



MADRIX 3 Tutorials

Version 1.8

March 2016

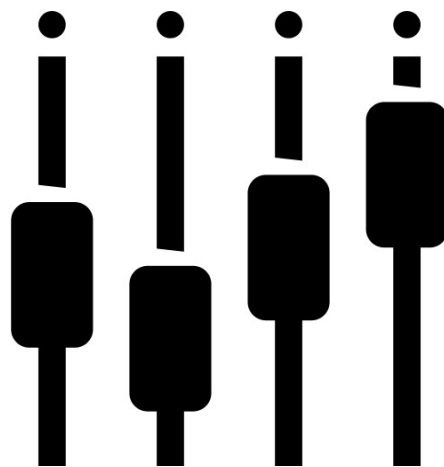


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//PART A

Configuration

1 Configuration

1.1 Installation Of The MADRIX Software

This tutorial shows you how you can install the MADRIX software.

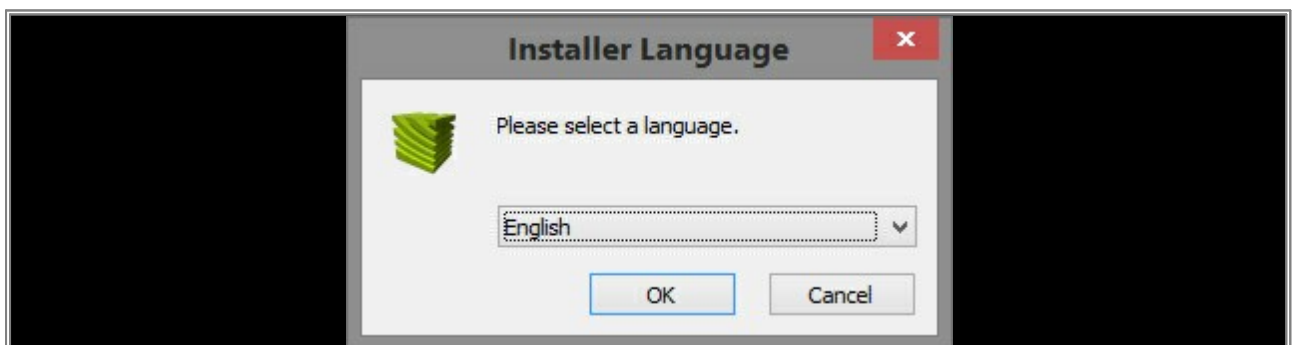
Date: 10/2014

MADRIX Version: 3.3 RC (Created with)

System Requirements: Please make sure that our PC is meets the system requirements. You can find the requirements »[here](#)

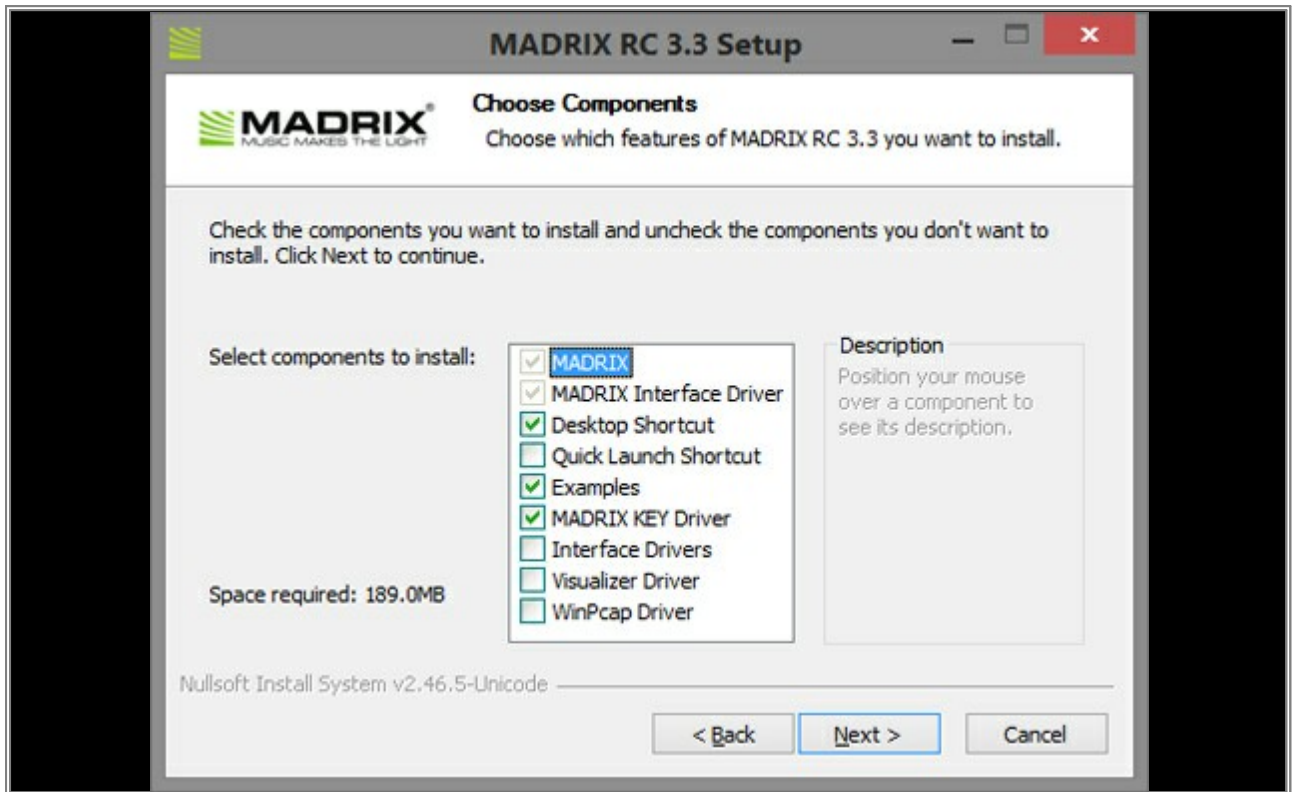
Attention: Do not plug any MADRIX hardware into your computer before you install the MADRIX software!

1. Download the MADRIX software from »www.madrix.com or insert the MADRIX CD into the CD-ROM drive of your operational computer.
2. If you use a MADRIX CD, the setup will start automatically. Otherwise, go the directory where MADRIX is located and double-click on MADRIX_FULL_INSTALL.exe
3. The **Select Language** dialog of the Installer will be opened. At this dialog you can choose the language during installation process between **English** and **Chinese**.



4. A **Welcome** window appears. Click **Next >** and the **License Agreement** window appears. Click **I Agree** after reading. Otherwise, you cannot install MADRIX.

5. Now, you can see the **Choose Components** window.

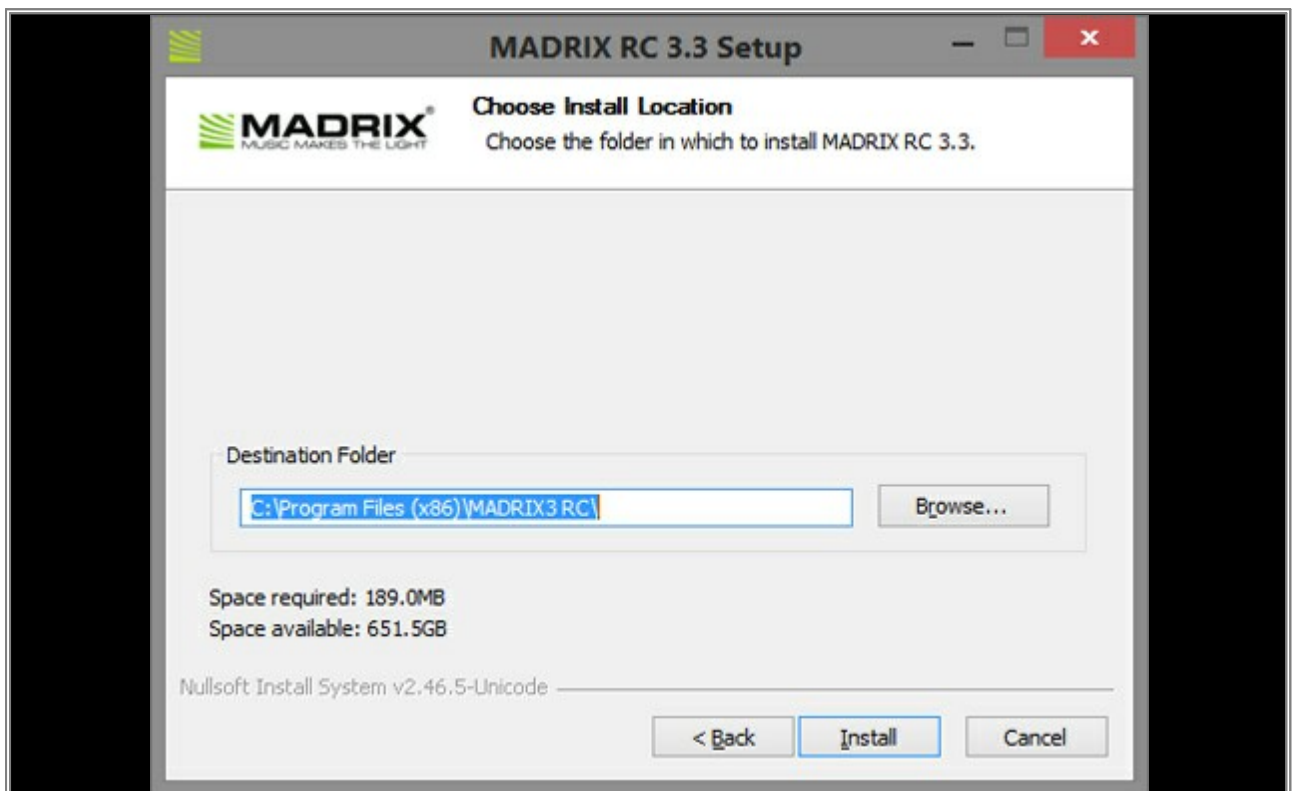


In this step, you can choose the components you want to install:

- **MADRIX:** It is always required to install MADRIX.
- **MADRIX Interface Driver** It is also always required to install the MADRIX Interface Driver. It includes the drivers for MADRIX USBone, MADRIX NEO, MADRIX PLEXUS and MADRIX LUNA interfaces.
- **Desktop shortcut:** Create a shortcut to the MADRIX software on the Windows Desktop.
- **Quick launch shortcut:** Creates a shortcut to the MADRIX software in the Windows toolbar.
- **Examples:** Installs some Setup examples, including effects, scripts, and color tables for MADRIX.
- **MADRIX KEY Driver.** Installs the driver for the MADRIX KEY. You will need this option if you use MADRIX KEY start, KEY dvi start, KEY basic, KEY dvi, KEY professional, or KEY ultimate. You don't need this if you use the MADRIX software with MADRIX PLEXUS or MADRIX NEO interfaces.

- **Interface Driver:** Choose this option if want use MADRIX software with various DMX interfaces. You don't need this option if you want to use the MADRIX software only with MADRIX interfaces or you use MADRIX only with DVI output.
- **Visualizer Driver:** Is necessary if you want use the WYSIWYG Visualizer together with MADRIX.
- **WinPcap Driver:** Choose this option if you want to control the EuroLite T9 (e.g., LSD screens) or CoulorSmart Link.

6. Now, you can choose the install location.



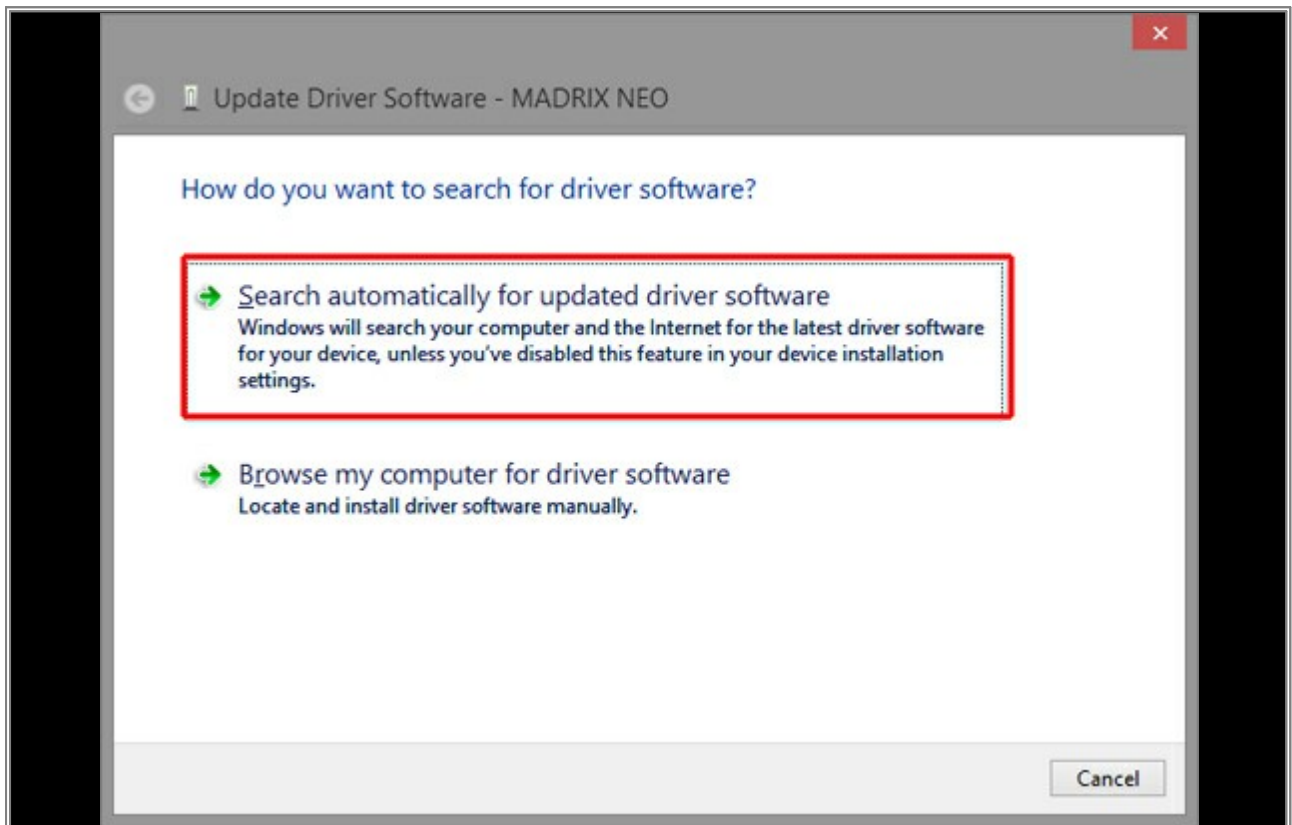
Click **Browse** and select your desired destination folder. After that, click **Install** and the installation process begins. This will take some minutes. When the installation is complete, click **Next >**

7. Completing the MADRIX Setup:

6.1 If you want to use MADRIX without any hardware (DMX interfaces or MADRIX Key): Check **Run MADRIX** and click **Finish** to quit the setup and MADRIX will be started.

6.2 If you want to use MADRIX with any hardware: Uncheck **Run MADRIX**, then click **Finish** to quit the setup. Now, plug your hardware into your PC and wait until Windows finishes the hardware identification and driver installation.

Click **Search automatically for updated driver software** to install the drivers for the DMX interfaces.



8. Start MADRIX.

Congratulations! You have successfully installed MADRIX.

1.2 Where You Can Find Connected Hardware

This tutorial shows you how you can find all connected interfaces in the MADRIX software. Furthermore, there are instructions about what you have to do if MADRIX doesn't detect all connected interfaces.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Requirements: For this tutorial it is necessary to install the MADRIX software as described in the previous tutorial ([» Installation Of The MADRIX Software](#)).

- 1 Start MADRIX.

- 2 Now, there are two different ways to find the interfaces and MADRIX KEY(s). The first way describes the procedure if you only use MADRIX hardware. The second way describes the procedure if are using various 3rd-party interfaces.

2. If you use only MADRIX hardware, it is very easy to check. Go to **Help > About**

1



You can see which MADRIX KEYS and/or interfaces are identified. Every device has its own row/entry in the table.



Click **OK**

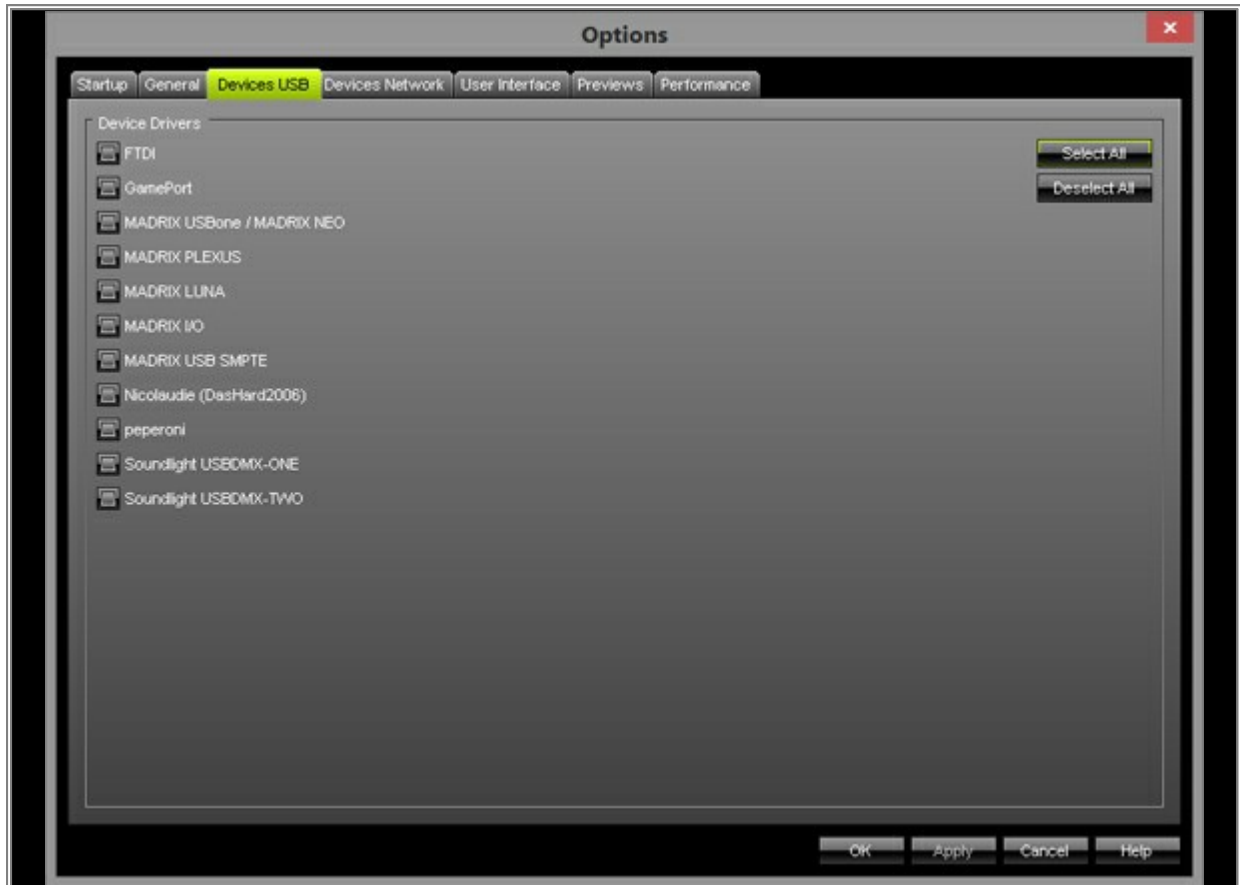
- 2. If you use various 3rd-party interfaces, go to **Preferences > Device Manager > DMX Devices** or press **F4 > DMX Devices**. Now, you see the connected devices.



If there is no device displayed,



go to **Preferences > Options > Devices USB** or press **Ctrl+Alt+O > Devices USB** and select your interface in use. Click **OK**

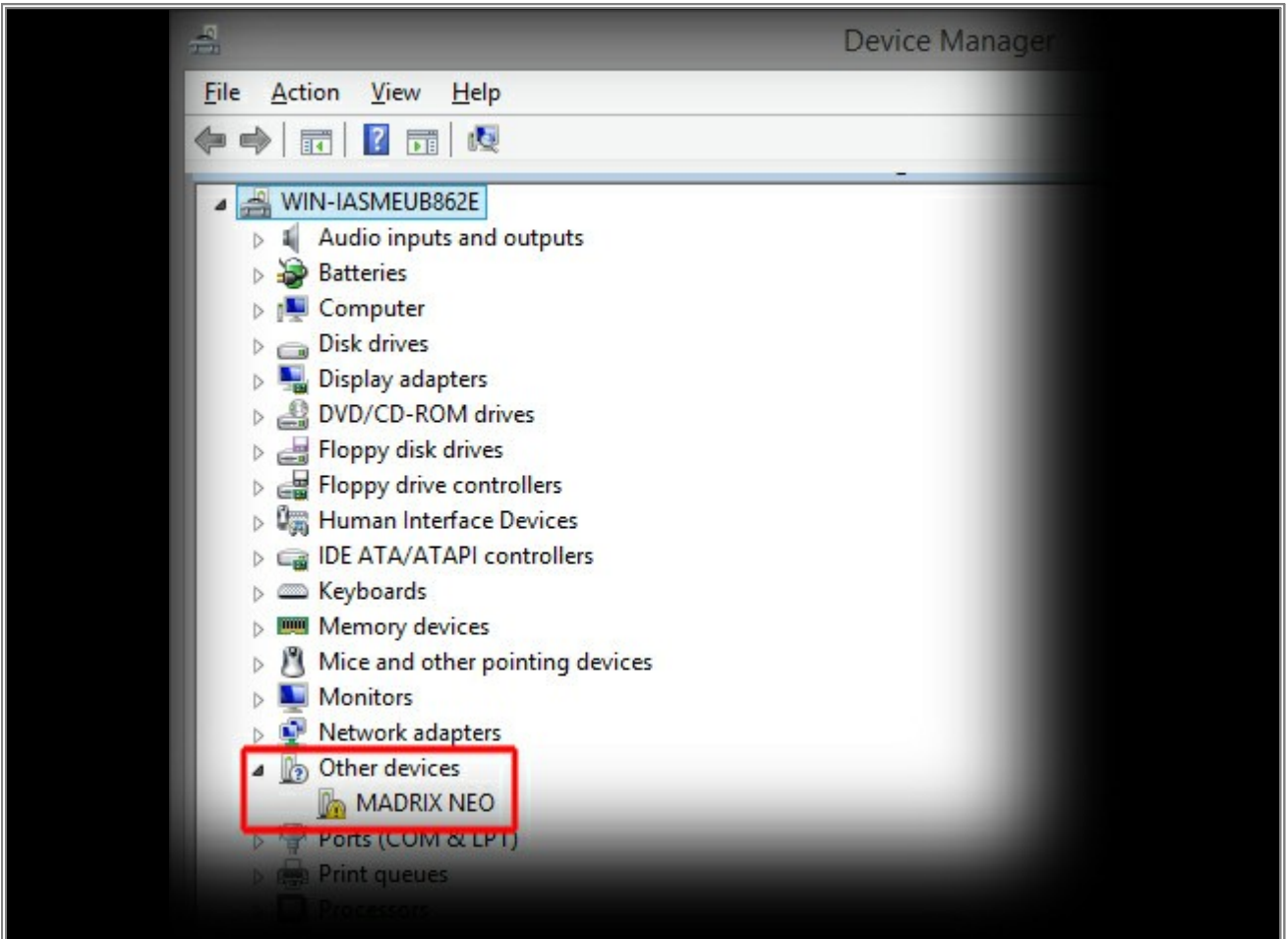


Now, go back to the **Device Manager > DMX Devices** (press **F4**) and click the **Search** button.



You should see the connected devices in the list now.

- 3 This step is only necessary if you don't see all your plugged-in devices in MADRIX as described in step 2.
- . Close MADRIX. Go to **Windows > Start > Control Panel > System > Device Manager** and see if there is any device where no driver is installed. You can see it with the help of the yellow question mark in front of the device name.



Select this device, press the **right mouse button**, and select **Install driver**. After the driver installation go back to step 2 and try again.

Congratulations! You have found all detected interfaces in MADRIX.

1.3 Changing The DMX Universe Of A Connected Interface

In this tutorial, you will learn how you can change the assigned DMX universe of a connected DMX interface.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Note: In this example, 2 MADRIX PLEXUS will be used as the DMX interfaces.

1. Start MADRIX and open the Device Manager (Press **F4** or go to **Preferences > Device Manager**).

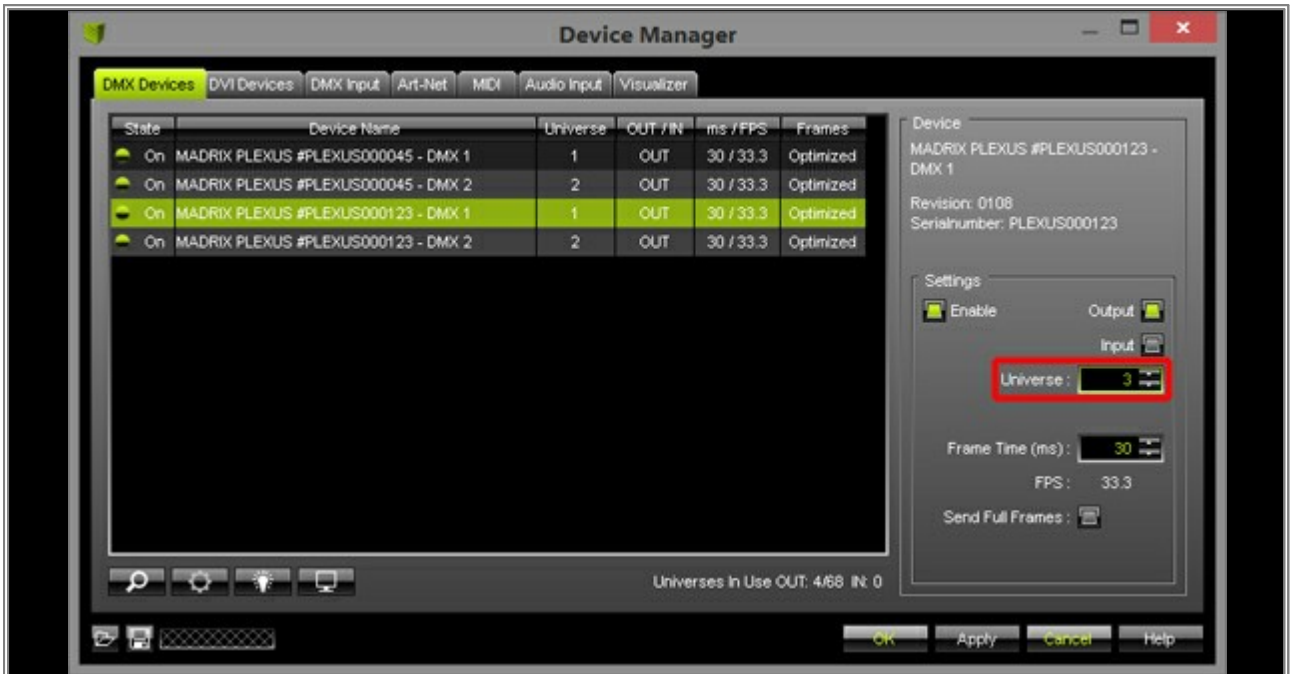


- Now, the Device Manager will be opened and you can see that MADRIX has found 4 DMX universes. But universes 1 and 2 are assigned twice.

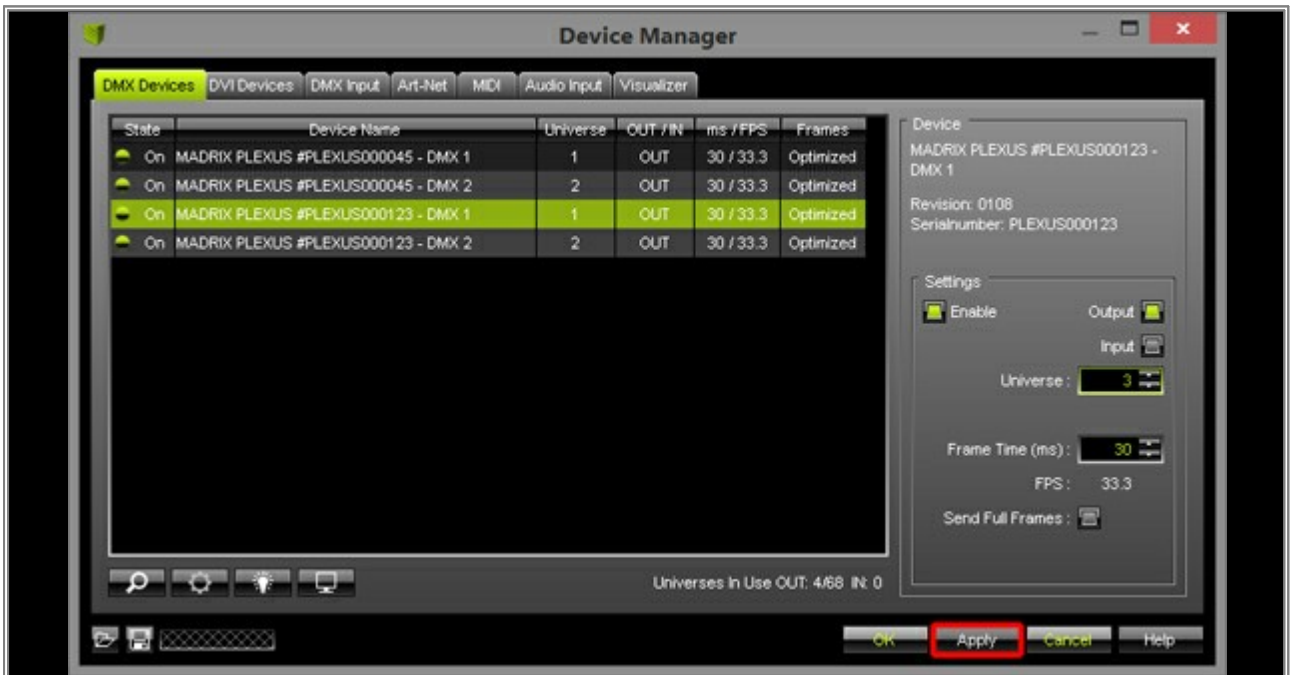


- 3. We would like to use 4 single DMX universes. In this example, we are going to change the universes of the second MADRIX PLEXUS unit to 3 and 4.

To do this, select the third row and change **Universe** to **3** in the **Settings** panel.



Click **Apply** and the settings will be confirmed for this device.



You can see the change in the column **Universe** in the list now.



- 4. In addition, we have to change the assigned DMX universe of the fourth row. Please select the fourth row and change **Universe** to **4**. Afterwards, click **Apply** and you can see the change in the list.



Congratulations! You have learned how you can change the assigned DMX universe of connected hardware interfaces.

1.4 The First Patch

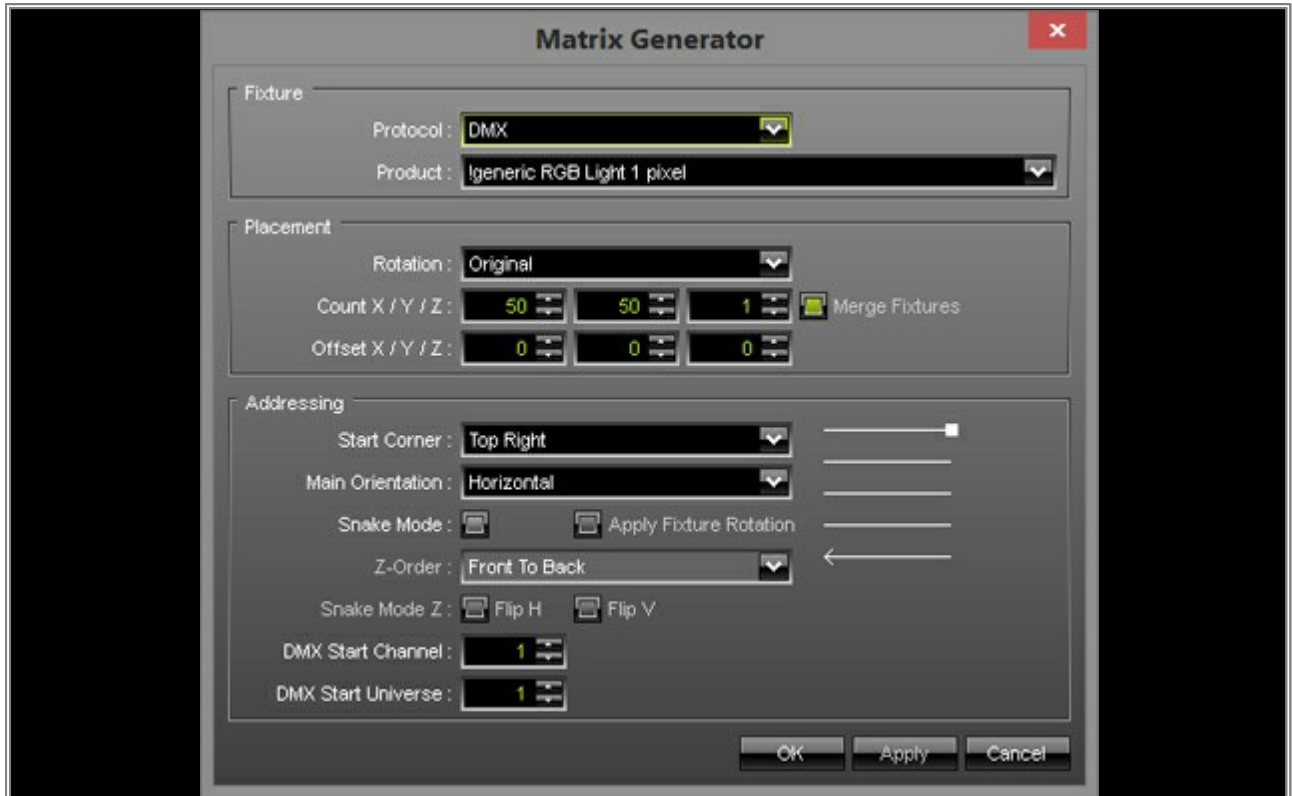
In this tutorial, we want to show you how fast and easily you can create your first patch. It is important for this tutorial that all fixtures are of the same type.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

We want to patch 8 pieces of the **Ehrgeiz FS-60 RGB/1 (Mode 7)**. 2 units should be placed in the X-direction and 4 units in the Y-direction. This mode of the fixture uses 60 DMX channels per fixture. That means that we need 480 DMX channels for the whole patch (8 fixtures x 60 channels). A DMX universe includes 512 channels and we only need 480 channels. That means one DMX universe is enough for this patch. For more information about DMX512, have a look at the »[What Is DMX](#) tutorial.

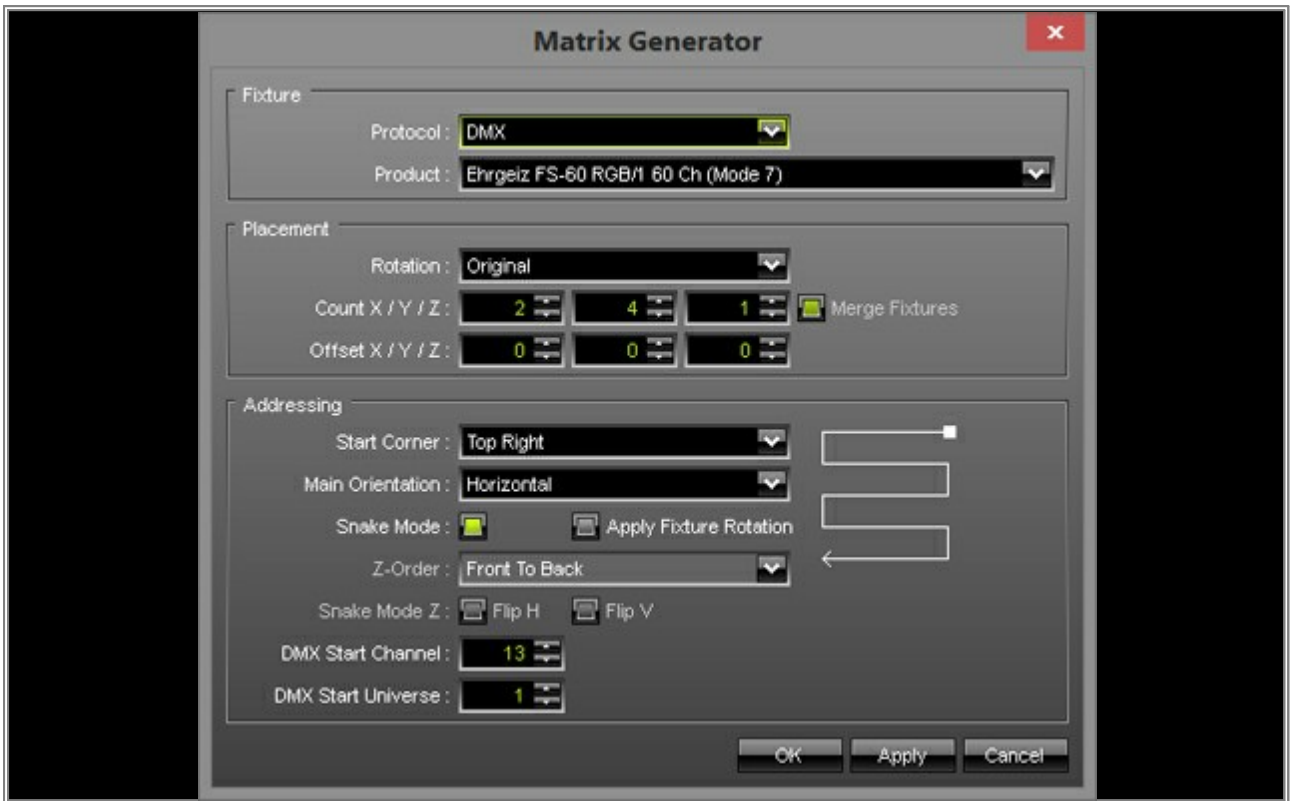
1. Start MADRIX and go to **Preferences > Matrix Generator** or press the **F2** key on your keyboard. The following window appears:



2. Change the following settings:

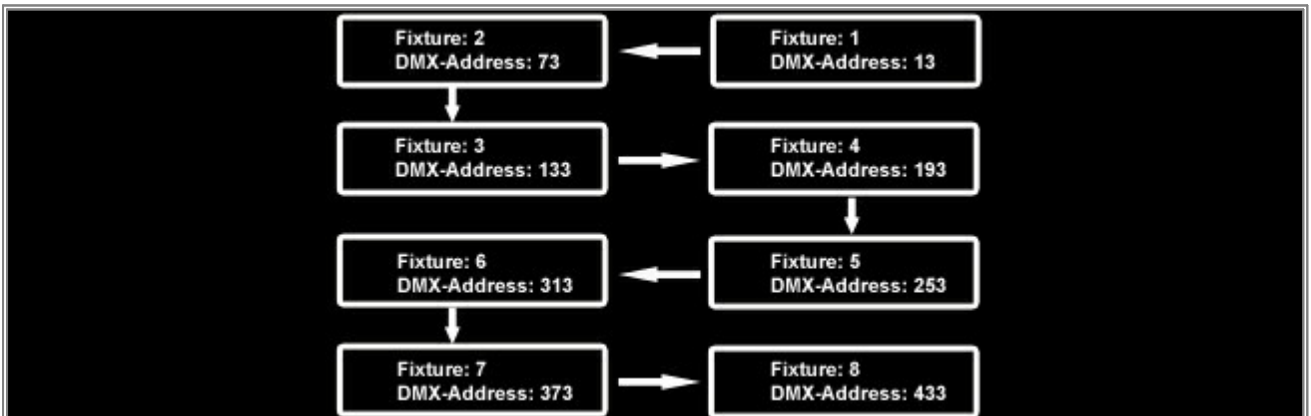
- **Protocol:** Should be **DMX**. If not, change it to **DMX** because we want to add DMX fixtures.
- **Fixture:** Click on the down arrow on the right side and search for **Ehrgeiz** fixtures. You can press the **E** key and the drop down menu automatically jumps to the fixture manufacturers begin with an E. If you have found the Ehrgeiz fixtures, click **Ehrgeiz FS-60 RGB/1 60 Ch (Mode 7)**. The drop down menu will be closed and you can see that **Ehrgeiz FS-60 RGB/1** is selected.
- **Rotation:** Select **Original**
- **Count:** We want to have 2 fixtures in X-direction, 4 in Y-direction, and 1 in Z-direction. Enter **2** for **Count X**, **4** for **Count Y**, and **1** for **Count Z**.
Note: We have now created a 2D Patch. If you want a 3D Patch, change Count Z to higher than 1.
- **Offset:** Here you can create space between fixtures. But in this example we won't have space. Therefore set **Offset X** to **0**, **Offset Y** to **0** and **Offset Z** to **0**.
- **Start Corner:** It is the position where the fixture with the DMX start channel is located. In this example change it to **Top Right**. That means that the first fixture is at the top on the right side. The second fixture is also at the top but on the left hand side of the first device. The Start Corner can be understood as a camera view from you onto the fixtures.
- **Main Orientation:** Change it to **Horizontal**. Here you can change the orientation of the fixtures' addresses. If it is set to Vertical, the second fixture is the one under or over (it depends on the Start Corner) the first. If it is set to Horizontal, the second fixture is next to the first fixture.
- **Snake Mode:** Please activate it. The check box will be illuminated green. That means that the DMX address of the first fixture in the second row is located under the fixture with the last DMX address of line one. If Snake Mode is disabled, the DMX address of the first fixture in line two is patched under the fixture that contains the first DMX address.
- **DMX Start Channel:** You will need to set the start channel of your first device. In this tutorial, change it to **13**. (Now, we have freed up 12 on the DMX universe and we could use those to easily control a strobe or a fog machine with the DMX Fader Tool in MADRIX. You can learn how that works in another tutorial called » [The DMX Fader Tool](#)

Your Matrix Generator should now look like this:



3. Click **OK**

Congratulations! You have now patched these fixtures as shown below.



1.5 Creating A Patch With Different Fixtures

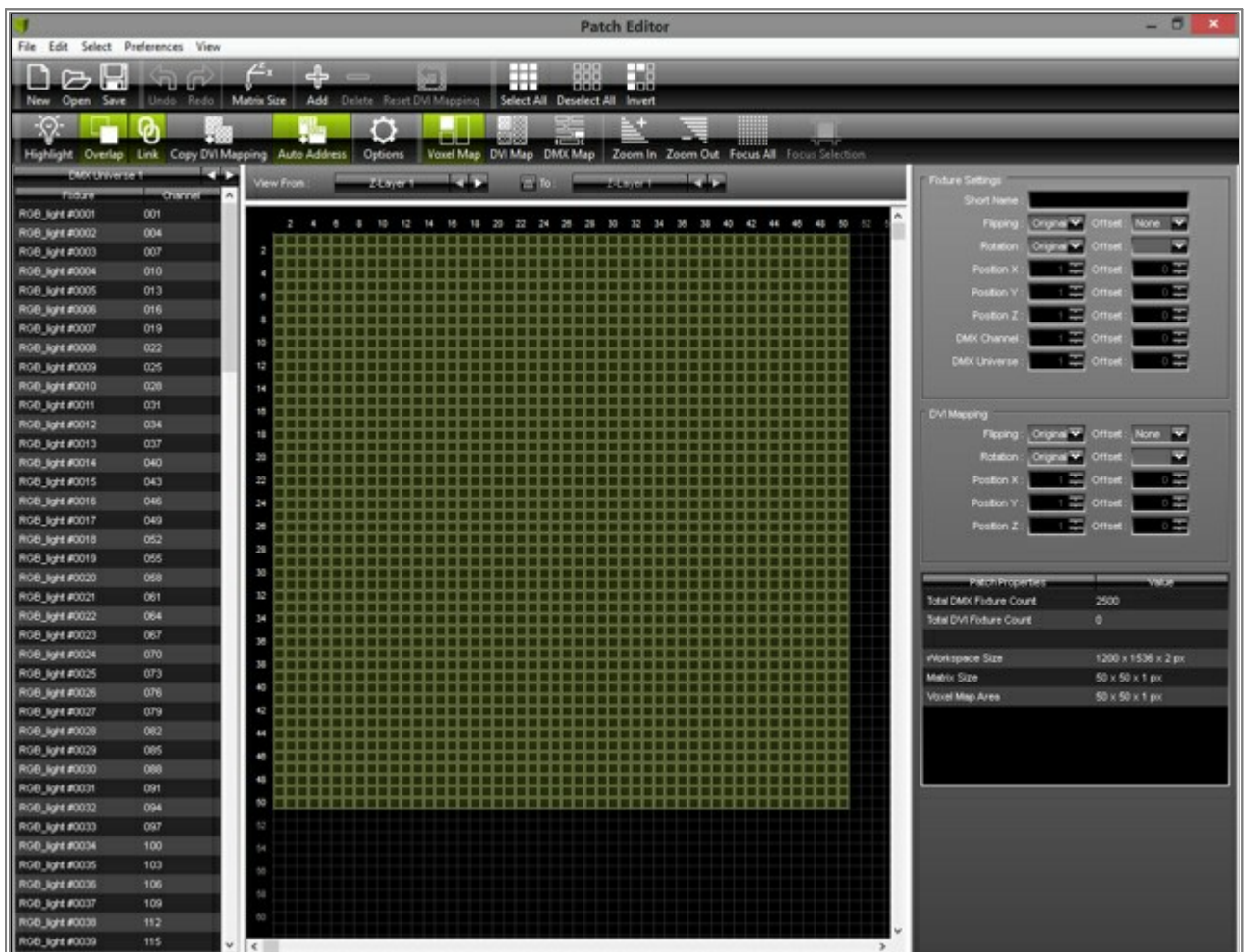
In this tutorial, you will learn how to create a patch with 3 different fixtures.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

We will use several **#G-Lec Phantom 60 DVI** screens, several **Elation LED 60 Tri Strip** fixtures, and several **Martin Stage Bar 2**.

1. Start MADRIX. Go to **Preferences > Patch Editor** or press **F3**. Now the **Patch Editor** appears:

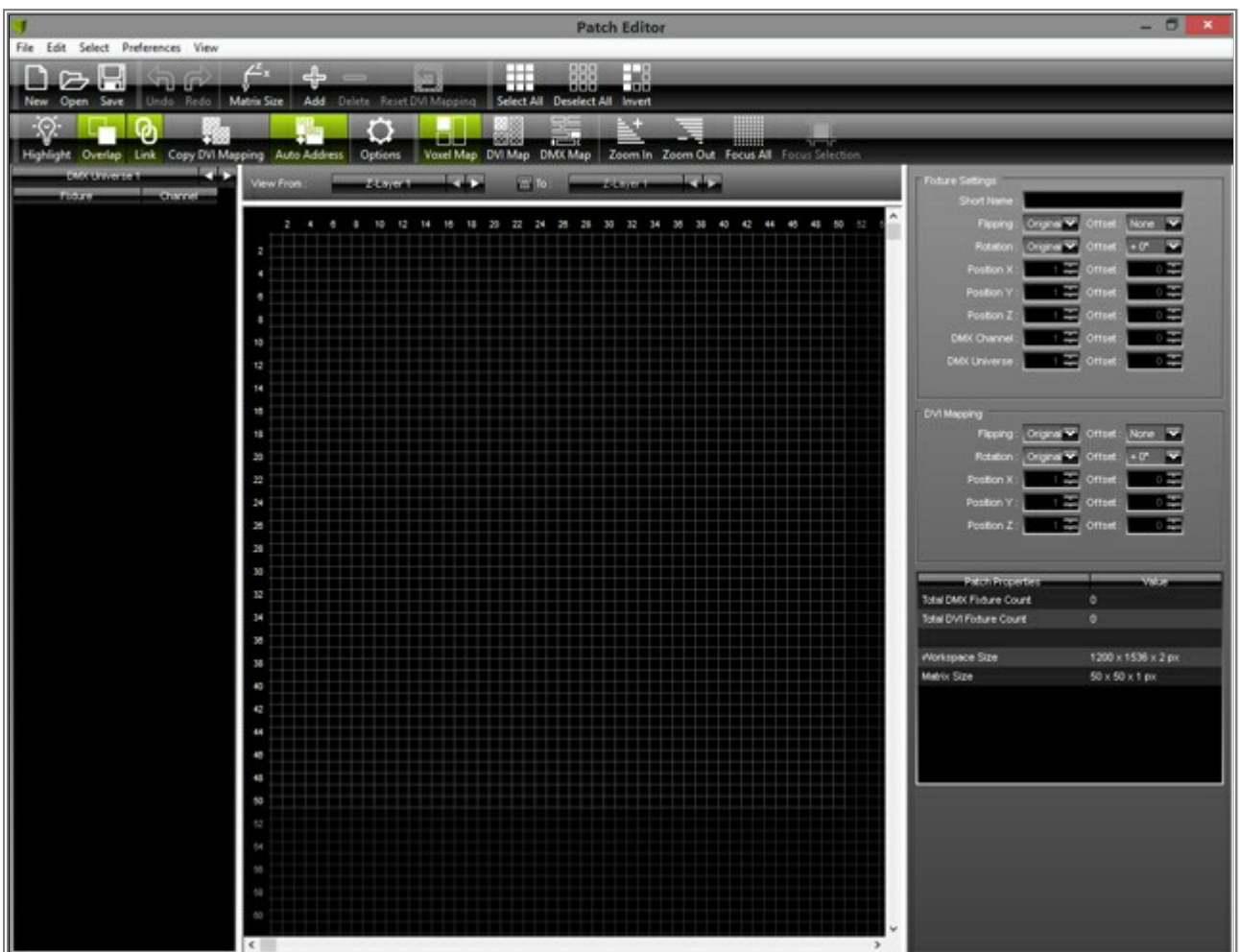


- 2. Click **New** on the toolbar, go to **File > New**, or press **Ctrl+N**

Click **Yes** to confirm that all fixtures should be deleted.



Now you will get a new, empty patch.



3. Click **Matrix Size** on the toolbar and enter **Size X: 100**, **Size Y: 100**, and **Size Z: 1**. Now there is enough space for all the devices we want to add.



4. Click **Add** and let us add the first 4 Elation Professional Design LED 60 Tri Strip fixtures in horizontal position starting from X: **2**, Y: **1**, and Z: **1**

Set up the following settings in the **Add Fixtures** window:

- **Protocol:** Should be **DMX**. If it is not, change it to DMX.
- **Fixture:** Click on the arrow on the right side and search the list for **Elation Professional Design LED 60 Tri Strip 60 ch mode**. Select it.
- **Rotation:** Should be **Original**. If it is not, change it to Original.
- **Count:** X = **4**, Y = **1**, and Z = **1**
- **Offset:** X = **0**, Y = **0**, and Z = **0**
- **Start Position:** X = **2**, Y = **1**, and Z = **1**
- **Start Corner, Main Orientation, and Snake Mode:** Leave the default settings. These options are explained in a previous tutorial ([»The First Patch](#)).
- **DMX Start Channel:** Should be **1**. If it is not, change it to 1.
- **DMX Start Universe:** Should also be **1**. If it is not, change it to 1.



Now click **Add**

- Click **Add** on the toolbar again. Now we want to add 20 **#G-Lec Phantom DVI Phantom 60 Frame** DVI fixtures. The dimensions will be 5 rows with 4 columns.
 - Protocol:** Change it to **DVI**
 - Fixture:** Search for **#G-Lec Phantom DVI Phantom 60 Frame (16x16)** and select it.
 - Count:** **X = 5, Y = 4, and Z = 1**
 - Merge Fixtures:** Please enable it. The checkbox will be illuminated in green.
 - Start Position:** We want to add the screens directly below the Tri strips. Set **X to 2, Y to 2, and Z to 1**

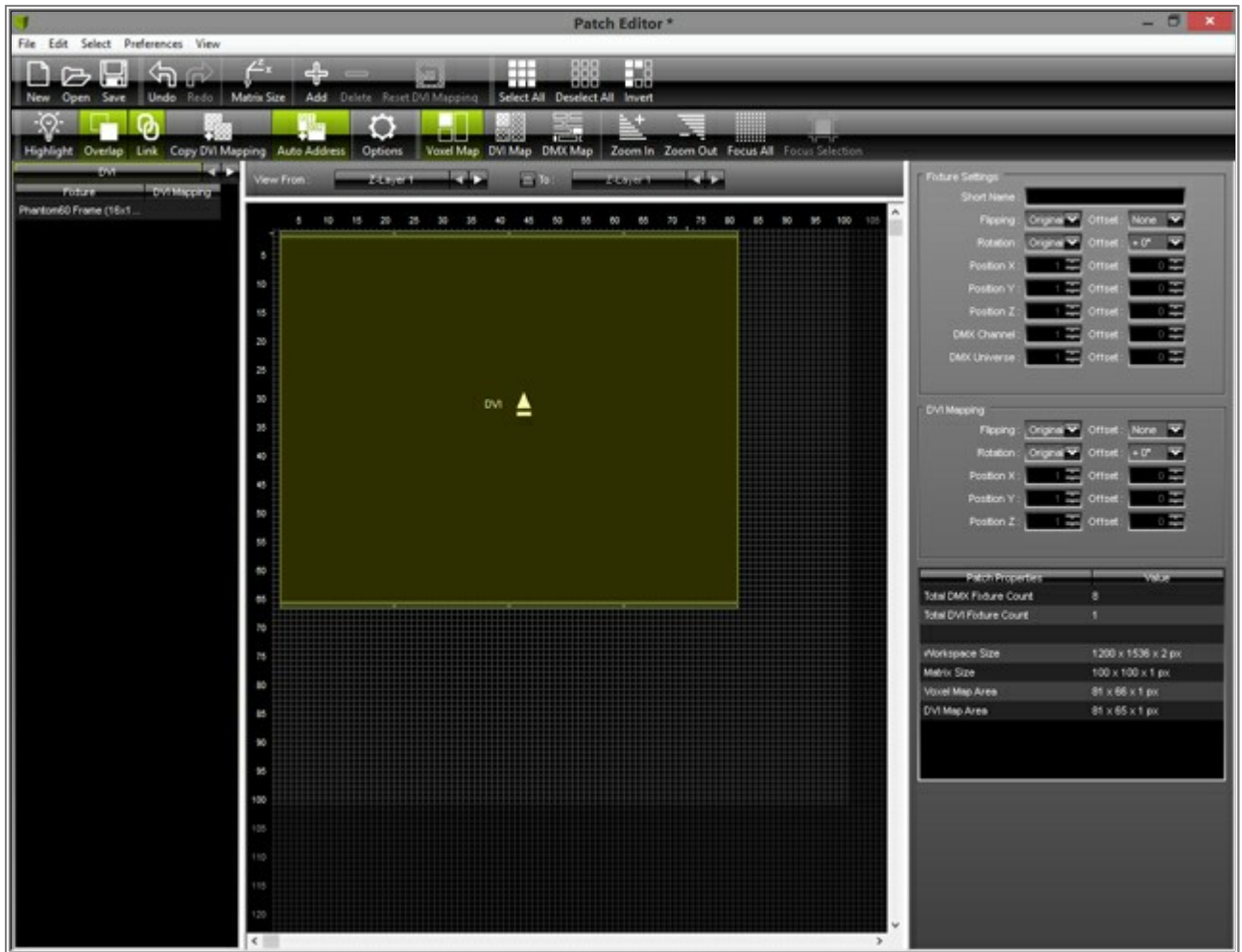


- 6. In addition, we want to add another 4 fixtures. But this time they should be positioned below the DVI screen. Click **Auto Address** on the toolbar. The button should be **Elation Professional Design LED 60 Tri Strip** illuminated in green.



Now select all **Elation Professional Design LED 60 Tri Strip** fixtures in the Patch (Press and hold down the **Ctrl** key and click on every single fixture one after another). Afterwards, hold down the **Ctrl** key again, click on one of the Elation fixtures, and drag it to the desired position. In our example, the left corner of the left fixture should be at position **X = 2** and **Y = 66**. The advantage of this method is that you do not need calculate the DMX addresses. MADRIX does it automatically for you.

Now the patch should look like shown in the following picture.



7. In this step, we want to add 22 of **Martin Stage Bar 2**; positioned to the left side of the DVI screen. The fixtures will be rotated by 90°.

Click **Add** on the toolbar and configure up the following settings:

- **Protocol:** Should be **DMX**.

- **Fixture:** Search and choose **Martin Stagebar 2 15 Ch (RGBW Mode, 3 Pixel)**.
(For a faster search, press **M** on your keyboard in the drop down menu and it will jump to the fixture manufacturers beginning with M.)

- **Rotation:** Change it to **90°** and the fixtures will be added to the patch with an applied rotation of 90°.

- **Count:** Set **X** to **1**, **Y** to **22**, and **Z** to **1**

- **Offset:** **X = 0**, **Y = 0**, and **Z = 0**

- **Start Position:** Set **X** to **1**, **Y** to **1**, and **Z** to **1**

- **DMX Start Channel:** Set it to the next free DMX channel. The next free channel is **481** on DMX universe 1. Why? We have already added 8 **Elation Professional Design LED 60 Tri Strip** and every strip utilizes 60 DMX Channels. That means that all strips together require 480 DMX channels in total (8 fixtures x 60 Channels).

- **DMX Start Universe:** **1**



8. Let us add the last fixtures of this tutorial.

Click **Add** on the toolbar again. Because we already did add several Martin Stagebar 2, we do not have to change the **Fixture** type.

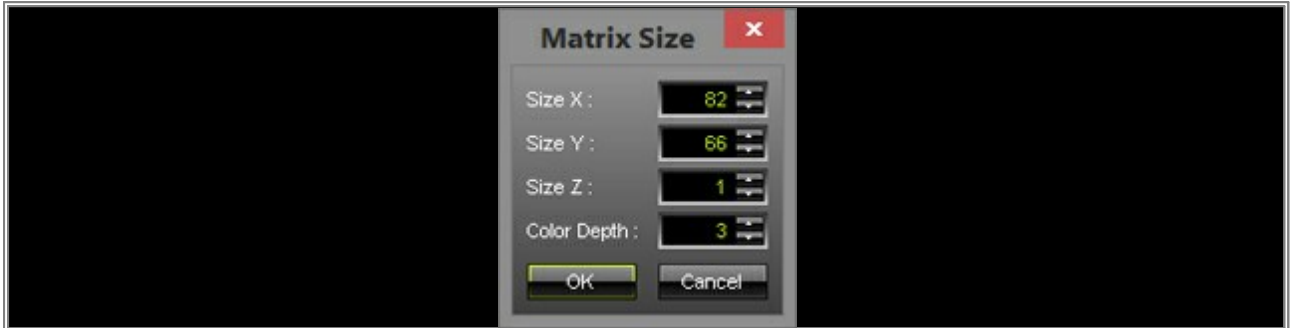
But please change the following settings:

- **Rotation: 90°**
- **Count:** Set **X** to **1**, **Y** to **22**, and **Z** to **1**
- **Offset:** **X = 0**, **Y = 0**, and **Z = 0**
- **Start Position:** Set **X** to **82**, **Y** to **1**, and **Z** to **1**
- **DMX Start Channel: 301**
- **DMX Start Universe:** Set to **2**

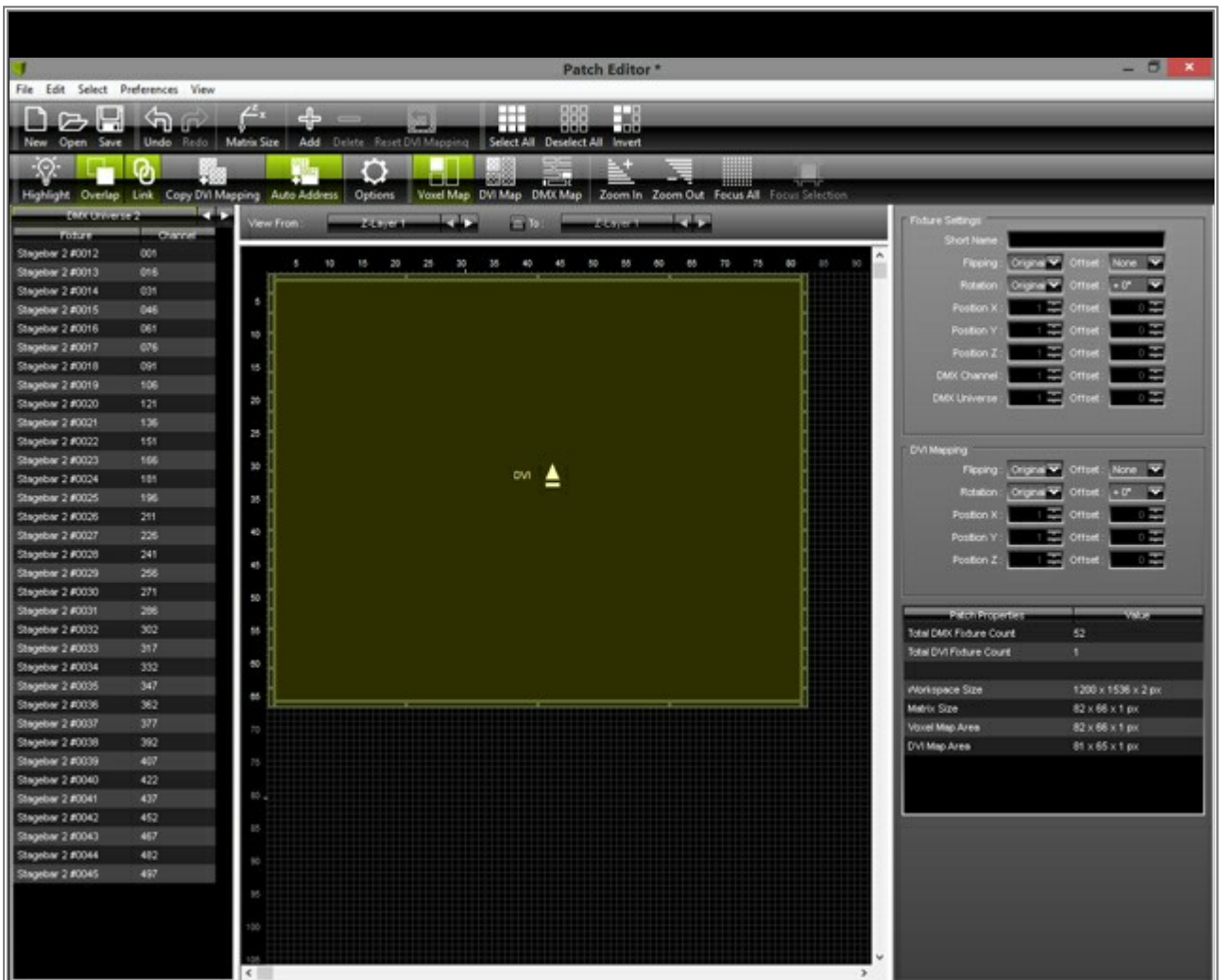
We are using more than 512 DMX channels. That means we need to use more than one DMX universe.



- 9. Now, the Patch Size we have set up initially is too large. We will change it to the correct size. Click on **Matrix Size** on the toolbar and change the dimensions. Set **Size X** to **82** and set **Size Y** to **66**.



Now, the whole patch should look like this:



Note: For this patch we need to use 3 DMX universes. If there are no more channels available in the current universe for the next fixture, MADRIX automatically adds the fixture to the next universe.

You can save the Patch if you need it for other Setups. In the Patch, go to **File > Save Patch As**, choose a directory, type in a file name, and click **Save**. Close the Patch. MADRIX updates the new patch automatically.

Congratulations! You have created a Patch with 3 different fixture profiles and 53 fixtures.

1.6 Creating A Patch With Space Between Fixtures

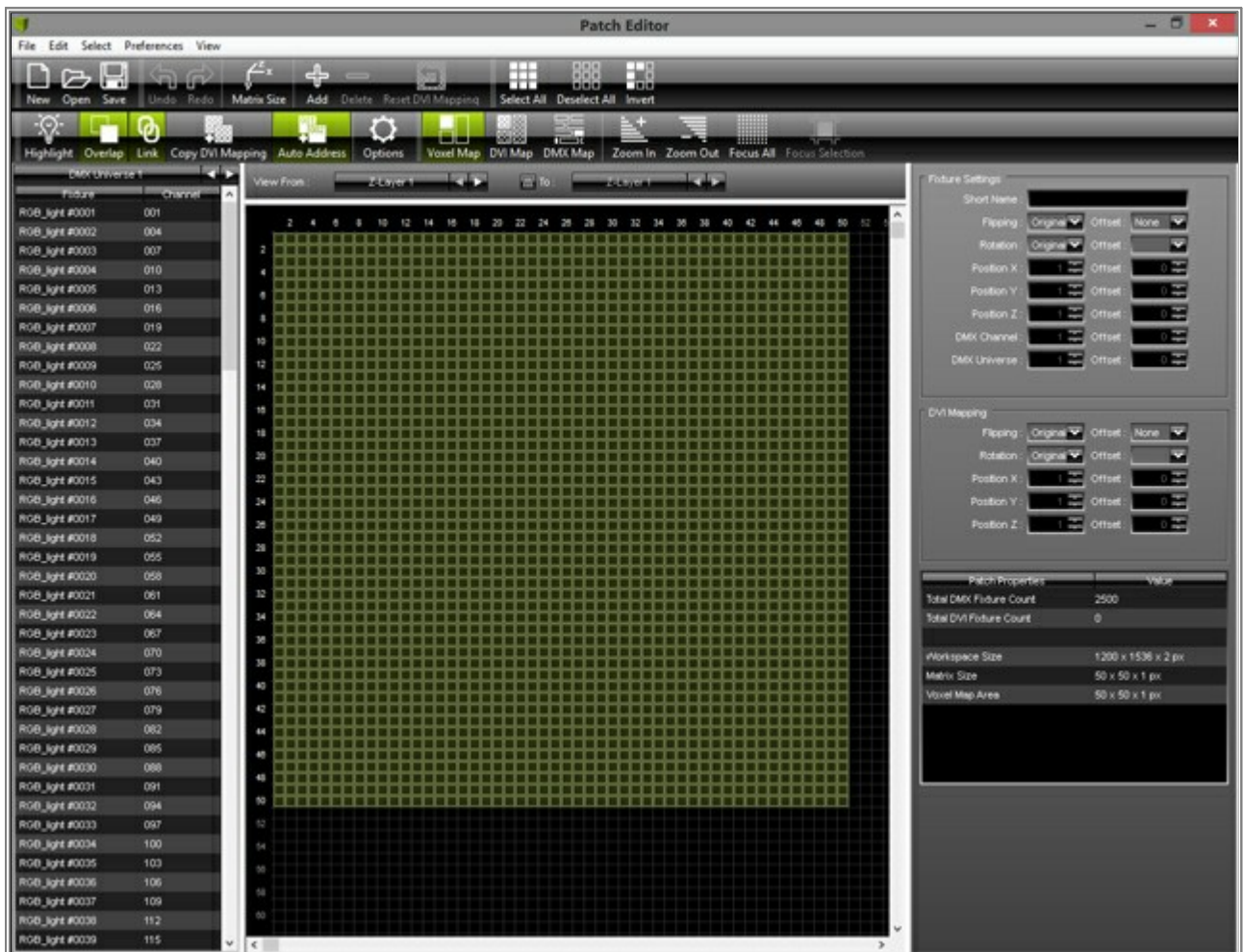
In this tutorial, you will learn how to create a patch with space between each fixture. This is useful, because of you can create a patch representing your real fixture arrangement (with space) in the club or on stage.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

We want to create a patch with **16 Eurolite PMB-4 COB**.

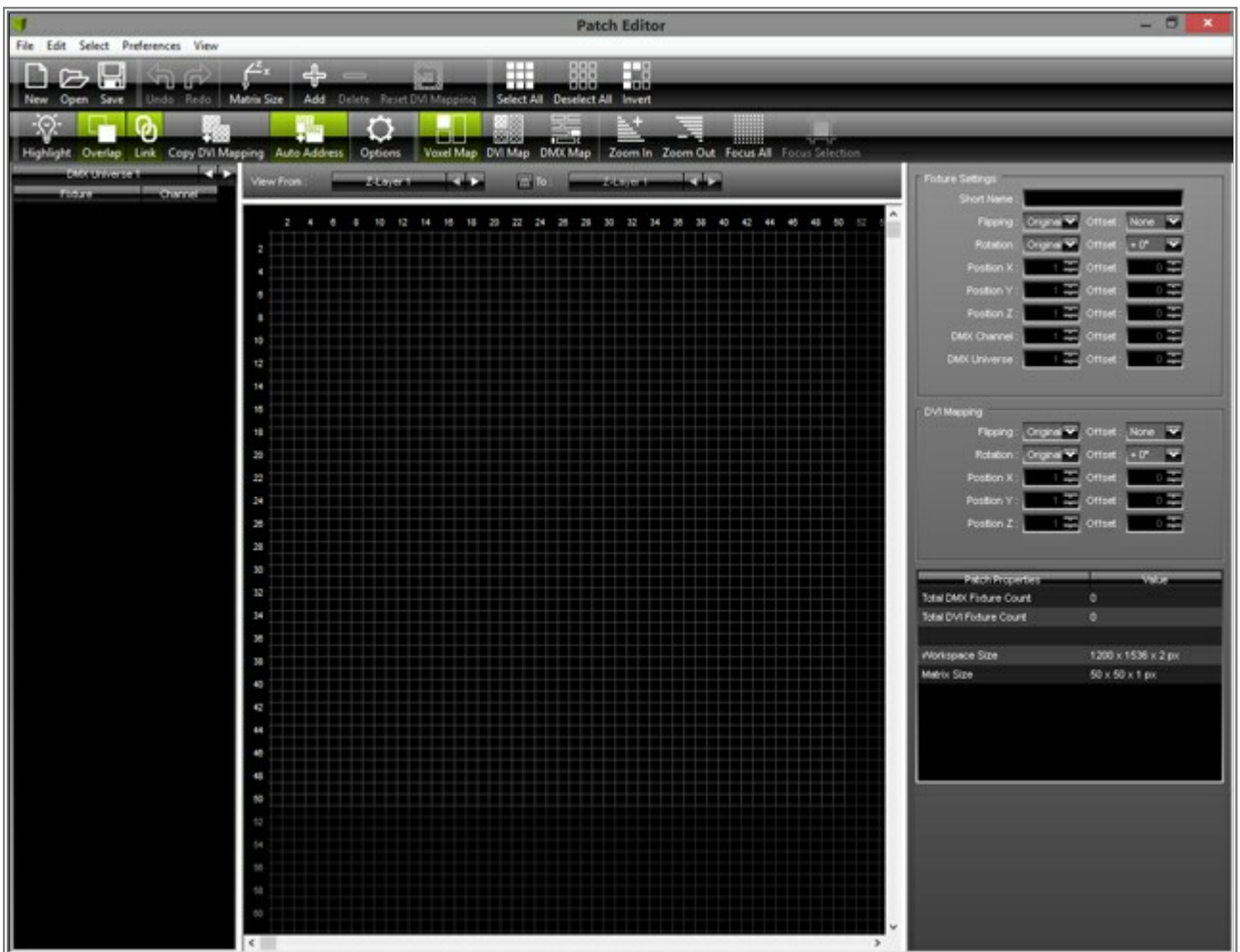
1. Start MADRIX and open the Patch Editor (Press **F3** or go to **Preferences > Patch Editor**).



- 2. Click **New on** the toolbar or go to **File > New**.
Now, click **Yes** to confirm that all current fixtures will be deleted.



All fixtures will be removed.



3. Click **Add** on the toolbar or go to **Edit > Add Fixtures...** or press **Ins** on your keyboard.

- **Protocol:** Should be **DMX**. If it is not, change it to DMX.
- **Fixture:** Search and choose **EUROLITE LED PMB-4 COB 12 Ch Mode**
- **Rotation:** Should be **Original**
- **Count:** Set **X** to **4**, **Y** also to **4**, and **Z** to **1**

Leave all other parameters with their default settings and click **Add**



4. The Patch should look like in the following picture:



As you can see, there is no space between each fixture. Now, we want to add space between each fixture. Select all the fixtures, except the first column. You can select the fixtures in different ways:

- **A]** Press and hold the **Ctrl** key down, then click on every device you want to select in the patch.
- **B]** Press and hold the **Shift** key down, press the **left mouse button** and create a selection rectangle above all fixtures you want to select.
- **C]** Press and hold the **Ctrl** key down and click on every fixture you want to select in the fixture list on the left side of the patch window. For this example, select the fixtures with the numbers #0002, #0003, #0004, #0006, #0007, #0008, #0010, #0011, #0012, #0014, #0015, #0016.



- Now, click on one of the selected fixtures with the left mouse button, hold the left mouse button down and at the same time move the mouse to the right until the left handed fixtures are at position **X = 10**
- Deselect all fixtures (click into a free area of the patch).
- Select all fixtures of the third and fourth column, click and hold the left mouse button down on one of the selected fixtures and move the mouse to the right until the left handed fixtures are at position **X = 19**
- Deselect all fixtures.
- Select all fixtures of the fourth column. Now go to the right side of the Patch window to the settings panel. (If you do not see the panel, go to **View > Reset Layout**.)
Go to the **Fixture Settings** category, type in **5** for **Offset of Position X**, and click **OK**. The fixtures should be moved to the position **X = 28**



We have created space between each column, but there is still no space between each row. The Patch should now look like this:



We want to add space between rows:

- Deselect all fixtures.
- Select all fixtures from row 2 until 4 and move them down until the fixtures of row 2 are at position **Y = 5**
- Deselect all fixtures.
- Select the fixtures of row 3 and 4 and move them down until the fixtures of row 3 are at position **Y = 9**
- Deselect all fixtures.
- At last, select the fixtures of row 4 and move them down until the fixtures are at position **Y = 13**

That is it. The patch should look like the patch in the following picture.



5. Finally, change the Patch Size to the required total size.
Click **Matrix Size** on the toolbar and change **Size X** to **31** and **Size Y** to **13**
Click **OK**



Note: It is recommended to save the patch to an external file, because we will need it in another tutorial. Therefore, go to **File > Save Patch As**, choose a directory, type in a filename, and click **Save**
Simply close the **Patch Editor** and you can work with this patch configuration in MADRIX.

Congratulations! Now you have created a patch that adds space between each fixture.

1.7 How To Use DVI Map Mode

In this tutorial, you will learn more about the DVI Map Mode.

Date: 09/2014

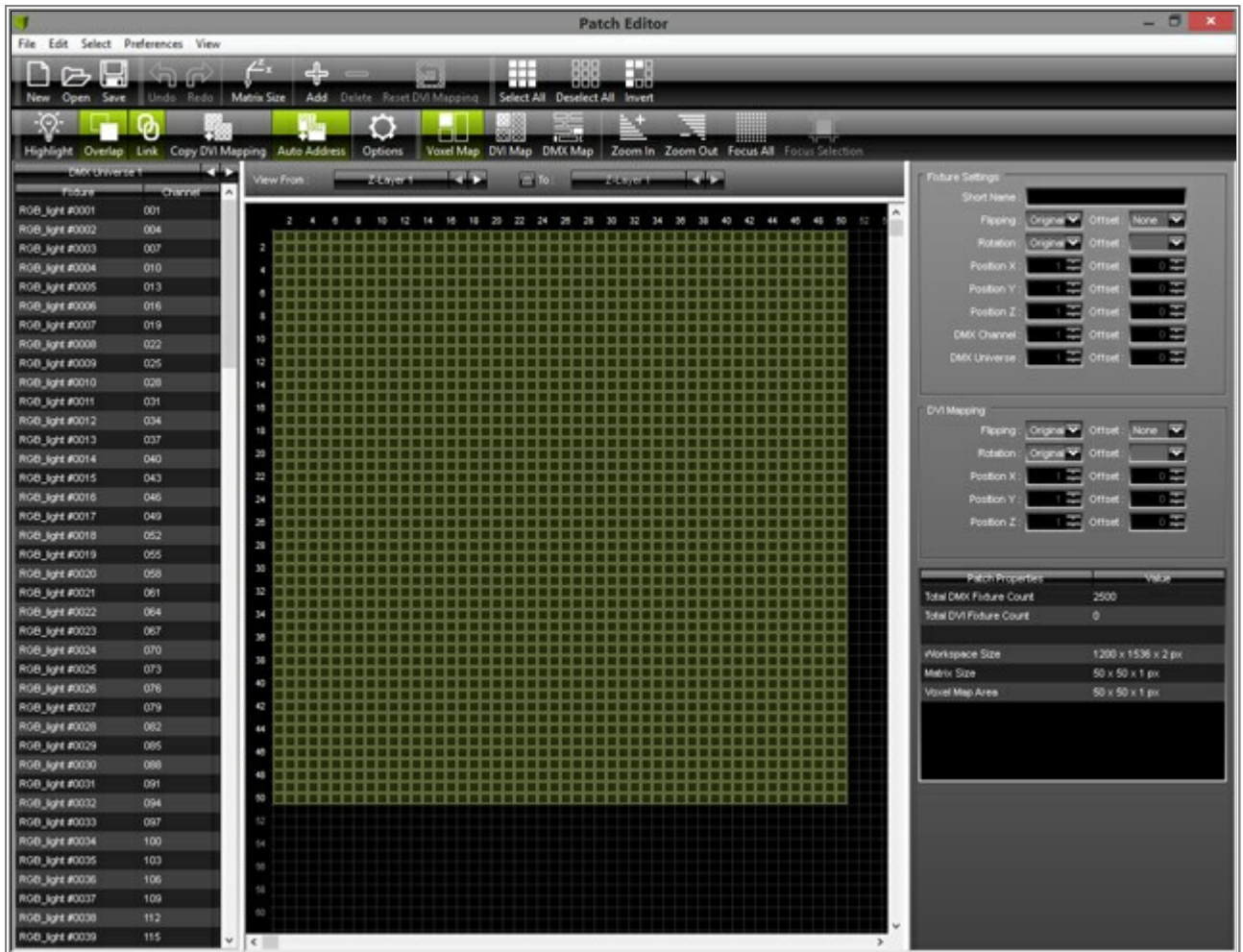
MADRIX Version: 3.3 (Created with)

The DVI Map Mode is necessary if you want to create a DVI Patch with space between DVI fixtures. The screen-capturing software or hardware captures a defined area of your display and you simply cannot set the space in-between that area.

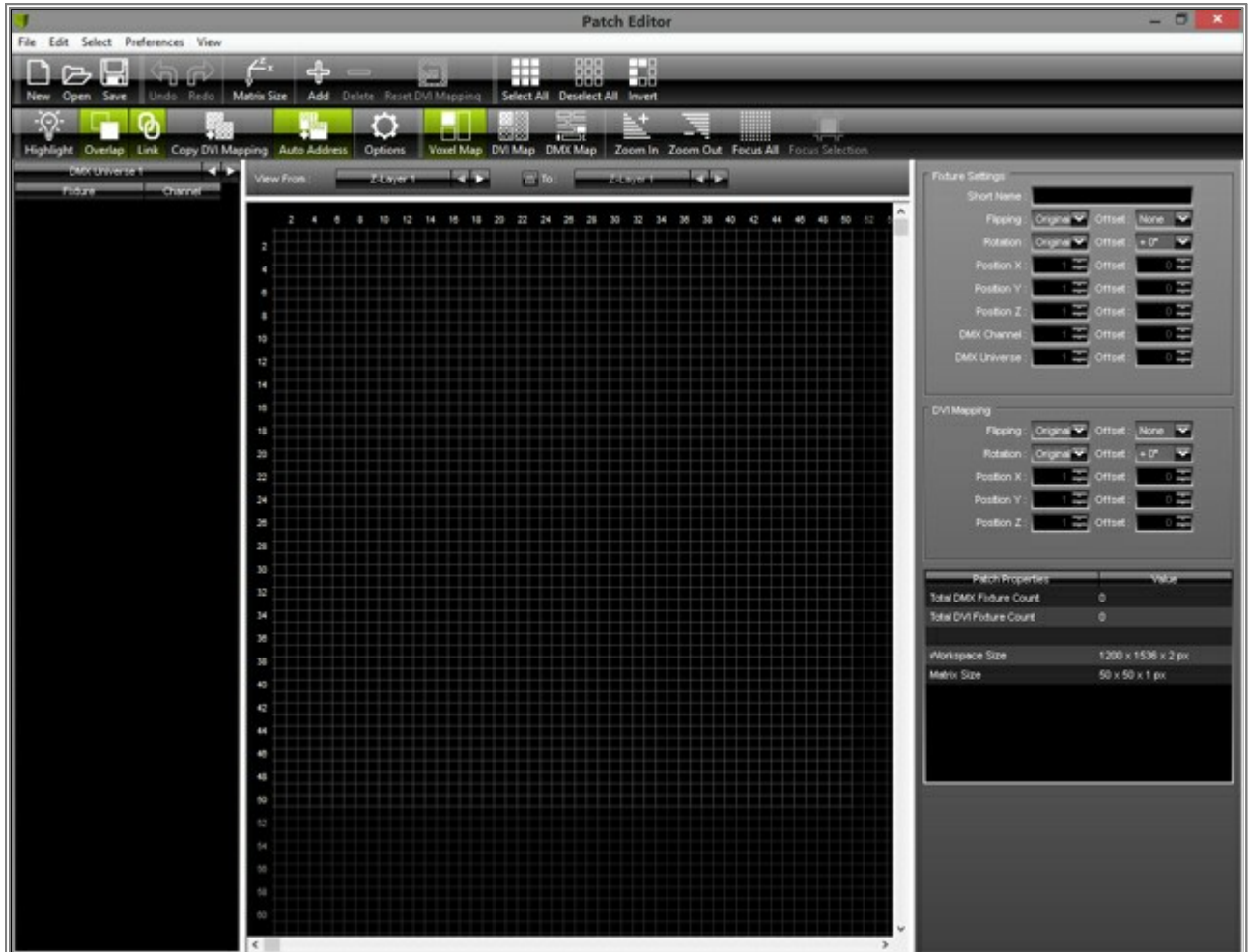
If you create a patch without space between the fixtures in MADRIX and in reality there is space between them, you will see an offset and the created effects lose their impact.

With the help of the DVI Map Mode the offset will be removed and the effect will be displayed correctly.

1. Start MADRIX. Go to **Preferences > Patch Editor** or press **F3**. Now the **Patch Editor** appears:



- 2. Click **New** on the toolbar, or go to **File > New**, or press **Ctrl+N**.
Click **Yes** to confirm that all fixtures should be deleted. Now you will get a new, empty patch.



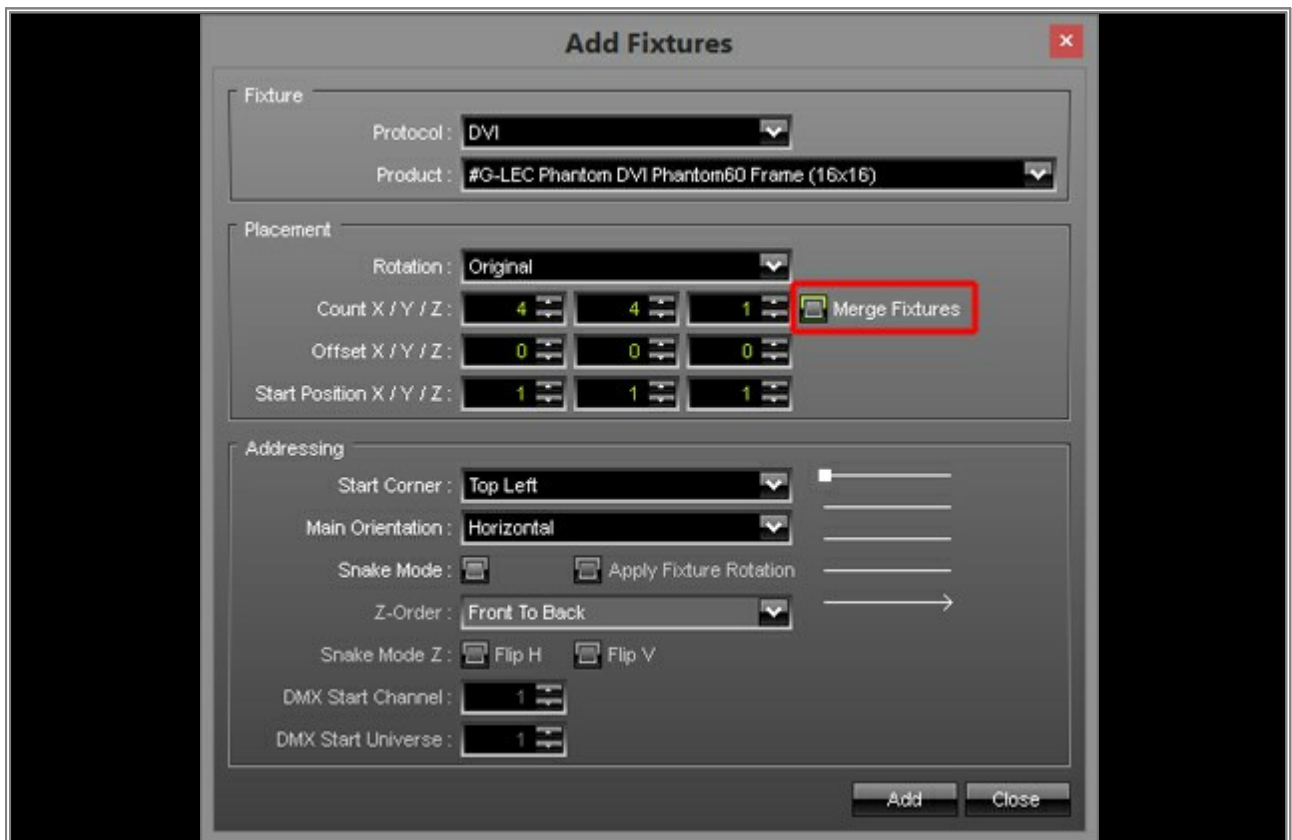
- 3. Click **Patch Size** on the toolbar and set up **Size X = 85**, **Size Y = 64**, and **Size Z = 1**



4. Now, click the **Add** button on the toolbar or go to **Edit > Add Fixtures...**

We want to add **16 #G-Lec DVI Phantom 60 Frame (16x16)**

- **Protocol:** Choose **DVI**
- **Fixture:** **#G-Lec DVI Phantom 60 Frame (16x16)**
- **Rotation:** **Original**
- **Count:** Set **X** to **4**, **Y** to **4**, and **Z** to **1**
- **Offset:** Set **X**, **Y**, and **Z** to **0**
- **Start Position:** **X = 1**, **Y = 1**, and **Z = 1**
- **Merge Fixtures:** Please **disable** the checkbox, because if it is enabled all the added fixtures will be displayed as one, big fixture.
- **Start Corner, Main Orientation, Snake Mode,** and **Start Position:** Leave the default settings.



Now click **OK**

The Patch should look like shown in the following picture:

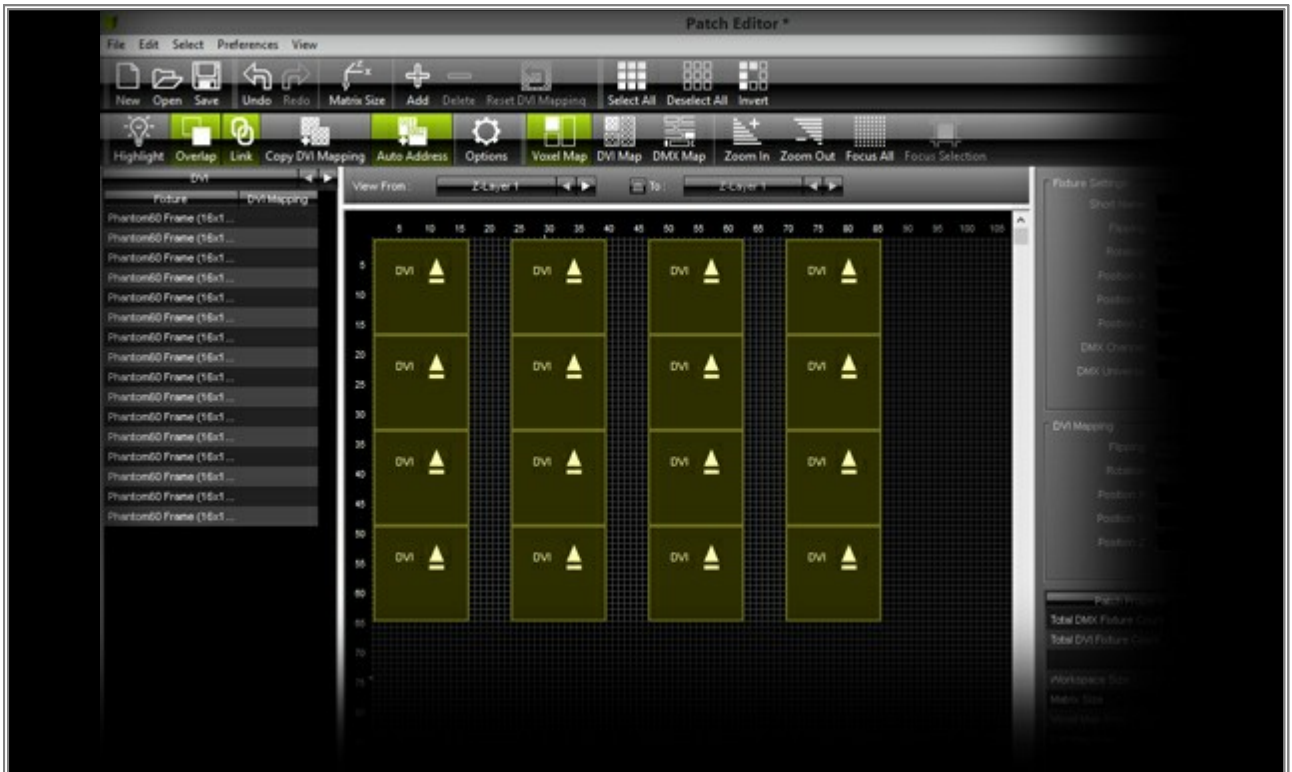


- 5. As you can see, there is no space between the fixtures. Let us generate some space in the X-direction.

Select the fixtures of the fourth column and move them until the left side is at position **70**.

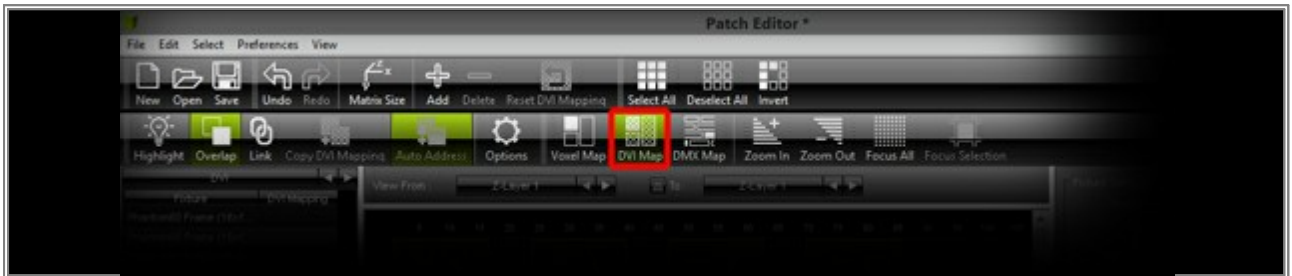
Then, select the fixtures of the third column and move them until their the left side has position **47**. Now, select the second column of fixtures and move them to position **24**.

(Learn how to select and move fixtures in the tutorial »[Creating A Patch With Space Between Fixtures](#))

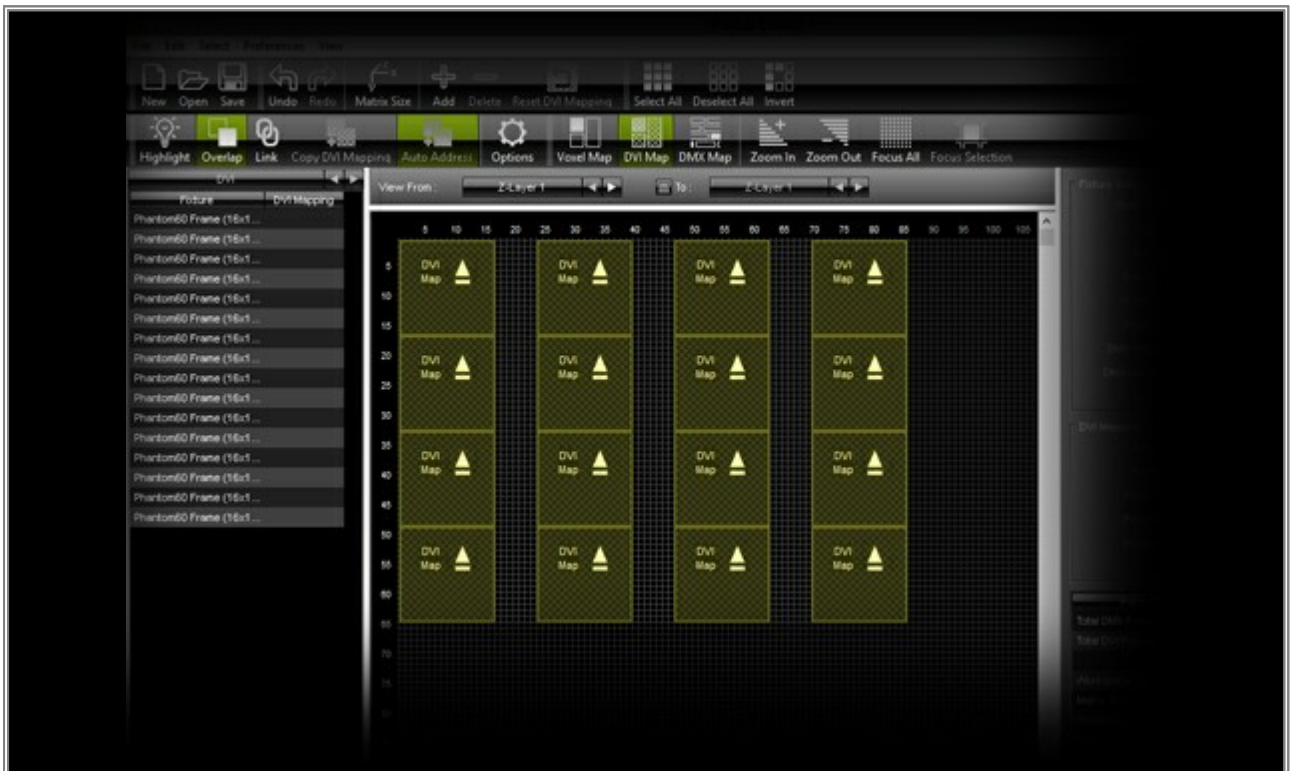


- 6. Actually, the patch itself would be finished. MADRIX generates the patch with space, but the grabber software or hardware does not know that you want to have space between fixtures. In the settings of the capture card, you have to set up the size of the whole matrix without the space. In this example, the size setting of the capture card is **64 x 64**, although our patch has a size of **85 x 64**.

Now, we have to activate DVI Map. Click **DVI Map** on the toolbar.



You will now see fixtures with a checked pattern, which are labeled **DVI Map**. The created patch and the **DVI Map** are on top of each other.



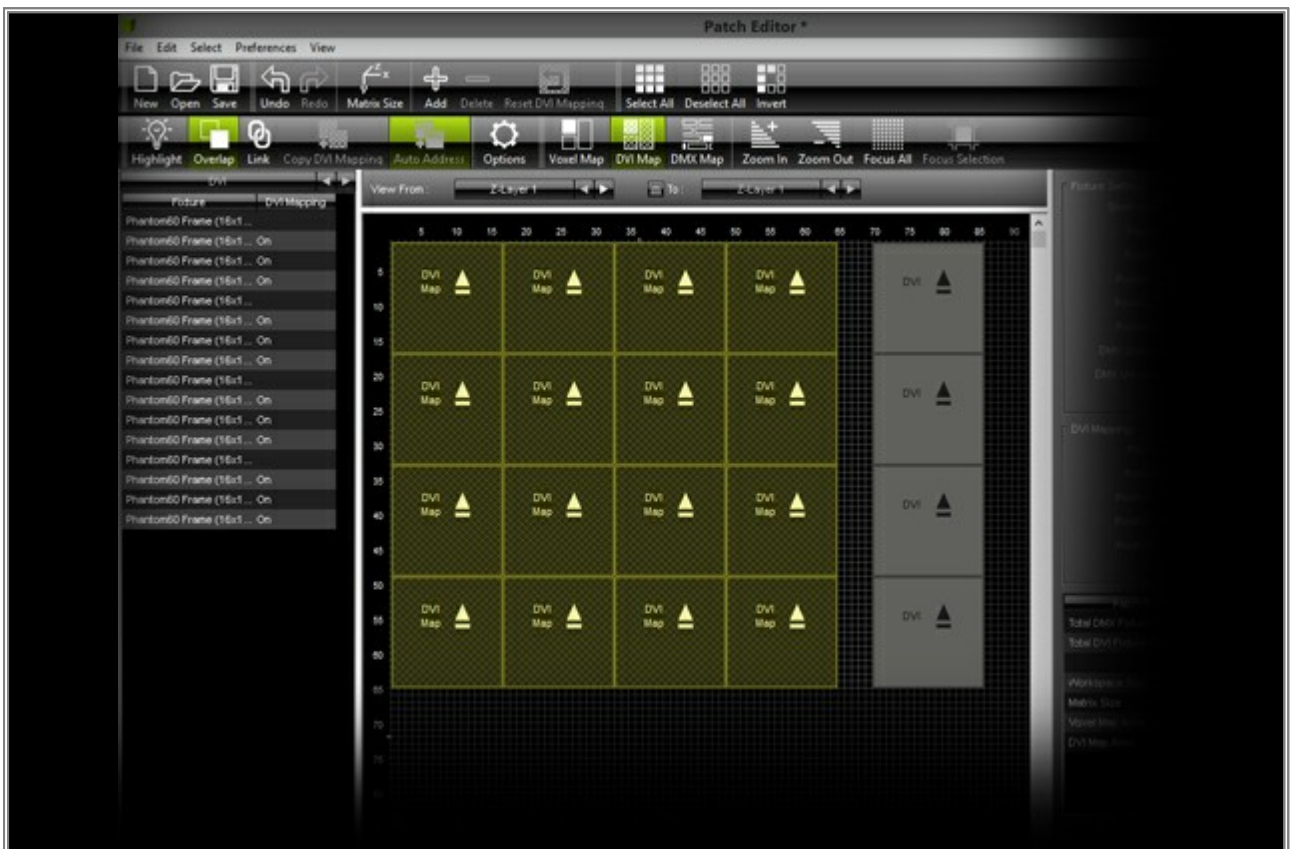
- 7. We have to adjust the DVI Map for our grabber software or hardware.

Select the fixtures of the second column and move them to the right border of the first column (close the gap between first and second row).

Then, select the fixtures third column and move them to the right border of the second column (close the gap between second and third row).

Finally, select the fixtures of the last column and move them to the right border of the third column (close the gap between third and fourth row).

Now, the patch should look like this:



Note: We have created a patch for MADRIX and a patch (a DVI Map) for the grabber software or hardware. MADRIX will show you the patch with space. But in the window for the capturing software or hardware, the space will be removed and the offset will be calculated accordingly. MADRIX will do this automatically.

- Close the Patch and select the effect **SCE Color** in MADRIX. For this example, set up the desired color blue.

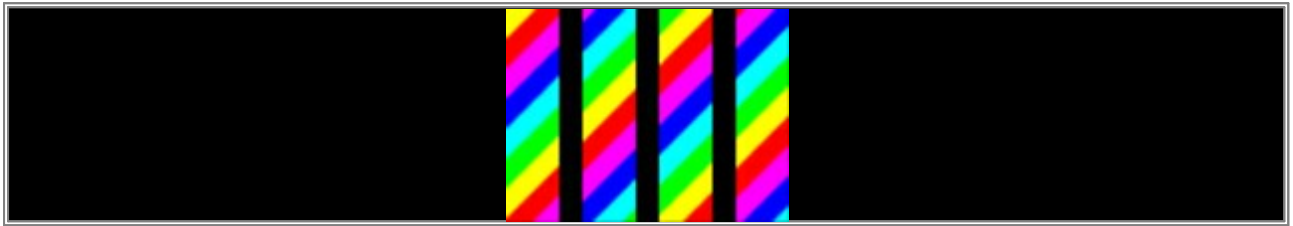


You can see the space between the fixtures. All brightly illuminated areas are sections with fixtures behind them. No fixtures are placed in the darker areas.

- 9. We now have to open the window which will be captured by the grabber software or hardware.

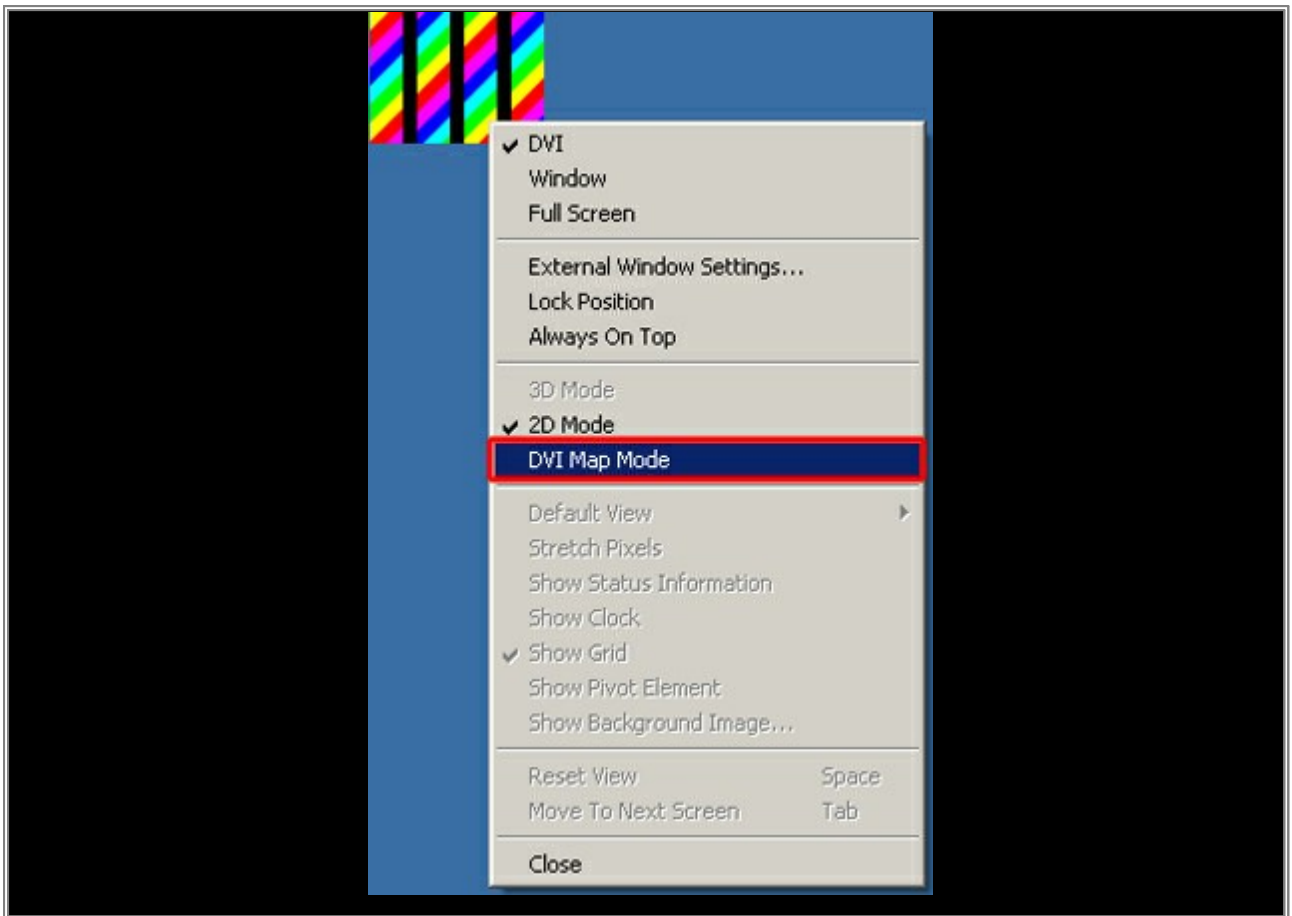
Go to **Previews > External Preview 1 > DVI**. Now a small window according to the size of your patch will be opened. You have to move this window to the preconfigured area of the grabber software or hardware. Learn how this works in the tutorial »[MADRIX DVI Output For Screen-Capture Software](#)

Now, change the effect in MADRIX to **SCE Color Scroll**. Set up the direction to scroll **from top left to button right**.



Now we can see the DVI preview window, such as **External 1**, but we need it without the space according to our created DVI Map.

Go to **Previews > External Preview 1**, or perform a **right mouse** click on the DVI output window, and enable **DVI Map Mode**



The preview window now looks like the created DVI Map and MADRIX calculates the offset automatically. Thereby, all effects will be shown correctly, like you can see in the middle preview window of MADRIX, **Preview Output**.



Congratulations! You have generated a DVI Patch including space between fixtures and a DVI Map for the capture software or hardware.

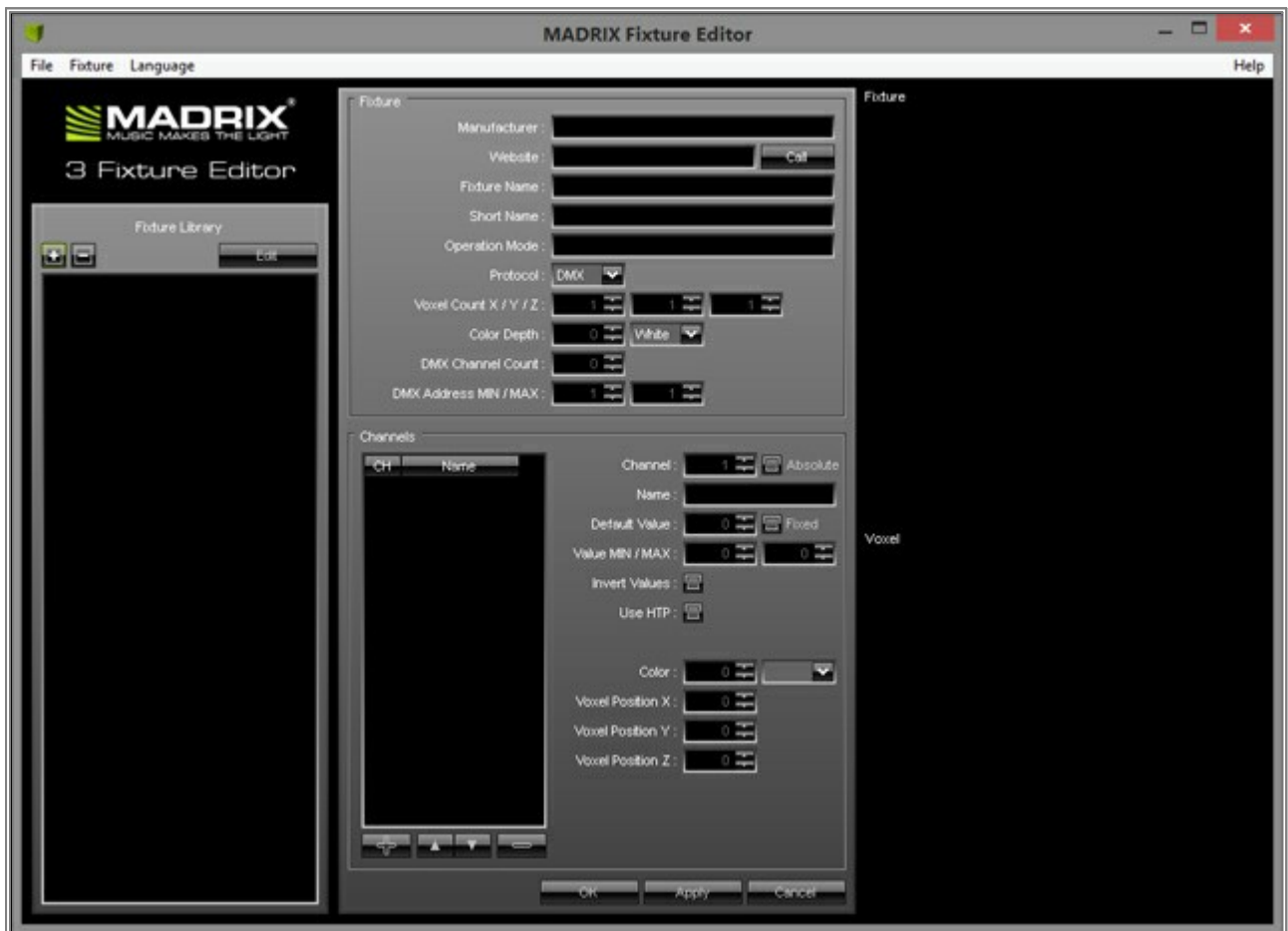
1.8 The MADRIX Fixture Editor

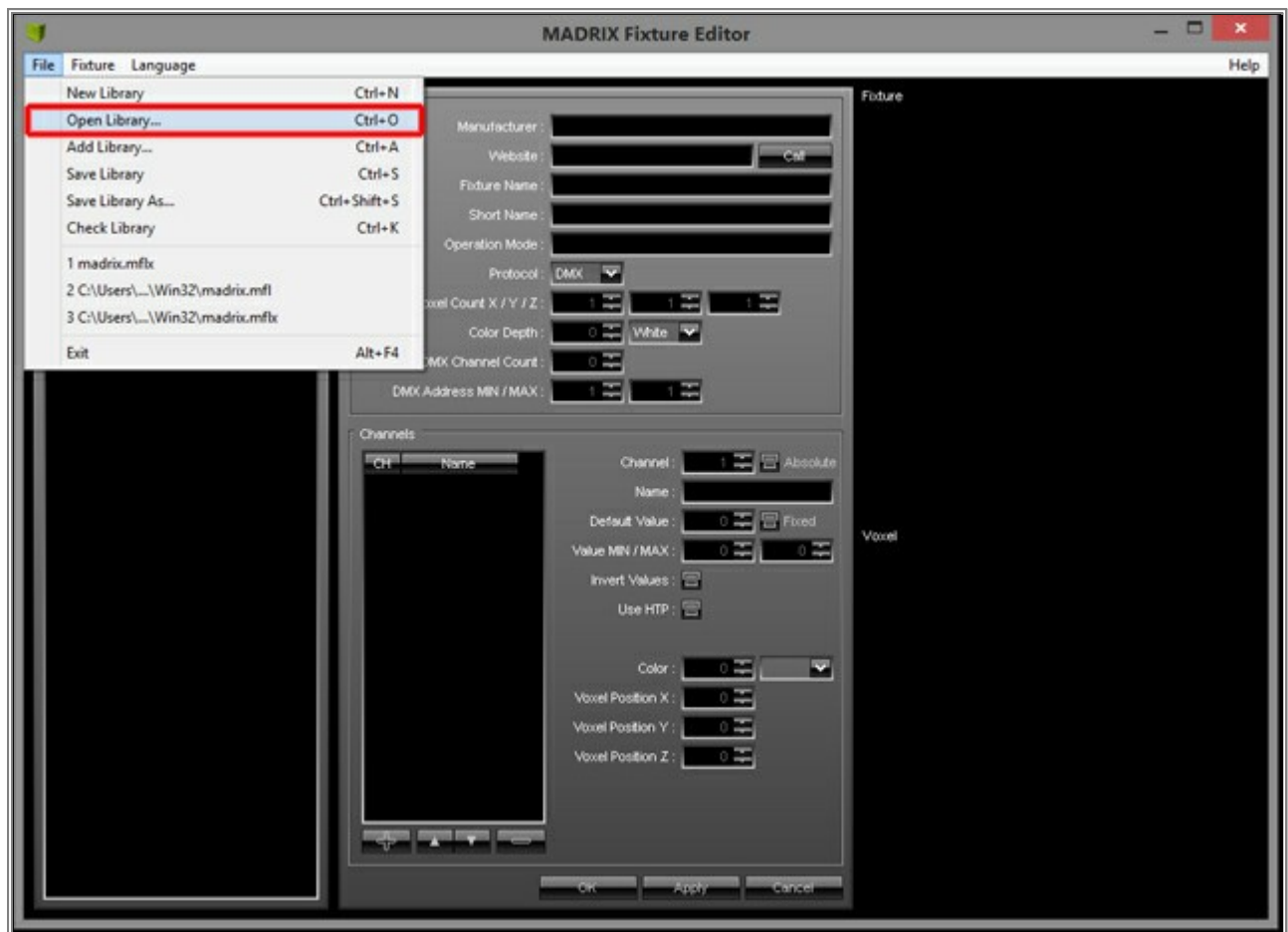
This tutorial shows you how you can use the MADRIX Fixture Editor.

Date: 09/2014

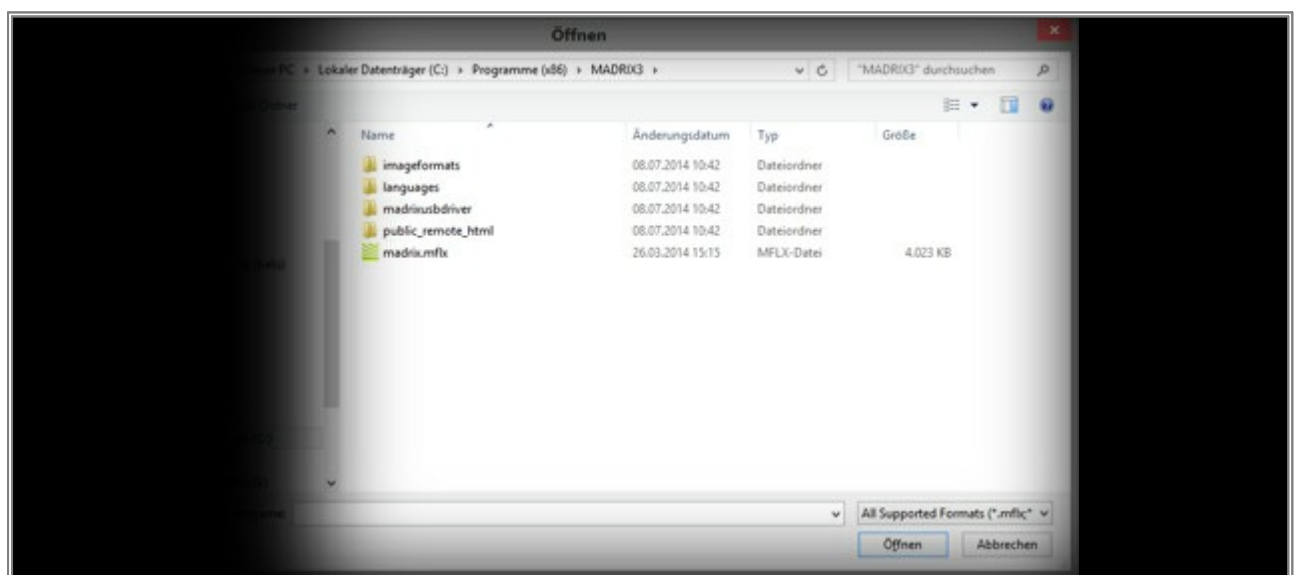
MADRIX Version: 3.3 (Created with)

1. Start the Fixture Editor. You can find it at **Start > All Programs > MADRIX 3 > Fixture Editor**.
The **MADRIX Fixture Editor** will be opened and it will be empty at first.



2. Go to **File > Open Library**

Select the **madrix.mflx** and click **Open**



Note: The default Fixture Library for MADRIX is the madrix.mflx.

3. You can see the list of available fixtures included in this .mflx file.

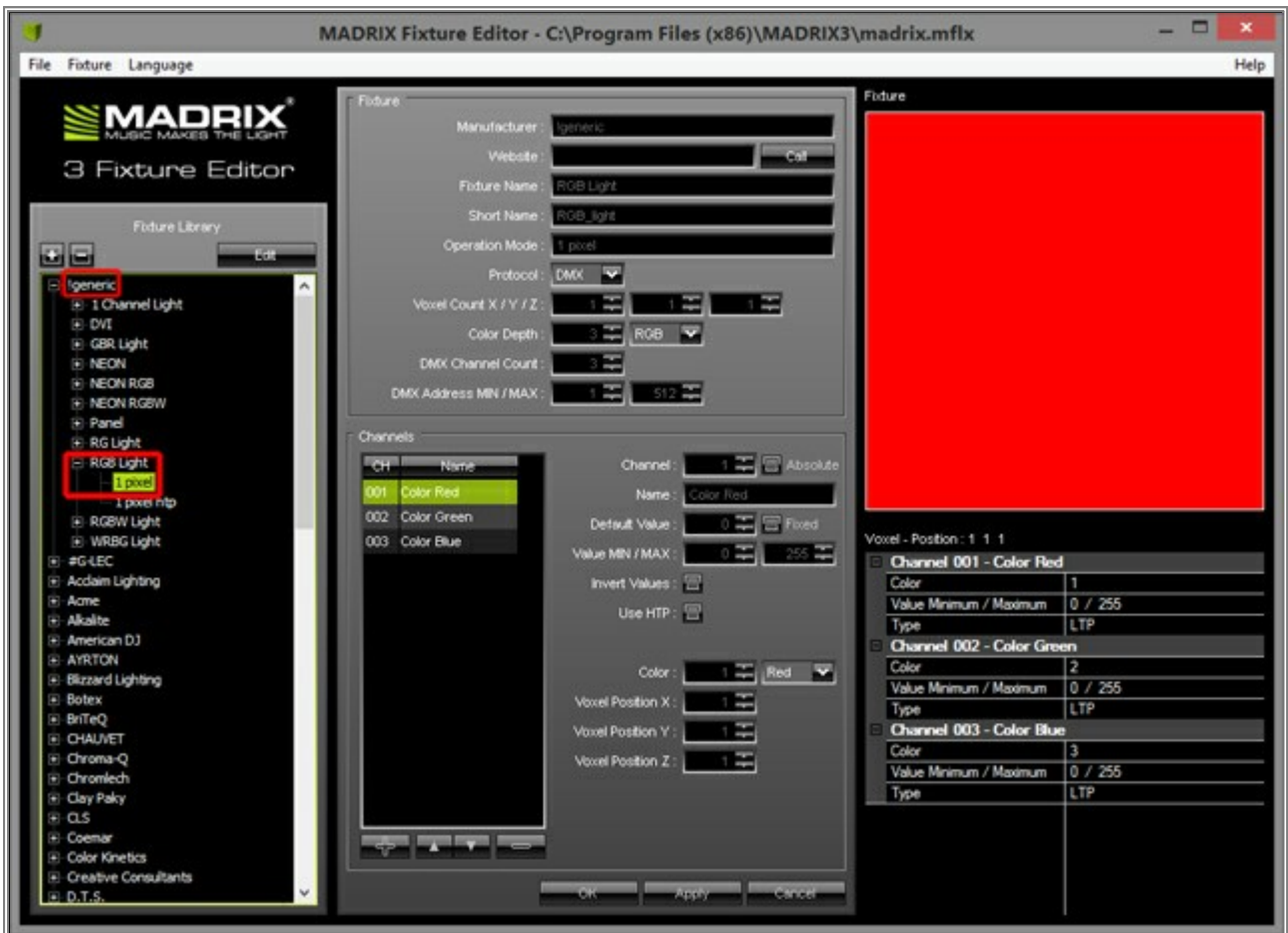


- 4. We now want to copy an existing fixture configuration and change the settings to create our own custom profile.

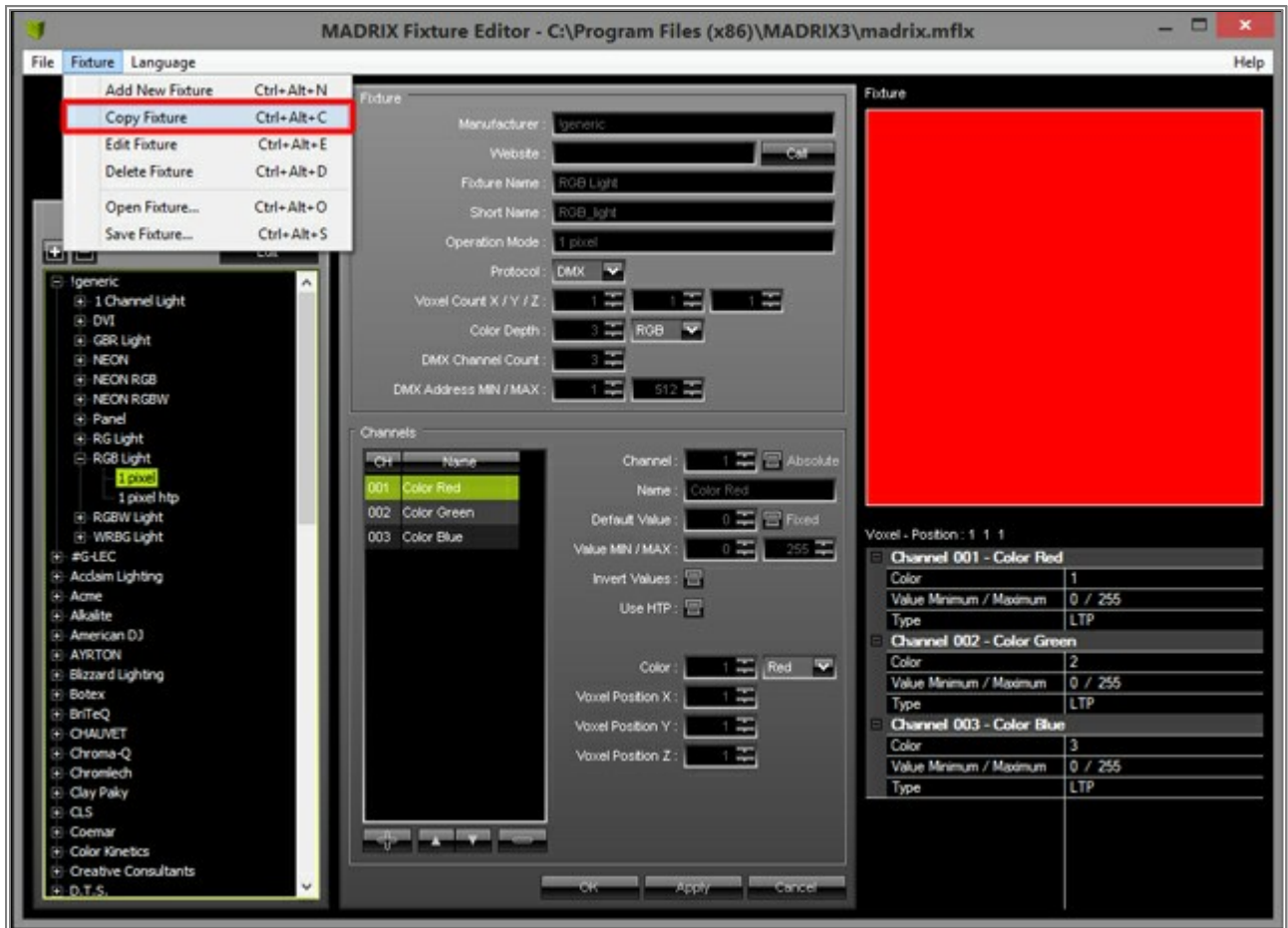
In this example, we will change the fixture profile **!generic RGB Light 1 Pixel**

Therefore, go to **!generic > RGB Light > 1 Pixel** in the list of fixtures on the left side. Select the fixture.

Now, you can see its properties.



5. In step 5, we want to copy the selected fixture. Go to **Fixture > Copy Fixture**



You can see that the properties of the fixture will be highlighted in green. That means you can change the properties.

Note: The same effect occurs if you click **Edit Fixture**. But in that case, you will override the original properties.



6. We will now have to change the properties to create our new fixture. The new fixture has somewhat similar properties. We will change the name and add another pixel, so that the fixture has two pixels side by side.

