRIX STELLA*

## 16 MADRIX STELLA

This topic includes:

- Overview
- 3rd-Party Controllers
- Putting The Device Into Operation
- Operating Modes
- DMX-OUT Via Ethernet Network [Art-Net]
- Sync Mode
- Additional Art-Net Device Settings
- DMX-OUT Via USB
- DMX-IN Via Ethernet Network [Art-Net Remote]
- DMX-IN Via USB
- Status Indicators [ArtAddress]
- DMX Watcher
- Automatic HTP Merging
- Web Configuration
- MADRIX Device Configuration
- LED Status Codes
- Reset To Factory Default Settings
- Firmware Updates

### Overview





MADRIX STELLA is a 2-port Art-Net node or DMX512 USB interface for solid-state projects.

The MADRIX STELLA is a dedicated control interface for Art-Net and DMX512 that is designed for high quality and practicability in permanent LED installations.

An additional MADRIX KEY [i.e., a software license] is required for usage with MADRIX.

### 3rd-Party Controllers

MADRIX STELLA is a standard Art-Net node. Because of this, you can use the device with applications, consoles, desks, or controllers that are compatible with Art-Net to distribute Art-Net data via Ethernet network.

## Putting The Device Into Operation

### 1] Connecting Your LED Fixtures

Please see the MADRIX STELLA Quick Start Guide & Technical Manual on how to connect your LED fixtures to MADRIX STELLA.

»[help.madrix.com](http://help.madrix.com)

## 2] Connecting To Power And Data

Please see the MADRIX STELLA Quick Start Guide & Technical Manual on how to connect to power and data.

»[help.madrix.com](http://help.madrix.com)

## Operating Modes

You can mainly use 4 operating modes together with MADRIX:

- [DMX-OUT Via Ethernet Network \[Art-Net\]](#)
- [DMX-OUT Via USB](#)
- [DMX-IN Via Ethernet Network \[Art-Net Remote\]](#)
- [DMX-IN Via USB](#)

Notes:

- DMX 1 can be configured as either DMX-IN or DMX-OUT.
- DMX 2 can be configured as either DMX-IN or DMX-OUT.
- You can use DMX 1 and DMX 2 at the same time.

## DMX-OUT Via Ethernet Network [Art-Net]

## Overview

You can connect the STELLA over Ethernet network to the network card of your computer that runs the MADRIX software. Data is distributed to the STELLA over network cabling [Ethernet] and sent to the two ports [DMX 1 and DMX 2].

## 1] Initial Configuration

- Put MADRIX STELLA into operation by connecting the LED fixtures and supplying power; as described above. Learn more [Putting The Device Into Operation](#)
- Connect MADRIX STELLA to your computer using Ethernet network cabling.
- It is highly recommended to use Gigabit Ethernet network components [network card, switches, etc.].

## 2] Windows Network Settings

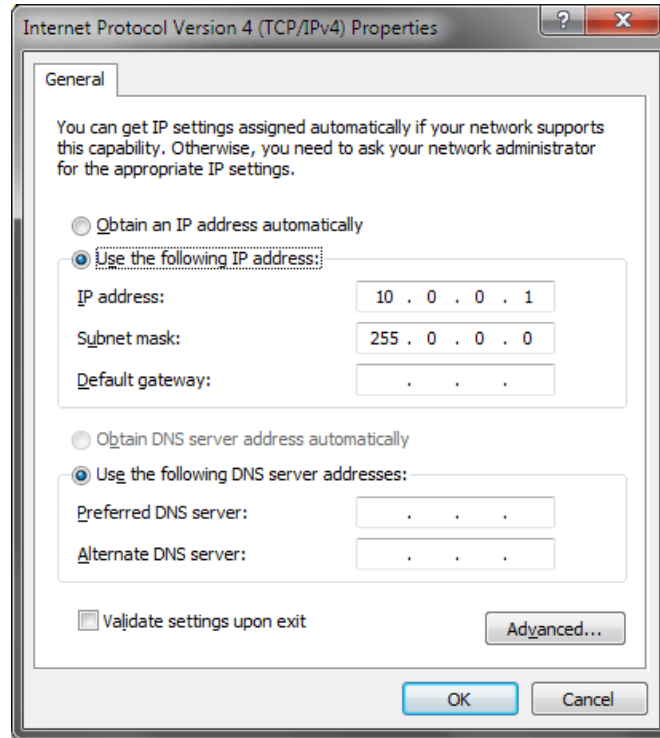
Art-Net is a network-based protocol. MADRIX will use the network card of your computer to send data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, Art-Net might not work!**
- **The IP addresses of your computer and your MADRIX STELLA devices need to be different.**
  
- Set up an individual **IP address** in the following IP address range:
  - **2.0.0.1 ... 2.255.255.254** or
  - **10.0.0.1 ... 10.255.255.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**

[Via factory default settings, MADRIX STELLA devices will have an IP address in the 10.x.x.x network range, such as 10.78.0.86, for example].

- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**

- Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)
- Example for PCs that are running MADRIX:



### 3] Fixture Configuration In MADRIX

- Start MADRIX.
- Configure the virtual LED matrix using the »[Matrix Generator](#) or »[Patch Editor](#)

### 4] Activating Art-Net


- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Activate the checkbox **Enable** [in the upper, right corner].



- MADRIX will automatically create the entry **ArtNet Remote**  
This device is used only for Remote Control. Learn more [DMX-IN Via Ethernet Network \[Art-Net Remote\]](#)

## 5] Adding Devices Automatically

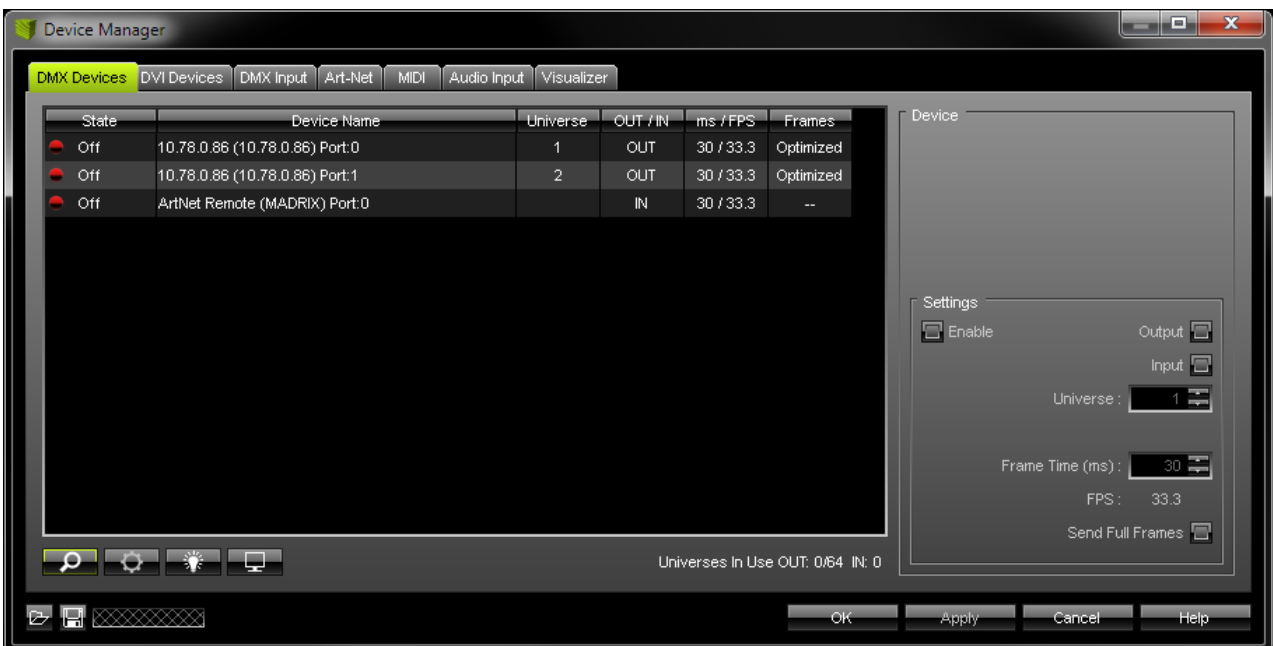
MADRIX can automatically add your MADRIX STELLA devices.

- Click   
[MADRIX will automatically search the network for connected MADRIX STELLA devices. Devices that are found will appear in the list. One entry will be created in the list for each STELLA device.]

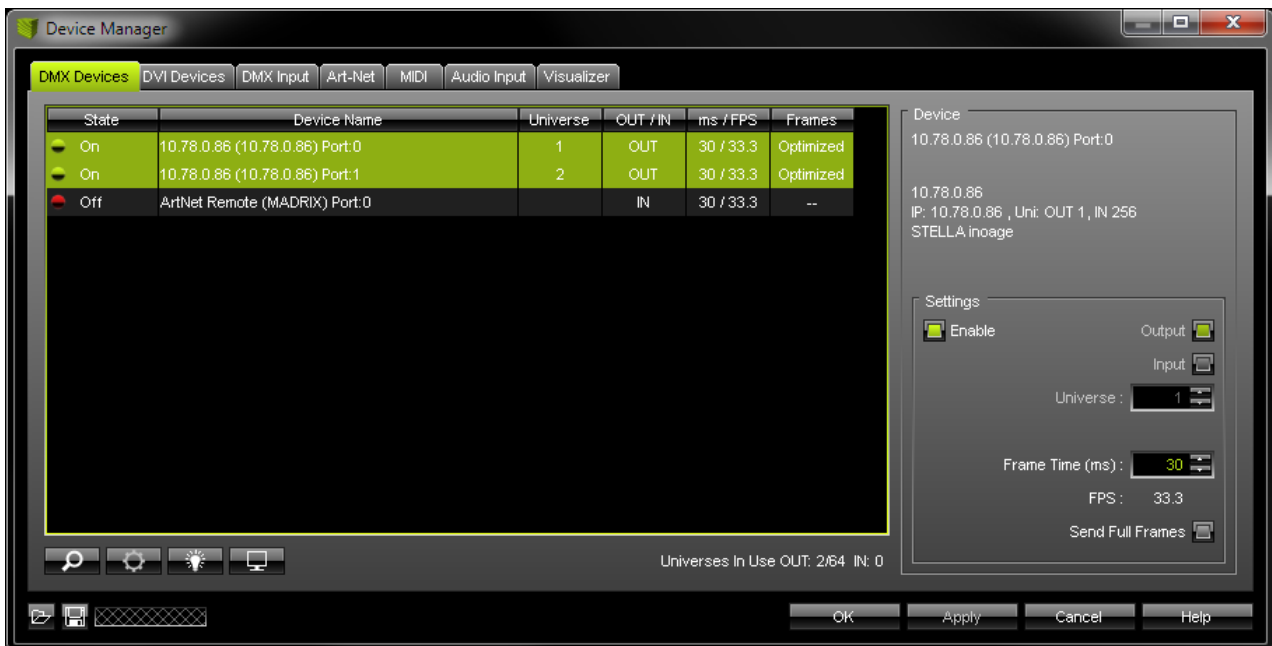


## 6] Activating Devices

Each of your MADRIX STELLA devices and its ports need to be activated. By default, they are still deactivated.



- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- Select your devices and their ports in the list.
- Activate **Enable**
- **Output** is activated by default.
- Click **Apply**



- [In the screenshot above, one STELLA is connected. If more devices are connected, please use the different IP addresses of different devices to identify them in the Device Manager. You can also click on **Device Name** as well as **Universe** or other columns to sort the list accordingly.]

## 7] Configuration Of DMX Output

- Make sure that your devices are still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Universe**
  - Enter the specific DMX universe number.
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.

- **Make sure the correct universe is assigned according to your requirements.**

Learn more »[Glossary](#)

- Click **Apply**
  
- By default, DMX universe 1 is assigned to DMX 1 and DMX universe 2 is assigned to DMX 2.

## 8] Frame Time

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**
- [When using Art-Net, the Frame Time [ms] can be individually set for each port. But it cannot be set individually for each port, when Sync Mode is activated. Learn more below.]



## 9] Optimized Frames Or Full Frames

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Activate or deactivate **Send Full Frames**
  - Per DMX512 standard, MADRIX only sends the number of DMX channels that is configured. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe [Optimized Frames].
  - Activate Send Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels].
  - **Activating Send Full Frames is recommended if problems with the data output on your LEDs occur.**
- Click **Apply**
- In addition, you can activate Full Frames for the device and each MADRIX STELLA port separately.  
Learn more [MADRIX Device Configuration](#)

## Sync Mode

MADRIX STELLA can use the special sync mode of MADRIX.

- Large LED projects require dependable data distribution. The MADRIX software and STELLA hardware allow you to synchronize data output for all ports and even across multiple devices to get an optimal image on the LEDs.
- When MADRIX Sync mode is activated, MADRIX and MADRIX STELLA will automatically handle the synchronization of data.

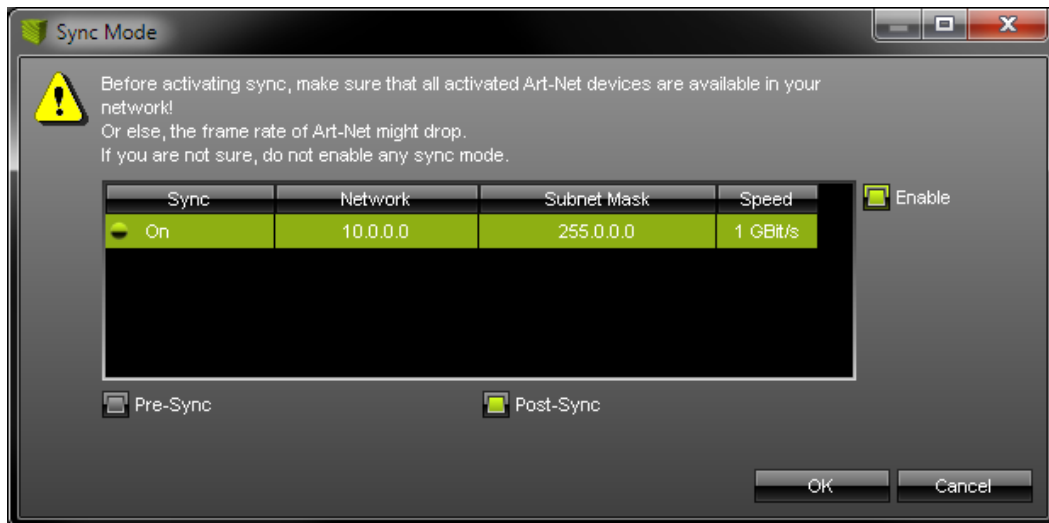
**MADRIX Sync Mode is highly recommended for MADRIX STELLA!**



**Sync Mode** - Allows you to activate or deactivate the usage of sync packages for Art-Net.

▪ **Before activating sync, make sure that all activated Art-Net devices are available in your network! Else, the frame rate of Art-Net might drop. If you are not sure, do not enable any sync mode.**

- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Click **Sync...**
- A new window will open.
- Select the network for which you want to activate Sync Mode.
- Click **Enable** to activate the Sync Mode for the selected network.
- **A]** Choose **Pre-Sync** to send sync packages before Art-Net data.
- **B]** Choose **Post-Sync** to send sync packages after Art-Net data.
- Click **OK**



- To disable sync mode, click **Sync...** again, select the correct network, and deactivate **Enable**. Confirm with **OK**

## Additional Art-Net Device Settings


**It is very important to set up the correct settings for your devices!**

### Broadcast Mode Or Direct IP Mode

MADRIX can send Art-Net data in 2 ways to your Art-Net devices:

- **Broadcast Mode** - Means that every packet sent from a single transmitter will be received by all recipients in the network. MADRIX will send data to all devices in the network.
  - Advantage: The same data [e.g., DMX universe 1 and 2] can be made available for different points of your setup.
  - Disadvantage: A potentially huge number of data packages will be sent over the network. This can reduce the overall network performance and cause data issues or instability.
- **Direct IP Mode** - Means that the specific data will only be sent to the specified recipient.
  - Advantage: Data traffic is reduced immensely, which means that a larger number of Art-Net devices can be used in one network. Reduced network traffic increases the performance and stability.
  - Disadvantage: The network settings of all devices need to be 100% correct.

**Direct IP Mode is recommended in general.**

- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Select your device in the list.
- Click 
- A new window will open.
- **A]** Choose **Direct IP Mode** to activate Direct IP mode:
  - Make sure to enter the correct **IP Address** of your device that should receive the Art-Net data. When MADRIX STELLA has been automatically found by MADRIX, the IP address will be pre-configured for you.
  - MADRIX will send the corresponding data only to this device.

- **B]** Choose **Broadcast Mode** to activate Broadcast Mode:
  - Make sure to select the correct **Network** card of your computer that should send the Art-Net data. When MADRIX STELLA has been automatically found by MADRIX, the correct network will be pre-configured for you.
  - MADRIX will send data to the whole Art-Net network.
- Click **Apply**

## More Information About Art-Net

Learn more »[Art-Net \[DMX Over Ethernet\]](#)

## DMX-OUT Via USB

### Overview

You can connect the STELLA directly over USB to the computer that runs the MADRIX software. Data is distributed to the MADRIX STELLA via USB and sent to the two ports [DMX 1 and DMX 2].

### 1] Initial Configuration

- Put MADRIX STELLA into operation by connecting the LED fixtures and supplying power; as described above.  
Learn more [Putting The Device Into Operation](#)
- Connect MADRIX STELLA to your computer via USB.  
[Use the provided USB cable.]
- Make sure to check the power management options of Windows. Learn more »[PC Power Management](#)

### 2] Fixture Configuration In MADRIX

- Start MADRIX.


- Configure the virtual LED matrix using the »[Matrix Generator](#) or »[Patch Editor](#)

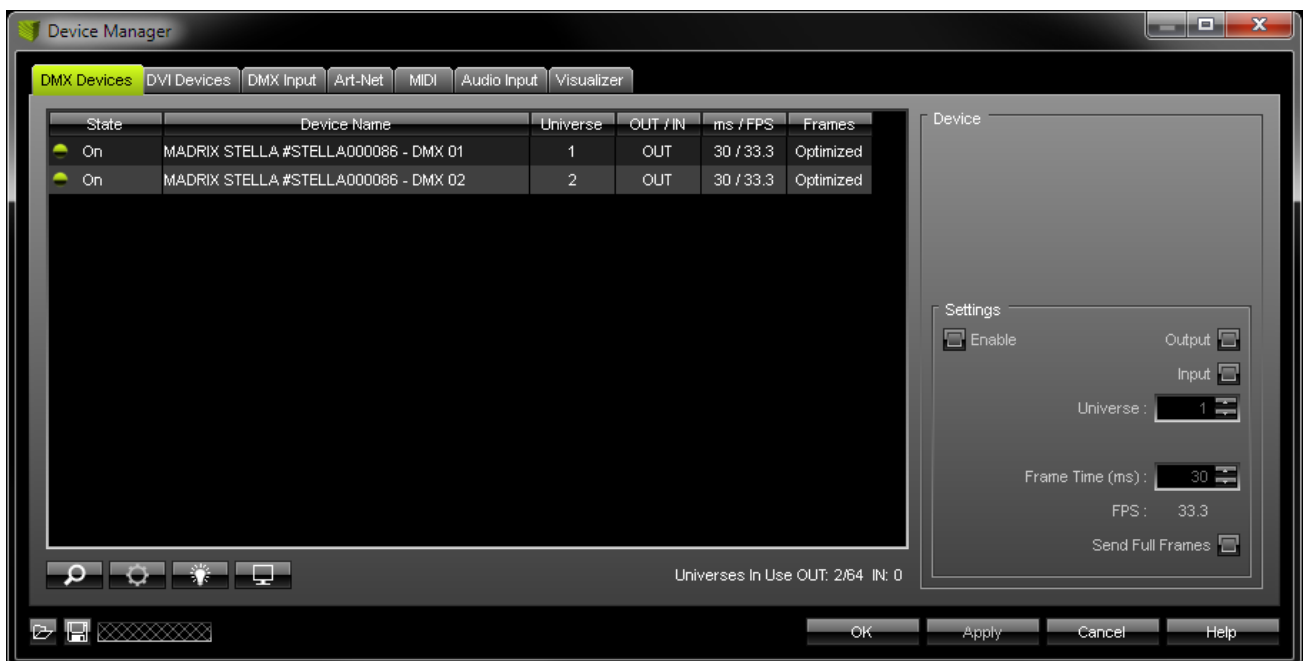
### 3] Enabling Drivers In MADRIX

- Go to **Preferences > Options... > Devices USB**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices USB**]
- Activate **MADRIX STELLA**
- Click **Apply**
- Close the window with **OK**



## 4] Activating Devices

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- Your STELLA devices and their two ports will appear in the list.
- If your devices are not in the list, click   
[In the screenshot below, one STELLA is connected.]
- By default, all ports are activated [**State On**].



