# MADRIX LUNA User Manual

[Hardware User Guide]

Date: July 2023




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MADRIX
LIGHTING CONTROL

# //PART 1

*Overview*

# 1 Overview

## Topics Of This Chapter


- Introduction
- Hardware Features


## 1.1 Introduction

**This topic includes:**


- MADRIX LUNA

# MADRIX LUNA




MADRIX LUNA is an easy-to-use and reliable network node.

The MADRIX LUNA reliably distributes DMX512 data over long or short distances using Ethernet network or USB. Its sync mode makes sure that lighting effects look their best on the LEDs.

3 versions are available:

- MADRIX LUNA 4
- MADRIX LUNA 8
- MADRIX LUNA 16

## 1.2 Hardware Features

**This topic includes:**

- Important Notes

- Using A 3rd-Party Controller
- LED Status Codes
- Automatic HTP Merging
- Reset To Factory Default Settings
- Initiate Poll


# Important Notes

- **Make sure to read the provided MADRIX LUNA Technical Manual & Quick Start Guide first!**
  Find it in your product box or download it from »help.madrix.com

## Using A 3rd-Party Controller

MADRIX LUNA is a standard node for Art-Net or Streaming ACN [sACN]. Because of this, you can use the device with applications, consoles, desks, or controllers that are compatible with Art-Net or Streaming ACN to distribute data via Ethernet network.

# LED Status Codes

The following tables describe the LED status codes on the front of the device.

| STATUS | POWER |
|---|---|
| ***owered off*** | Power cable not connected.<br>> The device has no power. |
| **Permanently green** | Connected to power.<br>> The power is on. |

| STATUS | ETHERNET | USB |
|---|---|---|
| ***owered off*** | Ethernet not connected<br>or the device has no power. | USB not connected<br>or the device has no power. |
| **Permanently green** | Connected to Ethernet.<br>> No data is sent or received over Ethernet. | Connected to USB.<br>> No data is sent or received over USB. |
| **Blinking green** | Communicating over Ethernet.<br>> Sending or receiving data over Ethernet. | Communicating over USB.<br>> Sending or receiving data over USB. |

| STATUS | DMX-IN | DMX-OUT |
|---|---|---|
| ***owered off*** | DMX not connected<br>or the device has no power. | DMX not connected<br>or the device has no power. |
| **Blinking green** | Receiving data via DMX-IN.<br>> The device works correctly. | Sending data to DMX OUT.<br>> The device works correctly. |

# Automatic HTP Merging

## Overview

- MADRIX LUNA features automatic HTP merging from 2 Ethernet sources.

[Usually, the first source will be MADRIX 5. The second source could be a console, for example.]

- Data from both source will be merged together and sent out as 1 signal. This happens across all 8 output ports and by using the HTP principle.
- ***HTP*** - Is the acronym for Highest Takes Precedence. Data from both sources will be compared for each individual channel. The higher value wins per channel.
- Sources can be:
  - 1x Art-Net + 1x Art-Net
  - 1x Art-Net + 1x sACN
  - 1x sACN + 1x sACN

- **Example:** We are using an LED fixture with a total of 5 control channels [3 color channels and 2 movement channels]. MADRIX 5 should provide the color data for channels 1 to 3 and the console should provide the movement data for channels 4 and 5. Using the MADRIX 5 Fixture Editor, we could create a corresponding fixture where channel 4 and 5 are set up as ***Fixed*** channel using always a value of ***0***. On the other hand, the console will always send a value of ***0*** for the first 3 channels of each fixture. This will ensure that the data from the console will always provide the higher value on channels 4 and 5, while MADRIX 5 provides the color data. Due to the automatic HTP merging of the device, the LED fixture will receive correct data from both sources as desired.

## Configuration And Recommendations When Merging Art-Net

**1]** Correctly set up and enable Art-Net for each source.

**2]** Make sure to activate ***ArtSync*** for Art-Net in MADRIX 5. Learn more »**Sync Mode**

**3]** Make sure that MADRIX 5 has a different IP address in the same IP address range compared to the second source.

**4]** Always use ***Unicast Mode*** in MADRIX 5 to directly send data to the correct IP addresses of your MADRIX LUNA devices.

[It is not recommend to have any of the two sources or any other source in the network to send data via Broadcast Mode.]

# Reset To Factory Default Settings

## Reset Via Reset Button

- **1]** Disconnect MADRIX LUNA from power.
- **2]** Use a suitable tool to press the reset button on the unit's back side.
- **3]** Continue to press the reset button and connect to power again.
- **4]** Continue to press the reset button and wait until all status LEDs on the front of the device flash repeatedly or wait 10 seconds.

## Reset Via Ethernet [Web Configuration]

- **1]** Connect MADRIX LUNA to power.
  [Please see safety instructions in the ***MADRIX LUNA Technical Manual & Quick Start Guide***]
- **2]** Connect MADRIX LUNA and your computer to the same Ethernet network.
- **3]** Assign correct network settings for your computer in the operating system.
  [Recommended default settings: IP address 10.0.0.1 / Subnet mask 255.0.0.0]
- **4]** Open your web browser and enter the IP address of MADRIX LUNA. The built-in web configuration tool will be launched.
  [You can find the default IP address on the back side of the device.]
- **5]** Click ***Reset***
  Learn more »**Web Configuration [Ethernet]**

## Reset Via USB Or Ethernet [MADRIX HARDWARE MANAGER]

- **1]** Connect MADRIX LUNA to power.
  [Please see safety instructions in the ***MADRIX LUNA Technical Manual & Quick Start Guide***]
- **2]** Connect MADRIX LUNA to your computer via USB or Ethernet.
  [You can use the provided USB cable or a separate network cable is required.]
- **3]** Start the separate ***MADRIX HARDWARE MANAGER***
  [In Windows 10, go to ***Start > MADRIX HARDWARE MANAGER > MADRIX HARDWARE MANAGER***
- **4]** Select a device/devices in the list.

- **5]** ***Right Mouse Click > Restore Factory Default Settings***
  [Wait for the reset process to end [usually it takes only seconds.]
  Learn more »**MADRIX HARDWARE MANAGER [USB / Ethernet]**

## Initiate Poll

During normal operation, quickly pressing the Reset button sends an Art-Net PollReply and a MADRIX PollReply for device discovery to the network.

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# //PART 2

*Device Configuration*

# 2 Device Configuration

**This topic includes:**


- Overview
- Topics Of This Chapter


## Overview

- **Web Configuration:** The built-in web configuration is the main way of configuring your devices. By using a standard web browser, you gain quick access to all device settings.
- **MADRIX HARDWARE MANAGER:** This software is available separate. You can use it specifically to manage MADRIX hardware products, including their basic configuration and firmware updates.

## Topics Of This Chapter


- Web Configuration [Ethernet]
- MADRIX HARDWARE MANAGER [USB / Ethernet]


## 2.1 Web Configuration [Ethernet]

**This topic includes:**


- Configuration Using A Web Browser

# Configuration Using A Web Browser

When connected to Ethernet network, you can easily configure MADRIX LUNA using the built-in web configuration interface.

You have 2 options to access the web interface. Both, LUNA and your computer, need to be in the same network.

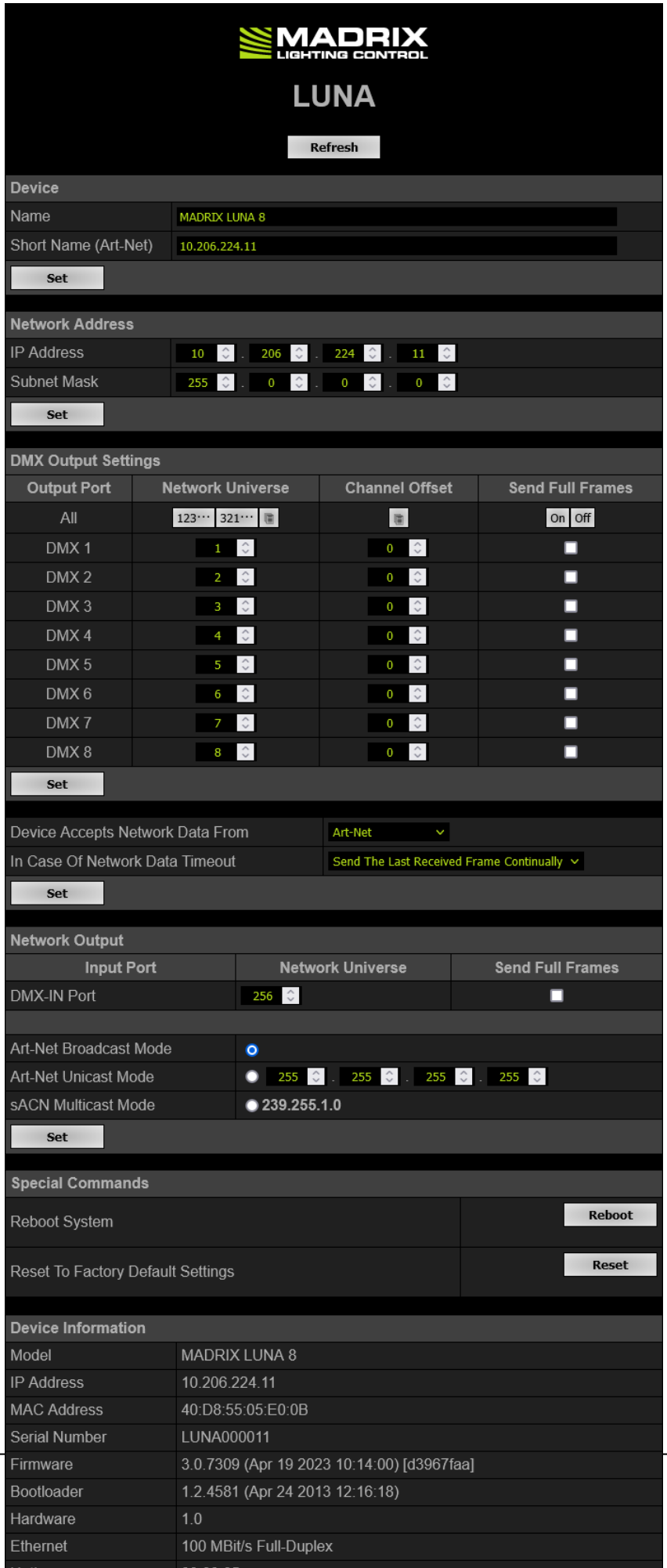
**A]** Using a standard web browser:

- Connect MADRIX LUNA and your computer to the same network.
- Assign correct network settings for your PC in the Windows operating system.
  [Recommended default settings: IP address 10.0.0.1 / Subnet mask 255.0.0.0]
  [Please note: Your devices and the sender, such as the PC that runs MADRIX 5, need to have the same subnet mask!]
- Open your web browser and enter the IP address of MADRIX LUNA.
  [You can find the default IP address on the back side of the device.]
- The web configuration page will be launched. Now, you have access to various information and settings.

**B]** Using the MADRIX 5 Software:

- Connect MADRIX LUNA and your computer to the same network.
- Assign correct network settings for your PC in the Windows operating system.
  [Recommended default settings: IP address 10.0.0.1 / Subnet mask 255.0.0.0]
- Go to the menu ***Tools > MADRIX Device Configuration...***
  [Keyboard shortcut: ***Ctrl+Alt+L***]
- Select your MADRIX LUNA device in the list.
- Click 

- Your default web browser will open and the web configuration page will be launched. Now, you have access to various information and settings.


MADRIX
LIGHTING CONTROL
LUNA
Refresh
Device
Name
MADRIX LUNA 8
Short Name (Art-Net)
10.206.224.11
Set
Network Address
IP Address
10 . 206 . 224 . 11
Subnet Mask
255 . 0 . 0 . 0
Set
DMX Output Settings
Output Port
Network Universe
Channel Offset
Send Full Frames
All
123··· 321···
On Off
DMX 1 1 0
DMX 2 2 0
DMX 3 3 0
DMX 4 4 0
DMX 5 5 0
DMX 6 6 0
DMX 7 7 0
DMX 8 8 0
Set
Device Accepts Network Data From
Art-Net
In Case Of Network Data Timeout
Send The Last Received Frame Continually
Set
Network Output
Input Port
Network Universe
Send Full Frames
DMX-IN Port
256
Art-Net Broadcast Mode
Art-Net Unicast Mode
255 . 255 . 255 . 255
sACN Multicast Mode
239.255.1.0
Set
Special Commands
Reboot System
Reboot
Reset To Factory Default Settings
Reset
Device Information
Model
MADRIX LUNA 8
IP Address
10.206.224.11
MAC Address
40:D8:55:05:E0:0B
Serial Number
LUNA000011
Firmware
3.0.7309 (Apr 19 2023 10:14:00) [d3967faa]
Bootloader
1.2.4581 (Apr 24 2013 12:16:18)
Hardware
1.0
Ethernet
100 MBit/s Full-Duplex

***Device***

***Name -*** Allows you to change the main label of the device by entering a name. A name is given by default.

- This refers to LongName within Art-Net with a maximum of 64 characters.
- This refers to Source Name within sACN with a maximum of 63 characters.
- This refers to the communication with the MADRIX 5 Software over Ethernet network or USB.

***Short Name (Art-Net) -*** Allows you to change the ShortName identifier used by Art-Net. The default setting is the IP address of the device.

Confirm with ***Set***

***Network Address***

You can change the basic network device settings.
Confirm with ***Set***

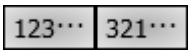
- ***IP Address***
- ***Subnet Mask***
  [Please note: Your devices and the sender, such as the PC that runs MADRIX 5, need to have the same subnet mask!]

***DMX Output Settings***

This section shows the settings for the DMX output ports [DMX 1 - 4/8/16].
Confirm with ***Set***

***Network Universe -*** Assigns the universe to the particular output port.

- By default, universe 1 - 4/8/16 are assigned to the output ports DMX 1 - 4/8/16. [This is the recommended setting when using one MADRIX LUNA].
- If you are broadcasting data for a large number of Universes [using Broadcast Mode instead of using Unicast Mode] with MADRIX 5 or a 3rd-party controller for example, you can assign different DMX universes to each LUNA device with these settings. Each MADRIX LUNA will then only receive data from the specific universe and send it to its specified output port.
  **Example:** You can set up that LUNA 8 #1 only listens to Art-Net universe 1 - 8, while LUNA 8 #2 listens to Art-Net universe 9 - 16, and LUNA 8 #3 listens to Art-Net universe 17 - 24, and so on.

- Universes are shown in hexadecimal notation and Art-Net Net switch / sub-net switch notation in the tooltips of the network universe.
- 

Automatically and consecutively numbers all universes in ascending or descending order based on the first port.
-  Sets the value of the first port for all ports.

***Channel Offset -*** Allows you to shift the received DMX universe [512 DMX channels] per port if required.

- This will modify the output.
- ***+1 To +511 -*** Adding a positive channel offset will shift the received channels to higher channel numbers.
  - Example: Received channel #1 will be shifted to channel #11 by using a channel offset of 10.
  - That means that new channels are added to the data [in front of the received data block, with DMX value 0], while any channels that now would be higher than 512 will be removed.
  - Example, continued: Channels 1 to 10 are newly added, while channels 503 to 512 are removed.
- ***-1 To -511 -*** Adding a negative channel offset will shift the received channels to lower channel numbers.
  - Example: Received channel #512 will be shifted to channel #412 by using a channel offset of -100.
  - That means that the first channels will be removed. The frame will be shorter.
  - Example, continued: Channels 1 to 100 are now removed and the frame has 412 channels in total.
- Example: Your fixture should start with DMX channel 7.
  - In the ideal case, you would set its DMX start address to 7.
  - If your fixture somehow is set to channel 6, you could increase its start address by +1.
  - Or you could shift the data that is sent by your device by -1 in order to change the data from channel #7 to channel #6.

[If you cannot change the fixture's settings or you cannot reach it anymore, for example.]

- Please note: According to the DMX512 standard, a minimum of 21 channels will always be sent.
- A Channel Offset can have several advantages, such as splitting a single universe onto multiple output ports.
  - For example, your sender can only send on one universe and you wish to output it on two ports.
  On DMX 1, you would like to send the first 150 channels and on DMX 2, you would like to send channels 151 to 300.
  Then, you can set both to the same universe and set a Channel offset of 150 for DMX 2.
-  Sets the value of the first port for all ports.

***Send Full Frames -*** Activates that always 512 channels will be sent out.

- 512 channels are sent per frame even if the data that is received by the device includes less than 512 channels for this port and universe.
- The device automatically sends values of 0 on channels that are not used.
- 

Enables or disables Send Full Frames for all ports.

***Device Accepts Network Data From -*** Defines the data source for the device. Choose from the following options:

- ***Art-Net***
- ***Streaming ACN***
- ***Art-Net And sACN***

***In Case Of Network Data Timeout -*** Allows you to specify the output settings should the device not receive data anymore for a specified DMX universe. Choose from the following options:

- ***Send The Last Received Frame Continually***
- ***Send Black Frames Continually***
- ***Stop Sending After Sending A Black Frame***
- ***Stop Sending***

***Network Output***

This section allows you to specify settings for DMX input, which is sent out to the network from the device.
When data is received through the DMX-IN port, MADRIX LUNA will automatically forward it to Ethernet network.
Confirm with ***Set***

***Network Universe -*** LUNA can receive 512 channels via the DMX-IN port. This setting defines on which universe those 512 channels are sent.

- By default, ***256*** is selected.
- Valid values range from 1 to 32768.

***Send Full Frames -*** Activates that always 512 channels will be sent out.

- 512 channels are sent per frame even if the data that is received by LUNA includes less than 512 channels for this port and universe.
- LUNA automatically sends values of 0 on channels that are not used.

- ***Art-Net Broadcast Mode -*** Sends Art-Net data to all IP addresses in the network.
- ***Art-Net Unicast Mode -*** Sends Art-Net data only to one recipient, e.g. your computer that runs MADRIX 5. Enter the IP address of your receiver here.
- Use ***sACN Multicast Mode -*** Use it to specify data to be sent out via Streaming ACN to IP address 293.255.1.0

***Special Commands***

***Reboot - Reboot System -*** Restarts the device completely. [The website will automatically be reloaded after a few seconds.]

***Reset - Reset To Factory Default Settings -*** Restores the original settings of the device. [Since this may change back the IP address to the original setting, the website will automatically be reloaded after a few seconds and you will automatically be redirected to the correct website and IP address.]

***Device Information***

This section displays various details about the device, including:

- ***Model*** [The device type.]
- ***IP Address*** [The current IP address.]
- ***MAC Address*** [A permanent, unique address.]
- ***Serial Number***
- ***Firmware*** [The current firmware version.]
- ***Bootloader*** [The current bootloader version.]
- ***Hardware*** [The hardware revision.]
- ***Ethernet*** [The current status of the network connection.]
- ***Up Time*** [The time that has passed since the last power-cycle or restart.]

## 2.2 MADRIX HARDWARE MANAGER [USB / Ethernet]

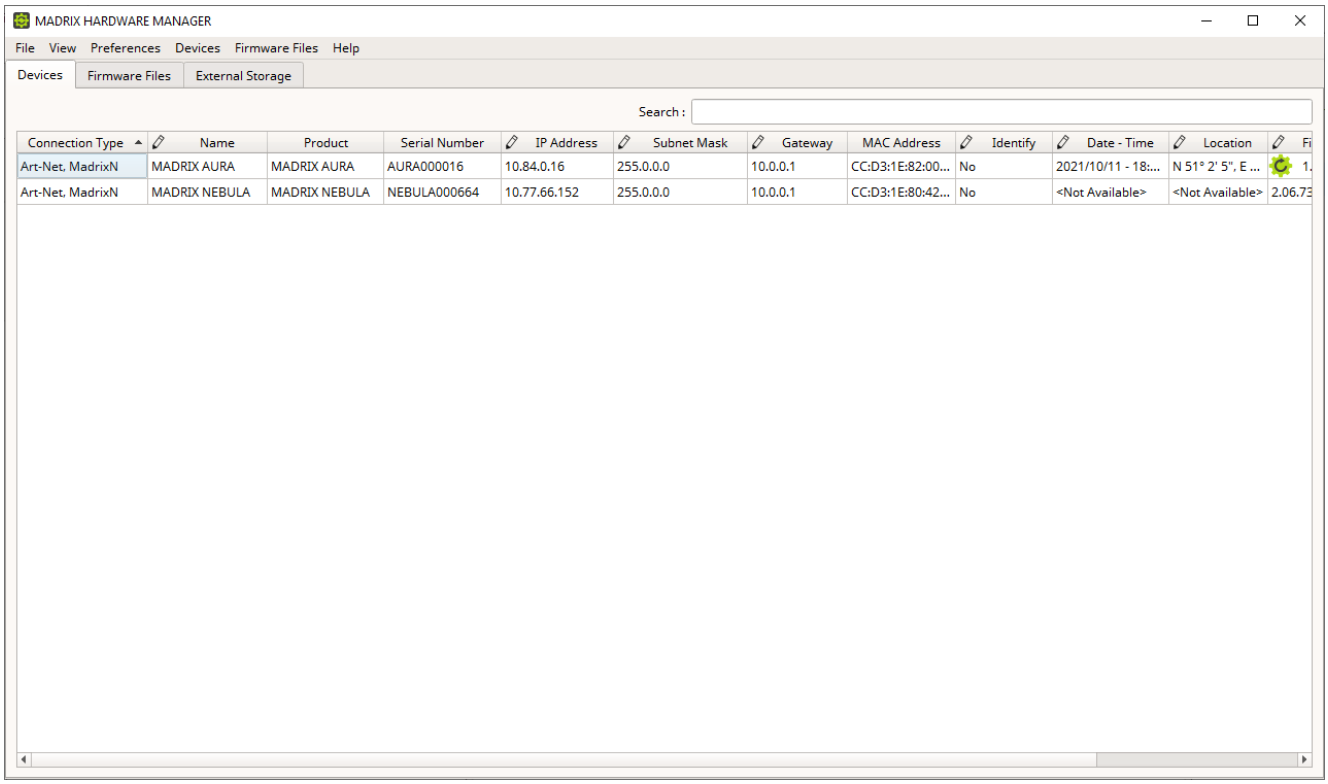
**This topic includes:**


- Overview
- Device Configuration
- Firmware Updates
- More Information

# Overview

MADRIX HARDWARE MANAGER is a software tool that is available separately and allows you to manage MADRIX hardware products.
It can be used for basic device configuration and to update the firmware of your device.

Download from »www.madrix.com




# Important Information

- **Either use USB or the Ethernet connection!**

  **- When using both connection types devices will be shown with two different entries in the list, which may lead to severe issues when accidentally updating the device over both connections simultaneously.**

- **Make sure to -stop- sending control data to your devices when managing them with MADRIX HARDWARE MANAGER.**
  **- This refers to input and/or output over Art-Net, sACN, DMX512, etc.**
  **- Otherwise, changes and updates might fail. If an update fails, stop sending data and try to update the firmware again.**

# Device Configuration

## Basic Configuration

- **1]** In ***MADRIX HARDWARE MANAGER***, navigate to the ***Devices*** tab.
- **2]** You will see connected devices in a list including their current main settings.
- **3]** Basic settings can be changed and configured, including ***Name***, ***IP Address***, ***Network Mask***, ***Gateway***, and more.

## Open Web Configuration

- **1]** In ***MADRIX HARDWARE MANAGER***, navigate to the ***Devices*** tab and select a device/devices in the list.
- **2]** ***Right Mouse Click > Open Device Configuration Via HTTP...*** opens your standard web browser and the built-in web configuration of the selected device.
- Learn more »Web Configuration [Ethernet]

## Restore Factory Default Settings

- **1]** In ***MADRIX HARDWARE MANAGER***, navigate to the ***Devices*** tab and select a device/devices in the list.
- **2]** ***Right Mouse Click > Restore Factory Default Settings*** restores the original settings of the device. [Since this may change back the IP address to the original setting, the website will automatically be reloaded after a few seconds and you will automatically be redirected to the correct website and IP address.]

# Firmware Updates

- **1]** In ***MADRIX HARDWARE MANAGER***, navigate to the ***Firmware Files*** tab and make sure you have the right [the latest] firmware version already downloaded and available. An active internet connection is required.
- **2]** Go to the tab ***Devices*** and select a device/devices in the list.
- **3]** Navigate to the column ***Firmware*** and select the firmware you wish to install on the devices.

# More Information

Please see the ***MADRIX HARDWARE MANAGER User Manual*** for more information.

See »help.madrix.com

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# //PART 3

*MADRIX 5 Software*

# 3 MADRIX 5 Software

**This topic includes:**


- Overview
- MADRIX 5 Software License
- Operating Modes
- Notes


## Overview

The MADRIX LUNA works great in combination with the MADRIX 5 Software.

## MADRIX 5 Software License

- The MADRIX 5 Software license is not included and sold separately. A MADRIX 5 KEY is necessary if you want to use output.
- No separate license is required for DMX Input [DMX-IN].

## Operating Modes

You can mainly use 4 operating modes together with MADRIX 5:

- DMX-OUT Via Ethernet Network [Art-Net]
- DMX-OUT Via Ethernet Network [Streaming ACN / sACN]
- DMX-OUT Via USB

- DMX-IN Via Ethernet Network [Art-Net Remote]

- DMX-IN Via Ethernet Network [Streaming ACN / sACN]
- DMX-IN Via USB

## Notes

- DMX-OUT and DMX-IN can be used at the same time.
- You always have 1 to 4/8/16 output ports available [DMX 1 - 4/8/16].
  - In total, 2048 DMX channels can be sent per LUNA 4 unit.
  - In total, 4096 DMX channels can be sent per LUNA 8 unit.
  - In total, 8192 DMX channels can be sent per LUNA 16 unit.
- You always have 1 DMX input port available per unit [DMX-IN].
  - In total, 512 DMX channels can be received per unit.

## 3.1 Output [Art-Net]

**This topic includes:**

- DMX-OUT Via Ethernet Network [Art-Net]
- 1] Initial Configuration
- 2] Windows Network Settings
- 3] Fixture Patching In MADRIX 5
- 4] Activating Art-Net
- 5] Adding Devices Automatically
- 6] Activating Devices
- 7] Configuration Of DMX Output
- 8] Frame Time
- 9] Optimized Frames Or Full Frames
- 10] Sync Mode
- Additional Art-Net Device Settings

# DMX-OUT Via Ethernet Network [Art-Net]

You can connect the LUNA via Ethernet network to the network card of your computer that runs the MADRIX 5 Software. Data is sent to the LUNA via network [Ethernet] and distributed to the XLR output ports [DMX 1 - 4/8/16].

## 1] Initial Configuration

- Connect your LED controllers or fixtures to the XLR ports of MADRIX LUNA [DMX 1 - 4/8/16].
- Connect MADRIX LUNA to power.
  [Please see safety instructions in the MADRIX LUNA Technical Manual & Quick Start Guide!]
- Connect MADRIX LUNA to your computer using network cabling.
- It is highly recommended to only use Gigabit Ethernet network components [network card, switches, etc.].
- Set up the corresponding settings in the »Configuration Using A Web Browser

## 2] Windows Network Settings

Art-Net is a network-based protocol. MADRIX 5 will use the network card of your computer to send data.

