

# grandMA2

# USER MANUAL

of MA Lighting



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## 1. Introduction

The grandMA2 represents MA Lighting's most powerful console and offers the control of conventional light, moving lights, LED fixtures and media from one platform.

Equipped with the most up-to-date technology and even some special features (e.g., keyboard drawer and multi-touch command screen), the grandMA2 is suitable for all lighting segments. It supplies an intuitive and fast control of all connected fixtures and channels. Furthermore, the grandMA2 fader wing provides up to 60 extra motorized executor faders for an almost unlimited number of pages.

Moreover, grandMA series 1-showfiles can be converted to be used with the grandMA2. And for yet easier operation, all command keys can be found in the same place on every console of the grandMA2 series. The grandMA2 offers extremely flexible and comfortable ways of programming, including nearly infinite numbers of presets, cues, pages, sequences and effects.

All grandMA2 consoles are optionally available as Silent Version with optimized fan for noise-sensitive environments.

## 1.1. About this Manual

[Navigation in the Help](#)

[Presentation of Content](#)

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### Navigation in the Help

Navigate in the help via:

- Product family displayed as a black briefcase.
  - Tree structure on the left of the view.
  - Search field in the upper right corner of the view.
- 

### Presentation of Content

Display	Definition
<b>At</b>	Keys on the console are displayed in an orange font with an orange frame and a black background.
<b>Dimmer</b>	Buttons on the screen are displayed within a frame.
<ol style="list-style-type: none"><li>1. Open the...</li><li>2. Select the...</li></ol>	Step-by-step instructions are displayed in a numeric list.
<ul style="list-style-type: none"><li>• Tap...</li></ul>	One-step instruction are displayed with the help of bullet points.
<b>MA Network Control</b> <b>I Join Session</b>	Navigation to specific menus in the console is displayed in bold.

**Syntax descriptions are underlined and displayed in bold.**

 Command line entry is displayed with the help of the command line.

Command line response is displayed in the command line feedback.

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## 1.2. System Requirements grandMA2 onPC

If you want to run the grandMA2 onPC your PC, here's what it takes.

	Minimum	Recommended
Operation system	Windows® 7	
	Windows® 8	
	Windows® 8.1	
	Windows® 10	
	all with admin rights	
Processor	CPU Dual Core 2.4 GHz or faster with SSE2 support	
RAM	2 GB	8 GB
Hard disk	32 GB available space	type SSD
Graphic card	Any graphic card with hardware acceleration and 512 MB	
Resolution	1600 x 900 or higher	1920 x 1080
Network card	100BASE-TX, 1000BASE-T	1000BASE-T

IBM® compatible PC or notebook is necessary.

Additional requirements for the use of certain features:

- To use the online help and to download the latest version of grandMA2 onPC, you need internet access.
- To save to a USB stick, you need a USB 2.0 or 3.0 port.

We recommend that you visit your PC manufacturer's website for information about updated drivers and hardware compatibility.

## 1.3. Installation of grandMA2 onPC

To run the grandMA2 onPC software, it is necessary to copy and install the program files on your PC.

It is possible to perform the installation in every root directory or in the **standard directory** "C:\ProgramData\MA Lighting Technologies\grandma".

To make sure that there are no troubles with the installation, deactivate your safety software.

1. Go to [www.malighting.com](http://www.malighting.com) to download the installation file.
2. Start the file by double-clicking on it.

The installation program opens and you receive hints and detailed information regarding the installation.

Pay attention to the suggested directory and change it if you want to.

The installation directory is not modifiable in the grandMA2 onPC.

After confirmation, the program files will be copied into the selected directory.

## 1.4. Help from MA Technical Support

If the grandMA2 is not working as described in the manual, you can take the following steps:

- **Error message:** You cannot proceed with the next step of the description and you receive an error message:  
Refer to [Error Messages](#) and repeat the procedure.  
If the problem is still there, contact the technical support.
- **System is not working:** If you cannot proceed with the next step of the description and you do not receive an error message:  
Contact the technical support and describe the last steps you took.

## Technical Service and Support

MA Lighting and its extensive distributor network offer an unparalleled technical service.

Call on our expertise for help with any problem, no matter if it is regarding operation, software features, software installations or trouble shooting.

Please send an email (in English or German) to the tech support with your contact details and the technical question. See the email address of the technical support in the footer of this website.

This email service is monitored during MA Lighting's regular business hours in Germany from 8.30 a.m. until 5 p.m., Monday through Friday.

**For emergency services please contact your local MA distributor or the MA Lighting Service Hotline.**

**Call: +49 5251 688865-99. Please note that this is a 24/7 hotline which is used for emergency cases only. Use this hotline only if troubles occur shortly before an upcoming event.**

## 2. For your Safety

This device is conform to the following harmonized standards:

- EN 60065 (Safety Requirements) ,
- EN 60950-1 (Information Technology Equipment Safety)
- EN 55103-1:2009 (Electromagnetic Compatibility)
- EN 55103-2:2009 (Electromagnetic Compatibility)
- 2014/30/EG (Electromagnetic Compatibility)
- 2011/65/EU (RoHS II)
- 2014/35/EU (Low Voltage Directive)

This device is state-of-the-art technology.

However, residual risks cannot be ruled out.

To avoid risks, follow the safety instructions.

MA Lighting does not cover damages which can be the result of an inobservance of the safety instructions.

### 2.1. Symbols Used

The following symbols display possible danger, useful hints and information when using the device.



**Warning:**

The warning sign displays possible injury and hazard.



**Restriction:**

The restriction sign displays known limitations of functions.



**Important:**

The important sign displays important information during the usage of the console.



**Hint:**

The hint sign displays additional hints when using the console.

## 2.2. Intended Use

This device is intended for control of all kinds of lighting genres such as conventional, moving lights, LEDs, video and media via DMX signal or within a network environment.

This device is intended for indoor use only.

Every other use is not intended and could lead to injury and damage to property.

MA Lighting does not cover damages which can result from misuse of the console.

## 2.3. Dangers Caused by Electric Current

Defective device or defective power cable poses a risk of severe or fatal injury due to electrical shock.

Follow the safety instructions to avoid the risks caused by electric current.

- Do not use a damaged power cable.
- Do not open screwed covers from the housing.
- Use the device only if it is in a technically perfect condition.
- A broken device can be repaired only by an authorized dealer. Do not repair the device on your own.
- Do not make changes to the device, its components, and accessories.
- Do not expose the device to rain or moisture.
- Do not submerge the device in water.

## 2.4. General Safety Instructions

Follow the safety instructions to avoid injury or material damage:

- Do not grab inside the device during operation.
- Device and power cable must be kept away from children under the age of 8.
- Children are not allowed to play with the device.
- Disconnect the power supply from electric voltage if it is unattended for a longer period of time.
- Do not use any liquid or spray cleanser. Use a dry cloth only.
- Do not block or cover any ventilation holes in the housing. These are essential for the airflow within the unit and protect the device from overheating.
- Place the device on stable surfaces only. If it is placed on unstable surfaces, it may fall and break.

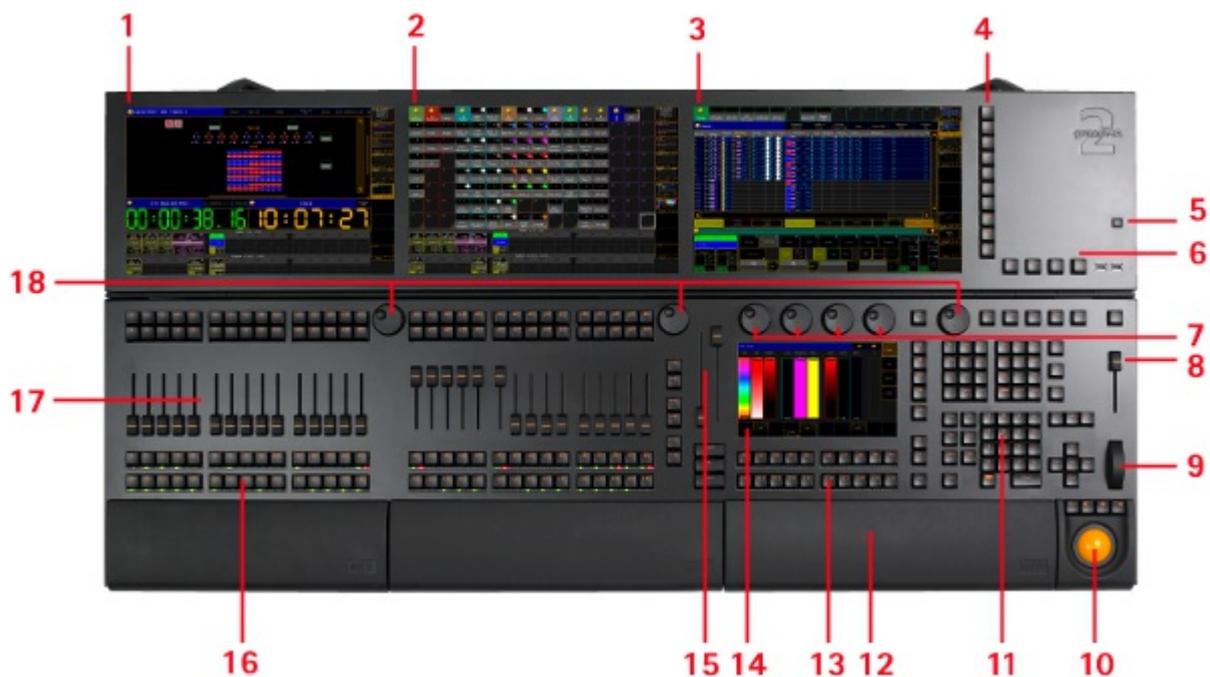
## 3. Device Overview

The following chapter comprises an outline of the:

- [grandMA2 console](#)
- [grandMA2 replay unit \(RPU\)](#)
- [grandMA2 fader wing](#)
- [MA onPC command wing](#)
- [MA onPC fader wing](#)

### 3.1. grandMA2 console

Front Panel



*grandMA2 full-size front panel*

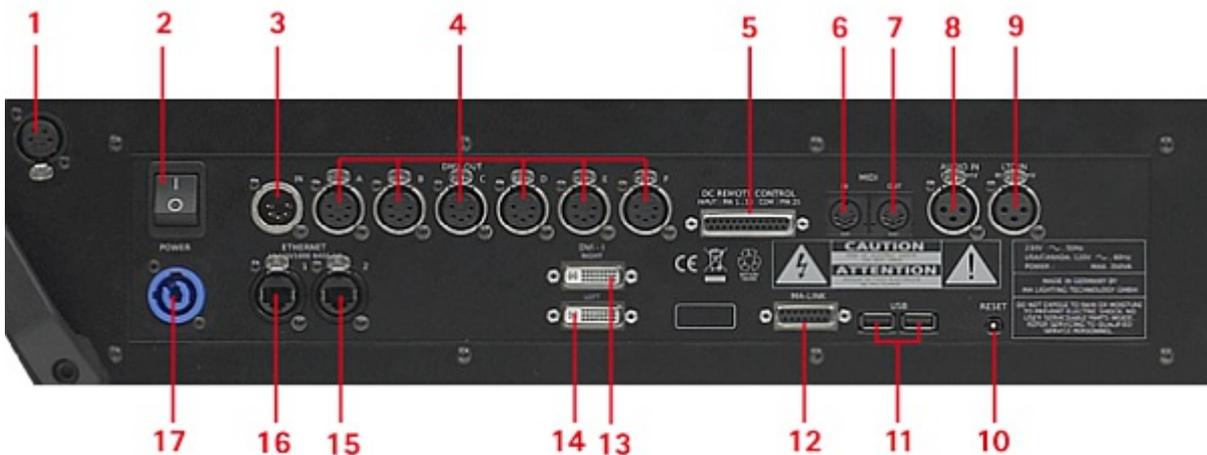
1. Screen 4 (full-size)
2. Screen 3 (light & full-size)
3. Screen 2
4. View Buttons
5. Power Key
6. Menu Keys
7. Attribute Encoders
8. Grand Master
9. Dimmer Wheel
10. Trackball

11. Command Area
12. Keyboard (inside)
13. X-Buttons
14. Screen 1 Command Screen
15. 100 mm Fader
16. Button Executors
17. Fader Executors
18. Screen Encoders

## Rear Panel



*grandMA2 full-size rear panel*



*grandMA2 full-size rear panel in detail*

1. Desk Lamp
2. Power Switch
3. DMX In Female
4. 6 x DMX Out A - F Male
5. DC Remote Control
6. MIDI In
7. MIDI Out
8. LTC / SMPTE In
9. Audio In
10. Reset Button

11. USB
12. MA-Link
13. DVI Right
14. DVI Left
15. Ethernet 2 (= eth1)
16. Ethernet 1 (= eth0)
17. PowerCon Connector

## 3.2. grandMA2 replay unit (RPU)

### Front Panel



*grandMA2 replay unit (RPU) front panel*

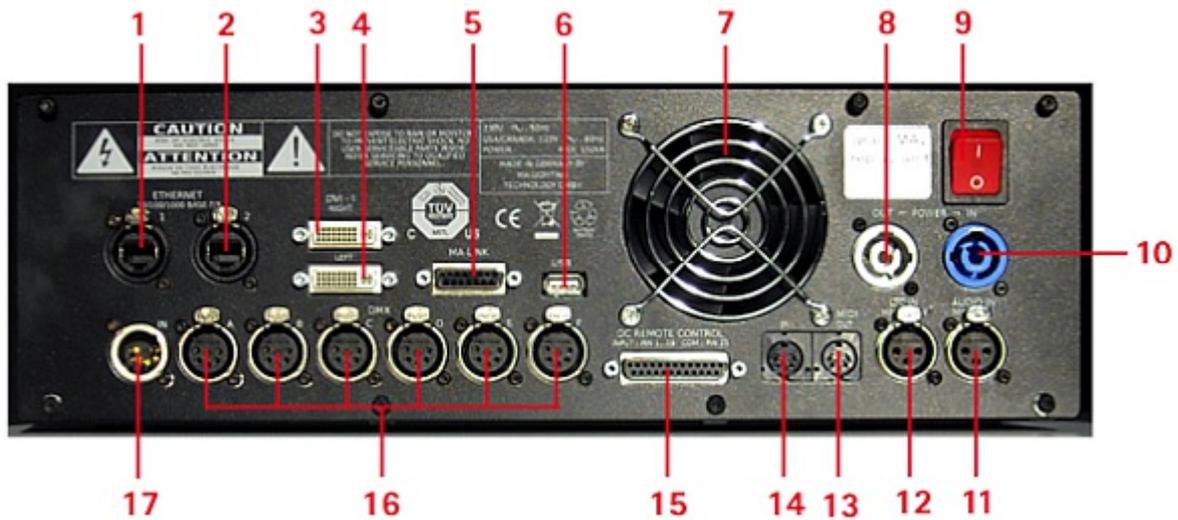
1. Power Button
2. Internal Command Touch Screen
3. Reset Button
4. 2 USB 2.0 connectors

---

### Rear Panel

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*grandMA2 replay unit (RPU) rear panel*

1. Ethernet 1
2. Ethernet 2
3. DVI Right
4. DVI Left
5. MA-Link
6. USB
7. Fan
8. PowerCon Out
9. On / Off Button
10. PowerCon In
11. Audio In
12. LTC / SMPTE In
13. MIDI Out
14. MIDI In
15. DC Remote Control
16. 6 x DMX Out
17. 1 x DMX In

## 3.3. grandMA2 fader wing

### Front Panel



*grandMA2 fader wing front panel*

1. 30 x Fader Executor Buttons
2. Screen Encoder
3. Page Buttons
4. 15 x Fader Executor Buttons and 15 x Executor Buttons
5. 15 x Motorized Executor Fader

### Rear Panel

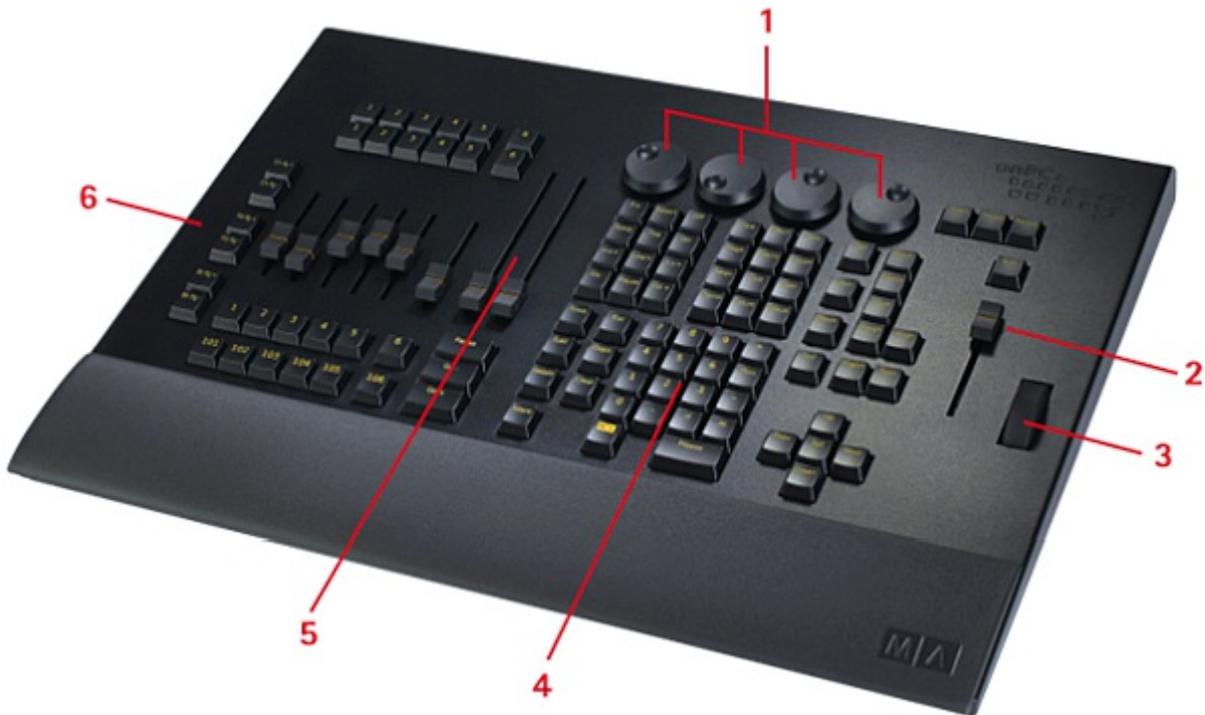


*grandMA2 fader wing rear panel*

1. Connection to a grandMA2 fader wing.
2. Connection to the console or from a grandMA2 fader wing.

## 3.4. MA onPC command wing

### Front Panel



*MA onPC command wing front panel*

1. Screen Encoder
2. Grand Master
3. Dimmer Wheel
4. Command Area
5. 100 mm Fader
6. Page Buttons

### Rear Panel



*MA onPC command wing rear panel*

1. Power Connector

2. On / Off Switch
3. USB Type B connector
4. LTC / SMPTE In
5. DMX IN
6. DC Remote Control
7. MIDI Out
8. MIDI In
9. 2 x DMX Out

## 3.5. MA onPC fader wing

### Front Panel



*MA onPC fader wing front panel*

1. 45 x Fader Executor Buttons
2. 15 x Fader Executor
3. 15 x Button Executor

---

### Rear Panel

# grandMA2 User Manual

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*MA onPC fader wing rear panel*

1. Power Connector
2. On / Off Button
3. USB Type B Connector
4. USB Type A Connector
5. USB Type A Connector, 5V for desk lamp
6. 4 x DMX Out

## 4. System Overview

This section takes a look at the different possibilities with a standalone console but also the options when expanding the system.

### 4.1. Standalone systems

If a console is not connected to anything, then it is a **Standalone** system. It is also a standalone system using a grandMA2 onPC with one or more grandMA2 onPC wings connected.

A console is in standalone mode when it is not a part of a session. So a console that is connected to network, but not in a running session is also considered as Standalone.

The current status can be seen in the Setup menu (press the **Setup** key). The right tab will display: **Network Standalone**.

If the console is in a session and you want to set it to Standalone mode, then you can leave the session. This can be done using the [GUI](#) or the command line ([LeaveSession](#)).

In the Standalone mode the console is limited to only controlling the amount of [parameters](#) the console / onPC unlocks.

You can only use the DMX ports on the console / wings.

If DMX is output via an Ethernet connection, then the console needs to be in a session. Enable the **Network DMX if Alone** button in the Setup->Network->Network Protocols. Even though not connected to anything else, it still needs to run an active session.

For more about setting up DMX ports, please have a look at the [Configure the DMX ports on MA devices](#) topic.

## 4.2. Network systems

When more devices are connected with each other in a session, then it is a networked system.

There are so many possible combinations that it does not make sense to try and list them all.

The smallest network system is a computer with onPC running a session and connected to a MA 2Port Node onPC 1K.

Most systems have 1 console with 1 backup console or onPC and some networked devices to output the DMX.

If the devices that translate Ethernet data to DMX are MA nodes, then the DMX output is in sync, no matter where the DMX is output. So a blackout cue on LED fixtures is in sync when some LEDs got signal from the Console and some LEDs from a node somewhere in the system.

In all network systems, you have one console or onPC that is the session master. This is the one that is in charge of the communication and the one that is executing commands triggered by remote inputs or from a command in a sequence.

It is recommended to always use a good network switches when connecting different devices.

Besides the consoles, there are a lot of different devices that can be added to the system.

Read the sub topics to get a short explanation of the different devices.

Learn more about setting up a session [here](#).

Learn more about parameter expansion [here](#).

Learn more about the considerations in big network systems [here](#).

### 4.2.1. What is the Replay Unit (RPU)

A **grandMA2 replay unit (RPU)** is considered a console in the system.

It has the same software and capabilities as the consoles. It is a 19" 3 Unit rack mount version of the console, without all the user interface and physical controls. It got the same connectors on the back panel as a console (it got less USB connectors).

It functions exactly like a console in the system.

Replay unit (RPU) [general description](#) and [Technical Data](#).

## 4.2.2. What is the Network Processing Unit (NPU)

A **grandMA2 network processing unit (NPU)** is for [parameter expansion](#) and to add DMX ports in a network solution.

It is a 19" 3 Unit rack mount processor.

It got 8 female DMX ports and 1 female etherCON connector for network.

It cannot function as a standalone unit. It has to be connected to a session to do anything.

## 4.2.3. What is the Video Processing Unit (VPU)?

The **MA Video Processing Unit (VPU)** is a Media Server that was designed to be fully integrated into the MA system.

The VPU comes in three sizes. MA VPU plus, MA VPU basic and MA VPU light. There is a second generation of the plus and basic called MK2.

The VPUs are media servers capable of handling a 3D environment.

It has all the normal features for media servers. Effects, Soft edge, Pixel mapping, Warping, and so on.

One of the big advantages of the MA VPU is the option to use the pixel mapper internally. This means that fixtures can be positioned in a 3D environment in the console and then the VPU software can be used to run complex video content, mapped to the fixtures.

The MA VPU is a feature-rich software and hardware and it got its [own manual](#).

## 4.2.4. What is the Network Dimmer Processor (NDP)?

The **Network Dimmer Processor (NDP)** is the processor used to control dimMA dimmer system.

The NDP provides access to the dimmers via the MA-Net. Dimmers can be monitored and changed through the setup and configuration from the consoles. It is also possible to see error messages from the dimmers in the consoles.

NDPs also have DMX connectors. This allows to control the dimmers using a standard DMX signal.

It can receive Art-Net and sACN data as well.

It is a device from the grandMA1 system and it has a 100Mbit/s network adaptor.

## 4.2.5. What is MA 3D?

The MA 3D is a free visualizer that can connect to the MA system and can simulate lights in a 3D environment.

The software needs to be installed on a computer connected to your lighting network.

The 3D is invited into a session and it is then considered a member in the session that can be used to position lighting fixtures in a 3D environment.

The 3D can be used to preprogram a show and/or have it onsite for Blind and Preview editing.

MA 3D can connect to grandMA2 onPC (also free) and does not need parameters to visualize the lighting.

You can add a virtual camera dolly and program a moving camera.

An object in MA 3D can be used as a surface that can display video or images. It can also display the CIP video stream from a media system. Read more about CIP in the [Streaming CIP topic](#).

MA 3D can create screenshots. If a video capture is needed, then additional capture software is needed.

## 4.2.6. What are the MA nodes?

The nodes from MA lighting work as a translator between the network data and the DMX.

A node is connected to the network and it listens to the DMX data in the network. It is configured to handle some specific DMX universes.

It can be used to output a DMX universe. It will listen to the DMX data stream on the network and translate that information into a DMX512-A signal.

A node can also input a DMX signal into the network. Then it receives a DMX signal and translates it into a network data stream.

When nodes are used in a MA-Net2 system, then the advantage is that the DMX ports can be configured from the system and the DMX output is synchronized in the entire network.

Nodes can also work with other network protocols. They can run in Art-Net and sACN. Configuration is still done via the grandMA2 software (for example a computer running the onPC software) or from a browser.

The older MA nodes from grandMA1 can also run in MA-Net1 mode. Then they can talk with the grandMA1 systems.

The older NSPs can be used as a 4Port Node in a grandMA2 system.

The older NSPs and nodes from grandMA1 only have a 100Mbit/s network card. The new nodes use a Gigabit network adaptor.

There is no guarantee that the grandMA1 devices will continue to work with MA-Net2 in the future. They will however always be able to run Art-Net and sACN.

## 4.3. Parameters vs. DMX channels

Most people are used to think in DMX channels when considering how many fixtures can be controlled with system.

MA Lighting are/is more concerned with **Parameters**.

### What are Parameters

Parameters are also called Attributes in the software. A dimmer function is a parameter and a pan function is also a parameter.

The software is calculating the different attributes in a higher precision than what is output via DMX. So the software is only calculating the parameter or attribute once and is then scaling the precision to the amount of DMX channels a fixture uses.

### Why counting in Parameters

It is to your advantage. In the MA world you are not paying for using fixtures that are running 16 or 24 bit instead of the 8 bit from one DMX channel. The software does not care, so why should you be punished.

It might be needed to add networked nodes or devices to output all the parameters that are allowed to be controlled.

#### Example:

If you have a **MA 2Port Node onPC 1K** you are allowed to control 1,024 parameters. If all these are 16 bit Pan attributes then you will need to output 4 DMX universes.

1 parameter uses 2 DMX channels. Each universe has 512 DMX channels:  $1024 \text{ parameters} * 2 \text{ channels} = 2048 \text{ channels} / 512 \text{ channels} = 4 \text{ universes}$ .

In a normal scenario, you do not have 4 universes of 16 bit Pan attributes, but a mix of attributes that use 1 or 2 DMX channels.

### What about preprogramming and parameters?

The show can be preprogrammed and MA 3D can be used without any parameter unlocking hardware. The lights are still visualized.

But if 3-party visualizers are used, then the hardware might be needed to give access to the parameters.

MA Lighting is working with many visualizer manufactures to allow them to read the DMX data without hardware.

Learn more about parameter expansion [here](#).

## 4.4. Parameter expansion

This page is a closer look at how many parameters can be controlled and how it can be expanded. At the bottom of this page there is a link to a page that explains the difference between "Parameter" and "DMX universe". If you have any doubts in this area, you should take the time to read it.

### Parameter count

This section is about the parameter count for single units.

Beginning at the top end and working the way down the ranks:

- **grandMA2 full-size:**  
8 192 parameters.
- **grandMA2 light:**  
4 096 parameters.
- **grandMA2 ultra-light:**  
4 096 parameters.
- **grandMA2 replay unit:**  
4 096 parameters.
- **MA NPU (Network Processing Unit):**  
4 096 parameters (also with grandMA2 onPC).
- **MA onPC command wing:**  
2 048 parameters (only when connected with grandMA2 onPC).
- **MA onPC fader wing:**  
2 048 parameters (only when connected with grandMA2 onPC).
- **MA 8Port Node onPC:**  
2 048 parameters (only when connected with grandMA2 onPC).
- **MA 4Port Node onPC:**  
2 048 parameters (only when connected with grandMA2 onPC).
- **MA NSP (in grandMA2 4Port Node mode):**  
2 048 parameters (only when connected with grandMA2 onPC).
- **MA 2Port Node onPC 2K:**  
2 048 parameters (only when connected with grandMA2 onPC).
- **MA 2Port Node onPC 1K:**  
1 024 parameters (only when connected with grandMA2 onPC).
- **MA 2Port Node onPC Pro (old version):**  
1 024 parameters (only when connected with grandMA2 onPC).
- **MA 2Port Node onPC (old gray version):**  
512 parameters (only when connected with grandMA2 onPC).
- **MA 8Port Node (not onPC version):**  
Does not provide parameter expansion.
- **MA 4Port Node (not onPC version):**  
Does not provide parameter expansion.

- **MA 4Port Node WM (Wall Mount) (not onPC version):**  
Does not provide parameter expansion.
- **MA 2Port Node (not onPC version):**  
Does not provide parameter expansion.
- **MA 2Port Node WM (Wall Mount) (not onPC version):**  
Does not provide parameter expansion.
- **MA 2Port Node Rig mount version (old version - not onPC):**  
Does not provide parameter expansion.
- **MA 2Port Node Flush mount version (old version - not onPC):**  
Does not provide parameter expansion.

## Parameter expansion

The MA NPU is the **only unit** that expands the parameter count when using a grandMA2 console. **Every MA NPU added to the network also adds 4 096 parameters!**

A maximum of 15 MA NPUs can be added to give parameters; depending on the biggest console.

There is a **maximum limit of 65 536 parameters** in a grandMA2 session.

The MA NPUs help with parameter calculations.

## Examples:

1 grandMA2 full-size (8 192 parameters) + 1 NPU (4 096) = 12 288 parameters

1 grandMA2 full-size (8 192 parameters) + 14 NPUs (4 096) = 65 536 parameters (the limit)

1 grandMA2 light (4 096) + 1 NPU (4 096) = 8 192 parameters

1 grandMA2 light (4 096) + 15 NPUs (4 096) = 65 536 parameters (the limit)

1 grandMA2 full-size (8 192 parameters) + 1 grandMA2 light (4 096) = 8 192 parameters (Consoles cannot expand the parameter count so the parameters from the console with the highest number are unlocked)

1 grandMA2 light (4 096) + 15 2Port Node onPC 2K (2 048) = 4 096 parameters (Nodes cannot expand the parameter count, so the parameters from the console is used - onPC nodes cannot give parameters to consoles)

1 grandMA2 light (4 096) + 1 onPC computer with a Command Wing (2 048) = 4 096 parameters (Wings cannot expand the parameter count, so the parameters from the console are used - onPC Wings cannot give parameters to consoles)

## Using a grandMA2 onPC with wings, nodes and NPU

When a grandMA2 onPC is used some MA hardware is needed to unlock parameters. **The maximum number of parameters that is allowed in a grandMA2 onPC system is 4 096!**

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Any number of onPC hardware can be used with your computer. Every piece of hardware will add its parameters until the limit of 4 096 parameters is reached.

This is the only two rules for parameters with grandMA2 onPC.

Remember more units can be added to get more DMX ports.

Examples:

grandMA2 onPC + MA onPC command wing = 2 048 parameters

grandMA2 onPC + MA onPC command wing + MA 2Port Node onPC Pro = 3 072 parameters

grandMA2 onPC + MA onPC Fader Wing = 2 048 parameters

grandMA2 onPC + MA 2Port Node onPC + MA 2Port Node onPC = 1 024 parameters

grandMA2 onPC + MA onPC command wing + Fader Wing + MA 8Port node onPC = 4 096 parameters (you have reached the limit)

grandMA2 onPC + MA onPC command wing + MA NPU = 4 096 (you have reached the limit)

## MA VPU and grandMA2 onPC

If a MA VPU is used, it will supply its own parameters and does not affect the limit. Several MA VPUs can be controlled using a grandMA2 onPC. If however a mix of VPUs and other fixtures are used, then some MA hardware is needed to unlock the parameters for the fixtures.

Even though the MA VPU does not count in your parameter limit, it is a good idea to patch the MA VPU on a higher universe than the other fixtures. There is a risk that it will steal the parameters from the other fixtures, if it is on a lower universe than the fixtures.

Please have a look at [DMX Channels vs. Parameters topic](#) for more about the difference between DMX channels and Parameters.

## 4.5. Big systems

There are some limitations to consider when using the grandMA2 in big systems.

The following is exploring some of these limitations running one session in a good Gigabit network.

There is the general limitation regarding the parameter count: It can control a maximum of 65 536 parameters.

Then there is the limit of 256 DMX universes - It is only possible to patch your fixtures in a maximum of 256 universes.

The devices are separated into different classes. There is a limit of how many devices of each class can be in one session.

- **Class A** are consoles, onPCs and NPU's. Maximum 31 Class A devices in a session.
- **Class B** are VPU's, MA 3Ds and NDP's. Maximum 64 Class B devices in a session.
- **Class C** are Nodes and VPU in "Show mode". Maximum 255 Class C devices in a session.

If these limitations are followed then it is guaranteed that a session has real time and synchronized DMX output.

Are you in a situation where you need to build a very big system, it is a very good idea to have an experienced MA system specialist involved.

There are a lot of other considerations regarding building a network that can handle the traffic especially if there is a high demand for redundancy.

It is not recommended to run more than 3 (very) big sessions in one network. If more than that is needed, please make more than one network.

## 4.6. Media systems and CITP

### Media Systems - Media Servers / Players

A media server can be many things.

It can be a simple DMX controlled box that can display some images and maybe still images. It can also be a big expensive system with multiple synchronized outputs. And everything in between and beyond. There is no universal solution that fits all and makes everyone happy.

MA VPU's are made to be controlled and programmed from the grandMA consoles.

Some of the more professional media systems made by other manufactures, can be integrated into the MA system.

### CITP

The CITP protocol suite allows to exchange images, stream videos and configure fixture information.

If a 3rd party media system supports the full CITP protocol, then thumbnails can be exchanged for each of the video/image files on the media device. It is also possible to watch a video stream from the media device on a console and on a surface in MA 3D.

For more about getting thumbnails via CITP have a look at the [CITP connection](#) topic.

Have a look at the description of the [CITP viewer](#) to learn more about watching a CITP video stream on the console.

Some visualizers can also display the CITP video stream from media systems.

## 5. First Steps

This chapter describes how to prepare the console and your PC to use it.

### 5.1. Unpack the Device

- Unpack the device. Remove all packing material, strips and protection films.
- Keep the packing material for transport.



**Information:**

The device was tested for proper function at the factory.

## 5.2. Check Scope of Delivery

The list below shows the scope of delivery. If anything is missing, contact your local distributor.

[grandMA2 full-size](#)

[grandMA2 light](#)

[grandMA2 ultra-light](#)

[grandMA2 fader wing](#)

[MA onPC command wing and MA onPC fader wing](#)

### grandMA2 full-size

- Built-in keyboard
- 2 x MA LED desk lamp grandMA2
- 1 x Dust cover grandMA2 full-size
- 1 x Quick Start Manual

### grandMA2 light

- Built-in keyboard
- 2 x MA LED desk lamp grandMA2
- 1x Dust cover grandMA2 light and ultra-light
- 1 x Quick Start Manual

### grandMA2 ultra-light

- 2 x MA LED desk lamp grandMA2
- 1x Dust cover grandMA2 light and ultra-light
- 1 x Quick Start Manual

### grandMA2 fader wing

- Connecting cable MA-link

### MA onPC command wing and MA onPC fader wing

- 1 x Dust cover
- USB cable 1.9 m
- Power Cord 1.9 m IECC plug (lockable) open end
- 1 x Quick Start Manual

## 5.3. Position the Device

Follow the instructions below:

- Do not place the device in humid rooms.
- Place the device onto a stable, flat and dry area.
- Do not cover the ventilation holes.
- Do not place the device directly into the sun.
- Keep a minimum distance of 15 cm ( 5.91 inch) between multi-touch screen surface and radio intercom systems. If you go below the minimum distance, this may lead to unexpected behaviors such as unwanted multi-touch actions or mouse movements.

## 5.4. Connect Power



### **Warning:**

If only the powerCon connector is provided, you need to attach a suitable cable to the connector. To attach a suitable cable to the powerCon connector, contact your local dealer.

1. Insert the blue powerCon connector in the powerCon plug and twist it to lock 90 degrees clockwise.
2. Connect the other end of the cable to a suitable power source.

The console is connected to power.



*grandMA2 full-size power connector*

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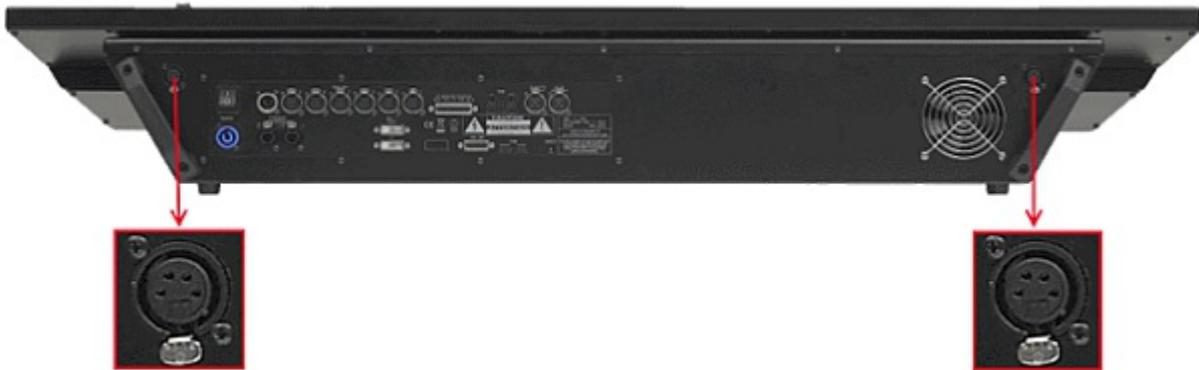
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## 5.5. Connect Desk Lamps

The console comes with two MA LED desk lamps.

- Connect the 4 pin XLR connector to the desk lamp connectors on the rear panel.

The desk lamps are connected.



*grandMA2 full-size desk lamp connectors*

To adjust the intensity of the desk lamp see [adjust desk lights](#).

## 5.6. Connect External Screens

You can connect up to two external screens or touch screens on a console – right and left.



### Information:

We recommend ELO touch screens with the following specifications:

- Certification: Microsoft WIN8 compliant
- Connectivity: A USB interface
- Video Interface: VGA or DVI or HDMI
- Resolution: Monitors are to have a minimum resolution of 1024x768.

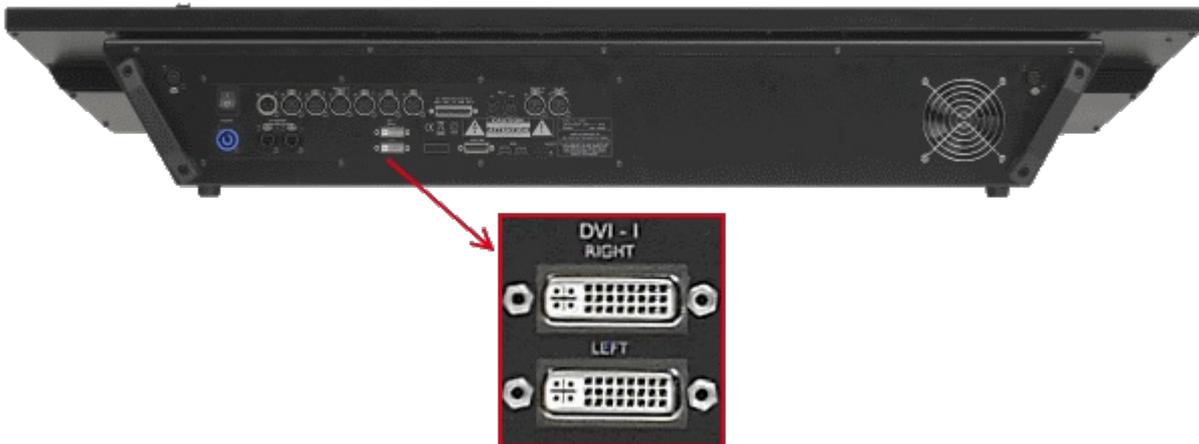
### Requirement:

- Console is turned off
- DVI cable



### Information:

If the external screen has a VGA connector, a DVI adapter is necessary for VGA.



### *DVI connectors for external screens*

1. Connect the DVI cable for the right external screen with the **Right DVI-I connector**.
2. Place the external screen on the right, above the internal screen 2.  
The screen number for the external screen on the right is 5.
3. Connect the DVI cable for the left external screen with the **Left DVI-I connector**.
4. Place the external screen on the left, beside the external screen on the right.  
The screen number for the external screen on the left is 6.
5. Connect power to the external screens.

The external screens are connected.

For more information see [change screen options](#).

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## 5.7. Connect USB Mouse and USB Keyboard

You can connect an external USB mouse and / or an external USB keyboard to the console.

There are 5 USB connectors on the console. Two on the front panel, two on the rear panel and one in the drawer of a grandMA2 light and full-size.

The console supports keyboards with US key layout.



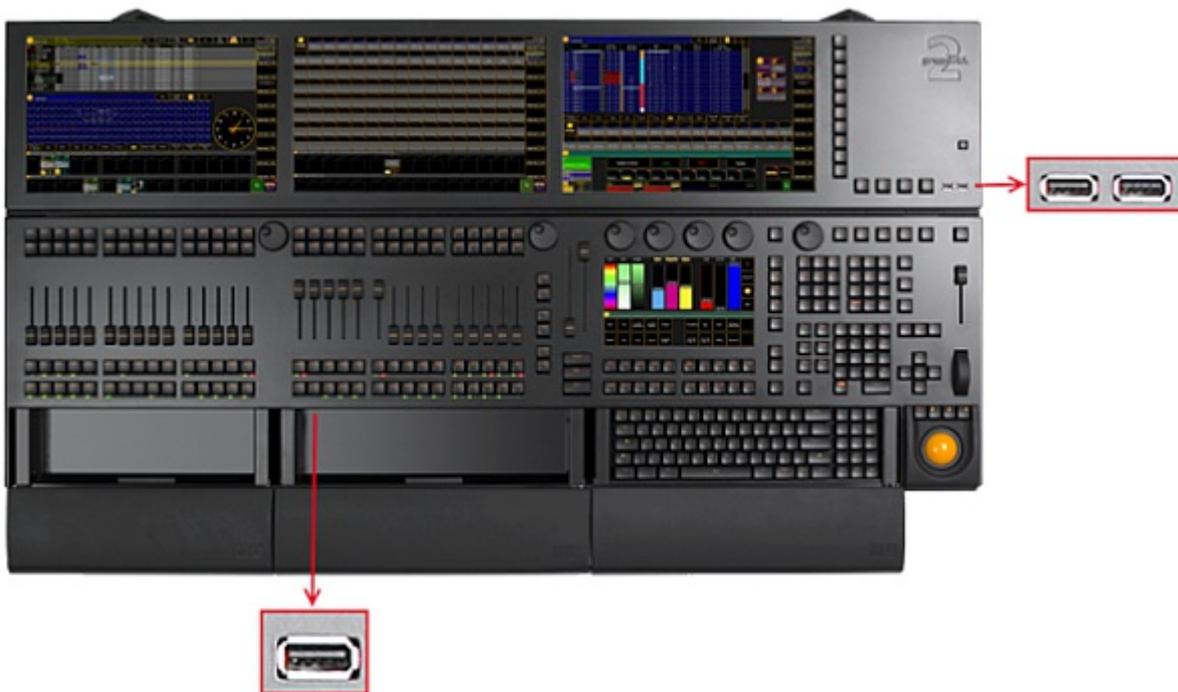
### Information:

It is recommended to use a wired keyboard.

If you use a wireless keyboard, a proper function is not guaranteed.

- Connect the USB connector of the USB mouse / or USB keyboard to one of the USB plugs on the front or rear panel of the console.

The USB mouse and / or USB keyboard is connected to the console.



*grandMA2 full-size USB connector front panel*



*grandMA2 full-size USB connector rear panel*

## 5.8. Connect DMX

You can connect DMX IN and DMX OUT on the console.

The console has six DMX OUT ports (A - F) and one DMX IN port.

You can configure the DMX ports in the network configuration.

For more information see [Configure the DMX ports on MA devices.](#)



*DMX IN*

1. Connect one end of a 5 pin XLR DMX cable to one of the DMX connectors.
2. Connect the other end to a suitable DMX device.

The console is connected to a DMX device.

## 5.9. Connect Sound

To use a sound trigger, BPM or sound as an effect form, connect a sound source to the console.



### Information:

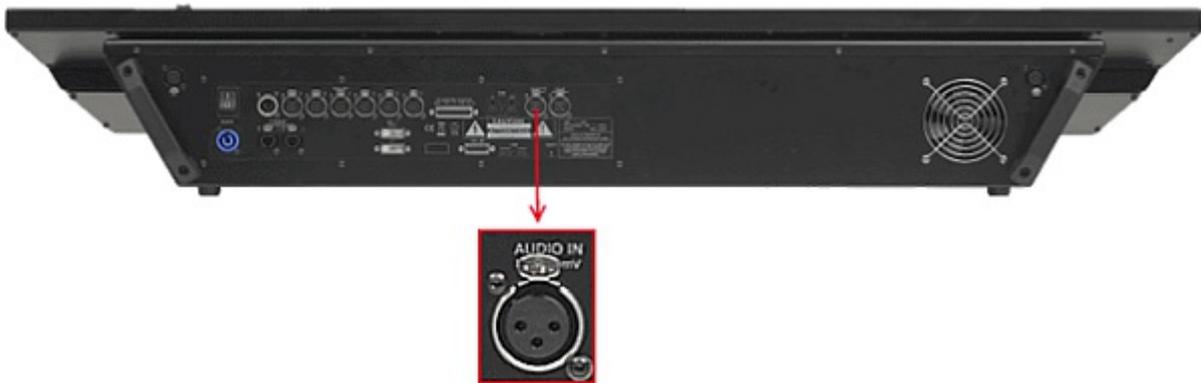
The signal strength should be a minimum of 20 millivolts.

Pin 1: Ground

Pin 2 and Pin 3: Balanced Input

- Connect the 3 pin XLR sound source cable to the Audio IN connector on the rear panel.

The sound source is connected to the Audio IN connector.



*grandMA2 full-size Audio IN connector*

For more information see [adjust sound input](#) and [create effect form](#).

## 5.10. Connect SMPTE (LTC)

To synchronize the console with an SMPTE timecode source, connect an SMPTE source to the console.



### Information:

The supported time formats are:

- 24 fps (frames per second)
- 25 fps
- 30 fps

If you send 29.97 or 30 drop frame, it will be interpreted as 30 fps.



### Information:

The signal strength should be a minimum of 200 millivolts.

- Pin 1: Ground
- Pin 2: - (minus)
- Pin 3: + (plus)

- Connect the SMPTE source to the LTC IN connector on the rear panel.

The SMPTE source is connected to the LTC IN connector.



*grandMA2 full-size LTC IN connector*

## 5.11. Connect Ethernet

The grandMA2 console has two Ethernet ports on its rear panel.



*Location Ethernet ports*

## Ethernet Port 1



### Information:

The Ethernet port 1 is called eth0 in the grandMA2 software.



### Information:

The Ethernet port 1 can be used for the following network protocols:

- MA-Net2
- ETC Net2
- Pathport
- sACN
- Shownet
- Kinet1
- CTP
- PSN

### Requirement:

STP (shielded twisted pair) cable with RJ45 connector, min. Cat 5e.

To connect Ethernet port 1:

1. Connect one end of an Ethernet cable to the **Ethernet 1** port.
2. Connect the other end to a suitable switch.
3. Connect other grandMA2 equipment to the switch and turn on the power on the switch.

Ethernet is connected to port 1.

## Ethernet Port 2



### Information:

The Ethernet port 2 is called eth1 in the grandMA2 software.

**Information:**

The Ethernet port 2 can be used for the following network protocols:

- Art-Net
- CIP

**Information:**

The IP address is set by default in a 2.x.x.x range. An IP address is required in a 2.x.x.x or 10.x.x.x range for Art-Net.

**Requirement:**

STP (shielded twisted pair) cable with RJ45 connector, min. Cat 5e.

To connect Ethernet port 2:

1. Connect one end of a Ethernet cable to the **Ethernet 2** port.
2. Connect the other end to a suitable switch.
3. Connect other grandMA2 equipment to the switch and turn on the power on the switch.

Ethernet is connected to port 2.

## 5.12. Connect Analog Remote Control

To use the analog remote control, connect a contact closure switch e.g., a light barrier or a push button.

Generate a switch that sends between +5 and +15 volts to pin 1 for the console to react to analog input number 1.

There are two ways to generate a switch:

1. Take the +5V voltage from pin 21-22.  
-or-
2. Take an external voltage (+5V up to +15V), connect the ground of the external voltage source to the common ground pin of the grandMA2 console or MA onPC command wing.

Then connect the switch to one input pin 1-16 with a potential free contact (switcher, buzzer, motion detector, or any other switching device) in between.

To configure the remote see [Setting up remote inputs](#).

**Pin layout for grandMA2 consoles:**

The grandMA2 consoles have a 25 pin D-sub, enabling 16 remote inputs:

Pin 1-16 = input

Pin 21-22 = + 5V

Pin 25 = common ground

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## Pin layout for MA onPC command wings:

The MA onPC command wing has a 15 pin D-sub, enabling 12 remote inputs:

Pin 1-6 = input channels 1,3,5,7,9,11

Pin 9-14 = input channels 2,4,6,8,10,12

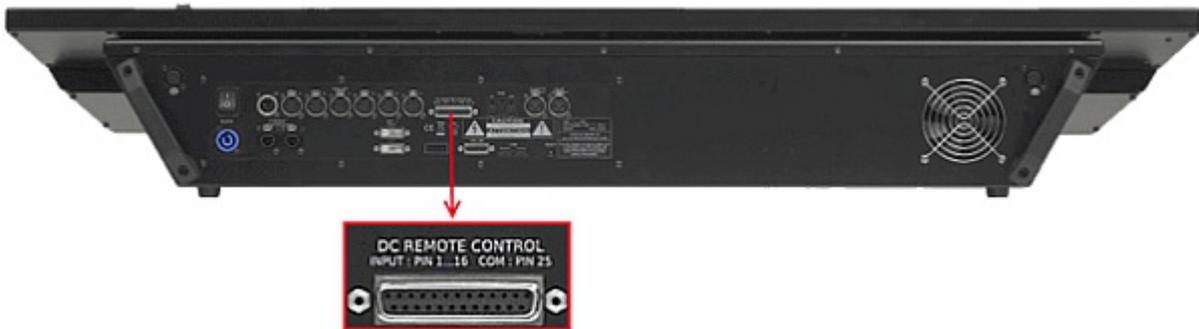
Pin 7 = + 5V

Pin 8 = common ground

Pin 15 = not used

- Connect a D-sub plug to the DC remote control connector on the rear panel.

The analog remote control is connected to the DC remote control.



*grandMA2 full-size DC remote control connector*



*MA onPC command wing DC remote control connector*

## 5.13. Connect grandMA2 fader wing

To extend the console by 15 motorized faders and 15 executor buttons, connect a grandMA2 fader wing.



### Hint:

You can connect up to four grandMA2 fader wings to one grandMA2 console.

1. Connect one end of a 15 pin D-Sub cable to the MA-LINK connector on the rear panel.
2. Connect the other end to the grandMA2 fader wing.

The grandMA2 fader wing is connected to the console.



*grandMA2 full-size MA-LINK connector*

To configure the wings see [wing & monitor setup](#).

## 5.14. Setup your PC

To run grandMA2 onPC with the best result, we recommend to adjust the following settings on your PC.

### Turn on High Performance Power Plan

To turn on the high performance power plan:

- Click the **Start** button , and then click **Control Panel**. In the search box, type power options, and then click **Power Options**. Under Select a power plan, click **Show additional plans**, and then click **High performance**.

The high performance power plan is turned on.

### Optimize High Performance Power Options

Turn off everything what can interrupt the grandMA2 onPC.

To optimize the power options:

1. Click **Change plan settings**, and then **Change advance power settings**.
2. Choose for turn off the hard disk, **Never**.
3. Choose for USB selective suspend setting, **Disabled**.
4. **Click Save changes**.

The power options are optimized.

---

## Choose Windows® Design Classic

To conserve the graphic card resources, select the Windows® Classic design.

- Click the **Start** button , and then click **Control Panel**. In the search box, type personalization, and then click **Personalization**. Under Basic and High Contrast Themes, click **Windows® Classic**.

The Windows Classic design is selected.

---

## Disable the Screen Saver

To conserve the graphic card resources, disable the screen saver.

- Click the **Start** button , and then click **Control Panel**. In the search box, type personalization, and then click **Personalization**. Click **Screen Saver**, and select in the drop down **None**.

The screen saver is disabled.

---

## Optimize System Settings

To optimize the system settings:

1. Click the **Start** button , and then click **Control Panel**. In the search box, type system, and then click **System**. Click **Advanced system settings**, and select the tab **Advanced**, click under Performance, **Settings...**
2. Select tab **Advanced** and click **Background service**.
3. For low performance graphic cards only:  
Select tab **Visual Effects** and change the performance options to **best performance**.  
Click **Adjust for best performance**.

The system settings are optimized.

---

## Assign grandMA2 onPC to the High Performance Graphic Card



### Information:

Only if the PC has a on-board graphic card and an additional High Performance Graphic card.

To assign the grandMA2 onPC software to the high performance graphic card:

- Open the Control Panel of the high performance graphic card. For more information, see the manual of the high performance graphic card.

The grandMA2 onPC software is assigned to the high performance graphic card.

## Select dedicated AMD Graphic Card



### Information:

Only if you have an integrated Intel HD graphic card and a dedicated AMD graphic card in your computer, it is necessary to select the dedicated AMD graphic card manually.

To select the dedicated AMD graphic card:

1. Right mouse click on desktop and select **Catalyst Graphics Properties**.
2. Click under Power at **Switchable Graphics Application Settings**.
3. Click at **All Applications**.
4. Search for grandMA2 onPC and select in the drop down menu under Graphic Settings **High Performance**.
5. Click **Apply**.

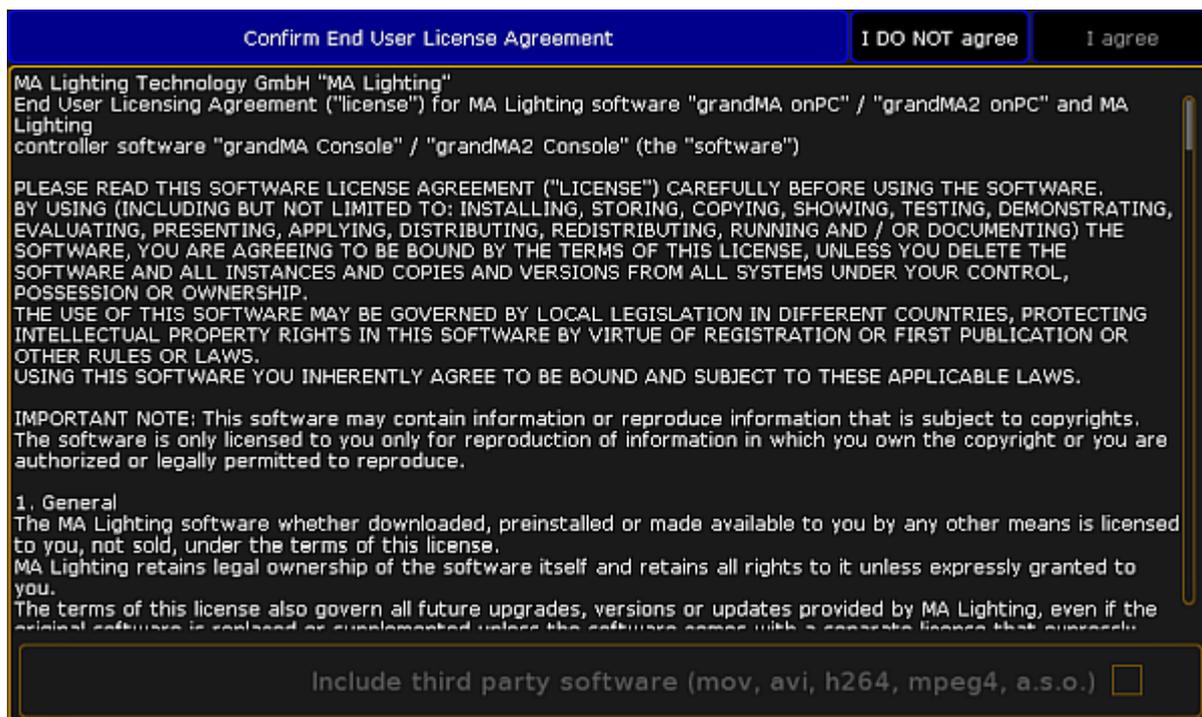
grandMA2 onPC is using the dedicated AMD graphic card.

## 5.15. Turn on the Console the First Time

**Requirement:** The console is placed on a stable surface and is connected to power.

1. Switch on the power switch on the console's rear panel.
2. Press the power button on the console's front panel.

The console starts to boot and the pop-up **Confirm End User License Agreement** opens.



Pop-up end user license agreement

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To activate the button **I agree** in the upper right corner of the pop-up, scroll all the way down.



## Important:

The MA Software package provides the capability to use additional proprietary third-party software, which allows the usage of diverse media content. This is subject to license terms and to responsibility of fulfillment of license terms including proper licensing. If you decide to install the MA Software package along with the third-party software, check the box in the lower right corner. The MA Software package without the third-party software still allows the usage of non-proprietary media software (VP8, VP9).

Confirm End User License Agreement I DO NOT agree I agree

**12. Third-Party Acknowledgements**  
Portions of the MA Lighting software may utilize or include third-party software and other copyrighted material. Acknowledgements, licensing terms and disclaimers for such material are contained in the electronic documentation for the MA Lighting software and your use of such material is governed by their respective terms. Certain software libraries and other third-party software included with the MA Lighting software are free software and licensed under the terms of the GNU General Public License (GPL) or the GNU Library / Lesser General Public License (LGPL), as the case may be. You may obtain a complete machine-readable copy of the source code for such free software under the terms of the GPL or LGPL, as the case may be, without charge except for the cost of media, shipping, and handling, upon written request to MA Lighting. The GPL / LGPL software is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY, without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. A copy of the GPL and LGPL is included with the MA Lighting software.

**13. Protection and Confidentiality**  
US Patents: 7,821,781 7,995,040 8,053,993 8,090,457 8,138,689 - 7,982,410 - 8,410,724 8,773,364 8,452,426 8,514,192

This MA software package provides the capability to use additional proprietary third-party software which allows the usage of diverse media content. Proprietary third-party software is subject to license terms included with its documentation. If the user decides to install the MA software package including the third-party software by checking the box below, he agrees to be alone responsible to fulfil the terms of such license terms including proper licensing. The installation of the MA software package without the third-party software still allows the usage of non-proprietary media software (VP8, VP9, etc.).

**Include third party software (mov, avi, h264, mpeg4, a.s.o.)**

*Confirm end user license agreement*



## Note:

If you should subsequently decide to use third-party software, you can do so by checking the box in

## Setup:

Press **Setup**, then tap **Console** – **Software Update** – **End User License Agreement**. Eventually, check the box in the lower right corner of the pop-up.



## Important:

Note that you cannot check the box while the session is running. The console has to be in the standalone mode.

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Now open the gma2\_start\_show.show.gz by pressing **Backup** and then tapping **Demoshows** – **Load Show**.

Select the show, tap **Check All** and then **Load Show**. To close the backup menu, tap **X** in the upper right corner of the menu.



*grandMA2 start show on screen 1*

## 6. Keys & Buttons on the Console

This chapter describes every key and button on the console along with their functions.

### 6.1. Key Overview

This overview displays shortcuts for a quick execution of commands.



#### Important:

For information on how to use the  key in combination with shortcuts see the [MA key](#).

Press this Key	Command	Description	Example
	<u>&lt;&lt;&lt;</u>	Goes fast backward and ignores the cue timing.	• <<< Executor 1
 	<u>Black</u>	Blacks out an executor without timing. Sets the master of an executor to 0 while holding the executor.	• <<< <<< Executor 1
  	<u>ToZero</u>	Sets the master level of objects to zero.	• <<< <<< <<< Executor 1
	<u>&gt;&gt;&gt;</u>	Goes fast forward and ignores the cue timing.	• >>> Executor 1
 	<u>Flash</u>	Flashes an executor without timing.	• >>> >>> Executor 1
  	<u>ToFull</u>	Sets the master level of objects to full.	• >>> >>> >>> Executor 1
	<u>Align</u> "<"	Fans from the first object selected to the right.	No example
 	Align ">"	Fans from first object selected to the left.	No example
  	Align "×"	Fans from the center of the selection.	No example
   	Align "◇"	Fans between first and last objects selected.	No example
    	Align Off	Switches off the fan function.	No example
	<u>Assign</u>	Assigns functions to buttons or opens the assign menu.	• Assign Executor 1 • Assign Flash Executor 1

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<b>Assign</b>	<u>Label</u>	Labels the objects.	● Label Cue 1
<b>Assign</b>			
<b>Assign</b> <b>Assign</b>	<u>Appearance</u>	Changes the frame color for pool objects and cues.	● Appearance Cue 1
<b>Assign</b>			
<b>Assign</b> <b>Effect</b>	Assign Form	Forms objects.	● Assign Form 8 Effect 1
<b>Effect</b>			
<b>At</b>	<u>At</u>	Enters the keyword At into the command line.	● Channel 1 At 100 ● Fixture 1 At Fixture 2
		Sets the selection to normal value. It is possible to change the normal value in <b>Setup - User - Settings.</b>	● Normal Fixture 1
<b>At</b> <b>At</b>	<u>Normal</u>		
<b>At</b> press & hold	<u>Filter</u>	Opens the command "Filter".	No example
<b>Blind</b>	<u>Blind</u>	Switches on/off the live programmer to black.	No example
<b>Blind</b>			
press & hold	<u>BlindEdit</u>	Switches on/off the second blind programmer.	No example
<b>Bt Pg -</b>	ButtonPage -	Switches to previous ButtonPage.	No example
<b>Bt Pg -</b>	ButtonPage 1	Switches to first ButtonPage.	No example
press & hold			
<b>Bt Pg +</b>	ButtonPage +	Switches to next ButtonPage.	No example
<b>Ch Pg -</b>	ChannelPage -	Switches to previous ChannelPage.	No example
<b>Ch Pg -</b>	Channel Page 1	Switches to first ChannelPage.	No example
press & hold			
<b>Ch Pg +</b>	ChannelPage +	Switches to next ChannelPage.	No example
<b>Channel</b>	<u>Channel</u>	Enters the keyword Channel into the command line.	● Channel 1 At 50
<b>Channel</b>			
<b>Channel</b>	<u>Dmx</u>	Enters the keyword DMX into the command line.	● DMX 2.1 At 50
<b>Channel</b>			
<b>Channel</b>	<u>DmxUniverse</u>	Enters the keyword DMXUniverse into the command line.	● Unpark DMX Universe 1
<b>Channel</b>			
<b>Clear</b>	<u>ClearSelection</u>	Deselects all fixtures or channels in the programmer.	No example
<b>Clear</b> press & hold	<u>ClearAll</u>	Releases everything and clears the programmer.	No example
<b>Clear</b> <b>Clear</b>	<u>ClearActive</u>	Deactivates all values in the programmer.	No example
<b>Clear</b> <b>Clear</b>	ClearAll	Releases everything and clears the programmer.	No example
<b>Clear</b>			
<b>Copy</b>	<u>Copy</u>	Copies source object to destination object.	● Copy Cue 1 At 5
<b>Copy</b> <b>Copy</b>	<u>Clone</u>	Clones source object to destination object.	● Clone Fixture 1 to 21 If Sequence 1

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<b>Cue</b>	<a href="#">Cue</a>	Enters the keyword Cue into the command line.	<ul style="list-style-type: none"> <li>Store Cue 5</li> </ul>
<b>Cue</b> <b>Cue</b>	<a href="#">Part</a>	Enters part cue object into the command line.	<ul style="list-style-type: none"> <li>Store Cue 5 Part 2</li> </ul>
<b>Delete</b>	<a href="#">Delete</a>	Deletes objects.	<ul style="list-style-type: none"> <li>Delete Sequence 1</li> <li>Delete Executor 11</li> </ul>
<b>Delete</b> <b>Delete</b>	<a href="#">Remove</a>	Loads "Remove" into the programmer.	<ul style="list-style-type: none"> <li>Remove Position</li> </ul>
<b>Delete</b> <b>Delete</b> <b>Delete</b>	<a href="#">Release</a>	Loads "Release" into the programmer.	<ul style="list-style-type: none"> <li>Release Fixture 1</li> </ul>
<b>.</b>	.	Enters the keyword . into the command line to indicate values separated by a dot.	<ul style="list-style-type: none"> <li>Preset 4.1</li> <li>Fixture 1 At 10.5</li> </ul>
<b>.</b> <b>.</b>	<a href="#">Zero</a>	Sets the selection at dimmer value zero.	<ul style="list-style-type: none"> <li>Fixture 5 Zero</li> </ul>
<b>Down</b>	No command	The last focus goes a page down in the window.	No example
<b>Edit</b>	<a href="#">Edit</a>	Loads a cue in the programmer.	<ul style="list-style-type: none"> <li>Edit Cue 1</li> </ul>
<b>Edit</b> + <b>Next/Previous</b>	No command	Loads the next/previous cue in the programmer.	No example
<b>Effect</b>	<a href="#">Effect</a>	Enters the keyword Effect into the command line.	<ul style="list-style-type: none"> <li>Off Effect 2</li> </ul>
<b>Effect</b> press & hold	No command	Temporarily opens the view Running Effects.	No example
<b>Exec</b>	<a href="#">Executor</a>	Enters the keyword Executor into the command line.	<ul style="list-style-type: none"> <li>Executor 1 At 100 Fade 5</li> </ul>
<b>Exec</b> <b>Exec</b>	<a href="#">SpecialMaster</a>	Enters the keyword SpecialMaster into the command line.	<ul style="list-style-type: none"> <li>Assign SpecialMaster 3.1 Executor 15</li> </ul>
<b>Fd Pg -</b>	FaderPage -	Switches to previous FaderPage.	No example
<b>Fd Pg -</b> press & hold	FaderPage 1	Switches to first FaderPage.	No example
<b>Fd Pg +</b>	FaderPage +	Switches to next FaderPage.	No example
<b>Fix</b>	<a href="#">Fix</a>	Fixes and unfixes an executor for all pages.	<ul style="list-style-type: none"> <li>Fix Executor 1.2</li> </ul>
<b>Fixture</b>	<a href="#">Fixture</a>	Enters the keyword Fixture into the command line.	<ul style="list-style-type: none"> <li>Fixture 2 At 50</li> </ul>
<b>Fixture</b> <b>Fixture</b>	<a href="#">Selection</a>	Enters the current programmer selection into the command line.	<ul style="list-style-type: none"> <li>Park Selection</li> </ul>
<b>Full</b>	<a href="#">Full</a>	Sets selection to dimmer value 100%.	<ul style="list-style-type: none"> <li>Fixture 1 Full</li> </ul>
<b>Full</b> <b>Full</b>	No command	Loads the highlight values into the programmer.	<ul style="list-style-type: none"> <li>Fixture 1 Full Full</li> </ul>

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<b>Go -</b>	<a href="#"><u>GoBack</u></a>	Jumps back in a sequence list.	<ul style="list-style-type: none"> <li>Go - Executor 2</li> </ul>
<b>Go +</b>	<a href="#"><u>Go</u></a>	Switches to next cue in the sequence with cue timing.	<ul style="list-style-type: none"> <li>Go Executor 2</li> </ul>
<b>Go + Go +</b>	<a href="#"><u>Unpark</u></a>	Enters the keyword Unpark into the command line.	<ul style="list-style-type: none"> <li>Unpark Selection</li> </ul>
<b>Go+ Prw</b>	<a href="#"><u>PreviewExecutor</u></a>	Steps through a cue list in preview mode.	No example
<b>Goto</b>	<a href="#"><u>Goto</u></a>	Jumps to a cue.	<ul style="list-style-type: none"> <li>Goto Executor 1</li> <li>Goto Cue 1 (Executor 11)</li> </ul>
<b>Goto Goto</b>	<a href="#"><u>Load</u></a>	Enters the keyword Load into the command line.	<ul style="list-style-type: none"> <li>Load Executor 11</li> <li>Load Cue 1 (Executor 11)</li> </ul>
<b>Group</b>	<a href="#"><u>Group</u></a>	Enters the keyword Group into the command line.	<ul style="list-style-type: none"> <li>Group 2 At 100</li> </ul>
<b>Group</b> press & hold	No command	Opens group master view temporarily.	No example
<b>Group Group</b>	<a href="#"><u>World</u></a>	Enters "World" into the command line.	<ul style="list-style-type: none"> <li>World 1</li> </ul>
<b>Group Group</b> <b>Group</b>	<a href="#"><u>Filter</u></a>	Calls or selects a filter.	<ul style="list-style-type: none"> <li>Select Filter 1</li> </ul>
<b>Help +</b> <b>Object</b>	No command	Opens help for an object.	<ul style="list-style-type: none"> <li>Help Fixture</li> </ul>
<b>Help Please</b>	<a href="#"><u>Help</u></a>	Opens the help view temporarily.	No example
<b>Help Help</b>	<a href="#"><u>CmdHelp</u></a>	Displays all shortcuts in the command window.	No example
<b>Highlight</b>	<a href="#"><u>Highlight</u></a>	Sets the selection to the highlight values.	No example
<b>Highlight</b> press & hold	No command	Sets the selection to the highlight values and the highlight value of the dimmer starts to pulse.	No example
<b>If</b>	<a href="#"><u>IfOutput</u></a>	Selects fixtures with a dimmer value higher than 0%.	<ul style="list-style-type: none"> <li>IfOutput At 70 thru 100</li> </ul>
<b>If If</b>	<a href="#"><u>IfActive</u></a>	Selects fixtures with active values in the programmer.	No example
<b>If If If</b>	<a href="#"><u>IfProg</u></a>	Selects fixtures with active or inactive values in the programmer.	No example
<b>If If If If</b>	<a href="#"><u>If</u></a>	Selects fixtures which exist in both groups.	<ul style="list-style-type: none"> <li>Group 1 If Group 2</li> </ul>
<b>Learn</b>	<a href="#"><u>Learn</u></a>	Learns speed for a chaser or effect.	No example

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<b>Learn</b>	press & hold + executor button	No command	Holding the key <b>Learn</b> and tapping the executor at a certain speed teaches the chaser to run at this particular speed.	No example
<b>Learn</b>	<b>Learn</b>	<a href="#">Rate1</a>	Sets the rate of an executor back to 1:1.	• Rate1 Executor 1
<b>List</b>		No command	Switches the x-keys to button executors.	No example
<b>Macro</b>		<a href="#">Macro</a>	Enters the keyword Macro into the command line.	• Macro 1
<b>Macro</b> <b>Macro</b>		<a href="#">Timecode</a>	Enters the keyword Timecode into the command line.	• Go Timecode 1
<b>Macro</b> <b>Macro</b>	<b>Macro</b>	<a href="#">Agenda</a>	Enters the keyword Agenda into the command line and executes the first entry in the agenda list.	• Agenda 1
<b>minus</b>		No command	Sets a relative value when used with spaces. Sets an absolute value when used without spaces.	• Group 5 - Fixture 10 • Attribute "Tilt" At -22
<b>minus</b>	<b>minus</b>	At - 10	Dimmer goes down by 10 percent.	• Fixture 1 At - 10
<b>Move</b>		<a href="#">Move</a>	Moves source objects to destination objects.	• Move Executor 1 At 2
<b>Move</b>	<b>Move</b>	<a href="#">Replace</a>	Replaces objects or values.	• Replace Fixture 1 with 2
<b>Move</b> <b>Move</b>	<b>Move</b>	<a href="#">Insert</a>	Moves objects to a new ID.	No example
<b>Next</b>		<a href="#">Next</a>	Selects next fixture or fixture of a selection.	No example
<b>Off</b>		<a href="#">Off</a>	Knocks out values or releases executors.	• Off Executor 1
<b>Off</b>	<b>Off</b>	No command	Temporarily opens the Off Menu.	• Off Off
<b>On</b>		<a href="#">On</a>	Enters the keyword On into the command line.	• On Cue 1 • On Selection
<b>On</b>	<b>On</b>	<a href="#">Call</a>	Calls the status of the cue in the programmer.	• Call Cue Thru 2
<b>Ops</b>		<a href="#">Ops</a>	Undoes the last action.	No example
<b>Ops</b>	press & hold	No command	Temporarily opens the Ops Menu.	No example
<b>Page</b>		<a href="#">Page</a>	Enters the keyword Page into the command line.	• Page 3
<b>Page</b>	<b>Page</b>	<a href="#">ChannelPage</a>	Enters the keyword ChannelPage into the command line.	• ChannelPage 2
<b>Page</b> <b>Page</b>	<b>Page</b>	<a href="#">FaderPage</a>	Enters the keyword FaderPage into the command line.	• FaderPage 3
<b>Page</b> <b>Page</b>	<b>Page</b> <b>Page</b>	<a href="#">ButtonPage</a>	Enters the keyword ButtonPage into the command line.	• ButtonPage 4

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<b>Pause</b>	<a href="#">Pause</a>	Pauses the current cue fade.	● Pause Executor 1
<b>Pause</b> <b>Pause</b>	<a href="#">Park</a>	Parks objects.	● Park Fixture 10
<b>Please</b>	Please	Executes commands.	No example
<b>Please</b> <b>Please</b>	No command	Activates all attributes for the selection.	No example
<b>plus</b>	$\pm$	Functions as an "and".	● Fixture 1 + fixture 2
<b>plus</b> <b>plus</b>	At + 10	Dimmer goes up by 10 percent.	No example
<b>Preset</b>	<a href="#">Preset</a>	Enters the keyword Preset into the command line.	● At Preset 4.2
<b>Preset</b> <b>Preset</b>	<a href="#">Attribute</a>	Enters the keyword Attribute into the command line.	● Attribute "Tilt" At 50
<b>Preset</b> <b>Preset</b> <b>Preset</b>	<a href="#">Gel</a>	Calls the keyword Gel from the Swatch Book.	● At Gel "Manufacturer"."Number or name of color"
<b>Previous</b>	<a href="#">Previous</a>	Selects previous fixture or fixture of a selection.	No example
<b>Previous</b> + <b>Next</b>	<a href="#">All</a>	Leaves the Next/Previous MAticks selection and selects all.	No example
<b>Previous</b> + <b>Set</b> + <b>Next</b>	<a href="#">MAticksInterleave</a> Off	Turns off MAticksInterleave.	No example
<b>Prvw</b>	<a href="#">Preview</a>	Shows the preview of a cue. Preview does not generate a DMX output.	● Preview Cue 1
<b>Prvw</b> <b>Prvw</b>	<a href="#">PreviewEdit</a>	Switches on/off the preview mode.	No example
<b>Select</b>	<a href="#">Select</a>	Enters the keyword Select into the command line.	● Select Executor 1
<b>Select</b> <b>Select</b>	<a href="#">Selfix</a>	Selects all channels and fixtures of an executor.	● Selfix Executor 1
<b>Sequ</b>	<a href="#">Sequence</a>	Enters the keyword Sequence into the command line.	● Assign Sequence 1 Executor 2
<b>Set</b>	<a href="#">MAticks</a> Toggle	Toggles between the entire and the current selection of MAticks Next/Previous.	No example
<b>Set</b> + <b>Next</b>	<a href="#">MAticksInterleave</a> +	Toggles MAticks Interleave to +1.	No example
<b>Set</b> + <b>Previous</b>	<a href="#">MAticksInterleave</a> -	Toggles MAticks Interleave to -1.	No example
<b>Store</b>	<a href="#">Store</a>	Enters the keyword Store into the command line.	● Store Executor 1.10
<b>Store</b> press & hold	No command	Opens the Temporary Store Options.	

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<b>Temp</b>	<u>Temp</u>	Flashes an executor with timing and executor master level.	<ul style="list-style-type: none"> <li>Temp Executor 3</li> </ul>
<b>Temp</b> <b>Temp</b>	<u>Toggle</u>	Switches on/off an executor.	<ul style="list-style-type: none"> <li>Assign Toggle Executor 101.</li> </ul>
<b>Thru</b>	<u>Thru</u>	Selects several objects.	<ul style="list-style-type: none"> <li>Fixture 1 Thru 10</li> <li>Fixture 1 Thru 10 At 0 Thru 100</li> </ul>
<b>Time</b>	<u>Fade</u>	Switches to layer Fade.	No example
<b>Time</b> <b>Time</b>	<u>Delay</u>	Switches to layer Delay.	No example
<b>Time</b> <b>Time</b>	<u>Value</u>	Switches to layer Value.	No example
<b>Time</b>			
<b>Top</b>	<u>Top</u>	Jumps to the first cue of a sequence or the beginning of a time code.	<ul style="list-style-type: none"> <li>Top Timecode 1</li> </ul>
<b>Top</b> <b>Top</b>	<u>Kill</u>	Releases all executors, which are not kill-protected, on all pages except for the executor you kill.	<ul style="list-style-type: none"> <li>Kill Executor 5</li> </ul>
<b>Up</b>	No command	Pages up in the window with the last focus.	No example
<b>Update</b>	<u>Update</u>	Temporarily opens the Update View.	No example
<b>View</b>	<u>View</u>	Enters the keyword View into the command line.	No example
<b>View</b> <b>View</b>	<u>ViewButton</u>	Enters the keyword ViewButton into the command line.	<ul style="list-style-type: none"> <li>Store ViewButton 1.1</li> </ul>
<b>View</b> <b>View</b>	<u>ViewPage</u>	Switches to a ViewPage.	<ul style="list-style-type: none"> <li>ViewPage 2</li> </ul>
<b>View</b>			

## 6.2. >>> [GoFastForward] Key

The key **>>>** [GoFastForward] is located in the command area on the right of the key **Learn**.



*Location >>> [go fast forward]*

- Pressing **>>>** enters **>>> [GoFastForward] keyword** into the command line.

```
[Channel]> >>>
```

- Pressing **>>>** **>>>** enters **Flash keyword** into the command line.

```
[Channel]> Flash
```

- Pressing **>>>** **>>>** **>>>** enters **ToFull keyword** into the command line.

```
[Channel]> ToFull
```

## 6.3. <<< [GoFastBack] Key

The key <<< [GoFastBack] is located in the command area on the left of the key **Learn**.



*Location <<< [go fast back]*

- Pressing <<< enters <<< [GoFastBack] keyword into the command line.

```
[Channel]> <<<
```

- Pressing <<< <<< enters Black keyword into the command line.

```
[Channel]> Black
```

- Pressing <<< <<< <<< enters ToZero keyword into the command line.

```
[Channel]> ToZero
```

## 6.4. . [Dot] Key

The key  is located in the command area on the left of the key .



*Location key . [dot]*

- Pressing  enters the . into the command line. The . is used as a separator to enter numbers with decimal fractions or to enter hierarchical object IDs.

```
 [Channel]> .
```

- Pressing   executes the [Zero keyword](#). The dimmer values of the selected fixtures are set to 0 %.
- Pressing and holding  +  enters the [Default keyword](#) into the command line.

```
 [Channel]> Default
```

## 6.5. Align Key

The key **Align** is located in the command area on the right of the key **Assign**.



*Location key Align*

Pressing **Align** toggles between the five align modes for the encoders. The [Align command](#) will be executed.

By default, the align mode is off.

1. **Align <** mode is on. The encoder proportionally adjusts the fixture or channel values. The highest value is on the **last** fixture or channel of the selection.
2. **Align >** mode is on. The encoder proportionally adjusts the fixture or channel values. The highest value is on the **first** fixture or channel of the selection.
3. **Align ><** mode is on. The encoder proportionally adjusts the fixture or channel values. The highest value is on the **first and last** (inverted) fixture or channel of the selection.
4. **Align <>** mode is on. The encoder proportionally adjusts the fixture or channel values. The highest value is on the **center** of the fixture or channel selection.
5. **Align** mode is **off**. The encoder **equally** adjusts the fixture or channel selection.

The Align mode is displayed in the encoder bar.

If you choose an other preset type in the preset control bar, the align mode turns off.

## 6.6. Assign Key

The key **Assign** is located in the command area on the right of the key **Prw**.



*Location key Assign*

- Pressing **Assign** enters Assign keyword into the command line.

```
[Channel]> Assign
```

- Pressing **Assign** **Assign** enters Label keyword into the command line.

```
[Channel]> Label
```

- Pressing **Assign** **Assign** **Assign** enters Appearance keyword into the command line.

```
[Channel]> Appearance
```

## 6.7. At Key

The key **At** is located in the command area on the right of the key **If**.

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## Location key At

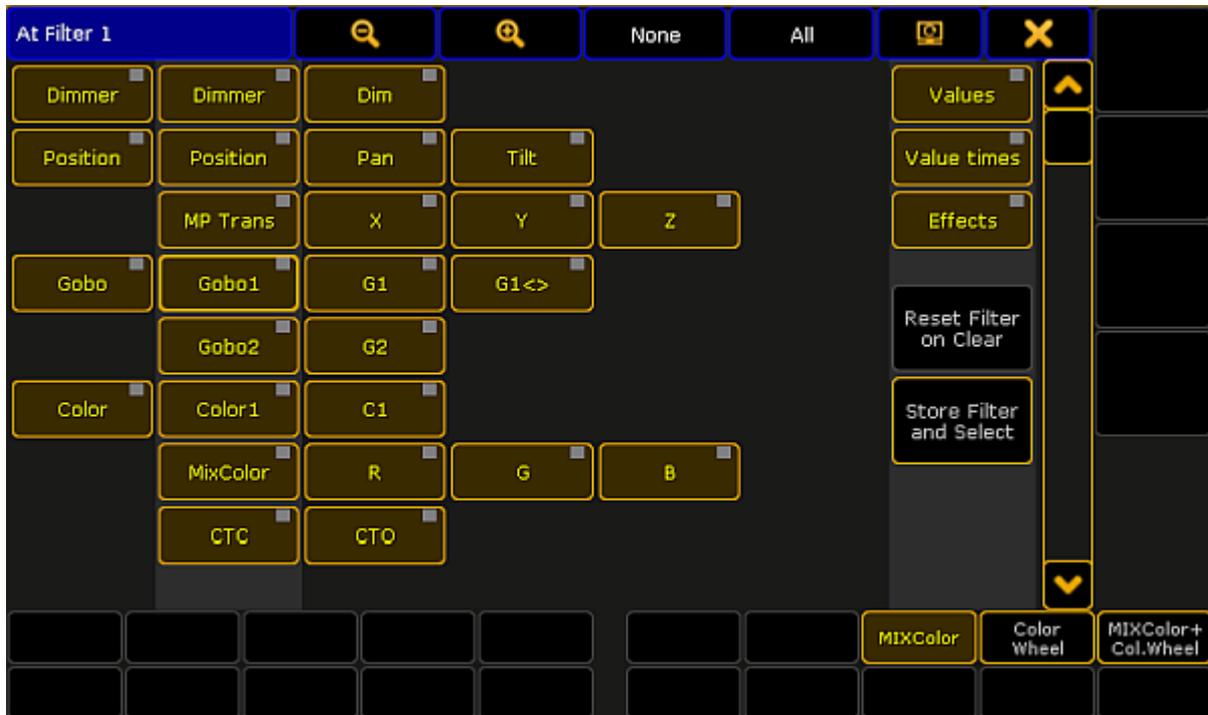
- Pressing **At** enters At keyword into the command line.

```
[Channel]> At
```

- Pressing **At At** executes the Normal command. The values of the selected fixtures or channels are set to their defined normal values.

```
Executing: Normal
```

- Pressing and holding **At** for 2 seconds, opens the pop-up At Filter.



*Pop-up At Filter*

If the **At** key is flashing, an attribute filter is active.

- Pressing and holding **MA** + **At** enters the [Stomp keyword](#) into the command line.



- Pressing and holding **MA** + **At** **At** enters the [Extract keyword](#) into the command line.



## 6.8. Backg (Background) Key

The key **Backg** (Background) is located in the command area below the key **U 4**.



### Information:

The Backg key has no function.

## 6.9. Backup Key

The key **Backup** is located on the right of the key **Setup**.



*Location key Backup*

Pressing **Backup** executes [Backup keyword](#) and opens the [Backup Menu](#).

Pressing **Backup** **Backup** executes [SaveShow keyword](#) and saves the show data on the currently selected drive.

## 6.10. Blind Key

The key **Blind** is located in the command area on the left of the key **Freeze**.



*Location key Blind*

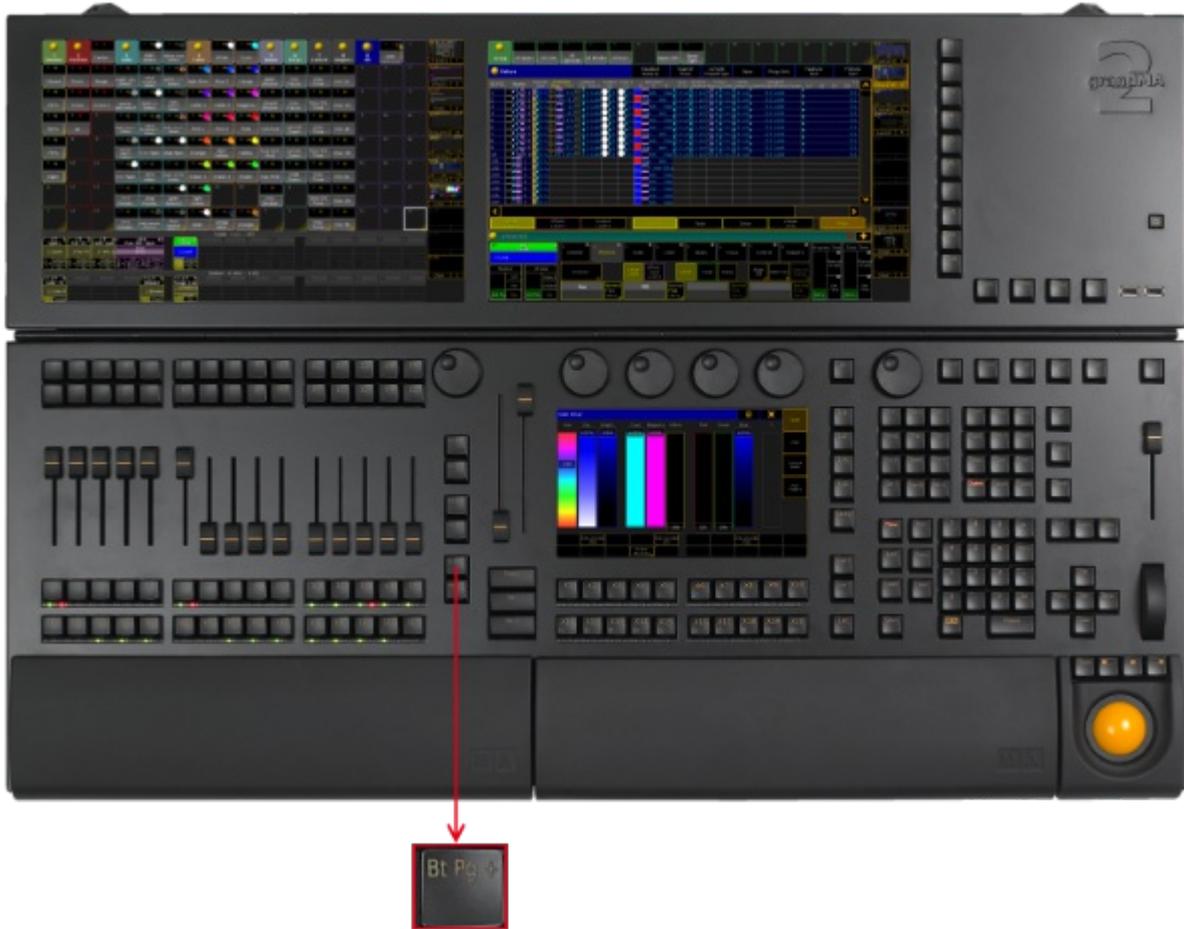
Pressing **Blind** executes the [Blind keyword](#). It toggles Blind on or off.

Pressing and holding **Blind** for 2 seconds executes [BlindEdit keyword](#). It toggles BlindEdit on or off.

To change the function of the **Blind** key see [User Settings](#).

## 6.11. Bt Pg + (Button Page) Key

The key **Bt Pg +** is located on the left of the 100 mm fader.

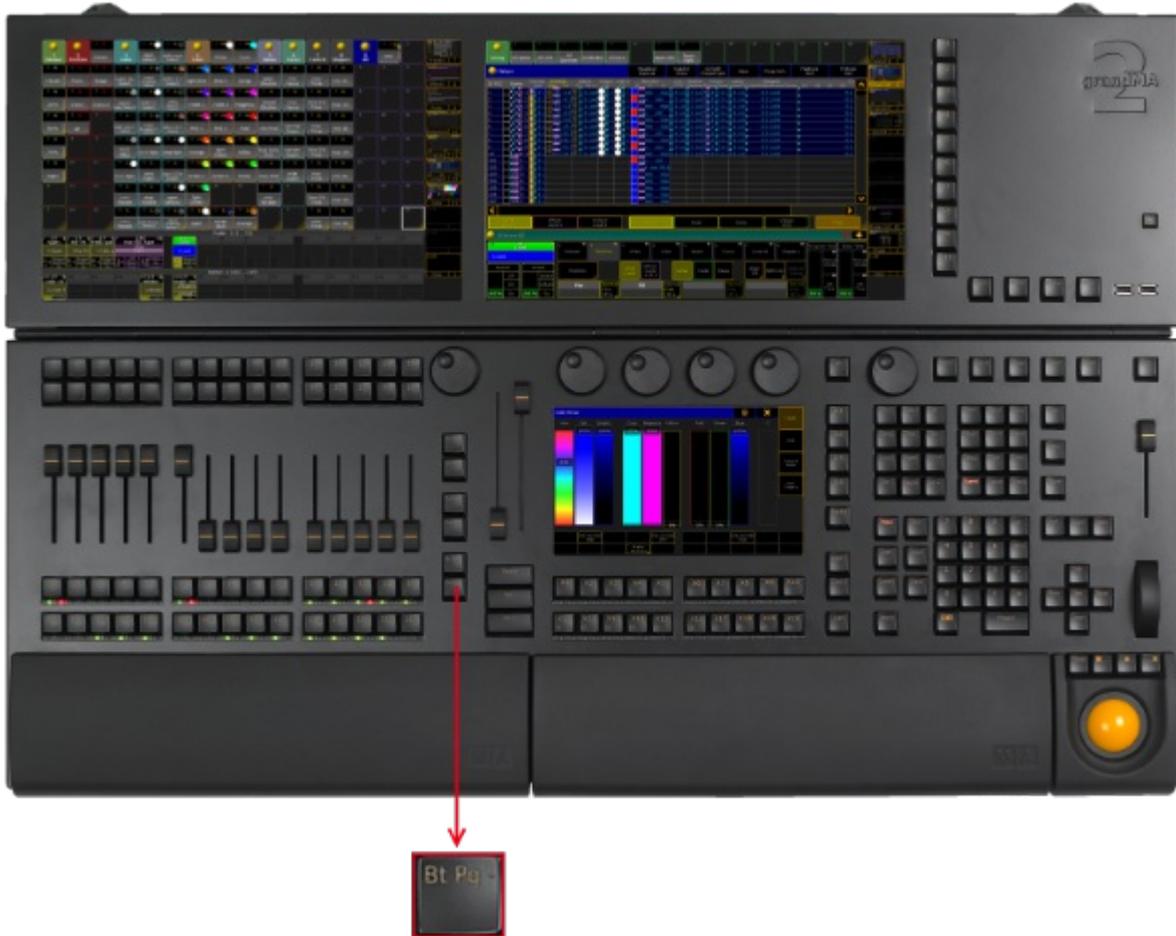


*Location key Bt Pg +*

- Pressing **Bt Pg +** executes the [ButtonPage command](#). The button page switches to the next page.

## 6.12. Bt Pg - (Button Page) Key

The key **Bt Pg -** is located left the 100 mm fader.



*Location key Bt Pg -*

- Pressing **Bt Pg -** executes the [ButtonPage command](#). That is: jumping to the previous ButtonPage.
- If you press and hold **Bt Pg -**, you will automatically jump to the first ButtonPage.

## 6.13. B.O. (Blackout) Key

The key **B.O.** is located in the command area on the right of the key **Align**.



*Location key B.O.*

As long as you press and hold **B.O.**, the blackout mode is on. For more information see [Blackout keyword](#).

The command line stays unaffected.

To disable the **B.O.** key see [User Settings](#).

## 6.14. Channel Key

The key **Channel** is located on the left of the key **Fixture**.



*Location key Channel*

- Pressing **Channel** enters the [Channel keyword](#) into the command line.

```
[Channel]> Channel
```

- Pressing **Channel Channel** enters the [Dmx keyword](#) into the command line.

```
[Channel]> Dmx
```

- Pressing **Channel Channel Channel** enters the [DmxUniverse keyword](#) into the command line.

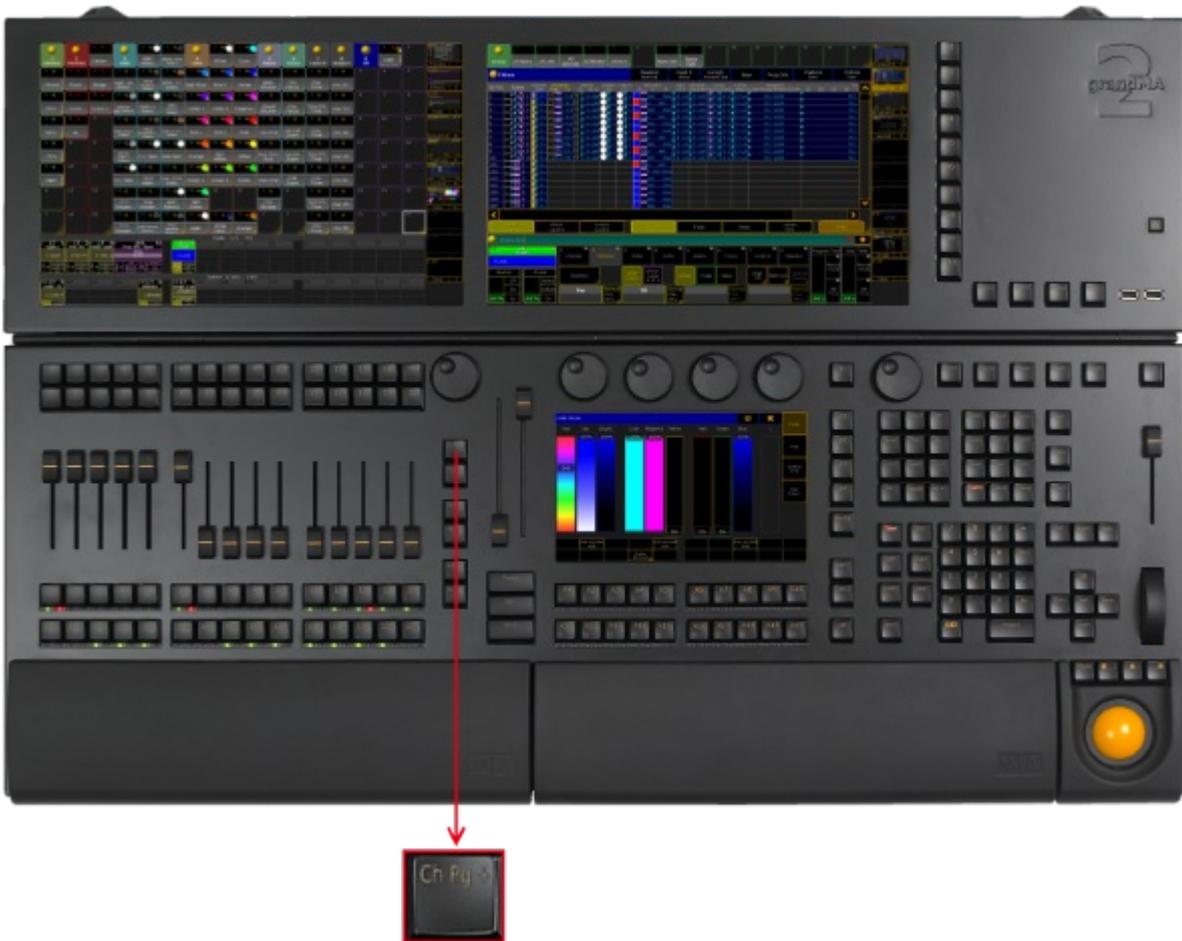
```
[Channel]> DmxUniverse
```

## 6.15. Ch Pg + (Channel Page +) Key

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The key **Ch Pg +** is located on the left of the 100 mm fader.



Location key Ch Pg +

- Pressing **Ch Pg +** executes the [ChannelPage](#) command. The channel pages are displayed on screen 3 and 4.



Channel Page

- By pressing **Ch Pg +** again, you will jump to the next channel page.
- If the option **Link Faders** in the fixture sheet is active, the key **Ch Pg +** jumps to the dynamic channel pages on screen 3 and 4.

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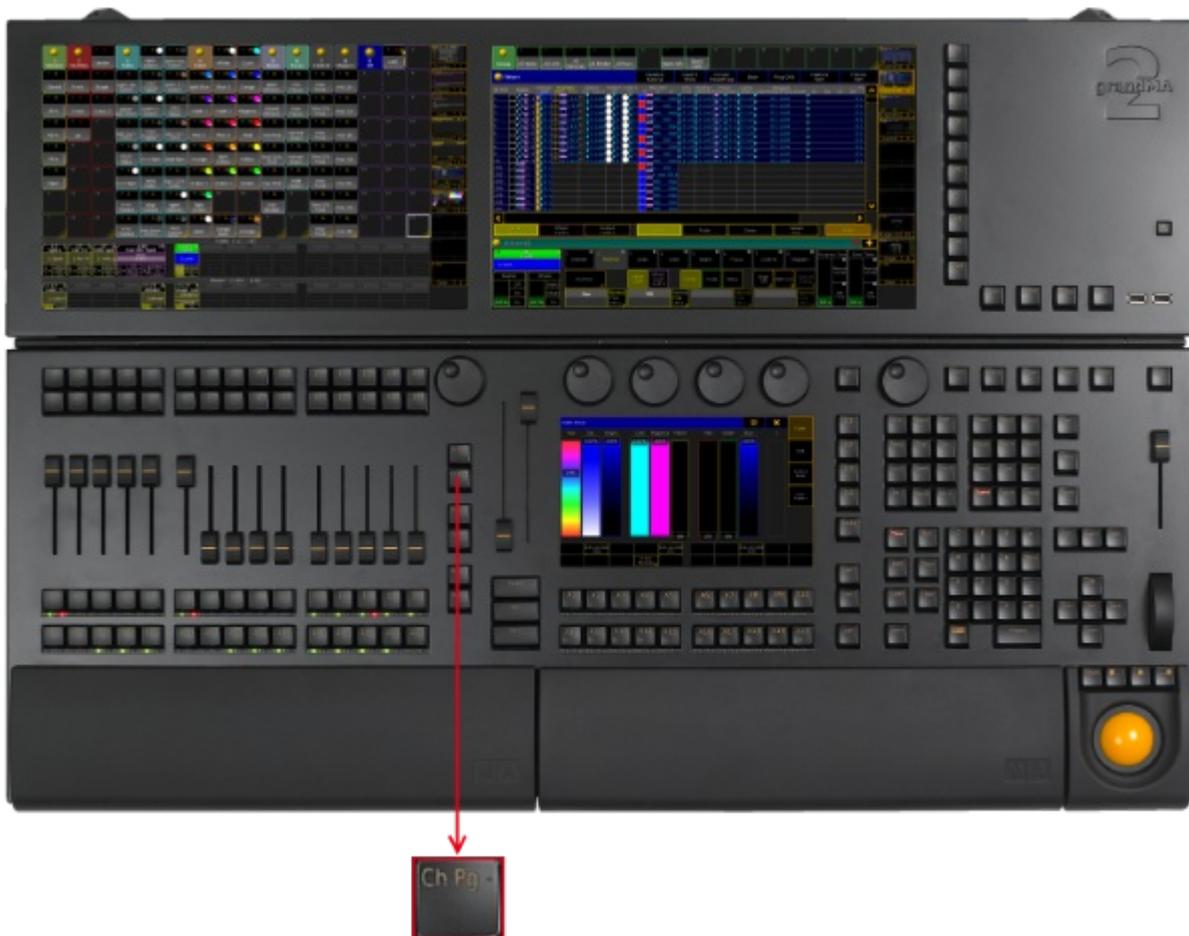


Dynamic Channel 1 (1 .. 15)															
1	1 Spot 1			4	2 Spot 2			6	2 Spot 2			10	4 Spot 4		
R	G	B		R	G	B		B	R	G	B	R	G	B	
70.6	100.0	100.0		100.0	100.0			100.0	100.0	100.0	100.0			100.0	
Off	Off	Off		Off	Off		Off	Off	Off	Off	Off	Off	Off	Off	
On	On	On		On	On		On	On	On	On	On	On	On	On	
Flash	Flash	Flash		Flash	Flash		Flash	Flash	Flash	Flash	Flash	Flash	Flash	Flash	

Dynamic Channel Page

## 6.16. Ch Pg - (Channel Page -) Key

The key **Ch Pg -** is located on the left of the 100 mm fader.



Location key Ch Pg -

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- Pressing **Ch Pg -** executes the [ChannelPage command](#).  
The channel pages are displayed on screen 3 and 4.



*Channel Page*

- By pressing **Ch Pg -** again, you will jump to a previous channel page.
- If the option **Link Faders** in the fixture sheet is active, the **Ch Pg -** key jumps to the dynamic channel pages on screen 3 and 4.



*Dynamic Channel Page*

- If you press and hold the **Ch Pg -**, you will automatically jump to the first channel page or the first dynamic channel page.

## 6.17. Clear Key

The key **Clear** is located in the command area right beside the key **Update**.



### *Location key Clear*

- Pressing **Clear** executes the [Clear keyword](#).

If fixtures are selected in the programmer, pressing **Clear** deselects the fixtures.

If only active values are in the programmer, pressing **Clear** deactivates all active programmer values. The values are still in the programmer, but they are no longer active.

If only inactive values are in the programmer, pressing **Clear** removes the values in the programmer.

If fixtures are selected and active values are in the programmer, pressing **Clear** once deselects the fixtures. Pressing **Clear** two times deactivates the values. Pressing **Clear** three times removes the values in the programmer.

Pressing and holding **Clear** for 2 seconds executes the [ClearAll keyword](#).

## 6.18. Copy Key

The key **Copy** is located in the command area below the key **Del**.



*Location key Copy*

- Pressing **Copy** enters the Copy keyword into the command line.

```
[Channel]> Copy
```

- Pressing **Copy Copy** enters the Clone keyword into the command line.

```
[Channel]> Clone
```

## 6.19. Cue Key

The key **Cue** is located in the command area on the right of the key **Sequ**.



*Location key Cue*

- Pressing **Cue** enters the Cue keyword into the command line.

```
[Channel]> Cue
```

- Pressing **Cue** **Cue** enters the Part keyword into the command line.

```
[Channel]> Part
```

## 6.20. Del (Delete) Key

The key **Del** (= Delete) is located in the command area on the right of the key **Goto**.



*Location key Delete*

Pressing **Del** enters the Delete keyword into the command line.

```
[Channel]> Delete
```

Pressing **Del Del** enters the Remove keyword into the command line.

```
[Channel]> Remove
```

Pressing **Del Del Del** enters the Release keyword into the command line.

```
[Channel]> Release
```

## 6.21. Down Key

The key **Down** is located in the command area below the key **Set**.



*Location key Down*

- Pressing **Down** moves the scroll bar of windows or the focus downward.
- Pressing and holding **MA** + **Down** moves the monitor wing of the console downward.

## 6.22. Edit Key

The key **Edit** is located in the command area on the left of the key **Oops**.



*Location key Edit*

- Pressing **Edit** enters the Edit keyword into the command line.

## 6.23. Effect Key

The key **Effect** is located on the right of the key **View**.

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## *Location key Effect*

- Pressing **Effect** enters the Effect keyword into the command line.

```
[Channel]> Effect
```

- If a function keyword such as Store is already in the command line, pressing **Effect** **Effect** enters the Form keyword into the command line.

```
[Channel]>Form
```

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- Pressing and holding **Effect** for about 2 seconds opens the pop-up Running Effects.



Pop-up Running Effects

- Pressing **MA** + **Effect** executes the [SyncEffects](#) command.
- Pressing and holding **List** + **Effect** opens the temporary effect pool.



Temporary effect pool

## 6.24. [Encoder] Key

The key  is located between the four attribute encoders and the right screen encoder.



*Location key Encoder*

- Pressing the key  toggles the focus of the right screen encoder between screen 2 and screen 1.
- Pressing and holding the key  opens the [encoder settings](#).

## 6.25. Esc Key

The key **Esc** is located in the command area on the right of the key **Time**.



*Location key Esc*

- Pressing **Esc** deletes unexecuted commands in the command line and closes pop-ups.

## 6.26. Exec (Executor) Key

The key **Exec** is located in the command area on the right of the key **Cue**.



*Location key Exec*

- Pressing **Exec** enters the Executor keyword into the command line.

```
[Channel]> Executor
```

- Pressing **Exec** **Exec** enters the SpecialMaster keyword into the command line.

```
[Channel]> SpecialMaster
```

## 6.27. Executor Buttons

The executor buttons are located above and below the faders.



### *Location executor buttons*

Each executor button has a number.

By default, the executor buttons interact with the command line. To disable the interaction of the executor with the command line (= Exec CLI), go to **Setup I Local Settings**.

- Pressing an executor button on a fader or a button page executes the assigned function.

```
[time] : Executing: Select ExecButton 1.1
```

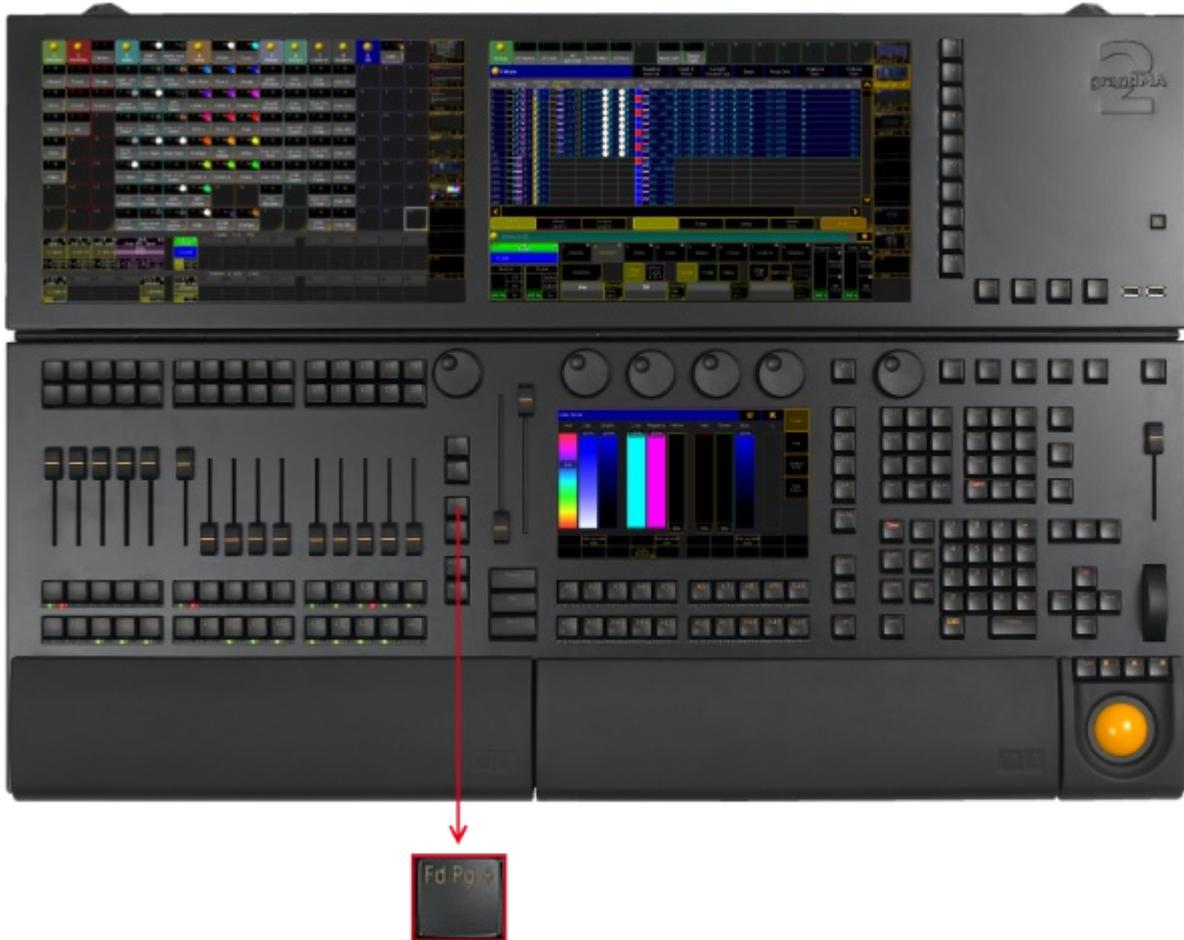
```
[time] : Realtime: Go Executor 1.6
```

- Pressing an executor button on a channel page executes the functions off, on or flash.

```
[time] : Executing: Off ChannelFader 1.1
```

## 6.28. Fd Pg + (Fader Page) Key

The key **Fd Pg +** is located on the left of the two 100 mm faders.



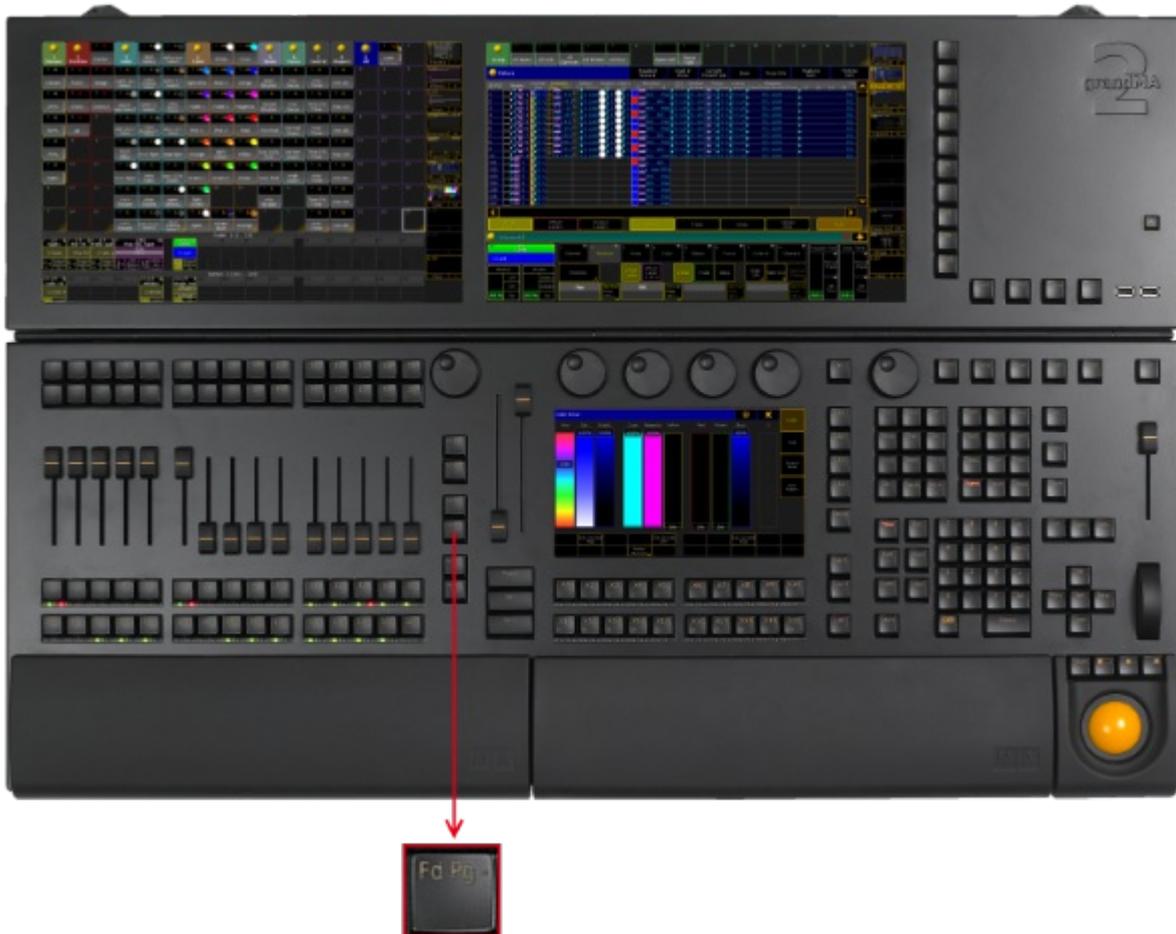
*Location key Fd Pg +*

Pressing **Fd Pg +** executes the [FaderPage keyword](#). The fader page switches to the next page.

If you are on a channel page, press **Fd Pg +** to open the fader pages.

## 6.29. Fd Pg - (Fader Page) Key

The key **Fd Pg -** is located on the left of the 100 mm fader.



*Location key Fd Pg -*

Pressing **Fd Pg -** executes the [FaderPage](#) keyword.

If you are on a channel page, press **Fd Pg -** to open the fader pages.

If you press and hold the key **Fd Pg -** for 2 seconds, you will switch over to fader page 1.

## 6.30. Fix Key

The key **Fix** is located in the command area on the left of the key **Select**.



*Location key Fix*

Pressing **Fix** enters Fix keyword into the command line.



## 6.31. Fixture Key

The key **Fixture** is located in the command area on the right of the key **Channel**.



*Location key Fixture*

- Pressing **Fixture** enters Fixture keyword into the command line.

 [Channel]> Fixture

- Pressing **Fixture** **Fixture** enters Selection keyword into the command line.

 [Channel]> Selection

- Pressing and holding **MA** + **Fixture** enters FixtureType keyword into the command line.

 [Channel]> FixtureType

## 6.32. Freeze Key

The key **Freeze** is located in the command area on the right of the key **Blind**.



*Location key Freeze*

Pressing **Freeze** executes the Freeze keyword and turns on or off the freeze mode.

The command line stays unaffected.

## 6.33. Full Key

The key **Full** is located in the command area on the left of the key **Hight**.



*Location key Full*

- Pressing **Full** executes the [Full keyword](#). The dimmer values, for the selected fixtures or channels, will be set to 100 % .
- Pressing **Full Full** loads the highlight values, for the selected fixtures or channels, into the programmer.
- **MA** + **Full** executes the [FullHighlight keyword](#). The highlight values, for the selected fixtures or channels, will be loaded into the programmer.

## 6.34. Go + Key (small)

The key **Go +** (small) is located in the command area on the right of the key **Pause**.



*Location key Go + (small)*

- Pressing **Go +** enters the Go keyword into the command line.

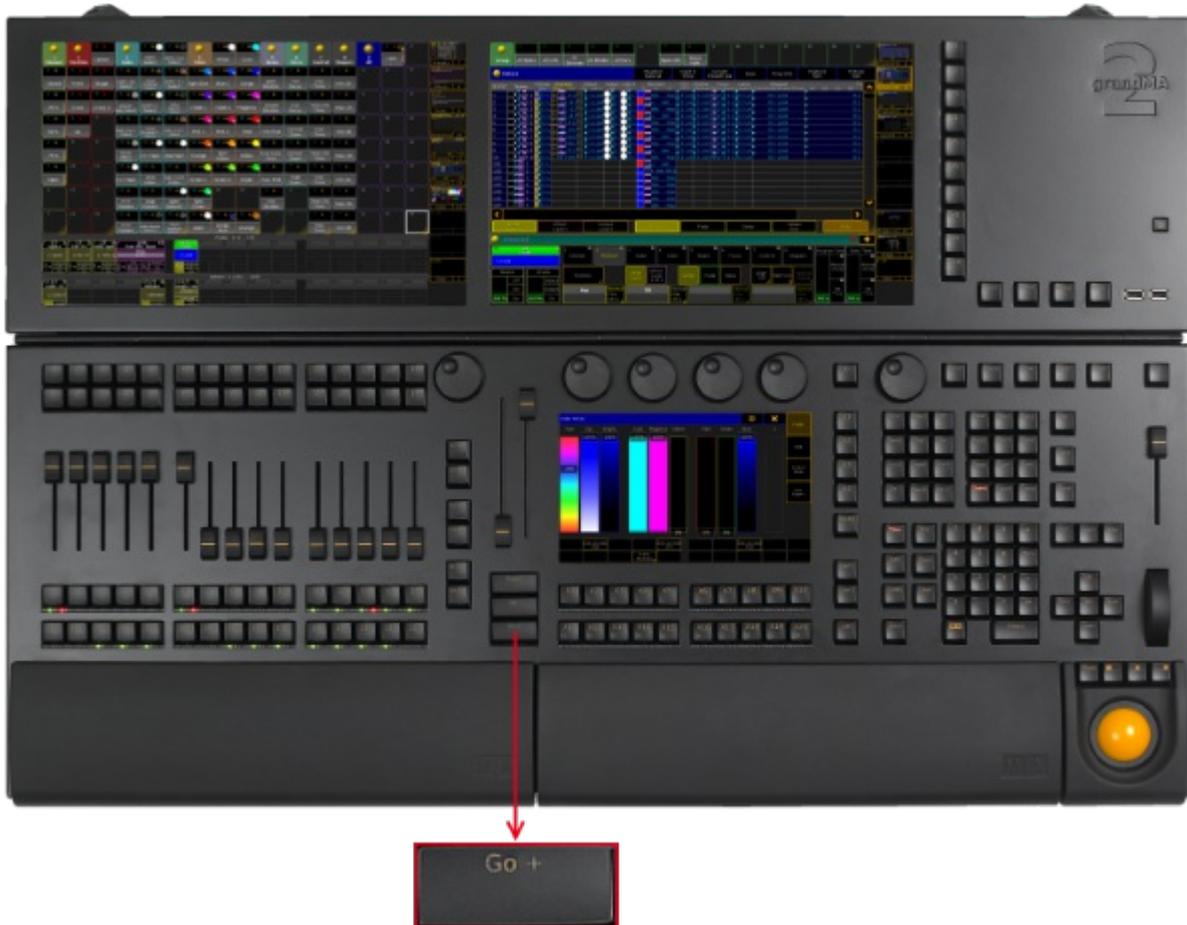
```
[Channel]> Go
```

- Pressing **Go +** **Go +** enters the Unpark keyword into the command line.

```
[Channel]> Unpark
```

## 6.35. Go + (large) Key

The large key **Go +** is located below the large key **Go -**.



*Location key Go + (large)*

- Pressing **Go +** executes DefGoForward keyword for the selected executor.

```
[time] : Macro: DefGoForward
```

## 6.36. Go - Key (small)

The key **Go -** (small) is located in the command area on the left of the key **Pause**.



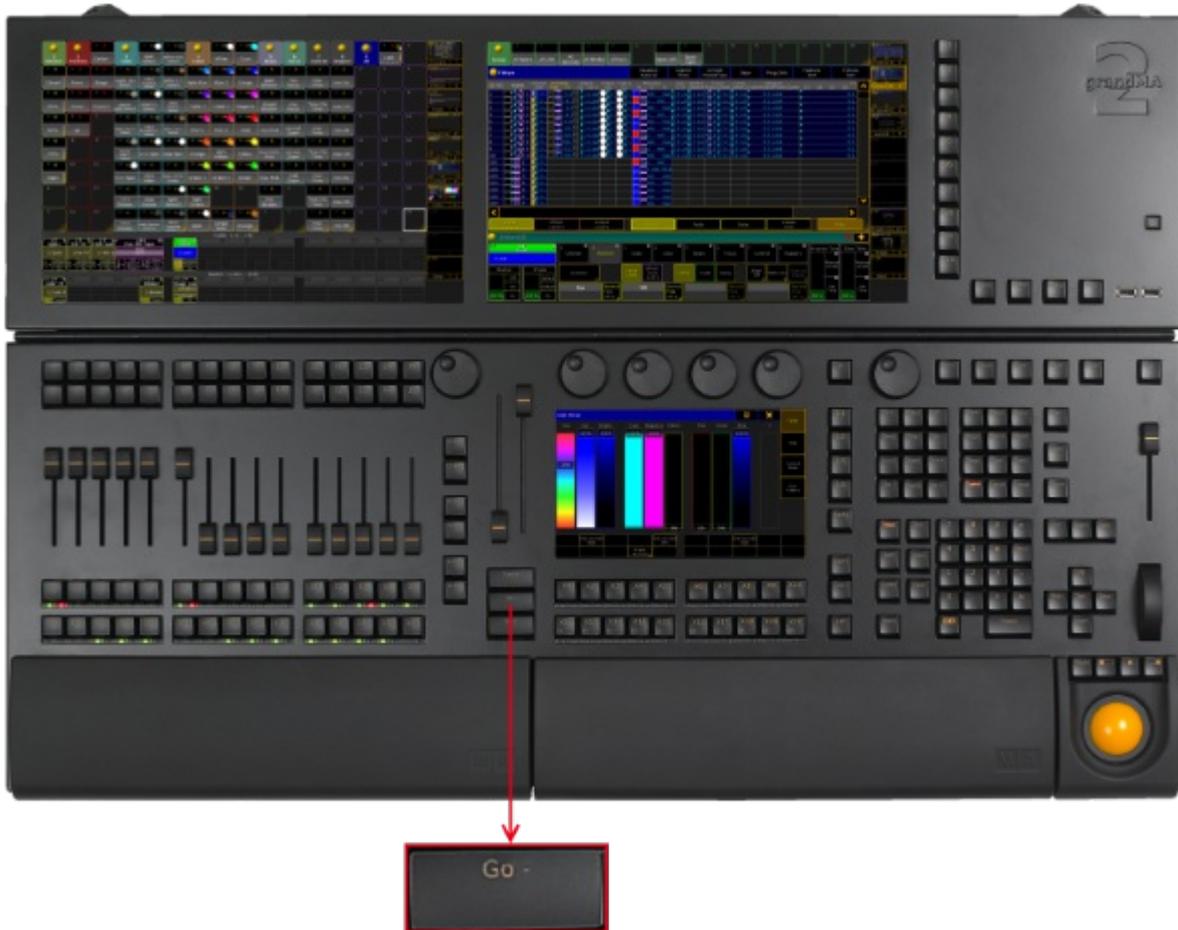
*Location key Go - (small)*

- Pressing **Go -** enters the GoBack keyword into the command line.