- If your device and ports are not activated, do the following:
- Select the device/port in the list.
- Activate **Enable**
- Activate **Output**
- Click **Apply**

## 5] Configuration Of DMX Output

- Make sure that your devices are still selected under **Preferences > Device Manager... > DMX Devices**
  - Set up **Universe**
    - Enter the specific DMX universe number.
    - This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.
    - **Make sure the correct universe is assigned according to your requirements.**  
Learn more »[Glossary](#)
  - Click **Apply**
- By default, DMX universe 1 is assigned to DMX 1 and DMX universe 2 is assigned to DMX 2.

## 6] Frame Time

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**
- Set up **Frame Time (ms)**
  - The Frame Time affects the Frame Rate. The Frame Rate specifies how fast data is sent to the device or received from it [Frames Per Second; FPS].
  - Increase the Frame Time in order to decrease the Frame Rate [e.g., 40ms = 25 FPS].
  - Decrease the Frame Time in order to increase the Frame Rate [e.g., 20ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - **Some LED fixtures might have problems with a high Frame Rate. Then, it is recommended to increase the Frame Time / to decrease the Frame Rate.**
- Click **Apply**

## 7] Optimized Frames Or Full Frames

- Make sure that your device is still selected under **Preferences > Device Manager... > DMX Devices**

- Activate or deactivate **Send Full Frames**
  - Per DMX512 standard, MADRIX only sends the number of DMX channels that is configured. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe [Optimized Frames].
  - Activate Send Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels].
  - **Activating Send Full Frames is recommended if problems with the data output of your devices occur.**
- Click **Apply**
  
- In addition, you can activate Send Full Frames for the device and each MADRIX STELLA port separately.  
Learn more [MADRIX Device Configuration](#)

## More Information About DMX Output

Learn more »[DMX512 \[DMX-OUT\]](#)

## DMX-IN Via Ethernet Network [Art-Net Remote]

### Overview

You can connect MADRIX STELLA over Ethernet network to the network card of your computer that runs the MADRIX software. Data is sent to the STELLA via a port and from the STELLA to MADRIX via Ethernet network.

### 1] Initial Configuration

- Connect your external DMX controller to the DMX port of MADRIX STELLA.



- Connect MADRIX STELLA to power.  
[Please see safety instructions in the MADRIX STELLA Quick Start Guide!]
- Connect MADRIX STELLA to your computer via network cabling.
- It is highly recommended to use Gigabit Ethernet network components [network card, switches, etc.].

## 2] Windows Network Settings

Art-Net is a network-based protocol. MADRIX will use the network card of your computer to send data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, Art-Net might not work!**
- **The IP addresses of your computer and your MADRIX STELLA devices need to be different.**

- Set up an individual **IP address** in the following IP address range:
  - **2.0.0.1 ... 2.255.255.254** or
  - **10.0.0.1 ... 10.255.255.254**
- Set up the corresponding **Subnet mask**
  - **255.0.0.0**

[Via factory default settings, MADRIX STELLA devices will have an IP address in the 10.x.x.x network range, such as 10.78.0.86, for example].

- **Restart MADRIX, if you have changed the network settings in Windows while MADRIX was running.**
- Learn more »[Tips \[Microsoft Windows / Networks / USB\]](#)


## 3] Activating Art-Net

- Go to **Preferences > Device Manager... > Art-Net**  
[Keyboard shortcut: **F4 > Art-Net**]
- Activate **Enable**



- MADRIX will automatically create the entry **ArtNet Remote**  
This device is used only for Remote Control.

#### 4] Configuration Of Art-Net Remote

- Select **ArtNet Remote** in the list.
- Click 
- A new window opens [**Art-Net Device Configuration**].



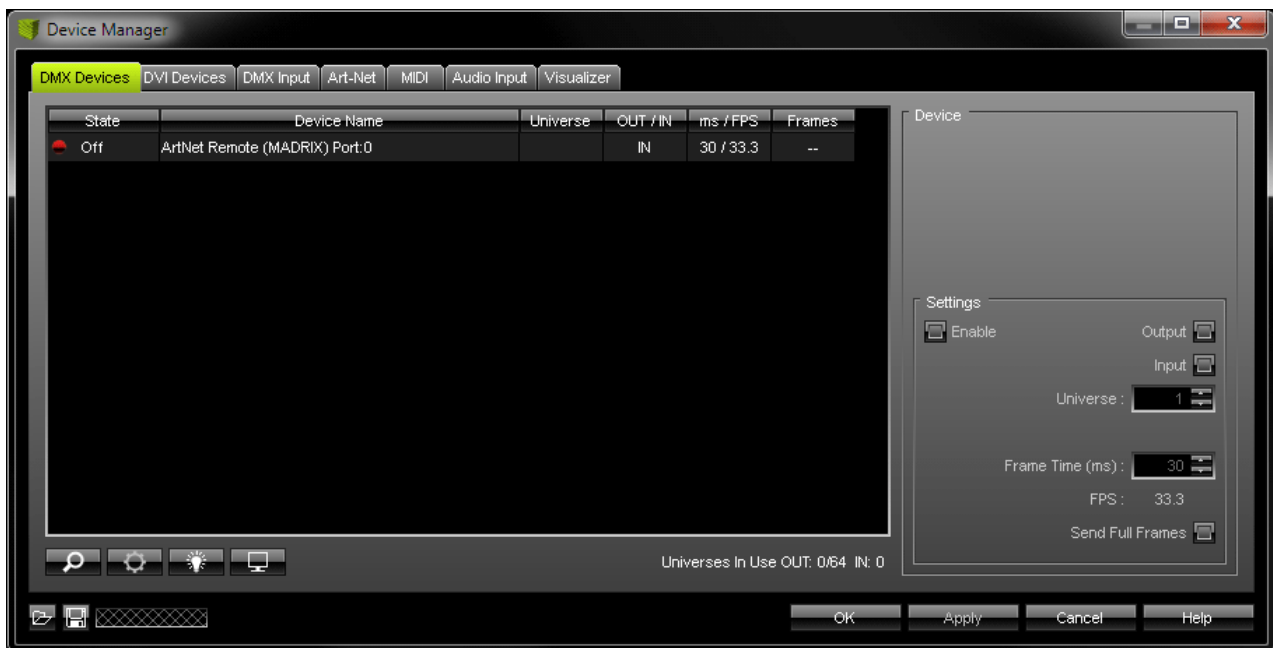
- Set **Universe Port OUT** to **256** or **255**, which is Art-Net universe 256 or 255. Confirm with **Apply**  
**[By default, MADRIX STELLA sends DMX-IN data to Art-Net universe 256 from DMX 1 and to Art-Net universe 255 from DMX 2. You can change these settings in the Web Configuration or MADRIX Device Configuration window if required. If you have changed the settings, enter the exact same Art-Net universe here!]**
- Activate **Direct IP Mode** and enter the **IP Address** of your MADRIX STELLA. Confirm with **Apply**  
[E.g., 10.78.0.86]
- [You can also activate **Broadcast Mode**. In this mode, MADRIX will receive any DMX data that is sent in the network on this particular Art-Net universe.]
- Press **OK**

## 5] Activating Art-Net Remote

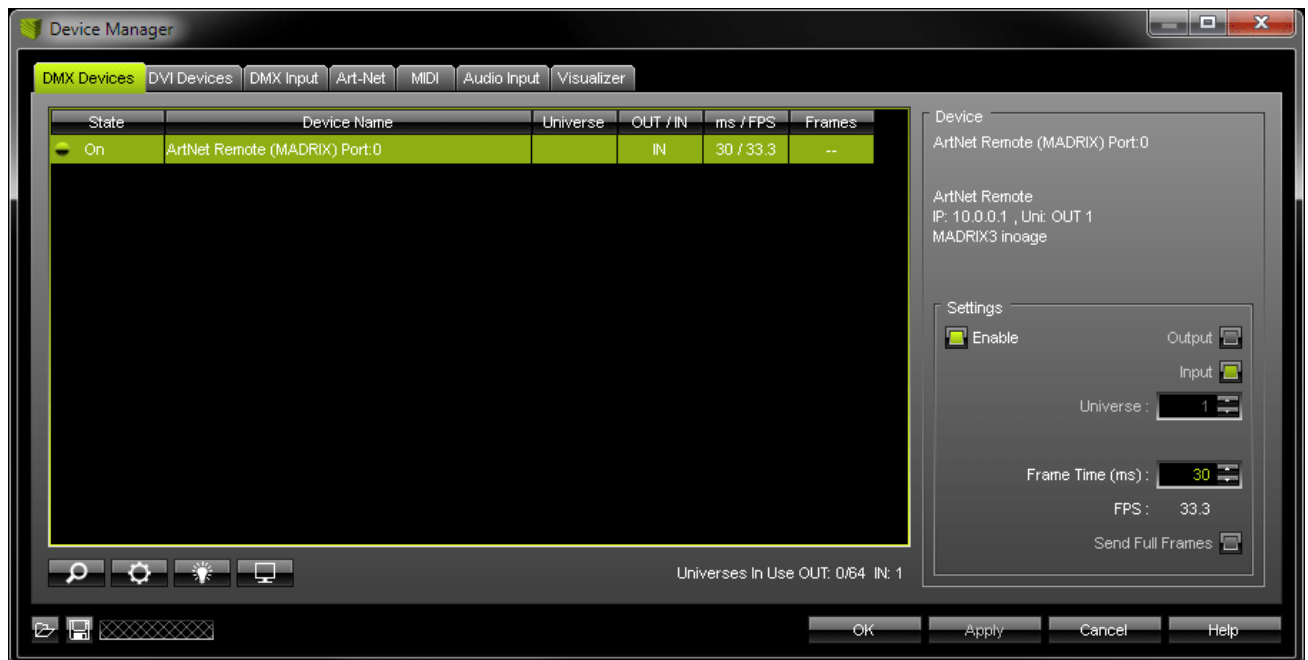
You need to activate the Art-Net Remote device. Art-Net Remote is still deactivated.