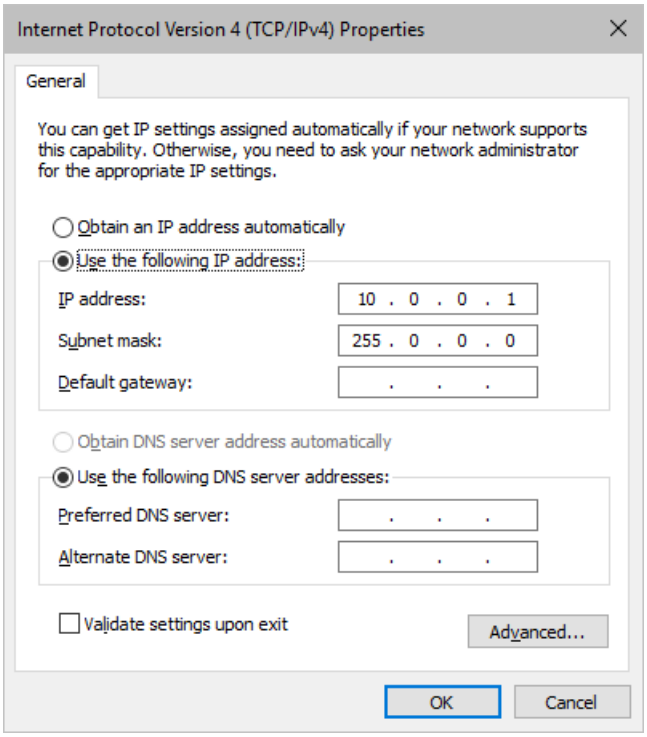
- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, Art-Net might not work!**
- **The IP addresses of your computer and your MADRIX LUNA devices need to be different.**

- Set up an individual ***IP address*** in the following IP address range:
  - ***2.0.0.1*** ... ***2.255.255.254*** or
  - ***10.0.0.1*** ... ***10.255.255.254***
- Set up the corresponding ***Subnet mask***
  - ***255.0.0.0***

**[Via factory default settings, MADRIX LUNA devices will have an IP address in the 10.x.x.x network range, such as 10.206.224.100, for example].**
**[Please note: Your devices and the sender, such as the PC that runs MADRIX 5, need to have the same subnet mask!]**

- **Restart MADRIX 5, if you have changed the network settings in Windows while MADRIX 5 was running.**

- Example for PCs that are running MADRIX 5:



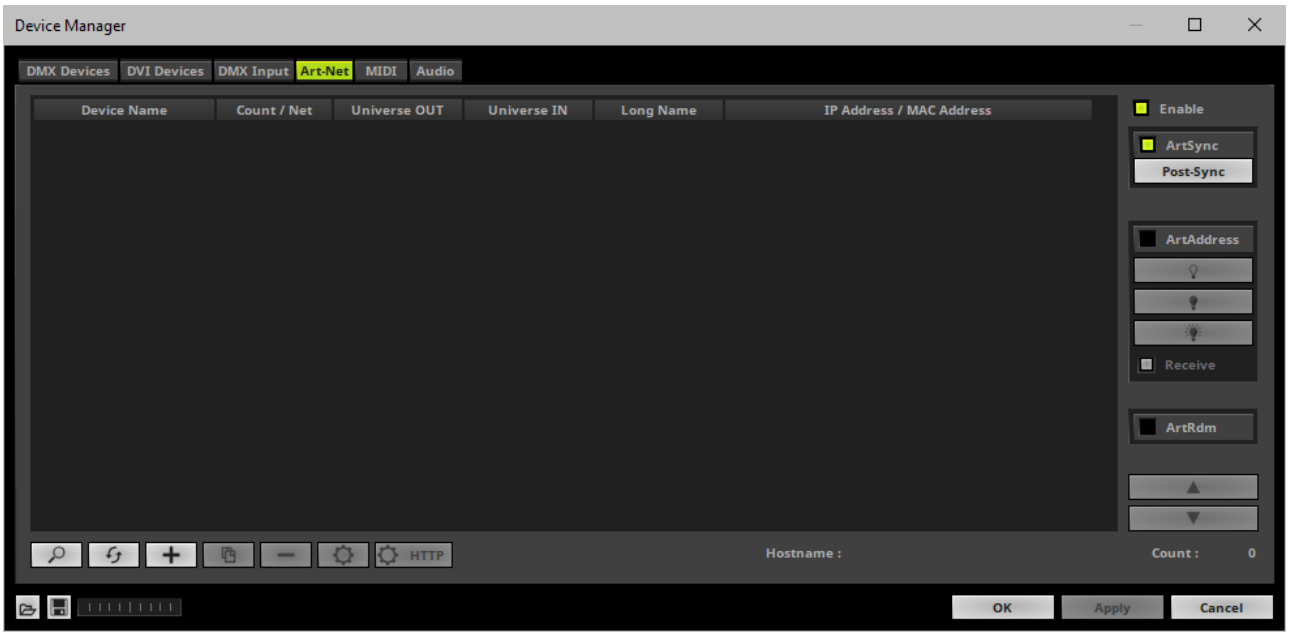

# 3] Fixture Patching In MADRIX 5

- Start MADRIX 5.
- Configure the virtual LED matrix using the Matrix Generator or Patch Editor.

# 4] Activating Art-Net

- Go to the menu ***Preferences > Device Manager... > Art-Net***
  [Keyboard shortcut: ***F4 > Art-Net***]

- Activate the checkbox ***Enable*** [in the upper, right corner].

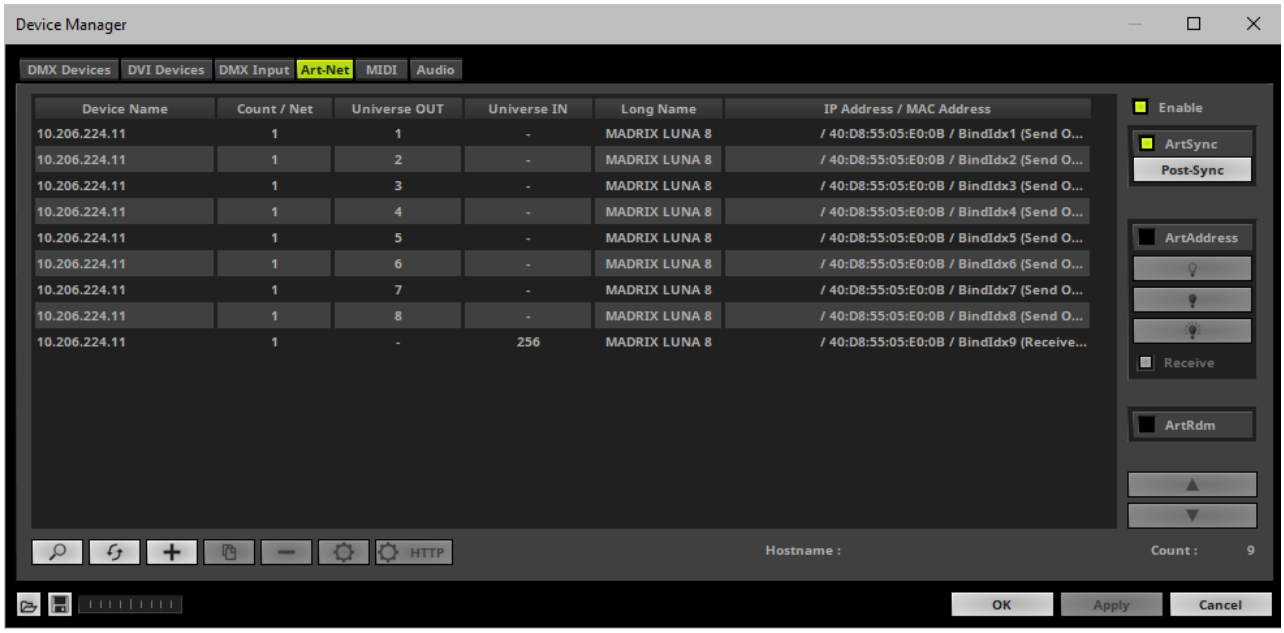



# 5] Adding Devices Automatically

MADRIX 5 can automatically add your MADRIX LUNA devices.

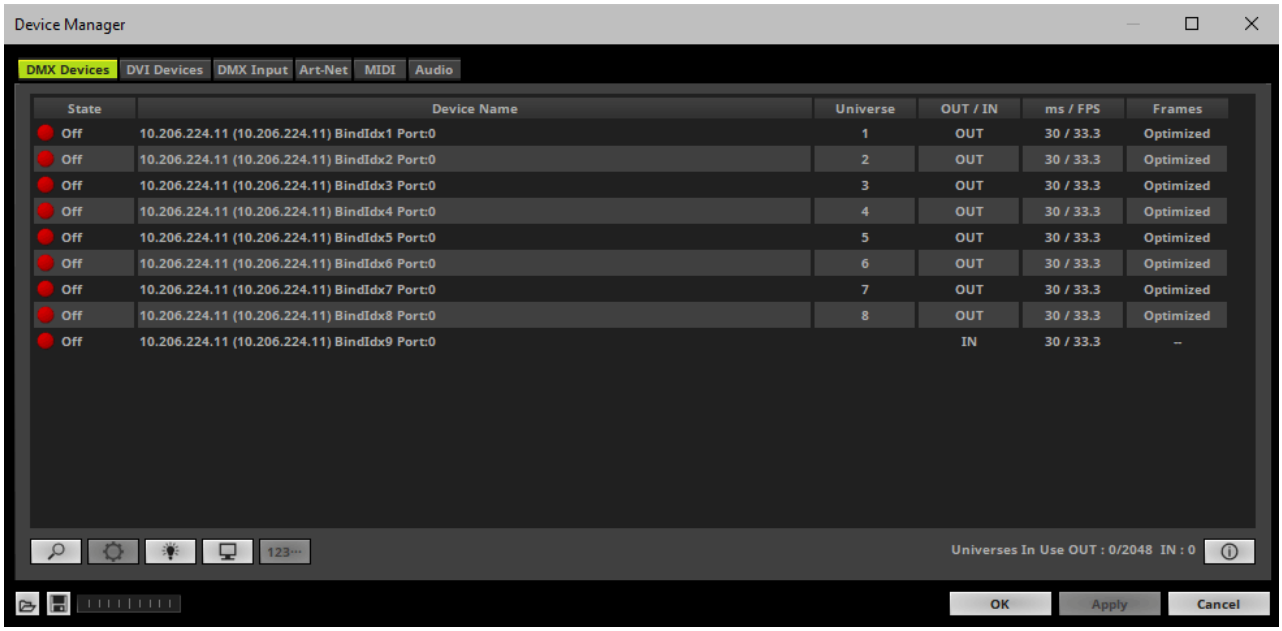
- Click 
  [MADRIX 5 will automatically search the network for connected MADRIX LUNA devices. Devices that are found will appear in the list. A number of entries will be created in the list for each LUNA device.]
  [The Art-Net standards only supports a maximum of 4 output ports per device. Since LUNA 8 features 8 output

ports plus 1 input port, 3 list items are created in MADRIX 5, for example. Two entries will be shown for LUNA 4. Five entries will be shown for LUNA 16.]

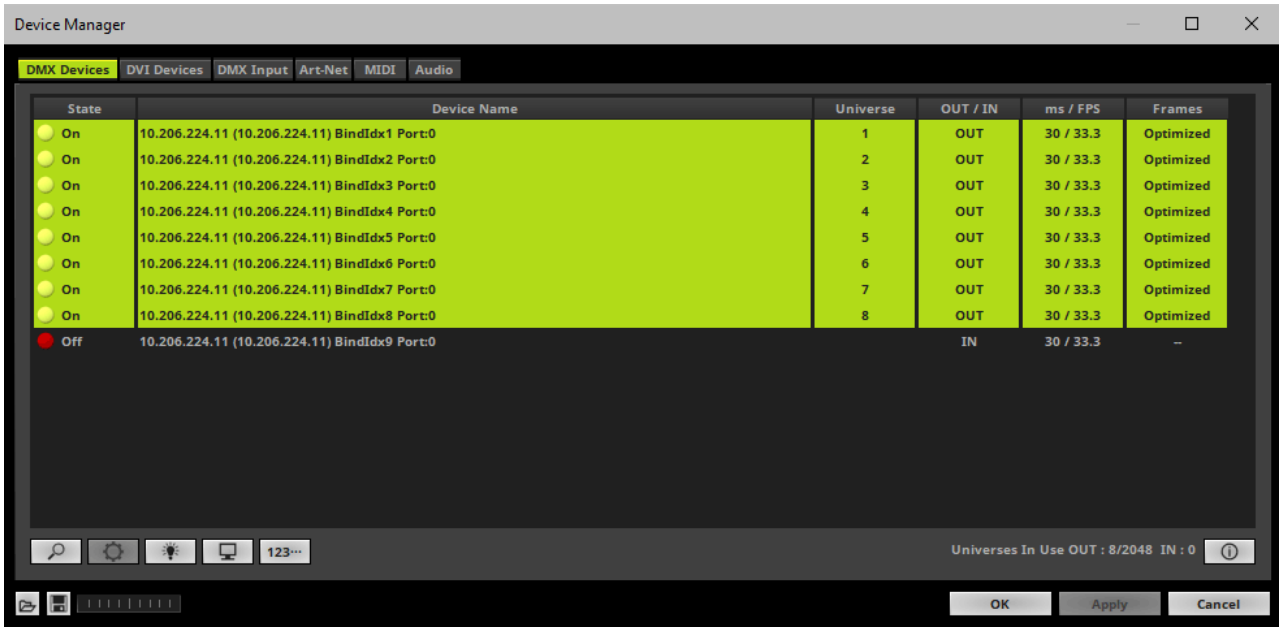



## 6] Activating Devices

Each of your MADRIX LUNA devices and its ports need to be activated. By default, they are still deactivated. 4 ports will be shown for LUNA 4 [plus an additional IN port], 8 ports will be shown for LUNA 8 [plus an additional IN port], and 16 ports will be shown for LUNA 16 [plus an additional IN port].




- Go to the menu ***Preferences > Device Manager... > DMX Devices***
  [Keyboard shortcut: ***F4***]
- Select your devices and their ports in the list.
- ***Right Mouse Click*** on the column ***State*** to set from ***Off*** to ***On*** [indicated by green light].
- ***OUT*** and ***IN*** are set by default for the corresponding ports and universes.




- [In the screenshot above, one LUNA 8 is connected. If more devices are connected, please use the different IP addresses of different devices and device details [***i***] to identify them in the Device Manager.]

# 7] Configuration Of DMX Output

- Make sure that your devices are still selected under ***Preferences > Device Manager... > DMX Devices***
- When using your device as an output device, set up ***Universe***
  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column ***Universe*** and enter the required number.
- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.
- **Make sure to assign the correct universe according to your requirements.**
  Learn more »Glossary

- By default, DMX universe 1 - 4/8/16 are assigned to the ports DMX 1 - 4/8/16 when using one MADRIX LUNA:

| **LUNA Output Port** | **Name under *Device Manager... > DMX Devices*** |
|---|---|

| | |
|---|---|
| DMX 1 | BindIdx1 Port:0 |
| DMX 2 | BindIdx1 Port:1 |
| DMX 3 | BindIdx1 Port:2 |
| **DMX 4** | **BindIdx1 Port:3** |
| DMX 5 | BindIdx2 Port:0 |
| DMX 6 | BindIdx2 Port:1 |
| DMX 7 | BindIdx2 Port:2 |
| **DMX 8** | **BindIdx2 Port:3** |
| DMX 9 | BindIdx3 Port:0 |
| DMX 10 | BindIdx3 Port:1 |
| DMX 11 | BindIdx3 Port:2 |
| DMX 12 | BindIdx3 Port:3 |
| DMX 13 | BindIdx4 Port:0 |
| DMX 14 | BindIdx4 Port:1 |
| DMX 15 | BindIdx4 Port:2 |
| **DMX 16** | **BindIdx4 Port:3** |

## 8] Frame Time

- Make sure that your device is still selected under ***Preferences > Device Manager... > DMX Devices***

- Set up the frame time for your device.

  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column ***ms / FPS*** and enter the required number.

  - The frame time [in milliseconds; ms] affects the frame rate. The frame rate specifies how fast data is sent to the device or received from it [in Frames Per Second; FPS].

  - Increase the frame time in order to decrease the frame rate [e.g., 40 ms = 25 FPS].

  - Decrease the frame time in order to increase the frame rate [e.g., 20 ms = 50 FPS].

  - The default value is 30 ms / 33.3 FPS.

  - The minimum value is 1000 ms / 1 FPS.

  - The maximum value is 5 ms / 200 FPS.

  **Please note:** If you want to output high frame rates, make sure to set Main Mixing FPS in the Options to the same value in order to render the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

  **Please note:** If you want to input high frame rates, make sure to set DMX Controller Input FPS in the Options to the same value in order to process the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

  - **Some LED fixtures might have problems with a low frame time / high frame rate. Then, it is recommended to increase the frame time / decrease the frame rate.**

- [When using Art-Net, the Frame Time [ms] can be individually set for each port. But it cannot be set individually for each port, when Sync Mode is activated. Learn more below.]

## 9] Optimized Frames Or Full Frames

- Make sure that your device is still selected under ***Preferences > Device Manager... > DMX Devices***

- Choose how to send data.

  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column Frames to choose between ***Optimized*** and ***Full***

  - Per DMX512 standard, MADRIX 5 only sends the number of DMX channels that is configured [optimized frames]. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe.

  - Activate Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels on the universe].

**- Activating *Full Frames* is recommended if problems with the data output of your devices occur.**

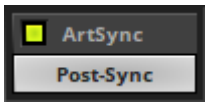
- In addition, you can activate Full Frames for the device and each MADRIX LUNA output port separately.

## 10] Sync Mode

MADRIX LUNA can use the special sync mode of Art-Net.

- Large LED projects require dependable data distribution. The MADRIX 5 Software and LUNA hardware allow you to synchronize data output for all 4/8/16 DMX ports and even across multiple LUNA devices to get an optimal image on the LEDs.
- When Art-Net sync mode is activated, MADRIX 5 and MADRIX LUNA will automatically handle the synchronization of data.

**Art-Net Sync Mode is highly recommended for MADRIX LUNA!**




***ArtSync* -** Allows you to activate or deactivate the usage of synchronization commands/packages for Art-Net.
- Your Art-Net devices need to support this feature in order for it to work correctly.
- All MADRIX hardware Art-Net nodes support ArtSync.
- Sync packages will be sent to all network cards for which corresponding Art-Net nodes are created in the MADRIX 5 Software.

In addition, you can choose between ***Post-Sync*** [default] and ***Pre-Sync***. By default, the sync data is sent after the main DMX/Art-Net data. Pre-Sync would send it before the main DMX/Art-Net data.

- **Before activating sync, make sure that all activated Art-Net devices are available in your network! Else, the frame rate of Art-Net might drop. If you are not sure, do not enable any sync mode.**

- **Disable ArtSync if you wish to HTP merge from two sources! ArtSync would then interfere with the merge and create unwanted results.**

# Additional Art-Net Device Settings

**It is very important to set up the correct settings for your devices!**

## Broadcast Mode Or Unicast Mode

MADRIX 5 can send Art-Net data in 2 ways to your Art-Net devices:

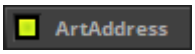
- ***Broadcast Mode -*** Means that every packet sent from a single transmitter will be received by all recipients in the network. MADRIX 5 will send data to all devices in the network.
  - Advantage: The same data [e.g., DMX universe 1 and 2] can be made available for different points of your setup.
  - Disadvantage: A potentially huge number of data packages will be sent over the network. This can reduce the overall network performance and cause data issues or instability.
- ***Unicast Mode -*** Means that the specific data will only be sent to the specified recipient.
  - Advantage: Data traffic is reduced immensely, which means that a larger number of Art-Net devices can be used in one network. Reduced network traffic increases the performance and stability.
  - Disadvantage: The network settings of all devices need to be 100% correct.

**Unicast Mode is recommended in general.**

- Go to the menu ***Preferences > Device Manager... > Art-Net***
  [Keyboard shortcut: ***F4 > Art-Net***]
- Select your device in the list.
- Click 

- A new window will open.
- **A]** Choose ***Send Unicast Mode*** to activate Unicast Mode:
  - Make sure to enter the correct ***IP Address*** of your device that should receive the Art-Net data. When MADRIX LUNA has been automatically found by MADRIX 5, the IP address will be pre-configured for you.
  - MADRIX 5 will send the corresponding data only to this device.
- **B]** Choose ***Send Broadcast Mode*** to activate Broadcast Mode:
  - Make sure to select the correct ***Network*** card of your computer that should send the Art-Net data. When MADRIX LUNA has been automatically found by MADRIX 5, the correct network will be pre-configured for you.
  - MADRIX 5 will send data to the whole Art-Net network.
- Click ***Apply***

## Status Indicators [ArtAddress]




In order to use these features, ***Enable ArtAddress*** first.

- Regarding sending ArtAddress commands to nodes, make sure that your nodes fully support this Art-Net feature. You will also get notified by a message box. Confirm the message with ***OK*** or abort via ***Cancel***.
- MADRIX LUNA, MADRIX NEBULA, MADRIX PLEXUS, MADRIX STELLA, MADRIX ORION, and MADRIX AURA support ArtAddress.
- MADRIX 5 itself can receive ArtAddress commands.



***Mute Status Indicators -*** Switches off and disables all built-in status indicators of a device over Art-Net [ArtAddress > AcLedMute].

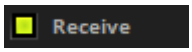


***Operate Status Indicators Normally -*** Allows the built-in status indicators of a device to operate normally again, after having them switched off [ArtAddress > AcLedNormal].



***Highlight Device -*** Activates the highlight mode [ArtAddress > AcLedLocate]. Select one or more interfaces and click the button. The corresponding status indicators of the selected interfaces will flash for a better identification or tests. This makes it

easier to see them on site/stage. It considerably speeds up the procedure of programming or testing the selected interfaces.




In addition to sending out commands to nodes, MADRIX 5 itself can receive ArtAddress commands.

***Receive -*** Activates that MADRIX 5 is able to receive ArtAddress commands. It is enabled by default.

- AcLedMute and AcLedNormal will disable the identification of MADRIX 5.
- AcLedLocate will enable the identification of MADRIX 5.
  - As long as Identify is enabled or set via protocol commands, the MADRIX 5 user interface [GUI] will repeatedly change every second from the currently selected theme to the opposite theme, either from dark to light or vice versa.
  - This visibly highlights the user interface for visual identification of this MADRIX 5 instance as a device within a network system.
  - Identify will also be deactivated when manually switching the theme, either via the menu [***View > Theme > Light/Dark***] or its keyboard shortcut [***Ctrl+T***].

You can further customize ArtAddress properties under menu ***Preferences > Options... > General***

## 3.2 Output [sACN]

**This topic includes:**


- DMX-OUT Over Ethernet Network [Streaming ACN / sACN]
- 1] Initial Configuration
- 2] Windows Network Settings
- 3] Fixture Patching In MADRIX 5
- 4] Activating Streaming ACN
- 5] Activating Devices
- 6A] Configuration Of Single Devices
- 6B] Configuration Of Multiple Devices
- 7] Frame Time

- 8] Optimized Frames Or Full Frames

# DMX-OUT Over Ethernet Network [Streaming ACN / sACN]

You can connect the LUNA over Ethernet network to the network card of your computer that runs the MADRIX 5 Software. Data is distributed to the device over network cabling [Ethernet] and sent to the output ports [DMX 1 - 4/8/16].

## 1] Initial Configuration

- Connect your LED controllers or fixtures to the XLR ports of MADRIX LUNA [DMX 1 - 4/8/16].
- Connect MADRIX LUNA to power.
  [Please see safety instructions in the MADRIX LUNA Technical Manual & Quick Start Guide!]
- Connect MADRIX LUNA to your computer using network cabling.
- It is highly recommended to only use Gigabit Ethernet network components [network card, switches, etc.].
- Set up the corresponding settings in the »Configuration Using A Web Browser

## 2] Windows Network Settings

- MADRIX 5 automatically sets up Streaming ACN network settings for you.
  [MADRIX 5 supports multicast Streaming ACN. Data is automatically sent to all corresponding sACN devices in the network. Unicast is also supported.]
- You only need a computer with a network card and a valid IP address.

- **You do not have to change the IP address settings in Windows for Streaming ACN!**

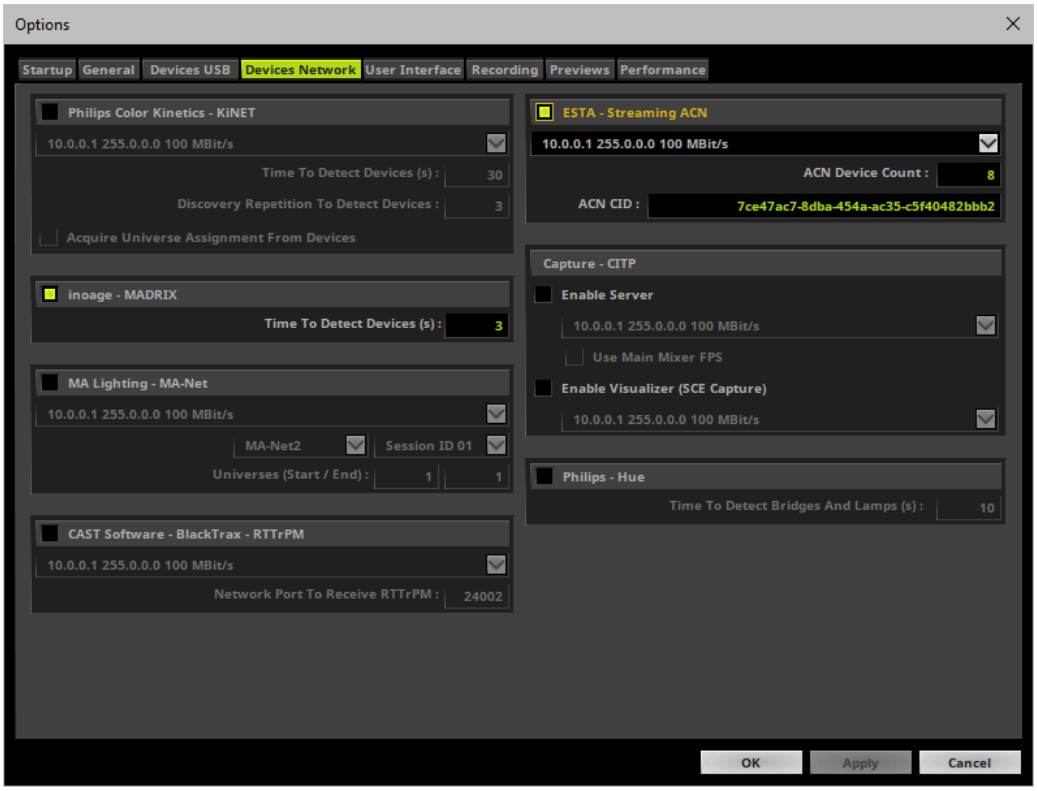
- **The IP address range for sACN devices is 239.255.X.X according to the Streaming ACN specifications. MADRIX LUNA automatically works this way.**
- **Make sure that your Firewall does not block data of the 239.255.X.X IP address range!**
- **Check the settings of the Windows Firewall.**
- Learn more »Tips [Microsoft Windows / Networks / USB]

# 3] Fixture Patching In MADRIX 5

- Start MADRIX 5.
- Configure the virtual LED matrix using the Matrix Generator or Patch Editor.

# 4] Activating Streaming ACN

- Go to the menu ***Preferences > Options... > Devices Network***
  [Keyboard shortcut: ***Ctrl+Alt+O > Devices Network***]
- Activate ***ESTA - Streaming ACN***
- **Choose your network card** from the drop-down list. Make sure to select the correct network adapter that will be used for Streaming ACN!
  [The IP address and Subnet mask label should help you select the correct adapter. It is not necessary to change any of these networks settings.]
- ***ACN Device Count*** - Set up how many you are going to use. MADRIX LUNA requires 4, 8, or 16 sACN devices per unit.
  [This is the total amount of devices. Please set the exact number of devices you are using. If the count is higher, this creates unnecessary network traffic.]
- Click ***Apply***




- ***ACN CID -*** Being a network protocol, Streaming ACN sends a so-called CIDs [Component Identifier].

  - Every single ACN device has such a unique ID.

  - When using Streaming ACN, your MADRIX 5 Software is one of those devices.

  - When you start MADRIX 5 for the first time, this ID will be generated automatically for you. From this point onwards it will be used on your PC.

  - With this ID your MADRIX 5 Software can be easily identified in the network. Interfaces can detect this unique ID and can be configured to receive data from this particular device. Please note that the ACN interface must support this feature.

  - **Do not change the ACN CID, unless you are an experienced user!**

- Click ***OK*** to close the window.

# 5] Activating Devices

Each of the ports need to be activated if that is not already the case.

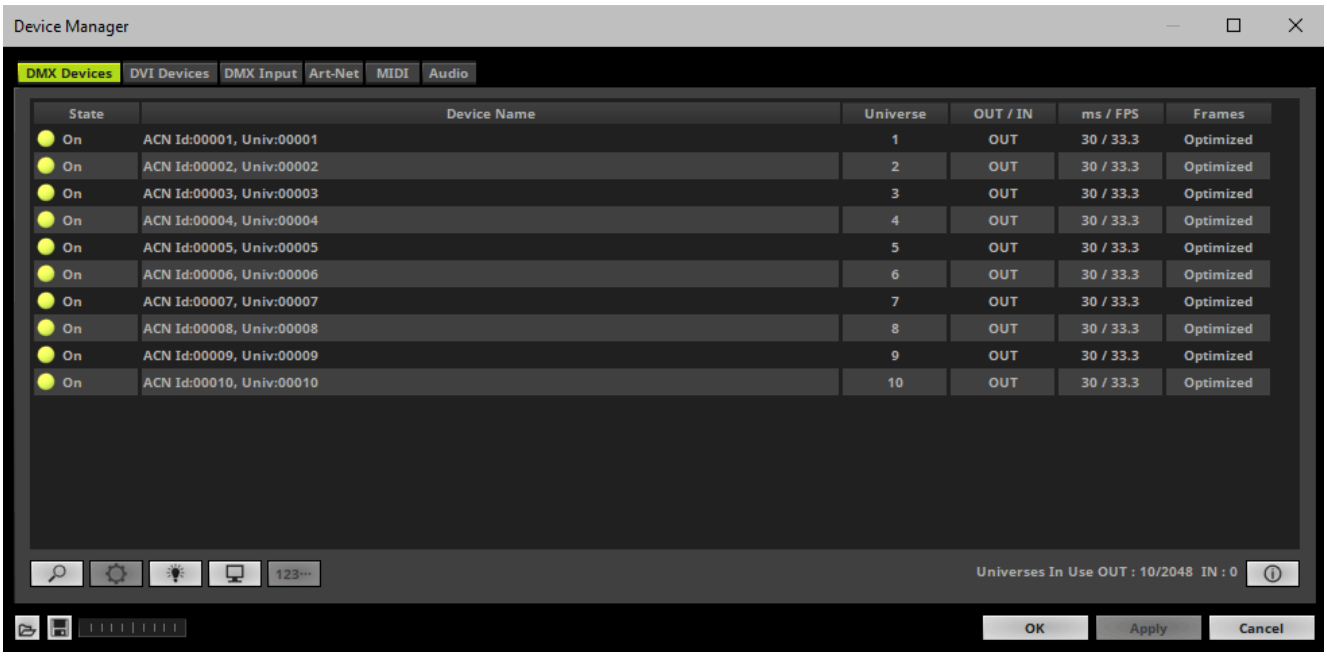
- Go to the menu ***Preferences > Device Manager... > DMX Devices***
  [Keyboard shortcut: ***F4***]
- Select your devices and their ports in the list. The corresponding number of output universes will be shown.
- ***Right Mouse Click*** on the column ***State*** to set from ***Off*** to ***On*** [indicated by green light]. By default, all output ports should be already activated.



