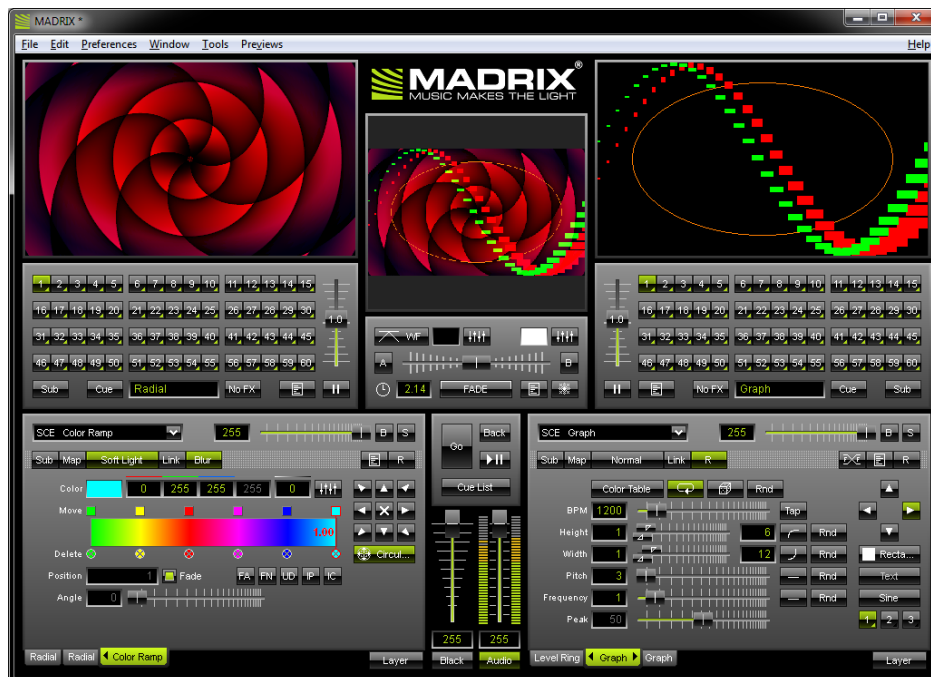




MADRIX 2 Help and Manual

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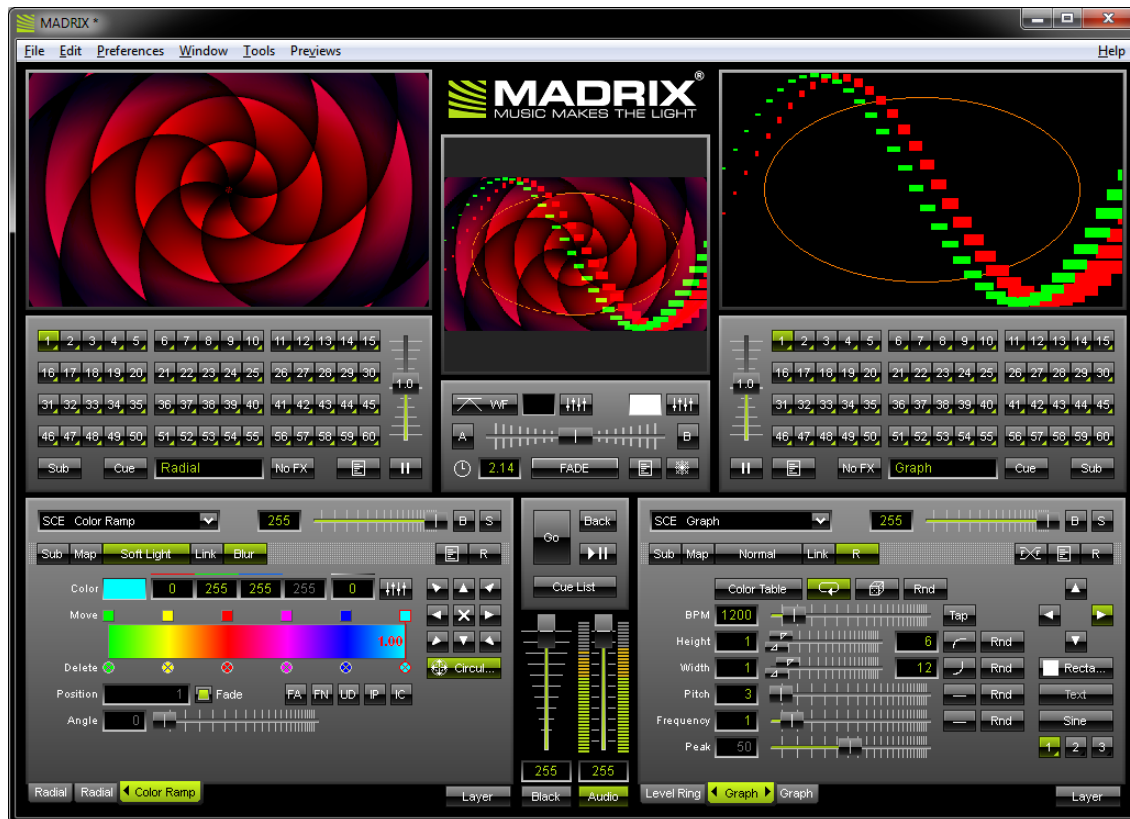
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Part



1 Getting Started

Introduction



Welcome to MADRIX - the professional LED lighting control software solution for architecture and entertainment environments including clubs, nightclubs, stages, art installations, exhibition stands, interior and building illumination.

This manual is designed both as a course in using MADRIX and as an ongoing reference.

How To Use This Help And Manual

You can always call up the MADRIX Help and Manual by pressing **"F1"** while working with the application.

LINKS are displayed in orange. Simply click through and you will be taken to the according chapter within this user guide or an external website will be launched.

MADRIX and this user guide are only available in English.

1.1 What Is DMX?

About DMX

DMX512, often abridged to DMX (Digital MultipleX), is a communication protocol used mainly to control stage lighting. It is a type of the RS-485 architecture. Developed by the Engineering Commission of USITT, the standard took off in 1986 with subsequent revisions in 1990 leading to USITT DMX512/1990. ESTA took control of the standard in 1998 and started an additional revision process. The new standard, officially known as "Entertainment Technology — USITT DMX512-A — Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories", was approved by ANSI in November, 2004.

DMX was originally intended as a replacement for 0-10V lighting control for usage in linking controllers and dimmers of different manufacturers; a protocol to be used as a last choice after trying more proprietary methods. However, it soon became the primary method for not only linking controllers and dimmers, but also linking more advanced fixtures and special effects devices, such as fog machines and moving lights. DMX512 is unidirectional and does not allow for a response. Therefore, it must not be used for any type of utilization involving one's safety, such as controlling pyrotechnics. MIDI is sometimes used for this very task.

A DMX512 controller is connected to fixtures or devices in a so-called daisy-chain linkage. Each device has a DMX-IN and usually a DMX-OUT connector-sometimes labeled as DMX-Thru. The DMX-OUT port of the controller is linked via a DMX512 cable to the DMX-IN of the first fixture. A second cable then links the DMX-OUT of the first fixture to the next device, and so forth. In general, the last DMX-OUT connector, which is not connected, should have a DMX512 terminating plug attached to it. This simply is a 120Ω resistor joining together pin 2 and 3 of the connector. Many modern devices neglect this requirement because they are capable of auto-terminating the link.

The connectors themselves should be five-pin XLRs. Nevertheless, only three pins of the five are used. Many manufacturers use three-pin XLR connectors, in violation of the Standard. Additionally, with the approval of the DMX512-A standard Cat5-cabling is also an acceptable wiring topology if used in a permanent installation.

Only cables designed for utilization with DMX512 should be used. Testing by ESTA has shown that CAT5 cables may be used without any compromise of signal quality. However, due to the common usage of three-pin XLR connectors, microphone cables are often used for DMX512 purposes and this is certainly not a recommended practice.

Data Plus (pin 3) and Data Minus (pin 2) are reversed in comparison to sound cables. Hence, the signal travels in the opposite direction to the pins (female is out, male is in). The pin layout of a female connector is the following:

Pin Layout



#1 Ground

#2 Data -

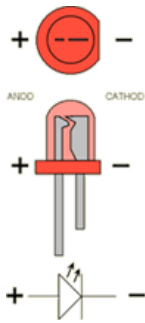
#3 Data +

#4 Spare (or Data2 -)

#5 Spare (or Data2 +)

1.2 What Are LEDs?

About LEDs



A light emitting diode (LED in short) is an electronic semiconductor unit. If a voltage is applied to the diode in a flow pattern, it emits light.

With the help of specific choices of semiconductor materials and doping, a large variety of light and color shades can be produced. Most importantly, the spectral range and the efficiency of the diodes can be influenced.

Due to an increased efficiency and the development of white LEDs, the area of light emitting diodes varies widely. Nowadays, the use of LED technology is not restricted to the illumination of rooms and buildings only, but has many more fields of application.

Economic Advantages Of LEDs

- High degree of effectiveness combined with a low energy consumption
- Nominal heat development
- Almost unlimited life span of lamps
- Minimized cost compared to common light systems

Design Advantages Of LEDs

- Small design and shape
- Size and format of common lights
- Dimming is possible without change of light temperature
- Color of light is adjustable (if differently colored LEDs are used)

1.3 System Requirements

Minimum System Requirements

At least a 2.0 GHz dual-core processor, 1024 MB RAM, 500 MB free harddisk space, screen resolution of 1280 x 768, and at least DirectX 9.0c. One free USB port for the MADRIX KEY (USB Software Protection Key). A sound card is optional (required for Sound2Light and Music2Light).

- [System Requirements for MADRIX NEO](#)
- [System Requirements for MADRIX PLEXUS](#)

Recommended Requirements For Larger Installations

Dual-core or quad-core processor with 3.0 GHz, 4096 MB RAM, 1 GB free harddisk space, screen resolution of 1280 x 1024, and at least DirectX 9.0c. One free USB port for the MADRIX KEY (USB Software Protection Key). A sound card is optional (required for Sound2Light and Music2Light).

Optimal Configuration

Optimal computer specifications may vary greatly and depend mainly on these factors:

- Pixel resolution
- Type of output
- Effects in use
- Number of layers in use

The more pixels, effects, and layers are used, the more computer performance is required. The MADRIX demo version can help to test the software prior to purchase.

Supported Operating Systems

Microsoft Windows XP (SP2), Windows Vista, and Windows 7.

Compatible with 32 bit and 64 bit.

Windows XP requires Service Pack 2 (SP2).



1.4 The MADRIX KEY

USB Software Protection Dongle



You can download MADRIX at <http://www.madrix.com> for free. But a full license requires **a special USB software protection key**, which is used for the software protection. It is a copy and license management system, which is encoded based on hardware. Without this MADRIX KEY, the demo mode will be activated.

In demo mode MADRIX sends output data, such as DMX512, Art-Net, DVI, KiNet, T9, Insta and ROBE protocol data, even without the MADRIX KEY (USB dongle).

The MADRIX demo version sends data for 1 hour, always interrupting transmission after one minute for a short duration.

When you purchase the software, you will receive your personal MADRIX USB dongle. **The MADRIX USB software protection key fully activates data output.**

Several MADRIX KEYS can be combined and used with one single computer. The product features will add up and their combined possibilities will be offered. Often, this will mean that the available DMX output increases. For example, MADRIX NEO and MADRIX KEY start used together would offer 2x DMX512 output.

But a MADRIX KEY is not bound to one computer and can be used with each of your computers.

**Please always connect the MADRIX KEY before you start the MADRIX software.
If you connect the MADRIX KEY during the runtime, please restart MADRIX.**

Please do not connect the MADRIX KEY to your computer before installing the MADRIX software.

Which MADRIX Version Do I Own?

You can check your MADRIX version and the MADRIX KEY serial number:
Menu "Help" -> "About...".



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

MADRIX NEO And MADRIX PLEXUS

Regarding the MADRIX NEO or the MADRIX PLEXUS, the software protection is already included in the USB DMX512 interfaces.

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

Why Is Software Protection Necessary?

This software is protected against piracy via legal, technical measures. The **MADRIX USB software protection key** offers the highest level of security of any software protection item (**dongle**) owing to **genuine, hardware-based encryption**. **Thank you for your understanding!**

Upgrades

MADRIX, and therefore the MADRIX KEY, comes in several versions:

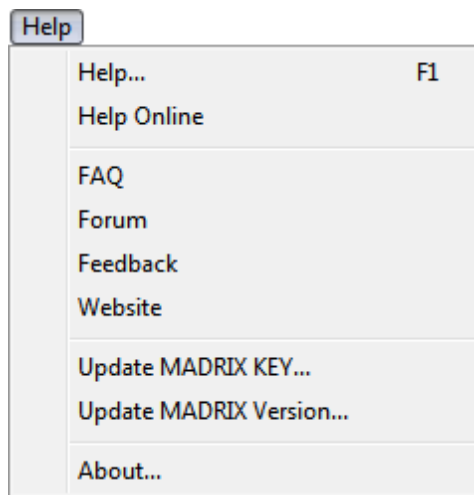
MADRIX start, dvi start, basic, dvi, professional, and ultimate.

MADRIX start, dvi start, basic, dvi, and professional may be upgraded at any time due to the software protection dongle. The MADRIX KEY simply needs to be updated. Upgrades are possible at any time. Please contact your MADRIX dealer/supplier if you would like to upgrade your MADRIX version.

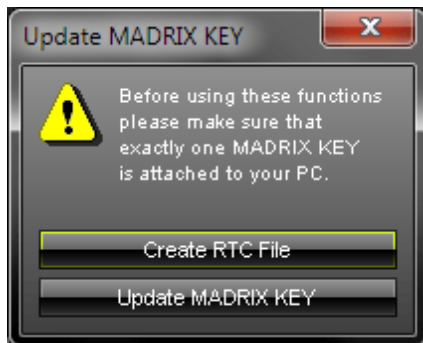
Step By Step

Upgrading your MADRIX KEY is now possible **within** MADRIX.

Please navigate to the **Help menu** and select **"Update MADRIX KEY"**.



A new dialog will open.



Before using these functions please make sure that exactly one MADRIX KEY is connected to your PC.

- 1)** Use the button **"Create RTC File"** in order to create a new file that needs to be sent in (by e-mail).
- 2)** After receiving your new RTU file from your dealer, press **"Update MADRIX KEY"** in order to start the upgrade procedure. Go ahead by selecting the new RTU file you received.

This is the whole procedure in short:

1. Create the RTC file.
2. Send the file to your dealer (by e-mail).
3. Receive a new RTU file from your dealer (by e-mail).
4. Update your MADRIX KEY.

1.5 Installation Of MADRIX

Important Notes

(About Purchased Products, Demo Version, Updates)

Please note that the MADRIX software can be downloaded from 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 PC/notebook. For more details, please read the chapter [The MADRIX KEY](#).

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.

Downloading The Software Online

After downloading the **MADRIX_Full_Install.exe**, please double-click 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.

MADRIX Version Update



MADRIX can automatically search for new software versions. Enable this setting in the **Start Options**. Or check for updates manually using the **"Help" menu** ("Help" -> "Update MADRIX Version...").

Choose "Skip Update" if you would like to skip a version and avoid further automatic notifications for this update.

Setup Process

First, please make sure to:

1. Log into Windows as "Admin" (administrator).
2. Let the computer process the setup. This may take some minutes depending on the speed of your computer.
3. Allow Windows to install drivers. Windows may ask for your permission to install drivers and expects your input. Please search for such pop-up windows.

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

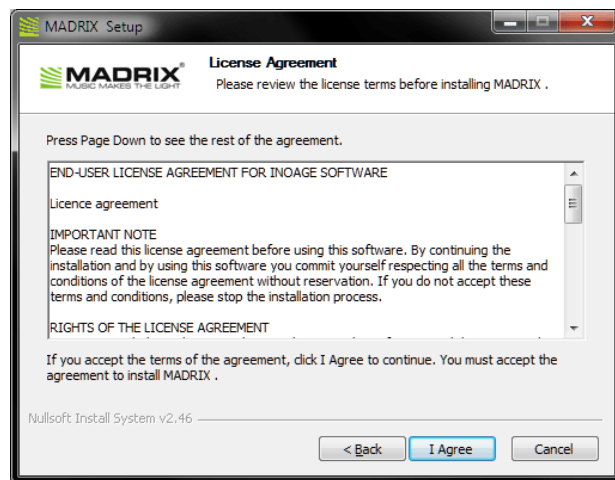


Step 1)

You can always quit the setup by choosing **"Cancel"**.

Click **"Back"** in order to return to a previous step during the setup process.

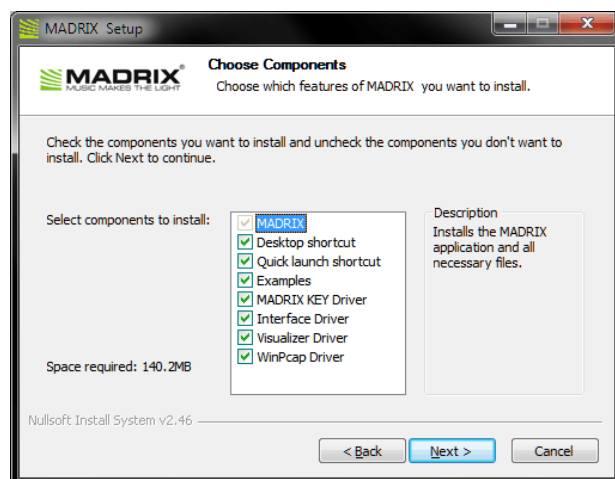
Now, please click **"Next"** to start the installation.



Step 2)

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 3)

This window offers the chance to select which components and which drivers you want to install. A description is given for every item.

It is always required to install **"MADRIX"**. This component includes the drivers for the MADRIX NEO and PLEXUS interfaces.

Select **"Desktop shortcut"** if you wish to create a shortcut to the MADRIX software on your Windows desktop.

Select **"Quick launch shortcut"** if you wish to create a shortcut to the MADRIX software in your Windows taskbar.

Select **"Examples"** if you wish to install examples including setups, effects, scripts, etc. (For more info, see the chapter [Examples](#)).

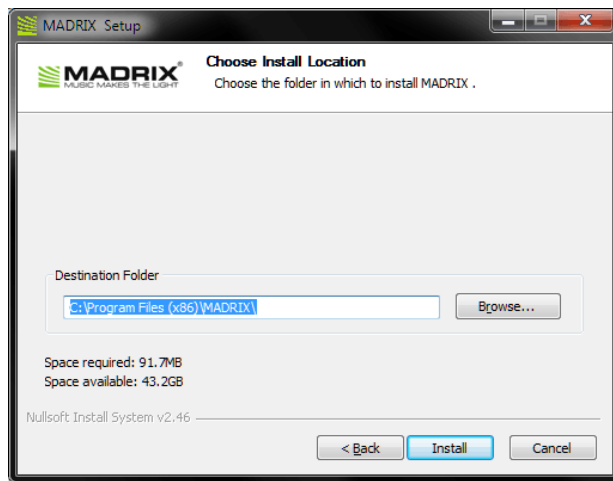
Select **"MADRIX KEY Driver"** if you wish to use MADRIX start, dvi start, basic, dvi, professional, or ultimate. This installs the driver for the USB software protection dongle.

Select **"Interface Driver"** 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.

Select **"Visualizer Driver"** if you wish to install the WYSIWYG driver in order to use the Visualizer software WYSIWYG together with MADRIX. »[WYSIWYG Visualizer](#)

Select **"WinPcap Driver"** if you wish to use the EuroLite T9 or ColourSmart Link protocol.

Click **"Next"** after choosing the components.

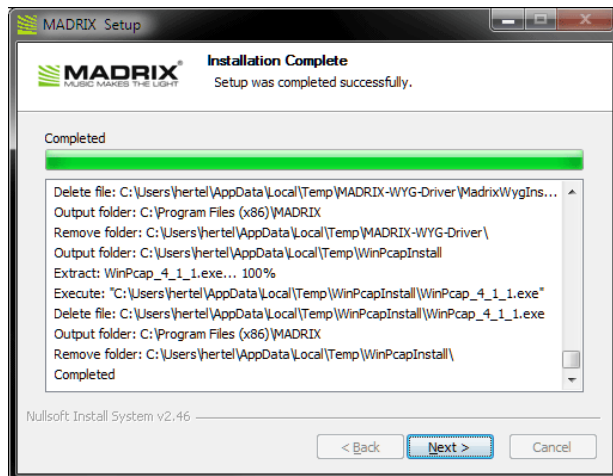


Step 4)

Afterwards, please choose an installation directory on your hard disk where the software will be installed. A standard destination folder will automatically be provided by the setup.

Click "**Browse**" to change the folder.

Then, click "**Install**" to start the installation process.



Step 5)

When the setup displays "Installation Complete", please click "**Next**".



Step 6)

If you do not wish to start the software now, please deselect "**Run MADRIX**".

Click "**Finish**" to quit the setup.

Using A MADRIX KEY Instead Of MADRIX NEO Or MADRIX PLEXUS

The Quick Start Guides describe which software elements should be installed when you wish to use the MADRIX NEO or MADRIX PLEXUS 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 a MADRIX interface, this software component is not necessary. Other components may be necessary according to your requirements. For more details, please [see above](#).

1.6 Do I Need Audio Input?

Using Audio Input



A sound card is a computer expansion card that can input and output audio signals controlled by computer programs. Normally, a sound card provides the audio component for multimedia applications and is used for music composition, video or audio editing, presentation/education, and entertainment (games). Many computers have an integrated sound card, while others need these expansion cards to be installed if audio capability is desired.

MADRIX works with and without an audio signal.

[Static Color effects \(SCE\)](#) are working without an audio signal.

Similarly, MADRIX offers [Sound2Light \(S2L\)](#) and [Music2Light \(M2L\)](#) effects. Both require an audio signal in order to work!

You can use audio sources, such as Winamp®, Windows Media Player®, Apple iTunes®, Apple QuickTime Player®, Real Player®, Ultramixer®, etc. Audio input for sound cards, e.g. microphone or Line-IN input, is supported as well.

Apart from that, you can also play any music from your CD-player, DVD-player, MP3-player, cassette recorder, DAT-player, radio, etc. Please use the Line-IN port of your sound card in this instance.

Why A Professional Sound Card?

We advise to use a professional/semi-professional sound card to obtain best performance of the audio analysis.

Why ASIO?

Sound cards that provide an ASIO driver can deliver excellent results. The MADRIX audio analysis will be very fast and precise. Sound2Light and Music2Light effects will look better. It is highly recommended using a sound card with native ASIO support.

MADRIX also natively supports the Windows Audio Session API (WASAPI) which delivers very good results under Windows Vista and Windows 7, even without ASIO.

1.7 Audio Input Configuration & ASIO

Introduction

MADRIX offers incredible Sound2Light and Music2Light effects. The music is being analyzed after tone theoretical parameters. MADRIX analyzes the height of tones, the volume, single tones, intervals, keys, and tonalities. Audio sources may be external signals (e.g. Line-IN, Mic-IN), as well as internal audio signals played with the help of the PC.

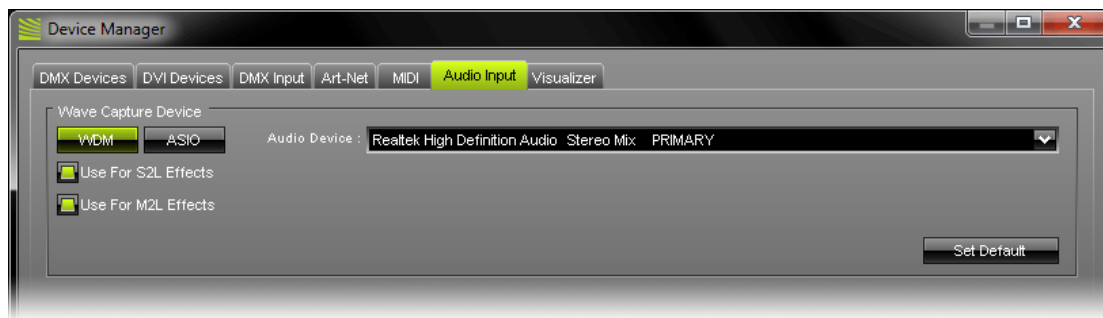
The general case is that MADRIX automatically finds a primary audio device and is able to work properly right from the first start.

So, basically you do not need to configure it. But if audio input does not work or if you want to configure ASIO, please read the sections below.

- How To Set Up Audio Input (Without ASIO)
- How To Set Up ASIO

How To Set Up Audio Input (Without ASIO)

Please check the audio configuration in the **"Audio Input" tab**. Please go to **"Preferences"** -> **"Device Manager"** -> **"Audio Input"** or press **"F4"** and then select the tab.



This button is activated by default and enables the standard Windows audio drivers.

Furthermore, MADRIX allows you to select a particular **"Audio Device"**. The software scans your system and the Windows Audio Mixer Control to capture devices available for audio input. That means you can properly assign your Line-IN, microphone, or other specific devices in this menu. Just select the device you want to analyze from the drop-down list. Labels vary according to manufacturers and sound cards but often include "CD-Player", "Microphone", "Wave", etc. "Stereomix" is the accumulation of all channels and often is used as default.

You may select the **"Frame Time"** according to your requirements as well. The standard value of 20 ms (50 FPS) should be sufficient for a normal user.

If problems occur, simply use the button **"Set Default"** to restore the default settings. Then, press **"Apply"**.

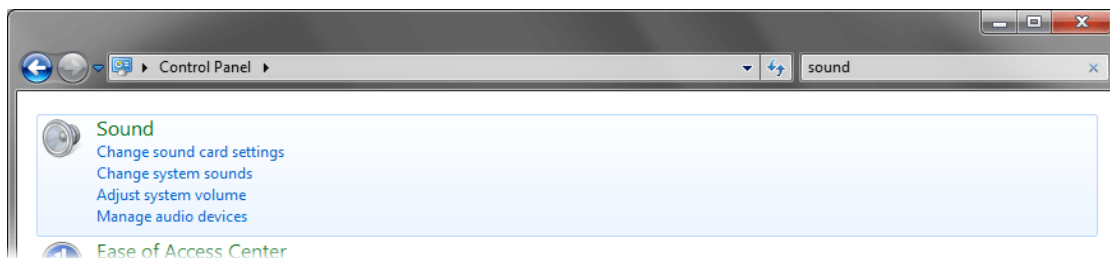
You can also choose if the audio input is used for the **S2L - Sound2Light Effects** and **M2L - Music2Light Effects** implemented in MADRIX. Both options for this, **"Use For S2L Effects"** and **"Use For M2L Effects"** are activated by default as this is highly recommended.

How To Set Up Audio Using Windows Vista & Windows 7

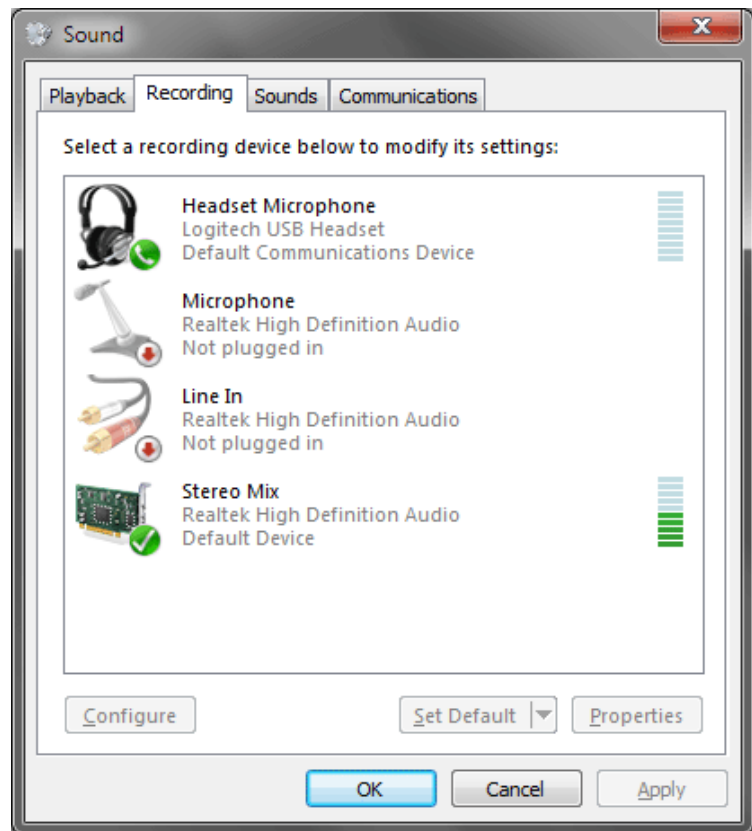


If MADRIX should analyze music from your Windows Media Player, Winamp, or others, you have to define the proper audio source in the Windows control panel first.

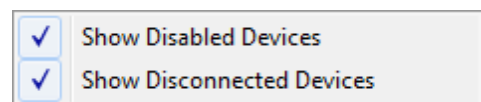
Please close all running applications. Afterwards, navigate to the windows control panel. Search for the entry called **"Sound"** and open it. Depending on the operating system, the entries described below may have been named differently.



Now you will see a new window with your hardware audio devices. Choose **"Recording"**. Next, right-click inside this window to open the context menu.

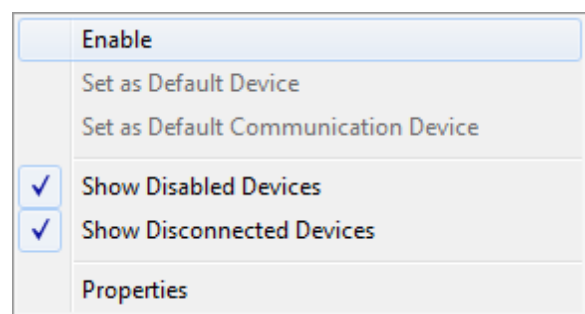


Select **"Show Disabled Devices"** in the context menu (right mouse click).



For Line In please also select **"Show Disconnected Devices"** in the context menu (right mouse click).

Please activate the device **"Stereo Mix"** using a right click and by selecting **"Enable"**. Afterwards, you will need to click **"Set as Default Device"** in the context menu.

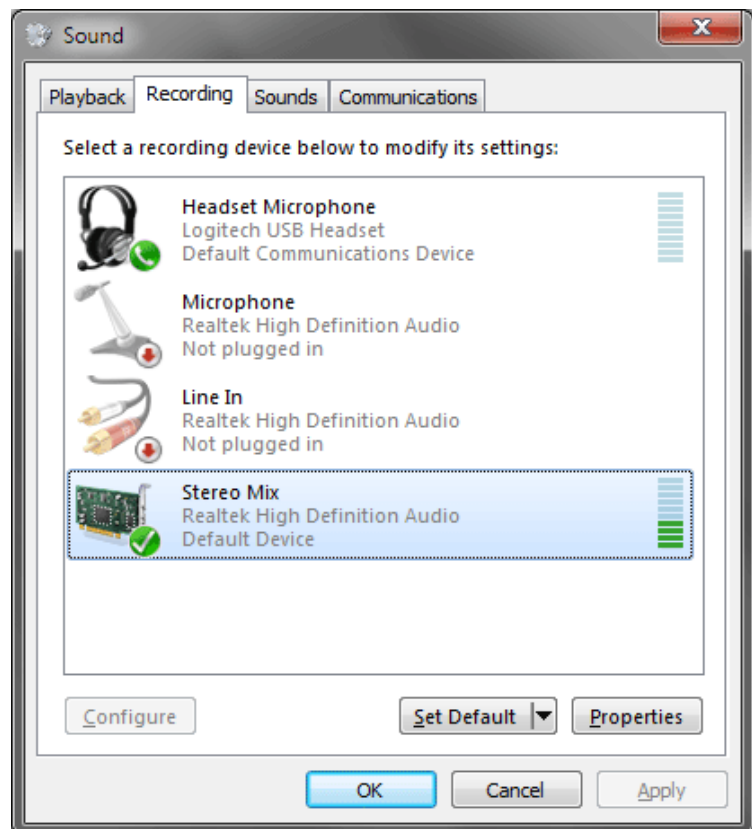


You may have to **plug in a jack** into Line In before it gets activated in Windows.

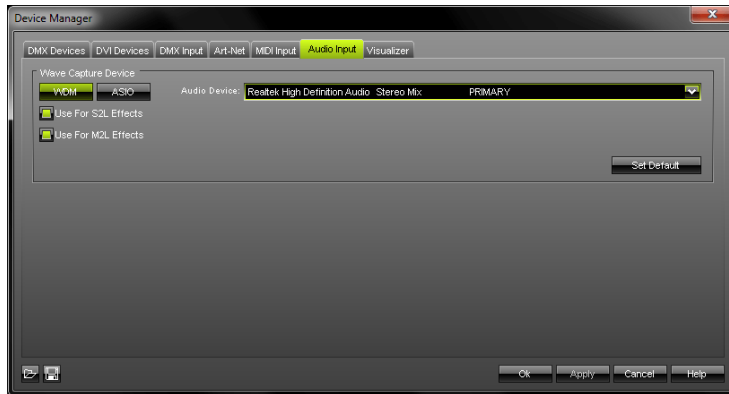
"Enable" it if required.

Finally, you will have an activated **"Stereo Mix"** audio device set as recording source. MADRIX can now analyze your music from software applications, like Windows Media Player or Winamp.

Press **"OK"**.



Since MADRIX 2.10, the native Windows WASAPI interface is implemented in MADRIX. Due to the implementation, audio capturing is done faster and more precisely in Windows Vista and Windows 7. If you are using one of these operating systems, the **"Frame Time"** will not be visible or adjustable. It is being set automatically by MADRIX.



In addition, please make sure that the audio configuration in MADRIX is configured properly. Please see the description above ([How To Set Up Audio Input](#)).

How To Set Up ASIO

Introduction



ASIO (Audio Stream Input/Output) is a widely known audio standard. ASIO is a registered trademark of Steinberg Media Technologies GmbH. Above all, the standard provides low latency, a feature often requested by professionals. Using ASIO the MADRIX audio analysis will be faster and more precise.

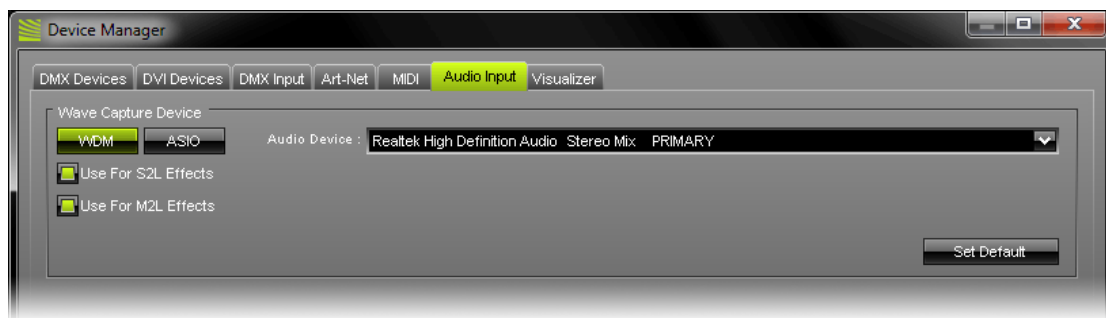
Important Notes

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. Please use USB 2.0.

Configuration

Please go to **"Preferences" -> "Device Manager" -> "Audio Input"** or press **"F4"** and select the tab.



Activate the **"ASIO"** button to activate the ASIO sound drivers. The audio configuration dialog will change.



You can choose if the audio input is used for the **S2L - Sound2Light Effects** and **M2L - Music2Light Effects**. This is highly recommended. Therefore, both options for this, **"Use For S2L Effects"** and **"Use For M2L Effects"** are activated by default.

In the next step, select your interface or sound card in the drop-down list called **"Audio Device"**. Afterwards, please select the appropriate device for the left audio channel **"L"** as well as the right audio channel **"R"**. You may select any channel you want. If you wish, it is also possible to select the same channel for left and right. If you are seeing the message **"not connected or in use"** (like shown in the picture), please connect your ASIO device and/or make sure to select a channel for **"L"** and **"R"**. Please press **"Apply"** after changing the settings.



You can configure your ASIO device by pressing the **"Configuration"** button. The ASIO drivers that come with your interface will be launched. Please make sure that your ASIO hardware is connected. Or else, it is possible that no configuration dialog will be launched.

In this configuration dialog you can set various settings. The music analysis will be more precise if the latency / amount of samples is as low as possible. Sometimes, 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**.

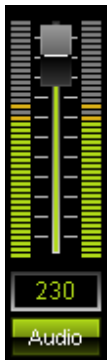
If you are encountering problems, please change the latency settings. For example, effects might freeze or single frequencies might over modulate. A higher latency can solve the problem.

1.8 Using The Audio Analysis

Real-Time Audio Analysis For Synchronized Effects

With a sound card and the unique **Music2Light** real-time effects, MADRIX will deliver a light show that is 100% synchronic to the music. MADRIX analyzes audio signals in real time and plays LIVE shows. In contrast to lighting consoles and other software solutions, the MADRIX light show runs automatically and synchronously to the music. You can use the real-time audio analysis with any audio source, e.g. audio-CD, record player, tape, MP3, WMA, microphone, etc.

Getting Started



If you want to use the **Sound2Light (S2L)** or **Music2Light (M2L)** effects, the audio analysis needs to be activated. MADRIX automatically activates the **"Audio"** button, and hence the audio analysis, if you select a S2L or M2L effect.

An activated "Audio" button in green color indicates that the MADRIX audio analysis is running. Otherwise the audio analysis is stopped and not activated. If you want to use only static effects (e.g. SCE Color, SCE Color Ramp, ...), you do not have to start the audio analysis.

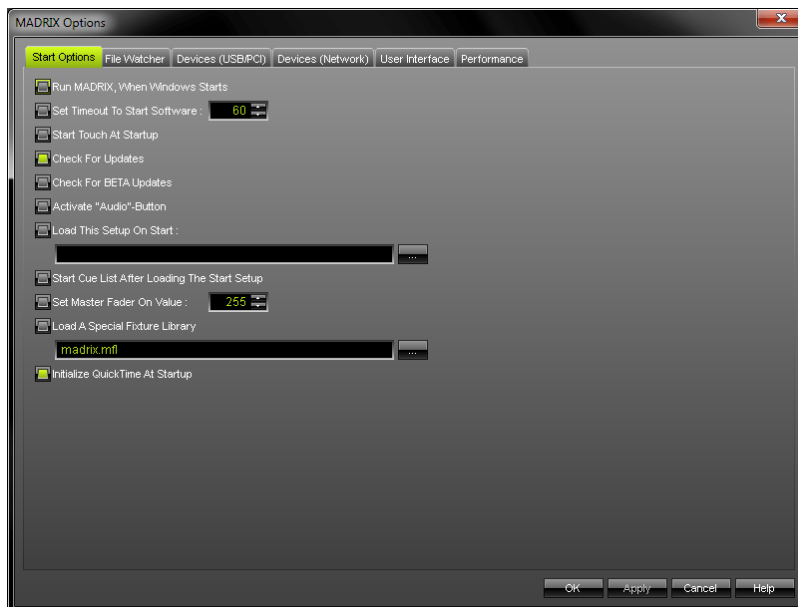
Next, please adjust/control the volume with the volume fader. The visualization shows the input level of your music. Just move the fader upwards if you want a higher audio input level. Move the fader downwards if you want a lower audio input level.

To achieve maximum results with the MADRIX audio analysis, an optimal volume of the music is required. No matter which music source you are using, please always set up the audio level beforehand. Keep in mind the right order of the set-up: Please set up the level with the Windows Mixer first and then proceed with MADRIX.

You will get the **best results** if the maximum level of the audio signal is in the green to orange area. You will only get a perfect output if the red LEDs at the top light up at no time. If the input signal is too low, it affects the quality of the analysis as well.

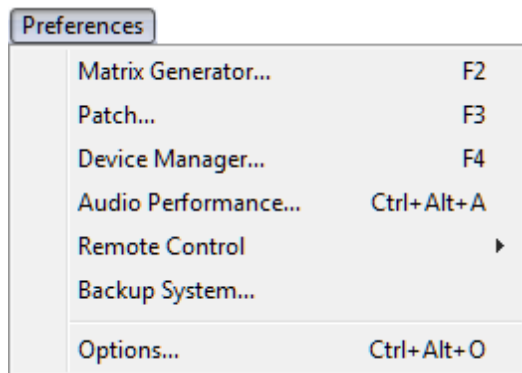
If you do not see any output in the previews while using a reliable audio signal and having activated the audio analysis, the volume might be too low. If you do not have any level at all, please check [Audio Input Configuration & ASIO](#).

The Audio button can be activated every time you start MADRIX if you select this option in the [Start Options](#). The entry is called **"Activate 'Audio'-button"**. To access options of MADRIX, please press **"Ctrl+Alt+O"** or go to the menu **"Preferences" -> "Options"**.

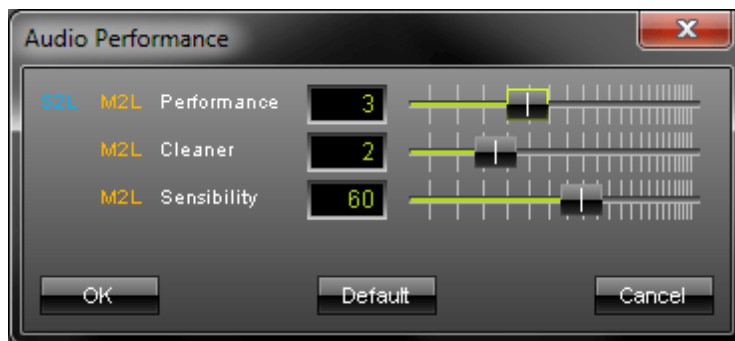


Performance Adjustments

The speed of your computer, audio performance settings, and the level of the audio signal are very important for perfect results of the music analysis. Fine tuning of your audio and computer performance can be arranged very simply. Please click at the entry "**Audio Performance**" (or "Ctrl+Alt+A") inside the menu "**Preferences**".



A new window will open and you will be able to adjust parameters for the music analysis.



If you are using a computer with **less than 1GHz**, please move the fader to the far left. Computers **with 2.4GHz or higher** can manage higher values; you can pull the fader to the far right. The numerical values that you can enter in the input field can range from 1 to 6, or 0 to 7.

If you set the **"S2L M2L Performance"** to 6, you will reach a maximum precision of the music analysis. Because of the high precision, a small delay in displaying the effects is normal. You might be able to see a delay when a musical tone is played but displayed by MADRIX a bit later. If you think that the delay is too big, simply move the fader one step to the left.

The **"M2L Cleaner"** allows to use a cleaner music analysis for M2L effects. Small numerical numbers correspond to a slight cleaning. With that also wrong results in the audio analysis are shown. Move the fader to the right or put in high numerical values and you will see clean results.

"M2L Sensibility" controls the sensitivity of the music analysis for M2L effects. It works like an audio filter. The more you move the fader to the right, the less will be displayed. The sensitivity will increase and only the most important analytical data will be used. The numerical values for Sensibility have to be in the area from 0 – 100.

A fast computer will deliver better results than a slow computer regarding the audio analysis. Please pay attention to the system requirements of MADRIX and to the processor load while running the software. A sound card with ASIO is a big improvement as well.

Please note: With some effects in MADRIX, and with some types of music as well, it is sometimes useful to move the fader a little bit to the left, even if your PC is fast enough.

1.9 Supported Sound Cards

About The MADRIX Audio Analysis



The selected audio signal is being scanned and analyzed using functions of Microsoft DirectX®. If your sound card does not process and deliver requested data fast enough, problems with the sound analysis are likely to occur.

If you are having problems with the audio analysis, we suggest:

- Check if you have clicked the "Audio" button, and if the "Audio" button is activated.
- Check the Windows recording settings using the mixer control for your recording device.
- Check the installation of drivers of your sound card as well as the installation of the Microsoft DirectX®-version.
- Buy one of the latest sound cards with high quality.

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

- Start the MADRIX demo version.
- Activate the **sound analysis** via the Audio button while playing some music on your PC, for example.
- Open the **Task Watcher** (Menu "**Tools**" -> "**Task Watcher**" or press "**F5**").
- Check the entries "**Audio Capture Frames (Is/Tar.)**". The left side shows the current value, while the right box shows the target value.

1.10 PC Power Management

Overview

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.

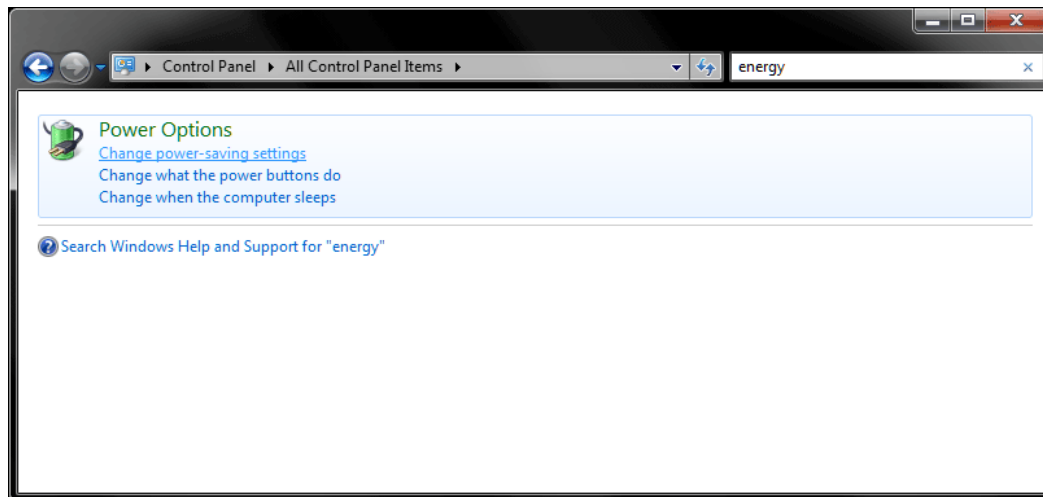
But certain problems might occur nevertheless. If after a while your MADRIX KEY cannot be identified by the software anymore or if your interfaces are suddenly deactivated, we advise:

If such problems occur, we strongly recommend to **deactivate all power options in Windows® in order to guaranty an interruption-free operation of MADRIX.**

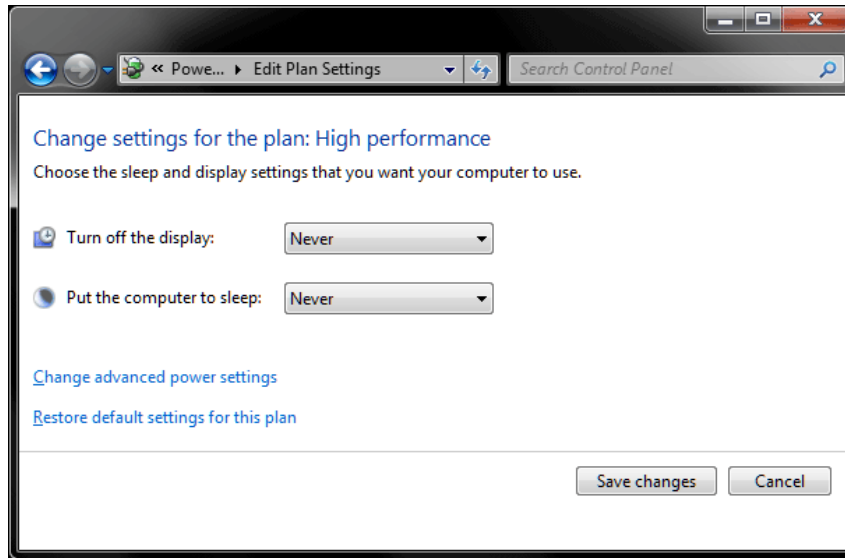
How To Change Power Settings

You can access the **"Power Options"** of Windows® in the **"Control Panel"**.

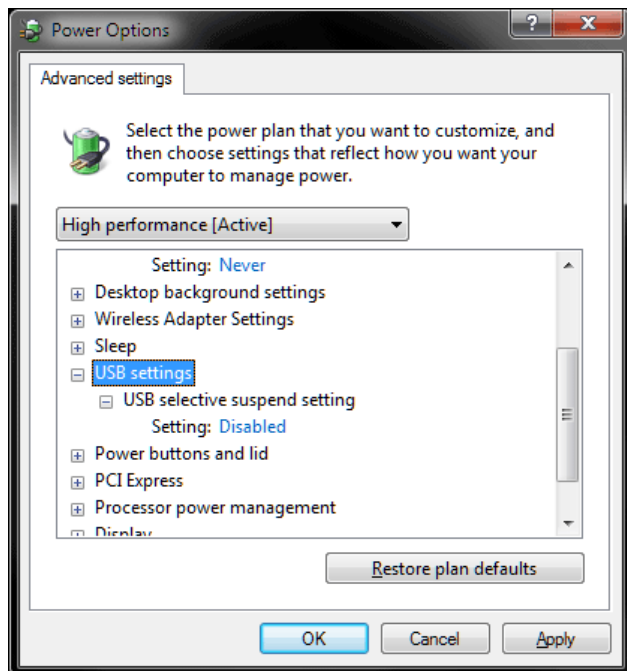
Navigate to **"Change power-saving settings"**.



Make sure to click **"Change advanced power settings"**.



Especially the **"USB settings"** are important. Disable the suspend settings.



And do not forget to change also other settings that might interrupt the operation.

Notebooks /Laptops

Make sure to change the power plan to **High performance** in the Power Options of Windows when you are using portable computers, such as laptops, notebooks, or netbooks.

1.11 Export From MADRIX 2.X To MADRIX 3.X

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:

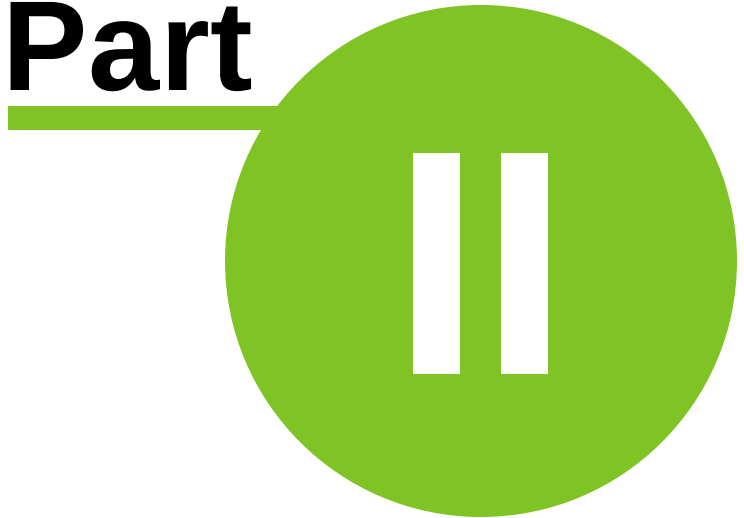
- Install MADRIX 2.14h.
- Start MADRIX 2.
- Load your the Setup File of the file type *.ms2 you wish to convert. Go to **"File" -> "Open Setup..."**.
- Go to **"File" -> "Export" -> "Export for MADRX3..." -> "Setup..."**.
- A new window opens. Simply enter a name for the file and click **"Save"**.
- 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 into a MADRIX 3 Fixture Library:

- Install MADRIX 2.14h.
- Start the MADRIX 2 Fixture Editor.
- Load the fixture library of the file type *.mfl you wish to convert. In the Fixture Editor, go to **"File" -> "Open Library..."**.
- In the MADRIX 2 Fixture Editor, go to **"File" -> "Export Library for MADRX3..."**.
- A new window opens. Simply enter a name for the file and click **"Save"**.
- You can now load this *.mflx file with the MADRIX 3 Fixture Editor or use it for MADRIX and load it in the Startup Options, for example.

Part



2 Graphical User Interface (GUI)

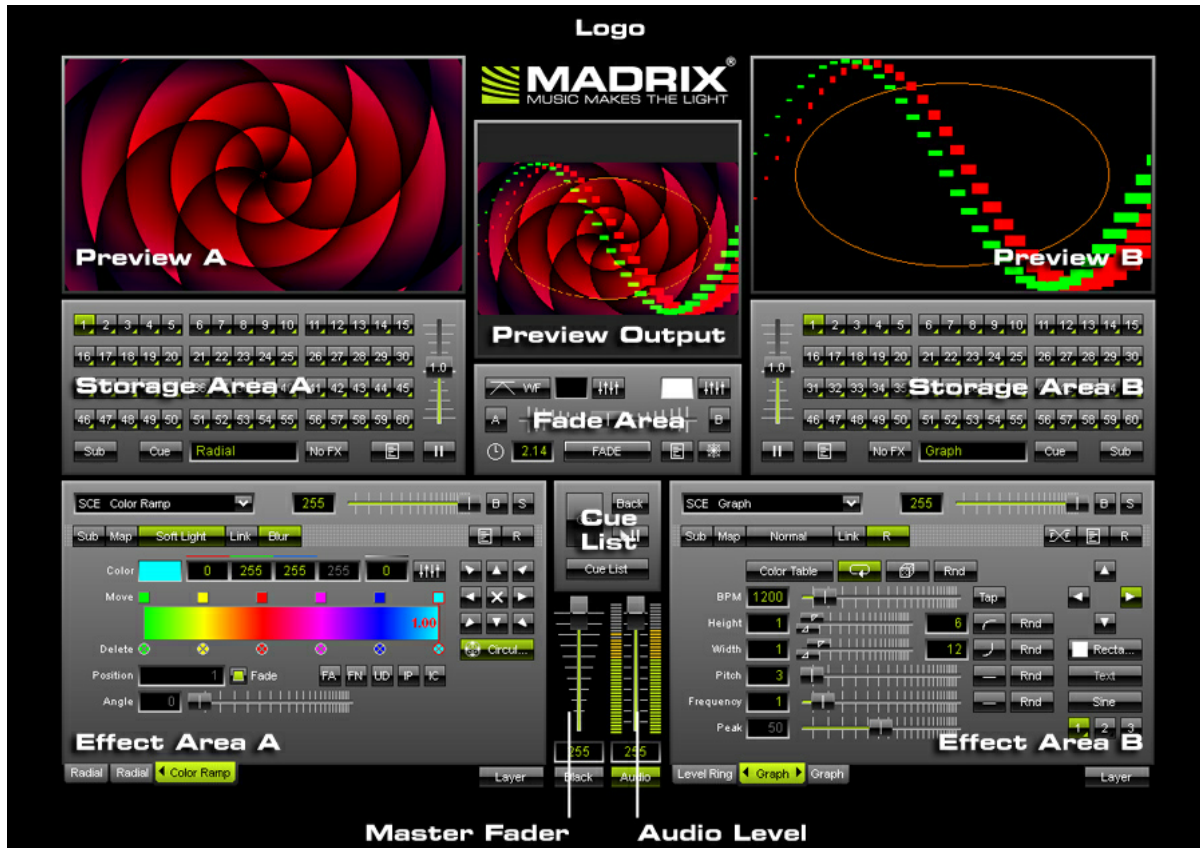
Introduction

A **graphical user interface** (abbr.: GUI), is a particular type of user interface for interacting with a computer. It makes use of graphical images and widgets in addition to text to represent the information and actions available to the user. Usually the actions are performed via direct manipulation of graphical elements. GUI design is very important part of our software development.

The goal of MADRIX is to enhance the usability of lighting control with an intuitive and logical design. The visible graphical interface includes a number of graphical elements, which allow for a prolific interaction with the program.

Overview

The graphical user interface of MADRIX is divided into different sections. The following image shows a good overview.



Learn More

In the following chapters every section will be introduced. Moreover, every chapter will provide links to learn the software in more detail.

The Menu

This chapter introduces the menu bar of the software.

Preview Windows

Preview A, Preview B, and Preview Output will be explained in detail here.

Fade Area (Crossfader)

Learn how to use the Crossfader, fade types, and the color filter.

Storage Areas A & B

The brief overview will introduce the buttons in Storage Area A and Storage Area B.

Effect Areas A & B

How can I use effects? Effect Area A and B will be explained here.

Cue List Section

These buttons are used to control the implemented Cue List function of MADRIX.

Master Fader & Audio Level

How do these two buttons and faders work? It is explained briefly in this chapter.

Full Screen Mode

You can use the full size of your monitor using the full screen mode for graphical user interface of MADRIX.

Touch Screen

An additional touch screen interface is built right into MADRIX. This interface can be opened using the MADRIX logo! Learn more about it in this chapter.

2.1 Menu

Introduction

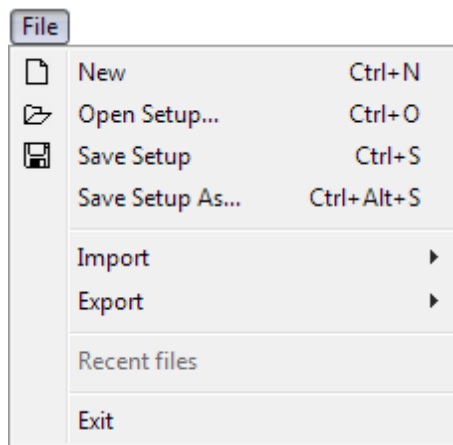


The menu bar is located at the top of the software. It contains the menu for MADRIX. This menu, in turn, has several submenus:

- File
- Edit

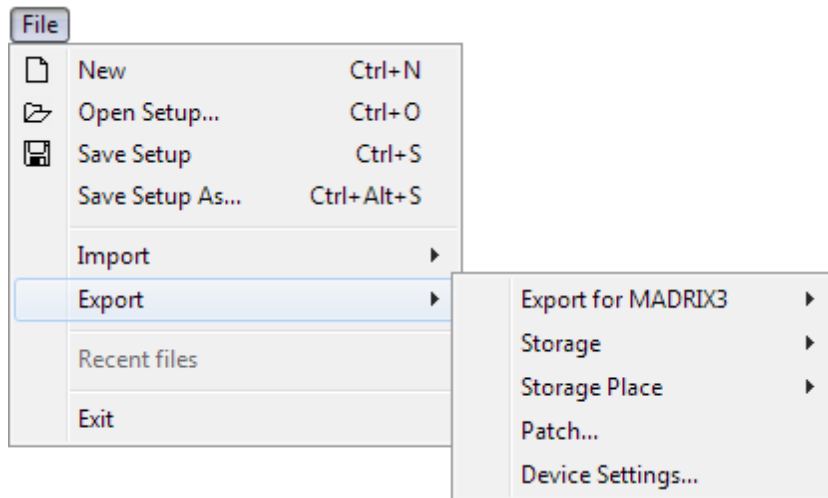
- Preferences
- Window
- Tools
- Previews
- Help

File Menu



Click on the menu item **"New"** (or "Ctrl+N") and you will get a new, blank setup with empty Storages.

Furthermore, you can use **"Open Setup"** (or "Ctrl+O") (i.e. loading), **"Save Setup"** (or "Ctrl+S"), and **"Save Setup As..."** (or "Ctrl+Alt+S") for managing your setups.



Use the menu entry "**Import**" to import (load) a complete **Storage** (all Storage Places of one single Storage Area), a **Storage Place**, the **Patch**, and **Device Settings**. Use the menu entry "**Export**" to export (save) a complete **Storage** (all Storage Places of one single Storage Area), a single **Storage Place** or **all Storage Places but separately** ("Storage All..."), the **Patch**, and all defined **Device Settings**.

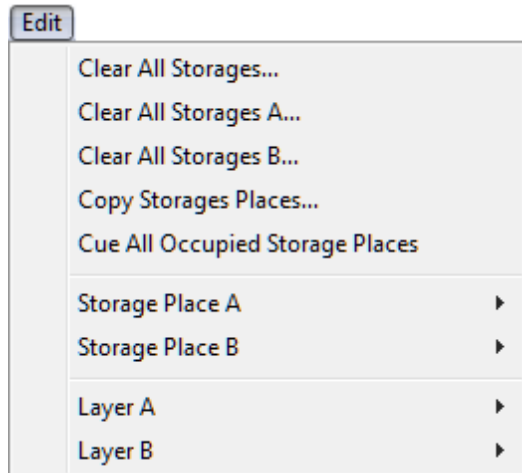
In addition, you can convert MADRIX 2 files to MADRIX 3 files by choosing "**Export**" > "**Export for MADRIX3...**". Choose between "**Setup**" to export the whole Setup File, "**Storage Place**" > "**Storage A**"/"**Storage B**" to export the currently selected Storage Place on Storage A or Storage B, "**Storage Place**" > "**All...**" to export all occupied Storage Places from Storage A and from Storage B, or "**Patch...**" to export the Patch file only. A new window opens. Simply enter a name for the corresponding file and press "**Save**". You can then load the files in MADRIX 3.

The menu also displays a number of setups that were used last ("**Recent files**").

Click on the menu item "**Exit**" to close MADRIX.

Learn more in the chapter [File Types](#).

Edit Menu

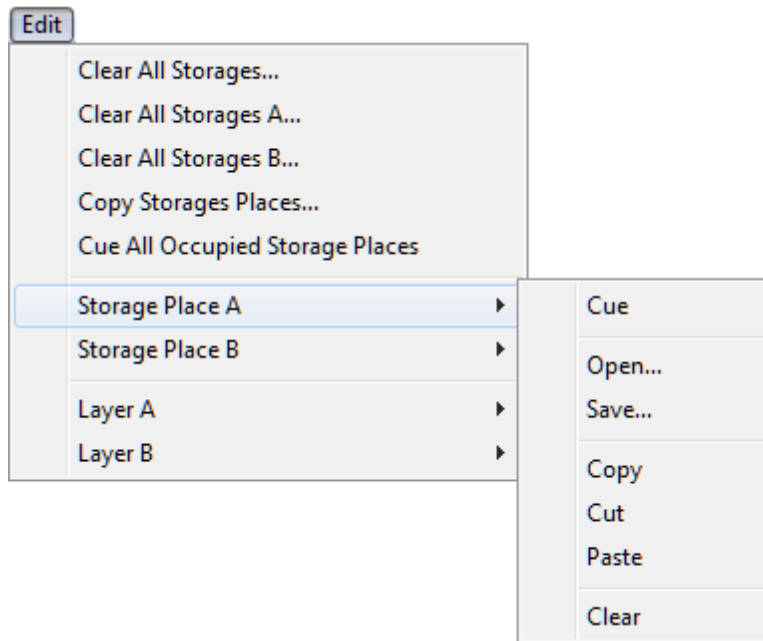


In the Edit menu you can **"Clear All Storages"**, **"Clear All Storages A"**, and **"Clear All Storages B"**. These actions will clear all settings on selected Storages.

With the item **"Copy Storage Places"** you can copy one, multiple, or all Storage Places from Storage A to B or from Storage B to A. A new window will open. Read the chapter [Storage Places, Submaster, and Cue](#) for more information.

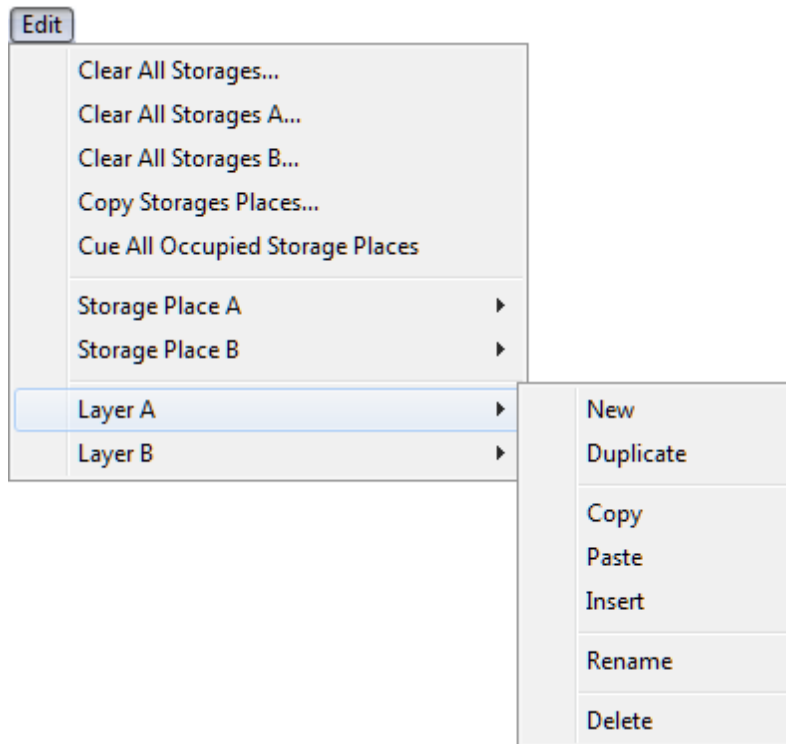
The option **"Cue All Occupied Storage Places"** adds all Storage Places to the Cue List if they are not empty.

The two items **"Storage Place A"** and **"Storage Place B"** represent the context menus of the Storage Places of Storage Area A or Storage Area B, respectively.



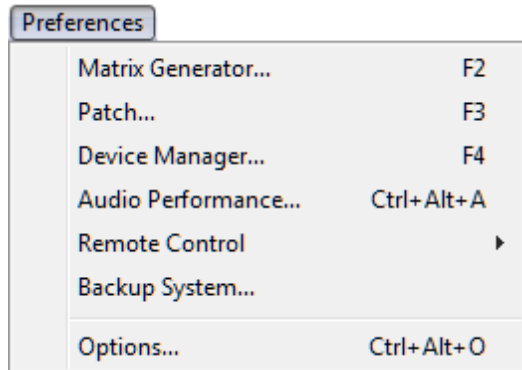
In these menus, use **"Cue"** in order to add the currently selected Storage Place to the Cue List. Use **"Open"** to load a Storage Place or **"Save"** the currently selected Storage Place (in *.mef format). Use **"Copy"**, **"Cut"**, and **"Paste"** to perform the analog actions. The **"Clear"** function will reset the currently selected Storage Place, i.e. all changes will be deleted. Learn more in the chapter [Storage Places, Submaster, and Cue](#).

The two items **"Layer A"** and **"Layer B"** represent the context menus of the effect layers of Storage Place A or Storage Place B, respectively.



In these menus, use **"New"** to create a new layer with default settings. Use **"Duplicate"** to reproduce the selected layer, which will add a copy next to it. Use **"Copy"** to store the settings of the selected layer to the clipboard. Then, use **"Paste"** to apply the stored settings to the layer you have currently selected. This does not create a new layer, but overwrites the settings. Click **"Insert"** to create a new layer using the settings stored in the clipboard. **"Rename"** allows you to change the description of the layer tab. Use **"Delete"** in order to remove the layer in use from the effect. Learn more in the chapter [Layers](#).

Preferences Menu



The Preferences menu contains various items for settings: the "Matrix Generator", the "Patch", "Device Manager" and "Audio Performance", "Remote Controls", the "Backup - System", and "Start Options".

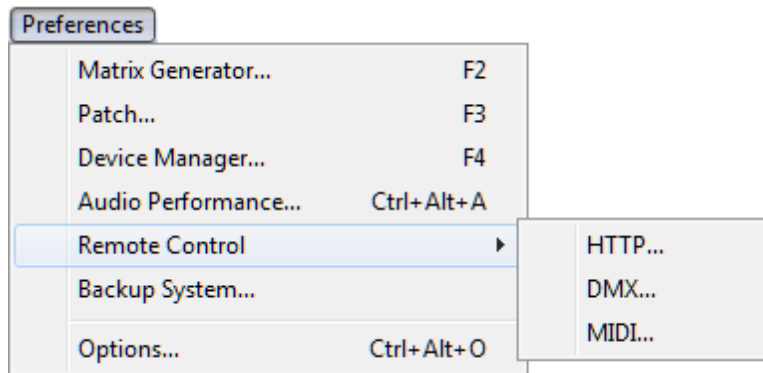
The **"Matrix Generator"** (or "F2") is the easiest way to set up your light matrix ([chapter](#)). After creating your matrix with the help of the Matrix Generator you can use the **"Patch"** (or "F3") for further configuration ([chapter](#)).

The **"Device Manager"** (or "F4") is the main tool to configure your devices. You can set up your DMX ([DMX-OUT](#) and [DMX-IN](#)) or [DVI devices](#), [Art-Net](#) or [MIDI](#) hardware, [audio input](#) settings, and visualizers, like [WYSIWYG](#) from Cast Software.

Click on **"Audio Performance"** (or "Ctrl+Alt+A") to open the dialog for setting up the [audio performance](#) and audio optimization.

You can use **"Remote Control"** with MADRIX by using [DMX-IN](#), [Art-Net Remote](#), [MIDI-IN](#), and [Remote HTTP](#).

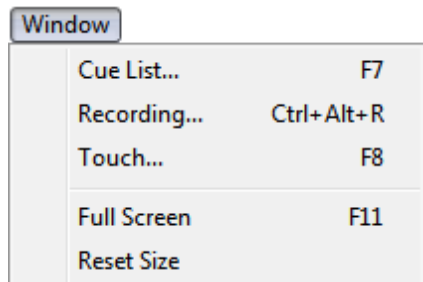
MADRIX comes with an integrated web server and can be controlled remotely via an internet browser. You can activate this feature by clicking on the menu item **"Remote Control" -> "HTTP"**. MADRIX includes an integrated DMX-IN and MIDI-IN feature as well and can be controlled remotely with your lighting desk or DJ/VJ MIDI console. You can activate this feature by clicking on the menu item **"Remote Control" -> "DMX"** or **"MIDI"**. For more information, please have a look at the chapter [INPUT & Remote Control](#).



For more information regarding the integrated backup solution, have a look at the chapter [Backup System](#).

You can access MADRIX options by clicking **"Options"** (or "Ctrl+Alt+O") in the preferences menu. Please read the corresponding [chapter](#) to get more details.

Window Menu



The window menu includes options for the "Cue List" window, the "Recording" window, the "Touch" Screen window and the MADRIX user interface (GUI) in general.

"Cue List" (or "F7") opens the implemented MADRIX Cue List. Read the chapter [Cue List](#) for more information.

"Recording" (or "Ctrl+Alt+R") opens a tool to record MADRIX effects. You can read more about the recording function in the Chapter [Recording](#).

"Touch" (or "F8") opens the extra Touch Screen Window to control MADRIX via a touch screen panel. Read the chapter [Touch Screen](#) for more info.

"Full Screen" (or "F11") maximizes the graphical user interface of MADRIX to fit the full screen, i. e. the full size of your monitor. For more information, see [Full Screen Mode](#).

"Reset Size" will apply the default size to the MADRIX user interface, in case you changed its size by moving the borders of the window.

Tools Menu



The **"Task Watcher..."** (or "F5") provides detailed operational information.

The **"Logfile..."** (or "F6") keeps track of all warnings and system information.

The **"DMX Watcher..."** (or "Ctrl+Alt+D") allows you to monitor your DMX output or Input while using MADRIX.

The **"MIDI Watcher..."** (or "Ctrl+Alt+M") allows you to check your MIDI connection.

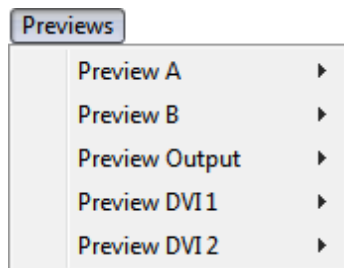
The "**DMX Fader Tool...**" (or "Ctrl+Alt+F") can help to check whether single LED fixtures are working correctly or not.

The "**PLEXUS Configuration...**" (or "Ctrl+Alt+P") is the tool to configure and manage your MADRIX PLEXUS devices.

The "**LUNA Configuration...**" (or "Ctrl+Alt+L") is the tool to configure and manage your MADRIX LUNA devices.

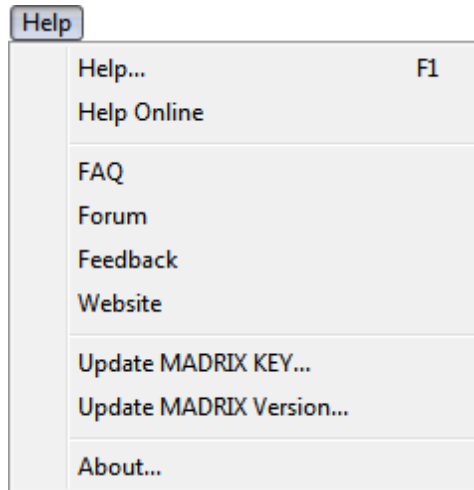
You can read more in the chapter [Tools](#),
in the chapter [MADRIX PLEXUS](#),
or in the chapter [MADRIX LUNA](#).

Previews Menu



The output and preview windows of the software can be adjusted using the menu Previews. Those settings are explained in more detail in the next chapter [Preview Windows](#).

Help Menu



"Help..." (or "F1") will open this user guide document, locally on your computer.

"Online Help" will open the user guide online using your default web browser.

"FAQ" is an online link to frequently asked questions about the software.

"Forum" is an online link that will take you to the MADRIX user forum, where users and developers exchange ideas about MADRIX.

"Feedback" is an online link, which will open your web browser with a MADRIX Contact Form. If you wish, please enter your comments into the form and send it to us. Thank you!

"Website" will open the MADRIX website in your default web browser.

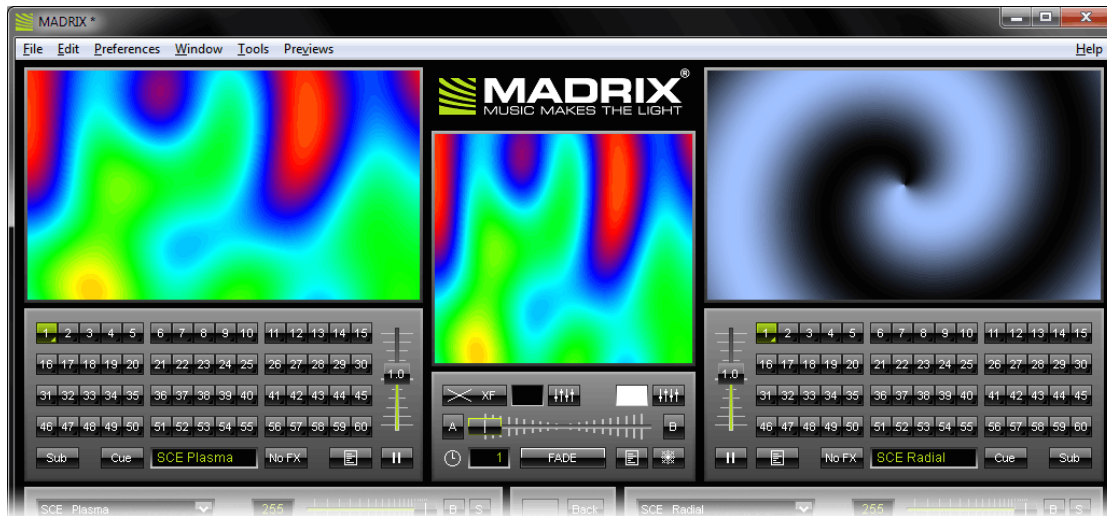
"Update MADRIX KEY..." allows user to upgrade or update the MADRIX KEY within MADRIX. See the chapter [The MADRIX KEY](#) for more details.

"Update MADRIX Version..." can be used if you wish to update the MADRIX manually. The software will then check online if newer versions are available for downloading.

"About..." will provide you with information about your MADRIX product and the MADRIX version.

2.2 Preview Windows

Introduction



This chapter explains the three preview windows (Preview A, Preview B, and Preview Output).

"Preview A" and **"Preview B"** represent the two preview windows for the two MADRIX effect pipelines. The centered **"Preview Output"** window is a preview of the actual data output that is shown on your LEDs. With the help of the preview windows you are able to have a look at the effects before they are displayed on your installation.

DVI previews are explained at the end of this chapter.

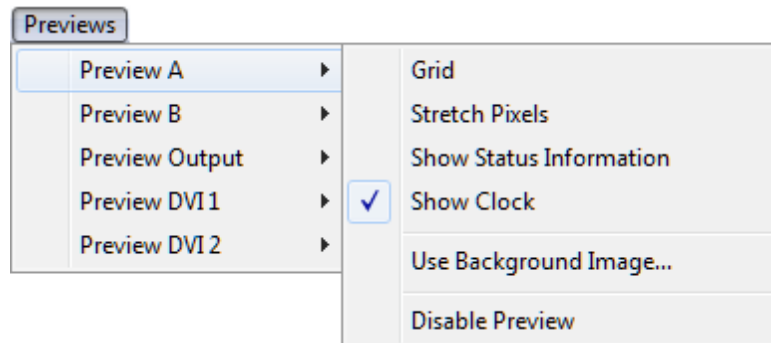
Context Menu

Overview

All preview windows have a context menu. In order to show it, please click the **right mouse button** inside a preview window.

You can choose from **"Grid"**, **"Stretch Pixels"**, **"Show Status Information"**, **"Show Clock"**, **"Use Background Image"** and **"Disable Preview"**.

You can also access this menu using the menu **"Previews"**.



Grid

This option activates an optical raster display showing separating the single pixels. If the resolution is too high, the grid will not be visible anymore.

Stretch Pixels

Use this option to extend the preview windows to the full frame. If activated, the content will be stretched as well in the previews.

Show Status Information

The name of the preview, the current matrix size, and the current frames per second of this preview will be displayed at the top of a preview window, when this option is activated.

Show Clock

If you activate "**Show Clock**", you will see the system time in the preview. In the example above it is 14:28:159, German time (GMT +01), or 03:18:39 pm.

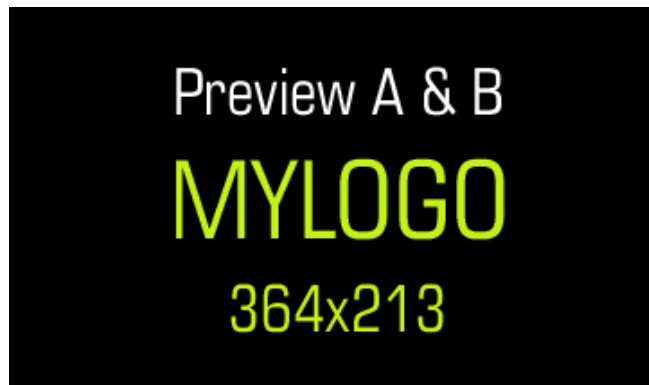
Background Image

If you click "**Use Background Image**" a dialog will open to select a file. You may load *.bmp, *.gif, *.jpg, *.png, *.tif, or *.tiff files as background images for your previews.

An example is given below.



The recommended resolution for background images and Preview A or B is:



The recommended resolution for background images for Preview Output is:



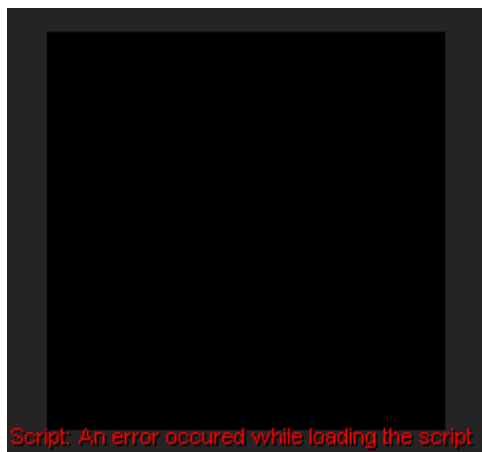
Patch Mask

Only the Preview Output offers this option. Learn more: [Activating or Deactivating Mask Mode](#).

Clear Message

Only the Preview Output offers this option. If necessary, MADRIX displays errors and warnings in this preview. Choose "Clear Message" to discard the message. It will not be displayed anymore.

Such a message could look like this:



Disable Preview

If you want to deactivate a preview window, choose this option. This might be helpful to save resources and increase performance.

The Mask Mode - Previews With Darker Areas

Part 1 - Too Many Channels Used



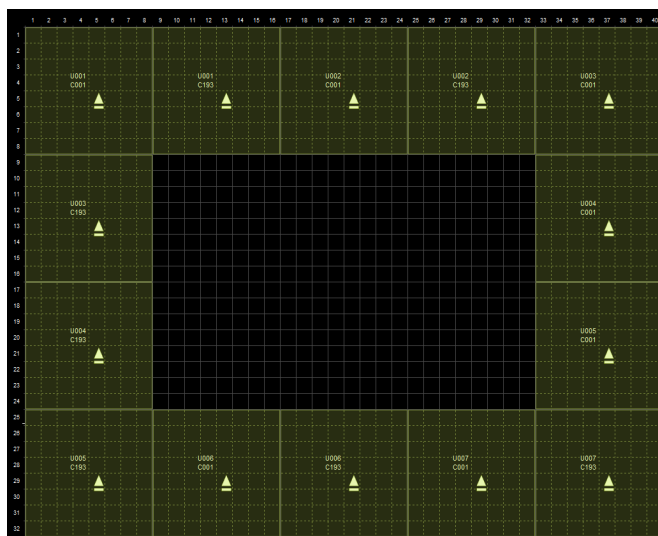
If a darker area is displayed in the preview windows, the size of your matrix is larger (the set-up has more DMX channels) than your MADRIX version supports. In the example above, you can see a darker area because this MADRIX set-up has more than 512 channels and the version is valid only up to 512 channels. As a result, all fixtures beyond 512 channels will be displayed darker than the first 512 channels.

You can check your MADRIX version here: **"Help" -> "About MADRIX"**.

Part 2 - Creating An Individual Patch



There is another possibility that you will see a darker area in the previews apart from the issue with the version. This will be the case if you have created a **Patch** with areas where no fixtures are located. These areas without any fixtures will automatically be displayed darker to indicate that this area is not in use. In the picture given above, a dark area is shown in the middle of all previews. The corresponding patch would look like this:



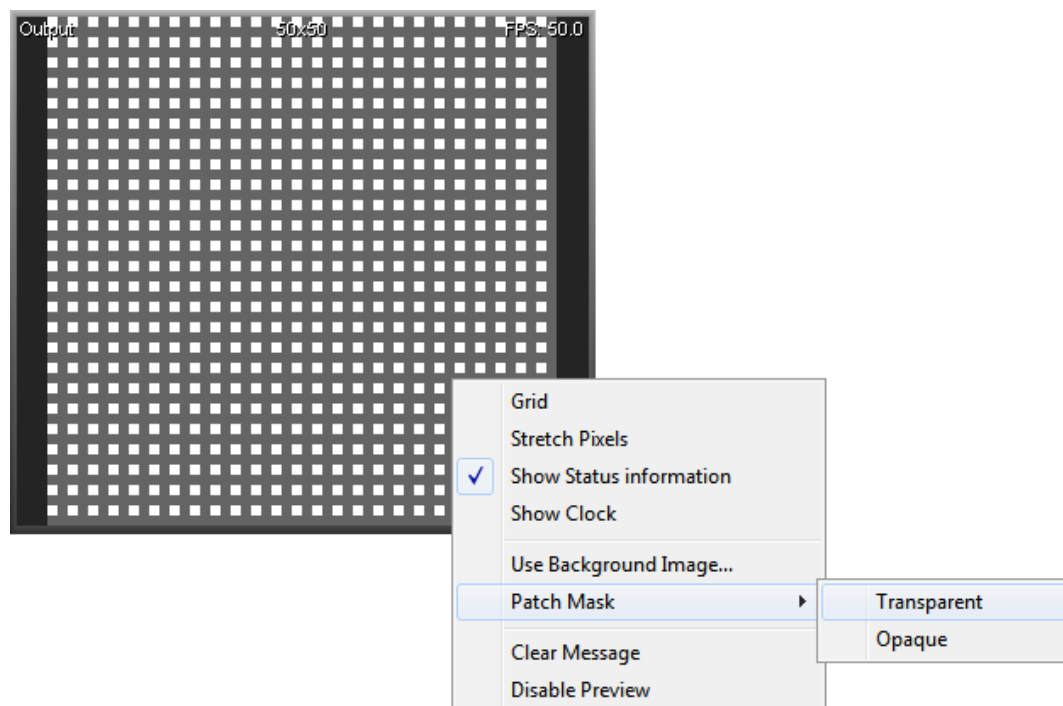
Activating or Deactivating Mask Mode

As was described above, the internal preview windows will reflect the Patch you have created. Every pattern will be visible. LEDs that will be used are displayed brighter than pixels without LED fixtures. In MADRIX you can select two different modes for this regarding Preview A, B, and Output.

Activating Mask Mode (Transparent Pixels)

If you would like to see all pixels of your overall LED matrix, perform a **right-click in the Preview Output**, navigate to **"Patch Mask"** and select **"Transparent"**.

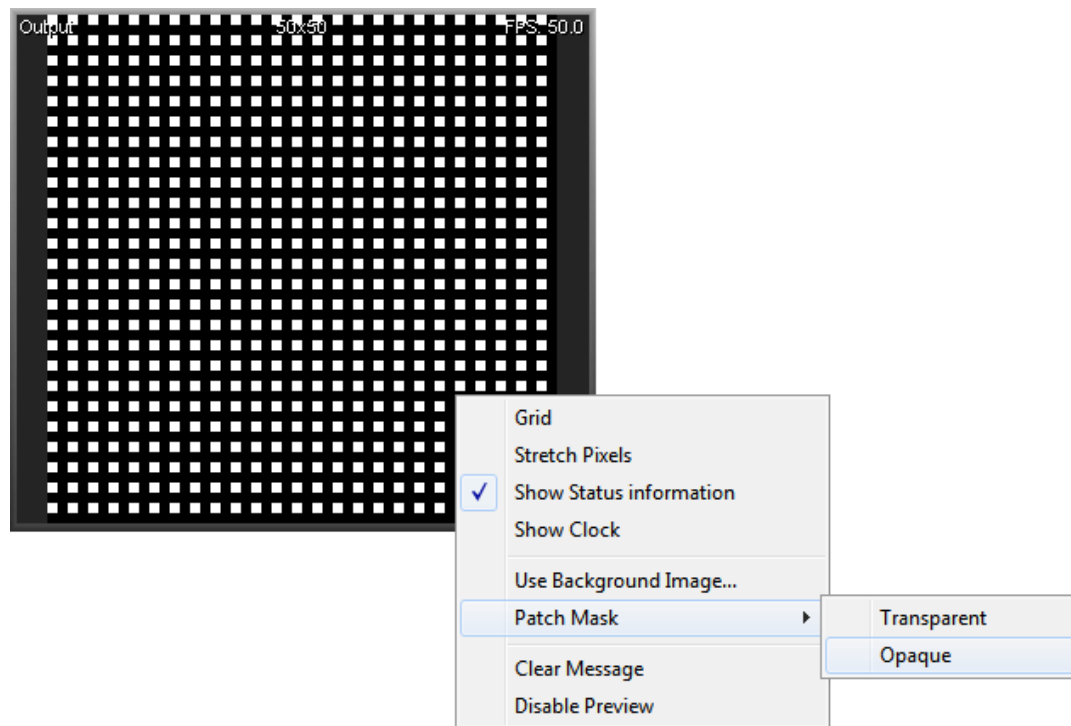
This will influence all three Previews.



Deactivating Mask Mode (Opaque Pixels)

If you would like to show only the grid that includes the pixels in use, perform a **right-click in the Preview Output**. Then, navigate to **"Patch Mask"** and select **"Opaque"**.

This will influence all three Previews.



Further Configuration

To change the settings of the Previews, please read the chapters [User Interface](#) and [Performance](#).

DVI Previews And DVI Output

With **MADRIX dvi start**, **MADRIX dvi**, **MADRIX professional**, and **MADRIX ultimate** you are provided with **DVI output**.

With the DVI output you can easily control LED pixel walls or use screen-capturing, for example.

Learn more about this in the chapter [DVI](#).

2.3 Fade Area (Crossfader)

Introduction



MADRIX features a useful crossfader that specifies the source of the final output. In other words, you can use an effect from Storage Area A or B, a mix of both, or switch seamlessly between them (fade). The Preview Output will show you the results and the final output.

How To Use The Crossfader

The position of the fader decides which of the effects (A or B) is displayed in the Preview Output window. Set the fader to the far left to show the effect of preview A. Set the fader to the far right and the effect of preview B will be shown. Any position in between is also possible.

By using the input field **"Time"** (represented by a clock) you can determine the fade duration. Enter the time using seconds and tenths of second like this: "2.5" for a fade duration of 2.5 seconds. A click on the **"FADE"** button starts the fading procedure. 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.



Click **"A"** or **"B"** once and the Crossfader will instantly jump to either A or B. In addition, you can move the Crossfader with the help of your mouse.

Please note: If you use a double-click (with the left mouse button) on the Crossfader slider, it will be reset to 50%, i.e. to the exact middle position between A and B.

The output will be influenced by one of the four fade types and a color filter. It could also be manipulated by a macro or freeze.

Fade Types

Overview

The button in the upper left corner says which fade type will be used. If you click it, a drop-down list is shown.



You can choose from different fade types (fade modes):

- **"XF"** (Cross-fade)
- **"WF"** (White-fade)
- **"BF"** (Black-fade)
- **"CF"** (Color-fade)
- **"H Wipe"** (Horizontal Wipe)
- **"V Wipe"** (Vertical Wipe)
- **"HX Wipe"** (Horizontal Cross Wipe)
- **"VX Wipe"** (Vertical Cross Wipe)
- **"H Slide"** (Horizontal Slide)
- **"V Slide"** (Vertical Slide)

- **"HX Slide"** (Horizontal Cross Slide)
- **"VX Slide"** (Vertical Cross Slide)

The fade types will influence how effect A is mixed with effect B or vice versa. You can specifically control the result.

Examples

The following table describes how the different fade types work.

For these example, let's assume that effect A is currently playing and that you would want effect B to be displayed next. So we will fade from Preview A to Preview B.

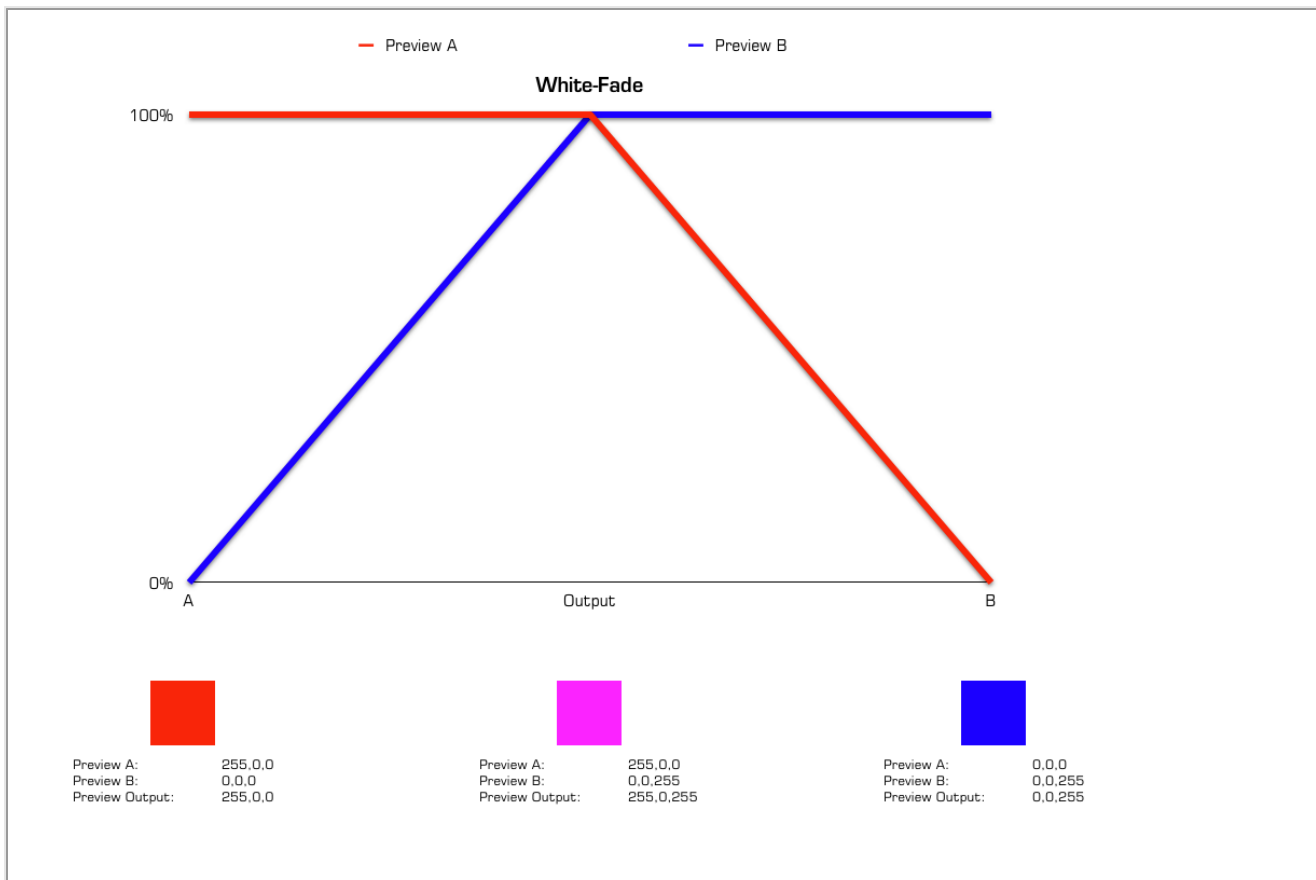


A **Cross-fade** starts by dimming effect A linearly from 100% to 0% during the fade time. But at the same time, effect B starts to fade in until it is fully shown at the end of the fade. As a result an interpolation of the colors of A and B will be used during the fade.

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

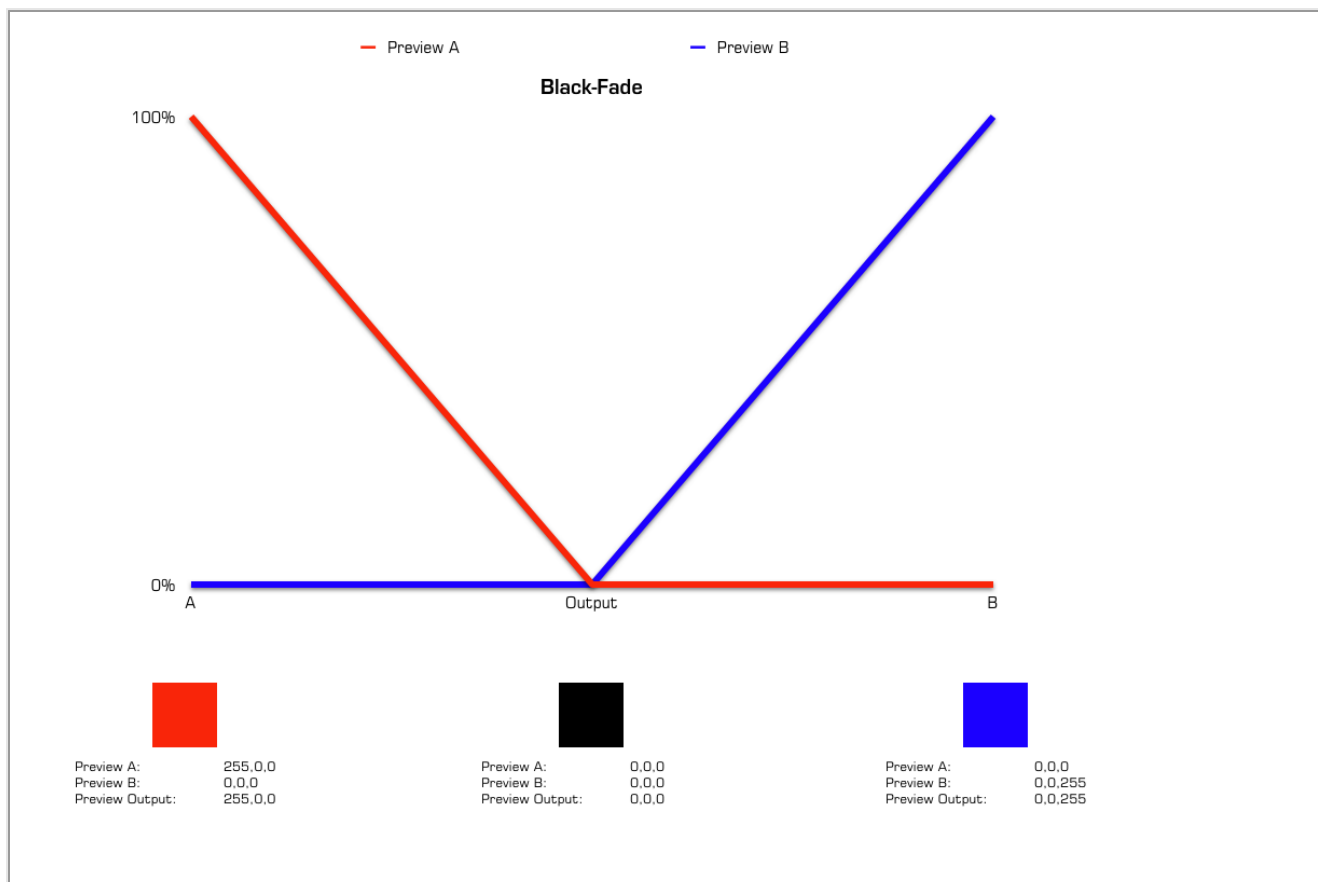


Halfway through, both effects are shown with 100%. Because of that, a white-fade does not necessarily display a white color in middle position. Instead, this fade type uses addition of all color values. For example, if you are using a SCE Color in pure red on effect A (255, 0, 0) and SCE Color in turquoise/cyan on effect B (0, 255, 255), the result will indeed be a pure white halfway through as it adds up to 255, 255, 255. But using a SCE Color in pure red on effect A (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.



A **Black-fade** starts with dimming effect A 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 B starts to increase until 100% shown. Effect A was already at 0% and remains at this level for the rest of the fade.

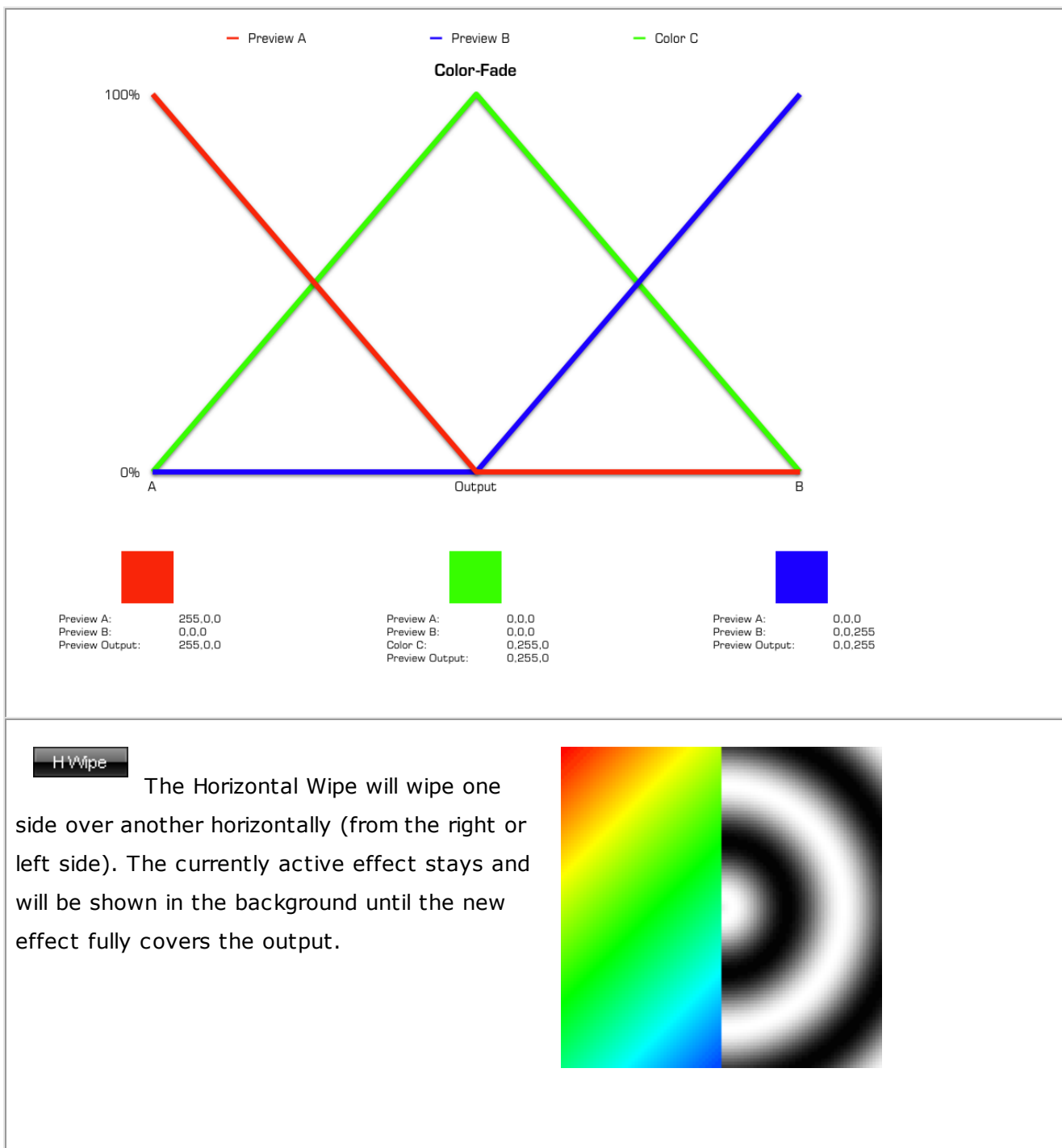
Since both effects are shown with 0% in the middle of the fade, this always results in a black output, and therefore the name.



Essentially, a **Color-fade** in MADRIX does imitate a black-fade (see above). Effect A is dimmed to 0% first and afterwards effect B increases linearly from 0% to 100%.

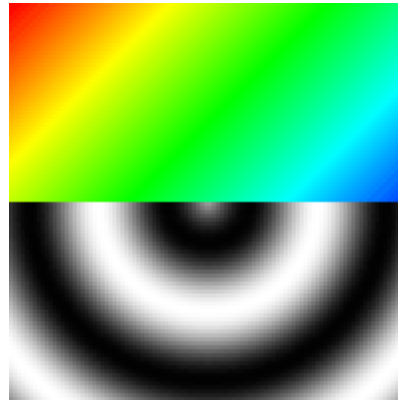
But on top of that, a color is added. While effect A is reduced in intensity, the color C gains intensity. In the middle of the fade effect A and effect B stand at 0%, but color C stands at 100%. When effect B reaches 100%, color C is reduced to 0% again.

In the middle position you will not see effect A or B, but only the color you picked. The "FaderBox" button or the Color Picker enable you to choose the color for the color-fade.

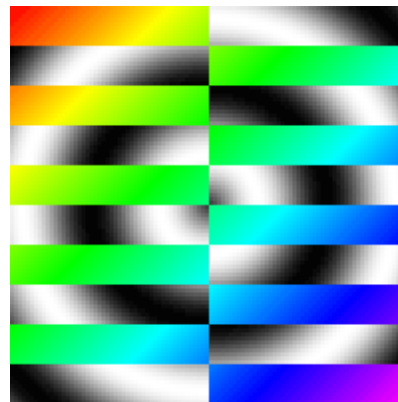


V Wipe

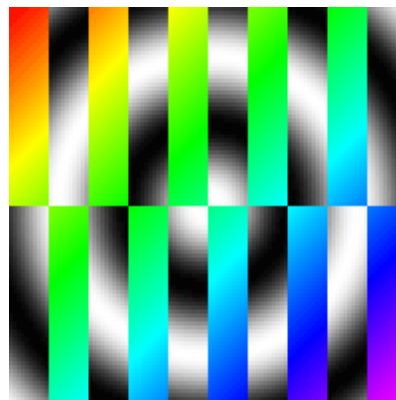
The Vertical Wipe will wipe one side over another vertically (from above or below). The currently active effect stays and will be shown in the background until the new effect fully covers the output.

**HX Wipe**

The Horizontal Cross Wipe will wipe 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.

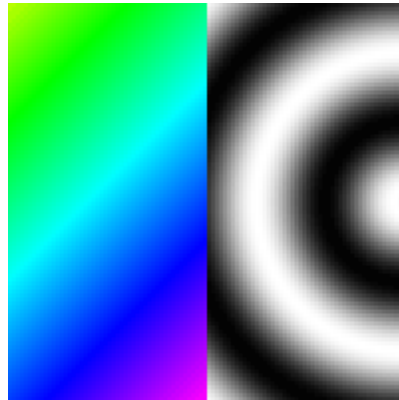
**VX Wipe**

The Vertical Cross Wipe will wipe 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.

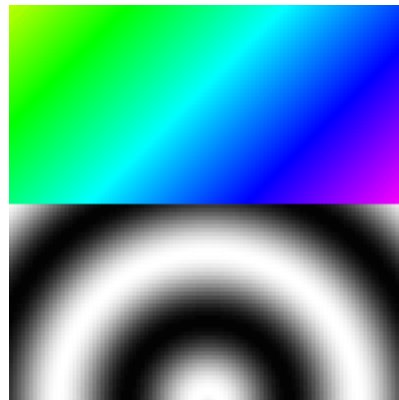


H Slide

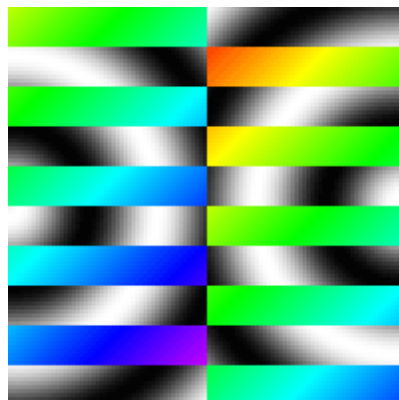
The Horizontal Slide will push the old effect out of the frame horizontally (from the left to the right and vice versa). The currently running effect will move accordingly to the side until it vanishes.

**V Slide**

The Vertical Slide will push 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.

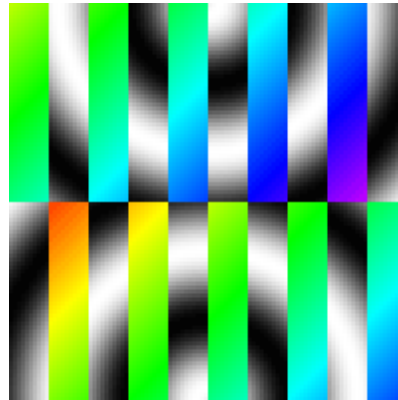
**HX Slide**

The Horizontal Slide will push the old effect out of the frame horizontally (from the left to the right and vice versa) and split both effects at the same time during the fade. The currently running effect will move accordingly until it vanishes.



VX Slide

The Vertical Slide will push the old effect out of the frame vertically (from the top to the bottom and vice versa) and split both effects at the same time during the fade. The currently running effect will move accordingly until it vanishes.



Color Filter



You can also choose to activate a **Color Filter**. Such a filter filters the colors used in the effects of Storage Area A or B. Simply select the color using the Color Picker or the Color FaderBox in the upper right corner of the Fade Area, and a color filter is activated. The color "white" is the default setting 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>
results in			
RGB(W)	x	RGB(W)	<i>Effect and filter are represented through RGB or RGBW mode.</i>

results in				
R G B (W)	x x x x	R G B (W)	Every single color of the effect will be multiplied with the corresponding color of the filter.	
Example 1 in RGB Mode				
SCE Color	x	Color Filter	=	Result
Yellow		Green		Green
255		0	=	0
255	x	255	=	255 (after conversion)
0	x	0	=	0
Example 2 in RGB Mode				
SCE Color	x	Color Filter	=	Result
Red		Green		Black
255		0	=	0
0	x	255	=	0
0	x	0	=	0
Example 3 in RGB Mode				
SCE Color	x	Color Filter	=	Result
Turquoise		Pink		Blue
0		255	=	0
255	x	0	=	0
255	x	255	=	255 (after conversion)

Other Functions



By activating the **"Freeze"** button you can put the output on hold (freeze). Click it and hold the mouse button. Double-click it to freeze it permanently.



The Fade Area also includes a macro button. This button activates the **"Main Output Macro"**, a macro generally comparable to macros for effects. But in contrast, this macro affects the entire main output. You can find more details in the chapter [Macros & Scripts](#).

2.4 Storage Areas A & B

Overview



Storage Area A and Storage Area B are located below Preview A and Preview B. Those two areas contain 60 Storage Places each and a number of other elements. Storage Area A and Storage Area B are sometimes referred to simply as Storage A and Storage B.

Storage Places

1



Every single number from 1 - 60 represents one single Storage Place. Storage Places are used to store your effects. If you hover with your mouse over a Storage Place, you will see a preview of the effect shown as **Thumbnail**.

Working with Storage Places is described in more detail in the chapter [Storage Places, Submaster, and Cue](#).

Other Elements

Submaster



The **"Sub"** button can be used to adjust the intensity of a Storage Place. Learn more in the chapter [Storage Places, Submaster, and Cue](#).

Cue



Using the **"Cue"** button will automatically add the activated Storage Place to the Cue List. Learn more in the chapter [Cue List](#).

Description Field



Use this field to enter a description for your effect. This is very useful if you are going to use the Cue List, Thumbnails, or if you wish to copy Storage Places or save them.

FX



Using the **"FX"** button will present you with a number of choices to instantly change the visual outcome of the effect. This means you can quickly apply certain filters. Learn more in the chapter [Layers](#).

Storage Place Macro



This button opens the Storage Place Macro Editor. Storage Place macros affect an entire Storage Place including its effect and all of its layers. You could change the opacity of three different layers of this effect at the same time, for example. You can find more details in the chapter [Macros & Scripts](#).

Speed Master A And B



The so-called **Speed Master** is a fader that is positioned on every Storage Area. The fader allows you to speed up and slow down effects. Below such a fader you can find a **"Pause"** button. Learn more in the chapter [Speed Master](#).

2.5 Effect Areas A & B

Overview

The MADRIX interface is equipped with two effect areas (Effect Area A and Effect Area B). By default, it will look like this:



Standard Buttons And Controls

Selecting An Effect



Via a drop-down list in the upper left corner of such an Effect Area, you can select one of the various effects. Read more information on how to work with effects in the chapter [Effects](#). Learn more about the different effects in the chapter [MADRIX Effects](#).

Layer Opacity



Regulate the intensity of a single layer with the help of this slider or input field. For more information, see [Layers](#).

Blind And Solo Mode



These are the **"Blind"** button and the **"Solo"** button. For more information, see [Layers](#).

Submaster



To adjust the intensity of an effect or layer, please click and hold the **"Sub"** button. Make adjustments by moving your mouse up or down. An activated Submaster will turn green. More details can be found in the chapter [Storage Places, Submaster, and Cue](#).

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 Fader**.

Mapping



If you want to map, tile, or rotate an effect, please click the **"Map"** button. A new window will open. The features are described more precisely in the chapter [Map, Tile, And Rotation](#).

Mix Modes



This button sets the mix mode and functions as a drop-down list. Just like in image-editing software, you can use different mix modes to mix layers with each other. The button is labeled **"Normal"** by default. For more information, see [Layers](#).

Link Mode



This **"Link"** button activates the option to link layers. Linking layers is very useful to create new effects. For more information, see [Layers](#).

Link Mode



This **"FX"** button allows you to instantly change the visual outcome of this effect or single layers. For more information, see [Layers](#).

Storage Place Macro



This button opens the Storage Place Macro Editor. Storage Place macros affect an entire Storage Place including its effect and all of its layers. For example, you could change the opacity of three different layers of this effect at the same time. You can find more details in the chapter [Macros & Scripts](#).

Reset



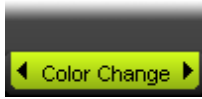
All effects have a reset button **"R"**. This button restores default settings of the single layer and thus the effect.

Frame Fade



Several effects have an additional **"Frame Fade"** button. This feature creates a very smooth effect; especially when slow movements are involved. It renders the output more softly. An activated button will turn green.

Layer Tab



Every layer has its own tab at the bottom of an Effect Area. Learn more in the chapter [Layers](#).

Layer Button



This button provides several options to work with layers. A context menu will appear. Learn more in the chapter [Layers](#).

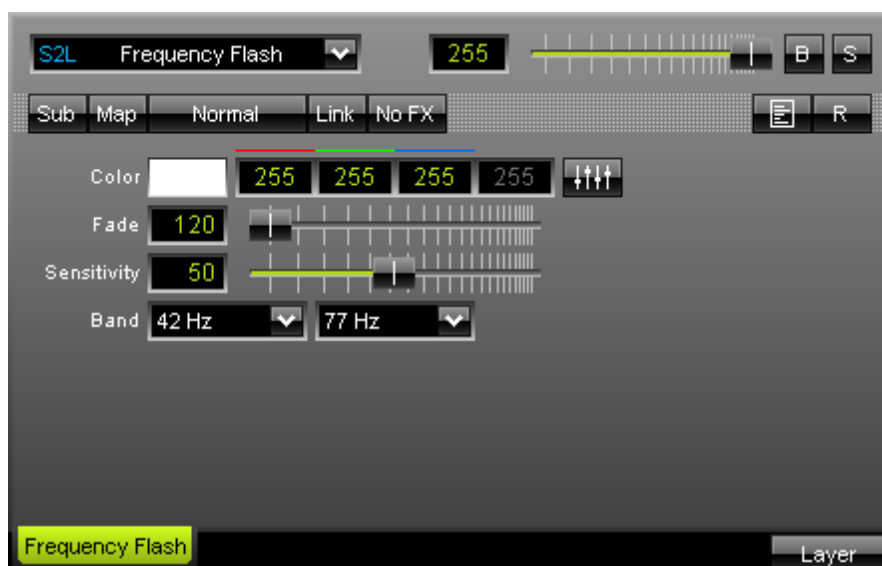
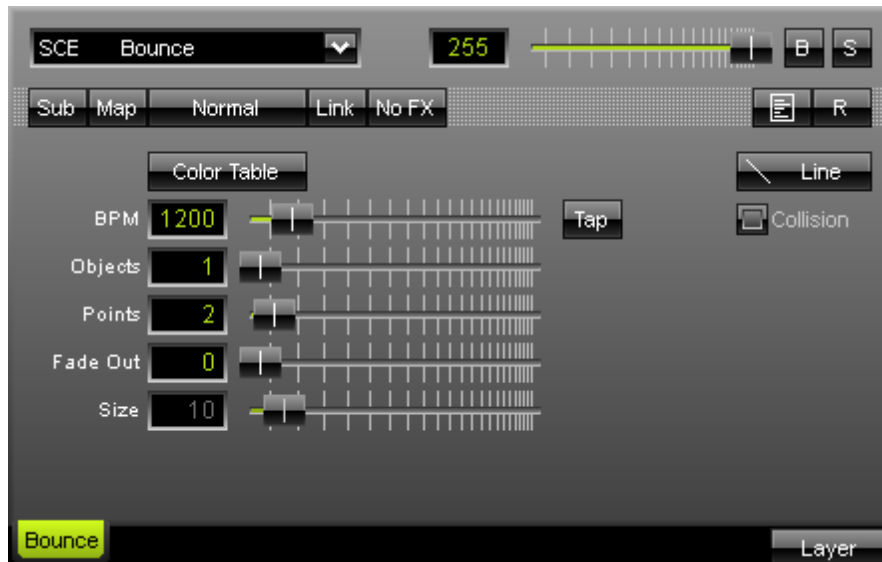
Tips

Perform a **double-click** on sliders, faders, etc. and they will be reset to their default value.

Use the **spacebar** on your keyboard to perform various actions. If the selected control is a button, the button will be clicked. If the selected control is a check box, this toggles the check box. If the current control is an option, this selects the option. If an edit field (Color Edits) is selected, you can switch between the values 0 and 255.

Individual Buttons And Controls

Each effect has its own buttons and controls. Have a look at the three examples below and you will see that the standard controls (which are described above) are always there, while the middle part changes with every effect.





2.6 Cue List Section

Overview



The MADRIX GUI offers 4 buttons to control the Cue List. Before they can be used, a Cue List needs to be created and configured. Learn more about the [Cue List](#).

Buttons



Press "**Go**" to skip to the next Cue List entry.



Press "**Back**" to go back to the previous Cue List entry.



Use this button to play or stop the Cue List.



This button opens a new window, which is the Cue List itself. More options will be available to you then.

2.7 Master Fader & Audio Level

Master Fader



The user interface is equipped with a **"Master Fader"**. This fader sets the overall brightness of the output and your fixtures. You will see the result in the Preview Output. It will not affect the two other previews. But of course, it will affect the intensity of your LEDs.



Use the input field to directly set a certain value with a range from 0 to 255. When using the Master Fader, you will see that this field displays the currently used value.



The **"Black"** button forces an immediate blackout on the output. Click it once to render the output completely black. It does not affect the Master Fader. Click again to deactivate the function. Using this feature should be an exception.

Audio Level



The MADRIX GUI includes a level control too see the incoming audio signal. The fader allows to adjust the input level.



Use the input field to directly set a certain level ranging from 0 to 255. When using the fader, you will see that this field displays the currently used value.



The **"Audio"** button needs to be activated to see the incoming audio signal.

Learn more in the chapter [Using the Audio Analysis](#).

2.8 Full Screen Mode

Overview

The graphical user interface (GUI) can be extended to fit the full size of your monitor. This mode is called Full Screen.

There is a difference between maximizing the window or enabling full screen mode. In full screen mode the title bar will not be visible anymore, saving space for the interface. Also, you can decide to display the menu bar or to hide it.

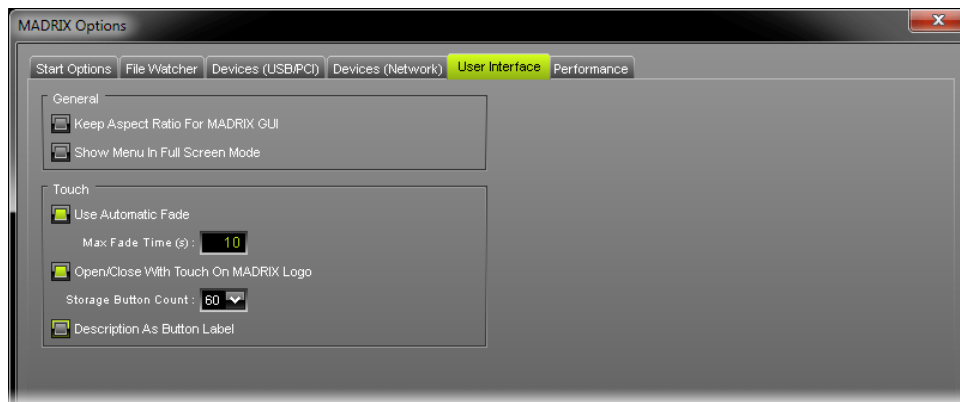
Window		
Cue List...		F7
Recording...	Ctrl+Alt+R	
Touch...		F8
Full Screen		F11
Reset Size		

Options

You may choose to hide or show the menu in full screen mode.

To change the settings, go to the menu **"Preferences"** -> **"Options..."** and select the tab **"User Interface"**.

Enable **"Show Menu In Full Screen Mode"** to display the menu. Disable **"Show Menu In Full Screen Mode"** to hide the menu. In the screenshot above, the menu is hidden.



2.9 Touch Screen

Overview

General

The touch screen interface was especially designed to provide you with an intuitive and easy to use interface.

Go to the menu **"Window"** -> **"Touch..."** (or press "F8") to open the touch screen.

If it is enabled in the settings, you can open/close the touch screen window by pressing the **MADRIX logo**.



Important Notes

In order to ensure performance of MADRIX, all three previews of the main MADRIX window will be disabled, when the Touch Screen is activated.

However, the will be activated again when the To

The Cue List is not available, when using the Touch Screen.

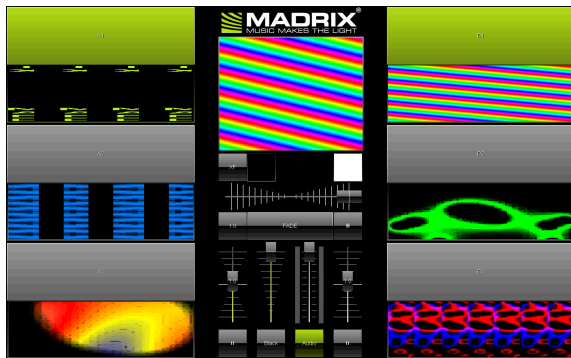


Please note: If you have installed a second monitor (or more), you can easily move this Touch Screen window to the first, second, third, ... computer display by pressing the **Tabulator** key on your keyboard.

Number Of Storage Places

MADRIX allows you to choose the number of Storage Places that will be displayed. The buttons will be scaled automatically to the resolution of your screen. Simply change the settings according to your needs (please read below how to change them). You can use 3, 12, 24, 40, or 60 Storage Places. Please note that this is the number of Storage Places per Storage Area/ per side.

3 Buttons Per Side



12 Buttons Per Side



24 Buttons Per Side



40 Buttons Per Side

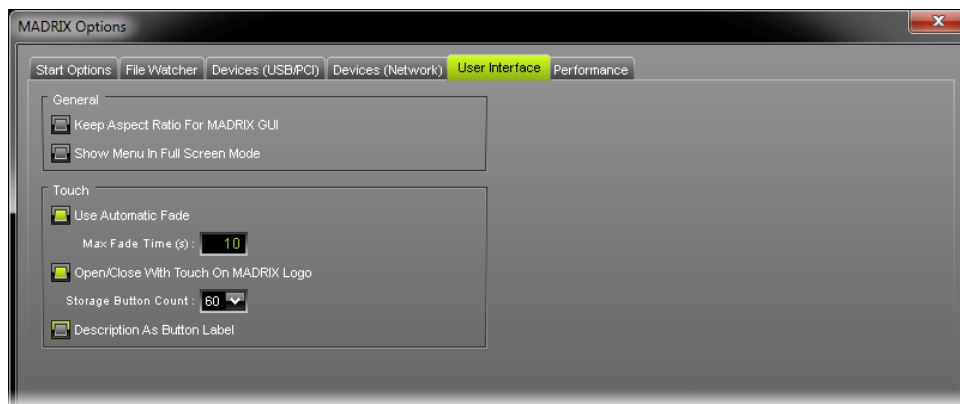


60 Buttons Per Side



Settings

To access options of the touch screen, please press **"Ctrl+Alt+O"** or go to the menu **"Preferences" -> "Options"**. A new window will open. Then, navigate to the tab **"User Interface"**.



The option **"Use Automatic Fade"** can be a helpful support tool. Use it if you wish MADRIX to perform an automatic fade when switching from one effect to another effect in the opposite Storage Area (for example from effect 1 in Storage Area A to effect 1 in Storage Area B). You can define the length of the fade using the input field **"Max. Fade Time"** (in seconds).

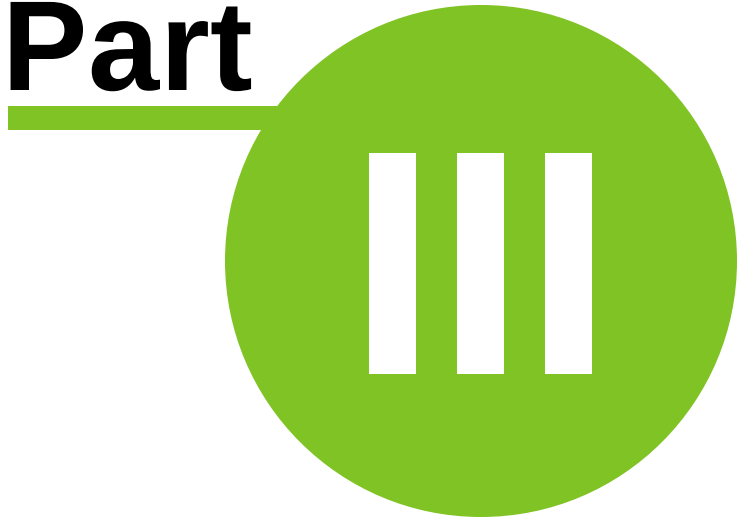
Enable **"Open/Close With Touch On MADRIX Logo"** if you want to be able to close the Touch Screen Window by pressing the MADRIX logo. Likewise, you can open the window by clicking the the MADRIX logo on the graphical user interface.

"Storage Button Count" sets the number of Storage Places per side. It sets how many Storage Places will be displayed. You can use 3, 12, 24, 40, or 60 Storage Places.

"Description As Button Label" allows you to show the Description of a Storage Places on the Touch Screen interface instead of the standard numbering (e.g. A1, B50, etc). If the Storage Place has the standard Description "Color", the index number will be shown nevertheless.



Part



3 Using The Software

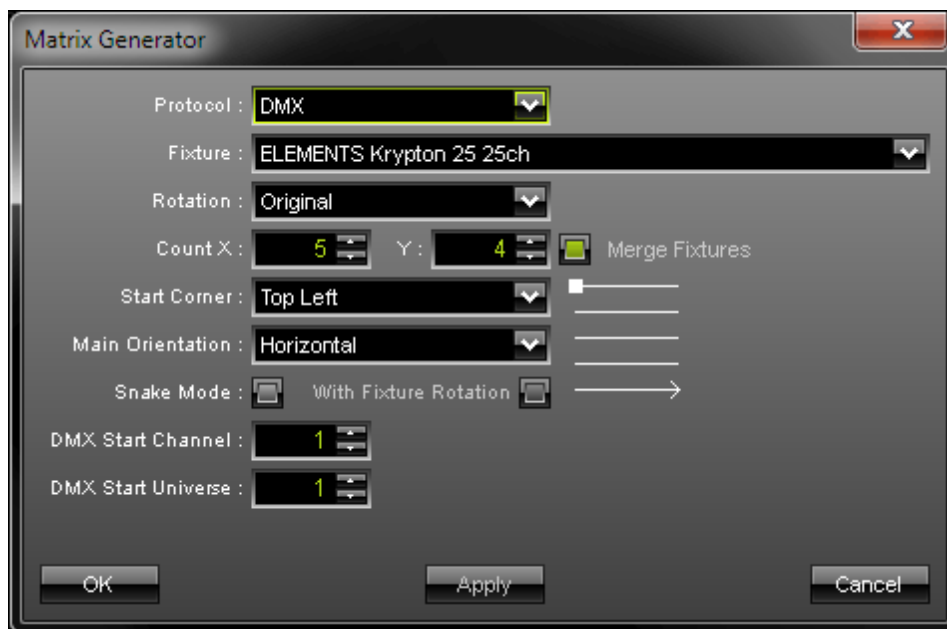
Introduction

MADRIX already is an easy to use, user-friendly, and reliable Windows® software for the creation of complex lighting scenes and entire shows with matrix control.