- Go to **Preferences > Device Manager... > DMX Devices**

[Keyboard shortcut: **F4**]



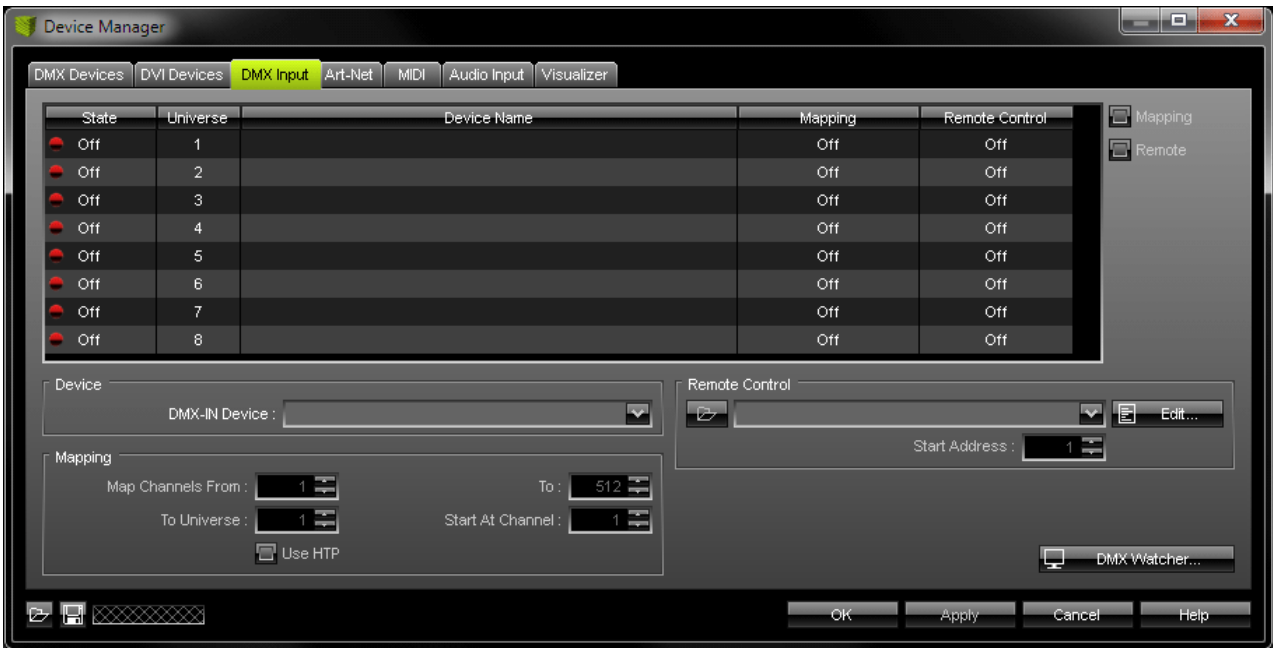
- Select **ArtNet Remote** in the list.
- Activate **Enable**
- **Input** is automatically selected.
- Click **Apply**



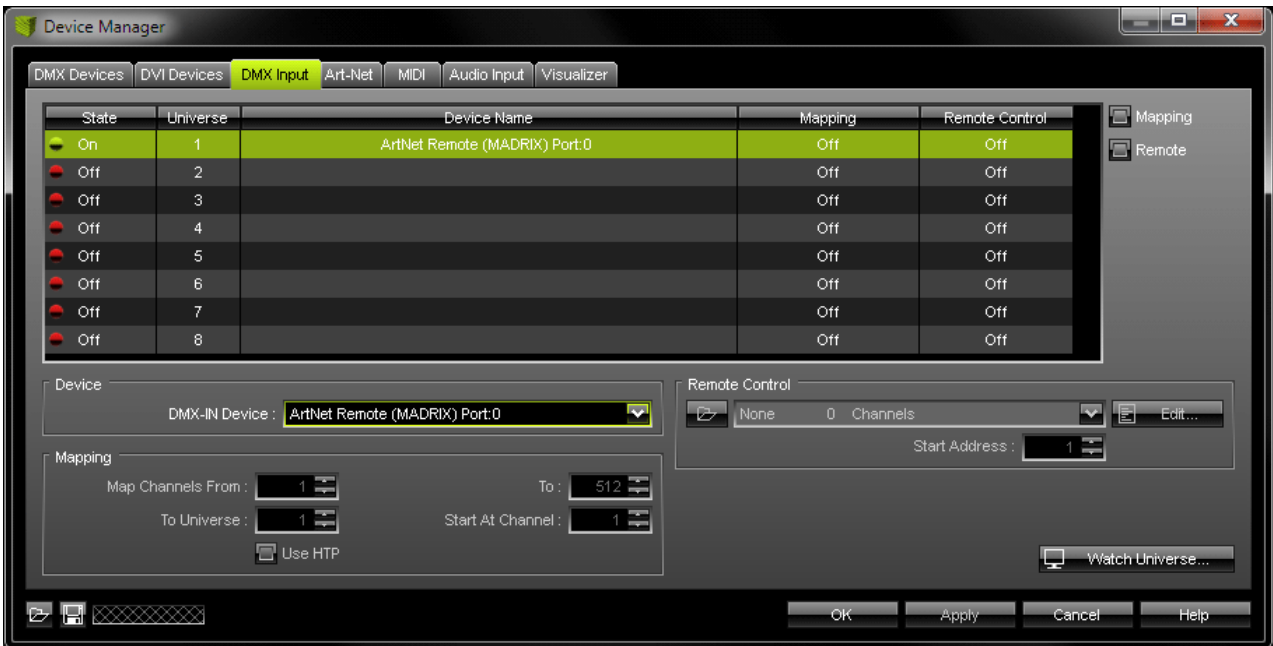
- If required, change the **Frame Time (ms)**
  - The higher the Frame Time, the lower the FPS will be. The lower the Frame Time, the higher the FPS will be.
  - The default Frame Time is 33.
  - Press **Apply** to confirm.

## 6] Activating DMX Input

- Go to **Preferences > Device Manager... > DMX Input**



- Select your preferred DMX **Universe** in the list.  
[By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting. Learn more »[Performance](#)]
- Choose your **DMX-IN Device** in the section **Device**. Select **ArtNet Remote**



- Art-Net Remote is now activated. MADRIX can already receive DMX data.

- Now, choose how to use incoming data. Learn more »[Art-Net Remote](#)

## **DMX-IN Via USB**

### **Overview**

You can connect the STELLA directly via USB to the computer that runs the MADRIX software. Data is sent to the STELLA via a port and from the STELLA to MADRIX via USB.

### **1] Initial Configuration**

- Connect your external DMX controller to the required DMX port of MADRIX STELLA.
- Connect MADRIX STELLA to your computer via USB.  
[Use the provided USB cable]
- Make sure to check the power management options of Windows. Learn more »[PC Power Management](#)


### **2] Enabling Drivers In MADRIX**

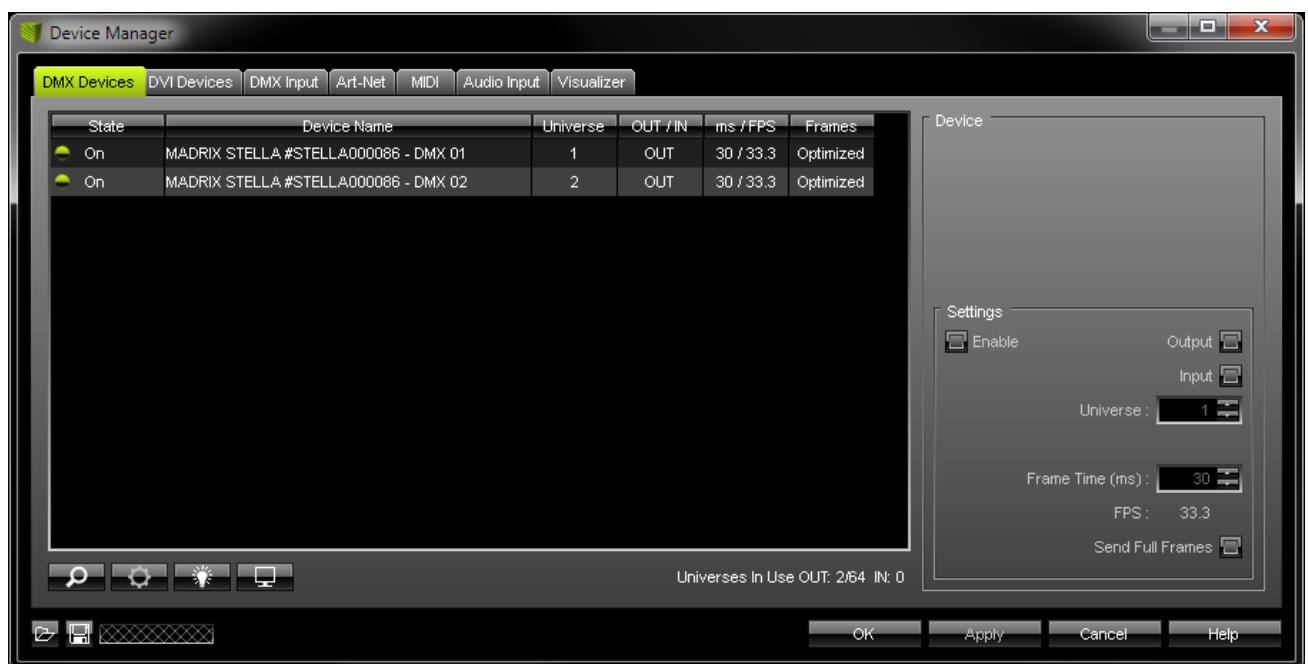
- Go to **Preferences > Options... > Devices USB**  
[Keyboard shortcut: **Ctrl+Alt+O > Devices USB**]
- Activate **MADRIX STELLA**
- Click **Apply**
- Close the window with **OK**