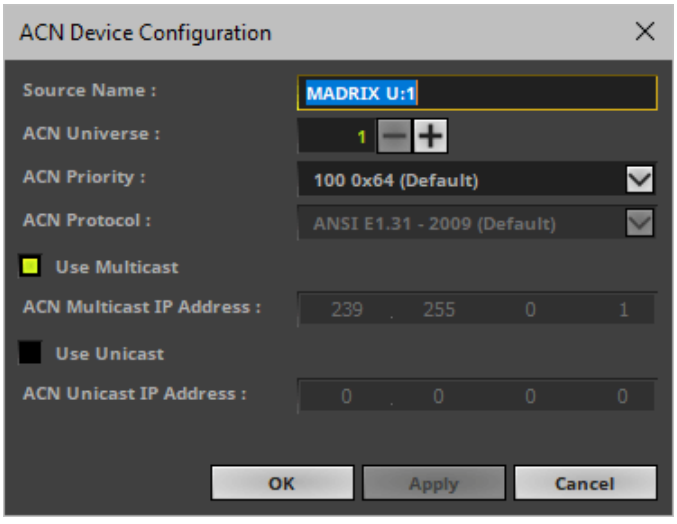

- [In the screenshot above, one LUNA 8 is connected. If more devices are connected, please use the different universes of different devices to identify them in the Device Manager.]
- ***Universe -*** Defines which universe of your MADRIX 5 Patch is sent to this particular device.
  - ***Right Mouse Click*** on the column ***Universe*** in order to enter a different number.

# 6A] Configuration Of Single Devices

- Select a device in the list and click 




- A new window will open.



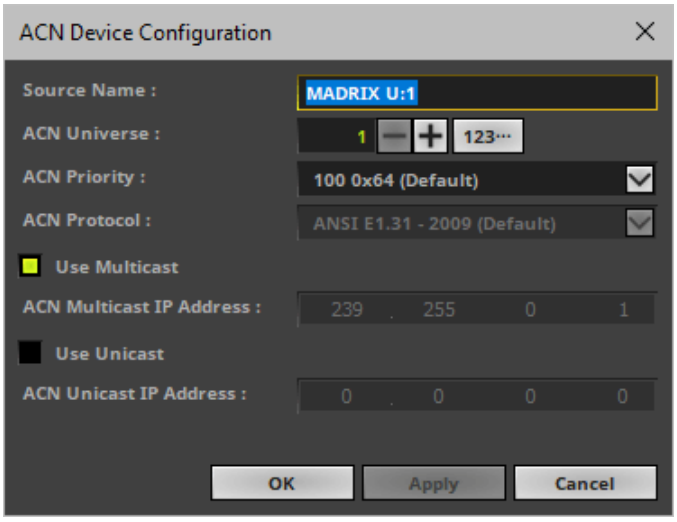

Set up the following settings for your devices:

- ***Source Name -*** Allows you to set up a specific name for the device. This name is send via network as well. Therefore, interfaces may be able to retrieve this name and can be configured to receive data from this source.
  - If you are using the default name ***MADRIX U:X***, the universe will automatically be displayed in the name [represented by X: 1, 2, 3, etc.].
- ***ACN Universe -*** Defines the DMX universe of the device.
  **- Set up the same universe that is set up in your sACN device, which is MADRIX NEBULA.**
  - According to the Streaming ACN specifications, MADRIX 5 will automatically change the ACN IP Address according to the ACN Universe.
- ***ACN Priority -*** Was implemented for backup solutions. Valid values range from 0 to 200, which is the highest priority.
  - For example, you may have set up two MADRIX PCs. One gets a priority of 100. The second PC gets a priority of 50. If the first PC fails and only if it malfunctions, data will be automatically received from PC #2.
  - Data will always be received from the device with the highest priority. Please note that the ACN device must support this feature.
- ***ACN Protocol -*** Automatically selects the ***ANSI 2009*** standard.
- ***Use Multicast***
  ***ACN Multicast IP Address -*** Displays the IP address of the device as automatically assigned by MADRIX 5 according to the Streaming ACN specifications. The last 2 digits match the assigned DMX universe.
- ***Use Unicast***
  ***ACN Unicast IP Address -*** Uses a specific IP address to send data to.

- Click ***Apply*** to confirm your changes.
- Click ***OK*** to close the window.

## 6B] Configuration Of Multiple Devices

- You can configure **several interfaces** at the same time.
- Follow the steps of 6A, but select multiple devices and click 
- A new window will open.




- Set up the settings as described under 6A].
- For ***ACN Universe***, you have now additional options for **Numbering**:

123··· Click the button and MADRIX 5 will automatically increase the ACN Universe number for all the selected devices [which can be seen in the DMX Devices tab of the Device Manager], starting with the value you have entered.

- Click ***Apply*** and ***OK*** to confirm your changes.

# 7] Frame Time

- Make sure that your device is still selected under ***Preferences > Device Manager... > DMX Devices***
- Set up the frame time for your device.

  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column ***ms / FPS*** and enter the required number.

  - The frame time [in milliseconds; ms] affects the frame rate. The frame rate specifies how fast data is sent to the device or received from it [in Frames Per Second; FPS].

  - Increase the frame time in order to decrease the frame rate [e.g., 40 ms = 25 FPS].

  - Decrease the frame time in order to increase the frame rate [e.g., 20 ms = 50 FPS].

  - The default value is 30 ms / 33.3 FPS.

- The minimum value is 1000 ms / 1 FPS.
- The maximum value is 5 ms / 200 FPS.

**Please note:** If you want to output high frame rates, make sure to set Main Mixing FPS in the Options to the same value in order to render the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

**Please note:** If you want to input high frame rates, make sure to set DMX Controller Input FPS in the Options to the same value in order to process the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

- **Some LED fixtures might have problems with a low frame time / high frame rate. Then, it is recommended to increase the frame time / decrease the frame rate.**

- **Some LED fixtures might have problems with a low frame time / high frame rate. Then, it is recommended to increase the frame time / decrease the frame rate.**

## 8] Optimized Frames Or Full Frames

- Make sure that your device is still selected under ***Preferences > Device Manager... > DMX Devices***
- Choose how to send data.

  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column Frames to choose between ***Optimized*** and ***Full***

  **-** Per DMX512 standard, MADRIX 5 only sends the number of DMX channels that is configured [optimized frames]. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe.

  - Activate Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels on the universe].

  **- Activating *Full Frames* is recommended if problems with the data output of your devices occur.**

- In addition, you can activate Full Frames for the device and each MADRIX NEBULA output universe separately.

## 3.3 Output [USB]

**This topic includes:**

- DMX-OUT Via USB

- 1] Initial Configuration
- 2] Fixture Patching In MADRIX 5
- 3] Enabling Drivers
- 4] Activating Devices
- 5] Configuration Of DMX Output
- 6] Frame Time
- 7] Optimized Frames Or Full Frames


# DMX-OUT Via USB

You can connect the LUNA directly via USB to the computer that runs the MADRIX 5 Software. Data is sent to the MADRIX LUNA via USB and distributed to the XLR output ports [DMX 1 - 4/8/16].

# 1] Initial Configuration

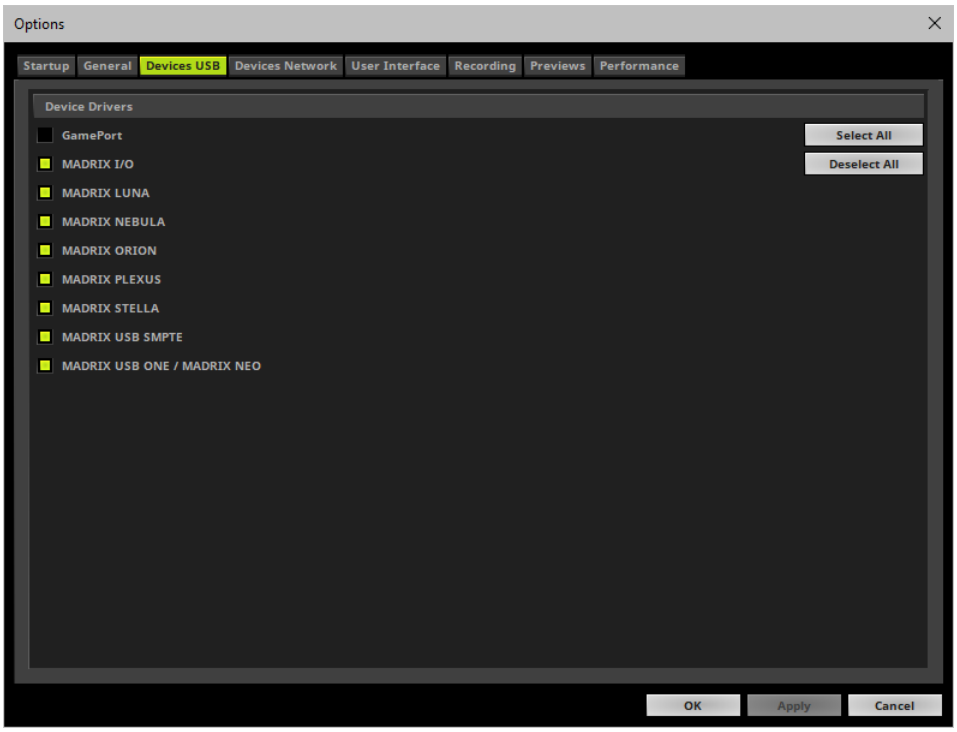
- Connect your LED controllers or fixtures to the XLR ports of MADRIX LUNA [DMX 1 - 4/8/16]
- Connect power to MADRIX LUNA.
  [Please see safety instructions in the MADRIX LUNA Technical Manual & Quick Start Guide!]
- Connect MADRIX LUNA to your computer via USB.
  [Use the provided USB cable.]
- Make sure to check the power-management options of Windows. Learn more »PC Power Management

# 2] Fixture Patching In MADRIX 5

- Start MADRIX 5.
- Configure the virtual LED matrix using the Matrix Generator or Patch Editor.

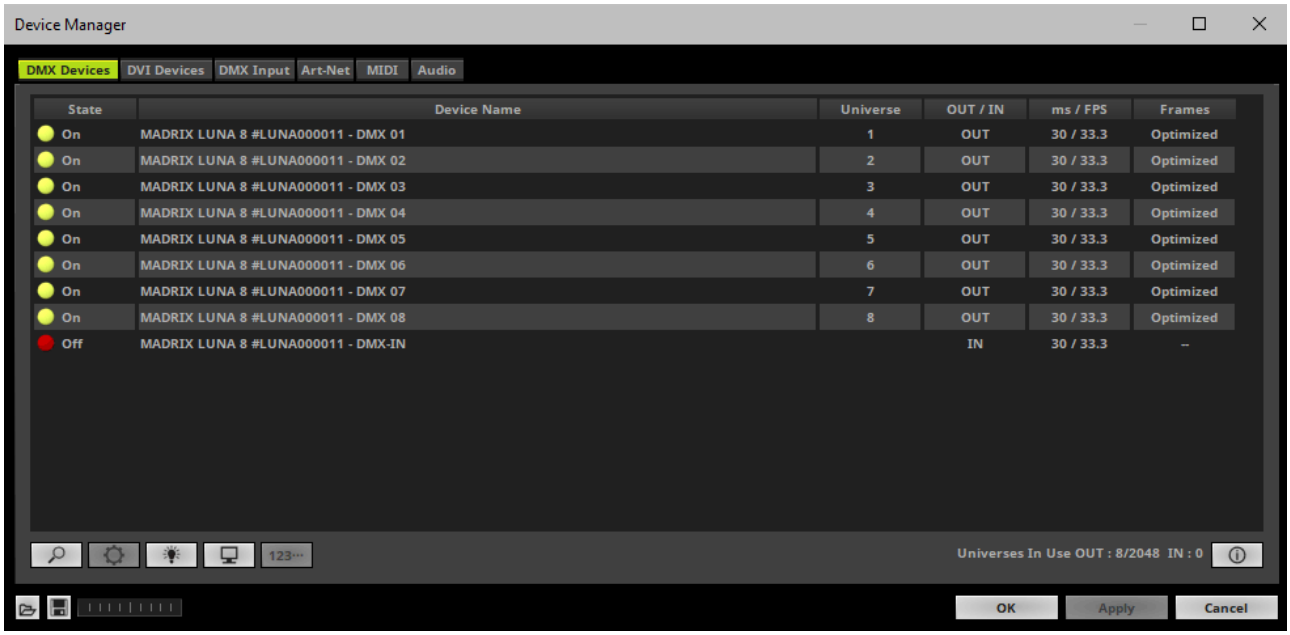
# 3] Enabling Drivers

- Go to the menu ***Preferences > Options... > Devices USB***
  [Keyboard shortcut: ***Ctrl+Alt+O > Devices USB***]
- Activate ***MADRIX LUNA***
  [The option is activated by default.]
- Click ***Apply***
- Close the window with ***OK***



# 4] Activating Devices

- Go to the menu ***Preferences > Device Manager... > DMX Devices***
  [Keyboard shortcut: ***F4***]
- Your LUNA devices and all of their ports [4/8/16 output ports, 1 input port] will appear in the list.
- If your devices are not in the list, click 
  [In the screenshot below, one LUNA 8 is connected.]
- By default, all output ports are activated [***State On***].




- If your device and ports are not activated, do the following:
- Select the device/port in the list.
- ***Right Mouse Click*** on the column ***State*** to set from ***Off*** to ***On*** [indicated by green light].

# 5] Configuration Of DMX Output

- Make sure that your devices are still selected under ***Preferences > Device Manager... > DMX Devices***

- When using your device as an output device, set up ***Universe***

  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column ***Universe*** and enter the required number.

- This setting assigns a specific DMX universe [of the Patch] to the device or the port of the device.

- **Make sure to assign the correct universe according to your requirements.**
  Learn more »Glossary

## 6] Frame Time

- Make sure that your device is still selected under ***Preferences > Device Manager... > DMX Devices***

- Set up the frame time for your device.

  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column ***ms / FPS*** and enter the required number.

  - The frame time [in milliseconds; ms] affects the frame rate. The frame rate specifies how fast data is sent to the device or received from it [in Frames Per Second; FPS].

  - Increase the frame time in order to decrease the frame rate [e.g., 40 ms = 25 FPS].

  - Decrease the frame time in order to increase the frame rate [e.g., 20 ms = 50 FPS].

  - The default value is 30 ms / 33.3 FPS.

  - The minimum value is 1000 ms / 1 FPS.

  - The maximum value is 5 ms / 200 FPS.

  **Please note:** If you want to output high frame rates, make sure to set Main Mixing FPS in the Options to the same value in order to render the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

  **Please note:** If you want to input high frame rates, make sure to set DMX Controller Input FPS in the Options to the same value in order to process the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

  - **Some LED fixtures might have problems with a low frame time / high frame rate. Then, it is recommended to increase the frame time / decrease the frame rate.**

- [When using USB, the frame time will be automatically set to the same value for all output ports.]

## 7] Optimized Frames Or Full Frames

- Make sure that your device is still selected under ***Preferences > Device Manager... > DMX Devices***
- Choose how to send data.

  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column ***Frames*** to choose between ***Optimized*** and ***Full***

  - Per DMX512 standard, MADRIX 5 only sends the number of DMX channels that is configured [optimized frames]. For example, if you are using 312 DMX channels on a DMX universe, only 312 DMX channels will be sent with every single frame on this universe.

  - Activate Full Frames if devices should always send full frames on a particular universe, instead of optimized frames. Sending full frames means that always the full 512 DMX channels of a DMX universe will be sent with every frame [even when you are using less than 512 channels on the universe].

  **- Activating *Full Frames* is recommended if problems with the data output of your devices occur.**

- In addition, you can activate Send Full Frames for the device and each MADRIX LUNA output port separately.

## 3.4 Input [Art-Net]

**This topic includes:**


- DMX-IN Via Ethernet Network [Art-Net Remote]
- 1] Initial Configuration
- 2] Windows Network Settings
- 3] Activating Art-Net
- 4] Adding Devices Automatically
- 5] Configuration Of Art-Net Input
- 6] Activating Your Art-Net Input Device
- 7] Activating DMX Input
- 8] Art-Net Remote

# DMX-IN Via Ethernet Network [Art-Net Remote]

You can connect MADRIX LUNA via Ethernet network directly or indirectly to the network card of your computer that runs the MADRIX 5 Software. Data is sent into the LUNA via DMX-IN [XLR] and from the LUNA to MADRIX 5 via Ethernet network.

## 1] Initial Configuration

- Connect your external DMX controller to the DMX-IN port of MADRIX LUNA.
- Connect MADRIX LUNA to power.
  [Please see safety instructions in the ***MADRIX LUNA Technical Manual & Quick Start Guide***!]
- Connect MADRIX LUNA directly or indirectly to your computer via network cabling.
- It is highly recommended to only use Gigabit Ethernet network components [network card, switches, etc.].

## 2] Windows Network Settings

Art-Net is a network-based protocol. MADRIX 5 will use the network card of your computer to receive data.

- **It is required to set up the correct network settings in Windows, first.**
- **You must use these IP address and Subnet mask settings. Otherwise, Art-Net might not work!**
- **The IP addresses of your computer and your MADRIX LUNA devices need to be different and each nees to be unique.**

- Set up an individual ***IP address*** in the following IP address range:
  - ***2.0.0.1*** ... ***2.255.255.254*** or
  - ***10.0.0.1*** ... ***10.255.255.254***

- Set up the corresponding ***Subnet mask***
  ***- 255.0.0.0***

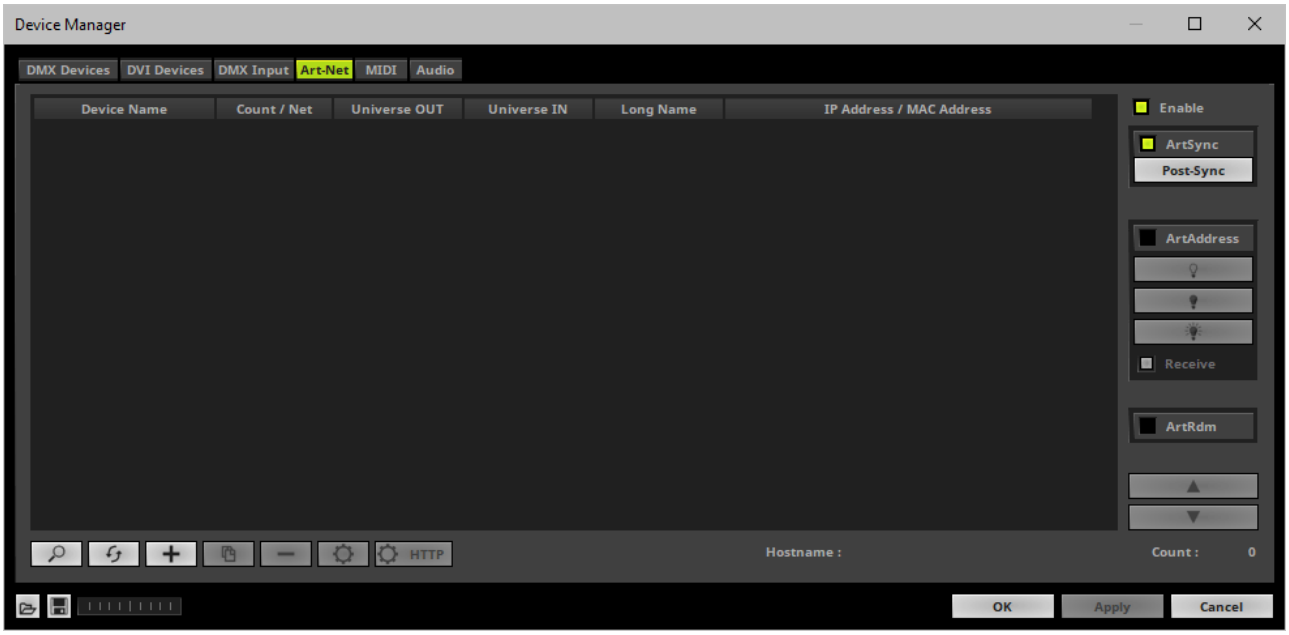
  **[Via factory default settings, MADRIX LUNA devices will have an IP address in the 10.x.x.x network range, such as 10.206.224.100, for example].**
  **[Please note: Your devices and the sender, such as the PC that runs MADRIX 5, need to have the same subnet mask!]**

- **Restart MADRIX 5, if you have changed the network settings in Windows while MADRIX 5 was running.**
- Learn more »Tips [Microsoft Windows / Networks / USB]

## 3] Activating Art-Net

- Go to the menu ***Preferences > Device Manager... > Art-Net***
  [Keyboard shortcut: ***F4 > Art-Net***]

- Activate ***Enable*** [in the upper, right corner].



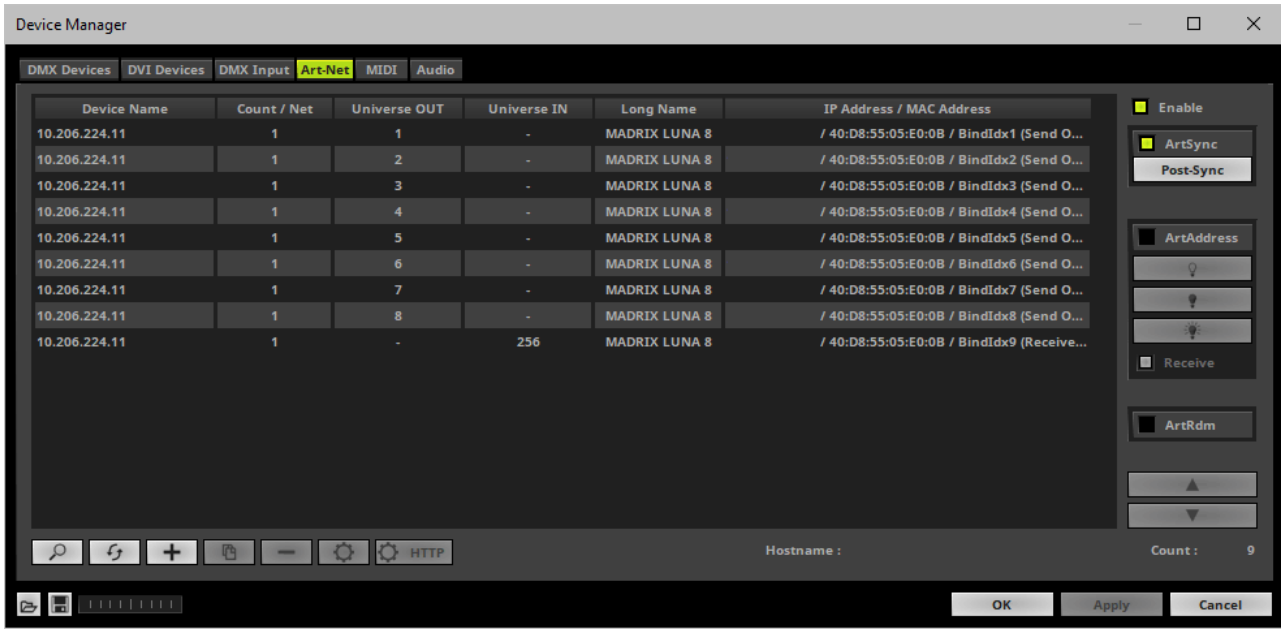
# 4] Adding Devices Automatically

MADRIX 5 can automatically add your MADRIX LUNA devices.

- Click 

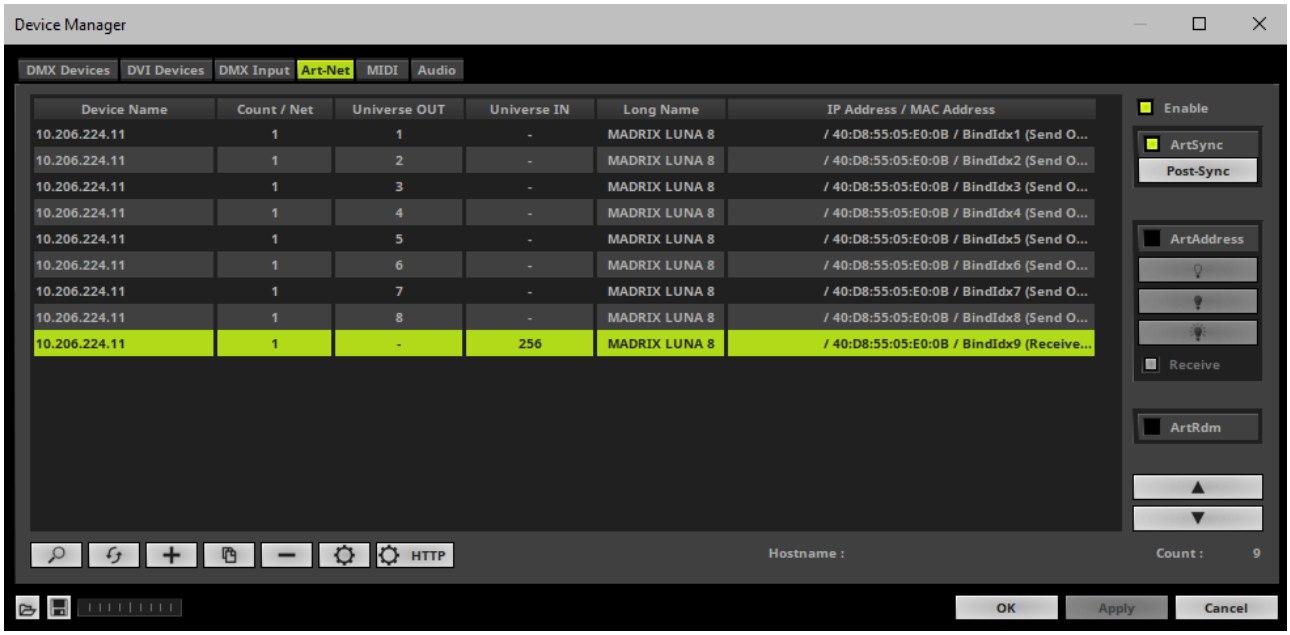
  [MADRIX 5 will automatically search the network for connected MADRIX LUNA devices. Devices that are found will appear in the list. A number of entries will be created in the list for each LUNA device.]

  [The Art-Net standards only supports a maximum of 4 output ports per device. Since LUNA 8 features 8 ports plus 1 IN port, 3 list items are created in MADRIX 5, for example. Two entries will be shown for LUNA 4. Five entries will be shown for LUNA 16.]




# 5] Configuration Of Art-Net Input

- Select your LUNA input device in the list [***Universe IN***].




- Click 
- A new window opens [***Art-Net Device Configuration***].