In order to make you more comfortable in handling the software, in this chapter you will learn how to use MADRIX.

3.1 Matrix Generator

Overview



After starting the application, it is required to configure your light matrix in MADRIX. To do so, please open the **"Matrix Generator"** ("F2" or **"Preferences"** -> **"Matrix Generator"**). A new window will open. Now, please configure your light matrix according to the next steps:

Protocol

Please choose which kind of LED fixture you are using. You can choose between "**DMX**" and "**DVI**". If you wish to use both types, please use the [Patch](#).

Please note: If a DVI fixture is selected, all controls that are only relevant to DMX512 fixtures will be disabled.

Fixture

According to your selection of the "Protocol" (please see above), you can now select your lighting fixture in the drop-down list called "**Fixture**".

If your fixture is not yet implemented, please have a look at the chapter [Fixture Editor](#) or ask for support.

Fixture Rotation



MADRIX offers the possibility to set the **rotation** of a fixture. Please mind that a change will affect the whole matrix. All fixtures will be rotated!

Count X, Count Y



More importantly, you need to define the **number of LED fixtures** that are installed in your set-up. "**X**" sets the quantity of horizontally mounted fixtures, while "**Y**" sets the number of lighting fixtures with vertical alignment. Both values make up the whole matrix. In our example you will get a matrix with 100 pixels (10x10 pixels).

Please pay attention to how your fixture is included in the MADRIX Fixture Library. Some fixtures are already implemented with their specific number of pixels, for example 32x48 pixels.

Please enter the number of fixtures you are using and not the total number of pixels.



"**Merge Fixtures**" becomes available when using the protocol type "DVI". Deactivate the option if you wish to create an individual **DVI Patch**.

When using DVI or related protocols, please pay attention to the maximum number of supported DVI pixels according to your MADRIX version and according to the performance of your PC. When using DMX or related protocols, please pay attention to the maximum number of DMX channels according to your MADRIX version and according to the performance of your PC.

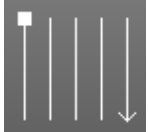
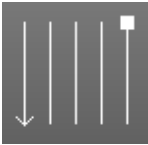
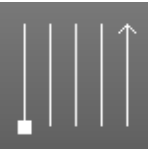
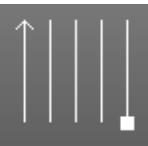
DMX Start Corner



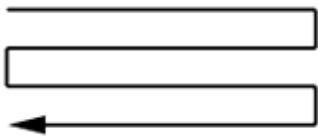
With the help of the "**DMX Start Corner**" it is possible to specify where DMX addressing starts.

Main Orientation

The option "**Main Orientation**" defines the (horizontal or vertical) orientation of the set-up. A helpful picture in the Matrix Generator dialog will show you how your set-up is configured:

DMX Start Corner	Main Orientation: Horizontal	Main Orientation: Vertical
Top Left		
Top Right		
Bottom Left		
Bottom Right		

Snake Mode

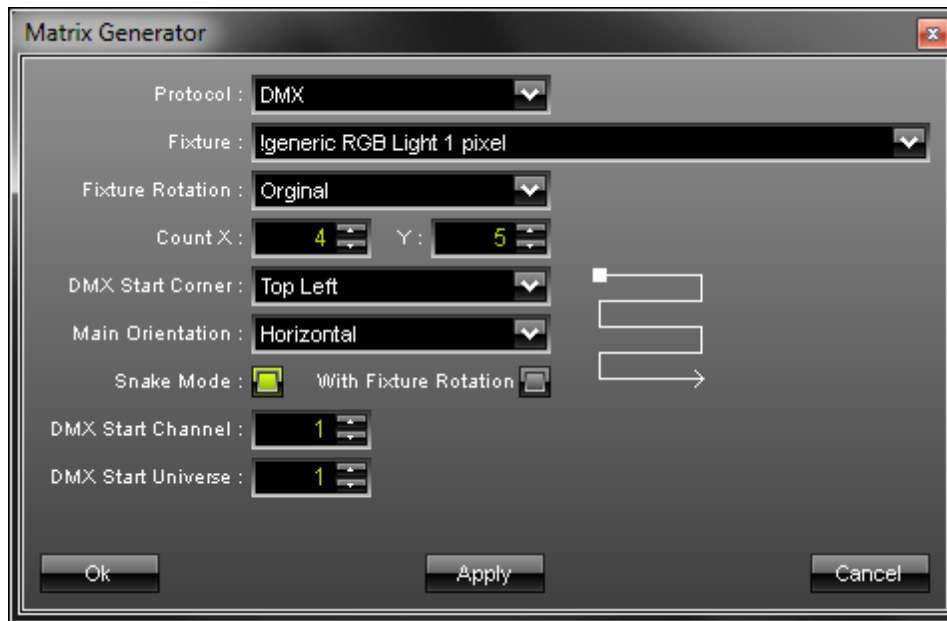


Activate "**Snake Mode**" if you are handling DMX addressing as shown in the picture, for example. You can use snake mode in addition to the fixture rotation. A helpful picture in the Matrix Generator dialog will show you how your set-up is configured.

Hint: If you have snake mode and fixture rotation activated, every fixture in your second line will be rotated by 180°.

Example:

In this example we configured a light matrix of 4 x 5 pixels using snake mode. The Matrix Generator would look like this:



In theory, the LEDs are arranged as follows: 3 pixels per LED (due to RGB), 4 fixtures per row, and 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

DMX Start Channel/DMX Start Universe

In a final step, you have to select the **"DMX Start Channel"** as well as the **"DMX Start Universe"**, which is the start universe. If fixture addressing is greater than the number of channels of one universe, the corresponding fixtures will be added to a new universe automatically. For example: Per 512 DMX channels, 170 **RGB** fixtures can be controlled. That means, calculating $170 \text{ fixtures} \times 3 \text{ channels}$ results in 510 DMX channels. Therefore, channel 511 and 512 will be left empty. And if you are using more than 170 fixtures, those will be assigned to a new universe.

Please check your LED installation for linear addressing of the lighting units in horizontal and vertical direction.

Important Notes

LED Fixtures	Comments
--------------	----------

EUROLITE LSD	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.
Color Kinetics eW Flex SLX, Color Kinetics iColor Flex SLX	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

If you want to patch the addresses of your fixtures manually or if you want insert more lighting fixtures, please click inside the menu **"Preferences"** -> **"Patch"**. More information is given in the next chapter [Patch](#).

If you would like to configure your LED fixtures, please have a look at the chapter [Fixture Editor](#).

Further Tips

Please make sure to save your MADRIX Setup after the configuration process.

3.2 Patch

Introduction

After starting up MADRIX, it is necessary to configure your light matrix.

You can either use the **"Matrix Generator"** for this task or the **"Patch"**. Please see the chapter [Matrix Generator](#) for simple tasks. The **Patch** described in this chapter offers many more options and allows to configure your virtual matrix in great detail. The Patch allows you to configure DMX and DVI fixtures freely and individually.

If you are working with DMX, please read this chapter. If you are working with DVI fixtures, please read this chapter and the chapter DVI Patch.

Patch and DVI Patch are one and the same tool in MADRIX. The term DVI Patch specifically refers to using DVI fixtures.

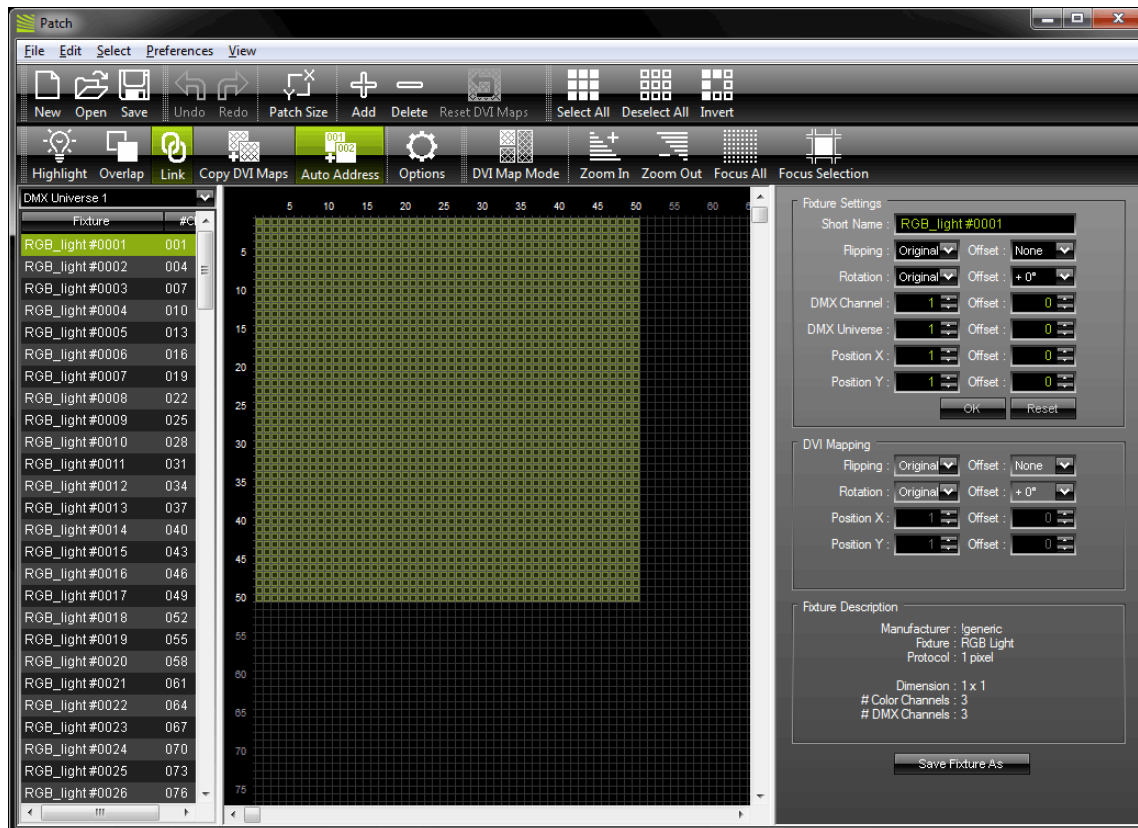
To open the Patch, go to the menu and click "**Preferences**" -> "**Patch**" or simply press the key "**F3**".

The Patch dialog is a separate window. Hence, you will be able to control MADRIX while working with the Patch.

Overview

Layout

The patch is divided into different main sections. In addition to the menu and the toolbar, you will find three large columns.



The first column on the left side is a list, which contains the different fixtures and their assigned start channel. A drop box above this list allows you to select the DMX universe or the DVI category. If the DVI category is displayed, the DVI Mapping status is shown.

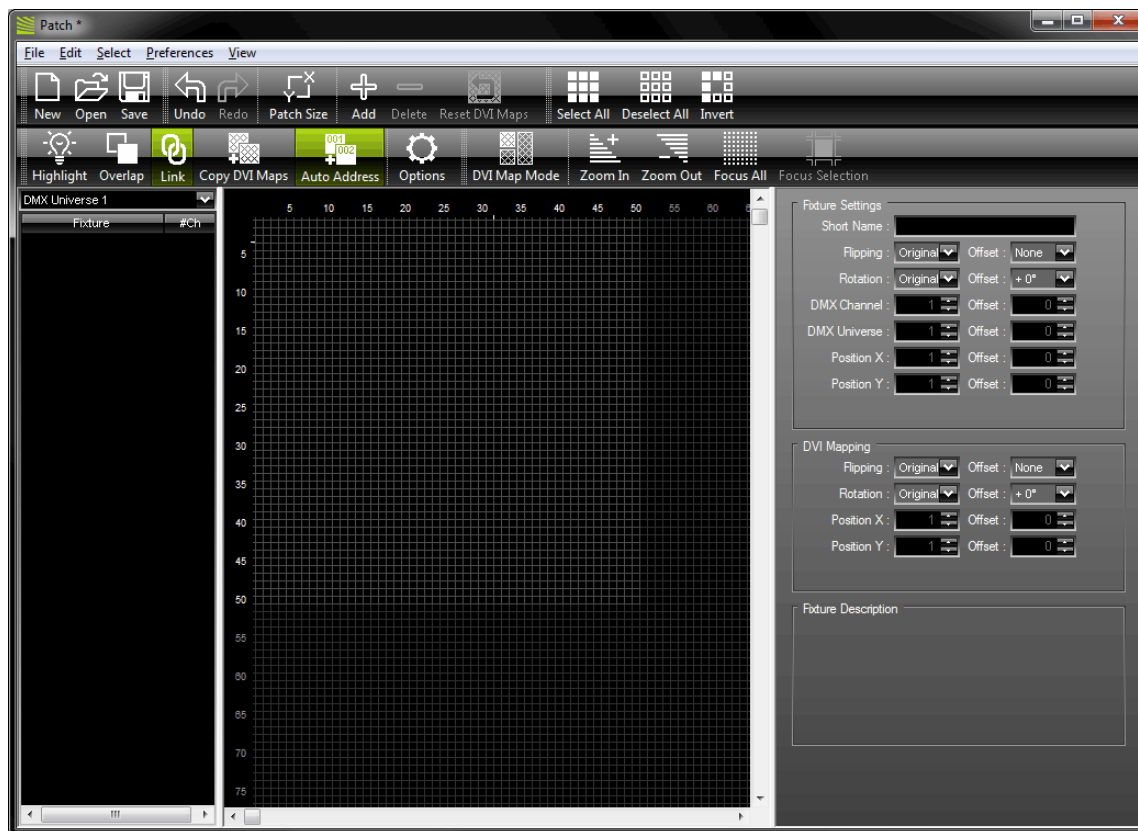
The second column represents a graphical version of your virtual matrix.

The third column includes the information regarding the "Fixture Settings", "DVI Mapping", and the "Fixture Description".

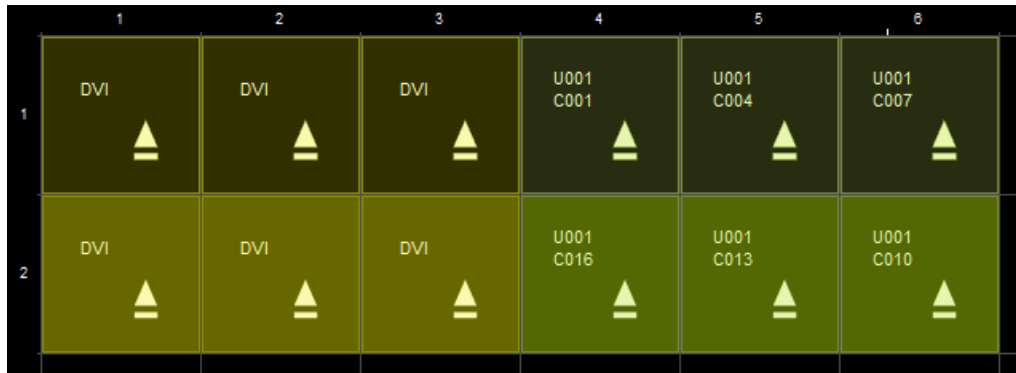
You can rearrange the width of each column by dragging the column edges. Moreover, you can hide the columns if you drag them to the border of the window. They will snap back into view if you drag the border back far enough.

If you wish to reset the layout of the Patch dialog, please navigate to the menu **"View" -> "Reset Layout"**.

Visualization



The workspace is represented with the help of a dark grey grid. The virtual matrix or patch is represented with the help of a light grey grid.

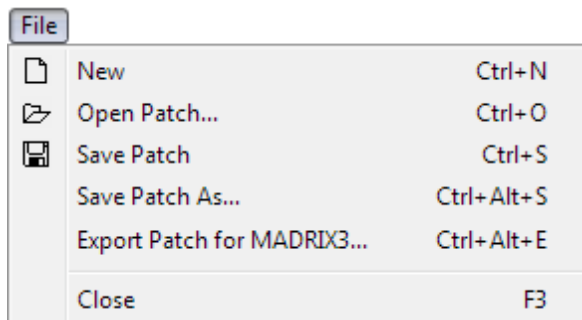


DVI fixtures are displayed in dark yellow. Selected DVI fixtures are displayed in yellow. DMX fixtures are displayed in dark green. Selected DMX fixtures are displayed in green.

The Patch Menu

You can find the menu in the upper section of the Patch including **File**, **Edit**, **Select**, **Preferences**, and **View**.

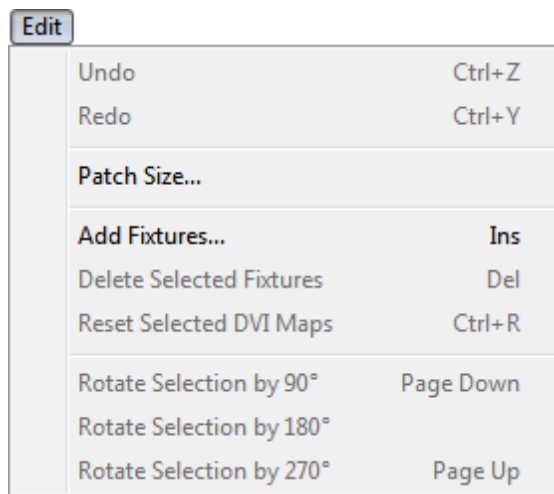
File Menu



The **File Menu** includes **"New"** (or "Ctrl+N"), **"Open Patch..."** (or "Ctrl+O"), **"Save Patch"** (or "Ctrl+S"), **"Save Patch As..."** (or "Ctrl+Alt+S"), or **"Close"** (or "F3"). These functions are self-explanatory.

Additionally, you can export your current Patch to the Patch file format of MADRIX 3. Simply choose **"Export Patch for MADRIX 3..."** (or "Ctrl+Alt+E"), enter a File name, and press **"Save"**.

Edit Menu



Use **"Undo"** (or "Ctrl+Z") in order to restore the previous state of the Patch. **"Redo"** (or "Ctrl+Y") can be used to recreate the state after having performed an undo.

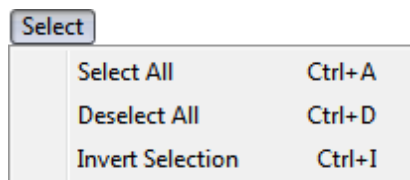
The menu entry **"Patch Size"** will call up a small dialog to change the major settings of your virtual matrix (size and color depth).

"Add Fixtures..." (or "Ins") will call up a dialog similar to [the Matrix Generator](#). Here you can set up the fixture or set of fixtures you want to add to your virtual matrix. Please always remember that there is a specific function called "Allow Overlapping" in the preferences menu. If overlapping is allowed, fixtures will be placed on top of existing fixtures in the Patch. If it is deactivated, you cannot place any fixture to a position that is occupied by another fixture in the Patch. Likewise, you may simply **"Delete Selected Fixtures"** (or "Del").

"Reset Selected DVI Maps" is only relevant when working with DVI fixtures. Please read the chapter [DVI Patch](#) for more information.

"Rotate Selection by 90°" (or "Page Down"), **"Rotate Selection by 180°"** and **"Rotate Selection by 270°"** (or "Page Up") can be used to quickly change the rotation of a single fixture or even multiple fixtures. If you select multiple fixtures and use these functions, the entire block of fixtures will be rotated. They will be literally rotated using the central point of all fixtures. Hence, the position of the fixtures change automatically. In contrast, if you select several fixtures and adjust the "Rotation" in the "Fixture Settings" in the third column of the Patch dialog, each fixture will be rotated individually. Their positions will not change.

Select Menu

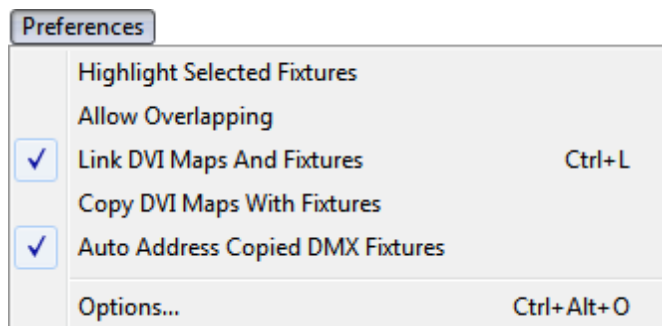


"Select All" (or "Ctrl+A") can be used to select every single fixture in the Patch. Simultaneously, the fixtures will be highlighted and selected in the left column, which is the list of fixtures.

Use **"Deselect All"** (or "Ctrl+D") to drop your current selection.

"Invert Selection" (or "Ctrl+I") will select every fixture except the ones you have currently selected.

Preferences Menu



"Highlight Selected Fixtures" will make corresponding fixtures flash for a better identification. This makes it easier to see them on stage.

"Allow Overlapping" allows fixtures as well as DVI Maps to be arranged on top of each other in the virtual matrix. If overlapping is allowed, fixtures or DVI Maps will be placed on top of existing fixtures or DVI Maps in the Patch. If it is deactivated, you cannot place any fixture or DVI Map to a position that is occupied by another fixture or DVI Map in the Patch.

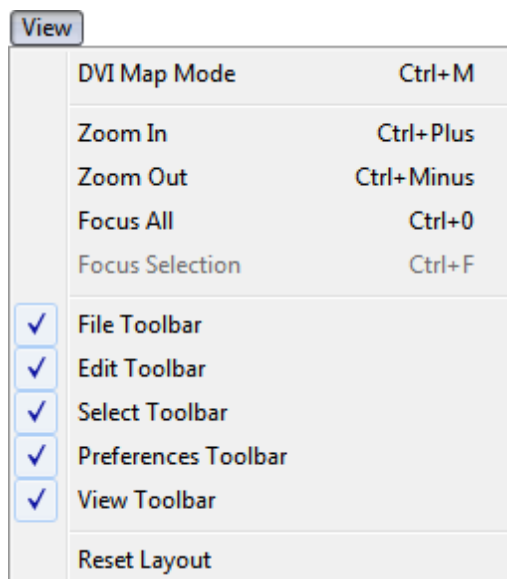
"Link DVI Maps And Fixtures" (or "Ctrl+L") is only relevant for the **DVI Patch**. It links DVI fixtures and their corresponding DVI Maps together when applying a transformation (position, rotation, or flipping).

"Copy DVI Maps With Fixtures" is only relevant for the **DVI Patch**. It allows you to copy corresponding DVI Maps along with their DVI fixtures without resetting the settings of the DVI Maps.

"Auto Address Copied DMX Fixtures" enables auto addressing for DMX fixtures only. Auto addressing is explained below.

"Options..." (or "Ctrl+Alt+O") will call up the options dialog of the Patch.

View Menu



You can show or hide the various elements of the toolbar. The **"File Toolbar"** refers to options regarding the Patch files. The **"Edit Toolbar"** refers to options regarding working with the Patch itself. The **"Select Toolbar"** includes options to select fixtures. The **"Preferences Toolbar"** includes options for various settings. The **"View Toolbar"** includes options referring to the layout of the Patch.

The next features will influence the appearance of the second column, the graphical patch itself:

"Zoom In" (or "Ctrl+Plus") or **"Zoom Out"** (or "Ctrl+Minus") will determine the level of detail. Zoom in to see single fixtures, their assigned universe, channel, and rotation.

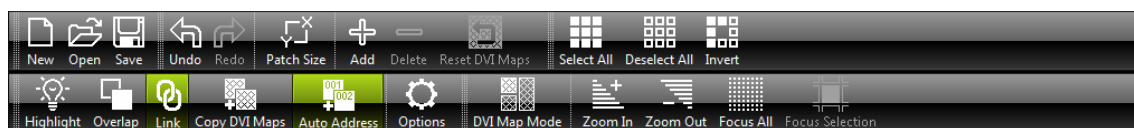
The option **"Focus All"** (or "Ctrl+0") will display all fixtures (and their DVI Maps) you have patched in their full size to fit the width of the column. In contrast, **"Focus Selection"** (or "Ctrl+F") will zoom in to the highest level containing the selected fixtures (and their DVI Maps) in order to have a detailed view of it.

"DVI Map Mode" is only relevant when working with DVI fixtures. Please read the chapter [DVI Patch](#) for more information.

If you wish to reset the layout of the Patch dialog to its original settings, use the option **"Reset Layout"**.

The Toolbar

The toolbar provides shortcuts for the most convenient tasks and includes the majority of options, which are also included in the menus.



Working With The Patch

Navigation

Press Space and use a left-click in order to drag the graphical patch.

Or you can use the scroll bars to navigate in detailed view.

Zooming

In addition, to the functions you can find in the menu (with their keyboard shortcuts), you can use the mouse wheel to zoom in and out. Please note that the description text and the icons on the fixtures do not scale, that means that they will only be visible in high zoom levels.

Selecting Fixtures

You can select fixtures in the list to the left and they will be automatically selected in the graphical patch. This also works when you select several fixtures in the list using the "Shift" or "Ctrl" button.

The graphical Patch itself offers various other possibilities to select fixtures:

Simply move your mouse, "left-click" a single fixture, and you will have selected this fixture. If you want to deselect a single fixture, hold "Ctrl" while clicking it again.

If you want to select several fixtures, simply hold the "Ctrl" button while using a "left mouse-click".

There is also a selection box to select multiple fixtures. To use the selection box hold "Shift" first. 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.

Additionally, hold the "Shift" button, "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 the "Ctrl" and the "Shift" button at the same time and you can select different fixtures each time, while the previously selected fixtures remain selected.

Use "Ctrl+A" to select every single fixture in the Patch (select all). Simultaneously, the fixtures will be highlighted and selected in the left column. Use "Ctrl+D" to drop your current selection (deselect all). "Ctrl+I" will select every fixture except the ones you have currently selected (invert selection). These options are also available in the menu and the toolbar.

Interaction

You can apply **drag & drop** to a single fixture. Simply select it 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 & drop together with the "Ctrl" button to copy fixtures and the DMX universe and DMX channel will be automatically adjusted if this option is activated. For more details, please see below ([Copying Fixtures](#)).

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

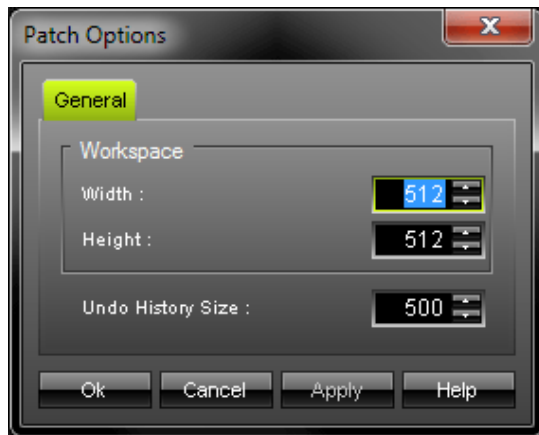
If you select multiple fixtures and use "**Page Up**" or "**Page Down**" on your keyboard, the entire block of fixtures will be rotated. They will be literally rotated using the central point of all fixtures. Hence, the position will be changed automatically.

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.

Undo And Redo

Use **"Undo"** (or "Ctrl+Z") in order to restore the previous state of the Patch. **"Redo"** (or "Ctrl+Y") can be used to recreate the state after having performed an undo.

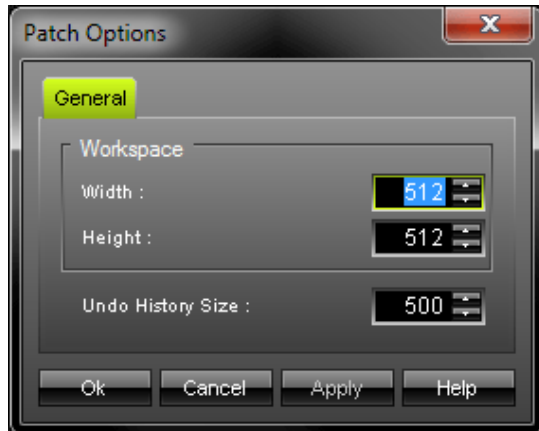
By default, the Patch allows 500 steps to be reversed. You can change the so-called "History Size" in the Options. Go to the menu **"Preferences" -> "Options"** or press "Ctrl+Alt+O".



Using The Workspace

The workspace allows you to freely work with fixtures in the Patch. It is shown via a dark grey grid. By default, the size is set to 512x512 pixels.

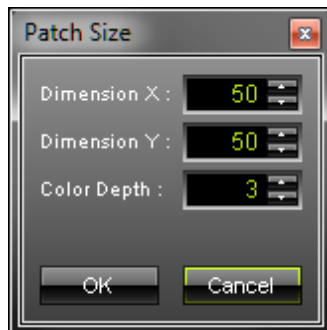
You can change the size of your workspace in the Options. Go to the menu "Preferences" -> "Options" or press "Ctrl+Alt+O".



Changing The Size Of The Virtual Matrix

The virtual matrix defines the actual Patch area. It represents your LED fixtures and therefore the area on which the MADRIX effects are rendered and displayed.

Go to the menu **"Edit"** -> **"Patch Size"** to change the main settings of your virtual matrix.



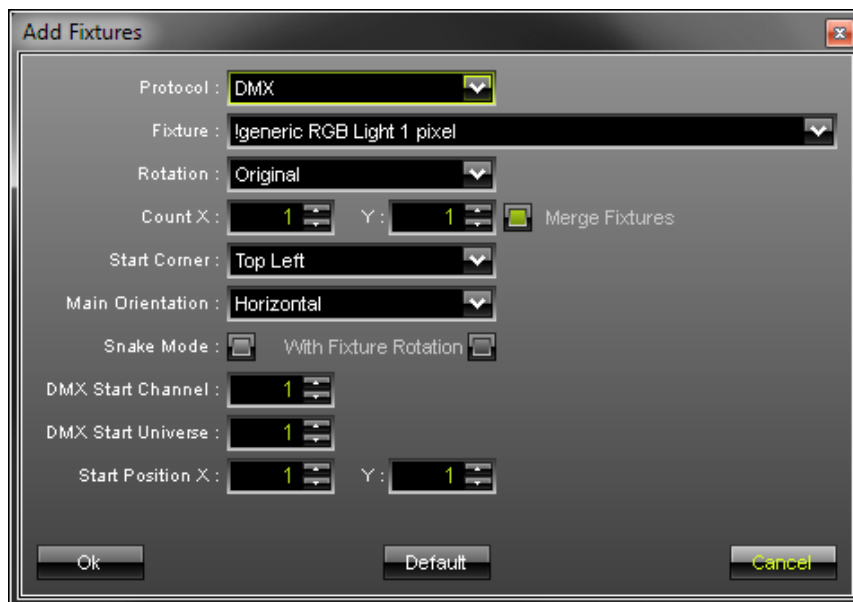
"Dimension X" determines the number of pixels in x. **"Dimension Y"** sets the number of pixels in y. **"Color Depth"** represents the number of colors your LED fixtures support. A color depth of 3 resembles RGB mode, while a value of 4 represents RGBW mode.

Please remember to change the Color Depth if you added 4 color LED fixtures.

Adding New Fixtures

If you go to the menu **"Edit" -> "Add Fixtures..."** a dialog comparable to the Matrix Generator will open. Or, you could simply press "Ins" on your keyboard. According to the settings, one or more fixtures will be added to the patch at the specified position.

Please note: You can add fixtures from different manufacturers and you can also add fixtures that are of different types, i.e. DMX or DVI. In this way, you can create your own individual Patch according to your requirements.



Press **"Default"** if you wish to reset this window to its original settings.

Please pay attention to **"Start Position X"** and **"Start Position Y"** as those values define where exactly the fixture or fixtures will be added to the workspace. If a fixture is already patched to this area, you will get a notification that the fixture positions overlap. Please choose a different start position then or activate **"Overlap"** if you really want the fixtures to overlap.



"Merge Fixtures" becomes available when using the protocol "DVI".

Deactivate this option if you wish to patch DVI fixtures individually. If the option is activated, all fixtures will be merged to one, single DVI fixture.

Please remember to change the Color Depth if you added 4 color LED fixtures in the option "Patch Size".

For more information about this dialog, please read the chapter [Matrix Generator](#).

Deleting Fixtures

You can easily delete fixtures. Select the fixtures you want to remove and use the "Delete" icon in the toolbar or press "Del" on your keyboard.

Copying DVI Fixtures

Single Fixtures

Copying a DVI fixture is simple. Select a single DVI fixture by holding down the "Ctrl" key and the left mouse button at the same time. Then, drag your mouse and a copy of the DVI fixture will be created as a result. Finally, drop the fixture at its new position.

Multiple Fixtures

Select multiple DVI fixtures and hold down the "Ctrl" key. Now hold down the left mouse button at the same time. Then, drag your mouse and copies of the DVI fixtures in a corresponding pattern will be created as a result. Finally, drop the fixtures at their new position.

Copying DMX Fixtures / Auto Addressing

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. You can enable the feature in the Patch menu "**Preferences**" -> "**Auto Address Copied DMX Fixtures**". Disable this feature and the copied fixtures will have the same DMX channel and universe as their sources.

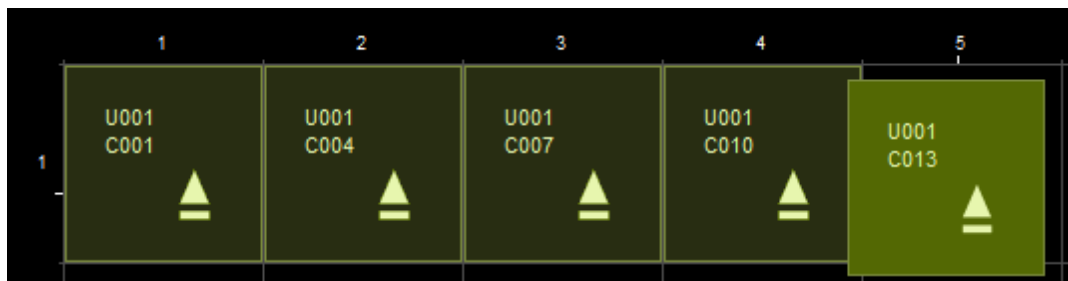
Please pay attention when using auto addressing and double-check if each fixture is addressed correctly!

Single Fixtures

Select a single DMX fixture by holding down the "Ctrl" key and the left mouse button at the same time. Then, drag your mouse and a copy of the fixture will be created as a result. Finally, drop the fixture at its new position. The DMX channel and the DMX universe will be automatically adjusted if "**Auto Address Copied DMX Fixtures**" is enabled.

Example:

The original fixture at position 1,1 is mapped 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.

	1	2	3	4	5	6	7	8
1	U001 C001		U001 C007		U001 C013		U001 C019	
2	U001 C025		U001 C031		U001 C037		U001 C043	

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.

	1	2	3	4	5	6	7	8
1	U001 C001		U001 C007		U001 C019		U001 C013	
2	U001 C025		U001 C031		U001 C043		U001 C037	

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

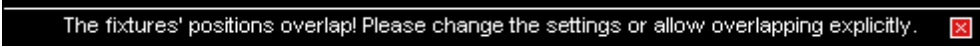
Activating this option will make corresponding fixtures flash for better identification. This makes it easier to see them on stage/in your LED installation. That means, if you select one or several fixtures within the Patch dialog, the corresponding devices in your installation will light up.

Allow Overlapping Fixtures

This feature allows fixtures in your virtual matrix to overlap. In order to rearrange the virtual matrix, a fixture may be dragged/repositioned to the position of another fixture.

Error And Information Messages

The Patch comes with an integrated message system. Depending on the issue, an information box will be displayed at the bottom of the second column. The following image is an example of a message. If overlapping fixtures are not allowed and you would want to relocate a fixture to an occupied position, the following message appears:



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

Fixture Settings, DVI Mapping & Fixture Description For Single Fixtures

Overview

The screenshot shows a software window titled 'Patch' with three main sections:

- Fixture Settings:** Contains fields for 'Short Name' (set to 'RGB_light #0001'), 'Flipping' (Original), 'Offset' (None), 'Rotation' (Original), 'Offset' (+ 0°), 'DMX Channel' (1), 'Offset' (0), 'DMX Universe' (1), 'Offset' (0), 'Position X' (1), 'Offset' (0), and 'Position Y' (1), 'Offset' (0). There are 'OK' and 'Reset' buttons at the bottom.
- DVI Mapping:** Contains fields for 'Flipping' (Original), 'Offset' (None), 'Rotation' (Original), 'Offset' (+ 0°), 'Position X' (1), 'Offset' (0), and 'Position Y' (1), 'Offset' (0).
- Fixture Description:** Displays information about the selected fixture: 'Manufacturer : Igeneric', 'Fixture : RGB Light', 'Protocol : 1 pixel', 'Dimension : 1 x 1', '# Color Channels : 3', and '# DMX Channels : 3'. A 'Save Fixture As' button is at the bottom.

To configure a fixture within the Patch dialog window, just select it in the list to the left or via your virtual matrix. You may use the mouse or the arrow keys on your keyboard to navigate through the list. The according information will be displayed in the third column.

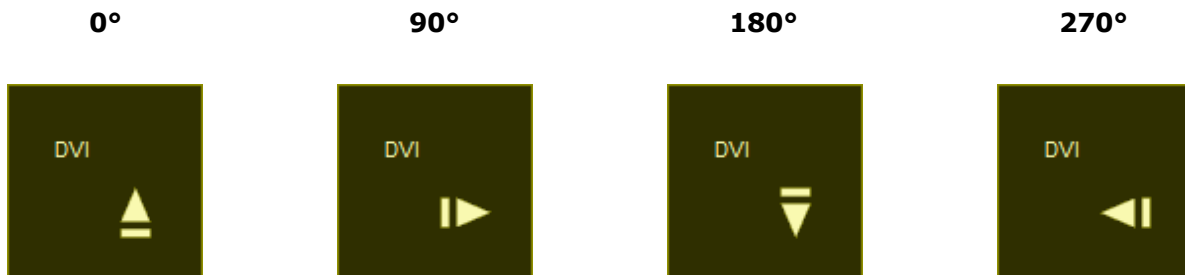
Every single fixture has its own "Fixture Settings". You can edit the short name, flipping, rotation, DMX channel, DMX universe, and its position in the virtual matrix. Moreover, values can be adjusted using an offset, which can simplify the set up process. Please apply every single change by pressing "OK". "Reset" can be used to restore original settings.

The section "DVI Mapping" is only relevant for DVI fixtures. Please read the chapter [DVI Patch](#) for more information.

A detailed "Fixture Description" of the fixture will be given as well.

Fixture Rotation

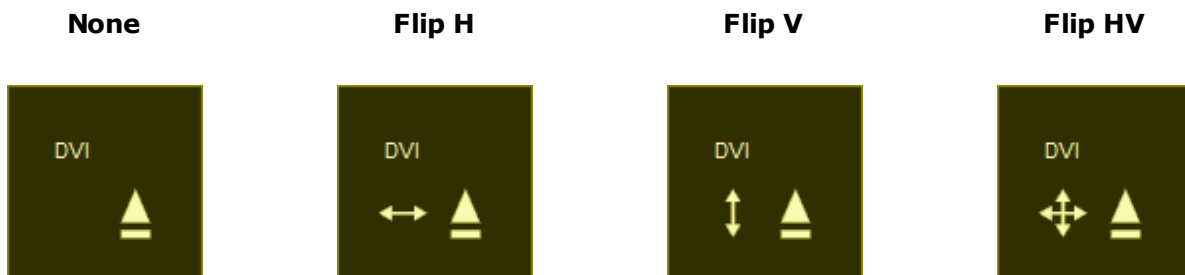
Fixture rotation is shown for both DMX and DVI fixtures with the help of a solid arrow.
(A small baseline indicates the opposite direction of the direction the arrow shows)



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.



Fixture Settings, DVI Mapping & Fixture Description For Multiple Fixtures

The screenshot displays a software interface with three main sections:

- Fixture Settings:** Contains a 'Short Name' text field and six rows of controls. Each row has a dropdown menu (Flipping, Rotation, DMX Channel, DMX Universe, Position X, Position Y) and a corresponding 'Offset' dropdown menu. Each row also includes an 'OK' button.
- DVI Mapping:** Contains four rows of controls: Flipping, Rotation, Position X, and Position Y. Each row has a dropdown menu and an 'Offset' dropdown menu.
- Fixture Description:** A summary section showing 'Limit values' for Position X (1 - 2), Position Y (1), Channels (001 - 004), and Universes (001).

To configure multiple fixtures within the Patch window, you can simply select them in the fixture list to the left side of the screen by using and holding "Ctrl" or "Shift" while clicking in order to select several devices.

The according information will be displayed in the third column. The usual "OK" and "Reset" buttons below the settings will vanish and several new "OK" buttons will emerge. Simply change the specific settings and apply the changes by pressing "OK".

For example if you select several fixtures and adjust the "Rotation" in the "Fixture Settings", each fixture will be rotated.

A detailed "Fixture Description" will provide a summary about the selected fixtures as well.

Exporting Fixtures From The Patch



If you wish to save a fixture directly from the Patch, without using the **Fixture Editor** first, select the fixture and use the button **"Save Fixture As"**. MADRIX will save it on your hard disk as an MADRIX Fixture in *.mfx file format. Simply choose a name.

How The Patch Affects The Internal Previews

Preview A, Preview B, and Preview Output will be influenced by the individual Patch you are creating. If you create a pattern, these Previews will reflect your LED installation. Learn how to use this feature in the chapter **Preview Windows**.

Further Tips

Please make sure to save your MADRIX Setup after the configuration process.

You may also save and/or export the Patch file (*.mpf) separately.

3.3 DVI Patch

Introduction

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

Patch and DVI Patch are one and the same tool in MADRIX. The chapter DVI Patch specifically refers to using DVI fixtures.

To open the Patch, go to the menu and click **"Preferences"** -> **"Patch"** or simply press the key **"F3"**.

Usage

Working with DMX-based fixtures is relatively easy and can be managed with the help of the MADRIX Patch without much difficulty. You can simply add rotated fixtures or add space between fixtures, for example. Without the MADRIX DVI Patch 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 DVI-based installations.

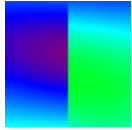
How DVI Hardware Controllers Work

DVI controllers receive a signal (input) and map it to the LED fixtures (output). But due to their construction, DVI controllers 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 them 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 comparable to this:



MADRIX 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 Preview Windows, so-called DVI Maps represent how the controller should receive the signal. As shown above, DVI fixture and DVI map often are two different things **if** you add rotation, flipping, or spacing. That is why in MADRIX you will have to configure both DVI fixture and DVI map separately. The DVI Patch provides a normal view and a view called "DVI Map Mode", which makes it possible to configure both.

Basic Workflow (Step By Step)

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

Step 1) Position your DVI fixtures in the workspace of the Patch according to your LED installation.

Step 2) Set up the size of your virtual matrix (the Patch Size). It normally includes all of your DVI fixtures.

Step 3) Activate the DVI Map Mode (Ctrl+M) in the Patch.

Step 4) Position the DVI Map of every DVI fixture according to the requirements of your DVI hardware controller. (The first DVI Map normally starts at position x:1, y:1.)

Step 5) Activate the DVI Map Mode of the external DVI Output window(s).

Step 1 and 2 are explained in more detail in the chapter [Patch](#).

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 DVI fixtures.

DVI Maps & DVI Map Mode

Overview



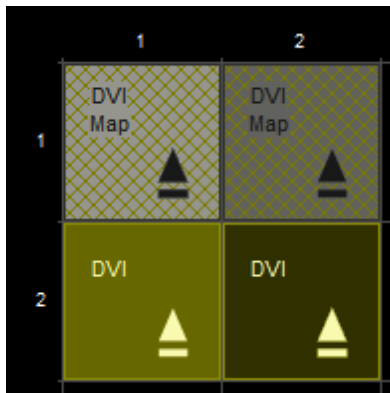
DVI Maps represent the fixture configuration for the DVI hardware controller. DVI Maps have the same size as the fixture, but they have their own position, rotation, and flipping settings.

In order to work with DVI Maps, you need to activate DVI Map Mode. You can activate DVI Map Mode in the Patch menu **"View" -> "DVI Map Mode"** or by using the shortcut **"Ctrl+M"**.

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

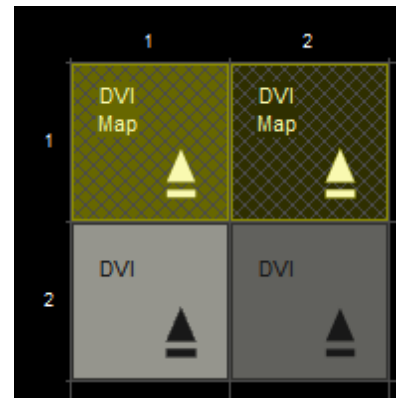
Comparison of Normal Mode and DVI Map Mode

DVI Maps in Normal Mode	DVI Maps in DVI Map Mode



DVI Maps are inactive in Normal Mode. They are shown in grey with a grid.

(Column 1 shows a selected fixture and DVI Map. Column 2 shows a non-selected fixture and DVI Map.)



DVI Maps are active in DVI Map Mode. They are shown in yellow with a grid.

(Column 1 shows a selected fixture and DVI Map. Column 2 shows a non-selected fixture and DVI Map.)



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



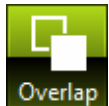
When DVI fixture and DVI Map have the same position, the DVI Map is shown.



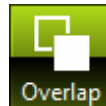
By default, DVI fixture and DVI Map are linked together. If a setting, such as rotation, is set for the fixture or the DVI Map, the opposite element (which then is the DVI Map or the fixture) will receive the same setting or a corresponding offset. Deactivate the feature in the menu **"Preferences" -> "Link DVI Maps and Fixtures"** or **"Ctrl+L"**. If activated, the icon glows green in the toolbar.



By default, DVI fixture and DVI Map are **not** linked together and can be set up separately. If a setting, such as rotation, is set for the fixture or the DVI Map, the opposite element (which then is the DVI Map or the fixture) will not receive the same setting or a corresponding offset. Activate the feature in the menu **"Preferences" -> "Link DVI Maps and Fixtures"** or **"Ctrl+L"**. If activated, the icon glows green in the toolbar.



DVI fixtures can overlap, that means they can be positioned over another. You need to activate **"Allow Overlapping"** from the menu **"Preferences"**. If activated, the icon glows green in the toolbar.



DVI Maps can overlap, that means they can be positioned over another. You need to activate **"Allow Overlapping"** from the menu **"Preferences"**. If activated, the icon glows green in the toolbar.



DVI fixtures can be easily copied. Enable or disable **"Copy DVI Maps With Fixtures"** in the Patch menu **"Preferences"** to decide how DVI Maps are handled when copying a DVI fixture.

DVI Maps cannot be copied like DVI fixtures in DVI Map Mode. Please switch back to normal mode.

1) Disabled: If a DVI fixture is copied, the copied DVI Map is reset to its default settings, that means to the position of the newly copied DVI fixtures. In fact, a new DVI Map will be created for the copied DVI fixture.

2) Enabled: If a DVI fixture is copied, the copied DVI Map matches the settings of the source DVI Map or a corresponding offset.

If activated, the icon glows green in the toolbar.



Reset one or several selected DVI Maps by choosing **"Reset Selected DVI Maps"** from the **"Edit"** menu. If pressed, the icon flashes shortly green in the toolbar.



Reset one or several selected DVI Maps by choosing **"Reset Selected DVI Maps"** from the **"Edit"** menu. If pressed, the icon flashes shortly green in the toolbar.

DVI Mapping (Interaction & Settings)



DVI Maps can be used in the Patch just as any other fixture. In other words, they can be positioned with the mouse or keyboard, for example. Please have a look at the chapter [Patch](#) for more information on how to work with fixtures and thus DVI Maps.

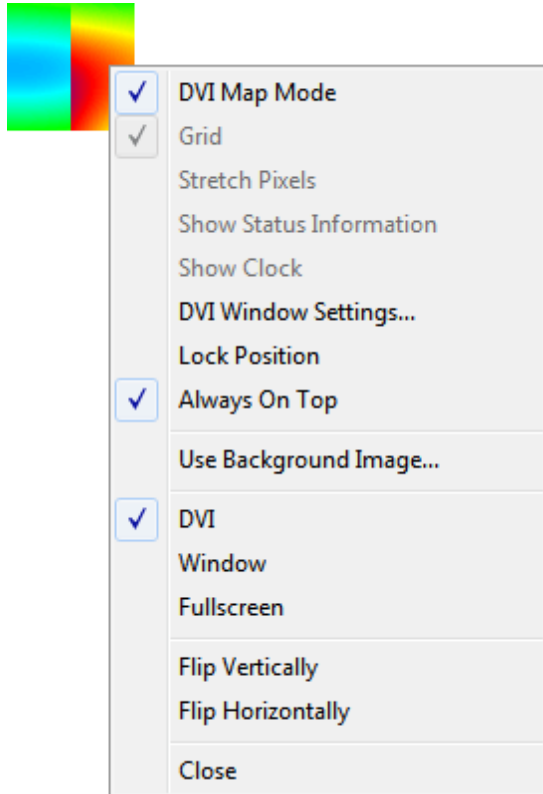
You may also edit the properties of a selected DVI Map with the help of the section "**DVI Mapping**" to the right. You may change the flipping, rotation, or position of the DVI Map. You can also use an "**Offset**" for each of these items.

At the same time, the section DVI Mapping shows all necessary information for the DVI Map.

Activating DVI Map Mode For The External DVI Output Windows

Please activate **DVI Map Mode** for your external DVI Preview window.

Activating DVI Map Mode for the external DVI Preview window is only **necessary for screen-capturing**.



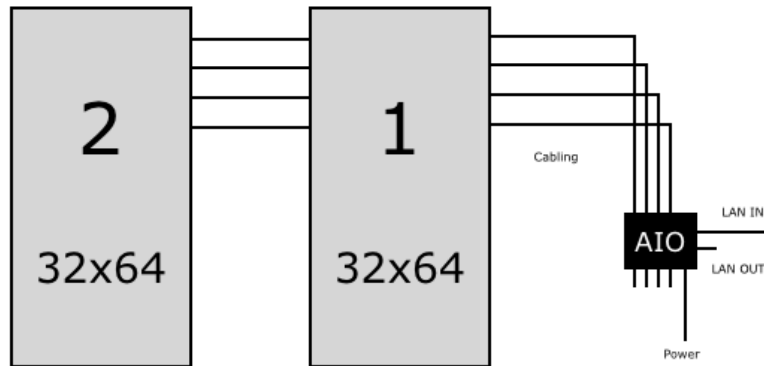
Please note: More information about using DVI output can be found in the chapter [DVI](#).

Example

How To Configure Two Rotated EUROLITE LSD 37.5

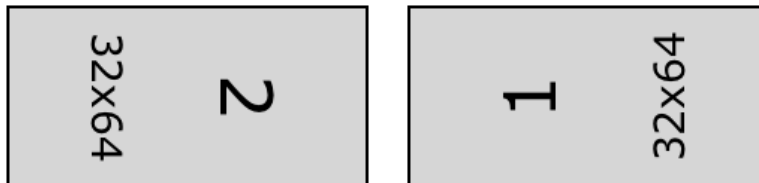
Normal Setup

The normal setup of two EUROLITE LSD 37.5 fixtures looks like this (schematic):



Example Setup

In this example we will configure the two fixtures to be installed like this (schematic):

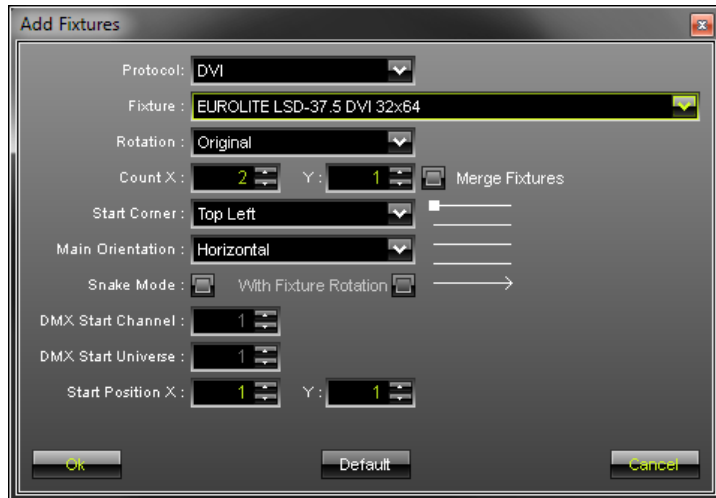


1. Adding DVI Fixtures

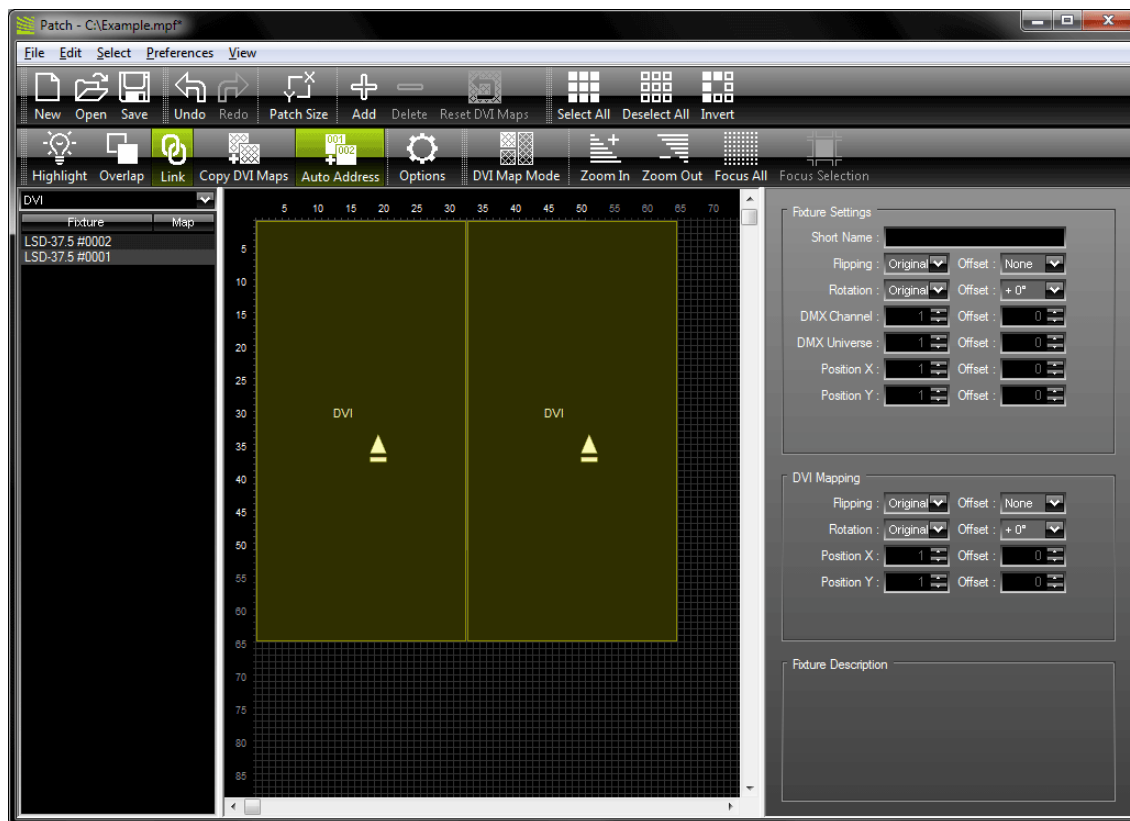
First, we create a new Patch. Please go to the menu "File" -> "New" or use "Ctrl+N".

Second, we add the two fixtures. Please go to the menu "Edit" -> "Add Fixtures..." or use "Ins".

Make sure to **not** select "Merge Fixtures".

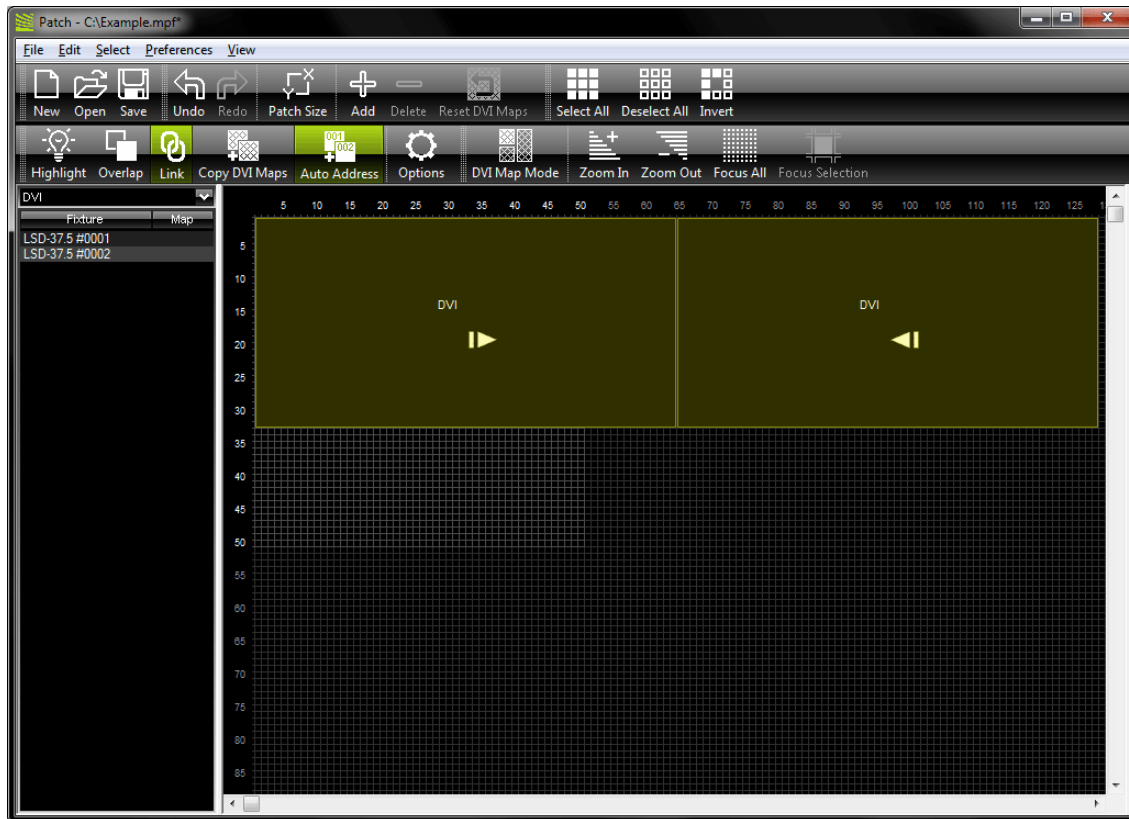


The Patch will look like this:



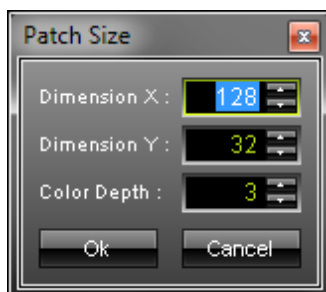
Now, we need to rotate both fixtures to match the LED installation:

(If you receive the error message "The DVI mapped positions are out of the valid range! Please change the settings", then move your fixture or DVI Map towards a free space on your workspace.
)



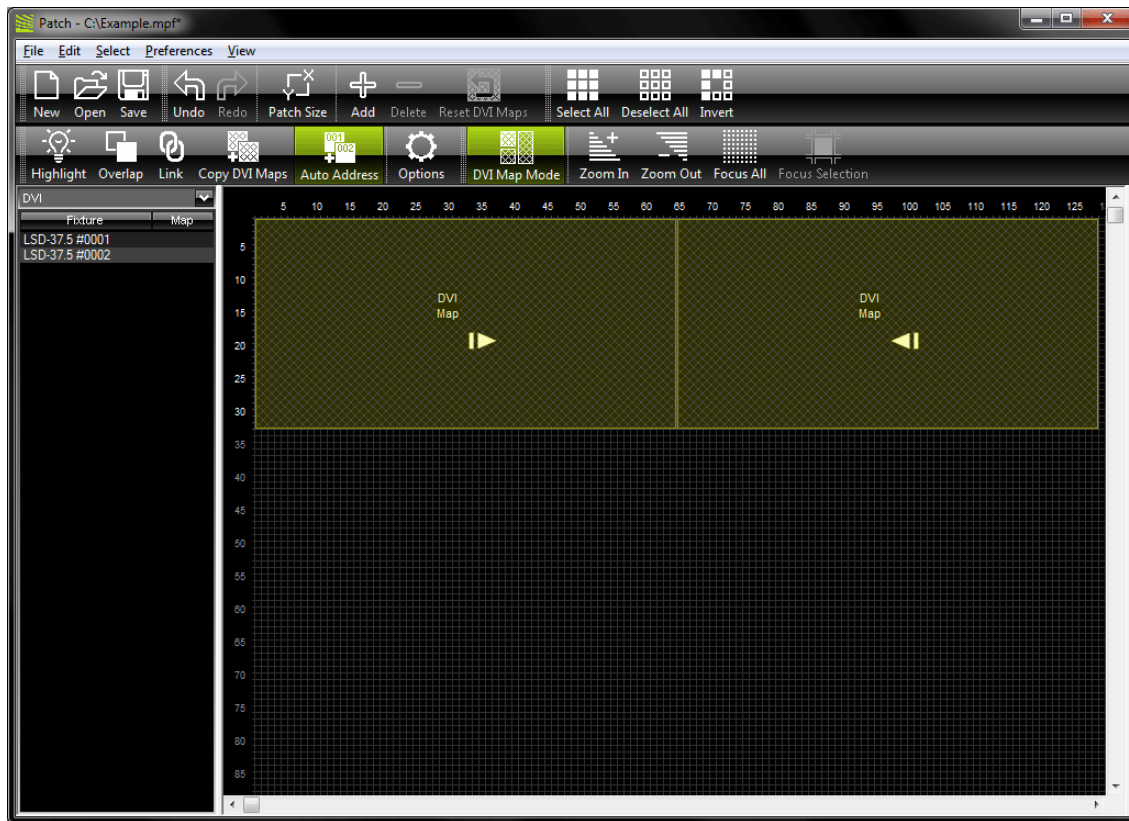
2. Size Of The Virtual Matrix

Now, go to the menu "Edit" -> "Patch Size". Enter 128 for Dimension X and 32 for Dimension Y. The virtual matrix now matches the size of both fixtures in total.



3. Activating DVI Map Mode

Activate DVI Map Mode via the menu "View" -> "DVI Map Mode" or via "Ctrl+M".

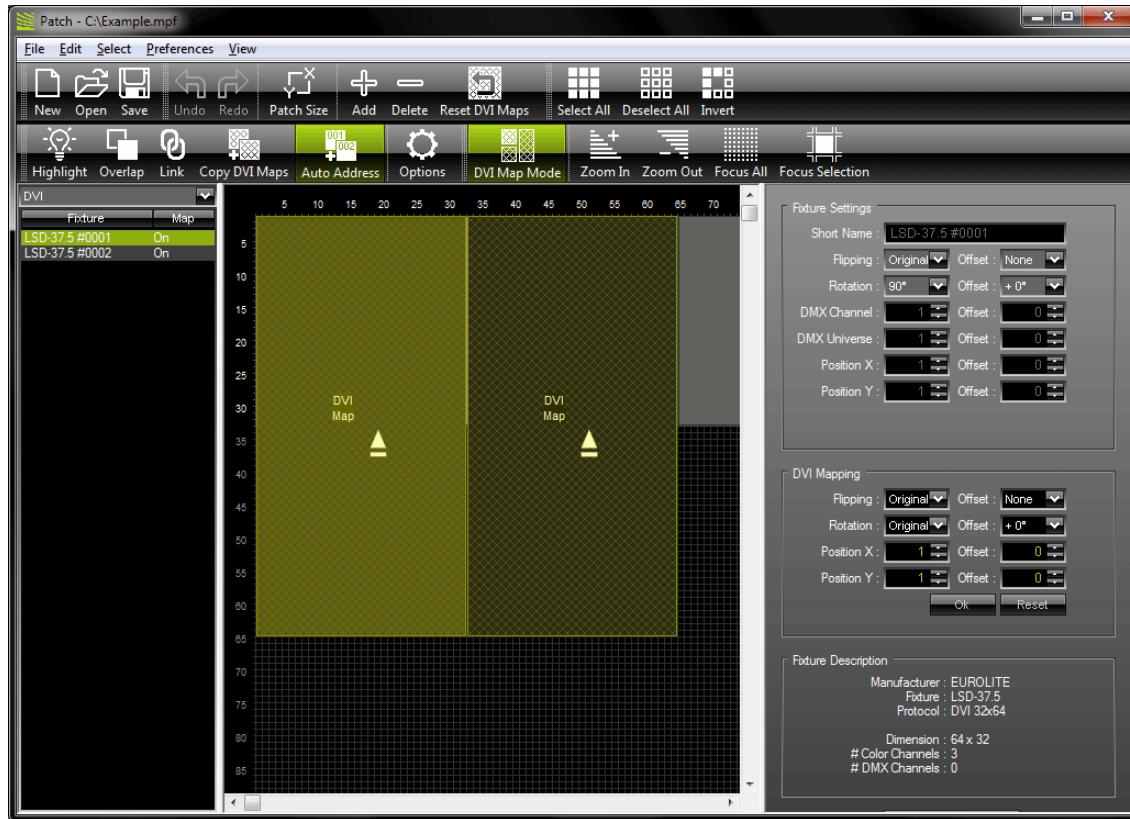


4. Configuration Of The DVI Maps

Select the first DVI Map and position it at the center of your workspace. Change the "Rotation" to "Original" in the section "DVI Mapping". Press "OK".

Now, select the second DVI Map and position it at the center of your workspace. Change the "Rotation" to "Original" in the section "DVI Mapping". Press "OK".

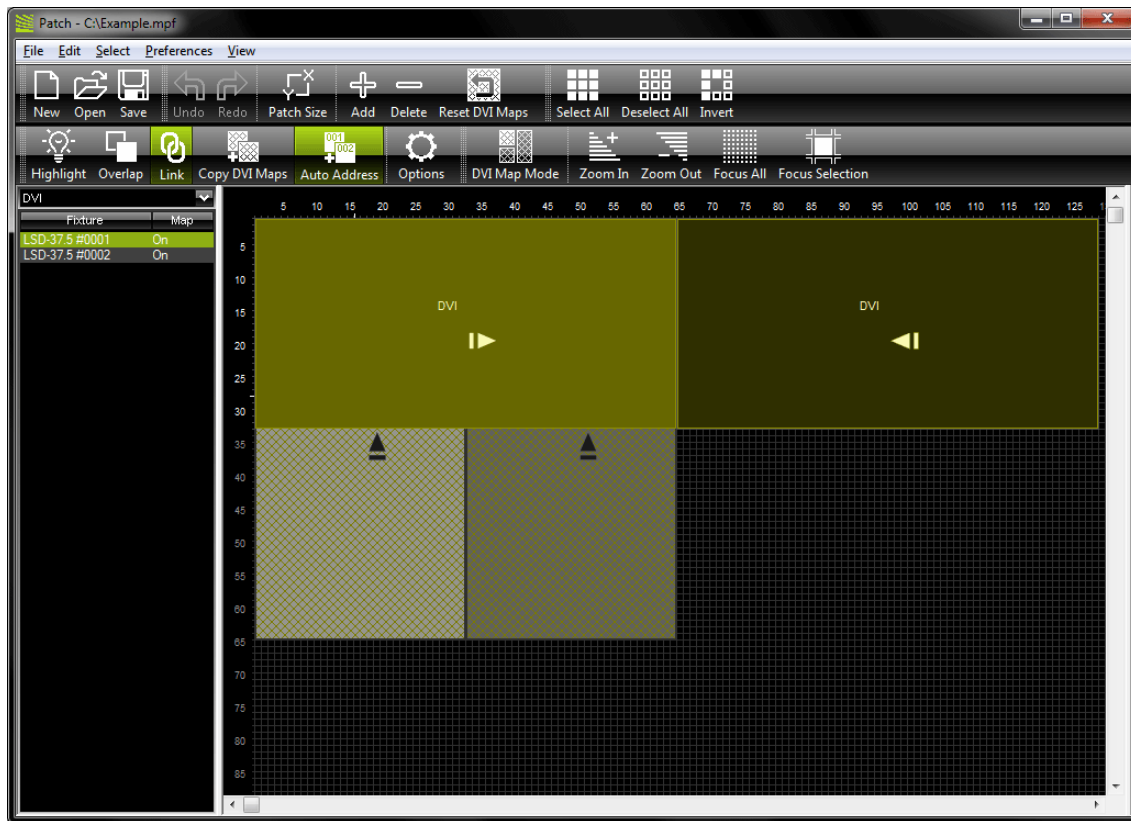
Then, arrange both DVI Maps next to each other in the upper left corner. DVI Map 1 is positioned at x:1, y:1 and DVI Map 2 is positioned at x:33, y:1.



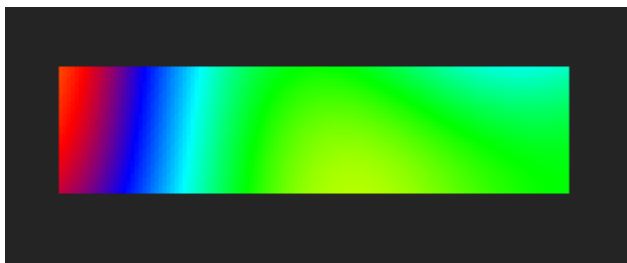
Deactivate DVI Map Mode.

5. Result

Your final Patch should look like this:



As you can see, all DVI fixtures and DVI Maps are visible. The DVI fixtures and therefore the three internal Previews will represent your LED installation:



The DVI Map needed to be patched 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 Maps and DVI fixtures are not linked in DVI Map Mode (Disable Link mode).

If you receive the error message "The DVI mapped positions are out of the valid range! Please change the settings", then move your fixture or DVI Map towards a free area on your workspace.

Further Tips

Please make sure to save your MADRIX Setup after the configuration process.

You may also save and/or export the Patch file (*.mpf) separately.

3.4 Storage Places, Submaster, And Cue

Introduction



The chapter [Storage Areas](#) already introduced the controls you can find in Storage Area A and Storage Area B. This chapter focuses on how to work with Storage Places. It will also provide more details regarding Submaster and cue function.

Working With Storage Places

Overview

MADRIX provides **2 x 60 Storage Places** to save your effects. They are located in Storage A and Storage B, which are positioned below the preview windows. The Storage Places are consecutively numbered from 1 to 60.



Click the desired Storage Place number, choose an effect from the list of effects, and customize the effect according to your needs. You can learn more about how to set up an effect in the chapter [Effects](#).

After setting up your effect, the effect itself and all corresponding settings will be saved automatically in this Storage Place. You will see a green arrow displayed in the lower right corner of a Storage Place if you have chosen and modified an effect. This corner light indicates that this Storage Place is not empty.



If you click a Storage Place, you activate it. After you did select it this way, the button will light up and change into a green-colored button. In this way you know, which Storage Place is currently used.



You can have a small preview of your effects if you hover with your mouse over a Storage Place. A thumbnail will show your effect.

Intro

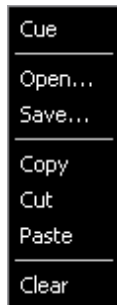
Also, remember to give your effect a name with the help of the description field.

Please note that Storage Places on the other hand are saved in MADRIX setup files. Learn more in the chapter [File Types](#).

No FX

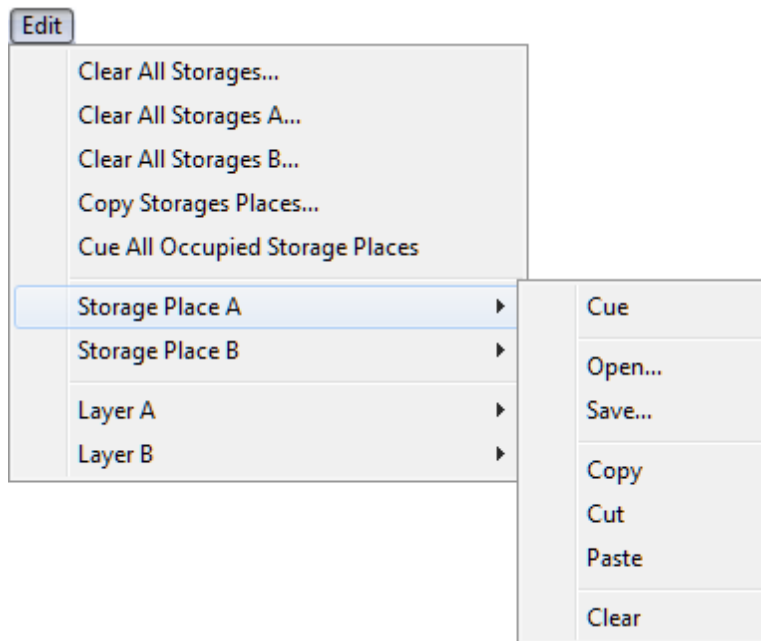
Using the **"FX"** button will present you with a number of choices to instantly change the visual outcome of the effect. This means you can quickly apply certain filters. Learn more in the chapter [Layers](#).

Context Menu



The Storage Places are equipped with a context menu. Simply perform a right-click on a single Storage Place and the menu will appear. You may **"Cue"**, **"Open"**, **"Save"**, **"Copy"**, **"Cut"**, **"Paste"**, and **"Clear"** a Storage.

The same context menu is available in the menu:



Cue

Cue will add the currently selected Storage Place to the Cue List.

Open Or Save

Single Storage Places can be saved. This means that you can save individual effects. They will be stored in the *.mef file format. Likewise, you can load a Storage Place you once stored by choosing **"Open"**. Learn more about files in the chapter [File Types](#).

Copy, Cut, And Paste

In total, 120 Storage Places are available to you. If you would like to duplicate or rearrange your setup of Storage Places, use these functions. Be also sure to read the section "Drag & Drop" below.

Here is an example: Select a Storage Place that contains an effect. Then, press copy, and select another Storage Place. Click paste. Now, your original effect will be copied from the original Storage to the target Storage. Both Storage Places will show the same effect.

Clear

If you would like to delete an effect and restore the blank Storage Place, choose the option **"Clear"**.

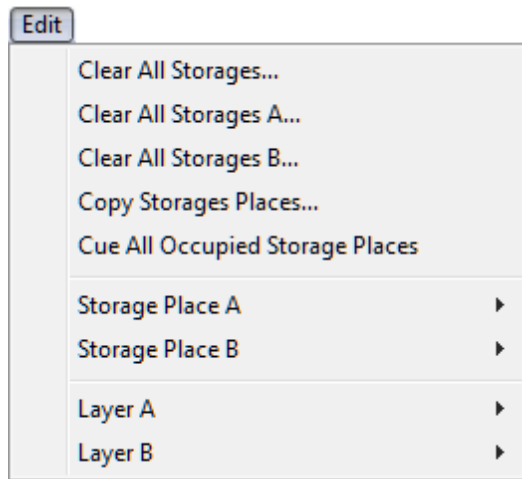
Drag & Drop

The options **"Copy and Paste"** and **"Cut and Paste"** are also available using **drag & drop**.

Select a Storage Place and while holding the mouse button, drag it to another Storage Place. This performs a "Copy and Paste". Additionally, hold the "Shift" key during this procedure and a "Cut and Paste" will be performed. Both actions do work within one Storage Area or between both Storage Areas.

In addition, you can select a *.mef file in Windows and drag it to a Storage Place of your choice in MADRIX. Such a file is created when you save a Storage Place. Learn more about files in the chapter [File Types](#).

Options From The Edit Menu

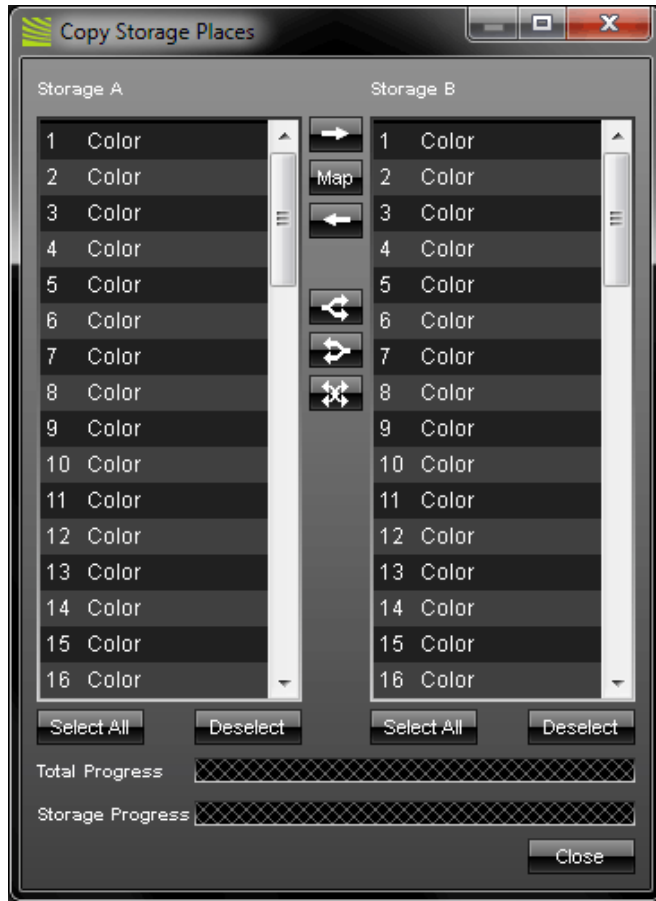


Clear

In the Edit menu you can "**Clear all Storages**", "**Clear all Storages A**", and "**Clear all Storages B**". This actions will clear all settings on selected Storages. This means that all Storage Places will be deleted and restored to their default state. You will have to confirm your selection with "Yes".

Copy

With the item "**Copy Storage Places**" you can copy one, multiple, or all Storage Places from A to B or from B to A. You will see the following dialog open, when you select it.



Storage A is shown in the left part and the Storage B in the right part.

Select All

Use the **"Select All"** button to select all entries in the list of Storage A or B, respectively.

Deselect

Use the button **"Deselect"** to undo your selection. No Storage Place will be selected anymore.

In general, you should first select all Storages you want to copy. Navigate to the other list and choose the Storage Places where your selected Storages should be saved. Then, use one of the buttons described below.

Please use the "Ctrl" or "Shift" keys for multiple selection. Especially, in the case of copying images and videos it may take a while to copy all Storage Places. The two progress bars at the bottom of the window will show you the progress.



Please select the Storages you want to copy and then click on the right arrow to copy them from A to B. In this process, the Storages will be assigned their previous numbering. In other words, Storages 1 to 8 of Storage A will be copied to 1 to 8 in Storage B.



Please select the Storages you want to copy and then click on the right arrow to copy them from B to A. In this process, the Storages will be assigned their previous numbering. In other words, Storages 10 to 15 of Storage B will be copied to 10 to 15 in Storage A.



With an activated Map button you can copy selected Storages defining their exact spot in the lists. Hence, you can copy one Storage Place to a different Storage Place in the other Storage. In this way, you can change the numbering. For example, you want to copy Storage Place A1 to Storage Place B50. Using only the arrow keys, as described above, this is not possible. Using the **"Map"** function makes it possible. When activated, the button will glow green.



Use this button to copy one single Storage Place from Storage A to several Storage Places in Storage B. Simply select the effect in the list of Storage A and select multiple Storage Places in the right list. Then press this button.



Use this button to copy one single Storage Place from Storage B to several Storage Places in Storage A. Simply select the effect in the list of Storage B and select multiple Storage Places in the left list. Then press this button.



Select one single Storage Place in the left or right list and then press this button. The selected Storage Place will be copied to all other 119 Storage Places.

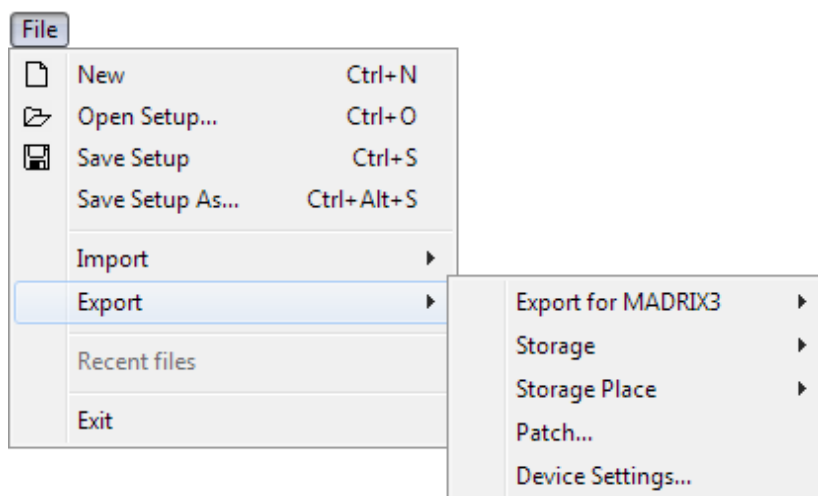
Cue

You can add all Storage Places that contain an effect to the Cue List with the item "**Cue All Occupied Storage Places**".

Options From The File Menu

Similar to saving a single Storage Place, you can save or load an entire Storage Area. If 120 Storage Places are not enough, this might be a good possibility.

This options available from the File menu.



To save a Storage Area, go to **"Export" -> "Storage" -> "Storage A" or "Storage B"**. The file will be a MADRIX Storage Setup File (*.mss). To load a Storage Area, go to **"Import" -> "Storage" -> "Storage A" or "Storage B"**.

Submaster And Cue



The Submaster can be found at the bottom of a Storage Area. The Submaster can be used to control the intensity of a selected Storage Place. It only works for the Storage Place that you did select. It does not control the main output. If you want to adjust the overall intensity, you need to use the **Master Fader**.

Upon clicking, the **"Sub"** button extends to a fader. Please make sure to press and hold the button at the same time. Afterwards, you can easily move the fader with your mouse. A range of 0 to 255 provides a precise adjustment of the intensity. A value of 0 renders the effect completely black.



Using the **"Cue"** button will automatically add the selected Storage Place to the Cue List. The newly created Cue List entry will include all the applied parameters, like the description of the Storage Place or the fade duration and fade type of the crossfader in the Fade Area.

Using A Storage Place Macro



Storage Place macros affect an entire Storage Place including all layers. You can find more details in the chapter [Macros & Scripts](#).

3.5 Speed Master

Overview



The so-called **Speed Master** is a fader that is positioned on the right side of each Storage Area. The fader allows you to speed up and slow down effects. Thereby, every effect of Storage A or B will be affected. In this way, the Speed Master increases or decreases the speed of the whole Storage Area.

Move the fader upwards to increase the speed of the running effect(s). Move the fader downwards to decrease the velocity. A label on the fader indicates the current value. The Speed Master offers a speed range from "+10" to "-10", which says if you have set a positive or negative acceleration. The value "1.0" indicates normal speed. It is the default value. As a result, effects will play with the BPM speed that is selected in the Effect Area. A value of 0.0 means that all the effects are stopped. Values higher than 1.0 accelerate the speed of effects. Values lower than 1.0 but higher than 0.0 slow down effects. Negative values will reverse the direction of effects.

Perform a **double-click** on the slider and the Speed Master will be reset to its default value of 1.0.

Pause



Below such a Speed Master you can find a **"Pause"** button. This button is to halt the effect.

Click and hold the button to pause the effect as long as you hold the mouse button. Perform a double-click in order to halt the effect permanently. A single click deactivates the permanent stop again.

3.6 Effects

Selecting An Effect

MADRIX includes two areas (Effect Area A and Effect Area B). A drop-down list allows you to select an effect.



Variety Of Effects

MADRIX offers a large variety of effects as you can see from the list in the screenshot. They are arranged into four categories: Static Color Effects (SCE), Sound2Light Effects (S2L), Music2Light Effects (M2L) and the MAS Script Effect. These categories and their effects are explained in detail in the chapter [MADRIX Effects](#).

Configuration Of Effects & Layers

Effect Area A and B provide a number of buttons and controls to configure your effects. Please have a look at the chapter [Effect Areas A & B](#) to learn more.

Moreover, you can choose one effect per layer from the drop-down lists. Working with [Layers](#) is described in the next chapter.

Using Several Effects And Saving Effects

The selected effect will be automatically saved in the selected Storage Place. MADRIX offers 60 Storage Places in each Storage Area. Hence, you will be able to create a lot of effects and storing is automatically handled by the software. Learn more in the chapter [Storage Places, Submaster, and Cue](#). Please note that Storage Places on the other hand are saved in MADRIX setup files. Learn more in the chapter [File Types](#).

3.7 Layers

Introduction



If you want to use layers, you have to set up an effect first. This effect will automatically be handled as one, single layer. That means that each effect is also a layer at the same time.

While the usage of one layer allows for the selection of only one effect, the utilization of multiple layers, which are stacked on top of each other, can alter the displayed effects and images massively. In this way, you can use layers in MADRIX to compose your own original effects. A layer can be modified in various ways, such as setting the opacity or using the link or mix modes. Layers dramatically increase the usability and flexibility of an experienced user.

The layer section can be found at the bottom of each Effect Area. Layers are illustrated in MADRIX with the help of tabs. Layer 1 will always be located to the left of an Effect Area. If you are using more than one layer, you will see several tabs. MADRIX supports an unlimited number of layers. (The actual number of layers available for use depends on your computer performance and matrix size.)

General Options

Buttons And Controls



The order of layers can be easily changed. You can move a layer to the left and to the right by simply clicking on the arrows of an active layer tab. Then, the layer will change its position and move in the according direction.



Use the **Blind button** in order to hide the currently selected layer. It instantly sets the opacity of the layer to 0. 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. A 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.



Use the **Solo button** in order to hide every layer except the currently selected. Hence, the layer is the only one that will be displayed. The layer tab will pulsate in green if solo mode is active. Solo mode overrides blind mode.



This button opens the Effect Macro Editor. You can find more details in the chapter [Macros & Scripts](#).



Use the **Reset button** to restore the default settings of the currently selected layer.

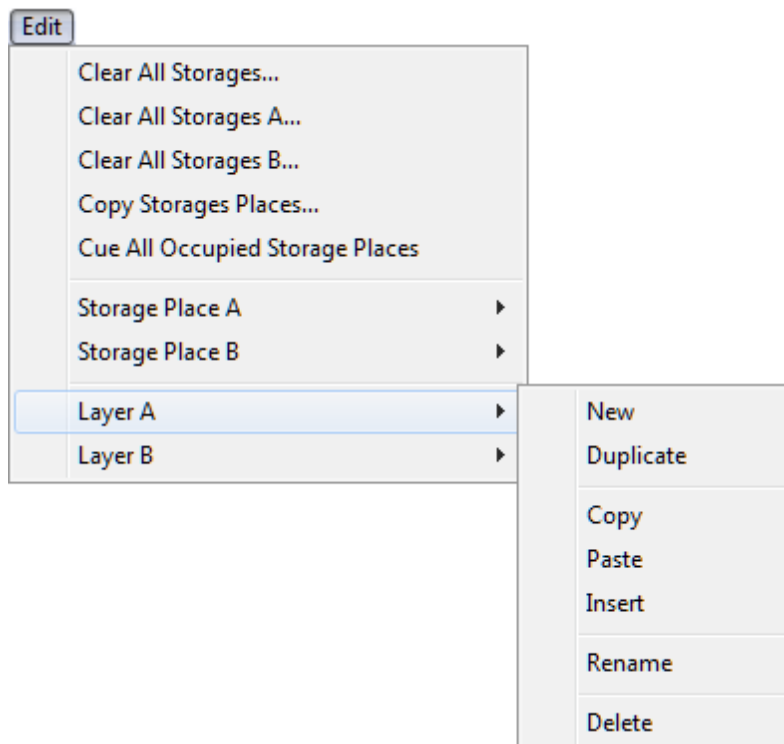


"Double-click" a layer tab and you will be able to rename the description of this layer tab. Hit "Enter" to accept the changes.

Context Menu



The context menu for layers can be accessed in three different ways. You can call it up via the **"Layer"** button at the bottom or you can perform a "right-click" on a single **layer tab**. You could also use the Edit Menu.



Afterwards, you can choose to from several actions.

Use **"New"** to create a new layer with default settings. Use **"Duplicate"** to reproduce the selected layer, which will add a copy/a new layer with the same setup next to it. Use **"Copy"** to store the settings of the selected layer to the clipboard. Then, use **"Paste"** to apply the stored settings to the layer you have currently selected. This does not create a new layer, but overwrites the settings. Click **"Insert"** to create a new layer using the settings stored in the clipboard. **"Rename"** can be used to change the description of a layer tab. Then, hit "Enter" to accept the changes. Use **"Delete"** in order to remove the layer in use from the effect.

Layer Opacity



You can use opacity to create overlapping layers. The opacity fader determines the opacity of the currently selected layer. You will get 100% coloring by pulling the layer to the far right. A value of 127, i.e. the middle position, sets the opacity to 50%.



You can also use the input field to enter a certain value. The values range from 0 to 255, the highest value with zero opacity.

Tip: If you double-click the fader area (using the left mouse button), the slider will position itself at 50% opacity.

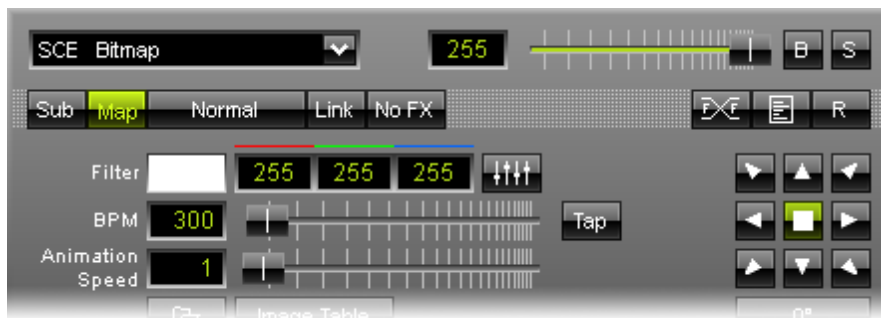
Using The Submaster



Use the Submaster to adjust the intensity of the current layer. A value of 255 represents full opacity and a value of 0 hides the layer. It will be rendered black, then. The Submaster overrides Link mode.

Using Map And Tile Functions

Use the **"Map"** button. For more information, see [Map, Tile, And Rotation](#).



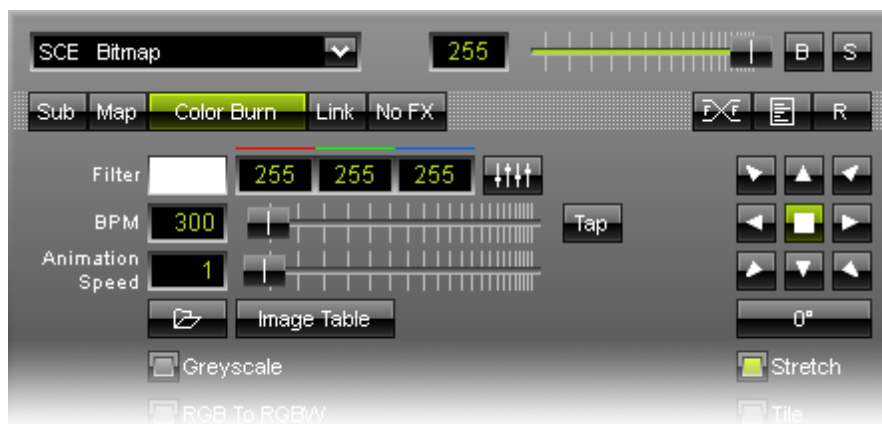
Layer Mix Modes

Introduction

Layers can blend into each other using one of several options. 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.



If you want to use layer mix modes, please click the button between the Map and the Link button. It is labeled "Normal" by default. This button functions as a drop-down list. In the example shown here you can see that the mix mode "Color Burn" is now selected.



You can choose from **over 20 different layer mix modes**. These options make it possible to change how layers are graphically merged with each other, i.e. with an underlying layer.

Keep in mind that a layer's opacity and mix mode interact with the opacity and modes of the layers underneath.

Mix Modes In Detail

You can select the following mix modes:

Normal, Darken, Multiply, Color Burn, Linear Burn, Lighten, Screen, Color Dodge, Linear Dodge, Overlay, Soft Light, Hard Light, Vivid Light, Linear Light, Pin Light, Hard Mix, Difference, Exclusion, AND, OR, XOR, NAND, NOR, and Mask.

How mix modes work:

Mix modes are based on basic mathematical calculations. As such, mix modes combine the color values (tonal values) of two layers in different ways. A foreground layer and a background layer are used.

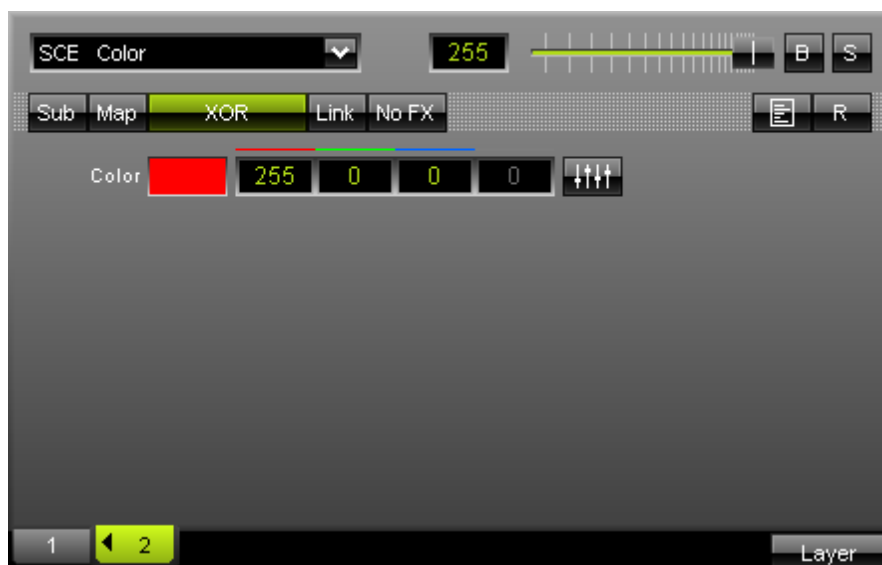
All Mix Modes, except for Mask, work pixel by pixel and color channel by color channel. That means, each single pixel of the foreground layer is combined with the corresponding pixel of the background layer. And each color channel of a single pixel is combined with the equivalent color channel of the corresponding pixel.

How to apply a mix mode:

You can use mix modes, if you have at least two 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.

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.



List of Mix Modes

Normal Normal Darken Multiply Color Burn Linear Burn Lighten Screen Color Dodge Linear Dodge Overlay Soft Light Hard Light Vivid Light Linear Light Pin Light Hard Mix Difference Exclusion AND OR XOR NAND NOR Mask	Normal	"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	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	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). The result will look the same if you change the position of one layer with the position of the other layer.
	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	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	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	Is a combination of Multiply and Screen. The result depends the intensity of layer 1. If layer 1 is darker than 50% Grey, 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% Grey 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	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	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% Grey, layer 1 will be brightened. If layer 2 is darker than 50% Grey, 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	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	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	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	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	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	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 grey values will heavily change the contrast, up to a complete grey. The result will look the same if you change the position of one layer with the position of the other layer.
	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	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.

	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.
	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.
	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.
	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.

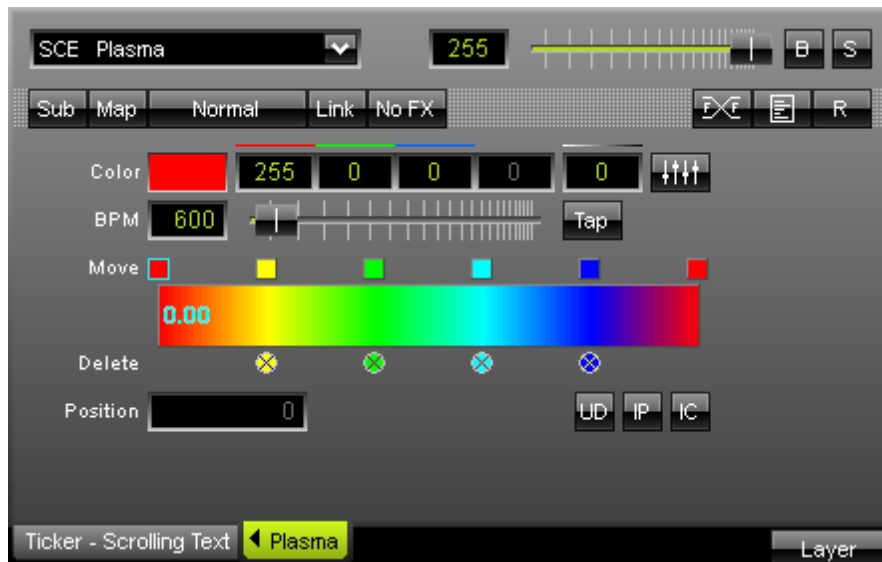
Link Mode



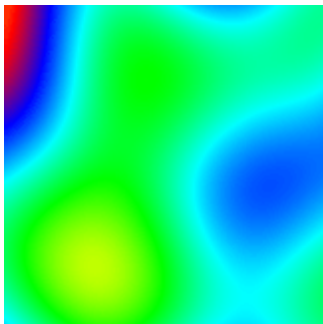
The **"Link"** button links two layers. Linking layers is very useful if you are working with several layers. If you activate Link mode, the currently selected layer will be linked to the layer underneath. It means that it will be linked to the **layer left to it**.

Example 1

We have created an effect with two layers. Layer 1 is the SCE Ticker effect and layer 2 is SCE Plasma.

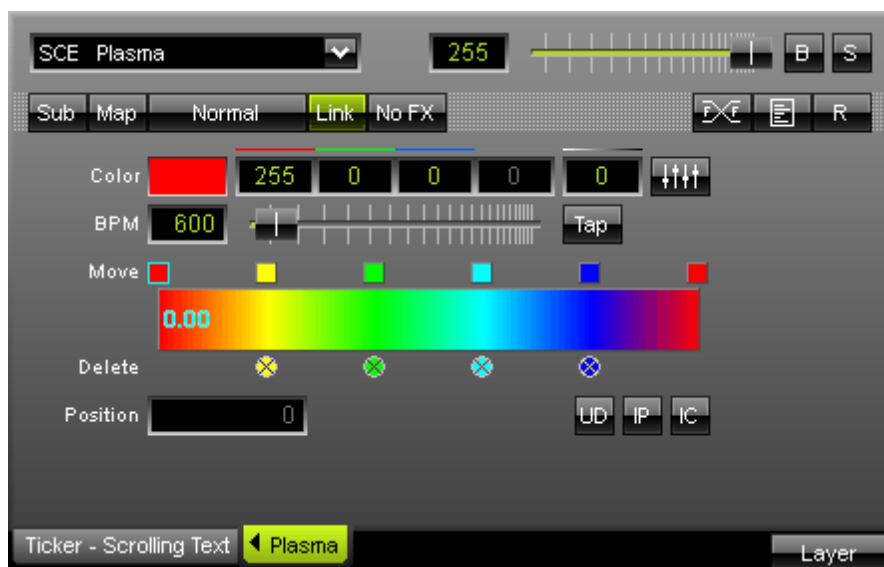


As a first result, you will get the following preview. Because of the two layers and standard settings the top layer is the only layer that is displayed.



Without Link Mode

Now, let us activate Link mode. Note that the Link Mode button glows green.



As a result, both layers will be merged and the preview looks totally 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.

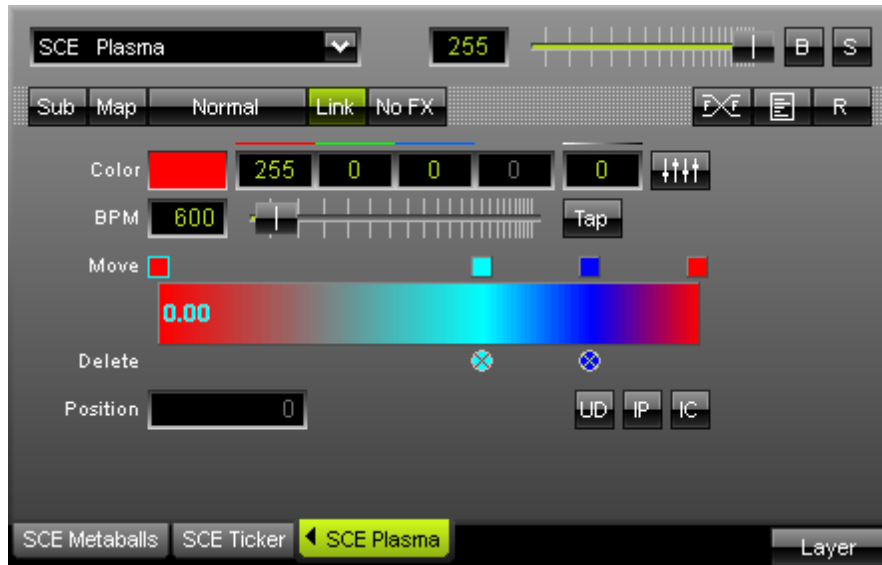
As previously described, effects may be build out of several layers. Each layer can contain a different MADRIX Effect.

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 layers, which are linked, like one layer in the render process.

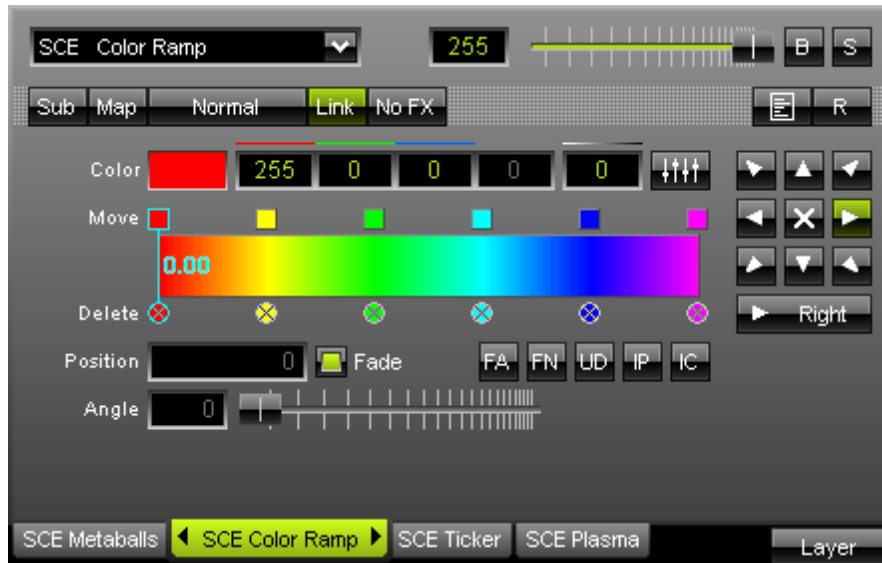
In this second example, we set up three different layers. Layer 1 (SCE Metaballs) and layer 2 (SCE Ticker) are used with their default settings. Only layer 3 (SCE Plasma) is linked to layer 2.



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.



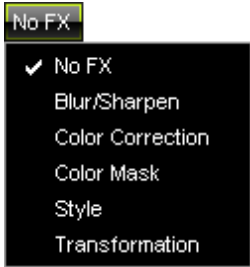
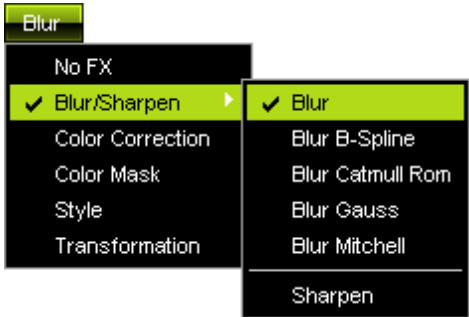
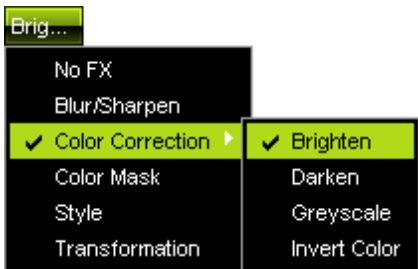
If we now add a fourth layer (SCE Color Ramp at position 2) and link it to layer 1, we will see that the text looks still the same. But the Metaballs effect (layer 1) now has the colors of the Color Ramp.

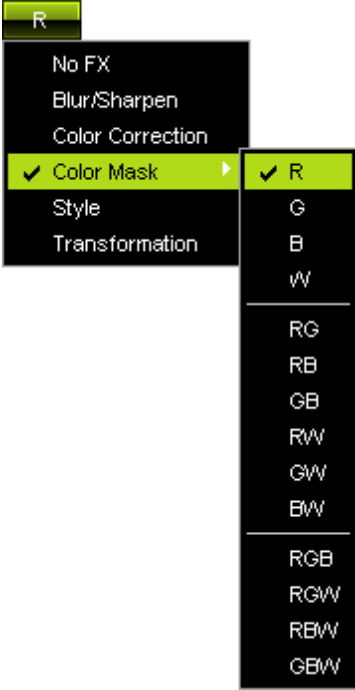
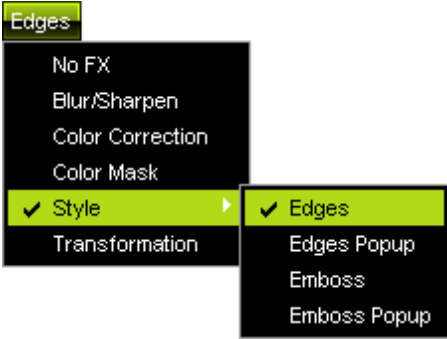
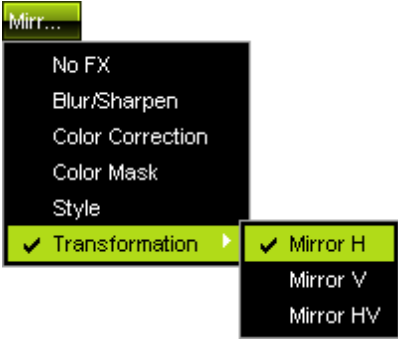


Layer Effects (FX)



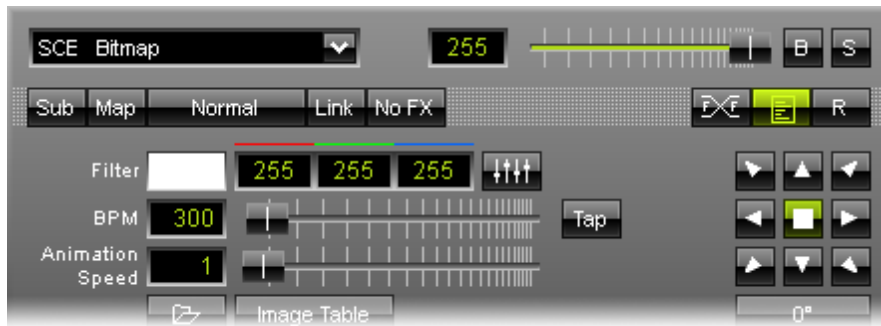
Special effects can be quickly applied to layers (or whole Storage Places). Such FX add visual effects to the current layer. You can choose one Effect per Storage Place and one per layer (also at the same time).

	There are several categories to choose from. Each category contains several options to change the visual appearance of your layer or effect. Choose No FX to disable the additional visual effects. The effect will be displayed as normal.
	The category Blur/Sharpen includes five modes to blur/smudge. You can choose one option to sharpen the effect.
	The category Color Correction includes four modes to change the colors of your effect. Choose Brighten to increase the intensity. Choose Darken to decrease the intensity. Choose Greyscale to only use shades of grey. Use Invert Color to invert the color values.

	The category Color Mask includes various modes to filter colors. Choose R to only show red color values. Choose G to only show green color values. Choose B to only show blue color values. Choose W to only show white color values. Choose RG to only show red and green color values. Choose RB to only show red and blue color values. Choose GB to only show green and blue color values. Choose RW to only show red and white color values. Choose GW to only show green and white color values. Choose BW to only show blue and white color values. Choose RGB to only show red, green, and blue color values. Choose RGW to only show red, green, and white color values. Choose RBW to only show red, blue, and white color values. Choose GBW to only show green, blue, and white color values.
	The category Style includes four modes to highlight the edges of effects or to add an imprinted visual style.
	The category Transformation includes three modes to flip the effect quickly. Choose Mirror H to flip the effect horizontally. Choose Mirror V to flip the effect vertically. Choose Mirror HV to flip the effect horizontally and vertically.

Using A Macro

You can find more details in the chapter [Macros & Scripts](#).



3.8 Color Selection

Introduction

While using MADRIX, you will encounter various ways to choose a color set-up, mostly for effects or fades. This section describes them in more detail. Please keep in mind that MADRIX mainly works with the RGB color model. Each channel, red, green, and blue, can be defined using a value between 0 and 255, ie. using 'no color' to 'maximum extent'.

Simple Color Selection



Often, you will find 4 input fields representing the 4 color channels: Red, Green, Blue, and White. The white channel only applies if RGBW fixtures are used. If you are only 1-channel fixtures, all channels except the first channel will be disabled.

Simply enter a particular value between 0 and 255 in the fields displayed.

Use the spacebar once to set a value instantly to 0 or 255. Perform a left-click into a value field and continue to hold the mouse button. Then, move your mouse up or down to adjust the value as well.

Here are some examples:

White - 255, 255, 255

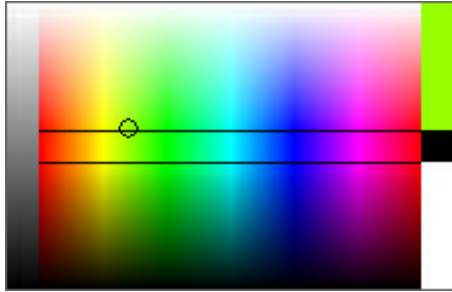
Black - 0, 0, 0

Red - 255, 0, 0

Green - 0, 255, 0

Blue - 0, 0, 255

The Color Picker

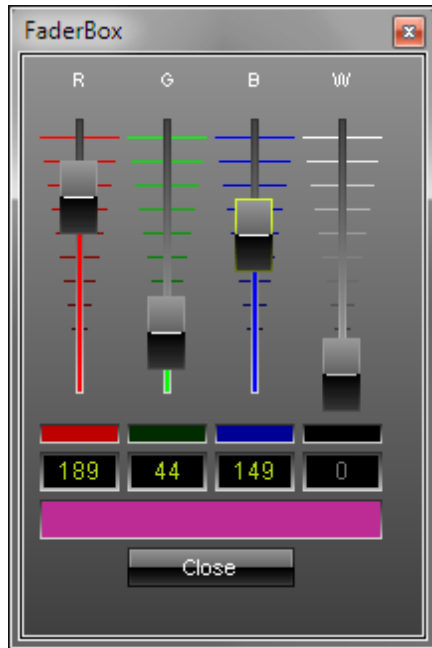


The intelligent Color Picker built right into MADRIX is simply controlled with the help of the mouse.



Just click inside the color field, which in most cases is black or white by default. Be sure to hold the mouse button! While holding it, you can easily navigate inside the color field and pick your favorite color. If you have decided for one, just let go of the button. It is as simple as that.

The Color FaderBox



The Color FaderBox is a helpful addition to the Color Picker.

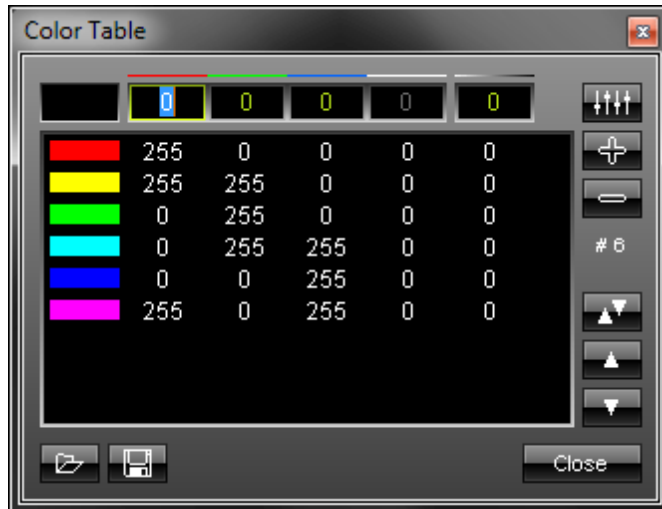


Use this button to call up the FaderBox. The dialog that will be shown contains four sliders to assign a color value to each of the channels (red, green, blue, and white, if applicable). The white channel only applies if RGBW fixtures are used. If only 1-channel fixtures are used, the all channels except the first channel will be disabled.

You could also enter a value between 0 and 255 in the field displayed below each slider. Use the spacebar once to set a value instantly to 0 or 255. Perform a left-click into a value field and continue to hold the mouse button. Then, move your mouse up or down to adjust the value.

The result of your choices will be shown in the large field at the bottom of the window. This is the color you have chosen. Press **"Close"** to exit the dialog.

The Color Table



The **Color Table** contains a list with different colors; each used in the effect. You can enter numerical values from 0 to 255 for red, green, blue, white, and the alpha channel via input fields at the top. The alpha channel sets the opacity of a single color. Then, it becomes transparent and blends with the background.

The white channel only applies if RGBW fixtures are used. If only 1-channel fixtures are used, the all channels except the first channel will be disabled.

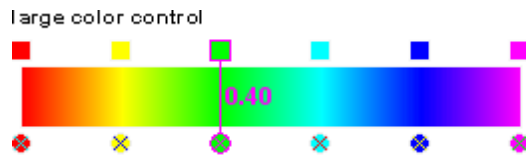
You can extend your list with a new color value by pressing the "+" button. Existing entries can be deleted from the list by marking it and pressing the "-" button. The order of your entries (colors) may be changed, too. In order to do so, simply select the color and press the upward arrow or the downward arrow.

If you select an entry, you can choose your color with the help of entering values directly or by using the Color Picker, which is implemented here as well (see above).

The list you created as well as presets can be saved and loaded. The number of entries in the list can be seen in the lower part of the window. In our example shown above, six entries are currently included in the list (#6). To close the window, click **"Close"**.

Drag the upper or lower border of the color table window to resize the whole dialog.

The Color Ramp



Using the color ramp: Select and hold a color (using the small square button) and move the mouse if you want to relocate a color. Click the small x-button at the bottom of a color to remove it.

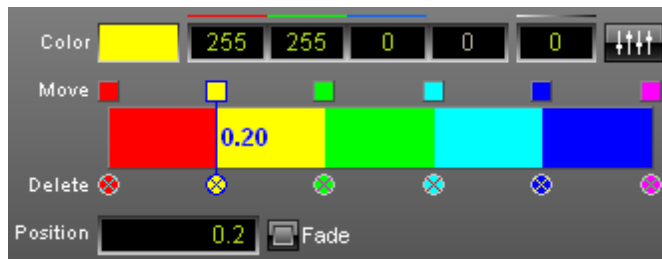
Click inside the large colored area to create a new color at this particular position with the particular color you picked. Simply drag and drop it afterwards to change its position.

Use the input field "**Position**" to adjust it more precisely. The picture below shows how position and color have the same position values.

Use "**Fade**" to fade smoothly between colors. This option is activated by default.

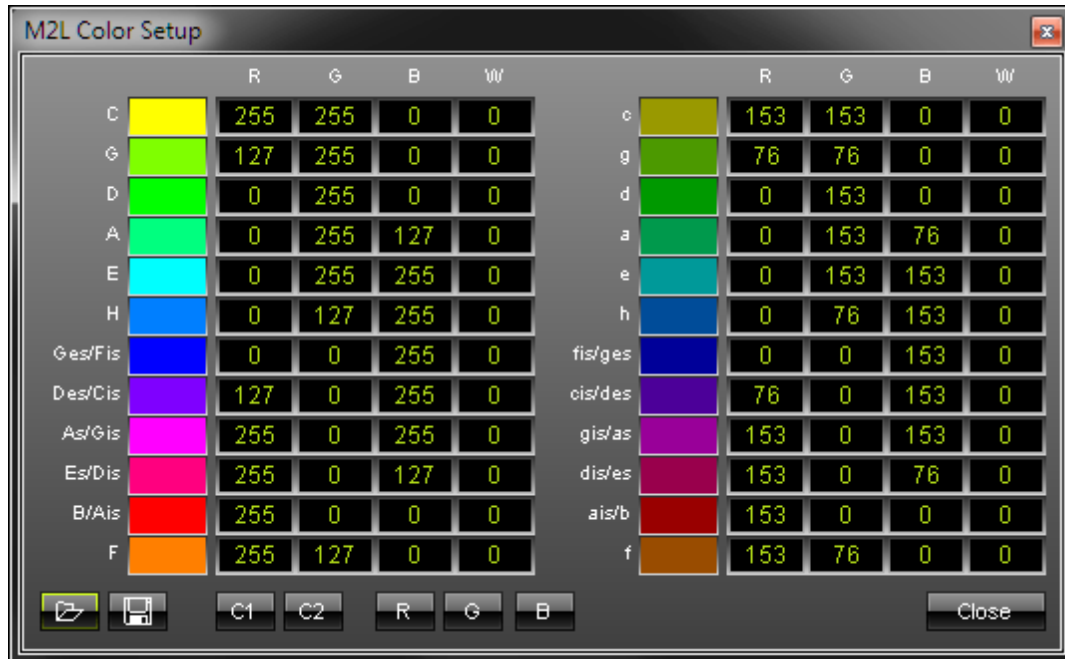


If it is not enabled, the transition between colors will be hard as is shown in the picture below.



Additionally, the "**Alpha value**" sets the opacity of a single color. Then, it becomes transparent and blends with the background.

Music2Light Color Setup



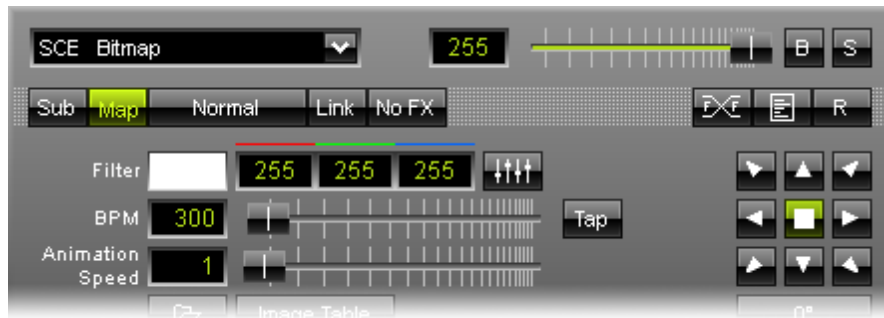
After pressing the button **"M2L Colors"**, a separate window will be opened. This dialog offers you the possibility to match colors to specific keys. All existing keys are displayed in this window.

Major keys are listed in the **left part** of the window. The right hand side contains all **minor keys**. In the example above the "C" (written in capital letters) in the upper left part represents C-major and has a pure yellow as its color value (RGB: 255, 255, 0). C-minor, located across on the other side of the list, has a darker yellow assigned (RGB: 153, 153, 0).

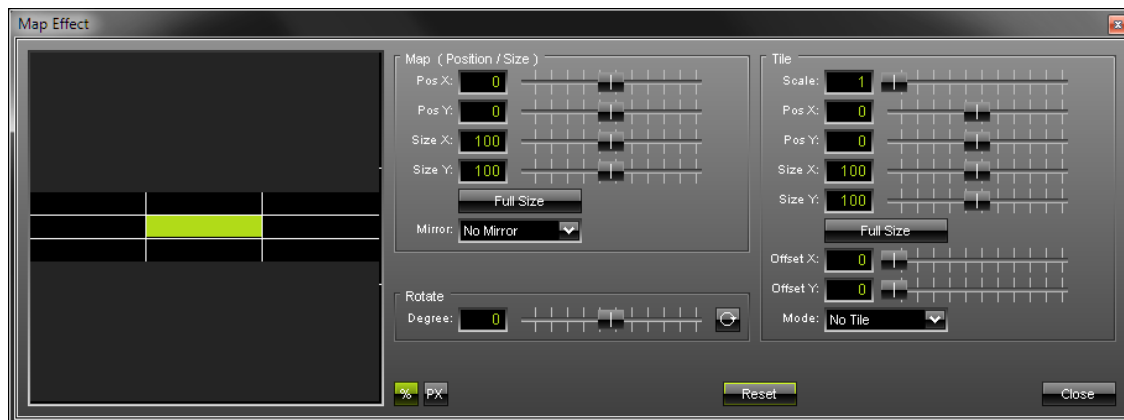
You may **"Load"** and **"Save"** your color tables, too. Five color presets are already included and can be accessed by using the buttons **"C1"**, **"C2"**, **"R"**, **"G"**, and **"B"**. The **"Close"** button closes the window.

3.9 Map, Tile, And Rotation

Introduction

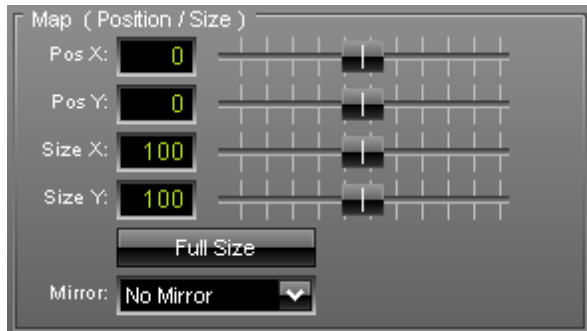


You can assign/map effects to a certain area of your matrix, i.e. relocate them. In order to do so, please use the **"Map"** button in the effect area. A new window will open.



By clicking the **"%"** button, percentage/relative values will be used.
By clicking the **"PX"** button, absolute values (in pixels) will be used.

Map



The section **"Map (Position/Size)"** includes parameters to define the position and size of the selected layer/effect. **"Pos X"** sets the position in x. **"Pos Y"** defines the position in y. **"Size X"** and **"Size Y"** are to set the size in x and y, respectively. In this way, you are allowed to display the effect in a larger or smaller size than the virtual matrix size.

Several presets, such as "Full Size", "Double Size", "Half Size", "Top", "Bottom", "Left", "Right", etc. are already included and available via the quick select button below.

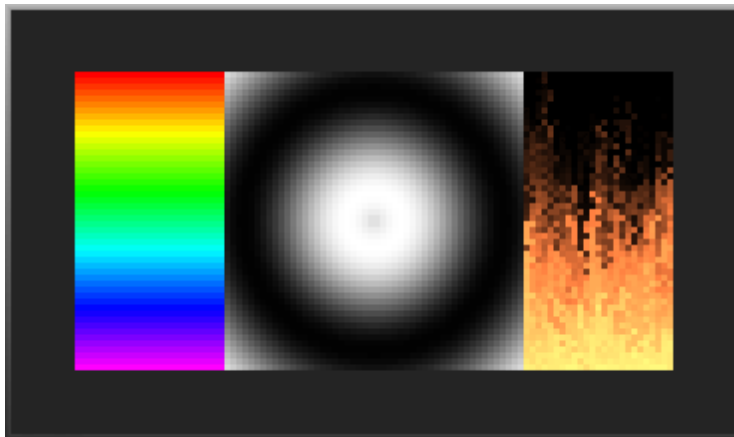
"Mirror" is an option to mirror effects horizontally (**"Mirror H"**), vertically (**"Mirror V"**), and in a horizontal-vertical direction (**"Mirror HV"**) or not (**"No Mirror"**).

Negative values may be used, too. In this way, you can map an effect to an outer area. Equally helpful is the option to "grab" and move the colored map square directly with your mouse or to use the faders.

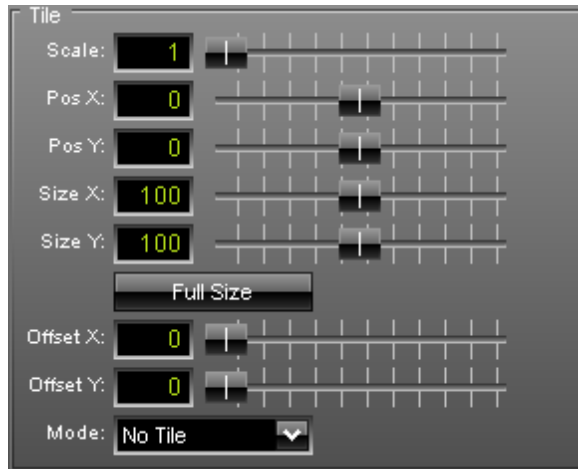
If you have mapped several layers, a colored square will be displayed for each layer in addition to the currently mapped layer.



For example, it could look like this:



Tile



The **"Tile"** section allows you to apply tiling to the selected layer/effect. In other words, you are able to divide the virtual matrix into sections. **"Scale"** influences the size. A factor of 4 means that you will get 1/4 of the original size and the mode is automatically set to **"Repeat Mode"**. **"Pos X"** defines the position in x, whereas **"Pos Y"** defines the position in y. **"Size X"** and **"Size Y"** were implemented to be able to modify the size of the layer/effect. Hence, you can render an effect larger or smaller than the virtual matrix size. **"Offset X"** and **"Offset Y"** define the spacing between repeated or mirrored sections.

Several presets, such as "Full Size", "Double Size", "Half Size", "Top", "Bottom", "Left", "Right", etc. are already included and available via the quick select button below.

"Mirror" is an option to tile effects horizontally (**"Mirror H"**), vertically (**"Mirror V"**), and in a horizontal-vertical direction (**"Mirror HV"**) or not (**"No Tile"**). You can also choose to repeat the effect (**"Repeat"**).

Rotate



MADRIX is able to **"Rotate"** layers. Move the fader to the left to rotate clockwise. Move the fader right to rotate counter-clockwise. Activate a permanent rotation by clicking the  animation button.

3.10 Tools

Introduction

MADRIX provides several helpful monitoring tools.

Please navigate to the menu **"Tools"** and select the tool you which to use. Every tool has a keyboard shortcut as well.