To create a new fixture, we have to change the following entries:

- **Manufacturer:** This is also the name under which you can find the profile in the section **Fixture Library** to the left. In this tutorial we will call it **Example**
- **Homepage:** You can add the manufacturer's homepage. In this way, you could call up the DMX Chart again some time in the future, for instance.
- **Fixture Name:** This is also the name where you can find the correct profile under the Manufacturer branch in the section **Fixture Library**. In this example, we will call it **2 Pixel RGB**
- **Short Name:** You will see this name later in the Patch of MADRIX. In this example, it is called **RGB**
- **Operation Mode:** It is possible to create different profiles for one fixture. For instance, the new fixture has a mode with 3 DMX channels, with 6 DMX channels, and 7 DMX channels. You can implement the different modes using the same Manufacturer, Fixture Name, and Short Name. Only the Protocol Name must be different. In this example, it is called **6 ch Mode**
- **Protocol:** Here you can choose between DMX or DVI. We want to create a **DMX** fixture.
- **Voxel Count X/Y/Z:** These make up the size of the fixture. In this example, we are only changing the X-amount to **2**, because we want to have two pixels next to each other. If you changed the Voxel Amount, you can see the new fixture size in the section **Fixture Preview** on the right side.
- **Color Depth:** You can change it if you use a non-RGB fixture. For example, that could be an RGBW fixture or a single-color fixture. In this example, leave it at **3, RGB**
- **DMX Channel Count:** Here you can set the required DMX channels for the fixture. In this example, we need to set up a value of **6**



- 7. We will add the missing color channels in this step.
Therefore, select **Color Blue** in the section **Channel** and click **Add** at the bottom of the section. The Fixture Editor will automatically set the correct, new color at the right position.



Repeat this step until the channel list contains a total of **6 entries**.

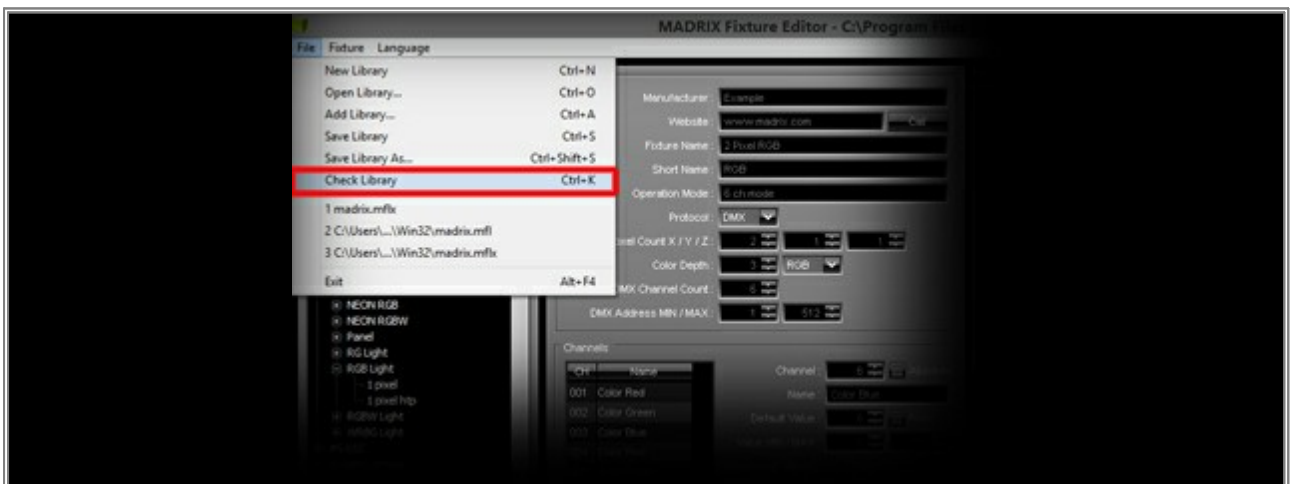


Click **OK**

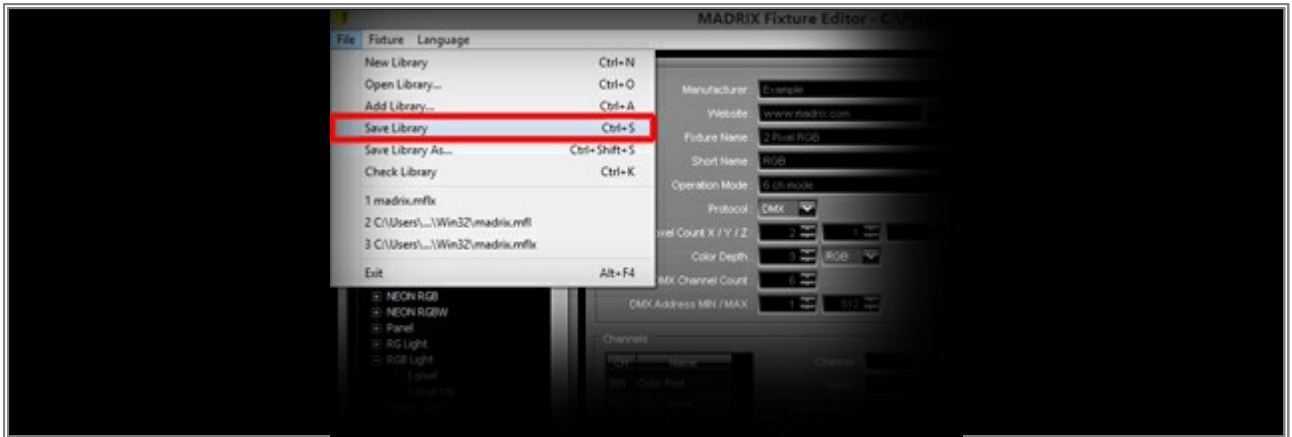
- 8. Now, you can find a new branch in the **Fixture Library** section. It is called, **Example** and has a fixture called **2 Pixel RGB** with the **6 ch Mode**



- 9. You can check your new fixtures in the library. Go to **File > Check Library**



10. Save the .mflx file you just changed.



Note: You have to restart MADRIX if you want to see the changes of the Fixture Library in MADRIX.

Congratulations! You have created a new Fixture with the MADRIX Fixture Editor.

1.9 Creating A Complex Fixture With The Fixture Editor

This tutorial shows you how you can create a complex fixture with the help of the MADRIX Fixture Editor.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Note: Before you start to read this tutorial, it is recommended to read the tutorial »[The MADRIX Fixture Editor](#)

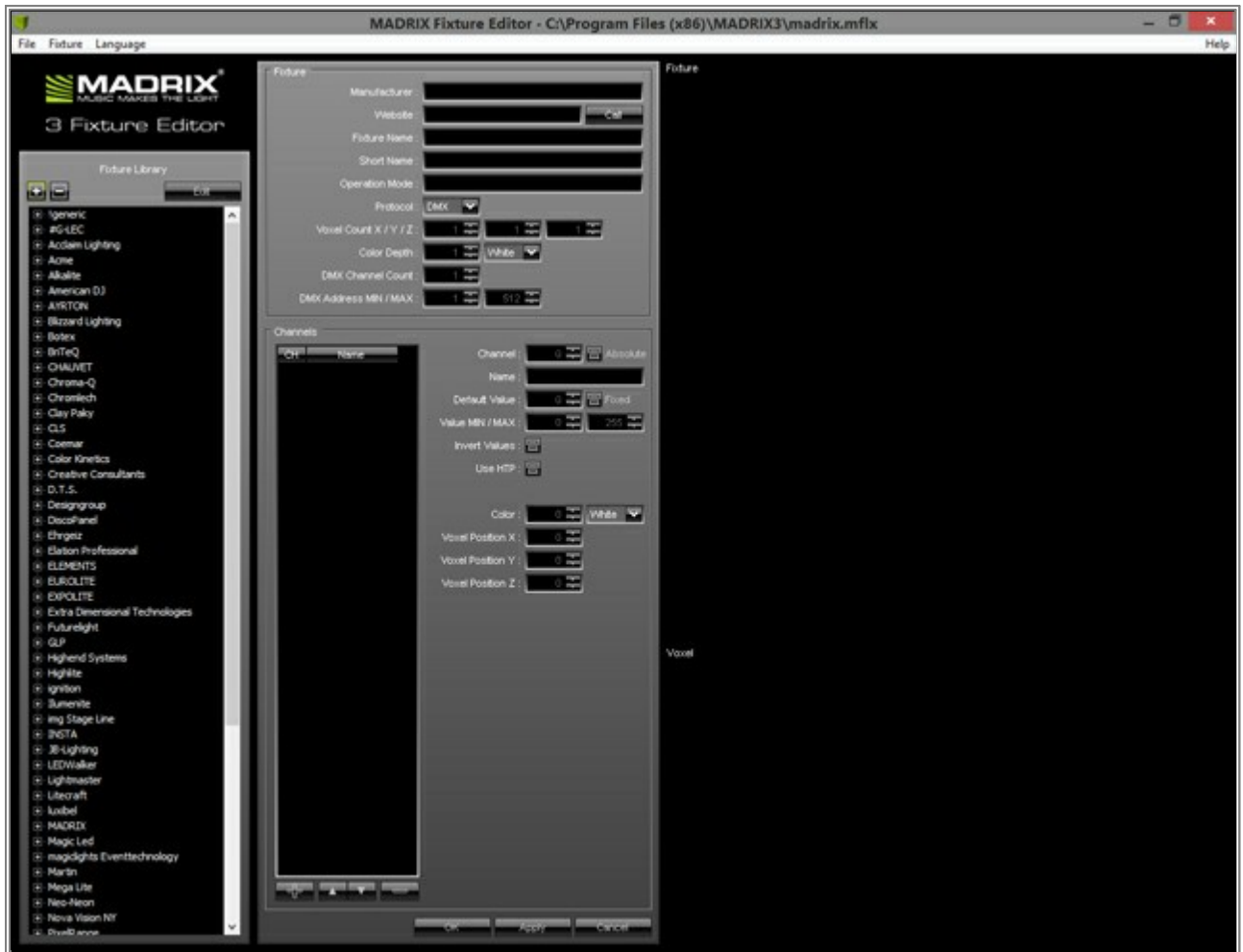
We want to create a new fixture with the following DMX chart:

Channel	Function
1	Dimmer

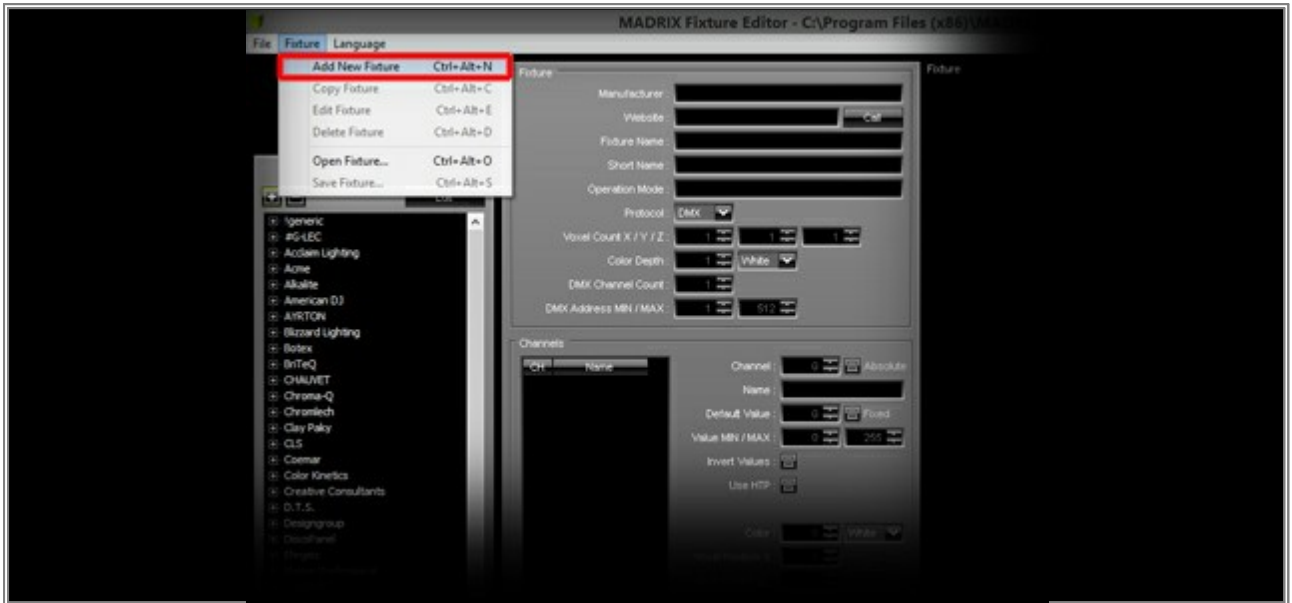
2	Strobe
3	Red 1
4	Green 1
5	Blue 1
6	Red 2
...	...
29	Blue 9

The RGB pixels of the fixture are located in 3 rows and 3 columns.

1. Start the Fixture Editor and load the madrix.mfx.



2. We will create a new fixture profile. Go to **Fixture > Add New Fixture**



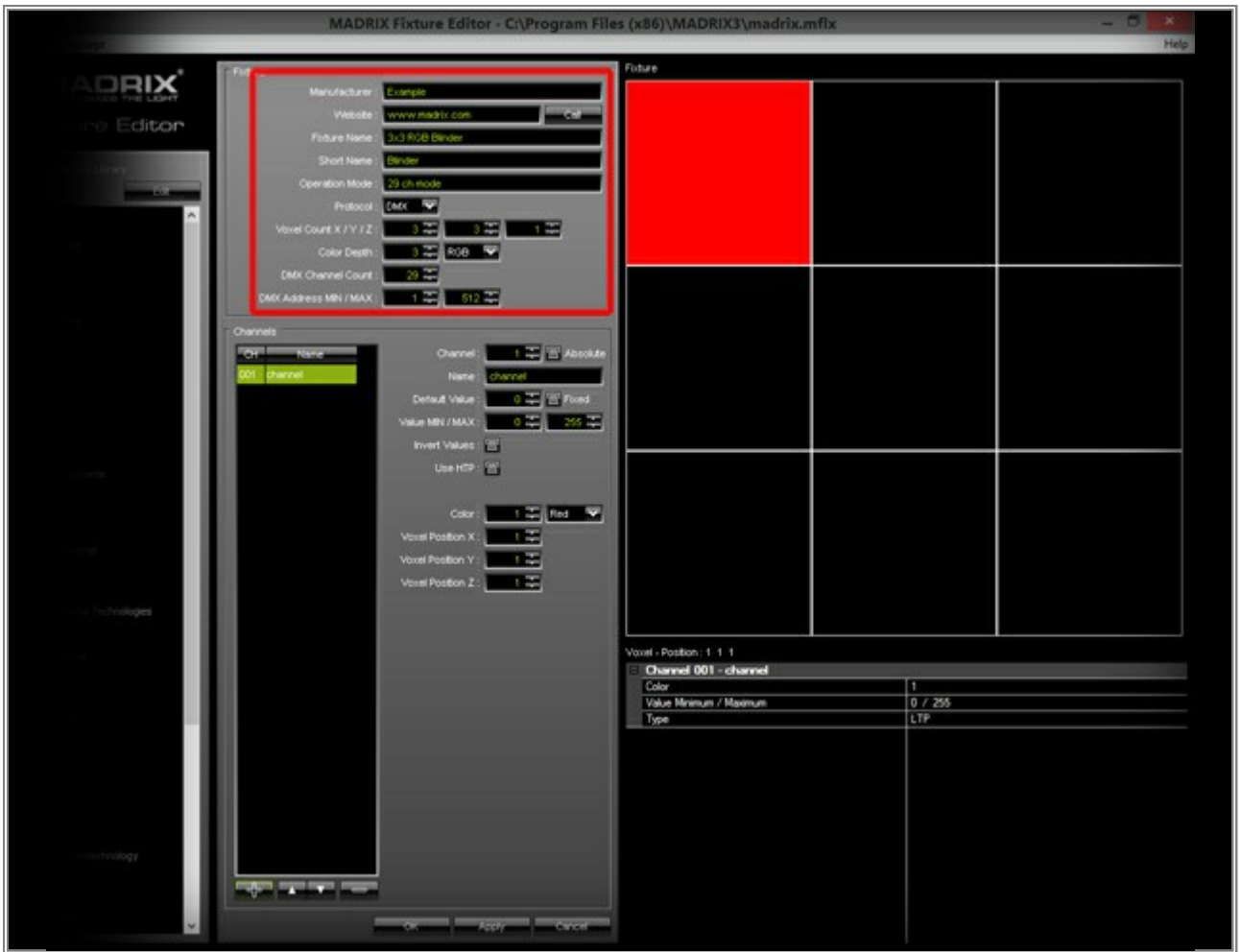
You can see that the settings are turned active and some default entries will be displayed.



3. First, we have to change the fixture settings to the following:

Note: For an explanation of each parameter, see the tutorial »[The MADRIX Fixture Editor](#)

- **Manufacturer: Example**
- **Homepage: www.madrix.com**
- **Fixture Name: 3x3 RGB Blinder**
- **Short Name: Blinder**
- **Protocol Name: 29 ch mode**
- **Type: DMX**
- **Voxel Amount X / Y Z: 3, 3, 1**
- **Color Depth: 3**
- **DMX Channel Amount: 29**
- **DMX Address Min / Max: 1, 512**



4. Second, we will change the settings of the first channel:

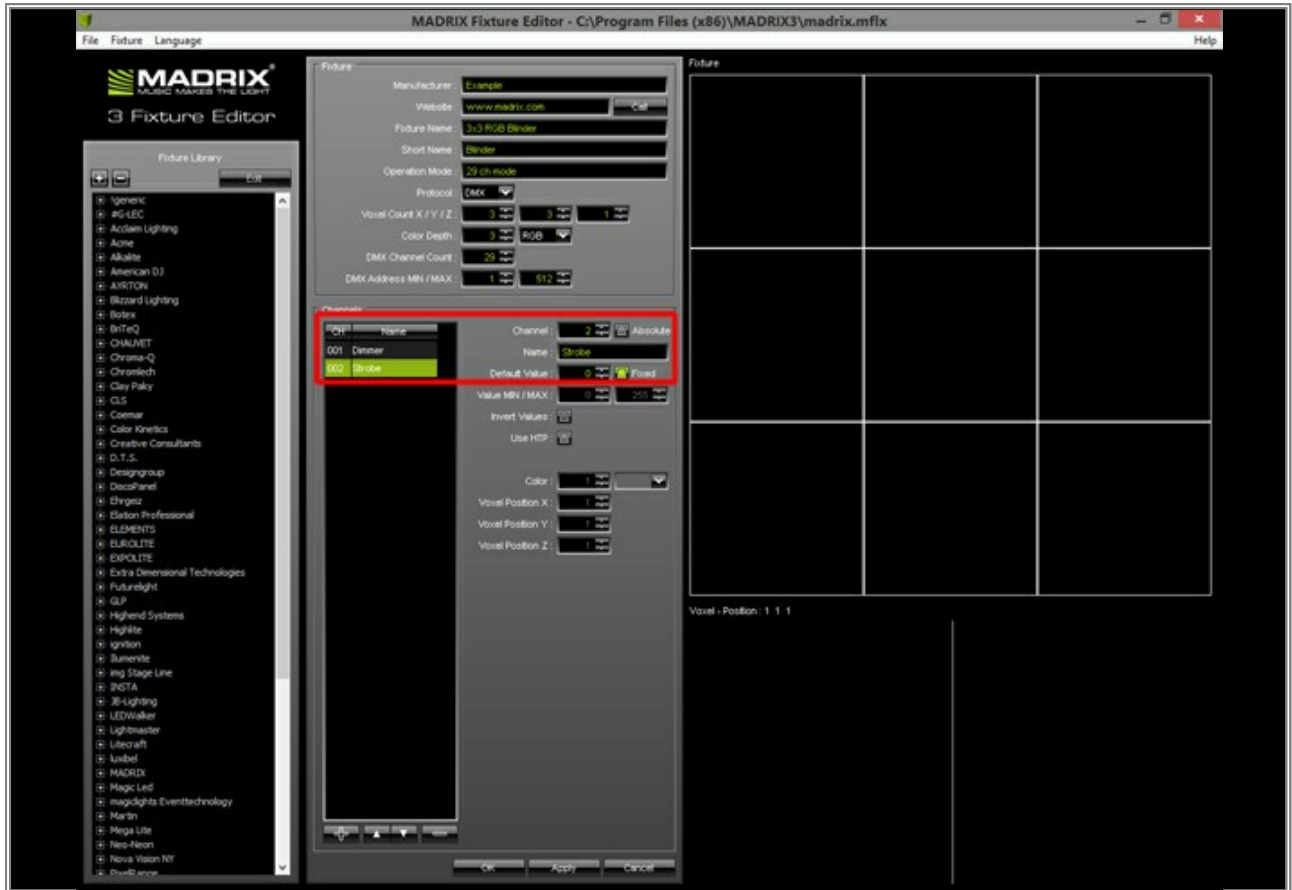
- **Name:** Type in a name as desired. In this example, this is the dimmer channel. That is why we will enter **Dimmer**
- **Default Value: 255**
Note: It is important to set it to 255 because MADRIX will control the intensity, not with the dimmer channel. The intensity will be controlled with the help of the RGB value. If the Dimmer value is set to 0, you would not see any output.
- **Fixed: Enable** the checkbox for the dimmer, because the value should never change.



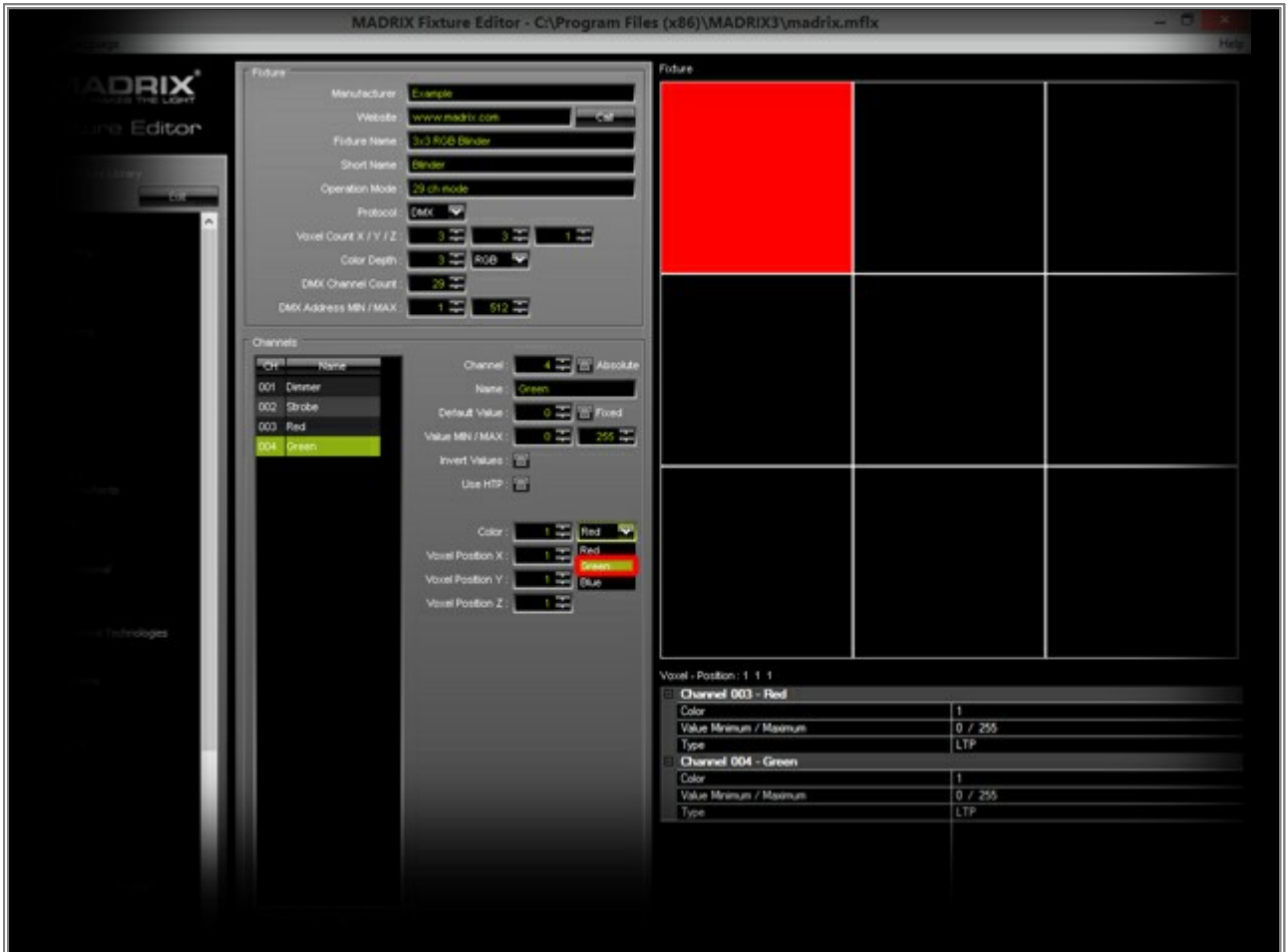
5. Click **Add** in order to add a new channel to the list.



- 6. We are changing the name of the new channel to **Strobe**, setting the default value to **0**, and enabling the option **Fixed** because we are not going to use the internal strobe effect of the fixture.

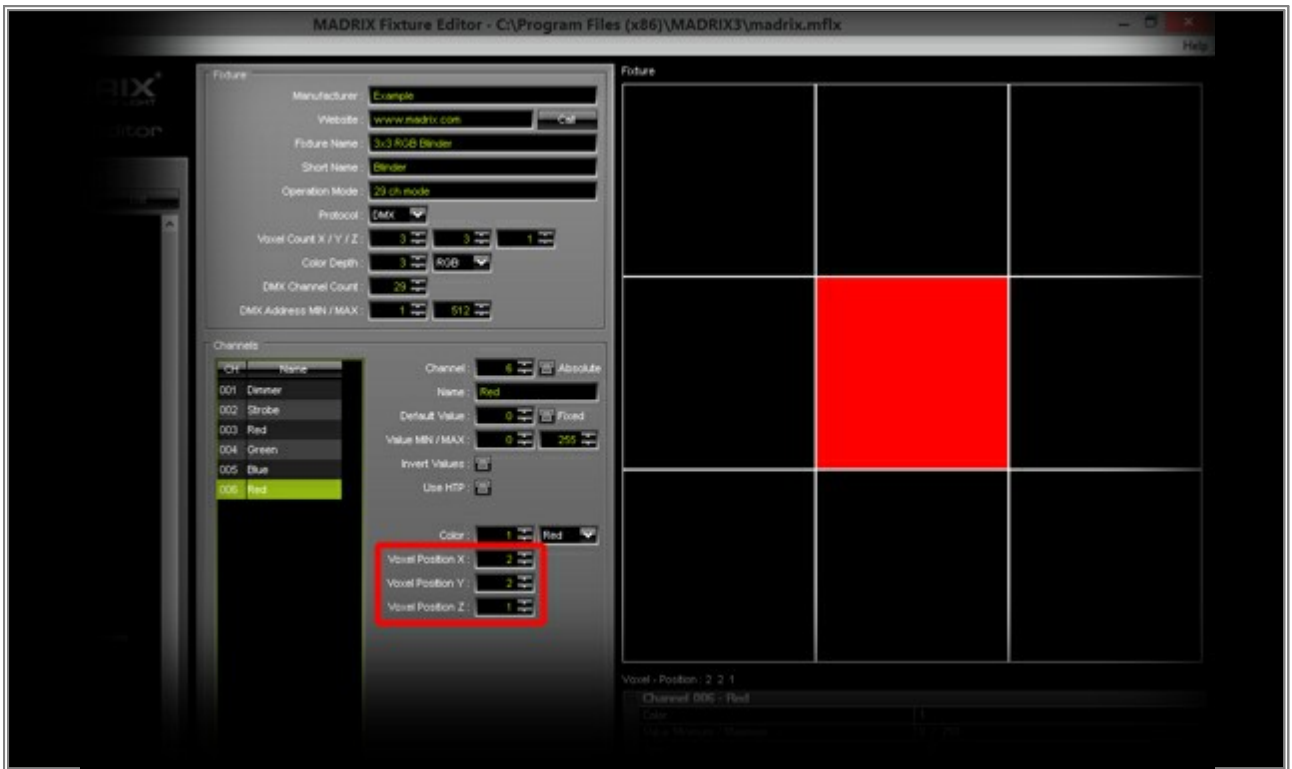


- 7. Now, click the **Add** button again and change the name of the third new channel to **Red**. Leave all other settings to their default values, because we have added the first color channel. Afterwards, click **Add** again and change the color of that channel to green. To do so, change **Color #** to **2** or click the small arrow at the color pop-up menu and change the color to **Green**.



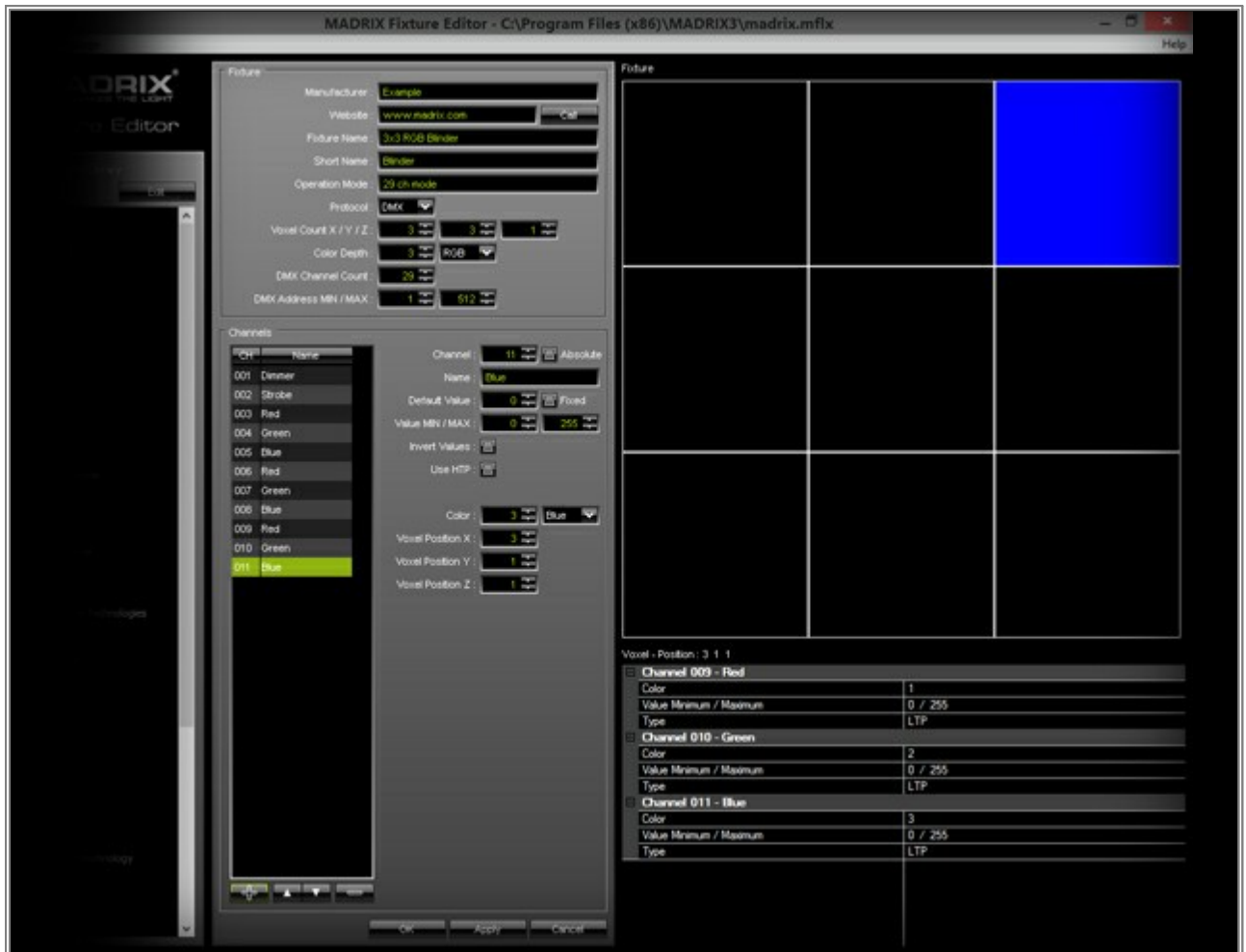
Repeat this step, but change the color to **Blue** this time.

- 8. Click **Add** again to add channel 006. You will see that X and Y position of the voxel is increased automatically.



But in this example, the order of the pixels are positioned in rows from left to right and from up to down. Therefore, we will change **Voxel Pos Y** to **1**. As a result, you can see that the second pixel in the first row will be used instead.

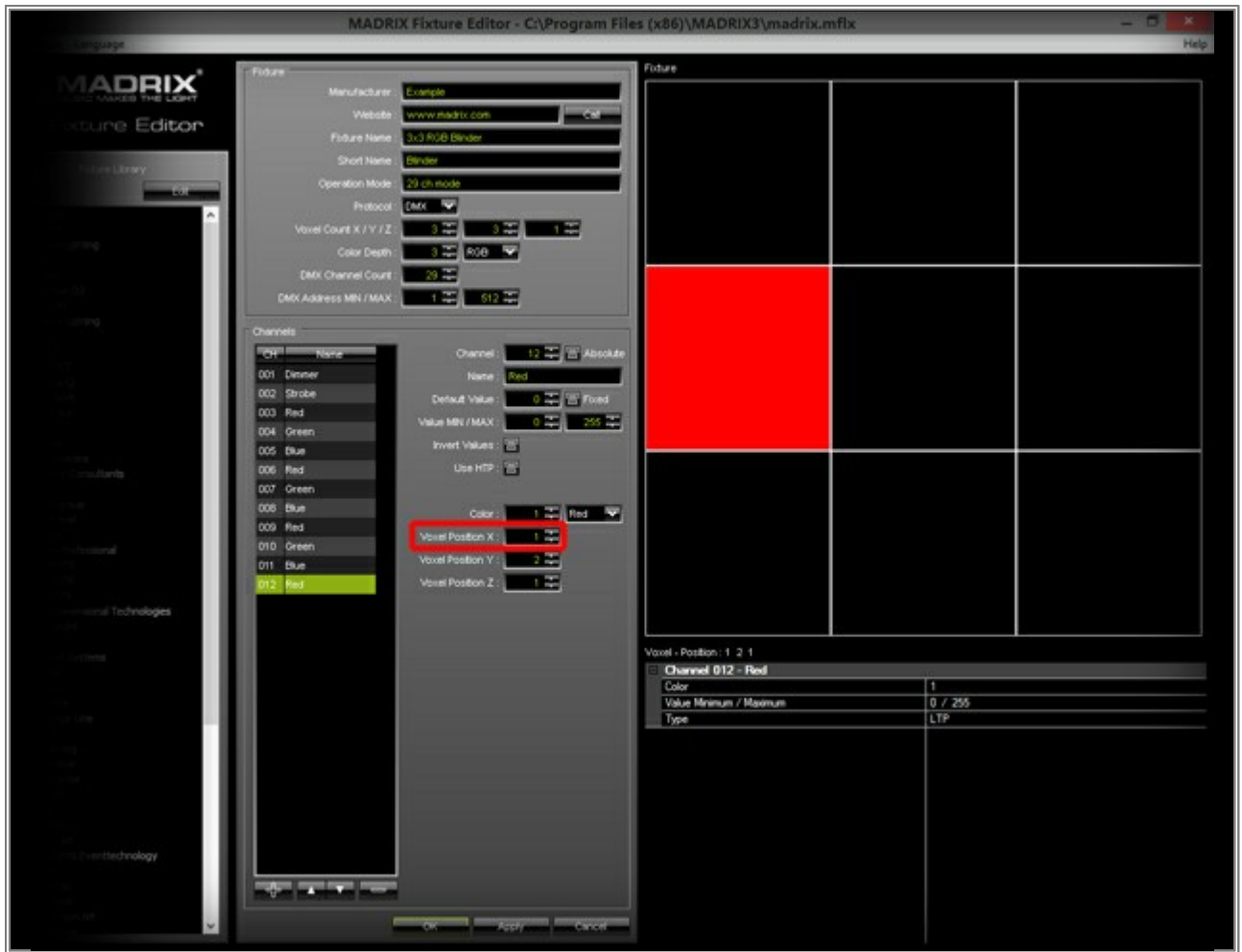
- 9. Click **Add** repeatedly until you have added a total of **11** channels. Now, the first row of voxels is complete.



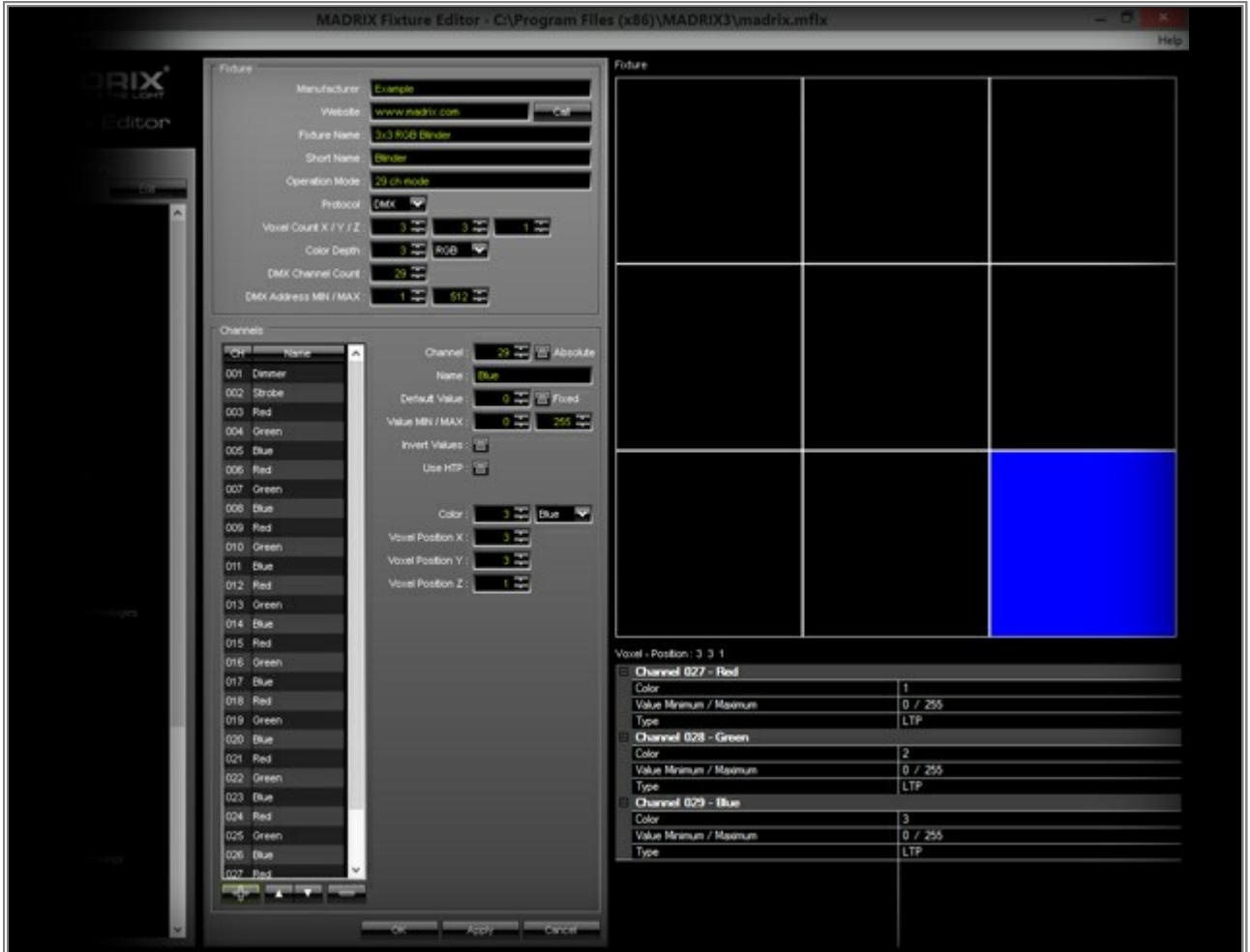
If you click **Add** again, you will see that the third pixel of the second row will be activated.



But in this example, the sequence of pixels starts on the left side of each row. To change the active pixel, change **Voxel Pos X** to **1**.



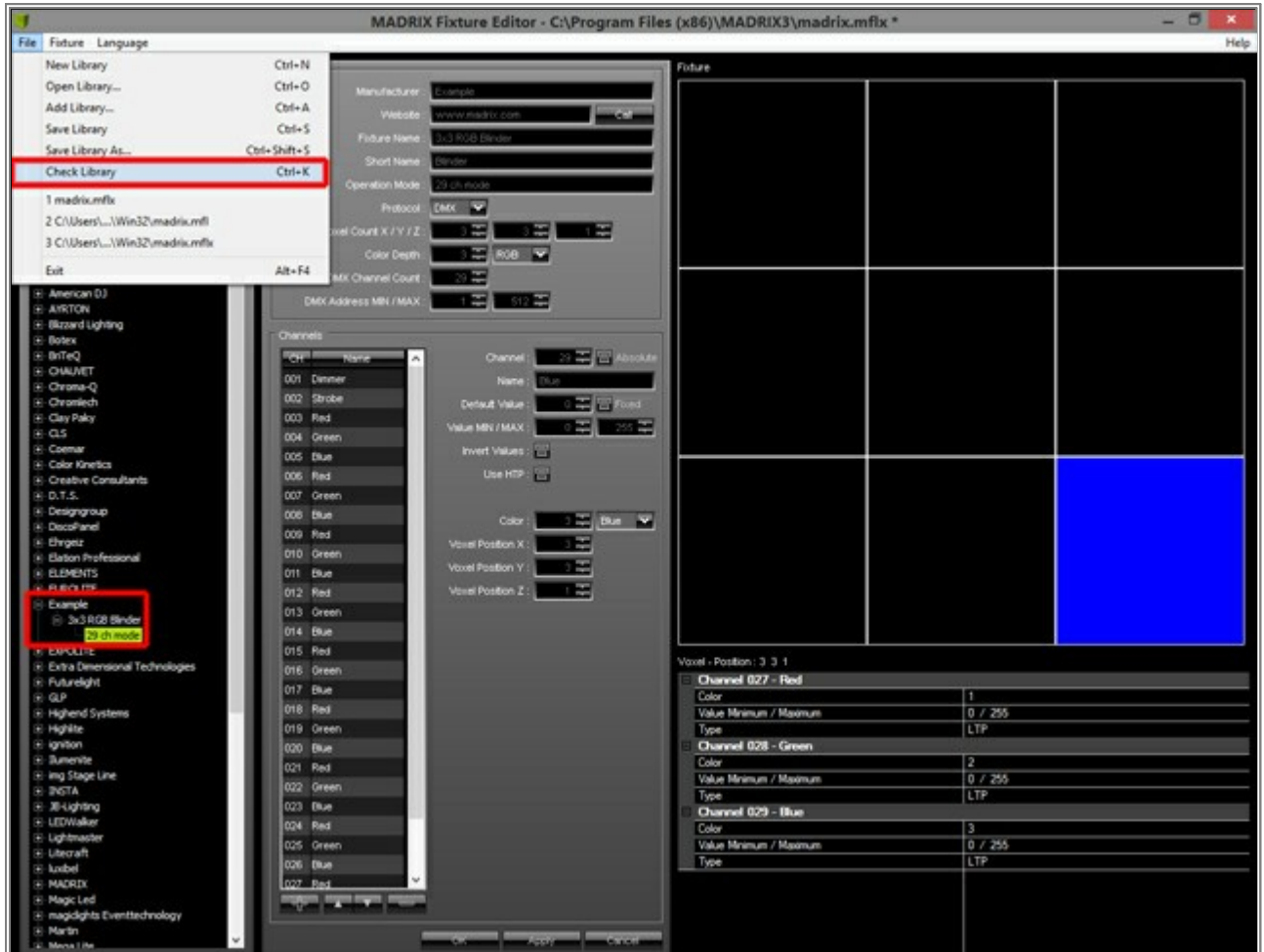
- 10. Now, you can add all the other RGB channel settings by yourself. Simply, click **Add** repeatedly until you have create a total of 29 channels.



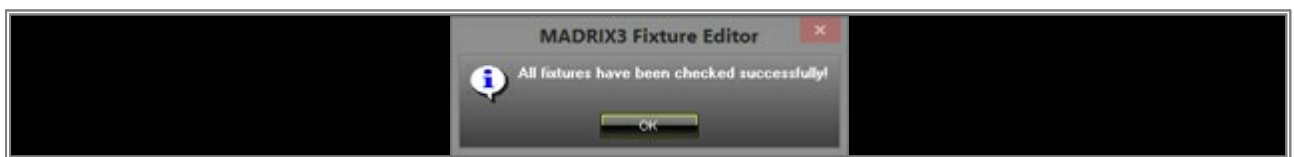
- 11. To complete the fixture creation process, click **OK**



- 12. Now, you will see a new fixture branch with a new fixture in the **Fixture Library** section. To check if everything is correct, go to **File > Check Library...**



A new window will be opened. If all fixtures are created correctly, the following message appears:



Congratulations! You have created a more complex fixture using the MADRIX Fixture Editor.

1.10 Importing A Patch Into MADRIX

In this tutorial, you will learn how you can import a prepared patch. That is useful if you create a patch on one PC and you want to open the patch on another PC or if you want to use the patch for several setups.

Date: 09/2014

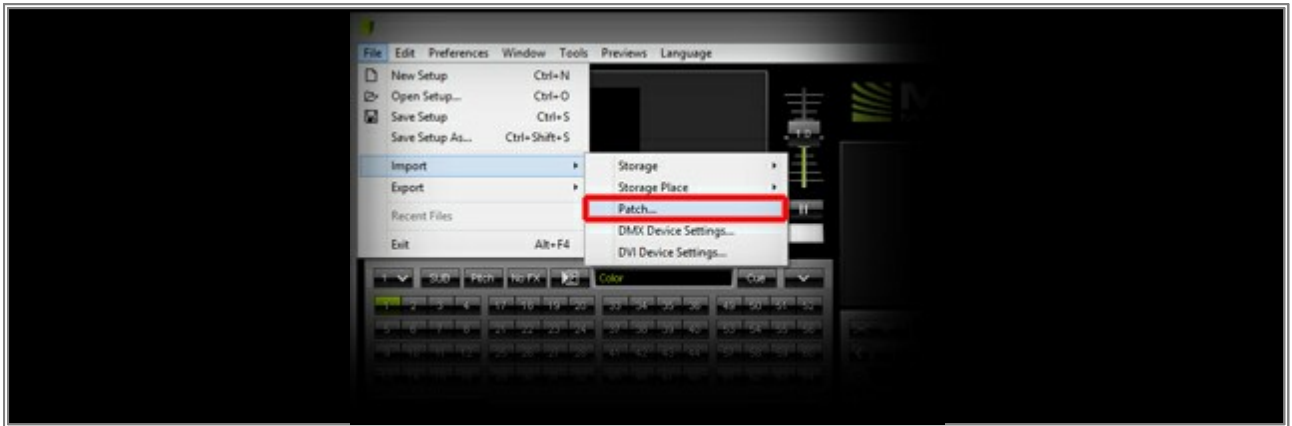
MADRIX Version: 3.3 (Created with)

Requirements: For this tutorial it is important to save a patch file first. A previous tutorial explains how to create a patch file »[Creating A Patch With Space Between Fixtures](#)

1. Start MADRIX. You can see the graphical user interface of MADRIX with the default matrix size of 50 x 50 x 1 voxels.



2. Go to **File > Import > Patch...**



Choose the directory on your harddisk where your patch file is located, select the patch file, and click **Open**. MADRIX automatically updates the sizes of the output windows and the Previews according to your patch.



Congratulations! You have imported a patch file into MADRIX.

1.11 Connecting MADRIX With An Art-Net Node

In this tutorial, you will learn how you can connect Art-Net nodes with Find Auto Mode in MADRIX.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Note: Please make sure that all connected hardware nodes and the PC are in the same network.

1. Start MADRIX, go to **Preferences > Device Manager** (or press **F4**), and select the tab **Art-Net**



2. Enable the **Art-Net** checkbox.



After a few seconds, you can see the **Art-Net Remote** device in the list. That is your own PC.

- 3. Now, click **Search** button on the bottom of the Device Manager.



After a few seconds, you can see the all Art-Net nodes that were found in the network. In this example, it is a MADRIX PLEXUS with 2 universes. The device is displayed with its Art-Net IP address.

If your PC, cannot find the connected Art-Net nodes, please make sure that the nodes and your PC are in the same network. Another reason could be that your Art-Net node does not support the ArtPoll/ArtPollReply feature for automatic finding. You have to add the node manually »[Manually Connecting An Art-Net Node In MADRIX](#)

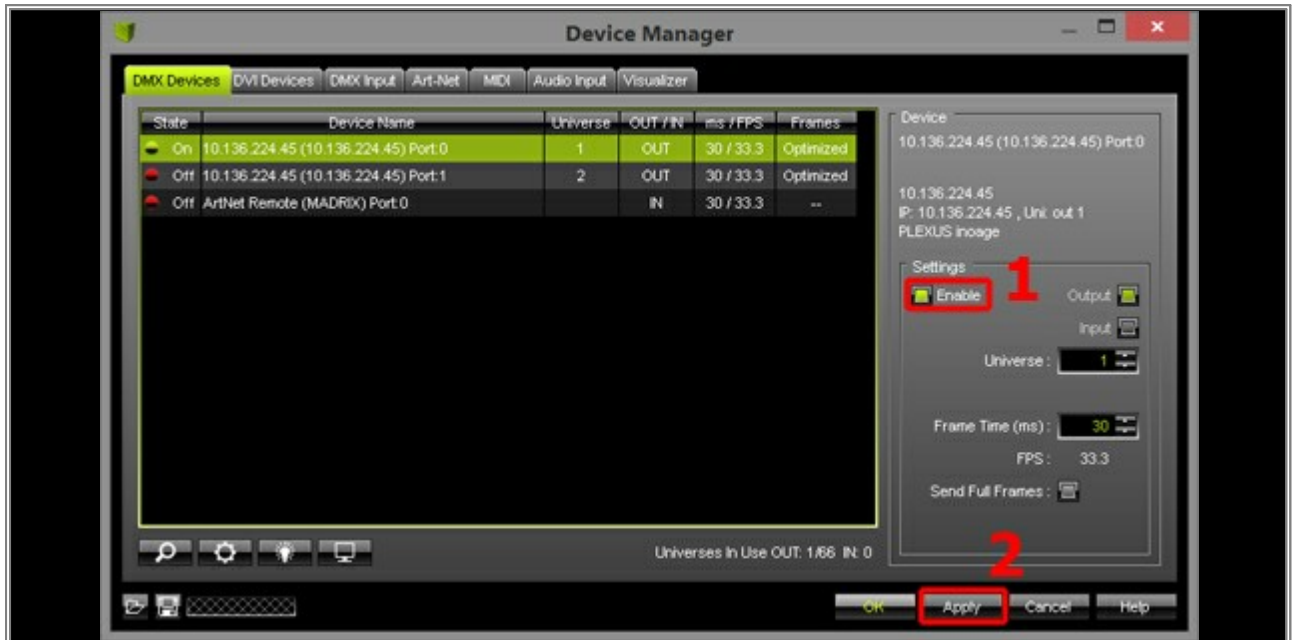


4. Change the Device Manager tab to **DMX Devices**. Now, you can see the connected Art-Net nodes as DMX Devices. But DMX output is currently disabled (State is Off).



- 5. We will have to enable all Art-Net nodes for DMX output. Please select a DMX device, click **Enable** in the **Settings** section and then **Apply**.

Repeat this step for all your DMX devices that are connected via Art-Net. ArtNet Remote should be Off.



Now you can control your Art-Net nodes just like DMX interfaces that are plugged into your PC via USB.

Congratulations! You have successfully connected the Art-Net node with MADRIX.

1.12 DMX Universe Settings For Several Art-Net Nodes

This tutorial shows you how you can set the DMX universe assignment when using more than one Art-Net node together with MADRIX.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Note: Before you start to read this tutorial, it is recommended to work through the tutorial »[Connecting MADRIX With An Art-Net Node](#)

1. Start MADRIX.

Go to **Preferences > Device Manager** (or press **F4**) and select the tab **Art-Net**. Activate **Enable** in order to activate Art-Net. Then, click the **Search** button (Loupe icon).

Now, MADRIX will automatically search and find all connected Art-Net nodes, which are physically connected to the network, set to work in the same network range, and support the ArtPollReply mechanism.

In this example, we have connected 9 MADRIX LUNA 8.

Please note that you will always find nodes with a maximum of 4 ports per device in the **Art-Net** tab of the **Device Manager**. That is based on the Art-Net specifications where every Art-Net node can hold 4 ports (universes). If the node has more than 4 ports, the node must be split into more nodes using the same IP address but a different bind index. For an 8-port Art-Net node, such as the MADRIX LUNA 8, you will therefore find 2 entries per device using the same IP address. The DMX universe assignment however is set to **1, 2, 3, 4** for the first device entry and **5, 6, 7, 8** for the second device entry.



- 2. Please switch to the **DMX Devices** tab of the **Device Manager** and have a look at the column **Universe**. You will see that all connected 8-port MADRIX LUNA nodes are listed with their individual ports. They were automatically set to DMX universe **1** to **8**.



- 3. In our case, we want to set every port to a unique universe number. To do so, select the desired **Port**, change the **Universe**, and click **Apply**.

In this example, we are leaving the first device assigned to universes 1 to 8 as is and start changing the first duplicative entry from universe 1 to universe **9**.



Note that the virtual DMX universe has been changed to 9.



- Repeat Step 3. for all devices and ports.

We will give every port a unique virtual universe number and increment the universes.



- 5. All ports are still set to **Off**. That means that no DMX data is being sent to this port right now.

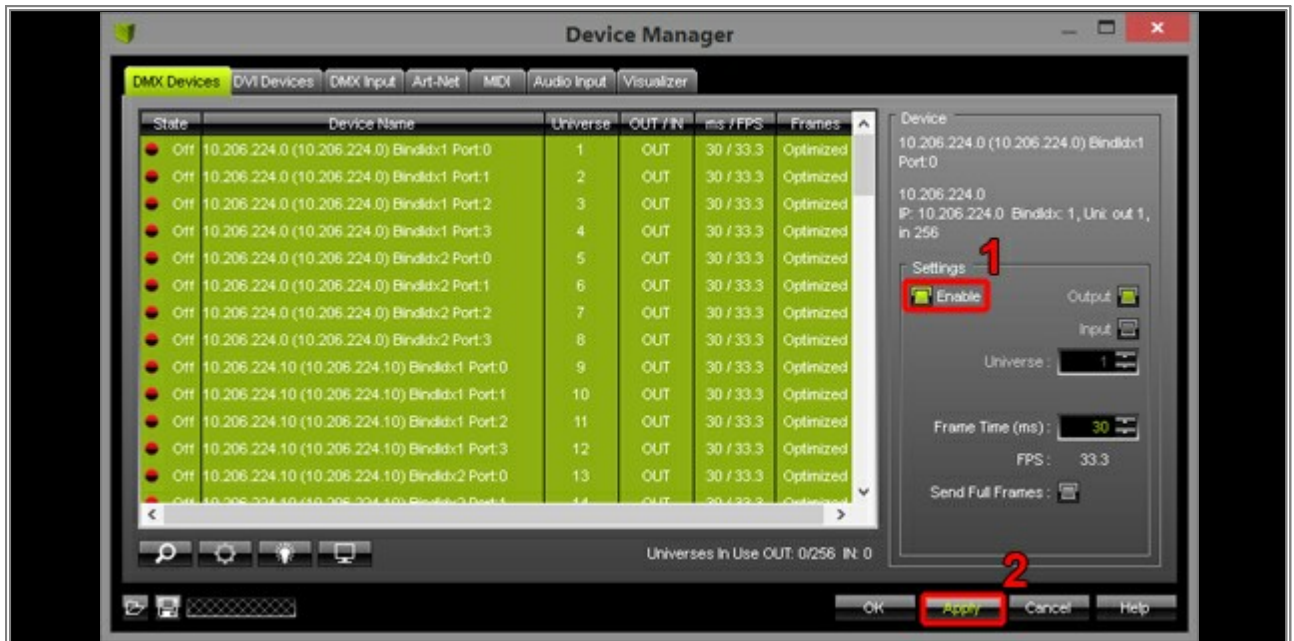


To switch all ports to **On**, we will be selecting all ports first.

Select the first port in the list and scroll down to the last port. Then, press and hold the **Shift** key, and select the last port in the list. Or press **Ctrl+A**. All ports will be selected now.



- 6. Activate all selected ports by clicking the **Enable** checkbox. Confirm with **Apply**



Now, all selected ports are switched to **On**.



Note: The fixture assignment of the Patch Editor needs to align with the DMX universe assignment in the Device Manager. Set up MADRIX according to your requirements. In this example, data for DMX universe 9 will be sent to the node with the IP address 10.206.224.10, Port 0.

Congratulations! You have successfully changed the virtual DMX universes assignment in MADRIX.

1.13 Manually Connecting An Art-Net Node In MADRIX

This tutorial shows you how you can connect Art-Net nodes manually.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

For this tutorial we want to add an 8 port Sample Node.

Note: An Art-Net node can have up to 4 DMX ports as per official specifications. If your Art-Net device has more than 4 ports, you have to add the node several times with the same IP address. For example, the "Sample Node" has 8 DMX ports, so we have to add 2 Art-Net nodes. The first node will be used for ports 1-4 and the second node is used for the ports 5-8.

1. Start MADRIX, go to **Preferences > Device Manager** or press the **F4** key, and then select the **Art-Net** tab.



2. Enable the **Art-Net** checkbox.



After a few seconds, you can see the device **ArtNet Remote**. That is your own PC.

3. Now, click **Add** button on the bottom of the Device Manager.



The **Create New Device** window will be opened. In this example we want to add **1** Device with **4** ports.

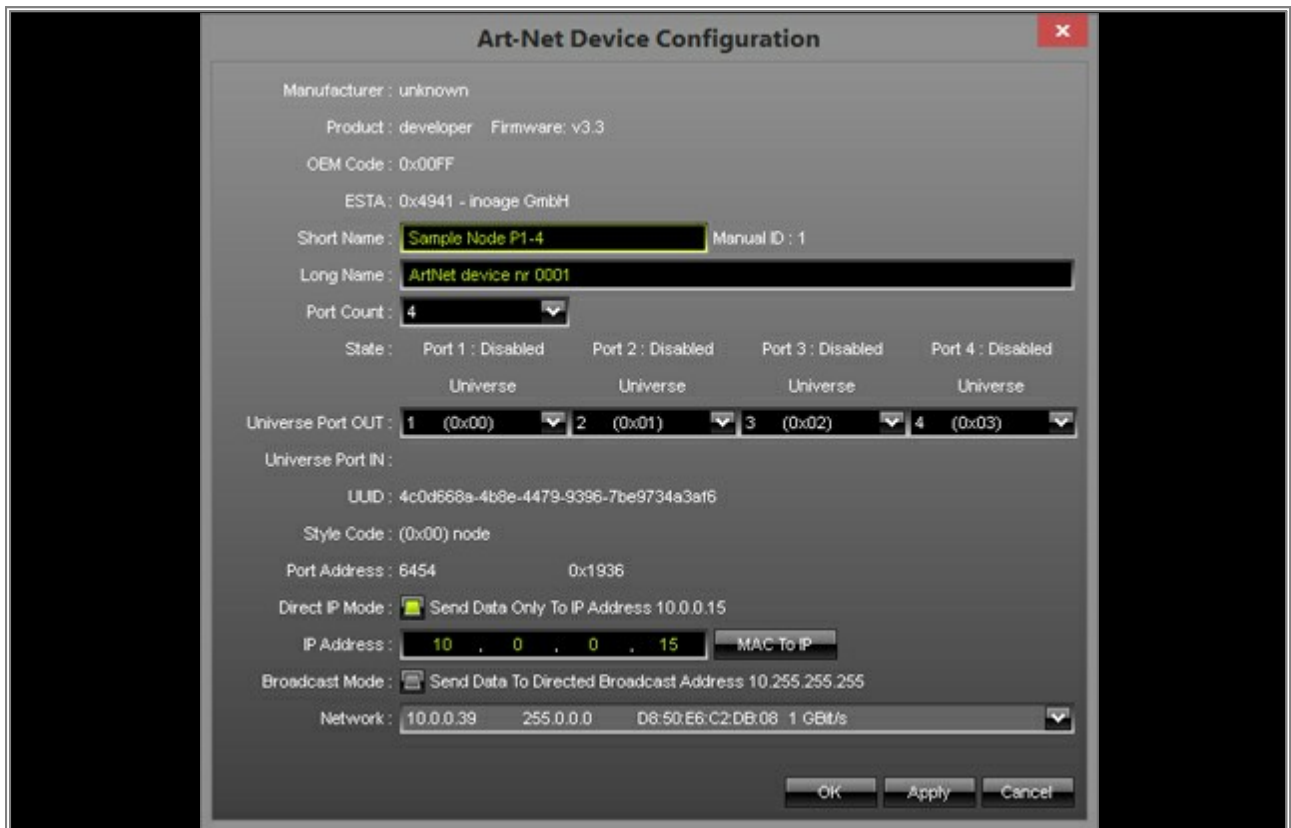


Click **OK**

Select the newly added Art-Net node and perform a **double-click** on it with the **left mouse button**. A new window will be opened and we have to configure the new Art-Net Node.

- **Short Name:** Define a name for your node. In this example, we will use **Sample Node P1-4**
- **Long Name:** You can enter a longer description name. In this example, we leave the **default settings**.
- **Port Count:** Here you can change the number of ports if your device has less than 4 ports. In this example, we are setting it to **4**
- **Universe Port OUT:** You can set the DMX output ports of the Art-Net node. We will use the **default settings**

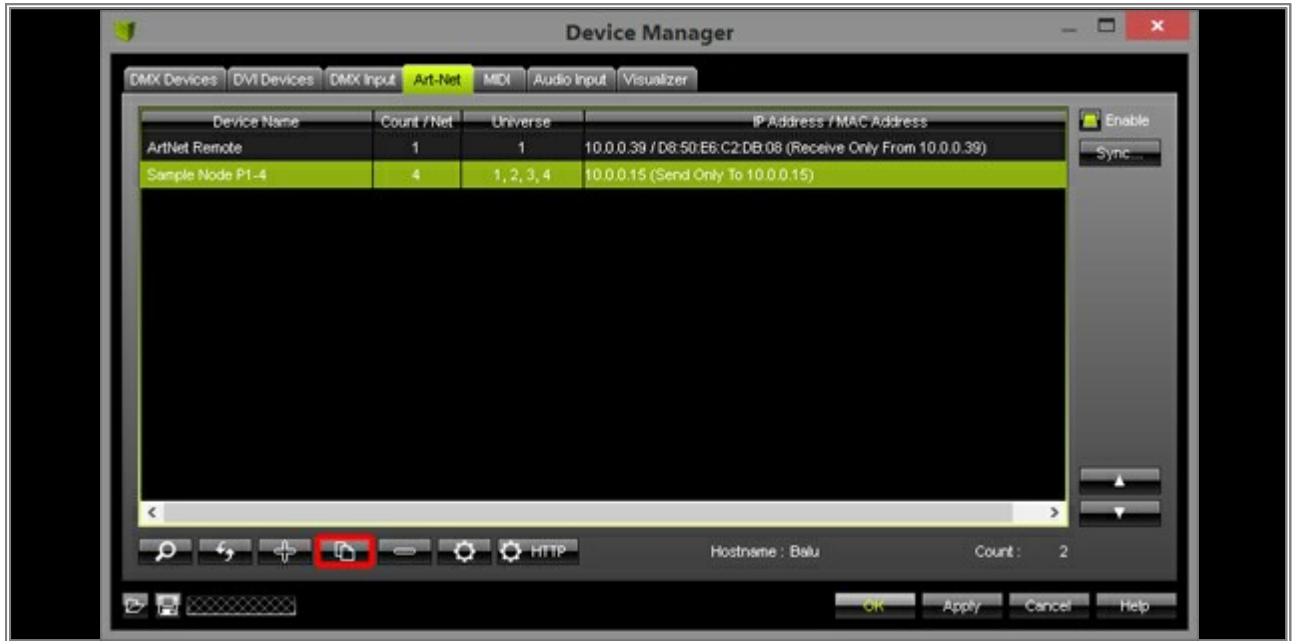
- **Direct IP Mode:** Should be **enabled** if you want to send only to the IP address of this device.
You can also send to all Art-Net nodes in the network if you enable Broadcast Mode. But you should know that the data traffic will be much more and every node with port 1-4 will receive the data.
- **IP Address:** Set the IP address of your Art-Net node. In this example, the IP address of the Sample Node is 10.0.0.15



Click **OK**

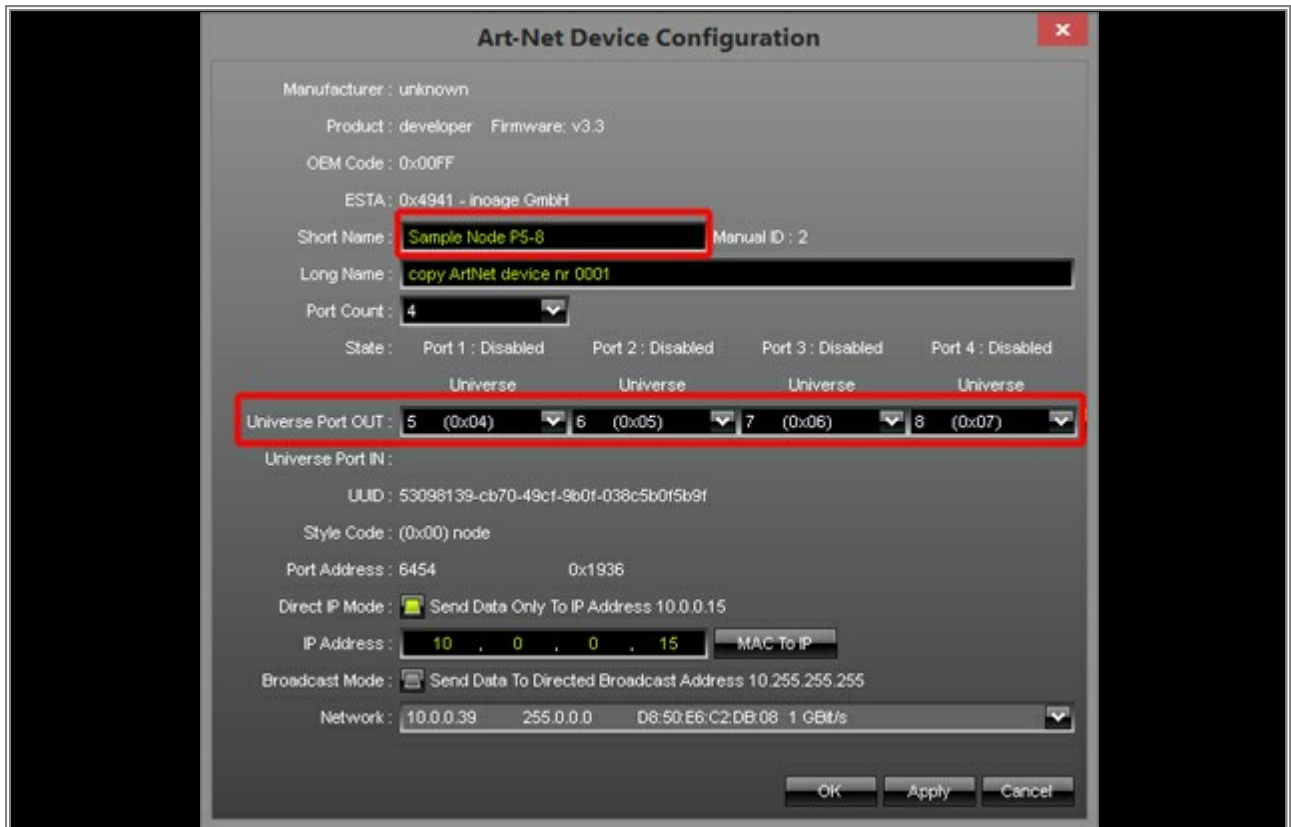
4. So far, we have added one Art-Net node with 4 ports. But the Sample Node has 8 ports. That means we have to add another Art-Net node in MADRIX with the same IP address, but using port 5-8.

In the Device Manager of MADRIX, tab Art-Net, select the **Sample Node P1-4** list entry and click **Duplicate** button on the bottom of the window.



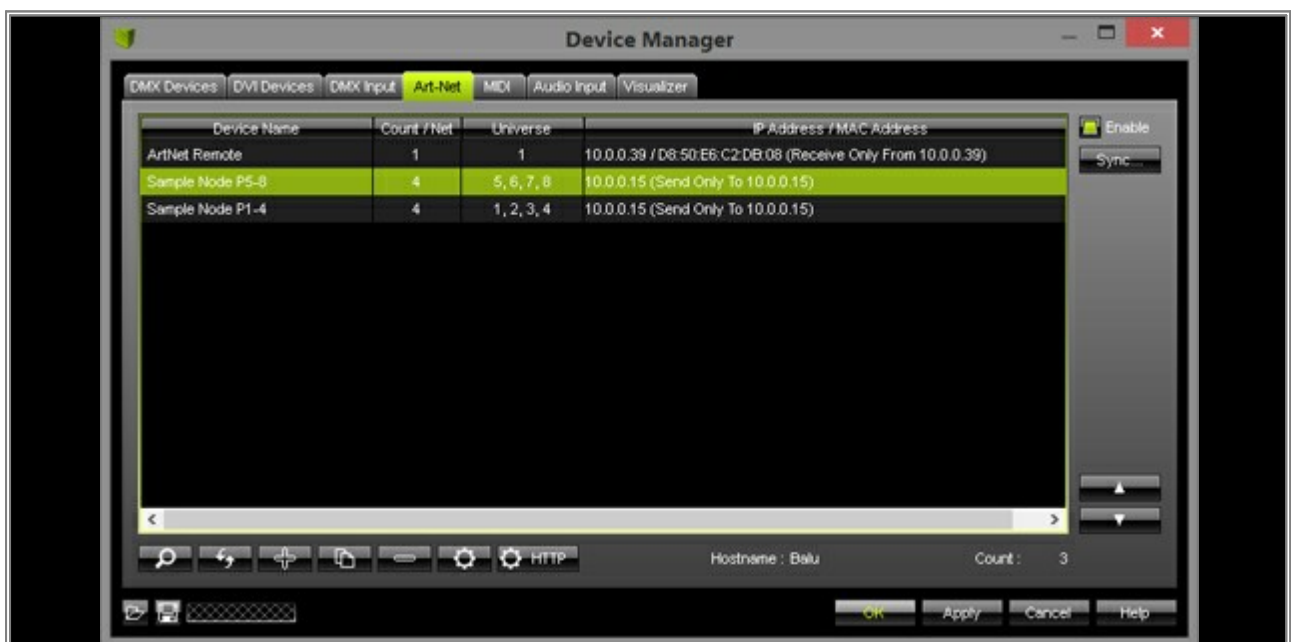
A new Art-Net node will be created. Please select the copied entry (it is the entry with the name **copy Sample Node**). Perform a **double-click with the left mouse button** to open the **Art-Net Device Configuration** window.

- **Short Name: X-Net8 Port 5-8**
- **Long Name:** Leave the **default settings**.
- **Port Count: 4**
- **Universe Port OUT:** Change the **first Universe** to **5 (0x04)**, the **second Universe** to **6 (0x05)**, the **third Universe** to **7 (0x06)** and the **fourth Universe** to **8 (0x07)**.
- **Direct IP Mode:** Should be **enabled**.
- **IP Address:** Should be the same IP address as the IP of Port 1-4.



Click **OK**

- 5. The Sample Node with 8 ports has now been added.



6. Change to the **DMX Devices** tab in the **Device Manager**.



You can see one DMX universe for every port of the Art-Net nodes. All universes are **Off**

- 7. Now, we have to enable the DMX universes and to set the desired virtual Universe. Select one universe and go to the **Settings** section of the Device Manager. Please click **Enable**, set up a desired **Universe** and click **Apply**. Repeat this for all DMX universes.

Note: The ArtNet Remote device should be **Off**



You can use the Art-Net nodes and DMX universes just like they were connected to your PC via USB.

Congratulations! You have manually created new Art-Net nodes in MADRIX.

1.14 Remote Control Via DMX-IN

This tutorial shows you how you can control MADRIX remotely via DMX-IN. For this tutorial you need an interface for DMX input that is supported by MADRIX and an additional DMX controller to control MADRIX. If you want to use DMX output, another MADRIX-supported interface is required.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Note: There are several DMX-IN protocols implemented in MADRIX. An overview of all protocols is provided [»here](#)

1. Start MADRIX and go to **Preferences > Device Manager** or press the **F4** key.



You can see all connected and found interfaces. In this example, it is one MADRIX NEO interface and one MADRIX PLEXUS (with two DMX universes). If you do not see all interfaces you plugged into your computer, click **Search** button. If MADRIX still does not find the interfaces, have a look at this tutorial [»Where You Can Find Connected Hardware](#)

- 2. We want to use the MADRIX NEO as DMX input interface. Therefore, select the MADRIX NEO in the list and **enable** the Input checkbox on the right-hand side in the **Settings** section.



- 3. Click **Apply** on the bottom, right-hand side of the window.



- 4. Now, go to the **DMX Input** tab of the **Device Manager**. Select the **Universe 1** and click on the arrow next to **DMX-IN Device** in the **Device** section. Select your desired DMX input interface. In this example, it is the MADRIX NEO.



- 5. Enable the **Remote** checkbox on the right-hand side.



- 6. Select the smallest DMX-In protocol in the **Remote Control** section. Use the arrow button and choose **Simple**.



Click **OK**

- 7. Connect your DMX controller with the MADRIX NEO interface.
You can now control MADRIX remotely.
- 8. For example, you can change the value of the first channel of your DMX controller to value 33 and MADRIX should change Storage Left to Storage Place 34.
An other example is: change the value of fourth channel to 128 and MADRIX changes the position of the Master Fader to value 128.

Congratulations! You have configured DMX remote control.

1.15 Remote Control Via Art-Net And CITP

In this tutorial, you will learn how you can control MADRIX remotely via Art-Net as well as receiving thumbnails of Storage Places via CITP.

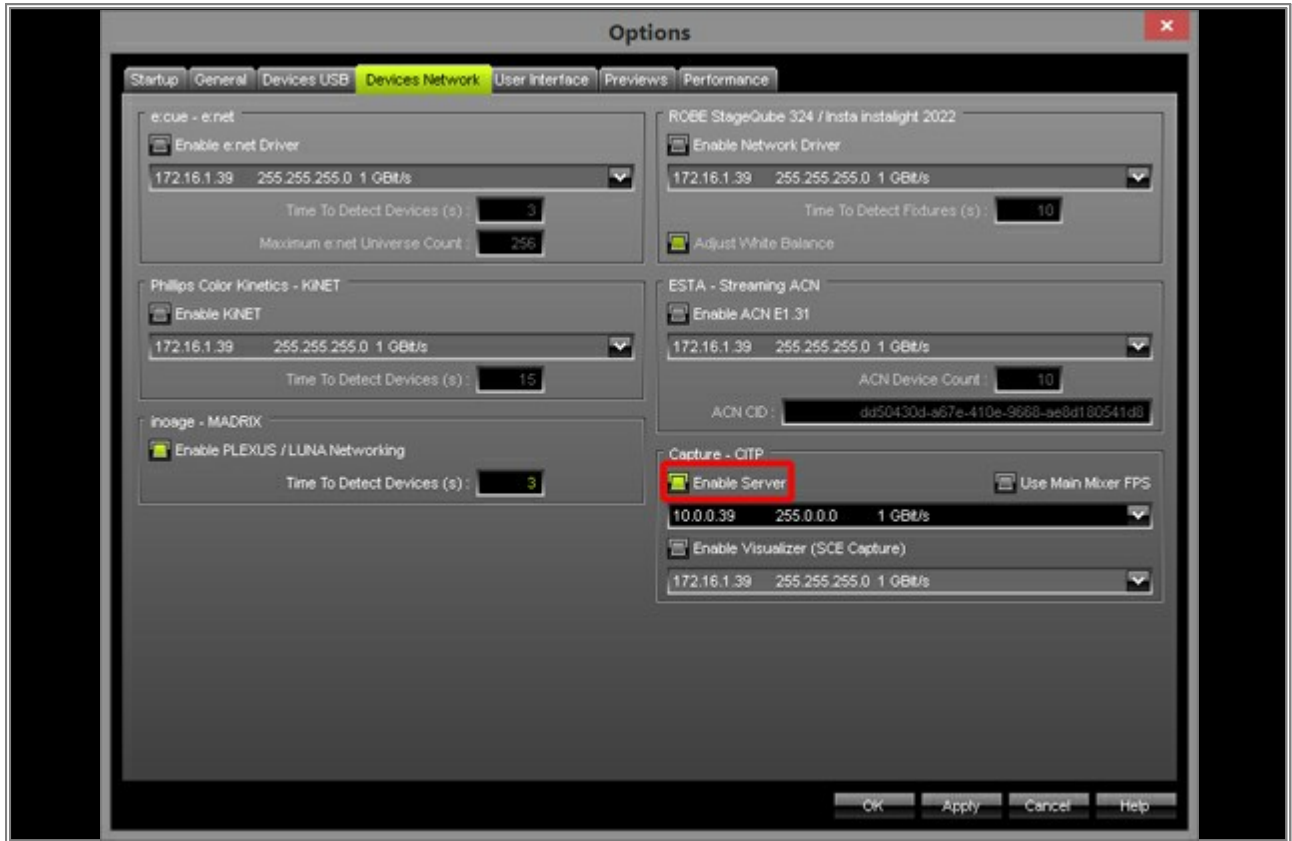
Date: 09/2014

MADRIX Version: 3.3 (Created with)

Requirements: Make sure that only one network card is enabled in Windows.

1. Set up an Art-Net compatible IP address/subnet mask in Windows for your network card. In this example, we are using the network address **10.0.0.39** for the PC on which MADRIX will run (being controlled remotely) and the network address **10.0.0.23** for the console which should send the data to MADRIX. The subnet mask is **255.0.0.0** on both devices.

2. Start MADRIX and go to **Preferences > Options...**, select the **Devices Network** tab, go to the section **Capture - CITP** and activate **Enable Server**



Click **OK**

MADRIX now runs as CITP server.

Note: If you have more than one active network card, you need to choose the right network interface. Below the **Enable Server** checkbox, click on the arrow on the right-hand side of the drop-down menu and select the correct network interface card.

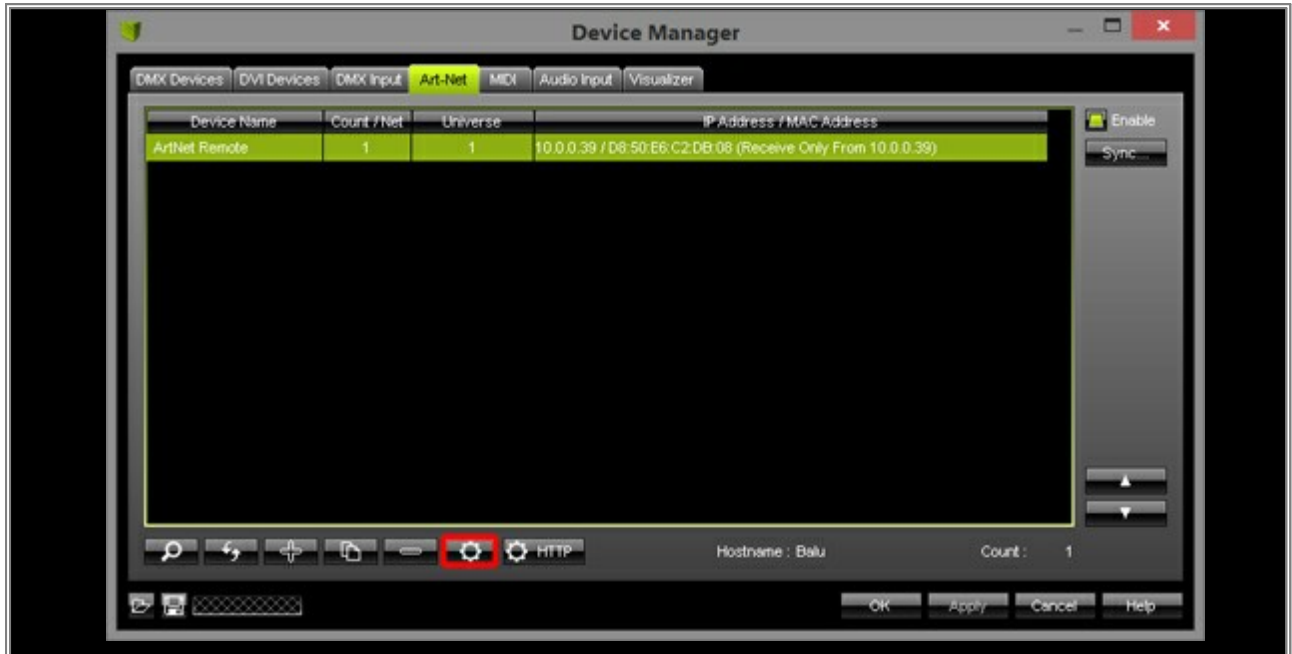
- Now, go to **Preferences > Device Manager** or press the **F4** key and select the **Art-Net** tab.



- Click on the checkbox **Enable** in the upper right corner to enable Art-Net.



5. Select the automatically created **ArtNet Remote** entry in the list (the list entry will be highlighted in green then) and click the **Configuration** button on the right side.



- 6.
 - 6.1 Enable **Direct IP Mode** and enter the specific IP address of your console. In this example, it is **10.0.0.23**



or

6.2 Enable **Broadcast Mode** to listen to all IP addresses in the Art-Net network.

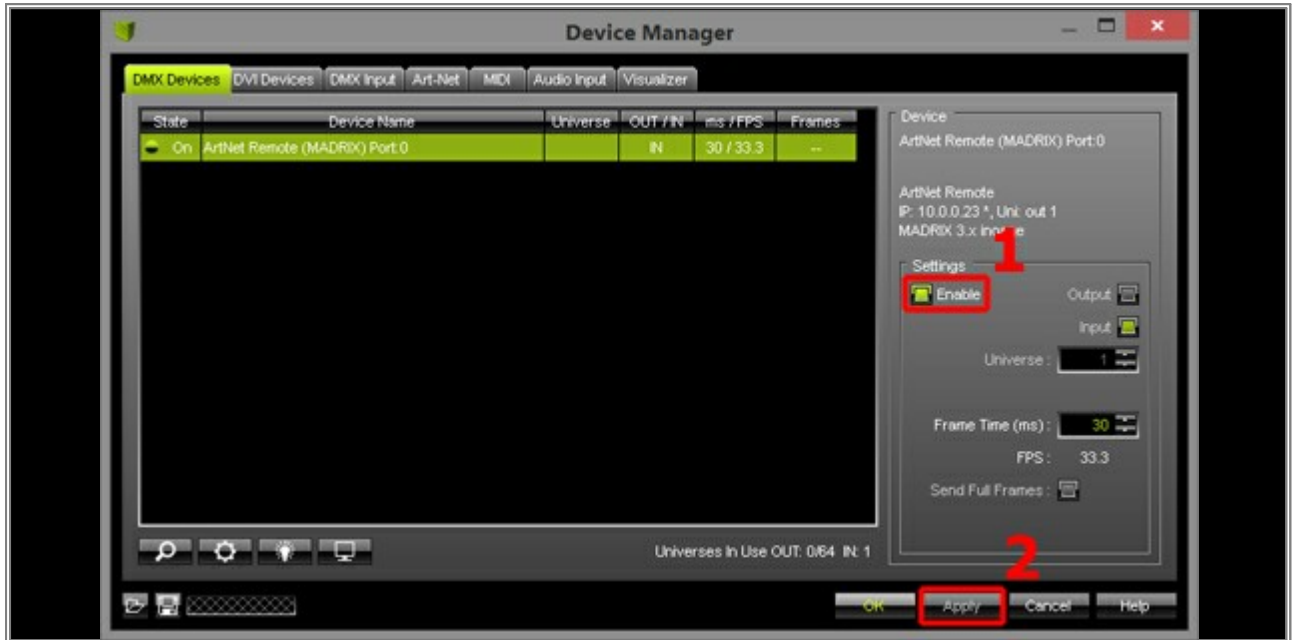


Click **OK**

7. In the **Device Manager**, switch to the tab **DMX Devices**



- 8. Select the automatically created **ArtNet Remote** entry in the list (the list entry will be highlighted in green then), activate **Enable** to the right, and press **Apply**



- 9. Now, switch to the **DMX Input** tab.



- 10. Select the first entry of the list (**Universe 1**), which is still empty (the list entry will be highlighted in green then), and select **ArtNet Remote** at **DMX-IN Device** in the **Device** section.

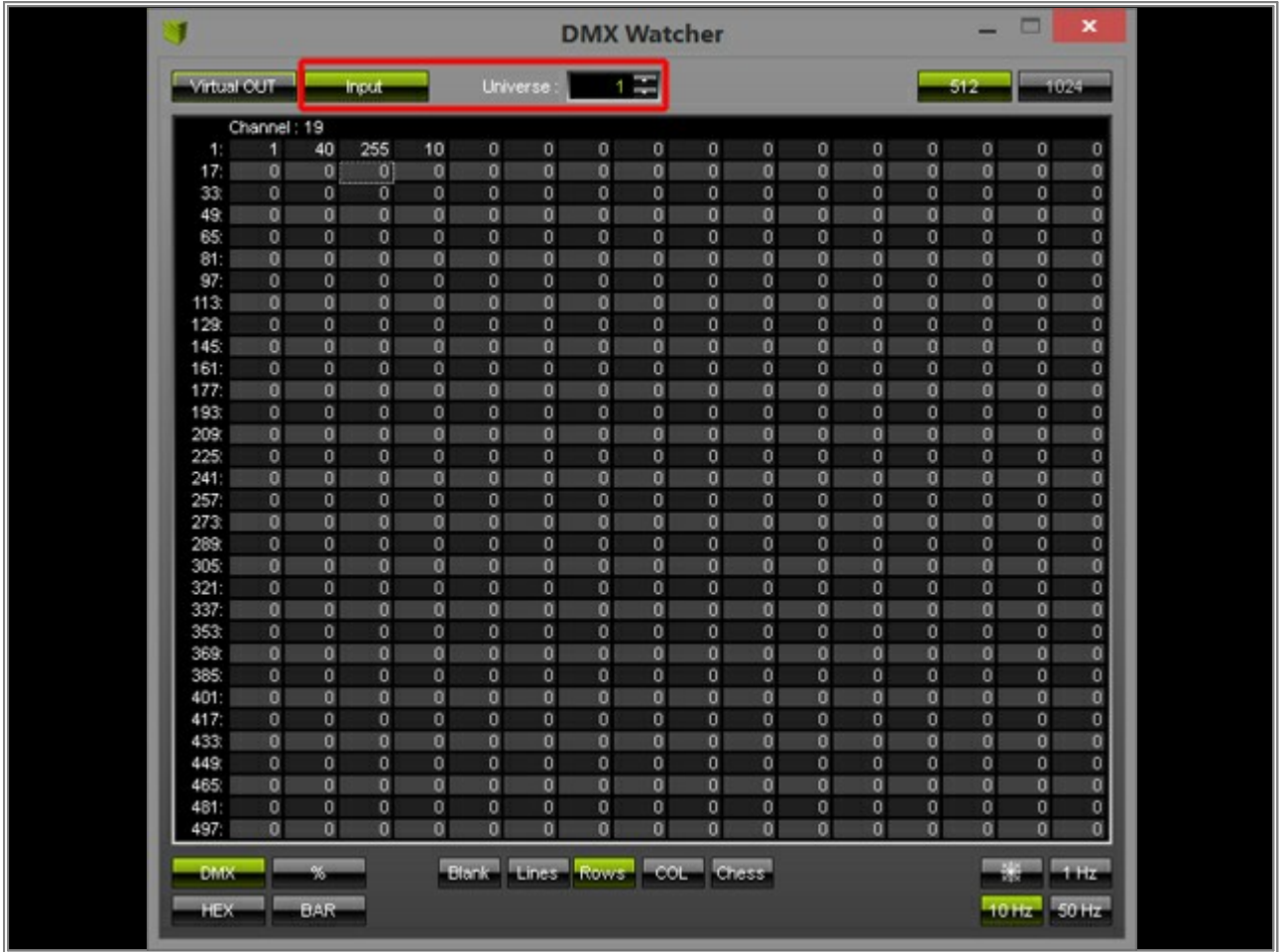


You can check now if you are receiving DMX-IN data via Art-Net. To do so, click **Watch Universe...** and the **DMX Watcher** will be opened.



Please make sure that the DMX Watcher is set to **Input** and **DMX Universe 1**.

If the console is configured correctly and if it sends DMX data, you should see it in the **DMX Watcher**



- 11. While still **having selected the first list entry** in the Device Manager, tab DMX Input, enable **Remote** in the upper right corner.



- 12. Now, click on the little arrow in the **Remote Control** section and choose the **Simple** protocol.

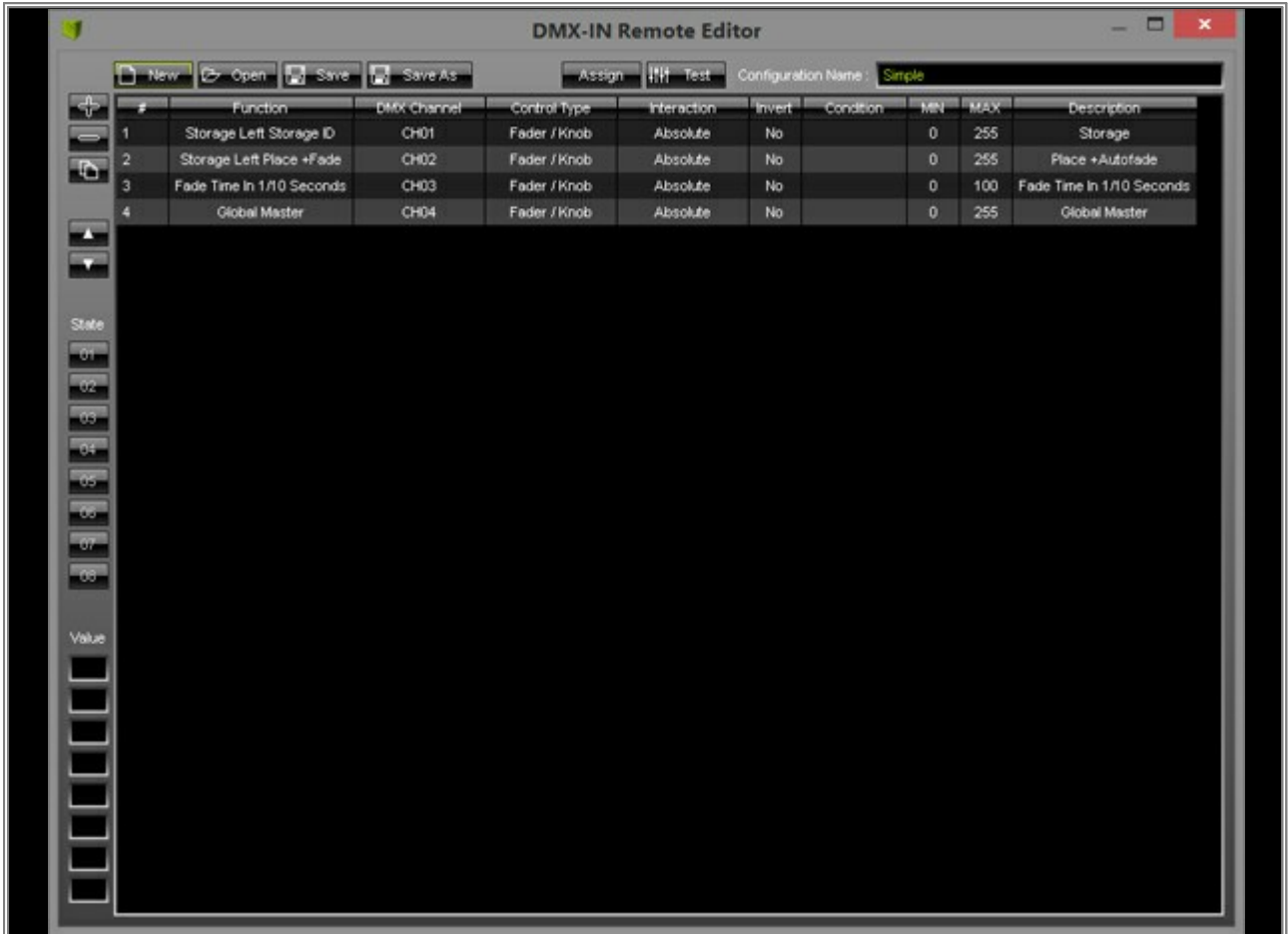
Note: The first list entry must still be selected.



- Click **Edit...** and you can see the preconfigured DMX protocol.



- 14. The **Simple** DMX protocol is configured as follows: CH01 chooses the Storage, while CH02 chooses the Storage Place with its MADRIX Effect, CH03 regulates the Fade Time of the Crossfader, and CH04 controls the Master Fader.



Note: The **Simple** protocol will only use and work at the left side of MADRIX.

- 15. **Close** the DMX-In Remote Editor, and click **OK** and the Device Manager will be closed, too.

Note: You can go to **Tools > Logfile** to see details of what MADRIX sends or receives via CTP. (To filter the log messages, set the **Filter** to **CTP**.)

Congratulations! You can control MADRIX via Art-Net and CTP now.

1.16 Controlling MADRIX With A MIDI Controller

In this tutorial, you will learn how you can connect a preprogrammed MIDI Controller to MADRIX.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

For this example, we want to use the Numark NuVJ Controller. You can find a list of all preprogrammed MIDI controllers »[here](#)

Note: If your MIDI controller is on the list, please have a look at this tutorial »[Creating A New MIDI Map For A MIDI Controller](#)

1. Install the driver of your MIDI Controller according to the installation instructions of the controller's manual.
2. Plug the MIDI controller into your PC.

- 3. Start MADRIX and go to **Preferences > Remote Control > MIDI...**



Now, the **Device Manager** with an active the **MIDI** tab will be opened.

You can see all detected MIDI controllers in the **Device** list. If not, click the **Search** button.

Note: In this example, we are using a Numark NuVJ Controller. You can see the name of the connected controller in the **Device** list.



- The device is still deactivated (Off; red light). We have to enable the MIDI controller and make it available for MIDI Remote. Therefore, select the device in the Device list, activate the **Enable** checkbox as well as the **Remote** checkbox on the right-hand side of the Device Manager.



- 5. MADRIX will now interpret the input MIDI commands. But we will have to assign the correct MIDI controller configuration (MIDI Map). Go to the **Remote Control** section and click on the arrow on the right-hand side of the **Edit field**. In the drop-down menu, search for and select the connected MIDI controller. For this example, we will select **Numark NuVJ**



Click **OK**

- 6. Now you can control MADRIX with the MIDI controller. If you want to change the assignment of keys of the controller, have a look to this tutorial [»Changing The Predefined MIDI Map Of A MIDI Controller](#)

Congratulations! You have connected a preprogrammed MIDI controller to MADRIX.

1.17 Changing The Predefined MIDI Map Of A MIDI Controller

This tutorial shows you how to change the assignment of keys of a preprogrammed MIDI controller in MADRIX .

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Requirements: It is necessary to connect a preprogrammed MIDI controller to MADRIX for this example. You can learn how to connect one in a previous tutorial »[Controlling MADRIX With A MIDI Controller](#)

In this tutorial, we want to change the assignment of several MIDI encoders of a Numark NuVJ Controller.

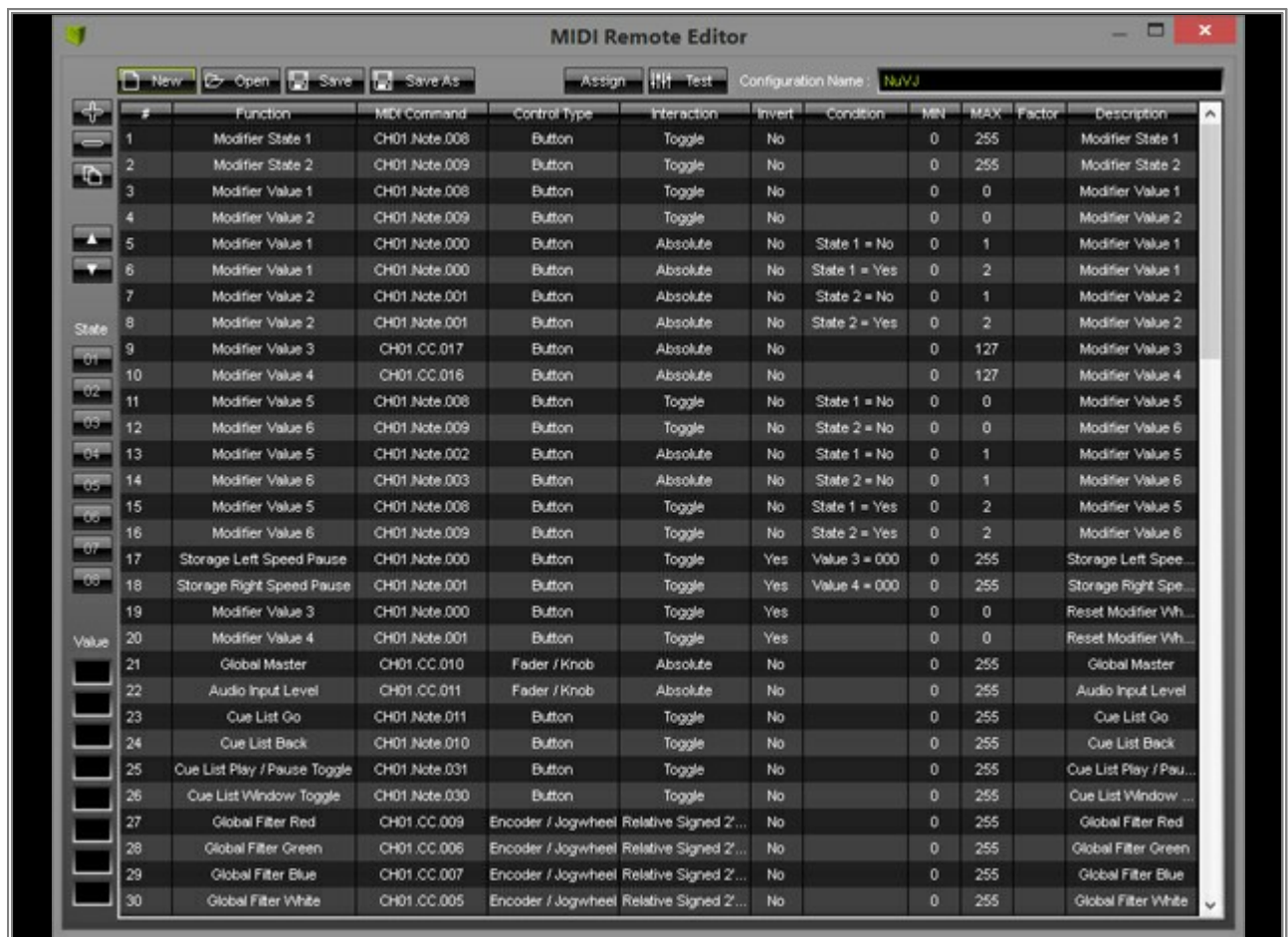
1. Start MADRIX and make sure that the MIDI controller works correctly. If it does not, see »[Controlling MADRIX With A MIDI Controller](#)
2. Go to **Preferences > Remote Control > MIDI** and you should see the connected MIDI controller. In this example, it is the **NuVJ Controller**



3. Select the MIDI controller in the list and click **Edit** in the **Remote Control** section.



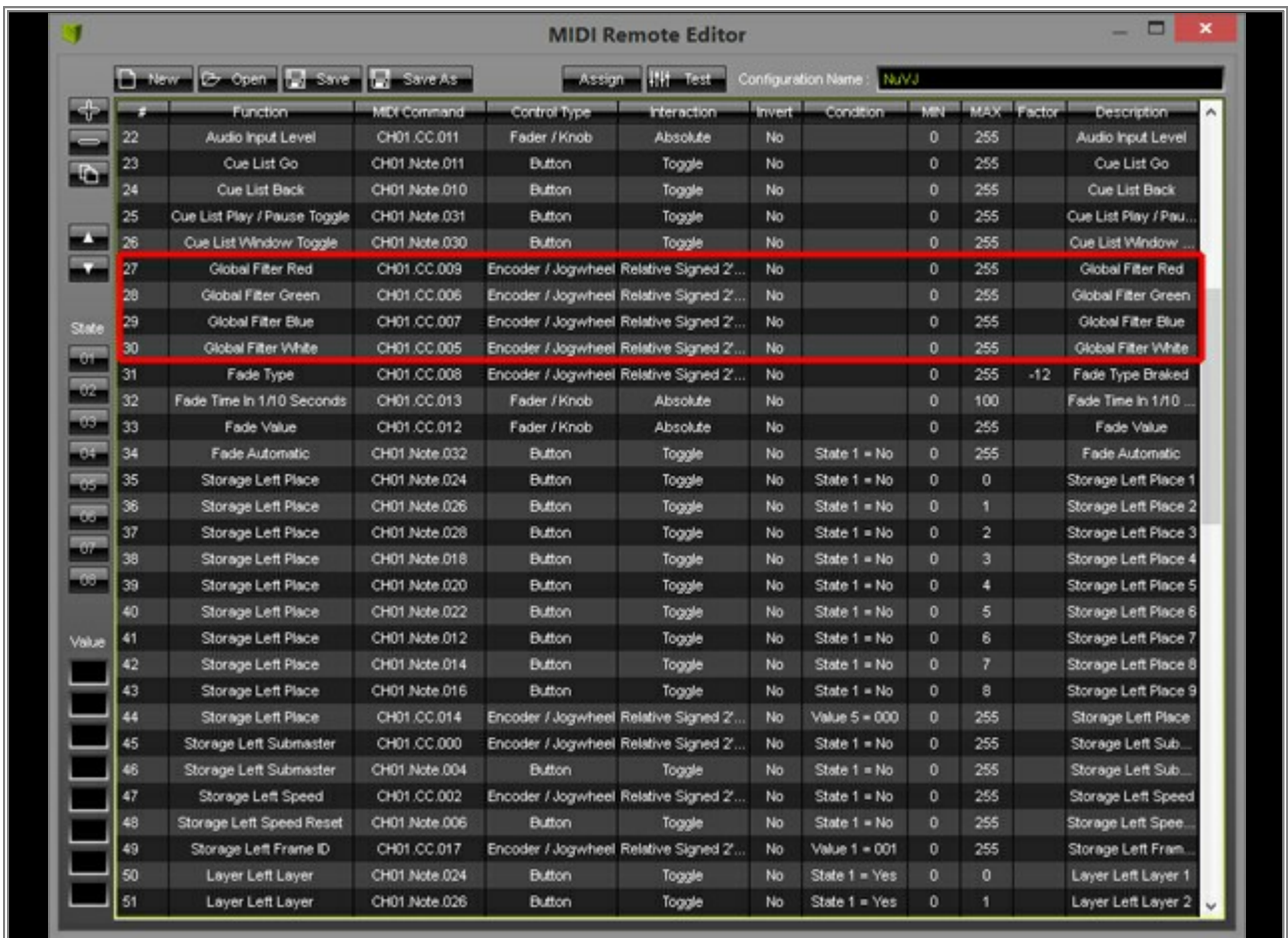
4. The **MIDI Remote Editor** will be opened.



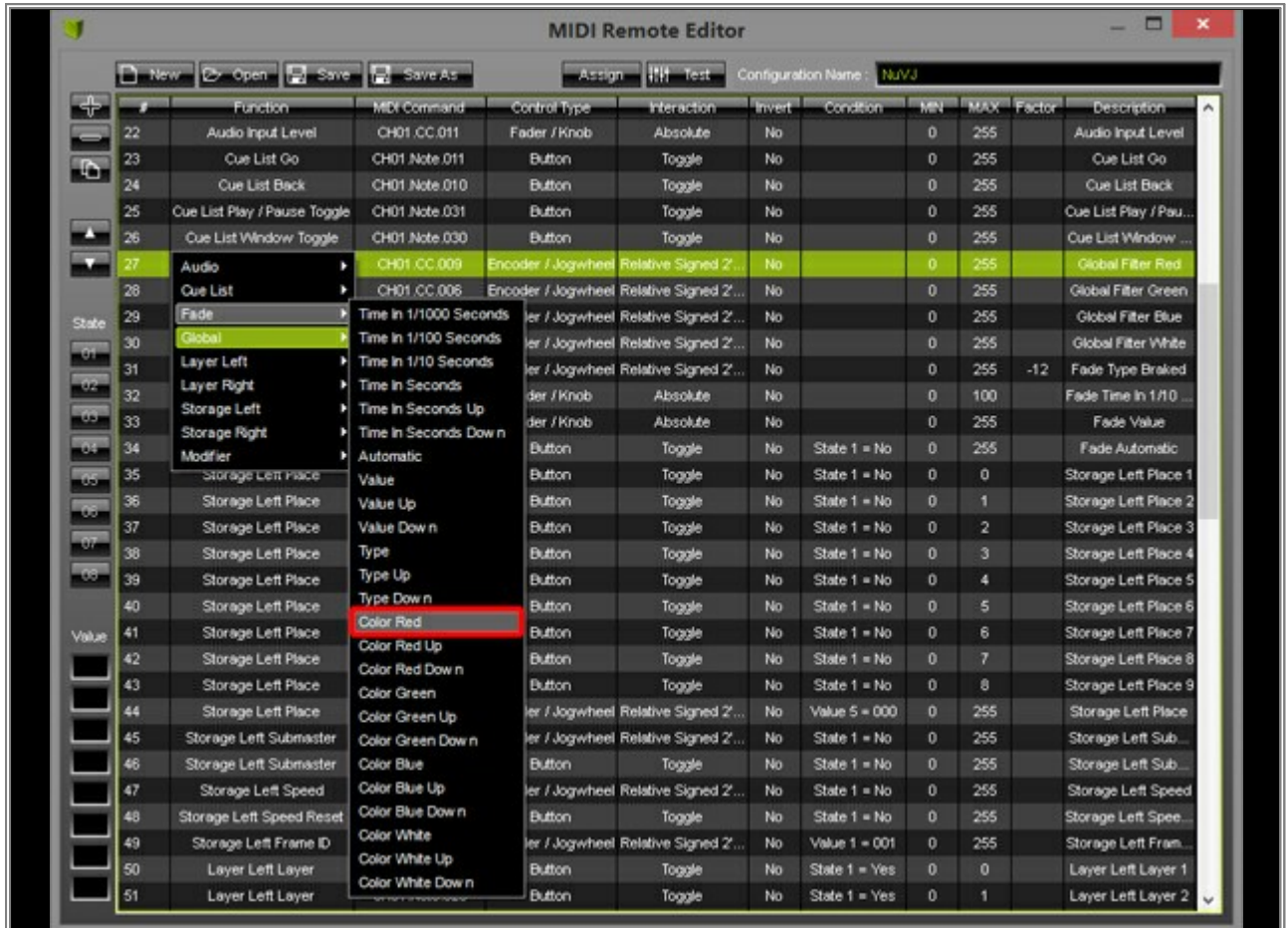
You can see all MIDI commands for this controller here.

- 5. In this tutorial, we want to change the MIDI commands for the encoders that are described with the numbers 15, 18, 19, 21 in the »[MADRIX User Manual](#) (Color Filter color RED, Color Filter color GREEN, Color Filter color WHITE, Color Filter color BLUE).

Therefore, search for the entries **Function: Global Filter Red, Global Filter Green, Global Filter Blue, and Global Filter White** in the MIDI Remote Editor. These entries are indexed at #27 to #30.



- 6. Perform a **double-click with the left mouse button** on **Global Filter Red**. A pop-up menu appears. In this menu, go to **Fade > Color Red**



- 7. Change **Global Filter Green** to **Fade > Color Green** in the pop-up menu, **Global Filter Blue** to **Fade > Color Blue**, and **Global Filter White** to **Fade > Color White**

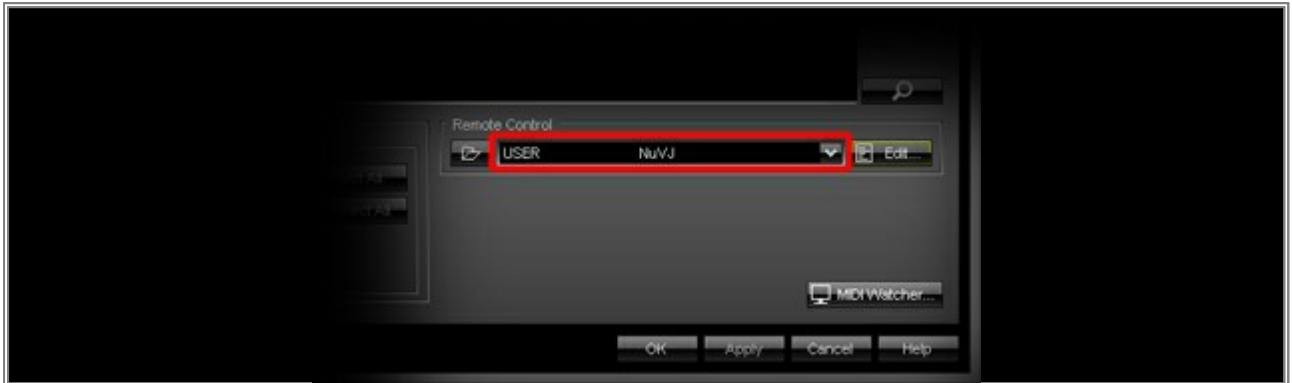
The four entries in the MIDI Remote Editor should now look like this:



- 8. In the next step, we want to save the modified MIDI Map. Enter a new name in the **Configuration Name** edit field in the upper corner of the MIDI Remote Editor and click **Save As**. A new window opens. Select a directory on your harddisk and click **Save**



9. Close the MIDI Remote Editor. You can see that the name of the manufacturer in the **Remote Control** section of the Device Manager, tab MIDI has changed to **USER** and the configuration name has changed to your desired config name. In this example, we have named it **NuVJ FadeColor**



Click **OK**

10. If you now use one of the encoders of your controller and change its value (described with the numbers 15, 18, 19, 21 in the »[MADRIX User Manual](#)), you can see that not the Filter Color but the Color Fade color changes.

Congratulations! You have changed several MIDI commands of a preprogrammed MIDI Map in MADRIX.

1.18 Creating A New MIDI Map For A MIDI Controller

This tutorial shows you how you can create a new MIDI Map for a MIDI controller in MADRIX.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Requirements: Before we start, please make sure that the drivers of the MIDI controller are installed correctly. The controller needs to be connected to your PC.

In this example, we want to add a MIDI command for the Master Fader, a MIDI command for the Audio Input Fader, and a MIDI command for a direct access to Storage Place S1 P5.

1. Start MADRIX and go to **Preferences > Remote Control > MIDI...**



The **Device Manager** with an active **MIDI** tab will be opened as a result.

You can see all detected MIDI controllers in the **Device** list. If not, click the **Search** button.



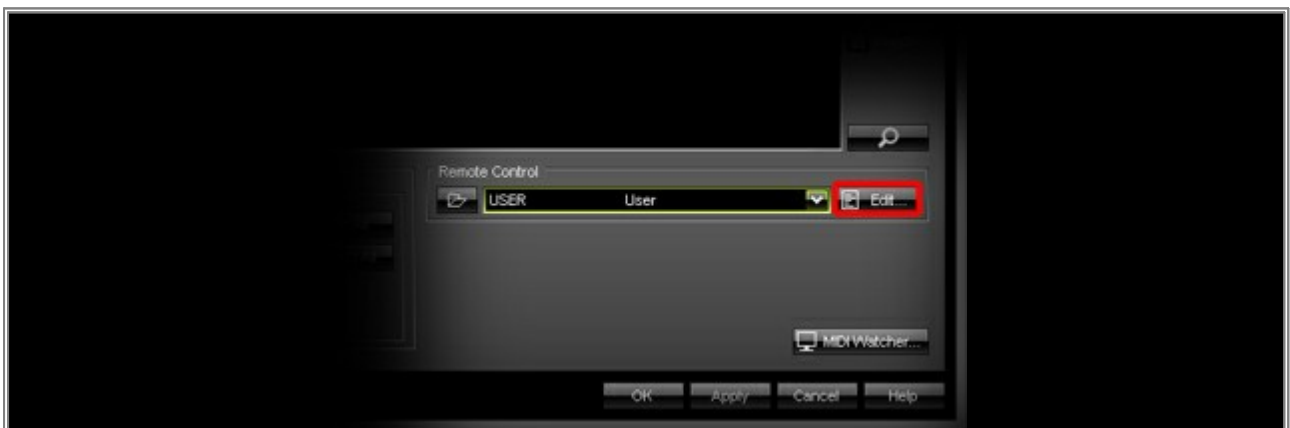
- The device is still **Off** (red light). We will have to enable the MIDI controller and make it available for MIDI Remote. Select the device in the list and activate the **Enable** checkbox as well as the **Remote** checkbox.



- Now search and select the **USER** configuration in the drop-down menu of the **Remote Control** section.



- Click **Edit** to the right of the drop-down menu.



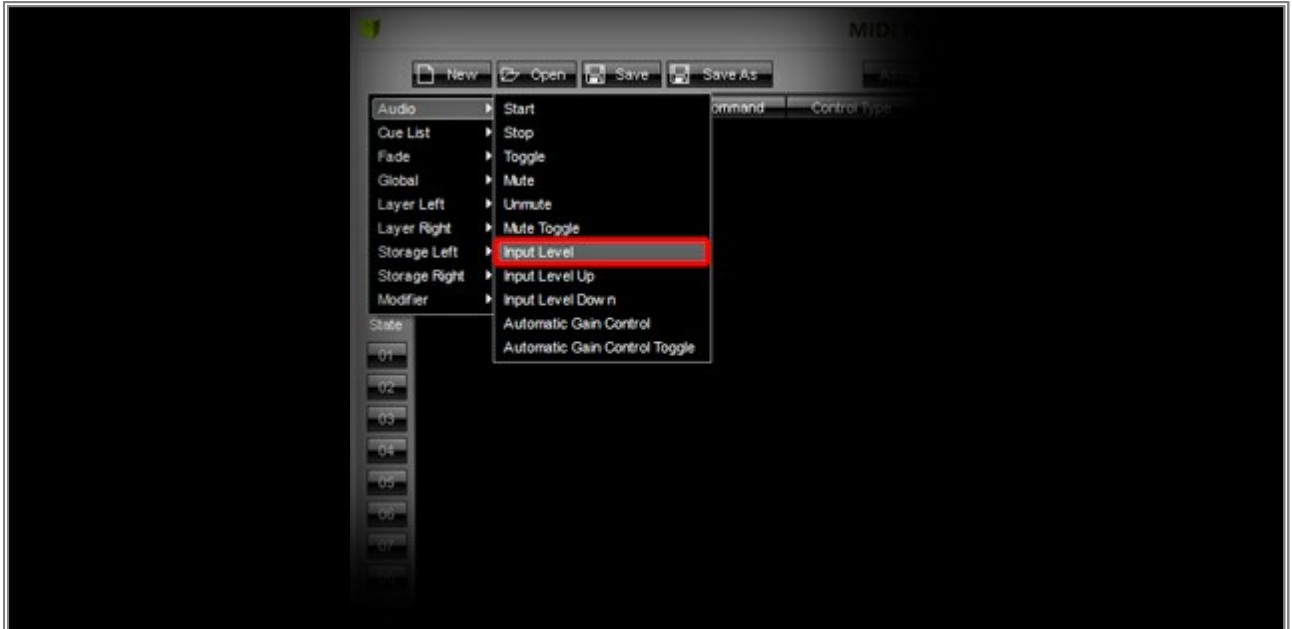
5. An empty **MIDI Remote Editor** will be opened. Click the **+** button.



Now you can see a drop-down menu with different groups. Select one group and you can see all possible MIDI controls of that group. The classification in groups should help you to find the required MIDI command faster.



- 6. First, we want to add the MIDI command that belongs to a fader from our MIDI controller in order to control the **Audio Input Fader**. Go to **Audio > Input Level** and select it.



- 7. A new list entry will be added in the MIDI Remote Editor. **Audio Input Level** should be written in the **Function** column and **CH01.CC.060** should be written in the **MIDI Command** column.

Note: The MIDI command **CH01.CC.060** is a default value. Every newly added command gets this value and you have to change it.



8. In order to change the **MIDI Command**, click **Assign**. Now, you can "train" the **MIDI Remote Editor** with the help of your MIDI controller.

Select the list entry where you want to change the MIDI command. Then, press the desired button on your MIDI controller, spin an encoder or knob, or move a fader. For this example, we want to move a fader on the controller.

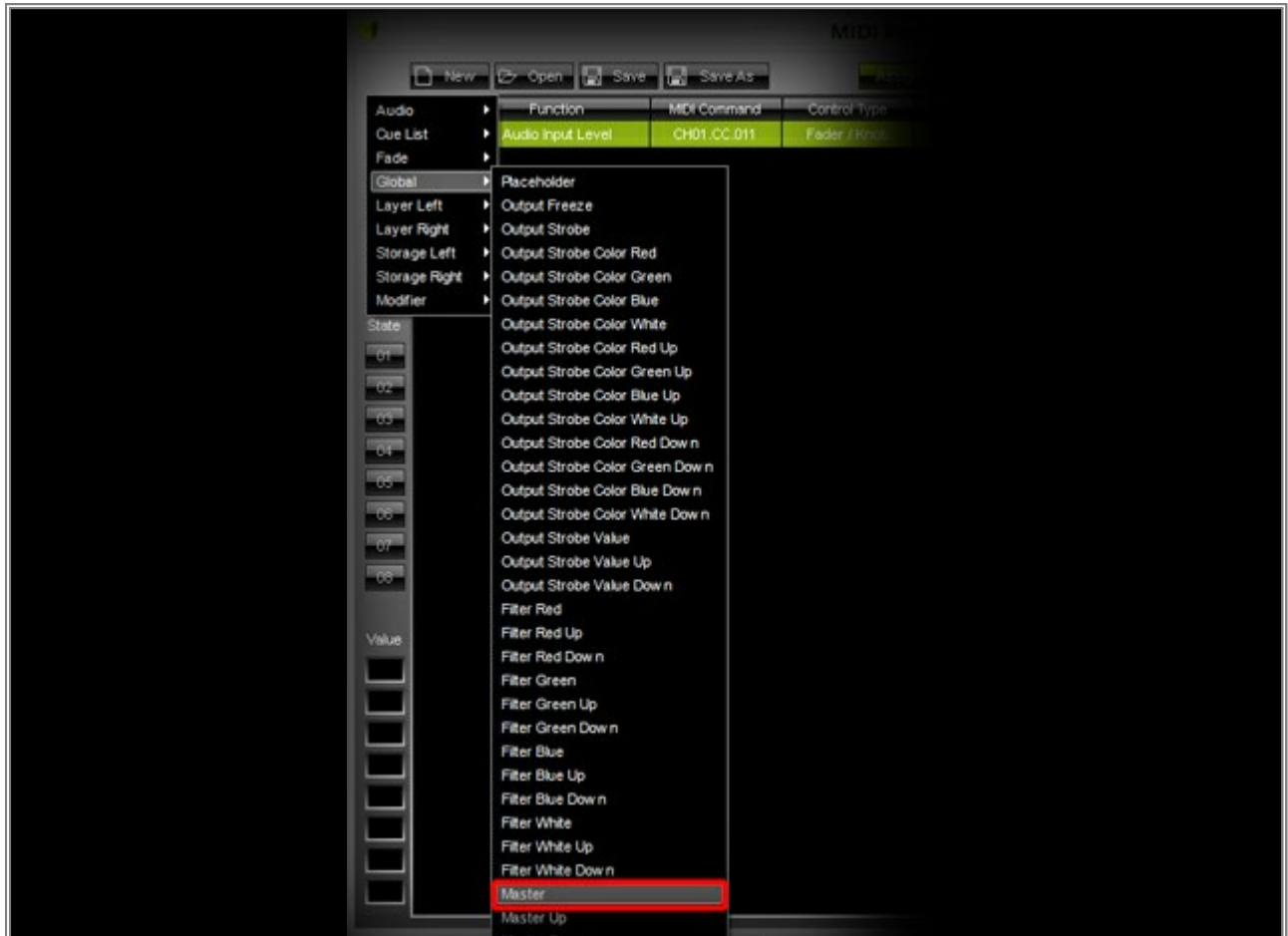
You should see that something has changed in the selected line:

- **#:** Should be the same as before.
- **Function:** Should be the same as before.
- **MIDI Command:** Should have changed to the corresponding MIDI command of your controller. In this example, it has changed from **CH01.CC.060 to CH01.CC.011**. But in your case, it will probably be a different value.
- **Control Type:** The MIDI Remote Editor automatically recognizes the type of your selected MIDI control. If it is incorrect, you can change it with a **left mouse button double-click**.
- **Interaction:** The MIDI Remote Editor automatically recognizes the interaction type of the selected MIDI control. Faders are mostly **Absolute** and buttons are mostly **Toggle**. If it is wrong, perform a **double-click with the left mouse button** on it.
- **Invert:** You can perform a double-click with the mouse on it to change it between **Yes** and **No**. If you change it to **Yes**, all values will be inverted. For example, the value 0 will be interpreted as 255 and the value 255 will be recognized as a 0. If Invert is active and you would move a slider upwards, the fader will move downwards in MADRIX. In this example, leave the default setting **No**.
- **Condition:** If you want to control the command with modifiers, you will need this column. For further information on how to work with modifiers, have a look at the [»MADRIX User Manual](#). In this example, we will not work with conditions.
- **MIN:** Represents the minimum value of the MIDI command. In this example, we want to control starting from 0.

- **MAX:** Represents means the maximum value of the MIDI command. In this example, we want to control until a value of 255.
- **Factor:** You can multiply the value of the controller with a desired value. Sometimes this is necessary if you are using a Jog-wheel and the resolution of it is too rough or too fine. For more information, have a look at the [MADRIX User Manual](#). In this example, it is not necessary to add a Factor for the used controller.
- **Description:** A default description is set for each control. But you can change it using a double-click on it.



9. We will add the second MIDI command (for the Master Fader). Click **+** again, go to **Global > Master**, and choose it.



- 10. Select the **Global Master** list entry and move the desired fader on your MIDI controller (**Assign** should still be active). You should see that the **MIDI Command**, **Control Type**, and **Interaction** are changed automatically.



- 11. Now, we want to add a MIDI command for direct access to Storage Left, Storage Place 5. To do so, click +, go to **Storage Left > Place**, and select it.

Note: In this example, we are always accessing Storage Place 5 on the left side of MADRIX, independently of what Storage is currently active.



- 12. Select the line in the Device list displayed as **Storage Left Place**. Then, press your desired button on the MIDI controller. Change change the value for **Min** and **Max** to **4** in the MIDI Remote Editor.

Note: In the MIDI Remote Editor, Storage Places start at 0.



- 13. You are now able to add all desired MIDI commands by yourself.
- 14. Write a **Config Name** into to the edit box on the upper right-hand side of the MIDI Remote Editor and click **Save As**. Select a directory in the window that opens and save the configuration. Now, close the MIDI Remote Editor and you should see that your chosen configuration name is shown in the **Remote Control** section.



Click **OK** in the Device Manager.

Congratulations! You have just created a MIDI Map for a MIDI controller in MADRIX.

1.19 DMX Output With Various DMX Interfaces

In this tutorial, you will learn how to use a (3rd-party) DMX interface for DMX output in MADRIX. For this example, we will use a **Soundlight USBDMX-TWO** interface.