## 6.37. Go - (large) Key

The large key **Go -** is located above the large key **Go +**.



*Location key Large Go -*

- Pressing **Go -** executes DefGoBack keyword for the selected executor.

```
[time] : Macro: DefGoBack
```

## 6.38. Goto Key

The key **Goto** is located in the command area on the right of the key **Effect**.



*Location key Goto*

- Pressing **Goto** enters the Goto keyword into the command line.

```
[Channel]> Goto
```

- Pressing **Goto** **Goto** enters the Load keyword into the command line.

```
[Channel]> Load
```

- Pressing and holding **MA** + **Goto** enters the LoadNext keyword into the command line.

```
[Channel]> LoadNext
```

- Pressing and holding **MA** + **Goto** **Goto** enters the LoadPrev keyword into the command line.

```
[Channel]> LoadPrev
```

## 6.39. Group Key

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The key **Group** is located in the command area on the right of the key **Fixture**.



*Location key Group*

- Pressing **Group** enters the Group keyword into the command line.

```
[Channel]> Group
```

- Pressing **Group** for about 2 seconds opens the master view.

- Pressing **Group** **Group** enters the World keyword into the command line.

```
[Channel]> World
```

- Pressing **Group** **Group** **Group** enters the Filter keyword into the command line.

```
[Channel]> Filter
```

- Pressing **MA** + **Group** enters the Layout keyword into the command line.

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 [Channel]> Layout

- Pressing  +   enters the SearchResult keyword into the command line.

 [Channel]> SearchResult

- Pressing  +    enters the Mask keyword into the command line.

 [Channel]> Mask

## 6.40. Help Key

The key **Help** is located on the right of the key **Backup**.



### *Location key Help*

- Pressing **Help** enters the [Help keyword](#) into the command line.

```
[Channel]> Help
```

- Pressing **Help** **Help** enters the [CmdHelp keyword](#) into the command line.

```
[Channel]> CmdHelp
```

- Pressing and holding **Help** + pressing any other key on the console, for example **Fixture**, opens the [help window](#) to the key pressed.

## 6.41. Hight (Highlight) Key

The key **Hight** is located in the command area on the left of the key **Solo**.



*Location key Hight*

Pressing **Hight** executes the [Highlight keyword](#) and turns on or off the Highlight mode.

Pressing and holding **Hight** causes the selected fixture or channel to flash. **Hight** is flashing between the dimmer default value and the dimmer highlight value.

The command line stays unaffected.

## 6.42. If Key

The key **If** is located in the command area on the left of the key **At**.

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Location key *lf*

If the command line is empty,

- pressing **lf** enters the [lfOutput keyword](#)

```
[Channel]> lfOutput
```

- pressing **lf lf** enters the [lfActive keyword](#)

```
[Channel]> lfActive
```

- pressing **lf lf lf** enters the [lfProg keyword](#)

```
[Channel]> lfProg
```

- pressing **lf lf lf lf** enters the [lf keyword](#)

```
[Channel]> lf
```

into the command line.

If the command line contains previous input, the  key toggles.

- Pressing  enters the If keyword into the command line.
- Pressing  again enters the EndIf keyword into the command line.

```
[Channel]> Store If Group 5 EndIf
```

## 6.43. Keyboard Keys

Keyboard keys are either located in the keyboard drawer or on any external keyboard connected to the console.

Press this key	Function
ScrLck	Always sets the cursor into the command line or on pop-ups which are temporarily opened.
Pause	Locks the desk.
Up or down arrow	If the focus is set on the command line, you can scroll in the command history and bring the entered keywords back into the command line. If the focus is set on a pool, you can scroll up or down in the pool.
Ctrl + C	Copies the text selected.
Ctrl + V	Pastes the text that was previously copied.
Shift + left or right arrow	Selects text.
Ctrl + left mouse button	Selects multiple cells in sheets.
Shift + left mouse button	Selects range of cells in sheets.

## 6.44. Learn Key

The key **Learn** is located in the command area on the right of the key **<<<**.



*Location key Learn*

- Pressing **Learn** enters the Learn keyword into the command line.

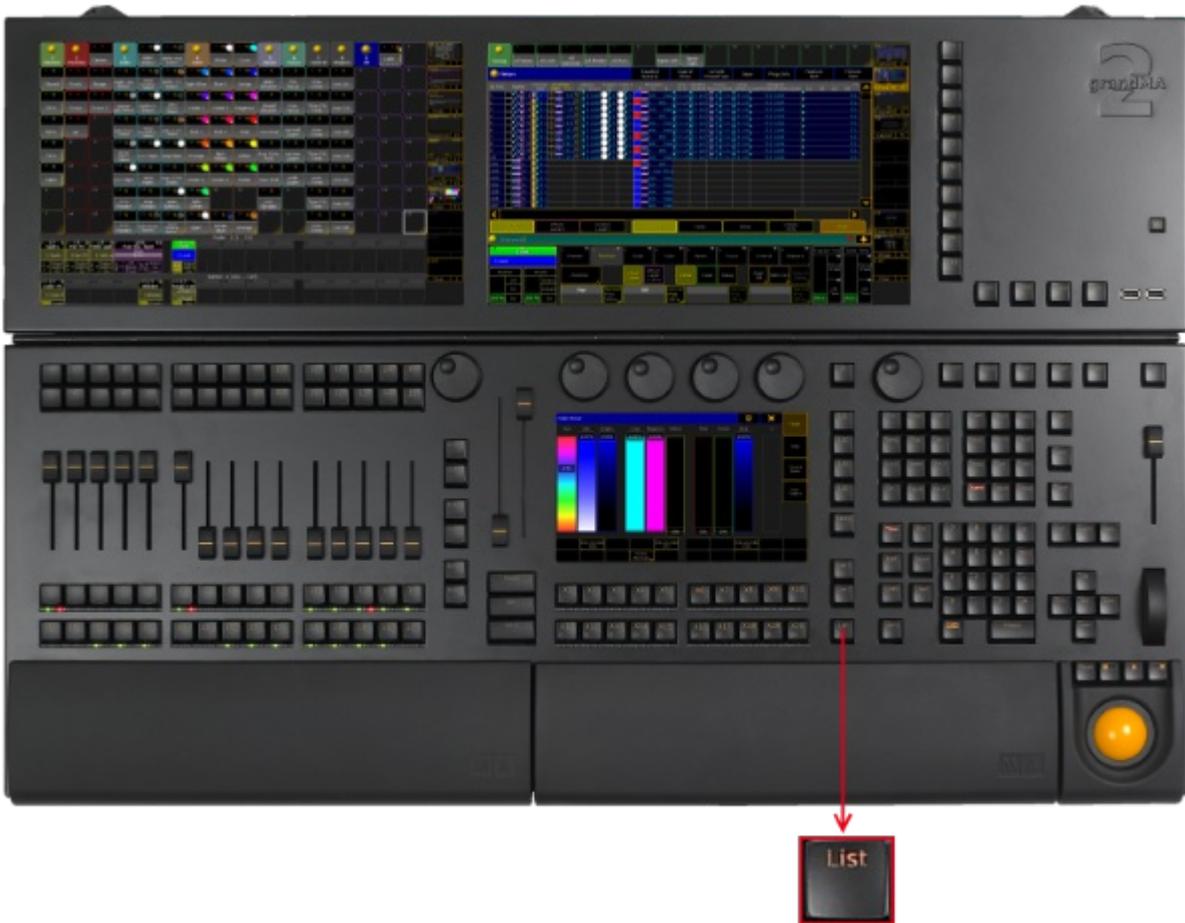
```
[Channel]> Learn
```

- Pressing **Learn** **Learn** enters the Rate1 keyword into the command line.

```
[Channel]> Rate1
```

## 6.45. List Key

The key **List** is located in the command area on the left of the key **Store**.



### Location key List

- Pressing **List** displays the X-Key labels for the executor buttons 201-220 on the current button page.



Button page on screen 1

- Pressing and holding **MA** + **List** enters the List keyword into the command line.

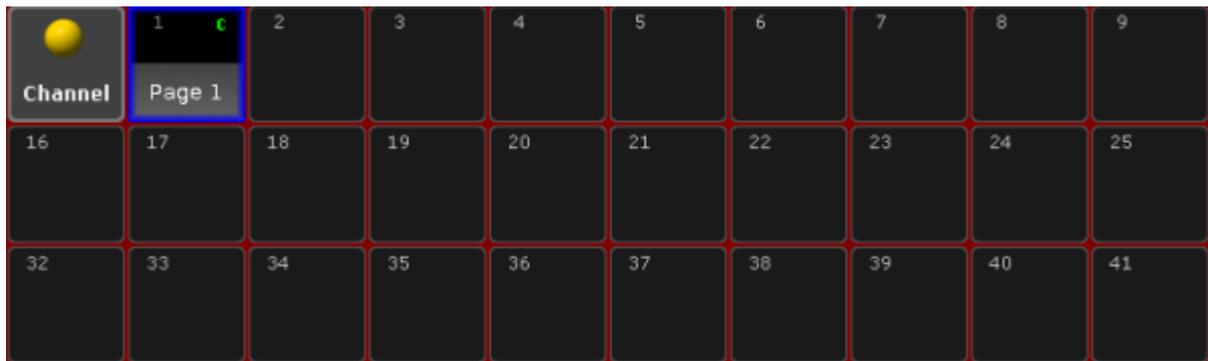


## Open Temporary Pools

The following short cuts open the temporary pool on screen 2 respectively (except for grandMA2 onPC without MA onPC wing).

Temporary pools can be identified by the red background color between the objects.

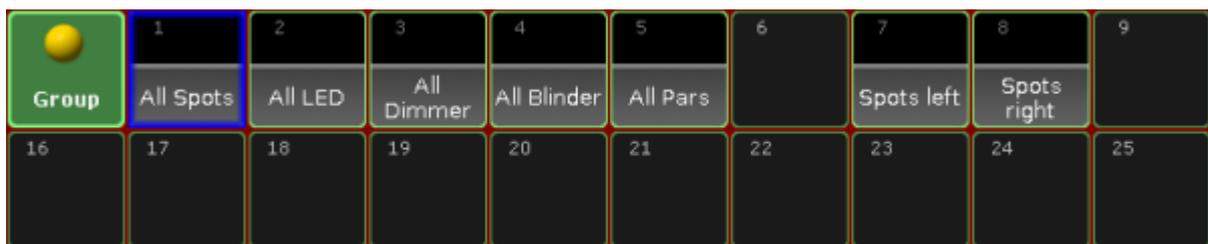
- Pressing and holding **List** + **Channel** opens the temporary channel page pool.



*Temporary Channel Pool*

```
[time] : Macro: Menu ChannelPage
```

- Pressing and holding **List** + **Group** opens the temporary group pool.



*Temporary Group Pool*

```
[time] : Macro: Menu Group
```

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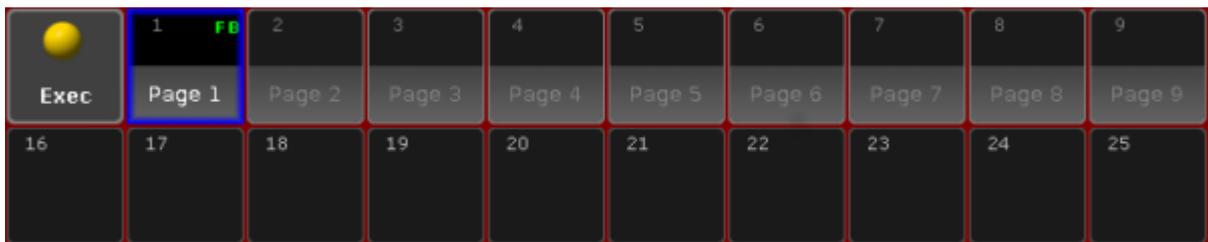
- Pressing and holding **List** + **Sequence** opens the temporary sequence pool.



*Temporary Sequence Pool*

[time] : Macro: Menu Sequence

- Pressing and holding **List** + **Page** opens the temporary executor page pool.



*Temporary Executor Page Pool*

[time] : Macro: Menu Page

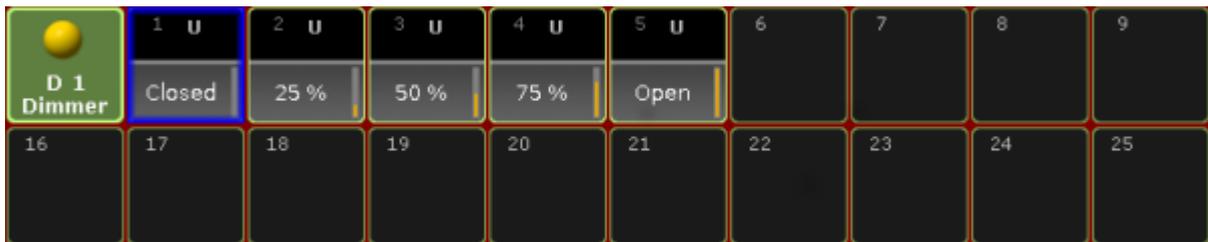
- Pressing and holding **List** + **Macro** opens the temporary macro pool.



*Temporary Macro Pool*

[time] : Macro: Menu Macro

- Pressing and holding **List** + **Preset** opens the temporary preset pool for the selected preset type in the preset control bar.



*Temporary Dimmer Preset Pool*

[time] : Macro: Menu Preset

- Pressing and holding **List** + **View** opens the temporary view pool.



*Temporary View Pool*

[time] : Macro: Menu View

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- Pressing and holding **List** + **Effect** opens the temporary effect pool.

 <b>Effect</b>	<b>1</b> <b>110</b> AT	<b>2</b> AT	<b>3</b> AT	<b>4</b> AT	<b>5</b> AT	<b>6</b> AT	<b>7</b> AT	<b>8</b> AT	<b>9</b> AT
Dimmer Sin	Dimmer Chase	Dimmer PWM	Dimmer Random	Dimmer Even/Odd	Shutter PWM	RGB Rainbow	=RGB Rainbow	RGB Chase	
<b>16</b> AT	<b>17</b> AT	<b>18</b> AT	<b>19</b> RT	<b>20</b> RT	<b>21</b> RT	<b>22</b> RT	<b>23</b> RT	<b>24</b> RT	<b>25</b> RT
Color 3 Ramp	Dim/P/T Ballyhoo	Dim/Tilt Flyout	Tilt Sin.	Pan Sin.	Tilt Sin Pan stomp	Pan Sin Tilt stomp	P/T Circle	P/T Wave	P/T Cross
<b>32</b> AS	<b>33</b> AS	<b>34</b> AS	<b>35</b> AS <b>100</b>					<b>40</b> AS <b>10</b>	<b>41</b>
RGB Viol Yade	RGB Viol Orange	RGB Congo Yello	RGB Red Blue					Spot Red Blue	

Temporary Effect Pool

[time] : Macro: Menu Effect

## 6.46. MA Key

The **MA** key is located in the command area below the **O**.

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## Location key MA

Press **MA** to see all active icons of the message center in the command line. This command shows the icons even if the status is set to No (= empty) in the message center options. For more information on the icons of the message center see [icons](#). For more information on the message center see [message center](#).

The following table contains shortcuts that work in combination with the **MA** key.

Press this key	Command	Description
<b>MA</b> + number	No command	Selects the preset type in the preset control bar indicated by the preset type number.
<b>MA</b> + number + same number again	No command	Toggles through the features of a preset type in the preset type bar.
<b>MA</b> + <b>.</b>	<a href="#">Default</a>	Enters the keyword Default into the command line.
<b>MA</b> + <b>At</b>	<a href="#">Stomp</a>	Enters the keyword Stomp into the command line.
<b>MA</b> + <b>At</b> + <b>At</b>	<a href="#">Extract</a>	Enters the keyword Extract into the command line.

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Press this key	Command	Description
<b>MA</b> + <b>Down</b>	No command	Moves down the monitor wing.
<b>MA</b> + <b>Effect</b>	<a href="#">SyncEffects</a>	Executes the keyword SyncEffects.
<b>MA</b> + <b>Fix</b>	No command	Switches the Desk Lock on/off.
<b>MA</b> + <b>Fixture</b>	<a href="#">FixtureType</a>	Enters the keyword FixtureType into the command line.
<b>MA</b> + <b>Full</b>	<a href="#">FullHighlight</a>	Executes the keyword FullHighlight into the command line.
<b>MA</b> + <b>Goto</b>	<a href="#">LoadNext</a>	Enters the keyword LoadNext into the command line.
<b>MA</b> + <b>Goto</b> + <b>Goto</b>	<a href="#">LoadPrev</a>	Enters the keyword LoadPrev into the command line.
<b>MA</b> + <b>Group</b>	<a href="#">Layout</a>	Enters the keyword Layout into the command line.
<b>MA</b> + <b>Group</b> + <b>Group</b>	<a href="#">SearchResult</a>	Enters the keyword SearchResult into the command line.
<b>MA</b> + <b>Group</b> + <b>Group</b> + <b>Group</b>	<a href="#">Mask</a>	Enters the keyword Mask into the command line.
<b>MA</b> + <b>List</b>	<a href="#">List</a>	Enters the keyword List into the command line.
<b>MA</b> + <b>Macro</b>	<a href="#">Timer</a>	Enters the keyword Timer into the command line.
<b>MA</b> + <b>Macro</b> + <b>Macro</b>	<a href="#">Plugin</a>	Enters the keyword Plugin into the command line.
<b>MA</b> + <b>Move</b>	<a href="#">Search</a>	Enters the keyword Search into the command line.
<b>MA</b> + <b>Next</b>	<a href="#">NextRow</a>	Executes the keyword NextRow .
<b>MA</b> + <b>Preset</b>	<a href="#">PresetType</a>	Enters the keyword PresetType into the command line.
<b>MA</b> + <b>Prev</b>	<a href="#">PrevRow</a>	Executes the keyword PrevRow .
<b>MA</b> + <b>Set</b>	No command	Releases the monitor wing brake to adjust the angle of the monitor manually.
<b>MA</b> + <b>Store</b>	<a href="#">Record</a>	Enters the keyword Record into the command line.
<b>MA</b> + <b>Time</b>	No command	Opens the effect layer in the encoder bar.
<b>MA</b> + <b>Time</b> + <b>Time</b>	No command	Switches to the next effect layer in the encoder bar.
<b>MA</b> + <b>Up</b>	No command	Moves up the monitor wing.
<b>MA</b> + <b>Update</b>	No command	Lists updates in the command line feedback view.
<b>MA</b> + <b>View</b>	<a href="#">Screen</a>	Enters the keyword Screen into the command line.

Press this key	Command	Description
 + V key	No command	Selects the view page indicated by the V key number.

## 6.47. Macro Key

The key **Macro** is located in the command area on the right of the key **Page**.



Location key *Macro*

- Pressing **Macro** enters the Macro keyword into the command line.

```
[Channel]> Macro
```

- Pressing **Macro** **Macro** enters the Timecode keyword into the command line.

```
[Channel]> Timecode
```

- Pressing **Macro** **Macro** **Macro** enters the Agenda keyword into the command line.

```
[Channel]> Agenda
```

- Pressing and holding **MA** + **Macro** enters the Timer keyword into the command line.

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 [Channel]> Timer

- Pressing and holding **MA** + **Macro** **Macro** enters the [Plugin keyword](#) into the command line.

 [Channel]> Plugin

- Pressing and holding **List** + **Macro** temporarily opens the Macro Pool on screen 2 (except for grandMA2 onPC without MA onPC wing).

 <b>Macro</b>	1 Call fast	2 Clear DMX Tester	3 Extract	4 Knockout Selection	5 MA-tricks Reset	6 Group Master View	7 Network Info	8 Shuffle Selection	9 Version Info
16 Stomp Focus	17 Stomp Control	18 Stomp Shapers	19 Stomp running Effects	20	21	22	23	24	25
32	33	34	35	36	37	38	39	40	41

*Temporary Macro Pool*

## 6.48. [Minus] - Key

The key  is located on the right of the numeric keys in the command area.



*Location key [Minus] -*

Pressing  once enters the [Minus] - keyword into the command line.

```
[Channel]> -
```

Pressing  twice subtracts 10 % dimmer value of the selected fixture or channel.

```
[time] :Macro: At - 10
```

## 6.49. Mouse Key

The key **Mouse** is located in the left corner above the trackball.



*Location key Mouse*

The key **Mouse** toggles between the selected trackball sequences. To select the trackball sequence see [User Settings](#).

If the key **Mouse** is:

- On – the trackball controls the mouse function.
- Blinking – the trackball controls pan and tilt for the selected fixtures or channels.
- Off – the trackball has no function.
- Off and the middle key above the trackball is on – the trackball functions as a dimmer wheel.

## 6.50. Move Key

The key **Move** is located in the command area on the right of the key **Group**.



## Location key Move

- Pressing **Move** enters the Move keyword into the command line.  
As long as the keyword Move is in the command line you can move pool objects by pressing and holding a pool object and move it with your finger to a new position of the pool object - or -  
pressing and holding the key **Move** and moving pool objects by tapping a pool object and then tapping the new position of the pool object.

 [Channel]> Move

- Pressing **Move** **Move** enters the Replace keyword into the command line.

 [Channel]> Replace

- Pressing **Move** **Move** **Move** enters the Insert keyword into the command line.

 [Channel]> Insert

- Pressing and holding **MA** + **Move** enters the Search keyword into the command line.

 [Channel]> Search

## 6.51. Next Key

The key **Next** is located in the command area on the right of the key **Set**.



*Location key Next*

- If a pop-up dialog is open, for example the pop-up Choose store method, you can set the focus on the following options by pressing the key **Next**.
- Pressing **Next** executes the [Next keyword](#). The fixture with the lowest fixture ID is selected.

```
[time] : Executing : Next
```

- Pressing and holding **MA** + **Next** executes the [NextRow keyword](#). For more information see [MAtricks](#).

```
[time] : Executing : NextRow
```

- Pressing **Next** + **Prev** executes the [All keyword](#).

```
[time] : Executing : All
```

## 6.52. [Numeric] Keys

The numeric keys **0** trough **9** are located in the command area of the console.



### *Location numeric keys*

- Pressing a numeric key enters the number in the line focused.

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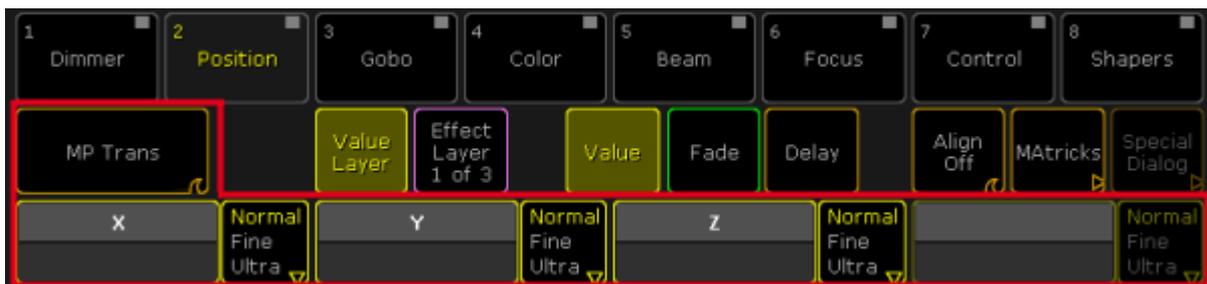
- Pressing and holding **MA** + a numeric key, for example **2**, selects the respective preset type for the number entered in the preset control bar.



Select preset type in the preset control bar

```
[time] : Executing: PresetType "POSITION"
```

- Pressing **MA** + a numeric key several times changes the attributes in the encoder bar to the selected preset control bar.



Select attribute in the encoder bar

```
[time] : Executing: Attribute "MP_TR_X"
```

## 6.53. Off Key

The key **Off** is located in the command area on the right of the key **Select**.

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## *Location key Off*

- Pressing **Off** enters the Off keyword into the command line.

```
[Channel]> Off
```

- Pressing and holding **Off** and pressing several executor buttons turns off the executors.

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- Pressing **Off** **Off** opens the Off Menu.



*Off Menu*

## 6.54. On Key

The key **On** is located in the command area on the right of the key **Top**.



*Location key On*

- Pressing **On** enters the On keyword into the command line.

```
[Channel]> On
```

- Pressing **On On** enters the Call keyword into the command line.

```
[Channel]> Call
```

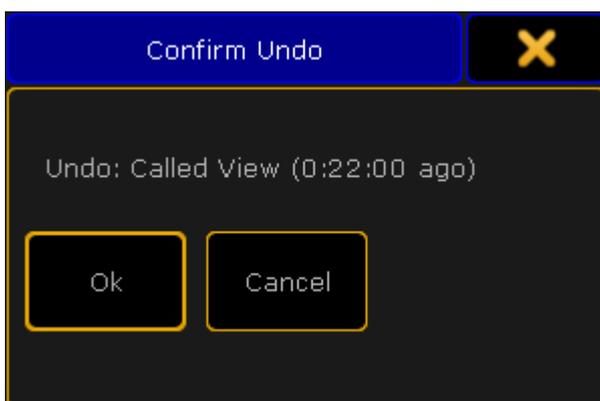
## 6.55. Oops Key

The key **Oops** is located in the command area on right of the key **Edit**.



*Location key Oops*

- Pressing **Oops** deletes the last keyword or number you entered in the command line.
- If the command line is empty, pressing **Oops** executes the Oops keyword. The pop-up Confirm Undo opens.



*Pop-up Confirm Undo*

- Pressing and holding the key **Oops** for about 2 seconds, opens the pop-up Multi-Oops.



Pop-up Multi-Oops

## 6.56. Page Key

The key **Page** is located in the command area on the left of the key **Macro**.



Location key Page

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- Pressing **Page** enters the Page keyword into the command line.

```
[Channel]> Page
```

- Pressing **Page** **Page** enters the ChannelPage keyword into the command line.

```
[Channel]>ChannelPage
```

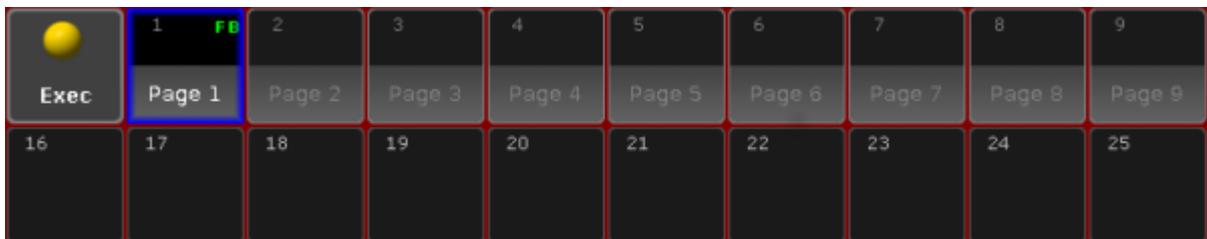
- Pressing **Page** **Page** **Page** enters the FaderPage keyword into the command line.

```
[Channel]>FaderPage
```

- Pressing **Page** **Page** **Page** **Page** enters the ButtonPage keyword into the command line.

```
[Channel]>ButtonPage
```

- Pressing and holding **List** + **Page** opens the temporary Pages Executor pool on screen 2 (except for grandMA2 onPC without MA onPC wing).



*Temporary executor page pool*

## 6.57. Pause (small) Key

The small key **Pause** is located in the command area on the right of the small key **Go -**.



*Location key Pause (small)*

- Pressing **Pause** enters the Pause keyword into the command line.

```
[Channel]> Pause
```

- Pressing **Pause** **Pause** enters the Park keyword into the command line.

```
[Channel]> Park
```

## 6.58. Pause (large) Key

The large key **Pause** is located above the large key **Go -**.



*Location key Pause (large)*

- Pressing **Pause** executes the [DefGoPause keyword](#). The executors selected will be paused.

```
[time] : Macro : DefGoPause
```

- Pressing **Pause** again executes the [DefGoPause keyword](#) again. The pause of the selected executors ends.

```
[time] : Macro : DefGoPause
```

## 6.59. Please Key

The key **Please** is located in the command area below the number pad.

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Location key Please

- Pressing **Please** executes keywords entered into the command line. This is the same function as pressing Enter on an external keyboard or pressing **Please** on the keyboard in the keyboard drawer.
- Pressing **Please Please** activates all attributes of the current fixture or channel selection in the programmer.

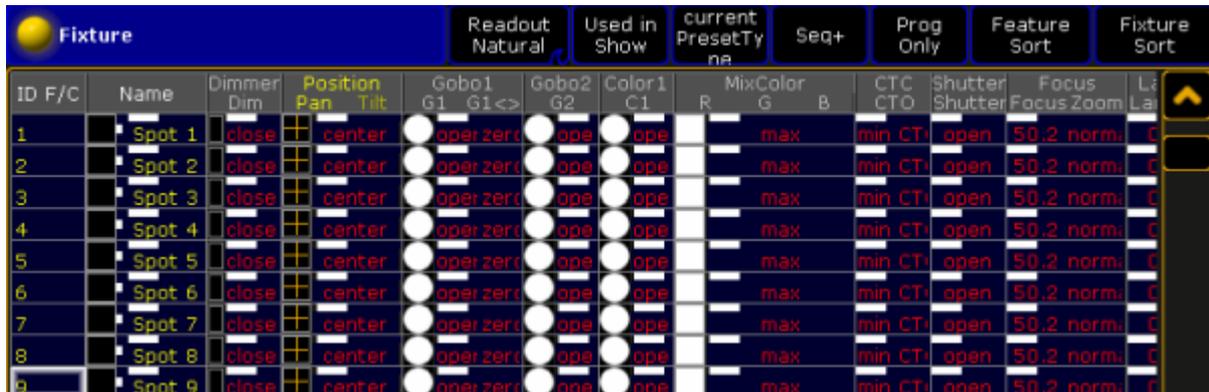
Fixture		Readout Natural	Used in Show	current PresetType	Seq+	Prog Only	Feature Sort	Fixture Sort			
ID	F/C	Name	Dimmer Dim	Position Pan Tilt	Gobo1 G1 G1<> G2	Color1 C1	MixColor R G B	CTC CTO	Shutter Shutter	Focus Zoom	La
1		Spot 1	close	center	open zero	open	max	min CT	open	50.2 norm	t
2		Spot 2	close	center	open zero	open	max	min CT	open	50.2 norm	t
3		Spot 3	close	center	open zero	open	max	min CT	open	50.2 norm	t
4		Spot 4	close	center	open zero	open	max	min CT	open	50.2 norm	t
5		Spot 5	close	center	open zero	open	max	min CT	open	50.2 norm	t
6		Spot 6	close	center	open zero	open	max	min CT	open	50.2 norm	t
7		Spot 7	close	center	open zero	open	max	min CT	open	50.2 norm	t
8		Spot 8	close	center	open zero	open	max	min CT	open	50.2 norm	t
9		Spot 9	close	center	open zero	open	max	min CT	open	50.2 norm	t

Fixture sheet with active attributes in the programmer

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- Pressing **Please** again deactivates all attributes of the current fixture or channel selection in the programmer.



ID	F/C	Name	Dimmer Dim	Position Pan	Tilt	Gobo1 G1	G1<>	Gobo2 G2	Color1 C1	R	MixColor G	B	CTC CTO	Shutter Shutter	Focus Zoom	La			
1		Spot 1	close	+	center	o	per	zer	o	pe	o	pe	max	min	CT	open	50.2	norm	C
2		Spot 2	close	+	center	o	per	zer	o	pe	o	pe	max	min	CT	open	50.2	norm	C
3		Spot 3	close	+	center	o	per	zer	o	pe	o	pe	max	min	CT	open	50.2	norm	C
4		Spot 4	close	+	center	o	per	zer	o	pe	o	pe	max	min	CT	open	50.2	norm	C
5		Spot 5	close	+	center	o	per	zer	o	pe	o	pe	max	min	CT	open	50.2	norm	C
6		Spot 6	close	+	center	o	per	zer	o	pe	o	pe	max	min	CT	open	50.2	norm	C
7		Spot 7	close	+	center	o	per	zer	o	pe	o	pe	max	min	CT	open	50.2	norm	C
8		Spot 8	close	+	center	o	per	zer	o	pe	o	pe	max	min	CT	open	50.2	norm	C
9		Spot 9	close	+	center	o	per	zer	o	pe	o	pe	max	min	CT	open	50.2	norm	C

Fixture sheet with deactivated attributes in the programmer

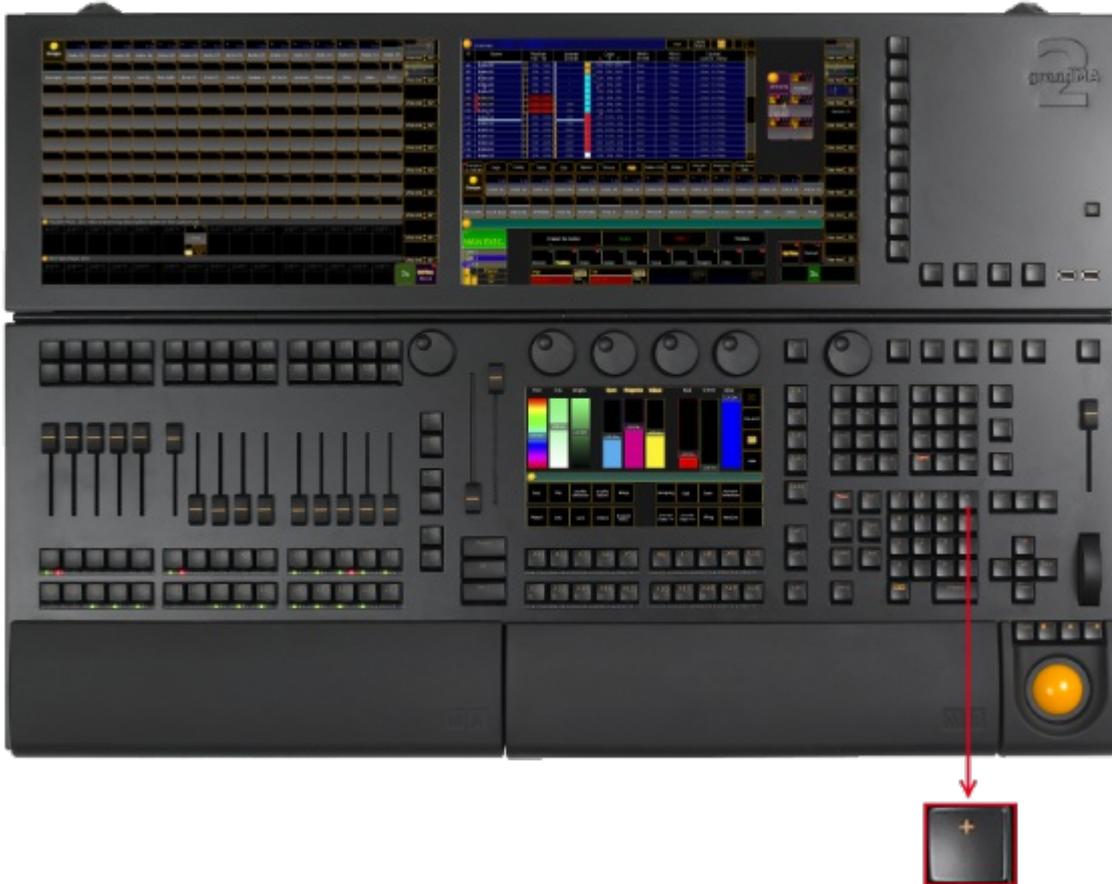
- Pressing and holding **MA** + **Please** sets the cursor in the command line.



Command line with the cursor blinking

## 6.60. [Plus] + Key

The key **+** is located next to the numeric keys in the command area.



*Location key [Plus] +*

- Pressing **+** enters **+ [Plus] keyword** into the command line.



- Pressing **+** **+** adds 10 % of dimmer value to the selected fixture or channel.



## 6.61. Preset Key

The key **Preset** is located in the command area on the right of the key **Macro**.



*Location key Preset*

- Pressing **Preset** enters the Preset keyword into the command line.

 [Channel]> Preset

- Pressing **Preset** **Preset** enters the Attribute keyword into the command line.

 [Channel]> Attribute

- Pressing **Preset** **Preset** **Preset** enters the Gel keyword into the command line.

 [Channel]> Gel

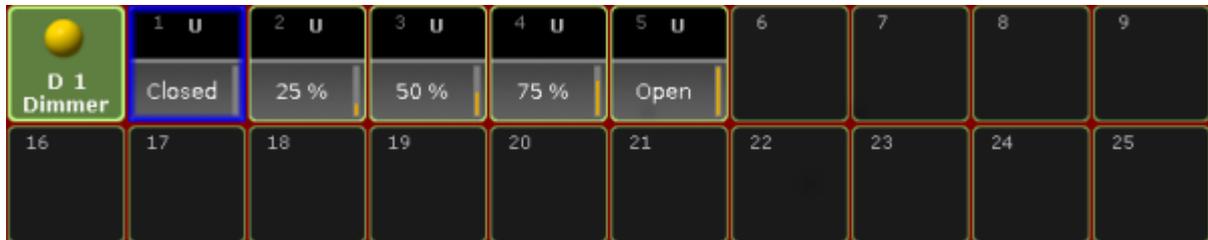
- Pressing and holding **MA** + **Preset** enters the PresetType keyword into the command line.

 [Channel]> PresetType

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- Pressing and holding **List** + **Preset** opens the temporary preset pool on screen 2 for the selected preset in the preset control bar.



*Temporary preset pool*

## 6.62. Prev (Previous) Key

The key **Prev** is located in the command area on the left of the key **Set**.



*Location Key Prev (Previous)*

If a pop-up dialog is open, for example the pop-up Choose store method, you can set the focus on the following options by hitting the key **Prev**.

- Pressing **Prev** executes the [Previous keyword](#). The fixture or channel with the highest ID will then be selected.

```
[time] : Executing : Previous
```

- Pressing and holding **MA** + **Prev** executes the [PrevRow keyword](#). For more information see [MAticks](#).

```
[time] : Executing : PrevRow
```

- Pressing **Prev** + **Next** executes the [All keyword](#).

```
[time] : Executing : All
```

## 6.63. Prvw (Preview) Key

The key **Prvw** (Preview) is located in the command area on the left of the key **Assign**.

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Location Key Prvw (Preview)

- Pressing **Prvw** enters the Preview keyword into the command line and opens the **preview encoder bar**.

```
[Channel]> Preview
```



Encoder Bar - Preview

- Pressing **Prvw Prvw** executes the PreviewEdit keyword. Preview Edit is on. To close Preview Edit press **Prvw** again.

```
[time] : Executing : PreviewEdit
```

- If there is already a function keyword in the command line, pressing **Prvw** executes the function keyword with the PreviewExecutor keyword.

```
[time] : Executing : Go PreviewExecutor
```

- Pressing and holding **Prw** + and pressing an executor button, for example **1**, executes the [Preview keyword](#) with the option **/add**.

```
[time] : Executing : Preview ExecButton 1 /add
```

## 6.64. Select Key

The key **Select** is located in the command area on the left of the key **Off**.



*Location Key Select*

- Pressing **Select** enters the [Select keyword](#) into the command line.

```
[Channel]> Select
```

- Pressing **Select** **Select** enters the [SelFix keyword](#) into the command line.

```
[Channel]> SelFix
```

## 6.65. Sequ (Sequence) Key

The key **Sequ** (Sequence) is located in the command area on the left of the key **Cue**.



*Location Key Sequ*

- Pressing **Sequ** enters the Sequence keyword into the command line.



## 6.66. Set Key

The key **Set** is located in the command area below the key **Up**.



*Location Key Set*

## Key Set as the Key Enter

If a pop-up dialog is open, for example the pop-up **Choose store method**, the key **Set** has the function of the key **Enter**.

- Pressing **Set** confirms the selected button in the pop-up.

## Key Set and MATricks

- Pressing **Set** enables and disables the MATricks settings.

[time] : Executing : MATricks Toggle

If the MATricks button is green, the MATricks are enabled.



*Encoder Bar - Enabled MATricks*

- Pressing and holding **Prev** + **Set** executes the [MATricksInterleave](#) -.

[time] : Executing : MAtricksInterleave -

- Pressing and holding **Next** + **Set** executes [MAtricksInterleave](#) +.

[time] : Executing : MAtricksInterleave +

- Pressing and holding **MA** + **Prev** + **Set** executes [MAtricksBlocks](#) -.

[time] : Executing : MAtricksBlocks -

- Pressing and holding **MA** + **Next** + **Set** executes [MAtricksBlocks](#) +.

[time] : Executing : MAtricksBlocks +

For more information see [MAtricks](#).

---

## Key Set for Adjustment of Monitor Wing Angle

To manually adjust the monitor wing angle, release the torque of the monitor wing engine.

- Pressing and holding **MA** + **Set**.

## 6.67. Setup Key

The key **Setup** is located in the command area on the right of the key **Tools**.

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Location Key Setup

Pressing **Setup** executes the [Setup keyword](#) and opens the setup on the screen which was opened last.



Setup

## 6.68. Solo Key

The key **Solo** is located in the command area on the right of the key **Hight**.



*Location Key Solo*

Pressing **Solo** executes the [Solo keyword](#) and turns the solo mode on or off.

The command line stays unaffected.

To disable the **Solo** key function, see [User Settings](#).

## 6.69. Store Key

The key **Store** is located in the command area on the left of the key

**MA**.

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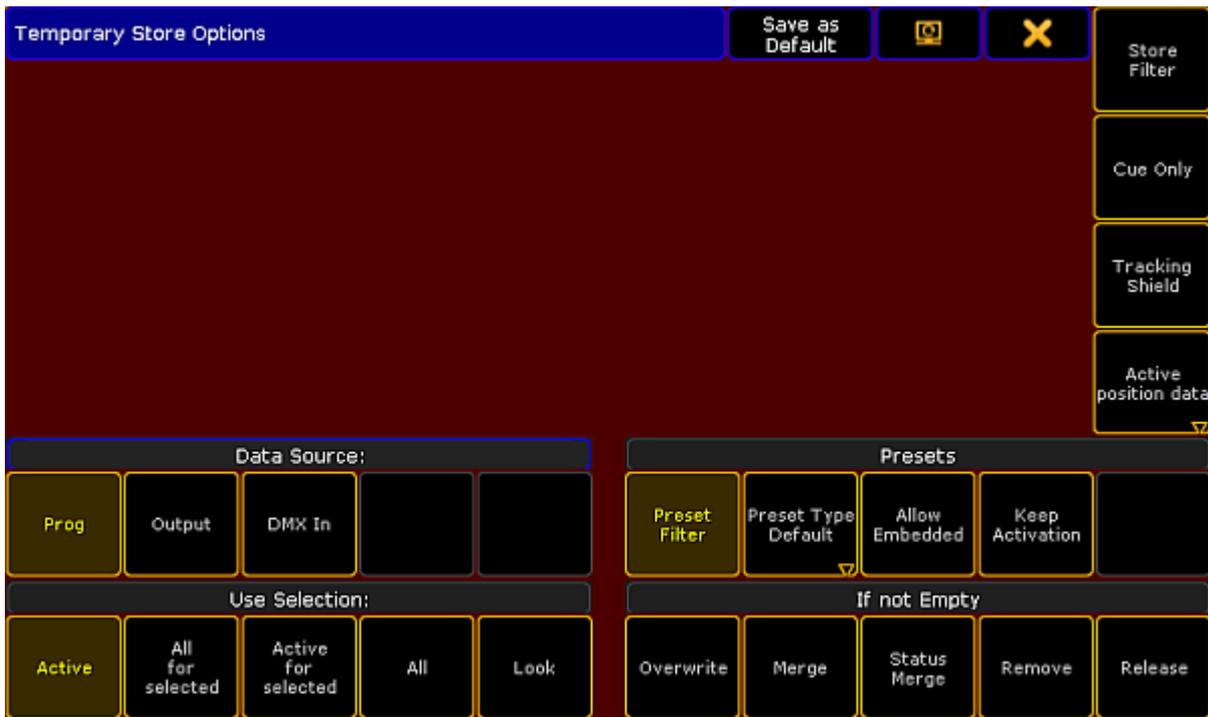
*Location Key Store*

- Pressing **Store** enters the Store keyword into the command line and changes the encoder bar to the store encoder bar.



*Store Encoder Bar*

- Pressing and holding **Store** opens the pop-up Temporary Store Options.



Pop-up Temporary Store Options

- Pressing and holding **MA** and Store enters the Record keyword into the command line.



## Related Links

- [Storing Cues](#)
- [Cues and Sequences - What are common Store Options?](#)
- [Store a Bitmap Effect](#)
- [Store the First Cue](#)

## 6.70. Temp Key

The key **Temp** is located in the command area on the left of the key **Top**.



*Location Key Temp*

- Pressing **Temp** enters the Temp keyword into the command line.

```
[Channel]> Temp
```

- Pressing **Temp Temp** enters the Toggle keyword into the command line.

```
[Channel]> Toggle
```

## 6.71. Thru Key

The key **Thru** is located in the command area on the right of the number key **6** in the number pad.



*Location Key Thru*

- Solely pressing **Thru**, enters the default keyword and the Thru keyword into the command.

```
[Channel]> Channel Thru
```

- If you press **Thru** after pressing another keyword, only the Thru keyword will be entered into the command line.

```
[Channel]> Fixture Thru
```

## 6.72. Time Key

The key **Time** is located in the command area on the left of the key **Esc**.

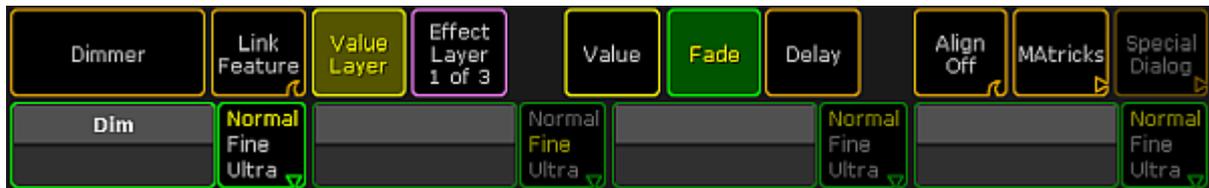
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Location Key Time

- Pressing **Time** enters the Fade keyword into the command line and changes the encoder bar to **Fade**.



Encoder Bar Fade

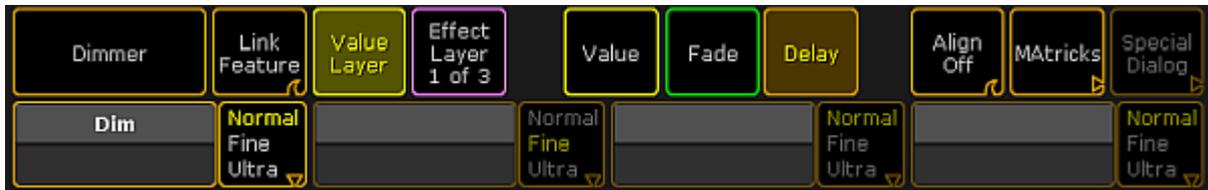


- If **Auto** is selected in the layer control bar of the fixture or channel sheet, pressing **Time** changes to the **Fade Layer**.



Layer Control Bar - Fade Layer

- Pressing **Time** **Time** enters the Delay keyword into the command line and changes the encoder bar to **Delay**.



Encoder Bar Delay



- If **Auto** is selected in the layer control bar of the fixture or channel sheet, pressing **Time** **Time** changes to the **Delay Layer**.



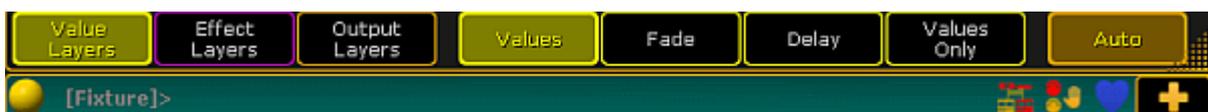
Layer Control Bar - Delay Layer

- Pressing and holding **Time** for about 2 seconds changes the encoder bar to **Value**.



Encoder Bar Value

- If **Auto** is selected in the layer control bar of the fixture or channel sheet, pressing and holding **Time** for about 2 seconds changes to the **Values Layer**.



Layer Control Bar - Values Layer

If you enter Store or Assign keyword into the command line,

- pressing then **Time** enters the Fade keyword into the command line.

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 [Channel]> Store Fade

- pressing then **Time** **Time** enters the [OutFade keyword](#) into the command line.

 [Channel]> Store OutFade

- pressing then **Time** **Time** **Time** enters the [Delay keyword](#) into the command line.

 [Channel]> Store Delay

- pressing then **Time** **Time** **Time** **Time** enters the [OutDelay keyword](#) into the command line.

 [Channel]> Store OutDelay

- pressing **Time** **Time** **Time** **Time** **Time** enters the [SnapPercent keyword](#) into the command line.

 [Channel]> Store SnapPercent

- pressing then **Time** **Time** **Time** **Time** **Time** **Time** enters the [CmdDelay keyword](#) into the command line.

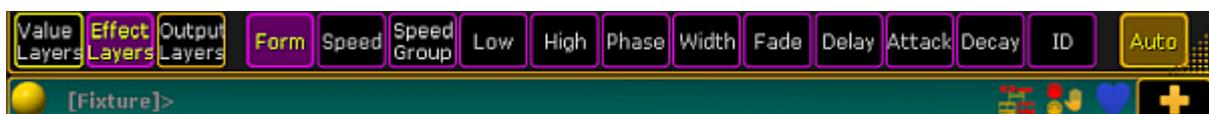
 [Channel]> Store CmdDelay

- Pressing and holding **MA** + **Time** opens the **Effect Layer** in the encoder bar.



Encoder Bar - Effect Layer

- Pressing and holding **MA** + **Time** again, changes to the next **Effect Layer**.
- If **Auto** is selected in the layer layer control bar of the fixture or channel sheet, pressing and holding **MA** + **Time** changes to the next **Effect Layer**.



Layer Control Bar - Effect Layer

## 6.73. Top Key

The key **Top** is located in the command area on the right of the key **Temp**.



*Location Key Top*

- Pressing **Top** enters the Top keyword into the command line.

```
[Channel]> Top
```

- Pressing **Top** **Top** enters the Kill keyword into the command line.

```
[Channel]> Kill
```

## 6.74. Tools Key

The key **Tools** is located in the command area on the left of the key **Setup**.

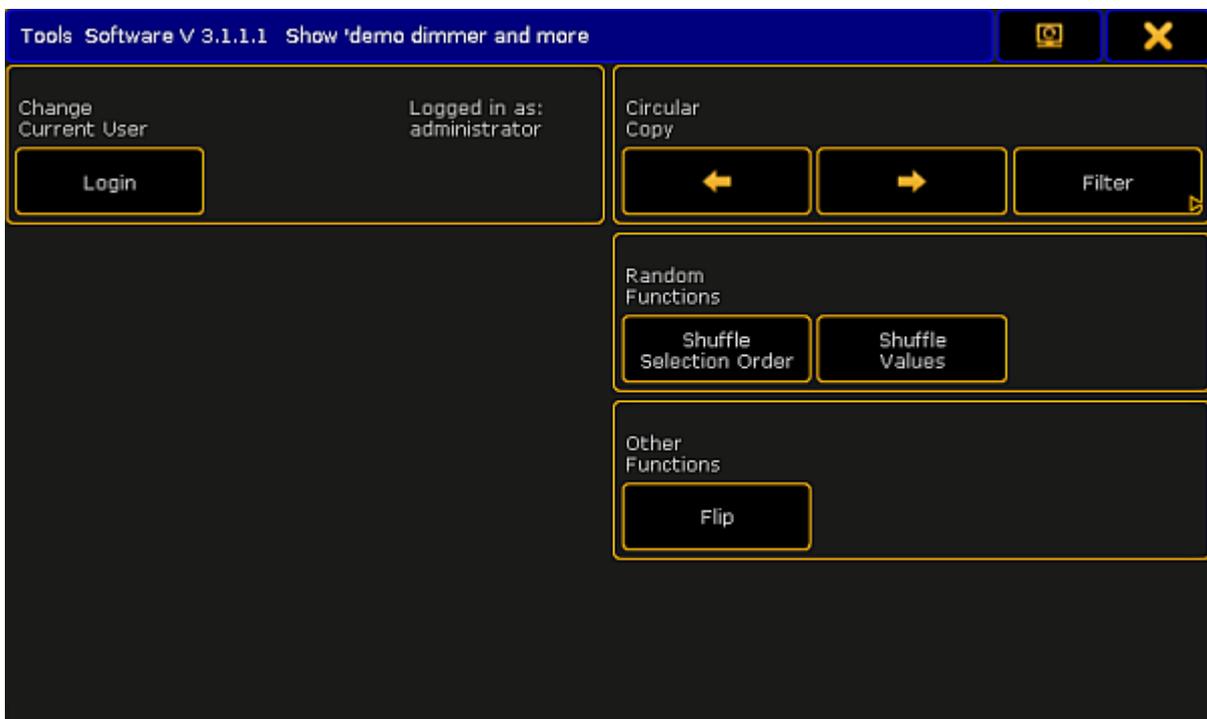
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Location Key Tools

Pressing **Tools** executes the Tools keyword. The menu Tools opens.



Tools Menu

## 6.75. Up Key

The key **Up** is located in the command area above the key **Set**.



### *Location Key Up*

- If you press the key **Up**, the scroll bar of the window or pop-up, in which the focus is set, moves up.
- If you press and hold **MA** + **Up**, the monitor wing of the console moves up.

## 6.76. Update Key

The key **Update** is located in the command area on the left of the key **Clear**.

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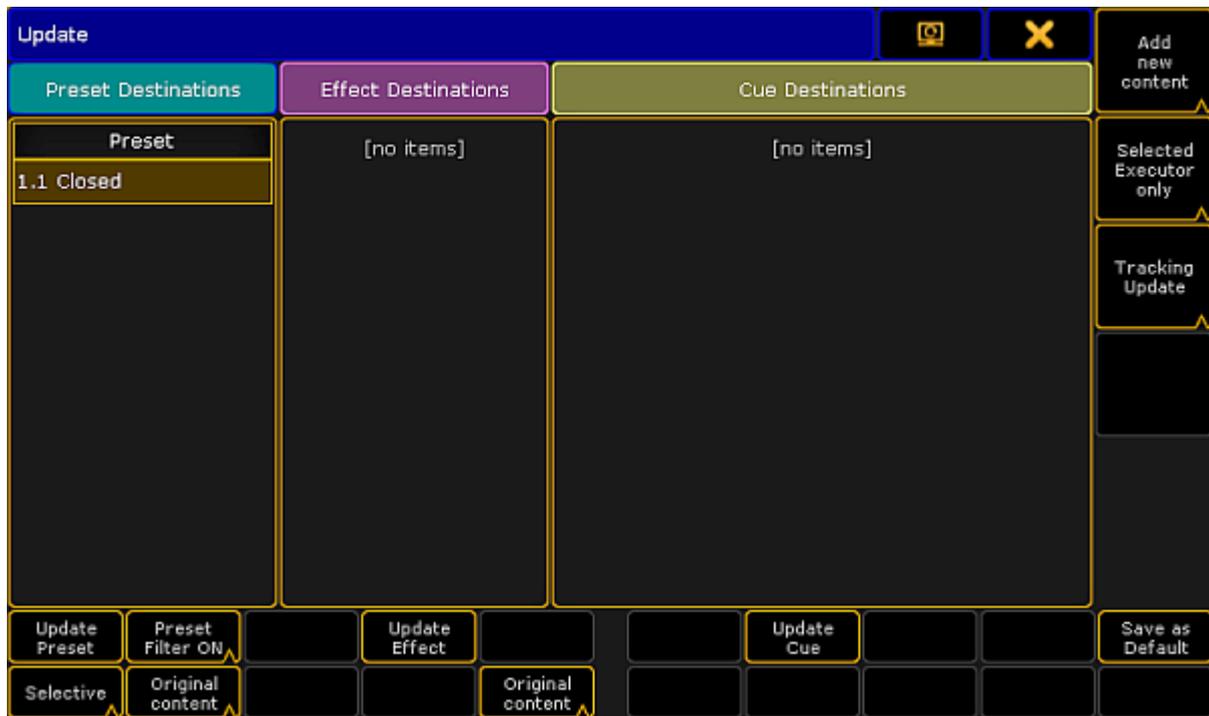
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## Location Key Update

Pressing **Update**, enters the Update keyword into the command line.

Pressing **Update** while a sequence or an effect is running, or while a preset is being called, plus when active different values are in the programmer, opens the pop-up Update.



## Pop-up Update

Related Links

- [Update Presets](#)
- [Update Cues](#)
- [Update Effects](#)

## 6.77. User 1 Key

The key **User 1** is located on the right of screen 1.



*Location Key User 1*

If you press **User 1**, the [X-Keys](#) and [X-Key labels](#) on screen 1 change to the User 1 page.



*X-Key Labels on Screen 1, User 1*

## 6.78. User 2 Key

The key **User 2** is located on the right of screen 1.



### *Location Key User 2*

If you press **User 2**, the X-Keys and X-Key labels change to the User 2 page on screen 1.

## 6.79. View Key

The key **View** is located in the command area on the left of the key **Effect**.

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## Location Key View

- Pressing **View**, enters the View keyword into the command line.

 [Channel]> View

- Pressing **View View**, enters the ViewButton keyword into the command line.

 [Channel]>ViewButton

- Pressing **View View View**, enters the ViewPage keyword into the command line.

 [Channel]>ViewPage

- Pressing and holding **MA** and **View**, enters the Screen keyword into the command line.

 [Channel]>Screen

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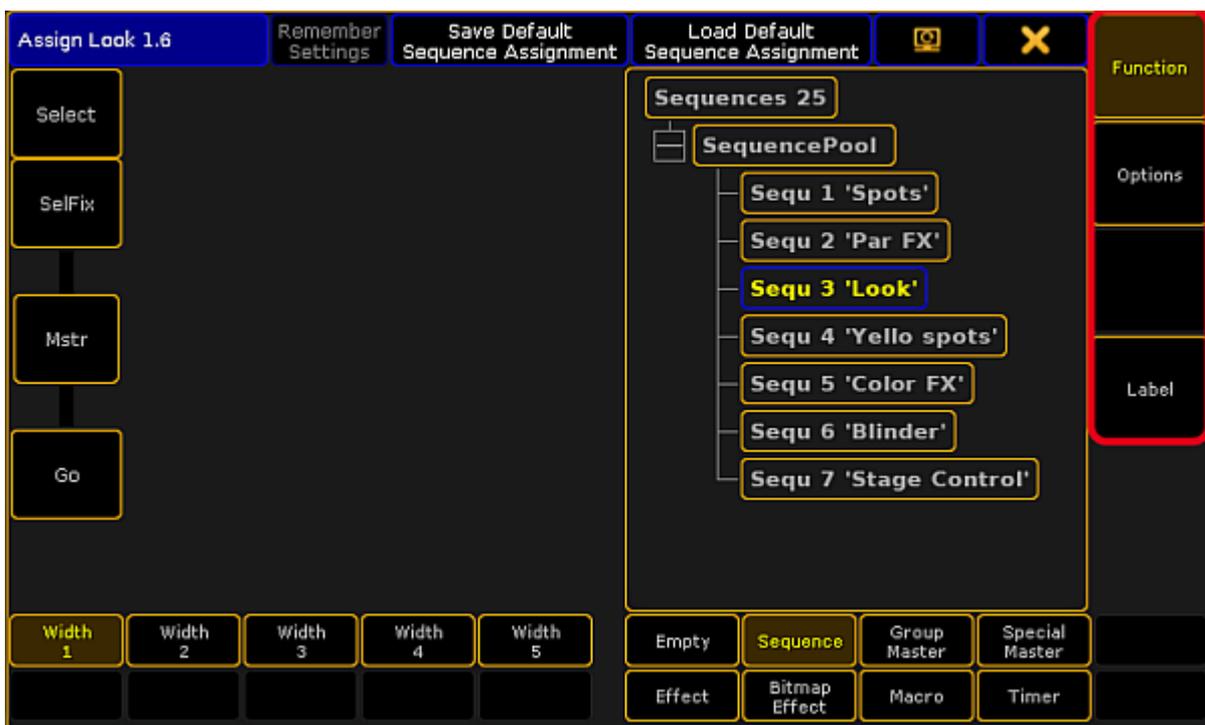
## 6.80. U1 - U4 keys

The U-Keys are located on the right of screen 1.



Location U-Keys

The U-Keys have a function if function buttons are visible on screen 1.



Assign Menu U-Key Function Buttons

## 6.81. V1 - V10 Keys

The keys **V1** through **V10** are located on the right of screen 2.



### *Location V-Keys*

If you press a **V-Key**, the [ViewButton keyword](#) will be executed.

The displayed view on the [view button](#) will be called.

If you press and hold **MA** and a **V-Key**, the [ViewPage keyword](#) will be executed.

The view page corresponding the V-Key number you have pressed, will be called.

## 6.82. X1 - X20 Keys

The X-Keys are located below screen 1.



**Information:**

The grandMA2 ultra-light has only X1 - X10.



### Location X-Key

If you press **User1** or **User2**, the X-Keys will work just like [view buttons](#).

If you press **List**, the X-Keys will work just like [executor buttons](#).

## 7. Workspace

The chapter workspace deals in general with:

1. Non-modifiable elements of visual display such as:
  - The executor bar



**Important:**

The executor bar cannot be resized, hidden or moved.

2. Modifiable elements of visual display such as:
  - Windows
  - Views



**Important:**

Windows and views can be resized and moved.

3. Coloring in user interface
4. Input modes such as:
  - Touch gestures
  - Keyboard shortcuts

### 7.1. User Interface

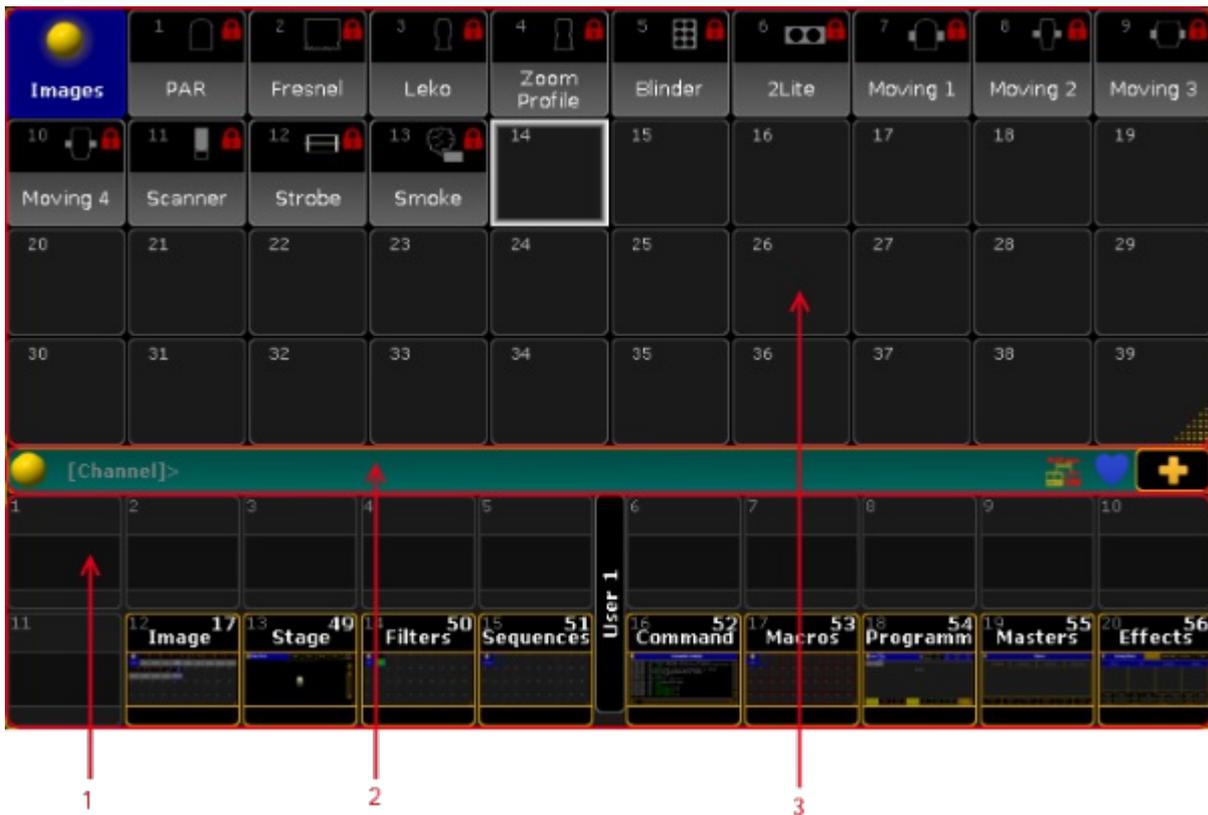
This chapter gives you an understanding of the grandMA2 user interface, the different elements such as the command line, and how to work with these elements.

#### 7.1.1. Screen Layout

This topic gives you information about the screen layouts of the different screens.

##### Screen 1

The screen 1 or command screen is structured in three 3 areas from the top to the bottom.



Screen Layout of Screen 1 - Command Screen

1. [User Defined Area](#) to create and arrange windows.
2. [Command Line](#) to enter keywords, open the command line feedback, or to open the message center.
3. [X-Key Labels](#) to label X-Keys.

## Screen 2

The screen 2 is structured in seven areas.

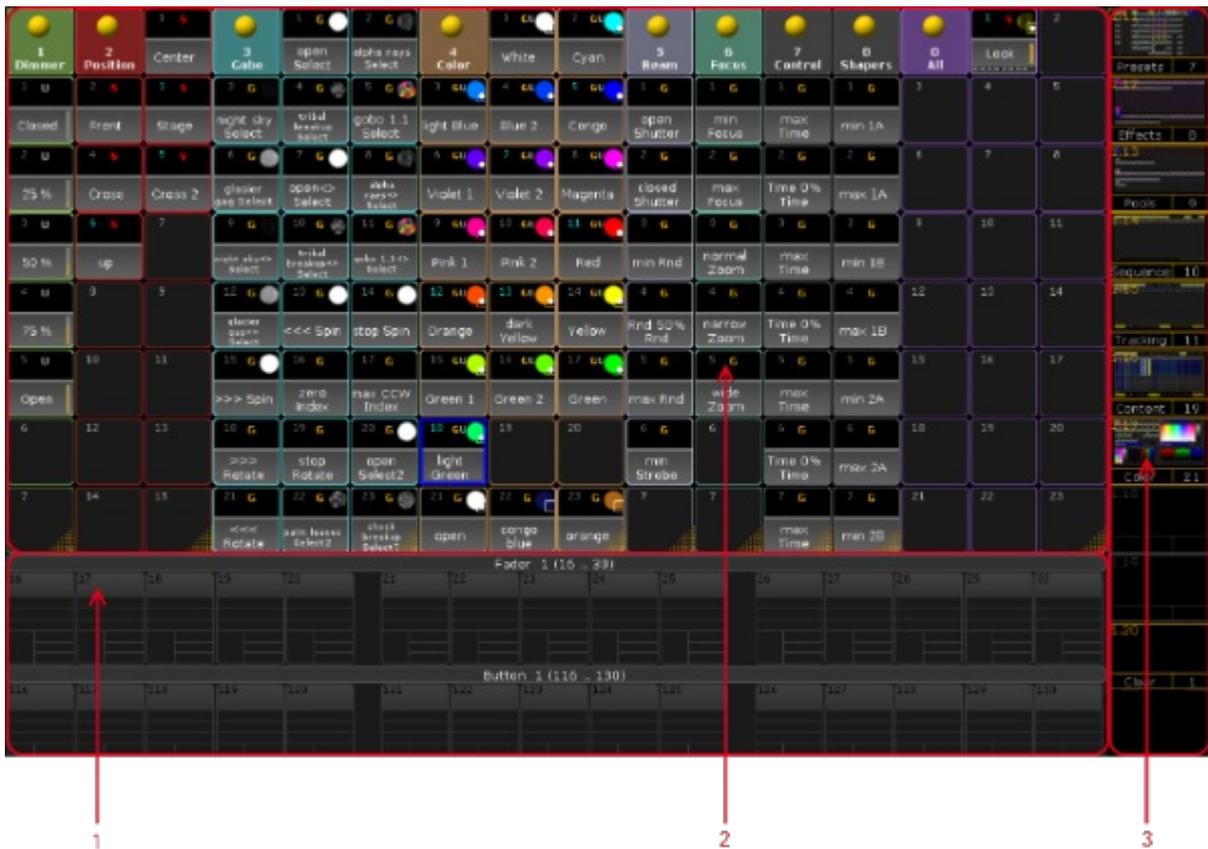


Screen Layout of Screen 2

1. [Master Section](#) displays the selected executor.
2. [User Defined Area](#) to create and arrange windows.
3. [Command Line](#) to enter keywords, open the command line feedback, or to open the message center.
4. [Preset Control Bar](#) to select a preset type.
5. [Encoder Toolbar](#) to control attributes.
6. [Time Control](#) to control program time and exec time.
7. [View Buttons](#) to recall user defined window arrangements.

Screen 3 and Screen 4 (only grandMA2 light or grandMA2 full-size)

Screen 3 and screen 4 are structured in three areas.



Screen Layout of Screen 3 and Screen 4

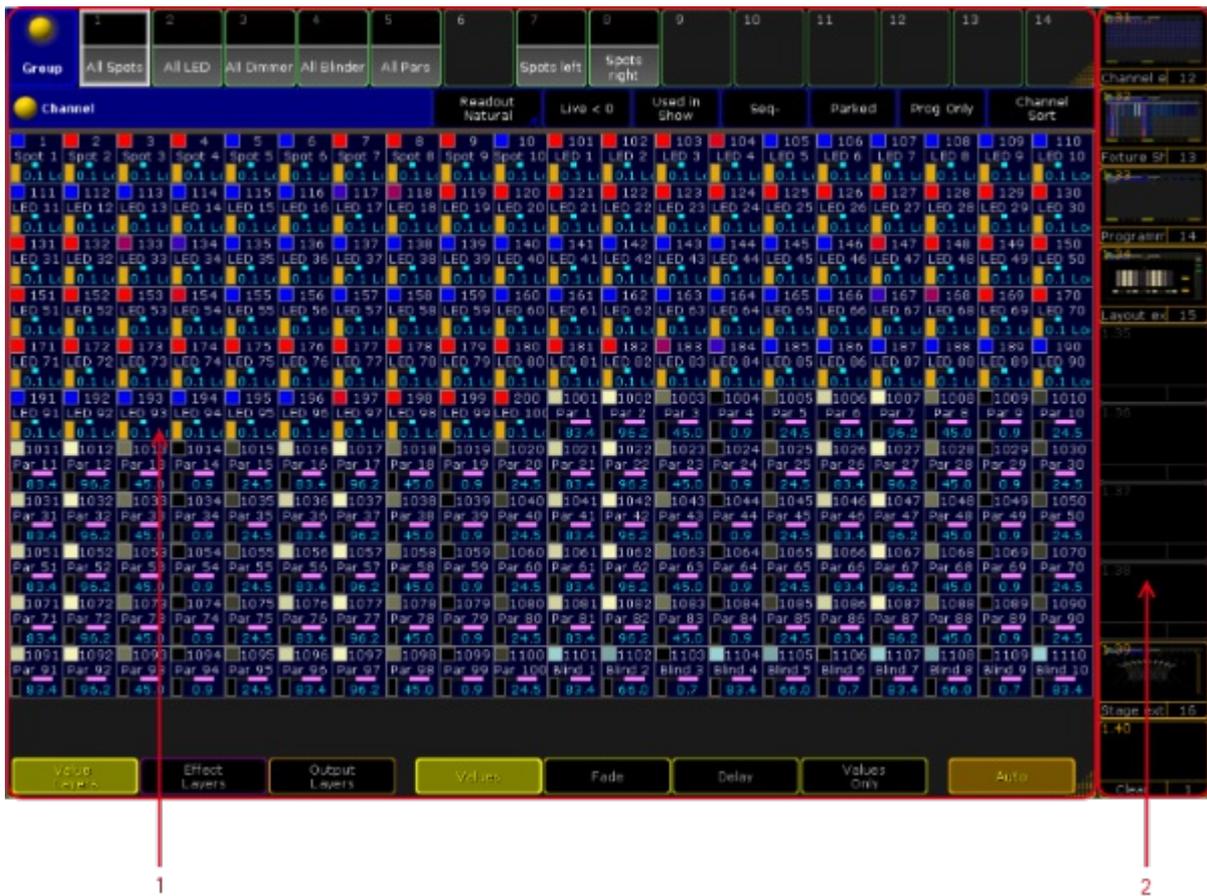
1. [Mini Executor Bar](#) to get information about the content and functions of the executor.
2. [User defined area](#) to create and arrange windows.
3. [View Buttons](#) to recall user defined window arrangements.

## Screen 5 and Screen 6 (external screens)

The external screens are structured in two areas.

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Screen Layout of Screen 5 and Screen 6

1. [User defined area](#) to create and arrange windows.
2. [View Buttons](#) to recall user defined window arrangements.

## 7.1.2. User-Defined Area

The user defined area is available on every screen. To manage windows in the user defined area see [manage windows](#).



*Empty user defined area*

## 7.1.3. Command Line

The command line is located in the bottom area of screen 1 and screen 2.



*Command Line*

---

### Set the Cursor in the Command Line

To enter keywords into the command line set the cursor in the command line first. For more information see [Command Syntax and Keywords](#).

To set the cursor into the command line:

- Tap the command line.

- or -

- Press and hold **MA** and press **Please**.



*Command line with blinking cursor*

The cursor is blinking in the command line.

---

## Open the Pop-Up Commandline Feedback

To see command line feedback and history open the pop-up Commandline Feedback.

To open the Commandline Feedback:

- Tap  on the left of the the command line.

The window Commandline Feedback opens.



*Pop-Up Commandline Feedback*

To close the pop-up tap the  once again in the command line.

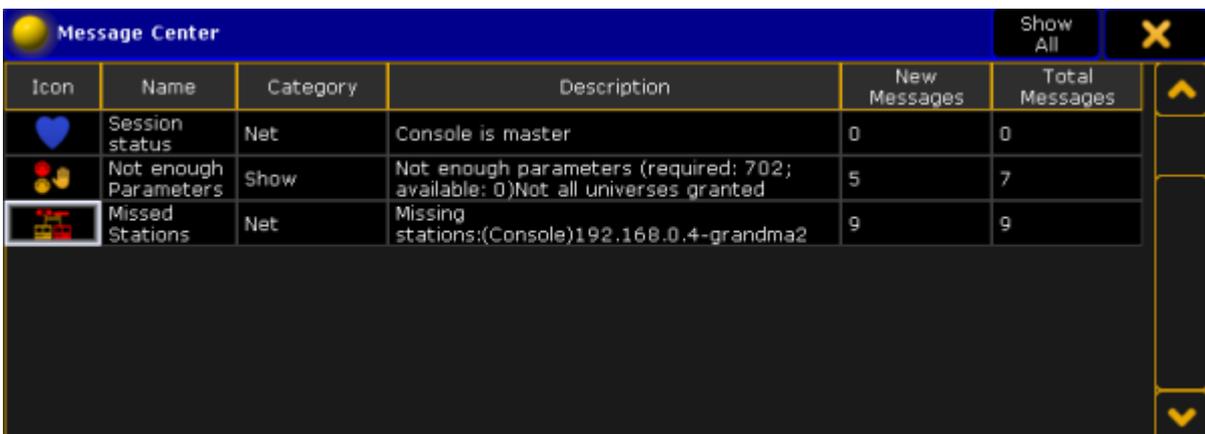
## Open the Message Center

To have an overview of the messages and descriptions of the icons in the command line open the message center. For more information see [Message Center](#).

To open the message center:

- Tap one of the visible icons in the command line.

The message center opens above the command line.



## Message Center

To close the message center tap one of the icons in the command line once again.

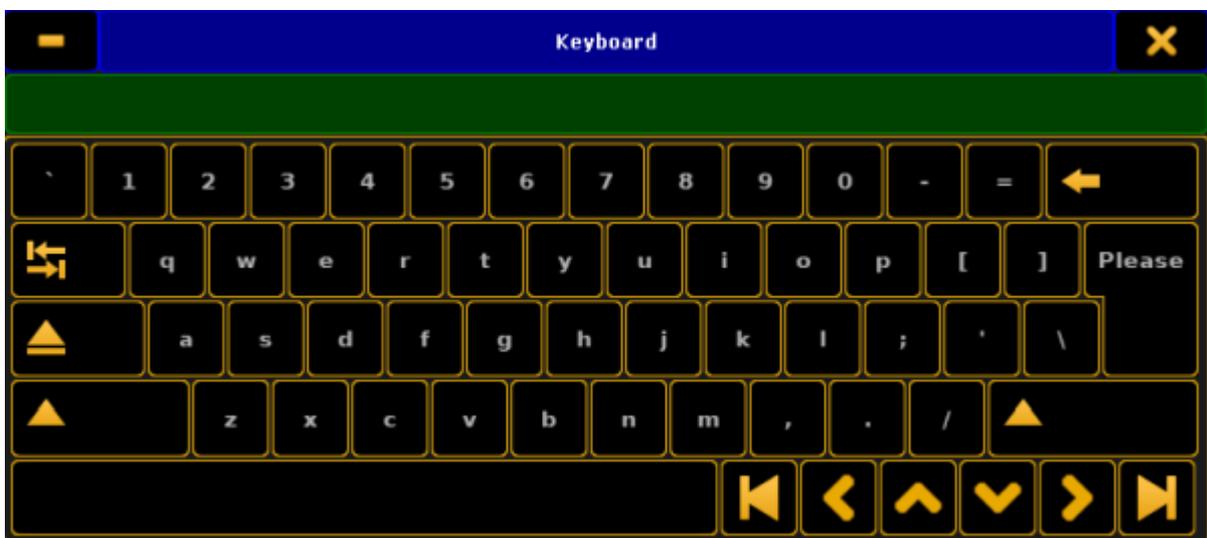
---

## Open the Virtual Keyboard

To expand the command line by a virtual keyboard:

- Tap  on the right of the command line.

The virtual keyboard opens above the command line.



Virtual Keyboard

To close the virtual keyboard tap  in the upper right corner of the window.

---

## Change the Default Keyword

The default keyword is the keyword displayed in square brackets on the left of the command line.

If the default keyword is Fixture and you only enter a number, for example number 1, into the command line, Fixture 1 will be entered into the command line.

You can change the default keyword of the command line to:

- View
- Effect
- Goto
- Page
- Macro
- Preset

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- Sequ
- Cue
- Executor
- Channel
- Fixture
- Group

To change the default keyword:

1. Press a key with a default keyword on it, for example **Fixture**.
2. Press **Please**.

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## 7.1.4. X-Key Labels

The X-Key labels are located at the bottom of screen 1.

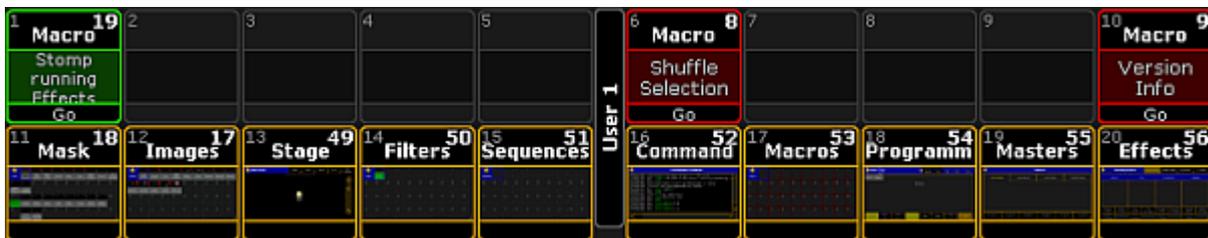
In the middle of the X-Key labels is the page displayed.

Three pages are available:

- User1
- User2
- Button Page 1 thru 9999.

If you press **User1**, the X-Key labels displays the function of [view button](#) 11.1 - 11.20.

If you press **User2**, the X-Key labels displays the function of [view button](#) 11.21 - 11.40.



X-Key Labels for User 1

If you press **List**, the X-Key labels displays the [mini executor bar](#) for the executor buttons 201 - 220 on the current button page.

To change the button page, press **Bt Pg +** or **Bt Pg -**.



X-Key Labels for Mini Executor Bar

## 7.1.5. View Buttons

There are two kinds of view buttons in the grandMA2 user interface:

- [View Buttons on the Right Screen Side](#)
- [X-Keys as View Buttons](#)

If you tap on a view button, the [ViewButton keyword](#) will be executed.

For more information about the function of the view buttons, see [use view buttons](#).

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## View Buttons on the Right Screen Side

The view buttons are located on the right side of screen 2 through screen 6.



*View Buttons on the right side of screen 2 trough screen 6.*

To change the view page, see [ViewPage keyword](#).

On screen 2 are the view buttons [viewpage].1 through [viewpage].10.

On screen 3 are the view buttons [viewpage].11 through [viewpage].20.

On screen 4 are the view buttons [viewpage].21 through [viewpage].30.

On screen 5 are the view buttons [viewpage].31 through [viewpage].40.

On screen 6 are the view buttons [viewpage].41 through [viewpage].50.



*Areas of a view button.*

A view button is structured in three areas:

1. [ViewPage] . [ViewButton] Number along with a screenshot as the view was stored
2. View Pool Number
3. View Pool Label

For more information about views, see [work with views](#).

## X-Keys as View Buttons

If you press **User1** or **User2**, the **X-Keys** works as view buttons as well.

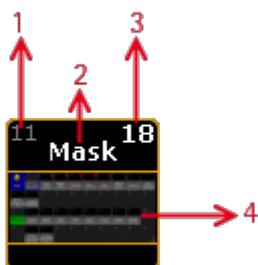
These view buttons are located at the bottom of screen 1.



*X-Keys as view buttons.*

If you press **User1**, you get view button 11.1 through 11.20.

If you press **User2**, you get view button 11.21 through 11.40.



*Areas of view button X-Key.*

The view button X-Key is structured in four areas.

1. View Button Number
2. View Pool Label
3. View Pool Number
4. Screenshot as the view was stored

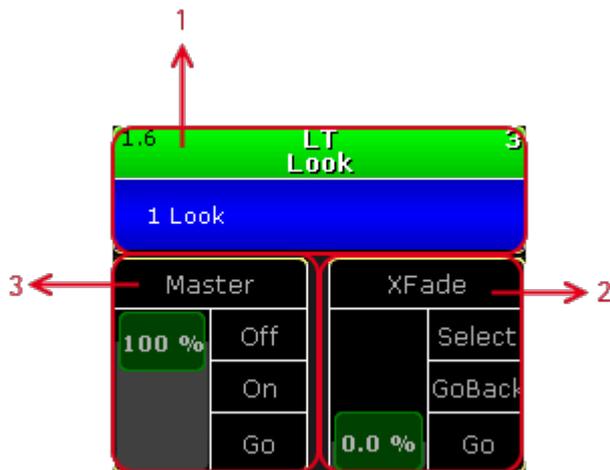
For more information about views, see [work with views](#).

## 7.1.6. Master Section

The master section is located in the left bottom corner of screen 2.

The master section has three areas.

You can find the master section as well, in the [command section](#).



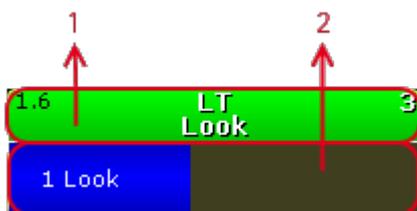
### Master Section Areas

1. [Selected Executor](#)
2. [Function of the Left 100 mm Fader](#)
3. [Function of the Right 100 mm Fader](#)

---

## Selected Executor

The selected executor has two areas.



### Selected Executor Areas

1. Sequence
2. Cue

If you tap at the sequence area, the [assign menu](#) opens.

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If you tap at the cue area, the [edit menu](#) opens.

For more information, see [Mini Executor Bar](#).

---

## Fader Function

The two faders display the current fader function of the 100 mm faders.

You can move the slider up or down and tap at the function buttons right beside the slider.

If you tap in the fader description field, the fader assignment opens.



## *Fader Assignment*

For more information, see [executor - assign a function](#).

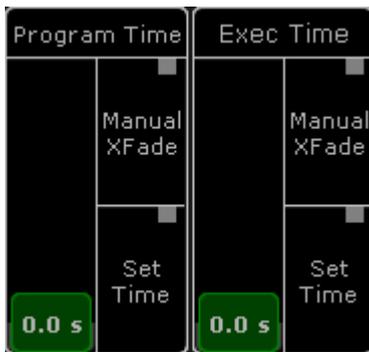
## 7.1.7 Time Control

## 7.1.7. TIME CONTROL

The time control is located right beside the encoder bar on screen 2.

It is two on-screen faders controlling two different timing elements. They are called **Program Time** and **Exec Time** (Executor Time).

It could look like this:



*Time Control*

The faders can be assigned to any Fader Executor. This will give physical fader control. Please read the [Grand Masters topic](#).

The two faders can be used to set a time. The default maximum is 10 seconds. This maximum value can be changed in Setup->User->[Settings](#).

The bottom of screen 2 can be changed on the grandMA2 onPC. This will make it fit the hardware on a grandMA2 onPC Command Wing. This will hide the Time Control. Please read the [grandMA2 onPC details topic](#) for details about turning this On or Off.

The fader can still be assigned to physical faders.

The virtual control can be created on any screen using the **CMD Section window**. This can be found in the **Other** tab in the [Create Basic Windows pop-up](#).

## Program Time

The Program Time can be used to add a fade time to changes in programmer values. Set the fader to the desired value and activate the Program Time by pressing the On executor key or tap the **Set Time** button so there is a red marker. Now the set time will be used for all value changes in the Programmer.

To deactivate it tap the **Set Time** button again or press the Off executor key. The red marker should disappear.

It is also possible to use the fader as a manual cross fade from old to new values. Tap the **Manual Xfade** button or press the MFX executor key to activate the crossfade function - a green marker appears. The master will move to the lowest position (if it is not already there). Change the value to the new values - the output will not change! Move the fader from the lowest to the highest position to fade into the new values. The green marker will flash while the cross fade is active.

Tap or press the same button to deactivate the manual cross fade - green marker disappears.

## Exec Time (Executor Time)

The Exec Time can be used to add a different fade time to changes in cue values. Set the fader to the desired value and activate the Exec Time by pressing the On executor key or tap the **Set Time** button so there is a red marker. Now all cues will change values using the set time. Delay and individual times are ignored. Cues with Follow or Time triggers use the stored time.

To deactivate it tap the **Set Time** button again or press the Off executor key. The red marker should disappear.

It is also possible to use the fader as a manual cross fade from old to new values. Tap the **Manual Xfade** button or press the MFX executor key to activate the cross fade function - a green marker appears. The master will move to the lowest position (if it is not already there). Run the desired cues - the output will not change! Move the fader from the lowest to the highest position to fade into the new cues. The green marker will flash while the cross fade is active.

Tap or press the same button to deactivate the manual cross fade - green marker disappears.

An Executor can be set to ignore the Exec Time. This is done in the [Executor Options](#). This will make the Executor run as normal using the stored cue timings.

## 7.2. Encoder Bar

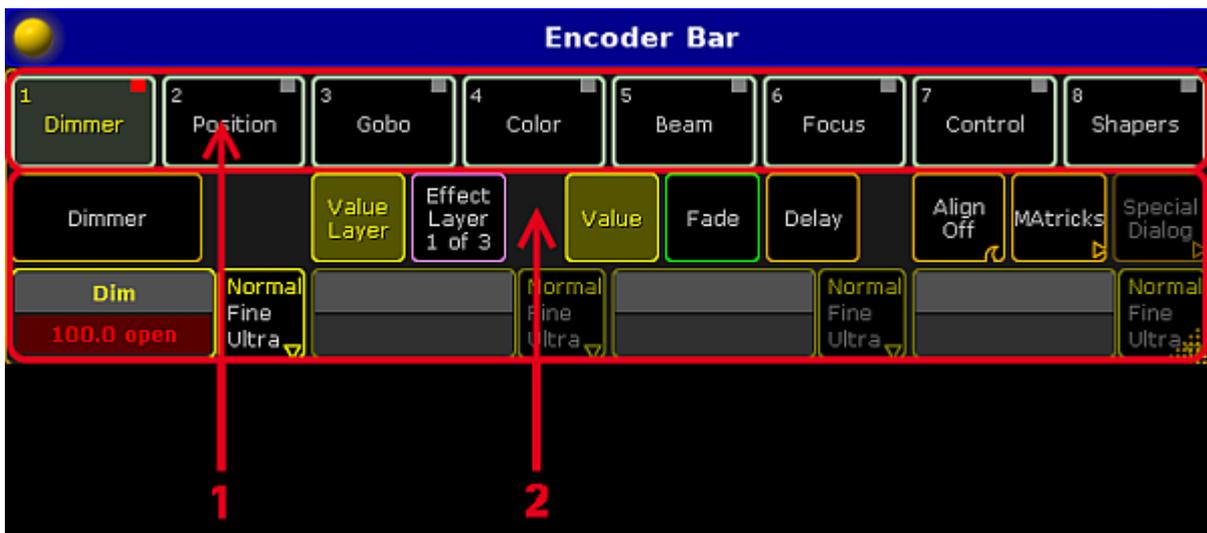
The encoder bar is located below the command line on screen 2.

You can also open the encoder bar in the user defined area.

To open the encoder bar in the user defined area:

- Tap on an empty space on one of the screens, tap **Other**, tap **Encoder Bar**.

The encoder bar is open.



Encoder Bar Window

The encoder bar is structured in two areas:

1. [Preset Control Bar](#)
2. [Encoder Toolbar](#)

### 7.2.1. Preset Control Bar

The preset control bar is a part of the encoder bar.

You can also turn the preset control bar on or off for the:

- [Fixture Sheet](#)
- [Channel Sheet](#)
- Sequence Content Sheet
- Sequence Tracking Sheet



Preset Control Bar

The preset control bar displays the available presets types in the show, according to the patched fixtures or

channels.

If only fixture or channels with dimmer attributes are patched in the show, there is only the Dimmer preset type in the preset control bar.

The preset control bar follows the fixtures or channels according to the selected world. For more information, see [World, Filters, and Masks](#).

Each preset has a preset type number.

1. Dimmer
2. Position
3. Gobo
4. Color
5. Beam
6. Focus
7. Control
8. Shapers
9. Video

Green box frame indicates the available preset types to the selected fixture or channel.

Gray box frame indicates that this preset types are not available to the selected fixture or channel.

Red indicator displays active programmer values to this preset type in the programmer.

---

## Select a Preset Type

To select a preset type in the preset control bar:

- Tap at the preset box.

The preset type is selected. The encoder toolbar changes according to the selected preset type. The preset type number and name are displayed yellow.

You can also select the preset type by using the keys, see [MA key](#).

---

## Get Active Programmer Values

To get active programmer values for a preset type in the programmer for the selected fixtures or channels:

- Double tap at the preset type in the preset control bar.

The values to the preset type for the selected fixtures or channels are active in the programmer.

The red indicator is visible.

---

## Change values in the programmer

You can change programmer values by using the preset type bar for these functions:

- [On](#)
- [Off](#)

- [Park](#)
- [Unpark](#)
- [Remove](#)
- [Release](#)
- [Stomp](#)
- [Default](#)

Example

To remove all dimmer values for the fixture selection in the programmer:

- Press **Off** and tap **Dimmer** in the preset type bar.

The dimmer values are removed from the programmer for the fixture selection.

---

Turn the Preset Control Bar on or off in Sheets

### Requirement:

An open fixture sheet, channel sheet, sequence content sheet, or sequence tracking sheet.

To turn the preset control bar on or off in the sheets:

- Tap at the **yellow ball** , tap **Tools** and then tap in the field below **Preset Control** **On** or **Off**.

The preset control bar is on or off in the sheet.

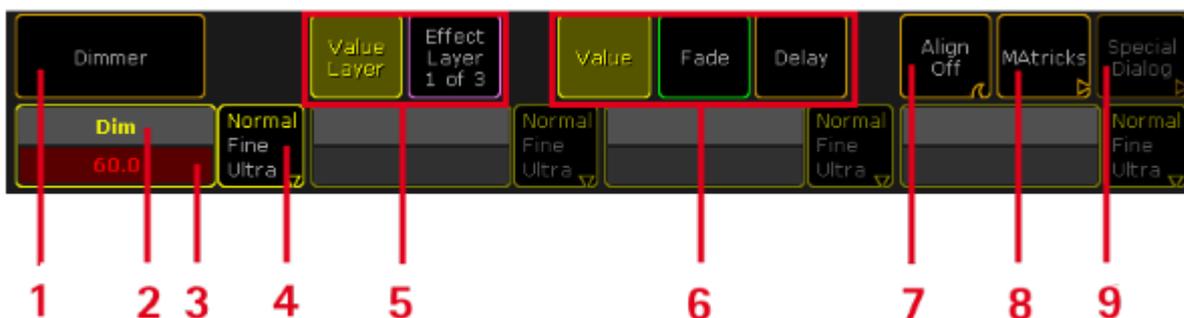
To save the preset control bar settings, save the setting as default or save the view.

## 7.2.2. Encoder Toolbar

The following topic describes the default encoder toolbar.

The encoder toolbar is context sensitive - it changes depending on the focused view.

The encoder toolbar is part of the encoder bar and located below the preset control bar.



Encoder Toolbar

1. Features of the preset type. If more features are available, swipe to change the feature.
2. Attributes of feature.

3. Displays the value. To change the value, turn the encoder left or right. To open the calculator, tap in the field or press the encoder.
4. Choose the encoder resolution.
5. Choose between value layer or effect layer.
6. Select the layer. For more information, see [control fixtures and channels \(value layer\)](#) or [live edit an effect \(effect layer\)](#).
7. Select the Align mode. For more information to the Align mode, see [Align key](#).
8. Opens the MAtricks Toolbar. For more information, see [MAtricks](#).
9. Opens the Special Dialog. If its grayed out, there is no special dialog available.

## Change Encoder Link Setting

If the layer fade, delay, or any effect layer is selected, the encoder link button appears in the encoder bar.



*Encoder Toolbar with Encoder Link Button*

There are eight encoder link settings available:

### Requirement:

- Selected fixtures or channels.
- Selected layer is fade, delay, or any effect layer.

Choose the encoder link option you like to have.

- **Link Single:**  
Set the value for the single attribute.
- **Link Single Active:**  
Set the value for the single attribute, only if the parameters are already active in programmer.
- **Link Feature:**  
Set the value for all attributes of the feature. E.g. if you set a delay time for Pan it will also set the time for Tilt.
- **Link Feature Active:**  
Set the value for all attributes of the feature, only if the parameters are already active in programmer.
- **Link All:**  
Set the value for all attributes.
- **Link All Active:**  
Set the value for all attributes, only if the parameters are already active in programmer.
- **Link Filter:**  
Set the value for the attributes matching the selected filter .
- **Link Filter Active:**  
Set the value for the attributes matching the selected filter, only if the parameters are already active in programmer.

The encoder link option is saved in the user settings.

## 7.3. Encoder Settings

To go to the encoder settings, press and hold the . The pop-up is visible as long as you press the key.

The encoder bar settings has two part. The bigger part and the smaller part.



Encoder settings - bigger part



Encoder settings - smaller part

The smaller part is visible at all screens. The bigger part is visible only at screen 2.

---

### Adjust dimmer wheel mode

The dimmer wheel mode can be set in the encoder settings or in the **Setup**, tab **User**, item **Settings**.

You can choose between four different dimmer wheel modes:

#### **Additive** (= default):

Additive keeps the difference between the dimmer values until you reach 0% or 100%, by using the dimmer wheel. After 0% or 100 % are reached, the values will be leveled out.

Example:

Channel 1 has a value of 50 and channel 2 is at 60. When you use the dimmer wheel to take them both up to 100, and then back down, they both go down from 100 at the same time and at the same level.

#### **Incremental:**

Incremental keeps the difference between the dimmer values always, even if you reached 0% or 100% by using the dimmer wheel.

Example:

Channel 1 has a value of 50 and channel 2 is at 60. When you use the dimmer wheel to take them both up to 100, and then back down, channel 1 will start coming down first and then channel 2 will follow when channel 1 is at 90.

#### **Prop.+** (Proportional positive):

When using the dimmer wheel to turn up the dimmer values, the difference in the dimmer values will **increase**. Turning down the values will make all channels reach 0% at the same time.

#### **Prop.-** (Proportional negative):

When using the dimmer wheel to turn up the dimmer values, the difference in the dimmer values will **decrease**. Turning up to 100% will make all channels reach 100% at the same time.

---

## Adjust dimmer wheel resolution

The dimmer wheel resolution can be set in the encoder settings or in the **Setup**, tab **User**, item **Settings**.

With the dimmer wheel resolution you can set if the dimmer wheel should work:

- Fine
- Normal (= default)
- Coarse

---

## Adjust trackball resolution

The trackball resolution can be set in the encoder settings or in the **Setup**, tab **User**, item **Settings**.

With the trackball resolution you can set if the trackball should work:

- Fine
- Normal (= default)
- Coarse

---

## Adjust encoder resolution

With the lower buttons of the bigger part of the encoder settings pop-up, you can adjust the encoder resolution. You can set the encoder resolution for each attribute. That means dimmer can be set to fine and pan to normal.

You can also set the encoder resolution in the [encoder toolbar](#).

Another way to set the encoder resolution is to press **Setup**, tap **Patch & Fixture Schedule**, tap **Fixture Types**, tap **Attributes & Encoder Grouping**, tap at the **preset type** and in the table **Attributes of Feature** is a column **Encoder Resolution**.

There are three different encoder resolutions available:

### Ultra:

An encoder step equates 0.4.

### Fine:

Every second encoder step equates 0.1.

### Normal:

An encoder step equates 0.5.

---

## Disable touch function for screen 1

To disable the touch function on screen 1:

- Press and hold  and tap at **Disable Multi Touch**.

The touch function screen 1 is disabled.

---

## Switch dialogs to default screen

This function is used to bring the dialog back to their default screen. The defaults for most of the screens is screen 1.

Switch dialogs to default screens could be useful if you had external screens connected and moved dialogs maybe to screen 5. Now, you are sitting on a console without external screens and you cannot reach the dialogs.

To bring the dialogs back to their default screens:

- Press and hold  and tap at **Switch Dialogs to Def. Screen**.

The will be open the next time on their default screen.

Another way to switch the dialog to default screen is, using the [Menu Keyword](#).

---

## Clear screen

To clear the screen by using the encoder settings pop-up:

- Press and hold  and tap at **Clear Screen**.

The screen on that you tapped the button is cleared.

For another way to clear the screen, see [user defined area](#).

---

## Clear all screens

To clear all screens:

- Press and hold  and tap at **Clear All Screens**.

All screens are cleared.

## 7.4. Command wing bar

With the command wing bar you control the faders 1 to 6 and the buttons 101 to 106.

### MA onPC command wing and external screen

If you use a MA onPC command wing along with an external screen, open the command wing bar window.

- Tap in the **user defined area**, select tab **Other** and then **Command Wing Bar**.

The command wing bar window is open.

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Command wing bar window

## Command wing grandMA2 onPC

If you use a grandMA2 onPC along with a MA onPC command wing, turn the command wing bar on.

To turn the command wing bar on screen 2 on:

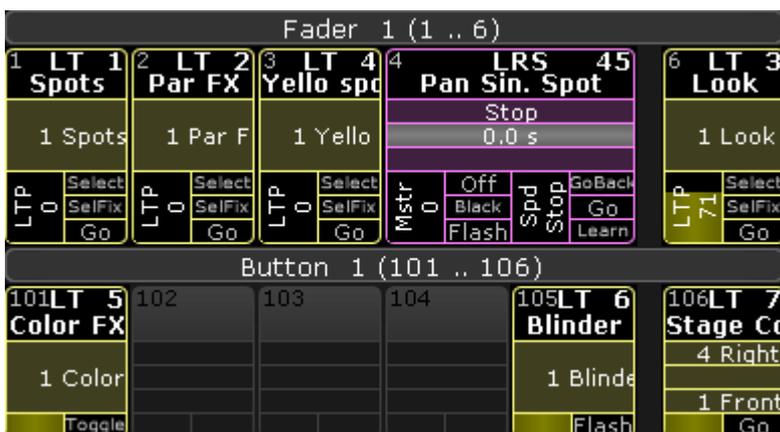
1. Click the **yellow ball**  in the upper left corner of the window one in the grandMA2 on PC.



grandMA2 onPC options

2. Click **Options...**.
3. Click at tab **View** and select under **CmdWing Bar** On.

The command wing bar is visible at the bottom of screen 2, left beside the encoder bar, in the grandMA2 onPC.



Command wing bar grandMA2 onPC

## 7.5. Command Section

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The command section is the area used to enter complex commands into the command line using keys.

This section is located on the right side of the console.



## Command section

To open the command section on the onPC press **Command Overlay** and the window **Command Overlay** opens.



### Important:

Single keys can have several functions depending on how often or how long you press and hold them.

For more information on the keys and their commands see [Key overview](#).

## 1. Example:

- Pressing **Channel 1 At 50** enters the command into the command line.
- Pressing **Please** consequently sets the dimmer in channel 1 to 50 percent.

## 2. Example:

- Pressing **Store** **Executor** **5** **Cue** **3** enters the command into the command line.
- Pressing **Please** consequently stores cue 3 on the executor 5.

## 7.6. Mini executor bar

Mini executor bars are visible at the bottom of screen 3 (grandMA2 light and grandMA2 full-size) and screen 4 (grandMA2 full-size). Furthermore, they are visible in the command wing bar and in the playback windows.

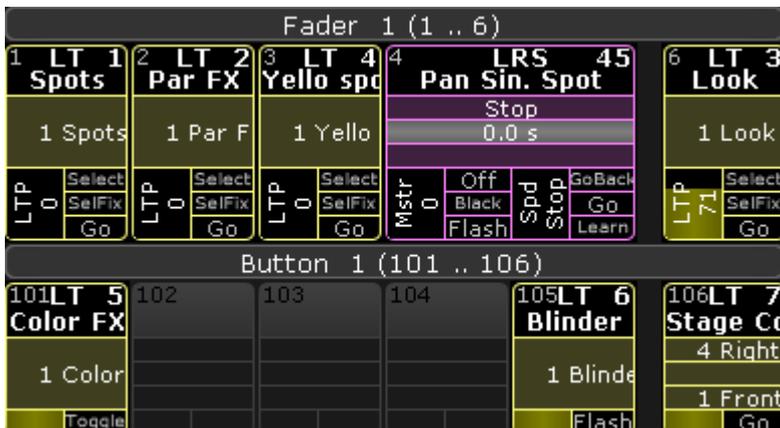
The mini executor displays valuable information about the content and functions of the executor.

You can assign functions to the executors using the **Assign Menu**, or you can use the **Assign** key. For more information, see [Assign key](#). To open the Assign Menu by using the mini executor, tap in the upper area of the mini executor.



Tap the upper area to open the Assign menu

The look and the information of the mini executors changes, depending on what is assigned to the executor.



Mini executor bar or command wing bar

For more information, see:

- [Sequence mini executor](#)
- [Assign effect to executor](#)
- [Assign macro to a button](#)
- [Chaser mini executor](#)
- [Group master mini executor](#)

## 7.7. Manage windows

Windows are the windows, sheets, and pools that you can create in the [user defined area](#).

You can create custom views by moving or adjusting windows.

Furthermore, you can save your settings to default or load previous saved settings from default.

---

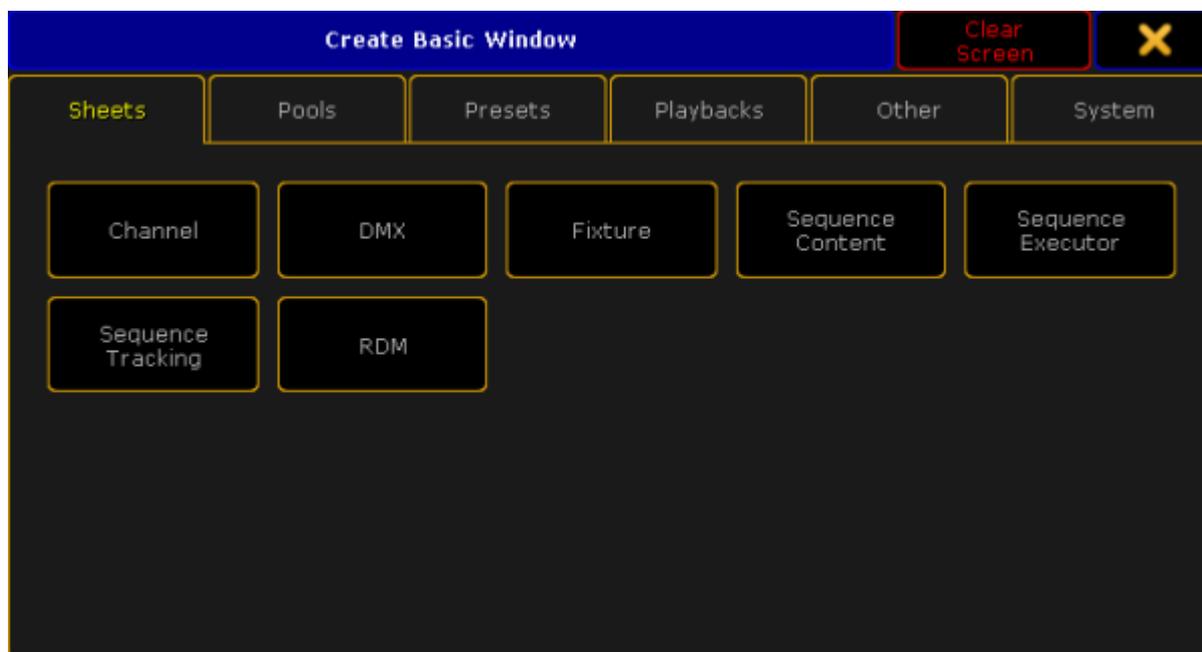
### Create Basic Windows

You can create a basic window in the user defined area on every screen.

To create a basic window:

1. Tap on a empty space of the screen.

The create basic window pop-up opens.



*Create Basic Window*

2. Select a window category in the tabs.

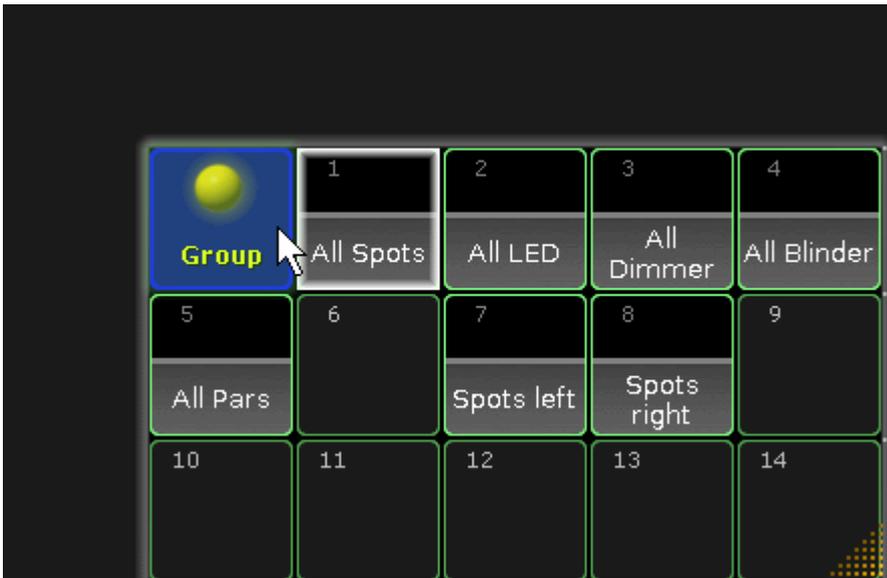
3. Select the window you like to have.

A basic window is created in the user defined area.

---

### Move windows to another place on the screen

You can move windows around in the user defined area. As you move windows, you see a bright frame around the window.



## Move window

- To move a window, tap in the blue title bar or in the blue area of a pool and move it to its new position.

The window is moved to its new position.

## Move menus to another screen

You can move menus from one screen to another screen.

To move a menu to another screen:

1. Tap in the title bar of the menu at the **screen icon**  .  
The changes screen pop-up opens.



## Change screen pop-up

2. Tap the screen number on which you would like to move the menu.

The menu opens at the selected screen.

## Adjust window size

To arrange the windows in the user defined are, you can adjust the size.

To adjust the window size:

1. Tap and hold the dots at the bottom right corner.

The frame of the window and the dots get brighter.



*Adjust window size*

2. Move your finger until the window reached the new size.

The window size is adjusted.

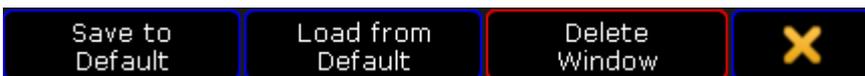
## Save window options to default

For all windows in which multiple settings can be made, you can save the settings to default their default settings. This settings are saved in the logged in user profile.

There are two ways to save window settings to default:

Way A:

1. Tap at the **yellow ball**  in the title bar of the window and adjust the window options.
2. Tap in the title bar of the window options at **Save to Default**.



*Title Bar*

The window settings are saved to default for the logged in user profile.

Way B:

1. Press **Setup**, tap **User**, and then **Window Settings**.
2. Adjust the window settings.

The window settings are saved to default for the logged in user profile.

---

## Load window options from default

For all windows in which the options can be saved to default, you can load these options from default.

To load window options from default:

- Tap at the **yellow ball**  in the title bar of the window options and tap at **Load from Default**.

---

## Clear the Screen

To have space for a new basic window, you can clear the screen of the user defined area.

To clear the screen:

1. Tap on a empty space of the screen.  
The create basic window pop-up opens.
2. Tap on **Clear Screen**.

The user defined are is empty.



### Hint:

Another way to clear the screen is, to press and hold the  and tap **Clear Screen**.

---

## Delete window

To delete windows from the user defined area.

- Tap at the **yellow ball**  in the title bar of the window and then tap **Delete Window** in the title bar.  
- or -
- Press **Del** and tap at the title bar of the window.

The window is deleted from the user defined area.

## 7.8. Work with views

You can store the current size and position of the windows from one or more screens on a [view button](#) or in the [view pool](#).

You can call them later even if you moved or deleted a window.

To export or import stored view, see [import user profiles](#) or [export user profiles](#).

---

## The view pool

All views are stored in the view pool for the current user profile. Assigned views to a view button or an X-key will be automatically stored on the next empty tile in the view pool.



*View pool*

To get an overview about all stored views, open the view pool.

- Tap in the user defined area, tap at the **Pools** tab and tap at **Views**.

The view pool is open.

For more information about colors in the pools, see [system colors](#).

---

## Store customs views in the view pool

### Requirement:

- A created view on a screen that you like to store. For more information, see [Mange windows](#).
- An open [view pool](#).

1. Press **Store** and then tap on a empty tile in the view pool.  
The Store View Options pop-up opens.



*Store View Options pop-up*

2. Type the view name in the green edit line.
3. Tap at the screens you want to store or if you want to store all screens tap **All**.
4. Tap **Please**.

The view is store in the view pool.

---

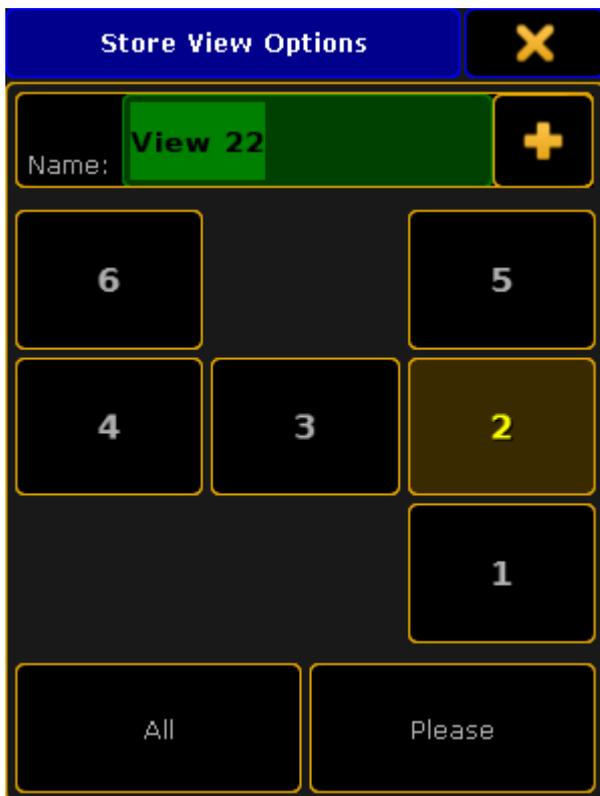
## Assign views on a view button

### Requirement:

A created view on a screen that you like to store. For more information, see [Manage windows](#).

1. Press **Store**.
2. Press either a [V-key](#) or a [X-key](#), or tap a [view button](#).

3. The Store View Options pop-up opens.



*Store View Options pop-up*

4. Type the view name in the green edit line.
5. Tap at the screens you want to store or if you want to store all screens tap **All**.
6. Tap **Please**.

The view is assigned to the view button and stored in the view pool on the next empty tile.

---

## Call views

**Requirement:** A stored view.

- If the view is stored in the [view pool](#), tap on the tile in the view pool.
- If the view is assigned to a [view button](#), tap on the view button or press the respective [V-key](#) or [X-key](#).

The stored view is called.

---

## Delete views from view buttons

- Press **Delete** and tap on the view button or press the respective [V-key](#) or [X-key](#).

The view is deleted from the view button but still stored in the [view pool](#).

---

## To delete views from the view pool

**Requirement:** Open [view pool](#).

- Press **Delete** and then tap on the view tile in the view pool.

The view is deleted from the view pool and from all assigned [view buttons](#).

## 7.9. Touch gestures

The grandMA2 comes with one multi-touch screen (screen 1) and at least one internal TFT wide mode touchscreens (screen 2 to screen 4). Furthermore, you can connect two external touchscreens.

You can use the multi-touch function in the special dialogs:

- Color picker - Fader - Move two or more color faders simultaneously.
- Shaper - Fader Mode - Move two or more shaper parameter fader simultaneously.

If you want to know what we mean when we mention swipe, tap or other ways of interacting with the grandMA2, have a look at this table.

What we say	Example	How to do it
Tap	 <p><i>Figure 1: Multi state toggle button is indicated by an arrow down.</i></p>	Tap once on a button.

Slide to rearrange						Tap and briefly drag a window in the new direction.

*Figure 2: Move window.*

What we say

Example

How to do it

Swipe to open options



Figure 3: Swipe button indicated by a small wave.

Tap and swipe your finger quickly upwards in the wave direction like the wave icon is.

Swipe to select

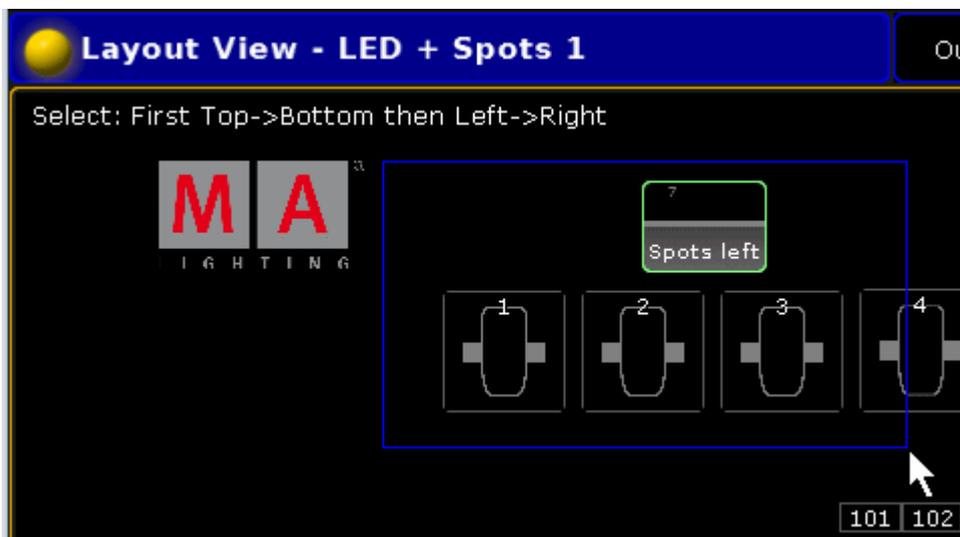


Figure 5: Swipe to select in the layout view.

Tap your finger on the screen and move it from the top left corner to the bottom right corner, like you would draw a rectangle.

## 7.10. Calculator

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The calculator appears always if you need to enter or edit values.

The calculator is a dynamic view. The buttons changes regarding the to be entered value.



Calculator for gobo values

The title bar displays the attribute, the unit, and sometimes the range of the values.

If the fixture or channel has channel functions, the function sets are displayed in different tabs.

Below the tabs, on the left side of the calculator, is the green edit line to enter values or ranges, e.g. 1 Thru.

The calculator includes always a number pad at the left of the view.

On the right side are the function buttons.

The applied function has a brown background.



Figure 2: Applied calculator function

## Default calculator buttons

The following buttons are in all calculator views available.

The buttons are located right beside the number pad and they are interacting with the edit line.

### Back:

Tap to delete the next sign left from the cursor.

### Delete:

Tap to delete marked values or the next sign right from the cursor.

**Home:**

Tap to go at the beginning of the edit line.

**End:**

Tap to go at the end of the edit line.

**<-:**

Tap to go one sign back.

**->:**

Tap to go one sign forward.

**+/-:**

Tap to insert a prefix. Do not use the - button to enter a negative prefix.

**Please:**

Tap to confirm and apply the value. The calculator closes.

## Attribute function buttons

The following buttons are always available for editing attribute values.

**Off:**

Tap to clear the values from the programmer.

**Deactivate:**

Tap to deactivate the values in the programmer. The value is not active anymore in the programmer.

**Remove:**

Tap to enter remove values in the programmer. For more information, see [Remove keyword](#).

**Release:**

Tap to enter release values in the programmer. For more information, see [Release keyword](#).

**Default Link:**

Tap that the attribute links to their default values. For more information, see [Default keyword](#).

## 7.11. Info

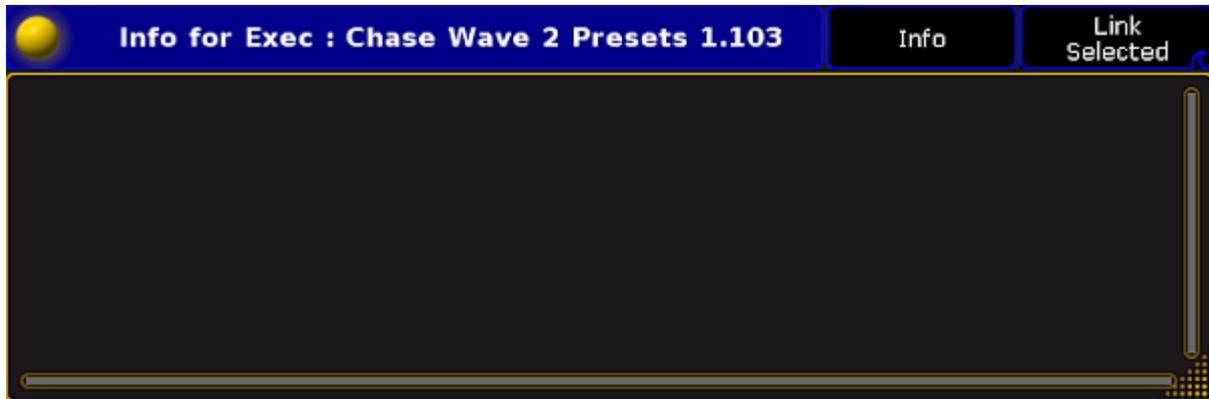
By using the info window, you can easily assign information to an object or view information of an object.

You can add object info such as a what a macro does, what fixtures are included in a universe, what device creates a timecode slot, where a cue is used, and so on.

---

### Open the info window

- Tap on an empty space on one of the screens, tap **Other**, tap **Info**.  
The info window opens and views by default the info of the object on the selected executor. This is indicated in the title bar by the button **Link Selected**.



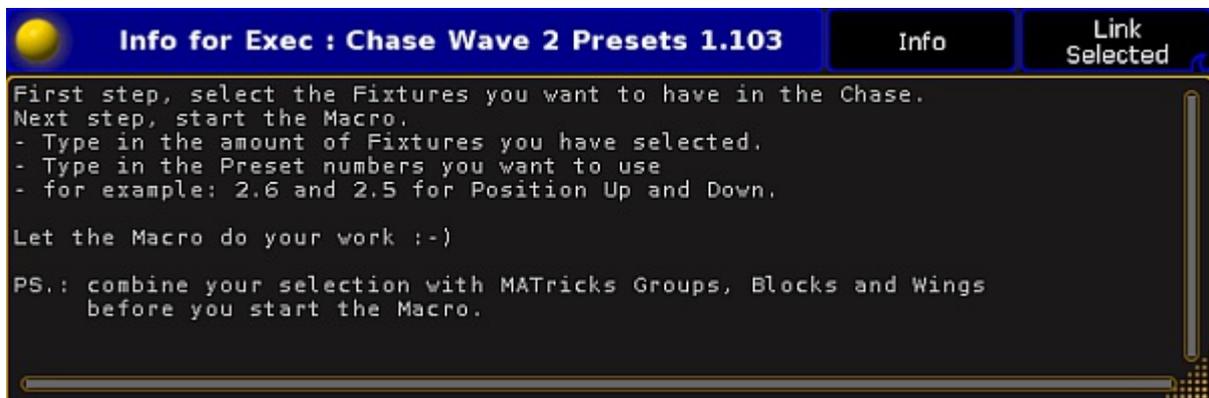
*Empty info window*

The info window is open and views the info to the object the selected executor.

Assign info to the object on the selected executor

**Requirement:** Existing object on the selected executor.

- [Open the info window](#) and type the info in the info window (black area).



*Assigned info in the info window*

The info is assigned to the object on the selected executor. The pool object has a **information icon**  in the upper right corner.

If the sheet style is selected for pool, the info is displayed in the info column.