Here is an overview:

- Task Watcher
- Logfile
- DMX Watcher
- DMX Fader Tool
- MIDI Watcher

Task Watcher



The Task Watcher ("F5") is an important monitoring tool that provides detailed technical information, mainly about the performance.

Explanation

The window has three parts to it:

Part 1 shows information for the two currently selected effects (on A and B).

Layer	is	target
Bitmap	5.0	5.0
Frequency Flash	20.0	20.0
Color Ramp	20.0	20.0

Each layer of the effect is shown with its description in the column **"Layer"**. The column **"Is"** displays the actual frame rate of the layer. The column **"Target"** displays the target frame rate of the layer - the frame rate that should be reached. Both figures should be around the same value.

Part 2 shows eight items.

Mixer Frames (Is/Time in ms)	50	0	DVI Output Frames 1, 2	50	-1
Audio Capture Frames (Is/Tar.)	50	50	DMX Controller Frames (OUT/IN)	50	-1
DMX Devices Connected (Active/All)	1	3	DVI Controller Frames (OUT)	-1	
GDI Objects	3084		Available Memory	309	

"Mixer Frames" represents the actual frame rate of the main mixer (left side) as well as the processing time in milliseconds (right side). The frame rate to the left should show 50 frames. The processing time to the right should show less than 20 milliseconds. If other values occur, performance problems are likely to occur.

"Audio Capture Frames" displays the actual frame rate of the audio capturing (audio analysis) as well as its target frame rate. You can configure the target frame rate in the "Device Manager" under the tab "Audio Input". The standard target frame rate is 50 or 100. The actual frame rate should be higher than 30. Or else, S2L and M2L effects might judder. A value of -1, says that the audio analysis is currently deactivated. For ASIO, higher values are normal. »[Audio Input Configuration & ASIO](#)

"DMX Devices Connected" shows how many DMX devices are connected to your PC and found by MADRIX (right side). It also shows if these devices are enabled in MADRIX (left side). In the picture above, you can see that only 1 device is enabled, but a total of 3 devices is connected. »[DMX512 \(DMX-OUT\)](#)

"GDI Objects" tells you the number of GDI objects created for the graphical user interface. Windows allows a maximum of 10,000 GDI objects per software application. If this figure constantly increases and does not decrease while using the program, please contact inoage GmbH.

"DVI Output Frames" displays the frame rate of Preview DVI 1 (left side) and Preview DVI 2 (right side). This value should be 50 if a DVI window is activated. If no DVI window is activated, the value should be -1. »[DVI](#)

"DMX Controller Frames" represents the frame rate of the DMX controller, which sends data to all DMX devices. Hereby, DMX-OUT and DMX-IN can be monitored. DMX-OUT (left side) should have a value of 50. The value for DMX-IN (right side) is set by the DMX-IN interface. Like in the picture above, a value of -1 on the right side says that DMX-IN is currently deactivated.

"DVI Controller Frames" represents the frame rate of the DVI controller regarding proprietary DVI devices, such as the EuroLite T9. This value should show 50 frames. Or else, the DVI output might flicker. A value of -1, like in the picture above, says that no proprietary DVI device is currently activated. (»[Proprietary DVI Devices](#))

"Available Memory" shows how much free system memory (physical RAM) is available. If the value falls below 100 or stands near 0, performance problems are likely to occur.

Part 3 lists all connected interfaces that are enabled.

Type	Device	Frequency	State
DMX	MADRIX NEO #NEO000184	33.4	sending
DMX	MADRIX PLEXUS #PLEXUS000013 - DMX 1	33.4	sending
DMX	MADRIX PLEXUS #PLEXUS000013 - DMX 2	33.3	sending

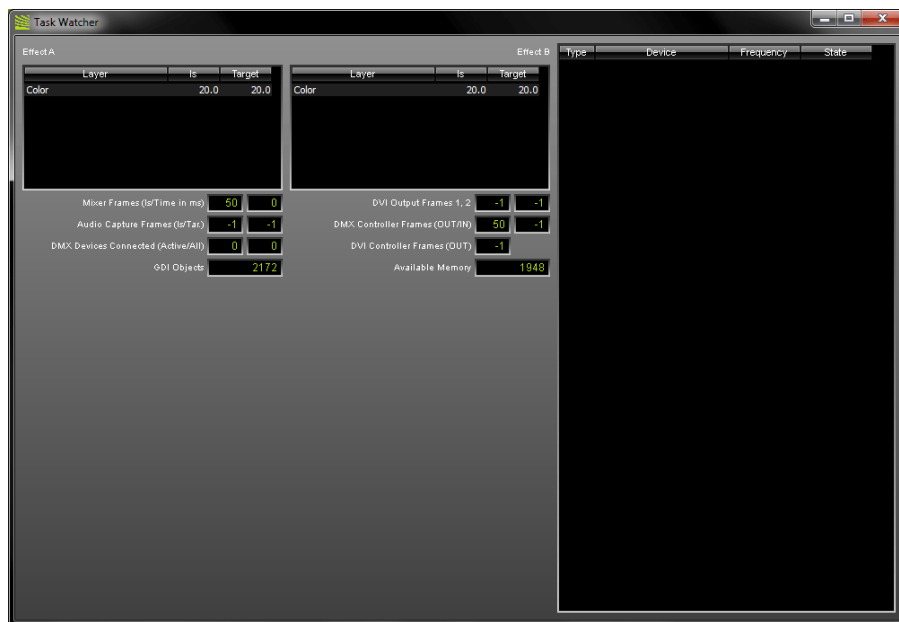
The column **"Type"** says whether the connected device is of the type DMX or DVI. **"Device"** shows the description and information about the device.

"Frequency" displays the frequency (Frame rate, Frames/s) of the device with which it currently sends or receives. When using DMX-OUT this figure should reach the value that is configured in the "Device Manager" under the tab "DMX devices" ("Frames/s"). »[DMX512 \(DMX-OUT\)](#)

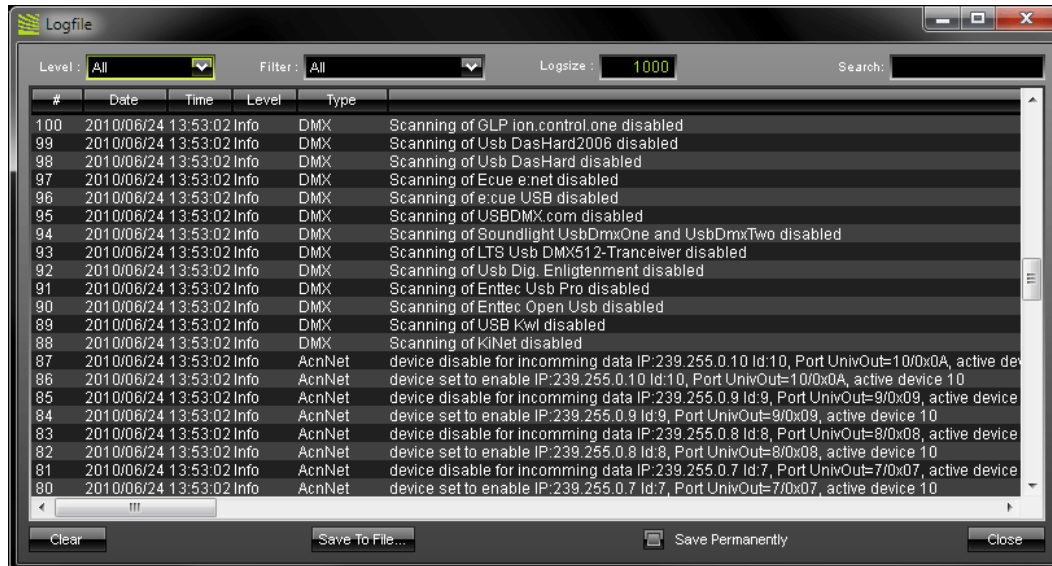
"State" tells if a device sends data (**"sending"**) or receives data (**"receiving"**). The entry **"???"** says that the status is currently unknown. Examples for this situation are: 1) DMX-IN is enabled but no data is being sent. 2) While sending data via an interface, the interface is being disconnected from the PC.

Window Size

Having connected a lot of interfaces to your computer, the current window size of the Task Watcher might be too small. If this is the case, please resize the window by dragging the window border. If you did scale the window wide enough (to the right), part 3 of the window will be repositioned and displayed not below part 1 and 2. It will be displayed to the right side as shown below.



Logfile



The Logfile ("F6") keeps track of all warnings and system information.

Use **"Save Permanently"** to keep track of entries until MADRIX is closed. Otherwise, the file will only contain entries up to the creation point of the logfile (**"Save To File..."**). Press **"Clear"** to delete all entries of the current logfile.

"Level" determines which kind of information is shown including only information, warnings, and errors. Use the **"Filter"** to see information belonging only to certain topics, such as DMX or Art-Net.

"Logsize" limits the number of entries to the given value.

Use the **"Search"** box to enter the keywords you are looking for.

"Close" closes the Logfile window.

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.**

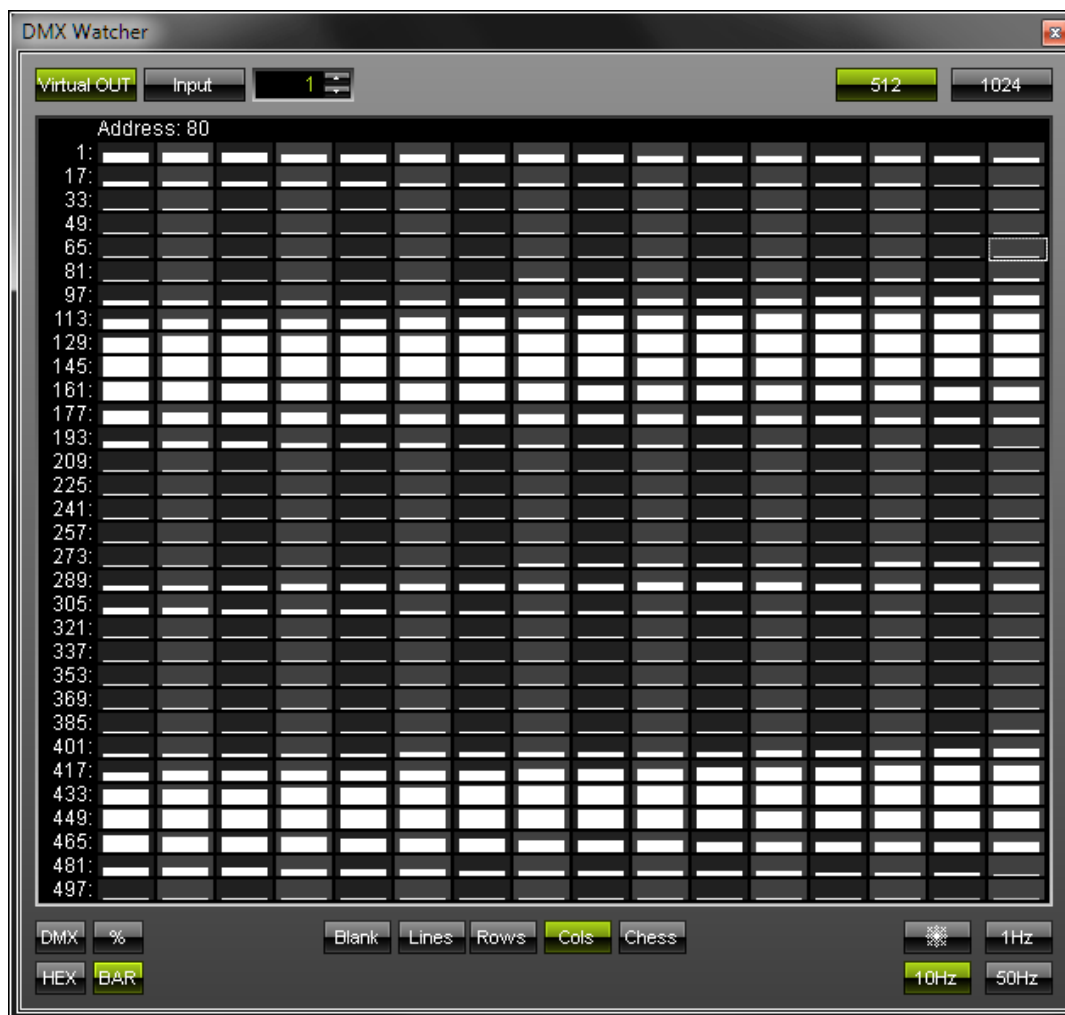
DMX Watcher

The DMX Watcher ("Ctrl+Alt+D") allows you to monitor your DMX output or DMX input while using MADRIX.

Modes

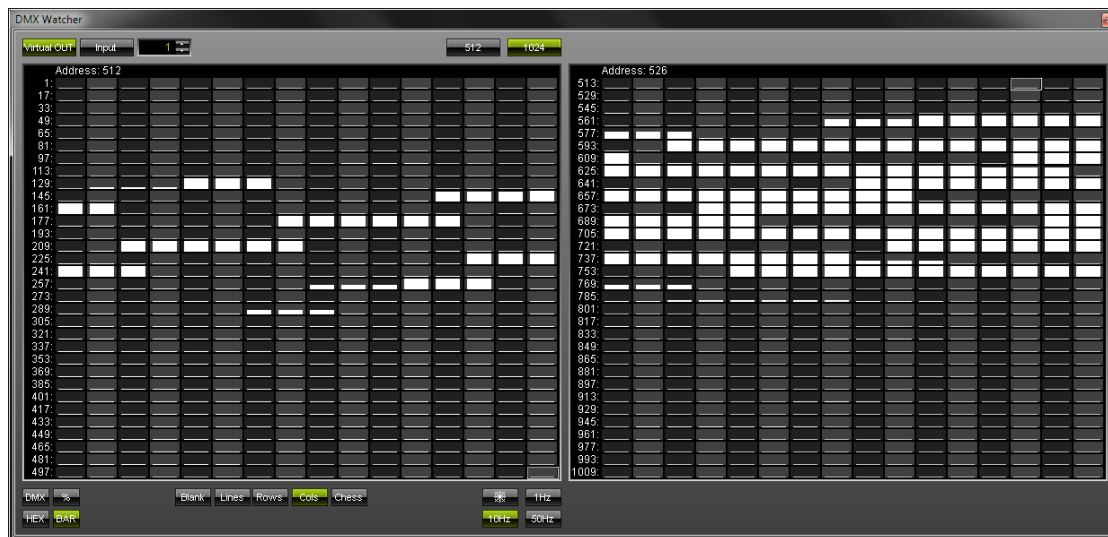
512

Use the 512 channel mode for normal fixtures that use 512 DMX channels per universe. This is the standard mode.



1024

Use the 1024 channel mode for fixtures that require more than 512 channels per universe. The manufacturer specified these settings. Examples are Insta Light 2022 panels, ROBE StageQubes 324, and GLP ion.tubes. MADRIX supports this and is able to display 1024 channels per universe. The DMX Watcher allows you to monitor it. After pressing the button, the DMX Watcher in 1024 channel mode will look like this:



Explanation

You have several options to choose from.

"Virtual OUT" will activate monitoring of the 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.

A box next to it determines the DMX universe you are currently looking at. Adjust the number to your requirements. Choose the DMX universe next to it.

"Input" will activate monitoring of data input. Choose the DMX universe next to it.

Display data with the help of DMX values, percentage values, using HEX, or a visual bar chart.

At all times, you can use different backgrounds for a better reading. They include simple black, lines between rows and columns, shading only rows, or shading only columns, or applying a chess pattern.

Use the Freeze button in order to hold the image. Click the button once and the picture will freeze.

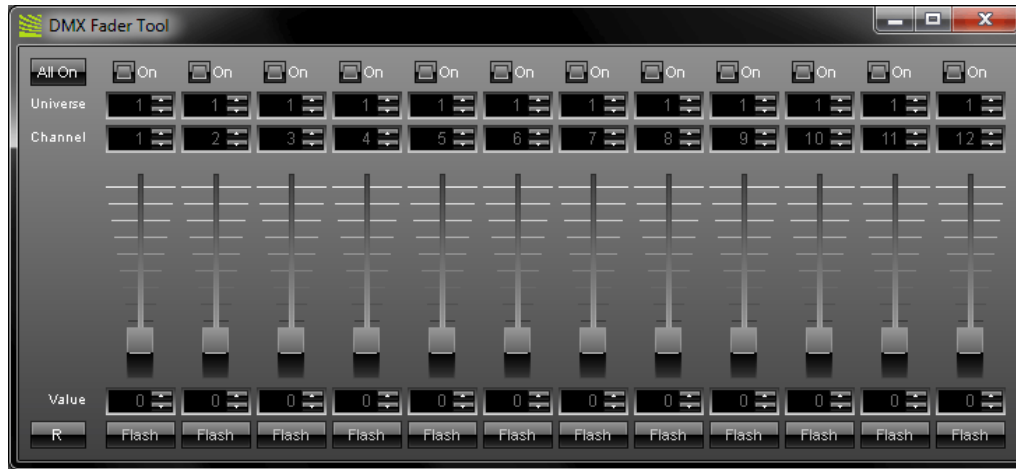
To show the data output, you can use "**1Hz**" which translates to 1 FPS, while "**10Hz**" and "**50Hz**" will use 10 FPS or 50 FPS, respectively.

Likewise, DMX input data can be monitored. Simply activate "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 hasn't changed during that period.

Important Note

Per 512 DMX channels, 170 **RGB** fixtures can be controlled. That means, calculating 170 fixtures * 3 color channels results in 510 DMX channels. Therefore, channel 511 and 512 will be left empty, because they are simply not in use.

DMX Fader Tool



The DMX Fader Tool ("Ctrl+Alt+F") 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.

Please note: Be careful to use DMX channels you wish to use. Channels that are occupied by LED fixtures in the Patch, will be **overwritten** by the DMX Fader Tool.

Simply activate a channel using the **"On"** switch and select the DMX **"Universe"** and **"Channel"**. The fader allows you to set a specific DMX value for such a channel. You can also use the input field below the fader to specify a certain value.



Sets the value of the channel instantly to 255, the maximum value. Release the Flash button to set the value to 0 again.



Activates all 12 channels with one mouse click.



Deactivates all 12 channels with one click.

A small, dark rectangular button with the letter 'R' in white.

Resets all DMX values and faders back to 0.

MIDI Watcher



The MIDI Watcher ("Ctrl+Alt+M") allows you to check your MIDI connection when you are using MIDI sound analysis or a DJ/VJ console to control MADRIX remotely.

The MIDI Watcher is a useful tool in order to start your search if problems occur with your MIDI connection.

3.11 Backup System

Introduction

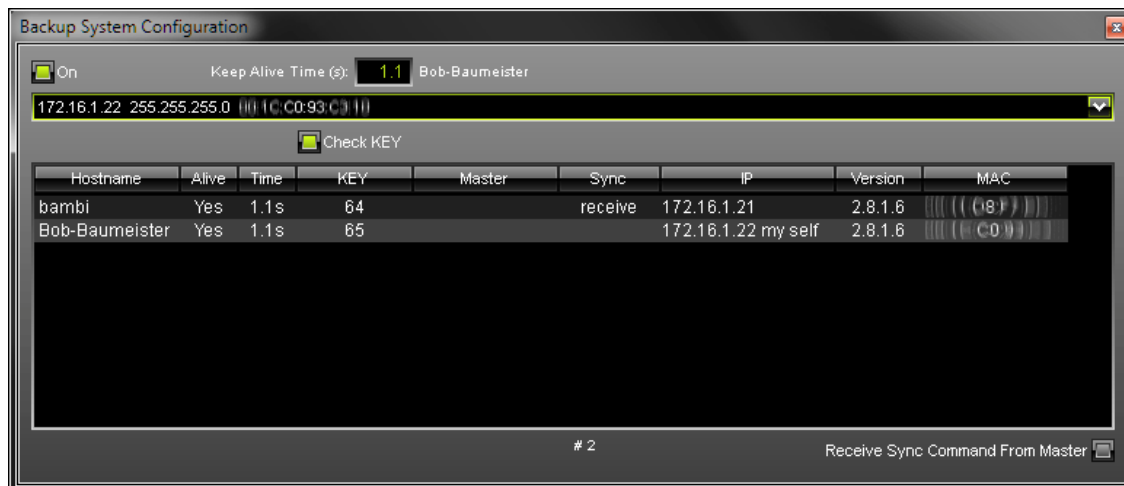
The MADRIX **Backup System** (Master/Slave) is a type of communication protocol between two or more MADRIX computers in order to set up a professional backup solution.

'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) as defined by the "**Keep Alive Time**", the **Slave** is automatically activated and sends the DMX512 data. In like manner, the Slave is sending 'keep alive messages'.

Make sure that both computers are equipped with a MADRIX software license (e.g. a MADRIX KEY) and the same MADRIX software version.

How Does It Work? - Instructions

To configure the MADRIX Backup System, please navigate to the menu "**Preferences**" -> "**Backup System**". This will open a new window.



Activating the switch **"On"** in the top left corner enables the backup solution. If your computer or laptop is equipped with more than one network card, you will be able to choose the appropriate network in the large drop-down list.

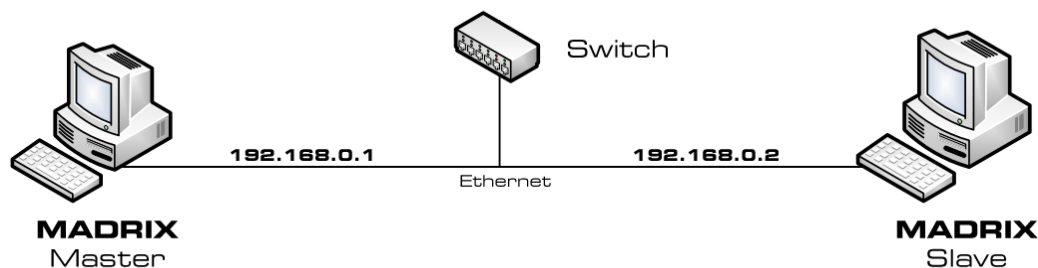
By activating the **"Check KEY"** switch, you can automatically monitor if the MADRIX software protection key is plugged into that remote computer. Additionally, you will be able to identify the MADRIX version since it is shown in the list how many DMX universes are supported.

You can set up the **"Keep Alive Time"** with a time range of 0.1 to 25.6 seconds. This is the duration between two keep-alive transmissions.

If you activate **"Receive Sync Command From Master"**, this computer will receive synchronization data from another computer (Master).

You can select another computer from the list and click at the **"Change Master"** button to set this computer as your Master. You are not allowed to select your local computer as Master. You will have to choose a remote computer.

How To Connect Master And Slave

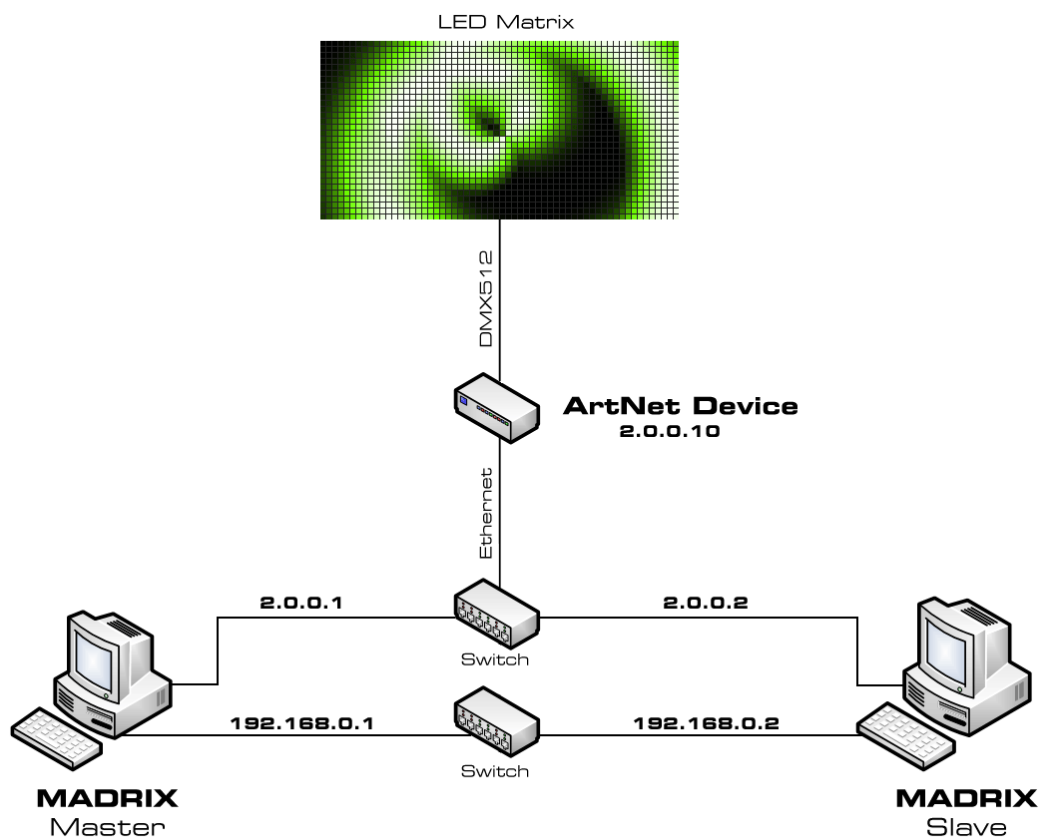


You can utilize your network card with an Ethernet port to connect two or more computers using a network switch. Set up the IP addresses from the computers like in the picture above. Both computers have to be in the same network area (e.g. **192.168.0.1** to **192.168.0.254**).

Usage

"Receive Sync Command From Master" is a useful feature to play back cue lists synchronously. Learn more about the [Cue List](#).

Example 1: How To Use The Backup System And Art-Net

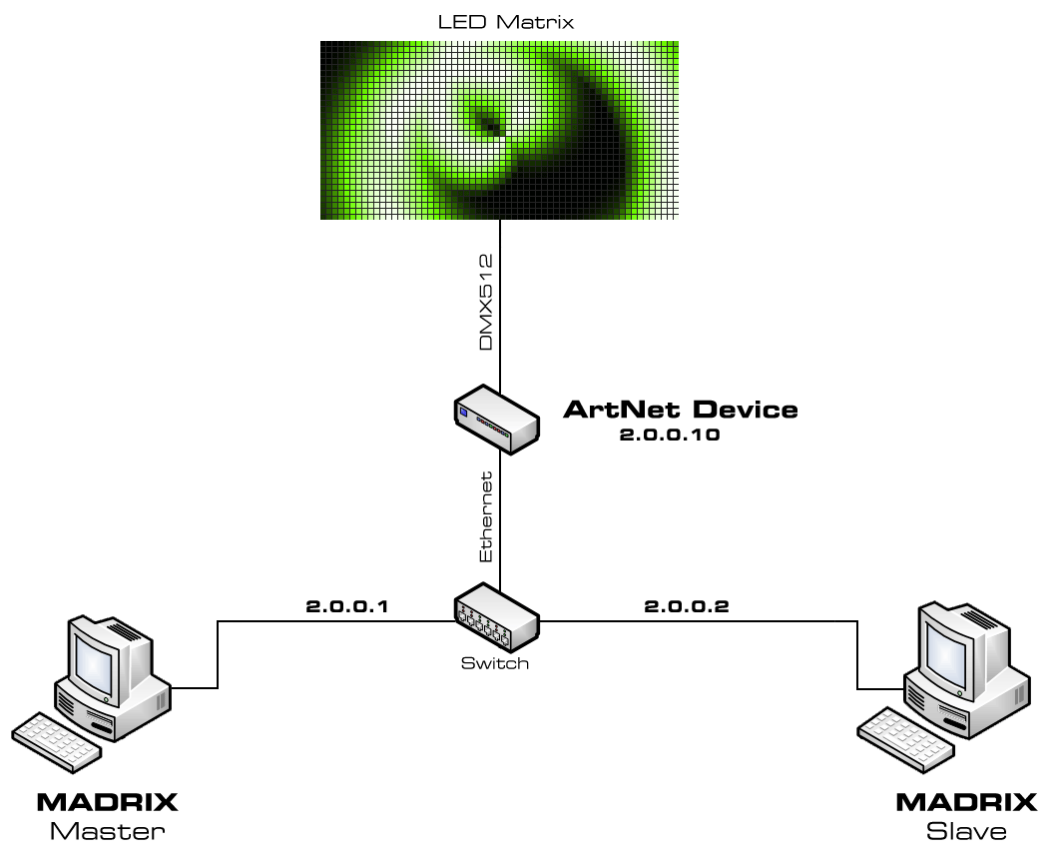


We recommend to always use two separate networks with two network cards if you want to sync Master & Slave and use Art-Net at the same time.

Minimum requirements for this set-up are two computers, two Ethernet switches, one Art-Net device, Ethernet cables, and DMX cables.

Apart from that, both computers need to have two network cards installed. The set-up for the first network card 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)



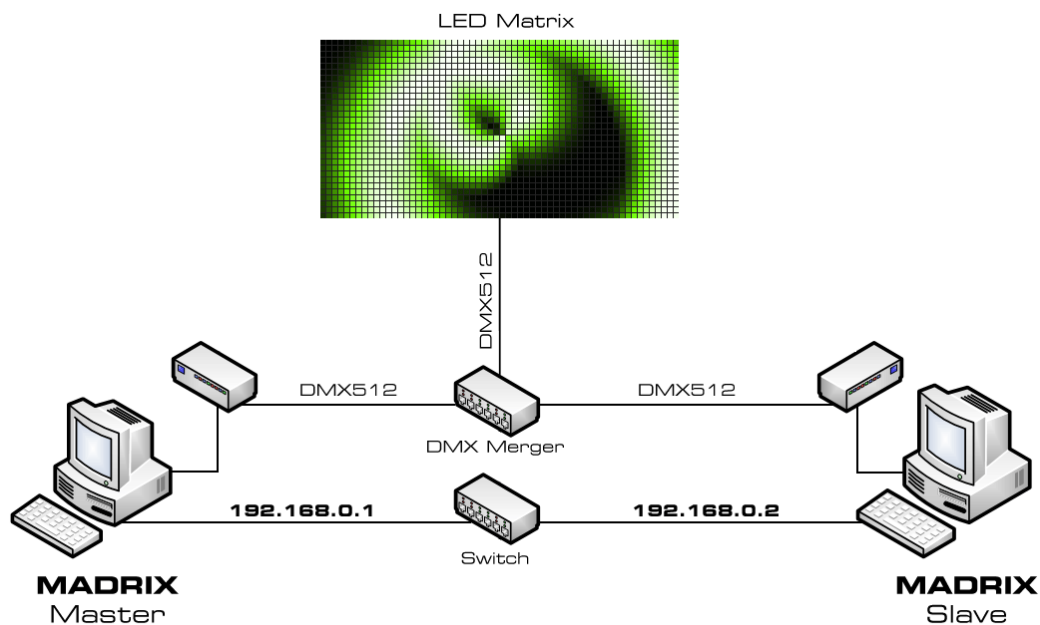
In addition, you may use a variation of the example above. Depending on your installation, it can be possible to do the setup without the second network. It is a smaller budget alternative and in this case only the Art-Net network will be used. At the same time this means that traffic from both Art-Net 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 will 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, PCI cards, or PCMCIA devices, you can work with one network card to sync Master and Slave.

Minimum requirements for this set-up are two computers, one Ethernet switch, one DMX merger, two DMX512 devices, Ethernet cables, and 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.

3.12 File Types

Introduction

While working with MADRIX, you will come across several types of files. This chapter explains which file type belongs to which function or which part of the software.

List Of File Types

*.ms2	MADRIX Setup File Your whole show will be saved. It stores relevant data in one single file including but not limited to patch, effects, settings, Cue List, etc. Please note that videos will not be included in this file.
*.mpf	MADRIX Patch File Stores your patch. »Patch
*.mfl	MADRIX Fixture Library File Stores the whole Fixture Library. »Fixture Editor Please note: The madrix.mfl is being overwritten with an updated version every time a new MADRIX update is installed.
*.mfx	MADRIX Fixture Stores one single fixture. »Fixture Editor
*.mss	MADRIX Storage Setup File Stores a complete Storage Area including all Storage Places (and effects). »Storage Areas A & B
*.mef	MADRIX Storage Place File

	Stores one single Storage Place, and thereby one effect you created. » Storage Places, Submaster, and Cue
*.mdf	MADRIX Device File Stores all relevant settings for your (connected) devices. » OUTPUT
*.vdf	Visualizer Device File Stores all relevant settings for a configured visualizer. » WYSIWYG Visualizer
*.mpds	MADRIX PLEXUS Device Settings Stores all relevant settings for a MADRIX PLEXUS interface. » MADRIX PLEXUS
*.mlds	MADRIX LUNA Device Settings Stores all relevant settings for a MADRIX LUNA interface. » MADRIX LUNA
*.mmrc	MADRIX MIDI Remote Configuration File Stores a MIDI remote control configuration (MIDI map) for a MIDI console. » MIDI-IN
*.mdrc	MADRIX DMX Remote Configuration File Stores a remote control configuration for DMX-IN. » DMX-IN & Art-Net Remote
*.mrec	MADRIX Record File Stores recorded shows. » Recording
*.dxd	MADRIX DMX Data File Stores DMX data for the PLEXUS hardware interface. » Recording
*.mpl	MADRIX Cue List File Stores the Cue List and its entries and settings. » MADRIX Cue List
*.mit	MADRIX Image Table File Stores an image table for the SCE Bitmap effect. » SCE Bitmap
*.mct	MADRIX Color Table File Stores a color table for various effects, such as the SCE Bounce. » MADRIX Effects
*.m2l	M2L Color Setup File Stores a M2L color table for Music2Light effects. » Music2Light Effects (M2L)
*.log	Log File

	A log file created with the MADRIX Logfile tool or the MIDI Watcher. » Tools
*.csv	Comma-Separated Values File A file format that can be used for the MADRIX Cue List. » File Watcher
*.mas	MADRIX Script File A script for the MAS Script Effect. » MAS Script Effect
*.macs	Encrypted MADRIX Script File A compiled and encrypted script for the MAS Script Effect. » MAS Script Effect
*.mms	MADRIX Effect Macro File A macro for an effect, a Storage Place Macro, or a Main Output Macro. » Macros & Scripts
*.mcm	MADRIX Crypted Effect Macro File A compiled and encrypted macro for an effect, a Storage Place Macro, or a Main Output Macro. » Macros & Scripts
*.rtc	MADRIX KEY File Required if the MADRIX KEY should be upgraded. » The MADRIX KEY
*.rtu	MADRIX KEY Update File Required to upgrade the MADRIX KEY eventually. » The MADRIX KEY

Images And Videos

Furthermore, MADRIX supports every image and video type that is supported by your Windows PC. **This could be for example:**

- Images: *.bmp, *.gif, *.jpg, *.jpeg, *.png, *.tif, *.tiff, etc. (»[SCE Bitmap](#))
- Videos: *.avi;*.mpg;*.mov;*.wmv;*.asf;*.divx;*.vob;*.flv, etc. (»[SCE Video](#))

If you are encountering problems using such files, please install the required video or image codec on your PC.

Loading A Setup

As described above, a MADRIX Setup stores a lot of information. When loading a setup, you have different choices to make:



Select "**Load Patch**" and the pre-defined virtual matrix and Patch settings will be loaded from this Setup. This overwrites your current Patch. If you deselect this option, your current Patch will be used.

Select "**Load DMX Device Settings**" and all settings regarding DMX devices will be loaded from this Setup. This can overwrite your current settings. Deselect this option if you have configured your own DMX settings.

Select "**Load DVI Device Settings**" and all settings regarding DVI devices will be loaded from this Setup. This can overwrite your current settings. Deselect this option if you have configured your own DVI devices settings.

Select "**Load Audio Settings**" and all settings regarding audio will be loaded from this Setup. This can overwrite your current settings. Deselect this option, if you wish to keep your own audio settings.

Part



IV

4 Extra Tools

A number of separate tools (programs) are automatically installed together with MADRIX. They serve different purposes.

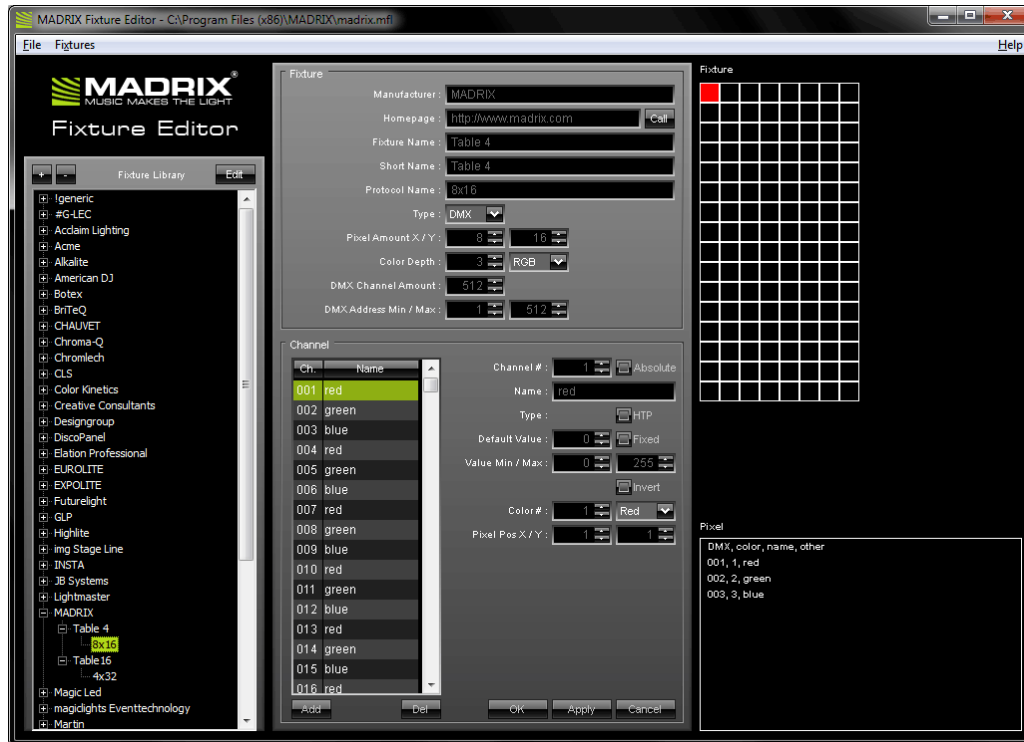
- MADRIX Fixture Editor
- MADRIX Restore
- MADRIX Time Code Sender

4.1 MADRIX Fixture Editor

Introduction

LED fixtures are implemented using the MADRIX Fixture Editor. The fixtures are stored in the MADRIX Fixture Library (madrix.mfl).

The Fixture Editor is automatically installed together with MADRIX. You can access the tool or its documentation by calling up the shortcut in the Windows Start Menu or in the MADRIX installation directory.



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.

Important Notes

Please note: Always make a backup of the madrix.mfl before **and** after applying any changes.

- When updating your MADRIX version, the Setup (Auto Installer) will automatically create a "madrix.mfl.bak". This file is a backup of your old MADRIX Fixture Library. Moreover, the Setup will overwrite the current madrix.mfl completely to update the library.

4.2 MADRIX Restore

Overview

Along with MADRIX a separate tool for MADRIX is provided, called "MADRIX Restore".



Usage

MADRIX Restore is a tool for advanced users and should not be used without reason!

This tool should mainly be used, when it is impossible for you to start the MADRIX software for any reason.

MADRIXRestore is **not** a tool to manage your MADRIX files, whichever files that may be (e.g. MADRIX Setups). MADRIXRestore is used for all settings that are locally stored on your computer and written into the Windows Registry. Often, such settings are set up in the [MADRIX Options](#).

MADRIX Restore can be used for several, specific tasks.

Please select the kind of version you are using.



"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"

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.

"Open"

Loads settings from an external file.

"Save"

Saves MADRIX settings to an external file in order to store them.

Where To Find MADRIX Restore

MADRIX Restore is included in the MADRIX Installer. After installing MADRIX, you can find a link to MADRIX Restore in the Windows Start menu:

"Start" -> "All Programs" -> "MADRIX" -> "Tools" -> "MADRIX Restore"

The original, executable program can be found in the MADRIX installation directory: C:\Program Files\MADRIX\Tools **or** C:\Program Files (x86)\MADRIX\Tools

4.3 MADRIX Time Code Sender

Introduction

Along with MADRIX a separate tool for MADRIX is provided, called "MADRIX Time Code Sender". It is particularly useful in combination with the Cue List.



When using the [Cue List](#), the automated playlist feature of MADRIX, 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 A1 at 10:00 a.m. or when 3 minutes have passed after the start.

In the Cue List, you can activate "System Time" or "External". "System Time" will use your local computer clock as Time Code source. "External" allows MADRIX to receive external MIDI Time Code (MTC) or Art-Net Time Code. If those are running in the network, they will be received by MADRIX if the option is enabled here. Receiving Time Code ("External" and "System Time") is possible with all MADRIX software license versions (incl. all MADRIX KEYS, MADRIX NEO and MADRIX PLEXUS). You can use the MADRIX Time Code sender to create external Time Code.

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.

Usage

You can use the 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 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 application(s) according to your needs (incl. all Effects, etc.).
- 2)** Activate **Art-Net**. In MADRIX, navigate to the menu **"Preferences" -> "Device Manager"** (or press "F4"). Now, select the tab **"Art-Net"**. Check the box next to "Art-Net" in the upper left corner to activate Art-Net. Close the window afterwards. 
- 3)** Create a **Cue List** for each computer in use (incl. Time Code and/or Duration).
- 4)** Activate **"External"** in the Time Code section of the Cue List. 
- 5)** Start sending Time Code with the help of the MADRIX Time Code Sender (see Configuration below).

Please Note:

It is not important if you first open MADRIX or if you first open the MADRIX Time Code Sender and then the other program.

Configuration

The Time Code is displayed in the following format: **HH:MM:SS:FF (00:00:00:00)**, meaning **hours : minutes : seconds : frames**.



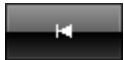
Starts or pauses sending Time Code.



Fully stops sending Time Code and automatically resets the Time Code to zero (00:00:00:00) or the corresponding Start Code.



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.



Rewinds the Time Code back to zero (00:00:00:00) or to the corresponding Start Code; even if Time Code is running.

"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.

Where To Find MADRIX Time Code Sender

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" -> "Tools" -> "MADRIX Time Code Sender"

The original, executable program can be found in the MADRIX installation directory: C:\Program Files\MADRIX\Tools **or** C:\Program Files (x86)\MADRIX\Tools

Part



5 MADRIX Options

Overview

To access the options of MADRIX, please press "**Ctrl+Alt+O**" or go to the menu "**Preferences**" -> "**Options**".

MADRIX Options include the following topics:

- Start Options
- File Watcher
- Devices (USB/PCI)
- Devices (Network)
- User Interface
- Performance

5.1 Start Options

Overview

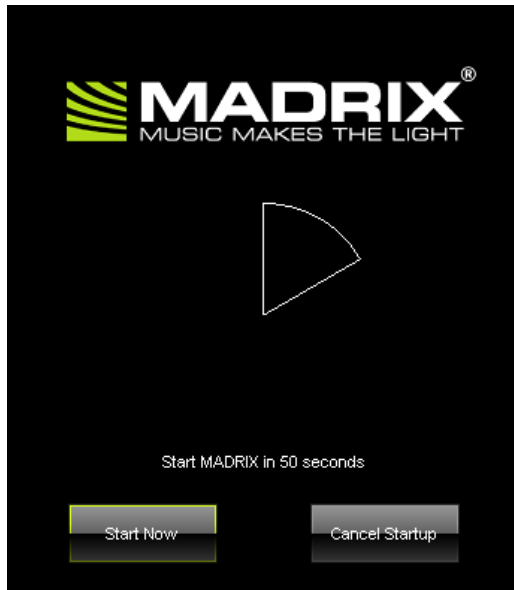
To access options of MADRIX, please press "**Ctrl+Alt+O**" or go to the menu "**Preferences**" -> "**Options**". Now got to the tab "**Start Options**".



MADRIX provides various possibilities to decide which feature(s) should be enabled if the software or your computer starts ("**Start Options**").

In the case of "**Run MADRIX, When Windows Starts**" MADRIX will be initiated automatically if you log in into Windows.

Additionally, "**Set Timeout To Start Software**" allows you to define a time frame in seconds in which MADRIX will not fully start. Instead, a loading screen with a countdown will be displayed. If you still want to start the software immediately, use the "**Start Now**" button. If you want to abort the start procedure, press "**Cancel Startup**". MADRIX will not be started then. The feature is particularly helpful with network devices. Windows needs some time to initialize such devices after the start-up. But MADRIX might be already loaded completely and may not detect the devices as a result. This option prevents that case.



Set **"Start Touch At Startup"** to launch the touch screen window when MADRIX starts.

If you activate the feature **"Check For Updates"** MADRIX automatically searches online for newer versions. **"Check for BETA Updates"** will include the latest beta versions in the search.

"Activate 'Audio'-Button" is only necessary if you wish to use Sound2Light and/or Music2Light effects or have them already included in your Cue List. This automatically starts the sound analysis.

If you want to load a custom setup right from the beginning, please activate **"Load This Setup On Start"** and choose a setup file. In addition, a pre-programmed Cue List can be commenced simultaneously by using **"Start Cue List After Loading The Start Setup"**.

You can set the Master Fader to a specific value if you activate the switch **"Set Master Fader On Value"**. Just type in the value you require into the input box.

If you have created your own particular fixture set-up using the Fixture Editor, you will be able to load this fixture library via the switch **"Load A Special Fixture Library"** at the MADRIX start-up. (With the help of the MADRIX Fixture Editor you can create your own fixtures. This tool is included in the MADRIX installation. Learn more in the chapter [Fixture Editor](#))

Select **"Initialize QuickTime At Startup"** to initiate QuickTime support already when MADRIX starts. This improves the launching time when QuickTime movie files are loaded within the **SCE Video effect**.

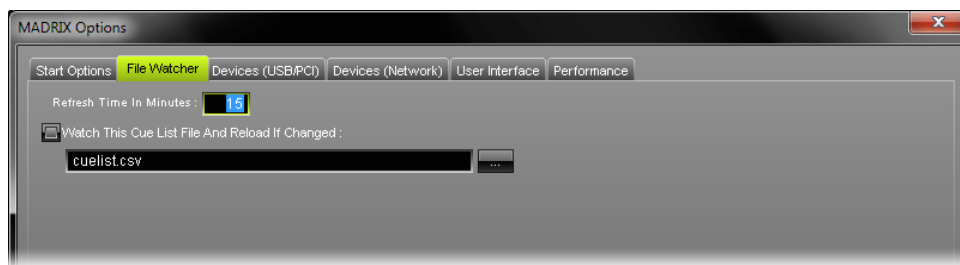
Important Notes

All Start Options will be saved locally on your computer. The settings here will not be saved in your MADRIX Setup file.

5.2 File Watcher

Overview

To access options of MADRIX, please press **"Ctrl+Alt+O"** or go to the menu **"Preferences" -> "Options"**. Now got to the tab **"File Watcher"**.



Automatic Cue List Reloading

MADRIX can automatically reload a Cue List within a pre-defined refresh time. To activate this feature, call up MADRIX Options by pressing **"Ctrl+Alt+O"** or go to the menu **"Preferences" -> "Options"**.

After switching to the **"File Watcher"** tab, please activate **"Watch This Cue List File And Reload If Changed"**, select the Cue List file, and set a refresh time.

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. Here is an example with two Cue List entries:

```
MADRIX;CSV;CUELIST;FILE;;;;;;;;;;  
VERSION;4;;;;;;;;;;  
TIMECODE FORMAT;1;SYSTIME;0;EXTERN;0;;;;;;;;;  
CUE;DESCRIPTION;DATE;TIMECODE;DURATION;FCUE;STORAGE;PLACE;FADETYPE;FADETIME;R;G;B;W  
1;"Radial";"daily";-1;600000;0;0;0;1;1.00;0;0;0;0  
2;"Color Scroll";"daily";-1;600000;0;0;0;1;1;1.00;0;0;0;0
```

Read more on the Cue List topic in the chapter: [MADRIX Cue List](#).

Important Notes

All options of the tab File Watcher will be saved locally on your computer. The settings here will not be saved in your MADRIX Setup file.

5.3 Devices (USB/PCI)

Overview

To access options of MADRIX, please press **"Ctrl+Alt+O"** or go to the menu **"Preferences"** -> **"Options"**. Now got to the tab **"Devices (USB/PCI)"**.



Use Device Driver

MADRIX can be configured to search automatically for all known and supported devices using USB, PCI, PCMCIA, DMX512, etc. at the software start-up. Activate a check-box in order to enable the use of a certain interface driver.

Please note: 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.

More Information

This user guide provides further information: [Supported DMX512 & Art-Net Interfaces](#).

Further Configuration

For more information about the configuration of your DMX devices, please see the chapter [DMX512 \(DMX-OUT\)](#).

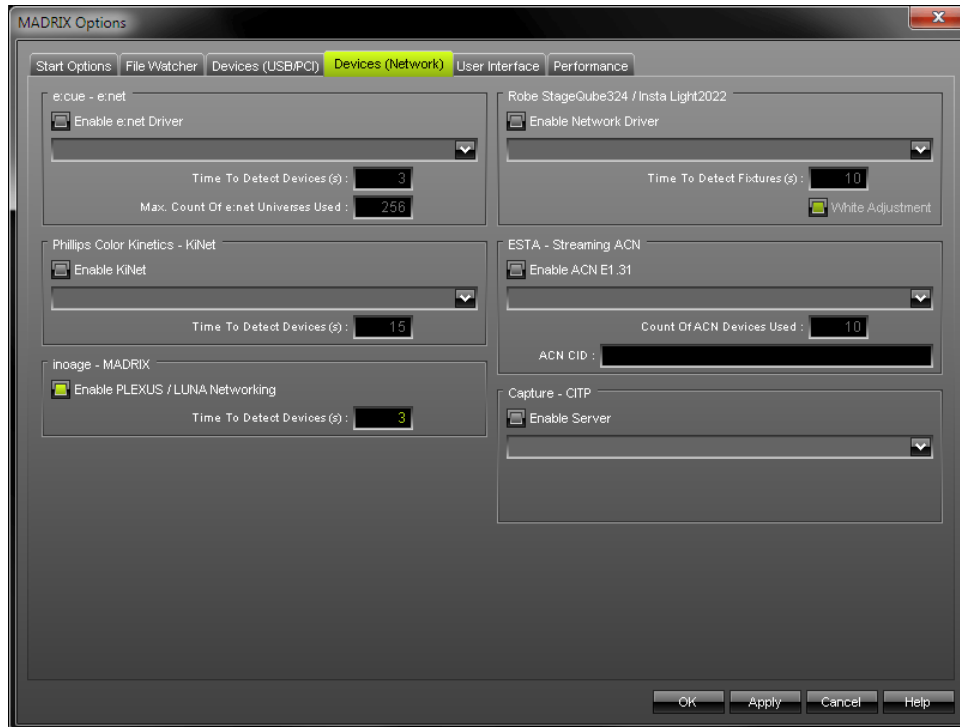
Important Notes

All options of the tab Devices (USB/PCI) will be saved locally on your computer. The settings here will not be saved in your MADRIX Setup file.

5.4 Devices (Network)

Overview

To access options of MADRIX, please press **"Ctrl+Alt+O"** or go to the menu **"Preferences"** -> **"Options"**. Now go to the tab **"Devices (Network)"**.



Configuration

If you enable the drivers in this menu, MADRIX automatically starts searching for known and supported network devices at startup.

You can enable six particular network drivers here:

- e:cue - e:net
- Robe StageQube324 / Insta Light2022
- Philips Color Kinetics - KiNet
- ESTA - Streaming ACN
- inoage - MADRIX
- Capture - CIP Networking Protocol

Please always make sure that you have selected the **correct network.**

Tips

You can **speed up the loading/starting time** of MADRIX. Please only activate drivers for devices which you are going to use.

More Information

Please read the corresponding chapter to configure MADRIX further:

- [e:net from e:cue](#)
- [ROBE StageQube 324](#)
- [Insta Light 2022 - LED-Panel RGB 324](#)
- [Philips Color Kinetics - KiNet](#)
- [ESTA - Streaming ACN](#)
- [MADRIX PLEXUS](#)
- [MADRIX LUNA](#)

- Capture - CITP Networking Protocol

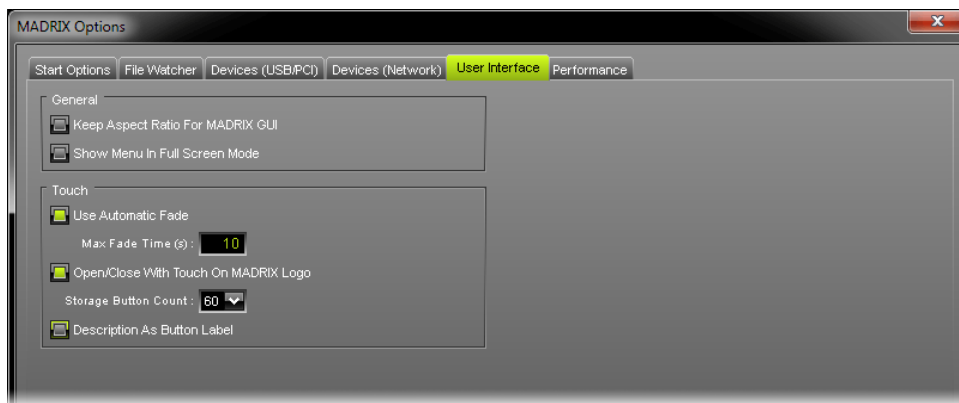
Important Notes

All options of Devices (Network) will be saved locally on your computer. The settings here will not be saved in your MADRIX Setup file.

5.5 User Interface

Overview

To access options of MADRIX, please press **"Ctrl+Alt+O"** or go to the menu **"Preferences"** -> **"Options"**. Now got to the tab **"User Interface"**.



General

Aspect Ratio

MADRIX provides an option to maximize the window. **"Keep Aspect Ratio For MADRIX GUI"** will keep the aspect ratio of the user interface if you maximize MADRIX, i.e. the window will be scaled properly.

Aspect Ratio On



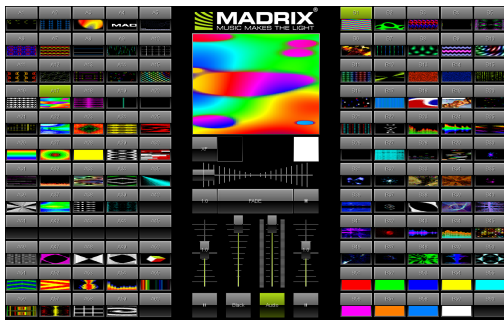
Aspect Ratio Off



Full Screen

"Show Menu In Full Screen Mode" allows you to display or hide the menu bar in full screen mode. For more information, see [Full Screen Mode](#).

Touch



MADRIX features an special Touch Screen Window to control MADRIX via a touch screen panel. Here you can define certain settings for this additional touch screen window.

The option **"Use Automatic Fade"** can be a helpful mechanism. Use it if you wish MADRIX to perform an automatic fade when switching from one effect to another effect in the opposite Storage Area (for example from effect 1 in Storage Area A to effect 1 in Storage Area B). You can define the length of the fade using the input field **"Max. Fade Time"** (in seconds).

Enable **"Open/Close With Touch On MADRIX Logo"** if you want to be able to close the Touch Screen Window by pressing the MADRIX logo. Likewise, you can open the window by clicking the the MADRIX logo on the graphical user interface.

"Storage Button Count" sets the number of Storage Places per side. It sets how many Storage Places will be displayed. You can use 3, 12, 24, 40, or 60 Storage Places.

"Description As Button Label" allows you to show the Description of a Storage Places on the Touch Screen interface instead of the standard numbering (e.g. A1, B50, etc). If the Storage Place has the standard Description "Color", the index number will be shown nevertheless.

You can read more about the Touch Screen interface in the chapter [Touch Screen](#).

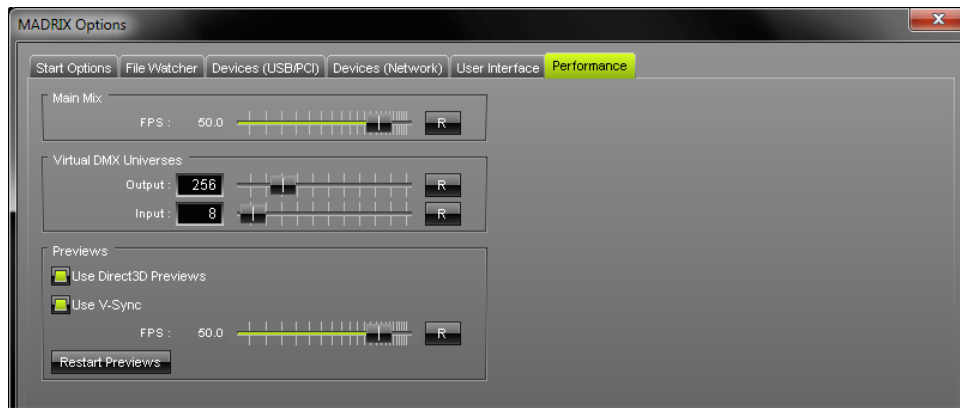
Important Notes

All options of the tab User Interface will be saved locally on your computer. The settings here will not be saved in your MADRIX Setup file.

5.6 Performance

Overview

To access options of MADRIX, please press **"Ctrl+Alt+O"** or go to the menu **"Preferences"** -> **"Options"**. Now got to the tab **"Performance"**.



Main Mix

MADRIX renders all outputs separately. Only when needed, use this slider to adjust the frame rate of the actual data output (in frames per second). Normally you don't need to change this setting.

Only change this value if it is really necessary!



Use the **"Reset"** button to restore the default settings. The default frame rate is 50.0 FPS.

Virtual DMX Universes

Output

Change this value if you need to use more virtual universes than actual DMX universes in your Patch.

Please use this slider to increase or decrease the number of virtual universes which MADRIX will address. (It is possible to use more virtual DMX universes than actual DMX universes by using less than 512 DMX channels per universe.)

Please remember that your MADRIX KEY (MADRIX version) limits the number of actual DMX universes.



Use the **"Reset"** button to restore the default settings. The default value is 256 virtual DMX universes.

Input

Change this value if you need to use more DMX universes for input. Please use the slider or input field to set the required number.

Learn more about this feature in the chapter [DMX-IN & Art-Net Remote](#).



Use the **"Reset"** button to restore the default settings. The default value is 8 virtual DMX-IN universes.

Previews

If you activate **"Use Direct3D Previews"**, all previews will be rendered using Microsoft DirectX and Direct3D, a hardware acceleration of graphical images based on your graphics card. If you encounter problems with Direct3D Previews you can deselect this option. If you deselect it, standard DirectDraw Previews will be initialized. The rendering may take a few seconds. Please always use the button **"Apply"** to apply your changes.

MADRIX supports DirectX 9 and DirectX 10 graphic cards and drivers. Please check which DirectX drivers you have installed by typing 'dxdiag' into the Windows command line.

We recommend to enable Direct3D output.
This option is a great performance improvement for MADRIX.

"Use V-Sync" activates the Vertical Synchronization function of your graphics card for your display monitor or output device. V-Sync can only be used with Direct3D-Previews. Please always use the button **"Apply"** to apply your changes.

"FPS" allows you to manually set the frame rate (frames per second) of the five Preview Windows (Preview A, Preview B, Preview Output, Preview DVI 1, Preview DVI 2). A higher number of frames generates smoother results, but requires more computer performance. The "FPS" 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.



Use the **"Reset"** button to restore the default settings. The default value for DirectDraw Previews is 30.3 FPS. The default value for Direct3D Previews is 50.0 FPS.



Press the button **"Restart Previews"** if you think refreshing your Preview Windows is necessary. Then, all MADRIX previews will be initialized again. The rendering may take a few seconds.

Important Notes

All options of the tab Performance will be saved locally on your computer. The settings here will not be saved in your MADRIX Setup file.

Part

VI

6 MADRIX Effects

Overview Of Effects

- SCE - Static Color Effects

SCE - Static Color Effects are pure color effects. The first category of MADRIX effects is easily capable of delivering impressive light effects! No additional input is necessary.

- S2L - 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!

- M2L - Music2Light Effects

As a special highlight, MADRIX offers you Music2Light effects. These effects incorporate advanced analytical methods to analyze music for tone theoretical parameters. MADRIX analyzes the height of tones, volume, and also single tones, intervals, keys, and tonalities to name but a few.

- MAS - MADRIX Script Effect

The powerful Script Editor, which is included in the software, gives you the possibility to program your own effects. With the script language allows you to easily realize ideas for effects on your own.

Overview Over GUI Elements

Various buttons and interface elements are available in order to configure your effects. For more information, see the chapter [Effect Areas A & B](#).

6.1 Static Color Effects (SCE)

Introduction

SCE - Static Color Effects are pure color effects. The first category of MADRIX effects is easily capable of delivering impressive light effects! No additional input is necessary.

6.1.1 SCE Color

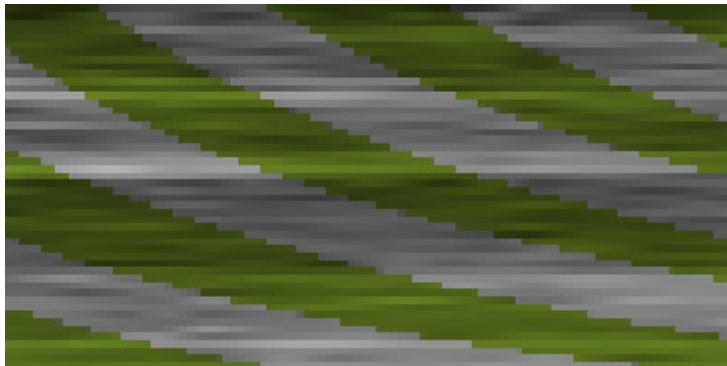
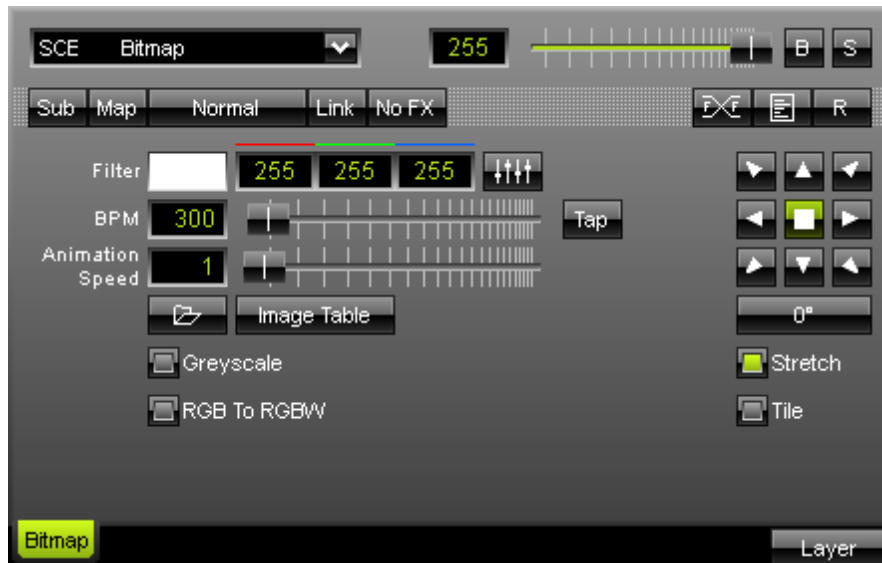


The SCE Color effect **renders a plain color**. It delivers one color on your complete light installation. Settings include adjustable values for red, green, and blue. (And white if you have a RGBW fixture.)

You can either enter values directly over the keyboard or use the fader box with your mouse. With the **"Reset"** button you can set this effect back to default values.



6.1.2 SCE Bitmap



The SCE Bitmap effect provides the possibility to **load one or more bitmaps** at the same time. You can open the following image file formats: **JPG, GIF, PGN, TIF** and **BMP** using the **"Image Table" button** or the **"Open File" button**. MADRIX also supports the **animated GIF** format.

With the help of a wide selection of arrows, it can be decided in which direction the image should be moved. You can display the image in a grey color scale; just click the **"Greyscale"** switch. **"Stretch"** resizes the loaded image to the matrix size. With the help of a filter color you can change the appearance of your image. It manipulates the color values of the image.

The **"Tile"** switch is for tiling/duplicating the image on the matrix size. **"BPM"** defines how fast the image moves, whereas **"Animation Speed"** (animation speed) determines how fast images change with reference to the image table. The higher the value, the faster they are animated. Values smaller than 1 may be used as well. An animation speed of 0.5 cuts it by half, for example.



If you have a RGBW installation and you want to use the white channel, you have to activate the **"RGB to RGBW"** mode. Television screens and computer displays work with pixels (picture elements) using values for red, green, and blue (RGB). Likewise, computer bitmaps/images are saved in RGB mode.

MADRIX features an integrated color space conversion from RGB to RGBW.

To load an image, click on the **"Open File"** button or the **"Image Table"** button.



The newly opened window contains a list with added images. You can load one or more images. The **"Time" value** determines how long a bitmap will be shown. If the time frame of the last picture has ended, the first picture will automatically be shown again. It is a loop. In this example the time is set to 1 second.

Double-click a picture and the loop will restart from the picture you just selected.

The list you created can be saved and loaded, too. Choose **"Export"** to export files in the *.bmp file format (Bitmap).



If you wish to rotate a picture, use this button and select a rotation of 0°, 90°, 180°, or 270°.



If you want to swap images to change their order, please select both images first. Next, simply press the **"Swap"** button. Click **"Close"** to exit this dialog.

Important Notes

Please do use a pictures with a pixel resolution according to the size of your LED matrix!

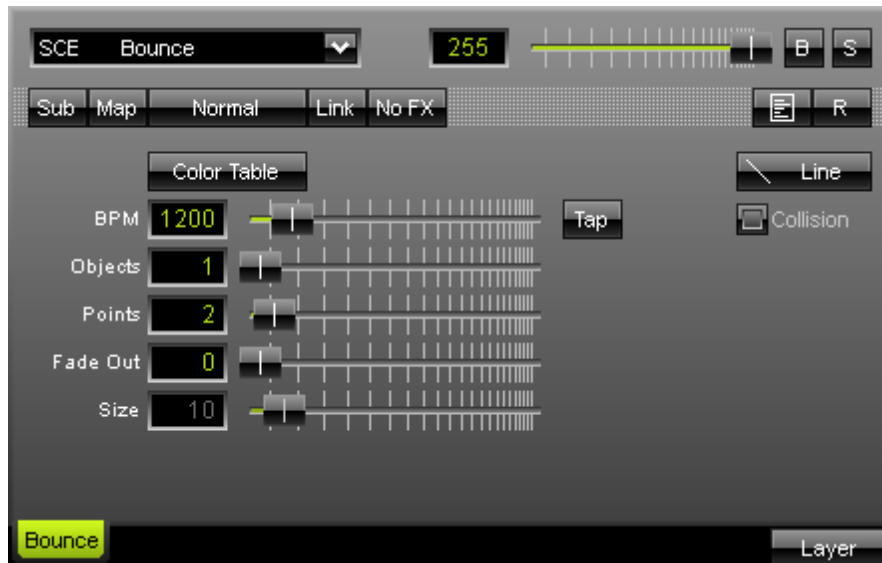
It is not useful to use a resolution of 3000x2000 pixels if your LED matrix has a size of 192x128, for example. Please resize your pictures before using them in MADRIX. Please do also use 72 DPI. Both means will improve performance considerably. At the same time, you will avoid that the RAM of your computer will overload.

Using the Tap Button for Manual BPM Input



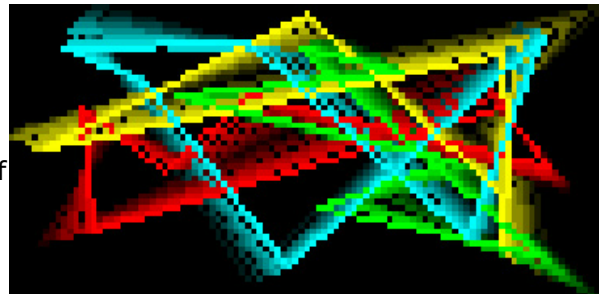
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.1.3 SCE Bounce



The SCE Bounce effect renders bouncing lines. As set-up possibilities you have got parameters for **"BPM"** (Speed), number of **"Objects"** and **"Points"**, **"Fade Out" time**, and **"Size"**. With the help of the Color Table you can define the colors of bouncing objects.

If a value of 1 is selected for **"Points"**, **various modes**, such as rectangle, circle, and cross, are available.



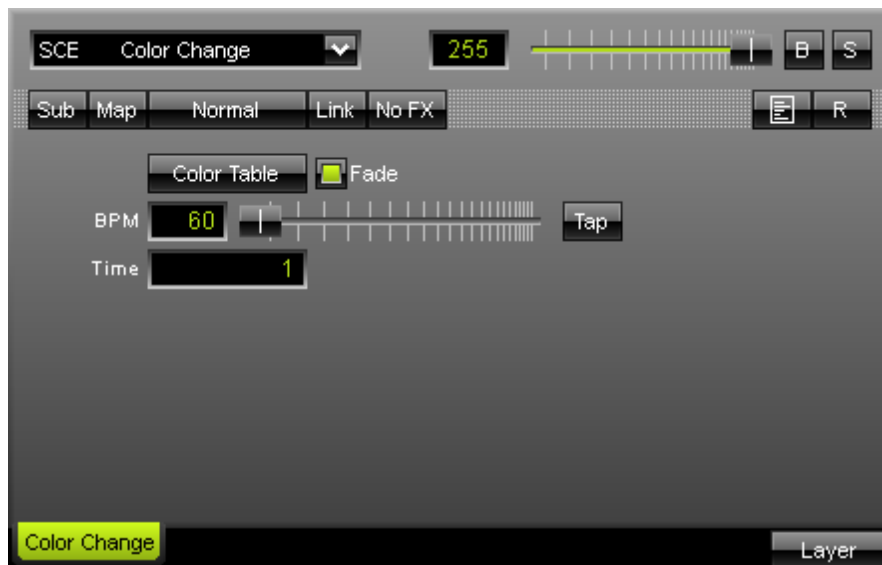
You can either enter values directly over the keyboard or use the fader box with your mouse. With the **"Reset"** button you can set this effect back to default values.

Using the Tap Button for Manual BPM Input

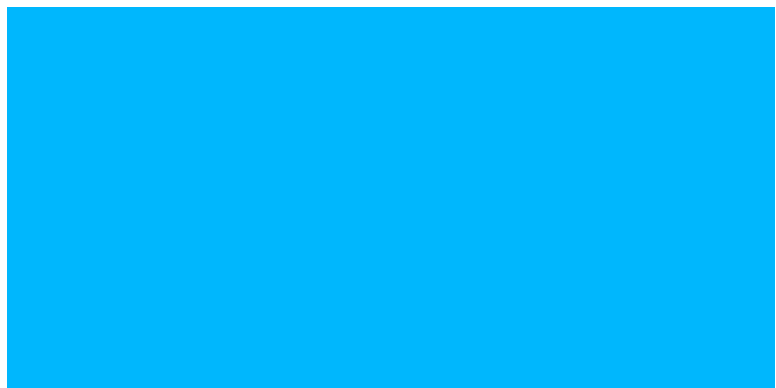


The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.1.4 SCE Color Change

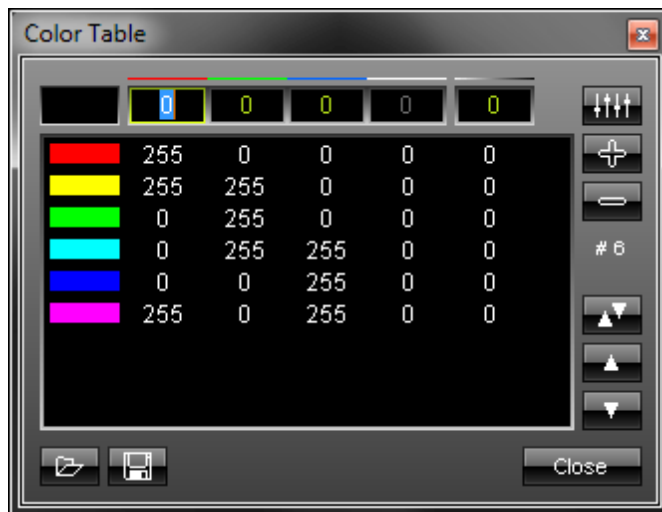


The SCE Color Change Effect is an effect to primarily create a color like the SCE Color Effect. But in addition, you can program a color change.



You can simply choose from a color table to select favored colors.

Likewise, you can enter a time (in seconds) in an input field to define how long a color will be shown. A fade option offers a nifty transition between colors.



To set up the **"Color Table"**, please click the button. A new window containing a list will appear. You can enter numerical values from 0 to 255 for red, green, blue, and white via input fields. You can extend your list with a new color value by pressing the **"+"** button. Existing entries can be deleted from the list by marking it and pressing the **"-"** button. The order of your entries (colors) may be changed, too. In order to do so, simply select the color and press the upward arrow or the downward arrow.

The list you created as well as presets can be saved and loaded. The number of entries in the list can be seen in the lower part of the window. In our example shown above, six entries are currently included in the list (#6). To close the window, click **"Close"**.

Please note: The last color will automatically cross-fade to the first color in the list.

Using the Tap Button for Manual BPM Input

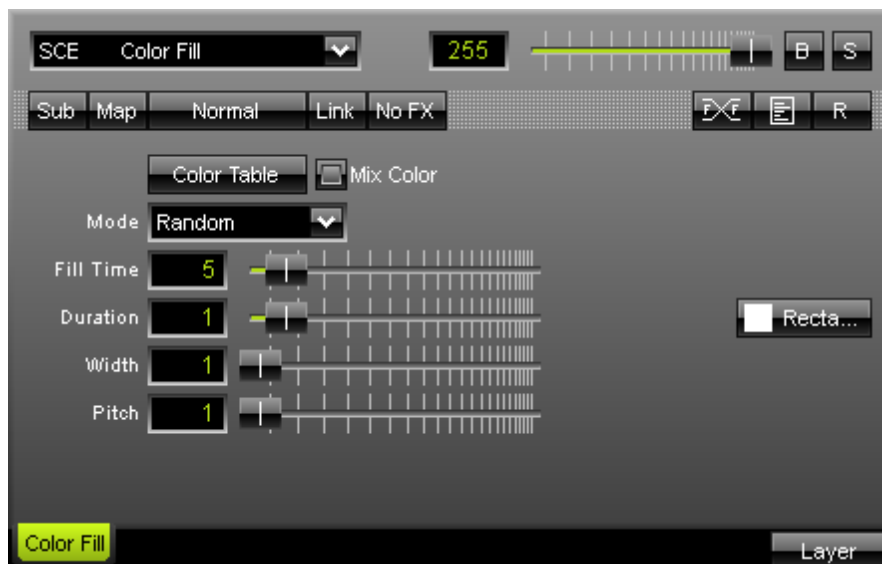


The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.1.5 SCE Color Fill

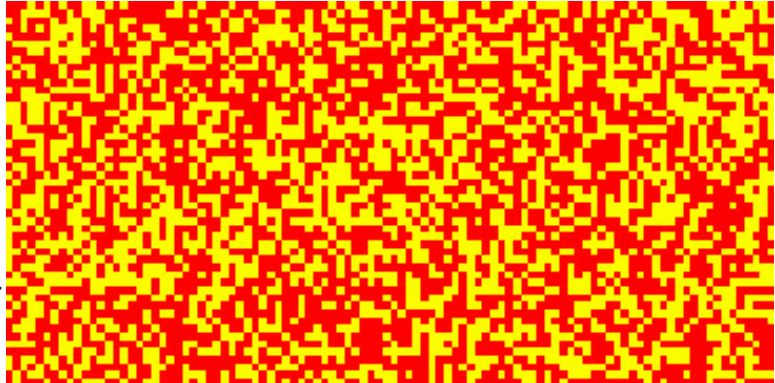
The SCE Color Fill effect offers you six different filling effects: **Random**, **Drops**, **Snake**, **Flat**, **Collapse**, and **Tetris**.

SCE Color Fill - Random Mode



The SCE Color Fill in random mode randomly fills the matrix with one or more colors.

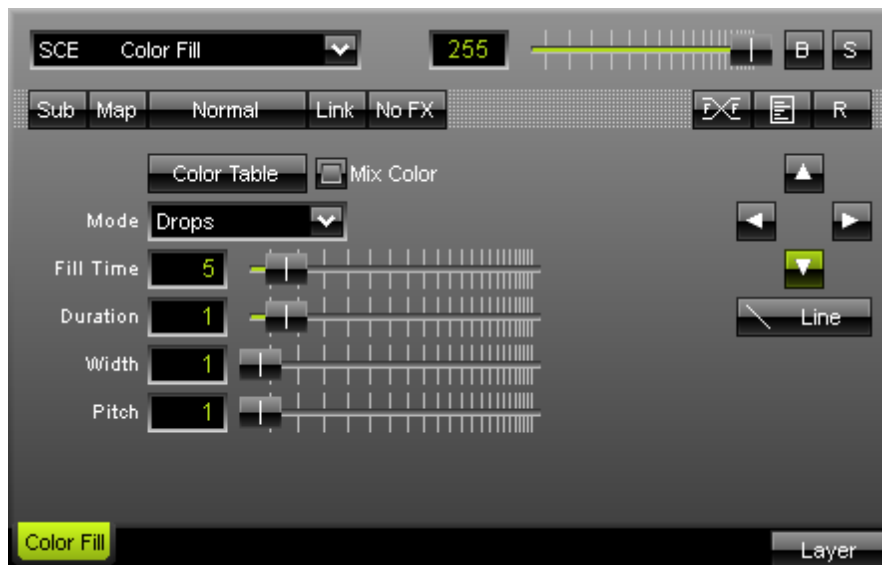
To set up the color scheme, press the **"Color Table"** button. If you activate **"Mix Color"**, all colors in your color table will be used to render a colorful picture on the output.



"Fill Time" specifies how much time is needed to completely fill the matrix. **"Duration"** specifies how long the effect waits until the new effect cycle is started. **"Width"** specifies until the size of the objects. **"Pitch"** specifies the distance between objects.

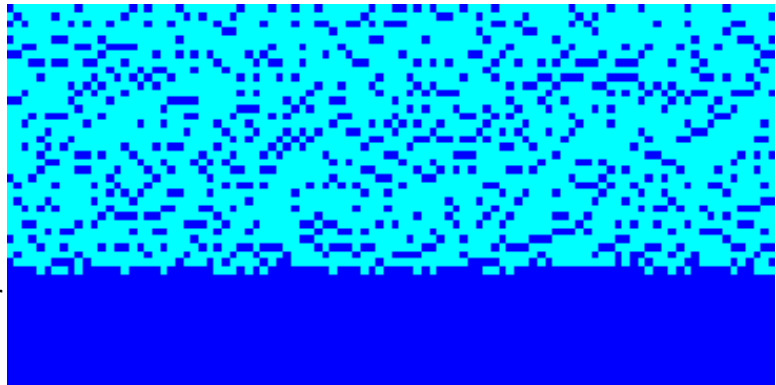
Choose the shape of objects to the right.

SCE Color Fill - Drops Mode



The SCE Color Fill effect set to Drops mode fills the matrix with colored drops (as if it rains).

To set up the color scheme, press the **"Color Table"** button. If you activate **"Mix Color"**, all colors in your color table will be used to render a colorful picture on the output.



To set up the direction of the effect, use the arrow buttons on the right side of the effect area.

You can also change the shape of the objects by selecting the button labeled **"Line"** by default. Use **"Width"** to define the size of objects and **"Pitch"** to define the distance between objects.

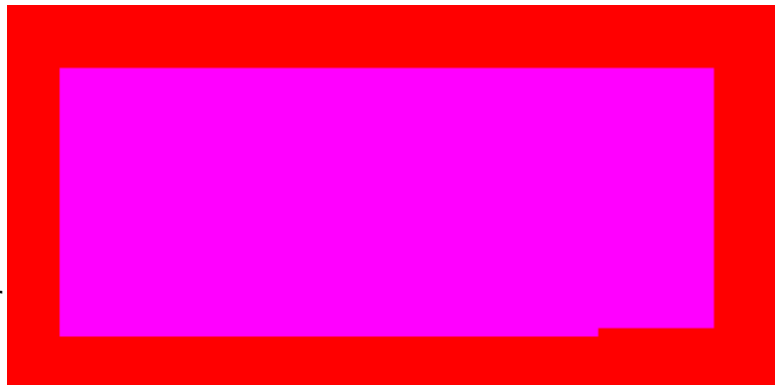
SCE Color Fill - Snake Mode



This mode fills the matrix in a snake-like mode. SCE Color Fill in Snake mode fills the matrix with colors.

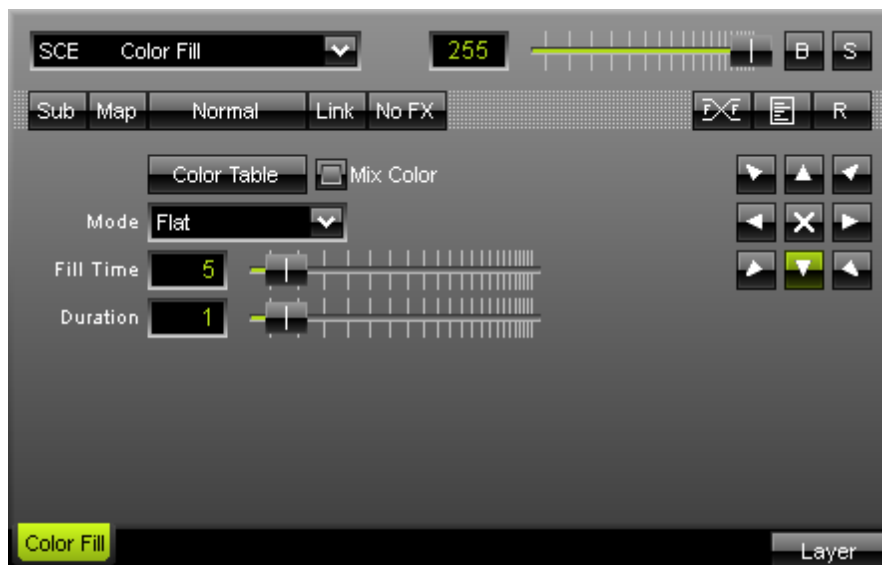
To set up the color scheme, press the **"Color Table"** button. If you activate **"Mix Color"**, all colors in your color table will be used to render a colorful picture on the output.

Especially useful features are the options to influence the starting point, direction, orientation, and several modes, like Mirrored, Centered, Circled output.



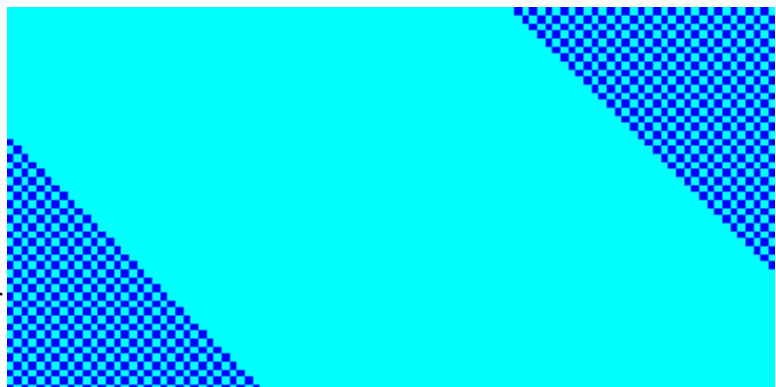
"Fill Time" specifies how much time is needed to completely fill the matrix. **"Duration"** specifies how long the effect waits until the new effect cycle is started. **"Width"** specifies until the size of the objects.

SCE Color Fill - Flat Mode



Hereby, the matrix is filled very plainly. The picture shows the cross-mode ("X") and a diagonal rotation.

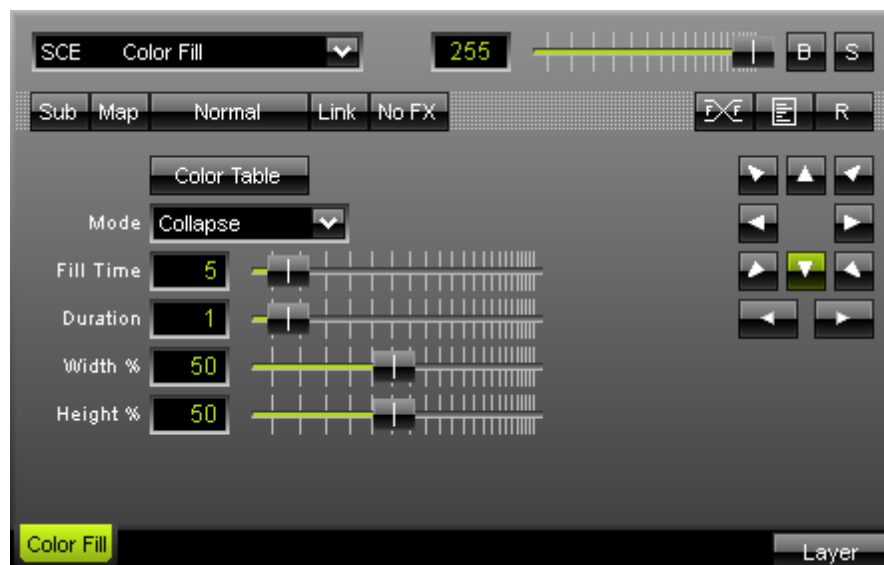
To set up the color scheme, press the **"Color Table"** button. If you activate **"Mix Color"**, all colors in your color table will be used to render a colorful picture on the output.



To set up the direction of the effect, use the arrow buttons on the right side of the effect area.

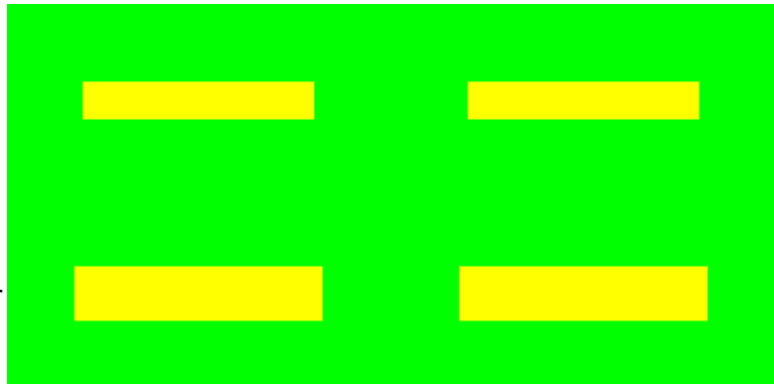
"Fill Time" specifies how much time is needed to completely fill the matrix. **"Duration"** specifies how long the effect waits until the new effect cycle is started.

SCE Color Fill - Collapse Mode



The SCE Color Fill in Collapse mode fills the matrix with colors in Tetris style.

To set up the color scheme, press the **"Color Table"** button. If you activate **"Mix Color"**, all colors in your color table will be used to render a colorful picture on the output.

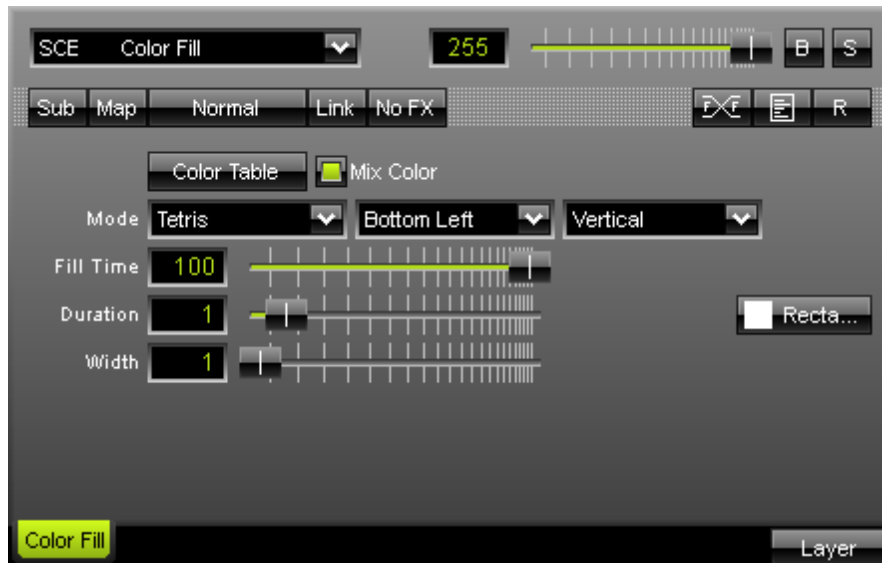


"Fill Time" specifies how much time is needed to completely fill the matrix. **"Duration"** specifies how long the effect waits until the new effect cycle is started.

In addition, the **"Width"** and **"Height"** of objects can be adjusted in percent.

To set up the direction of the effect, use the arrow buttons on the right side of the effect area.

SCE Color Fill - Tetris Mode

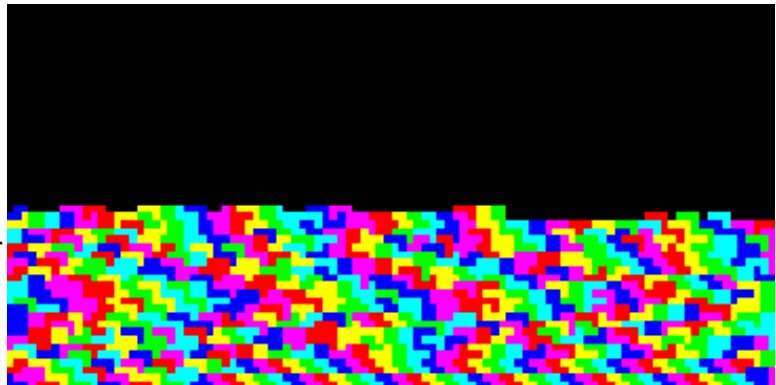


Randomly selected Tetris bricks are used to fill the screen in this mode.

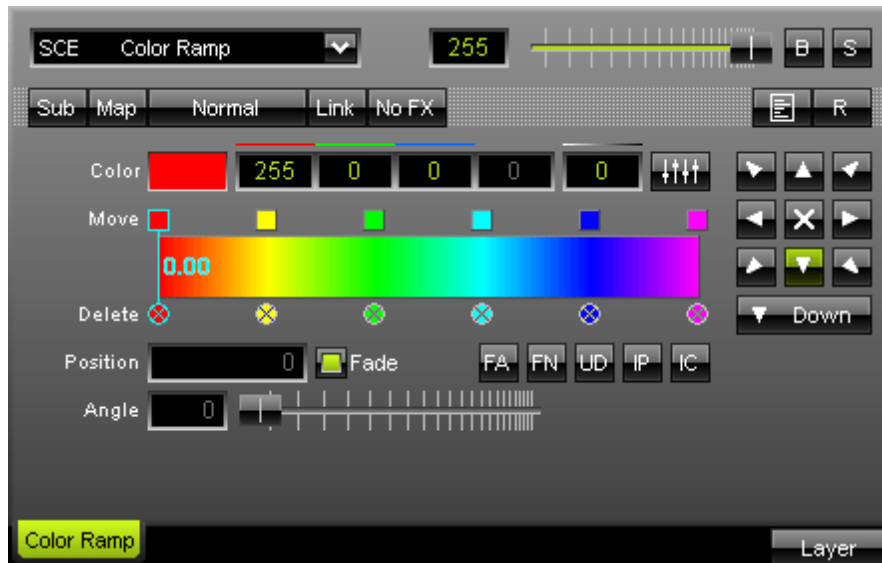
To set up the color scheme, press the **"Color Table"** button. If you activate **"Mix Color"**, all colors in your color table will be used to render a colorful picture on the output.

You may set up the starting point, direction, and orientation of the effect as well.

"Fill Time" specifies how much time is needed to completely fill the matrix. **"Duration"** specifies how long the effect waits until the new effect cycle is started. **"Width"** specifies until the size of the objects.

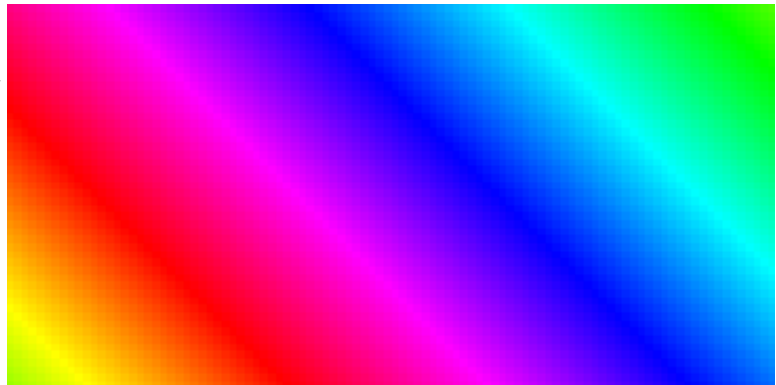


6.1.6 SCE Color Ramp

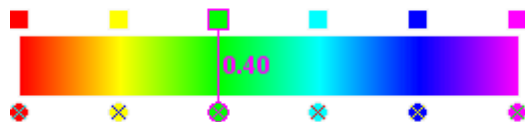


The SCE Color Ramp effect renders a color gradient. Settings include adjustable values for red, green, blue, and white.

You can either enter values directly over the keyboard or use the fader box with your mouse. With the **"Reset"** button you can set this effect back to default values.



Large color control



Using the color control: Select and hold a color (using the small square button) and move the mouse if you want to relocate a color. Click the small x-button at the bottom of a color to remove it. 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. Use the input field **"Position"** to adjust it more precisely.

"FA" (Fade All) will activate a smooth color fading for all colors .

"FN" (Fade None) will deactivate color fading.

"UD" (Uniform Distances) will make sure that all colors have the same distance to each other.

"IP" (Invert Positions) will change and inverse the position of all colors.

"IC" (Invert Colors) will invert the paint of each color.



The **"Alpha value"** sets the opacity of a single color. It becomes transparent and blends with the background.

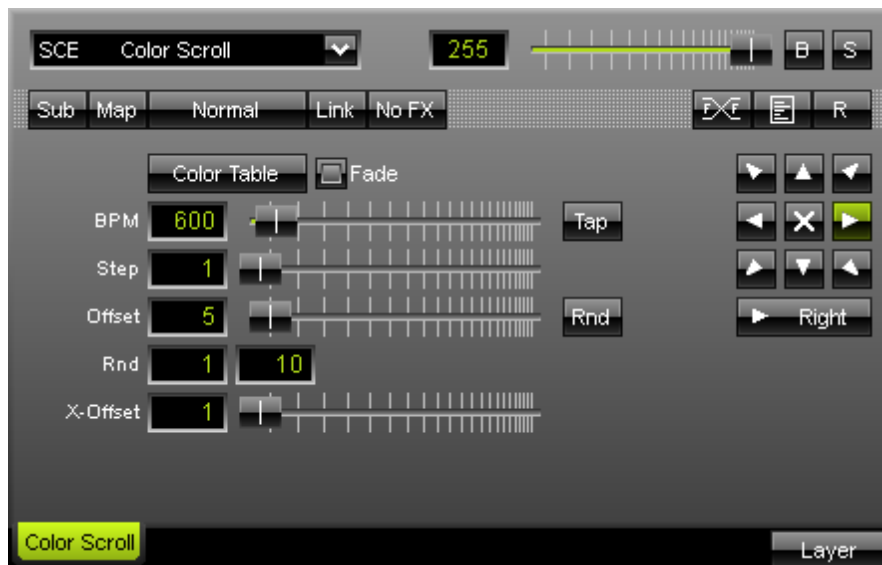
Furthermore, you can define the direction of the gradient by simply clicking onto the direction buttons.

Selecting a mode is also possible.



If you select **"Radial Ramp"**, the slider called **"Angle"** becomes available. Use this slider to rotate the Radial Ramp according to your wishes. A range of 0 to 359 degrees is available.

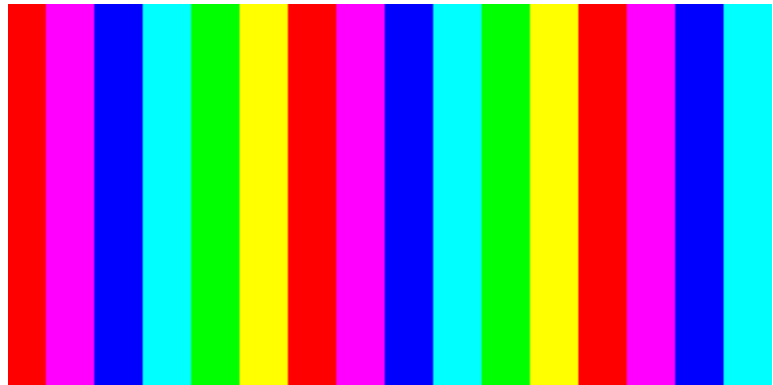
6.1.7 SCE Color Scroll



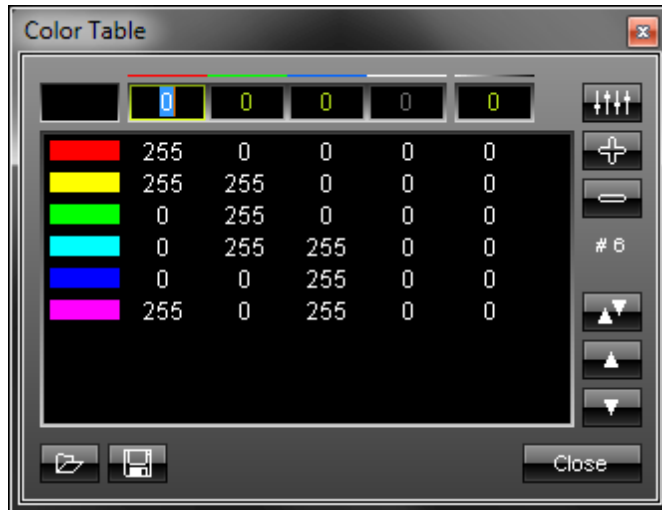
The SCE Color Scroll Effect delivers a moving color gradient.

Speed and direction can be easily modified.

Press **"Fade"** to get a smooth gradient from color to color.



"Offset" determines the size of the color bars, i.e. it sets the distance between colors of the gradient. Activate **"Rnd"** (random) to receive a random broadness of the gradients. Two input fields below "Offset" define the value of the minimum and maximum width.



To set up the **"Color Table"**, please click the button. A new window containing a list will appear. You can enter numerical values from 0 to 255 for red, green, blue, and white via input fields. You can extend your list with a new color value by pressing the "+" button. Existing entries can be deleted from the list by marking it and pressing the "-" button. The order of your entries (colors) may be changed, too. In order to do so, simply select the color and press the upward arrow or the downward arrow.

The list you created as well as presets can be saved and loaded. The number of entries in the list can be seen in the lower part of the window. In our example shown above, six entries are currently included in the list (#6). To close the window, click **"Close"**.



These arrow buttons define the direction and starting point of an effect. Press the downward arrow if you want the gradient to move from top to bottom. Press the upward arrow if you want the gradient to move from bottom to top. The cross in the middle activates a movement from two, opposite directions. The gradient may also move inside out or vice versa. Additionally, several other options (horizontal, vertical, rectangle, square, ellipse, circle, in implode or explode mode) are available.

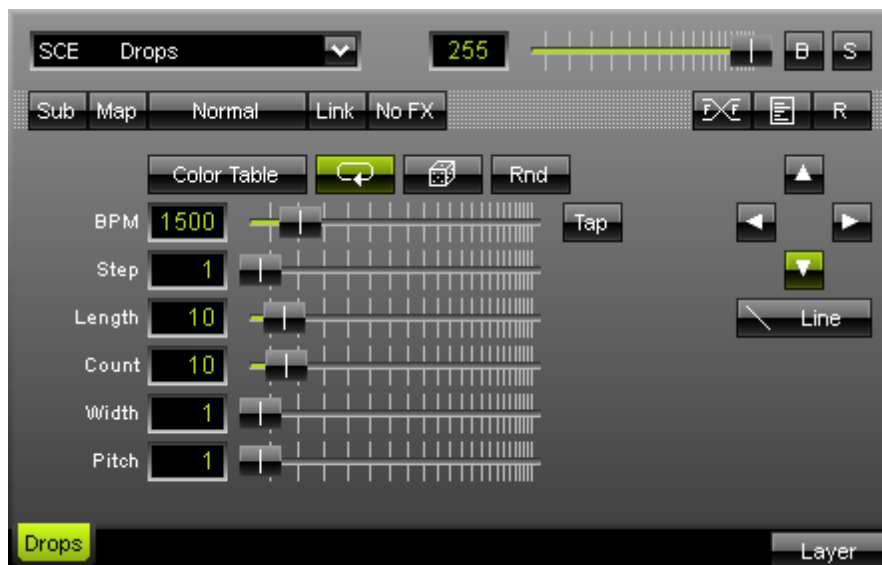
If you want to have smooth gradients, press the Fade button.

Using the Tap Button for Manual BPM Input



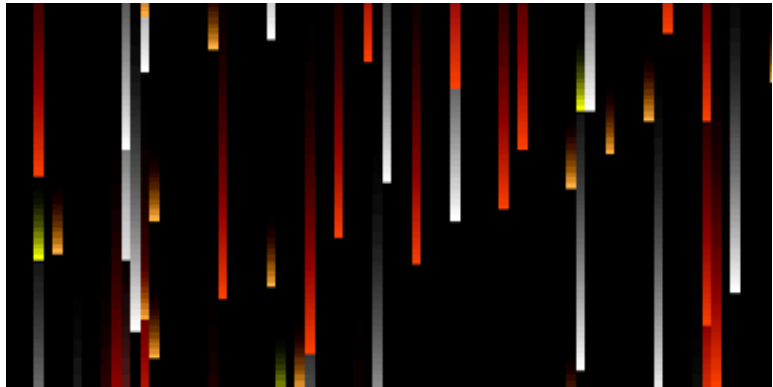
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.1.8 SCE Drops



The SCE Drops effect displays falling objects, just like rain drops.

As always, the input field "**BPM**" sets the speed of the effect. You may enter a value between 1 and 9999.



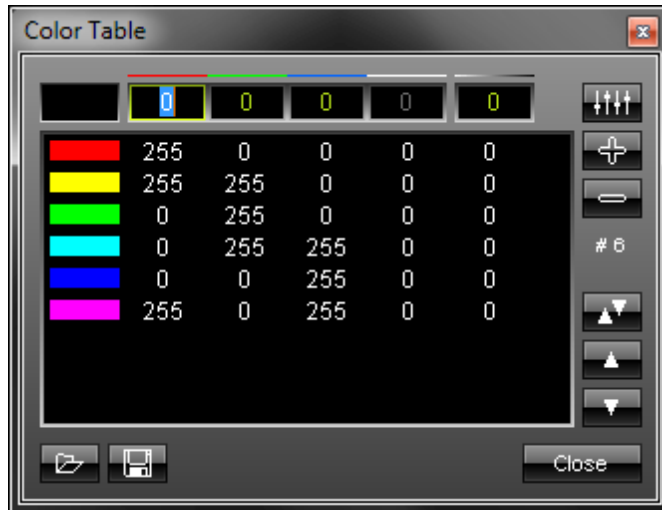
"**Step**" can be used to stretch the drops. For example, a step value of 2 will render drops every second pixel. With "**Length**" you can choose the length of the single objects. Adjust the number of objects by using "**Count**". "**Width**" sets the width of each object, while "**Pitch**" determines the spacing between objects.



Four arrow buttons allow you to decide in which direction the effect should move.

In addition, you can choose from different shapes. Click the button labeled "**Line**" by default.

Use the "**Color Table**" to set up the colors of the effect. In addition, those colors can be used in chronological order or shuffle mode. Entirely random colors can be used, too.



To set up the Color Table, please click the button. A new window containing a list of colors will appear. You can enter numerical values from 0 to 255 for red, green, blue, and white via input fields. You can extend your list with a new color value by pressing the "+" button. Existing entries can be deleted from the list by marking it and pressing the "-" button. The order of your entries (colors) may be changed, too. In order to do so, simply select the color and press the upward arrow or the downward arrow.

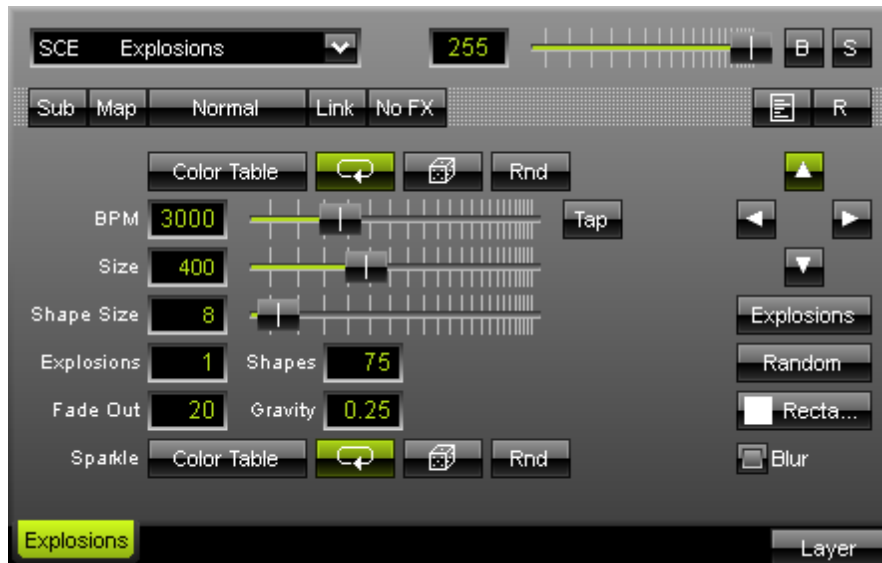
The list you created as well as presets can be saved and loaded. The number of entries in the list can be seen in the lower part of the window. In our example shown above, six entries are currently included in the list (#6). To close the window, click **"Close"**.

Using the Tap Button for Manual BPM Input

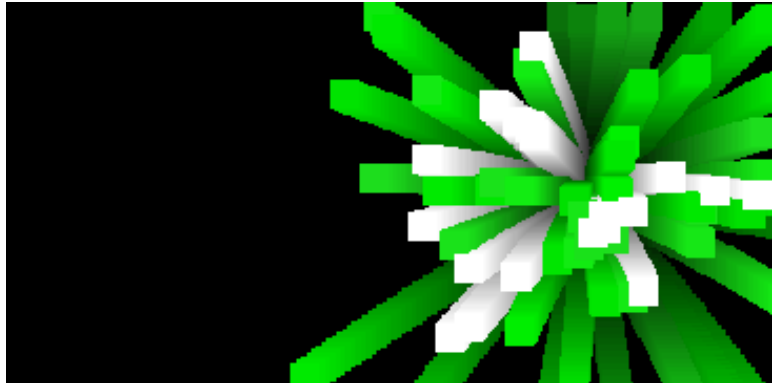


The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.1.9 SCE Explosions



The SCE Explosions effect can display all kinds of explosions and fireworks.



The **Color Table** defines the colors used by the effect.

"BPM" defines the speed of the effect.

"Size" defines how big the whole explosion will be.

"Shape Size" defines how big single objects are.

"Explosions" defines how many explosions are displayed by the effect at the same time.

"Shapes" defines the number of single objects a single explosion includes.

"Fade Out" defines if objects get a visual tail and fade out over time.

"Gravity" defines how strong objects are dragged to the bottom.

"Sparkle" defines which color is added to single and small parts of the explosion.



You can choose from two different modes: Explosions and Fireworks. If Fireworks is selected, you may also define a direction with the help of the four arrow keys. You can also choose from different types of explosions (Sphere, Sphere Glow, Spiral, Radial, Diamond, Star, or Random). You can also choose from different shapes for the objects (Rectangle, Rectangle Filled, Circle, Circle Filled, Cross, Star, Diamond, Diamond Filled, or Random).

Using the Tap Button for Manual BPM Input



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

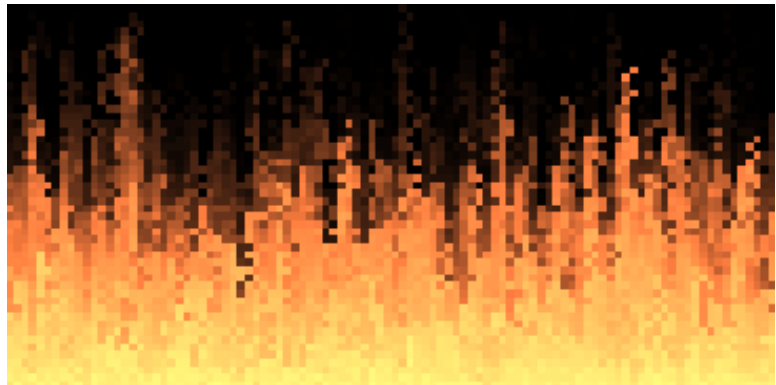
6.1.10 SCE Fire



The SCE Fire effect renders a colored fire.



The effect has two modes "Fire" and "Flames". Use this button to select which mode you want to use.



As always, the input field "**BPM**" sets the speed of the fire. You may enter a value between 1 and 9999. With "**Height**" you can choose the height of the fire. The flames height can be adjusted from 1 to 32.



Four arrow buttons allow you to decide where the fire should have its starting point. If you want the fire effect's direction to be from bottom to top, press the upward arrow, for example.

Fire Mode

The effect area includes several presets for this effect. Different color variations are set by using the buttons **"RG"**, **"RB"**, **"GR"**, **"GB"**, **"BR"**, and **"BG"**. Single colors arise from additive color mixtures via RGB. In this way, flames are displayed shades of red – green (RG), red – blue (RB), green – red (GR), green – blue (GB), blue – red (BR), and blue – green (BG).

Flames Mode

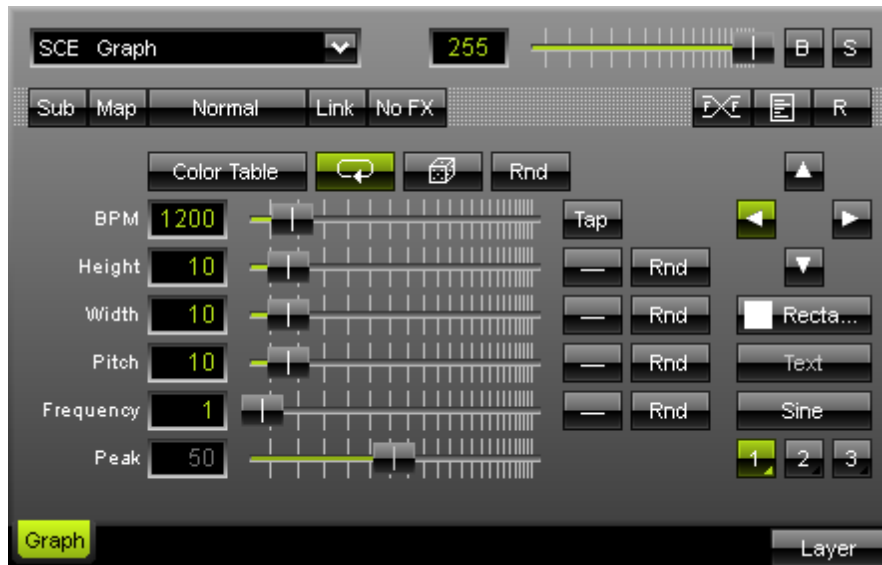
Use the **"Size"** slider to adjust the width and height of an individual flame. **"Intensity"** regulates the size of the fire further.

Using the Tap Button for Manual BPM Input



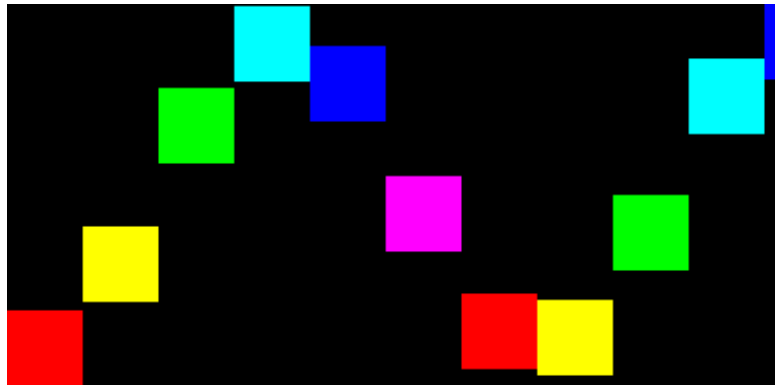
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.1.11 SCE Graph



The SCE Graph effect creates trigonometric graphs.

Multiple options allow you to customize each graph to a great extent in order to create new variations.



Overview

All in all, this effect has many available controls, which combined may change the visual outcome of the effect drastically.

General Controls

The **Color Table** defines the colors used by the effect.

"BPM" defines the speed of the effect.

"Height" defines the (vertical) size of each element of the graph.

"Width" defines the (horizontal) size of each element of the graph.

"Pitch" defines the distance between single elements.

"Frequency" defines the rate. A value of 1 means that the complete wave is shown.

"Peak" becomes only available for the mode "Triangle". It defines the position of the maximum point of the triangle wave. By default, this slider is set to 50, which is the middle position.

Direction



Four arrow buttons allow you to decide in which direction the effect should move.

Size, Pitch, and Frequency

For Height, Width, Pitch, and Frequency several additional options are available.



A drop-down button next to each slider provides several modes on how the Height, Width, Pitch, or Frequency is calculated across all elements of the graph.



Uniform - Each element has the same size/Pitch/Frequency.

Linear - A linear distribution is used to increase the size/Pitch/Frequency regularly from element to element.

Quadratic - The majority of elements/Pitches/Frequencies will be smaller than the rest.

SQRT - Using a square root function the majority of elements/Pitches/Frequencies will be larger.

Cubic - Uses a cubic distribution with mixed sizes/Pitches/Frequency.

Random - Sizes/Pitches/Frequencies will be generated randomly.

When you select **"Rnd"**, Random will automatically be selected.

In addition, the slider control changes. You can now select the minimum and maximum size/Pitch/Frequency for all elements.



Shapes

The SCE Graph effects allows you to select different shapes for the elements.

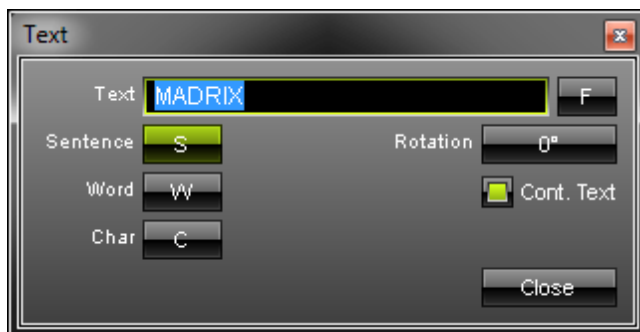


You can also display text for each element. Choose "Text" as a shape.

New options will then become available when pressing the button "Text" below.



Now, choose your font settings using the window that opens.



"Sentence" will use the input text as a whole for each element.

"Word" will use each word as a single element.

"Char" will use each single character of the text as a single element of the graph.

You may also rotate the text, using the "Rotation" button.

"Cont. Text" will repeat the text. Please pay attention that the modes "Sentence", "Word", and "Char" are all influenced individually by this option.

Modes

SCE Graph has further options to alter the visual outcome of the effect.

You may choose from several modes on how the graph is displayed (trigonometric functions).



In addition, you can combine up to three registers in order to create one single graph. In fact, each mode will be overlaid over the other modes.

Use the numbered buttons (register 1, 2, and 3) and choose a mode for each.

You may also change the Frequency (and Peak) for each.

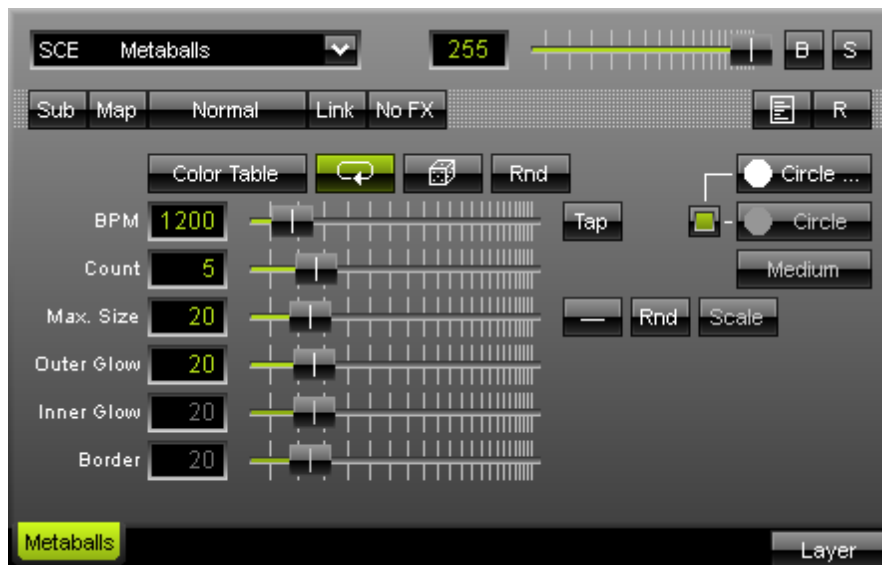


Using the Tap Button for Manual BPM Input

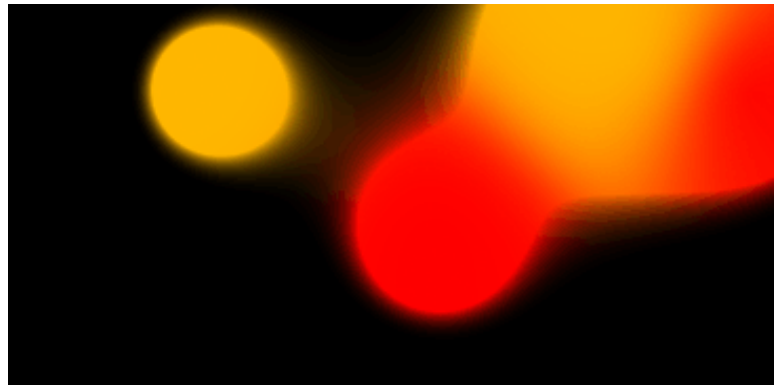


The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.1.12 SCE Metaballs



The SCE Metaballs effect displays objects that morph into each other creating a liquid animation.



The **Color Table** defines the number and type of colors used by the effect. **You can use more than one color for the effect.**

"BPM" defines the speed of the effect.

"Count" defines the number of objects (metaballs).

"Max. Size" affects the maximum magnitude of the metaballs.

"Outer Glow" determines the outer shimmer of objects.

"Inner Glow" determines the inner gleam of objects which are not filled.

"Border" adjusts the border size of non-filled objects.



Next to the "Max. Size" slider, a drop-down button provides several modes on how the size of the metaballs is calculated.

Uniform - Each metaball has the same size.

Linear - A linear distribution is used to increase the size regularly.

Quadratic - The majority of metaballs will be smaller than the rest.

SQRT - Using a square root function the majority of metaballs will be larger.

Cubic - Uses a cubic distribution with mixed sizes.

Random - Sizes will be generated randomly.



The **"Rnd"** button (random mode) can be tapped to generate new random sizes each time. This automatically activates "Random" mode. Use the **"Scale"** slider for resizing. This slider is only available in random mode.



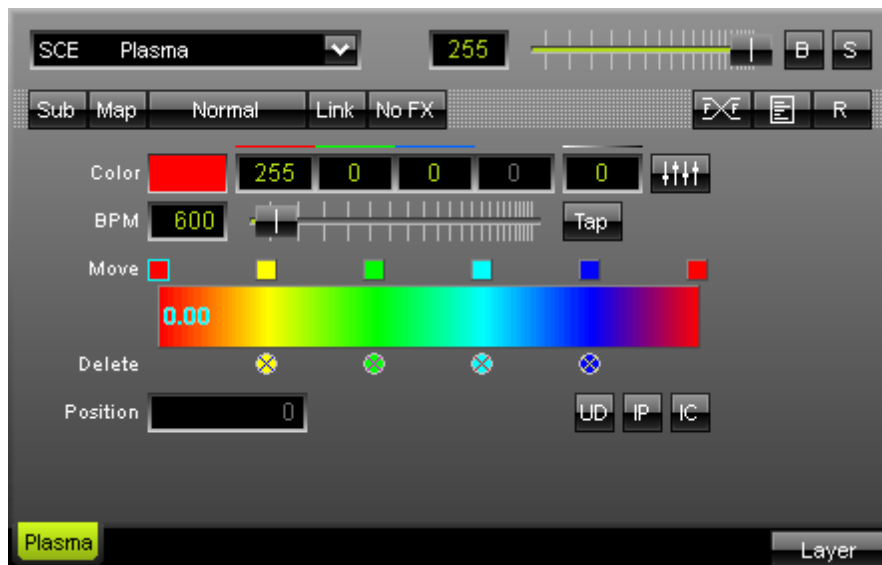
In addition, you can choose from **different shapes** (Rectangle, Rectangle Filled, Circle, Circle Filled, Diamond, Diamond Filled). A second button allows you to choose **a second set of metaballs** in circle, rectangle, or diamond shape. A third button defines how much the **colors are mixed** within the morphing objects (Very Blurry, Blurry, Slightly Blurry, Medium, Slightly Clear, Clear, or Very Clear).

Using the Tap Button for Manual BPM Input



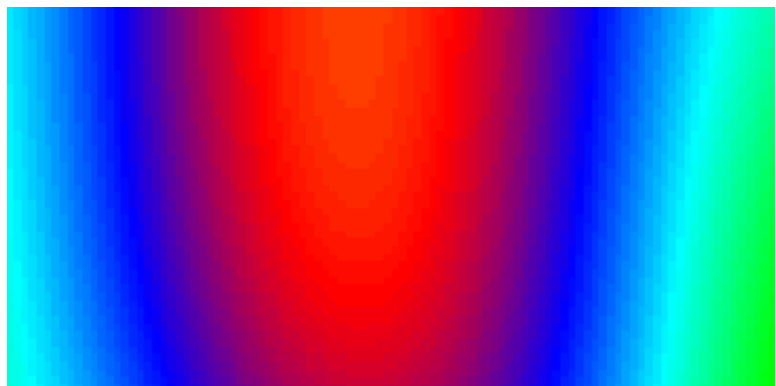
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

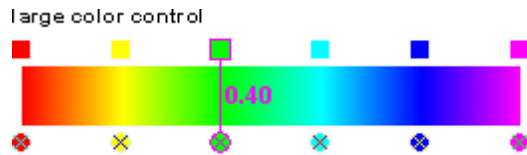
6.1.13 SCE Plasma



The SCE Plasma effect is used to show a liquid and moving color gradient.

Set up the **"BPM"** speed and various colors to influence the outcome.





Using the color control: Select and hold a color (using the small square button) and move the mouse if you want to relocate a color. Click the small x-button at the bottom of a color to remove it. 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. Use the input field **"Position"** to adjust it more precisely.

"UD" (Uniform Distances) will make sure that all colors have the same distance to each other.

"IP" (Invert Positions) will change and inverse the position of all colors. **"IC"** (Invert Colors) will invert the paint of each color.



The **"Alpha value"** sets the opacity of a single color. The color becomes transparent and blends with the background.

Furthermore, you can define the direction of the gradient by simply clicking onto the direction buttons.

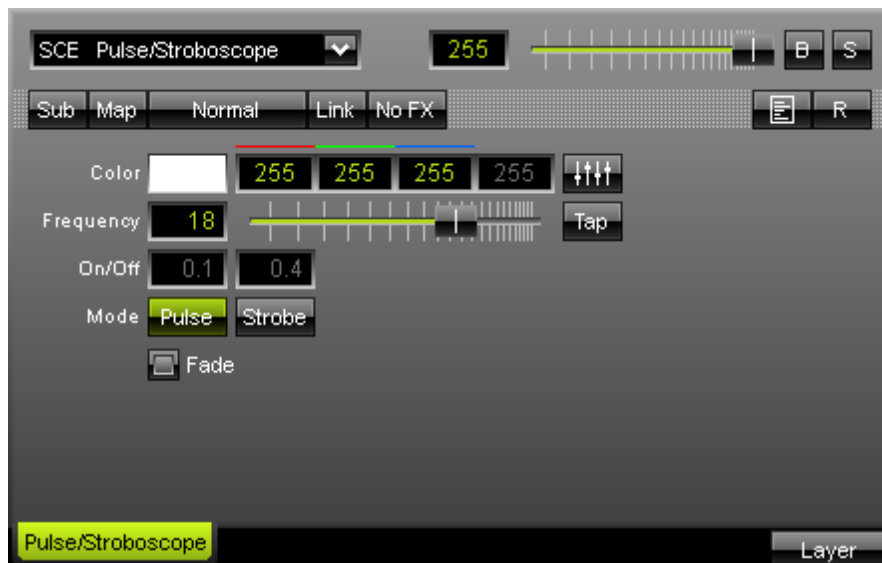
If you want the gradient to be rendered more smoothly, press the **"Fade"** button ("Set Frame Fade").

Using the Tap Button for Manual BPM Input



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

6.1.14 SCE Pulse/Stroboscope



The SCE Pulse/Stroboscope produces a stroboscope or pulsating effect.