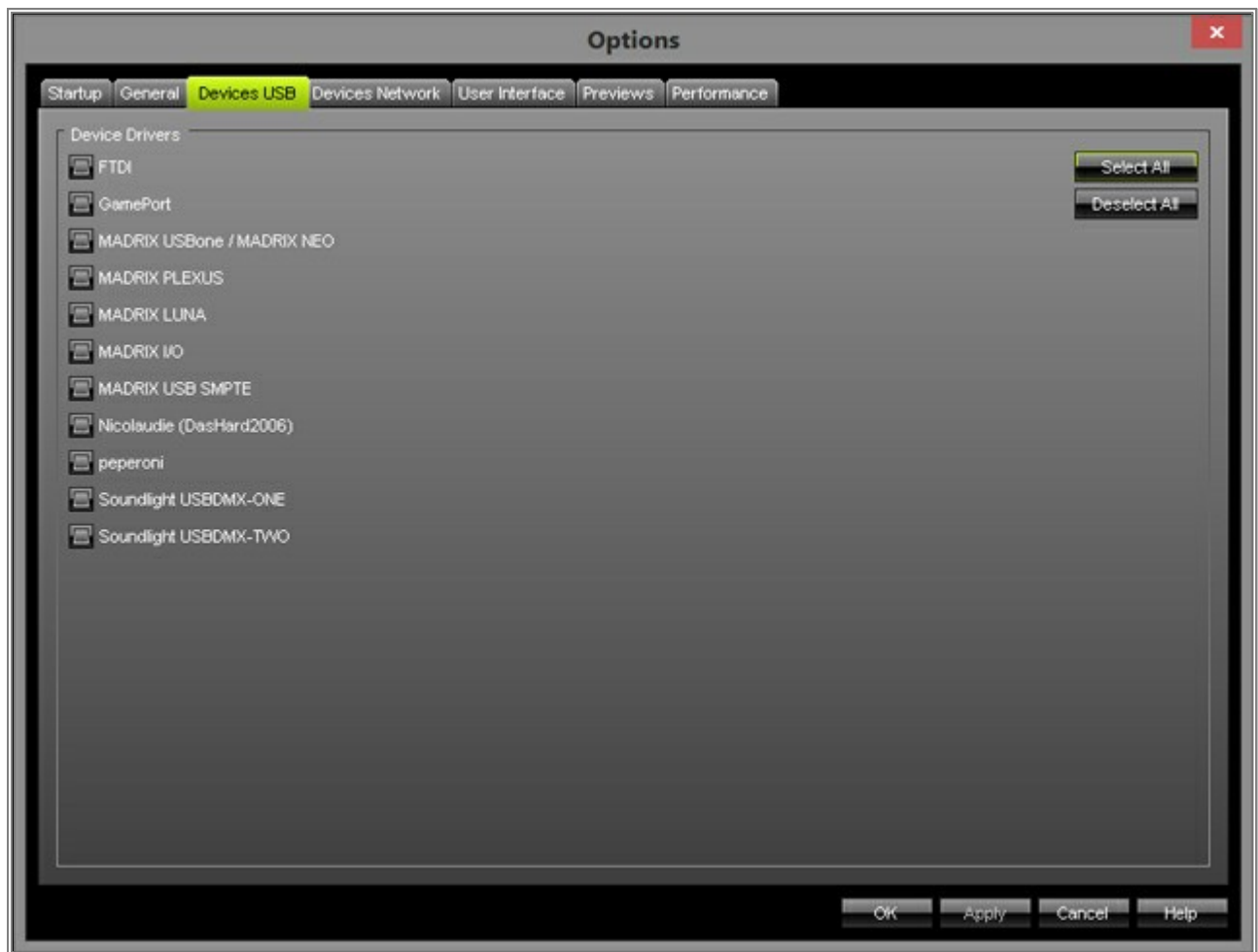
Date: 09/2014

MADRIX Version: 3.3 (Created with)

Note: To control DMX fixtures with a third-party DMX interface, you need an additional MADRIX KEY with a license for DMX512-based output. For further information, please visit »www.madrix.com

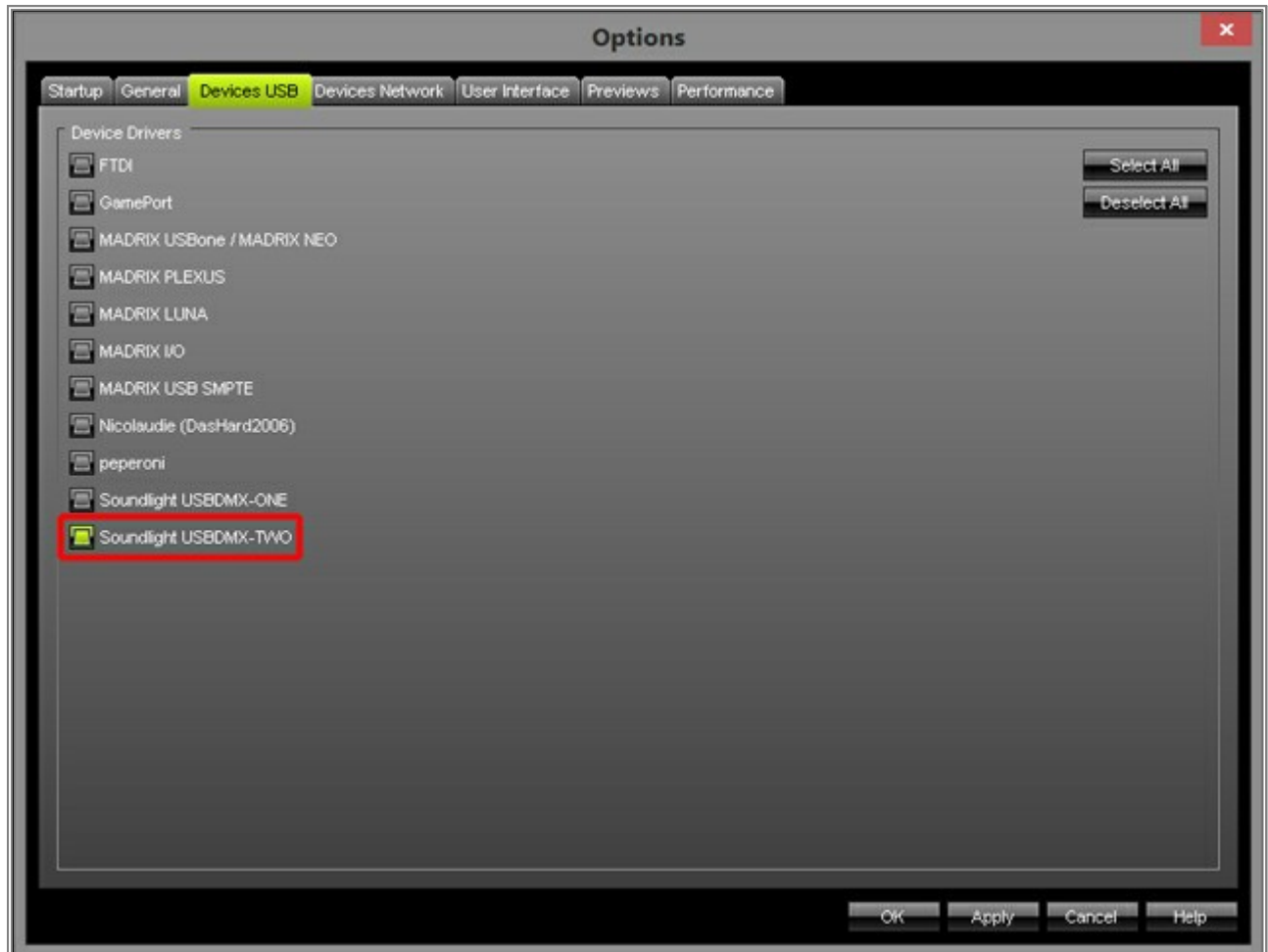
Before we start, please make sure that the MADRIX Key and the interface are installed correctly.

1. Start MADRIX, go to **Preferences > Options**, and choose the tab **Devices USB**



Now, you can see a list with supported DMX interfaces.

2. Choose your interface and enable it (the checkbox will be illuminated in green). In this example, we choose the **Soundlight USBDMX-TWO** driver.



Click **OK**

- 3. The driver for the Daslight interface is now enabled. In this step, we have to add the interface to the MADRIX DMX devices. Go to **Preferences > Device Manager** and click the **Search** button



- 4. After a view seconds, you should see the enabled interfaces.



If you do not see the enabled devices in the list, please have a look at the tutorial [»Where You Can Find Connected Hardware](#)

5. Now select your DMX interface and have a look at the **Settings** section on the right-hand side of the **Device Manager**.
- **Enable:** If you want to control fixtures with the interface or if you want to MADRIX remotely, the checkbox should be illuminated in green (activated). Otherwise, the interface is **Off**.
 - **Output:** The checkbox should be illuminated in green (activated) if you want to control DMX fixtures via MADRIX through the selected interface.
 - **Input:** This checkbox should be illuminated in green if you want to control MADRIX remotely having connected a DMX controller to this interface.
 - **Universe:** Here you can set which DMX universe should be controlled via the selected interface and MADRIX.
 - **Frame Time (ms):** Leave the default value. This settings allows you to define after which time (in milliseconds) a new frame will be sent.
 - **Send Full Frames:** The default setting is **Optimized (deactivated)**. That means you are sending only DMX values for the used channels. If you use **Full Frames**, DMX values for all 512 channels will be sent.



Click **OK**

Congratulations! Now you have configured a (3rd-party) DMX interface in MADRIX.

1.20 T9 Configuration In MADRIX

In this tutorial, you will learn how you can setup MADRIX to control a T9 fixture without using a screen-capture software. In this example, we want to use one EUROLITE - LSD 37.5 curtain.

Date: 08/2013

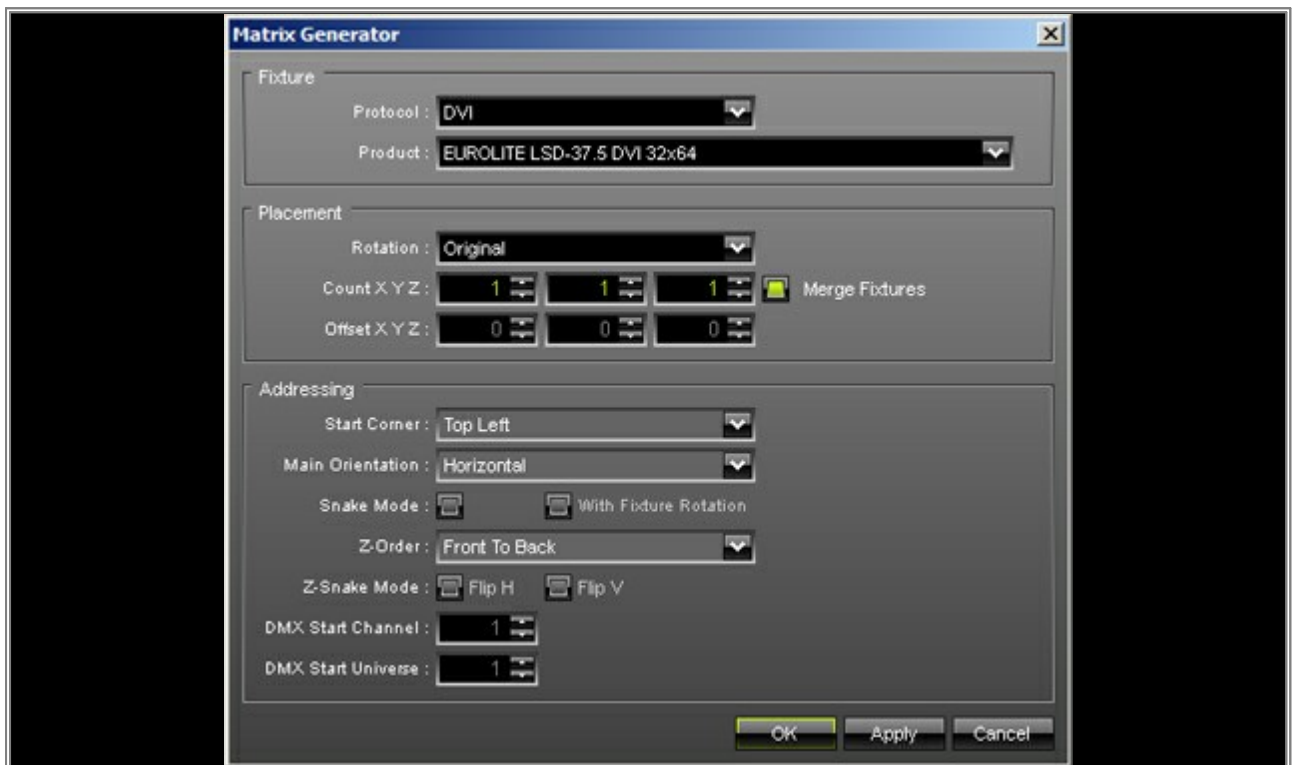
MADRIX Version: 3.0 (Created with)

Note: It is important that you have already configured the **LSD AIO-Network-Control-System**. If you have not and do not know how it works, have a look at this tutorial »[Setting Up LED Studio For EUROLITE LED Pixel Mesh 64x64](#)

Before we start, make sure that the network interface card you want to use for the connection with the AIO-Network-Control-System is able to send 1000 MBit/s.

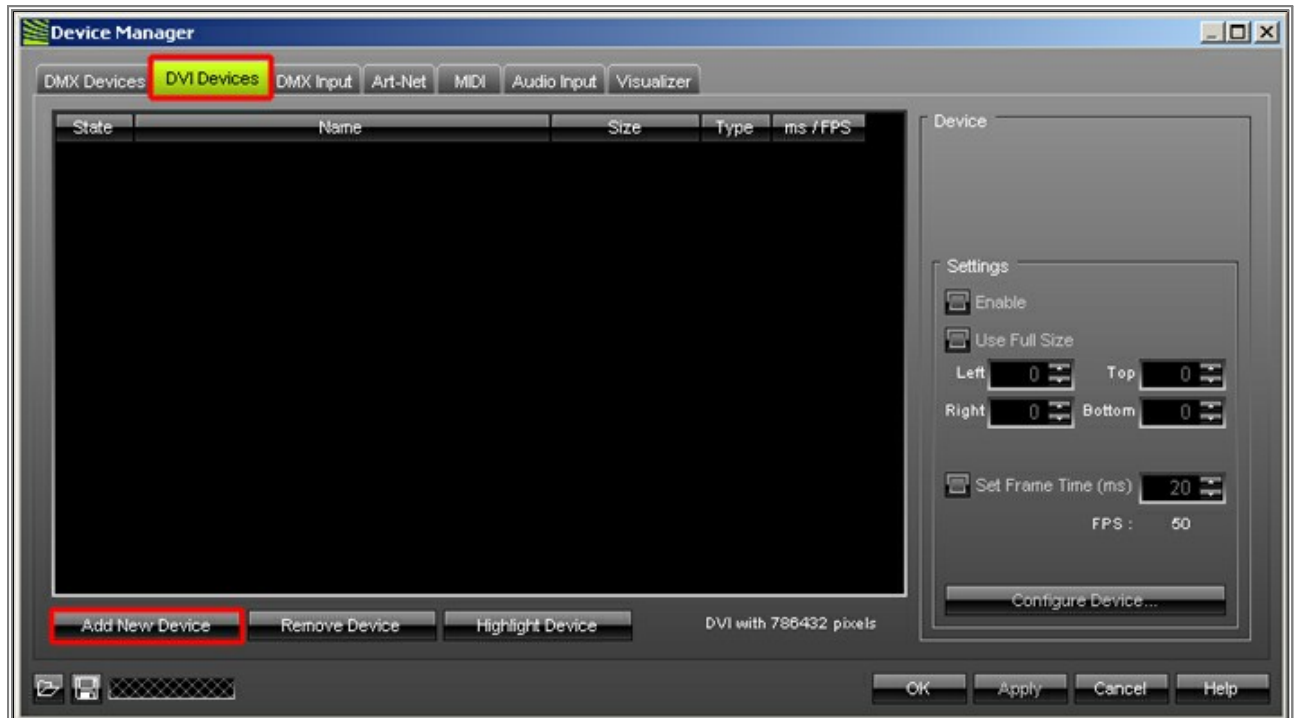
1. Start MADRIX and press the **F2** key. The **Matrix Generator** will be opened. Change the following settings:

- **Protocol: DVI**
- **Fixture: EUROLITE LSD-37.5 DVI 32x64**
- **Rotation: Original**
- **Count:** Set **X** to **1**, **Y** to **1**, and **Z** to **1**
- **Merge Fixtures:** Should be **Enabled**

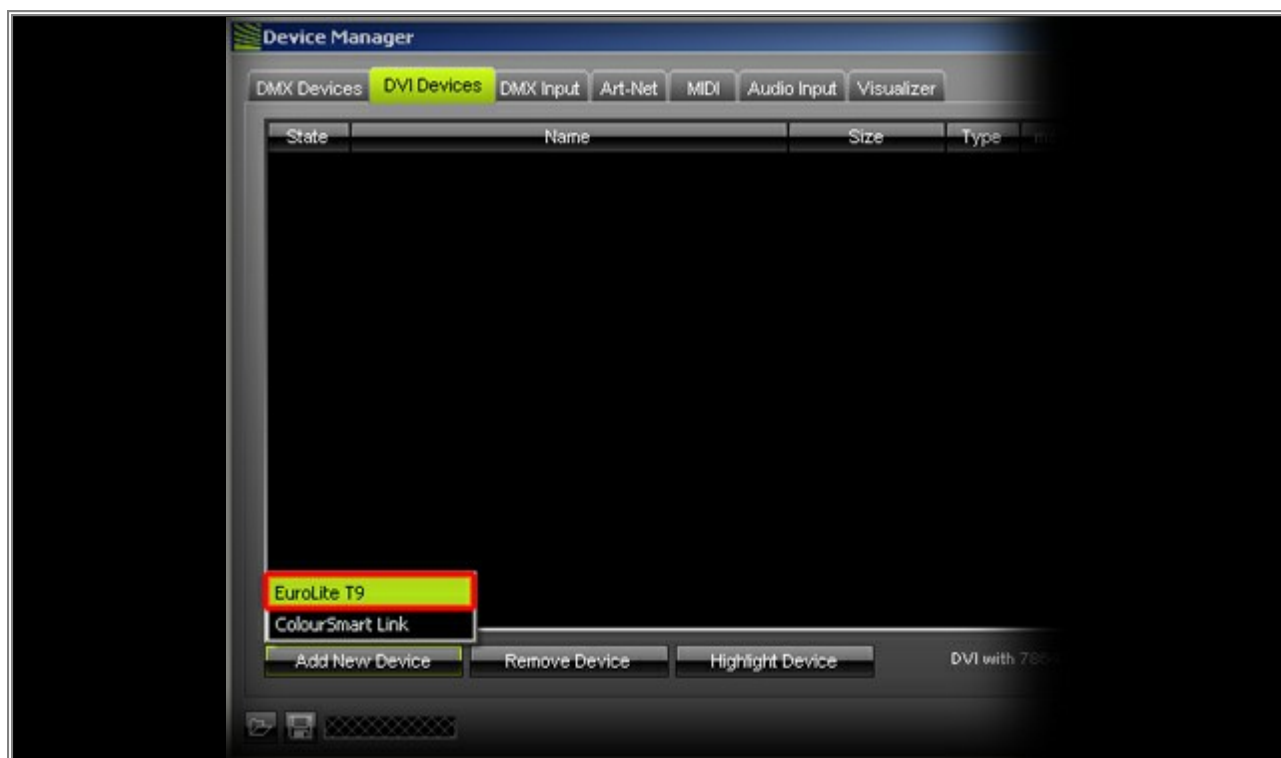


Click **OK**

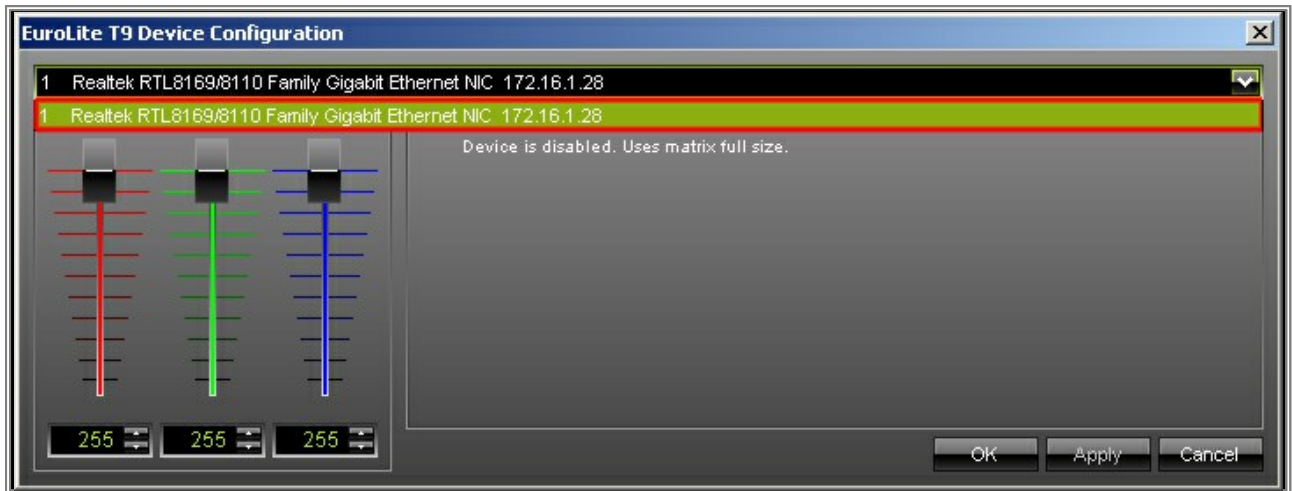
2. Now, go to **Preferences > Device Manager** or press the **F4** key. Then, go to the **DVI Devices** tab and click **Add New Device**



- 3. Choose **EuroLite T9**



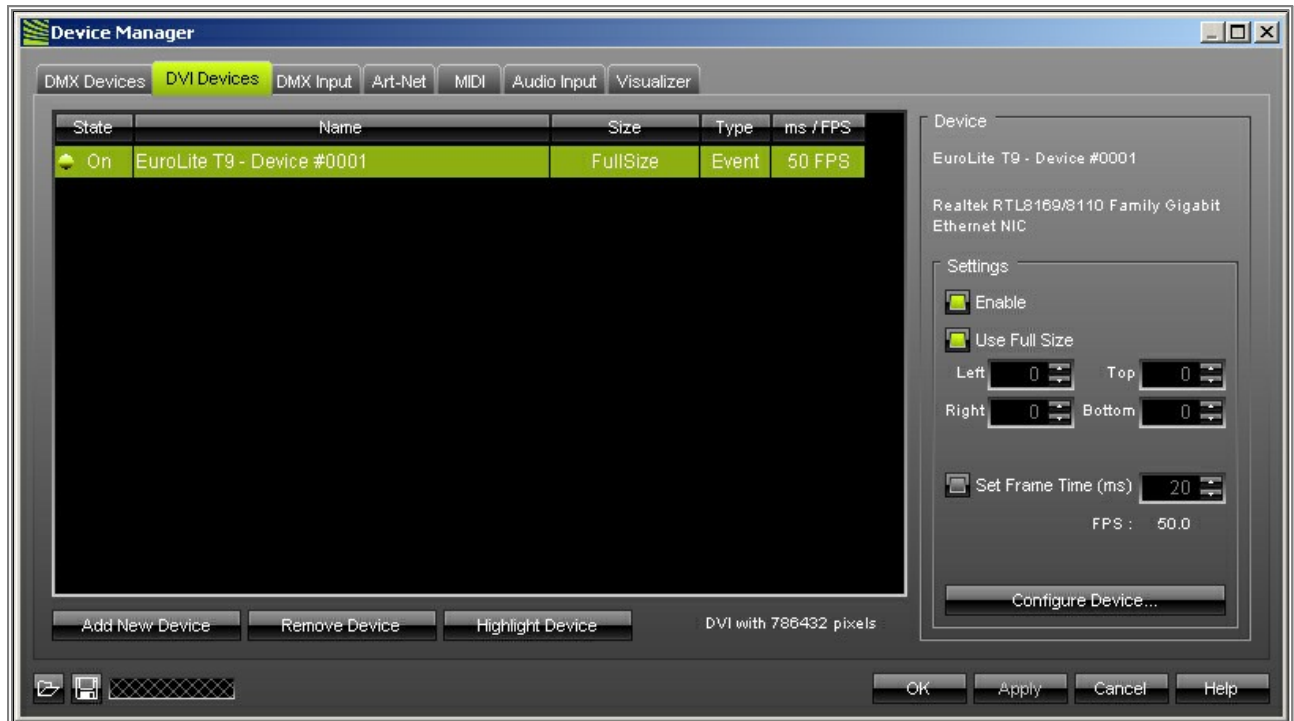
- 4. A new window will be opened. Select the corresponding **Gigabit Ethernet card** and click **OK**



Note: If you **have not installed** the WinPcap driver, you can read the following message next to the RGB color slider: **Can't find valid network device. Are your network card and the WinPcap driver installed correctly?** If you can read this message, please close MADRIX, start the installer of MADRIX again, and install the WinPcap Driver.

Click **OK**

- Now you can see an **EuroLite T9** device in the list. The **State** should be **On**. If not, please select the device in the list and activate the *Enable* checkbox in the **Settings** section on the right-hand side.



Click **OK**

Congratulations! You have created a configuration for EuroLite T9 fixtures in MADRIX.

1.21 MADRIX Full Screen DVI Output For Video Projectors

This tutorial shows you how you can control a second monitor or projector in full screen mode with MADRIX.

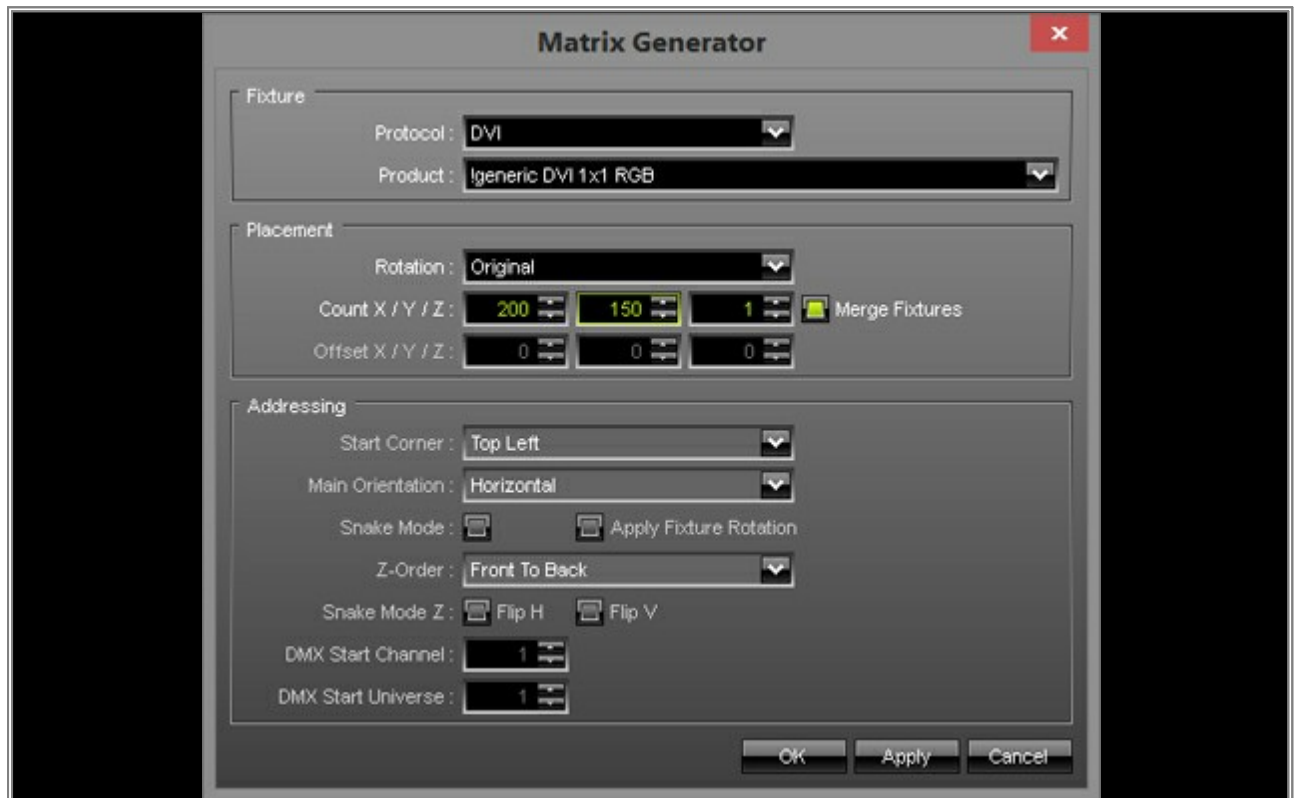
Date: 09/2014

MADRIX Version: 3.3 (Created with)

Note: For this tutorial it is necessary to have a graphics card with a minimum of two outputs. Please connect two output devices to your PC (such as one monitor and one projector).

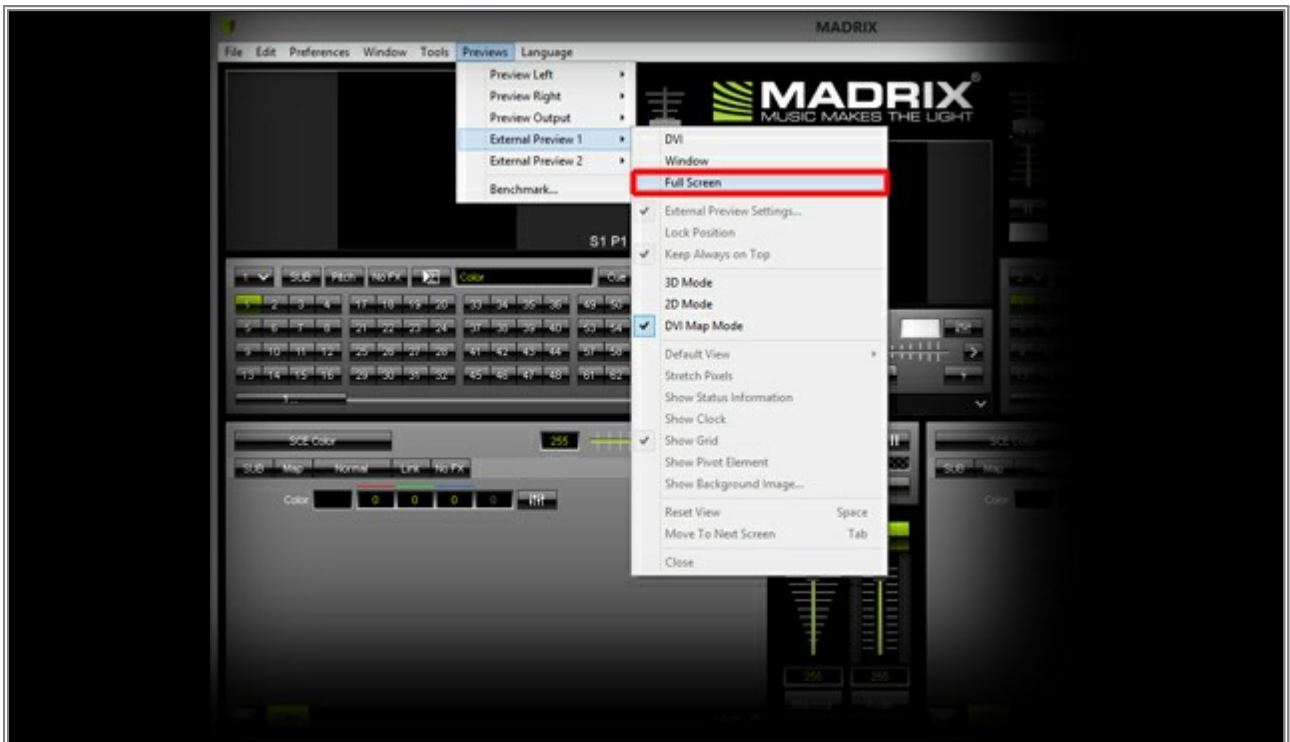
1. We want to create a new DVI Patch with 200 pixels horizontally and 150 pixels vertically.
Start MADRIX and go to **Preferences > Matrix Generator** or press the **F2** key. The Matrix Generator window will be opened. Now change the settings to:

- **Protocol: DVI**
- **Fixture: !generic DVI 1x1 RGB**
- **Rotation: Original**
- **Count:** Set **X** to **200**, **Y** to **150**, and **Z** to **1**
- **Merge Fixtures: Enable** this option.



Click **OK**

- Now, go to **Previews > External Preview 1 > Full Screen** and click it.



The **DVI Preview Window** will be opened in **Full Screen Mode**.

- It is possible that the full screen window overlies the MADRIX user interface. Press the **Tab** (Tabulator) key on your keyboard and the full screen window will switch to the second output device.

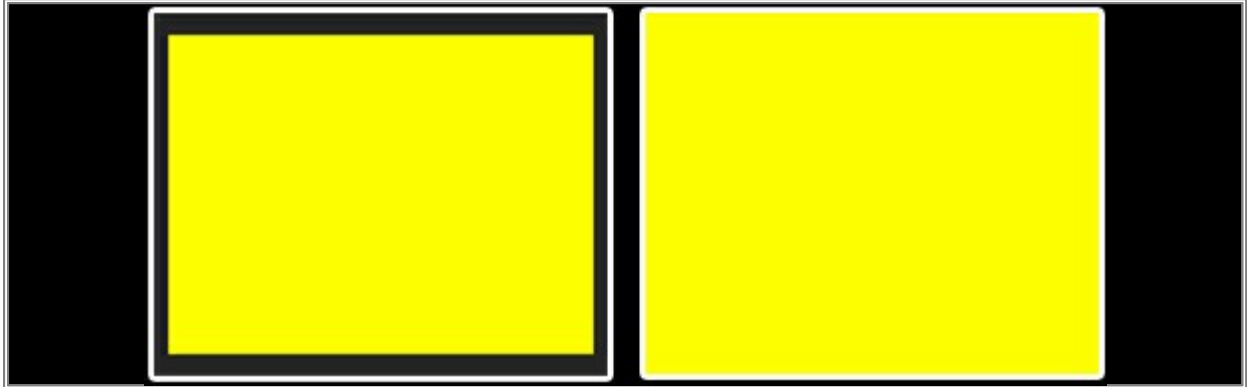
4. Go again to **Previews > External Preview 1**. Now you can change several options.



- **External Preview Settings...:** If you click on it, the **External Preview Settings** window will be opened. In most cases, you do not need to change any value. For more information, see this tutorial »[MADRIX DVI Output For Screen-Capture Software](#)
- **Keep Always On Top:** Enable this option and no other windows will be able to overlay this window even if you change to another program.
- **3D Mode:** You can change the view to a 3D view, but for video projectors you should use a 2D view.
- **2D Mode:** If 3D Mode is enabled, you can change it the 2D view.
- **DVI Map Mode:** In Full Screen mode you usually do not need to activate this option. More information is provided in another tutorial »[How To Use DVI Map Mode](#)
- **Stretch Pixels:** If this option is enabled, the pixels will be stretched to full screen (in this example there are 200x150 pixels). Please note there will not be added any new pixels. The pixels will only be taller. The following images show the result

Stretch Pixels disabled

Stretch Pixels enabled

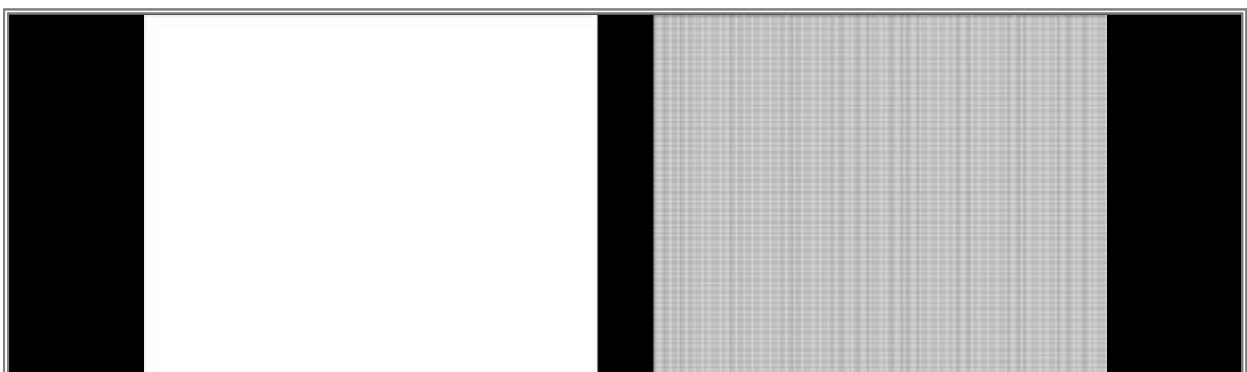


The white borders in the picture represent the size of the display.

- **Show Status Information:** If you enable this option, you should see some information at the top of the window, like the pixel resolution.
- **Show Clock:** If you activate this option, the current time will be displayed on top of the full screen window.
- **Show Grid:** If you enable this option, you can see a thin frame for each pixel.

Grid disabled

Grid enabled



- **Show Background Image...:** There is the possibility to load a background image into the output window. You can see the loaded image if the **Stretch Pixels** option is **disabled**.

- **Reset View:** If you zoomed in and changed the position of the matrix in the preview, you can reset the preview to default with this option.
- **Move To Next Screen:** You can send the preview to the next screen, such as the second graphic card output.

Congratulations! You have arranged a second output window in Full Screen Mode.

1.22 MADRIX DVI Output For Screen-Capture Software

This tutorial shows you how you can send MADRIX output data to a screen capture software.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Note: It is important for this tutorial that the screen-capture software of your fixture is installed and working correctly. If you use the software **LED Studio**, this tutorial can be very useful to you.

In this example, we want to control **16 EUROLITE LED Pixel Mesh 64x64**. The fixtures will be installed in a 4 by 4 grid. We will use the screen-capture software LED Studio 10.4D in this example.

1. Configure your screen-capture software.

2. Start MADRIX and go to **Preferences > Patch Editor** or press the **F3** key.

(If you do not know how the Patch window works, please have a look to this »[Creating A Patch With Different Fixtures](#))

In the **Patch Editor**, click the **New** button on the toolbar. Afterwards, click **Add** and change the following settings in the **Add Fixtures** window:

- **Protocol: DVI**
- **Fixture: EUROLITE Pixel Mesh 64x64 16x16 pixel dvi**
- **Count:** Set **X** to **4**, **Y** to **4**, and **Z** to **1**
- **Merge Fixtures:** Should be **Disabled** (the checkbox is gray).
- **Start Corner: Bottom Left**
- **Main Orientation: Vertical**
- **Snake Mode:** Should be **Disabled**
- **Start Position:** Leave the default settings (**X** is **1**, **Y** is **1**, and **Z** is **1**).



Click **OK**

3. We need to change the Matrix Size to 64 x 64. Click **Matrix Size** on the toolbar and set **Size X** to **64**, **Size Y** to **64**, and **Size Z** to **1**. This step is necessary because the Patch Size is not be updated after changing a patch and its included fixtures.



Click **OK**

4. Close the Patch Editor.

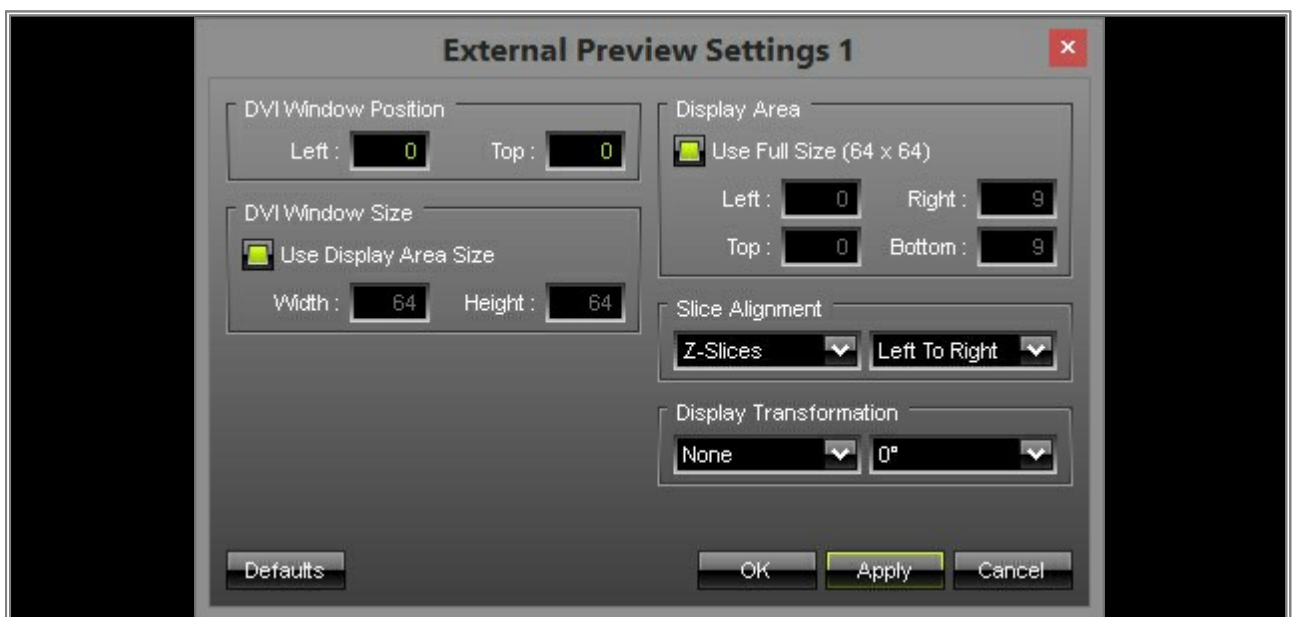
5. Go to **Previews > External Preview 1** and select **DVI**



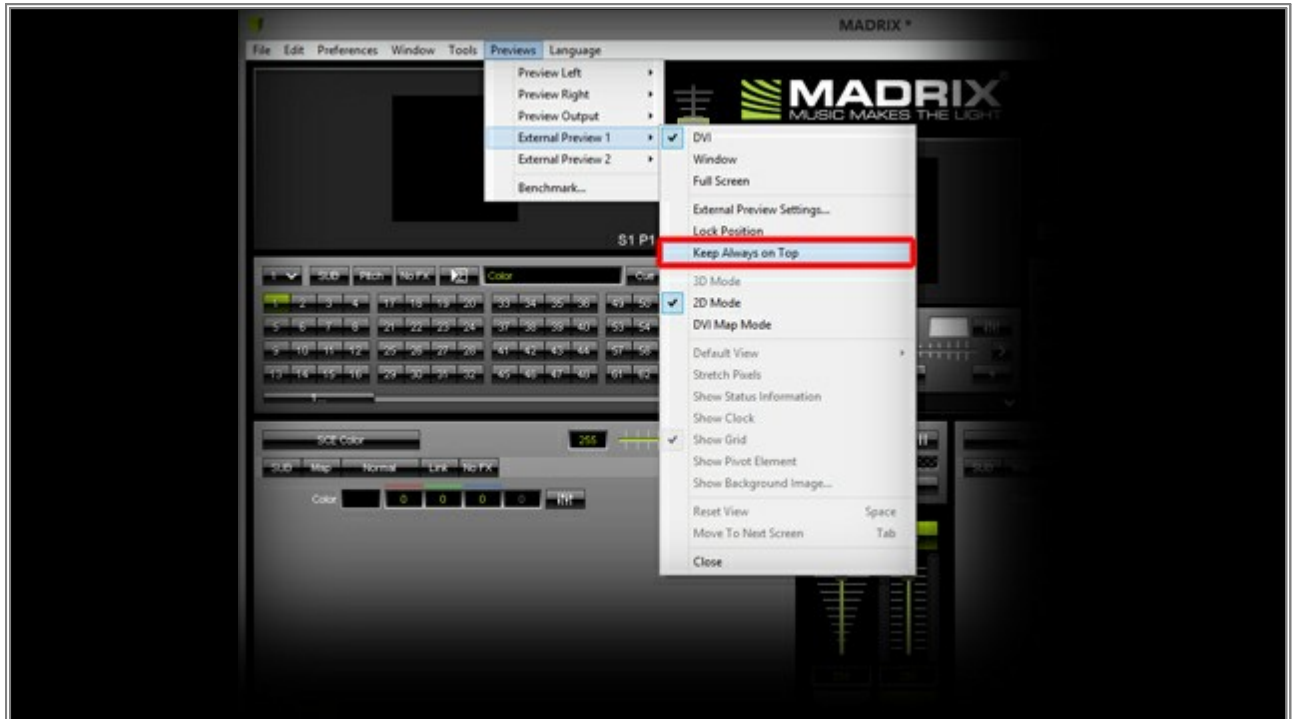
Now, you can see a (small) new window according to the size of your patch. In this example, its size is only 64x64 pixels.

6. Start your screen-capture software. It is important that the External DVI Preview Window of MADRIX is positioned in the capture area of your screen-capture software. Perform a **left mouse button click** on the External DVI Preview Window of MADRIX and move it to the position of the capture area while continuing to holding down the mouse button. Or go to **Previews > External Preview 1 > External Preview Settings...** The **External Preview Settings** window will be opened. You can adjust specific settings there:

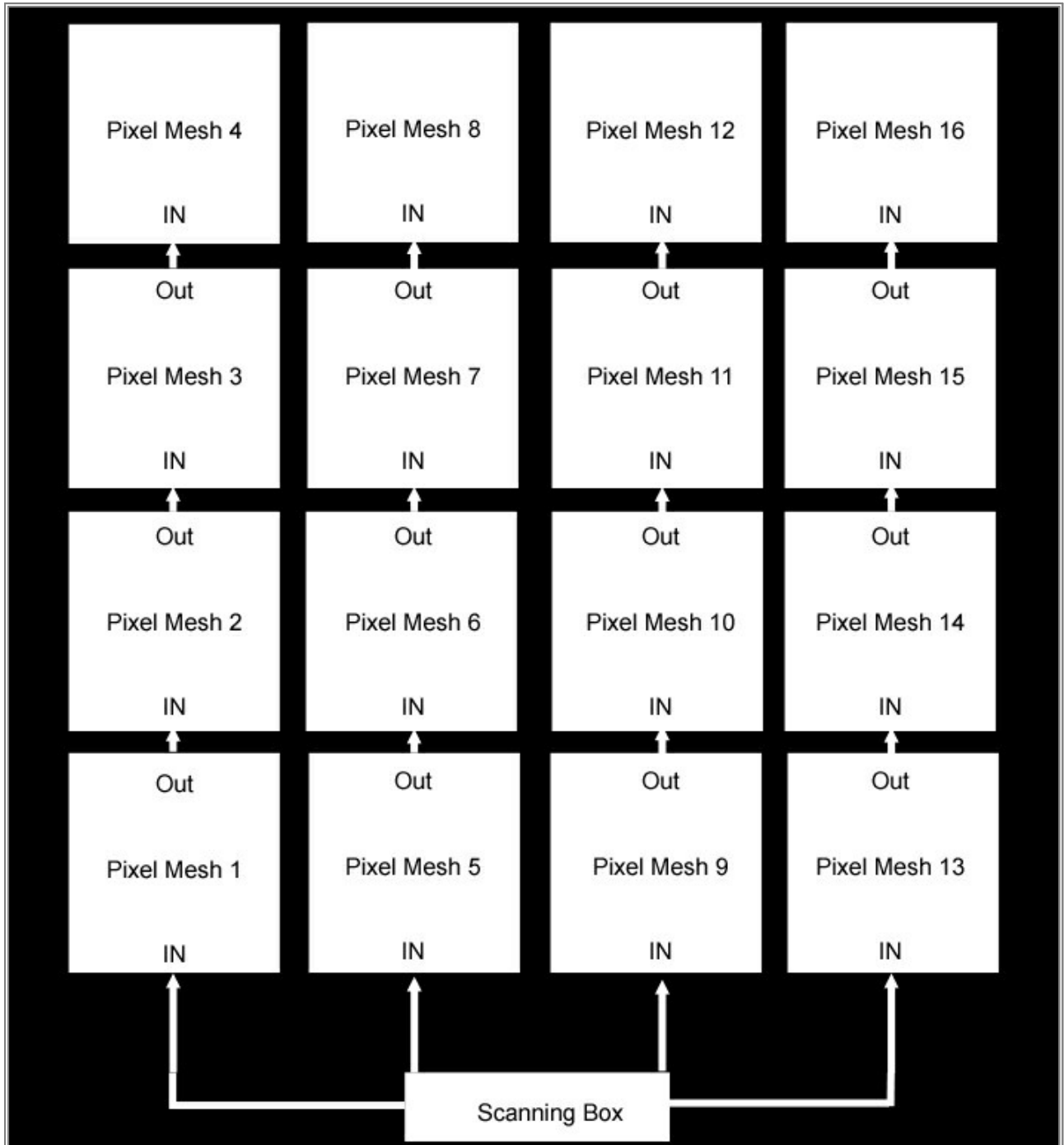
- **DVI Window Position:** Here you can set the position of the DVI Preview Window starting from the left and from the top.
- **DVI Windows Size:** If **Display Area Size** is **enabled**, the size of the DVI Preview Window is as large as the Patch Size in pixels. If it is **disabled**, you can change the Width and **Height** of the DVI Preview Window.
- **Display Area:** If **Full Size** is **enabled**, the complete patch size will be displayed on the DVI Preview Window. If **Full Size** is **disabled**, you can choose which area (from which and to which pixel) should be displayed on the DVI Preview Window.
- **Slice Alignment:** This option is important when you have created a 3D patch. Because DVI controllers usually do not accept any 3D input image. So you have to send a 2D image. You can change the **Slice Type** and the **Slice Order**.
- **Display Transformation:** You can **Flip** and **Rotate** the "DVI Preview Window". That is important if you have turned your fixtures during installation, for example.



7. Now, go to **Previews > External Preview 1** and select **Always On Top**. Often, this is necessary so that no other windows overlay the DVI Preview Window.



- 8. **Note:** The EUROLITE LED Pixel Mesh 64x64 fixtures we used in the above example are connected as shown in the following picture:



Congratulations! You have set up a MADRIX DVI Preview Window for your screen-capture software.

1.23 Creating A 3D Patch Using The Matrix Generator

This tutorial shows you how to create a 3D Patch with the Matrix Generator and how you can change the view in MADRIX to 3D.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

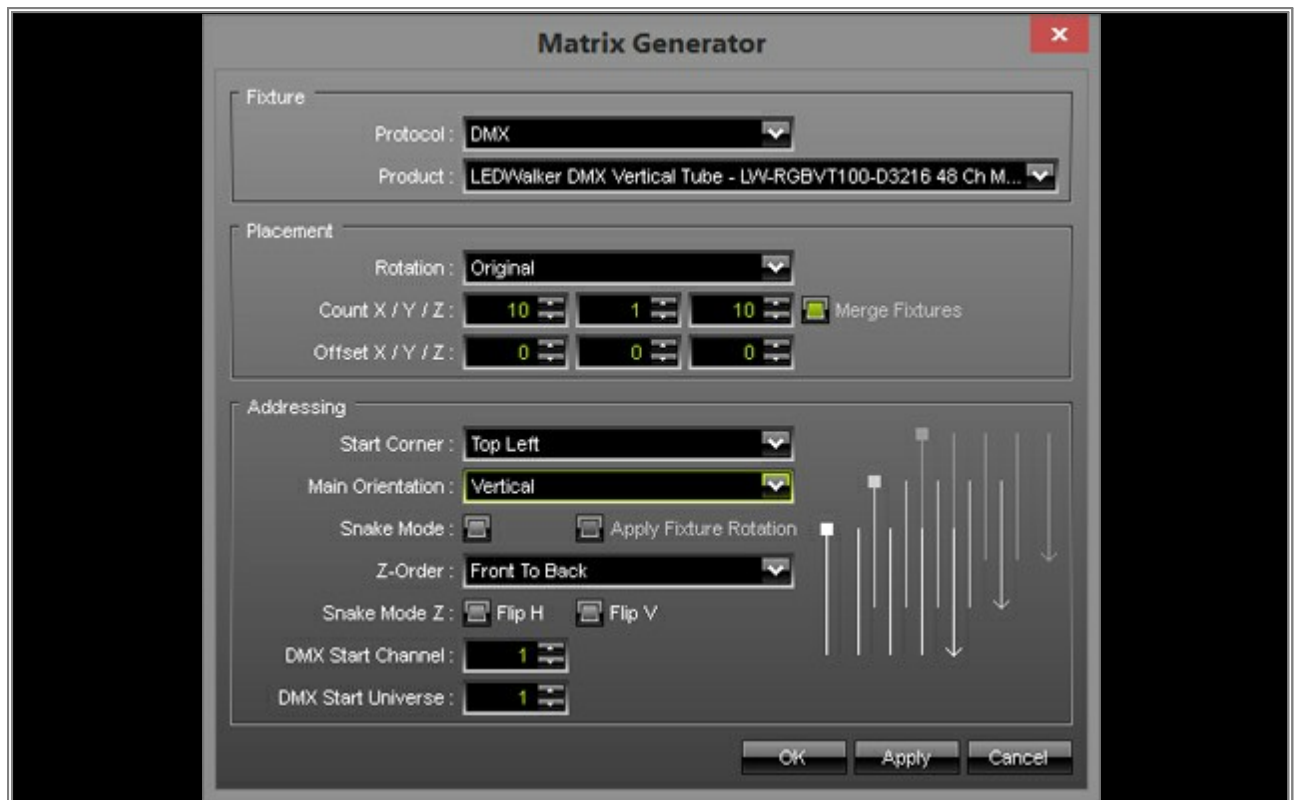
Note: If you have never worked with the Matrix Generator before, please have a look at the tutorial to »[The First Patch](#)

We will now patch 100 LEDWalker LW-RGBVT100-D3216 tubes.

1. Start MADRIX and press the **F2** key. The **Matrix Generator** will be opened.

2. Set up the following settings:

- **Protocol:** Should be **DMX**
- **Product:** Change it to **LEDWalker DMX Vertical Tube - LW-RGBVT100-3216 48 Ch Mode**
- **Rotation:** Should be **Original**
- **Count:** We want to have 10 tubes side by side and 10 in a row. Therefore, set **X** to **10**, **Y** to **1**, and **Z** to **10**
- **Offset:** Leave the default setting.
- **Start Corner:** **Top Left**
- **Main Orientation:** **Vertical**
- **Snake Mode:** **Disabled**
- **Z-Order:** **Front To Back**
- **Z-Snake Mode:** **Flip H** and **Flip V** are **disabled**
- **DMX Start Channel:** **1**
- **DMX Start Universe:** **1**



Click **OK**

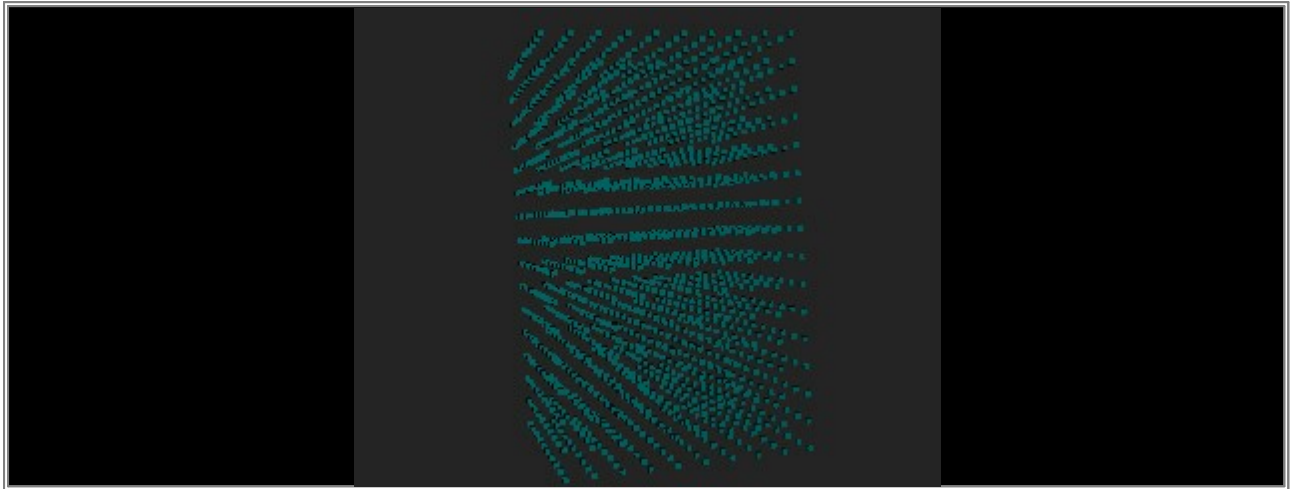
3. You can see the following Preview in MADRIX:



That is no 3D Preview, yet. To change the Preview to 3D, perform a click with the **right mouse button** on one of the Previews and select **3D Mode** in the pop-up menu.



4. To see the patched matrix better (and in 3D), change the color of the SCE Color Effect.



Navigation in the Preview is very easy. Use the **mouse wheel** to zoom in and zoom out or hold the **left mouse button** down and move the mouse to turn the matrix within the Preview.

Congratulations! You have created a 3D Patch and changed the view to 3D in MADRIX.

1.24 Creating A Complex 3D Patch Using The Patch Editor

This tutorial shows you how to create a 3D Patch with different fixtures.

Date: 09/2014

MADRIX Version: 3.3 (Created with)

Note: It is useful to read the tutorial »[Creating A Patch With Different Fixtures](#) beforehand.

We want create a patch with **one Eurolite - LSD** soft display, several of the **Litecraft - PowerBars**, and several of the **Ehrgeiz - FS-60** fixtures.

1. Start MADRIX and go to **Preferences > Patch Editor** or press **F3**.
2. Create a new, empty patch. To do so, click **New** on the toolbar and confirm the next dialog.

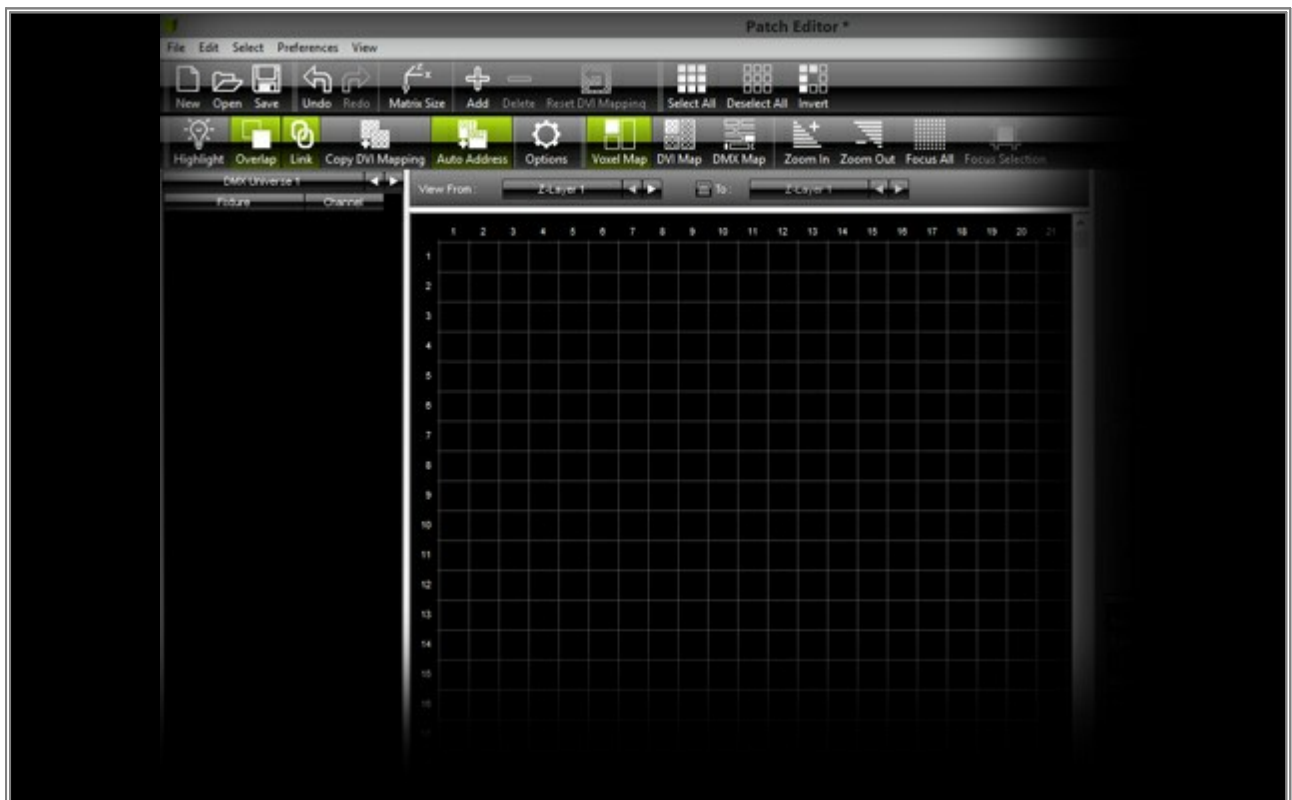
3. Now change the size of the patch. Click **Matrix Size** and set the values to:

- **Size X: 20**
- **Size Y: 20**
- **Size Z: 10**

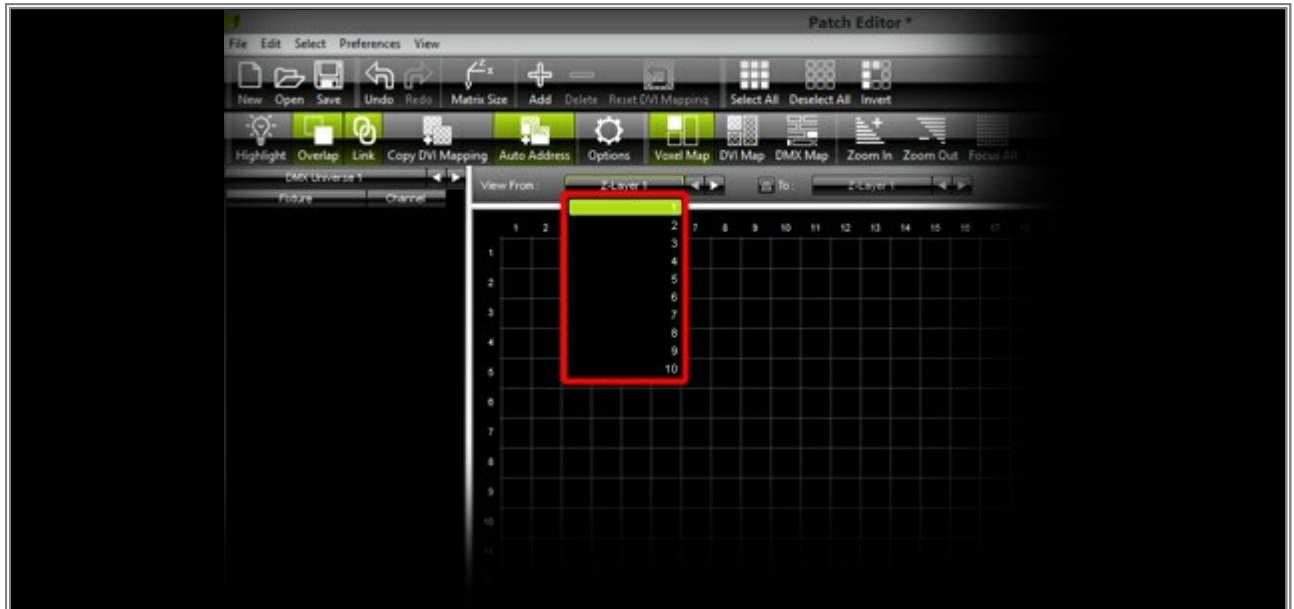


Confirm with **OK**

In this way, we have changed the patch size to 20 pixels in X and Y with 10 levels in Z.



- 4. Right now, you can see only one Z-Level. If you want to navigate through the layers, you have to change the index number of the **First Z** control.



- 5. In the following steps, we want to patch some fixtures. We will start with adding several **Litecraft - PowerBars**.

Click **Add** and change the settings as shown in the following picture:



Confirm with **Add**

Click **Close** in order to close the **Add Fixtures** window. You should see 2 PowerBar fixtures in the middle of the first row of your patch. If you navigate through the Z-Levels, you can see that on each of the 10 levels these 2 fixtures are placed in the middle of the first row.

- Click **Add** again. Now, we want to add the **Eurolite - LSD** DVI fixture. Please change the settings as shown in the following picture:



Click **Add**

7. We will continue to add fixtures. In this step, we will add several **Ehrgeiz - FS-60**. Change the settings as shown in the following picture:



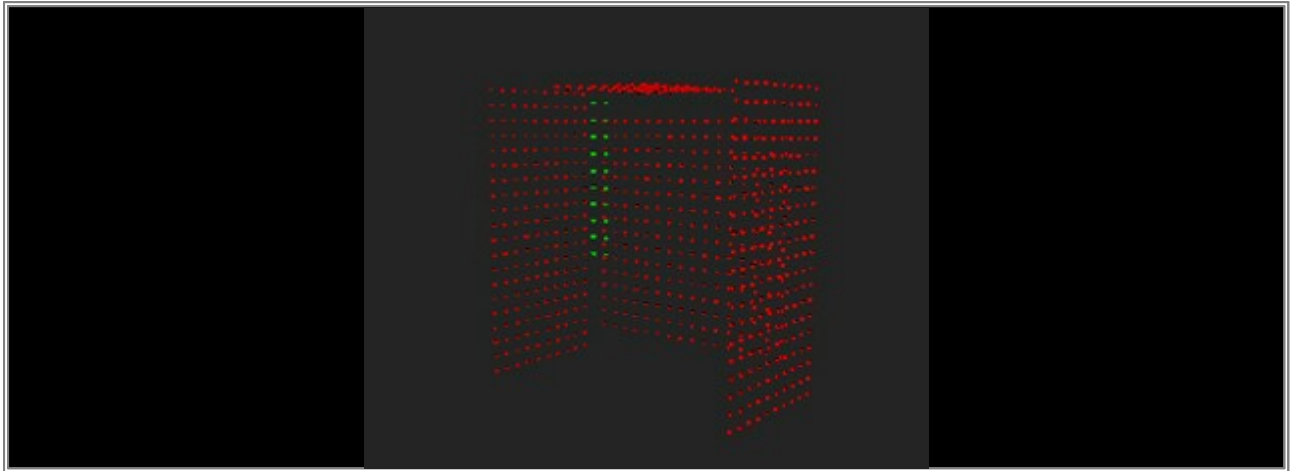
Click **Add**

8. In this step, we are going to add the last fixtures of this tutorial. We want to patch **Ehrgeiz - FS-60** fixtures again. But this time, we want to place only 2 in the middle of Z-Level 10. Change the settings as shown in the following picture:



Click **Add** and **Close**

9. Close the Patch window and the Preview in MADRIX should now look like this:



If you do not see a 3D view in MADRIX, perform a click with the **right mouse button** on the Preview and change the mode to **3D Mode**

Congratulations! You have created a more complex 3D patch including different fixtures.

//PART B

Effects

2 Effects

2.1 Dropped Equalizer

In this tutorial, you will learn how you can create a dropped equalizer effect in MADRIX.

Date: 09/2014

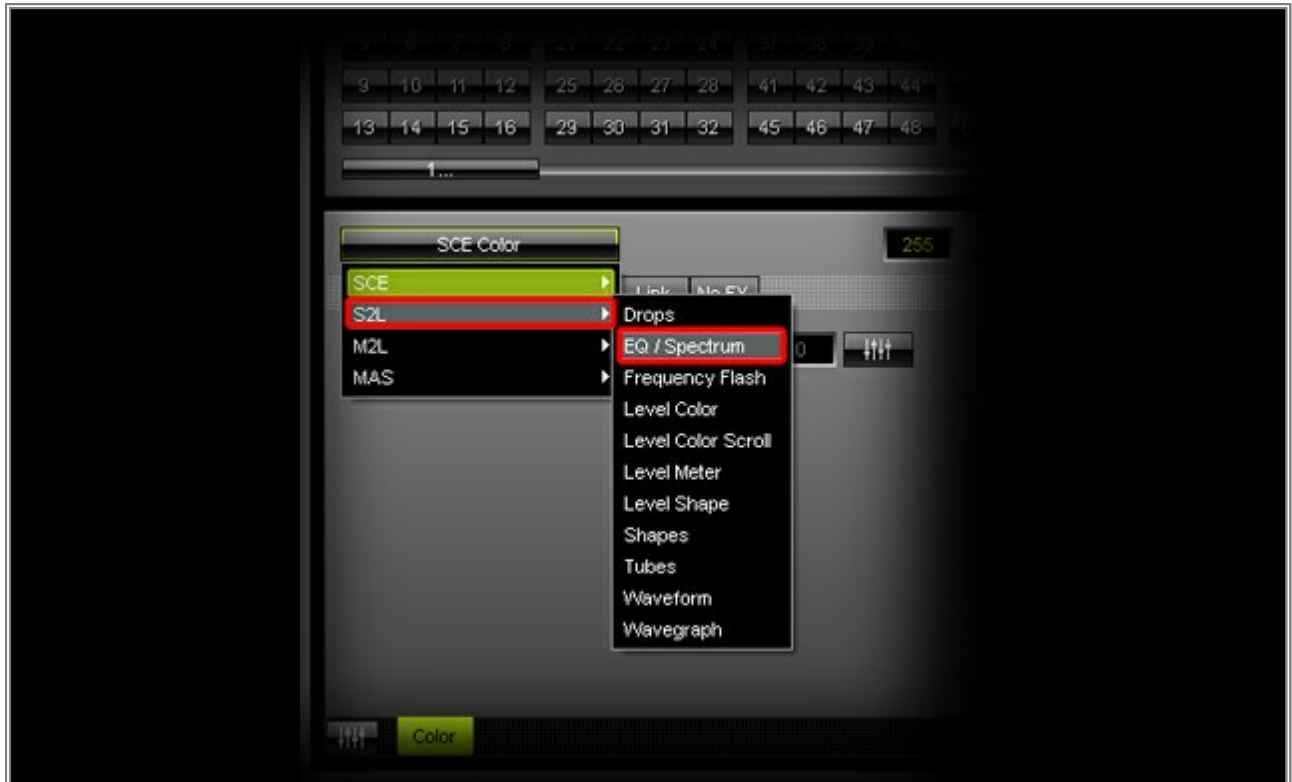
MADRIX Version: 3.3 (Created with)

Requirements: For this tutorial you will need audio input into MADRIX.

0. Before we start, make sure that you are receiving audio in MADRIX. Start your audio and check the input in MADRIX with the help of the Audio section in the middle of the user interface of MADRIX. The **Audio** button should be green and the level meter should show an amplitude.



1. Select a free Storage Place (in this example it is Storage 1, Place 1). Then, choose the **S2L EQ / Spectrum** effect via the drop-down list in the upper left corner of the Effect Area.



2. We want to change the colors. Click the **Colors** button.



A new window, the **Gradient**, will be opened. Now, we can change the colors.

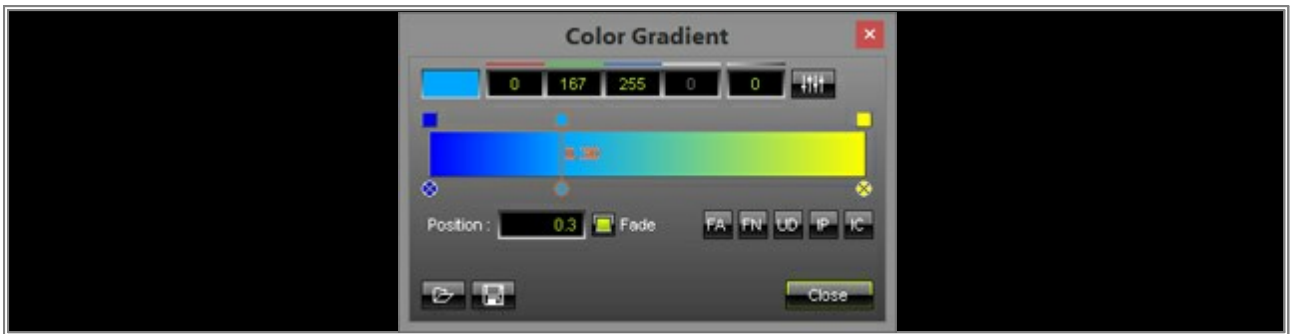
- To select a color, please click on the very small square above the color gradient. Change the color by changing the values for Red, Green, and Blue.
Or click and hold the **left mouse button** on the color field in the upper left corner to choose your color.
- If you want to add a new color, please click with the **left mouse button** on the gradient.
- If you want to delete a color, please click with the left mouse button on the little cross below the color gradient.

We want to change the first color to blue. To do so, change the values of the color fields to: **Red = 0, Green = 0, Blue = 255**.

Then, change the color of the second color to: **Red = 0, Green = 167, and Blue = 255**.

We want to change the third color to yellow: **Red = 255, Green = 255, Blue = 0**.

Now, change the position of the second color: Click on the small box above the gradient and hold the **left mouse button** down. Then, move the mouse to move it to position **0.30**.



Click **Close** to close the window.

3. Perform a **right mouse click** on the Layer tab (labeled **EQ / Spectrum**) on the bottom left side and select **Duplicate**. A new Layer with the same Effect settings will be added.

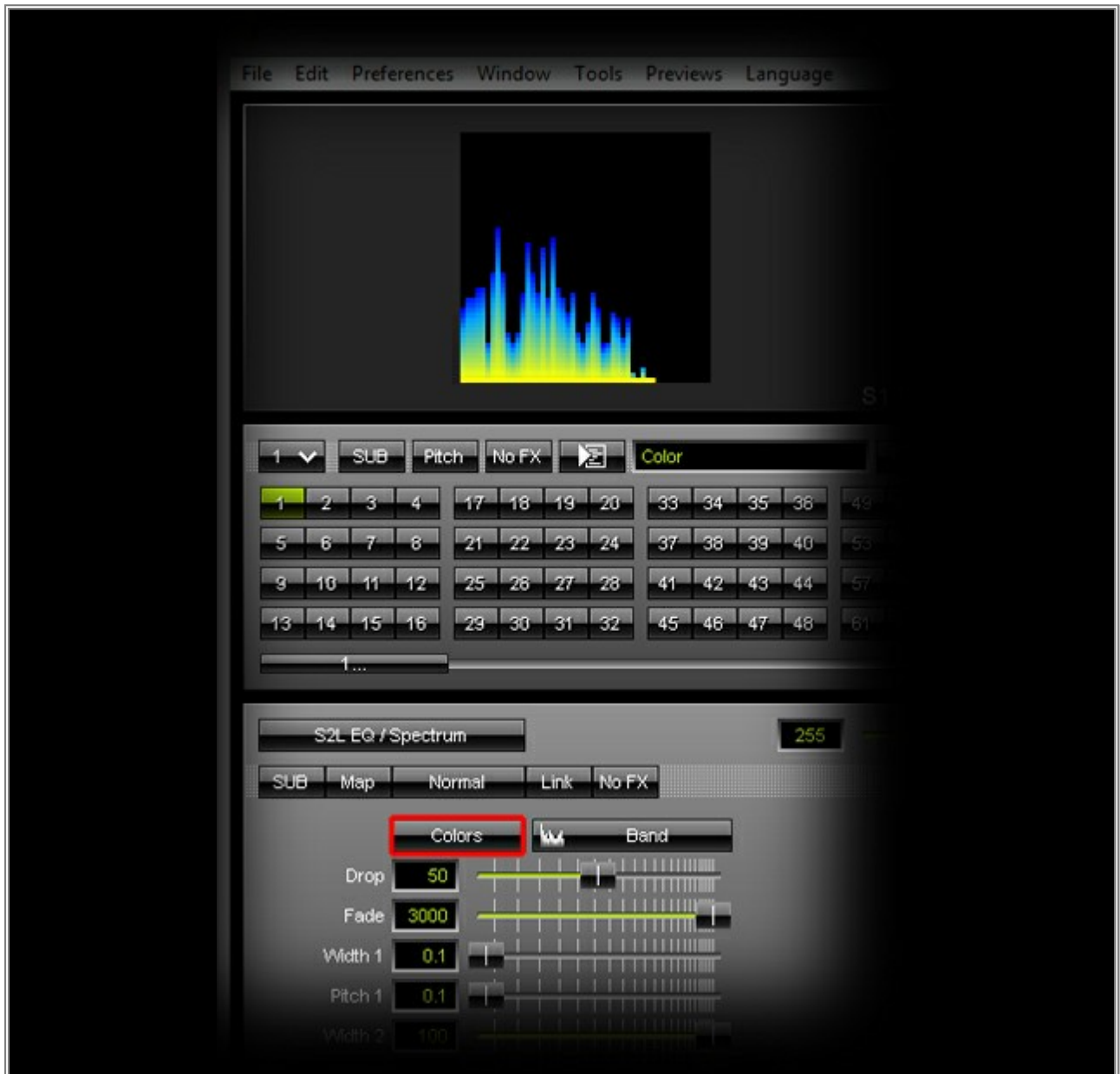
Note: The new Layer will be inserted on the right side of the currently selected Layer. That means the effect of the new Layer is above the other effect and its Layer.



4. Now, please select the left Layer again.



- Click **Colors** again.



This time, change the colors to:

- First color: **Red = 0, Green = 0, Blue = 255**
- Second color: **Red = 0, Green = 0, Blue = 0**
- Third color: **Red = 0, Green = 0, Blue = 0**

- The position of the second should be **0.15**

Click **Close**



6. Adjust the following effect settings:

- **Drop: 5**

The Drop value defines how fast displayed frequencies drop to make room for new ones.

- **Fade: 2000**

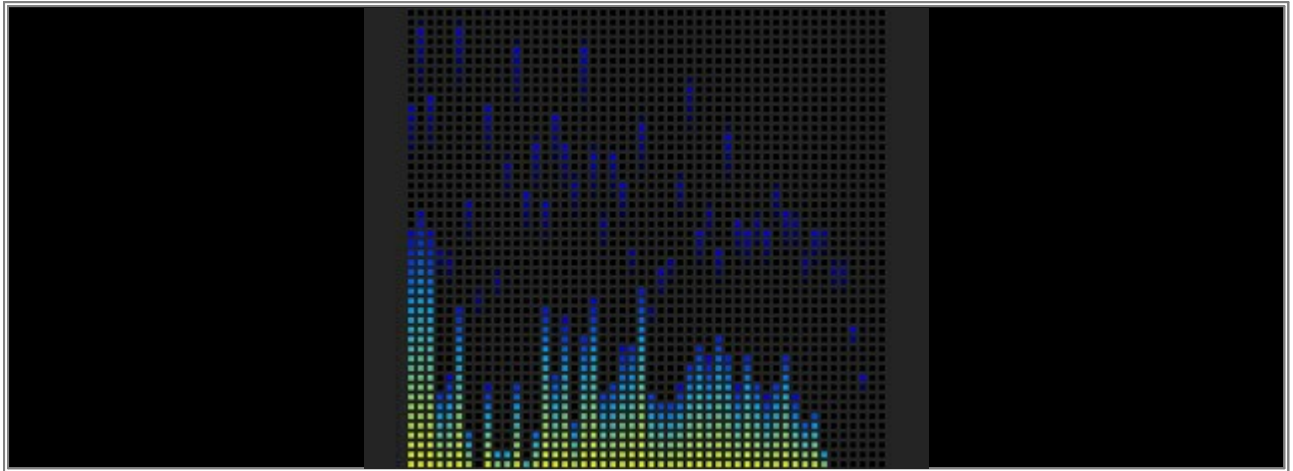
The Fade value defines how fast the bars fade out.

- **Amplify: 50**

The Amplify function defines that the input signal will be displayed more intensely. You can change the value by clicking the **AMP** button and holding down the **left mouse button** while choosing the right value.



7. The result will look similar to this:



Congratulations! You have created a dropped Equalizer.

2.2 Working With Layers

In this tutorial, you will learn how you can work with different Layers.

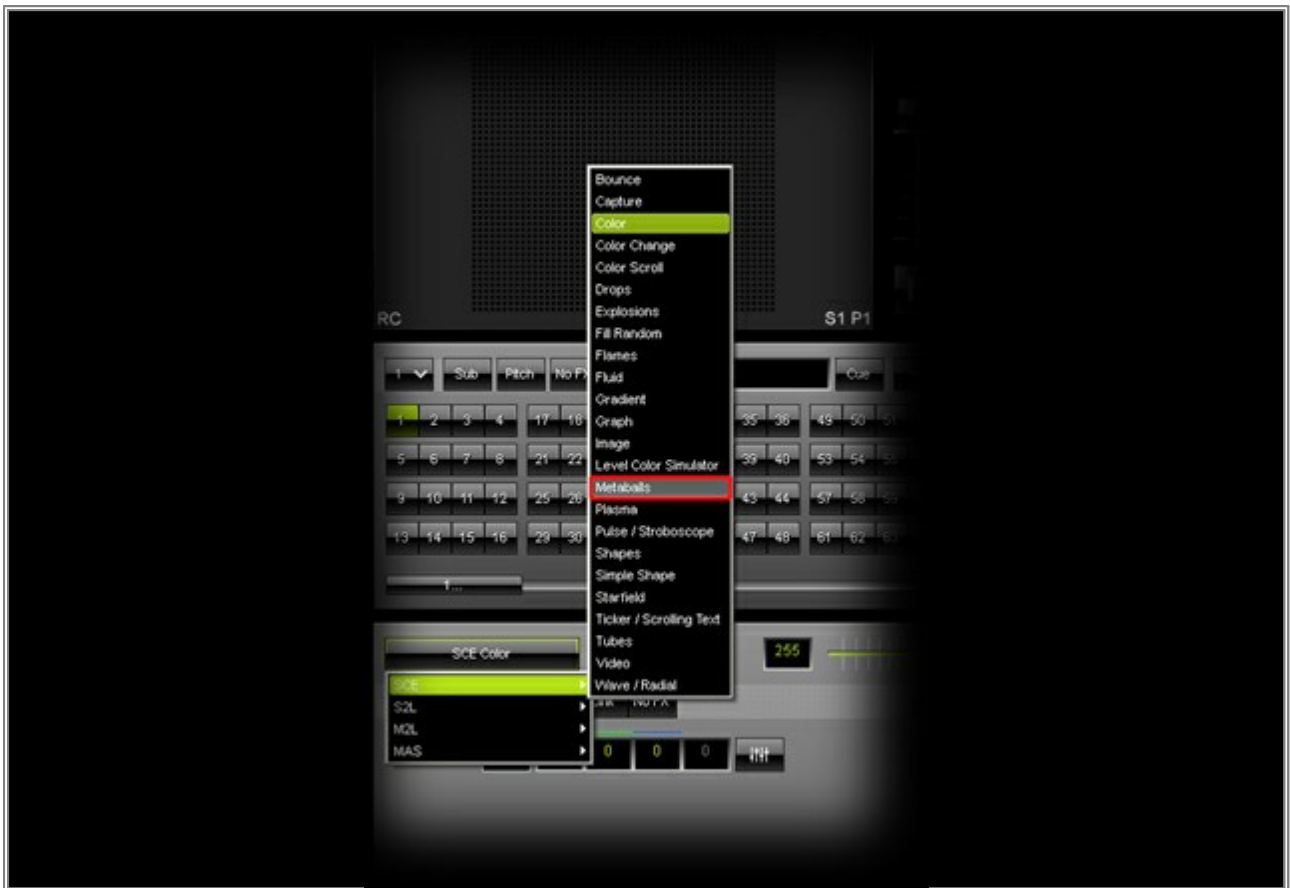
Date: 10/2013

MADRIX Version: 3.0 (Created with)

Requirements: Please make sure that MADRIX receives audio input.

1. Select a free Storage Place. In this example it is Storage 1 and Place 1.

- Now, choose and select **SCE Metaballs** from the drop-down list of effects.



3. Click the **Layer** button in the middle at the bottom and choose **New**



A new Layer will be added and you should see that Preview Left is black now, where you just saw the SCE Metaballs Effect.

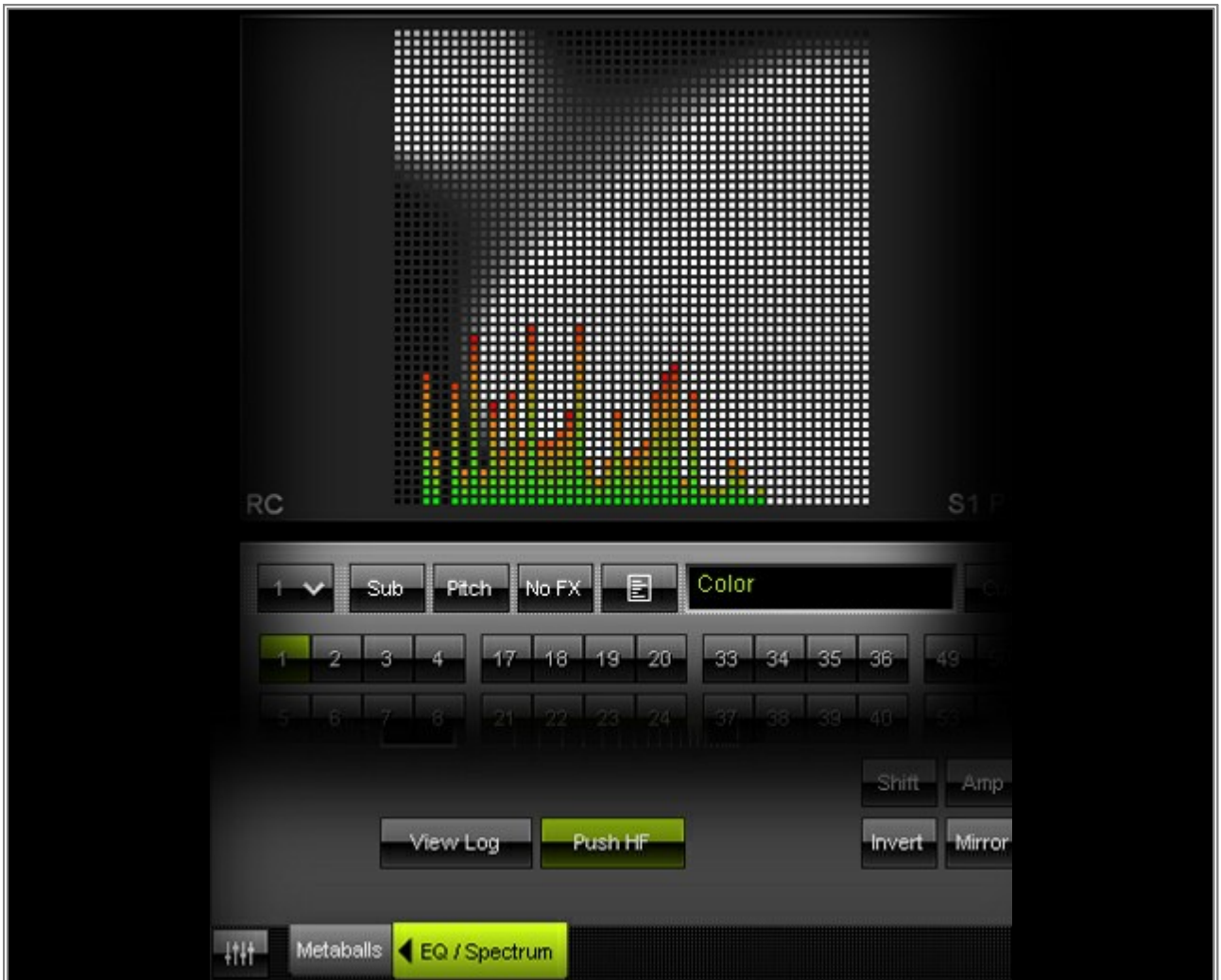
Note: Every time you add a new Layer, this Layer will be inserted with the default effect next to the currently selected Layer. **SCE Color** with a **black** color is this default effect.

4. Change the effect of the newly inserted Layer to **S2L EQ / Spectrum**



- 5. Now, have a closer look at the order of the effects. The desired order should look like shown the following picture. SCE Metaballs can be seen in the background and S2L EQ / Spectrum is shown in the foreground, above any Metaball. The order of the Layers determines this outcome: SCE Metaballs and its Layer are positioned to the left. The Layer of S2L EQ / Spectrum is positioned next to it on the right-hand side.

Note: In general you can say that effects/Layers positioned to the right, are placed above other Layers.



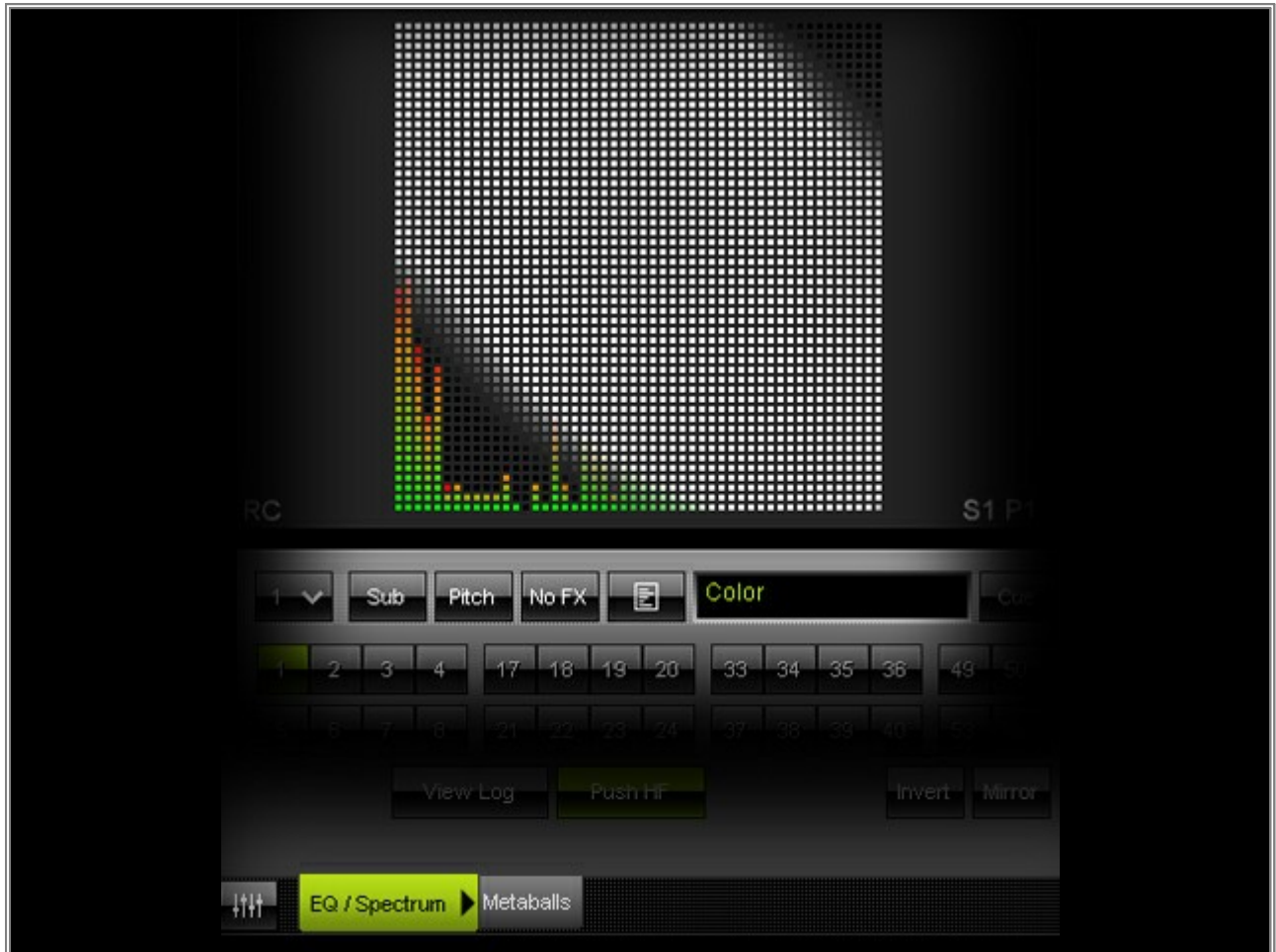
6. Now, we want to change the order of the Layers. Therefore, select the Layer **EQ / Spectrum** and click on the **arrow** shown on the left side of the label.



As a result, you can see that this Layers has been moved on step to the left.



7. Have a second look at Preview Left. Now, the equalizer effect is in the background and the Metaballs are shown in the foreground.



Exercise: Create an effect with more than two Layers and choose a different effect for each Layer. Change the order of the Layers and monitor the different results.

8. You can change also the name of a Layer.
Perform a double-click with the left mouse button on the Layer tab and its label. The **Layer Name** window will be opened. Now, you can enter any name. Press **OK** to confirm the change.



Congratulations! You have learned how to work with Layers in MADRIX.

2.3 The Link Button

This tutorial shows you how you can work with the Link button in MADRIX.

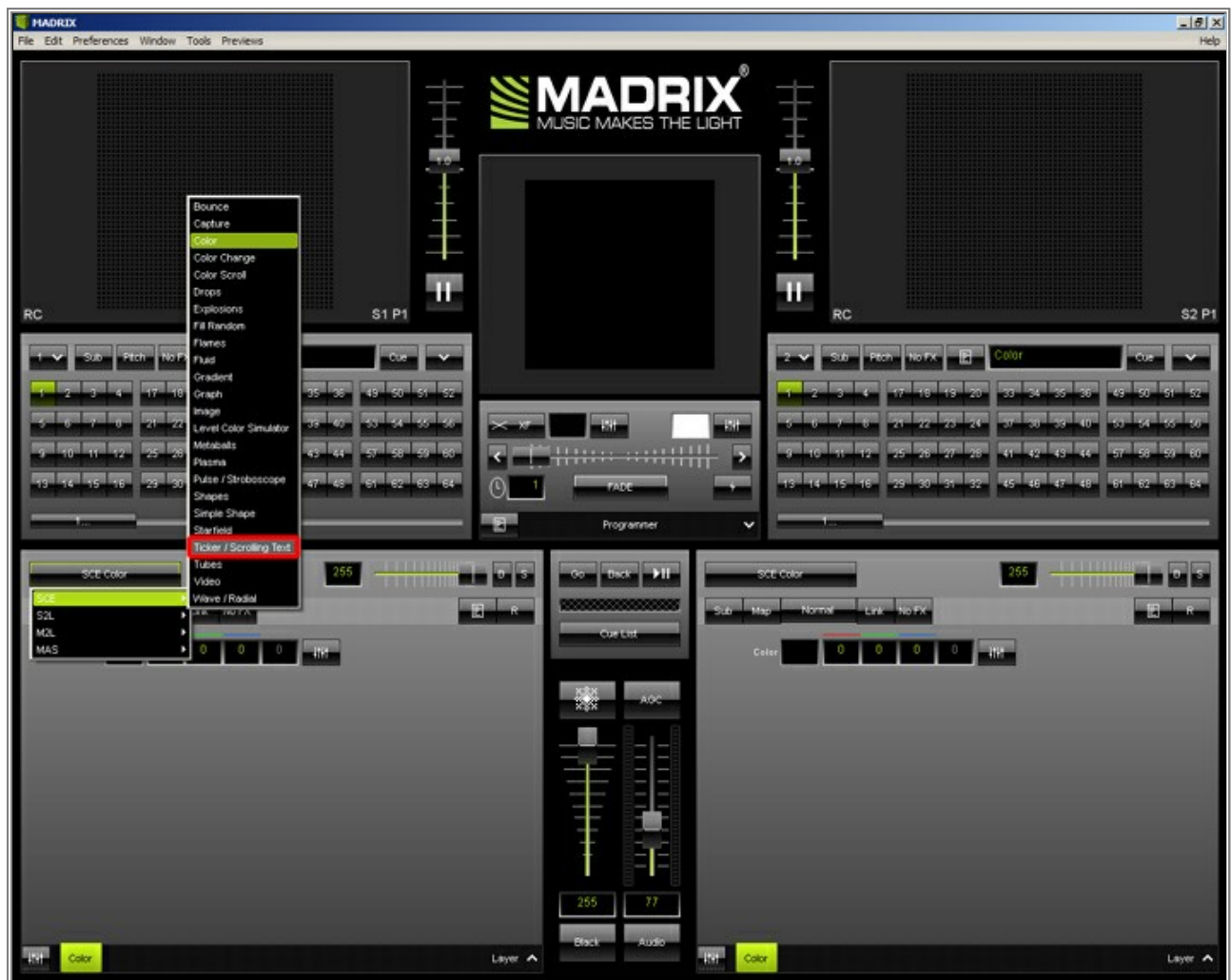
Date: 10/2013

MADRIX Version: 3.0 (Created with)

The Link button is useful to create new lighting effects by using several Layers.

1. Please select a free Storage Place. In this example it is Storage 1 and Place 1.

2. Select the **SCE Ticker / Scrolling Text** effect.



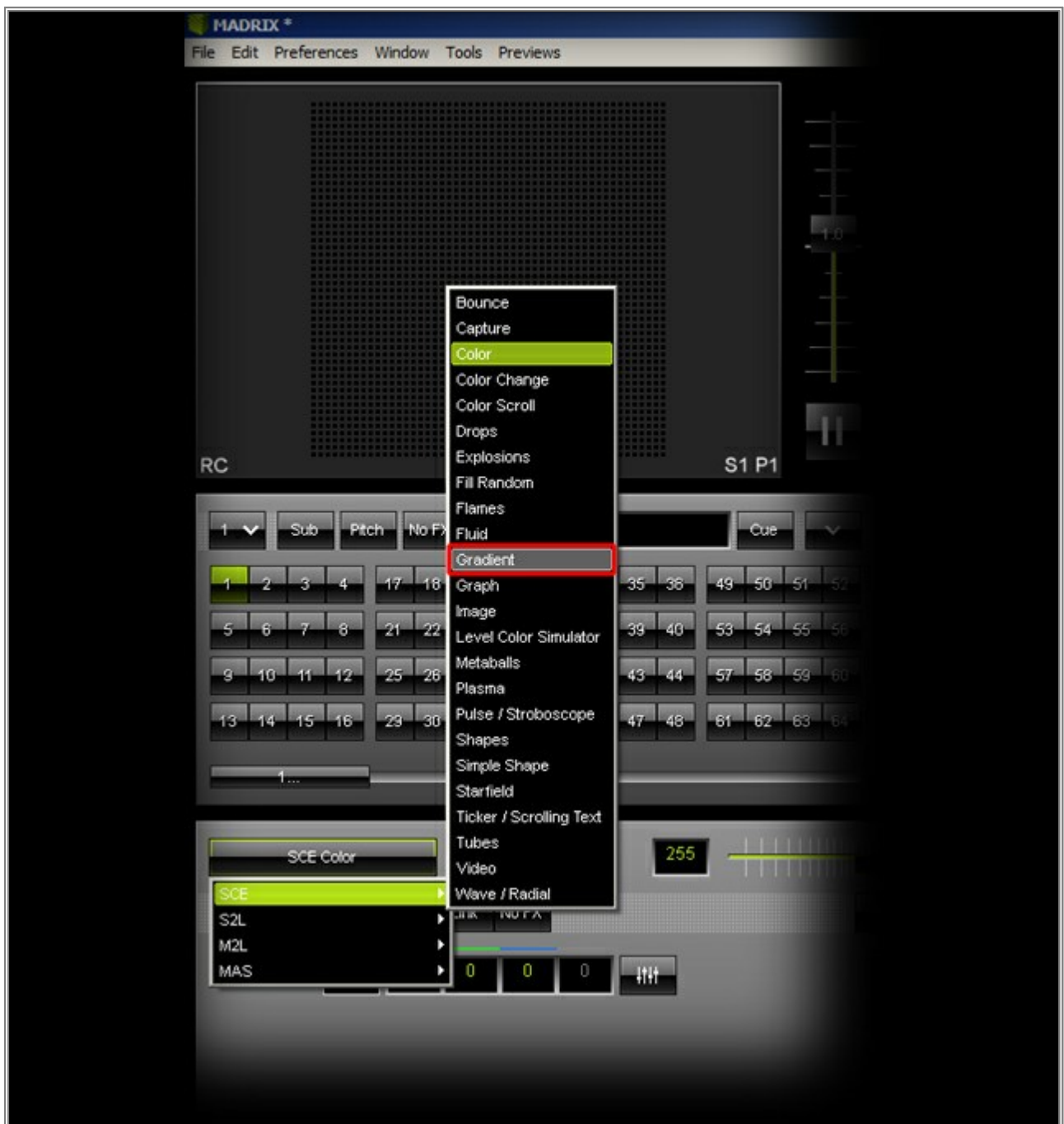
- Now, add a new Layer. To do so, click the **Layer** button and select **New**



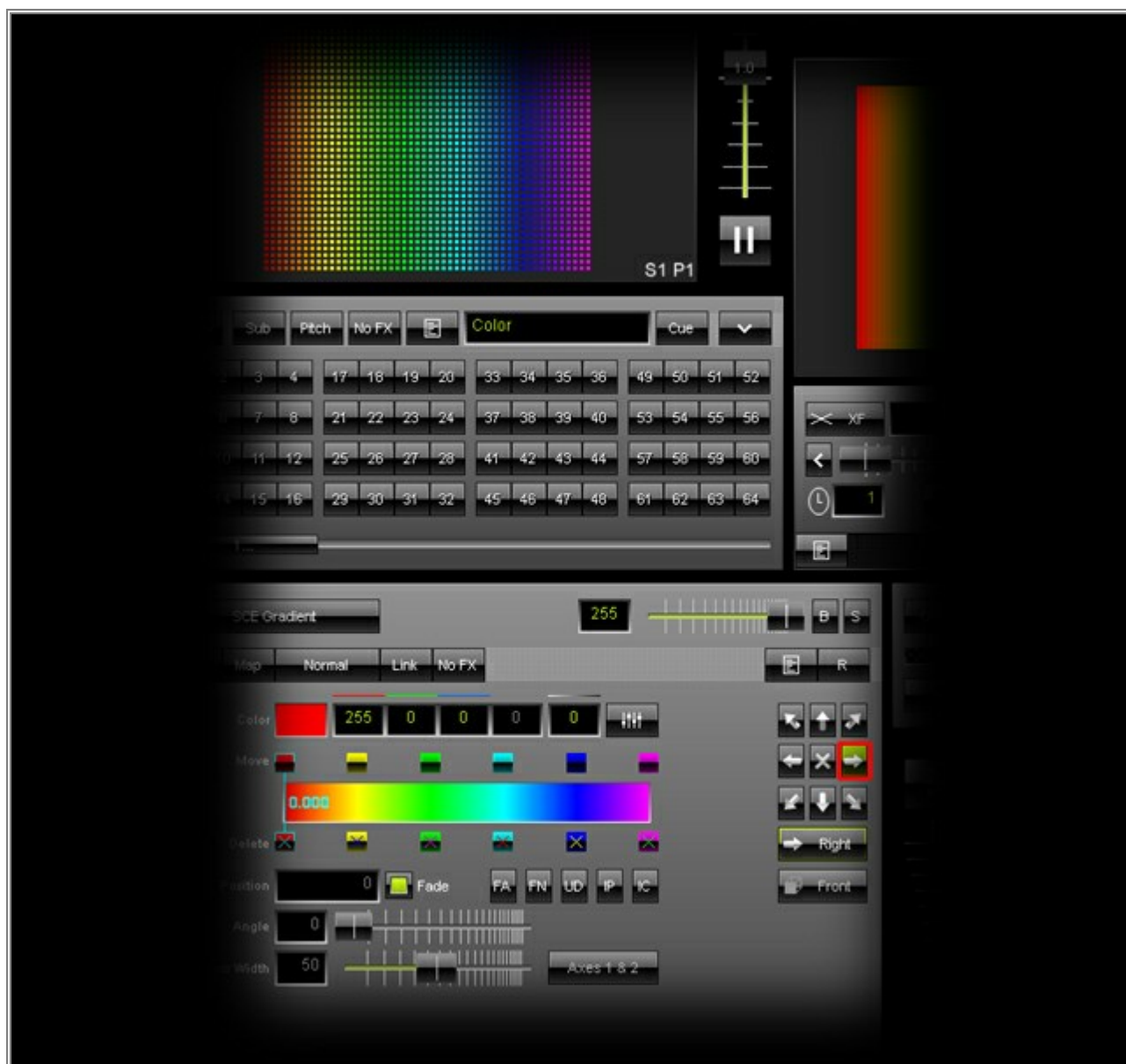
A new Layer will be inserted with the default effect **SCE Color** and black color.

Note: Your first effect is currently in the background. A newly inserted Layer will always be above at first, because it is inserted to the right of the current Layer.

4. Change **SCE Color** to **SCE Gradient** for the second Layer.

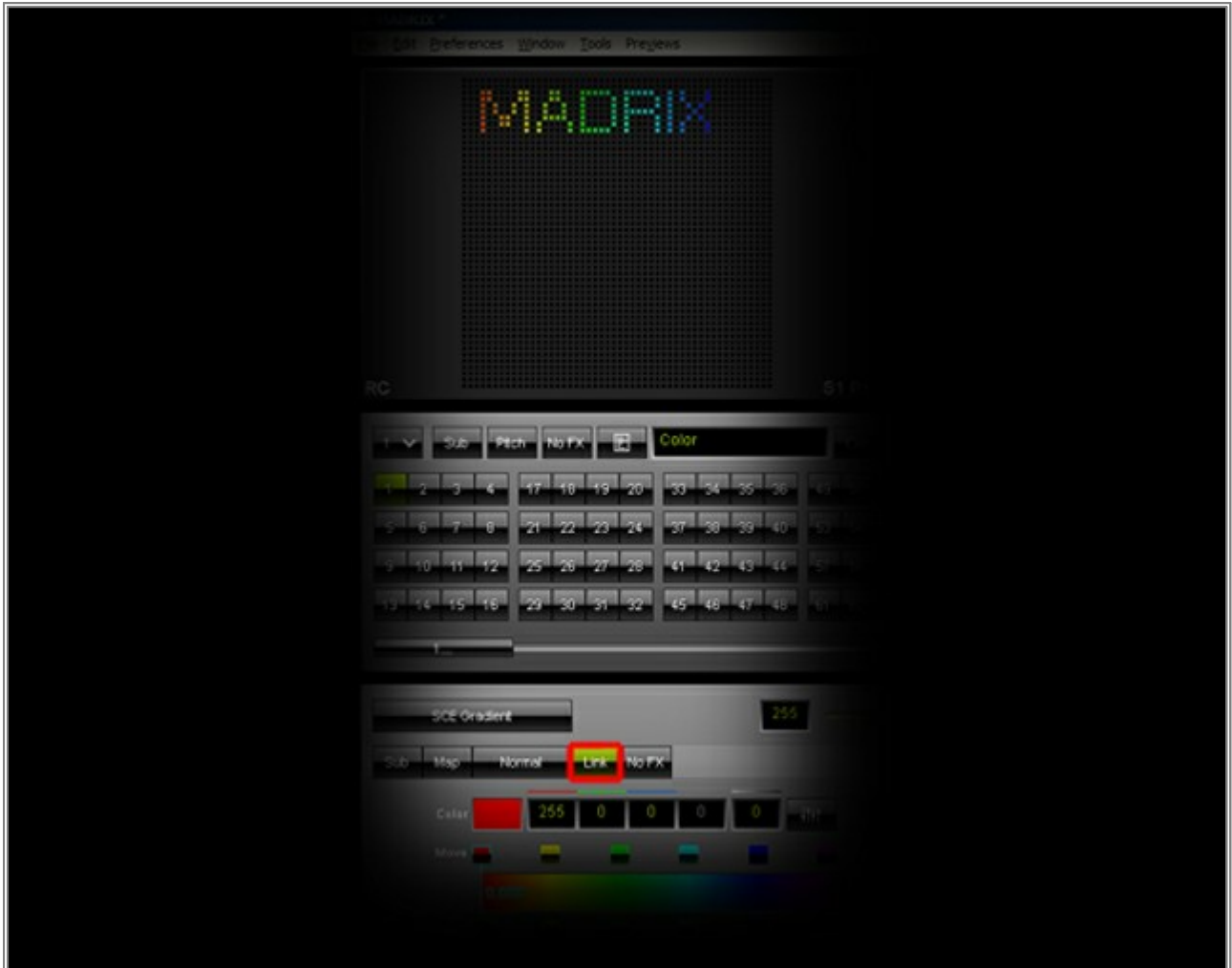


- 5. Change the direction of the Gradient to **right**



- Now, activate the **Link** button on the **Gradient** Layer, which is the second Layer.

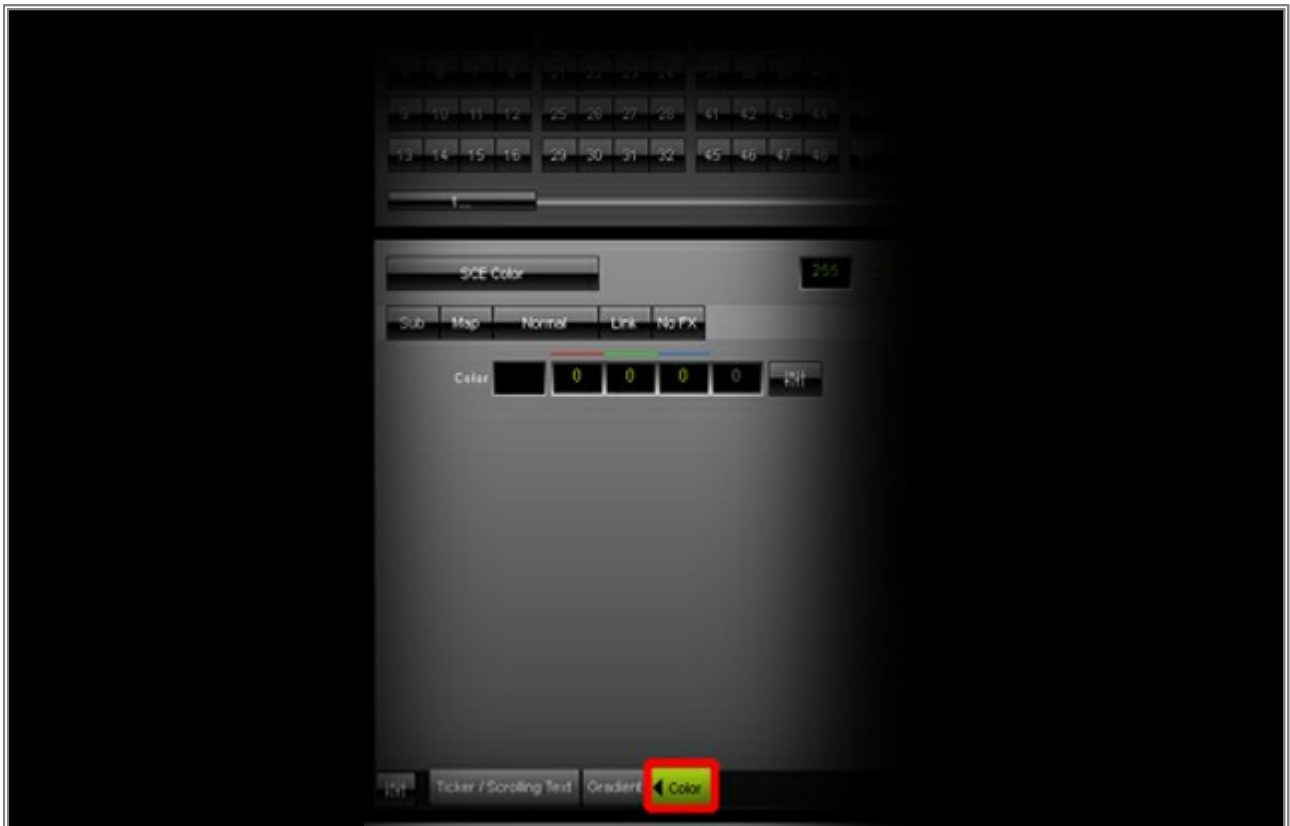
You can see that the right Layer will be linked to the Layer left of it. In this example, **SCE Gradient** will be linked to **SCE Ticker / Scrolling Text**. The result is a colorful, scrolling text as shown in the following picture.



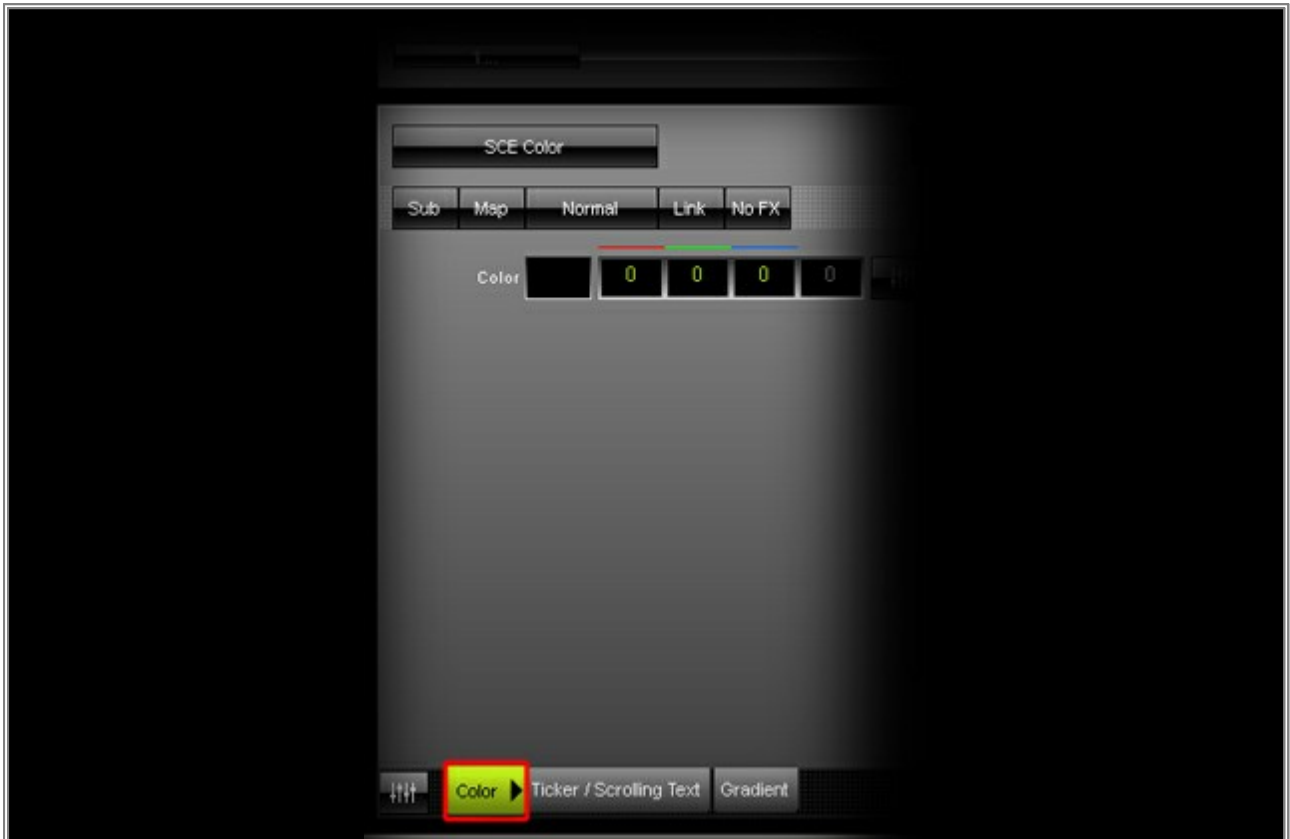
7. As an advanced user, you might say: "Mix Mode Mask produces the same result!". That is correct if you are only using two Layers.

In this tutorial, we will add another Layer to see the difference between **Mix Mode Mask** and **Link Mode** when using more than two Layers.

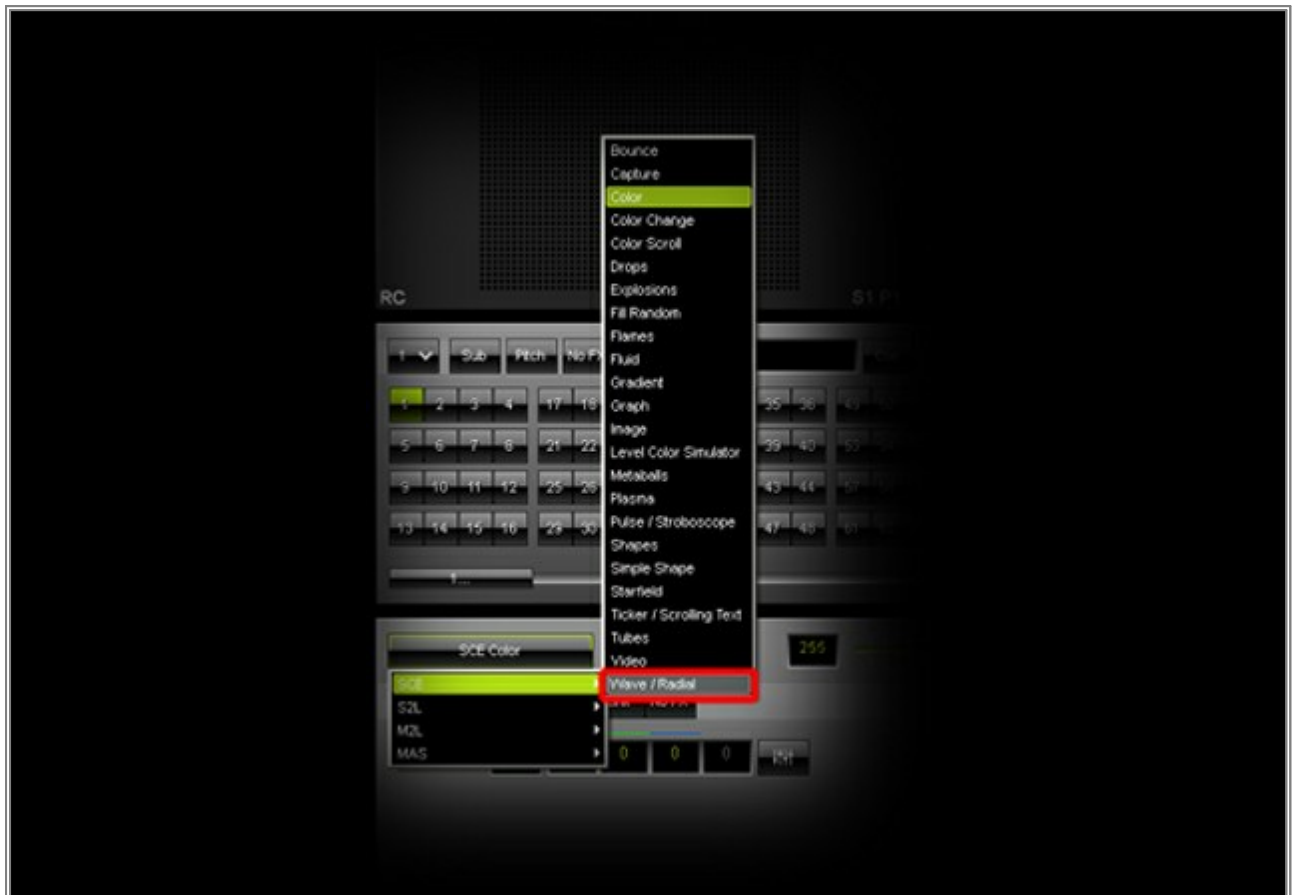
Please add a new Layer as shown in Step 3.



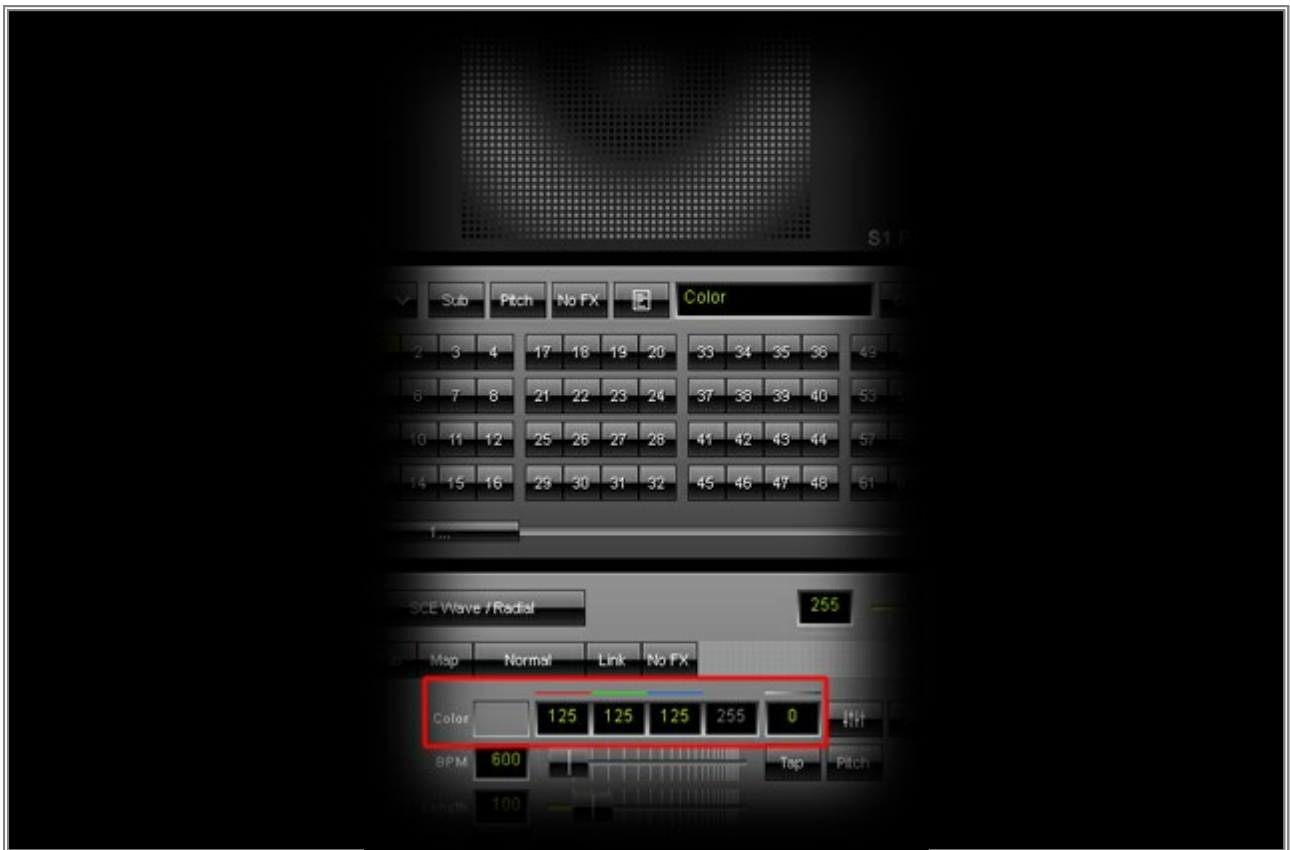
- We have to change the order of the Layers. The newly inserted Layer should be in the background. That means that the "Layer" must be positioned on the very left of the three Layers. Hence, select the newly inserted Layer and click the **arrow** shown next to the label **Color**. The Layer will be moved to the second position. Click on the **arrow** again and the Layer will be moved to the first position on the left.