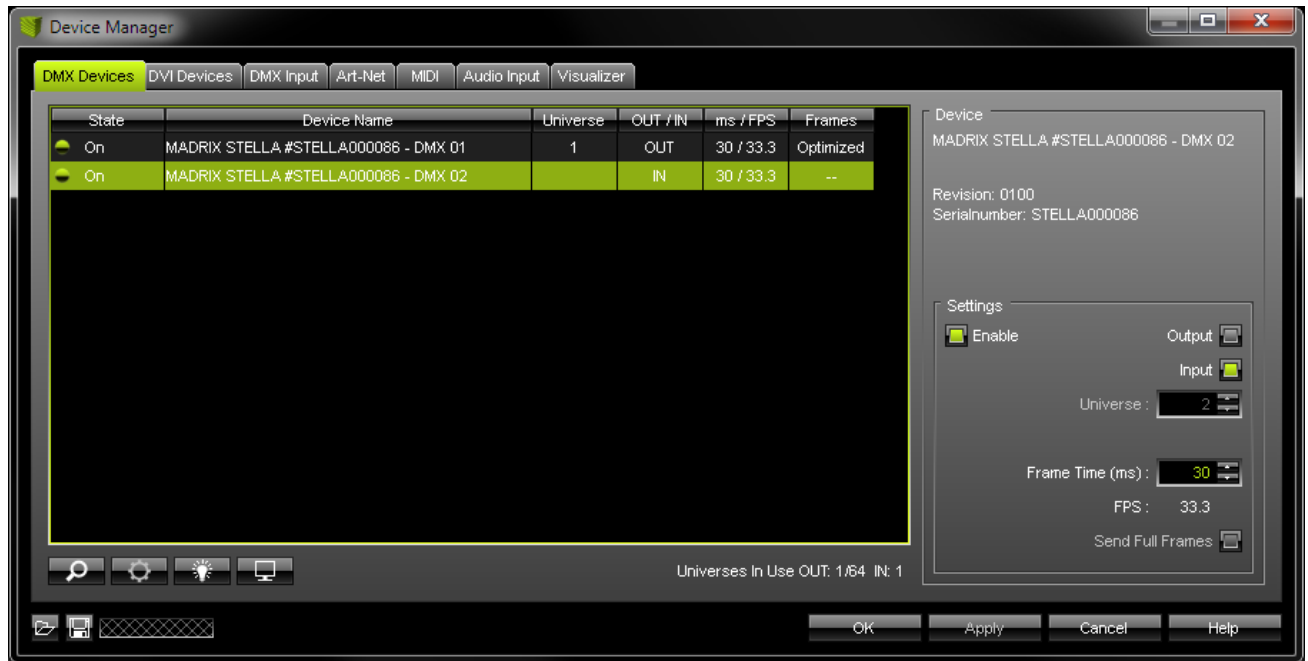


### 3] Activating Devices

- Go to **Preferences > Device Manager... > DMX Devices**  
[Keyboard shortcut: **F4**]
- Your STELLA devices and their two ports will appear in the list.
- If your devices are not in the list, click   
[In the screenshot below, one STELLA is connected.]



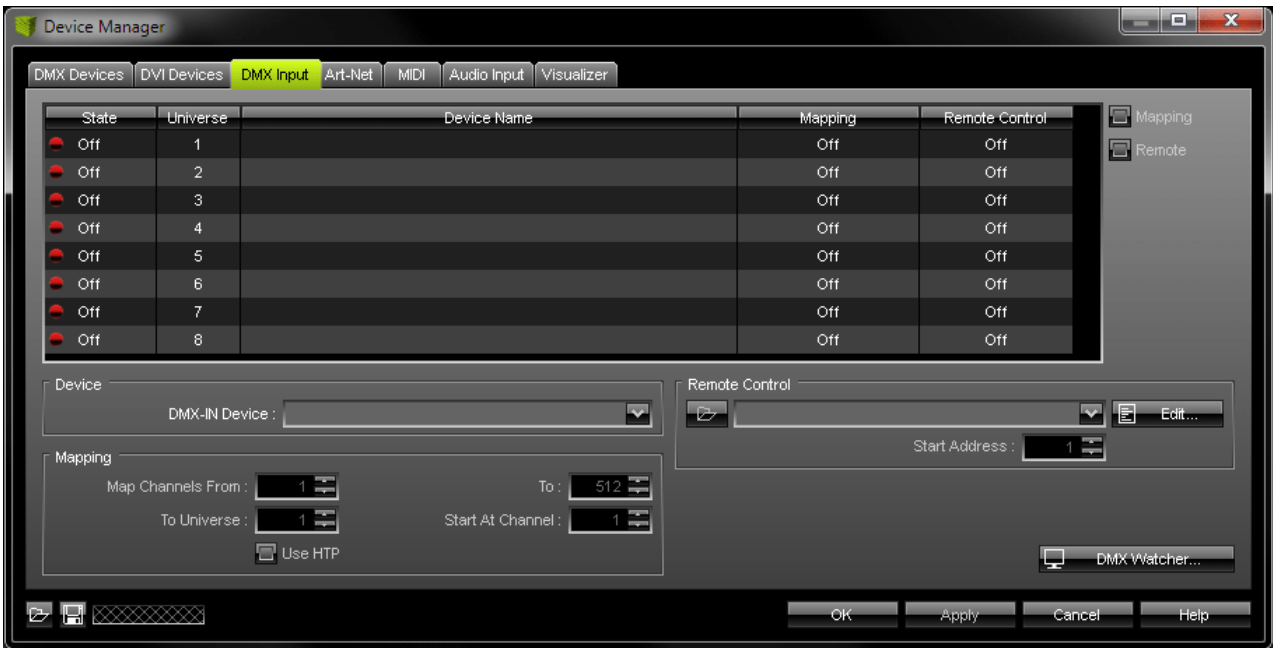
- Select the required port in the list.
- Activate **Enable**
- Activate **Input**
- Click **Apply**



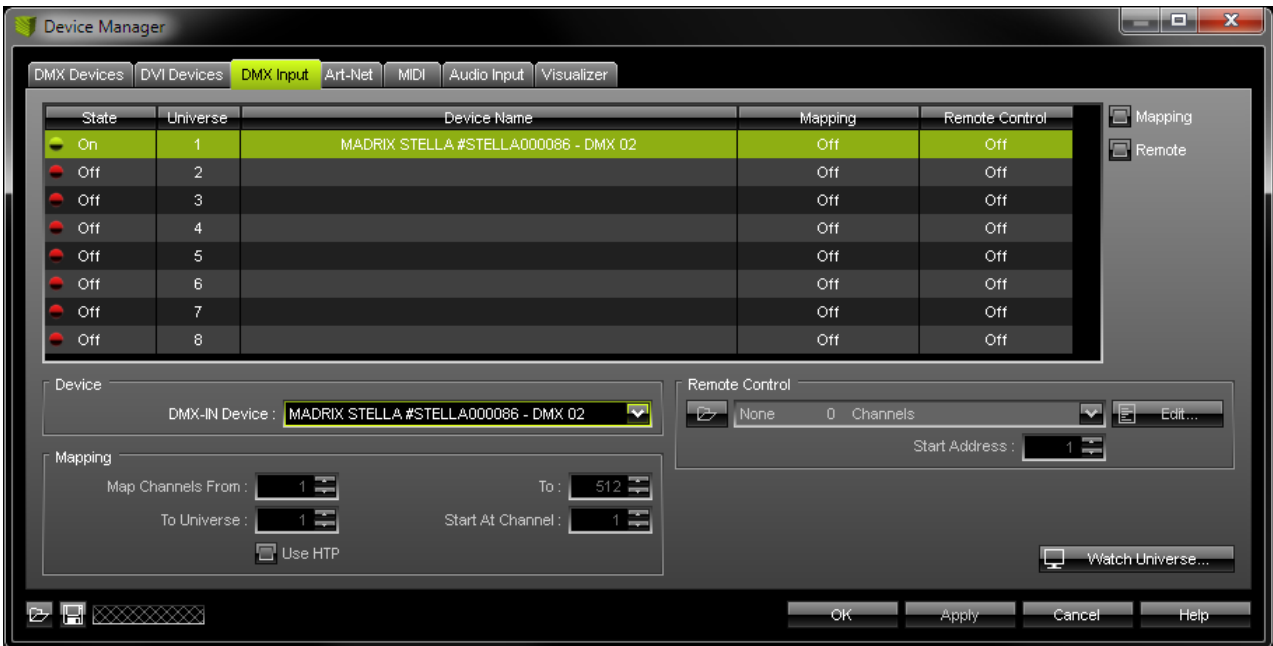
- If required, change the **Frame Time (ms)**
  - The higher the Frame Time, the lower the FPS will be. The lower the Frame Time, the higher the FPS will be.
  - The recommended Frame Time is 33.
  - Press **Apply** to confirm.

## 6] Activating DMX Input

- Go to **Preferences > Device Manager... > DMX Input**



- Select your preferred DMX **Universe** in the list.  
[By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting. Learn more »[Performance](#)]
- Choose your **DMX-IN Device** in the section **Device**. Select **MADRIX STELLA**



- DMX-IN is now activated. MADRIX can already receive DMX data.
- Now, choose how to use incoming data. Learn more »[DMX-IN](#)

## Status Indicators [ArtAddress]

In order to use these features, please **Enable** ArtAddress first.

[Please make sure that your nodes fully support this Art-Net feature, such as MADRIX LUNA, MADRIX NEBULA, MADRIX PLEXUS, MADRIX STELLA. You will also get notified by a message box. Confirm the message with **OK** or abort via **Cancel**.]



**Mute Status Indicators** - Switches off and disables all built-in status indicators of a device over Art-Net [ArtAddress > AcLedMute].



**Operate Status LEDs Normally** - Allows the built-in status indicators of a device to operate normally again, after having them switched off [ArtAddress > AcLedNormal].



**Highlight Device** - Activates the highlight mode [ArtAddress > AcLedLocate]. Select one or more interfaces and click the button. The corresponding status indicators of the selected interfaces will flash for a better identification or tests. This makes it easier to see them on site/stage. It considerably speeds up the procedure of programming or testing the selected interfaces.

## DMX Watcher



**DMX Watcher** - Opens the DMX Watcher to monitor your DMX output or input under **Preferences > Device Manager... > DMX Devices**



**Watch Universe** - Appears when you have selected a list item. The DMX Watcher will open with the particular DMX Universe already entered.

Learn more » [Tools](#)

## Automatic HTP Merging

### Overview

- MADRIX STELLA features automatic HTP merging from 2 Art-Net sources.

[Usually, the first source will be MADRIX. The second source could be a console, for example.]

- Data from both source will be merged together and sent out as 1 signal. This happens across all ports and by using the HTP principle.
- **HTP** - Is the acronym for Highest Takes Precedence. Data from both sources will be compared for each individual channel. The higher value wins per channel.
- **Example:** We are using an LED fixture with a total of 5 control channels [3 color channels and 2 movement channels]. MADRIX should provide the color data for channels 1 to 3 and the console should provide the movement data for channels 4 and 5. Using the MADRIX Fixture Editor, we could create a corresponding fixture where channel 4 and 5 are set up as **Fixed** channel using always a value of **0**. On the other hand, the console will always send a value of **0** for the first 3 channels of each fixture. This will ensure that the data from the console will always provide the higher value on channels 4 and 5, while MADRIX provides the color data. Due to the automatic HTP merging of the device, the LED fixture will receive correct data from both sources as desired.