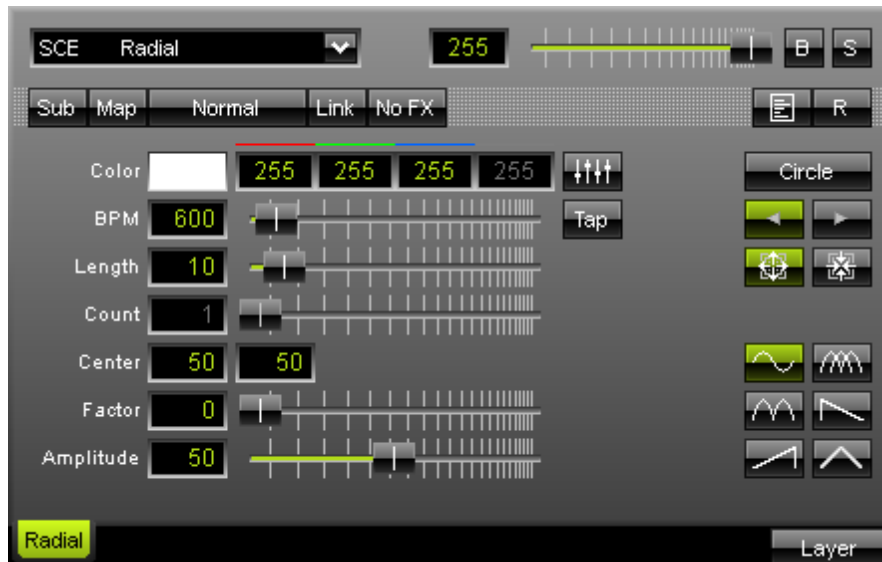
Enable this effect to generate regular flashes. Strobe lights are often used in nightclubs and raves, and are available at home for special effects or in the entertainment area.

"Frequency" (frequency) determines the flash interval in **"Pulse"** mode. Sequences can vary from very slow speed (a value of 1) to a very high velocity (a value of 25). Use the **"Tap"** button to manually adjust the Frequency. Tap at least four times in order to input it correctly.

In **"Strobe"** mode you can select the time, the effect switches **"On"** and **"Off"**.

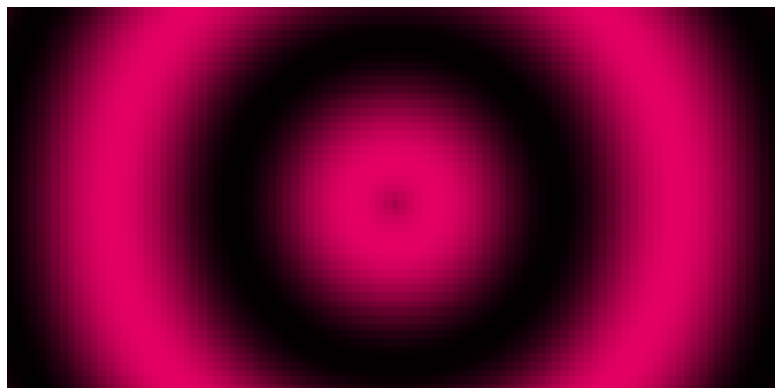
If you want the effect to be rendered more smoothly, press the **"Fade"** button ("Set frame fade").

6.1.15 SCE Radial



The SCE Radial offers moving colors in three different radial modes.

Set up the **"BPM"** speed and various colors to influence the outcome. Values for red, green, blue, and white may be used.



You can either enter values directly over the keyboard or use the fader box with your mouse.

Use the input field **"Length"** to define the extent of the shapes. Change **X and Y coordinates** to modify the **"Center"** of a radial effect.



This drop-down button allows to select different **modes**. You can choose from three different types of effect: "**Circle**", "**Radar**", and "**Helix**". Select a mode after clicking the button to activate the particular mode.



With the sinus buttons you can define the color mode (one color or multi-color mode.) Direction buttons allow to set up the motion direction. Additionally, you will find two moving mode buttons to define inside-out or outside-in mode.

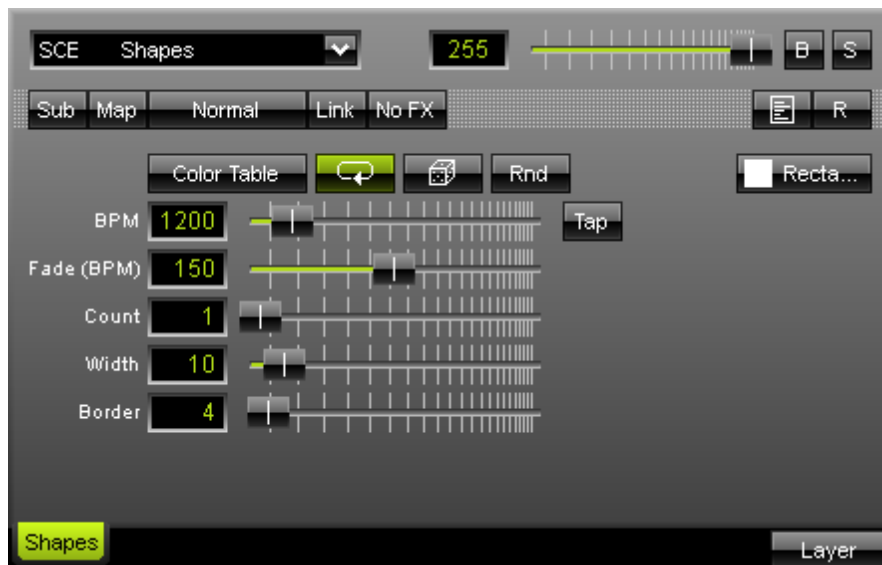
"**Factor**" and "**Amplitude**" are available when "Circle" or "Helix" is selected. "Factor" influences the way the function is drawn. It increases the number of waves. "Amplitude" increases the intensity of those waves.

Using the Tap Button for Manual BPM Input



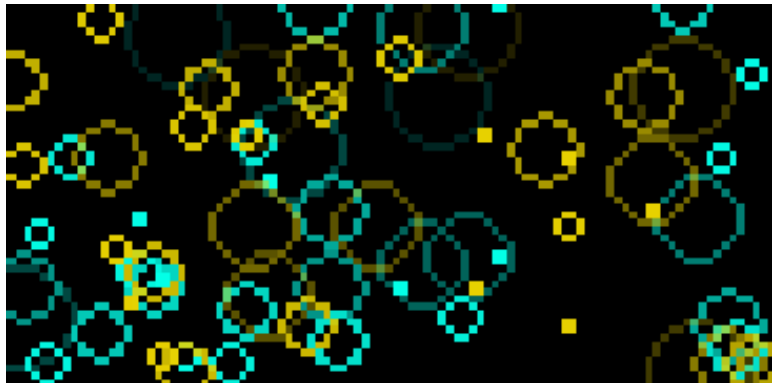
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the "**Tap**" button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

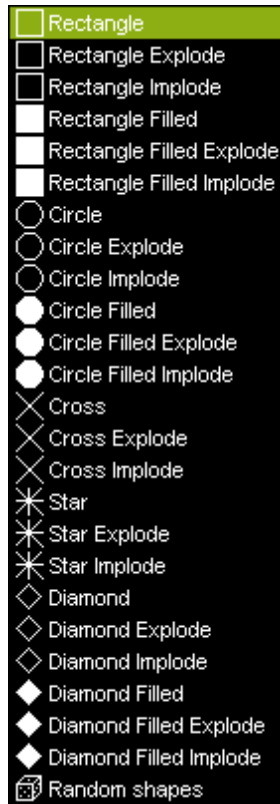
6.1.16 SCE Shapes



The SCE Shapes effect randomly renders objects with different shapes in a color you have selected.

There are different modes for colors, speed, fade times, number of objects (Count), Width, Border, and different types of shapes.





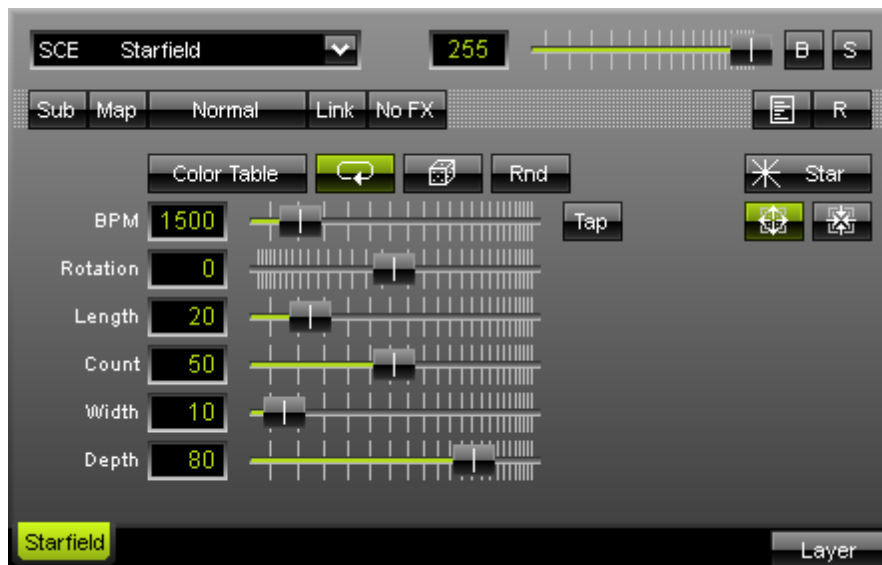
The picture shows available modes/shapes for this effect. You have to play with the parameters BPM, Fade, Count, Width, and Border to see the possibilities you have with this effect. Be creative and try to combine this effect with others by using layers and different mix modes.

Using the Tap Button for Manual BPM Input

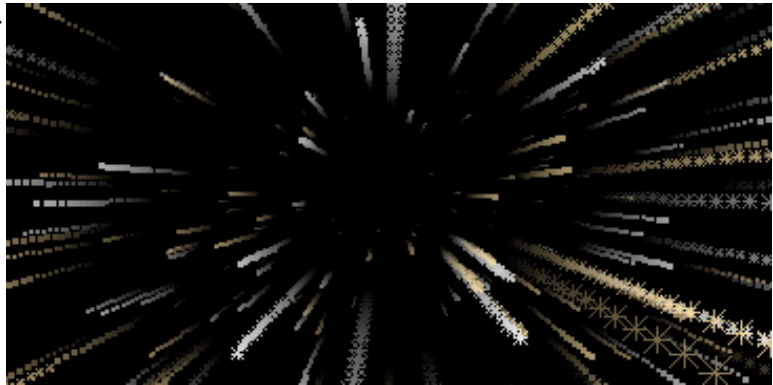


The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.1.17 SCE Starfield



SCE Starfield mainly simulates a field of stars streaming towards the viewer from the center of the effect. This creates a depth effect.



The **Color Table** defines the colors used by the effect.

"BPM" defines the speed of the effect.

"Rotation Amount" defines how much the single objects rotate around the center. You can rotate the effect to the left and to the right. If the slider is positioned in the middle, it will not rotate (0).

"Length" defines how long the tail of the objects is, how much depth effect is applied.

"Width" defines how big the flying objects are.

"Depth" further influences the depth effect and how near or far the objects seem to be.



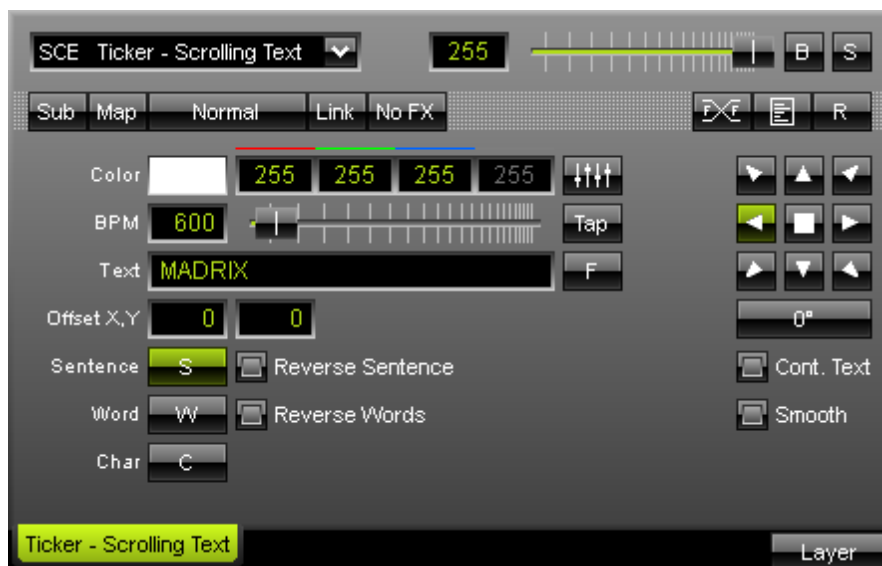
You can choose from different **shapes** (Rectangle, Rectangle Filled, Circle, Circle Filled, Cross, Star, Diamond, Diamond Filled, or Random). You can also change if objects fly **outwards** (from far to near) or **inwards** (from near to far).

Using the Tap Button for Manual BPM Input



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

6.1.18 SCE Ticker - Scrolling Text



With the SCE Ticker effect you can easily write text messages. Use the **"Text"** field to set up the message content. A different color can be chosen similarly.



The **"Offset"** area is used to configure the position of the text with the help of the x-axis (left input field) and the y-axis (right input field). Positive values for x will locate the text more to the right. Negative values move the text to the left. Positive y-values relocate the text downward. Negative values set it upwards. Use the spacebar to reset values to 0.

Choose the desired **typeface** by pressing the  **"Font"** button. Microsoft® operating systems already include optimal fonts. Load for example the font "Small Fonts" and adjust the type size.

Attention: The color, which you can set up inside this "Font Selection" dialog, is going to be ignored! MADRIX will use the color selected in the effect controls instead.

Activate **"Reverse Sentence"** to display the whole text in reverse. Activate **"Reverse Word"**, if you want to change the word order in a sentence. The last word of the sentence is going to be the first one in the output.

The buttons **"S"**, **"W"**, and **"C"** stand for sentence, word and character. Activate the sentence button ("S") when you want to interpret the text as a sentence. Activate the word button ("W") when you want to have the text interpreted in the single words (with line breaks). Activate the character button ("C"), when the text should be displayed in single characters (with line breaks). The differences will be especially visible when scrolling the text from top to bottom or reverse, for example.

The **arrows** section offers the possibility to define the direction of the movement. For a text running from bottom to top, press the upward arrow. The square in the middle fixes the text at default position.

"Cont. Text" will use your Text and create a continuously running banner. This is especially helpful when using MADRIX for round LED installations.

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.

Please 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) Please 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.

5) Activate the **"Smooth"** switch. This will render the movement of the text more softly. We suggest to use try this feature and test it. Especially, if your matrix has a lot of pixels in x and y. But it requires the font to have a certain size.

Typefaces

Typefaces can be grouped into two main categories: serif and sans-serif. Serifs contain small features at the end of strokes within letters.

Sans-Serif font

AaBbCc

Serif font

AaBbCc

Using the Tap Button for Manual BPM Input

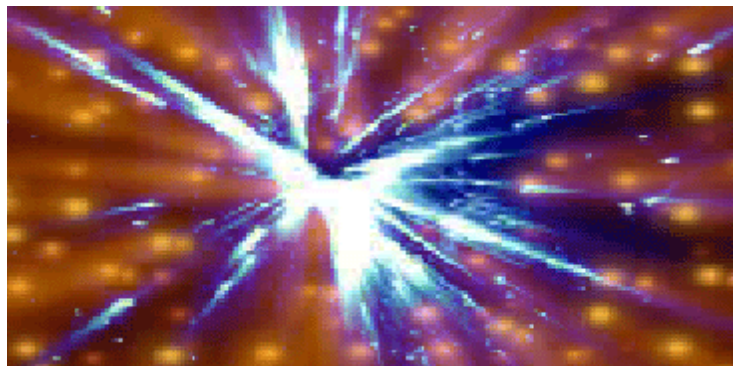


The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.1.19 SCE Video



With the SCE video effect you can **play videos** or **grab a video signal** from a WebCam, for example. Click **"Open"** to load a video.



Please Note

All video codecs that are installed on your computer are being supported automatically by MADRIX. If you have problems playing a video file, please read [below](#).

If you want to have all the features of the SCE Video effect, use Apple Quicktime videos.

With Apple Quicktime videos (*.mov, *.qt) you get support to play videos backward and forward-backward looping. **Please ensure that Apple QuickTime 6.0 or above is installed.**

The SCE Video effect is also able to play MADRIX Record Files (*.mrec). Learn how to create your own record files in the chapter [Recording](#).

Capturing



Video signals, such as an installed webcam or TV-card, can be used as well. The button will glow in green, when capturing is activated. If your device offers the correct drivers and is recognized in Windows as a capture device, MADRIX will also have access to the device.

A rectangular button with a dark background and the word "Capture" in white text.

Click "Capture" and choose your video capture device.

With MADRIX **several capture devices** can be easily be used. For every single layer and each different effect pipeline a different capture device can be utilized. It is also possible to use the same capture device multiple times.

Playing Video Files



Use the **"Open"** button to select the video file you wish to play.



"Start" and "End" set the start/end position at which the video starts/stops playing. The Start/End fields support the following inputs for the time:

For an input of **one hour** you can use **0100000**, **01:00:00**, **01,00,00**, **01.00.00**, **01/00/00**, **1h**, or **01h00m00s**.

For an input of **ten minutes** you can use **001000**, **00:10:00**, **00,10,00**, **00.10.00**, **00/10/00**, **10m**, or **00h10m00s**.

For an input of **ten seconds** you can use **000010**, **00:00:10**, **00,00,10**, **00.00.10**, **00/00/10**, **10s**, **00h00m10s**.

The **space bar resets** the field to the default value.



A bar of commonly used buttons allows you to easily control the video playback.

Additionally, a time scale and a time window show the current playback position.



The integrated video player offers even more options. **"AS"** (Autostart) will automatically start the video after the loading process, or even in pause modus when changing the Storage space. You can also enable various playback modes: an **endless repetition** of the video by activating the **Loop** button.



Video play modes:

Normal: in this mode the **video stops playing** after it reaches the time entered in the **end position** field and will jump back to the start position.

Loop: in this mode you will activate an **endless repetition** of the video.

Loop backward-forward: when the video reaches the start or the end position, it will change the play back direction.

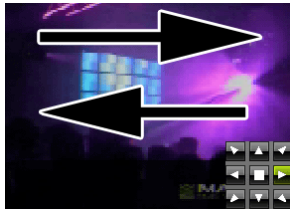
Please pay attention to the video codec requirements, as [explained above](#).



The video itself can be moved across the matrix. Use the **arrows** to decide for a direction fix the output.

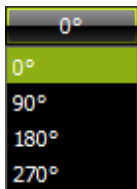
If you want to display the loaded video in gray color mode, activate **"Greyscale"**.

By marking **"Stretch"** the loaded video will be automatically adjusted to your matrix size. The switch **"Tile"** is for tiling the loaded video on the matrix size.

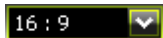


"BPM" defines how fast the video is moved across the screen/matrix.

This value and fader are for moving videos horizontally, vertically, etc. Move the fader to the left to slow down the movement and move the fader to the right to speed it up.



With the help of the rotation function you can rotate videos and live video signals by 90°, 180°, and 270°.



The output can be set to **matrix, original, 4:3, or 16:9 mode** in addition to the stretch feature to use a correct display mode for your loaded video. A 16:9 video is viewed best in 16:9, for example.



If you have RGBW fixtures and you want to use the white channel, please activate **"RGB to RGBW"** mode. Television screens and computer displays work with pixels (picture elements) using values for red, green, and blue (RGB). Also computer video files are saved in RGB mode. MADRIX features an integrated color space conversion from RGB to RGBW.

A colored video can be converted to monochrome colors by using the **"Greyscale"** mode.

Audio Track / Sound Playback

MADRIX and the SCE Video Effect do **not** support playing the audio track or providing sound output of video files.

Setting The Speed



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

You can also use the **"BPM"** slider to adjust the beats per minute.

In contrast, **"Speed"** defines the playback speed of the selected video.

If you have opened a video and it is not possible to change the speed, this feature simply is not supported by the codec of the video! Please use the Apple QuickTime codec instead (*.mov file format).

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.



By clicking the Deinterlace button ("**DI**"), you can activate the deinterlace mode.

A new window with "**Deinterlace Settings**" will open. Now, you can choose from 5 different modes:

- | | |
|-------------------|--|
| None | Use this option to deactivate deinterlacing. |
|
 | |
| Bob | This mode 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.
Bob Linear 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 | This mode renders an average image from frame set 1 and frame set 2. |
|
 | |
| Discard | 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. |

Important Notes

Apple QuickTime Codec

Please download and install [Apple Quicktime](#) for free if you want to use Apple Quicktime videos. This codec package is highly recommended for using video file with MADRIX. (If you are only using Apple Quicktime, please disregard the following codec pack).

Having Codec Problems? - Install the K-LITE Codec Pack

Please install the "[K-Lite Codec Pack](#)" if you encounter problems when playing a video file or when a codec is missing. This codec pack is a collection of VFW/ACM codecs, DirectShow filters, and tools. Codecs and DirectShow filters are needed for encoding and decoding (playing) audio and video formats. The K-Lite Codec Pack is designed as a user-friendly solution for playing all your movie files.

Using Videos In Your MADRIX Setup

When using video files in your setup, MADRIX will locate these files on your harddisk. 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.

6.1.20 SCE Wave

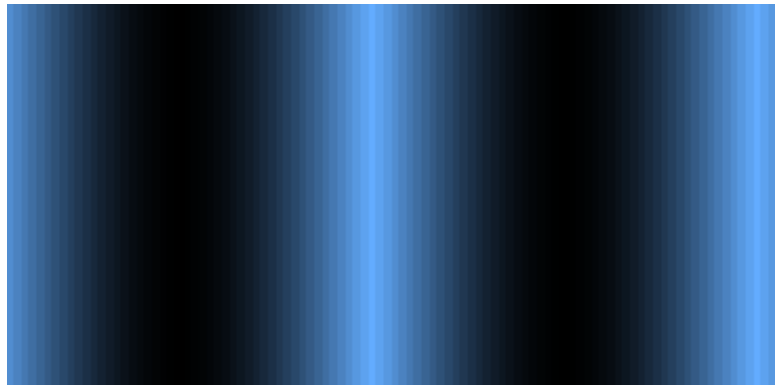


With the SCE Wave effect displays a moving wave with a particular color.

Adjust the speed with the **"BPM"** slider.

"Length" sets the wave's width. You can influence the outcome further by using various directions and modes.

"Mode" directly influences how the wave is drawn. Do not hesitate to experiment with the settings. A description is given below.



This mode uses a sine wave with absolute values. Activating it, will turn the button green.



This mode represents a sine wave. Activating it, will turn the button green.



Select this button to activate sawtooth mode, which has its peak to the left. Activating it, will turn the button green.



Select this button to activate sawtooth mode, which has its peak to the right. Activating it, will turn the button green.



This button activates triangle wave. Furthermore, you can adjust the slider **"Peak"**. By default, this slider is set to 50, which is the middle position. If you set it to the far left, a sawtooth with a peak to the left will be shown. If you set it to the far right, a sawtooth with a peak to the right will be shown. In this way, you can create your individual wave with values inbetween. Activating the button will turn it green.

Using the Tap Button for Manual BPM Input



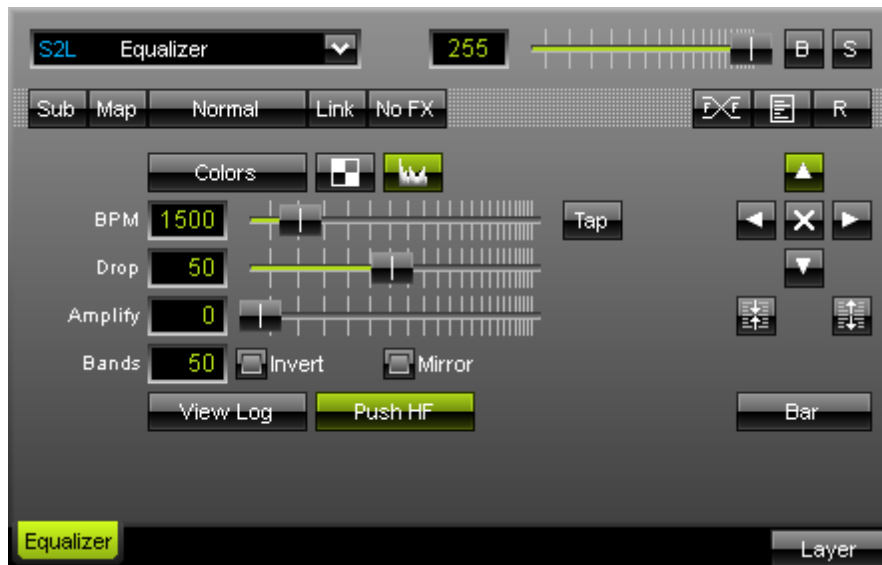
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.2 Sound2Light Effects (S2L)

Introduction

S2L - Sound2Light Effects require an audio input signal. As a result, amazing light effects that are synchronized to the music will be generated!

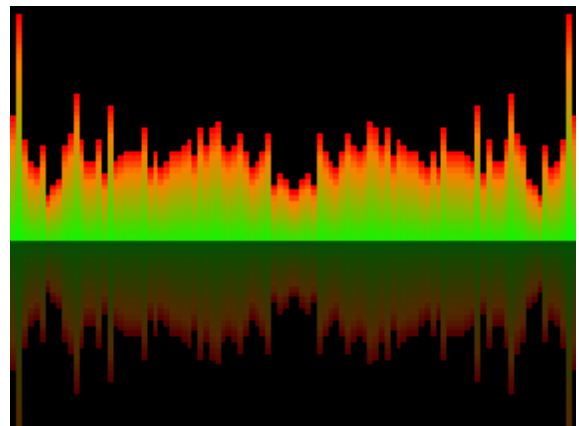
6.2.1 S2L Equalizer



The S2L Equalizer provides a real-time equalization and visualization of the audio signal.

By default **low frequencies** will be displayed to the left and **high frequencies** to the right. Color and speed functions will be available to you in the menu.

The **"BPM"** (speed) function determines how fast the equalizer is updated.



Additionally, the **"Drop"** rate specifies how fast shown frequencies drop to make room for new ones.

You can use the **"Amplify"** function as a visual amplifier of the audio signal. Values will be displayed more intensely as a result. The more you move the fader to the right, the stronger will be the visual amplification of the single signals.

You can use the input field "**Bands**" to define the amount of frequency bands you want to display. A **maximum** value of **511** is supported by MADRIX allowing for a spectacular 511-band equalizer effect.



You can define the colors for the equalizer by clicking at the "**Colors**" button. By activating the "**Monochrome**" button the equalizer will be displayed in white color. If you activate the "**Band**" mode button you will get a gradient per band with selected colors.



"**View Log**" switches to logarithmic rendering of the signals. "**Push HF**" (push higher frequencies) modifies the height of higher tonalities, i.e. amplifies their outline. Depending on the kind of music as well as its volume, we suggest to try what fits best.



Alter the starting point of the equalizer by using the **direction arrows**. If the arrow key "Up" is used, low frequencies are display to the left and high frequencies are displayed to the right.

There are several other modes included, such as "**Invert**" and "**Mirror**", to be able to modify the appearance of the effect further.



These two mode buttons allow you to control the direction of the effect from outside to center or vice versa. They activate a doubled equalizer at the same time.



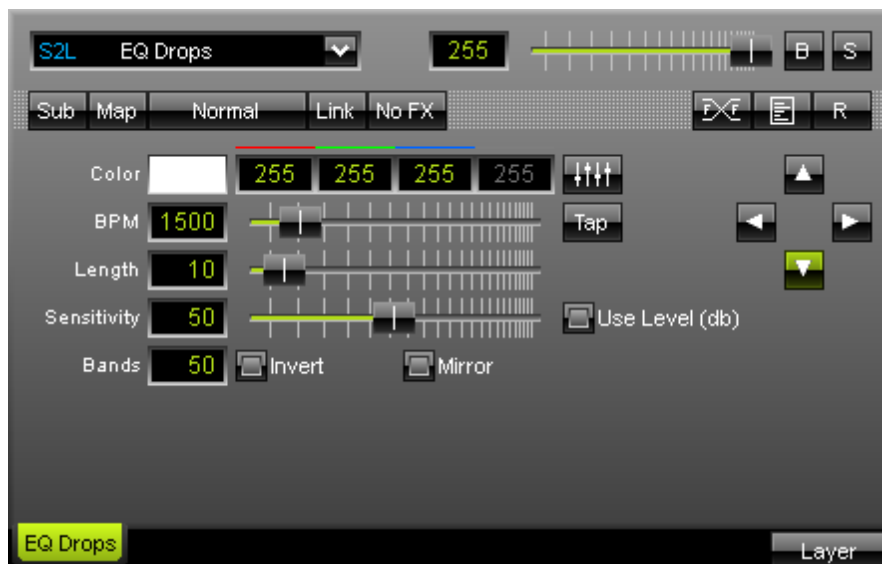
Use this button to select one of five different modes: "**Bar**" is selected by default. It is the common way of displaying an equalizer. "**Radial**" transforms the equalizer graph into a radial shape, which is outlined. "Radial Line" does not include this outline, while "**Radial Outline**" displays nothing but this outline. "**Radial Dot**" uses dots to outline the radial equalizer.

Using the Tap Button for Manual BPM Input



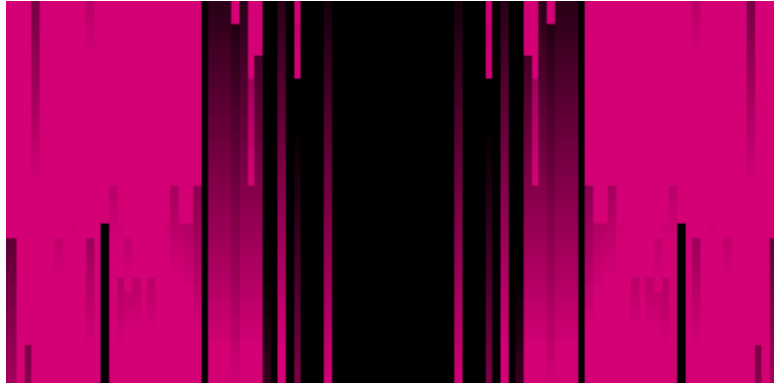
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.2.2 S2L EQ Drops



The S2L EQ Drops effect renders **equalizer drops falling synchronously to the music.**

As usual, the intelligent Color Picker allows to easily select the color of the drops.



"BPM" sets up the speed with which the drops are being displayed and updated. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. Values in a range from 1 to 9999 are supported. If you move the fader to the right, the update speed increases and drops move faster.

"Length" defines the drop's length. Move the fader to the right and the drops will be displayed longer. The numerical values for the length have to be in the area from 1 – 100.

"Bands" determines the number of equalizer bands shown. If you have a matrix size with 50 x 50 pixels for example, you can make use of a 50-band equalizer at maximum. Additionally, you may **"Invert"** or **"Mirror"** the equalizer.

"Sens" controls the sensitivity of the audio analysis. It works like an audio filter. The more you move the fader to the right, the less drops will be displayed. The sensitivity will increase and only the most important analytical data will be used. The numerical values for Sens have to be in the area from 0 – 100.



Four arrow keys allow you to determine the direction and starting point of the effect. Press the downward arrow to display falling drops. Likewise, drops can be send from bottom to the top, for example. In both cases, lower tones are displayed on the left and high tones on the right.



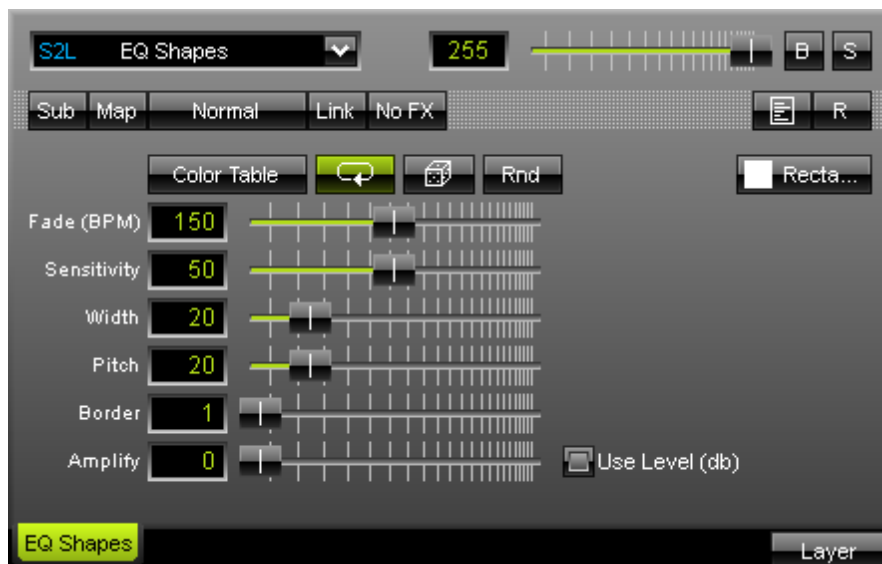
If you have activated **"Use Level (db)"**, this effect illustrates the (volume) level of the music and its frequencies. MADRIX uses the color that has been selected by you, when a certain level in the music has been reached. If this feature is activated, it is not possible to adjust "Length" because the length of the drops now represents the level of the music.

Using the Tap Button for Manual BPM Input



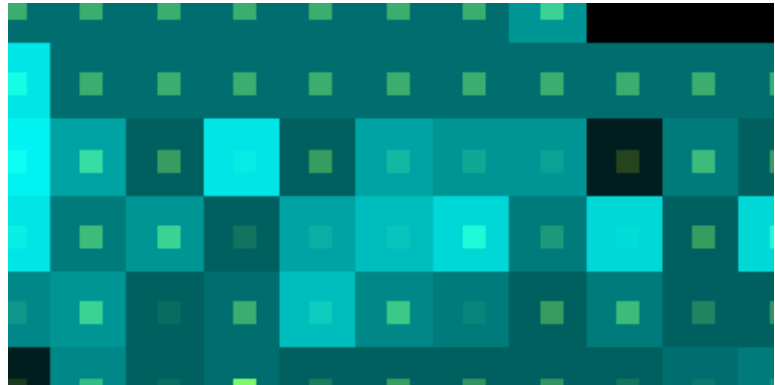
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

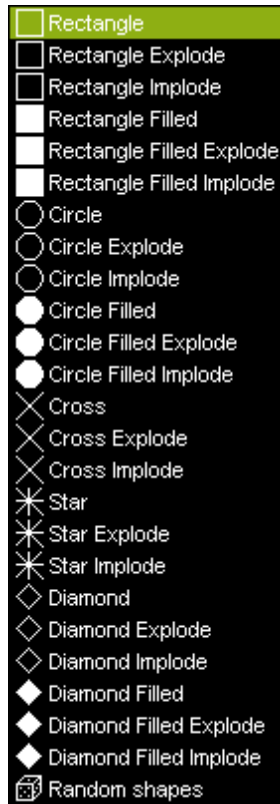
6.2.3 S2L EQ Shapes



The S2L EQ Shapes are a real-time equalization of the audio signal using a variation of shapes to display tones of the music. By default low frequencies will be displayed at the bottom of the matrix and high tones at the top.

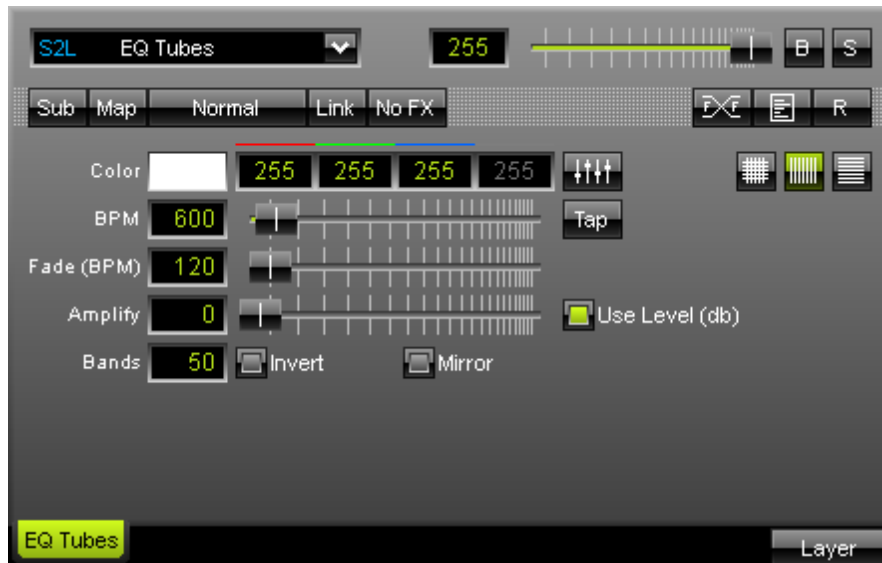
There are different parameters to set up different colors, BPM/fade, width of the objects, spacing between objects (pitch), size of their border, and various types of shapes.





The picture shows available modes/shapes for this effect. You have to play with the parameters BPM, Fade, Count, Width, and Border to see the possibilities you have with this effect. Be creative and try to combine this effect with others by using layers and different mix modes.

6.2.4 S2L EQ Tubes



The S2L EQ Tubes effect delivers an equalizer-like effect displayed as horizontal or vertical lines.

You can simply choose a color by using your mouse or keyboard.



"BPM" sets up the speed with which the drops are being displayed and updated. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. Values in a range from 1 to 9999 are supported. If you move the fade to the right, the update speed increases and drops move faster.

"Fade (BPM)" determines the fade-out time of lines. The higher the value, the faster lines will vanish.



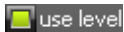
These two buttons decide if lines should be displayed in horizontal or vertical order.



This button enables horizontal and vertical lines to be shown at the same time, i.e. crossed.

You can use the **"Amplify"** function as a visual amplifier of the audio signal. Values will be displayed more intensely as a result. The more you move the fader to the right, the stronger will be the visual amplification of single signals.

"Bands" determines the number of equalizer bands shown. If you have a matrix size with 50 x 50 pixels for example, you can make use of a 50-band equalizer at maximum. Additionally, you may **"Invert"** or **"Mirror"** the effect.



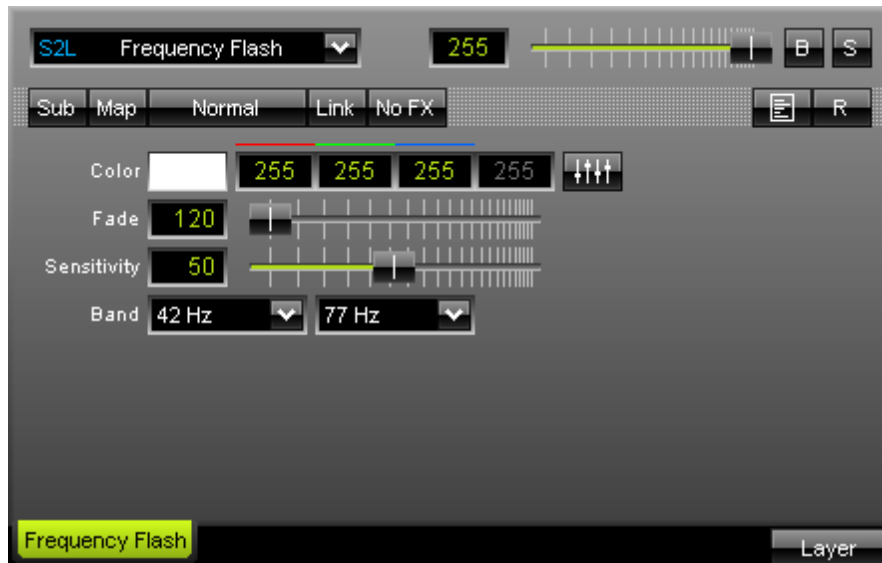
If you have activated **"Use Level (db)"**, this effect illustrates the (volume) level of the music and its frequencies. MADRIX uses the color that has been selected by you, when a certain level in the music has been reached.

Using the Tap Button for Manual BPM Input



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

6.2.5 S2L Frequency Flash



The SCE Frequency Flash effect generates a pulse effect which is running synchronously to the audio frequencies.

The effect shows a color when a high level between the two selected frequencies is reached. Afterwards, the selected color will be dimmed with a certain **"Fade"** duration. When a high level is reached once more, the color will be set to 100% again.



In order to be able to specify how the effect should work, MADRIX offers the user to set a frequency **"Band"**. In this way, the software analyzes the music with regard to certain areas/frequencies (in Herz). The left box represents the lowest frequency, the right one the highest. In the example shown above, the frequency spectrum includes everything between 8Hz and 102Hz. Bass tones (usually 8Hz - 135Hz) are especially suited for this effect.

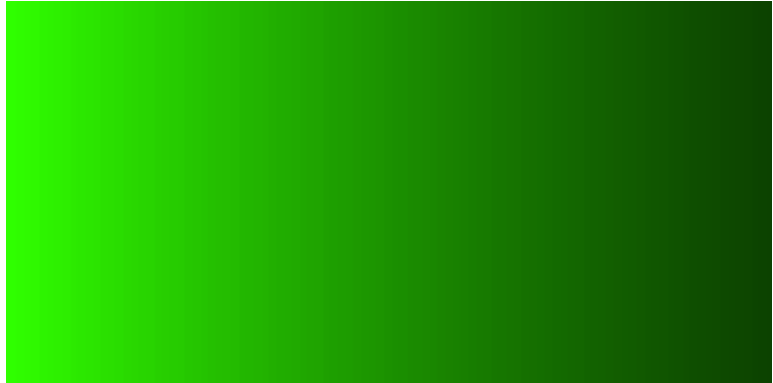
"Sensitivity" controls the sensitivity of the audio analysis. It works like an audio filter. The more you move the fader to the right, the less drops will be displayed. The sensitivity will increase and only the most important analytical data will be used. The numerical values for Sens have to be in the area from 0 – 100.

6.2.6 S2L Level Color



The S2L Level Color effect refers to the level of music. It puts out the color that has been selected by you when a certain level in the music has been reached.

After that the color is being dimmed with the **"Fade"** duration that has been set. A high level sets the color to 100%.



The speed value (**"BPM"**) let's you determine how close the audio analysis correlates to the music. Higher speeds are suitable for electronic, beat-intense music, while classical music benefits from lower values.

If you activate the **"Mono"** switch, you will have a mono audio analysis using only 1 audio channel.



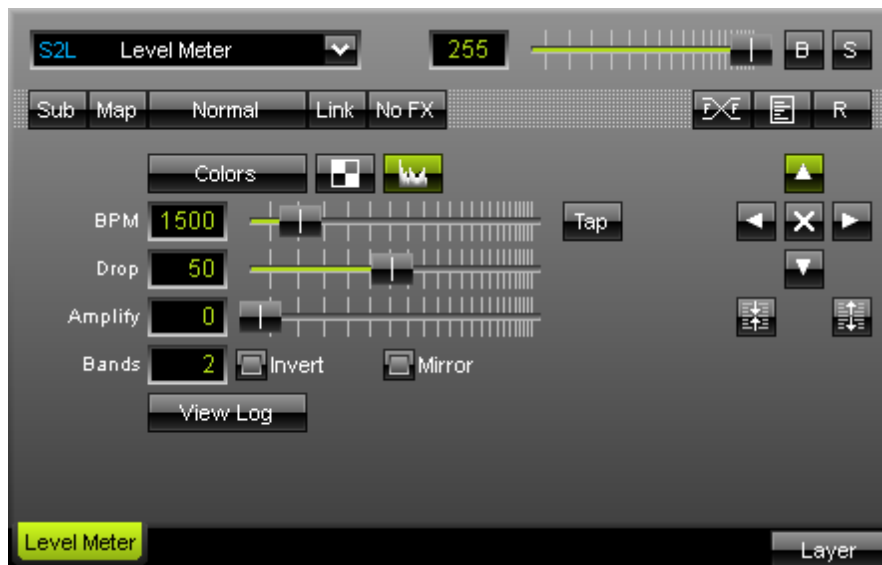
Four arrow buttons allow you to alter the direction and starting point of the effect. Press the downward arrow if you want the effect to be displayed from top to bottom, for example.

Using the Tap Button for Manual BPM Input



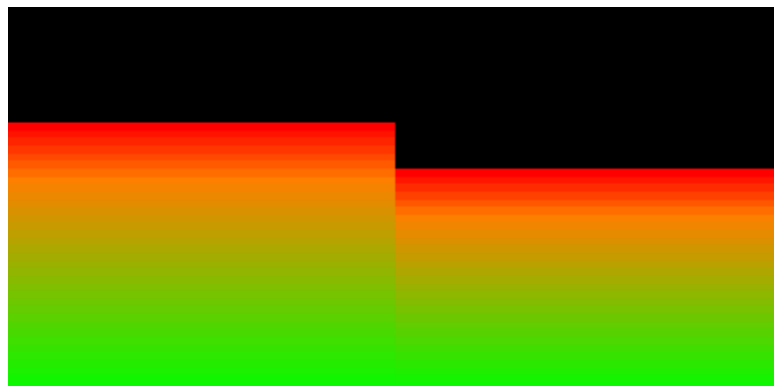
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.2.7 S2L Level Meter



The S2L Level Meter refers to the stereo level of music input and renders by default a 2-band level.

The left audio channel will be displayed left and the right audio channel will be displayed on the right side.



For setting up colors simply press the **"Color Table"** button.

"BPM" sets up the speed with which the effect is displayed and updated. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. Values in a range from 1 to 9999 are supported. If you move the fade to the right, the update speed increases and the band moves faster.

You can use the **"Amplify"** function as a visual amplifier of the audio signal. Values will be displayed more intensely as a result. The more you move the fader to the right, the stronger will be the visual amplification of single signals.

The **"View Log"** button switches to logarithmic rendering of the signals. Depending on the kind of music as well as its volume, we suggest to try what fits best.

In the **"Bands"** area you can set the number of the bands for this effect. Maximum is 2 since only the left and right audio channel are included.

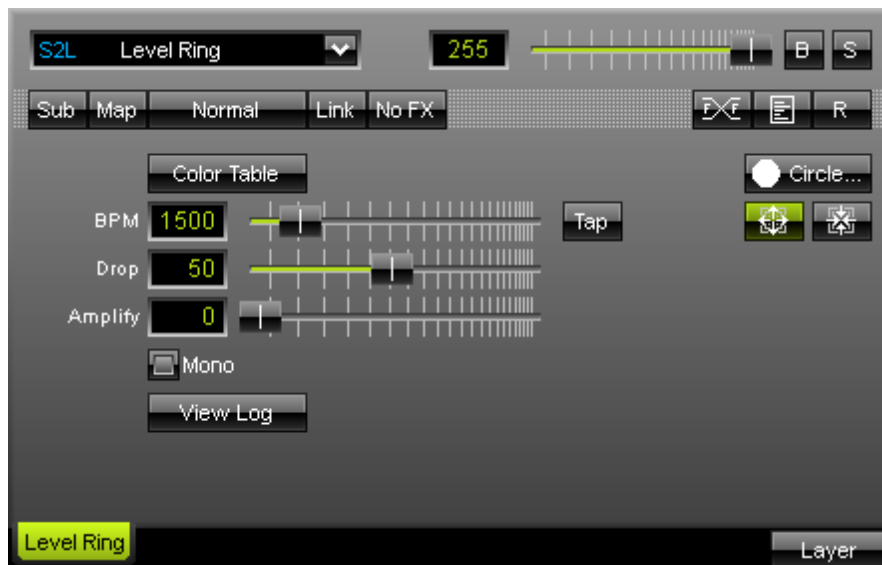
Alter the starting point of the equalizer by using the **direction arrows**. There are several other modes included, such as inversion, to be able to modify the appearance of the effect further.

Using the Tap Button for Manual BPM Input



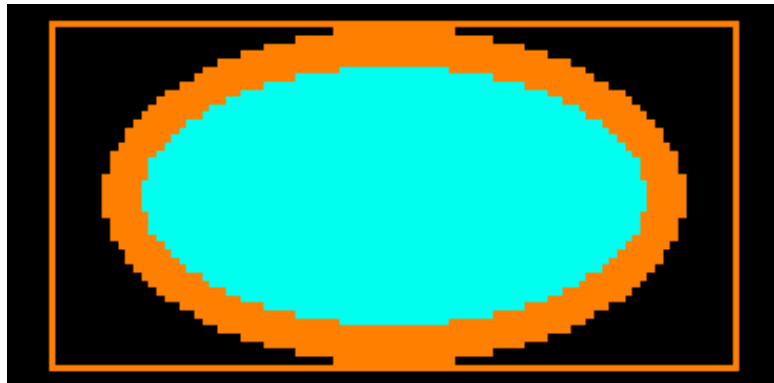
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.2.8 S2L Level Ring



The S2L Level Ring again uses the stereo level of the music. It generates a colored two-band level output in a form that has been selected by you (rectangle, circle, cross, star).

The left and right audio channel will be displayed as a deflection of the level ring form.



For setting up colors simply press the **"Color Table"** button.

"BPM" sets up the speed with which the effect is displayed and updated. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. Values in a range from 1 to 9999 are supported. If you move the fade to the right, the update speed increases and the band moves faster.

You can use the **"Amplify"** function as a visual amplifier of the audio signal. Values will be displayed more intensely as a result. The more you move the fader to the right, the stronger will be the visual amplification of single signals.

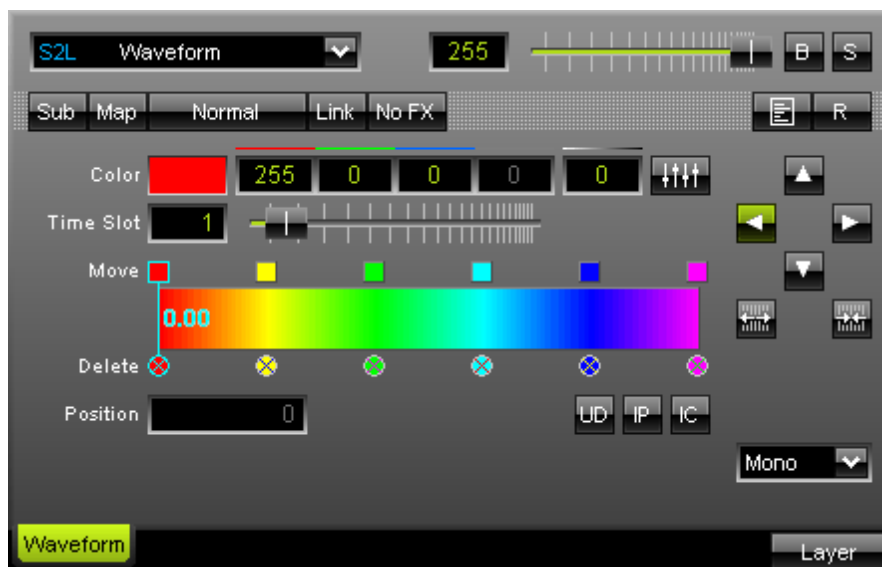
The **"View Log"** button switches to logarithmic rendering of the signals. Depending on the kind of music as well as its volume, we suggest to try what fits best.

Using the Tap Button for Manual BPM Input



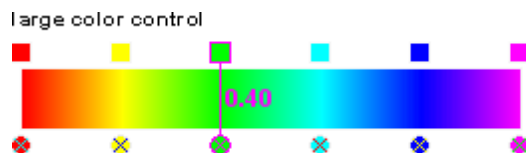
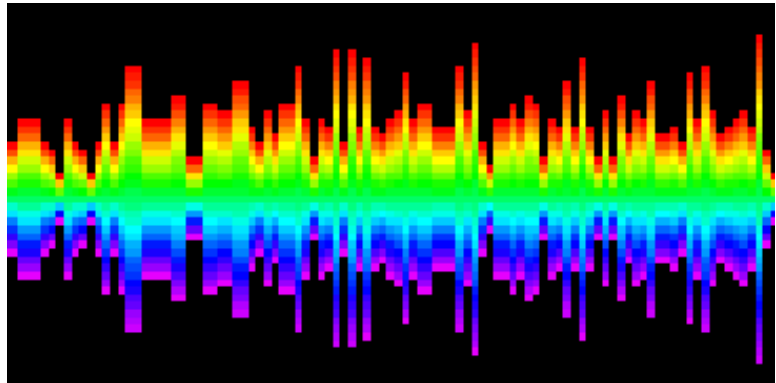
The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press this button at least four times in a row according to the beat of the music (1/4 notes). MADRIX will calculate the BPM value subsequently.

6.2.9 S2L Waveform



The S2L Waveform refers to the stereo or mono level of the music and produces a moving waveform.

Use the **"Time Slot"** to change the movement speed. Move the fader to the right, the update rate decreases and the effect will run slower. Values lower than 1 are also possible.



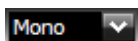
Using the color control: Select and hold a color (using the small square button) and move the mouse if you want to relocate a color. Click the small x-button at the bottom of a color to remove it. Click inside the large colored area to create a new color at this particular position with the particular color you picked. Simply drag and drop it afterwards to change its position. Use the input field **"Position"** to adjust it more precisely.

"UD" (Uniform Distances) will make sure that all colors have the same distance to each other.

"IP" (Invert Positions) will change and inverse the position of all colors. **"IC"** (Invert Colors) will invert the paint of each color.



The **"Alpha value"** sets the opacity of a single color. The color becomes transparent and blends with the background.



This control box allows you to set up the audio analysis mode. You can select between **mono, stereo, left and right audio channel**. If you select stereo, you will see two graphs. One graph will only be displayed using one of the other three modes.



Four arrow buttons allow you to alter the direction and starting point of the effect. Press the downward arrow if you want the effect to be displayed from top to bottom, for example.



These two mode buttons allow you to control the direction of the waveform from outside to center or vice versa.

Experimenting with the parameters can deliver amazing results!

6.2.10 S2L Wavegraph

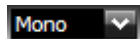


The S2L Wavegraph refers to the stereo or mono level of the music and renders a moving wavegraph.

Set up the various colors to influence the outcome. You can either use the mouse or enter values easily via your keyboard.



Use the **"Time Slot"** to change the movement speed. Move the fader to the right, the update rate decreases and the effect will run slower. Values lower than 1 are also possible.



This control box allows you to set up the audio analysis mode. You can select between **mono, stereo, left and right audio channel**. If you select stereo, you will see two graphs. One graph will only be displayed using one of the other three modes.



Four arrow buttons allow you to alter the direction and starting point of the effect. Press the downward arrow if you want the effect to be displayed from top to bottom, for example.



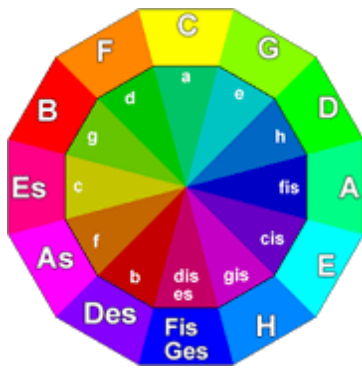
These two mode buttons allow you to control the direction of the waveform from outside to center or vice versa.

Depending on the type of music as well as the volume of the music, we suggest to just play with the functions.

6.3 Music2Light Effects (M2L)

Introduction

As a special highlight, MADRIX offers you Music2Light effects. These effects incorporate advanced analytical methods to analyze music for tone theoretical parameters. MADRIX analyzes the height of tones, volume, and also single tones, intervals, keys, and tonalities to name but a few.



The **music** is being **analyzed in real time** by the MADRIX music analysis. With the analysis of the tonality connections, the software relies on the "Instructions in Level of Sound" by Paul Hindemith. Paul Hindemith (16 November 1895 – 28 December 1963) was a German composer, violinist, teacher, theorist, and conductor. He established the theoretical principals of the level of sound in modern music.

Possibilities

- **Moment analysis** – The currently played music (at this instant) is being analyzed.
- **Time analysis** – The tone theoretical parameter is being observed over a certain period of time and statically appraised. For example: The key that was dominant during the last second will be displayed, or intervals are being shown, which were re-adapted during the last half second.

Techniques Of The Tone Analysis

- Basic tone analysis (Tonality).
- Scale analysis to the accepted tonality (Major, Minor).
- Analysis of intervals relatively to the accepted tonality.
- Analysis of the absolute interval (distances between adjacent tones).
- Single tones.
- Number of single tones (max. 128).
- Volume of single tones.

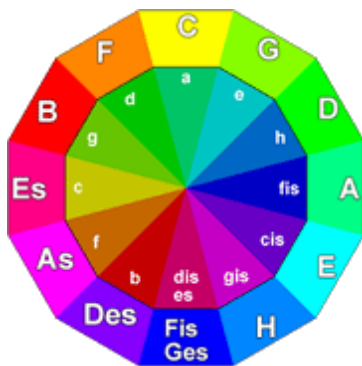
6.3.1 Notions Of Music Theory

Overview

MADRIX offers incredible **Music2Light (M2L)** effects. The music is being analyzed with tone theoretical parameters.



This section will provide you with more details regarding single tones, tonality, scale, key, and intervals.



6.3.1.1 Single Tones



Tones are the basic elements of music. With the term "tone", one, single tone is meant. You have to distinguish tones from sounds, which are composed of more than one tone. The basis of all tones is, via a frequency, an exactly defined sinus tone. An instrumental tone, e.g. from a violin, is a complicated mixture of the (playing and sounding) basic tone and a couple of simultaneously occurring over tones. This fact, among others, is responsible for the typical sound of the instrument.

6.3.1.2 Tonality



For defining a certain tonality of a chord, all intervals have to be included. In most cases, the tonality of the chord corresponds to the basic tone of the strongest interval.

6.3.1.3 Scale



In the musical field, the adjectives '**major**' and '**minor**' can describe a scale, key, chord, or interval. For intervals, the terms refer to a difference in their relative width, major referring to notes somewhat further apart; the other terms are classifications based on the use of certain intervals, especially the major or minor third.

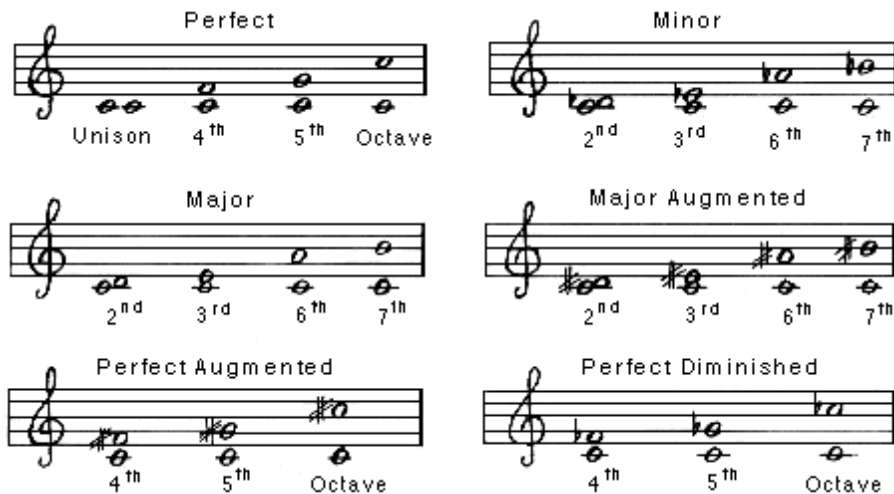
Major and minor are frequently referred to the titles of compositions in their foreign language form, especially in reference to the key of a piece of music.

6.3.1.4 Key



A key is a hierarchy of tones (scale), which is based on a basic tone (tonic). Examples for keys: C-minor: minor-scale with the basic tone C (comprising the tones C, D, Es F, G, As, B, C), Fis-major: major-scale with the basic tone Fis (comprising the tones Fis, Gis, Ais, H, Cis, Dis, Eis, Fis).

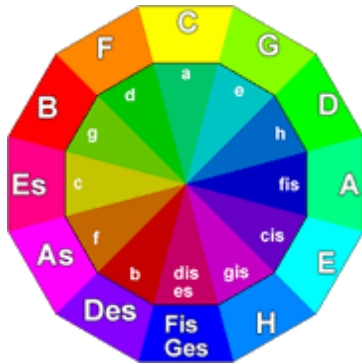
6.3.1.5 Intervals



In music theory, an interval is the relationship between two notes or pitches, the lower and higher members of the interval. It often directly refers to those two notes (otherwise known as a dyad). Larger intervals are described as wide and smaller ones as narrow (for example, a sixth is wider than a third). But these are only relative terms.

To be able to define the tonality of a chord, it is necessary to check for the included intervals.

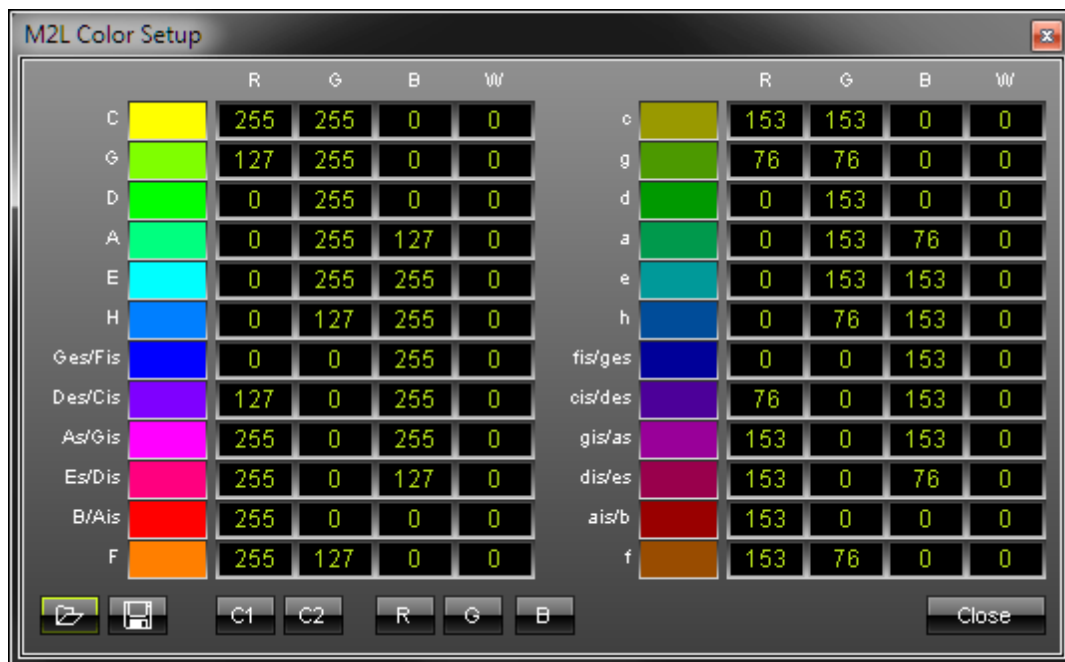
6.3.2 Standard Color Setup For M2L Effects



For choosing the colors for the MADRIX Standard Color Setup, the **Circle of Fifths** from music education is being used. 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.



By assigning yellow to the tonality C and due to the fact that the colors are assembled clockwise, all other colors emerge. Consequently, Fis gets assigned blue, the complementary color of yellow.

Any other color for the keys between C and Fis arises from the spectrum of colors between yellow and blue of the RGB color model.

6.3.3 M2L Color Fade



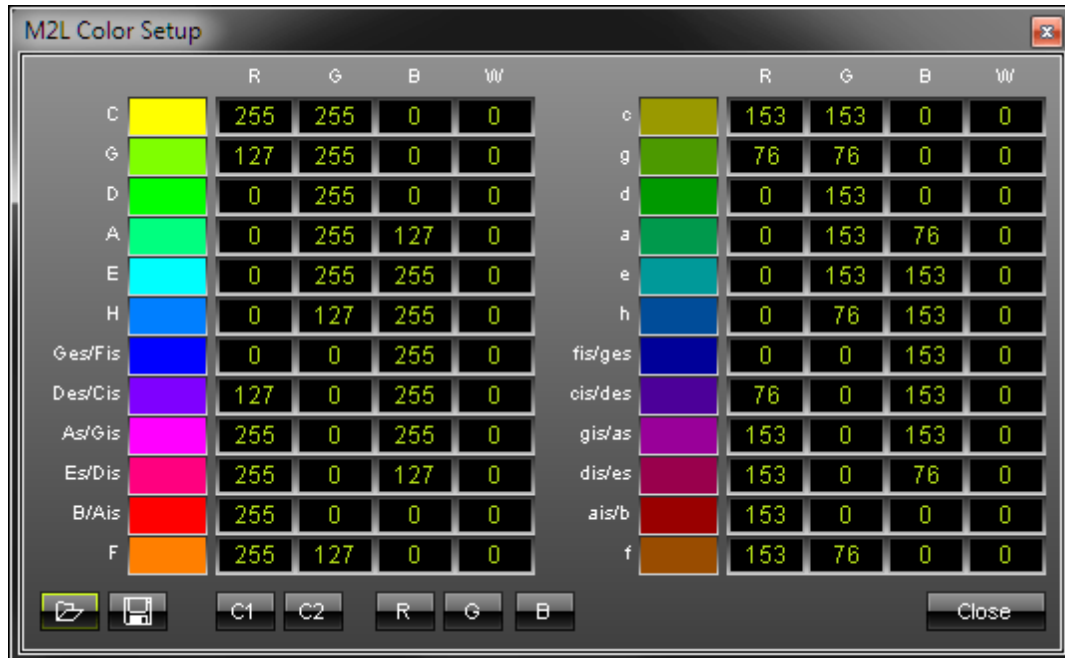
This Music2Light Color-fade effect offers a suitable light mood in unison with the music.

The MADRIX music analysis works in this effect according to the following criteria: **existing keys and tonalities.**

You may select different colors for different tonalities. In this way, if the sound changes, the color will fade, too.



The "**Base**" color defines the default background color of the effect. RGB values (from 0 to 255) can be entered directly into the input fields via mouse or keyboard. Additionally, a fader box button provides you with four sliders to adjust the color value.



After pressing the button **"M2L Colors"**, a separate window will be opened. This dialog offers you the possibility to match colors to specific keys. All existing keys are displayed in this window.

Major keys are listed in the **left part** of the window. The right hand side contains all **minor keys**. In the example above the "C" (written in capital letters) in the upper left part represents C-major and has a pure yellow as its color value (RGB: 255, 255, 0). C-minor, located across on the other side of the list, has a darker yellow assigned (RGB: 153, 153, 0).

You may **"Load"** and **"Save"** your color tables, too. Five color presets are already included and can be accessed by using the buttons **"C1"**, **"C2"**, **"R"**, **"G"**, and **"B"**. The **"Close"** button closes the window.

Conclusion:

Regarding this effect, you decide which color is assigned to which key.

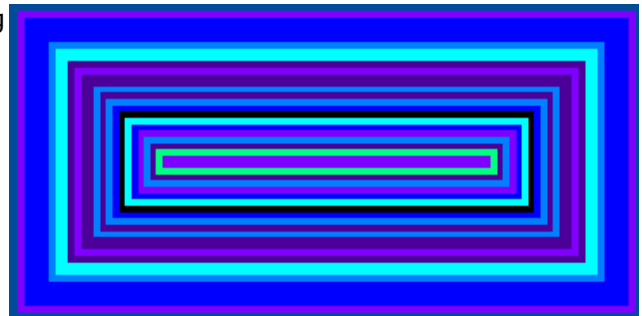
6.3.4 M2L Color Rings



The Music2Light Color Ring effect delivers matching gradients synchronously to the music, in form of inward or outward oriented rings.

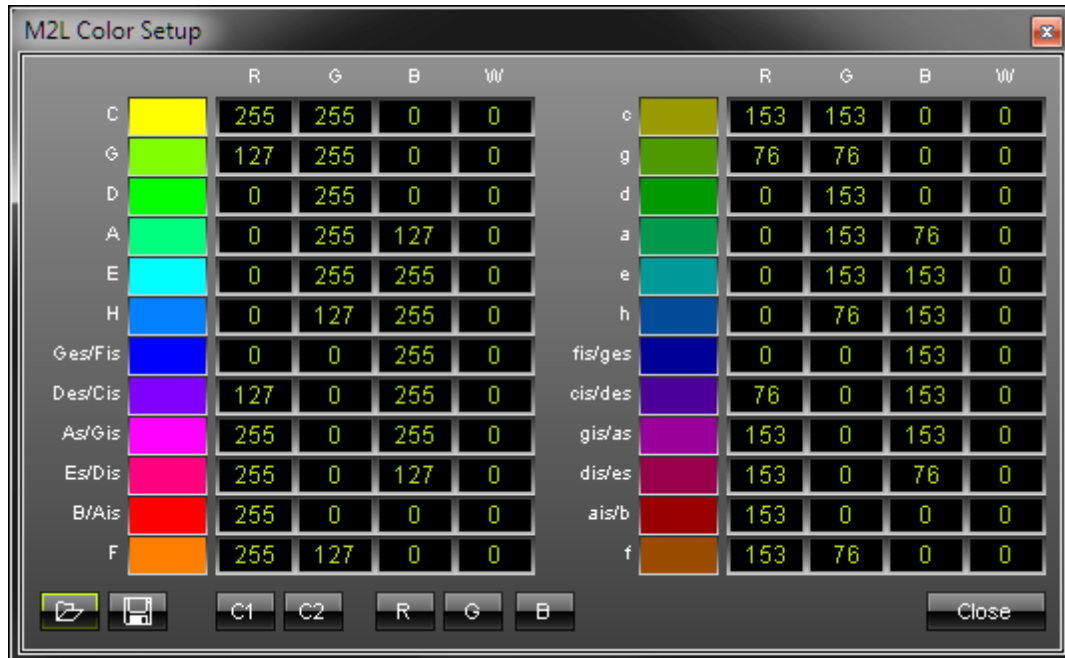
The music analyses work with the following criteria in this effect: **existing tones and tonalities.**

You may select different colors for different tonalities. In this way, if the sound changes, the color will fade, too.



The **"Base"** color defines the default background color of the effect. RGB values (from 0 to 255) can be entered directly into the input fields via mouse or keyboard. Additionally, a fader box button provides you with four sliders to adjust the color value.

"BPM" sets up the speed with which the effect is displayed and updated. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. Values in a range from 1 to 9999 are supported. If you move the fade to the right, the update speed increases and the effect moves faster.



After pressing the button **"M2L Colors"**, a separate window will be opened. This dialog offers you the possibility to match colors to specific keys. All existing keys are displayed in this window.

Major keys are listed in the **left part** of the window. The right hand side contains all **minor keys**. In the example above the "C" (written in capital letters) in the upper left part represents C-major and has a pure yellow as its color value (RGB: 255, 255, 0). C-minor, located across on the other side of the list, has a darker yellow assigned (RGB: 153, 153, 0).

You may **"Load"** and **"Save"** your color tables, too. Five color presets are already included and can be accessed by using the buttons **"C1"**, **"C2"**, **"R"**, **"G"**, and **"B"**. The **"Close"** button closes the window.

With **BPM** you set the speed in which the effect is being displayed. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. If you move the fade to the right, the up-date speed increases and the effect becomes faster.

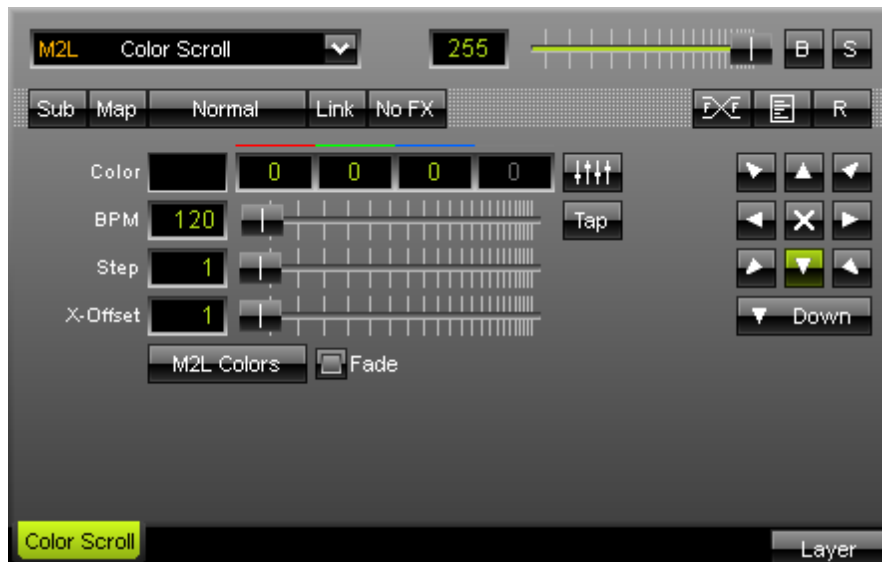
Conclusion: You decide which tones will match with which colors.

Using the Tap Button for Manual BPM Input



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

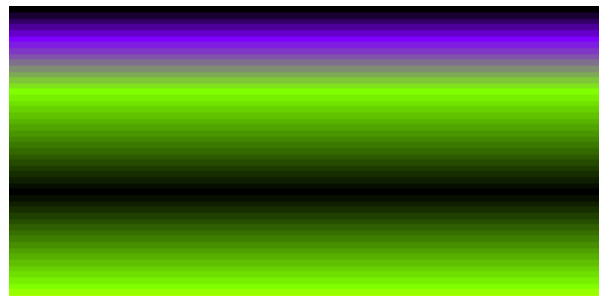
6.3.5 M2L Color Scroll



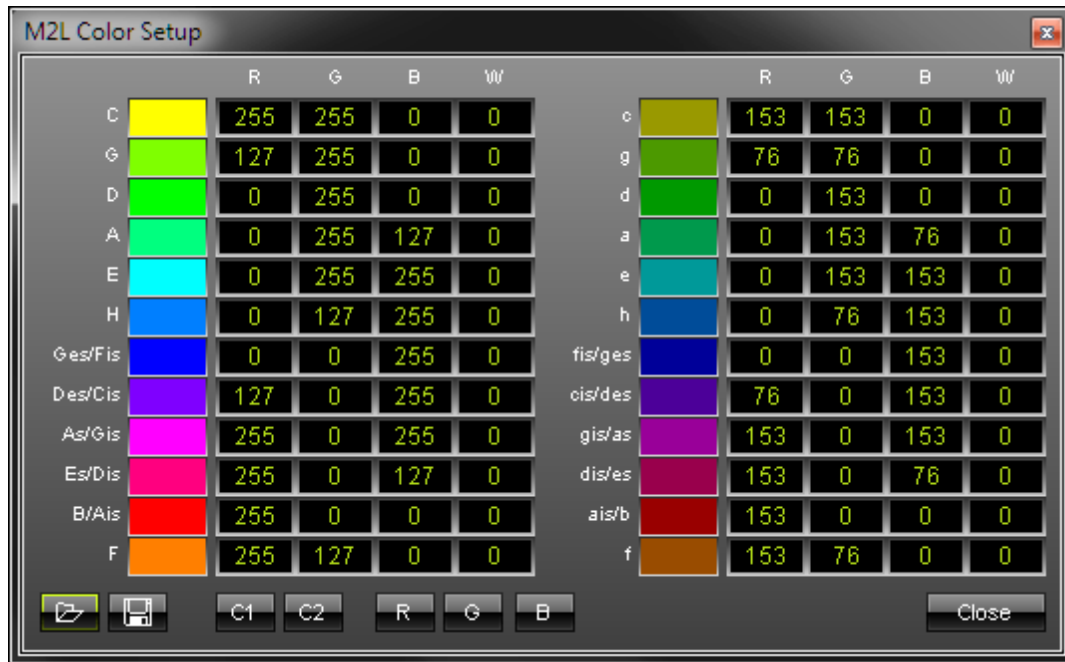
The Music2Light Color Scroll effect offers a color gradient moving synchronously to the music.

The MADRIX analyzes the following criteria:
existing key intervals and tonalities.

You may select different colors for different tonalities. In this way, if the sound changes, the color will fade, too.



The **"Base"** color defines the default background color of the effect. RGB values (from 0 to 255) can be entered directly into the input fields via mouse or keyboard. Additionally, a fader box button provides you with four sliders to adjust the color value.



After pressing the button **"M2L Colors"**, a separate window will be opened. This dialog offers you the possibility to match colors to specific keys. All existing keys are displayed in this window.

Major keys are listed in the **left part** of the window. The right hand side contains all **minor keys**. In the example above the "C" (written in capital letters) in the upper left part represents C-major and has a pure yellow as its color value (RGB: 255, 255, 0). C-minor, located across on the other side of the list, has a darker yellow assigned (RGB: 153, 153, 0).

You may **"Load"** and **"Save"** your color tables, too. Five color presets are already included and can be accessed by using the buttons **"C1"**, **"C2"**, **"R"**, **"G"**, and **"B"**. The **"Close"** button closes the window.



These arrow buttons define the direction and starting point of an effect. Press the downward arrow if you want the gradient to move from top to bottom. Press the upward arrow if you want the gradient to move from bottom to top. The cross in the middle activates a movement from two, opposite directions. The gradient may also move inside out or vice versa. Additionally, several other options (horizontal, vertical, rectangle, square, ellipse, circle, in implode or explode mode) are available.

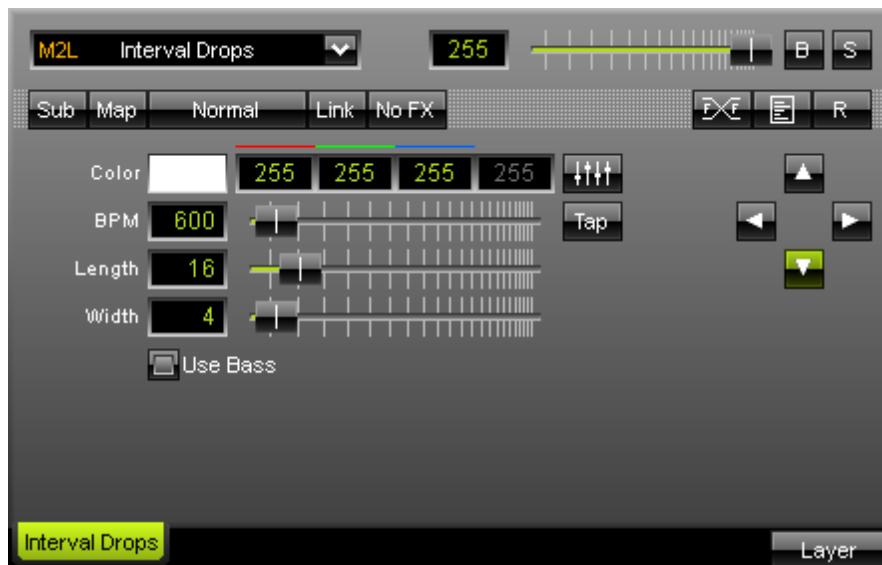
"BPM" sets up the speed with which the effect is displayed and updated. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. Values in a range from 1 to 9999 are supported. If you move the fade to the right, the update speed increases and the effect moves faster.

Using the Tap Button for Manual BPM Input



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

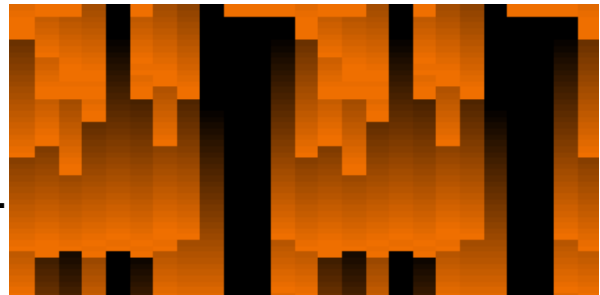
6.3.6 M2L Interval Drops



Music2Light Interval Drops analyzes intervals within the music and displays them in form of moving drops.

The MADRIX music analysis works with the following criteria in this effect: **included intervals**.

Simply set up a color in which the drops should be rendered.



"BPM" sets up the speed with which the effect is displayed and updated. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. Values in a range from 1 to 9999 are supported. If you move the fade to the right, the update speed increases and the effect moves faster.

"Length" sets the drop's length. The more you move the fader to the right, the longer the drops will be. You could also enter a numerical value of up to 100.



Four arrow buttons allow you to determine the direction and starting point of the effect. Press the downward arrow to display falling drops. Likewise, drops can be send from bottom to the top, for example. In both cases, lower tones are displayed on the left and high tones on the right.

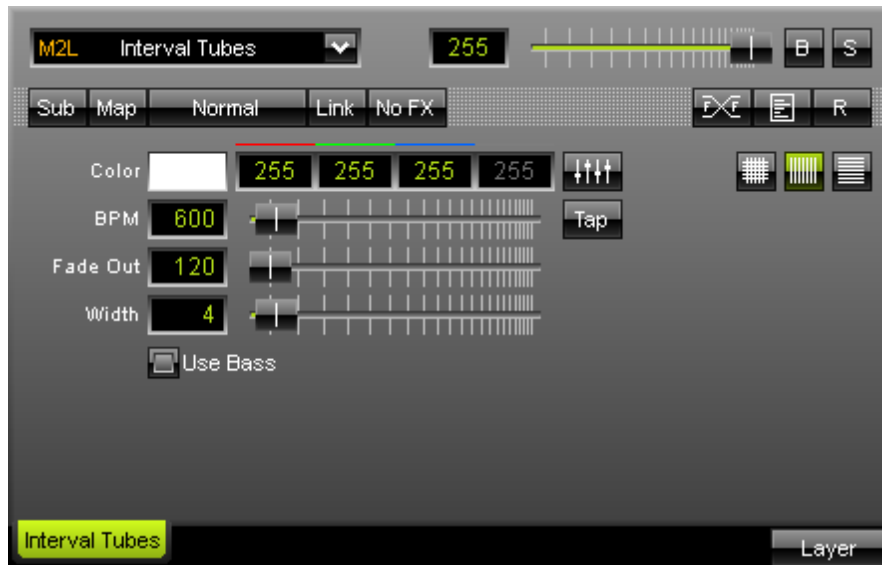
Conclusion: As soon as it is possible to analyze one or more intervals, they will be displayed as drops in the specified color.

Using the Tap Button for Manual BPM Input



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

6.3.7 M2L Interval Tubes



The Music2Light interval tube effect renders intervals included in the music in form of tubes.

The MADRIX music analysis works with the following criteria in this effect: **included intervals**.



As set up possibilities you have the color values for the color of the tubes. The value from 0 to 255 can be entered. With the help of the fader box you can also enter the colors with your mouse.

"BPM" sets up the speed with which the effect is displayed and updated. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. Values in a range from 1 to 9999 are supported. If you move the fade to the right, the update speed increases and the effect moves faster.

"Fade" determines the fade-out time of tubes. The higher the value, the faster tubes will vanish.

"Width" defines the width of tubes. An input value of 1 corresponds to 1 pixel for one tube. Larger numbers mean more pixels per tube.



These option buttons decide if tubes are displayed horizontally, vertically, or both.

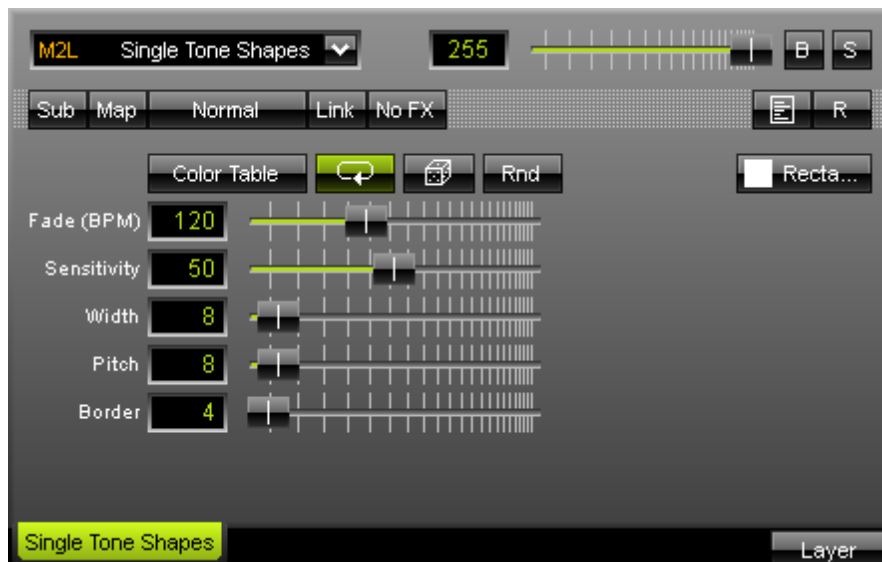
Conclusion: As soon as it is possible to analyze one or more intervals, they will be displayed as tubes in the color you set up.

Using the Tap Button for Manual BPM Input



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

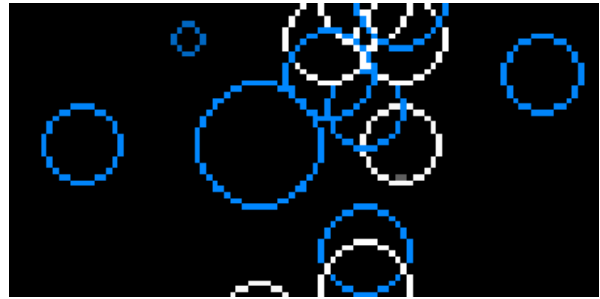
6.3.8 M2L Single Tone Shapes



This Music2Light single tone effect impressively shows single tones of the track.

The MADRIX music analysis uses the following criteria: **number of single tones and tone pitch.**

Simply set up a color in which the drops should be rendered. You can also generate random colors or use them in shuffle mode.

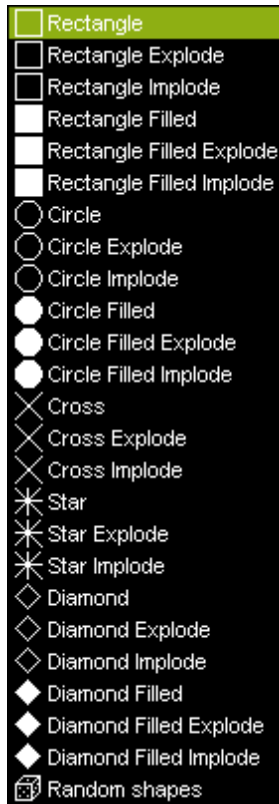


"Fade (BPM)" sets up the speed with which the effect is displayed and updated. If you would like to have slow movements (updates) move the fader to the left, or put in low numerical values. Values in a range from 1 to 9999 are supported. If you move the fade to the right, the update speed increases and the effect moves faster.

"Sensitivity" controls the sensitivity of the audio analysis. It works like an audio filter. The more you move the fader to the right, the less drops will be displayed. The sensitivity will increase and only the most important analytical data will be used. The numerical values for Sens have to be in the area from 0 – 100.

"Width" decides over the width of objects. An input value of 1 corresponds to 1 pixel for one tube. Larger numbers mean more larger objects for a single tone.

"Pitch" allows to adjust the spacing between objects. **"Border"** defines if objects are rendered with an additional border, which makes them appear bigger.

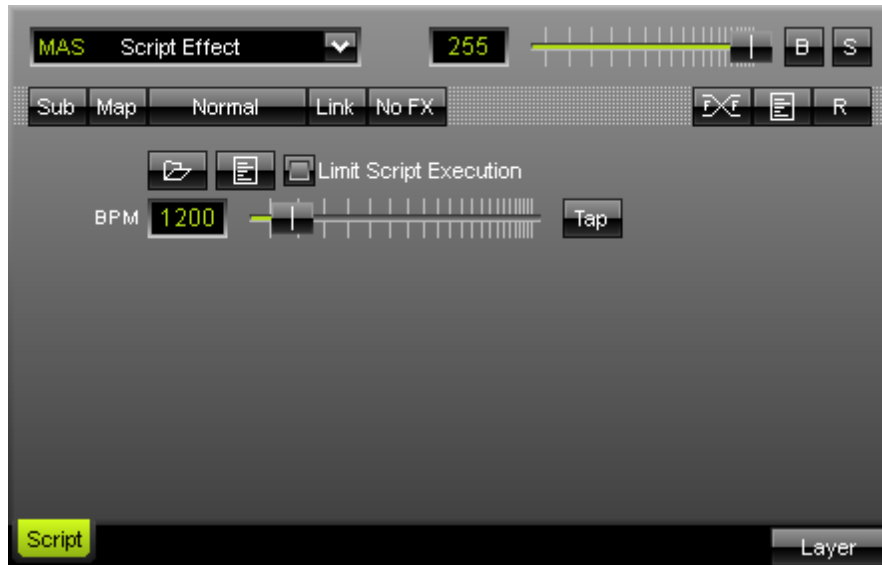


At the right hand side you can find a button/list to set up the mode of the effect. Various object shapes and modes can be selected.

Conclusion: As soon as it is possible to analyze one or more intervals, they will be displayed the color you set up.

6.4 MAS Script Effect

Introduction



MADRIX offers numerous effects to create a light show. The **"MAS Script Effect"** offers the feature to **program your own effects**.

With the so-called script language MADRIX Script it is possible to put all your wishes and ideas into practice. The entire MADRIX script language is fully described in the MADRIX Script Help.

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. It is the same in real life: Practice makes perfect!

You can find the documentation in the Windows Start Menu -> All Programs -> MADRIX -> Documentation -> MADRIX Script Help.

Interface



Selecting the **"MAS Script Effect"** will display the associated interface in the effect area. You are able to open a MADRIX script by clicking the **left button "Load"**. The **right button** will **open the Script Editor** and show the underlying 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 will ensure the stability and performance of MADRIX.

Using The Tap Button For Manual BPM Input



The effect includes a special function for setting BPM manually. If you want to attain synchronous movements of effects to the beat of the music, press the **"Tap"** button. Press 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 subsequently.

6.5 Macros & Scripts

Introduction

MADRIX features its own scripting language. With this programming language you can create scripts or macros for MADRIX. You may 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



This button points towards the option to use macros or scripts.

The term Scripts refers to the MAS Script Effect. Macros are used on top of effects or the output.

Currently, there are four possibilities to use `<%PRODUCTNAME_SCRIPT%>`.

- **MAS Script Effect** - The first option to create a new effect from scratch.
- **Macros for Effects** - The second option involves modifying the settings of a running effect.
- **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 grey 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. Simply click it to call up the Macro Editor. Use the window to write, load, and edit existing macros. Each Storage Area has one macro button, and 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.

The complete MADRIX Script Language is described in the MADRIX Script Help. You can find this documentation in the Windows Start Menu -> All Programs -> MADRIX -> Documentation -> MADRIX Script Help. For further information please read this documentation.

Part

VII

7 MADRIX Cue List

Overview

With MADRIX you can easily create a Cue List in just a few steps. The Cue List offers the possibility to precisely manage the playback of effects. In this way, it is a playlist with advanced features.

You can access the Cue List in three ways: Go to the menu **"Window" -> "Cue List"**, press **"F7"**, or click the **"Cue List"** button on the MADRIX GUI (graphical user interface):



The Cue List window will open.



Working With Cues And Entries



These buttons are located at the left side of the Cue List window. You can therefore **create** a new Cue List, **open** a Cue List, **open** a Cue List **and attach** it to the existing Cue List, and **save** a Cue List.

It is also possible to save a Cue List in *.csv file format. This feature allows you to edit Cue Lists with your preferred text editor very easily.



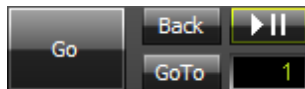
The right side of the Cue List window contains 5 buttons. You may **add and remove entries** to/from the Cue List ("**+**" and "**-**"), **add all Storage Places** that are in use to the Cue List ("**Cue All**"), and for **moving entries** upwards or downwards in the list ("**Up**" and "**Down**" arrows).

Selecting And Modifying Multiple Entries

Timecode	Duration	F.Cue	Storage
00:00:00:02	5s	2	A
00:00:00:02	00:00:00:02	2	A
	00:00:00:02	2	A
	00:00:00:02	2	A

You can select and modify more than one entry at a time. Simply select several entries (by using "Shift" or "Ctrl" plus "the left mouse button" or "the arrow keys") and right-click into the column of the value you wish to change. That could be the duration of the effects, for example.

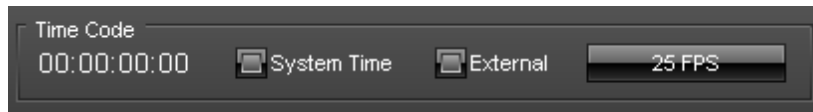
Controlling The Cue List - Play, Pause, ...



At the bottom of the Cue List window you have controls for **"Go"**, **"Back"**, **"GoTo"** and a **"Play/Pause"** button. Press **"Go"** to skip to the next Cue List entry. Press **"Back"** to select and play the previous Cue List entry. By typing in a number into the input field and clicking the **"GoTo"** button the next Cue List entry will be the number you chose.

Time Code

Overview



Next to the general controls, the "Time Code" section is shown. MADRIX is able to work with Time Code. There are several options:

If you activate **"System Time"**, your internal computer clock generates 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.

If you activate **"External"**, MADRIX is able to receive Time Code from an external source (a console, another software solution, etc.). MADRIX can receive external **MIDI Time Code (MTC)** or **Art-Net Time Code**. If those are running in the network, they will be received by MADRIX if the option is enabled here.

Receiving Time Code ("External" and "System Time") is possible with all MADRIX software license versions (incl. all MADRIX KEYs, MADRIX NEO and MADRIX PLEXUS).

MADRIX V2.13c and older versions will only allow MADRIX KEY professional and MADRIX KEY ultimate to receive "External" Time Code.

Last but not least, you can select the mode for the Time Code. You can choose from **"24 FPS"**, **"25 FPS"**, **"30 Drop"**, and **"30 FPS"**.

The Time Code is displayed in the following **format: HH:MM:SS:FF (00:00:00:00)**, meaning **hours:minutes:seconds:frames**.

Learn more about Time Code in general in the chapter [MIDI Time Code \(MTC\)](#).

More information about using Time Code is provided in the next chapters:

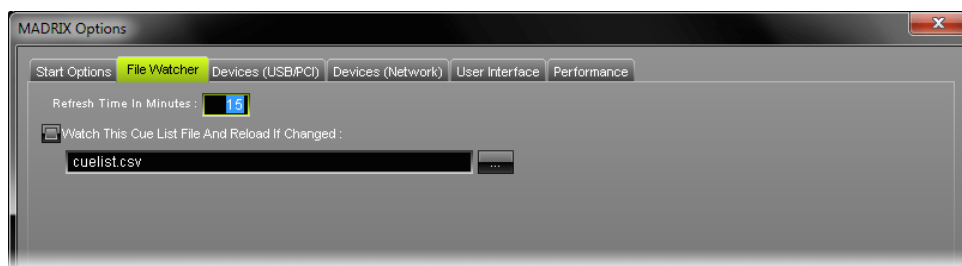
- [Standard Setup, Duration, And Date](#)

- Time Code, Duration, And Follow Cue

Important Notes

When you are using date, Time Code, and/or duration a **logical routine** is implemented in MADRIX to determine, which cue should be active. For more information, on how to use Time Code correctly, please read the following two chapters!

File Watcher - Automatic Cue List Reloading



MADRIX can automatically reload a Cue List within a predefined refresh time. For more information, please read the chapter [File Watcher](#).

7.1 Standard Setup, Duration, And Date

Introduction

Please make sure to read the previous chapter and to familiarize with the interface of the Cue List.

Using The Standard Setup

Cue	Description	Date	Time
1	red	daily	00:00:0
2	green	daily	00:00:0
3	blue	daily	00:00:0
4	white	daily	00:00:0
5		daily	00:00:0

Step 1 - Adding New Entries

First, add a new entry by clicking at the "+" button. To change the name of this entry, click inside the **"Description"** field and type in your text. To change the **"Storage"** (A or B), **"Place"** (1 - 60), **"Fade"** (XF, WF, BF, or CF), or **"F-Time"** (fade time in seconds), click inside the respective fields and change the values. If you have activated CF (for color fade), you can modify the values for red (**"R"**), green (**"G"**), blue (**"B"**) and white (**"W"**) to select a color for the fade.

After adding your first entry, repeat these steps to add more entries to the list. Please do not forget to save your created Cue List if you want to use it later.

Step 2 - Starting The Cue List



Use the **"Play/Pause"** button to start your newly created Cue List. The Cue List will then run automatically. Press **"Go"** to skip to the next Cue List entry. Press **"Back"** to select and play the previous entry. By typing in a number into the input field and clicking the **"GoTo"** button the next Cue List entry will be the number you chose. The MADRIX main interface includes those control buttons as well (except for **"GoTo"**).

Using Duration

Cue	Description	Date	Time Code	Duration	F.Cue	Storage	Place	Fade	F-Time	R	G	B	W
1	EQ	daily		00:00:15:00		A	01	XF	2.00	0	0	0	0
2	EQ	daily		00:00:15:00		B	01	WF	2.00	0	0	0	0
3	Waveform	daily		00:00:15:00		A	02	XF	2.00	0	0	0	0
4	Waveform	daily		00:00:15:00		B	02	WF	2.00	0	0	0	0
5	Wavegraph - red	daily		00:00:15:00		A	03	XF	2.00	0	0	0	0
6	Wavegraph - yel...	daily		00:00:15:00		B	03	WF	2.00	0	0	0	0
7	Colored Level	daily		00:00:15:00		A	04	XF	2.00	0	0	0	0

Step 1 - Adding New Entries

First, add a new entry by clicking at the "+" button. To change the name of this entry, click inside the **"Description"** field and type in your text. To change the **"Storage"** (A or B), **"Place"** (1 - 60), **"Fade"** (XF, WF, BF, or CF), or **"F-Time"** (fade time in seconds), click inside the respective fields and change the values. If you have activated CF (for color fade), you can modify the values for red (**"R"**), green (**"G"**), blue (**"B"**) and white (**"W"**) to select a color for the fade.

After adding your first entry, repeat these steps to add more entries to the list. Please do not forget to save your created Cue List if you want to use it later.

Step 2- Setting Up Duration

The next step is to **set a specific duration** for a single Cue List entry. The duration is displayed in the following **format: HH:MM:SS:FF**, meaning **hours:minutes:seconds:frames** (see picture above).

You can type in the following values for the duration, for example:

For an input of **one hour** you can use **01000000**, **01:00:00:00**, **01,00,00,00**, **01.00.00.00**, **01/00/00/00**, **1h**, or **01h00m00s00f**.

For an input of **ten minutes** you can use **00100000**, **00:10:00:00**, **00,10,00,00**, **00.10.00.00**, **00/10/00/00**, **10m**, or **00h10m00s00f**.

For an input of **ten seconds** you can use **00001000**, **00:00:10:00**, **00,00,10,00**, **00.00.10.00**, **00/00/10/00**, **10s**, or **00h00m10s00f**.

For an input of **ten frames** you can use **00000010**, **00:00:00:10**, **00,00,00,10**, **00.00.00.10**, **00/00/00/10**, **10f**, or **00h00m00s10f**.

Of course, other values are possible as well.

A value of 0 or the usage of the space bar resets the parameter to the default value.

Repeat these steps for every entry you want to assign a pre-defined duration.

Step 3 - Starting The Cue List



Use the **"Play/Pause"** button to start your newly created Cue List.

The Cue List will then run automatically. Press **"Go"** to skip to the next Cue List entry. Press **"Back"** to select and play the previous entry. By typing in a number into the input field and clicking the **"GoTo"** button the next Cue List entry will be the number you chose. The MADRIX main interface includes those control buttons as well (except for **"GoTo"**).

Loop Function

If all entries inside your Cue List have been assigned a duration, the Cue List will repeat automatically from the beginning after the last entry.

If any entry inside the Cue List does not have a pre-defined duration, the Cue List will stop at this entry.

But maybe you want to stop the Cue List with the last entry. In this case, you only have to remove the duration for the last entry in your Cue List.

Stop

According to your configuration, you may have to disable "System Time/External" again to fully stop the Cue List.

Using Date

Cue	Description	Date	Time Code	Duration	F.Cue	Storage	Place	Fade	F-Time	R	G	B
1	EQ	Monday	08:00:00:00			A	01	XF	2.00	0	0	0
2	EQ	Tuesday	10:00:00:00			B	01	WF	2.00	0	0	0
3	Waveform	Wednesday	09:00:00:00			A	02	XF	2.00	0	0	0
4	Waveform	Thursday	12:00:00:00			B	02	WF	2.00	0	0	0
5	Wavegraph - red	Friday	08:00:00:00			A	03	XF	2.00	0	0	0
6	Wavegraph - yel...	Saturday	05:00:00:00			B	03	WF	2.00	0	0	0
7	Colored Level	Sunday	09:00:00:00			A	04	XF	2.00	0	0	0

Step 1 - Adding New Entries

First, add a new entry by clicking at the "+" button. To change the name of this entry, click inside the **"Description"** field and type in your text. To change the **"Storage"** (A or B), **"Place"** (1 - 60), **"Fade"** (XF, WF, BF, or CF), or **"F-Time"** (fade time in seconds), click inside the respective fields and change the values. If you have activated CF (for color fade), you can modify the values for red (**"R"**), green (**"G"**), blue (**"B"**) and white (**"W"**) to select a color for the fade.

After adding your first entry, repeat these steps to add more entries to the list. Please do not forget to save your created Cue List if you want to use it later. Or load a Cue List that you have set up before.

Step 2 - Setting The Date

The next step is to **set the date** for a single Cue List entry. The following input formats can be used for the date:

Daily:

d or **D** or **0** ... daily

Monday - Sunday:

m or **M** ... Monday

t ... Tuesday

w or **W** ... Wednesday

T ... Thursday

f or **F** ... Friday

s ... Saturday

S ... Sunday

Date:

2009/03/01 ... 2009/03/31

2009:03:01 ... 2009:03:31

2009;03;01 ... 2009;03;31

2009-03-01 ... 2009-03-31

or use the short version:

09-03-01 ... 09-03-31

01 ... first day of actual month and year

02 ... second day of actual month and year

...

01-01 ... first day and first month of the actual year

01-02 ... second day and first month of the actual year

...

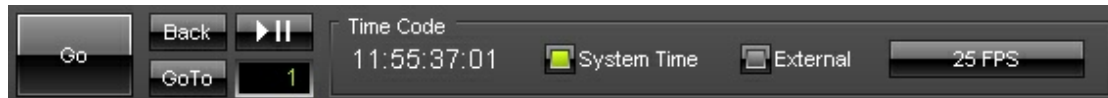
MADRIX always starts with the year 2000.

A value of -1 and using the space bar resets the field to the default value "daily".

Repeat these steps for every entry you want to assign a pre-defined date.

Step 3 - Using System Time And Starting The Cue List

Please enable "System Time" now.



Use the **"Play/Pause"** button to start your newly created Cue List. The Cue List will then run automatically. Press **"Go"** to skip to the next Cue List entry. Press **"Back"** to select and play the previous entry. By typing in a number into the input field and clicking the **"GoTo"** button the next Cue List entry will be the number you chose. The MADRIX main interface includes those control buttons as well (except for **"GoTo"**).

Stop

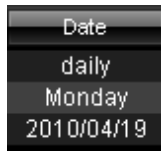
According to your configuration, you may have to disable "System Time/External" again to fully stop the Cue List.

Important Notes

Time Code can be the internal "System Time" or "External" MIDI or Art-Net Time Code.

When you are using Date, Time Code, and/or Duration, **logical routines** are implemented in MADRIX to determine which cue should be active. These routines are explained in more detail here.

Date



If you are setting a Date, 3 options are available: 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 (System Time or External time) 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

1) 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.

2) 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 entry.

If a cue inside the Cue List does not have a pre-defined duration, the Cue List will stop at this entry.

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.

7.2 Time Code, Duration, And Follow Cue

Introduction

Please make sure to read the chapter **MADRIX Cue List** and familiarize with the interface of the Cue List.

Receiving Time Code ("External" and "System Time") is possible with all MADRIX license versions (incl. all MADRIX KEYs, MADRIX NEO and MADRIX PLEXUS).

MADRIX V2.13c and older versions will only allow MADRIX KEY professional and MADRIX KEY ultimate to receive "External" Time Code.

More information on MIDI Time Code can be found in the chapter [MIDI Time Code \(MTC\)](#).

Using Time Code, Duration, and Follow Cue

Cue	Description	Date	Time Code	Duration	F.Cue	Storage	Place	Fade	F-Time	R	G	B
1	red	daily	08:00:00:00	00:00:04:00		A	01	XF	2.00	0	0	0
2	green	daily		00:00:10:00	1	B	01	WF	2.00	0	0	0
3	blue	daily	09:00:00:00	00:00:05:00		A	02	XF	2.00	0	0	0
4	yellow	daily		00:00:30:00	3	B	02	WF	2.00	0	0	0
5	Wavegraph - red	Friday	06:00:00:00			A	03	XF	2.00	0	0	0

Step 1 - Adding New Entries

First, add a new entry by clicking at the "+" button. To change the name of this entry, click inside the **"Description"** field and type in your text. To change the **"Storage"** (A or B), **"Place"** (1 - 60), **"Fade"** (XF, WF, BF, or CF), or **"F-Time"** (fade time in seconds), click inside the respective fields and change the values. If you have activated CF (for color fade), you can modify the values for red (**"R"**), green (**"G"**), blue (**"B"**) and white (**"W"**) to select a color for the fade.

After adding your first entry, repeat these steps to add more entries to the list. Please do not forget to save your created Cue List if you want to use it later.

Step 2- Setting Up Time Code And Duration

The next step is to **set a specific Time Code and duration** for a single Cue List entry. Both are displayed in the following **format: HH:MM:SS:FF**, meaning **hours:minutes:seconds:frames** (see picture above).

You can use the following values for the Time Code and duration:

For an input of **one hour** you can use **01000000**, **01:00:00:00**, **01,00,00,00**, **01.00.00.00**, **01/00/00/00**, **1h**, or **01h00m00s00f**.

For an input of **ten minutes** you can use **00100000**, **00:10:00:00**, **00,10,00,00**, **00.10.00.00**, **00/10/00/00**, **10m**, or **00h10m00s00f**.

For an input of **ten seconds** you can use **00001000**, **00:00:10:00**, **00,00,10,00**, **00.00.10.00**, **00/00/10/00**, **10s**, or **00h00m10s00f**.

For an input of **ten frames** you can use **00000010**, **00:00:00:10**, **00,00,00,10**, **00.00.00.10**, **00/00/00/10**, **10f**, or **00h00m00s10f**.

Of course, other values are possible as well.

A value of 0 or the usage of the space bar resets the parameter to the default value.

Add or edit more entries according to your requirements.

Step 3 - Setting Up Follow Cues

The next step is to **set "F.Cue"** (follow cues). A follow cue allows you to define a certain order in which cues are going to be played. You can assign a certain cue to be played after another.

To configure a follow cue, double-click the F.Cue-column of the entry you want to edit. Simply type in the number of the next entry, i.e. the next cue that should be played after this one.

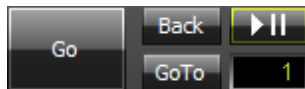
Cue	Description	Date	Time Code	Duration	F.Cue	Storage	Place	Fade	F-Time	R	G	B
1	red	daily	08:00:00:00	00:00:04:00		A	01	XF	2.00	0	0	0
2	green	daily		00:00:10:00	1	B	01	WF	2.00	0	0	0
3	blue	daily	09:00:00:00	00:00:05:00		A	02	XF	2.00	0	0	0
4	yellow	daily		00:00:30:00	3	B	02	WF	2.00	0	0	0
5	Wavegraph - red	Friday	06:00:00:00			A	03	XF	2.00	0	0	0

In our example above Cue List entry #2 will be followed by Cue List entry #1. Cue List entry #4 has Cue List entry #3 as its follow cue.

You can type in numerical values or use the following keys for F.Cue:



Step 4 - Starting The Cue List



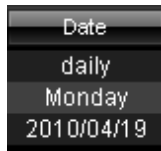
Use the **"Play/Pause"** button to start your newly created Cue List. The Cue List will then run automatically. Press **"Go"** to skip to the next Cue List entry. Press **"Back"** to select and play the previous entry. By typing in a number into the input field and clicking the **"GoTo"** button the next Cue List entry will be the number you chose. The MADRIX main interface includes those control buttons as well (except for **"GoTo"**).

Important Notes

Time Code can be the internal "System Time" or "External" MIDI or Art-Net Time Code.

When you are using Date, Time Code, and/or Duration, **logical routines** are implemented in MADRIX to determine which cue should be active. These routines are explained in more detail here.

Date



If you are setting a Date, 3 options are available: 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 (System Time or External time) 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

1) 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.

2) 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 entry.

If a cue inside the Cue List does not have a pre-defined duration, the Cue List will stop at this entry.

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.

7.3 Keyboard Layouts

You can use the following keys for:

Description



Time Code And Duration



F. Cue



Storage



Place



Fade



F-Time



Part



8 OUTPUT

Overview

MADRIX supports a lot of well-known industry standards, such as DMX512, Art-Net II, DVI, as well as the protocols from Philips Color Kinetics, Insta/Robe, EuroLite T9, and ColourSmart Link. Streaming ACN by ESTA was added as well.

In the following chapters each output method will be described in more detail.

- DMX512
- Art-Net
- DVI
- e:net From e:cue
- ROBE StageQube 324
- Insta Light 2022 - LED-Panel RGB 324
- Philips Color Kinetics (KiNet)
- ESTA - Streaming ACN
- Proprietary DVI Devices (EuroLite T9 and ColourSmart Link)

8.1 Art-Net

Introduction



Art-Net is a communication protocol to send DMX data over network (DMX-over-Ethernet).

Network Settings

Before you start and in order to be able to use Art-Net, please set up your network card in Windows using the following address area:

- **2.0.0.1 ... 2.255.255.254** or
- **10.0.0.1 ... 10.255.255.254**

Artistic Licence (the creators of Art-Net) recommend to use 2.x.x.x (10.x.x.x is regarded to be an alternative). **The subnet mask should be 255.0.0.0**
You must use this address area. Otherwise Art-Net might not work.

Please restart MADRIX if you have changed any network settings in Windows.

Network Switches - Gigabit Ethernet



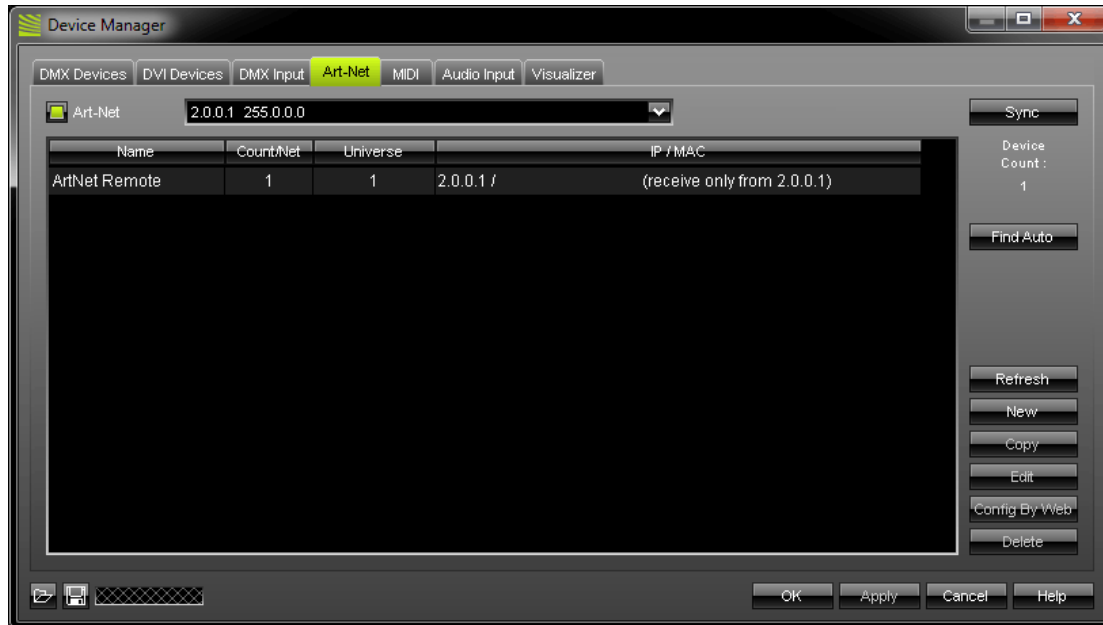
We recommend using only **Gigabit Ethernet network switches**. Gigabit Ethernet (GbE or 1 GigE) is a term describing various technologies for transmitting Ethernet frames at a rate of a gigabit per second, as defined by the IEEE 802.3-2008 standard. **You might encounter problems if you try to use slower network switches.**

Configuration In MADRIX

Navigate to the menu "**Preferences**" -> "**Device Manager**" (or press "F4"). Now, select the tab "**Art-Net**".

The menu will allow you to configure Art-Net interfaces and other Art-Net settings.

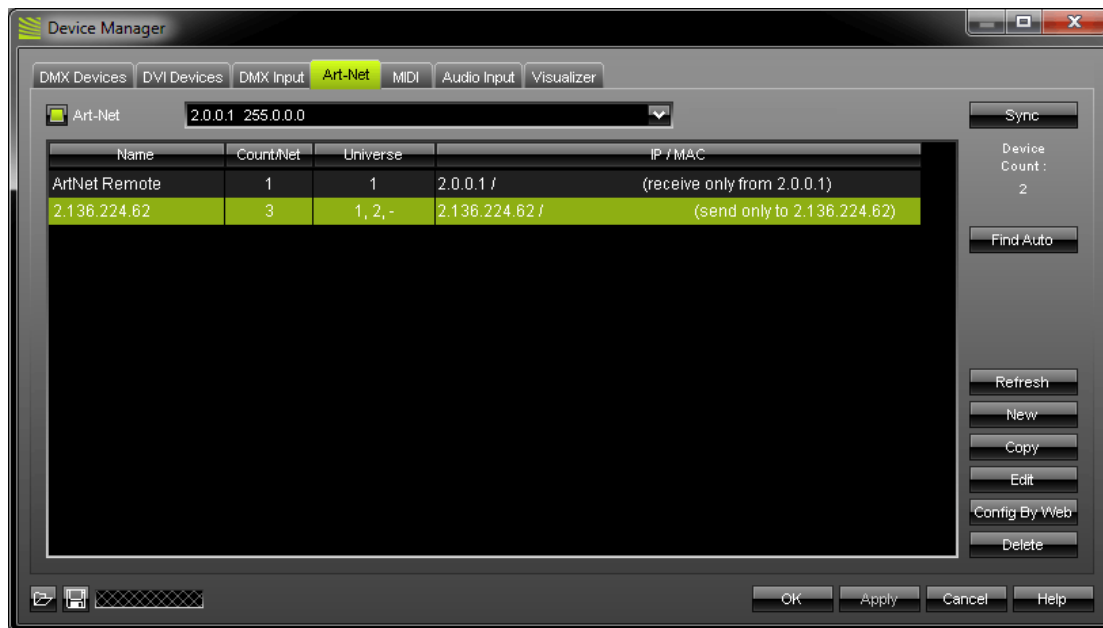
If you want to use Art-Net with MADRIX you have to enable it here first. Check the box next to "Art-Net" in the upper left corner.



If you have Art-Net enabled, you will see an "Art-Net Remote" device shown in the list. This device is solely for controlling MADRIX remotely. Please read the information about [Remote Control](#) for further information.

In the next step, you need to add your Art-Net interface to the list. You have two options for this.

Adding Devices Via ArtPollReply (Option #1)



If your Art-Net interface supports the ArtPollReply function, you can press the **"Find Auto"** button **to scan the network for your Art-Net interface**. Click **"Refresh"** to update the list.

Technically speaking Art-Net universes range from 0 to 255, but they are displayed in MADRIX from 1 to 256.

If you want to see details of your Art-Net interface, click on the interface entry in the list and use the **"Edit"** button. A new dialog will open.

But because of the ArtPollReply function and due to the fact that your device was assigned in this way, you will not be able to modify your Art-Net device. Instead, you will probably have to use a tool from your Art-Net interface manufacturer.

Creating Devices Manually (Option #2)

If your Art-Net interface is not equipped with an ArtPollReply function, you can manually create a new interface by clicking **"New"**. A new dialog will open.

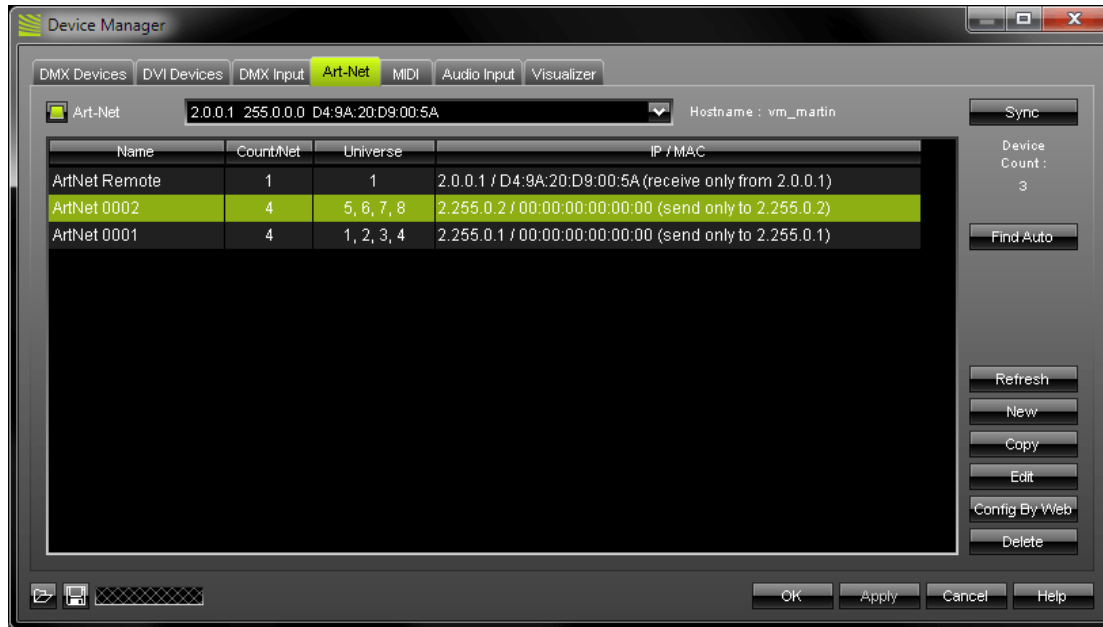


Please select the **number of devices** you wish to create. And please enter the **number of ports** of each device.

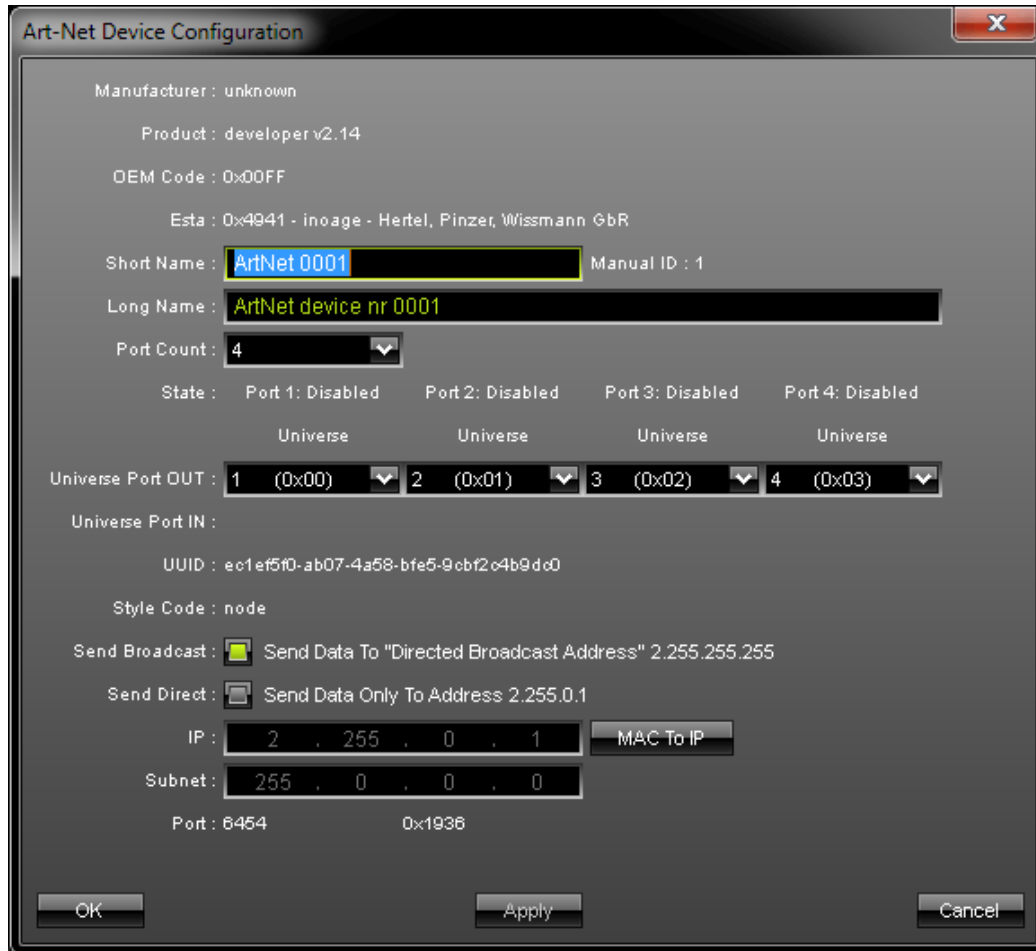
Select **"Use Direct IP Mode For the Devices"** if you wish to use Direct IP mode. [See below](#) for more details.

Select **"Device Sends Full Frames"** if you wish to always send a single frame including all 512 DMX channels. If this option is disabled, MADRIX will automatically send optimized frames that reduce network traffic. If problems occur with your Art-Net node, please enable this option and send full frames.

Please note: 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.



Now, select the newly created entry and click on the **"Edit"** button. A new dialog will open.



The image shows a screenshot of the 'Art-Net Device Configuration' dialog box. The dialog has a title bar with a close button (X). The main area contains various configuration fields:

- Manufacturer: unknown
- Product: developer v2.14
- OEM Code: 0x00FF
- Est: 0x4941 - inoage - Hertel, Pinzer, Wissmann GbR
- Short Name: ArtNet 0001 (highlighted with a yellow border)
- Manual ID: 1
- Long Name: ArtNet device nr 0001
- Port Count: 4 (dropdown menu)
- State: Port 1: Disabled, Port 2: Disabled, Port 3: Disabled, Port 4: Disabled
- Universe: Universe, Universe, Universe, Universe
- Universe Port OUT: 1 (0x00), 2 (0x01), 3 (0x02), 4 (0x03) (dropdown menus)
- Universe Port IN:
- UUID: ec1ef5f0-ab07-4a58-bfe5-9cbf2c4b9dc0
- Style Code: node
- Send Broadcast: ☒ Send Data To "Directed Broadcast Address" 2.255.255.255
- Send Direct: ☐ Send Data Only To Address 2.255.0.1
- IP: 2 . 255 . 0 . 1 (with a 'MAC To IP' button)
- Subnet: 255 . 0 . 0 . 0
- Port: 6454, 0x1936

At the bottom, there are three buttons: OK, Apply, and Cancel.

Use the settings to modify your Art-Net device. For instance, a short name and a long name can be entered. Set up how many ports you have on this device, which universe should be used to send data. And you can specify the IP address ("Send Direct" and "IP") if you do not want to activate the network-wide broadcast option ("Send Broadcast"). [See below](#) for more details.

Broadcast Or Direct IP Mode?

Using the Art-Net protocol in broadcast mode means that every packet sent from a single (MADRIX) transmitter will be received by all recipients in the network. This can be very useful, e.g. if you wish universes 1 and 2 to be available on several points of the set-up. The disadvantage is that through broadcasting a potentially huge number of packages will be sent over the network.

2 Modes: "Send Broadcast" and "Send Direct"

If "Send Broadcast" is activated, MADRIX will send data to the whole Art-Net network.

(Broadcast Mode)

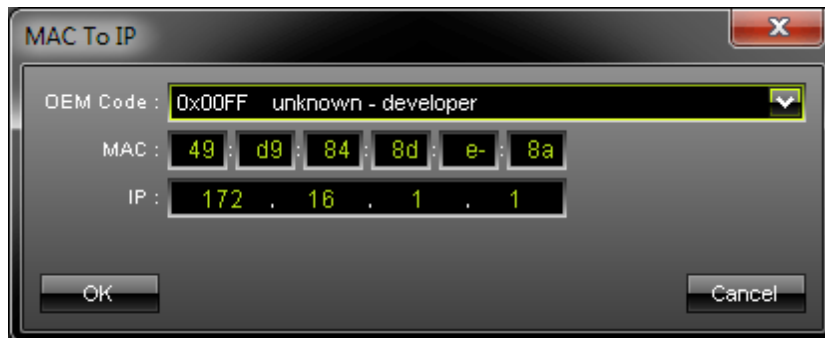
If "Send Direct" is activated, MADRIX forwards data directly to the listed IP address. **(Direct IP Mode)**

To reduce network traffic, we suggest using Direct IP mode.

MAC To IP

MAC To IP

The Art-Net Device Configuration dialog includes a tool to convert MAC addresses to IP addresses, and vice versa.



Choose the manufacturer under "OEM Code" and then change the MAC address and the tool automatically converts it into the correct IP address. Or change the IP address and the tool automatically converts it into the corresponding MAC address.

Full Frames Or Optimized Frames?

In order reduce network traffic, MADRIX is sending optimized Art-Net data. For example, if you are only using 240 DMX channels, MADRIX normally sends data for 240 DMX channels. When using full frames, MADRIX will send frames including all 512 DMX channels every time (even if you are only using 240 DMX channels).

Older Art-Net nodes might not support optimized frames. This is why full frames are recommended if problems occur.

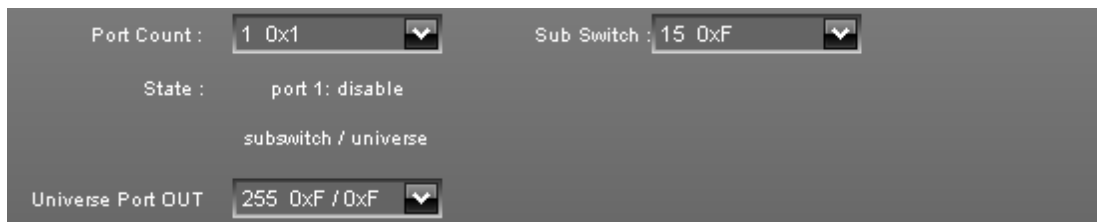
To reduce network traffic, we suggest using optimized frames.