- 9. Change **SCE Color** of the first Layer to **SCE Wave / Radial**



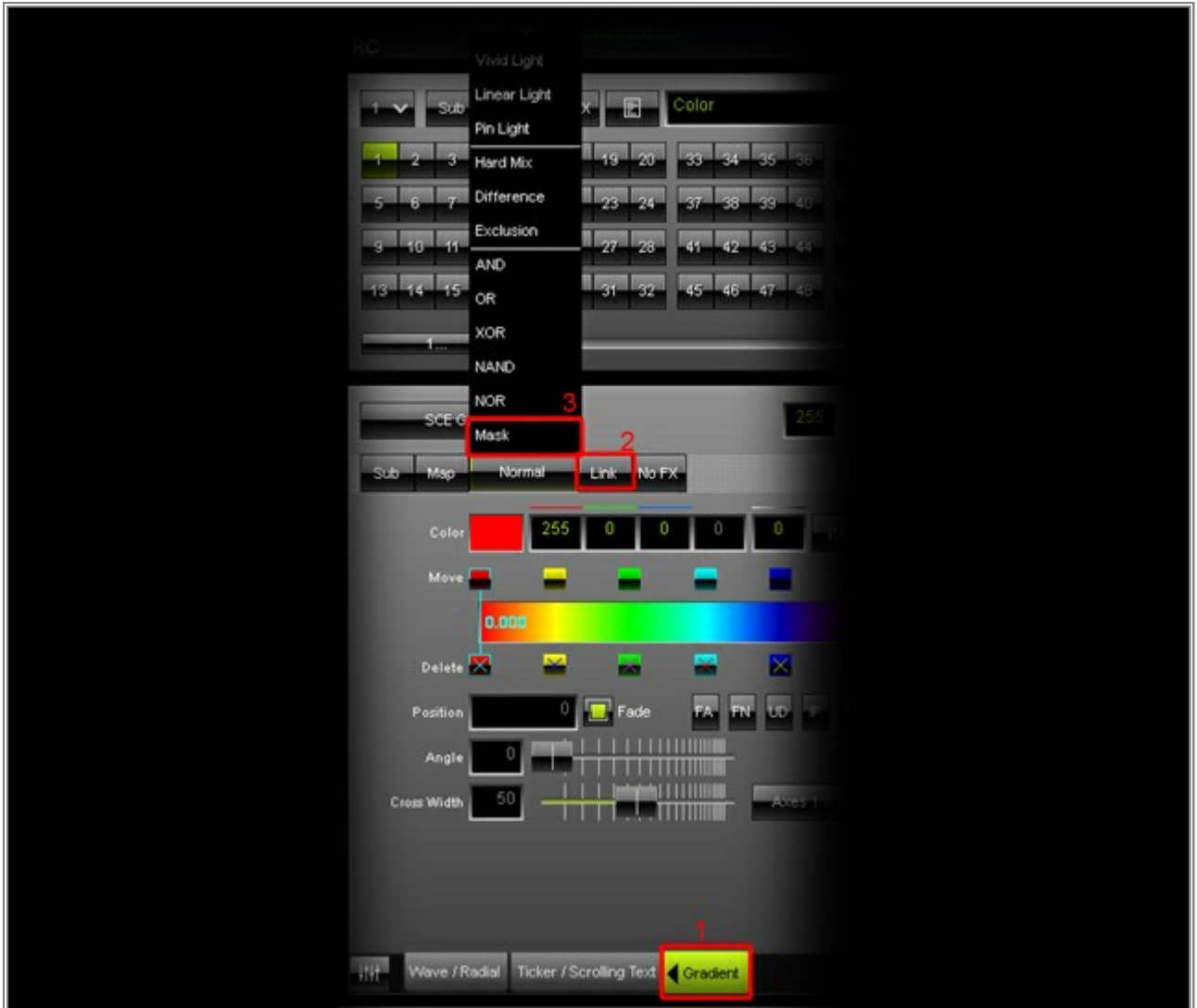
10. Change the color to **Red = 125, Green = 125, Blue = 125**



11. You should be able to see a colored text and a gray radial in the background on your Preview Left.



- 12. In this step, we want to see the difference between **Mix Mode Mask** and **Link Mode**. First, select Layer 3 (**Gradient**). Second, deactivate the **Link** button (the button should be gray now). Third, click on **Normal** to choose a different Mix Mode. Select Mix Mode **Mask**.



Now, you can see a different result compared to Step 11. Mix Mode Mask causes all Layers behind this Layer to be colored.



Congratulations! You have learned how you can work with the Link button.

2.4 Solo Mode And Blind Mode For Layers

In this tutorial, you will learn how you can work with the Solo (S) and Blind (B) button. The functionality is very helpful for creating new effects and to see how each Layer of the created effect works.

Date: 10/2013

MADRIX Version: 3.0 (Created with)

1. Select a free Storage Place. In this example, we have selected Storage 1 and Place 1.

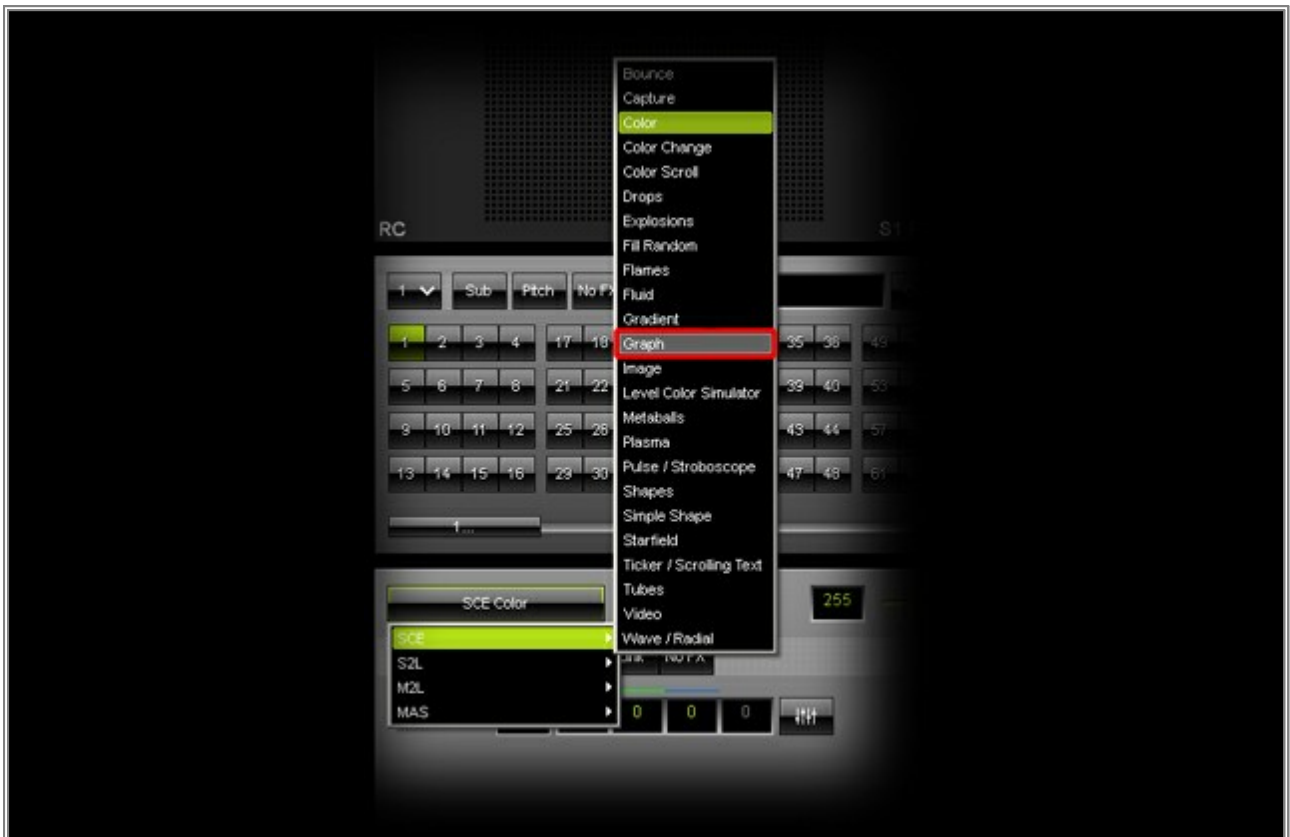
2. Choose and select **SCE Wave / Radial** from the drop-down list of effects.



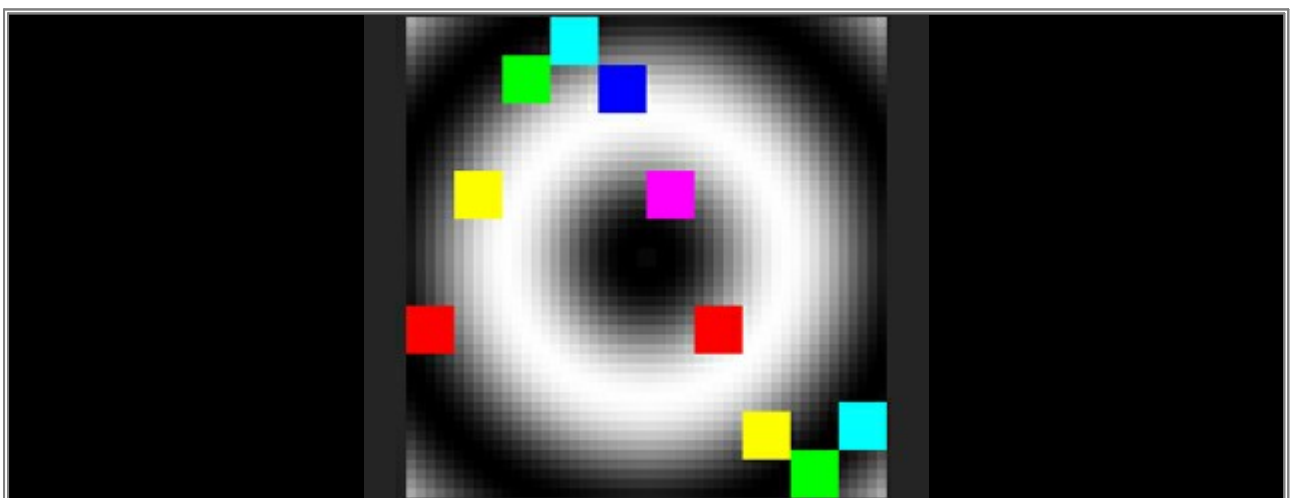
3. Click on the **Layer** button and choose **New**. A second Layer will be created automatically.



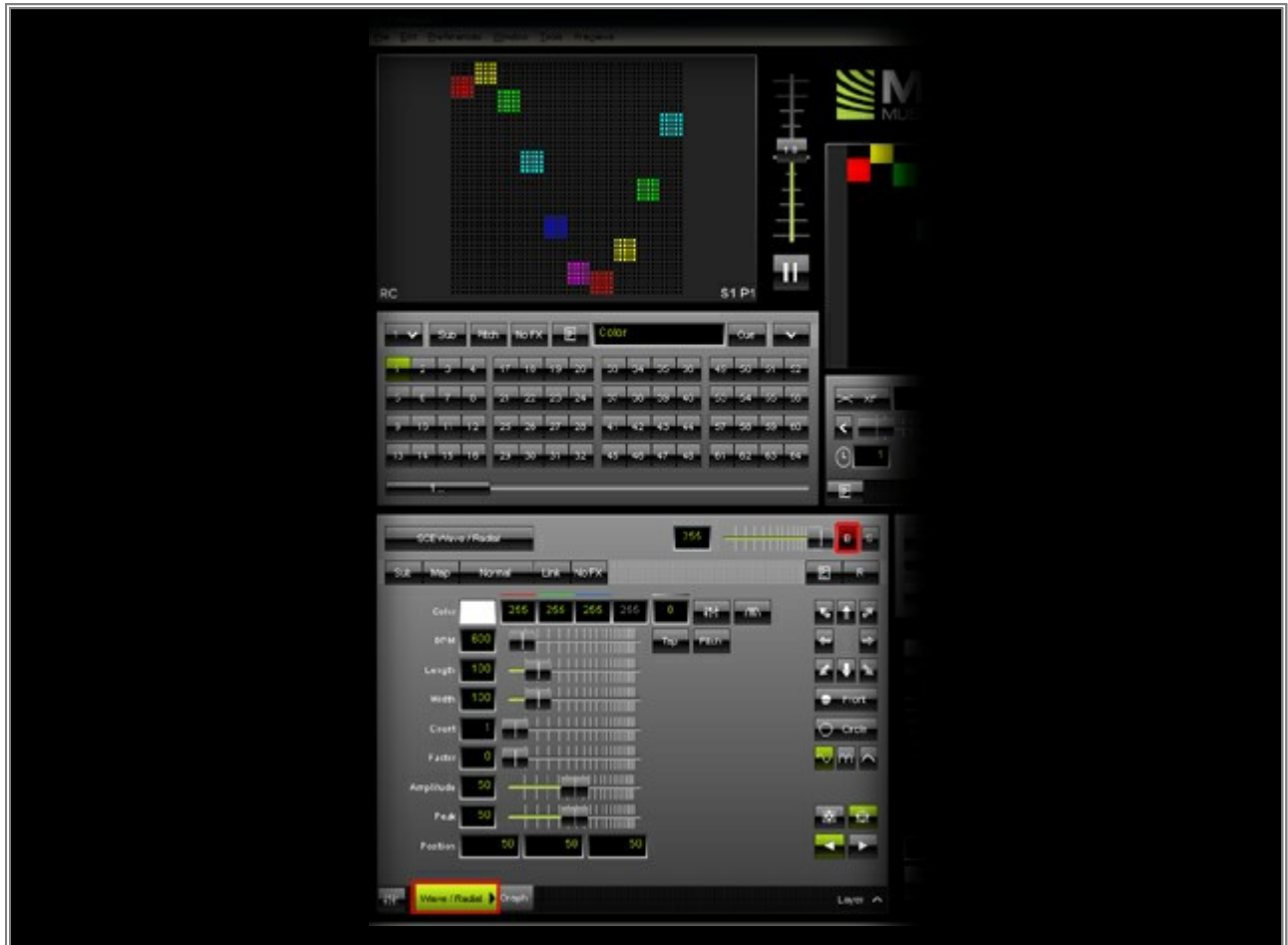
4. Select the effect **SCE Graph** for the new Layer.



5. In the Preview of MADRIX, you can now see a white wave with a colorful graph in the foreground as shown in the following picture.



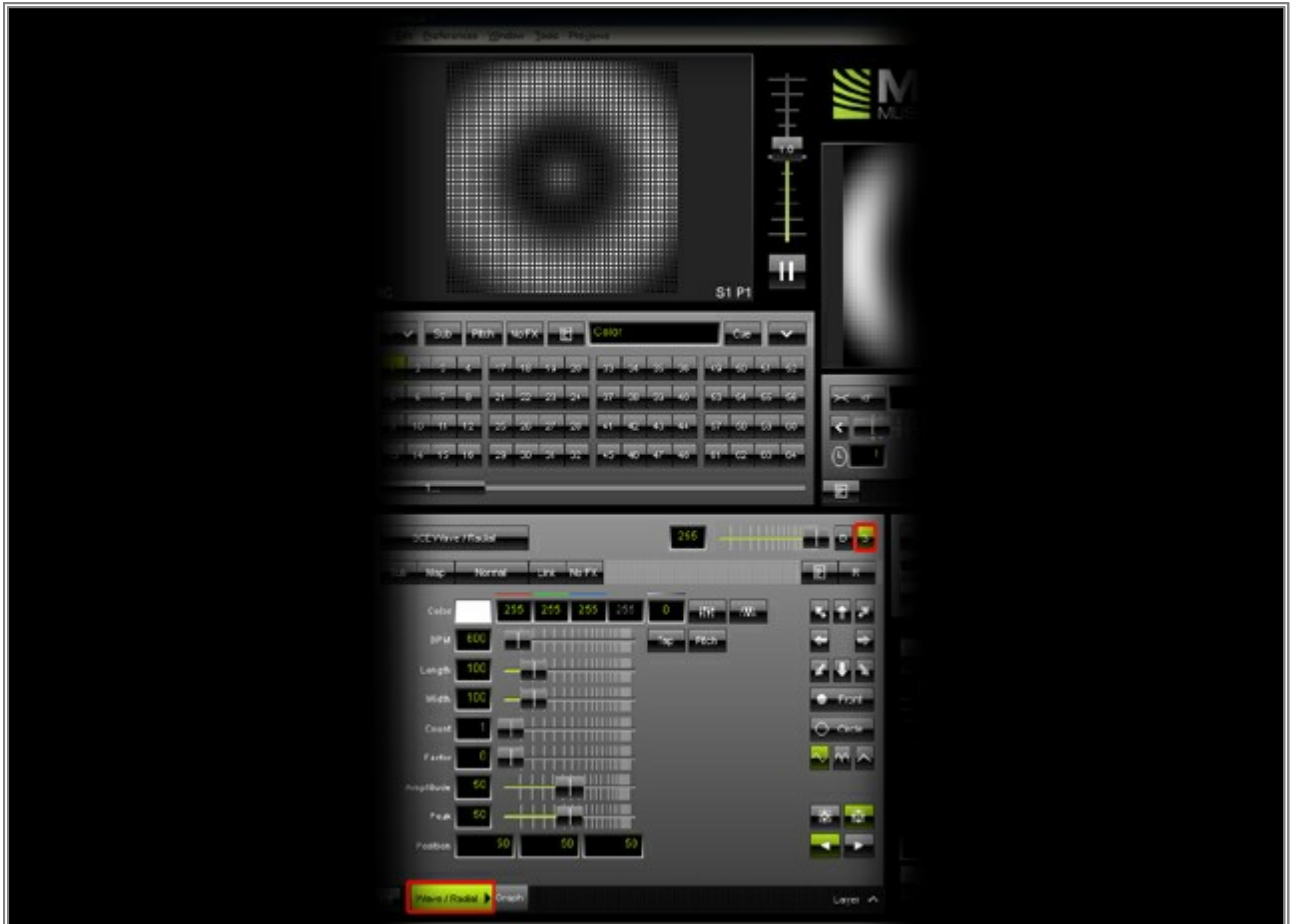
- Please select the first Layer again (with its label **Wave / Radial**). Click on the Blind button **B** (the button should be illuminated in red now). As a result, you will only see the SCE Graph effect.



Note: If you are only using 2 Layers, activating Blind Mode on the Wave / Radial Layer is equal to an activated Solo Mode on the Graph Layer.

- 7. Click the Blind button **B** again. In this way, you will disable Blind Mode again and you should be able to see both the Radial and the Graph.

Click the Solo button **S**(the button should illuminated in green) and you will only see the Radial.



- 8. Here are further tips when working with Blind Mode and Solo Mode:

Note: If you have selected Blind Mode and Solo Mode on the same Layer, you will see the Layer in Solo Mode. That means the priority of Solo Mode is higher.

Note: If you work with Mix Modes and Solo Mode on a Layer, you will see the effect without the Mix Mode.

Congratulations! You can now create effects with the advantage of using the Blind Mode and Solo Mode.

2.5 Using Video Files And Movie Content

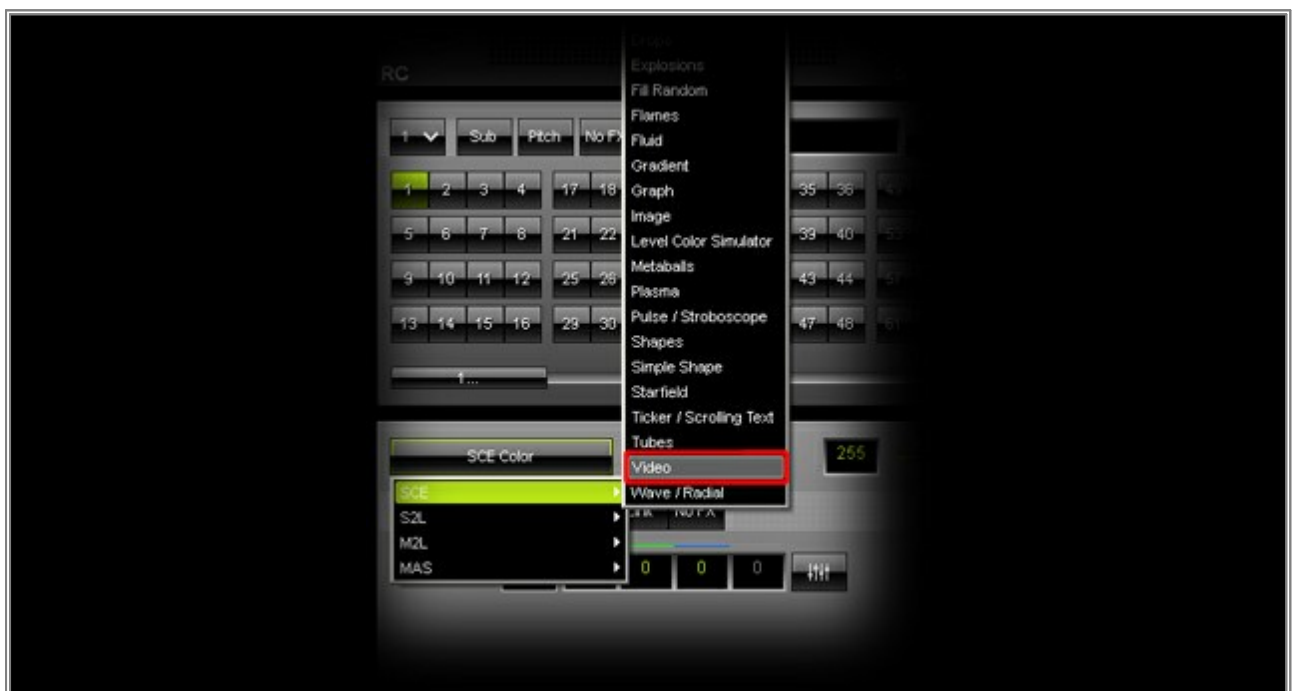
In this tutorial, you will learn how you can import video content into MADRIX.

Date: 10/2013

MADRIX Version: 3.0 (Created with)

Requirements: Make sure to save a video file on your hard disk beforehand.

1. Select an empty Storage Place. In this example it is Storage 1 and Place 1.
2. Choose and select **SCE Video** from the drop-down list of effects.



3. We want to load a video file from the hard disk, such as a VJ loop. To do so, click the Folder button. A new window will be opened, choose the correct directory on your hard disk and select the video file. Confirm with **Open** and MADRIX will load and start the movie.

Note: By default, **AS** is activated (Autostart). That means, MADRIX will automatically start to play back the video file once loaded.



Note: Do not move or delete the video content from your hard disk, when it used in MADRIX. Otherwise, MADRIX will not be able to find the movie.

4. You can change some settings:

- **BPM:** The BPM value defines the speed of the animation. You can add an animation by changing the direction, for example.
- **Position:** You can set the position of the video in the X, Y, and Z directions in the patched virtual LED matrix.
- **Playback Rate:** The default setting is 1. That is the original speed of the movie. You can change the value between 0 and 2. For example, a speed value of 0.5 means the video will be played back with half of the original speed.
- **Extrude:** Here you can set how many Z-levels should display the video.
- **DI:** You can activate the Deinterlace Mode. It is often useful if you use digital cameras, digital broadcasting, or digital filming which are often done via interlacing. In order to get an undisturbed picture, proper deinterlacing is necessary.
- **Start:** You can set a specific position at which the video starts playing.
- **End:** You can set a specific position at which the video stops playing.
- **Loop:** Here you can choose between **Normal** (the video stops playing after it reaches the end position), **Loop** (the video is played in endless repetition), **Loop backward-forward** (when the video reaches the start or end position, it changes the playback direction and continues playback).
- **AS:** That means Autostart. The video will be automatically started after selecting the Storage Place.



Congratulations! You have just learned to import and control videos in MADRIX.

2.6 Capture With An Blackmagic Intensity Pro 4K

In this tutorial, you will learn how you can receive a video stream in MADRIX with the help of a Blackmagic Intensity Pro 4K capture card.

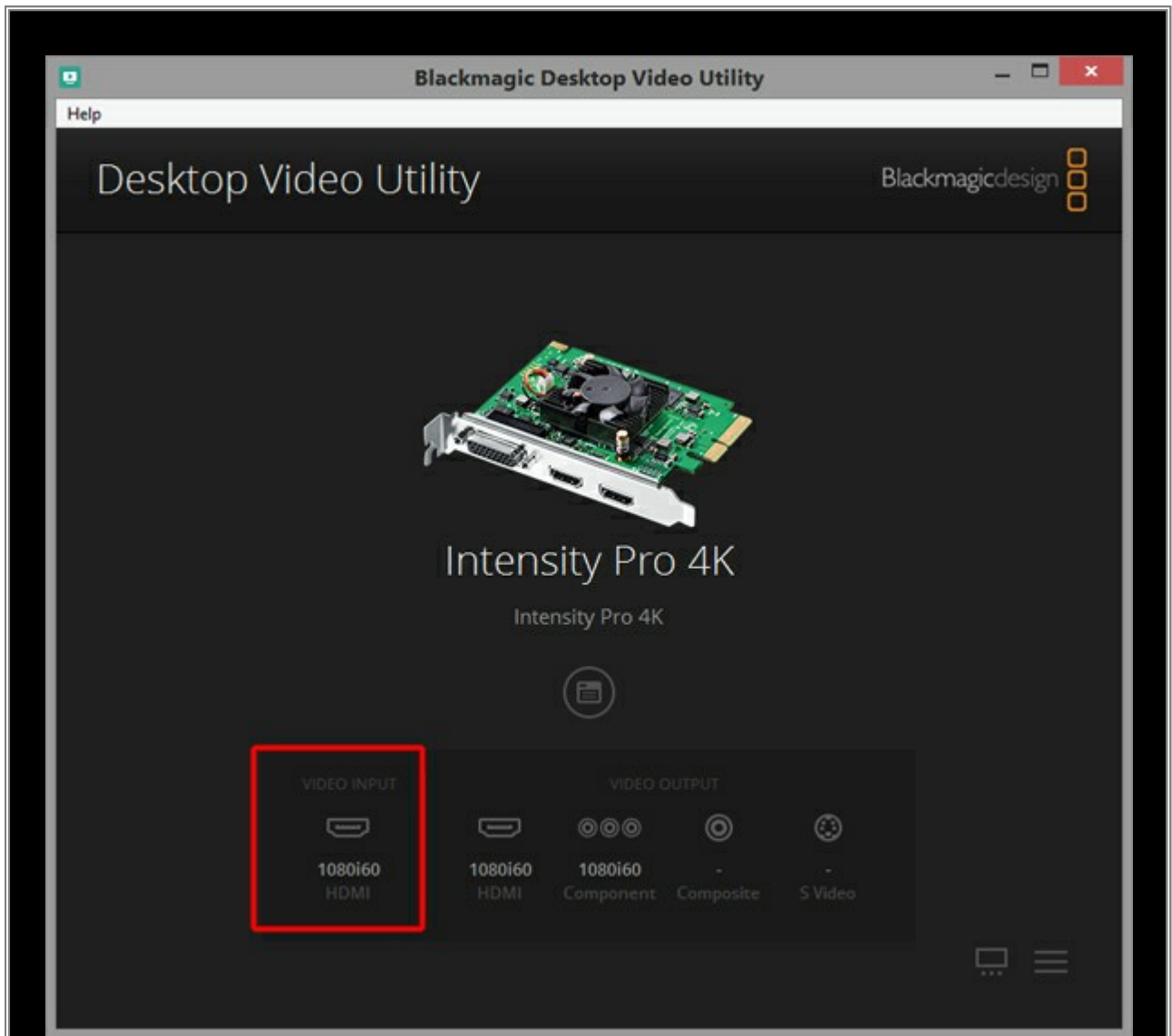
Date: 11/2015

MADRIX Version: 3.4 (Created with)

Blackmagic Desktop Video Utility: 10.4.2 (Created with)

1. Please open the **Blackmagic Desktop Video Utility** software. In that application you will find an information if the **Blackmagic Intensity Pro 4K** is receiving an input video stream and also the resolution of this input. Please make sure that the "Blackmagic Intensity Pro 4K" is receiving a video stream. In that example the card is receiving a video stream with 1080i and 60 FPS.

Note: The information about the resolution of the input video stream is necessary for the settings in MADRIX.



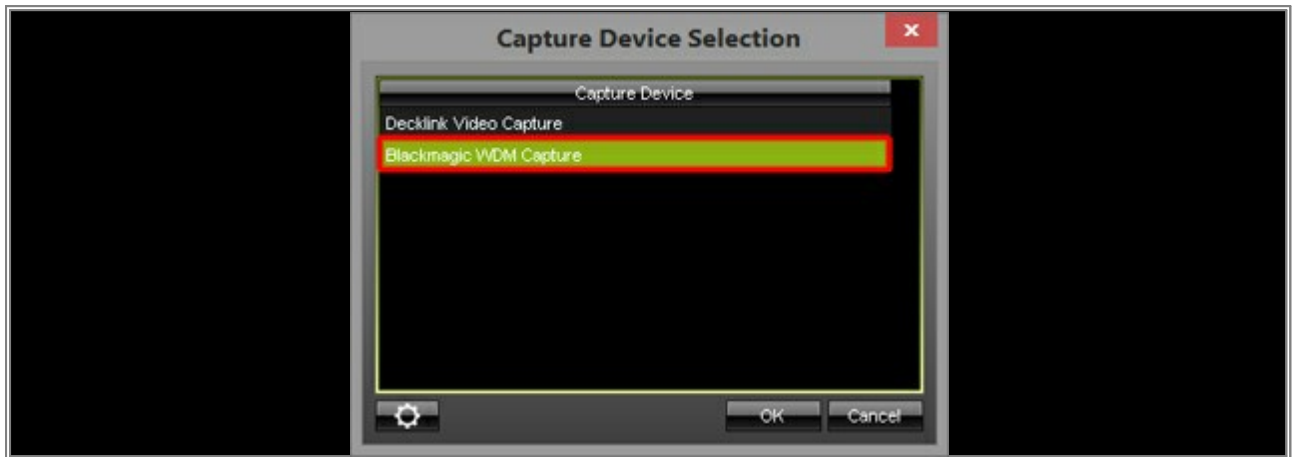
- Now please start MADRIX, select a free Storage Place and choose the **SCE Capture** effect. In this example, we have selected Storage 1 and Place 1.



3. Please click the **Open** button to open the **Capture Device Selection**.



4. In the **Capture Device Selection** please select the **Blackmagic WDM Capture** and click **OK**



- Now the **Blackmagic WDM Capture** driver is chosen and we have to change some settings. Therefore please click the **Configuration** button.



- The **SourceFilter Properties** window opens. Please go to the **Video Format** tab and select the **Override Video Mode** checkbox. Now we have to change the **Display Mode** and the **Pixel Format**. The Display Mode means the resolution and frame rate of the input video stream and we have to set it to the same value as displayed in the **Blackmagic Desktop Video Utility** software (see Step 1). In this example we receive a 1080i with 60 FPS. The **Pixel Format** means the color mode of the input video stream. In this example it is a 10 bit RGB input. After you have chosen the settings according to your input video stream please click **OK**



- Now you have to select another storage place in MADRIX and go back to the storage place which contains the **SCE Capture** effect of the **Blackmagic Intensity Pro 4K**



Congratulations! You can now work with the input video stream of a Blackmagic Intensity 4K capture card.

2.7 Using Images And Pictures

This tutorial shows you how you can create effects using pictures.

Date: 10/2013

MADRIX Version: 3.0 (Created with)

Note: MADRIX supports the following formats: BMP, GIF, JPEG, PNG, TIF, TIFF, and the MADRIX Image Table file type.

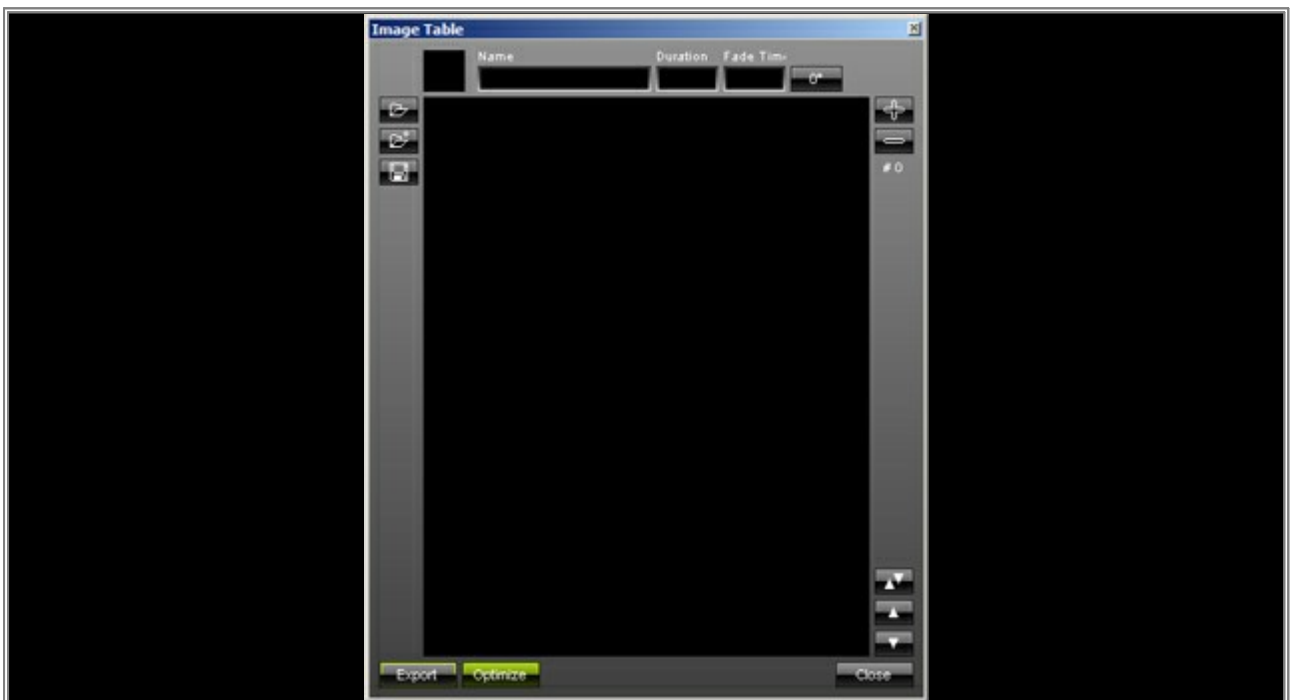
1. Select an empty Storage Place. In this example it is Storage 1 and Place 1.
2. Choose and select the **SCE Image** from the drop-down list of effects.



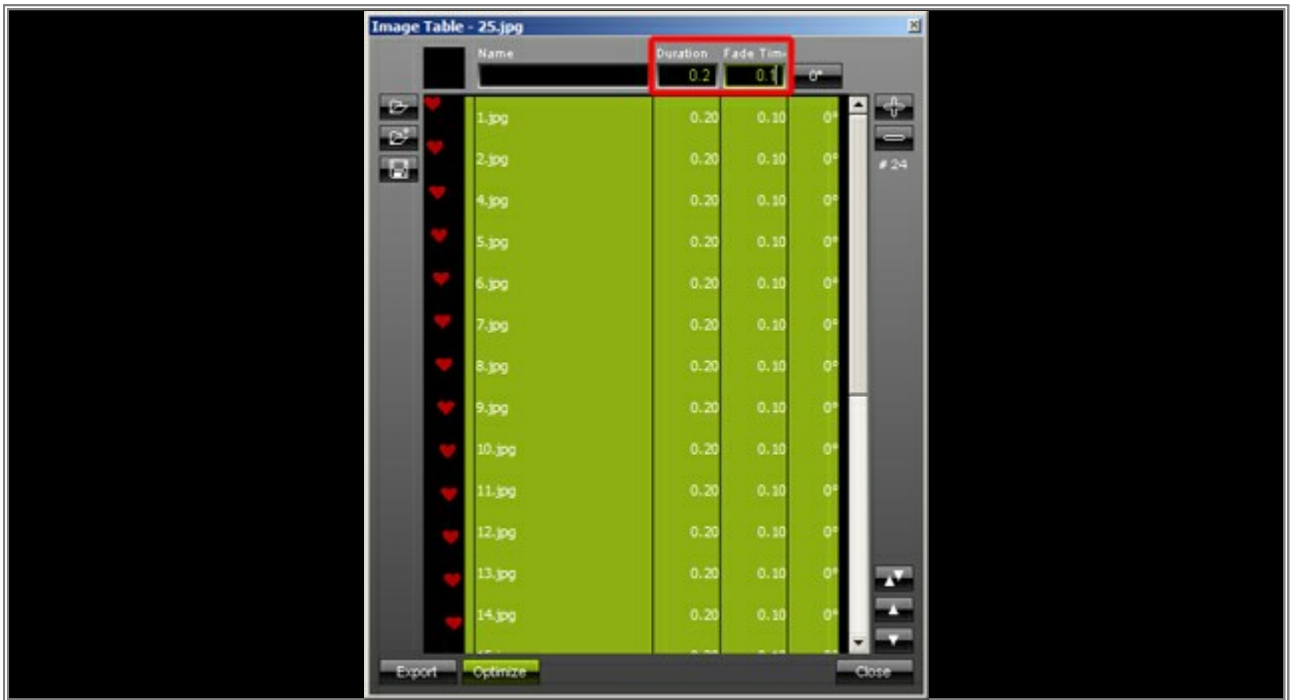
3. There are several possibilities to add images to the effect. In this example, we want to use the Image Table. Click the **Image Table** button.



A new window, the **Image Table**, will be opened.



- 6. If you have added more than one image, MADRIX creates an automatic transition between images. But you can still individually set the **Duration** and **Fade Time** for each image. To change these settings, select the respective image and enter your desired values for Duration and Fade Time. In this example, we will set the same Duration and Fade Time for all images. Press **Ctrl + A** on your keyboard and then change the **Duration** to **0.2** and **Fade Time** to **0.1**



7. You can also change the order of images. Select one or more images and then click the **Arrow Up** to move the images up in the list or **Arrow Down** to move the images down in the list.



8. Click **Close** to close the Image Table.

Now, you can change some settings on the regular user interface:

- **Filter:** You can add a Color Filter. This filter works in multiply mode (additive mode). That means that the colors of the effect are multiplied with the colors of the filter.
- **BPM:** The BPM value defines the speed of the animation. You can add an animation by changing the direction, for example.
- **Position:** You can change the position of the images in the patched virtual LED matrix in the X, Y, and Z direction.
- **Playback Speed:** The default setting is 1. That is the original speed of the animation. You can change the value between 0 and 50. This mainly influences the Duration and Fade Time of the Image Table.
- **Extrude:** If you have created a 3D patch, the images will be extruded across the Z-levels to the desired value in percent.
- **GS - Grayscale:** If you enable it, the images will be displayed in monochrome colors.
- **RGB To RGBW:** It is important if you are using RGBW fixtures and if you want to use the white channel.
- **Matrix (Stretch and Aspect Ratio):** If it is enabled, MADRIX resizes the image size to the matrix size.
- **Tile:** If it is enabled, MADRIX duplicates the images on the matrix. This option takes only effect if the image is smaller than the matrix size.



Note: If you save the MADRIX Setup File, MADRIX saves the loaded images including the imported images. Hence, MADRIX can display the effect right away.

Congratulations! You have created an image effect in MADRIX.

2.8 Mix Modes

This tutorial shows you how the different Mix Modes work.

Date: 10/2013

MADRIX Version: 3.0 (Created with)

Note: Please read the tutorial »[Working With Layers](#) first.

1. Select a free Storage Place and insert an additional, second Layer. The effect of the first Layer should be **SCE Wave/ Radial** and its color should be **yellow**.



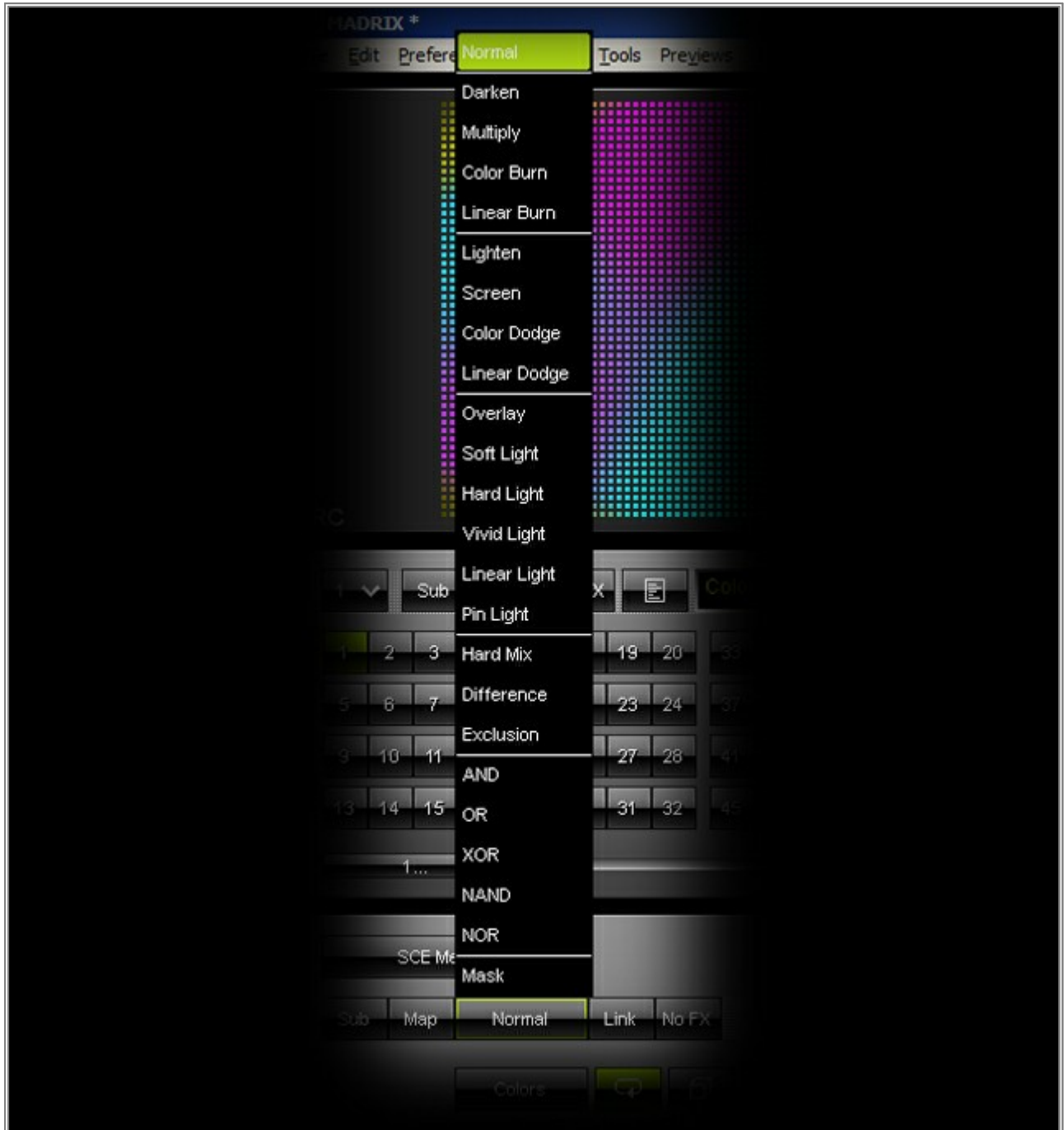
The effect of the second Layer should be **SCE Metaballs**. The colors of the Color Table are **Turquoise** and **Pink**. Leave the default values of all other settings.



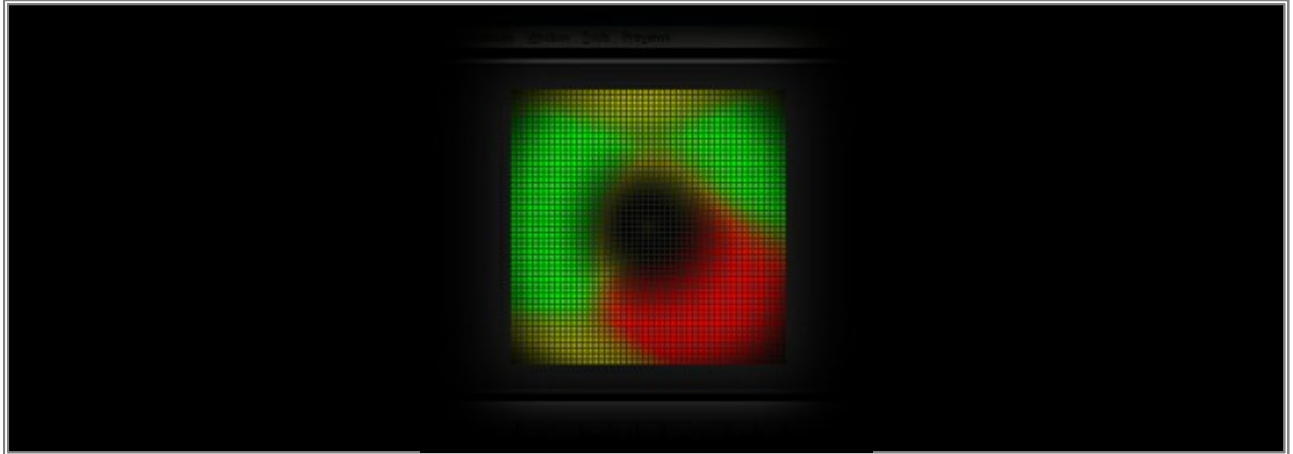
- To work with the Mix Modes, you have to select the Layer that is in the foreground (i.e. the Layer which is located to the right). In this example, it is the Layer with the **Metaballs** label. The default Mix Mode is **Normal** and you can change it if you click on **Normal** on top of the Effect Section.



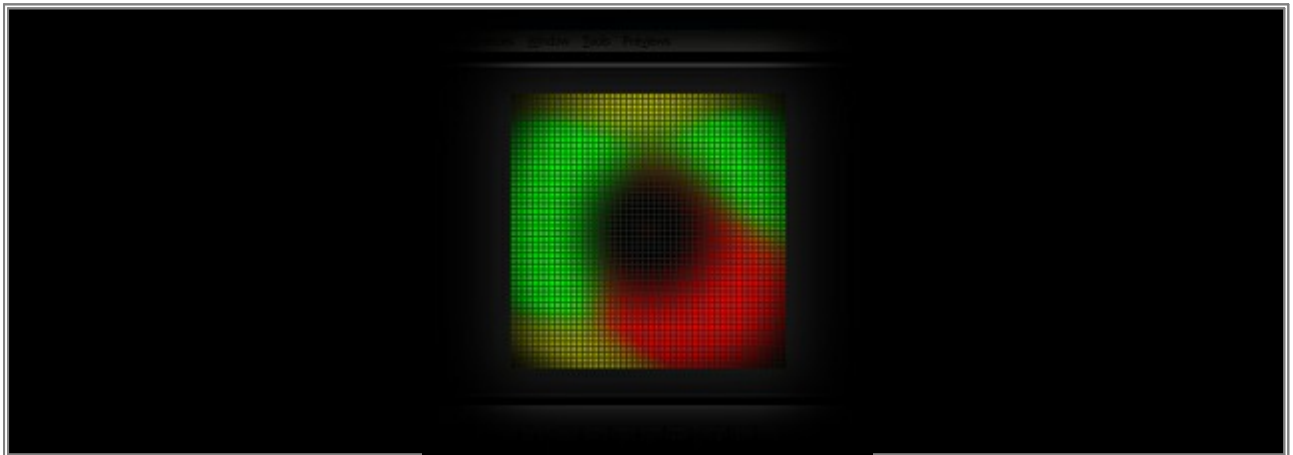
3. A popup menu with all available Mix Modes appears. You can change the mode by selecting a new mode on the list. The label of the button then shows you which Mix Mode is currently active.



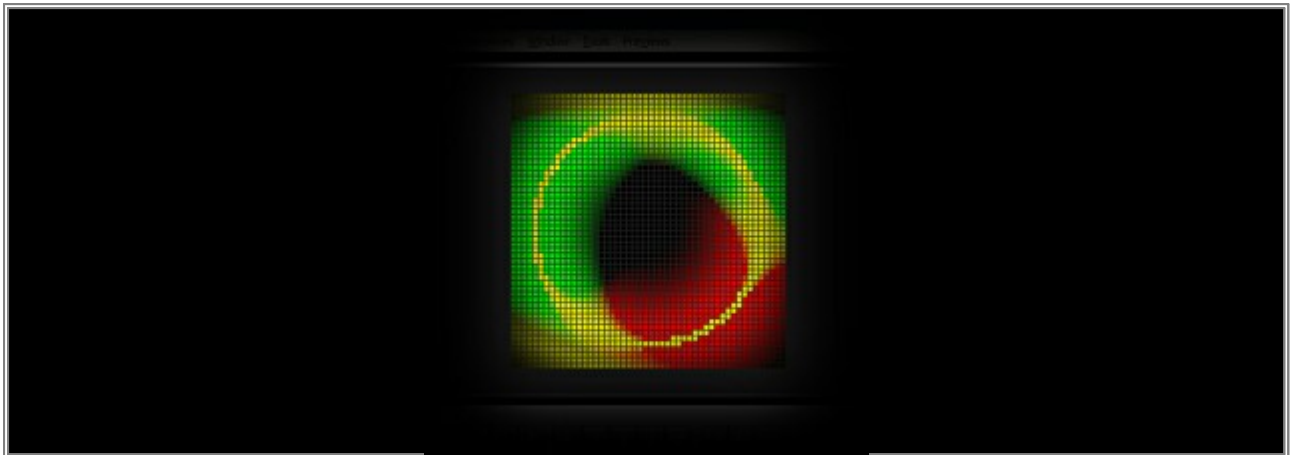
4. We now want to check which effects are created when using different Mix Modes.
- **Darken:** Compares the Red, Green, and Blue channel of each Layer and only uses the darkest color value for each color channel per pixel.



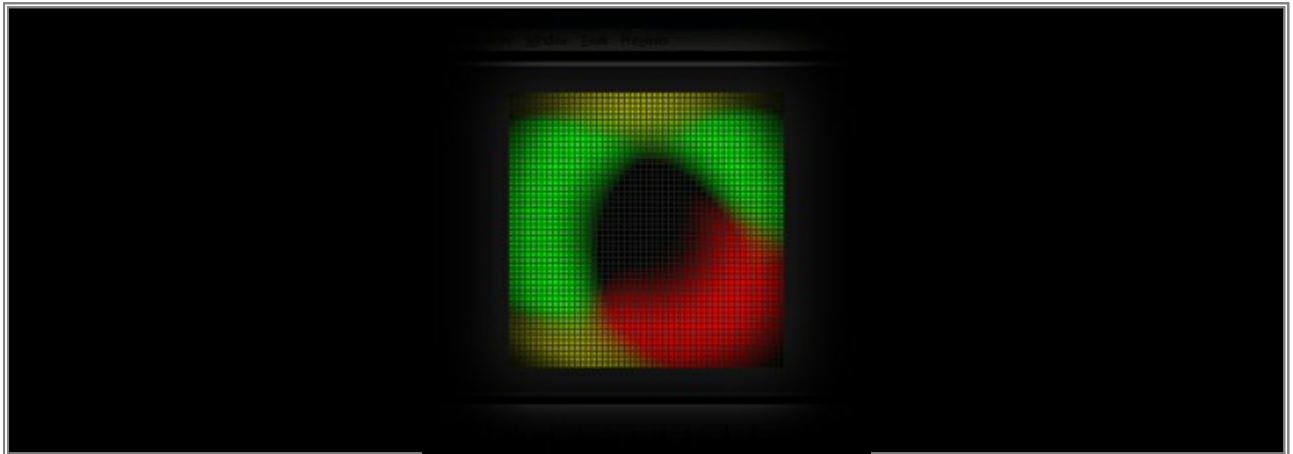
- **Multiply:** Multiplies the color values of each pixel of Layer 2 with the color values of each pixel of Layer 1.



- **Color Burn:** Layer 1 will be darkened by Layer 2.



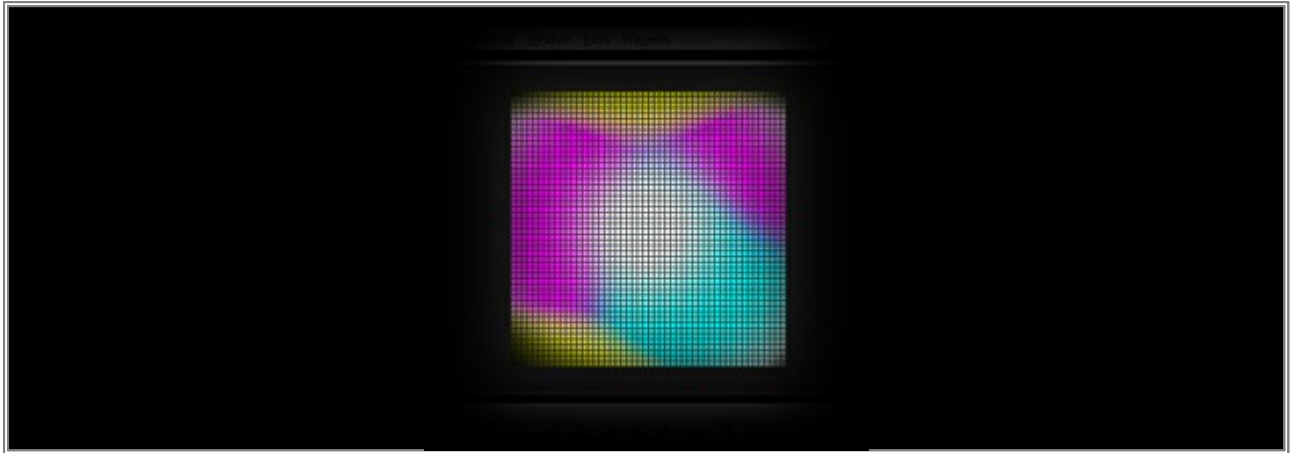
- **Linear Burn:** The color values of both Layers will be added up. But when the result is lower than 255, the values will be set to 0 (black).



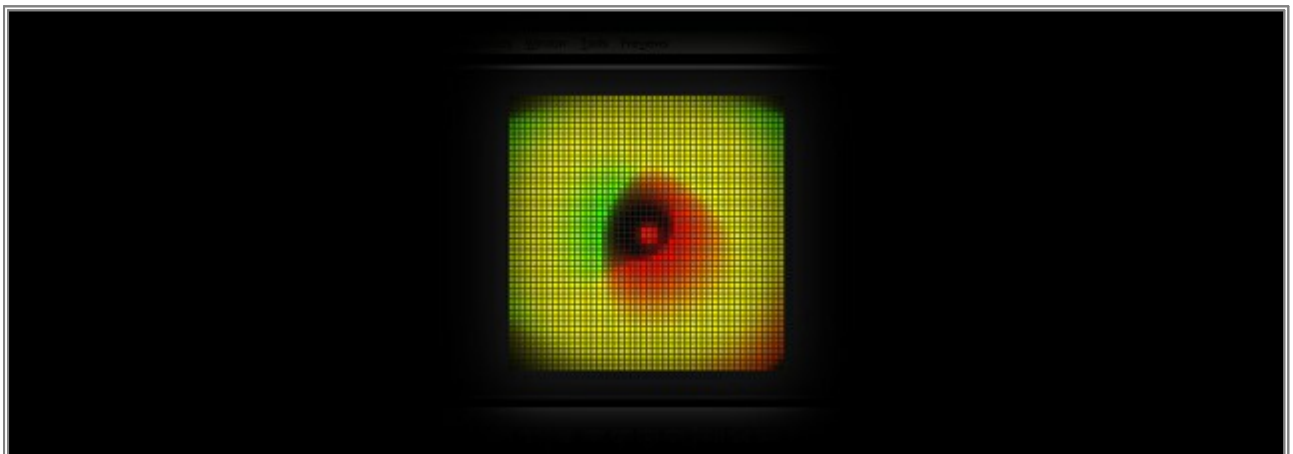
- **Lighten:** It compares both Layers and only uses the brightest color value for each color channel per pixel.



- **Screen:** Layer 2 and Layer 1 will be negatively multiplied and often brighten each other.



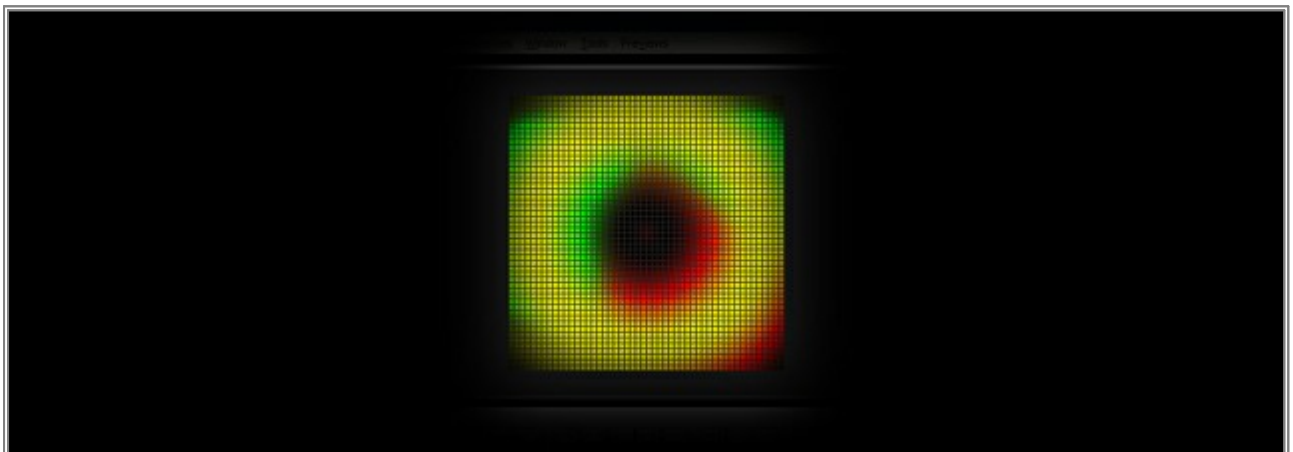
- **Color Dodge:** The colors of Layer 1 are brightened by the colors of Layer 2. A black Layer 2 will not change Layer 1, but a white Layer 2 will brighten every color channel of Layer 1.



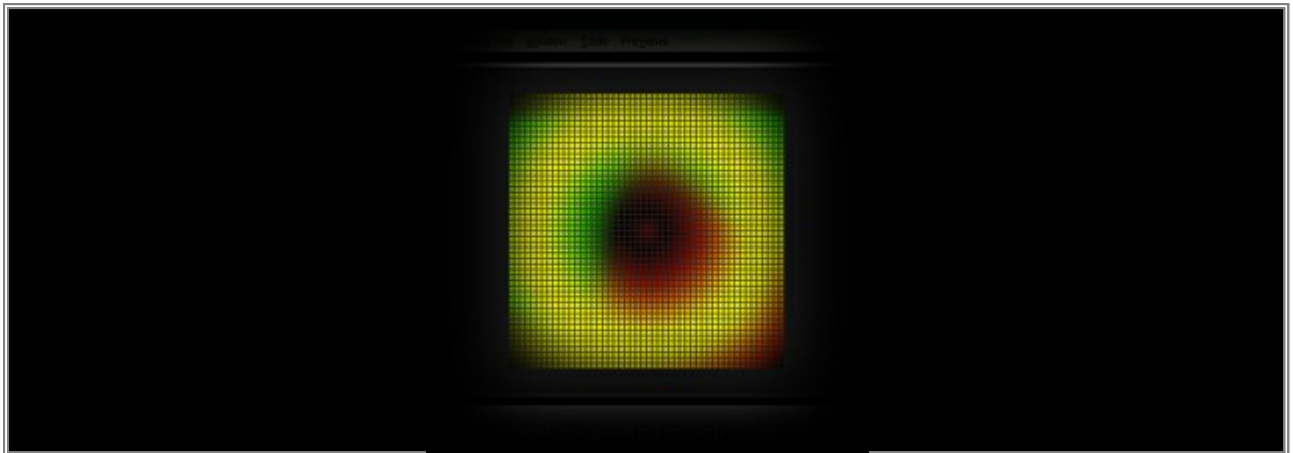
- **Linear Dodge:** Adds up the color values of both Layers.



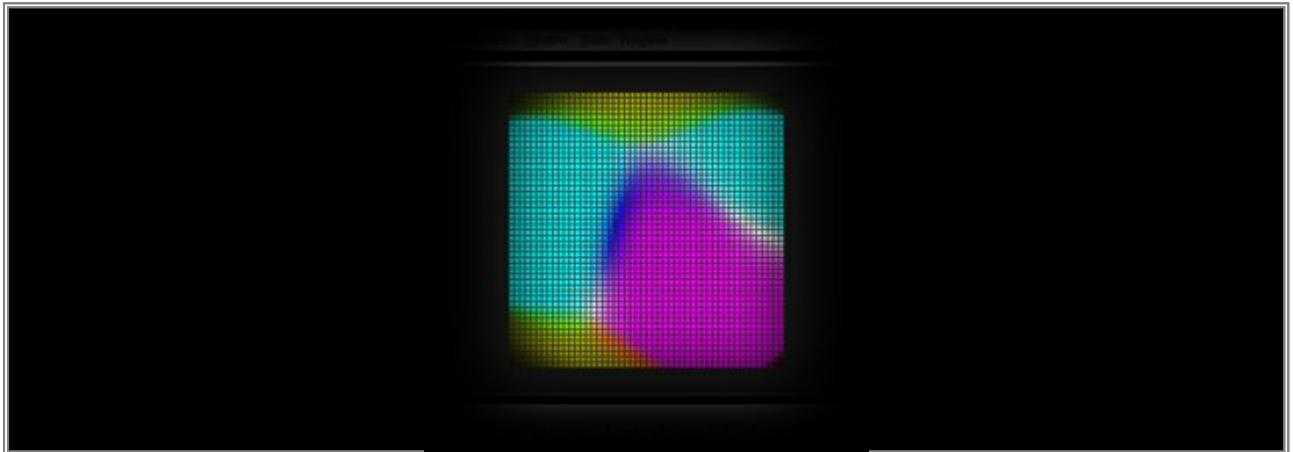
- **Overlay:** The result depends on the underlying Layer. If areas of Layer 1 are darker than 50% Gray, the color values will be multiplied with the color values of Layer 2. If areas are brighter than 50% Gray, the color values will be negatively multiplied with the color values of Layer 2.



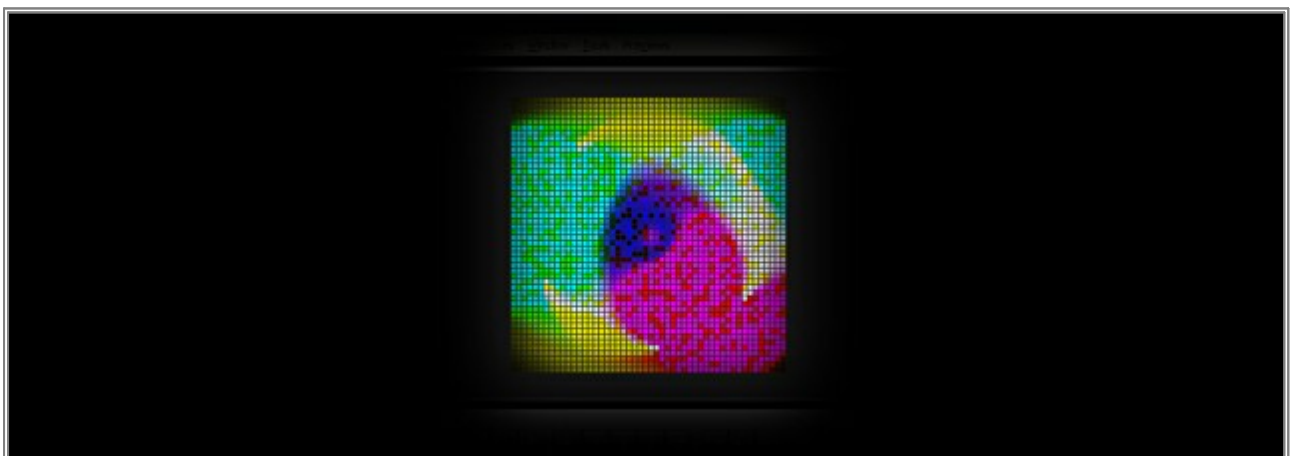
- **Soft Light:** Layer 2 will modulate the color values of Layer 1 and create soft mixtures in areas of highlights and shadows.



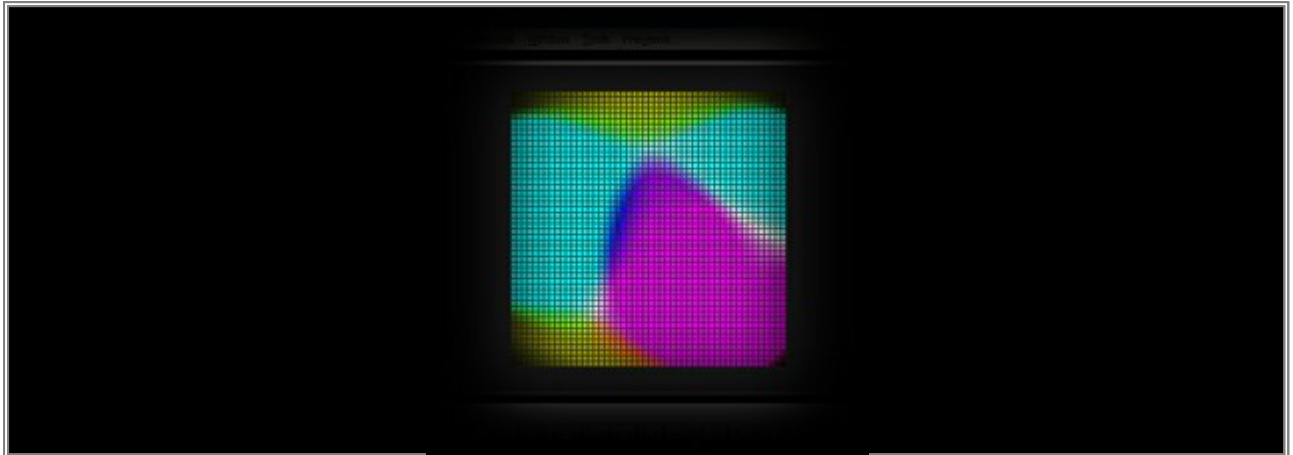
- **Hard Light:** If Layer 2 is brighter than 50% Gray, Layer 1 will be brightened. If Layer 2 is darker than 50 % Gray, Layer 1 will be darkened.



- **Vivid Light:** Will mainly increase the contrast of highlights and shadows.



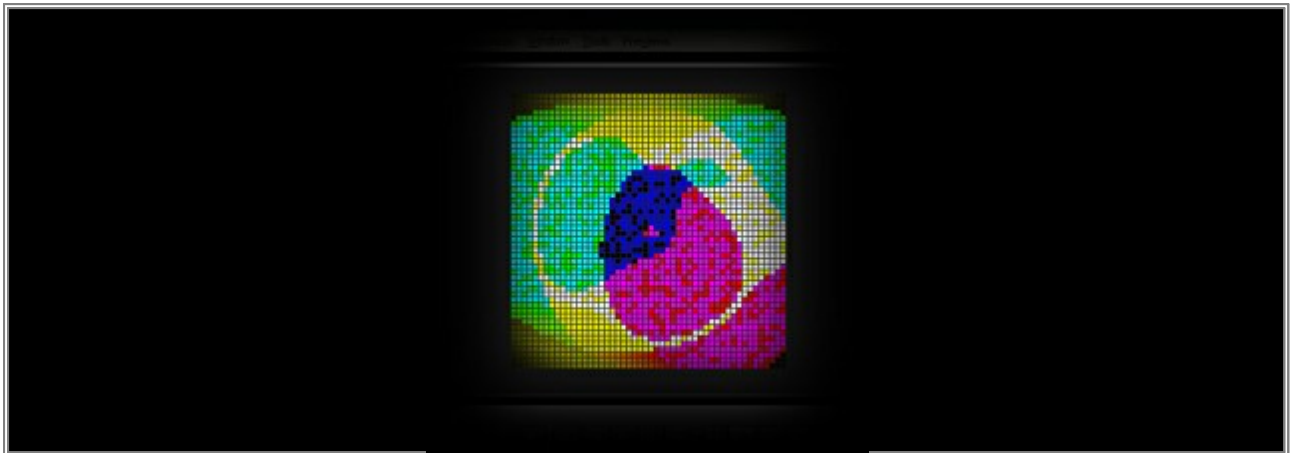
- **Linear Light:** Increases the contrast.



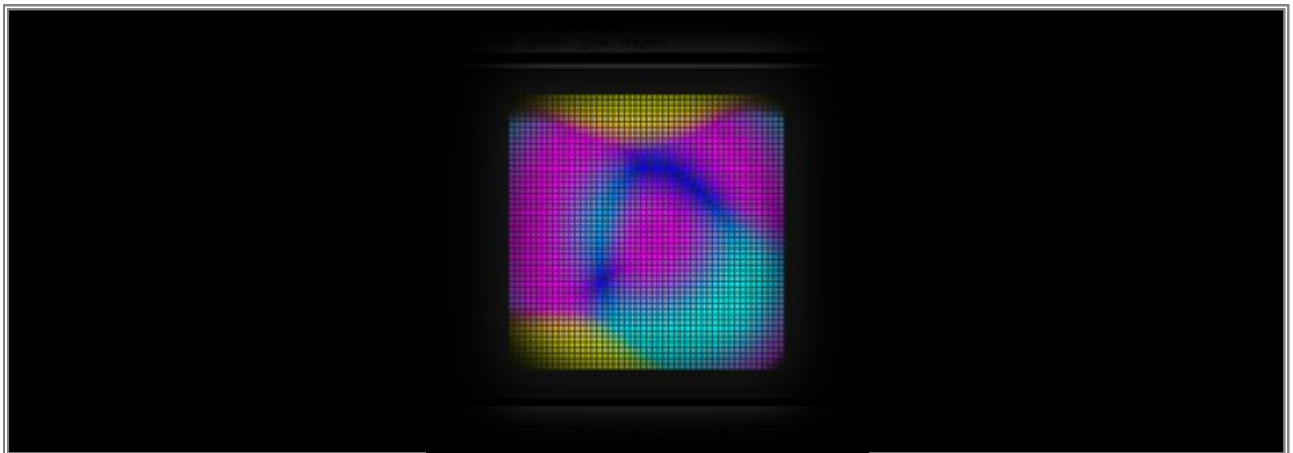
- **Pin Light:** Is like a combination of **Darken** and **Lighten**.



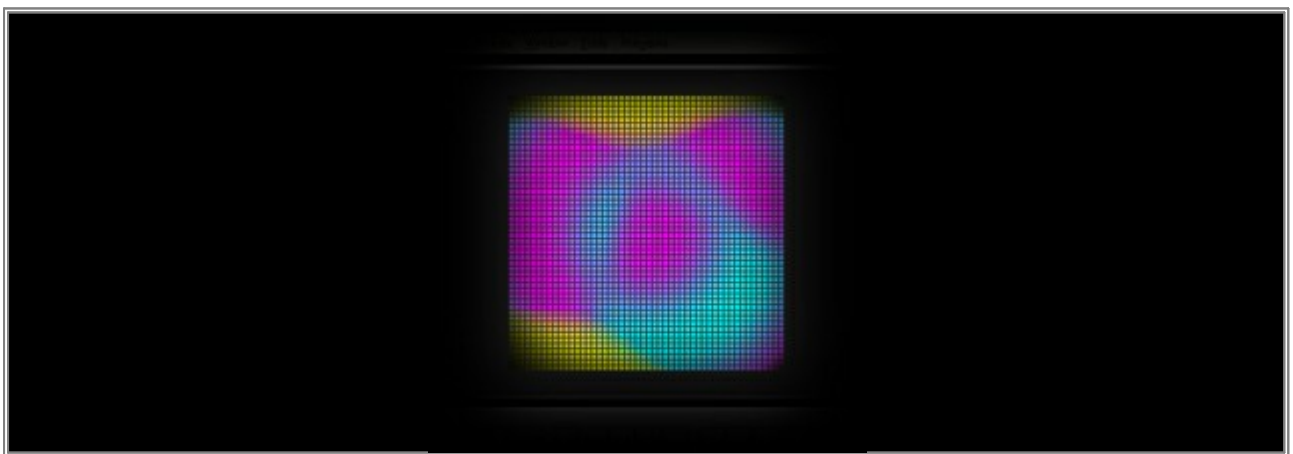
- **Hard Mix:** Only uses the six primary colors red, green, blue, yellow, cyan, magenta, or black, or white. Color channels will be mixed and either be set to 0 or 255.



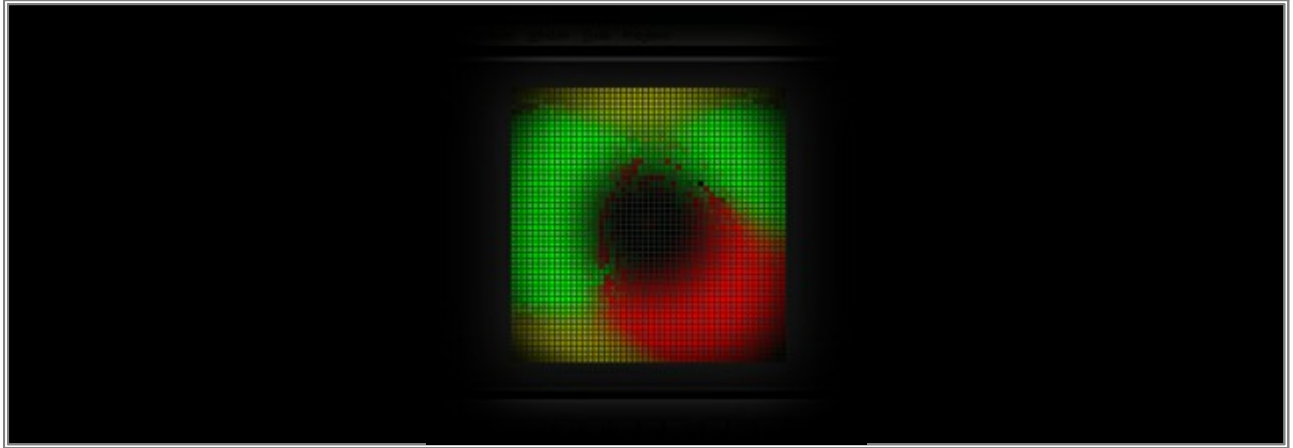
- **Difference:** Will calculate the difference between the color values for each pixel.



- **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.



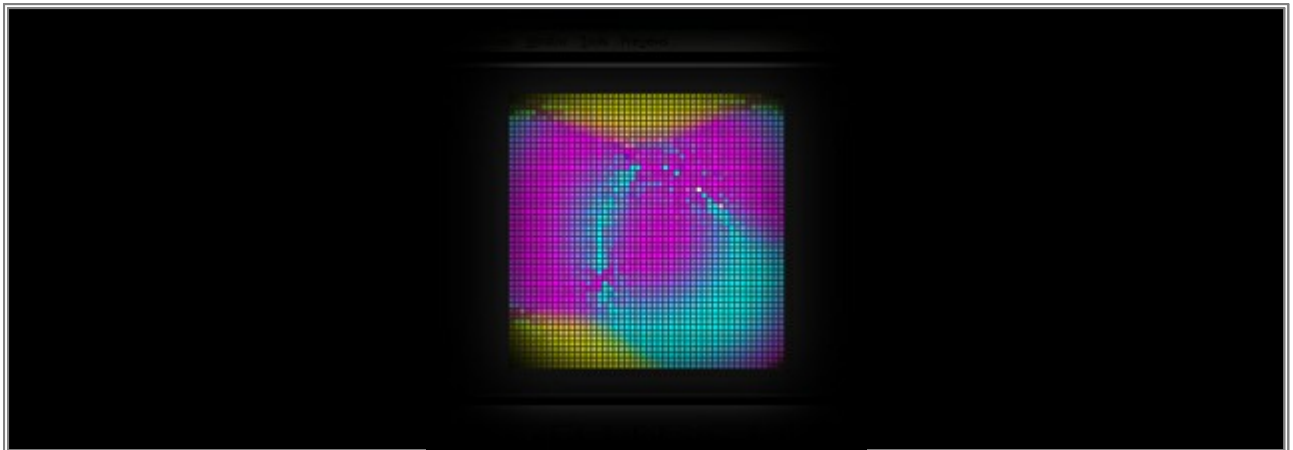
- **AND:** The color values of each Layer will be converted into 8-bit binary form. **AND** will only result in 1, when both bits have a value of 1.



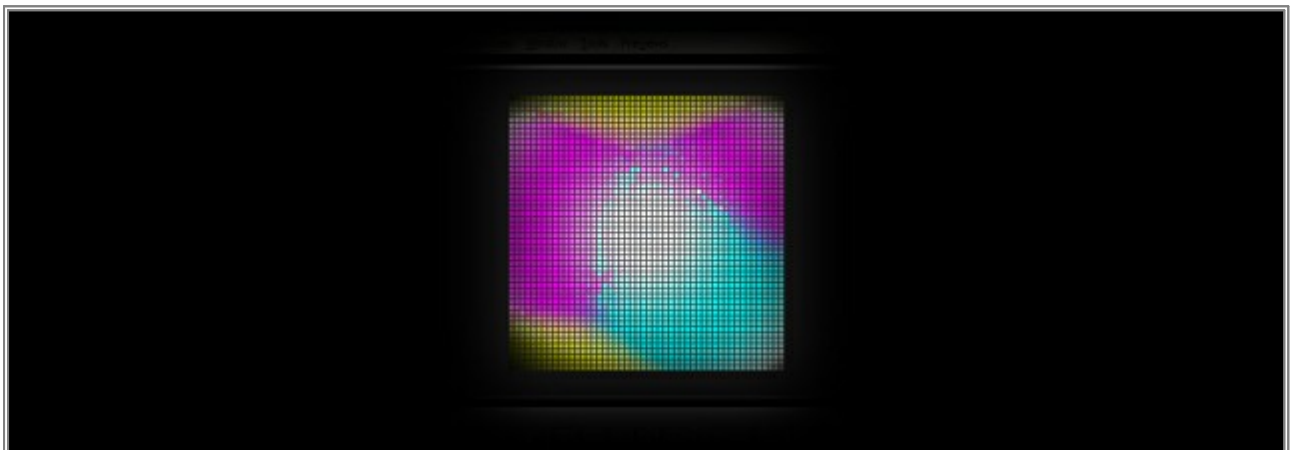
- **OR:** The color values of each Layer will be converted into 8-bit binary form. **OR** will result in 1, when minimum one bit have a value of 1.



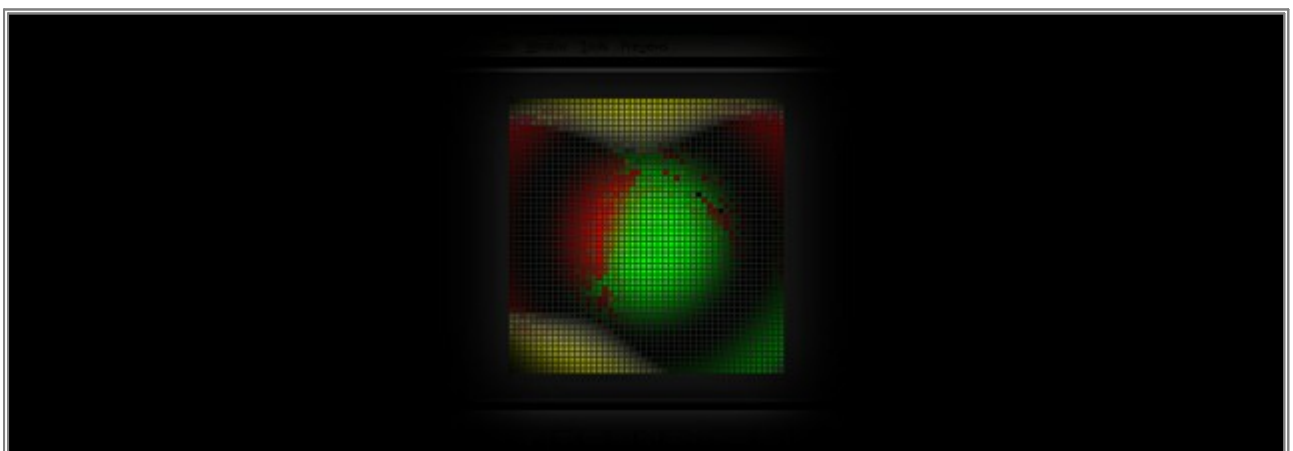
- **XOR:** The color values of each Layer will be converted into 8-bit binary form. **XOR** will result in 1, when both bits are not identical.



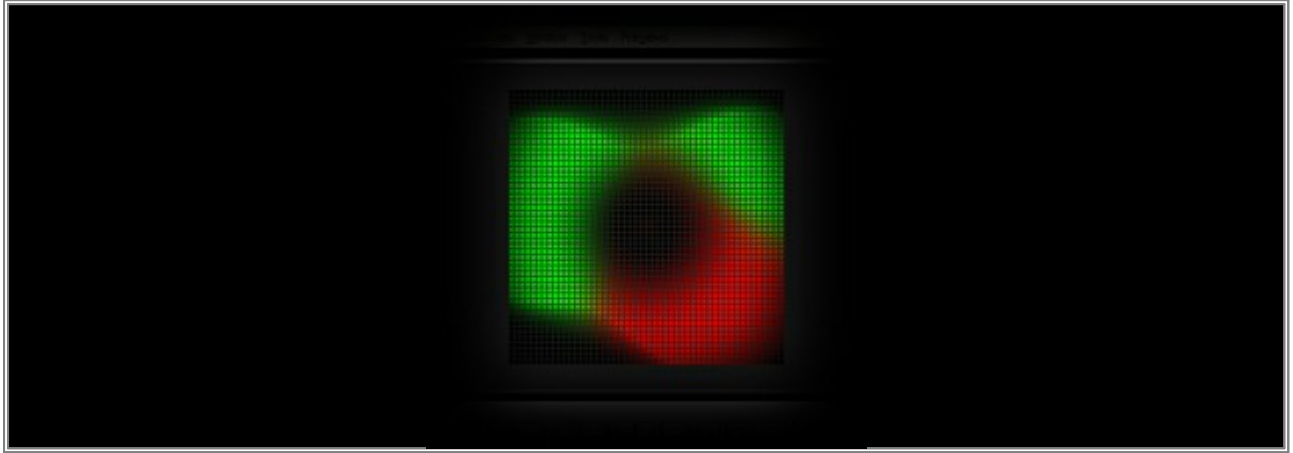
- **NAND:** The color values of each Layer will be converted into 8-bit binary form. **NAND** will result in 1, except when both bits have a value of 1.



- **NOR:** The color values of each Layer will be converted into 8-bit binary form. **NOR** will result in 1, when both bits have a value of 0.



- **Mask:** 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.



Congratulations! You now know the different Mix Modes.

2.9 Mapping - Tile, Repeat, And Rotate

In this tutorial, you will learn how you can create a repeated and rotated effect with advanced mapping in MADRIX.

Date: 10/2014

MADRIX Version: 3.3 (Created with)

Note: The **Map Effect** window is useful for creating various variations of an effect. For more information, please read the tutorials »[Map - Effects For Fixtures With Space Inbetween](#) and »[Map - Mirroring](#)

1. Select an empty Storage Place. In this example, it is Storage 1 and Place 1.

- Now, select **SCE Radial / Wave** from the drop-down list of effects.



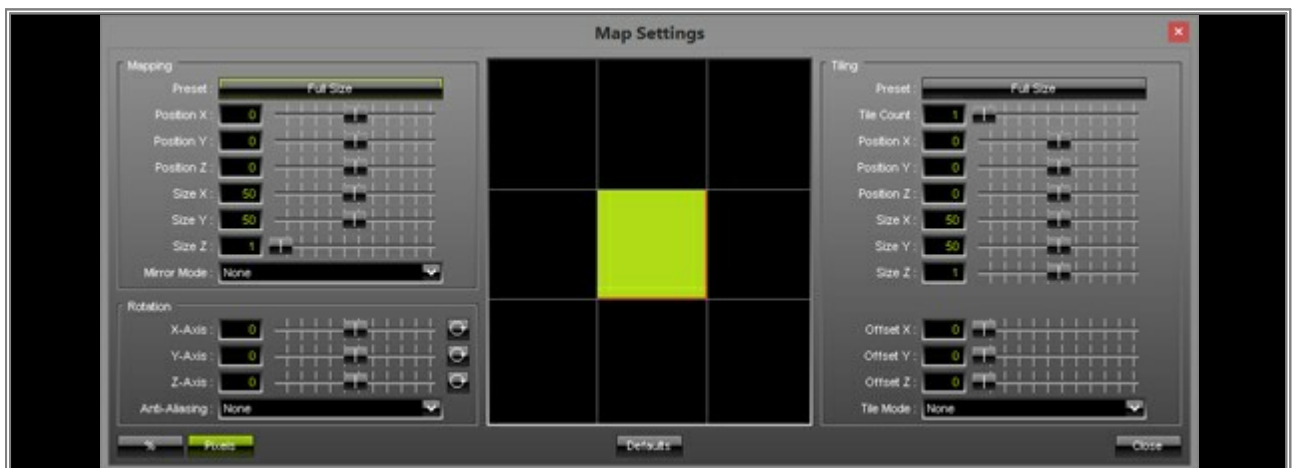
3. Change **BPM** to **1000** and **Length** to **25**



- Click **Map** button on top of the **Effect Section**



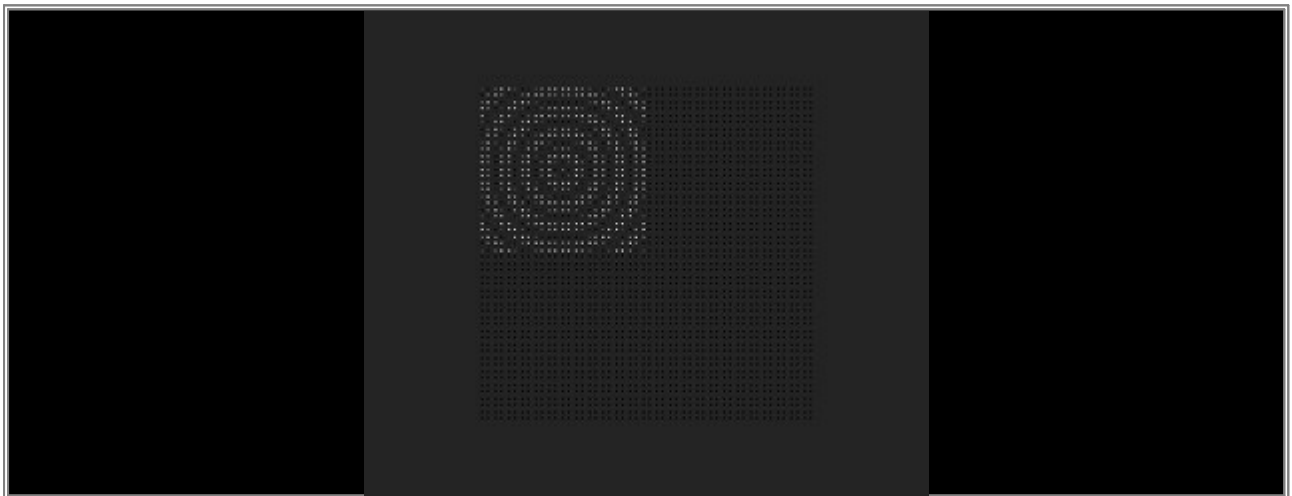
- A new window, the **Map Settings**, will be opened.



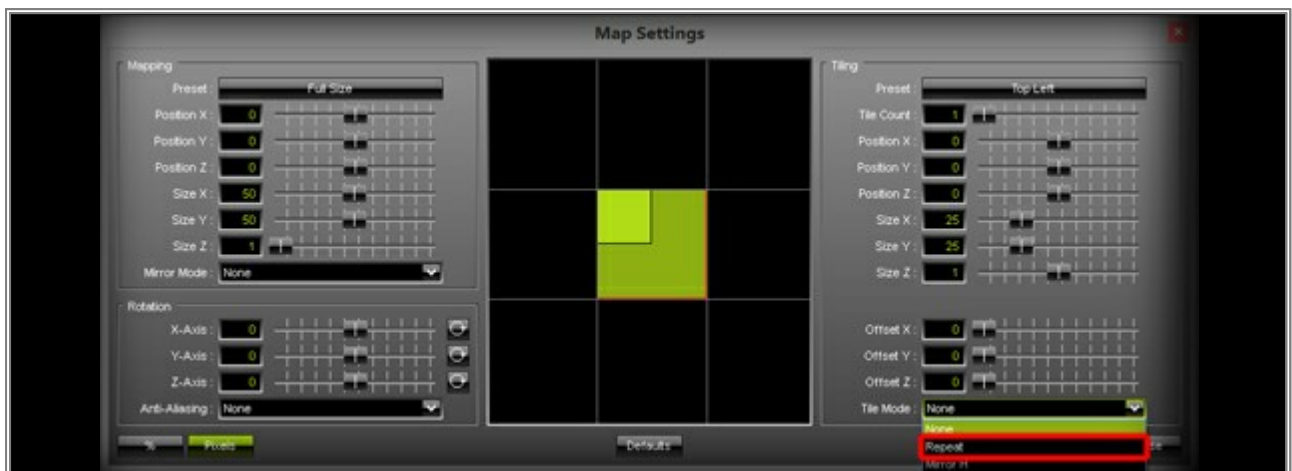
6. Now, please click the **Preset** button in the **Tiling** section on the right-hand side and select **Top Left** from the drop-down list.



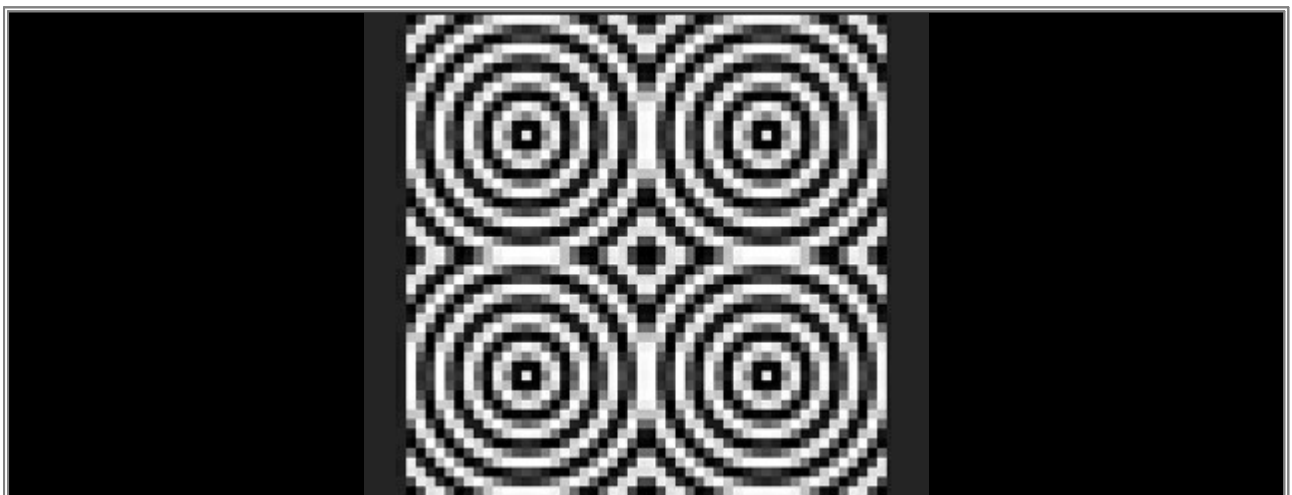
Have a look at the Previews of MADRIX. You can see that the **SCE Radial** effect is located in the upper left corner and the rest of the LED matrix is black.



- Go back to the **Map Settings** window. Change the **Tile Mode** to **Repeat**.



Take a look at the Previews again. You can see the **SCE Radial** effect of the upper left corner is now repeated on the whole matrix.



- 8. We want to go ahead and rotate the effect around the Z-Axis. Go to the **Rotate** section of the **Map Settings** window and change **Z** to **38**. You can do this by simply writing **38** in the text box or by moving the slider to the right side.



- 9. If you press the **Animation** button at the right-hand side of the slider, the effect will be rotated continuously. Move the slider again to change the speed.



10. Have another look at the Previews and you can see how the **SCE Radial / Wave** effect has changed again.



Congratulations! You have learned how you can repeat and rotate effects.

2.10 Mapping - Effects For Fixtures With Space Inbetween

In this tutorial, you will learn how you can create effects and map them to only one fixture of your LED matrix and how you can handle space between your fixtures.

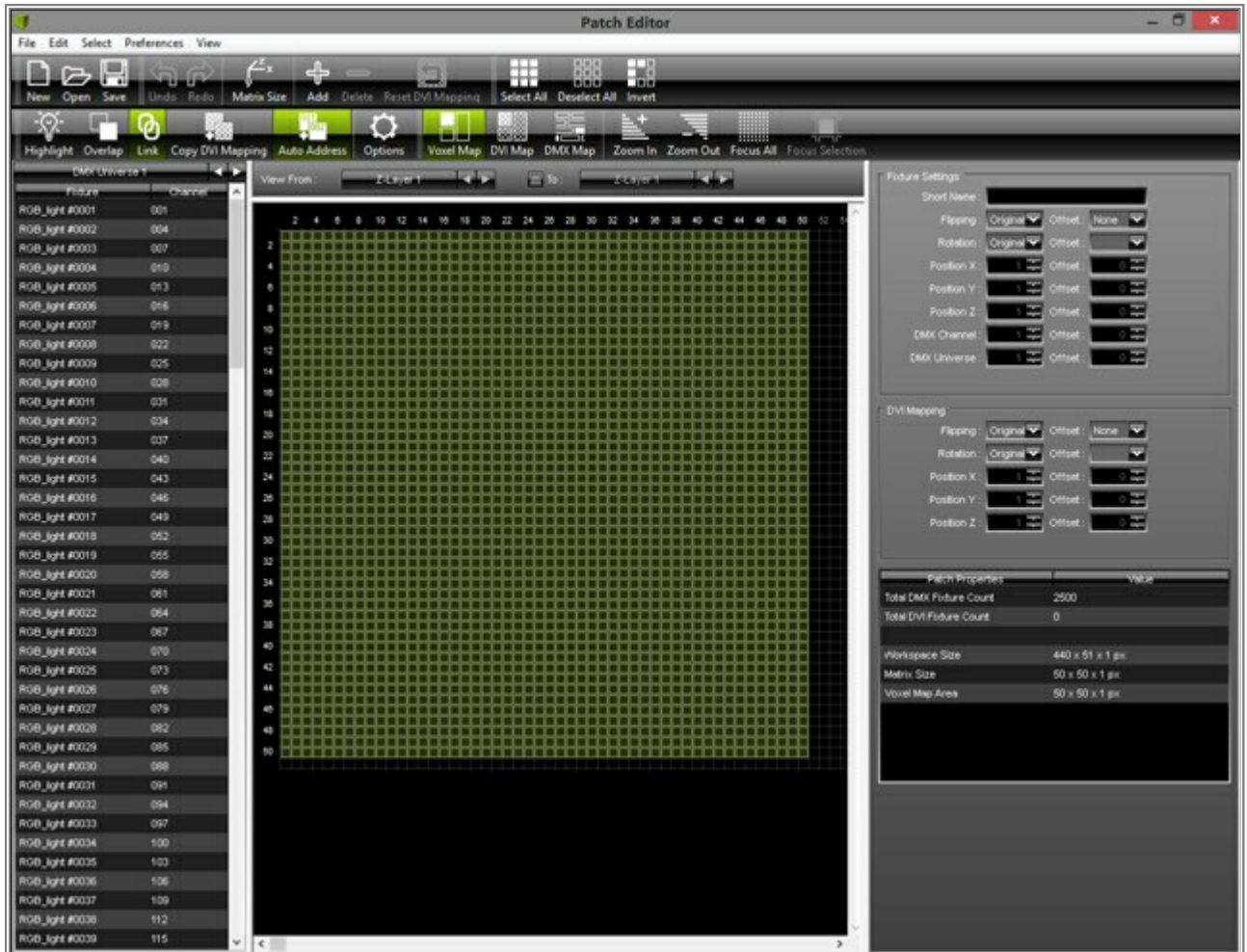
Date: 10/2014

MADRIX Version: 3.3 (Created with)

Note: For this tutorial we are going to use the patch we created in this tutorial »[Creating A Patch With Space Between Fixtures](#)

It is also useful to read the tutorial »[Working With Layers](#) beforehand.

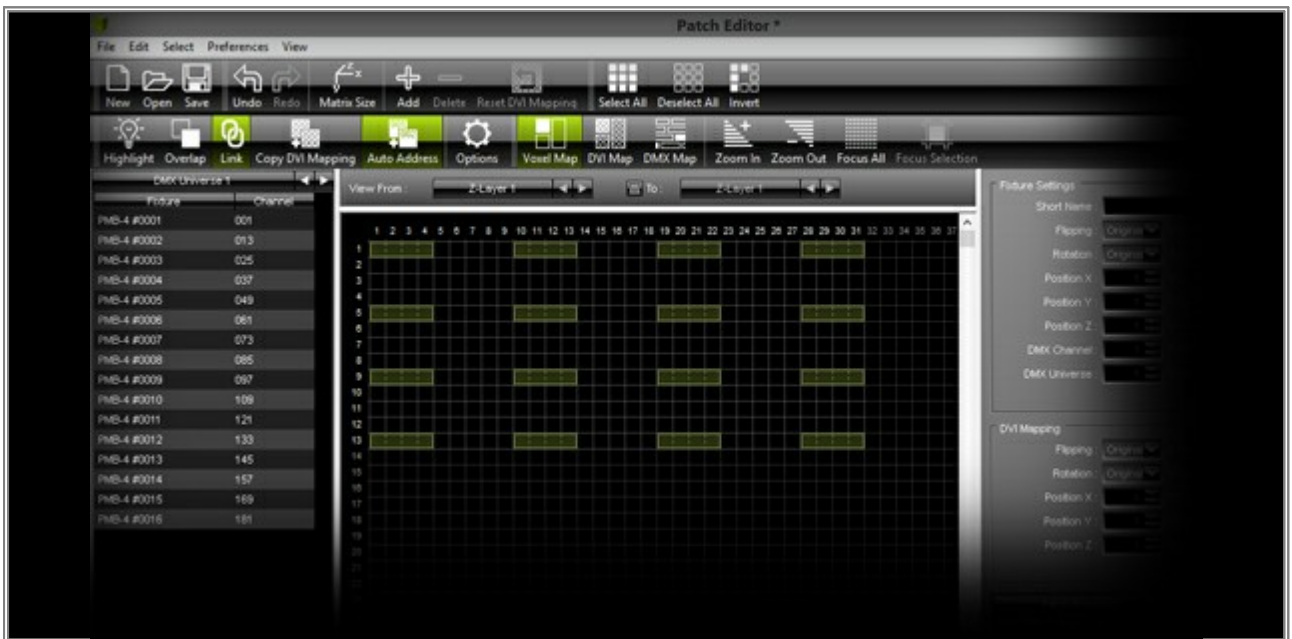
1. Please open the saved patch of the tutorial »[Creating A Patch With Space Between Fixtures](#)
To do so, first press the **F3** key on your keyboard or go to **Preferences > Patch Editor** and the **Patch Editor** window will be opened.



- 2. Click **Open** on the toolbar and select the saved patch file on your computer's harddisk.



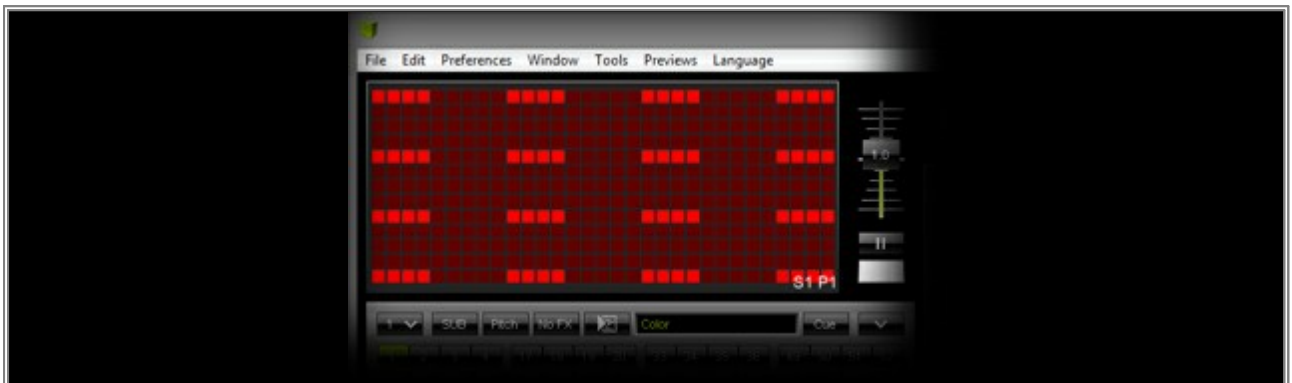
- 3. The Patch we have just loaded into MADRIX should look like this:



Close the Patch Editor.

4. Change the color of the default effect **SCE Color** from **black** to **red**. This will help you see the patched fixtures better in the Previews of MADRIX.

Note: The darker red areas in the Previews are the areas where no fixtures are located. The bright red areas represent the patched fixtures.



- 5. We want to change **SCE Color** to **SCE Color Scroll**. To do so, select **SCE Color Scroll** from the drop-down list of effects.



We want to continue by removing several colors from the **Color Table**. Click on **Colors**



Please delete all colors, except **Red, Green, Blue, and Yellow**.

Note: You can delete a color by selecting the color first and then pressing the - button.



6. We want to change the location of the effect on the LED matrix now. Please click the **Map** button in the **Effect Section**.



7. The **Map Settings** window will be opened. First, we want to change the range of the values from percentage/relative to pixel/absolute. Click the **Pixel** button at the bottom.



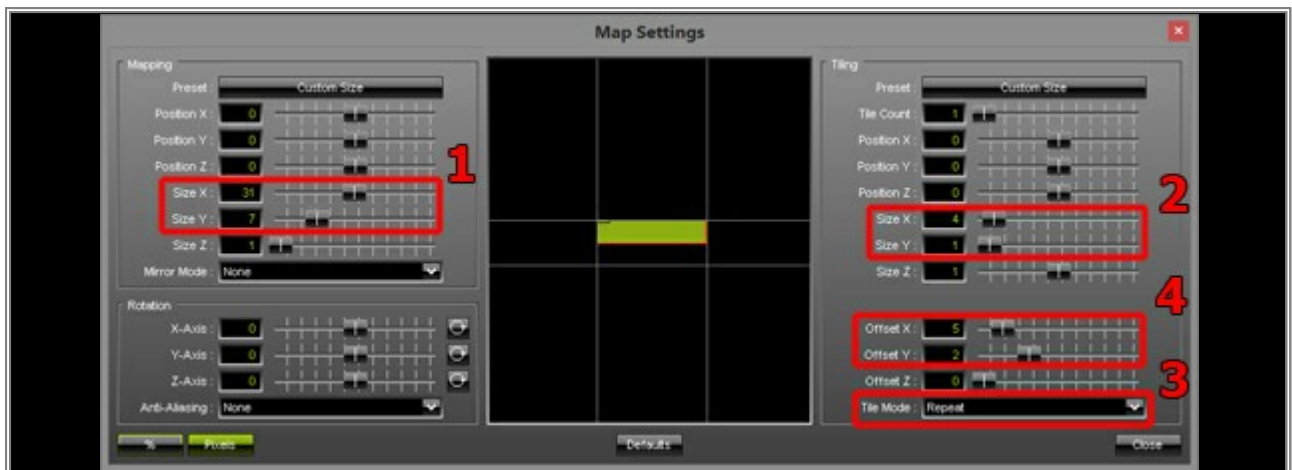
8. Second, we want to change the size and position of the **SCE Color Scroll** effect. As you know, every fixture of the Patch has 4 pixels and there is space between each fixture.

We want to achieve the following pattern: Only the first two rows of the fixtures should display the SCE Color Scroll effect and every pixel of the fixtures should display the same colors at the same time. It will be like a repetition of the first fixture.

To do so, change the following settings:

Note: Please use the slider to change the values and while doing so have a look at the Previews and graphical mapping overview to see how the changes affect the result.

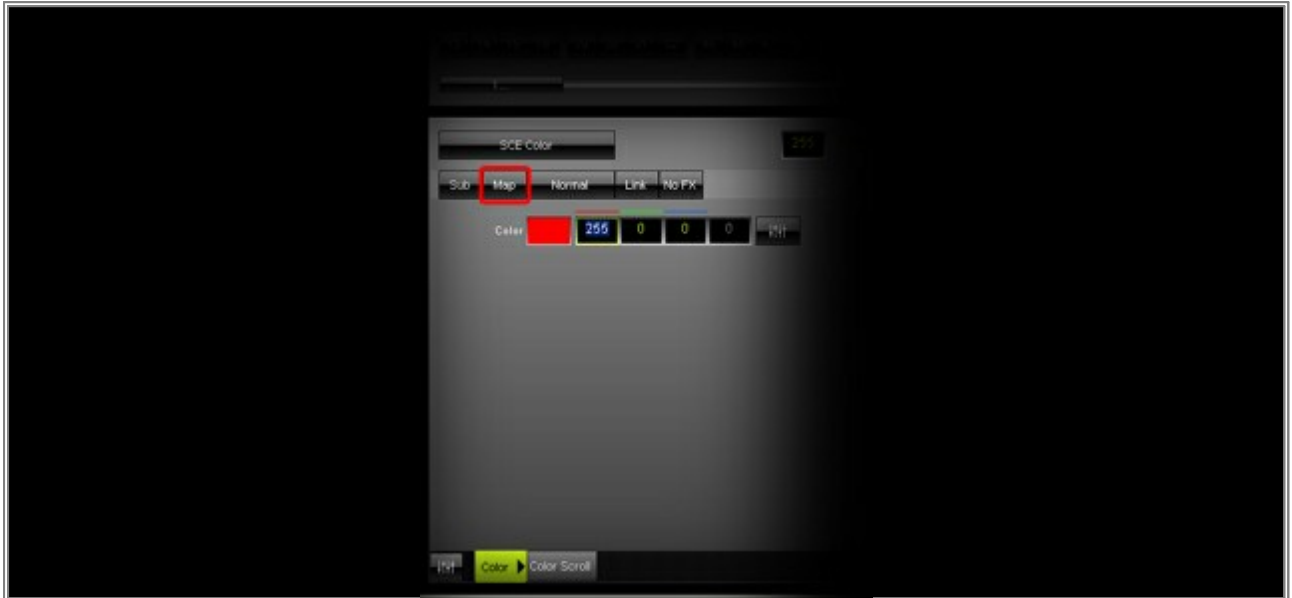
- 1] In the **Mapping** section: Leave **Size X** at **31** and change **Size Y** to **7**
- 2] In the **Tiling** section: Change **Size X** to **4** and **Size Y** to **1**
- 3] In the **Tiling** section: Change the **Tile Mode** to **Repeat**
- 4] In the **Tiling** section: Change **Offset X** to **5** and **Offset Y** to **3**



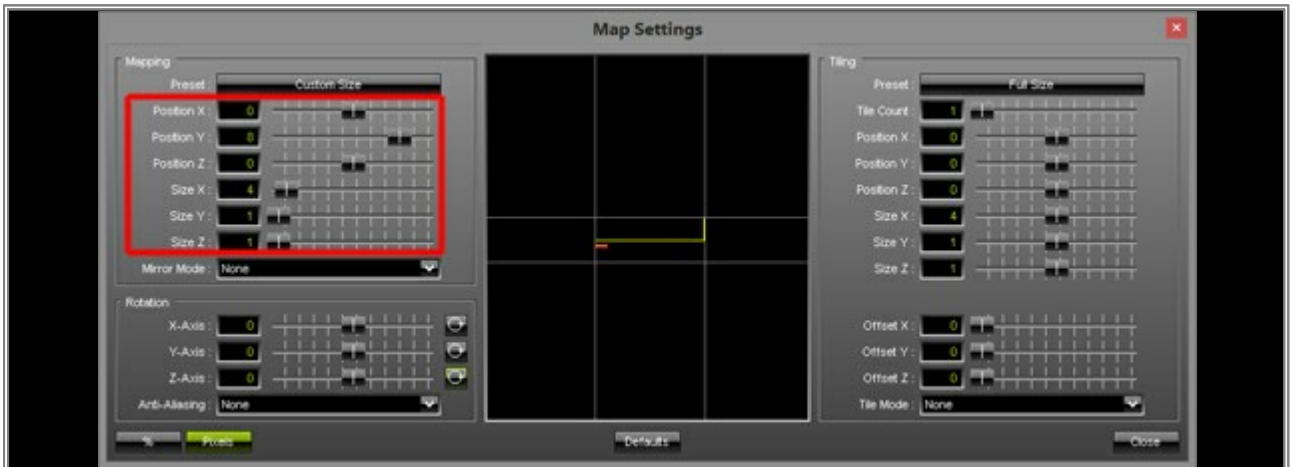
Close the **Map Effect** window. Then, have a look at the Preview of MADRIX. You should see that only fixtures of the first two rows display the SCE Color Scroll effect in repeat mode.



- 10. We want to change the mapping of this new SCE Color effect to the first fixture in the third row. Select the Layer **Color** and click the **Map** button again.



- 11. In the **Mapping** section change **Position Y** to **8**, **Size X** to **4**, and **Size Y** to **1**.



Then, close the **Map Effect** window.

- 12. In this step, change the label of the SCE Color Layer from **Color** to **Red**. Therefore, perform a double-click with the **left mouse button** on the label **Color** and now you can rename the Layer to **Red**



- 13. In this step we want to duplicate **Layer Red**. Select the Layer and perform a click with the **right mouse button** on the Layer itself and choose **Duplicate** from the context menu. The duplicated Layer will be inserted right beside the selected one.

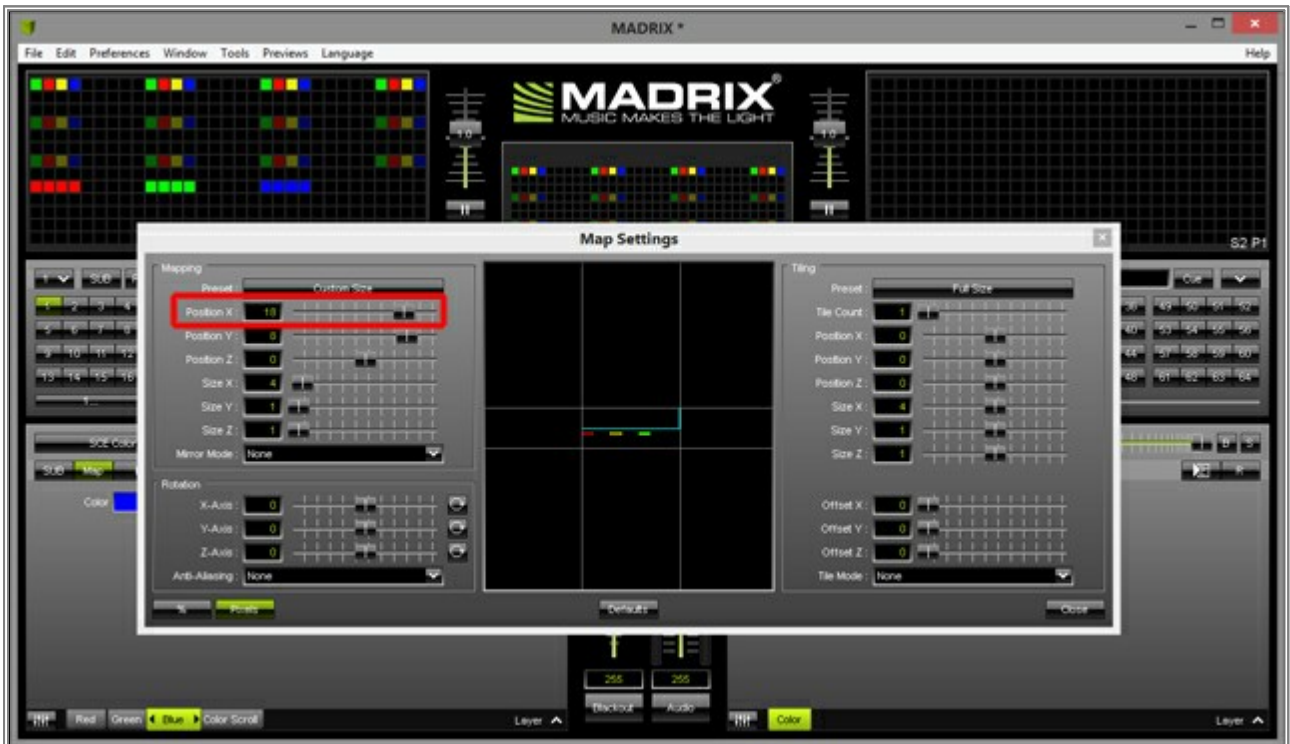
Note: If you duplicate a Layer, you duplicate all information of this Layer. This includes the settings of the **Map Effect** window.



- 14. Change the label of the new Layer to **Green**, change the color of its **SCE Color** effect to **green**, and change the mapping in the **Mapping** section for **Position X** to **9**. We will not change Position Y, Size X, or Size Y, because the size of the fixture is the same and Position Y has not changed as well.



- 15. Now, duplicate **Layer Green**. Change its label to **Blue**, change the color of its **SCE Color** effect to **blue**, and change the mapping in the **Map** section for **Position X** to **18**



- 16. Duplicate **Layer Blue**. Change its label to **Yellow**, change the color of its **SCE Color** effect to **yellow**, and change the mapping in the **Mapping** section for **Position X** to **27**



Have a look at the Previews and you can see that each fixture of the third row has now its own color effect. Each fixture of the third row has received its own effect and mapping.

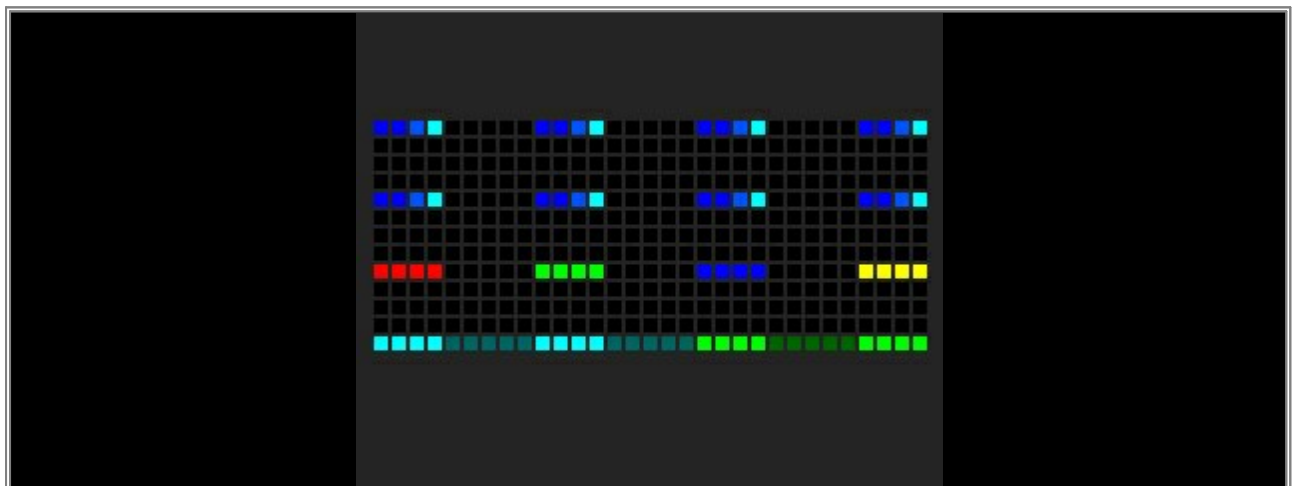
- 17. Finally, we want to map another **SCE Color Scroll** effect to the fourth row of fixtures (but this time without repetition and the color scroll should be continuous).

Duplicate the **Layer Color Scroll** and change its label to **Color Scroll 1**. Afterwards, open the **Map Settings** window. Change the following settings:

- 1] In the **Tiling** section: Change the **Tile Mode** to **None**, **Offset X** to **0**, and **Offset Y** to **0**
- 2] In the **Tiling** section: Change **Size X** to **31** and **Size Y** to **1**
- 3] In the **Mapping** section: Change **Position Y** to **12** and **Size Y** to **1**



18. Close the **Map Settings** window. Your MADRIX Previews should now display the following effects:



Note: In the last row of the Preview you can see some darker and some brighter areas. Only at the bright areas there are fixtures patched. But for this effect (SCE Color Scroll) it does not matter if there is a fixture or not at every position. The effect will be replayed in the mapping area. The respective fixture fetches the color information at the position of the Patch.

Congratulations! You have created an effect with different Layers for different fixtures.

2.11 Mapping - Mirroring

This tutorial shows you how you can use mirroring to create a new effect.

Date: 10/2014

MADRIX Version: 3.3 (Created with)

Requirements: For this tutorial MADRIX needs to receive an audio input signal.

Note: It is also useful to read the tutorial »[Working With Layers](#) beforehand.

1. Select an empty Storage Place. In this example we will choose Storage 1 and Place 1.

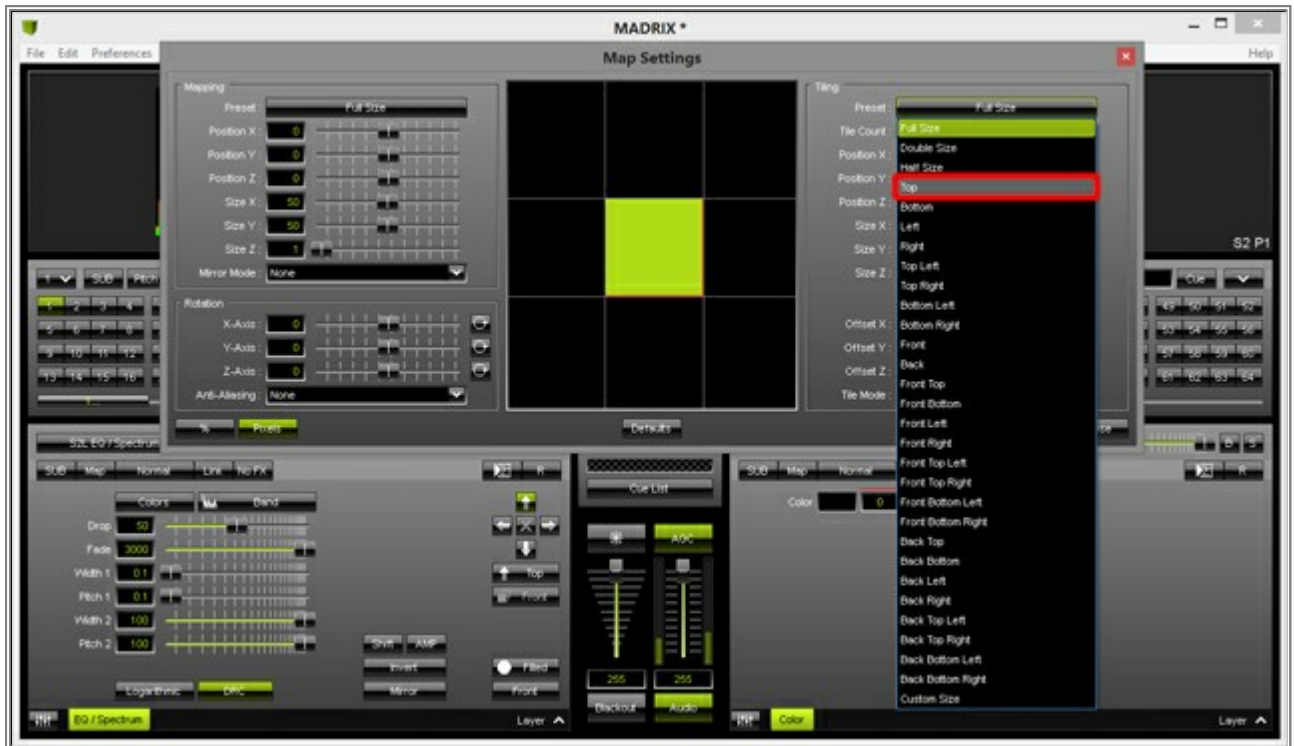
2. Select the effect **S2L EQ / Spectrum** from the drop-down list of effects.



3. Click **Map** in the **Effect Section** of the user interface and the **Map Settings** window will be opened.



- 4. In the **Tiling** section click on the **Preset** button and choose **Top** from the list.



Afterwards, change the **Tile Mode** to **Mirror V**

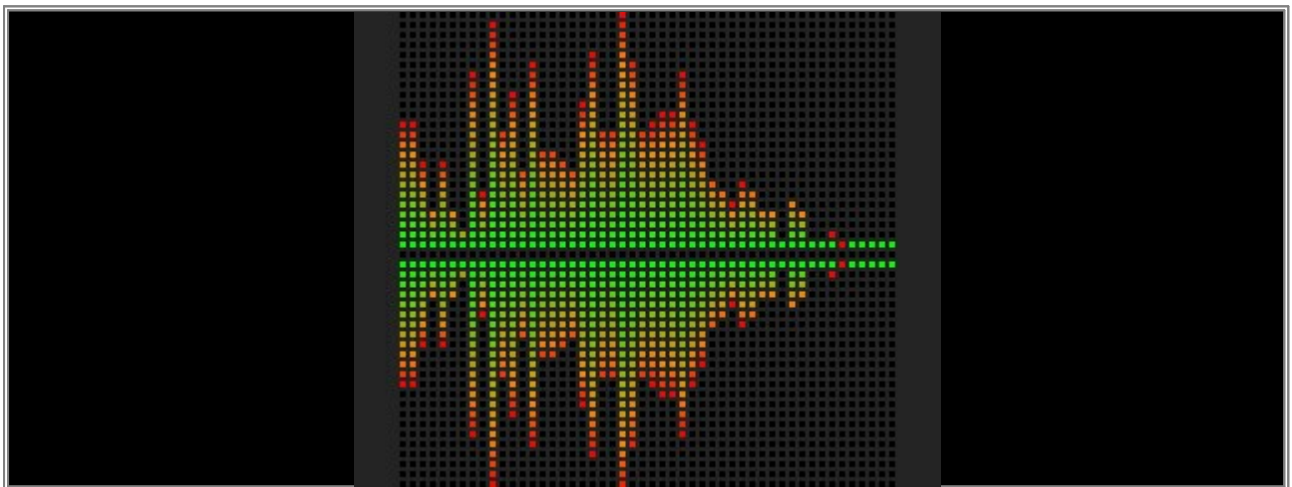


Change the value of **Offset Y** to **3**



5. Close the **Map Effect** window.

The Preview should now look similar to this picture:



6. So far, we have created a mirrored Equalizer effect. In addition, we want to change the mirrored part further. Therefore, please add a new Layer: Click **Layer > New**

Note: After adding the new Layer, the Preview of MADRIX will be black. Do not worry about it.

- 7. Please do not change any effect parameters of the newly inserted Layer. The Layer should remain black. But please select the newly created **Layer Color** and click **Map** again. In the **Mapping** section, click on the **Preset** button and change it to **Bottom**

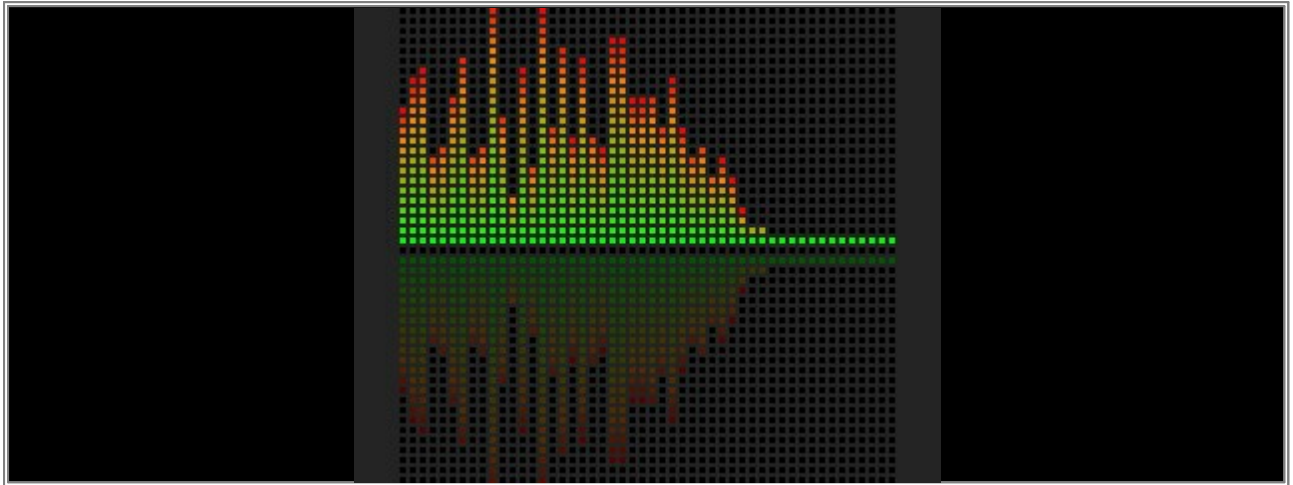


Close the **Map Settings** window.

- 8. Change the **Opacity** of the **Layer Color** to **170**. You can control the Opacity with the horizontal slider on top of the **Effect Section**



9. Your effect should now look like the following picture in the MADRIX Preview.



Note: You can change the colors of the Equalizer and the mirrored Equalizer will change the colors automatically, too.

Congratulations! You have just created a mirrored effect.

2.12 Mapping - Using Fixture Groups For Mapping

In this tutorial, you will learn how you can use Fixture Groups to map effects in MADRIX.

Date: 07/2015

MADRIX Version: 3.4 (Created with)

Note: For this tutorial, we are going to use the Patch and fixture groups created in the tutorial »[Working With Groups](#).