### Configuration And Recommendations

- 1] Correctly set up and enable Art-Net for each source.
- 2] Make sure to activate **Sync Mode** for Art-Net in MADRIX. Learn more [Sync Mode](#)

**3]** Make sure that MADRIX has a **lower IP address** compared to the second source.

[E.g., 2.0.0.1 compared to 2.0.0.20]

**4]** Always use **Direct IP Mode** to directly send data to the correct IP addresses of your MADRIX STELLA devices.

[It is not recommend to have any of the two sources or any other source in the network to send data via Broadcast Mode.]

## Web Configuration

When connected to Ethernet network, you can easily configure MADRIX STELLA using a web configuration interface.

You have 2 options to access the web interface:

**A]** Open your web browser and enter the IP address of MADRIX STELLA.

[Both, STELLA and your computer, need to be in the same network.]

**B]** Use MADRIX.

- Go to **Preferences > Device Manager... > Art-Net**


[Keyboard shortcut: **F4 > Art-Net**]

- Select your MADRIX STELLA device in the list.

- Click  HTTP

- Your default web browser will open.

- Now, you have access to various information and settings.



# STELLA

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**Device Information**

Model	MADRIX STELLA
Serial Number	STELLA000000
Firmware	1.2.6346
Hardware	1.1
Build Date	Dec 5 2016 14:35:34
IP Address	10.78.0.1
MAC Address	CC:D3:1E:80:00:00
Voltage	Input: 0.0 V
Temperature	28.4 °C / 83.3 °F

---

**Device Name**

MADRIX STELLA

---

**Device Settings**

IP Address	10	78	0	1
Subnet Mask	255	0	0	0

---

**DMX Output Settings**

Output Port	Art-Net Universe	Send Always Full Frames (512 CH)
DMX 1	1	<input type="checkbox"/>
DMX 2	2	<input type="checkbox"/>

---

**DMX Input Settings**

DMX-IN Port 1	Send To Art-Net Universe	256
DMX-IN Port 2	Send To Art-Net Universe	255
Full Frames	<input checked="" type="checkbox"/> Send Always Full Frames (512 CH) to Art-Net	
Broadcast Mode	<input type="radio"/>	
Direct IP Mode	<input type="radio"/> 255 . 255 . 255 . 255	

For more information visit [www.madrix.com](http://www.madrix.com)

**Device Information**

This section displays various details about the device, including:

- **Model** [Device type]
- **Serial Number**
- **Firmware** [Current firmware version]
- **Hardware** [Hardware model]
- **Build Date** [Firmware creation date]
- **IP Address** [Current IP address]
- **MAC Address** [A permanent, unique address]
- **Voltage** [The current voltage for Input.]
- **Temperature** [The current ambient temperature.]

**Device Name**

You can change the description of the device. Enter a name and confirm your input with **Set**. This label is only shown in this web interface.

**Device Settings**

You can change the IP address and Subnet Mask. Enter the specific addresses and confirm with **Set**.



**DMX Output Settings**

This section shows specific settings for the DMX ports for output.  
By default, Art-Net universe 1 and 2 assigned to DMX 1 and DMX 2.

If you are broadcasting data for a large number of Universes [using Broadcast Mode instead of using Direct IP Mode] with MADRIX or a 3rd-party controller for example, you can assign different DMX universes to each STELLA device with these settings. Each MADRIX STELLA will then only receive data from the specific Art-Net universe and send it to its specified output port. Example: You can set up that STELLA #1 only listens to Art-Net universe 1 and 2, while STELLA #2 listens to Art-Net universe 3 and 4, and STELLA #3 listens to Art-Net universe 5 and 6, and so on.

**Send Always Full Frames (512 CH)** - Is another specific setting. The DMX port will always send out 512 channels, even if the data sent to STELLA includes less than 512 channels for this port and universe. STELLA automatically sends values of 0 on channels that are not used.

**DMX Input Settings**

This section allows you to specify settings for the DMX ports for input.  
When data is received, MADRIX STELLA will automatically forward it to Ethernet network.

STELLA can receive 512 channels per port. Use **Send To Art-Net Universe** to specify on which Art-Net universe those 512 channels are sent. By default, **256** is selected for DMX 1 and **255** for DMX 2. Valid values range from 1 to 256.

**Send Always Full Frames (512 CH) To Art-Net** - Is another specific setting. The STELLA will always send out 512 channels, even if the data received by STELLA includes less than 512 channels for this port and universe. STELLA automatically sends values of 0 on channels that are not used.

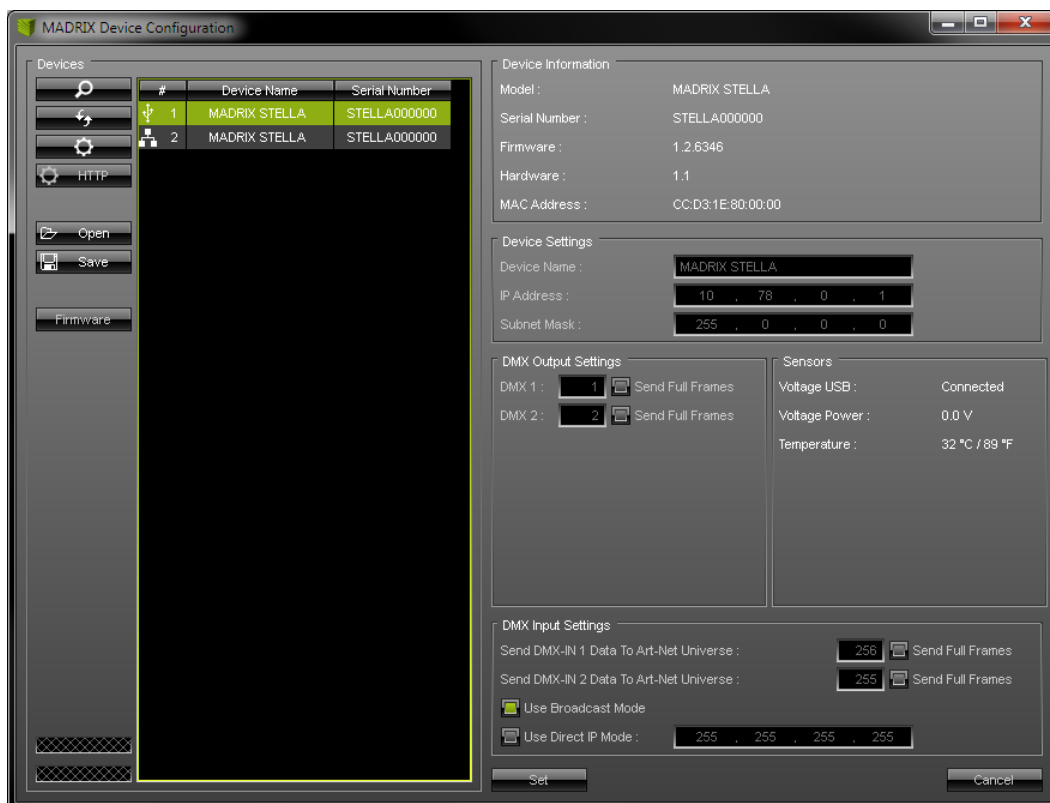
Additionally, choose to how MADRIX STELLA sends the data into the network:

- Use **Broadcast Mode** if STELLA should sent to all IP addresses in the network.
- Use **Direct IP Mode** to specify one recipient, e.g. your MADRIX computer [Enter the IP address of your MADRIX computer].
- Confirm with **Set**

## MADRIX Device Configuration

You can access all information and settings of the web configuration in MADRIX using the MADRIX Device Configuration window.

- In MADRIX, go to **Tools > MADRIX Device Configuration...**  
[Keyboard shortcut: **Ctrl+Alt+L**]



- Scans the USB ports of your computer and the network for connected MADRIX STELLA devices. If devices are found, they will be shown in the list.
  - To see USB devices, you need to enable STELLA USB drivers first [they are activated by default]. Learn more »[Devices USB](#)
  - To see network devices, you need to enable STELLA networking drivers [they are activated by default] as well as connect MADRIX STELLA and your computer to the same network first. Learn more »[Devices Network](#)



- Refreshes already connected devices and brings the information in the list up to date.



- Allows you to change the settings of your device. Apply your changes by confirming with **Set**



- Enables remote access to the web configuration as explained above. MADRIX STELLA needs to be connected via Ethernet [network connection required]. First, connect your computer and the MADRIX STELLA to one and the same network. Second, select your MADRIX STELLA in the list. Third, click this button. A web browser opens automatically.



- Imports the MADRIX STELLA Device Settings from an external file [of the file type \*.msdx]. Use this option to easily restore all device settings from a file [as described below].



- Exports the MADRIX STELLA Device Settings to an external file [of the file type \*.msdx]. Use this option to easily store all device settings in a file. Simply enter a name in the window that opens and click 'Save'.



- Updates the firmware of your MADRIX STELLA if a newer firmware is available [USB connection required].

Learn more [Web Configuration](#)

## LED Status Codes

The following tables describe the LED status codes of the device.

STATUS	POWER
<i>Powered off</i>	Power not connected. → The device has no power.
<b>Permanently green</b>	Connected to power. → The power is on.
<b>Blinking green</b>	Bootloader activated. → Reset the device to factory default settings.

STATUS	USB
<i>Powered off</i>	USB not connected.
<b>Red + blinking green</b>	Communicating over USB. → Sending or receiving data over USB. The USB port works.
<b>Fading between red + green</b>	Connected to USB; Drivers installed correctly. → No data is sent over USB.
<b>Orange</b>	Connected to USB; No drivers installed. → Reinstall software and drivers or try a different USB port.

STATUS	DMX 1	DMX 2
<i>Powered off</i>	No data is sent.	No data is sent.
<b>Blinking green</b>	Sending or receiving data. → The DMX port works.	Sending or receiving data. → The DMX port works.

STATUS	ETHERNET
<b>Green off</b>	10 MBit/s connected.
<b>Green on</b>	100 MBit/s connected.
<b>Orange on</b>	Network connected.
<b>Orange blinking</b>	Sending or receiving data. → The Ethernet port works.