To enable "Full Frames", please navigate to the menu **"Preferences" -> "Device Manager" -> tab "DMX Devices"**. Select your Art-Net device and enable **"Full Frames"** if required.

Subswitch

If your Art-Net device is equipped with a subswitch, MADRIX is able to recognize this feature. This is for your information. In the configuration dialog (Art-Net Configure Device) you will see if your Art-Net device is equipped with a subswitch or not. Then, the dialog will include several informative elements. In this way, you will be able to see the configuration of your interface within MADRIX.

Subswitch available:



The screenshot shows a configuration window with a dark grey background. It contains several controls: 'Port Count' is set to '1 0x1' with a dropdown arrow; 'Sub Switch' is set to '15 0xF' with a dropdown arrow; 'State' is set to 'port 1: disable'; 'subswitch / universe' is a text label; and 'Universe Port OUT' is set to '255 0xF / 0xF' with a dropdown arrow.

Subswitch not available:

Port Count : 1 0x1

State : port 1: disable

universe

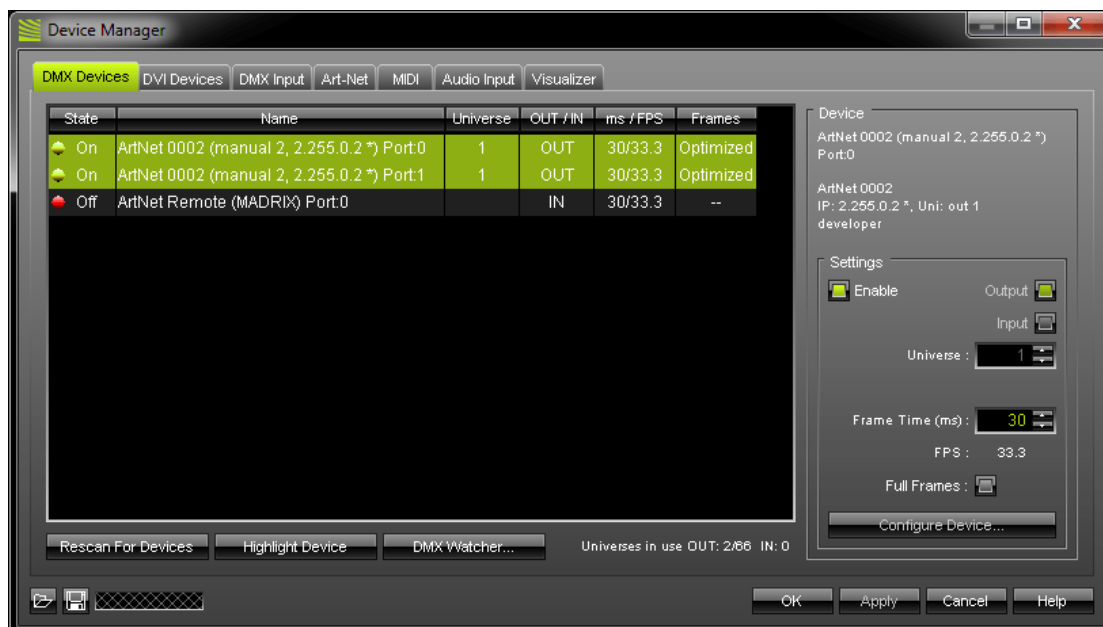
Universe Port OUT 0 0x00

Activating Your Art-Net Interfaces

If you have finished setting up your devices, they will still be **disabled**.

To activate them, please close the window and open the tab **"DMX Devices" tab**, select the device(s), and click **"Enable"** and **"Output"**. You can select several interfaces in the list and click "Enable" once in order to enable multiple devices.

Please also set up the individual **DMX universe for every device**.



Please check if the DMX universes are assigned correctly!

After you have set up your output and input devices, please press the button **"OK"**.

Sync Mode



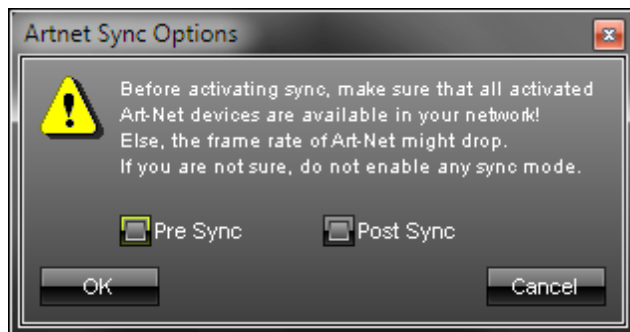
An automatic sync mode for Art-Net devices is implemented in MADRIX. In this way you can activate or deactivate the usage of sync packages.

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.

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.**

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. But please make sure that all of your interfaces are available in the network.

Click "**Sync**" and a new dialog will open. Now, choose if you want to activate sync packages to be sent before data is sent ("**Pre Sync**"). Or you can send sync packages after Art-Net data has been sent ("**Post Sync**"). Then, press "**OK**".



If you want to **disable** sync mode, click "Sync" again and uncheck the mode that is selected. Then, press "OK".

Config By Web

Config By Web

The button "**Config By Web**" 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 dialog of your Art-Net device. If this is not possible, a message box will be displayed in MADRIX.

Highlight Mode

A rectangular button with a dark grey gradient background and the text "Highlight Device" in white.

The "**Highlight Device**" button activates/deactivates the highlight mode for the selected interface and universe.

Select one or more interfaces and press the button. The corresponding fixtures at the selected interface(s) will flash for a better identification. This makes it easier to see them on stage. It considerably speeds up the procedure of programming the selected DMX512/Art-Net interfaces.

DMX Watcher

A rectangular button with a dark grey gradient background and the text "DMX Watcher..." in white.A rectangular button with a dark grey gradient background and the text "Watch Universe..." in white.

Open the "**DMX Watcher**" to monitor your DMX output or input. "**Watch Universe**" will appear when you have selected a list entry. The DMX Watcher will open with the particular DMX Universe already entered. Learn more in the chapter [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

Please remember to configure your light matrix in the [Matrix Generator](#) or [Patch](#).

Please make sure to save your MADRIX Setup after the configuration process.

There are more chapters that belong to the topic Art-Net:

- Using ENTTEC Datagate With MADRIX
- Using ENTTEC Datagate Mk2 With MADRIX
- Using EUROLITE Node 8 With MADRIX
- Using X-NET 8 With MADRIX

Important Notes

Please keep in mind that network devices, if activated, cause network traffic!

If you are using a network-based output protocol and if the start option "Run MADRIX, When Windows Starts" is activated, it is highly recommended to also activate the start option "Set Timeout To Start Software" 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 same time.

8.1.1 Using ENTTEC Datagate With MADRIX

Introduction

The Datagate fully supports the Art-Net protocol. It can be configured to output anything between 1 and 8 DMX universes.

How Do I Configure The ENTTEC Datagate?

You can use the software "Node Management Utility (NMU)" from ENTTEC to easily configure the Datagate with your computer. Please check with ENTTEC if this tool is available.

4-Port DMX

To set the Datagate to output 4 universes of DMX, press the **"Menu"** button next to the LCD display on the front panel until it reads **"1-Activate Profile"**. Hit **"Enter"**, then **"Scroll"** until the **"Art-Net"** profile is displayed. Hit **"Enter"** to select and the Datagate will display **"Profile Activate"**. The Art-Net profile configures ports 1-4 as outputs for DMX universe 1-4, and ports 5-8 as DMX inputs.

8-Port DMX

To set the Datagate to output 8 universes of DMX, follow the initial instructions above to access the **"1-Activate Profile"** menu on the Datagate. Afterwards, select the **"Enet -> DMX"** profile, then change the protocol type on each of the 8 channels to Art-Net **instead** of the default ESP. This will enable 8 output ports.

To change the protocol type, hit the **"Menu"** button until it displays **"2-Edit Profile"**, hit **"Enter"** then **"Scroll"** until the display reads **"2-3 EthernetConfig"**. Hit **"Enter"** again, then **"Scroll"** until **"2-3-2 Protocol"** is displayed. Hit **"Enter"**, then **"Scroll"** until the display reads **"Art-Net"**, then hit **"Enter"** once more. This will set the Datagate to output DMX universes 1-8 on ports 1-8.

Broadcast Or Direct IP Mode?

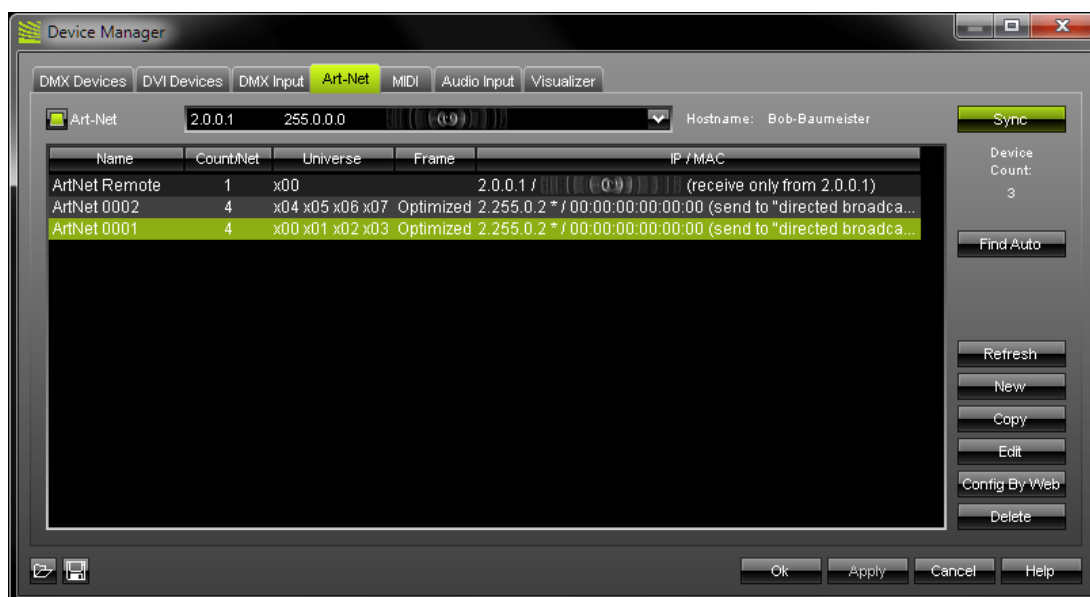
Using the Art-Net protocol in broadcast mode means that every packet sent from a single (MADRIX) transmitter will be received by all recipients in the network. This can be a very useful feature, e.g. if you wish universes 1 and 2 to be available on several points of the set-up. The disadvantage is that through broadcasting a potentially huge number of packages will be sent over the network.

To reduce network traffic, we suggest using Direct IP mode ("Send Direct").

Please note: In the following example we will configure a Datagate with ports 1–8 to use DMX universes 1–8 in broadcast mode.

How Do I Configure MADRIX?

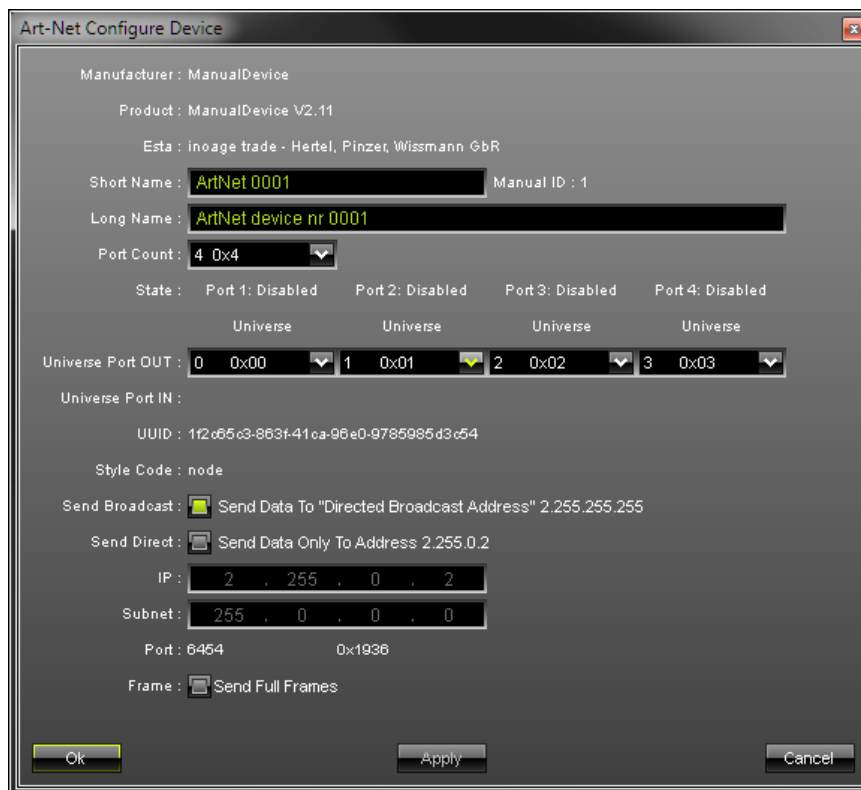
In order to configure MADRIX, please go to the MADRIX menu **"Preferences -> Device Manager"**. Activate the **"Art-Net"** tab and enable Art-Net. Press the **"New"** button to add new Art-Net device(s).





Inside this dialog you can set the number of devices and number of ports for each new device. Now you will see your new **Art-Net 0001** device (Art-Net 0002, ...) included in the list with x ports.

Select a device and press **"edit"** to configure this Art-Net device.



Here you can set up your Art-Net device. First, please click on **"Port Count"** and select the port count to be **"4 0x4"**.

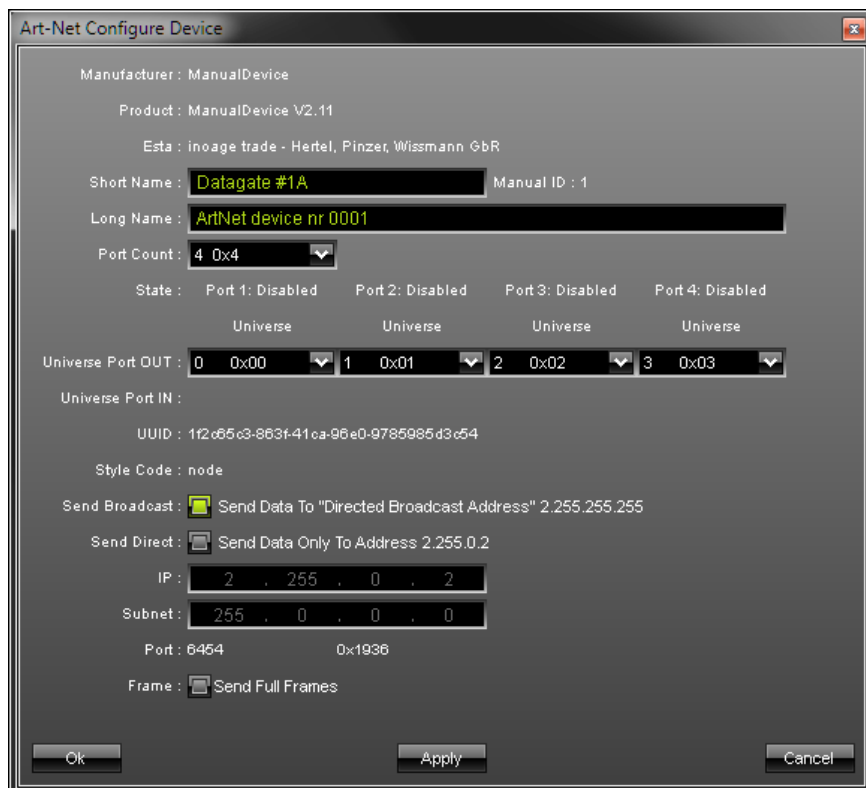
Up to this point we have used the broadcast option.

Please note: You can also use Direct IP mode by activating the switch **"Send Direct"**. In that case you will have to type in the IP address of your Datagate.

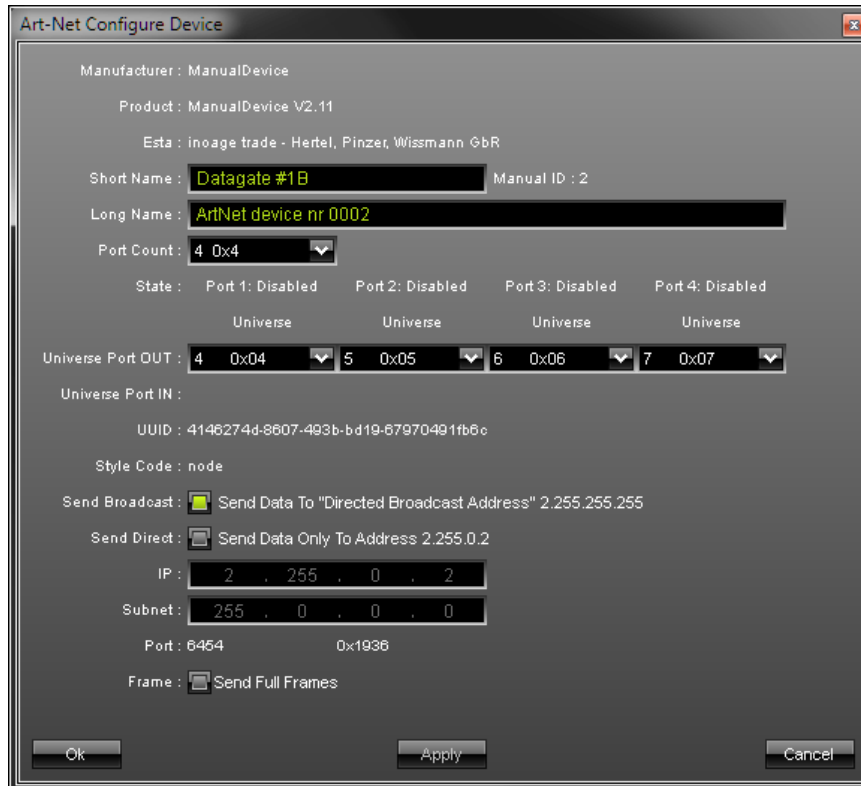
Accordingly, you will see your newly created **Art-Net 0001** (Art-Net 0002, ...) device listed with 4 ports. Repeat this step and create a new Art-Net device by clicking the **"New"** button.



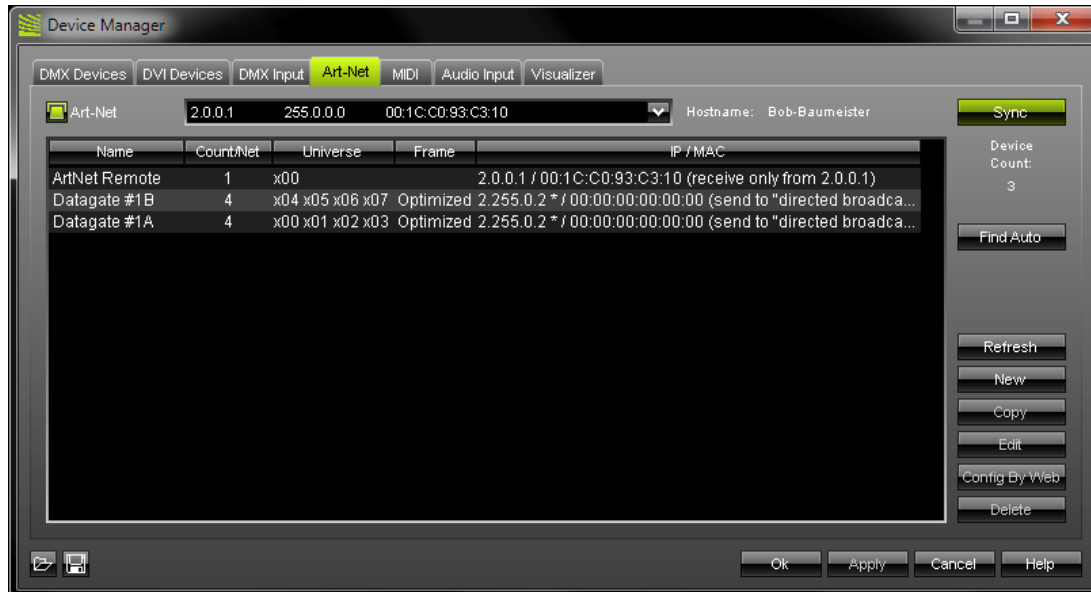
If you did repeat the step, you will now see **two Art-Net devices** (Art-Net 0001 and Art-Net 0002) in the list. You can **modify these Art-Net devices** by selecting the Art-Net device first and then clicking the **"Edit"** button.



As shown above, we have changed the **short name** from Art-Net 0001 to **Datagate #1A** in this example.



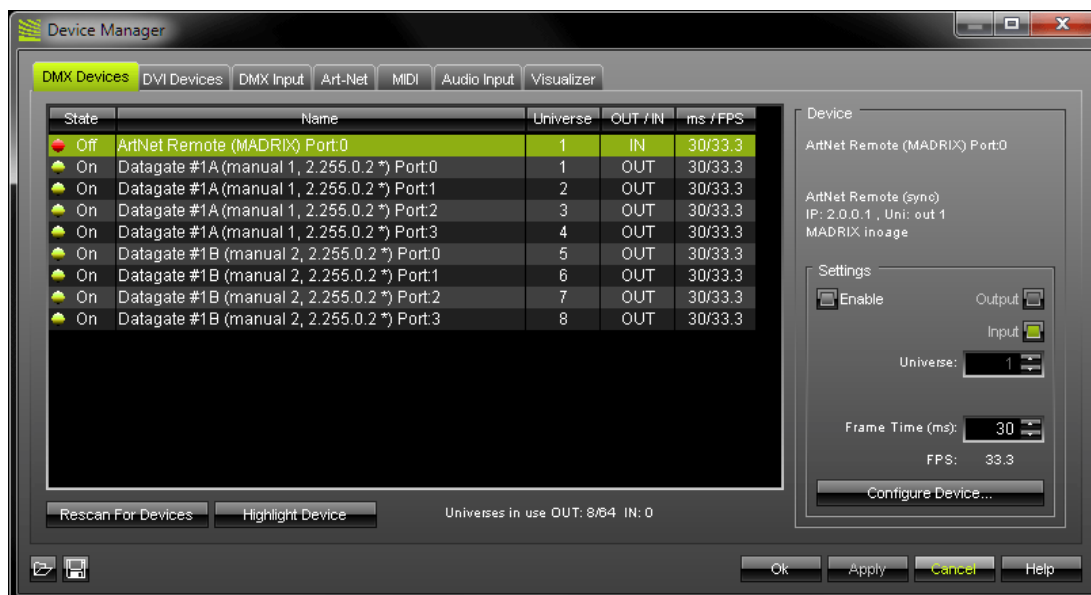
This modification is repeated for the Art-Net 0002 device changing the **short name** from Art-Net 0002 to **Datagate #1B**.



Now you will see the two Art-Net devices, Datagate #1A and Datagate #1B, in the list.

Result:

Datagate #1A with the first 4 DMX universes and
Datagate #1B with the next 4 DMX universes.



In the next step open the tab called **"DMX Devices"**. Here, you have to enable each Art-Net device by activating the **"Enable"** switch. **You will also have to assign the DMX universe.**

In this example we have used all 8 ports of the Datagate and activated them for output.

Datagate #1A Port:0 is the DMX universe 1

Datagate #1A Port:1 is the DMX universe 2

...

...

Datagate #1B Port:3 is the last DMX universe 8



Important Notes

For more information please consult the chapter [Art-Net](#).

Please remember to configure your light matrix in the [Matrix Generator](#) or [Patch](#).

Please make sure to save your MADRIX Setup after the configuration process.

8.1.2 Using ENTTEC Datagate Mk2 With MADRIX

Introduction

The ENTTEC Datagate Mk2 is the second revision of the ENTTEC Datagate. It is an Art-Net node and can thus be used with MADRIX.

This chapter describes how to configure the Datagate to output 8 DMX universes with MADRIX.

Basic Information

This guide was created using

- MADRIX 2.13a
- Datagate Mk2 Firmware V1.0 - 0434 (03/Feb/2011)
- Datagate Mk2 User Quick Start Manual (Firmware V1.0, 10-Jun-2010)

About Art-Net

Art-Net is an Ethernet-based protocol using communication over network. The protocol has a predefined range of network addresses:

- **2.0.0.1 ... 2.255.255.254** or
- **10.0.0.1 ... 10.255.255.254**

Artistic Licence (the creators of Art-Net) recommend to use **2.x.x.x (10.x.x.x is regarded to be an alternative). The **subnet mask** should be **255.0.0.0** You **must** use this address area. Otherwise Art-Net might not work.**

Network Switches - Gigabit Ethernet



We recommend using only **Gigabit Ethernet network switches**. Gigabit Ethernet (GbE or 1 GigE) is a term describing various technologies for transmitting Ethernet frames at a rate of a gigabit per second, as defined by the IEEE 802.3-2008 standard. **You might encounter problems if you try to use slower network switches.**

Step 0) Getting Started

Please make sure to set up the Datagate Mk2 as described in No. 1 to 4 in the chapter "Getting Started" of the ENTTEC Quick Start Manual.

Power up your MADRIX computer as well.

Step 1) IP Address Of The Device

The IP address of your device needs to be checked (or configured) first.

To **check the IP address** of the device, use the 4-button menu system on the front panel of the device:

On the device, press **"MENU"** (i.e. the LEFT button). Navigate to **"3-Status"** and press **"ENTER"**. Choose **"2-Network"** and press **"ENTER"**. In this menu, called **"IP Settings"**, you can check the IP address and the Subnet Mask. Per factory default settings, the test device is configured as follows:

IP: 2.0.0.14

Mask: 255.0.0.0

These settings are compatible with Art-Net and can thus be used. Please make a note for both addresses.

As described above ([About Art-Net](#)), different settings may be used. **This is not necessary if the factory default settings can be used.**

Sometimes, the Datagate Mk2 may switch to DHCP network settings after performing a "Factory Reset". In this case or if the factory default settings are not compatible, please manually change the IP address.

To **change the IP address** of the device, use the 4-button menu system on the front panel of the device:

On the device, press **"MENU"** (i.e. the LEFT button). Navigate to **"2-Setup"** and press **"ENTER"**. Choose **"1-Change IP"** and press **"ENTER"**. Select **"2-Use Static IP"** and press **"ENTER"**.

Now, use the UP, DOWN button to change the value. Use the RIGHT button to switch to the next entry. Use the LEFT button to switch back to the last entry.

By selecting the 1. entry and pressing "MENU", you will be taken back to the last menu.

By selecting the 4. entry and pressing "ENTER" again, you apply the settings.

Step 2) IP Address Of Your Computer

After checking the IP address of the device, you will need to set up the network settings of your computer. This allows your computer to communicate with the Datagate Mk2.

Please navigate to the "Control Panel" of Windows and choose "Network and Sharing Center". Configure your Local Area Connection (by selecting "Properties" and "Internet Protocol Version 4 (TCP/IPv4)")

(The entries may be labelled differently depending on the Windows operating system your are using).

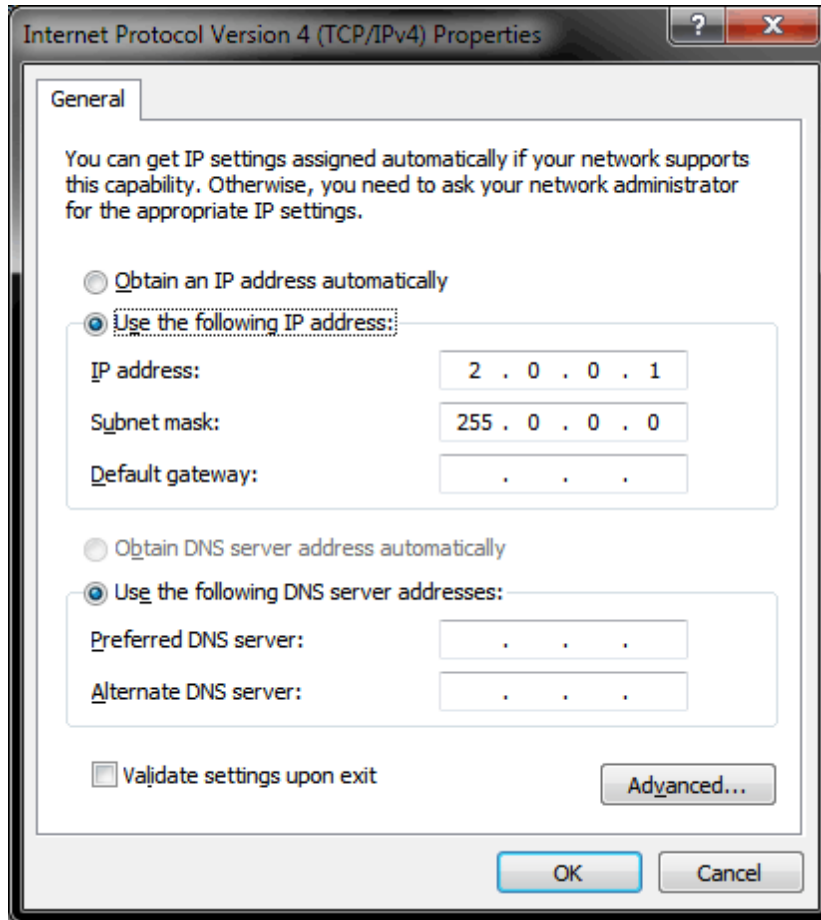
Now, configure the IP address and Subnet Mask according to the Art-Net specifications.

Your Datage Mk2 and your computer need to have two different IP addresses. The Subnet Mask must remain the same.

For example, set up:

IP address: 2.0.0.1

Subnet mask: 255.0.0.0



Step 3) Load Datagate Mk2 Profile

The Datagate provides several stored profiles. In order to use Art-Net and 8 DMX output ports, please do the following:

On the device, press **"MENU"** (i.e. the LEFT button). Choose **"1-Load Profile"** and press **"ENTER"**. Select **"Art-Net to DMX"** and press **"ENTER"**.

Wait until the device has activated the profile.

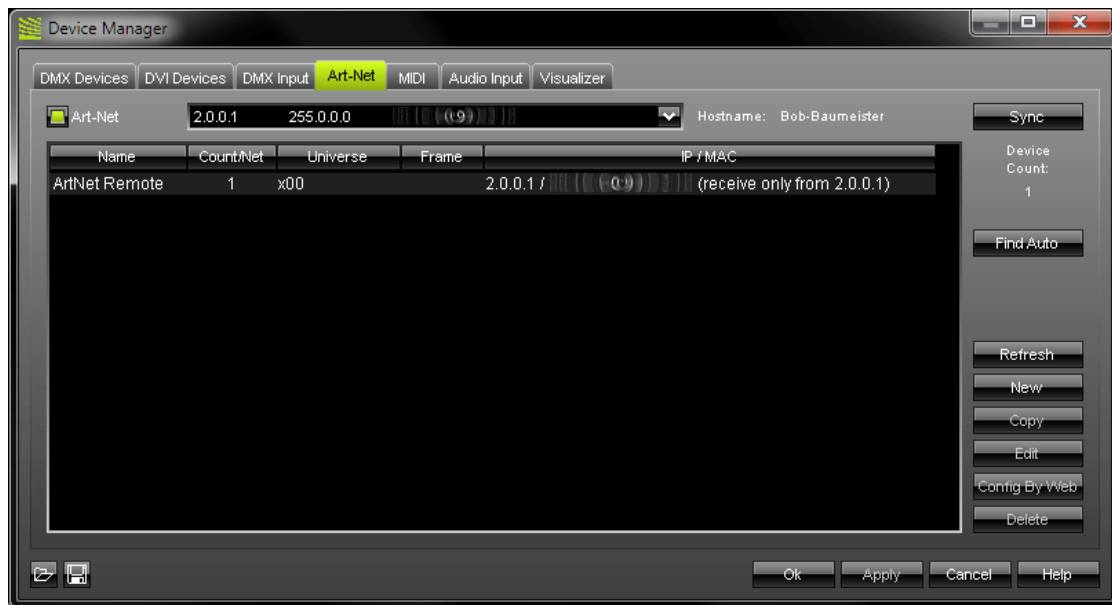
Step 4) Activating Art-Net in MADRIX

Please start MADRIX now.

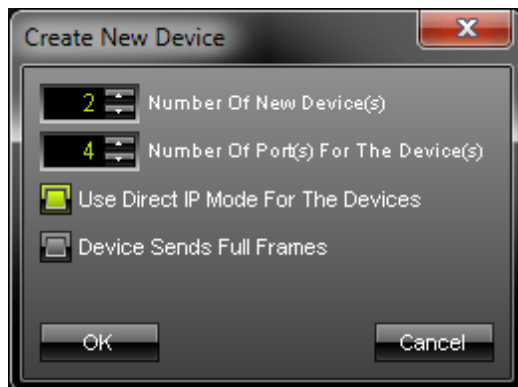
In MADRIX, go to the menu "**Preferences**" -> "**Device Manager**". Select the "**Art-Net**" tab.

Enable Art-Net by activating the checkbox next to the label "**Art-Net**" in the upper left corner. The small box will light up green.

(When Art-Net is activated, you will also see the entry "ArtNetRemote". Please ignore this entry for now.)



Now, press the "**New**" button to add new Art-Net device(s).



Please select **2** for the "**Number Of New Device(s)**".

Enter **4** for the "**Number of Port(s) For The Device(s)**".

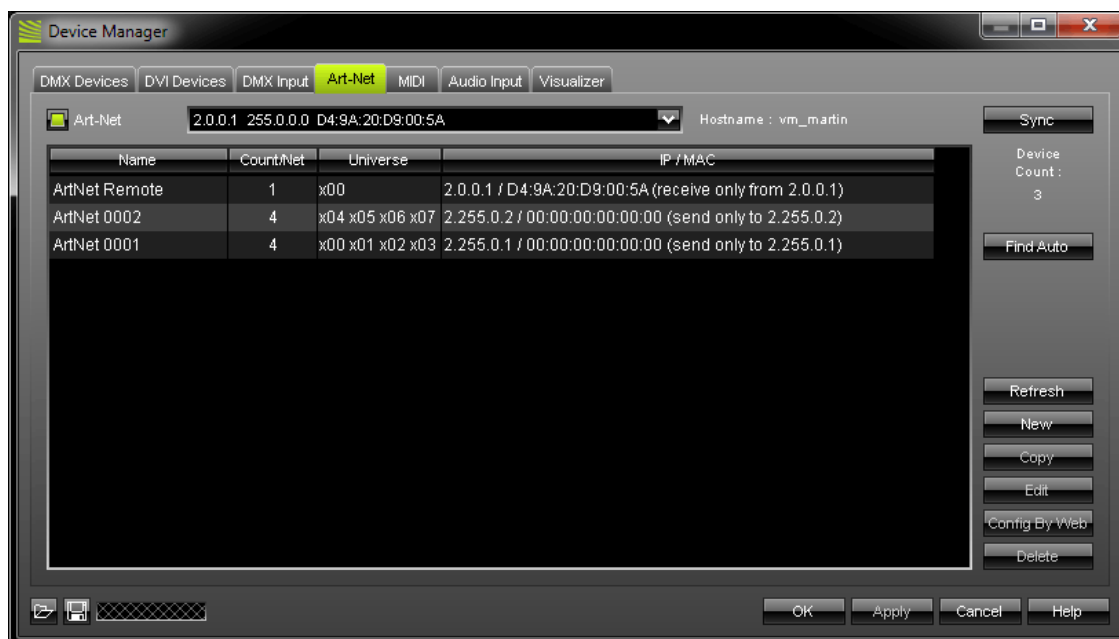
Select "**Use Direct IP Mode For The Devices**".

Press "**OK**".

Step 5) Configuration Of Art-Net Devices

You just created two Art-Net devices with 4 ports each in Step 4.

(The Art-Net standard only "knows" a maximum of 4 ports per device. As such, the Datagate Mk2 and many others, include two 4-port devices.)



In addition, you will now have to configure each device.

Please select the device "**ArtNet 0001**" in the list. Press the button "**Edit**" afterwards.

A new dialog will open.



In this window, please change the **"Short Name"**, the **"Long Name"**, and the **"IP"** address. Then, press **"OK"**.

For example, you can set up:

Short Name: Datagate Mk2 - 1

Long Name: Datagate Mk2 Device 0001 Ports 1 to 4

IP: 2.0.0.14

Please note: The IP address in this dialog **must** be the same address that was noted or configured in Step 1!

The screenshot shows the 'Art-Net Device Configuration' window. The fields are as follows:

- Manufacturer: unknown
- Product: developer v2.13
- OEM Code: 0x00FF
- Est: 0x4941 - inoage - Hertel, Pinzer, Wissmann GbR
- Short Name: **Datagate Mk2 - 1** (Manual ID: 1)
- Long Name: **Datagate Mk2 Device 0001 Ports 1 to 4**
- Port Count: 4 0x4
- State: Port 1: Disabled, Port 2: Disabled, Port 3: Disabled, Port 4: Disabled
- Universe: Universe, Universe, Universe, Universe
- Universe Port OUT: 0 0x00, 1 0x01, 2 0x02, 3 0x03
- Universe Port IN: (empty)
- UUID: b9c73d0e-d646-4d05-8664-4bfe5a3f1ec2
- Style Code: node
- Send Broadcast: ☐ Send Data To "Directed Broadcast Address" 2.255.255.255
- Send Direct: ☒ Send Data Only To Address 2.0.0.14
- IP: 2 . 0 . 0 . 14 (MAC To IP button)
- Subnet: 255 . 0 . 0 . 0
- Port: 6454, 0x1936

Buttons at the bottom: OK, Apply, Cancel.

Note: The first device has Universe Port OUT : 0 0x00, 1 0x01, 2 0x02, and 3 0x03.

Repeat the steps for the second device **"ArtNet 0002"**.

For example, you can set up:

Short Name: Datagate Mk2 - 2

Long Name: Datagate Mk2 Device 0002 Ports 5 to 8

IP: 2.0.0.14

Please note: The second device also has the **same** IP address as the first device.



Note: The second device has ports 4 0x04, 5 0x05, 6 0x06, and 7 0x07.

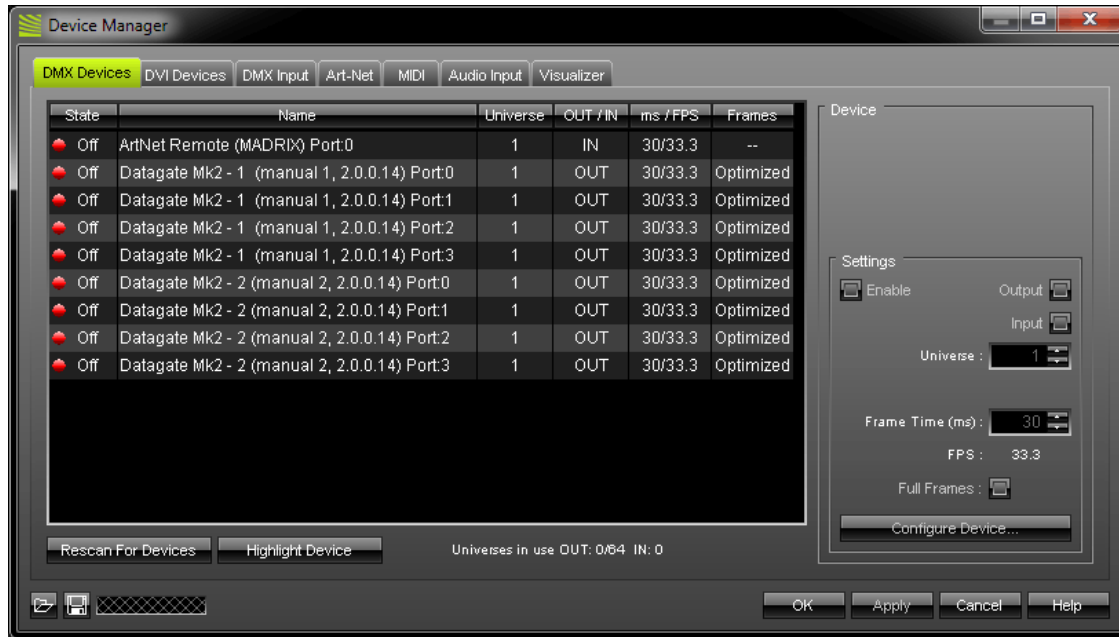
Step 6) Activating DMX Devices

Basically, Art-Net can be described as DMX over Ethernet. Hence, you will need to activate the DMX devices/ DMX ports in the next step.

In MADRIX, go to the menu **"Preferences -> Device Manager"**. Select the **"DMX Devices"** tab.

(Please ignore the entry ArtNet Remote.)

As you can see, all DMX devices are switched **"Off"**.



Now, select all entries with the "Short Name" you used above. In this example, we will select all entries with the label "Datagate Mk 2".

(To select all entries, make use of the Ctrl or Shift keys on your keyboard while using the mouse.)

In the next step, activate **"Enable"** and press **"Apply"**.

(You can also enable entry after entry instead of enabling all at once.)

In addition, the correct **Universe needs to be assigned** to each DMX device/ DMX port.

Select an entry in the list and change the **"Universe"**. Then, press **"Apply"**.

Repeat the step for all 8 ports.

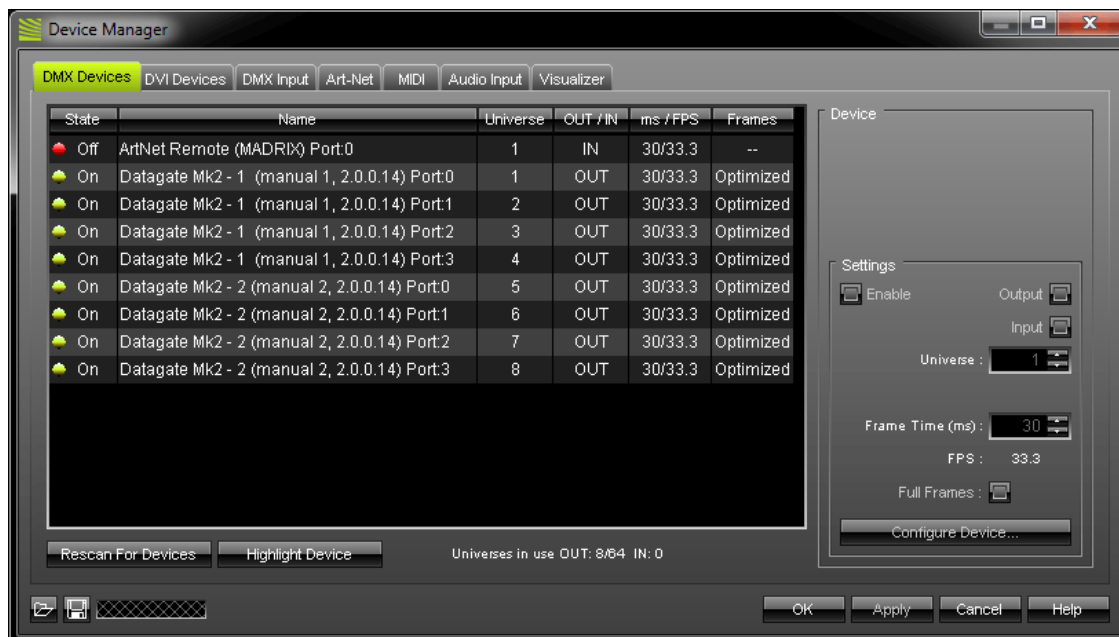
This list will help you assign the correct Universe:

DMX Device/ DMX Port	DMX Universe
-----------------------------	---------------------

Datagate Mk 2 -1 ... Port:0	1
Datagate Mk 2 -1 ... Port:1	2
Datagate Mk 2 -1 ... Port:2	3
Datagate Mk 2 -1 ... Port:3	4
Datagate Mk 2 -2 ... Port:0	5
Datagate Mk 2 -2 ... Port:1	6
Datagate Mk 2 -2 ... Port:2	7
Datagate Mk 2 -2 ... Port:3	8

Please note: This is a standard configuration that is useful most of the time. You are free to configure the devices according to your requirements.

Your configuration should look like this:



The standard configuration is now complete. Press **"OK"** to leave the Device Manager.

Further Settings

Connection Problems

If you are experiencing connection problems, i.e. you are unable to connect both computer and Datagate Mk2, it is recommended to disable the Windows Firewall if possible.

Find Auto

You may want to choose the **"Find Auto"** option in the tab "Art-Net" of the "Device Manager". (Navigate to the menu **"Preferences"** -> **"Device Manager"** -> tab **"Art-Net"**.)

However, it is highly recommend to follow the step by step instructions given above. It is not recommend to use "Find Auto".

When you use "Find Auto", MADRIX will find the Datagate Mk2. **But** ports 1 to 4 will be configured as outputs and ports 5 to 8 will be configured as inputs. And you will not be able to change the settings of this automated device.

Full Frames Or Optimized Frames?

In Step 4, we chose to create devices that send "Optimized Frames". We decided this by **not** activating "Device Sends Full Frames".

In order reduce network traffic, MADRIX is sending optimized Art-Net data (Optimized Frames). For example, if you are only using 240 DMX channels, MADRIX normally sends data for 240 DMX channels. When using full frames, MADRIX will send frames including all 512 DMX channels every time (even if you are only using 240 DMX channels).

To reduce network traffic, we suggest using optimized frames.

But some Art-Net nodes might not support optimized frames. This is why full frames are recommended if problems occur.

To enable "Full Frames", please navigate to the menu **"Preferences" -> "Device Manager" -> tab "DMX Devices"**. Select all your Art-Net device(s) and enable **"Full Frames"** if required. Press "Apply" afterwards.

Broadcast Or Direct IP Mode?

In Step 5, **"Send Direct"** (Direct IP Mode) was used. However, you may want to choose Broadcast mode.

Using the Art-Net protocol in broadcast mode means that every packet sent from a single (MADRIX) transmitter will be received by all recipients in the network. This can be very useful, e.g. if you wish universes 1 and 2 to be available on several points of the set-up. The disadvantage is that through broadcasting a potentially huge number of packages will be sent over the network.

2 Modes: "Send Broadcast" and "Send Direct"

If "Send Broadcast" is activated, MADRIX will send data to the whole Art-Net network.

(Broadcast Mode)

If "Send Direct" is activated, MADRIX forwards data directly to the listed IP address. **(Direct IP Mode)**

To reduce network traffic, we suggest using Direct IP mode.

To use Broadcast mode, activate **"Send Broadcast"** in Step 5.

Sync Mode



An automatic sync mode for Art-Net devices is implemented in MADRIX. In this way you can activate or deactivate the usage of sync packages.

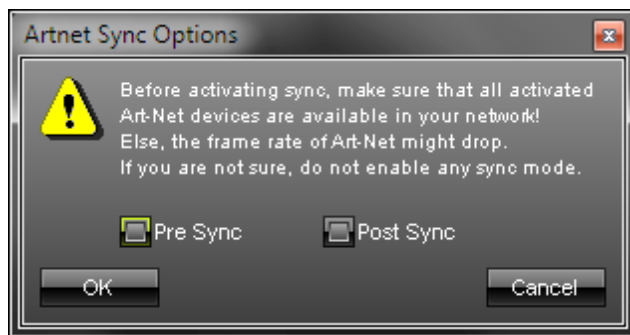
This Sync Mode is not conform to Art-Net. To work properly it needs to be implemented by the manufacturer. Please check the manual of your Art-Net node if this option is available to you.

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.

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. But please make sure that all of your interfaces are available in the network.

To enable Sync Mode, please navigate to the menu "**Preferences**" -> "**Device Manager**" -> tab "**Art-Net**".

Select your device and click "**Sync**" and a new dialog will open. Now, choose if you want to activate sync packages to be sent before data is sent ("**Pre Sync**"). Or you can send sync packages after Art-Net data has been sent ("**Post Sync**"). Then, press "**OK**". Repeat the steps for all devices.



If you want to **disable** sync mode, click "**Sync**" again and uncheck the mode that is selected. Then, press "**OK**".

Config By Web

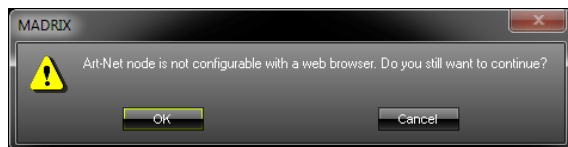


The button "**Config By Web**" allows you to configure your Art-Net device remotely with the help of a web browser if this feature is supported by your device.

You can configure your ENTTEC Datagate Mk2 with your browser.

To use the Config By Web feature, please navigate to the menu **"Preferences"** -> **"Device Manager"** -> tab **"Art-Net"**.

- 1) Select the Datagate Mk2 device.
- 2) Click the button **"Config By Web"**.
- 3) You will see a warning message. Press **"OK"** to continue.



- 4) Your default browser will open. It will show the ENTTEC Datagate Mk2 graphical web interface for further configurations.

The screenshot shows the ENTTEC DataGate Mk2 web interface. On the left is a sidebar with the ENTTEC logo and a menu: DataGate Home, Profiles, Settings, Backup+Restore, RDM Tools, Stream Auditor, RDM Sensors, and DMX Self-Test. The main content area has a blue header "WELCOME TO DATAGATE Mk2". Below it are several sections: "Network Information" showing IP (2.0.0.14), Subnet Mask (255.0.0.0), Broadcast Address (2.255.255.255), Mac Address (00:D0:69:43:35:72), and Serial No (2085661); "System Information" showing System Status (Active), Active Profile (Art-Net to DMX), System Name (DG_MK2), and Packets per sec (8/sec); "License Information" showing a list of features with status icons (red X for disabled, green check for enabled); and "Firmware Information" showing Version (V1.0-0434) and Last updated (03/Feb/2011).

Network Information ?	
IP Address :	2.0.0.14 (speed 1 Gbps)
Subnet Mask:	255.0.0.0
Broadcast Address:	2.255.255.255
Mac Address:	00:D0:69:43:35:72
Serial No:	2085661

System Information ?	
System Status:	Active [Stop Engine]
Active Profile:	Art-Net to DMX
System Name:	DG_MK2
Packets per sec :	8 /sec

License Information ?	
MERGING	✗
RDM TOOLS	✗
RDM SENSORS MONITORING	✗
HOT SPARE	✗
STREAM AUDITOR	✗
TRIAL (15 MINS. TIMEOUT)	✓
Real Time Clock	✗

Firmware Information	
Version:	V1.0-0434
Last updated:	03/Feb/2011

Refresh Rate

You may want to choose a different refresh rate for each output port of your Datagate Mk2. Setting up the refresh rate can help in different cases. For example, if you have different DMX512 devices attached. When each device uses different DMX512 output frames, you might want to sync all to a specific frame rate. Or your LED fixtures might have problems with a faster frame rate. Then, you can increase the frame time.

You have two different options to do so.

On the one hand, navigate to the menu **"Preferences" -> "Device Manager" -> tab "DMX Devices"** to change the FPS (Frames Per Second) in MADRIX. Select the corresponding ports and change the **"Frame Time"**. A higher Frame Time reduces the FPS and vice versa. The FPS value will be adjusted automatically according to the Frame Time. Press **"Apply"** afterwards.

On the other hand, your Datagate Mk2 can be configured individually using the web interface. Use the "Config By Web" feature as described [above](#). Select **"Profiles"**. Click on the profile **"Art-Net to DMX"**. A new tab or window will open and you will be able to adjust the **"Rate"** for every single **"DMX Port"**. The default value is 35. Adjust the rate for all ports if required.

More Information

For more information, please consult the chapter [Art-Net](#).

Important Notes

Please remember to configure your light matrix in the [Matrix Generator](#) or [Patch](#).

Please make sure to save your MADRIX Setup after the configuration process.

8.1.3 Using EUROLITE Node 8 With MADRIX

Introduction

The EUROLITE Node 8 fully supports the Art-Net protocol. It can be configured to output anything between 1 and 8 DMX universes.

How Do I Configure The EUROLITE Node 8?

IP Address in Windows

You have to set up your computer's IP address to **2.0.0.1** and the subnet mask to **255.0.0.0**.

DMX Port Settings

To configure the EUROLITE Node 8 to output 8 universes of DMX, follow the next steps.

Push the control wheel at your EUROLITE Node 8 once and select **"DMX port 1"**.

- the option **Port** must be set to **"output"**
- the option **Universe** must be set to **"Art-Net 0.0"**
- the option **Rate** must be set to **"Sync"**
- the option **Hold** must be set to **"Always"**

Now, select the option **"Save"** to save your settings.

Repeat the steps above for **"DMX port 2"**, **"DMX port 3"**, **"DMX port 4"**, **"DMX port 5"**, **"DMX port 6"**, **"DMX port 7"** and **"DMX port 8"** according to the following table:

DMX	Port	Universe	Rate	Hold
DMX port 1	output	Art-Net 0.0	Sync	Always

DMX port 2	output	Art-Net 0.1	Sync	Always
DMX port 3	output	Art-Net 0.2	Sync	Always
DMX port 4	output	Art-Net 0.3	Sync	Always
DMX port 5	output	Art-Net 0.4	Sync	Always
DMX port 6	output	Art-Net 0.5	Sync	Always
DMX port 7	output	Art-Net 0.6	Sync	Always
DMX port 8	output	Art-Net 0.7	Sync	Always

Network Settings

In the next step, push the control wheel on your EUROLITE Node 8 and select **"Network Opt."**. Now, change the **"Address"** to **2.0.0.2**. Please check if the option **"Netmask"** is set to **255.0.0.0**.

Select the option **"Save"** to save your settings. Repeat these steps for your second, third, etc. EUROLITE Node 8 according to the following table:

1st EUROLITE Node 8	IP address: 2.0.0.2	Netmask: 255.0.0.0
2nd EUROLITE Node 8	IP address: 2.0.0.3	Netmask: 255.0.0.0
3rd EUROLITE Node 8	IP address: 2.0.0.4	Netmask: 255.0.0.0
etc.	...	...

If you want to use more than one EUROLITE Node 8, please make sure that you use different IP addresses for each connected EUROLITE Node 8.

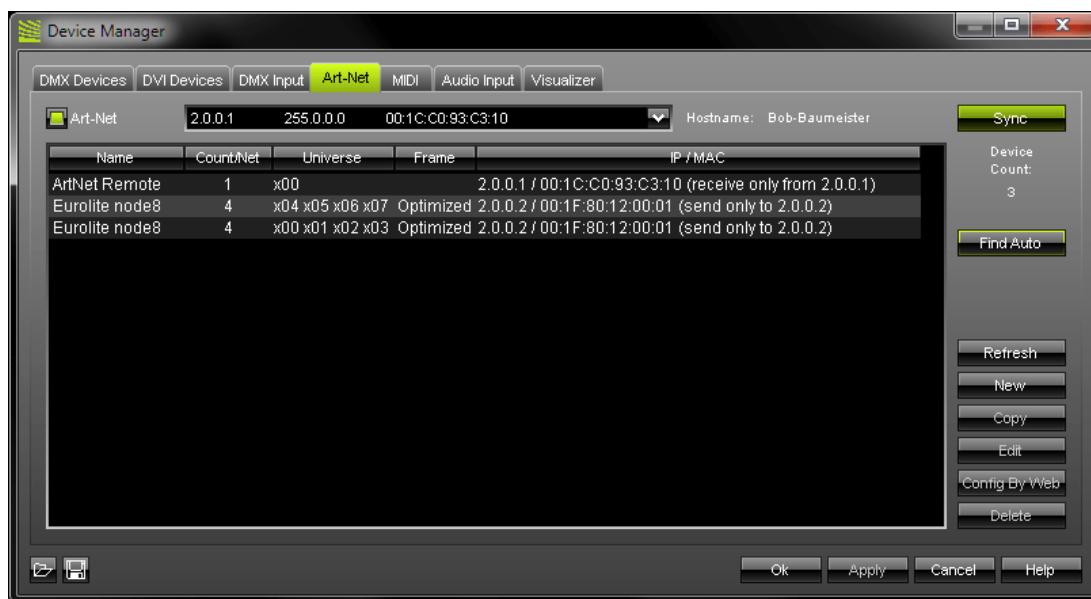
How Do I Configure MADRIX?

In order to configure MADRIX, go to the MADRIX menu "**Preferences**" -> "**Device Manager**".
Select the "**Art-Net**" tab.

You can enable Art-Net by activating the checkbox next to the label "**Art-Net**" in the upper left corner. The small box will light up green.

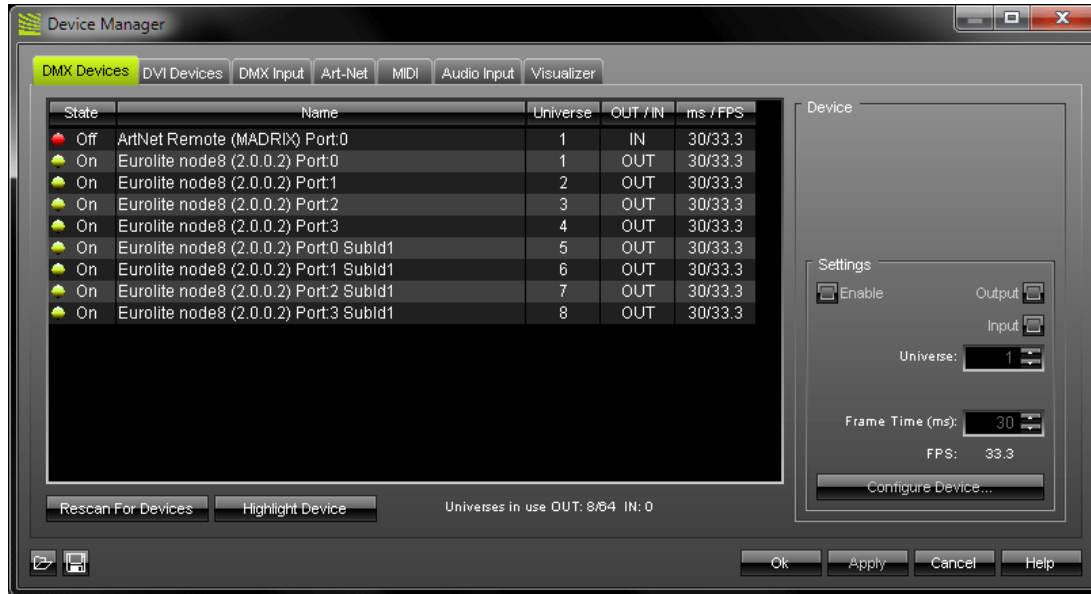
Next, press the button "**Find Auto**". After a few seconds your EUROLITE Node 8 is configured automatically and will be shown in the list.

If you have connected one EUROLITE Node 8, you will see two entries. Each entry has 4 ports (universes).



In the next step open the tab called "**DMX Devices**". Here, you have to enable each device.

If you have connected one EUROLITE Node 8, you will see 8 entries called "EUROLITE Node 8" (please **ignore** the entry "**ArtNet Remote**" for this configuration).



Now, do the following steps for each entry in the list to configure MADRIX like shown in the screenshot above:

- 1) Select an entry from the list.
- 2) Activate "**Enable**" in the "**Settings**" section to the right. Make sure that "**Output**" is activated, too.
- 3) Set the "**Universe**" according to the following table:

DMX	DMX Universe
EUROLITE Node 8 Port 0	1
EUROLITE Node 8 Port 1	2
EUROLITE Node 8 Port 2	3
EUROLITE Node 8 Port 3	4
EUROLITE Node 8 Port 0 SubId1	5

EUROLITE Node 8 Port 1 SubId1	6
EUROLITE Node 8 Port 2 SubId1	7
EUROLITE Node 8 Port 3 SubId1	8

4) Press the **"Apply"** button.

Please remember to do these 4 steps for every entry.

Important Notes

For more information, please consult the chapter [Art-Net](#).

Please remember to configure your light matrix in the [Matrix Generator](#) or [Patch](#).

Please make sure to save your MADRIX Setup after the configuration process.

8.1.4 Using X-NET 8 With MADRIX

Introduction

The **X-NET 8** fully supports the Art-Net protocol. It can be configured to output anything between 1 and 8 DMX universes.

How Do I Configure The X-NET 8 Using Art-Net?

1) You have to set up your **computer's IP address** to **2.0.0.1** and the **subnet mask** to **255.0.0.0**.

2) X-NET 8 Back Panel View:

Set up the IP address of your X-NET 8 from **2.39.2.1** to **2.39.2.255** using the SW1, SW2, and SW3 switches.

Back Panel Switches:

SW1: x100

SW2: x10

SW3: x1

Set up an IP address other than your computer's network card.

Examples:

2.39.2.**10**: you have to set the SW1 to 0, SW2 to 1, and SW3 to 0

2.39.2.**127**: you have to set the SW1 to 1, SW2 to 2, and SW3 to 7

2.39.2.**231**: you have to set the SW1 to 2, SW2 to 3, and SW3 to 1

...

Each X-NET 8 must have its own, unique IP address.

Example:

1st X-NET 8 ... 2.39.2.1

2nd X-NET 8 ... 2.39.2.2

3rd X-NET 8 ... 2.39.2.3

...

3) X-NET 8 Front Panel View:

To activate Art-Net, set the two dip-switches on the front side of the X-NET 8 to the **OFF position** (upper position). As a result, you will disable the CL100M protocol and enable the Art-Net protocol at the same time.

Please also adjust the **two rotary dip switches Art-Net Sub-Net and Art-Net Universe**. With the help of these two [HEX](#) rotary dip switches you define the start (first) universe for each X-NET 8.

Example for the Front Panel [HEX](#) rotary dip switches **Sub-Net** and **Universe**:

Universe **0** ... Sub-Net value **0** , Universe value **0**

Universe **8** ... Sub-Net value **0** , Universe value **8**

Universe **16** ... Sub-Net value **1** , Universe value **0**

Universe **24** ... Sub-Net value **1** , Universe value **8**

Universe **32** ... Sub-Net value **2** , Universe value **0**

Universe **40** ... Sub-Net value **2** , Universe value **8**

...

Universe **122** ... Sub-Net to value **7** , Universe to value **A**

...

Universe **255** ... Sub-Net to value **F** , Universe to value **F**

4) You must restart your X-NET 8 if you make changes on the front or back panel switches!

Broadcast Or Direct IP Mode?

Using the Art-Net protocol in broadcast mode means that every packet sent from a single (MADRIX) transmitter will be received by all recipients in the network. This can be a very useful feature, e.g. if you wish universes 1 and 2 to be available on several points of the set-up. The disadvantage is that through broadcasting a potentially huge number of packages will be sent over the network.

To reduce network traffic, we suggest using Direct IP mode.

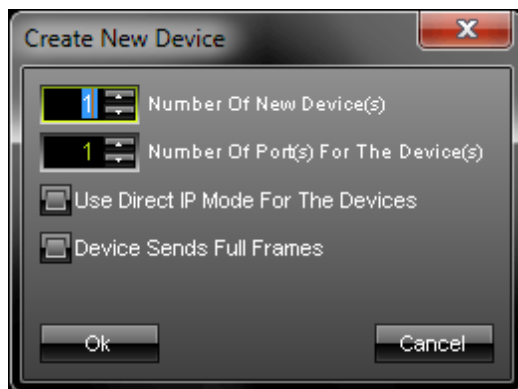
Please note: In the following example we will configure a X-NET 8 with ports 1-8 to use DMX universes 1-8 in broadcast mode.

How Do I Configure MADRIX?

In order to configure MADRIX, please go to the MADRIX menu "**Preferences -> Device Manager**". Activate the "**Art-Net**" tab and enable Art-Net.



Now press the "**New**" button to add new Art-Net device(s).



Please select the **number of devices** you wish to create. And please enter the **number of ports** of each device.

Select **"Use Direct IP Mode For the Devices"** if you wish to use Direct IP mode. For more information see the chapter [Art-Net](#).

Select **"Device Sends Full Frames"** if you wish to always send a single frame including all 512 DMX channels. If this option is disabled, MADRIX will automatically send optimized frames that reduce network traffic. If problems occur with your Art-Net node, please enable this option and send full frames.

Select a device and press **"Edit"** to configure this Art-Net device.

Art-Net Configure Device

Manufacturer : ManualDevice
 Product : ManualDevice V2.11
 Esta : inoage trade - Hertel, Pinzer, Wissmann GbR

Short Name : **ArtNet 0001** Manual ID : 1
 Long Name : **ArtNet device nr 0001**

Port Count : **4 0x4**

State : Port 1: Disabled Port 2: Disabled Port 3: Disabled Port 4: Disabled

Universe Universe Universe Universe

Universe Port OUT : **0 0x00** **1 0x01** **2 0x02** **3 0x03**

Universe Port IN :

UUID : 1f2c65c3-863f-41ca-96e0-9785985d3c54

Style Code : node

Send Broadcast : ☒ Send Data To "Directed Broadcast Address" 2.255.255.255
 Send Direct : ☐ Send Data Only To Address 2.255.0.2

IP : **2 . 255 . 0 . 2**
 Subnet : **255 . 0 . 0 . 0**

Port : 6454 OX1936 : 0x1936

Frame : ☐ Send Full Frames

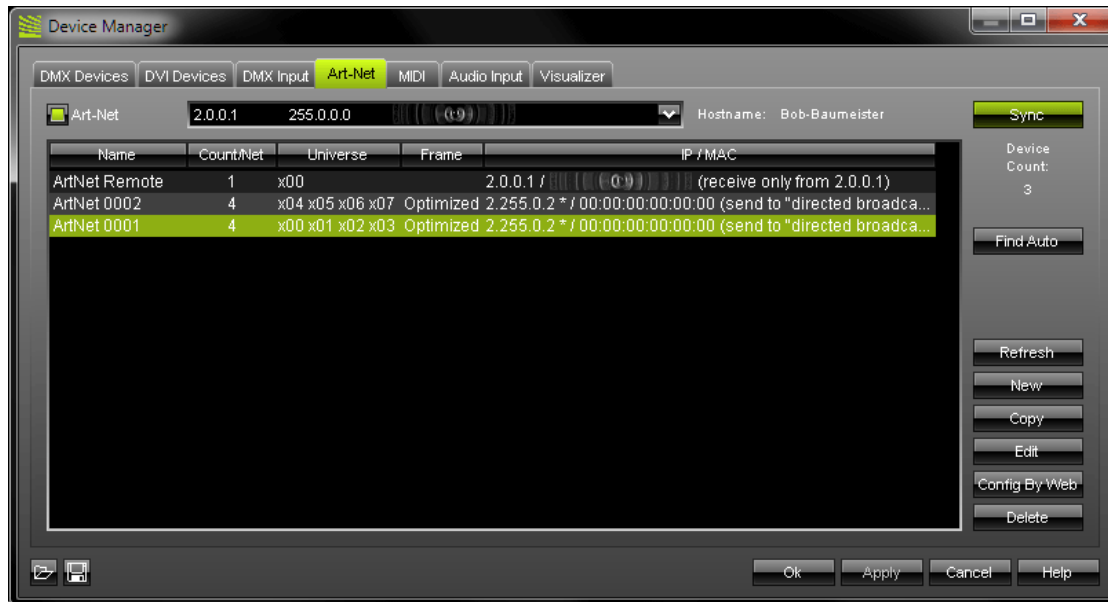
Ok Apply Cancel

Here you can set up your Art-Net device. First, please click on **"Port Count"** and select the **Port Count** to be **"4 0x4"**.

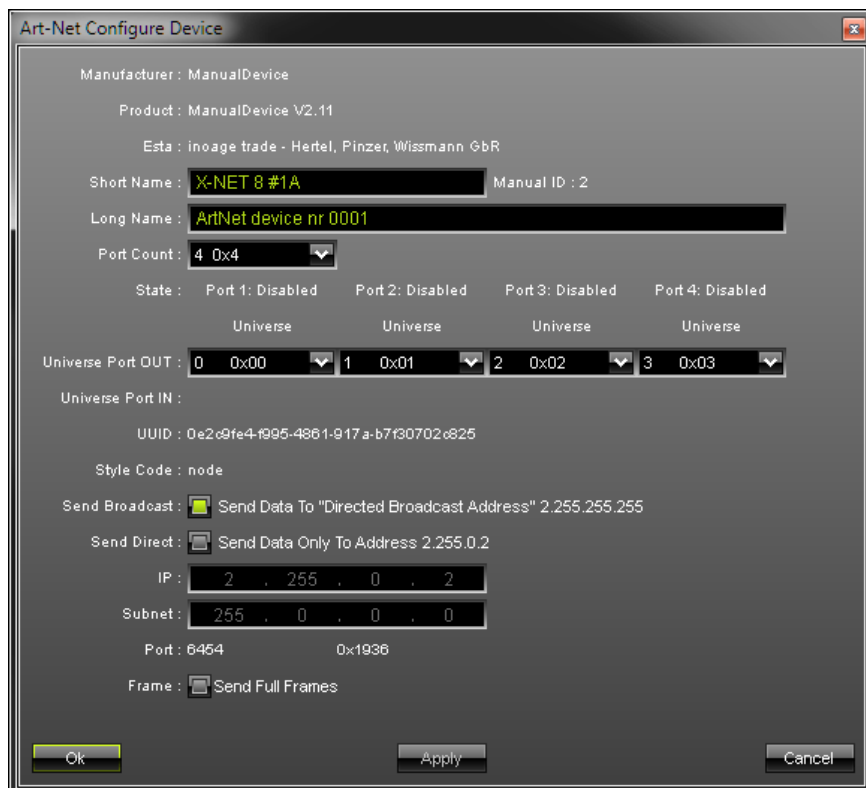
Up to this point we have used the broadcast option.

Please note: You can also use Direct IP mode by activating the switch **"Send Direct"**. In that case you will have to type in the IP address of your X-NET 8.

Accordingly, you will see your newly created **Art-Net 0001** (Art-Net 0002, ...) device listed with 4 ports. Repeat this step and create a new Art-Net device by clicking the **"New"** button.



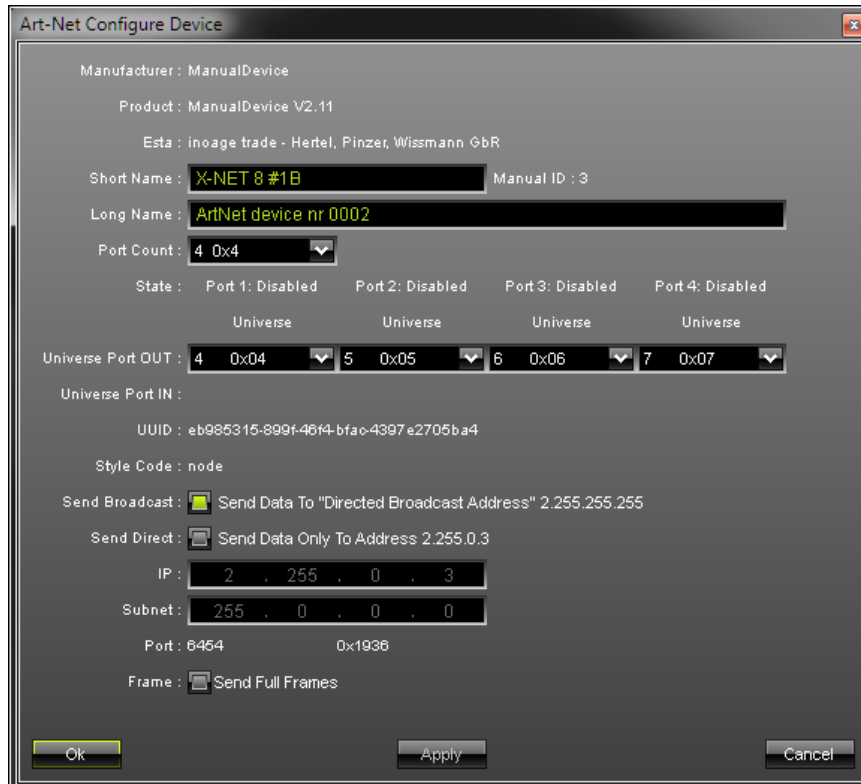
If you did repeat the step, you will now see **two Art-Net devices** (Art-Net 0001 and Art-Net 0002) in the list. You can **modify these Art-Net devices** by selecting the Art-Net device first and then clicking the **"Edit"** button.



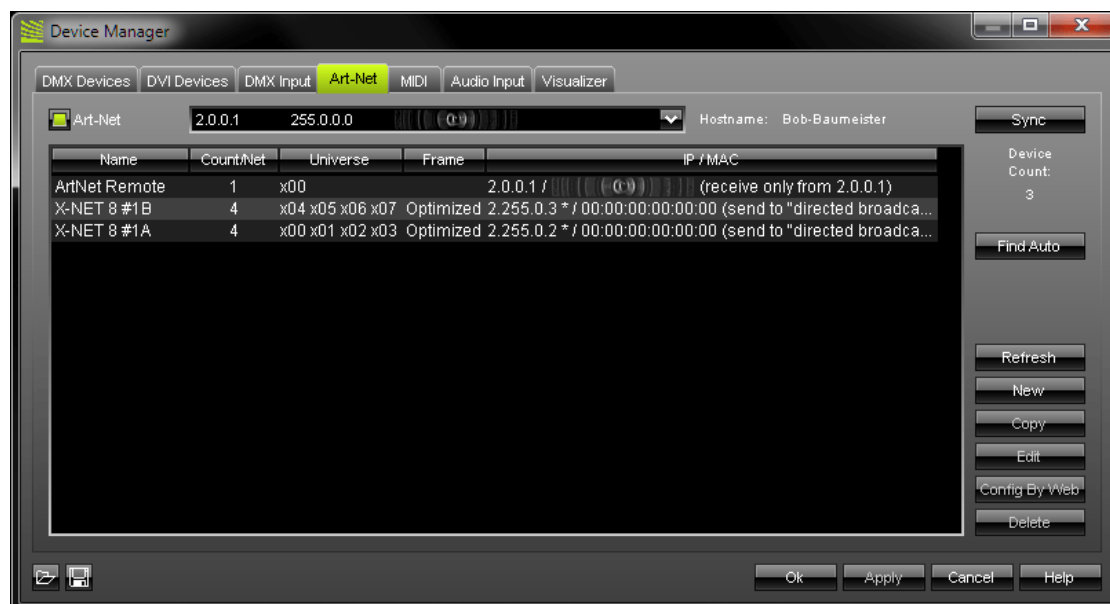
As shown above, we have changed the **"Short Name"** from Art-Net 0001 to **X-Net 8 #1A** in this example.

Select the next Art-Net device and click edit.

For the second 4 ports of your first X-Net 8 select also port count 4 0x4 and set up the universe port out to 4 0x04, 5 0x05, 6 0x06, 7 0x07.

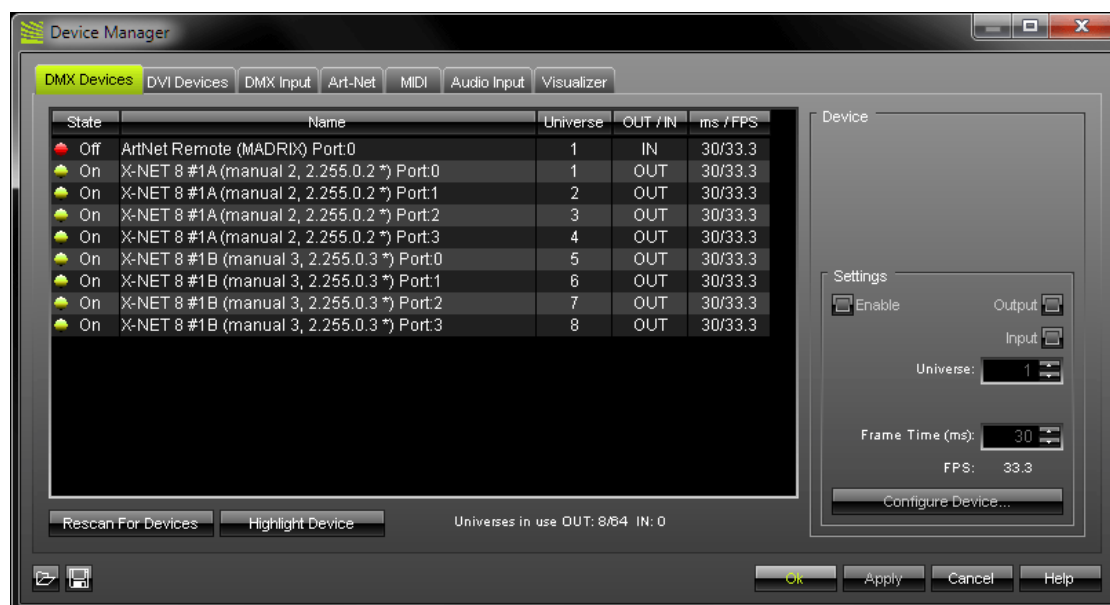


This modification is repeated for the Art-Net 0002 device changing the "**Short name**" from Art-Net 0002 to **X-Net 8 #1B**. Close this dialog with OK.



Now you will see the two Art-Net devices, X-Net 8 #1A and X-Net 8 #1B, in the list.

X-Net 8 #1A with the first 4 DMX universes and
X-Net 8 #1B with the next 4 DMX universes.



In the next step open the tab called **"DMX Devices"**. Here, you have to enable each Art-Net device by activating the **"Enable"** switch. **You will also have to assign the DMX universe for each port.**

In this example we have used all 8 ports of the X-NET 8 and activated them for output.

First X-Net 8:

X-NET 8 #1A Port:0 is the DMX universe 1

X-NET 8 #1A Port:1 is the DMX universe 2

...

...

X-NET 8 #1B Port:3 is the last DMX universe 8.

If you have more than one X-NET 8, configure the subsequent X-NET 8 devices in the same way.

Art-Net Configure Device

Manufacturer : ManualDevice

Product : ManualDevice V2.11

Esta : inoage trade - Hertel, Pinzer, Wissmann GbR

Short Name : X-NET 8 #2A Manual ID : 4

Long Name : ArtNet device nr 0003

Port Count : 4 0x4

State	Port 1: Disabled	Port 2: Disabled	Port 3: Disabled	Port 4: Disabled
Universe	Universe	Universe	Universe	Universe
Universe Port OUT :	8 0x08	9 0x09	10 0x0A	11 0x0B

Universe Port IN :

UUID : 450d6429-230c-4fd4-8271-a3872a0dbod4

Style Code : node

Send Broadcast : ☒ Send Data To "Directed Broadcast Address" 2.255.255.255

Send Direct : ☐ Send Data Only To Address 2.255.0.4

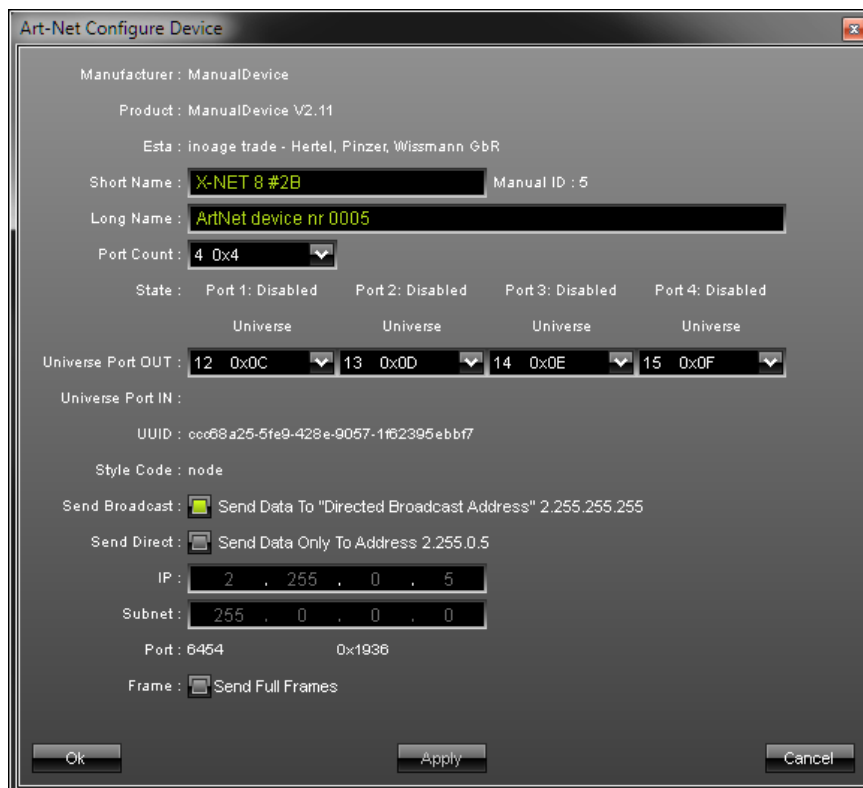
IP : 2 . 255 . 0 . 4

Subnet : 255 . 0 . 0 . 0

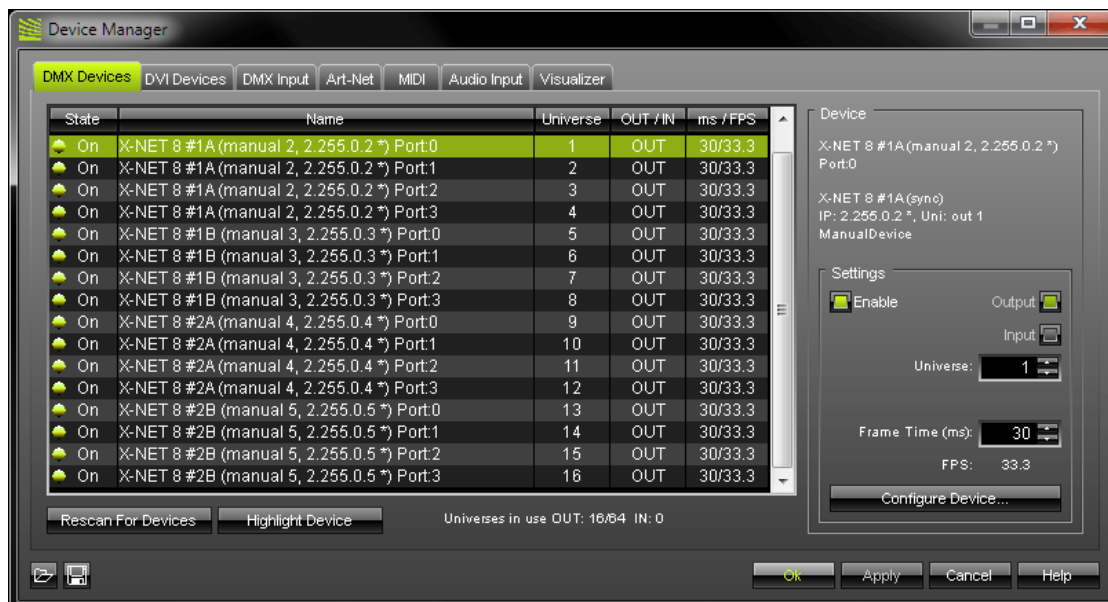
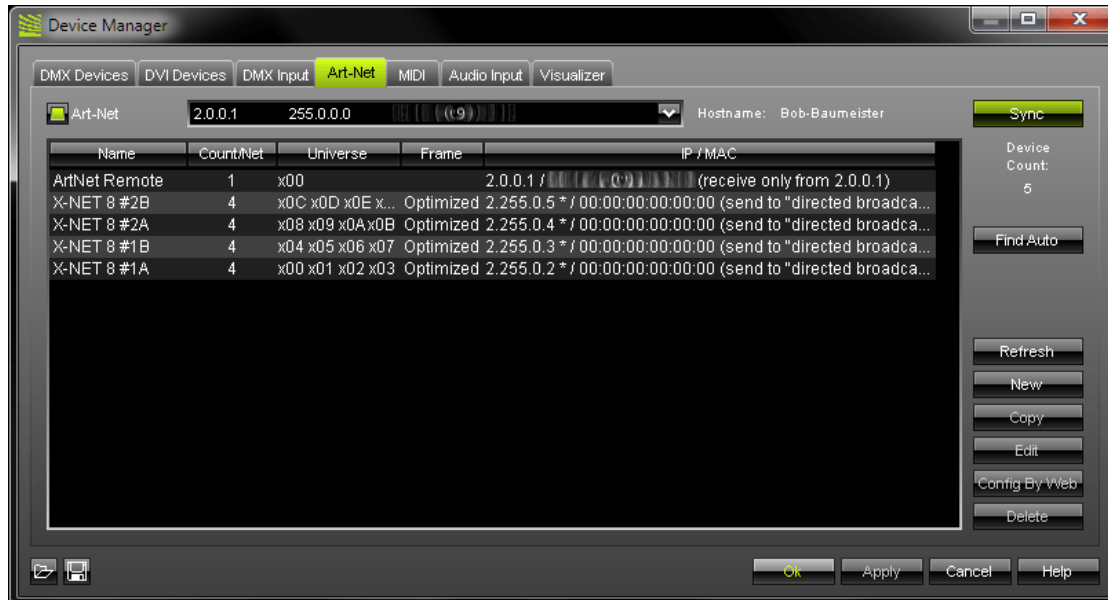
Port : 6454 0x1936

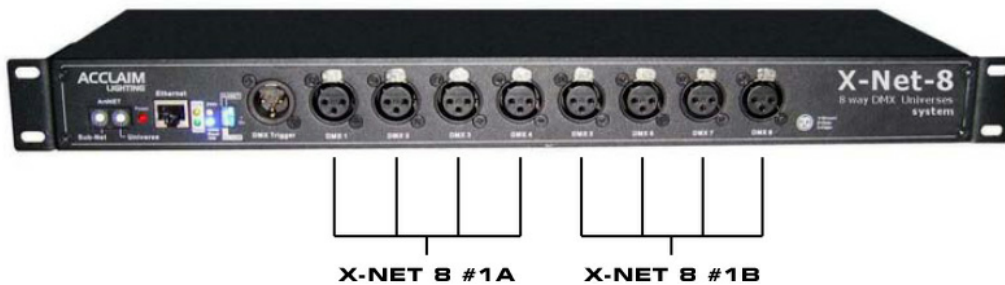
Frame : ☐ Send Full Frames

Ok Apply Cancel



In this example you can see a correct Art-Net configuration for two X-NET 8 sending in broadcast mode.





X-NET 8 #1A Port:0 is the DMX universe 1
X-NET 8 #1A Port:1 is the DMX universe 2
X-NET 8 #1A Port:2 is the DMX universe 3
X-NET 8 #1A Port:3 is the DMX universe 4

X-NET 8 #1B Port:0 is the DMX universe 5
X-NET 8 #1B Port:1 is the DMX universe 6
X-NET 8 #1B Port:2 is the DMX universe 7
X-NET 8 #1B Port:3 is the DMX universe 8

Important Notes

For more information please consult the chapter [Art-Net](#).

The **"Auto Find"** option of MADRIX may find only one node with 4 universes (with older X-NET 8 firmwares). If this is the case, please add your X-NET 8 devices manually by using the **"New"** button.

Please always "Enable" all Art-Net ports when using the X-NET 8. Please enable all ports in MADRIX even if you do not need all ports in your LED installation. Otherwise problems might occur caused by the firmware of the X-NET 8. Please do not disable any ports in MADRIX.

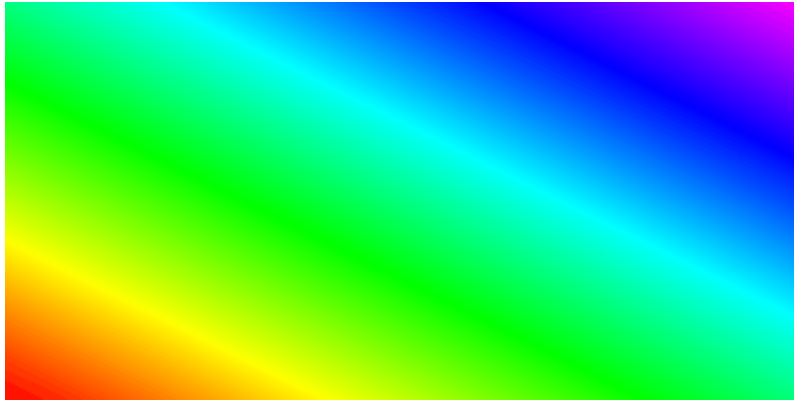
Please remember to configure your light matrix in the **Matrix Generator or **Patch**.**

Please make sure to save your MADRIX Setup after the configuration process.

8.2 DVI

Overview

MADRIX can output DVI.



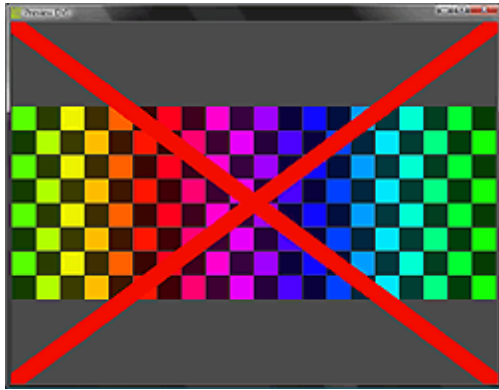
Usage

The DVI window is particularly useful when using a video beamer (VGA or DVI, for example), a DVI wall, the software LED Studio, on-screen capturing, or in similar fields of application.

Activating DVI Output

DVI output is only available with MADRIX dvi start, MADRIX dvi, MADRIX professional, and MADRIX ultimate.

Any other version, including the **demo**, will render a rotating cross over the actual output. Only after purchasing MADRIX dvi start, MADRIX dvi, MADRIX professional, or MADRIX ultimate, and the MADRIX KEY (software protection dongle) that comes with it, the **cross** will disappear.



- **MADRIX KEY dvi start** supports up to 512 native DVI pixels, for example 32x16 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 DVI versions.
- Please pay attention to other restricting factors, such as hardware limitations.

To activate DVI output, navigate to the menu "**Previews**" -> "**Preview DVI**" and then click on "**DVI**", "**Window**", or "**Fullscreen**".

Click **DVI** if you want a borderless DVI window, which is the most important one.

Click **Window** to open a window with a frame.

Click **Fullscreen** to enable output in fullscreen mode.

For more information, please have a look at the specific chapter.

You may activate two separate DVI windows (Preview DVI 1 and Preview DVI 2).

Further Configuration

Please remember to configure your light matrix in the **Matrix Generator** or **Patch**.

Please make sure to save your MADRIX Setup after the configuration process.

8.2.1 DVI Window (Borderless)

Introduction



You can activate a DVI window without a frame. Go the menu **"Previews"** - > **"Preview DVI"** -> and click **"DVI"**. **This borderless DVI window is particularly useful for on-screen capturing.**

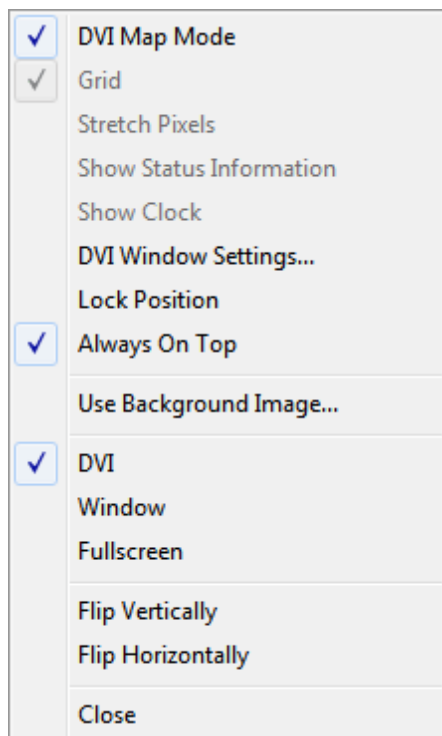
You can also simply drag & drop a DVI window to change its position. Move this window around by clicking and holding it using the left mouse button.

Settings - Context Menu

Overview

The context menu makes various options and settings available to the user.

To open the context menu, perform a right mouse-click inside the DVI window. In addition, you can navigate to the menu **"Previews" -> "Preview DVI"**, where the same context menu appears.



DVI Map Mode

Activate **"DVI Map Mode"** if you configured an individual DVI Patch including DVI Maps. Learn more in the chapter [DVI Patch](#).

Grid

You can activate and deactivate a **"Grid"** by choosing this option inside the context menu.

Stretch Pixels

The function **"Stretch Pixels"** activates scaling of your preview to the maximum size of your preview window.

Show Status Information

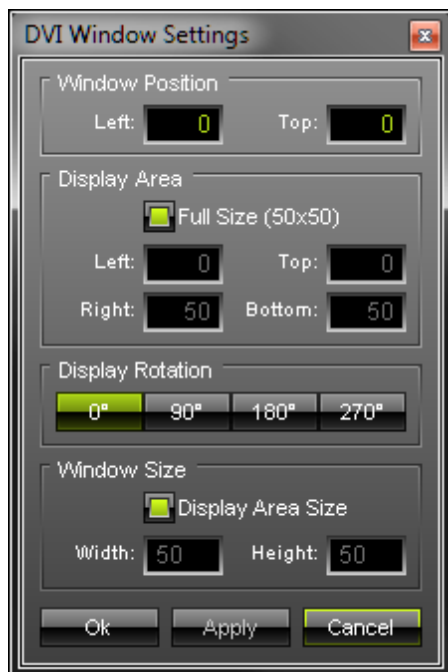
"Show Status Information" can be used to display some extra information regarding this preview window, such as the size of the matrix or the frame rate.

Show Clock

"Show Clock" inserts the time into the window.

DVI Window Settings

"DVI Window Settings" calls up a new dialog.



Use **"Window Position"** to define the exact position of the DVI window. 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.

"Display Area" specifies what is shown in the DVI window. Activate **"Full Size"** and your full 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. **"Right:"** and **"Bottom:"** define the end coordinates. The end coordinates cannot be higher than the full size of the matrix. For example, for a matrix with 50x50 pixels, the maximum value of **"Right:"** and **"Bottom:"** is 50.

"Display Rotation" allows you to rotate the DVI preview window by 90 degrees, 180 degrees, or 270 degrees clock-wise. This rotation applies to the **"Display Area"**.

"Window Size" determines the actual size of the DVI window. Activate **"Display Area Size"** to set the size of the window to the pixel count of the display area, which determines what is shown of your matrix. Using different values than the size of the display area will stretch or compress the content.

Please press **"Apply"** to activate the changes you have made.

The **standard configuration** of these "DVI Window Settings" includes an activated "Display Area Size" and activated "Full Size". These settings represent a standard 1:1 DVI window.

Lock Position

You can lock this window at a particular position. Right-click and choose **"Lock Position"** from the context menu.

Always On Top

If you want the window to be in the front of all windows at all times, activate the entry **"Always On Top"**.

Use Background Image...

Only applies to "Window" and "Fullscreen" mode.

DVI, Window, Fullscreen

"DVI" activates the borderless DVI Window. **"Window"** activates the framed DVI window.

"Fullscreen" activates DVI output in fullscreen mode.

Flip Vertically & Flip Horizontally

"**Flip Vertically**" and "**Flip Horizontally**" will flip the output accordingly. It turns over the image.

Close

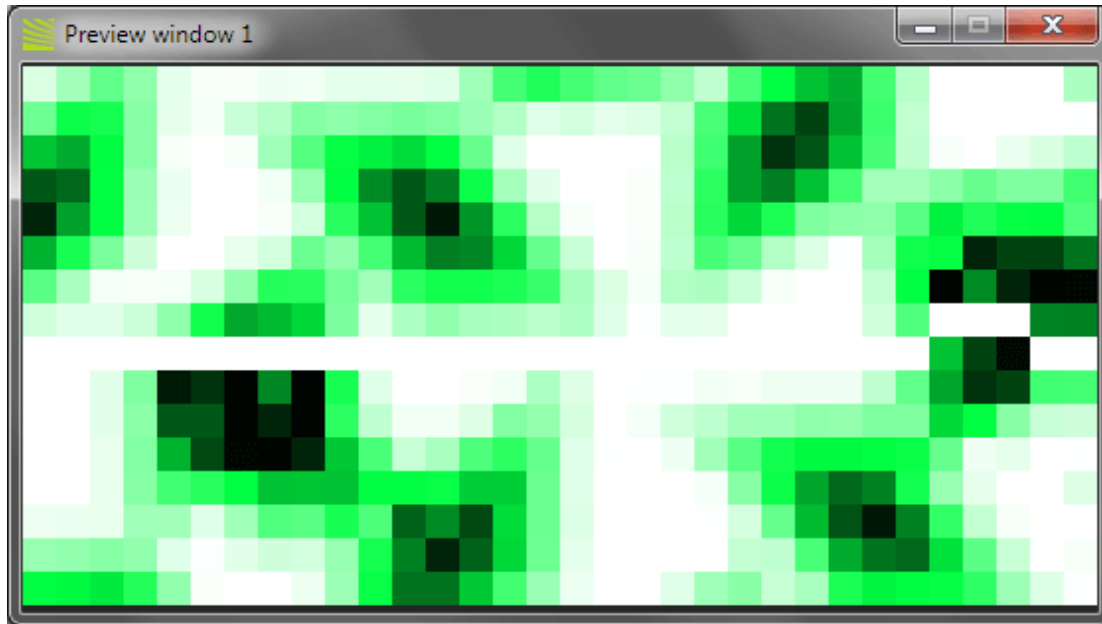
Click "**Close**" to close this Window.

Further Configuration

Further settings can be accessed in the MADRIX Options -> [Performance](#).

8.2.2 DVI Window (With Frame)

Introduction



A DVI window with a frame will appear if you have activated this option via the menu **"Previews"** -> **"Preview DVI"** -> **"Window"**.

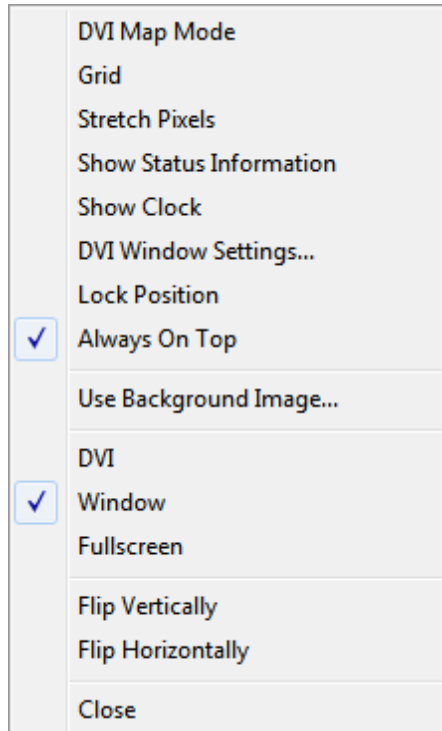
You can easily move this window around by clicking and holding the title bar with the left mouse button. In this way, you can also simply drag & drop a DVI window to **change** its **position**. Drag the borders of this window in order to **resize** it.

Settings - Context Menu

Overview

The context menu makes various options and settings available to the user.

To open the context menu, perform a right mouse-click inside the DVI window. In addition, you can navigate to the menu **"Previews"** -> **"Preview DVI"**, where the same context menu appears.



DVI Map Mode

Activate **"DVI Map Mode"** if you configured an individual DVI Patch including DVI Maps.

Grid

You can activate and deactivate a **"Grid"** by choosing this option inside the context menu.

Stretch Pixels

The function **"Stretch Pixels"** activates scaling of your preview to the maximum size of your preview window.

Show Status Information

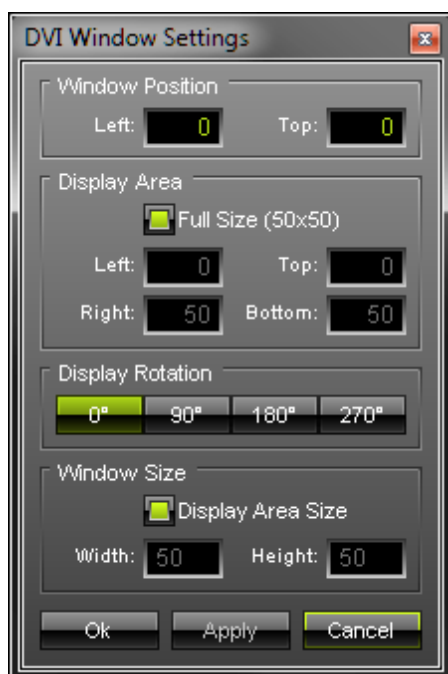
"Show Status Information" can be used to display some extra information regarding this preview window, such as the size of the matrix or the frame rate.

Show Clock

"Show Clock" inserts the time into the window.

DVI Window Settings

"DVI Window Settings" calls up a new dialog.



"Window Position", **"Display Rotation"**, and **"Window Size"** only apply to the borderless DVI window.

"Display Area" specifies what is shown in the DVI window. Activate **"Full Size"** and your full 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. **"Right:"** and **"Bottom:"** define the end coordinates. The end coordinates cannot be higher than the full size of the matrix. For example, for a matrix with 50x50 pixels, the maximum value of **"Right:"** and **"Bottom:"** is 50.

The standard configuration includes an activated "full size". These settings represent a standard 1:1 DVI window.

Please press **"Apply"** to activate the changes you have made.

Lock Position

You can lock this window at a particular position. Right-click and choose **"Lock Position"** from the context menu.

Always On Top

If you want the window to be in the front of all windows at all times, activate the entry **"Always On Top"**.

Use Background Image...

Allows you to use a picture in "Window" and "Fullscreen" mode instead of the grey background.

DVI, Window, Fullscreen

"DVI" activates the borderless DVI Window. **"Window"** activates the framed DVI window.

"Fullscreen" activates DVI output in fullscreen mode.

Flip Vertically & Flip Horizontally

"Flip Vertically" and **"Flip Horizontally"** will flip the output accordingly. It turns over the image.

Close

Click **"Close"** to close this Window.

Further Configuration

Further settings can be accessed in the MADRIX Options -> [Performance](#).

8.2.3 DVI Window (Fullscreen)

Introduction

If you navigate to the menu and activate **"Previews"** -> **"Preview DVI"** -> **"Fullscreen"**, the DVI window appears in fullscreen mode.

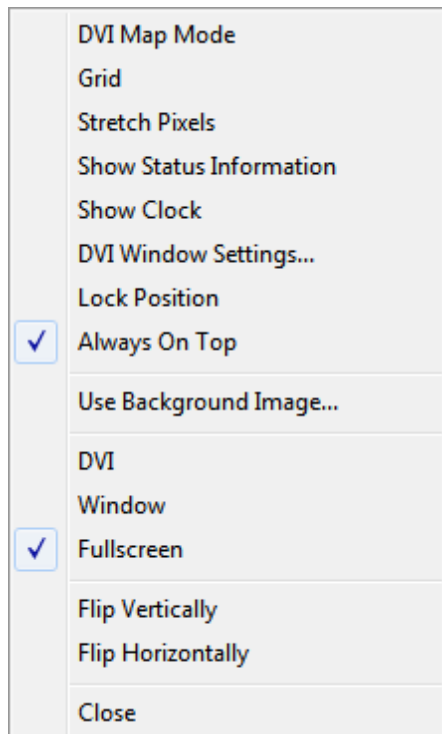
This fullscreen window is particularly useful for beamers, for example.

Settings - Context Menu

Overview

The context menu makes various options and settings available to the user.

To open the context menu, perform a right mouse-click inside the DVI window. In addition, you can navigate to the menu **"Previews"** -> **"Preview DVI"**, where the same context menu appears.



DVI Map Mode

Activate **"DVI Map Mode"** if you configured an individual DVI Patch including DVI Maps.

Grid

You can activate and deactivate a **"Grid"** by choosing this option inside the context menu.

Stretch Pixels

The function **"Stretch Pixels"** activates scaling of your preview to the maximum size of your preview window.

Show Status Information

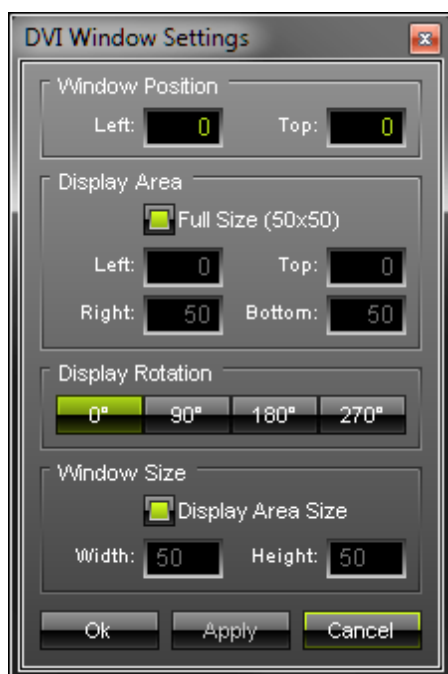
"Show Status Information" can be used to display some extra information regarding this preview window, such as the size of the matrix or the frame rate.

Show Clock

"Show Clock" inserts the time into the window.

DVI Window Settings

"DVI Window Settings" calls up a new dialog.



"Window Position", **"Display Rotation"**, and **"Window Size"** only apply to the borderless DVI window.

"Display Area" specifies what is shown in the DVI window. Activate **"Full Size"** and your full 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. **"Right:"** and **"Bottom:"** define the end coordinates. The end coordinates cannot be higher than the full size of the matrix. For example, for a matrix with 50x50 pixels, the maximum value of **"Right:"** and **"Bottom:"** is 50.

The standard configuration includes an activated **"Full Size"**.

Please press **"Apply"** to activate the changes you have made.

You can use **"Display Rotation"** in the following way: Select **"DVI"** first, change the settings, and then switch back to **"Fullscreen"**.

Lock Position

You can lock this window at a particular position. Right-click and choose **"Lock Position"** from the context menu.

Always On Top

If you want the window to be in the front of all windows at all times, activate the entry **"Always On Top"**.

Use Background Image...

If you want to replace the grey background color, you can replace it with an image. Click **"Use Background Image..."** and open the file.

DVI, Window, Fullscreen

"DVI" activates the borderless DVI Window. **"Window"** activates the framed DVI window.

"Fullscreen" activates DVI output in fullscreen mode.

Flip Vertically & Flip Horizontally

"Flip Vertically" and **"Flip Horizontally"** will flip the output accordingly. It turns over the image.

Close

Click "**Close**" to close this Window.

Switching Windows, Monitors, Or Output Devices

One Monitor:

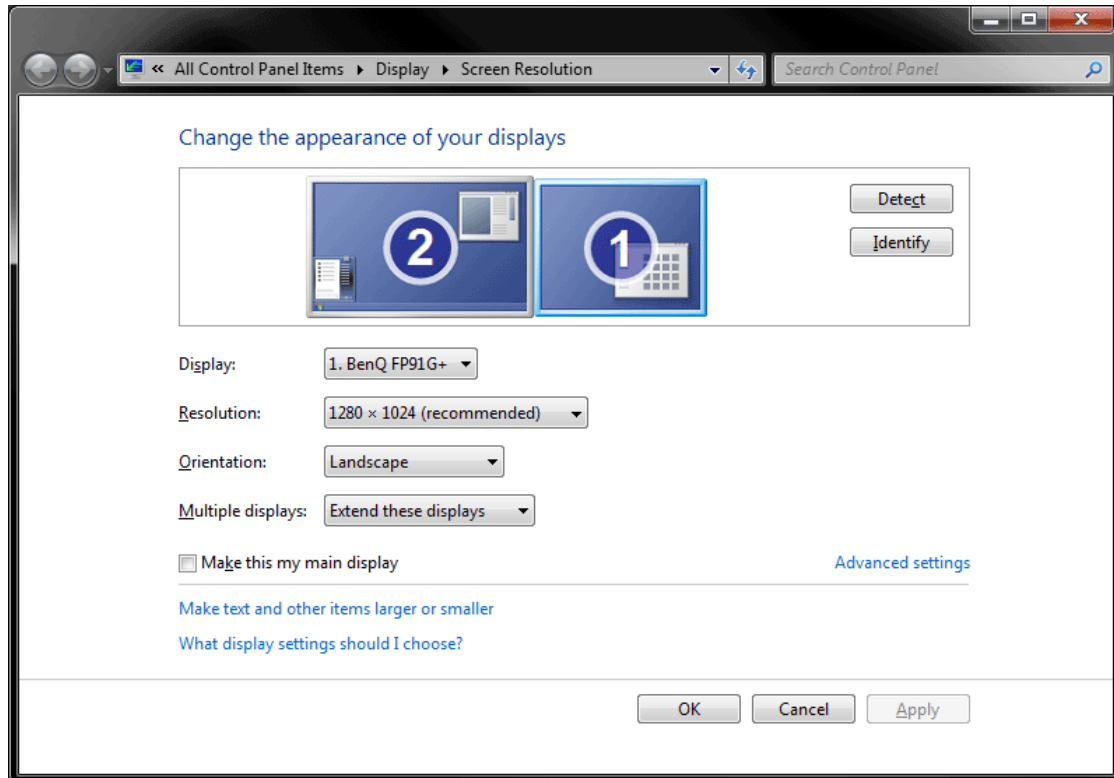
Use "**Alt+Tab**" to switch to the MADRIX GUI and back to the fullscreen window.

Several Monitors:



If you have installed a second monitor or beamer (or more), you can easily move this window to the first, second, third, ... output device by pressing the **Tabulator** key.

In this way you can use the fullscreen mode to visualize effects on your second monitor in DVI fullscreen mode, while you are working with MADRIX on your first screen.



Note: You must install and configure your graphics card and monitors correctly to use this special feature!

Further Configuration

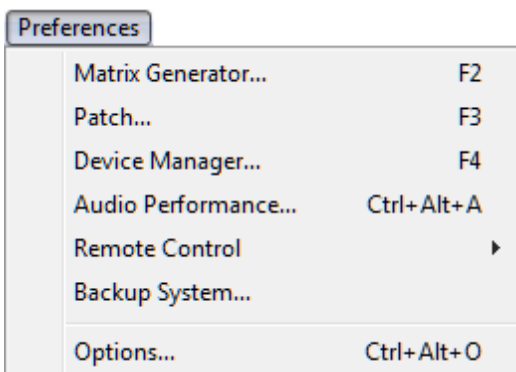
Further settings can be accessed in the MADRIX Options -> **Performance**.

8.3 DMX512 (DMX-OUT)

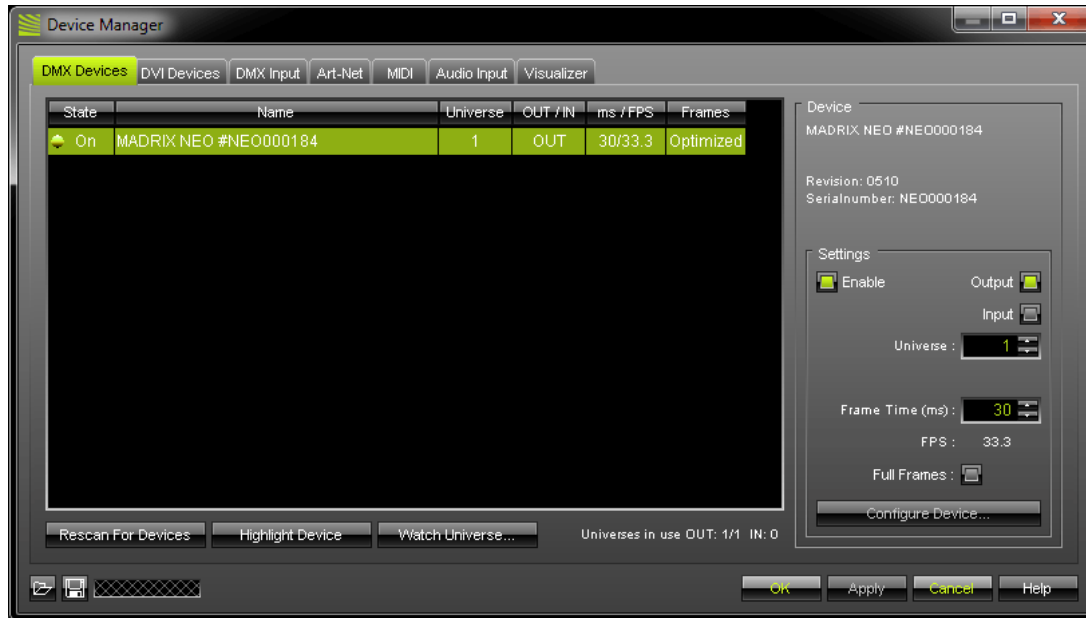
Overview

Above all, for administrating DMX512 or other network devices, please make sure that you enabled the appropriate network drivers first. To access these options, press "**Ctrl+Alt+O**" or go to the menu "**Preferences**" -> "**Options**". Enable all network and USB devices your are going to need by using the "**Devices (USB/PCI)**" and "**Devices (Network)**" tab. For more info please read the chapter [MADRIX Options](#).

Next, open the "**Device Manager**" (can be found in the menu "**Preferences**" or press "**F4**").



The first tab "**DMX Devices**" shows a list of connected devices that were found by MADRIX. You can see which ones are defined to be input or output devices.



First, please choose your device. If you click **"Enable"** and **"Output"**, the DMX data will be sent using this DMX device.

In the next step, set up the DMX **"Universe"**. Press **"Apply"** afterwards.

Further Settings



Always press **"Apply"** to activate any changes you made.

Press **"OK"** to close the window, when you are finished setting up all devices.

You can enable **"Input"** to use DMX-IN in this dialog.

Click on **"Enable"** and then **"Input"**.

You can also define the **"Frame Time"** in ms for each device as well. Setting up the frame time can help in different cases. For example, if you have different DMX512 devices attached. When each device uses different DMX512 output frames, you might want to sync all to a specific frame rate. Or your LED fixtures might have problems with a faster frame rate. Then, you can increase the frame time; the FPS will be adjusted automatically.

If available, use **"Configure Device"** to edit the settings of the device.

Activate **"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). Normally MADRIX sends optimized frames. That means, if you are using 312 DMX channels, only 312 DMX channels will be sent with every frame. Therefore, optimized frames reduce network traffic. "Full Frames" are only supported by a number of interfaces for MADRIX, such as ENTTEC Open DMX USB Interface, ENTTEX DMX USB Pro, USBone, MADRIX NEO, MADRIX PLEXUS, Soundlight USBDMX-ONE, peperoni light Rodin1, Rodin2, and RodinT, as well as Art-Net in general per universe. Full frames are recommended if problems with the data output occur.

Rescan For Devices

A rectangular button with a dark background and light text that reads "Rescan For Devices".

If you click the **"Rescan For Devices"** button, MADRIX disconnects all DMX512, Art-Net, and other network devices and starts to search for new devices.

Highlight Mode

A rectangular button with a dark background and light text that reads "Highlight Device".

The **"Highlight Device"** button activates/deactivates the highlight mode for the selected interface and universe.

Select one or more interfaces and press the button. The corresponding fixtures at the selected interface(s) will flash for a better identification. This makes it easier to see them on stage. It considerably speeds up the procedure of programming the selected DMX512/Art-Net interfaces.

DMX Watcher



Open the **"DMX Watcher"** to monitor your DMX output or input. **"Watch Universe"** will appear when you have selected a list entry. The DMX Watcher will open with the particular DMX Universe already entered. Learn more in the chapter [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

Please remember to configure your light matrix in the [Matrix Generator](#) or [Patch](#).

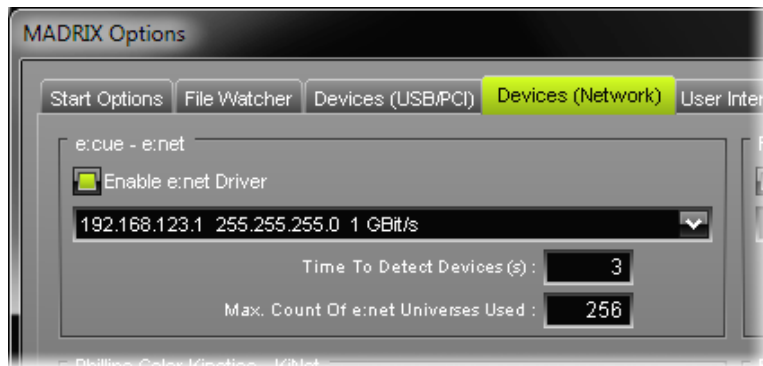
Please make sure to save your MADRIX Setup after the configuration process.

Please make sure to have the correct drivers enabled in the MADRIX Options.

8.4 e:net From e:cue

Enable e:net

For the administration of e:net in MADRIX, please enable the network driver first. Go to the menu **"Preferences" -> "Options"** or the press the keys **"Ctrl-Alt-O"**. Select the tab **"Devices (Network)"**.



Here you can enable and disable the e:net network driver.

Use the drop-down list to select the correct network.

Please always make sure that you have selected the **correct network. Otherwise, the network device might still be found. But no data can be sent.**

Please note: The standard butler interface has a predefined IP address (192.168.123.x) and subnet mask (255.255.255.0). Set up corresponding network settings in Windows. Please restart MADRIX if you have changed any network settings in Windows.

Use the edit field **"Time To Detect Devices (s)"** to define how long MADRIX searches the network for e:cue devices (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.

Use "**Max. Count Of e:net Universes Used**" to specify how many DMX universes you wish to use in total.

Please keep the standard settings if you do not have any specific requirements.

Change the universe count only if your requirements exceed the standard value of 256.

Further Configuration

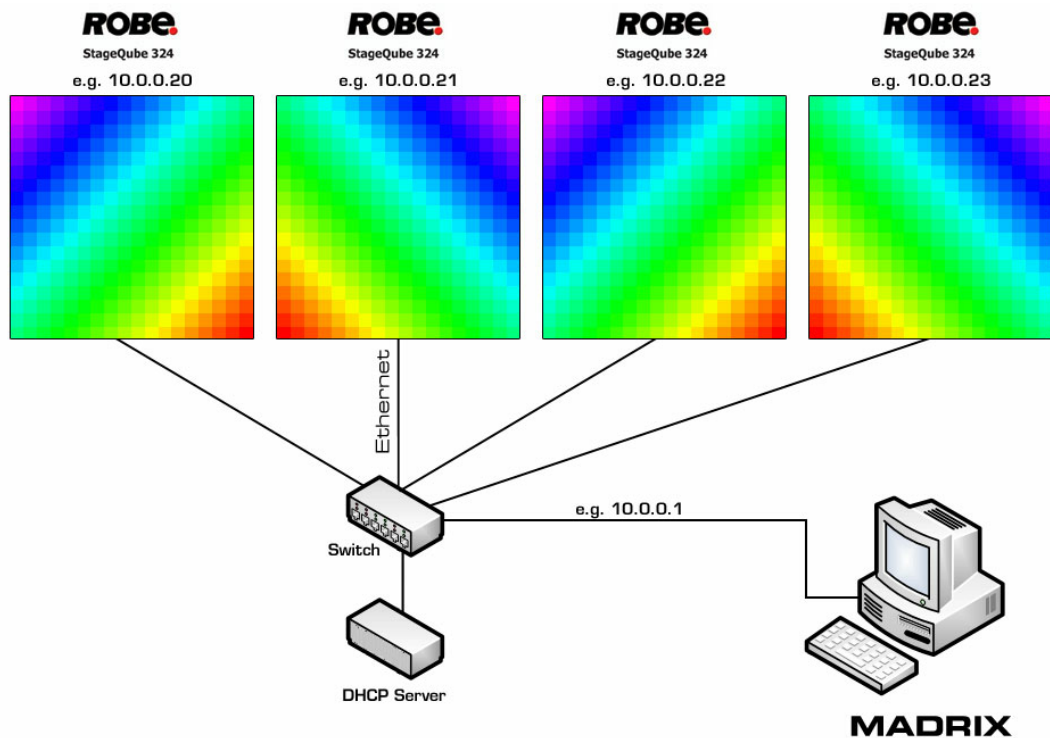
For more information about the configuration of your DMX devices, please see the chapter [DMX512 \(DMX-OUT\)](#).

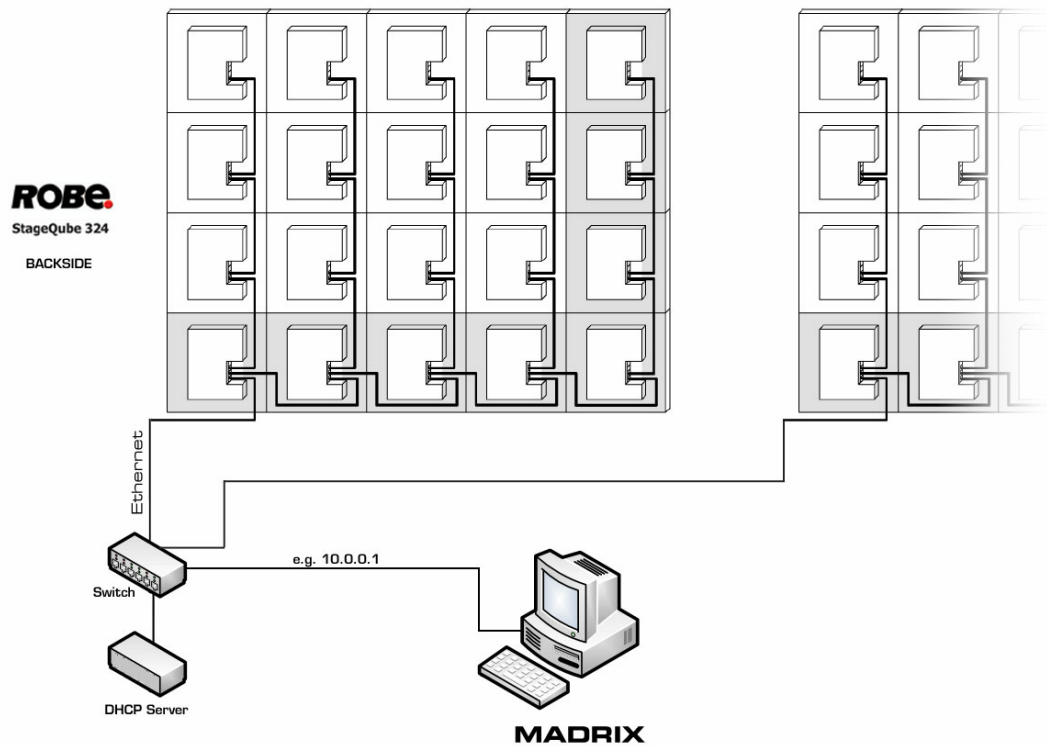
8.5 ROBE StageQube 324 (ROBE Protocol)

Overview



To use the ROBE StageQube 324™, a separate DHCP server is required. This can be a software or hardware DHCP server, which handles the IP addresses of the ROBE StageQube 324™ and the MADRIX computer. A good idea and option is to activate that the DHCP server binds MAC addresses to IP addresses.





Configuration

We recommend to use an IP address range of **10.0.0.x** for MADRIX and ROBE StageQube 324™. The subnet mask should be **255.0.0.0**

For the use of ROBE StageQube 324™, we suggest to only use 1000Mbit network components. That means 1000Mbit network cards in your computer, 1000Mbit switches and a DHCP server with support of 10/100/1000Mbit if your setup looks like the configuration shown above.

Please restart MADRIX if you have changed any network settings in Windows.

Please enable the network driver in MADRIX. Go to the menu **"Preferences" -> "Options"** or the press the keys **"Ctrl-Alt-O"**. Select the tab **"Devices (Network)"**.

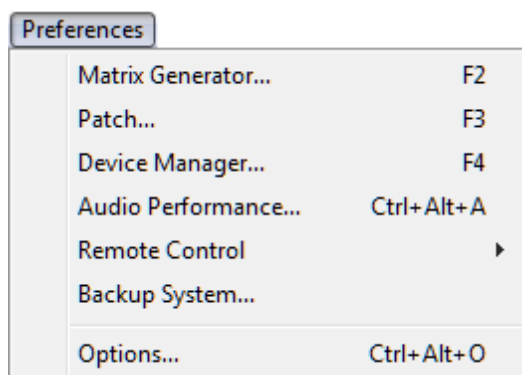


Here you can enable and disable the ROBE/Insta network driver. Use the edit field **"Time To Detect Fixtures (s)"** to define how long MADRIX searches the network for ROBE StageGube 324™ network devices (type in a value in seconds).

We recommend to utilize at least a value of 10 to allow for a sufficient search. Higher values are recommended for larger installations.

Please always make sure that you have selected the correct network. Otherwise, the network device might still be found. But no data can be sent.

In the next step, open the **"Device Manager"** (press **"F4"** or open the menu **"Preferences"** -> **"Device Manager"**).

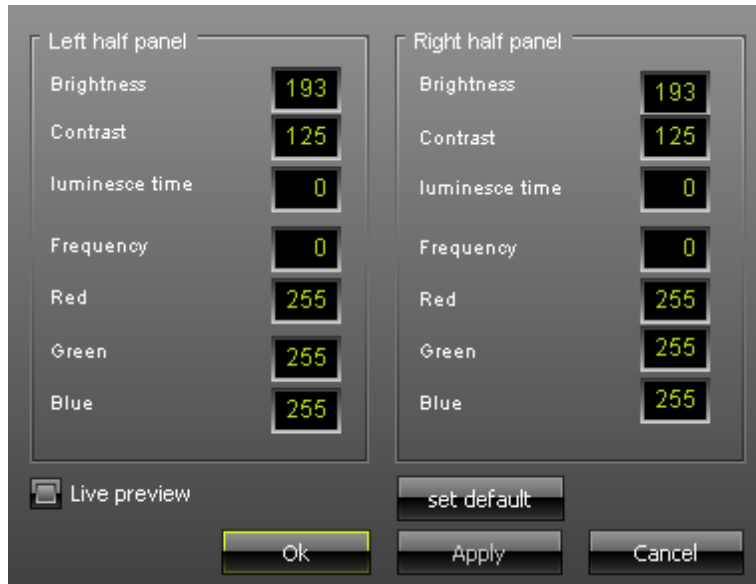


Go to the tab **"DMX Devices"** and decide which of the listed devices are used as output devices. If you click on **"Enable"** and **"Output"**, the data will be sent to this device. Check also if every device is assigned a different universe (right hand side of the window).

Please check if the DMX universes are assigned correctly!



In the example above you can see 4x ROBE StageQube 324™ starting at universe 1 to 4 with IP addresses from 10.0.0.20 to 10.0.0.23.