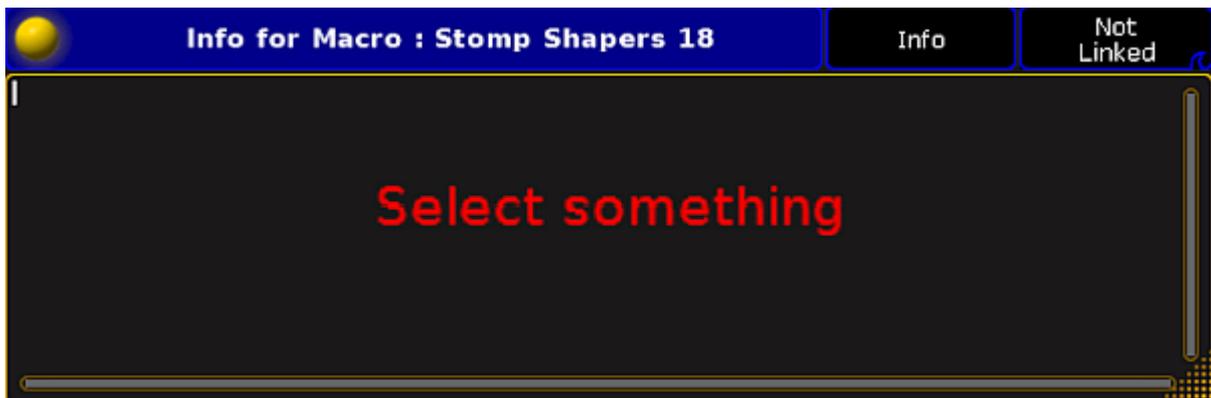
**Hint:**

You can also assign info by using the command line along with the object keyword and the parameter **info**. See as an example the [Preset keyword](#).

Assign info to an object (not selected executor) by using the info window

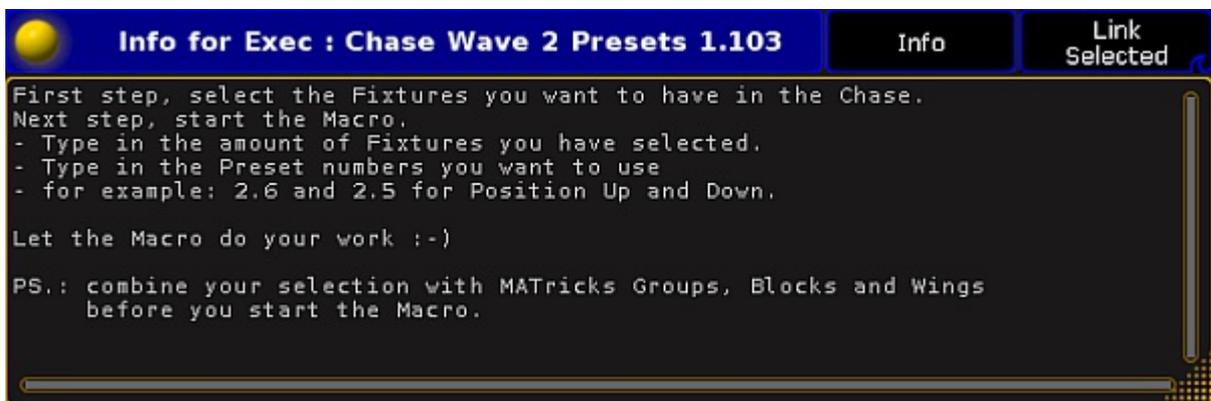
**Requirement:** Existing pool object.

1. [Open the info window](#) and tap in the title bar the button **Info**.  
The words **Select something** appears in the info window and the button in the title bar changes to **Not Linked**. The [Info keyword](#) is in the command line.



*Select something to assign info in the info window*

2. Tap in a pool at the pool object to assign the information.  
The title bar in the information window displays the pool object label and the pool object number.
3. Type the info in the info window (black area).



*Assigned info in the info window*

The info is assigned to the selected object. The pool object has a **information icon**  in the upper right corner.

If the sheet style is selected for pool, the info is displayed in the info column.



**Hint:**

You can also assign info by using the command line along with the object keyword and the parameter **info**. See as an example the [Preset keyword](#).

Assign info to an object (not selected executor) by using the pool

**Requirement:** Existing pool object.

1. Open the pool of the stored pool object.
2. To turn the pool window into a sheet style, tap at the **yellow ball**  and then tap **Sheet Style**.
3. Type the info in the **info column**.

Macro Pool						Show Empty
No. ^	Name	Playmode	CLI	Timing	Info	
17	Stomp Control		On	On		
18	Stomp Shapers		On	On		
19	Stomp running Effects		On	On		
25	Release DMX Tester		On	On		
31	Assign Effect Speed Group		On	On		
32	Assign Effect No Speedgr.		On	On		
34	Chase Wave 2 Presets		On	On	First step, select the Fixtures you want to Next step, start the Macro.	

*Macro pool sheet style*

The info is assigned to the pool object.

## View info of the last go

**Requirement:** A recently started sequence or cue.

- [Open the info window](#) and swipe the button in the title bar to select **Link Last Go**.

The info window displays the info to the recently started sequence or cue.

## View info of the current cue

**Requirement:** A running cue.

- [Open the info window](#) and swipe the button in the title bar to select **Link Current Cue**.

The info window displays the info to the current running cue. If no cue is running, **No Info** is displayed in the title bar.

## View info of the next cue

**Requirement:** Selected executor.

- [Open the info window](#) and swipe the button in the title bar to select **Link Next Cue**.

The info window displays the info to the next cue of the selected executor.

## 7.12. Oops and undo

By using the oops functions, you can easily undo actions.

## Oops / undo the latest action

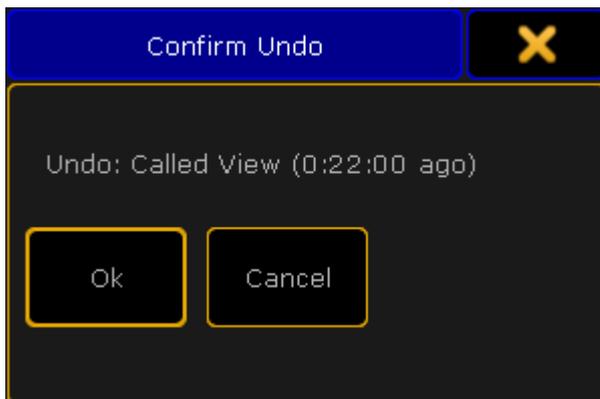


### Important:

An oopsed / undone action cannot be reversed.

To oops / undo the latest actions:

1. Press **Oops**.  
The **Confirm Undo** pop-up opens.



*Confirm Undo pop-up*

2. Tap **Ok** or press **Please**.

The latest action is undone.

---

## Oops / undo more actions



### Important:

After saved changes in the Patch & Fixture Schedule, the Oops list begins of new.

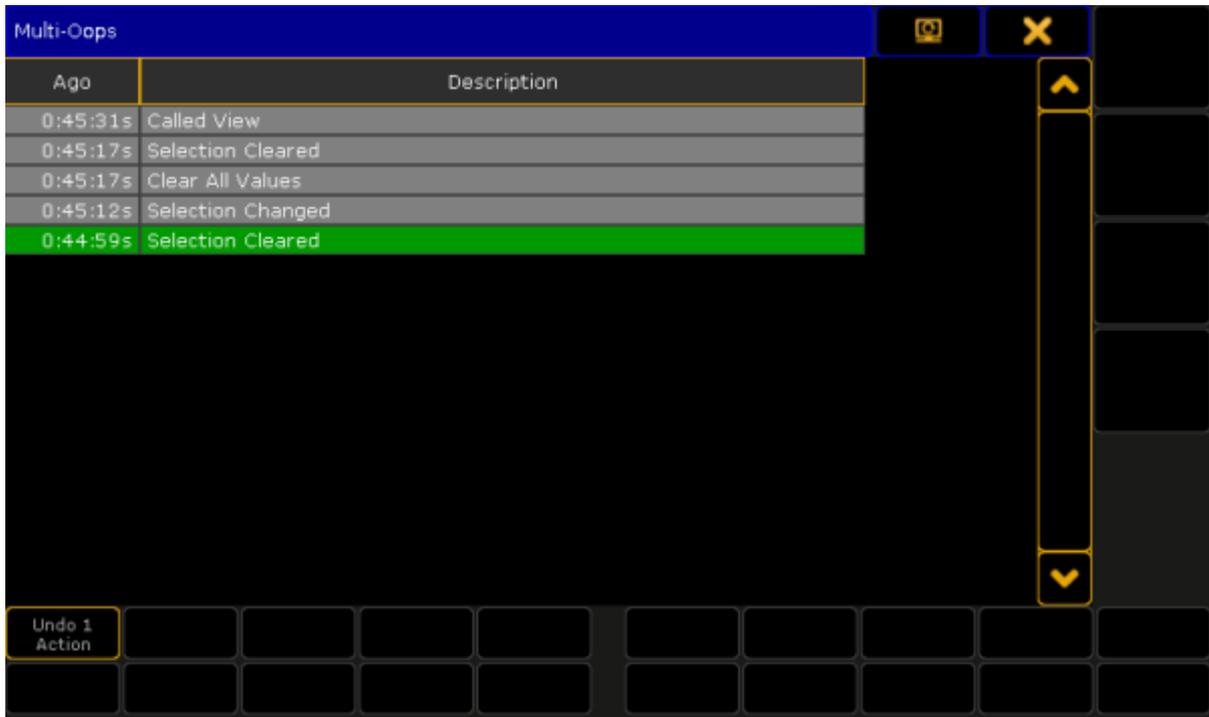


### Important:

An oopsed / undone action cannot be reversed.

To oops / undo more actions:

1. Press and hold the **Oops** key until the **Multi-Oops** pop-up opens.



*Multi-Oops pop-up*

**Note:**

To select more actions, you have to start from the latest action and go backwards. It is not possible to select just one action in the middle of the list and undo them.

2. Select the action you want to undo by tap in the list or turn the screen encoder. The selected actions have a green background. The amount of the selected actions is displayed in the button in the bottom left corner of the window.
3. Tap **Undo x Actions**.

The selected actions are undone.

---

## Set oops settings

By default, everything the following actions will be list in the oops list:

- General (Setup settings)
- Views (View changes)
- Prog (Programmer Actions)

You can customize the oops settings to your need. For example, if you want to have only the programmer actions in the oops list and not every view change, deactivate the views from the oops settings.

To change the oops settings:

1. Press **Setup**, tap at **User**, and tap at **Oops Settings**.  
The **Oops Settings** menu opens.



*Oops Settings menu*

2. Tap at the settings you want to enable or disable.

The oops settings are changed and saved in the show file and in the user profile.

---

## Revert to a previously saved show file version

Every time you saved the show, the previous state of the show file will be saved as a .backup file. The grandMA2 creates up to ten .backup files. After the tenth .backup file is created, the first .backup file will be deleted. This allows to revert a previously saved show file version.

1. Press **Backup**.  
The **Backup** menu opens.

2. Select the drive tab and tap at **Load Show**.



*Load Show - Viewing Shows & Backups*

3. Tap at the view button until **Viewing Shows & Backups** or **Viewing Backups** appears. Now, you can see all saved shows as .show.gz file and their backups as .backup file.
4. Tap at the .backup file you want to revert and select the data you want to load.

**Hint:**

If you are not sure what data you have changed, we recommend to load all data. Tap **Check All**.

5. Tap **Load Show**.

The selected backup is reverted.

## 7.13. Colors

This chapter gives you an overview about the different colors used in the grandMA2.

The colors are there to gives directly information about something what happened. This could be either the status of values in the programmer, or where are they coming from, and so on.

There are a lot of different colors and they gives you a lot of useful information.

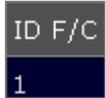
### 7.13.1. System Colors

Some system colors can be changed or adjusted in the grandMA2.

## ID Colors

The channel or fixture IDs can have two different colors.

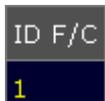
### Gray:



*Gray fixture or channel ID*

Gray fixture or channel IDs indicate fixtures or channel that are not selected. It is the default color.

### Yellow:



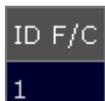
*Yellow fixture or channel ID*

Yellow fixture or channel IDs indicate fixtures or channels that are selected.

## Background Colors of IDs and Names

The background color of the IDs and names can have three different colors.

### Dark Blue:



*Dark blue background color*

Dark blue background indicates that the cell can be edited.

### Black:



*Black background color*

Black background indicates that there is no object to be edited.

### Lavender:



*Lavender background color*

Lavender background indicates fixtures or channels that are limited by a group master. For more information see [group masters](#).

## Dark Purple:

ID F/C	Name
101 ↑	LED 1

*Dark purple background color*

Dark purple background indicates fixtures or channels that are limited by an additive group master. For more information see [group masters](#).

## Blue:

ID F/C	Name
1	Spot 1

*Blue background color*

Blue background indicates fixtures or channels with the option **React to Master off**.

---

## Value Colors and Background Colors of Attributes

The values of attributes from fixtures or channels can have six different system colors. Some of the value colors are also displayed as background colors if the layer **Value Exec ID** or **Effect Exec ID** is selected.

For more information on the layers see [control channels and fixtures](#).

Furthermore, values and background can have cue colors. For more information about cue colors see [cue colors](#).

## Gray:

Dimmer Dim
closed

*Gray value*

Gray values indicate default values and effect values in the programmer.

## Red and White:

Dimmer Dim
open

*Red value*

Dimmer Dim
open

*White value*

Dimmer Dim
open

*Red background*

Red values and white values indicate that this value is in the programmer.

Red background indicates that this value is in the programmer and that it is possible to store this value.

This is an active value in the programmer.



**Hint:**

It is possible to change the color of the value to a high-contrast color in **Setup** – **User administrator** – **Settings** – **Programmer Colors**.

**Pink:**



*Pink value*



*Pink background*

Pink values or background indicate a selectively assigned effect value from an executor.

**Yellow:**



*Yellow value*



*Yellow background*

Yellow values indicate values from an executor, but not from the selected executor.

**Dark Yellow:**



*Dark yellow value*



*Dark yellow background*

Dark yellow values or backgrounds indicate tracked values from an executor, but not from the selected executor.

**Pale Yellow:**



*Pale yellow value*



*Pale yellow background*

Pale yellow values or backgrounds indicate that MIB was enabled from an executor, but not from the selected executor.



**Hint:**

Descending and ascending values and their backgrounds, such as green and cyan, are also displayed in a slightly paler shade if MIB function was enabled.

**White and Grey:**



*White value and gray background*

White value along with gray background indicate values in the programmer from another user profile.

**Dark Blue:**



*Dark blue value*

Dark blue values indicate attributes that cannot be controlled. For more information see [TakeControl keyword](#).

---

## Pool Object Number Colors

The pool object number colors are used in pool objects.

**Gray Pool Object Number:**



*Gray pool object number*

Gray pool object numbers indicate that this pool object is not assigned to a button or an executor. It is not used in the show.

**Cyan Pool Object Number:**



*Cyan pool object number*

Cyan pool object numbers indicate that this pool object is assigned to a button or an executor. This pool object is used in the show.

---

## Included Preset Types

Included preset type markers indicate which preset types are stored in the pool object. Beginning from left, preset type 1 through 9. Included preset type markers appear in preset pools and filter pools.



*White preset type markers indicate included position preset type*

### 7.13.2. Marker Colors

Markers are color indicators in form of a bar, square, or a thin line. Markers are visible in:

- [Channel Sheet](#)
- [Fixture Sheet](#)
- [Sequence Content Sheet](#)
- [Sequence Tracking Sheet](#)
- [Layout View](#)

The name column in the fixture sheet displays a marker summary of all attribute markers of the fixture.

There are the following markers there:

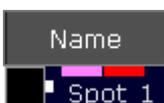
#### Red:



*Red Marker*

Red markers indicate active programmer values (storable).

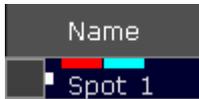
#### Pink and Red:



*Pink and Red Marker*

First Pink and then a red marker indicate active effect values in the programmer (storable).

## Big Cyan:



*Big Cyan Marker*

Big cyan markers in the fixture sheet indicate preset values in the programmer.

Big cyan markers in the sequence tracking sheet indicate preset values in a sequence.

**Small Cyan** (except for the sequence tracking sheet):



*Small Cyan Marker*

Small cyan markers indicate preset values from a sequence.

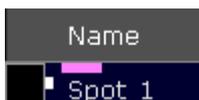
## Blue:



*Blue Marker*

Blue markers indicate parked values – no matter the size of the marker.

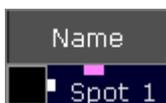
## Big Pink:



*Big Pink Marker*

Big pink markers indicate effect values.

## Small Pink:



*Small Pink Marker*

Small pink markers indicate stomped effect values. For more information on this effect see [Stomp Keyword](#).

## White:



*White Marker*

White markers indicate programmer values which cannot be stored.

## Green:



*Green Marker*

Green markers indicate active individual (= storeable) fade times in the programmer.

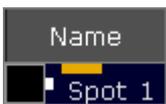
## Pink, Red, and Green:



*Pink, Red, and Green Marker*

Pink, red, and green markers in the combination from left to right indicate active effect fade times in the programmer.

## Orange:



*Orange Marker*

Orange markers indicate active individual (= storeable) delay times in the programmer.

## Pink, Red, and Orange:



*Pink, Red, and Orange Marker*

Pink, red, and orange markers in the combination from left to right indicate active effect delay times in the programmer.

## Small Yellow:



*Small Yellow Marker*

Small yellow markers in the fixture sheet, channel sheet, or layout view, indicate values from a sequence.

## Big Yellow:



*Big Yellow Marker*

Big yellow markers in the sequence tracking sheet or sequence content sheet indicate stored values.

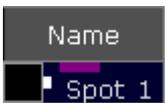
## Gray:



*Gray Marker*

Gray markers indicate that at least one attribute of a fixture uses a DMX profile. This marker is only visible in output layers.

## Purple:



*Purple Marker*

Purple markers indicate attributes that were calculated in the bitmap fixture.

---

## Pool Object Marker Colors

The pool object markers are used in pool objects and they indicate which values are stored in the pool object, in the preset pools and in the filter pools. For more information see [What are Filters?](#) and [Preset Pools](#).

## Yellow Pool Object Marker:



*Yellow Pool Object Marker*

Yellow pool object markers indicate that attribute values are stored in the pool object.



### **Important:**

If a pool object just contains values, the yellow marker will not be displayed.

## Pink Pool Object Marker:



*Pink Pool Object Marker*

Pink pool object markers indicate that effect values are stored in the pool object.

## Green Pool Object Marker:



*Green Pool Object Marker*

Green pool object markers indicate that individual fade times are stored in the pool object.

### Orange Pool Object Marker:



*Orange Pool Object Marker*

Orange pool object markers indicate that individual delay times are stored in the pool object.

---

## Shapes Of Markers

### Bar:



*Bar – Marker Shape*

If a marker is displayed in form of a bar – in red or white – the value is in the programmer.

### Square:



*Square – Marker Shape*

If a marker is displayed in form of a square – no matter the color – the value is in the playback.

### Thin Line:



*Thin Line – Marker Shape*

If a marker is displayed in form of a thin line (here: the thin line in cyan in the upper left corner of the value) – no matter the color – the value is tracked.

---

## Enable or Disable Markers

You can enable or disable the markers. By default, the markers are enabled.

To enable or disable the markers in the:

- [Fixtures Sheet](#)
- [Channel Sheet](#)
- [Sequence Content Sheet](#)
- [Sequence Tracking Sheet](#)

- Tap the **yellow ball** , tap **Display** and then at **Enable Marker** tap **On** or **Off**.

- To enable or disable the marker in the [Layout View](#), tap at the **yellow ball** , tap **Layout Data** and at **Marker** tap **Yes** or **No**.

The markers are enabled or disabled. To save the the settings, save the settings as default or save the view.

### 7.13.3. Cue Colors

The cue colors are value and background colors for the selected executors.

The cue colors are visible in the:

- [Fixture Sheet](#)
- [Channel Sheet](#)
- [DMX Sheet](#) (Programmer Colors)
- Sequence Content Sheet
- Sequence Tracking Sheet
- [Layout View](#) (only for dimmer values)
- [Encoder Bar](#) (linked to the focused sheet)

There are four cue colors available:

#### Magenta:



*Magenta Value - Magenta Background*

Magenta values or backgrounds indicates a tracked value from a selected executor.

#### Cyan:



*Cyan Value - Cyan Background*

Cyan values or backgrounds indicates altered values in the cue from a selected executor.

For dimmer attributes, a cyan value indicates an increasing dimmer value.

#### Green:



### *Green Value - Green Background*

Green values or backgrounds indicates a decreasing dimmer value from a selected executor.

### **White:**



### *White Value - White Background*

White values or backgrounds indicates the same value is stored a second time (blocked value) from a selected executor.

---

## Change Cue Color Options

To change the cue color options in the

- [Fixture Sheet](#)
- [Channel Sheet](#)
- Sequence Content Sheet
- Sequence Tracking Sheet

tap at the **yellow ball**  , tap **Display** and then in the field **Cue Colors** .

---

### **Requirement for layout view:**

The layout elements shows dimmer values.

To change the cue color options in the [layout view](#), tap at the **yellow ball**  , tap **Tools** and in the field **Cue Colors** .

---

To change the cue color options in the [DMX sheet](#), tap at the **yellow ball**  , tap **Display** and then in the field **Programmer Colors** .

- To have no cue colors displayed, tap **Off** .  
All values from all user profiles will be displayed in yellow.
- To have the cue colors from the selected executor always displayed, tap **On** .  
All other executors, will be displayed in yellow.
- **Except DMX sheet:**  
To have the cue colors from the selected executor and all other executors in yellow, started by the own user profile, select **My Exec** .  
Executors run by other user profiles, will be displayed in gray.

For more information to the colors, see [system colors](#).

The cue color options are changed.

To save the cue color option, save the option as default or save the view.

## 7.14. Text indicators

This chapter provides an overview of the different text indicators used in the grandMA2.

The text indicators display information about actions in form of letters or symbols. This could be either additional information or the priority.

There are the following text indicators there:

Text indicators in pool objects, preset objects and mini executors

### Letters

Text indicator	Description
A	Effect pool objects with an absolute effect. For more information see <a href="#">effects</a> .
B (green)	Executor page pool objects with an active button page. For more information see <a href="#">executor pages</a> .
B (gray)	Executor page pool object with a non-active button page. For more information see <a href="#">executor pages</a> .
C (green)	Channel page pool object with an active channel page. For more information see <a href="#">channel pages</a> .
C (gray)	Channel page pool object with a non-active channel page. For more information see <a href="#">channel pages</a> .
C (red)	Macro pool object with deactivated CLI (= Command Line Interaction). For more information see <a href="#">macros</a> .
C (white)	Timer pool object as countdown timer. For more information see <a href="#">timers</a> .
U (white)	Sequence pool object with Priority High. For more information see <a href="#">what are cues and sequences</a> .
D (white)	Sequence pool object with Priority Low. For more information see <a href="#">what are cues and sequences</a> .
F (green)	Executor page pool object with an active fader page.
F (gray)	Executor page pool object with a non-active fader page.
G (orange)	Preset pool object as global preset. For more information see <a href="#">presets</a> .
G (white)	Timer pool object as global timer. For more information see <a href="#">timer</a> .
H (white)	Sequence pool object with Priority HTP (= Highest Takes Precedence). For more information see <a href="#">what are cues and sequences</a> .
H	Universes pool object with an HTP (= Highest Takes Precedence) DMX in merge.
L (white)	Timer pool object as local timer. For more information see <a href="#">timer</a> .
L (white)	Universe pool object with a LoTP (= Lowest Takes Precedence) DMX in merge.
L (white)	Sequence pool object with Priority LTP (=Last Takes Precedence). For more information see <a href="#">what are cues and sequences</a> .

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Text indicator	Description
P	Universe pool object with parked DMX channels.
R (red)	Universe pool object not requested.
R (green)	Effect pool object with a relative effect. For more information see <a href="#">effects</a> .
S (white)	Sequence pool object with Priority Swap. For more information see <a href="#">what are cues and sequences</a> .
S (red)	Effect pool object with a selective effect. For more information see <a href="#">effects</a> .
S (red)	Preset pool object as selective preset. For more information see <a href="#">presets</a> .
S (white)	Timer pool object as stopwatch. For more information see <a href="#">timer</a> .
T (gray)	Sequence pool object with tracking. For more information see <a href="#">what is tracking</a> .
T (white)	Effect pool object with a template effect. For more information see <a href="#">effects</a> .
T (red)	Macro pool object with deactivated timing. For more information see <a href="#">macros</a> .
U	Preset pool object with a universal preset. For more information see <a href="#">presets</a> .

## Symbols

Text indicators	Descriptions
! (white exclamation mark)	Sequence pool object with Priority Super. For more information see <a href="#">what are cues and sequences</a> .
Triangle (white and pointing upward)	Priority High in mini executor of a sequence. For more information see <a href="#">sequence mini executor</a> .
Triangle (white and pointing downward)	Priority Low in mini executor of a sequence. For more information see <a href="#">sequence mini executor</a> .

## 7.15. Icons

The following icons are used in the grandMA2.

### Title Bar Icons

The title bar provides you with information icons and icons with a function.

The following table explains what the icons in title bar mean.

Icon	Meaning
	A world is active. For more information, see <a href="#">World Keyword</a> or <a href="#">Worlds, Filters, and Masks</a> .
	A mask is in use. For more information, see <a href="#">Use Masks in the Sheets</a> .

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Icon	Meaning
	A mask is assigned. For more information, see <a href="#">Use Masks in the Sheets</a> .
	Go home to the Setup start screen.
	Opens the change screen pop-up.
	Deletes the window or closes pop-ups.
	Opens the virtual keyboard.
	Closes the virtual keyboard.
	Zooms in the window.
	Zooms out the window.
	Adjusts the zoom in that way that the entire recorded timecode show is visible in the window.
	Follows the time marker and sets it to the middle of the window.
	Opens the window options.

## Pool Object Icons

The pool objects provides you with information about the object itself.

Icon	Meaning
	Pool object is locked. To unlock a pool object, see <a href="#">Unlock Keyword</a> .
	Pool object is fixed locked by default. It can not be unlocked.
	Pool object contains additional information.
	Camera pool object is linked to a camera fixture. For more information, see <a href="#">Camera Pool</a> .
	<ul style="list-style-type: none"> <li>Timecode slot pool object with incoming SMPTE timecode.</li> <li>Timecode pool object linked to a timecode slot with incoming SMPTE timecode.</li> </ul> For more information, see <a href="#">timecode</a> .
	<ul style="list-style-type: none"> <li>Timecode slot pool object with incoming MIDI timecode.</li> <li>Timecode pool object linked to a timecode slot with incoming MIDI timecode.</li> </ul> For more information, see <a href="#">timecode</a> .
	Sequence pool object with input filter. For more information, see <a href="#">cues and sequences</a> .
	<ul style="list-style-type: none"> <li>Paused timer pool object. For more information, see <a href="#">timer</a>.</li> <li>Paused timecode slot pool object. For more information, see <a href="#">timecode</a>.</li> <li>Paused timecode pool object. For more information, see <a href="#">timecode</a>.</li> </ul>
	<ul style="list-style-type: none"> <li>Running timer pool object. For more information, see <a href="#">timer</a>.</li> <li>Running timecode slot pool object. For more information, see <a href="#">timecode</a>.</li> <li>Running timecode pool object. For more information, see <a href="#">timecode</a>.</li> </ul>
	Timer pool object is off. For more information, see <a href="#">timer</a> .
	Running record for macro pool object. For more information, see <a href="#">record keyword</a> or <a href="#">macros</a> .
	<ul style="list-style-type: none"> <li>Blinking: Refresh DMX signal for a universe pool object</li> <li>Permanent: Change DMX values for DMX channels in the universe pool object</li> </ul>
<b>RDM</b>	Universe pool object with running RDM. For more information, see <a href="#">RDM</a> .
<b>RDM</b>	Universe pool object with RDM on for this universe and global RDM off. For more information, see <a href="#">RDM</a> .

## Command Line and Message Center Icons

The [command line](#) and the message center provides you with information about the:

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- Network
- Show
- Power
- Chat
- CIP

Some icons can be disabled or enabled in the message center options. For more information, see [Message Center](#).

The following table explains what the icons in the command line and in the message center mean.

Icon	Meaning
	The console runs from the battery power only.
	The console is in a standalone mode. For more information, see <a href="#">Create a Session</a> .
	The console is master of a session. For more information, see <a href="#">Session Control</a> .
	The console is slave of a session. For more information, see <a href="#">Session Control</a> .
	Invite is disabled in the Setup - MA Network Control.
	A new message is received. For more information, see <a href="#">Chat Keyword</a> .
	Network cable or connection is missing or defect.
	Receive CIP video.
	DMX tester output is active.
	Receive timecode SMPTE signal.
	Receive timecode MIDI signal.
	A timecode record is active. For more information, see <a href="#">Timecode Keyword</a> or <a href="#">Record Keyword</a> .
	There are fixtures or channels in the Patch & Fixture Schedule without a patch address. For more information, see <a href="#">Patching</a> .
	A patched universe has no output on a DMX port.
	More DMX channels are patched than available parameters.
	The Exec CLI (= Command Line Interaction) or the Default Go, GoBack, Pause CLI is off. For more information, see <a href="#">Local Settings</a> .
	A world is active. For more information, see <a href="#">World Keyword</a> or <a href="#">Worlds, Filters, and Masks</a> .
	DMX channels are parked. To unpark DMX channels, see <a href="#">Unpark Keyword</a> .
	Preview is on. For more information, see <a href="#">Preview Keyword</a> .

Icon	Meaning
	A filter from the filter pool or a command filter is active. For more information, see <a href="#">Filter Keyword</a> or <a href="#">Worlds, Filters, and Masks</a> .
	Blind mode or blind edit mode is on. For more information, see <a href="#">Blind Keyword</a> .
	A macro record is active. For more information, see <a href="#">Record Keyword</a> or <a href="#">Macros</a> .
	A group master or grand master is active.
	Highlight is active. For more information, see <a href="#">Highlight Keyword</a> .
	Solo is active. For more information, see <a href="#">Solo Keyword</a> .
	Backup file server is unavailable. For more information, see <a href="#">Setting up a File Server</a> .
	A previous available station is missing or the IP address of a station changed. For more information, see <a href="#">Networking</a> .
<b>IP</b>	At least two devices with the same IP address are in the network. Double-check the IP addresses. For more information, see <a href="#">Networking</a> .
<b>RDM</b>	A RDM device sends an alert. For more information, see <a href="#">RDM</a> .
<b>RDM</b>	A RDM device sends a warning. For more information, see <a href="#">RDM</a> .

## Encoder Toolbar Icons

The following table explains what the icons in the [encoder toolbar](#) mean.

Icon	Meaning
	Executes a GoFastBack. For more information, see <a href="#">&lt;&lt;&lt; GoFastBack Keyword</a> .
	Executes a GoBack. For more information, see <a href="#">GoBack Keyword</a> .
	Executes a Pause. For more information, see <a href="#">Pause Keyword</a> .
	Executes an Off. For more information, see <a href="#">Off Keyword</a> .
	Executes a Go. For more information, see <a href="#">Go Keyword</a> .
	Executes a GoFastForward. For more information, see <a href="#">&gt;&gt;&gt; GoFastForward Keyword</a> .
	Select to draw rectangles in the <a href="#">Layout View</a> .
	Select to create text boxes in the <a href="#">Layout View</a> .

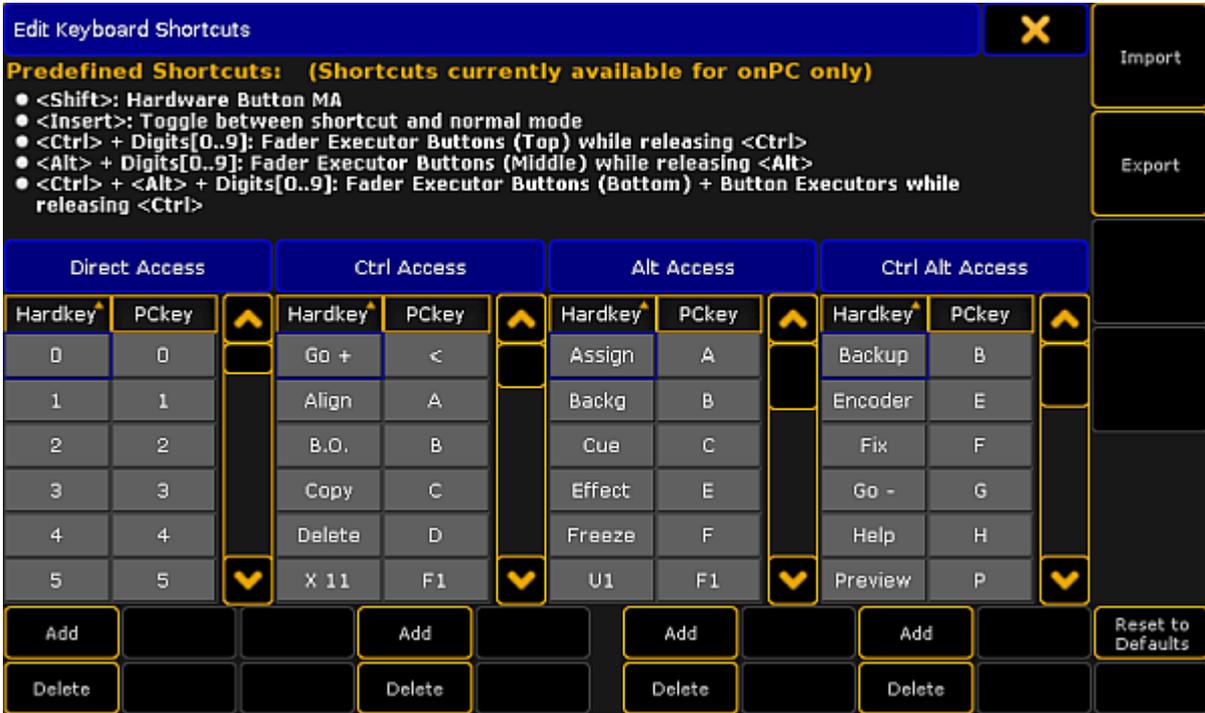
## 7.16. Keyboard shortcuts



## Important:

Keyboard shortcuts are only available on a grandMA2 onPC.

To go to the keyboard shortcuts press the **Setup** and under tab **Console** tap **Edit Keyboard Shortcuts**.



**Edit Keyboard Shortcuts**

**Predefined Shortcuts: (Shortcuts currently available for onPC only)**

- <Shift>: Hardware Button MA
- <Insert>: Toggle between shortcut and normal mode
- <Ctrl> + Digits[0..9]: Fader Executor Buttons (Top) while releasing <Ctrl>
- <Alt> + Digits[0..9]: Fader Executor Buttons (Middle) while releasing <Alt>
- <Ctrl> + <Alt> + Digits[0..9]: Fader Executor Buttons (Bottom) + Button Executors while releasing <Ctrl>

Direct Access		Ctrl Access		Alt Access		Ctrl Alt Access	
Hardkey	PCkey	Hardkey	PCkey	Hardkey	PCkey	Hardkey	PCkey
0	0	Go +	<	Assign	A	Backup	B
1	1	Align	A	Backg	B	Encoder	E
2	2	B.O.	B	Cue	C	Fix	F
3	3	Copy	C	Effect	E	Go -	G
4	4	Delete	D	Freeze	F	Help	H
5	5	X 11	F1	U1	F1	Preview	P

Buttons: Add, Delete, Import, Export, Reset to Defaults

*Edit Keyboard Shortcuts window*

The following tables displays the default grandMA2 onPC keyboard shortcuts.

## Shortcuts for command area keys

Key	Shortcut
Blind	B
Freeze	Alt + F
Prew	Ctrl + Alt + P
Assign	Alt + A
Align	Ctrl + A
U1	Alt + F1
U2	Alt + F2
U3	Alt + F3
U4	Alt + F4
Fix	Ctrl + Alt + F
Select	Ctrl + S
Off	O
Temp	Ctrl + Alt + T
Top	Alt + T
On	Ctrl + O
<<<	Alt + <

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Key	Shortcut
Learn	Ctrl + L
>>>	Ctrl + Alt + <
Small Go -	<
Small Pause	Ctrl + P
Small Go +	Ctrl + >
View	V
Effect	Alt + E
Goto	Alt + G
Page	Alt + P
Macro	M
Preset	P
Sequ	Alt + S
Cue	Alt + C
Exec	X
Channel	C
Fixture	F
Group	G
Delete	Ctrl + D
Move	Ctrl + M
Copy	Ctrl + C
Full	Ctrl + F
Highlt	H
Solo	Ctrl + Alt + S
Backg	Alt + B
User1	Ctrl + U
User2	Alt + U
Time	Ctrl + T
Esc	Esc
Edit	E
Oops	Backspace
Update	U
Clear	Delete
List	L
Store	S
MA	Shift
Please	Enter
.	.
If	I
At	A
Thru	/ (number pad)
+	+
-	-
0	0
1	1

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Key	Shortcut
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
Up	Arrow up
Down	Arrow down
Prev	Arrow left
Next	Arrow right
Set	End
	Ctrl + Alt + E

## Shortcuts for menu keys

Key	Shortcut
Tools	Ctrl + F12
Setup	F12
Backup	Ctrl + Alt + B
Help	Ctrl + Alt + H

## Shortcuts for X-keys

Key	Shortcut
X1	F1
X2	F2
X3	F3
X4	F4
X5	F5
X6	F6
X7	F7
X8	F8
X9	F9
X10	F10
X11	Ctrl + F1
X12	Ctrl + F2
X13	Ctrl + F3
X14	Ctrl + F4
X15	Ctrl + F5
X16	Ctrl + F6
X17	Ctrl + F7
X18	Ctrl + F8
X19	Ctrl + F9
X20	Ctrl + F10

## Shortcuts for master section keys

Result	Shortcut
Ch Pg+	Alt + PgUp
Ch Pg-	Alt + PgDown
Fd Pg+	PgUp
Fd Pg-	PgDown
Bn Pg+	Ctrl + PgUp
Bn Pg-	Ctrl + PgDown
Large Pause	Alt + Space
Large Go-	Ctrl + Space
Large Go	Space

## Shortcuts for grandMA2 onPC screen buttons

Result	Shortcut
Extern 1	Ctrl + Alt + F5
Extern 2	Ctrl + Alt + F6
Executor 1 - 15, 101 - 115	Ctrl + Alt + F7
Executor 16 - 30, 116 - 130	Ctrl + Alt + F8
Screen 2	Ctrl + Alt + F2
Screen 3	Ctrl + Alt + F3
Screen 4	Ctrl + Alt + F4

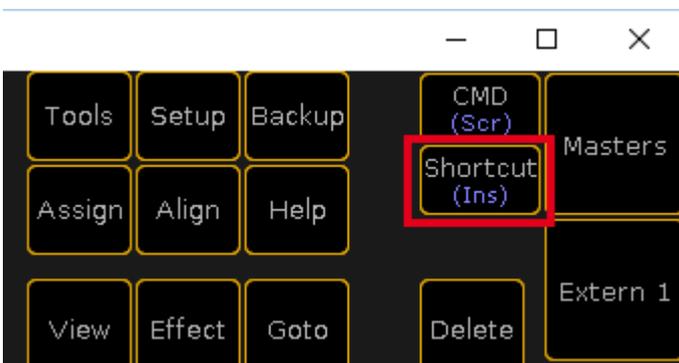
## Reset keyboard shortcuts to defaults

To reset the keyboard shortcuts to their defaults:

1. Click **Setup** and then under tab **console** click **Edit Keyboard Shortcuts**.  
The Edit Keyboard Shortcuts window opens.
2. Click **Reset to Defaults**.

The keyboard shortcuts are reset to their defaults.

### 7.16.1. Turn on or turn off the keyboard shortcuts



#### Shortcut Button

Turn the keyboard shortcuts on

- Click **Shortcut** in the grandMA2 onPC or press **Insert** on your keyboard.

The keyboard shortcuts are turned on for the grandMA2 onPC. The shortcuts are displayed in brackets below the keys.

Turn the keyboard shortcuts off

- Click **Shortcut** in the grandMA2 onPC or press **Insert** on your keyboard.

The keyboard shortcuts are turned off for the grandMA2 onPC.

## 7.16.2. Edit keyboard shortcuts

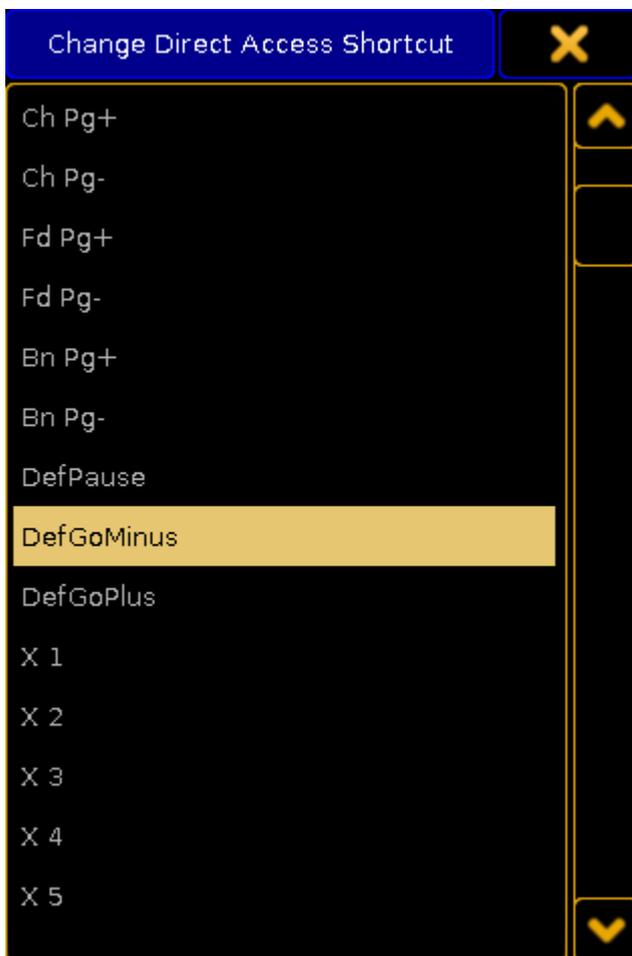


### Important:

Keyboard shortcuts are only available on a grandMA2 onPC.

You can edit the default keyboard shortcuts and customize them to your needs.

1. Click **Setup** and then under tab **console** click **Edit Keyboard Shortcuts**.  
The Edit Keyboard Shortcuts window opens.
2. Search for the keyboard shortcut you like to change and make a right mouse click in either the cell of the **Hardkey** column or in the cell of the **PCkey** column.  
If you have clicked in the Hardkey column, the **Change Direct Access Shortcut** pop-up opens.

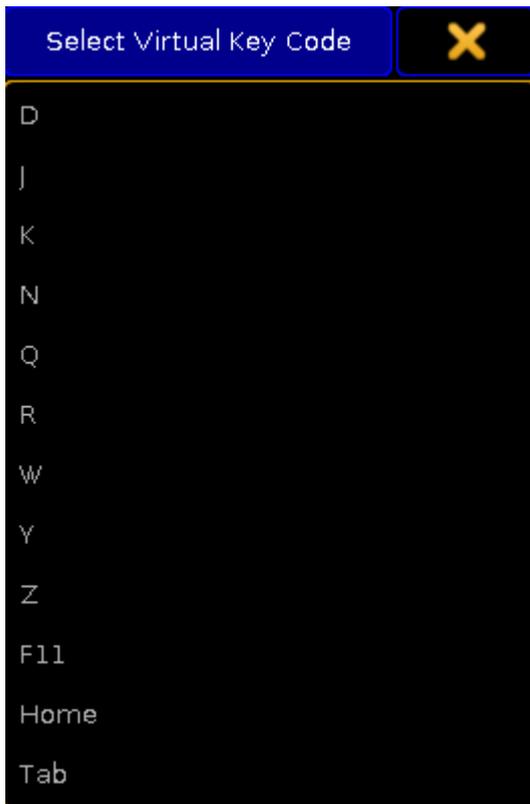


*Change Direct Access Shortcut pop-up*

### Information:

Keys that are already assigned to another virtual key code are not listed anymore, and vice versa. If you need a key or virtual keycode what is not listed, you have to modify or delete the keyboard shortcut where it is in use. If the key or virtual keyboard is free, you can assign it.

If you have clicked in the PCkey column, the **Select Virtual Key Code** pop-up opens.



*Select Virtual Key Code pop-up*

3. Click at the Hardkey or PCkey you like to have.  
The Change Direct Access Shortcut or Select Virtual Key Code pop-up closes.

The keyboard shortcut is edited and saved in the show file.

### 7.16.3. Add or delete keyboard shortcuts



**Important:**

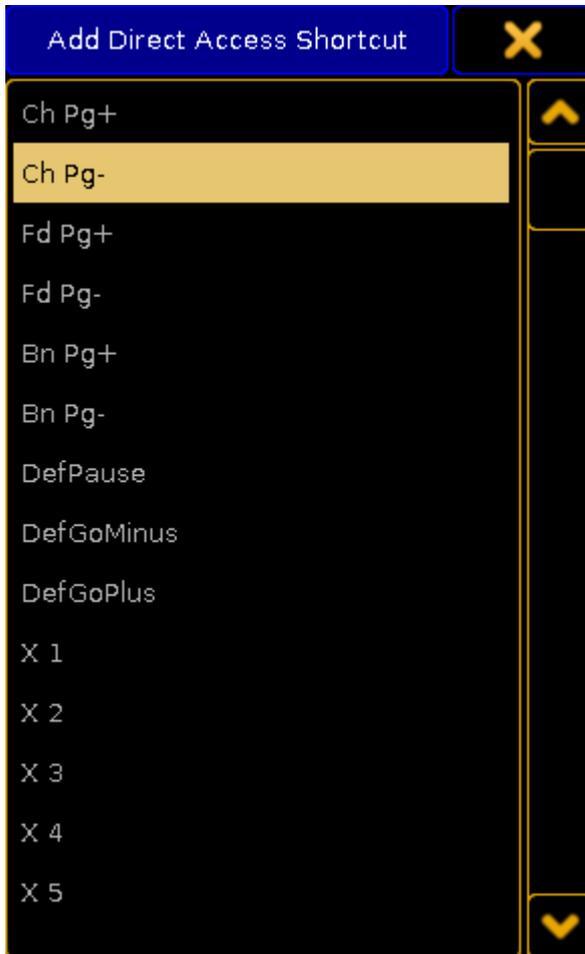
Keyboard shortcuts are only available on a grandMA2 onPC.

You can add more keyboard shortcuts or delete existing keyboard shortcuts.

#### Add keyboard shortcuts

1. Click **Setup** and then under tab **console** click **Edit Keyboard Shortcuts**.  
The Edit Keyboard Shortcuts window opens.
2. Choose if you would like to add a shortcut with:
  - Direct Access
  - Ctrl Access
  - Alt Access
  - Ctrl Alt Access

3. Click **Add** below the table you like to add the shortcut.  
The **Add Shortcut** pop-up opens regarding to the selected table.



*Add Direct Access Shortcut pop-up*

4. Click at the hardkey you like to add.  
The **Select Virtual Key Code** pop-up opens.



*Select Virtual Key Code pop-up*

5. Click at the PCkey you like to have.  
The Select Virtual Key Code pop-up closes.

The keyboard shortcut is added.

---

## Delete keyboard shortcuts

1. Click **Setup** and then under tab **console** click **Edit Keyboard Shortcuts**.  
The Edit Keyboard Shortcuts window opens.
2. Click at the keyboard shortcut you like to delete.
3. Click below the table of the to delete shortcut at **Delete**.

The keyboard shortcut is deleted.

### 7.16.4. Export or import keyboard shortcuts



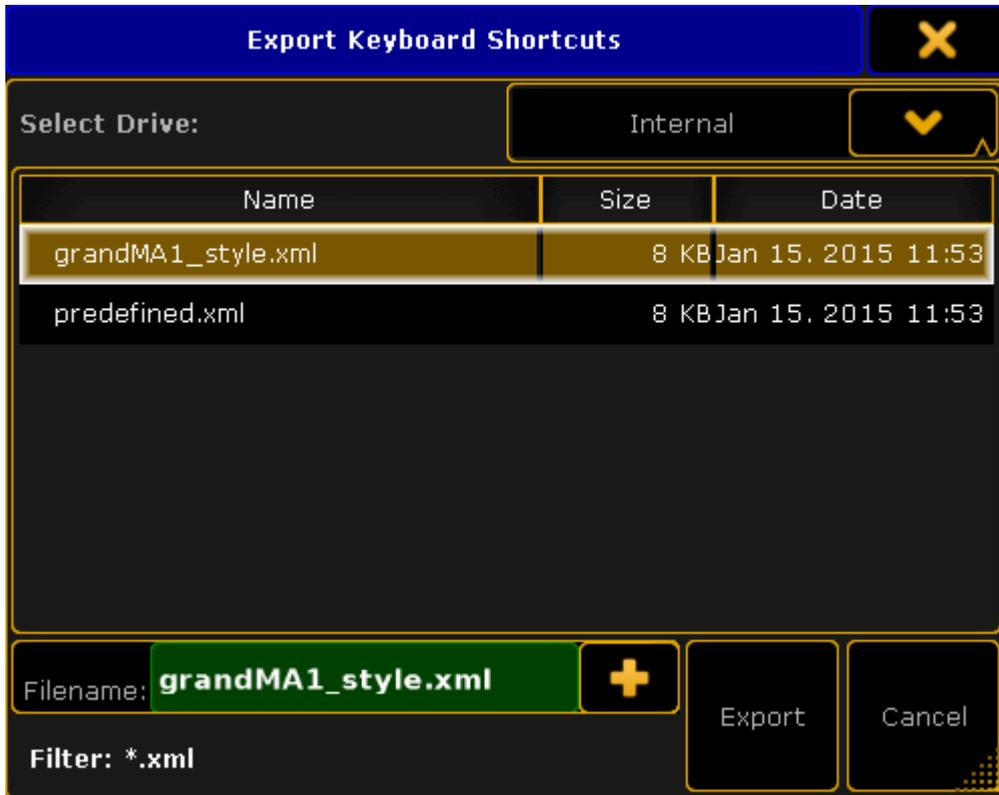
#### **Important:**

Keyboard shortcuts are only available on a grandMA2 onPC.

You can export your customized keyboard shortcuts for a later import in another show file.

## Export keyboard shortcuts

1. Click **Setup** and then under tab **console** click **Edit Keyboard Shortcuts**.  
The **Edit Keyboard Shortcuts** window opens.
2. Click **Export**.  
The **Export Keyboard Shortcuts** pop-up opens.



*Export Keyboard Shortcuts pop-up*

3. Select the drive for the exported keyboard shortcuts.
4. If you want to overwrite an existing keyboard shortcuts .xml file, click at the file you want to overwrite. If you want to create a new file, enter new file name in the **green edit line**.
5. Click **Export**.

The keyboard shortcuts .xml file is exported.

If you have exported the keyboard shortcuts .xml file on a drive of you PC, the export file is in the hidden folder **C:\ProgramData\MA Lighting Technologies\grandma\gma2\_V\_3.1.2\shortcuts**.

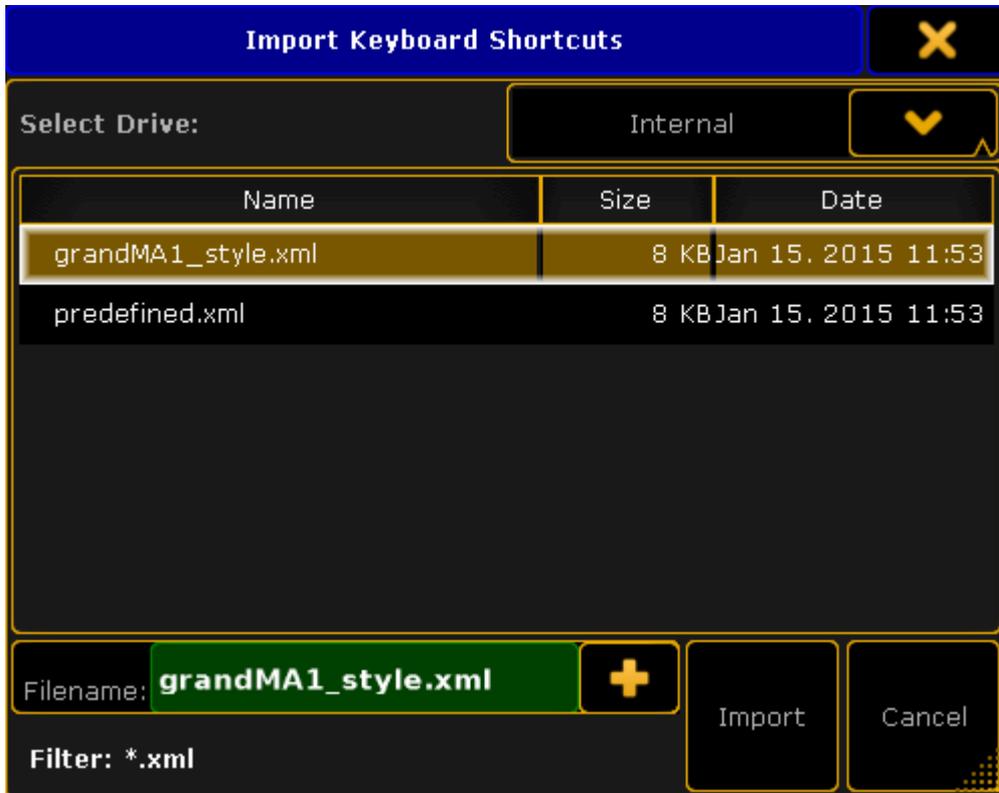
If you have export the the keyboard shortcuts .xml file on a USB stick, the export file is in the **E:\gma2\shortcuts**.

## Import keyboard shortcuts

1. Click **Setup** and then under tab **console** click **Edit Keyboard Shortcuts**.  
The **Edit Keyboard Shortcuts** window opens.

2. Click **Import**.

The **Import Keyboard Shortcuts** pop-up opens.



*Import Keyboard Shortcuts pop-up*

3. Select the drive from which the keyboard shortcuts to be imported.
4. Click at the file and click **Import**.

The selected keyboard shortcuts are imported.

## 8. Welcome to the Quick Start Guide

Hello and welcome to the Quick Start Guide.

In the following chapters we are going to have a guided look at some of the most used functions in the grandMA2.

This is a more personal guided tour through the grandMA2 software and I (the author) will guide you (the reader), writing in a more direct and easygoing manner than the rest of this manual. I hope you will enjoy it.

We are not going to spend time on how to connect or configure a console or onPC in this guide.

We will begin where everything is up and running. If you need help setting up the console before this guide, please have a look at the [First step topics](#). If you need help with installing and running your onPC, please have look at [grandMA2 onPC details](#) or the [Introduction](#).

### Preface

This guide is written using primarily the grandMA2 onPC. The thought is that most users that go thru this, is on the onPC platform. If there is any difference in how to operate the onPC or console, then it will be explained.

A mouse/trackball is recommended. Often the guide will say something like "click the button". This is the same as tapping it on a console. "Right click the fixture number" is the same as first pressing the **Edit** key and then tapping the fixture number on a console. You can use the trackball or an external mouse on the console, it is all up to you.

If you are using the onPC, then you are going to work a lot on the "virtual" screens. If "screen 1" is mentioned, then it is the one on the **Command** section - buttons on the right hand side. If the onPC is running in "MultiScreen" mode (onPC options), then it is your main window and you will not see a Command button on the right side. You can access the executors by tapping the **Executor 1 - 15 101 - 115** buttons in the menu on the right side. The different other screens can be accessed by tapping the relevant buttons in the right hand side menu.

At some point we need to use the big main executors. On the console it is the two 100mm faders and the three big default buttons below the faders. On the onPC you can find the same faders and buttons by tapping the **Masters** button - also in the menu on the right side.

It is recommended that you read this online, since this is the most up to date version. But you can also create this as a PDF and print it. But you could save the paper and maybe just take the PDF with you and read it on your favorite electronic platform instead.

One favorite platform could be the console or onPC where this guide is available in the help system - and then you do not need to create a PDF.

The Quick Start Guide is meant to be read from start to finish and it is meant for beginners. If you are looking for help on a specific topic you should try to have a look at the menu on the left or search for it in the online manual.

To get the best result you should try to do precisely what is written. If you change something that is not described you might get a different result - and then you might get sad and depressed and lighting should be fun :-)

### Markup in the Quick Start Guide

In this guide there are different markups of different situations.

Even though this is written for onPC there is going to be a lot of (virtual) button presses. If you should press or click keys then it is displayed like this: **Store Cue 1 Please**.

If we are just talking about a key, then it will be written in single quotes like this: The 'Store' key.

If it is an area on the screens you will need to click or press then it is written like this **Internal**. This could be tabs in menus or a button on the screen.

If we are talking about a term, then it will look like this: **Store** is a function to save something.

If you need to use a keyboard and write something in the command line (we are going to look at what this is later) the it will look like this:



All input like this should be executed with a Enter on your keyboard. This is not displayed. It is the same as the **Please** key. It is not a visible command - it is the key that executes the typed command. There is a default keyword displayed in the command line input above. It is the word inside the square brackets. You do not need to write this it is already there - it might be different than the one displayed above.

A feedback from the system is displayed like this:



Notice that the Please or Enter is not displayed.

If you need to write something on the keyboard that is not for the command line, then the keyboard input will look like this: store cue 1.

So, let us begin. Make sure the onPC or console turned on and running, then go to the [next page](#).

## 8.1. Let's create a new empty show

The first thing you need to do is the press the **Backup** key so the Backup Menu can be seen on the 9" screen in the command section - this is called screen 1. Menus often appear on screen 1

Then make sure the **Internal** tab is selected.

Now tap the **New Show** button.

This opens the "New Show" pop-up. Here you can write the name of the new show and choose to clear different areas of the current show.

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In the name box, write this: **Quick Start Guide 1**

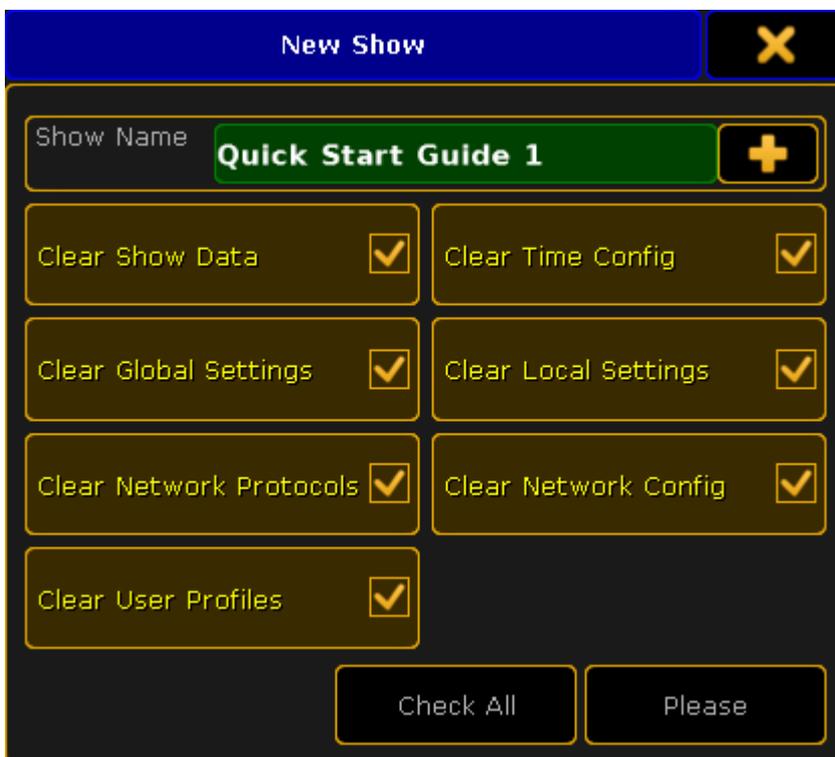
If you are using console that you share with other people, then please add your name in front of this. This will make sure that you are creating a new show file instead of overwriting an existing one - in case someone else already did this guide.

Make sure you check all the boxes in the pop-up.

This ensures that the new show is empty and with all the default options. It basically makes sure you do not bring anything from the currently loaded show into our new show.

The fast way to this is to tap the **Check All** button

Your pop-up should look something like this:



*New Show pop-up*

Then you can tap the **Please** button. If there already exists a show using the name you typed, then a warning will appear asking what to do. You can go back and write a different name or overwrite the existing show.

Close the Backup Menu by pressing the yellow **X** in the upper right corner when you have created a show file. The yellow 'X' is how you always closes temporary windows and pop-ups.

You have now created a new empty show.

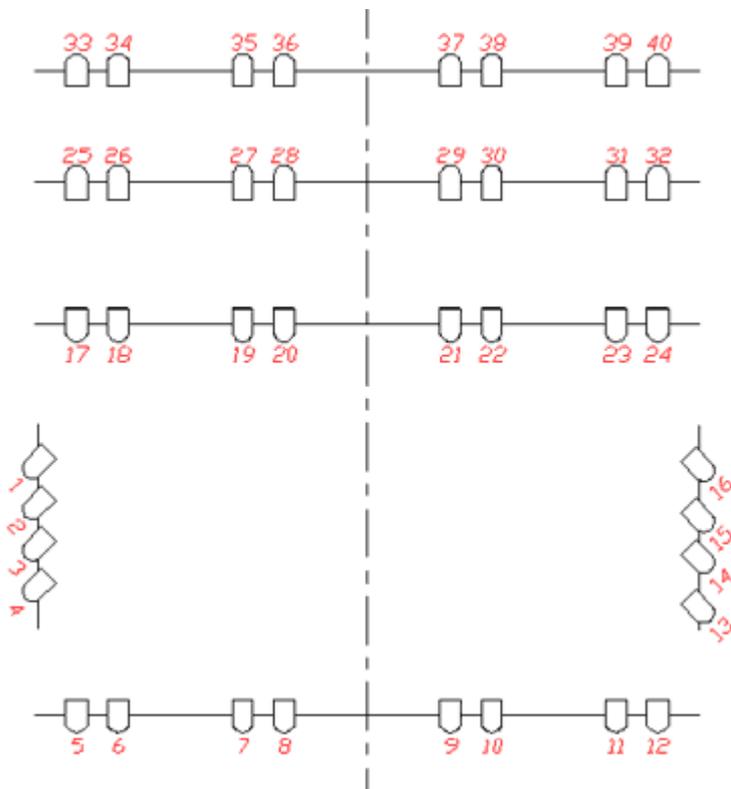
Go to the [next page](#) to learn to patch dimmers.

## 8.2. Adding and patching dimmers

Now we are going to add and patch 40 dimmer channels.

During this tutorial we are going to create a show with many different fixtures that can do a lot of exiting things. It is just virtual lights so they do not cost anything :-)

Before we can dance ballet, we have learn to crawl, so we begin with a simple design with some general stage wash.



*Drawing of the light plot*

This gives you a total of 40 dimmer channels.

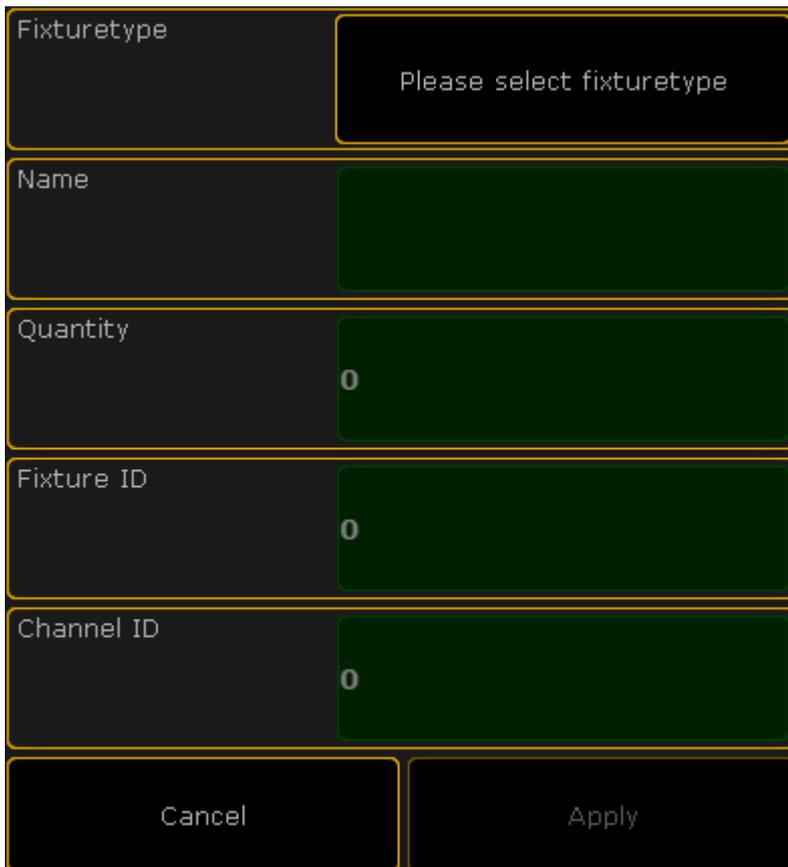
Enter the Fixture Schedule

Press the **Setup** key. Tap the **Patch & Fixture Schedule** button.

Now you will see a pop-up that is called "Layer Name". Here you write: **Dimmers** followed by a 'Please'/enter.

Next thing you see is the "Fixture Wizard" - I know, you expected that to be an old guy with a pointed hat and a wand. Sorry, it is not.

The left part of the wizard should look like this:



## *Empty Fixture Wizard*

We need to put information in all the green areas to add the dimmers.

The right side of the screen will help filling out the data in the green fields. It changes depending on what field is selected on the left side.

### Select the fixture type

Make sure you have selected the first thing that needs to be filled out - tap the button called **Please select fixturetype**.

The right side now shows you the the fixture types that currently exist in our show.

There is one called "2 Dimmer 00 (DMX 1)". This is a general dimmer that uses one DMX channel to control the output from a dimmer.

That fits perfectly to what we need right now - please tap it.

### Give it a name

Selecting the fixture type changes the left side of the screen. It has changed the fixture type to the one you have selected. It has put something in the Name field as well. It automatically calls it "Dim 1". This means that the first dimmer channel that we add will be named "Dim 1".

Because of the space between the text and number, the following fixtures will be enumerated. So the second fixture will be called "Dim 2", third one is "Dim 3", and so on.

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This is a fine name for now.

Adding multiple fixtures in one go

The field that is highlighted on the left side is called "Quantity".

Here we can type the number of fixture we want to add.

Write: 40 followed by a 'Please'/enter.

Fixture and channel ID

We call a dimmer a "fixture" even though it might be a dimmer in a rack of multiple dimmers somewhere.

All fixtures need a unique ID number that allows you to select the fixture and give it a value.

All the fixtures can have two ID numbers; a "Fixture ID" and a "Channel ID". There is naturally a difference. A fixture can have both a Fixture ID and Channel ID and they can be different, but it needs at least an ID number in one of them.

In this guide we need the dimmers to only have a Channel ID, so leave the "0" in the "Fixture ID" field.

We want the first dimmer to use Channel ID number 1. Make sure the green field in the "Channel ID" says "1".

Automatically the rest of the dimmers will be enumerated from this.

DMX patch

Now we need to tell the grandMA2 the DMX address for the first dimmer. The rest will be enumerated from this.

We want the dimmers to begin at DMX address 1 in the first DMX universe.

Type 1.001 followed by 'Please'.

This is Universe 1, a dot, and then address number 1.

Finish and confirm

Now the left side should look like this:

Fixturetype	2 Dimmer 00
Name	<b>Dim 1</b>
Quantity	<b>40</b>
Fixture ID	<b>0</b>
Channel ID	<b>1</b>
Patch Break 1	<b>1.001</b>
Cancel	Apply

*Completed Fixture Wizard*

Press the **Apply** button. You have now added 40 dimmers in the fixture schedule.

Close the two setup screens using the yellow **X**. Do not worry to much about their content, we will return to them again later.

You are asked to confirm the changes you have made. This means if we want to save what we did in the fixture schedule. Please save it.

On the [next page](#) we are going to look at controlling those channels.

## 8.3. Using the screens and windows

Now is a good time to have a closer look at working with screens and windows.

### Command Line Feedback window

Often it can be an advantage to see how the console reacts to your input. This is done on the Command Line Feedback window.

We are going to create this window at the bottom of screen 2 (the 15,4" touch screen on the right side).

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Tap anywhere in the upper left corner on the empty screen. This gives you the "**Create Basic Window**" pop-up. Here you need to tap the **System** tab. Here you will find a **Command Line** button. Tap it.

Now you have created a Command Line Feedback window.

It continually gives you a lot of information. Do not be confused about all the information. We will go through it, when needed.

You can resize the window by pressing and holding the area in the lower right side of the window (where there is a lot of yellow dots) and then move your finger/mouse into the window. Release the screen when you are happy with the size.

Make the window smaller.

When the window does not take up the entire screen, then the window can be moved by pressing and holding the title bar of the window (where the "Command Line Feedback" text is) and move your finger/mouse around the screen.

Move the window to the bottom of the screen.

## Channel Sheet

To view your 40 channels you will need a Channel Sheet window.

Press the upper left corner on screen 2. Then select the **Sheets** tab in the "**Create Basic Window**" and then the **Channel** button.

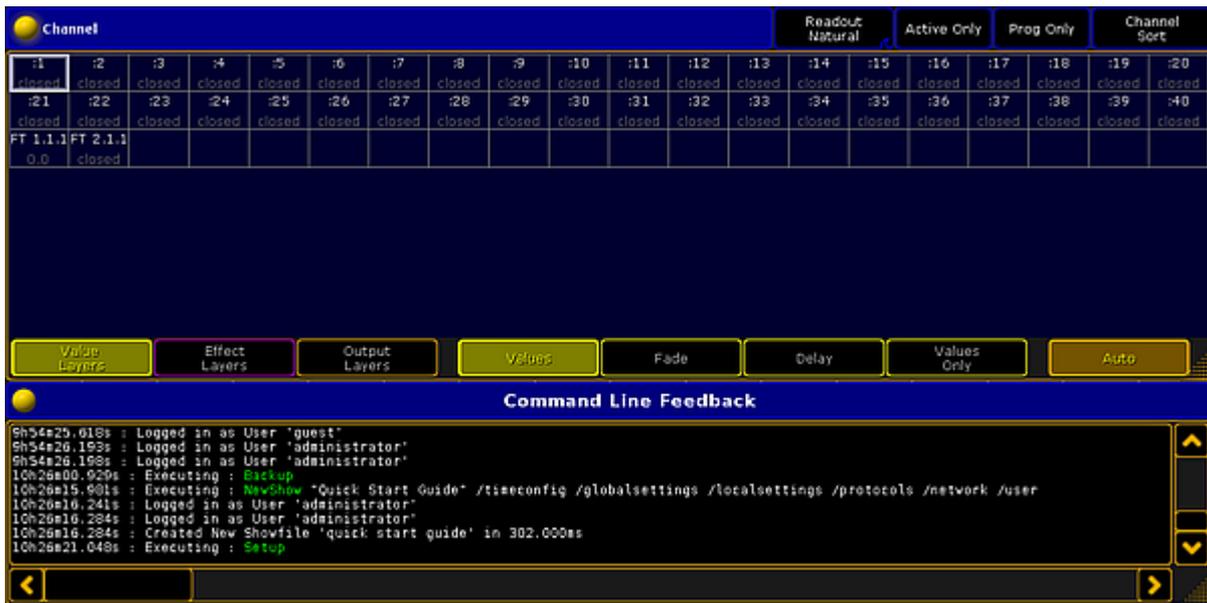
You have now created a Channel Sheet. Here you can see your channels and the values they have.

There are some extra special channels in the sheet. They are called "FT 1.1.1" and "FT 2.1.1". They are automatically created "Fixture Type" channels. They are created by the software and you should not worry about them. The details about them are outside the scope of this guide.

Your screen should now look something like this (It is scaled down in size - click it to open the bigger version - online manual only):

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Screen layout

## Storing Views

In the right side of screen 2 you have some positions where you can store your window arrangement, the stored arrangement is called a "View" and the buttons on the right side screen of screen number 2 to screen number 6 are called "View Buttons".

You can store your view on any of the view buttons.

We are going to store our view on the top view button on screen 2.

Press the **Store** key followed by the **V1** key (hard key next to screen 2). On the onPC you do not have the 'V1' key so just tap the view button on the screen.

This gives you a pop-up. It asks which screens you want to store. Without changing anything tap the **Please** button.

You have now created a view called "view 1". Let us give it a better name.

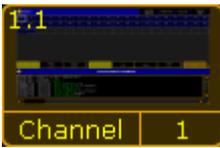
Press the **Assign** key twice followed by the **V1** - or just the view button. This gives you a new input pop-up. Here you write: **Channel** followed by a 'Please'/enter.

You can see in your Command Line Feedback window writes this:

```
[time] : Executing : Label ViewButton 1.1 /screen=2
```

This tells you that you have given your view a new label and that it is regarding screen number 2.

The view button should look like this:



*ViewButton with thumbnail*

This is a thumbnail of the stored view.

It does not matter if you press the **V1** key or the view button on the screen. The result is the same.

On the [next page](#) we are going to learn about controlling the values of the channels.

## 8.4. Controlling dimmers or channels

We are now going to control the dimmers - called channels.

### Turn on the channels

There are many ways to turn on channels on a grandMA2.

Begin with one of the simple ones. Press **1 At 1 0 0 Please** - You have now turned on channel 1 at 100%.

This works because you have "Channel" as the default keyword in your command line input:



This is the keyword the console will put in front of your command, unless you specify a different keyword. This saves you from manually pressing the 'Channel' key before the command input.

If your default keyword is not "Channel", then press **Channel Please**.

Let us have a look at what else happened. The Channel ID "1" has changed to a yellow color and the background behind the value has changed to a red color. Also the value (in this case the intensity) is now in a red text color.

The yellow colored Channel ID means that the channel is selected and setting at new value will affect the selected channels. Now press **At 5 0 Please**. Since the channel is already selected you can just give it a new value and it is now at 50%.

Now press **Clear** once. Channel 1 is no longer selected and you cannot just change the intensity again.

The red background color indicates that the value will be saved if you press 'Store' (do not do it now). Instead press once more on **Clear**.

The only thing left is the value in the red text color. This means that it is still in the temporary memory (called the programmer) and will create output, but it will not be saved if you store.

Press **Clear** once more. Now channel 1 is turned off and it is not in the programmer anymore. Instead of pressing the 'Clear' button 3 times you can keep it pressed for about 1 second and you have cleared the programmer - same

as the three presses on 'Clear'.

There are other ways to turn a channel at 100%. Here's another example: **1 At At**. This is a shortcut to give the channel a value of 100% (unless someone have changed a setting in the setup).

Press **.** twice. This gives channel 1 a value of 0%. You can of course also use "At 0 Please". The value is in the programmer and will be stored (if you save a cue).

Press **Clear** until the programmer is cleared.

If you have several channels in the programmer and just what to "release" one, you can use the 'Off' key in combination with the 'Channel' key. Turn on channel 1 at 100%.

Now press **Off Channel 1 Please**. This will take out channel 1 from your programmer.

One other way to give a channel a value is the "Level" wheel. With this you can change the value of the selected channels fast and simple. Turn it away from you and the value of the selected channels goes up. Turn it towards yourself and it goes down.

If you want to turn on several channels at the same time you need the '+' and/or 'Thru' keys. They are pretty self-explanatory.

Guess what you need to press to turn on channel 1 to 10 plus 20 at 20%. This is the fast way: **1 Thru 1 0 + 2 0 At 2 0 Please**.

If you want to exclude channels you can use '-' (minus). So if you want to give channel 1 to 10 plus 20 but minus 5 a value of 0%, this is the fastest way: **1 Thru 1 0 + 2 0 - 5 . .**.

You can also use '+' and '-' to change the value. **5 At + 3 0 Please**. This brings channel five up to 50% - It was at 20% and got 30% more.

**5 At - 5 0 Please**. Brings the channel down to 0% - notice that is got a red background, so it got a value of 0% in the programmer.

Now you know how to assign values to channels. End this section by clearing your programmer.

On the [next page](#) we are going to look at Groups.

## 8.5. Working with Groups

Now it is time to have a look at groups.

## Groups Pool

Since we are going to make some groups it would be practical to be able to see them.

It would be nice to have it at the same screen (since there is enough room). So you need to make the Channel Sheet one line smaller and then press the new empty space on the left side.

Again you are presented with the "Create Basic Window" pop-up. This time you need to access the **Pools** tab. Here you find the **Groups** button - press it. Now you got some empty group buttons right at your fingertips.

You could store this as a new view or store the existing view again.

## The first group

All the odd numbers in our light plot have a warm color and all the even ones have a cold color.

We are going to make some groups with those colors. The first one is all the warm colors from front of house (FOH). Press: **5 + 7 + 9 + 1 1 Please**. Now you have selected channels 5, 7, 9 and 11. Then press **Store** followed by the first available group button. Groups cannot contain any value so we do not need to assign any.

Before you do anything else, use your keyboard to write: **FOH Warm** - this automatically allows you to label the latest "touched" element. Should you have touched anything else (buttons, screens, anything) before typing, you can use a different method to name things (for instance groups).

The function is called "Label" and you access it by pressing the 'Assign' key twice. Do that and then press the first group button again. Now you have the option to change the name, delete it, or type it for the first time. When you are happy press **Please**.

Look at your Channel Sheet. Here you can see that the numbers 5, 7, 9 and 11 have the yellow color, meaning that they are still selected. We are done with those four channels, so press the 'Clear' key once.

## 11 more groups

All right, now you know everything you need to know about making groups. We need 12 groups. All the information you need for making the groups is displayed in the following table. You have already made group 1, but the rest is a nice little exercise.

Group number:	Channels:	Name:
1	5 + 7 + 9 + 11	FOH Warm
2	17 + 19 + 21 + 23	LX1 Warm
3	25 + 27 + 29 + 31	LX2 Warm
4	33 + 35 + 37 + 39	LX4 Warm
5	1 + 3 + 13 + 15	Box Warm
6	All uneven numbers	All Warm
7	6 + 8 + 10 + 12	FOH Cold
8	18 + 20 + 22 + 24	LX1 Cold
9	26 + 28 + 30 + 32	LX2 Cold
10	34 + 36 + 38 + 40	LX4 Cold
11	2 + 4 + 14 + 16	Box Cold
12	All even numbers	All Cold

When you are done, your group pool should look something like this:



*Completed group pool*

On the [next page](#) we will make the first cue.

## 8.6. Storing the first cue

It is time to make the first cue.

### First a little theory and setup

A light cue is saved in a sequence. The grandMA can handle an almost unlimited number of sequence.

We only need a few for this tutorial. All cue numbers has to be in numeric order. This means that cue number 4 cannot be before cue number 3. The cue can have any name.

First of all you need a window where you can see the sequence. Click on the top left cell on one of your empty screens. If you only have one screen you need to clear it first (by deleting the windows already there) and then press the top left cell.

The window you need is called Sequence Executor Sheet. In the **"Create Basic Window"** pop-up, select the

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**Sheets** tab and tap the button called **Sequence Executor**. It is very empty right now, but there will appear content as you create the cues

You should save this as a new view and give it a name - not just "View 2".

## Creating the cue

The first thing you need to do is to select the first executor. Press the following keys: **Select** **Exec** **1** **Please**. The executor is currently empty, but when you store the cue then it will appear.

Let us make the first cue. Press: **2** **0** **At** **4** **0** **Please**. Then **Store** **Please**. That was it! You have now saved channel 20 at 40% in cue 1 in sequence 1 at executor 1.

If you do not specify anything else, the console assumes you are referring to your selected executor and the sequence assigned to that executor. You can always locate your selected executor by its green background color where it displays the sequence name (now it says "Sequ").

You also got a line in your Sequence Executor window. Most of the columns are self-explanatory - but we should look at some of them.

"Number" is of course the cue numbers.

"Name" is the cue name.

"Trig" describes what triggers the cue. If you look at the first cue, the trigger is "Go". This means that to execute the cue, you need to press a Go key.

"Delay", "Fade", "Out Delay" and "Out Fade" shows you the respective times.

Before we make more cues, we should change the cue name. If you do not specify anything the desk names it "Cue" followed by the cue number. Press **Assign** **Assign** **Cue** **1** **Please**. Use the keyboard to write **Behind Curtain** followed by a 'Please'/enter. A different way to change the cue name is to right click on the name with the mouse. No matter what way you choose - your first cue should now have the name "Behind Curtain". And since we have not given the sequence a name, then it also displays the name of the first cue in title area of the executor (the one that said "Sequ" before).

Let us also give the sequence a name. Tap the command line and write the following:



```
[Channel]> Label seq 1 "Main Show"
```

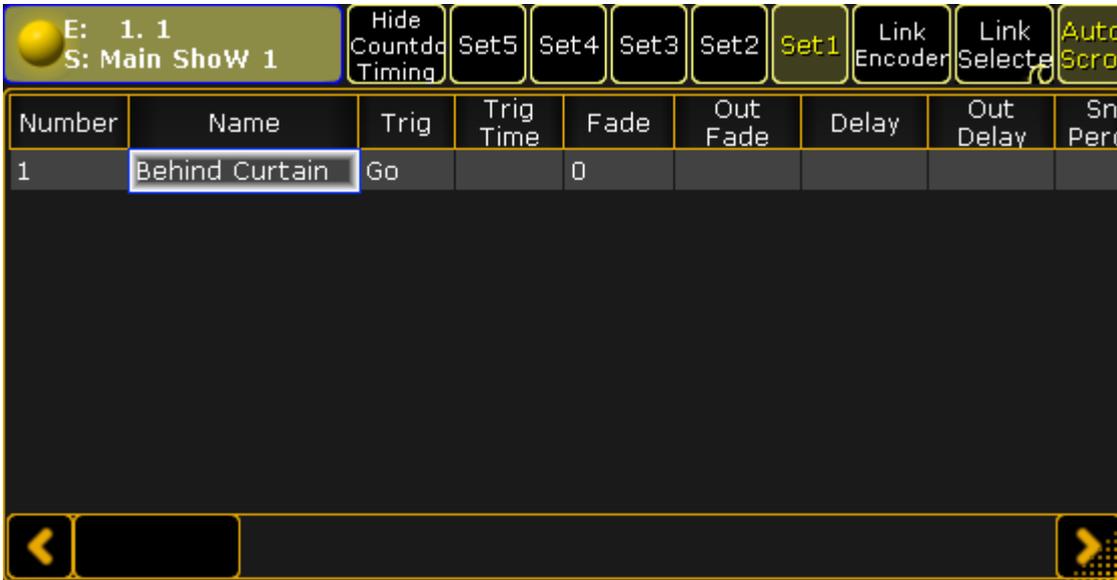
And finish with a 'Please'/Enter. We do not need to write "Sequence" we can just write "seq". Most of the keywords we use have a short version. The best way to learn the short version is to read about the keyword in the "Command Syntax and Keywords" section of this manual.

When you give something a name or you are refereeing to the name of something, then you need to put it in quotation marks. That will make the software interpret it as names.

Back to the cues. If you cannot see the entire cue name, you can expand the column width by placing the mouse cursor on the line that divides "Name" and "Trig". When you are at the right place, your cursor changes so it now also have a little horizontal double ended arrow. Click and hold the left mouse button while you drag the mouse to your right. Then release the mouse button again. You can adjust all the columns width like this. You need to store

the view again to keep the changes.

Now your Sequence Executor sheet should look something like this:



Sequence Executor Sheet with one cue

On the [next page](#) we are going to create more cues.

## 8.7. Create more cue

Now we are going to make more cues.

Making more cues.

Let us make some more cues. Press: **2 0 + 2 8 At 8 0 Store Cue 2 Time 1 5 Please**.

That created cue 2 with a fade time of 15 seconds. Let us continue with cue 3. Now we are going to use the groups and the command line.

You need to locate the Command Line. It looks like this:



This is the Command Line. It can be a fast way to get around the console and the commands. But sometime the keys are fastest.

In the Command Line type this:



followed by **Please**.

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Then type:

```
[Channel]> g 3 t 5 at 60
```

followed by **Please**.

Now let us have a look at the Command Line Feedback and how the console has responded (please do not press any buttons).

What does all this mean?

"g" is the shortcut for "Group". That means the respond to the first line is:

```
[Time] : Executing : Group 1 + 2 At 75
```

The "t" in the second line as a short for "Thru". The console respond to the second line is:

```
[Time] : Executing : Group 3 Thru 5 At 60
```

We are going to store the cue using the keys: **Store Time 2 0 Time 2 5 Please**. This is the response from the console:

```
[Time] : Executing : Store Fade 20 OutFade 25
```

Now why is this? We typed "Time 20 Time 25". The desk interprets this as 20 seconds Fade and 25 seconds OutFade. Pretty clever, huh?

Notice that after the second cue we do not need to specify the cue number. The desk automatically uses the next available number.

In cue 4 we need to take 30% of everything that is on. We do this in a fast and easy way: **If Please At - 3 0 Store Time 1 0 Please**.

That was fast!

By using "If Please" you run the command "IfOutput". This selects everything that currently have output.

Then by using "At - 30" you subtract 30% from whatever value the channels had before (of course nothing less than 0%).

Now we are going to make a lot of changes:

```
Group 6 . . Group 9 Thru 1 1 At 6 0 Please  
Group 7 + 8 At 7 5 Store Time 1 5 Time Time 5 Please
```

What is: "Time 15 Time Time 5"? If you have a look at your Command Line Feedback it reads: "Fade 15 Delay 5". This means that you told the desk to delay the trigger of the cue with 5 seconds after you press the "Go" key (and then fade using 15 seconds - but you probably guessed that).

With the "Time" command we can assign many different times. A command like: "Time 20 Time 15 Time 10 Time 5" is translated by the desk to: "Fade 20 DownFade 15 Delay 10 DownDelay 5".

The last cue we are going to make is a blackout. And we do that with only six button presses: **If Please . . . Store Please**. That was 6 cues.

Clear your programmer.

It was hopefully fast and painless.

The [next page](#) we are going to make some changes to the sequence.

## 8.8. Editing a sequence

Now we are going to make some changes to the sequence.

Make a "Follow"

We would like to change cue 3 to automatically run when cue 2 is done.

Look at the Sequence Executor Sheet. Each cue have its own row in the sheet. The columns are the different properties a cue can have. It is not the **content** in the cue, but the **cue** properties.

The trig column is the one that governs how the cues are triggered. We need to change the setting for cue number 3. You do this by right-clicking with the mouse (or pressing Edit and then tap) on the screen where it says "Go" in the "Trig" column in the row for cue 3.

This gives you a small pop-up with the following choices: Go, Time, Follow, Sound, BPM, Timecode. Select **Follow** by clicking or tapping it.

Now when cue 2 is done, the desk automatically activates the fade to cue 3.

### Changing the cue names

Let us change the cue names. You know how to do this, so here is a table with the new names:

Cue Number:	Name:
1	Behind Curtain
2	With Curtain Up
3	Build
4	Darker
5	Cold
6	B.O.

If you need to, then expand the "name" column in your Sequence Executor Sheet, so you can see the entire names.

## Updating a cue

Let us imagine that we got a lighting designer who has changed his mind. He wants 5% more on the group called "LX 1 Warm" in cue 3. Go to cue 3: **Goto 3 Time 0 Please**.

What happened? We went to a cue and activated the executor. And now there is a yellow frame around cue 3 in the Sequence Executor Sheet. To go to cue 3 you only need to write "Goto 3 Please". We added "Time 0". This ignores the fade times stored in the cue and we do not have to wait for the cue to fade in. It does not change the stored fade time.

Let us continue: **Group 2 At + 5 Please**.

Now the 'Update' button lights up. This means you can update the active cue. Press **Update** and without worrying about anything press the **U3** key (or where it says: **Tracking Update**) so the button changes to "Update Cue Only". Now press the **X6** key (or where it says **Update Cue**) to update the cue.

To exit the cue and deactivate the sequence you need to press the top button above executor fader 1 - in the onPC you could open the Executor view and tap where it says "Off" above executor 1.

## Editing the times

Let us change some of the times in the cue list. This is how your times should end up:

Fade	Out Fade	Delay	Out Delay
0			
15		3	
20	25		
10			
15	10		5
0			

Look at the Sequence Executor Sheet. Right click on the cells and type in the new value either on "the calculator" pop-up on the screen, the buttons on your console, or using the keyboard. If a cell is empty then it can be a zero time or in the case of the "OutFade" it is actually the same as the (In)fade. If the in and out fade is the same then you do not need to specify an outfade - only when there is a difference. It is the same with in and out delay.

The final result should look like this:

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Number	Name	Trig	Trig Time	Fade	Out Fade	Delay	Out Delay	Sn Perc
1	Behind Curtain	Go		0				
2	With Curtain Up	Go		15		3		
3	Build	Follow		20	25			
4	Darker	Go		10				
5	Cold	Go		15	10		5	
6	B.O.	Go		0				

The Sequence Executor Sheet with new timings

Try pressing the big 'Go+' key to see how your channels react to the different times. You find this in the "Masters" section on the right side of your onPC.

Press: **Backup** **Backup** (as double-clicking a mouse button). This is the fast way to store your show (with the same name).

On the [next page](#) we are going to look at adding some moving lights.

## 8.9. Adding Moving lights

We are going to store the show with a new name and add some moving lights to the patch.

### Storing the show

Before we are doing anything else, we need to store the show with a new name.

Press the **Backup** key and then make sure you have chosen the "Internal" tab. Now tap the **Save Show As** button and in the pop-up write this name: **quick start guide 2**. Maybe with your name in front.

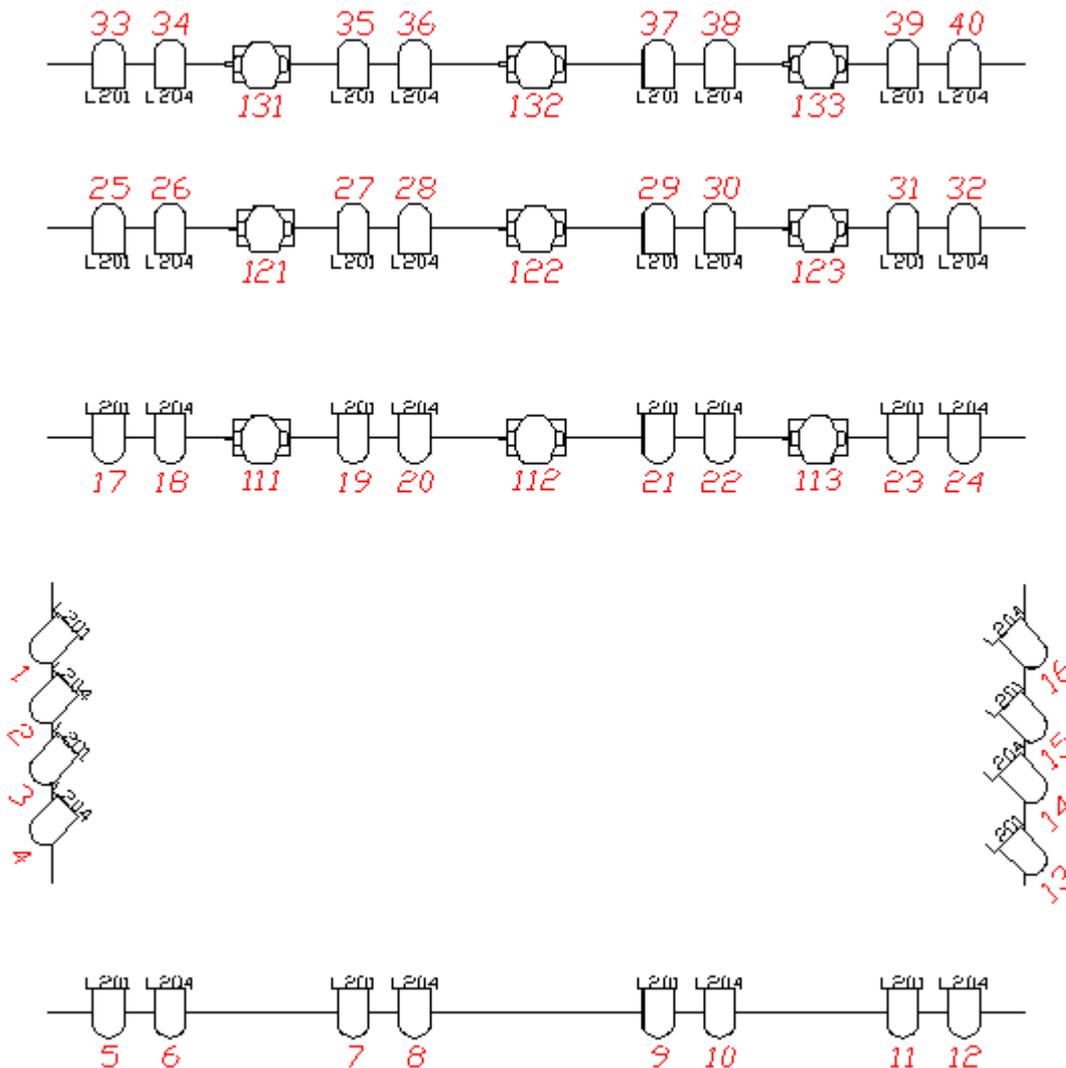
Now you have saved the show with a new name and you can close the Backup Menu using the yellow cross in the upper right corner.

### Add new fixtures

We just got 9 Mac 700 Profiles from Martin Professional and we want to add them to the patch. This is what the new light plot looks like:

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## The new extended light plot

All right, let us begin.

Press the **Setup** key then the **Show** tab and the **Patch & Fixture Schedule** button.

We want to add the fixtures in a new layer. So that is the first thing you are going to add.

Make sure the "Layer" part (the left half) of the screen is selected, and then press the 'Add Layer' key (it is the **X1** key on a console).

In the pop-up write: **Mac700**.

Now you are back in the Fixture Wizard. The console thinks, since you added a layer, then you most likely want to add some fixtures in it.

Press the **Please select fixturetype**. The Mac 700 does not exist in the show. You need to add the fixture type from the internal library into the show file.

Press **From Library** to import a new fixture type into the show. The library is big list of several thousand fixture types. The best way to limit this list is to filter it. No one wants to spend their life scrolling a big list.

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You can filter the manufacturer and/or the fixture name.

The manufacturer is "Martin" and we need the "Mac 700 Profile" in the extended mode.

In the Manufacturer input field you need to write Martin and in the Fixture input filter you can write 700.

Now you have a smaller list. You can only see the fixtures from Martin that has 700 somewhere in the name.

Find the Mac 700 Profile in Extended mode. Tap it so the background is blue and then tap **Import**.

Back in the Fixture Wizard we need to set the quantity to "9".

For the Channel and Fixture ID we need them both to start at "111".

The patch begins at the second universe with DMX channel 1 (that makes the first fixtures patch number "2.1").

And now press the **Apply** button.

But we are not quite done. We need to change some of the Channel and Fixture IDs to match the light plot. This is just like editing any other cells in a table.

When you are done your fixture list should look like this:

The screenshot shows the 'EditSetup' screen with a table of fixtures. The table has columns for Name, Fixtures, Ch., FixId, ChaId, Name, Fixture Type, and Patch. The fixtures listed are Mac700PE 1 through Mac700PE 9, each with a quantity of 3. The 'Mac700' layer is selected, and the 'Mac700PE 9' row is highlighted.

Showing 'Layers'			Layer: 'Mac700'				
Name	Fixtures	Ch.	FixId	ChaId	Name	Fixture Type	Patch
Dimmer		[1]	111	111	Mac700PE 1	3 Mac 700 Profile	2.001
Mac700	[111..133]	[111]	112	112	Mac700PE 2	3 Mac 700 Profile	2.032
New			113	113	Mac700PE 3	3 Mac 700 Profile	2.063
			121	121	Mac700PE 4	3 Mac 700 Profile	2.094
			122	122	Mac700PE 5	3 Mac 700 Profile	2.125
			123	123	Mac700PE 6	3 Mac 700 Profile	2.156
			131	131	Mac700PE 7	3 Mac 700 Profile	2.187
			132	132	Mac700PE 8	3 Mac 700 Profile	2.218
			133	133	Mac700PE 9	3 Mac 700 Profile	2.249
			New				

*New fixtures in the Fixture Schedule*

And now we can exit both the Edit Setup pop-up and the Setup menu. Confirm that you want to save the changes.

Go to the [next page](#) to learn about the Fixture Sheet.

## 8.10. Working with the Fixture Sheet

The Fixture Sheet is used for displaying all the attributes of the fixtures. The Channel Sheet only shows the dimmer attribute.

## Creating the Fixture Sheet Window

Now that we have fixtures it would be nice to see what they are doing. To do this we need the **Fixture Sheet window**.

It might be a good idea to have the fixture sheet on a screen that is close to the encoders. If you are on a console it would be a suggestion to have it on screen 2. If you are using the onPC, then you could try to put it on screen 1.

To empty a screen and start on a fresh, press and hold the  (you do not have to "hold" in the onPC). Now you got a small pop-up in the lower right corner of your screens. It looks like this:



*Small Encoder Settings*

Tap where it says **Clear Screen**. This will delete any windows you have on that screen. If you tap "Clear All Screen" then you empty all your screens.

Now you need to add the Fixture Sheet. The **Fixture Sheet** is in the **Sheet** tab in the **Create Basic Window**.

In the Fixture sheet your fixtures are (as a default) represented as a list. Your fixtures are in rows and the different attributes (like Dimmers, Pan/Tilt, Gobos, etc.) are sorted in columns.

Also notice that you now got three "FT" fixtures at the bottom of the list. These are the automatically created "Fixture Type" fixtures - that you do not have to worry about.

## Sheet Options

When you press the yellow ball in the upper left corner of the sheet you get the sheet options (it is also here you can delete a single window - if you have not noticed).

The options are separated into different areas. Each area have a tab.

The **Tools** tab gives you the option to add different elements to your view - scrollbars etc.

The **LayerMask** options allows you to activate and control some masking in your sheet (masking hides different elements).

The **Display** controls how your Fixture sheet looks.

In **Title Buttons** you can turn on or off the different buttons in the sheets title bar.

**Mask (Local)** is a mask you can apply to this specific sheet (if activated in the LayerMask tab).

In some sheets there might be more tabs and other options then the ones you can see in the options for the Fixture Sheet.

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Most of these options are outside the scope of this Quick Start Guide. But there are some that you should change.

Open the Display tab and make the following changes:

- Symbol Output - Auto
- Symbol Feature - On
- Feature Sort - On
- Hide Empty Cells - On
- Merge Same Values - Off

Now tap the **Save to Default** button the title bar of the options.

What did all this mean? Well, let us have a look each of them.

**Symbol Output** is a small square in the Name cells. This square is displaying the current output (Dimmer and Color) of the fixture.

**Symbol Feature** is symbols in many of the cells. This shows you what the current Color, Gobo, Dimmer value and so on are in each of the relevant columns.

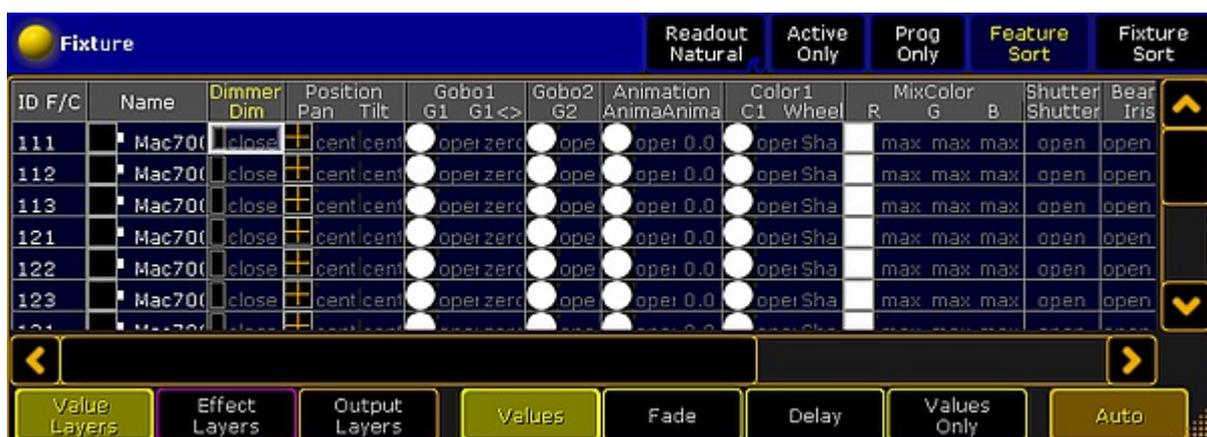
**Feature Sort** will move the selected feature/preset type (next page deals with these) next to the Name column. This means that you do not need to scroll left and right in your fixture sheet to see what you are currently changing on the fixture.

**Hide Empty Cells** can be very useful if you have a show with different fixture types. Then some fixtures will have some functions that others do not. Removing the empty cells can increase the readability of the sheet.

**Merge Same Values** is a function that will only write a value once in some columns, if the current value is the same for all elements. If for instance you have a RGB fixture and all three colors are at "Full", then it will combine the three RGB columns and just write "Full" once. When the cells are not combined then it will write "Full" three times. Having combined values can make it a little hard to see what each of the RGB colors are doing. In the RGB example, try to imagine that the column displays "Full Closed". Now you need to find out what two colors are at "Full" or "Closed". Having all three values visible all time means that you do not have to think about it. Sorry for the long explanation :-)

'Save to Default' means that the changes you just made, will be used every time you create a new Fixture sheet.

The Fixture Sheet should now look something like this:



## The Fixture sheet

On the [next page](#) we are going to have a look at how to control fixtures.

### 8.11. Controlling fixtures

Being able to control your fixtures is one of the most important things using a grandMA.

#### The Preset (Type) Control Bar

The key to controlling fixtures is this bar:



*Preset Control bar*

It is the "Preset Control" bar. With this you can control what Preset Type you are controlling with your encoders.

All fixtures are separated into different function sections. This is called Preset Types.

The bar will only display the preset types you have access to. You might have noticed that before we added the Mac 700s the only thing in the bar was the 'Dimmer' button.

The bar might disappear when you move focus to something else. But you can always bring it back by pressing somewhere in your Fixture Sheet or Channel Sheet.

If you select a fixture, then the frame around each button in the bar might change (from gray to light green). The green frame indicates the Preset Types you can use for the selected fixture. If you clear your programmer and try to select channel 1, then you can see that it is only the 'Dimmer' button that got a green frame.

#### Playing with the movers

To control fixtures you need to select them. Let us try with fixture 111. Clear your programmer and press: **1 1 1 Please**. This selects the fixture.

##### Dimmer

You can assign a dimmer value using the methods you learned on the previous pages or you can select the Dimmer preset type by touching the bar and turn the left encoder to turn up the lights.

##### Position

Select **Position** by tapping it in the bar. Notice how your encoder changes function according to what preset type you have selected. With the "Position", your encoders look like this:



*Position encoders*

Turning the encoders changes the values. Turning them with the encoder pressed changes the value faster. if you want to make smaller movement with a turn (increasing the resolution) you can tap the "Normal / Fine / Ultra" button next to the value.

Notice how some of the buttons in the Preset Control Bar have a red square and some a gray one. The red one indicates that you have changed values in that preset type. This value will be saved if you press the 'Store' key (do not do it now).

## Gobo

Tap the **Gobo** button in the bar. Now instead of turning the first encoder - now labeled "G1" - just press it shortly. This is where the "calculator" pop-up proves its power. The "calculator" is the pop-up that allows you to input values to attributes using a graphic interface instead of just numbers. This is what it looks like with "Gobo 1" selected:



### Gobo Calculator

Next to the usual buttons with numbers, there is a lot of buttons that changes according to your selections. When gobo is selected you have easy access to all the different gobos. Try to tap the button called "Water".

When our fixture has more than one gobo wheel you can choose the others by using the "Feature" button. It looks like this:



### Feature button with Gobo1

You can tap the text (Gobo1) to toggle thru the possible features. All buttons on the screen with the little "wave" icon in the lower right corner have a swipe function. Try to press/click and hold while you move out of the frame of the button, then you can release the hold. This will open a small list with the possible choices:



## *Swiped Gobo Feature*

Here you can tap the feature you want to control.

## Color

The last thing I will introduce you to, is how to control colors.

Tap the Preset Type button **Color**. The first thing you see is the attribute "C1" - This is the first color wheel. This works just like the gobo wheel we just looked at.

Now try to select "MixColor" using the "Feature" button. This assigns R (red), G (green) and B (blue) to the first three encoders (in that order). Now you can control these three attributes manually.

When you work with colors, then you can also use some special dialogs. There is a small button called "Special Dialog". It is located between the Preset bar and the labels for the right encoder. Please tap it.

It gives you a pop-up that is called "Color Picker". Here you can tap anywhere in the colored area to give your fixtures the color you tapped.

It uses the MixColors as a default and sets the colors wheels to open white.

The color picker have four different modes. You can change between them by pressing the buttons on the right side on the screen.

### **Fader:**

This is three different ways to mix colors. HSB (Hue, Saturation and Brightness), CMY and RGB.

### **HSB:**

This is a big color area where you can choose a color.

### **Swatch Book:**

This is a list of the most used gel manufacturers and their gel catalog. You can choose a manufacturer and then one of their colors. This is not hundred percent accurate, but it will give you something close.

### **Raw Faders:**

The faders will give you direct access to the MixColors. As a default it is displayed as RGB even though your fixtures might use a CMY color system internally (like the Mac700). This can be changed in the setup.

The color picker looks the same no matter what color system your fixtures are using. The exception is the "Raw Faders". They might show you more faders when you use LED fixtures with multiple colored LEDs.

Notice how your Fixture Sheet changes and always shows you what your fixture is outputting.

Take some time to experiment with the fixture controls. When you are done, clear your programmer and move on to the [next page](#).

## 8.12. Preset and Preset Pool

A preset is a way to store a set of values.

### What are Presets

There are 10 default groups of presets. They are named "All", "Dimmer", "Position", "Gobo", "Color", "Beam", "Focus", "Control", "Shapers" & "Video". Basically each preset group can only store their own kind of info - for instance a "Position" preset can only store Position values.

The exception to this is the "All" presets. They can store info about all the types of values.

In the **Create Basic Window pop-up** you can also see that there is something called "Dynamic". This is not a preset pool in itself. It is a pool window that changes to the pool of the Preset Type you select in the Preset Type Control bar.

The Preset Pool windows are a lot like the Group Pool window. There are of course differences.

If you do not have any fixtures selected and press a preset in the pool, then you select the fixtures that can use the preset. Second press will apply a preset link to the attribute in your programmer. This means that you **are not coping** the values stored in the preset to the attribute - you tell the fixture to go look in the preset to see the values. We try this in chapter 14.

If you have a selection of fixtures and you press a preset, then it will apply the preset link (if the fixtures can use them) to the fixtures.

### Create Preset Pools

In this guide we are going to use "All", "Position", "Gobo" and "Color" presets. You can also try to create a "Dynamic" pool, just for fun.

How you arrange them is all up to you. You know how to create and store views.

To increase fast visual recognition it can be a good idea to color the frames of the different preset pool. This can be done from the pool options.

You enter the Pool Options by pressing the yellow ball in the pool title button:



*Pool title button*

In the options pop-up you need to tap where it says **Frame Color**. Now you have indicated that you are working on the color for the frame. Now you can select a new color using any method you like in the left side of the options pop-up.

Set a frame color for the preset pools we need. Notice that you do not need to set it for the Dynamic pool, it follows the color of the selected preset type.

When you are done, your view could look something like this:



*Colored but empty preset pools*

On the [next page](#) we are going to look at creating presets.

## 8.13. Making presets

Next we are going to make some presets.

### Some preparations

In just a few seconds we are going to store a preset. But to make sure we save them correctly we need to examine the "Store options". Press and hold the **Store** key for approximate 1 second until the Store Options pop-up appears (on screen 1).

We need the "Preset Options" to look like this:



*Preset Store options*

Press the buttons until they are correct, then press the **Save as Default** in the title bar.

Finish by pressing the **Esc** key twice (we are not storing anything right now).

## Creating presets (finally)

All right, give your moving heads different values in the pan and tilt.

When you are happy, make sure you can see the preset pool called "Position". Press **Store** and then the first Position preset pool button.

Now instead of values your fixture sheet shows "P2.1". This refers to Preset Pool 2, Pool Button 1. When we name presets, then the name will appear instead of this number.

Move your lights to different position. Now press: **Store** **Preset** **2** **.** **2** **Please**. This creates a second position preset.

The "2 ." is a reference directly to the position presets (you may have noticed the pool window are called "2 Position").

Move your light, make one more position preset and clear your programmer.

Select the first Mac 700 (Fixture 111). Change the color to a blue one using the Special Color Dialog. Now store the first color preset.

Notice how the position presets have a red "S" at the top of the pool button. This means that the position preset are locked to the fixtures that specifically had position values when the preset was stored - it is called a "Selective" preset. So if you add more moving lights later, then they cannot use the position preset already made.

The color preset you just made have an orange "G" in the top. This means that it is a "Global" preset. A global preset can be used by all the fixtures of the same fixture type. So all our Mac 700s can use the color preset even though we just had one fixture selected when we made it. If you later add more Mac 700s then they can also use the color preset.

There is a third preset option called "Universal". They are used to make presets that applies also to other fixture types than the ones used during the creation. So if we had made the color preset as a universal preset, then we could use the color preset on any fixture that have a MixColor system.

Make 2 more color presets and make 3 different gobo presets. When you are done, please clear your programmer.

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Press: **1 1 1 Thru 1 3 3 Please Please Please Store Preset 0 . 1 Please**.

Now you have made an "All" preset that contains all the default values of the fixtures. The "Please Please Please" activates all parameters of the selected fixtures. If you have a selection of fixtures and press 'Please' multiple times then you activate and deactivate all the attributes of the selected fixtures. So the first 'Please' made the selection. The two following 'Please's activated all possible attributes in the fixtures.

## Naming the presets

Did you notice that the Color and Gobo preset automatically named them self. When possible then the grandMA2 tries to add a descriptive name. When it does, then it adds a hashtag after the name.

It cannot guess the position the fixtures have in the Position and All presets. You need to add a name that makes sense. Press **Assign Assign** and then the first position preset. Type a name in pop-up.

Do the same for the other Position preset and the All preset.

You should have presets that look something like this:



### Final Presets

There are many details about presets. There is lot of information on a preset pool button and they can be used for many things - but it is outside the scope of this Quick Start Guide. Use the menu on the left side to read more about presets - but wait till you are done with this guide :-)

This is the presets we need for making our new second sequence. Go to the [next page](#) to do that.

## 8.14. A second sequence

We are going to create a second sequence and link the two sequences.

Making the second sequence.

Clear your programmer. Press the first position preset twice.

Now press **Store** **Exec** **3** **Please**. If you are on a console you can just press the 'Store' key and then one of the executor buttons labeled "3".

Now you got a second sequence.

Let us build some more into it. Select executor fader 3 by pressing **Select** followed by one of the executor buttons associated with executor fader 3. Press the first Gobo and Color presets followed by **Store** **Please**. Then we got this pop-up:



*Store Method pop-up*

Here you choose how you want to store things. Tap **Merge**.

That was our first cue in the second sequence. Clear the programmer. Press the second Position preset twice followed by the second Gobo and Color presets and then **Store** **Please**. This time choose **Create Second Cue** in the store method pop-up.

Make a third cue with the third Position, Gobo and Color presets. Again you can use **Store** **Please**, and this time it will not ask what to do. When you have more than one cue, then it will just create a new cue with the next available whole number.

The last cue you need to make is a cue containing the "All" preset. All the cue times need to be 0 seconds! Clear your programmer when you are gone.

Setting up the sequences (Assign Menu).

Select your first executor. Now press the green name field above the executor fader (where it says "Main Show"):



*Executor 1*

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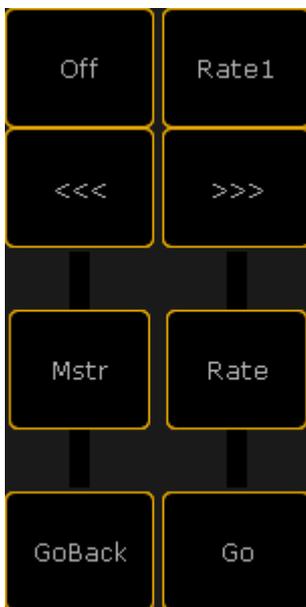
On screen 1 you see some of the options for that executor. This window can be a bit confusing the first you see it, but right now we are only interested in is the size of the executor.

Make sure the you are at the correct view by tapping **Function** in the upper right corner.

Now we can change the width of the executor by pressing the **X2** key (or where it says "Width 2").

Now we need to change the default button assignment. The buttons and fader can have a lot of different functions (explaining those goes beyond the scope of this quick start guide). Tap where it says **XF** and in the small pop-up select **Rate**.

Press where it says **GoBack** and choose the option called **Rate1**. Change the rest of the buttons so they end up looking like this:



*Executor assignment*

Close the **Assign Menu** using the yellow **X**.

What is a Rate fader? Well, the rate fader is used for changing the overall speed of the cues. You can speed it up or slow it down to a complete stop. The cue times are not changed in the sequence permanently, just adjusted according to the rate fader position.

The button called "Rate1" resets the fader to the mid position, where all the times are back at their saved times.

The '<<<' and '>>>' steps one cue back and forward accordingly, without time and without running the follow cue.

## Linking and editing the two sequences.

Did you noticed that you did not save any dimmer values to the fixtures in the second sequence (we did actually store a dimmer value in the last cue - the default dimmer value)? We are going to put those in our first sequence and we are going to do some sequence linking.

In your **Sequence Executor** window make sure you can see the "CMD" (command) column.

Right-click in the "CMD" cell for cue 1 and in the pop-up write: **Goto cue 1 exec 1.3** followed by a 'Please'/enter. In

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the "CMD" cell for cue 3 right-click and write: **Goto cue 2 exec 1.3** also followed by a 'Please'/enter. In cue 4 the command is cue 3 on executor 1.3. And in cue 6 we need a command to cue 4. When you are done it should look like this:

CMD	Cmd Delay
Goto Cue 1 Executor 1.3	
Goto Cue 2 Executor 1.3	
Goto Cue 3 Executor 1.3	
Goto Cue 4 Executor 1.3	

*The needed commands*

Now press the big **Go+** key in the console or in the **Masters** section in the onPC. Notice that both sequences go to cue number 1. That is the command making sure the second sequence is also running.

Press the **>>>** executor button. Turn on your moving light at full. Press **Update**. Tap where it says **Original Content Only** until it changes to "Add new Content". Then tap **Save as Default**.

This allows you to not only update existing values, but also add new values to our sequences.

Now there are two possible sequences to update. Make sure you update the one called "Sequ 1 'Main Show'". This can be done by simply tapping the correct line.

Go to cue 6. Notice that the moving light gets the dimmer value "0.1 Default" (or if you gave it a different name). This is actually the value 0% stored in the All preset. To make sure that no matter what, they go to 0, let us store this value in the first sequence also.

Press: **1 1 1 Thru 1 3 3 . . Update**. Now you can see that you also have the option to update the preset. **Do not do that**; just update the cue in sequence 1.

Clear your programmer and try moving back and forward in your sequence to see how the link works.

Notice that the moving heads still get the dimmer value from the All preset. This is because sequence 1 first give them 0% and then immediately calls the cue in sequence 2. So the last information they got is from sequence 2 - the value from the All preset.

If you want to make sure that the value from sequence 1 is the one they got, then you can give the executor a higher priority.

Press **Assign** followed by any of the executor buttons labeled 1 or 2. This opens the **Assign Menu** where you assigned the button and fader functionality. This is also where you can change the Executor options. Tap where it says **Options** on the right side of the screen.

This opens the a window with many options. The one you need to change is the top one in the second column - column named "Playback". Tap where it says **Priority LTP** and in the small select pop-up select the one called "High". You might get a warning that this will turn off the executor - please confirm this. Nice to know if you are in a live situation :- ) Close the Assign Menu.

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Now you can test your sequence and see that now when you run cue 6 the dimmer value reads "closed".

There is no need to separate the moving lights from the conventionals. It was just a way to demonstrate the possibilities.

## Last thoughts

It might not be a pretty show, but you should save it anyway. And you should do this at a regular interval during your programming. You can use the double press on the **Backup** key or use the **Backup menu**.

Now you got a small introduction to the grandMA2. It is a very advanced and flexible console. There are many function and details we have not explored in this guide.

The rest of the manual will help you finding your way around the functions. There is also a lot of help in the [videos on MA lighting](#) (external link to the Internet) plus the big international community.

Have fun learning and programming on the grandMA2.

## 9. Using the Backup Menu

The Backup Menu is where show files are managed. It is also here shows are saved and loaded.

### What is show file management

Show file management is the handling of show files. Shows can be saved internally in the console, and there is also the option to save on USB sticks and file servers. Being able to save the show and load it again is a vital part of modern lighting consoles.

Show files can also be deleted to make more room on the hard drive or just to clean the console.

A show file can only be moved forward. A show saved on a USB stick that was programmed in a previous version can be loaded in a newer version. If the show is then re-saved on the stick in this new version, then it cannot be taken back to the old software. If this is important then it is needed to load the show and save it with a new name. Then the old version is not saved as the new version and it can still be accessed by an older version.

### Show file content

The show files contain all the data needed to run the show.

This includes all the Users and User Profiles in the show.

It also contains any 3D models that are used in MA 3D.

If MA VPU's are used, then the programming of the VPU is of course stored in the show, but the Media Files are not. Make sure they are backed up on an external device - just in case.

### The backup menu and the different tabs

The Backup Menu can be opened by pressing the **Backup** key or using the dedicated command:

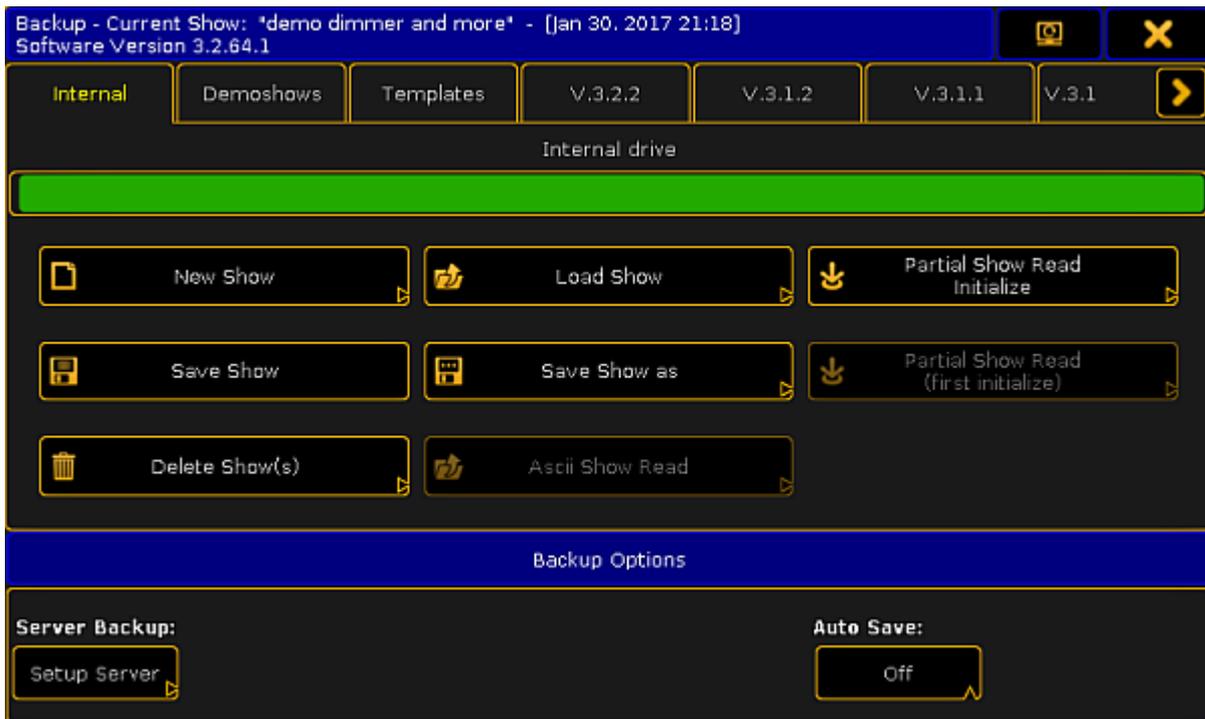


The Backup Menu is organized in two sections. The top section is for manual show file management. The bottom part is the Backup Options.

This is what it could look like:

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## *The Backup menu*

The top part have a title bar that shows the file name and saved date of the current show. It also shows the current software version.

There is also the button that can be used to move the menu to a different screen and finally the button to close the menu.

Below this there are different tabs. There is always minimum three called "Internal", "Demoshows" and "Templates". There might be more. Each software version installed will have its own tab. This allows the option to load a show from a previous version. It is not possible to save a show from a newer software version in one of the tabs from previous versions.

If a USB stick is connect to the console/onPC, then it will get its own tab. Select this tab will change the default storage drive to the USB stick. Read the [Using a USB stick](#) to learn more about specific USB stick handling.

If a file server is added to the system, then this will also get its own tab. This tab can be selected to save or load shows using the storage space on the server. Read the [Setting up a file server](#) to learn more about server setup.

The selected tab is then the selected "drive" and the location where shows will be saved. The selected drive can also be selected using the command line - it is a command called **SelectDrive** or just SD - read more about it [here](#).

## Internal

This tab is the hard drive in the console or onPC.

If you are working on an onPC solution, then the **SelectDrive** command can be used without setting a drive number to see the storage location in the computer.

The internal drive can do everything except ASCII Show Read.

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If the console is updated then the current Internal tab is made a tab with the version number.



A full install that formats the drive will delete all show files and remove all previous version tabs.

## Demoshow

The demo show tab is a read only tab. It is only possible to load shows from the demo tab. It is possible to do a Partial Show Read from the shows in this folder.

If the console is updated, then the shows in this folder will be overwritten.

## Templates

The templates tab functions as the Demoshows with the exception that updating the console software will not overwrite the shows in the tab. A format and install still deletes the shows in this tab!

The idea behind this tab is that a place that have basically the same rig but do many shows, can copy a show with the patch and basic setup in this folder. This can then be loaded and stored as a new show in the Internal tab. Thus protecting the basic show from accidental changes. It is only possible to copy the shows into this tab using a [FTP connection](#).

## Server tab

If a working connection is set up to a file server, then an extra tab with the defined name will appear. This functions as the internal tab.

This tab is only visible on the console that is the master in the session.



grandMA2 onPC as Master does not support server backup

Read [here](#) for more about setting up a File Server.