- ***Universe Port IN***

  **- By default, MADRIX LUNA sends DMX-IN data to Art-Net universe 256. You can change these settings in the Web Configuration or MADRIX Device Configuration window if required.**

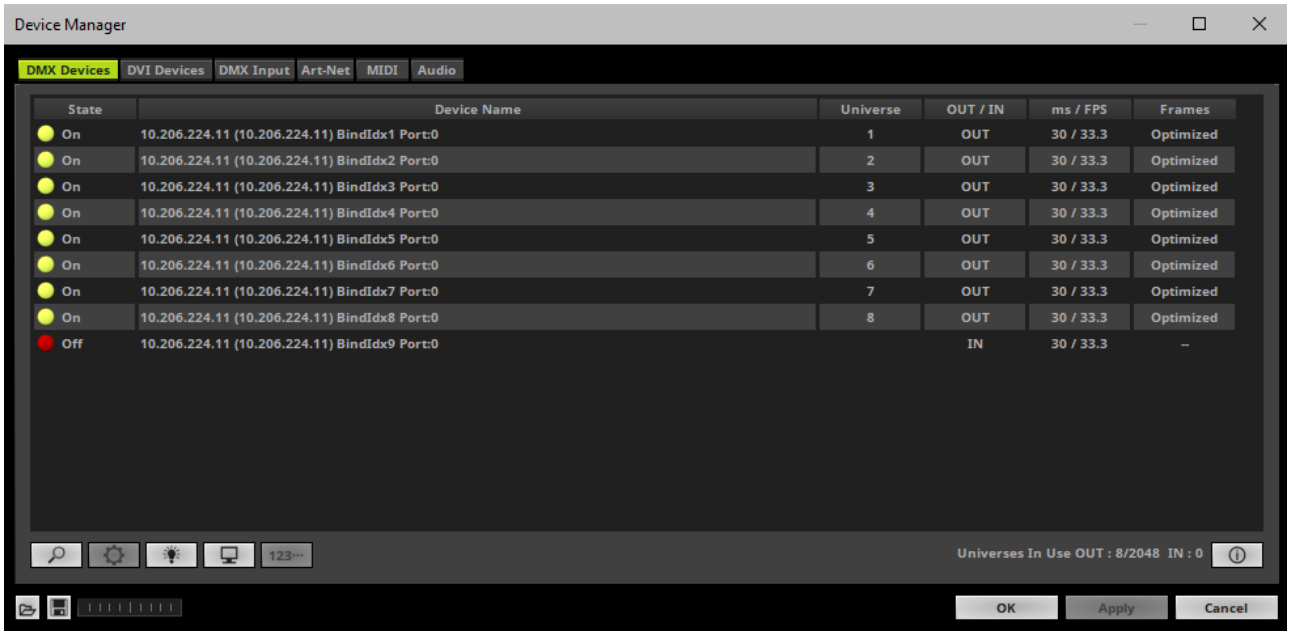
  **- If you have changed the settings, enter the exact same Art-Net universe here!**

- Activate ***Receive Direct IP Mode*** and enter the ***IP Address*** of your MADRIX LUNA. Confirm with ***Apply*** [E.g., 10.206.224.14]
- [You can also activate ***Receive Broadcast Mode***. In this mode, MADRIX 5 will receive any DMX data that is sent in the network on this particular Art-Net universe.]
- Click ***OK***

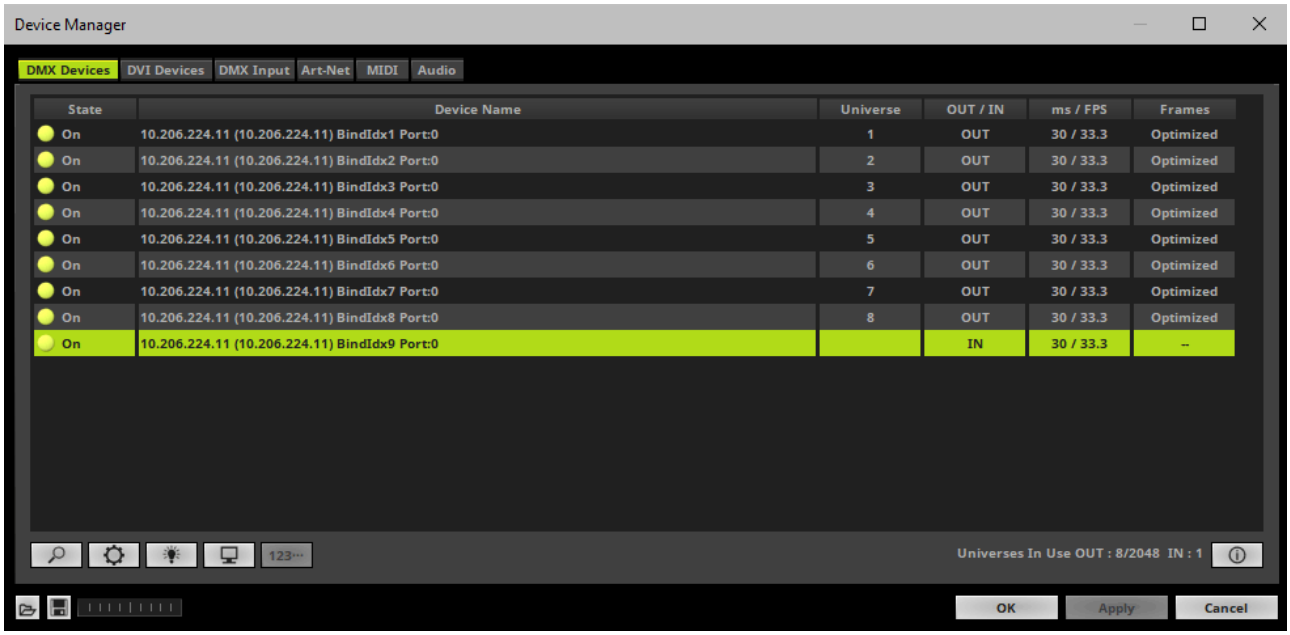
# 6] Activating Your Art-Net Input Device

You need to activate the Art-Net input device. It is still deactivated.

- Go to the menu ***Preferences > Device Manager... > DMX Devices***
  [Keyboard shortcut: ***F4***]




- Select the LUNA input device in the list.
- ***Right Mouse Click*** on the column ***State*** to set from ***Off*** to ***On*** for data input [indicated by green light].
- ***IN*** is automatically activated.




- If required, change the frame time.

  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column ***ms / FPS*** and enter the required number.

  - The frame time [in milliseconds; ms] affects the frame rate. The frame rate specifies how fast data is sent to the device or received from it [in Frames Per Second; FPS].

  - Increase the frame time in order to decrease the frame rate [e.g., 40 ms = 25 FPS].

  - Decrease the frame time in order to increase the frame rate [e.g., 20 ms = 50 FPS].

  - The default value is 30 ms / 33.3 FPS.

  - The minimum value is 1000 ms / 1 FPS.

  - The maximum value is 5 ms / 200 FPS.

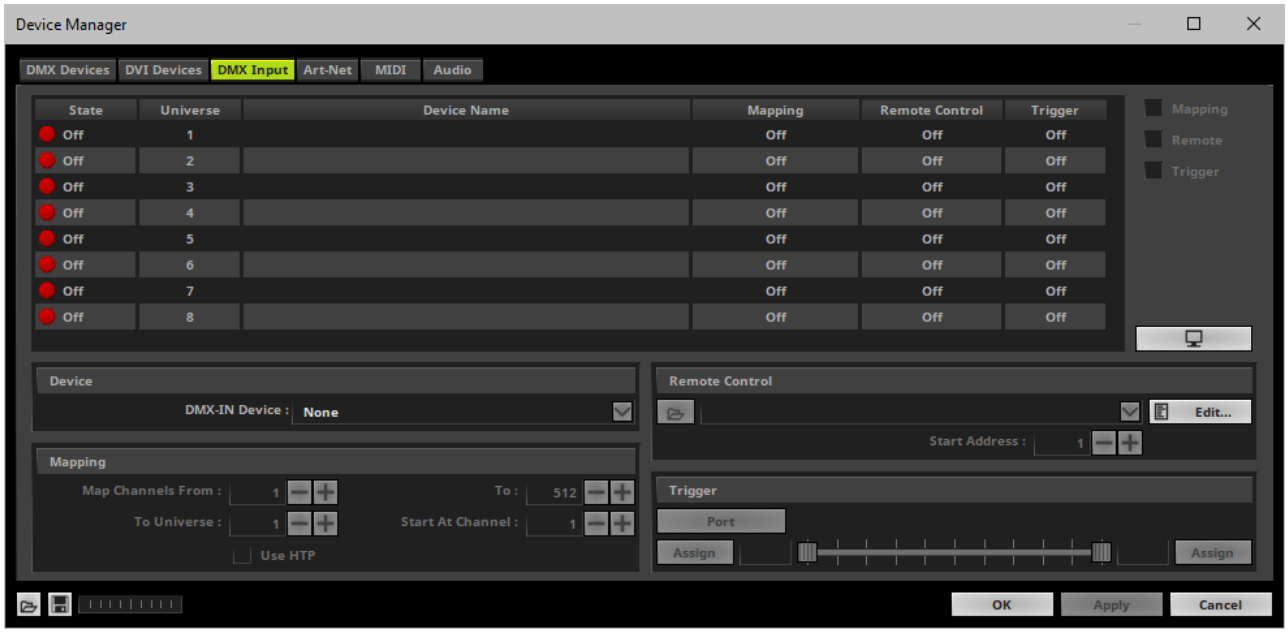
  **Please note:** If you want to output high frame rates, make sure to set Main Mixing FPS in the Options to the same value in order to render the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

  **Please note:** If you want to input high frame rates, make sure to set DMX Controller Input FPS in the Options to the same value in order to process the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

  - **Some LED fixtures might have problems with a low frame time / high frame rate. Then, it is recommended to increase the frame time / decrease the frame rate.**

# 7] Activating DMX Input

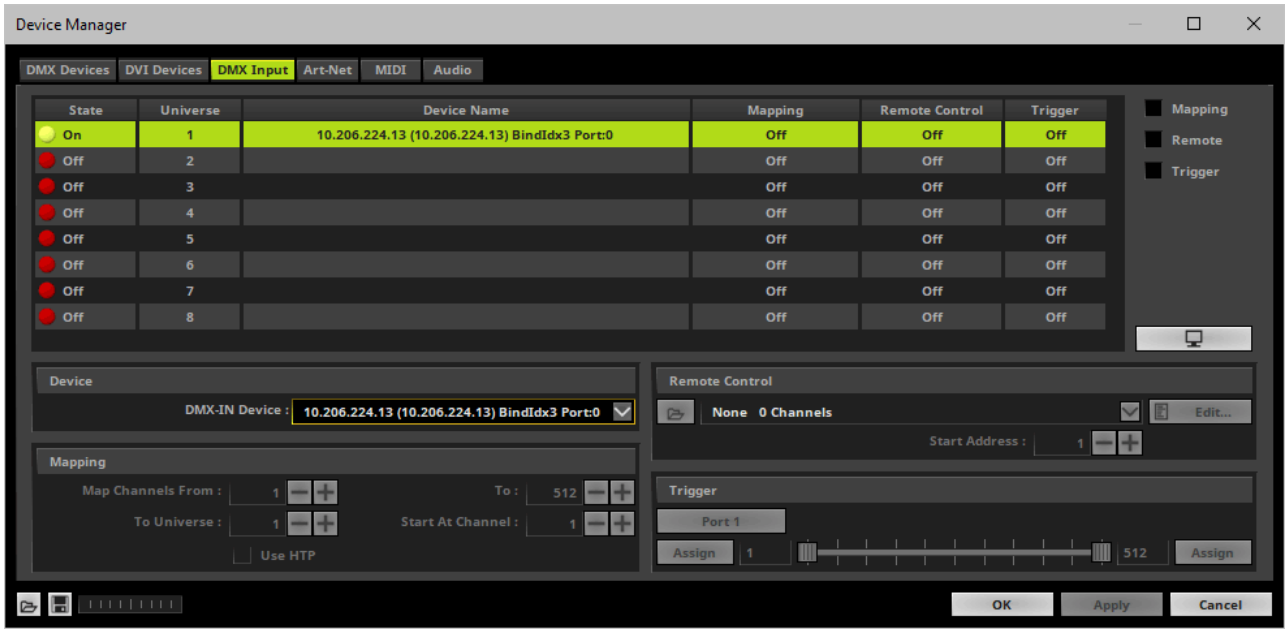
- Go to the menu ***Preferences > Device Manager... > DMX Input***




- Select your preferred DMX ***Universe*** in the list.

  [By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting under Options > Peformance.

- Choose your ***DMX-IN Device*** in the section ***Device***. Select the Art-Net input device via its IP address.




- Art-Net input is now activated. MADRIX 5 can already receive DMX data.
- Now, choose how to use incoming data as explained below.

# 8] Art-Net Remote

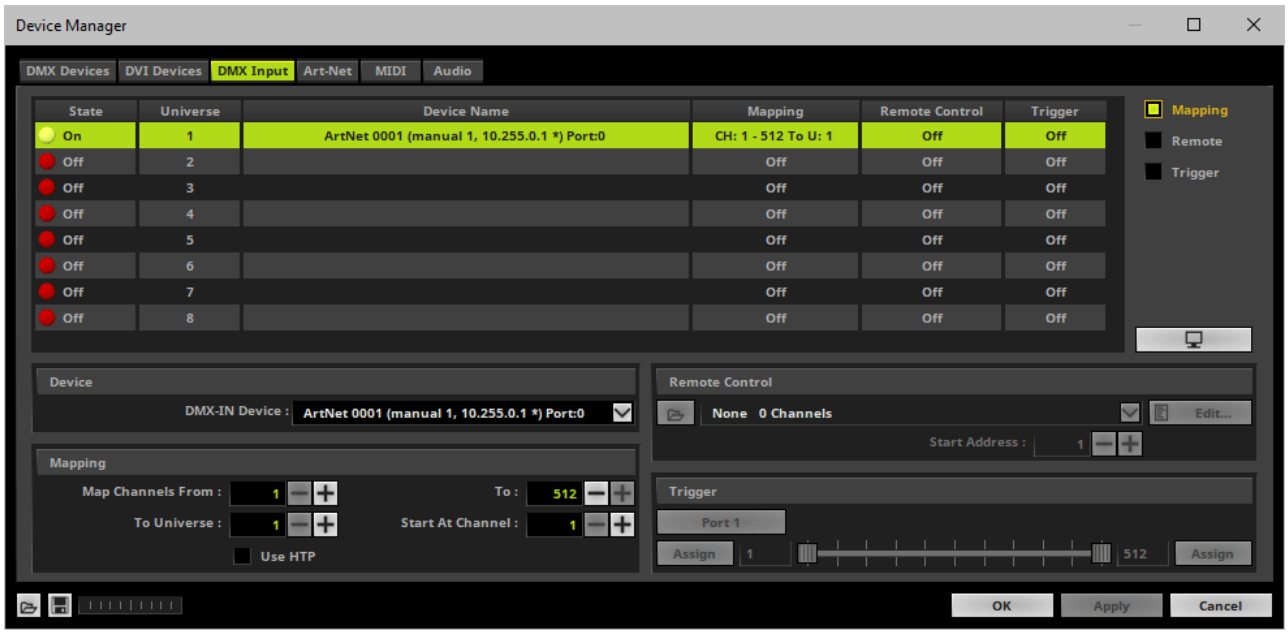
## Data

- At this point, MADRIX 5 is now already receiving any incoming data.
- You can now use this data, for example for Scripts and Macros.
- If you want to monitor incoming signals, select your DMX universe/DMX device in the list and click 

## Mapping

- Use Mapping, if you want to route incoming DMX signals through MADRIX 5 to your output [DMX-Thru].
- First, select your device in the list.

- Activate ***Mapping***
- This feature maps incoming data to the specified DMX universe and channels.




- Configure the following settings in the section ***Mapping***

  ***- Map Channels From -*** Defines which incoming channels are used. This is the start channel to specify the range of channels.

  ***- To -*** Defines which incoming channels are used. This is the end channel to specify the range of channels.

  ***- To Universe -*** Defines onto which output DMX universe MADRIX 5 should map the specified range of incoming channels.

  ***- Start At Channel -*** Defines the first DMX channel of the output DMX universe MADRIX 5 should use.

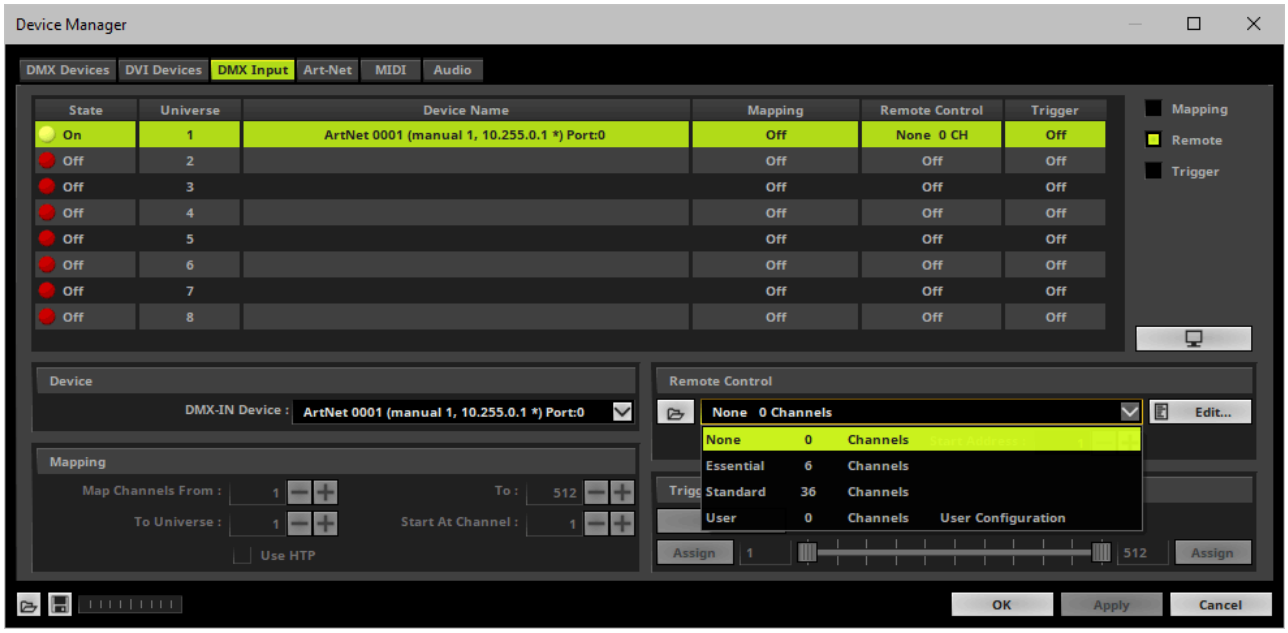
  ***- Use HTP -*** Activates the Highest Takes Precedence feature. You can map incoming data to a DMX address range that MADRIX 5 already controls. Use HTP and MADRIX 5 will compare incoming values with the DMX data it sends to the DMX output. As a result, MADRIX 5 will only use the highest of both values on a particular channel and send it to the output.

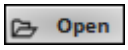
- Click ***Apply*** to confirm.

## Remote Control

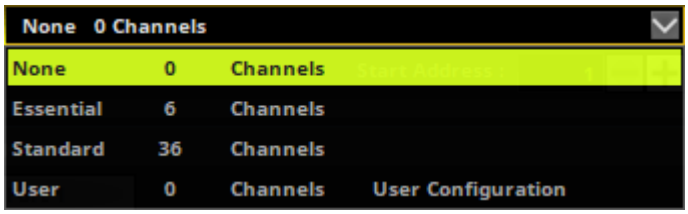
- Use Remote Control, if you want to control the MADRIX 5 Software remotely
- First, select your device in the list.

- Activate ***Remote***
- Select one of the built-in protocols in the section ***Remote Control*** as explained below or create your own remote configuration.

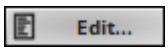


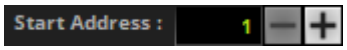

***Open*** **-** Loads a previously saved MADRIX 5 DMX Remote Configuration file [of the file type *.mdrx].




**Protocols -** Choose from a pre-configured protocol [configuration].




***DMX-IN Remote Editor*** **-** Allows you to modify a configuration or create a new configuration.



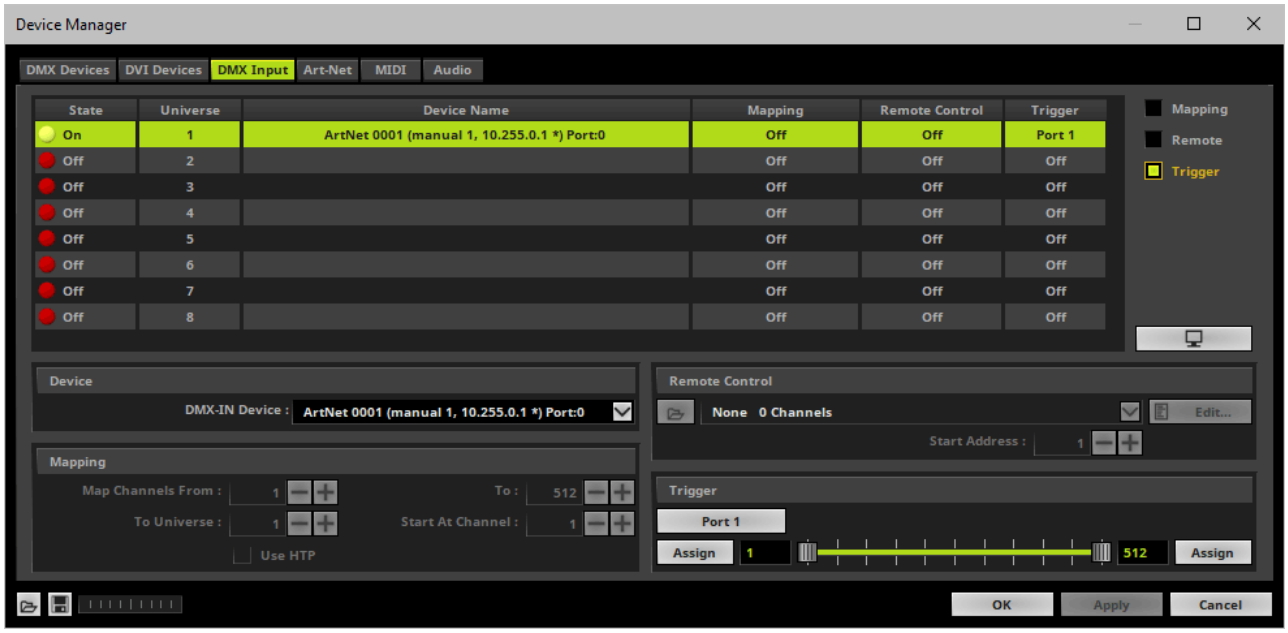

***Start Address*** **-** Defines on which particular DMX channel the protocol should start. The whole protocol will be mapped to this new address area.

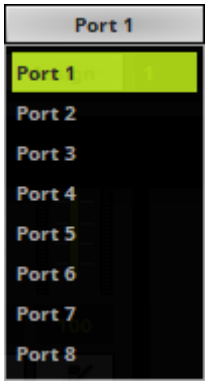


***DMX Watcher -*** Opens the DMX Watcher to monitor your DMX output or input.

## Trigger

- Use Trigger, if you want to use incoming signals for the MADRIX 5 TRI Effects.
- First, select your device in the list.
- Activate ***Trigger***



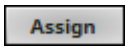




***Port -*** Defines the port [Port 1 - 8] that is assigned to this DMX-IN Device. MADRIX 5 allows you to send trigger signals from up to 8 different devices [8 ports] and assign a MADRIX 5 TRI Effect the corresponding port.



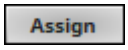

***Value Range -*** Defines the range of incoming DMX values that can be used as trigger signal.

- The minimum and default value is 1.
- The maximum and default value is 512.




***Assign Minimum Value -*** Automatically assigns the minimum value when using the controller.

- Click ***Assign*** and use the control on your controller for the minimum value and the value will be set automatically in the MADRIX 5 Software.




***Assign Maximum Value -*** Automatically assigns the maximum value when using the controller.

- Click ***Assign*** and use the control on your controller for the maximum value and the value will be set automatically in the MADRIX 5 Software.

## 3.5 Input [sACN]

**This topic includes:**


- DMX-IN Via Ethernet Network [Streaming ACN / sACN]
- 1] Initial Configuration
- 2] Windows Network Settings
- 3] Activating Streaming ACN
- 4] Enabling Input
- 5] Configure Your Device
- 6] Enable DMX-IN
- 7] sACN Input

# DMX-IN Via Ethernet Network [Streaming ACN / sACN]

You can connect MADRIX LUNA over Ethernet network to the network card of your computer that runs the MADRIX 5 Software. Data is sent to the LUNA via the DMX-IN port and from the LUNA to the MADRIX 5 via Ethernet network.

## 1] Initial Configuration

- Connect your external DMX controller to the DMX-IN port of MADRIX LUNA.
- Connect MADRIX LUNA to power.
  [Please see safety instructions in the ***MADRIX LUNA Technical Manual & Quick Start Guide***!]
- Connect MADRIX LUNA to your computer via network cabling.
- It is highly recommended to use Gigabit Ethernet network components [network card, switches, etc.].

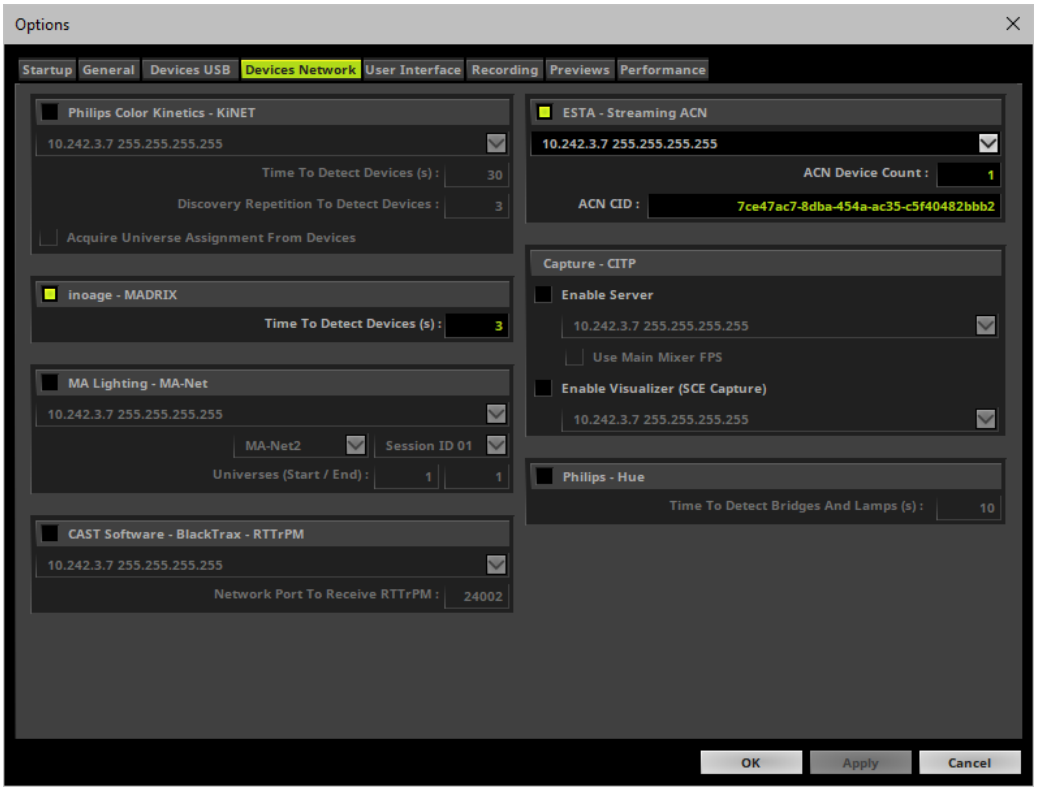
## 2] Windows Network Settings

- MADRIX 5 automatically sets up Streaming ACN network settings for you.
- You only need a computer with a network card and a valid IP address.

- **You do not have to change the IP address settings in Windows for Streaming ACN!**
- **The IP address range for sACN devices is 239.255.X.X according to the Streaming ACN specifications.**
  **[Even if your sACN devices are set to a different IP address range, you may try the connection from MADRIX 5 to your devices.]**
- **Make sure that your Firewall does not block data of the 239.255.X.X IP address range!**
- **Check the settings of the Windows Firewall.**
- Learn more »Tips [Microsoft Windows / Networks / USB]

# 3] Activating Streaming ACN

- Go to the menu ***Preferences > Options... > Devices Network***
  [Keyboard shortcut: ***Ctrl+Alt+O > Devices Network***]
- Activate ***Enable ESTA - Streaming ACN***
- **Choose your network card** from the drop-down list. Make sure to select the correct network adapter that will be used for Streaming ACN!
  [The IP address and Subnet mask label should help you select the correct adapter. It is not necessary to change any of these networks settings.]
- ***ACN Device Count*** - Set up how many you are going to use.
  [This is the total amount of OUT and IN devices. Please set the exact number of devices you are using. If the count is higher, this creates unnecessary network traffic.]
- Click ***Apply***



- ***ACN CID -*** Being a network protocol, Streaming ACN sends a so-called CIDs [Component Identifier].
  - Every single ACN device has such a unique ID.
  - When using Streaming ACN, your MADRIX 5 Software is one of those devices.
  - When you start MADRIX 5 for the first time, this ID will be generated automatically for you. From this point onwards it will be used on your PC.
  - With this ID your MADRIX 5 Software can be easily identified in the network. Interfaces can detect this unique ID and can be configured to receive data from this particular device. Please note that the ACN interface must support this feature.
  - **Do not change the ACN CID, unless you are an experienced user!**
- Click ***OK*** to close the window.