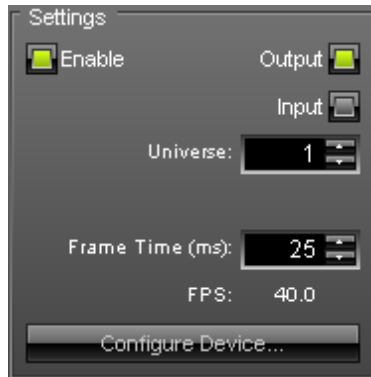


The option **"Configure Device"** (use the button or double-click the device) allows you to set up various parameters of the selected Robe panel. Those include: **Brightness**, **Contrast**, **Luminesce Time**, **Frequency**, and the values for **Red**, **Green**, and **Blue** for the left half and the right half of each ROBE StageQube 324™.

	on	RobeStageQube324/InstaLight2022 - IP 10.0.0.22	3	out	30/33.3	
	on	RobeStageQube324/InstaLight2022 - IP 10.0.0.23	4	out	30/33.3	

Please note: You can also select multiple ROBE StageQube 324™ and change all the settings in one step.

Enabling the **"Live Preview"** switches to receive parameters live from the device. By clicking at the button **"Set Default"**, you will reset it to factory default values.



Setting up the **"Frame Time"** is particularly useful if you have connected different devices each rendering different output frame rates and you want to sync them to a specific frame rate. Or it might be that the LED fixtures you attached have problems with fast frame rate. You are able to **slow down** the frame time by typing in **larger values** in ms in that case.

Rescan For Devices



If you click the **"Rescan For Devices"** button, MADRIX disconnects all DMX512, Art-Net, and other network devices and starts a new search for devices.

Highlight Mode



The **"Highlight Device"** button activates/deactivates the highlight mode for the selected interface and universe.

Select one or more interfaces and press the button. The corresponding fixtures at the selected interface(s) will flash for a better identification. This makes it easier to see them on stage. It considerably speeds up the procedure of programming the selected DMX512/Art-Net interfaces.

DMX Watcher



Open the **"DMX Watcher"** to monitor your DMX output or input. **"Watch Universe"** will appear when you have selected a list entry. The DMX Watcher will open with the particular DMX Universe already entered. Learn more in the chapter [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

Please remember to configure your light matrix in the [Matrix Generator](#) or [Patch](#).

Please make sure to save your MADRIX Setup after the configuration process.

Important Notes

Please keep in mind that network devices, even if activated but not used, cause network traffic!

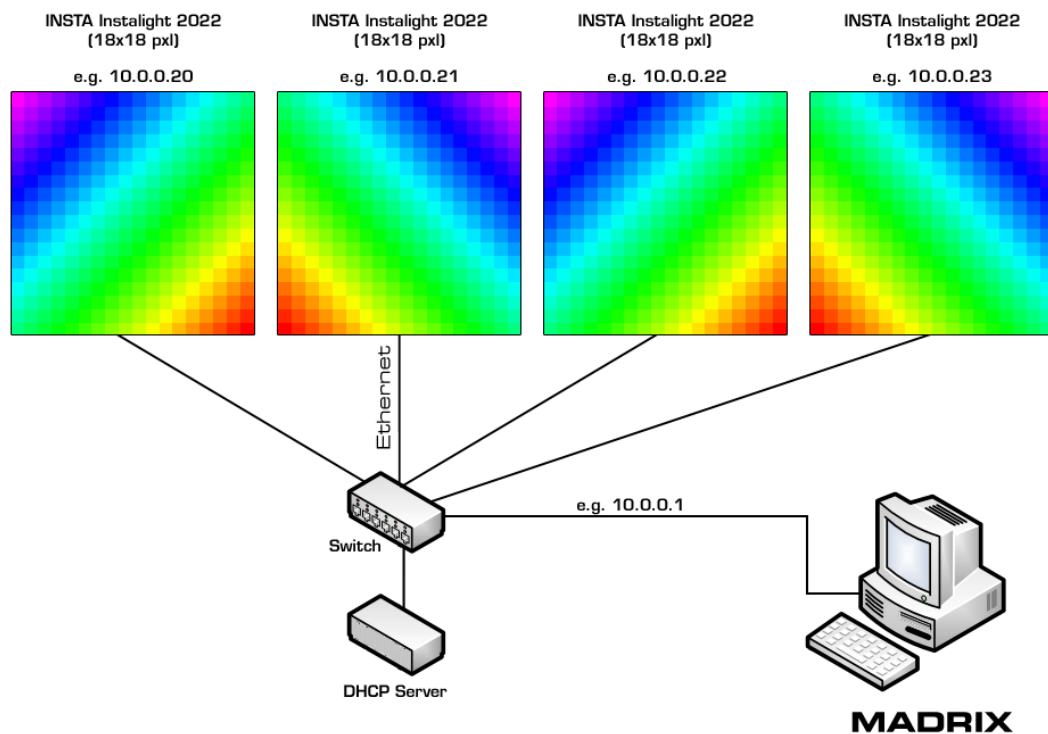
When using a network-based output protocol and when the start option "Run MADRIX, When Windows Starts" is used, it is highly recommended to also activate the start option "Set Timeout To Start Software" with a value of "30".

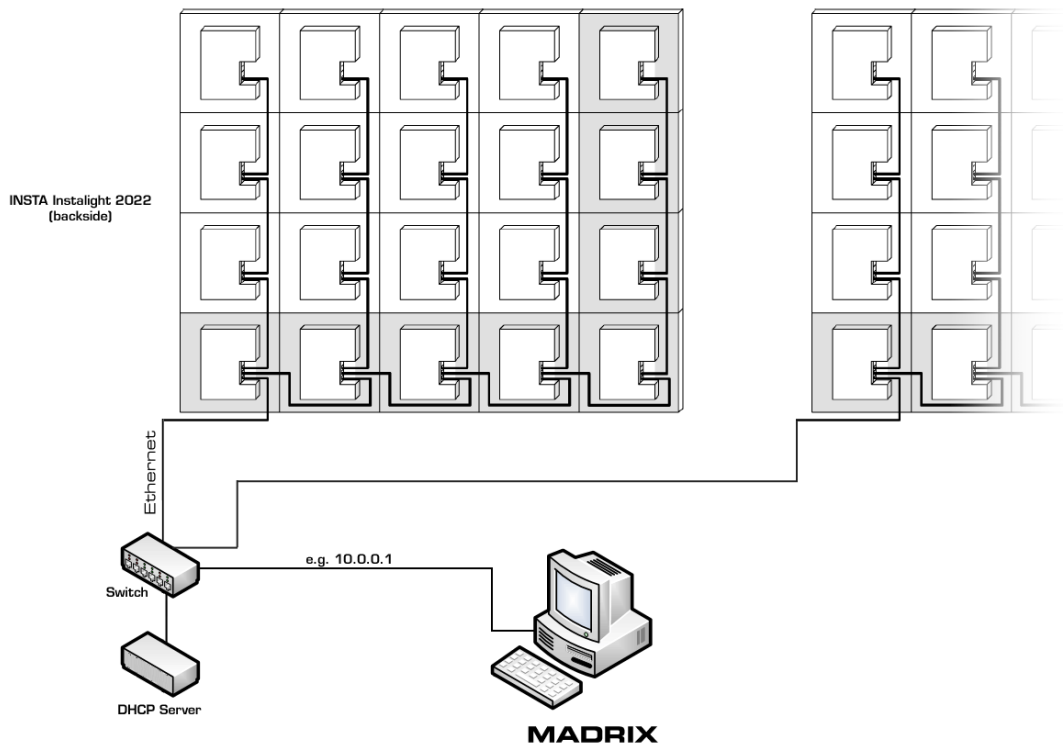
8.6 Insta Light 2022 - LED-Panel RGB 324 (Insta Protocol)

Overview

INSTA

To use Insta Light® 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. A good idea and option is that the DHCP server binds MAC addresses to IP addresses.





Configuration

We recommend to use an IP address range of **10.0.0.x** for MADRIX and InstaLight2022. The subnet mask should be **255.0.0.0**

For the use of Insta products, we suggest to only use 1000Mbit network components. That means 1000Mbit network cards in your computer, 1000Mbit switches and a DHCP server with support of 10/100/1000Mbit if your setup looks like the configuration shown above.

Please restart MADRIX if you have changed any network settings in Windows.

Please enable the network driver in MADRIX. Go to the menu "**Preferences**" -> "**Options**" or the press the keys "**Ctrl-Alt-O**". Select the tab "**Devices (Network)**".



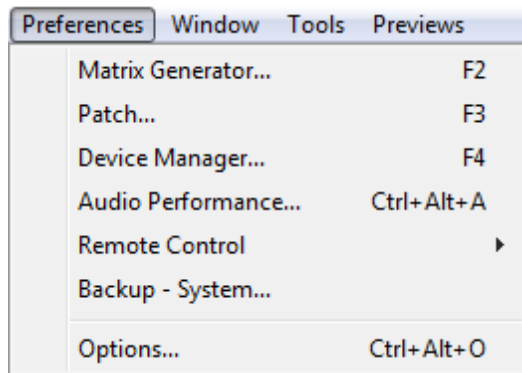
Here you can enable and disable the ROBE/Insta network driver. Use the edit field **"Time To Detect Fixtures (s)"** to define how long MADRIX searches the network for InstaLight2022 network devices (type in a value in seconds).

We recommend to utilize at least a value of 10 to allow for a sufficient search. Higher values are recommended for larger installations.

Furthermore, the option **"White Adjustment"** is included for Insta Light panels. MADRIX automatically performs this automatic calibration with the start-up. 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.

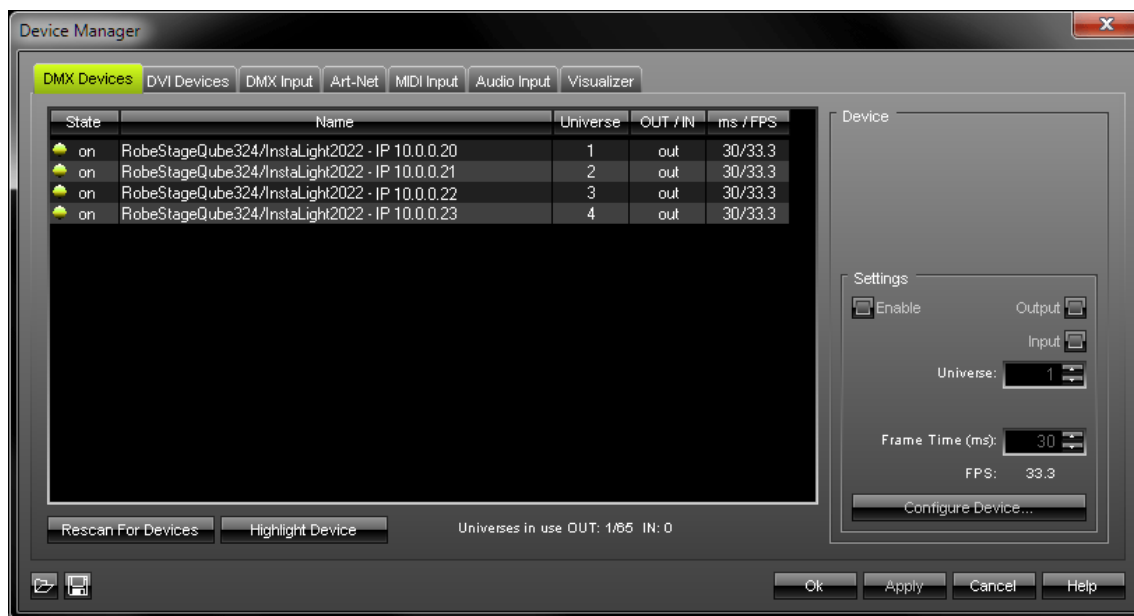
Please always make sure that you have selected the correct network. Otherwise, the network device might still be found. But no data can be sent.

In the next step, open the **"Device Manager"** (press **"F4"** or open the menu **"Preferences"** -> **"Device Manager"**).

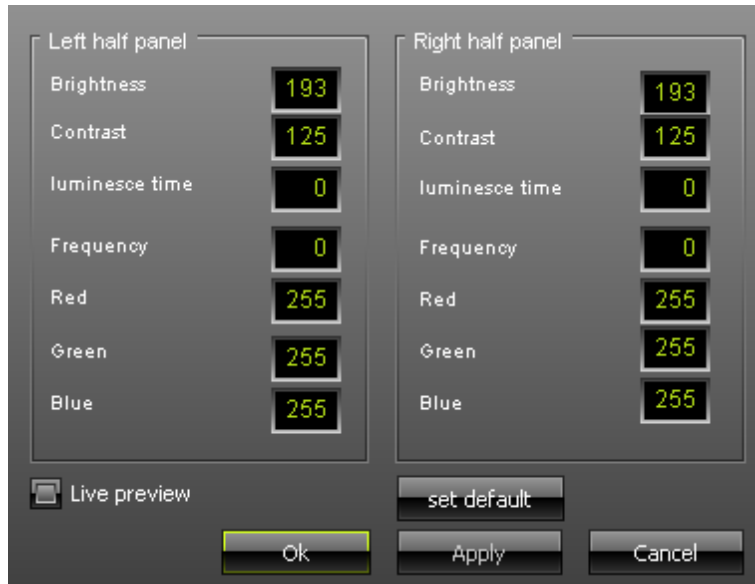


Go to the tab **"DMX Devices"** and decide which of the listed devices are used as output devices. If you click on **"Enable"** and **"Output"**, the data will be sent to this device. Check also if every device is assigned a different universe (right hand side of the window).

Please check if the DMX universes are assigned correctly!



In the picture above you can see 4x InstaLight2022 starting at universe 1 to 4 with IP addresses from 10.0.0.20 to 10.0.0.23.

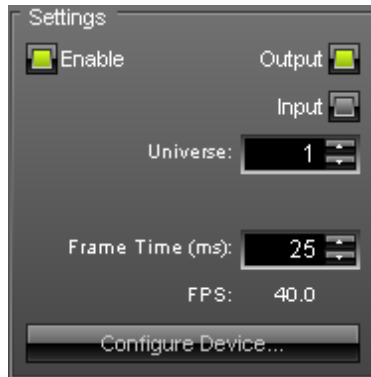


The option **"Configure Device"** (use the button or double-click the device) allows you to set up various parameters of the selected Robe panel. Those include: **Brightness**, **Contrast**, **Luminesce Time**, **Frequency**, and the values for **Red**, **Green**, and **Blue** for the left half and the right half of each InstaLight2022 LED Panel.

on	RobeStageQube324/InstaLight2022 - IP 10.0.0.22	3	out	30/33.3	
on	RobeStageQube324/InstaLight2022 - IP 10.0.0.23	4	out	30/33.3	

Please note: You can also select multiple panels and change all the settings in one step.

Enabling the **"Live Preview"** switches to receive parameters live from the device. By clicking at the button **"Set Default"**, you will reset it to factory default values.



Setting up the **"Frame Time"** is particularly useful if you have connected different devices each rendering different output frame rates and you want to sync them to a specific frame rate. OR it might be that the LED fixtures you attached have problems with fast frame rate. You are able to **slow down** the frame time by typing in **larger values** in ms in that case.

Rescan For Devices



If you click the **"Rescan For Devices"** button, MADRIX disconnects all DMX512, Art-Net, and other network devices and starts a new search for devices.

Highlight Mode



The **"Highlight Device"** button activates/deactivates the highlight mode for the selected interface and universe.

Select one or more interfaces and press the button. The corresponding fixtures at the selected interface(s) will flash for a better identification. This makes it easier to see them on stage. It considerably speeds up the procedure of programming the selected DMX512/Art-Net interfaces.

DMX Watcher



Open the **"DMX Watcher"** to monitor your DMX output or input. **"Watch Universe"** will appear when you have selected a list entry. The DMX Watcher will open with the particular DMX Universe already entered. Learn more in the chapter [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

Please remember to configure your light matrix in the [Matrix Generator](#) or [Patch](#).

Please make sure to save your MADRIX Setup after the configuration process.

Important Notes

Please keep in mind that network devices, even if activated but not used, cause network traffic!

When using a network-based output protocol and when the start option "Run MADRIX, When Windows Starts" is used, it is highly recommended to also activate the start option "Set Timeout To Start Software" with a value of "30".

8.7 Philips Color Kinetics (KiNet)

Overview

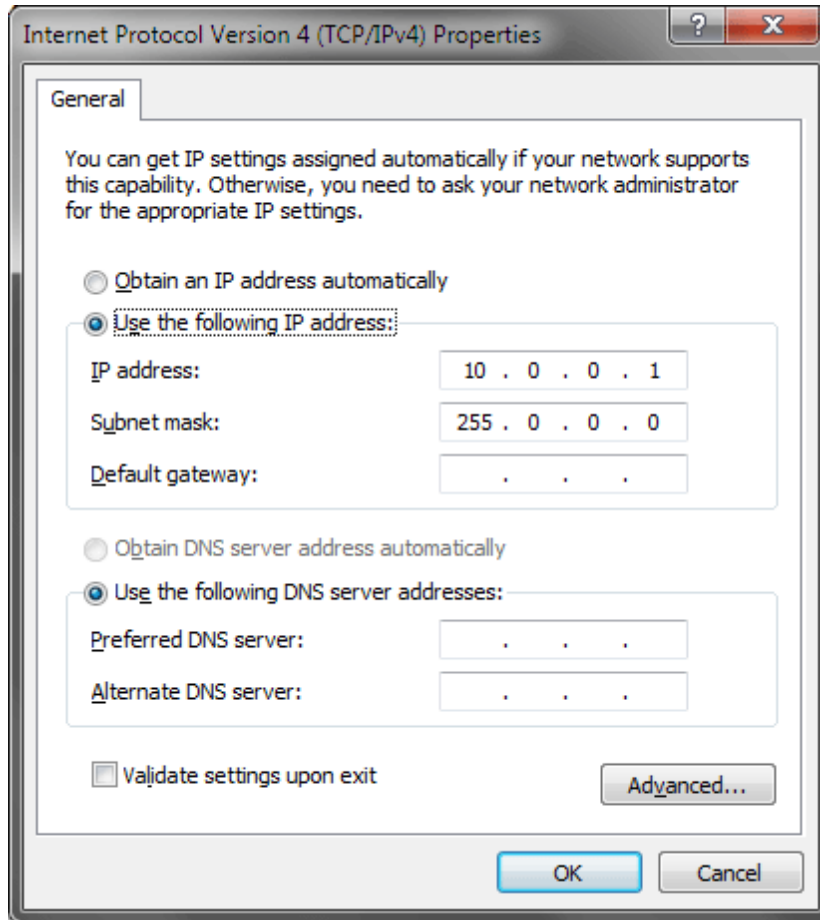


MADRIX natively supports Philips Color Kinetics. The necessary protocol is implemented in the software, which makes it easy to use Color Kinetics fixtures with MADRIX.

Network Settings

The factory settings for the power supplies start with a default IP address range of **10.0.0.x**. **Please use these IP addresses!**
We recommend to begin with 10.0.0.1 for MADRIX. The subnet mask should be 255.0.0.0

You will have to set these settings in Windows. Please open the properties of your network connection and adjust the values. It should look like this:



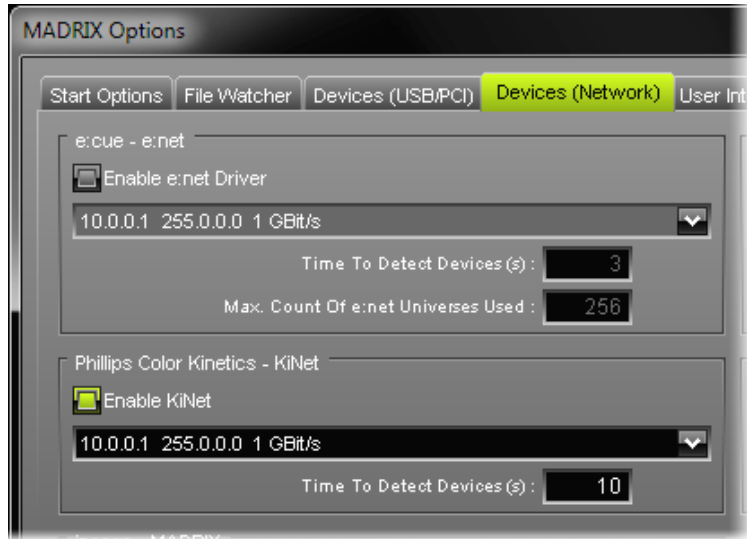
To send data using all network cards of your computer, simply enter 255.255.255.255 (IP address) and 0.0.0.0 (subnet mask).

Please restart MADRIX if you have changed any network settings in Windows.

Configuration

For the administration of the Philips Color Kinetics - KiNet network driver, please enable the network driver first.

Go to the menu **"Preferences" -> "Options"** or the press the keys **"Ctrl-Alt-O"**. Select the tab **"Devices (Network)"**.



Here you can enable and disable the Color Kinetics KiNet network driver. Simply activate the check box **"Enable Kinet"**.

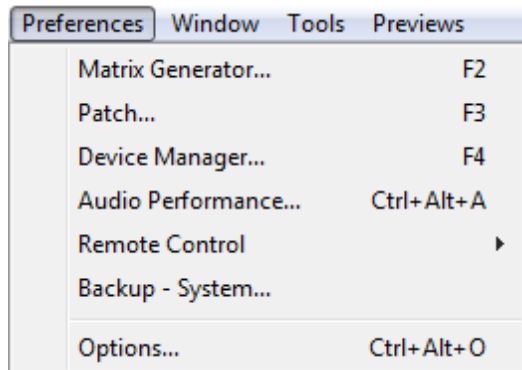
Please also select the network card, you wish to use. The network cards is shown in MADRIX with the help of its IP address, subnet mask and connection speed.

Please always make sure that you have selected the correct network. Otherwise, the network device might still be found. But no data can be sent.

Use the edit field **"Time To Detect Devices (s)"** to define how long MADRIX searches the network for KiNet network devices/power supplies (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.

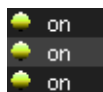
In the next step, open the **"Device Manager"** (press **"F4"** or open the menu **"Preferences"** -> **"Device Manager"**).



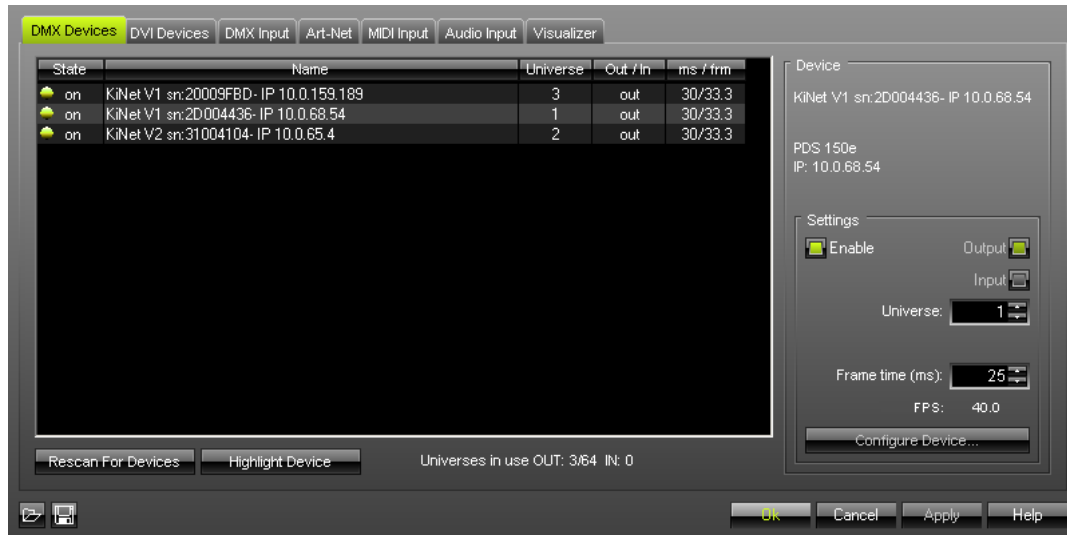
Go to the tab **"DMX Devices"** and decide which of the listed devices are used as output devices. If you click on **"Enable"** and **"Output"**, the data will be sent to this device. Check also if every device is assigned a different universe (right hand side of the window).

Please check if the DMX universes are assigned correctly!

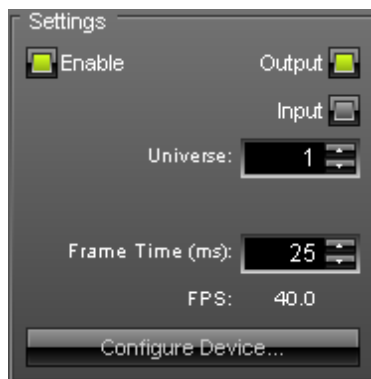
There is a difference between KiNet V1 and V2. KiNet V2 makes sure that the panels will receive the data at the same time. This is particularly useful for large installations. Please see the Color Kinetics documentation to see which protocol is supported by your power supply.



A green dot indicates that all devices are enabled and working.



In the exemplary picture above, you can see 2x KiNet V1 and 1x KiNet V2 power supplies assigned to universe 1 to 3 with the IP addresses 10.0.159.189, 10.0.68.54, and 10.0.65.4.



Setting up the **"Frame Time"** is particularly useful if you have connected different devices each rendering different output frame rates and you want to sync them to a specific frame rate. OR it might be that the LED fixtures you attached have problems with fast frame rate. You are able to **slow down** the frame time by typing in **larger values** in ms in that case.

Rescan For Devices

A rectangular button with a dark grey gradient background and the text "Rescan For Devices" in white.

If you click the **"Rescan For Devices"** button, MADRIX disconnects all DMX512, Art-Net, and other network devices and starts a new search for devices.

Highlight Mode

A rectangular button with a dark grey gradient background and the text "Highlight Device" in white.

The **"Highlight Device"** button activates/deactivates the highlight mode for the selected interface and universe.

Select one or more interfaces and press the button. The corresponding fixtures at the selected interface(s) will flash for a better identification. This makes it easier to see them on stage. It considerably speeds up the procedure of programming the selected DMX512/Art-Net interfaces.

DMX Watcher

A rectangular button with a dark grey gradient background and the text "DMX Watcher..." in white.A rectangular button with a dark grey gradient background and the text "Watch Universe..." in white.

Open the **"DMX Watcher"** to monitor your DMX output or input. **"Watch Universe"** will appear when you have selected a list entry. The DMX Watcher will open with the particular DMX Universe already entered. Learn more in the chapter [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
Color Kinetics eW Flex SLX Color Kinetics iColor Flex SLX	If your 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 Matrix Generator .

Please remember to configure your light matrix in the [Matrix Generator](#) or [Patch](#).

Please make sure to save your MADRIX Setup after the configuration process.

Important Notes

Please keep in mind that network devices, if activated, cause network traffic!

When using a network-based output protocol and when the start option "Run MADRIX, When Windows Starts" is used, it is highly recommended to also activate the start option "Set Timeout To Start Software" with a value of "30".

Checklist To Solve Problems

If you are encountering problems, please work through the following checklist:

- Please check if all network cables are connected and if Gigabit network components are used.
- Please check if your light matrix is configured correctly in the "Matrix Generator" or "Patch".
- Have all devices been found in the "Device Manager" under "DMX Devices"?
If not,
 - 1) please check if the IP address and Subnet mask are configured correctly in Windows and your devices.
 - 2) please go to the menu "Preferences" -> "Options" -> "Devices (Network)". Select "Enable KiNet".
 - 3) please go to the menu "Preferences" -> "Options" -> "Devices (Network)". Select the correct network card in the section "Philips Color Kinetics - KiNet".
 - 4) please go to the menu "Preferences" -> "Options" -> "Devices (Network)". Increase the value for "Time To Detect Devices (s)" in the section "Philips Color Kinetics - KiNet".
 - 5) please press "Rescan For Devices" in the "Device Manager" under "DMX Devices".
 - 6) please try and deactivate your Firewall in Windows.
- Are all devices activated in the "Device Manager"?
Please check if "Enable" and "Output" are activated under the tab "DMX Devices".
- Please check if all ports you are using on your device are configured correctly in the "Device Manager" under "DMX Devices". Please check if ports, that are not used, are deactivated in MADRIX.
- Please check if the DMX addressing and DMX universes are assigned correctly in the "Device Manager" under "DMX Devices" and in the "Patch".
- Please test if MADRIX is connected to the devices. Use the button "Highlight Device" for each of your devices in the "Device Manager" under "DMX Devices".
- Please go to the menu "Tools" -> "Task Watcher". Check if the devices are sending data.
- Please go to the menu "Tools" -> "Logfile". Check if any error or warnings occur regarding the network or KiNet.

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)

8.8 ESTA - Streaming ACN (sACN / E1.31)

Introduction



Streaming ACN (sACN) is a protocol that transfers DMX data over Ethernet. Hence, it is another network-based DMX protocol. It is a standard created by ESTA (Entertainment Services and Technology Association - www.esta.org).

Configuration

Network Settings

MADRIX automatically sets up Streaming ACN network settings for you. (Streaming ACN data is sent using multicast addressing.)

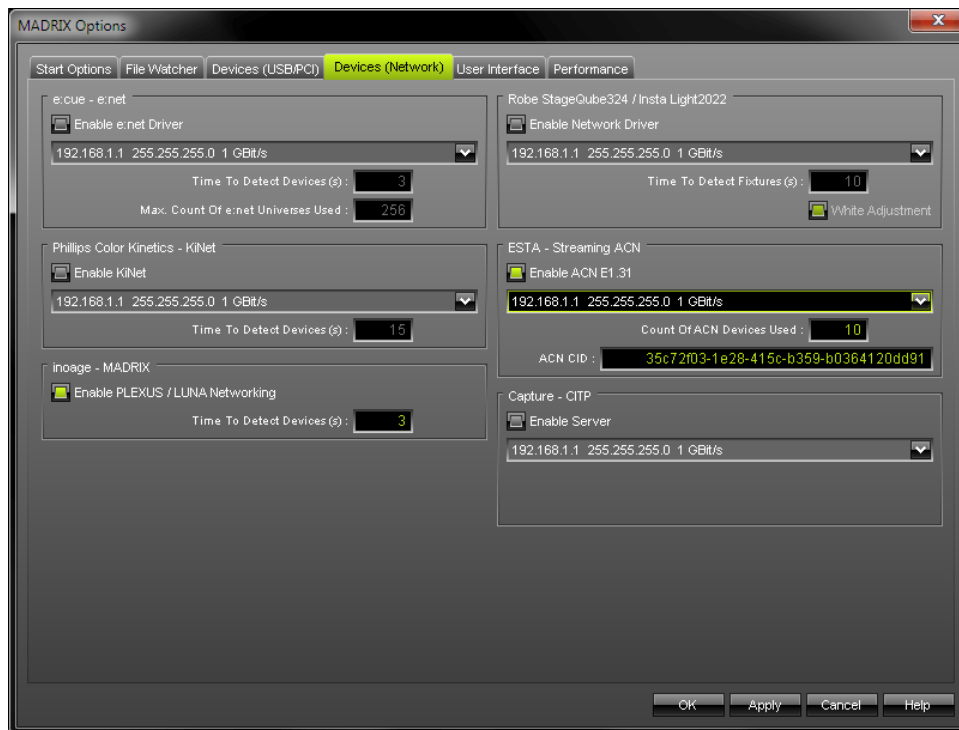
You only need a computer with a network card and a valid IP address. You don't have to change the IP address settings in Windows for Streaming ACN!

In general, the recommended IP address range for sACN devices is **239.x.x.x**. A different address range is not supported by MADRIX.

Make sure that your Firewall does not block data of the 239.x.x.x IP address range!

Enable Streaming ACN

In order to use Streaming ACN, please enable the network driver first. Go to the menu **"Preferences" -> "Options"** or the press the keys **"Ctrl-Alt-O"**. Select the tab **"Devices (Network)"**.



Select **"Enable ACN E1.31"** in order to activate Streaming ACN.

Then, 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.)

In the next step, you will have to define how many ACN devices you are going to use in your installation. This is the total amount of OUT and IN devices. Enter the number in the field after **"Count Of ACN Devices Used"**. Please set the exact number of devices you are using. (If the count is higher, this increases unnecessary network traffic.) If your are using 10 ACN devices, please enter "10", for example. Press **"Apply"** to save the settings.

ACN CID : 73c844fb-1da7-4b4f-9594-ee50a39496f7

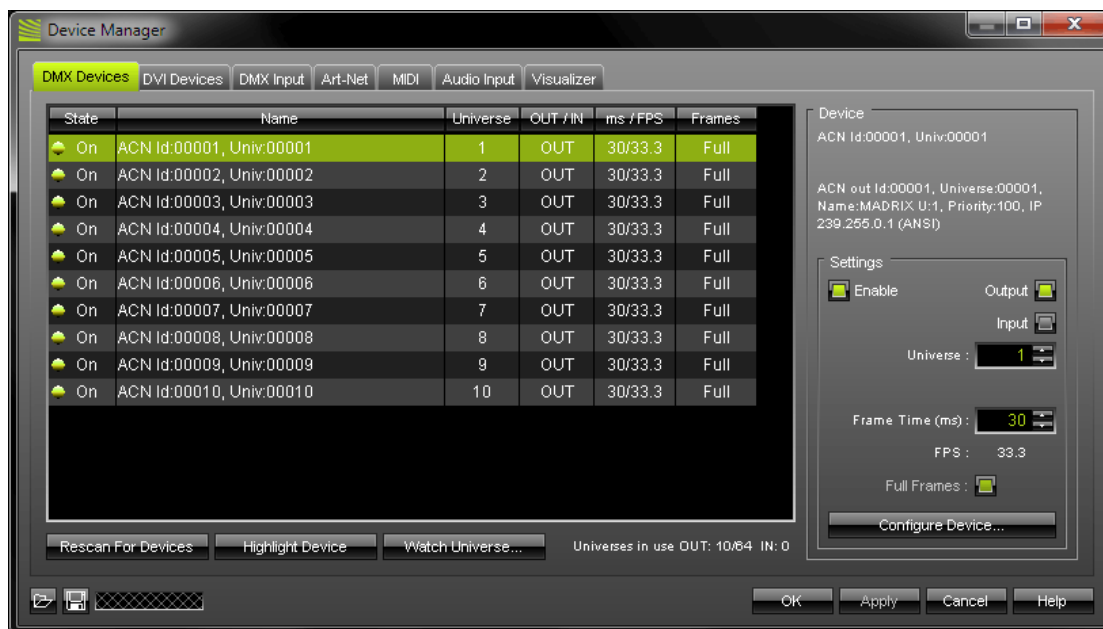
Being a network protocol, Streaming ACN sends a so-called CID (Component Identifier). Every single ACN device has such a unique ID. When using Streaming ACN, your MADRIX software is one of those devices. When you start MADRIX for the first time, this ID will be generated automatically for you. From this 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!

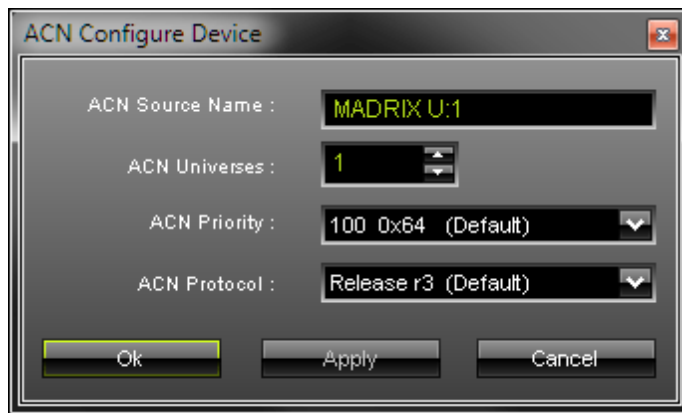
Configuration of DMX Devices

In the next step, please open the **"Device Manager"** in the menu **"Preferences"**. Or press **"F4"** on your keyboard. A new window will open.



As you can see, **MADRIX** automatically creates the number of interfaces defined in the **Options dialog**. In the our example, 10 devices were created.

Next, please select one device in the list and click "**Configure Device...**". In addition, you can perform a double-click on this device. A new dialog will open.



"ACN Source Name" allows you to define 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 (U:1 for Universe 1, for example).

"ACN Universe" is to define the DMX universe of your ACN interface. You can manually adjust the settings.

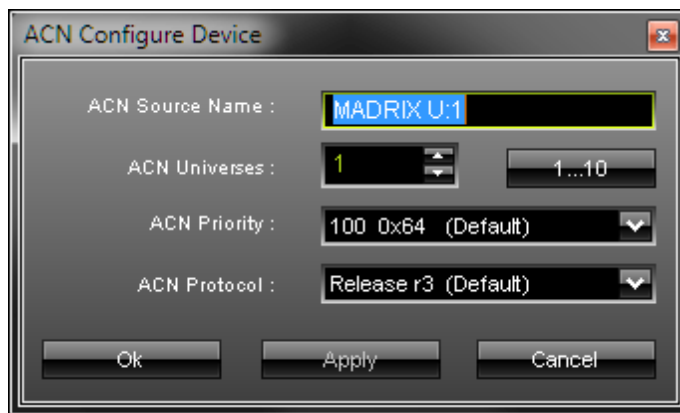
Please note: The universe also represents the last digit of the IP address for this sACN device. For example, MADRIX will set up an IP address of 239.255.0.1 for the sACN device with Universe 1.

"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 interface must support this feature.

"ACN Protocol" allows you to choose the protocol version. The official version is called "Release r3" (ANSI E1.31). This option is selected by default. If you installed an older interface with the Draft version, you may select "Draft r2" (BSR E1.31). Please do not change the protocol unless you are certain.

Press **"Apply"** to save your changes.

In addition, you can configure **several interfaces** at the same time. Select multiple devices and press **"Configure Device..."**. A new dialog will open.



You will be able to define a **"ACN Source Name"** and the **"ACN Universe"**.



Leave this button deactivated and every device will get the same universe.



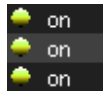
Activate the button and MADRIX will automatically number the devices starting with the ACN Universe you defined.

Press **"Apply"** to save your changes.

Enable DMX-OUT



Please make sure that your DMX devices are enabled. Select the interface or multiple interfaces and click **"Enable"** and **"Apply"**.

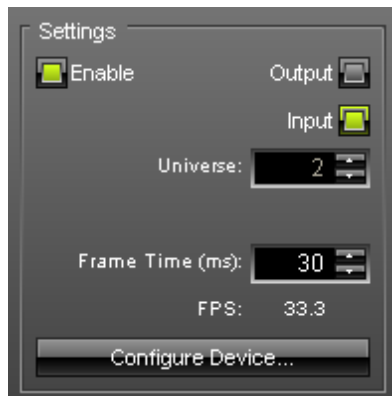


A green dot in the list indicates that all devices are enabled and working. If the **"State"** is **"off"**, please click **"Enable"** in the **"Settings"** section.

Setting up the **"Frame Time"** is particularly useful if you have connected different devices each rendering different output frame rates and you want to sync them to a specific frame rate. OR it might be that the LED fixtures you attached have problems with fast frame rate. You are able to **slow down** the frame time by typing in **larger values** in ms in that case.

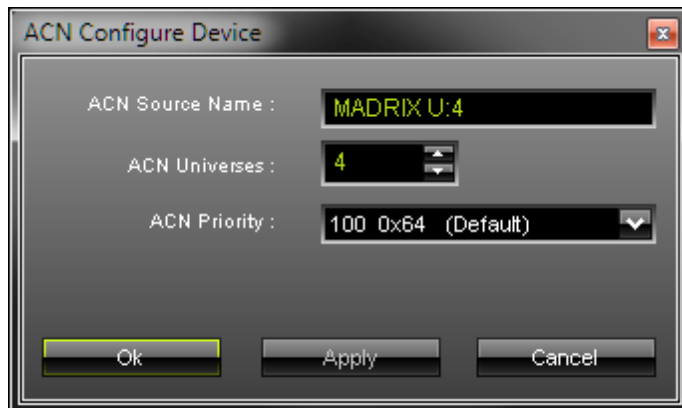
Please note: If you are loading a MADRIX Setup, please check if the number of ACN devices in your setup corresponds with the number that is activated. The Setup stores the number of devices. But if you changed the amount and then loaded the Setup, the newly defined number will be activated.

Enable DMX-IN



If you wish to use an ACN interface for DMX-IN, activate **"Input"** and **"Enable"** in the **"Settings"** section. Press **"Apply"** afterwards.

Please note that in DMX-IN mode, you will not be able to select the ACN protocol. MADRIX will automatically select the correct protocol version.



For further configuration, please read the chapter [DMX-IN & Art-Net Remote](#).

Rescan For Devices

A rectangular button with a dark background and light text that reads "Rescan For Devices".

If you click the **"Rescan For Devices"** button, MADRIX disconnects all DMX512, Art-Net, and other network devices and starts a new search for devices.

Highlight Mode

A rectangular button with a dark background and light text that reads "Highlight Device".

The **"Highlight Device"** button activates/deactivates the highlight mode for the selected interface and universe.

Select one or more interfaces and press the button. The corresponding fixtures at the selected interface(s) will flash for a better identification. This makes it easier to see them on stage. It considerably speeds up the procedure of programming the selected DMX512/Art-Net interfaces.

DMX Watcher

A rectangular button with a dark background and light text that reads "DMX Watcher...".A rectangular button with a dark background and light text that reads "Watch Universe...".

Open the **"DMX Watcher"** to monitor your DMX output or input. **"Watch Universe"** will appear when you have selected a list entry. The DMX Watcher will open with the particular DMX Universe already entered. Learn more in the chapter [Tools](#).

Resizing The Window

If wish to resize the window of the Device Manager, 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 under Windows Vista and Windows 7 or configure your Firewall accordingly. sACN might not work with a Firewall!

sACN streams data to all network cards of the computer in broadcast mode. You cannot select a single, specific network card.

Currently, MADRIX can only send to the first network card that was initialized by the operating system with every restart/after booting the system. This is especially the case for Windows 7 and might lead to problems. If possible, deactivate other network cards.

It is recommended to run sACN in a separate network without internet access. Else, the internet connection may not work properly.

Please keep in mind that network devices, if activated, cause network traffic!

When using a network-based output protocol and when the start option "Run MADRIX, When Windows Starts" is used, it is highly recommended to also activate the start option "Set Timeout To Start Software" with a value of "30".

Further Configuration

Please remember to configure your light matrix in the **Matrix Generator or **Patch**.**

Please make sure to save your MADRIX Setup after the configuration process.

8.9 Proprietary DVI Devices (T9)

Overview

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:

- EuroLite T9
- ColourSmart Link

Before you can use MADRIX, please make sure that you have configured your LED fixture and hardware correctly.

Gigabit Network Card

**Please only use a GIGABIT network card ("1Gbit/s").
100Mbit network cards will not work!**

Configuration

Navigate to the menu **"Preferences"** -> **"Device Manager"** (or press "F4"). Now, select the tab **"DVI Devices"**.

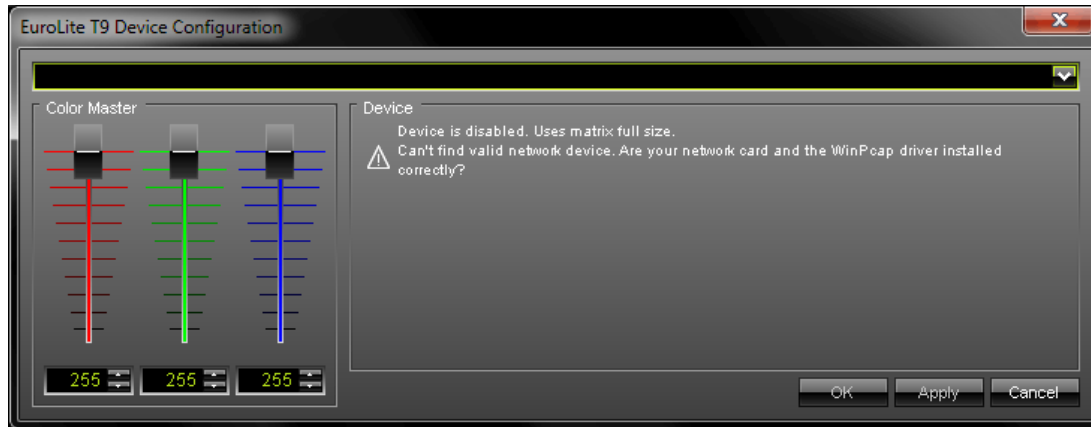


Click **"Add New Device"**.



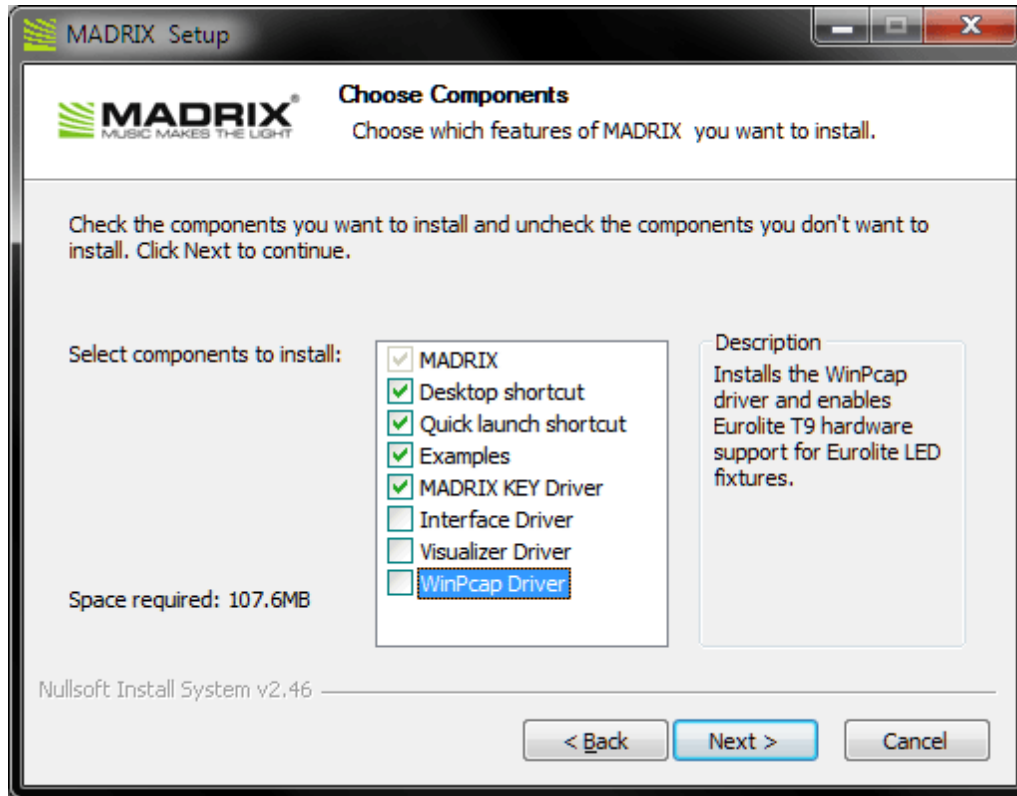
A small selection list will be opened above the button.

Simply select your DVI device type and a new configuration dialog will open.



If the drop-down list at the top end 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 correct these issues and run the MADRIX installer again to install the drivers ("**WinPcap Driver**").

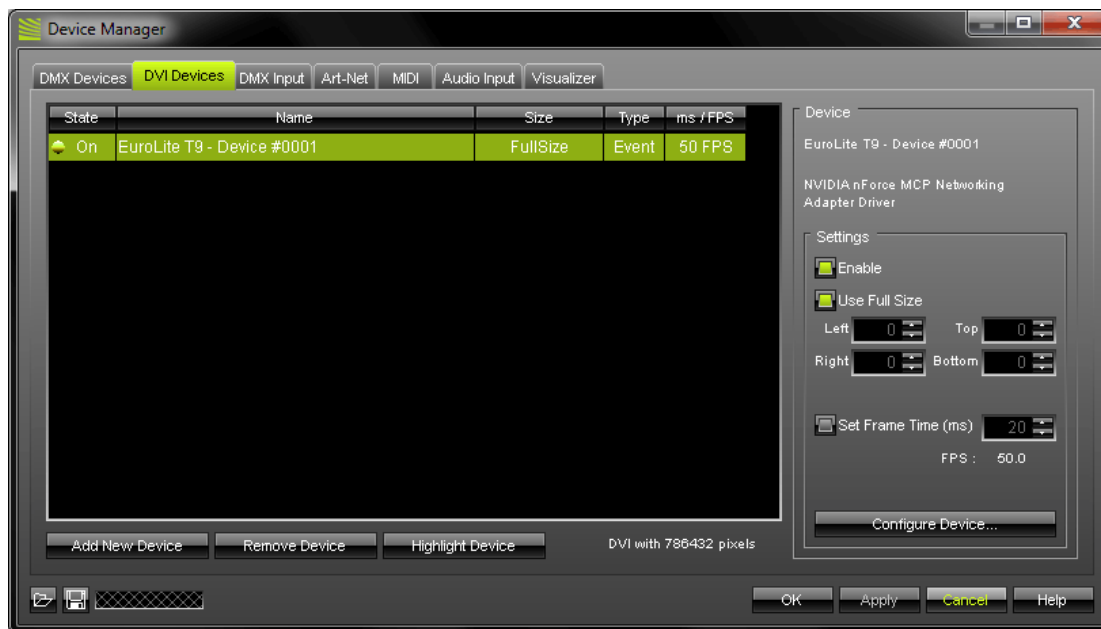


If everything is installed properly, select the network device that communicates with your DVI fixture in the drop-down list.

Do not change any other settings here (Color Master) unless you are an experienced user.

Advanced users may adjust the color settings if the DVI device renders colors incorrectly. Press **"OK"**.

Now, the new DVI device will appear in the list:



There are different **"Settings"** available for further configuration. Always press **"Apply"** to accept the changes you have made.

"Enable" activates or deactivates the currently selected DVI device. This is activated by default. It should be activated in order to work correctly.

Activate **"Enable Full Size"** and your full matrix will be displayed. This is activated by default. 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. **"Right"** and **"Bottom"** define the end coordinates.

Scaling is not available.

Your matrix will not be stretched or compressed in order to fit the DVI device or vice versa.

Use **"Set Frame Time (ms)"** in order to set a different frame time. 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. We do not recommend 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.

"Remove Device" will delete the currently selected DVI device.

"Highlight Device" will make your device flash and will set all pixels instantly to white for testing purposes.

"Configure Device..." will call up the configuration dialog, again.

Further Configuration

Please remember to configure your light matrix in the **Matrix Generator** or **Patch**.

Please make sure to save your MADRIX Setup after the configuration process.

Important Notes

Device Type	Comments
All DVI device types	1) Please do not use a network hub or switch. Please only use a direct network connection. 2) Please note that the hardware controller needs to be configured correctly, before MADRIX can be used. 3) The configuration cannot be rotated. If you have rotated fixtures in your installation, please use the rotation features provided by each MADRIX effect.
EuroLite T9	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.

	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. 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. 4) See www.eurolite.de for the latest documentation.
--	--

Checklist To Solve Problems

If you are encountering problems, please work through the following checklist:

- Please check if all network cables are connected correctly. Please do not use a network hub or switch.
- Please check if your hardware is working without MADRIX.
- Please check if you have installed the "WinPcap" Driver during the installation of MADRIX.
- Please check if your light matrix is configured correctly in the "Matrix Generator" or "Patch".
- Please go to the menu "Preferences" -> "Device Manager". Check if you have added a new DVI device under "DVI Devices".
- Please check if "Enable" and "Enable Full Size" are activated for your device in the "Device Manager" under "DVI Devices".
- Please configure your hardware controller again if this seems to be necessary.
- Please always configure only one hardware controller. Do not connect two or more controllers while setting the parameters.

- When using LED Show T9,
 - 1) please repeat the steps described in the manual.
 - 2) please make sure to press "Send" two times in order to make the "parameter set" on your PC and on your controller.
 - 3) please download the configuration file again (for example, "Presets T9.DAT") and use this default configuration file to configure your controller again.
 - 4) please deinstall the software and then install it again. Reconfigure all settings.

Part

IX

9 INPUT & Remote Control

Overview

There are several options available to you on how to control the MADRIX software remotely in different ways. In this section the following topics are described in more detail:

- **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.

- **CITP**

MADRIX supports CITP. This is a useful feature when controlling MADRIX remotely, especially when using it in a combination with a lighting desk.

- **MIDI Time Code (MTC)**

MIDI Time Code (MTC) and even Art-Net Time Code can be received with MADRIX to synchronize equipment with each other.

- **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.

9.1 DMX-IN & Art-Net Remote

Introduction

MADRIX can be controlled remotely via DMX-IN or Art-Net Remote. This chapter will explain how to activate these options. For DMX-IN with Streaming ACN, please also refer to the section 'DMX-IN' below.

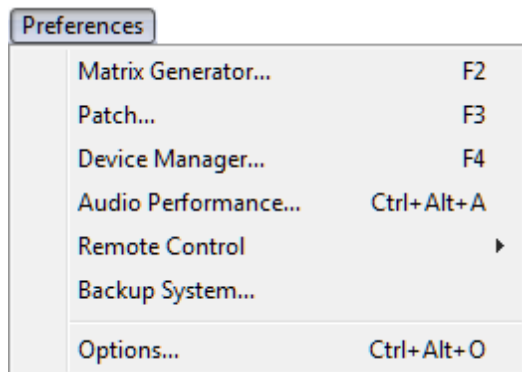
Contents of this chapter:

- DMX-IN
- Art-Net Remote
- Protocols (Overview)
- How To Assign DMX Freely - DMX-IN Remote Editor

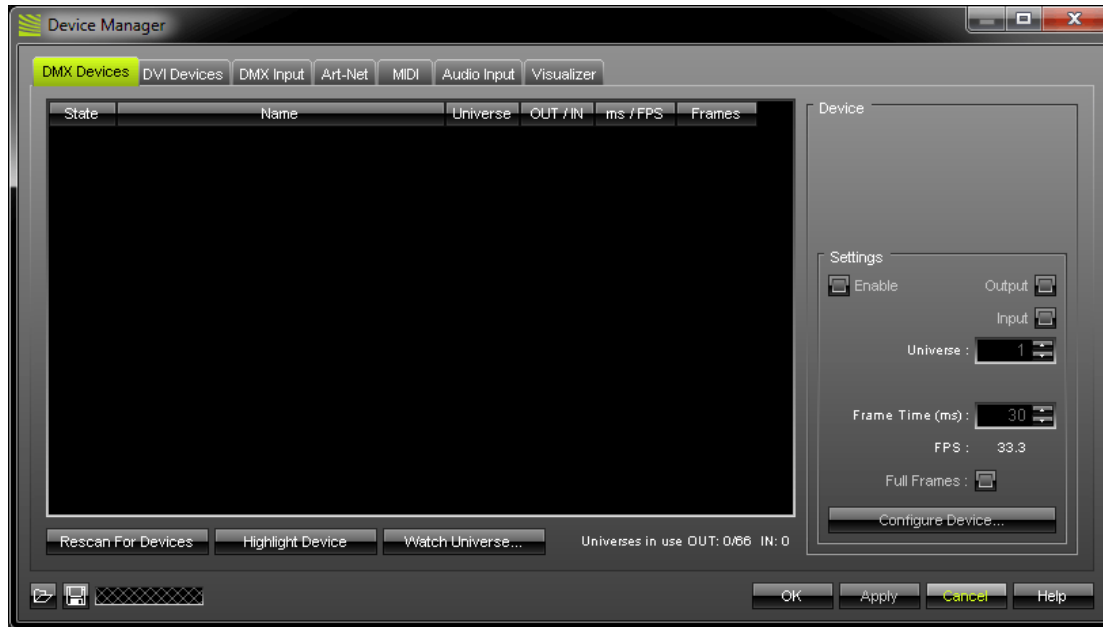
DMX-IN

1. Activating Your DMX Device

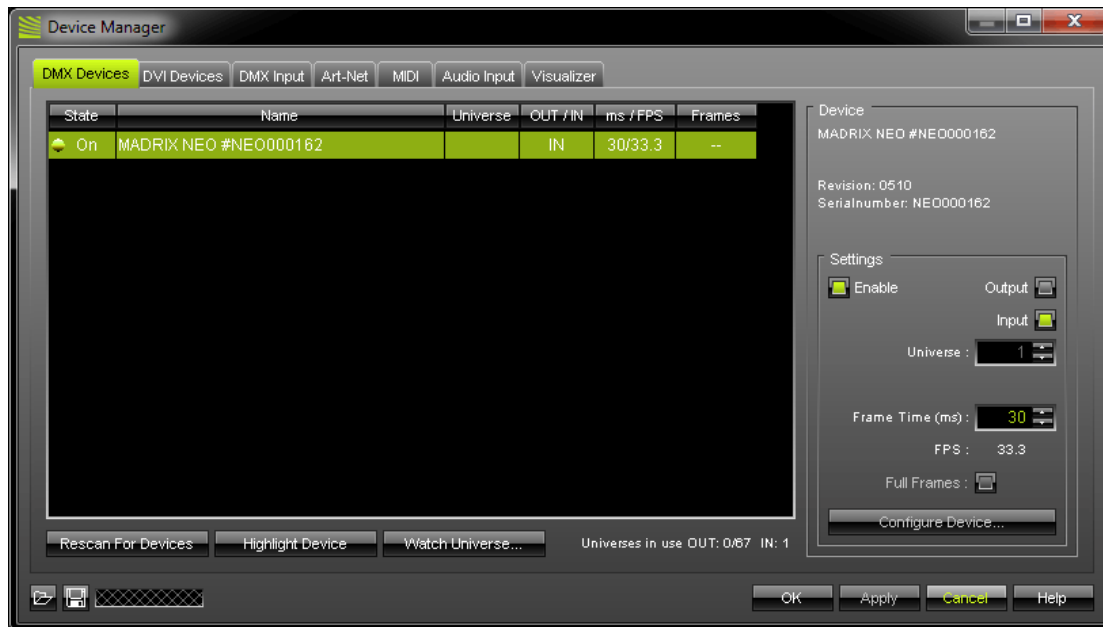
For administration of DMX-IN devices, please open the **"Device Manager"** (press **"F4"** or go to the menu **"Preferences"**).



A new window will be displayed.

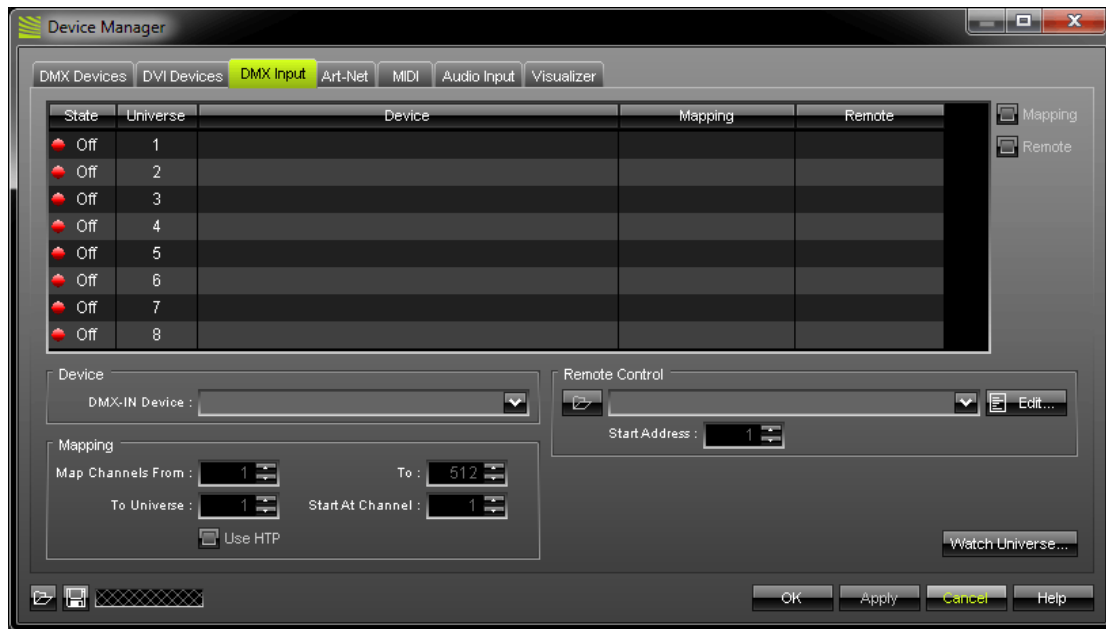


Please press **"Rescan For Devices"** in order to detect your connected devices. Now, select your DMX device in the list. Then, activate **"Enable"** and **"Input"** in the section **"Settings"**. Press **"Apply"** afterwards.



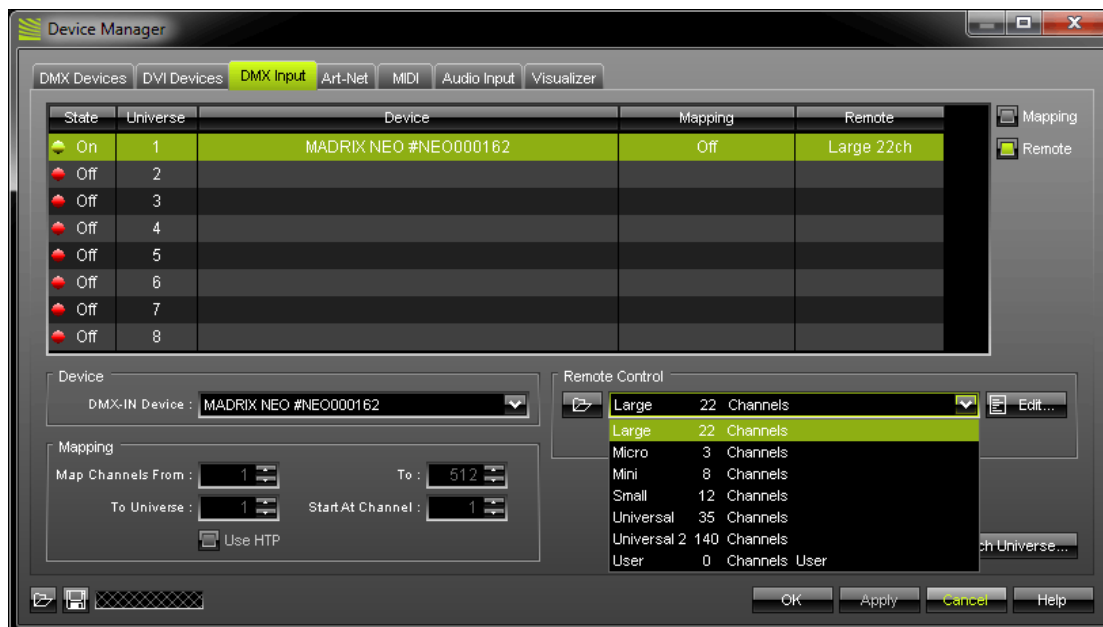
2. Enabling DMX-IN

Now, please select the tab **"DMX Input"** of the **Device Manager**.



Select an (empty) entry in the list according to your preferred DMX universe. By default, universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, please change the setting in the **"MADRIX Options"** -> [Performance](#).

After the selection, choose your **"DMX-IN Device"** in the section **"Device"**. This could also be a Streaming ACN device. Activate **"Remote"** (in the upper right corner) in the next step. Finally, select one of the built-in protocols in the section **"Remote Control"** or create your own remote configuration as explained below ([How To Assign DMX-IN Freely](#)).



Remote Control



Use this button to open an existing MADRIX DMX Remote Configuration file (*.mdrc) from your hard disk.



The **protocols** (configurations) you can choose from will be explained in more detail in the following chapters.



Click **"Edit"** if you wish to change a configuration or create a new one. More information is given below with [How To Assign DMX-IN Freely](#).



A protocol can start at a particular DMX channel. Define this **"Start Address"** here. The whole protocol will be mapped to this new area then.



Open the DMX Watcher to monitor your DMX output or input. Learn more in the chapter [Tools](#).

Mapping

Activate **"Mapping"** (in the upper right corner) if you would like to route incoming DMX signals through MADRIX for output (DMX-Thru). This feature maps incoming data to the specified DMX universe and channels.

Define which **minimum DMX channel** and which **maximum DMX channel** should be mapped to **which DMX universe** ("**Map Channels From ... To ... To Universe ...**"). You can also define a start channel ("**Start At Channel**"), which defines the first channel to start with.

The option **"Use HTP"** can be activated if MADRIX should only use the highest values it receives on a particular channel (Highest Takes Precedence principle).

Press **"Apply"** after the configuration process.



Please Note: You will need a MADRIX KEY that supports DMX512 output in order to be able to use Mapping.

Art-Net Remote

Overview

An Art-Net device can be used for DMX-IN as well. In general, this feature is called Art-Net Remote.

1. Art-Net Configuration

Please set up your network card using the following Art-Net address area:

- **2.0.0.1 ... 2.255.255.254** or
- **10.0.0.1 ... 10.255.255.254**

Artistic Licence, the creators of Art-Net, recommends to primarily use the first address range. The second is regarded to be an alternative.

Please use the following Subnet mask:

- **255.0.0.0**

You must use this address area. Otherwise Art-Net may not work.

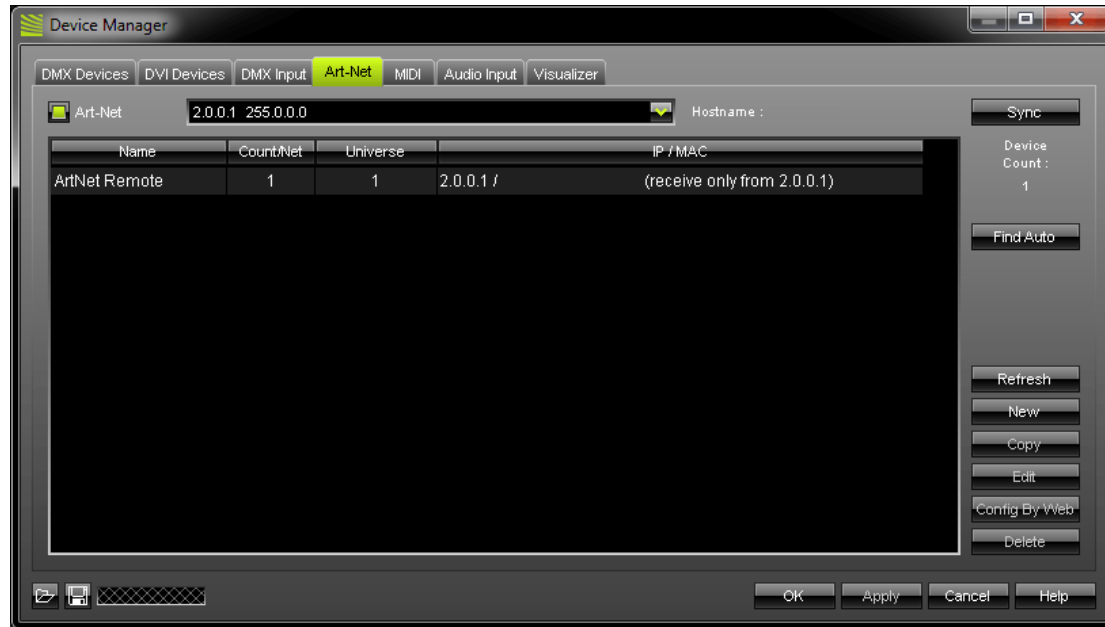
2. Activating Art-Net

Go to the menu "**Preferences**", select "**Device Manager**" and then select the tab "**Art-Net**".

Enable Art-Net here by **activating the check-box** in the upper left corner.

If you have enabled Art-Net inside this dialog, you will see at least one entry. The "**Art-Net Remote**" entry is automatically provided by MADRIX and you can use it for controlling MADRIX remotely within the Art-Net network (Art-Net Remote).

MADRIX supports only one "ArtNet Remote" device.



Click **"Edit"** and you will be allowed to modify the universe and other options.



The image shows a software window titled "Art-Net Device Configuration". It contains various fields for configuring an Art-Net device. The fields are as follows:

- Manufacturer: inoage
- Product: MADRIX 2.x v2.14
- OEM Code: 0x04C0
- Est: 0x4941 - inoage - Hertel, Pinzer, Wissmann GbR
- Short Name: ArtNet Remote (text input)
- Manual ID: 0
- Long Name: ArtNet Remote, to remote control MADRIX via ArtNet (text input)
- Port Count: 1 (dropdown menu)
- State: Port 1: Disabled
- Universe
- Universe Port OUT: 1 (0x00) (dropdown menu)
- Universe Port IN:
- MAC:
- Style Code: node
- Receive Broadcast: ☐ Receive From All Addresses (2.255.255.255) And Universe 0x0
- Receive Direct: ☒ Receive Only From Address 2.0.0.1 And Universe 0x0
- IP: 2 . 0 . 0 . 1 (text input)
- Subnet: 255 . 0 . 0 . 0 (text input)
- Port: 6454
- 0x1936

At the bottom of the window are three buttons: "OK", "Apply", and "Cancel".

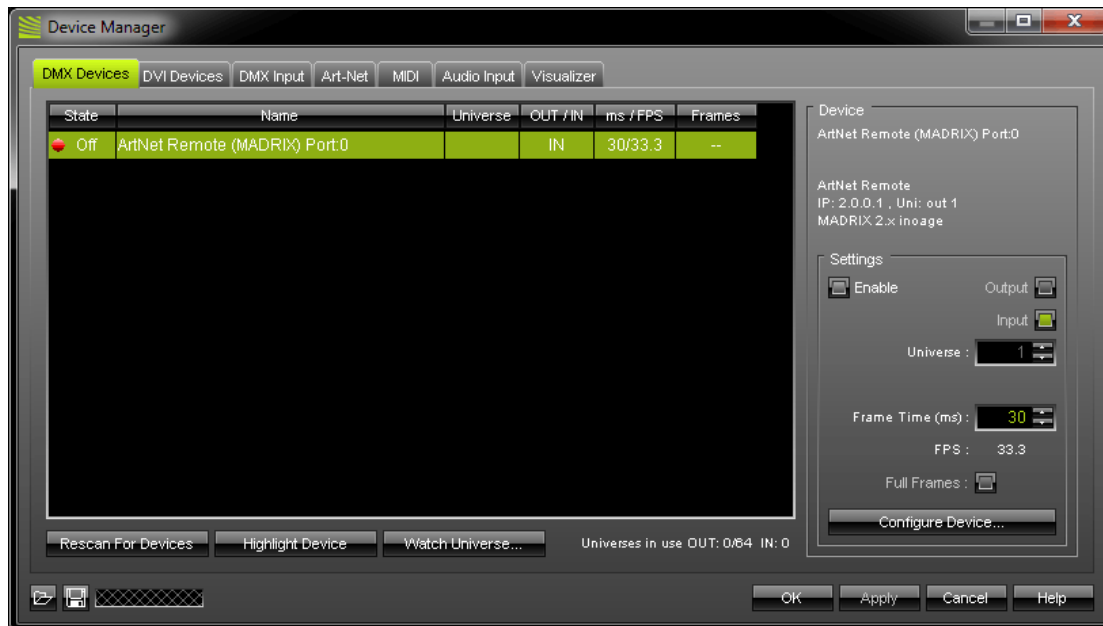
If you activate **"Receive Broadcast"**, any light desk in the network can send data to MADRIX. If the option "Receive Direct" is enabled, only a lighting desk with the IP defined in the **"IP"** input field can control MADRIX!

Please also configure **"Universe Port OUT"**. This specifies which Art-Net Universe MADRIX is listening to. Please choose the universe on which your Art-Net device is sending the data.

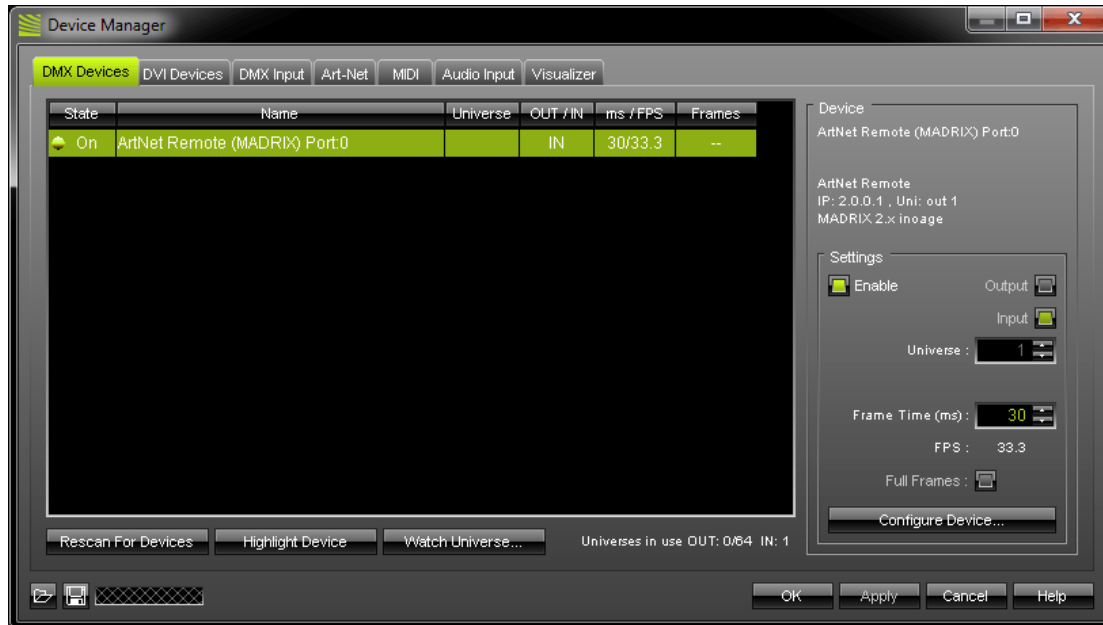
Press **"Apply"** after the configuration process. Press **"OK"** to close the window.

3. Activating Your Art-Net Device

Now, go to the tab **"DMX Devices"** in the **"Device Manager"**.

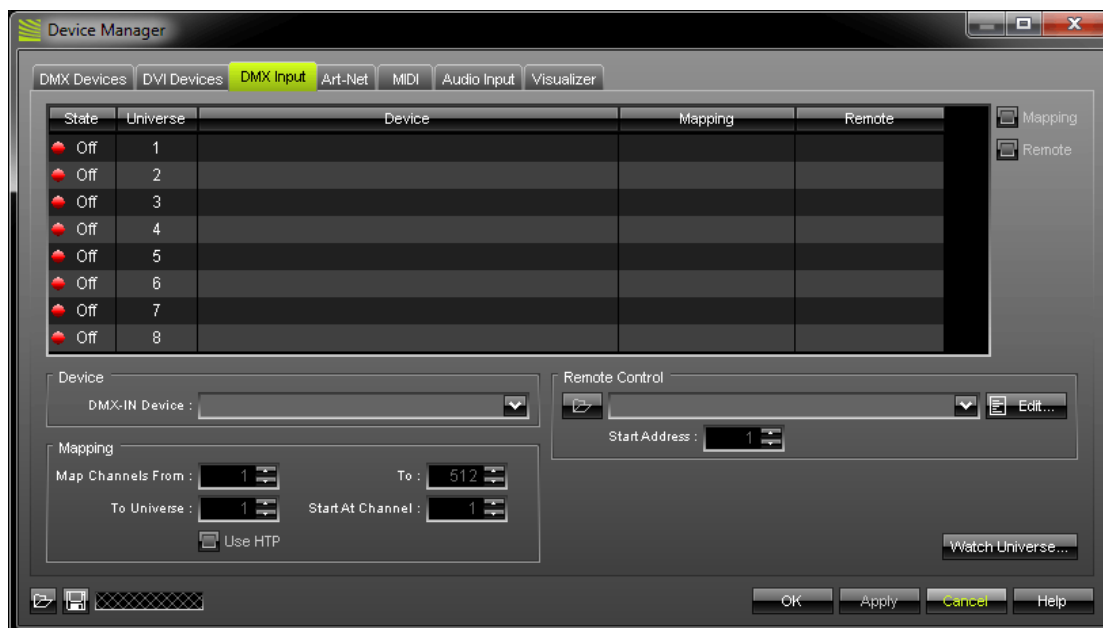


Please press **"Rescan For Devices"**. Now, select your DMX device in the list. Then, activate **"Enable"** and **"Input"** in the section **"Settings"**. Press **"Apply"** afterwards.



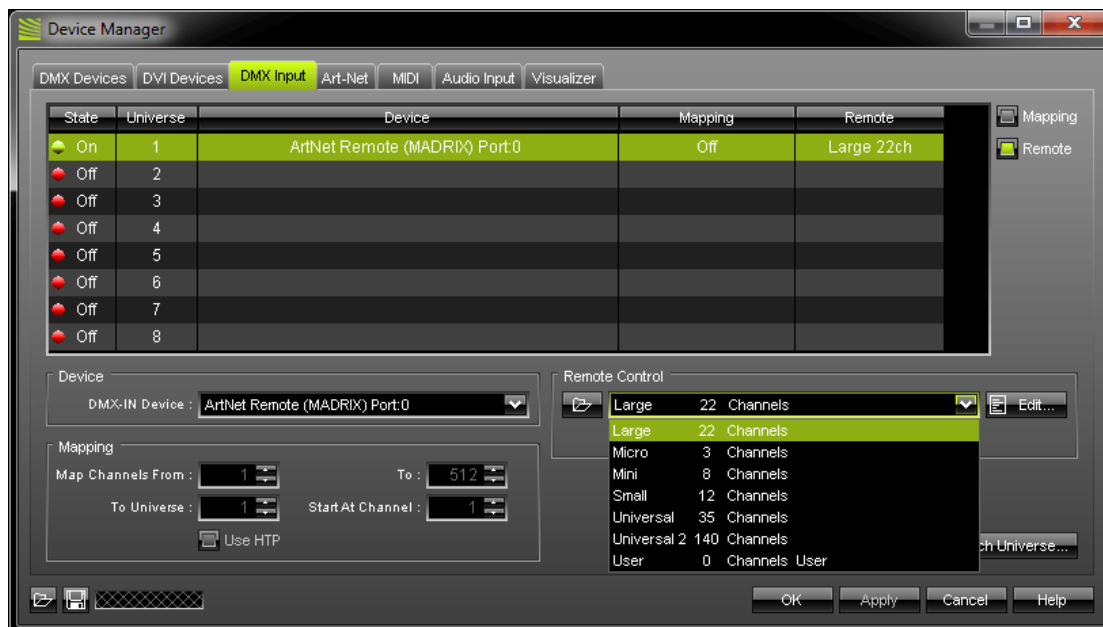
4. Enabling DMX-IN

Now, go to the tab "DMX Input" in the "Device Manager".



Select an (empty) entry in the list according to your preferred DMX universe. By default, universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, please change the setting in the **"MADRIX Options"** -> [Performance](#).

Then, choose your **"DMX-IN Device"** in the section **"Device"** (your Art-Net Remote device). Activate **"Remote"** (in the upper right corner) in the next step. Finally, select one of the built-in protocols in the section **"Remote Control"** or create your own remote configuration as explained below ([How To Assign DMX-IN Freely](#)).



Remote Control



Use this button to open an existing MADRIX DMX Remote Configuration file (*.mdrc) from your hard disk.



The **protocols** (configurations) you can choose from will be explained in more detail in the following chapters.



Click **"Edit"** if you wish to change a configuration or create a new one. More information is given below with [How To Assign DMX-IN Freely](#).



A protocol can start at a particular DMX channel. Define this **"Start Address"** here. The whole protocol will be mapped to this new area then.



Open the DMX Watcher to monitor your DMX output or input. Learn more in the chapter [Tools](#).

Mapping

Activate **"Mapping"** (in the upper right corner) if you would like to route incoming DMX signals through MADRIX for output (DMX-Thru). This feature maps incoming data to the specified DMX universe and channels.

Define which **minimum DMX channel** and which **maximum DMX channel** should be mapped to **which DMX universe** ("**Map Channels From ... To ... To Universe ...**"). You can also define a start channel ("**Start At Channel**"), which defines the first channel to start with.

The option **"Use HTP"** can be activated if MADRIX should only use the highest values it receives on a particular channel (Highest Takes Precedence principle).

Press **"Apply"** after the configuration process.



Please Note: You will need a MADRIX KEY that supports DMX512 output in order to be able to use Mapping.

Protocols (Overview)

Six different protocols are already implemented. Here is an overview:

- DMX-IN (Micro Protocol)
- DMX-IN (Mini Protocol)
- DMX-IN (Small Protocol)
- DMX-IN (Large Protocol)
- DMX-IN (Universal Protocol)
- DMX-IN (Universal Protocol 2)

How To Assign DMX Freely - DMX-IN Remote Editor

Overview



Once you clicked "**Edit**", a new window with the **DMX-IN Remote Editor** will open.

If you are creating a new configuration, this window will be empty.





Add a new entry or remove an entry. Scroll and navigate through the list of entries with the help of the two arrow keys.



Duplicate/copy an entry. Select one entry or several entries in the list, press the button and the selected entries will be duplicated. The entries will be added to the list right after each selected entry. You can change the settings of each entry afterwards.



You may create a completely **new** configuration, **open** an existing MADRIX DMX Remote Configuration file (*.mdrc) from your hard disk, or **save** your remote configuration.



Use this button to automatically assign a control of your device to a function in MADRIX. Activate "**Assign**", select an entry you created and move the control of your input device. MADRIX will automatically identify the "DMX Channel" and "Control Type".



After assigning a function to a control of your input device, you can press "**Test**" and move the control on your input device. You can see if the control works as expected on the MADRIX GUI, when "Test" is activated. If "Test" is activated, MADRIX will receive the signal directly and not the DMX-IN Remote Editor.

"Test" is also useful for testing modifiers. Read more on this topic: [Modifiers](#).


 Config Name : Large

When editing or creating a configuration, make sure to type in an individual name for your remote configuration in the field labeled **"Config Name"**. It will be created as "USER 'Config Name'" in the list.

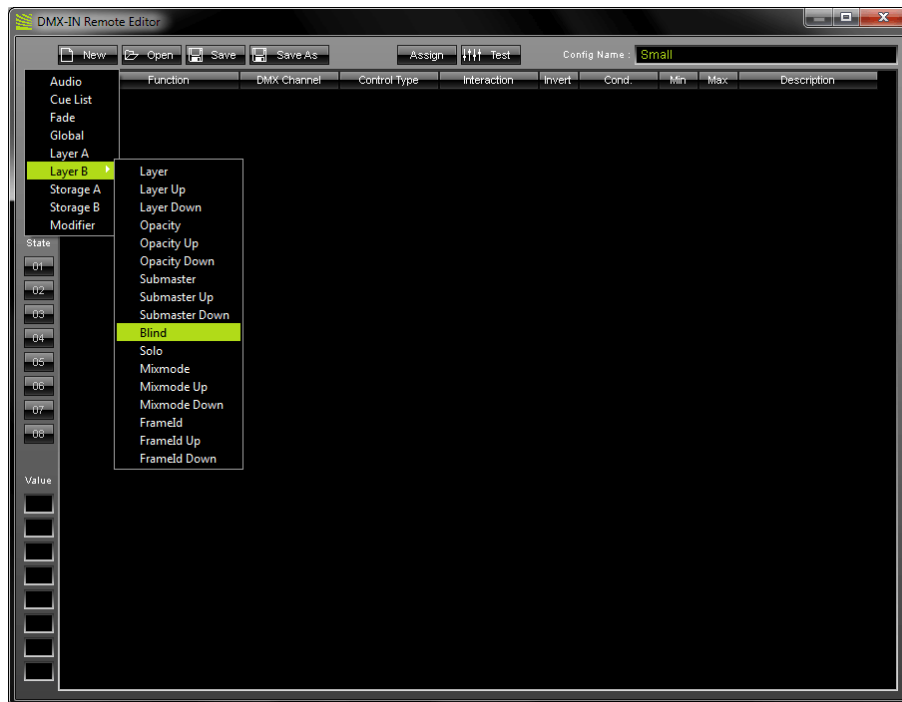
Keyboard Shortcuts

Ctrl + A	Select all entries in the list.
Ctrl + E (hold)	Activates "Assign", while holding this shortcut.
Ctrl + N	Create a new configuration.
Ctrl + O	Open a configuration.
Ctrl + S	Save a configuration.
Ctrl + T (hold)	Activates "Test", while holding this shortcut.
Entf	Delete selected entries in the list.
Arrow Up	Navigate upwards in the list.
Arrow Down	Navigate downwards in the list.
Double-click on an entry	Calls up the context menu for the column.
Double-click on a head row of the list	Sorts the list alphabetically according to the column (ascending or descending).

Configuration Of The DMX-IN Remote Editor

Function:

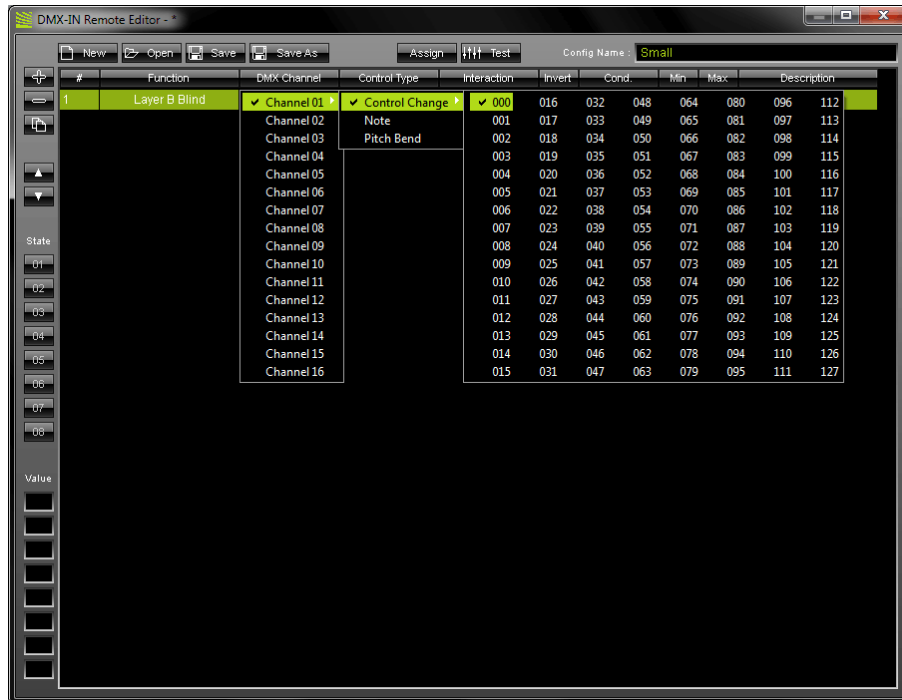
Select an entry and perform a double-click with your mouse on the column "Function" or create a new entry with "+". First, select the general topic ("Storage A", for example). Second, select the exact function of MADRIX you wish to configure ("Place", for example) and click with your mouse.



DMX Channel:

Option A) Use the button "Assign", select an entry and move the control of your input device. In most cases, MADRIX will automatically recognize the DMX Channel and the Control Type.

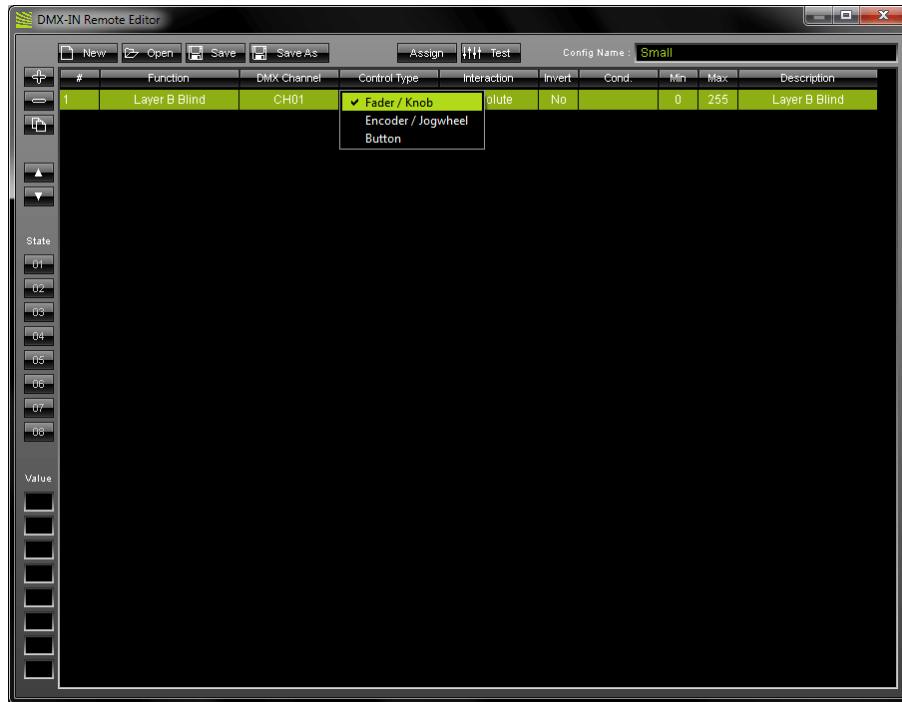
Option B) Select an entry and perform a double-click with your mouse on the column "DMX Channel". First, select the channel ("Channel 01", for example). Second, select "Control Change". Third, select the value ("053", for example) and click with your mouse.



Control Type:

Option A) Use the button "Assign", select an entry and move the control of your input device. In most cases, MADRIX will automatically recognize the DMX Channel and the Control Type.

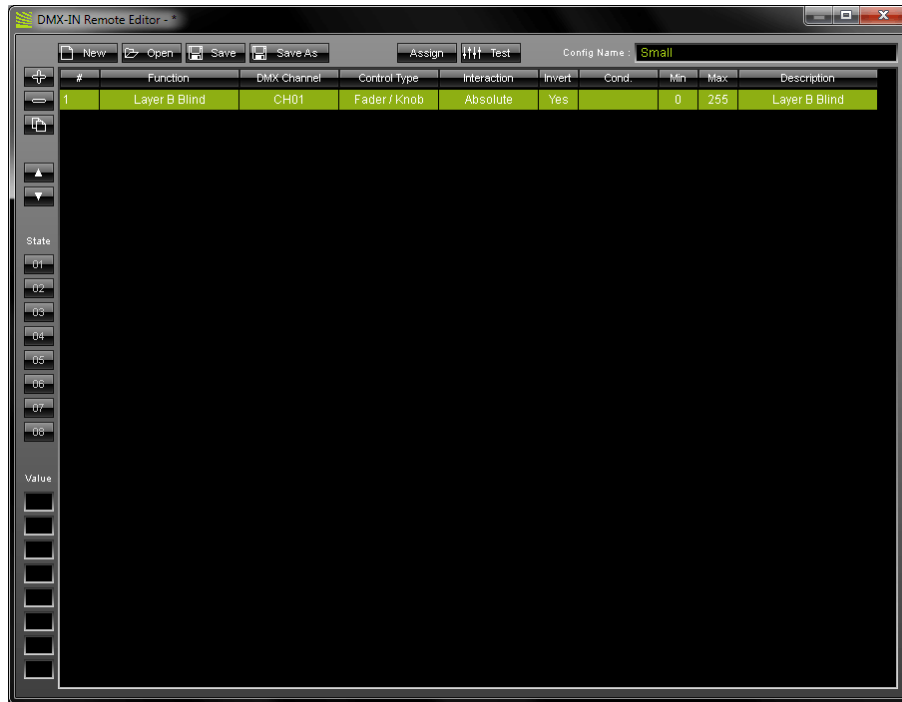
Option B) Select an entry and perform a double-click with your mouse on the column "Control Type". Select the type of the control of your input device ("Fader/Knob", for example).

**Interaction:**

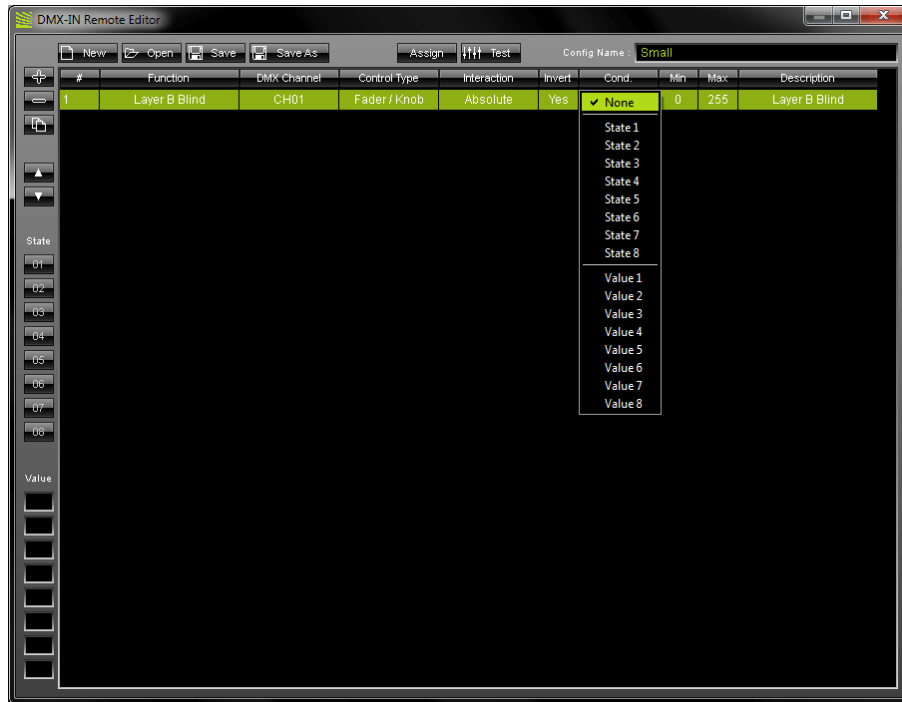
Select between "Toggle" or "Absolute". "Toggle" is suitable for On/Off-Functions: A value of 0 to 127 represents "Off", while a value of 128 to 255 represents "On". "Absolute" uses the exact value.

**Invert:**

Select an entry and perform a double-click with your mouse on the column "Invert". The entry will change between "No" and "Yes". If "Yes" is selected, all values of this control will be inverted. That means for example that 0 becomes 255 and 255 becomes 0.

**Condition (Cond.):**

Select an entry and perform a double-click with your mouse on the column "Cond.". Select the condition ("None", for example). If you select a "State", click "Yes" or "No". If you select a "Value", select and click the according number for it. Read more on this topic: [Modifiers](#).



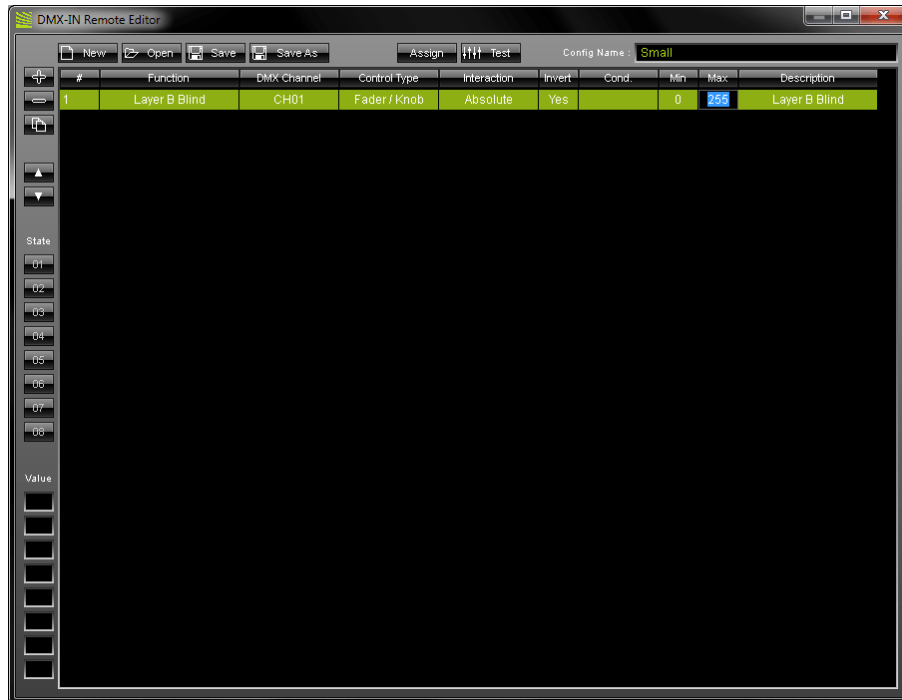
Min, Max, Description:

Select an entry and perform a double-click with your mouse on the column "Min", "Max", "Factor", or "Description". Enter the desired value or text.

"Min" requires a minimum value for this control. The default value is 0.

"Max" requires a maximum value for this control. For example, the Master Fader has a maximum value of 255, or you may want to set the maximum Fade Time to 10 seconds.

"Description" requires a text (By default, the name of the function will automatically be entered).



Modifiers:

The DMX-IN Remote Editor allows you to create advanced configurations. Modifiers allow to set certain conditions.

In general, these are the steps to follow:

1) Select an entry and perform a double-click with your mouse on the column "Function". Or you can create a new entry with "+".

First, select "Modifier". Second, select a "State" or "Value" and click with your mouse.

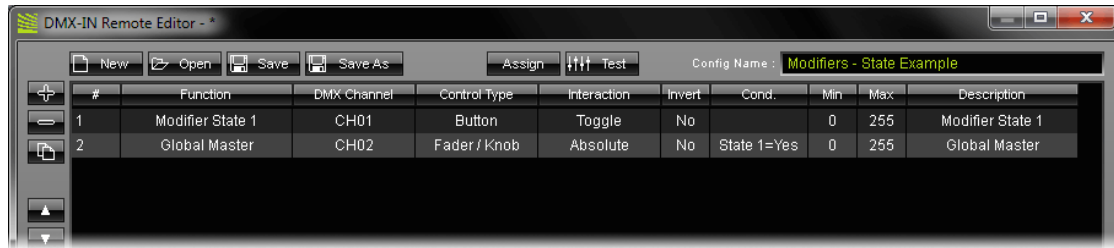
2) Afterwards create a function.

3) Assign the condition to this function (**Condition**).

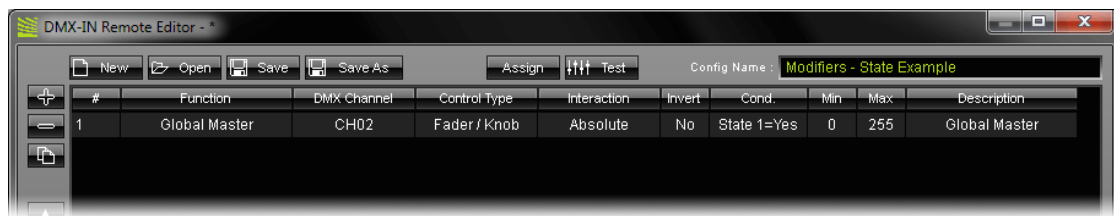
"State" creates a requirement/condition that is required before the function will work.

Example: We have set up a fader on the console that controls the Master Fader of MADRIX.

Because of the condition the Master Fader can only be used, when the button is pressed at the same time:



If no condition is assigned, the fader can be moved and the Master Fader of MADRIX will **always** respond accordingly:



"Value" allows you to add several functions to one or more controls of your input device by setting up a condition that needs to have a certain value. In short: If Value was set to a certain DMX value, execute a particular function.

Example: You want channel 1, your Master Fader, only to work when channel 2 is set to 255. You would then add a Modifier Value 1 function ranging from Min 0 to Max 0. Furthermore, you would add the function Global Master and add a Condition (Value 1 = 255). Your Master Fader will now only work when channel 2 is set to 255.





Test your modifiers. Activate the button (it changes to a green color). Now, move or use a control of your input device (a button or fader, for example). The DMX-IN Remote Editor will show at the left side of the window which modifier is assigned to this control.

Important Notes

Please make sure to save your MADRIX Setup after the configuration process.

9.1.1 DMX-IN (Micro Protocol)

Overview

DMX Channel	Value	Function
1	0 - 119 (in steps of 2) 120 - 239 (in steps of 2)	Storages A 1 – 60 Storages B 1 – 60
2	0 - 100% (0-10 sec. default value)	Set up the Fade time in percent
3	0 - 255	Set up the Master Fader

Other Protocols

There are other preprogrammed DMX protocols, despite the Micro Protocol:

- DMX-IN (Micro Protocol)
- DMX-IN (Mini Protocol)
- DMX-IN (Small Protocol)
- DMX-IN (Large Protocol)

- DMX-IN (Universal Protocol)
- DMX-IN (Universal Protocol 2)

9.1.2 DMX-IN (Mini Protocol)

Overview

DMX Channel	Value	Function
1	0 - 119 (in steps of 2) 120 - 239 (in steps of 2)	Storages A 1 - 60 Storages B 1 - 60
2	0 - 63 64 - 127 128 - 191 192 - 255	XF - Cross-fade WF - White-fade BF - Black-fade CF - Color-fade
3	0 - 100% (0-10 sec. default value)	Set up the Fade time in percent
4 5 6 7	0 - 255 0 - 255 0 - 255 0 - 255	Set up the color for Color-fade Red Green Blue White
8	0 - 255	Set up the Master Fader

Other Protocols

There are other preprogrammed DMX protocols, despite the Mini Protocol:

- DMX-IN (Micro Protocol)
- DMX-IN (Mini Protocol)
- DMX-IN (Small Protocol)
- DMX-IN (Large Protocol)
- DMX-IN (Universal Protocol)
- DMX-IN (Universal Protocol 2)

9.1.3 DMX-IN (Small Protocol)

Overview

DMX Channel	Value	Function
1	0 – 239 (in steps of 4)	Storage A Place 1 – 60
2	0 – 239 (in steps of 4)	Storage B Place 1 – 60
3	0 – 63 64 – 127 128 – 191 192 – 255	XF – Cross-fade WF – White-fade BF – Black-fade CF – Color-fade
4	0 – 255	Fade Value (Position of the Fade Slider)
5	0 – 255	Fade Time in seconds
6	0 – 255	Fade Time in 1/100 seconds
7	0/255	Auto Fade
8	0 – 255	CF Fade Color R
9	0 – 255	CF Fade Color G
10	0 – 255	CF Fade Color B
11	0 – 255	CF Fade Color W
12	0 – 255	Set up the Master Fader

Other Protocols

There are other preprogrammed DMX protocols, despite the Small Protocol:

- DMX-IN (Micro Protocol)
- DMX-IN (Mini Protocol)
- DMX-IN (Small Protocol)
- DMX-IN (Large Protocol)
- DMX-IN (Universal Protocol)
- DMX-IN (Universal Protocol 2)

9.1.4 DMX-IN (Large Protocol)

Overview

DMX Channel	Value	Function
1	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 –155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage A Place 1 Storage A Place 2 Storage A Place 3 Storage A Place 4 Storage A Place 5 Storage A Place 6 Storage A Place 7 Storage A Place 8 Storage A Place 9 Storage A Place 10
2	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 –155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage A Place 11 Storage A Place 12 Storage A Place 13 Storage A Place 14 Storage A Place 15 Storage A Place 16 Storage A Place 17 Storage A Place 18 Storage A Place 19 Storage A Place 20
3	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 –155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage A Place 21 Storage A Place 22 Storage A Place 23 Storage A Place 24 Storage A Place 25 Storage A Place 26 Storage A Place 27 Storage A Place 28 Storage A Place 29 Storage A Place 30
4	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 –155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage A Place 31 Storage A Place 32 Storage A Place 33 Storage A Place 34 Storage A Place 35 Storage A Place 36 Storage A Place 37 Storage A Place 38 Storage A Place 39 Storage A Place 40
5	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130	No Function Storage A Place 41 Storage A Place 42 Storage A Place 43 Storage A Place 44 Storage A Place 45

	131 – 155 156 – 180 181 – 205 206 – 230 231 – 255	Storage A Place 46 Storage A Place 47 Storage A Place 48 Storage A Place 49 Storage A Place 50
6	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 – 155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage A Place 51 Storage A Place 52 Storage A Place 53 Storage A Place 54 Storage A Place 55 Storage A Place 56 Storage A Place 57 Storage A Place 58 Storage A Place 59 Storage A Place 60
7	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 – 155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage B Place 1 Storage B Place 2 Storage B Place 3 Storage B Place 4 Storage B Place 5 Storage B Place 6 Storage B Place 7 Storage B Place 8 Storage B Place 9 Storage B Place 10
8	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 – 155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage B Place 11 Storage B Place 12 Storage B Place 13 Storage B Place 14 Storage B Place 15 Storage B Place 16 Storage B Place 17 Storage B Place 18 Storage B Place 19 Storage B Place 20
9	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 – 155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage B Place 21 Storage B Place 22 Storage B Place 23 Storage B Place 24 Storage B Place 25 Storage B Place 26 Storage B Place 27 Storage B Place 28 Storage B Place 29 Storage B Place 30
10	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 – 155 156 – 180 181 – 205 206 – 230	No Function Storage B Place 31 Storage B Place 32 Storage B Place 33 Storage B Place 34 Storage B Place 35 Storage B Place 36 Storage B Place 37 Storage B Place 38 Storage B Place 39

	231 – 255	Storage B Place 40
11	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 –155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage B Place 41 Storage B Place 42 Storage B Place 43 Storage B Place 44 Storage B Place 45 Storage B Place 46 Storage B Place 47 Storage B Place 48 Storage B Place 49 Storage B Place 50
12	0 – 5 6 – 30 31 – 55 56 – 80 81- 105 106 – 130 131 –155 156 – 180 181 – 205 206 – 230 231 – 255	No Function Storage B Place 51 Storage B Place 52 Storage B Place 53 Storage B Place 54 Storage B Place 55 Storage B Place 56 Storage B Place 57 Storage B Place 58 Storage B Place 59 Storage B Place 60
13	0 – 63 64 – 127 128 – 191 192 – 255	XF – Cross-Fade WF – White-Fade BF – Black-Fade CF – Color-Fade
14	0 – 255	Fade Value (Position of the Fade Slider)
15	0 – 255	Fade Time in seconds
16	0 – 255	Fade Time in 1/100 seconds
17	0/255	Auto Fade
18	0 – 255	CF Fade Color R
19	0 – 255	CF Fade Color G
20	0 – 255	CF Fade Color B
21	0 – 255	CF Fade Color W
22	0 - 255	Set up the Master Fader

Please Note regarding DMX Channels 1-6 & 7-12:

DMX channels 1-6 and 7-12 control the Storage Areas A and B. Please send signals only on one of the six DMX channels 1-6 to switch Storage Places. The same applies to DMX channels 7-12.

Example 1

You want to request Storage Place 17 from Storage A:

DMX-Channel	Value
-------------	-------

1	0
2	156-180
3	0
4	0
5	0
6	0

Example 2

You want to request Storage Place 43 from Storage B:

DMX-Channel	Value
7	0
8	0
9	0
10	0
11	56-80
12	0

In practice:

After setting up the first Storage with a fader, you can select a new Storage with a second fader on the mixer. This one will only be applied if the first fader is set to 0.

Other Protocols

There are other preprogrammed DMX protocols, despite the Large Protocol:

- DMX-IN (Micro Protocol)
- DMX-IN (Mini Protocol)
- DMX-IN (Small Protocol)
- DMX-IN (Large Protocol)
- DMX-IN (Universal Protocol)
- DMX-IN (Universal Protocol 2)

9.1.5 DMX-IN (Universal Protocol)

Overview

DMX Channel	Value	Function
1	0 – 119 (in steps of 2) 120 – 239 (in steps of 2)	Storages A 1 – 60 with Autofade Storages B 1 – 60 with Autofade
2	0 – 239 (in steps of 4)	Storage A Place 1–60 without Autofade
3	0 – 239 (in steps of 4)	Storage B Place 1–60 without Autofade
4	0 - 255 (0 - 100%)	Set up the Fade time in percent (Set up inside the MADRIX Device Manager - DMX-IN Tab the value for the fade time. This time complies the value 255 or 100%)
5	255	Auto Fade
6	255	Skip A
7	255	Skip B
8	0 - 255	Fade Value (Position of the Crossfader) 0 = left (A) 255 = right (B)
9	0 - 63 (0 - 24%) 64 - 127 (25 - 49%) 128 - 191 (50 - 74%) 192 - 255 (75 - 100%)	XF – Cross-fade WF – White-fade BF – Black-fade CF – Color-fade
10	0 - 255	Red (color for Color-fade)
11	0 - 255	Green (color for Color-fade)
12	0 - 255	Blue (color for Color-fade)
13	0 - 255	White (color for Color-fade)
14	0 - 255	Master Fader
15	0 - 255	Audio Input
16	255	Audio Start/Stop Toggle
17	0 - 255	Speed Master A, factor -10 till +10
18	0 - 255	Speed Master B, factor -10 till +10
19	0 / 255	Pause Storage A (0=play,255=pause)
20	0 / 255	Pause Storage B (0=play,255=pause)
21	0 / 255	Freeze Output (0=unfreeze/255=freeze)
22	255	Cue List GO
23	255	Cue List BACK

24	0 - 255	Cue List GOTO 1 - 256
25	255	Cue List Play
26	0 - 255	Submaster Storage A
27	0 - 255	Submaster Storage B
28	0 - 255	Select Layer A, 1 - 256 (0=Layer1, 1=Layer2, 2=Layer3 ... 255=Layer256)
29	0 - 255	Select Layer B, 1 - 256 (0=Layer1, 1=Layer2, 2=Layer3 ... 255=Layer256)
30	0 - 255	Submaster selected Layer A
31	0 - 255	Submaster selected Layer B
32	0 - 255	Opacity selected Layer A
33	0 - 255	Opacity selected Layer B
34	0 - 24	0=NONE function / Mix mode selected Layer A
35	0 - 24	0=NONE function / Mix mode selected Layer B

Other Protocols

There are other preprogrammed DMX protocols, despite the Universal Protocol:

- DMX-IN (Micro Protocol)
- DMX-IN (Mini Protocol)
- DMX-IN (Small Protocol)
- DMX-IN (Large Protocol)
- DMX-IN (Universal Protocol)
- DMX-IN (Universal Protocol 2)

9.1.6 DMX-IN (Universal Protocol 2)

Overview

DMX Channel	Value	Function
1	0 – 119 (in steps of 2) 120 – 239 (in steps of 2)	Storages A 1 – 60 with Autofade Storages B 1 – 60 with Autofade
2	0 – 239 (in steps of 4)	Storage A Place 1–60 without Autofade
3	0 – 239 (in steps of 4)	Storage B Place 1–60 without Autofade
4	0 - 255 (0 - 100%)	Set up the Fade time in percent (Set up inside the MADRIX Device Manager - DMX-IN Tab the value for the fade time. This time complies the value 255 or 100%)
5	255	Auto Fade
6	255	Skip A
7	255	Skip B
8	0 - 255	Fade Value (Position of the Crossfader) 0 = left (A) 255 = right (B)
9	0 - 63 (0 - 24%) 64 - 127 (25 - 49%) 128 - 191 (50 - 74%) 192 - 255 (75 - 100%)	XF – Cross-fade WF – White-fade BF – Black-fade CF – Color-fade
10	0 - 255	Red (color for Color-fade)
11	0 - 255	Green (color for Color-fade)
12	0 - 255	Blue (color for Color-fade)
13	0 - 255	White (color for Color-fade)
14	0 - 255	Master Fader
15	0 - 255	Audio Input
16	255	Audio Start/Stop Toggle
17	0 - 255	Speed Master A, factor -10 till +10
18	0 - 255	Speed Master B, factor -10 till +10
19	0 / 255	Pause Storage A (0=play,255=pause)
20	0 / 255	Pause Storage B (0=play,255=pause)
21	0 / 255	Freeze Output (0=unfreeze/255=freeze)
22	255	Cue List GO
23	255	Cue List BACK

24	0 - 255	Cue List GOTO 1 - 256
25	255	Cue List Play
26	0 - 255	Submaster Storage A
27	0 - 255	Submaster Storage B
28	0 - 255	Select Layer A, 1 - 256 (0=Layer1, 1=Layer2, 2=Layer3 ... 255=Layer256)
29	0 - 255	Select Layer B, 1 - 256 (0=Layer1, 1=Layer2, 2=Layer3 ... 255=Layer256)
30	0 - 255	Submaster selected Layer A
31	0 - 255	Submaster selected Layer B
32	0 - 255	Opacity selected Layer A
33	0 - 255	Opacity selected Layer B
34	0 - 24	0=NONE function / Mix mode selected Layer A
35	0 - 24	0=NONE function / Mix mode selected Layer B
36	0 - 255	Red (color for Color Filter)
37	0 - 255	Green (color for Color Filter)
38	0 - 255	Blue (color for Color Filter)
39	0 - 255	White (color for Color Filter)
40	- Reserved - (value 0)	Please do not use otherwise! Reserved for future features.
...	- Reserved - (value 0)	Please do not use otherwise! Reserved for future features.
140	- Reserved - (value 0)	Please do not use otherwise! Reserved for future features.

Other Protocols

There are other preprogrammed DMX protocols, despite the Universal Protocol 2:

- DMX-IN (Micro Protocol)
- DMX-IN (Mini Protocol)
- DMX-IN (Small Protocol)
- DMX-IN (Large Protocol)
- DMX-IN (Universal Protocol)

- DMX-IN (Universal Protocol 2)

9.1.7 DMX-IN (User)

Overview

This type of protocol describes configurations users can create themselves. In order to learn how to assign DMX-IN freely and how to program your own configuration, please read the chapter [DMX-IN & Art-Net Remote](#).

Other Protocols

There are other preprogrammed DMX protocols you can choose from:

- [DMX-IN \(Micro Protocol\)](#)
- [DMX-IN \(Mini Protocol\)](#)
- [DMX-IN \(Small Protocol\)](#)
- [DMX-IN \(Large Protocol\)](#)
- [DMX-IN \(Universal Protocol\)](#)
- [DMX-IN \(Universal Protocol 2\)](#)

9.2 MIDI-IN

Introduction



MIDI consoles can be used to **control MADRIX remotely**. Or you can use MIDI devices to play **sounds that are used for the sound effects** built into MADRIX. MIDI Time Code will be explained in the next chapter [MIDI Time Code \(MTC\)](#).

Important Notes

Before using a MIDI device, please make sure that all necessary drivers are installed and that your MIDI console is connected to your computer.

Please also make sure to save your MADRIX Setup after the following configuration process.

Configuration - Activating Your MIDI Device

Open the menu **"Preferences" -> "Remote Control" -> "MIDI"**. A new dialog will open, like shown below.

Or you can go to the menu **"Preferences" -> "Device Manager" -> "MIDI"**.



When your MIDI console is connected to your computer, it will appear in the list.

Scan

If you cannot see your MIDI device in the list, please press **"Scan"**.



To activate your MIDI console,

- 1)** select the device in the list and
- 2)** click **"Enable"** in the upper right hand corner.

Please note that the "State" in the list will change from "Off" (red light) to "On" (green light).



Now, several options are available to you:

- **Audio** - You may activate your MIDI device (a MIDI keyboard, for example) to be used as audio source: [Audio](#)
- **Remote** - You can use your MIDI VJ/DJ console to control MADRIX remotely: [Remote Control](#)
- **MTC** - You can use MADRIX to receive external MIDI Time Code: [Time Code](#)
- **Watch** - Activate this switch if you are encountering any problems: [MIDI Watcher](#)

You may activate several MIDI devices. And you may use all options (Audio, Remote, MTC, Watch) at the same time.

Configuration - Audio

Please make sure that your MIDI device is activated as [described above](#).

Select your MIDI device in the list, and click **"Audio"**.



This activates incoming MIDI signals for sound effects. Now, the **"Audio"** section becomes available:



"Use For S2L" and **"Use For M2L"** activates the audio analysis of MIDI signals for Sound2Light and Music2Light effects, respectively. They are activated by default.

The section **"Channel Filter"** allows you to select which MIDI channel will be scanned 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 scanned by MADRIX.

Configuration - Remote Control

Please make sure that your MIDI device is activated as **described above**.

Select your MIDI device in the list, and click **"Remote"**.



This activates incoming MIDI signals for remote control. Please always make sure to select the MIDI device in the list. After that, several options are available to you in the section named **"Remote Control"**:



Use this button to open an existing MADRIX MIDI Remote Configuration file (*.mmrc) from your hard disk.

Numark	NuVJ	Editable
AKAI	APC40	Editable
Behringer	BCD2000	Editable
Behringer	BCF2000 (Fader)	Editable
Behringer	BCR2000 (Rotary)	Editable
Behringer	BCD3000	Editable
Creative	ProDiKeys DM	Editable
Hercules	DJ Console Rmx MIDI	Editable
Hercules	DJ Control MP3 e2	Editable
Hercules	DJ Console MK2	Editable
Hercules	DJ Control MP3	Editable
Livid	Ohm 64	
M-Audio	Oxygen 8 v2	
M-Audio	Torq Xponent	
Midi	Universal	Editable
Numark	NuVJ	Editable
Numark	StealthControl	
Numark	OmniControl	
Numark	TotalControl	
Omnitronic	MMC-1	
Pioneer	DJM-800 (beta)	
Pioneer	DJM-700 (beta)	
Rad.Tech.	SAC-2K	
Standard	MidiKeyboard	Editable

Use this list to select the MIDI configuration you wish to use. The MIDI maps are listed alphabetically according to the manufacturer.

MADRIX already includes a number of pre-programmed MIDI maps as shown in the list. You can get an overview over all existing MIDI maps [below](#).

If you wish to create a new MIDI map, choose **"USER User"**. If a MIDI map is labeled **"Editable"**, you can edit this configuration. More information is given below with [How To Assign MIDI Freely](#).



Click **"Edit"**, if you wish to change a MIDI map. More information is given below

with [How To Assign MIDI Freely](#).

Overview

You can find these preprogrammed MIDI maps in the following chapters.

- [Akai Professional APC40](#)
- [Behringer BCD3000 & BCD2000](#)
- [Behringer BCF2000](#)
- [Behringer BCR2000](#)
- [Creative Prodikeys PC-MIDI](#)
- [Elation Professional MIDICON](#)
- [Hercules DJ Console Rmx](#)
- [Hercules DJ Control MP3 & DJ Console MK2](#)
- [Hercules DJ Control MP3 e2](#)
- [KORG nanoKONTORL](#)

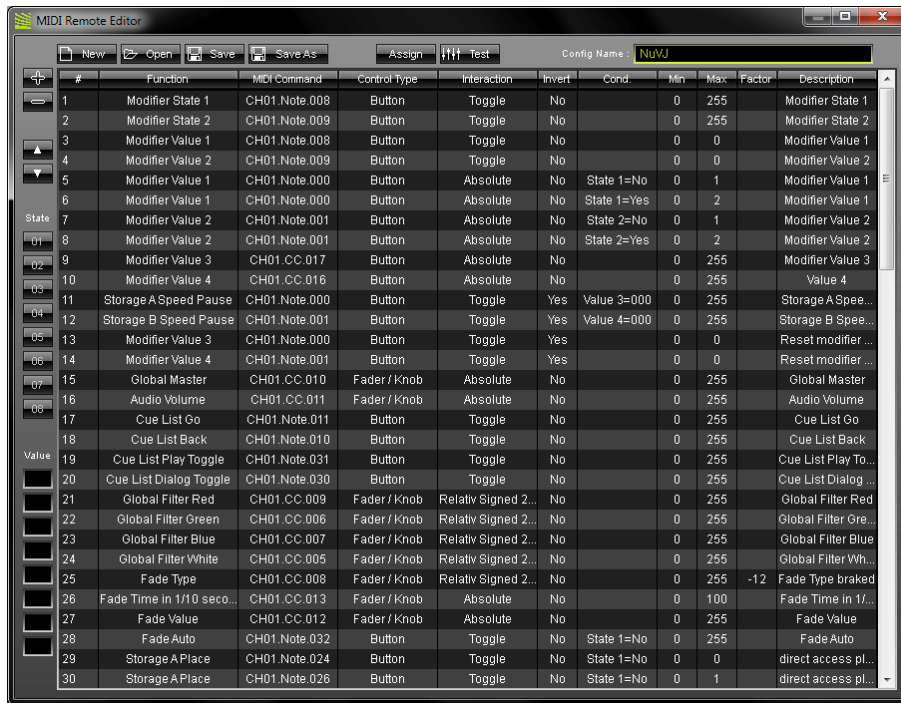
- Livid Instruments Ohm64
- M-AUDIO Oxygen 8 v2
- M-AUDIO Torq Xponent
- MIDI Keyboards
- MIDI Universal
- Novation Launchpad
- Numark NuVJ
- Numark Omni Control
- Numark Stealth Control
- Numark Total Control
- Omnitronic MMC-1
- Stanton SCS.3d
- USER User
- Vestax VCI-100
- Vestax VCM-100

How To Assign MIDI Freely - MIDI Remote Editor

Overview



Once you clicked **"Edit"**, a new window with the **MIDI Remote Editor** will open. If you are creating a new MIDI configuration, this window will be empty.





Add a new entry or **remove** an entry with "+" or "-". Scroll and navigate through the list of entries with the help of the **two arrow keys**.



Duplicate/copy an entry with the help of this button. Select one entry or several entries in the list, press the button and the selected entries will be duplicated. The entries will be added to the list right after each selected entry. You can change the settings afterwards.



You may create a completely **new** MIDI map, **open** an existing MADRIX MIDI Remote Configuration file (*.mmrc) from your hard disk, or **save** your MIDI remote configuration.

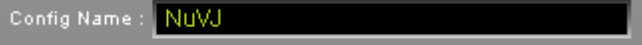


Use this button to automatically assign a control of your MIDI console to a function in MADRIX. Activate **"Assign"**, select an entry you created and move the control of your MIDI console. In most cases, MADRIX will automatically recognize the MIDI Command, Control Type, and Interaction as **described below**.



After assigning a function to a control of your MIDI console, you can press **"Test"** and move the control on your MIDI console. You can see if the control works as expected on the MADRIX GUI, when "Test" is activated. If "Test" is activated, MADRIX will receive the signal directly and not the MIDI Remote Editor.

"Test" is also useful for testing modifiers. Read more on this topic: [Modifiers](#).



When editing or creating a MIDI map, make sure to type in an individual name for your MIDI remote configuration in the field labeled **"Config Name"**. It will be created as "USER 'Config Name'" in the list of the Device Manager - MIDI tab. If you wish to edit a "fixed config", MADRIX will not overwrite the existing configuration. It will create a new USER configuration when saving it.

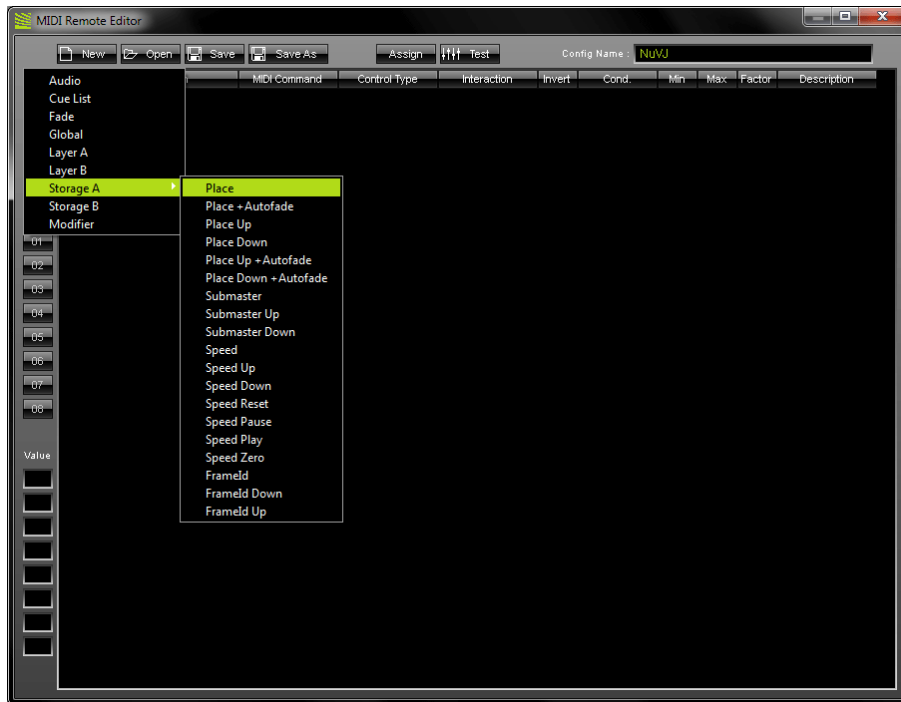
Keyboard Shortcuts

Ctrl + A	Select all entries in the list.
Ctrl + E (hold)	Activates "Assign", while holding this shortcut.
Ctrl + N	Create a new MIDI map.
Ctrl + O	Open a MIDI map.
Ctrl + S	Save a MIDI map.
Ctrl + T (hold)	Activates "Test", while holding this shortcut.
Entf	Delete selected entries in the list.
Arrow Up	Navigate upwards in the list.
Arrow Down	Navigate downwards in the list.
Double-click on an entry	Calls up the context menu for the column.
Double-click on a head row of the list	Sorts the list alphabetically according to the column (ascending or descending).

Configuration Of The MIDI Remote Editor

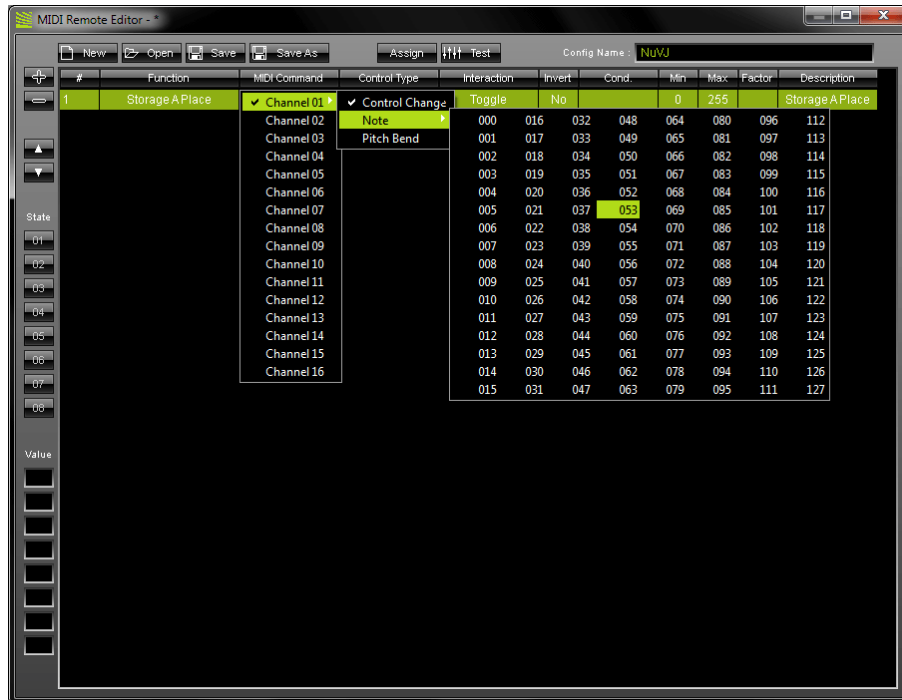
Function:

Select an entry and perform a double-click with your mouse on the column "Function" or create a new entry with "+". First, select the general topic ("Storage A", for example). Second, select the exact function you wish to configure ("Place", for example) and click with your mouse.