It is useful to read this tutorial first.

1. Start MADRIX and select an empty Storage Place. In the screenshot below, Storage Place S1 P1 is selected on the left side.

Change the color of the **SCE Color** effect to **Red**. Then, click on the **Map** button.



The **Map Settings** window opens.



In the **Mapping** section, click on the **Preset** button. On the top of the list of presets, you will find a section which contains all created fixture groups.

Note: Your Patch needs to include fixture groups. Otherwise, the list of presets will not include any presets based on such fixture groups.



- 2. We are now assigning this Layer (SCE Color with the color Red) to the first fixture group by selecting the preset **Left** in the preset list.



The **Preset** button has also been changed to **Left**, which helps you see which preset was chosen.



Please also have a look at the MADRIX **Preview Left** and you will see that the effect mapping has been changed to cover only fixtures that are included in the fixture group **Left**

- Let us add a new **Layer** in MADRIX. We will change SCE Color to **Yellow** and set the **Preset** of the **Mapping** section (in the **Map Settings** window) to the fixture group **Middle**

Note: If you do not know how you can work with Layers in MADRIX, please see the tutorial »[Working With Layers](#)

Preview Left should now look like this:



- In the last step of this tutorial, we want to add another **Layer**, change SCE Color to **Blue**, and set the **Preset** of the **Mapping** to fixture group **Right**



Congratulations! You have learned how you can use fixture groups for the mapping of an effect.

2.13 Chaser - Changing Directions Automatically

In this tutorial, you will learn how you can automatically change the direction of a MADRIX Effect by using the Effect Parameter Chaser.

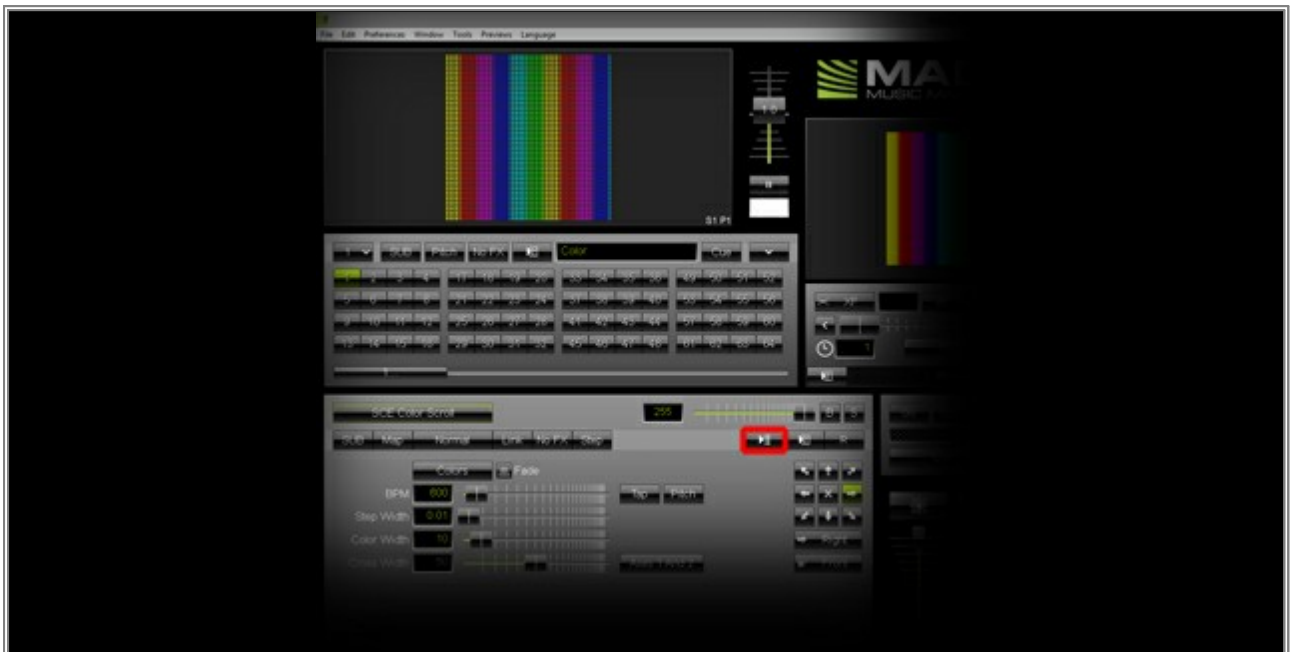
Date: 06/2015

MADRIX Version: 3.4 (Created with)

1. Select an empty Storage Place. In this example, we will choose Storage Place S1 P1.
2. Select the effect **SCE Color Scroll** from the drop-down list of effects.



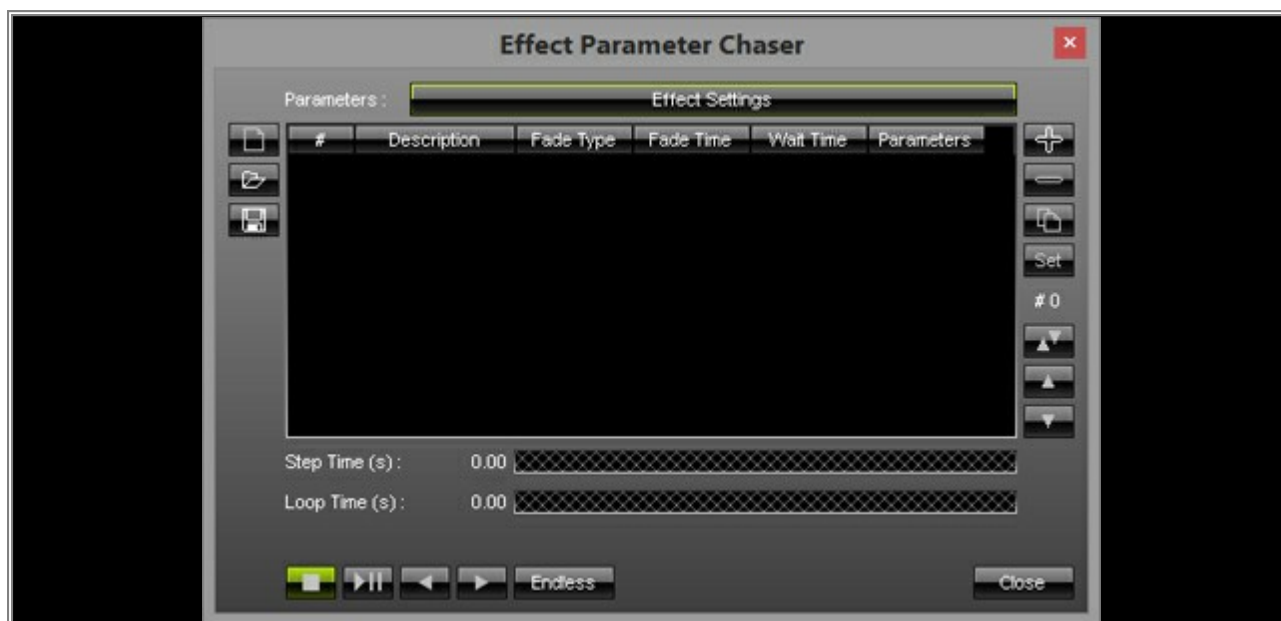
3. Please perform a click with the right mouse button on the **Chaser** button.



Then, choose **Edit...**



- 4. A new window, the so-called **Effect Parameter Chaser**, opens with a blank Step list.



- Now, we want to add Steps to the list.

Therefore, click on the **+** button in the Effect Parameter Chaser window to store the first Step.

Note: Every effect setting will be stored in a Step. In this example, we are only going to change the **Direction** of SCE Color Scroll.



Second, change the direction to **Bottom** and click the **+** button again.



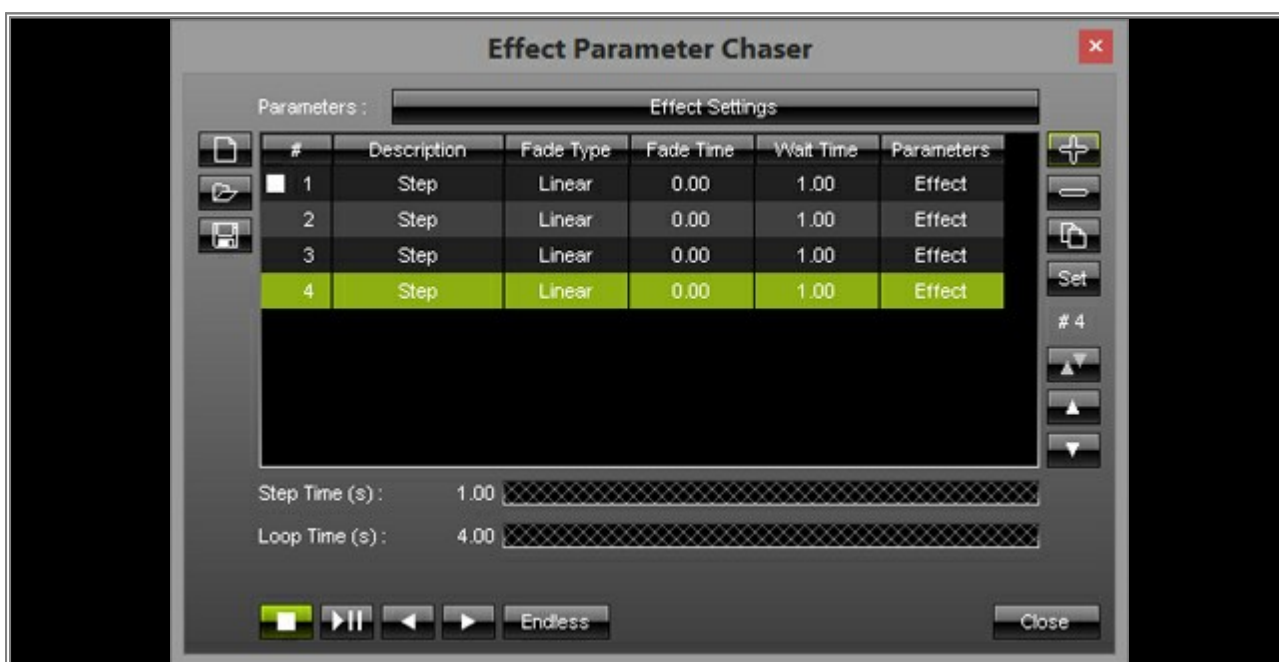
Third, change the direction to **Left** and click the **+** button again in the Effect Parameter Chaser.



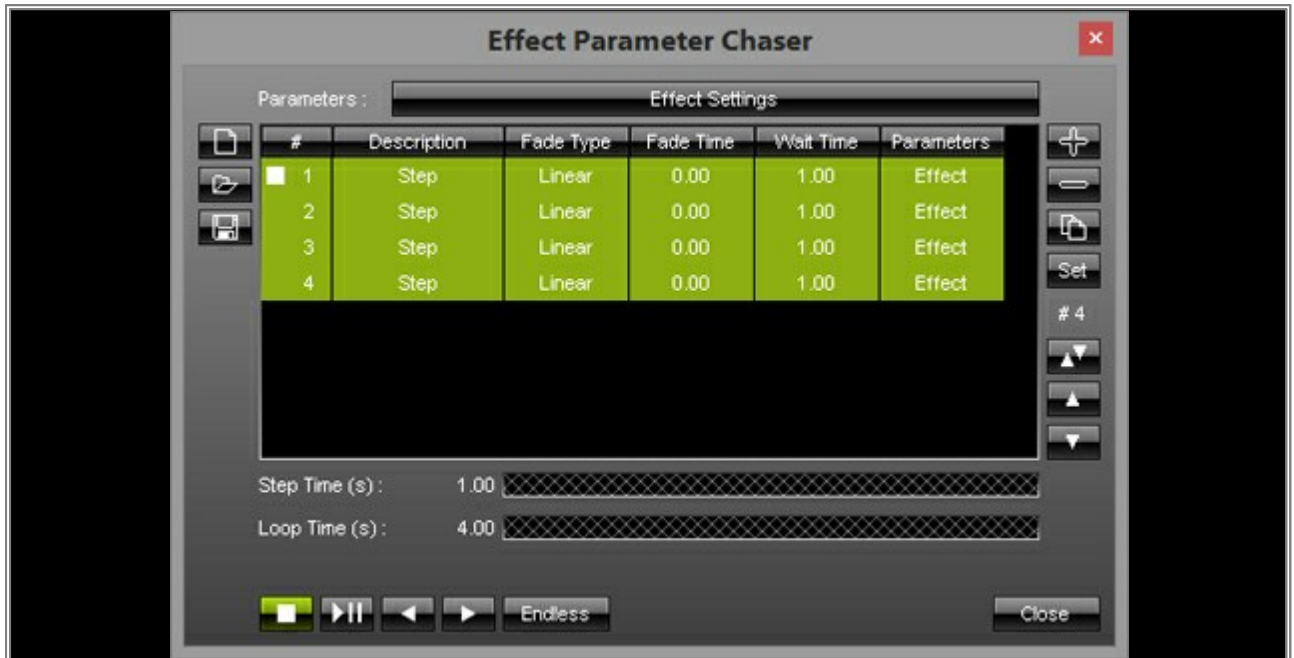
Fourth, we are changing the direction to **Top** and click the **+** button one more time.



6. We have now added 4 Chaser Steps to the list. Every Step has a different direction.



- 7. We are now changing the **Wait Time** for all Chaser Steps.
Please select all Steps first. You can select all Steps in the list by pressing **Ctrl+A** or you select the first entry in the list and press and hold the **Shift** key and select the last entry in the list.

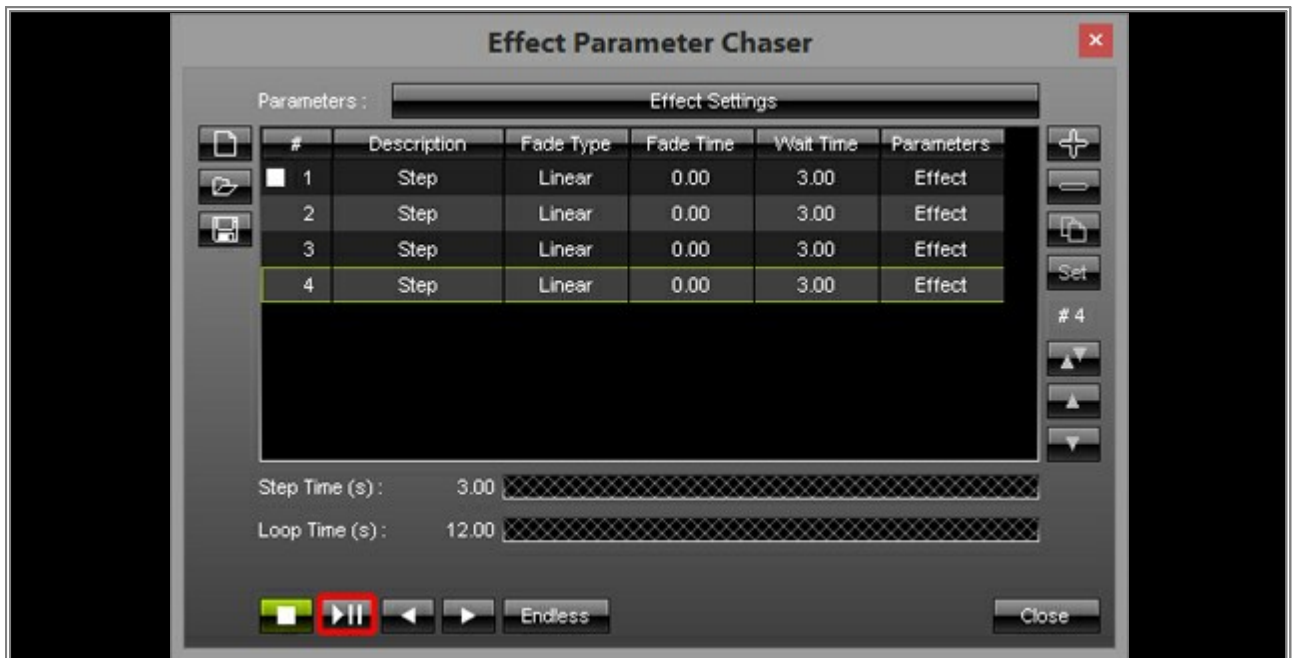


Perform a click with the right mouse button on the **Wait Time** column of one entry and change it to **3**.



8. We will now play back the created Chaser.

Therefore, click the **Play/Pause** button and look at the Previews in MADRIX. You will see that every 3 seconds the direction will be changed.



Congratulations! You have learned how you can create an Effect Parameter Chaser which plays the effect in different directions.

2.14 Chaser - Changing A Slider Value Continuously

This tutorial shows you how you can let MADRIX change a MADRIX Effect slider continuously by using the Effect Parameter Chaser with Fade Time.

Date: 07/2015

MADRIX Version: 3.4 (Created with)

1. Select an empty Storage Place. In this example, we are going to use Storage Place S1 P1.
2. Select the effect **SCE Wave / Radial** from the drop-down list of effects.



3. Please change the **Shape** to **Helix** by clicking on the **Mode** button that by default says **Circle**. Choose **Helix** from the list.



- 4. Change the **Width** value to **20**



Now, we want to add the first Step to the Effect Parameter Chaser.

Perform a click with the right mouse button on the **Effect Parameter Chaser** button and click **Add Step** with the left mouse button. A Step will be added to the Chaser and the icon will change to blue.



- 5. Now, change the value of the **Width** slider to **140**



Again, add these settings as a new Step by choosing **Add Step** from the Effect Parameter Chaser context menu.



- 6. We are now going to change a number of settings of the Effect Parameter Chaser. First, we have to open the Effect Parameter Chaser window. Click on the **Effect Parameter Chaser** button with the right mouse button to call up the context menu and select **Edit**

- 7. As a result, the Effect Parameter Chaser window opens. You can now see 2 Steps in the list with a **Fade Time** of 0.00 seconds and a **Wait Time** of 1.00 seconds. Please select the both Steps via the **Ctrl+A** keys on your keyboard.



- 8. We are going to change both, **Fade Time** and **Wait Time**.
To change the **Fade Time**, perform a right mouse click on one of the entries of the **Fade Time** column. Change the **Fade Time** to **3.00** and press **Enter**
To change the **Wait Time**, perform a right mouse click on one of the entries of the **Wait Time** column. Change the **Wait Time** to **0.00** and press **Enter**



9. Click the **Play/Pause** button to start the Effect Parameter Chaser. You can see the result immediately in the MADRIX Preview.



Congratulations! You have learned how you can create an Effect Parameter Chaser which continuously changes the values of a slider.

2.15 Chaser - Changing Map Settings

In this tutorial, you will learn how you can create an Effect Parameter Chaser which does not change settings of a MADRIX Effect but the Map Settings of a Layer.

Date: 07/2015

MADRIX Version: 3.4 (Created with)

1. Select an empty Storage Place. In this example, we have Storage Place S1 P1 selected.

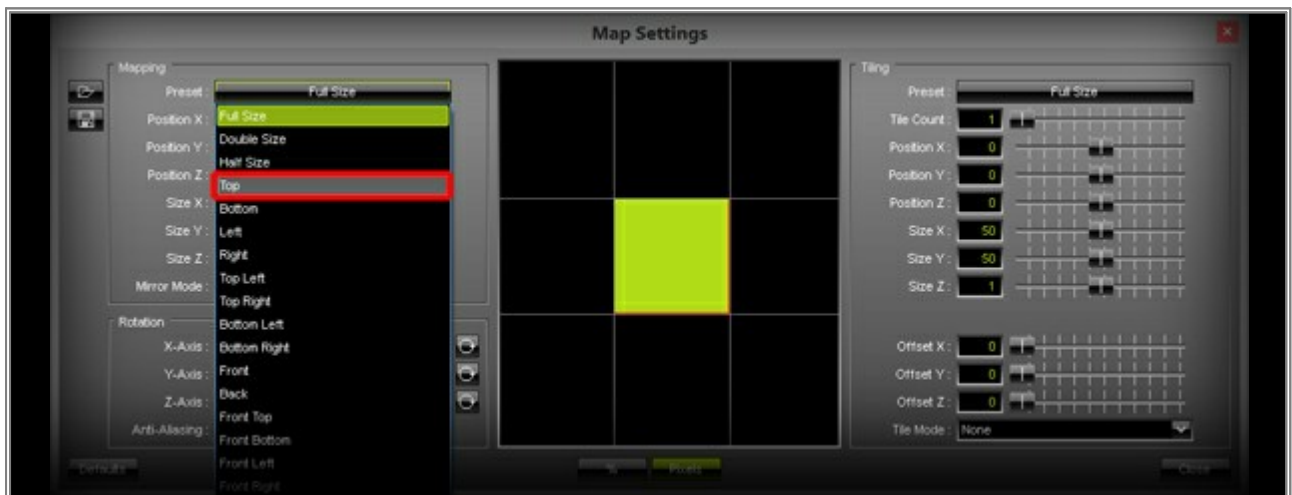
2. Select **SCE Graph** from the drop-down list of effects.



- Click with the left mouse button on the **Map** button.



The **Map Settings** window opens. In this window, please select **Top** as **Preset** in the **Mapping** section.



- 4. Switch back to the main user interface and perform a right mouse click on the **Chaser** button and select **Edit**

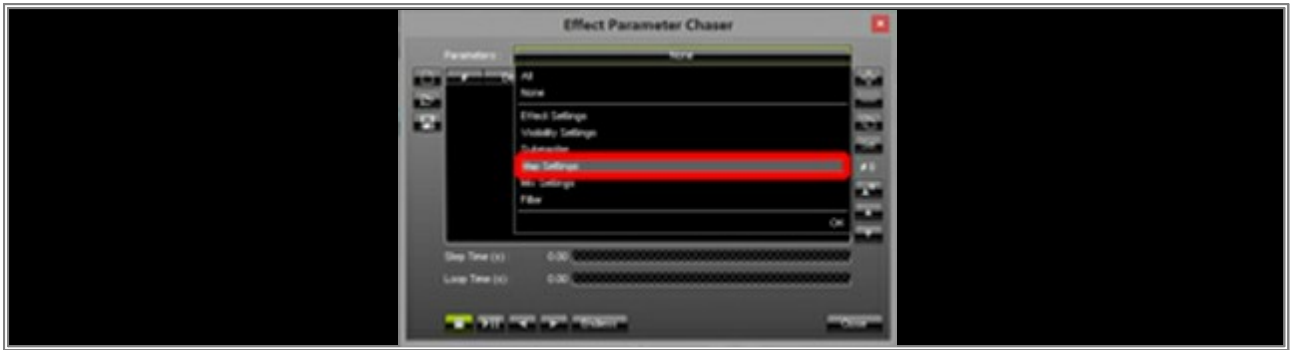


The **Effect Parameter Chaser** will open. Please open the **Parameters** selection. To do so, click on the button which is called **Effect Settings** by default.

First, select **None**



Then, please select **Map Settings** and confirm with **OK**



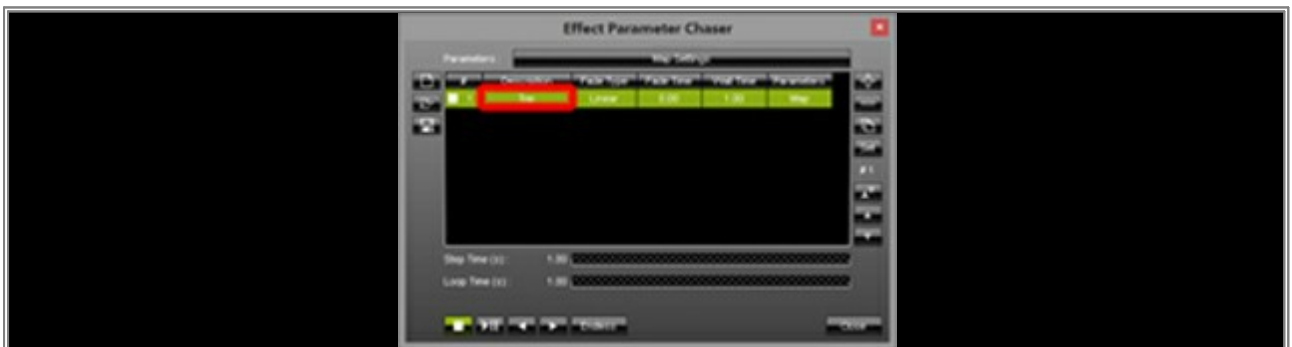
We have now prepared the Effect Parameter Chaser to store Steps that include Map Settings.

- 5. Click the **+** button in order to add the first Step to the **Effect Parameter Chaser**



The new Step has been added to the list. For easier reference, we are changing the **Description** in this example to **Top**

To change the description of a Step, select the Step in the list first and perform a left mouse double-click on the description field of the selected row.



- 6. We are changing the Map Settings again. In this example, we are now choosing **Bottom** as **Preset** in the **Mapping** section.



- 7. We are adding these settings as a second Step to the Effect Parameter Chaser List by clicking the + button.



We also want to change the **Description** for this list entry. We are changing it to **Bottom**, for example.



8. At last, let us change the **Fade Time** and **Wait Time** of the Chaser.

To change the **Fade Time** and/or **Wait Time** of all entries in the Effect Parameter Chaser list, select all entries first by pressing **Ctrl+A** on your keyboard. Then, perform a click with the right mouse button on the desired entry and change the value. For this example, change the **Fade Time** to **2.00** and the **Wait Time** to **0.00**



Click the **Play/Pause** button and the **Effect Parameter Chaser** starts.

Congratulations! You have learned how you can create an Effect Parameter Chaser only for Map Settings.

//PART C

Workflow

3 Workflow

3.1 Exporting And Importing Storages

This tutorial shows how you can export a Storage of an existing MADRIX Setup and import it into another, already existing Setup. In this way, you can bring a complete Storage over to another Setup.

Date: 08/2014

MADRIX Version: 3.2 (Created with)

Note: For this tutorial it is important that you have two Setup files to work with.

1. Start MADRIX and open an existing Setup.



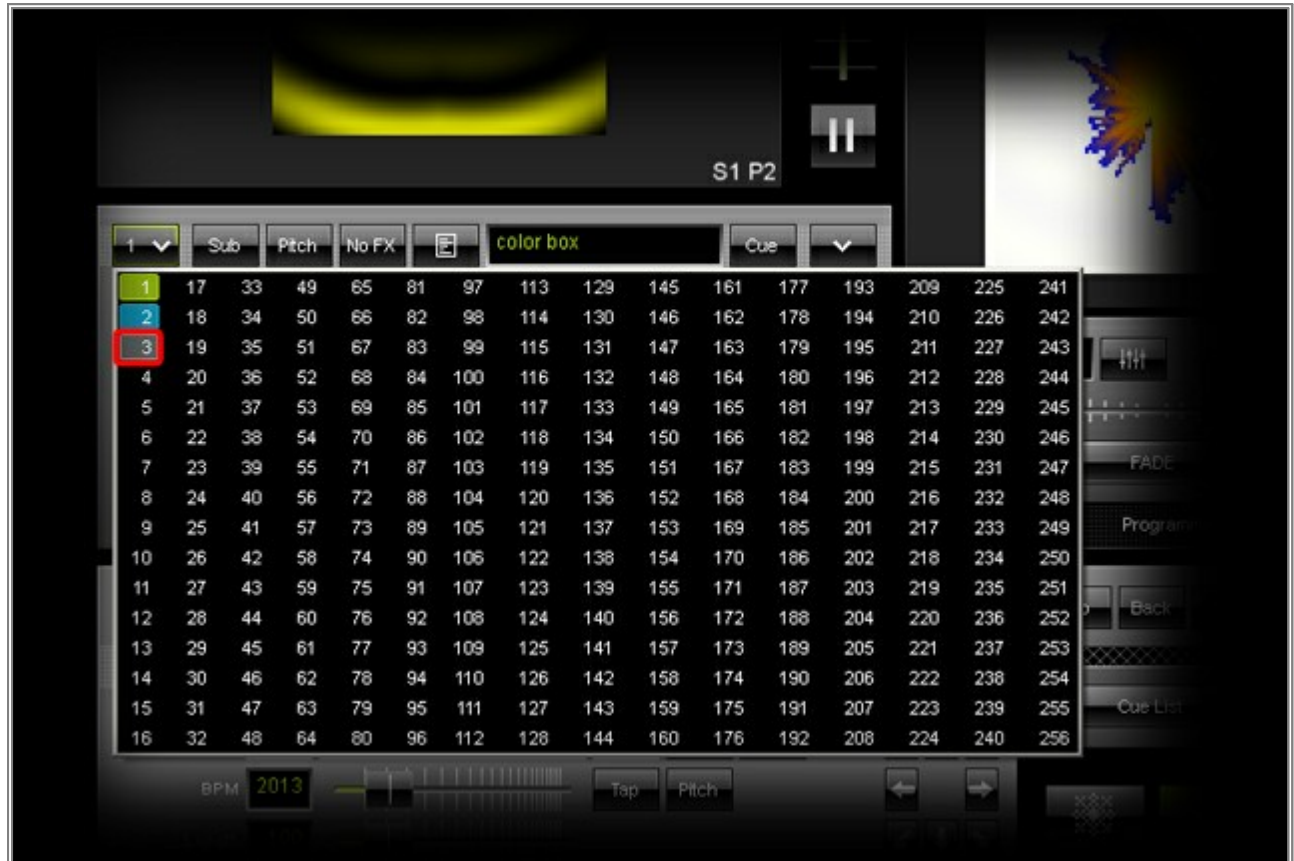
- 2. We want to export Storage 2 from the Right, including all effects we have saved there. Go to **File > Export > Storage > Storage Right** and save the Storage to a desired folder. Remember where you saved it and how you named it.



3. Open another, existing MADRIX Setup file.



4. Choose a free Storage: Our sample Setup only occupies Storage 1 and 2. Therefore, we change **Storage Left** to **3**.



- 5. In order to import the Storage, go to **File > Import > Storage > Storage Left** and choose the MADRIX Storage file you have exported in step 2.



- Storage **3** now contains all the effects you have just imported.



Congratulations! You have transferred a Storage from one Setup to a different Setup.

3.2 Exporting And Importing Storage Places

In this tutorial you will learn how you can export a Storage Place (that means one effect you have created) and import it into a different Setup file. This workflow could be useful, for example, when creating a new effect at home and implementing it into an existing show at work.

Date: 08/2014

MADRIX Version: 3.2 (Created with)

Note: For this tutorial it is important that you have an existing Setup file to work with.

- 1. Start MADRIX and create a new effect.

In this example, we have created an effect with 2 Layers on Storage Place S1 P1 on the Left. **SCE Fluid** can be found on Layer 1. Layer 2 is set to **SCE Simple Shape**.

Layer 2 has been further modified. For the effect, choose **Ellipse Filled** as shape and set the **Position** to **X: 10, Y: 10** and the **Size** to **X: 80, Y: 80**. Also, change the Mix Mode to **Mask**. Finally, click on **Map** and set **Top Left** as well as **Tile: Repeat** in the **Tile** section.



- 2. We now want to export the active Storage Place from Storage 1 (in this example it is S1 P1 activated on the Left). Go to **File > Export > Storage Place > Storage Place Left...** and choose a name and directory for this file.

The default folder is the MADRIX3/storage_places folder which is located in your user documents folder.

Note: If you want to export an active Storage Place from the Right side, choose **Storage Place Right...** instead of **Storage Place Left...**

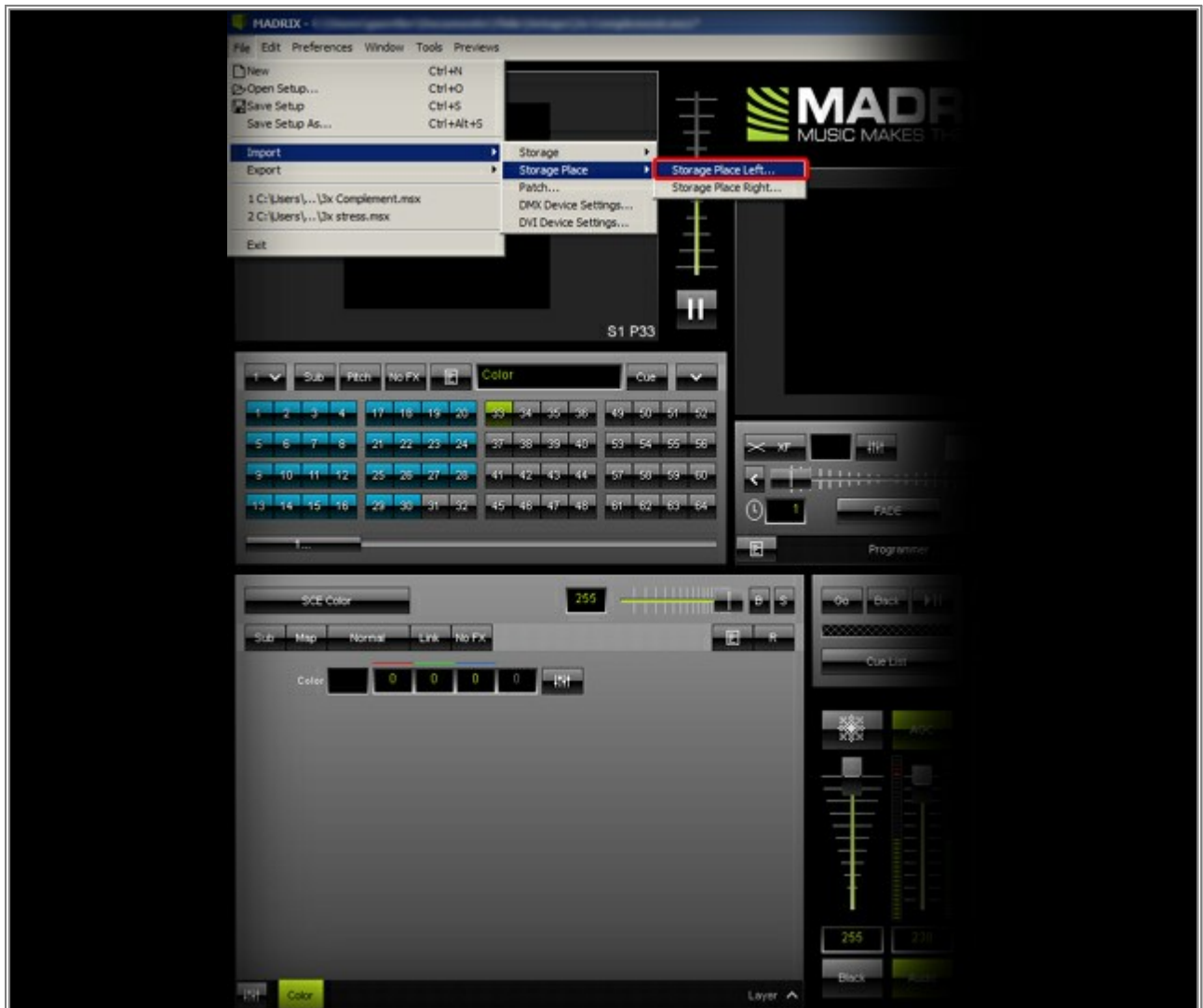


- 3. Now, open an existing MADRIX Setup and select an empty Storage Place. In this example, we are selecting Storage Place **33** on the Left.

Note: An empty Storage Place will be shown as a gray button. An occupied Storage Place is shown in blue, the active one is green. If it is shown in red, the Storage Place is already selected on the other side, Left or Right.



- Go to **File > Import > Storage Place > Storage Place Left...** and select the file you have exported in step 2.



3.3 Exporting / Importing V2.X Setups Into One V3.X Setup

In this tutorial you will learn how you can import one or more MADRIX 2 Setups into one MADRIX 3 Setup.

Date: 08/2014

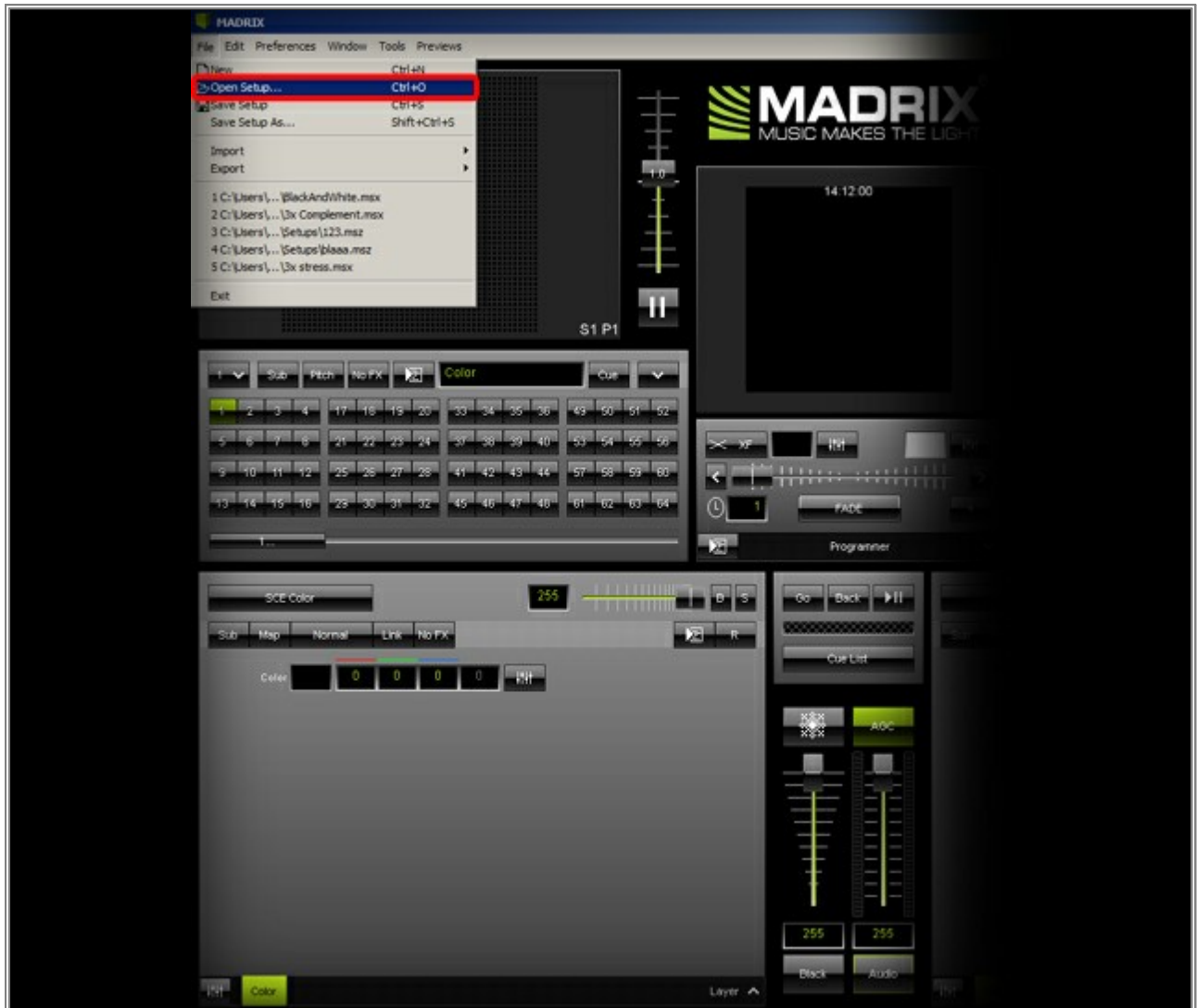
MADRIX Versions: 2.14e and 3.0 (Created with)

Note: For this tutorial it is important that you have saved two MADRIX V2.X Setup files beforehand.

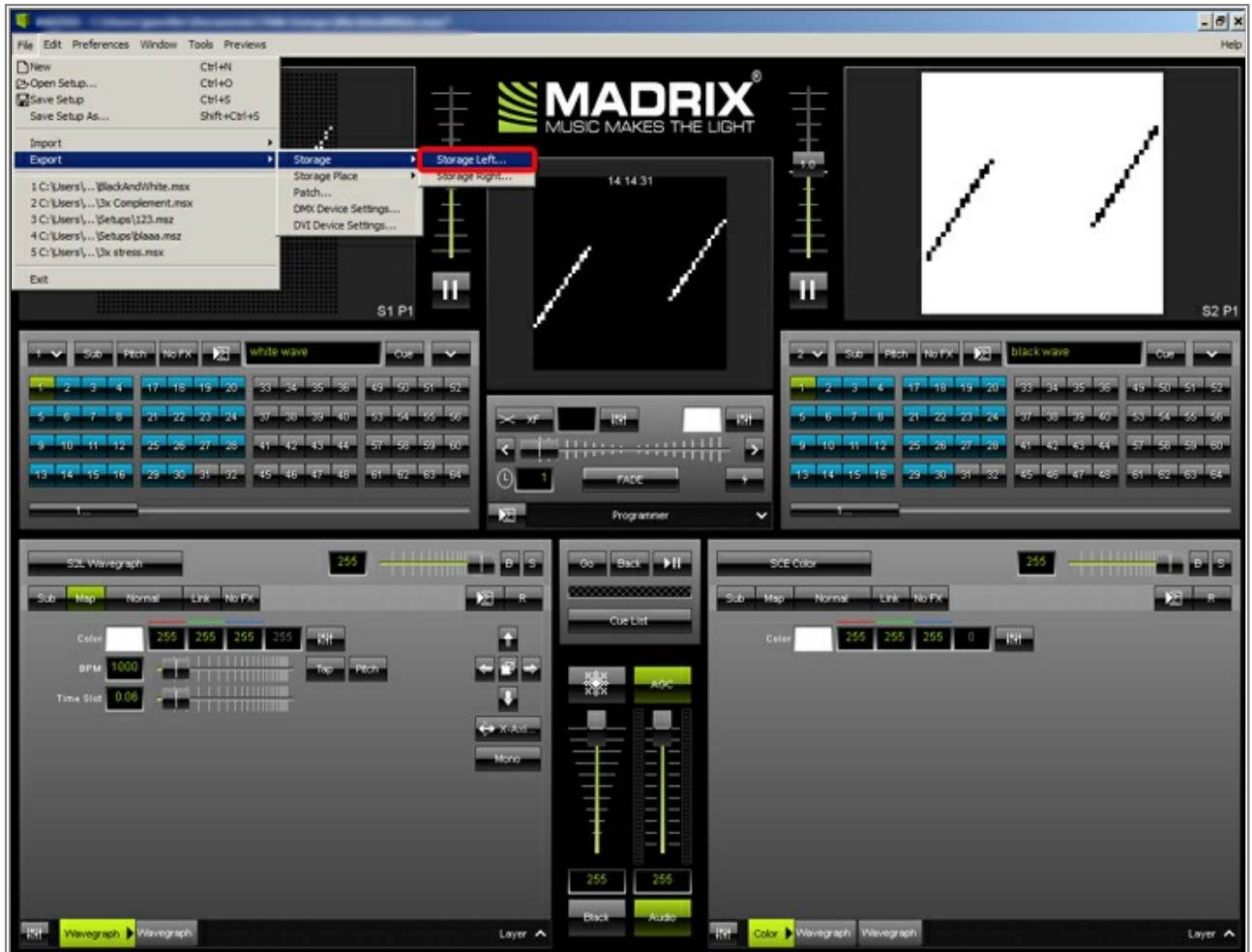
1. Open the first Setup in MADRIX 2.
Go to **File > Export > Export to MADRIX3 > Setup** and choose a desired directory and file name. Confirm with **Save**.



2. Now, open another MADRIX V2.X Setup and export this Setup as described in step 1, too.
3. Please close MADRIX 2 and open MADRIX 3.
Go to **File > Open Setup** and choose the first of the exported Setups.



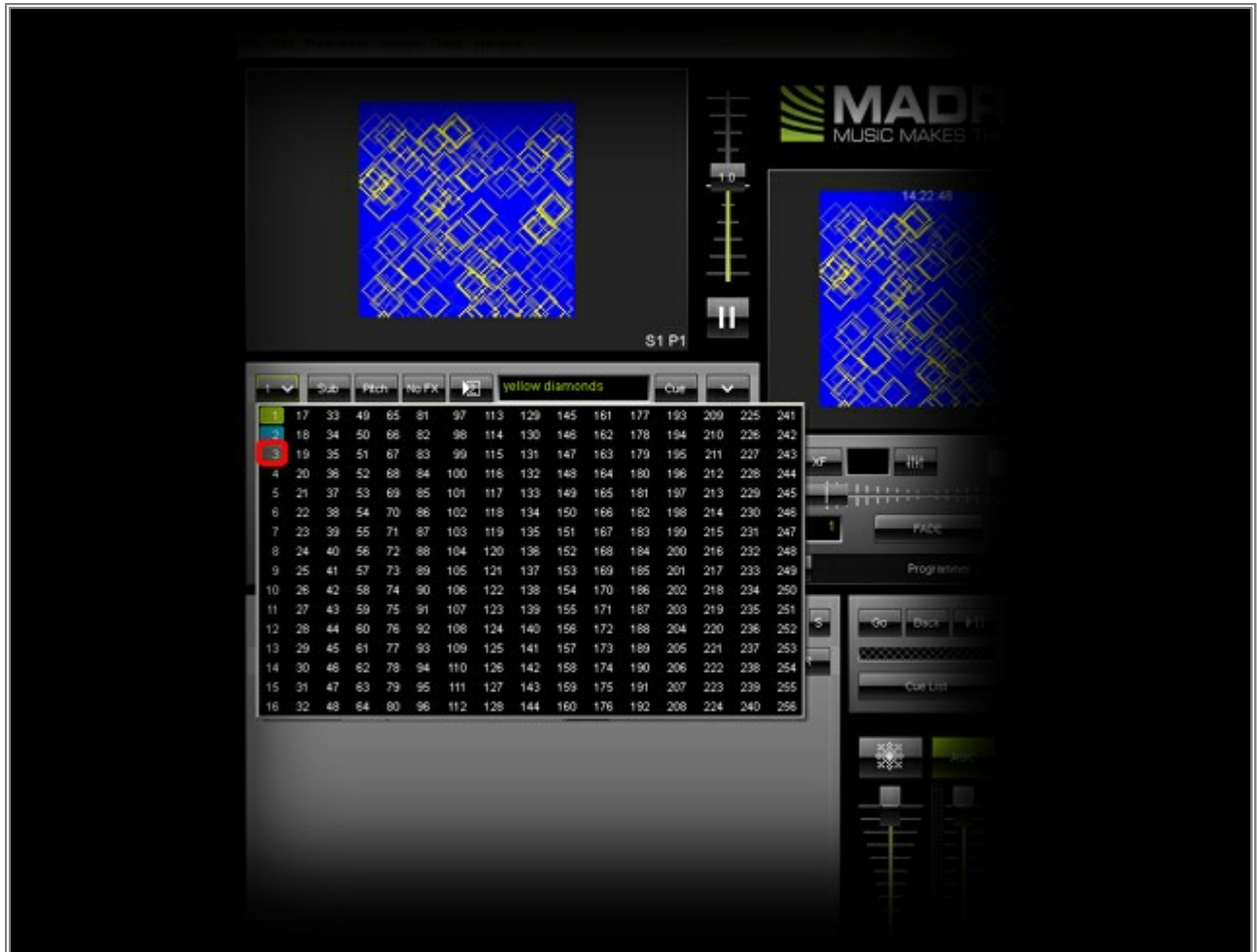
- 4. MADRIX 3 can easily store more than only 2 Storages A and B. In order to create one MADRIX 3 Setup file out of several MADRIX 2 Setups, we will export both Storages of a MADRIX 2 Setup. To do so, go to **File > Export > Storage > Storage Left**. Choose a name and press **Save**.



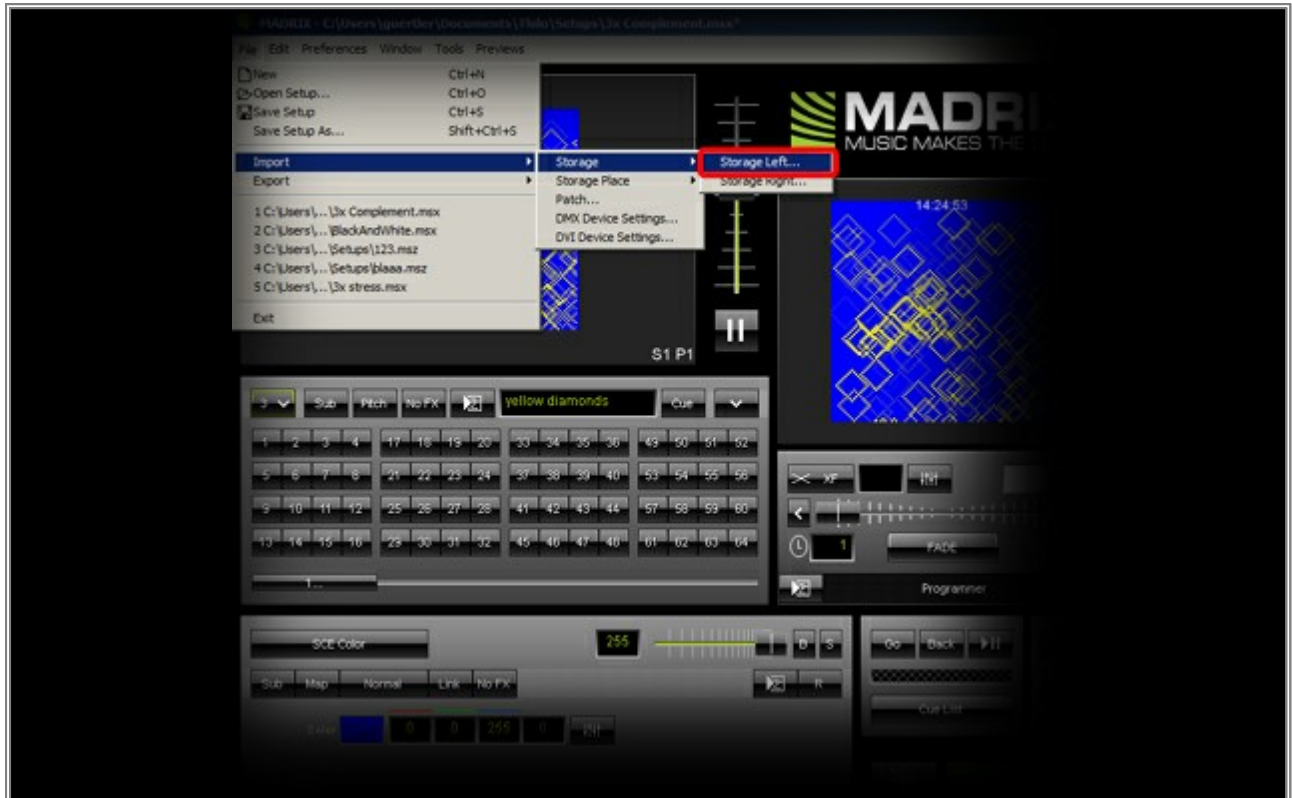
Now export the right Storage of this Setup. Go to **File > Export > Storage > Storage Right**.



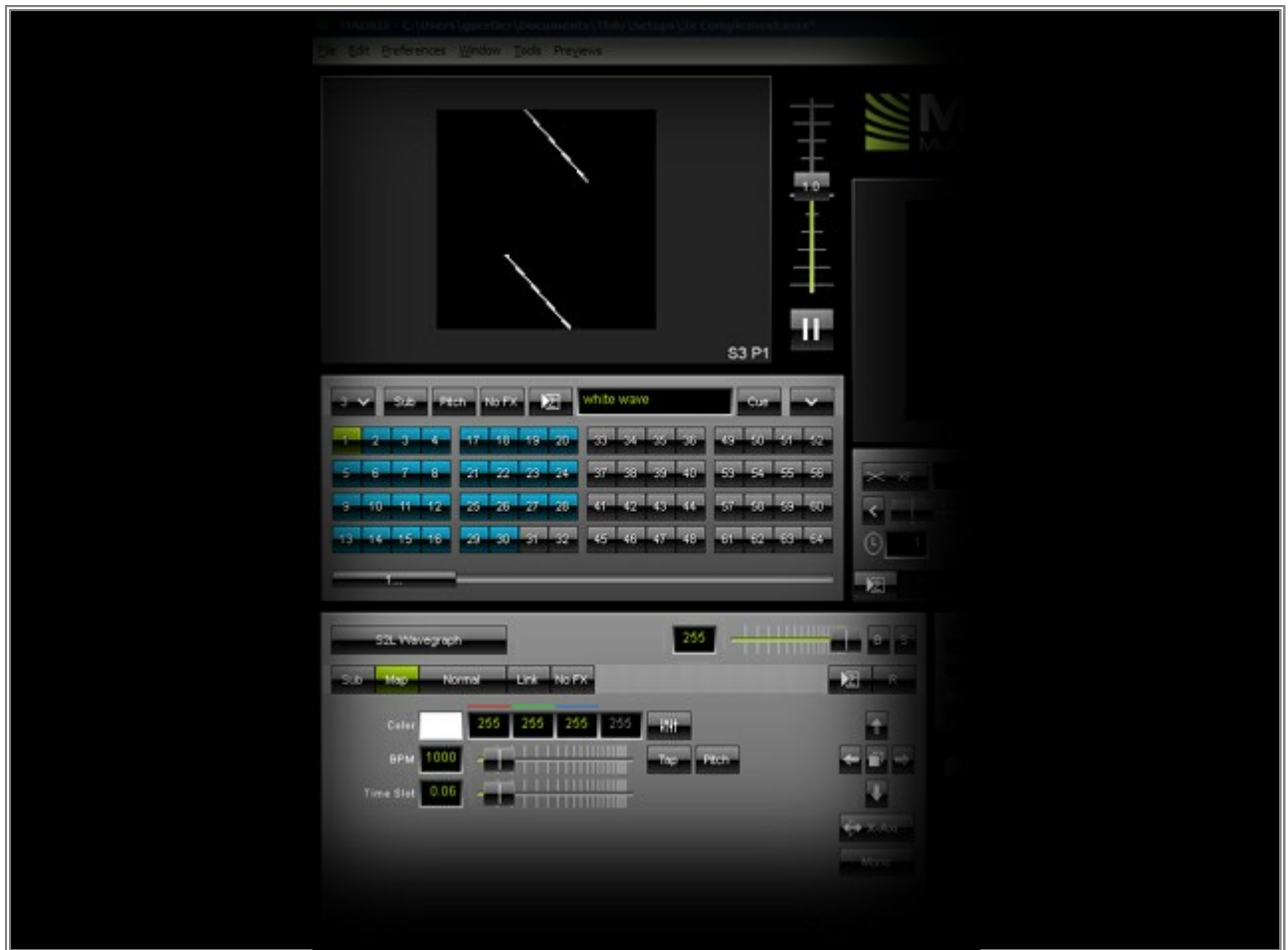
- Go to **File > Open Setup...** in order to load the second, exported Setup. The first two Storages will be occupied. Choose a free Storage, such as Storage **3** on the Left.



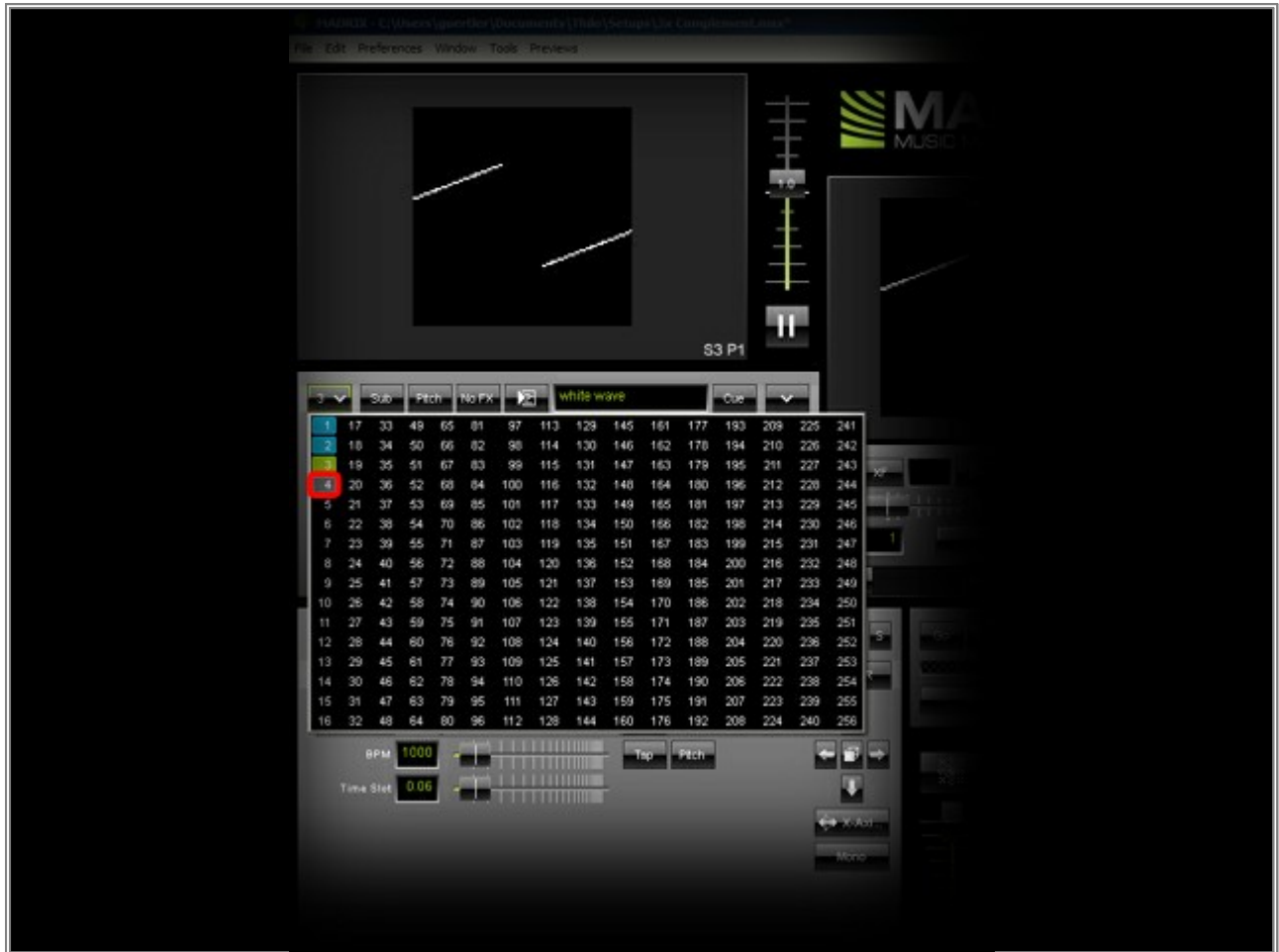
- To import a Storage to the currently selected Storage on the Left, go to **File > Import > Storage > Storage Left**. Select the Storage file you have exported in step 3 which contains the effects of the left storage.



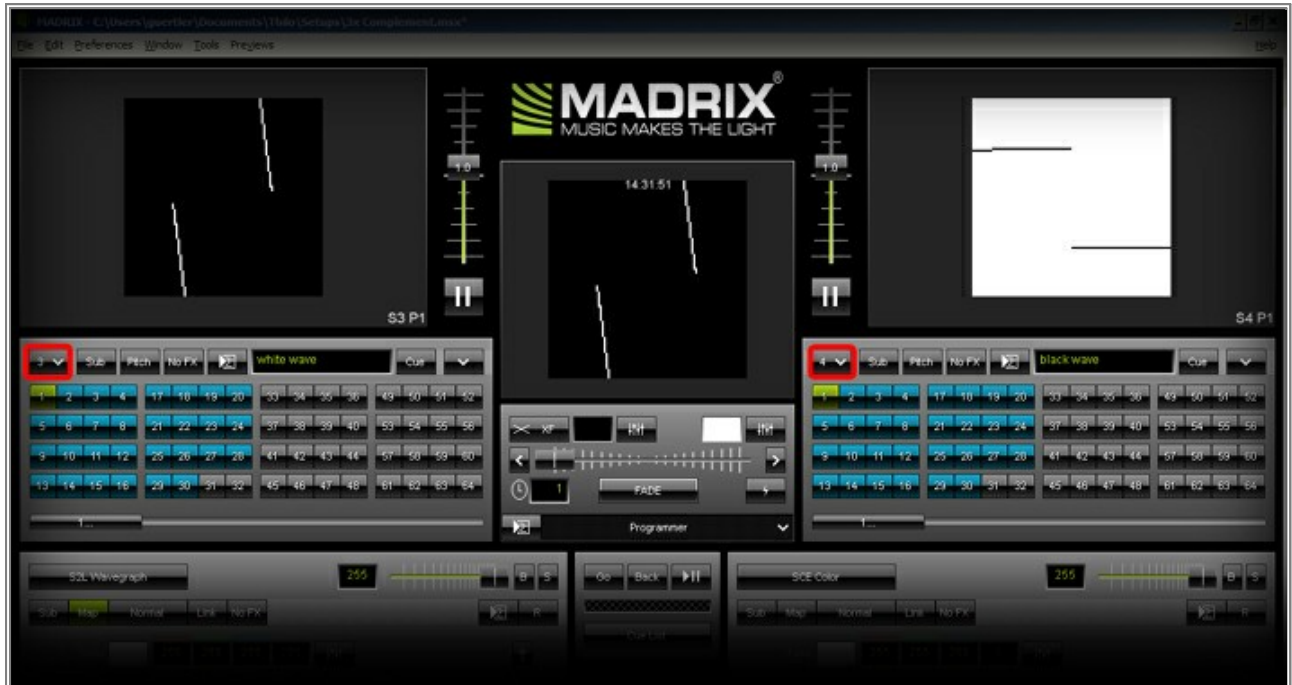
Storage 3 now contains the imported set of effects.



- Please select Storage **4** on the left side and import the Storage file you have exported in step 3 which contains the effects of the right storage. Repeat step 6 to import this file.



8. Storage 1, Storage 2, Storage 3, and Storage 4 now all include imported Storages and in this way all effects of the two MADRIX 2 Setups.



Congratulations! You can create a MADRIX 3 Setup that contains your MADRIX 2 Setups.

3.4 Controlling MADRIX Via Touch Screen

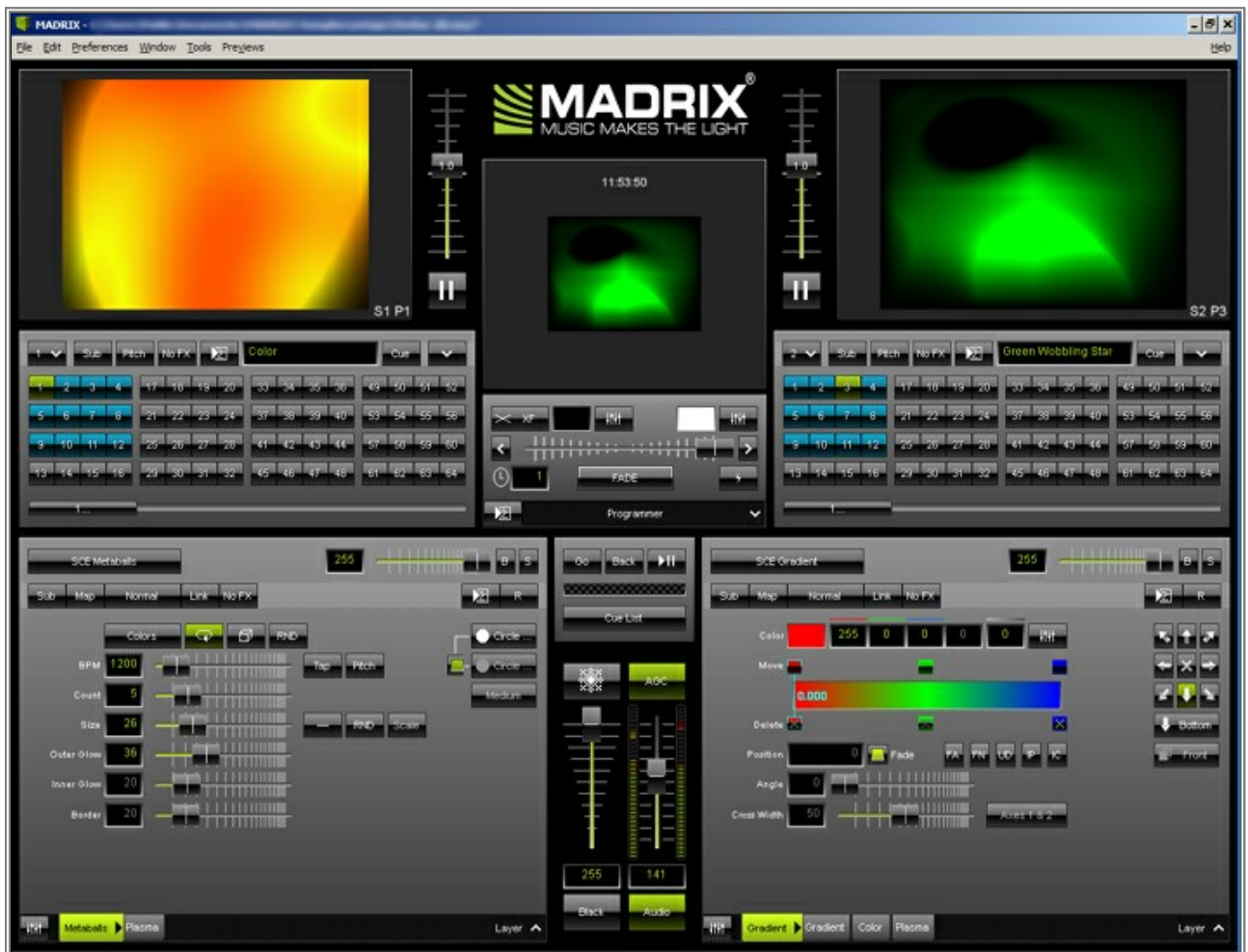
This tutorial shows you how to work with the integrated Touch Window. The Touch Window can be controlled with a regular mouse or better if you own a touch screen monitor that allows touch input.

Date: 08/2014

MADRIX Version: 3.0 (Created with)

Note: It is useful to use an existing Setup that already includes effects.

1. Start MADRIX and open an existing Setup or create a new one.

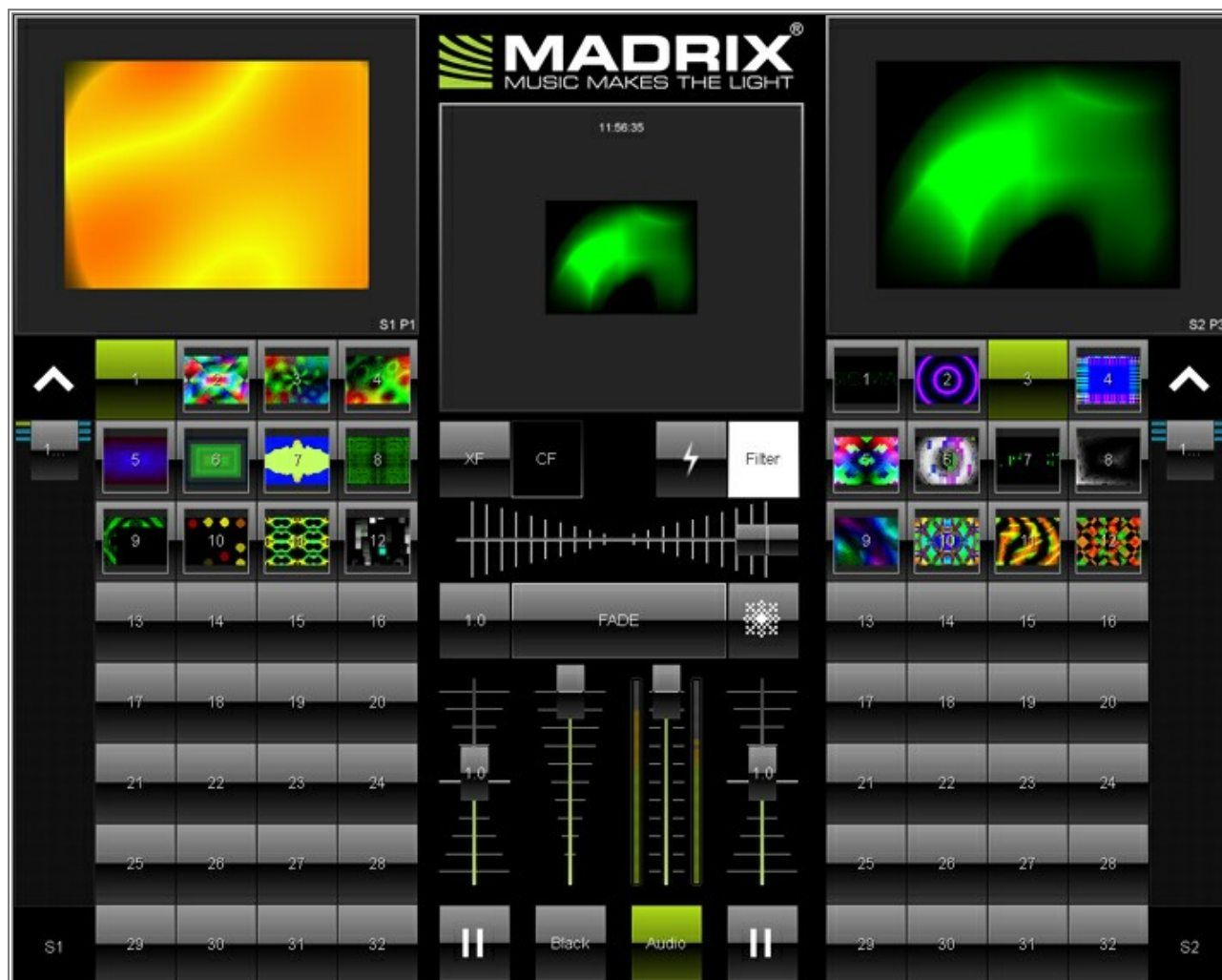


2. Click once on the 'MADRIX Logo'. You will find it above the Preview Output.



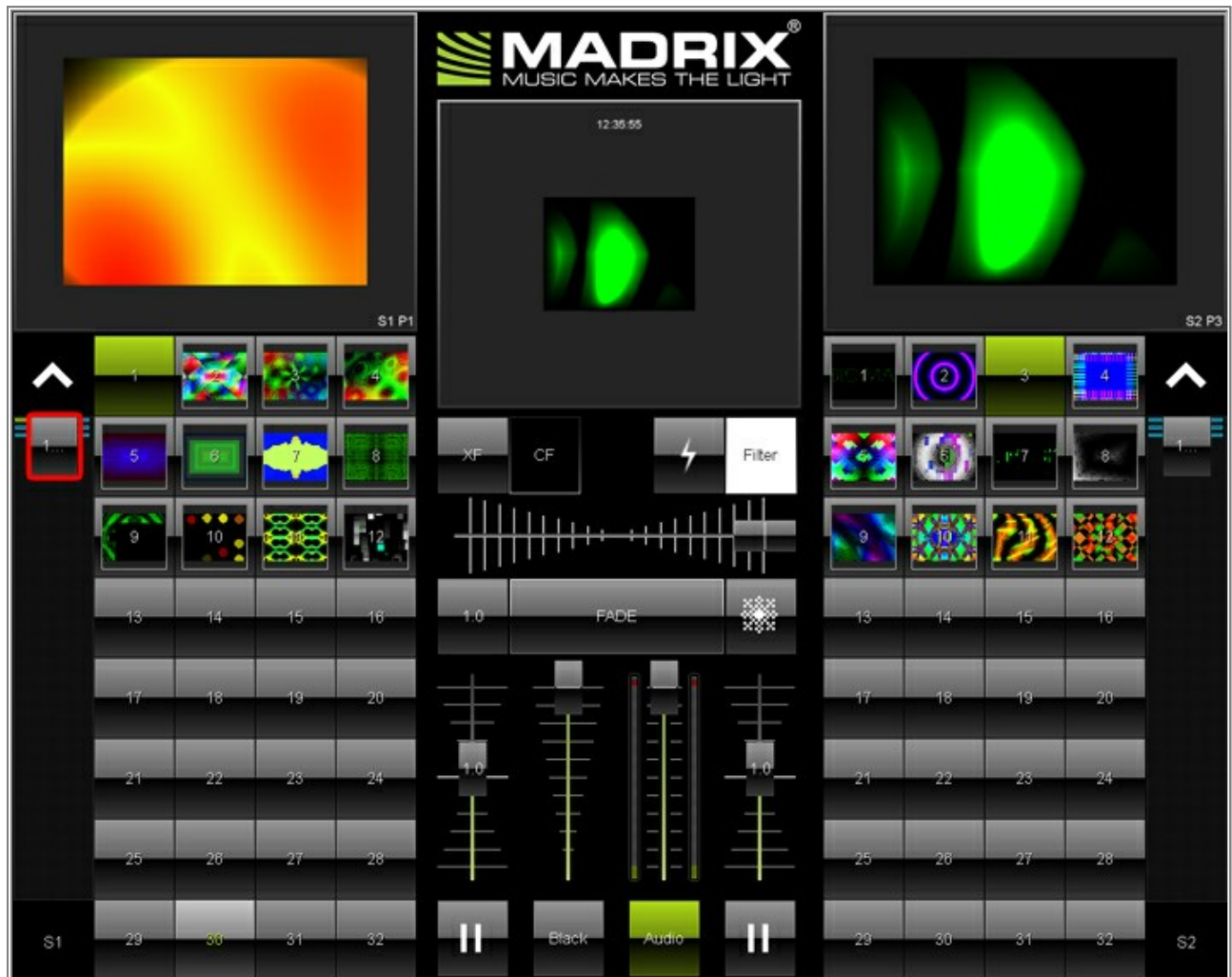
- A new window will open and the view will be changed to the MADRIX touch view.

Note: If you want to move this view to another connected display or monitor, please press the **Tabulator** key on your keyboard.



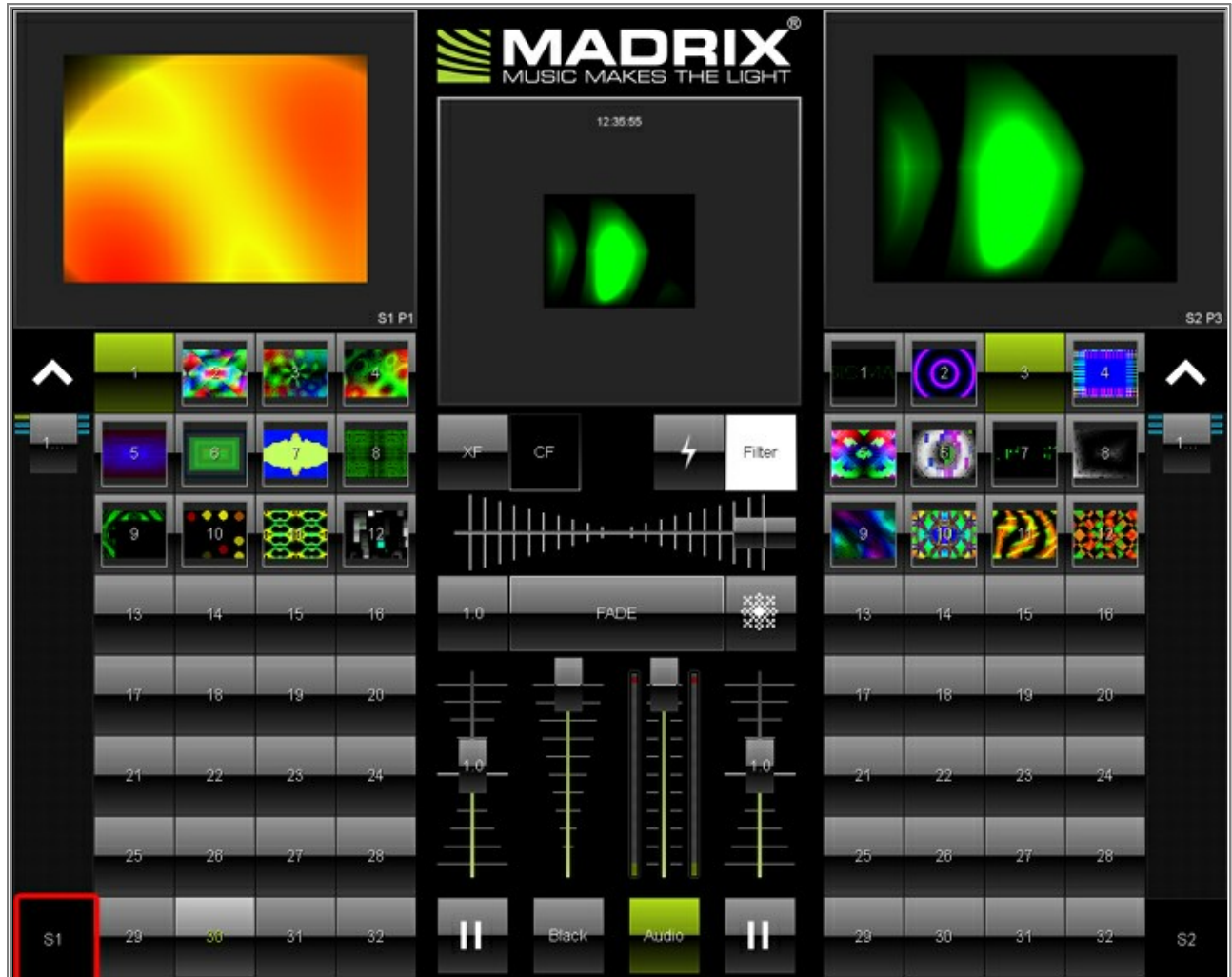
4. How to select higher Storage Places:

If you want to change the Storage Place to a number higher than 32, you have to scroll down. A scroll button is located on the left side and right side.



5. How to select a different Storage:

Click on the Storage selection button, located in the bottom left and right.

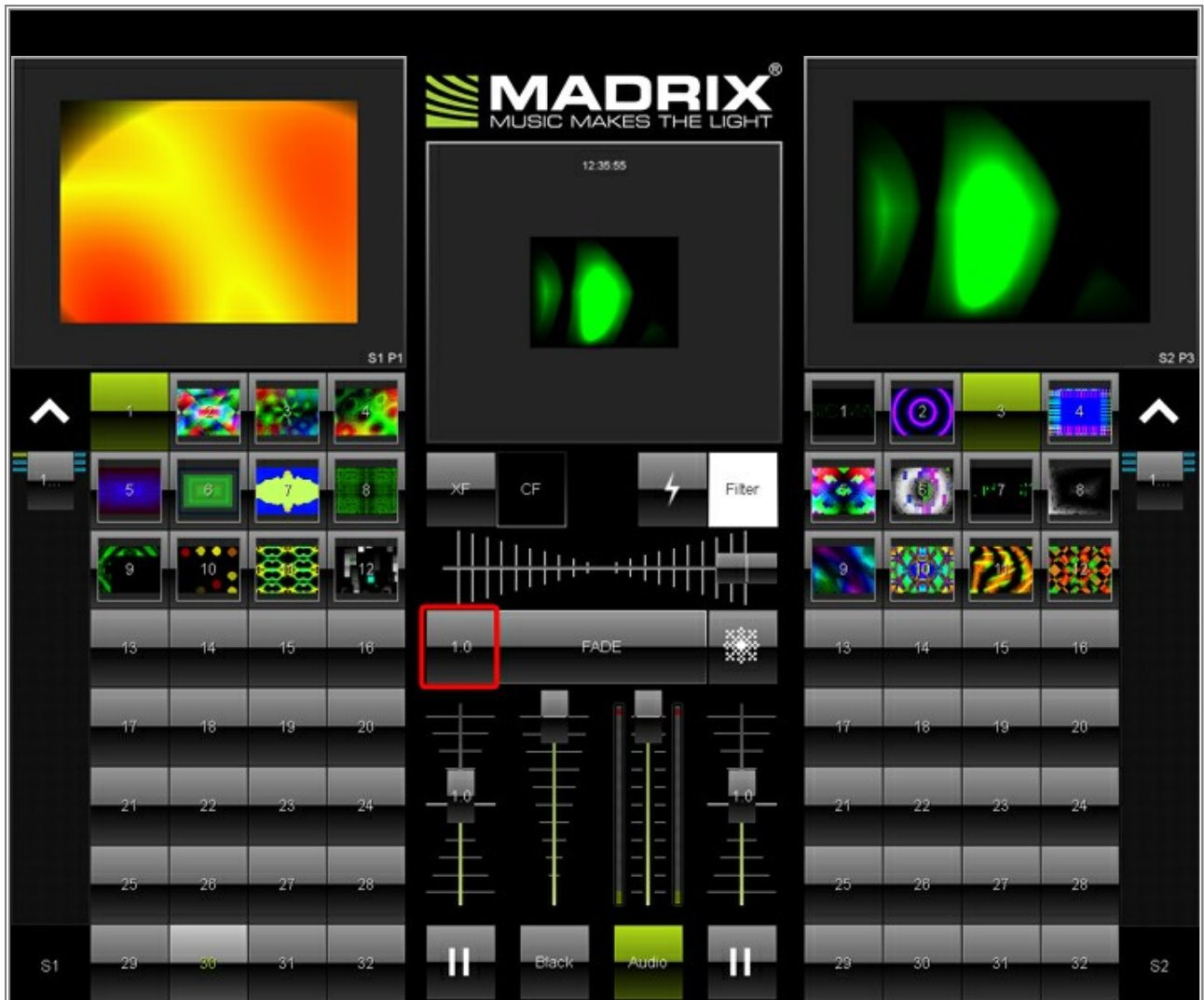


A new pop-up window will be opened. Simply choose another Storage as needed.

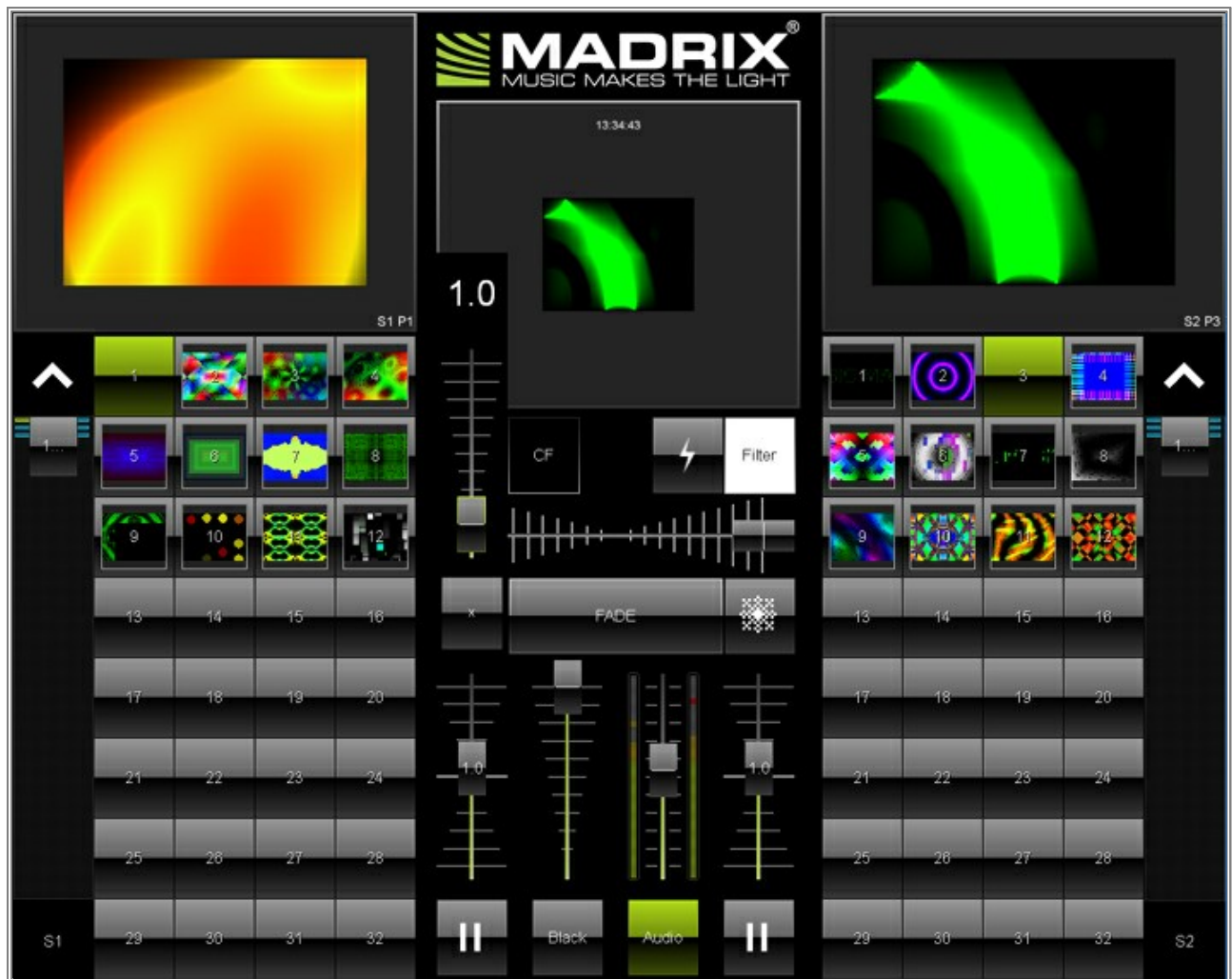
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	22	38	54	70	86	102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

6. How to change the Fade Time:

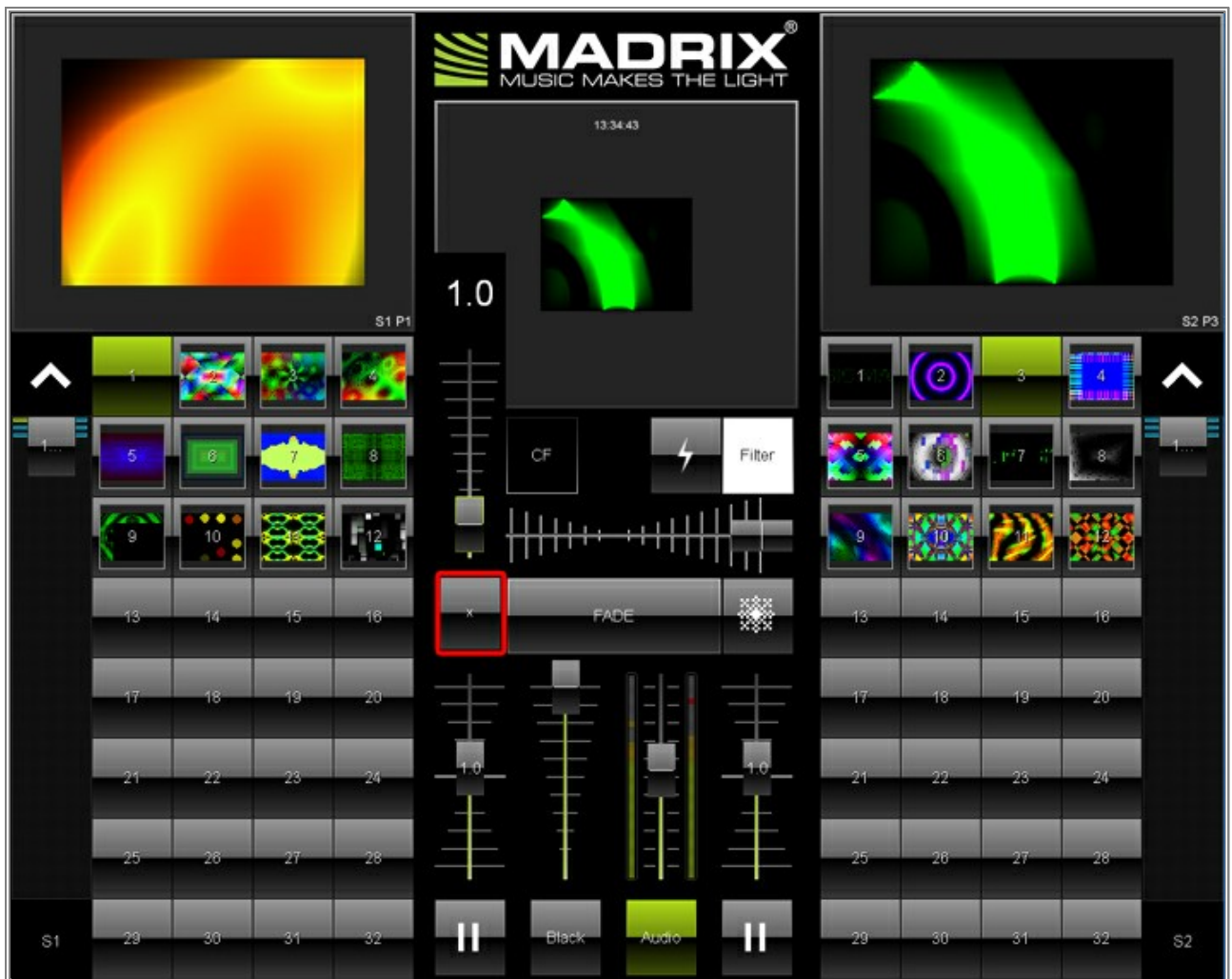
Press the button on the left next to **FADE**.



Change the value as needed by changing the slider position.



Note: When you are editing the Fade Time, you need to press **x** to close the slider again. Only then, the other controls will be available to you again. The same is true, when pressing **Filter** or **CF** in order to change the filter color.



Congratulations! You have learned to control MADRIX using the Touch Window.

3.5 Change Storage Place View

In this tutorial you will learn how you can change the view of the Storage Places.

In MADRIX you have the possibility to change the view of the Storage Places between 1x1, 2x2, 4x4 and 8x8.

Date: 12/2014

MADRIX Version: 3.3 (Created with)

1. Start MADRIX and click the **Storage Option** button



2. Please select the **1x1** option in the popup menu



Now you will see the Storage Place buttons will be very large and you can see the thumbnail on it.



- The **2x2** Storage Place view shows also the thumbnails on the button. The Storage Place buttons will be arranged in sections of 2 by 2 buttons.



- 4. The **4x4** Storage Place view is the default view of MADRIX. The Storage Place buttons will be arranged in sections of 4 by 4 buttons. MADRIX will show the thumbnails when you will stay on a Storage Place for longer than one second.

You also see the different background colors of the Storage Place buttons.

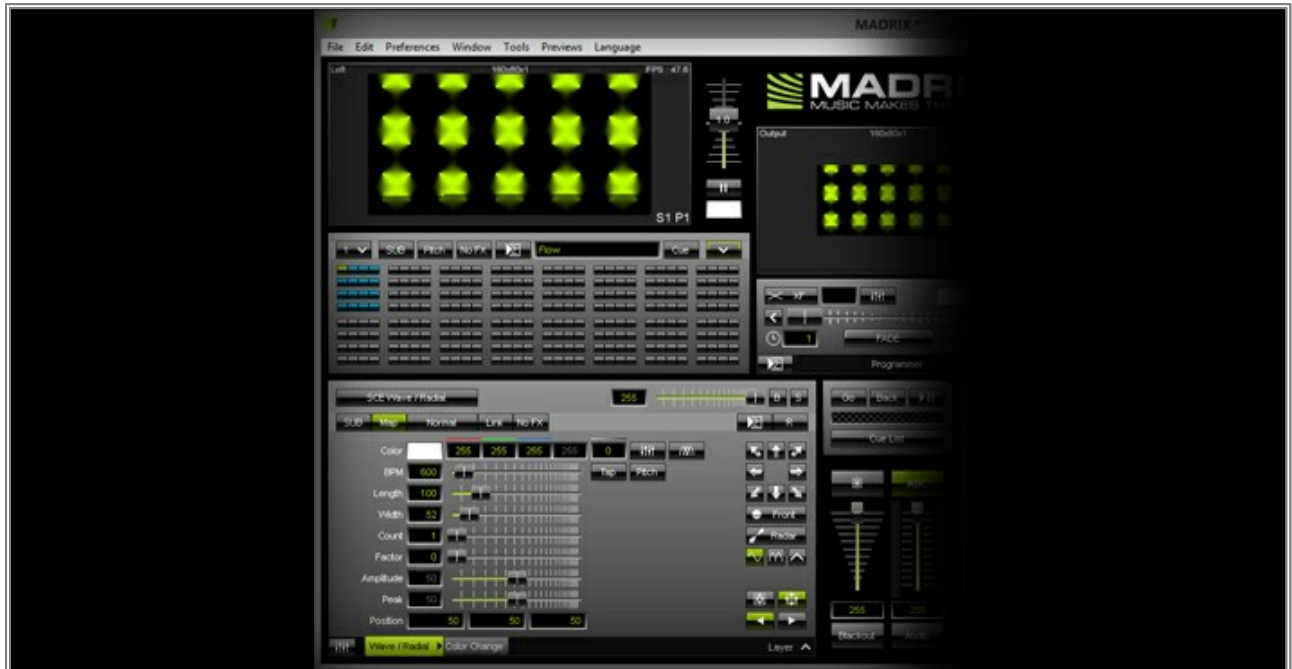
A green background means this Storage Place is active at the moment

A blue background means on this Storage Place is an effect stored but it is not active.

A gray background means this Storage Place is empty.



- The **8x8** Storage Place view shows you very small buttons without numbers. The Storage Place buttons will be arranged in sections of 8 by 8 buttons.



Congratulations! You have learned how you can work with the different Storage Place views.

3.6 The DMX Fader Tool

In this tutorial you will learn how you can control a DMX fixture, such as a fog machine, with MADRIX by using the DMX Fader Tool. This tool is also very useful to quickly test any DMX fixture.

Date: 08/2014

MADRIX Version: 3.2 (Created with)

1. Open MADRIX and go to **Tools > DMX Fader Tool...** or press the **Ctrl+Alt+F** on your keyboard.



- 2. The **DMX Fader Tool** will be opened in a new window.



- 3. To control a fader, you have to activate it first. Enable **On** and the fader below will be activated.



Note: If you have activated a fader in the DMX Fader Tool, the value of the DMX Fader Tool will be control this channel. That means you could not control, for instance, an RGB fixture using a MADRIX Effect and the DMX Fader Tool at the same time. If you try, the values of the DMX Fader Tool will win.

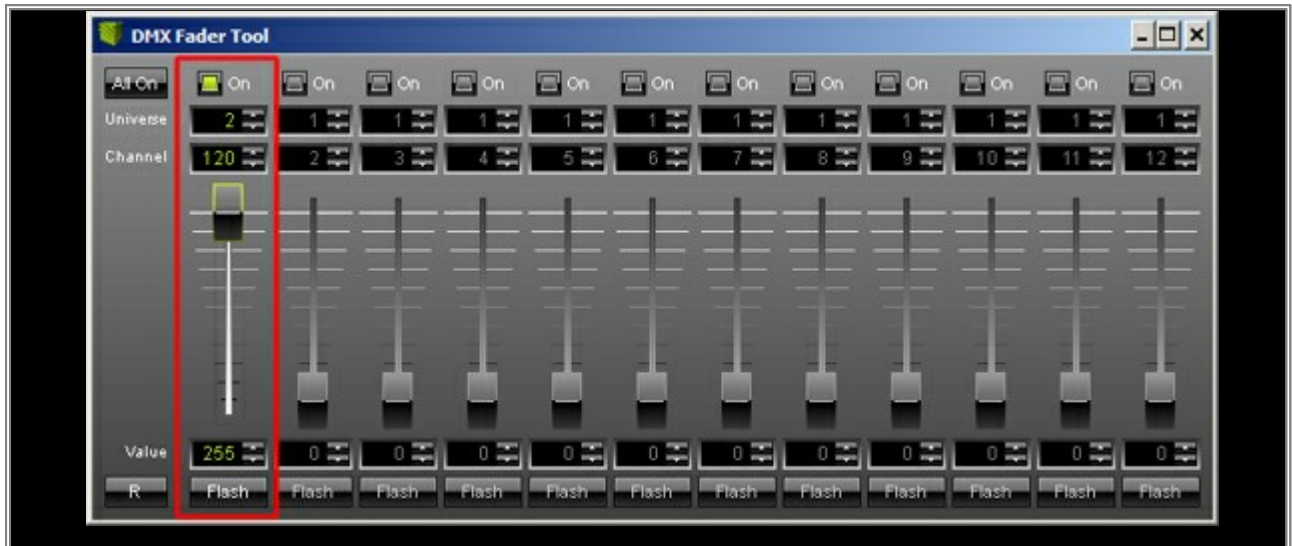
- 4. Continue with defining which **Universe** and **Channel** the fader should control.



- 5. In this example, the DMX channel of the fog machine is 120 in universe 2. We are therefore changing **Universe** to **2** and **Channel** to **120** accordingly.



6. Move the slider and the fog machine will begin to fog. You can also enter any specific DMX value for **Value**. You can also click on **Flash**. As long as you press the button, the DMX value will be set to 255. Release the button and it will be set to 0 or your set **Value** again.



Congratulations! You can now use the DMX Fader Tool to your advantage to control certain DMX fixtures or for testing purposes.

3.7 The DMX Watcher

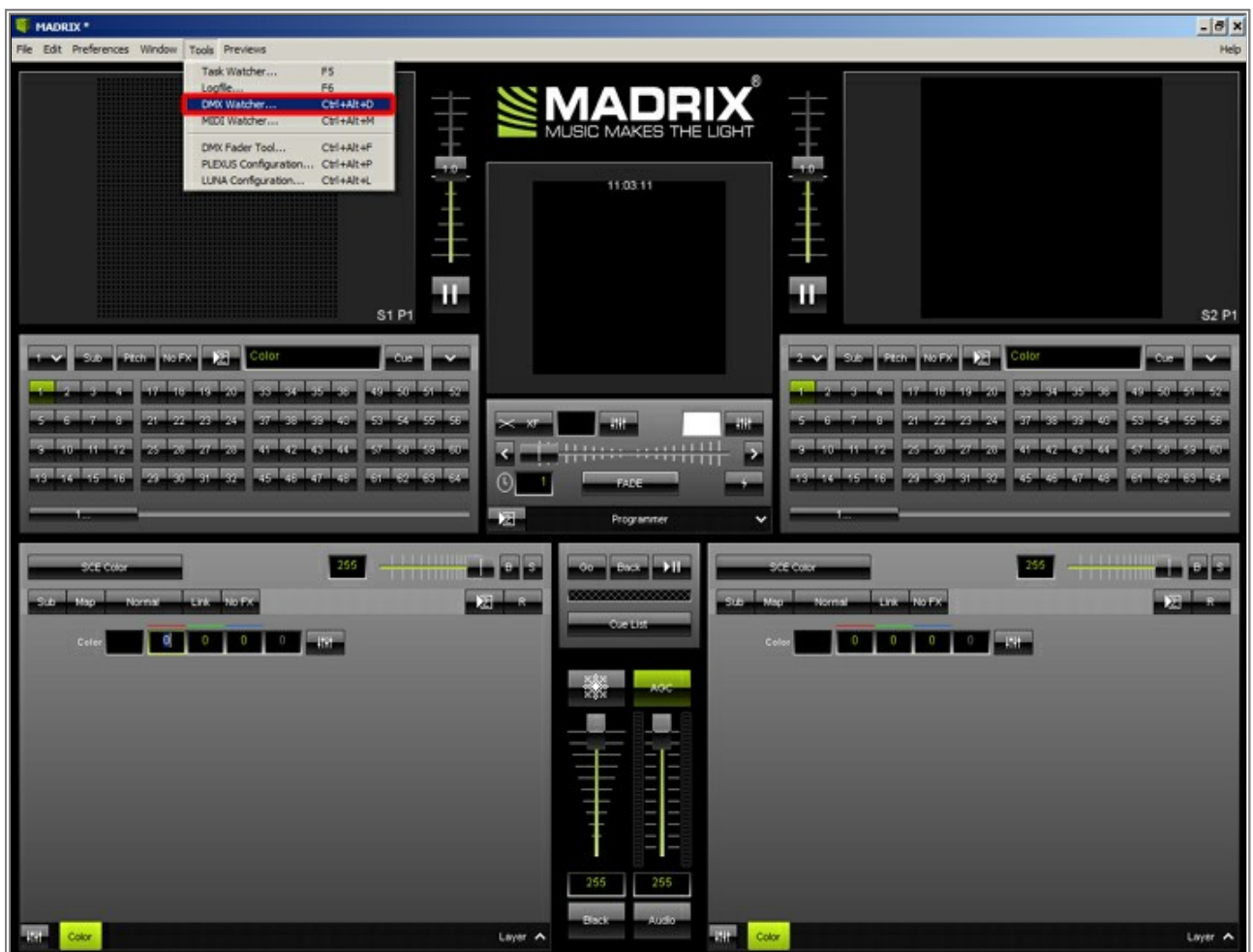
Learn in this tutorial how to monitor input and output data using the DMX Watcher.

Date: 08/2014

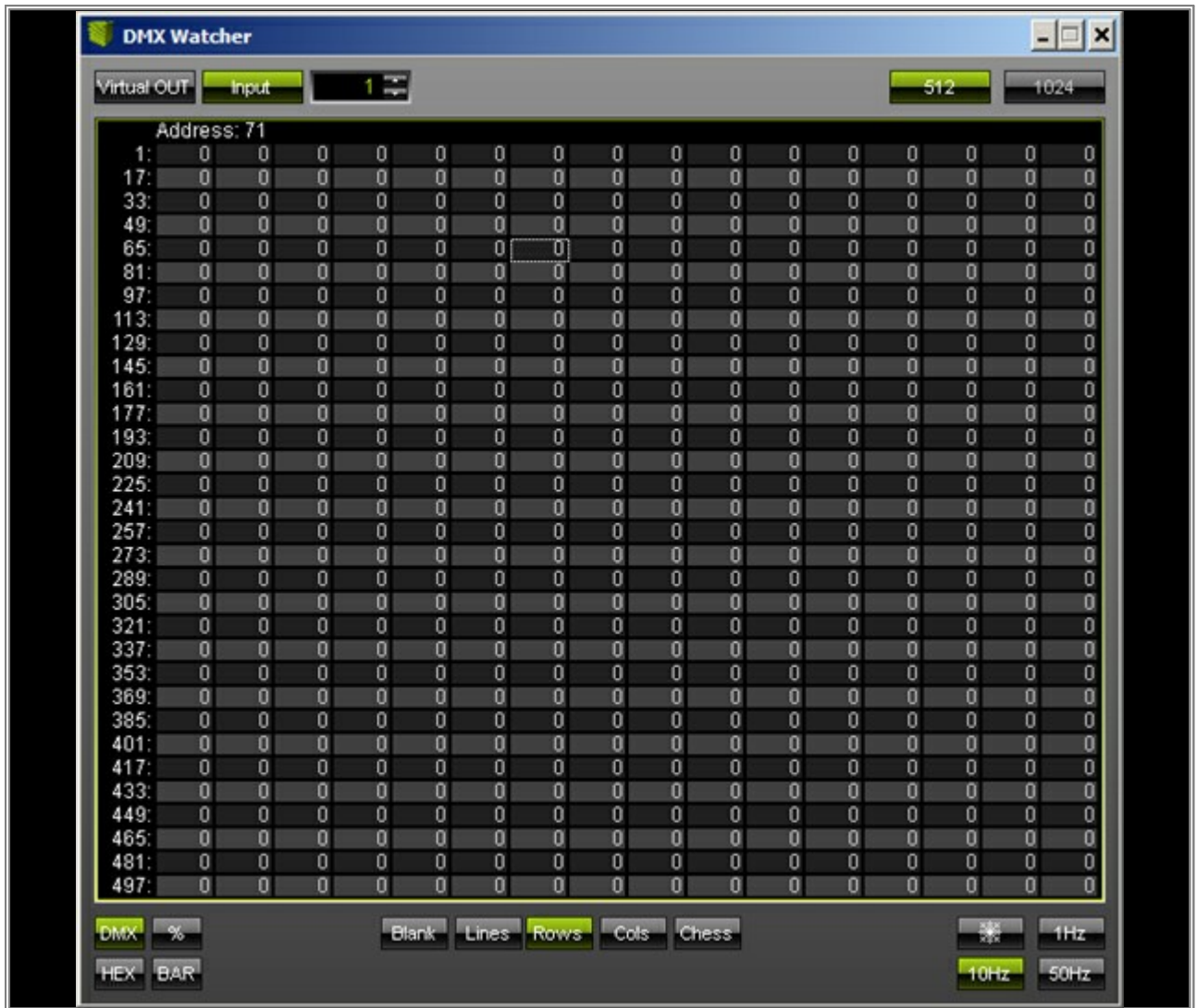
MADRIX Version: 3.2 (Created with)

Note: It is useful to read the tutorial [Remote Control Via DMX-IN](#) first. The steps to connect a DMX controller to MADRIX are the same and they will not be shown again in this tutorial.

1. Start MADRIX and go to **Tools > DMX Watcher...** or press **Ctrl+Alt+D** on your keyboard.



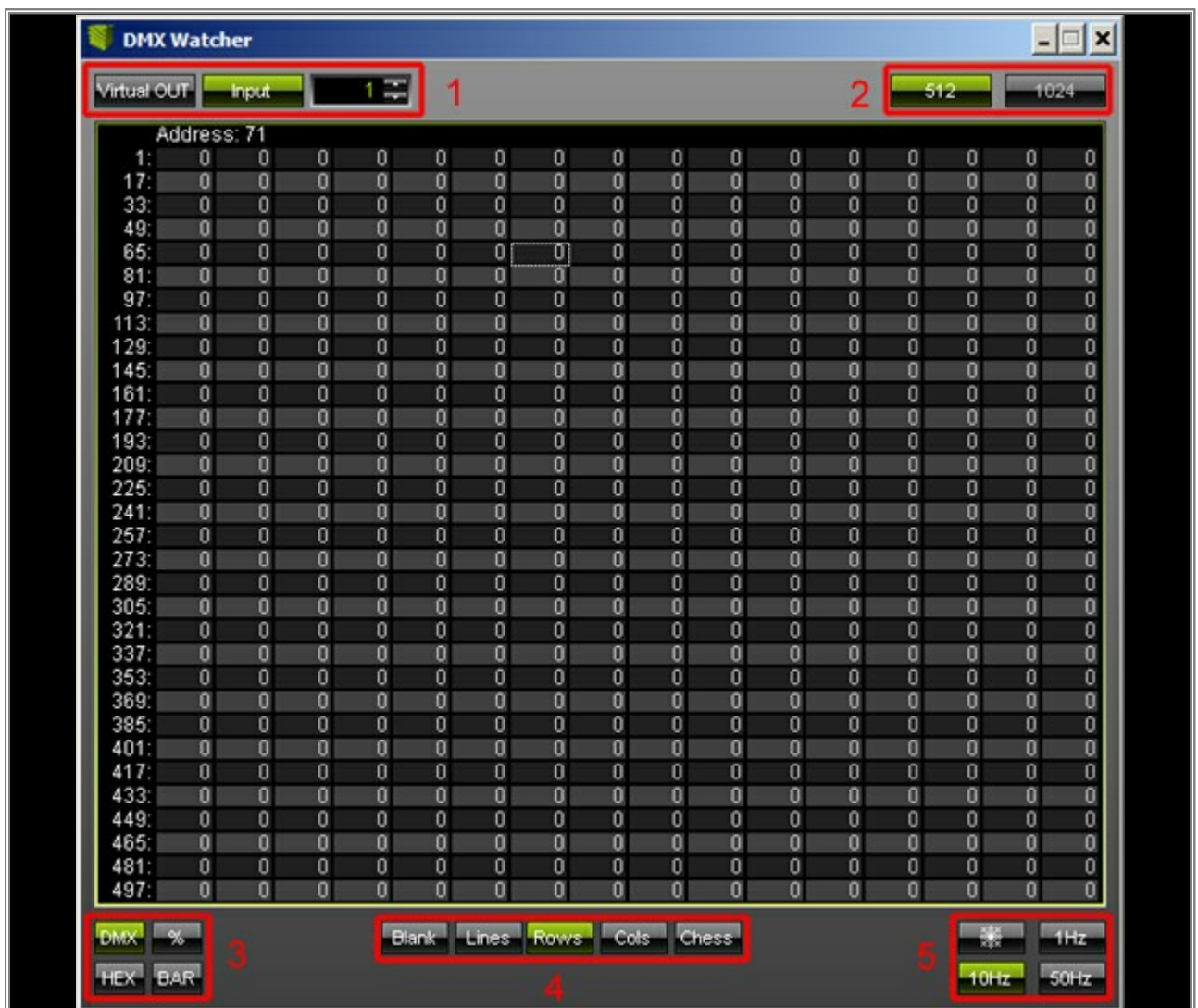
2. The **DMX Watcher** window will be opened.



3. Here is a short overview over the provided controls:

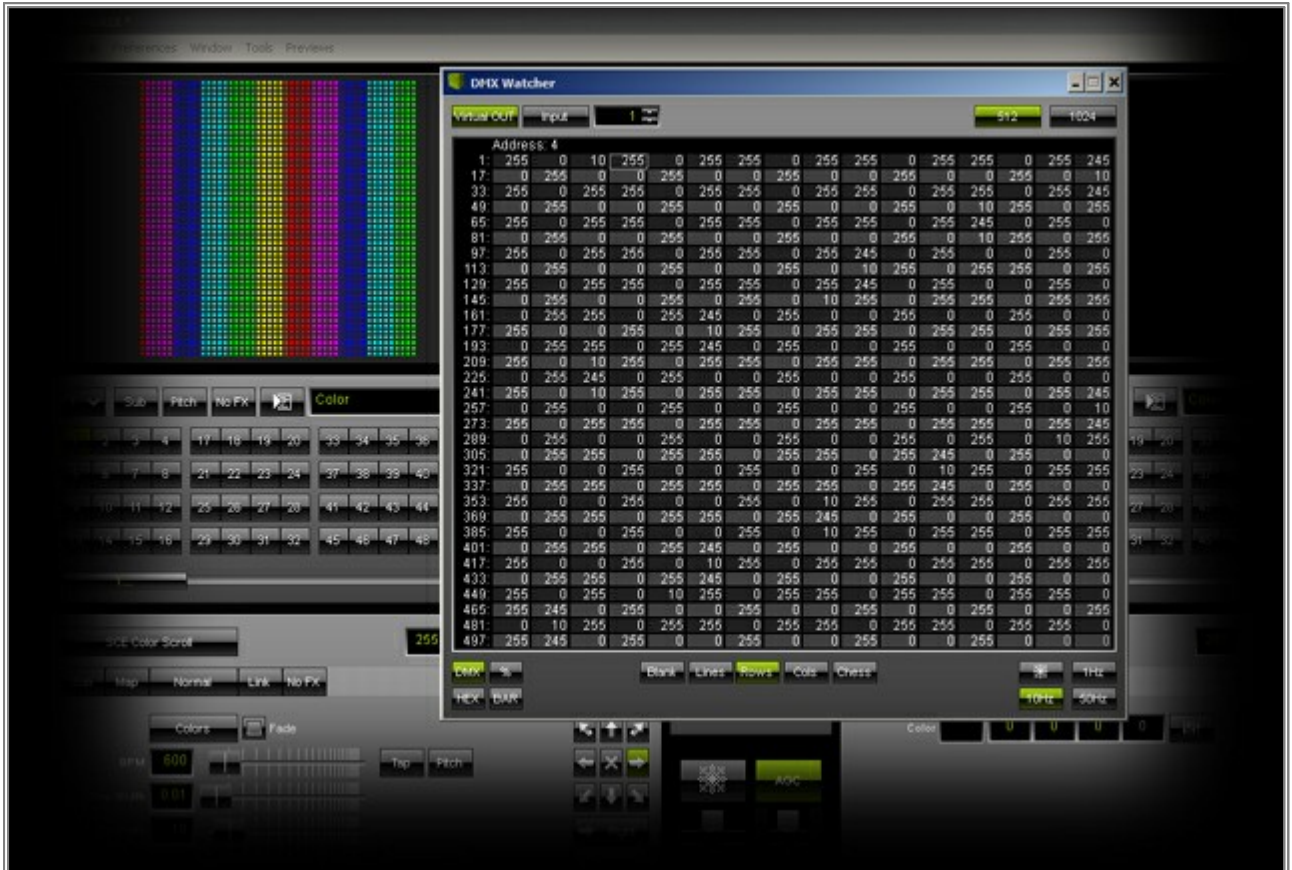
- 1 Choose between **Virtual OUT** or **Input** and set up the DMX universe you wish to monitor.
- 2 Change the channel view between 512 channels or 1024 channels. **Note:** **Virtual OUT** must be activated.

- 3 Change the presentation of values by selecting **DMX** (to show DMX values), **%** (to show values in percent), **HEX** (to show hexadecimal values), or **BAR** (to show graphical bars).
- 4 Change the background of the data table.
- 5 Change the refresh rate to **1 Hz** (data will be refreshed once per second), **10 Hz** (data will be refreshed ten times per second), **50 Hz** (data will be refreshed fifty times per second). Or you can freeze the data display by clicking the **Freeze** button.



4. Monitoring data output:

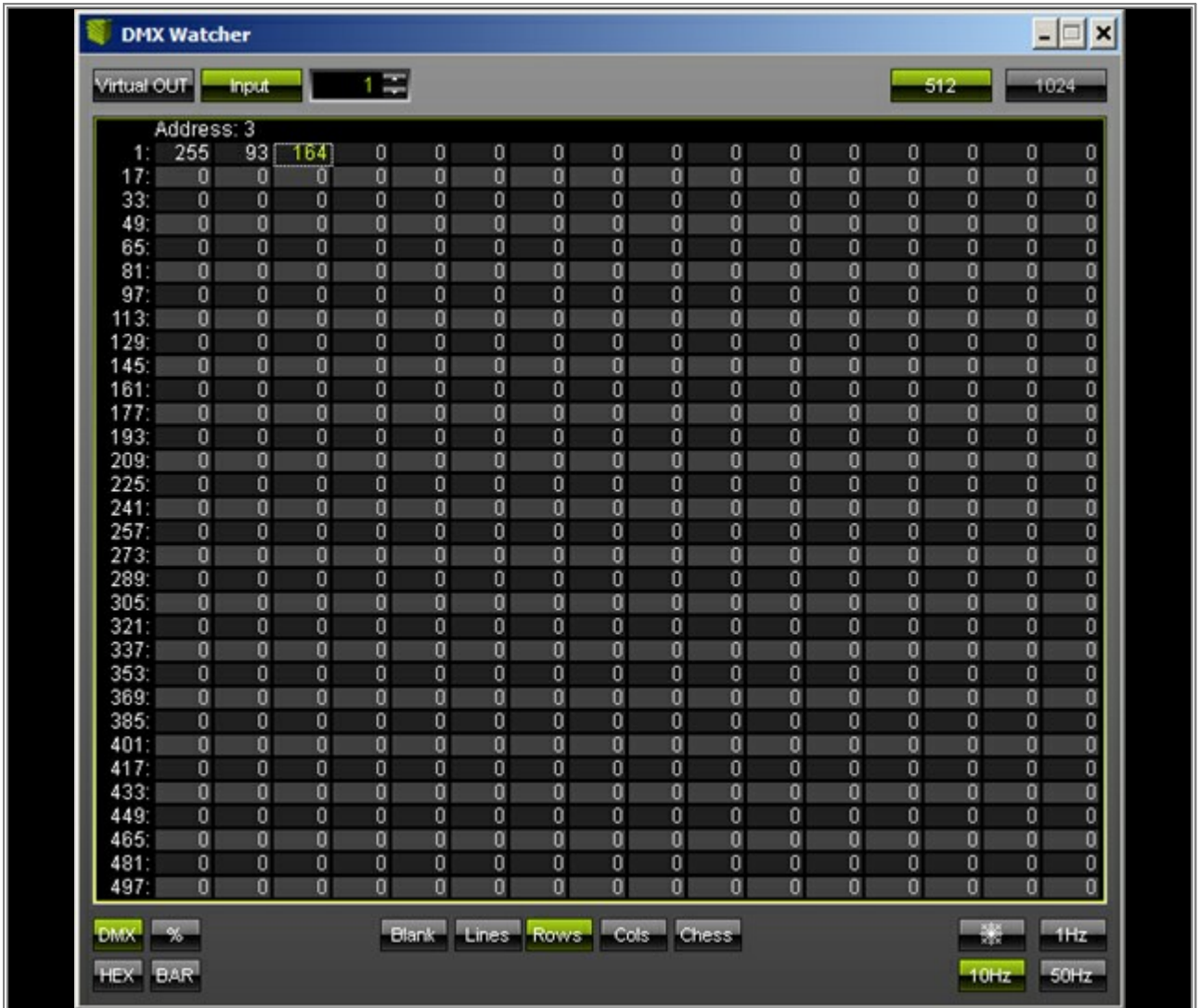
Set up an SCE Color Scroll effect to generate DMX data. Change the view of the DMX Watcher to **Virtual OUT**. You will now be able to see which DMX values will be sent to the connected hardware.



5. Monitoring data input:

If you want to check DMX input, please set up a DMX input device in MADRIX first (as explained in the [Remote Control Via DMX-IN](#) tutorial). Change the DMX Watcher to **Input** and connect the DMX controller to the MADRIX input device. If you send DMX data with your connected controller, you should see the incoming data in the DMX Watcher.

Note: Values that changed recently, will be displayed in green for a few seconds.



Congratulations! You have learned on how to monitor DMX data with MADRIX.

3.8 Highlight Modes

This tutorial shows you how you can work with the different Highlight Modes in MADRIX. The software provides the possibilities to highlight a complete DMX universe or individual DMX fixtures. This feature can prove useful to identify DMX connections as well as specific fixtures in your LED installation. It is great for testing as well as the process of DMX addressing.

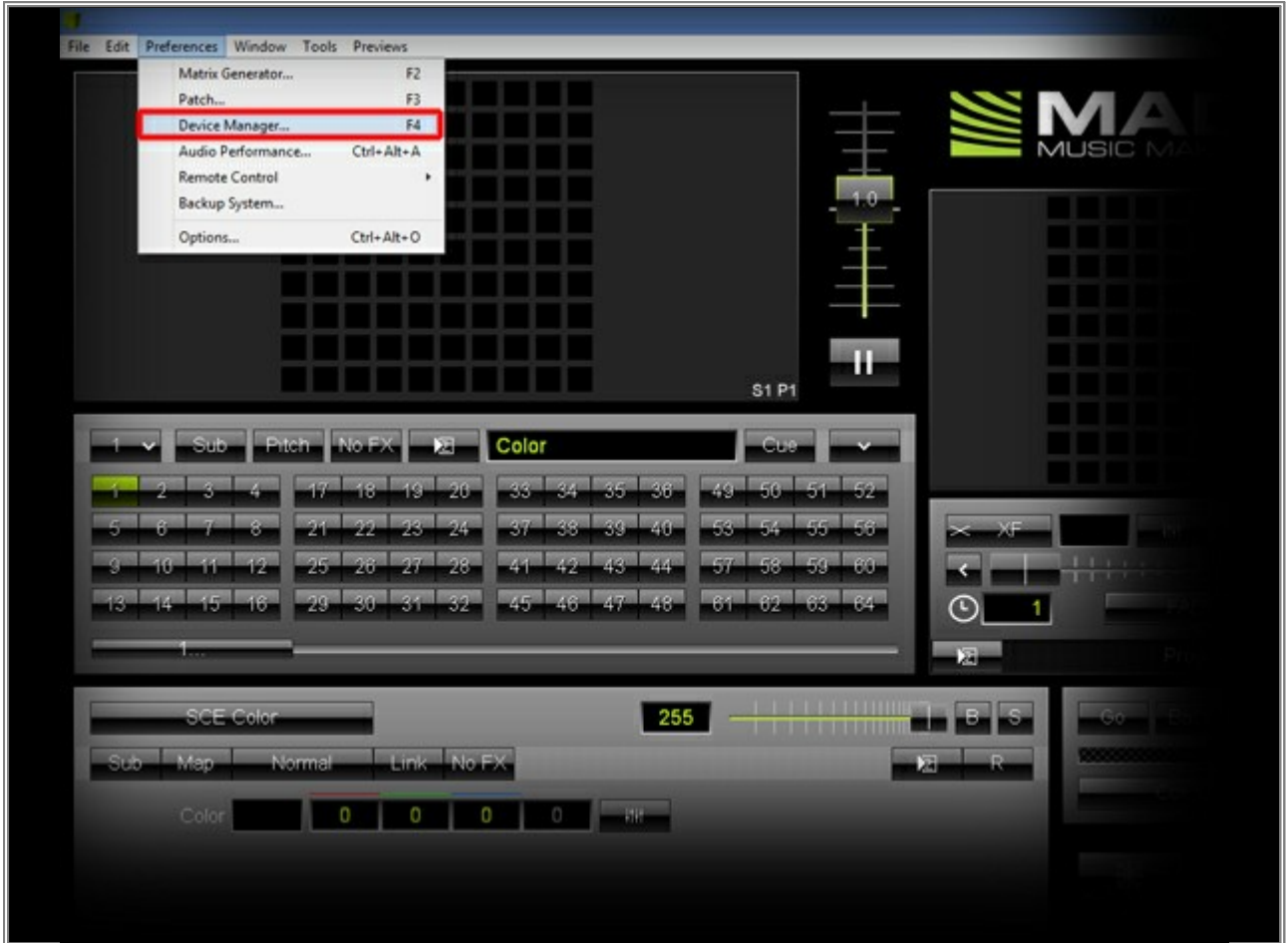
Date: 08/2014

MADRIX Version: 3.2 (Created with)

1. Start MADRIX.

2. Highlighting a complete DMX universe:

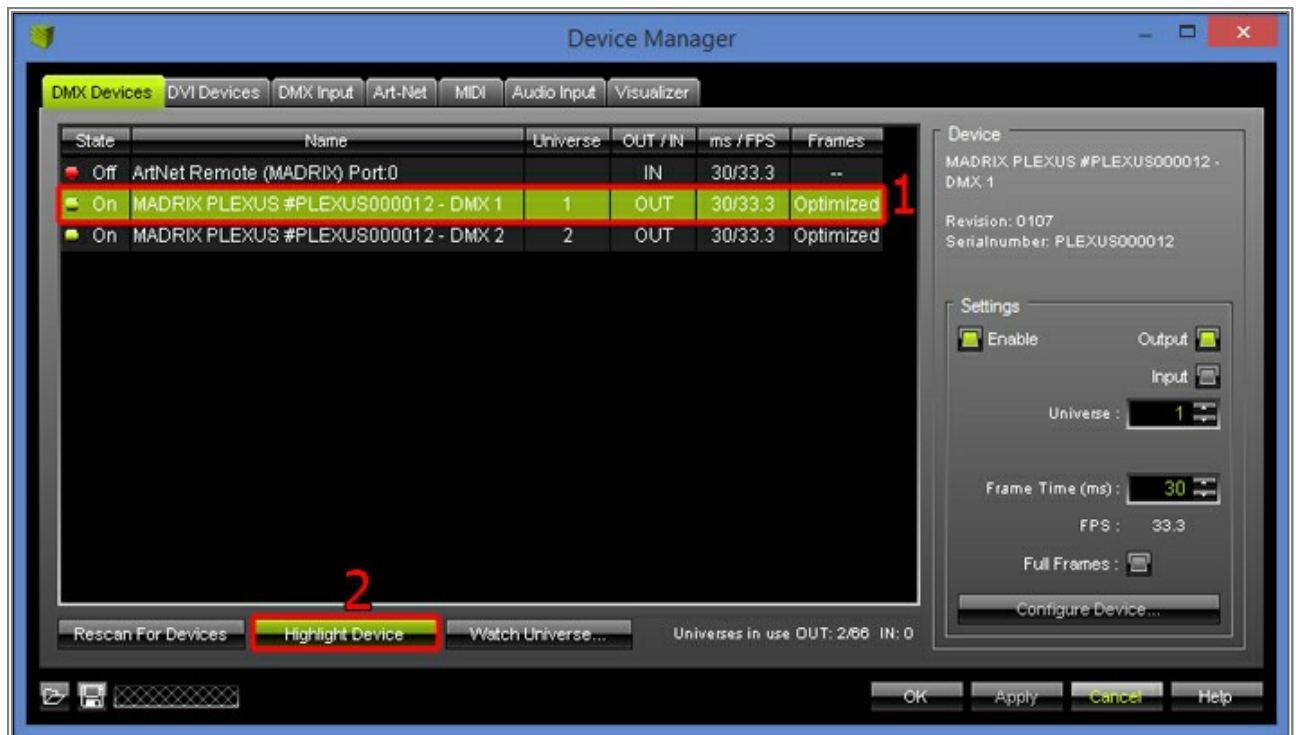
Open the **Device Manager** by pressing **F4** or go to **Preferences > Device Manager...**



In the **DMX Devices** tab, you will find all the connected DMX devices. In this example, one MADRIX PLEXUS is connected via USB.