## USB tabs

When a compatible USB stick is connected, then it gets its own tab named after the name of the USB stick.

It works as the internal tab with the addition that it is possible to do an ASCII Show Read.

Doing a Quick Save will store the show on the USB stick **and** on the Internal drive.

Read [here](#) for more info about USB sticks and what advice and restrictions there might be.

## Version tabs

Previous versions installed on the console or computer will have their own tab. Shows can be loaded and delete in these tabs.

## Backup Options

The backup options allows access to setup a file server and activate Auto Save.

The server setup can be complicated, so it has it own help topic - please read about it [here](#).

## Auto Save

Auto Save can be set up to automatically store show file after a certain amount of time.

The default setting is "Off". The other options are 15, 30, 60 and 120 minutes.

If auto save is activated - by selecting a time interval - then a count down can be seen next to the label.

When the count down reaches Zero, then it will save the show on the selected drive/tab. If a tab is selected that does not allow for saving, then it will save in the Internal drive.

Read the following pages to read about the different operations that can be done in the tabs.

### 9.1. Create a new show

Several tabs in the backup menu offers the option to start a new show. It is not possible in the read only tabs.

#### The New Show pop-up

Pressing the new show button in the backup menu opens a pop-up that could look like this:



New Show	
Show Name	New Show 2015-09-07
Clear Show Data	<input checked="" type="checkbox"/>
Clear Time Config	<input type="checkbox"/>
Clear Global Settings	<input type="checkbox"/>
Clear Local Settings	<input type="checkbox"/>
Clear Network Protocols	<input type="checkbox"/>
Clear Network Config	<input type="checkbox"/>
Clear User Profiles	<input type="checkbox"/>
Check All	
Please	

## *New Show pop-up*

In this pop-up it can be chosen what show information from the currently loaded show will be cleared or removed.

In the top it is possible to write the name for the new show.

Pressing the  opens an on-screen keyboard.

Below the name there are different boxes that can be selected. This is the different parts of the show file.

The idea is that when a new show is started there is the option to keep some of the existing data from the currently loaded show.

### Clear Show Data

This is activated as a default. The show data is the patch and fixture schedule, stored sequences, presets, groups, effects, and so on. Basically everything that is in a pool somewhere and the imported 3D elements.

### Clear Time Config

The time configuration is the current time, location, daylight savings settings and NTP (Network Time Protocol) setup. If this is cleared then the console will reset the location to the default location (The parking lot outside McFIT Fitnessstudio in Würzburg, Germany) and take the time from the computer Bios.

### Clear Global Settings

The global settings are the ones found in Setup -> Console -> Global Settings. The settings here are shared in the session and includes enabling and disabling the Remote and Telnet, RDM, WYSIWYG, and so on.

### Clear Local Settings

The local settings are the ones found in Setup -> Console -> Local Settings. These settings only affects the local console and not all consoles in a session. It includes settings like the console language and LED background light settings.

### Clear Network Protocols

Network protocols are the settings for outputting DMX via an Ethernet connection. It includes ArtNet, sACN, ETC-Net2, KiNet1, Pathport and Shownet. These settings are found in Setup -> Network -> Network Protocols.

### Clear Network Config

Network configuration is the settings for what devices should be in the session and the DMX port setup.

### Clear User Profiles

User profiles keep all the data that is connected to the users. Clearing this data leaves only the Administrator and Guest users and the Default user profile.

There is a **Clear All** button that selects all the above boxes.

When the desired selection is made, then tap the **Please** button in the pop-up.

## New show using the command line

It is possible to create a new show using the command line. The command is called **NewShow**. Read more about it [here](#).

## 9.2. Loading a show

A show can be loaded from any tab in the Backup Menu.

### Using the GUI

When Load Show is tapped in the Backup Menu then it will open a pop-up like this:



Load Show pop-up

Here is a list of the shows in the selected tab.

On the right side it is possible to choose what data that will be loaded from the selected show.

The idea is that it is possible to load just a small part of a different show into the currently loaded show.

## Show Data

This is activated as a default. The show data is the patch and fixture schedule, stored sequences, presets, groups, effects, and so on. Basically everything that is in a pool somewhere and the imported 3D elements and their location in the 3D stage.

If the Show Data is loaded and **not** the User Profiles (read below), then the existing **User Profiles** will be overwritten with the ones from the show being loaded and it will add the additional User Profiles from the show. It will not add **Users**.

## Time Config

The time configuration is the time, location, daylight savings settings and NTP (Network Time Protocol) setup.

## Global Settings

The global settings are the ones found in Setup -> Console -> Global Settings. The settings here are shared in the session and includes enabling and disabling the Remote and Telnet, RDM, WYSIWYG, and so on.

## Local Settings

The local settings are the ones found in Setup -> Console -> Local Settings. These settings only affects the local console and not all consoles in a session. It includes settings like the console language and LED background light settings.

## Network Protocols

Network protocols are the settings for outputting DMX via an Ethernet connection. It includes ArtNet, sACN, ETC-Net2, KiNet1, Pathport and Shownet. These are found in Setup -> Network -> Network Protocols.

## Network Config

Network configuration is the settings for what devices should be in the session and the DMX port settings on the Consoles, onPC Wings and NPU's.

## User Profiles

User Profiles keep all the data that is connected to the Users. Loading this data will delete all the Users and User Profiles in the current show and load all the Users and User Profiles from the show file being loaded.

There is a **Check All** button that selects all the above boxes.

As a default only the main show files are displayed, but it is possible to also choose to load data from a backup version of the show.

In the picture above there is a button called "Viewing Shows". This is a button with three different modes:

- **Viewing Shows:**

This only shows a list of the main show files.

- **Viewing Shows & Backups:**

This shows the main show files and the backup files.

- **Viewing Backups only:**

This only shows the backup files.

All columns in this pop-up can be sorted in ascending or descending order. This can be done by pressing the **Edit** key and then the column title. If a mouse or trackball is connected, then it is also possible to right click the column title.



In the title bar it is possible to toggle the information button. It looks like this (active):

When it is active then the information about the selected show are displayed at the bottom. It is information about the different software versions it has been through and when it was last saved in those versions.

It is also possible to see the information that has been saved into the show by the users. Read more about this in [Save Show topic](#).

When the desired show file and the wanted data type is selected, then tap the **Load Show** button.

It is possible to cancel the load process by tapping the **Cancel** button or the big **X** in the upper right corner on the pop-up.



**Hint:**

Executing onPC.exe with parameter -s allows to specify a show file for loading.

Example:

```
<path>/gma2onpc.exe -s my_showfile
```

Loads the show file my\_showfile.show-gz from the gma2/shows folder of the corresponding software version.

### Using the Command Line

Show files can be loaded using the command line. The command is called **LoadShow**. Read more about it [here](#).

## 9.3. Saving a show

### Using the GUI

The Save Show button immediately saves the show using the current show name.

There is a green input line in the top part of the Backup Menu. This is used to add information to the show file. This info is visible when loading or deleting a show file and can be used to mark different version or information to the saves.

It creates a backup of the previous saved show. Each show file (or unique file name) can have 10 backups. So it is possible to load a backup from ten saves ago.

### Using the command line

A show file can be saved with the same name using the command line. The command is **SaveShow**. Read about it [here](#).

### Using the Quick Save function

There is also a fast way to save the show. It is called "Quick Save".

When the backup menu is **not** open then press the **Backup** key twice (like a double click on a mouse) will perform the Quick Save.

## 9.4. Saving a show with a new name

The current show can be saved using a new name.

### Using the GUI

Pressing the **Save Show as** button opens the "Please enter filename" pop-up where a new name, for the show file, can be typed.

Pressing the  button will open the on-screen keyboard. When pressing Please/Enter the the show file is save using the entered name. The save action can be canceled by pressing the  in the upper right corner of the pop-up.

### Using the Command Line

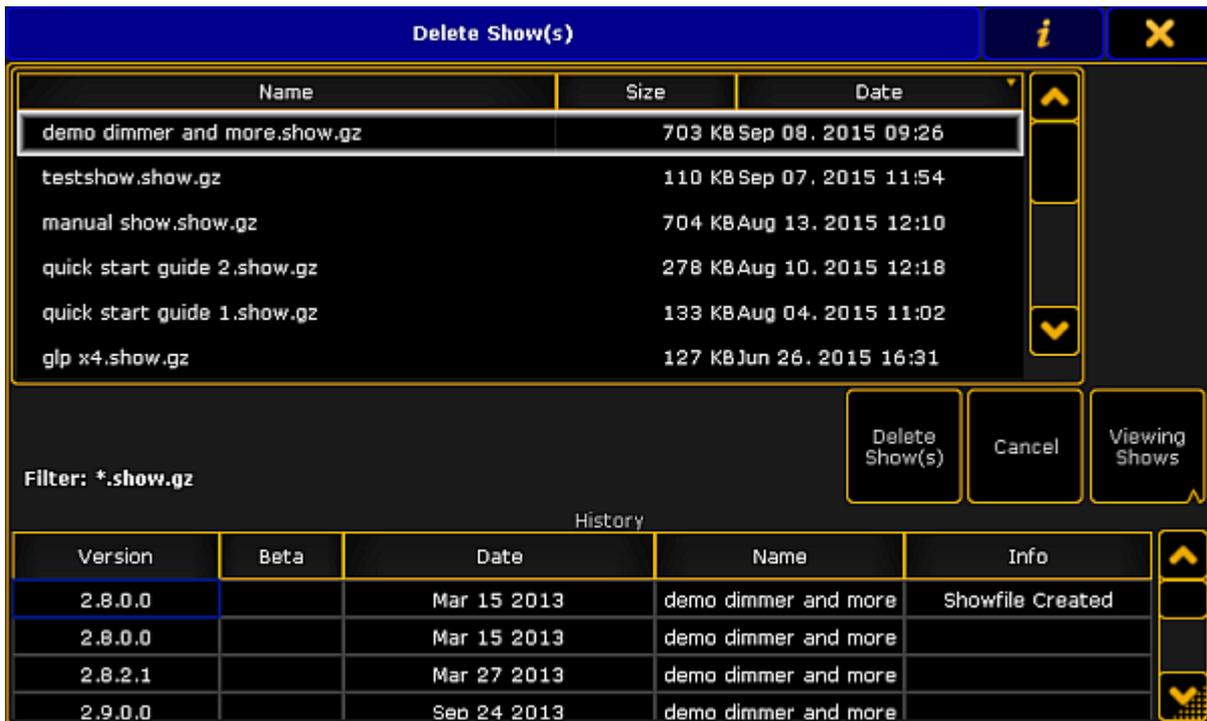
The show file can also be saved, with a new name, using the command line. The command is **SaveShow [new name]**. Read about it [here](#).

## 9.5. Deleting a Show

Show can be deleted in all the tabs except the "Demoshows" and "Template" tabs.

### Using the GUI

Pressing the **Delete Show(s)** button in the Backup Menu opens a pop-up like this:



Delete Show(s) pop-up

This pop-up lists all the show in the tab. The currently active show cannot be deleted.

More than one show can be selected. A selected show gets an orange background. Each time a line is tapped it will toggle the selected status.

In the title bar the information button can be toggled. It looks like this (active):



When it is active then information can be seen about the selected show. It is information about the different software versions it has been through and when it was last saved in those versions.

As a default the list of show only show the different main shows, but you can also choose to see the backups.

In the picture above, there is a button called "Viewing Shows". This is a button with three different modes:

- **Viewing Shows:**  
This only shows a list of the main show files.
- **Viewing Shows & Backups:**  
This shows the main show files and the backup files.
- **Viewing Backups only:**  
This only shows the backup files.

Tapping the **Delete Show(s)** button will delete the selected show files. Deleting shows can be canceled by tapping **Cancel** or the closing **X** in the upper right corner.

## Using the Command Line

Show files can be deleted using the command line. The command is called **DeleteShow**. Read more about it [here](#).

## 9.6. Using a USB stick

There are different things to keep in mind when using a USB stick.

Here is a list of good advice for the USB stick.

- Do not use a big stick. Do not go above 16Gb.
- Name the stick, but **do not** use a space in the name. Underscore or Dash are ok.
- It should be formatted in FAT32.
- If the stick have been in a Mac or PC make sure it has not been configured as something other than a "removable disk".

This is not rules in all software versions. But it is a list of advice that have been gathered by limitations in different software version.

So maybe not rules, but at least a good advice.

## 9.7. Setting up a file server

The session **Master** can be connected to a file server in the network.

There are three different server systems that can be use. Each type is described below.

Generally you need to tap the **Setup Server** button in the **Backup Menu**. Then select the type wanted in the drop down menu called "Connection Type".

If the console succeeds connecting to the server, then it will create a new tab with the label you provide in the setup (read below).



**Restriction:**

grandMA2 onPC cannot be a session Master and connect to a server.



**Restriction:**

Consoles needs enough free memory to mount a file server. It will most likely not be able to successfully connect using a console with only 2GB RAM.



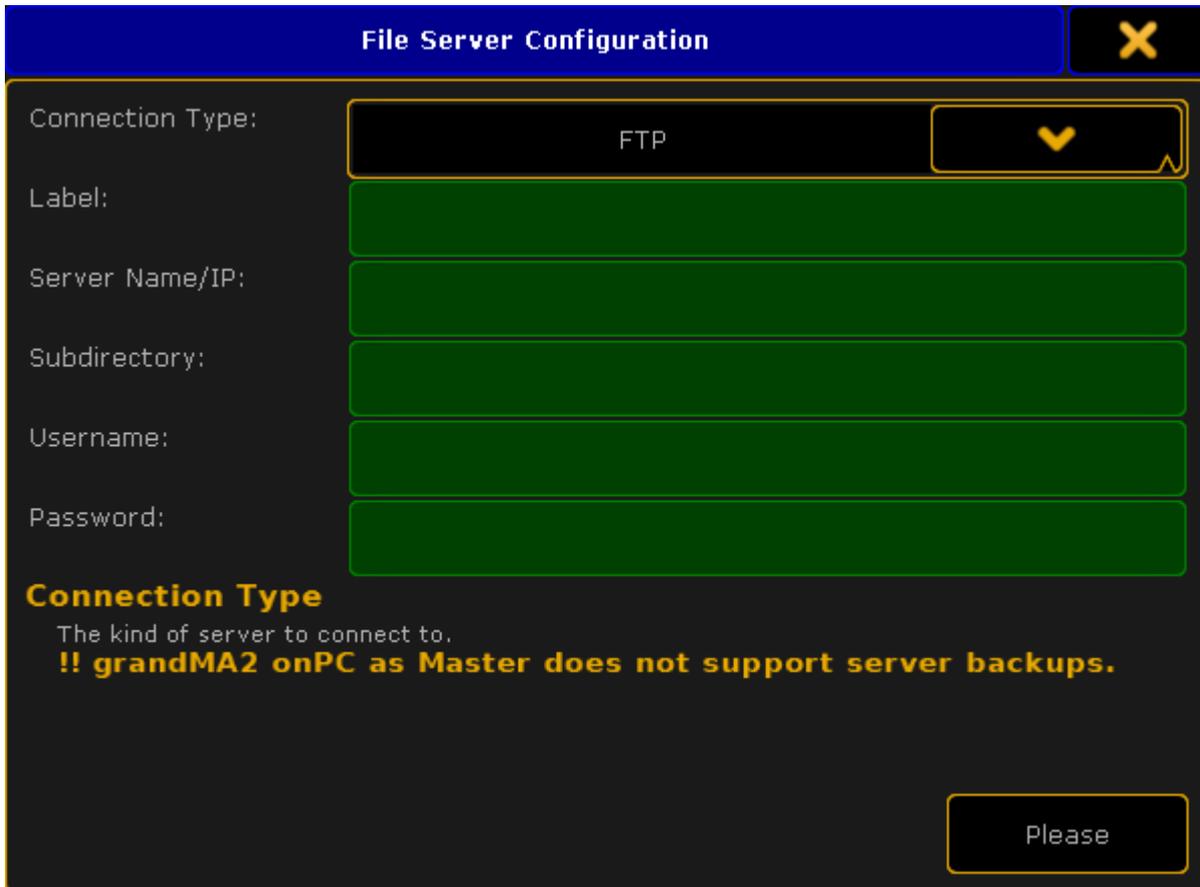
**Restriction:**

The server tab is only available for the master in the session.

## FTP

In the FTP setup you need to connect to a FTP server (using port 21).

The pop-up looks like this (empty):



*File Server Configuration pop-up - FTP mode*

Here you need to fill out the green input fields. The following is a short description of the different fields.

**Label:**

This is the text written on the tab used to select the server as a location or "drive".

**Server Name/IP:**

This is the name or IP address of the server.

**Subdirectory:**

Here it is possible to add a subdirectory in the server location. Leave it empty to use the location chosen in the server. Inside this location there will be created a gma2 folder and several folders will be create inside this. It is just like using a USB memory stick.

**Username:**

It is recommended to have a username and password on the FTP server. This input field can be used to write the username.

**Password:**

This field is to write the password for the FTP server.

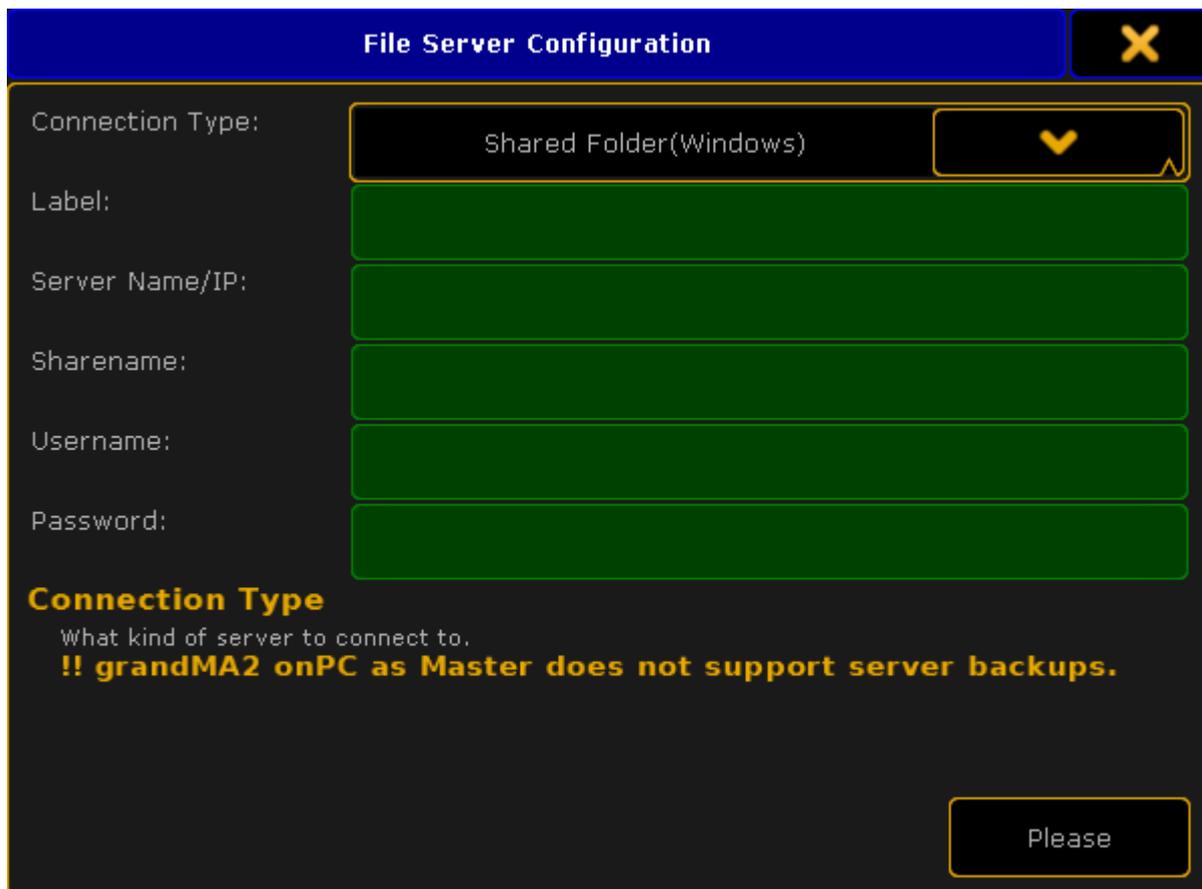
When all fields are filled out correctly, then tap the **Please** button. If the console can mount/connect to the server, a new tab will appear in the Backup Menu and other places where it is possible to select a tab to store or export/import objects.

## Shared Folder (windows)

The Shared Folder option for windows.

A folder on the Windows computer needs to be shared for this to work. It is a good idea to have this folder on the primary drive on the computer

The File Server Configuration pop-up looks like this (empty):



*File Server Configuration pop-up - Shared Folder mode*

Many of the input fields are the same as in the FTP setup - read above for the description.

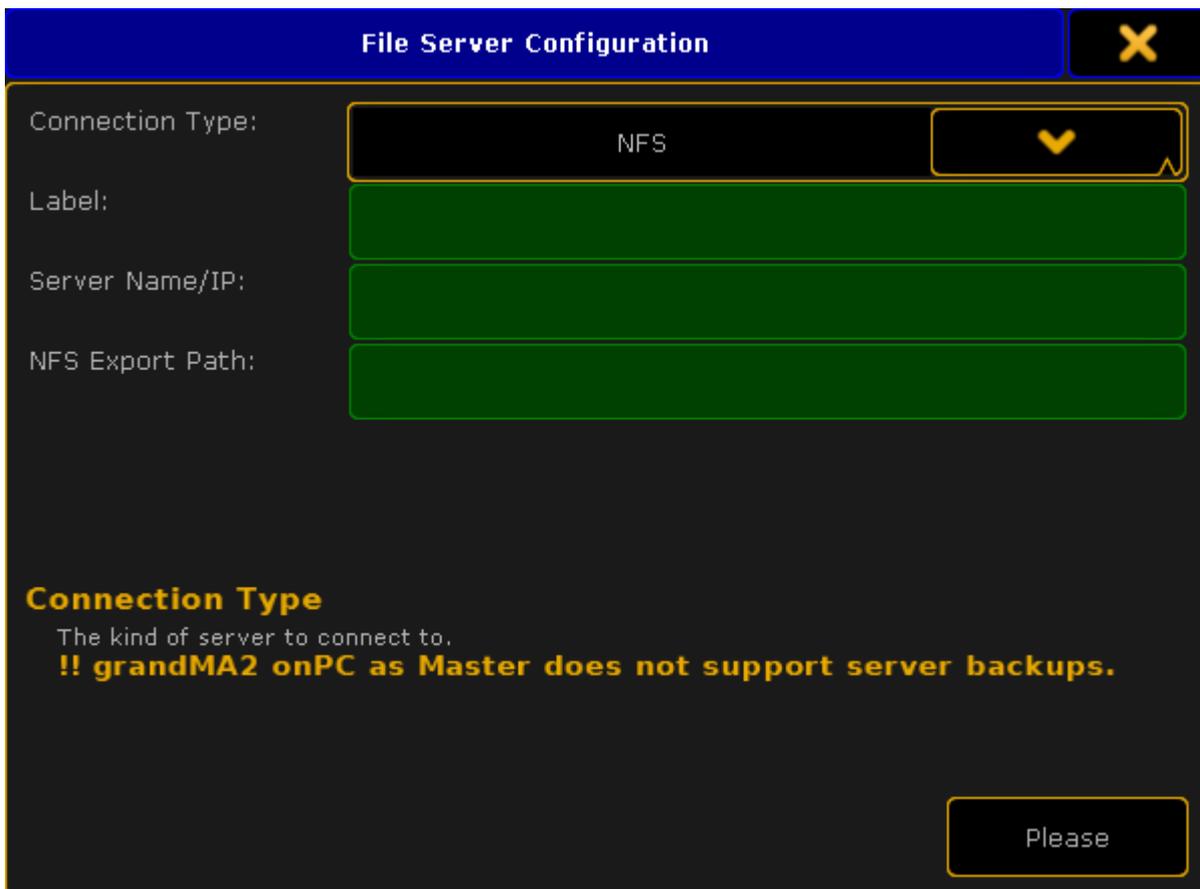
The "Subdirectory" is however replaced with "Sharename". Here you need to input the folder name. The location of the shared folder is also needed if it is not directly in the root of the hard drive.

When you are happy with your setting, then tap **Please** to mount the server. If successful then a tab will appear with the label specified.

## NFS

The NFS file share system was developed by Sun Microsystems. It is mostly used in Unix and Unix-like (For instance Linux) operating system.

There are less input fields with NFS. The pop-up looks like this (empty):



*File Server Configuration pop-up - NFS mode*

The **Label** and **Server Name/IP** are the same as above.

The special input field for NFS is **NFS Export Path**. It is the path or directory in your server where the files will be stored.

When you are happy with your setting, then tap **Please** to mount the server. If successful then a tab will appear with the label specified.

## 9.8. Partial Show Read

Partial Show Read is a function used to import elements from one show into a different show.

The setup of the two shows are compared and you can choose what setup is wanted or a mix can be chosen.

After the comparison - called initialization - then access is granted to a new menu where different wanted elements can be chosen for import.

The actual process is more complex, but this is the idea. Please read the [Partial Show Read](#) chapters to learn more about it.

## 9.9. ASCII Show Read

The grandMA2 can currently import shows from **Strand**, **Transtech**, and **ADB** consoles, that have made an ASCII export of the show.

The import will read the ASCII file and create fixture profiles based on the text. It does not import fixture profiles from the library.

ASCII importing does not give you a perfect show. You can get the setup and the show data, but might need to make a lot of adjustments to have a show that look the same.

It is only possible to import an ASCII show from the USB tab in the Backup Menu.

When the **ASCII Show Read** button is selected in the tab, then a ASCII file needs to be selected.

### The Overview

After a file have been selected, then the ASCII Show Read pop-up is displayed. This pop-up is separated into different tabs. The first one is called **Overview** and could look like this:



*ASCII Show Read pop-up - Overview*

In the overview the console manufacturer and console type that made the export can be seen. It is also possible to see the show file name from the ASCII file.

In the Overview tab it can be decided where the Default Sequence should be. And if it should be created and assigned to an Executor and Executor page.

It can be decided if the submasters from the ASCII file are wanted and what page they are desired. It can be chosen from what group number the inhibits from the ASCII file are wanted.

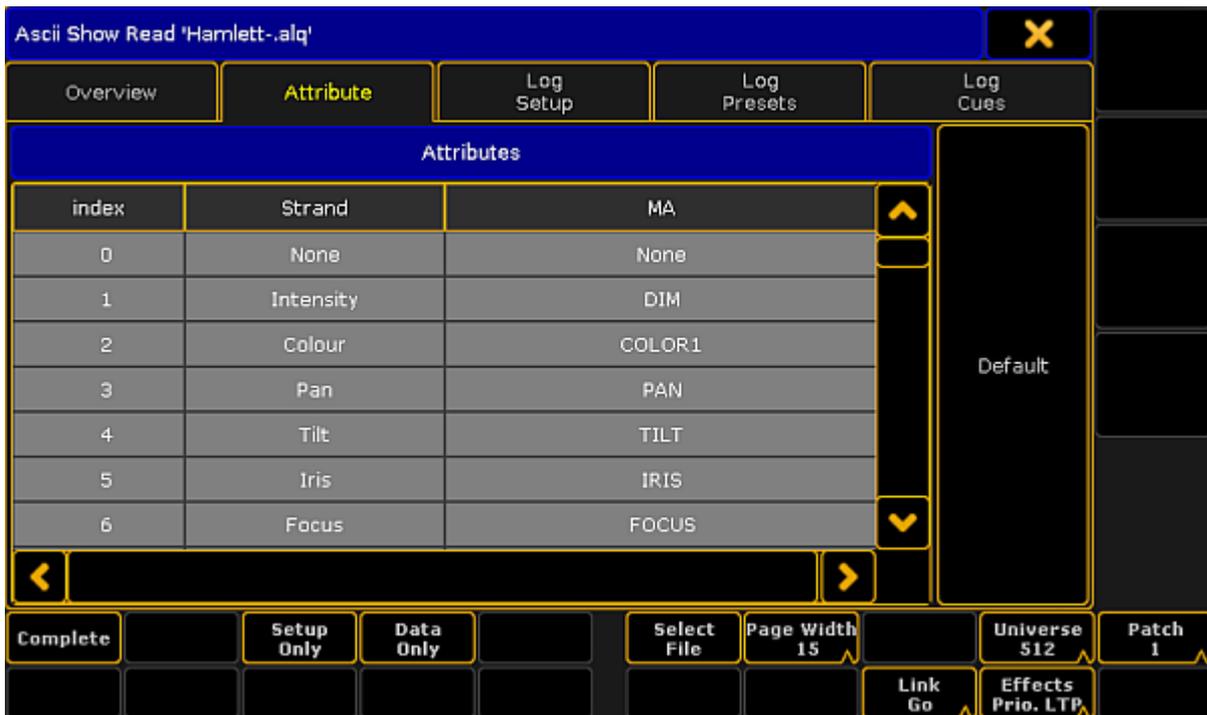
It is also possible to choose the first sequence number from the Effects. And if they should be assigned to Executors and then the first Executor page.

Effects from ASCII shows are imported as sequences.

## Attribute

Before importing any data, you need to make sure the attributes from the ASCII file match the attributes in the grandMA.

This can be matched and changed in the Attribute tab. It could look like this:



*ASCII Show Read pop-up - Attribute*

If it is empty then you can try to press the **Default** button.

Now the attributes from the ASCII file can be matched with the grandMA2 attributes.

If this is not matched correctly show data will be lost.

Selecting one of the MA attribute allows this to be changed to any of the existing attributes in the MA.

Attributes that does not exist can be created in the [Attributes and Encoder Grouping](#) window.

## Adjusting the settings

When the attributes matches, then you need to make sure the settings match the ASCII show file.

The settings are the ones in the lower right corner.

### Page Width setting

The first setting is the Page Width - it does not have anything to do with the ASCII file, but it has to do with the console. If you are working on a grandMA2 Light or Ultra-light, then you might want to set the width to 15. If you are working on a grandMA2 Full-size, then you could set the width to 30. Those are the two options.

### Universe size setting

Some older consoles are set to only have 500 DMX channels per Universe. This Universe setting allows you to change if the patch should be regarded as 500 or 512 DMX channels.

## Patch setting

Some consoles allowed an alternative DMX address. This Patch setting allows you to import the primary patch "Patch 1" or the secondary patch "Patch 2". If you are in any doubt, then just leave this setting at "Patch 1".

## Link setting

The Link setting has two options: "Go" or "Toggle". This decides whether the triggered effects gets a Go or Toggle command in the CMD column in the Default sequence. All Effects are sequences that are executed from the CMD column.

## Effects priority setting

The **Effect Prio.** setting have two options: "LTP" or "High". The imported effects will use the setting chosen here.

Remember that Effects are imported as sequences and depending on your settings in the Overview they are assigned to Executors.

It is always possible to change the priority later if needed.

## Importing the Setup and Data

When the settings are correct then you can import setup and show data.

This can be done all at once by tapping the **Complete** button. This will load the Setup and the Show Data. This is good if you know that it will work and there are no errors.

It is also possible to do it in two steps. If the **Setup Only** button is tapped, then the fixture schedule and the patch is displayed. Then you can check that all is there and the patch is ok, simply by opening the setup.



### Restriction:

If the Setup is not correct, then the Show Data will not import correctly.

After you have checked the setup, then go back to the ASCII Show Read in the Backup Menu. You might be asked for the show file again. Please select the same file.

Now tap the **Data Only** button, this imports the Show Data.

Using the **Setup Only** and **Data Only** buttons also allows you to import the separate parts. For instance if you only need the setup and patch from a show or if you already have everything patched and just need the show data. The Data Only import is looking for the ID numbers when it imports. So if a fixture exists and is correctly patched then the data will import.

## Log files

Importing from the show file will create different log files. These files can be seen in the three remaining tabs. The log files also exists in the "temp" folder in the consoles structure. To get to them a FTP connection is needed. Read about it in the [FTP Connection to Console and NPU topic](#).

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## 10. Single User and Multi User systems

The grandMA2 system can handle small and big systems, with one or many user at the same time.

This section deal with the [difference between a system with a single user and one with multiple users](#).

There is a topic about how to [create User Profiles and Users](#).

A page about the [different User Settings](#).

And finally a look at [different ways to login](#).

## 10.1. What is the difference between a single-user and a multi-user system

When talking about a system, we often actually mean a session.

An Ethernet network can have several sessions running.

A session can have one, some or many MA devices as members or listeners.

This page is attempt to describe some of the differences between the two systems.

### Single User session

In a single user session there is one operator/programmer. This person might have one or several stations (consoles or onPC).

When there is only one user, then all stations are logged in as the same user.

This have also been called a "Full Tracking Backup". The stations are all in sync and share the different views and the programmer content is the same on all stations.

This is useful for the single operator. If one station fails, then the operator can move to the other station and continue working without losing anything.

This operator will usually have full rights to the entire system.

### Multi User session

In a multi user session, there are several operators. They might use the same stations and take turns (working in shifts or at different phases of the process). It can also be a system with multiple users working at the same time on different stations.

For this setup the operators need to create more Users and most likely more User Profiles. Each operator will then log into the station using their User and may control the complete system or just a part of the system.

The stations share the show file and the Executors are all in sync, but the users can have different views on the screens and their programmer is not shared - the output is.

Sometimes the systems are a combination; There are several operators (Multi User), but each operator have two (or more) stations logged in with their User (Full Tracking Backup).

In a Multi User system, you can have users with different operator rights. There are several levels of rights. They span from complete access to only being allowed to change the view.

The User Profiles can also be limited to only a specific world. This would only allow the user to access a part of the fixtures.

## 10.2. Create user profiles and users

The user system is divided into two different parts - The User and the User Profile.

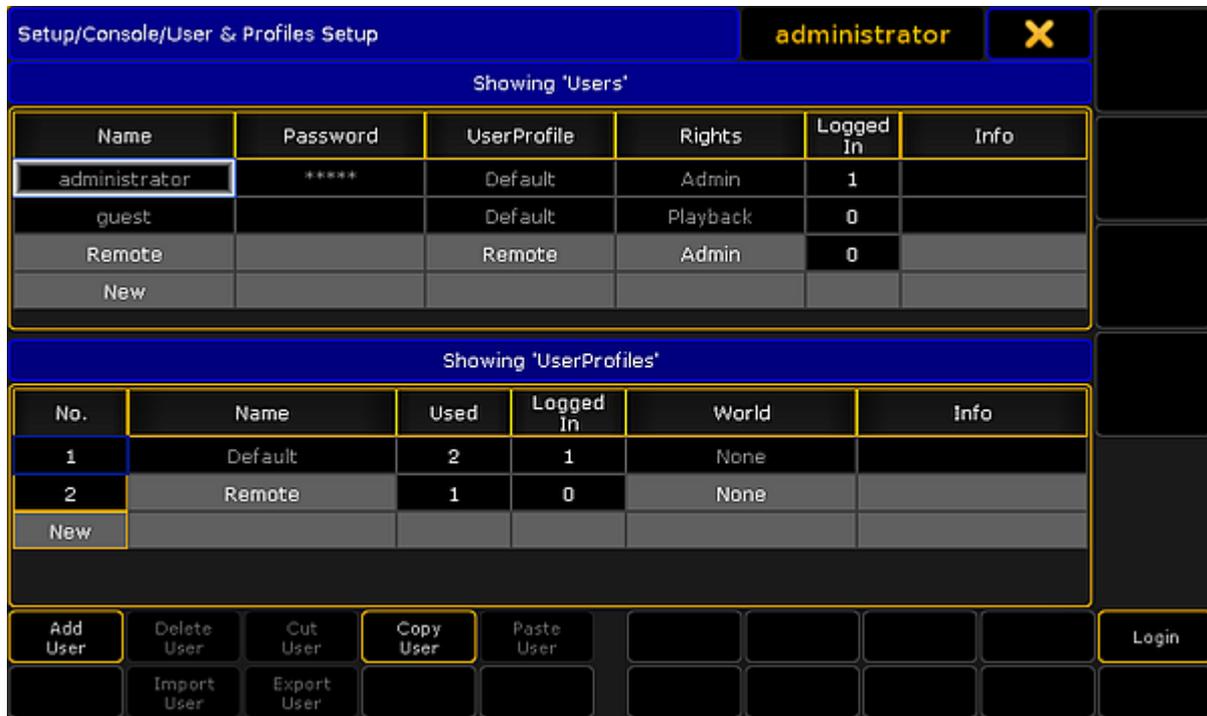
A User have a User Profile assigned. Many Users can have the same User Profile assigned. Each User have their own programmer and can have different selected elements (Executors, Worlds, Filters, and so on). But if they use the same User Profile, then the Users share the Views and View Button assignment and a lot of other settings.

## User & Profiles Setup

The User & Profiles Setup is where you control the Users and the User Profiles. It can be opened by pressing **Setup** and then **User & Profiles Setup** in the Console section.

Or by typing **Menu UserProfiles** in the command line.

This is what it look like:



### User & Profiles Setup

This menu offers a lot of information and some possibilities. But the main purpose of this menu is to create Users and User Profiles.

The main part of this menu is separated into two sections. The top section is about the **User** and the bottom part is about the **User Profile**.

The general background color rule applies here. A cell with a black background cannot be edited. Gray background allows you to edit the cell content.

There are two Users and one User Profile that is in all shows and cannot be delete or changed. It is the Administrator and Guest users.

When a User is logged in, then some settings are locked and cannot be changed and if changes are made to a user that is logged in, then that user might need to login again before the changes are applied.

In the title bar you can see what user is currently logged in on the station you are standing or sitting in front (in the image above is "administrator").

## Button explanation

There is a set of buttons at the bottom of the menu. They change depending on what is selected. This is a short description of them:

- **Add [Profile/User]** - This will create a new user or user profile (depending where the focus last was).
- **Delete [Profile/User]** - This will delete the selected user or user profile (the one with the white frame).
- **Cut [Profile/User]** - This will move the selected user or user profile in the clipboard - ready to be pasted somewhere.
- **Copy [Profile/User]** - This will make a copy of the selected user or user profile into the clipboard - ready to be pasted somewhere.
- **Paste [Profile/User]** - This will paste the user or user profile from the clipboard to the selected location.
- **Import [Profile/User]** - This allows you to import a previously exported user profile.
- **Export [Profile/User]** - This will export the selected user profile. A pop-up might appear asking where it should be exported: the internal memory or to any detected USB sticks.
- **Login** - Pressing this button will login the station with the user selected in the User list.

## Column explanation

Each of the two sections have some columns.

This is a short explanation of the columns in the UserProfile section:

- **No.** - This is the profile number. It cannot be edited.
- **Name** - This is the name of the profile.
- **Used** - This is for information. Here you can see how many users have this profile assigned (read below).
- **Logged In** - Here you can see how many stations are currently logged in with a user with this profile.
- **World** - A world can be assigned to a User Profile. This will only allow access to the fixtures and attributes in this specific world. Read more below.
- **Info** - Here you can type some information text.

This is a short explanation of the columns in the Users section:

- **Name** - This is the name of the user - this is the name used when logging in.
- **Password** - Passwords can be added to a User. This password needs to be type when logging in. Leave this empty if you do not want a password.
- **UserProfile** - All Users need to have one of the UserProfiles assigned. Editing this cell will open the **Select User Profile** pop-up.
- **Rights** - Here you can select the level of rights the user should have. Editing this cell will open the **Select Rights** pop-up. Please read the section below to learn more.
- **Logged In** - Here you can see how many stations are currently logged in with this user.
- **Info** - Here you can type some information text to the user.

## User rights

There are seven different levels of user rights.

When editing the Rights cell in a User, then you will get a small pop-up that lists the following users:

- **Admin** - This is full rights to change everything in the console, system and show.
- **Setup** - This will limit access to some of the elements in the console. The user cannot access the User & Profile Setup! There are other console settings that can be accessed.
- **Program** - In this level the user cannot do major changes to the Fixture Schedule. It only gives access to the "Patch Only". Most programming operations can be done.
- **Presets** - This level allows to update existing presets. But the user cannot edit the cue content.
- **Playback** - This level allows to playback and run a programmed show. But the user cannot store anything.
- **None** - With this user right it is not allowed to use a programmer or run any Executors. The user is allowed to change views.

You can only change the rights when the user is not logged in.

## Assigning worlds to User Profiles

Assigning a world to a User Profile will limit the Users assigned to this User Profile to only use the assigned World. It is not possible for the user to change world.

The default option is **None**. This means that the user is not limited.

Editing a cell in the World column will open up a small **Select World pop-up**. This will list the None option and all the created worlds in the show file.

Selecting the "Full 1" world will give the user access to every fixture and attribute, but the user is locked from changing world.

Worlds can be assigned using the command line.

To assign world number 4 to user profile number 3 use the following command:

```
[Channel]> Assign World 4 UserProfile 3
```

## Create a new User Profile and a User

To create a new user with a new user profile you will need to do the following (you need to be logged in as a user with Admin rights):

1. Press the **Setup** key.
2. Tap the **User & Profiles Setup**.
3. Tap the cell with "New" in the lowest "**UserProfiles**" section - you might need to scroll down.
4. Tap the **Add Profiles** button.
5. Change the Name of the user profile to something that makes sense.
6. Tap the cell with "New" in the top "**Users**" section - you might need to scroll down.
7. Tap the **Add User** button.

8. Change the Name of the user to something that makes sense.
9. Add a password if you want one.
10. Select the User Profile you just created.
11. Change the user Rights if you need to.
12. Tap the **Login** button if you want to login immediately as this new user.

## 10.3. User specific settings

There are a lot of settings that follow the User (Profile).

Most are found in **Setup** and in the **User** tab.

In the User tab you can also see the name of the currently logged in user.

### Defaults

The default section contains all the settings used when creating different elements. It is separated into four sub sections.

#### Sequence Defaults

The sequence defaults are the settings used when storing cues.

It is mainly the different timings used for fades and delays.

It also has the default trigger.

[Follow this link to read more about the Sequences.](#)

#### Preset Defaults

The Preset defaults contain four different settings. They are not described here, please read the [Presets](#) topics instead.

#### Layout Defaults

Tapping the Layout Defaults will open the settings for the Layout View on the entire screen.

[Follow this link to read more about the Layouts.](#)

#### Command At Defaults

This section only have one setting.

It is the preferred color engine when using the Color Picker or when grabbing a color from a different fixture.

#### Window Settings

This section keeps all the user settings for the different windows. The settings can be changed here, but it could make more sense to change them in the actual sheets and windows. There you open the options and in the title bar of the options, you can tap the **Save to Default** button. These are the settings that are stored to default.

Read about the different settings in each of the help pages describing the different windows.

## Grand Master & Misc. Keys

This section contains settings for some of the hard keys.

Many of the keys can be disabled, including the Grand Master fader. The keys that can be disabled are: Blackout, Solo, Highlight, Channels Page + (Ch Pg +) and Channel Page - (Ch Pg -).

As mentioned it is also possible to disable the **Grand Master fader**. This will force the physical fader at full. It is still an option to assign the Grand Master function to one of the executors. If the Grand Master is moved on one of the other executors, then the physical Grand Master will still move. Moving the physical Grand Master will make the fader jump back when it is released.

There is a setting called **Link Fader & Button Page**, this will always change the Executor Fader and Executor Button pages together, when it is turned On. Then it does not matter if you use the one or the other sets of page keys, they will change to the same page.

The last option here is **Blind**. It has three different options:

- **Disabled** - This disables the Blind key.
- **BlindEdit only** - This setting only gives access to the BlindEdit mode. You still need to keep the key pressed for a second to enter the BlindEdit mode.
- **Enabled** - This is the default setting. This gives access to both the normal Blind and the BlindEdit mode.

## Oops Settings

The Oops key gives access to undo certain things.

It can remember 100 steps backwards.

The oops'able elements are divided into three different sections: **General**, **Views** and **Programmer**.

You can activate if the oops function should use all of these sections or just some of them.

Many users turn off the Views section. Then some of the 100 steps are wasted on view changes.

## Store Options

This is where the store options are saved. These are the settings used when storing cues or presets.

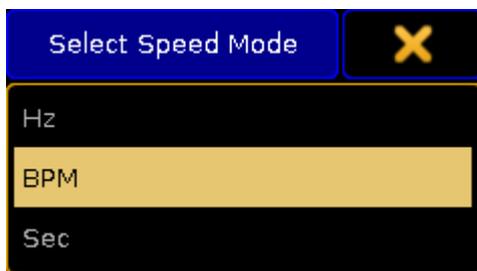
All the settings are not described here.

Please read the [Cues and Sequences](#) and [Presets](#) topics instead.

## Settings

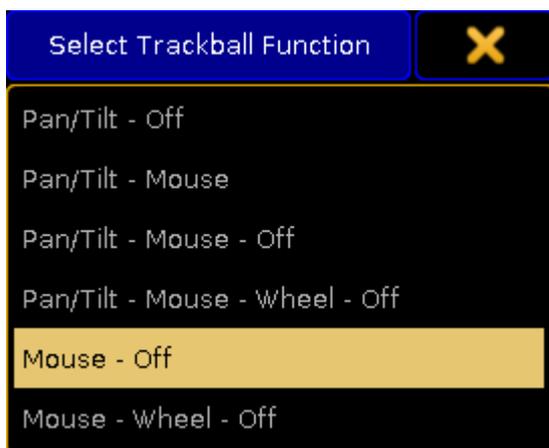
This section contains different settings all related to the User (Profile).

- **MessageBox on all screens** - This can be **On** or **Off**. When this is On, the message boxes will appear on all screens.
- **Default MixColor Readout** - There are two options here: **RGB** or **CMY**. This is used to select the default color system. If you mostly deal with RGB colors or CMY colors, then it is possible to change what sheets and encoders displays.
- **Speed Mode** - Selects the speed mode in Effects, Bitmap Effects and Speed Groups. Tapping it opens the **Select Speed Mode** pop-up. Here the options are:
  - Hz** (Hertz)
  - BPM** (Beats Per Minute)
  - Sec** (Seconds)



*Select Speed Mode pop-up*

- **Trackball Function** - Opens the **Select Trackball Function** pop-up. Here you can select the mode sequence for your trackball when you press the **Mouse** key. The trackball can have four different modes:
  - Off** - no function
  - Mouse** - normal trackball mouse function
  - Pan/Tilt** - this will move the selected moving lights
  - Wheel** - emulates the level wheel



*Select Trackball Function pop-up*

- **Trackball Resolution** - Opens the **Select Trackball Resolution** pop-up. This is used to select the default resolution of the trackball. This can also be change on the fly by pressing the  (encoder) key and holding it, then selecting one of the resolutions in the pop-up - more about the [Encoder key](#) following the link. There are three different resolutions:

**Fine** (0.1% of the range)

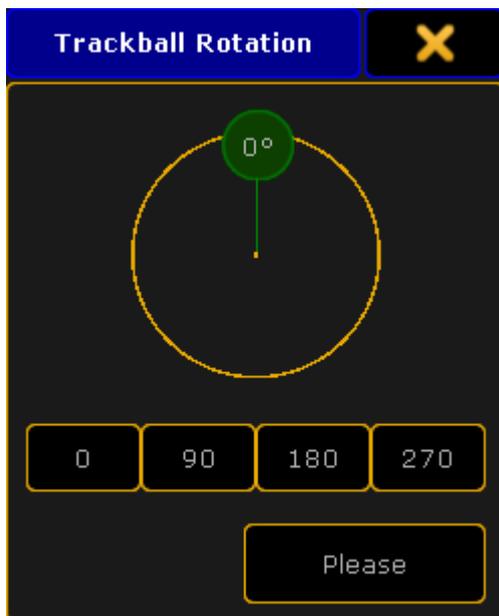
**Normal** (1% of the range)

**Coarse** (5% of the range)



*Select Trackball Resolution pop-up*

- **Trackball Rotation** - This is used to rotate the orientation of the trackball in the pan/tilt mode. It opens a **Trackball Rotation** pop-up:



*Trackball Rotation pop-up*

Here you can press the small green circle and rotate the orientation of the trackball. When you are happy, press the "Please" button to confirm the choice.

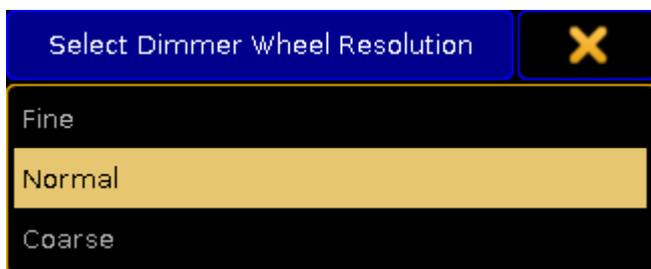
There are four quick options that allow for fast selection of one out of four quarters on the circle. Pressing the yellow X in the upper right corner cancels any changes.

- **Dimmer Wheel Mode** - Tapping this opens the **Select Dimmer Wheel Mode** pop-up. This is used to select the wheel mode of the level wheel. There are four options:
  - Additive** - This will allow you to use the level wheel to set the value of dimmers. It will keep the individual levels until reaching 0% or 100%. Then it will level them out. For example: fixture 1 has a value of 50 and fixture 2 is at 60. When using the level wheel to take them both up to 100, and then back down, they both go down from 100 at the same time and at the same level.
  - Incremental** - This will basically do the same as 'Additive', but it remembers the individual values going beyond 0% and 100%. For example: fixture 1 has a value of 50 and fixture 2 is at 60. When using the level wheel to take them both up to 100, and then back down, fixture 1 will start coming down first and then fixture 2 will follow when fixture 1 is at 90.
  - Prop. +** (Proportional positive) - When using the level wheel to turn up the value the individual difference in value will increase. Turning down the values will make all channels reach 0% at the same time.
  - Prop. -** (Proportional negative) - When using the level wheel to turn the values up the individual difference in value will decrease. Turning up to 100% will make all channels reach 100% at the same time.



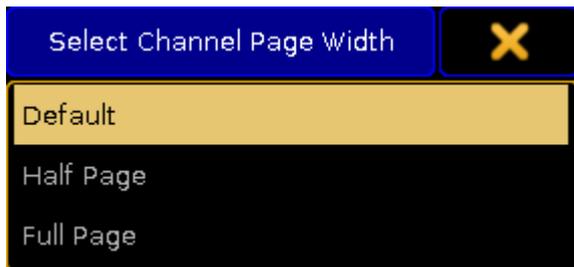
*Select Dimmer Wheel Mode pop-up*

- **Dimmer Wheel Resolution** - This is used to select the default resolution of the Level Wheel. This can also be change on the fly by pressing the  (Encoder) key and holding it, then selecting one of the resolutions in the pop-up - more about the [Encoder key](#) following the link. There are three different resolutions:
  - Fine** (0.1% of the range)
  - Normal** (1% of the range)
  - Coarse** (5% of the range)



*Select Dimmer Wheel Resolution*

- **Channel Page Width** - Opens the **Select Channel Page Width** pop-up. Here the width of the channel pages can be selected. The options are:
  - Default** - This will add the amount of your current console.
  - Half Page** (15 faders) - This will scale down a grandMA2 full-size or grandMA2 onPC to match a grandMA2 Light or grandMA2 Ultra-light.
  - Full Page** (30 faders) - This will not add more faders to your grandMA2 Light or grandMA2 Ultra-light, but it will spread it out as if it was a grandMA2 Full-size.



*Select Channel Page Width pop-up*

This cannot add more faders to your console. If there only are 15 faders then you do not get 30 - but you can scale down a grandMA2 full-size.

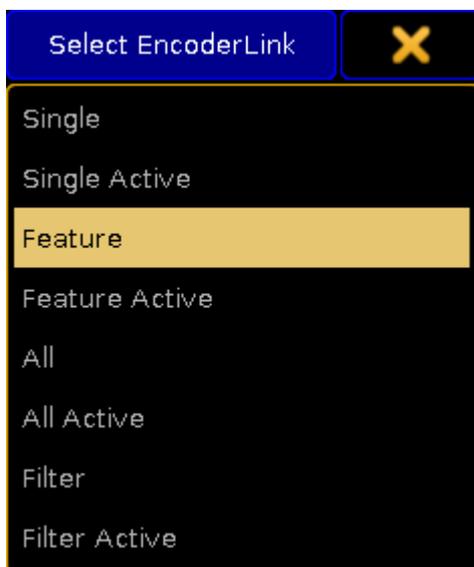
- **Dynamic Channel Page Shows Only Selected** - When this is On then the console will only display the selected fixtures in "Dynamic Channel Pages" - read more about the Dynamic Channel Pages in the [Channel Pages topic](#).
- **At Normal Percent** - Here you can define what percent should be considered "[At Normal](#)". This is used when the **At** key is pressed twice.
- **Single Digit Value** - All numeric value input below 10 will be a multiplication of 10; for example: channel 1 at 5 = channel 1 gets value 50.
- **Max. Program Time** - This is the maximum allowed Program time for the **Program Time Special Master**. Follow this link [Time Control](#) to read more about the Program Time.
- **Max. Exec Time** - This is the maximum allowed Executor time for the **Executor Time Special Master**. Follow this link [Time Control](#) to read more about the Executor Time.
- **Special Fader Buttons** - Here you can Enable or Disable the extra buttons above the 100mm faders. Follow this link [Master Section](#) to read more about this area.
- **Disable View Button and View CLI** - With this option activated Views and Viewbuttons will not interact with the command line anymore. For example hitting the store button to store a group and realizing you have to change the View to get a group pool would not accidentally store a view.
- **Patch Column Readout is absolute DMX address** - This will set the Patch columns to display the absolute DMX address instead of a universe and address split. For example with this On you will see the DMX address "2.1" (universe.address) as "513".

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- **XKeys always for Exec** - When this is **On**, then the X-Keys (below screen 1) will always work as the Executor Buttons. It will **not** automatically follow the content on the lower part of screen 1.
- **3D Items Unit** - This will change the units in the MA 3D (and Stage View). There are two options:
  - Scale** - The visible number will be a scale of the item size.
  - Size(m)** - The visible number will be in meters.
- **CurrentChannelPage** - This is this users current Channel Page.
- **CurrentFaderPage** - This is this users current Executor Fader Page.
- **CurrentButtonPage** - This is this users current Executor Button Page.
- **EncoderLink** - The encoder link is used when working in the Fade, Delay and Effect layers. It has several options:
  - Single** - Only sets the value for the attribute you change.
  - Single Active** - Same as above, but limited to parameters that are already active in programmer.
  - Feature** - Sets the value for all attributes in the selected feature. For example if you set a delay time for 'Pan' it will also set the time for 'Tilt'.
  - Feature Active** - Same as above, but limited to parameters that are already active in programmer.
  - All** - This sets the value for all attributes.
  - All Active** - Same as above, but limited to parameters that are already active in programmer.
  - Filter** - Sets the value for the attributes selected in the current filter from the filter pool or at filter.
  - Filter Active** - Same as above, but limited to parameters that are already active in programmer.



*Select Encoder Link pop-up*

- **Programmer Colors** - This setting allows to change between two different set of visual color feedback regarding the programmer. The two options are **Standard** and **High Contrast**. Read about the in the [System Colors topic](#).

## 10.4. Login on a station

There are two ways to log into a station.

Before logging in, you will need to know a User name.

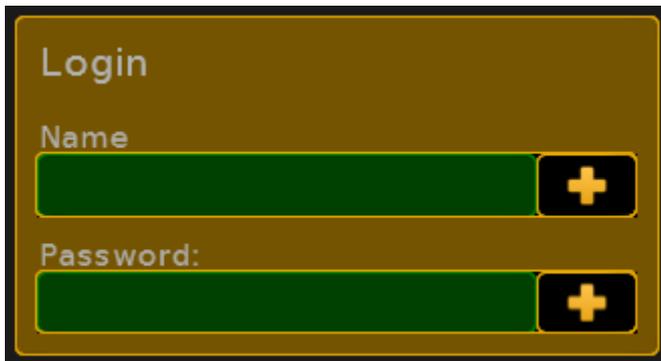
To learn more about the Users and the creation of Users and User Profiles, please read the [Create User Profiles and Users](#) topic.



There are two default users in every show file. You can always login as "Guest" with limited access or as Administrator (password: admin) with full access.

### Log in using the GUI

The main way to login using the GUI is to press the **Tools** key and the **Login** button. This will open this pop-up on all screens:



*Login screen*

A valid user name and (if there is a) password needs to be typed in.

One other option is when in the User & Profile Setup (follow link above) then you can select a User and tap the **Login** button in the lower right corner.

### Log in using the command line

Login can also be done using the [Login](#) command. Follow the link to read the details about it.

The general use is that "Login" is typed followed by the user name and the password (if any) and then executes the command with Please/Enter.

Example:

If you wanted to log in as administrator then you would type:

```
[Channel]> login administrator admin
```

## 11. Networking

This section is about networking in grandMA2.

There is a short description of [what is networking](#).

There are some useful information about setting IP addresses in [Consoles](#) and in [grandMA2 onPC](#).

MA devices communicate and connect in a session. There is a section describing all the [relevant topics about sessions](#).

The network can be used to get [DMX in and out of system](#).

There is a section about [CITP](#).

There is a topic about [PosiStageNet or PSN](#). It is a protocol used to exchange real-time position values.

## 11.1. What is networking

Networking in grandMA2 can be a lot of things. Generally when we talk about network, we are talking about the Ethernet connections on the consoles and devices.

To make any connections, the devices will need an IP addresses and physically connection using good Ethernet switches.

### Expand the system by adding more MA devices

MA devices can be connected to expand the system. This allows for:

- more synchronized DMX ports to the system
- more parameters allowing control of more lights
- create backed up systems that ensures a running show
- controlling MA VPU media server giving output to big or small screens incl. sound output
- and much more

### Sessions

When moving beyond the standalone console, sessions are needed. A session is like a chat room for MA devices. A device can be added to a session and then the device is a part of that system. It is possible to create 31 different sessions in one Ethernet network. One session can handle a maximum of 65 536 parameters (read more about parameters vs. DMX channels following [this link](#)). The network limit in a Gigabit network is currently 3 maxed out session in one network.

### Connect to third party hardware

You can also use the network to communicate with third party equipment. grandMA2 support many of the industry standard network protocols for sending (and in some instances receive) DMX data using the Ethernet network.

They include Art-Net III, sACN, Pathport, ETC-Net2, Shownet, and Kinet.

grandMA2 also supports CIP and PSN. CIP is used for streaming video and image exchange over network. PSN is a 3D position protocol capable of exchanging real world position values from tracking systems.

## 11.2. Set the IP address in the console

An IP address in a matching range is needed to be able to connect devices. This page is about setting a static IP address in the console. If you need to set the IP in the onPC, please [follow this link](#).

If you have a network using DHCP, then you might want to allow a DHCP server to set the IP address in the console. You can read more about this in the [Using DHCP in MA devices topic](#).

There are three ways to set the IP address in the console. No matter what way you choose, you will need to reboot the console for the change to take effect.

### Set the IP address using the command line

Use the [SetIP command](#) to see and change the IP addresses of the console. This command can be used to change both Ethernet connectors and even set a gateway. Follow the link to read about using the command.

### Set the IP address using MA Network Control

You can change the IP address in the console by pressing **Setup** and then **MA Network Control**.

Here it is only possible to change the IP address of Ethernet connector number 1, when the console is **not** connected to a session. In the title bar of the menu you can see the current status of the console. If it says anything other than "Standalone", then you need to tap **Leave Session**.

When the console is standalone, then tap the green input field next to "Station IP". Then type the new IP address - and reboot.

### Set the IP address using MA Network Configuration

You can change the IP addresses in the console by pressing **Setup** and then **MA Network Configuration**.

In this menu you need to select the **Consoles** tab. Here are all the consoles in your system listed. Selecting a cell with an IP address in the table and pressing the screen encoder will give open an input box that allows changes to the IP address. Each console have two IP addresses - one for each Ethernet connector on the back.

The second IP address should always be an Art-Net address. The Art-Net addresses have two ranges that are allowed - one starting with 2 and one starting with 10. Other manufacturers and networks specifiers often uses the "10" range for their primary address scheme. For this reason it is a good practice to keep the Art-Net in the "2" range. That could avoid problems in networks that are not only MA devices and not completely under your control.

There is a column for activating DHCP. Read more about DHCP in the [Using DHCP in MA devices topic](#).

## 11.3. Set the IP address in the onPC

To change the IP address in the onPC, you first need to set the IP address in your computer.

You can only set the IP address equivalent to the Ethernet connector 1.

If you need the onPC to output or input Art-Net, then it is not necessary to give the computer an IP address in the Art-Net range. MA onPC will automatically generate one.

If you create an IP address in the Art-Net range, then the onPC will not generate one, but use the one you have set. This can be done on a secondary Ethernet adaptor or the same.

The onPC will automatically use the adaptor with the Art-Net range to transmit the Art-Net data.

You need to set the IP address in the computer before opening the onPC program - or restart the program after the IP address have been changed in the computer.

If you are using DHCP, then you will need to make sure that the IP range is the same on all the MA devices that needs to be connected.

### Set the IP address using the command line

When you have set the IP address in the computer, then you can use the [SetIP command](#) to set the IP address. It is important that you write the same IP address as the one set in the computer.

Follow the link to read more about using the [SetIP command](#).

### Set the IP address using the GUI

You can select the IP address by pressing the **Setup** key and then **MA Network Control**.

Here you can only select the IP address when the onPC is **not** connected to a session. In the title bar of the menu you can see the current status of the onPC. If it says anything other than "Standalone", then tap **Leave Session**.

When the onPC is standalone, then you can open the drop down box next to "Station IP". Here you can select the IP address set in Windows. Remember that onPC needs to restart before it uses the selected IP address.

## 11.4. Using DHCP in MA devices

The grandMA2 supports the use of DHCP (Dynamic Host Configuration Protocol). Use the normal procedure for setting static IP addresses in your devices, if you do not know what DHCP is.

DHCP is enabled as a default when you do a full install. It can also be enabled on Consoles, NPU, and DMX Nodes from the Setup->Network->MA Network Configuration. Read more about this in the [Adding devices to your session topic](#).

The device will look for a DHCP server in the network during the boot process. If a DHCP server is not found, then the device will assign an IP address in the APIPA (Automatic Private IP Addressing) range. This address will begin with 169.254.x.y.

DHCP can also be used to define a gateway address. This can also be done with static address, but only when using the [SetIP keyword](#) in the command line.

## 11.5. Session control

To connect MA devices you need to create a session.

### MA Network Control

Sessions and Stations (consoles and onPC) relation to sessions are controlled in **MA Network Control** found in the Setup menu.

It can be opened it by pressing **Setup** and then tap **MA Network Control**.

It could look like this:



## *Menu MA-Net Control*

The left side of this menu displays the different sessions in the network.

There can be a maximum of 31 sessions. Each session needs a unique session number (between 1 and 31).

There is always a line in the session control that "holds" the stations that are not currently in a session. This line is called **Not connected**.

The right side of the menu lists the different stations that are in the session selected on the left side (including the "Not connected").

## Master and Connected

In a session there is always one station that have the **Master** role. If there is more stations in the session, then the others will have the **Connected** role.

The **Master** is the one that transmit DMX on the network. It is also the console that executes the commands that are triggered by the sequences. If you are using MIDI, then it is important to know that the **Master** is the one that will transmit the MIDI information, and the station that needs the MIDI signal.

The **Master** is also the one that will upload the show file to new devices added to the network.

The **Master** and the **Connected** stations are all equal members in the session any one can run cues and they share all the information. If you save the show on one station it is saved on all stations.

If one session member changes the show while in a session, then all members will get the new show.

## Station priorities

You can control what station gets the **Master** role using the **Station Priority** setting. If one station has the "High" priority, then this station will be the **Master**.

There are four different priorities:

- **Never:**  
A station with this priority will connect to a session, but it cannot create a session, and if it is the only station left then the session will end!
- **Low:**  
A station with this priority will connect to a session. It will only be the **Master** if there is no one else with a higher priority.
- **Normal:**  
This is the default priority.
- **High:**  
In the ideal system you will have one station that have the high priority.

It is only possible to change the priority when a station is not connected to a session.

## Speed and Link Speed

The session list will display the session number, name, IP address of the master and a **Speed**. This speed can be Fast or Slow.

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A **Fast** session means that the session is running at maximum speed and data packets are sent as fast as possible and in burst.

A **Slow** session means that data packets are being queued up and sent at a slower rate. Then older hardware (grandMA1 era) - with slower network cards - have a chance to keep up.

The session speed is automatically changed if the master detects older hardware directly behind the network adapter and only when the station is switched on - when the first device is a gigabyte switch, it is always fast. The only way to manually change the speed is to limit a Ethernet connection to 100Mbit in the switch or in the station.

Each station also has a Link Speed column. Here it shows directly the Mbit speed connection for the station. You can change what the network card in the console is set to using the [SetNetworkSpeed command](#).

Please read the following pages to learn about creating sessions and adding more devices to the session.

## 11.5.1. How to create a session

To create a session you need to give your station (console or onPC) a valid **IP address**.

If you are using an onPC then your station will get the **Hostname** from the computer name. On a console you can change the station's Hostname by tapping the green input field.

Giving your station a meaningful full name can help locating the console or onPC in bigger systems.

Next you will need to select a **session number** that is not already used. Valid numbers are from 1 through 31.

You can also give your session a **name**. This can be very useful in networks with more than one session. If you do not specify a session name, then the name from the show file is used.

A session can also have a **password**. Please read the [Protect the session and your station](#) topic to learn more about this.

Now you can tap the **Create Session** button.

Your station will create a session and upload the show file to all devices that are linked to your session. Read more about this in the [Adding devices to your session](#).

## 11.5.2. Protecting the session and your station

In a networked solution you are connected to other stations and devices. This can give some unfortunate situations.

### Password protect the session

Anyone who connects to the network can choose to join your session. This will give a show upload. The system stops DMX output while the show upload is running. This can be catastrophic in a live situation.

It can be prevented that unwanted stations join the session by giving the session a password. You cannot give an active running session a password. It needs to set before it is created.

If a session have a password, then there will be a "PW" in front of the session name.

A session member can invite stations without having to type the password on the invited stations.

### Disable invite

Default settings allow a different station to invite the station you might be working at. This means that a different show file would be pushed to your station and what you where working on, is lost. This can be prevented by **Disable Invite** in **MA Network Control**.

In the upper right corner, of the MA Network Control menu, there is a button. This can have two states:

- **Invite Enabled:**  
The station can be invited into a session.
- **Invite Disabled:**  
The station cannot be invited into a session.

### Autojoin

Autojoin is a function that is related to devices and stations in the session. If a device - assigned to the session - reboots, then Autojoin will tell the device to rejoin the session when it is done rebooting.

This however can also prompt a show upload - same as when a station joins the session. If this happens when you are suppose to run an important cue, then it again can be catastrophic to the show. Of course if you have one console and one NPU and all DMX come from the NPU, then you are very interested in getting it back as soon as possible. But there might be situations (typically in bigger setups), where you would rater miss a section of the fixtures, until you choose to do the show upload, than having all the fixtures freeze while the show uploads.

You can decide what the system should do by toggling Autojoin in the MA Network Control - it is the second button from the top in the right side.

It is not all devices that prompts a show upload. Nodes are generally just listening to the network traffic, and do not need a show upload.

## 11.5.3. Adding devices to your session

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MA devices can be added to the session. This will expand the system and allow for bigger systems where it is possible to control more lights (more parameters). Devices like 3D visualizers, Media servers, Networked dimmers, MA nodes, and MA switches can also be added.

It is all controlled in MA Network Configuration. This can be found by pressing **Setup** and then tap **MA Network Configuration**.

It could look like this:



MA Network Configuration - tab Console

The configuration is divided into sections or tabs. The tabs represent each device type. There are tabs for:

- Consoles
- onPC
- NPU
- 3D
- VPU
- NDP Dimmer
- DMX Nodes (MA nodes only)
- Network Switch (MA Switch only)

Consoles and onPCs are called **Stations** and are connected to a session using the [MA Network Control](#). They cannot be invited or forced to connect from this interface, but the DMX ports and timecode can be configured. Stations in the session will also appear in the MA Network Configuration.

## Status colors

The devices in the MA Network configuration can have different colors to help identify problems and status of the devices in the network.

### Hostname, Offset and Bridge

The background color of the Hostname, Analog Offset, MIDI Offset and Bridge can have different colors.

- **Red:** The device is not present in the network or it is already connected to a (different) session.
- **Gray / Black:** The device is in the network, but is not in any session. The background is black for Stations - gray for all other devices.
- **Dark green:** The device is in the network and is connected to the same session as you.
- **Bright green:** This is the device you currently using, and it is in a session.

### Version number

The version number have a default white text color and it can have a red color. The red color is to indicate that the device have an incompatible software version number and it cannot be used in the session.

## Consoles

The consoles tab offers the possibility to configure the ports on a console that is connected to the network.

At the bottom of the screen there are some buttons:

- **Add** - Pressing this will open a small pop-up that lists all the available consoles in your network. If there is no consoles, that are not already added, then the list will be empty. Not adding any actual consoles, will create an "empty" console with the 0.0.0.0 IP address.
- **Delete** - Tapping this button will delete the selected console. You cannot delete your own console.
- **Add Present** - This will automatically add all the consoles that are present in the network.
- **Remove Absent** - This will remove the consoles from the list, that are not present in the network.
- **Remove Non-Members** - This will remove the consoles from the list, that are not a member of your session.

When you have added a console to the list, then you get a table where the rows are the different consoles (if there are more than one). The columns are different settings. All the settings with a gray background color can be changed. If the console is not connected to the session, then the changes might not be made in the console.

The columns are:

- **IP ETHERCON 1 (ETH0)** - This is the IP address of the number 1 EtherCon connector on the back of the console. Changing this number will change the IP address on the console and requires a reboot.
- **DHCP ETHERCON 1 (ETH0)** - Editing this cell will give a "Yes". This enables DHCP for Ethernet port 1 and will prompt a reboot. Read more about DHCP in the [Using DHCP in MA devices topic](#).
- **IP ETHERCON 2 (ETH1)** - This is the IP address of the number 2 EtherCon connector on the back of the console. This connector is for Art-Net and should have an Art-Net compatible IP address. Changing this number will change the IP address on the console and requires a reboot.

- **Hostname** - This is the hostname of the console. This is only for information. It can only be changed in the MA Network Control.
- **Type** - This displays the type of console.
- **XLR A to XLR F** - These are the female DMX connectors on the back of the console. Editing this cell will open a pop-up that allows you to change the settings. It is described in details in the [Getting DMX in and out of the system](#) topic.
- **XLR In** - This is the male DMX port on the back of the console. Editing, works just as the female connectors - see above.
- **MIDI TC** - Here it can be chosen what Timecode slot the incoming MIDI timecode should be sent to. Please read the [Timecode](#) topic for more details about Timecode slots.
- **SMPTE TC** - Here it can be chosen what Timecode slot the incoming LTC/SMPTE timecode should be sent to. Please read the [Timecode](#) topic for more details about Timecode slots.
- **Version** - This is the software version the console is currently running.
- **Memory Complete/Free** - This displays the amount of memory (RAM) in the console and how much of that is not used. If the console uses all the available memory then it will stop working. You will also need an extra memory capacity to connect to a file server.
- **x64** - Here it is displayed if the console is running the 64-bit version of Linux or the 32-bit. A "Yes" indicates that it is 64-bit.
- **Analog Offset** - Here remote analog inputs, on the back of the console, can be offset. This can be useful if there are more consoles and you need more analog remote inputs than the 16 a single console offers. The session can handle 64 unique remote inputs. To reach numbers above 16 (the number of inputs on the console) then you will need to offset the input on one or more consoles. An offset of 16 will map physical input number 1 to remote number 17.
- **MIDI Offset** - This is the same as the analog remotes, but for MIDI Notes. Most MIDI systems support 128 notes (0-127). But the MA system can handle 1024 MIDI remote inputs. In combination with the 16 different channels, this allows you to map 16.384 unique MIDI remote inputs!
- **Link Speed** - This is the current connection speed between the console and the switch.
- **Bridge Mode** - The Bridge is not currently implemented.
- **Bridge IP** - The Bridge is not currently implemented.

## onPC

MA onPCs are considered "Stations" and can only be added to a session in the [MA Network Control](#).

The onPC section have the [same buttons at the bottom as the console section](#) - plus two more. They are called **Identify Fader 1** and **Identify Fader 2**. Each onPC can have one MA onPC Command Wing and two MA onPC Fader Wings connected. They are all connected through USB connectors. If you connect two onPC fader wings, then you need to tell the computer what fader wing is number 1 and which one is number 2.

This is done by tapping one of the Identify buttons and then pressing any button on the corresponding fader wing. Repeat for the second fader wing. It is not needed to do this for the Command Wing.

When an onPC is added to the network, then you will see that one onPC takes three rows in the table part - one row for each possible wing.

There are not all the same columns in the onPC section as in the console section. Please read the description of the columns in the [Console section above](#). There are some small differences:

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There is only one Ethernet column - this is the primary connection used to communicate with other MA devices. Changing the number here won't change the IP address on the computer. If you want to output Art-Net from your computer, then it is very recommended to add another Ethernet port. This could be done with a USB (3.0/3.1) to Ethernet dongle. Then give this Ethernet adaptor an IP address in the Art-Net range. Your onPC will then use this Ethernet adaptor to transmit the Art-Net.

The Command Wing has a male DMX port labeled "DMX In". This is "XLR C" in the configuration table. Normally it is possible to use any DMX port as input or output but there is a limitation on the Command wing. It is only possible to use the "DMX A" and "DMX In" for **inputting** DMX to your system from the onPC Command Wing.

## NPU

The NPUs (Network Processing Unit) are added and connected to the session in the MA Network Configuration. At the [bottom of this section you have the same buttons as the Console section](#) and you can use these buttons to add NPUs that are in the network.

When the NPU exists in the table, then you can edit the **Session Member** column. This is a toggle cell. It can be empty or it can be "Yes". If it is yes, then the NPU is told to join the session. If a different session also would like the NPU to join their session, then the NPU will join the session it sees first in the network.

The NPU cannot output or receive Art-Net, so there is only columns for one IP address including the DHCP column. Changing the IP number in the IP column, will change the IP address in the NPU and it will reboot.

The NPU has 8 DMX ports. They can all be changed in the table. Here they are called "XLR A" to "XLR H".

Read the description of the columns in the [Console section above](#).

## 3D

The MA 3D visualizer is an integrated part of a MA system. It is a visualizer that communicates with the stations and changes made to the setup will automatically be visible in the MA 3D. It has [the same buttons as the bottom of the screen as the console](#).

When a MA 3D visualizer is added to the table then you will have the same **Session Member** column as the NPU and the process is the same. When connecting a 3D it can be chosen what **User** it should follow. The users in the show each have a [Stage view](#). The MA 3D is connected to the Stage view, so changing the angle or location of the virtual camera in the Stage view or the 3D visualizer, they will both follow along. A MA 3D visualizer will also follow the user into Blind and Preview mode and show the blind and preview output instead of the live output.

The 3D only has one IP address column and no DHCP column. It is the IP address of the computer running the software. Changing the number here will not change the IP address in the computer.

## VPU

The VPU (Video Processing Unit) has some extra buttons at the bottom of the screen. Besides the standard buttons, it also has:

- **Edit** - This will open an editor for the selected VPU. Here many of the settings in the VPU can be changed.
- **Backup Manager** - If a VPU is set as a Backup, then tapping this button allows to setup the relationship between the main and backup VPU.

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- **Content Distribution** - Pressing this button will distribute the content from the VPU set as distributor to the VPUs set as receivers.
- **Make a Screenshot** - Pressing this button will trigger a screenshot creation in the VPU.
- **Global VPU settings** - Tapping this button will open the Global VPU settings.

For a short explanation of the other buttons please have look at the [Console section](#).

There are also some special columns in the VPU table:

- **Layer** - This is the layer in the Patch and fixture schedule that have the configuration of VPU layers, Masters and Cameras.
- **Content** - Here it can be set if the VPU have some special settings regarding the central distribution of content.
- **Backup VPU** - Here it can be toggled if the VPU is a backup or main VPU.

There is only one IP address column - it is the primary IP address used to communicate with the other MA devices. The VPU have a secondary IP address for Art-Net. This can only be set on the VPU.

VPUs run on windows computers and changing the IP address in the table will not change the IP address in the VPU. DHCP is only possible to activate in the VPU Network Settings.

For details about the VPU or any of the things mentioned above, please have a look the [VPU Manual](#).

## NDP Dimmer

NDP (Network Dimmer Processors) are the processors in the discontinued dimMA system. They connect like the NPU or VPU. They are invited to be a part of a session in the **Session Member** column.

It has the [standard buttons at the bottom](#).

There are some special columns for the NDP:

- **Session** - This displays the Session Number the NDP is currently a part of. NDPs can run independent from a station created session (using the DMX ports), then this column will display the session ID the NDP created by it self.
- **Rack number** - This is the Rack number the NDP is controlling. You can set this number and the NDP will then use the configuration for that Rack number.
- **XLR A & XLR B** - These two DMX ports are the outputs from the NDP. Here you can see what universe they are set to output.



### Restriction:

Please be careful when changing the settings in your NDPs and dimMA system.

## DMX Nodes

DMX nodes are the different Nodes from MA. There are 2, 4 and 8 port versions in different variations.



### Restriction:

If the Node is connected to a managed switch, then the port where the node is connected needs to be set to **Auto-negotiate** for the speed/connection method.

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There are two special buttons in this section - besides the [standard buttons at the bottom](#):

- **Identify** - Pressing this button will flash the display and LEDs on the grandMA1 era nodes and turn the background color green in the grandMA2 era nodes.
- **2Port SW Update** - The software update process is different for the **grandMA1 era** 2 Port Nodes. To update those they need to be selected in the table and then tap this button.

In the new (grandMA2 era) nodes there are two IP addresses with the option to activate DHCP on the Ethernet port. One will be used for all MA communication. The secondary IP address is the Art-Net address - it will be used if the mode of the node is changed to Art-Net. The grandMA1 era Nodes only have one IP address that can be defined - It will automatically change the IP address to a valid Art-Net address if the mode is changed.

Speaking of modes. There is a **Mode** column. Here it is possible to select different modes for the node:

- **MA-Net1** (only in the older Nodes) - This will switch the node to connect with the grandMA1 system.
- **MA-Net2** - This is the mode needed to have full control and synchronized DMX output from a MA2 system. This is also needed for the onPC nodes to unlock parameters in an onPC system. Please read more in the [Parameter Expansion topic](#).
- **Art-Net** - This will switch the node to Art-Net mode and use the secondary IP address. And a Network number in the Session ID/Network column needs to be assigned. Use the number **1** for Art-Net I and Art-Net II and the first 256 universes in Art-Net III. If you are in doubt, set it to 1.
- **sACN** - This will switch the node to sACN mode.
- **None** - This will disable the node.

Adding DMX Nodes to the session is different than all the other elements we have looked at so far. They are not invited to join what ever session you are currently in, they are assigned to listen to a specific session number - this is done in the **Session ID/Network** column. They hold their own configuration - it is not a part of the show file. It can however be [imported or exported](#). Please read the [Getting DMX in and out of the system](#) topics for more about the DMX configuration.

Since it is possible to have up to 8 DMX ports, then there are "XLR A" to "XLR H" columns.

The column called **Light Mode** allows for control of the backlight in the displays (and the Data LEDs in the old grandMA1 nodes).

The **Light Intensity** column is only for the grandMA1 nodes. Three different levels of intensity in the LEDs and display can be set.

There is a column called **Local**. This can turn On or Off (empty cell) the local yellow menu hardware button on the grandMA2 nodes.

The last column is called **Remote**. This can turn On or Off (empty cell) the web remote access to the node. Only available in the grandMA2 nodes.

## Network Switch

MA Network switches can be added to the system. They are not members of any session. But can be added to allow changing the configuration from a station in the network.

The MA switch has a lot of settings and controlling or configuring it from the console/onPC is all described in the [Control the MA Network Switch](#) section.

## Bridge

The Bridge is not implemented, so there is nothing to do in this tab.

### 11.5.4. How to end or leave a session

A single station can be removed from a session or the entire session can be ended.

#### Leave a session

Leaving the session can be done using the [LeaveSession command](#). This will remove the station, where the command is executed, from the session.

You can also open the **MA Network Control** (in Setup) and tap the **Leave Session** button.

This only takes one console out of the session - the one you are operating. If there are other stations in the session, then the session will continue. If your station was the last one, then the session will end.

#### Disconnect / Dismiss a station

A station can be removed from the session by using the [DisconnectStation command](#).

You can also open the **MA Network Control** (in Setup) select the station you want to remove and tap the **Dismiss Session** button.

This will take the selected station out of the session.

#### End Session

You can end the session your are a part of using the [EndSession command](#).

You can also open the **MA Network Control** (in Setup) and tap the **End Session** button.

Ending a session will dismiss all stations and the session is no longer running.

### 11.5.5. Session Collision

You might experience a Session Collision at some point.

It is a situation that occurs when two stations believe that they are the master of the same session.

This can happen if you have a faulty network cable, a bad switch or someone who manually unplugs and re-plugs network cables.

When this happens, then the session is divided into two parts.

One of the stations that have left the original session, will become master - if it was not already.

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The other part are the stations that are left in the original session. The session needs a master console, so if the station that left was the master, then one of the remaining stations will become the new master.

When the two parts are reconnected, then you have a situation with two stations that think they are the masters. The system cannot automatically decide what is the right thing to do in this situation.

So you get a big warning and are forced to make a decision. It could look like this:



*Session Collision pop-up*

It shows the session number and name, plus the IP address of the console you have session collision with and finally the session speed.

At the bottom of this pop-up you have three buttons:

- **Join Other Session:**

Pressing this will throw away the show file in the part of the session you are in, and join the other part (thus getting their show file).

- **Take Over Session:**

This will throw away the show file in the other part, and force the stations in that part to join your part (and getting your show file).

- **Leave Session:**

This will make the stations in your part leave the session and the other part will continue the session with their show file. This can be useful if both parts have made something important. The part that left the session can store the show file. This stored show can then be the source for a partial show read or elements can be exported and later imported into the running show.

This big window will stay on all screens until someone presses one of the buttons.

If you are working in a multi user environment, it might be good idea to talk about what to do if a session collision should appear - before it happens!

## 11.6. Getting DMX in and out of the system

All the 5-pin XLR connectors in a grandMA2 system is a DMX port.

A DMX port can (almost) always be an output, an input or turned off.

What the DMX ports are doing and how they are configured is handle in the MA Network Configuration.

All this is described in the [Configure the DMX ports on MA devices](#).

A different way to get DMX in and out of the system is using Ethernet protocols like Art-Net and sACN. Other Ethernet protocols are output only. The grandMA2 system can transmit ETC-Net2, Pathport, Shownet and Kinet1.

Read more about configuring Ethernet protocols on the [Network DMX protocols](#) topic.

The [What affects my DMX output topic](#) explains a little bit about the different situations that affects the DMX output in a system.

### 11.6.1. Setting up DMX ports on MA devices

If there is only one station (console or onPC) in the system, then only the DMX ports on the station can be used.

If a session is running and other MA devices are in the session, then it is also possible to change the settings on the DMX ports on those devices.

The operation is the same no matter the size of the system. It is done from the **MA Network Configuration**. This can be done by pressing the **Setup** key and then the **MA Network Configuration** button under "Network".

The MA Network Configuration is separated into different sections. One for each type of MA device. Read more about these section and adding devices in the [Adding devices to your session](#) topic.

The station you are using is always in the system, no matter if it is a console or onPC.

All devices that have a DMX port will have columns for each port. The columns can be named from "XLR A" to "XLR H". The consoles also have a "XLR In".

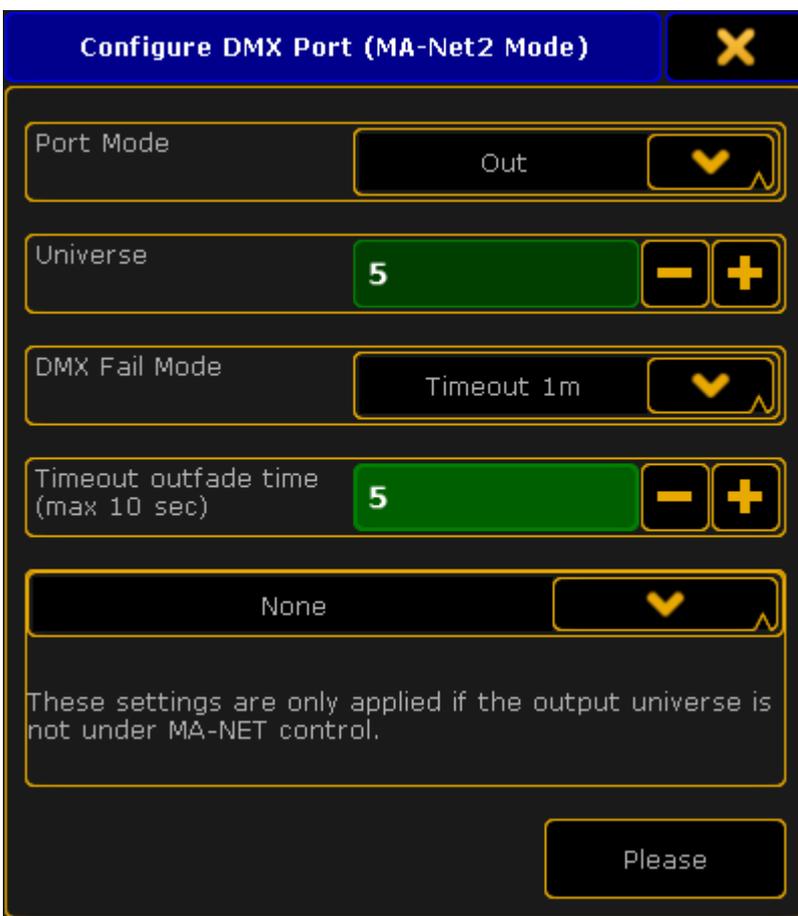
They could look like this:

XLR A	XLR B	XLR C	XLR D	XLR E	XLR F	XLR In
Out 1	Out 2	Out 3	Out 4	Out 5	Out 6	Off
Out 1	Out 2	Out 3	Out 4	Out 5	Out 6	Off

### DMX Ports in the MA Network Configuration

If the mode or the universe of a port needs to be changed, then select the relevant cell in the window and edit the cell. This can be done by tapping the the screen encoder, if you are on a console. It is also possible to right click if a mouse or trackball is connected. Or press **Edit** followed by the cell you want to edit.

When editing a DMX port cell, a pop-up like this appears:



### Configure DMX port pop-up - DMX node version

Port Mode

The "Port Mode" is a drop down list that has the following options:

- **Off** - The DMX port is turned off and the device will not input or output any DMX.
- **In** - The DMX port is functioning as an DMX input. It will merge values into the universe number typed in the green universe field - If "DMX In Merge" is activated in the Setup->Show->Patch only->[DMX List](#).
- **Out** - The DMX port is outputting the DMX universe set in the green universe field.

All DMX ports can be an Input or an Output. It is just a matter of maybe adding a XLR gender changer to the physical connector. The **exceptions** are:

- grandMA2 onPC Command Wing: The connector called "DMX B" / "XLR B" can NOT be input!
- MA NSP in **Art-Net mode** or **4-port mode**: The connector called "DMX A" / "XLR A" and "DMX B" / "XLR B" can NOT be input!



**Important:**

If a DMX port is turned off or do not transmit DMX data (for any reason), then the port is in **High-Z** mode. This means that there is no data being transmitted at all!

## Other limitations with DMX input

There is limitations regarding the number of DMX sources per universe. It is only allowed that a maximum of **two outside sources** send DMX data to the same Universe - this is **per universe**. It does not matter how the DMX is received. It can come from a DMX port on a console or from a Network Protocol. Only two outside sources per universe.

If there is both an Art-Net and sACN source merging data into the same universe, then the limit of two different sources have been reached.

There is also a limitation regarding the devices receiving the incoming DMX. Any grandMA2 device can only have one DMX port as input per universe. This means that for instance a 4 port can have the four DMX ports as input, but the ports need to send the DMX to different universes. It is the same if the DMX is connected to a console. The DMX ports can be set to receive DMX, but they need to merge it to different universes. A Master in a session can receive DMX data to universe 1 from Art-Net or sACN and use one of the DMX ports as input to universe 1.

## Universe

The green input field can be used to set the universe number.

## DMX Fail Mode - DMX nodes only

The nodes have an extra option called **DMX Fail Mode**.

This determine what should happen if the node loses connection to the session or the DMX stream is stopped. The DMX stream can stop if there is a show upload or the session has ended.

The options are:

- **Timeout 10s**
- **Timeout 20s**
- **Timeout 30s**
- **Timeout 1m**
- **Timeout 10m**
- **Timeout 30m**
- **Timeout 1h**
- **Hold**

The **Timeout** options are similar except the time. They will hold the DMX values for the chosen time and then stop the DMX stream (High-Z mode).

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The **Hold** option will make the node continue to send the DMX values as long as it got power.

Read more about configuring the MA Nodes in the [Control the MA Node section](#).

## Timeout outfade time

Here it is possible to set a fade time that will be used when a **Timeout** is selected. The DMX values will then fade from their last values to a value of 0. When it has completed the fade, then it will stop transmitting DMX (High-Z mode).

The maximum fade time is 10 seconds.

The **Hold** option also do not have a fade time option since it continues the DMX data stream.

## Merge Mode

The bottom drop down list is for setting how the device should merge incoming DMX data from outside sources, if the device is not under MA-Net control.

This could be DMX nodes that are set to a session number that does not exist. Then they can be used to transport DMX through an Ethernet network - without any consoles or onPCs.

The options in the drop down are:

- **None:**  
There will be no merging.
- **LTP:**  
The universes will merge following the LTP (Latest Takes Precedence) rules.
- **HTP:**  
The universes will merge following the HTP (Highest Takes Precedence) rules.
- **LoTP:**  
The universes will merge following the LoTP (Lowest Takes Precedence) rules.

When the settings are correct, tap the **Please** button to confirm the settings or tap the **X** in the upper right corner of the pop-up to cancel the change.

Please remember the limitations mentioned [above](#).

## Where are the settings stored?

Changes to the DMX ports on Consoles, onPCs and NPU's are stored as a part of the show file. The settings will be loaded into the devices when a show is loaded, but only if the "Network Config" settings are included when loading from the show file. For more info on loading show files, please have a look at the [Using the Backup Menu](#) topics.

The DMX nodes (MA nodes) and MA switches are different. Their settings are stored locally in the devices and a not loaded or changed with the show file.

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The configuration of the DMX nodes and switches can be exported and imported. This can be done to/from the hard drive or a USB stick.

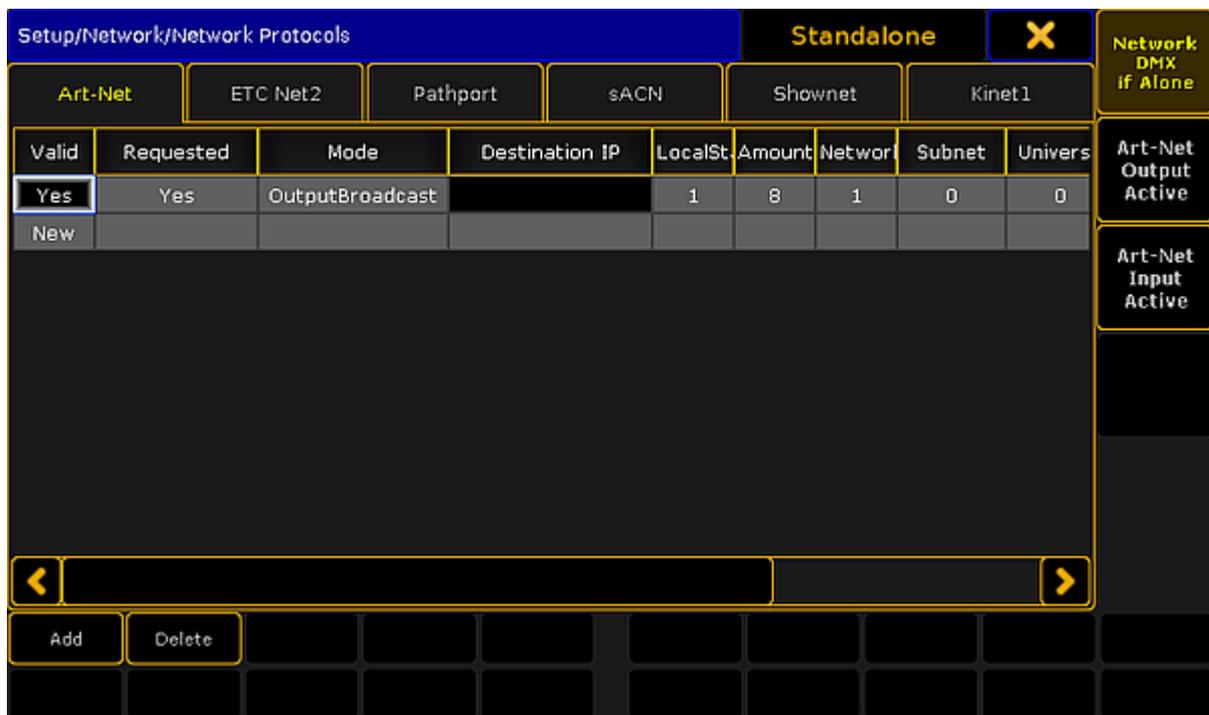
Please read the [Export and Import topics](#) for more information about this.

## 11.6.2. Network DMX protocols

DMX can be transmitted or received using network DMX protocols instead of or together with the DMX ports in the system.

This is all controlled from the Network Protocols menu. The menu can be opened by pressing the **Setup** key followed by a tap on the **Network Protocols** button.

It could look like this:



*Network Protocols menu - Art-Net tap*

The grandMA2 supports the following network DMX protocols, each having their own tab in the **Network Protocols** view:

### **Art-Net:**

Both transmit and receive. Several ranges of universes can have different settings.

### **ETC-Net2:**

Transmit only. Only one range of universes.

### **Pathport:**

Transmit only. Only one range of universes.

**sACN:** (streaming ACN)

Both transmit and receive. Several ranges of universes can have different settings.

**Shownet:**

Transmit only. Only one range of universes.

**Kinet1:**

Transmit only. Several ranges of universes can have different settings.

It is always the Master in a session that transmit and receive the network DMX data.

Each of the different network protocols have at least one configuration line. If the protocols support it, then there might be more lines.

## General buttons in Network Protocols

There are up to three buttons on the right side of the view:

- **Network DMX if Alone** - When this is active (the text is yellow), then the station will output DMX via the network. All network protocols are sent from the master station in a session. If there is no connected stations, you need to turn this on to output network DMX. This toggles all network DMX outputs. If the frame is red, then this station does not output network DMX. If the frame is green then this station outputs network DMX. This setting is shared across all network DMX protocols.
- **[Protocol name] Output Active** - When this is on (the text is yellow), then you can output the network DMX protocol. This needs to be enabled or disabled for each protocol.
- **[Protocol name] Input Active** - When this is on (the text is yellow), then you can input the DMX protocol. This is only possible in Art-Net and sACN.

At the bottom of the view, there might be two buttons. They are only visible in Art-Net, sACN and Kinet1. They are used to **Add** and **Delete** lines in the table above. The three mentioned protocols can have more configurations lines.

## General settings in Network Protocols

Some settings are shared by the different protocols.

- **LocalStart** - This is the number of the first DMX universe in your console that you want to transmit, or the first universe you want to receive.
- **Amount** - This is the amount of universes you want to receive or transmit.
- **ExternStart** - Many of the protocols use this to set the protocol universe number. For example grandMA2 universe number 10 should be transmitted as Shownet universe 5, then the ExternStart should be 5 and LocalStart is 10.
- **TTL (Time To Live)** - Specifies the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network. For each router (hop), the original specified TTL is subtracted by 1. When TTL reaches a value of 0, then the DMX data is no longer forwarded through the network.

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- **Priority** - Many network protocols use a Priority setting. This is used to tell the receiver how important the DMX data from this transmitter is. This is only relevant if the receiver has multiple DMX sources. Usually the highest number equals a higher priority.
- **Info** - In the Info cell you can write any relevant information.

## Art-Net

Art-Net is a royalty free protocol developed by Artistic Licence (<http://www.artisticlicence.com>).

MA supports Art-Net 1, 2 and 3.

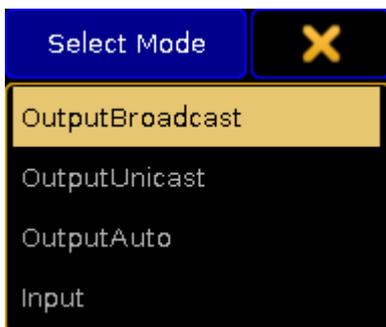
Art-Net 3 provides 128 networks of 256 universes. If the Network number is set to 1, then it is compatible with Art-Net 1 and 2.

To add a line in the Art-Net window, tap **Add**. To remove an unwanted line, select it and tap **Delete**.

There are several options for each line (here are only mentioned the ones that are not mentioned in [General Settings above](#)):

- **Valid** - This field is read only and tells if the line is valid. It is not allowed to transmit (or receive) the same universe more than once. A valid line will transmit or receive data.
- **Requested** - Here you can set if the line is requested or not. A line that is not requested gets a status of **Not valid** and will not transmit or receive Art-Net data.
- **Mode** - Change between **OutputBroadcast**, **OutputUnicast**, **OutputAuto**, and **Input**. Read more below.
- **Destination IP** - Only available if the mode is OutputUnicast. This is the IP address of the receiver.
- **Network** - This is the Art-Net network setting (1-128).
- **Subnet** - This is the Art-Net subnet setting (0-F).
- **Universe** - This is the Art-Net universe setting (0-F).
- **Delay** - Adding a number here will add milliseconds delay between the packets. This can be needed in slow networks. Only for Art-Net output.

The **Mode** selection changes the functionality of the Art-Net line. Editing it opens a small pop-up giving the above mentioned options. The pop-up looks like this:



*Select Mode pop-up - Art-Net mode*

The last option is "Input". This makes the line merge incoming Art-Net DMX into your system.

DMX output via Art-Net supports Auto detection and manually setting of Broadcast or Unicast network traffic per universe.

- **OutputBroadcast** - sends the DMX Universes as broadcast.
- **OutputUnicast** - sends the DMX Universes as unicast to the IP address set in the **Destination IP** column.
- **OutputAuto** - sends each DMX Universe as Unicast to up to 5 receivers detected via ArtPoll. If more than 5 receivers, or if there are no detected receivers requesting the universe, then the universe will be send as broadcast!



**Hint:**

The default limitation of 5 individual receivers can be changed to a maximum of 10. This can only be done using the command line configuration and by using the "MaxUnicast" property.



**Important:**

Art-Net is transmitted from Ethernet connector number 2. If you use a onPC, then you do not need to make a valid Art-Net IP address. The software will create one and use it. If your computer have a valid Art-Net address, then it will use it. If there are several valid addresses, then it will use the first it sees.



**Do not** give your Ethernet connector number 1 a valid Art-Net IP address.

## ETC-Net2

ETC-Net2 is developed by ETC (Electronic Theater Control - <http://www.etconnect.com>). It was introduced in 1997.

MA supports transmission of one range of DMX universes as ETC-Net2. This was implemented to support communication to older ETC dimmers and DMX nodes. Using sACN might be a better option if the receivers supports it.

There are several options (here is only mentioned the ones that are not mentioned in [General Settings above](#)):

- **Active** - This is an 'On'/'Off' option. When 'On' the console will transmit ETCNet2. When it is 'Off', then the text is hidden. This can also be toggled by the button on the right side.
- **Groups** - ETC-Net2 uses multicast groups to simplify and optimize the transmission. Here you can select what group to transmit to.
- **Priority** - The lowest number has the highest priority.

## Pathport

Pathport is created by Pathway Connectivity (<http://www.pathwayconnect.com>).

MA supports transmission of one range of DMX universes as Pathport. This was implemented to support communication to older Pathway DMX nodes. Using sACN might be a better option if the receivers supports it.

There are several options (here is only mentioned the ones that is not mentioned in [General Settings above](#)):

- **Active** - This is an 'On'/'Off' option. When 'On' the console will transmit Pathport. When it is 'Off', the the text is hidden. This can also be toggled by the button on the right side.

## sACN (streaming ACN)

ACN (and streaming ACN) is an ANSI/ESTA international standard. Further readings:

[http://en.wikipedia.org/wiki/Architecture\\_for\\_control\\_networks](http://en.wikipedia.org/wiki/Architecture_for_control_networks).

ACN (Architecture for Control Networks) is suite protocol. It uses a lot of elements that is currently not supported by grandMA. But the ACN protocols also have a lighter version for transporting DMX data. It is called 'Lightweight streaming protocol for transport of DMX512 using ACN' or more popular "streaming ACN" or "sACN". It is international standard number E1.31.

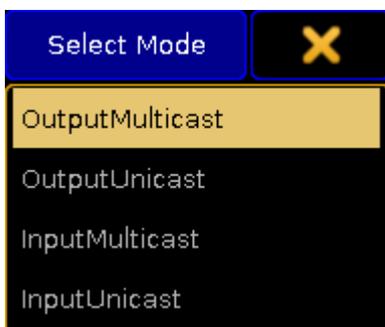
There are several options (here is only mentioned the ones that are not mentioned in [General Settings above](#)):

- **Valid** - This displays a "Yes" if the line is valid. Only valid lines transmit or receive data.
- **Requested** - Here you can set if the line is requested or not. A line that is not requested, get a status of **Not valid** and will not transmit or receive sACN data.
- **Mode** - Change between **OutputMulticast**, **OutputUnicast**, **InputMulticast**, and **InputUnicast**. Read more below.
- **Destination IP** - Only available if the mode is OutputUnicast. This is the IP address of the receiver.
- **sACN Universe** - This is the sACN universe the DMX data should be transmitted to or received from (1 - 64000).
- **Priority** - The allowed value is 0 to 200. The highest number has the highest priority. The default value should be 100.
- **Protocol** - Here you can select between two different variations of the sACN protocol. You can choose the "Draft" or "Final" release of the sACN protocol. Some equipment have implemented the draft version of sACN before the final version was released. You might need to change to "draft mode" for those devices to work.
- **Delay(ms)** - The delay can be used to slow down the traffic in the network. For some older and slower network nodes there is a big difference in receiving 10 universes in one burst or one by one.

## Mode

Editing the Mode cell will open a small select pop-up that allows you to choose the different input an output modes mentioned above.

The pop-up looks like this:



*Select Mode pop-up - sACN mode*

You can choose between input and output and each of them can be unicast or multicast.

- **OutputMulticast:**

When choosing Output Multicast, sACN will be sent as multicast to the relevant multicast addresses.

- **OutputUnicast:**

When choosing Output Unicast, a valid IP address has to be entered in the **Destination IP** column. Universes configured in this row will be sent as unicast to this IP address.

- **InputMulticast:**

Input Multicast will join the Multicast group of the relevant DMX Input Universe.

Input Multicast is limited to max. 10 Universes. If more than 10 rows are configured as Input Multicast, all rows beyond multicast input row 10 will be invalid.

- **InputUnicast:**

Input Unicast is not limited and receives sACN data for the relevant universe without joining any multicast group.



sACN input of grandMA2 console ignores sACN priorities.

## Shownet

Strand Shownet is created by Strand Lighting (<http://www.strandlighting.com>).

MA supports transmission of one range of DMX universes as Shownet. Using sACN might be a better option if the receivers supports it.

There are several options (here is only mentioned the ones that is not mentioned in [General Settings above](#)):

- **Active** - This is an 'On'/'Off' option. When 'On' the console will transmit Strand Shownet. When it is 'Off', then the text is hidden. This can also be toggled by the button on the right side.



**Important:**

Shownet is a Broadcast protocol, but is transmitted from Ethernet connector 1.

## Kinet1

Kinet1 is developed by Philips Color Kinetic (<http://www.colorkinetics.com/>).

MA supports transmission of several ranges of DMX universes.

There are several options (here is only mentioned the ones that are not mentioned in [General Settings above](#)):

- **Valid** - There will be a "Yes" for each line that is a valid line. Only valid lines will transmit data.
- **IP Address** - This is the IP address of the receiver.



**Important:**

Shownet is a Broadcast protocol, but is transmitted from Ethernet connector 1.

### 11.6.3. What affects my DMX output?

The following affects the DMX output:

- A crash or a failure – this discontinues DMX output.
- Show upload – this stops DMX output.
- Changing the value of a fixture – this changes the DMX output.



**Important:**

In case of a failure or crash, the DMX lines should go off. This is called High-Z.

What happens to the fixtures?

Fixtures have a function called the DMX hold.

What is a DMX hold?

The end-device physically emits the latest value, e.g., the fixture is on or off.



**Note:**

DMX hold is the function of the end-device only, e.g., a fixture.

How do I set the DMX hold on my end-device?

- Set it either individually on your end-device – on or off.
- The end-device goes back to default automatically – off.
- If you have two individual inputs in your end-device, the DMX input automatically chooses the second input in case of a crash or failure.



**Note:**

If your end-device does not support the feature DMX hold, add a DMX booster or splitter featuring DMX hold.

How does the output behave in case of a single console?

If a problem occurs, the console's DMX outputs should go High-Z.

How do I create backup?

With the grandMA2 system you have a seamless switch between the transmitting console (Master) and the back-up console (Connected) in case of a failure or crash.

Here are three examples on how to create backup:

- Use the grandMA2 console as Master and the onPC software version as Connected, and DMX nodes for emission of the signal.
- Use the grandMA2 console as Master with a second grandMA2 console as Connected, and DMX nodes for emission of the signal.
- Use the RPU as Master together with the onPC software as Connected, and DMX nodes for emission of the signal.

## 11.7. Using CITP

CITP (Controller Interface Transport Protocol) is a suite of Protocols used to exchange pictures and Video streams through a network. It is developed and maintained by Capture, Sweden - <http://www.citp-protocol.org/>

The protocol suite supports many different things. The grandMA2 console and onPC only supports two elements of the protocol.

Thumbnail exchange from 3rd party media servers and viewing a CIP video stream.

Read about the two different types in the following pages or follow these links: [Streaming CIP](#) and [Thumbnail Exchange](#).

The MA 3D supports one element (streaming CIP video).

## Enabling CIP

CIP is enabled in Setup and CIP Network Configuration in the Network tab.

In this menu you can enable CIP generally by tapping the **CIP Enable**. This will turn on CIP in your session.

## Important Information

There are some things you should be aware of when using CIP.

A CIP connection is not possible in MA when running CIP sender and CIP receiver at the same computer.

The CIP Multicast address can be configured by pressing the title bar button in the CIP Network Configuration menu (in Setup). The CIP Multicast address 224.0.0.180 is not forwarded by many switches as soon as IGMP Snooping is enabled. The CIP Multicast address of MA products can be switched to 239.224.0.180 in order to use CIP in combination with IGMP Snooping. Be aware that the alternative multicast address 239.224.0.180 is not yet supported by many other media server manufacturers. Please check the compatibility with the manufacturer of your media server prior to changing the CIP Multicast address and enabling the IGMP Snooping while using CIP.

Changing the multicast address in the CIP Network Config, will change the address for all MA stations (consoles, MA VPU and MA 3D) throughout the session.

Streaming videos via network needs bandwidth. A single CIP video stream of 30fps generates up to 15Mbit/s. Video streams are sent as multicast. Requesting the same video stream from different grandMA2 consoles or MA 3Ds will not generate additional network traffic.

Some hints to keep network stability when using CIP:

The list below gives a brief overview over the data rate of one 30 Frames per second CIP video stream. When having compressed streams, the data rate varies depending on the compressibility of the video content.

- Uncompressed RGB8 stream: 15Mbit/s
- PNG compressed stream: 7Mbit/s up to 15Mbit/s depending on video content.
- JPG compressed stream: 1Mbit/s up to 8Mbit/s depending on video content.

The minimum network speed is 1000Mbit/s. Do not enable CIP in an 100Mbit/s network environment!

The maximum amount of CITP network data rate should not exceed 30Mbit/s per physical network. When exceeding this limit, reduce the video stream quality by choosing a higher compression (jpg) or request less different video streams. Otherwise visualizers and video stream viewers running at computers with installed operating system Microsoft® Windows® may not receive all video stream data resulting in CITP video stream fps dropping below 1 fps.

The MA VPU CITP video streams frame rate is limited to 30fps shared by all requested outputs and 10fps shared by all requested layers of CITP video streams. E.g.: When requesting CITP video streams of Output1 and Output2, each stream will have a maximum refresh rate of 15 fps.

The MA VPU reduces CITP video streams frame rate if the CITP network traffic of current connected network exceeds 30Mbit.

## 11.7.1. Streaming CITP video

CITP can be used to stream a video feed through the network.

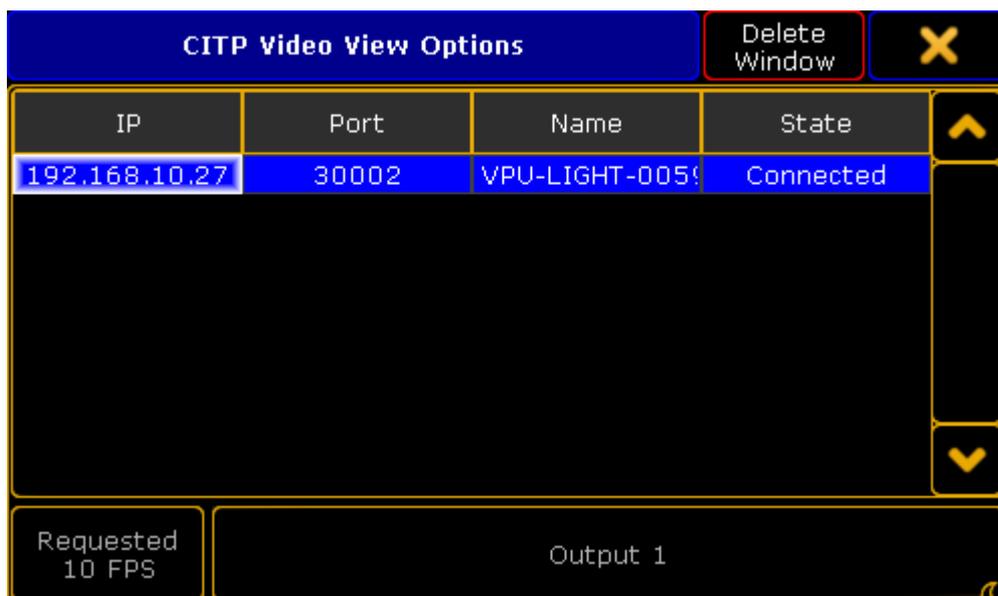
This video stream can be viewed on the MA console and onPC in the [CITP Video Viewer](#) window - create it using the [Create Basic Windows](#).

In MA 3D you can use a CITP stream on a surface, thus mimicking a screen.

For the console or onPC viewer to display a video stream, you need to set it up.

Make sure the CITP is activated in the console/onPC. Have a look at the [Using CITP](#) topic.

Tap the yellow ball in the upper left corner. This opens the Options pop-up. It could look like this:



*CITP Video Viewer Options with one active CITP stream source*

This view displays a list of all the CITP servers that can stream video. You see the IP address, Port, Name and

connection state.

At the bottom there are two buttons. The left one allows you set the requested frames per second. The actual feed might be faster or slower. The right button is used to select what the viewer displays. This can be layers or Outputs (for MA VPU).

With a selected source and layer/output, the Viewer can display the stream.

The viewer could look like this:



*CITP Video Viewer - with a feed*

The main part of this window displays the video stream.

The title bar shows you that it is the CITP Video Viewer and the CITP source. In the picture above the source is a MA VPU. It also tells you if you are looking at a single layer or an output.

There are two buttons in the title bar. The first one show you the frames per second. It shows the actual FPS and the requested. The second button allows you to start or stop the live video viewing.

It has been tested with MA VPU, MSEX Lord, Green Hippo Hippotizer, PRG MBOX, Arkaos MediaMaster, and Coolux Desktop Streamer.

## 11.7.2. Thumbnail exchange

CITP/MSEX protocols are used to transfer information between consoles, media server and visualizers. You can use it to transfer thumbnail pictures of media files from a media server to the console. This puts the thumbnails in the smart view and in the calculator pop-up.



This is not needed with MA VPU. They will automatically exchange the thumbnails using MA-Net.

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Open the CITP Network Configuration window by pressing the **Setup** key and then tap the **CITP Network Configuration** in the menu.

The CITP Enabled button in the upper right corner enables the CITP protocol on all consoles in the session.

The IP address listed next to the close button is the Multicast address used by CITP. Pressing it allows you to change the used IP address, please only do this if there is a really good reason for it.

The configuration have four tabs. Only the MediaServers tab is active right now.

## LightingConsoles tab

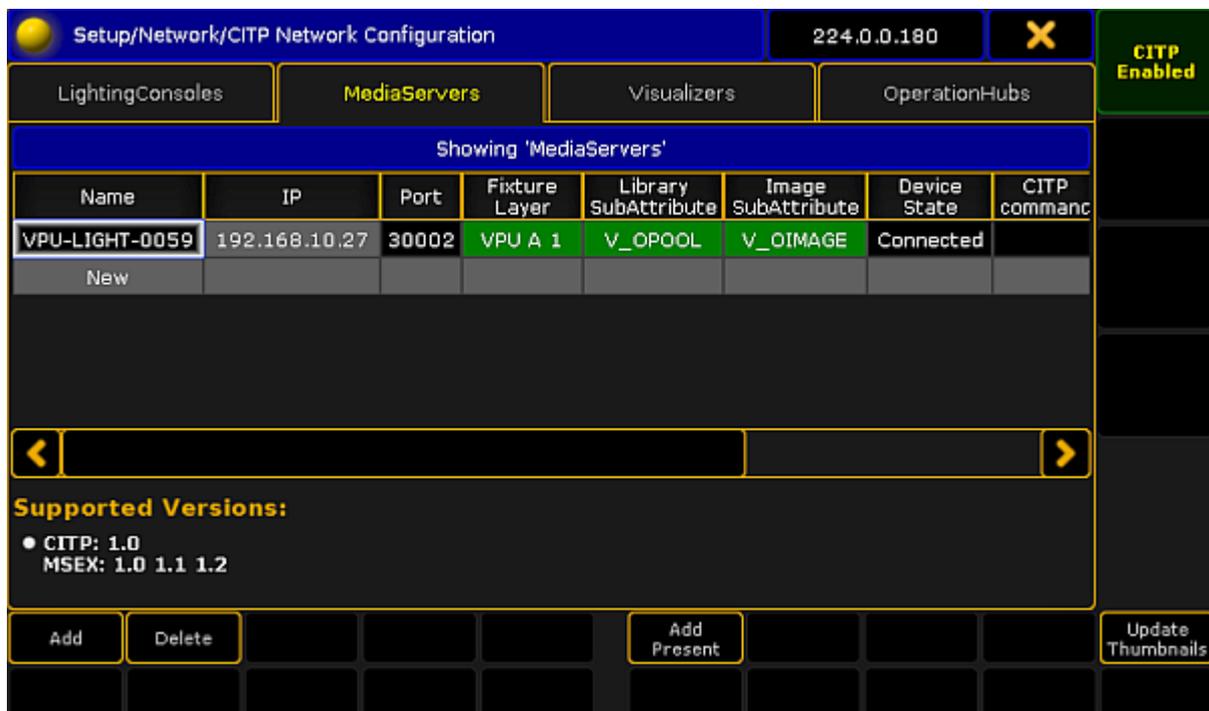
This part is not implemented yet.

## MediaServers tab

Here you add the 3rd party media servers. Press the **Add** button to manually add a media server. Or you can use **Add Present** to automatically add all the Media Server in your network (the ones using CITP). The IP address of the server needs to match the IP address in the IP column.

The **Delete** button deletes the highlighted line.

It could look like this:



*CITP Network Configuration - Media Servers with active server*

If the line has a red background then the server is not present or it have CITP disabled.

A green background indicates an active media server.

You need to specify the Fixture Layer and have a fixture setup here that matches the Media Server.

If the Library and Image Subattributes is not automatically recognized by the system, then you need to manually select the Library and Image SubAttribute. This is important for the images to go to the correct folder.

The Media Server will provide information like the server "Name", "Port", "Device State", "CITP command", "CITP Version" and "MSEX Version".

When all is set up correctly then you can press the **Update Thumbnail** button. This will start the transfer of the thumbnails to the console. This might take a while and there will be a progress bar in the "CITP Command" cell. It can also be done using the command line. Please read more about it in the [UpdateThumbnails](#) command.

## Visualizers tab

This part is not implemented yet.

## OperationHubs tab

This part is not implemented yet.

## 11.8. PosiStageNet (PSN)

PosiStageNet or PSN is a open protocol developed by MA Lighting and VVY Corporation - <http://www.posistage.net/>.

**Restriction:**

grandMA2 supports PSN version 2.0

It uses a PSN server that transmit position information from different trackers connected to the server.

grandMA2 can connect to the server, as a client, and receive the position information from each tracker.

Usually you then connect the tracker information to a patched StageMarker. The StageMarker will then move around based on the incoming position data.

You can then tell the XYZ enabled fixtures to point their light at the moving StageMarker.

**Hint:**

It is possible to patch up to 1024 StageMarkers.

## Connect to a PSN server

To add a PSN server you need to open **PSN Network Configuration** in **Setup**.

Tap the **Add** button at the bottom of the window. Then you get a row in the table in the window above.

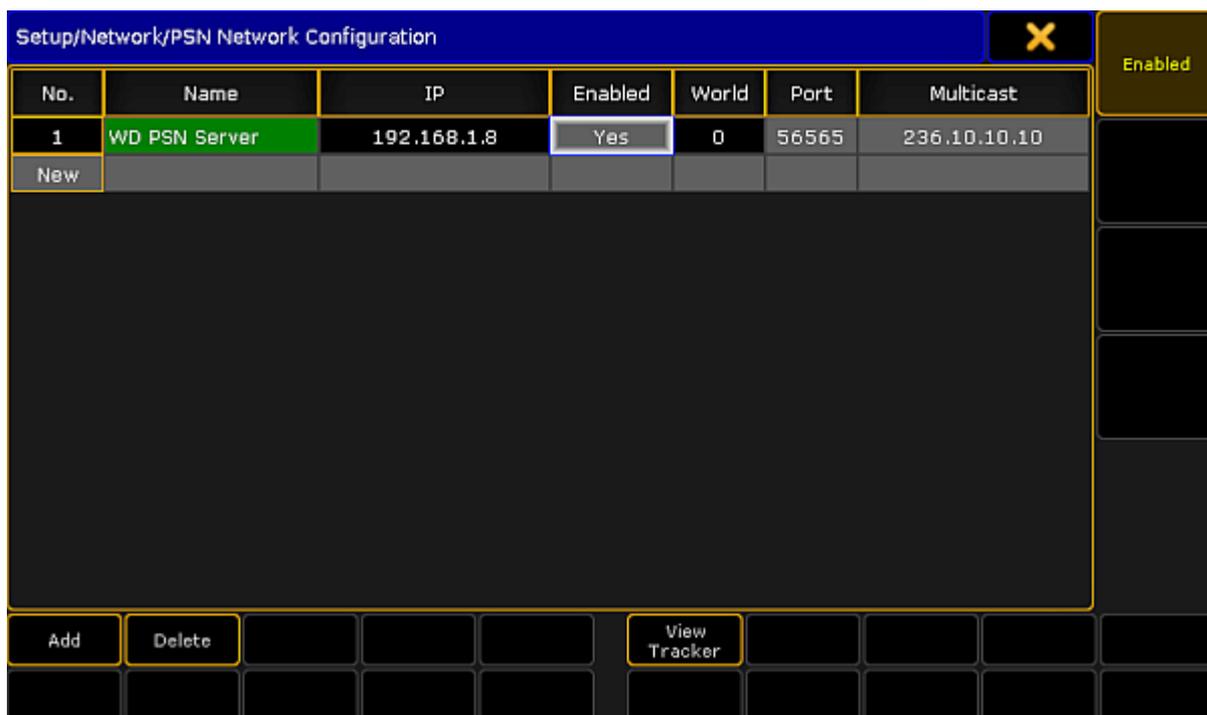
The line needs to be enabled. Edit the **Enabled** cell in the configuration row until it says "Yes". Then you should get an IP address in the **IP** column - this is the IP address of the server. The **Name** will also change to name of the server. If the connection is good, then the name will also get a green background color.

The **World** column displays the PSN world the server is in. It is just for information. It is a setting in the server and is not used by the grandMA2.

It is possible to change the **Port** and PSN **Multicast** address if the server does not follow the standard port and multicast address.

If you want to use the PSN data, then you also need to turn on the general PSN function. This is the big **Enabled** button in the upper right side of the view.

When a valid PSN server is present, then the view could look like this:



*PSN Network Configuration with valid server connection*

## Connect tracker to a StageMarker

If you want to view the incoming tracking information, then tap the **View Tracker** button in the bottom of the screen.

This opens the **View Tracker window**. If you do not have a connection to a PSN server then this window is empty.

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If you have a server, then a table with the information from the server is visible.

There are two things that can be edited in this view:

A **Fixture ID** can be attached to the tracker. Type the Fixture ID of the StageMarker you want to be moved by the tracker.

The **Predict** value can be changed. This will make the console try to predict the position of the tracker. The number type here is the number of seconds in the future the console should try to predict, based on the current speed and direction.

If this is left at "0.00" then it is up to the server to do the calculation and prediction.

It could look like this:

PSN ID	Fixture ID	Name	Pos X	Pos Y	Pos Z	Rot X	Rot Y	Rot Z	Predict
0	4001	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	4002	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	None	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	None	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*View Tracker - PSN information from server with attached Fixture ID*

In this example, the tracker with PSN ID number 0 is attached to the Fixture ID 4001 (a StageMarker). The current position and rotation is 0 meters and 0 degrees in all three planes.

When the tracker starts to move then the information will update and the StageMarker will move accordingly.

The **3D Text** button in the picture above should just be ignored - it does not do anything and is not implemented.

## 11.9. FTP connection to console and NPU

The consoles and the grandMA2 NPU can be accessed using a FTP client program.

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One such program could be FileZilla Client from the [FileZilla Project](#) (external link to internet webpage).

The FTP client needs to be installed on a computer in the same network as the console or NPU.

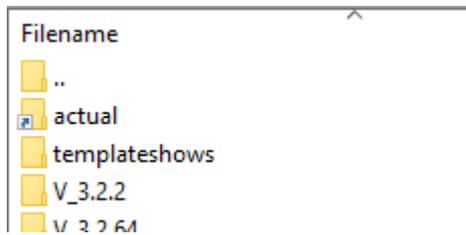
To access the console or NPU, the IP address of the device is needed. A user name and password is also required. Both username and password is: **data**.