# 4] Enabling Input

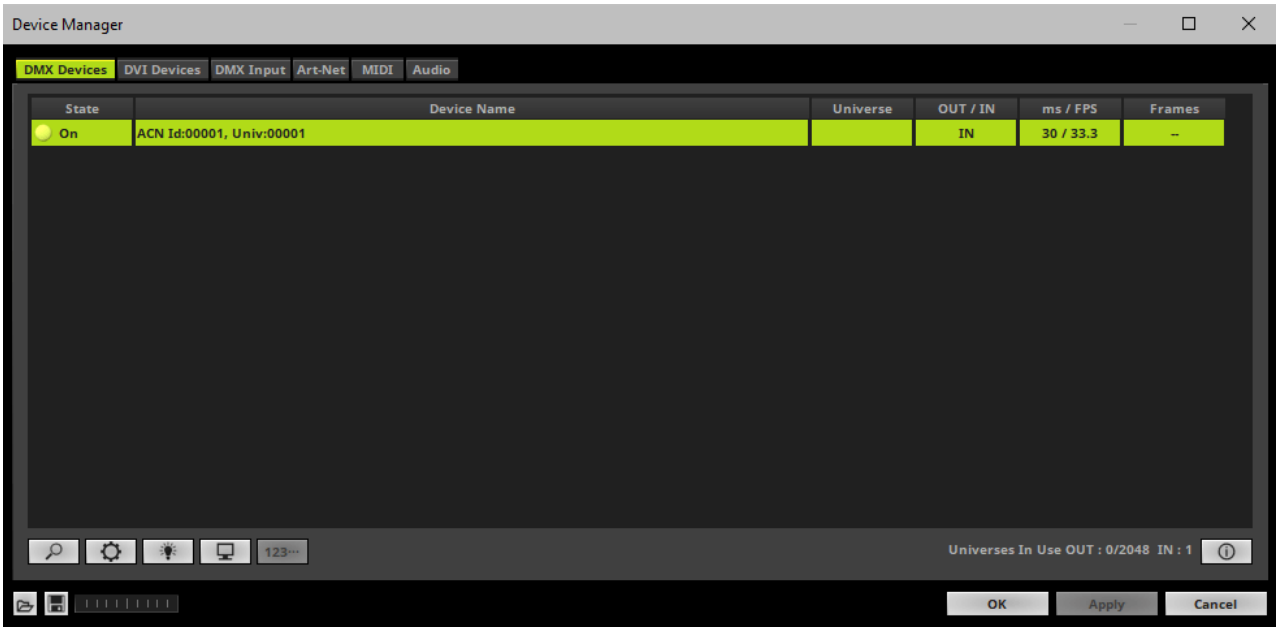
- Go to ***Preferences > Device Manager... > DMX Devices***
  [Keyboard shortcut: ***F4***]
- MADRIX 5 automatically creates and adds the number of interfaces to the list.
  [according to ***ACN Device Count***]
- Select your device.
- ***Right Mouse Click*** on the column ***OUT / IN*** to set to ***IN*** for data input if you wish to receive incoming data through this device.
- In DMX-IN mode, you will not be able to select the ACN protocol. MADRIX 5 will automatically select the correct protocol version.
- Set up the frame time for your device.
  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column ***ms / FPS*** and enter the required number.
  - The frame time [in milliseconds; ms] affects the frame rate. The frame rate specifies how fast data is sent to the device or received from it [in Frames Per Second; FPS].
  - Increase the frame time in order to decrease the frame rate [e.g., 40 ms = 25 FPS].
  - Decrease the frame time in order to increase the frame rate [e.g., 20 ms = 50 FPS].
  - The default value is 30 ms / 33.3 FPS.
  - The minimum value is 1000 ms / 1 FPS.
  - The maximum value is 5 ms / 200 FPS.

  **Please note:** If you want to output high frame rates, make sure to set Main Mixing FPS in the Options to the

same value in order to render the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

**Please note:** If you want to input high frame rates, make sure to set DMX Controller Input FPS in the Options to the same value in order to process the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

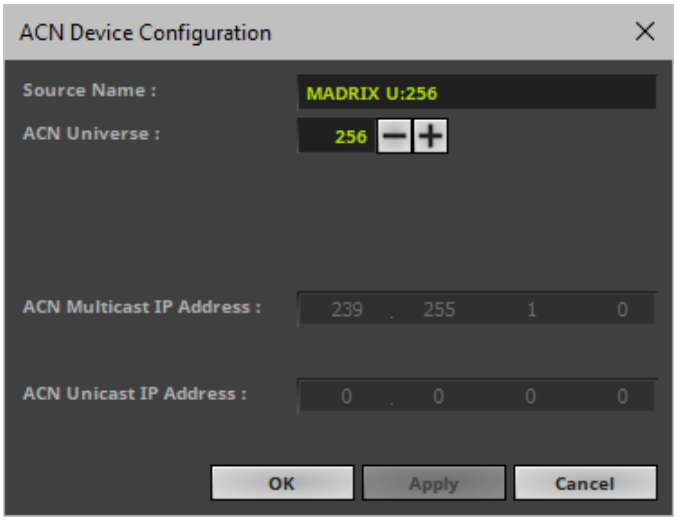
- **Some LED fixtures might have problems with a low frame time / high frame rate. Then, it is recommended to increase the frame time / decrease the frame rate.**




- **Note: If you are loading a MADRIX 5 Setup, please check if the number of ACN devices in your setup corresponds with the number that is activated. The Setup stores the number of devices. But if you changed the amount and then loaded the Setup, the newly defined number will be activated.**

## 5] Configure Your Device

- Make sure that your device is still selected under ***Preferences > Device Manager... > DMX Devices***
- Click 
- A new window will open.



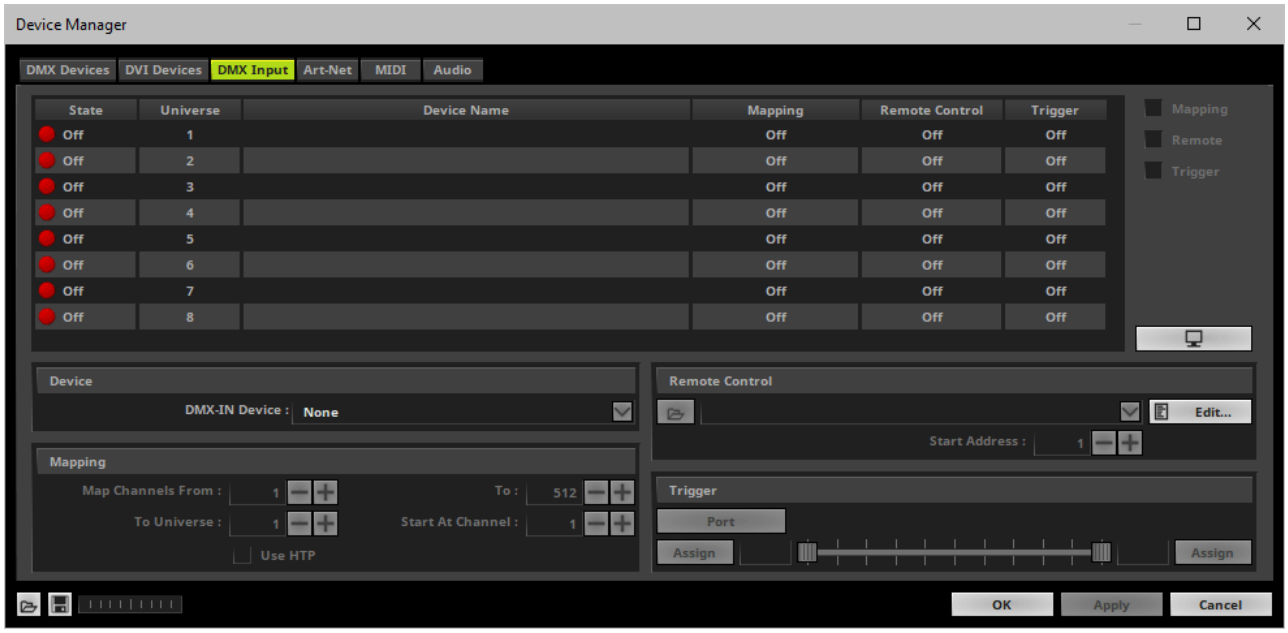

Set up the following settings for your devices:

- ***Source Name*** **-** Allows you to set up a specific name for the device. This name is send via network as well. Therefore, interfaces may be able to retrieve this name and can be configured to receive data from this source.
  - If you are using the default name ***MADRIX U:X***, the universe will automatically be displayed in the name [represented by X: 1, 2, 3, etc.].
- ***ACN Universe*** **-** Defines the DMX universe from which data is received.
  **- Set up the same universe that is set up in your MADRIX LUNA according to the Web Configuration. By default, MADRIX LUNA sends input data to network universe 256. You can change these settings in the Web Configuration if required.**
  - According to the Streaming ACN specifications, MADRIX 5 will automatically change the ACN IP Address according to the ACN Universe.

- Click ***Apply*** to confirm your changes.
- Click ***OK*** to close the window.

## 6] Enable DMX-IN

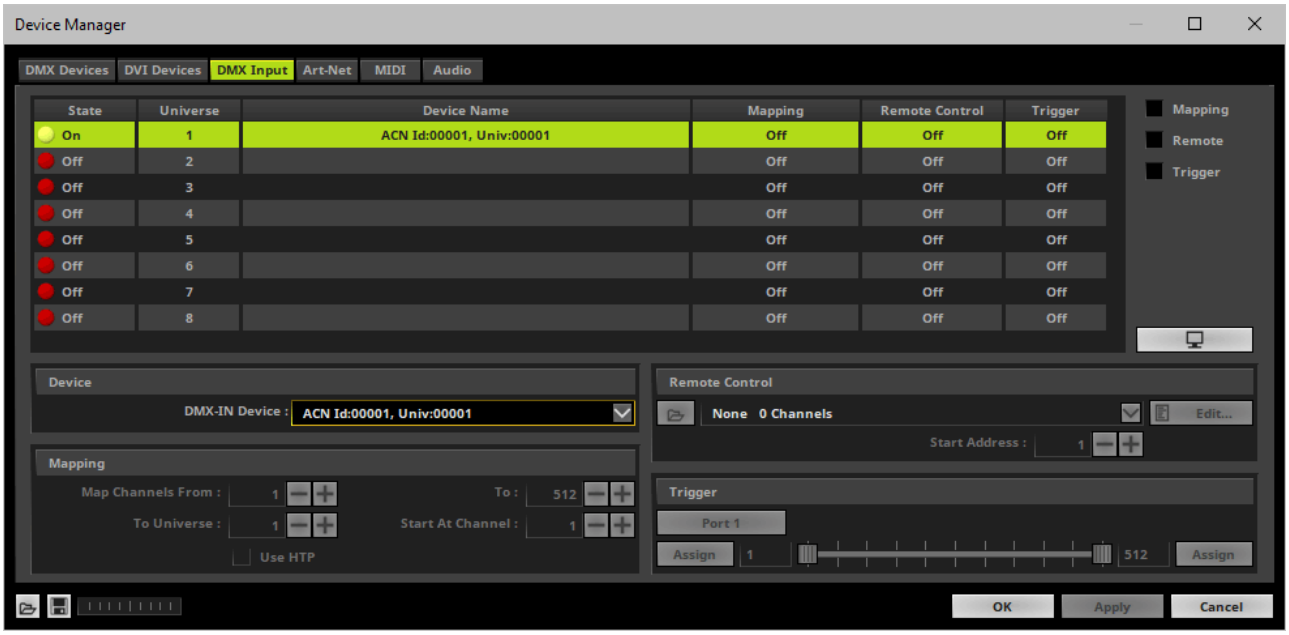
- Go to the menu ***Preferences > Device Manager... > DMX Input***




- Select your preferred DMX ***Universe*** in the list.

  [By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting under Options > Performance.

- Choose your ***DMX-IN Device*** in the section ***Device***




- [If needed, you can disable DMX-IN by choosing ***None*** for your ***DMX-IN Device*** in the section ***Device***]

- sACN input is now activated. MADRIX 5 can already receive DMX data.
- Now, choose how to use incoming data as explained below.

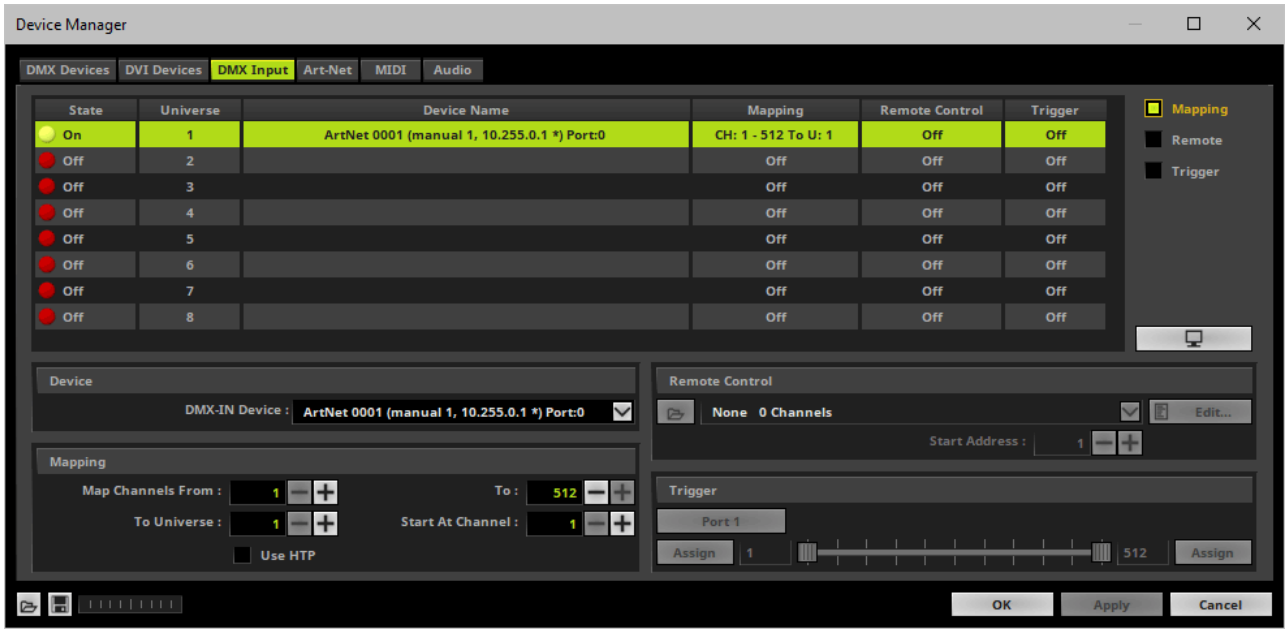
# 7] sACN Input

## Data

- At this point, MADRIX 5 is now already receiving any incoming data.
- You can now use this data, for example for Scripts and Macros.
- If you want to monitor incoming signals, select your DMX universe/DMX device in the list and click 

## Mapping

- Use Mapping, if you want to route incoming DMX signals through MADRIX 5 to your output [DMX-Thru].
- First, select your device in the list.
- Activate ***Mapping***
- This feature maps incoming data to the specified DMX universe and channels.




- Configure the following settings in the section ***Mapping***

  ***- Map Channels From -*** Defines which incoming channels are used. This is the start channel to specify the range of channels.

  ***- To -*** Defines which incoming channels are used. This is the end channel to specify the range of channels.

  ***- To Universe -*** Defines onto which output DMX universe MADRIX 5 should map the specified range of incoming channels.

  ***- Start At Channel -*** Defines the first DMX channel of the output DMX universe MADRIX 5 should use.

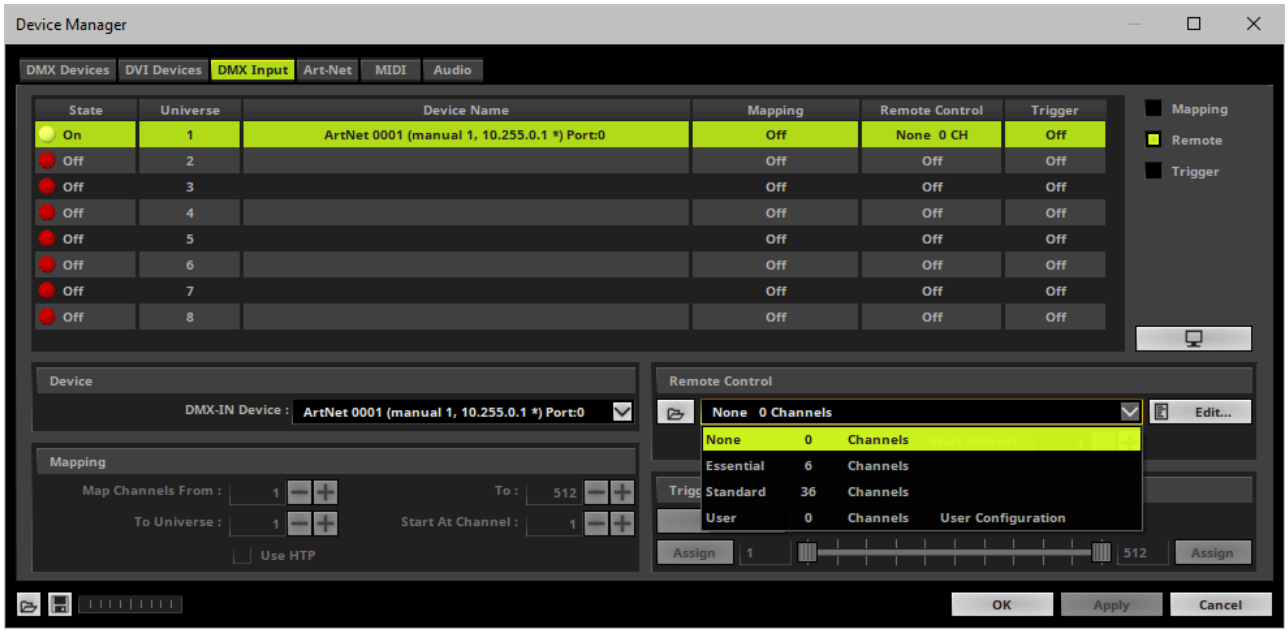
  ***- Use HTP -*** Activates the Highest Takes Precedence feature. You can map incoming data to a DMX address range that MADRIX 5 already controls. Use HTP and MADRIX 5 will compare incoming values with the DMX data it sends to the DMX output. As a result, MADRIX 5 will only use the highest of both values on a particular channel and send it to the output.

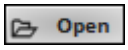
- Click ***Apply*** to confirm.

## Remote Control

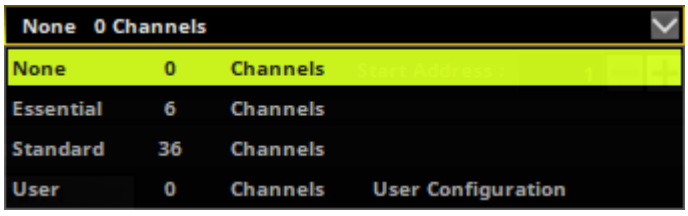
- Use Remote Control, if you want to control the MADRIX 5 Software remotely
- First, select your device in the list.
- Activate ***Remote***

- Select one of the built-in protocols in the section ***Remote Control*** as explained below or create your own remote configuration.

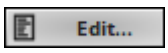


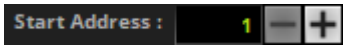

***Open*** **-** Loads a previously saved MADRIX 5 DMX Remote Configuration file [of the file type *.mdrx].




**Protocols -** Choose from a pre-configured protocol [configuration].




***DMX-IN Remote Editor*** **-** Allows you to modify a configuration or create a new configuration.



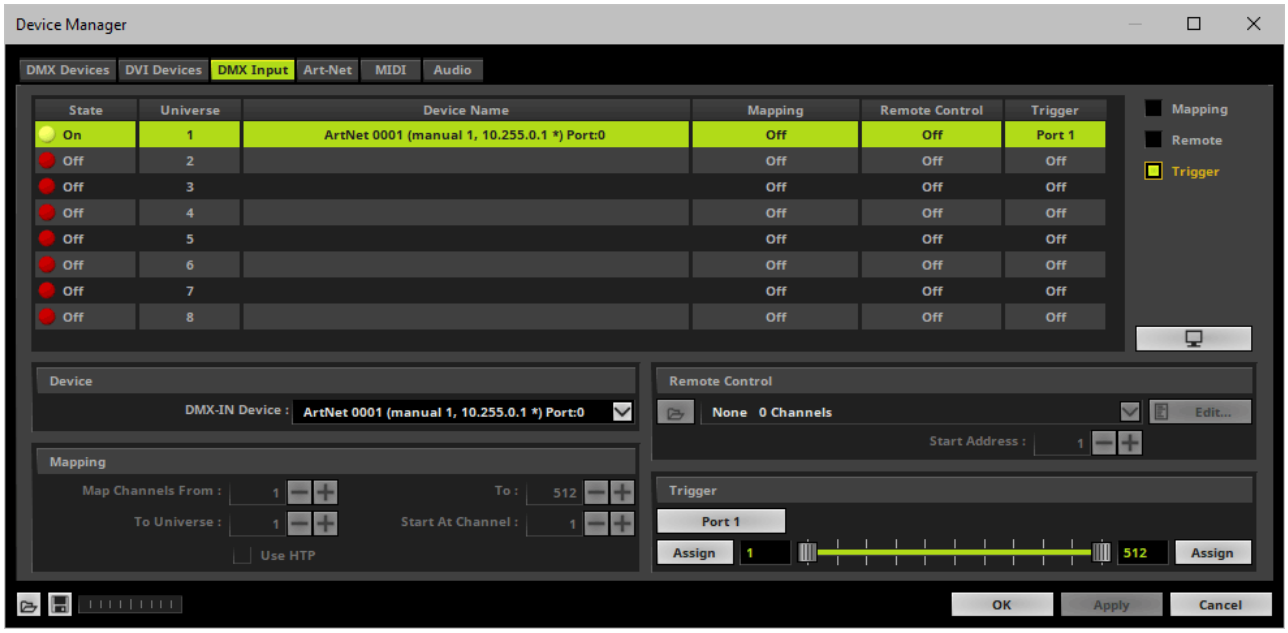

***Start Address*** **-** Defines on which particular DMX channel the protocol should start. The whole protocol will be mapped to this new address area.

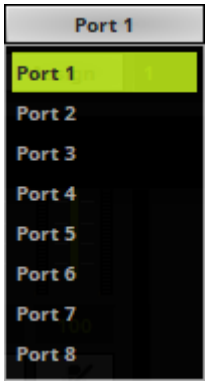


***DMX Watcher -*** Opens the DMX Watcher to monitor your DMX output or input.

## Trigger

- Use Trigger, if you want to use incoming signals for the MADRIX 5 TRI Effects.
- First, select your device in the list.
- Activate ***Trigger***



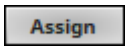




***Port -*** Defines the port [Port 1 - 8] that is assigned to this DMX-IN Device. MADRIX 5 allows you to send trigger signals from up to 8 different devices [8 ports] and assign a MADRIX 5 TRI Effect the corresponding port.



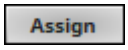

***Value Range -*** Defines the range of incoming DMX values that can be used as trigger signal.

- The minimum and default value is 1.
- The maximum and default value is 512.




***Assign Minimum Value -*** Automatically assigns the minimum value when using the controller.

- Click ***Assign*** and use the control on your controller for the minimum value and the value will be set automatically in the MADRIX 5 Software.




***Assign Maximum Value -*** Automatically assigns the maximum value when using the controller.

- Click ***Assign*** and use the control on your controller for the maximum value and the value will be set automatically in the MADRIX 5 Software.

## 3.6 Input [USB]

**This topic includes:**


- DMX-IN Via USB
- 1] Initial Configuration
- 2] Enabling Drivers In MADRIX 5
- 3] Activating Devices
- 4] Activating DMX Input
- 5] DMX-IN

# DMX-IN Via USB

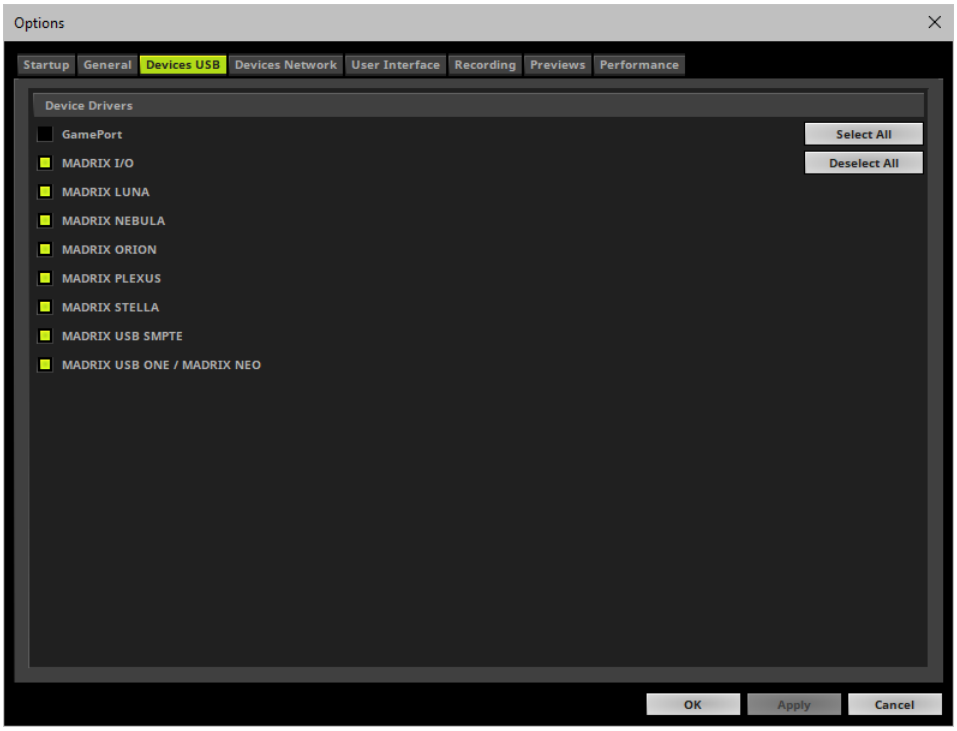
You can connect the LUNA directly via USB to the computer that runs the MADRIX 5 Software. Data is sent into the MADRIX LUNA via DMX-IN [XLR] and from the LUNA to MADRIX 5 via USB.