**MIDI Command:**

Option A) Use the button "Assign", select an entry and move the control of your MIDI console. In most cases, MADRIX will automatically recognize the MIDI Command, Control Type, and Interaction.

Option B) Select an entry and perform a double-click with your mouse on the column "MIDI Command". First, select the MIDI channel ("Channel 01", for example). Second, select the MIDI type ("Note", for example). Third, select the value ("053", for example) and click with your mouse. 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.



Control Type:

Option A) Use the button "Assign", select an entry and move the control of your MIDI console. In most cases, MADRIX will automatically recognize the MIDI Command, Control Type, and Interaction.

Option B) Select an entry and perform a double-click with your mouse on the column "Control Type". Select the type of the control of your MIDI console ("Button", for example).



Interaction:

Option A) Use the button "Assign", select an entry and move the control of your MIDI console. In most cases, MADRIX will automatically recognize the MIDI Command, Control Type, and Interaction.

Option B) Select an entry and perform a double-click with your mouse on the column "Interaction". Select the mode ("Toggle", for example).

**Invert:**

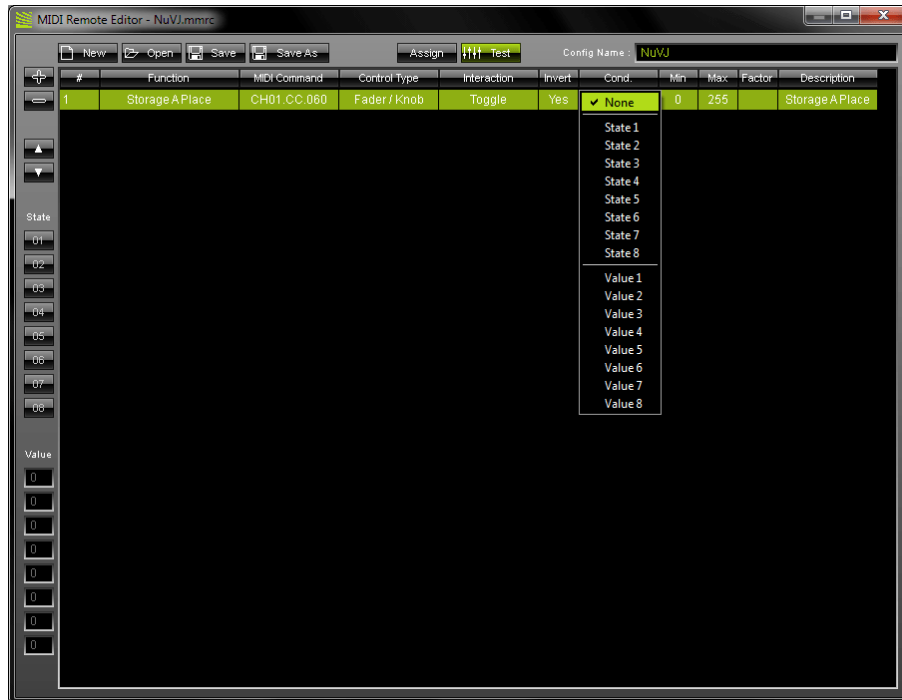
Select an entry and perform a double-click with your mouse on the column "Invert". The entry will change between "No" and "Yes". If "Yes" is selected, all values of this control will be inverted.

That means for example that 0 becomes 255 and 255 becomes 0.



Condition (Cond.):

Select an entry and perform a double-click with your mouse on the column "Cond.". Select the condition ("None", for example). If you select a "State", click "Yes" or "No". If you select a "Value", select and click the according number for it. Read more on this topic: [Modifiers](#).



Min, Max, Factor, Description:

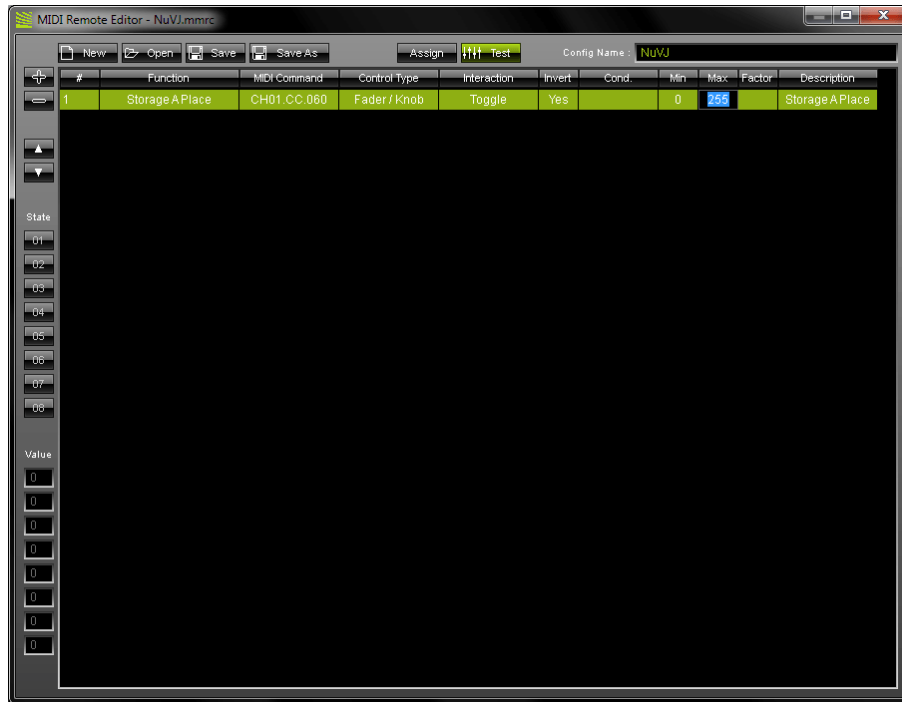
Select an entry and perform a double-click with your mouse on the column "Min", "Max", "Factor", or "Description". Enter the desired value or text.

"Min" requires a minimum value for this control. The default value is 0.

"Max" requires a maximum value for this control. For example, the Master Fader has a maximum value of 255, or you may want to set the maximum Fade Time to 10 seconds.

"Factor" requires a certain value between -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 console. For example, a jog wheel might be too fast to select mix modes of MADRIX. Slow it down by entering a negative value.

"Description" requires a text (By default, the name of the function will automatically be entered).



Modifiers:

The MIDI Remote Editor allows you to create advanced MIDI configurations. Modifiers allow to set certain conditions.

In general, these are the steps to follow:

1) Select an entry and perform a double-click with your mouse on the column "Function". Or you can create a new entry with "+".

First, select "Modifier". Second, select a "State" or "Value" and click with your mouse.

2) Afterwards create a function.

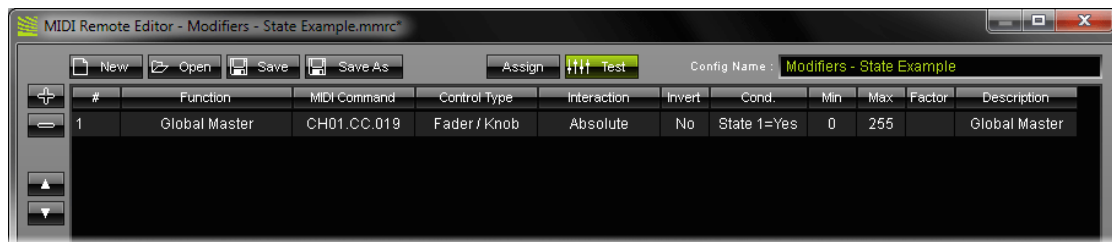
3) Assign the condition to this function (**Condition**).

"State" creates a requirement/condition that is required before the function will work. Here is an example for a state:

We have set up a fader on the console that controls the Master Fader of MADRIX. Because of the condition the Master Fader can only be used, when the button is pressed at the same time:



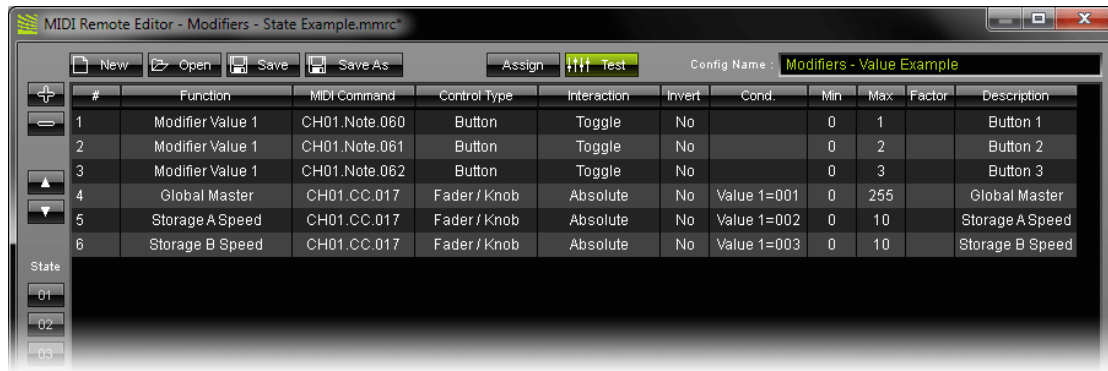
If no condition is assigned, the fader can be moved and the Master Fader of MADRIX will **always** respond accordingly:



"Value" allows to add several functions to one or more controls of the MIDI console. Here is an example for a value:

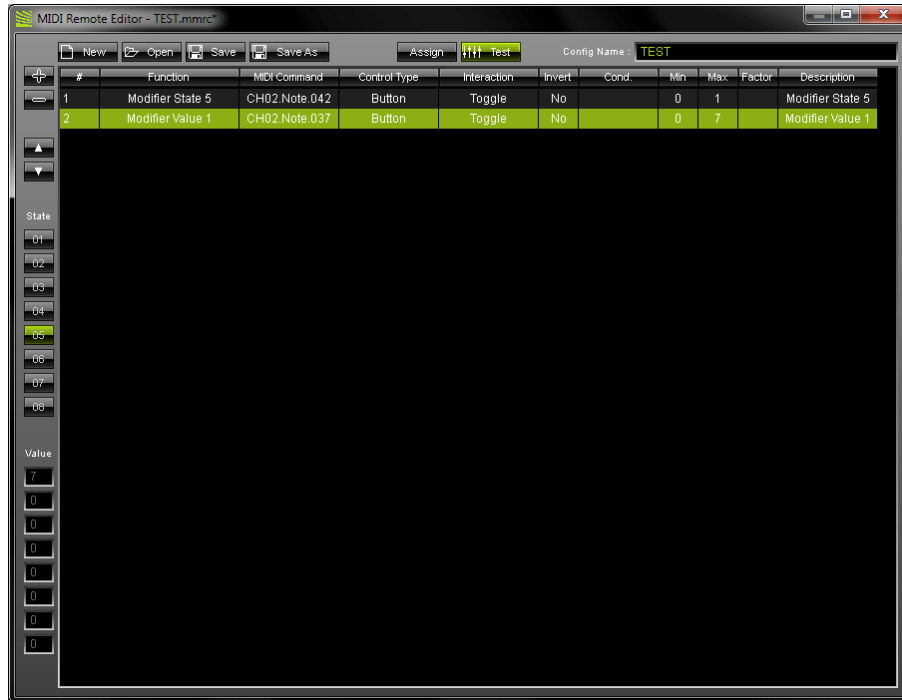
Let's say your MIDI console has only one fader. But you would want to control the Master Fader, the Speed Master A, and the Speed Master B with this one fader. In this example we have configured 3 buttons that activate three different configurations for the fader. If button 1 is pressed one time, the fader will act as the Master Fader. If button 2 is pressed one time, the fader will act as Speed Master A. If button 3 is pressed one time, the fader will act as Speed Master B.

Please 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. In this case, Value 2=002 will not work!



You can use the button **"Test"**. Activate the button (green color) and press a control of your MIDI console (a button, for example). The MIDI Remote Editor will show at the left side of the window which modifier is assigned to this control.

Here is an example: The first button has State 5 assigned. In the left column "05" is shown. The second button has Value 1 with Max 7 assigned to it. In the left column "7" is shown.



Examples

1) You wish to use single buttons of your MIDI controller for each Storage Place.

Use "+" to create a new function. Select "Storage A" -> "Place +Autofade". Use "Assign" to match your button to this function. Disable "Assign" and set "Max" to 0. This will trigger Storage A1. 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 Storage A7)

Use "Storage B" -> "Place +Autofade" and repeat the steps accordingly to control the Storage Places on the right side, Storage B.

Configuration - Time Code



Please see the chapter [MIDI Time Code \(MTC\)](#) for more information on how to configure and use MIDI Time Code.

Configuration - Watch (MIDI Watcher)



If you activated the switch **"Watch"**, click **"MIDI Watcher..."** afterwards. A new window will open. Then, check the MIDI Watcher for errors. You can learn more about the MIDI Watcher in the chapter [Tools](#).

9.2.1 Akai Professional APC40



[26] Mode 1:

[45] Cue – Add Storage Place A to Cue List

[46] Cue List Open

[47] Cue List Close

[48] Cue – Add Storage Place B to Cue List

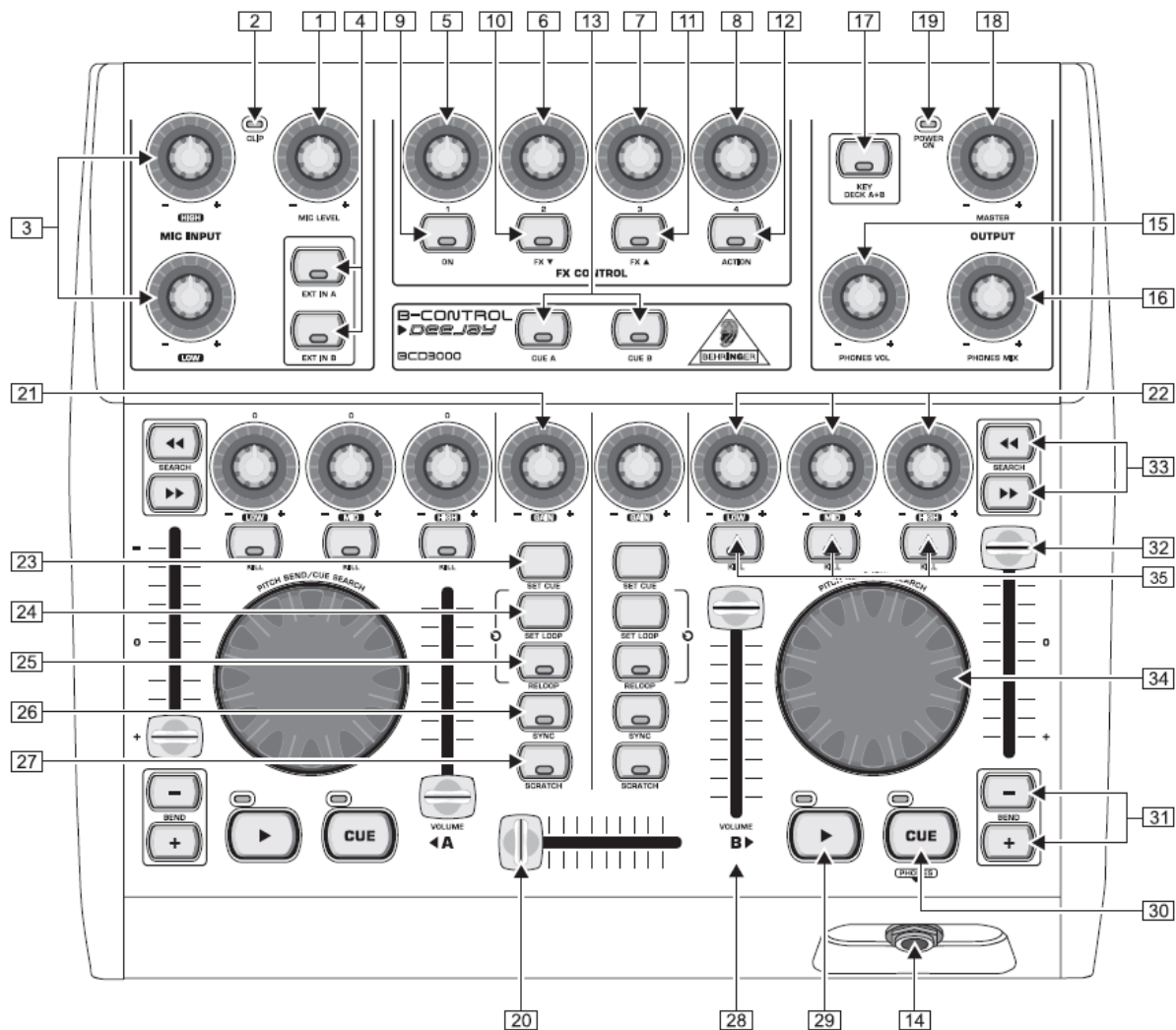
[1] - [16] Storage Place A1 – A16 / B1 – B16	[30] Audio level	[41] Speed Master A PAUSE
[17] Storage Place A/B DOWN	[31] Master Fader	[42] Blackout
[18] Storage Place A/B UP	[32] Color Filter color RED	[43] Freeze Main Output
[19] A Layer A/B DOWN	[33] Color Filter color GREEN	[44] Speed Master B PAUSE
[20] Layer A/B UP	[34] Color Filter color BLUE	[49] Cue List BACK
[21] + [27] Submaster Storage A/B	[35] Color Filter color WHITE	[50] Cue List Play/Pause

[22] + [27] Frame ID A/B	[36] Fade type UP	[51] Cue List GO
[23] + [27] Layer Submaster A/B	[37] Color-fade color RED	[52] Crossfader
[24] + [27] Layer Opacity A/B	[38] Color-fade color GREEN	
[25] Audio ON/OFF	[39] Color-fade color BLUE	
[28] Speed Master Storage A	[40] Color-fade color WHITE	
[29] Speed Master Storage B		

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.2 Behringer BCD3000 & BCD2000

Also known as BCD 3000 / BCD-3000 or BCD 2000 / BCD-2000.



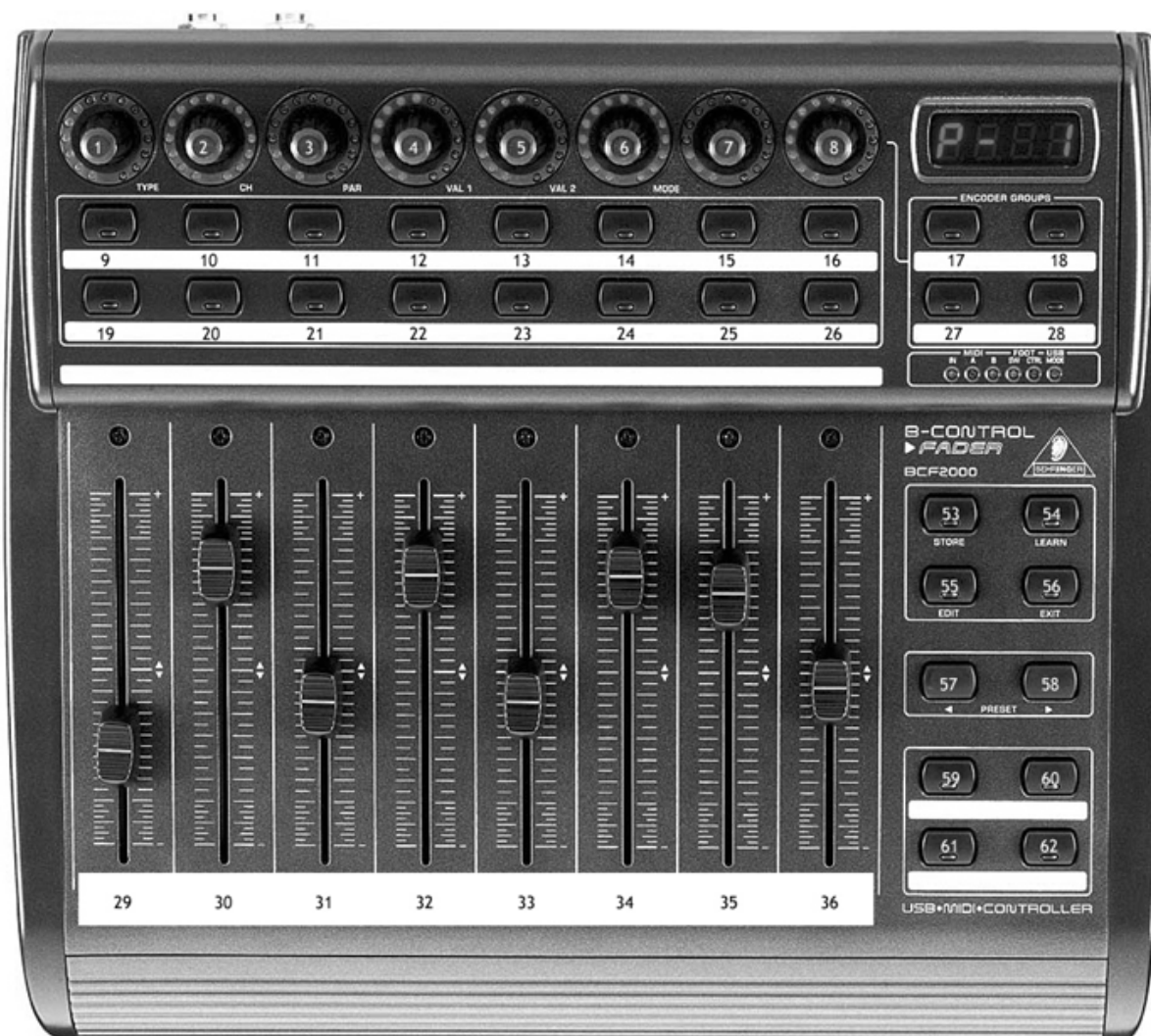
[1] No MIDI function	[13] FREE	[25] Layer Mix Mode UP
[2] FREE	[14] FREE	[26] Layer Mix Mode DOWN
[3] No MIDI function	[15] No MIDI function	[27] Crossfader Skip A / Skip B
[4] Cue List Open / Close	[16] FREE	[28] Master Fader or Audio Level
[5] Color RED for Color Filter or Color-fade (see [11] & [12])	[17] Autofade	[29] Audio or Cue List Play/ Stop
[6] Color GREEN for Color Filter or Color-fade (see [11] & [12])	[18] No MIDI function	[30] Add Storage Place to Cue List
[7] Color BLUE for Color Filter or Color-fade (see [11] & [12])	[19] POWER LED / NO MIDI function	[31] Layer UP / DOWN

[8] Color WHITE for Color Filter or Color-fade (see [11] & [12])	[20] Crossfader	[32] Storage speed (Speed Master)
[9] Fade type DOWN	[21] Fade time	[33] Storage Place UP/ DOWN
[10] Fade type UP	[22] FREE	[34] + [35] Submaster Storage
[11] Switch to Color Filter mode (Default mode)	[23] Cue List GO / Back	[34] + [35] Submaster Layer
[12] Switch to Color-fade mode	[24] Cue List Play/Pause	[34] + [35] Opacity Layer

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.3 Behringer BCF2000

Also known as BCF 2000 or BCF-2000.



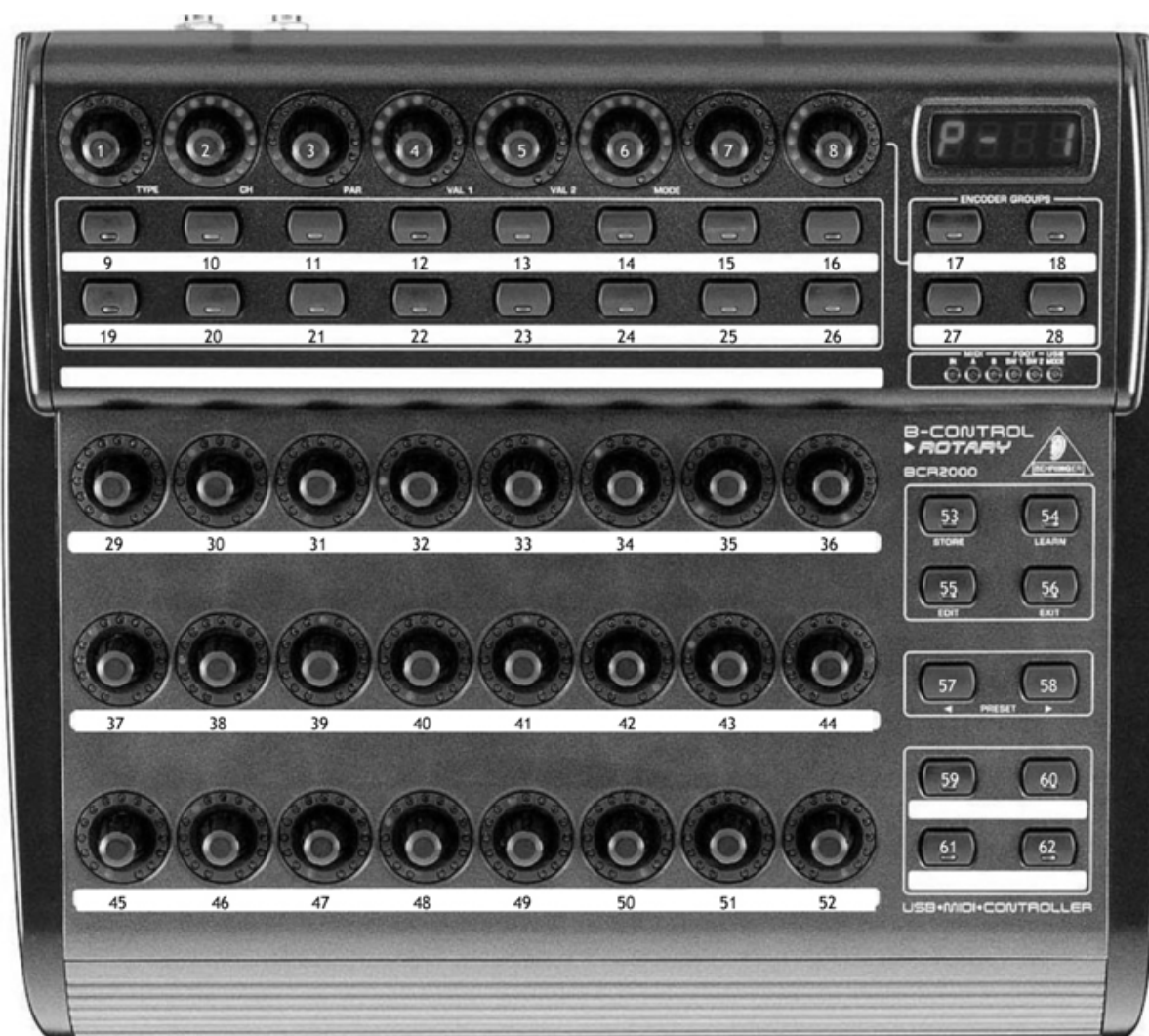
[1] Color RED for Color Filter or Color-fade (see [9])	[24] Pause Storage speed B (Speed Master)
[2] Color GREEN for Color Filter or Color-fade (see [9])	[29] Crossfader position
[3] Color BLUE for Color Filter or Color-fade (see [9])	[30] Storage Place A UP/ DOWN
[4] Color WHITE for Color Filter or Color-fade (see [9])	[31] Storage speed A (Speed Master)
[8] Fade time	[32] Master Fader
[9] Switch between Color Filter mode (default) and Color-fade mode	[33] Audio level
[11] Reset Storage speed A (Speed Master)	[34] Storage speed B (Speed Master)
[14] Reset Storage speed B (Speed Master)	[35] Storage Place B UP/ DOWN

[21] Pause Storage speed A (Speed Master)	
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You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.4 Behringer BCR2000

Also known as BCR 2000 or BCR-2000.



[1] Color RED for Color Filter or Color-fade (see [9])	[24] Pause Storage speed B (Speed Master)
[2] Color GREEN for Color Filter or Color-fade (see [9])	[29] Crossfader position
[3] Color BLUE for Color Filter or Color-fade (see [9])	[30] Storage Place A UP/ DOWN
[4] Color WHITE for Color Filter or Color-fade (see [9])	[31] Storage speed A (Speed Master)
[8] Fade time	[32] Master Fader
[9] Switch between Color Filter mode (default) and Color-fade mode	[33] Audio level
[11] Reset Storage speed A (Speed Master)	[34] Storage speed B (Speed Master)
[14] Reset Storage speed B (Speed Master)	[35] Storage Place B UP/ DOWN

[21] Pause Storage speed A (Speed Master)	
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You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.5 Creative Prodikeys PC-MIDI



[1] Cue List Back (MIDI note #53)	[8...17] Storage Place A 1...10
[2] Cue List Play/Pause	[18] + [8...17] Storage Place A 11...20
[3] Cue List GO	[19] + [8...17] Storage Place A 21...30
	[18] + [19] + [8...17] Storage Place A 31...40
[4] Storage Place A DOWN	
[5] Storage Place A UP	[20...29] Storage Place B 1...10
[6] Storage Place B DOWN	[30] + [20...29] Storage Place B 11...20
[7] Storage Place B UP	[31] + [20...29] Storage Place B 21...30
	[30] + [31] + [20...29] Storage Place B 31...40
[32] Skip A	
[33] Autofade	[35] Fade type DOWN
[34] Skip B	[36] Fade type UP
	[37] Cue List Back ... see [1] (MIDI note #89)
	[38] Audio ON/OFF (Sustain on MIDI-Keyboards)

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.6 Elation Professional MIDICON

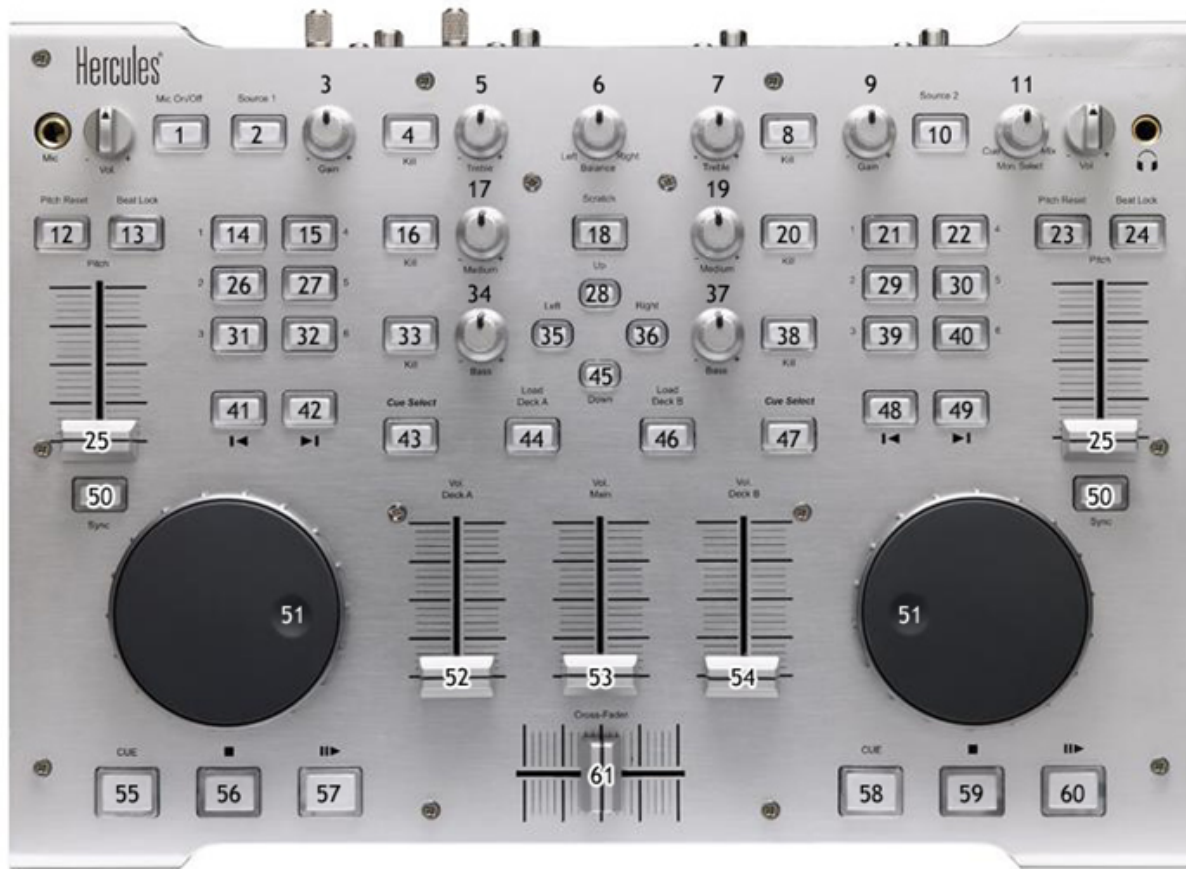


[3] Cue – Add Storage Place A to Cue List	[48] Cue List GO
[8] Cue – Add Storage Place B to Cue List	[49] Cue List BACK
[11] Layer A DOWN	[52] Speed Master B PAUSE
[12] Layer A UP	[56] Cue List Dialog Open/Close
[13] Color-fade color RED (ON/OFF)	[57] Cue List PLAY/PAUSE
[14] Color-fade color GREEN (ON/OFF)	[62] Storage Place A Cursor UP
[15] Color-fade color BLUE (ON/OFF)	[67] Storage Place B Cursor UP
[16] Color-fade color WHITE (ON/OFF)	[69] Storage Place A Cursor LEFT
[17] Layer B DOWN	[70] Storage Place A Cursor DOWN
[18] Layer B UP	[71] Storage Place A Cursor RIGHT
[19] Layer A Solo mode	[74] Storage Place B Cursor LEFT
[20] Layer A Mix mode UP	[75] Storage Place A Cursor DOWN
[25] Layer B Mix mode UP	[76] Storage Place A Cursor RIGHT
[26] Layer B Solo mode	[77] Speed Master A UP/DOWN
[27] Layer A Blind mode	[77 Push] Reset Speed Master A
[28] Layer A Mix mode DOWN	[78] Crossfader
[33] Layer B Mix mode DOWN	[78] + [89] Fade Time UP/DOWN
[34] Layer B Blind mode	[78] + [91] Audio Level UP/DOWN
[35] Blackout	[78 Push] Autofade

[36] Layer A Opacity	[79] Speed Master B UP/DOWN
[37] Layer A Submaster	[79 Push] Reset Speed Master B
[38] Color Filter color RED	[80] Speed Master A PAUSE (Hold)
[39] Color Filter color GREEN	[82] Skip to A
[40] Color Filter color BLUE	[83] Skip to B
[41] Color Filter color WHITE	[85] Speed Master B PAUSE (Hold)
[42] Layer B Submaster	[86] Freeze Main Output (Hold)
[43] Layer B Opacity	[87] Freeze Main Output (Permanently)
[44] Master Fader	[88] Fade Type DOWN
[45] Speed Master A PAUSE	[90] Audio ON/OFF

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.7 Hercules DJ Console Rmx



[1] Cue List Open / Close	[21 hold + 51] Storage Submaster B	[41] Storage Place A DOWN
[2] Switch to Color Filter mode (default mode)	[22] FREE	[42] Storage Place A UP
[3] Storage Place A UP/ DOWN	[23] Reset Speed Master B to default value	[43] Back in Cue List
[4] Mix mode Storage A UP	[24 + HOLD] Pause Speed Master B	[44] Skip Crossfader to A
[5] Color RED for Color Filter or Color-fade (see [2] & [10])	[25] Speed Master A/B	[45] Fade type DOWN
[6] Fade time	[26 hold + 51] Layer Submaster A	[46] Skip Crossfader to B
[7] Color WHITE for Color Filter or Color-fade (see [2] & [10])	[27] FREE	[47] GO in Cue List
[8] Mix mode Storage B UP	[28] Fade type UP	[48] Storage Place B DOWN
[9] Storage Place B UP/ DOWN	[29 hold + 51] Layer Submaster B	[49] Storage Place B UP
[10] Switch to Color-fade mode	[30] FREE	[50 hold + 51] Fast Forward / Rewind A/B
[11] FREE	[31 hold + 51] Opacity Layer A	[51] See [14] [21] [26] [29] [31] [39]
[12] Reset Speed Master A to default value	[32] FREE	[52] FREE

[13 + HOLD] Pause Speed Master A	[33] FREE	[53] Master Fader
[14 hold + 51] Storage Submaster A	[34] Color BLUE for Color Filter or Color-fade (see [2] & [10])	[54] Audio level
[15] FREE	[35] Fade type DOWN	[55] Add Storage Place A to Cue List
[16] Mix mode Storage A DOWN	[36] Fade type UP	[56] Cue List Stop
[17] Color GREEN for Color Filter or Color-fade (see [2] & [10])	[37] FREE	[57] Cue List Play/Pause
[18] Autofade	[38] FREE	[58] Add Storage Place B to Cue List
[19] FREE	[39 hold + 51] Opacity Layer B	[59] Stop Audio Capture
[20] Mix mode Storage B DOWN	[40] FREE	[60] Start/Stop Audio Capture
		[61] Crossfader

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.8 Hercules DJ Control MP3 & DJ Console MK2





[1] + [40] Submaster Storage A	[16] Audio Play / Stop	[31] Autofade
[2] + [40] Submaster Layer A	[17] Add Storage Place B to Cue List	[32] Color-fade color WHITE
[3] + [40] Opacity Layer A	[18] Layer A DOWN	[33] Audio level
[4] + [41] Submaster Storage B	[19] Layer A UP	[34] Fade time
[5] + [41] Submaster Layer B	[20] Layer B DOWN	[35] Storage Place A UP/ DOWN
[6] + [41] Opacity Layer B	[21] Layer B UP	[36] Color-fade color BLUE
[7] Fade type DOWN	[22] Mix mode Layer A DOWN	[37] Color-fade color GREEN
[8] Fade type UP	[23] Mix mode Layer A UP	[38] Color-fade color RED
[9] Back in Cue List	[24] Mix mode Layer B DOWN	[39] Storage Place B UP/ DOWN
[10] GO in Cue List	[25] Mix mode Layer B UP	[40] See [1], [2], [3]
[11] + [40] Fast Forward / Rewind A	[26] Left Mouse button	[41] See [4], [5], [6]
[12] + [41] Fast Forward / Rewind B	[27] Right Mouse button	[42] Mouse control
[13] Crossfader	[28] Speed Master A	
[14] Cue List Play/Pause	[29] Speed Master B	

[15] Add Storage Place A to Cue List	[30 + 40] Master Fader	
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You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.9 Hercules DJ Control MP3 e2

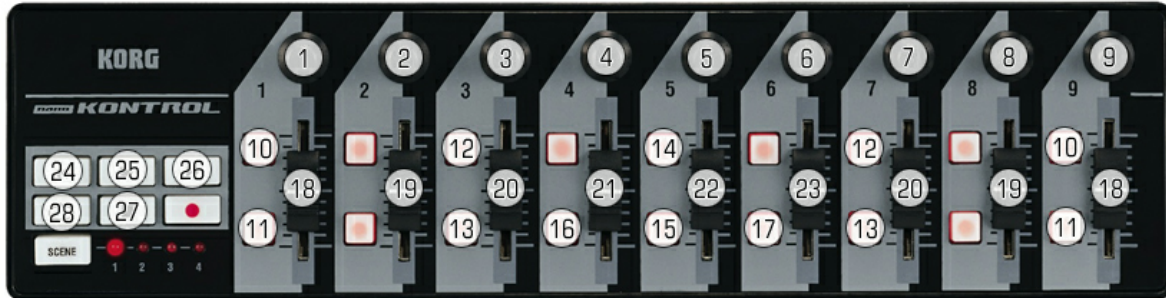


[1] Freeze main output (hold)	Storage mode	Layer mode	[30] Switch to Layer or Storage mode A
[2] Freeze main output permanently	[20] Pause A	[20] Select Layer mix mode - A	[31] Switch to Layer or Storage mode B
[3] Cue List Back	[21] Pause B	[21] Select Layer mix mode - B	
[4] Cue List Open/Close	[22] Speed Master A	[22] Layer Opacity - A	[46] Add Storage Place A to Cue List
[5] Cue List Play/Pause	[23] Speed Master B	[23] Layer Opacity - B	[47] Add Storage Place B to Cue List
[6] GO in Cue List	[24] Storage Submaster A (decrease)	[24] Layer Submaster - A (decrease)	[48 + 44] Fast Forward / Rewind A (Storage mode)
[7] Color-fade color RED	[25] Storage Submaster B (decrease)	[25] Layer Submaster - B (decrease)	[49 + 45] Fast Forward / Rewind B (Storage mode)
[8] Color-fade color GREEN	[26] Storage Submaster A (increase)	[26] Layer Submaster - A (increase)	[48 + 44] Layer Fast Forward / Rewind A (Layer mode)

[9] Color-fade color BLUE	[27] Storage Submaster B (increase)	[27] Layer Submaster - B (increase)	[49 + 45] Layer Fast Forward / Rewind B (Layer mode)
[10] Color-fade color WHITE	[28] Reset Submaster A	[28] Reset Layer Submaster, Mix Mode, and Opacity - A	
[11] FREE	[29] Reset Submaster B	[29] Reset Layer Submaster, Mix Mode, and Opacity - B	
[12] Fade time	[32] Storage Place A1	[32] Layer 1 - A	
[13] Blackout function	[33] Storage Place B1	[33] Layer 1 - B	
[14] Autofade	[34] Storage Place A2	[34] Layer 2 - A	
[15] Fade type	[35] Storage Place B2	[35] Layer 2 - B	
[16] Audio analysis On/Off	[36] Storage Place A3	[36] Layer 3 - A	
[17] Master Fader	[37] Storage Place B3	[37] Layer 3 - B	
[18] Audio input level	[38] Storage Place A4	[38] Layer 4 - A	
[19] Crossfader	[39] Storage Place B4	[39] Layer 4 - B	
	[40] Storage Place A DOWN	[40] Layer A DOWN	
	[41] Storage Place B DOWN	[41] Layer B DOWN	
	[42] Storage Place A UP	[42] Layer A UP	
	[43] Storage Place B UP	[43] Layer B UP	

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.10 KORG nanoKONTROL



Please always select Scene "1".

[1] Color-fade color RED	[10] Skip A/B	[18] Storage Place A/B
[2] Color-fade color GREEN	[11] Cue A/B	[19] Submaster Storage A/B
[3] Color-fade color BLUE	[12] Speed Master Reset A/B	[20] Speed Master Storage A/B
[4] Color-fade color WHITE	[13] Speed Master Pause A/B	[21] Master Fader
[5] Fade Time	[14] Fade Type DOWN	[22] Crossfader
[6] Color Filter color RED	[15] Autofade	[23] Audio Level
[7] Color Filter color GREEN	[16] Blackout	[24] Cue List BACK
[8] Color Filter color BLUE	[17] Audio ON/OFF	[25] Cue List PLAY
[9] Color Filter color WHITE		[26] Cue List GO
		[27] Cue List Stop
		[28] Cue List Open/Close

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.11 Livid Instruments Ohm64



[92] Storage A Mode	[94] Storage B Mode
[1] – [60] Storage Place A1 – A60	[1] – [60] Storage Place B1 – B60
[95] Skip Layer UP in Effect A	[95] Skip Layer UP in Effect B
[96] Speed Master A PAUSE permanently	[96] Speed Master B PAUSE permanently
[97] Storage Place A DOWN	[97] Storage Place B DOWN
[98] Storage Place A UP	[98] Storage Place B UP

[61] Fade Type UP/DOWN	[73] Freeze Main Output On/Off	[84] Opacity Layer 1 (A/B)
[62] Fade Time	[74] Autofade	[85] Opacity Layer 2 (A/B)
[63] Master Fader	[75] Cue List Go	[86] Opacity Layer 3 (A/B)
[64] Audio Level	[76] Cue List Back	[87] Opacity Layer 4 (A/B)
[65] Color-fade color RED	[77] Cue List Open/Close	[88] Blind Mode Layer 1 (A/B)
[66] Color-fade color GREEN	[78] Cue List Play/Pause	[89] Blind Mode Layer 2 (A/B)
[67] Color-fade color BLUE	[79] Blackout	[90] Blind Mode Layer 3 (A/B)
[68] Color-fade color WHITE	[80] Submaster Storage A	[91] Blind Mode Layer 4 (A/B)
[69] Color Filter color RED	[81] Speed Master Storage A	[93] Crossfader
[70] Color Filter color GREEN	[82] Speed Master Storage B	
[71] Color Filter color BLUE	[83] Submaster Storage B	

[72] Color Filter color WHITE		
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You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

[17] Freeze Output		
[18] Cue List Back	... Select the Octave with [3]	... Select the Octave with [3]
[19] Cue List GO		
[20] Cue List Stop		[47] Autofade (If Octave 5)
[21] Fade type toggle		
[22] Autofade		

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.13 M-AUDIO Torq Xponent



[3] Skip A	[27] Autofade	[61] Cue List Play/Pause
[4] Skip B	[28] Autofade	[62] Add Storage Place A to Cue List
[5] CF Color-fade color WHITE	[29] Freeze Output	[63] Storage Place A DOWN
[6] CF Color-fade color BLUE	[30] Audio ON/OFF	[64] Storage Place A UP
[7] CF Color-fade color GREEN	[31] See [33], [34], [35], [36]	[65] Cue List Play/Pause
[8] CF Color-fade color RED	[32] See [37], [37], [39], [40]	[66] Add Storage Place B to Cue List
[9] Color Filter color WHITE	[33] + [31] Storage Submaster A	[67] Storage Place B DOWN
[10] Color Filter color BLUE	[34] + [31] Layer Opacity A	[68] Storage Place B UP
[11] Color Filter color GREEN	[35] + [31] Layer Mix mode A	[69] Speed Master A
[12] Color Filter color RED	[36] + [31] Layer Submaster A	[70] Speed Master B
[13] Fade time	[37] + [32] Storage Submaster B	[71] Cue List GO
[19] Fade type Color-fade	[38] + [32] Layer Opacity B	[72] Cue List Back
[20] Fade type Black-fade	[39] + [32] Layer Mix mode B	[73] Cue List Open/Close
[21] Fade type White-fade	[40] + [32] Layer Submaster B	[74] Cue List Go
[22] Fade type Cross-fade	[41] Layer A DOWN	[75] Cue List Back
[23] Switch USB or MIDI	[42] Layer A UP	[76] Cue List Open/Close
[24] Master Fader	[43] Layer B DOWN	
[25] Audio level	[44] Layer B UP	

[26] Crossfader		
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You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.14 MIDI Keyboards



MIDI Note	Value	MIDI Note	Value
#48	Skip A	#84	Skip A
#49	Autofade	#85	Autofade
#50	Skip B	#86	Skip B
#51	Fade type DOWN	#87	Fade type DOWN
#52	Fade type UP	#88	Fade type UP
#53	Cue List Back	#89	Cue List Back
#54	Cue List Play/Pause	#90	Cue List Play/Stop
#55	Cue List GO	#91	Cue List GO
#56	Storage Place A DOWN	#92	Storage Place A DOWN
#57	Storage Place A UP	#93	Storage Place A UP
#58	Storage Place B DOWN	#94	Storage Place B DOWN
#59	Storage Place B UP	#95	Storage Place B UP
#60...#69	Storage Place A 1...10		
#60...#69 + #70	Storage Place A 11...20		
#60...#69 + #71	Storage Place A 21...30		
#60...#69 + #70 + #71	Storage Place A 31...40		
#72...#81	Storage Place B 1...10		
#72...#81 + #82	Storage Place B 11...20		
#72...#81 + #83	Storage Place B 21...30		
#72...#81 + #82 + #83	Storage Place B 31...40	Control Change 0x40 (0xB0 0x40 0x00)	Audio 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](#).

9.2.15 MIDI Universal

Please note: 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 A
#01	Storage Place B
#02	Storage Place A and Autofade
#03	Storage Place B and Autofade
#04	Storage Place A UP
#05	Storage Place A DOWN
#06	Storage Place B UP
#07	Storage Place B DOWN
#08	Storage Place A UP and Autofade
#09	Storage Place A DOWN and Autofade
#0A	Storage Place B UP and Autofade
#0B	Storage Place B DOWN and Autofade
#10	Submaster Storage Place A
#11	Submaster Storage Place B
#12	Submaster Storage Place A UP
#13	Submaster Storage Place A DOWN
#14	Submaster Storage Place B UP
#15	Submaster Storage Place B DOWN
#20	Storage Speed A
#21	Storage Speed A UP
#22	Storage Speed A DOWN
#23	Storage Speed A RESET
#24	Storage Speed A PAUSE
#25	Storage Speed A PAUSE HOLD
#26	Storage Speed A PLAY
#28	Storage Speed B
#29	Storage Speed B UP

Controller	Value
#2A	Storage Speed B Down
#2B	Storage Speed B RESET
#2C	Storage Speed B PAUSE
#2D	Storage Speed B PAUSE HOLD
#2E	Storage Speed B PLAY
#30	Storage A FRAME ID UP
#31	Storage A FRAME ID DOWN
#32	Storage B FRAME ID UP
#33	Storage B FRAME ID DOWN
#3A	Output FREEZE
#3B	Output UNFREEZE
#3C	Output FREEZE HOLD
#40	Layer A
#41	Layer B
#42	Layer A UP
#43	Layer A DOWN
#44	Layer B UP
#45	Layer B DOWN
#50	Layer Opacity A
#51	Layer Opacity B
#52	Layer Opacity A UP
#53	Layer Opacity A DOWN
#54	Layer Opacity B UP
#55	Layer Opacity B DOWN
#60	Layer Submaster A
#61	Layer Submaster B
#62	Layer Submaster A UP
#63	Layer Submaster A DOWN
#64	Layer Submaster B UP
#65	Layer Submaster B DOWN
#70	Layer Mixmode A
#71	Layer Mix mode B
#72	Layer Mix mode A UP
#73	Layer Mix mode A DOWN
#74	Layer Mix mode B UP
#75	Layer Mix mode B DOWN

MIDI Message Type 0xb1 (Controller 0xb, Channel 2)

Controller	Value
#00	Layer A FRAME ID UP
#01	Layer A FRAME ID DOWN
#02	Layer B FRAME ID UP
#03	Layer B FRAME ID DOWN
#10	Fade time
#12	Autofade
#13	Fade Value
#14	Fade Value Step A
#15	Fade Value Step B
#16	Fade Value Skip A
#17	Fade Value Skip B
#1A	Master Fader
#1B	Master Fader UP
#1C	Master Fader Down
#20	Fadetype UP
#21	Fadetype DOWN
#22	Fadetype Crossfade
#23	Fadetype Whitefade
#24	Fadetype Blackfade
#25	Fadetype Color-fade
#40	Fadecolor RED
#41	Fadecolor RED UP
#42	Fadecolor RED DOWN
#43	Fadecolor GREEN
#44	Fadecolor GREEN UP
#45	Fadecolor GREEN DOWN
#46	Fadecolor BLUE
#47	Fadecolor BLUE UP
#48	Fadecolor BLUE DOWN
#49	Fadecolor WHITE
#4A	Fadecolor WHITE UP
#4B	Fadecolor WHITE DOWN
#50	Add Storage Place A to Cue List
#51	Add Storage Place B to Cue List
#52	Delete Cue List entry VALUE

#53	Delete CURRENT Cue List entry
#54	Cue List Start (Play)
#55	Cue List Stop
#56	Cue List Start (Play)/Pause
#57	Cue List GO
#58	Cue List BACK
#59	FREE
#5A	Cue List GOTO
#5C	Cue List Dialog Show
#5D	Cue List Dialog Hide
#5E	Cue List Dialog Open / Cue List Dialog Close
#60	Audio Start
#61	Audio Stop
#62	Audio Start / Audio Stop
#63	Audio Mute
#64	Audio Unmute
#65	Audio Mute / Audio Unmute
#66	Audio Volume
#67	Audio Volume UP
#68	Audio Volume DOWN
#70	Color Filter RED
#71	Color Filter RED UP
#72	Color Filter RED DOWN
#73	Color Filter GREEN
#74	Color Filter GREEN UP
#75	Color Filter GREEN DOWN
#76	Color Filter BLUE
#77	Color Filter BLUE UP
#78	Color Filter BLUE DOWN
#79	Color Filter WHITE
#7A	Color Filter WHITE UP
#7B	Color Filter WHITE DOWN

MIDI Message Type 0x80 (Note OFF)

#0 ...	Storage Place A1 with Autofade	#60 ...	Storage Place B1 with Autofade
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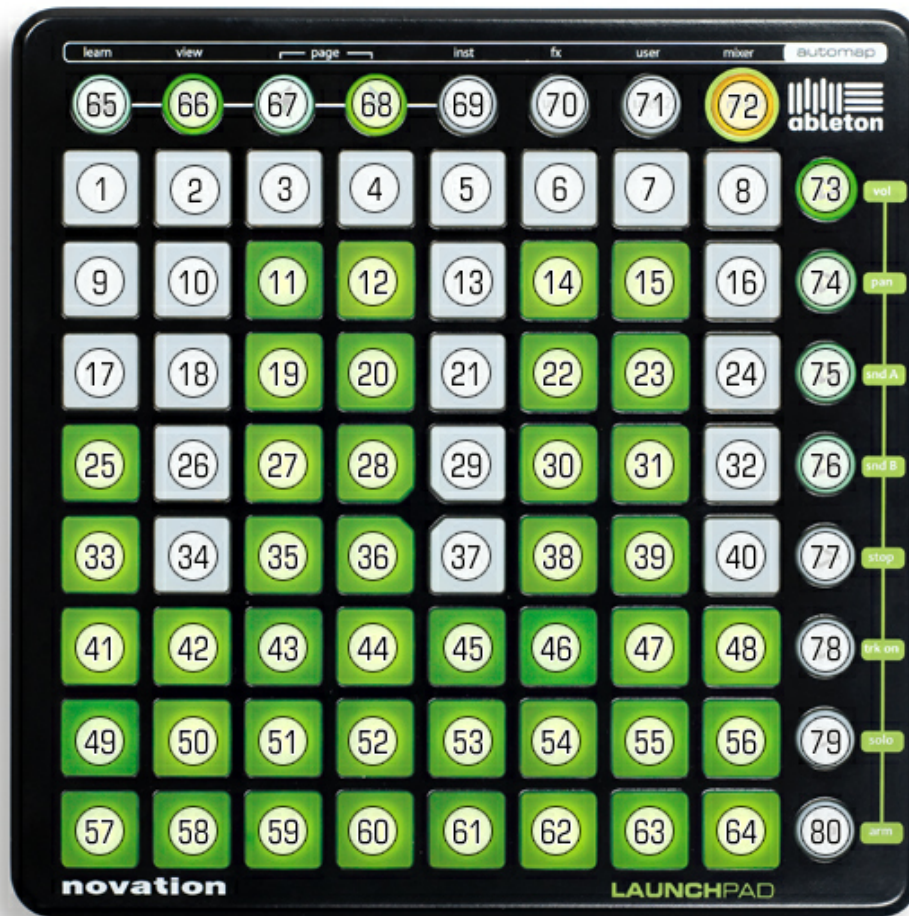
#59	Storage Place A60 with Autofade	#119	Storage Place B60 with Autofade
#124	Storage Place A with Autofade DOWN	#126	Storage Place B with Autofade DOWN
#125	Storage Place A with Autofade UP	#127	Storage Place B with Autofade UP

MIDI Message Type 0x90 (Note ON)

		#60 ...	Storage Place B1 without Autofade
#59	Storage Place A60 without Autofade	#119	Storage Place B60 without Autofade
#124	Storage Place A DOWN without Autofade	#126	Storage Place B DOWN without Autofade
#125	Storage Place A UP without Autofade	#127	Storage Place B UP without Autofade

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.16 Novation Launchpad



[70] Storage Mode A

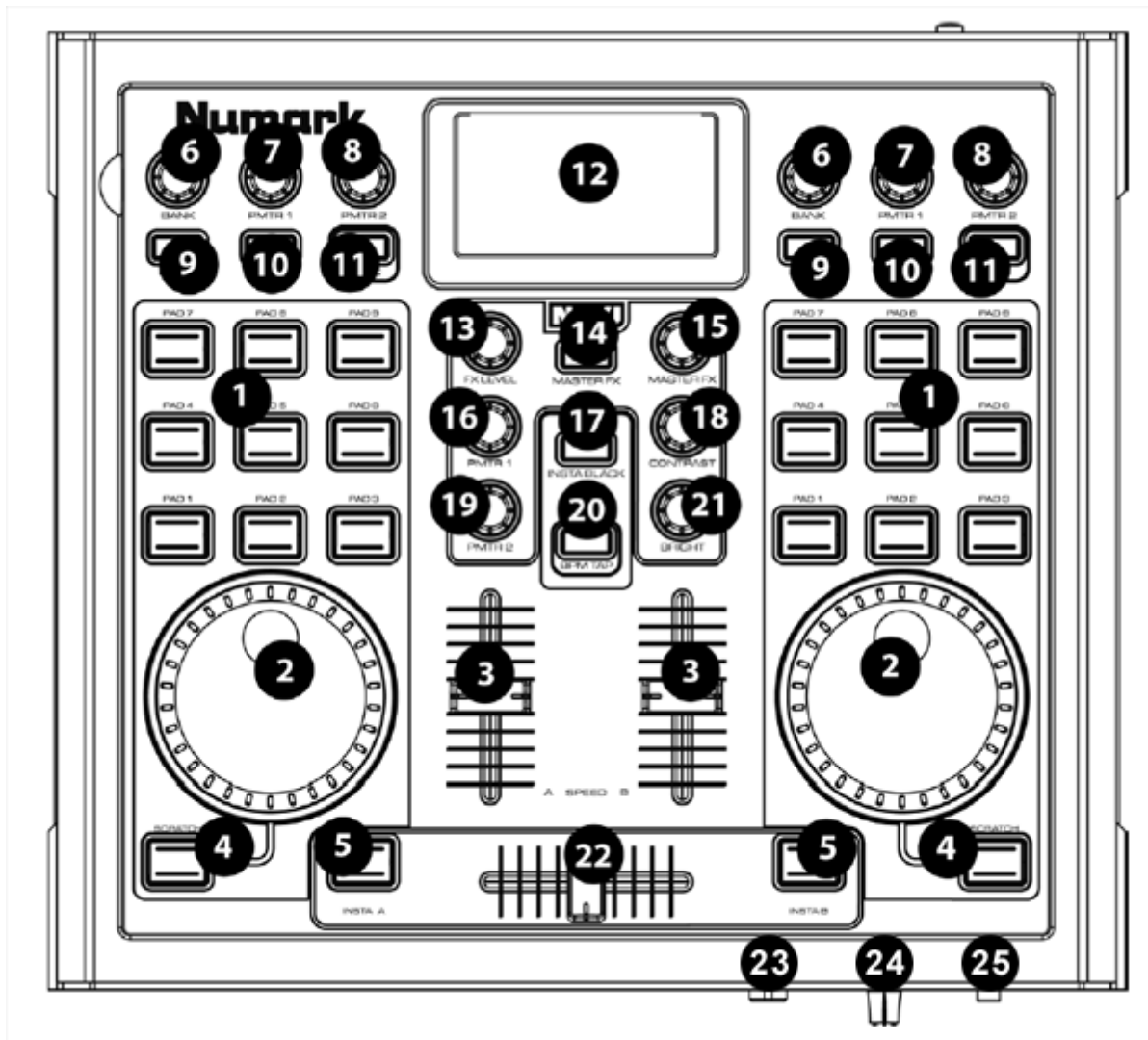
[71] Storage Mode B

[1] – [60] Storage Place 1 – 60 (A/B)	[72] Autofade
[61] Layer UP (A/B)	[73] Cue List GO
[62] Layer Mix mode UP (A/B)	[74] Cue List BACK
[63] Layer Blind mode (A/B)	[75] Cue List PLAY/PAUSE
[64] Layer Solo mode (A/B)	[76] Cue List Open/Close
[65] Fade Time UP	[77] Audio Level UP
[66] Fade Time DOWN	[78] Audio Level DOWN
[67] Skip A	[79] Speed Master UP (A/B)

[68] Skip B	[80] Speed Master DOWN (A/B)
[69] Fade Type DOWN	

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.17 Numark NuVJ



[9] Switch to Layer mode / Storage mode

LAYER MODE	STORAGE MODE
[1] Direct access for Layer 1 - 9	[1] Direct access for Storage Place 1 - 9
[2] + [4] Skip Layer UP/DOWN	[2 + 4 hold] Fast forward / fast rewind
	[4] Pause ON/OFF
[6] Mix mode Layer UP/DOWN	[6] Storage Place UP/ DOWN
[6] + [Pressed] Set Mix mode Layer to normal	[6] + [Pressed] Add Storage Place to Cue List
[7] Submaster Layer	[7] Submaster Storage Place
[8] Opacity Layer	[8] Storage speed (Speed Master)
[10] Reset Submaster Layer	[10] Reset Submaster of Storage Place
[11] Reset Opacity Layer	[11] Reset Storage speed (Speed Master)
GLOBAL	

[3] Master Fader or Audio level
[5] Cue List GO/Back
[12] NuVJ Dot Matrix Display
[13] Fade type UP/DOWN
[14] Cue List Open/Close
[15] Color Filter color RED
[17] Cue List Play/Pause
[18] Color Filter color GREEN
[19] Color Filter color WHITE
[20] Autofade
[21] Color Filter color BLUE
[22] Crossfader
[24] Fade time

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.18 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](#).

9.2.19 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](#).

9.2.20 Numark Total Control



[1] GO/Back Cue List	[20] Reset Speed Master
[1 - PRESSED] Cue List Play/Pause	[21] Submaster Storage Place
[2] Fade type DOWN/UP	[22] Reset Submaster Storage Place
[3] Cue List or Audio Play/Stop	[23] Layer Mix mode UP/DOWN
[4] Cue List open/close and Audio ON/OFF	[24] Reset Layer Mix mode to default
[5] Add Storage Place to Cue List	[25] Submaster Layer
[6] Master Fader or Audio level	[26] Reset Submaster Layer
[7] Speed Master	[27] Opacity Layer
[8] Pause Speed Master	[28] Reset Opacity Layer
[10] Autofade	[29] Color-fade color RED
[11] Storage Place UP/DOWN	[30] Color-fade color GREEN

[12] Layer UP/DOWN	[31] Color-fade color BLUE
[15] Crossfader	[32] Color-fade color WHITE
[16] 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 and Rewind	[36] Color Filter color WHITE

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.21 Omnitronic MMC-1

Please power on the console with every new start!



[21 B Hold] + [37] Color Filter mode (Default)
[21 A Hold] + [36] Color-fade mode
[39] Color RED for Color Filter or Color-fade
[40] Color GREEN for Color Filter or Color-fade
[41] Color BLUE for Color Filter or Color-fade
[42] Color WHITE for Color Filter or Color-fade

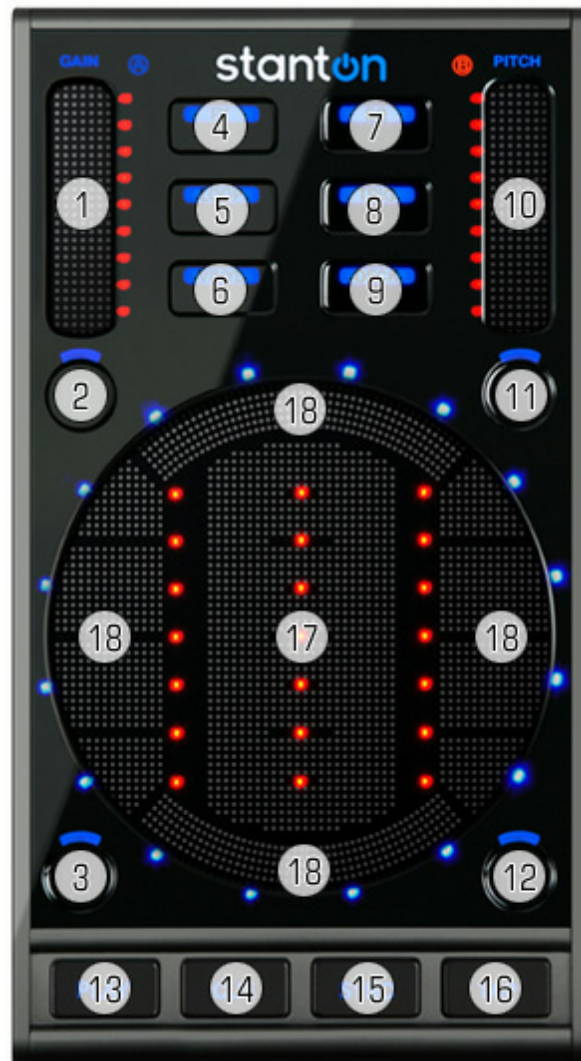
	[22]	[22 Push]
[2] Mode 1	Opacity Layer	Reset Opacity
[3] Mode 2	Submaster Layer	Reset Submaster
[4] Mode 3	Mix mode UP/DOWN	Reset Mix mode
[5] Mode 4	-	-

[1] Power On	[20] Cue List GO	[30] Reset Speed Master
[10] Layer 1	[21 Hold] + [20] Cue List BACK	[31] Speed Master Pause permanently
[11] Layer 2	[23] Storage Submaster	[32 Hold] Speed Master Pause hold
[12] Layer 3	[23 Push] Reset Submaster	[35] Speed Master
[13] Layer 4	[24] Storage Place UP/DOWN	[36] Skip A
[14] Layer DOWN (Previous Layer)	[21 Hold] + [24] Five Storage Places UP/DOWN	[37] Skip B

[15] Layer UP (Next Layer)	[24 Push] Return to Storage Place 1	[38] Fade type
[16] Solo mode	[25] Cue List Play/Pause	[43] Fade time
[17] Blind mode	[26] Cue List GO	[45] Master Fader
[18] Deactivate Solo and/or Blind mode	[27] Cue List Open/Close	[46] Audio level
[19] Cue - Add Storage Place to Cue List	[28] Cue List BACK	[47] Crossfader
[21 Hold] + [19] Cue List Open/Close	[29] Frame ID	

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.22 Stanton SCS.3d



[4] Main Mode

[5] Storage A Mode

[6] Storage B Mode

Main Mode	Storage A/B Mode
[1] Master Fader	[1] Speed Master
[2] Blackout	[2] Reset Speed Master to default value
[3] Fade type	[3] Storage Place DOWN
[7] FREE	[7] FREE
[8] FREE	[8] FREE

[9] Freeze On/Off	[9] FREE
[10] Audio Level	[10] Submaster Storage
[11] Audio On/Off	[11] Reset Submaster to default value
[12] Autofade	[12] Storage Place up
[13] Cue List Open/Close	[13] Speed Master Pause On/Off
[14] Cue List Back	[14] Add to Cue List
[15] Cue List Play/Pause	[15] Layer Mix mode NEXT
[16] Cue List Go	[16] Layer NEXT
[17] Fade time	[17] Layer Submaster
[18] Crossfader	[18] Layer Opacity

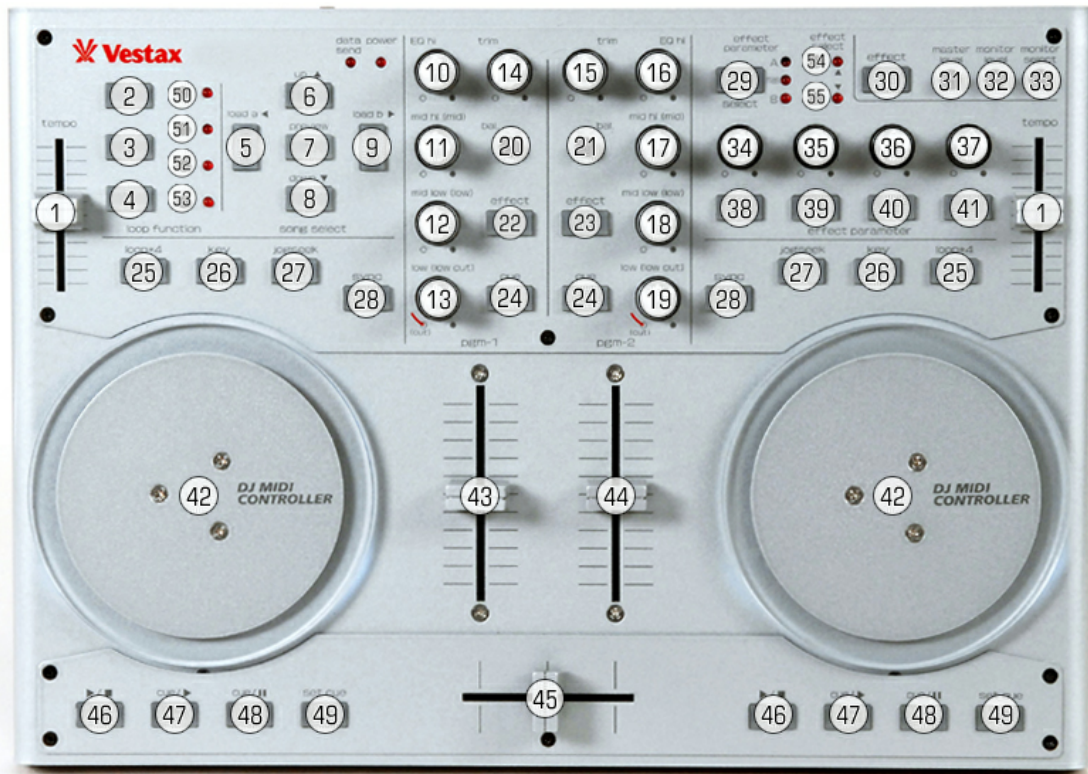
You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.23 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](#).

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.24 Vestax VCI-100



[27] Switch to Layer mode / Storage mode
(Storage mode = light on)

LAYER MODE	STORAGE MODE
[25] + [42] Layer Submaster	[25] + [42] Storage Submaster
[26] + [42] Layer Opacity	
[42] Layer Frame ID	[42] Storage Frame ID
[49] + [42] Layer UP/DOWN	[49] + [42] Storage Places 1 -60

[1] Speed Master A/B	[14] Fade time	[43] Master Fader
[5] Cue List Stop	[16] Color Filter color RED	[44] Audio level
[6] Cue List Back	[17] Color Filter color GREEN	[45] Crossfader
[7] Cue List Open/Close	[18] Color Filter color BLUE	[46] Speed Master PAUSE permanently
[8] Cue List GO	[19] Color Filter color WHITE	[47] Speed Master PAUSE OFF
[9] Cue List GO + Start	[22] Autofade	[48] Speed Master Pause Hold
[10] CF Color-fade color RED	[23] Freeze Main Output	[50] Fade type XF Cross-fade
[11] CF Color-fade color GREEN	[24] Add to Cue List A/B	[51] Fade type WF White-fade
[12] CF Color-fade color BLUE	[28] Crossfader Skip A/B	[52] Fade type BF Black-fade
[13] CF Color-fade color WHITE	[29] Must be value "mas.!" If "A" or "B" is selected, select "mas.", then disconnect	[53] Fade type CF Color-fade

	and reconnect the VCI100.	
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You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.2.25 Vestax VCM-100



[1] Speed Master A/B	[12] Color Filter color RED	[24] Speed Master Pause permanently A/B
[2] Storage Place A1-A15 / B1-B15	[13] Color Filter color GREEN	[25] Speed Master Pause OFF A/B
[3] Storage Place A16-A30 / B16-B30	[14] Color Filter color BLUE	[26] Speed Master Pause Hold A/B
[4] Storage Place A31-A45 / B31-B45	[15] Skip A	[27] Cue Storage Place A/B
[5] Storage Place A46-A60 / B46-B60	[16] Skip B	[28] Storage Place A/B DOWN
[6] Fade time	[17] Master Fader	[29] Storage Place A/B UP
[7] FREE	[18] Audio level	[30] Crossfader
[8] FREE	[19] Cue List Stop	[31] Autofade
[9] Blackout	[20] Cue List Back	[32] Fade modes
[10] Audio ON/OFF	[21] Cue List Start + GO	[33] FREE
[11] FREE	[22] Cue List GO	[34] Output Freeze permanently
	[23] Cue List Open/Close	

You can get an overview over all preprogrammed MIDI maps in the chapter [MIDI-IN](#).

9.3 CITP

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 or to display preview images (Thumbnails).

Usage

Important Information

CITP version 1.0 with MSEX version 1.0 and MSEX version 1.1 are implemented in MADRIX. Features of higher versions are therefore not supported.

As a media server, MADRIX is sending CITP and making information available to other devices. For example, MADRIX will not work as a visualizer and 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 not see the result in MADRIX, but 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 may use CITP

- to show preview images (Thumbnails)
- to stream media (Streaming)

Thumbnails

Showing Thumbnails is a useful feature, when you are using a lighting desk to control MADRIX remotely (for example via [Art-Net Remote](#)). For example, you may not have direct access to the MADRIX PC and thus would like to preview the effects and visuals that you preconfigured.



As explained in the chapter [Storage Areas A & B](#), MADRIX generates Thumbnails for every Storage Place. On the graphical user interface of MADRIX, you will find 60 Storage Places on the left side (1 to 60 on Storage A) and 60 Storage Places on the right side (1 to 60 on Storage B). When you hover over a Storage Place with your mouse cursor, you will see the preview image.

You can use CIP 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 CIP.

Streaming

While Thumbnails provide a static preview of MADRIX Effects, you may use Streaming to directly preview the Main Output (Preview Output). As explained in the chapter [Preview Windows](#), MADRIX features three primary Preview Windows to display your effects. The Main Output (Preview Output) will show the visuals that are sent to your LEDs.

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 a fluent video file.) The maximum frame rate for Streaming via CITP in MADRIX is 10 FPS.

As mentioned above, not every product may support this feature.

Supported File Formats

- Supported Thumbnails file formats are: JPEG, RGB8
- Supported Streaming file formats are: RGB8

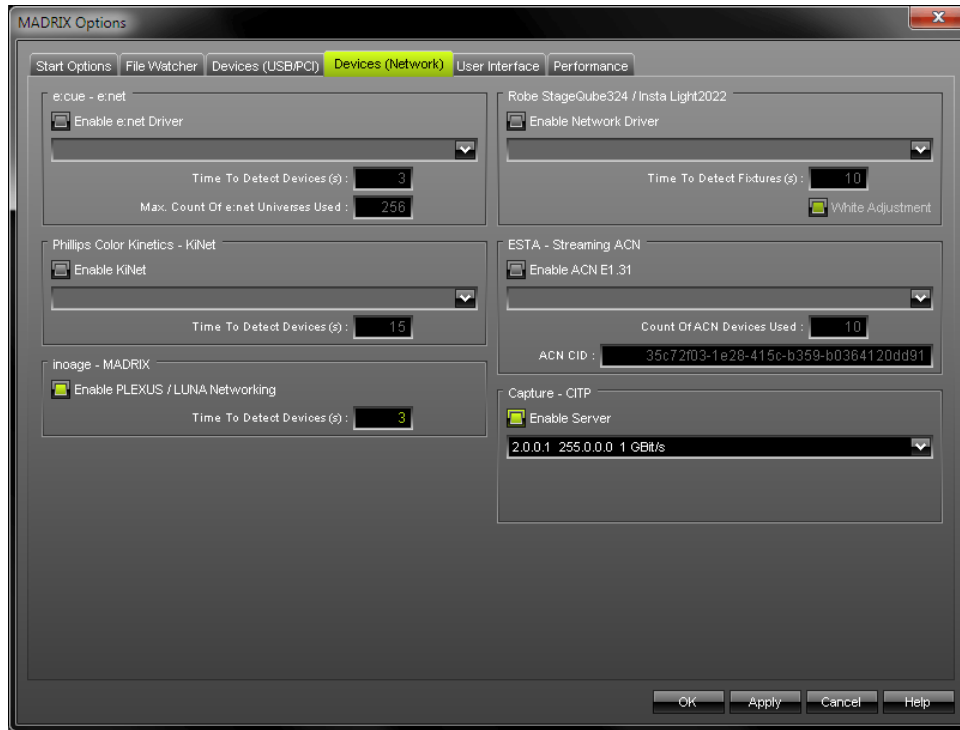
Network Settings

The network protocol of CITP does not have any special restrictions.

But devices, which should communicate with each other via CITP, should be configured to be in the same network.

Configuration In MADRIX

In MADRIX, please go to the menu "**Preferences**" -> "**Options**" or the press the keys "**Ctrl-Alt-O**". Select the tab "**Devices (Network)**"



You can activate CITP by clicking the check box **"Enable CITP Server"**.
(The checkbox will change from grey to green.)

Then, 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 CITP in MADRIX.

Configuration Of 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.

9.4 MIDI Time Code (MTC)

Introduction

MIDI Time Code (MTC) includes timing information in the same way as standard SMPTE time code, that is, as a series of small 'quarter-frame' MIDI messages.

MTC synchronization can be used to match MADRIX with an audio or video signal. It allows you to synchronize your MADRIX show with other lighting panels or a laser show for instance.

MADRIX can receive external **MIDI Time Code (MTC)** or **Art-Net Time Code**. If those are running in the network, they will be received by MADRIX if the option is enabled here. You can receive Time Code as:

- 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)

Important Notes

Before using a MIDI console, please make sure that all necessary drivers (e.g. USB) are installed and that your MIDI console is connected to your computer.

Please also make sure to save your MADRIX Setup after the following configuration process.

How to Set Up MTC

You might also use a software application to create Time Code. With such a tool, following the next steps below will probably not be necessary.

If you want to activate MTC, please go to the menu **"Preferences"** -> **"Device Manager"** and select the tab **"MIDI"**.



When your MIDI device is connected to your computer, it will appear in the list:

Scan

If you cannot see your MIDI device in the list, please press **"Scan"**.



To activate your MIDI device,

- 1) select the device in the list and
- 2) click "**Enable**" in the upper right hand corner.

Please note that the "State" in the list will change from "Off" (red light) to "On" (green light).



Now, select your MIDI device again in the list and activate **"MTC"**.



If you are encountering any other **problems**, please activate the switch **"Watch"** after selecting the MIDI device in the list. This will add the device to the **MIDI Watcher**.

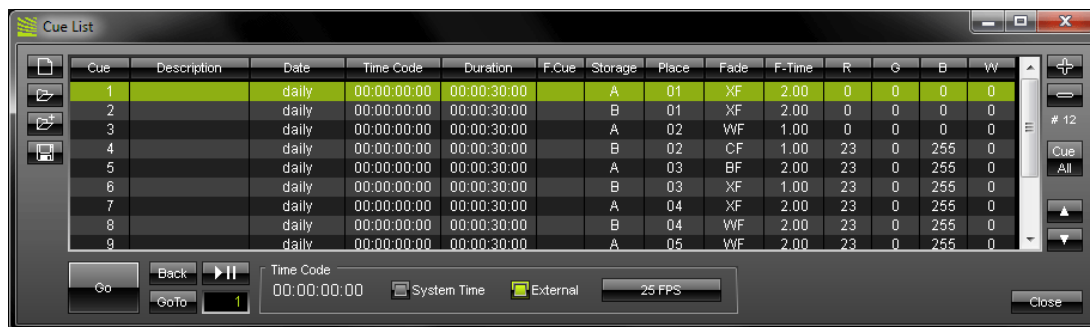
Now press **"OK"**. You can close this window now.

Setting Up the Cue List to Receive MTC

In the second step, set up your Cue List.

First, activate the switch **"External"** and **select a frame rate**. In this example we have used 25 FPS (standard rate for PAL video).

MADRIX will automatically receive any incoming Time Code.



Now, add an entry to the Cue List. The next step is to set the **"Time Code"** for a Cue List entry. The **format** for the Time Code is **HH:MM:SS:FF**, meaning **hours:minutes:seconds:frames**.

You can use the following values for the Time Code:

For an input of **one hour** you can use **01000000**, **01:00:00:00**, **01,00,00,00**, **01.00.00.00**, **01/00/00/00**, **1h**, or **01h00m00s00f**.

For an input of **ten minutes** you can use **00100000**, **00:10:00:00**, **00,10,00,00**, **00.10.00.00**, **00/10/00/00**, **10m**, or **00h10m00s00f**.

For an input of **ten seconds** you can use **00001000**, **00:00:10:00**, **00,00,10,00**, **00.00.10.00**, **00/00/10/00**, **10s**, or **00h00m10s00f**.

For an input of **ten frames** you can use **00000010**, **00:00:00:10**, **00,00,00,10**, **00.00.00.10**, **00/00/00/10**, **10f**, or **00h00m00s10f**.

A value of -1 or using the space bar resets the fields to their default value.

Add or edit more entries according to your requirements.

More Information

More information is provided in the chapter [Cue List](#).

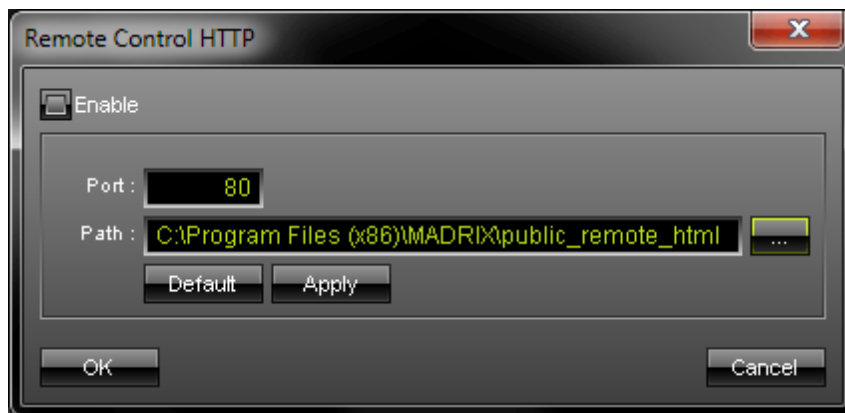
9.5 Remote HTTP

Usage

Connect MADRIX to any TCP/IP network and you can control MADRIX from all over the world using an internet browser or your mobile phone with internet communications via the **Remote HTTP** function.

Configuration

1) Please open the menu "**Preferences**" -> "**Remote Control**" -> "**HTTP**". A new dialog will open.



2) Click "**Enable**" to activate the internal web server implemented in MADRIX.

3) "Port" defines the protocol port on which the web server will be running. **Please note** that other software (for example, 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. Press **"Apply"** if you have made any changes.

Recommended Ports: 80 3128 8080 8081	Alternative Ports: If you are encountering problems, please enter any port higher than 1024.
--	---

4) "Path" defines the location of the HTML start pages. Please select the folder "public_remote_html" in your MADRIX installation folder. In Windows 7 the path often is C:\Program Files (x86)\MADRIX\public_remote_html. Press **"Apply"** if you have made any changes.

5) Now, press the button **"Call"**. Your internet browser will be opened and you will see a website you can use to control MADRIX remotely. You can access this website using the internet.

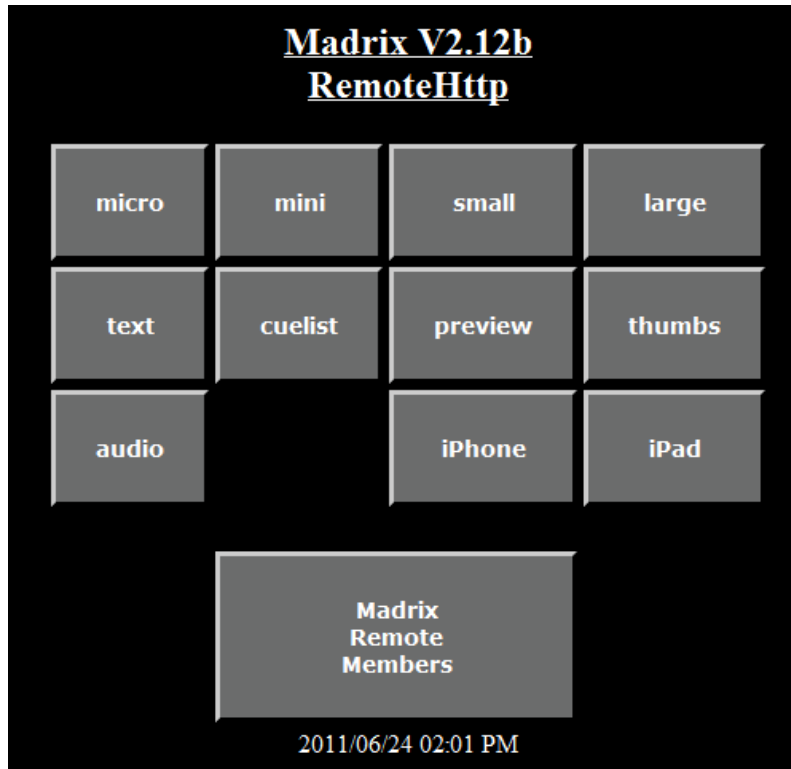
Your Remote Control should be working now. If the internet browser is opening and closing with no visible result, please change the port. You can also open the "Logfile" (**"F6"** or **"Window"** -> **"Logfile"**) and check the file for errors.

Create Your Individual HTML Page

The HTML examples do work. But it is also a demonstration to show you the possibilities. You can modify or create your own html files to integrate them in your own applications, e.g. using the DJ Software **ULTRAMIXER**.

Please note: You should name your individually created HTML start page 'index.html'.

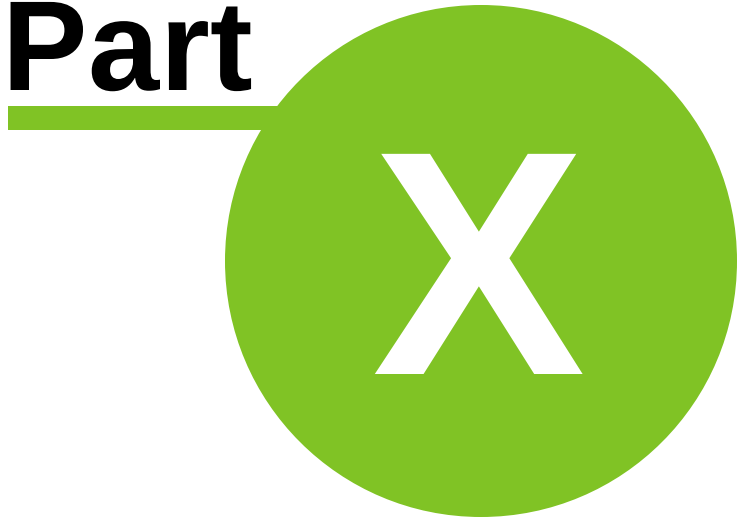
Commands and Help File



MADRIX offers several interfaces that can be used with Remote HTTP. Use the one that is the best for your needs.

If you would like to create a **custom layout**, please have a look at "**Madrix Remote Members**" for the overview and documentation of remote commands (remote members). This is the user guide for the remote commands.

Part



10 Tutorials & Examples

Overview

In this section you can find several tutorials to make your start with the software easier. Moreover, examples demonstrate the possibilities of the software.

- [How To Create Your First Matrix/Patch](#)
- [Creating And Playing An Effect](#)
- [Using The Fader To Switch Effects](#)
- [Examples](#)

10.1 How To Create Your First Matrix/Patch

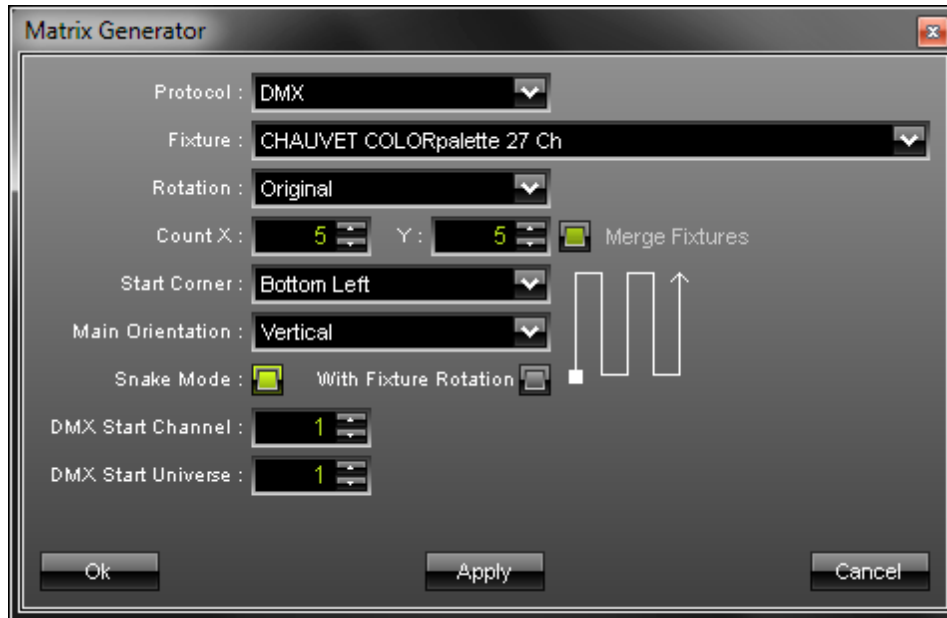
Overview

In this tutorial we are going to set up a matrix with 25 CHAUVET COLORpalette LED fixtures. The aim is get a typical rectangle matrix by positioning 5 units next to each other and 5 units on top of each other. The CHAUVET COLORpalette fixture features 4 pixels in x and 2 pixels in y. This means, as a result we will be able to use 20 pixels in x and 10 pixels in y for light effects.

Step By Step

Please follow the steps described below.

1. Open the **"Matrix Generator"** by pressing the **"F2"** key or go to the menu tab **"Preferences"**.



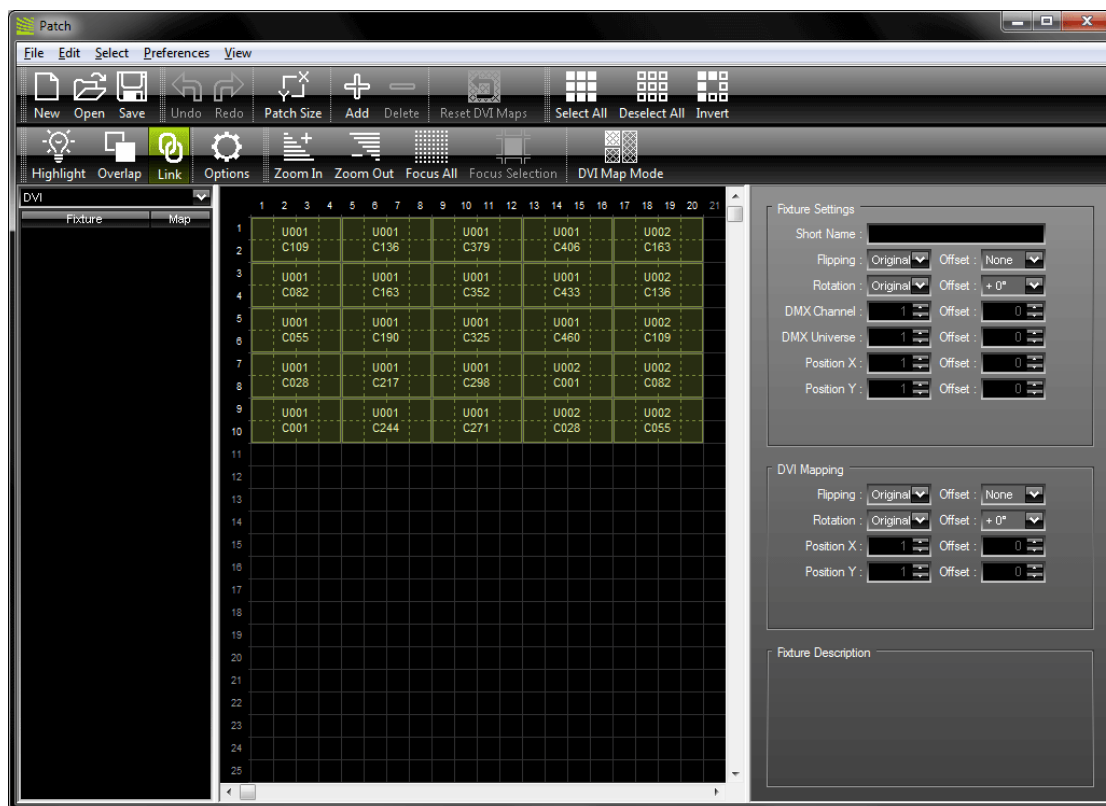
2. Select the fixture "CHAUVET COLORpalette 27 Ch".
3. Leave the orientation as it is. The **orientation** of a fixture describes how it is mounted. So for example, it would be possible to mount this fixture in an angle of 90 degrees. This means that if we face the the fixture directly, we would see a usage of 2 pixels in x but 4 pixels in y.
4. Enter '5' for "**Count X**" and '5' for "**Count Y**".
5. Next, we will set up the "**DMX Start Corner**". This function describes the point where the first fixture will ge its DMX signal. For our example we decide to start at the bottom left corner. After changing the DMX start corner, the little graphic on the right side changes and the small rectangle which marks the start point appears in the bottom left.
6. Now, we are going to set up the "**Main Orientation**". It describes in which direction the next fixture will get the next DMX address. In our example we decide to use the vertical direction.
7. Because of the more simple connection of fixtures, often they are patched in a snake mode, which means after reaching the top end of the first column, the next fixture will be the top most of the next column. To use this mode we select the "**Snake Mode**" checkbox.

8. Sometimes fixtures have to be rotated about 180 degree to be able to use the snake mode connection. In the case of the CHAUVET COLORpalette this is not necessary. Therefore, we will leave the **"With Fixture Rotation"** checkbox as it is.

9. Because we want to start the first DMX channel in the first DMX universe, we will leave number one to be our **"DMX Start Channel"** as well as **"DMX Start Universe"**.

10. Click the **"OK"** button to apply all changes and to close the **"Matrix Generator"**. Now you should be able to see a 40x10 pixel matrix in the preview windows.

11. Last but not least, open the **"Patch"** dialog with the **"F3"** key or go to the menu tab **"Preferences"**. Here you can check how the MADRIX patched the fixtures for us.

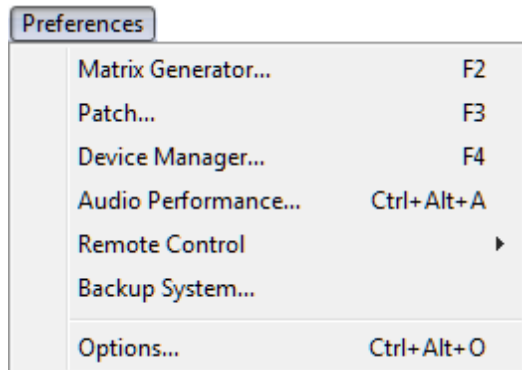


10.2 Creating And Playing An Effect

Step By Step

Your Virtual Matrix

Start MADRIX. Now call up the **"Matrix Generator"** via the menu **"Preferences"** or press **"F2"**. A new window will be opened, in which you can find all the settings for your Matrix.



Please set up all necessary parameters. The previous tutorial might help you with that. Or you can find more information in the chapter [Matrix Generator](#).

ATTENTION:

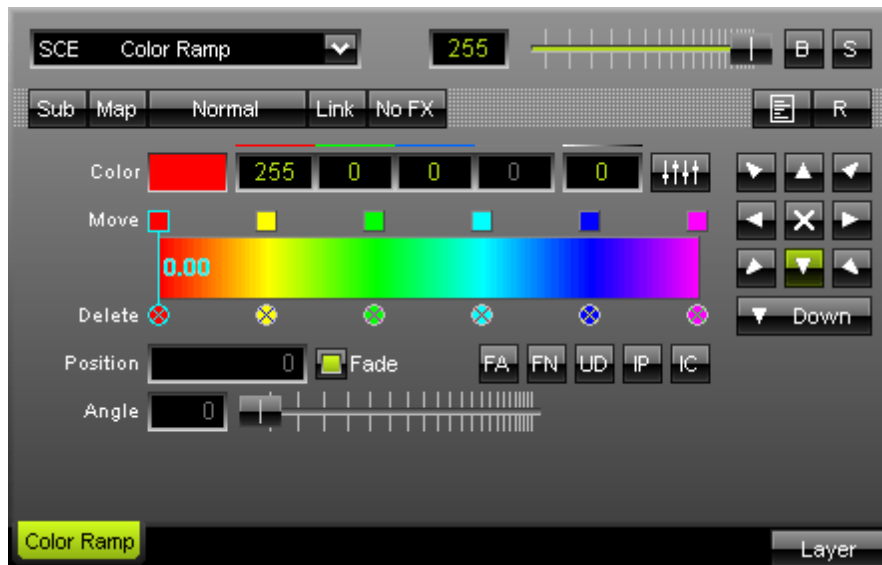
At this point, it is expected that all necessary settings for the light matrix and LED hardware have been already configured and tested. Therefore, this part will be skipped in this tutorial.

Selecting Effects



Now, select a free Storage Place from the Storage Areas A or B. In this example we are going to use Storage Place 1 in Storage A. Then, it is time to select an effect from the effect list.

Pick the SCE Color Ramp effect and configure it.



The effect offers to modify a lot of settings. In our example we are using a color ramp from red to pink.

A more detailed description can be found in the chapter [Static Color Effects – SCE Color Ramp](#).

Using The Cross-Fader



Now, use the cross-fader. If you work in Storage A, pull the crossfader to the left. Set it to the right for Storage B. You will be able to see the effect in the preview output as a result.

10.3 Using The Crossfader To Switch Effects

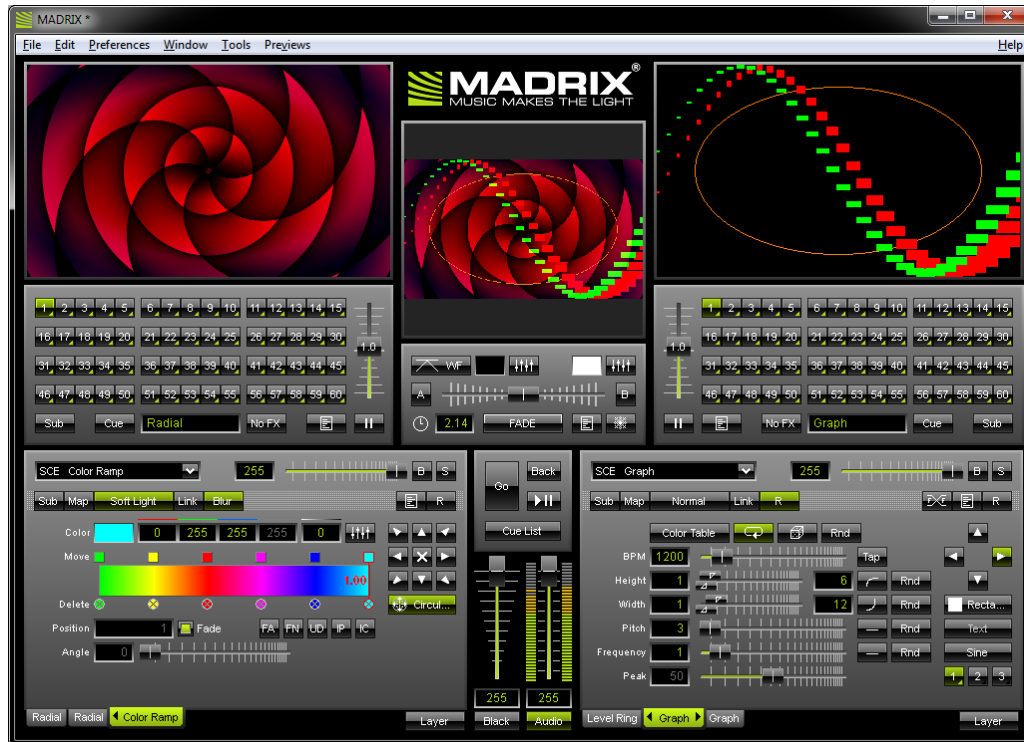
Step By Step

First, select an effect you have already programmed from Storage Area A. Next, choose an effect placed in Storage Area B.

For example, you have set and selected the first effect in Storage A-1 and the second effect in Storage B-1. Now, you can simply cross-fade between both Storage Places.



In the example below we moved the fader to the middle using a white-fade. You will see a mix of both effects in the output preview.



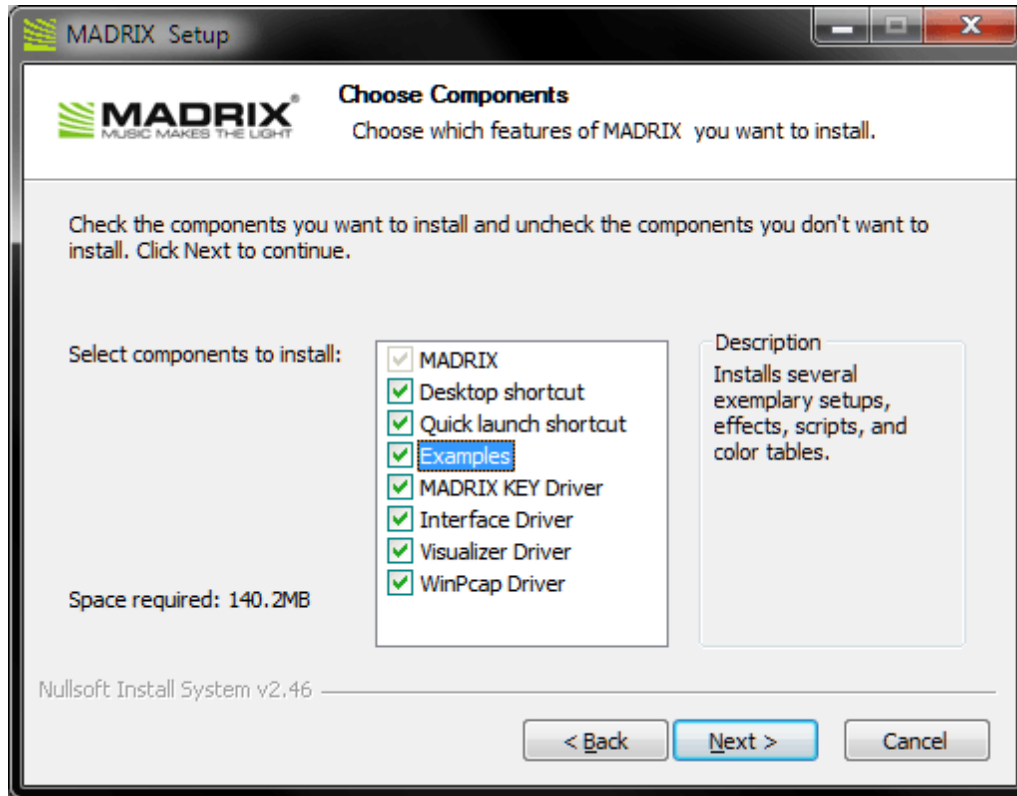
10.4 Examples

Preinstalled Files

If you would like to see some examples, various

- setups,
- effects,
- scripts,
- and color tables

are already installed on your PC if you have enabled this option during the installation process:



You can find the examples on your hard disk. Please navigate to C:
\\Users\\USERNAME\\Documents\\MADRIX\\

(Please choose your Windows username for USERNAME).

You will find the folders "setups", "effects", "scripts", and "colortables" where you can save your files. Each folder also contains a link "Samples". This link will take you to another folder that contains various examples.

More Information

Learn more about the file types used in MADRIX: [File Types](#).

Part

XI

11 Recording

Introduction

The Recording dialog is able to create MADRIX Record Files (*.mrec). This file type can be used in two ways:

- *.mrec files can be converted to create Stand-alone Shows for the MADRIX PLEXUS
- *.mrec files can be played just like a video in the SCE Video effect

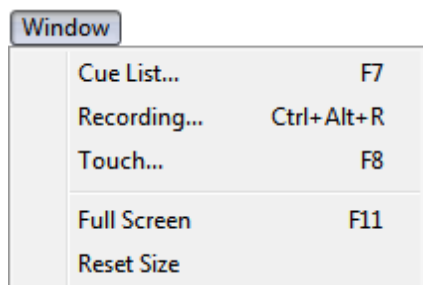
The following chapter describes how to create records for the SCE Video effect.

(Learn more about the [SCE Video](#) Effect.)

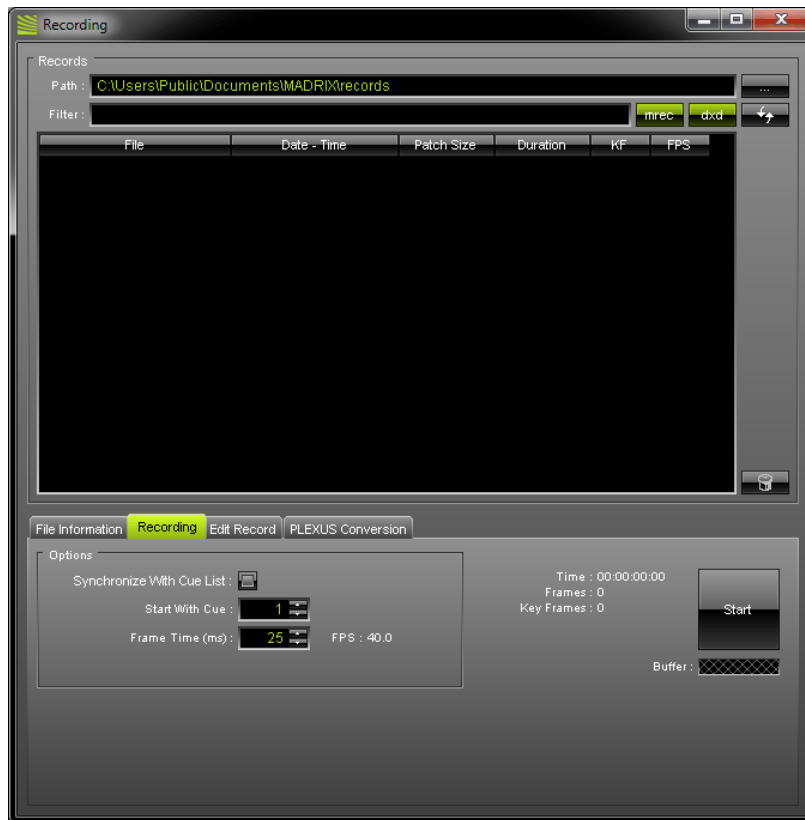
You can learn more about how to create Stand-Alone Shows for the MADRIX PLEXUS in the chapter [MADRIX PLEXUS](#).

Overview

To call up the Recording dialog, please go to the menu **"Window" -> "Recording"** (or "Ctrl+Alt+R").



The following dialog will open.



Records

Files

Files, i.e. records, will be displayed in the large list of the Recording dialog. If you did not create any records yet, the list is empty (as shown above).

Path

"Path" specifies a directory on your hard disk. All record files will be saved in this folder. By default, a useful folder is already chosen for you (For example C:\Users\USERNAME\Documents\MADRIX\records).



You can change the folder. Use this button to browse for a different folder on your hard disk.

Filter

Use this filter to search for specific files in the list. 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.

Managing Files And List Entries



Shows MADRIX Record File (*.mrec) from the folder in the list. When activated, the button is green. Disable the option to hide all Record Files.



Show DMX Data Files (*.dxd) from the folder in the list. When activated, the button is green. Disable the option to hide all DMX Data Files.



Use this button to refresh the list of records. Please make sure to select your preferred records folder first.



Delete the selected file or files from your hard disk. You can also use the "Delete" key on your keyboard.

Columns Of The List

File	Date - Time	Patch Size	Duration	KF	FPS
------	-------------	------------	----------	----	-----

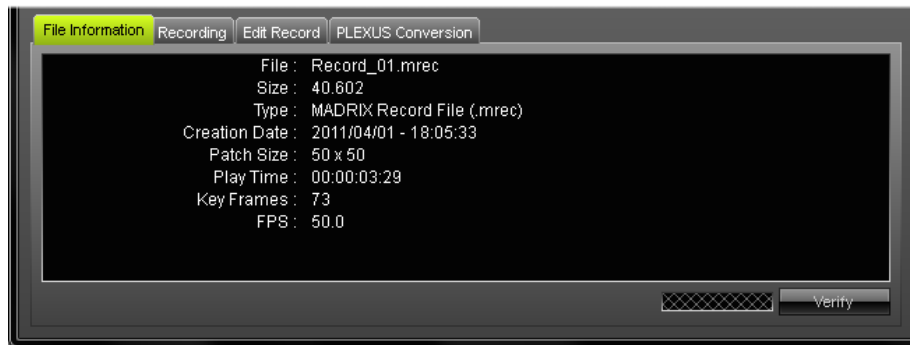
"File"	Shows the name of the record and its file type (*.mrec or *.dxd). Double-click on the list entry to change the name of the file.
"Date - Time"	Shows the time and date when the record was created.
"Patch Size"	Shows the size of the virtual matrix (Patch Size) used for this record in pixels x pixels. (It can be configured in the Matrix Generator or Patch .)
"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.

Window Size

In order to increase the size of the Recording dialog 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 the Tab "**File Information**" to receive detailed information about the files you have created. Please select a file in the list first.



Recording

Select the Tab "**Recording**" to create a new record.

Preparation

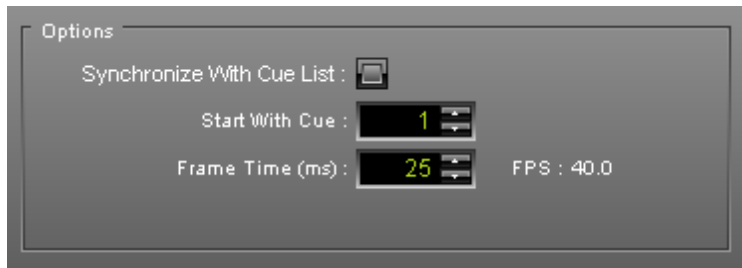
Please configure your virtual matrix with the help of the [Matrix Generator](#) or [Patch](#) to define the correct pixel resolution for your record.

Important Note

Please note: Only the Main Output will be recorded. Make sure that your content is displayed on Preview Window Output before you record.

Options

Please configure the following options before recording.



"Synchronize With Cue List" will create 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" allows you to specify 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 setting to the requirements of your LED fixtures and devices!

Please note:

A frame rate (FPS) that is too high might cause problems. Those can be visual problems on your LEDs, for example.

Creating A Record File

Please make sure to configure all available options before recording (see above).

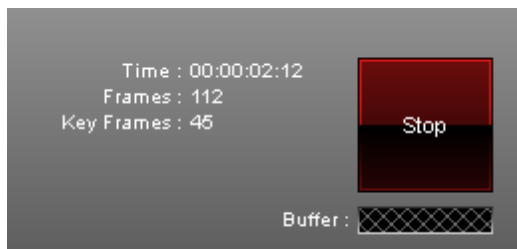
Step 1)



Begin recording by pressing **"Start"**. MADRIX will start to record the Main Output.

Please note: When recording without a Cue List, can change Storage Places, use the cross-fader, use the Master Fader, etc. in order to customize your record.

Step 2)



Various information will be displayed.

The Time is displayed in HH:MM:SS:FF (Hours:Minutes:Seconds:Frames).

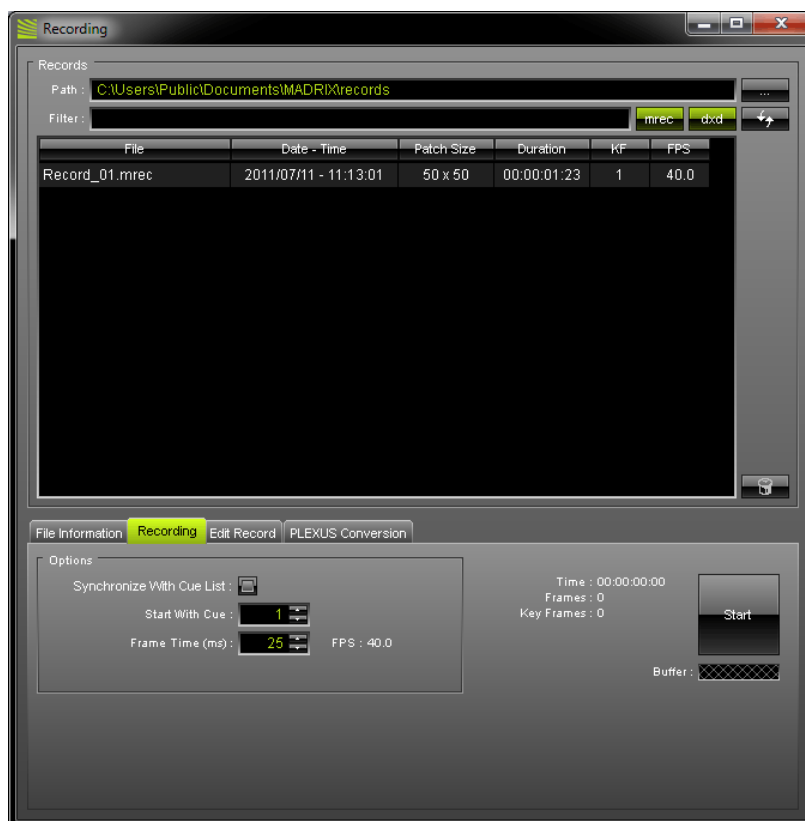
Step 3)



Simply press **"Stop"** to halt 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)

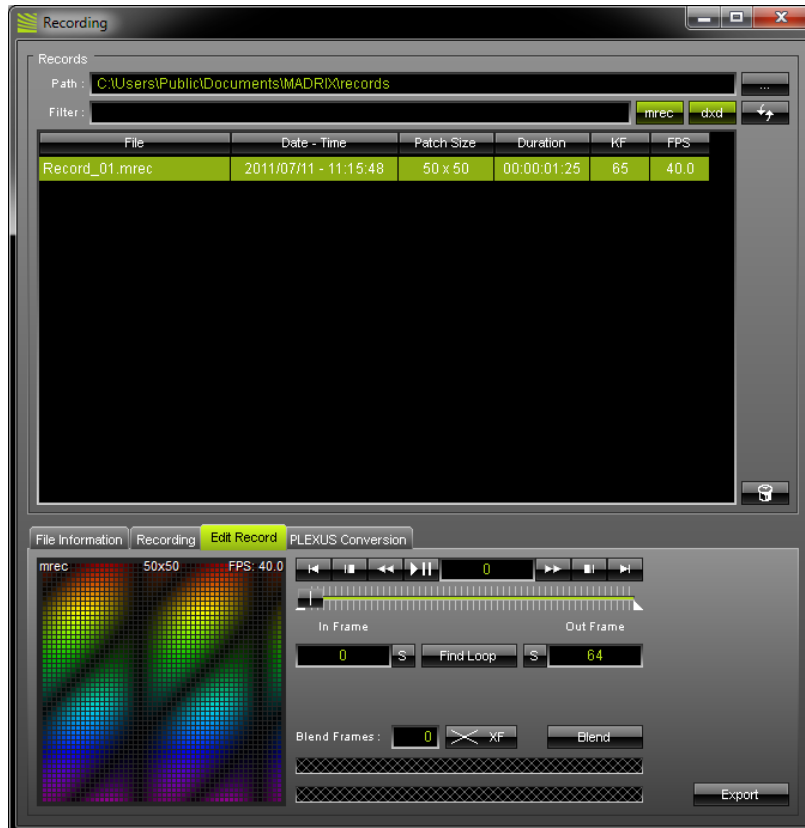
Afterwards, you will see your record in the list.



Edit Record

After creating your record, you can edit your record.

First, please select your Record File in the list. Second, change to the tab **"Edit Record"** in the **"Recording"** dialog.



A small preview window is provided in the lower left to inspect the record.

Please note: If you see the message **!NO MADRIX KEY!**, 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. That means you can preview, trim, and loop your record. First, select a list entry. Trim the record by setting up a new In Frame and a new Out Frame.



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).

A rectangular button with a dark background and the text "Find Loop" in white.

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. 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, [>more info](#)). Third, press "Blend". Fourth, use PlayPause to preview the edited record. Fifth, use the button "Export" to export your loop.

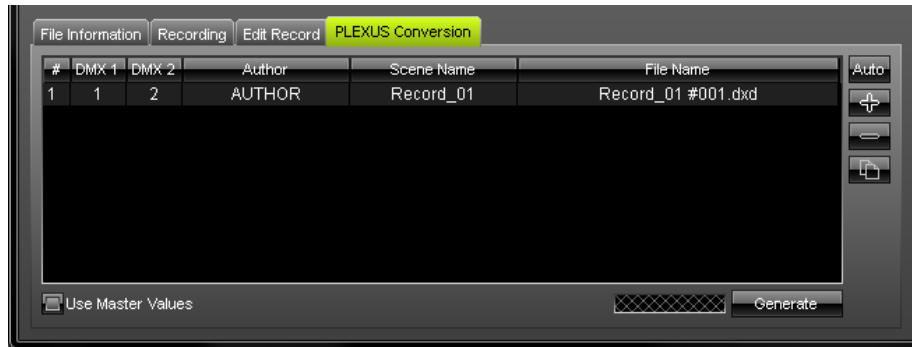
Please note: The beginning of your record will be cut by the defined frame number. This is indicated by a red line below the slider.

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.

A rectangular button with a dark background and the text "Export" in white.

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 (*.mrec) into DMX Data Files (*.dxd). Learn more about how to create Stand-alone Shows in the chapter [MADRIX PLEXUS](#).

How To Play 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.

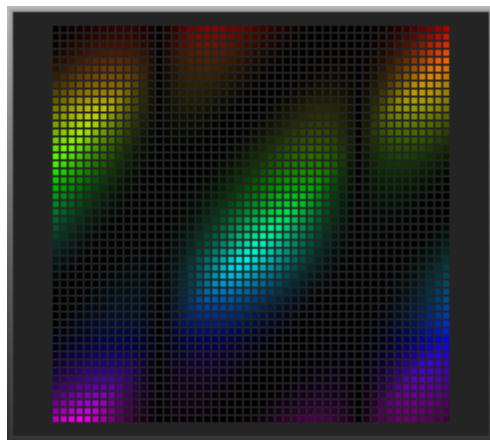


3. Load your MADRIX Record File (*.mrec) using the "Open" button.



Use the **"Open"** button and select the file you wish to play.

4. The SCE Video effect will play your Record File.



Part

XIII

12 MADRIX USBone

Overview



MADRIX USBone is a USB 2.0 DMX512 interface.

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

Please make sure to select the "MADRIX USBone and NEO interfaces" driver in the options. To access options of MADRIX, first go to the menu **"Preferences" -> "Options"** (or "Ctrl+Alt+O"). Second, select the tab **"Devices (USB/PCI)"**.



Select the "MADRIX USBone and NEO interfaces" driver and press **"Apply"**. Close the dialog with **"OK"**.

Please restart MADRIX if the driver was not enabled before.

Using DMX Output or DMX Input

The USBone allows you to send or receive data via MADRIX using 512 DMX channels. The USBone features a Female 5-pin XLR connector. A Male to Male 3-pin or 5-pin XLR Gender Changer is required for DMX-IN.

Please pay attention to license restrictions as stated below.

Learn more about using **DMX-OUT** in the chapter [DMX512](#).

Learn more about using **DMX-IN** and **Remote Control** in the chapter [DMX-IN & Art-Net Remote](#).

Important Notes

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



13 MADRIX NEO

Overview



MADRIX NEO is a USB 2.0 DMX512 interface.

The MADRIX software license for 512 DMX channels is already included.

MADRIX 2 Minimum System Requirements

- 2.0 GHz dual-core CPU
- 1024 MB RAM
- 500 MB free harddisk space
- 1280 x 768 screen resolution
- Sound card (for Sound2Light & Music2Light)
- USB 2.0

MADRIX 2 Supported Operating Systems

- Microsoft® Windows® XP (SP2)
- Microsoft® Windows® Vista
- Microsoft® Windows® 7
- Compatible with 32 bit and 64 bit

Loading The Drivers

Please make sure to select the "MADRIX USBone and NEO interfaces" driver in the options. To access options of MADRIX, first go to the menu **"Preferences"** -> **"Options"** (or "Ctrl+Alt+O"). Second, select the tab **"Devices (USB/PCI)"**.



Select the "MADRIX USBone and NEO interfaces" driver and press **"Apply"**. Close the dialog with **"OK"**.

Please restart MADRIX if the driver was not enabled before.

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 Female 5-pin XLR connector. A Male to Male 3-pin or 5-pin XLR Gender Changer is required for DMX-IN.

Learn more about using **DMX-OUT** in the chapter [DMX512](#).

Learn more about using **DMX-IN** and **Remote Control** in the chapter [DMX-IN & Art-Net Remote](#).

Using A MADRIX KEY Instead Of A MADRIX Interface

The Quick Start Guides describe which software elements should be installed when you wish to use the MADRIX NEO or MADRIX PLEXUS interfaces. If you want to use a MADRIX KEY (e.g. MADRIX basic), please re-install the software and choose the necessary software components. Please see the chapter [Installation Of MADRIX](#) for more details.

Important Notes

Regarding the MADRIX NEO, the MADRIX software license for 512 DMX channels is already included.

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



14 MADRIX PLEXUS

Overview



MADRIX PLEXUS is a USB 2.0 DMX512 interface. The device can be used as a live controller (Live Mode) or stand-alone interface (Stand-Alone Mode).

Contents of this chapter:

- Important Notes
- Loading Drivers
- Live Mode
- Stand-Alone Mode
- Managing Your MADRIX PLEXUS Devices
- Tips

More Information About MADRIX PLEXUS

You can find the majority information about the MADRIX PLEXUS in the **MADRIX PLEXUS Quick Start Guide** and the **MADRIX PLEXUS User Manual**.

Important Notes

Regarding the MADRIX PLEXUS, the MADRIX software license for 1024 DMX channels is already included.

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

Using A MADRIX KEY Instead Of A MADRIX Interface

The Quick Start Guides describe which software elements should be installed when you wish to use the MADRIX NEO or MADRIX PLEXUS interfaces. If you want to use a MADRIX KEY (e.g. MADRIX basic), please re-install the software and choose the necessary software components. Please see the chapter [Installation Of MADRIX](#) for more details.

MADRIX 2 Minimum System Requirements

- 2.0 GHz dual-core CPU
- 1024 MB RAM
- 500 MB free harddisk space
- 1280 x 768 screen resolution
- Sound card (for Sound2Light & Music2Light)
- Network card
- USB 2.0

MADRIX 2 Supported Operating Systems

- Microsoft® Windows® XP (SP2)
- Microsoft® Windows® Vista
- Microsoft® Windows® 7
- Compatible with 32 bit and 64 bit

Loading And Enabling Drivers

USB Drivers

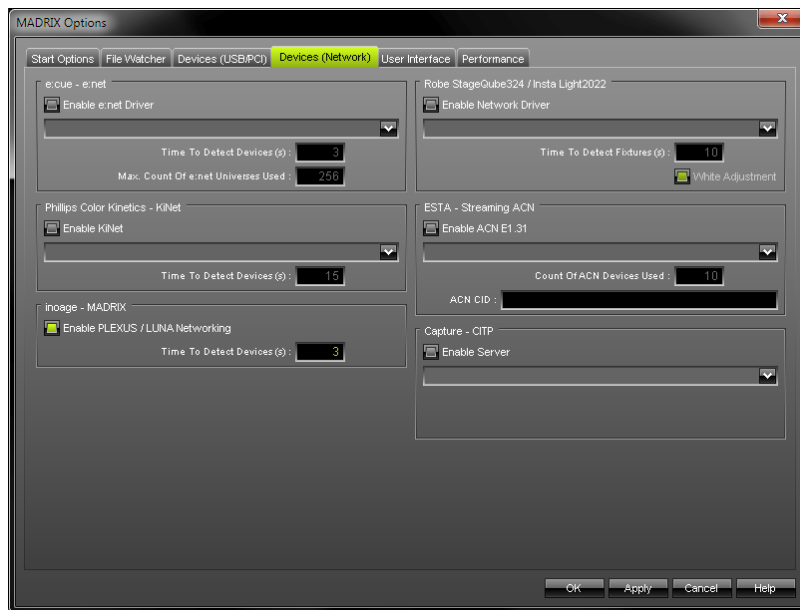
Please make sure to activate the driver for the USB connection in the MADRIX Options. To access the Options of MADRIX, first go to the menu "**Preferences**" -> "**Options**" (or "Ctrl+Alt+O"). Second, select the tab "**Devices (USB/PCI)**".



Enable the "**MADRIX PLEXUS interfaces**" driver and press "**Apply**". Close the dialog with "**OK**".

Network Drivers

Please make sure to activate the driver for the Ethernet (network) connection in the MADRIX Options. To access the Options of MADRIX, please press **"Ctrl+Alt+O"** or go to the menu **"Preferences" -> "Options"**. Now go to the tab **"Devices (Network)"**.



Select **"Enable PLEXUS / LUNA Networking"** and press **"Apply"**. Close the dialog with **"OK"**.

Live Mode

The PLEXUS allows you to send or receive data via MADRIX using 1024 DMX channels per device. The MADRIX PLEXUS features two Female 5-pin XLR connectors. A Male to Male 3-pin or 5-pin XLR Gender Changer is required for DMX-IN.

Learn more about **DMX-OUT** in the chapter [DMX512](#).