## WARNING:

Be very careful making any changes in the folders or files. This is direct access into the device. Deleting or moving files may cause serious harm to the device.

Once the connection is made, it is possible to browse through the folders inside the device. The first level of folders should look something like this:

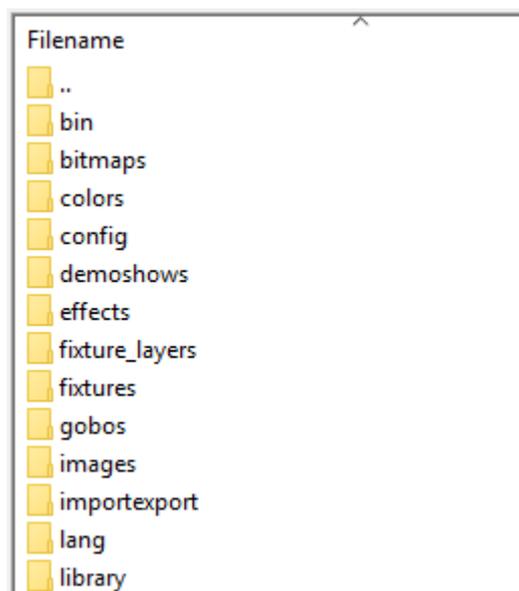


*FTP main folders*

If the device has been updated, then there might be several version folders.

Most often the needed folder are found in the currently installed and active running software. These folders can be accessed using the "actual" link. This will give access to a new folder called **gma2**.

Accessing this folder will give access to the folders and files that constitutes the grandMA2. The first few of these folders could look like this:



*gMA2 folders*

Some off these folders are also present on a USB stick if it has been used to save a show.

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There are many folders here that gives access to many of the elements that the grandMA2 software uses.

## Show folder

The folder called "shows" contain all the show files save in this version of the software. If show files from a previous software is needed, then you will need to navigate to the correct version folder and find the show folder in that version.

## Template show folder

The Template show folder is found in the first layer of folders. Show files can be copied to this folder. Show files in this folder are read only, and cannot be overwritten. They can be loaded from the grandMA2 software and stored as a new show either internal or on a USB stick.

Then only way to get show files into the template folder is using FTP access.

The template folder is not overwritten when the device is updated. It is only overwritten when a Full Install is performed.

## Import Export

If something is exported using the Export keyword, then it most often ends up in the "importexport" folder.

Depending on what it is it might end up in the "macro" folder or the "fixture\_layers" folder.

The internal fixture library are found in the "library" folder.

## Crashlogs

It can happen that a device crashes. If this should happen then a crashlog is written and stored in the "temp" folder.

On the consoles it is also possible to get these crash logs using the [CrashLogCopy](#) keyword. This is not possible on the NPUs.

## Screenshots

It is possible to make a screenshot of the last touched screen by pressing the **Prt Scr** key on the keyboard. The screenshots are stored in the "temp" folder. It is a gz compressed tga file. It needs to be uncompressed before it can be opened.

## 12. Patching, DMX, and Fixture Setup

Patching is one word for everything that has to do with the fixtures we have in our show, how they are addressed - both signal wise but also for selecting them - and how they are arranged in a virtual 3D room.

The following pages deals with adding fixtures to your show, giving them DMX addresses, arranging them in the Stage view and all the connected topics. We are not going to look at details about the Fixture types nor how to control the fixtures. For this please have a look at [Basic Fixture types](#), [Advanced Fixture types](#) and [Controlling Fixtures](#).

## 12.1. What Are Channels & Fixtures

The two words Channel and Fixtures can be several things and it can be a little bit confusing. Even in this manual we might use both words.

When talking (or writing) about the actual device that emits light, we are referring to that as a fixture. This might be all sorts of devices from different manufacturers. They may have one function or many different functions. All these functions are called [Attributes](#).

When you program a show, you will need to be able to select these devices, so they have an ID number - something we can type on a numeric keypad.

The grandMA2 have the option to give each device two ID numbers. They can be the same number or they can be different numbers for the same physical device. The ID numbers are called **Channel ID** and **Fixture ID**. A device needs at least one ID number to be select-able and programmable. Two different devices cannot have the same Channel ID or the same Fixture ID. But one device can have Channel ID number 1 and another device can have Fixture ID number 1.

A device with a **Channel ID** will be visible in the **Channel Sheet** and a device with a **Fixture ID** will be visible in a **Fixture Sheet**. If the device have two different ID numbers, then you can choose to hide one of the numbers in the sheets.

If you have already programmed something with a device and you later change the ID numbers, then you will not loose any programmed information. If you remove the ID number so the device does not have any, then the values are still there and it will still output DMX even though you cannot select the device. When you cannot select it, then you cannot edit it or the stored values. It is not visible in sheets. You cannot delete the values either.

You should pay attention to what your default beginning keyword is. You can see it in the Command Line input. The default on a new empty show is "Channel". Your Command Line input will look like this:



If you are trying to select a device that only have a Fixture ID, then you need to specify that it is a Fixture ID by pressing the **Fixture** key before entering the ID number.

You can change the default keyword by pressing the key corresponding to the one you want and the press **Please**.

So to sum up. We call each device a fixture and each fixture can have a Channel ID and/or a Fixture ID and to be able to control it it will need at least one ID number.

## 12.1.1. What are Attributes

Attributes are the different functions in a fixture.

It might just be a dimmer that uses 1 DMX channel, but can be something more complex like the Pan function that often use 2 DMX channels. In the grandMA2 it is just 1 Attribute no matter if it uses 1, 2 or 3 DMX channels.

Attributes are organized in the grandMA2 into a structure. The top level of this structure are called **Preset Type** - This could be something like "Gobo". In the Preset types there's a new level called Feature - a Feature could be something like "Gobo Wheel 1". In Features we find the **Attributes** - this is the specific function where you can select what gobo the fixture should project. There's also something below an Attribute called **Subattributes** - this could be a function of the gobo wheel, like half of the DMX range is select a gobo and the other half is continues wheel rotation.

The grandMA2 have a lot of predefined attributes. You can make your own and you can edit the ones that are there.

For more details about all this please have a look at [What are attributes, features & preset types](#) under the [Basic Fixture types](#) topic.

## 12.1.2. What are DMX breaks

DMX breaks is a term used when a fixture needs more than one DMX start address.

It has nothing to do with how many address a fixture uses, just if it needs more than one start address.

For example some fixtures have moved the dimmer out of the moving head. So the moving head needs to have one DMX address and the lamp inside is connected to an external dimmer in a rack in Dimmer City. The rack mounted dimmer have a different DMX address (might even be a different universe). In the grandMA2 we only look at this fixture as one device. It only have on ID number. To make this possible we have a fixture that uses two DMX breaks. We have broken the DMX range into two parts.

There can be many examples of combining several devices and wanting to just use one ID number. It could be a color scroller and a mechanical dimmer unit on a big HMI fresnell with a DMX controlled ballast. So three separate units that each need a DMX address but we want to handle all of them using just one ID number.

The grandMA2 can handle fixtures with up to 8 DMX breaks.

Each DMX break have their own input field in the Fixture Wizard and their own column in the patch windows. It might be combined into one column in the Fixture Schedule.

Patch Break 1	5.019
Patch Break 2	-
Patch Break 3	-
Patch Break 4	-

*DMX Break in the Fixture Wizard*

Patch
5.019/(-)/(-)/(-)

*DMX break in the Fixture Schedule window*

DMX COLO	DMX Break	DMX Break	DMX Break
5.019	5.028	5.037	5.046

*DMX break in the DMX patch window*

## 12.2. What is 3D and Stage setup

The grandMA2 have a virtual 3D space. In this space are all the patched fixtures and there position. The 3D space can also have other objects and elements. This could be a model of your venue and the set.

There are generally two ways to see this 3D space. In the grandMA2 software and in the MA 3D visualizer running on a windows computer.

Both of these are linked and display the information stored in the show file. It only makes sense to use these if you take the time to [arrange your virtual fixtures according to the real world locations](#).

In the grandMA2 software you can see a very simplified version of the 3D space. This can be seen in the [Stage Window](#).

In this view you'll see a simple wireframe model with the light from the fixtures just visualized as a single line showing the direction, intensity and color.

Each fixture is represented by a box and all 3D elements are also represented by simple boxes.

The in-build 3D Stage Window is a useful tool during programming and can be a big help.

In the MA 3D visualizer you can have a more realistic display of what the fixtures are doing and what our 3D model look like. The software is free and can be downloaded from MA Lightings webpage.

It runs on a windows computer connected the same network as your console or onPC. If you have a good computer, then you can run both grandMA2 onPC and MA 3D on the same computer.

You will need to have a [session running](#) on the console/onPC and then you invite the MA 3D into your session. Besides getting the patch and fixture position from the show it also allows you to select a user. If you select the same user for the 3D as the one you are using on the console /onPC then the 3D will follow you if you use the Blind or Preview functions. This can be really useful if you need to change something in your programming in a live onsite situation.

The main idea behind the MA 3D is for pre-programming a show. It allows you to visualize and program your entire show without the need for all the MA hardware you might need onsite. You can download both grandMA2 onPC and MA 3D for free and start programming a show with the maximum amount of parameters. It is first when you need to output all these parameters to real world fixtures, that you need real MA hardware.

## 12.3. Adding fixtures to your show



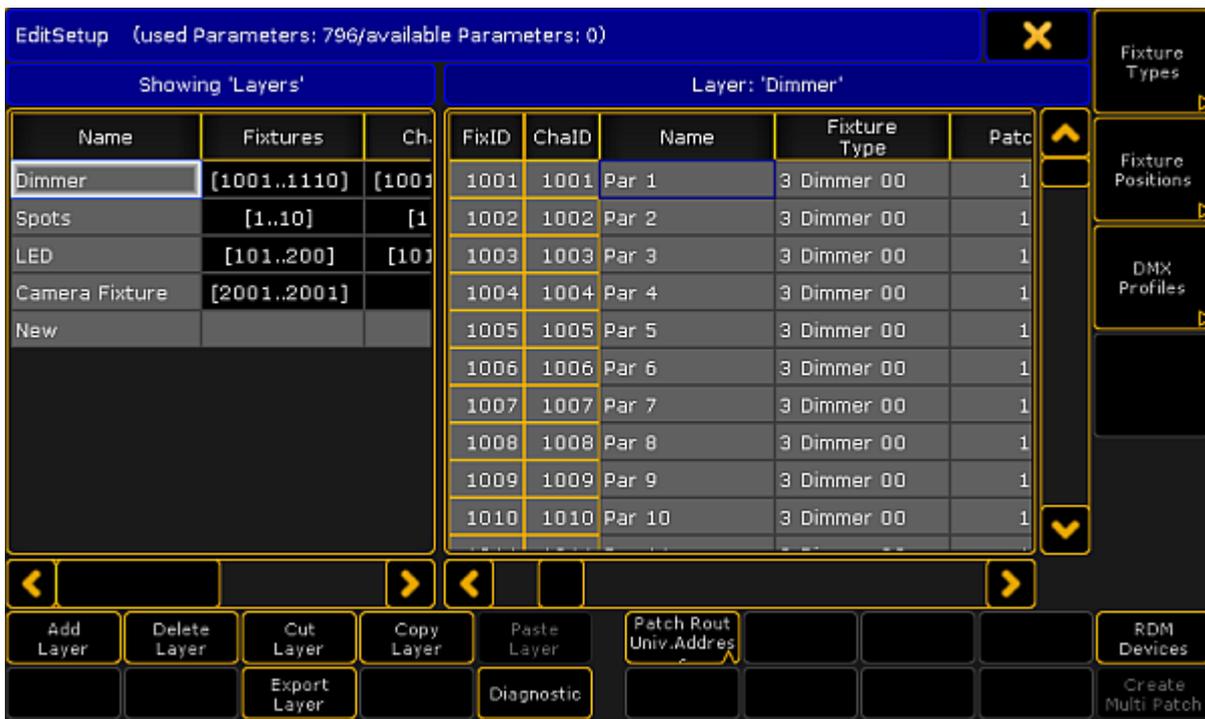
## Quick steps:

1. Press **Setup** and **Patch & Fixture Schedule** to enter the EditSetup menu.
2. Add a new or select an existing layer.
3. In the layer, Add new fixture.
4. Follow the Fixture Wizard.
  1. Import a fixture from library (internal or from USB) or select already imported fixtures from the list.
  2. Change the quantity.
  3. Set a Fixture ID and/or Channel ID.
  4. Set the start address for the first fixture.
  5. Tap **Apply**.
5. Check that the result is correct.
6. Exit the EditSetup menu.
7. Tap **Yes** to confirm the changes.

This was the quick steps - Keep reading for more details.

Adding fixtures to the show is done from the **EditSetup menu** - also called Patch & Fixture Schedule. This can be found by pressing the **Setup** key and then **Patch & Fixture Schedule**.

It could look like this:



*EditSetup menu*

This is one of the essential access points for everything that has to do with your entire fixture setup structure. A very important menu.

Its main part is divided into a left and a right side. There is a lot of buttons on the bottom and three important ones on the right most side.

The left side is **Layers** and the right side is the list of fixtures in the selected layer. In the picture above it is the "Dimmer" layer and all the Dimmer fixtures.

## Layers

Read more details about Layers in the [Working with Layers topic](#).

The left side of the main window is a list of Layers. Any fixture added to the show needs to be put in a layer.

You can decide how you want to organize the layers. All fixtures can be put in the same layer or organized in multiple layers - by fixture type or location. It is completely up to you. But you need at least one layer.

When you have a layer then select it by tapping it. Then you can see all the list of fixtures in the layer on the right side of the menu. At the bottom there is a lot of buttons. We are going to use some of them. Please notice that the text on them changes depending on what side was tapped last - the layer list or the fixture list. The function is the same it is just a matter of affecting layers or fixtures.

## Create a Layer to put fixtures in it

You can add a layer by tapping in the layer part of the screen. You could tap where it says "New".

Then tap where it says **Add Layer**. Now opens the Enter Name pop-up where you can give the new layer a name.

Type a name and finish by pressing Please (Enter).

When you create an empty layer, then the console will help you to the next logical step - to add fixtures in the layer. So the next thing you are presented with is the Fixture Wizard.

## Adding fixtures to an existing layer

If you already have layers, then you can add new fixtures in them. Select the layer on the left side and then tap somewhere in the fixture list (the right side).

Now you can tap the button that says **Add Fixtures**. If the menu is on screen 1 then you can also press the **X1** key.

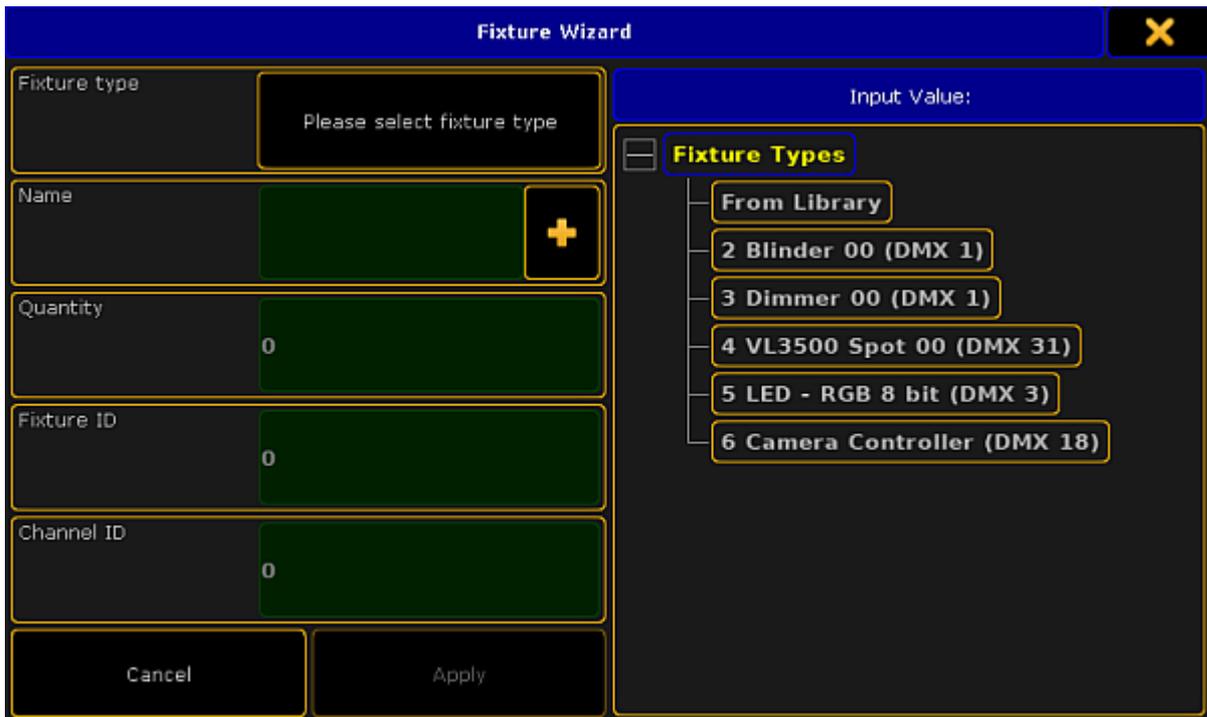
This opens the Fixture Wizard.

## Using the Fixture Wizard - Part 1

When you add a fixture to your layers you are guided by the Fixture Wizard.

If you are not already presented with the wizard then you can get to it by tapping on the layer, tap new in the fixture list and then tap the **Add Fixture** button.

The wizard could look like this:



## Fixture Wizard

This pop-up is also divided into a left and right side.

The left side is all the fields we need to fill out for the grandMA2 to add and be able to use the fixture.

The right side is an area that changes depending on what input field you currently have selected on the left side.

The first thing you need to select is what fixture type you want to add to your show.

To make sure you are working with the correct input field, please tap where it says **Please select fixture type**. The right side now shows you a tree structure with minimum two objects: "From Library" and "Dimmer 00 (DMX1)".

The general idea is that the console has a large library of fixture types. You then import a fixture type into the show file. That is a copy from the library. It can then be modified in your show file without affecting the original fixture type in the library. You can of course export the fixture type from your show file back into the library if you think you need the modified fixture type again in a different show file.

The library does not have to be the one in the console - it can be a library on a USB stick.

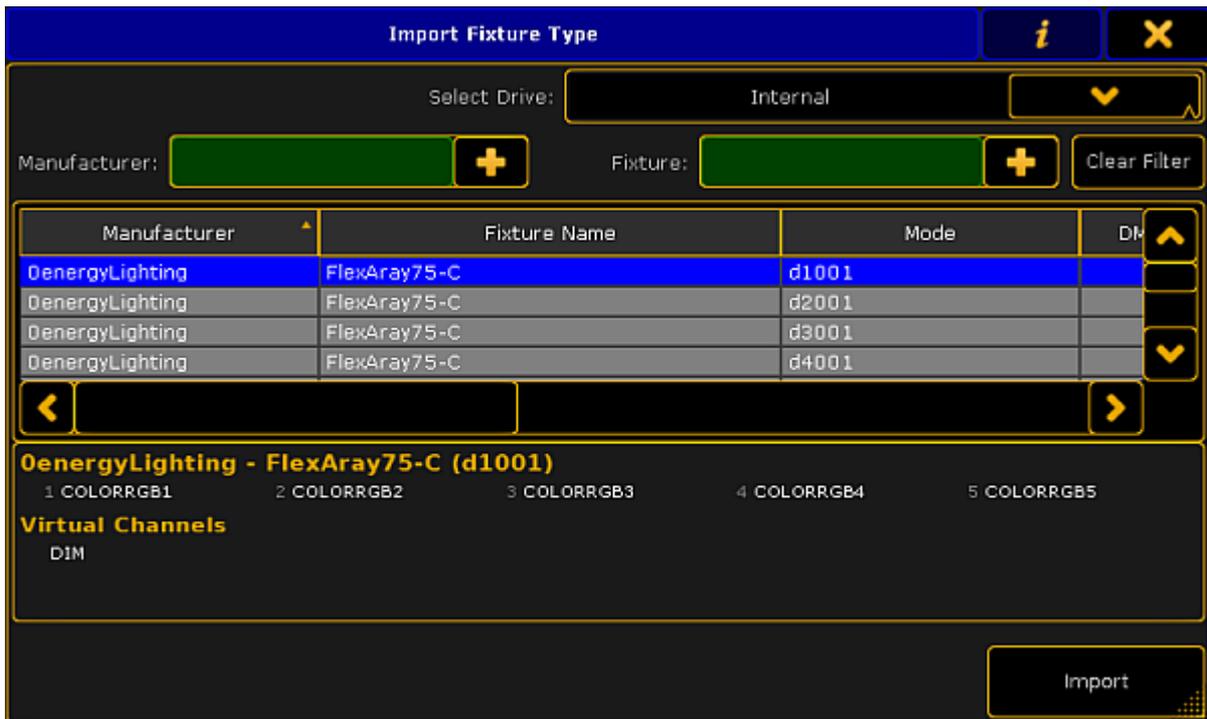
As a default you will always have the standard "Dimmer" fixture type imported when you create a new show. If this is all you need please jump directly to [Using the Fixture Wizard - Part 2](#). Keep reading if you need to add other fixture types.

## Importing a fixture type from the library

When you tap the **From Library** button you get the **Import Fixture Type** pop-up. It looks like this:

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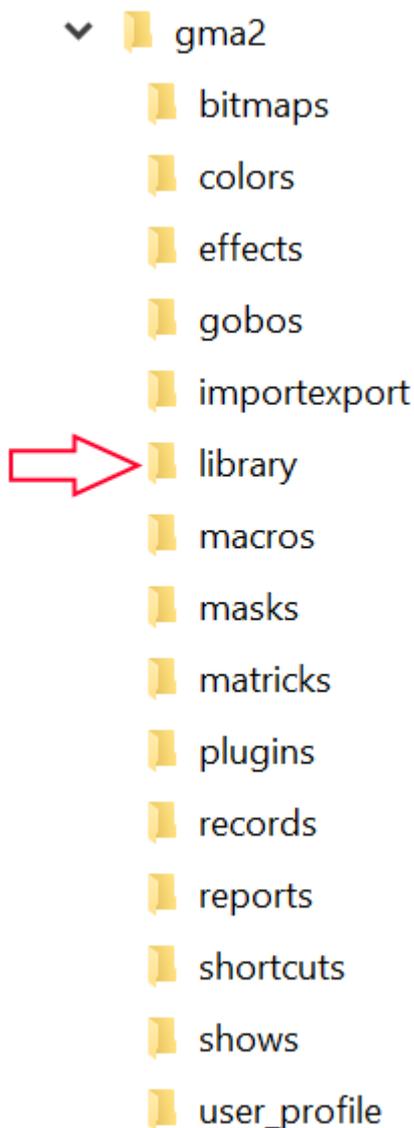


## *Import Fixture Type pop-up*

The library is basically one big long list of fixture types. This list can be sorted and it can be filtered by manufacturer and/or fixture name.

At the top of the list you can select what library you are using - it is the "Select Drive" drop down.

For the grandMA2 to be able to see the fixture types they need to be in the correct folder. If you insert a USB stick then it will automatically create the folder structure needed. Fixture types need to be in the folder called "library". This folder needs to be inside a folder called "gma2".



## *USB file structure*

When you have selected the drive then you will see all the fixture types in one list.

The two green input fields are the two filters that you can apply. These can be used to filter on a manufacturer name and/or the name of the fixture.

It is a good idea that you might type (some part of) the manufacturer name. You do not need to write the entire name, just a unique part of it. If for instance you want to find a fixture from Clay Paky, you only need to write "clay" or "paky". Now the list only shows Clay Paky fixtures. The filter will show all manufacturers with the letters you write, in any part of their name. So if you write "ma" then you get a long list. The first manufacturer might be "Altman" - the letters "ma" are in it. Uppercase letters are not distinguished.

Same goes for the fixture filter. This filters on the fixture name. Try not to be more specific than you need to be. If you are looking for a Clay Paky Alpha Spot QWO 800, they you just need a manufacturer filter "clay" and a fixture filter "qwo". Since no one else currently have a fixture with "qwo" in the fixture name, we do not really need the manufacturer filter.

On the right side of the two filters you will find a **Clear Filter** button. This will remove any input you have typed in your filters.

Below the filters you have the list of fixtures.

There are several columns in this list:

- **Manufacturer:**

This is the name of the manufacturer of the fixture.

- **Fixture Name:**

This is the name of the fixture.

- **Mode:**

Many fixtures have several different modes. This can be a way a LED bar might be separated into different sections or different operational modes in a moving head. If a fixture type doesn't have a mode then it often has a "00" mode. The default Dimmer fixture type is an example of this.

- **DMX Footprint:**

Close connected to the Mode is the amount of DMX channels a fixture uses.

- **Instances:**

Some fixtures might be separated into different sections called Instances. This could be a LED bar with six individually controllable sections. It can also be a fixture like the Martin Aura where the fixture has two different color systems in the same moving head.

- **Info:**

Here you can see any relevant info text.

- **Filename:**

This is the actual name of the fixture type file.

- **Filedate:**

This is the date the file was saved.

- **FileSize:**

This is the size of the fixture type file.



You can choose the display information about the DMX channels below the list. If you tap the  in the title bar then you will see the list of DMX channels and what function they have.

When you have found the fixture you need to tap it in the list and then tap the **Import** button in the lower right corner.

If you do not want to import any fixture type anyway, then you can close the pop-up by tapping the **X** in the upper right corner.

## Using the Fixture wizard - Part 2

If you have just imported a fixture type then this is automatically selected. If you have not, then you need to tap the, already imported, fixture type you want to add.

Now the cursor jumps to the **Quantity** input field. This is where you set the amount of fixtures you want to add.

You can see the top two input fields are the fixture type you selected and the second is the **Name** of the fixture. The

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suggested name comes from the fixture type definition. And it adds a space and a number (1) to the name. The result of this added space and number is that all the fixtures added will be enumerated from this number. You can of course change the name.

After you have typed the quantity. You need to type the ID numbers.

There are two types of ID number: The **Fixture ID** and the **Channel ID**.

To use the fixture you need to give it at least one of the ID numbers. You can give it both a Fixture ID and Channel ID. It can be the same number but it does not have to be the same.

The difference between the two are whether or not the fixture is visible in the Channel Sheet and the Fixture Sheet.

A fixture with a Fixture ID is visible in the Fixture Sheet (This sheet displays all attributes for the fixture).

A fixture with a Channel ID is visible in the Channel Sheet (This sheet only shows the Dimmer attributes for the fixture).

The console also have a default beginning keyword. This is usually "Fixture" or "Channel". This is what the console assume you are addressing if you do not specify something else.

You can see it in your command line. It could look like these two examples:

```
[Channel]>
```

```
[Fixture]>
```



**Hint:**

If you want to change what the default keyword is, then you can press the key followed by **Please**.

If you do not want to give the fixtures an ID number then you need to type "0" in the input field. But remember that you need to give them at least one ID number to be able to select and control them.

Depending on what fixture type you have selected, you might have up to 8 different **Patch Breaks**. Most fixture only need one, but some multi instance fixtures needs several DMX start addresses.

You can type in the DMX address using the following pattern [Universe].[DMX address] - so if you need the fixture to have start address 1 in universe 2, then you need to write **2.1**

You can also choose to type the absolute DMX address. In the same example as above you could also type **513** - this is because there are 512 possible DMX addresses in one universe, so the first number in the second universe will be 513.

If you do not want to give the fixtures a DMX address now, then you can type "0" (zero) in the Patch Break.

When you are happy with your input then you can tap the **Apply** button. This takes you back to the EditSetup menu.

## A closer look at the fixture list

When you have added fixtures using the Fixture Wizard and tapped Apply, then you are back in the EditSetup. Here you can see the fixture you have added in the fixture list (right side of the screen).

The fixture list shows us a lot of information and we can edit almost all of it. The following is a short description of the columns in the list.

### **FixID:**

This is the Fixture ID number. If the fixture does not have an ID the there is a "-" instead of the number.

### **ChaID:**

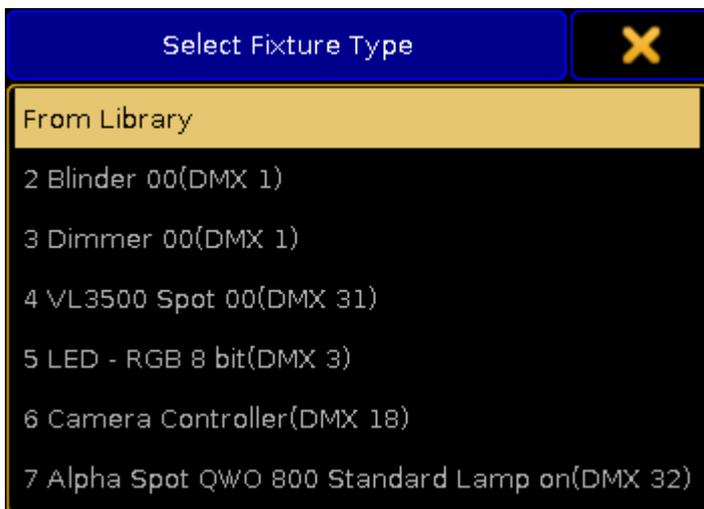
This is the Channel ID number. If the fixture does not have an ID the there is a "-" instead of the number.

### **Name:**

This is the name if the fixture. Remember that if you are naming multiple fixtures at once, then you can add a space and a number to automatically enumerate the fixtures from that number.

### **Fixture Type:**

This is the fixture type. If you edit this then you will get the Select Fixture type pop-up. It could look like this:



*Select Fixture Type pop-up*

Here you can select an existing fixture type or you can import a new one (From Library).

If you change the Fixture Type for an already used fixture then you are asked how colors should be transformed:



*Color Transform Options pop-up*

Here are three buttons that selects how the colors should be transformed from one fixture to the other.

The three options are:

- **Prefer MIXColor:**  
This will prefer MIXColor and set all color wheels to open white.
- **Prefer Color Wheel:**  
This will prefer the color wheels and set all MIXColors to open white.
- **MIXColor + Col.Wheel:**  
This will do a combination of both MIXColors and color wheels.

When you have selected the options you like then you can tap the **Transform** button or you can choose to not transform the colors by tapping the **Do not transform** button.

## Patch:

This is the patch address of the fixture. If a fixture is unpatched then there is a "-" here. There are two ways you can have the patch address displayed. Below the list is a button called "Patch Readout". This can have two different modes: "Univ.Address" or "Abs. Address". The first one (Universe) will separate the DMX address into universes. First number is the universe, second number is the DMX address. They are separated by a dot. The other option (Absolute) will add the address and only display one number. So the first DMX address in the second universe will be displayed as "513". This might make sense for the first few universes, but might not when you are have the first DMX address in universe number 141 (will display "71681").

This is a User setting and can also be changed in **Setup** -> **User** -> **Settings**. Here it is called "Patch Column Readout is absolute DMX address".

Editing this cell will open the DMX Patch window. [Read below for more info on this.](#)

## React to Master:

This is "On" as a default. When it is on then the dimmer attribute of the fixture will be affected by the Grand Master,

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Group Masters and Solo. Turning this off makes sure the intensity is not affected by any such masters. This is great for power relays, blue lights and other stuff you do not want to accidentally turn down.

## **Pan DMX Invert:**

When this is "On", then the console inverts the DMX values on the Pan attribute.

## **Tilt DMX Invert:**

When this is "On", then the console inverts the DMX values on the Tilt attribute.

## **Pan Enc. (Encoder) Invert:**

This will invert the direction of the Pan movement when using the encoders. This will make it easier to match the 3D world with the real world.

## **Tilt Enc. (Encoder) Invert:**

This will invert the direction of the Tilt movement when using the encoders. This will make it easier to match the 3D world with the real world.

## **Pan Offset:**

This can be used to offset the programmed Pan values. This can be very useful if the show has been preprogrammed or it is a touring show, and the fixtures are not hung the way they were planned to be. The offset value is not visible in the Fixture Sheet, but it can be seen in the DMX Sheet. It is a nice function as long as the fixtures do not come all the way out to tier endpoints in the programming. The number entered here is a degree number and can be a negative value.

## **Tilt Offset:**

This can be used to offset the programmed Pan values. This can be very useful if the show has been preprogrammed or it is a touring show, and the fixtures are not hung the way they were planned to be. The offset value is not visible in the Fixture Sheet, but it can be seen in the DMX Sheet. It is a nice function as long as the fixtures do not come all the way out to tier endpoints in the programming. The number entered here is a degree number and can be a negative value.

## **Swap:**

This will swap the Pan and Tilt DMX output.

## **Bitmap Disable:**

Turning this "On" will exclude this fixture from being affected by any Bitmap Fixtures.

## **Color:**

Here you can add a color to the light from your fixture. This is nice for dimmers, but does not make sense for any fixture with a color mixing system. It is like placing a color gel in front of the fixture. This color is visible in the Stage view, Layout view, the MA 3D and can be visible in Fixture and Channel Sheets. Editing this cell opens the Select Color pop-up:



Select color pop-up

Here you can use what ever method you like to select the color and tap **Please** when you are happy or you could tap **Reset to White** if you do not want any color.

### Pos X, Pos Y, Pos Z:

This is the XYZ position of the fixture in the 3D space. Read more about positioning fixtures in the [Position fixtures in the 3D stage topic](#).

### Rot X, Rot Y, Rot Z:

This is the XYZ rotation of the fixture in the 3D space. Read more about positioning fixtures in the [Position fixtures in the 3D stage topic](#).

### No Parameter:

This is for use with MA VPU Pixel mapping. If this column is set to "Yes", all the programming for this fixture **is lost**, it does not consume any parameters any more in the grandMA2 and the VPU will send out the default values defined in the fixture profile additional to the Color RGB 1-3 values. **The idea:** if this flag has been set (No Parameter), the fixtures can still be selected, but only controlled by the VPU, not the console. Additionally the set default values for this fixture are transmitted. These values can be changed (for example Dimmer to 100%) in the grandMA2 / Patch & Fixture Schedule / Fixture Types.

### RDM ID:

This will display the RDM ID of the fixture when it matched in the [RDM Devices](#).

This was all the different columns in the Fixture list.

## The DMX Patch pop-up

When you edit one or several patch address in the fixture list, then the DMX Patch pop-up. It could look like this:



*DMX Patch pop-up*

Again a window that is divided into two sides.

The left side is the fixture you chose to edit. In the picture above it is four spots that was selected and the patch fields where edited.

The right side displays the DMX universe and the DMX addresses.

The Encoder Toolbar have changed to allow you to select a DMX address and actually text the DMX channel.

At the bottom there is several buttons.

### The left side

The left side shows you the fixtures. You can see the ID numbers, Fixture Type, Name and current DMX Address. If it is unpatched then there is a "-" instead of a number.

Below the fixtures you have a button to change if you want the DMX address to be written in Universe or Absolute readout ([follow this link to read details further up on this page](#)).

The fixtures here are the ones you selected before editing the patch. The only thing we can change here is the DMX address. The pop-up might close when you have given all your fixtures a DMX address.

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The workflow is that you select the "DMX Address" cell for the fixtures you want to give a new patch so the field is blue. Then you can use the right side to find the DMX address.

## The right side

The right side shows you the DMX addresses in the selected universe. On the top right side (just below the yellow "X") you will find a green input field. This shows you the currently selected universe. If you tap it then you can use the calculator to change the universe.

Any DMX addresses that have something patched will have a frame around them. Inside the frame you will see the Fixture ID and Channel ID and maybe the fixture name (if the space allows it).

Below the list of DMX addresses you have a button called **Skip Patched**. If this is active then you cannot select already patched DMX addresses. You are only allowed to select empty one. You can scroll the list using the vertical scroll bar or the encoder (read more about that below).

When you have found the address you want, then you can tap it and this will assign it to the selected fixture (on the left side).

If you have more than one fixture selected, then you will automatically patch all the fixtures starting from the address you selected - There might be a gap between them (see "Offset" below).

There are three other buttons below the right side:

- **Unpatch:**

Tapping this button will remove any patch information from the selected fixtures.

- **Patch to...:**

You can tap this button if you know what DMX address your fixture should have.

- **Offset:**

This button can be used to set an offset. Offsets are used when you patch more than one fixture at a time and you want to add a gap between the fixtures. The number you define by tapping the button needs to be bigger, than the amount of DMX channels the fixture uses. If the number is lower than the amount of channels used, then the fixtures will be patched as close as possible. For example if you patch some fixtures that uses 12 DMX channel and you patch then from address 1 with the Offset at 20, then the fixtures will be patched at address 1, 21, 41, 61, and so on.

## The encoders

The Encoder Toolbar have changed when you enter the DMX Patch window. It could look like this:



## *The DMX Patch Encoder Toolbar*

The four encoders can be used to help you patch fixtures.

The left encoder is used to select the fixtures - if you have selected more than one fixture going into the DMX patch window.

The left center encoder is used to select the Universe.

The right center encoder is used to select or scroll through the DMX addresses.

The right encoder is a DMX tester. It can be used to test the DMX address. You can turn it to output a DMX value on the selected address. There is a button used to toggle between percent (0-100) or decimal (0-255) scale. This function is especially nice with dimmers and fixtures where the first channel is the dimmer.

---

## The Diagnostics

At the bottom of the EditSetup menu, you will find a button called "Diagnostic". You will find this button on other menus and windows as well.

This opens the Diagnostic pop-up. It could look like this:



### *Diagnostic pop-up*

There are two types of messages: Errors and Warnings. Errors are more severe than warnings, but none of them prevents you from leaving the setup.

The warnings and errors explain the problem.

The warning might not be a problem at all. Often a narrow beam fixture, might be reported as a warning even though it is not a problem (The beam angle is very small).

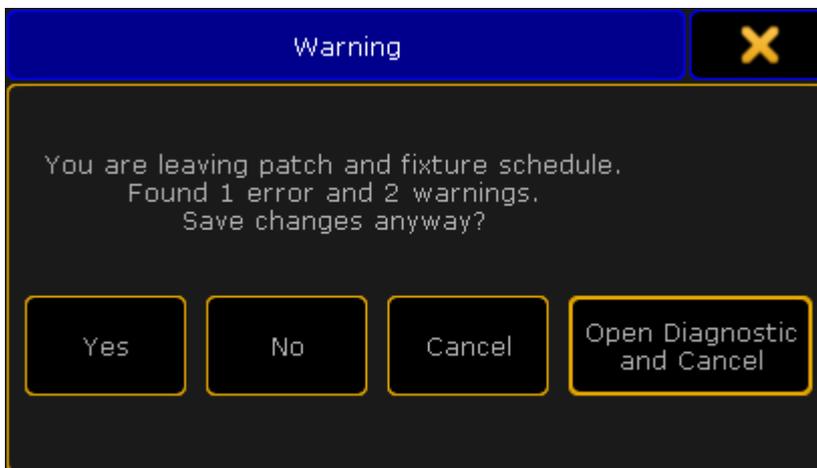
There is only one button for this pop-up. The "Update" button runs the diagnostics again and check if there are still warnings and errors.

## Leaving the Setup and save your changes

When you are happy with your added fixtures, then you can leave the setup and save the changes. You do this by closing the EditSetup menu by tapping the yellow "X" in the upper right corner.

This gives you a pop-up warning asking you what to do.

There are always three options and if the Diagnostics got warnings or error then you have four options. It could look like this:



### *Leaving Setup warning*

- **Yes:**  
This will close the EditSetup and save your changes.
- **No:**  
This will trough away what you have changed and keep the old settings.
- **Cancel:**  
This will cancel the exit and you are returned to the EditSetup.
- **Open Diagnostic and Cancel:**  
This will cancel the exit and return you to the Diagnostics pop-up.

If you tap yes and you have made changes, then your console will upload the changes to the system. This is called a "show upload".



#### **Important:**

The system will stop all DMX output while the show upload is running.

Further readings

[Fixture types](#)

[Fixture position](#)

[DMX profiles](#)

[DMX List](#)

[Live patching](#)

[Multipatch](#)

[Export/Import](#)

[Layers](#)

[RDM devices](#)

## 12.4. Delete fixtures from your show



### Quick steps:

1. Press **Setup** and then **Patch & Fixture Schedule**.
2. Select the layer where the fixture is and select the fixture.
3. Tap the **Delete Fixture** button at the bottom and confirm the deletion.
4. Exit the EditSetup and tap **Yes** to confirm changes.

This was the quick steps - Keep reading for more details.

If you want to completely remove a fixture and the stored data from the show, then you need to delete it.

If you unpatch a fixture then all data is still there and you can program the fixture, but it will not output anything since the system do not know where to send the data.

If you remove a fixtures ID numbers then it does not go away and the programming is not lost. You cannot select it or work with it, but the data is still there. If the fixture was stored in groups then these group will get a little red marker. The DMX data is still going to the output!



### Restriction:

You **can not** Oops or undo the deletion and the data is gone! It is a good idea to save your show before deleting the fixtures.

## Deleting a fixture

You need to go into the setup. Press the **Setup** key and then the **Patch & Fixture Schedule** button.

In the **EditSetup** you have all your fixtures organized in layers (or maybe just one layer).



**Important:**

For details about Layers please read the [Working with Layers](#) topic.

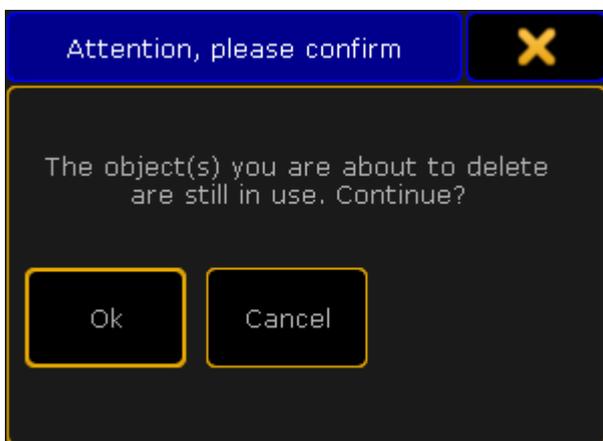
For details about the **EditSetup** menu please read the [Adding fixtures to your show](#) topic.

Select the layer that have the fixture you want to delete.

Select the fixture in the list.

Tap the **Delete Fixture** button at the bottom. If you have this window on screen 1 and you are working on a grandMA2 Full-Size or grandMA2 Light, then you can also press the **X13** key.

Now you get a pop-up like this:



*Attention pop-up - Deleting an object in use*

Tap **Ok** to confirm that you want to delete the fixture. Tapping **Cancel** will cancel the deletion.

When you have deleted the fixture then you can exit the EditSetup.

You get a new pop-up asking if you want to save the changes to the setup.

Tap **Yes** to confirm the changes and leave the EditSetup ( **No** to not save any changes, **Cancel** to stay in the EditSetup).

Read more details about the Warning pop-up at the end of the [Adding fixtures to your show](#) topic.

That was it for deleting a fixture.

There is no easy way to delete the fixture using the command line or hard keys.

If you press **Delete Fixture 1 0 1 Please**, then you unpatch fixture 101 - it is not deleted.

## 12.5. Working with Layers

All fixtures are organized in layers.

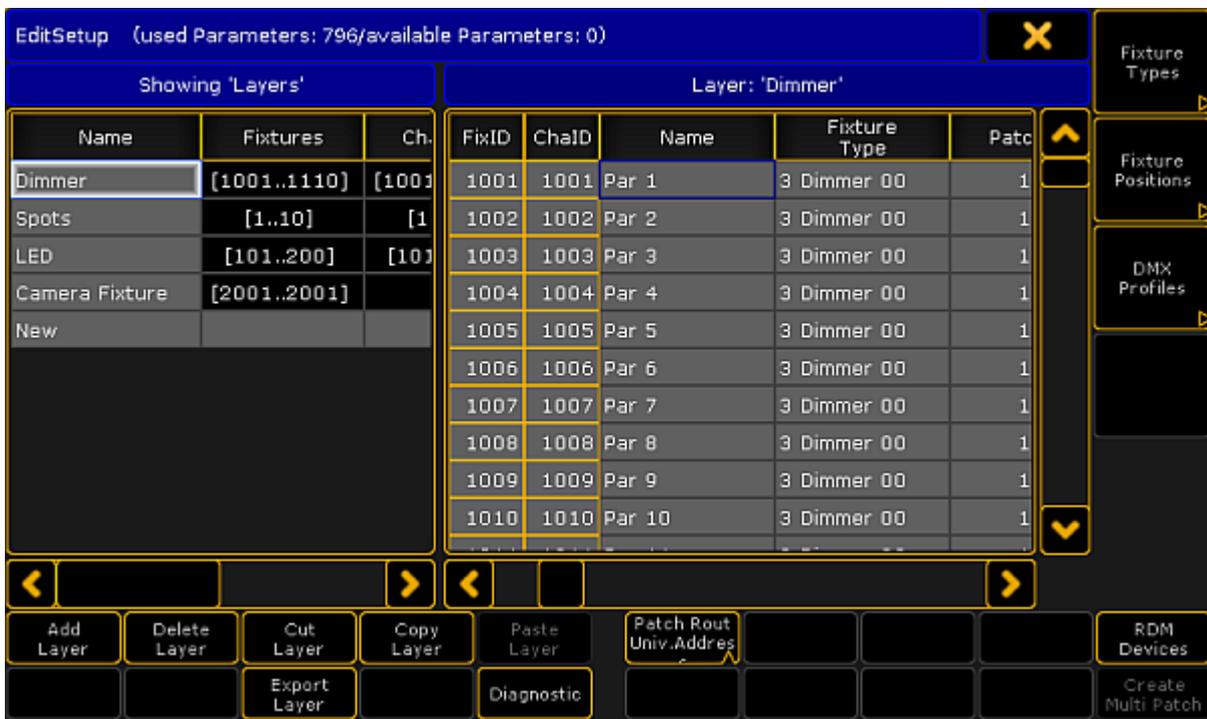
You can put all your fixtures in one layer or make a layer for each fixture - it is all up to you.

Usually people make layers based on fixture types or locations.

It is all handled from the EditSetup menu.

Press **Setup** and then tap the **Patch & Fixture Schedule** button.

The menu could look like this:



*EditSetup menu*

The left side of this menu is the Layers. If you tap somewhere in the list then most of the buttons below the list are referring to the layers. If you tap inside the list on the right side, then they refer to the fixtures (in the layers).

### Add Layer

Tapping this button will give you a new (empty) layer. When you make this layer then the console will open the Fixture Wizard (see Adding new fixtures to your show) to help you begin to add fixtures in the new layer. If you do not want to add new fixtures then you can simply close the wizard.

### Delete Layer

You can delete an entire Layer. This will delete all the fixtures in the layer and **the data will be lost!**



**Restriction:**

You can not oops or undo the deletion of layers or fixtures. Please save your show before deleting layers or fixture.

## Move Layer - Cut and Paste

You can rearrange your layers. This is done using the following steps:

1. Select the layer you want to move by tapping it on the screen.
2. Tap the **Cut Layer** button - this gives the layer a red background color.
3. Tap the layer where you want to insert the layer above.
4. Tap the **Paste Layer** button.

You have now moved your layer to a new location. This does not affect your programming. It does not delete anything and does not add anything.

## Copy Layer - Copy and Paste

You can copy the structure of a layer. This means that you can copy all the fixtures that are in a layer. This include all information except the ID numbers and the Patch. These numbers are unique and cannot exist twice.



**Restriction:**

This does not copy your programming! The programming done on the fixtures in the source layer will not be copied with the layer.

This is the steps for copying the layer:

1. Select the layer you want to copy by tapping it on the screen.
2. Tap the **Copy Layer** button.
3. Tap the layer where you want to insert the layer above.
4. Tap the **Paste Layer** button.

Now you have a copy of the layer.

## Export Layer

You can export a layer (or even a fixture). This is meant for exporting the information about the structure. This can be used to document the setup and patch.

Please have look at the [Export and Import](#) topics.

## Move fixtures between layers

You can move fixtures around in layers or even between different layers. This does not affect anything that might already be programmed with these fixture.

This is the process:

1. Select the layer with the fixture you want to move.
2. Select the fixture.
3. Tap the **Cut Fixture** button.

4. Select the layer where you want to move the fixture to.
5. Tap the fixture where you want to insert the fixture above.
6. Tap the **Paste Fixture** button.

When you are done working with your layers, please leave the **EditSetup** menu.

Now you are asked if you want to save the changes you have made.

Tap **Yes** to save. **No** to not save any changes and keep the fixture schedule as it was. **Cancel** to return to fixture schedule without saving.

## 12.6. Multipatching

Multipatching is a function to add extra fixtures to a Fixture ID or Channel ID.

Any extra fixture needs its own DMX patch.

Adding multipatch fixtures to the fixture schedule will also add an extra virtual fixture in the stage view and MA 3D.

It does not cost you any parameters to add multipatch fixtures.

You cannot program the multipatched fixtures individually. It is connected to the same ID as the primary fixture and they all (the primary and the multipatched) do the same.

Any programming that existed on the primary fixture are also outputted on the multipatched fixtures.

This is the first process using the GUI:

1. Press the **Setup** key and then the **Patch & Fixture Schedule** button.
2. Select the layer and fixture you want to multipatch.
3. In the lower right corner you will find a button called **Create Multipatch** - tap it (if the fixture schedule is on screen 1 - and you are on a Full-size or Light console, then you can also press the **X20** key).
4. This opens a calculator pop-up. Enter the amount of multipatched fixtures you want to add the the selected fixture. Confirm by tapping **Please**.
5. The extra fixtures now have their own line in the list. All the elements with a black background is non-editable.
6. You can change the name and the 3D position and rotation of the extra fixtures.
7. You can add the extra patch address to the extra fixtures.
8. Exit the Fixture schedule and the setup, and change save your changes.

The second GUI process involve live patching and the DMX sheet. [Read about it here.](#)

This is the process using the command line:

```
[Channel]> Assign [DMX-list] At Fixture [Fixture ID]
```

Assigning a list of DMX addresses to an existing fixture will create as many multipatch fixtures to your fixture as the list.

You can do the same with Channel ID.

You do not need to type the "At".

Examples:

Adding an extra multipatched fixture (address 2.1) to Fixture ID 101:

```
[Channel]> Assign DMX 2.1 At Fixture 101
```

Adding five multipatched fixtures (addresses 3.1 thru 3.5) to Fixture ID 201:

```
[Channel]> Assign DMX 3.1 Thru 3.5 Fixture 201
```

Short version:

```
[Channel]> as dmx 3.1 t 3.5 f 201
```

Now you have multipatched fixtures.

For more about positioning the fixture in MA 3D or the Stage view, please have look at the [Position fixtures in the 3D stage](#) topic.

## 12.7. Live patching

You can change the patch of fixtures without going into the full setup or "Edit Setup".

If you have not added any fixtures to your show yet, then you need to read the [Adding fixtures to your show](#) topic. This is also a good idea to read if you are in doubt about anything described in this topic.

The problem with the full access to the entire fixture schedule is that you might make structural changes to your show file. So when leaving the fixture schedule the console will do a show upload to all connected devices - this causes a stop in the DMX transmission while the upload is running.

So, the thing that does not concern the fixture structure, can be changed without giving a show upload, this is called "Live editing/patching".

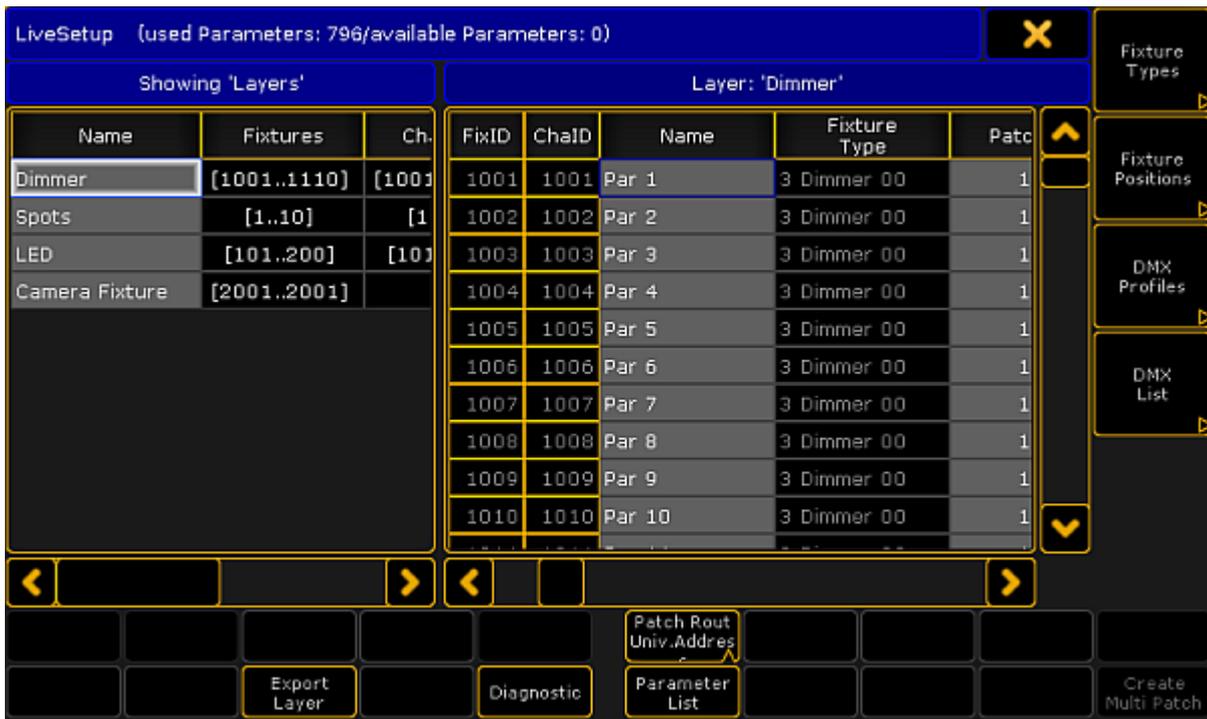
### Live patching using the Setup Menu

You can access this in the Setup menu. Press the **Setup** key and then tap the **Patch Only (Live)** button.

Then you get the LiveSetup menu. It could look like this:

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## LiveSetup menu

This is very similar to the EditSetup menu (Long description in the [Adding fixtures to your show](#) topic).

Everything that has a gray background can be edited. Everything with a black background is locked and cannot be edited.

Looking at the layers and their content, shows you what you can change "Live" - without causing a show upload.

This includes the DMX address.

## Live patching using the Command Line

If you are looking for multi patching then please read the [Multipatching](#) topic.

This is the process using the command line:

```
[Channel]> Assign Fixture [Fixture-list] At DMX [DMX-address]
```

Assigning a list of fixtures (or just a single fixture) will remove all patch data from the fixtures and assign them DMX addresses beginning from the typed DMX address - without an Offset.

You might get a warning pop-up telling you about any collisions.

You can do the same with Channel IDs.

You do not need to type the "At".

Examples:

Patching fixture 101 at DMX address 2.1:

A screenshot of a command prompt window with a dark green background and a yellow sphere icon on the left. The text inside the prompt is "[Channel]> Assign Fixture 101 At DMX 2.1".

```
[Channel]> Assign Fixture 101 At DMX 2.1
```

Assigning fixture 101, 103, 105 DMX address beginning from address 5.61:

A screenshot of a command prompt window with a dark green background and a yellow sphere icon on the left. The text inside the prompt is "[Channel]> Assign Fixture 101 + 103 + 105 DMX 5.61".

```
[Channel]> Assign Fixture 101 + 103 + 105 DMX 5.61
```

## Live patching by editing the fixture

If you edit the fixture then there is also have the possibility to change the DMX address.

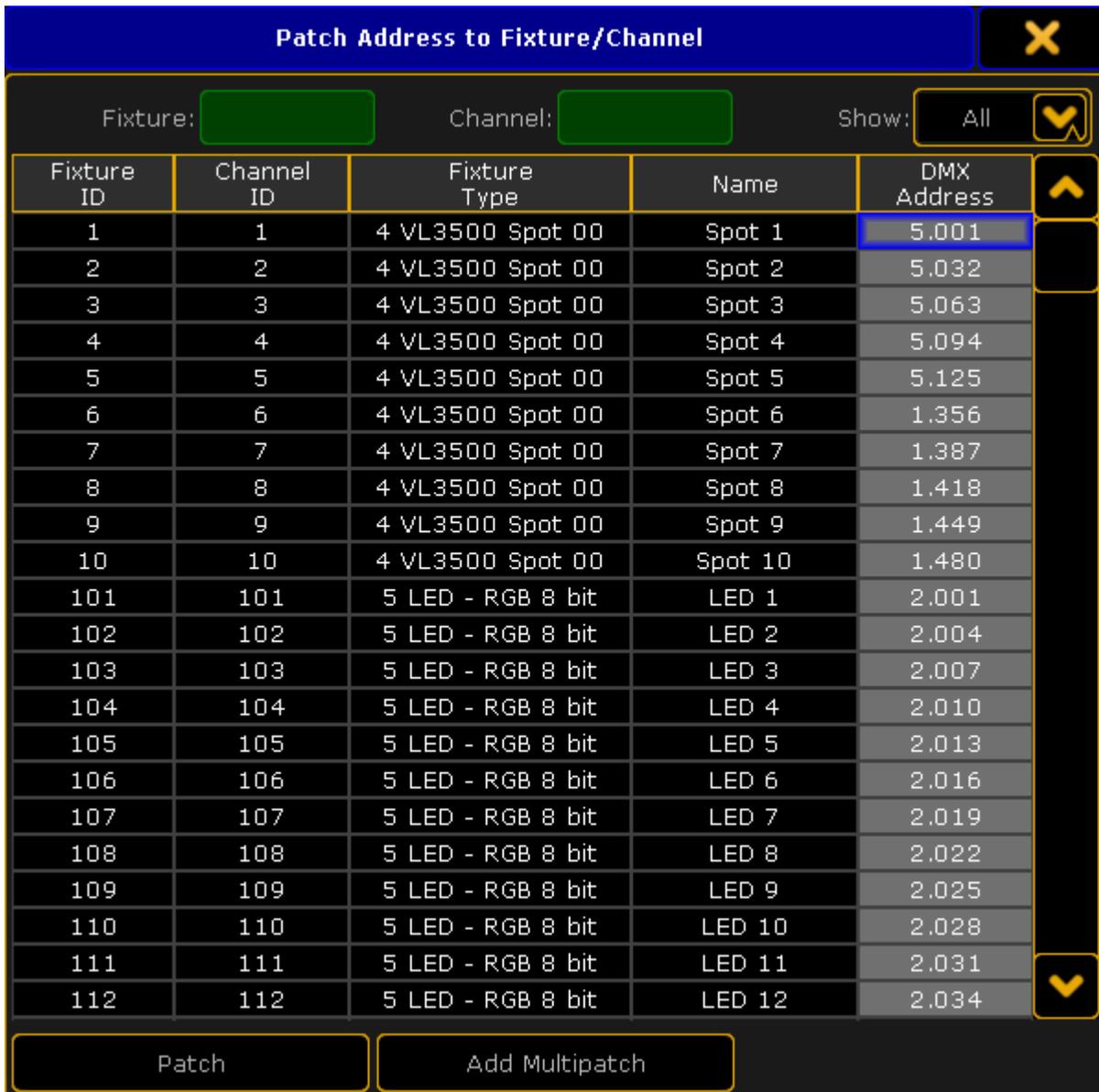
In the top part of the Edit pop-up you will find the fixture (and any multipatched fixtures) and there is a Patch column. Editing this values will change the address.

## Live patching using the DMX Sheet and the DMX Tester

To read details about the **DMX sheet** [please follow this link](#). To read about the **DMX tester** [follow this link](#).

You can also patch using the DMX Sheet and the DMX tester.

1. Open the sheet
2. Activate "Link Encoders"
3. Locate the DMX address where you want to patch the fixtures and tap the location
4. Know you can tap the right encoder. It opens a screen like this:



### Patch Address to Fixture/Channel pop-up

This pop-up shows you all the fixtures in the show. It might look like you can edit the DMX address directly in this pop-up, but you cannot.

You can filter the list by typing a Fixture ID or Channel ID in the respective green input fields at the top. There is also a dropdown list that allow you to filter the list to only show unpatched fixtures.

5. Select the fixture you want to patch to the address
6.
  - A. If you want to patch the selected fixture to the selected address then tap the **Patch** button
  - B. If you want to add a multipatched fixture to the selected fixture at the selected address, then tap the **Add Multipatch** button ([Follow this link to read more about Multipatching](#))

A second option for the DMX sheet is to press the **Assign** key and the **Channel** or **Fixture** key followed by the ID and then directly in the DMX sheet, where you want the selected fixture.

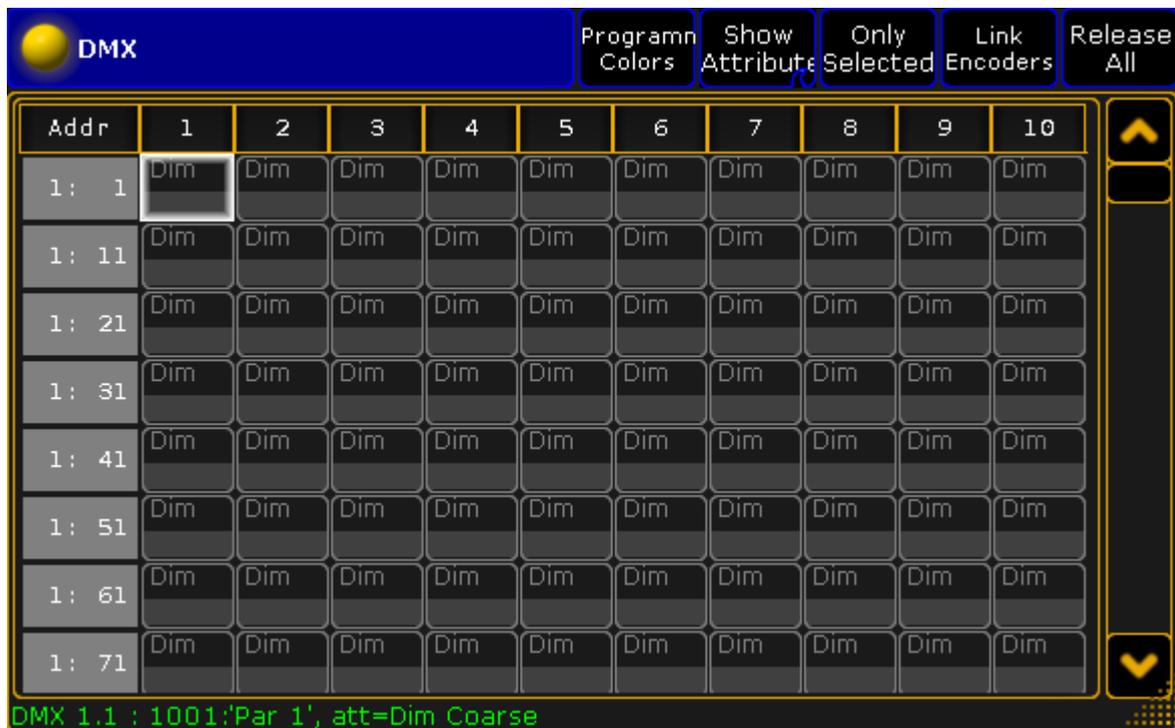
This was some different ways of editing the DMX address of a fixture without creating a show upload.

## 12.8. DMX Sheet

The DMX sheet is used to see the actual DMX output from the system. It shows the result from the executors, programmer, incoming merged DMX and any Masters that might limit the output.

The sheet can be created as a view on any empty space on you screens. Minimum size is 3 squares wide and 2 high.

It could look like this:



*DMX Sheet window*

The main part of this window displays a big grid with every DMX address, represented by its own cell. This makes it a very long list (all 256 universes are there).

The DMX channel value is displayed in this cell.

The gray vertical bar on the left side displays the DMX address of the first column - there are two ways to see the DMX address: Absolute DMX address and the normal Universe divided. This can be changed in the Options (read below). The absolute address mode will display the DMX addresses as a continuous number. This means that the first address in the second universe will not be written as "2:1" but as "513" (512 addresses from the first universe + 1 from the second).

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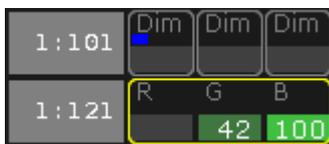


The top black bar displays the column number. The grid is a matrix, so the column number should be added to the address displayed in the gray vertical bar (except the first column).

Fixtures can be selected using a DMX address by pressing the **Select** key twice and then the DMX address in the sheet - Have a look at the [DMX keyword](#).

The **Assign** key can be used in combination with the sheet to patch fixtures - please have a look at the [Live patching](#) topic.

Each fixture have a frame around the DMX channels it uses. If the fixture is selected, then the frame is yellow. Non selected fixtures will have a gray frame.



*DMX Sheet detail*

If a DMX channel is parked then there is a blue square in the cell.

If there is a white or yellow square then the DMX address is under influence of the [DMX Tester](#).

If the cursor is moved to a cell then the information about the cell is displayed in a green line text at the bottom of the window.

The look of the sheet can be modified including what information it displays. This is controlled by the Sheet Options.

Some options can be in the Title Bar as title buttons. This gives fast access to these options.

## DMX Sheet Options

The options can be opened by tapping the yellow ball in the upper left corner.

The options are all described in the [Sheet Options topics](#).

## 12.9. DMX testing in the DMX Sheet

You can send DMX values to any DMX address. This can be a great tool for you to locate the address of a fixture or even to just turn on a DMX address for work light.

The DMX tester have a higher priority than your programmer, executors, and parked values. A DMX address under the influence of the DMX tester has a white background color behind the value and a white marker. The currently selected DMX address also has a yellow marker. It could look like this:



*DMX addresses turned on by the DMX tester*

As usual there are several ways to use the DMX tester.

## Using the DMX tester with the GUI

You can use the encoders and the encoder toolbar to test DMX channels.

You'll need to open a [DMX sheet](#) and make sure the "Link Encoders" option is activated.

Now touch anywhere inside the sheet.

This gives you a new encoder toolbar. It could look like this:



*Encoder Toolbar - DMX tester*

The left encoder is used to select the Universe. There is a small button next to the encoder readout where you can change between **Universe** or **Absolute**. If you choose Absolute then you do not need to use this encoder. You can just use the center left encoder.

The center left encoder is used to select the DMX address. The button next to the encoder readout has two options **Release** or **Retain**. Release means that when you scroll through the DMX address then it is only the selected channel that is affected by the DMX tester. Retain means that the addresses that you pass will keep the Test Output value when you select the next address.

The center right encoder is used to set the Test Output. This is the value that will be sent to the selected DMX address. The button next to it is used to change between a percent (0 to 100) and decimal (0 to 255) value range. If you have not touched the encoder then it has a special "none" value. This means that you are not affecting the DMX address. You can actually also use the DMX tester to set a value of zero. This can be useful if for instance you want to force a rouge shutter channel to stay open. The easiest way to get to the "none" value is to shortly press or tap the encoder and use the Calculator pop-up.

The right most encoder is used to patch a fixture to the selected DMX address. To learn more about this and live patching please [follow this link](#).

Above the encoder readout there are several buttons. The following is a short description of each button.

### **All / Patched / Unpatched:**

This button toggles between three different options: All, Patched, and Unpatched.

The selects what DMX address you are allowed to select and affect by the DMX tester.

## Select All:

Tapping this button will select all the DMX addresses that you are affecting by the DMX tester.

## Release Current:

This will release the currently selected DMX address from being affected by the DMX tester.

## Release Others:

This will release all other DMX address but the currently selected DMX address from being affected by the DMX tester.

## Release All:

This will release all DMX address from being affected by the DMX tester.

## Park Current:

This can be used to park the currently selected DMX address at the current DMX value. Read more about the park function in the [Park Keyword](#).

## Unpark Current:

This can be used to unpark the currently selected DMX address. Read more about the unpark function in the [Unpark Keyword](#).

## Using the DMX tester with the command line

You can also do some DMX testing from the command line.

To do this you need to use the [DMX keyword](#).

Please follow the link above to read details about the keyword.

The general idea is that you type

### DMX [address (range)] At [Value (range)]

This will set the DMX address at the value.

To release a channel you type:

### Off DMX [address (range)]

to release a single address (range) from the DMX tester.

### Off DMX Thru

Will release all DMX addresses.

## 10.10 DMX and Parameter Lists

## 12.10. DMX and Parameter Lists

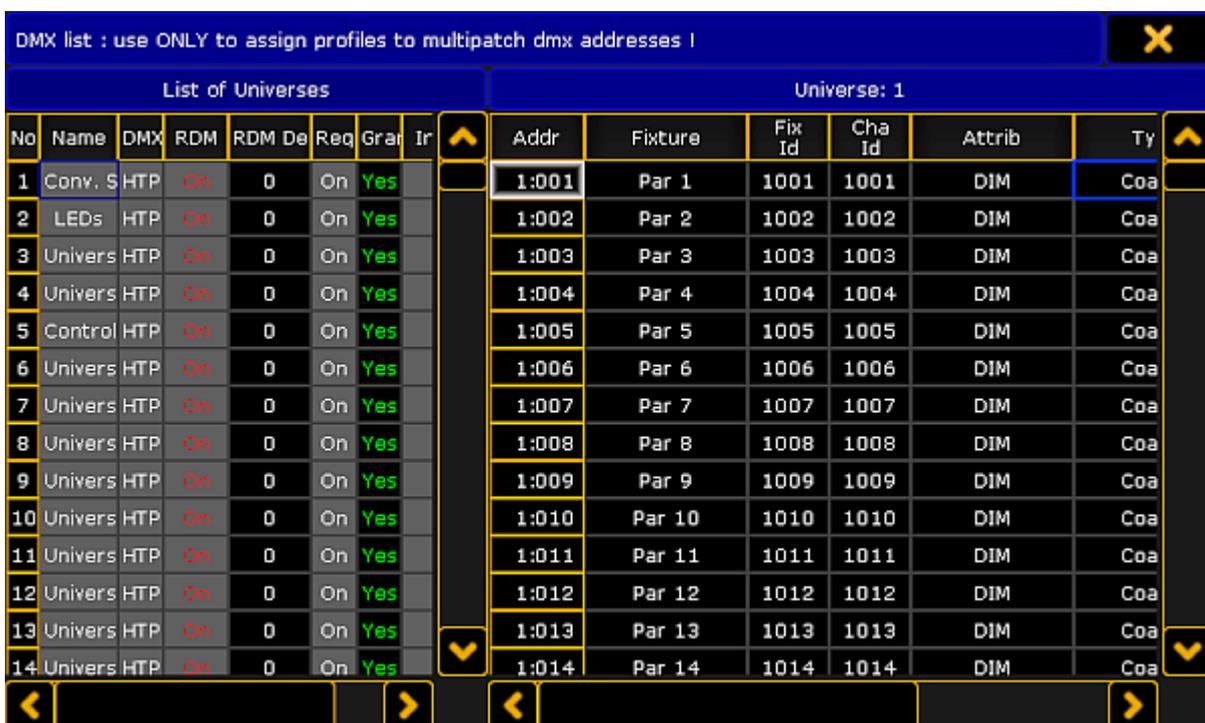
In this topic we are going to have a look at two list that is available from the [Live Setup menu](#).

You can open these list by pressing the **Setup** key and then tap **Patch Only (Live)**.

### DMX List

When you are in the Live Setup, then you can see a button on the right side called DMX List. If your menu is on screen 1 then you can press the **U4** key or you can simply tap the **DMX List** button on the screen - even when the menu is on other screens.

This is what it could look like:



List of Universes								Universe: 1					
No	Name	DMX	RDM	RDM De	Req	Grat	Ir	Addr	Fixture	Fix Id	Cha Id	Attrib	Ty
1	Conv. S	HTP	On	0	On	Yes		1:001	Par 1	1001	1001	DIM	Coa
2	LEDs	HTP	On	0	On	Yes		1:002	Par 2	1002	1002	DIM	Coa
3	Univers	HTP	On	0	On	Yes		1:003	Par 3	1003	1003	DIM	Coa
4	Univers	HTP	On	0	On	Yes		1:004	Par 4	1004	1004	DIM	Coa
5	Control	HTP	On	0	On	Yes		1:005	Par 5	1005	1005	DIM	Coa
6	Univers	HTP	On	0	On	Yes		1:006	Par 6	1006	1006	DIM	Coa
7	Univers	HTP	On	0	On	Yes		1:007	Par 7	1007	1007	DIM	Coa
8	Univers	HTP	On	0	On	Yes		1:008	Par 8	1008	1008	DIM	Coa
9	Univers	HTP	On	0	On	Yes		1:009	Par 9	1009	1009	DIM	Coa
10	Univers	HTP	On	0	On	Yes		1:010	Par 10	1010	1010	DIM	Coa
11	Univers	HTP	On	0	On	Yes		1:011	Par 11	1011	1011	DIM	Coa
12	Univers	HTP	On	0	On	Yes		1:012	Par 12	1012	1012	DIM	Coa
13	Univers	HTP	On	0	On	Yes		1:013	Par 13	1013	1013	DIM	Coa
14	Univers	HTP	On	0	On	Yes		1:014	Par 14	1014	1014	DIM	Coa

### DMX List

The DMX List is separated into two sides.

The left side lists all the universes and the property for each universe.

The right side displays all the DMX addresses in the, on the left side, selected universe. You can see what is patched to each address and you can assign a DMX profile to the DMX address. It only displays information for you. You cannot change anything except the DMX profile. Editing the DMX Profile cells will give you a small select pop-up with all the available DMX Profiles. Read more about DMX profiles following [this link](#).

The left side has a lot of columns and many of them can be edited - everything with a gray background can be changed. The following is a short description of each column on the left side:

#### Number:

This is the universe number. You cannot change this value.

#### Name:

This is the name of the DMX universe. Here you can write a name that makes it easy for you to identify what the universe is used for.

## DMX In Merge:

Editing cells in this column gives you the following small select pop-up:



*Small Select pop-up - Select DMX In Merge*

Here you have three options: **Off**, **HTP**, and **LoTP**.

- **Off** - means that any incoming DMX is not merged into the universe.
- **HTP** - is the default. HTP means that incoming DMX is merged with the DMX from the console and the highest DMX value is sent to the output.
- **LoTP** - means that incoming DMX is merged with the DMX from the console and the lowest DMX value is sent to the output.

## RDM:

Here you can turn RDM functionality On or Off for the DMX universe. Read more about [RDM here](#).

## RDM Devices:

This is the number of RDM devices discovered in the DMX universe.

## Requested:

Here you can see what universes you have requested to control. You can turn On or Off (the cell is empty if it is Off) the output of the universe.

## Granted:

Here you can see if the universe is granted. A universe can end up not being granted if you do not have enough parameters. The console will grant parameters to as many universes as possible starting with number 1. If you do not request a universe then it will not be granted.

## Info:

Here you can write an info about the universe.

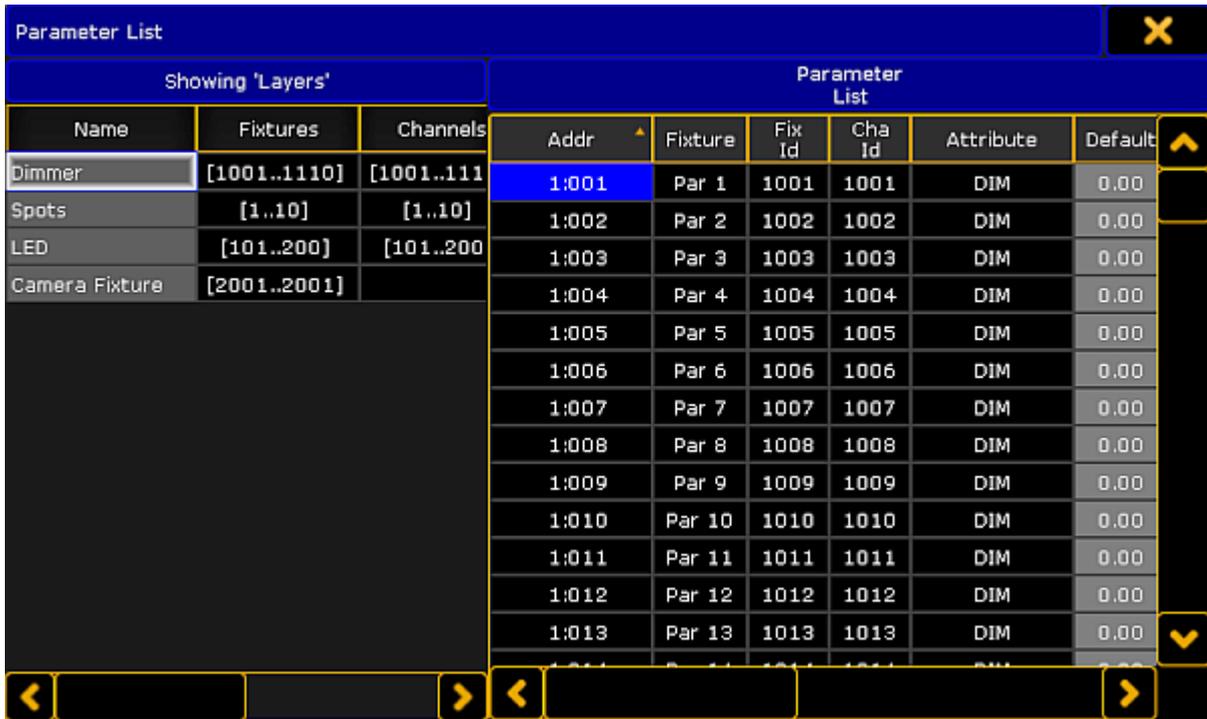
The changes you make here are made immediately.

That was the DMX List.

## Parameter List

When you are in the Live Setup, then you can see a button on the bottom called Parameter List. If your menu is on screen 1 then you might be able to press the **X16** key or you can simply tap the **Parameter List** button on the screen - even when the menu is on other screens.

This is what it could look like:



Showing 'Layers'			Parameter List					
Name	Fixtures	Channels	Addr	Fixture	Fix Id	Cha Id	Attribute	Default
Dimmer	[1001..1110]	[1001..1110]	1:001	Par 1	1001	1001	DIM	0.00
Spots	[1..10]	[1..10]	1:002	Par 2	1002	1002	DIM	0.00
LED	[101..200]	[101..200]	1:003	Par 3	1003	1003	DIM	0.00
Camera Fixture	[2001..2001]		1:004	Par 4	1004	1004	DIM	0.00
			1:005	Par 5	1005	1005	DIM	0.00
			1:006	Par 6	1006	1006	DIM	0.00
			1:007	Par 7	1007	1007	DIM	0.00
			1:008	Par 8	1008	1008	DIM	0.00
			1:009	Par 9	1009	1009	DIM	0.00
			1:010	Par 10	1010	1010	DIM	0.00
			1:011	Par 11	1011	1011	DIM	0.00
			1:012	Par 12	1012	1012	DIM	0.00
			1:013	Par 13	1013	1013	DIM	0.00

### Parameter List

Again a list that is divided into two sides. The left side displays the layers in your fixture schedule. The right side displays all the parameters in the (on the left side) selected layer.

On the left side you can only change the name and information text to each layer.

The right side has a lot more columns that you can edit. What you are editing here is connected to the parameter and follows it. So you can re-patch the fixture and the settings will follow. The columns can be sorted. So you can sort the list by ID number, name, address, attribute, and so on. The sorting can be both ascending and descending order.

Next is a short description of each editable column.

- **Default:**

This is the default value for the parameter.

- **Highlight:**

This is the value that the parameter will get when you have activated the Highlight function. Many parameters (other than Dimmer) have a "None" value here. This means that the parameter will not be overwritten by the Highlight function.

- **Stage:**

The Stage value is used when you are in the [Auto-calibration of fixture position mode](#). This is typically not defined (None value).

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- **Snap:**  
Here you can activate the Snap function for the parameter. Snap means that you cannot fade between values. The parameter will change to the new value defined by the "Snap Percent" in each cue.
- **Invert:**  
Here you can invert the DMX output for the parameter.
- **MIB disable:**  
Here you can turn off the MIB (Move In Black) functionality for the parameters. This might be a good idea for some scrollers. You set On, to disable MIB.
- **Profile:**  
Here you can assign a DMX profile for the parameter. Editing the cell will open the Small Select DMX Profile pop-up. It will list all available DMX profiles. Read more about DMX profiles following [this link](#).

The changes you make here are executed immediately.

You can change the same things by editing the fixture (Edit Fixture X).

## 12.11. Universe Pool

The Universe pool displays all the 256 universes that the system can handle.

You can create a Universe pool on your screens using the **Create Basic Window** pop-up. It is described in the [Manages windows topic](#).

It is a pool. To learn general thing about the pools please read the [Pools in General section](#).

Each universe with something patched is displayed as a pool object.

The Universe pool could look like this (Pool Mode):



*Universe pool - pool style*

If you change the pool to be displayed in sheet style (in the pool options) it could look like this:

Universe Pool							Show Empty
No. <sup>▲</sup>	Name	DMX In Merge	DMX PM Defaults	RDM	RDM Devices	Requested	Gr. <sup>▲</sup>
1	Conv. Spots	HTP	Auto	On	0	On	
2	LEDs	HTP	Auto	On	0	On	
5	Control	HTP	Auto	On	0	On	

*Universe pool - sheet style*

Each pool object (universe) has some icons and indicators displaying different properties of the universe. They correlate to the columns displayed in the sheet style.

Many of the options related to the DMX universe is explained in the [DMX List part of the DMX and Parameter lists topic](#).

- **No.:**

This is the universe number.

- **Name:**

This is the universe name.

- **DMX In Merge:**

Here you can select how any incoming DMX is merged into the universe. If incoming DMX is merged as HTP then there is a white "H" in the pool button. If it is LoTP then there is a white "L". If DMX is not merged then there is no white character.

This is explained in more details the [DMX List](#).

- **RDM:**

Here you can turn on or off the RDM functionality in the universe. If RDM is tuned on then there is a "RDM" icon on the pool button. The icon is red if RDM is not on in global settings. It is green if RDM is globally on.

For more details about this please read the [Turn RDM on per universe part of Turn RDM on topic](#).

- **RDM Devices:**

Here you can see the amount of RDM fixtures found in the universe.

For more details about the RDM feature please read the [RDM section](#).

- **Requested:**

Here you can request or un-request the control/calculation of the universe. If the universe is not requested then there is red "R" in the pool button.

This is explained in more details the [DMX List](#).

- **Granted:**

Here you can see if the universe is granted by the system. If the universe is requested but not granted (lack of parameters) then there is red "G" in the pool button.

This is explained in more details the [DMX List](#).

- **Info:**

This is where you can see or edit the information attached to the universe. If there is any information attached to the universe then there is the  icon in the pool button.

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- **Sync:**

The sync is displayed as a green square. this square is flashing bright green when the DMX data is updated. If none of the DMX channels change value then the sync flash approximately once every second. If the data is constantly changing, then it flashes approximately 30 times a second - this looks like it is constantly bright green.

- **Parked:**

If there is something parked in the universe then there is a light blue "P" on the pool button. This is also indicated by the "P" in the column.

Read more about the park function in the [Park Keyword topic](#).

- **DMX Tester:**

When there are DMX channels affected by the DMX tester then there is an  icon in the pool button and a "!" in the column.

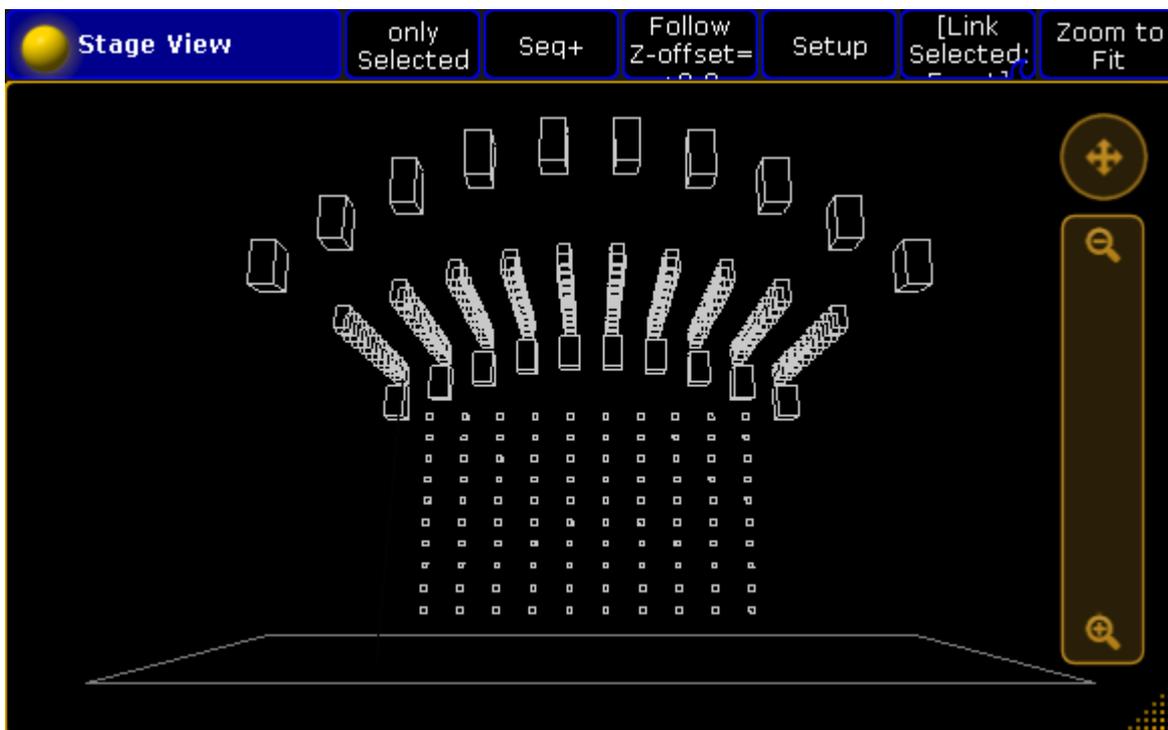
Read more details about the DMX tester function in the [DMX testing topic](#).

## 12.12. Stage View

The Stage View is a virtual 3D space where you can position your fixtures and stage elements.

It is a view you can create using the [Create Basic Window](#) pop-up.

It could look like this:



*Stage View*

The default is that there is a stage floor. Each fixture you add are represented by a wireframe square. The size is taken from the Fixture Type definition.

New fixtures are positioned at the 0,0,0 XYZ location. You can move your fixtures position to match your real world positions. To learn more about positioning the fixtures please read the [Position fixtures in the 3D stage](#) topic.

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## Moving around in the Stage View

You can freely move around in the virtual 3D space. What you are moving is actually a virtual camera. The cameras are described in more details in the [Virtual 3D Cameras topic](#).

On the right side of the view you can see two controls. There is a circle with cross arrows inside. This can be used to move the camera. press or click inside the circle and move your finger or cursor while pressing. Below the move circle is a zoom bar. Pressing here and moving the finger/cursor up or down will zoom the view.

If you have a mouse with a scroll wheel attached and you scroll inside the Stage view then you will rotate left and right around the center point. On a console you can also use a screen encoder to rotate the view. If you press the encoder while you scroll, then you will rotate up and down.

Often you can have a button in the title bar that is called **Mouse Mode**. This can be used to control the camera. In the picture above it is the button called "Select". This button has several modes: **Select, Move, Orbit, Panning, and Zoom**.

**Select** is used to select fixtures in the view.

When **Move** is active, then you move the camera around when you click or press inside the stage view and move your finger or mouse around.

With **Orbit** you can rotate around the point where click or press.

**Panning** allows you to turn the camera without moving it.

**Zoom** will zoom in and out.

Remember that you are moving a camera. There are several default cameras that you select. The stage view can show you the stage from a specific camera or from the camera that you have selected in the [Camera Pool](#).

In the title bar of the stage view, you might see the camera swipe button. In the picture above it is the button called **[Link Selected]**. If you swipe it, then it might give you the following options:

<b>[Link Selected: Front]</b>	Back/Right	Top View (2D)
Front	Right	Control 1
Front/Left	Front/Right	
Left	Top	
Back/Left	Front View (2D)	
Back	Side View (2D)	

*Stage view - Camera selection*

Here you will see a list of all available camera. The one you select here is the one you are moving. There is the special option here called [Link Selected]. This will always use the camera you have selected in the Camera Pool.



**Hint:**

A connected MA 3D logged in as the same user as you, will use the same list of cameras and their location. This means that if you have the same camera selected in both your 3D and the stage view, then you can move the view in MA 3D.

Tapping the **Zoom to Fit** button will reset the camera position.

If you tap the space bar on your keyboard, then you will step through the different cameras.



**Important:**

If your Stage view is completely empty even though you have patched some fixtures. Then you might want to check if you have any cameras. Without cameras, then the stage view cannot show you the stage.

## Stage View Options

You can open the Stage view options by tapping the yellow ball in the upper left corner.

There are four taps in the options.

The first one is called **Calibration**. This has one button. Tapping this will open the auto-calibration of moving light position. This has its own topic - please read about it here [Autocalibrate fixture positions](#).

The next tap is about the **Follow** function. Here you can set the follow height. Please read more about the follow function below.

Next tap is the **Mask** function. Here you can set up a mask for the view. You can create a mask that hides fixtures based on a set of four rules. Read more about masks in the [What are masks topic](#).

The right most tap is **Title Buttons**. There are quite a few buttons that you can have in the title bar. The following is short description of them:

- **Zoom to Fit:**

Pressing this button will reset to position of the selected camera.

- **Camera:**

This is the swipe button that allows you to select a camera.

- **Setup:**

This button is used to enter the Stage Setup mode. Here you can change the arrangement and position of fixtures.

- **Follow:**

This button will activate the Follow function. It also displays the "Z-offset". Read more about the follow function below.

- **Mouse Mode:**

This button is used to control what happens if you click/press inside the stage view and move the cursor. Please read the [Moving around the stage view](#) above.

- **Prog Only, Active Only, Parked, Seq+, Seq-, Only Selected, Mask 7, Mask 8, Mask 9, Mask 10:**

These buttons are actually different mask buttons. The first six are the default mask. The last four are mask buttons that you can define. For more about the masks please read the [What are masks topic](#).

- **Enable Mask:**

This button will enable or disable the mask function in the Stage view. For more about the masks please read the [What are masks topic](#).

- **Follow Mask:**

This button will make the Stage view use the selected mask (In the Mask Pool). For more about the masks please read the [What are masks topic](#).

## Follow function in Stage view

The follow function is a very nice way to point your moving lights at a location in your 3D space and then in your real world.

The idea is that you position your fixtures in the 3D space at the same location as they have in the real world. Then you select the fixtures you want to use, activate the Follow function and tap or click on your 3D stage where you want the fixtures to point. And then the real fixtures will point at that location.

In the options (see above) or by pressing the **Edit** key and then the Follow button in the title bar, you can set a Z-offset. This is the height of the point.

The Follow function overwrite all other Mouse Modes.

## 12.13. Virtual 3D Cameras

In the Stage View topic we looked at the virtual 3D stage. It was mentioned that we are actually looking at the stage through virtual cameras.

If there was no cameras then you cannot see the stage.

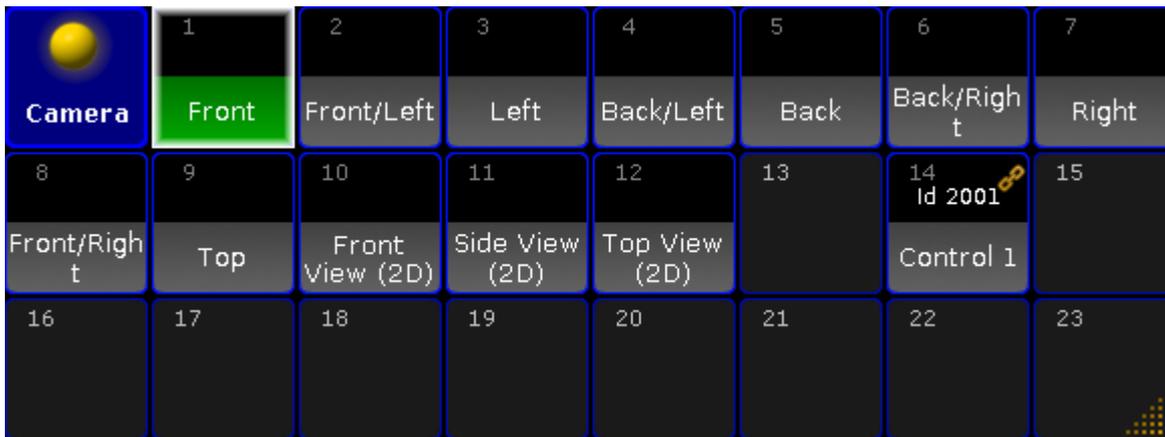
The cameras are located in the Camera Pool. You can create a camera pool on your screens using the **Create Basic Window** pop-up. It is described in the [Manages windows topic](#).

It is a pool. To learn general thing about the pools please read the [Pools in General section](#).

The Camera pool could look like this:

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*Camera Pool - pool style*

If you change the pool to be in sheet style (in the pool options) it could look like this:

Camera Pool										Show Empty
No.	Name	X	Y	Z	Rot. X	Rot. Y	Rot. Z	FOV	Step Through	
1	Front	0.04	-17.09	3.84	10.00	0.00	0.00	0.79	Yes	↑
2	Front/Left	-7.91	-8.69	5.87	-12.04	0.00	-30.37	0.79	Yes	
3	Left	-7.75	-0.76	4.59	-8.96	0.00	-63.90	0.79	Yes	
4	Back/Left	-7.25	4.10	3.84	-5.18	0.00	-143.35	0.79	Yes	
5	Back	0.00	4.38	7.73	-51.15	0.00	-180.00	1.57	Yes	
6	Back/Right	7.11	4.35	6.00	-12.87	-0.00	120.61	0.79	Yes	↓

*Camera Pool - Sheet Style*

Each of the cameras in your show file is represented by a pool object.

There is always a **selected** camera. It is the one that have the green background color behind the name when in pool view and green background on the number when in sheet mode. Stage view and MA 3D can reference the selected camera. This means that you can change what camera you are looking through for many screens simply by tapping or clicking a different camera in this pool.

## Cameras controlled by a fixture

A camera can be linked to a special MA camera controller fixture.

You will need to add this camera controller fixture to your fixture setup - read about it in the [Adding fixtures to your show topic](#). When you have the fixture then you can link the camera with the controller fixture.

When a camera is linked, then you can see the link icon in the upper right corner of the camera pool button and in the top half you will see the Fixture ID of the controller. When a camera is linked, then you cannot control it manually.

You can use the same camera controller to control more than one camera. Then you can use the camera position values (read more below) to create an offset between the different cameras.

Read below to learn how to link the two objects.

## Editing a camera

If you edit (right-click with mouse or press **Edit** followed by the object) a camera pool object, then you get the a window with all the options for a camera. It could look like this:



Edit 14. 'Control 1 14'										
Previous										
Next										
[Camera Icon] [Close X]										
No.	Name	X	Y	Z	Rot. X	Rot. Y	Rot. Z	FOV	Step Thro	Fixture
14	Control 1	0.04	-17.09	3.84	10.00	0.00	0.00	0.79	Yes	Camera Control

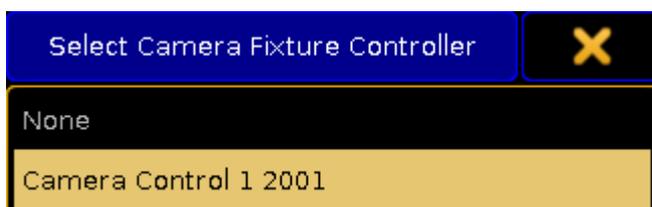
*Camera pool - Edit a camera.*

Here you can see the different settings for the camera.

In the title bar you will find two buttons that allows you fast access to the previous and next camera. There is also the button to move the editor to a different screen and the close editor X.

Each cameras settings are displayed as a sheet with columns. The following is a description of each column:

- **No.:**  
This is the camera number. You cannot edit this value, but you can of course move the camera in the pool.
- **Name:**  
This is the name of the camera.
- **X, Y, Z:**  
These three columns is the position of the camera in the 3D space.
- **Rot. X, Rot. Y, Rot. Z:**  
These three columns are the rotation of the camera.
- **FOV:**  
This is the cameras field of view.
- **Step Through:**  
Turning off Step Through will exclude this camera from the cameras you can step through in the stage view and MA 3D by pressing the space bar.
- **Fixture:**  
This is where you can assign a camera controller fixture to the camera. Editing this cell will open the small Select Camera Fixture Controller pop-up. It lists the available controller fixtures. It could look like this:



*Select Camera Fixture Controller pop-up*

- **Info:**

Here you can write any information you like.

## 12.14. Position fixtures in the virtual 3D stage

To fully enjoy the [Stage view](#) you will need to position your fixtures in the virtual 3D stage.

There are several places where you can change the location of the fixtures in the 3D stage. One option is directly in the Stage view, but there are also several places in the setup where you can do this. It can also be done in a connected MA 3D.

### Stage view

The Stage view can be in a Setup mode. To activate this you will need the "Setup" title button. When you activate the setup mode then you can select one or more fixtures. The encoder toolbar is then changed to look like this:



*Encoder Toolbar - Stage setup - Position*

This toolbar has two lines.

The top line has different buttons that assist your setup. The right most button changes between two sets of encoder modes. Page 1 is "Position". This means that the second line is currently active, allowing you to change where the fixture is in the 3D space. If you tap the right most button then you get to the second page "Rotation". It could look like this:



*Encoder Toolbar - Stage setup - Rotation*

Now the second line shows you that the encoders rotate the fixture.

The left most swipe button selects the move / rotation axis. There are two options.

- **Object Axis:**

Move or rotate along the axis of the object/fixture.

- **Stage Axis:**

Move or rotate along the world/stage axis.

The next swipe button chooses how the fixtures should rotate when you have multiple fixtures selected.

- **Single:**

This will rotate the individual fixture around each fixtures/world axis.

- **Group:**

This will rotate the entire group of fixtures around the combined axis.

The next swipe button allows you to use the **Align** functions in your placement of fixtures.

The next button opens the **Wizard** pop-up. The wizard allows you to arrange multiple fixtures in different formations. Read below for details about the Arrangement Wizard.

The next button is the **Reset Position**. Tapping this will put the fixture at the default zero position.

## Arrangement Wizard

The arrangement wizard is used to easily arrange multiple fixtures.

It has three different tabs: Move, Circle and Matrix.

### Move

This is the move section of the **Arrangement Wizard**:



## Arrangement Wizard - Move

This gives you the possibility to move a selection of fixtures.

There are four settings:

- **Value:**  
This is the value that tells you how far you want to move the fixtures. A positive number usually moves things to the right or up (depending on your view position). A negative number moves the selection in the opposite direction.
- **Align Mode:**  
This is the usual Align options. This allows you to combine the move function with Align.
- **Axis:**  
This is the axis plane in which the fixtures will move.
- **Relative:**  
With this you can move the fixture to its relative position.

When you are happy with your settings you can tap the **Apply** button once or several times to keep moving the fixtures (relative). If you only want to move it once more and then close the pop-up you can use the **Apply & Close** button. If you are done moving or just want to close the pop-up without applying any new values you can use the big **X** in the upper right corner.

## Circle

This is the circle view of the Arrangement Wizard:



### Arrangement Wizard - Circle

It can be used to arrange in circles or spirals.

There are six settings here.

- **Radius Start:**  
This specifies the radius at the beginning of the circle. If this is different than the **End** radius the result will be a spiral.
- **Radius End:**  
This specifies the radius at the end of the circle. If this is different than the **Start** radius the result will be a spiral.
- **Angle Start:**  
Used to specify the beginning angle of the circle.
- **Angle End:**  
Used to specify the end angle of the circle. If the Start and End angle is not the same "degree" number then you will create arcs.
- **Plane:**  
With this you can choose in what (stage) plane your circle will be made.
- **Relative:**  
With this you expand your circle every time you tap the **Apply** button.

When you are happy with your settings you can tap the **Apply** button once or several times (and make the circle bigger with Relative on). If you only want to make one circle and then close the pop-up you can use the **Apply & Close** button. If you are done making circles or just want to close the pop-up without applying any new values you can use the big **X** in the upper right corner.

## Matrix

This is the Matrix view of the Arrangement Wizard:



Arrangement Wizard - Matrix2D

With this you can arrange your selected fixtures in columns and rows. There are nine settings here.

- **Horizontal Interval:**  
This specifies the horizontal width between the fixtures (depending on your point of view).
- **Vertical Interval:**  
This specifies the vertical width between the fixtures (depending on your view).
- **Columns:**  
Here you set the number of columns you want.
- **Rows:**  
Here you set the number of rows you want.
- **Plane:**  
With this you can choose the plane in which your matrix will be created.
- **Horizontal Direction:**  
With this you can change the horizontal direction your fixtures should be placed in.

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- **Vertical Direction:**

With this you can change the vertical direction your fixtures should be placed in.

- **Matrix Direction:**

Here you can chose if it should place fixture horizontal or vertical first.

- **Relative:**

With this you can expand your matrix every time you tap the **Apply** button.

When you are happy with your settings you can tap the **Apply** button once or several times (and make the matrix bigger with Relative on). If you only want to make one matrix and then close the pop-up you can use the **Apply & Close** button. If you are done making matrixes or just want to close the pop-up without applying any new values you can use the big **X** in the upper right corner.

## Layers in setup

You can also position and rotate the fixtures in the [EditSetup](#) or [LiveSetup](#).

In the menu you need to select the layer containing the fixtures you want to position. Then scroll the right side almost all the way to the right. Here you'll find position and rotation XYZ values for each fixture.

## Fixture positions window

In both EditSetup and LiveSetup you'll find a button on the right side called **Fixture Positions**. Tapping this (or the **U2** key if the view is on screen 1) will open the **Fixture Positions** pop-up.

It could look like this:



### Fixture Positions pop-up

The top half works a lot like the [Stage View](#). Although there is an extra swipe button in the title bar.

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This is a layer selection. Swiping this will show you all the layers in your setup, but it will also include a layer with all the "3D objects".

The default is that there is always a "Stage plane" and a non-editable "Stage Markers". If you have added 3D elements in your show file then they will also be listed here.

The "all layers" does not include the 3D objects only the fixtures in your Patch & Fixture schedule.

Below the stage area is a list of all the fixtures/objects in the selected layer. This is used to arrange the fixtures/objects in a 3D environment.

Each line is a fixture/object.

There are several columns:

## **ID:**

This is the ID of the fixtures. If the Channel ID and Fixture ID is not identical, then it displays the Fixture ID and then the Channel ID.

## **Name:**

This is the name of the fixture.

## **Pos. X, Pos. Y, Pos. Z:**

These cells are used to move the fixture in the 3D environment.

## **Size X, Size Y, Size Z:**

These cells are used to change the physical size of the fixture.

## **Rot. X, Rot. Y, Rot. Z:**

These cells are used to rotate the fixtures in the 3D environment.

## **Visible in 3D:**

If this is "Yes" then you can see the fixture in MA 3D. Empty cell is the same as "No" and then the fixture/object will be hidden in MA 3D.

## **Sunshade:**

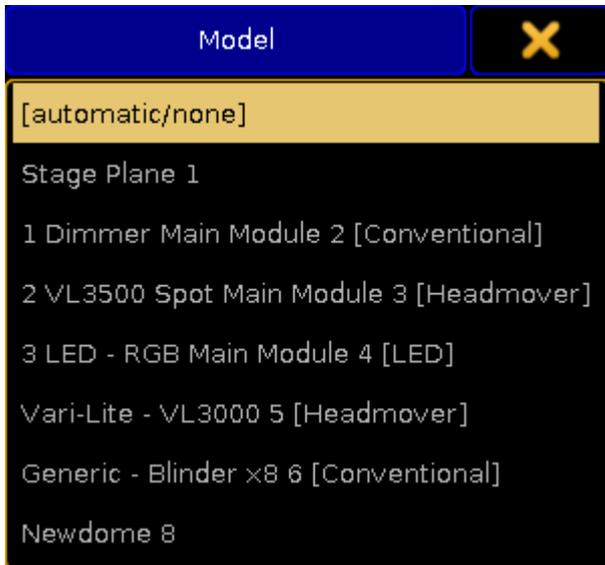
If this is "On" then the Sunshade function in the MA 3D visualizer is active. This has to do with the object casting shadows.

## **Follow Target:**

If this is "On" then the Follow Target function in the MA 3D visualizer is active. This has to do with the Follow function in the Stage view. It is relevant for 3D stage elements.

## **Model:**

Here you can see and change the model used for the fixture/object. Editing this cell will open the small select Model pop-up. It could look like this:



*Small Select Model pop-up*

If you have custom models for your fixtures then you need to import them into your show (in MA 3D) and then select the imported model here for the relevant fixtures.

At the bottom part of the Fixture Positions pop-up there are three buttons:

### **Stage Smaller, Stage Bigger:**

These two buttons are used to change the relationship between the stage area and the fixture/object list.

### **Unit:**

This toggles between **Size** and **Scale**. The size is in meters. Scale is based on the model information.

This is a User setting and can also be changed in **Setup** -> **User** -> **Settings**. Here it is called "3D Item Units".

When the Fixture Positions pop-up is visible then you also have the same Encoder Toolbar as when you are using the Stage view to edit the position (read above).

## Edit Fixture

Editing a fixture gives you the same position and rotation XYZ options as the using the EditSetup and LiveSetup layer view (read above).

## 12.15 Auto calibrate fixture positions

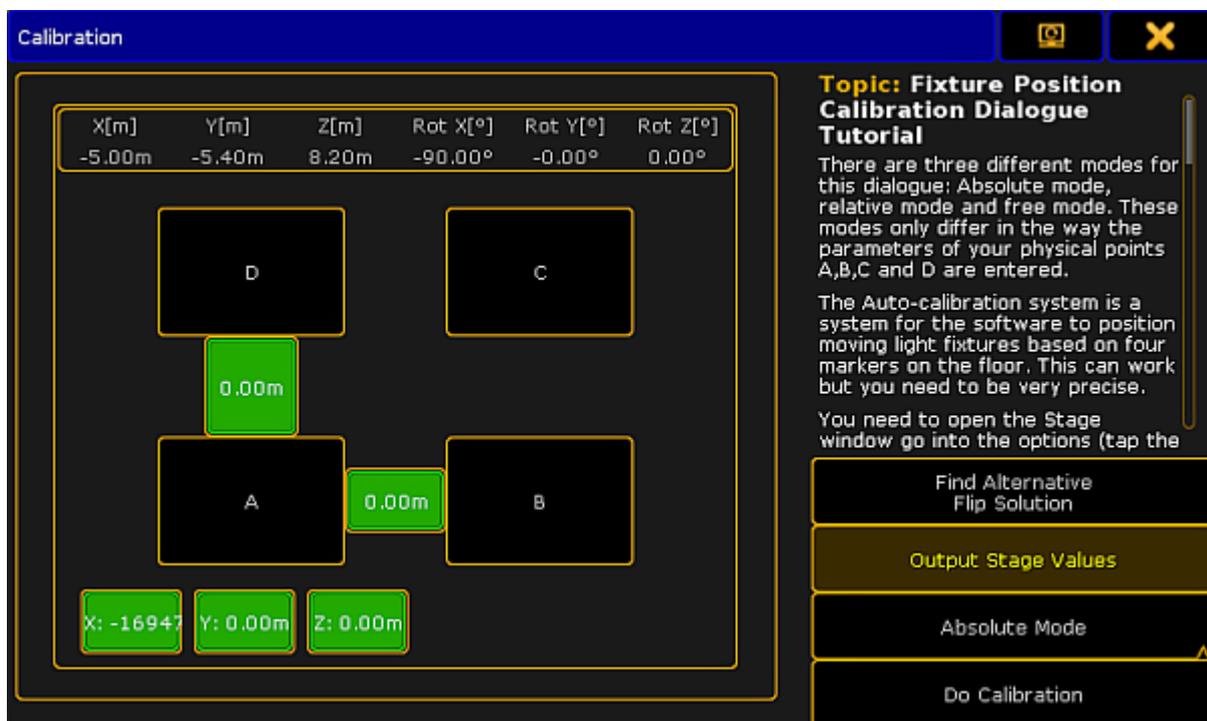
## 12.13. Auto-calibrate fixture positions

The Auto-calibration is a system where the software positions moving light fixtures based on four markers on the real floor. This can work, but you and the fixtures need to be precise.

One of the big advantages with having a precise position and rotation of your moving lights is the option to use XYZ position programming.

You can access this system using a [Stage View](#) and opening the **Stage View Options**. Here is a tab called "Calibration". In this tab you will find a single button called **Calibrate Fixture Pos**. Tapping this will open the Calibration pop-up.

It could look like this:



Calibration pop-up - Absolute Mode

This is separated into a left and a right side.

The left side is used to define the markers on the floor.

The right side has short description of the workflow in this view. There are also four buttons used to control the calibration function.

The first button is called **Find Alternative Flip Solution**. This can be used to use a different set of Pan/Tilt values to reach the same point. Moving head fixtures can often hit the same point with up to three different set of values.

When the **Output Stage Values** button is active, then the currently selected fixtures will output the Stage values. Stage values can be edited in the [Parameter List](#), Fixture Types editor and in the Fixture editor.

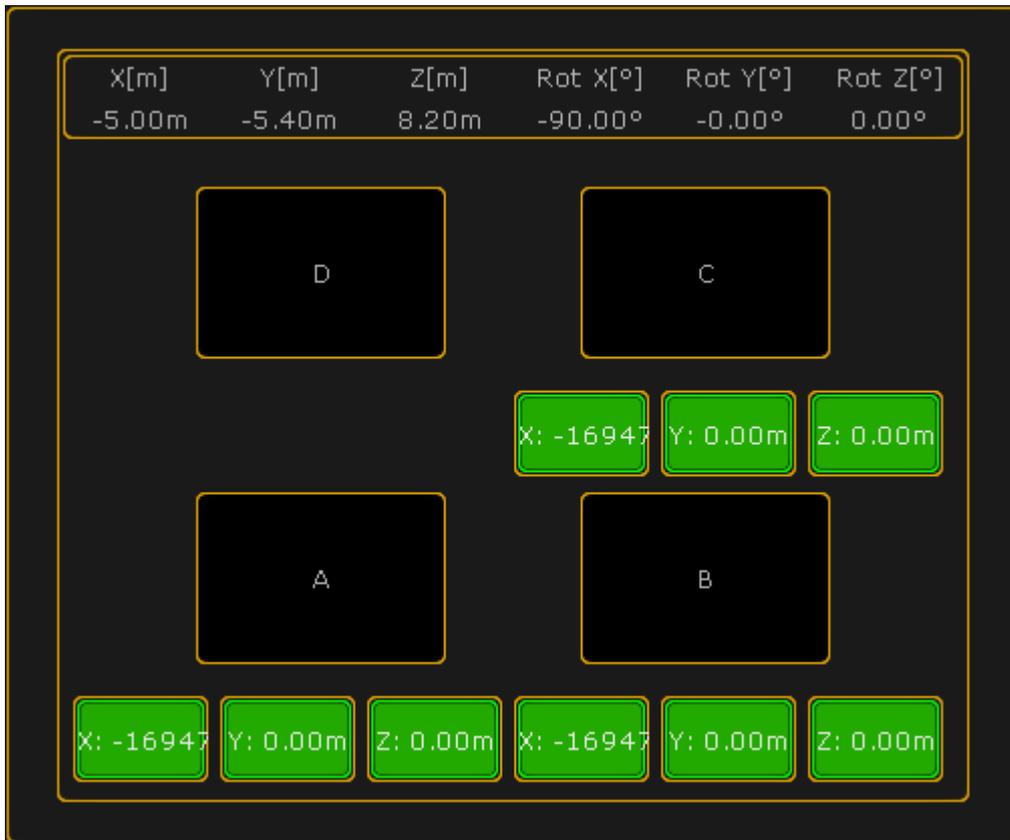
You can use two different modes for the calibration process. One is called **Absolute Mode** and the other is **Free Mode**. You can change between the two modes by tapping the Mode button on the right side of the pop-up.

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The difference is in the left side of the pop-up. The Free Mode could look like this:



*Calibration pop-up - Free Mode*

The last button on the right side is the "Do calibrate" button. This is the one you press when you are ready for the automatic calibration.

The left side is used to define the positions of the markers on your floor.

At the top you will see the current position and rotation of the last fixture you selected.

For the calibration you will need to mark the corners of a rectangle on your real stage - point A, B, C and D. And you need to tell the software where your rectangle is.

If your rectangle is at a level plane of your stage, you can use the Absolute mode. If the rectangle needs to be on a sloping part of your stage then you need to use the Free mode. Each fixture can have its own rectangle but they can also share the same rectangle. If there is an \* symbol next to the A, B, C, or D then your selected fixtures do not share the same rectangle.

In **Absolute mode** you define the X, Y and Z position of corner A and then you specify the distance from corner A to corner B and corner D. This will give you a rectangle.

In **Free mode** you define the X, Y and Z position of three corners (A, B and C). This allows you to create a rectangle on a sloped plane.

When you have selected one or more fixtures and created a rectangle in this pop-up you will see the markers in the Stage view.

## Calibrating fixtures for the first time

These are the steps needed to calibrate fixtures for the first time (sharing the same rectangle):

1. Create the markers/rectangle on the floor.
2. Patch the fixture(s) and **do not** switch on the XYZ support.
3. Setup the approximate XYZ positions for your fixtures. If you do not know how then you can read about it in the [Position fixtures in the 3D stage topic](#).
4. Invert the Pan/Tilt channels to have the right movement in your Stage view and the real world.
5. Store 4 Pan/Tilt position presets for the 4 corners A, B, C and D for your real rectangle. (Here you can use the Stage View with Follow to get the positions a bit quicker than only with the Pan/Tilt encoders).
6. Open this calibration pop-up in the Stage View Options.
7. Put in the dimensions for the rectangle.
8. Call the Pan/Tilt preset A in your programmer, with all fixtures selected, and now press **Store** key and the **A** button on the calibration pop-up.
9. Repeat the procedure for corner B, C and D - pressing the respective buttons in the view.
10. Now select all fixtures and tap the **Do Calibration** button in the pop-up.
11. If you want to use XYZ positions programming, you can now go to the Fixture Type in the Setup and switch on the XYZ support.

Now the fixtures are moved and rotated in the Stage View. If it look really weird, please try the calibration process again - maybe with a flipped set of values.

Now you can use the XYZ encoders to store positions in your cues.

## Re-calibrating fixtures after the initial setup

These are the steps needed to re-calibrate fixtures if they have moved position:

1. Open the Calibration pop-up from the Stage View Options.
2. Select the fixtures and bring up the dimmer channels or use Highlight.
3. Push the **A** button in the Calibration pop-up.
4. The position mode of the fixture will switch to Pan/Tilt and you can correct the positions for the fixtures. In this case do not use the "Follow" in the stage view because it automatically switch the position mode to XYZ.



### Restriction:

You cannot store XYZ values on the A, B, C and D corners!

5. With the new Pan/Tilt values, press the **Store** key and overwrite the corner A.
6. Repeat the procedure for corner B, C and D.
7. Now select all (relevant) fixtures and push the **Do Calibration** button in the pop-up.

All XYZ values in your show are now updated!

## Some rules and limitations

There are some rules and limitations using XYZ position programming:

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- XYZ, Flip, Mark, and Dist. (Distance) are 6 parameters more you need per fixture.
- Distance is used for conversion between XYZ and Pan/Tilt values. Do not delete it!
- You cannot Park the new virtual XYZ, Flip, Mark, and Distance parameters.
- After the calibration and programming do not invert the DMX Pan or Tilt attributes.
- After the calibration and programming do not move the fixture position and rotation in the Stage View.
- If your fixture positions are accurate made in the Stage View and you do not want to lose them, then you can use the Follow to use the XYZ parameters.
- To fade fixture positions on the stage in a straight line between point A and B you need the XYZ parameters.
- Do not unblock sequences containing a mixture of XYZ and Pan/Tilt position data and do not "store /remove" or remove values to remove single attributes of the position preset type of cues when using XYZ. This could result in unexpected loss of position data inside your sequence.

## 13. Basic Fixture Types

This section describes the basic concept behind the Fixture Types.

There is a small description about the different primary types of fixtures.

And an explanation about the the structural elements in the fixtures.

Finally a topic about the difference between ColorMix and MixColor.

In the future there will exist a section with advanced and in depth information about the fixture types.

In the future it will also have a small tutorial about building a new simple fixture in the grandMA2 software.

Until then, please have a look at the external MA Fixture Builder software - find the manual at [MA Fixture Builder manual](#) (external link).

The MA Fixture Builder software can be downloaded from the MA dot2 site - [MA dot2 download page](#) (external link).

### 13.1. What are Attributes, Features & Preset Types

These are the building blocks and structure behind the fixtures.

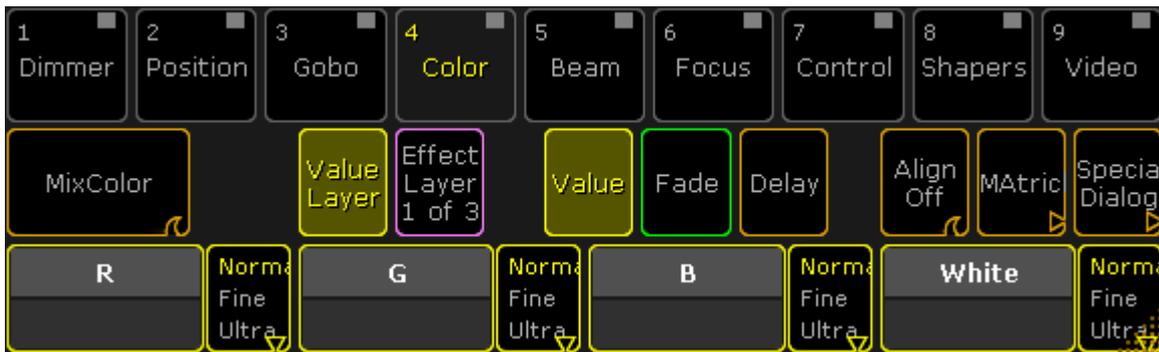
**Attributes** are what is actually controlled. Attributes are organized into features. For instance both the Attribute for selecting a Gobo on GoboWheel 1 and the Attribute that rotates the selected Gobo are in the same Gobo1 **Feature**. Features are organized in **Preset Types**.

#### Example

The best way to understand the structure is to look at the Encoder Bar - This is explained in details in the [Encoder Bar topic](#).

In short: The top row here is the **Preset Types**. The button on the left side in the middle row is the **Feature** swipe button. This can be used to toggle through the Features of the selected Preset Type.

The bottom row is the **Attributes** in the selected Feature. Sometimes there are more than four Attributes in a Feature. Then the Feature will have pages named alphabetically on the Feature button.



Encoder Bar

If we look at the Preset Type Color, then it can have several Features, including color wheels and a MixColor system. The MixColor Feature can have several Attributes, including Red, Green, Blue, and White.

Every fixture has a minimum of one attribute, but possibly multiple attributes to be controlled.

A generic dimmer typically has only one attribute - **Dimmer**, while an advanced moving light may have 30+ different attributes.

Read more about controlling fixture and changing Attribute values in the [Operate Fixtures section](#).

grandMA2 counts in Attributes and not in DMX channel - read more about that in the [Parameters vs. DMX channels topic](#).

## 13.2. ColorMix vs. MixColor

There are two words used when talking about color systems in the fixtures. They are very similar and can be confused - especially because what is now called MixColor has been called ColorMix in the past!

This topic explains the difference between the two.

Please read the [What are Attributes, Features and Preset Types topic](#) before reading this if you have any doubts what it is.

## ColorMix

ColorMix is currently used as an attribute for build in color functions in fixtures. Some fixtures have an attribute that allows for the operator to select a factory defined color in the fixtures. These are often tried to match defined colors from the gel manufacturers. These can use a variety of colors systems (color wheels, LED, and variable color wheels or flags) to produce the selected color.

Another use for the ColorMix word is as a speed attribute in the **Control** preset type. This often refers to a build in function in the fixture that allows the use of a DMX channel to change the fade time for all color systems in the fixture.



### **Important:**

ColorMix (CM) was used in previous software versions as a name for what is now called MixColor

## MixColor

MixColor is word used by MA for color systems that mixes the desired color using additive (colored LEDs) or subtractive (CMY systems) color systems in the fixtures.

The common element is that the color system uses three or more variable colors. LED systems can have more than three colors. The Attribute is called COLORRGB in the library.

There is currently 22 defined ColorRGBs. They are:

1. Red
2. Green
3. Blue
4. Amber
5. White
6. Warm White
7. Cool White
8. Orange
9. Red Orange
10. Purple
11. Indigo
12. Cyan
13. Magenta
14. Yellow
15. UV
16. Green Cyan
17. Medium White
18. Mint Green
19. Lime
20. Congo Blue
21. Royal Blue
22. Light Green



**Important:**

MixColor has been called ColorDim and ColorMix (CM) in the past. These names are now obsolete and depreciated

## 13.3. Different Fixture Types

The name Fixture Type covers a wide range of different actual fixtures but also elements like Media Servers and virtual elements like Cameras for MA 3D.

It is important that a Fixture Type definition includes information about the correct type. It has influence on how the fixture is handled by the grandMA2 software - especially MA 3D.

It is called **Class** in the Fixture Types Module Manager.

When grandMA2 handles variable color systems it is called MixColor (see [ColorMix vs. MixColor topic](#) for details). Independent on it being a CMY or LED color system in the fixtures, it is still the same attribute defined in the fixture profile. It is the ColorRGB1 to ColorRGB22 - see the [ColorMix vs. MixColor topic](#) for a list of the ColorRGBs.

The difference in how the grandMA2 interprets the ColorRGBs are in physical range the attributes are given. If the light is added then the physical range is set from 0 to 1. If the attribute subtracts color then the physical range is set from 1 to 0.

The following subtopics explains some of the difference between the types.

### 13.3.1. Conventional

The **Conventional** fixture type is used for fixtures that primarily only contains a dimmer attribute. It is the most simple fixture type there is.

Selecting this type will give a 3D model that looks like a traditional parcan.

## 13.3.2. LED

The LED fixture type is for static (non moving) fixture with LED light sources.

The fixture type is a fixture that has a surface that emits light in MA 3D. There is no beam of light coming out of the fixture.

The LED fixture is usually set up with different colored LEDs.

The grandMA2 will expect it to be colored LEDs and have their default value at 100%. If the fixture do not have an intensity attribute, then it is customary to add a virtual dimmer to the fixture. The Virtual dimmer will make the color attribute fade up and down when the dimmer attribute is changed.