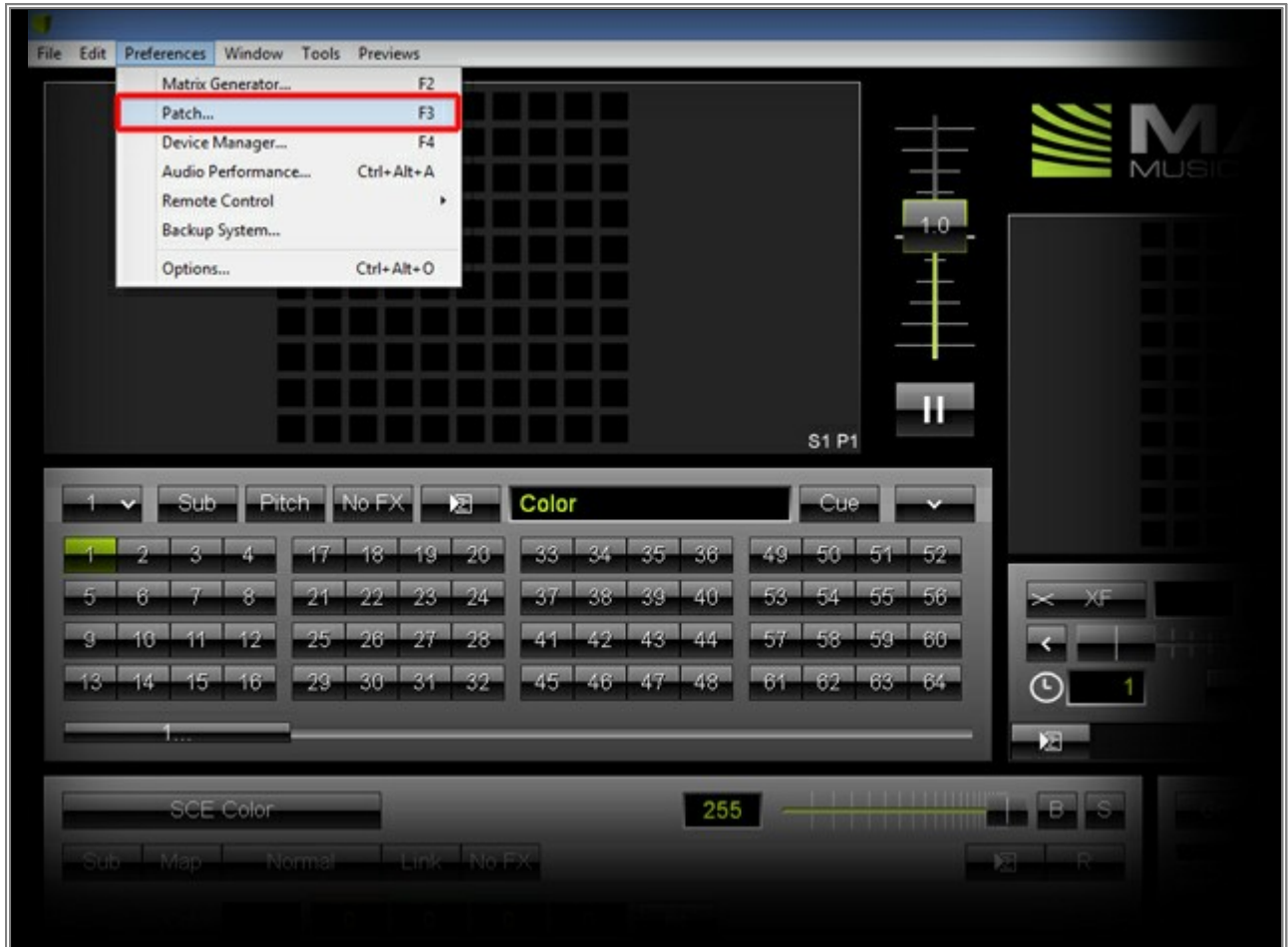
To highlight a DMX universe, please select the desired DMX universe and click **Highlight Device**.

Note: If you want to highlight more than one DMX universe, please press and hold **Ctrl** and select all DMX universes in the Device Manager. Then, click **Highlight Device**.



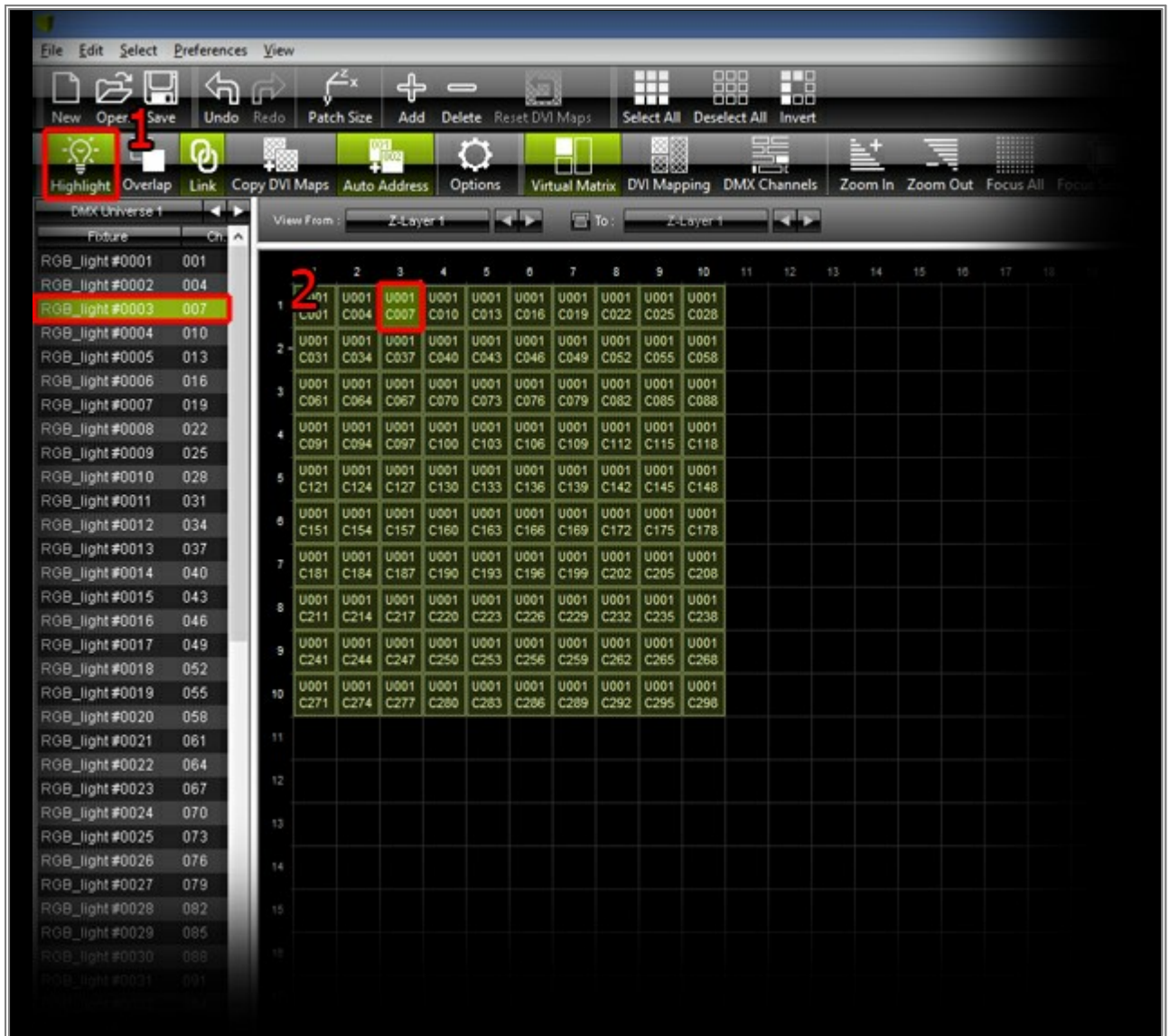
3. Highlighting a single DMX fixture:

In MADRIX, go to **Preferences > Patch...** and the Patch window will open.



Enable **Highlight** in the Patch window and then select a DMX fixture. Now, you will see that the selected fixture glows white on the LED installation.

Note: If you want to highlight more than one fixture, press and hold **Ctrl** and select all desired fixtures. Make sure to activate **Highlight** in the Patch.



Congratulations! You can now work with the different highlight modes of MADRIX.

3.9 DMX-Thru And DMX Merging In MADRIX

In this tutorial you will learn how you can use the MADRIX software to merge DMX data, that is sent with MADRIX and a lighting console, to a designated DMX output port.

Date: 08/2014

MADRIX Version: 3.2 (Created with)

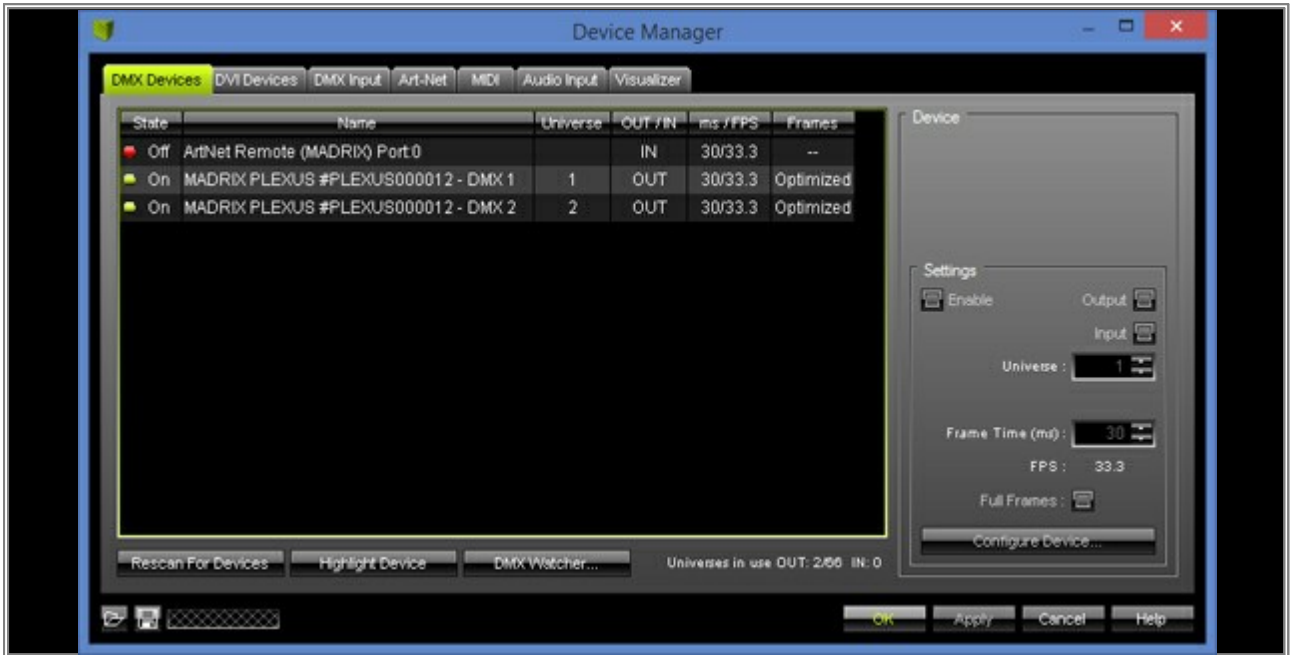
Note: For this tutorial you will need one DMX interface for DMX output, one DMX interface for DMX input, and a lighting console of your choice.

1. Please start MADRIX and open the Device Manager under **Preferences > Device Manager...**



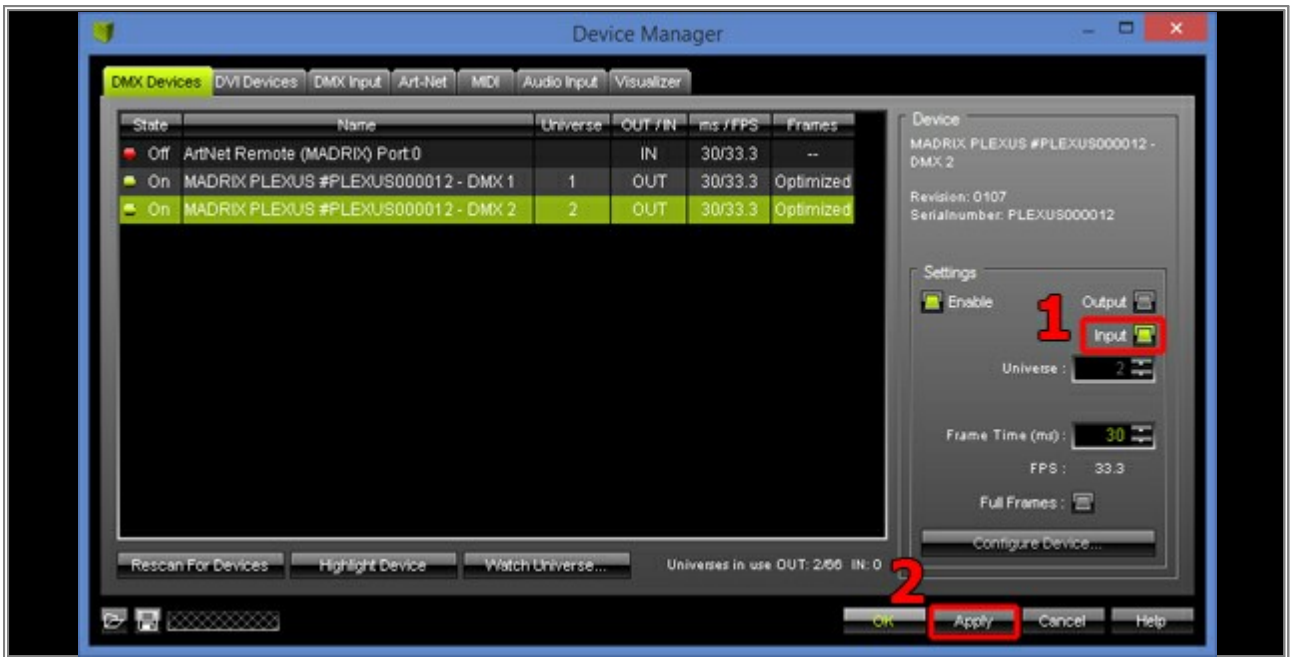
- 2. In the **DMX Devices** tab of the Device Manager you can find all connected DMX interfaces (that have been found by MADRIX).

In this example, a MADRIX PLEXUS unit is connected. The MADRIX PLEXUS provides two physical DMX ports. We will switch one of the ports to receive DMX input.

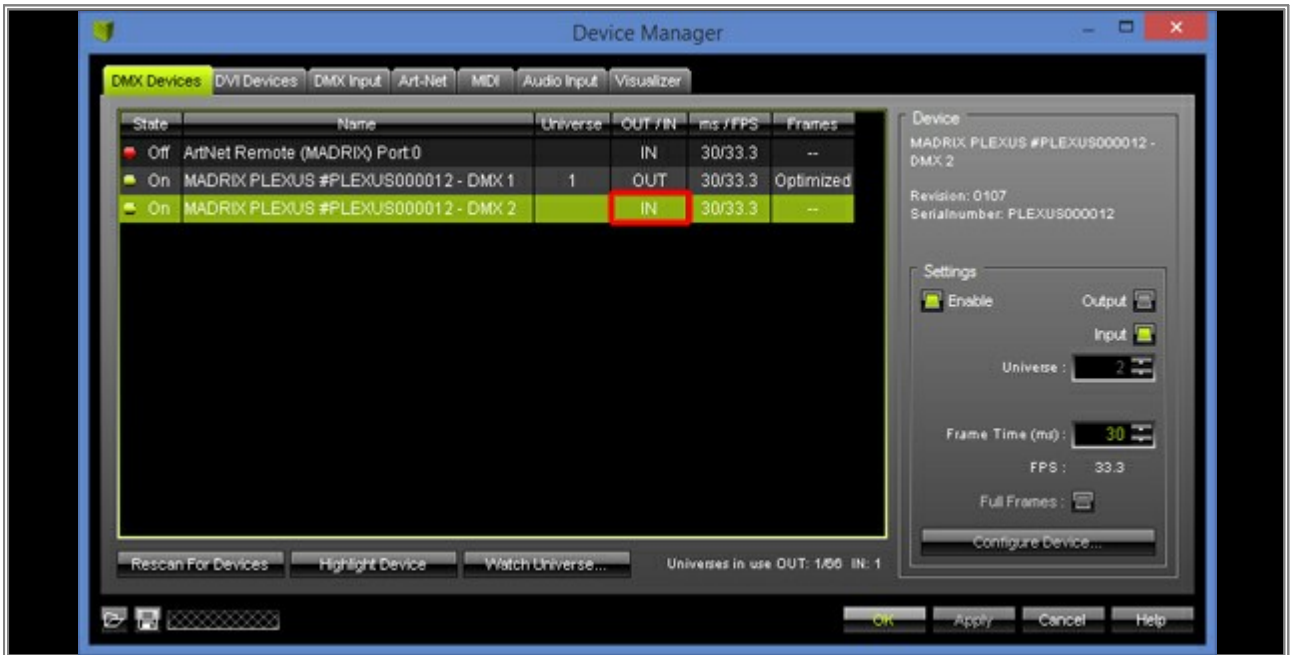


In order to change an output port to an input port in MADRIX, please select the desired port in the list and then activate **Enable** as well as the **Input** checkbox in the **Settings** section.

Confirm the changes by clicking on the **Apply** button. In this example, we want to use the second port of the connected MADRIX PLEXUS for DMX-IN (**DMX 2**).



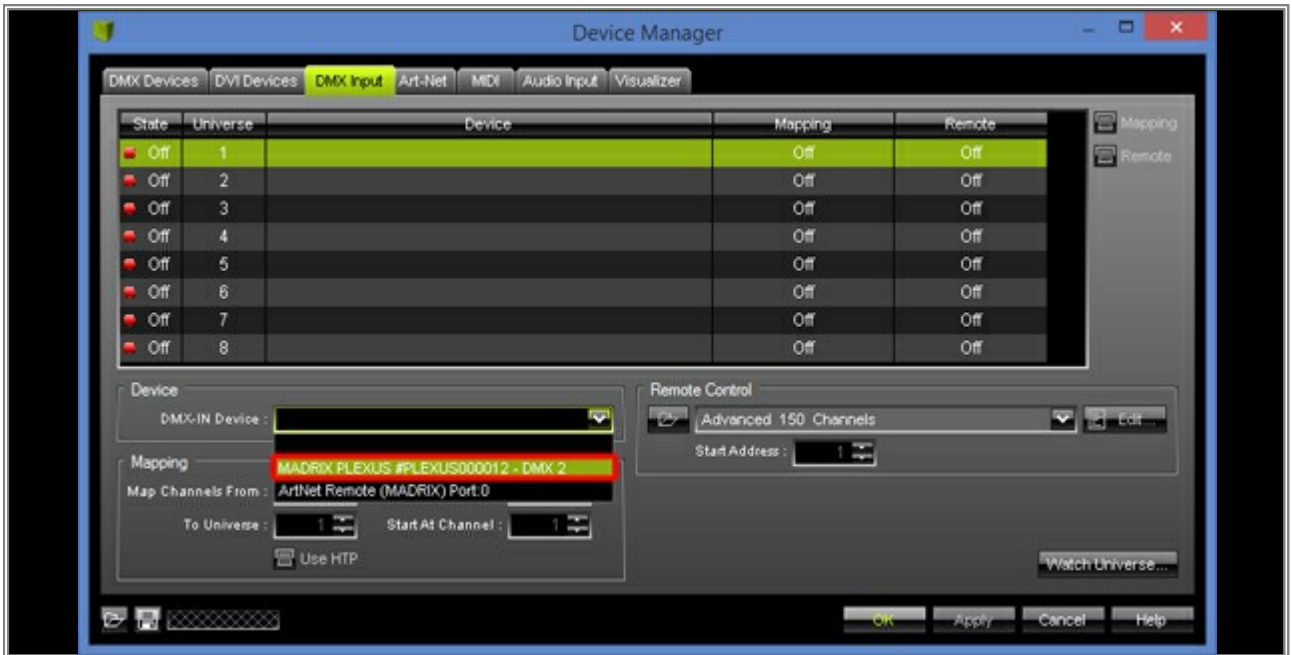
In the list, you can now see in the column **OUT / IN** that the configuration has been changed to **IN**



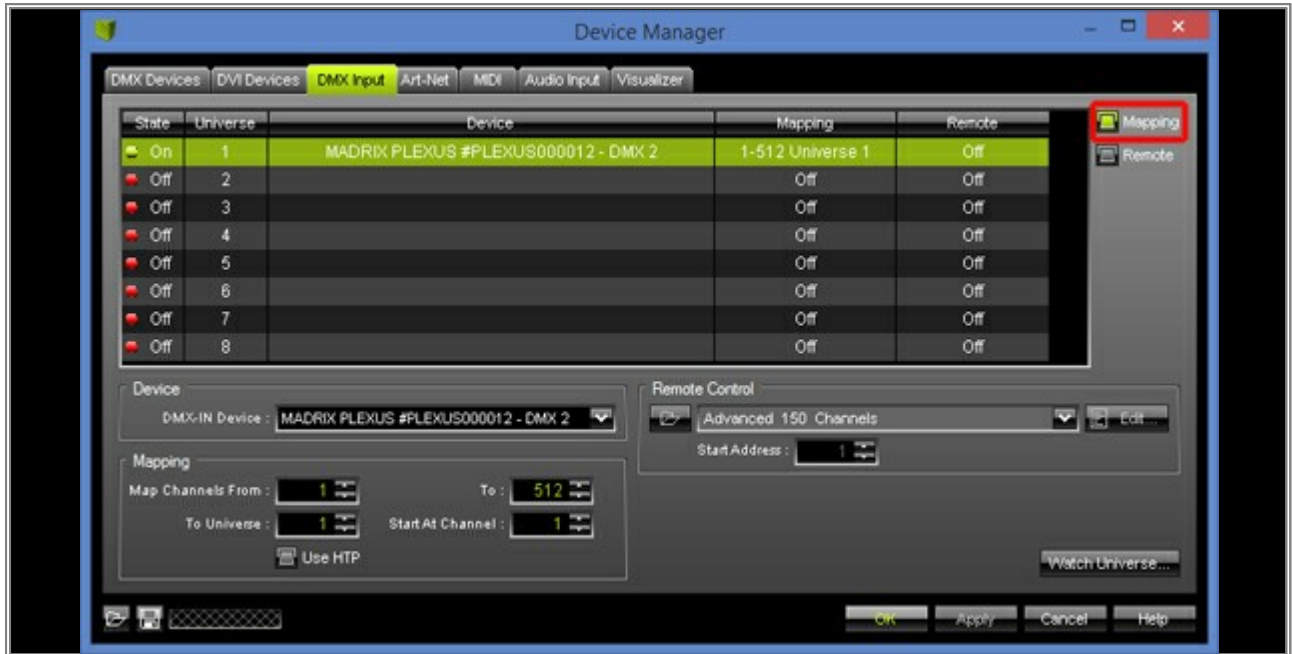
3. Now, change to the tab **DMX Input** in the Device Manager.

Please select a desired **Universe (1 to 8)** in the list (The row should be illuminated in green). In this example it is **Universe 1**

Next, choose your **DMX-IN Device** in the **Device** section by clicking on the little arrow and choosing **MADRIX PLEXUS - DMX2**, for example.



- 4. In this step, we are going to activate the DMX merging functionality in MADRIX. Therefore, please select **Universe 1** again and enable **Mapping**



- 5. We can now set up the **Mapping** section as required:

Map Channel Here you can choose the channel from which the mapping should begin. In this example, we want to merge the complete universe. That is why we begin at channel **1**

s From:

To: This setting defines the last channel of the mapping area. In this example, we want to map the complete universe and so we set it to **512**

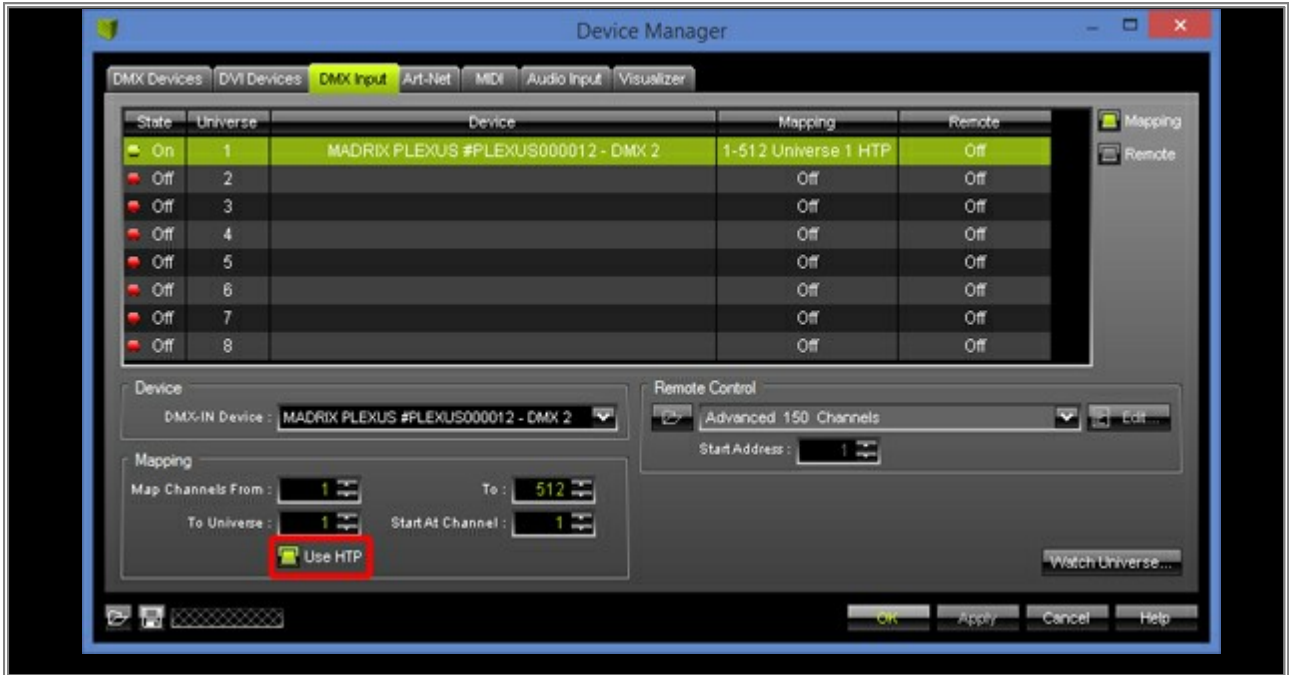
To Univers With this option you can set to which Universe you will map the incoming DMX data. In this example, we want to map it to DMX universe **1**

e:

Start At Channel Here you can set the start channel of the mapping area in the DMX universe. In this example, we want to include all 512 channels and so we start at channel **1**

:

Use HTP With this option you can set if the mapping works in HTP mode (Highest Takes Precedence) or in LTP mode (Latest Take Precedence). In this example, we want to use the HTP mode and therefore we enable the checkbox.



6. You can now connect the output of the lighting console to the DMX 2 port of the MADRIX PLEXUS. You will see you have created a data chain: Control data is sent from the connected lighting console to the DMX 2 port of the PLEXUS interface. In MADRIX, this data is mapped onto Universe 1. At the same time, MADRIX can generate control data and it is sending all data for Universe 1 (data from the console as well as data from MADRIX itself) to the DMX 1 port of the PLEXUS using HTP mode.

Note: In order to connect the output of the lighting console to the DMX 2 port of MADRIX PLEXUS, you will need a 5-pin XLR male to 5-pin XLR male gender changer.

Congratulations! You have learned how you can merge DMX data in MADRIX.

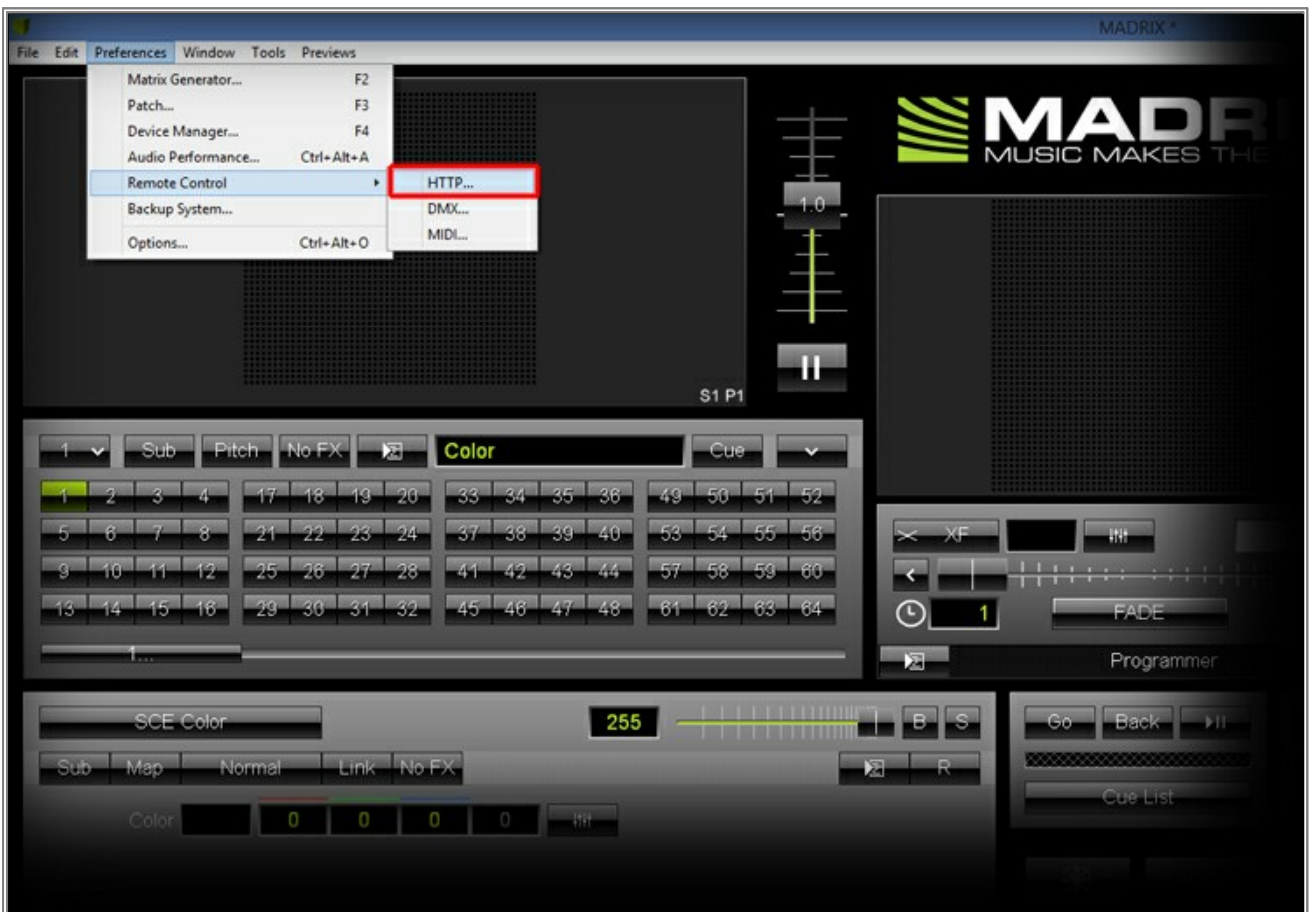
3.10 HTTP Remote Control

This tutorial shows you how you can work with the MADRIX HTTP Remote Control option. With this functionality you are able to control MADRIX remotely with any device that features a web browser, such as a mobile device or another computer which is connected to the same network.

Date: 08/2014

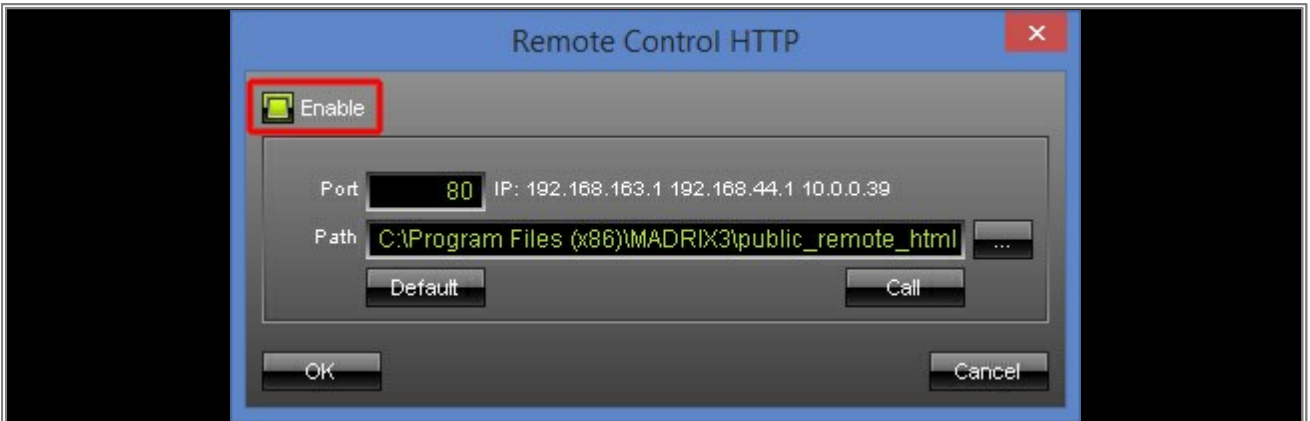
MADRIX Version: 3.2 (Created with)

- 1 Please start MADRIX and go to **Preferences > Remote Control > HTTP...**

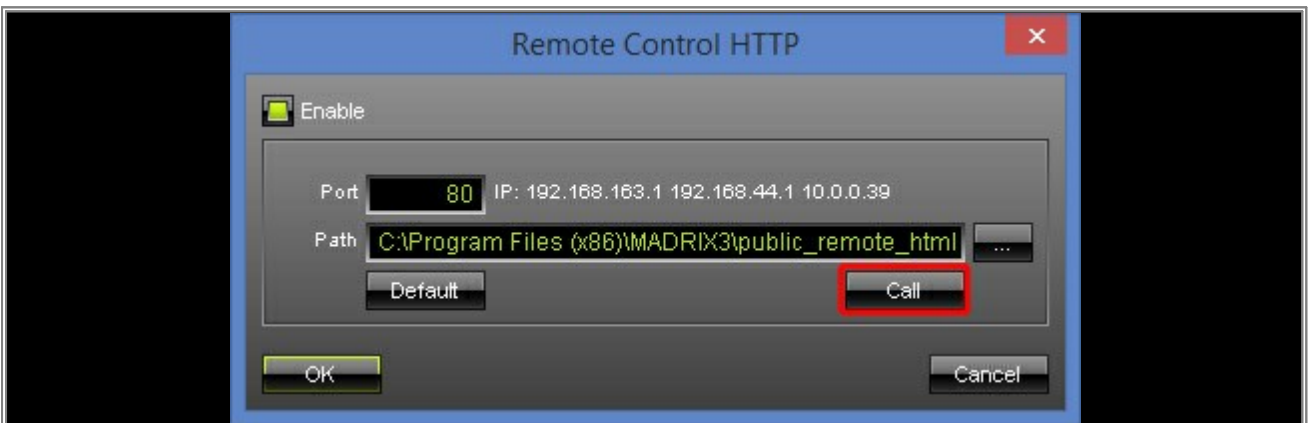


2 The **Remote Control HTTP** window opens. If you want to use the Remote HTTP option in MADRIX, you have to activate **Enable** first.

You can also change also the **Port** on which the web server will run and the **Path** where the initial HTML page (index.html) is located. In this example, we are not going to change the default settings.



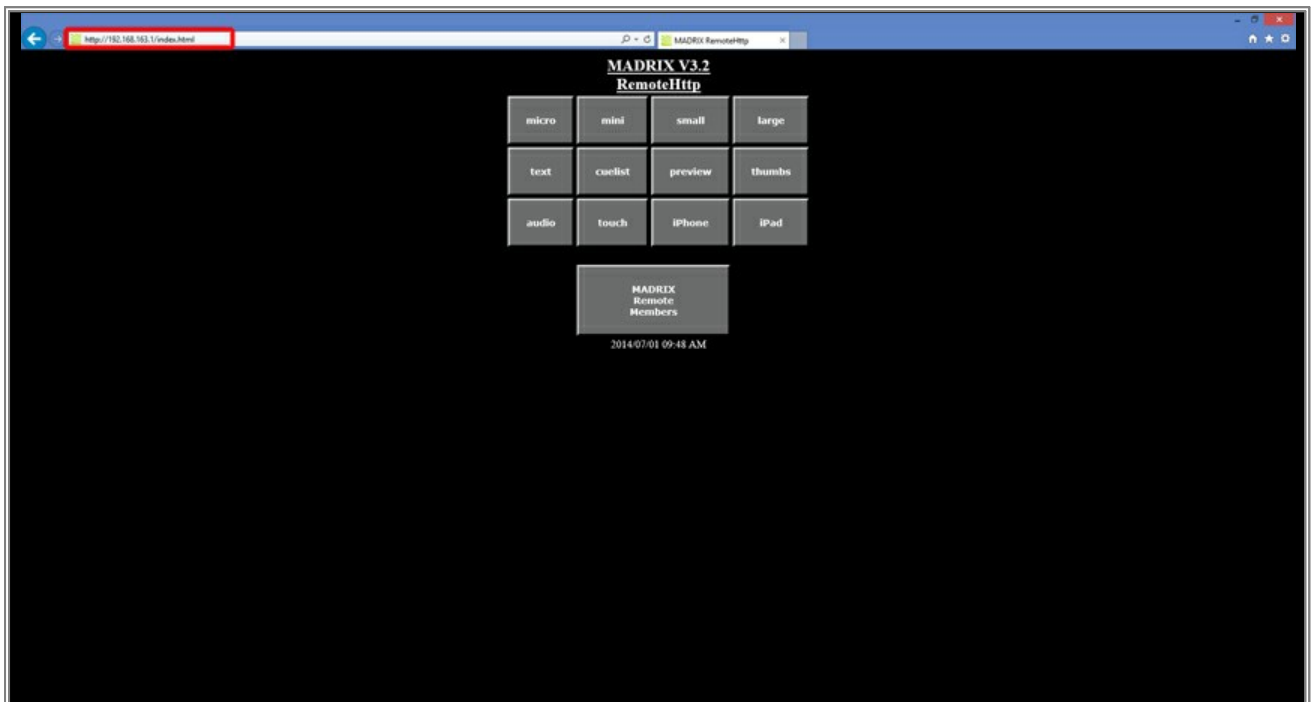
Click **Call**



Note: You can close the Remote Control HTTP window (by clicking **OK**) and the MADRIX HTTP Remote Control option will still work.

- 3 A new website will be opened in your standard web browser. Please have a look at the address bar of the browser. You can enter this IP address into the web browser of a mobile device, tablet, or computer in the same network and you will have access to this page. In this way, you can control MADRIX remotely.

Note: If you want to control MADRIX remotely with a mobile device or another computer, please make sure that the device is correctly connected to the same network as the MADRIX computer.

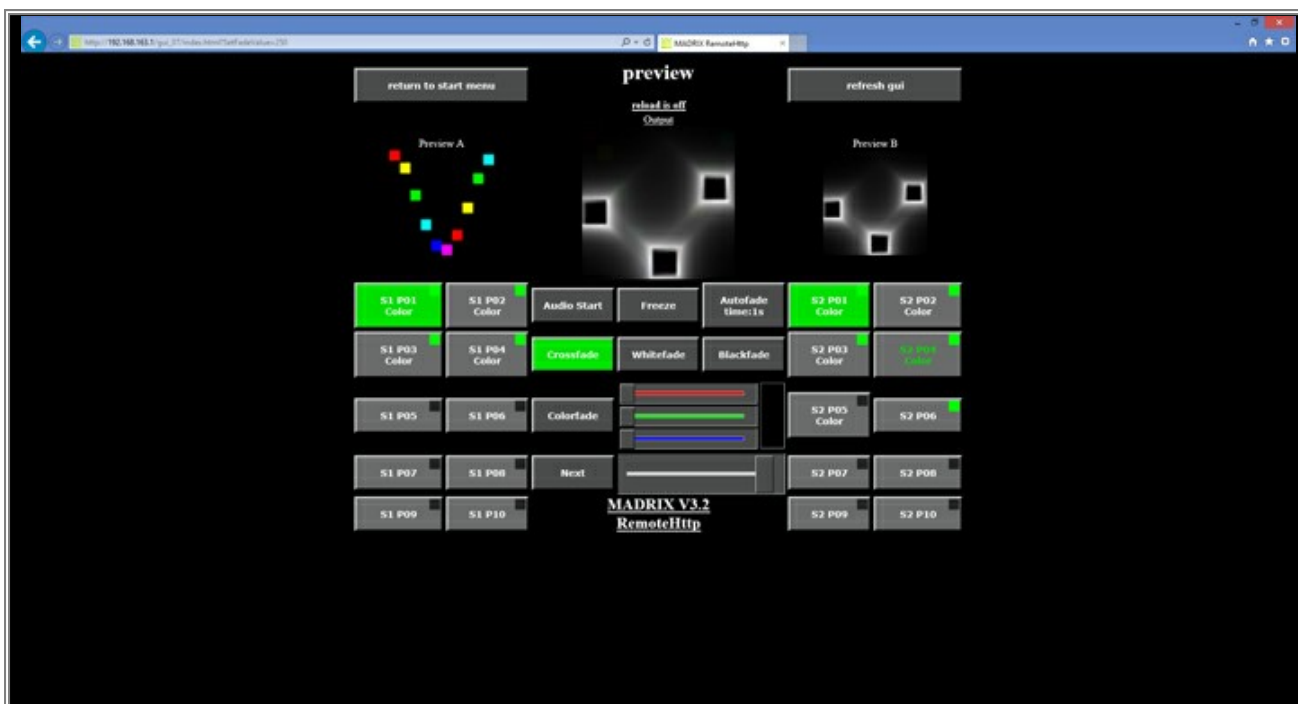


- 4 There are several predefined user interfaces (HTML sites) already provided to control MADRIX remotely. In this example, we want to have a look to the user interface called **preview**



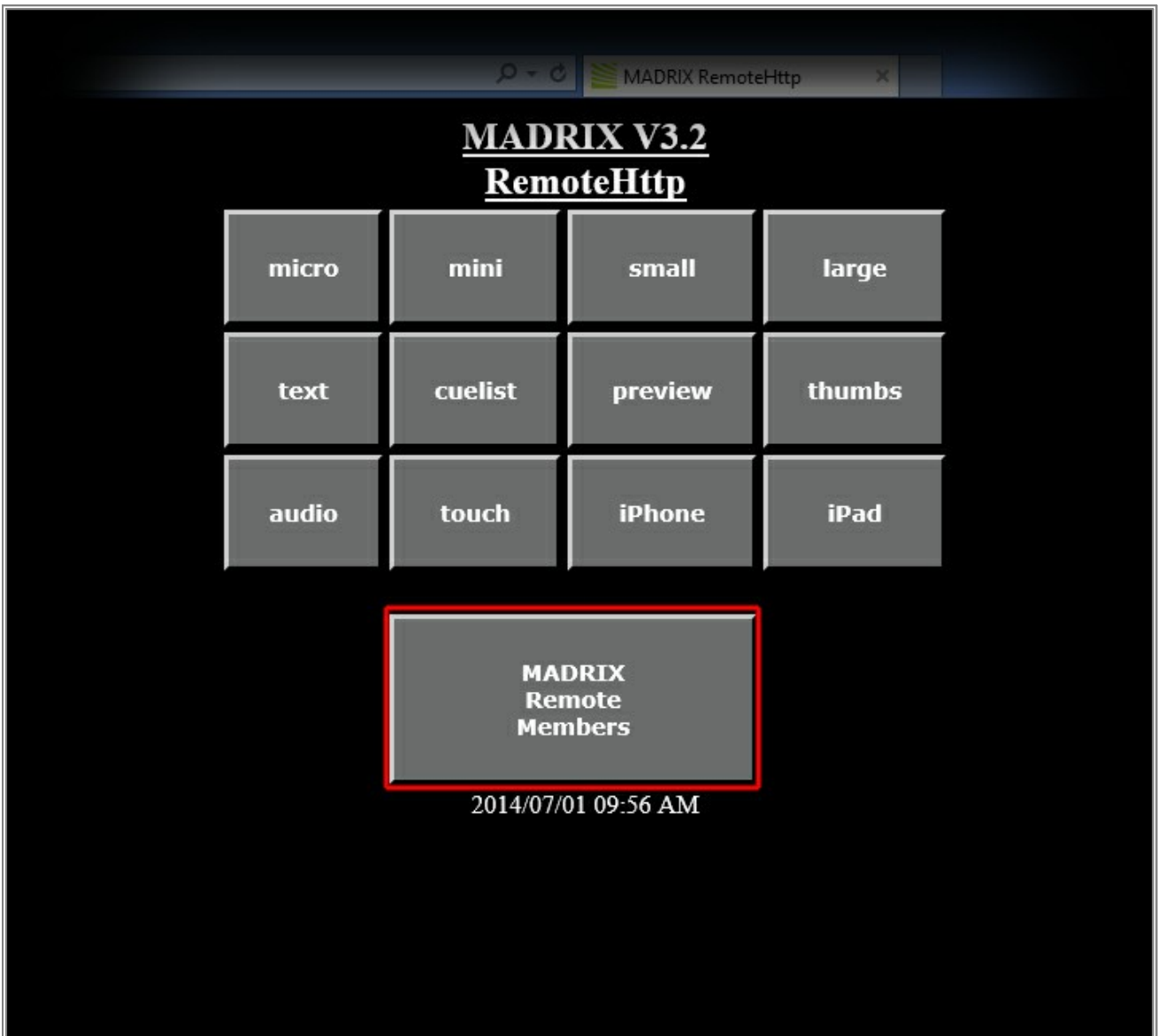
Click on the **preview** button and your browser will open the corresponding HTML site. You will see a web interface to control MADRIX remotely. According to its name, this interface will also show you 3 Previews in a similar way to MADRIX.

Simply use this web interface to control MADRIX as needed!

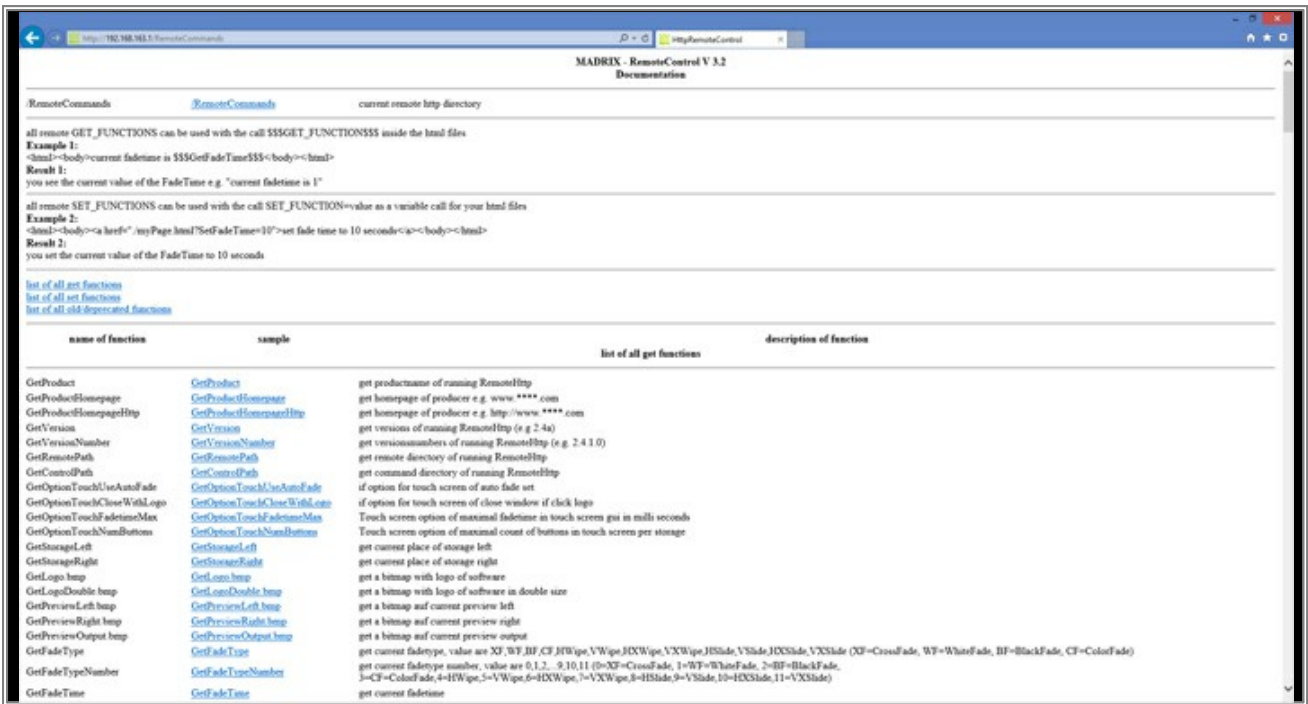


- 5 You also have the possibility to create your own HTML web interface.
 - . Return to the initial HTML site (for example by clicking on **return to start menu**).

When you now click on **MADRIX Remote Members**, a new site will be opened that includes all available MADRIX HTTP Remote Control functions.



On this page you will find all available functions shown with their function name, an example, and a description.



Congratulations! You have completed this tutorial about MADRIX HTTP Remote Control.

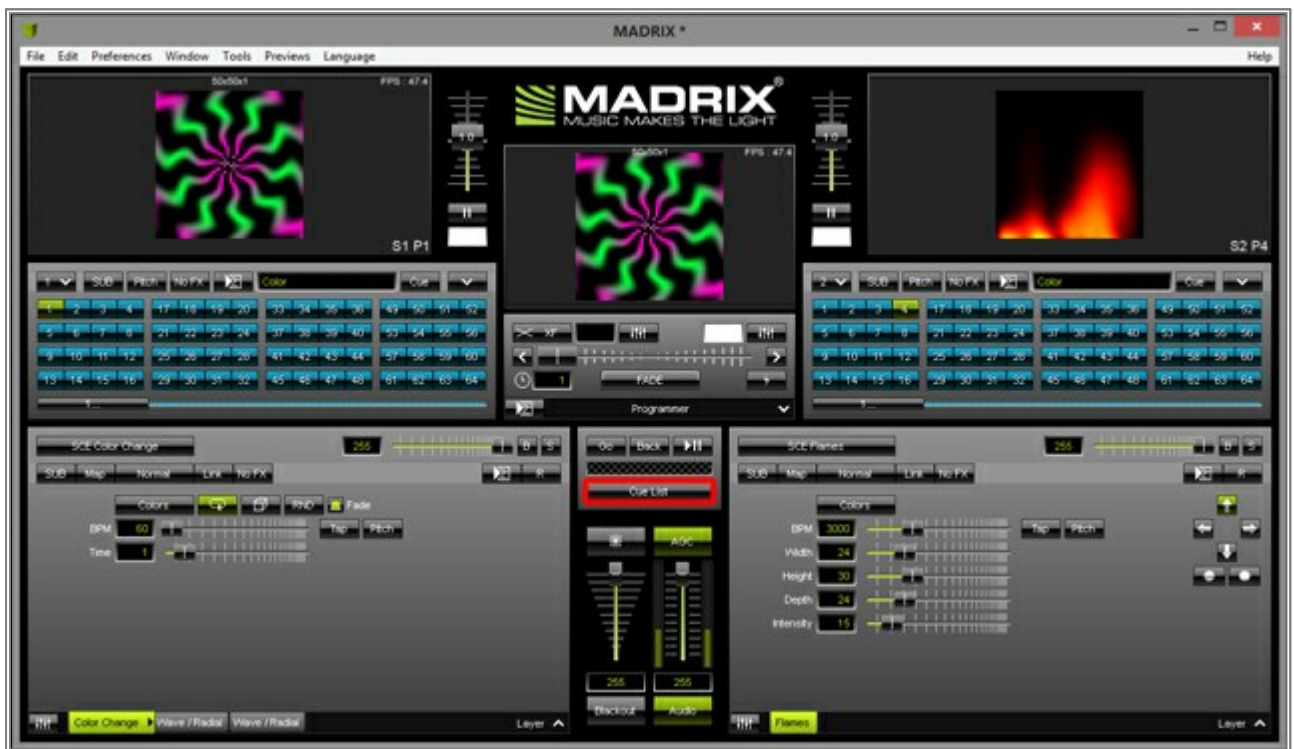
3.11 Cue List With Time Code And Duration

Learn how to create a Cue List and trigger this Cue List via MIDI Time Code. You can use a Cue List for automatic playback in MADRIX.

Date: 12/2014

MADRIX Version: 3.3 (Created with)

1. Please start MADRIX.
Open a Setup file or create a number of new visuals. Then, open the Cue List view by clicking on the **Cue List** button.



- 2. MADRIX will switch to the **Cue List** view. If you have not added a Cue to the Cue List yet, the list will be empty.

We now want to add Cues to the Cue List. To add a Cue, we have to select the desired **Storage Place** first and then click the **Cue** button on the main interface.

Note: A Cue is an entry in the Cue List where -among other things- the **Storage** and **Place** is stored. It will be selected, when the Cue is active.



3. We have added 7 Cues in this example.



4. If you now start the playback of the **Cue List**, you will see that the Cues will not be changed automatically. You can choose to change Cues manually by clicking the **Go** or **Goto** buttons.

But in our case, we want to create a **Cue List** which is changing effects automatically. MADRIX provides several options:

Date You can create a Cue which will only be played back on a specific date (31.12.2014, for example) or a specific day in the week (Friday, for example).

Time Code You can play back a Cue when MADRIX receives a time code. MADRIX can work with different time codes. You can use the system time as time code or an external time code. (MADRIX supports MIDI Time Code, Art-Net Time Code, and SMPTE Time Code.)

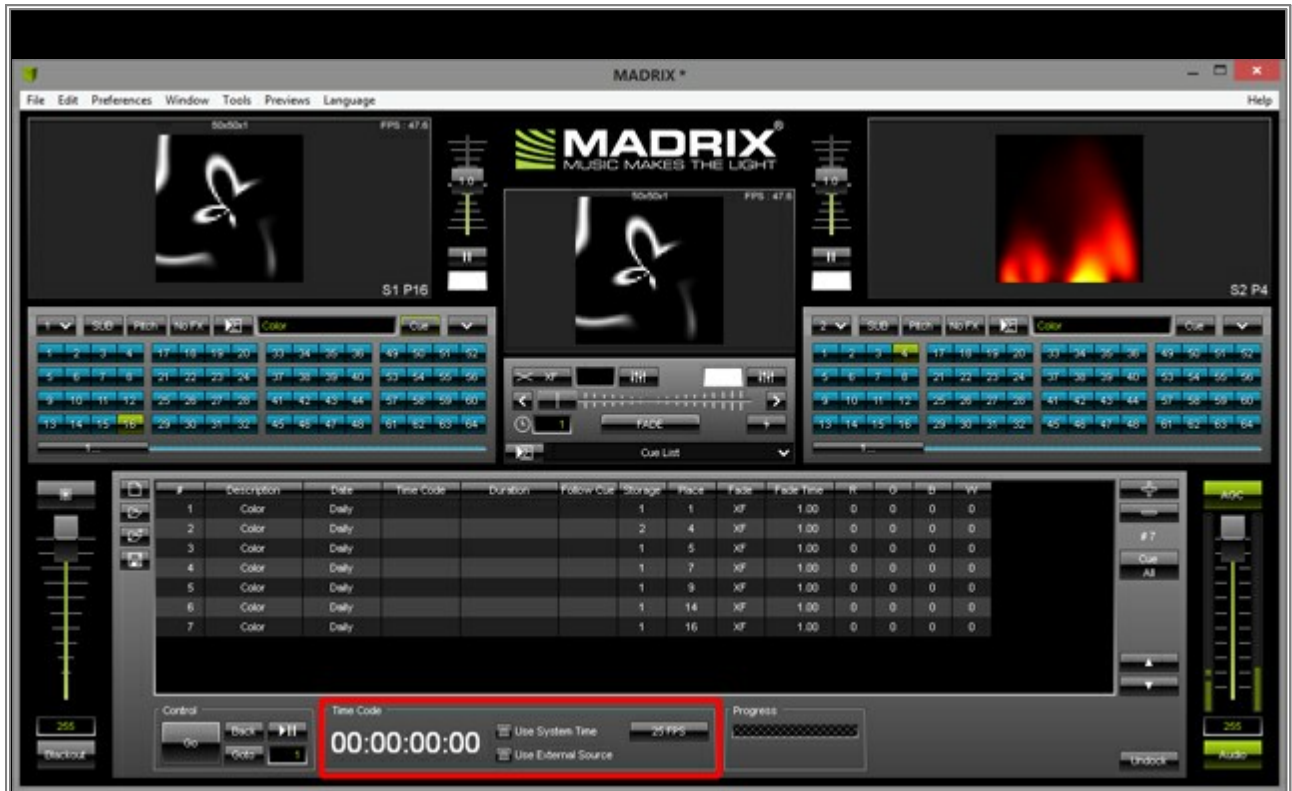
Duration With the help of the duration, you can set how long a Cue is active before changing to the next Cue.

Note: When you want to create an automatic **Cue List**, you have to trigger it by using **Time Code** or **Duration**



5. In this example, we want to control the **Cue List** via **Time Code** and **Duration**

You can see if MADRIX already receives time code in the **Time Code** section of the Cue List. In this section, you can also choose which time code source and which time code format you want to use.



Please enable **Use External Source** because we want to receive MIDI Time Code (MTC).



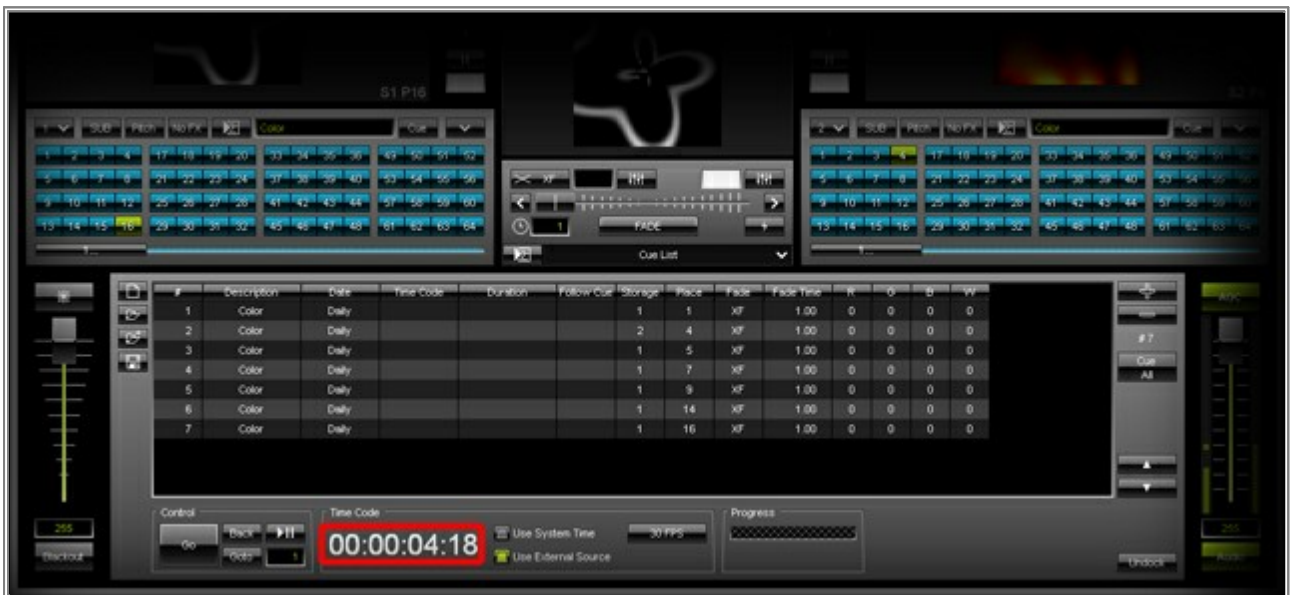
- When we want to use the MTC for triggering the Cue List, we have to enable the MIDI interface which receives the time code. Therefore, please open the **MIDI** tab of the **Device Manager** or go to **Preferences > Remote Control > MIDI...**



In the **MIDI** tab of the **Device Manager**, please select the desired device and activate the **Enable** and **MTC** checkboxes to enable the reception of the time code. Afterwards, please click **OK**



7. If the MIDI device receives MTC, you can see the received time code in the **Time Code** section of the **Cue List**



- 8. In this step, we want to create the time code trigger for the first Cue. The first Cue should be activated when MADRIX receives the time code **00:00:00:00**

We want to enter this time code into the **Time Code** column of the first Cue list entry. To do so, select the first Cue and perform a double-click on the column **Time Code**. Now, you are in the editing mode and you can enter the time code.



- 9. The next Cue should start at **00:00:10:00**

We select the second Cue list entry and type in **10s** into the column **Time Code**



- 10. We will switch the triggering now. The next Cues are going to be triggered by their duration. Therefore, we also have to set a duration for the second Cue. In this example, we set the duration of the second Cue to **15 seconds**. The duration of the third Cue will be set to **1 minute and 10 seconds**, and we set the duration of the fourth Cue to **30 seconds**

In the below image, you will see that the **Follow Cue** column of the fourth Cue is not empty. In this example, we have set the **Follow Cue** of this Cue to **7**. That means that the **Cue List** will continue with Cue 7; after Cue 4 has ended.



- 11. We will change the **Duration** for the remaining Cues. The duration of Cue number 5 will be set to 12 seconds and 22 frames (**00:00:12:22**), the duration of Cue number 6 will be set to 30 seconds and 4 frames (**00:00:30:04**), and the duration of Cue number 7 will be set to 5 minutes and 32 seconds in this example (**00:05:32:00**).

In Addition, Cue number 7 gets its **Follow Cue** set to **5**. That means after Cue 7 has ended, the **Cue List** will continue with Cue number 5. This will happen in a loop until you stop the Cue List or MADRIX receives the time code 00:00:00:00 or 00:00:10:00



Congratulations! You have learned how to set up a Cue List with time code and duration triggering.

3.12 Working With Fixture Groups

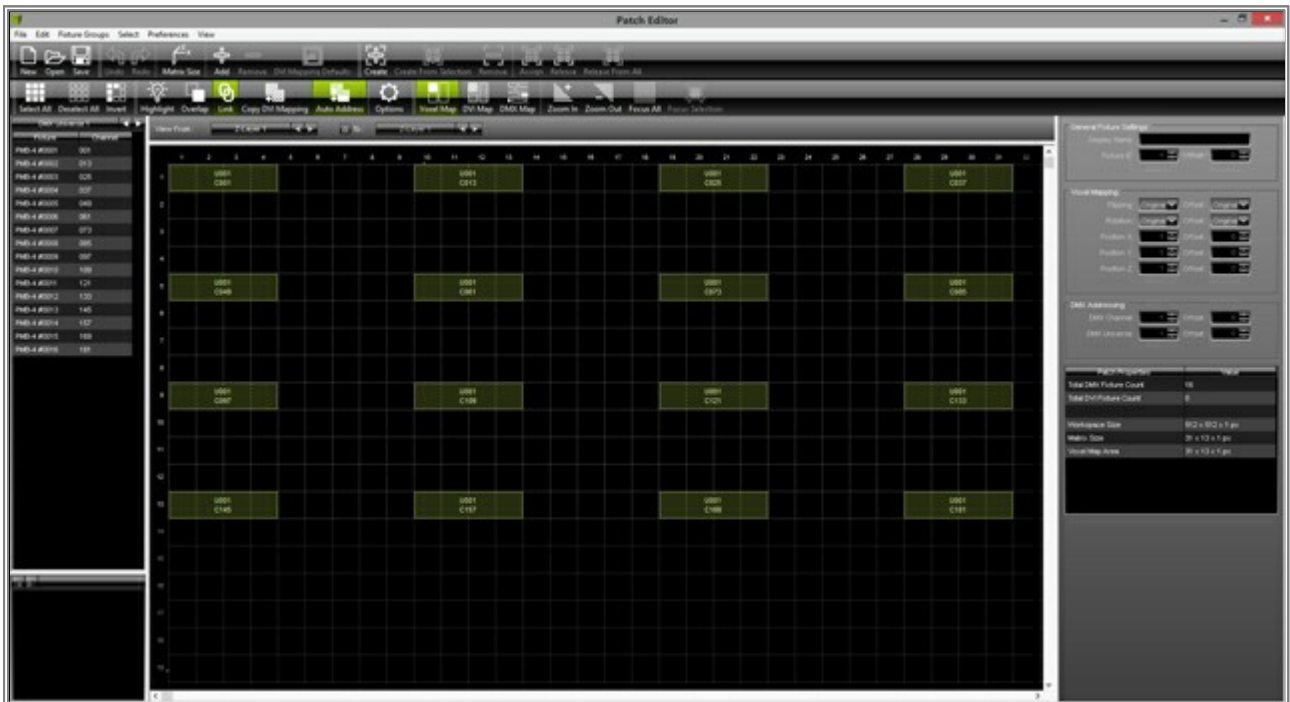
Learn how to work with Fixture Groups in MADRIX in this tutorial. We want to create 3 different Fixture Groups and learn how we can change the values of these groups.

Date: 07/2015

MADRIX Version: 3.4 (Created with)

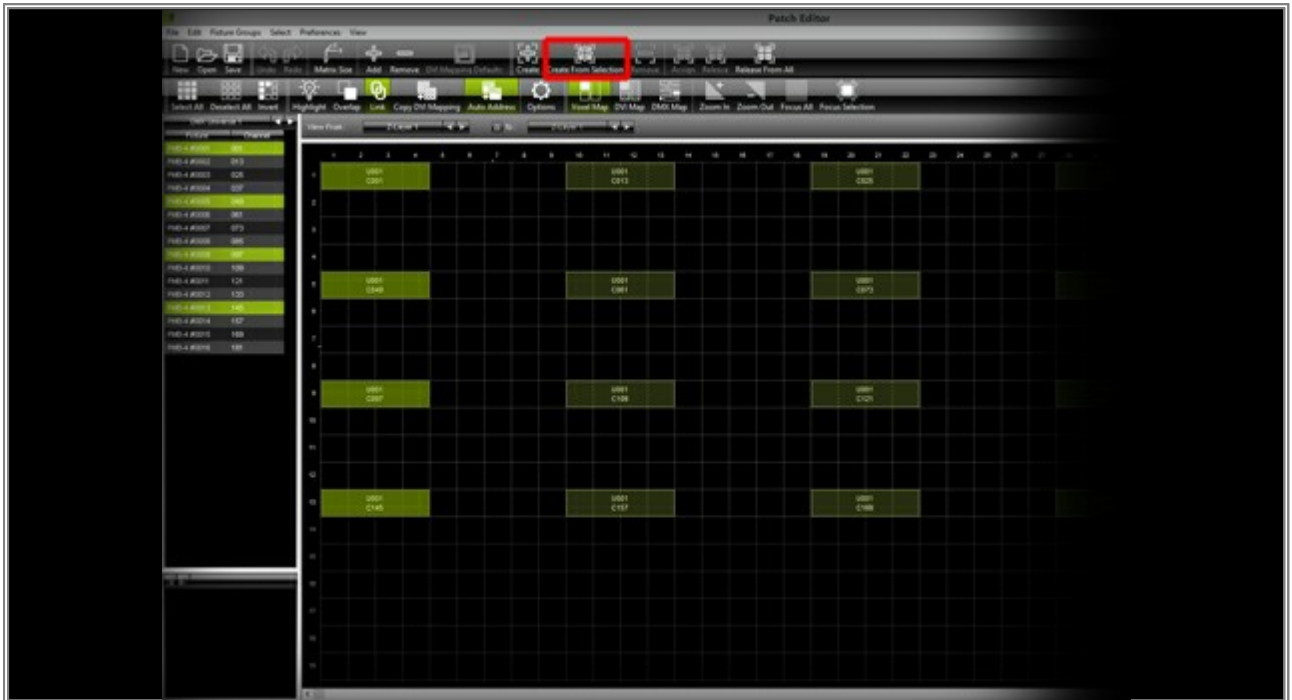
Note: For this tutorial we are going to use the Patch we created in the tutorial »[Creating A Patch With Space Between Fixtures](#). Please read it first.

1. Start MADRIX and open the **Patch Editor** (press the **F3** key on your keyboard). After creating or loading the Patch from the tutorial »[Creating A Patch With Space Between Fixtures](#), the Patch Editor should look this:

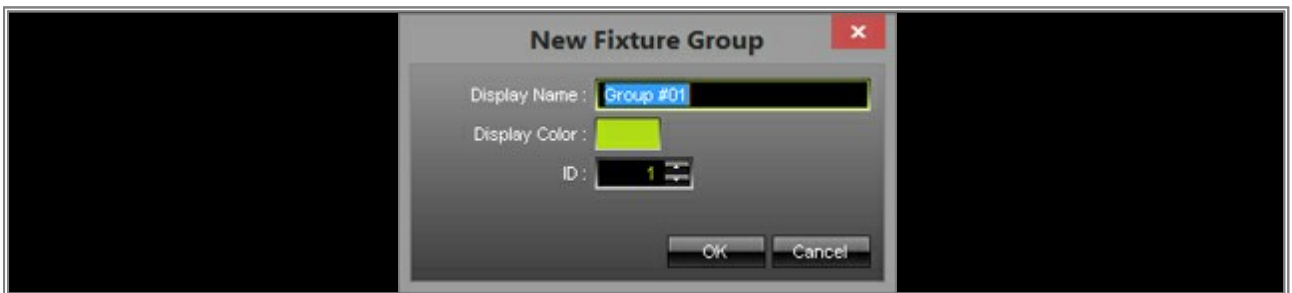


2. Now, we want to create the first fixture group of this tutorial.

First, select all fixtures of the left column. To do so, press and hold the **Ctrl** key down and click with the **left mouse button** on the fixtures in the Patch Editor grid. The selected fixtures are illuminated in lime green. When you have selected these 4 fixtures, click the **Create From Selection** button in the upper toolbar.



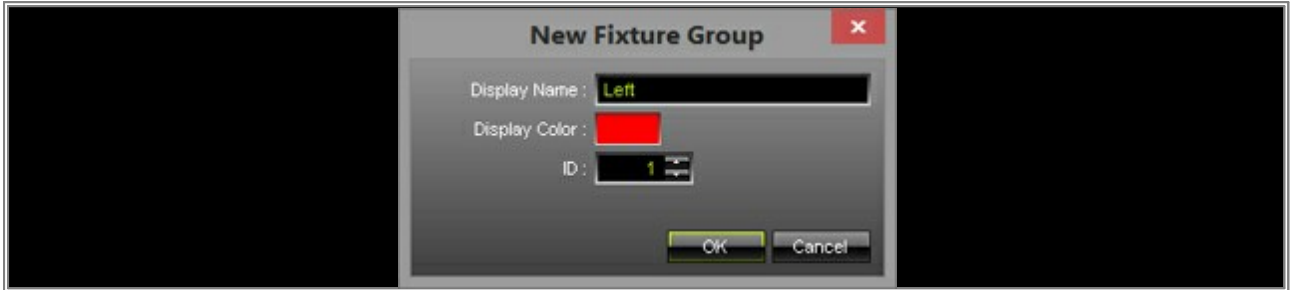
The **New Fixture Group** window opens. In this window, you can change the **Display Name**, **Display Color**, and **ID** for the fixture group you just have created.



- The **Display Name** defines the description of how the fixture group will be displayed in MADRIX. In this example, we change it to **Left**
- The **Display Color** is responsible for the background color used for this group in the MADRIX Group Control. In this example, we change it to **Red**

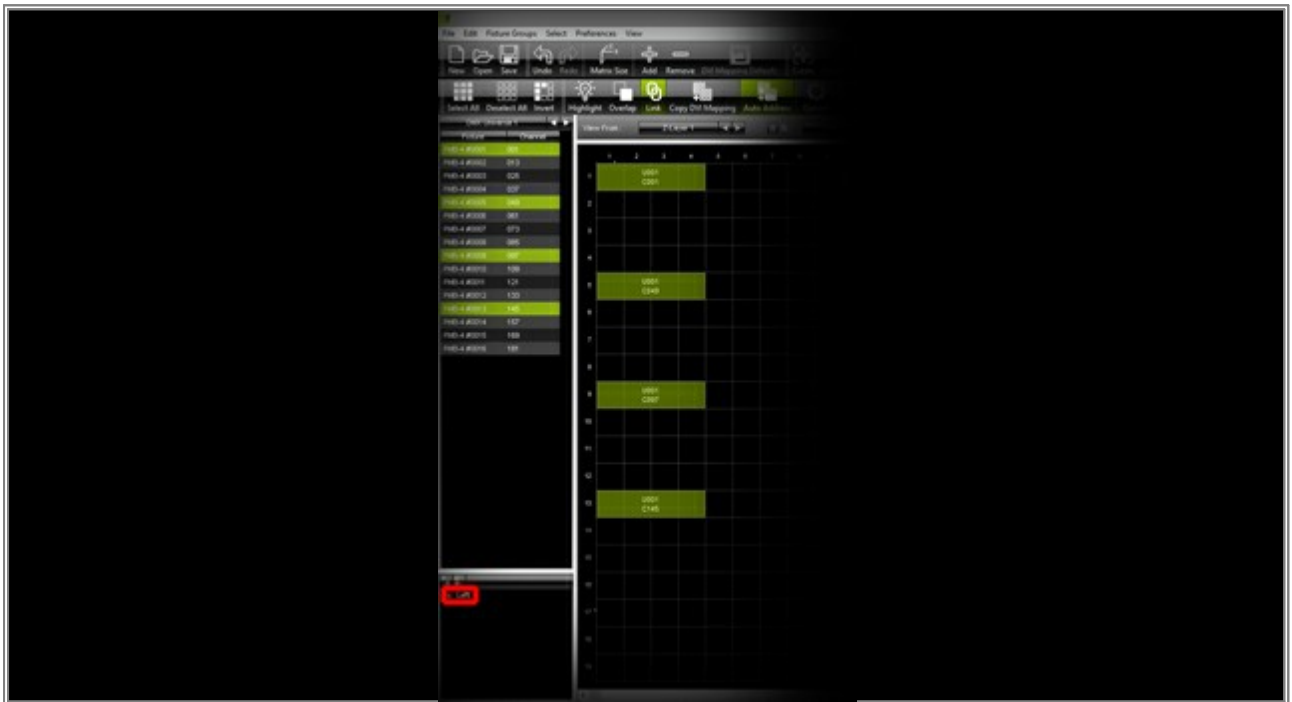
Note: The Display Color does not define the default color for the light output of the fixtures.

- The **ID** is responsible for the order of groups in the MADRIX Group Control. Normally, you do not need to change this value.



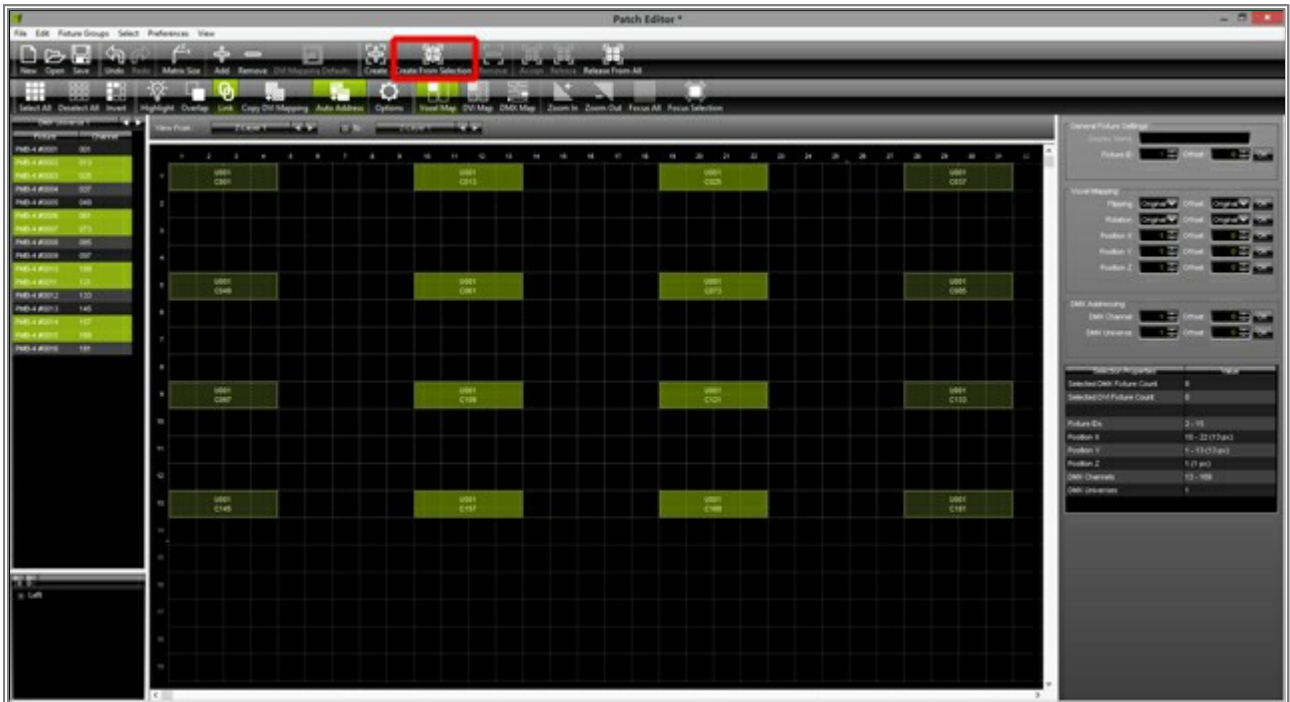
After you have changed the settings, please click **OK**

Now, you can see that a new group with the name **Left** was added to the group section of the Patch Editor. You will find the group section on the bottom left of the Patch Editor.

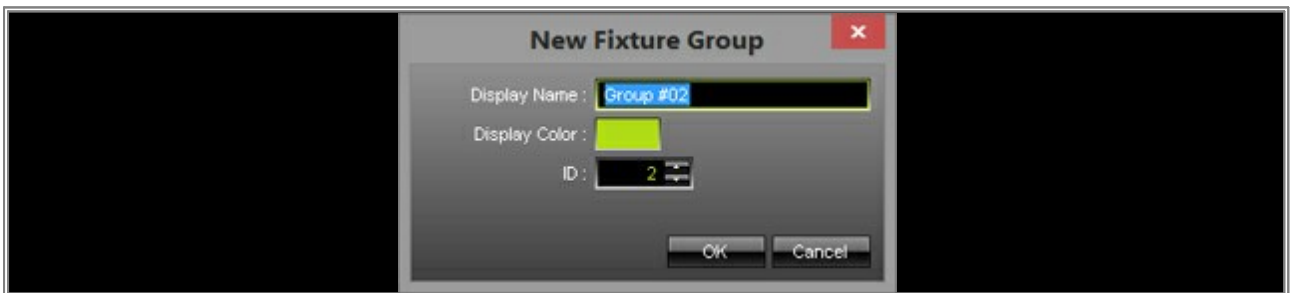


3. In this step, we want to add the second fixture group.

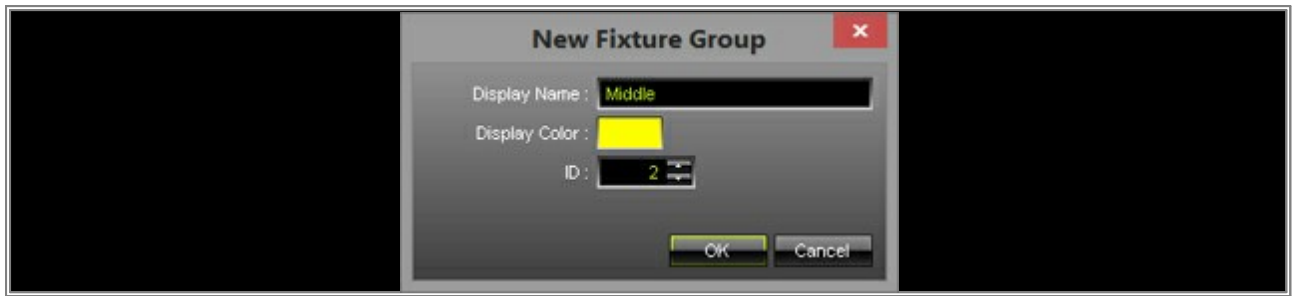
Therefore, select the fixtures of the two columns in the middle. To select the fixtures, please press and hold the **Shift** key down, click and hold the **left mouse button** down, and move the mouse to create a bounding box over the 8 middle fixtures. After all 8 fixtures are selected, click again on the **Create From Selection** button.



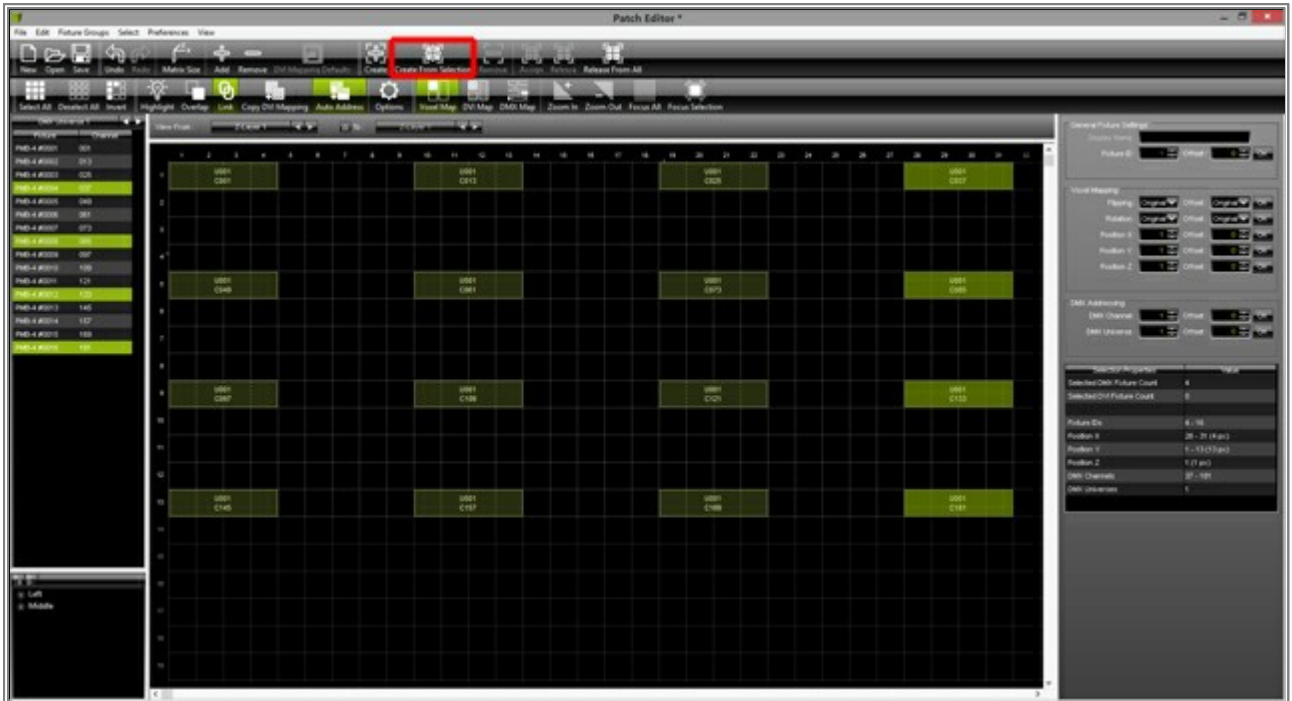
Now, the **New Fixture Group** window opens.



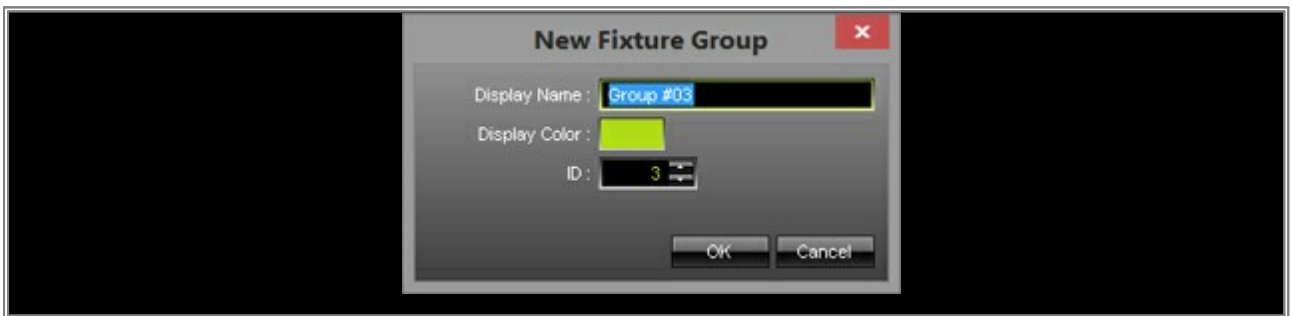
In this example, we want to change the **Display Name** to **Middle** and the **Display Color** to **Yellow**. Then, please click **OK** and the fixture group will be created.



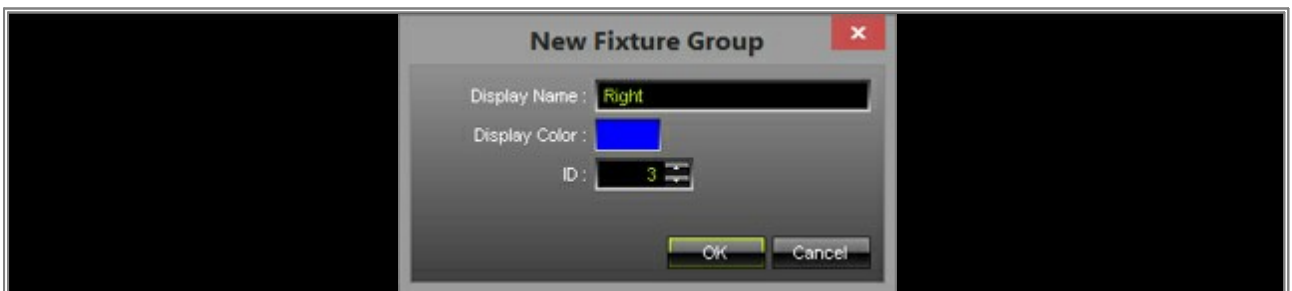
- 4. Now, we want to create the third fixture group. We are selecting all fixtures of the right fixture column and click **Create From Selection**



The **New Fixture Group** window opens.



We want to change the **Display Name** to **Right** and the **Display Color** to **Blue** and confirm with **OK**



- 5. There are now three different fixture groups listed in the group section of the Patch Editor.



- 6. Now, please close the Patch Editor. In MADRIX, please select an empty Storage Place and change the color of the SCE Color effect to **Red**



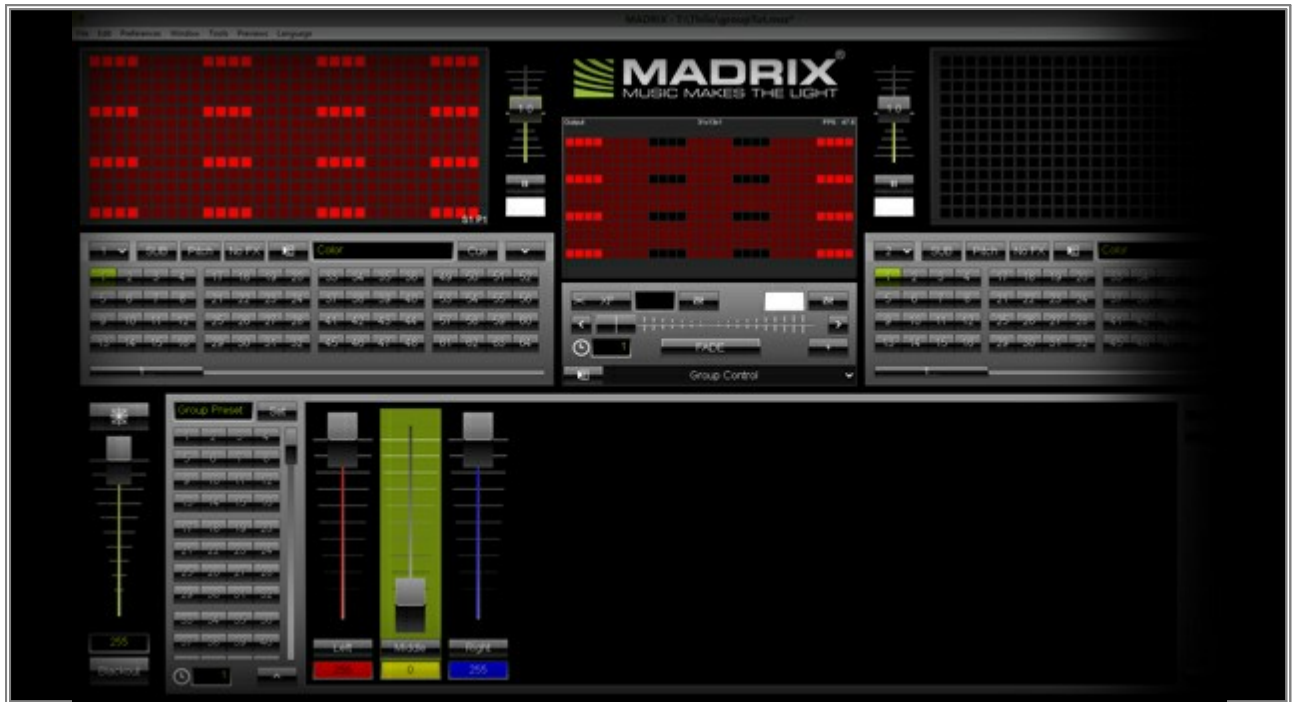
- 7. In this step, we want to open the **Group Control**. To do so, click on the **Programmer** button and a context menu opens. You will find this button below the **Fade** section.



As a result, the lower part (**Effect Section**) of the MADRIX user interface will change into the **Group Control** section.



8. You can now change the values of the sliders. You can see the result in the Preview Output and on your connected fixtures. The fixture groups are working like dimming groups for the assigned fixtures in every group.



Congratulations! You have learned how you can create and work with fixture groups.

3.13 Working With Group Presets

This tutorial shows you how you can work with Group Presets in the MADRIX Group Control.

Date: 07/2015

MADRIX Version: 3.4 (Created with)

Note: For this tutorial, we are going to use the Patch, including groups, we created in the tutorial »[Working With Groups](#)

1. Start MADRIX and open the **Group Control** (press the **F9** key on your keyboard).
After creating or loading the Patch from the tutorial »[Working With Groups](#), the MADRIX **Group Control** should look like in the below image.

On the left side of the **Group Control**, you can see a section with numbered buttons. This section contains the **Group Presets** and you can store different group slider values on each preset.



- 2. We want to create and save such a Group Preset. In this example, we are changing the value for group **Left** to **59** and the value for group **Right** to **168**. We leave the value for group **Middle** at **255**. Then, we are changing the Group Preset name to **Intro** (1) and click **Set** (2).



The **Set Group Preset** window will be opened. In this window, you can choose on which Group Preset button you want to store the current slider settings. We are going to store it on Group Preset **1**. To store the preset, please click **OK**



- 3. We now want to store a second Group Preset. First, we will change the values for groups **Left** and **Right** to **255** and the value for fixture group **Middle** to **0**. Second, we change the Group Preset name to **Main Part** (1). Third, we perform a right mouse click on the second Group Preset button. A context menu opens and we choose **Set** (2) to store the preset.



4. You can see that there are 2 blue buttons now in the **Group Preset** section. When you click on one of the blue buttons, the sliders will be changed to the stored values within. Such a fade will be executed within the set **Fade Time**. You can change the **Fade Time** on the bottom left side of the Group Preset section.

Note: If you do not want to switch between 2 Group Presets with a fade, perform a double-click on the desired Group Preset.



Congratulations! Now you can work with Group Presets in the MADRIX Group Control.

3.14 Working With The Group Value Chaser

Learn how to create a Group Value Chaser in MADRIX in the following tutorial.

Date: 07/2015

MADRIX Version: 3.4 (Created with)

Note: For this tutorial, we are going to use the Patch, including groups, we created in the tutorial »[Working With Groups](#)

1. Start MADRIX and open the **Group Control** (press the **F9** key on your keyboard).
After creating or loading the Patch from the tutorial »[Working With Groups](#), the MADRIX **Group Control** should look like in the below image.

On the right side of the **Group Control**, you can see a **Chaser** button (similar to a the Effect Parameter Chaser of the MADRIX Effect section). With the **Group Value Chaser**, you are able to change fixture group values automatically after a desired time and with or without fade.



- 2. Let us add the first Step to the **Group Value Chaser**

Therefore, please perform a click with the right mouse button on the **Chaser** button and choose **Edit**



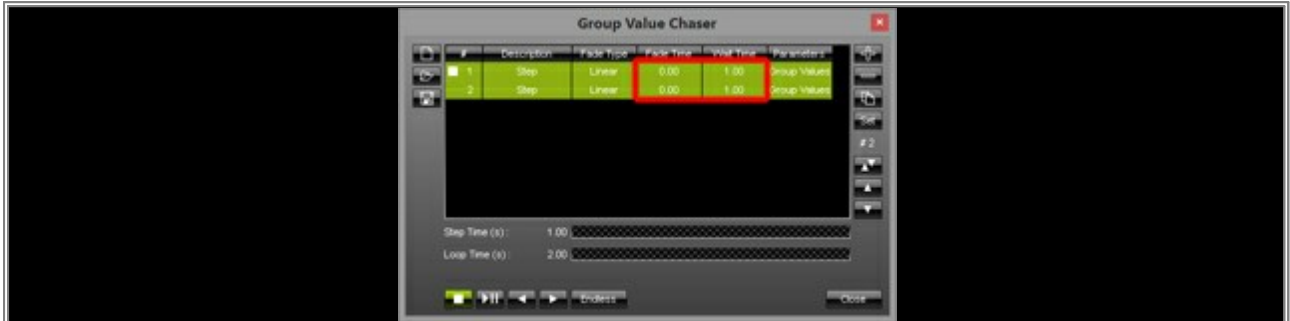
The Group Value Chaser window opens. In this example, the group values for our first step are set to **255** for all three groups. Please click the **+** button to add the Chaser Step.



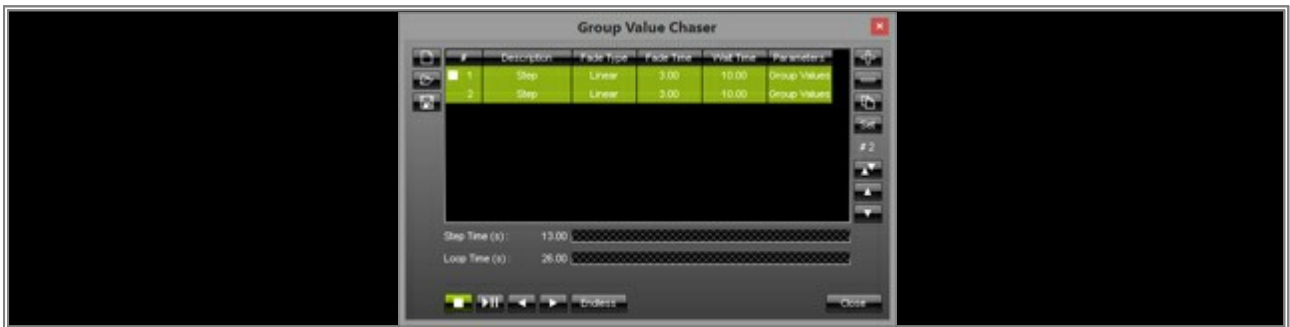
- 3. We are changing the value of every fixture group to **70** for the second Chaser Step. You can change the group values using a multiselection. To do so, press and hold the **Shift** key down and click on the first group and then on the last group. Every selected group will be illuminated in green and you can move the slider down to **70**. After selecting all groups, click the **+** button in the **Group Value Chaser** again.



- 4. We are going to change the **Fade Time** and **Wait Time** of this Chaser. Please select all Steps by pressing **Ctrl+A** on your keyboard.



In this example, we are changing the **Fade Time** to **5.00** seconds and the **Wait Time** to **10.00** seconds. You can quickly change the **Fade Time** and **Wait Time** by clicking with the right mouse button on a desired value. The value will become editable and you can change it. Please apply your new value with **Enter**



5. Now, we want to start the **Group Value Chaser** and store it as a **Group Preset**

To start the Chaser, please click with the mouse button on the now blue Chaser button. The button color will be changed to green. This means it is now playing.



To store this Chaser in a preset, we will first change the **Group Preset** name to **Chaser** and then we perform a right mouse click on the first preset button. We choose **Set** from the context menu.



Note: If you want to learn more about Group Presets, please have a look at the tutorial »[Working With Group Presets](#)

Congratulations! You have just created a Group Preset which includes a Group Value Chaser.

3.15 Controlling A Kinetic Lighting System With MADRIX

This tutorial shows you how you can control a kinetic system, with 5 x 5 fixtures for example, with MADRIX.

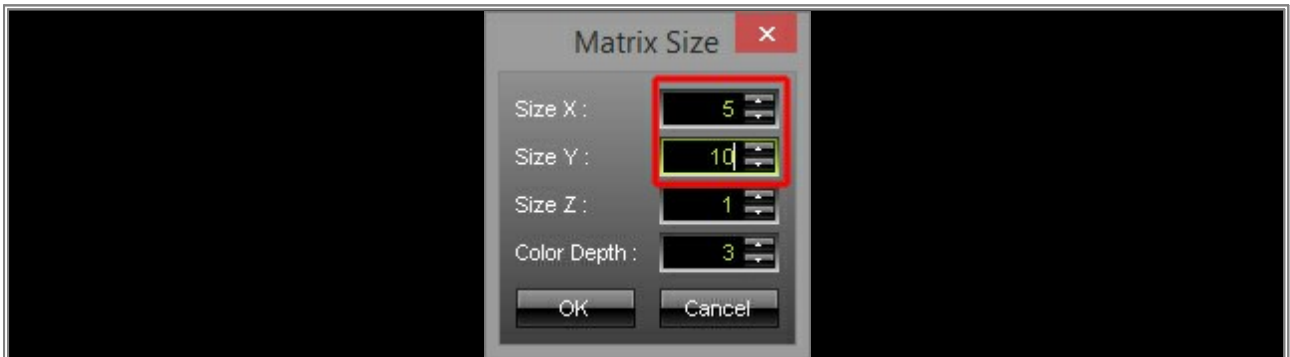
Date: 03/2016

MADRIX Version: 3.5a (Created with)

Note: In this example, we are assuming that the movement channels of our 5 x 5 fixtures are occupying the first 25 DMX channels on DMX universe 1. And we are assuming that the color channels of our 5 x 5 fixtures are occupying the first 75 DMX channels on DMX universe 2.

1. Start MADRIX and open the **Patch Editor** (press the **F3** key on your keyboard).
After the **Patch Editor** window has been opened, please create a new patch file. To do so, click **New**

Change the **Matrix Size** to **Size X = 5**, **Size Y = 10**, and **Size Z = 1**

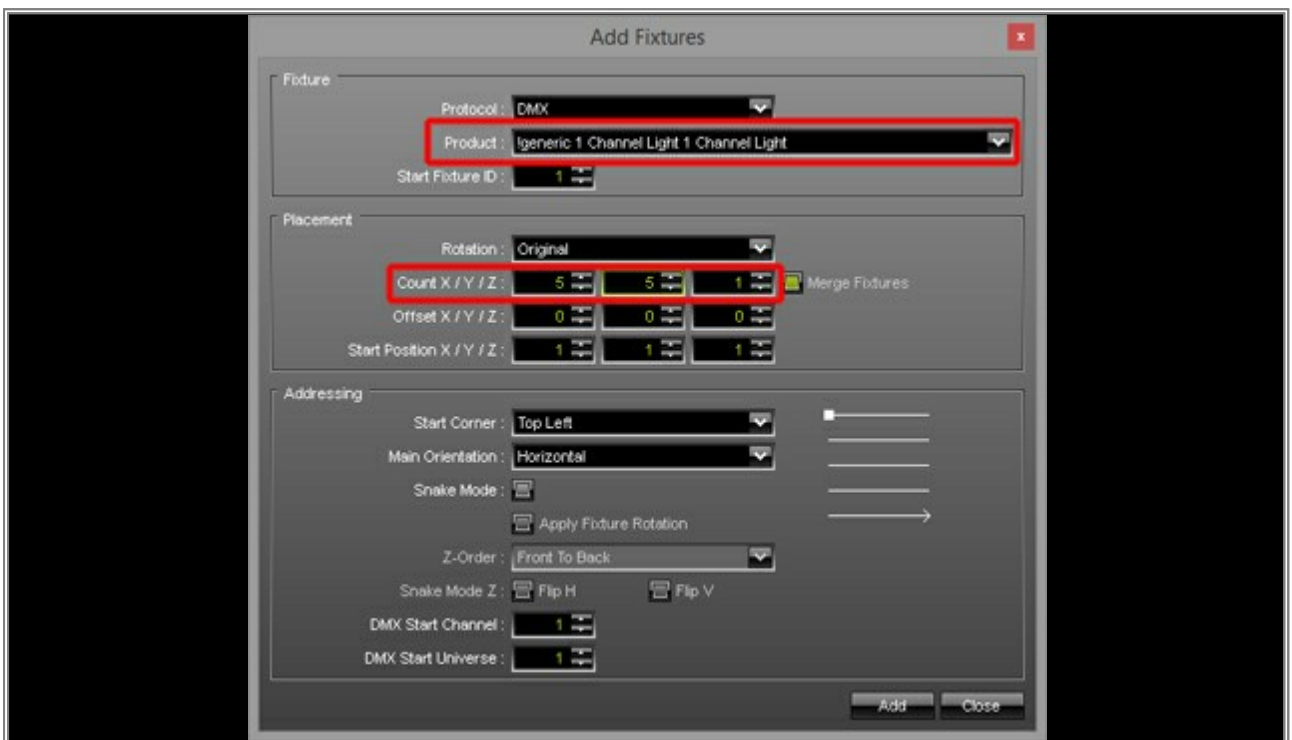


2. Now, we want to add the fixtures for the kinetic movement. We are going to add one-channel lights at the top of the patch, in this example.

Please click the **Add** button and change the following settings in the **Add Fixtures** window:

- **Product: !generic 1 Channel Light 1 Channel Light**
- **Count X = 5, Count Y = 5, Count Z = 1**

Confirm by clicking **Add**



- 3. In this step, we want to add the fixtures to control the RGB lights of the kinetic system. In this example, we are going to 3-channel RGB lights below the fixtures that are used for the movement.

Please open the **Add Fixtures** window again and change the following settings:

- **Product: !generic RGB Light 1 Pixel**
- **Count X = 5, Count Y = 5, Count Z = 1**
- **Start Position X = 1, Start Position Y = 6**
- **DMX Start Universe = 2**

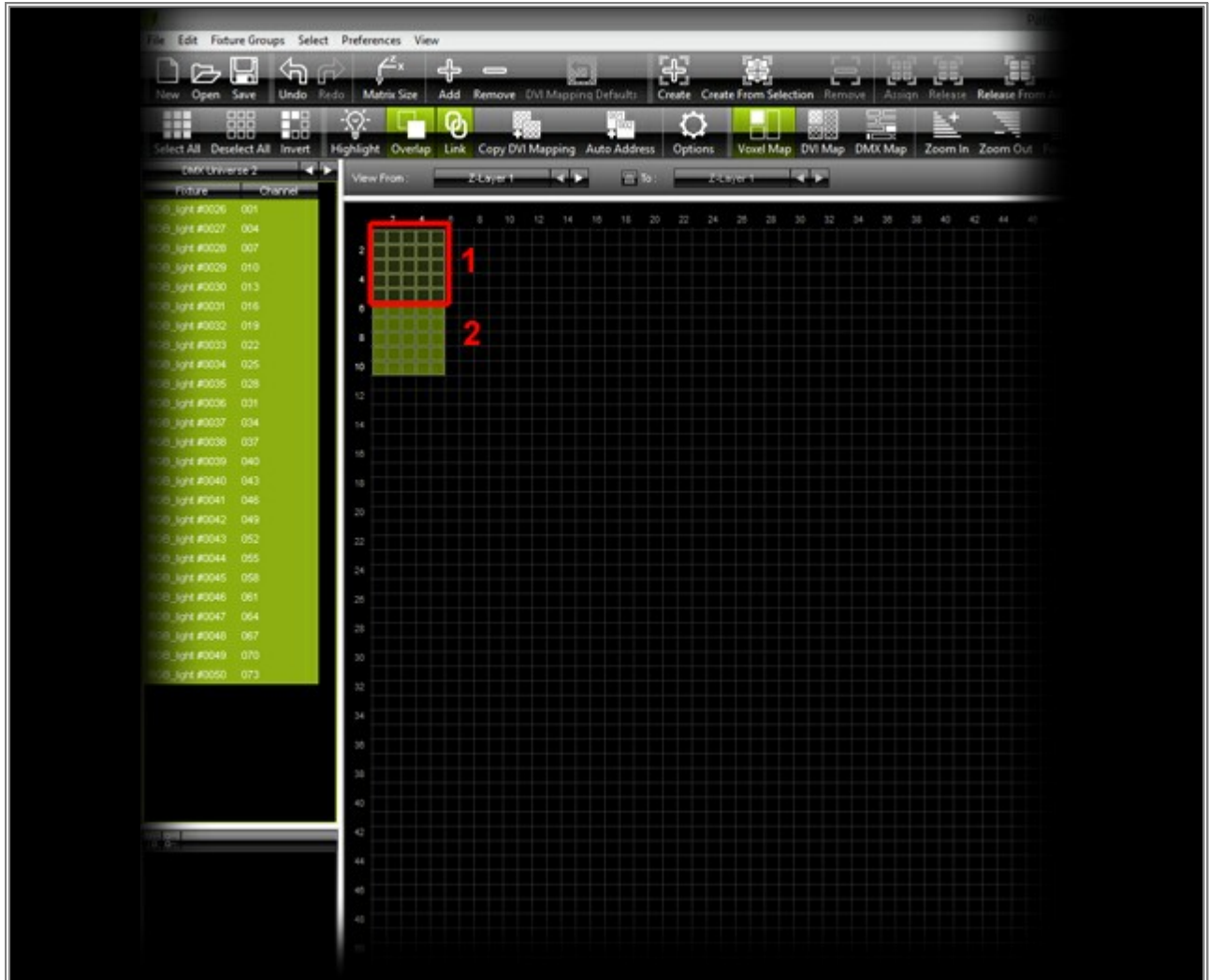
After you have adjusted the settings, click **Add**



4. We have now added all necessary fixtures.

The **1st** area is responsible for the kinetic movement of the fixtures.

The **2nd** area is responsible to control the colors of the fixtures.



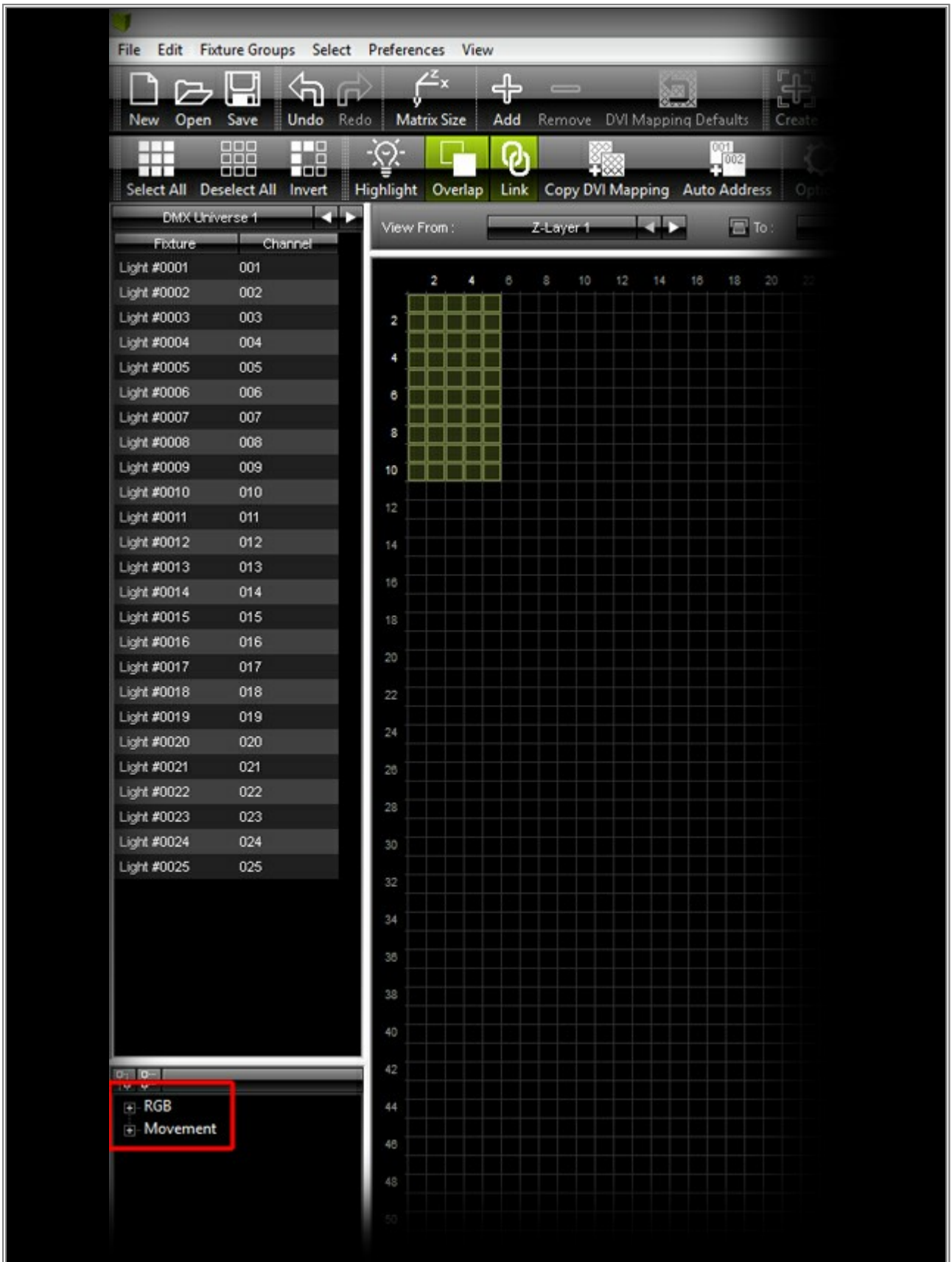
5. In this step, we want to create two fixture groups. With the help of the fixture groups, you can control and assign the desired fixtures in MADRIX more easily.

If you want to learn more about how to create fixture groups, please see this tutorial »[Working With Fixture Groups](#)

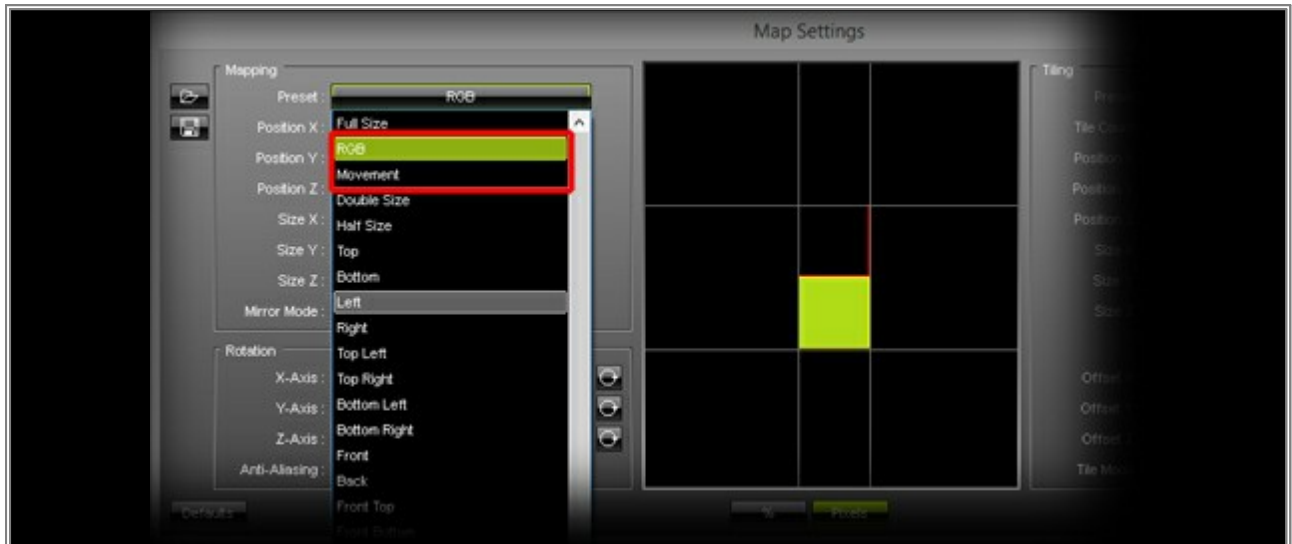
Here in this example, we are going to call the first fixture group **RGB** and we are adding all fixtures of the second DMX universe to this group. To do so, please select all fixtures of the second DMX universe, click **Create From Selection**, and change the **Name** to **RGB**

We are calling the second group **Movement** and will be responsible for controlling the movement of the fixtures. Please select all fixtures of the first DMX universe, click **Create From Selection**, and change the **Name** to **Movement**

Please close the **Patch Editor** now.



6. When you now click on **Map**, the **Map Settings** window will launch. There, you have the option to change the mapping to the newly created fixture groups very easily. **Choose Mapping > Preset > RGB** or **Mapping > Preset > Movement**



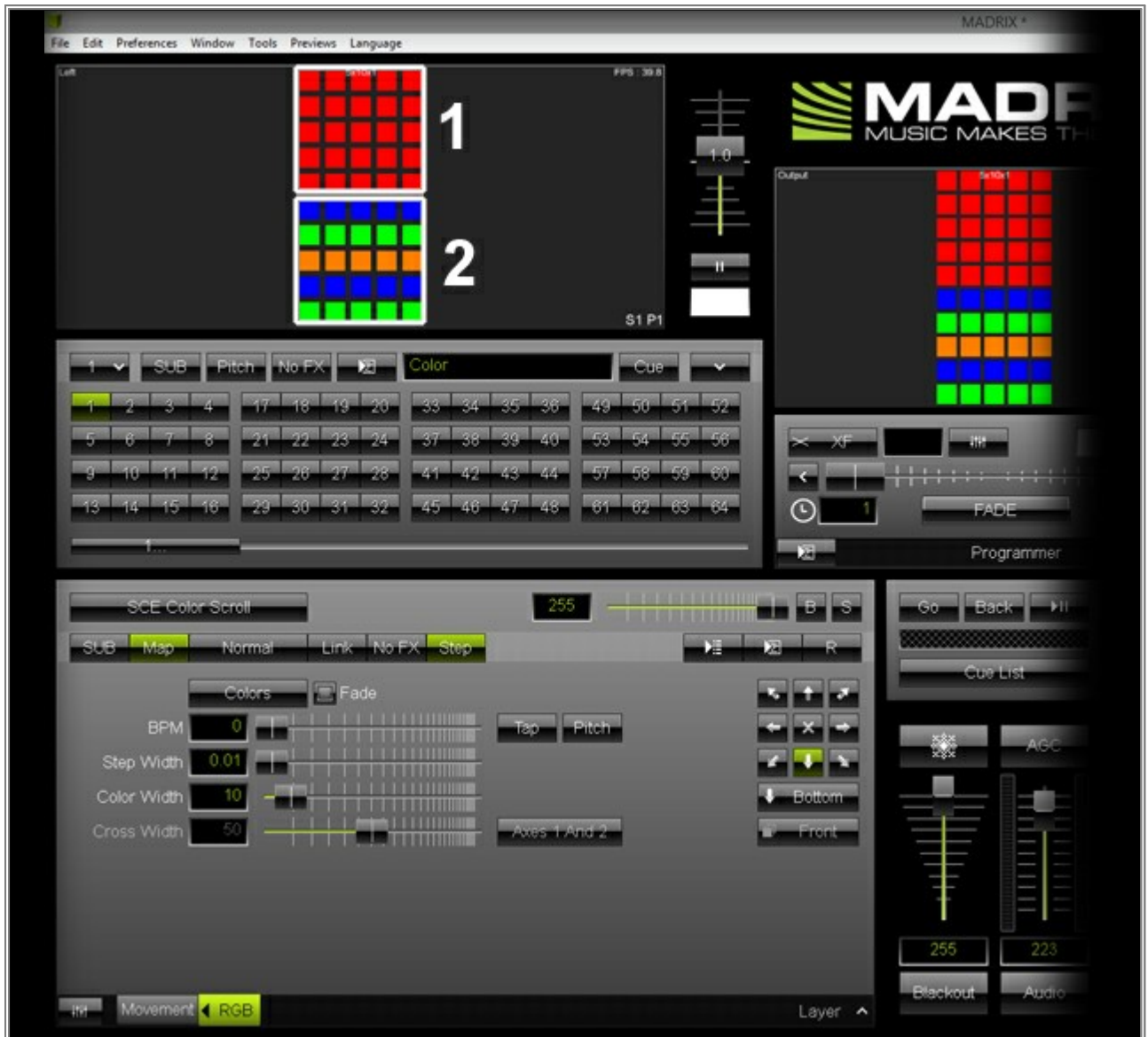
7. We want to create the first MADRIX Effect for the kinetic lighting system.

In this example, we are going to use two Layers in MADRIX. The first layer is responsible for the movement and the second layer is responsible for the color of the LEDs.

First, we have changed the **Name** of the first Layer to **Movement**. Second, we are assigning the **Mapping** to the **Movement Preset**, as described above. Third, we have set the color channel **Red** of the MADRIX Effect **SCE Color** to **255**

Fourth, we want to change the **Name** of the second **Layer** to **RGB**. Second, we are assigning the **Mapping** to the **RGB Preset**, as described above. Third, we are switching to the effect **SCE Color Scroll**

When you now have a look at the real fixtures in the installation, you should see scrolling colors on the LEDs and the winches should be extended to the maximum.



Congratulations! You have just learned how you can use MADRIX to control a kinetic lighting system.

//PART D

Miscellaneous

4 Miscellaneous

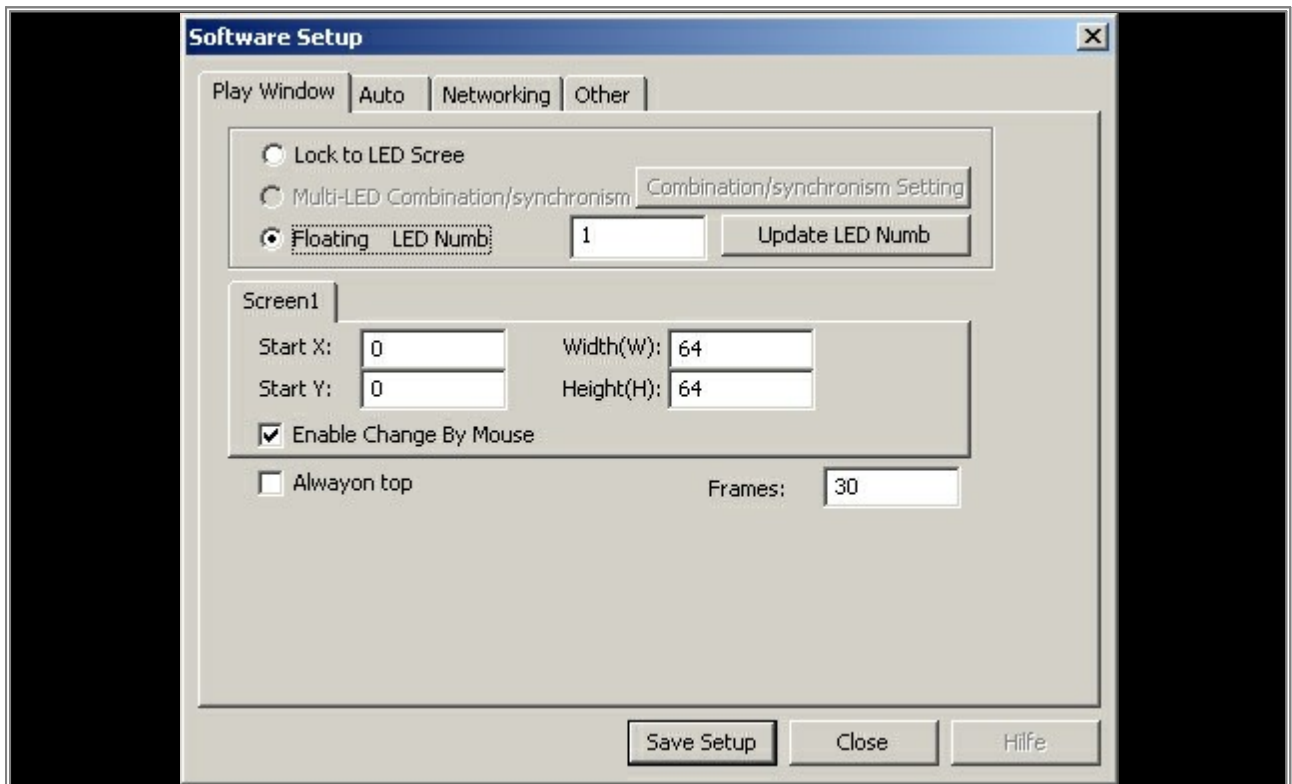
4.1 Setting Up LED Studio For EUROLITE LED Pixel Mesh 64x64

In this tutorial, you will learn how to create a setup in LED Studio 10.40D for 16 EUROLITE LED Pixel Mesh 64 x 64. The fixtures will be placed in 4 rows and 4 columns.

Date: 12/2012

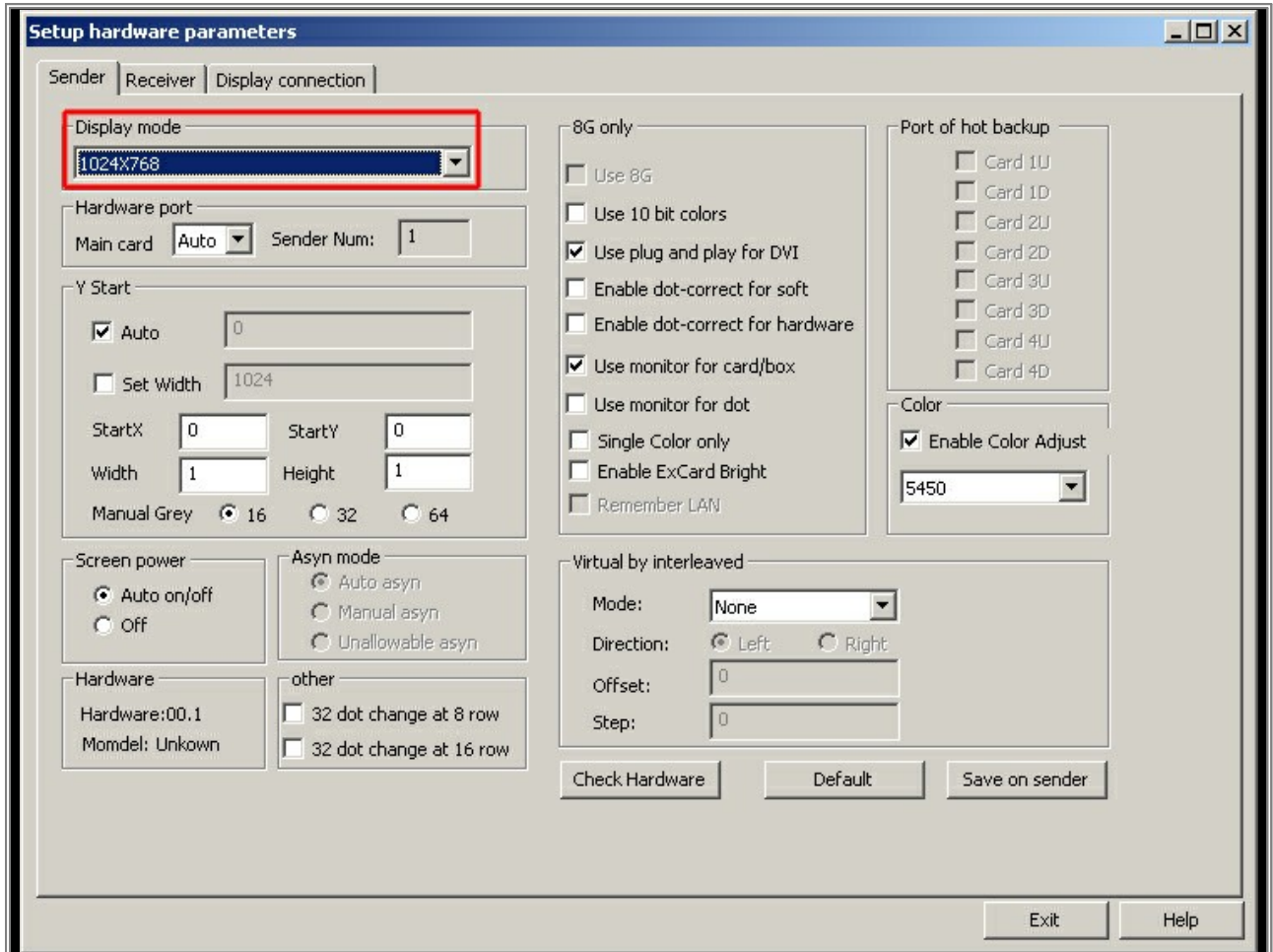
LED Studio Version: 10.40D (Created with)

1. Start the LED Studio software and go to **Option > Software Setup**



Now, write **linsn** on your keyboard. There is no edit field for that, so just type it in. As a result, the software will require a password. Enter in the edit field **168** as the password.