Learn more about **DMX-IN** and **Software Remote Control** in the chapter [DMX-IN & Art-Net Remote](#).

Learn more about **Art-Net** in the chapter [Art-Net](#).

Stand-Alone Mode

Introduction

Normally, a computer runs the MADRIX software live and thereby controls the LED installation. In contrast, the Stand-Alone Mode of the MADRIX PLEXUS can be used to control LED installations without the need for a computer during the show.

The PLEXUS can use an SD card (SD or SDHC) on which a Stand-Alone Show can be saved. But first, it is necessary to create such a Stand-Alone Show.

Please read the following chapter carefully in order to learn how to create a MADRIX PLEXUS Stand-Alone Show.

Basic Workflow (Step By Step)

In order to create a show file, please follow these steps:

- Step 1) Configure your virtual matrix according to your LED installation.**
(Use the [Matrix Generator](#) or the [Patch](#) for this task.)
- Step 2) Create the MADRIX effects you wish to use.**
(Learn more about [Effects](#).)
- Step 3) Create a Cue List, if you wish to use it during the recording.**
If not, simply skip this step and you will create a live record.
(Learn more about the [Cue List](#).)
- Step 4) Record your effects by creating a MADRIX Record File (*.mrec).**
(Use the [Recording](#) dialog for this task.)
- Step 5) Convert the Record File (*.mrec) into a DMX Data File (*.dxd).**
(Use the [Recording](#) dialog for this task.)
- Step 6) Create a PLEXUS Configuration. This will be your Stand-Alone Show!**
(Use the [PLEXUS Configuration](#) dialog for this task.)

Step 7) Upload your Stand-Alone Show onto the SD card.

(Use the [PLEXUS Configuration](#) dialog for this task.)

Step 8) Activate Stand-Alone Mode for the MADRIX PLEXUS.

(Use the [PLEXUS Configuration](#) dialog for this task.)

Step 1), Step 2), And Step 3)

Please use the [Matrix Generator](#) or the [Patch](#) for Step 1).

Please read the chapter [Effects](#) for Step 2).

Please read the chapter [Cue List](#) if you wish to do Step 3).

Step 4) Recording Your Effects**Overview**

To call up the Recording dialog, please go to the menu **"Window" -> "Recording"** (or **"Ctrl+Alt+R"**).



Files

Files, i.e. records, will be displayed in the large list of the Recording dialog. If you did not create any records yet, the list is empty (as shown above).

Path

"Path" specifies a directory on your hard disk. All record files will be saved in this folder. By default, a useful folder is already chosen for you (For example C:\Users\USERNAME\Documents\MADRIX\records).



You can change the folder. Use this button to browse for a different folder on your hard disk.

Filter

Use this filter to search for specific files in the list. 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.

Managing Files And List Entries



Shows MADRIX Record File (*.mrec) from the folder in the list. When activated, the button is green. Disable the option to hide all Record Files.



Show DMX Data Files (*.dxd) from the folder in the list. When activated, the button is green. Disable the option to hide all DMX Data Files.



Use this button to refresh the list of records. Please make sure to select your preferred records folder first.



Delete the selected file or files from your hard disk. You can also use the "Delete" key on your keyboard.

Columns Of The List

File	Date - Time	Patch Size	Duration	KF	FPS
------	-------------	------------	----------	----	-----

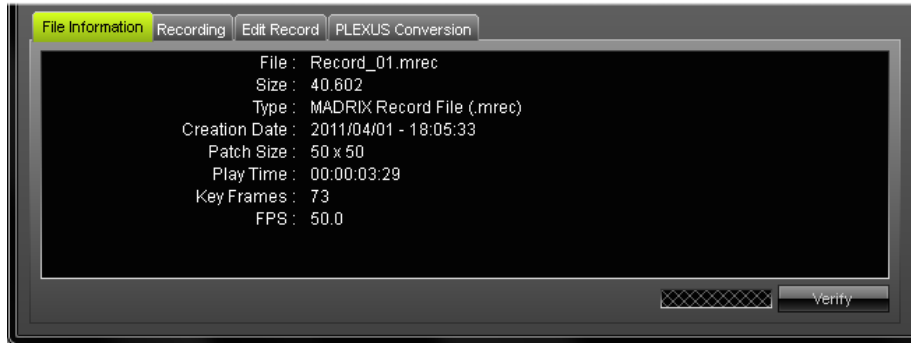
"File"	Shows the name of the record and its file type (*.mrec or *.dxd). Double-click on the list entry to change the name of the file.
"Date - Time"	Shows the time and date when the record was created.
"Patch Size"	Shows the size of the virtual matrix (Patch Size) used for this record in pixels x pixels. (It can be configured in the Matrix Generator or Patch .)
"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.

Window Size

In order to increase the size of the Recording dialog 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 the Tab **"File Information"** to receive detailed information about the files you have created. Please select a file in the list first.



Recording

Select the Tab **"Recording"** to create a new record.

Preparation

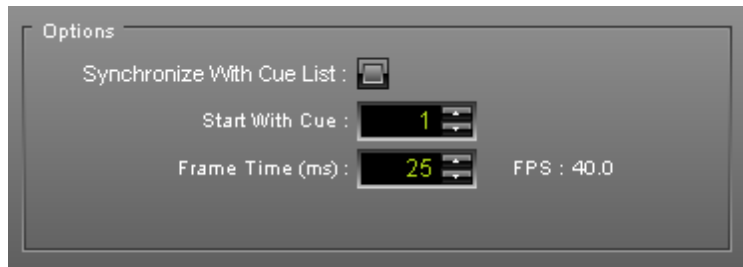
Please make sure to do Step 1), 2), and 3) before recording.

Important Note

Please note: Only the Main Output will be recorded. Make sure that your content is displayed on Preview Window Output before you record.

Options

Please configure the following options before recording.



"Synchronize With Cue List" will create 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" allows you to specify 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 setting to the requirements of your LED fixtures!** A frame rate (FPS) that is too high might cause visual problems.

Please adjust the setting to the requirements of your LED fixtures and devices!

Please note:

A frame rate (FPS) that is too high might cause problems. Those can be visual problems on your LEDs, for example.

For the MADRIX PLEXUS a maximum frame rate of 40 FPS is recommended. Otherwise, PLEXUS devices may drop single frames to maintain the timing. PLEXUS devices are likely to drop frames in order to maintain the timing, when all 512 DMX channels of a DMX universe are used. If your DMX universes contain less than 512 channels (324 DMX channels, for example) this behavior is less likely.

Creating A Record File

Please make sure to configure all available options before recording (see above).

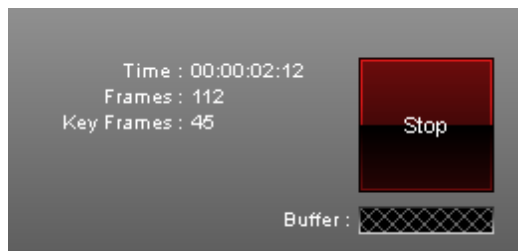
Step 1)



Begin recording by pressing **"Start"**. MADRIX will start to record the Main Output.

Please note: When recording without a Cue List, you can change Storage Places, use the cross-fader, use the Master Fader, etc. in order to customize your record.

Step 2)



Various information will be displayed.

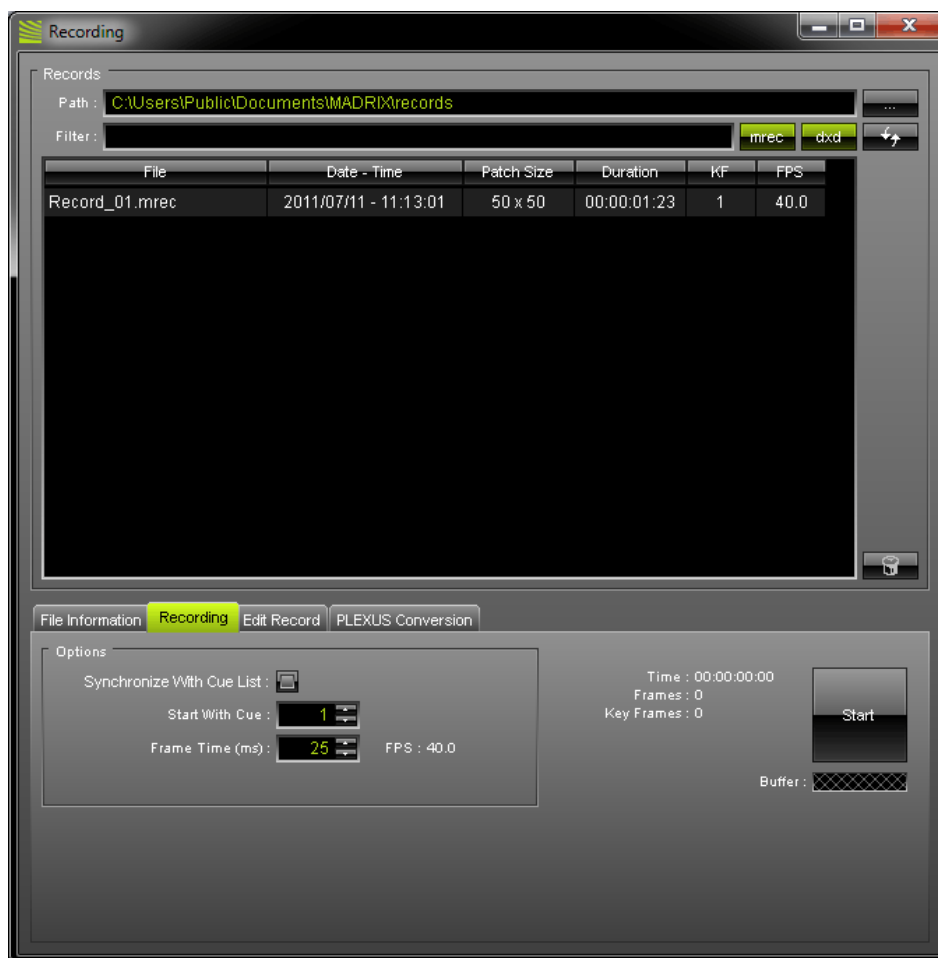
The Time is displayed in HH:MM:SS:FF (Hours:Minutes:Seconds:Frames).

Step 3)

Simply press **"Stop"** to halt 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)

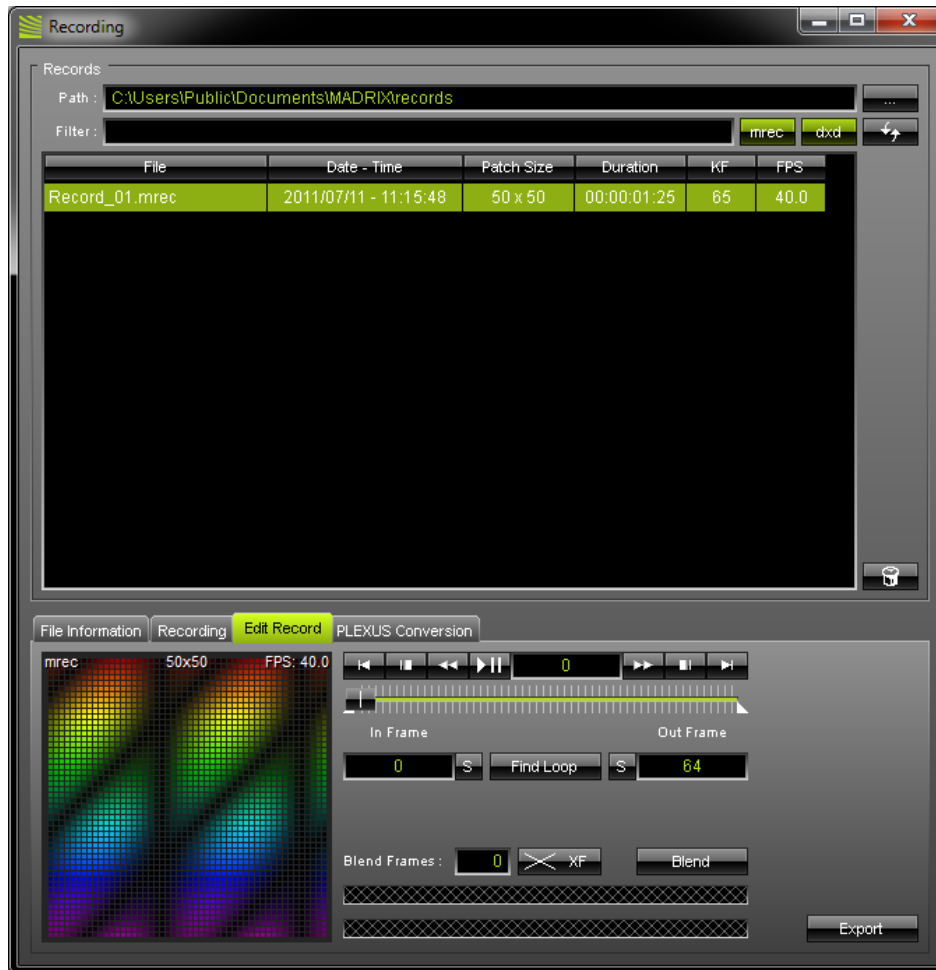
Afterwards, you will see your record in the list.



Edit Record

After creating your record, you can edit your record.

First, please select your Record File in the list. Second, change to the tab "**Edit Record**" in the "**Recording**" dialog.



A small preview window is provided in the lower left to inspect the record.

Please note: If you see the message **!NO MADRIX KEY!**, 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. That means you can preview, trim, and loop your record. First, select a list entry. Trim the record by setting up a new In Frame and a new Out Frame.



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.



Starts or stops the preview playback.



Rewinds or forwards one frame per click.



Skips directly to the In Frame or the Out Frame.



Skips 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).

A rectangular button with a dark grey background and the text "Find Loop" in white.

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. 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, >>[more info](#)). Third, press "Blend". Fourth, use PlayPause to preview the edited record. Fifth, use the button "Export" to export your loop.

Please 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.

A rectangular button with a dark grey background and the text "Export" in white.

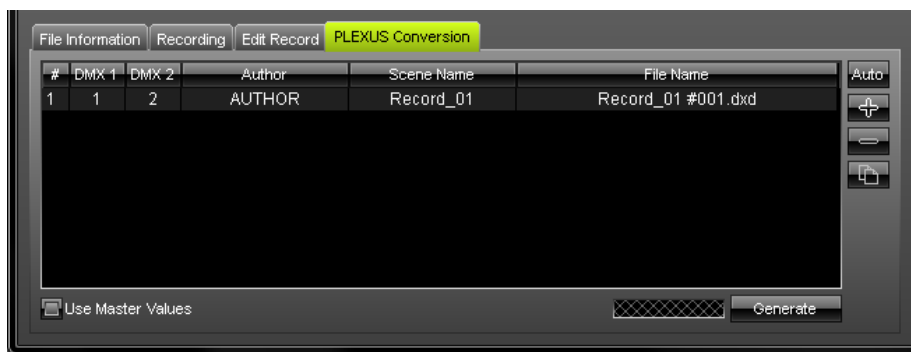
Exports the edited record. Choose a name in the second step.

Step 5) Converting Files

Overview

Call up the Recording dialog again. Please go to the menu **"Window" -> "Recording"** (or "Ctrl+Alt+R").

First, select your MADRIX Record File (*.mrec) in the list. Second, switch to the tab **"PLEXUS Conversion"**.



The tab "PLEXUS Conversion" allows you to prepare the conversion. You can edit and configure how a MADRIX Record File (*.mrec) is converted into a DMX Data File (*.dxd).

Preparing The Conversion

Please make sure that your virtual matrix (Patch) is configured correctly before generating DMX Data Files (*.dxd).

Note: The PLEXUS Conversion tab only factors in the settings of the Patch and not the settings of the Device Manager.

If your live output via the Device Manager works and you have changed the assignment of DMX universes, please make sure to adjust the settings in the PLEXUS Conversion tab as well!



Automatically adds entries to the list. The number of entries will automatically be calculated according to the number of DMX universes configured in your Patch. The name of your Windows account will automatically be used for the column "Author". The name of the record file will automatically be used for the column "Scene Name". The name of the record file and an additional number will automatically be used for the column "File Name".



Adds a list entry. Do not forget to adjust the entry "DMX 1" and "DMX 2" as well as "Author", "Scene Name", "File Name" for each list entry.



Removes an entry from the list. Select an entry in the list first. You can also use the "Delete" key on your keyboard.



Duplicates list entries. Select one or several entries in the list first. The File Name will automatically be adjusted.

You may edit the each entry.

"Author", "Scene Name", "File Name" can be changed. They define how the new DMX Data File will be named after the conversion. Select an entry. Double-click on the particular column and enter the values or characters using the keyboard. Use "Enter" to apply your changes. **Please make sure that your "File Name" has the ending "*.dxd".**

"DMX 1" defines which DMX universe of your virtual matrix (Patch) will be used for the first output port of your PLEXUS. Select an entry. Perform a double-click and simply enter the number of the universe. Use "Enter" to apply the changes. Select **"No"** if the output port should be deactivated.

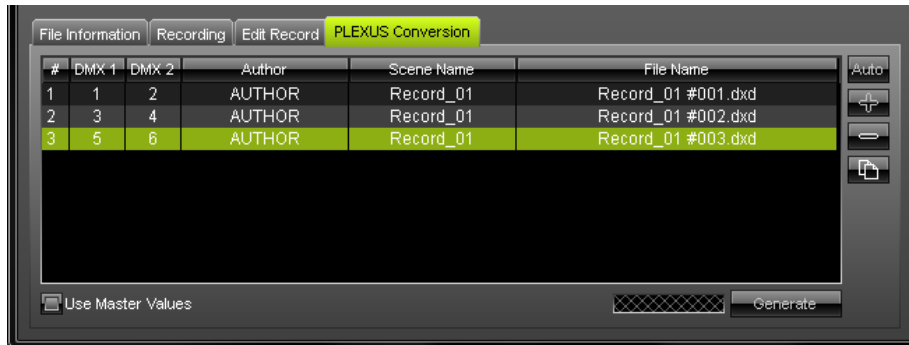
"DMX 2" defines which DMX universe of your virtual matrix (Patch) will be used for the second output port of your PLEXUS. Select an entry. Perform a double-click and simply enter the number of the universe. Use "Enter" to apply the changes. Select **"No"** if the output port should be deactivated.

"Use Master Values" can be activated if you have used the Master Fader during recording. Then, your converted record will include the brightness levels set by the Master Fader during the recording. Leave the option unchanged if you did not use the Master Fader during recording.

Please note: If you are using more than 2 DMX universes and more than 1 MADRIX PLEXUS at the same time, please make sure to have a list entry for each PLEXUS (You will need 1 list entry for each PLEXUS of your installation).

Example:

We have created a Patch for 6 DMX universes and we are using 3 MADRIX PLEXUS. PLEXUS number 1 should play DMX universe 1 and 2, PLEXUS number 2 should play DMX universe 3 and 4, PLEXUS number 3 should play DMX universe 5 and 6. Then, we need to create 3 list entries or use the "Auto" button.



(We will also have to generate 3 DMX Data Files (*.dxd) in the next step.)

Generating DMX Data Files (*.dxd)

Please make sure that your virtual matrix (Patch) is configured correctly before generating DMX Data Files (*.dxd).

1. Select your MADRIX Record File (*.mrec) in the list.
2. Make sure to have configured your list entry or several list entries in the tab "PLEXUS Conversion".
3. Press the button **"Generate"** to convert the MADRIX Record File (*.mrec) into one or multiple DMX Data Files (*.dxd).
4. The newly create DMX Data Files (*.dxd) will be added to the list above.

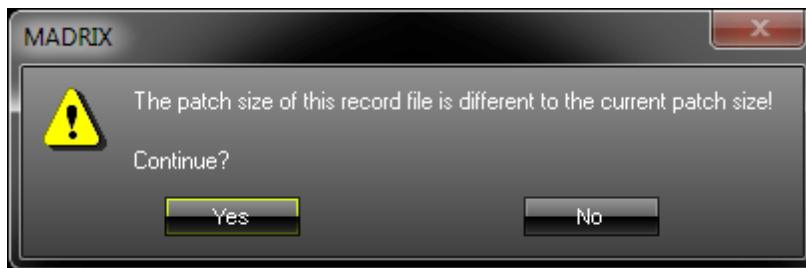
Please note:

- You can create several, different DMX Data Files (*.dxd) from one MADRIX Record File (*.mrec).
- Your MADRIX Record File (*.mrec) will not be deleted when a new DMX Data Files (*.dxd) is generated.
- When using multiple devices at the same time in one installation, you will need multiple DMX Data Files (*.dxd). When using the button "Generate", all list entries in the tab "PLEXUS Conversion" will be used to automatically create multiple DMX Data Files.

Warnings:

When generating *.dxd files, you may encounter two messages.

1) As described above, you need to configure your virtual matrix (Patch Size) correctly, before generating DMX Data Files. This message box is a reminder to check if your Patch settings are configured correctly. Press "Yes" if you would like to proceed with your current settings. Press "No" if you would like to change your settings.



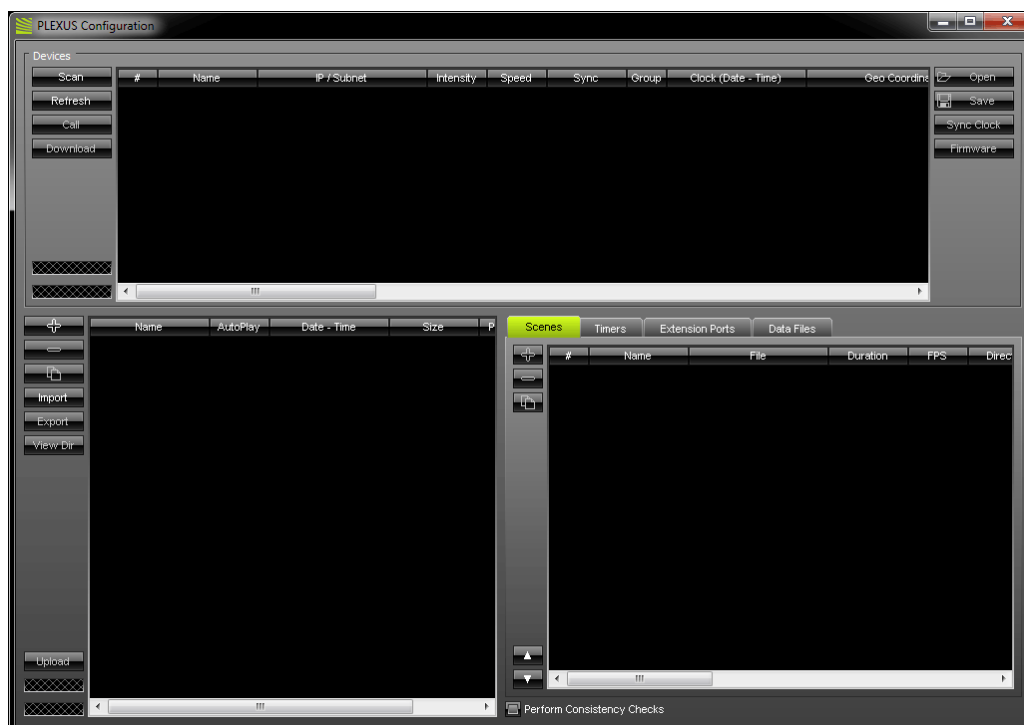
2) As described above, the maximum recommended frame rate for the MADRIX PLEXUS is 40 FPS (a frame time of 25ms). This message box is a reminder to check if your frame rate settings are configured correctly. Press "Yes" if you would like to continue with your current settings. Press "No" if you would like to change your settings.



Step 6) Creating PLEXUS Configurations (Show Files)

Overview

To call up the PLEXUS Configuration dialog, please go to the menu **"Tools" -> "PLEXUS Configuration "** (or "Ctrl+Alt+P").



It is highly recommended to **maximize** the size of the PLEXUS Configuration dialog.

The upper section of the PLEXUS Configuration dialog is called "Devices". It can be used to manage your PLEXUS devices (see [below](#)).

The lower section of the PLEXUS Configuration dialog has two parts. The left part is used to manage your PLEXUS Configurations (create a new Configuration, import/export a Configuration, etc). The right part is used to edit each PLEXUS Configuration individually (add Scenes, add Timers etc).

Basically, when you create and configure a MADRIX PLEXUS Configuration, you create a Show for the PLEXUS Stand-Alone Mode.

How To Create And Manage PLEXUS Configurations

In order to manage your PLEXUS Configurations, please use the lower **left** part of the PLEXUS Configuration dialog.

Please note: A MADRIX PLEXUS Configuration is **not one single file**. A Configuration **is a folder containing several files**.



Creates a new PLEXUS Configuration. Enter a name for the new PLEXUS Configuration in the second step.



Removes an existing PLEXUS Configuration. Select the particular PLEXUS Configuration first.



Duplicates an existing PLEXUS Configuration. Select one PLEXUS Configuration first. Enter a new name for the copy in the second step.



Imports a PLEXUS Configuration. Press the button and select the directory or the source on which the Configuration can be found. Importing a PLEXUS Configuration is useful when receiving Configurations from someone else.



Exports a PLEXUS Configuration. Select the particular PLEXUS Configuration first. In the second step, please select the directory or the source on which the PLEXUS Configuration should be saved. Exporting a Configuration is useful for exchanging PLEXUS Configurations with each other (on USB sticks, for example) and for uploading a Stand-Alone Show directly onto an SD card.



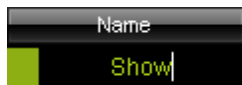
Shows the content of a PLEXUS Configuration (View Directory). Remember that a MADRIX PLEXUS Configuration is not one, single file, but a folder containing several files. You will hence view the whole directory that includes all files of the PLEXUS Configuration.



Uploads a PLEXUS Configuration onto an SD card that is inserted into a MADRIX PLEXUS. Learn more [below](#).



Please configure the column **"AutoPlay"** for each of your PLEXUS Configurations. This setting specifies what to do when a new Stand-Alone Show is uploaded to a MADRIX PLEXUS or when a newly recorded SD card is inserted into a MADRIX PLEXUS. Select **"No"** and nothing will be played automatically. Select **"Last"** and the PLEXUS will continue where it last stopped. Or you can select a specific Scene after you have created Scenes (Number **"1"**, **"2"**, **"3"**, etc). Perform a double-click to change the entry.



You may also change the name of your PLEXUS Configurations after you have created them. Simply perform a double-click on the column **"Name"** and enter the new description via the keyboard. Press "Enter" to apply the changes.

"Power-Up Delay" specifies a timeout in seconds for PLEXUS devices at startup for improved network behavior. Playback is delayed to ensure that all Slave devices are ready in the network after startup.

How To Edit PLEXUS Configurations

In order to edit your PLEXUS Configurations individually, use the lower **right** part of the PLEXUS Configuration dialog.

First, create a new PLEXUS Configuration as described [above](#).



MADRIX can automatically control if your editing is logical and consistent within one PLEXUS Configuration. Enable this function in order to receive warnings if your editing may be false. Disable this function to hide such messages.



You will automatically receive small warning symbols if your editing is inconsistent and illogical. MADRIX then indicates that you have created conflicts. You will receive these warnings even if you disable "Perform Consistency Checks". Click on a warning to display the message behind it.



Swaps places of list entries. Quickly change the order of Scenes and Timers using the up or down button. Select an entry in the list, press up or down and the entry will move one place up or down. The neighboring entry will automatically move one place down or up, respectively.

Scenes:

Scenes are based on a DMX Data Files (*.dxd). Scenes are smaller parts of a whole show. All Scenes together create your Stand-Alone Show.

First, please select **one** PLEXUS Configuration you wish to edit.



Creates a new Scene.

When creating a new Scene, a new window will open and you will be asked to select a DMX Data File (*.dxd).



Select a file from the list of **Data Files**. Or you can simply **"Import"** a *.dxd file from your hard disk. If the list is empty, please import a file.



Removes a Scene. Select the particular Scene first.



Duplicates a Scene. Select the particular Scene first. Enter a new name for the copied Scene in the second step.

In addition, please edit the following columns according to your requirements.

(Perform a double-click to change their values. Press "Enter" to apply your changes. Press "Escape" to cancel.)

"#"	defines the number of the Scene. Simply enter a number.
"Name"	defines the description of the Scene. Simply enter a name.

"File"	defines the source of the Scene. Simply select another source (using a double-click), if you wish to change it.
"Duration"	shows how long the Scene is playing. This value cannot be changed.
"FPS"	shows the frames per second of the record file. This value cannot be changed.
"Direction"	defines which way the Scene is played. Applicable values are: "Forward" , "Ping Pong" , "Backward" . "Ping Pong" plays the Scene forwards first and automatically plays it also backwards afterwards.
"Repeat"	defines how often the Scene is repeated. Simply enter a number. A value of 0 will be shown in the list as "Endless" , that means it will be repeated endlessly.
"Soft Loop"	creates an automatic loop by the software. First, enter a number of frames. MADRIX will add these frames to the end of the Scene and therefore loops towards the first frame of your Scene. A cross-fade is created. For example, if your record was set to a frame rate of 33 FPS and you enter 66 here, two seconds will be used for a loop towards the first frame.
"Follow"	defines which Scene will be played after the currently selected Scene. Applicable values are: "No" , "Next" , and a specific Scene ("1" , "2" , "3" , etc).
"Intensity"	defines the brightness for the Scene in percent. Applicable values are: 0 - 100 .
"Speed"	defines the tempo in percent. Applicable values are: 1 - 1000 .
"Port 1"	defines if Port 1 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).
"Port 2"	defines if Port 2 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).

"Port 3"	defines if Port 3 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).
"Port 4"	defines if Port 4 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).
"Port 5"	defines if Port 5 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).
"Port 6"	defines if Port 6 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).
"Port 7"	defines if Port 7 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).
"Port 8"	defines if Port 8 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).
"Port 9"	defines if Port 9 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).
"Port 10"	defines if Port 10 of the extension port will be triggered when the Scene begins to play. Applicable values are: "NO" , "0" (OFF), or "1" (ON).

Timers:

The tab "Timers" allows you to add specific events to your Stand-Alone Show.

First, please select **one** PLEXUS Configuration you wish to edit.



Creates a new Timer.



Removes a Timer. Select the particular Timer first.



Duplicates a Timer. Select the particular list entry first.

A maximum of 1000 Timers can be configured per PLEXUS Configuration to ensure performance.

In addition, please edit the following columns according to your requirements.

(Perform a double-click to change their values. Press "Enter" to apply your changes. Press "Escape" to cancel.)

"Action"	defines the type of Timer. Applicable values are: "Scene" , "Intensity" , "Speed" , "Next" , "Previous" , "Stop" , "Play" , "Pause" , "Port 1" , "Port 2" , "Port 3" , "Port 4" , "Port 5" , "Port 6" , "Port 7" , "Port 8" , "Port 9" , "Port 10" . "Scene" will trigger a specific Scene to be played. "Intensity" will trigger the brightness of the output to change. "Speed" will trigger a change of tempo. "Next" or "Previous" skip to the last or next entry. "Stop", "Play", and "Pause" end, start, or halt the playback. "Port" will trigger the specific Port of the extension port.
"Value"	is a field that depends on the "Action" . Enter a number to specify a certain "Scene". Enter a value from 0 to 100 for "Intensity". Enter a value from 1 to 1000 for "Speed". Select 0 (Off) or 1 (On) for "Port".
"Type"	defines the how often the "Action" is triggered. Applicable values are: "Once" , "Cycle" , "Daily" , "Weekly" , "Monthly" , "Yearly" . "Once" will trigger the event only one time. "Cycle" will trigger the event according to the "Cycle Interval", for example every 10 minutes.

"Time Type"	includes various variables: 'Time' , 'Sunrise' , 'After Sunrise' , 'Before Sunrise' , 'Sunset' , 'After Sunset' , 'Before Sunset' . Choose 'Time' to exactly define the time and date under 'Start'. Choose 'Sunrise' or 'Sunset' to begin at sunrise or sunset. Those times will be automatically calculated according to the Geo Coordinates. Use 'Start' to define the start date. Choose 'After Sunrise', 'Before Sunrise', 'After Sunset', or 'Before Sunset' to use the automatically calculated sunrise and sunset times together with an offset (in hours:minutes:seconds). The offset can be set in the 'Start' column, value 'Time'. For example, you may trigger the Timer 2 hours before sunset on May 12, 2012.
"Start"	defines the date and time, that means when the event will be triggered.
"Valid From"	defines together with "Valid Thru" a time interval, in which the event will be triggered. "Valid From" sets the starting point.
"Valid Thru"	defines together with "Valid From" a time interval, in which the event will be triggered. "Valid Thru" sets the end point.
"Cycle Interval"	defines a time period for the "Type" "Cycle" in HH:MM:SS (Hours:Minutes:Seconds).

Extension Ports:

The tab "Extension Ports" allows you to configure the individual pins of the extension port.

First, please select **one** PLEXUS Configuration you wish to edit.



Resets all settings of the currently selected Ports to their default value. This will discard any changes you have made.

Please edit the following columns according to your requirements.

(Perform a double-click to change their values. Press "Enter" to apply your changes. Press "Escape" to cancel.)

"Type"	defines the character for each Port. On the one hand, "Ports 1 - 6" can be either "Digital Input", "Digital Output" or "Analog Input" . On the other hand, "Ports 7 - 10" are only digital ports and can be switched from "Digital Input" to "Digital Output" and vice versa.
"Invert"	defines if the status of the Port (1 = On, 0 = Off) will be reversed to 0 = On, 1 = Off.
"Action"	defines the type of event that will be triggered when a Port is triggered. Applicable values are: "No", "Scene", "Intensity", "Speed", "Next", "Previous", "Stop", "Play", "Pause", "PlayPause", "Freeze" . "Scene" will trigger a Scene. "Master" adjusts the Master Fader. "Speed" will trigger a change of tempo. "Next" or "Previous" skip to the last or next entry. "Stop", "Play", and "Pause" end, start, or halt the playback. "PlayPause" will start or halt the playback. "Freeze" will halt the output.
"Value"	defines the "Action" in more detail. Enter a number to specify a certain Scene. Enter a value from 0 to 100 for "Master". Enter a value from 1 to 1000 for "Speed".
"Threshold High"	can be entered when using "Analog Input". Specify the limit an analog input must be moved up to before the event is triggered.
"Threshold Low"	can be entered when using "Analog Input". Specify the limit an analog input must be moved back before the event is triggered.

Data Files:

The tab "Data Files" shows all DMX Data Files (*.dxd) that are used in the selected PLEXUS Configuration. It represents a database of your DMX Data Files within one PLEXUS Configuration. (Remember that you need DMX Data Files (*.dxd) in order to create **Scenes**.)

First, please select **one** PLEXUS Configuration you wish to edit.



Adds a new DMX Data File (*.dxd).



Removes an existing DMX Data File from the PLEXUS Configuration.

"#"	shows the indexing number of the Data File. This value cannot be changed.
"In Use"	shows how often the Data File is used in your PLEXUS Configuration by Scenes. This value cannot be changed.
"File"	shows the exact name of the record file. This value cannot be changed.
"Name"	shows the general label of the file. This value cannot be changed.
"Duration"	shows the length of the record. This value cannot be changed.
"FPS"	shows the frames per second of the record file. This value cannot be changed.
"Size"	shows the file size in Bytes. This value cannot be changed.

Step 7) Uploading A Stand-Alone Show Onto The SD Card

(Press **"Scan"** to find your connected PLEXUS. Learn more on how to manage your PLEXUS devices [below](#).)

You can either

A) directly save your Stand-Alone Show on an SD card



Please make sure to use an empty, formatted SD card! First, select your Configuration. Second, press **"Export"**. In the third step, choose your target source.

Or

B) you can save your Stand-Alone Show on the SD card that is inserted into your MADRIX PLEXUS.

Your PLEXUS must be connected via USB or via Ethernet (network).



First, select your MADRIX PLEXUS. Second, select your PLEXUS Configuration. Third, press **"Upload"** and the PLEXUS Show will be saved on the SD card of your device.

Step 8) Activating Stand-Alone Mode

Last but not least, you will have to activate Stand-Alone Mode on your MADRIX PLEXUS.

A) Activate Stand-Alone Mode manually on the device using the menu (LCD graphics display) and the 5 control buttons (menu Playback).

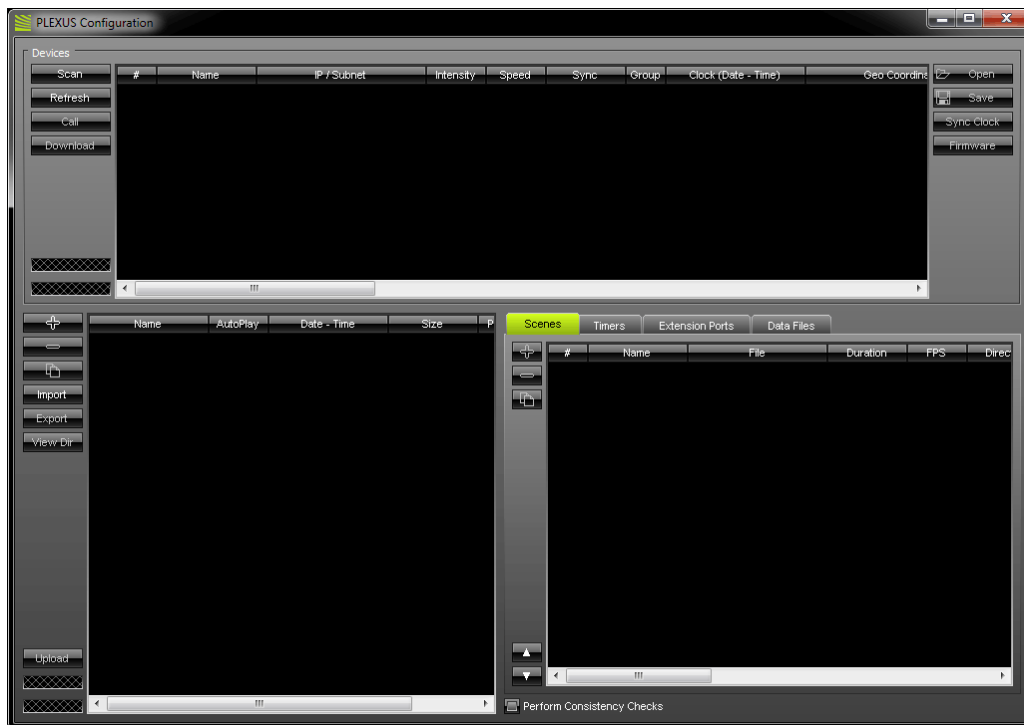
B) **"Call"** your device and activate Stand-Alone Mode remotely (menu Playback). Learn more [below](#).

C) Use the **"AutoPlay"** option to automatically start playing a Scene.

Managing Your MADRIX PLEXUS Devices

To call up the PLEXUS Configuration dialog, please go to the menu **"Tools" -> "PLEXUS Configuration "** (or "Ctrl+Alt+P").

It is highly recommended to **maximize** the size of the PLEXUS Configuration dialog.



The lower section of the PLEXUS Configuration dialog consists of two parts for the **Stand-Alone Mode**. The upper section of the PLEXUS Configuration dialog is labeled **"Devices"**. The upper section can be used to manage your PLEXUS devices further.



Scans the USB ports of your computer and the network (Ethernet) for connected PLEXUS devices. If devices are found, they will be shown in the list.

A rectangular button with a dark background and the word "Refresh" in white text.

Re-scans already connected devices and brings the information in the list up to date.

A rectangular button with a dark background and the word "Call" in white text.

Enables remote access to your device. The PLEXUS needs to be connected via Ethernet (network connection required). First, connect your computer and the PLEXUS to one and the same network. Second, select your PLEXUS in the list. Third, press "**Call**". A web browser opens automatically.

A rectangular button with a dark background and the word "Download" in white text.

Downloads a saved PLEXUS Configuration directly from a connected PLEXUS to your harddisk. You can use this feature to create backups, for example.

A rectangular button with a dark background, a small icon of a folder with an arrow, and the word "Open" in white text.

Imports the MADRIX PLEXUS Device Settings from an external file (*.mpds). Use this option to easily restore all device settings from a file (as described in the table below).

A rectangular button with a dark background, a small icon of a floppy disk, and the word "Save" in white text.

Exports the MADRIX PLEXUS Device Settings to an external file (*.mpds). Use this option to easily store all device settings in a file (as described in the table below).

A rectangular button with a dark background and the text "Sync Clock" in white.

Synchronizes the internal clock of the PLEXUS with the clock of your computer. The computer clock will define the time that is used. First, select your PLEXUS devices in the list. Then, press "**Sync Time**".

Firmware

Updates the firmware of your MADRIX PLEXUS (USB connection required). Please read the MADRIX PLEXUS User Manual for more information!

In addition, please edit the following columns according to your requirements. Each column represents a certain setting of the device, which can often be adjusted in the various menus on the device itself.

For more information about each PLEXUS menu, please see the MADRIX PLEXUS User Manual.

(Perform a double-click to change their values. Press "Enter" to apply your changes. Press "Escape" to cancel.)

"Name"	defines the name (label) of the device.
"IP/Subnet"	defines the network settings regarding IP address, Subnet mask, and Standard Gateway for the device.
"Intensity"	defines the main brightness of the output your device in percent. Applicable values are: 0 - 100%. The default value is 100%.
"Speed"	defines the tempo of the output in percent. Applicable values are: 1 - 1000%. The default value is 100%.
"Sync"	defines if your interfaces, who are in the same Group, use the implemented Master-Slave Synchronization.

"Group"	assigns your device to a certain group. In this way you may set up several different Master-Slave clusters (in the same network). Make sure that Master or Slave devices that should communicate with each other are assigned to the same group!
"Clock (Date - Time)"	defines the time and date of the device.
"Geo Coordinates"	defines the geographical location of the device, incl. the Time Zone. This information is required to calculate the corresponding sunrise and sunset times.
"SD Card"	cannot be edited. The 'used space'/'total available space' of your SD card is shown. The values are displayed in GB.
"Remote Control"	defines the source for remote control. You can choose to receive remote commands via USB, via Art-Net, or to turn remote control off (Disabled). The PLEXUS supports Remote Control in Live and Stand-Alone Mode.
"Receive Universe / Port"	defines for Art-Net which universe or for DMX which XLR port is used to receive the remote commands.
"Remote Start Channel"	defines a DMX start channel, which specifies the range of DMX channels used for the set of remote functions. 20 DMX channels are used by the remote functions. The default value is 1.
"Remote Thru"	defines if DMX-Thru is enabled (DMX -> Art-Net) , when Remote Control is activated over DMX. Incoming DMX data would then additionally be sent through to Art-Net.
"Timers"	defines if Timers are activated or deactivated for the device.
"Ext. Port"	defines if the Extension Port and its Ports are activated or deactivated for the device.
"Art-Net -> DMX 1"	defines which incoming Art-Net universe is assigned to the first XLR port for output (DMX 1).
"Art-Net -> DMX 2"	defines which incoming Art-Net universe is assigned to the second XLR port for output (DMX 2).

"DMX 1 -> Art-Net"	defines which Art-Net universe is assigned to the first XLR port for input (DMX 1).
"DMX 2 -> Art-Net"	defines which Art-Net universe is assigned to the second XLR port for input (DMX 2).
"Serial Number"	cannot be edited. It shows the serial number of the device.
"Firmware"	cannot be edited. It shows the current firmware version of the device.
"Brightness"	defines how bright the display is, when it is used. Applicable values are: 10 - 100%. The default value is 100%.
"Brightness Dimmed"	defines how bright the display is, when it gets dimmed. Applicable values are: 0 - 100%. The default value is 10%.
"Dim After"	defines after how much time the display will be dimmed. The default value is 30s.
"Contrast"	defines the contrast of the display and how well it can be read. Applicable values are: 0 - 100%. The default value is 50%.
"Invert"	defines if the colors of the display are inverted from white text and black background ('No') to black text and white background ('Yes').
"Rotation"	defines if the display of the device is rotated or not. Choose between '0°' (no rotation) and '180°' (rotated display).
"Language"	defines the language of the PLEXUS menus. Choose from 'English', 'Deutsch' (German), or Español (Spanish).
"Intensity Group 1 - 8"	defines the brightness for each Intensity Group. Applicable values are: 0 - 100%. The default value is 100%.
'Full Frames DMX 1'	defines if the device should always send full frames for the first XLR output. On the device, use the menu 'Settings' > 'DMX'.
'Full Frames DMX 2'	defines if the device should always send full frames for the second XLR output. On the device, use the menu 'Settings' > 'DMX'.

'Full Frames Art-Net 1'	defines if the device should always send full frames for Art-Net and the first Art-Net universe. On the device, use the menu 'Settings' > 'DMX'.
'Full Frames Art-Net 2'	defines if the device should always send full frames for Art-Net and the second Art-Net universe. On the device, use the menu 'Settings' > 'DMX'.
'MAC Address'	cannot be edited. It shows the MAC address of the device. On the device, check the menu 'Information' > 'Version'.

Tips

- You can create a Stand-Alone Show without having connected the PLEXUS to the computer.
- In order to upload a Stand-Alone Show onto an SD card, either the SD card or the device with the SD card must be connected. You can upload a show onto the SD card of a device via USB or via Ethernet (network).
- You can export a Stand-Alone Show directly to the SD card using the **"Export"** button in the **"PLEXUS Configuration"** dialog. Please make sure to use an empty, formatted SD card!

More Information

A complete guide about the PLEXUS interface can be found in the **MADRIX PLEXUS Quick Start Guide** and in the **MADRIX PLEXUS User Manual**.

Part



15 MADRIX LUNA

Overview



MADRIX LUNA is an Art-Net node or a DMX USB interface.

It reliably distributes your DMX512 data either via Ethernet network (Art-Net) or via USB. But an additional MADRIX KEY (i.e. a software license) is necessary.

3 versions are available:

- MADRIX LUNA 4
- MADRIX LUNA 8
- MADRIX LUNA 16

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.

MADRIX 2 Minimum System Requirements

- 2.0 GHz dual-core CPU
- 1024 MB RAM
- 500 MB free harddisk space
- 1280 x 768 screen resolution

- Sound card (for Sound2Light & Music2Light)
- Network card
- USB 2.0

MADRIX 2 Supported Operating Systems

- Microsoft® Windows® XP (SP2)
- Microsoft® Windows® Vista
- Microsoft® Windows® 7
- Compatible with 32 bit and 64 bit

Important Note

Make sure to read the provided MADRIX LUNA Quick Start Guide first!

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 - 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.

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).

First Steps

- 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.).

Network Settings

Before you start and in order to be able to use Art-Net, please set up your network card settings in Windows.

Use an IP address in the following address area:

- **2.0.0.1 ... 2.255.255.254** or
- **10.0.0.1 ... 10.255.255.254**

(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).

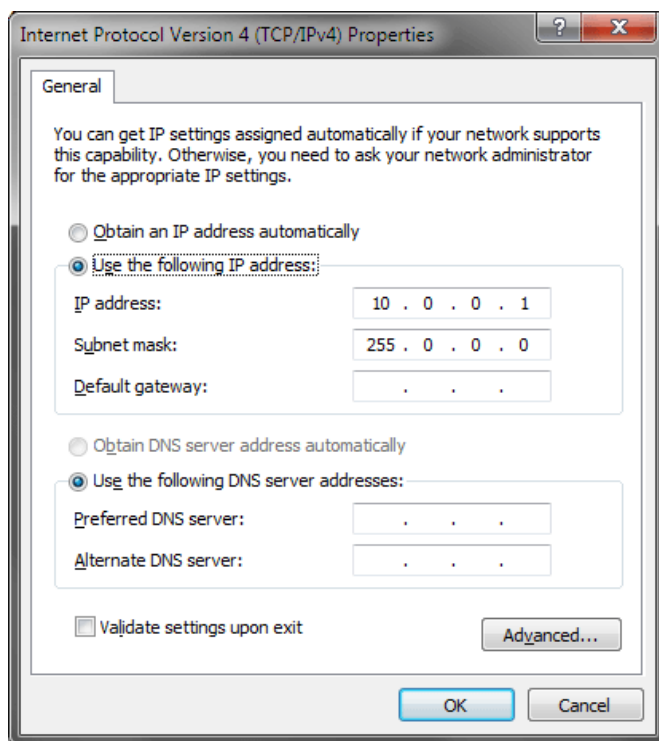
The Subnet mask should be

- **255.0.0.0**

You must use these network settings. Otherwise Art-Net might not work.

The IP addresses of your computer and your MADRIX LUNA device(s) need to be different.

Example for MADRIX PCs:



Please restart MADRIX if you have changed any network settings in Windows.

Fixture Configuration

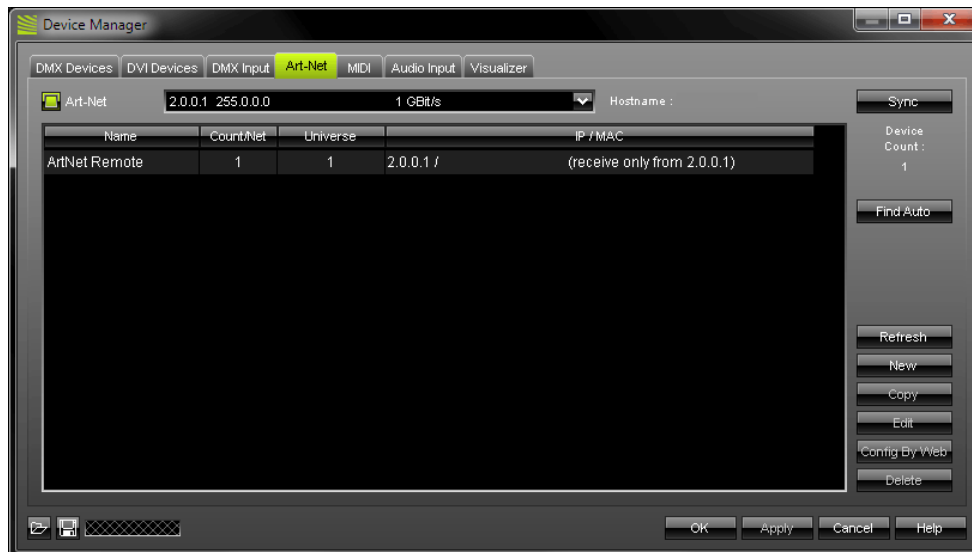
Start MADRIX now and configure the virtual LED matrix using the [Matrix Generator](#) or [Patch](#).

Configure Art-Net

Navigate to the menu "**Preferences**" -> "**Device Manager...**" (or press "F4"). Now, select the tab "**Art-Net**".

Select "**Art-Net**" in the upper left corner to activate it.

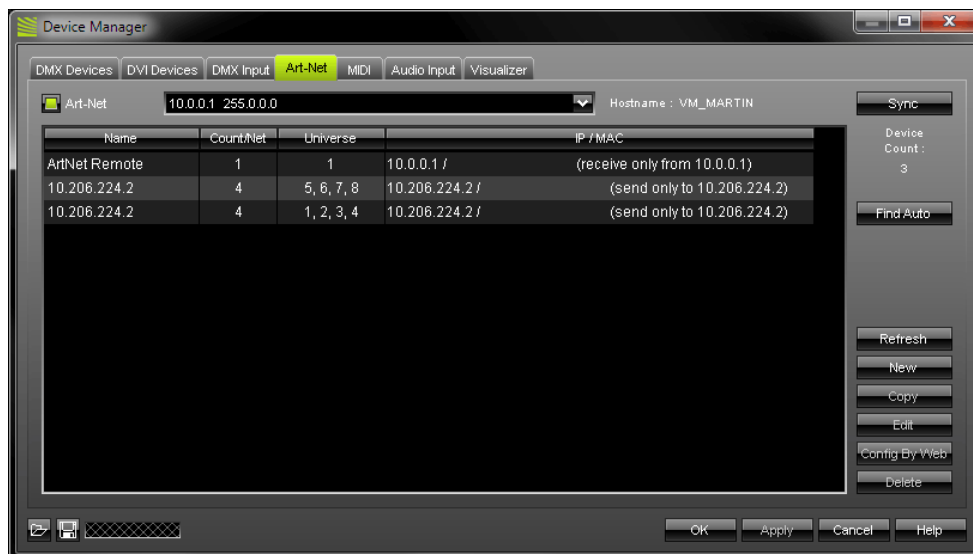
Choose your **network card** in the drop-down list next to it/to the right (e.g. 10.0.0.1 255.0.0.0).



Press "**Find Auto**".

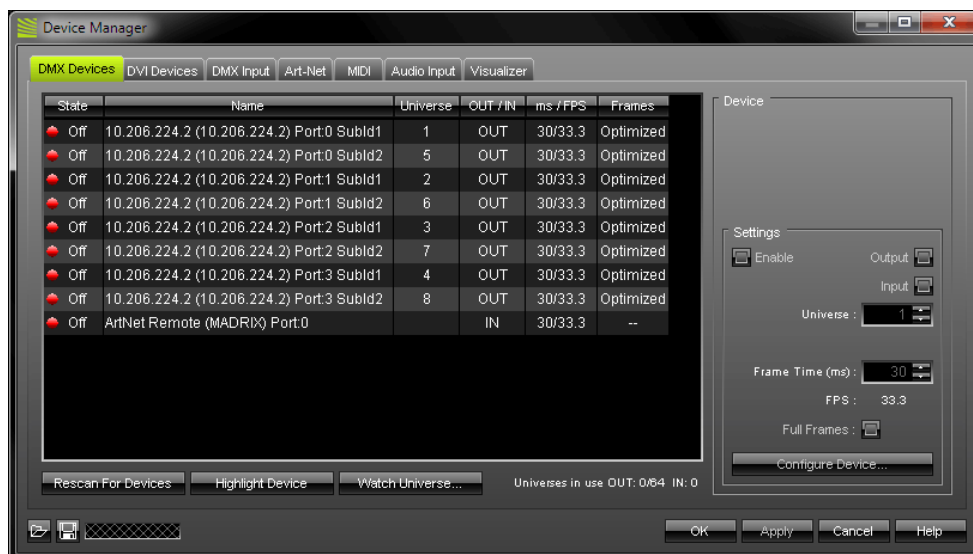
MADRIX will automatically search for connected LUNA devices in the network and add them to the list. A number of entries will be created in the list for each LUNA device.

(The Art-Net standards only supports a maximum of 4 output ports per device. Since LUNA 8 features 8 ports, 2 entries are created in MADRIX, for example. One entry will be shown for LUNA 4 and 4 entries for LUNA 16.)



Configure DMX Output

In the Device Manager, select the tab "DMX Devices".

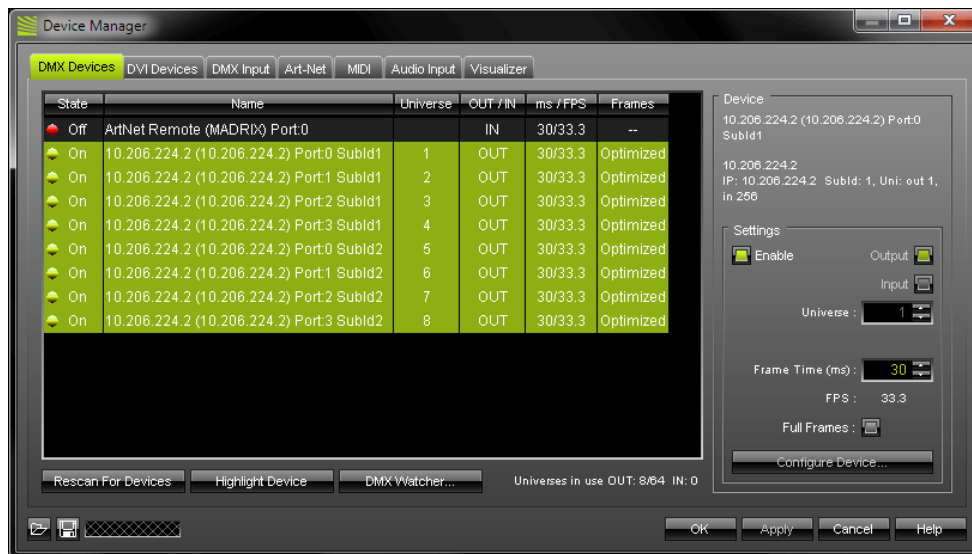


All output ports of each LUNA device will be shown in the list. 4 ports will be shown for LUNA4, 8 ports will be shown for LUNA 8, and 16 ports will be shown for LUNA 16. But the ports are still deactivated.

(Additionally, the entry "ArtNet Remote" is available, which can be used for Art-Net Remote.)

(In the screenshot above, one LUNA 8 is connected. If more devices are connected, use the different IP addresses of different devices to identify them in the Device Manager.)

Now, select all required output ports in the list and activate **"Enable"**. Press **"Apply"** to confirm.



(For a better overview, click on "Universe" in the list to sort in descending order as shown in the screenshot above.)

By default, DMX universe 1 - 4/8/16 are assigned to the ports DMX 1 - 4/8/16 when using one MADRIX LUNA:

LUNA Output Port	"Name" in the Device Manager -> DMX Devices
DMX 1	Port:0 SubId1
DMX 2	Port:1 SubId1
DMX 3	Port:2 SubId1

DMX 4	Port:3 SubId1
DMX 5	Port:0 SubId2
DMX 6	Port:1 SubId2
DMX 7	Port:2 SubId2
DMX 8	Port:3 SubId2
DMX 9	Port:0 SubId3
DMX 10	Port:1 SubId3
DMX 11	Port:2 SubId3
DMX 12	Port:3 SubId3
DMX 13	Port:0 SubId4
DMX 14	Port:1 SubId4
DMX 15	Port:2 SubId4
DMX 16	Port:3 SubId4

To change the DMX universe, select a port in the list and set up **"Universe"**. Press **"Apply"** to confirm.

To change the output frequency (**"FPS"**), simply change **"Frame Time (ms)"**. The higher the Frame Time, the lower the FPS will be. Press **"Apply"** to confirm. 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.

By default, MADRIX sends Optimized Frames instead of Full Frames. For more information, please see below.

Sync Mode For Art-Net



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.

An automatic sync mode for Art-Net is implemented in MADRIX. In this way you can activate or deactivate the usage of sync packages.

Before activating sync mode, 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.

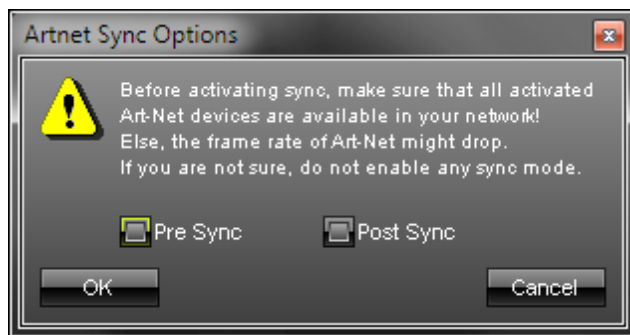
Go to "**Preferences**" -> "**Device Manager...**" (or press "F4"). Now, select the tab "**Art-Net**".

Click "**Sync**" and a new dialog will open.

Now, choose if you want to activate sync packages to be sent before Art-Net data is sent ("**Pre Sync**"). Or you can send sync packages after Art-Net data has been sent ("**Post Sync**").

Press "**OK**" to confirm.

If you want to **disable** sync mode, click "Sync" again and deselect the mode that is selected. Then, press "OK".



When MADRIX Sync mode is activated, MADRIX and MADRIX LUNA will automatically handle the synchronization of data.

Additional Art-Net Settings (Broadcast Or Direct IP Mode)

You can decide

- to send Art-Net data to all devices in the network (**Broadcast Mode**).

This setting can be useful if you wish to send the same data to several devices or if you wish to send it every single device in the network, for example.

But through broadcasting, a large amount of data traffic is sent over the network. This can negatively affect the overall network performance and cause instability.

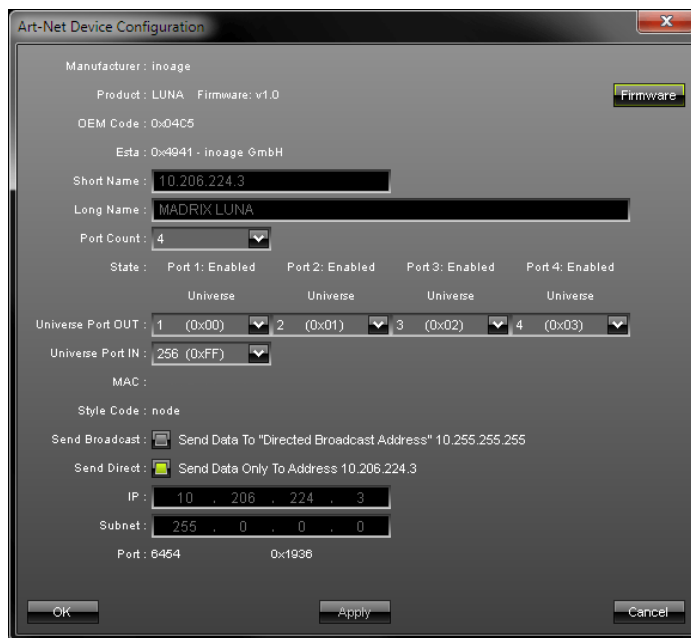
- to send Art-Net data to only specific devices (**Direct IP Mode**).

In this setting only devices with the specific IP address will be able to receive the data.

Direct IP Mode is the default setting. To reduce network traffic and to increase performance and stability, it is recommended using Direct IP mode.

In the Device Manager, select the tab "**Art-Net**".

Now, select an entry in the list. Press "**Edit**".



Set up Broadcast or Direct IP mode:

If "Send Broadcast" is activated, MADRIX will send data to the whole Art-Net network.

(Broadcast Mode)

If "Send Direct" is activated, MADRIX forwards data directly to the configured IP address (Enter the IP address of your LUNA device(s)). **(Direct IP Mode)**

Repeat the steps for all Art-Net devices you wish to use in this way.

Automatic HTP Merge

Overview

MADRIX LUNA features an automatic HTP merge 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 the 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 merge, the LED fixture will receive correct data from both sources as desired.

Configuration & 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 For Art-Net](#)
- 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 address[es] of your MADRIX LUNA device[s]. [It is not recommend to have any of the two sources or any other source in the network to send data via Broadcast Mode.]

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 LUNA via USB and distributed to the XLR output ports (DMX 1 - 4/8/16).

First Steps

- 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.
(e.g., use the provided USB cable)
- Start MADRIX.
- In MADRIX, configure the virtual LED matrix using the [Matrix Generator](#) or [Patch](#).

Enable Drivers in MADRIX

Please make sure to activate the driver for the USB connection in the MADRIX Options.

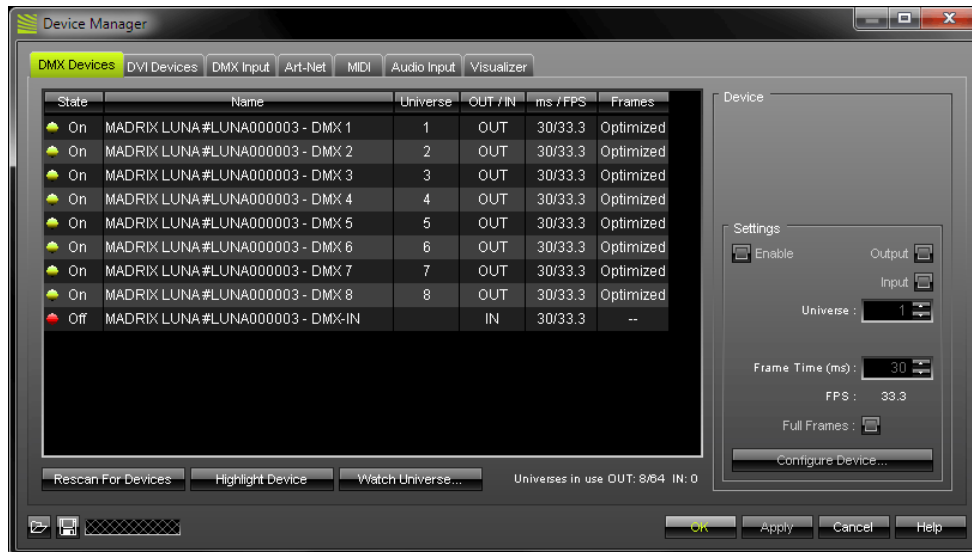
To access the Options of MADRIX, first go to the menu **"Preferences" -> "Options"** (or "Ctrl+Alt+O"). Second, select the tab **"Devices (USB/PCI)"**.



Select the **"MADRIX LUNA interfaces"** driver and press **"Apply"**. Close the dialog with **"OK"**.

Configure DMX Output

Go to the menu **"Preferences" -> "Device Manager..."** (or "F4"). Select the tab **"DMX Devices"**



Your LUNA device(s) 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, press **"Rescan For Devices"**.

(In the screenshot above, one LUNA 8 is connected.)

By default, DMX universe 1 - 4/8/16 are assigned to the ports DMX 1 - 4/8/16 when using one MADRIX LUNA. All output ports are activated ("**On**").

To activate or deactivate a port, select the port in the list and select "**Enable**" or deselect "**Enable**". Press "**Apply**" to confirm.

To change the DMX universe, select a port in the list and set up "**Universe**". Press "**Apply**" to confirm.

To change the output frequency ("**FPS**"), simply change "**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. Press "**Apply**" to confirm. When using USB, the Frame Time (ms) will be automatically set to the same value for all output ports.

By default, MADRIX sends Optimized Frames instead of Full Frames. For more information, please see below.

Further Settings For DMX Output

Full Frames Or Optimized Frames

In order to reduce network traffic, MADRIX is sending optimized data by default. For example, if you are only using 240 DMX channels, MADRIX sends data for 240 DMX channels. But you can activate full frames. When using full frames, MADRIX will send frames including all 512 DMX channels every time (even if you are only using 240 DMX channels).

Certain LED controllers or LED products might not support optimized frames. This is why full frames are recommended if problems occur.

To reduce network traffic, we suggest using optimized frames.

To enable "Full Frames", please navigate to the menu "**Preferences**" -> "**Device Manager**" -> tab "**DMX Devices**". Select your device and enable "**Full Frames**" if required.

In addition, you can activate Full Frames for the device and each MADRIX LUNA output port separately. For more information, see [LUNA Configuration](#).

Highlight Device



Go to the menu **"Preferences" -> "Device Manager" -> tab "DMX Devices"**. The **"Highlight Device"** button activates/deactivates the highlight mode for the selected interface and DMX universe.

Select one or more interfaces and press the button. The corresponding fixtures at the selected interface(s) will flash white for a better identification. This makes it easier to see them on stage. It considerably speeds up the procedure of programming the selected DMX512/Art-Net interfaces. When connected to USB, the MADRIX logo on the front of the MADRIX LUNA unit will also flash for better identification of the device.

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.

First Steps

- 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.).

Network Settings

Before you start and in order to be able to use Art-Net, please set up your network card settings in Windows.

Use the an IP address in the following address area:

- **2.0.0.1 ... 2.255.255.254** or
- **10.0.0.1 ... 10.255.255.254**

Artistic Licence (the creators of Art-Net) recommend to use 2.x.x.x (10.x.x.x is regarded to be an alternative).

Through 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).

The Subnet mask should be

- **255.0.0.0**

You must use these network settings. Otherwise Art-Net might not work.

Please restart MADRIX if you have changed any network settings in Windows.

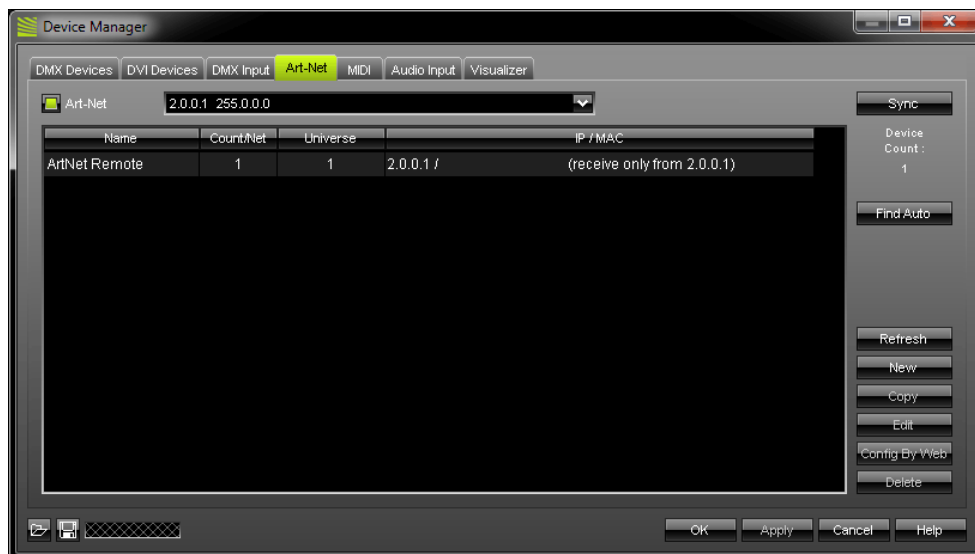
Configure Art-Net Remote

Navigate to the menu "**Preferences**" -> "**Device Manager...**" (or press "F4").

Now, choose the tab "**Art-Net**".

Select "**Art-Net**" in the upper left corner to activate it.

Choose your **network card** in the drop-down list next to it/to the right (e.g. 10.0.0.1 255.0.0.0).



The entry "**ArtNet Remote**" will be created automatically in the list.

Select "**ArtNet Remote**" in the list and press "**Edit**".

A new window opens ("**Art-Net Device Configuration**").



Set "**Universe Port OUT**" to **256**, which is Art-Net universe 256.

(By default, MADRIX LUNA sends DMX-IN data to Art-Net universe 256. If you have changed these settings in the Web Configuration or LUNA Configuration dialog, enter the same Art-Net universe here!)

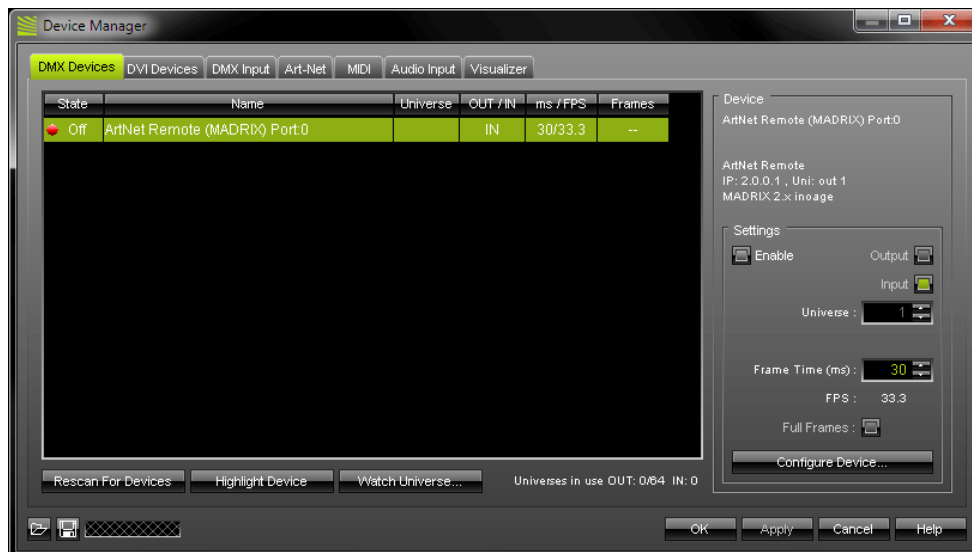
Activate "**Receive Direct**" and enter the **IP address** of your LUNA (e.g., 10.206.224.3). Press "**OK**".

(You can also activate "Receive Broadcast". In this mode, MADRIX will receive any DMX data that is sent in the network on this Art-Net universe.)

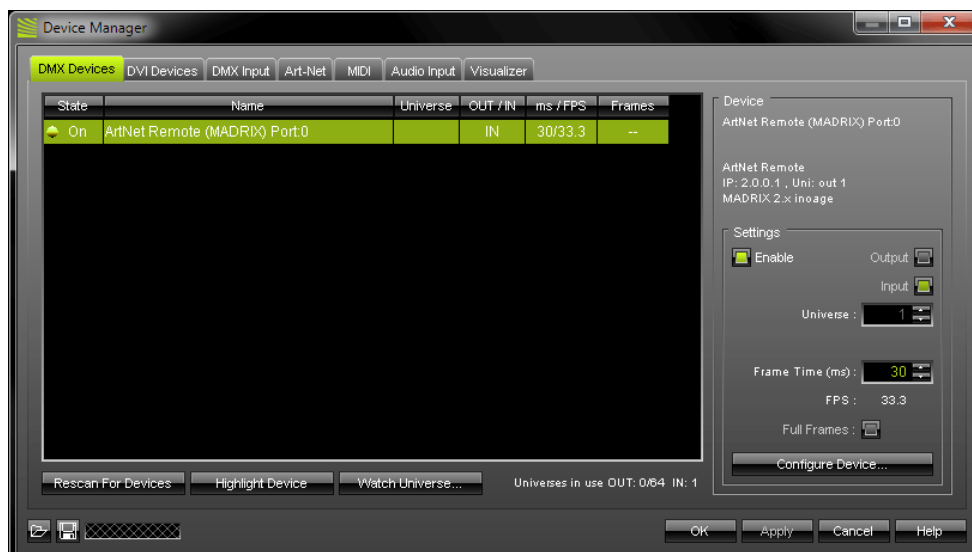
Activate Art-Net Remote

In the Device Manager, select the tab **"DMX Devices"**.

Art-Net Remote is still deactivated.



Select **"ArtNet Remote"** in the list and activate **"Enable"**. **"Input"** is automatically selected. Press **"Apply"** to confirm.



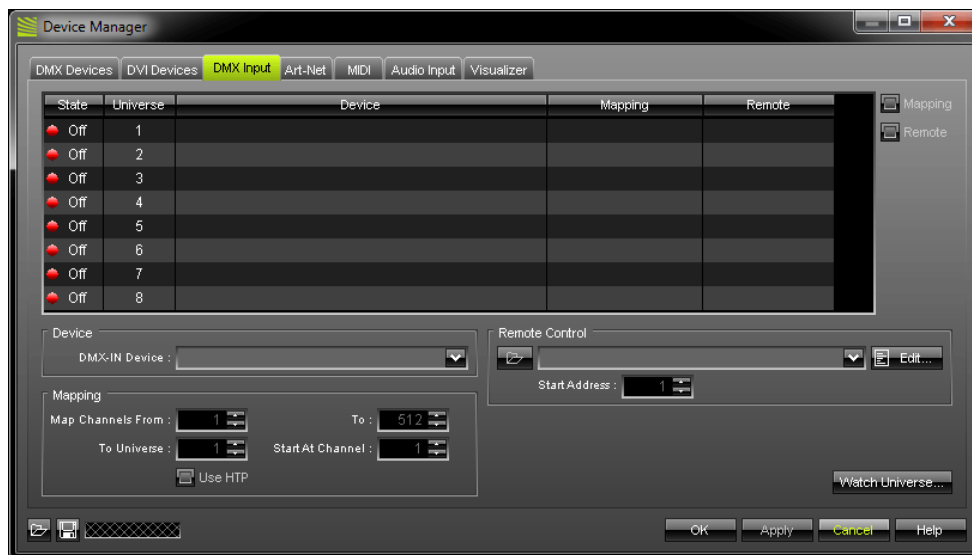
The recommended Frame Time is 30.

To change the input frequency ("**FPS**"), simply change "**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.

Press "**Apply**" to confirm.

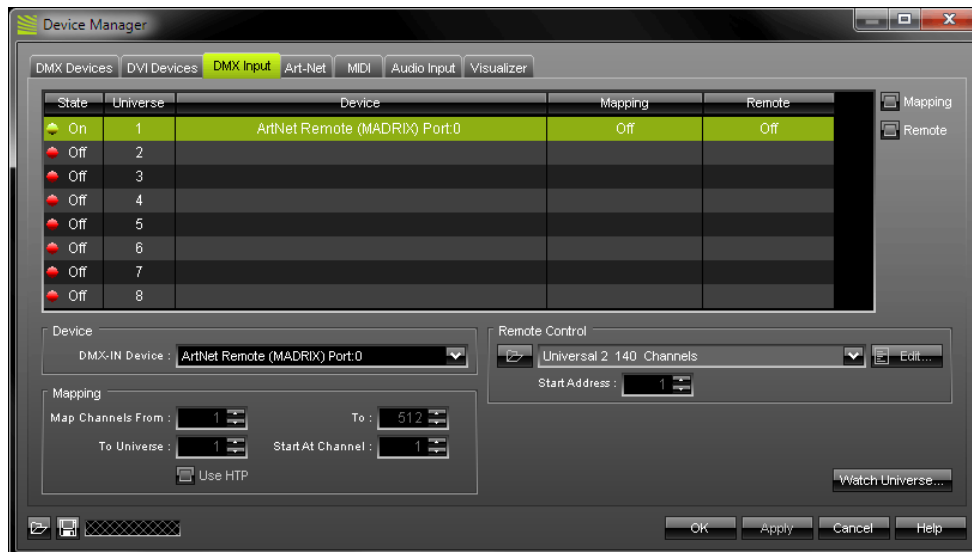
Activate DMX Input

In the Device Manager, select the tab "**DMX Input**".



Select an (empty) entry in the list according to your preferred DMX universe.
(By default, universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, please change the setting in the **"MADRIX Options"** -> [Performance](#).)

After the selection, choose your **"DMX-IN Device"** in the section **"Device"**. Select **"ArtNet Remote"**.



Art-Net Remote is now activated. MADRIX can already receive DMX data.

Additionally, you can now monitor incoming data (press **"Watch Universe"**) or choose to activate **"Mapping"** or **"Remote"**. For more information, see [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 LUNA via DMX-IN (XLR) and from the LUNA to MADRIX via USB.

First Steps

- 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.
(E.g., use the provided USB cable)
- Start MADRIX.

Enable Drivers in MADRIX

Please make sure to activate the driver for the USB connection in the MADRIX Options.

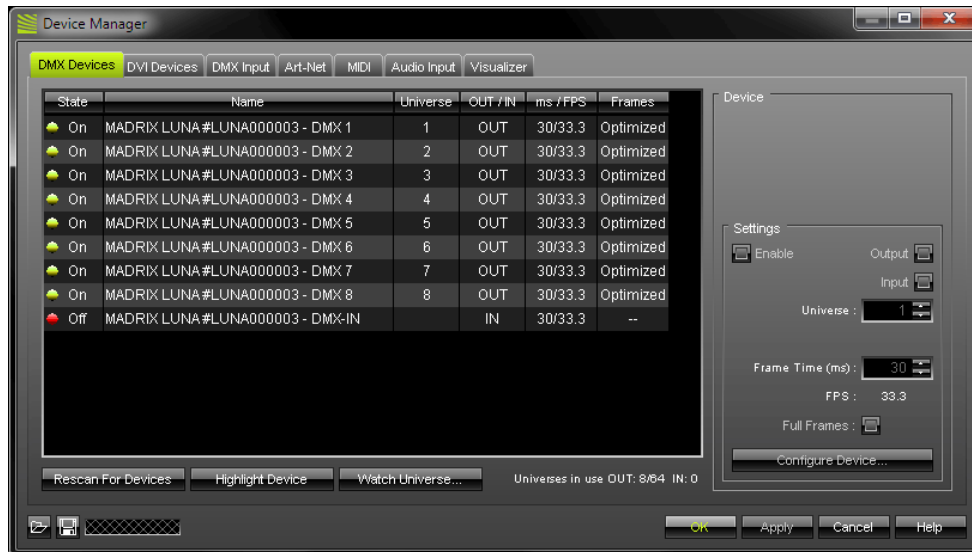
To access the Options of MADRIX, first go to the menu **"Preferences" -> "Options"** (or "Ctrl+Alt+O"). Second, select the tab **"Devices (USB/PCI)"**.



Select the **"MADRIX LUNA interfaces"** driver and press **"Apply"**. Close the dialog with **"OK"**.

Configure DMX Output

Go to the menu **"Preferences" -> "Device Manager..."** (or "F4"). Select the tab **"DMX Devices"**

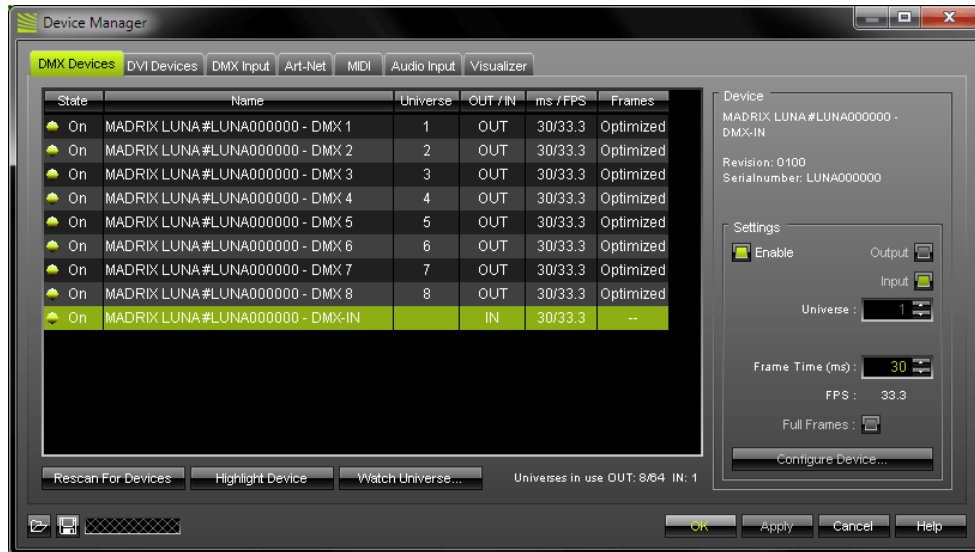


Your LUNA device(s) and all of their ports (4/8/16 output ports, 1 input port) will appear in the list.

If your devices are not in the list, press **"Rescan For Devices"**.

(In the screenshot above, one LUNA 8 is connected.)

Now, select **"MADRIX LUNA DMX-IN"** in the list and activate **"Enable"**. **"Input"** is automatically activated for you.

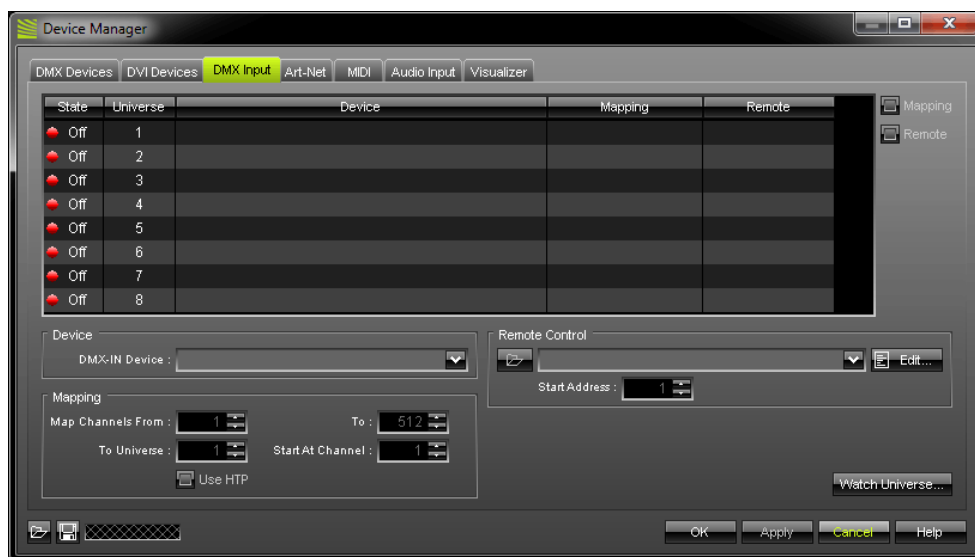


The recommended Frame Time is 30.

To change the input frequency ("**FPS**"), simply change "**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. Press "**Apply**" to confirm.

Activate DMX Input

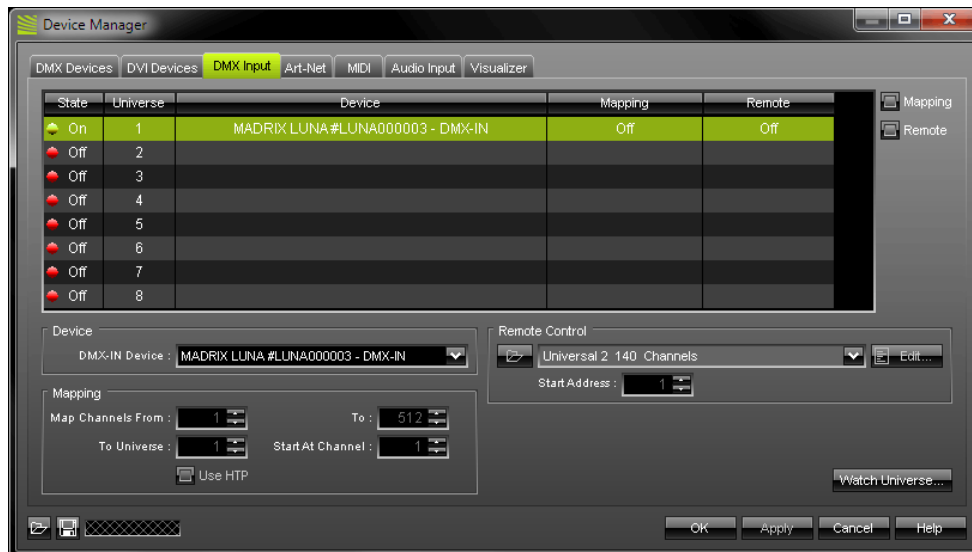
In the Device Manager, select the tab **"DMX Input"**.



Select an (empty) entry in the list according to your preferred DMX universe.

(By default, universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, please change the setting in the **"MADRIX Options"** -> **Performance**.)

After the selection, choose your **"DMX-IN Device"** in the section **"Device"**. Select **"MADRIX LUNA DMX-IN"**.



DMX-IN is now activated. MADRIX can receive DMX data.

Additionally, you can now monitor incoming data (press **"Watch Universe"**) or choose to activate **"Mapping"** or **"Remote"**. For more information, see **DMX-IN**.

Monitoring DMX Data And Performance

MADRIX provides several tools to monitor outgoing DMX data and performance. The **"Task Watcher"** (or "F5") provides detailed operational information. The **"Logfile"** (or "F6") keeps track of all warnings and system information. The **"DMX Watcher"** (or "Ctrl+Alt+D") allows you to monitor your DMX output or input while using MADRIX.



Open the **"DMX Watcher"** to monitor your DMX output or input (**"Watch Universe"** will appear when you have selected a list entry. The DMX Watcher will open with the particular DMX universe already entered).

You can read more in the chapter [Tools](#).

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.
(e.g., use the provided USB cable)

- Close the MADRIX software.
- Start the separate MADRIX LUNA Updater tool.
(In Windows, go to **"Start" -> "All Programs" -> "MADRIX" -> "Tools" -> "MADRIX LUNA Updater"**)
- In the MADRIX LUNA Updater, press **"Reset To Factory Default Settings"**.
- Wait for the reset process to end (usually it takes only seconds).

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 or Ethernet.
(e.g., use the provided USB cable.)
- Start the MADRIX software.
- Open the LUNA Configuration dialog. Go to **"Tools" -> "LUNA Configuration..."**
- Press Scan and your device will appear in the list.
- Select your device in the list and press **"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. More information is available below.)

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.
- Go to "**Preferences**" -> "**Device Manager...**" (or press "F4"). Now, select the tab "**Art-Net**".
- Activate "**Art-Net**" and press "**Find Auto**". For more information, see [DMX-OUT via Ethernet network \(Art-Net\)](#).
- Select the device in the list and press "**Edit**".
- Press "**Firmware**".
The update process will start.
The MADRIX logo on the front of the device will start to flash.
- Press "**Firmware**" again.
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
Powered off	Power cable not connected. → The device has no power.
Permanently green	Connected to power. → The power is on.

STATUS	ETHERNET	USB
Powered off	Ethernet not connected or the device has no power.	USB not connected or the device has no power.

Permanently green	Connected to Ethernet. → No data is sent or received over Ethernet.	Connected to USB. → No data is sent or received over USB.
Blinking green	Communicating over Ethernet. → Sending or receiving data over Ethernet.	Communicating over USB. → Sending or receiving data over USB.

STATUS	DMX-IN	DMX-OUT
Powered off	DMX not connected or the device has no power.	DMX not connected or the device has no power.
Blinking green	Receiving data via DMX-IN. → The device works correctly.	Sending data to DMX 1 -8. → 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) In MADRIX, go to "**Preferences**" -> "**Device Manager...**" (or press "F4"). Now, select the tab "**Art-Net**". Select your LUNA device in the list and press "**Config By Web**". Your web browser will open.

Now, you have access to various information and settings.



LUNA

Device Information

Model	MADRIX LUNA 16
Serial Number	LUNA000000
Firmware	1.2.4946
Hardware	1.1
Build Date	Mar 25 2014 11:39:18
IP Address	10.206.224.0
MAC Address	40:D8:55:05:E0:00

Device Name

MADRIX LUNA 16

Device Settings

IP Address	10 . 206 . 224 . 0
Subnet Mask	255 . 0 . 0 . 0

DMX Output Settings

Output Port	Art-Net Universe	Send Always Full Frames (512 Ch.)
DMX 1	1	☐
DMX 2	2	☐
DMX 3	3	☐
DMX 4	4	☐
DMX 5	5	☐
DMX 6	6	☐
DMX 7	7	☐
DMX 8	8	☐
DMX 9	9	☐
DMX 10	10	☐
DMX 11	11	☐
DMX 12	12	☐
DMX 13	13	☐
DMX 14	14	☐
DMX 15	15	☐
DMX 16	16	☐

DMX Input Settings

DMX-IN Port	Send To Art-Net Universe 256
	☐ Send Always Full Frames (512 Ch.) to

"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 - 8. (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. For 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 "DMX-IN Port 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.

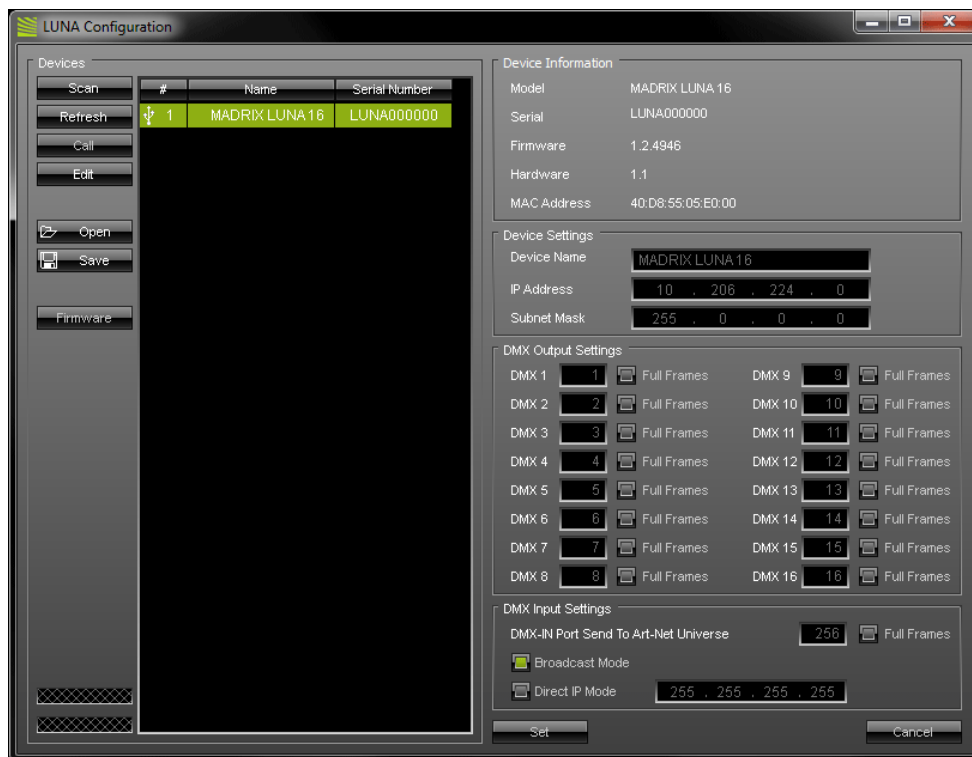
Additionally, choose to how MADRIX LUNA sends the data into the network:

- 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."

LUNA Configuration

You can access all information and settings of the web configuration in MADRIX using the LUNA Configuration dialog.

To call up the LUNA Configuration dialog, please go to the menu **"Tools" -> "LUNA Configuration..."** (or "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). For more information, see [Devices \(USB/PCI\)](#).

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. For more information, see [Devices \(Network\)](#).

A rectangular button with a dark background and the word "Refresh" in white text.

Re-scans already connected devices and brings the information in the list up to date.

A rectangular button with a dark background and the word "Call" in white text.

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, press "**Call**". A web browser opens automatically.

A rectangular button with a dark background and the word "Edit" in white text.

Select your device in the list and press Edit in order to change the settings of your device. Apply your changes by pressing "Set".

A rectangular button with a dark background, a small icon of a folder with an arrow, and the word "Open" in white text.

Imports the MADRIX LUNA Device Settings from an external file (*.mlds). Use this option to easily restore all device settings from a file (as described in the table below).

A rectangular button with a dark background, a small icon of a floppy disk, and the word "Save" in white text.

Exports the MADRIX LUNA Device Settings to an external file (*.mlds). Use this option to easily store all device settings in a file. Simply enter a name in the window that opens and press "Save".

A rectangular button with a dark background and the word "Firmware" in white text.

Updates the firmware of your MADRIX LUNA if a newer firmware is available (USB connection required).

For more information, please read the section [Web Configuration](#) above.

MADRIX LUNA Updater

Overview

Along with MADRIX a separate tool for the MADRIX LUNA is provided, called "MADRIX LUNA Updater".

Usage



The MADRIX LUNA Updater can be used for several, specific tasks.

"Update LUNA Firmware"

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 2.14c'). Second, press the button. Third, disconnect the power after updating in order to restart the device.

"Reset To Factory Default Settings"

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 2.14c	April 2013
1.01.4555	MADRIX 2.14d	April 2013
1.02.4946	MADRIX 2.14g	March 2014
1.03.5043	MADRIX 2.14h	November 2014

Important Note

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' -> 'Tools' -> 'MADRIX LUNA Updater'

The original, executable program can be found in the MADRIX installation directory: C:\Program Files\MADRIX\Tools **or** C:\Program Files (x86)\MADRIX\Tools

Part



16 WYSIWYG Visualizer

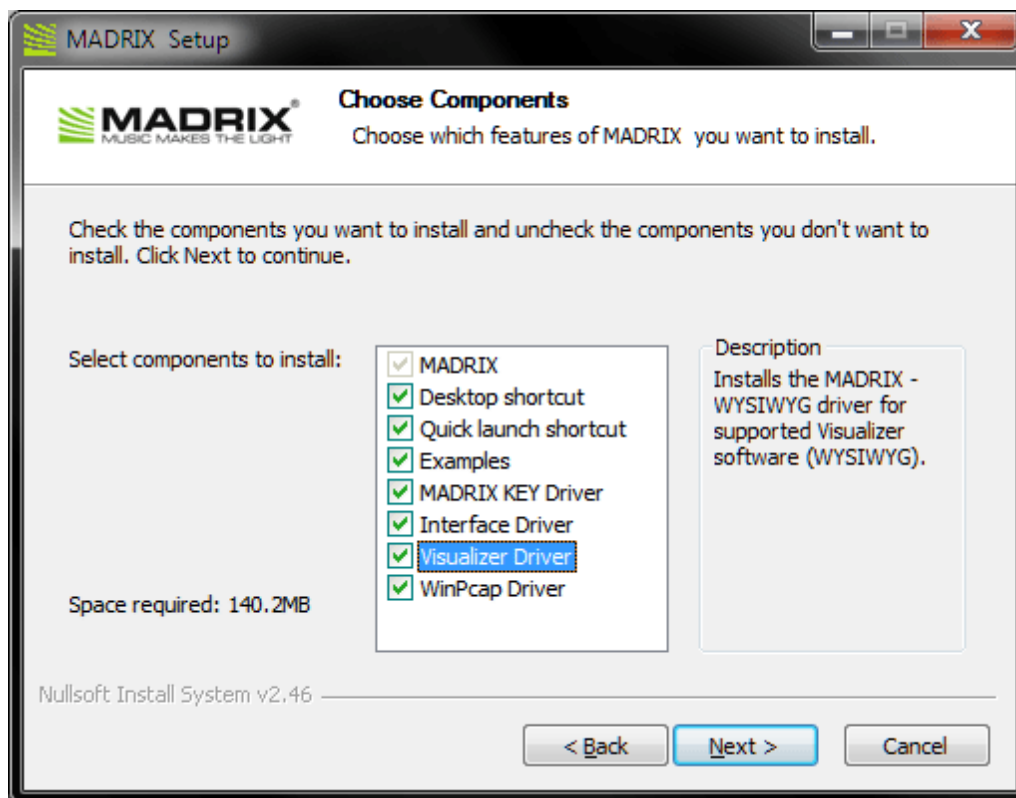
Introduction



Since R23 MADRIX has been officially implemented into WYSIWYG.

Installing The WYSIWYG Driver

To use WYSIWYG with MADRIX, you have to install the MADRIX WYSIWYG driver first. Therefore, please make sure to select the check box **"Visualizer Driver"** in the MADRIX setup wizard.



More information on the complete installation process is given in the chapter **Installation of MADRIX**.

In the next step, a second setup wizard will be launched for the MADRIX WYSIWYG driver:

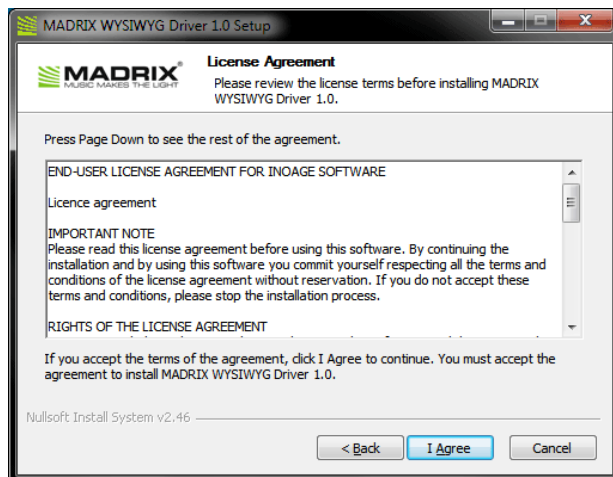


Step 1)

You can always quit the setup by choosing **"Cancel"**.

Click **"Back"** in order to return to a previous step during the setup process.

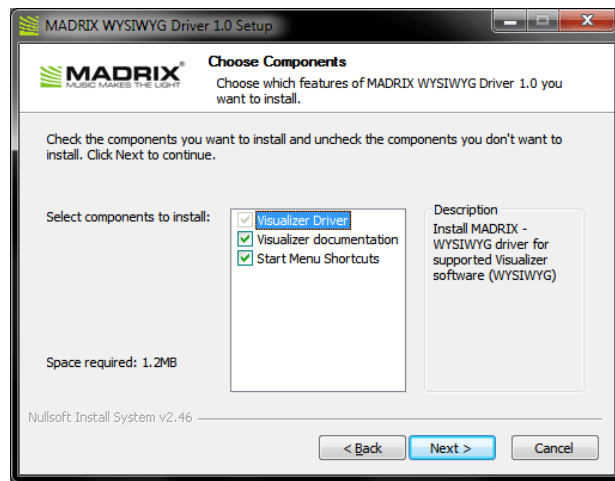
Now, please click **"Next"** to start the installation of the driver.



Step 2)

The "License Agreement" will appear. It outlines the terms you are agreeing to by installing the driver. You must accept these terms in order to continue.

Please click **"I Agree"**.



Step 3)

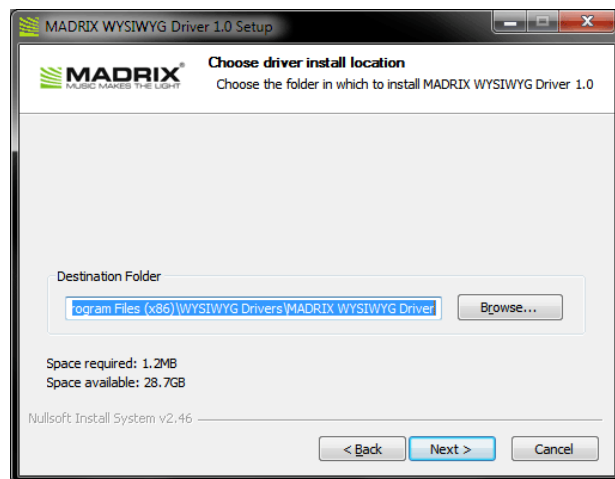
This window offers the chance to select which components and which drivers you want to install. A description is given for every item.

It is always required to install the **"Visualizer Driver"**.

Select **"Visualizer Documentation"** if you wish to install this user guide as a separate document.

Select **"Start Menu Shortcuts"** if you wish to install short cuts in the Windows start menu.

Click **"Next"** after choosing the components.

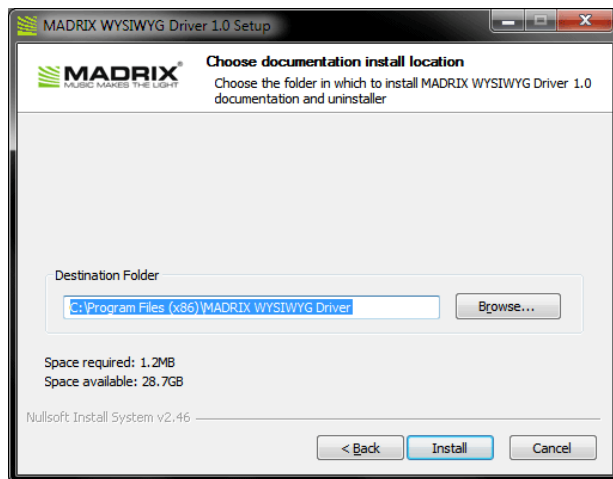


Step 4)

Afterwards, please choose an installation directory on your hard disk to install the driver. A standard destination folder will automatically be provided by the setup.

Click **"Browse"** to change the folder.

Then, click **"Next"**.

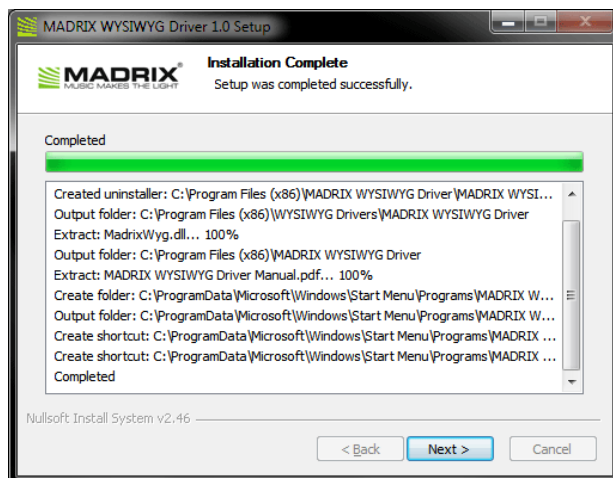


Step 5)

Now, please choose an installation directory on your hard disk to install the documentation and the uninstaller. A standard destination folder will automatically be provided by the setup.

Click "**Browse**" to change the folder.

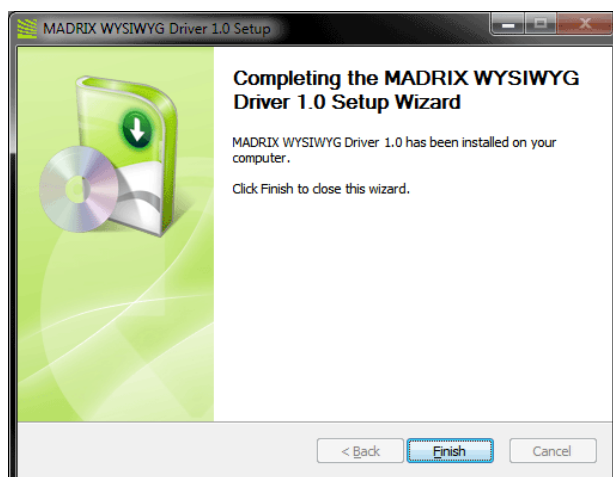
Then, click "**Install**".



Step 6)

If this window is shown, the driver installation was completed successfully.

Click "**Next**".

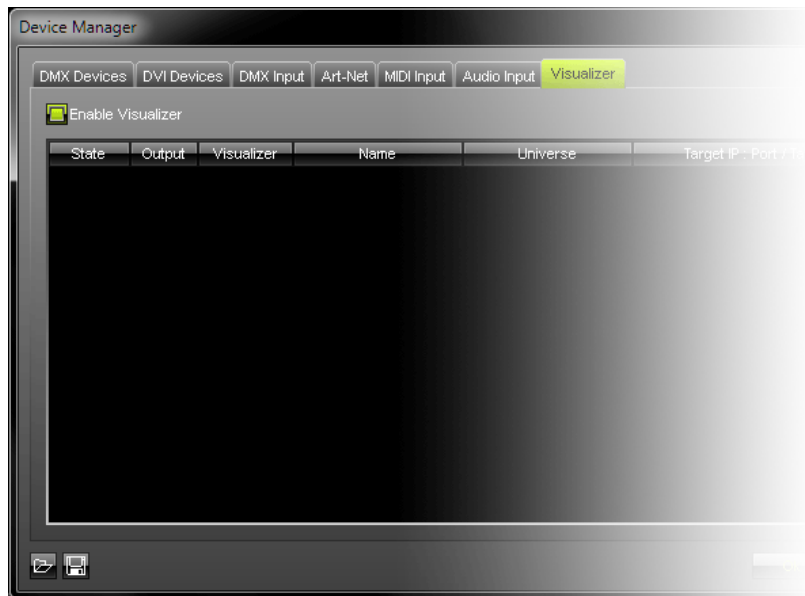


Step 6)

In order to quit the WYSIWYG setup wizard, please click "**Finish**".

Activating WYSIWYG In MADRIX

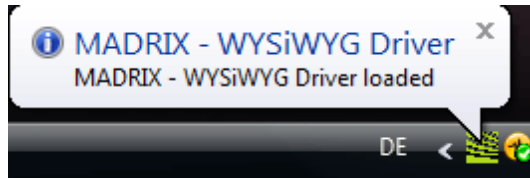
To activate the Visualizer, please open the menu **"Preferences" -> "Device Manager"** (or simply press the key **"F4"**). Go to the tab **"Visualizer"** and click **"Enable Visualizer"**.



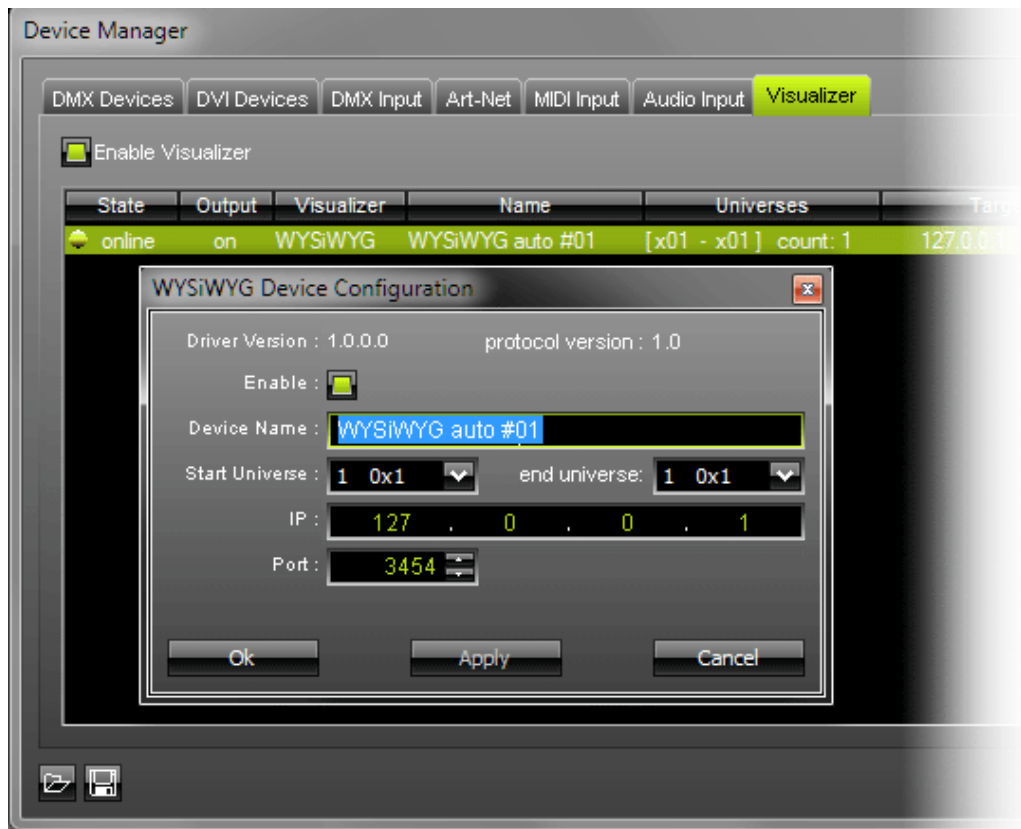
Find Auto

Use the **"Find Auto"** button to automatically find all running WYSIWYG devices on your local computer or in the network. Make sure that the port number in the dialog matches the port number in your WYSIWYG – Driver configuration page.

To open the WYSIWYG – Driver configuration page you have to double-click the tray icon in the Windows system tray of the computer that WYSIWYG is running on.



Your WYSIWYG device should appear now in the list displaying **"State: online"**. To configure the device, just double-click it.



Note that you can also manually create the WYSIWYG device by clicking on the **"New"** button. In this case you have to change the IP address and the port number of the new WYSIWYG device as described below.

In the WYSIWYG device configuration page you can enable or disable the DMX-Output, rename the device using a custom name, and set the start and the end universe for the DMX data that will be send to WYSIWYG. The **"IP"** and **"Port"** fields represent the IP address and the port number of the target computer, on which WYSIWYG is running. So, if the device was detected automatically, you do not need to change it.

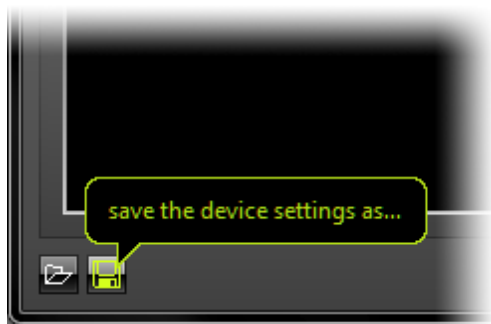
Please note: You can only enable DMX output if the WYSIWYG Driver **"State"** is **"online"** . In other words, the WYSIWYG driver must be up and running on the same computer or in the network.

Now if the connection is established, a message will be display that reads **"xx MADRIX device(s) connected"** in the status area of the WYSIWYG device configuration page.

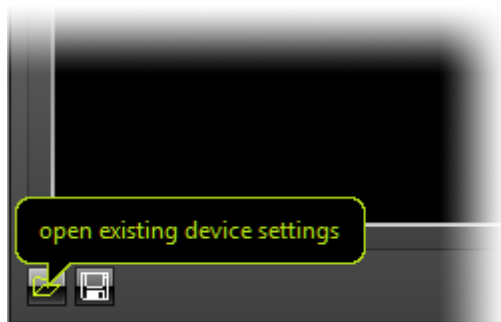


Please note that WYSIWYG can connect up to 20 computers running MADRIX and vice versa.

You can save your device settings in *.vdf file format to retrieve it later. To save your current configurations, click on the **save button** in the lower left corner of the Visualizer dialog and choose a name and path.

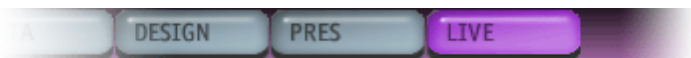


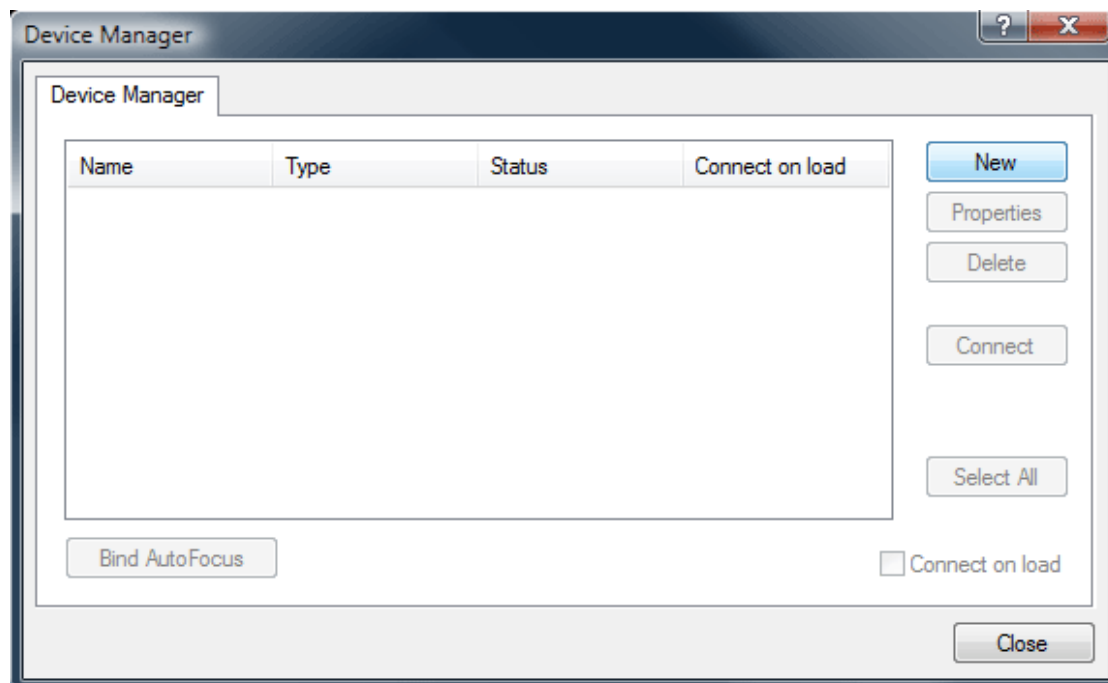
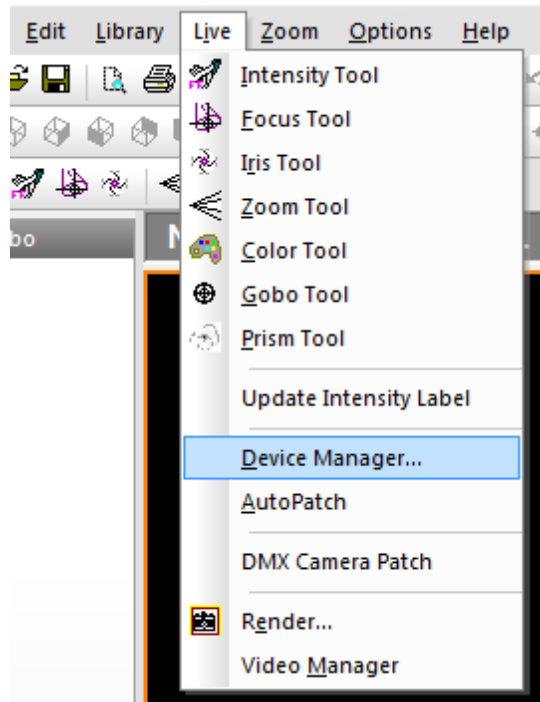
You can easily load your settings by using the **open button** in the lower left corner of the Visualizer dialog. Navigate in the directory to the desired file.



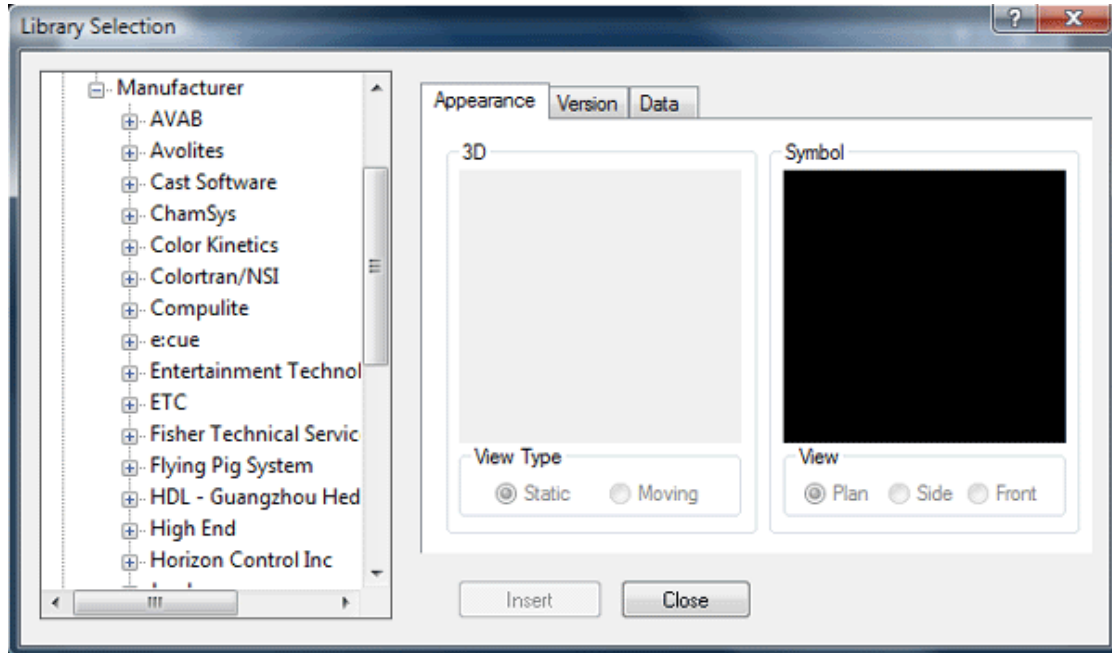
Connecting To MADRIX In WYSIWYG

After starting WYSIWYG, switch to **"LIVE"** mode. Open the **"Live"** menu and choose **"Device Manager"**. The dialog box will be displayed afterwards.

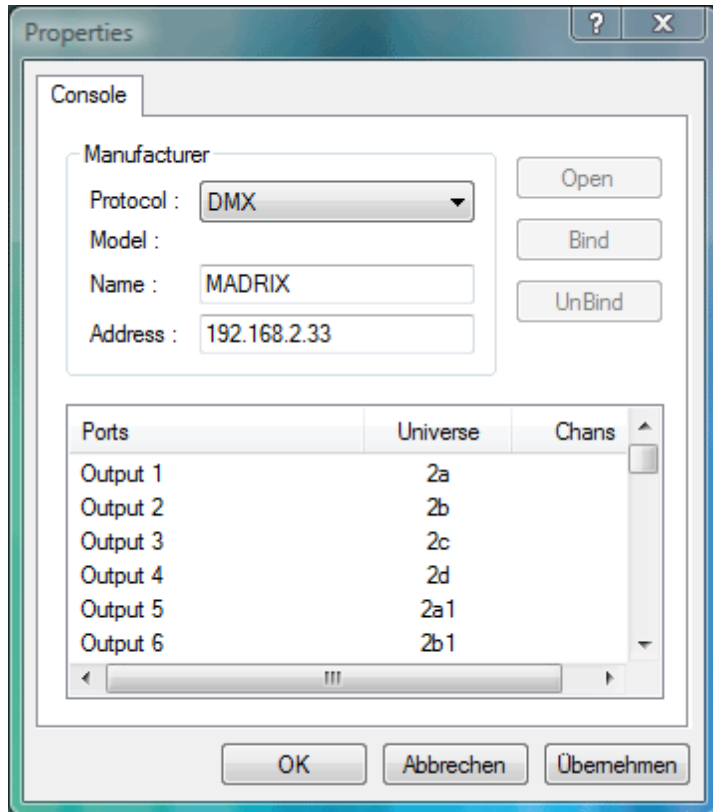




Click "**New**" -> "**Consoles**" and navigate through the console library until you find "**MADRIX**". Highlight it and then click "**Insert**".



Now the **MADRIX** console should appear in the Device Manager. Select it and click on "**Properties**". In the Property dialog box fill in the IP address of the computer that runs **MADRIX** (for instance 192.168.33.5) into the "**Address:**" field.



If **MADRIX** and WYSIWYG run on the same computer, please enter 127.0.0.1 in the "**Address:**" field. Then, apply the changes with "**OK**" and click "**Connect**" in the Device Manager dialog box.

For more information on how to create and edit patches, please refer to the WYSIWYG documentation.

Part



17 Supported DMX512 & Art-Net Interfaces

Supported DMX512 Interfaces

MADRIX relies on existing standards: the DMX512 protocol and DMX512 devices. Various interfaces are supported.

MADRIX

- USBone - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN
- NEO - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN
- PLEXUS - USB 2.0 interface, 1024x DMX-OUT, or 1024x DMX-IN, or 512x DMX-IN and 512x DMX-OUT, live or stand-alone
- LUNA - USB 2.0 interface, 4096x DMX-OUT and 512x DMX-IN

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

Digital Enlightenment

- USB-DMX Interface

DMXking

- ultraDMX RDM Pro - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN
- ultraDMX Pro - USB 2.0 interface, 512x DMX-OUT and 512x DMX-IN

e:cue

- butler - Ethernet-to-DMX gateway, 2x 512x DMX-OUT

Elation Professional

- Compu 1024EC - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN
- Compu 2048FC - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN
- Compu 2048FC+ - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN
- Compu Live - USB 2.0 interface, 512x DMX-OUT or 512x DMX-IN

ENTTEC

- Open DMX USB Interface - (Output only)
- DMX USB Pro - 512x DMX-OUT or 512x DMX-IN

EUROLITE

- USB-DMX512 Interface - 512x DMX-OUT

GLP Light Produktion GmbH

- ion.control.one - USB 2.0 interface, 1024x DMX-OUT with stand-alone mode
- LSC 3002 - USB 2.0 interface, 512x DMX-OUT

Ledwalker Co. Ltd.

- LW-DMX-U1 (DMX USB PRO) - USB 2.0 DMX512 interface, 512x DMX-OUT
- LW-DMX-U8 (DMX USB PRO) - USB 2.0 DMX512 interface, 8x 512x DMX-OUT

LTS KOREA co., ltd.

- DMX Tranceiver 2.0 - USB DMX512 interface

MONACOR

- img Stage Line DMX-1 USB - 512x DMX-OUT or 512x DMX-IN
- img Stage Line DMX-510 USB - 512x DMX-OUT or 512x DMX-IN

Nicolaudie - Sunlite

- SLESA - USB interface, 512x DMX-OUT
- SLESA-IP1 - Ethernet interface, 512x DMX-OUT
- 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 - The DMX company

- 1514PCI - PCI Card, 1024x DMX-IN/OUT (DMXCRD32.dll)
- 2514PCI - PCI Card, 2048x DMX-IN/OUT (DMXCRD32.dll)
- 2512A - PCMCIA Card, 1024x DMX-IN/OUT (DMXCRD32.dll)
- USBDMX2 - USB interface, 512x DMX-OUT (dashard.dll)
- USBDMX1-LC - USB interface, 512x DMX-OUT (dashard.dll)
- USBDMX-IN - USB interface, 512x DMX-IN (dashard.dll)
- SLESA-IP - Ethernet interface, 512x DMX-OUT (via Art-Net)
- SUIDI-5A - (dashard2006.dll)
- USBDMX-ONE - (susbdmx.dll)

USBDMX.com

- Interface - USB interface, 512x DMX-OUT and 512x DMX-IN
(Requires: FTDI driver version 1.6 and higher; Suggested for use: ENTTEC drivers included in MADRIX; original USBDMX.com driver is not recommended)

Supported Art-Net Interfaces



MADRIX supports all available Art-Net nodes. You can use these nodes either as output or input devices. Art-Net is a communication system that allows DMX512 to be sent over Ethernet. It was invented by Artistic Licence and has now been published into the public domain.

Acclaim Lighting

- X-NET 8

DMXking

- eDMX1
- eDMX4

ENTTEC

- DMXEtherGate MK2
- Datagate

- Datagate MK2

EUROLITE

- Node 8

Luminex

- Ethernet-DMX2 Wall
- Ethernet-DMX2 Box
- Ethernet-DMX2 Wifi
- Ethernet-DMX8
- Ethernet-DMX8 Wifi
- Ethernet-DMX8 Truss

MADRIX

- PLEXUS
- LUNA

Part



18 Keyboard Shortcuts (Hotkeys)

Overview

File - New	Ctrl+N
File - Open Setup	Ctrl+O
File - Save Setup	Ctrl+S
File - Save Setup as	Ctrl+Alt+S
Matrix Generator	F2
Patch (open and close)	F3
Device Manager (open and close)	F4
Audio Performance	Ctrl+Alt+A
Options	Ctrl+Alt+O
Cue List (open and close)	F7
Recording	Ctrl+Alt+R
Touch Screen (open and close)	F8
Full Screen mode	F11
Task Watcher (open and close)	F5
Logfile (open and close)	F6
DMX Watcher	Ctrl+Alt+D
MIDI Watcher	Ctrl+Alt+M
DMX Fader Tool	Ctrl+Alt+F
PLEXUS Configuration	Ctrl+Alt+P
MADRIX Help	F1
Moving the DVI fullscreen or Touch Screen Window to a different monitor	TAB
If the selected control is a button, the button will be clicked. If the selected control is a check box, this toggles the check box.	SPACEBAR

If the current control is an option, this selects the option. If an edit field (Color Edits) is selected, you can switch between the values 0 and 255.	
Confirm your selection	ENTER
The equivalent to clicking the 'Cancel' button	ESC
Quit MADRIX or close a window (Cue List, FaderBox, Macro Editor, ...)	Alt+F4

Part



19 Imprint & Copyright

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