## 13.3.3. Mirror

The Mirror fixture type defines a type of fixtures with typically a discharge light source like the HDI types. Typically it is a single body fixture with a white light source that is shaped, colored, filtered and the resulting beam shines into a motorized mirror that will move the light beam. Compared to modern moving head fixture, mirrors often have a limited pan and tilt range. It could be a pan range of 180° and a tilt range of 90°.

The default model used in MA 3D is a classic Scanner type.

## 13.3.4. Moving Lights

The Moving Light fixture type is the moving head or moving body fixtures.

They are historically fitted with a discharge light source. Especially in the later years then is no longer necessarily the truth. LED light sources are currently a big factor in modern small to medium size moving lights. For Profile type fixtures it is still the primary idea that it is a white light source that we filter wavelengths from to create different colors. For the Wash light fixtures it is now mostly LED light sources with multiple colors that changes the colors based on additive color mixing.

The default 3D model is a moving head fixture.

## 13.3.5. Media Server

Media Servers are a fixture type that could be characterized as Virtual Fixtures, but it is software being controlled often on dedicated hardware.

Media Servers can take up an massive amount of Attributes. Some media Servers use several DMX universes. It is also in Media Servers that Attributes using 3 DMX channel appear (24-bit control).

Every Media Server is different. Some are flexible with their configuration, others have a fixed set of attributes.

Most are configured around a set of (video) layers, that needs to be patched. Some have Master layers and even Camera layers.

Other elements in Media servers could be Pixel mappers, 3D mapping/Warping, Sound, Effects, Particle systems, and so on.

It can be very complex to crate good fixture profiles for Media Servers.

Selecting the Media Server fixture type does not necessary assign a Class to the fixture profile. Since the server is not visualized as a fixture in MA 3D, then this OK. The video output from the server might be used as a CITP stream into the MA 3D (read more about CITP in the [Using CITP topics](#)).

## 13.3.6. Virtual Fixtures

The Virtual Fixture Types are elements that might be patched into the show, but it is not actually a lighting fixture.

It can include:

- MA Bitmap Fixture
- Stage Marker for MA 3D
- Virtual Cameras for MA 3D
- Moving Paths for moving elements in MA 3D
- Figure in MA 3D

## 14. Operate Fixtures

This chapter deals with the various ways of controlling fixtures.

It also comprises different sorts of sheets and their usage.

### Requirement

Before being able to control fixtures, the following requirement has to be fulfilled:

- Fixtures have to be patched first

For more information on how to patch fixtures see [Adding fixtures to your show](#).

### 14.1. Channel Sheet

The channel sheet is where your fixtures with channel IDs and their corresponding values or presets are located. Moreover, you can select channels here.

#### Requirement:

- Channels are patched.

Patch channels in **Setup – Patch & Fixture Schedule**.

For more information on how to patch channels see [Adding fixtures to your show](#).

Layer: 'Patch channels'							
FixId	ChaId	Name	Fixture Type	Patch	React to Master	Pan DMX Invert	Tilt DMX Invert
-	1	Dim 1	3 Dimmer 00	5.019	On		
-	2	Dim 2	3 Dimmer 00	5.020	On		
-	3	Dim 3	3 Dimmer 00	5.021	On		
-	4	Dim 4	3 Dimmer 00	5.022	On		
-	5	Dim 5	3 Dimmer 00	5.023	On		
-	6	Dim 6	3 Dimmer 00	5.024	On		
-	7	Dim 7	3 Dimmer 00	5.025	On		
-	8	Dim 8	3 Dimmer 00	5.026	On		
-	9	Dim 9	3 Dimmer 00	5.027	On		
-	10	Dim 10	3 Dimmer 00	5.028	On		
New							

*Edit Setup – Patch Channels*

To open the channel sheet:

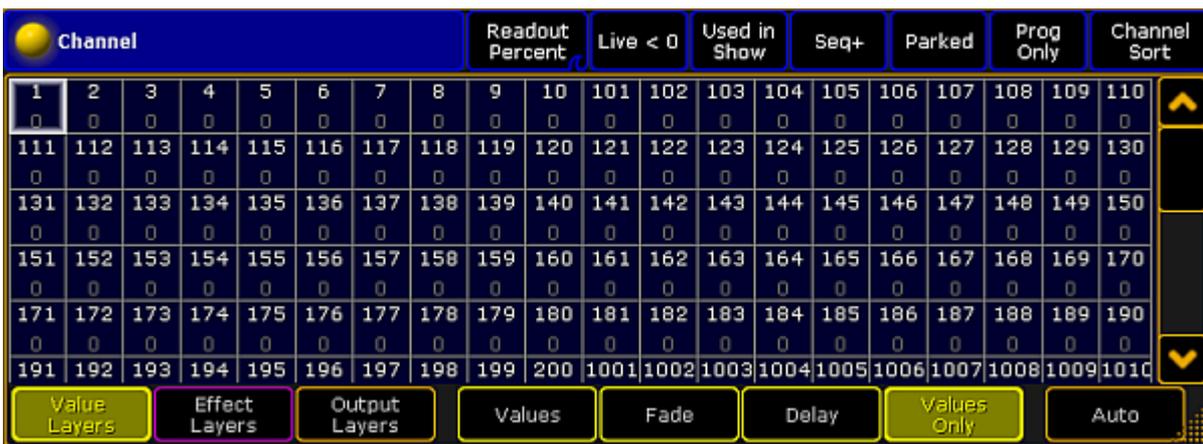
1. Tap anywhere in an empty screen.
2. The pop-up **Create Basic Window** opens.



Pop-up Create Basic Window

3. Select the category **Sheets** in the tabs.
4. Tap **Channel**.
5. The channel sheet opens.

This sheet contains all channels, fixtures and fixture types with a channel ID.



Channel Sheet



**Important:**

The title bar displays the world name and if you are in a world. Furthermore, it displays the word "Mask" and if a mask was applied.

For general information on worlds see [What are worlds.](#)

For general information on masks see [What are masks.](#)

The channel sheet also consists of different colors, markers and background colors. For more information see [Marker](#) and [System.](#)

---

## Layers

The channel sheet also comprises a bar of layers, which are located at the bottom of the sheet.

For more information on each layer see [Layers in sheets – Channel sheet and fixture sheet.](#)

---

## Options

To open the options in the channel sheet, tap  in the upper left corner of the sheet.

The dialog **Channel Sheet Options** opens.



*Channel Sheet Options*

To learn about the single options of the channel sheet see:

- [Tools](#)
- [Layer mask](#)
- [Display](#)
- [Title buttons](#)
- [Assign executor](#)

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- [Mask \(local\)](#)

To close the options, tap  in the upper right corner of the dialog.

Close the Channel Sheet

To close the channel sheet altogether, tap  in the upper left corner of the window and tap **Delete Window**.

## 14.2. Fixture Sheet

The fixture sheet is where your attributes with their corresponding values are located. Moreover, you can select fixtures here.

### Requirement:

- Fixtures are patched.

Patch fixtures in **Setup – Patch & Fixture Schedule**.

For more information on how to patch fixtures see [Adding fixtures to your show](#).

Layer: 'Patch fixtures'							
FixId	ChaId	Name	Fixture Type	Patch	React to Master	Pan DMX Invert	Tilt DMX Invert
1	-	Dim 1	3 Dimmer 00	5.019	On		
2	-	Dim 2	3 Dimmer 00	5.020	On		
3	-	Dim 3	3 Dimmer 00	5.021	On		
4	-	Dim 4	3 Dimmer 00	5.022	On		
5	-	Dim 5	3 Dimmer 00	5.023	On		
6	-	Dim 6	3 Dimmer 00	5.024	On		
7	-	Dim 7	3 Dimmer 00	5.025	On		
8	-	Dim 8	3 Dimmer 00	5.026	On		
9	-	Dim 9	3 Dimmer 00	5.027	On		
10	-	Dim 10	3 Dimmer 00	5.028	On		
New							

*Edit Setup – Patch Fixtures*

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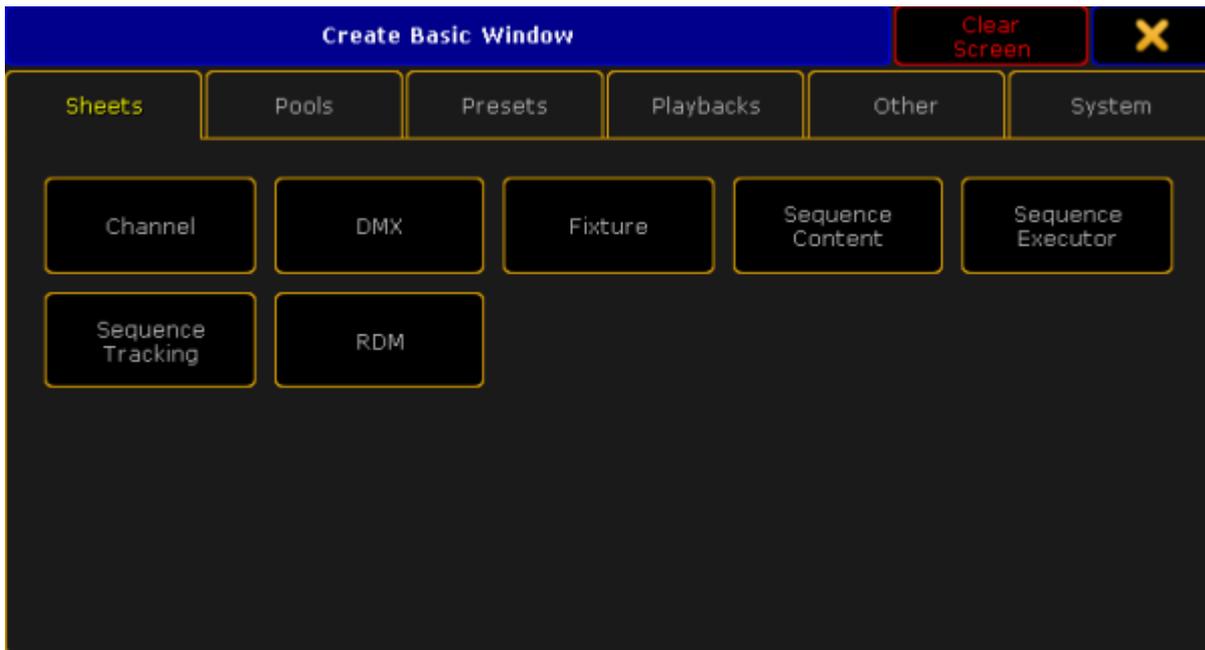


## Important:

It is possible to assign both – fixtures and channels. Hence, fixtures are displayed in their corresponding sheets depending on what ID you have assigned – **fixture ID** or **channel ID**.

To open the fixture sheet:

1. Tap anywhere in an empty screen.
2. The pop-up **Create Basic Window** opens.



Pop-up Create Basic Window

3. Select the category **Sheets** in the tabs.
4. Tap **Fixture**.
5. The fixture sheet opens.

This sheet contains all fixtures and fixture types with a fixture ID.

Fixture		Readout Natural	Used in Show	current PresetType	Seq+	Active Only	Prog Only	Feature Sort	Fixture Sort	
ID F/C	Name	Dimmer Dim	Position Pan Tilt	MP Trans X Y Z	Gobo1 G1 G1<>	Gobo2 G2	Color1 C1	MixColor R G B	CTC CTO	Shu Shu
1	Spot 1	open	-0.1 36.0		0.1 Look	0.1	0.1	max min	0.1 Lor	0.1
2	Spot 2	open	-34 32.0		0.1 Look	0.1	0.1	max min	0.1 Lor	0.1
3	Spot 3	open	-21 21.0		0.1 Look	0.1	0.1	min max	0.1 Lor	0.1
4	Spot 4	open	-14 5.4		0.1 Look	0.1	0.1	min max	0.1 Lor	0.1
5	Spot 5	open	2.8 -7.8		0.1 Look	0.1	0.1	max min	0.1 Lor	0.1
6	Spot 6	open	-15 -13		0.1 Look	0.1	0.1	max min	0.1 Lor	0.1

Value Layers | Effect Layers | Output Layers | Values | Fade | Delay | Values Only | Auto

Fixture Sheet



## Important:

The title bar displays the world name and  if you are in a world. Furthermore, it displays the word "Mask" and  if a mask was applied.

For general information on worlds see [What are worlds](#).

For general information on masks see [What are masks](#).

The fixture sheet also consists of different colors, markers and background colors. For more information see [Marker](#) and [System](#).

---

## Layers

The fixture sheet also comprises a bar of layers, which is located at the bottom of the fixture sheet.

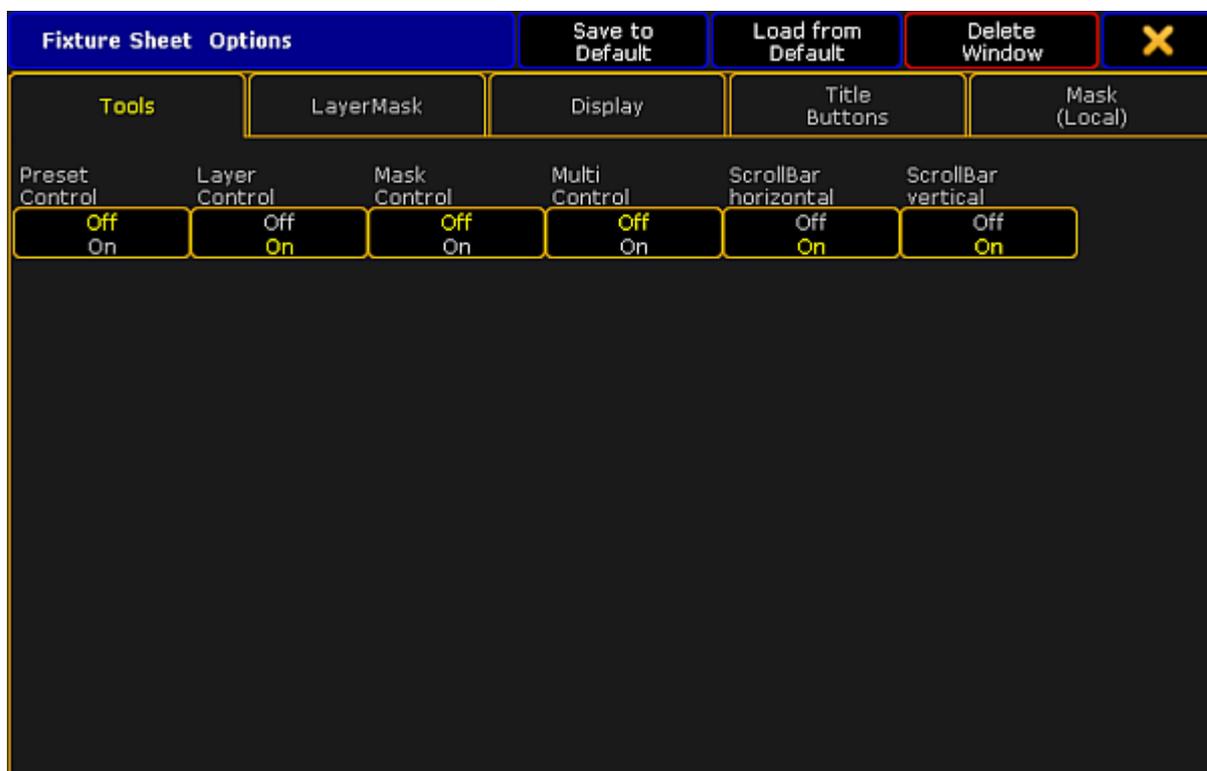
For more information on each layer see [Layers in sheets – Channel sheet and fixture sheet](#).

---

## Options

To open the options in the fixture sheet, tap  in the upper left corner of the sheet.

The dialog **Fixture Sheet Options** opens.



*Fixture Sheet Options*

To learn about the single options of the fixture sheet see:

- [Tools](#)
- [Layer mask](#)
- [Display](#)
- [Title buttons](#)
- [Assign executor](#)
- [Mask \(local\)](#)

To close the options, tap  in the upper right corner of the dialog.

---

## Close the Fixture Sheet

To close the fixture sheet altogether, tap  in the upper left corner of the window and tap **Delete Window**.

## 14.3. Sheet options

The different sheets in the console have many options. A lot of them are shared by the different sheets. This topic and the following subtopics describe all the different options for the sheets.

The sheets are described in the different sections where they are relevant. Follow the links below to read about the individual sheet.

- [Channel Sheet](#)
- [DMX Sheet](#)
- [Fixture Sheet](#)
- [Sequence Content Sheet](#)
- [Sequence Executor Sheet](#)
- [Sequence Tracking Sheet](#)
- [RDM sheet](#) - the sheet is listed here but it does not have any options

## General information about sheet options

All the options regarding sheets are user based. This means that each user in a system can have their own sheet options to fit their preferences.

The options can be changed from the [User Settings](#) in the Setup menu or they can be changed in each sheet. The options changed in the Setup menu are the default settings used when you create a new window on a screen. The options changed in the sheet on the screen are only for that version of the window (remember to store the view after applying changes). However you can copy the options from a sheet to the defaults - read below for more on this.

Any change you do in the options are immediately applied to the sheet. To keep the options it is needed to store the view containing the sheet.

## Options title bar

The options pop-up has a title bar. This title bar has a few buttons that are worth describing. The title bar buttons look like this:



*Sheet options - title bar buttons*

As mentioned above; the settings applied in the sheet options can be copied to the default settings. This is done by tapping the **Save to Default** button. It is also possible to load the setting from the default into the sheet options. This is done by tapping the **Load from Default** button. This will overwrite any local options.

The **Delete Window** button will remove the sheet from the screen.

The big yellow **X** will close the options pop-up.

Please read the following subtopics to learn more about the different options.

### 14.3.1. Tools

The Tools tab contains a lot of different settings that turn on or off tools in the sheets. The tools can allow you to work more efficiently.

The last part of the options described here, is also available as [Title Buttons](#).

## Preset Control

**Preset Control** is an option in Channel, Fixture, Content, and Tracking sheets.

The Preset Control turns on or off the visibility of the Preset Control Bar at the bottom of the sheet.

It is used to select different Preset Types. The bar is similar to the Preset Control Bar visible in the Encoder Bar.

Read more about it in the [Preset Control Bar subtopic](#).



### **Restriction:**

If Multi Control is on, then this control bar is hidden.

## Layer Control

**Layer Control** is an option in Channel, Fixture, Content, and Tracking sheets.

The Layer Control option turns on or off the Layer Control Bar at the bottom of the sheet.

The Layer Control Bar gives access to the different data layers for the fixtures.

Read more about layers in the [Layers in the programmer topic](#).



**Restriction:**

If Multi Control is on, then this control bar is hidden.

## Mask Control

**Mask Control** is an option in Channel and Fixture sheets.

The Mask Control option turn on or off a small Mask Control Bar with the default masks.

It could look like this:



*Mask Control Bar*

The Masks are described in the [Mask topics](#).



**Restriction:**

If Multi Control is on, then this control bar is hidden.

## Multi Control

**Multi Control** is an option in Channel, Fixture, and Content Sheets.

The multi control combines the Layer, Preset, and Mask control into one bar with three expanding buttons - in that order from left to right.

It could look like this:



*Multi Control Bar*

The options available for each button is the same as the ones in each of the control bars.



**Restriction:**

If Multi Control is on, then Preset Control, Layer Control, and Mask Control bars are hidden.

## ScrollBar horizontal

**ScrollBar horizontal** is an option in Fixture, Content, Executor, and Tracking Sheets.

With this option it is possible to turn on or off the horizontal scroll bar at the bottom of the sheet.

The scroll bar is only visible if it is needed.

## ScrollBar vertical

**ScrollBar vertical** is an option in Channel, DMX, Fixture, Content, Executor, and Tracking Sheets.

With this option it is possible to turn on or off the vertical scroll bar at the right side of the sheet.

The scroll bar is only visible if it is needed.

## Link Encoders

**Link Encoders** is an option in DMX, Content, Executor, and Tracking Sheets.

If this option is on then activating the sheet (by tapping inside the sheet) will change the [Encoder Toolbar](#). The result is different depending on the type of sheet.

### DMX Sheet

The Encoder Toolbar will turn into the DMX tester. Read more about it in the [DMX Testing topic](#).

### Content Sheet and Tracking Sheet

The Encoder Toolbar will turn into the Executor Toolbar. Read more about it in the [What are executors topic](#).

### Executor Sheet

It is bit hidden as an option for the Executor Sheet. You need to add it as a [title button](#) to enable or disable it.

It also opens the Executor Toolbar. Follow the link in the "Content Sheet" above to read about it.

## Edit CueOnly

**Edit CueOnly** is an option in Content and Tracking Sheets.

With this option **on**, any changes made to values in the sheet are stored as Cue Only. Read more about editing values in the two sheets in the [Looking at your cue content topic](#).

## DMX Readout Absolute

**DMX Readout Absolute** is an option in the DMX Sheet.

This option allows you to view the DMX addresses as Absolute or Separated in Universes.

If it is Absolute readout, then it only displays one number. That means that the DMX addresses are displayed as continues numbers. So the first DMX address in universe number 2 is 513 (512 from the first universe plus 1).

If it is Separated readout, the sheet will display two numbers separated by a colon. The first number is the universe and the second is the DMX address in that universe.

### 14.3.2. Layer mask

#### Select Layer

**Select Layer** is an option in Channel, Fixture, Content, and Tracking sheets.

This is a drop down list that allows you to select one of the data layers. This will show the values in that layer. This can also be selected using the Layer Control bar - read about turning it on in the [Tools topic](#).

Read about the layers in the [Layers in sheets topic](#).

## Select Mask

**Select Mask** is an option in Channel, Fixture, Content, and Tracking sheets.

This drop down list allows you to select one of the six predefined masks. This can also be selected using the Mask Control bar - read about turning it on in the [Tools topic](#).

Read more about the masks in the [Mask topics](#).

The default masks, in this list, also exists as [Title Buttons](#) in the Channel and Fixture.

## Link Mode

**Link Mode** is an option in Content, Executor, and Tracking sheets.

The link mode decides what executor the sheet is displaying.

This drop down list has three options:

- **Link Selected:**

This will make the sheet display the content from the selected executor. This means that the sheet will change content when you selected different executors using the [Select](#) command.

- **Not Linked:**

This will make the sheet display a specific executors content. The sheet will continue to display this executors content no matter if you select a different executor.

You need to choose what executors to display. This is done in the Assign Executors tab - read more about it in the [Assign Executor topic](#).

- **Link Last Go:**

This will change the sheets to display the content from the executor where you or precisely, your "User" last performed a Go action.

The Link Selected option can also be a [Title Button](#).

## Selection Only

**Selection Only** is an option in the Tracking sheet.

This option will mask a lot of unnecessary rows and columns in the Tracking Sheet. It will hide cues where there are no changes to the selected fixtures. It will also only display the columns of the attributes that are stored in the sequence.

This option can also be a [Title Button](#).

## Show Tracked

**Show Tracked** is an option in the Content sheet.

This can be used to show or hide the tracked values in the Content Sheet.

Hiding the tracked values will only display the values stored in the cue currently displayed in the content sheet.

This option can also be a [Title Button](#).

## Enable Mask

**Enable Mask** is an option in Channel, Fixture, Content, and Tracking sheets.

This turns on or off the mask function of the sheet. Masks can be local or follow a pool of masks. To learn more about mask please read the [What are Masks topics](#).

The enable function is sometimes automatically turned on. This can happen if you select a mask or if you enable Follow Selected Mask - read more below.

This option can also be a [Title Button](#).

## Follow Selected Mask

**Follow Selected Mask** is an option in Channel, Fixture, Content, and Tracking sheets.

When this option is On, then the sheet will activate masks and the sheet will use the mask selected in the Mask Pool - learn more about mask in the [What are Masks topics](#).

This option can also be a [Title Button](#).

## Save Mask Always

**Save Mask Always** is an option in Channel, Fixture, Content, and Tracking sheets.

If the sheet has a local mask loaded from the mask pool and this mask is not locked, then you can activate the Save Mask Always function if you want changes made in the local settings to be saved back into the mask in the pool.

Read more about this in the [Mask \(Local\) topic](#).

## 14.3.3. Display

The Display tab has potentially a lot of options - all dealing with how the data in the sheets are presented to you.

This topic lists all the possible options in the sheets, but each sheet does not have all options.

## Sheet Style

**Sheet Style** is an option in Fixture and Content sheets.

This can be used to turn how the data is presented in the sheets.

There are two options:

- **Horizontal:**  
This will present the fixtures as rows and the Attributes as columns.
- **Vertical:**  
This will organize the fixtures as columns and the Attributes as rows.

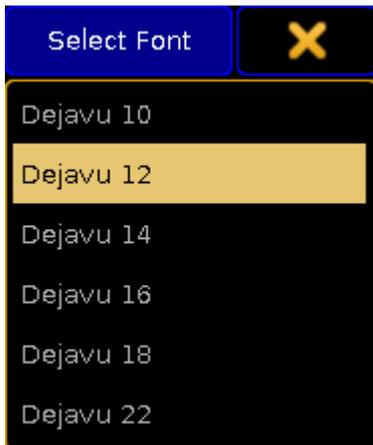
The default is Horizontal, but some like to use the vertical in situation where you have few fixtures. For instance when programming Media Servers.

## Font

**Font** is an option in all sheets.

There is currently only one font type available in the grandMA2 software. So the only thing to change regarding the Font is the size.

Tapping the button opens the Small Select Font pop-up. It looks like this:



*Small Select Font pop-up*

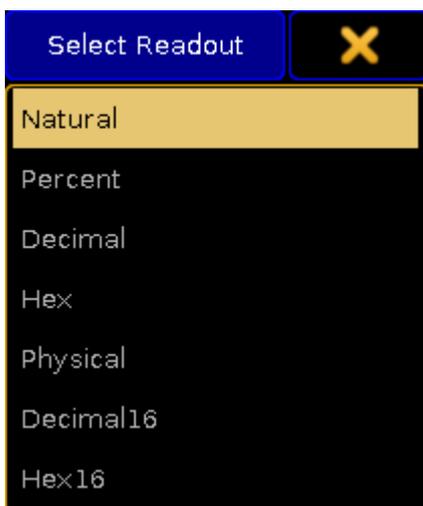
Here it is possible to select one of the six different sizes - ranging from 10 to 22.

## Readout

**Readout** is an option in Channel, DMX, Fixture, Content, and Tracking sheets.

The readout determines how the values are displayed in the sheets.

Tapping the button opens a small Select Readout pop-up like this:



*Small Select Readout pop-up*

Here it is possible to select one of the following options:

- **Natural:**

This displays the value defined in the "From" and "To" columns in the fixture profile. The range is customized, but is always displayed with one decimal accuracy. It can even be a negative value. This can be useful when the attributes default values is not at the end of the range - for instance with Pan attributes.

- **Percent:**

Displays the attribute values as a percent without any decimal numbers. Range is 0 through 100.

- **Decimal:**

Displays the attribute values as an 8-bit DMX value. The range is from 0 through 255.

- **Hex:**

This displays the DMX values in 8-bit Hexadecimal numbers. The range is from 0 through FF.

- **Physical:**

This displays the value defined in the "From Phys" and "To Phys" columns in the fixture profile. Just as with the Natural readout, it is possible to customize the range but it is always displayed with one decimal accuracy. The idea is that values here matches the physical values for the fixtures. So for instance the zoom range of a fixture is matched to the physical range of the fixture making the sheets display the actual zoom degree.

- **Decimal16:**

This is just like the Decimal readout except the DMX value is displayed in a 16-bit range. The range is from 0 through 65 535.

- **Hex16:**

This is just like the Hex readout except the DMX value is displayed in a 16-bit range. The range is from 0 through FFFF.

Changing the readout for a sheet and then tapping in the sheet will also change the readout on your Encoder Bar.

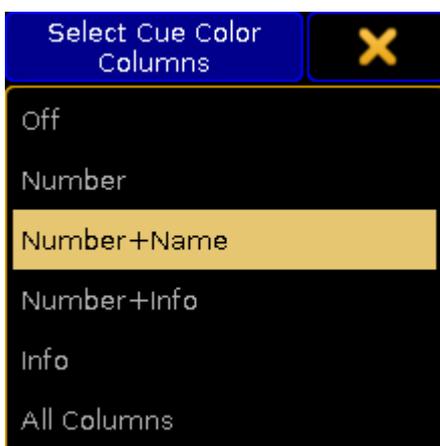
Readout can also be a [Title Button](#).

## Cue Color Columns

**Cue Color Columns** is an option in Executor and Tracking sheets.

The [Appearance keyword](#) can be used to give a color to individual cues. This option changes how this color is displayed in the sheets.

Tapping the button opens the small Select Cue Color Columns pop-up. It has two different sizes regarding the options. There are more options in the Executor sheet than in the Tracking sheet. This is the pop-up from the Executor sheet:



## *Small Select Cue Color Columns pop-up*

The options in the pop-up are:

- **Off:**  
This won't display any cue colors.
- **Number:**  
This will display the color in the cue number column.
- **Number+Name:**  
This will display the color in the cue number and name columns.
- **Number+Info:**  
This will display the color in the cue number and info columns.
- **Info:**  
This will display the color in the info columns only.
- **All Columns:**  
This will display the color in all columns.

The Tracking sheet only has the three first options.

## Sort By

**Sort By** is an option in Content and Tracking sheets.

This option can be used to choose the sort method for the sheets.

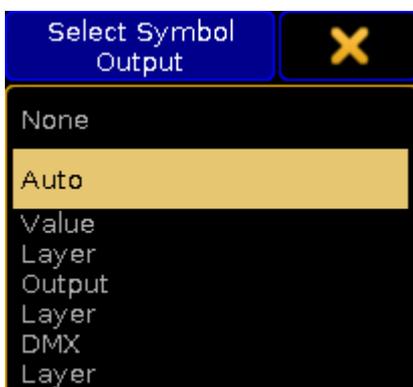
There are two options: **Fixture ID** or **Channel ID**. This option makes sense if your fixtures do not have the same number as Fixture ID or Channel ID. Then this chooses the priority for the sorting.

## Symbol Output

**Symbol Output** is an option in Channel and Fixture sheets.

The Symbol Out is a small square next to the Channel ID in the Channel Sheet and next to the fixture name in the Fixture Sheet. This square shows the combined intensity and color output from the fixture.

Tapping the button opens the small Select Symbol Output pop-up. It looks like this:



## *Small Select Symbol Output pop-up*

The options are:

- **None:**  
The square is hidden.
- **Auto:**  
The squares output follows the selected layer.
- **Value Layer:**  
The square displays the output from the Value Layer.
- **Output Layer:**  
The square displays the output from the Output Layer.
- **DMX Layer:**  
The square displays the output from the DMX Layer.

For more information about the different layers please read the [Layers in sheets topic](#).

## Symbol Feature

**Symbol Feature** is an option in Channel, Fixture, Content, and Tracking sheets.

Each feature of the fixtures can have a small symbol displaying a graphic representations of the features value. This symbol can be shown or hidden.

For instance the dimmer value is represented by a dimmer bar. The position values are represented by vertical and horizontal line intersecting. Gobos are displaying a small image of the gobo. Colors are displayed as small squares displaying the colors next to each color feature.

## Cue Colors

**Cue Colors** is an option in Channel, Fixture, Content, and Tracking sheets.

This option allows you to select how attribute values should be presented in the sheets.

Tapping the button opens the small Select Cue Colors pop-up. It looks like this:



*Small Select Cue Colors pop-up*

There are three options:

- **Off**  
All attribute values are displayed with a yellow color.
- **On**  
The attribute values from the primary selected executor displays the colors Cyan, Green, White, and Magenta. These colors are described in detail in the [Cue Colors Topic](#). Values from other executors are displayed in yellow.

## ● My Exec

This will color the values from the primary selected executor in Cyan, Green, White, and Magenta. Other executors triggered by your user are displayed in yellow. Values from executors triggered by other users are displayed in a gray color.

## Namefield

**Namefield** is an option in Channel, Fixture, Content, and Tracking sheets.

The name field can be turned On or Off. When it is On then the name of the fixture is displayed in the sheet.

## Channel ID

**Channel ID** is an option in Channel, Fixture, Content, and Tracking sheets.

The Channel ID can be turned On or Off. When it is On then the Channel ID will be displayed in the sheet.

If the fixture has both a Channel ID and Fixture ID and the ID number is the same, then there is only displayed one number even if both Channel ID and Fixture ID is On. If the fixture has two different ID numbers and both are set to On, then they are shown separated by a colon. The Fixture ID is on the left side of the colon and the Channel ID is on the right side.

## Fixture ID

**Fixture ID** is an option in Channel, Fixture, Content, and Tracking sheets.

The Fixture ID can be turned On or Off. When it is On then the Fixture ID will be displayed in the sheet.

If the fixture has both a Channel ID and Fixture ID and the ID number is the same, then there is only displayed one number even if both Channel ID and Fixture ID is On. If the fixture has two different ID numbers and both are set to On, then they are shown separated by a colon. The Fixture ID is on the left side of the colon and the Channel ID is on the right side.

## Columns

**Columns** is an option in Channel, DMX, Fixture, and Content sheets.

Tapping the green input field allows you to set a number of columns in the sheets.

The column number is only used in Fixture and Content Sheets if the sheet is in Vertical Sheet Style.

## Autoscroll

**Autoscroll** is an option in Executor, and Tracking sheets.

The Autoscroll function can be turned On or Off. When On it automatically scrolls the cue sequence list in the Executor and Tracking Sheets. This makes sure the active cue is always visible in the sheet.

Autoscroll can also be a [Title Button](#).

## Feature Sort

**Feature Sort** is an option in Fixture, Content, and Tracking sheets.

The sheets can activate an automatic sorting of the features. This will move the attributes of the current feature so it is right next to the name of the fixture or cue. This should avoid a lot of scrolling in the sheets.

Feature Sort can also be a [Title Button](#).

## Fixture / Channel Sort

**Fixture Sort** or **Channel Sort** is an option in Channel, Fixture, Content, and Tracking sheets.

In the Channel Sheet it is called Channel Sort, in the other sheets it is called Fixture Sort. The function is the same. The selected fixtures are displayed first in the sheets and they are displayed in the selection order.

Fixture Sort or Channel Sort can also be a [Title Button](#).

## Marker

**Marker** is an option in Channel, Fixture, Content, and Tracking sheets.

The colored markers in the sheets provide additional information of what is affecting the values and to display what information might be stored in cues. These markers may be turned On or Of.

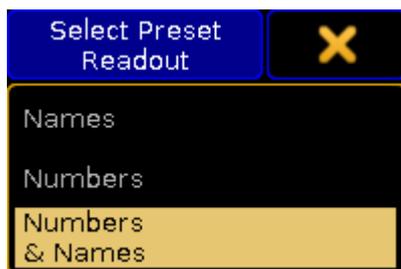
Read more about the markers in the [Maker Colors topic](#).

## Preset Readout

**Preset Readout** is an option in Channel, Fixture, Content, and Tracking sheets.

Preset Readout is used to change how the preset ID is displayed in sheets. This is relevant when an attribute gets its values from a preset.

Tapping the button opens the small Select Preset Readout pop-up. It looks like this:



*Small Select Preset Readout pop-up*

The options are:

- **Names:**  
The name of the preset will be displayed.
- **Numbers:**  
The number of the preset will be displayed.
- **Numbers & Names:**  
Both the number and the name of the preset will be displayed.

## Hide Empty Cells

**Hide Empty Cells** is an option in Channel, Fixture, Content, and Tracking sheets.

When a mixture of fixture types are patched in a show it can often happen that not all the fixtures have the same features. This means that a sheet can have empty or unused cells. These cells can be hidden in the sheets. This can often provide a better overview of the features available in the fixtures.

Turning Hide Empty Cells On will hide these unused cells.

## Hide Timing Countdown

**Hide Timing Countdown** is an option in the Executor sheets.

In the Sequence Executor Sheet you can see the cue times. When a fade is running you can choose to have the time count down to 0 or just always display the time stored in the cue.

Hide Timing Countdown is an On or Off function. When it is On, then there is no visible count down. When it is Off then the count down is displayed.

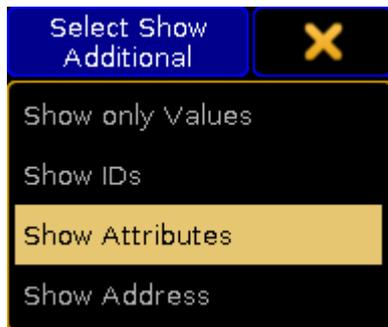
Hide Timing Countdown can also be a [Title Button](#).

## Show Additional

**Show Additional** is an option in the DMX sheets.

This function is used to display more information in the DMX Sheet than just the DMX values.

Tapping the button opens the small Select Show Additional pop-up. It looks like this:



*Small Select Show Additional pop-up*

The options are:

- **Show only Values:**

No additional information are displayed.



*DMX values without additional information*

- **Show IDs:**

The fixtures ID numbers and names are displayed above the DMX values. They are only displayed once per fixture - the ID is not displayed above each DMX value.



*DMX values with ID number and name*

- **Show Attributes:**

The attribute connected with the DMX address is displayed above the DMX value.



*DMX values with attribute name above the values*

- **Show Address:**

The DMX address is displayed above each DMX value.



*DMX values with DMX addresses above each value*

Show Additional can also be a [Title Button](#).

## Show Only Selected

**Show Only Selected** is an option in the DMX sheets.

This will limit the DMX sheet to only display the universes of the selected fixtures.

Show Only Selected can also be a [Title Button](#).

## Programmer Colors

**Programmer Colors** is an option in the DMX sheets.

There are two color schemes for the DMX values in the DMX sheet.

There is the default where the background color changes from gray to light green depending on intensity of the value.

But you can choose to use turn On Programmer Colors instead. This will then use the same color schema as the Channel and Fixture Sheets.

Programmer Colors can also be a [Title Button](#).

## Merge Same Values

**Merge Same Values** is an option in Fixture, Content, and Tracking sheets.

Some features can combine or merge the values displayed in the sheets if the value is the same. For instance the MixColor attributes "R", "G", and "B". If these three attributes have the same value then it is only displayed once - as a merged value. If they have different values then they are split up into each displaying the values they have.

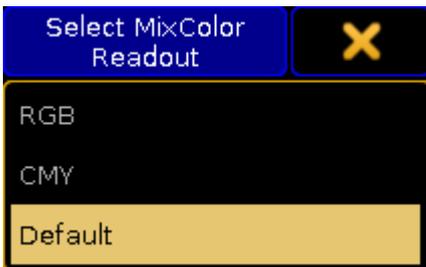
This merge function can be turned On or Off.

## MixColor Readout

**MixColor Readout** is an option in Fixture, Content, and Tracking sheets.

The MixColor system is a way to present the same attributes to the operator no matter if the fixtures uses different color systems. This means that the operator does not have to change between the different colors systems. In the sheets it is then possible to change how this is displayed.

Tapping the button opens the small Select MixColor Readout pop-up. It looks like this:



*Small Select MixColor Readout pop-up*

The options are:

- **RGB:**  
The MixColors are displayed as RGB attributes.
- **CMY:**  
The MixColors are displayed as CMY attributes.
- **Default:**  
The MixColors are displayed using the default selected in the setup - Read more about setting this in the [User Settings topic](#).

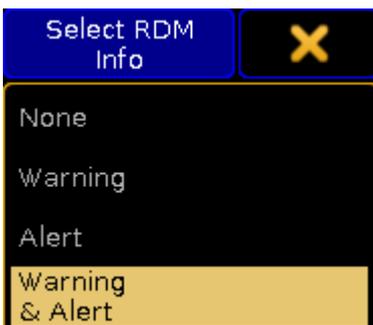
MixColor Readout can also be a [Title Button](#).

## RDM Info

**RDM Info** is an option in Channel, and Fixture sheets.

The RDM info is a small RDM icon that will be displayed next to the fixture name or ID.

Tapping the button opens the small Select RDM Info pop-up. It looks like this:



*Small Select RDM Info pop-up*

The options are:

- **None:**  
No icon is displayed in the sheet.
- **Warning:**  
The yellow RDM warning icon is displayed in the sheet.
- **Alert:**  
The red RDM alert icon is displayed in the sheet.
- **Warning & Alert:**  
Both icons can be displayed in the sheets.

Read more about RDM and how to configure the warning and alert notifications in the [RDM section](#).

## 14.3.4. Title buttons

Many of the options described in [Tools](#), [Layer Mask](#), and [Display](#) can be assigned as a quick access button in the title bars of the relevant sheets. Some are unique - meaning they do not appear as an option, but more as a quick access to a relevant function for the sheet.

The title buttons that are described in the previous topics are mentioned here and there is a link to the topic with the description.

The following is a complete list of all possible title buttons in sheets. After the list of title buttons are an overview if which title buttons are in what sheets - [Link](#).

### Fixture Sort

**Fixture sort** is available in Fixture, Content, and Tracking Sheets.

Read about it in the [Sheet Options - Display topic](#).

### Channel Sort

**Channel Sort** is available in Channel Sheets.

Read about it in the [Sheet Options - Display topic](#).

### Feature Sort

**Feature sort** is available in Fixture, Content, and Tracking Sheets.

Read about it in the [Sheet Options - Display topic](#).

### Auto Scroll

**Auto Scroll** is available in Executor, and Tracking Sheets.

Read about it in the [Sheet Options - Display topic](#).

## Link Mode

**Link Mode** is available in Content, Executor, and Tracking Sheets.

Read about it in the [Sheet Options - Layer Mask topic](#).

## Tracking

**Tracking** is available in the Content Sheets.

Read about it in the [Sheet Options - Layer Mask topic](#).

## Selection Only

**Selection Only** is available in the Tracking Sheets.

Read about it in the [Sheet Options - Layer Mask topic](#).

## Cue Mode

**Cue Mode** is available in the Content Sheets.

The cue mode title button is used to select what cue is displayed in the Content sheet.

Read about it in the [Looking at your cue content topic](#).

## Link Faders

**Link Faders** is available in Channel and Fixture Sheets.

When Link Faders are active, the selected fixtures and the currently selected feature is used for the Dynamic Channel Pages.

Read about Dynamic Channel Pages in the [Channel Pages topic](#).

## Release All

**Release All** is available in the DMX Sheets.

Release all is a function that will release all DMX addresses that are under the influence of the DMX tester.

Read more about this in the [DMX testing topic](#).

## Link Encoders

**Link Encoders** is available in DMX, Content, Executor, and Tracking Sheets.

Read more about it in the [Sheet Options - Tools topic](#).

## Enable Mask

**Enable Mask** is available in Channel, Fixture, Content, and Tracking Sheets.

Read about it in the [Sheet Options - Layer Mask topic](#).

## Follow Mask

**Follow Mask** is available in Channel, Fixture, Content, and Tracking Sheets.

Read about it in the [Sheet Options - Layer Mask topic](#).

## Set1 through Set10

There can be up to 10 "Set" buttons. They are a little bit different depending on the sheet.

They can all be edited by right clicking them with the mouse (or press **Edit** and then the button) in the title bar.

### **Channel Sheet & Fixture Sheet:**

The set buttons functions as masks that can be toggled On or Off.

The first 5 set buttons have a default loaded mask, but can be changed. Read mode below.

Read more about masks in the [Use masks in the sheets topic](#).

### **Content Sheet & Tracking Sheet:**

All 10 set buttons functions as masks that can be toggled On or Off.

Read more about masks in the [Use masks in the sheets topic](#).

### **Executor Sheet:**

There are only 5 set buttons available.

The set buttons function as a special kind of mask. They can be used to select what columns in the sheet that should be visible.

Read details about this in the [Using different view Sets in the Sheets topic](#).

## Prog Only

This is the Set1 button with a default assigned mask. This is default for Channel and Fixture Sheets. It can be changed.

Read more about masks in the [Use masks in the sheets topic](#).

## Active Only

This is the Set2 button with a default assigned mask. This is default for Channel and Fixture Sheets. It can be changed.

Read more about masks in the [Use masks in the sheets topic](#).

## Parked

This is the Set3 button with a default assigned mask. This is default for Channel and Fixture Sheets. It can be changed.

Read more about masks in the [Use masks in the sheets topic](#).

## Seq+

This is the Set4 button with a default assigned mask. This is default for Channel and Fixture Sheets. It can be changed.

Read more about masks in the [Use masks in the sheets topic](#).

## Seq-

This is the Set5 button with a default assigned mask. This is default for Channel and Fixture Sheets. It can be changed.

Read more about masks in the [Use masks in the sheets topic](#).

## Readout

**Readout** is available in Channel, Fixture, Content, and Tracking Sheets.

Read about it in the [Sheet Options - Display topic](#).

## Edit CueOnly

**Edit CueOnly** is available in Content, and Tracking Sheets.

Read more about it in the [Sheet Options - Tools topic](#).

## Only Selected

**Only Selected** is available in the DMX Sheets.

Read about it in the [Sheet Options - Display topic](#).

## Show Additional

**Show Additional** is available in the DMX Sheets.

Read about it in the [Sheet Options - Display topic](#).

## Programmer Colors

**Programmer Colors** is available in the DMX Sheets.

Read about it in the [Sheet Options - Display topic](#).

## MixColor Readout

**MixColor Readout** is available in Fixture, Content, and Tracking Sheets.

Read about it in the [Sheet Options - Display topic](#).

## Hide Countdown Timing

**Hide Countdown Timing** is available in the Executor Sheets.

Read about it in the [Sheet Options - Display topic](#).

The following is a listing of which title buttons are available in which sheets. It is listed per sheet type.

## Channel Sheet

- Channel Sort
- Link Faders
- Enable Mask
- Follow Mask
- Prog Only
- Active Only
- Parked
- Seq+
- Seq-
- Set6
- Set7
- Set8
- Set9
- Set10
- Readout

## DMX Sheet

- Release All
- Link Encoders
- Only Selected
- Show Additional
- Programmer Colors

## Fixture Sheet

- Fixture Sort
- Feature Sort
- Link Faders
- Enable Mask
- Follow Mask
- Prog Only
- Active Only
- Parked
- Seq+
- Seq-
- Set6
- Set7
- Set8
- Set9
- Set10
- Readout

- MixColor Readout

## Sequence Content Sheet

- Fixture Sort
- Feature Sort
- Link Mode
- Tracking
- Cue Mode
- Link Encoders
- Enable Mask
- Follow Mask
- Set1
- Set2
- Set3
- Set4
- Set5
- Set6
- Set7
- Set8
- Set9
- Set10
- Readout
- Edit CueOnly
- MixColor Readout

## Sequence Executor Sheet

- Auto Scroll
- Link Mode
- Link Encoders
- Set1
- Set2
- Set3
- Set4
- Set5
- Hide Countdown Timing

## Sequence Tracking Sheet

- Fixture Sort
- Feature Sort
- Auto Scroll
- Link Mode
- Selection Only
- Link Encoders
- Enable Mask

- Follow Mask
- Set1
- Set2
- Set3
- Set4
- Set5
- Set6
- Set7
- Set8
- Set9
- Set10
- Readout
- Edit CueOnly
- MixColor Readout

## RDM Sheet

The RDM sheet do not have any options, but it does have two title buttons.

They are described in the [Use the RDM sheet topic](#).

### 14.3.5. Assign executor

This tap is only available in the Content, Executor, and Tracking Sheets.

It shows a list of all the executors with assigned sequences.

Tapping one of the executors in the list will make this the assigned executor for the sheet. This means that "Link Mode" is now set to "Not Linked", which means that the sheet is locked to the executor you have tapped in this list.

Read more about the Link Mode in the [Layer Mask topic](#).

### 14.3.6. Mask (local)

This tab is available in the Channel, Fixture, Content, and Tracking Sheets.

It is used to define a local mask for a specific sheet. You can load a mask from the Mask Pool or you can create a new one. The mask is applied when "Enable Mask" is On. If "Follow Selected Mask" is also on, then the local mask is not applied, but instead the mask selected in the mask pool is applied.

Enable Mask and Follow Selected Mask is described in the [Layer Mask topic](#).

Please read the [What are Masks topic](#) for information about masks in general.

The [Create Masks topic](#) describes how to make masks and it describes the different buttons seen in this tab.

## 14.4. Layer in Sheets

Layers are displayed in form of a bar, which is located at the bottom of a sheet.

The layers in some sheets are conform. Others, on the other hand, may differ from one another.

This chapter displays these differences as well as conformities.

These are the following sheets:

- [Channel sheet and fixture sheet](#)
- [Sequence content and sequence tracking sheet](#)

### 14.4.1. Channel Sheet and Fixture Sheet

Channel sheet and fixture sheet share identical layers.



**Important:**

The layers in the channel and fixture sheet display which values are currently being released.



**Important:**

If layers have colored markers, this means that the attributes are actively in the programmer.



*Layers With Markers*

#### Value Layers

Value Layers comprise the following in the channel and fixture, sequence content and sequence tracking sheet:



*Value Layers*

#### Values:

Displays normal values, for example numbers of presets, names and channel sets.

Example:



Sets the dimmer to full and displays the value as "open".

#### Fade:

Displays individual fade values.

## Delay:

Displays individual delay values.

## Values Only:

Displays the values in form of numbers.

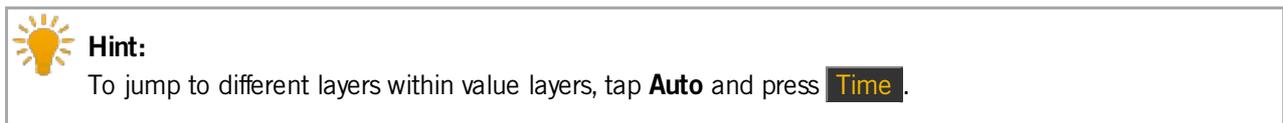
Example:



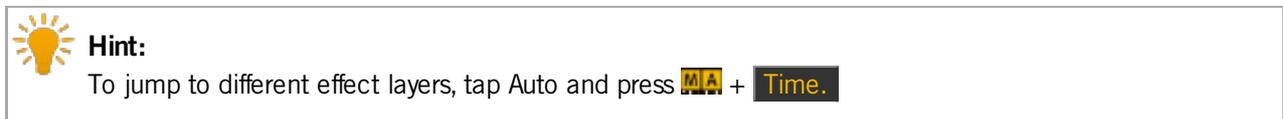
Sets dimmer 2 to 55 and displays the value, depending on the readout, as 55.0.

## Auto:

If you tap **Auto**, the sheet will obey the encoder bar.



## Effect Layers



Effect Layers comprise the following in the channel and fixture, sequence content and sequence tracking sheet:



### Effect Layers

#### Form:

Displays names and numbers of values, which have been taken from the form pool.

#### Speed:

Displays time in a format that was set in user settings.

#### Speed Group:

Displays speed groups that are linked to active values. All in all, there are 16 speed groups.

#### Low:

Displays the values of low that are set for fixtures.

## High:

Displays the values of high that are set for fixtures.



### Important:

The effect "moves" between the values of high and low, so to speak.



### Hint:

It is possible to set the values of high and low with the first encoder on the left, right above screen 1 on the console.

## Phase:

This effect has a radius of 360° and displays the phase an effect is to start at, generating a wave form.

## Width:

Displays the percentage of the fixtures that have the values of high and low. This determines the extent of effect modulations.

## Fade:

Displays the individual fade time an effect is to start with.

## Delay:

Displays the individual delay time an effect is to start at.

## Attack:

Displays the difference of the fade-in times in single values.

## Decay:

Displays the difference of fade-out times in single values.

## ID:

Displays name and number if effect was started in the effect pool.

---

## Output Layers

Output Layers comprise the following in the channel and fixture sheet:



## *Output Layers*

### **Output:**

Displays values together with group masters and masters. However, it is not possible to see if a profile was set.

### **Value Exec ID:**

Displays which executor the values come from stating the number of the page and the executor. For example, 1:11 means that the value is on page 1 and in executor 11.

### **Effect Exec ID:**

Displays which executor the effects come from stating the number of the page and the executor.

### **Value Cue ID:**

Displays which cue the values come from stating the number of the sequence and cue. For example, 8:1 means that the value is in sequence 8 and the sequence itself is in cue 1.

### **Effect Cue ID:**

Displays which cue the effect comes from stating the number of the sequence and cue.

### **DMX:**

Displays the DMX value that comes out of the console. Shows all values independently of masters or profiles.

## 14.4.2. Sequence Content Sheet And Sequence Tracking Sheet

Fundamentally, the value layers and the effect layers in sequence content and sequence tracking are identical to those in channel sheet and fixture sheet.



### Important:

The layers in the sheets **Sequence Content** and **Sequence Tracking**, however, refer to values that are stored in a sequence.

For detailed information on value layers and effect layers see [Layers in sheets – channel sheet and fixture sheet](#).

### Output Layers

Output Layers comprise the following in the sequence content and sequence tracking sheet:



*Output Layers – Sequence Content and Sequence Tracking*

### Value Cue ID:

Displays which sequence and cue the value comes from stating the number of the sequence and the cue. For example, 2:1 means that the value is on sequence 2 and in cue 1.

### Effect Cue ID:

Displays which sequence and cue the effect comes from stating the number of the sequence and the cue.

## 14.5. What is the Programmer

The programmer is where all the active and nonactive values, which are not in the playbacks, are located.



### Important:

Active values are storable values.

### How to Take Attributes into the Programmer

1. Open the fixture sheet first.  
For more information on how to open the fixture sheet see [Fixture sheet](#).
2. Select fixtures in the fixture or channel sheet.
3. Change values of the fixtures.
4. The fixtures with values, which have just changed, have red markers within the object in the sheet.

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## Hint:

To activate all attributes in the selection, press **Please Please**.

To deactivate all attributes in the selection, press **Please Please Please**.

## Example



Selects fixtures 1 through 10 and sets the dimmer to full.

ID F/C	Name	Dimmer Dim	Position Pan Tilt	MP Trans X Y Z	Gobo1 G1 G1<> G2	Color1 C1	MixColor R G B	CTC CTO	Shut Shu
1	Spot 1	open	-0.1 36.4		0.1 Loo	0.1	max min	0.1 Lo	0.1
2	Spot 2	open	-34 32.1		0.1 Loo	0.1	max min	0.1 Lo	0.1
3	Spot 3	open	-21 21.1		0.1 Loo	0.1	min max	0.1 Lo	0.1
4	Spot 4	open	-14 5.4		0.1 Loo	0.1	min max	0.1 Lo	0.1
5	Spot 5	open	2.8 -7.8		0.1 Loo	0.1	max min	0.1 Lo	0.1
6	Spot 6	open	-15 -13		0.1 Loo	0.1	max min	0.1 Lo	0.1

## Fixture Sheet

The fixtures with the active values all have red markers, which means that they are actively in the programmer. The fixtures with nonactive values have white markers.

For more information on the different colors of markers see [Marker](#).

## Layers

There are different Layers at the bottom of the fixture and the channel sheet.

Active attributes also have color markers in layers.



## Layers With Markers

For more details on layers see [Fixture sheet](#).

To see the active values only, tap the tab **Active Only** in the mask of the title bar in the fixture sheet.

ID F/C	Name	Dimmer Dim
1	Spot 1	open
2	Spot 2	open
3	Spot 3	open
4	Spot 4	open
5	Spot 5	open
6	Spot 6	open
7	Spot 7	open
8	Spot 8	open
9	Spot 9	open
10	Spot 10	open

*Programmer with Active Dimmer Values*

---

## How to Remove Attributes in the Programmer

To remove single attributes in the programmer, press **Off** and tap the attribute you would like to remove.

To remove all attributes from fixture 1 to 10 in the programmer, type the following command, which clears the programmer, into the command line:

```
[Channel]> Off Fixture 1 Thru 10
```



**Hint:**

To clear the entire programmer, press **Clear** for approximately 2 seconds.

The programmer is now empty.



*Empty Programmer*

## 14.6. Encoder Grouping

Encoder grouping is used to collectively take attributes into the programmer.



### **Important:**

It is advisable to set the encoder grouping before creating a new show. That is, before generating presets. Particularly when using the function "Encoder Grouping" in the menu **Auto Create Presets**.

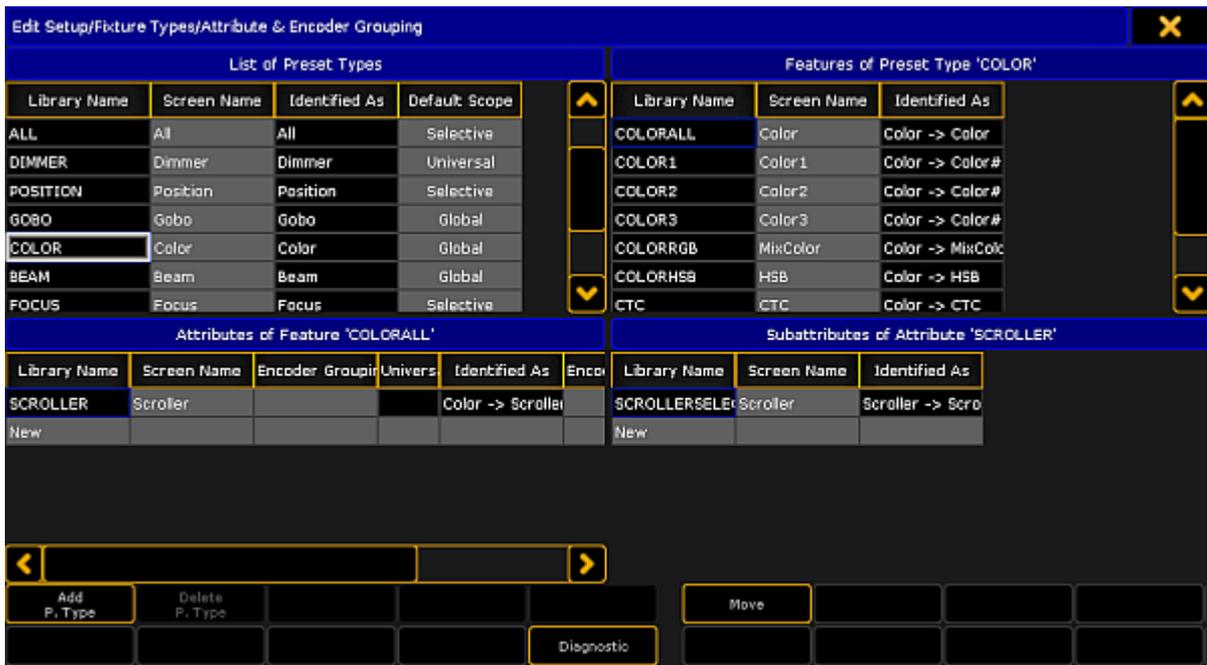


### **Important:**

Encoder groupings are non user-definable. That is, once created, they are valid for the entire show file.

## How To Group Encoders

1. Tap **Setup** -> **Patch and Fixture Schedule**
2. Then tap **Fixture Types** on the right of the dialog **EditSetup**
3. Tap **Attribute & Encoder Grouping** on the right of the dialog **Fixture Types**.



## Attribute & Encoder Grouping

4. The dialog **Edit Setup/Fixture Type/Attribute & Encoder Grouping** opens.
5. To edit or create new encoder grouping:
  - Choose a preset type in the **List of Preset Types** at the top on the left.
  - After that, choose a feature in **Features of Preset Type** at the top on the right.
  - Then tap and hold the column "Encoder Grouping" in **Attributes of Feature** at the bottom on the left.
  - The pop-up **Select Group** opens.
  - Choose one of the groups in this pop-up.
  - To create a new group, scroll down and tap **New Group**.



### Hint:

Many attributes are already grouped, for example the function pan and tilt or RGB. Pan and tilt is grouped since the position a fixture occupies has two directions. RGB is grouped, because the color consists of a mixture between red, green and blue.

## 14.7. Using The Color Picker

Based on the field you work in, the color picker provides the opportunity of displaying the colors of fixtures in various views.

### Requirement:

- Fixtures are patched.

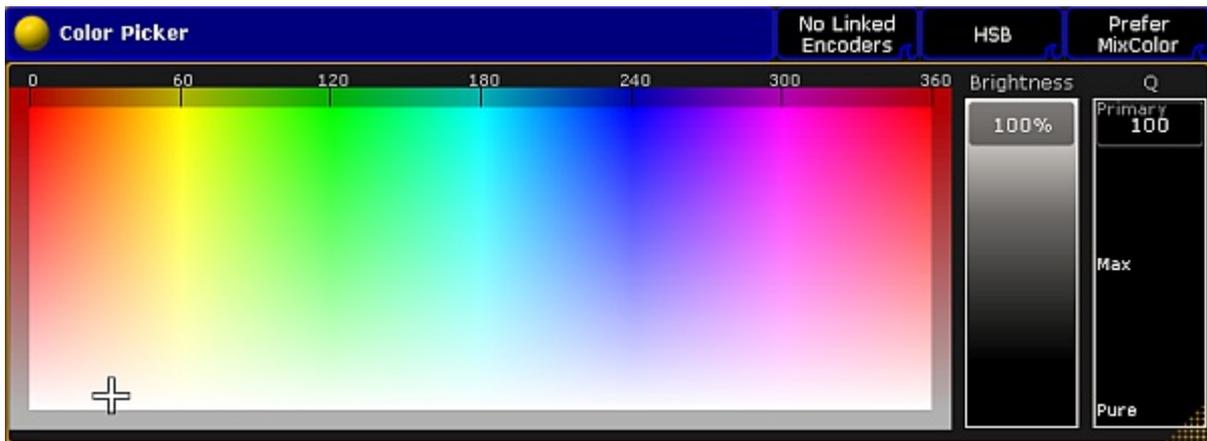
For more information on how to patch fixtures see [Adding fixtures to your show](#).

## Open the Color Picker

There are two options to open the color picker.

### 1. Option:

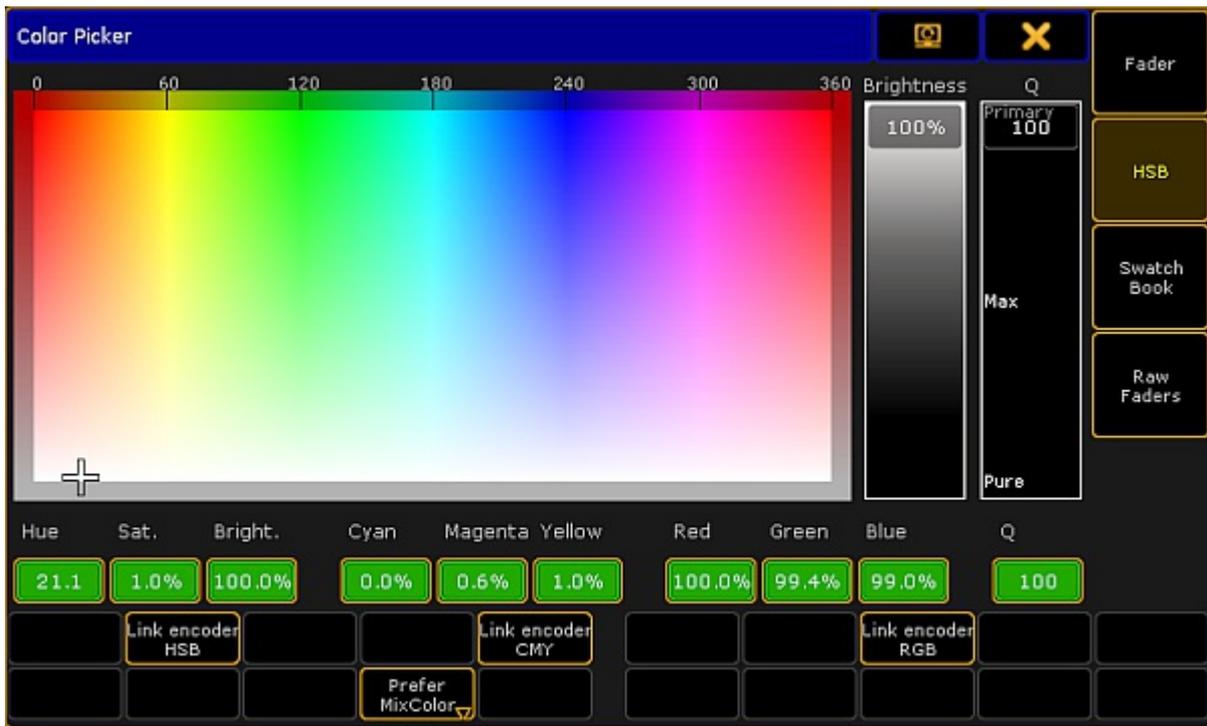
1. Tap any empty space in the **user-defined area**.
2. The pop-up **Create Basic Window** opens.
3. Tap **Other**.
4. Then tap **Color Picker**.
5. The **Color Picker** opens.



*Color Picker Opened Via Create Basic Window*

### 2. Option:

1. Tap **Color** in the encoder bar.
2. Then tap **Special Dialog**.
3. The temporary color picker opens.



*Color Picker Opened Via Special Dialog*



### Important:

If you open the color picker via the **Special Dialog**, you will see an additional bar with buttons that are not visible if you open the color picker via the dialog **Create Basic Window**. These buttons, however, can be enabled in the options of the color picker.

The differences of each view in special dialog are explained further down in the corresponding views.

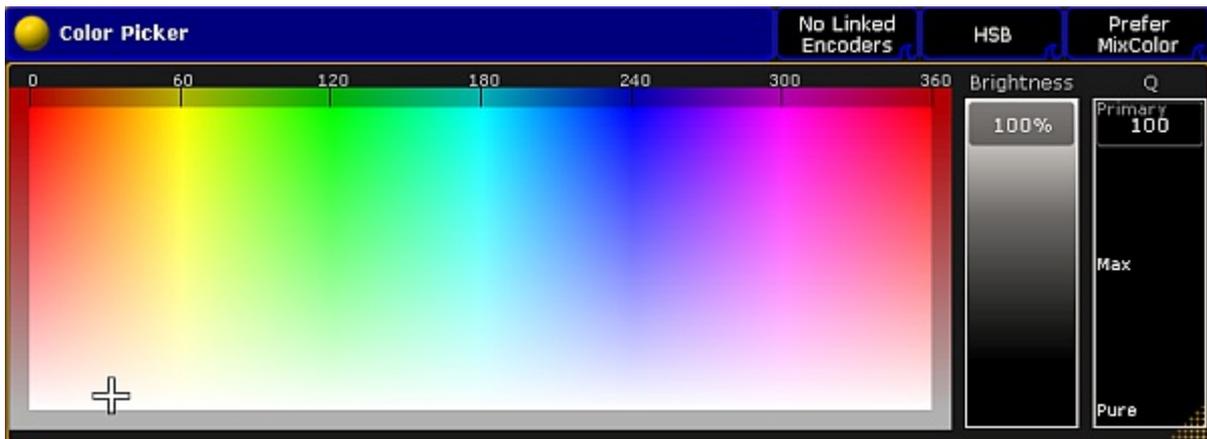
As mentioned before the color picker consists of five views.

## 1. HSB:



### Hint:

HSB is the abbreviation for hue, saturation and brightness.



*Color Picker – HSB*

**Hue:**

Is displayed in degrees and it is the horizontal axis of the screen.

**Saturation:**

Is displayed as a vertical axis of the screen.

**Brightness:**

Is displayed as an additional fader.

**Q fader:**

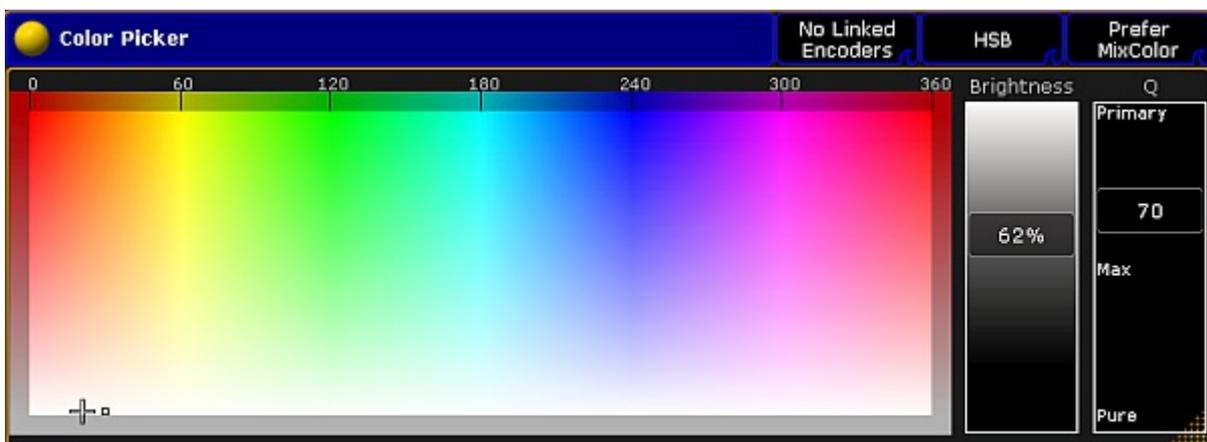
The Q fader is displayed at the far right of the screen.

 **Important:**  
The Q fader is disabled for fixtures with ColorWheel or MixColor attributes (RGB) only. Fixtures with more than three MixColor attributes enable the Q fader.

It consists of three categories:

**Primary:**

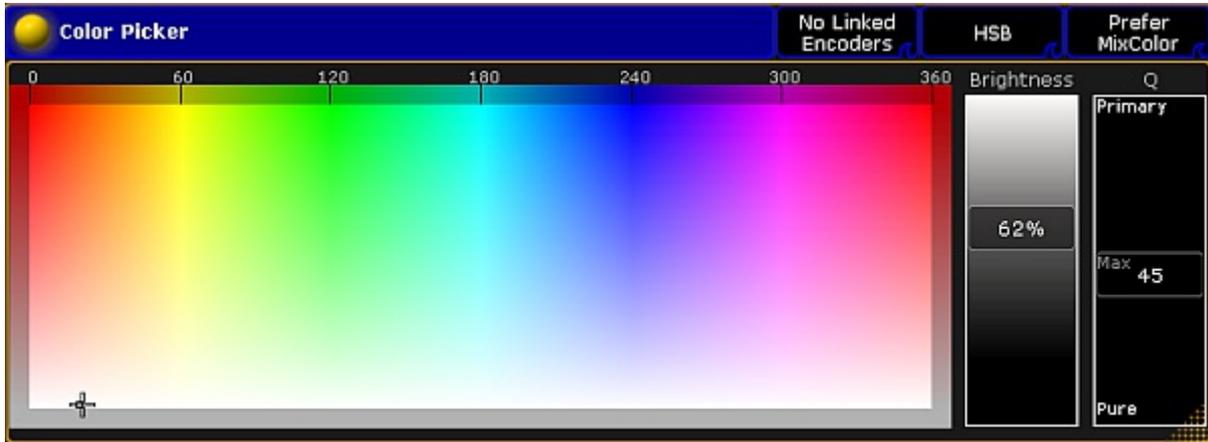
Represents RGB only.



## HSB – Q Fader – Category Primary

### Max:

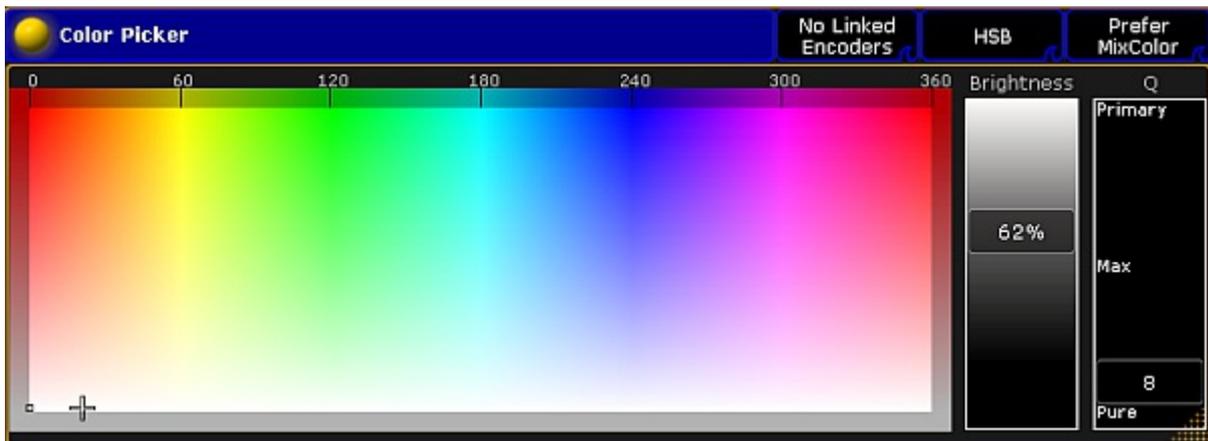
Represents a mixture of RGB and the special color attributes.



## HSB – Q Fader – Category Max

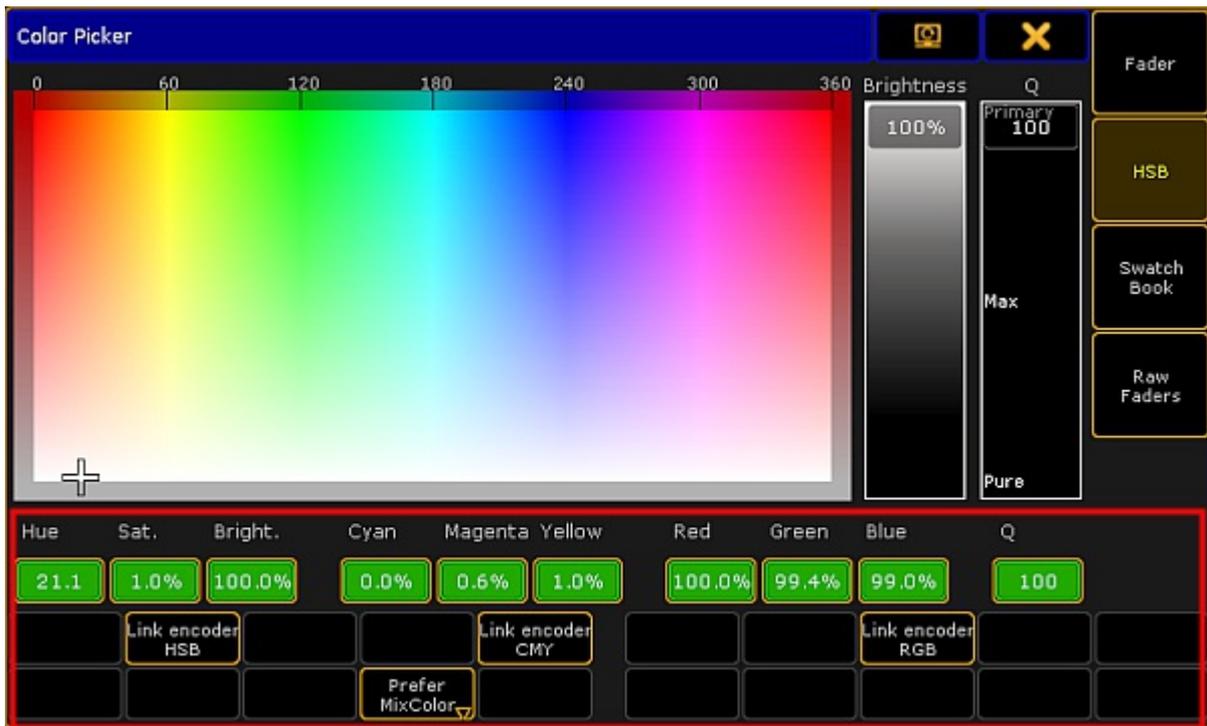
### Pure:

Represents a special color attribute.



## HSB – Q Fader – Category Pure

## Bar In HSB – Special Dialog



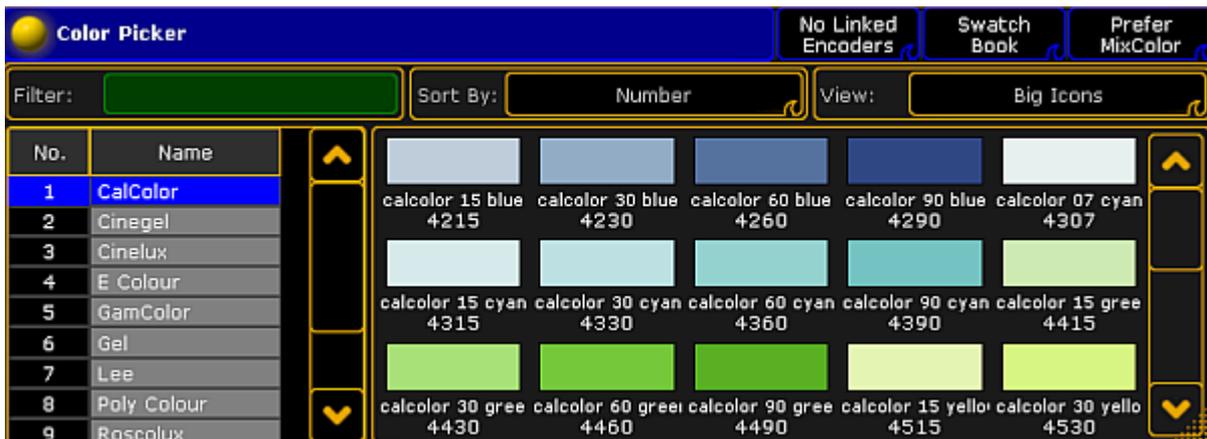
*Bar Highlighted In HSB – Special Dialog*

- Percentage display:**  
 Displays the value in percentage. The corresponding color spectrum is displayed on top of the percentage.
- Link encoder HSB:**  
 Links the three encoders starting from the left with the display of HSB.
- Link encoder CMY:**  
 Links the three encoders starting from the left with the display of CMY.
- Link encoder RGB:**  
 Links the three encoders starting from the left with the display of RGB.
- Prefer MixColor only:**  
This is usually the default. Here MixColor attributes are preferably used to blend the color.
- MixColor only:**  
Here only MixColor attributes are used to blend the color.
- ColorWheel only:**  
Here only ColorWheel attributes are used to blend the color.

## 2. Swatch Book

The swatch book displays manufacturers and their corresponding gels.

For more information on gel see the keyword [Gel](#).



Color Picker – Swatch Book

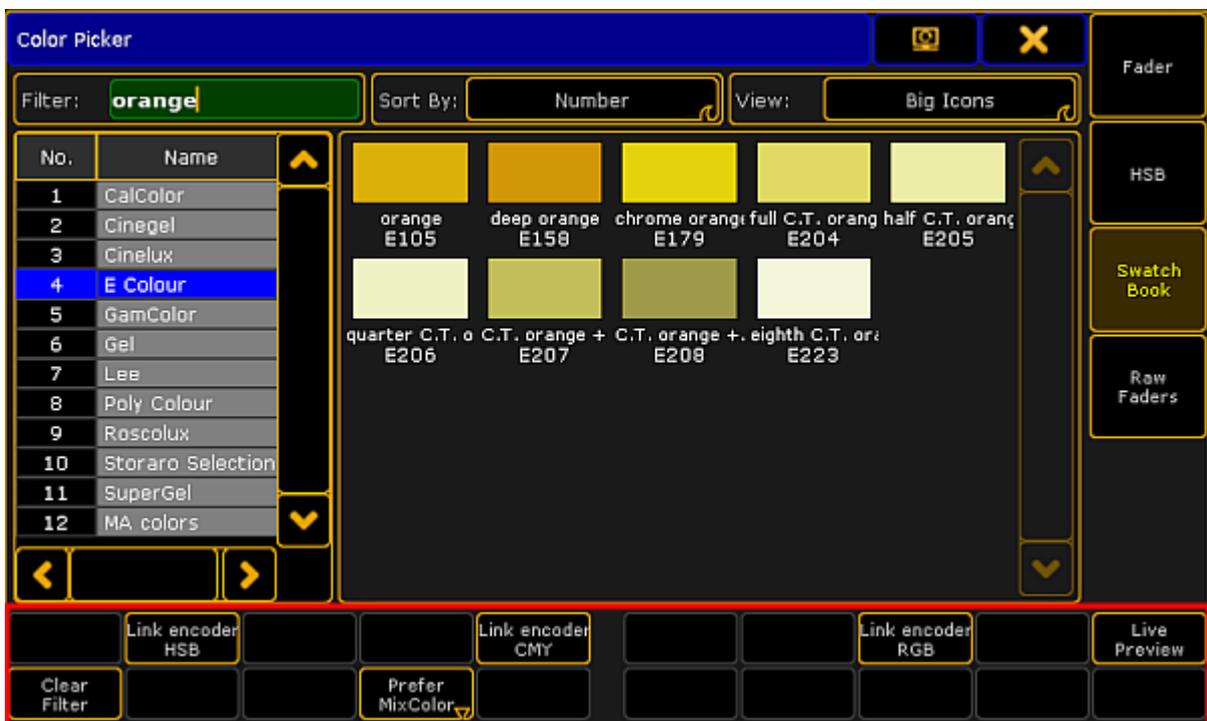


**Important:**

The swatch book displays the color in RGB and RGB number.

- If you type a number into the filter on the top left, the swatch book will sort the list by the hints containing this number.
- If you type a letter into the filter, the swatch book will sort by the name of the color.

## Bar In Swatch Book – Special Dialog



Special Dialog – Bar In Swatch Book

- **Clear Filter:**  
Empties the filter on the top left of the dialog.

- **Live Preview:**

If you scroll using the encoder to change colors, these colors are directly shown live.

### 3. Raw Faders

Raw faders display all MixColor attributes in a show file.



*Color Picker – Raw Faders*

### 4. Predefined Colors

Predefined colors are displayed in a rod-shaped pattern in four columns.



*Color Picker – Predefined Colors*

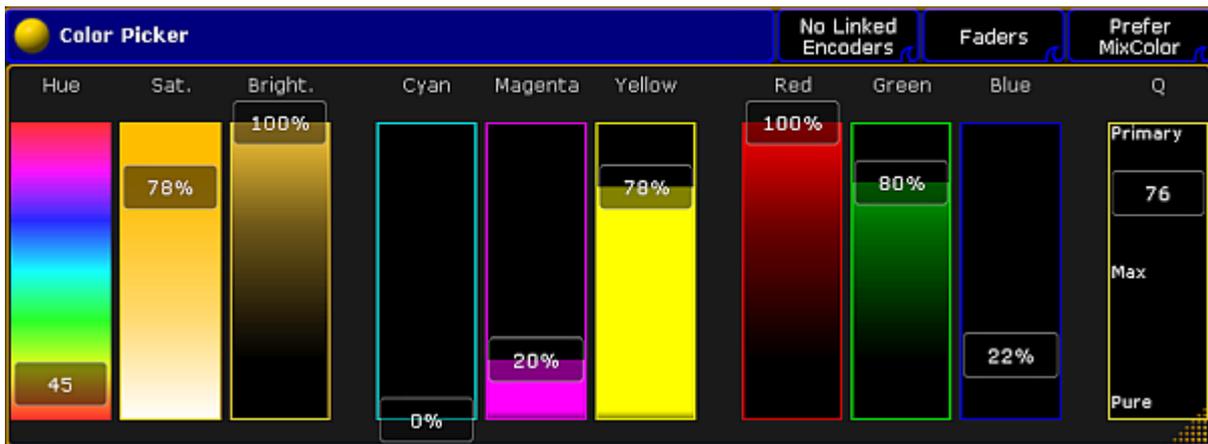


**Important:**

Predefined colors are not available in the Special Dialog.

### 5. Faders

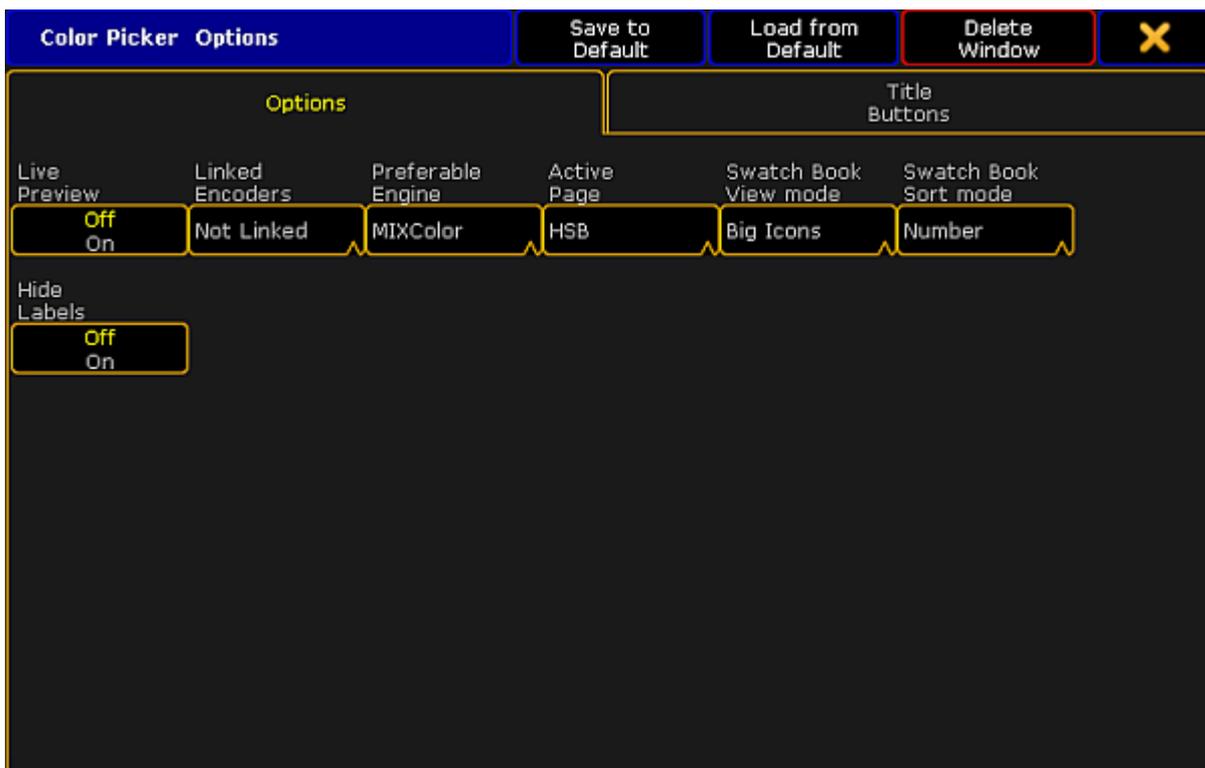
Faders display the three color systems – HSB, CMY and RGB along with the Q fader – in contrast to one another in form of faders.



Color Picker – Faders

## Options

To open the options in the color picker, tap  in the upper left corner of the window.



Color Picker – Options

Options display the following:

### **Live Preview:**

See Bar in Swatch Book – Special Dialog.

### **Linked Encoders:**

If you tap this button, the pop-up **Select Linked Encoders** opens. Choose which [encoders](#) you would like to link here.

## Preferable Engine:

If you tap this button, the pop-up **Select Preferable Engine** opens. Choose the [color system](#) you would prefer to use.

## Active Page:

If you tap this button, the pop-up **Select Active Page** opens. Choose the view you would like to be displayed here.

## Swatch Book View Mode:

If you tap this button, the pop-up **Select Swatch Book View Mode** opens. Choose the category you would like the Swatch Book to be displayed by.

## Swatch Book Sort Mode:

If you tap this button, the pop-up **Select Swatch Book Sort Mode** opens. Choose the category you would like to sort the swatch book by.

## Hide Labels:

If you disable this button, the values of HSB, CMY and RGB will be displayed in percentage.

---

## Title Buttons

To open the title buttons in the color picker, tap  in the upper left corner of the window.



## Color Picker – Title Buttons

If you enable **Color Engine**, **Active Page** and **Link Encoders**, these buttons will be displayed in the title bar of the view.

If you enable **Swatch Book** and **Swatch Book View**, these buttons will be displayed in the title bar in Swatch Book only.

To close the **Color Picker Options**, tap  in the upper right corner.

---

## Close the Color Picker

To close the color picker altogether, tap  in the upper left corner of the dialog and tap **Delete Window**.

If you opened the color picker via the special dialog, then tap  in the upper right corner of the dialog.

## 14.8. Using The Shaper Dialog

A shaper dialog is used to manipulate the beam of a fixture with the help of shaper blades. The **Shaper** is displayed in three different modes:

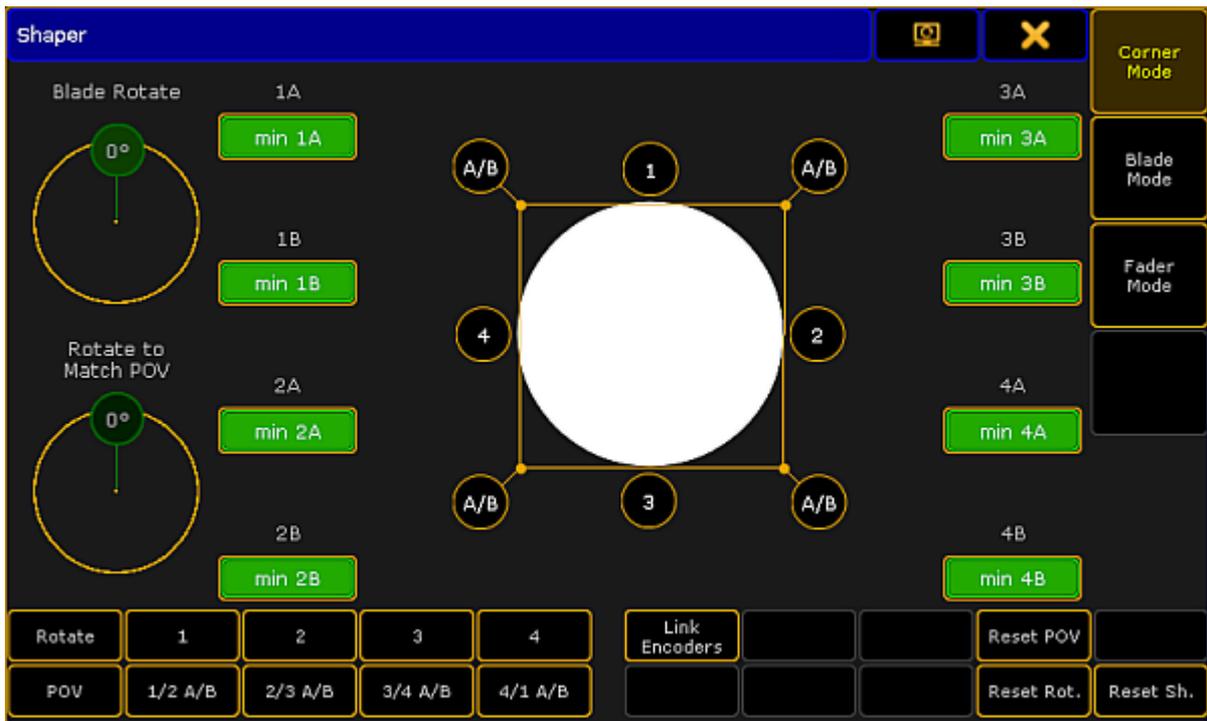
- Corner Mode
- Blade Mode
- Fader Mode

### Requirement:

- Fixtures are patched.

To open the shaper:

1. Select fixtures with the attribute of blades in the fixture sheet.
2. Tap **Shapers** in the **Preset Control Bar**.
3. Next, tap **Special Dialog** in the **Encoder Toolbar** right below **Shapers** in the preset control bar.
4. The dialog **Shaper** opens.

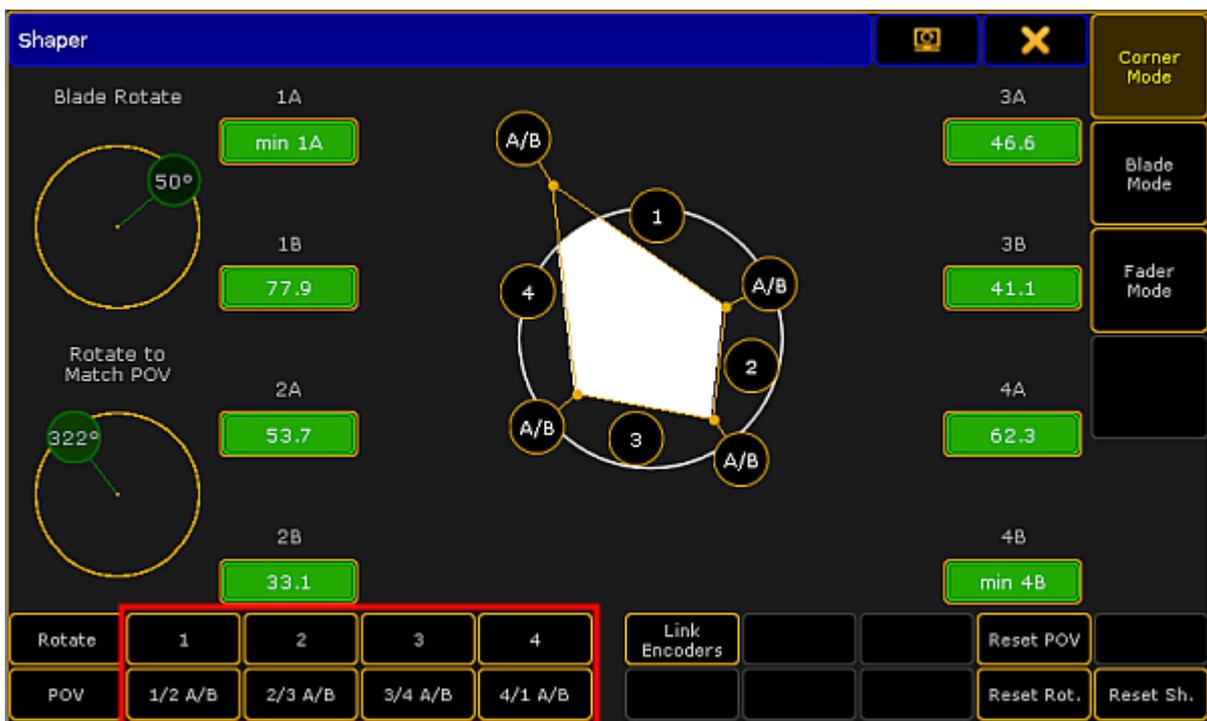


Shaper Dialog

## Corner Mode

The corner mode is primarily used to illuminate beveled edges.

To move the blades, tap either a number or a letter displayed around the circle and use the screen encoder.



Corner Mode



**Hint:**

It is also possible to set the focus on the numbers or letters of the beam by tapping the buttons on the left at the bottom of the dialog. See the red box.

**The white circle in the middle of the dialog:**

Represents the beam of light coming from the fixture.

**Numbers around the beam:**

Represent blades that can be pulled up and down accordingly.

**Letters around the beam:**

Represent blades that can be pulled up and down, and sideward as well.

**Blade Rotate:**

Displays the angle in which the entire blade system rotates.

**Rotate to Match POV:**

Rotates to match the point of view.

**Green boxes with values:**

Represent corresponding blade parameters.

**Rotate:**

Sets the focus on Blade Rotate.

**POV:**

Sets the focus on Rotate to Match POV.

**Link Encoders:**

Tapping Link Encoders enables the following:

- **Angle Mode:**  
Moves the angles around a set point.
- **Set All:**  
Selects all parameters.
- **Invert All:**  
Inverts the selection.

**Reset POV:**

Sets the point of view into its initial position.

**Reset Rot.:**

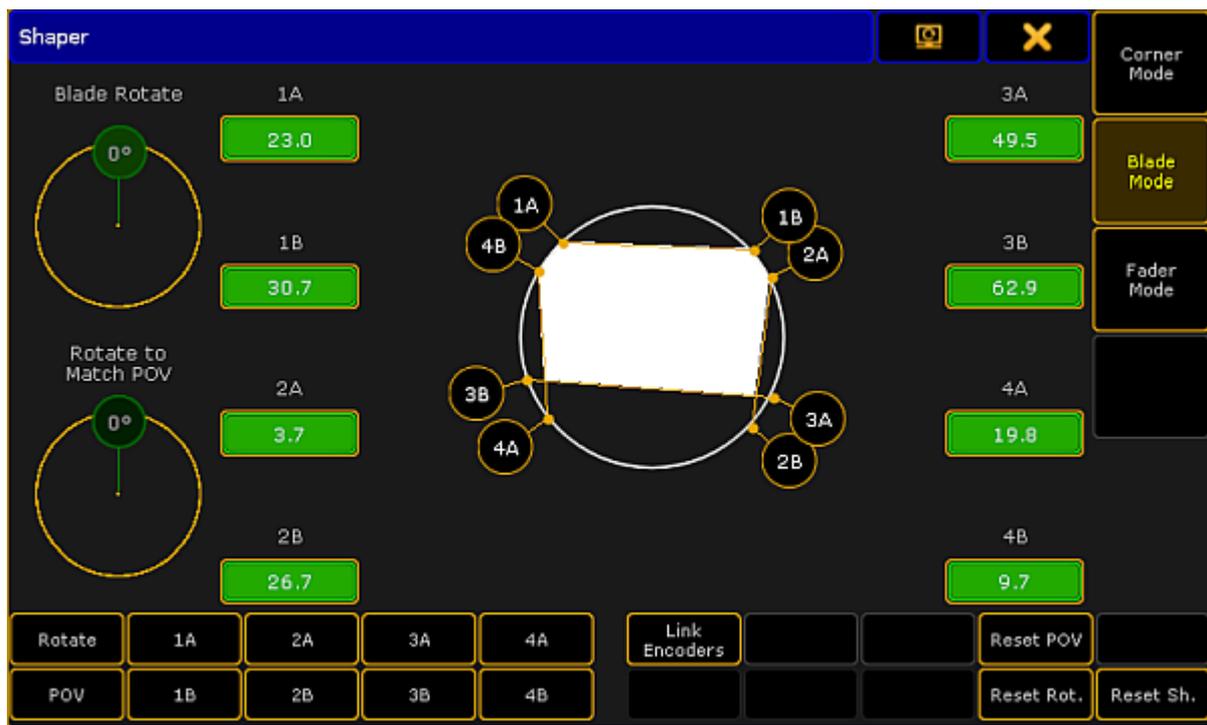
Sets Blade Rotate to its initial position.

## Reset Sh.:

Sets the beam of light to its initial shape.

## Blade Mode

The blade mode is primarily used to illuminate straight edges.



### *Blade Mode*

The **Blade Mode** basically behaves the same as the **Corner Mode**.

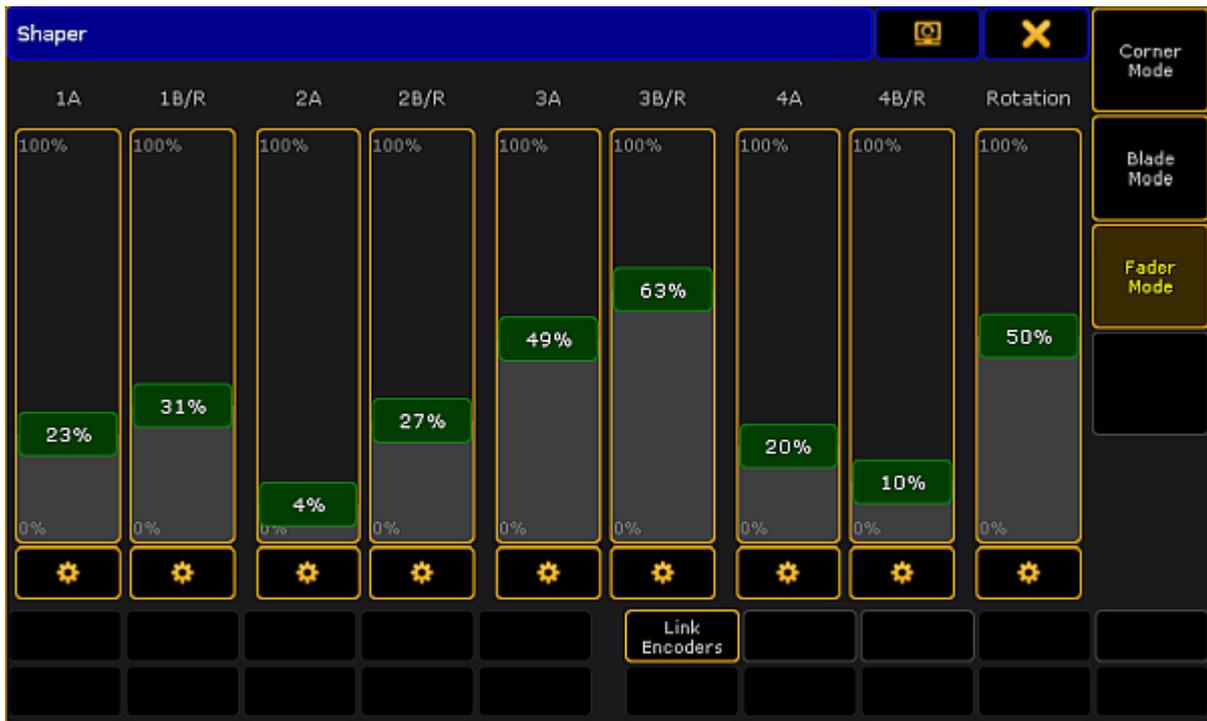
For more information on the single buttons see [Corner Mode](#).

## Fader Mode

Displays the shaper parameters in form of faders.

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*Fader Mode*



**Hint:**

To jump to the single modes, press the U-keys **U1**, **U2** or **U3**. Or tap **Corner Mode**, **Blade Mode** or **Fader Mode** on the right side of the dialog.

**Cog wheel symbol:**

Displays set values.

Tapping on the cog wheel opens a pop-up with values and symbols:



*Cog wheel symbol*

## Values in percentage:

Tapping a percentage value in this pop-up sets the fader automatically to the value you have tapped.

### **\*2:**

Doubles the value in the fader.

### **/ 2:**

Divides the value in the fader by two.

## Magnifying glass:

Is used to zoom in and out of the fader scale.

---

## Close the Shaper Dialog

To close the shaper, tap  in the upper right corner of the dialog.

## 14.9. Using The Smart View

The smart view displays default-defined channel sets of an attribute. These channel sets are stored in the library.

## Open the Smart View

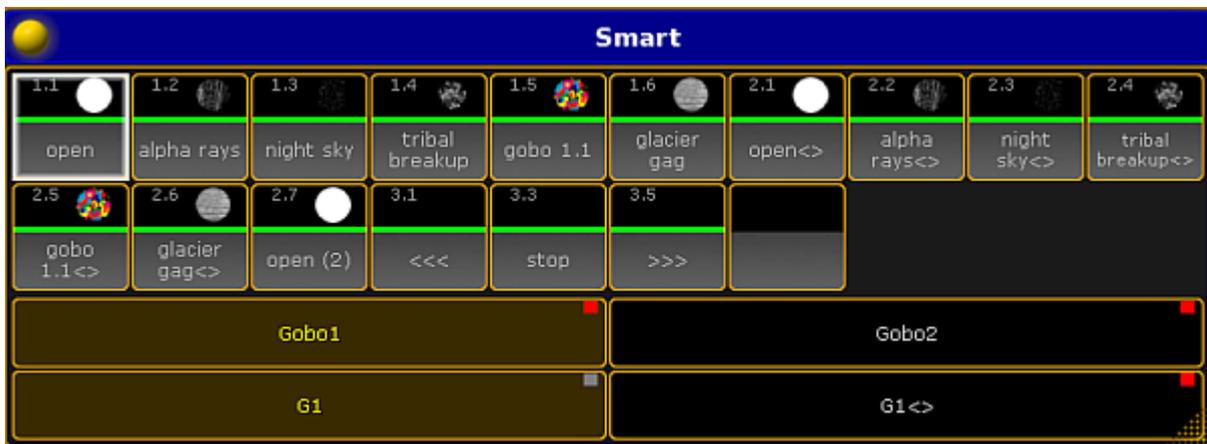


### Important:

To see the default-defined channel sets of a fixture in the smart view, select a fixture and tap a preset in the [preset control bar](#) first.

To open the smart view:

1. Tap anywhere in the **user-defined area**.
2. The pop-up **Create Basic Window** opens.
3. Next, tap **Other**.
4. Then, tap **Smart**.
5. The window **Smart** opens.



Smart View – Gobo



### Hint:

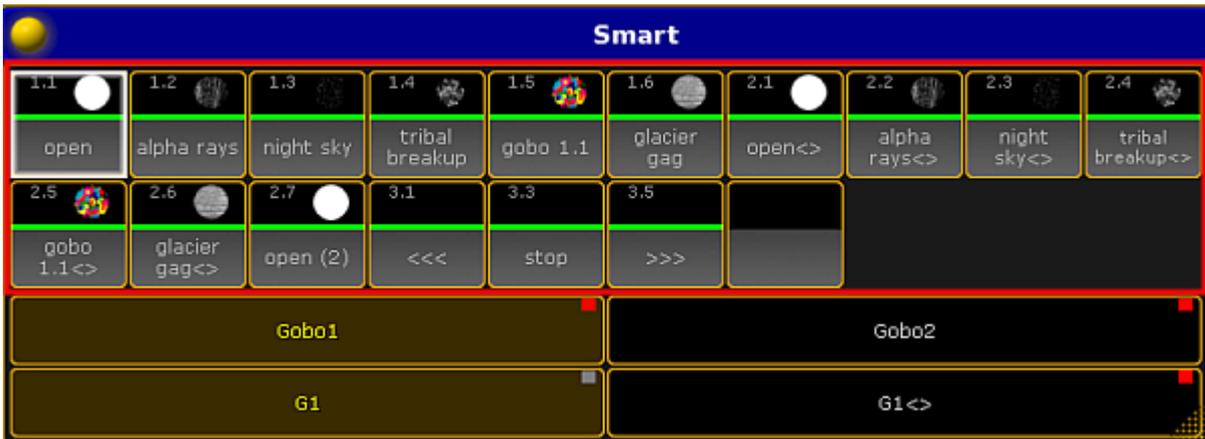
The smart view displays all default channel sets of attributes in a neat way. It basically facilitates your working steps.

## Channel Sets

The tiles marked by a red box are **channel sets**.

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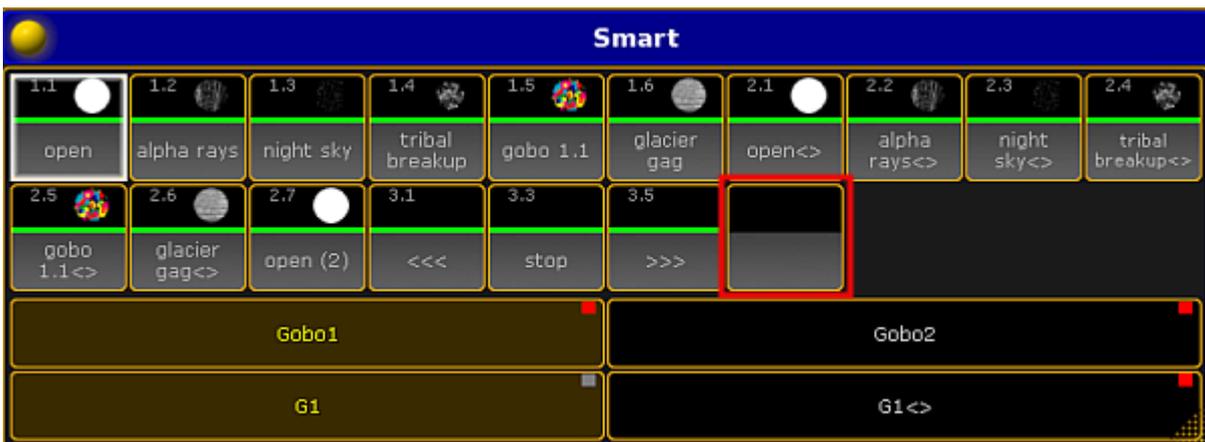
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Channel Sets Marked by a Red Box

It is possible to create a new channel set. To do so:

1. Assign a value to the attribute that is currently in the programmer.
2. Press **Store** and then tap the empty tile.
3. Next, label it and press **Please**.



Smart View – New Channel Set



### Important:

The new channel set applies to all fixtures of this fixture type.



### Hint:

Creating a new channel set directly in the smart view is more efficient than editing in numerous steps via **Setup**.

## Features

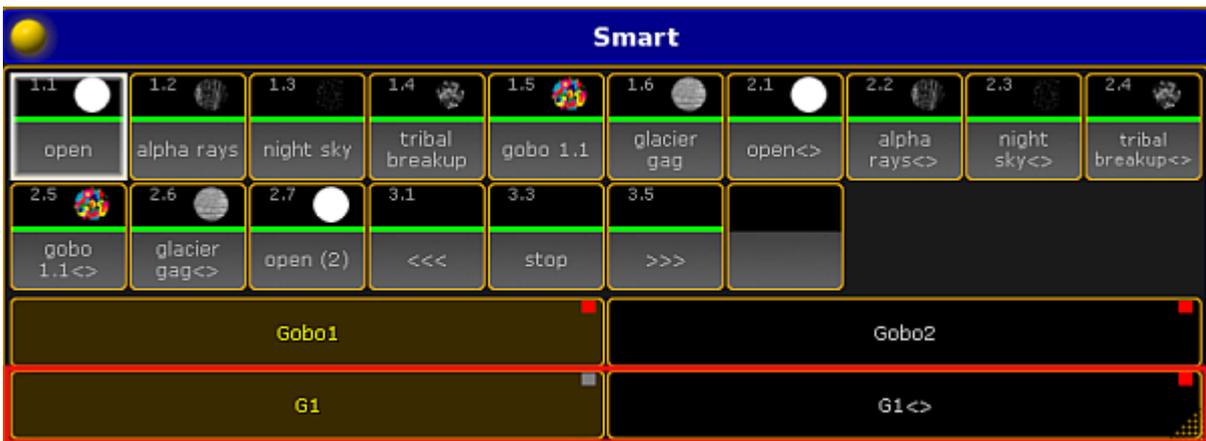
The fields **Gobo1** and **Gobo2** marked by a red box in the smart view display features of a preset type.



Smart View – Features

## Attributes

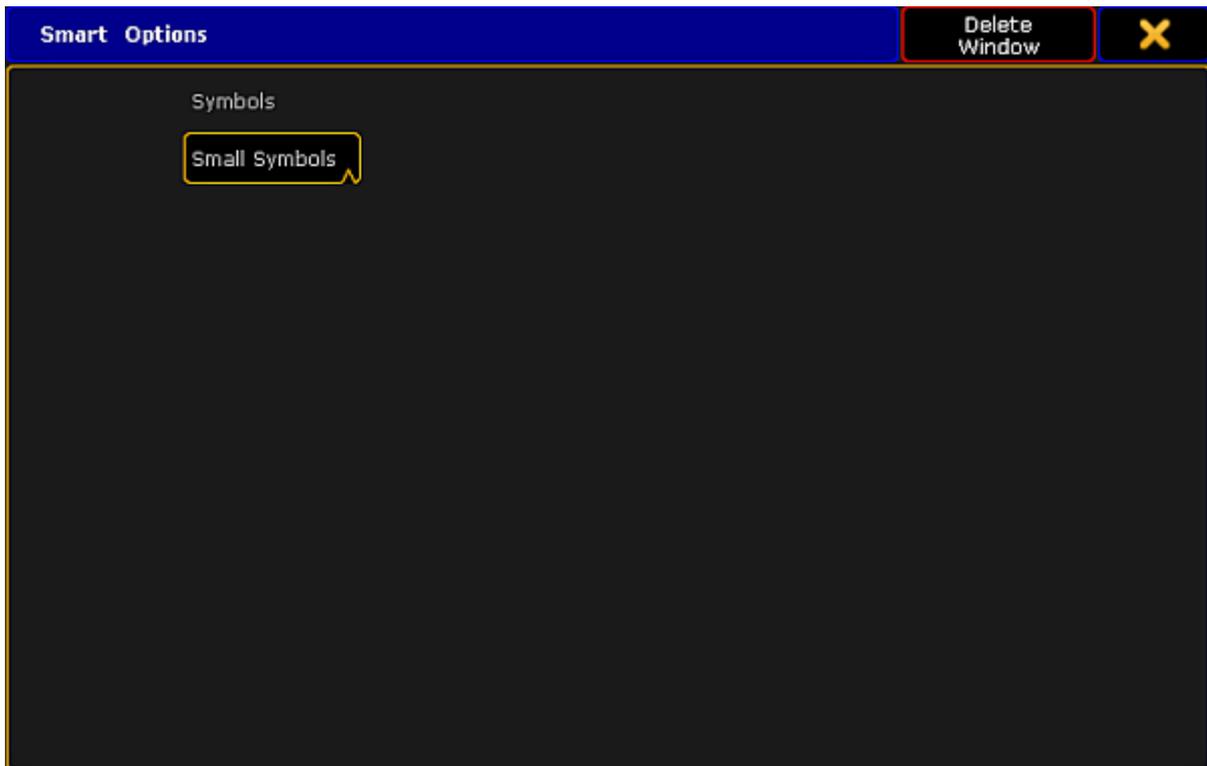
The fields **G1** and **G1 <>** marked by a red box display the attributes of the features.



Smart View – Attributes

## Options

To open the options in the smart view, tap  in the upper left corner of the window. The dialog **Smart Options** opens.



## *Smart View – Options*

If you tap Symbols, the pop-up **Select Symbols** opens displaying the following:

### **No Symbols:**

Does not display symbols in the corresponding tiles of the channel sets.

### **Small Symbols:**

Displays symbols in small.

### **Big Symbols:**

Displays symbols in big.

To close the options, tap  in the upper right corner.

---

## Close the Smart View

To close the smart view altogether, tap  in the upper left corner of the dialog and tap **Delete Window**.

## 14.10. Edit a Channel or a Fixture

Contrary to editing in [live patching](#) where you can edit entire fixture types, here it is possible to edit single objects only.

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- Channels and / or fixtures are patched.

Patch channels and fixtures in **Setup – Patch & Fixture Schedule**.

For more information on how to patch channels and fixtures see [Adding fixtures to your show](#).

To edit a fixture or a channel:

- Tap and hold name or ID number of the fixture or channel you would like to edit.  
-or-
- Press **Edit** and tap a fixture or a channel in the corresponding sheet.  
-or-
- Press **Edit** + **Fixture** + number of the fixture or channel to be edited + **Please**.

The edit pop-up opens.

FixId	Chaid	Color	Pos X	Pos Y	Pos Z	Rot X	Rot Y	Rot Z	No Parameter	RDM ID
1	1	255 255 255	-5.00	3.10	8.00	-0.00	0.00	180.00		

Addr	Fixture	Fix Id	Cha Id	Attribute	Default	Highlight	Stage	Snap	Invert	Real Mas
1:201	Spot 1	1	1	DIM	0.00	100.00	None			0
1:202	Spot 1	1	1	PAN	0.00	None	None			
1:204	Spot 1	1	1	TILT	0.00	None	None			
1:206	Spot 1	1	1	FOCUS	50.20	None	None			
1:207	Spot 1	1	1	ZOOM	50.20	None	None			
1:208	Spot 1	1	1	CTO	0.00	None	None			
1:209	Spot 1	1	1	COLORRGB1	100.00	100.00	None			
1:210	Spot 1	1	1	COLORRGB3	100.00	100.00	None			
1:211	Spot 1	1	1	COLORRGB2	100.00	100.00	None			
1:212	Spot 1	1	1	COLOR1	0.00	0.00	None			

*Edit Pop-up*

- The **upper spreadsheet in the pop-up** displays the modules of a fixture.
- The **lower spreadsheet in the pop-up** displays the attributes of these modules.



### Important:

It is possible to edit all fields marked in gray. For detailed information see [live patching](#).



### Hint:

To jump between fixtures or channels, tap either **Previous** or **Next** in the title of the edit pop-up.

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## Hint:

If a fixture is linked to an RDM address, **RDM ID** will be displayed in the header of the upper spreadsheet.

Furthermore, it is possible to edit the order within the column in the pop-up. To change the order, tap and hold the title of the column and pull it up or down.

To close the edit pop-up, tap ✕ in the upper right corner.

## 15. Pools in General

This chapter describes pools in general. Pools are windows that display objects in the show file.



*Preset pool – Color*

To open a pool see [workspace - manage windows](#).

There are 19 different pools. For information on specific pools click on one of the following links.

- [Camera Pool](#)
- [Effects Pool](#)
- [Filters Pool](#)
- [Forms Pool](#)
- [Groups Pool](#)
- [Images Pool](#)
- [Layout Pool](#)
- [Macros Pool](#)
- [Masks Pool](#)
- [MAtricks Pool](#)
- [Page Channels Pool](#)
- [Pages Exec Pool](#)
- [Sequence Pool](#)
- [Timecode Pool](#)
- [Timecode Slots Pool](#)
- [Timer Pool](#)
- [Views Pool](#)
- [Universes Pool](#)
- [Worlds Pool](#)

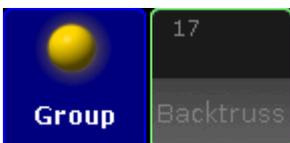
To navigate in the pool, use the arrow keys on the keyboard in the drawer of the console or on a external keyboard.

### Pool objects

Every pool contains pool objects.

Every pool object with content has a brighter frame compared to an empty pool object.

The first pool object tile displays the name of the pool. If the focus is set to a pool, the first pool tile is blue.



*Group pool with focus*

The number in the upper left corner of a pool object is the pool object number.

A pool displays at least a full screen of pool object tiles, for example 127 pool object tiles on screen 2 of a grandMA2 console. If the empty object tiles do not exceed 100, a further page with empty object tiles will be added. In total, there are 9999 object tiles per pool.



**Hint:**

To expand the group pool for example by 1000 empty pool object tiles, type into the command line:

- **Store Group 1000** and press **Please**
- **Delete Group 1000** and press **Please**

The group pool is expanded by empty group pool objects.

For information about the pool object colors see [workspace - colors - system](#).

## 15.1. Manage pool objects

The following examples explain on the group pool how to manage and organize pool objects in pools. These examples are valid for all pool objects.

Every of the following actions is oopsable. For more information see [oops and undo](#).

---

### Store new empty pool objects

Empty pool objects are useful for preprogramming and to fill them later with content in the venue. You can also use them to organize the pool as a label for the following pool objects.

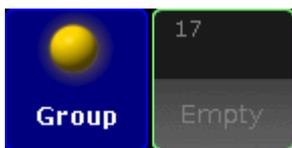
**Requirement:** [Open groups pool](#).

To store new empty pool objects:

- Press **Store** and tap on an empty pool tile.

- or -

- Press **Store** **Group** **17** **Please**.



*Groups pool - empty pool object*

An empty group pool object is stored in the group pool. An empty pool object is indicated by a gray font.



**Hint:**

You can also use the [Store command](#) to store new empty pool objects.

Pool object numbers may also differ in color. For more information see [Workspace - Colors - System](#).

---

## Label pool objects

Clear and unique pool object labels will help you and other people running the show to keep organized.

### Requirements:

- [Open groups pool](#)
- Existing groups pool object

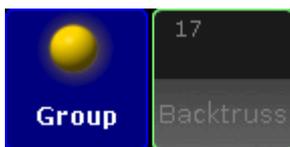
To label pool objects:

1. Press **Assign Assign** (= Label) and tap at the to be labeled group object tile.  
- or -  
Press **Assign Assign** (= Label) **Group 17 Please**.



*Enter Name for Group pop-up*

2. Use a keyboard or open the virtual keyboard by tapping at the **plus**  to enter the new group name in the green edit line for example **Backtruss**.
3. Press **Please**.



*Group pool - labeled empty pool object*

The group is labeled as Backtruss.



### Hint:

You can also use the [Label command](#) to label pool objects.

---

## Move pool objects

### Requirements:

- [Open groups pool](#)
- Existing groups pool object

To move pool objects around in a pool:

- Press **Move**, tap at the to be moved pool object and then tap at the new pool object place.

- or -

- Press **Move Group 17 At 18 Please**.

If the destination of the pool object is already taken the pool objects will switch the places.

The group pool object is moved.



**Hint:**

You can also use the [Move command](#) to move pool objects.

## Copy pool objects

### Requirements:

- [Open groups pool](#)
- Existing groups pool object

To copy pool objects in a pool:

- Press **Copy**, tap at the to be copied pool object and then tap at the copied pool object destination.

- or -

- Press **Copy Group 16 At 17 Please**.



*Group pool - copied pool object*

Group 16 is copied at group 17. The copied group is indicated by a **#2**.



**Hint:**

You can also use the [Copy keyword](#) to copy pool objects.

## Edit pool objects



**Restriction:**

The Pages Channel Pool, the Pages Exec Pool, and the Views Pool does not support the Edit pool objects function.

### Requirements:

- [Open groups pool](#)
- Existing groups pool object

To edit pool objects:

- Press **Edit** and tap at the to be edited pool object.

- or -

- Press **Edit Group 17 Please**.

The respective edit mode or editor opens.



**Hint:**

You can also use the [Edit command](#) to edit pool objects.

---

Insert pool objects

**Requirements:**

- [Open groups pool](#)
- Existing groups pool object

To insert an existing pool object between two other pool objects:

- Press **Move Move Move** (= Insert) and tap and hold Group 8 and move by drag and drop at Group 2.

- or -

- Press **Move Move Move** (= Insert) **Group 8 At 2 Please**

Group 8 is moved at Group 2. All other groups are moved to the next empty pool object.



**Hint:**

You can also use the [Insert command](#) to insert pool objects.

---

Lock pool objects

**Requirements:**

- [Open groups pool](#)
- Existing groups pool object

To lock pool objects in a pool:

- Type **Lock** in the command line and tap at the to be locked pool object tile.

Group 17 is locked. A locked pool object is indicated by a **yellow lock** .



**Hint:**

You can also use the [Lock keyword](#) to lock pool objects.

---

## Unlock pool objects



**Important:**

You can unlock only pool objects indicated by a yellow lock .

### Requirements:

- [Open groups pool](#)
- Existing locked group pool object

To unlock pool objects in a pool:

- Type **Unlock** in the command line and tap at the to be unlocked pool object tile.

Group 17 is unlocked.



**Hint:**

You can also use the [Unlock keyword](#) to unlock pool objects.

---

## Delete pool objects

### Requirements:

- [Open groups pool](#)
- Existing groups pool object

To delete pool objects in a pool:

- Press **Del** and tap the to be deleted pool object tile.

- or -

- Press **Del** **Group** **17** **Please**.

- or -

- Press and hold the **Del** and then tap several pool objects.

Group 17 is deleted.