## Reset To Factory Default Settings

In rare cases you might need to do a reset to factory default settings, for example to reset to the device to its default IP address as shown on the side of the device:

### Reset Via Reset Button

- 1]** Disconnect all connections from the device [power, data, DMX].
- 2]** Use a suitable tool to press the reset button [between DMX 1 and DMX 2].
- 3]** Continue to press the reset button and supply power again over 'Power' or USB.

**4]** Continue to press the reset button and wait until all status LEDs of the device flash repeatedly or wait 10 seconds.

[Simply repeat these steps should the process fail.]

## **Firmware Updates**

It is highly recommended to update the firmware of the device should a new firmware version become available. You can do so in different ways.


### **Update Via USB**

**1]** Connect MADRIX STELLA to your computer over USB.

[Use the provided USB cable.]

**2]** Start the MADRIX software.

**3]** Open the MADRIX Device Configuration window. Go to **Tools > MADRIX Device Configuration...**



**4]** Click  to search for connected devices and your device will appear in the list.

**5]** Select your device in the list and click **Firmware**

**6]** Wait for the process to end [usually it takes only seconds].

**7]** Disconnect MADRIX STELLA from USB and connect again.

### **Update Via Ethernet**

- Connect MADRIX STELLA to power.
- Connect MADRIX STELLA to your computer over Ethernet network.
- In MADRIX, go to **Preferences > Device Manager... > Art-Net**
- Activate **Art-Net**
- Click   
Learn more [DMX-OUT Via Ethernet Network \[Art-Net\]](#)
- Select the device in the list. Click . A new window opens.

- Click **Firmware**  
The update process will start.
- Wait for the process to end [usually it takes only seconds].

### Available Firmware Updates

STELLA Firmware	MADRIX Version	Release Date	Highlights
1.0.6127	MADRIX 3.6 RC	May 2016	<ul style="list-style-type: none"> <li>▪ Initial Release</li> </ul>
1.1.6147	MADRIX 3.6	May 2016	
1.1.6168	MADRIX 3.6a	July 2016	<ul style="list-style-type: none"> <li>▪ Web configuration tool: Added Voltage to the Device Information section.</li> <li>▪ Web configuration tool: Added the Refresh button to always show the latest information that was last saved on the device in the web browser [instead of using a browser refresh which may change settings again].</li> </ul>

1.2.6346	MADRIX 3.6d	December 2016	<ul style="list-style-type: none"><li>▪ Sensor data: Devices can now report back if voltage is connected/disconnected over USB [Voltage USB].</li><li>▪ Sensor data: Devices can now report back which voltage is used for Power [Voltage Power].</li><li>▪ Sensor data: For STELLA models V1.1 and higher, devices can now report back the ambient temperature [Temperature].</li><li>▪ Fixed an issue that could make the device become unresponsive under certain circumstances when connecting, disconnecting, and calling up the website several times in a row.</li></ul>
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**//PART Q**

*MADRIX I/O*



## 17 MADRIX I/O

This topic includes:

- [Introduction](#)
- [MADRIX USB contact closure, MADRIX USB temperature, MADRIX USB light sensor](#)
- [MADRIX USB SMPTE](#)
- [Interruption-Free Operation](#)

### Introduction

MADRIX I/O is a product category for supplementary input and output devices.

External equipment, such as sensors, brings additional automation processes and interaction to any LED project using MADRIX.

The following accessories are included in this category:

- [MADRIX USB contact closure](#)
- [MADRIX USB light sensor](#)
- [MADRIX USB temperature](#)
- [MADRIX USB SMPTE](#)

### MADRIX USB contact closure, MADRIX USB temperature, MADRIX USB light sensor

#### **MADRIX USB contact closure**



- Registers if its internal circuit is either open or closed.
- Can be used as connector for a digital switch or button, for example.
- Is an input device.
- Can simply be connected to any USB 2.0 port.
  
- The recommended **Frame Time (ms)** is 500.
- Incoming data directly translates into DMX data in MADRIX.
- Data is sent to **DMX channel 1 - DMX channel 2** on your selected DMX universe.
  
- **Incoming DMX values on DMX channel 1** are 0 or 255 [Off or On].
- **Inverted incoming DMX values on DMX channel 2** are 255 or 0 [On or Off].

## MADRIX USB light sensor



- Can be used to measure the ambient light level.
- Is an input device.
- Can simply be connected to any USB 2.0 port.
  
- The recommended **Frame Time (ms)** is 500.
- Incoming data directly translates into DMX data in MADRIX.

- Data is sent to **DMX channel 1 - DMX channel 8** on your selected DMX universe.
- **DMX channel 1** represents the light level in percent. Valid values range from 0% to 100%.
- **DMX channel 2** represents the decimal place in percent. Valid values range from .0% to .99%.
- **DMX channel 3** represents the light level in DMX values. Valid values range from 0 to 255.
- **DMX channel 4** represents the decimal place in DMX values. Valid values range from 0 to 255.
- **DMX channel 5** represents the inverted light level in percent. Valid values range from 0% to 100%.
- **DMX channel 6** represents the inverted decimal place in percent. Valid values range from .0% to .99%.
- **DMX channel 7** represents the inverted light level in DMX values. Valid values range from 0 to 255.
- **DMX channel 8** represents the inverted decimal place in DMX values. Valid values range from 0 to 255.

## MADRIX USB temperature



- Can be used as temperature sensor.
- Is an input device.
- Can simply be connected to any USB 2.0 port.
- The recommended **Frame Time (ms)** is 1000.
- Incoming data directly translates into DMX data in MADRIX.
- Data is sent to **DMX channel 1 - DMX channel 10** on your selected DMX universe.
- **DMX channel 1** represents the temperature in degree Celsius. Valid values range from -20 °C to +80 °C.
- **DMX channel 2** represents the decimal place of degree Celsius. Valid values range from .0 to .99.

- **DMX channel 3** shows if the temperature values shown on DMX channel 1 are above zero [0] or below zero [255].
- DMX channel 4 is not used.
- **DMX channel 5** represents the temperature in degree Fahrenheit. Valid values range from -4 °F to +176 °F.
- **DMX channel 6** represents the temperature decimal place of degree Fahrenheit. Valid values range from .0 to .99.
- **DMX channel 7** shows if the temperature values shown on DMX channel 5 are above zero [0] or below zero [255].
- DMX channel 8 is not used.
- **DMX channel 9** represents the temperature in DMX values. Valid values range from 0 to 255.
- **DMX channel 10** represents the decimal place of DMX values. Valid values range from 0 to 255.

## Step-By-Step Configuration

- 1] Connect your device.
- 2] Enable drivers in MADRIX.
- 3] Enable your device.
- 4] Set up DMX Input.
- 5] Choose how to use incoming data.

### 1] Connect Your Device


- Connect your MADRIX I/O device to a free USB 2.0 port of your computer.
- Make sure that Windows recognizes the device. Windows will automatically install the drivers for the device.

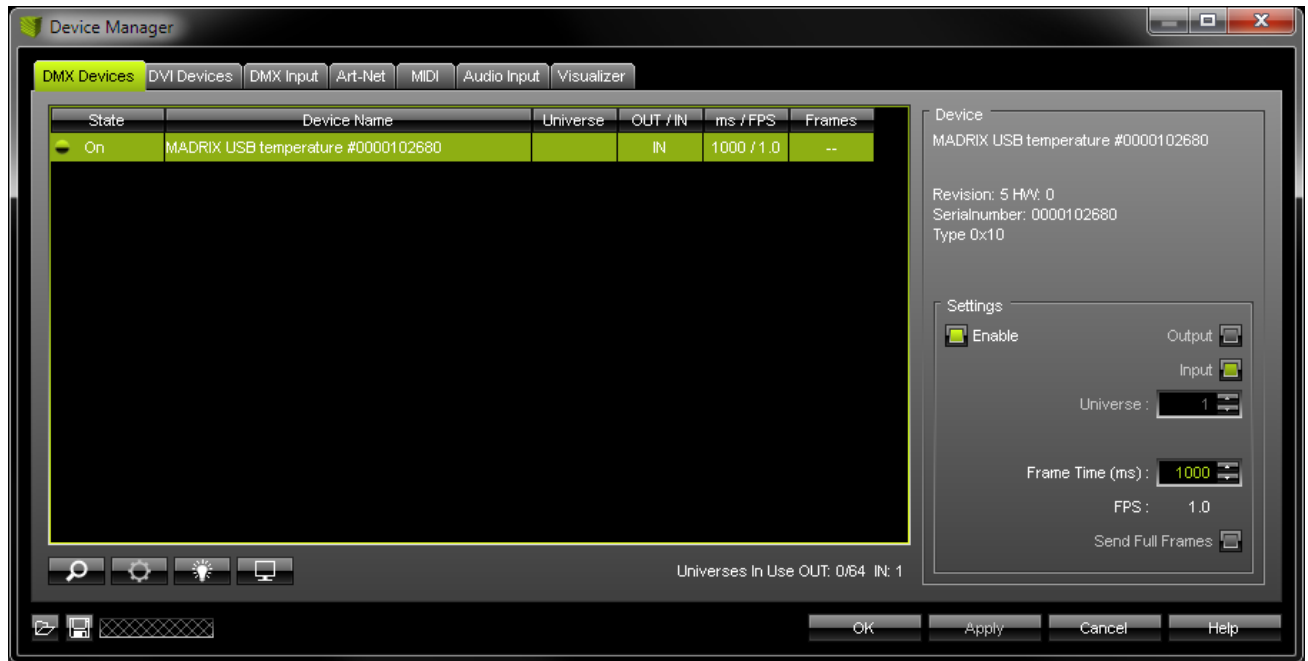
### 2] Enable Drivers In MADRIX

- In MADRIX, go to **Preferences > Options... > Devices USB**
- Activate **MADRIX I/O**
- Click **Apply** and **OK**