## 1] Initial Configuration

- Connect your external DMX controller to the DMX-IN port of MADRIX LUNA.
- Connect MADRIX LUNA to power.
  [Please see safety instructions in the MADRIX LUNA Technical Manual & Quick Start Guide!]
- Connect MADRIX LUNA to your computer via USB.
  [Use the provided USB cable.]
- Make sure to check the power-management options of Windows. Learn more »PC Power Management

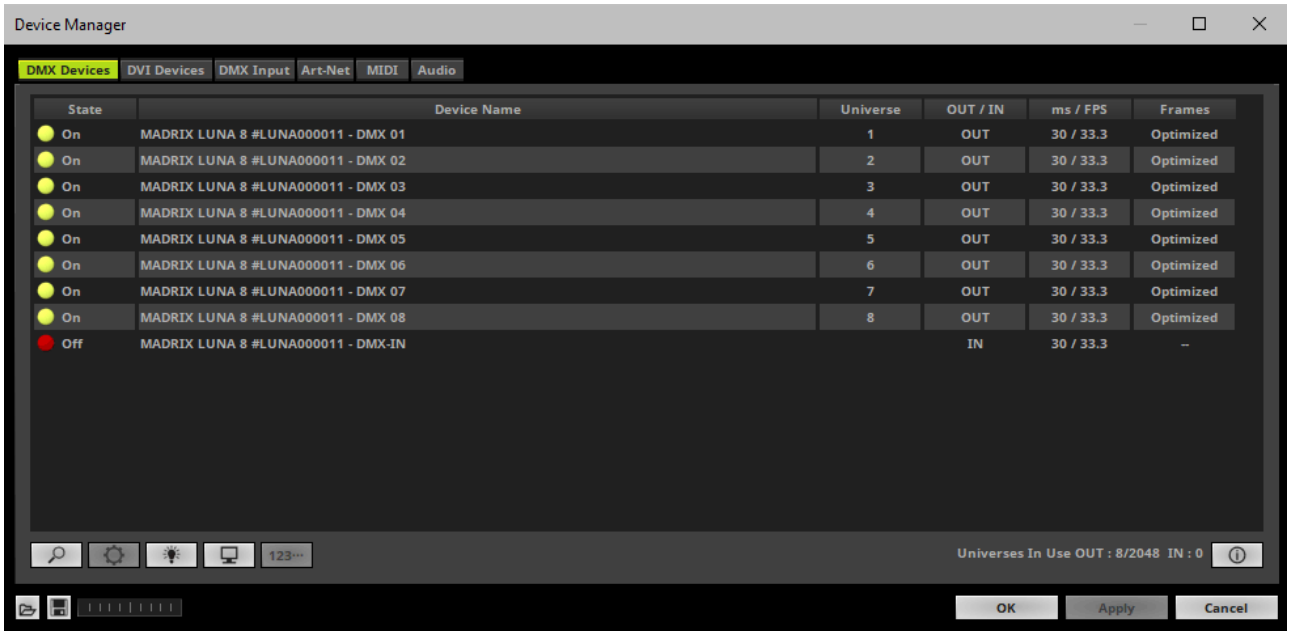
## 2] Enabling Drivers In MADRIX 5

- Go to the menu ***Preferences > Options... > Devices USB***
  [Keyboard shortcut: ***Ctrl+Alt+O > Devices USB***]
- Activate ***MADRIX LUNA***
  [The option is activated by default.]
- Click ***Apply***
- Close the window with ***OK***

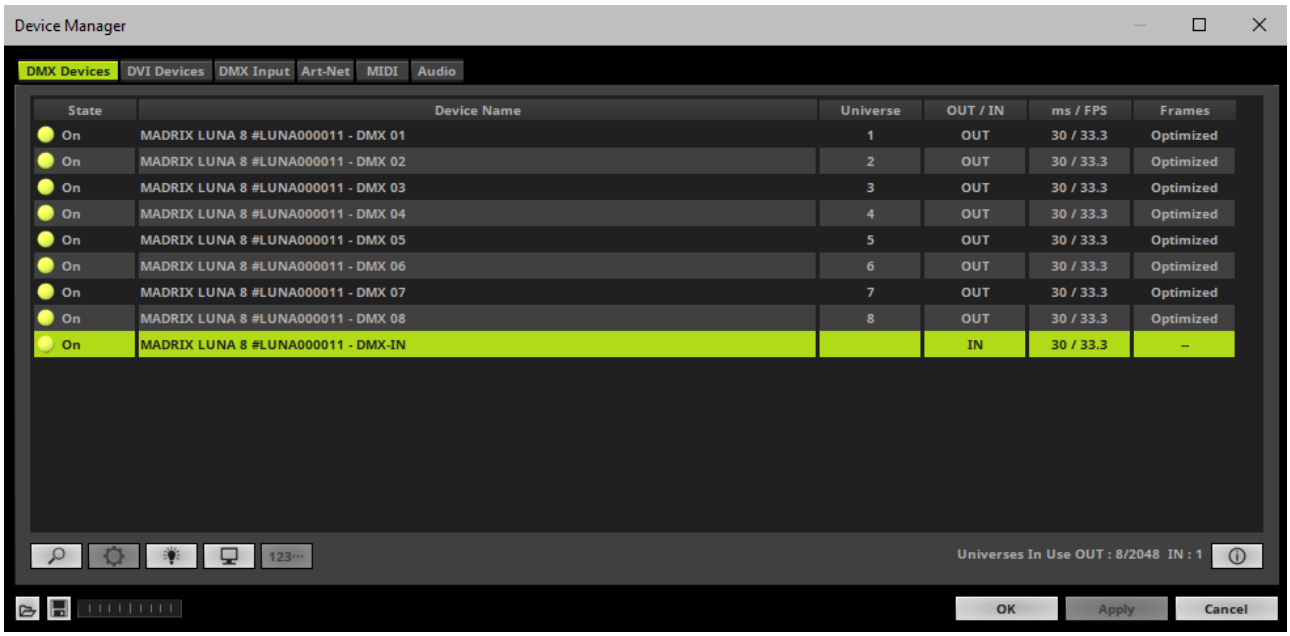



## 3] Activating Devices

- Go to the menu ***Preferences > Device Manager... > DMX Devices***
  [Keyboard shortcut: ***F4***]
- Your LUNA devices and all of their ports [4/8/16 output ports, 1 input port] will appear in the list.
- If your devices are not in the list, click 
  [In the screenshot below, one LUNA 8 is connected.]




- Select ***MADRIX LUNA DMX-IN*** in the list.
- ***Right Mouse Click*** on the column ***State*** to set from ***Off*** to ***On*** [indicated by green light].
- ***IN*** is automatically activated.




- If required, change the frame time.

  - ***Right Mouse Click*** or ***Left Mouse Double-Click*** on the column ***ms / FPS*** and enter the required number.

  - The frame time [in milliseconds; ms] affects the frame rate. The frame rate specifies how fast data is sent to

the device or received from it [in Frames Per Second; FPS].

- Increase the frame time in order to decrease the frame rate [e.g., 40 ms = 25 FPS].
- Decrease the frame time in order to increase the frame rate [e.g., 20 ms = 50 FPS].
- The default value is 30 ms / 33.3 FPS.
- The minimum value is 1000 ms / 1 FPS.
- The maximum value is 5 ms / 200 FPS.

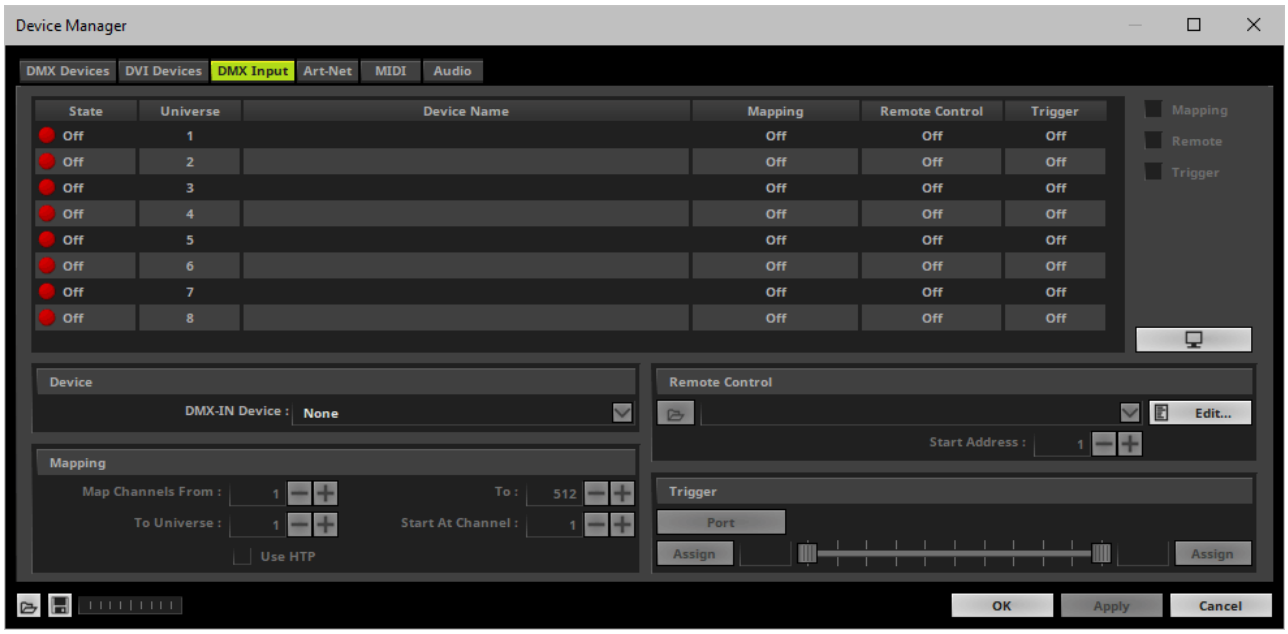
**Please note:** If you want to output high frame rates, make sure to set Main Mixing FPS in the Options to the same value in order to render the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

**Please note:** If you want to input high frame rates, make sure to set DMX Controller Input FPS in the Options to the same value in order to process the same frame rate [It is set to 50 FPS by default. Otherwise, frames will be duplicated].

- **Some LED fixtures might have problems with a low frame time / high frame rate. Then, it is recommended to increase the frame time / decrease the frame rate.**

## 4] Activating DMX Input

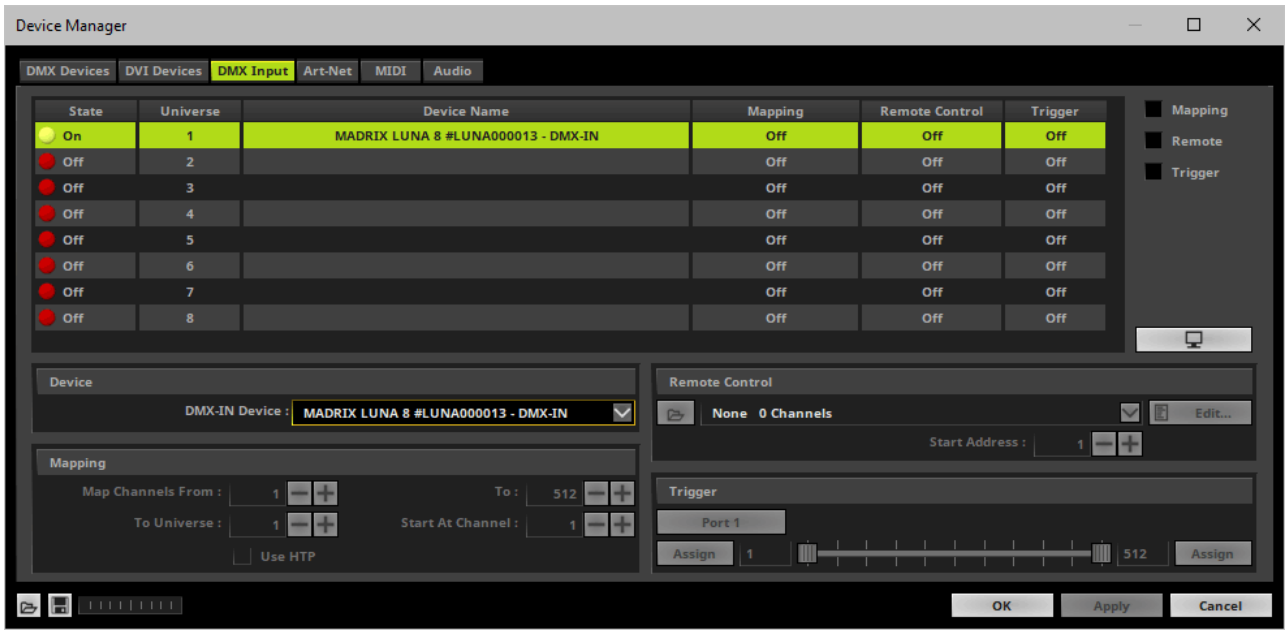
- Go to the menu ***Preferences > Device Manager... > DMX Input***



- Select your preferred DMX ***Universe*** in the list.

  [By default, DMX universe 1 to 8 are listed. If you wish to increase the number of DMX-IN universes, you can change the setting under Options > Performance.

- Choose your ***DMX-IN Device*** in the section ***Device***. Select ***MADRIX LUNA - DMX-IN***




- DMX-IN is now activated. MADRIX 5 can already receive DMX data.
- Now, choose how to use incoming data as explained below.

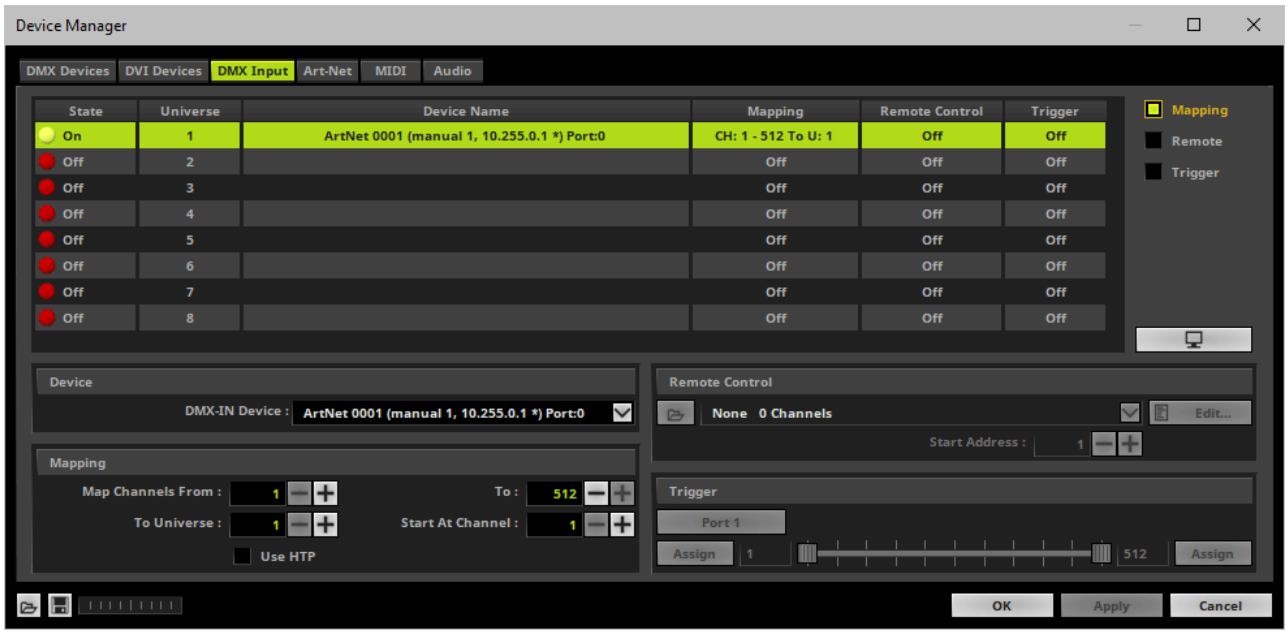
# 5] DMX-IN

## Data

- At this point, MADRIX 5 is now already receiving any incoming data.
- You can now use this data, for example for Scripts and Macros.
- If you want to monitor incoming signals, select your DMX universe/DMX device in the list and click 

## Mapping

- Use Mapping, if you want to route incoming DMX signals through MADRIX 5 to your output [DMX-Thru].
- First, select your device in the list.
- Activate ***Mapping***
- This feature maps incoming data to the specified DMX universe and channels.




- Configure the following settings in the section ***Mapping***

  ***- Map Channels From -*** Defines which incoming channels are used. This is the start channel to specify the range of channels.

  ***- To -*** Defines which incoming channels are used. This is the end channel to specify the range of channels.

  ***- To Universe -*** Defines onto which output DMX universe MADRIX 5 should map the specified range of incoming channels.

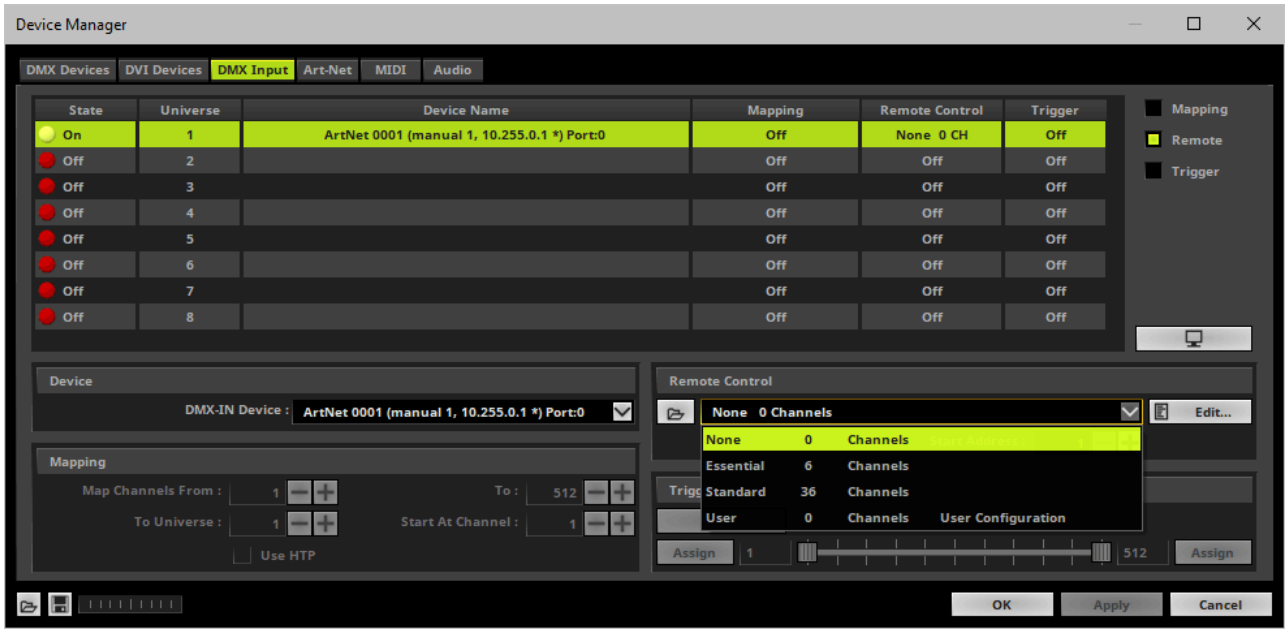
  ***- Start At Channel -*** Defines the first DMX channel of the output DMX universe MADRIX 5 should use.

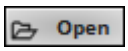
  ***- Use HTP -*** Activates the Highest Takes Precedence feature. You can map incoming data to a DMX address range that MADRIX 5 already controls. Use HTP and MADRIX 5 will compare incoming values with the DMX data it sends to the DMX output. As a result, MADRIX 5 will only use the highest of both values on a particular channel and send it to the output.

- Click ***Apply*** to confirm.

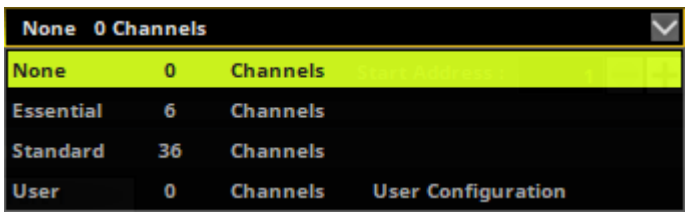
## Remote Control

- Use Remote Control, if you want to control the MADRIX 5 Software remotely
- First, select your device in the list.
- Activate ***Remote***
- Select one of the built-in protocols in the section ***Remote Control*** as explained below or create your own remote configuration.

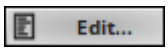


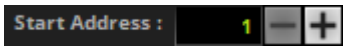

***Open*** **-** Loads a previously saved MADRIX 5 DMX Remote Configuration file [of the file type *.mdrx].




**Protocols -** Choose from a pre-configured protocol [configuration].




***DMX-IN Remote Editor*** **-** Allows you to modify a configuration or create a new configuration.



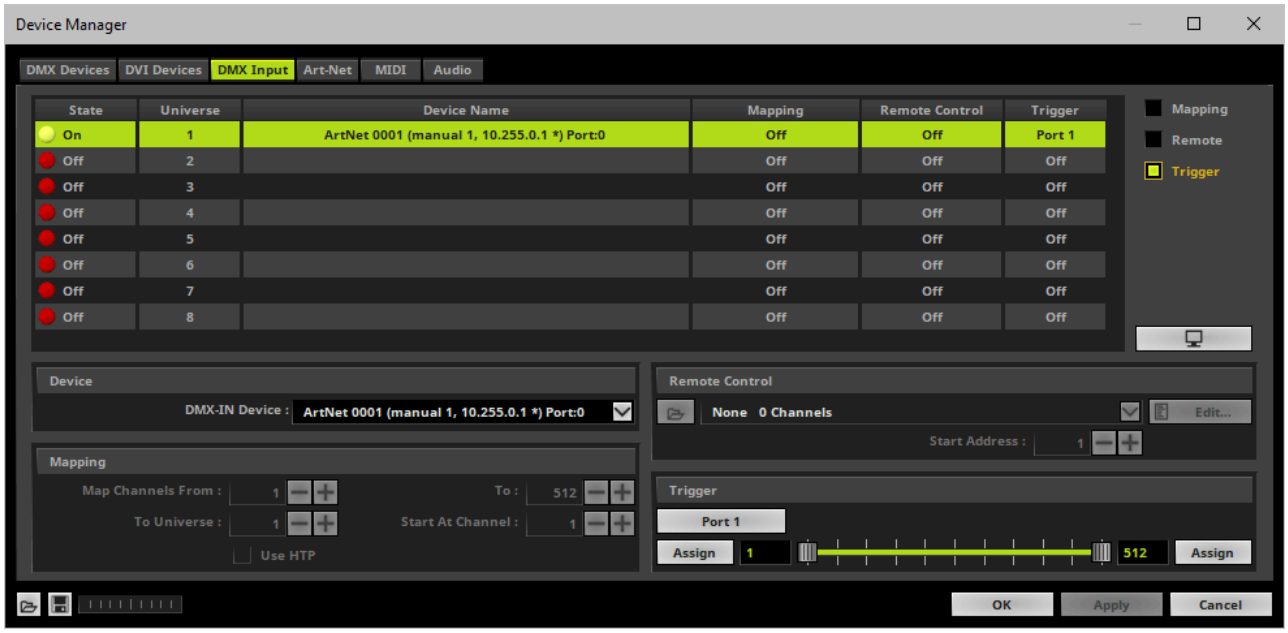

***Start Address -*** Defines on which particular DMX channel the protocol should start. The whole protocol will be mapped to this new address area.

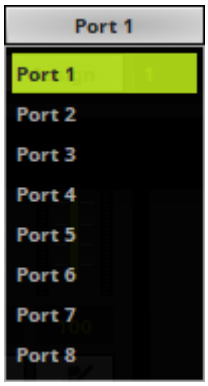


***DMX Watcher -*** Opens the DMX Watcher to monitor your DMX output or input.

## Trigger

- Use Trigger, if you want to use incoming signals for the MADRIX 5 TRI Effects.
- First, select your device in the list.
- Activate ***Trigger***



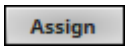



***Port -*** Defines the port [Port 1 - 8] that is assigned to this DMX-IN Device. MADRIX 5 allows you to send trigger signals from up to 8 different devices [8 ports] and assign a MADRIX 5 TRI Effect the corresponding port.



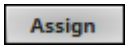

***Value Range -*** Defines the range of incoming DMX values that can be used as trigger signal.

- The minimum and default value is 1.
- The maximum and default value is 512.




***Assign Minimum Value -*** Automatically assigns the minimum value when using the controller.

- Click ***Assign*** and use the control on your controller for the minimum value and the value will be set automatically in the MADRIX 5 Software.




***Assign Maximum Value -*** Automatically assigns the maximum value when using the controller.

- Click ***Assign*** and use the control on your controller for the maximum value and the value will be set automatically in the MADRIX 5 Software.

MADRIX
LIGHTING CONTROL

# //PART 4

*Technical Support*

# 4 Technical Support

## Topics Of This Chapter


- Firmware Updates
- Hardware Revisions


## 4.1 Firmware Updates

**This topic includes:**


- Overview
- MADRIX HARDWARE MANAGER
- Available Firmware Updates


## Overview

It is highly recommended to update the firmware should a new firmware version become available.

## MADRIX HARDWARE MANAGER

To update your devices, please use the separate MADRIX HARDWARE MANAGER software.

Learn more »MADRIX HARDWARE MANAGER [USB / Ethernet]

## Available Firmware Updates

| Version | Highlights |
|---|---|

| | |
|---|---|
| LUNA Firmware<br>**1.00.4547**<br><br>MADRIX Version<br>**MADRIX 3.0**<br><br>Release Date<br>**July 2013** | ▪ Initial firmware release. |
| LUNA Firmware<br>**1.01.4555**<br><br>MADRIX Version<br>**MADRIX 3.1**<br><br>Release Date<br>**November 2013** | ▪ Improved functionality and communication with the MADRIX 3 Software. |
| LUNA Firmware<br>**1.02.4946**<br><br>MADRIX Version<br>**MADRIX 3.2**<br><br>Release Date<br>**March 2014** | ▪ Added support for LUNA 4 and LUNA 16 in addition to LUNA 8. |
| LUNA Firmware<br>**1.03.5043**<br><br>MADRIX Version<br>**MADRIX 3.3**<br><br>Release Date<br>**November 2014** | ▪ Optimized device reply time (Poll Reply) to ensure that all connected devices are found when searching for them automatically in MADRIX 3.<br>▪ Fixed an issue that would reset the network settings with the next start when a Subnet Mask higher than 255.255.255.0 was set up.<br>▪ Fixed issues with sending out data when receiving Art-Net data from two sources.<br>▪ Fixed an issue that only used the last of DMX output ports to send out data when several ports had been assigned the same Art-Net universe. |
| LUNA Firmware<br>**1.04.5298**<br><br>MADRIX Version<br>**MADRIX 3.3a**<br><br>Release Date<br>**December 2014** | ▪ Fixed an issue that the IP address could not be changed using the web configuration tool. |
| **LUNA Firmware**<br>1.05.5501<br><br>**MADRIX Version**<br>MADRIX 3.4<br><br>**Release Date**<br>June 2015 | ▪ Fixed that the Poll Reply only returned 4 ports for LUNA 8 or LUNA 16. |

| | |
|---|---|
| LUNA Firmware<br>**1.05.5997**<br><br>MADRIX Version<br>**MADRIX 3.6**<br><br>Release Date<br>**May 2016** | ▪ All built-in status LEDs can now be switched off over Art-Net via ArtAdress.<br>▪ Added support for ArtSync. |
| LUNA Firmware<br>**1.05.6298**<br><br>MADRIX Version<br>**MADRIX 3.6b**<br><br>Release Date<br>**September 2016** | ▪ Web configuration page: Added the Refresh button to always show the latest information that was last saved on the device in the web browser (instead of using a browser refresh which may change settings again). |
| LUNA Firmware<br>**1.05.6996**<br><br>MADRIX Version<br>**MADRIX 3.6d**<br><br>Release Date<br>**December 2016** | ▪ Fixed an issue for LUNA 4 that returned an incorrect BindIndex after receiving a PollReply. |
| LUNA Firmware<br>**1.06.7074**<br><br>MADRIX Version<br>**MADRIX 3.6h**<br><br>Release Date<br>**February 2018** | ▪ Added 4 distinct options for sending data output in case of data connection loss [only available in the web configuration tool]:<br>- Send The Last Received Frame Continually<br>- Send Black Frames Continually<br>- Stop Sending After Sending A Black Frame<br>- Stop Sending<br>▪ Increased the minimum output frequency that is sent on each port from 10 FPS to 20 FPS [in order to ensure functionality with lighting fixtures that are not functioning well with low frame rates]. |
| LUNA Firmware<br>**1.06.7104**<br><br>MADRIX Version<br>**MADRIX 5.0**<br><br>Release Date<br>**May 2018** | ▪ Added BindIdx 3 to the PollReply to better communicate the additional DMX-IN port. |

| | |
|---|---|
| LUNA Firmware<br>**1.06.7106**<br><br>MADRIX Version<br>**MADRIX 5.0a**<br><br>Release Date<br>**June 2018** | ▪ Web configuration page: Updated the visual appearance for MADRIX 5.<br>▪ Web configuration page: Art-Net universes are now also shown in hexadecimal notation in addition to the decimal notation. |
| LUNA Firmware<br>**1.06.7134**<br><br>MADRIX Version<br>**MADRIX 5.0c**<br><br>Release Date<br>**July 2018** | ▪ Web configuration page: Updated the MADRIX Logo.<br>▪ Web configuration page: Renamed Direct IP Mode to Unicast Mode. |
| LUNA Firmware<br>**1.06.7148**<br><br>MADRIX Version<br>**MADRIX 5.0d**<br><br>Release Date<br>**August 2018** | ▪ Fixed a critical issue that could halt the device in rare cases. |
| LUNA Firmware<br>**1.06.7172**<br><br>MADRIX Version<br>**MADRIX 5.0e**<br><br>Release Date<br>**February 2019** | ▪ Web configuration page: Fixed a critical issue that discarded the current setting for In Case Of Data Connection Loss when disconnected from power and automatically reset to the default value again. |
| LUNA Firmware<br>**2.00.7232**<br><br>MADRIX Version<br>**MADRIX 5.1**<br><br>Release Date<br>**May 2019** | ▪ Added support for Streaming ACN / sACN.<br>▪ Added a Channel Offset for each output port.<br>▪ For every single universe, a single ArtPollReply packet is being sent to reply to Art-Net polls (#3841).<br>▪ Web configuration page: Universes are now shown in hexadecimal notation and Art-Net Net switch / sub-net switch notation in the Network Universe tooltips.<br>▪ Fixed an issue that did continue to send the last frame that was received over USB under certain circumstances although new network data was received.<br>▪ Fixed an issue that only allowed answering ping requests up to 32 byte.<br>▪ Fixed an issue that did not send with the correct frame rate and timeout setting when having received ArtSync packages prior. |