**Hint:**

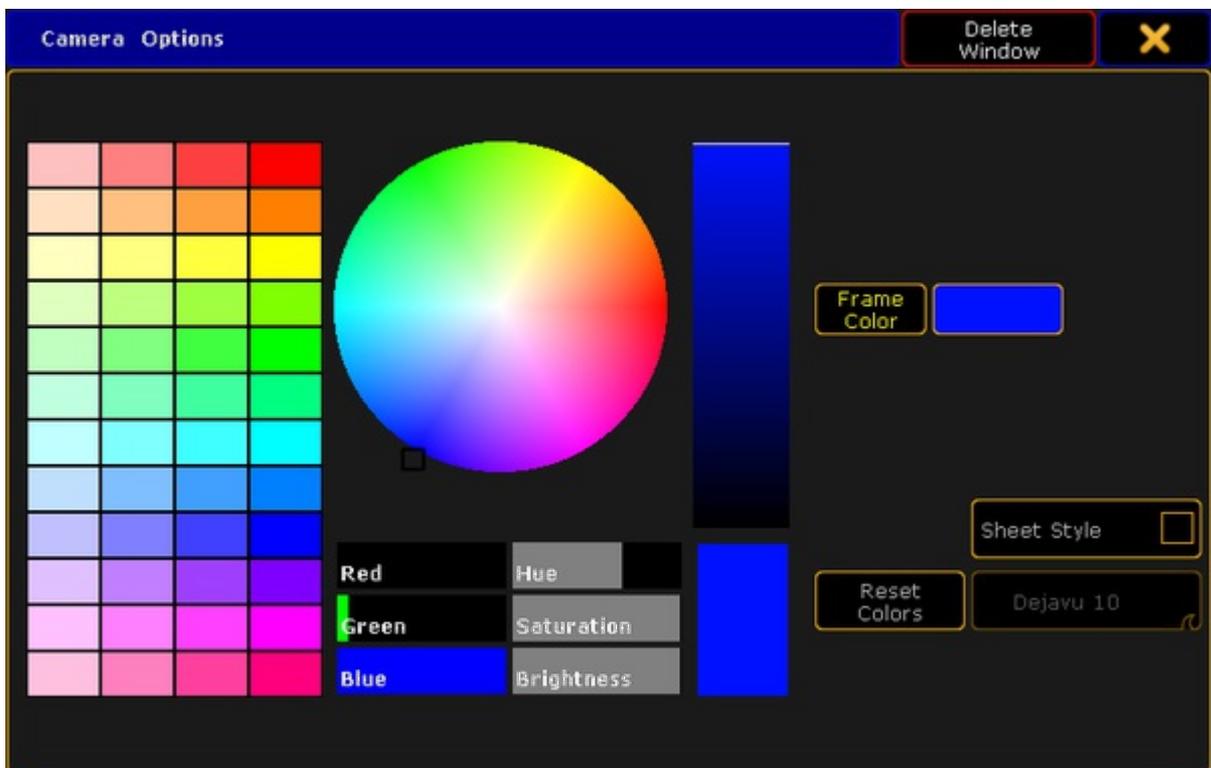
You can also use the [Delete command](#) to delete pool objects.

## 15.2. Adjust pool options

The following example of the Camera pool displays how to adjust the pool options. These options apply to all pools. Some pools have more specific options. Specific options are explained in their corresponding chapters.

The pool options will be saved in the user profile.

1. Open the **Camera pool**.
  - Tap an empty space of the screen. The pop-up **Create Basic Window** opens.
  - Tap **Pools** and then tap **Camera Pool**.
2. Tap  in the upper left corner. The pop-up **Camera Options** opens.



*Camera Options*

3. Choose the frame color of the camera pool. The frame color is the color around the pool objects and the color of the first pool object tile which displays the pool name.
  - Tap one of the predefined colors in the **color table**, or tap the **color circle**, or move the **Hue**, **Saturation**, or **Brightness** slider.
  - The selected frame color is displayed right beside the button **Frame Color**.
  - To reset the Frame color back to default, tap **Reset Colors**.
4. To change the pool from the pool style into the sheet style, tap **Sheet Style**.
5. If the sheet style is selected, choose the font size used in the sheet.
  - Tap and swipe the button **Dejavu** and tap the font size.
6. To close the **Camera Options**, tap  in the upper right corner of the pop-up.

The pool options are adjusted to your needs and are saved in the user profile.



**Hint:**

To change the color of one or more pool objects, you can also use the [Appearance Keyword](#).

## 15.3. Call Modes

Some pool options have the setting of three different call modes.

These call modes are:

- [Normal call](#)
- [Fast call](#)
- [Pool playback](#)

---

### Normal Call

The following modes are explained by the example of the effect pool.

#### Example

1. Select fixtures.
2. Open the options of the effect pool and set the button below **Frame Color** to **Normal Call**.
3. Tap a pool object in the effect pool.
4. The effect object that was tapped is now applied to the fixtures that were previously selected.

The background of the pool objects in the pool stays unaffected (gray).

---

### Fast Call

Fast call is used in all fixtures without selection and in all fixtures that were previously selected and that are assigned to a pool object.

#### Example

1. Open the options of the effect pool and tap the button **Normal Call** to toggle it to **Fast Call**.
2. Tap a pool object in the effect pool.
3. The effect object is instantly applied to all fixtures in the fixture sheet.

The background of the pool objects turns crimson.

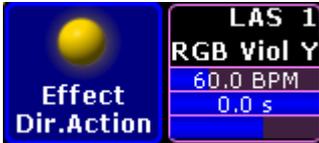


**Important:**

Note that fast calling a template effect, triggers all fixtures in the fixture sheet. Fast calling a selective effect only triggers those that are set selectively for an object.

## Pool Playback

Activates a temporary playback. The pool object turns into a mini executor.



*Mini executor in the effect pool*

## Example

1. Open the options of the effect pool and tap **Normal Call** to toggle it to **Pool Playback**.
2. To toggle the mini executor between the states "on" or "off", tap **Direct Action**.
3. Direct Action is enabled and displayed below the name of the pool.



*Direct action – enabled*

For more information see [Assign effect to executor](#).

## 16. Groups

Groups are collections of fixtures used for fast selection.

Combinations of fixtures that you often use can be stored as Groups so you don't have to manually select them every time you use them.

Groups are merely shortcuts for selecting fixtures:

**Group 5 At 50**, **Store Cue 3** will set the *fixtures* in Group 5 to 50%, not Group 5 to 50, so any later changes to Group 5 will not be reflected in Cue 3.



### Important:

Groups remember the *order* of the selection. Fixture 1 + 2 is not the same as Fixture 2 + 1. The order of a selection is important when applying effects and value-ranges, which will be distributed along the selection.

## Group Pool Window

Your groups are displayed in the Group pool Window.



*Group pool - Pool style*

There are different colored horizontal bars in the middle of each group pool button. Some colors can be changed by you, others are fixed. Each Group pool button can also have an individual frame color.

There might be an information "i" on the group. This is visible if there's any information attached to the group.

The Group pool can also be displayed in a Sheet style. The then above groups would look like this:

Group Pool				Show Empty
No. ▲	Name	Info	Sel. Order	
1	All Spots			▲
2	All LED	Not in World 2		
3	All Dimmer			
4	All Blinder			
5	All Pars			
6	Spot 1 1		1	
7	Par 1 1001			▼

## Group pool - Sheet style

Read below about the Group pool options to learn how to change the pool style.

In the sheet style you can see all the same things as in the pool style. Plus you can read any information that are written on a group.

In the title bar you can choose if you want the group sheet to display or hide empty groups.

All columns can be sorted in ascending or descending order by pressing the **Edit** key and then the column title or if you have a mouse or trackball you can right click the column title.

## Group pool options

In the options you can set colors for corresponding options. For more information see [change specific group colors](#).

For more information on general pool options see [adjust pool options](#).

The following pages tells you how to [Create and name Groups](#).

How to [Auto Create Groups](#).

A little bit about [using the Groups in your programming](#).

How to [Delete, Copy and Move Groups](#).

## 16.1. Create groups

Groups contain a selection of fixtures and the selection order of the fixtures.

To create groups you'll need to select some fixtures first.

## Create group using Group pool (GUI)

When you have a selection of fixtures, then you can store it as a group.

For more information on how to store group objects see [Manage pool objects](#).

## Store a group on an existing group

If you store a selection of fixtures into an existing group then you are presented with some options. It's the Choose store Method pop-up:



*Choose store method pop-up*

There's three options here:

- **Overwrite** This will delete the current content in the group and store the new selection instead.
- **Merge** This will add the new fixtures to the current fixtures. The new fixtures are added after the existing fixtures. I.e. if you have a group with fixture 1, 3 and 5 and you merge in fixtures 2, 4 and 6. Then your group will have fixtures 1 to 6 but the selection order will be 1,3,5,2,4,6.
- **Remove** This will remove your currently selected fixtures from the group (should they be there).

If you tap the **X** in the upper right corner of the pop-up then you cancel the store operation.

## Labeling the groups

The grandMA2 will try to give the group a name when you store it. But if your selection is too complex for the console, then it'll just call it "Group" and then the group number.

Immediately after you have stored the group, you can start typing on the keyboard. This will name the group you just stored.

If you wish to name the group later then you can use the [Label command](#).

For more information on how to label the groups see [Manage pool objects](#).

## Editing groups

When you are in the edit mode, then you get the group content as selected fixtures in your programmer. You can then change this selection. If you want to save the new selection then you press the Update key and confirm that you want to update the group in the small confirmation pop-up.

For more information on how to edit groups see [Manage pool objects](#).

## 16.2. Auto Create groups

You can auto create groups.

You do this by using the Auto Create menu. You will find this in the Setup -> Show -> Auto Create.

This menu is separated into different tabs. One is called "Group" and it could look like this:



*Auto Create menu - Group*

There are two different sections of this window.

The left one can displays the Fixture Types or the Layers (depending on your settings - read below).

The right one displays the single fixtures of the selection in the left section. On the far right side there is a small green input box where you can manually select the group number where the first created group should begin.

Everything that has a blue background is selected. Multiple selection is possible using the **Ctrl** key on the keyboard.

The bottom part of the menu have different buttons:

### Choose:

This button has two different modes: **Layer** and **Fixture Type**. It chooses what the left section displays.

## Always ask for Name:

When this is On (yellow text and background), you will get a name pop-up for each selected Layer or Fixture Type when you create "All" groups.

## Create All:

This will create "All" groups for each of the selected Fixture Types or Layers.

## Create Single:

This will create single groups for every one of the selected fixtures.

## Overwrite:

This will allow for auto create groups to overwrite existing groups. If this is off, and there is a conflict, the console will present you with a Auto Create Conflict pop-up (read more about this below).

## Use:

This button has two modes. When it is **Earliest** the console will use the first free pool button. When it is **Latest** the console will use the first pool button after the last one used.

## Work flow when auto creating groups

So the work flow is that you select the separation order in the left section using the **Choose** button.

### All groups

If you want to create "All" groups then you need to select the Fixture Types or Layers.

Then select the first group number. Either by typing the number in the green input box or by the **Use** button.

Now you need to select if you want to name each group manually (activating the **Always ask for Name** button) and if you want to overwrite existing groups (using the **Overwrite** button).

Last thing is to tap the **Create All** button.

### Single groups

If you want to create "Single" groups then you need to select the Fixture Types or Layers and then the one of the sections in the left side. You can then select the fixture you want in the right side. You can use a lasso function to select several fixtures or you can hold the **Ctrl** key and select or de-select fixtures in the list.

Then select the first group number. Either by typing the number in the green input box or by the **Use** button.

Now you need to select if you want to name each group manually (activating the **Always ask for Name** button) and if you want to overwrite existing groups (using the **Overwrite** button).

Last thing is to tap the **Create Single** button.

## Auto Create Conflict pop-up

If "Overwrite" is not active and there is a conflict, then you will get a pop-up like this:



*Auto Create Conflict pop-up*

This pop-up has four options:

### **Overwrite:**

This will delete the current content in the group (world, preset, or channel page) and store the new selection instead.

### **Merge:**

This will add the new content to the current content (group, world, preset, or channel page).

The new content will be added after the existing content. For example if you have a group with fixture 1, 3 and 5 and you merge in fixtures 2, 4 and 6. Then your group will have fixtures 1 to 6, but the selection order will be 1,3,5,2,4,6.

### **Skip to next Empty:**

This will store the new content (group, world, preset, or channel page) at the first empty position.

### **Skip to latest Empty:**

This will store the content at the pool object after the currently last used pool object. For example if the highest group number you have is 11 then it will create group 12.

## 16.3. Using groups in your programming

When some groups have been created, then they can be used in your programming.

Groups are shortcuts to select fixtures.

There is no reference to the group stored anywhere. This means that if the group is changed after being used, then it will not affect the stored cues.

The work flow is that you tap a group in the pool, give it some values, and then you might store it.

### Using names or numbers

Groups can be accessed by their names or numbers.

If you have group 7 and its named **My Lights**, then you can use the command line and write

**Group 7 at 50** or **g "My Lights" at 50** ("g" is the command shortcut for group).

If you have more groups called **My Lights** then all the groups with that name will get the value.

Capital letters are ignored. So **My Lights** and **my lights** are considered the same.

You can also use an asterisk as a joker. Let us imagine that you have three groups called **Wash 1**, **Wash 2** and **Wash 3**.

If you want to turn all three groups at 50%, then you can write **g wash\* at 50**.

In the last example we did not need the quotation marks. They are needed if the name have a space in it. But if you use asterisk then you do not need it, even though the resulting groups actually have a space in their names.

The asterisk can also be used in front of the name. If you have several groups that has the word **cold** in the name and you want them all to go to 60, then you can write the following **g \*cold\* at 60**.

## 16.4. Choose copy method

### Requirements:

- Copy a group object in the group pool
- Target group object has to be occupied

For more information how to copy pool objects see [Manage pool objects](#).

When you copy a group to a location where there's already a group then a pop-up opens. This pop-up shows three options:

**Overwrite** - This will delete the current content in the group at the location and add the new content. It won't change the group name.

**Merge** - Adds new fixtures to the existing fixtures in the group. The order of the selected fixtures depends on which fixtures you selected first, e.g., the new fixtures are attached to the existing fixtures in their selection order. It won't change the group name.

**Cancel** - This will cancel the copy operation. You can also cancel copy by closing the pop-up by tapping the X in the upper right corner.

## 16.5. Change colors in group options for all in order and all out of order

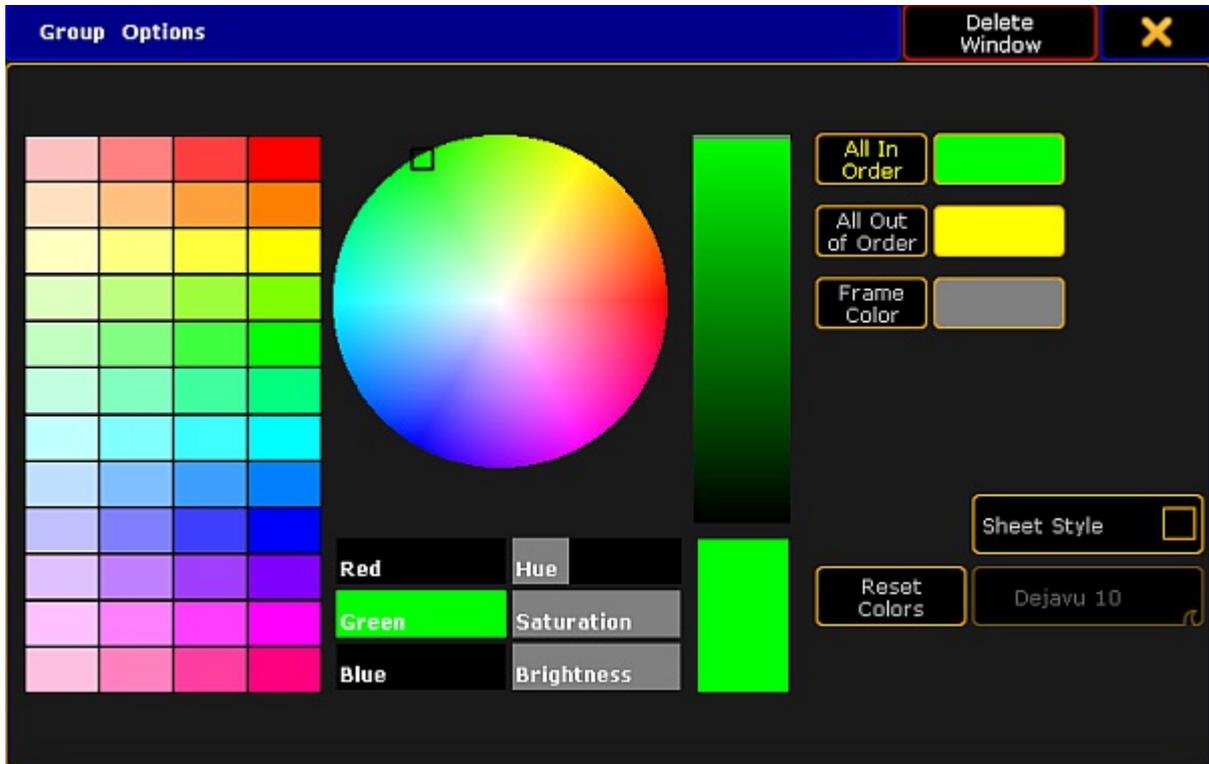
The following describes how to set colors in All in Order and All out of Order in Group Options.

- **All in Order** shows that the fixtures are selected in the same order they were initially stored in the corresponding group.
- **All Out of Order** shows that the fixtures are selected in a different order they were initially stored in the corresponding group.

To change the group colors in **All in Order** and **All Out of Order**:

1. Open the pool Groups.
  - Tap on an empty space on the screen. Create Basic Window opens.
  - Tap **Pools**, then tap **Groups**.

2. Tap the **yellow ball**  in the upper left corner of the Group Pool Window. Group Options opens.



*Group Options*

3. Tap **All In Order** and then choose a color from the **color table** or the **color circle**.
  - The color you have chosen is displayed as a line within the pool object right above the font of the pool object.
4. Tap **All Out of Order** and then choose a color from the **color table** or the **color circle**.
  - The color you have chosen is displayed as a line within the pool object right above the font of the pool object.

Let's say we have selected the color green in **All in Order** and the color yellow in **All Out of Order**.

This is what it would look like:



*Group colors*

For more information on how to reset and adjust colors, change the pool into sheet style and/or how to use the **Hue**, **Saturation** and the **Brightness** slider see [Adjust pool options](#).



## Important:

Some fixtures may have a red line within the pool object right above the font of the pool object. This red line is automatically generated when all fixtures or a part of fixtures are not available due to storing onto another [world](#).

The pool options are now adjusted to your needs and are saved in your user profile.



## Hint:

You can also use the [Appearance keyword](#) to change the color of one or more pool objects.

## 16.6. Group Master on Executors

Groups can be assigned to Executors and be used as group masters.

The idea is that you create the group in the pool and this group can be assigned to an executor with a fader.

The fader can then be used to set a limit of the groups dimmer output. There is also a special mode that allows you to use the fader to produce dimmer output. Read about the different modes below.

When a fixture is limited then the Fixture/Channel ID and Name gets a lavender background color. It could look like this:

ID F/C	Name	Dimmer Dim
1	Spot 1	70.6
2	Spot 2	70.6
3	Spot 3	100.0

*A Fixture sheet with fixtures limited by a Group Master*

The two limiting Group Masters (positive and negative modes) works as relative masters - not maximum masters.

This means that if a fixture is told to be at 50% by a cue and is limited by a Group Master by 50%, then the output from the fixture is 25%: 50% of 50%.

## Assigning a group to an Executor

There are several ways to assign a group to an executor.

### Using the keys

If you want to assign group number 1 at executor 3 on page 2 then you need to press the following keys:

**Assign Group 1 At Exec 2 . 3 Please**

### Using the Screens

When we say using the screens, we cannot just use the touch screens - it a combination of keys and screens.

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Have a group pool visible. Press the **Assign** key, then the group in the group pool, and then any of the keys associated with the executor where you want the group master.

## Using the assign menu

You can also open the **Assign Menu** for the executor and use that to assign a group.

Tap the area on the mini executor view (at the bottom of screen 3 and 4) marked red in this picture:



*Mini executor with open Assign Menu*

This will open the Assign Menu on one of the screens (default is screen 1) - read more about the Assign Menu [here](#).

Make sure the **Function** part of the Assign Menu is visible by tapping **Function** on the right side of the menu - or possible pressing **U1** if the menu is on screen 1.

In the lower right side of the view you will find a button called **Group Master** - tap this or press the **X8** key (if it is on screen 1).

This will list all the available groups on the right side of the menu. Here you can select the group you want to assign.

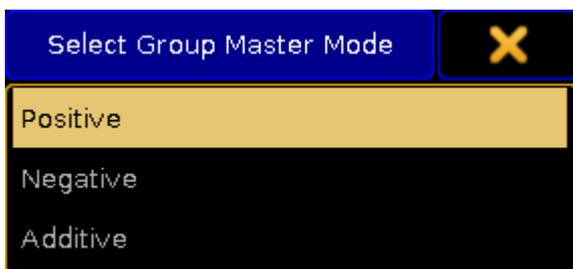
When you are done you can close the **Assign menu** by tapping the **X** in the upper right corner.

## Group master modes

The group masters can have three different modes. They are called **Positive**, **Negative**, and **Additive**.

When a group is assigned to an Executor, then open the Assign Menu and look at the **Options** part of it. You can change to it by tapping the **Options** button on the right side of the menu - or possible by pressing the **U2** key if the menu is on screen 1.

In this menu there is only one button called "Mode". Tapping this will open the **Select Group Master Mode pop-up**:



*Select Group Master Mode pop-up*

Here you can select what mode the Group Master should use.

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## The difference between Positive and Negative Group Masters

The only situation where the two modes have an effect is when there is an overlap of fixtures in several Group Masters.

A Positive Group Master works by a "highest takes precedence" principle. This means that a fixture will be allowed to output light if it is allowed by any one of several Group Masters.

This is what the **Mini Executor** looks like with a positive Group Master assigned - notice the "P" in the top center part:



*Positive Group Master - Mini Executor*

### Positive example

We have two Group Masters. One has fixture 1 and 2. The other has fixture 2 and 3.

All three fixtures are told to be at 100% by the programmer or a cue. Both Group Masters are at 100%.

If you limit the first Group Master (the one with 1 + 2) then you are only limiting fixture 1 because fixture 2 is allowed in the second Group Master.

A Negative Group Master works by a "lowest takes precedence" principle. This means that a fixture will be limited in outputting light if it is limited in any of several Group Masters.

This is what the **Mini Executor** looks like with a negative Group Master assigned - notice the "N" in the top center part:



*Negative Group Master - Mini Executor*

### Negative example

We have two Group Masters. One has fixture 1 and 2. The other has fixture 2 and 3.

All three fixtures are told to be at 100% by the programmer or a cue. Both Group Masters are at 100%.

If you limit the first Group Master (the one with 1 + 2) then you are limiting both fixture 1 and 2 even though fixture 2 is allowed in the second Group Master.

## Additive Group Master

The last mode is the Additive Group Master. This mode gives values to the fixtures in your group. So they do not need to have a values from cues or the programmer.

So turning up the master will give the fixtures the corresponding output.

If the fixture already has a value, then the Group Master will not take affect before the Master goes above that value.

This is what the **Mini Executor** looks like with an additive Group Master assigned - notice the white arrow in the top center part:



*Additive Group Master - Mini Executor*

When a fixture gets a value from an additive Group Master, then it gets a small white arrow next to ID number and a darker lavender background color. It could look like this:

ID	F/C	Name	Dimmer	Dim
1	↑	Spot 1	■	52.9
2	↑	Spot 2	■	52.9
3		Spot 3	■	0.0

*Fixtures with values from an Additive Group Master*

## Locate a Group Master

You can use the Locate command to find a Group Master for a group. The locate function will only find (and change page to) the first location for the group.

For example if you want to find the group master for group number 3, then you can write the following command:



This will change to the page where the Group Master is and the middle part of the Mini Executor will look like this:



*Located Group Master - Mini Executor*

To exit the locate function, you will need to execute the locate command without anything specified. Read more about the [locate command here](#).

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## Group Master view

A better way to see or find your Group Masters might be the **Masters Window** or the temporary **Masters view**.

They provide an overview of all the group masters in the show.

They are described in the [Masters Window topic](#).

## 17. What Are Presets?

Presets are stored presettings of parameters. They allow fast access and standardized usage.

These presettings can be:

- **Universal:**  
Universal settings, abbreviated as **U**, apply to all fixtures types that contain the corresponding attributes.
- **Global:**  
Global settings, abbreviated as **G**, apply to the corresponding fixture types.
- **Selective:**  
Selective settings, abbreviated as **S**, apply to single fixtures.



### Hint:

Make sure to use presets when programming as this facilitates your work, especially when working with a show which is used in different location and for various customers.

### 17.1. What Are Special Modes?

In addition to **normal**, there are three different special modes in the presets.

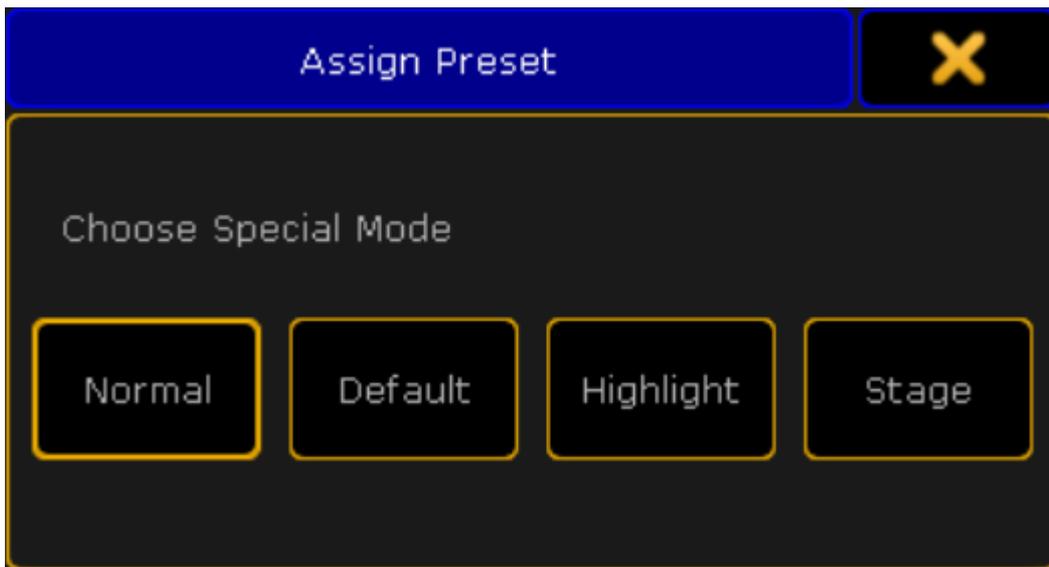
- **Default:**  
Default is used to modify the default values of attributes in single fixtures.
- **Highlight:**  
Highlight is used to modify the highlight values of attributes in single fixtures.
- **Stage:**  
Stage is used to modify the stage values of attributes in single fixtures. Stage values are enabled and disabled in the dialog **Calibrate Fixture Pos.** For more information see [Auto calibrate fixture positions](#).
- **Normal:**  
Normal reverts the special mode of a preset.



## Presets – special modes

To choose a mode:

1. First, store a preset with attributes which values are to be modified.
2. Press **Assign** and then tap the preset you would like to change.
3. Then press **Please**.
4. The pop-up **Assign Preset** opens.



Pop-up assign preset

5. Choose the special mode you would like to save your preset as.
6. After choosing a special mode, apply the fixtures to be modified with this preset.

## 17.2. Preset Pools

All in all, there are 10 preset pools by default. Each of the pools store values corresponding their preset type.

### Open the preset pools

To open the single preset pools:

1. Tap anywhere in the **user-defined area**.
2. The pop-up **Create Basic Window** opens.
3. Next, tap **Presets**.
4. Then, tap single presets to open the corresponding pools.



*Pop-up create basic window – presets*

There are two pools that are not numerated:

- **Dynamic:**

For more information on the pool **Dynamic** see [Dynamic preset pool](#).

-and-

- **All:**

Contrary to the numerated preset pools, it is possible to store all values without a preset type filter in the preset pool **All**.

To close the pop-up **Create Basic Window**, tap  in the upper right corner of the window.

---

## All Preset Pools at a Glance

Here is an outline of all preset pools.

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1 Dimmer	2 Position	3 Gobo	4 Color	5 Beam	6 Focus	7 Control	8 Shapers	9 Video	0 All	Look														
1 U	2 S	3 S	4 G	5 G	6 G	7 G	8 G	1	2	3														
Closed	Front	Stage	night sky Select	tribal breakup Select	gobo 1.1 Select	light Blue	Blue 2	Congo	open Shutter	min Focus	max Time	min 1A												
2 U	4 S	5 S	6 G	7 G	8 G	9 G	10 G	11 G	12 G	13 G	14 G	15 G	16 G	17 G	18 G	19 G	20 G	21 G	22 G	23 G				
25 %	Cross	Cross 2	glozier gob Select	open<> Select	alpha rays<> Select	Violet 1	Violet 2	Magenta	closed Shutter	max Focus	Time 0% Time	max 1A	2	4	5									
3 U	6 S	7	9 G	10 G	11 G	12 G	13 G	14 G	15 G	16 G	17 G	18 G	19 G	20 G	21 G	22 G	23 G	24 G	25 G	26 G	27 G	28 G	29 G	30 G
50 %	up		night sky<> Select	tribal breakup<> Select	sebo 1.1<> Select	Pink 1	Pink 2	Red	min Rnd	normal Zoom	max Time	min 1B	3	6	7									
4 U	8	9	12 G	13 G	14 G	15 G	16 G	17 G	18 G	19 G	20 G	21 G	22 G	23 G	24 G	25 G	26 G	27 G	28 G	29 G	30 G	31 G	32 G	33 G
75 %			elciew gob<> Select	<<< Spin	stop Spin	Orange	dark Yellow	Yellow	Rnd 50% Rnd	narrow Zoom	Time 0% Time	max 1B	4	8	9									
5 U	10	11	15 G	16 G	17 G	18 G	19 G	20 G	21 G	22 G	23 G	24 G	25 G	26 G	27 G	28 G	29 G	30 G	31 G	32 G	33 G	34 G	35 G	36 G
Open			>>> Spin	zero Index	max CCW Index	Green 1	Green 2	Green	max Rnd	wide Zoom	max Time	min 2A	5	10	11									
6	12	13	18 G	19 G	20 G	21 G	22 G	23 G	24 G	25 G	26 G	27 G	28 G	29 G	30 G	31 G	32 G	33 G	34 G	35 G	36 G	37 G	38 G	39 G
			>>> Rotate	stop Rotate	open Select2	light Green			min Strobe		Time 0% Time	max 2A	6	12	13									
7	14	15	21 G	22 G	23 G	24 G	25 G	26 G	27 G	28 G	29 G	30 G	31 G	32 G	33 G	34 G	35 G	36 G	37 G	38 G	39 G	40 G	41 G	42 G
			<<< Rotate	alpha leaves Select2	black breakup Select1	open	congo blue	orange			max Time	min 2B	7	14	15									

Preset pools

## 17.3. Preset Pool "Dynamic"

The preset pool **Dynamic** is a pool that automatically displays the preset type which is currently enabled in the [preset control bar](#).

Open the Preset Pool "Dynamic"

To open the preset pool **Dynamic**:

2. Tap anywhere in the **user-defined area**.
3. The pop-up **Create Basic Window** opens.
4. Next, tap **Presets**.
5. Then, tap **Dynamic**.
6. The preset pool **Dynamic** opens.



*Dynamic pool – Gobo*

Close the Preset Pool "Dynamic"

To close the preset pool, tap  in the upper left corner of the pool and tap **Delete Window**.

## 17.4. Create Presets

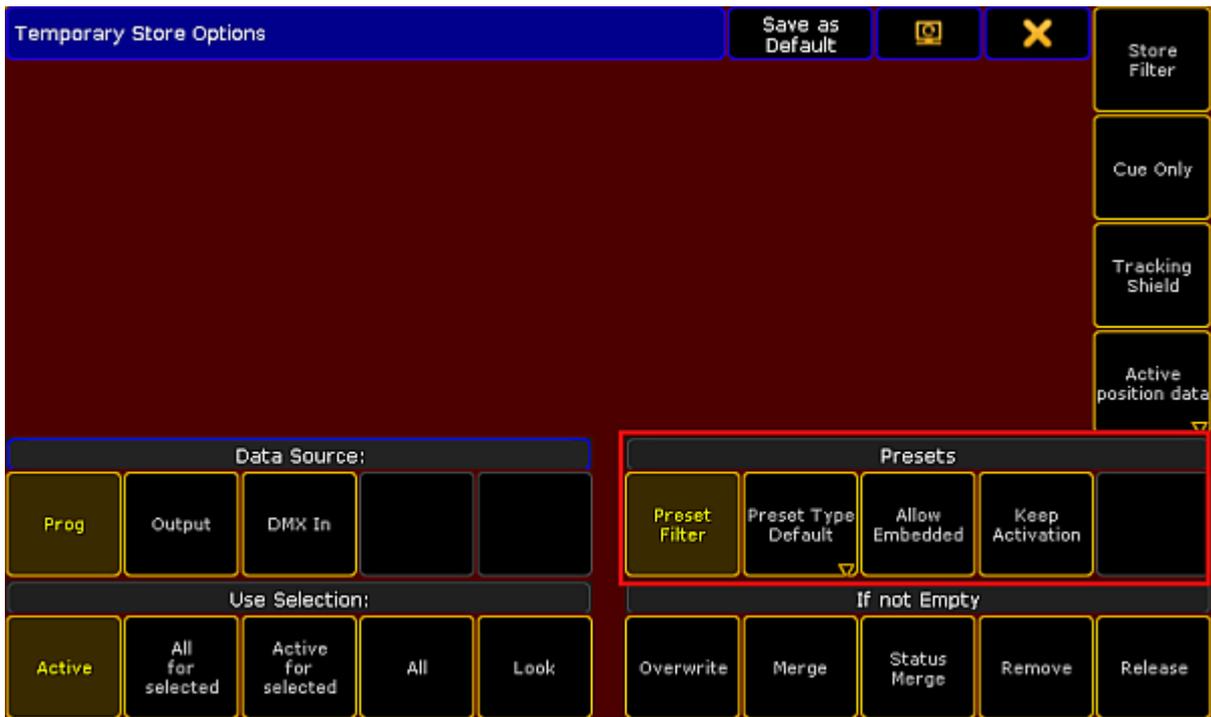
### Requirement:

- Fixtures are patched.

For more information on how to patch fixtures see [Adding fixtures to your show](#).

To create presets:

1. Select fixtures.
2. Assign values to fixtures.
3. Press and hold **Store** until the pop-up **Temporary Store Options** opens.



Temporary store options

4. Enable the buttons marked by the red box in the screenshot above.



Presets – store options

5. To disable the filter, tap **Preset Filter**.

 **Important:**  
Every preset pool – **except for the preset pool All** – has a filter as a default setting. This filter allows to store the value equivalent to the pool only.

6. To choose the store option of the preset type, tap **Preset Type Default** and then toggle between default, selective, global or universal.

 **Important:**  
The store option is **Preset Type Default** by default. This setting falls back on the default store option of a preset pool.

7. To allow that presets are stored within other presets, tap **Allow Embedded**.  
For more information see [Embedded presets](#).
8. To take the preset link actively into the programmer after storing the preset, tap **Keep Activation**.
9. To keep the previous settings when storing another preset, tap **Save as Default** in the header of this dialog.
10. To close the **Temporary Store Options**, tap **X** in the upper right corner of the pop-up.

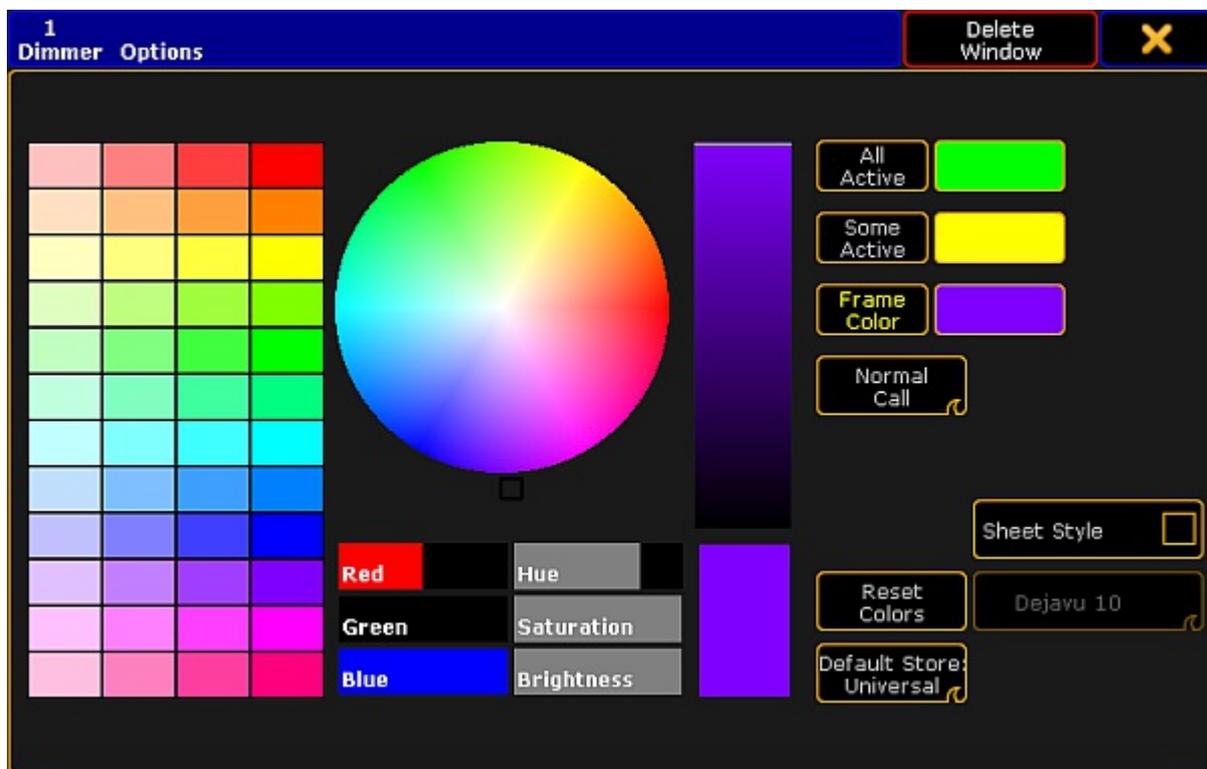
11. Eventually, tap an empty object you would like to store the preset to.

## 17.5. Preset Pool Options

The following example of the preset pool **Dimmer** displays how to adjust options that are specific for a preset pool.

### Open the Options

1. Tap anywhere in the **user-defined area**.
2. The pop-up **Create Basic Window** opens.
3. Next, tap **Presets**.
4. Then, tap a preset pool you would like to open.
5. To open the options in the preset pools, tap  in the upper left corner of the pool you have opened.
6. The option dialog opens.



*Preset pool options*



**Hint:**

All preset pools have the same pool options.

3. To adjust the frame color, to reset colors or apply a different style and font see [Adjust pool options](#).



**Hint:**

To reset the colors in all preset pools, press **Setup** and tap **User Settings** – **Window Settings** – **Presets** and then subsequently tap **Reset All Preset Pool Colors**.

4. Tap **All Active** and then choose a color from the color table or the color circle, to display that all of the fixtures selected contain this preset.
  - The color you have chosen is displayed as a line within the pool object right above the font of the pool object.
5. Tap **Some Active** and then choose a color from the color table or the color circle, to display that only some of the fixtures selected contain this preset.
  - The color you have chosen is displayed as a line within the pool object right above the font of the pool object.

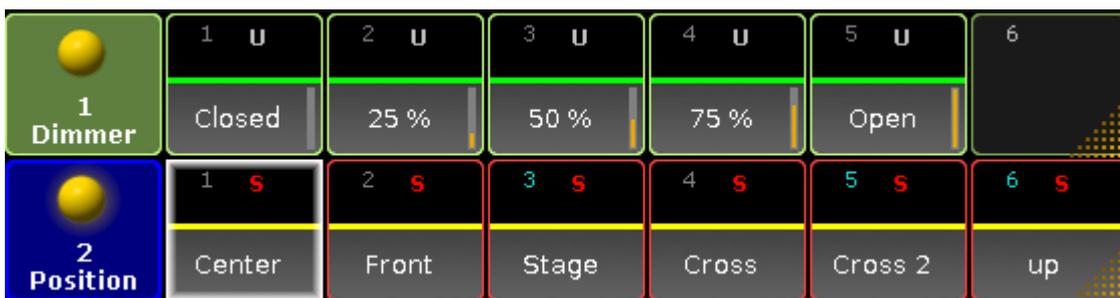
Example "All Active" and "Some Active":

Select fixture 1 (spot) and fixture 101 (LED lamp) by typing into the command line:



Fixture 1 and fixture 101 have both the **preset Dimmer**.

Fixture 1 contains the **preset Position**, fixture 101 does not.



*Option – all active and some active*

6. To change the modes **Normal Call** and **Fast Call** see [Call modes](#).
7. To choose the default store option of the preset, tap **Default Store Universal**. This mode is usually the default for the preset type **Dimmer**. For more information on the store options of presets see [Create presets](#).

 **Hint:**  
 It is also possible to set the default of the preset type via **Setup**:

- Press **Setup** and tap **Patch & Fixture Schedule** – **Fixture Types** – **Attribute & Encoder Grouping**.
- Then, tap and hold a cell in the column **Default Scope**.
- The pop-up **Select Default Scope** opens.

6. To close the options, tap  in the upper right corner of the dialog.

 **Hint:**  
 To close the preset pool altogether, tap **Delete Window**.

## 17.6. Create Preset Reference

A preset reference is very handy when it comes to color presets since the colors of every fixture and manufacturer may vary greatly.

Requirement:

- Presets have already been created.

To create preset reference:

1. Press **Setup**.
2. Tap **Auto Create**.
3. The dialog **Auto Create** opens.
4. Then, tap the tab **Create Preset Reference**.



*Create preset reference*

5. Choose a fixture type in the table **FixtureTypes**.
6. Next, tap a fixture as reference for your preset in the table **Select Single Fixtures**.
7. After that, select the preset types, on the right of the dialog, to which the reference is to relate.
8. Eventually, tap **Create Reference**.
9. The preset reference has now been created in the fixture type within this show file.



### Important:

To use preset references in other show files, export the fixture type after creating the reference.

10. To close the menu, tap **X** in the upper right corner of the window.

## 17.7. Auto Create Presets

It is possible to auto create a complete set of presets at once.

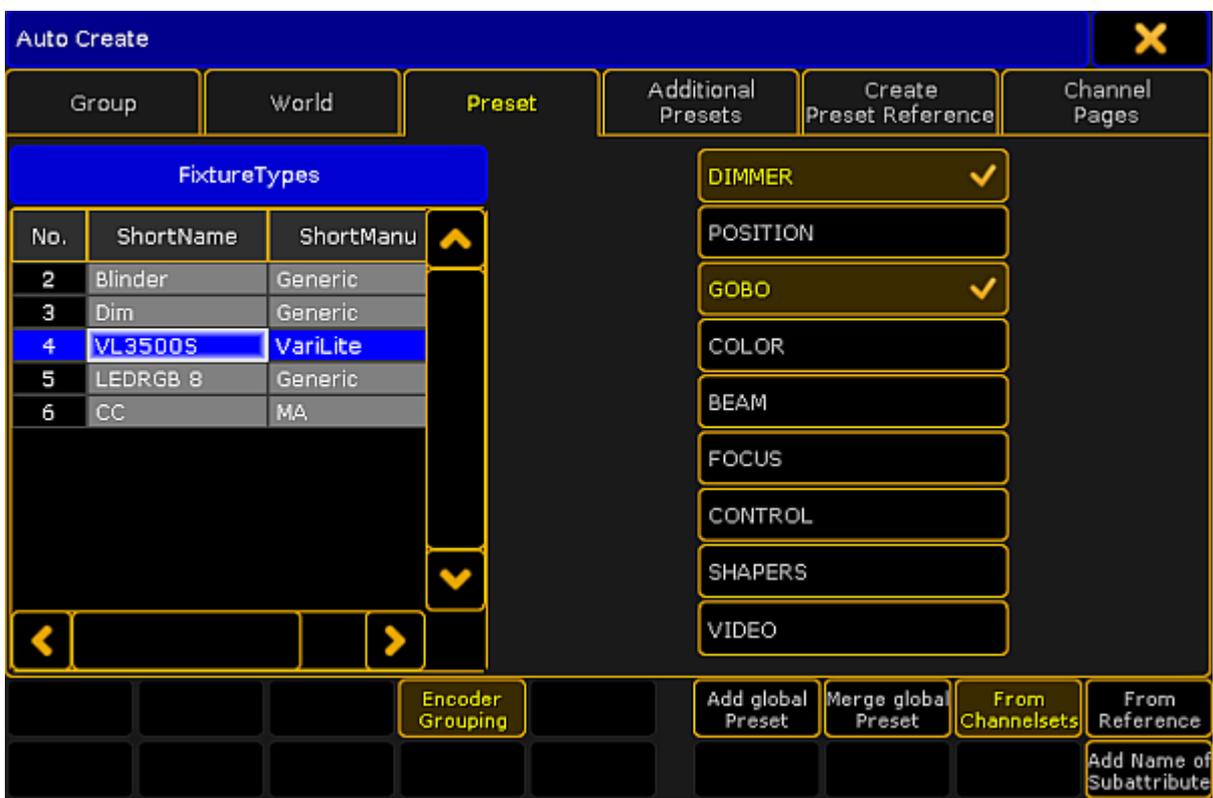


### Important:

If a fixture type does not contain channel sets or a preset reference, it is not possible to auto create presets.

To auto create presets:

1. Press **Setup**.
2. Tap **Auto Create**.
3. The dialog **Auto Create** opens.
4. Tap **Preset**.



*Menu auto create preset*

5. Choose a fixture type in the table **FixtureTypes**.
6. Then, tap the preset type you would like to auto create a preset for.



### Important:

Auto-created presets are always global since they are generated in fixture types.

7. To link attributes with the same term and of the same preset type, tap **Encoder Grouping**.  
Thereby, only one attribute is really physically visible on the stage.
8. To create presets for single fixture types, tap **Add global Preset**.
9. To merge presets for several fixture types, tap **Merge global Preset**.

10. To determine that presets come from channel sets of a fixture type, tap **From Channelsets**.
11. To determine that presets refer to fixture types that were previously stored, tap **From Reference**. For more information see [Create preset reference](#).
12. To add the name of a subattribute to the name of a channel set, tap **Add Name of Subattribute**.
13. To close the menu, tap **X** in the upper right corner of the window.

## 17.8. Auto Create Additional Presets

In addition to the functionality of auto creating presets, it is also possible to auto create additional presets.

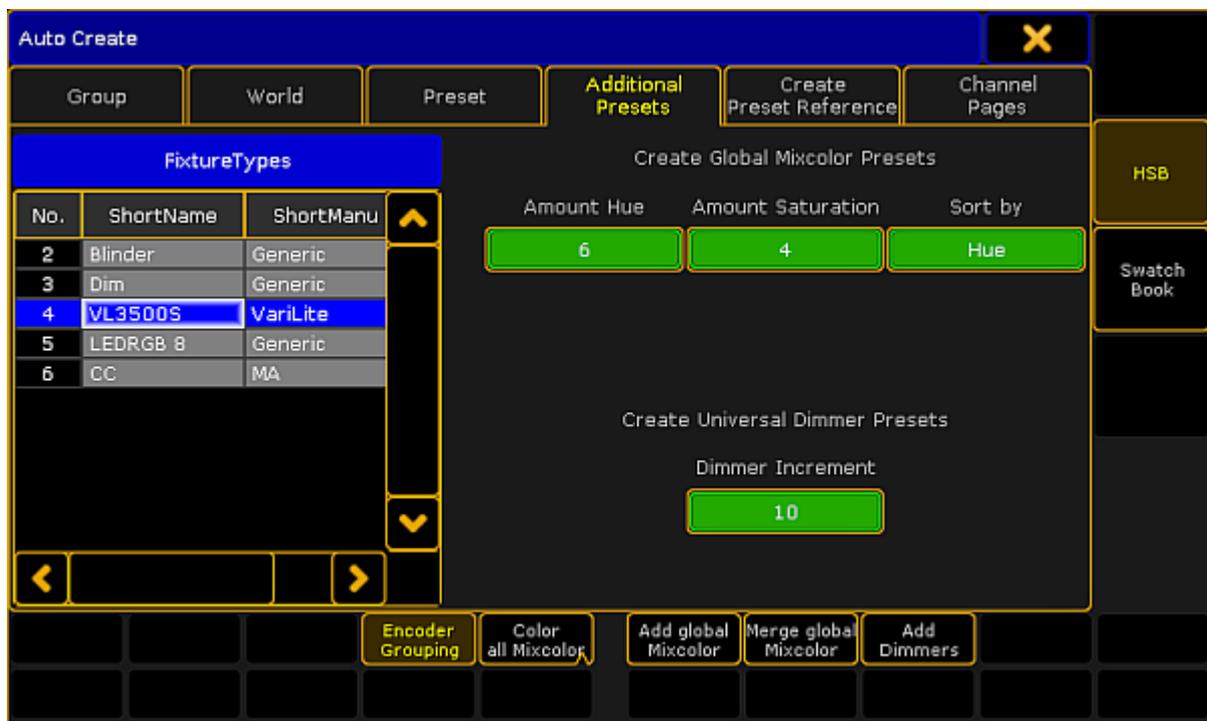


### Important:

This functionality, however, only applies to the preset type **Color**, since channel sets can only be generated with the values min and max in RGB.

To auto create additional presets:

1. Press **Setup**.
2. Tap **Auto Create**.
3. The dialog **Auto Create** opens.
4. Tap **Additional Presets**.



*Menu auto create additional presets*

5. Choose a fixture type in the table **FixtureTypes**.
6. Tap **Amount Hue** and the calculator opens.  
-To set the range of hue, tap a number in the calculator.



**Important:**

No matter the amount of hue you have selected, the color white will always be added to your presets raising the amount by one.

7. Next, tap **Amount Saturation** and the calculator opens.
  - To set the depth of the saturation, tap a number in the calculator.
8. To set the sort by saturation or hue, tap **Sort by**. This button toggles between these two values.
9. If you made your amount and sort settings, choose how the presets are to be displayed.
  - To blend all attributes summarized in the preset pool, tap **Encoder Grouping**.
  - To create presets with all Mixcolor attributes that the corresponding fixtures contain, e.g., Amber, tap **Color all Mixcolor**.
  - To create presets with RGB only, tap **Color RGB only**.
  - To create colors for single fixture types, tap **Add global Mixcolor**.
  - To merge colors for several fixture types, tap **Merge global Mixcolor**.
10. Then, tap **Dimmer Increment** and the calculator opens.
  - To additionally create universal dimmer presets, tap a number in the calculator. This number represents the interval in percentage in which the presets is to be created.

## HSB



**Important:**

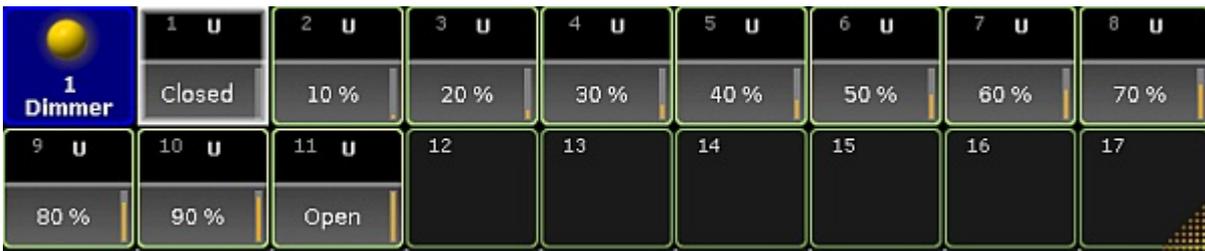
The button **HSB**, on the right of the dialog, is enabled by default. If the dialog is enabled in HSB, the percentage of saturation and brightness are displayed within the pool objects.

11. Color presets have now been created in HSB.

4 Color	1 G	2 G	3 G	4 G	5 G	6 G	7 G	8 G	9 G
	H_0 S_0	H_0 S_100	H_0 S_75	H_0 S_50	H_0 S_25	H_60 S_100	H_60 S_75	H_60 S_50	H_60 S_25
10 G	11 G	12 G	13 G	14 G	15 G	16 G	17 G	18 G	19 G
H_120 S_100	H_120 S_75	H_120 S_50	H_120 S_25	H_180 S_100	H_180 S_75	H_180 S_50	H_180 S_25	H_240 S_100	H_240 S_75
20 G	21 G	22 G	23 G	24 G	25 G	26	27	28	29
H_240 S_50	H_240 S_25	H_300 S_100	H_300 S_75	H_300 S_50	H_300 S_25				
30	31	32	33	34	35	36	37	38	39

### Additional presets – HSB

12. Furthermore, dimmer presets in an interval of 10 percent have been created as well.

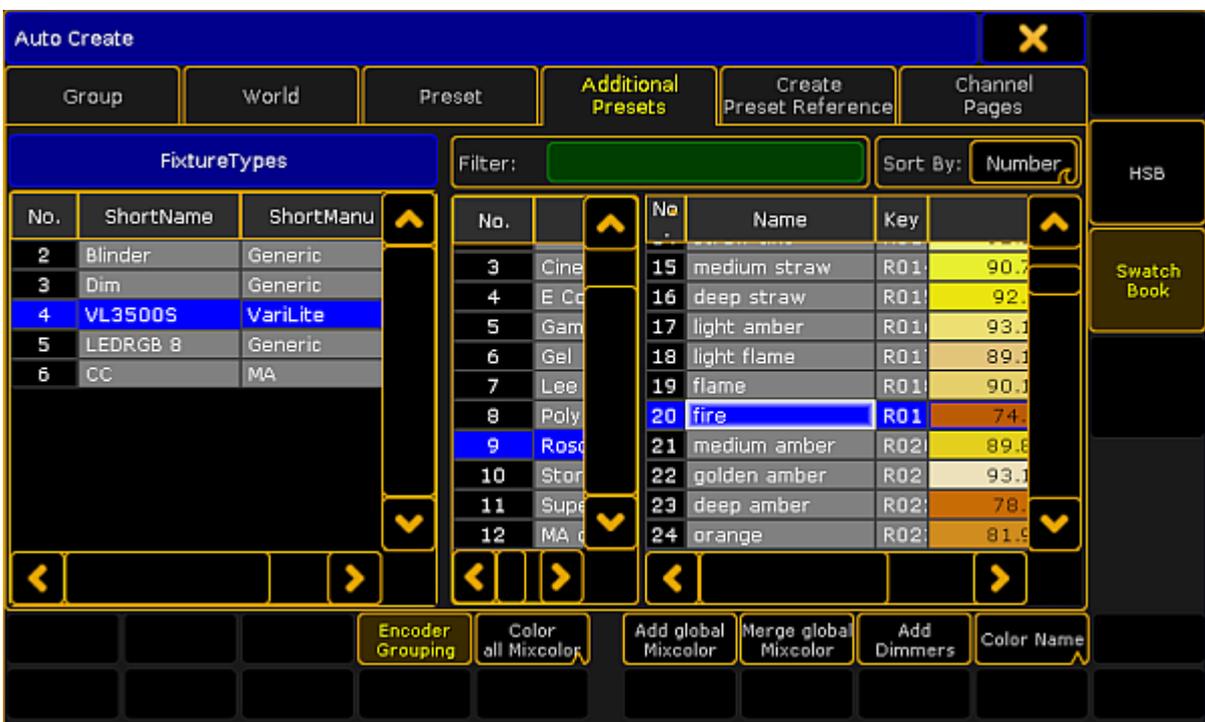


Dimmer presets

## Swatch Book

To see the dialog in Swatch Book, tap **Swatch Book** on the right of the dialog.

The dialog then converts to Swatch Book.



Additional presets – Swatch Book

1. Choose a fixture type in the table Fixture Types on the left of the dialog.
2. Then, tap a name in the gel pool in the table on the right.
3. Next, tap a gel.



### Important:

The buttons below the table within the dialog have the same function as in HSB.  
For further information see [step 9](#).

4. After setting up further settings – as stated in [step 9](#) – choose how you would like your presets to be displayed.
  - To display the name of the color within the pool objects, tap **Color Name**.
  - To display the key of the color within the pool objects, tap **Color Key**.
  - To display the name as well as the key of the color, tap **Color Name + Key**.

**Important:**  
This button toggles between **Color Name**, **Color Key** and **Color Name + Key**.

- To close the menu, tap **X** in the upper right corner of the window.
- Color presets have now been created in Swatch Book.



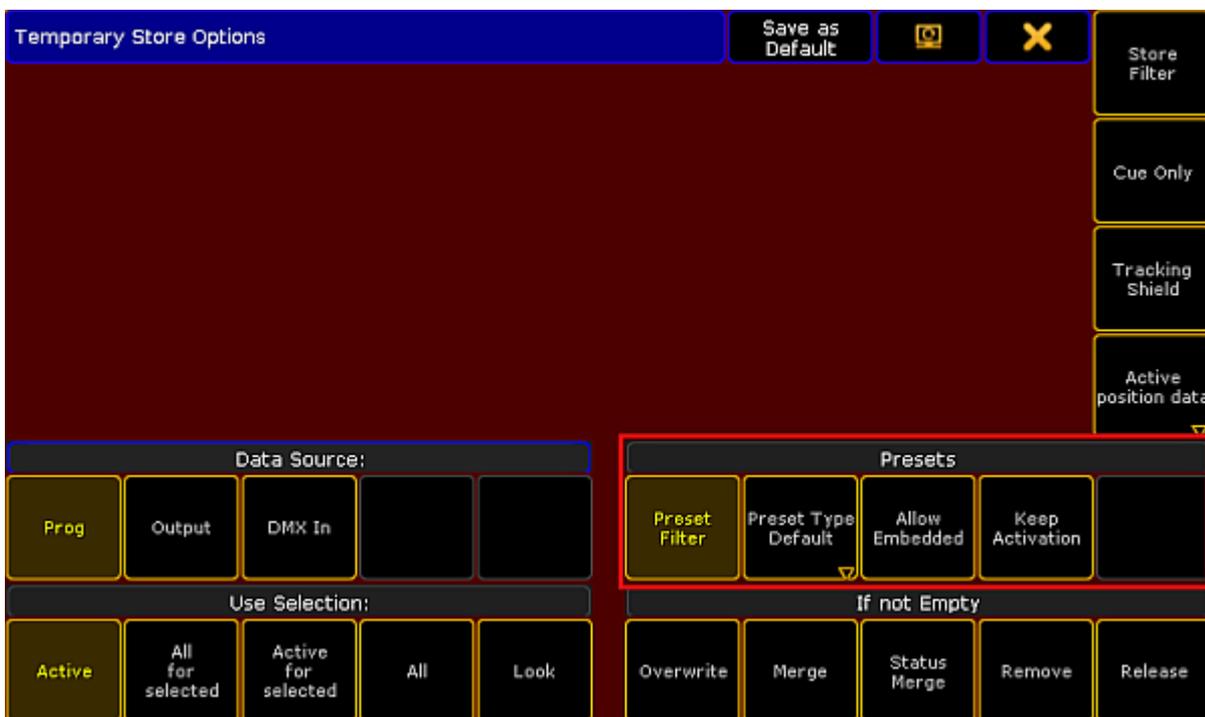
Color presets

## 17.9. Embedded Presets

Embedded presets are stored within other presets.

To create embedded presets:

- Select fixtures in the fixture sheet.
- Assign a preset to the fixtures selected.
- Assign an additional preset to these fixtures.
- Press and hold **Store**.
- The dialog **Temporary Store Options** opens.



Presets – Temporary store options

- To create an embedded preset, tap **Allow Embedded**.
- Then, tap an empty store object in the preset pool where the embedded preset is to be stored.

- To close the dialog, tap ✕ in the upper right corner.

## Example

This example demonstrates an embedded preset based on a color, position and gobo preset.

- Select fixtures.
- Assign a color, position and gobo preset to these fixtures.
- Press and hold **Store**.
- The pop-up **Temporary Store Options** opens.
- Tap **Allow Embedded**.
- To store the embedded preset in the preset pool **All**, tap an empty pool object in this preset pool.



### Hint:

If you update one of the presets selected for the fixtures, the embedded preset will automatically be updated as well.



*Embedded preset in the pool All*

- You have now created an embedded preset marked by a white E within the object.

## 17.10. Edit Presets

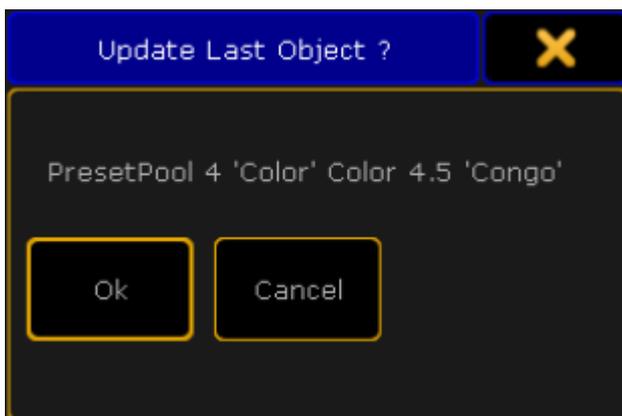
It is possible to edit the presets in two different ways.

- 1. Way of editing presets:
  1. Press **Edit** and tap the preset to be edited. The entire content of the preset will then be loaded into the live programmer.
  2. To see the values in an overseeable manner, open the fixture sheet and tap **Prog Only** in the title bar of the fixture sheet.
  3. The programmer opens.

ID F/C	Name	Position	
		Pan	Tilt
1	Spot 1	min	min
FT 4.1	[Preset] VL3500S Main Module	min	min

*Prog only*

4. Fixture 1 contains selective preset values and fixture type 4.1 contains global preset values.
5. Press **Update** and subsequently press **Please**.
6. The **pop-up Update Last Object?** opens.



*Pop-up – Update last object?*

7. Tap **Ok**.

 **Hint:**  
 If you do not want to update the preset you have edited or you would like to close the pop-up, either tap **Cancel** or **X** in the upper right corner of the pop-up. To deactivate the edit mode, press **Esc**.

-or-

- 2. Way of editing presets:

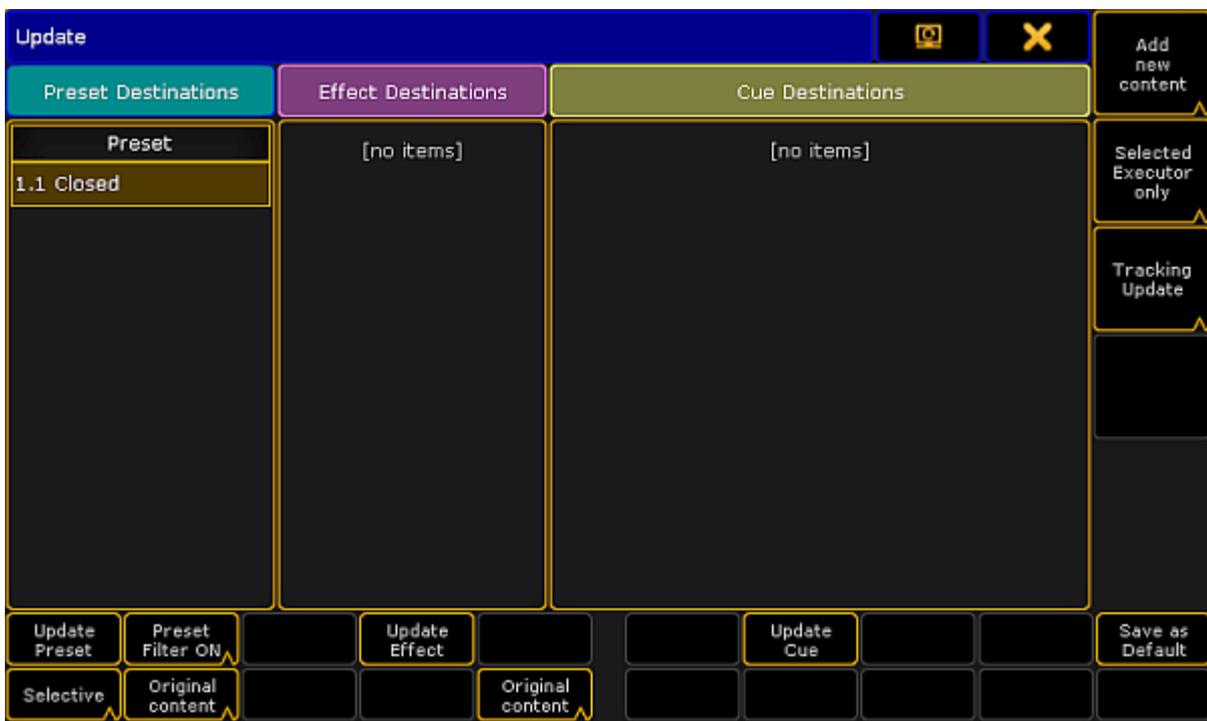
See [Update presets](#).

## 17.11. Update Presets

It is possible to update the presets which you have altered.

To do so:

1. Tap the preset you would like to update once.
2. The fixtures are now selected.
3. Tap the same preset once again.
4. The fixtures are now actively in the programmer.
5. Change the value of this preset.
6. Then, press **Update**.
7. The **pop-up Update** opens.



### Update preset

8. To disable the filter, tap **Preset Filter ON**. The button toggles to **Preset Filter OFF**.
9. To choose the update option of the preset type, tap **Selective**. The button toggles between **Selective**, **Global**, **Universal** and **Preset Type Default**.
10. The button **Original content** toggles to **Add new content**.
  - To update existing values by the new values, tap **Original content**.
  - To add additional data to the preset, along with existing values, tap **Add new content**.
11. If you have adjusted the settings to your needs, tap **Update Preset**.
12. The preset has now been updated.



#### Hint:

For more information on filter, selective, global, universal and default see [Create presets](#).

## 17.12. Delete Presets

It is possible to delete presets in three different ways. Use either the keys of the console or the command line.

1. To delete single presets:

- Press **Del** and then tap the preset you would like to delete.

2. To delete several presets, type into the command line:

```
[Channel]> Delete Preset 4.1 Thru 4.5
```

Deletes presets 1 to 5 in the preset pool **Color**.

3. To delete all presets in all pools, type into the command line:

```
[Channel]> Delete Preset *.*
```

Empties all pools completely.



### **Important:**

If you store a preset in a sequence and then delete the preset, the link to the preset pool will be removed from the sequence. Instead, the actual values will be displayed in the sequence. Opsing the action will recover the preset but not the link.

## 18. Cues and Sequences

This section is about creating, editing and viewing the cues and sequences. This is some of the primary functions of a lighting console.

The topics here describe all the basic functions and operations regarding cues and sequences. Sequences are closely related to Executors. Taking a look at the [Executors section](#) might also be a good idea.

The more advanced options and functions for sequences are described in the [Advanced Sequence Functionality section](#). For instance this section only describes the most used elements in the Sequence Executor Sheet - the advanced section describes the rest.

### 18.1. What are cues and sequences

Being able to store and recall a set of attribute values is one of the most important features of a control system.

One of the primary ways of doing this is using a **Cue**. Cues contain the stored values. Cues are organized in **Sequences**. A sequence can be assigned to an **Executor** for convenient playback control. Read more about the executors in the [Executors section](#).

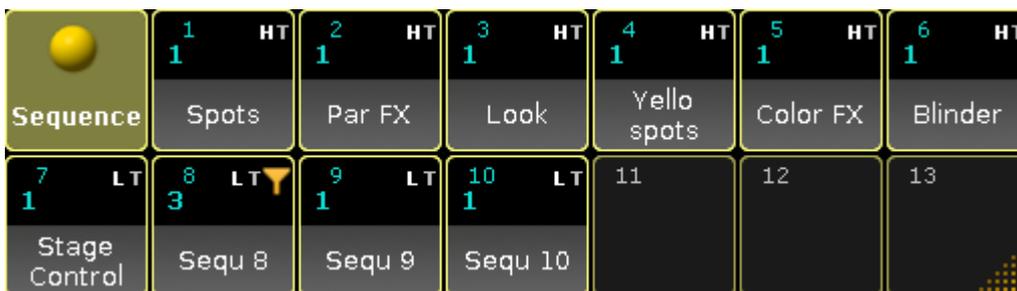
Cues can be split up in different parts called "Part Cues". An attribute value can only be in one of the parts. This will be described in the next topics.

With sequences we also have control of how values change from one cue to the other and a lot other relevant settings.

These are described in the following topics.

#### The Sequence Pool

The sequences are organized in a pool. It could look like this:



*Sequence Pool - pool mode*

If pools are new to you, then please see the [Pools in General section](#).

Each pool element (equals each sequence in the show) shows some information about the sequence settings and other relevant information.

The lower half of the pool object shows the name of the sequence.

The top row displays the sequence number on the left. If this number is cyan then the sequence is assigned to an executor. If it is not assigned then the number is gray.

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There is a letter indicating the sequences priority. Priorities are described in the [Playing back cues topic](#). The different letters are listed in the [Text indicators topic](#).

There can be a "T" letter next to priority letter. This shows if tracking is turned On (visible T) or Off for the sequence. Tracking is described in the [What is tracking topic](#).

There can be two icons in the top row. It can have the Filter icon if the sequence have assigned an input filter. Filters are described beginning from the [What are Filters topic](#). The other icon is the information icon. This is present if there are any information written for the sequence (it has nothing to do with information in cues - it is about the sequence).

Below the top row there might be cyan number below the sequence number on the left side. This shows the amount of executors that have the sequence assigned.

## Sheet Mode

The Sequence Pool can also be in "Sheet Mode". This is changed in the Pool Options - read about them in the the [Pools in General section](#).

It could look like this:

No. ▲	Name	Track	Release Firststep	CueZero	CueZero Extract	Input Filter	Timecode Slot
1	Spots	On	On	Off		None	TC Slot 1
2	Par FX	On	On	On		None	TC Slot 1
3	Look	On	On	Off		None	TC Slot 1
4	Yello spots	On	On	Off		None	TC Slot 1
5	Color FX	On	On	Off		None	TC Slot 1
6	Blinder	On	On	Off		None	TC Slot 1
7	Stage Control	On	On	Off		None	TC Slot 1
8	Sequ	On	On	Off		Dimmer 7	Link Select
9	Sequ	On	On	Off		None	Link Select
10	Sequ	On	On	Off		None	Link Select
11	Sequ	On	On	Off		None	Link Select

Sequence Pool - sheet mode

The title bar can have up to three buttons.

The right one will hide or show all the empty pool elements in the Sequence Sheet.

The next on the left changes the Call Mode for the sequence Pool/Sheet. If the "Pool Playback" mode is selected then an extra button appears. This is called "Direct Action" and it toggles the direct action mode pool playback. The different Call Modes are described in the [Call Mode topic](#). Pool playback is described in the [Playing back Cues topic](#).

The Sequence Sheet displays each sequence as a row. The columns are the settings that belongs to the sequence. Everything with a gray background can be changed.

- **No.:**  
This is the sequence number. It cannot be changed here - but the sequence can be moved in the sequence pool.
- **Name:**  
This is the name of the sequence. It has the frame color from the pool. Editing the cell will allow you to change the name.
- **Track:**  
Here you can turn On or Off tracking for the sequence. Tracking is described in the [What is Tracking topic](#).
- **Release Firststep:**  
Here you can turn On or Off "Release First Step". This is related to tracking - follow link above.
- **CueZero:**  
Editing this gives you the pop-up used to select the Cue Zero mode. Read more about Cue Zero in the [Cue Zero topic](#).
- **CueZero Extract:**  
The Cue Zero Extract can be turned On or Off. It is related to the Cue Zero function - follow link above.
- **Input Filter:**  
Here you can set an input filter. Filters and sequences are described in the [Apply worlds and filters to executors and sequences topic](#).
- **Timecode Slot:**  
Here you can select a timecode slot for the sequence. Read the [Timecode section](#) to learn more about using timecode with sequences.
- **Info:**  
Here it is possible to add multiple lines of information to the sequence.
- **Forces Pos. mode:**  
The entire sequence can have a forced position mode. This is relevant when working with a mix of Pan/Tilt values and XYZ values. Read more about this in the [XYZ and Pan/Tilt in Sequences topic](#).
- **Used Count:**  
This is the number that indicates the amount of executors that have the sequence assigned. This is not a setting you can change here - it is for information.

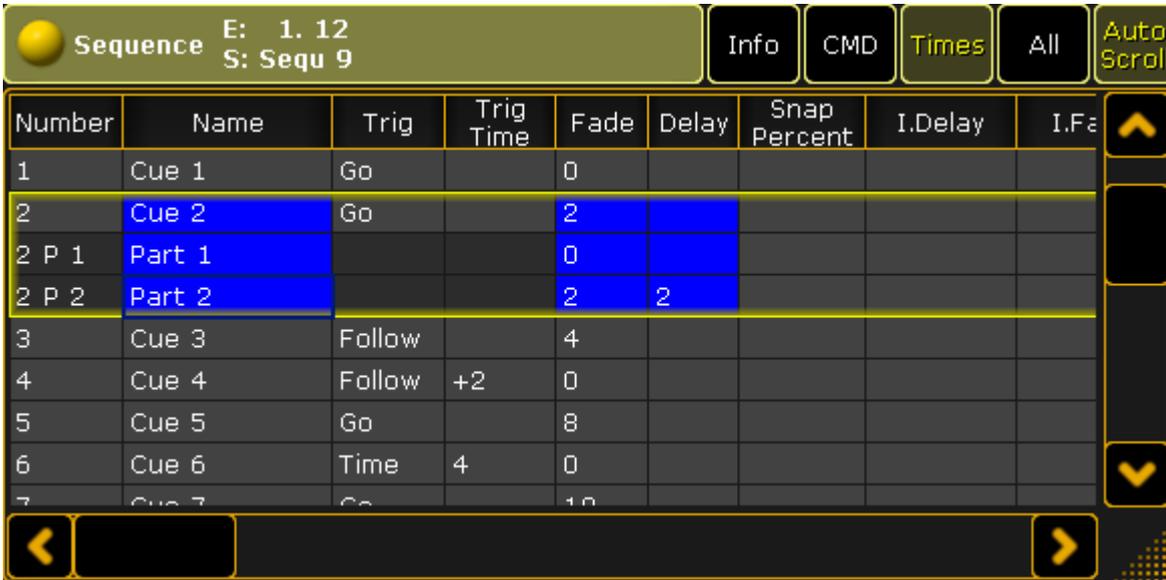
## 18.2. Looking at the Cue Sequence

If your show has sequences with multiple cues, then it is very useful to be able to see the sequence and see the active cue and the settings for the cue change.

There are several ways to see what cue is running. This topic describes views that do not show the values stored in the cues, but they show the list of cues. To see the content of the cues please read the [Looking at the Cue Content topic](#).

## Sequence Executor Sheet

The most common way to look at the Cue Sequence is the Sequence Executor Sheet. It is a window that can be made using the [Create Basic Window pop-up](#). It could look like this:



Number	Name	Trig	Trig Time	Fade	Delay	Snap Percent	I.Delay	I.Fa
1	Cue 1	Go		0				
2	Cue 2	Go		2				
2 P 1	Part 1			0				
2 P 2	Part 2			2	2			
3	Cue 3	Follow		4				
4	Cue 4	Follow	+2	0				
5	Cue 5	Go		8				
6	Cue 6	Time	4	0				
7	Cue 7	Co		10				

### Sequence Executor Sheet

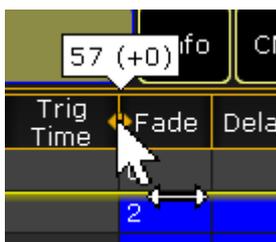
This sheet has a lot of columns. Each column is a setting, information, or action that has to do with each of the cues.

The cues are represented by rows in the sheet.

The active cue will have a yellow frame around it. If a cue is split up into different parts then the "main" cue and the parts all have the yellow frame around them.

The sheet can be customized to display only the relevant columns and the columns can be arranged just like you prefer it - this functionality is described in the [Using different view sets in the sheets topic](#).

The width of a column can be changed. This is done by placing the mouse pointer on the line between two column. When the pointer is the right place then it changes shape and gets a double ended arrow. Then do a left click and hold it while moving the mouse in the direction you wish to change the column. A white box appears above the pointer showing the size of the column and the size change is written in the parentheses. It could look like this:



### Changing the column width

This can also be done using the touch screens and fingers, but it can be easier with the mouse or trackball.

The sheet can be customized and title buttons changed using the Sheet Options - read about them in the [Sheet Options topics](#).

## The different columns in the Sequence Executor Sheet

There are many columns in this sheet. The following is a short description of them. The ones that takes a little bit more explaining have links to the relevant topics.

If you cannot see all the columns in your sheet then try to tap the "All" button in the title bar or a blank one. If you do not have any of these, then follow the link above to read about using the view sets.

- **Number:**  
This is the cue number.
- **Name:**  
This is the name of the cue.
- **Trig:**  
This is the cue trigger. The options here are explained in the [Playing back Cues topic](#).
- **Trig Time:**  
This is connected to the trigger. Follow the link above for more information.
- **Fade:**  
This is the fade time for all non-snap attributes and dimmer values that does up in value. The [Cue Timings topic](#) describes all the different timing columns and their effect on the cue values.
- **Out Fade:**  
This is the fade time for dimmer values that does down in value. This is default set to the same as the "Fade" time.
- **Delay:**  
This is the delay or wait time between the trigger and the actual fade begins.
- **Out Delay:**  
This is the delay for the Out Fade (only dimmer values). Its default value is the "Delay".
- **Snap Percent:**  
This can be used to control when "Snap" attributes changes values. It is a percent related to the fade time. This is explained in the [Cue Timings topic](#).
- **MIB:**  
MIB is "Move In Black". This is introduced in the [What is MIB topic](#).
- **Mode:**  
Cues can have different modes. They are described in the [Using Cue Modes topic](#).
- **AE:**  
AE is "Assert Effects". Read more about effects in the [Effects section](#).
- **CMD:**  
CMD is "Command". Commands (like the ones written the command line input) can be written in the cues. They will then be executed on the Master or Standalone station when the cue is triggered. Have a look at the [Commands in Cues topic](#) for more details.
- **CMD Delay:**  
This will add a delay between the triggering of the cue and the execution of the command.
- **Loop:**  
Here it is possible to select a cue that should be looped to. Loops are described in details in the [Looping Cues topic](#).

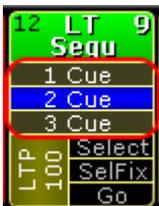
- **Ltime:**  
This is "Loop Time". It is used with loops. Follow link above to learn more.
- **Lcount:**  
This is "Loop Count". It is used with loops. Follow link above to learn more.
- **Path:**  
Here it is possible to select a path for the cue transition. This is described in details in the [Cue Path topic](#).
- **Info:**  
Here it is possible to add multiple lines of information to a cue. Please have a look at the [Sequence Info View topic](#) to learn more.
- **I.Delay:**  
This is "Individual Delay". It displays the time for attributes that have individual stored delay times. This is discussed in the [Cue timings topic](#).
- **I.Fade:**  
This is "Individual Fade". It displays the time for attributes that have individual stored fade times. Follow the link above to learn more.
- **Forced Pos. Mode:**  
This will open a pop-up that allows you to select a position mode for the cue. Learn more about position modes in the [XYZ and Pan/Tilt in Sequences topic](#).
- **Preset types Fade / Delay:**  
Each preset type has two columns called "Delay" and "Fade". These are discussed in the [Cue timings topic](#).

## Temporary Sequence Executor Sheet or Executor Editor

It is possible to open a temporary version of the Sequence Executor Sheet. It appears when an executor is edited.

This can be done by pressing the **Edit** key followed by one of the executor keys associated with the executor you want to edit.

The other way to edit a sequence assigned to an executor is by tapping the middle part of the mini executor, marked here with red:



*Sequence Mini Executor - middle part marked*

The editor that appears could look like this:

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Number	Name	Trig	Trig Time	Fade	Out Fade	Delay	Out Delay	\$ Per
1	Cue 1	Go		0				
2	Cue 2	Go		2				
2 P 1	Part 1			0				
2 P 2	Part 2			2		2		
3	Cue 3	Follow		4				
4	Cue 4	Follow	+2	0				
5	Cue 5	Go		8				
6	Cue 6	Time	4	0				
7	Cue 7	Go		10				
8	Cue 8	Go		0				
9	Cue 9	Go		0				
10	Cue 10	Go		0				

Buttons: Edit Previous Cue, Edit Current Cue, Edit Next Cue, Cmd Disable, Test Cmd, Label

## Executor Editor

This view has all the columns and rows as the Sequence Executor Sheet. It cannot be customized as the sheet.

It has a few buttons around that is not available in the sheet version:

- Edit Previous Cue:**  
 This will edit the previous cue. Editing a cue means that values stored in the cue will become active values in the programmer. Values can be changed and the Update key can be pressed to update the cue. The cue that is being edited has a red frame around it. Pressing the Esc key will cancel the edit function - and close the pop-up.
- Edit Current Cue:**  
 Same as above except the cue being edited is the current active cue.
- Edit Next Cue:**  
 Same as above except it is the next cue that is being edited.
- Cmd Disable:**  
 This will disable all the commands written in the "CMD" column. If the commands are disabled then the command text color will be red.
- Test Cmd:**  
 This will execute the command written in the selected row.
- Label:**  
 This can be used to give the sequence a label.

Notice that when this pop-up is open, then the Encoder Toolbar is different. It could look like this:



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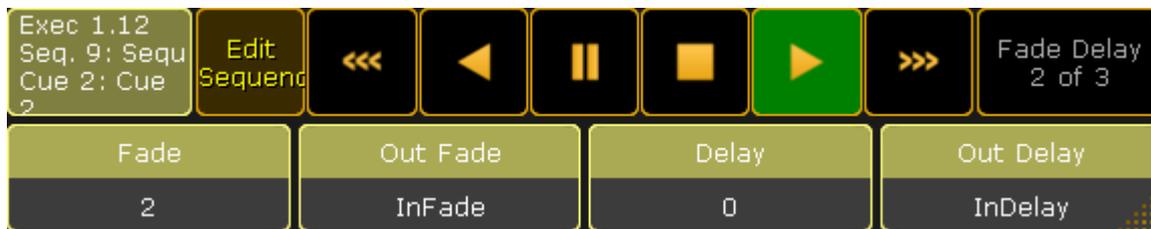
## Encoder Toolbar - Edit Sequence - Page 1 Basics

The top row have some buttons and information.

Starting from the left there is an information "button" that shows the executor number, the sequence number and name, and the cue number and name. It is not actually a button. Next to this is a button that enters or exits the "Edit" mode - This will also change the Encoder Toolbar. Next are six buttons that can be used to control the sequence playback - Please read the [Playing back cues topic](#) for more on this. The last button in the top row is used to change between three different pages for the bottom encoder row.

The image above shows the first page - called "Basics". This gives access to change the: Trigger, Trig Time, Mode, and Loop. They are each assigned to one of the four encoders. The settings will change for the selected cues (rows).

The next page is called "Fade Delay" and could look like this:



## Encoder Toolbar - Edit Sequence - Page 2 Fade Delay

The top row is the same. It is only the bottom encoder row that changes.

Now the encoders control Fade, Out Fade, Delay, and Out Delay.

The third page is called "Part cont." and could look like this:



## Encoder Toolbar - Edit Sequence - Page 3 Part cont.

Now the encoders control Snap Percent, CMD, CMD Delay, and Info.

## Edit the Sequence

The last way to see the cue sequence is by editing the sequence.

This is a command line action. The syntax is: **Edit Sequence [number]**

This can be done using the keys or by writing in the command line input.

The result is that the Sequence Editor pop-up appears. It could look like this:

Edit 9. 'Sequ 9'									
No.	Name	Track	Release Firststep	CueZero	CueZeroEx	Input Filter	Timecode	Info	For Pos.
9	Sequ	On	On	Off		None	Link Select		

Number	Name	Trig	Trig Time	Fade	Out Fade	Delay	Out Delay	Snap Percent
1	Cue 1	Go		0				
2	Cue 2	Go		2				
2 P 1	Part 1			0				
2 P 2	Part 2			2		2		
3	Cue 3	Follow		4				
4	Cue 4	Follow	+2	0				
5	Cue 5	Go		8				
6	Cue 6	Time	4	0				
7	Cue 7	Go		10				
8	Cue 8	Go		0				

## Sequence Editor

This pop-up has two parts: The top part and the bottom part.

The top part is all the settings that can be changed regarding the sequence. They are all described in the [What are Cues and Sequences topic](#).

The bottom part is all the columns and rows from the Sequence Executor Sheet. Everything with a gray background can be edited.

## 18.3. Storing cues

Storing cues is actually quite simple.

Simply press the **Store** key and then one of the executor buttons where you want to store.

There are of course more details to storing, so please keep reading.

### Store a new cue on an empty Executor

If you store a cue on an empty executor then the grandMA2 software automatically stores the cue in a new sequence and assigns this sequence to the executor using the default settings.

Going back to the example in the top of this topic: just pressing the **Store** key and then an executor button on the empty executor is enough. The software assumes that you are storing a cue.

This will automatically be cue number 1 - nothing else was specified.

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Storing cues obeys Worlds and Filters. This enables a control of what is stored. Filters and Worlds can also be assigned to the sequence. This will function as an input filter allowing only the elements in the worlds and filters to be stored in the sequence.

Read more about them in the [World, Filters, and Mask section](#).

## Cue numbers

When a cue is stored, it is possible to specify a cue number. This is done using the following syntax: **Store Cue [cue number]**. It is also possible to specify a sequence or an executor, using the keys in the command section, while storing:

**Store Cue [cue number] Sequence [sequence number]** or  
**Store Cue [cue number] Executor [executor number]**.

Notice that the cues are stored in the sequence, but using the executor number will store the cue into the sequence assigned to that executor.

Cue numbers have three decimal numbers. If all are zero then they are not displayed. But cue number "42" is the same as cue number "42.000" - it is not "42 thousand", it is "42 point 0 0 0". The currently highest cue number that can be stored is "9 999.999". The lowest number that can be stored is "0.001".



### Restriction:

Storing nearly 10 000 000 cues will completely fill the memory and make the show file VERY big. The software will cancel the store process before the system crashes, but almost any operation after this will make the software shutdown!!

The software hide the trailing decimal zeros, but they are still there. This means that cue "5.2" is after cue "5.11" because they are actually cue "5.200" and "5.110".

It is not limited to only store a single cue number at a time. It can just as easily be a range of numbers - this means that it is possible to use **Thru**, **+**, and **-** keys to create number ranges to be stored.

If you are going to be working with or adding a lot of cues to the same sequence, then it can be a good idea to select the executor with the sequence.

This can be done by pressing the **Select** key and then one of the keys associated with the executor.

## Store the second cue

If the store function is used again on the same executor - without adding cue number details - then the grandMA2 does not know what is wanted and a pop-up appears giving the different choices.



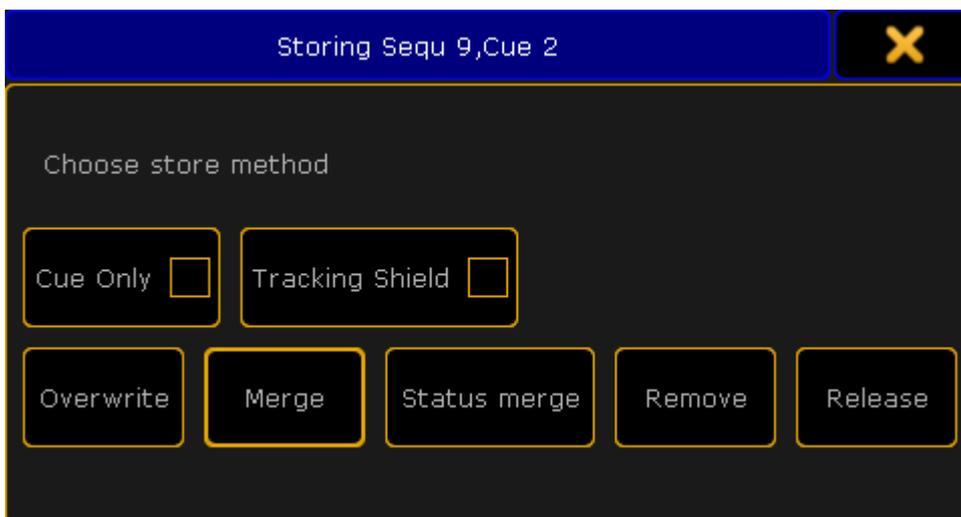
*Choose store method pop-up with second cue option*

The right most button is called **Create Second Cue** - tapping this will store a cue with the next whole number.

Over write and the two merge options are explained below. Remove and Release are covered in the [What is Tracking topic](#).

## Store into cues that are not empty

If the store operation is used to store into already existing cues then a pop-up like this appears:



*Choose store method pop-up*

It only appears if you have not specified what should happen. Have a look at the [Store Options and Defaults topic](#) for information about specifying this while storing.

"Cue Only", "Tracking Shield", "Remove", and "Release" are described in the [What is Tracking topic](#).

The three relevant options are:

- **Overwrite:**

This will remove what is already stored in the cue and only store the new values.

- **Merge:**

This will merge the new values into the existing values. New values has a higher priority and will overwrite existing values.

- **Status Merge:**

This will do a merge of the new values, but will also store any values from the actual cues in the selected executor.

## Examples

In the following examples we have a cue list with the following two cues (looking at the Sequence Tracking Sheet - read about it [here](#)):

Number	Name	1 Dim	2 Dim
1	Cue 1	open	
2	Cue 2	open	open

*Cues before any store action*

Now we turn on fixture 3 at 100 % and store this into cue 2.

This is the result if "Overwrite" is chosen:

Number	Name	1 Dim	3 Dim
1	Cue 1	open	
2	Cue 2	open	open

*Cues after an Overwrite store action*

Now fixture 2 is gone. This is because it only had values stored in cue number 2.

If we had chosen "Merge" instead it would have looked like this:

Number	Name	1 Dim	2 Dim	3 Dim
1	Cue 1	open		
2	Cue 2	open	open	open

*Cues after a Merge store action*

Now the values from fixture 3 is added to the existing values.

"Status Merge" had resulted in this if cue 1 or 2 is active and the executor is selected:

Number	Name	1 Dim	2 Dim	3 Dim
1	Cue 1	open		
2	Cue 2	open	open	open

*Cues after a Status Merge store action*

The (tracked) value from fixture 1 is stored into cue 3.

## Store cues with timings

When storing a cue it is possible to also store the different cue timings. This is described in details the [Cue Timings topic](#), but here is the short version.

The **Fade** key will add different timing keywords to the command when storing.

For instance storing cue 4 with a fade time of 6 seconds and a delay of 1 second, the following keys can be pressed:

**Store Cue 4 Time 6 Time Time 1 Please**

This is the result in the command line feedback:

```
[time] : Executing : Store Cue 4 Fade 6 Delay 1
```

Pressing the **Fade** repeatedly will change what timing it adds.

## Adding and using Cue Labels

A cue can be given a name - called label - while it is stored. This is the syntax: **Store Cue [cue number] "my cue name"**.

The keyboard is needed for writing this. You need to write the quotation marks to tell the software that this is text - then it is not interpreted as a command.

Labels can also automatically be numerated while storing. Have a look at this command:

```
[Channel]> store cue 2 + 4 "BO Scene 1"
```

This will not label both cue 2 and 4 the same - it will add 1 to the number for each cue. The result is that cue 2 is called "BO Scene 1" and cue 4 is "BO Scene 2". This enumeration only works if the number is the last part of the label and if there is a space between the last word and number.

Cue labels can be used when storing. This means that if there are several cues whose labels starts with "BO", then it is possible to store into all these cues in one operation using BO plus an asterisk. See the following example.

## Example

This is the cue sequence and content before storing

Numbe	Name	
		1 Dim
1	Cue 1	closed
2	BO Scene 1	
3	Cue 3	
4	BO Scene 2	
5	Cue 5	

## Cues before storing

With an active value of 100% for fixture 1, we use the keyboard to type the following command:

```
[Channel]> store cue "BO*" /merge /cueonly
```

This is the result:

Numbe	Name	1 Dim
1	Cue 1	closed
2	BO Scene 1	open
3	Cue 3	closed
4	BO Scene 2	open
5	Cue 5	closed

## Cue after storing using names

The two cues whose label begins with BO now got the new value - it was stored as Cue Only.

See more details about the command at the end of this topic.

## Store cue parts

Besides the almost 10 million cues that could be stored in each sequence, if there was enough memory, it is also possible to store 199 cue parts to each cue.

Cue parts are a division of the "main" cue. The "main" cue is actually part 0 (zero). The first part that can be stored is number 1.

A value can only be in one of the parts. Have a look at this example from the Sequence Tracking Sheet:

Numbe	Name	1 Dim	2 Dim	3 Dim
1	Cue 1	open	closed	closed
2	Cue 2	open	open	
2 P 1	Part 1			open

## Cue 2 part 2 only containing fixture 3

Notice that the value for fixture 3 is stored in cue 2 part 1. It does not have a value in cue 2 part 0 (the main cue). And the values from fixture 1 and 2 are in the main cue and therefore do not have any value in cue 2 part 1.

Storing something in a part is almost as easy as storing the main cue. Using the example above the key presses would be:

```
Store Cue 2 Cue 1 Please
```

The second press on the cue key will result in the [Part keyword](#) and the command line feedback looks like this:

```
[time] : Executing : Store Cue 2 Part 1
```

## Using command line input to add more while storing

In the example using the cue labels to store, there was a command that showed some of the other possibilities while storing cues.

The command line gives access to all the store options that can be found in the GUI Store Options - read about then in the [Store Options and Defaults topic](#).

All the different elements are described in the [Store Keyword topic](#).

## Examples

The following is just a few extra command line examples showing some of the possibilities while storing.

```
[Channel]> Store Cue 1.2 Executor 1.4
```

Stores cue number 1.2 in the sequence assigned to executor 4 on executor page 1.

```
[Channel]> Store Sequence 8 Cue 20 /overwrite
```

Short version:

```
[Channel]> S Seq 8 Cu 20 /o
```

Stores cue number 20 in sequence number 8 using the overwrite function. It does not matter if you write sequence or cue first. So this could also have been:

```
[Channel]> Store Cue 20 Sequence 8 /overwrite
```

```
[Channel]> Store Cue 42 "Return of the Paranoid Android" /merge /use=Look
```

This will store the cue with a name and it is merged but it is also stored with the "Look" option. Read more about the store options including Look in the next topic.

## Store Remove

A version of storing is the Store Remove, where the **Remove** button is selected in the Store pop-up (described above).

This will remove the stored values for the attributes that currently have active values in the programmer.

The values in the programmer is irrelevant in this case. They are simply an indicator of what attributes you want to remove from the cue.

For removal of a few values, the Sequence Tracking Sheet or Sequence Content Sheets might be good tools. Read about them in the [Looking at the Cue Content topic](#).

## 18.4. Store Options and Defaults

When cues are stored then there are some options that will be used.

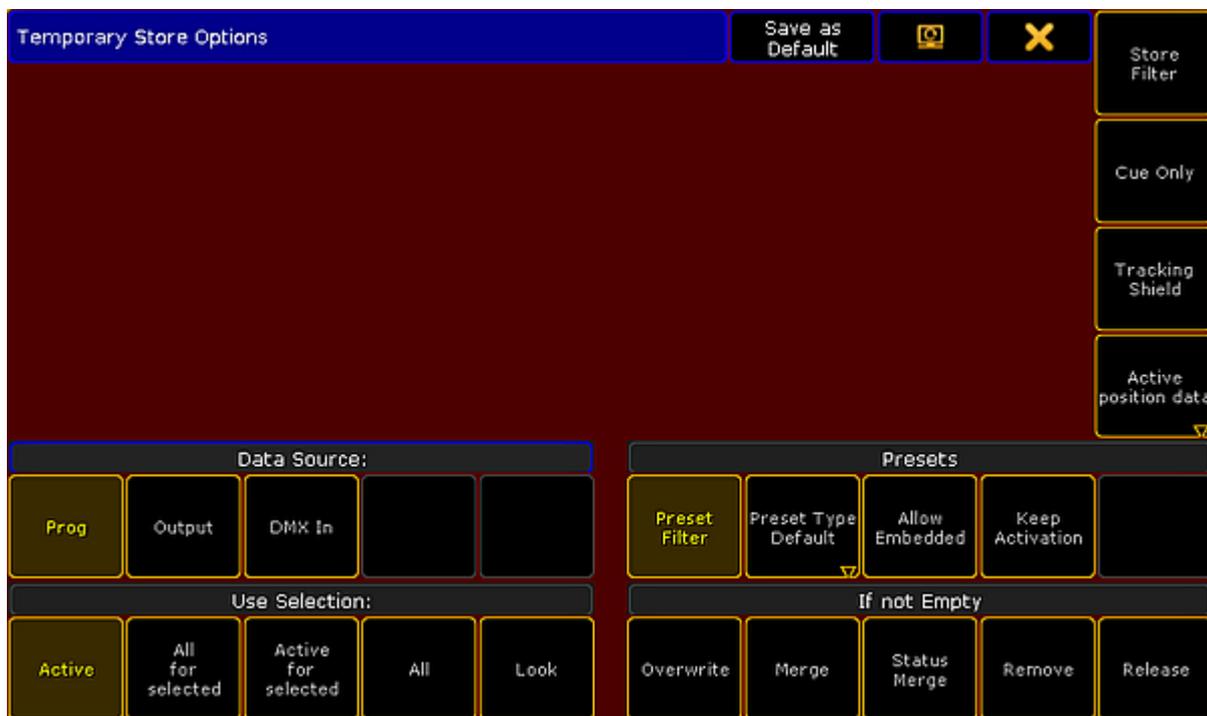
Each user (profile) can have their own default options.

During the store it is also possible to add commands that will use a specific set of store options.

In this topic the options regarding storing cues are described. Some of these options will impact how other cues will respond. Elements regarding tracking are described in the [What is Tracking topic](#).

### Store Options

The default store options are found by pressing the **Setup** key followed by the **Store Options** below the "User" tab. It could look like this:



### Store Options

On the left side are two areas called "Data Source" and "Use Selection". It is these two sections that are described here.

The "Presets" options are described in the [Create Presets topic](#). "If not Empty" is described in the [Store Cues topic](#).

**Store Filter** is described in the [What are Filters topics](#). **Cue Only** and **Tracking Shield** is discussed in the [What is Tracking topic](#). Position data (**Active Position Data**, **XYZ**, and **Pan/Tilt**) is relevant when XYZ position programming is activated. Read more about it in the [Programming XYZ section](#).

## Data Source

This is the source that will be used when storing.

- **Prog. (Programmer) - This is the default option:**  
Stores the content in the programmer.
- **Output:**  
Stores the status of the current output from the console. The output can be affected by masters and DMX profiles. The [DMX sheet](#) will show what the output actually is.
- **DMX In:**  
Stores the current DMX input.

## Use Selection

This decides what values, from the source, will be used when storing.

- **Active - This is the default option:**  
Stores the values that are active in the programmer, but with respect for the source selected above.
- **All for selected:**  
Stores all attributes of the fixtures selected in the programmer, also with respect for the source selected above.
- **Active for selected:**  
Stores only all active attributes but only for the fixtures selected in the programmer, also with respect for the source selected above.
- **All:**  
Stores all attributes for all fixtures.
- **Look:**  
Look stores all dimmer attributes and for the fixtures that have a dimmer values above 0 all attributes will be stored.

## Temporary Store Options

The store options can also be opened as a temporary version.

This can be done by pressing and holding the **Store** key for approximately one second.

This looks like the normal Store Options except it got two extra buttons in the title bar.

One is the "Change Screen" button that allows you to move the pop-up to a different screen.

The other is called **Save as Default**. This can be used to save the current temporary options as the new default options into the current User Profile.

## Store Encoder Toolbar

When "Store" is the active keyword, then the Encoder Toolbar will display the "Store Encoder Toolbar". It could look like this:



*Encoder Toolbar - Store - Page 1 Basics*

The top row has a lot of buttons. Short description from left to right:

- **Data Source:**  
This is the data source swipe button - read description above.
- **Use Selection:**  
This is the use selection swipe button - read description above.
- **If not Empty:**  
This is the if not empty swipe button - read description in the [Store Cues topic](#).
- **Store Filter:**  
This button opens the Store Filter pop-up - read about it in the [Use Temporary Filters topic](#).
- **Value Layers:**  
This on/off button filters the Value Layers - read about the layers in the [Layers in Sheets topic](#).
- **Value Time Layers:**  
This on/off button filters the Value Time Layers - read about it by following the link above.
- **Effect Layers:**  
This on/off button filters the Effect Layers - read about it by following the link above.
- **Cue Only:**  
This on/off button will activate the Cue Only function. It is mutually exclusive with the Tracking Shield function. Read about Cue Only in the [What is Tracking topic](#).
- **Tracking Shield:**  
This on/off button will activate the Tracking Shield function. It is mutually exclusive with the Cue Only function. Read about Tracking Shield following the link above.
- **Page change:**  
This will toggle the pages for the bottom row.

The bottom row has four options. These can be adjusted using the encoders.

For page one it is the "Fade", "OutFade", "Delay" and "OutDelay" times. The values here are the values that will be used when the store action is carried out.

As mentioned above there are two pages to this Encoder Toolbar. The second page could look like this:



Encoder Toolbar - Store - Page 2 Next

It is only the bottom row that changes.

Now the encoders control the "SnapPercent", "CmdDelay", "Trig", and "TrigTime" values.

## 18.5. Cue timings

Cue timing is about the stored values transition from one cue to the next.

There are several levels of timing that can be relevant for a values transition time.

There are different timing levels. They are:

- **General Cue Timing**
- **Preset Type Timing**
- **Individual Timing**
- **Rate**
- **Executor Time**

There is also manual cross fading. This overwrites any timing. Read more about cross fading in the [Playing back Cues topic](#).

### General Cue Timing

This is the general timing columns that can be seen in the [Sequence Executor Sheet](#).

These timings have the lowest priority. If a value has a different Preset Type Timing or an Individual Timing then they have a higher priority.

They are:

- **Fade:**  
This is the time used by all attributes and dimmer values going "up" in value. It can also be called "InFade".
- **OutFade:**  
This is time used by dimmer values going "down" in value. This only effects Dimmer values. The default for this is "InFade" - automatically making it the same as the "Fade" value.
- **Delay:**  
This is the time used to wait before executing the "Fade". It can also be called "InDelay".

- **OutDelay:**

This is the time used to wait before executing the "OutFade". This only effects Dimmer values. The default for this is "InDelay" - automatically making it the same as the "Delay" value.

- **Snap Percent:**

This is the percent number used to control when the "Snap" is performed. Read more about [Snap Percent](#) at the bottom of this topic.

The defaults are a user setting and can be changed in the **Setup** -> **User** -> **Defaults** -> **Sequence Defaults**.

## Preset Type Timing

Each preset type has two columns in the Sequence Executor Sheet. One is **Fade** the other is **Delay**.

These times will be used by all changing the values of that preset type. Overwriting the General Cue Timings for that Preset Type.

**Important:**

Dimmer values changing to a lower value are not effected by the "Fade Dimmer" time. They are controlled by the "OutFade".

The default value for these are "Cue" making the automatically the same as the General Cue Timings.

The defaults are a user default and this can be changed in the **Setup** -> **User** -> **Defaults** -> **Sequence Defaults**.

## Individual Timing

Each individual attribute can have a special individual fade and/or delay time. This is called individual time.

There are two columns in the Sequence Executor Sheet called **I.Fade** and **I.Delay**, they display the range if the individual times - the lowest and the highest time.

If there are individual times stored then the background of the **Fade** or the **Delay** columns will have a green or orange color. This is a visual indicator that there are some individual times stored.

## Storing Individual Timing

Individual times are usually stored together with active values in the programmer.

The Encoder Toolbar should look like this when working with values:



## Encoder Toolbar - Value Layer

Here in the Encoder toolbar there are three buttons in the center of the top row called: Value, Fade, and Delay.

They control if the encoders below the buttons are used to set a value or to set an individual time. They change between different layers.

An attribute needs to have values stored in the cue where the individual time is stored. The time can be stored at the same time as the value, but can also be added (merged) into the cue after the values is stored.

To get the fade or delay times into your programmer, you need to select the layer you want to work with. You can tap the buttons in the Encoder Toolbar or you can press the **Time** key to toggle between the layers.

When the correct layer is selected then you can use the encoders to set a time or you can use the keys to type a time - pay attention to your command line input.

This is what the Encoder Toolbar looks like when Pan and Tilt have 2 seconds as individual fade time in the programmer



## Encoder Toolbar - Fade Layer with active fade times

When the individual time is in the programmer then it needs to be stored like any other value.

Depending on what is stored with individual times, please consider if using [Part Cues](#) might be a better solution for you.

## Rate Fader

All executors have a Rate Fader. This fader might not be assigned to a physical fader but it is still there. For details about this please have a look at the [Executors section](#).

A Rate fader is used to modulate or dynamically adjust the stored times. It does not change the stored times, it simply adjust the time to be faster or slower.

When the time is adjusted by the Rate fader then the time displayed in the Sequence Executor Sheet is also visually adjusted. There is an asterisk symbol in front of the time to show you that the time is adjusted. It could look like this:

# grandMA2 User Manual

Version 3.3



Number	Name	Trig	Trig Time	Fade	Delay	Snap Percent
1	Cue 1	Go		*0.50		
2	BO Scenen 1	Go		0	*0.25	
3	Cue 3	Go		*1		
4	BO Scenen 2	Go		0		100.00%
5	Cue 5	Go		*1.50		

## Sequence Executor Sheet with adjusted times

The default value for the Rate fader is "1:1". This means that times will not be adjusted. If the rate is changed then the stored time is divided by the value of the rate - this includes the individual times.

In the image above the stored fade time for cue 1 is "1". The Rate is set to "2". The result is 1 divided by 2 equals 0.5.

Moving the Rate fader above "1:1" will make the rate time larger and the result is that the times are faster. Moving the Rate below the "1:1" will make the rate time smaller than 1 and the result is that the cue times are slower.

The Rate fader can be reset to "1:1" by typing:



Or by having the "Rate1" function assigned to one of the associated executor keys.

## Exec Time faders

The "Exec Time" or "Executor Time" fader can be used to override the stored times in the cues. It is a fader visible in the lower right corner of screen 2 (unless you are on a grandMA2 onPC with the "CmdWing Bar" turned on). It can also be assigned to a physical fader - read about it in the [Special Masters topic](#).

If the Exec Time fader is On, then all the stored cue timing is ignored and the time set on the Exec Time fader is used instead. The default range for the fader is 0 seconds to 10 seconds. The maximum is a user setting and it can be changed in **Setup** -> **User** -> **Settings**. It is called "Max. Exec Time".

The Exec Time fader also has a "Manual XFade" function. This will allow you to use the move from one end position to the other as the timing for the cue change.

Exec Time ignores any individual times. The Rate Fader is effecting the Exec Time, except when doing the Manual XFade.

It is possible to activate **Ignore Exec Time** in the options for each Executor - see the [Executor Options topic](#). This will exclude the executor from being effected by the Exec Time.

## Snap Percent

Some attributes are defined as "Snap" attributes in the Fixture Type definition. This means that the attribute will not fade from one value to the next but it will instantly change to the new value. This could be Gobo wheels, Prism In/Out, Mode channels, or any other attribute where fading is not desired.

The Snap Percent is a percent number that defines when in the cue fade these attributes shall perform the Snap.

The default is 0% and this value is hidden in the Sequence Executor Sheet. This value means that the Snap will be performed when 0% of the fade time is executed - immediately when the cue is triggered.

If the Snap Percent is set to 100% then the Snap will be performed when all fade times in the cue is done - at the very end of the fade. This includes the time of individual fades!

The Snap Percent can be set to anything between 0% and 100%, allowing you to choose when the Snap is performed.

## 18.6. Renumber cues

Cue numbers can be changed. This cannot be used to move the cues around and change the cue order.

When editing a cue number in the Sequence Executor Sheet, a pop-up like this will appear:



*Edit Cue Numbers pop-up*

A range of cues can be selected for renumbering, but remember that the new numbers cannot exceed the numbers before and after the selection.

The two top input fields in this pop-up can be used to set a range or simply have a range of one.

Below this is the renumber section. Here is the option to set the "New Number". This will be the number of the first cue if a range of cues are selected.

A "Step Width" can be defined. This is relevant if a range of cues are selected. This will then be used to set the step size between the cue range.

With the input fields correctly filled out, tapping the **Renumber** button will do the renumbering - this will also close the pop-up.

## Other Functions

The Other Functions section at the bottom have four buttons.

"Change Color" is described below.

"Block Cue(s)", "Unblock Cue(s)" are related to tracking. This is described in the [What is Tracking topic](#).

"Delete Cue(s)" will delete the selected cues. This is discussed in the [Delete Cues topic](#).

## Change cue color

A cue can have a color assigned to the row in the Sequence Executor Sheet.

This can be done using the command line or by tapping the **Change Color** button in the Edit Cue Numbers pop-up.

The [Appearance keyword](#) is used to do this via the command line.

Unless you use the command line input to specify a color then the **Select Color pop-up** appears.

The sheet options control if this color is visible and how many cells will have the background color. Read more about this in the [Sheet Options - Display - Cue Color Columns](#).

## 18.7. Delete Cues

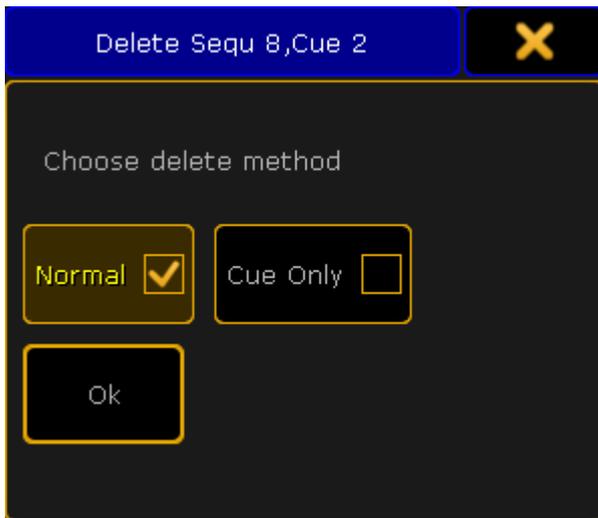
Deleting a cue will remove the values stored in the cue.

The easy way to delete a cue is using the keys or keyboard.

The syntax to delete a cue on the selected executor is: **Delete Cue [cue number]**.

If it is a different executor then you can tap a key associated to the executor after the above syntax or add the information in the syntax: **Delete Cue [cue number] Executor [executor number]**.

When this command is run then a pop-up will appear. It could look like this:



*Delete Cue pop-up*

There are two mutually exclusive options here. They are called **Normal** and **Cue Only**.

**Normal** delete will remove the cue and all values stored in the cue. This will effect stored values that normally tracks through the sequence.

**Cue Only** delete will remove the cue and all the values stored in the cue. It will store values that would track into the following cues if they otherwise would be lost by the deletion of the cue.

## Example

We have the following sequence:

Number	Name	1 Dim	R	1 G	B
1	Cue 1	closed	11.7	80.0	max
2	Cue 2	open	11.7	80.0	max
3	Cue 3	open	max	68.0	6.9
4	Cue 4	open	max	68.0	6.9
5	Cue 5	closed	max	68.0	6.9

*Sequence with 5 cues before deletion*

Now we are going to delete cue number 3.

This is the result with **Normal** delete:

Number	Name	1 Dim	R	1 G	B
1	Cue 1	closed	11.7	80.0	max
2	Cue 2	open	11.7	80.0	max
4	Cue 4	open	11.7	80.0	max
5	Cue 5	closed	11.7	80.0	max

*Sequence after a Normal delete*

Cue number 3 is gone. The orange color stored in the cue is deleted and the orange values that normally tracked from cue 3 into cue 4 and 5 are gone. Now it is the blue color stored in cue 1 that tracks through the sequence. The result is that cue 4 and 5 are now blue.

This is the result if we deleted with **Cue Only**:

Number	Name	1 Dim	R	1 G	B
1	Cue 1	closed	11.7	80.0	max
2	Cue 2	open	11.7	80.0	max
4	Cue 4	open	max	68.0	6.9
5	Cue 5	closed	max	68.0	6.9

*Sequence after a Cue Only delete*

Cue number 3 is gone. The orange color stored in the cue is now stored in cue number 4. This means that cue number 4 and 5 are still orange.

Tracking is discussed in details in the [What is Tracking topic](#).

## 18.8. Playing back Cues

Cues are played back from the sequence.

Sequences can be played back from two different locations.

They can be assigned to an executor and run from there or they can be played back from the Sequence Pool.

You can always see the actively running playbacks in the [Running Playbacks window](#).

### Sequence assigned to an Executor

When a sequence is assigned to an executor, then it can easily be played back. This is the most common way to run the sequence.

There are many commands related to running the cues. The most used ones can be assigned to the keys associated with the executor.

The default for an executor with an sequence is that one of the keys has the "Go" command assigned. Pressing this key will run the cues using the Cue Timing.

If the executor has a fader then the default function for this fader is "Master". A master fader works as an intensity master, meaning that it effects the dimmer values.

A fader can also have the CrossFade function. If a CrossFader is moved from one of the outer positions (top or bottom) towards the other then the movement is used to fade from the current cue to the next. This will disregard any cue timings and simply use the movement of the fader as the time. It is even possible to go backwards. When the fader reaches the other outer position then it becomes the new normal position and moving the fader again will start the manual cross fade to the next cue.

Any command related to playing back the cues can be used with the executor.

For instance if you run the following command:

```
[Channel]> Goto Cue 4 Executor 8
```

Then cue number will be played back on executor number 8 on your currently active page - if there is a cue number 4.

Using the command input makes it possible to overwrite the stored cue timing.

If you for instance wanted to run cue number 4 on executor number 8 on executor page 1 using 5 seconds fade you could type the following command:

```
[Channel]> Goto Cue 4 Executor 1.8 Fade 5
```

Using the keys you would need to press the following:

```
Goto Cue 4 Exec 1 . 8 Time 5 Please
```

This will overwrite any cue and individual timing and use the time specified in the command.

For details about the executors and the related commands, please read the [Executor section](#). also have a look at the [Sequence Mini Executor topic](#).

## Sequence running in the Sequence Pool

It is possible to play the sequence directly from the sequence pool.

Pressing the small **Go+** key followed by any of the sequences in the pool will run the first cue in the sequence. Repeating this will continue to run the next cues just as if the same go command was run on an executor. In fact any of the commands regarding playing back cues works in the sequence pool.

For instance if you run the following command:

```
[Channel]> Goto Cue 4 Sequence 8
```

then cue number 4 will be actively playing back from the sequence pool.

It can be hard to see this in the sequence pool, but the Call Mode can be changed to "Pool Playback". Then the sequence sheet could look like this:



*Sequence Pool - playing back cues in sequence 8*

Making it a lot easier to see that sequence number 8 is actually running cue number 4.

If "Direct Action" is active then tapping the pool objects is the same as pressing **Go+** followed by the pool object.

## Trigger

Each cue has an assigned trigger. This can be seen and edited in the **Trig** column in the [Sequence Executor Sheet](#).

Some trigger are connected to a time. This can be edited in the **Trig Time** column - also in the Sequence Executor Sheet.

The Trig defines what actually triggers the execution of the cue. Editing the cell will open the Select Trig pop-up. It looks like this:



*Select Trig pop-up*

The options here are:

- **Go:**  
This is the factory default. It requires a Go action to active the cue.
- **Time:**  
This is a countdown timer that starts the count down when the previous cue is triggered. If you have cue 1 and 2 and cue 2 has a Time trigger set to 2 seconds, then the countdown starts when cue 1 is triggered. The time is set in the Trig Time column.

- **Follow:**

This trigger will activate when the previous cue has completed all fades and delays - including individual times. The Trig Time column can be used to add an additional delay between the completion of the fade in the previous cue and the triggering of the cue.

- **Sound:**

This will trigger the cue using a sound peak as the trigger. It is possible to choose one of 11 different frequency areas in the Trig Time column.

- **BPM:**

This will trigger the cue using the beats in the sound input. This can become useful with several cues being triggered by the BPM (Beats Per Minute).

- **Timecode:**

A cue can have a timecode time as a trigger. The sequence is connected to a Timecode Slot. When the sequence is active and the specified time (in the Trig Time column) is received, then the cue is triggered. Read more about it in the [Record a Timecode Show topic](#).

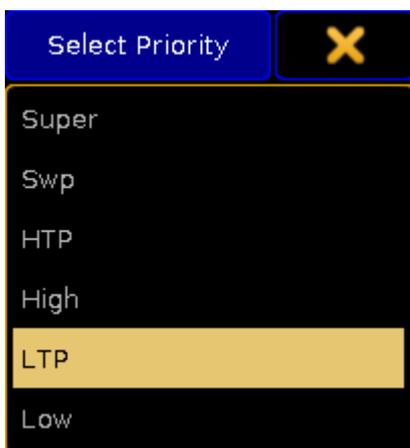
The default trigger can be changed in the Setup -> User -> Defaults -> Sequence Defaults. This is a setting that follows the User Profile.

## Priority

When several sequences are affecting the same fixtures then priorities become important. The priority setting is actually an option to the executor.

These options can be opened by pressing the **Assign** key and then one of the executors keys where there is a sequence you want to change. This opens the **Assign Menu**. On the right side of the menu there are some buttons. Please press **Options** button. This is all the options available for a sequence assigned to an executor. These options are discussed in the [Executor Options topic](#).

The top button in the second column sets the priority. Tapping it will open a small select pop-up like this:



*Small Select Priority pop-up*

This is the list of possible priorities. This is a short explanation of the priorities:

- **Super:**

This priority is the LTP priority above any other playbacks and even above the programmer.

- **Swp (Swap):**  
Intensity is working as LTP with higher priority than HTP.
- **HTP (Highest Takes Precedence):**  
The highest intensity value will be used. Other parameters will use LTP.
- **High:**  
High LTP priority - like LTP but a higher priority than normal LTP.
- **LTP (Latest Takes Precedence):**  
This is the normal LTP priority. The newest attribute value is prioritized over the the old value.
- **Low:**  
Low LTP - This is a lower LTP priority.

## Soft LTP

This option is related to how intensities change from one executor to the other.

When it is active then the intensity will fade from the old intensity to the new, when the fixture is "transferred" from one executor to the other.

When it is deactivated, the intensity will snap to the new value, then starting the new (higher priority) executor.

## 18.9. Looking at the cue content

There are two sheets that can be used to look at the content stored in cues - the stored values can also be edited using the sheet.

They are the Sequence Content Sheet and the Sequence Tracking Sheet. Both are windows that can be created and stored as views using the Create Basic Window pop-up.

Both sheets can be configured using the [Sheet Options](#) - access by tapping the yellow ball in the upper left corner.

### Sequence Content Sheet

The Sequence Content Sheets is used to see the fixtures and values stored in cues. It looks a lot like the [Fixture Sheet](#), but it has a masking function that only displays what is stored in a cue. It is like a combined Sequence Tracking (read below) and Fixture Sheet.

It could look like this:



*Sequence Content Sheet*

The Title Bar show the number of the executor and the name and number of the sequence the sheet is displaying the content from. If a world other than the default Full world is selected, then this is also displayed in the title bar (Small World icon with a number underneath). The Title Bar will also display any masks assigned (small Ghost icon).



*Sequence Content Sheet - Title Bar example*

There can be many [Title Buttons](#) in the Title Bar. These can be shown or hidden using the [Sheet Options](#) - they are access by tapping the yellow ball in the upper left corner.

Some of these buttons and their functions are specific for the Content Sheet. Some are shared with the Sequence Tracking Sheet (reed below). This is short description of their function.

## Edit Cue Only

This function is shared with the Tracking Sheet. Turning it On will make any changes you make to values as cue only changes - otherwise it will be made as tracking changes. If you are in doubt about what this means then please read the [What is Tracking topic](#).

## Cue Mode

The Cue Mode swipe button is unique for the Content Sheet. It changes what cue in the sequence is displayed.

It has four different options:

- **Current Cue:**  
This will make the sheet display the information related to the current active cue.
- **Previous Cue:**  
This will display the values from the previous cue. This is the last cue that was active even if you jump in the cue sequence.

- **Next Cue:**

This displays the values for the next cue if you perform a Go to the sequence. If a cue is "Loaded" then this cue will be displayed.

- **Manual:**

This will add a vertical scroll bar on the right side of the sheet. This scroll bar can be used to scroll through the cues in the sequence and manually select the cue you want to see.

## Tracking

This toggle button is also a setting in the Sheet Options in the [Layer Mask tab](#).

This function will hide or show tracked values. If it is On then the tracked values will be shown. If a fixture only has tracked values, then it will also be shown in the sheet.

If this is Off then all tracked values will be hidden. If a fixture only has tracked values then the fixture will also be hidden in the sheet. Hiding the tracked values will make the sheet display only the data that is actually stored in the cue.

## Link Mode

The Link Mode swipe button is shared with the Tracking and Executor Sheets. It is used to select what sequence is displayed in the sheets. It has three options:

- **Link Selected:**

This means that the sheet displays the sequence assigned to the selected executor.

- **Not Linked:**

This will stop automatic linking and display the sequence assigned to the executor selected in the [Assign Executor tab](#) in the sheet options.

- **Link Last Go:**

This will display the sequence assigned to the executor where you last performed a Go.

It is also in the sheets options. In the [Layer Mask tab](#) - here it is described in a little more details.

Values can be edited directly in the sheet. This will immediately change the values stored in the cues without using the programmer.

---

## Sequence Tracking Sheet

The Sequence Tracking Sheet is used to display all your fixtures and attributes stored in a sequence. It shows a spreadsheet type window where all the cues are rows and all the attributes stored are columns. In the intersection between the rows and column are the stored values displayed. This window allows for a nice overview and a visual flow of attributes through the cues.

An active cue will be displayed using a yellow frame around the row. If a cue is being previewed or edited then this cue will have a red frame.

It could look like this:



## Sequence Tracking Sheet

The Title bar of the Tracking Sheet functions exactly as the Title Bar of the Content Sheet. There is one Title Button that is unique to the Tracking Sheet.

## Selection Only

This toggle button is a masking button that will hide non-selected fixtures in the sheet - but it also hides cues where the selected fixture only have tracked values. The result is that you only see the selected fixtures and where they have active stored values.

This function is also accessible in the [Layer Mask tab](#) in the Sheet Options. Remember that the Sheet Options can be access by tapping the yellow ball in the upper left corner.