2. A new window will be opened. Select the **Sender** tab and change the **Display mode** to **1024x768**. Then, click **Save on sender**



3. Change to the **Receiver** tab, click **Load from files**, and load the **Pixel Mesh.RCG**

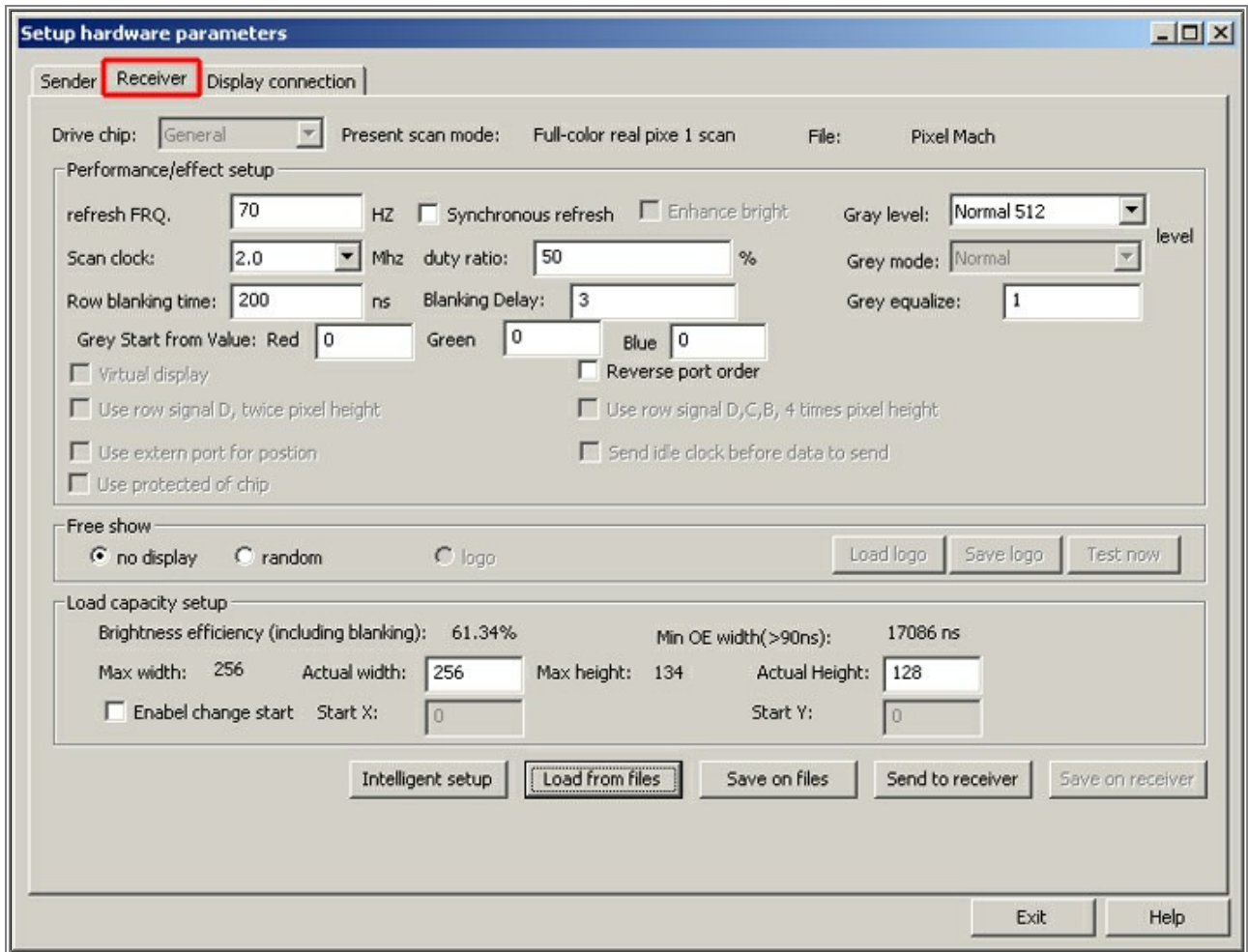
Now change the following settings:

- **refresh FRQ: 70**
- **Gray level: Normal 512**
- **Scan clock: 2.0**
- **Row blanking time: 200**
- **duty ratio: 50**
- **Blanking Delay: 3**
- **Gray equalize: 1**

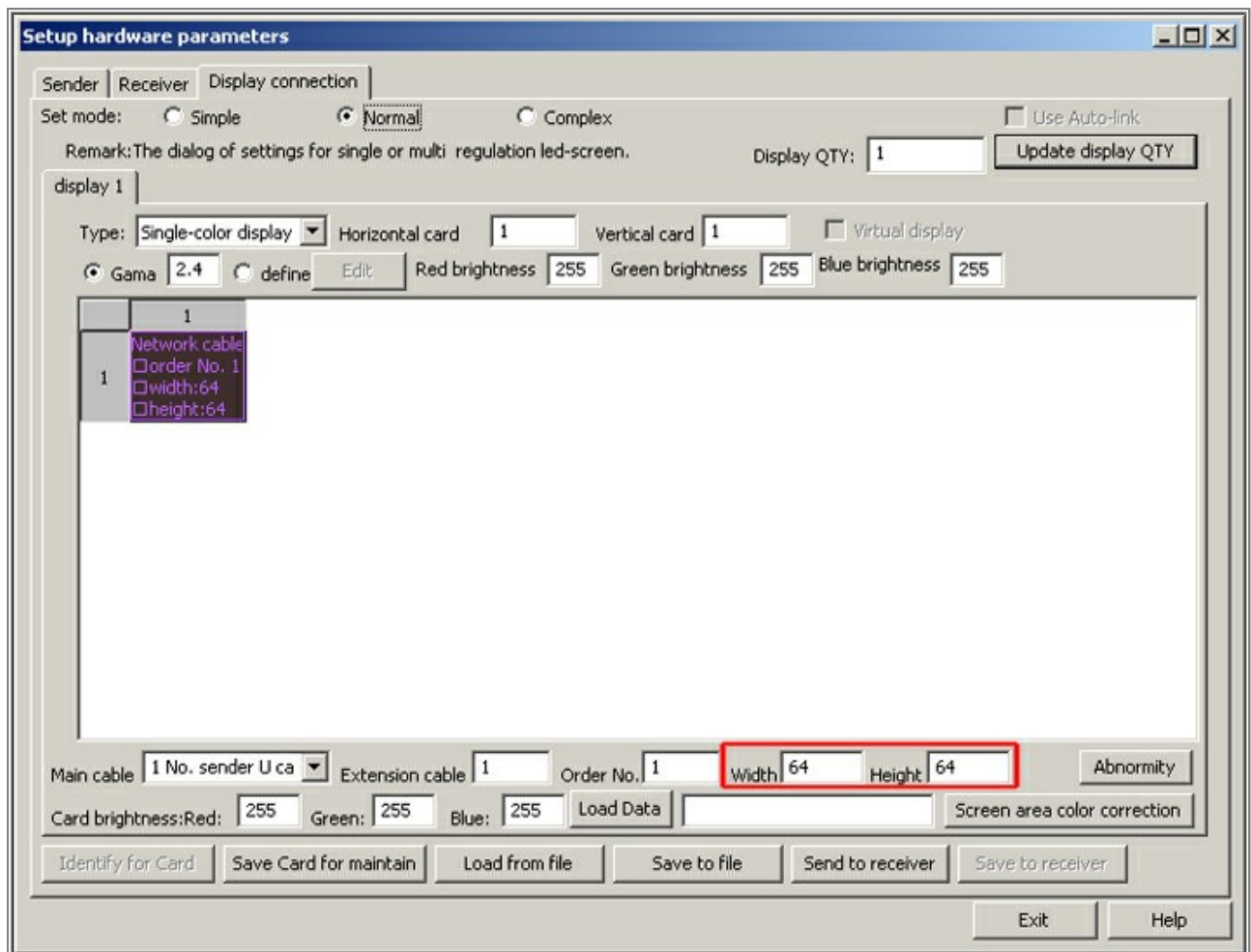
Afterwards, click **Send to receiver** and then click **Save on receiver**

Go to the **Load capacity setup** section on the **Receiver** tab. Change **Actual width** to **256** and **Actual height** to **128**

Click **Send to receiver** and then click **Save on receiver** again.



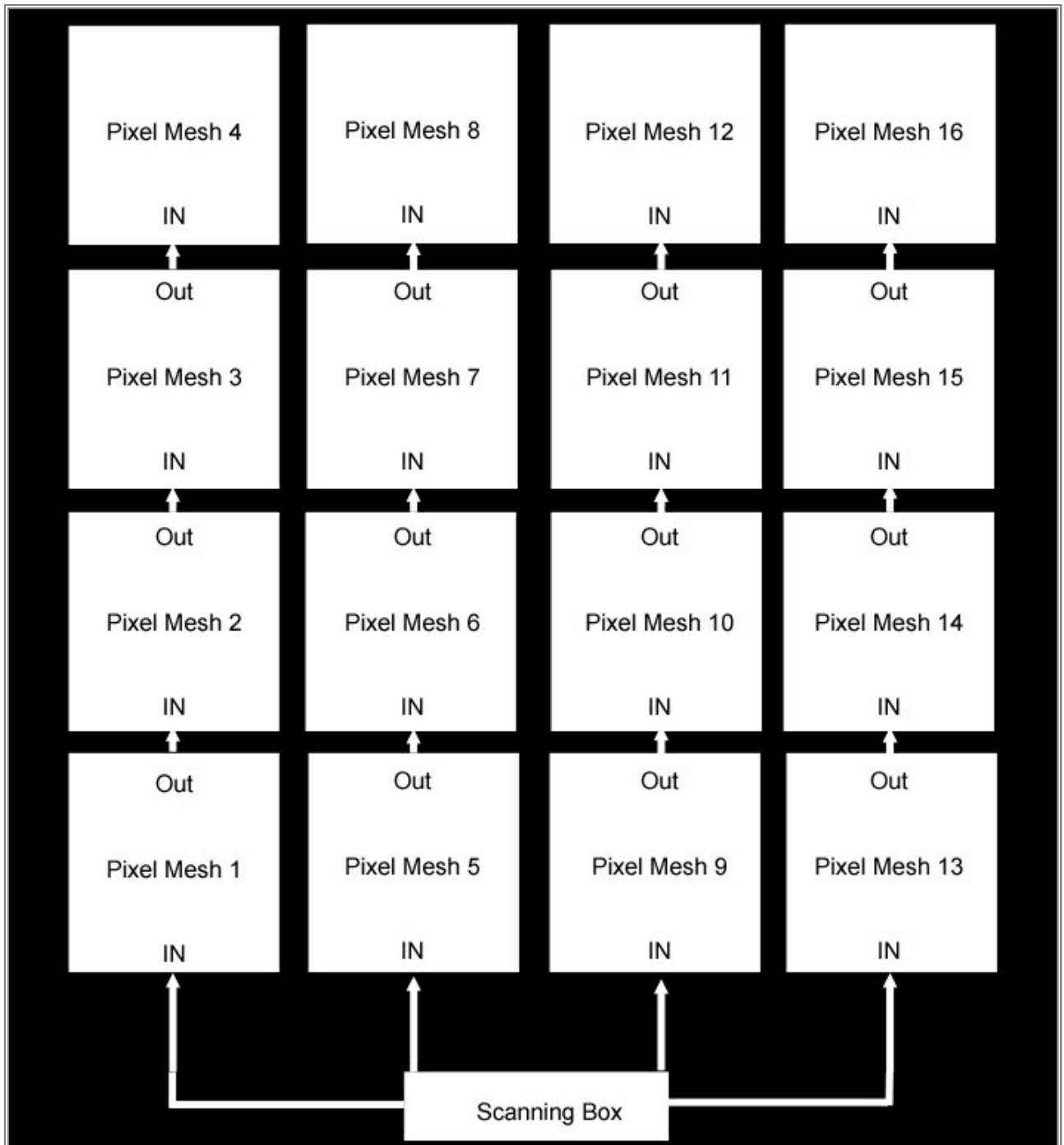
4. Change to the **Display connection** tab and at the bottom change **Width** to **64** and **Height** to **64**



Now, click again **Send to receiver** and then **Save to receiver**

Click **Exit** and after that, click **Close**

5. **Note:** The fixtures EUROLITE LED Pixel Mesh 64x64 are connected as shown in the following picture:



Congratulations! You have just created a setup for 4 rows and 4 columns of the EUROLITE LED Pixel Mesh 64 x 64 fixture.

4.2 Setting Up LEDShow T9 For EUROLITE LSD Soft Displays

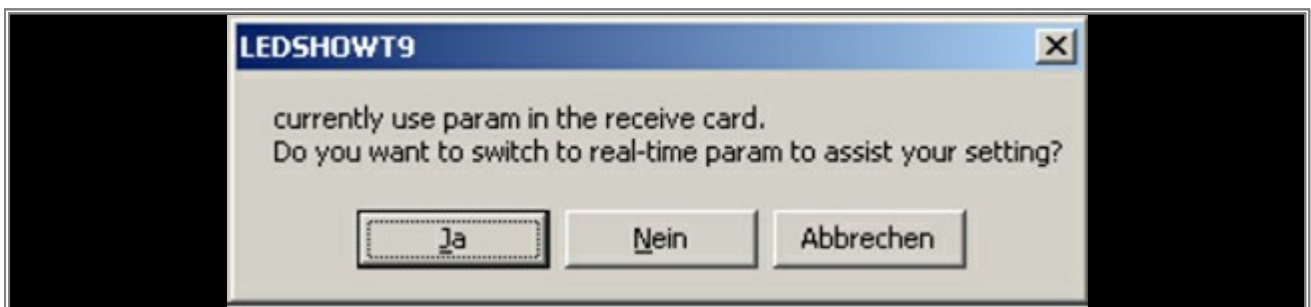
In this tutorial, you will learn how you can set up the EUROLITE LSD AIO Network control system in order to use it with MADRIX and the T9 protocol.

Date: 12/2012

LEDShow T9 Version: 10.50 (Created with)

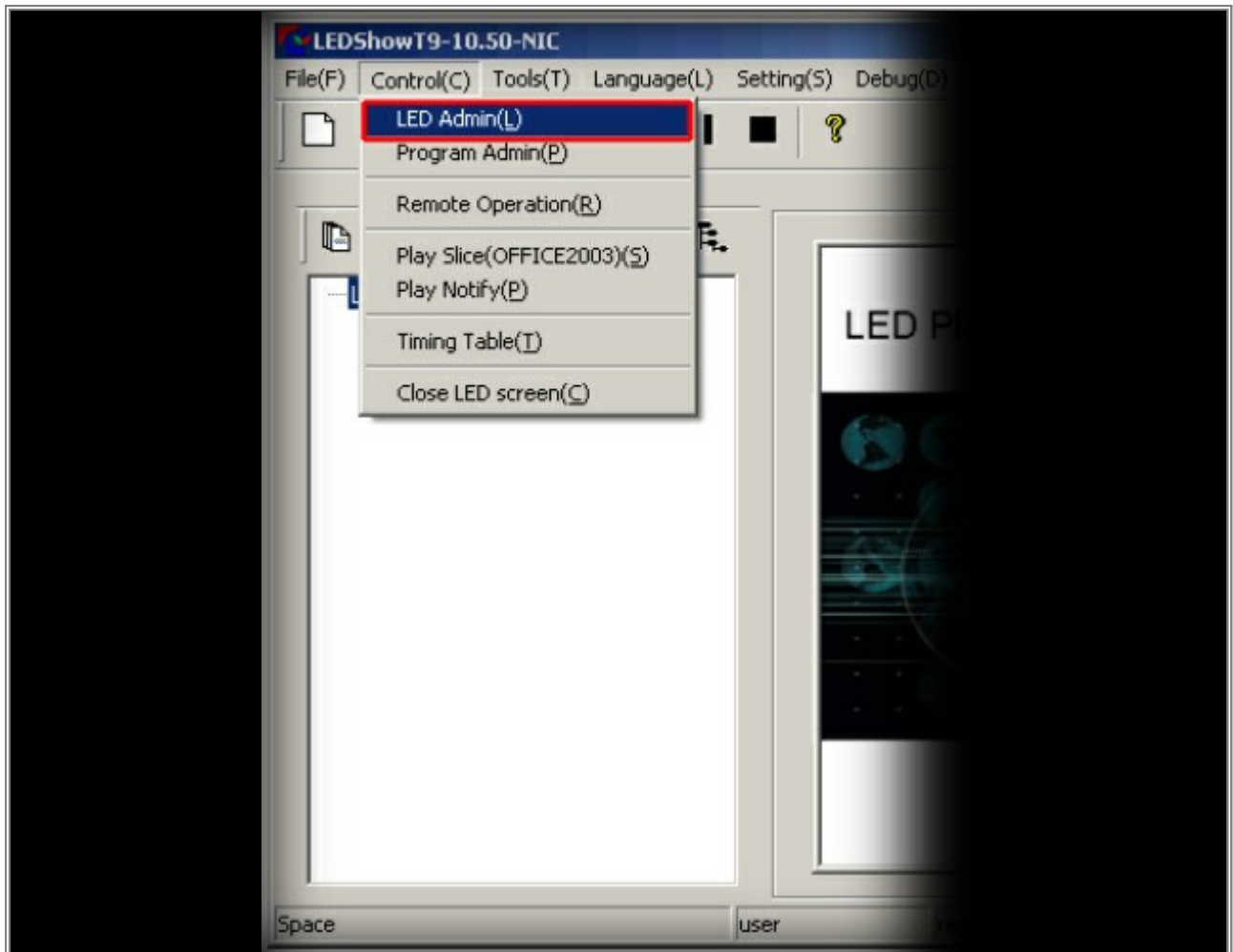
Note: It is necessary to configure the **AIO Controller/LED Show T9**. Without this initial configuration, you cannot use T9 in MADRIX. But after this one-time configuration, you will not need to use LED Show T9 anymore.

Before we start, please note: If the following warning appears, please always confirm with **Yes**

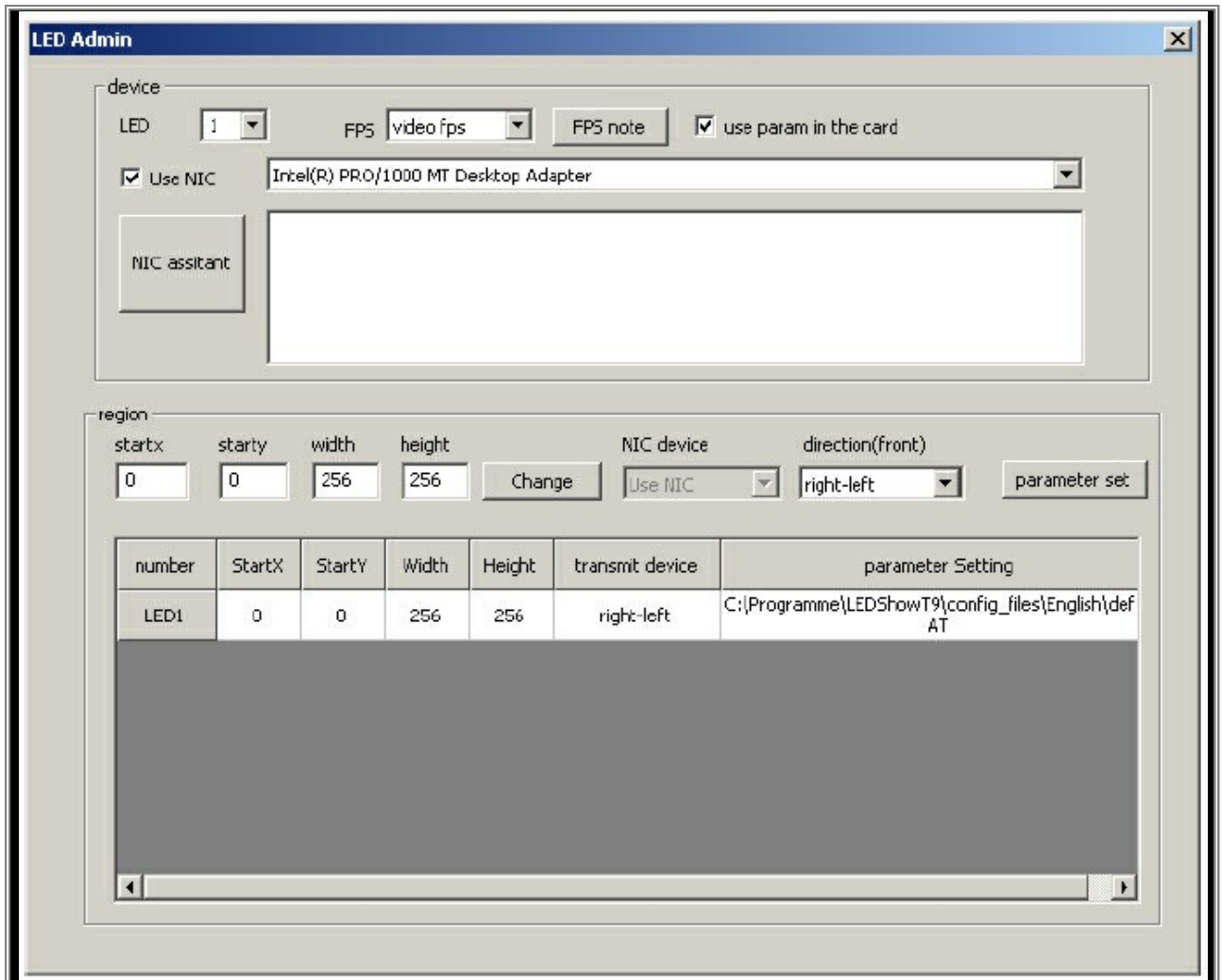


1. Download the **Preset T9.DAT** again and unzip it. The file is available in the **Downloads** section of the following »[Link](#)

2. Start the **LED Show T9** software and go to **Control(C) > LEDAdmin(L)**



3. The following window will be opened.

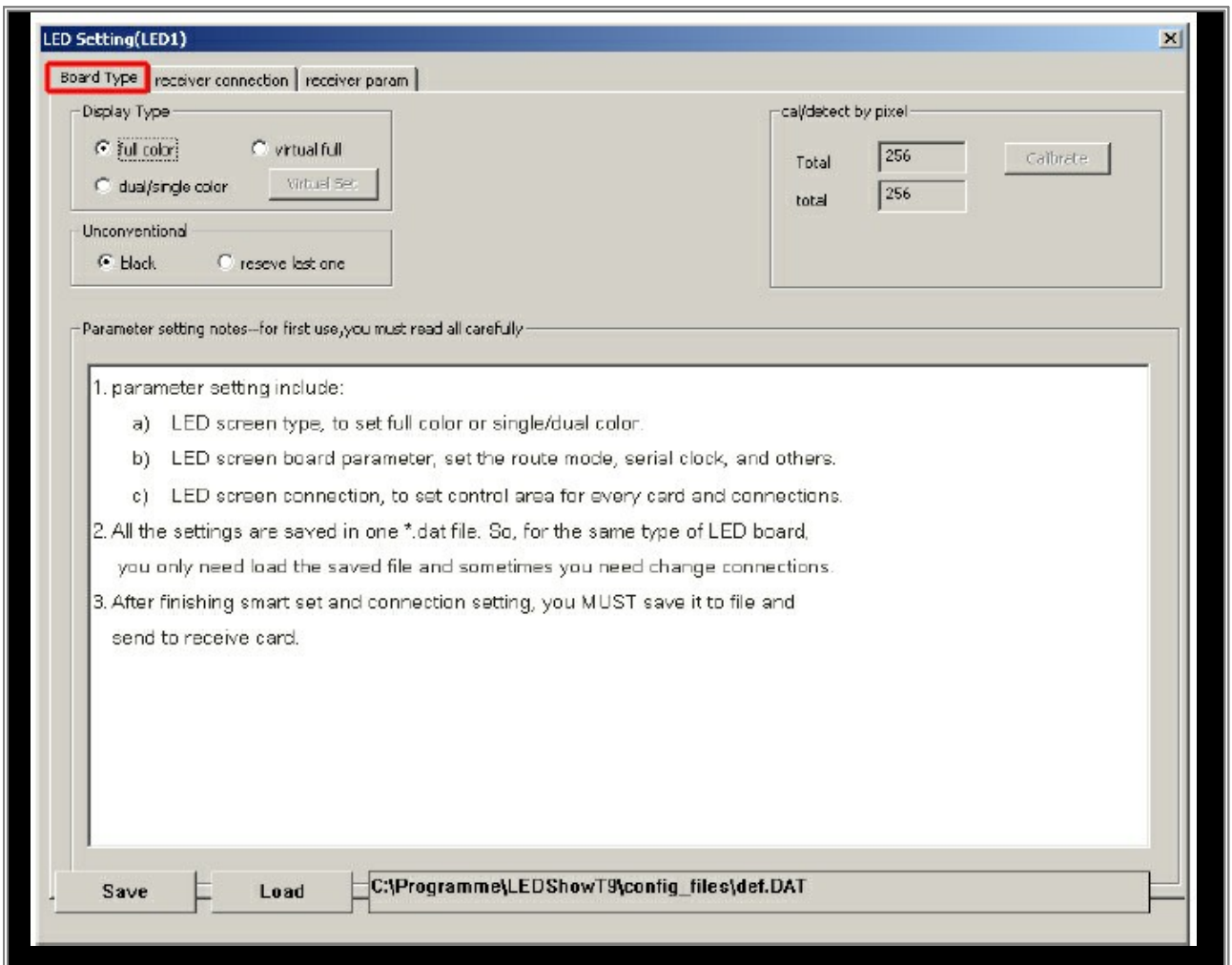


Click the button **parameter set**, which you can find to the middle on the right-hand side. Now, you will be asked for a password. Type **T9** into the textfield and confirm with **OK**

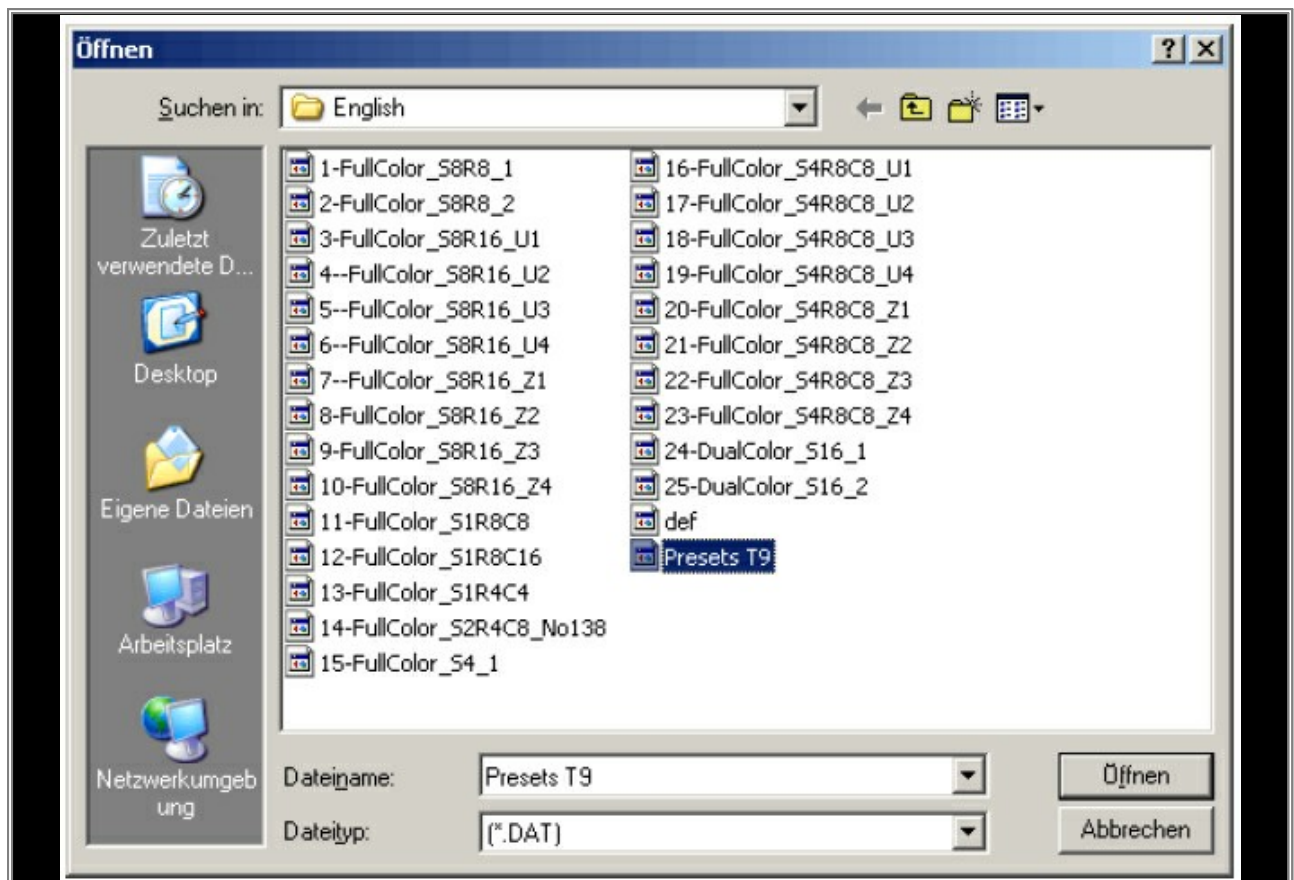


4. Now, the window **LED Setting(LED1)** will be opened. Please click **Load** on the **Board Type** tab.

Note: If there is no reaction of the button, please click below the label of the **Load** button.

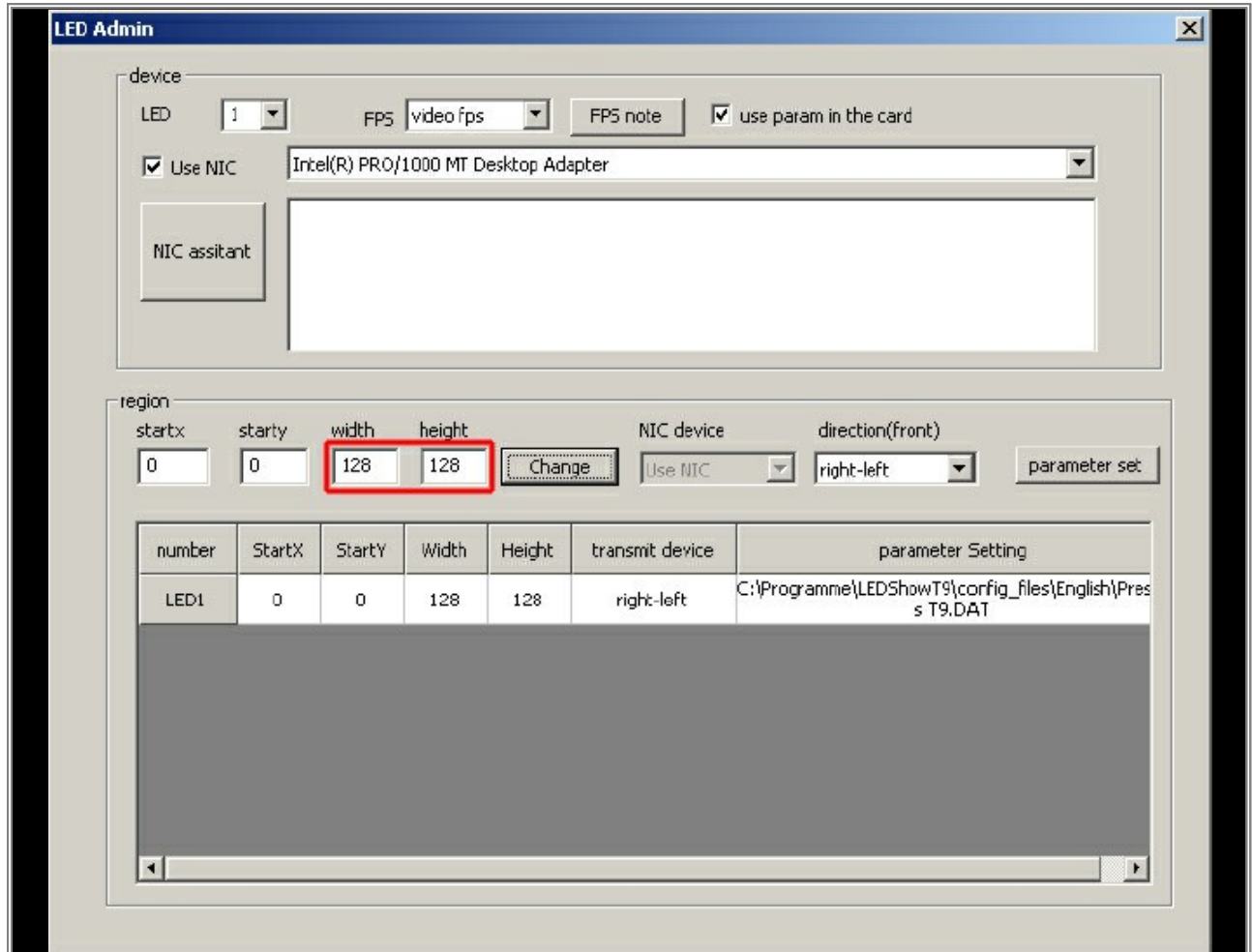


5. Now, choose the **Presets T9.DAT** file you just downloaded and click **Open**

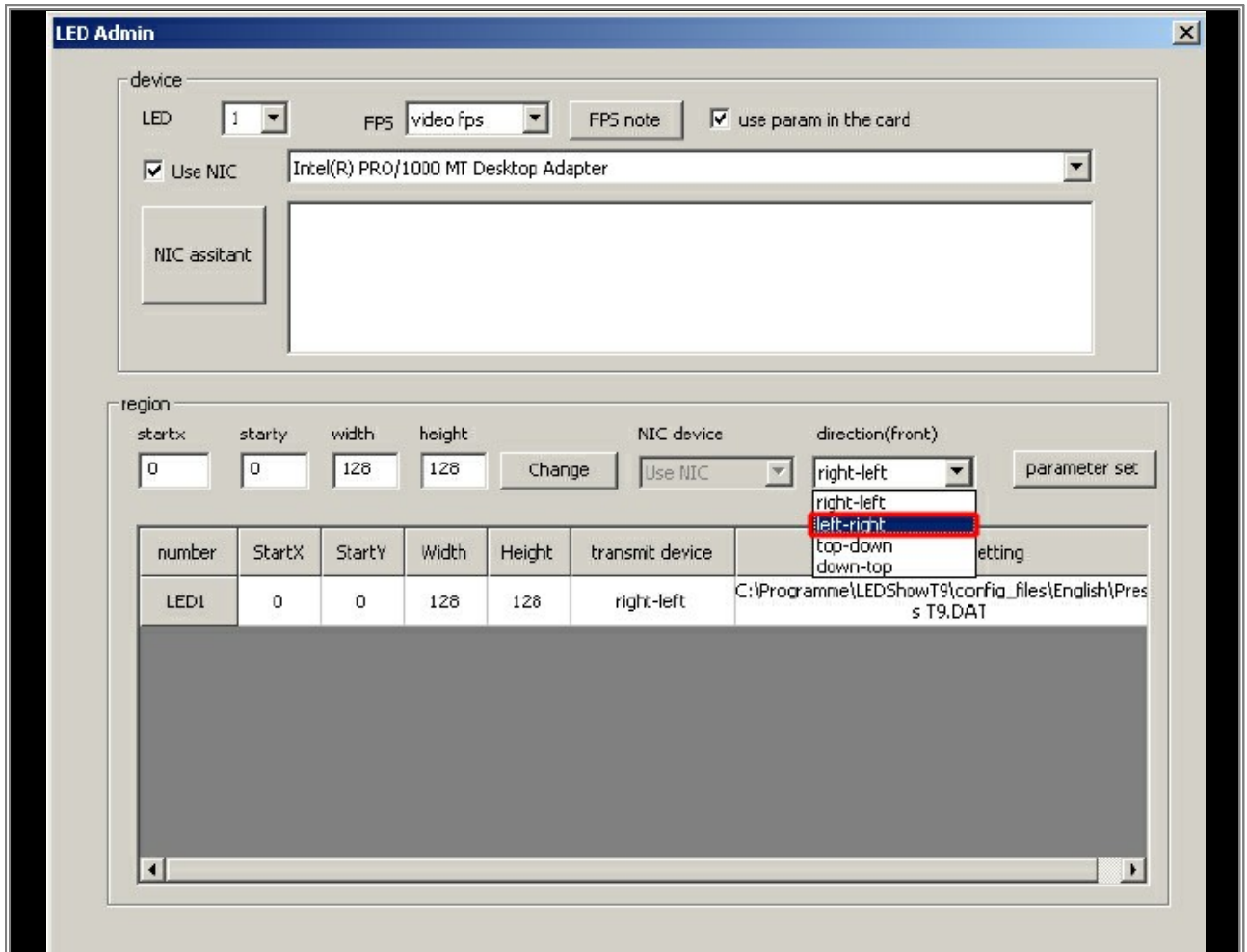


6. Close the **LEDSetting(LED1)** window by clicking the **X** on the top.

- Now, go to **Control(C) > LEDAdmin(L)** again and change the **width** and **height** to **128** each. Confirm with the button **Change**

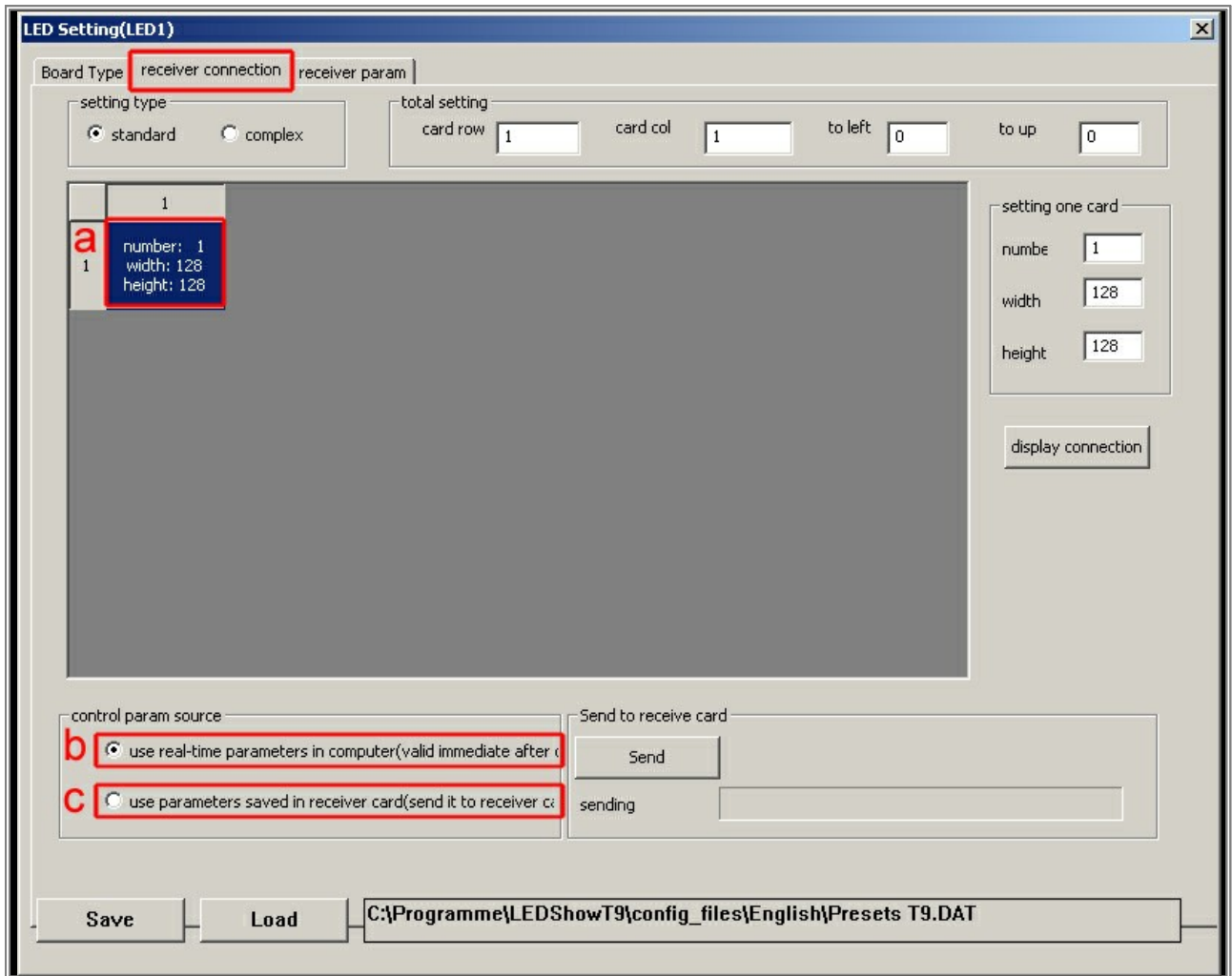


- 8. Usually, you can see a preview image displaying a white **eurolite** on the LSD curtain. If it is displayed correctly, you do not need to change anything. If it is mirrored/inverted, you should to change **direction(front)** from **right-left** to **left-right**



- 9. Now, click **parameter set** again, type in **T9** as the **Admin key** into the textfield of the **Key Input** window, and click **OK**. The **LEDSetting(LED1)** window will be opened.
- 10. Select to the **receiver connection** tab of the **LEDSetting(LED1)** window.
 - a Select the displayed **LSD** on the left side (it should be illuminated in blue).

- b Enable **use real-time parameters in computer...** and click **Send**. You can see a progress bar and after it has been sent, you will get a **send complete** message. Click **OK** to close the message.
- c Now, select **use parameters saved in receiver card...** and click **Send** again. You can see a progress bar and after it has been sent, you will get a **send complete** message. Click **OK** to close the message.



- 11. Close the **LEDSetting(LED1)** window and close the **LEDShow T9** software. Please make sure that the software is really closed, as it sometimes will be minimized to the Windows system tray.
- 12. You can now configure MADRIX for T9 control. Please have a look at the tutorial »[T9 Configuration In MADRIX](#)

Congratulations! You have configured your EUROLITE LSD AIO Network control system.

4.3 Configuration Of Light-O-Rama S3 And MADRIX

This tutorial shows you how you can configure Light-O-Rama S3 software to trigger effects within MADRIX using E1.31. Triggering can now be done through software control and no longer requires external USB DMX adaptors or an iDMX1000.

Date: 09/2013

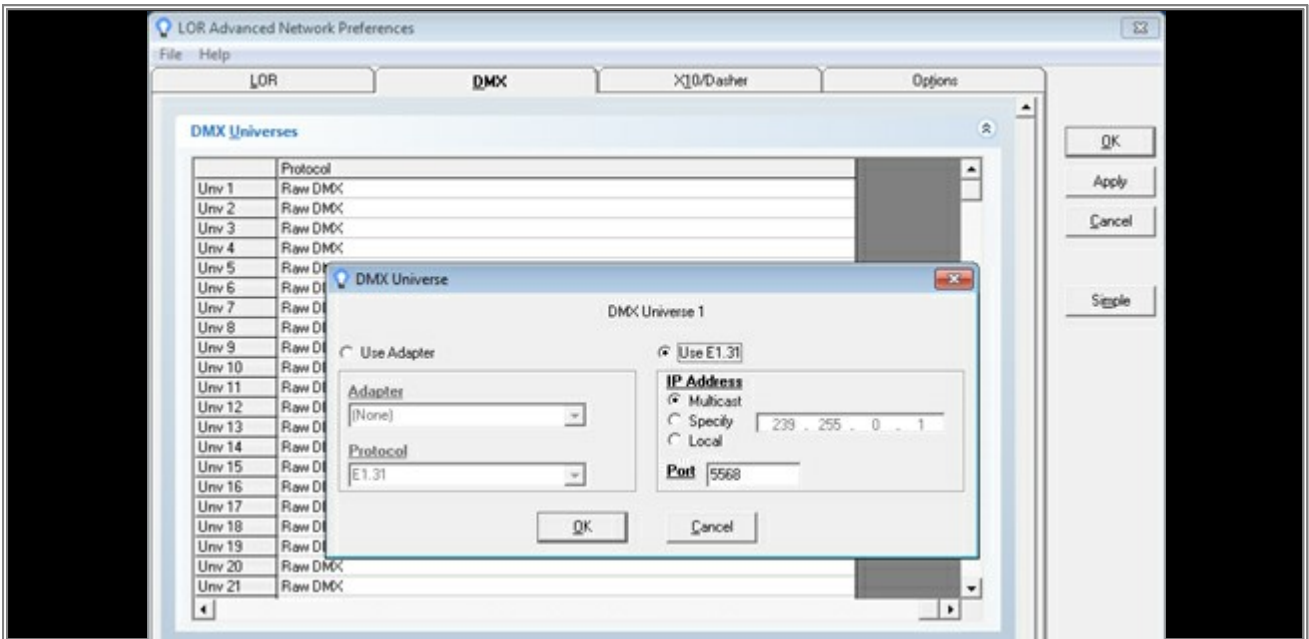
LOR S3 Version: 3.6.0 (Created with)

MADRIX Version: 3.0 (Created with)

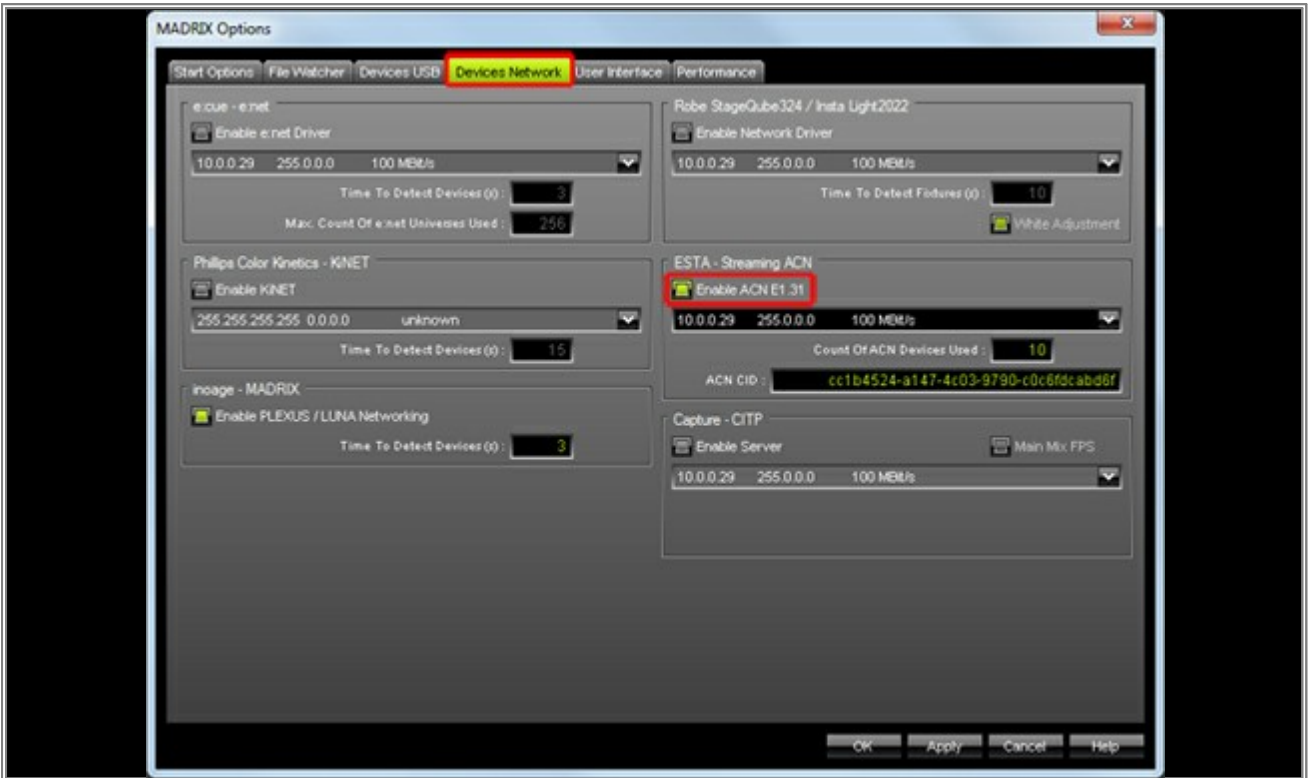
Note: MADRIX will allow you to trigger effects via E1.31 while outputting to standard DMX controllers. You do not have to have an E1.31 controller connected for this process to work.

Requirements: Before going any further, you must have a LOR USB 485 Converter connected to the computer. Although we will not be sending any DMX commands out of this unit, the LOR control panel requires it be connected to send an E1.31 stream.

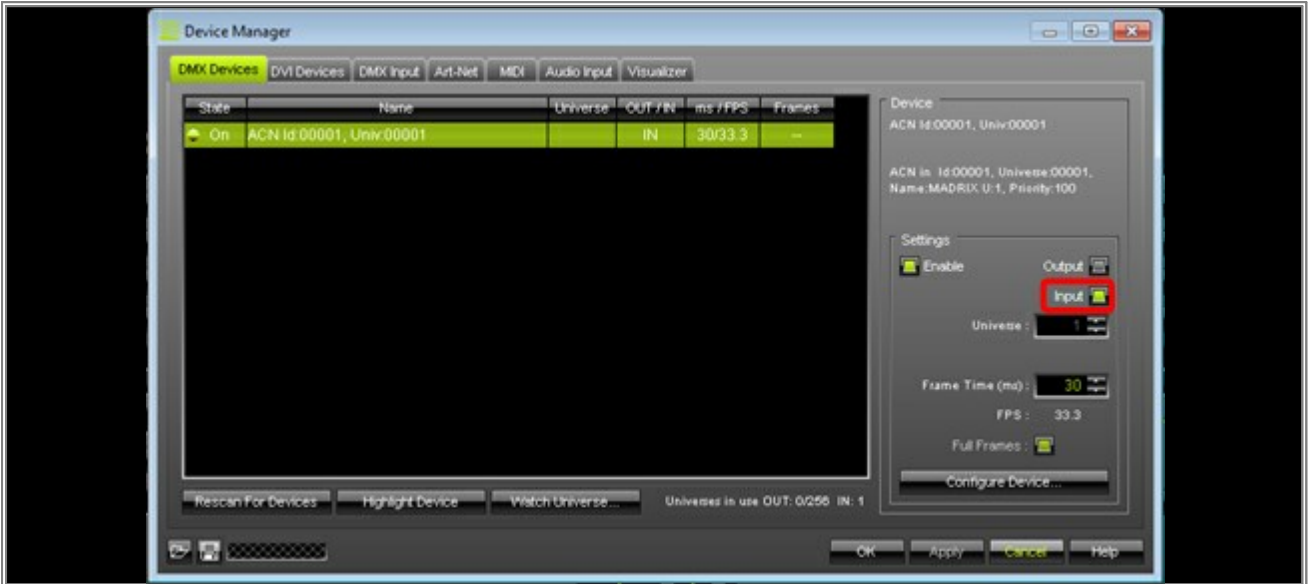
- 1 Please start the Light-O-Rama Sequencer (version 3.6.0 or better) and start a sequence as you normally would.
 - Go to **Edit > Preferences > Network Preferences**. Make sure the **DMX** tab is selected and click the **Advanced** button on the right side. Now, a list of DMX universes will be displayed. Please select **Unv 1**. At the pop-up menu, select **Use E1.31**, then select **Multicast**. Click **OK** and **Exit** the program without saving.



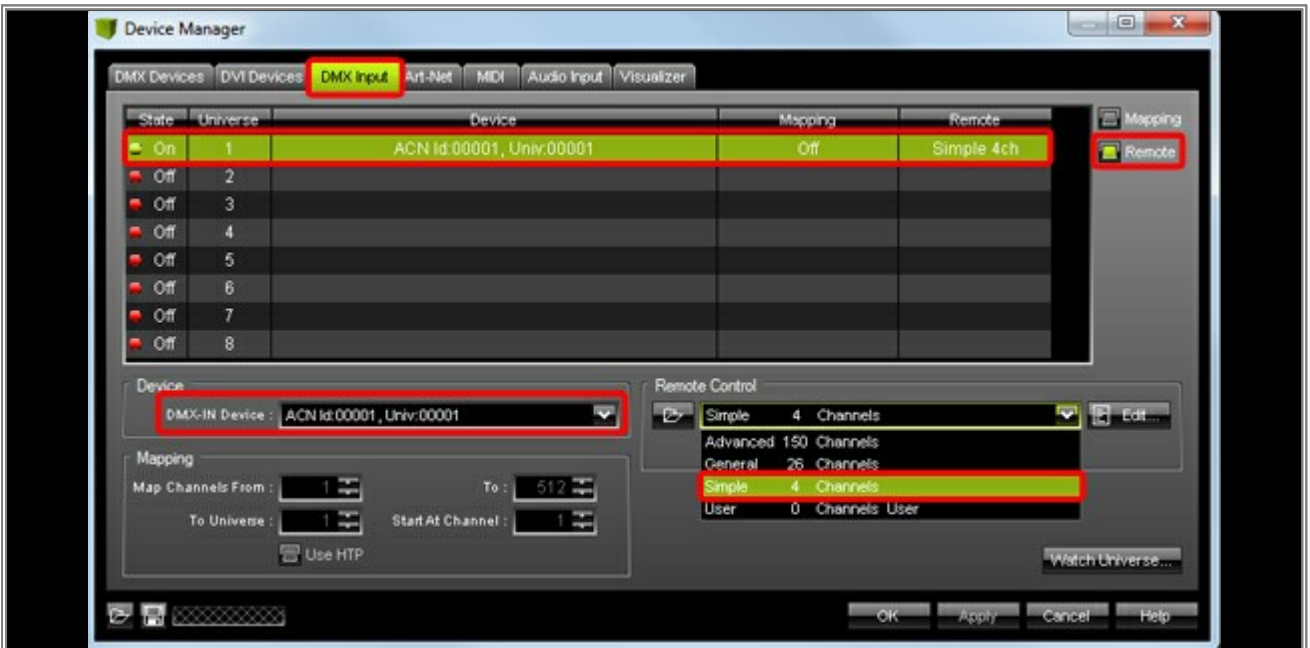
- 2 Now, start MADRIX and go to **Preferences > Options** and click on the **Devices Network** tab. Please activate **Enable ACN E1.31** (the checkbox should be illuminated in green). If you have no other E1.31 devices connected, change the **Count of ACN Devices Used** to **1**, otherwise enter the **total number** of ANC universes MADRIX will be controlling. Click **OK**



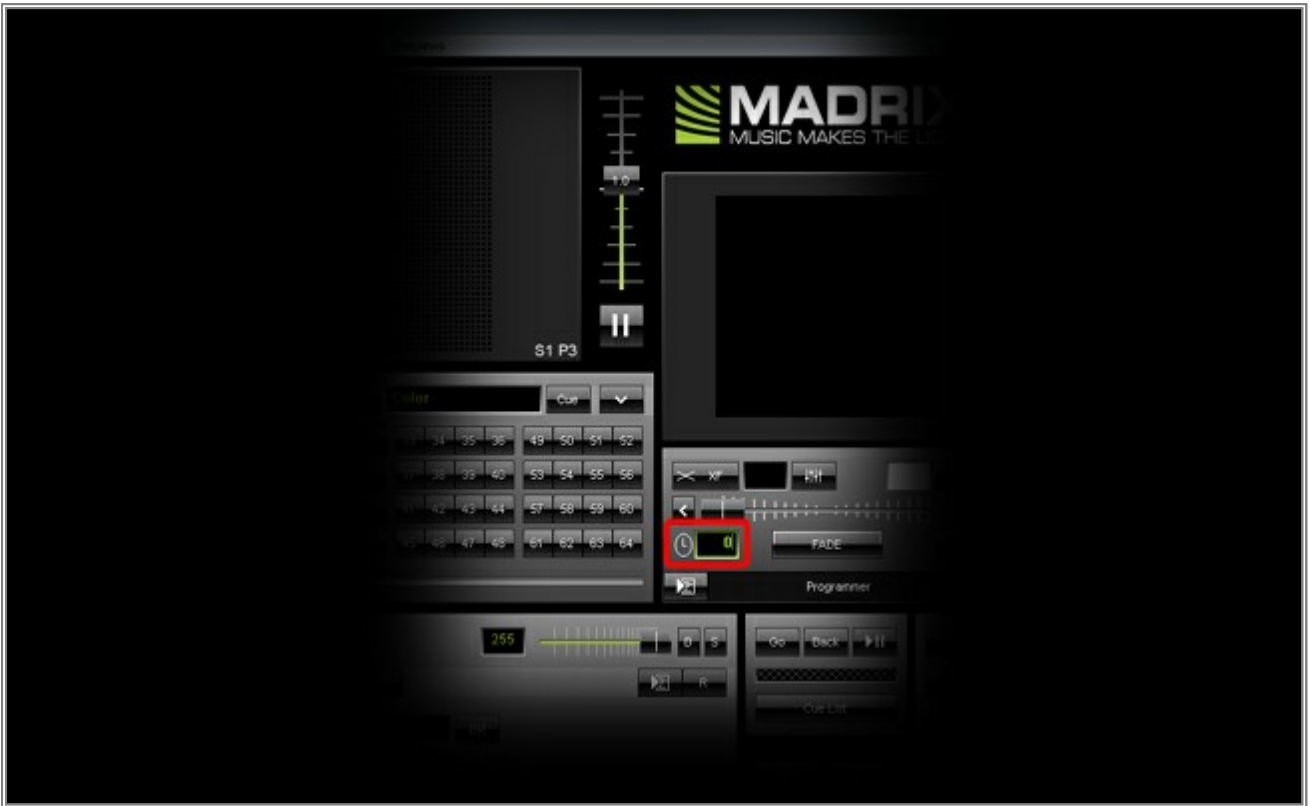
- 3 Now, go to **Preferences > Device Manager**, select **ACN id:00001, Univ:00001** and select **Input** at the **Settings** panel. Click **Apply**



- 4 Switch to the **DMX Input** tab. Click on the first row (Universe 1), from the **DMX-IN Device** drop-down list select **ACN id:00001, Univ:00001**, turn on the **Remote** option (located on the upper right) and select **Simple 4 Channels** at the **Remote Control** section. Click **OK**



5 On the MADRIX user interface, change the **Fade Time** to **0**



Now, save your MADRIX Setup File and exit MADRIX.

6 Make sure all programs are closed. Start the programs in the exact order as shown below. If you do not, you will not be able to control MADRIX. Also, make sure the **Comm Port Status** indicator located in the lower right-hand side of the LOR Sequencer shows blue. If it does not, exit and use LOR Hardware utility to find and assign the Comm Port.

1. Start the Light-O-Rama Control Panel.
2. Start LOR S3 Advanced (do not move on until you are asked to load or start a new sequence).
3. Start MADRIX.

- 4. Load your MADRIX Setup File you created, make sure **Load Patch** and **Load DMX Device Settings** are both selected when prompted.
- 5. Go back to LOR S3 and start a new sequence (or load an existing one).
- 6. In the timeline, click on the first device button (ie. Unit 01.1)

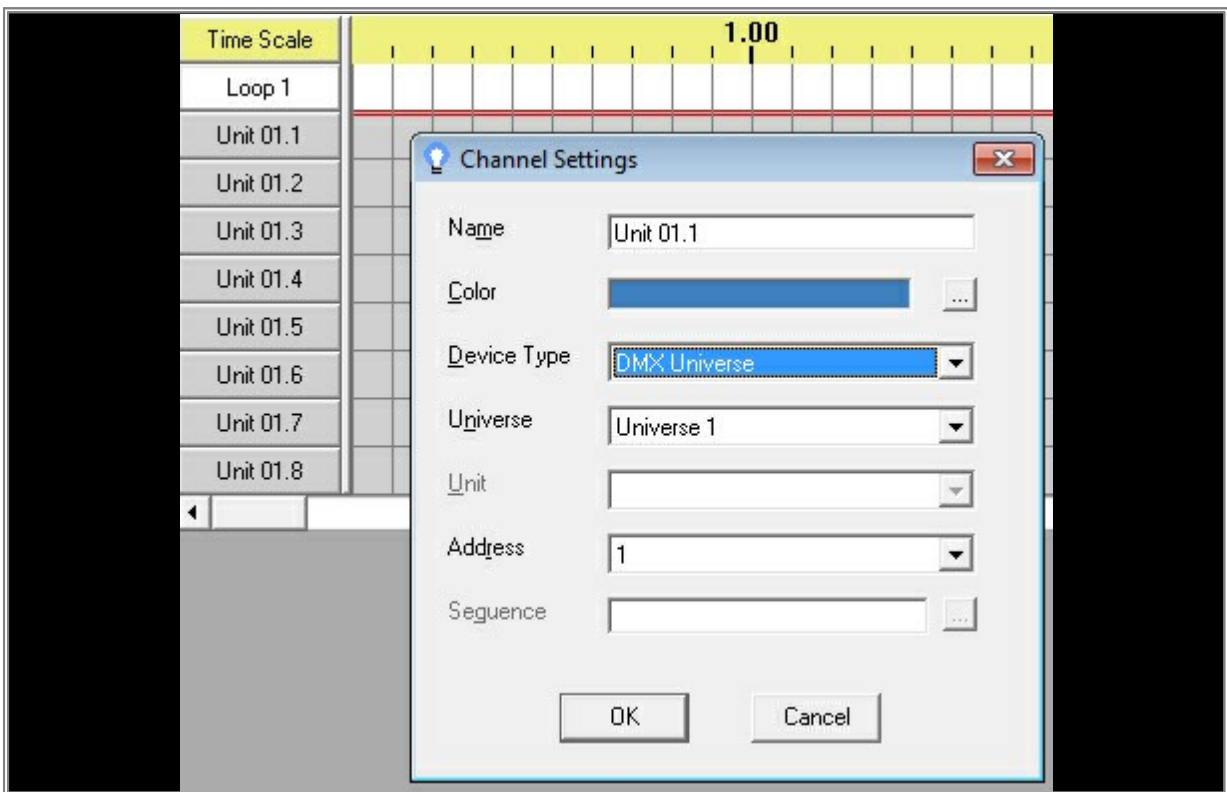
Enter the following settings:

Name: DMX

Device Type: DMX Universe

Universe: Universe 1

Address: 1



- 7. Go to **Edit > Preferences > DMX Preferences > Allow DMX Editing** (you should only need to do this once).

8. Go to **Play** and make sure **Control Lights** is selected (you should only have to do this once).
 9. Click on the **DMX** button in the toolbar.
 10. Using the chart below enter the DMX value and apply it to the timeline.
- 7 MADRIX 3 now gives you 256 storage groups (**Storages**) and 256 bins under each storage group (**Storage Places**). When creating effects for multiple songs, you may find it useful to give each song its own storage group. You can then have 256 effects for each song. Storage groups and bins use the same chart below.
1. Click on the **DMX** button in the toolbar.
 2. Select the DMX value for the storage bin being used by the song and apply it to all cells in that row.
 3. Select a DMX value from the bin you wish to access and drag it across all cells for the desired time.



LOR to MADRIX 3.x Conversion Chart																
MADRIX	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LOR DMX Value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MADRIX	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
LOR DMX Value	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MADRIX	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
LOR DMX Value	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
MADRIX	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
LOR DMX Value	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
MADRIX	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
LOR DMX Value	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
MADRIX	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
LOR DMX Value	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
MADRIX	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112
LOR DMX Value	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
MADRIX	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128
LOR DMX Value	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
MADRIX	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144
LOR DMX Value	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
MADRIX	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
LOR DMX Value	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
MADRIX	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176
LOR DMX Value	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
MADRIX	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192
LOR DMX Value	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
MADRIX	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208
LOR DMX Value	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
MADRIX	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224
LOR DMX Value	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
MADRIX	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
LOR DMX Value	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
MADRIX	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256
LOR DMX Value	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Pixel to DMX Chart

Pixel	DMX Channel	Pixel	DMX Channel	Pixel	DMX Channel	Pixel	DMX Channel
1	1	45	133	89	265	133	397
2	4	46	136	90	268	134	400
3	7	47	139	91	271	135	403
4	10	48	142	92	274	136	406
5	13	49	145	93	277	137	409
6	16	50	148	94	280	138	412
7	19	51	151	95	283	139	415
8	22	52	154	96	286	140	418
9	25	53	157	97	289	141	421
10	28	54	160	98	292	142	424
11	31	55	163	99	295	143	427
12	34	56	166	100	298	144	430
13	37	57	169	101	301	145	433
14	40	58	172	102	304	146	436
15	43	59	175	103	307	147	439
16	46	60	178	104	310	148	442
17	49	61	181	105	313	149	445
18	52	62	184	106	316	150	448
19	55	63	187	107	319	151	451
20	58	64	190	108	322	152	454
21	61	65	193	109	325	153	457
22	64	66	196	110	328	154	460
23	67	67	199	111	331	155	463
24	70	68	202	112	334	156	466
25	73	69	205	113	337	157	469
26	76	70	208	114	340	158	472
27	79	71	211	115	343	159	475
28	82	72	214	116	346	160	478
29	85	73	217	117	349	161	481
30	88	74	220	118	352	162	484
31	91	75	223	119	355	163	487
32	94	76	226	120	358	164	490
33	97	77	229	121	361	165	493
34	100	78	232	122	364	166	496
35	103	79	235	123	367	167	499
36	106	80	238	124	370	168	502
37	109	81	241	125	373	169	505
38	112	82	244	126	376	170	508
39	115	83	247	127	379		
40	118	84	250	128	382		
41	121	85	253	129	385		
42	124	86	256	130	388		
43	127	87	259	131	391		
44	130	88	262	132	394		

Congratulations! You have just configured Ligth-O-Rama to control MADRIX remotely.

4.4 RGB Colors

In this tutorial you will learn how RGB color mixing works.

Date: 07/2014

Introduction

The RGB color system is an additive color mixing system. That means the colors will be added. The system is defined by the values of the primary colors: red [R], green [G], and blue [B].

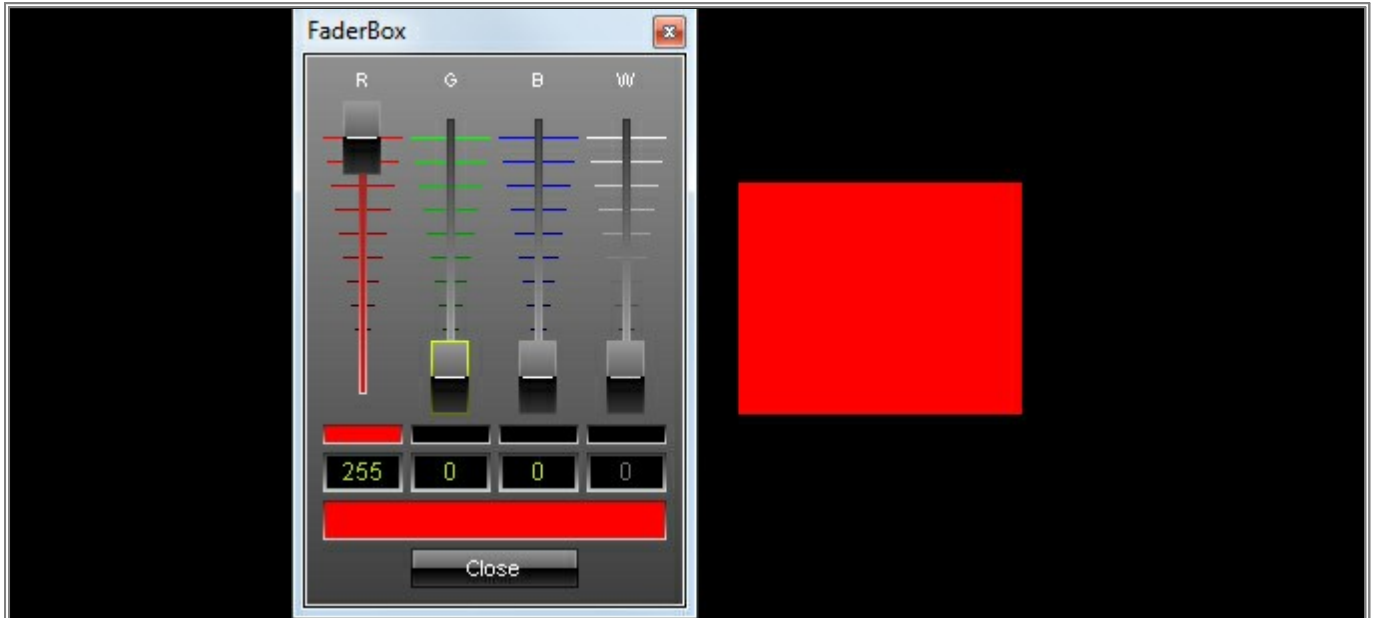


Each of the 3 colors [red, green, blue] are represented in 8 bit. That means it is possible to control each color in 256 steps [0 - 255]. All color values together can control 16.7 million different colors [256 x 256 x 256].

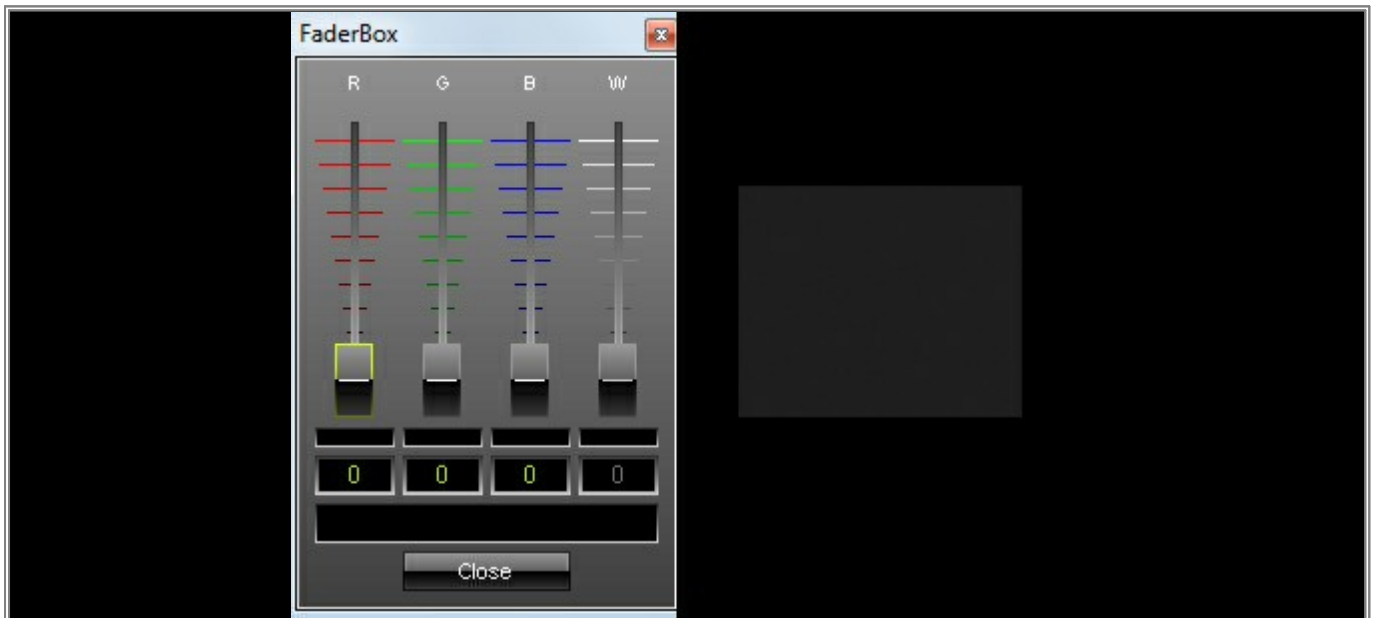
Mixing Colors

Now, we want to create several colors by mixing the values of the 3 colors:

To create a bright red color, the value of the red channel should be 255. The values of blue and green have to be 0.



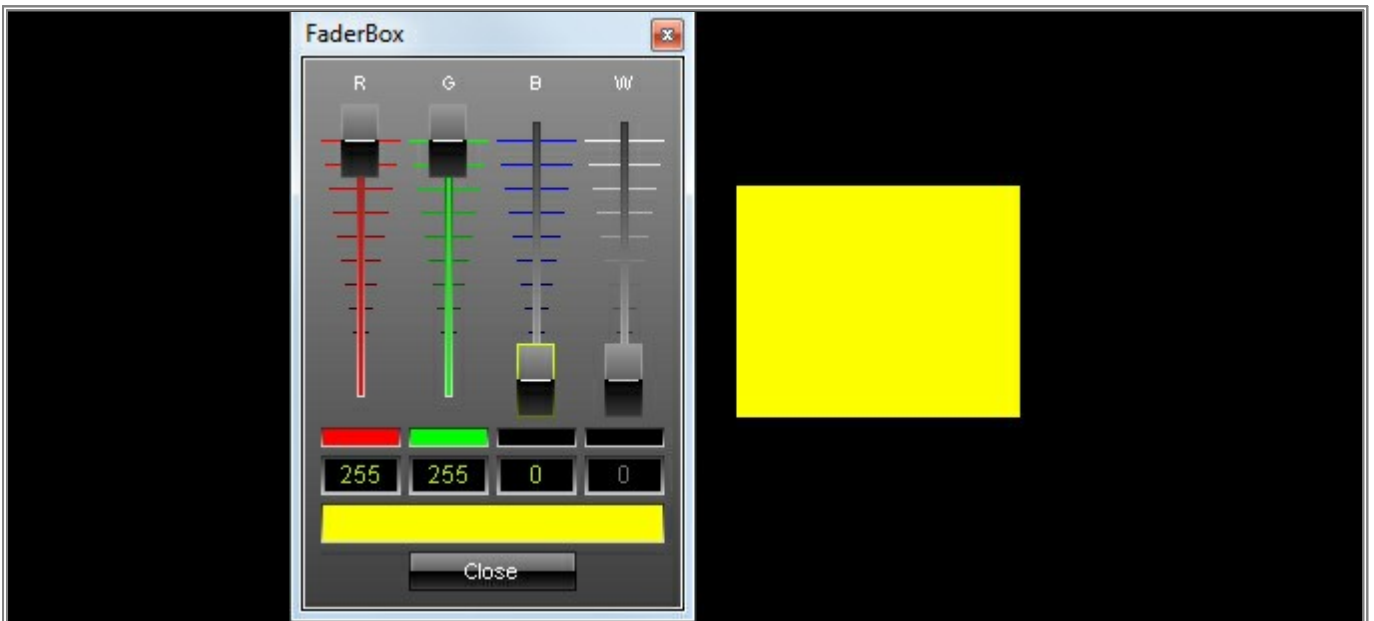
If you want to create black, all 3 color values should be 0.



To generate white, the values of red, green, and blue have to be 255.



If the values of red and green are 255 and blue is 0, you will produce a bright yellow.



To produce an orange color, set up the following color values: The value of red should be 255. The value of green should be 127. The blue value should be 0.

Note: Lower the color value of green, for example, and you will see that the color will become more and more red.



Turquoises color will be displayed if red is set to 0 and green and blue are set to 255.



Congratulations! You have learned the first rules about RGB color mixing and you have successfully finished this tutorial.

4.5 What Is DMX

This tutorial is an introduction to DMX.

Date: 08/2014

Introduction

DMX is the standard digital protocol to control lighting fixtures on a stage. It was standardized in 1990 by the United State Institute for Theater Technology (USITT) and was called DMX512/1990. The actual DMX standard is called DMX512/A and contains several additions, but it is also compatible with the old standard DMX512/1990.

What do we need to install a stable DMX line?

DMX Interface Includes hardware devices, like the MADRIX NEO, MADRIX PLEXUS, or MADRIX LUNA.

A DMX interface sends the control signal for a maximum of 512 DMX channels per DMX universe. The control information will be transmitted by using a data word of 1 Byte [8 Bit]. That is the reason why you can control each DMX channel with 256 steps [0-255].

DMX Interpreter/Controller Can usually be found inside a fixture. It receives the DMX signal, interprets it, and changes the values of each attribute of the fixture to the desired value which is set by the DMX signal.

DMX Connectors As described in the DMX512 specifications, a 5-pin XLR connector has to be used. The first pin is used for ground, the second pin for the inverted DMX signal ['Cold'], and the third for the DMX signal. Pin four and pin five are occupied for other tasks, which are specified in the DMX512/A norm. That means in most cases that a 3-pin connector will suffice, but as mentioned above that is not the norm of DMX512. Connectors are available in 2 designs, male and female. The male connector is connected to the transmitter [DMX interface] and the female connector is connected to the receiver.

- DMX Cables** It is recommended to use only cables with an impedance of 110 ohm. Otherwise, it is possible to get unwanted side effects.
A DMX connector is found at each cable ending: The male connector on the one side and the female connector on the other side.
- DMX Fixture** Includes lighting devices, such as Dimmers, RGB fixtures, and Moving Heads.
DMX fixtures receive and interpret the signals from the DMX controller according to the allocated function of the channel. Furthermore, the DMX signal will often be forwarded. In many cases, a DMX fixture features a DMX-IN as well as a DMX-OUT connector. This allows to daisy-chain a certain number of DMX fixtures.
Note: You should feed the signal anew after a maximum of 32 fixtures, because the DMX signal strength will be too weak otherwise.
- DMX Splitter** A DMX splitter mainly splits and duplicates an incoming DMX signal into several DMX output signals. Each output signal is basically the same. It is like a Y-split cable for the audio engineer. But at the same time, the DMX splitter amplifies the signal to ensure the signal strength.
- DMX Booster** A DMX-Booster amplifies the incoming DMX-Signal. That is necessary if the signal is too low for the next DMX-Fixture.
- DMX Terminator** A DMX terminator of 120 Ohm impedance should be used at each last fixture or end of a DMX line!
If not, unwanted transmission interference is common. The terminator is connected to pin two and pin three of a male connector.
- DMX Universe** A DMX universe consists of 512 DMX channels. If you need control more than 512 DMX channels in your installation, it is necessary to use an additional universe or even more.

Congratulations! This tutorial should have provided important information on how to build a stable DMX line.

4.6 Calculating DMX Channels

This tutorial shows you how to calculate how many DMX channels will be needed in a project.

Date: 08/2014

Introduction

Nowadays, LED installations are getting bigger and bigger and it is common to control a lot of LED DMX fixtures. Especially, when you want to control a project with MADRIX, it is useful to know how many DMX channels will be controlled in total.

DMX Channels And DMX Universe

1 DMX universe includes 512 DMX channels. If you need more channels, it is necessary to use additional universes.

After your calculations, you will know two numbers:

- 1) the total number of DMX channels and
- 2) the equivalent number of DMX universes, which usually is also the number of required DMX lines.

Example 1

How many RGB 1-pixel fixtures can be controlled with 1 DMX universe?

1 DMX universe contains a maximum of 512 DMX channels. A normal RGB 1-pixel fixture uses 3 color channels to mix all other colors. These color channels are Red, Green, and Blue.

At the same time this means that such a fixture usually requires 3 control channels (one control channel for each color channel).

Control Channels Per Fixture:

1 pixel * 3 color channels = 3 control channels per fixture

Calculation:

$512 \text{ DMX channels} / 3 \text{ control channels} = 170.66667 \text{ fixtures per universe}$

Now, we need to round that number down to 170.

$170 \text{ fixtures} * 3 \text{ control channels} = 510 \text{ DMX channels}$

When we use 170 RGB 1-pixel fixtures, channel 511 and channel 512 would still be unused. Can we fit fixture #171 in there with its first two channels?

The answer is no, we cannot. If a fixture is included in a universe, normally the full fixture needs to be able to fit into that universe. Because of this, channel 511 and channel 512 are usually not used in case of RGB 1-pixel fixtures. Fixture #171 would not fit fully into the universe anymore.

Number Of DMX Universes:

From the beginning we knew that we only wanted to use 1 universe.

$510 \text{ control channels} / 512 \text{ DMX channels per universe} = 0.99 \text{ universe} = 1 \text{ universe.}$

We need to round that number because there are only complete DMX universes.

Result:

That means you can control a maximum of 170 RGB 1-pixel fixtures (if each fixture needs 3 control channels).

Example 2

How many RGBW 1-pixel fixtures can be controlled with 2 DMX universes?

A normal RGBW 1-pixel fixture uses 4 color channels to mix all other colors. These color channels are Red, Green, Blue, and White.

Control Channels Per Fixture:

$1 \text{ pixel} * 4 \text{ color channels} = 4 \text{ control channels per fixture}$

Available DMX Channels:

$2 \text{ universes} * 512 \text{ channels per universe} = 1024 \text{ available channels}$

Calculation:

$1024 \text{ available channels} / 4 \text{ control channels} = 256 \text{ fixtures in total}$

$256 \text{ total fixtures} / 2 \text{ available universes} = 128 \text{ fixtures per universe}$

Number Of DMX Universes:

2 universes

Result:

You can control a maximum of 256 RGBW 1-pixel fixtures (if each fixture needs 4 control channels).

Example 3

You might want to use 300 pieces of RGB LED tubes. Each tube features 16 pixels. How many DMX channels will be needed?

Control Channels Per Fixture:

16 pixels * 3 color channels = 48 control channels per fixture

Calculation:

48 control channels * 300 pieces = 14,400 DMX channels in total

Number Of DMX Universes:

14,400 DMX channels / 512 channels per universe = 28.125 universes = 29 universes

Result:

You will 14,440 DMX channels / 29 DMX universes for such an installation.

Example 4

You might want to use 1) 100 pieces of 32-pixel RGB LED tubes as well as 2) 200 pieces of 16-pixel RGBW LED tubes. How many DMX channels will be needed?

Control Channels Per Fixture:

1) 32 pixels * 3 color channels = 96 control channels per fixture

2) 16 pixels * 4 color channels = 64 control channels per fixture

Calculation:

1) 96 control channels * 100 pieces = 9,600 DMX channels

2) 64 control channels * 200 pieces = 12,800 DMX channels

3) 9,600 DMX channels + 12,800 DMX channels = 22,400 DMX channels in total

Number Of DMX Universes:

$22,400 \text{ DMX channels} / 512 \text{ channels per universe} = 43.75 \text{ universes} = 44 \text{ universes}$

Result:

You will 22,400 DMX channels / 44 DMX universes for such an installation.

Congratulations! The examples above should have shown you the basic calculations when it comes to the total number of required DMX channels.

4.7 Setting Up The DMX Address And DMX Start Channel

In this tutorial you will learn the meaning of the DMX start channel and the DMX address.

Date: 08/2014

Introduction

The DMX address of a fixture is a combination of the assigned DMX universe and the assigned DMX channel. This DMX channel needs to be set up on the fixture itself (the universe is usually automatically assigned by using the specific DMX line) as well as in MADRIX. Using the right DMX address is very important for DMX fixtures to function correctly.

The DMX start channel also refers to the DMX channel mentioned above. It is the DMX channel where the fixture will start to react. In DMX you can only setup the start channel of a fixture and you will have access to all the other channels of the fixture. To change the assignment of a fixture, it is only necessary to set the first DMX channel anew. All other channels will be changed automatically.

Usually, all fixtures have a unique DMX address so that they all can be controlled individually.

Note: 1 DMX universe includes 512 DMX channels. That means you can control a maximum 170 RGB fixtures (if each fixture needs 3 channels). If you need more channels, it is necessary to use additional universes.

Using Unique DMX Addresses

For example, we want to set up the DMX start channel for a generic RGB fixture to channel 1. Now, we have access to the red color channel with DMX channel 1, to the green color channel with DMX channel 2, to the blue color channel with DMX channel 3.

The next free DMX address is DMX channel 4. When we set up the next fixture to this address, it means we will be able to control this fixture independently from the first fixture.

Let us set up the next generic RGB to start channel 4. That means with DMX channel 4 we are able to control the red color channel, with channel 5 the green color channel, and with channel 6 the blue color channel.

The next free DMX address is 7.

Note: The DMX start channel of a fixture should be an unassigned DMX channel in the specific DMX universe.

Counterexample: Two generic RGB fixtures are configured as follows. Fixture number one is set to DMX start channel 1. Fixture number two is set to DMX start channel 2 in the same DMX universe. In such a configuration the following issue will occur. If you want to control the DMX channel for green of the first fixture, you will inevitably control the DMX channel for red of the second fixture.

Note: It is also possible to set up more than one fixture to the same DMX start address. But in that case, you cannot control every fixture individually.

The Last Usable Start Channel For A Fixture

The last usable DMX start channel for a fixture can be calculated as follows:

(512 available channels) - (DMX channels required by the fixture) + (1).

Is necessary to add +1 because the start address is also the first channel the fixture occupies.

For instance, if a fixture uses 5 DMX channels:

$$512 - 5 + 1 = 508$$

The last useable DMX start channel is 508.

Example 1

Imagine we have an empty DMX universe and we want to patch two fixtures. The first fixture is set up in 4-channel mode (for instance, an RGBW fixture) and the second fixture is a 3-channel RGB light.

The DMX start channel of the first fixture is 1, because the patch is empty and usually the DMX start channel of the fixture is the next, free channel in the universe. Now, the first DMX channel controls the first channel of the fixture, the second DMX channel controls the second fixture channel, the third DMX channel controls the third fixture channel, and the fourth DMX channel controls the fourth fixture channel.

We can see that the next empty DMX channel of this universe is channel 5.

Therefore, we will change the start channel of the second fixture to channel 5. That means that DMX channel 5 controls the first channel of the second fixture, DMX channel 6 controls the second channel of this fixture, and DMX channel 7 controls the third channel of the second fixture.

Example 2

In this example, we want to patch one 3-channel fixture, two 24-channel fixtures, and one 4-channel fixtures. The DMX universe is empty.

The DMX start channel for the first fixture is 1.

Now, we have to calculate the DMX start channel of the second fixture. We know that the first 3 channels will be occupied by the first fixture. That means that the DMX start channel of the second fixture is 4. This fixture occupies 24 DMX channels.

The third fixture should be patched to DMX start channel 28, because the first fixture occupies 3 channels and the second fixture uses 24 DMX channels. Together, the two fixtures occupy 27 DMX channels, starting with channel 1 and therefore the next free channel is 28.

Now, we have only to change the DMX start address of the last fixture. We know that the first three fixtures occupy 51 DMX channels ($3 + 24 + 24$). The next free DMX channel is 52. That is the DMX start channel of the last fixture in our example.

Example 3

In this example, the DMX universe is occupied until DMX channel 480. We want to add two additional fixtures with 24 channels each.

The next free DMX channel is channel 481. This is the new DMX start channel of the first fixture.

Now, let us calculate the DMX start channel of the second fixture. The occupied DMX channels are $480 + 24 = 504$ channels. We know that the next free DMX channel is channel 505 and we can change the DMX start channel of the second fixture to 505.

STOP! This is a mistake because our fixture has 24 channels and $505 + 24$ is higher than 512. That means we have to set the DMX start channel to channel 1 and connect this fixture to the next DMX universe.

Congratulations! You have learned to calculate the correct DMX start channels for your fixtures.

//PART E

Hardware

5 Hardware

5.1 MADRIX PLEXUS

5.1.1 Recording MADRIX PLEXUS Stand-Alone Files

This tutorial shows you how you can create stand-alone files for MADRIX PLEXUS (of the file type *.dxd).

Date: 10/2014

MADRIX Version: 3.3 (Created with)

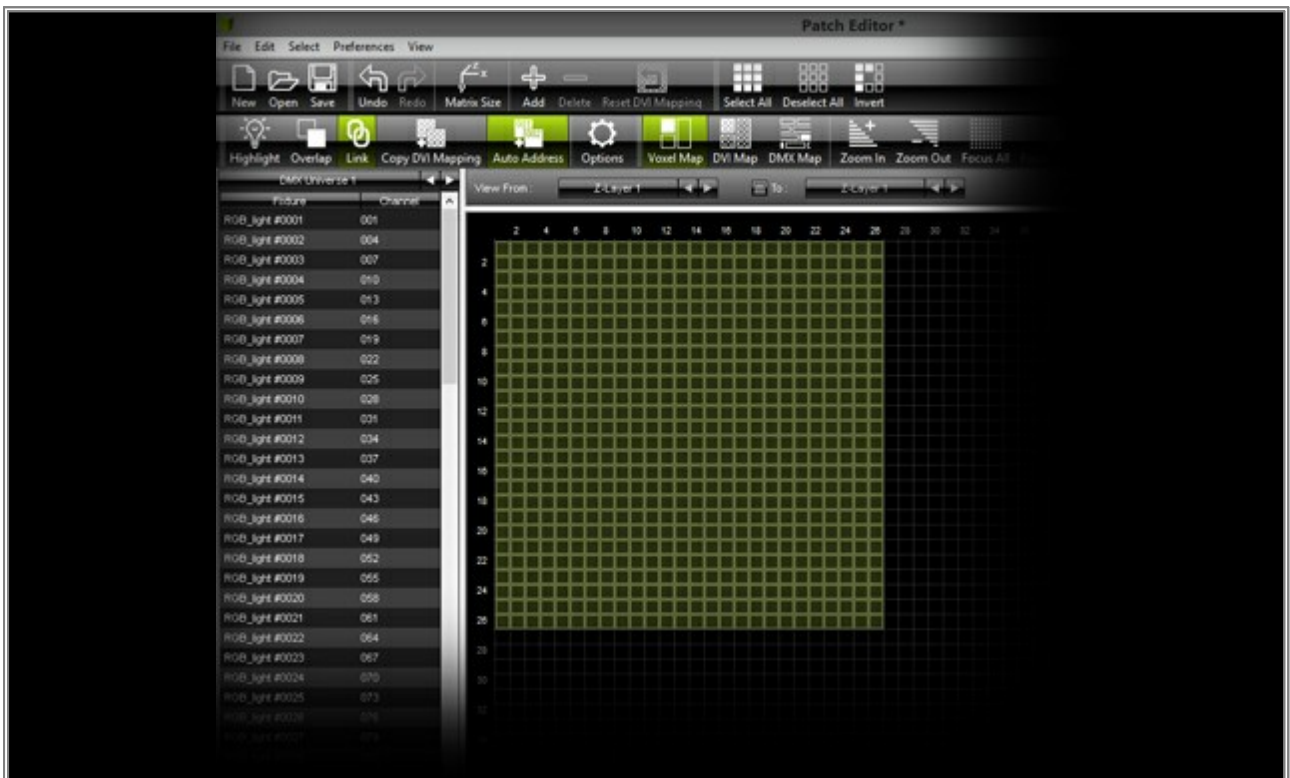
Note: In this example we want to create *.dxd files for 4 DMX Universes (for 2 MADRIX PLEXUS).

1. Start MADRIX and press the **F2** key on your keyboard. In the Matrix Generator, create a new Patch with 26 x 26 x 1 generic RGB lights. To do so, choose:

- **Protocol : DMX**
- **Product : !generic RGB Light 1 pixel**
- **Count X / Y / Z : 26, 26, 1**

You can find detailed information about the Matrix Generator in a previous tutorial (>[The First Patch](#)).

If you now open the Patch Editor, the configured Patch should look like in the following screenshot:



2. In order to continue we have to create visuals or open an existing Setup file. In this example, we will create three simple effects, including SCE Wave / Radial, SCE Fluid and an SCE Graph effect.

The **SCE Wave / Radial** effect is set up at Storage Place S1 P1. We will only change the color to amber.



SCE Fluid is located at Storage Place S1 P2 and all effect settings are set to their defaults.



SCE Graph is located at Storage Place S1 P3 with its default settings.



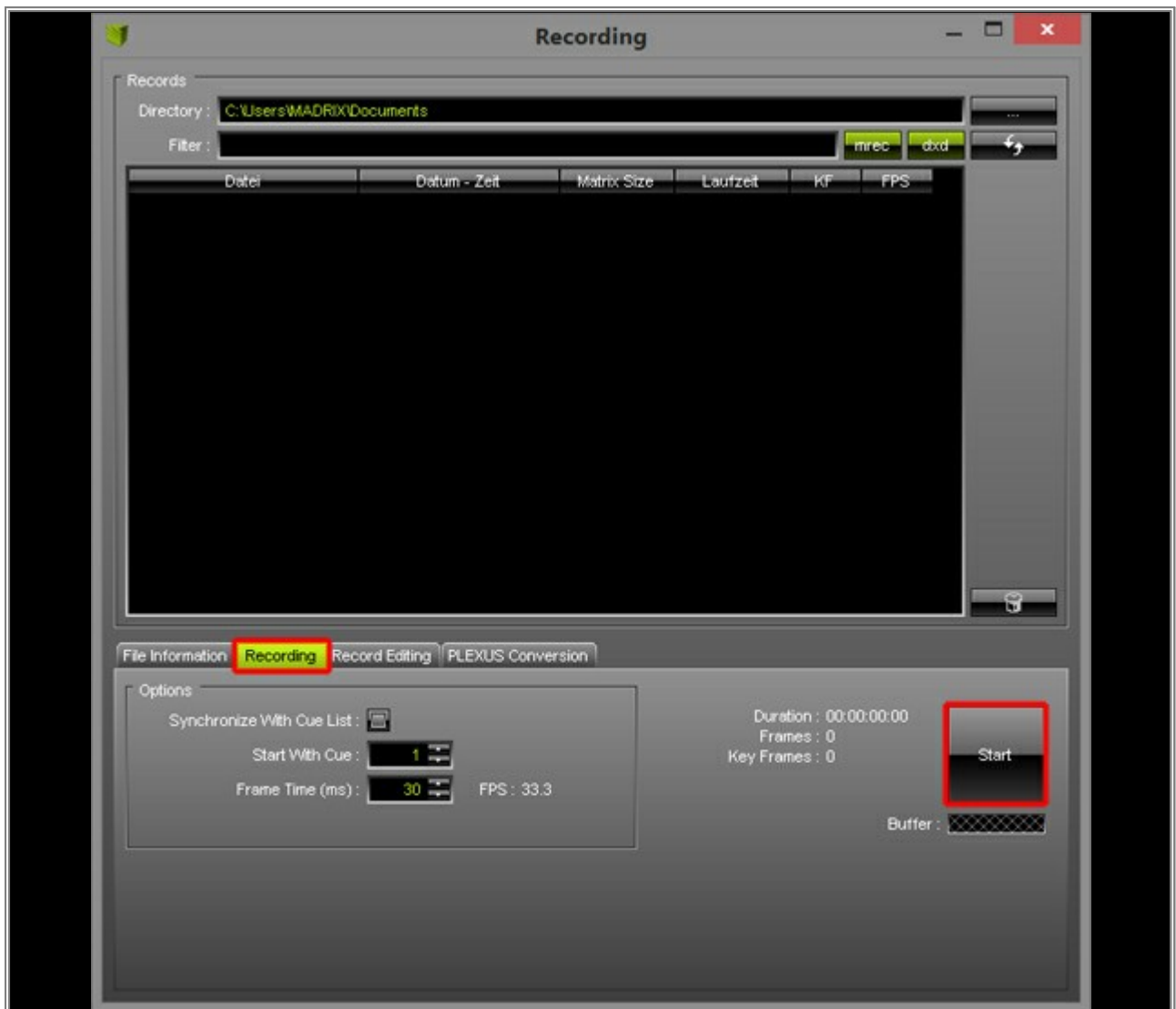
3. Go to **Window > Recording...** or press **Ctrl+Alt+R** together on your keyboard.



The **Recording** window will be opened.

We want to record Storage Place S1 P1 first. Therefore, activate this Storage Place and move the crossfader accordingly to show the Storage where the effect is running. In this example it is **Storage Left**. You should see the effect in the **Preview Output** as a result.

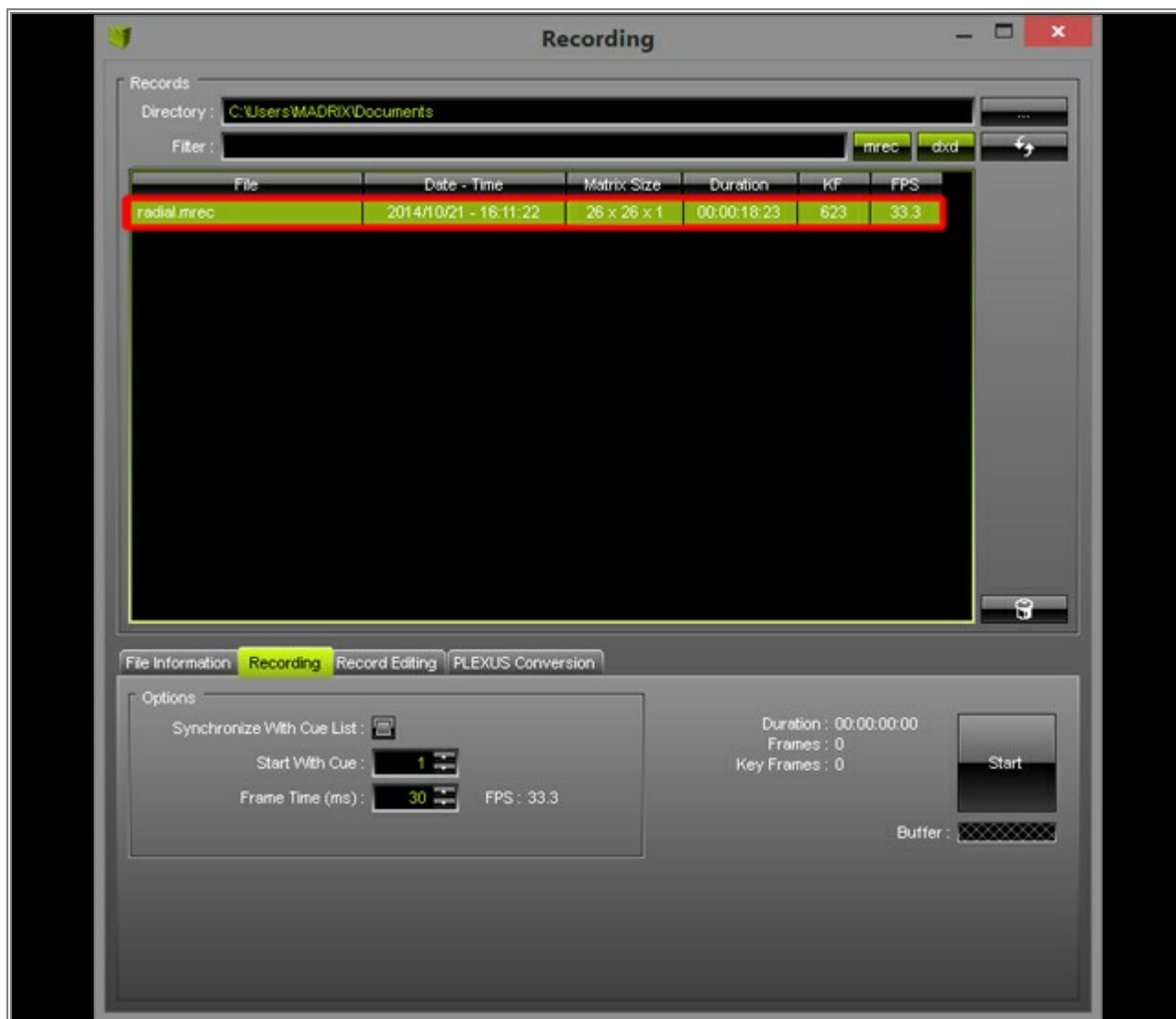
Please select the **Recording** tab and then click the **Start** button. The output of MADRIX (as shown in the **Preview Output**) will be recorded.



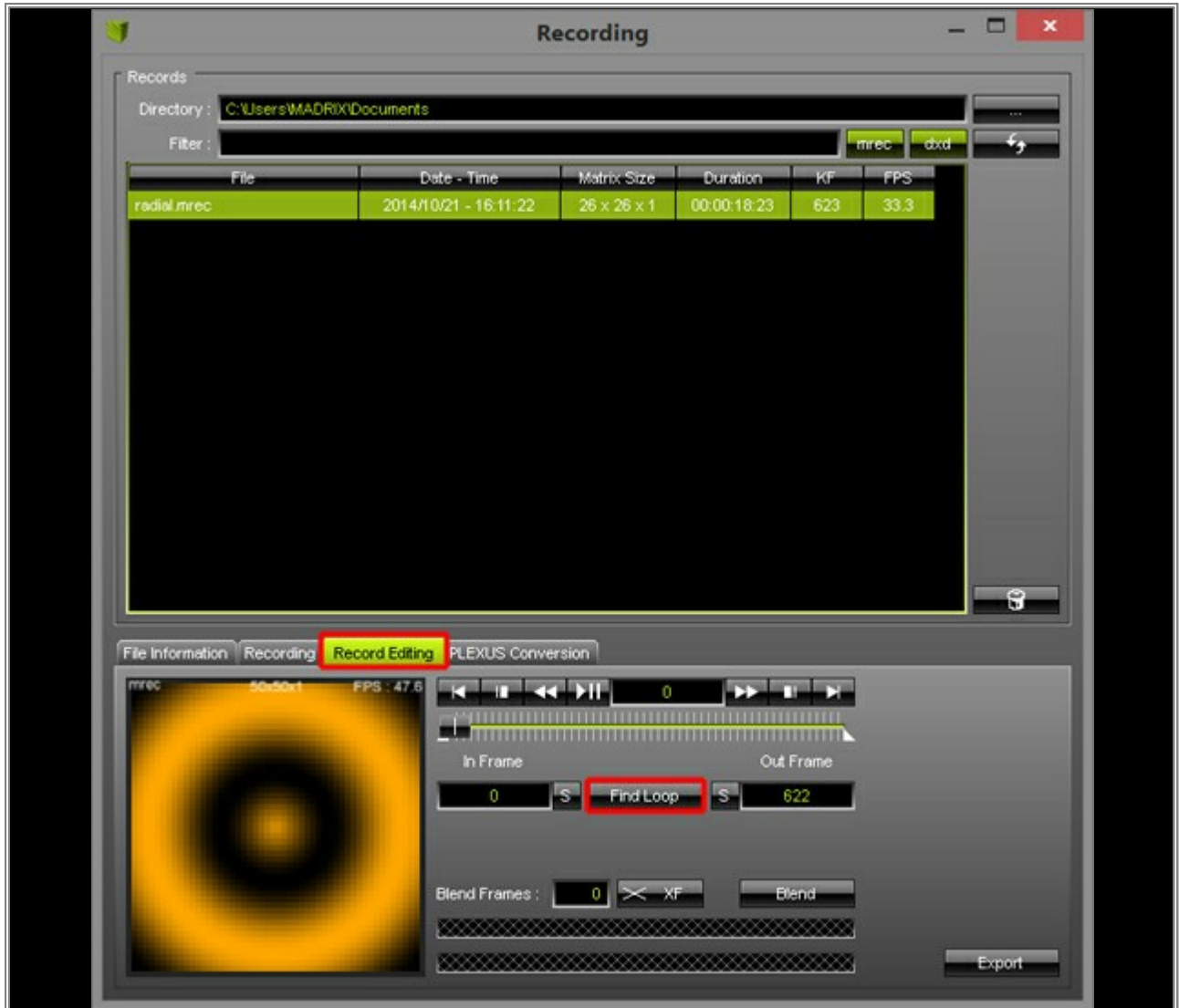
Let the recording process run for a sufficient time or as long as needed (In this example we stopped recording after 18 seconds and 23 frames). Click the Start button again, which now reads **Stop**.

The recording will stop and a **Save As** window will be shown. Choose a desired **File name** for the record and conform with **Save**.

You can now see the recorded file with additional information in the file list.



- 5. Please switch to the **Record Editing** tab, select the recorded *.mrec file in the list (it will be illuminated in green in the list), and then click **Find Loop**.

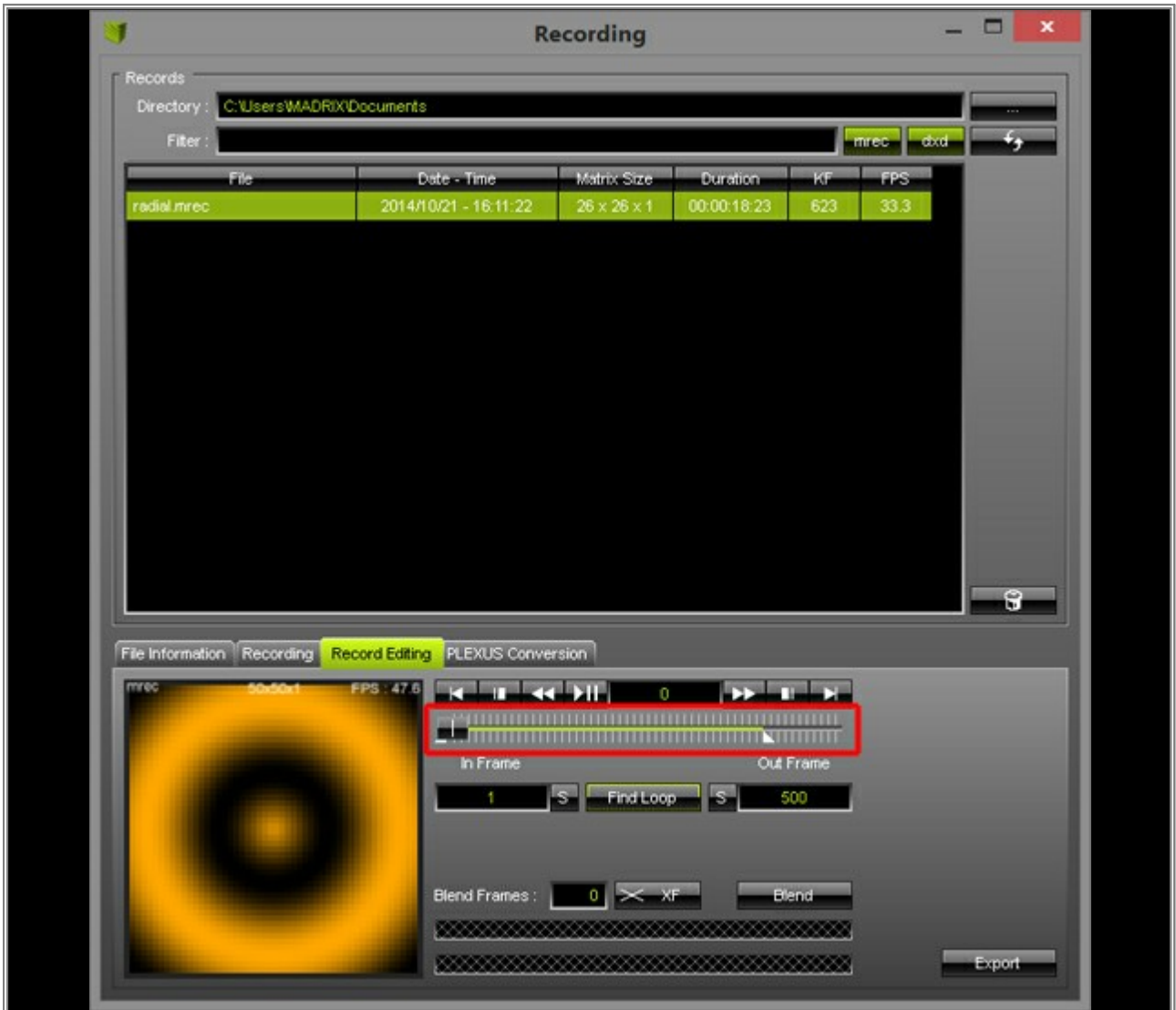


If a loop was found, the following message appears:



Click **OK** and you can see that the **Out Frame** will be set automatically. The Out Frame marker will be shifted to left. That means the file will be cut there.

We now have to save the new (and shorter) file. Click **Export** and a **Save As** window will be opened. Choose a desired **File name** and click **Save**. In this example, we chose to keep the file name and overwrite the existing file, since we only want the looped visuals.



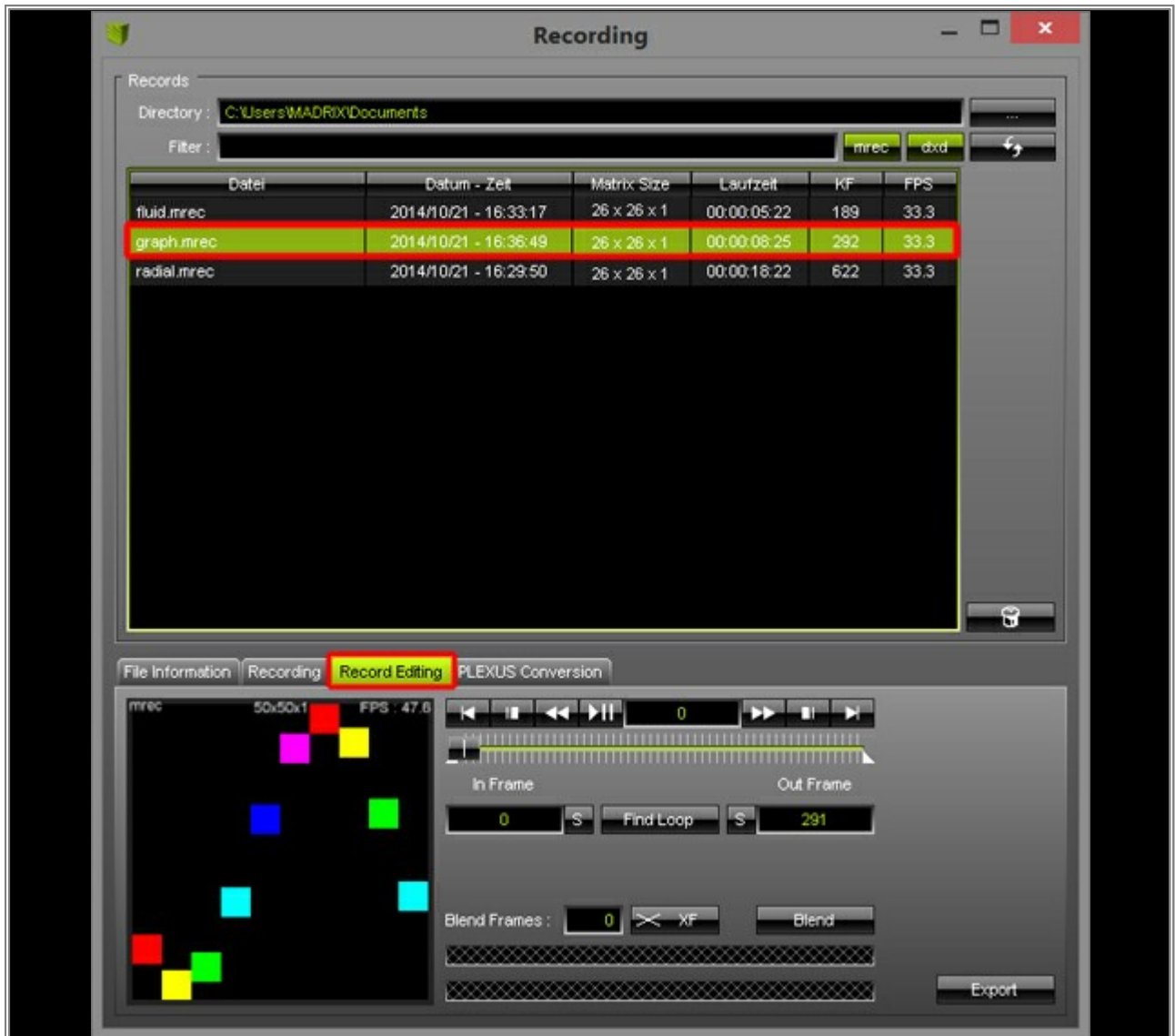
6. Now, switch to Storage Place S1 P2, SCE Fluid, record it, and save the file.



7. Repeat the recording process while the SCE Graph effect is selected on Storage Place S1 P3.



- 8. Switch again to the **Record Editing** tab and select your recorded file for the SCE Graph.



We want adjust the record to achieve better visuals.

Start by changing the **In Frame** to a position where the left, red square of the effect is displayed at the bottom. In this example it is at frame 53. You can search for the correct frame by moving the slider. Then, click **S** to set the **In Frame** or manually enter the frame (such as **53**).



We also want to change the **Out Frame** to a position where the left, green shape is at the bottom in order to create a smooth animation. In this example, it is at frame 324. We therefore set the **Out Frame** to **324**.



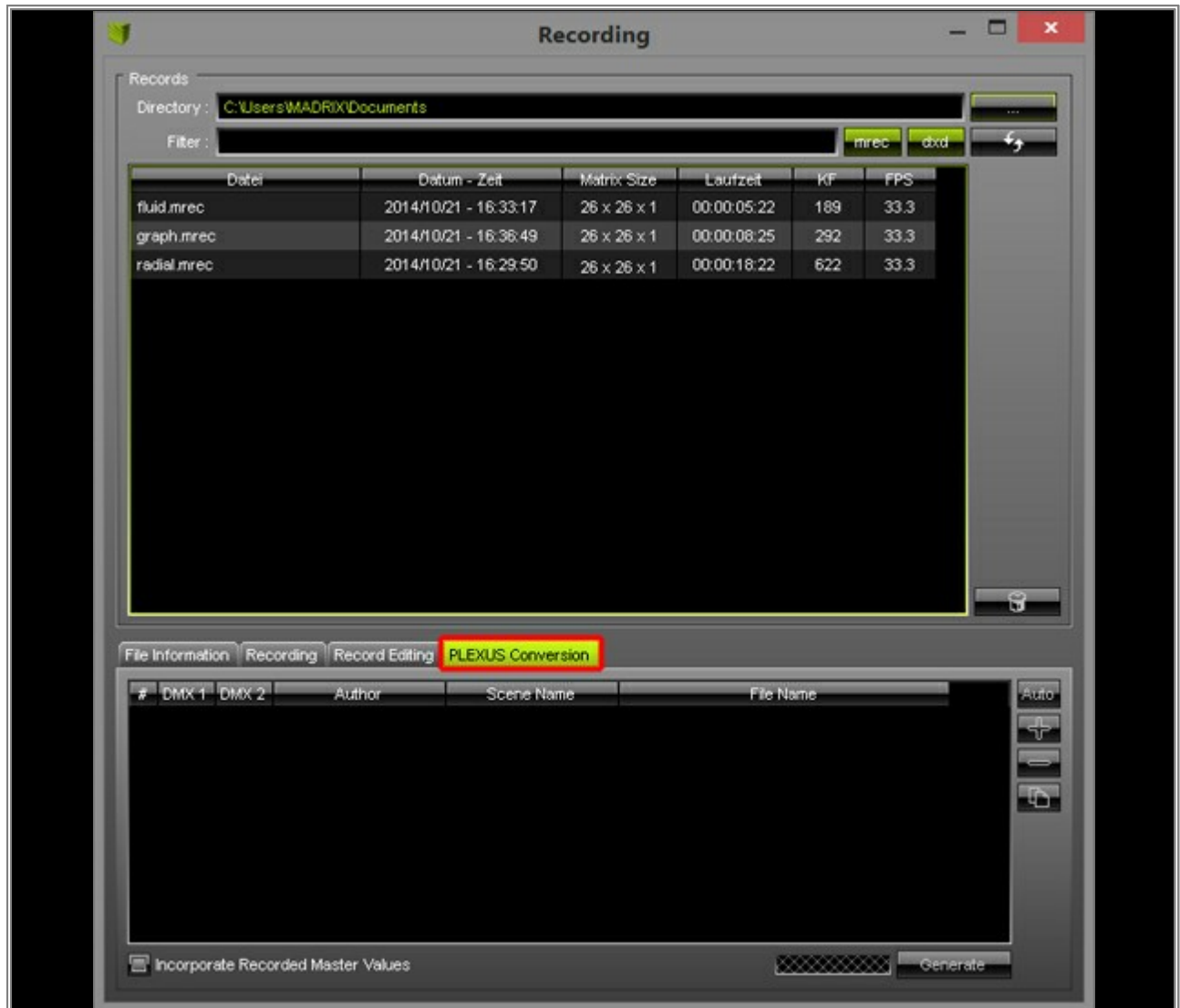
Click **Play/Pause** to preview the edited record. Adjust **In Frame** and **Out Frame** if the animation needs adjustment.



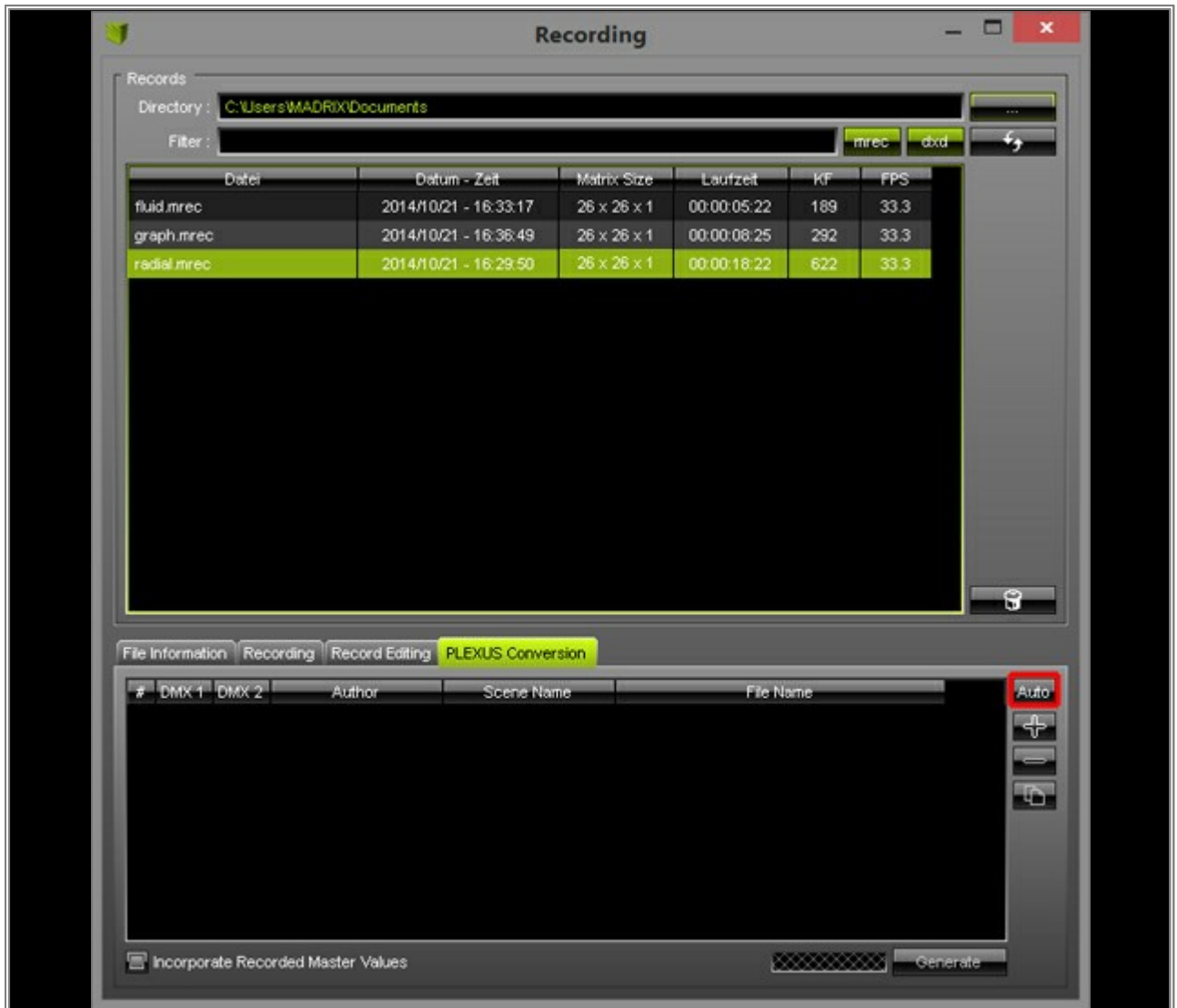
When the visuals are ready, click the **Export** button and the **Save As** window will be opened again. Choose a **file name** and click **Save**. In this example, the existing file will be overwritten.



- Switch to the **PLEXUS Conversation** tab. You can see all recorded *.mrec files in the upper half of the **Recording** window. (These are files which are stored in the chosen **Directory**).



Now, select one of the *.mrec files and then click the **Auto** button.

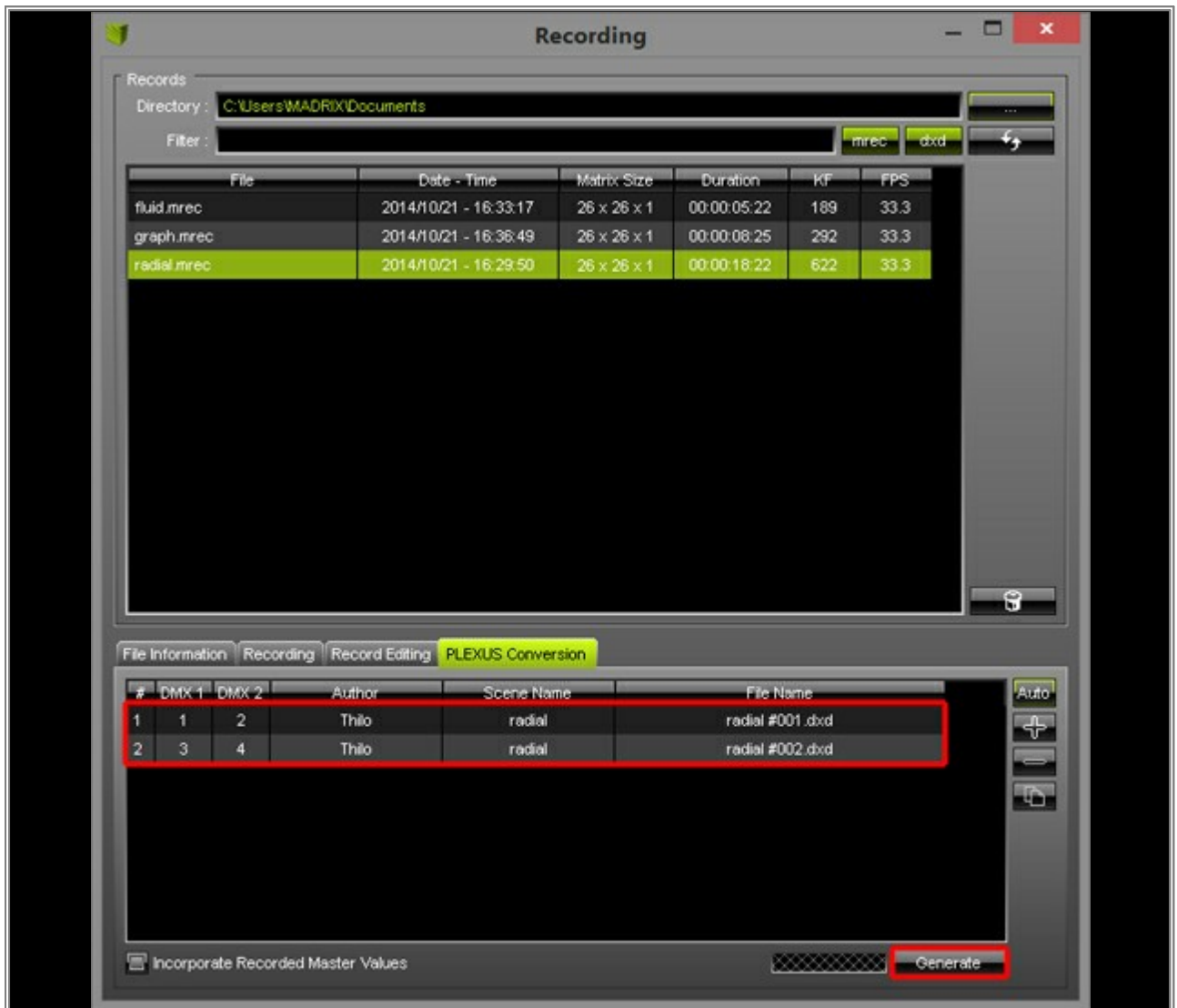


MADRIX will automatically calculate and suggest the settings for each DMX Universe and fill the list with the settings for the required *.dxd files.