| | |
|---|---|
| LUNA Firmware<br>**2.00.7254**<br><br>MADRIX Version<br>**MADRIX 5.1a**<br><br>Release Date<br>**August 2019** | ▪ Fixed an issue that could prevent uploading the bootloader correctly.<br>▪ Fixed an issue that did not allow to call the built-in web configuration page via the MADRIX Device Configuration window. |
| LUNA Firmware<br>**2.00.7261**<br><br>MADRIX Version<br>**MADRIX 5.3**<br><br>Release Date<br>**May 2020** | ▪ Fixed an issue that produced incorrect DMX-IN packages in MADRIX LUNA 16 when receiving data from 2 sources for merging in addition to DMX-IN data. |
| LUNA Firmware<br>**2.00.7291**<br><br>MADRIX Version<br>**MADRIX 5.4**<br><br>Release Date<br>**December 2020** | ▪ Fixed a critical issue that could crash the web configuration when switching to Streaming ACN as network-data source (#6433, #6563).<br>▪ Fixed an issue that could result in random bursts of value 255 being sent on all channels when using Streaming ACN as network-data source (#6631). |
| LUNA Firmware<br>**2.01.7292**<br><br>MADRIX Version<br>**MADRIX 5.4c**<br><br>Release Date<br>**July 2021** | ▪ Web configuration page: Added the option to reboot the device (#7446).<br>▪ Web configuration page: Added the option to reset the device to factory default settings (#7446). |
| LUNA Firmware<br>**2.02.7297**<br><br>MADRIX Version<br>**MADRIX 5.4e**<br><br>Release Date<br>**October 2021** | ▪ During normal operation, quickly pressing the Reset button now sends an Art-Net PollReply and a MADRIX PollReply for device discovery (#7008).<br>▪ Improved and streamlined how the device replies to polls with Unicast, Directed Broadcast, or Limited Broadcast (#7007).<br>▪ Fixed a critical issue that could crash the web configuration and lead to the device not sending ArtIpProgReply packets anymore when setting the IP address via ArtIpProg (#7532). |
| LUNA Firmware<br>**2.03.7298**<br><br>MADRIX Version<br>**MADRIX 5.4f**<br><br>Release Date<br>**January 2022** | ▪ The bootloader can now read the hardware revision/model over USB (#7803).<br>▪ Fixed how ARP requests are executed (#4779).<br>▪ Fixed an issue that would drop output frames when merging from two sources and using DMX-IN at the same time due to insufficient buffers (#5392). |

| | |
|---|---|
| LUNA Firmware<br>**2.04.7299**<br><br>MADRIX Version<br>**MADRIX 5.4g**<br><br>Release Date<br>**March 2022** | ▪ Fixed the timing of the data output in combination with UCS512C/SM17500 LED chips (#8024, #8025). |
| LUNA Firmware<br>**2.05.7300**<br><br>MADRIX Version<br>**MADRIX 5.4h**<br><br>Release Date<br>**April 2022** | ▪ Fixed a critical issue that recognized MADRIX LUNA 4 and MADRIX LUNA 16 only as MADRIX LUNA 8 in certain cases (#8275). |
| Bootloader<br>**3.00.7310**<br><br>Release Date<br>**May 2023** | ▪ Updated the bootloader system (#9105, #9149, #9571).<br>▪ Status LED power now correctly blinks green (in addition to the logo LED) when a device is in bootloader mode (#9135).<br>▪ The bootloader is able to provide the MAC address and serial number of the device over USB (#9332).<br>▪ The bootloader can now be updated over Art-Net (#9383).<br>▪ The bootloader now provides the hardware revision; which is especially relevant to be able to update devices in bootloader mode via the MADRIX HARDWARE MANAGER (#8905).<br>▪ The bootloader now sends a single Art-Net PollReply without BindIndex after startup and remaining in bootloader mode (#8031).<br>▪ Fixed an issue that did not always respond to firmware packets being sent over Art-Net (#8030).<br>▪ Fixed an incorrect USB descriptor, which caused devices to enumerate for a long time when connected to a USB 3.0 hub (#8238).<br>▪ Fixed an issue that prevented firmware updates over network (#9187). |
| LUNA Firmware<br>**3.00.7309**<br><br>Release Date<br>**May 2023** | ▪ Updated the system of the device (#6780, #8053, #8060, #8601, #8738, #8860, #9135, #9148, #9163, #9170, #9180, #9326, #9430, #9538).<br>▪ Added support for Art-Net 4 (#2349).<br>▪ Web Configuration: Added the possibility to edit the ShortName identifier for Art-Net (#8168).<br>▪ Web Configuration: Added automation options for automatic numbering of the Network Universes (#8658). [JavaScript is required.]<br>▪ Web Configuration: Added automation options to set the Network Universe of the first port for all other ports (#9540).<br>▪ Web Configuration: Added automation options to set the Channel Offset of the first port for all other ports (#9186).<br>▪ Web Configuration: Added the option to enable or disable Send Full Frames for all ports at once (#9186).<br>▪ Web Configuration: Now shows the uptime of the device (#8309). |

| | |
|---|---|
| | ▪ Web Configuration: Added the development hash to the firmware version to the Device Information section (#9362).<br>▪ The bootloader version can now be provided by the firmware over USB (#8875).<br>▪ Improved the alignment of spin-button controls in the web configuration (#9166).<br>▪ Improved reliability by ensuring that network settings are always properly saved (#9214).<br>▪ Fixed an issue that did not apply all parameters when setting every single parameter at once for MADRIX LUNA 16 (#9175, #9181).<br>▪ Fixed several issues that could prevent all settings in the web configuration to be saved and available again after a power cycle (#9197).<br>▪ Fixed an issue that did not set the input universe for sACN (#9283).<br>▪ Fixed an issue that did not correctly join and leave universe assignments in case of sACN (#9591). |

## 4.2 Hardware Revisions

**This topic includes:**

▪ Overview

# Overview

Changes to the underlying hardware and components are listed below:

| Version | Highlights |
|---|---|
| LUNA Serial Number And Higher<br>**LUNA0004708** | ▪ Removed an capacitor since the power supply takes on this functionality (#5190).<br>▪ Improved interference suppression for USB (#7212, #7827). |

MADRIX LIGHTING CONTROL

# //PART 5

*General*

# 5 General

## Topics Of This Chapter


- Glossary
- PC Power Management
- Tips [Microsoft Windows / Networks / USB]
- Web Links


## 5.1 Glossary

### 2D

MADRIX 5 makes it possible to control numerous LED fixtures, also of different kinds, and to position them according to your needs in nearly any form or shape. This could be LED walls, arch shapes, ceilings, stripes, tiles, dance floors, etc. You can control pixel by pixel [pixel mapping].

### 3D

MADRIX 5 supports volumetric pixel rendering as well [voxel mapping]. That means, MADRIX 5 also allows you to control real 3D LED matrices. This approach is fundamentally different to the 3D projections or the physical layout of 2D surface areas that are widely known nowadays.

### Art-Net

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

### Art-Net Remote

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

### CITP

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

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

Are network-based communication protocols to control compatible LED fixtures and classified as DVI-based output in MADRIX 5.

## DMX512 [DMX-OUT]

DMX512, often abridged to DMX, is an unidirectional communication protocol used mainly to control stage lighting, which uses 5-pin XLR connectors as defined by the standard. 3-pin connectors are also common, but not defined as standard connectors.
When working with DMX-based products, each fixture needs a specific attribution via its DMX channel and its DMX universe. With the specific DMX channel and DMX universe, the LED product can be identified directly for a correct communication with the fixture.

### DMX-IN

You can send or receive DMX512 data. DMX-IN refers to DMX512 input, which you can receive in MADRIX 5.

### DMX Channel

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

### DMX Universe

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

For example, you can control 170 **RGB** fixtures per DMX universe. That means, calculating 170 fixtures x 3 channels results in 510 DMX channels. Therefore, channel 511 and 512 will be left empty.
And if your are using more then 170 fixtures, those DMX channels will be assigned to a new DMX universe [e.g., DMX universe 2].

### DVI

DVI is another way to output a video signal for your LEDs. Certain LED products use this type of communication. MADRIX 5 features 2 DVI outputs, which are 1-to-1 output windows. You can then send the DVI outputs to any

graphics card port [such as, VGA, HDMI, DVI, etc.]. Other solutions use screen-capturing to capture such a DVI output window and send them to the LED controller via Ethernet.

### Eurolite T9

Is a network-based communication protocol to control compatible LED fixtures and classified as DVI-based output in MADRIX 5.

### Fixture

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

### Input

MADRIX 5 can send data out, but at the same time data can be sent to the software. That means data is sent to the MADRIX PC through various means [mostly USB or network]. MADRIX 5 can then be controlled remotely by you, or you can merge or use incoming signals, etc.

### IP Address

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

### KiNET

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

### MAC Address

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

### MA-Net

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

## MIDI

MIDI is short for Musical Instrument Digital Interface, a well-known technical standard that provides standardized ways for equipment to communicate. In case of MADRIX 5, MIDI can be used for MIDI Time Code, MIDI notes, or other MIDI hardware, such as DJ/VJ controllers.

## NDI

Network Device Interface is a network-based video technology by NewTek.

## Output

To control your LEDs, MADRIX 5 needs to send data to the LEDs. In this way it communicates with your controllers and/or your LEDs. This is referred to as output. There are different ways on how this process can work [e.g., protocols]. But most importantly, you need to configure which output method MADRIX 5 should use in order to control your LED products.

## Philips Hue

Is a proprietary range of products including communication protocol for personal wireless lighting made by Philips Lighting.

## Pixel

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

## Pixel Mapping

MADRIX 5 contains an effect generator as well as a graphics render engine that support pixel rendering for 2D effects and volume rendering for 3D effects.

## Remote HTTP

Remote HTTP is a way to control MADRIX 5 remotely using standards known from the internet [HTTP - Hypertext Transfer Protocol].

## RGB

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

## RGBW

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

## Spout

Spout is a real-time video sharing framework for Windows.

## Streaming ACN [sACN / E1.31]

Streaming ACN or sACN or E1.31 is another communication protocol that allows DMX512 data to be transmitted over Ethernet. Data is broadcasted by MADRIX 5 to recipients in the network.

## Subnet Mask

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

## Virtual LED Matrix

MADRIX 5 needs to know how your LED installation looks like and which fixtures you want to use. [You can use the Matrix Generator or the Patch for this task.] In the end you will have configured the virtual LED matrix with its total pixel count in X, Y, and Z set up as the Matrix Size as well as the position and location of each pixel or fixture. The virtual LED matrix represents your LED installation in MADRIX 5.

## Volume Rendering / Voxel Mapping

MADRIX 5 contains an effect generator as well as a graphics render engine that support pixel rendering for 2D effects and volume rendering for 3D effects.

### Voxel

Voxel is short for volumetric pixel. In addition to its pixel mapping features [2D], MADRIX 5 can control 3D LED matrices, which is called voxel mapping. Lighting effects are correctly mapped to each voxel of a 3D LED matrix.

### XLR Pin Layout

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

| 5-Pin, Female | 5-Pin Male | Pin Assignment | 3-Pin, Female | 3-Pin, Male |
|---|---|---|---|---|
|  |  | 1 Ground<br>2 Data -<br>3 Data +<br>4 Spare<br>5 Spare |  |  |

## 5.2 PC Power Management

**This topic includes:**

- Why Is Power Management Important?
- Usage
- Activate High Performance
- How To Change USB Power Settings

# Why Is Power Management Important?

**We strongly recommend to deactivate all power saving options in Microsoft Windows in order to ensure an interruption-free operation of MADRIX 5.**

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

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

## Usage

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

- A MADRIX KEY [USB dongle]
- MIDI controllers [via USB]
- USB hardware interfaces [such as MADRIX NEO]
- A notebook/laptop to run MADRIX 5

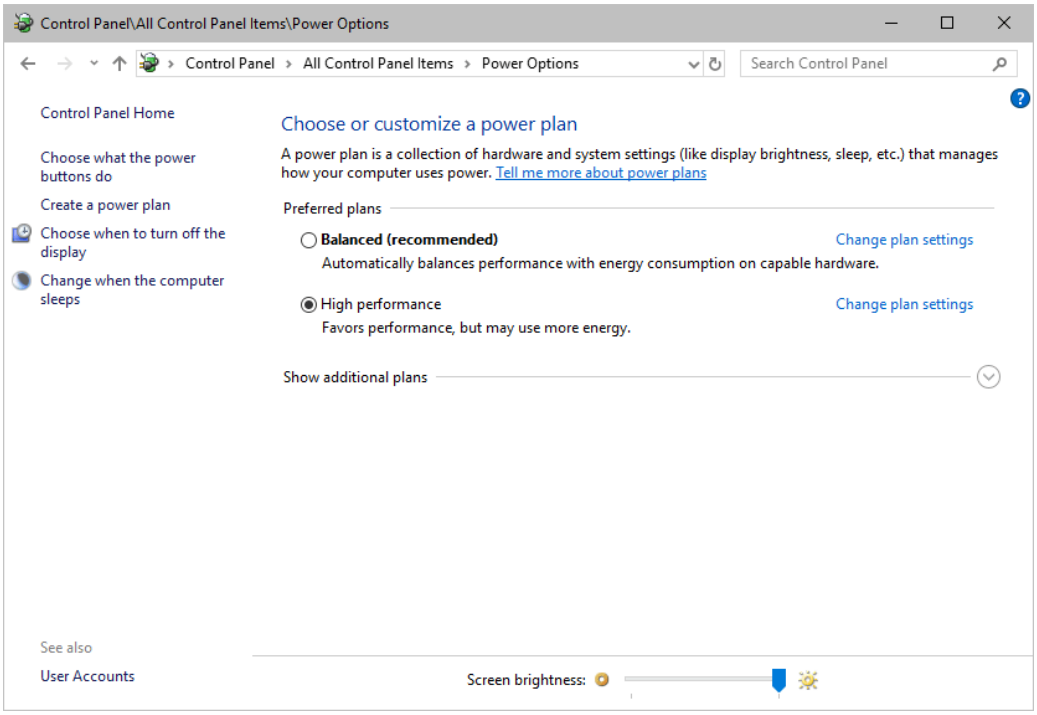
Additionally:

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

## Activate High Performance

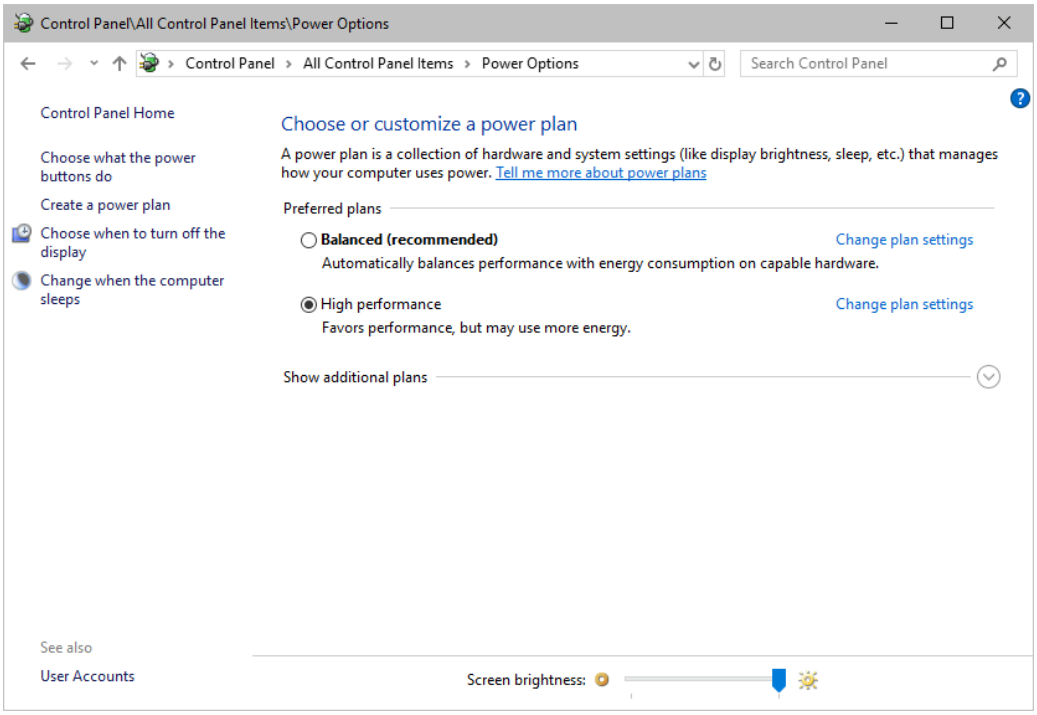
This setting will make sure that your notebook or laptop will have all its potential performance available for MADRIX 5.

- In Windows 10, select ***Start > Windows System > Control Panel > Power Options***, and change the power plan to ***High performance***
  [You might need to click on ***Show additional plans***].

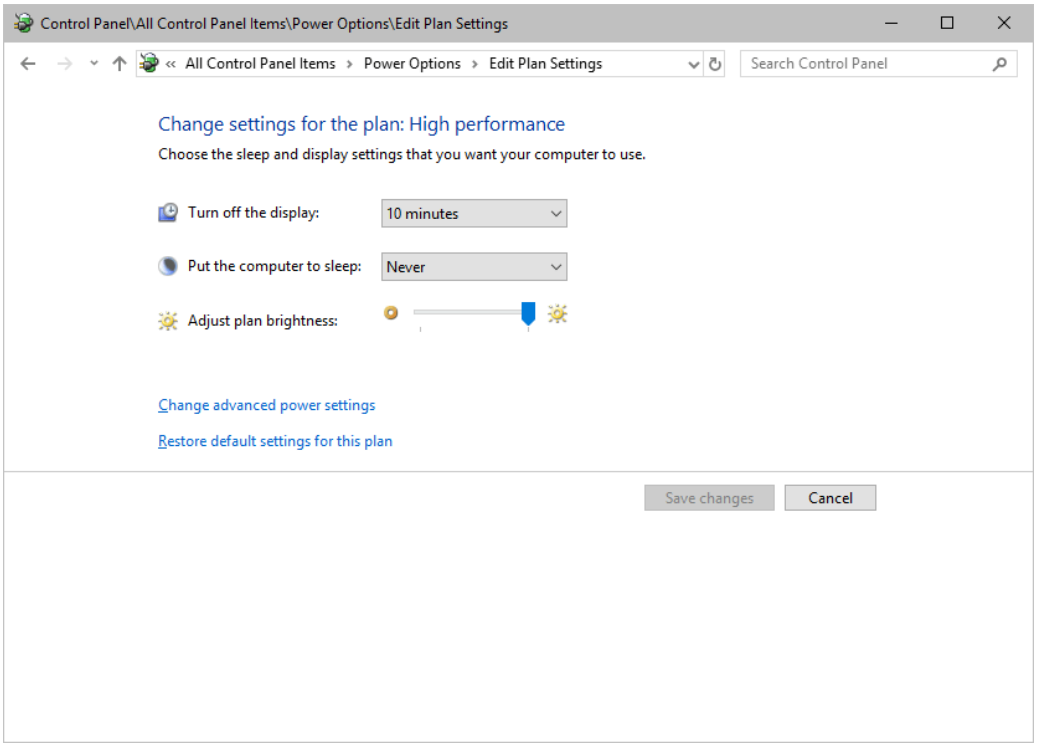



# How To Change USB Power Settings

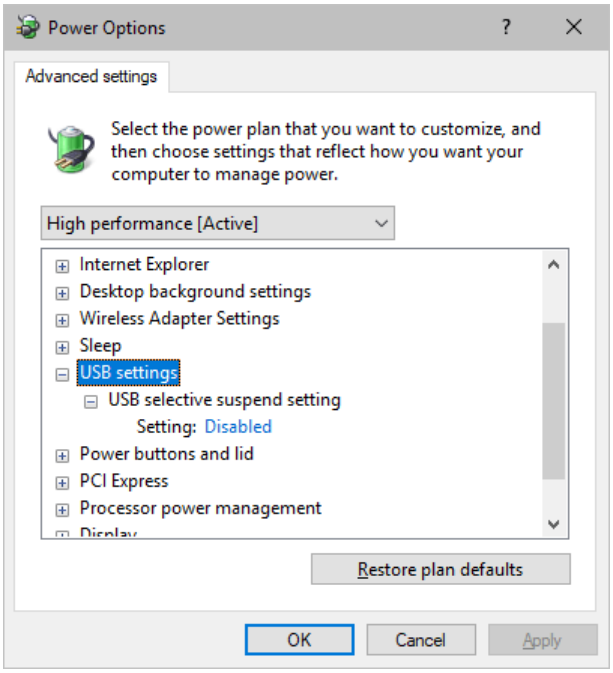
- In Windows 10, select ***Start > Windows System > Control Panel > Power Options > Change plan settings***




- Click ***Change advanced power settings***



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




- Change any other settings that might interrupt the operation as required.

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

**This topic includes:**


- Error When Saving Files
- USB
- The Windows Firewall
- Working With Ethernet Networks
- Changing The Priority Of Network Adapters
- Working With Files
- Operating System Security
- Up-To-Date Drivers
- Windows Restart / Shut Down
- Monitoring Computer Performance

# Error When Saving Files

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

- ***Right Click > Run as administrator***

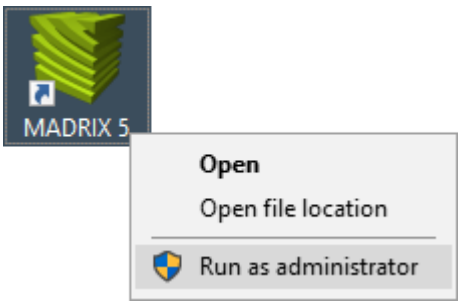
  - In order to save files as a user that is logged-in into Windows, you need to have the permissions set by Windows to do so.

  - When you do not have the right permissions, saving files can lead to errors.

  - To circumvent such issues, you can run the MADRIX Software as administrative computer user, the so-called administrator.

  - Perform a ***right mouse click*** on the ***MADRIX.exe*** [or a shortcut to the MADRIX 5 Software] and choose ***Run as administrator***

  - **Note:** You need to have access to the administrator account (i.e., password). Logging in as administrator grants extensive rights for any computer changes. If you are not familiar with Windows or computers, please seek advice.




- ***Choose A Different Directory***

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

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

  - Examples are:

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

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

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

# USB

Among others, USB is an important way to work with MADRIX 5, MADRIX KEYs, MADRIX hardware interfaces, MIDI controllers, etc. In order to ensure a stable work environment, we highly recommend setting up corresponding USB settings in Windows.

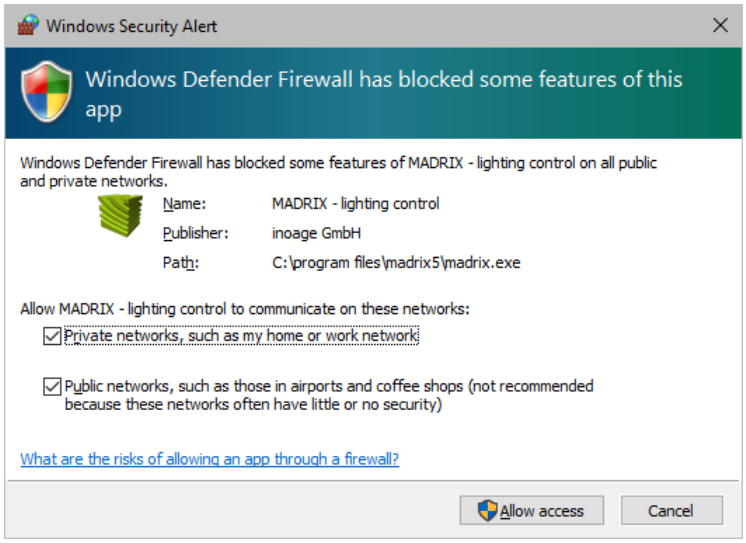
Learn more »PC Power Management

# The Windows Firewall

## Correct Settings

The primary purpose for the Windows Firewall [or any other firewall] is to block any unwanted incoming or outgoing data and access. But this can lead to problems, when data that should go through is automatically blocked.
MADRIX 5 will automatically set the correct firewall settings for you during the installation process.

Please follow the steps below if this Windows message appears when you start the MADRIX 5 Software for the first time.




Select and set a checkmark for

- ***Private networks***

**and**

- ***Public networks***

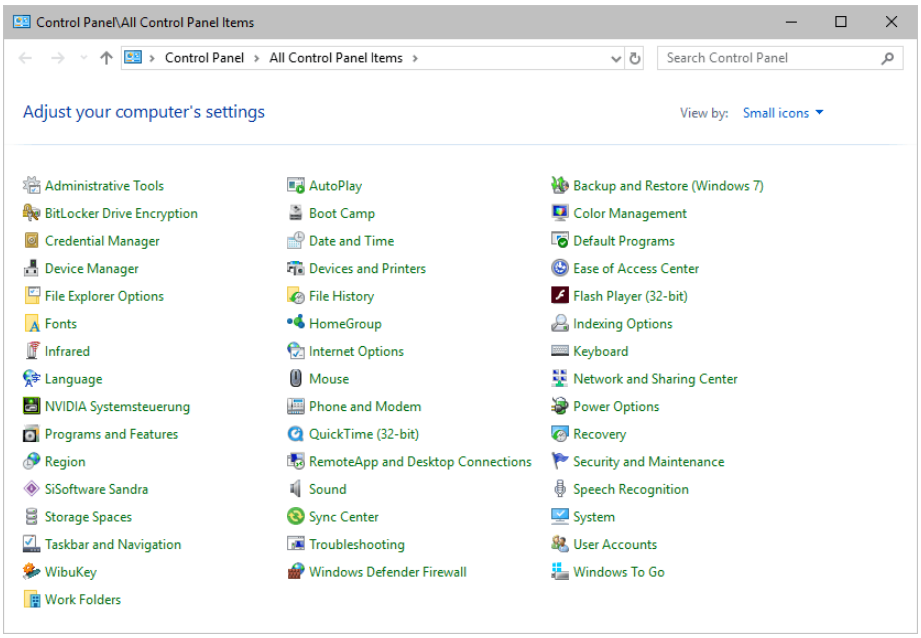
- Click ***Allow access*** to confirm.

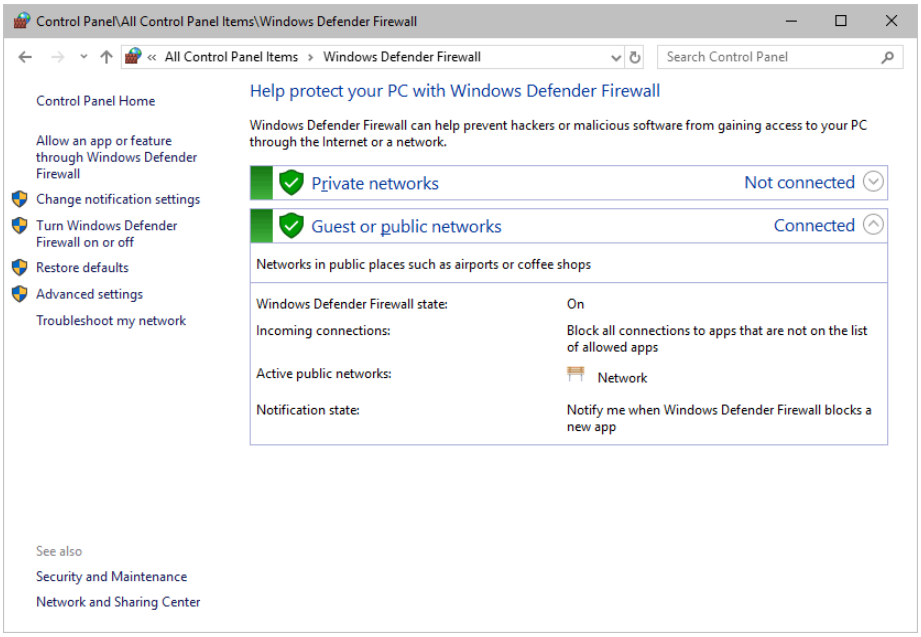
**Not selecting both options can cause problems with network communication.**

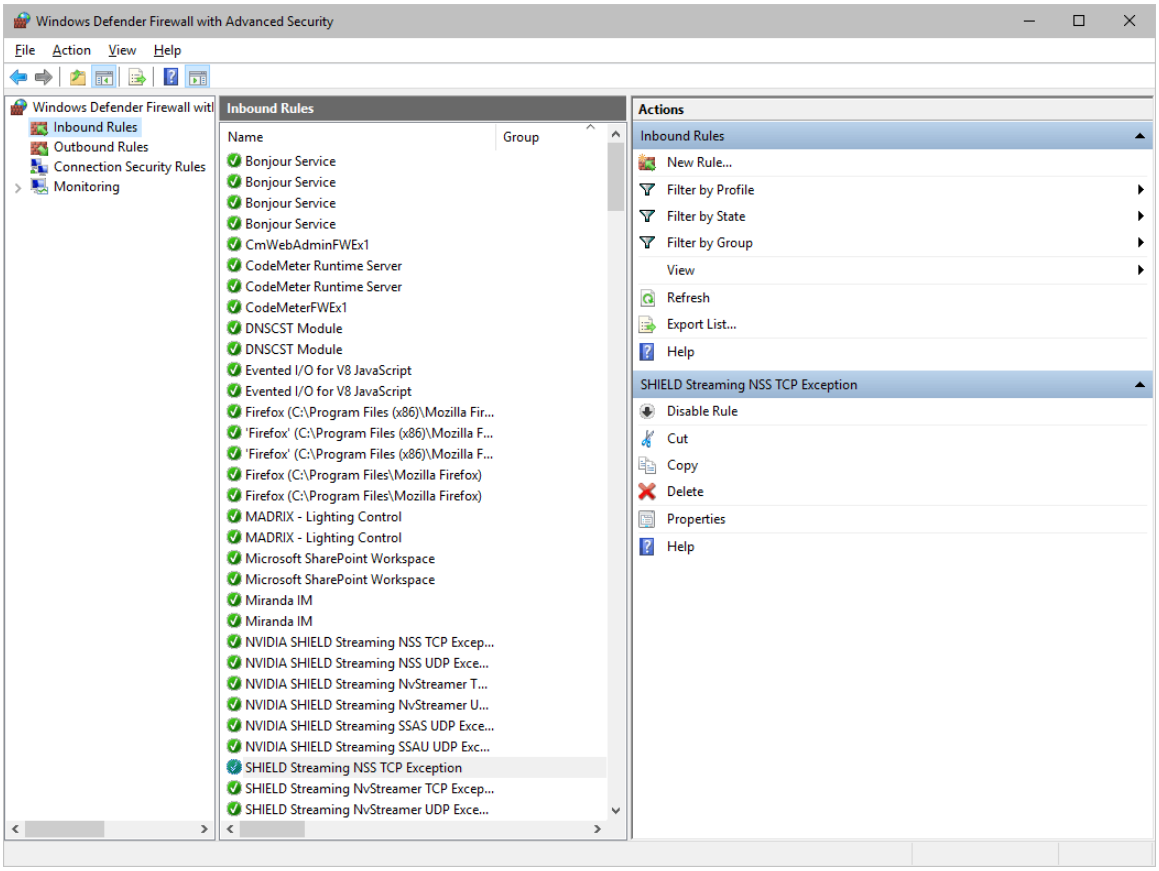
## Resetting The Settings

If you have already chosen the wrong options MADRIX 5, you can delete the settings and choose again.