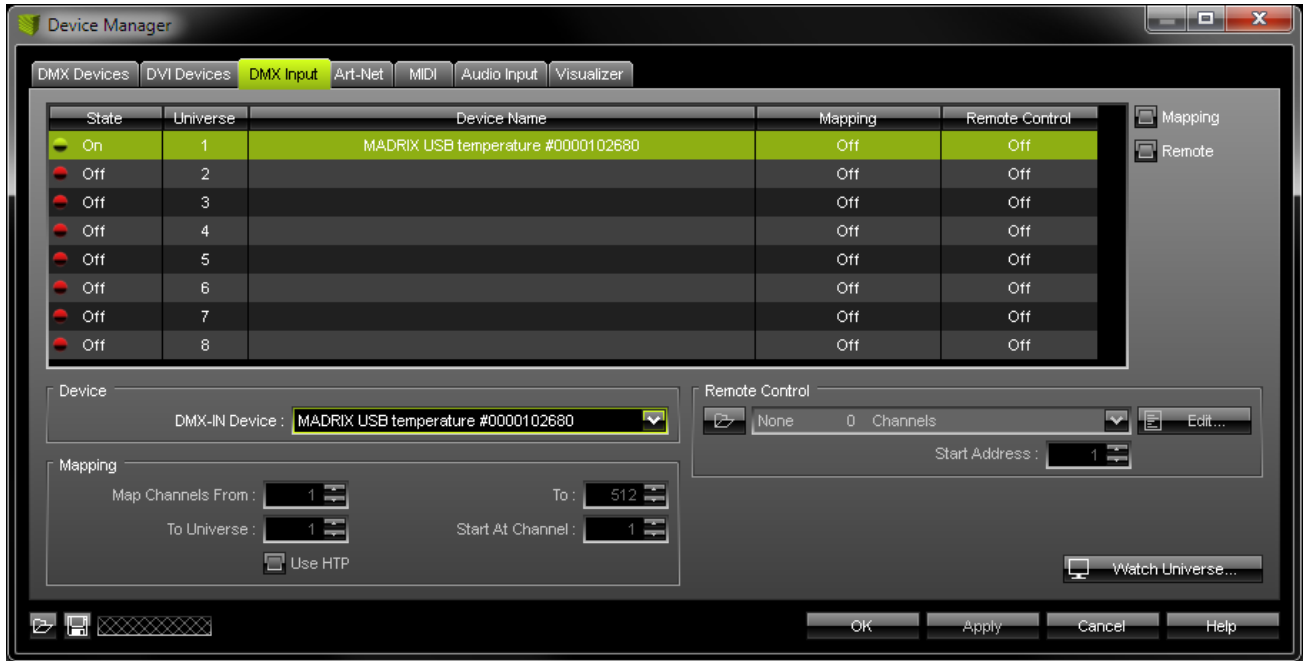
### 3] Enable Your Device

- Go to **Preferences > Device Manager... > DMX Devices**
- Click  if your device is not shown in the list.
- Select your device in the list and select **Enable** in the section **Settings**. Click **Apply**
  - Now, in the list the **State** will switch to **On** [indicated by green light].
- It is not recommended to change the **Frame Time (ms)** of your device. Instead, it is highly recommended to use the default settings. [Recommended settings are provided above.]



#### 4] Set Up DMX Input

- Go **Preferences > Device Manager... > DMX Input**
- Select one entry in the list [e.g., **Universe 1**] and go to the section **Device**. Choose your device under **DMX-IN Device**
- MADRIX will now receive data from your device.



### 5] Choose How To Use Incoming Data

Now, you have several options to choose from:

- A]** You can activate **Remote** and choose a protocol in the section **Remote Control**. This will allow you to control MADRIX remotely using your controller. Learn more »[DMX-IN And Art-Net Remote](#)
- B]** You can use incoming data in a Script or Macro. Learn more »[Macros And Scripts](#)
- C]** You can monitor incoming DMX data in the DMX Watcher. Select your device in the list and click **Watch Universe...** Learn more below.

Close the Device Manager with **OK**

### Monitoring Incoming DMX Data

To effectively work with incoming DMX data from your device, you can use the DMX Watcher to monitor incoming signals.

- Open the DMX Watcher as explained above or go to **Tools > DMX Watcher...**





- This input device allows you to effortlessly use SMPTE time code for time synchronization across devices.
- Data is received via the 3-pin, female XLR connector.
- The device can simply be connected to any USB 2.0 port.

## Step-By-Step Configuration

- 1]** Connect your device.
- 2]** Enable drivers in MADRIX.
- 3]** Use the Cue List.

### 1] Connect Your Device

- Connect your SMPTE time code source to the 3-pin, female XLR connector of MADRIX USB SMPTE.
- Make sure that your SMPTE time code source is sending data.
- Connect your MADRIX USB SMPTE to a free USB 2.0 port of your computer.
- Make sure that Windows recognizes the device. Windows will automatically install the drivers for the device.

### 2] Enable Drivers In MADRIX

- In MADRIX, go to **Preferences >Options... > Devices USB**
- Activate **MADRIX USB SMPTE**
- Click **Apply** and **OK**



### 3] Use The Cue List

The Cue List is the feature in MADRIX to work with Time Code.

- Go to **Window > Cue List...**
- Or press **F7**
- Or click **Programmer > Cue List...** on the user interface
- Or click **Cue List** on the user interface
  
- Select the Time Code source **SMPTE**



- Select the required **Time Code Format**

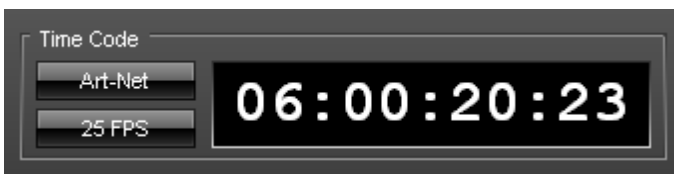


- MADRIX will automatically start receiving external Time Code.
- The Time Code format is **HH:MM:SS:FF** [hours:minutes:seconds:frames]

Example:

- 10 o'clock and 20 minutes, 30 seconds, and 10 frames will be shown as

**10:20:30:10**



- Configure the column **Time Code** for your Cue List entries.
- Add or edit more entries according to your requirements.
- Learn more »[Cue List](#)

## **Interruption-Free Operation**

To ensure interruption-free operation of the software and devices, please make sure to check the power-saving settings of Windows.

Learn more »[PC Power Management](#)



**//PART R**

*Tips And Tricks*

## 18 Tips And Tricks

This topic includes:

- [MADRIX KEY Serial Number](#)
- [Message Windows](#)
- [Tooltips](#)

### MADRIX KEY Serial Number

You can quickly retrieve the serial number for products that activate a MADRIX software license.



If you want to retrieve the serial number of your MADRIX product [copy and paste], follow these steps:

**1]** Go to **Help > About...**

[A new window will open.]

**2] Left Mouse Double-Click** - Quickly click twice with the left mouse button on the serial number in order to automatically select it.

**3] Right Mouse Click > Copy** - Click once on the right mouse button to call up the context menu and then choose **Copy**.

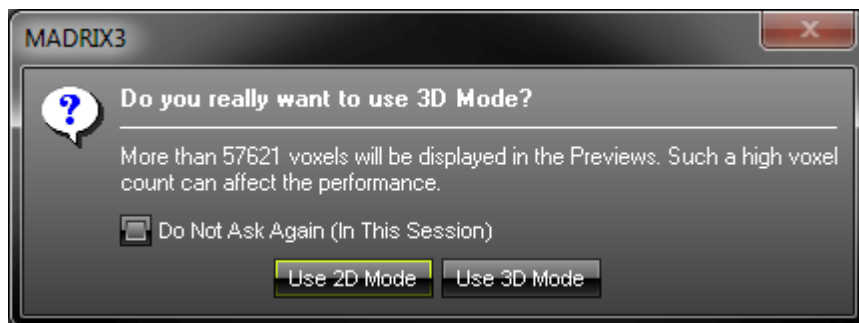
[Keyboard shortcut: **Ctrl+C**]

**4] Right Mouse Click > Paste** - Click once on the right mouse button to call up the context menu again and then choose **Paste** in order to insert the serial number into a separate document, for example.

[Keyboard shortcut: **Ctrl+V**]

## Message Windows

When working with MADRIX, you might see notifications and messages for your information and attention.



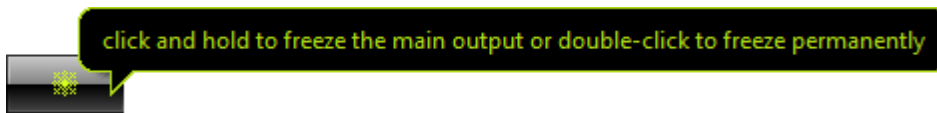
If you want to retrieve the content of such a message [copy and paste], you can do the following:

- **Ctrl+C** - Press this key combination on the keyboard in order to copy the text of the message to the clipboard.
- **Ctrl+V** - Pastes the copied text from the clipboard to any text processing software application which you may have opened [e.g., e-mail client, word processor, etc.]

## Tooltips

Most of the controls of the MADRIX user interface [e.g., buttons, text and input fields, sliders etc.] can show you details about the functionality of the control. A tooltip will be shown that includes more information.

- **Mouse Hover** - Use the mouse cursor to hover over a specific control; please do not click on the control. One second later, you will see a small window that includes the tooltip and as such more information for you about the control you are looking at.





**//PART S**  
*Imprint And Copyright*

## 19 Imprint And Copyright

This topic includes:

- [Company And Address](#)
- [Copyright](#)
- [Credits](#)
- [Third Parties](#)

### Company And Address



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### ASIO

- ASIO Interface Technology by Steinberg Media Technologies GmbH.

## Qt

### Included Libraries

MADRIX uses the following libraries of the Qt development framework. The libraries and their use are covered by GNU LGPL v.2.1.

- QtCore4.dll
- QtGui4.dll
- QtOpenGL4.dll
- QtXml4.dll
- QtSvg4.dll
- QtNetwork4.dll
  
- qgif4.dll [Qt Plugin DLL]
- qico4.dll [Qt Plugin DLL]
- qjpeg4.dll [Qt Plugin DLL]
- qmng4.dll [Qt Plugin DLL]
- qsvg4.dll [Qt Plugin DLL]
- qtiff4.dll [Qt Plugin DLL]

The complete, corresponding, and machine-readable source code of these files, incl. the license text, is available:

- On the MADRIX product CD, in the subfolder ThirdParty. For example, D:\ThirdParty
- Online at <http://www.madrix.com/en/home/download/madrix-software.html>

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Version 2.1, February 1999

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## OpenSceneGraph

### Included Libraries

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- ot12-OpenThreads.dll
- osg80-osg.dll
- osg80-osgUtil.dll
- osg80-osgViewer.dll
- osg80-osgQt.dll
- osg80-osgGA.dll
- osg80-osgDB.dll
- osg80-osgFX.dll
- osg80-osgText.dll

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- On the MADRIX product CD, in the subfolder ThirdParty. For example, D:\ThirdParty
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## WinPcap

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## Easing Equations

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