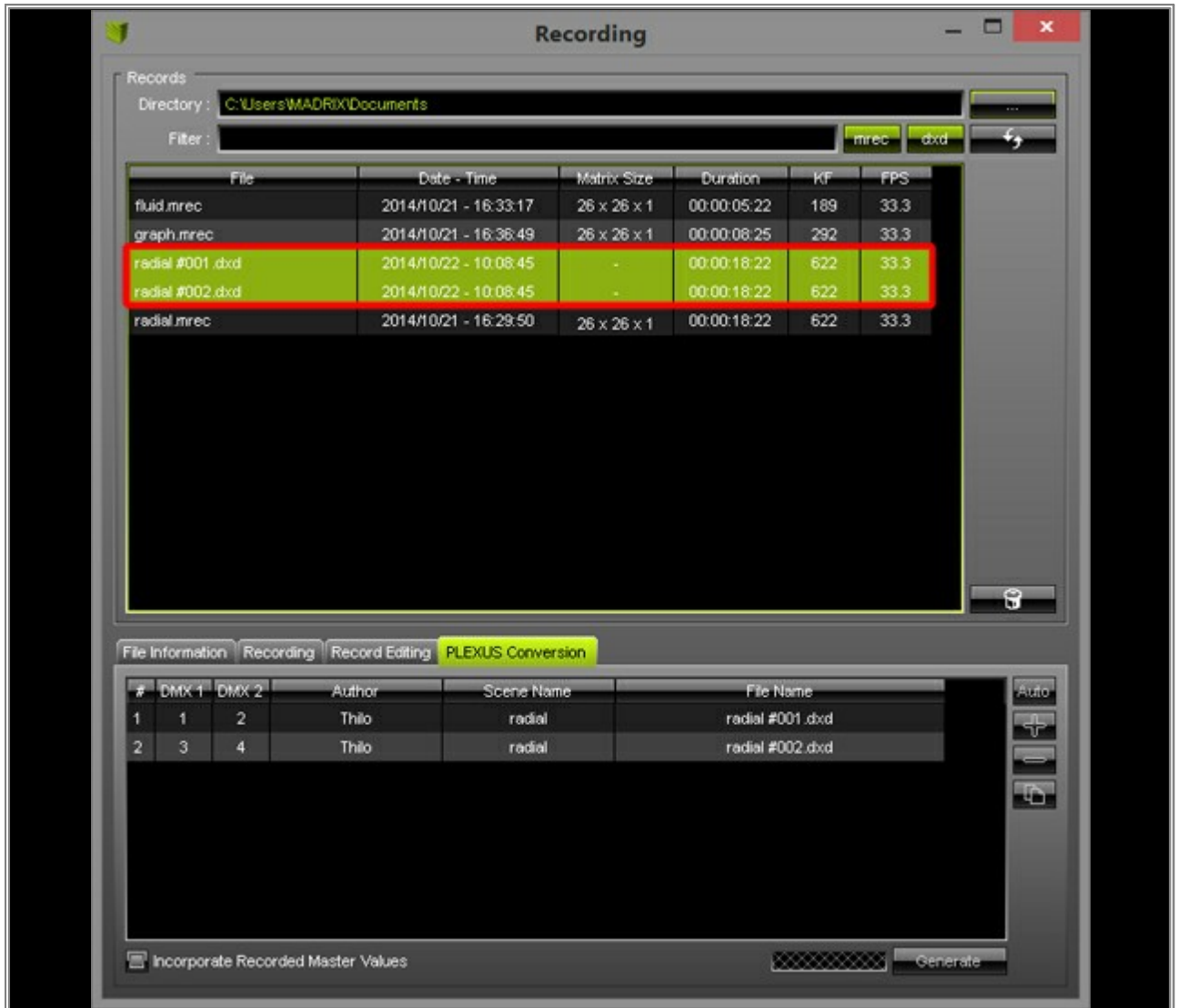
Note: If the created Patch uses more than 2 DMX universes, several *.dxd files will be created. The reason is that a file is created for each PLEXUS which contains the output settings for two DMX universes.

To create the *.dxd files, click the **Generate** button.

Note: The list entries for **DMX 1** and **DMX 2** are the corresponding DMX universe numbers from the Patch. That means the data for these DMX universes will be saved in the *.dxd file and assigned to the DMX 1 and DMX 2 output ports of a MADRIX PLEXUS. You can change the DMX routing by performing a double-click with the left mouse button on the number you want to change. (In this example, *.dxd file 001 will contain data of DMX universe 1 and 2, while *.dxd file 002 will contain the data of DMX universe 3 and 4.)



- 10. After generating the *.dxd files, you can see the new files in the file list above. These are the *.dxd files which you can copy to the SD card of a MADRIX PLEXUS. (Learn how to copy the files to the MADRIX PLEXUS in the next tutorial »[Copying Stand-Alone Files To MADRIX PLEXUS.](#))



Repeat the file generation steps above for the 2 other recorded *.mrec files. In the end, you should have created 6 *.dxd files (two for each Storage Place).



Congratulations! You have just created MADRIX PLEXUS stand-alone files.

5.1.2 Copying Stand-Alone Files To MADRIX PLEXUS

In this tutorial, you will learn how to copy *.dxd stand-alone files to MADRIX PLEXUS.

There are different ways to copy such files. You could copy *.dxd files directly to the SD-Card using an SD card reader connected to your computer. In this tutorial, we will use the PLEXUS Configuration window and use two MADRIX PLEXUS with an inserted SD card.

Date: 10/2014

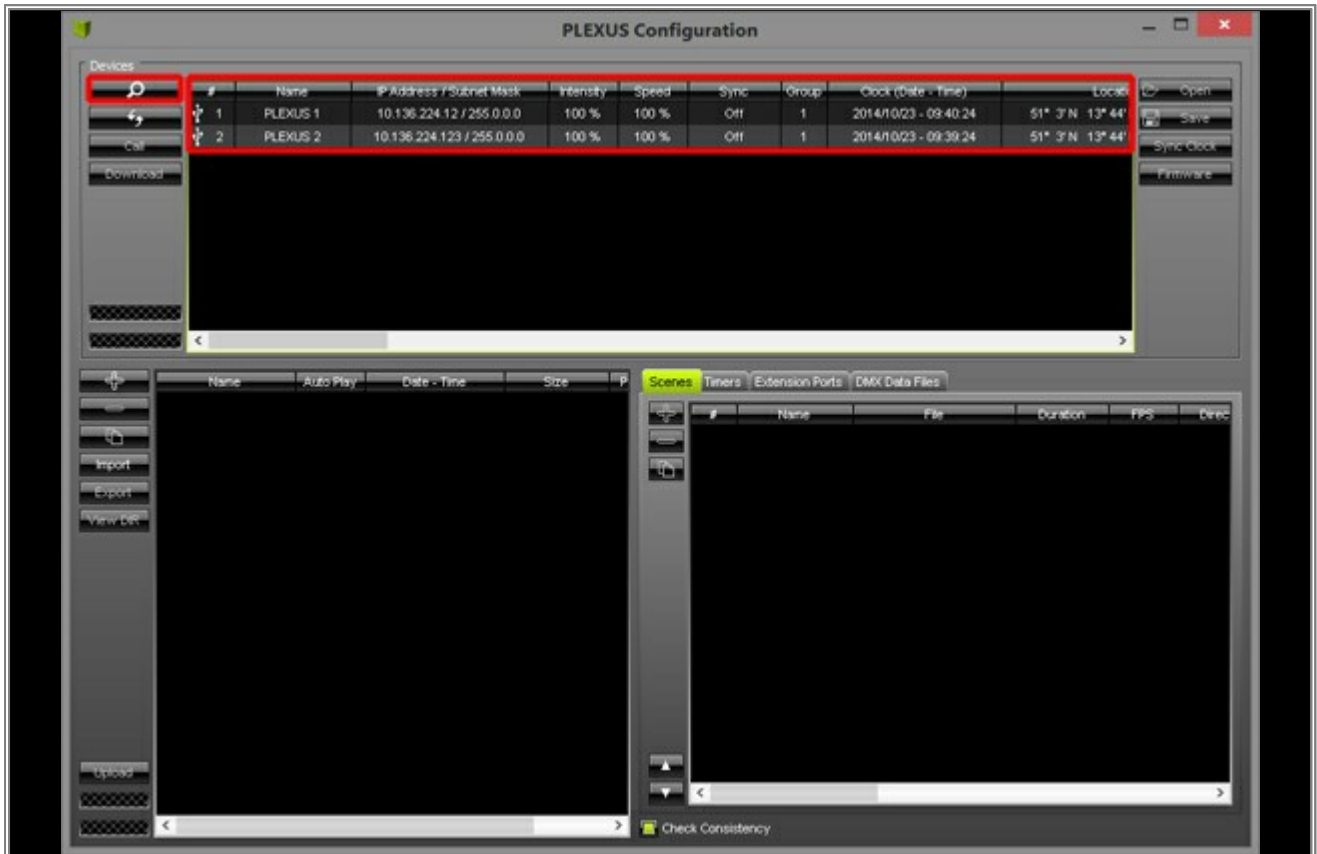
MADRIX Version: 3.3 (Created with)

Note: You will need *.dxd files for this tutorial. Learn how to create *.dxd files in this [tutorial](#).

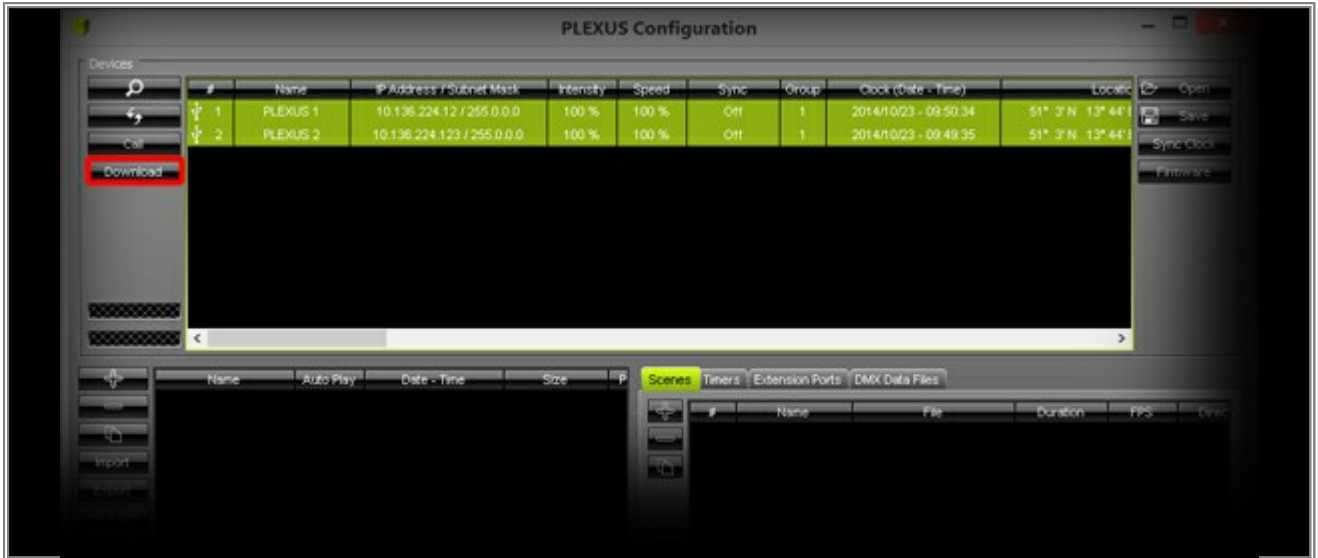
- 1 Open MADRIX and go to **Tools > PLEXUS Configuration...**



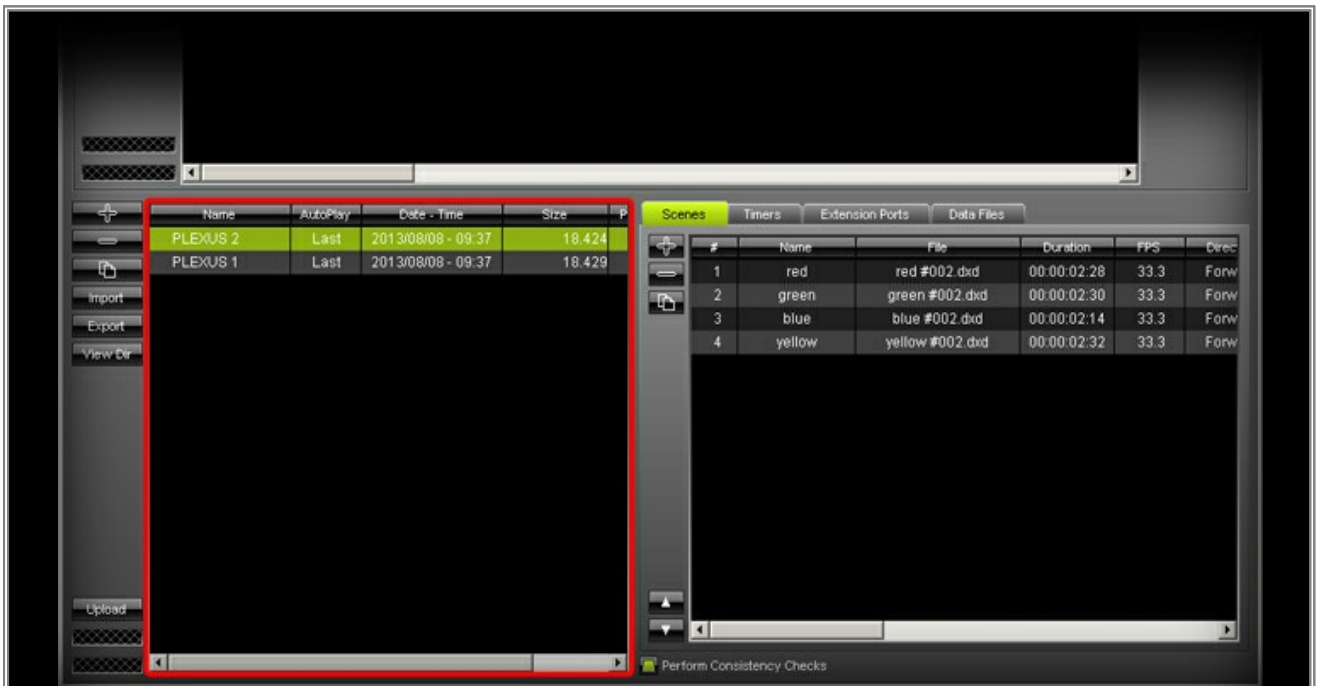
- 2 The **PLEXUS Configuration** window will be opened and you can see connected PLEXUS devices. In this example . two MADRIX PLEXUS are connected via USB. MADRIX PLEXUS could also be connected via Art-Net.
If you do not see your connected devices, click the **Search** button.



3 First, we want to download any Scenes that are already uploaded to the PLEXUS. Therefore, select the PLEXUS unit from which you want to download the files. In this example we want to download the Scenes from every device. That is why we first select all of them and then click the **Download** button.



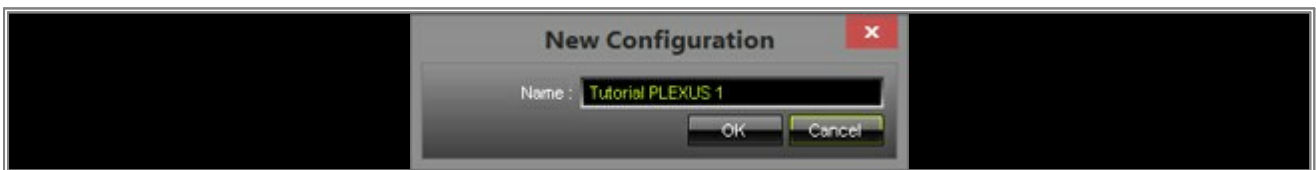
When the download is complete, you can see the downloaded Configurations in the left Configuration section and the Scenes of a Configuration in the **Scenes** section to the right.



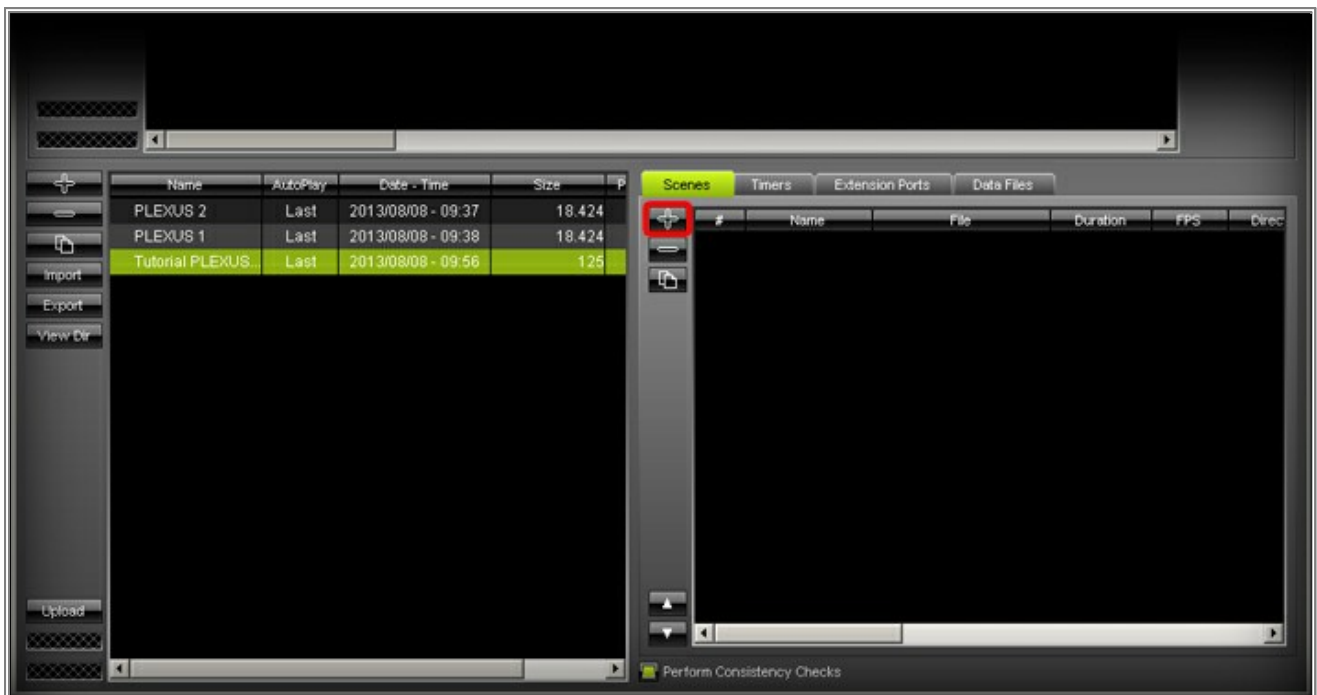
4 We will now prepare our two PLEXUS devices for stand-alone playback. We will have to create a new Configuration for each PLEXUS. To create a new Configuration, click the + button to the left of the Configuration section.



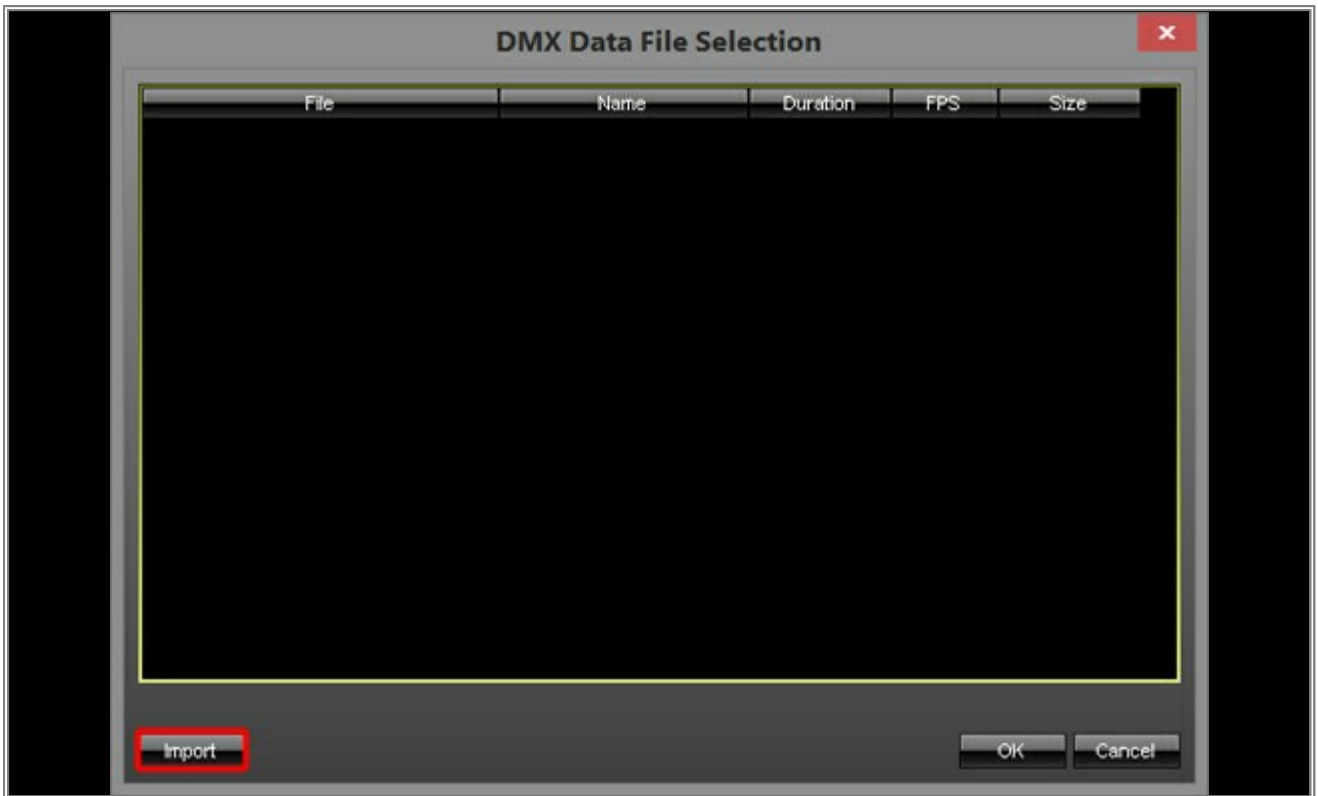
In the next step, type in a **Name** for the new Configuration and click **OK**. In this example the first Configuration is called **Tutorial PLEXUS 1**.



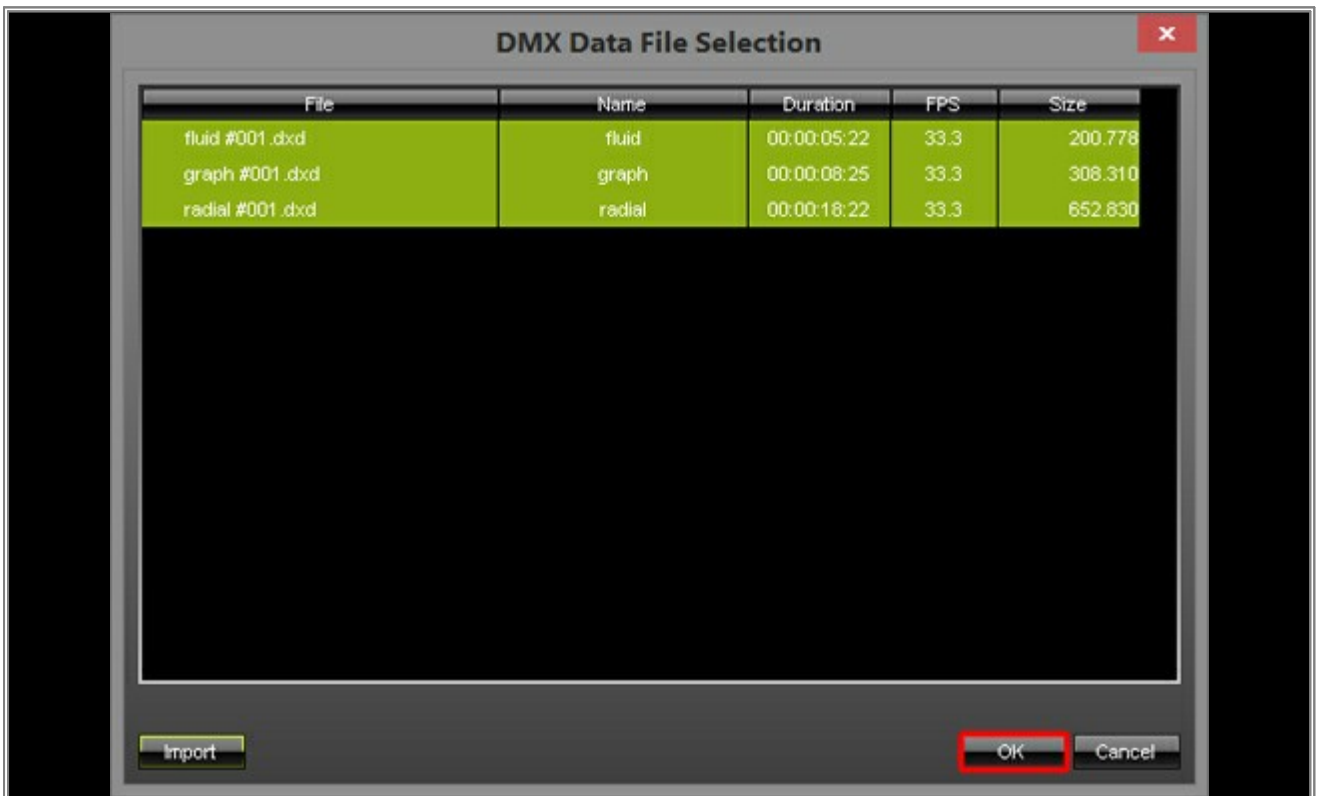
Every new Configuration is empty at first. To add Scenes to the Configuration, please select the Configuration and press the + button in the **Scenes** section.



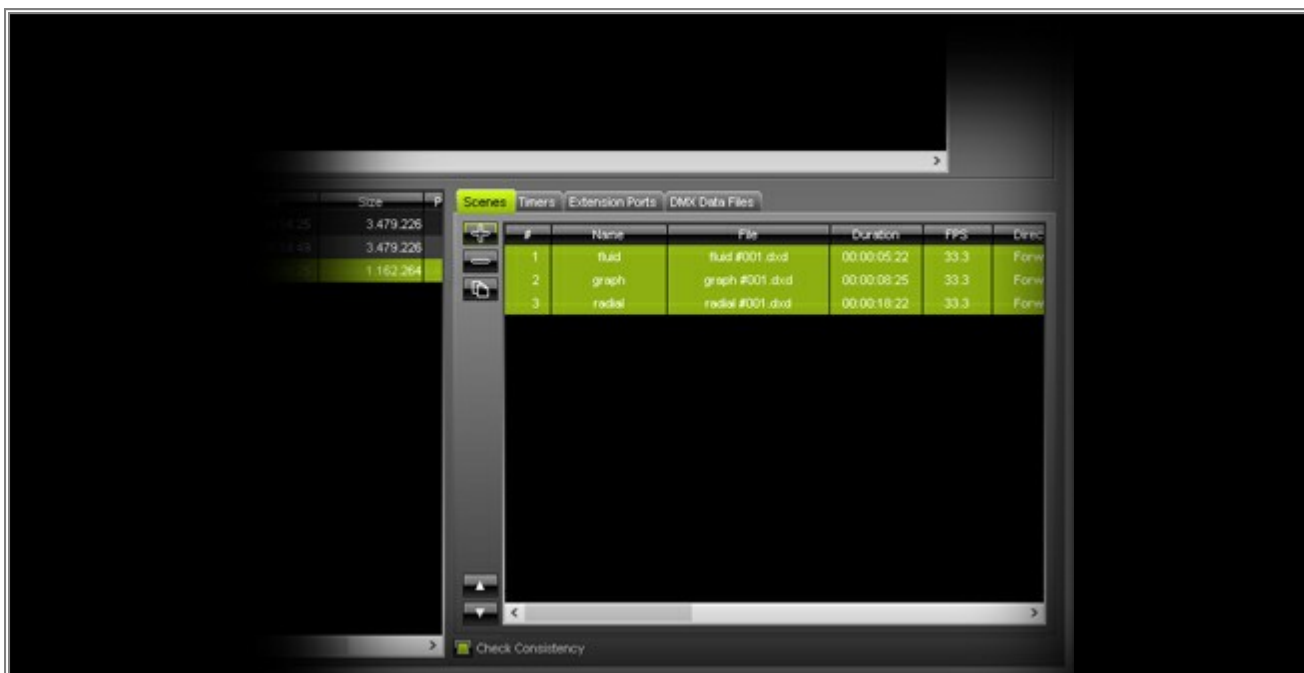
A new window will be opened. Here you can select which Scenes are added to the Configuration. To import new Scenes, click the **Import** button and select the desired *.dxd files on your harddisk. Right now, we are creating the Configuration for the first PLEXUS. That is why we will select all *.dxd files with **#001.dxd** in their file name. Confirm with **Open**.



All imported files will be shown in the list. Now, select the required files and confirm with **OK**



You can see that the Scenes have been added to the Configuration.



5 In this step, we want to make a small adjustment to the Configuration. One Scene should be played back in a . loop.

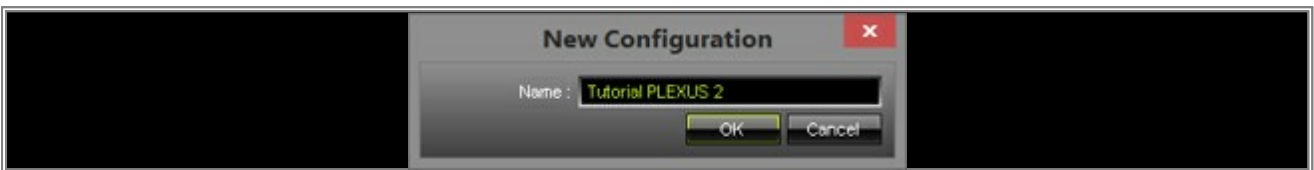
In the Scenes section, search for the **Repeat** column and change the value to **3** for the Scene **graph#001.dxd**. To change the value, perform a double-click with the **left mouse button** on the number. This means that this Scene will be played back 3 times as one loop.



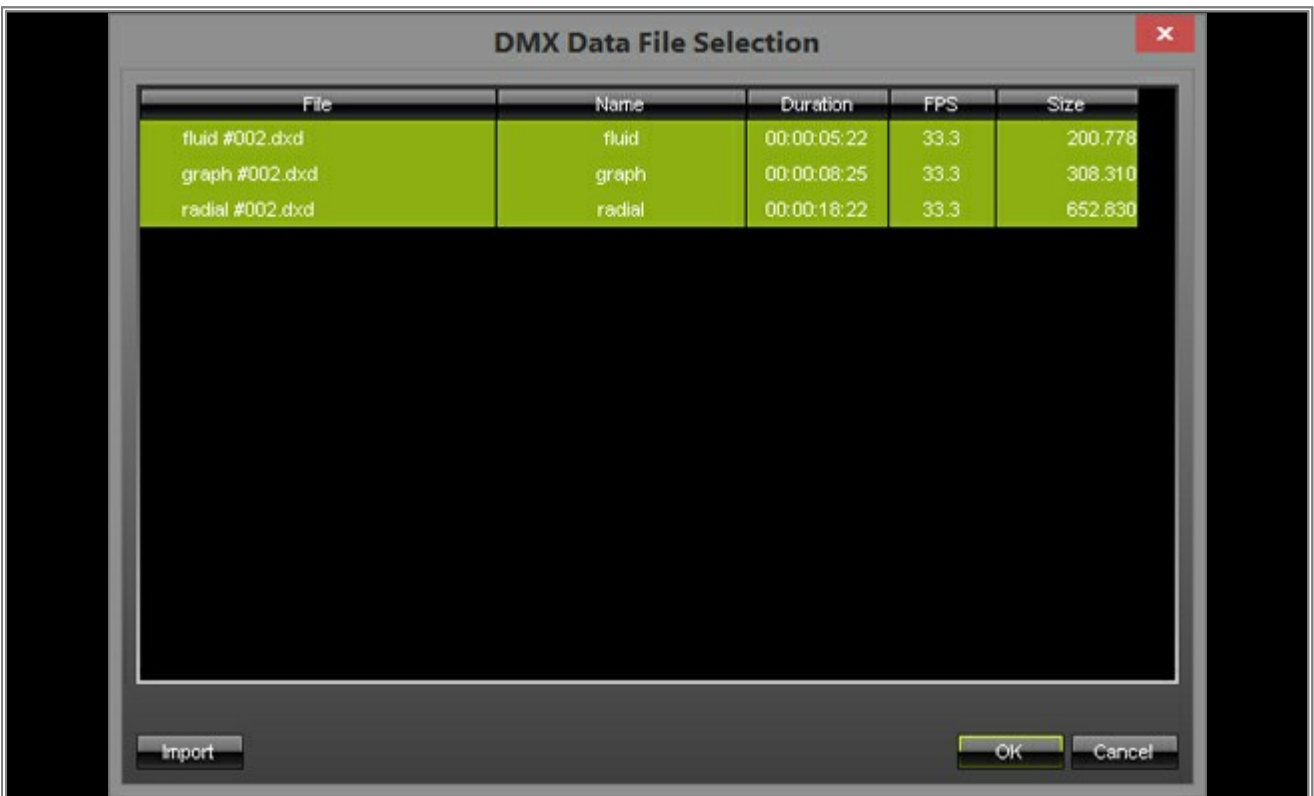
6 The Configuration of the first MADRIX PLEXUS is now complete. We will still have to create another Configuration for the second MADRIX PLEXUS.

Note: The second Configuration is necessary because every *.dxd file contains the data for up to 2 DMX universes. We created a Patch for 4 DMX universes and the data of universe 1 and 2 is different to the data of universe 3 and 4.

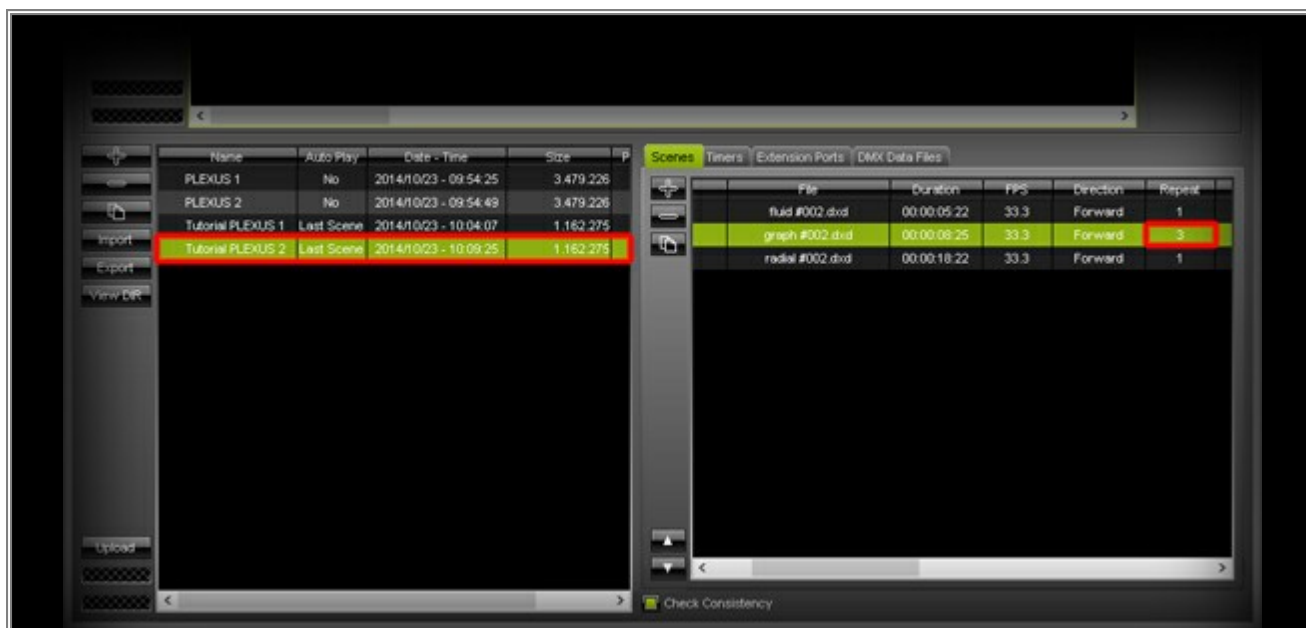
Please create a new Configuration for the second PLEXUS. In this example, it is called **Tutorial PLEXUS 2**.



Continue by importing and adding all *.dxd files to this Configuration that have **#002.dxd** in their file name.

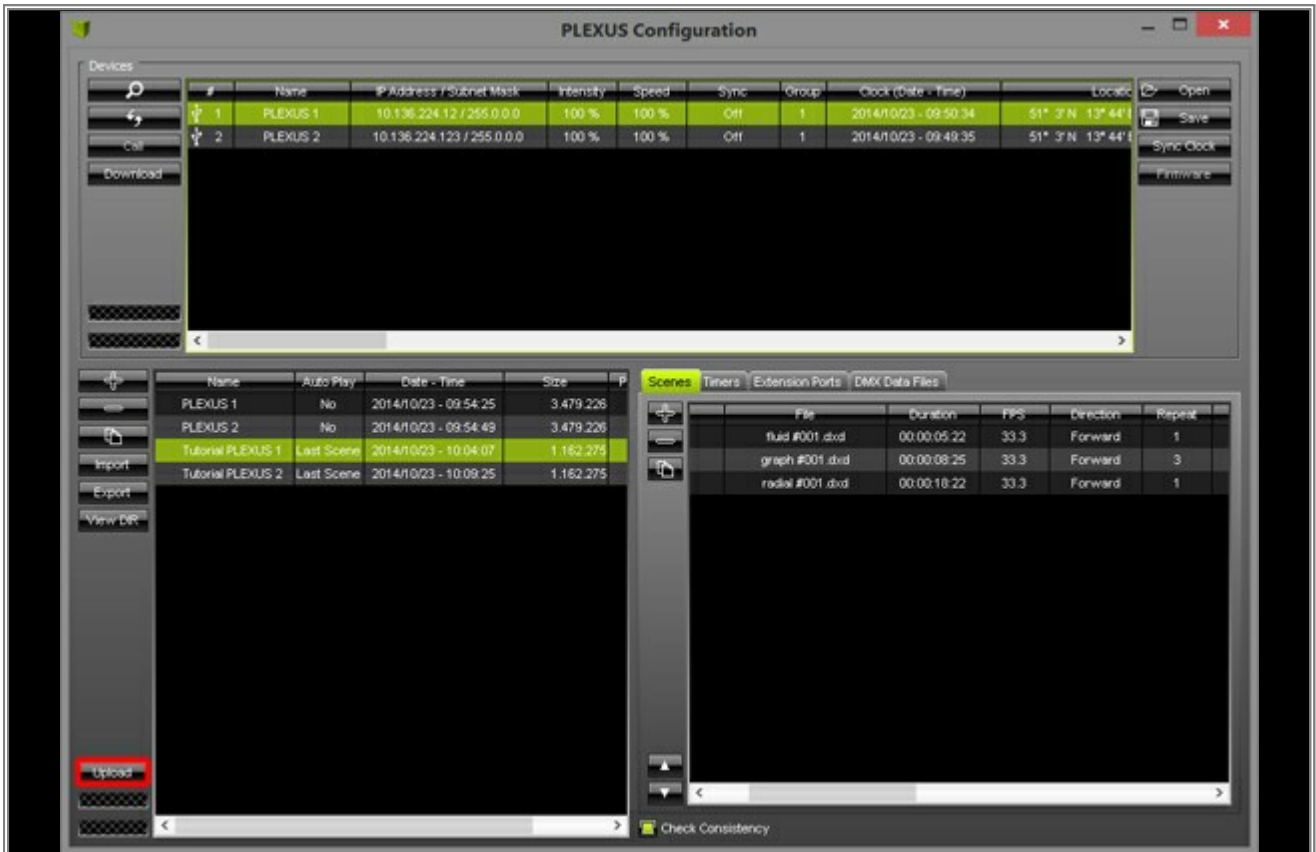


Note: It is important that the order of the *.dxd files and other settings of each file, such as the loop count, are the same as in the first Configuration. In this example, we have to change the **Repeat** count of the **graph#002.dxd** to **3**.



7 We have now created 2 new PLEXUS Configurations, which we can upload to the PLEXUS units. Please note that each PLEXUS will receive its own configuration.

To upload the Configuration to the first PLEXUS, select the first PLEXUS in the upper list (the name of the device is **PLEXUS 1** in this example). Then, select the Configuration which should be uploaded (the Configuration is called **Tutorial PLEXUS 1** in this example), and finally click the **Upload** button.

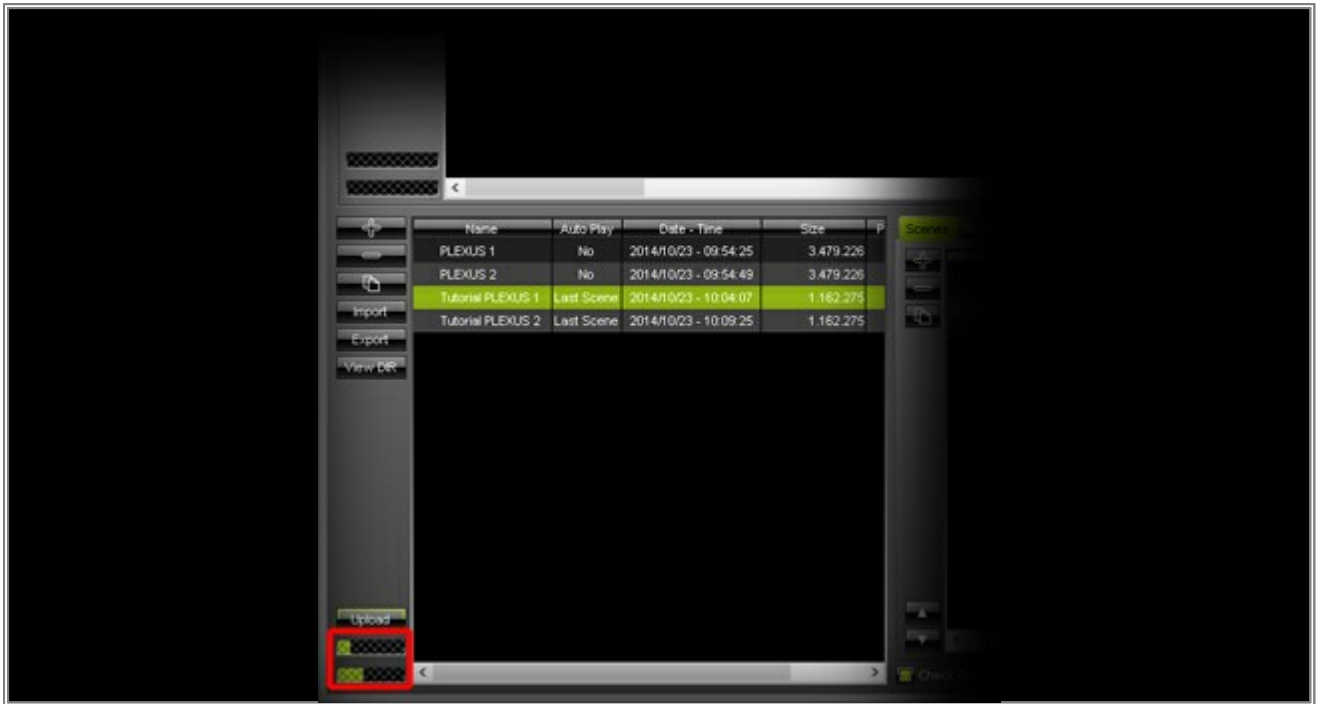


A confirmation window will be opened. Please click **Yes**.



Note: Before the upload process of the Configuration to the PLEXUS starts, all existing files on the SD card will be deleted. If you want to append new Scenes to an existing Configuration, please download the Configuration, append the desired *.dxd files, and then upload the updated Configuration again.

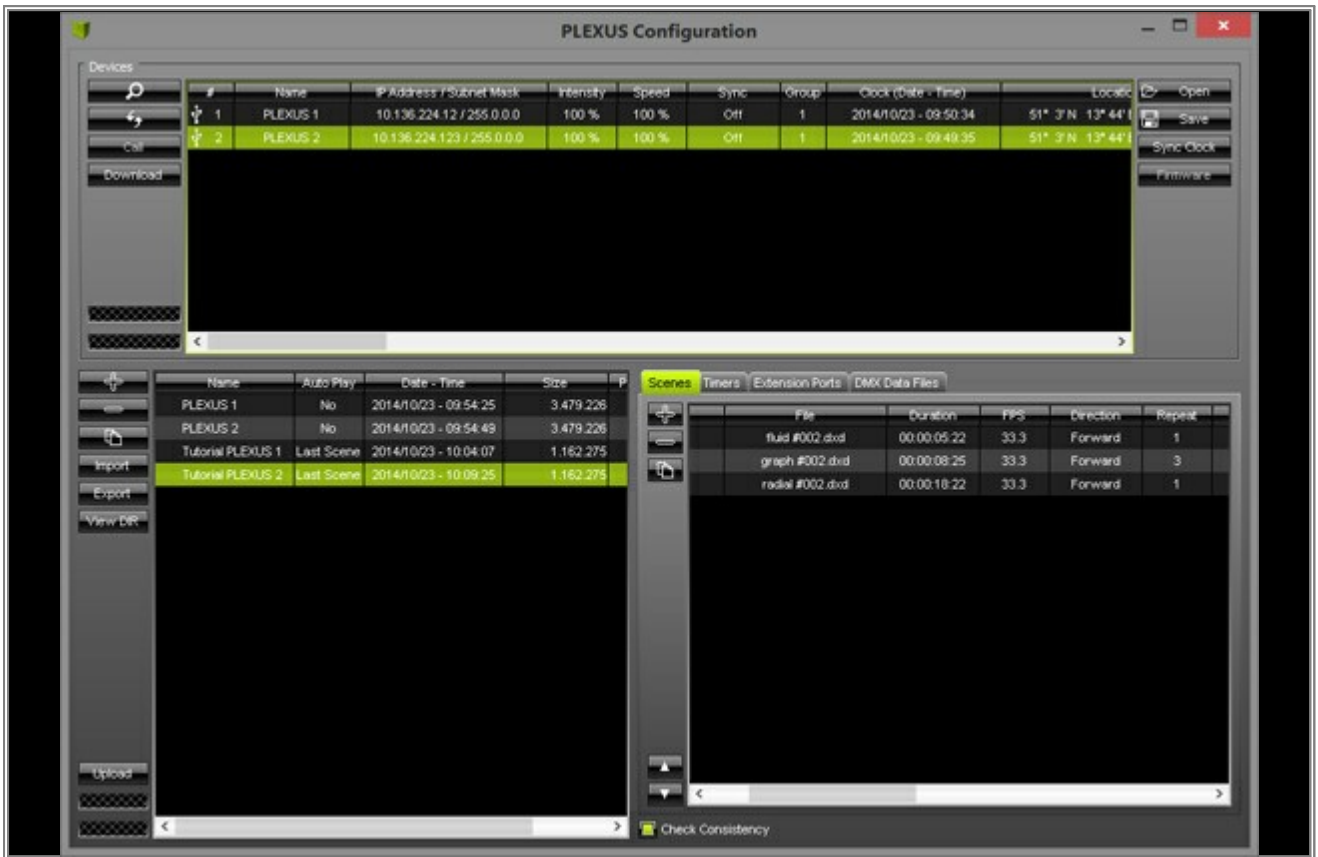
You can see the upload status at the lower left.



MADRIX will inform you when the upload process has been completed.



8 Repeat step 7. But now select the second PLEXUS and the corresponding Configuration for this device.



Congratulations! You have learned how you can copy stand-alone files to MADRIX PLEXUS.

5.1.3 MADRIX PLEXUS Master-Slave Synchronization

This tutorial shows the steps to configure two or more MADRIX PLEXUS units for Stand-Alone Mode and Master-Slave Synchronization with the help of the MADRIX software.

The Master-Slave Synchronization function is used when you want to control more than 2 DMX universes with MADRIX PLEXUS units in Stand-Alone Mode. If you want to create a stand-alone show with output of more than two DMX universes, you will need to use several MADRIX PLEXUS. To synchronize all units, the Master-Slave function will help you. To create stand-alone effects for the PLEXUS, please follow the following tutorials: »[Record PLEXUS Standalone Files](#) and »[Copy Standalone Files to PLEXUS](#).

Date: 10/2014

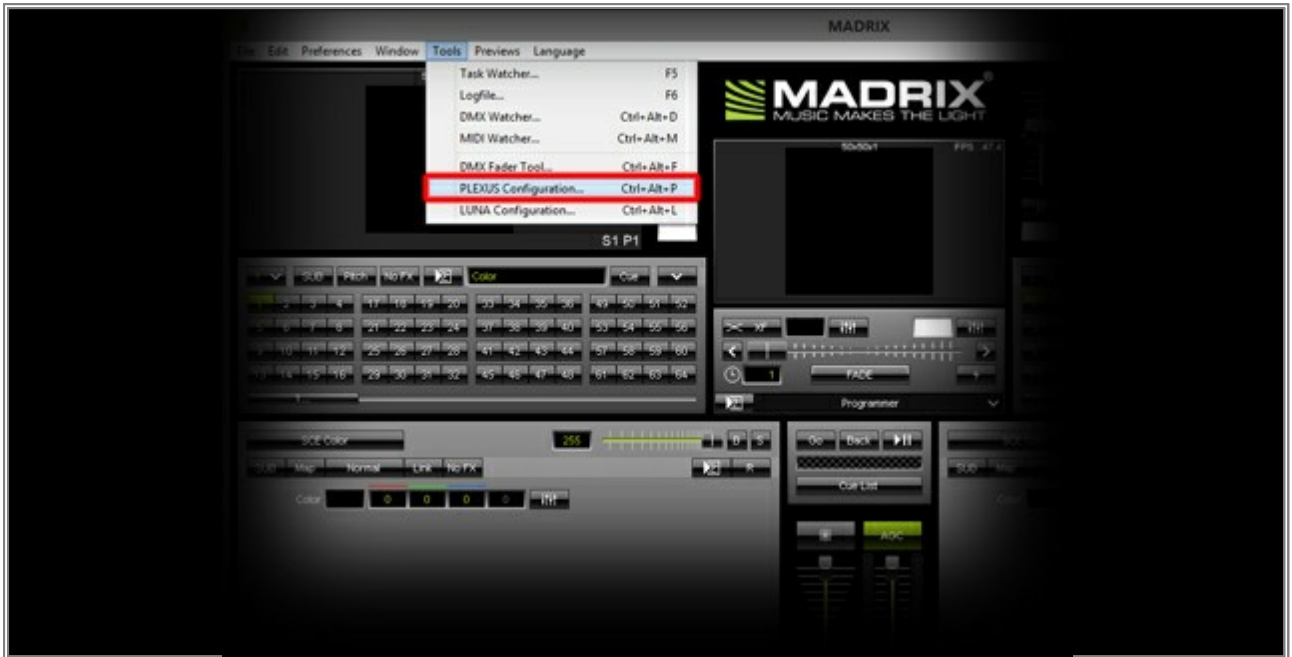
MADRIX Version: 3.3 (Created with)

PLEXUS Firmware Version: 1.8.5168 (Created with)

1. Start MADRIX and connect MADRIX PLEXUS via USB or Ethernet to the computer that runs the MADRIX software.

Please note: If you want to use the Ethernet network connection, make sure that the PLEXUS is connected to power via USB or the provided power supply.

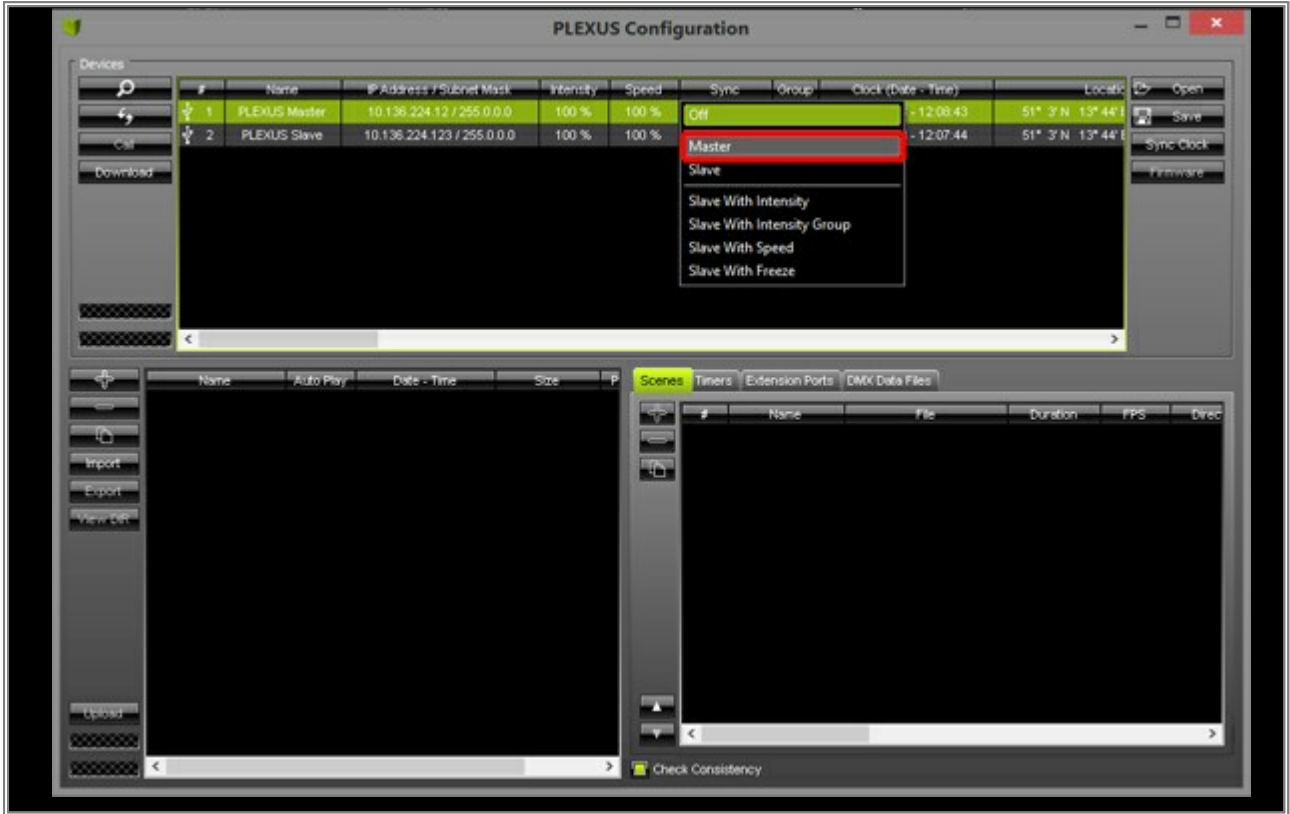
- 2. In MADRIX, go to **Tools > PLEXUS Configuration...**



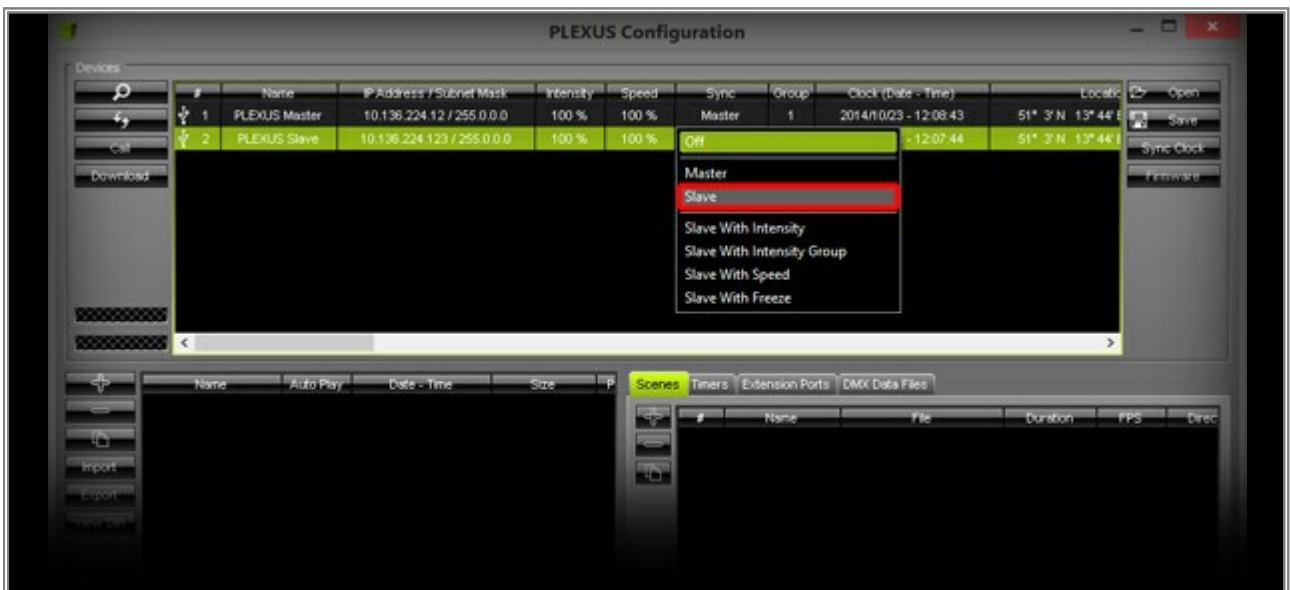
- 3. The **PLEXUS Configuration** window opens. You will find all connected PLEXUS devices in the upper section of the **PLEXUS Configuration** window. In this example, two MADRIX PLEXUS are connected via USB.



- 4. We will now configure the first PLEXUS unit as **Master** for the synchronization. Please select the first PLEXUS, perform a double-click on the **Off** label of the **Sync** column, and select **Master** in the pop-up menu.



- 5. In this step, we want to configure the second PLEXUS as **Slave** for the synchronization. Please select the second PLEXUS, perform a double-click on the **Off** label of the **Sync** column, and select **Slave**.



- 6. The two devices are now configured to act as Master and as Slave interface, respectively. The Master-Slave Synchronization will keep all Scenes and effects in sync. Even though you are controlling more than 2 DMX universes with several PLEXUS units, Scenes will be triggered at the same time and visuals will be shown as one, coherent image on the LED installation.

Please note: If you want to use the synchronization for two or more PLEXUS units in Stand-Alone Mode, it is necessary that all PLEXUS devices are connected via Ethernet to one network.



Congratulations! You have successfully set up several MADRIX PLEXUS devices for synchronization in Stand-Alone Mode.

5.1.4 Creating A Time-Triggered PLEXUS Configuration

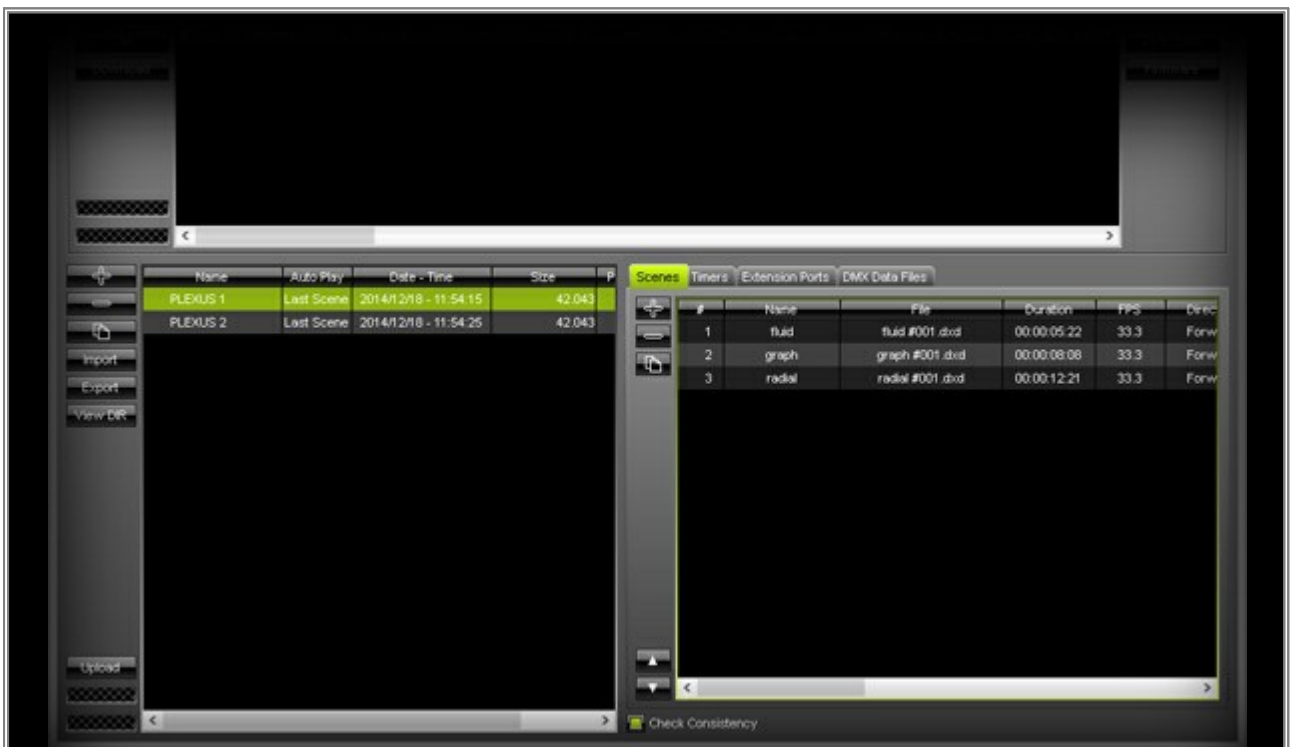
In this tutorial, you will learn how to create a time-controlled stand-alone show for MADRIX PLEXUS. Such Timers are important when you want to trigger Scenes at a certain date and time.

Date: 12/2014

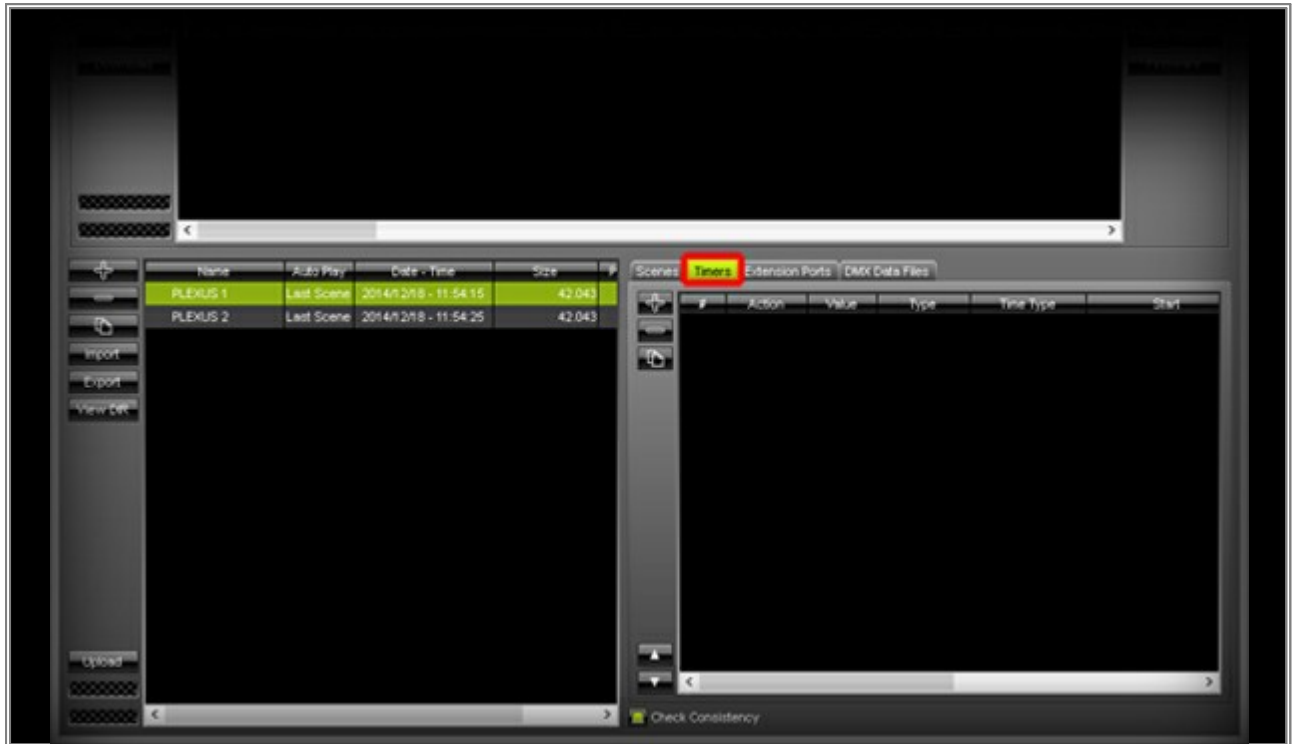
MADRIX Version: 3.3 (Created with)

Note: Before reading this tutorial, it is recommended to read the tutorials »[Recording MADRIX PLEXUS Stand-Alone Files](#) and »[Copying Stand-Alone Files To MADRIX PLEXUS](#).

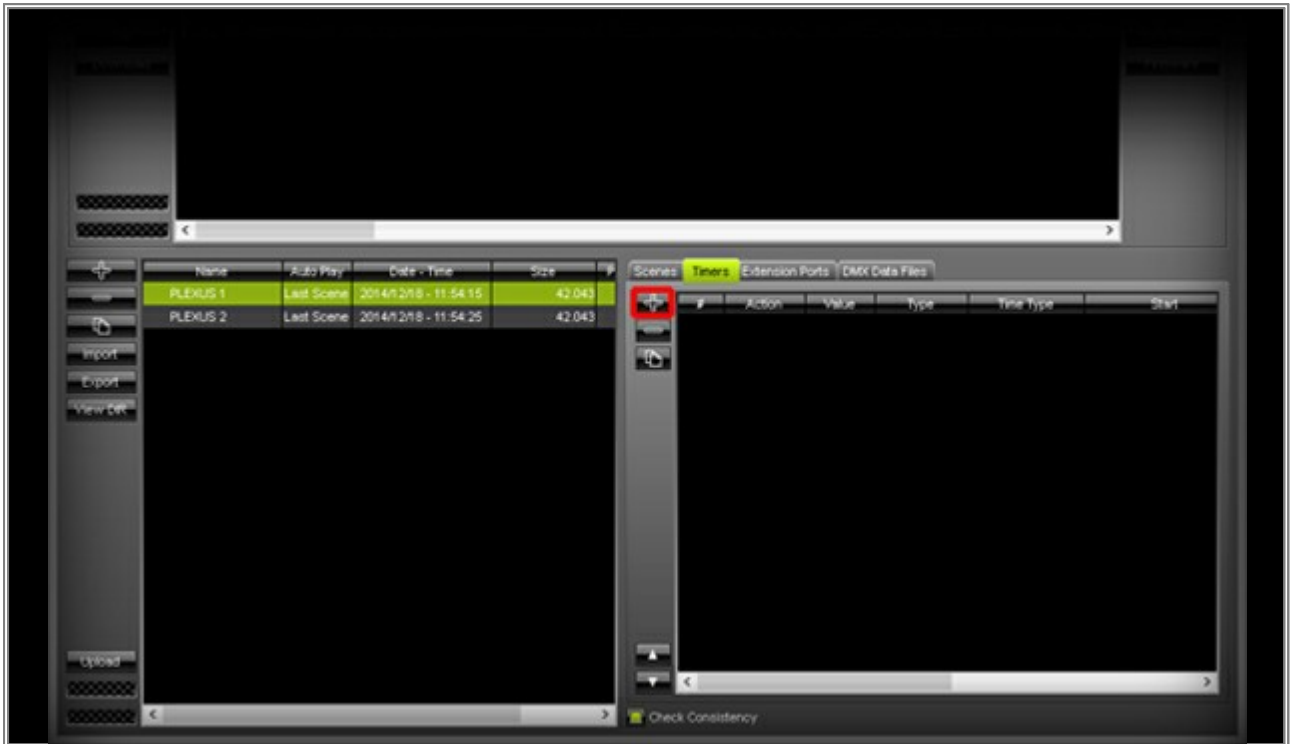
1. Please start MADRIX and open the **PLEXUS Configuration** window (go to **Tools > PLEXUS Configuration...**). When you have created PLEXUS Configurations before, the lower half of this window should look like shown in the image. In this example, we use the Configuration of the tutorials mentioned above.



2. Please select a PLEXUS Configuration on the left side and switch to the **Timers** tab in the lower right of the **PLEXUS Configuration** window. The list will be empty.



3. We will add the first Timer in this step. Click on the **+** button on the left-hand side of the **Timers** list.



A new Timer with the default settings will be added.

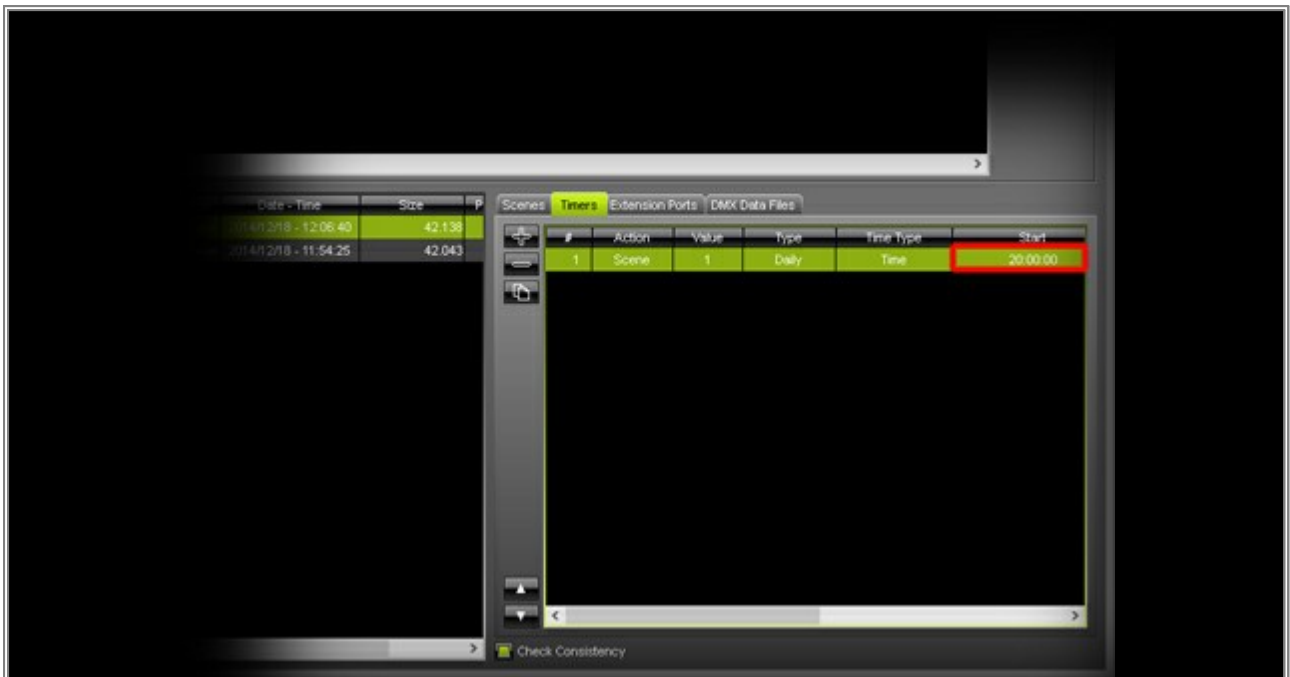
The default settings are:

- **Action: Scene**
- **Value: 1** (That means the first scene will be triggered and activated.)
- **Type: Daily** (The trigger will be activated every day.)
- **Time Type: Time** (This means it will be triggered on a specific time.)
- **Start: 20:00:00** (This is the time when the Timer will be started.)

In this example, we want to play back the recorded Scene 1 every day at 8 o'clock a.m.

You can change the settings with the help of a double-click with the left mouse button on the desired column.

We want to change **Start** to **08:00:00**



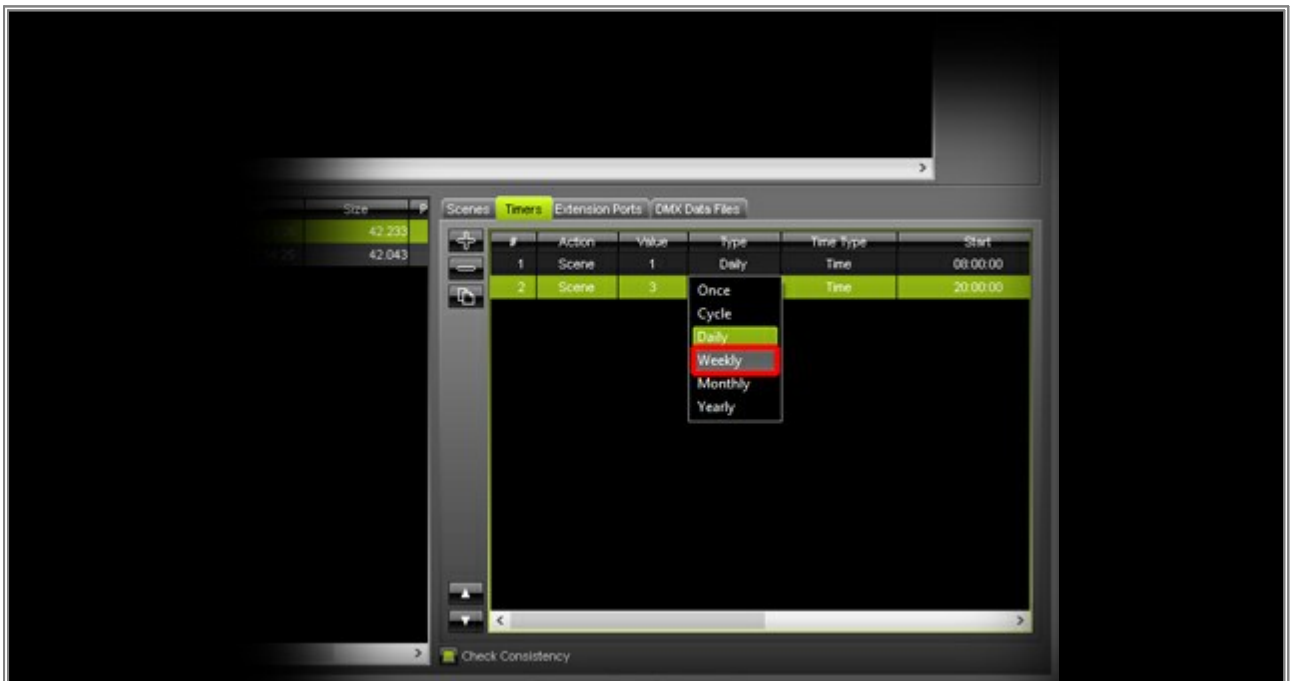
Please change the time to **08:00:00** (or **08:00:00 AM**) and confirm with **OK**. You can see how it has been changed in the list.



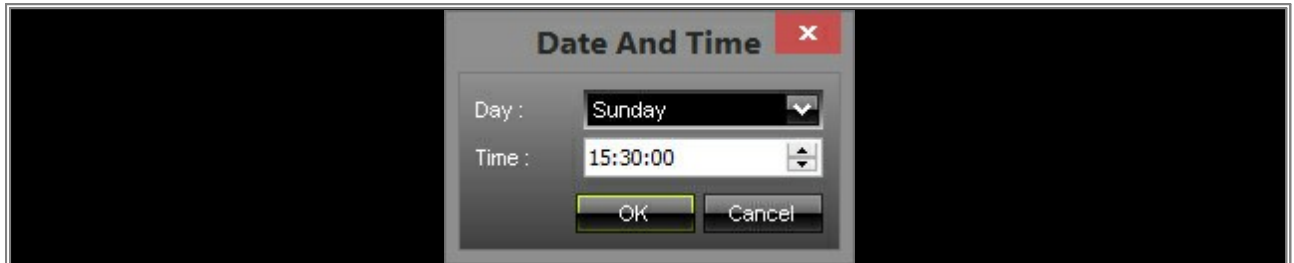
5. In this step, we want to add a Timer that will activate the third Scene on every Sunday. Click the **+** button again. Choose a value of **3** by performing a double-click with the left mouse button on the **Value** column.



Change the **Type** to **Weekly**.



Double-click on the list entry for **Start**. A new window opens. Change the **Day** to **Sunday** and the **Time** to **15:30:00** (or **3:30:00 PM**). Click **OK**



6. Finally, when we have a look at the created Timer, we can see that we created a Timer which will trigger Scene 3 every Sunday at 15:30:00.



Congratulations! You have learned how to create Timers for the MADRIX PLEXUS.

5.1.5 Configuring MADRIX PLEXUS Using The MADRIX Software

In this tutorial, you will learn how you can configure a MADRIX PLEXUS with the help of the PLEXUS Configuration window of the MADRIX software.

Date: 10/2014

MADRIX Version: 3.3 (Created with)

PLEXUS Firmware Version: 1.8.5168 (Created with)

1. Start MADRIX and connect MADRIX PLEXUS via USB or Ethernet to the computer that runs the MADRIX software.

Please note: If you want to use the Ethernet network connection, make sure that the PLEXUS is connected to power via USB or the provided power supply.

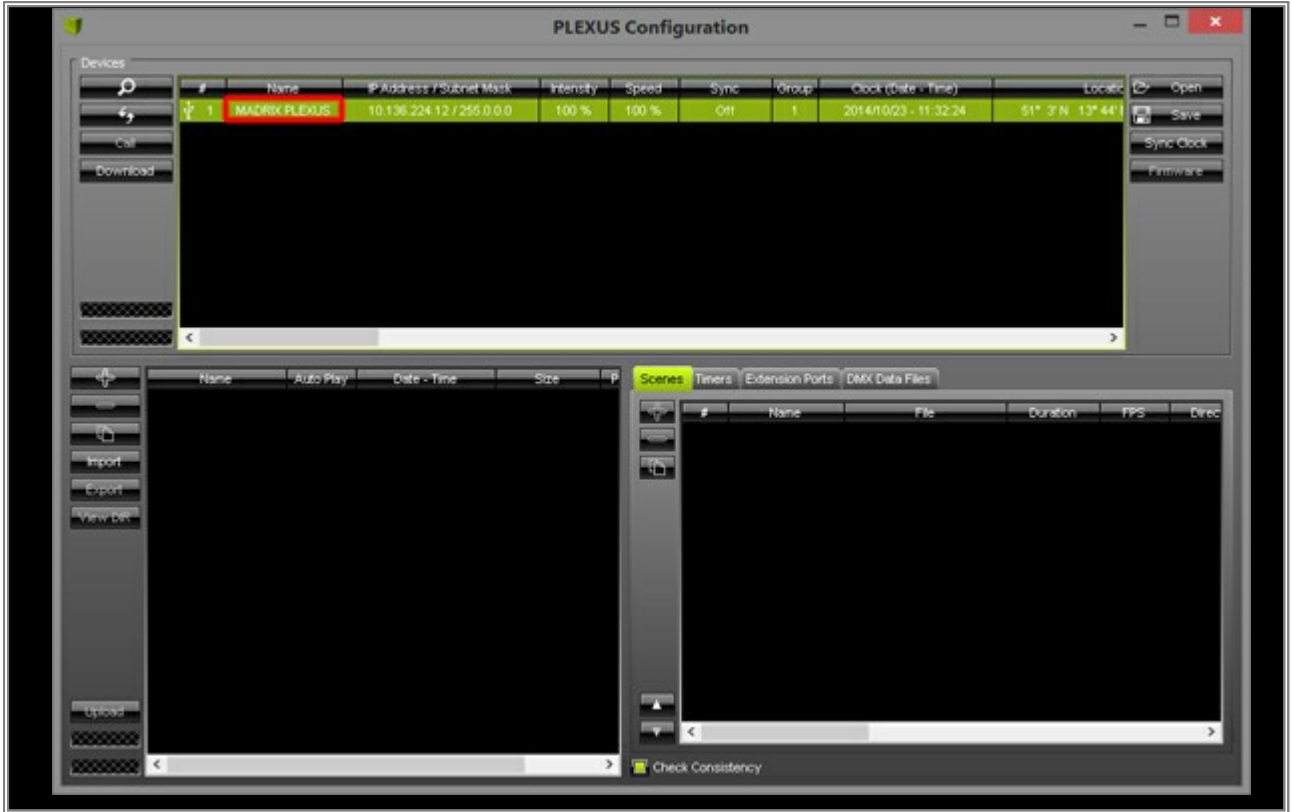
2. In MADRIX, go to the menu **Tools > PLEXUS Configuration...**



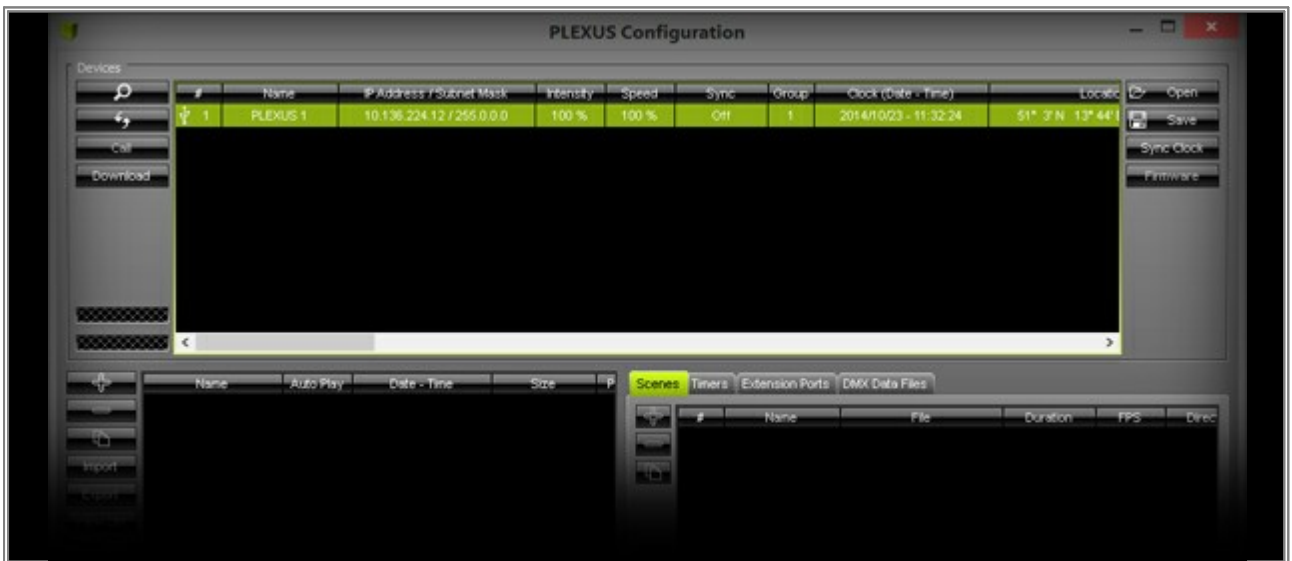
3. The PLEXUS Configuration window opens. In the upper list, you will find the connected PLEXUS devices and you can change all the settings of a PLEXUS.



- 4. First, we want to change the name of the PLEXUS. Select the PLEXUS in the list and perform a double-click with the left mouse button on the name of this PLEXUS. The **Name** will now be editable.



Enter any name. In this example, we are changing the name from **MADRIX PLEXUS** to **PLEXUS 1**.

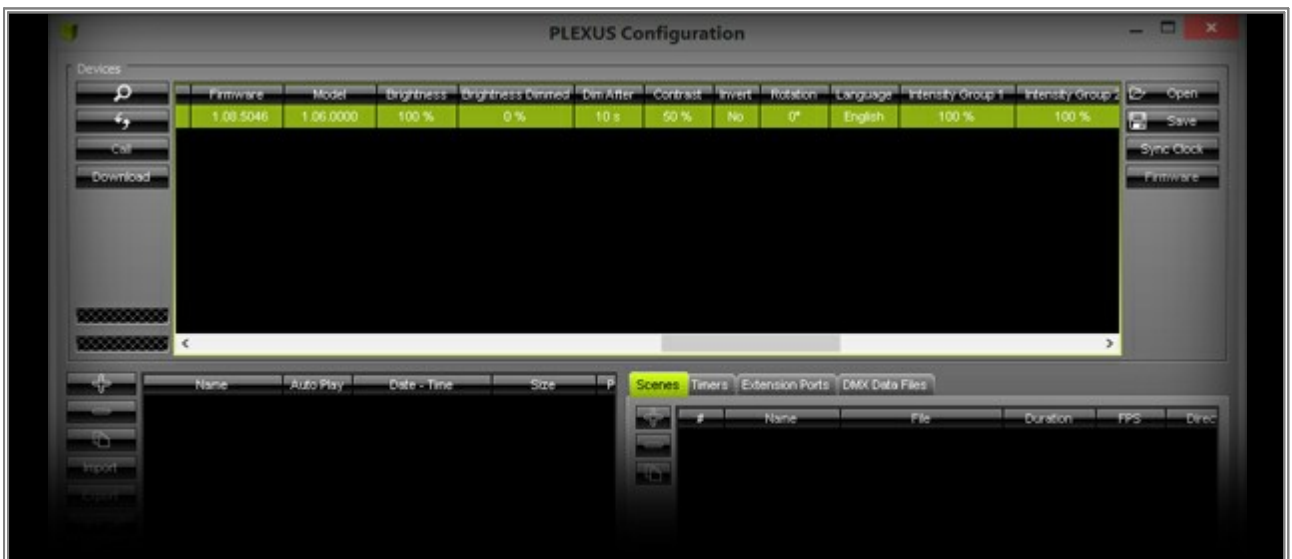


- 5. In this step, we will change the values for **Brightness Dimmed** and **Dim After**. Select the PLEXUS in the list again and scroll sideways to the right until you can see the columns **Brightness Dimmed** and **Dim After**.



In this example, we are changing using a left mouse button double-click:

- 1 **Brightness Dimmed** to **0%**
- 2 **Dim After** to **10 s**



Congratulations! You have successfully changed the first settings. Change any other settings as required.

5.1.6 Changing The MADRIX PLEXUS Network Address

This tutorial shows how you change the network address of a MADRIX PLEXUS on the device itself.

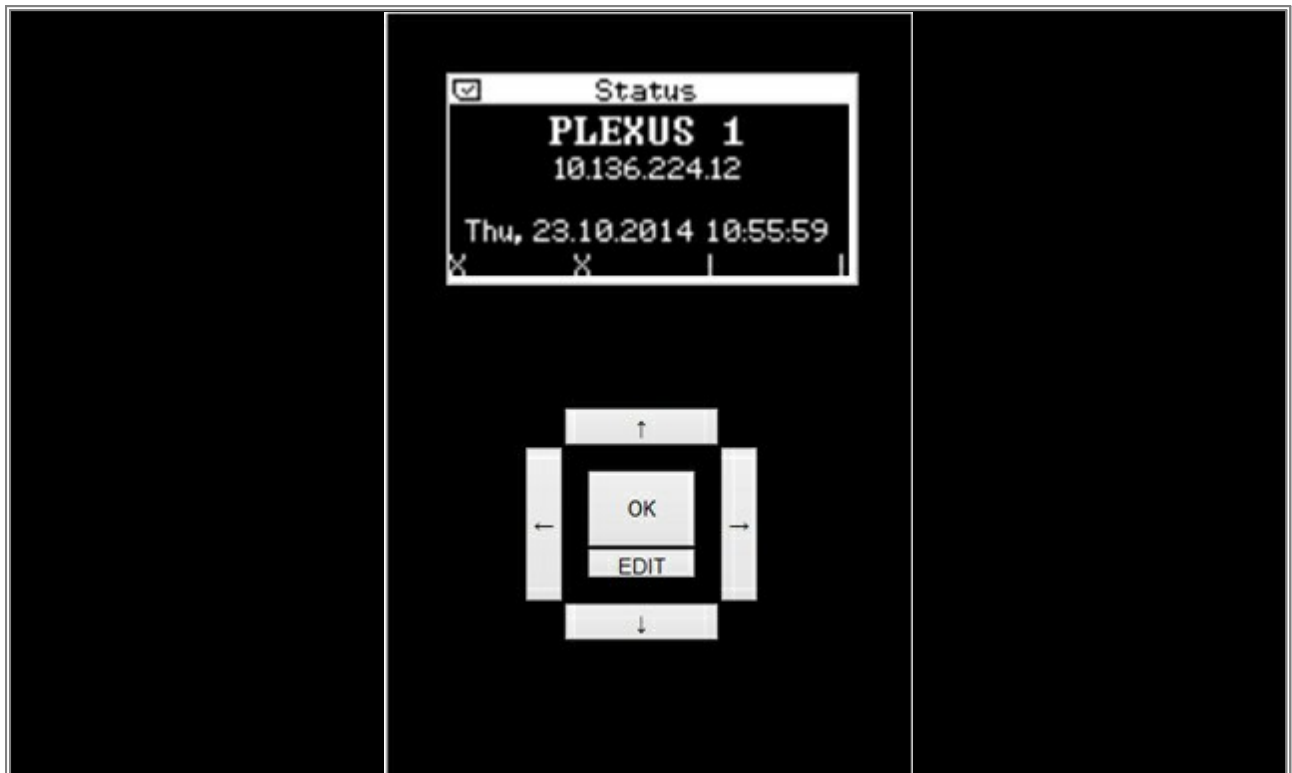
As an example, we will now change the network address of one device from 10.16.1.123 to 2.0.0.123.

Date: 10/2014

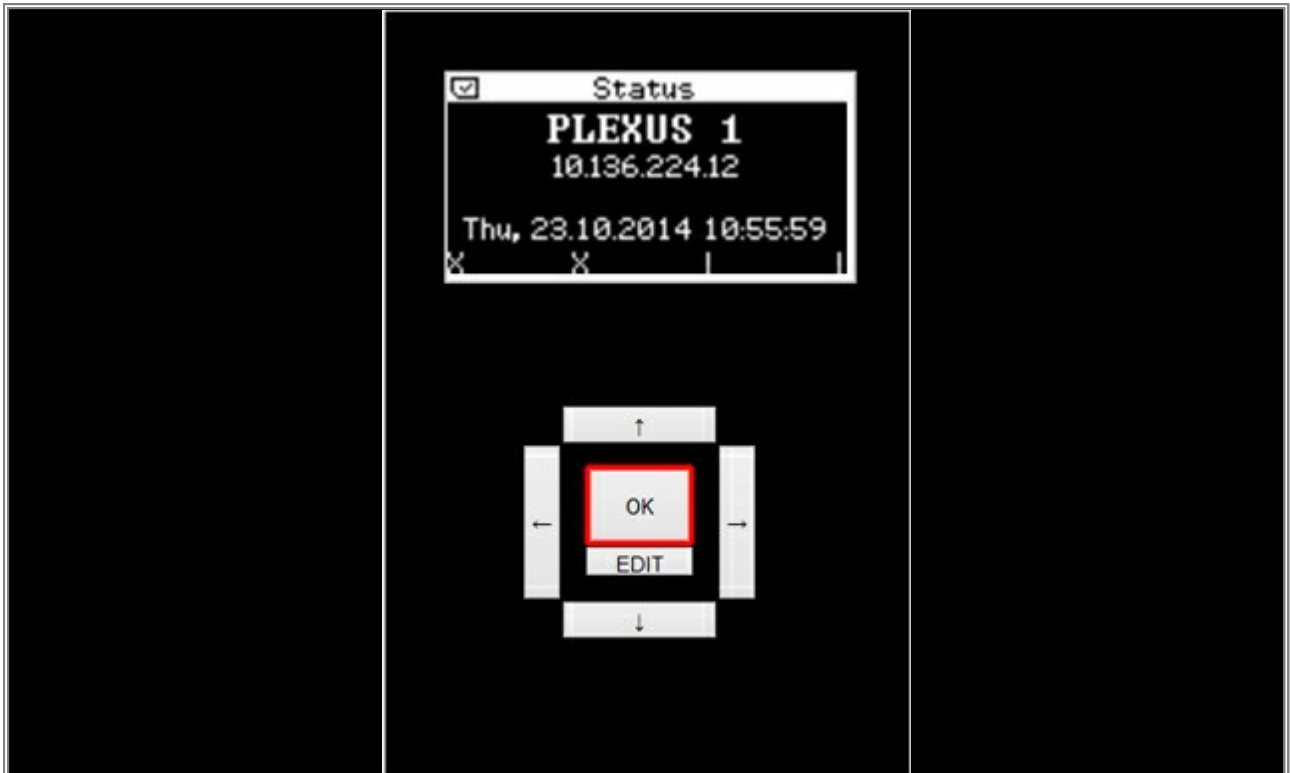
PLEXUS Firmware Version: 1.8.5168 (Created with)

1. Please connect MADRIX PLEXUS to power.

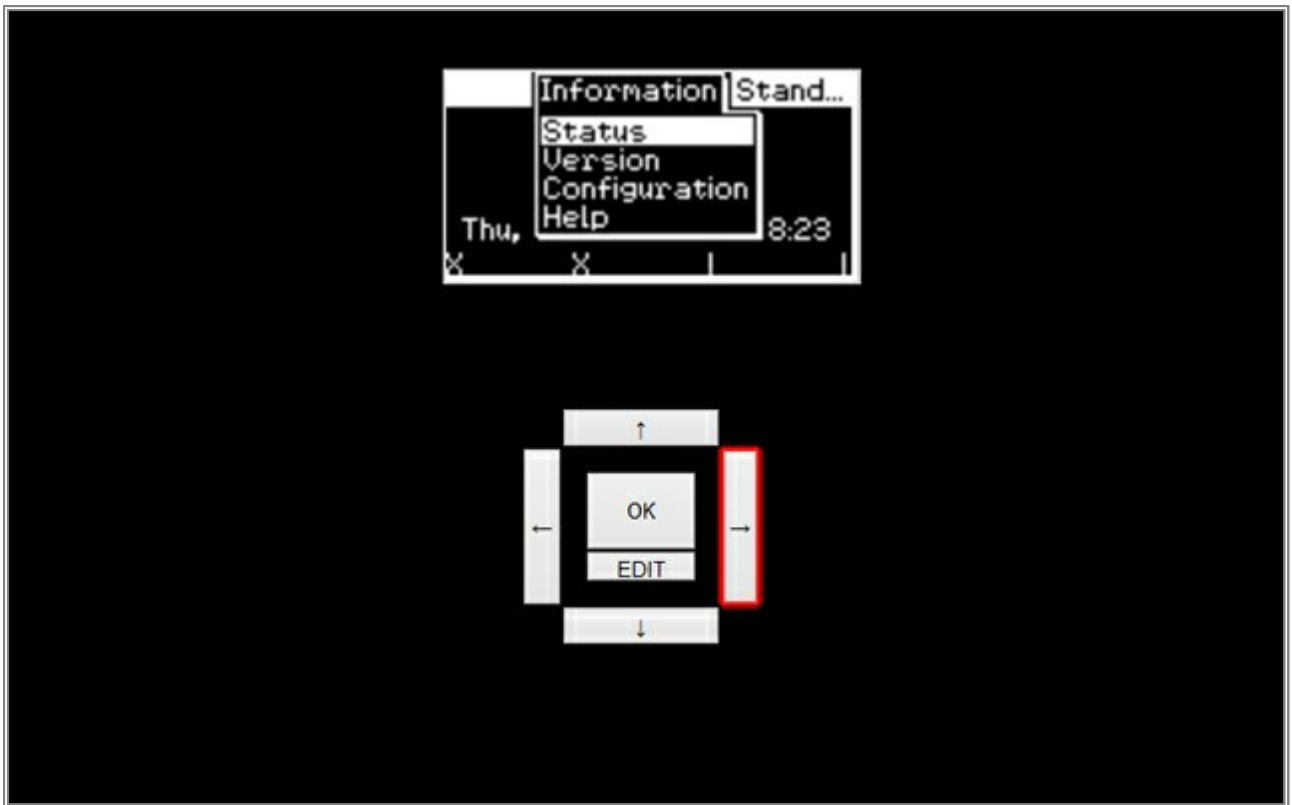
2. After the startup of the device, you can see the **Status** screen of the PLEXUS.



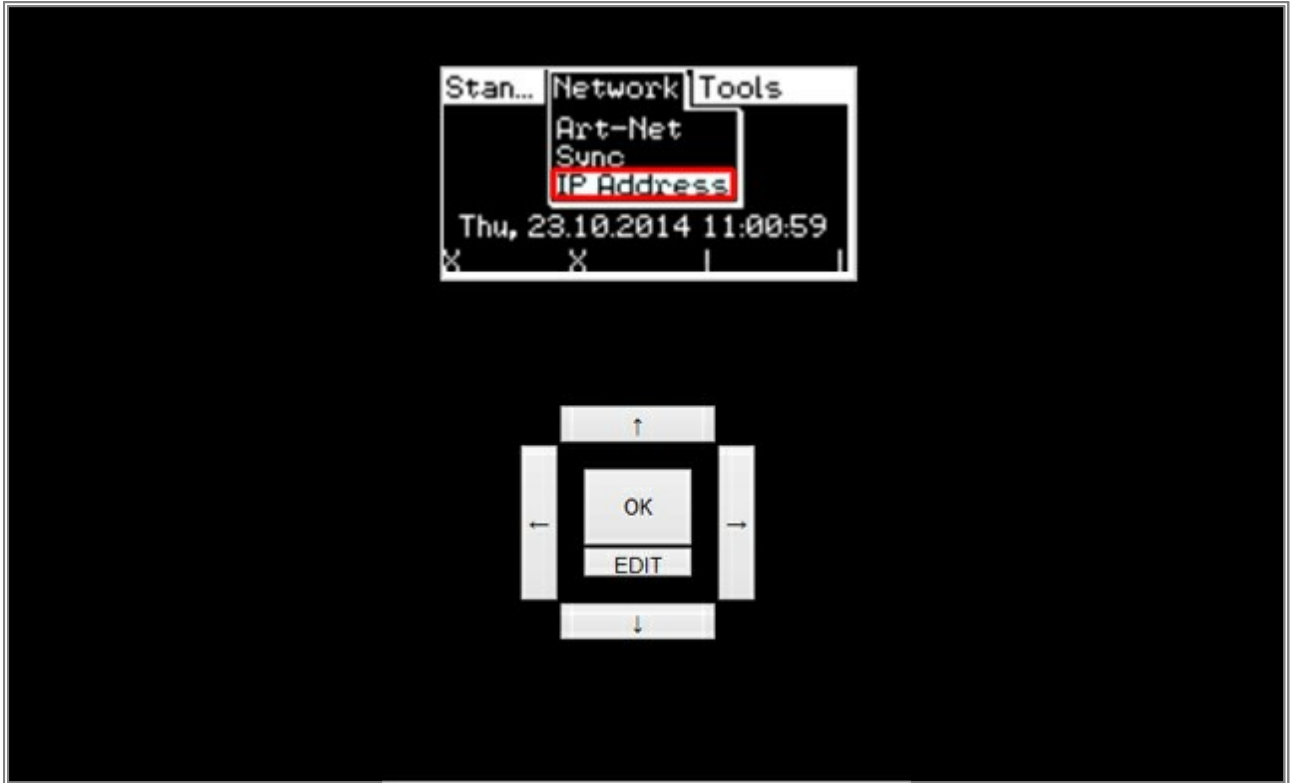
3. Please press the **OK** key on your MADRIX PLEXUS device.



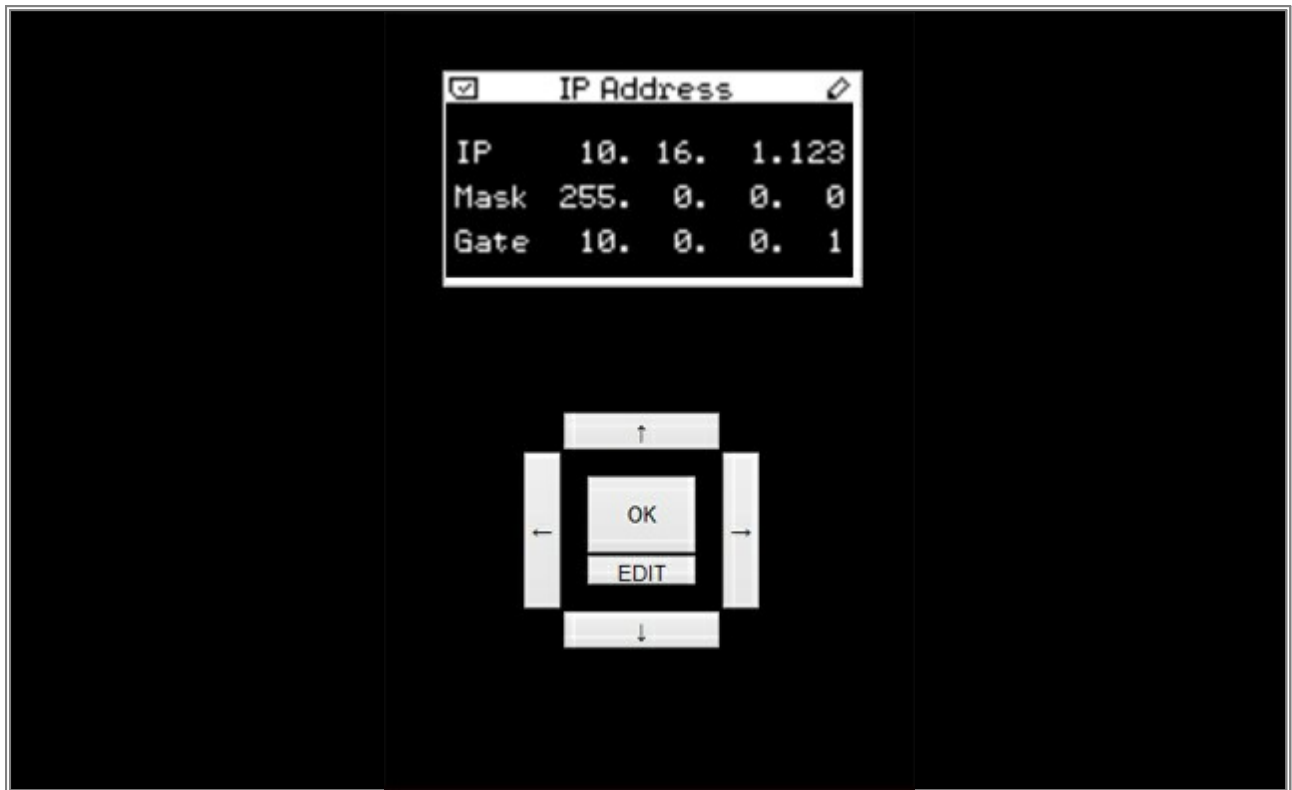
The menu will appear and you can navigate with the help of the arrow keys. Please press the **right arrow** key two times.



- You will reach the **Network** menu. Now, press the **down** key two times. The submenu **IP Address** should be selected. Press **OK**



5. You can now see the **IP Address Settings** of the MADRIX PLEXUS.



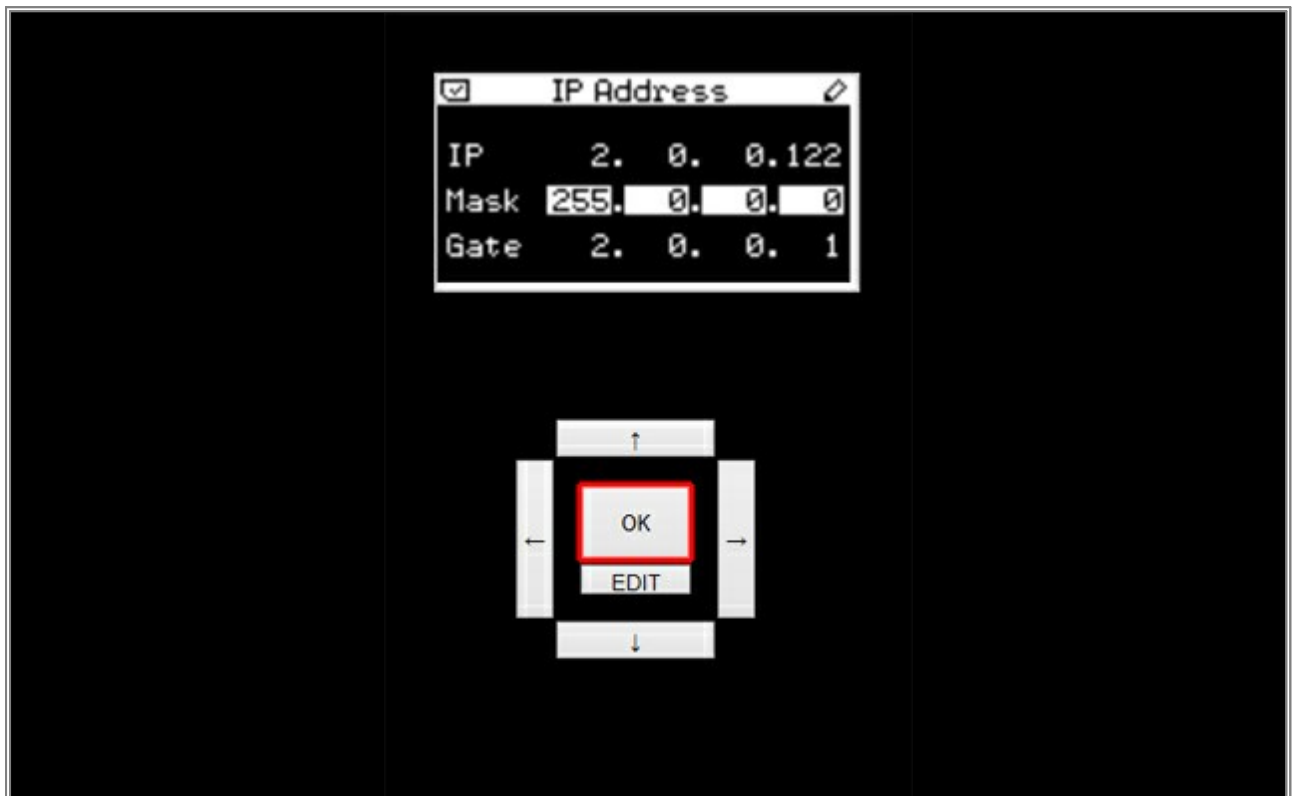
- To change these settings, press the **OK** key for 3 seconds. As a result, you will enter the edit mode and the first number of the IP address will be highlighted in white.



7. We can now change the IP address of the PLEXUS.

Use the **up** and **down** keys to switch columns (octets). Use the **left** and **right** keys to change the values. If you are done changing the settings, press the **OK** key and the settings will be saved.

Note: In this example, we want to change the IP address to 2.0.0.123. We will not change the settings for the subnet mask (**Mask**) and gateway (**Gate**).



Congratulations! You have changed the network address of the MADRIX PLEXUS.

5.1.7 Changing MADRIX PLEXUS Display Settings

In this tutorial, you will learn how you can change the different display settings of MADRIX PLEXUS ('Brightness On', 'Dim After', and 'Display Rotation').

Date: 10/2014

PLEXUS Firmware Version: 1.8.5168 (Created with)

1. Please connect MADRIX PLEXUS to power.
2. Press **OK** to open the menu and navigate with the **arrow keys** on the PLEXUS to **Settings > Display**. Press **OK** to enter the submenu.



A display settings overview will be provided.



- 3. Press the **OK** key for 3 seconds. You will enter the edit mode and the value for **Brightness On** will be highlighted in white.



Use the **left** and **right** arrow keys to change the value of **Brightness On**. In this example, we want to change the value to 50%. Please press and hold the left **arrow** key to decrease the value to **50%**. You should still be in edit mode.



- 4. Now, we want to change the time for **Dim After** to 10 seconds. Press the **down** arrow key 2 times to select the value for **Dim After**. It should be highlighted in white. Press the **left** arrow key again to decrease the time to **10 s**.



Please press **OK** to leave edit mode.

- 5. Press the **OK** key again to open the menu and navigate to **Device**.



Please press **OK** again to enter the submenu and you will see the **Device** settings.



- 6. Press **OK** for 3 seconds, then navigate to **Rotate 180°**, and press the **left** key (or **right**) to rotate the display. Press **OK** and the settings will be saved.

Note: If you change the display rotation, the key mapping will be rotated, too. That means the **up** key will switch to be the **down** key, the **left** key will switch to be the **right** key, and so on.



Congratulations! You have changed various display settings of MADRIX PLEXUS.

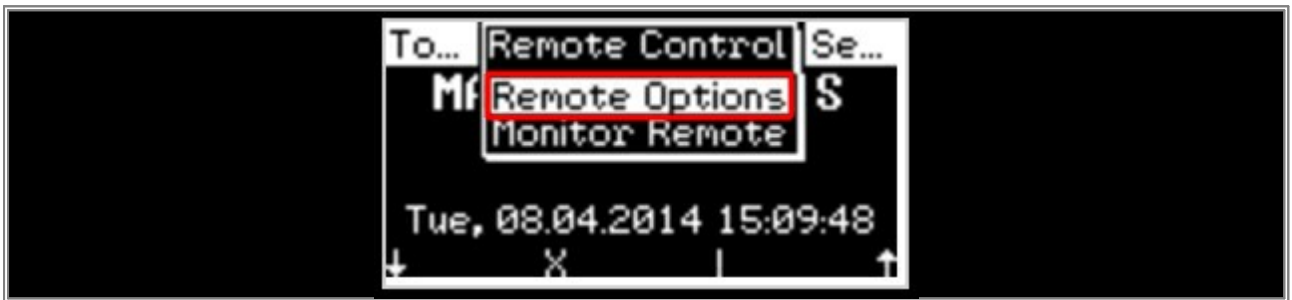
5.1.8 MADRIX PLEXUS Remote Control

In this tutorial, you will learn how you can control MADRIX PLEXUS remotely in Stand-Alone Mode using DMX-IN.

Date: 10/2014

PLEXUS Firmware Version: 1.8.5168 (Created with)

1. Please connect MADRIX PLEXUS to power.
2. Press **OK** and navigate to the menu **Remote Control > Remote Options**



Open the **Remote Options** submenu by pressing the **OK** key.



- 3. In this example, we want to change the value for **Receive Via** to **DMX** and the value for **On Port** to **DMX 2**. Now, press the **OK** key for 3 seconds to enter edit mode. The value for **Receive Via** will be highlighted in white.

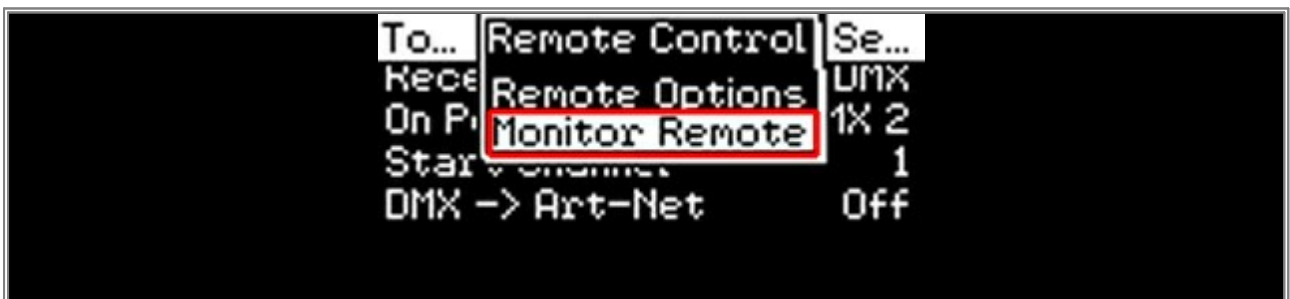


You can change a value with help of the **left** and **right** arrow keys. After changing the value for **Receive Via**, please press the **down** key once and change the value for **On Port** by using the **left** and **right** arrow keys again. After setting these values, confirm the current settings by pressing the **OK** key.



- 4. In this step, we want to test if the PLEXUS receives DMX data on DMX 2. Please connect a console or any other DMX sender to the XLR port **DMX 2**. (Maybe it is necessary to use a 5-pin gender changer.)

In the PLEXUS menu, navigate to **Remote Control > Monitor Remote** and press the **OK** key.



- Now, you will see the **Monitor Remote** screen. If all the settings are correct and if you have connected a DMX sender to DMX 2, you will see the DMX input values on DMX 2.



Please Note: You can find an overview over all remote commands of MADRIX PLEXUS here: »[Remote Commands](#)

Congratulations! Now, you can control MADRIX PLEXUS remotely.

5.1.9 MADRIX PLEXUS Test Sending

This tutorial shows you how you can use MADRIX PLEXUS to send DMX data for testing.

Date: 10/2014

PLEXUS Firmware Version: 1.8.5168 (Created with)

- Please connect MADRIX PLEXUS to power.

- 2. Press **OK** and navigate to **Tools > Test Sending**.



Open the **Test Sending** submenu by pressing the **OK** key.



- 3. We are now able to use the **Test Sending** functionality of the PLEXUS. With the current settings, the PLEXUS will send DMX data on XLR port **DMX 1**.

In this example, we want to send DMX data on DMX channel 4 with a value of 255. Therefore, we have to change the channel number with the **left** and **right** key to **4** and we are changing the value of this channel with the **up** and **down** keys to **255**.

The PLEXUS is now sending the maximum DMX value on channel 4 using the DMX output port 1. You can check this when you connect a fixture to DMX 1 of the PLEXUS. For instance, use a simple RGB fixture and set the start address of the fixture to 4. The fixture will light up in red.



4. The **Test Sending** function also provides other options, which we are going to use now.
Press the **OK** key for 3 seconds and the PLEXUS will switch to the Test Sending options screen.



5. In this step, we want to change the settings for the **Test Sending**.
Change values with the **left** and **right** keys. If you want to change another option of this page, use the **up** and **down** keys to select it and when the desired option is highlighted in white, you can change the value.

- **Send Via** You can change the setting between **DMX** and **Art-Net**. In this example, we want to use **DMX**.

- **Send On Port** When **DMX** is selected, you can change between **DMX 1** and **DMX 2**. When you have chosen **Art-Net**, it switches to **Send On Universe** and you can change the value to a desired universe between 1 and 256. In this example, we want to use **DMX 2**.

- **Show Values As** It is possible to change the view of the DMX value between **Percent**, **Hexadecimal**, and **Decimal**. In this example we want to use **Percent**.

- **Test Mode** This option provides possibility to set the test sending only to:
Channel - The output will be sent only to one channel of the DMX universe.
Universe - Allows you to set different values for different channels of the DMX universe.
All Channels - All channels of the DMX universe will be set to the same output value.

In this example, we want to use **Universe**.



6. Please confirm the settings with the **OK** key. Now, you can see that the PLEXUS will send the DMX data via DMX 2 and the DMX value will be displayed in percent.



Congratulations! You have learned how you can use MADRIX PLEXUS for DMX test sending.

5.1.10 Testing DMX Input And DMX Output

In this tutorial, you will learn how you can use the MADRIX PLEXUS as a DMX testing tool for input and output data.

Sometimes it is necessary to test DMX lines with and without fixtures inbetween. You might need to find an issue in the line. To do so, you can use a special DMX testing device or you can use the integrated DMX testing tool of MADRIX PLEXUS. The PLEXUS provides the possibility to monitor incoming data or outgoing data of its two DMX ports.

Date: 10/2014

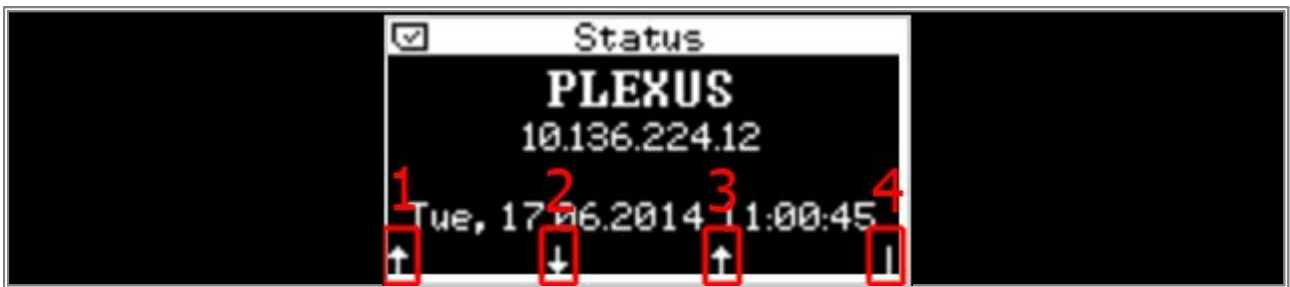
PLEXUS Firmware Version: 1.8.5168 (Created with)

1. Please connect MADRIX PLEXUS to power.
2. The menu **Information > Status** on the PLEXUS already provides useful information. 4 status symbols shown at the bottom indicate the status of the 4 ports at the bottom of MADRIX PLEXUS, including **DMX 1**, **DMX 2**, **USB/Power**, and **Ethernet**.
 - An **arrow from bottom to top** means that the PLEXUS receives data on this port.
 - An **arrow from top to bottom** means the PLEXUS sends data to the port.
 - A **line** means that the PLEXUS neither sends nor receives data on the port.
 - An **X** means that there is currently no connection available at this port.

In this example, the PLEXUS has the following status:

- 1 MADRIX PLEXUS receives DMX data on DMX 1.

- 2 MADRIX PLEXUS sends DMX data on DMX 2.
- 3 MADRIX PLEXUS receives data via USB.
- 4 MADRIX PLEXUS neither receives nor sends data via Ethernet.



3. Now, please navigate to **Tools > Monitor DMX 1** and open the monitor by pressing the **OK** key.



4. In the DMX Monitor of the PLEXUS, you can find the following information:

- 1 Shows the amount of DMX channels in the DMX universe that are currently used.
- 2 Shows the frame rate of the data. If the PLEXUS receives DMX data on this port, you will see the frame rate of incoming data.
- 3 Shows the current DMX value of the currently selected channel. You can change the channel with the **left** and **right** arrow keys. In the screenshot below, channel 3 is shown with a value of 0.

The screenshot below also graphically shows the current DMX values of the complete universe.



5. You can further change how the DMX Monitor looks and shows the data to you. To change it, press the **OK** key for 3 seconds. The PLEXUS will switch to the options page and you can change the following settings:

- **Show As** When the value for **Show As** is highlighted in white, you can choose between **Graphic**, **Table**, and **Channel** with the **left** and **right** arrow keys. In this example, we have chosen **Graphic**
- **Show Values As** When the value for **Show Values As** is highlighted in white, you can choose between **Decimal**, **Hexadecimal**, and **Percent** with the **left** and **right** arrow keys. In this example, we have chosen **Decimal**



Congratulations! You have learned to use the DMX Monitor function of MADRIX PLEXUS.

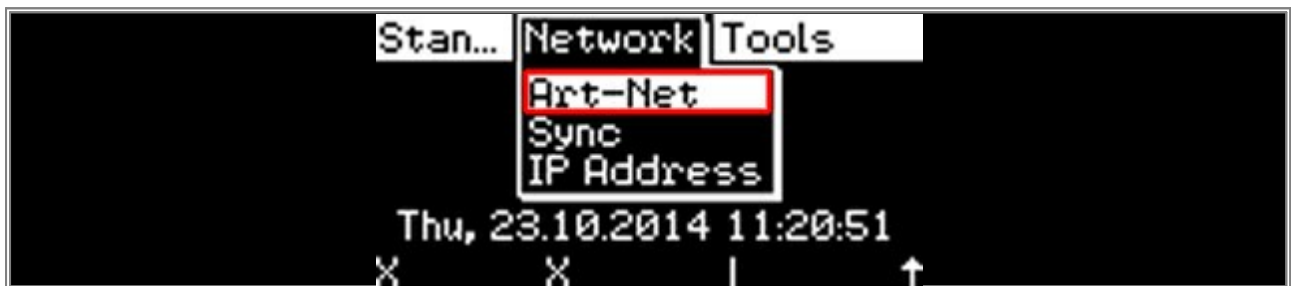
5.1.11 MADRIX PLEXUS Art-Net Configuration

The different Art-Net settings of MADRIX PLEXUS are explained in this tutorial.

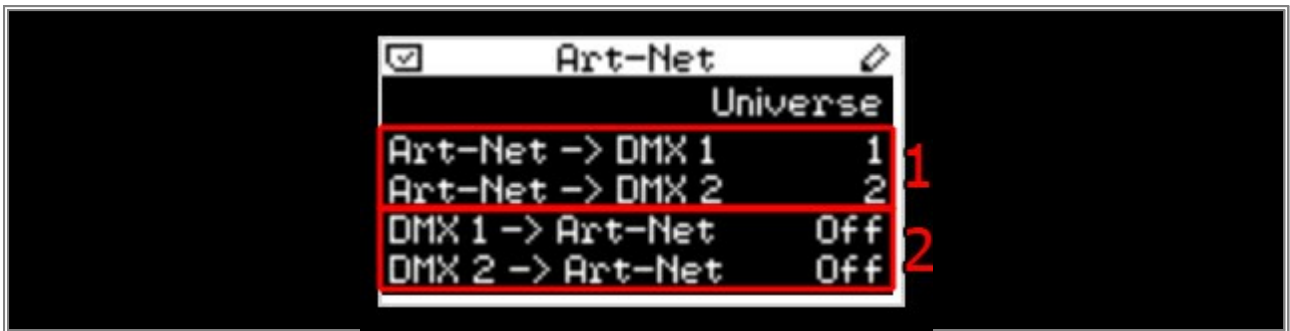
Date: 10/2014

PLEXUS Firmware Version: 1.7.4369 (Created with)

1. Please connect MADRIX PLEXUS to power.
2. Navigate to **Network > Art-Net** and open the Art-Net submenu by pressing the **OK** key.



3. In the Art-Net submenu, you will find two sections:
 - 1 **Art-Net -> DMX 1** and **Art-Net -> DMX 2**: Use this option to change the assignment of Art-Net universes to the DMX 1 and DMX 2 output ports. For instance, you can set that DMX 1 outputs data from Art-Net universe 3.
 - 2 **DMX 1 -> Art-Net** and **DMX 2 -> Art-Net**: Use this option to change the assignment of DMX data to a desired Art-Net universe. With this option, you can use the PLEXUS as Art-Net sender.



- 4. Let us now change the Art-Net assignment of output DMX 1 and output DMX 2. Please press the **OK** key for 3 seconds and the value for **Universe** for DMX 1 will be highlighted in white. You are able to change the Art-Net universe assignment by using the **left** and **right** keys. Use the **up** and **down** keys to select which option you want to change. In this example, we want to change port DMX 1 to **Universe 3** and port DMX 2 to **Universe 4**. Please confirm the new settings with **OK**



The Art-Net universe assignment has now been changed. That means if an lighting console or other Art-Net sender sends Art-Net data to Art-Net universe 3, this data will be put out on DMX 1. If the console sends Art-Net data to Art-Net universe 4, the PLEXUS will send it on DMX 2.

Note: If you want to use the PLEXUS as Art-Net sender, please set **Art-Net -> DMX 1** and **Art-Net -> DMX 2** to **OFF**.

Congratulations! You have finished the MADRIX PLEXUS Art-Net configuration tutorial.

//PART F

Imprint And Copyright

6 Imprint And Copyright

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