- In Windows 10, go to ***Start > Windows System > Control Panel > Windows Defender Firewall > Advanced settings > Inbound Rules***





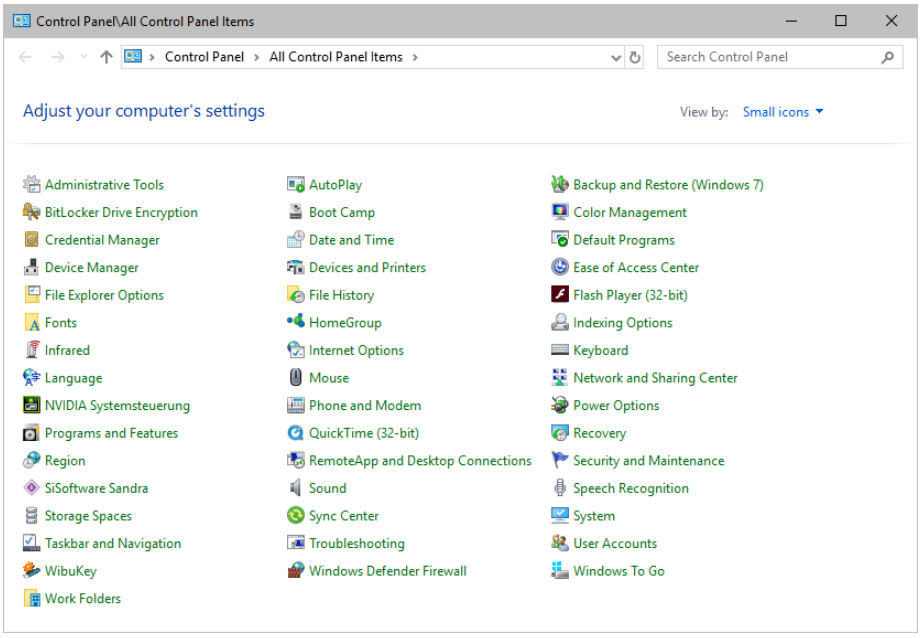

- Select and delete any entries relating to MADRIX 5 [e.g., madrix.exe, MADRIX - music makes the light, MADRIX - LIGHTING CONTROL].
- With your next start of MADRIX 5, select both options as described above.

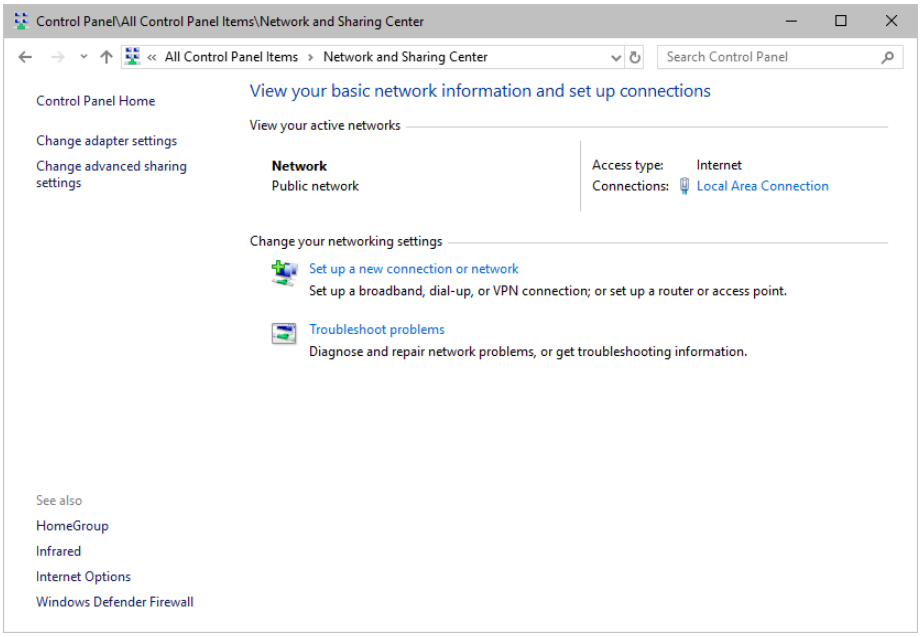
# Working With Ethernet Networks

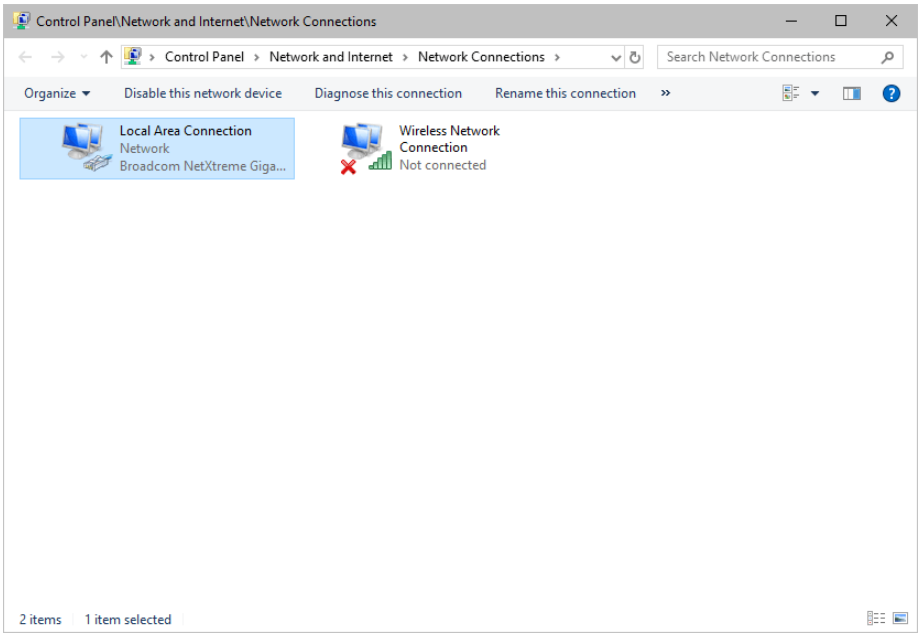
## Configuration Of Network Settings

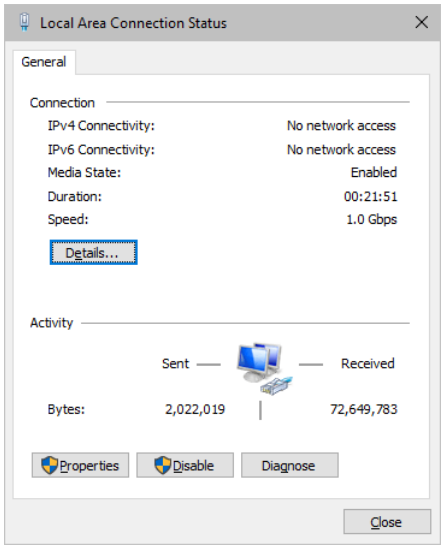
When working with network-based products and MADRIX 5 [for example, Art-Net, KiNET, sACN, etc.], you will have to set up the IP address of your network card in Windows. Learn how to set it up here.

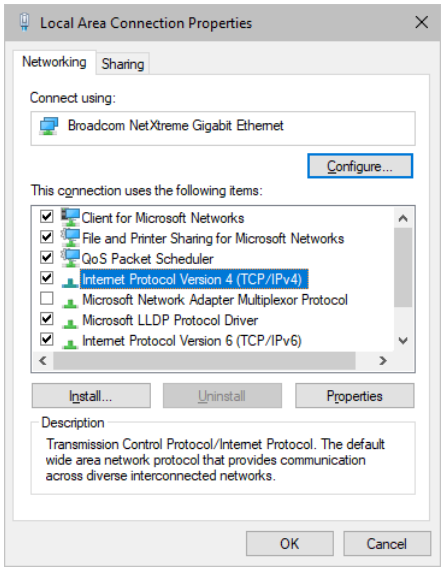
- In Windows 10, go to ***Start > Windows System > Control Panel > Network and Sharing Center > Change adapter settings > Local Area Connection > Properties > Internet Protocol Version 4 (TCP/IPv4) > Properties***

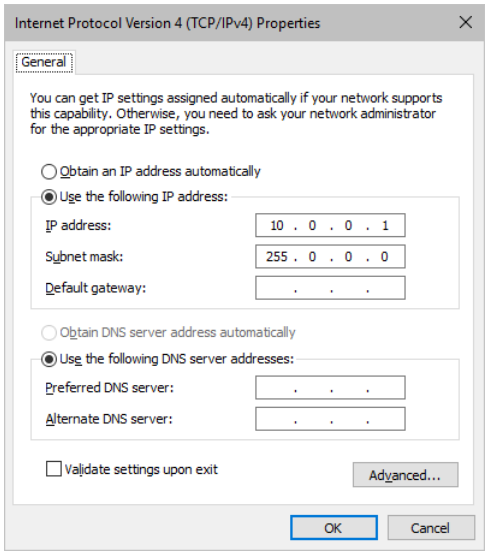



Control Panel\All Control Panel Items\Network and Sharing Center
All Control Panel Items › Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
View your active networks
Network
Public network
Access type: Internet
Connections: Local Area Connection
Change your networking settings
Set up a new connection or network
Set up a broadband, dial-up, or VPN connection; or set up a router or access point.
Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.
See also
HomeGroup
Infrared
Internet Options
Windows Defender Firewall


Control Panel\Network and Internet\Network Connections
Control Panel › Network and Internet › Network Connections
Search Network Connections
Organize
Disable this network device
Diagnose this connection
Rename this connection
Local Area Connection
Network
Broadcom NetXtreme Giga...
Wireless Network Connection
Not connected
2 items
1 item selected


Local Area Connection Status
General
Connection
IPv4 Connectivity: No network access
IPv6 Connectivity: No network access
Media State: Enabled
Duration: 00:21:51
Speed: 1.0 Gbps
Details...
Activity
Sent
Received
Bytes: 2,022,019 72,649,783
Properties
Disable
Diagnose
Close


Local Area Connection Properties
Networking
Sharing
Connect using:
Broadcom NetXtreme Gigabit Ethernet
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
QoS Packet Scheduler
Internet Protocol Version 4 (TCP/IPv4)
Microsoft Network Adapter Multiplexor Protocol
Microsoft LLDP Protocol Driver
Internet Protocol Version 6 (TCP/IPv6)
Install...
Uninstall
Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
OK
Cancel




Set up the following settings:

- Enable ***Use the following IP address:***
- ***IP address -*** Sets the IP address for this computer and this network card.

  - If you have several network cars in your computer, you can set up an individual address for each network card.

  - An IP address has 4 parts. Enter the complete address as explained in the specific chapter of this user guide [e.g., 10.0.0.1].

  - You only have to enter the numbers.
- ***Subnet mask -*** Sets up the Subnet mask for this computer.

  - This is an important part of the network settings, just as the IP address.

  - A Subnet mask has 4 parts. Enter the complete address as explained in the specific chapter of this user guide [e.g., 255.0.0.0].

  - You only have to enter the numbers.
- ***OK -*** Click to save your settings.

  - [Make also sure to close the ***Local Area Connection Settings*** with ***OK*** and close the ***Local Area Connection Status*** window with ***Close***.]
- Restart the MADRIX 5 Software if you have changed any network settings!

Learn more below.

## Using Several Devices In A Network

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

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

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

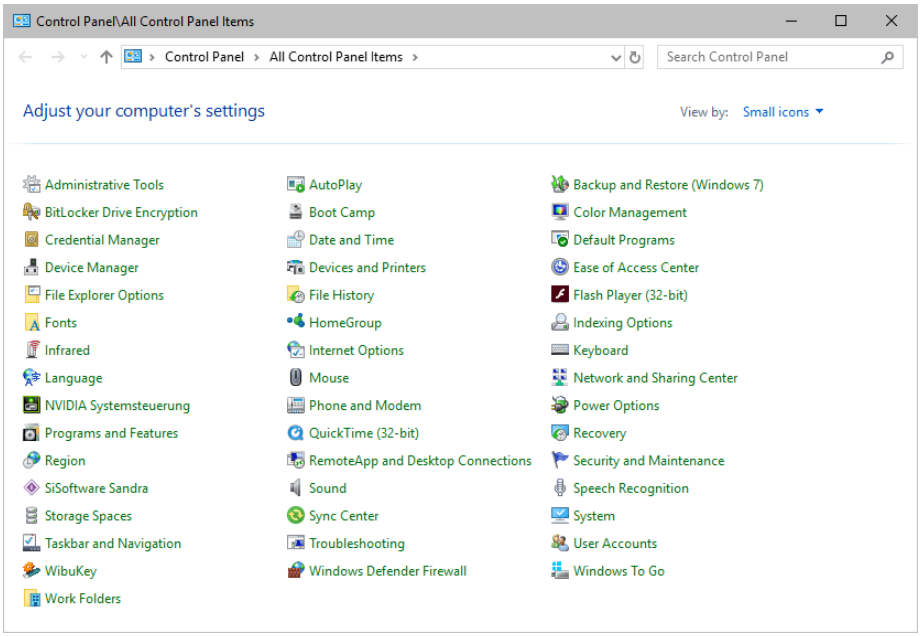
Using several devices in a network does not mean that all should have the same IP address. That will not work! Instead, follow these rules:

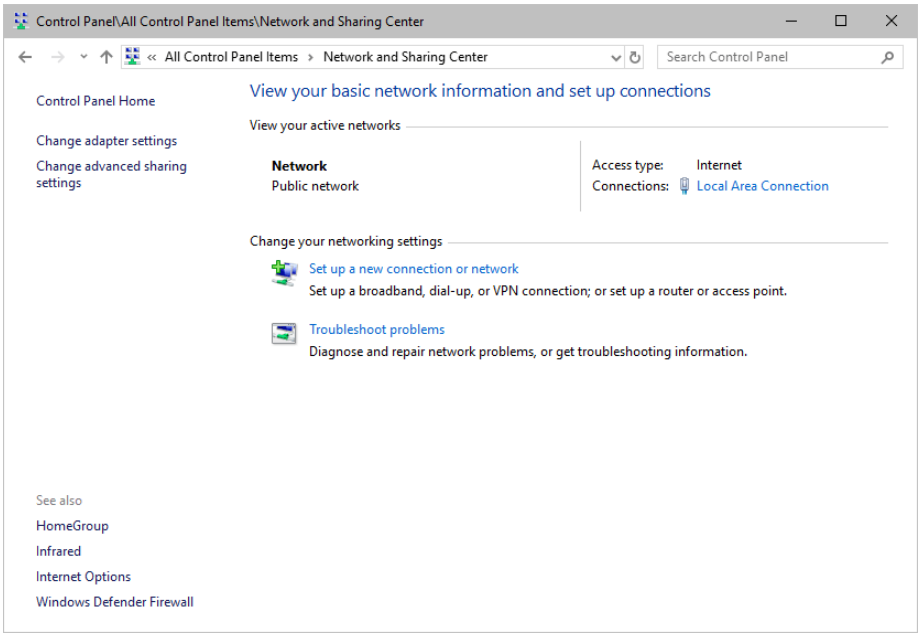
- **Set up all devices within the same IP address range, but never with the same IP address [for example, MADRIX PC: 10.204.226.101 and Art-Net node: 10.204.226.102]**
- **Set up all devices with the same Subnet mask e.g., 255.0.0.0]**
- **If recommended, set up all devices with the same Default gateway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

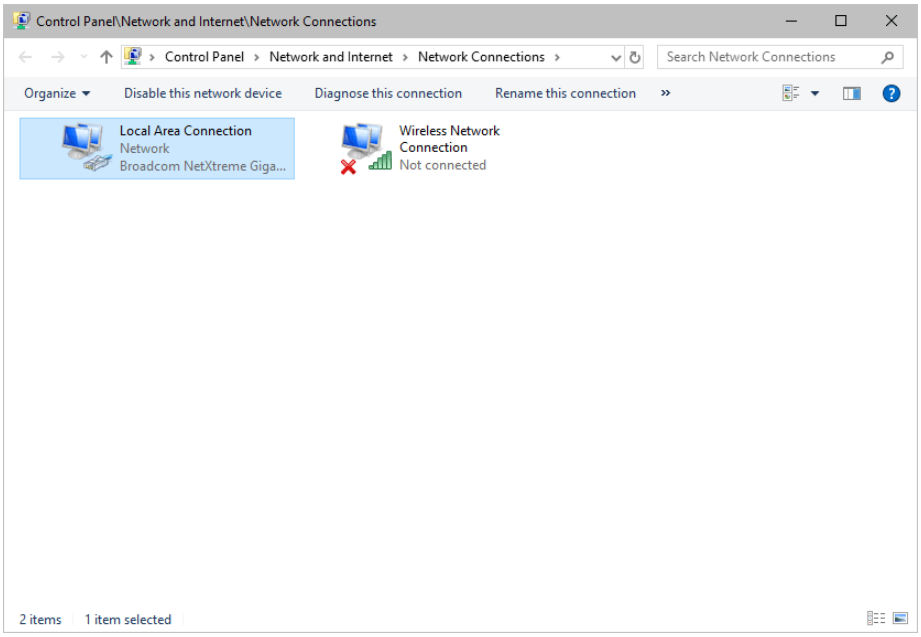
# Changing The Priority Of Network Adapters

You can change the order in which Windows and MADRIX 5 accesses your network adapters. By changing the order, you can specify which network adapter [network card] is used first and as the main connection.

- **1]** In Windows 10, go to ***Start > Windows System > Control Panel > Network and Sharing Center > Change adapter settings***

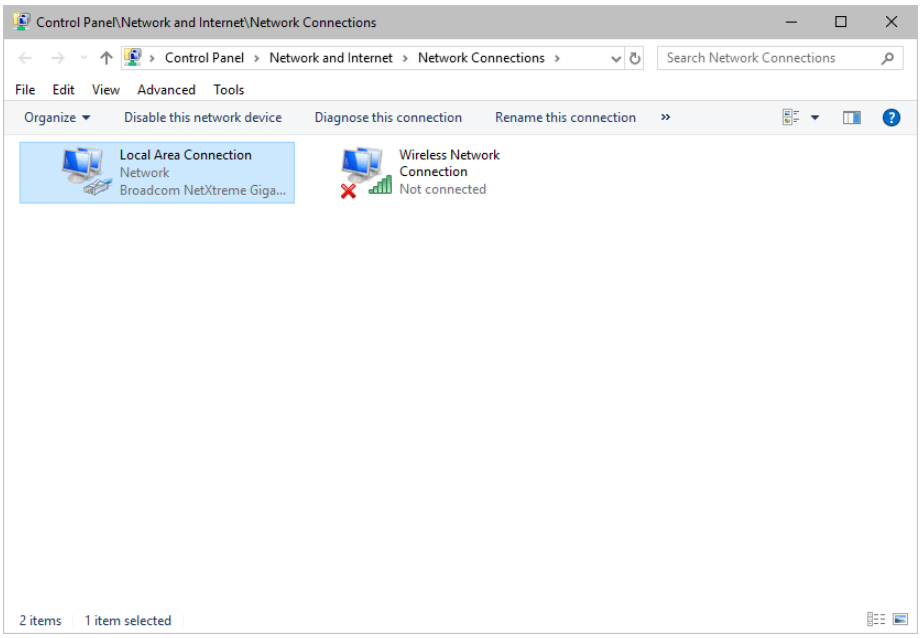

Control Panel\All Control Panel Items
Control Panel › All Control Panel Items ›
Search Control Panel
Adjust your computer's settings
View by: Small icons
Administrative Tools
BitLocker Drive Encryption
Credential Manager
Device Manager
File Explorer Options
Fonts
Infrared
Language
NVIDIA Systemsteuerung
Programs and Features
Region
SiSoftware Sandra
Storage Spaces
Taskbar and Navigation
WibuKey
Work Folders
AutoPlay
Boot Camp
Date and Time
Devices and Printers
File History
HomeGroup
Internet Options
Mouse
Phone and Modem
QuickTime (32-bit)
RemoteApp and Desktop Connections
Sound
Sync Center
Troubleshooting
Windows Defender Firewall
Backup and Restore (Windows 7)
Color Management
Default Programs
Ease of Access Center
Flash Player (32-bit)
Indexing Options
Keyboard
Network and Sharing Center
Power Options
Recovery
Security and Maintenance
Speech Recognition
System
User Accounts
Windows To Go


Control Panel\All Control Panel Items\Network and Sharing Center
« All Control Panel Items › Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
View your active networks
Network
Public network
Access type: Internet
Connections: Local Area Connection
Change your networking settings
Set up a new connection or network
Set up a broadband, dial-up, or VPN connection; or set up a router or access point.
Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.
See also
HomeGroup
Infrared
Internet Options
Windows Defender Firewall



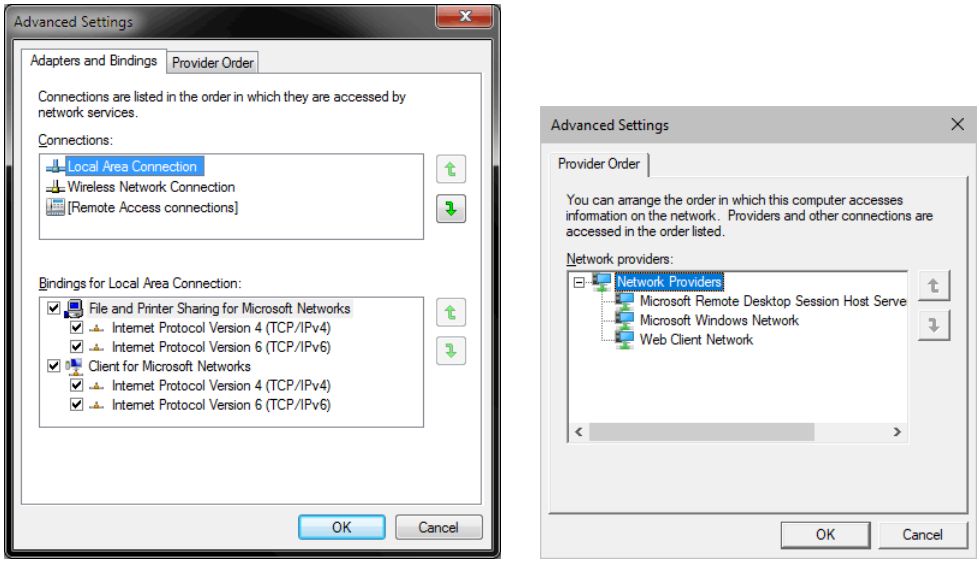

- **2]** Press ***Alt*** on your keyboard.

  - A menu appears at the top, which is otherwise hidden.




- **3]** Go to ***Advanced > Advanced Settings...***

  - A new window opens.




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

# Working With Files

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

- to save regularly when creating a show in MADRIX 5.
- to make backup copies of your show files from time to time [MADRIX 5 Setup files]
- to make backup copies to different or external storage mediums [e.g., USB stick/thumbdrive].

## Operating System Security

It is recommended

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

## Up-To-Date Drivers

Please always keep all component drivers up to date by installing the latest available driver. Among others, this may include drivers for:

- Processor
- Graphics Card
- USB
- Capture Card
- Sound/Audio Card
- Video Codecs

## Windows Restart / Shut Down

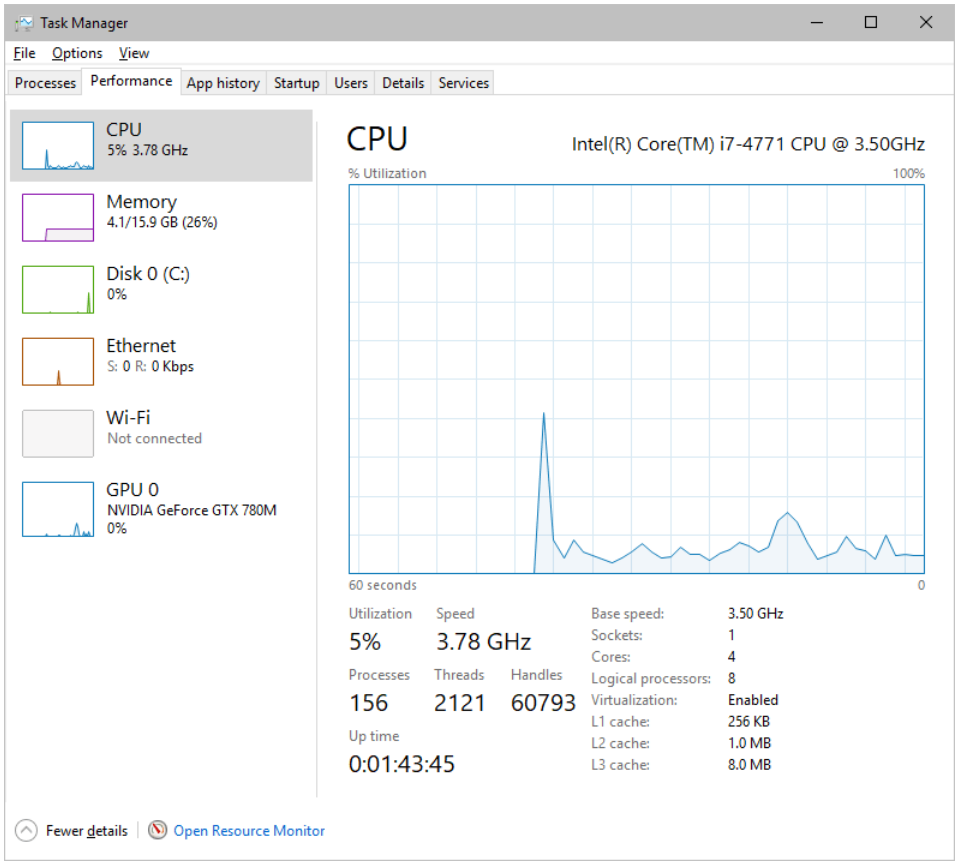
According to the requirements of Windows, MADRIX 5 will behave in the following way:

- MADRIX 5 will be closed instantly, when you trigger a Restart or Shut Down of Windows.
- If you have not saved any changes yet, you may be provided the chance and a short time frame [30 seconds] to react and save your progress before the MADRIX 5 Software is forcefully closed by Windows itself.
- **Make sure to save your files before executing a Restart or Shut Down!**

# Monitoring Computer Performance

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

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




- You can now monitor the ***CPU Usage*** as well as the ***Memory*** usage.

- MADRIX 5 has its own monitoring tools.

## 5.4 Web Links

**This topic includes:**


- **Overview**


# Overview

You can find a selection of useful internet links here:

- MADRIX Website
  »**www.madrix.com**
- Drivers
  »**www.madrix.com/support/download**
- User Guides [Online And Downloadable PDF]
  »**help.madrix.com**
- Hardware Technical Manuals / Quick Start Guides [Downloadable PDF]
  »**help.madrix.com**
- Online Forum
  »**www.madrix.com/support/forum**
- Software Release Notes
  »**www.madrix.com/products/software/releases**
- Online Text Tutorials
  »**help.madrix.com/tutorials/html/index.html**
- Video Tutorials
  »**https://www.madrix.com/training/video-tutorials**

# //PART 6

*Legal*

# 6 Legal

**This topic includes:**


- Introduction
- Topics Of This Chapter


## Introduction

Legal includes all legal documents and information, including copyright and more.

## Topics Of This Chapter


- Imprint And Copyright


## 6.1 Imprint And Copyright

**This topic includes:**


- Company And Address
- Copyright
- Credits

# Company And Address



inoage GmbH
Wiener Straße 56
01219 Dresden
Germany

Managing Directors: Christian Hertel, Sebastian Pinzer, Sebastian Wissmann

Phone: +49 351 862 6869 0
Fax: +49 351 862 6869 68

Web: »www.madrix.com
E-mail: »info@madrix.com

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