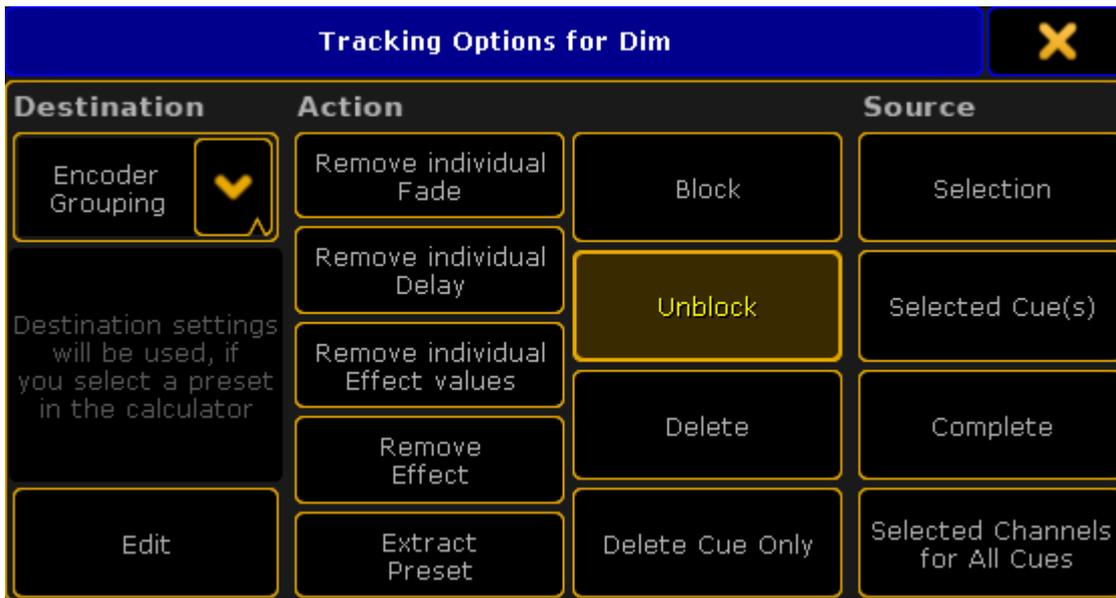
## Editing values in the Tracking Sheet

The cue numbers can be renumbered by editing the number. Read more about this function the [Looking at the cue sequence topic](#).

The names can also be edited in this sheet.

The stored attribute values can also be edited. Doing so will immediately change the values in the cues, bypassing the use of the programmer.

If you edit any value in the sheet, then a Tracking Options pop-up appears. It can do a lot more than just edit the selected values. It looks like this:



*Tracking options pop-up*

There are three parts of this pop-up.

The first is the "Destination". This drop down has three options:

- **Attribute:**  
Apply the changes to the selected attributes only (for example only tilt).
- **Encoder Grouping:**  
Apply the changes to every attribute with the same encoder grouping (for example both pan and tilt).
- **Feature:**  
Apply the changes to the entire feature (for example the entire shaper module).

The next part is the "Action" part. There are several buttons here:

- **Remove individual Fade:**  
Delete the individual fade times and set it back to the overall cue timing.
- **Remove individual Delay:**  
Delete the individual delay times and assign the overall cue delay time.
- **Remove individual Effect values:**  
Delete any individual effect values and assign the values from the effect.
- **Remove Effect:**  
Remove any effects.
- **Extract Preset:**  
Remove the reference to a preset, but keep the values essentially copying the values stored in the preset into the cue.
- **Block:**  
Block the "Source" with regards to the "Destination". Tracked values (default colored magenta) are converted into stored values (default colored white).

- **Unblock:**

Unblock the "Source" with regards to the "Destination". Blocked values (default colored white) are converted into tracked values (default colored magenta).

- **Delete:**

Delete the "Source" with regards to tracking and the "Destination".

- **Delete Cue Only:**

Delete the value using cue only (and keep the original values in the following cue).

The left action column can all be selected at the same time, but the right column is mutually exclusive allowing only one action being selected.

The last part is the "Source". It is only selectable when an action is chosen. There are several buttons:

- **Selection:**

Make the change in the selected cells (with regards to the "Destination"). Cells can be selected as individual, but it is also possible to lasso both vertical and horizontal in the sheet. It is even possible to selected multiple single cells by keeping the **Ctrl** key on the keyboard pressed while selecting cells. You can even do multiple lassos and single cells with the **Ctrl** key pressed.

- **Selected Cue(s):**

Make the change in the entire selected cues.

- **Complete:**

Make the change in the entire sequence.

- **Selected Channels for All Cues:**

Make the change for the selected attributes (with regards to the "Destination").

Tapping a source button will perform the action and close the pop-up.

Beside the three parts there is also a button called "Edit". This opens the calculator. Using this allows to change the selected values or assign any relevant presets (with respect to the destination setting). Valid presets are shown in the calculator pop-up. If you want to edit a value as Cue Only, then you need to remember to activate the Cue Only function before editing the value. This is easiest with the **Cue Only** button visible in the Title Bar.

With a combination of the different parts and the **Edit** button you can make almost any desired changes in the Tracking Sheet.

The pop-up can be closed by tapping the yellow X in the upper right corner of the pop-up. This will cancel any actions.

## 18.10. Update cues

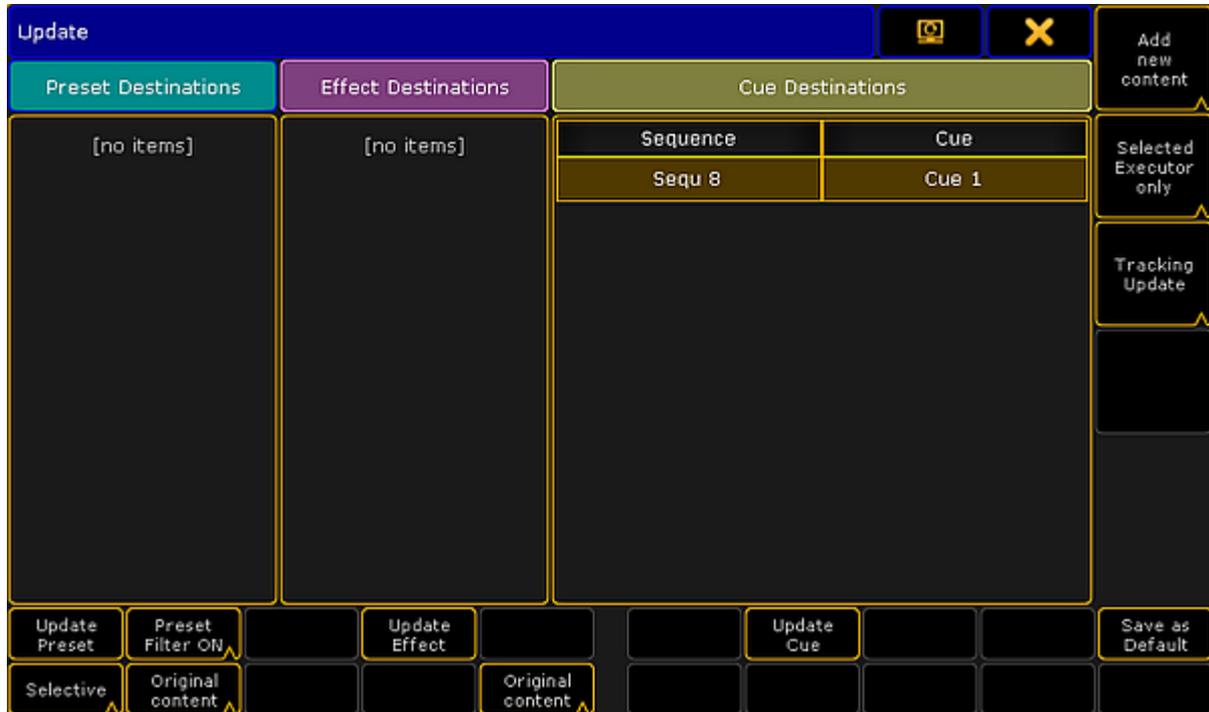
The stored values in a cue can always be changed by storing new values into them.

But if there are active cues and active values in the programmer, then it is also possible to update the cue.

When this scenario is valid then the **Update** key will light up. Pressing the key will open the **Update Menu**.

## Update Menu

The update menu could look like this:



### Update Menu

There are three sections of this menu and there are buttons that allow to change some options and perform some actions.

The three sections are **Preset**, **Effect**, and **Cue**.

Each section handles each type of data. If there is something that can be updated then it will be listed in each section.

The following is an explanation of the different options.

- Original content only** or **Add new content** (all sections):  
 You can choose if it is only possible to update the existing values at their original location - possibly a previous cue - or if the values including possible new values should be updated at the currently active location.
- Update Preset**, **Update Effect**, and **Update Cue**:  
 Tapping this button will update the location with the values.
- Preset Filter** (Preset section only):  
 Here the Preset Filter can be turned On or Off. When this is On then it is only possible to update values of the corresponding Preset Type in the presets.
- Selective**, **Global**, **Universal**, or **Preset Type Default** (Preset section only):  
 This allows you to choose to add the new updated values as a different type of data.

- **Executor filter (Cue section only):**  
This button toggle through four different options. They define what executors are visible in the list of sequences. The four options are:
  - **Selected Executor only:**  
This will only display the first or primary selected executor.
  - **Executors Called By Me:**  
This will display the executors that last was triggered by the active user.
  - **Last called Executor only:**  
This will only display the sequence that was triggered last.
  - **All possible Executors:**  
This will display all the sequences with active cues.
- **Tracking update, Update Cue Only, or Update Tracking Shield (Cue section only):**
- **Save as Default:**  
This button will store the current options as the new default for the current User Profile. This is the only location where you can see and change these defaults.

If you have the Update menu visible on screen 1 then you might be able to use the X-keys and the **U1**, **U2**, and **U3** to selected the different options and buttons.

Please read details about Presets and Effects in the [Preset section](#) and the [Effect section](#). These include explanations of the different relevant options.

For updating a cue, tap the sequence you want to update or if you have selected the sequence using the screen encoder you can tap the **Update Cue** button or the screen encoder.

## Updating or editing in the Sheets

It is also possible to change the values directly in the Sequence Tracking Sheet and the Sequence Content Sheet. These two sheets and the editing process are described in the [Looking at the Cue Content topic](#).

### 18.11. What is Tracking

Tracking is the principle to only store the **changes** in the cues.

If a fixture is turned on in a blue color, it will stay like this until it is told to change. It does not matter how many cues that are between it is told to turn On and the cue where it is told to turn Off.

Instead of each cue between turning it On and Off having the information that the fixture should be On in a blue color, we only have to store it once - from there it is tracked.

Quite simply, tracking is the idea that once a parameter is set to a level, it stays there until it is told to go somewhere else.

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## Example

Fixture number 1 is stored in a blue color, at 100 percent dimmer value in cue number 1. If there are 8 cues and fixture number 1 does not get any new information then it will stay at 100% in blue color in all 8 cues.

The best way to see this information is the [Tracking Sheet](#). It would look like this:



Number	Name	1 Dim	R	G	B
1	Cue 1	open	2.8	21.9	max
2	Cue 2	open	2.8	21.9	max
3	Cue 3	open	2.8	21.9	max
4	Cue 4	open	2.8	21.9	max
5	Cue 5	open	2.8	21.9	max
6	Cue 6	open	2.8	21.9	max
7	Cue 7	open	2.8	21.9	max
8	Cue 8	open	2.8	21.9	max

Sequence with 8 cues - fixture 1 stored values in cue 1

Notice the difference in text color between the values in cue 1 and the others. The magenta color indicates that the values are not actually stored in the cues, but it is a tracked value from a previous cue.

Now we change the color of the fixture to red and the dimmer is set to 100% again.

We store this as cue 4 (using Merge), it would look like this:



Number	Name	1 Dim	R	G	B
1	Cue 1	open	2.8	21.9	max
2	Cue 2	open	2.8	21.9	max
3	Cue 3	open	2.8	21.9	max
4	Cue 4	open	max	6.9	3.6
5	Cue 5	open	max	6.9	3.6
6	Cue 6	open	max	6.9	3.6
7	Cue 7	open	max	6.9	3.6
8	Cue 8	open	max	6.9	3.6

Sequence with 8 cues - fixture 1 has a new color in cue 4 - blocked dimmer

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The text color of the dimmer value is now white. This shows us that the values is stored here, but it is the same value as the tracked value. This is called a "Blocked" value. This would mean that if we change the value in any of the previous cues, then it would still be 100% in cue number 4. It is currently blocking the tracked value from cue 1 (the same value) and the value stored in cue 4 is tracking to the end.

Notice that the text color for the new RGB values in cue 4 are now cyan. This means that the value is stored here, it is a new value, and it will track the changed value into the rest of the cues.

If we remove the redundant stored value, then we remove the dimmer data from the cue - this is also called to "unblock".



Numbe	Name	1 Dim	R	1 G	B
1	Cue 1	open	2.8	21.9	max
2	Cue 2	open	2.8	21.9	max
3	Cue 3	open	2.8	21.9	max
4	Cue 4	open	max	6.9	3.6
5	Cue 5	open	max	6.9	3.6
6	Cue 6	open	max	6.9	3.6
7	Cue 7	open	max	6.9	3.6
8	Cue 8	open	max	6.9	3.6

*Sequence with 8 cues - fixture 1 has a new color in cue 4 - unblocked dimmer*

There are several way to do this. One would be to simply edit the value in tracking sheet - follow the link above to read details about the tracking sheet.

Another way is to have the dimmer value for fixture number 1 as active value in your programmer and then store cue 4 with the "Remove" option. This would remove the dimmer value from the cue.

A third option could be using a command like this:



```
[Channel]> Unblock Sequence 9
```

This would remove all redundant white values from the entire sequence number 9.

## Cue Only

When tracking is turned on and a value is stored in a cue, then the values tracks to the following cues. Just described above.

If a value is stored using **Cue Only**, the new values is not tracked if the attribute has previous tracking values. The old tracking values are automatically stored in the cue after the new values.

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## Example

Have a look at the following sequence:

Numbe	Name	1 Dim	2 Dim	2 Pan	2 Tilt	3 Dim
1	Cue 1	closed	50.0	2.1	Center	
2	Cue 2	open	50.0	2.1	Center	80.0
3	Cue 3	open	75.0	2.1	Center	80.0
4	Cue 4	open	75.0	2.1	Center	80.0
5	Cue 5	closed	75.0	2.1	Center	80.0

*Sequence before any changes*

Now fixture number 2 gets a new intensity value and a new position. This is stored in cue number 1 using **Cue Only**.

This is the result:

Numbe	Name	1 Dim	2 Dim	2 Pan	2 Tilt	3 Dim
1	Cue 1	closed	80.0	2.2	Front	
2	Cue 2	open	50.0	2.1	Center	80.0
3	Cue 3	open	75.0	2.1	Center	80.0
4	Cue 4	open	75.0	2.1	Center	80.0
5	Cue 5	closed	75.0	2.1	Center	80.0

*New values stored using Cue Only*

The new values are stored in cue 1. Notice that cue 2 and the following cues are not changed. This is the cue only function that stores the previous tracked intensity and position values for fixture 2 in cue 2.

If we had stored the values without Cue Only, it would have look like this:

Numbe	Name	1 Dim	2 Dim	2 Pan	2 Tilt	3 Dim
1	Cue 1	closed	80.0	2.2	Front	
2	Cue 2	open	80.0	2.2	Front	80.0
3	Cue 3	open	75.0	2.2	Front	80.0
4	Cue 4	open	75.0	2.2	Front	80.0
5	Cue 5	closed	75.0	2.2	Front	80.0

*Sequence changed without using Cue Only*

Now number 2 looks different, and all the following cues uses the new position stored in cue 1.

## Release

It is possible to store using the **Release** option. This will put an **(R)** in the Sequence Tracking Sheet

When an attribute is released in the sequence then it is the same as the sequence no longer sending any information to the attribute.

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If a different sequence is sending values to the attribute then these values are now used. Sequence priority can be important in this case - read about priorities in the [Playing back Cues topic](#).

## Release First Step

There is an option in the [Executor Options](#) that is called **Release Firststep**. This becomes relevant if another option called **Wrap Around** is active.

You can enter the Executor options by pressing the **Assign** key and then one of the keys associated with an executor using a sequence - this opens the **Assign Menu**. Tap the **Options** button on the right side of the menu.

Wrap Around allows the sequence to return to the top/first cue if you perform a Go (forward) command after you have reached the last cue in the sequence.

Release First Step controls what should happen with tracked values. They can track from the last cue to the first (Release First Step Off) or any tracked values can be released when the sequence is started from the top (Release First Step On).

Release first step is an option that effects the sequence. This means that this option is synchronized on all executors that uses the same sequence. Wrap around is a setting of the executor - so executors with the same sequence can have different options regarding Wrap Around.

## Turning Tracking On or Off

Also in the Executor Options there is the option to turn On or Off the tracking function.

This option belongs to the sequence, meaning that it will be synchronized across all executors that uses the sequence.

When Tracking is Off, the tracked values are gone and where the value was tracked it will be released instead.

If you look at the sequence used in the Cue Only example, it would look like this without Tracking:

Number	Name	1 Dim	2 Dim	2 Pan	2 Tilt	3 Dim
1	Cue 1	closed	50.0	2.1	Center	
2	Cue 2	open				80.0
3	Cue 3		75.0			
4	Cue 4					
5	Cue 5	closed				

*Sequence with Tracking turned Off*

Fixtures 1 and 3 would only be On in cue 2. Fixture 2 would be On and in a position in cue 1. In cue 2 it would turn Off and the position would be released and go back to the default for the fixture. Fixture 2 would turn On again in cue 3 and Off in cue 4. You would not need to store the Off (closed) values, unless other sequences might also try to control the same fixtures and you want to make sure they turn Off.

## 18.12. What is MIB

This topic is about the concept of Move In Black (MIB). See the [Working with MIB topic](#) for information on how to actually use MIB.

MIB (Move In Black) is a function which in a tracking sequence will look ahead and preposition attributes of fixtures that are fading the dimmer in from zero, to automatically prevent "ugly" transitions where you would normally see the fixture move the attributes into position, while the fixture is fading in.

MIB is enabled on a cue-per-cue basis, by giving the MIB-property of the cue a value which tells the console when it should do the prepositioning.

- A zero or positive MIB-value indicates an specific cue number from where MIB is allowed
- A negative MIB-value indicates a relative cue number from where MIB is allowed - please read more about this in the [Working with MIB topic](#).

Example:

Have a look at the following cue sequence:

Numbe	Name	1 Dim	R	1 G	B
1	Cue 1	open	2.8	21.9	max
2	Cue 2	closed	2.8	21.9	max
2.5	Cue 2.5	.	2.8	21.9	max
3	Cue 3	.	2.8	21.9	max
4	Cue 4	open	max	6.9	3.6
5	Cue 5	open	max	6.9	3.6
6	Cue 6	open	max	6.9	3.6

*Sequence with MIB possibility*

If this cue list is played back not using MIB, there would be a visible fade in color from cue 3 to cue 4 while the fixture was fading up the intensity. MIB can be used to make the fixture preposition the color, before the intensity is faded up.

If cue 4 is given a MIB value of "Early", the console will **as soon as possible** from Cue 2 (from the intensity is faded to 0%) and forward try to preposition fixtures for Cue 4.

If cue 4 is given a MIB value of "Late", the console will try to preposition the values **as late as possible** - when cue 3 is done fading.

If cue 4 is given a MIB value of "1", the console will **as soon as possible** from Cue 1 and forward try to preposition fixtures for Cue 4.

If cue 4 is given a MIB value of "-2", the console will **as soon as possible** from Cue 2.5 and forward try to preposition fixtures for Cue 4. (cue number 4 then 2 cues back in the list equals cue number 2.5).

The actual repositioning of each attribute will not necessarily take place in the cue indicated by the MIB value. "when possible" means that for each attribute, the repositioning will be put "on hold" if any of the scenarios below is present.

- Dimmer-output is above zero
- Dimmer has a value above zero in any of the cues between the current cue and the cue to prepare for
- The attribute is included in any of the cues between the current cue and the cue to prepare for

## 18.13. Sequence mini executor

When a sequence is assigned to an executor, the mini executor view is displaying relevant information.

It could look like this:



*Mini Executor - Sequences*

The image above shows three fader executors with assigned sequences and one button executor with an assigned sequence.

The yellow colored frame identifies that the executor has a sequence assigned.

The mini executor is divided into three sections: a top part, a middle part, and a lower part.

### Top Part

There are two lines of information in the top part.

The top line has a number on the left side. This number is the **executor** number. If this number has a different background color, then there is a [Playback filter](#) applied.

Next to this there might be different letters or symbols. This is a list of the different possibilities:

- **! (exclamation mark):**  
This symbol means that the executor is currently assigned the "Super" priority.
- **S:**  
This symbol means that the executor is currently assigned the "SWP" priority.
- **H:**  
This symbol means that the executor is currently assigned the "HTP" priority.

- **Triangle pointing up:**

This symbol means that the executor is currently assigned the "High LTP" priority.

- **L:**

This symbol means that the executor is currently assigned the "LTP" priority.

- **Triangle pointing down:**

This symbol means that the executor is currently assigned the "Low LTP" priority.

- **T:**

The "T" is there if the sequence is set as a tracking sequence. Read about tracking in the [What is Tracking topic](#).

The different priorities are described in the [Playing back Cues topic](#).

On the right side there is another number. This is the **sequence** number. If this number has a different background color, then there is a [Input filter](#) applied.

The second line in the top part is the name of the sequence.

The background color have different meanings:

- **Black:**

This is the normal background color.

- **Green:**

The executor is selected.

- **Orange:**

The executor is fixed.

- **Red:**

The Assign Menu is open for this executor.

- **Dark Red:**

The temporary Edit Sequence pop-up is open.

## Middle Part

The middle part usually displays one or three cues. If a sequence only has one cue, then only one is displayed. If there are multiple cues in the sequence then three lines with cues are displayed.

The top cue is the previous active cue or the cue that will be active should a GoBack action be performed. The middle cue is the currently active cue - if there are no active cue, then this line will be empty. The bottom cue will be the next active cue if a Go (forward) action is applied.

If a cue is active, it will have a blue background. If the cue is fading in, then the blue background is visualized as a blue bar moving from the left to the right.

Pressing or clicking in this area will open a temporary [Sequence Executor window](#).

The middle part can look very different if it is "located" using the [Locate command](#). It will look like this:



*Located sequence*

## Lower Part

The lower part labels and simulates physical keys and fader.

This is the part that is different depending on the sequence being assigned to a fader executor or button executor.

The left side show two different things depending on the executor being a button executor or a fader executor.

If it is a button executor then it shows the intensity master for the sequence.

If the executor is a fader executor then the left area labels what kind of master it is, and possibly the priority. It will also try to display the current value of the fader.

This area might be split into two parts. It could look like this:



*Mini Executor - Sequences - With Playback Master*

This happens if the executor have a Playback Master assigned - Read about Playback Masters in the [Playback Masters topic](#).

The right side have three squares or one, depending on the amount of physical buttons. These graphical representations of the real physical key labels the function of the keys. In grandMA2 onPC they can be clicked or pressed just like the real physical keys.

## Wide Executors

The executors might span up to five executors wide. The top and middle part stay the same - just wider. The bottom part will show the amount of faders and keys that are now relevant for the sequence. It could look like this:



*Two wide executor*

Read about making wider executors in the [Assign a Function topic](#).

## 18.14. Commands in cues

Each cue can execute a command. The commands are written in the CMD column in the [Sequence Executor Sheet](#).

The commands are executed as soon as the cue is triggered. It is possible to delay the command by adding a time in the CMD Delay column.

If you want to run multiple commands in the same cue, you can separate the commands with a semicolon.

As an alternative you could make cue parts and add each command in each part - remember to add a small CMD Delay, so all commands are not executed at the same time.

The commands are executed by the logged in user on the master station in a session. So be aware that it might not be the user who triggers the cue that runs the commands.

A useful keyword to know, if you need to trigger a command on a specific station, is the [RemoteCommand](#).

## 19. Executors

This section explains some of the most common executor concepts and functions. The section called [Advanced Executor Functionality](#) explains the rest.

Executors are handles used to control and execute stored content.

The most obvious use for an executor is to assign a sequence with cues for playback. However executors may also be used as handles for other objects, for example a physical key for a specific macro or a speedfader for a group of chasers.

Executors are arranged in Executor Pages. This enables you to easily get a new set of executors merely by changing page.



### Hint:

Changing page will not load new content into the physical executors, like on some other consoles. Changing page just instructs the console to **display** another set of executors on your physical hardware. This enables you to have executors from multiple pages active and running at the same time.

Read more about this in the [Executor Pages topic](#) (Advanced Executor Functionality section).

A more detailed explanation of the executors are found in the [What are Executors topic](#).

Executors are physical keys and faders, but they can also be represented as virtual executors on the screens - [Executors on the Screens](#).

There are two ways to see all the active executors, this also provides a fast way to turn Off executors - read about it in the [Looking at the Active Executors topic](#).

Assigning an object to an executor and changing the function on the faders and keys are explained in the [Assign a Function topic](#).

Finally some of the common options that are not already covered in this section and in the [Cues and Sequences section](#), are explained in the [Common Executor Options topic](#).

### 19.1. What are executors

Executors are the handles that are usually preferred when controlling sequences and other playback elements on the grandMA2.

The different elements that can be assigned to an executor are:

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- [Sequences](#)
- [Group Masters](#) (only Fader Executors)
- [Special Masters](#) (only Fader Executors)
- [Effects](#)
- [Macros](#)
- [Timers](#)

Read the [Assign a Function topic](#) to learn how to assign the different elements to the executors.

Executors exist in two variations.

One is called "Fader Executor", the other is "Button Executor".

The difference is in the hardware associated with the executor. A Fader Executor has a physical fader and three associated keys with the same number. A Button Executor only has one physical key and a virtual fader.

The executors are grouped in blocks of 5 executors. Three blocks of 5 is a section with 15 executors.

A grandMA2 full size has 30 Fader Executors (numbered 1 through 30) and 30 Button Executors (numbered 101 through 130). There are also 20 X-Keys, they can also function as Button Executors (numbered X1 through X20).

A grandMA2 light has 15 Fader Executors (numbered 1 through 15) and 15 Button Executors (numbered 101 through 115). There are also 20 X-Keys, they can also function as Button Executors (numbered X1 through X20).

A grandMA2 ultra light has 15 Fader Executors (numbered 1 through 15) and 15 Button Executors (numbered 101 through 115). There are also 10 X-Keys, they can also function as Button Executors (numbered X1 through X10).

The X-keys can be changed to Executors by pressing the **List** key.

If there is a screen above your executors on your console, then the bottom part of the screen will show the [Mini Executor Bar](#). This functions as labeling and information about what is assigned to the executors. The different Mini Executor Bars are described in the relevant topics - depending on the function assigned to the executor.

The Executors can also be represented virtually on the screens - please read about this in the [Executors on the Screens topic](#).

---

## Select Executor

There is always at least one selected executor. It is the executor with a green background at the top of the executor representation in the Mini Executor Bar.



*Selected Executor number 1*

In the image above the left executor is the selected executor.

The selected executor is used by the Master Section and the two 100mm faders - see more in the [Master section topic](#).

The selected executor is also often used in sheets.

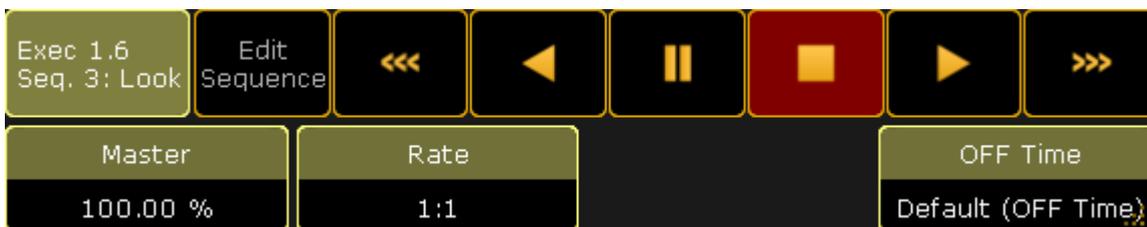
It is possible to select more than one executor, but the first one selected is a little bit more selected than the others - it is the one displayed in sheets and in the Master Section. The three big **Go+**, **Go-** and **Pause** keys executes the commands on all selected executors. Commands not sent to a specific executor is executed on all the selected executors. For instance **Store Cue 21** will store the cue on all selected executors.

Selecting multiple executors can be done by keeping the Select key pressed while pressing executor keys. It is also possible using the command line. For instance **Select Exec 1 + 2 Please** will select both executor 1 and 2.

---

## Executor Encoder Toolbar

If the executor have a sequence assigned then the Encoder Toolbar might change to look like this:



*Encoder Toolbar - Executor*

This toolbar appears if you have opened the sequence editor and closes the editor.

The top row have some buttons and information.

Starting from the left there is an information "button" that shows the executor number, the sequence number and name. It is not actually a button. Next to this is a button that enters or exits the Sequence Editor - This will also change the Encoder Toolbar. Next are six buttons that can be used to control the sequence playback - please read more about these controls in the [Playing back Cues topic](#).

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The bottom encoder row gives access to change the: Master, Rate, and Off Time. They are each assigned to one of the four encoders.

The **Master** is the same as a Master fader - this control the intensity level. The **Rate** is the same as the Rate master - this manipulates the fade times in the cues. Read about Rate in the [Cue Timings topic](#).

The **OFF Time** is used when the executor is turned off. This can be used to fade out the intensity and keep other attributes (color, position, and so on) until the fade out is complete. The Off time can also be set using a **MFade** fader - read the [Assign a Function topic](#) to learn more about assigning a fader function or read more about the MFade in the [Default Masters topic](#).

## 19.2. Executors on the screens

The grandMA2 supports a lot of executors. Most system are not set up for physical control of all these executors. They are still reachable as virtual executors on the screens.

The different virtual executors are windows that can be created using the [Create Basic Windows pop-up](#). They are all in the **Playbacks** tab.

### Action Buttons

The **Action Buttons** can show executor 101 to 190. That is all the possible Button Executors. To have them all in one big window you will need to have it on one of the big screens.

If the window does not get all that space, then it will adapt and show the possible amount of executors. They are arrange in groups of 5 executors. The smallest possible size is 3 x 5 squares (H x W). Then it could look like this:



*Action Buttons - smallest*

In the title bar there is the yellow ball that opens the options. The title bar shows what executors are being displayed in the window and the Executor Page number. On the right side there is a **Direct Action** toggle button.

Direct Action changes how the executor buttons work.

If it is disabled, then they work as described in the [Sequence Mini Executor](#), but in relation to what is assigned to the executor. Please also have a look at the [Mini Executor Bar topic](#). This window functions more as a label and

indicator when Direct Action is disabled.

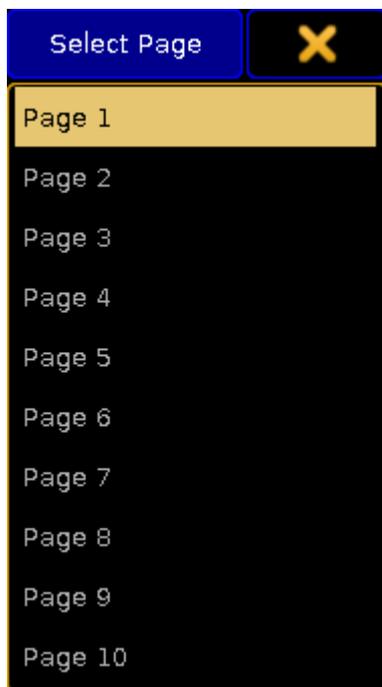
With Direct Action enabled, then the entire button will perform the action assigned to the Executor Button, or physical key, when it is tapped on the screen.

## Options

Opening the options allows you to choose what section of executors the windows should begin with.

The choices are: Intern 1 (101 through 115), Intern 2 (116 through 130), Wing 1 (131 through 145), Wing 2 (146 through 160), Wing 3 (161 through 175), and Wing 4 (176 through 190).

At the bottom of the options window there are two buttons. They control what executor page is displayed. The button called **Button Page Floating** will make the Action Buttons change page following the Button Page selection. Tapping the **Select Page** button will open a Select Page pop-up like this:



*Small Select Page pop-up*

Here you can choose to lock the Action Buttons to a specific Button page.

## Playback Big

The Playback Big window displays what is assigned to the executors. It also provide virtual faders and buttons. The button and fader label area, known from the [Mini Executor Bar](#), is replaced by labeled buttons and faders providing the same information but with better control. Tapping the buttons will perform the action. Touching and moving the virtual faders will be the same as moving the real faders.

The window adapts to the size. The width can span from a minimum of 5 through the maximum amount of available squares. It can display up to three groups (of 5) executors. The height can be from 4 through the maximum amount of squares. If the height is only 4 or 5 squares then the window will only display the Fader Executors. From 6 and

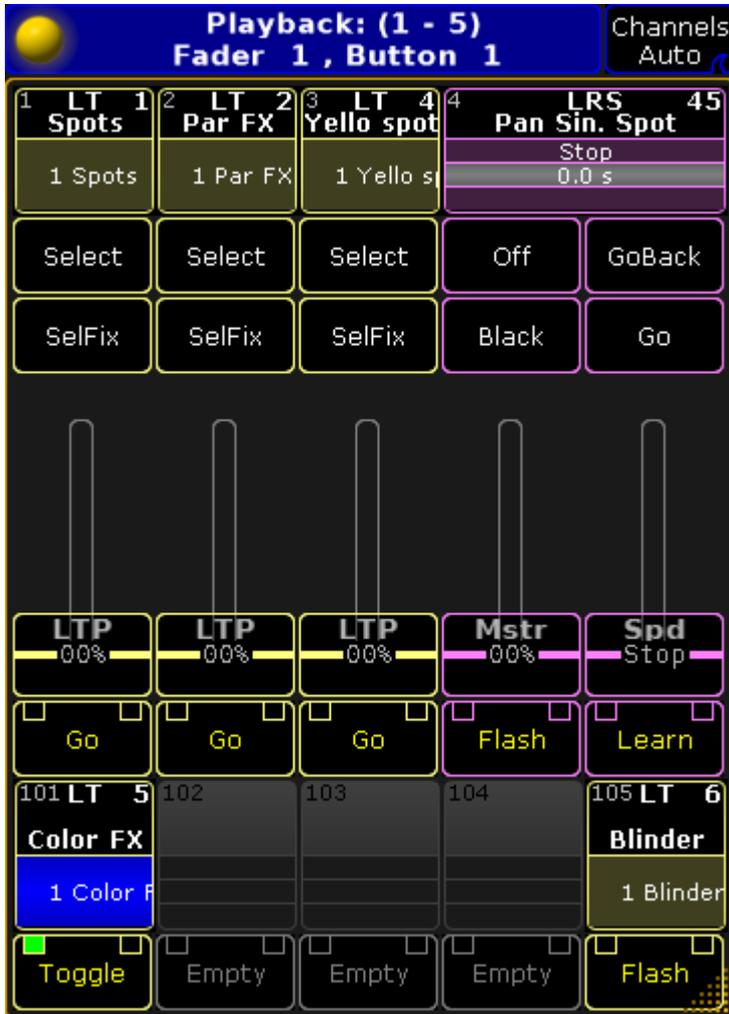
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more i height it will also display the corresponding Button Executors.

This is an example of what it could look like:



*Playback Big*

The title bar have the yellow ball that opens the options. The title bar shows what executors are being displayed and the number and possible name of the Executor Fader Pages and the Executor Button Page. The button on the right side has three different settings related to Channel pages. The options are

- **Channel Auto:**  
This will change the virtual Fader Executors to Channel Faders if this is changed on the real executors.
- **Channels Forced:**  
This will force the virtual Fader Executors to always be Channel Faders.
- **Channels Never:**  
This will prevent the virtual Fader Executors to ever change to Channel Faders.

Read about the Channel Faders in the [Channels Pages topic](#).

## Options

The options could look like this:



*Playback Big - Options pop-up*

If you have three groups (of 5 executors) visible executors, then you also have three selection sections - as in the image above. If you only have one group of executors, then there will only be one selection section. Here you can choose what executor group each section should display.

Even though the numbers are for the Fader executors, the Button Executors are also selected using this section selection. They will follow the selected Fader Executors.

At the bottom of options pop-up, there are two groups of buttons. They control what executor page is displayed. One group is for the Fader Executors and the other is for the Button Executors. The "Floating" button will make the executors change page following the general page selection. The Select Page buttons will allow you to select a specific page for the executors. Tapping the button will open the small Select Page pop-up described options for the **Action Buttons** (see above).

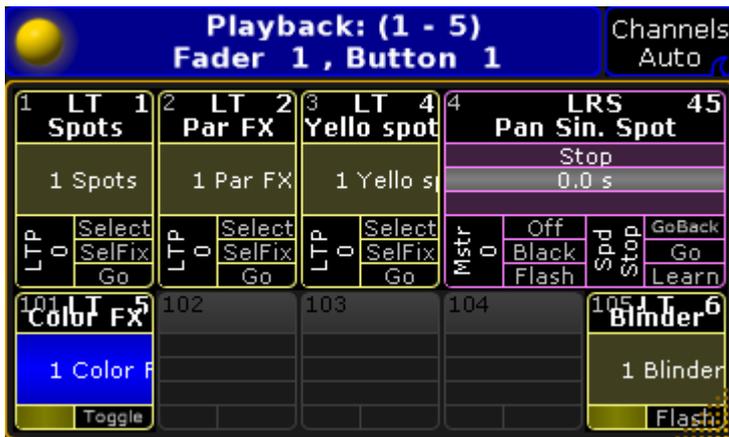
The Fader Executors group has an extra button. This is the same as the one in the title bar - please read the description above.

## Playback Small

The small playback window is the same as the [Mini Executor Bar](#). It is fixed in 3 squares height but can be extended from minimum 5 and up to the maximum about of possible squares.

It will adapt to the about of groups (of 5 executors) displayed depending on the width of the window.

The minimum size could look like this:



*Playback Small*

The title bar has the yellow ball that opens the options. The title bar shows what executors are being displayed and the number and possible name of the Executor Fader Pages and the Executor Button Page. The button on the right side has three different settings related to Channel pages. The options are

- **Channel Auto:**  
This will change the virtual Fader Executors to Channel Faders if this is changed on the real executors.
- **Channels Forced:**  
This will force the virtual Fader Executors to always be Channel Faders.
- **Channels Never:**  
This will prevent the virtual Fader Executors to ever change to Channel Faders.

Read about the Channel Faders in the [Channels Pages topic](#).

## Options

The options look and functions exactly as the Playback Big options. Please read the description above.

## 19.3. Assign a function

This topic describes how to assign an object to an executor and how to assign functions to executor keys and faders.

### Assigning objects using keys and pools

It is quite easy to assign something to an executor.

Press the **Assign** key followed by what you want to assign and then where you want to assign it.

Here are three variations on how it works. The examples use sequences, but it can be any of the allowed types:

#### Example 1

Using only the keys to assign sequence 3 at executor number 5 on the current page:

**Assign Sequ 3 Exec 5 Please**

## Example 2

It is also possible to use a combination of keys and pools.

Having pool visible on one of the screens makes it possible to combine keys presses with pool selection.

1. Press the **Assign** key
2. Tap the sequence in the pool
3. Press one of the keys associated with the executor where you want the sequence

## Example 3

Pressing the keys are putting keywords into the command line. This means that it is of course also possible to type it as a command line input.



This command will assign (short version is "as") sequence (short version is "seq") to executor (short version is "ex") 5 on executor page 2.

## Assign objects using the Assign Menu

The Assign Menu offers a visual approach to assign something to the executors. Using the Assign Menu makes you select the executor first and then select the function.

There are two main way to open the Assign Menu.

1. Press the Assign key followed by any of the keys associated with the executor.
2. Tap the top part of the [Mini Executor Bar](#).

The assign menu can look like this:



## Assign Menu - Function page

This is the **Function** page of the Assign Menu. You can select this page by tapping the **Function** button on the right side - or **U1** if the menu is on screen 1.

On the lower right side of the menu, there are seven buttons. Most of them will open a selection list above the buttons. The list will contain the possible object of each type. The exception to this functionality is the **Empty** button. This will empty the executor.

Tapping the **Sequence** button will open the list of possible sequences. It could look like this:



*Assign Menu - selection a sequence*

Each of the six allowed types that can be assigned to an executor will provide a tree structured list of the options.

Select the object you want to have on the executor by tapping it or use the screen encoder to scroll through the list and tap the encoder to select the desired object.

---

## Change Key function

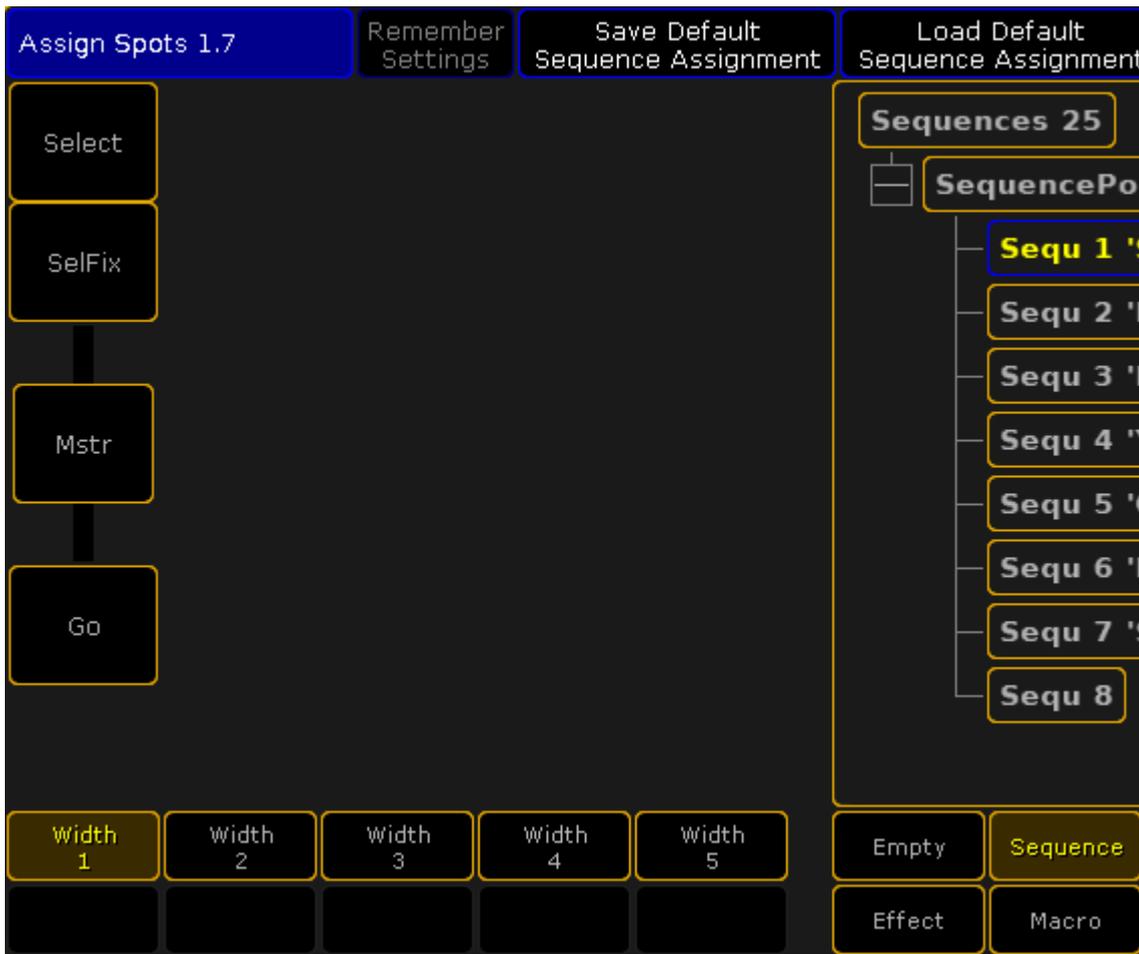
When the executor has something assigned, then it is possible to change the functions assigned to the executor keys.

If continuing to work in the Assign menu, then the executor is symbolized on the left side.

It could look like this:

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*Assign Menu - Executor key assignment*

Here is an example showing a Fader Executor. There are two buttons above the fader, the fader, and the bottom button.

Tapping any of the three buttons will open the Select Function pop-up. It looks like this:



*Small Select Function (Executor Key) pop-up*

There are many functions here. The pop-up might show a smaller selection. This depends on what type of object that is assigned to the executor.

Some of the functions have an extra option. These are the swipe buttons next to function. The options are:

- **Normal:**  
This is the normal function.
- **Assert:**  
This option will perform the function using the Assert option. Assert will force tracked values to the fixtures.
- **XAssert:**  
This variation of Assert will force the values using a fade time - typically from the cue going into.
- **Release:**  
This option will perform the main function and then turn off the executor.

The main function are:

- **Empty:**  
The key has no function.
- **<<< (GoFastBack):**  
This jumps one cue back - The fade timing can be changed in Setup -> Show -> Playback & MIB Timing.
- **>>> (GoFastForward):**  
This jumps one cue forward and will not trigger other cues - The fade timing can be changed in Setup -> Show -> Playback & MIB Timing.
- **Black:**  
This turns off the intensity of the executor as long as you have the button pressed.
- **DoubleSpeed:**  
This will double the speed.
- **DoubleRate:**  
This will double the rate.
- **Fix:**  
This fixes or unfixes the executor.
- **Flash:**  
This turns the executor on and set a virtual intensity master at 100, as long as you have the button pressed. When the button is released it will go back to the status before the button was pressed.
- **FlashOn:**  
This performs the same action as the Flash, but it also executes an On command.
- **FlashGo:**  
This performs the same action as the Flash, but it also executes a Go command.
- **Go:**  
This executes a "Go". It uses the fade and delay times.
- **GoBack:**  
This fades backwards - The fade timing can be changed in Setup -> Show -> Playback & MIB Timing. Default is the cue timing.

- **Goto:**

This gives you the **Select Cue for Goto pop-up** that allows you to select a cue to go to. It could look like this:



*Select Cue for Goto pop-up*

The fade timing can be changed in Setup -> Show -> Playback & MIB Timing. Default is the cue timing.

- **HalfSpeed:**

This will half the speed.

- **HalfRate:**

This will half the rate.

- **Kill:**

This is the same as a "Go" but it also turns of all other executors (except those that has "Kill protect" turned on - see [Executor Options topic](#)).

- **Learn:**

This sets the speed. By pressing it at least two times it automatically adjusts the speed.

- **Load:**

This gives you the **Select Cue for Load pop-up** that allows you to select a cue to load. It looks like the **Select Cue for Goto pop-up** pictured above.

- **LoadPrev:**

This will load the previous cue. If it is pressed multiple times, then it will load the previous cues based on the currently loaded cue.

- **LoadNext:**

This will load the next cue. If it is pressed multiple times, then it will load the next cues based on the currently loaded cue.

- **Off:**

This turns the executor Off.

- **On:**

This turns the executor On.

- **Park:**

This parks the fixtures in the object assigned to the executor.

- **Pause:**  
This holds a active fade and/or delay. This also pauses a timecode show.
- **Rate1:**  
This resets Rate and Speed faders.
- **Select:**  
This selects the executor.
- **Selfix:**  
This selects the fixtures used in the object assigned to the executor.
- **Swop:**  
When this is pressed, all other fixtures will fade out the dimmer (except those that has "Swop protect" turned on - see [Executor Options topic](#)). They return when it is released.
- **SwopOn:**  
This performs the same action as the Swop, but it also executes an On command.
- **SwopGo:**  
This performs the same action as the Swop, but it also executes a Go command.
- **Temp:**  
This turns the executor on as long as it is pressed. The temp function uses the fade times from the cues and it uses the level set by the intensity master.
- **Toggle:**  
This turns an active executor Off and an inactive executor On.
- **Top:**  
This fades to the first cue in an assigned sequence.
- **Unpark:**  
This unparks the parked fixtures used in the object assigned to the executor.
- **ToFull:**  
This will move the intensity master at full.
- **ToZero:**  
This will move the intensity master to zero.

These main functions are keywords - they can be found in the [All keywords topics](#). Here are detailed descriptions of all keywords.

The functions can be assigned using the keys or commands. Not all functions has a physical key that can be used, then you will need to write the command.

## Key Example

If the desired function has a physical key, then it is very easy to assign it to an executor key. Simply press the **Assign** key, then function key you want, and finally the executor key where you want the function.

### Example 1

For instance to assign the Off function to the top key associated with executor number 1, you need to press the following keys:

**Assign** **Off** (the top executor key labeled:) **1**

### Example 2

Assign in a Load function to an executor key

**Assign** **Goto** **Goto** [desired executor key]

Pressing the the "Goto" key twice will give the "Load" command.

## Command Example

Functions can be assigned using the command line.

This is the general syntax:

### Assign [function] (at) [location]

The location needs to be a specific physical key associated with an executor. The keys are called "ExecButtons". They are numbered. The key below the fader and the single key for executors without faders are named "ExecButton1". The key right above the fader is "ExecButton2" and the top key is called "ExecButton3".

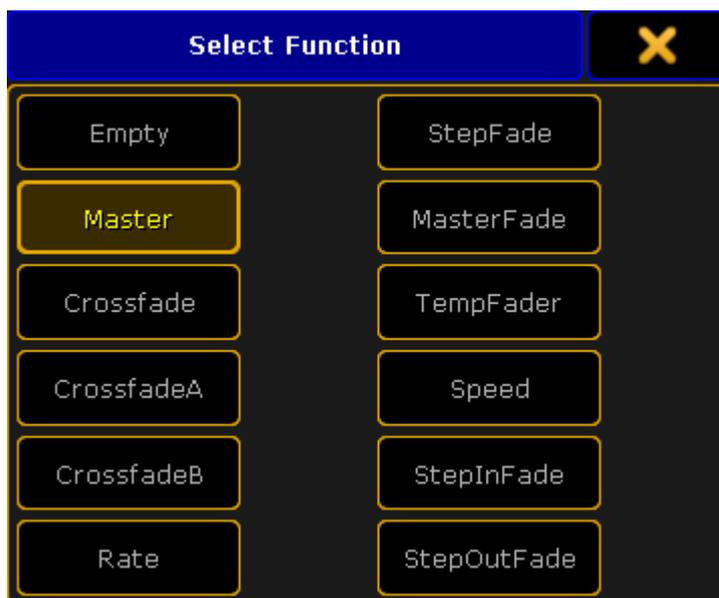
To assign the ToFull function to the top key associated with executor 5 on executor page 8 you would need to type the following command

```
[Channel]> Assign ToFull ExecButton3 8.5
```

## Change Fader function

It might be possible to change the function of the fader. This depends on what type of object an executor has. They are changed just as the executor keys - by tapping the onscreen representation in the Assign menu (see above).

The Select pop-up could look like this:



*Small Select Function (Executor Fader) pop-up*

The pop-up might present a smaller selection. This depends on the object on the executor.

- **Empty:**  
Fader has no function.
- **Master:**  
Controls the intensity.
- **Crossfade:**  
Crossfades between two cues. Current cue and next cue. The current cue will change when the fader reaches the other end position from where it started.
- **CrossfadeA:**  
Is the first of a two fader manual crossfade between two cues. Works along with CrossfadeB. The crossfade function can be changed in the [Executor options](#).
- **CrossfadeB:**  
Is the second of a two fader manual crossfade between two cues. Works along with CrossfadeA. The crossfade function can be changed in the [Executor options](#).
- **Rate:**  
Divides the fade and delay time in a sequence by the value of the fader. If **Link Effect to Rate** is on, it is also valid for effect speed stored in cues - see [Executor options topic](#).
- **StepFade:**  
Controls the fade time between steps in a chaser (=softness).
- **MasterFade:**  
Controls the on and off fade time of chasers and effects. It controls also the off time of executors.
- **TempFade:**  
Crossfades the cue on when pulled up, and off when pulled down.
- **Speed:**  
Controls the fade and delay times in effects in a cue, and chase speed in chasers.
- **StepInFade:**  
Controls the step in time of the chaser steps.
- **StepOutFade:**  
Controls the step out time of the chaser steps.

The above functions are described in more details in each of their keyword topics. They can be found under [All Keywords](#).

The functions can also be assigned using the command line.

The syntax is the same as the key functions. The difference is that there is only one fader per executor.

## Examples

### Example 1

To assign the rate function to executor number 9 on the current page, you will need to type the following command:

```
[Channel]> Assign Rate Executor 9
```

Or address the actual fader:

```
[Channel]> Assign Rate Fader 9
```

## Example 2

If you want to assign the "Empty" function to the executor fader, then it is necessary to use the fader as the location



## Save the Key and fader assignment

The current assignment of key and fader functions can be saved, to the current user profile, using the Assign Menu.

In the Title bar there are two buttons. Tapping the **Save Default [object type] Assignment** will store the current assignment to the defaults for that type of object. This means that a sequence have one set of defaults and an assigned Effect will have a different set of defaults.

The defaults are used when the executor gets something assigned.

Tapping the **Load Default [object type] Assignment** will load the currently saved default to the keys and faders.

Executors can be extended to use up to 5 executors in the width. Read more about this below. The number of keys and faders are then changed. Each width size has a different set of default key and fader assignment for each object type.

This means that a sequence using 1 executor width have one set of defaults and the same sequence using two executor widths will have a different set of defaults.

---

## Change the Width of Executors

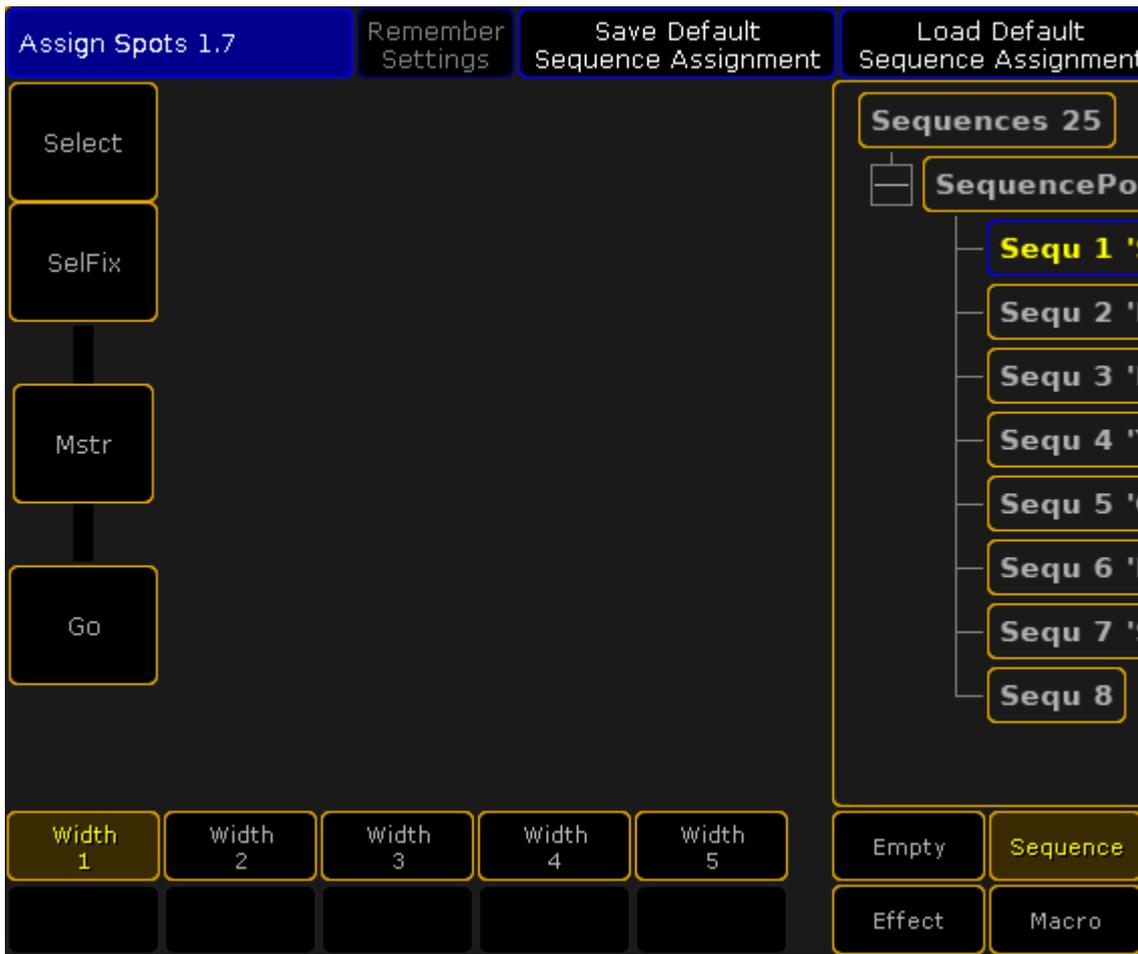
Sequence and Effects assigned to an executor can use more than one executor in the width - up to five.

A timer assigned to Button Executors can use up to two executors in the width.

This is changed using the Assign Menu (see the top of this topic for more about using the Assign menu). The left side of the Function page of the Assign Menu could look like this:

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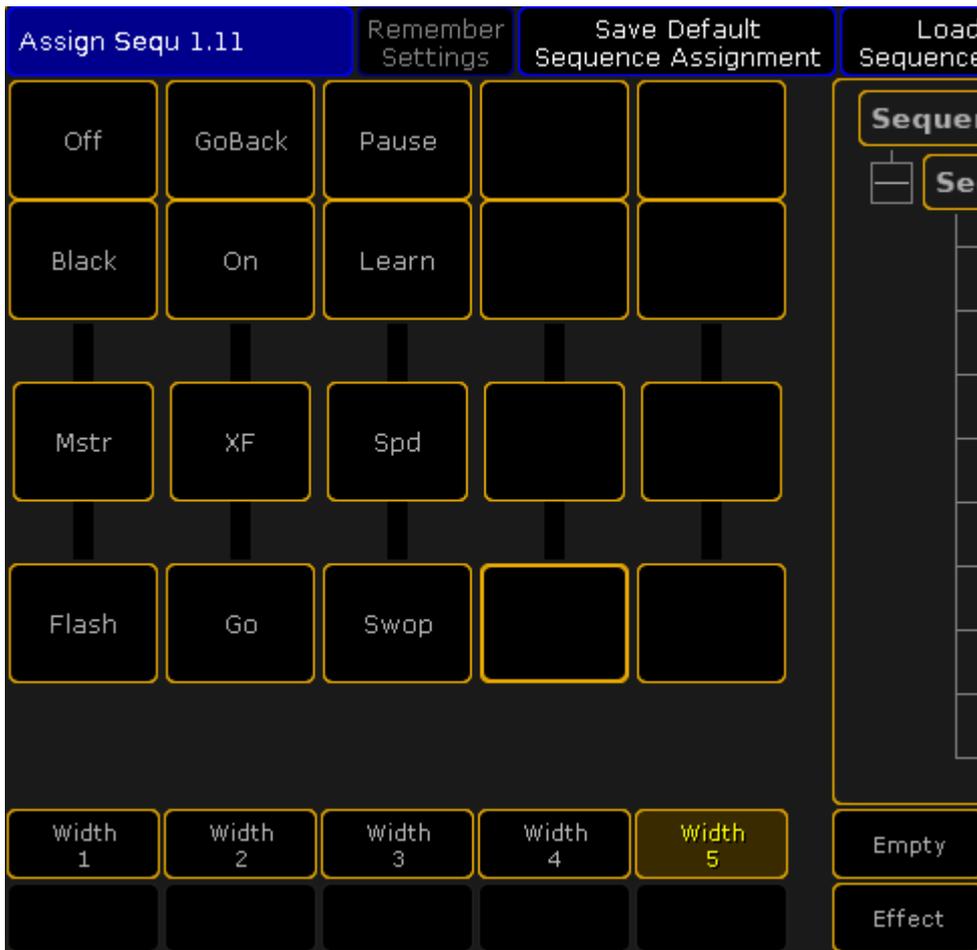


*Assign Menu - Width control*

The bottom of the left side will show how much the executor can be extended.

The executors are organized in groups of five. It is not possible to extend into a different group of five. It is also not possible to extend into executor that already has something assigned. So to extend an executor to five in width, it needs to be originally assigned to executor 1, 6, 11, 16, 21, 26, and so on AND the following five executors needs to be empty.

When fully extended it could look like this:



*Assign Menu - Width 5*

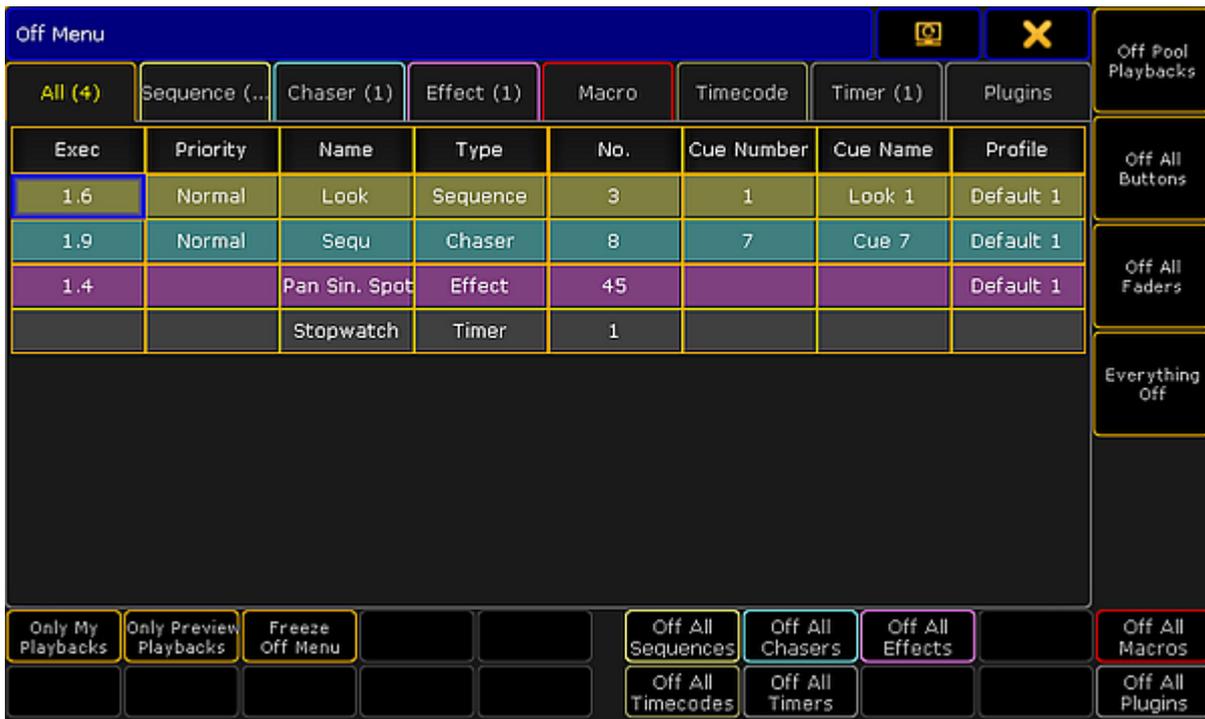
Each key and fader can have a function that will execute the selected function to the assigned sequence or effect.

## 19.4. Looking at the active executors

There are two ways to see all the active executors. They actually display all the "Playbacks". This means that they display everything that is currently actively doing something. So it displays running Sequences, Chaser, Effects, Macros, Timecode shows, Timers, and Plugins.

### Off Menu

Tapping the **Off** key twice will open the **Off Menu**. It could look like this:



## Off Menu

The main part of this menu is an area with several tabs. Each tab represent one of the different types of playbacks. Each tab has a different color. After the name in the tap there might be a number in parentheses. This number is the amount of playbacks in that category. There is also a tab called "All". This will display all the different playbacks in one list. Each row on the list will have the same color as the tab color. This is to make it easy to distinguish the different types of playbacks in the list.

The columns in the main part will vary depending on what tab is selected. The "All" tab displays all possible columns. They are:

- **Exec:**  
This is the executors number of the playback. Only relevant for Sequence, Chaser, and Effect.
- **Priority:**  
This displays the executor priority. Only relevant for Sequence and Chaser.
- **Name:**  
This is the name of the active playback.
- **Type:**  
This is only visible in the "All" tab. It tells what kind of playback it is.
- **No.:**  
This displays the number of the active playback.
- **Cue Number:**  
This will display the active cue number. This is only relevant for Sequence and Chaser.
- **Cue Name:**  
This will display the name of the active cue. This is only relevant for Sequence and Chaser.
- **Profile:**  
This is the name and number of the User Profile that has last activated the playback. Only relevant for Sequence, Chaser, and Effect.

Around the main part, there are several buttons. Assuming this menu is on screen 1, then it is possible to use the X-keys and the U1 through U4 keys to execute various actions. It is also possible to tap the buttons on the screens.

There are two types of buttons. There are "filter" buttons and there are "Off" buttons.

The filter buttons are:

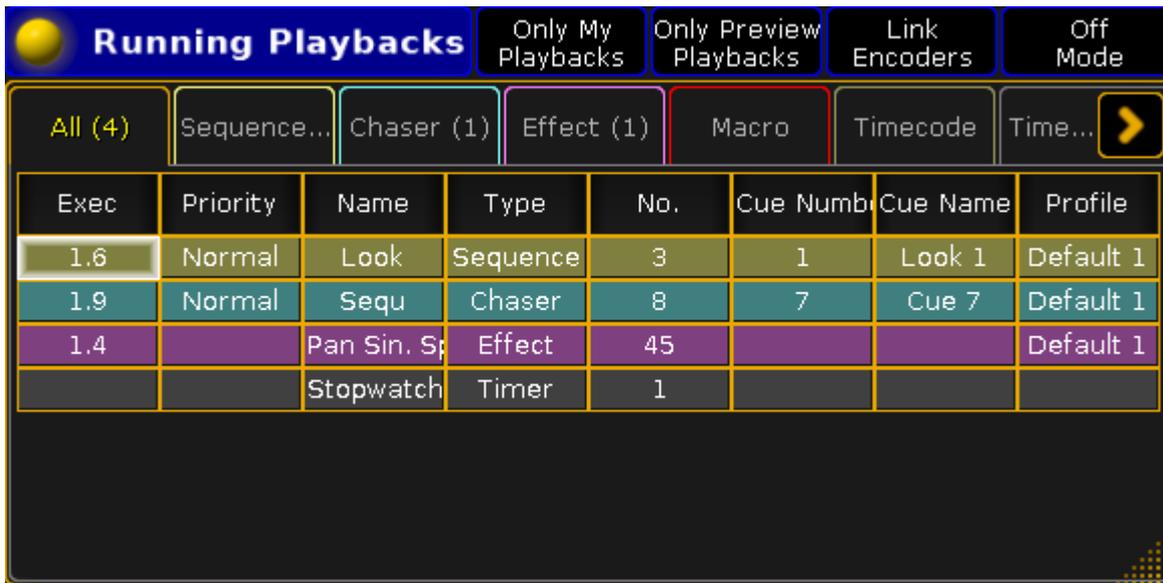
- **Only My Playback:**  
This will hide playbacks from the list that has been triggered by a different user profile.
- **Only Preview Playbacks:**  
This will hide playbacks that are not only running in the Previewer. The list will only display the playback running in previewers.
- **Freeze Off Menu:**  
This is not a filter. When this is deactivated, then a row will disappear when the playback is turned off. Activating the **Freeze Off Menu** will make the row stay - it becomes empty when the playback is turned off.

The Off buttons are:

- **Off Pool Playbacks:**  
This will turn off all the playbacks that are running the respective pools - so not running on a Fader Executor or a Button Executor.
- **Off All Buttons:**  
This will turn off all playbacks running on Button Executors.
- **Off All Faders:**  
This will turn off all playbacks running on Fader Executors.
- **Everything Off:**  
This will turn off every running playback and close the Off Menu.
- **Off All [playback types]:**  
At the bottom right side of the menu there are seven buttons. Each turn off each of the seven sections. For example **Off All Sequences**, turns off all the running sequences.

## Running Playbacks

A window similar to the Off Menu is called **Running Playbacks**. It can be made like any other window - using the [Create Basic Windows pop-up](#). This window can be found in the **Playbacks** tab. It could look like this:



*Running Playbacks window*

The main part of this window looks like the **Off Menu** (see above). The difference is the buttons around the window are gone. Instead some of the functions can be added in the Title Bar. This can be changed in the options.

## Options

The options can be accessed by tapping the yellow ball in the upper left corner.

The options have two tabs. One is called **Options**, the other is **Title Buttons**.

The title bar of the options has the options to store the settings as the new default, load the defaults settings, delete the window, and finally close the options pop-up.

## The Options Tab

Here are the different options for the Running Playbacks window.

- Off Mode:**  
 Activating the Off Mode will change what happens if one of the rows are tapped. When this is active then tapping rows will turn off the tapped playback. This is mutually exclusive with **Link Encoders**.
- Only My Playbacks:**  
 This is the filter described in the Off Menu above.
- Only Preview Playbacks:**  
 This is also the filter described in the Off Menu above.
- Link Encoders:**  
 When this active, then selecting a row will display the relevant Encoder Toolbar. Here it is possible to control the playback. This is mutually exclusive with **Off Mode**.
- Show Info:**  
 This can add another column to the main part. It will add a Info column to all the tabs.
- Font:**  
 Here you can selected the font size. Tapping it will open a small **Select Font pop-up**. Here you can select a font size from size 10 through size 22.

## The Title Buttons Tab

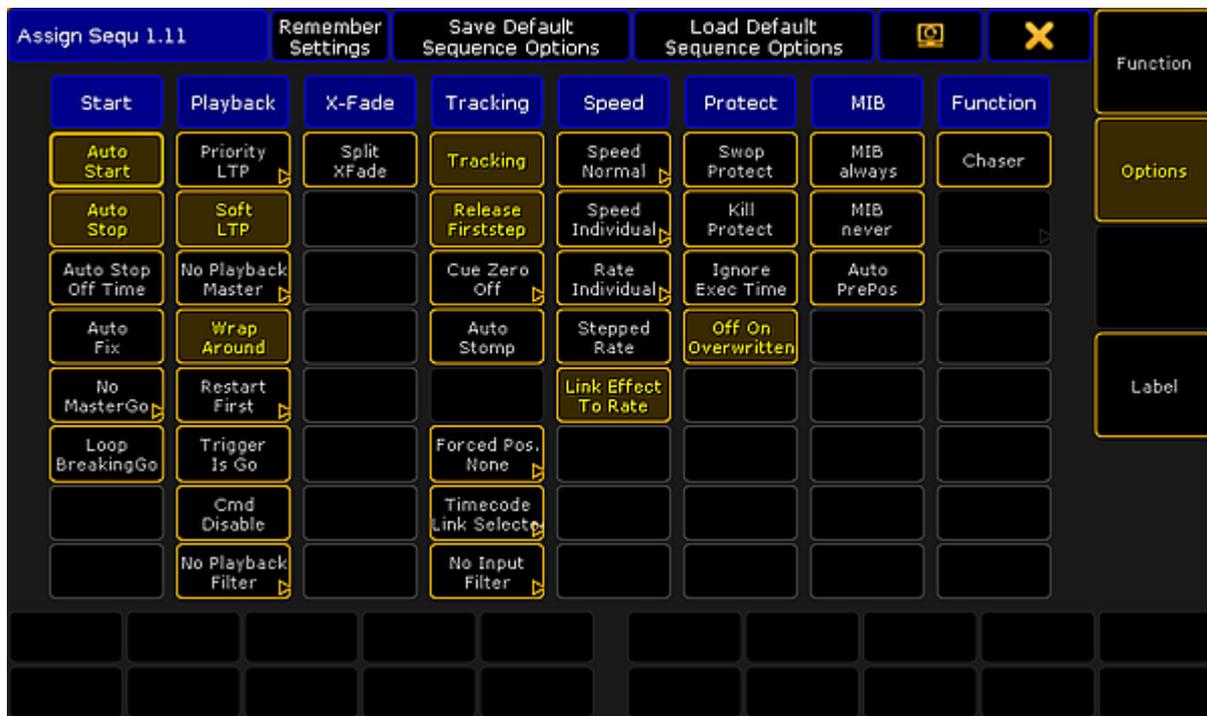
Here you can turn On or Off title bar buttons for all the options described above - except the font size.

## 19.5. Common executor options

The executors most common options, and their associated options, are explained in this topic. The rest are explained in the [Executor Options topic](#).

There are many options available for executors - especially sequences assigned to executors. They are accessed using the Assign Menu. One way to open the menu is to press the Assign key followed by a key associated with the executor you want to change.

On the right side of the menu there are a button called Options. Tapping this opens the options part of the Assign Menu. This is what it looks like with a sequence assigned to the executor:



*Assign Menu - Options*

The options look different depending on what is assigned to the executor.

## Auto Start and Auto Stop

The **Auto Start** feature switches the executor 'On' when master is moved above zero.

The **Auto Stop** feature switches the executor 'Off' when master is moved down to zero.

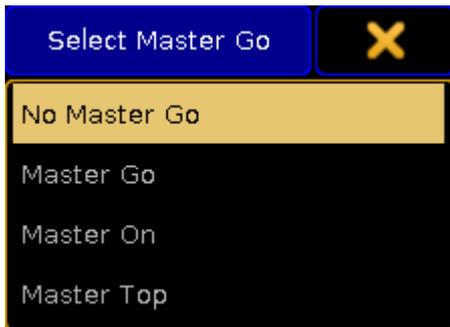
There are some other options that are relevant for Auto Start and Auto Stop:

## Auto Stop Off Time

If Auto Stop is active, then this option is visible. When **Auto Stop Off Time** is active, then performing the auto stop will use the Off time for the Executor.

## Master Go

The **MasterGo** function is active if Auto Stop is turned Off. Tapping this button will open the Select MasterGo pop-up. It looks like this:



*Small Select Master Go pop-up*

There are four options here. They all take effect when the master fader is moved from zero and up. The options are:

- **No Master Go:**  
The cue is still running.
- **Master Go:**  
It executes a Go.
- **Master On:**  
The current cue is reloaded (fading in again).
- **Master Top:**  
The first cue is activated.

## Restart

Restart is used when the executor has been Off and is turned On again.

Tapping the button will open the small Select Restart Mode pop-up. It looks like this:



*Small Select Restart Mode pop-up*

There are three options here:

- **First Cue:**  
This always restarts the sequence with the first cue.

- **Current Cue:**

This restarts the sequence with the cue where it was when the sequence was turned Off.

- **Next Cue:**

This restarts the sequence with the next cue based on where it was when the executor was turned Off.

## Priority

The priorities are one of the common options to change. The description of the priorities are found in the [Playing Back Cues topic](#).

## Tracking

Explanations about tracking and how to turn it On or Off is found in the [What is Tracking topic](#). Here are also the explanations about **Release Firststep** and **Wrap Around**.

## Off On Overwritten

The **Off On Overwritten** function will allow that an executor is turned Off if another executor has taken control with all the attributes = this executor has no longer control of any attributes.

## Example

There are two sequences. Sequence one have values for fixture 1 at 100% and using a red color. Sequence two has the same fixture also at 100% and in a blue color.

Both sequences are assigned to executors with Off On Overwritten, AutoStart, and AutoStop active.

1. Moving up the fader on the first executor will turn the fixture to 100% and in a red color.
2. Fading in the second executor will make the fixture turn blue.  
When the second fader is completely faded in (at the top), then it has control of all the attributes stored in the first sequence.
3. The first executor is then turned Off by **Off On Overwritten**.
4. Taking the second fader down will make the fixture fade out.

If **Off On Overwritten** is *not* active then the same scenario would be:

1. Moving up the fader for the first executor will turn the fixture On in a red color.
2. Moving up the second fader will make the fixture turn blue.
3. Moving down the second fader will make the fixture red (when the fader is at 0) because the first executor is still active.

## 20. Advanced Sequence Functionality

The following sub topics describes some of the more advanced functions regarding sequences. It is good idea to have a look at the [Cues and Sequence section](#) before reading these topics.

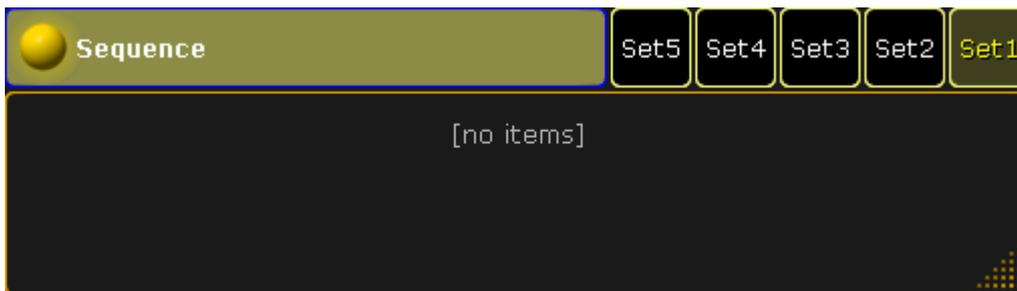
### 20.1. Using different view sets in the sheets

Most of the Sheets have the option to add "Sets" title bar buttons.

For the [Channel Sheet](#), [Fixture Sheet](#), [Sequence Content Sheet](#), [Sequence Tracking Sheet](#) they offer fast access to masks - please read the [Use Masks in the Sheets topic](#) for more details on this.

The [Sequence Executor Sheet](#) is different. It has 5 Sets that can be accessed as [Title Buttons](#).

In an empty Sequence Executor Sheet with only the Set button visible it could look like this:



*Sequence Executor Sheet with Set buttons*

The sets are used to hide columns in the sheet.

This allows for each user to create five different sets, per saved view, of different column arrangements.

Each column can be changed in width and columns can be moved around by simply pressing the title and while pressing the screen moving the column to the new location.

### Editing the Sets

Pressing the Edit key followed by one of the set buttons, or use any other way of editing, will open a pop-up like this:

Sequence View Mode Options			X
Name	Included	Excluded	^
Trig	Yes		
Trig Time	Yes		
Fade	Yes		
Out Fade	Yes		
Delay	Yes		
Out Delay	Yes		
Snap Percent	Yes		
MIB	Yes		
Mode	Yes		
AE	Yes		
CMD	Yes		
CMD Delay	Yes		
Loop	Yes		
Ltime	Yes		
Lcount	Yes		
Path	Yes		v

Name

Set1

*Sequence View Mode Options pop-up*

In this pop-up it is possible to give the Set button a name. Tap the green input field on the left side and type a new name in the pop-up that opens.

There are three columns in the pop-up. The left column is called "Name" this is the name of the column in the Sequence Executor Sheet. The middle column is called "Included" and the right column is called "Excluded".

If a column is to be included in the set, then the "Yes" needs to be in the "Included" column. If it is not to be in the set then the "Yes" needs to be moved to the "Excluded" column.

The "Yes" is moved by editing (right clicking with a mouse or trackball might be easiest) the cell where the "Yes" should be.

With the mouse or a lasso marking it is possible to select several cells at the same time, and editing them all will move the "Yes".



## Important:

Remember to save your view after editing the Set Buttons - otherwise the changes are lost next time a view is recalled.

## 20.2. Working with MIB

This topic is about some of the details concerning MIB (Move In Black). The [What is MIB topic](#) might be a good place to start if MIB is new to you.

### MIB values

The MIB value is assigned in the MIB column in the [Sequence Executor Sheet](#).

An asterisk "\*" in the MIB cell indicates that a cue is capable of MIB, but no MIB value is given. A MIB value in red, indicates that a MIB value is given, but the cue is not capable to MIB. "MIB capability" is defined as a cue with one or more fixtures with dimmer-value above zero, and previous state of dimmer-value not above zero (= fixture is fading up) - and one or more other additional attributes (= something to preposition).

Editing the MIB cell, will open a pop-up like this:



Select MIB pop-up

This provide three options at the top, and then a list of all the previous cues. This list of cues only displays the cues that are before the cue being edited.

There are more options than this pop-up displays. This is a complete list:

- **None / Off / O** (the letter "o" - not number) :  
Same as no value, do not preposition.
- **Late / L** :  
Same as the numeric value "-1", preposition 1.000 Cue-numbers before.
- **Early / E** :  
Same as numeric value "0" (zero), preposition as early as possible.
- **[x.xxx]** :  
Preposition from Cue number x.xxx.
- **-[x.xxx]** :  
Preposition x.xxx Cue-numbers before. This option can only be set using the command line - keep reading.

## Setting MIB via Command line

MIB is a property of cues and its value may be assigned with standard syntax:

```
[Channel]> Assign Cue /MIB=late
```

Assign MIB value "Late" to current cue and all its parts.

```
[Channel]> Assign Cue 101 /MIB=99
```

Assign cue 99 as MIB value for cue 101.

```
[Channel]> Assign Cue 1 Thru 10 / MIB=Off
```

Removes MIB from Cue 1 thru 10.

```
[Channel]> Assign Cue 15 / MIB=-4
```

Assign MIB value "-4" to cue 15. This will make the prepositioning to cue 15 happen in cue 11 - assuming cue 11 through 15 exist.

A useful MIB macro could be something like this:

**Assign Cue /mib=off**

**SetVar \$mibvalue=("Please enter MIB")**

## Assign Cue /mib=\$mibvalue

Pressing the macro and the **Please** key, will disable MIB for the current cue, while pressing the macro, then a number followed by Please, will set the MIB value for the current cue.

## MIB timing

MIB uses two general time settings: **MIB Delay** and **MIB Fade**.

**MIB Delay** is the time to wait from a fixture have faded out until it starts to MIB, while **MIB fade** is the actual time used to preposition.

Increasing MIB Delay may be useful for fixtures with slow dimmer or afterglow. Increasing MIB Fade may be useful for noisy fixtures, or if the movement of the fixture body is visually disturbing for the audience.

These two settings can be found in Setup -> Show -> Playback MIB Timing.

In addition to the general MIB timing, it is also possible via the **Fixture Types Editor** to set individual MIB Fade and it is possible to disable MIB per Attribute per Fixture Type. It is also possible to disable MIB for each fixture. This can be set in the **Fixture Editor pop-up**.

It is possible to set a MIB Delay for each "module definition" per Fixture Type.

## MIB feedback

When MIB Delay is active, or MIB is "put on hold" the backlight of the executor keys will blink fast.

When MIB Fade is active (fixtures are moving to preposition), the backlight of the executor keys will blink slowly

Attributes which have positioned using MIB will be displayed in the ExecutorID and SequenceID layer of the Fixture Sheet with a slightly paler shade of the usual background color (green for selected Executor, yellow for others), to indicate that the source of the value is from a future cue. Please read more about the colors in the [System Colors topic](#).

## Pitfalls

When using MIB, the desk is not only tracking values from earlier cues, it is also tracking forward and outputting values from future, non-executed cues. This is sort of "Back to the Future", with dilemmas you find in time-travel-theory.

Looking at the example above the fixture is turned on in cue 1 in a blue color, then it turns off in cue 2. In cue 4 it is back on in a red color.

As we do not want to see the scroll to red in cue 4, we mark this cue as MIB Early.

- everything is fine, fixture 1 preposition after fading out in cue 2

Now we might be in cue 2.5 and want to make some changes...

- We turn On fixture 1, - it is red - looks good
- update the cue using Cue Only

Next time we play back the sequence, cue 2.5 does not look the same!

Last time we played back the sequence, fixture 1 was red because it had prepositioned to cue 4, however as it is now used in cue 2.5 it cannot preposition until after the fade out in cue 3. Thus it will be blue when it is faded up in cue 2.5.

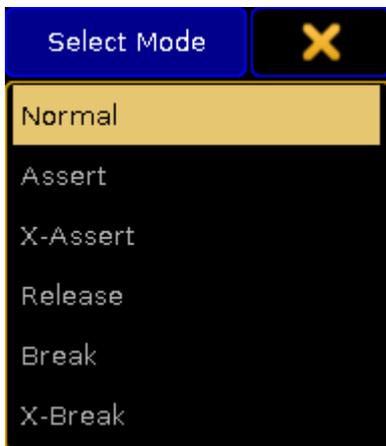
These issues may be minimized by not prepositioning too early, or by activating "MIB Never" in the Executor options, if you are to make major changes to your cues - Executor Options are described in the [Executor Options topic](#).

## 20.3. Using Cue Modes

Each cue has a Mode that can be changed in the [Sequence Executor Sheet](#).

The cells in the Mode column can be edited.

Doing so will open the small Select Mode pop-up. It looks like this:



*Small Select Mode pop-up*

The pop-up allows for the following modes:

- **Normal:**  
This is the default mode. It does not do anything special.
- **Assert:**  
This will assert tracked values using the original timing.
- **X-Assert:**  
This will assert tracked values using the cue timing of the current cue.
- **Release:**  
Turns off the executor when the fade is complete.
- **Break:**  
Will create a tracking break (stops tracked values) and performs an Assert.

- **X-Break:**

Will create a tracking break (stops tracked values) and performs a X-Assert.

## Example and Explanation

In a tracking sequence, the content of a cue represent the changes happening in that cue. Any unchanged values will track from earlier cues, and the state - the actual look - of the cue is a combination of what has happened earlier and what is happening in the cue. This tracking philosophy works similar to how the staging, set design and any props may be handled.

Cue 1: Place sofa on stage left.

Cue 2: Actor 1 enters from rear.

Cue 3: Actor 2 enters from left and gets seated.

Cue 4: Actor 1 exits stage right.

Even though Cue 3 only tells us that Actor 2 will be in the sofa, when we are in Cue 3, we also have the sofa and Actor 1 on stage. Unless we take out the sofa, it will stay on stage.

In some scenarios, you may want this tracking behavior to stop. When starting the second act, you do not want any additional props added to first act to stay on the stage, just because you did not tell the stage crew to carry these out when you originally created the look of the first cue of second act. You want this tracking behavior to **Break**.

The Break mode of a cue will make sure that any later addition or changes in **earlier** cues is reverted back to its original state in the break cue, similar to how a Cue Only store would work for the next cue.



**Hint:**

A **Break** is indicated in both [Sequence Executor Sheet](#) and [Sequence Tracking Sheet](#) with a white line above the cue.

By default when calling a cue with a normal "Go", only the content of the cue is called, not the tracking state. If you are only using one executor/playback this behavior is irrelevant, however if you have other executors that might have overwritten the state of the fixtures, you might in some scenarios want that calling the cue also calls the tracking state. This may be achieved with the cue mode **Assert**. Assert will call the state of the sequence, by using the original timing, and not affect any ongoing fades, (for example a 30 minutes sunset still on its way out).

In other scenarios, you might want to re-establish state, and assert the sequence, but terminate any ongoing fades. The cue mode **X-Assert** will cross fade to the current state - with the timing of the current cue. This may be used if you for instance want to make sure that your zero second Blackout Cue is cutting to black, even if you have to run the cue earlier than usual and the sunset has not yet finished.

The **Release** mode might come in handy in shows where there is a lot of sequences that run through once and then turn off - until it is re-triggered. This could be a flash sequence being triggered by the main sequence. Instead of manually programming the sequence to turn Off, then it can be done automatically.

## 20.4. Cue Zero

Cue Zero is an automatically created cue containing a link to default values of attributes. Cue Zero cannot be modified manually. A sequence with activated Cue Zero will start at the first cue after Cue Zero. This cue provides default values when starting the sequence and provides the missing default data when moving or copying cues.

Cue Zero is only available in sequences where **Tracking** is activated and there needs to be more than one cue.

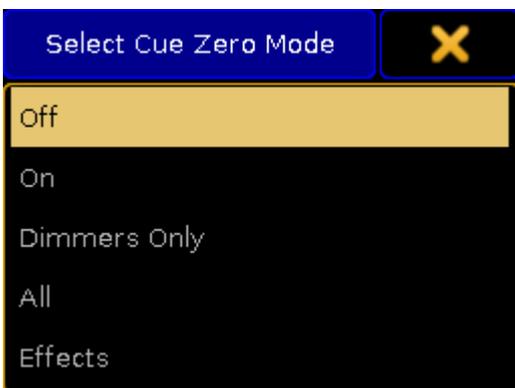
The settings are all made in the **Assign Menu**. This can be opened by pressing the **Assign** key followed by one of the keys associated with the executor you want to change. In the Assign Menu please tap the **Options button** on the right side of the menu.

This is the options we will be looking at in this topic:



*Cue Zero options in the Assign Menu*

Tapping the **Cue Zero** button will open a small **Select Cue Zero Mode pop-up** like this:



*Select Cue Zero Mode pop-up*

This pop-up offers the following options:

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- **Off:**  
Cue Zero is turned off and cue zero is not created - if cue zero exist, then it is removed.
- **On:**  
Cue zero will be created and will contain default values for all attributes used by this sequence.
- **Dimmers Only:**  
Cue zero will be created and will contain default values for dimmer attributes only.
- **All:**  
Cue zero will be created and will contain default values for all attributes of fixtures that have any of its attributes stored in the sequence.
- **Effects:**  
This is like the On option with the addition of a Stomp is added to cue zero for each attribute stored in any cue of the related sequence.



### Restriction:

Activating Cue Zero will hide the **Release Firststep** option - except for the **Dimmers Only** option.

When Cue Zero is activated, then it will appear in Sequence Executor Sheets. It could look like this:

Number	Name	Trig	Trig Time	Fade	Delay	Snap Percent	I.Delay	I.Fade	D
0	Cue Zero	Go		0					0
1	Cue 1	Go		0					0
2	Cue 2	Go		2					2
3	Cue 3	Go		3					3
4	Cue 4	Go		3					3
5	Cue 5	Go		3					3

Sequence Executor Sheet - Cue Zero On

The cue is locked and cannot be called or edited. Activating the first cue in the sequence will not activate Cue Zero but the first cue made by a user (cue number 1 in the image above).

The only thing that can be edited in the Cue Zero is the timing. These timings will be used for example when GoBack, with option **cuetimeing**, is used to fade from a values or effect value back to values tracking from cue zero. Cue Zero timing is also used when using **Autostomp** setting of executors.

## CueZero Extract

When Cue Zero is activated then it is possible to activate **CueZero Extract**.

When Extract is not activated then cue zero creates **links** to default values of the attributes. This means that if the default values is changed after the cue is created then Cue Zero will use the new default values without any need to update the sequence.

When CueZero Extract is activated then, Cue Zero will get the actual default values when CueZero Extract or Cue Zero is activated and when new attributes are added. It is not a link to the default values, but the actual default value. This means that changing the default values afterwards will not change the look of the sequence. Deactivating CueZero Extract (or Cue Zero) and activating it again will store the new defaults.

## 20.5. Sequence info window

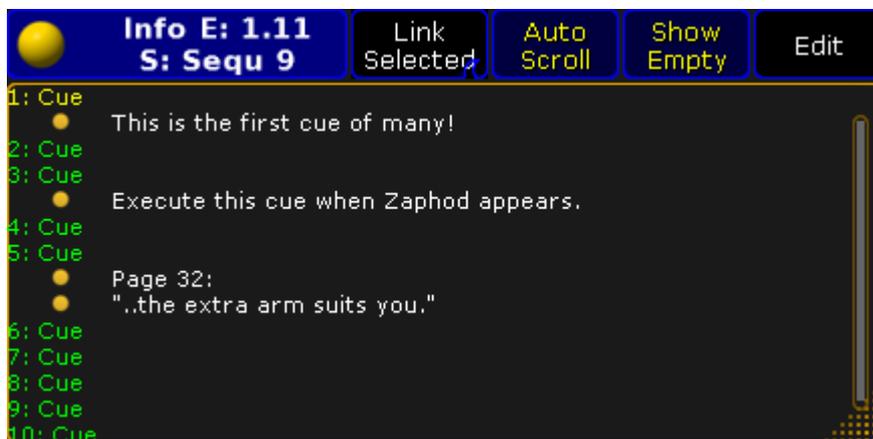
Cues can have an info text. This text can be multi line.

The first line can be visible in the Sequence Executor Sheet, but the next lines cannot be seen.

The Sequence Info window displays all the cue info text in one window in an easy to read overview.

The window can be created using the [Create Basic Windows pop-up](#) and is found in the "Other" tab.

It could look like this:



*Sequence Info window*

The title bar shows the number of the executor and the sequence name and number, of the currently displayed info. Each line of information has a yellow ball next the info text.

The title bar also has four buttons that changes the main part of the window.

- **Link:**

This swipe button offers two options. **Link Last Go** or **Link Selected**. This determine what sequences info the window displays.

- **Auto Scroll:**

The active cue will have a yellow cue number and name - other cues have a green text color. In long sequences it might be nice to activate Auto Scroll. Then the window will automatically scroll the list so the active cue is always visible.

- **Show Empty:**

This allows the option to show or hide cues, in the list, that does not have any information.

- **Edit:**

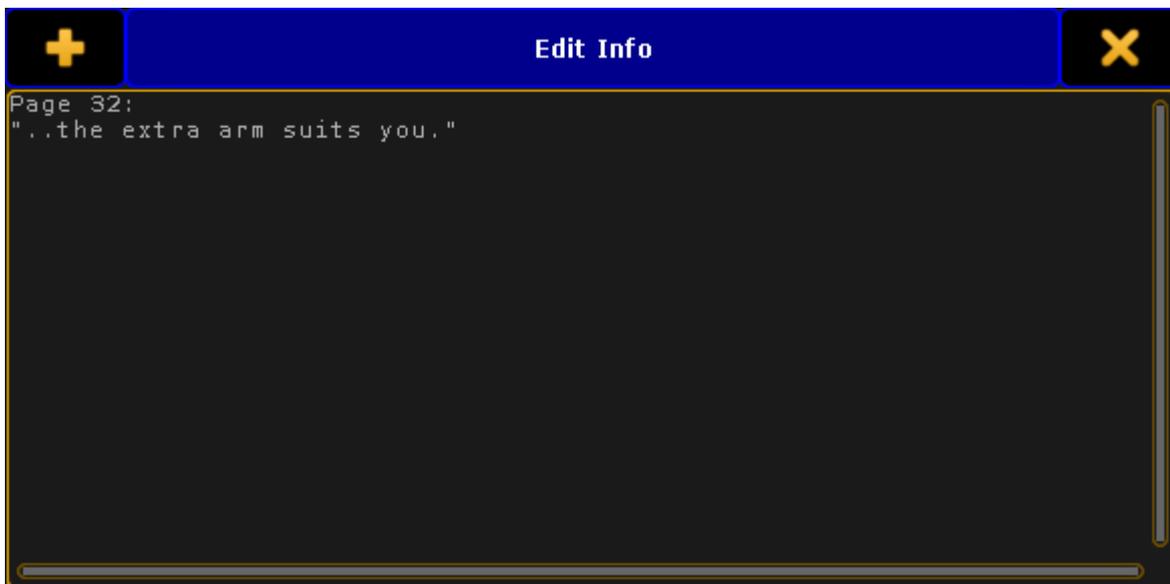
When **Edit** is active, then all cues got a small yellow ball. Tapping the small white dot next the yellow ball will open the **Edit Info pop-up** - see more about editing cue info below.

Opening the Options for this window give the option to change the font size of the Info window.

## Editing the Cue info

The cue information can be edited by editing the Info cell in the [Sequence Executor Sheet](#) or Edit Mode can be activated in this Sequence Info Window.

Editing the info will open the Edit Info pop-up. It could look like this:



*Edit Info pop-up*

Here it is possible to write multiple line of information.

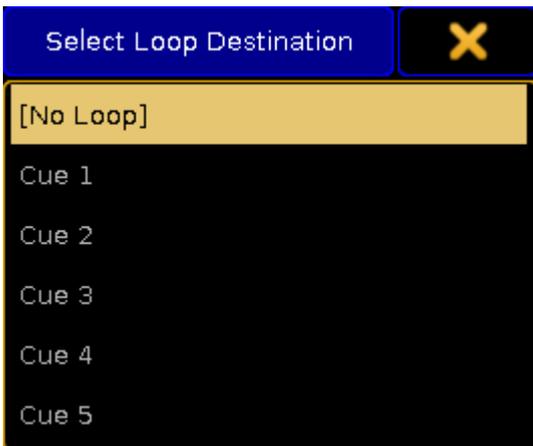
Pressing Enter/Please will close the pop-up. To add multiple lines it is necessary to press and hold shift while pressing Enter/Please.

## 20.6. Looping cues

Cues can be looped. They can loop indefinitely or loops can be limited by time or number of loops.

In the [Sequence Executor Sheet](#) there are three columns that control looping. They are: **Loop**, **Ltime**, and **Lcount**.

Editing a cell in the Loop column will open a Select Loop Destination pop-up. It could look like this (if you have five cues):

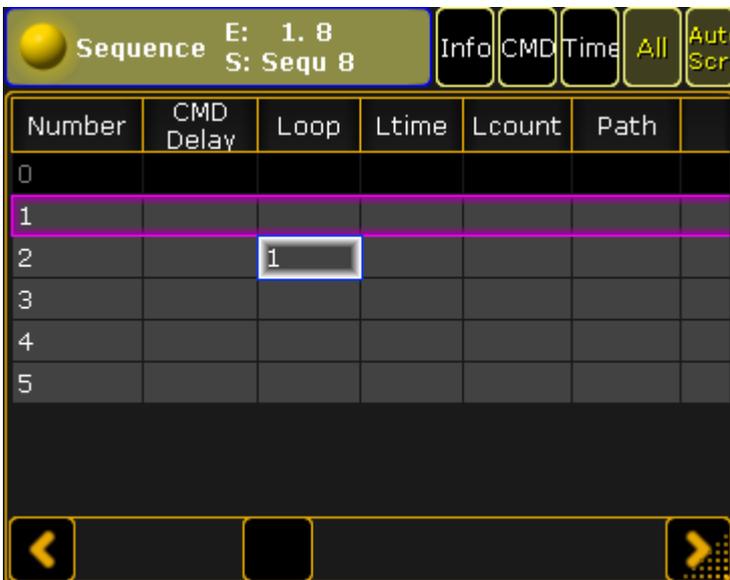


*Select Loop Destination pop-up*

Here it is possible to select the cue that should be looped to next. It is possible to loop to a cue that has a higher cue number than the cue where you set the loop. This will result in jumping ahead in the cue list. The **[No Loop]** option removes any loop information. If loops are assigned using the command line then setting the loop value to **none** will remove the loop.

If the selected cue is before the cue where the loop is set, then it will jump back to the previous cue.

Then the next trigger will activate the loop and jump. When a loop is active, then the frame around the active cue is changed from yellow to magenta. It could look like this:



*Sequence Executor Sheet - Active loop*

If nothing is defined in the Ltime and Lcount cells with the loop number, then it will loop indefinitely.

The **Ltime** allows you to set a time where the loop should be active. The time will start a count down when the loop is activated the first time. When the time reaches 0 then the looping is disabled and the next trigger will run the cue **after the cue where the loop is defined** - no matter what the current active cue is. In the example above it would run cue 3 as the next cue.

The **Lcount** allows you to set a number of times the loop should happen. The count will start when the loop is

activated the first time. The the count reaches 1 and the looping triggering cue is reached then it will loop one final time and passing the cue again will disable the loop and continue with the following cue.

If both an Ltime and Lcount is set then it is the one that first reaches 0 that defines when the loop is disabled.

Editing the Ltime and Lcount cell will open the Calculator. This is where you type the time or count number. There is also an option to select **Indefinite** - this will remove the value.

If command line is used to set the Ltime and Lcount, then assigning **-1** will remove the value.

## Loop BreakingGo

The Executors have an options called **Loop BreakingGo**. It can be found in the Options page of the Assign Menu - read more about it in the [Executor Options topic](#).

When this is active, then a Go or Goto command will overrule the looping function and the cue after the loop will be called. All other triggers will keep the loop running.

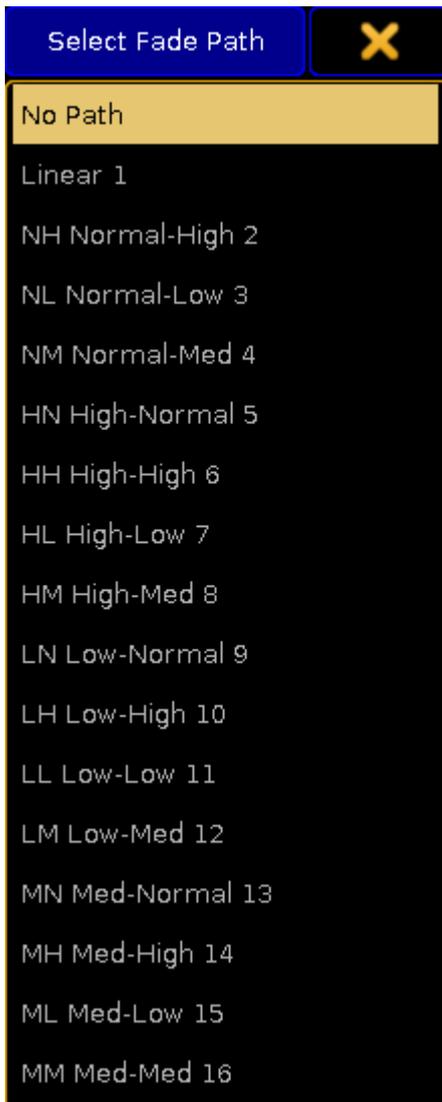
This can be a nice function for rehearsals or situations where you need the loop running until the executor is triggered again.

## 20.7. Cue path

Each cue and cue part can have a path assigned. It is done in the [Sequence Executor Sheet](#), where there is a **Path** column.

The path is used by attributes fading from a value and into the value stored in the cue where the path is assigned. The path defines the transition form/path.

Editing a cell in this column will open a **Select Fade Path pop-up** like this:



*Select Fade Path pop-up*

This lists the predefined fade paths including the **No Path** option. Most of the paths in this list only exist as fade paths. They cannot be imported or edited.

Read below for a description of the predefined paths for cues and cue parts.

The path is assigned different than most other elements. This is because the fade path is an object that is assigned to a different object. Use the following syntax:

**Assign Fadepath [path number] (At) Cue [cue number] (Part [par number] )**

Once a fade path is assigned to a cue, then it cannot be removed. Assigning the **Linear** path will give the same result as not having a path defined.

Custom paths can be made in the [DMX Profiles Graph Editor](#). If there are custom paths, then they will appear at the bottom of the **Select Fade Path pop-up**.

## Predefined Fade Paths

There are some predefined paths in the pop-up pictured above.

The **No Path** option is actually not a path but selecting this will remove any path assigned to the cue or cue part.

The **Linear** path is the same as not having a path assigned. This path can be assigned using the command line. This means that it can be used to replace any other paths.

There are four different forms. Each form can be at the beginning at the fade and at the ending of the fade. Resulting in the list of combination in the predefined fade path pop-up.

The beginning of the path defines the acceleration of the fade. The end of the path is the de-acceleration of the fade.

The **Normal** form is the same as linear. Having this at either end will not add any softening of the fade.

The **Low** form offers the lowest or slowest acceleration/de-acceleration.

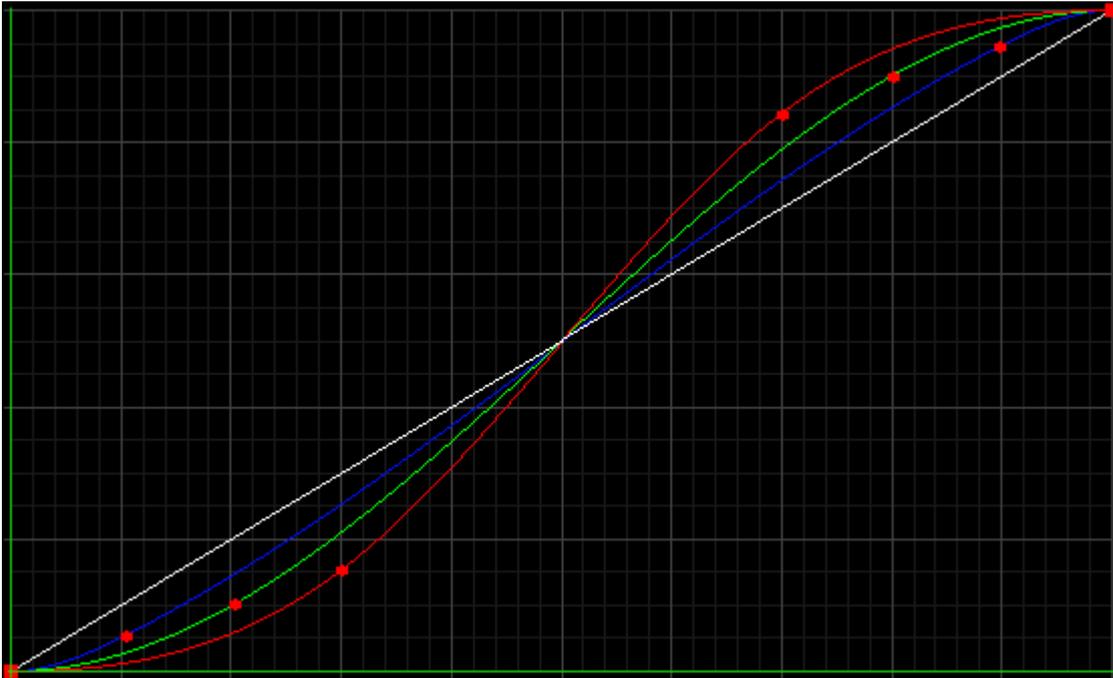
The **Mid** form is between the Low and High forms.

The **High** form offers the highest or fastest acceleration/de-acceleration. It is still a softening of the fade compared to the linear path.

The following picture displays four different paths for comparison. They might not be completely correct but is exaggerated to make the differences more visible.

The white path is the **Linear** path - this is the same as having the Normal form at both the beginning and the ending.

The blue path is the **High-High** path. The green path is the **Mid-Mid** path. Finally the red path is the **Low-Low** path.



*Four paths for comparison*

The vertical axis is the fade time. The horizontal axis describes the fade from one value to the next.

## 21. Advanced Executor Functionality

This section describes some of the more advanced functions regarding the executors.

If you have not read the [Executors](#) section, then please have a look at it for the more common uses and details on how to use sequences with executors.

### 21.1. Executor Pages

The Executors are arranged in pages.

The pages gives access to several sets of Executors. Changing the page does not remove or turn off the Executors. It is just another set of Executors.

The pages are arranged in a pool. For more general information about pools please read the [Pools in General section](#).

The Executor pool could look like this:



*Executor pool - pool style*

It can be changed to Sheet Style in the options, then it looks like this:



*Executor pool - sheet style*

The pool show the different executor pages. The pool can be used to name the pages. The pool offers a visual indication of the currently active page for the Fader Executors and the Button Executors. Notice that they can be on two different pages. Their current page is indicated by an **F** and a **B**. If the **F** is gray, then a Channel page is currently active - Read more in the [Channel Pages topic](#).

Pages that have something assigned will have a white label text when the pool is in pool style. Pages that have been accessed but is empty will have a gray text color. Pages that has not been accessed and does not have anything stored are empty in the pool.

## Change page

Pages can be access by tapping the pool objects. This will make both the Fader Executors and the Button Executors jump to this page.

Pages can also be changed using the dedicated **Fd Pg +** and **Fd Pg -** keys to change the page for the Fader Executors. Read about the keys in the [Fd Pg+](#) and [Fd Pg-](#) topics. Keeping the **Fd Pg -** key pressed for 2 seconds will jump to page 1 for the faders.

The Button Executor pages can be changed using the **Bt Pg +** and **Bt Pg -** keys. Read about the keys in the [Bt Pg+](#) and [Bt Pg-](#) topics. Keeping the **Bt Pg -** key pressed for 2 seconds will jump to page 1 for the buttons.

In **Setup -> User -> Grand Master & Misc Keys** there is a setting called **Link Fader & Button Page**. If this is active then there is no separation between the Fader and Button page changes. Chaining pages using any the four keys mentioned above will change page for both Faders and Buttons at the same time.

Pages can also be changed using the command line. There are three different relevant commands: [FaderPage](#), [ButtonPage](#), and [Page](#). Click them to read the details about the commands.

There are three different commands to make it possible to change the Fader Executors and Button Executors independently using each of the two commands. But it is also possible to change both at the same time using the **Page** command.

Pages can be changed by using the page number or page name.

## Examples

Change the Fader Executors to page 5:

```
[Channel]> FaderPage 5
```

Change the Button Executors to page 20:

```
[Channel]> ButtonPage 20
```

Change both faders and buttons to a page called **Rainbow**:

```
[Channel]> Page Rainbow
```

## 21.2. Channels Pages

The Fader Executors can be changed to be Channel Faders instead of Executors.



### Important:

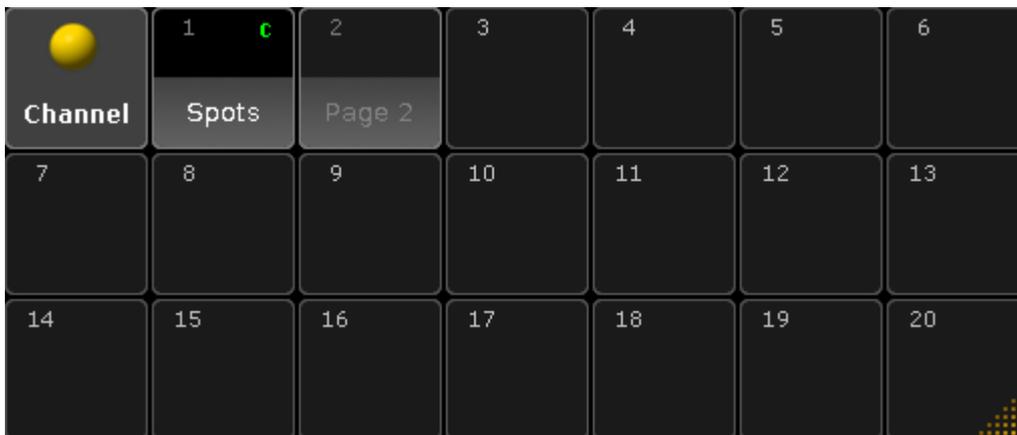
Changing to the Channel Pages does not remove or turn off the Executors.

There are two types of Channel Pages: **Static** pages that can have dimmer attributes for specific fixtures. **Dynamic** pages that will be populated by the attributes and selected fixtures.

### Static Channel Pages

Static Channel Pages can have attributes of fixtures assigned to the faders. In the Channel Pages the faders are called ChannelFaders.

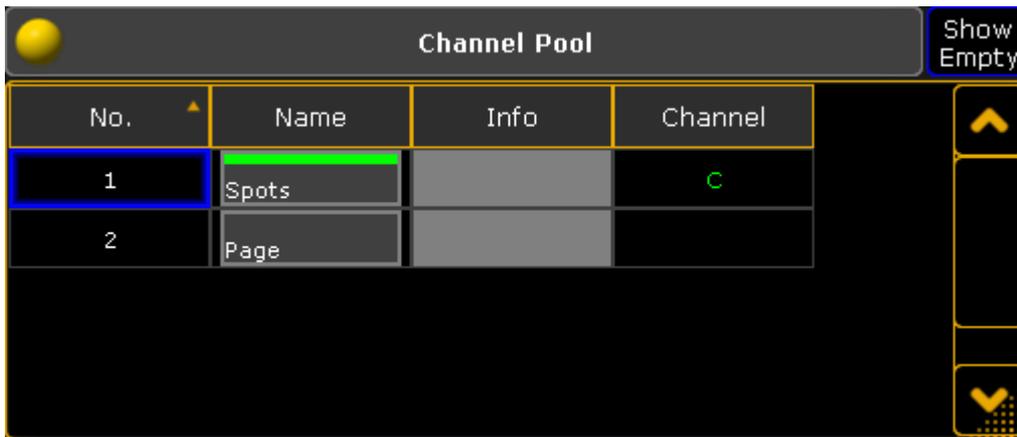
The static Channel pages are organized in a Channel Pool. The pool could look like this:



*Channel page pool*

This works as any of the pool - if you have not read the [Pools in General section](#), then please read it.

This is what it looks like in Sheet Style:



*Channel page pool - Sheet Style*

The green **C** indicates that this Channel Page is currently active. A gray **C** indicates that this is the last viewed page (It is probably back to an Executor page).

Tapping one of the objects in the pool will change to the Channel page. It is also possible to change the page using the **Ch Pg +** and **Ch Pg -** keys or the [ChannelPage](#) command. Keeping the **Ch Pg -** key pressed for a second will jump back to page number 1.

## Assigning fixtures

Static Channel Pages need to be built - that means fixtures need to be assigned to the ChannelFaders.

This can be done using the keys: **Assign Channel** (or **Fixture**) [number or range] **Page Page** (this gives the ChannelPage command) [page number].[fader number] **Please**.

If an attribute is not specified then the dimmer will be assigned. Other attributes can be assigned, but it takes a little bit of investigation to find out the attribute number or name. This is the general syntax:

**Assign Fixture [id number].[subfixture number].[attribute] (At) ChannelPage [page number].[fader number]**

The best way to show how to find an attribute number is by an example.

### Example

In my show I have a fixture patched that has pan and tilt attributes it is Fixture ID 1. I would like to have the dimmer assigned to ChannelFader 1 on ChannelPage 1. And then the Pan on fader 2 and Tilt on fader 3.

Before we can assign anything, we need to create the page. Simply press **Ch Pg +** once to open the first Channel Page - this also creates the page.

Assigning the dimmer to fader 1 is simple: **Assign Fixture 1** and then press on of the keys associated with fader number 1.

Now we need to find the attribute numbers for fixture 1. Open a **Command Line Feedback** window.

We need to explore fixture 1 so type the following command and execute it with a please:

```
[Channel]> CD Fixture 1
```

**CD** is short for the ChangeDirectory command.

The command line shows that we have navigated to the fixture. We need to list the subfixtures in fixture 1. Type the following command (you do not need to type anything before the >)

```
[LiveSetup/Layers 4/Spots 3/Spot 1 1]>List
```

Depending on your show it might look exactly like above. The important part is the List command.

Now the Command Line Feedback window show that there are at least one subfixture. In my show it is a Vari-Lite with only one subfixture.

Navigate to the subfixture using the CD command again:

```
[LiveSetup/Layers 4/Spots 3/Spot 1 1]>CD 1
```

If I know that my fixture only has one subfixture (or if I need subfixture 1), then it is possible to navigate to this location using the following command **CD Fixture 1.1** - Do not run this command now.

Now we need to do another **List** command to see the attribute list for this fixture. The list displayed in the Command Line Feedback window shows that the PAN is number 3 and the TILT is number 4. With this knowledge we can go back to the root of the command line and assign the two attributes. Type the following:

```
[LiveSetup/Layers 4/Spots 3/Spot 1 1/Spot 1 1]>CD/
```

This returns to the root command.

```
[Channel]> Assign Fixture 1.1.3 ChannelPage 1.2
```

```
[Channel]> Assign Fixture 1.1.4 ChannelPage 1.3
```

This is how it is done using the attribute numbers.

It is actually a lot easier to use the attribute names. If we knew that fixture number 1 is a simple fixture with only one subfixture, then we could just have done this:

```
[Channel]> Assign Fixture 1.1.PAN ChannelPage 1.2
```

```
[Channel]> Assign Fixture 1.1.TILT ChannelPage 1.3
```

It is still useful to know how to find the attribute numbers and names of fixtures. That enables you to find and assign any attribute.

## Auto Create Channel Pages

Channel pages can be auto created using **Setup -> Show -> Auto Create** and then select the **Channel Pages** tab.

It could look like this:



*Auto Create menu - Channel Page tab*

This menu is separated into a left and a right side. The left side can show to different things: FixtureTypes or Layers. These two things can be toggled by tapping the **Choose** button at the bottom left.

The right side displays the content of what is selected on the left side.

The workflow is selecting one or more elements in the list on the left side and then selecting or deselecting fixtures from right side. Each selected fixture will create a Dimmer attribute fader.

On the far right side there are three green input fields. The top one set the ChannelPage number for the auto created faders. The middle one sets the fader number for the first ChannelFader. The bottom one sets the width of the page. It can be a good idea to set the width to match your hardware.

Tap the **Always ask for Name** button if you wish to name the Channel Pages when they are created.

The **Overwrite** button does not do any difference. Assigning attributes to ChannelFaders always overwrites the current assigned attributes.

Tap the **Create** button to create the ChannelFaders. Notice that this action will change the Start page and the start fader input fields to the next available ChannelPage and ChannelFader.

The **Create Next Page** will also do a create action but it will start at the next page number.

## Dynamic Channel Page

The Dynamic Channel Pages are channel pages that are created based on the selection of fixtures and the currently active Feature.

The Dynamic Channel Pages can be accessed when the [Channel Sheets](#) and the [Fixture Sheets](#) have activated the **Link Faders** option. Read more about activating this in the [Title Buttons topic](#).

Dynamic Channel Pages can also be called using the [ChannelLink](#) command.

This allows you to turn On or Off the Dynamic Channel Page.

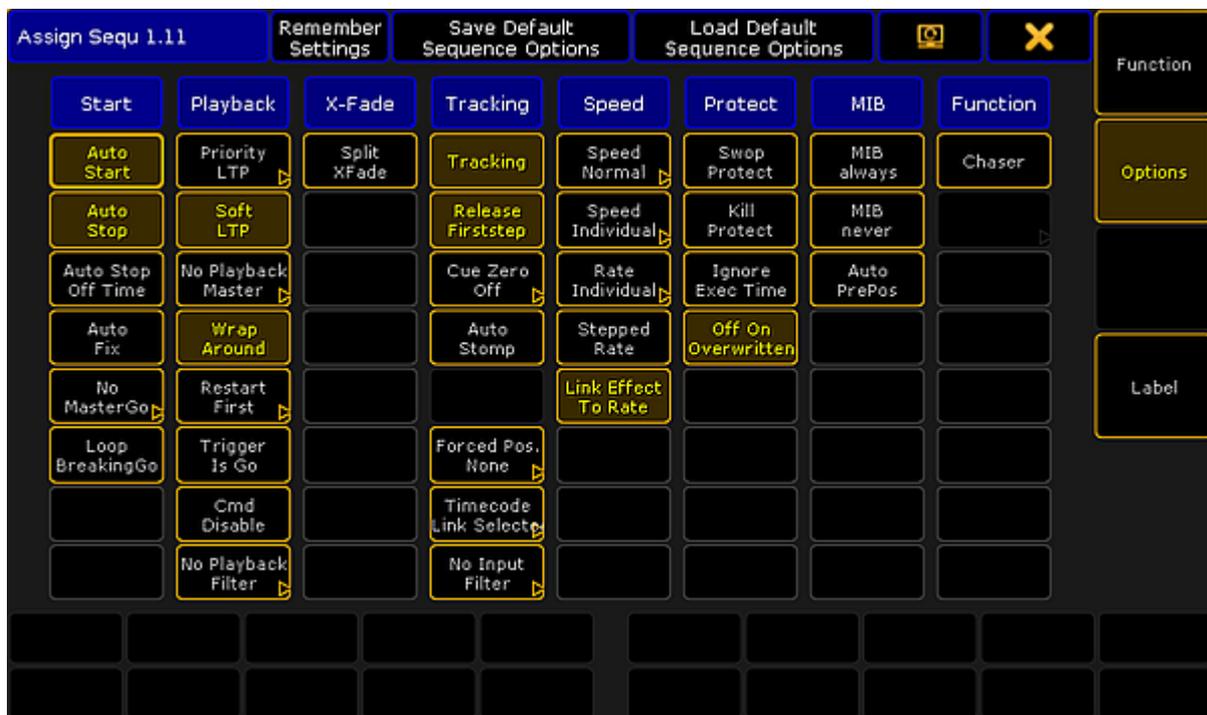
It can also be used to create special combinations of attributes.

Read more about it following the link to the ChannelLink above.

## 21.3. Executor Options

Each executor can have a lot of options. This topic lists all the options and links to topics where they are described. If an option is not described anywhere else, then it is described here.

The Executor Options can be seen when there is a sequence or group assigned to an Executor. Pressing the Assign key following one of the keys associated with the executor will open the Assign Menu. On the right side of the Assign Menu there are a button called **Options**. This opens the Options part of the menu. It could look like this:



*Assign Menu - Options section*

Each column has a topic or headline. The options are described below and they are organized in those topics.

Some of the options here are options for the executor and some are options for the sequence assigned to the executor.

The tile bar has three buttons that are relevant for the options. The left one is the **Remember Settings** button. Tapping this button will store the current options into the sequence and they will then apply if the sequence is played back from the Sequence Pool. **Save Default Sequence Options** will store the current options as the default. This default will be used when a new sequence is assigned to an Executor or when the **Load Default Sequence Options** button is tapped.

## Start

### Auto Start

The Auto Start function is described in the [Common Executor Options topic](#).

### Auto Stop

The Auto Stop function is described in the [Common Executor Options topic](#).

### Auto Stop Off Time

The Auto Stop Off Time function is described in the [Common Executor Options topic](#).

### Auto Fix

The Auto Fix feature can be activated for each executor. It will automatically Fix active executors and keep it visible even when pages are changed. The executor is automatically Unfixed when it is switched off.

### MasterGo

The MasterGo function is described in the [Common Executor Options topic](#).

### Loop BreakingGo

Loop BreakingGo is described in the [Looping Cues topic](#).

## Playback

### Priority

The priorities are described in the [Playing Back Cue topic](#).

### Soft LTP

The Soft LTP function is described in the [Playing Back Cue topic](#).

### Playback Master

Here it is possible to select a Playback Master. This is all described in the [Playback Master topic](#).

### Wrap Around

The Wrap around function is described in the [What is Tracking topic](#).

### Restart

The Restart function is described in the [Common Executor Options topic](#).

### Trigger Is Go

This option will disable automatic cue triggers like follow and time. The information is not deleted or removed. It is just temporary ignored. Everything in the Trig column in a Sequence Executor Sheet turns red.

### Cmd Disable

This option will disable the execution of the commands in the CMD columns in a sequence. The stored commands are not deleted or removed, they are just disabled. The commands get a red text color when they are disabled.

### Playback Filter

The playback filter is described in the [Apply Worlds or Filters to Executors and Sequences topic](#).

## X-Fade

### Xfade

This is used to set how the two CrossfadeA/XfadeA and CrossfadeB/XfadeB faders works. The button has two options:

- **Split:**  
The dual crossfaders work as masters for current/next cue.
- **AB:**  
The dual crossfaders work as crossfaders for increasing/decreasing values.

## Tracking

### Tracking

The Tracking function is described in the [What is Tracking topic](#).

### Release Firststep

The Release Firststep function is described in the [What is Tracking topic](#).

### Cue Zero

The Cue Zero function is described in the [Cue Zero topic](#).

### Auto Stomp

The Auto Stomp function will add Stomp values to Cue Zero when Effects values are added. Read details in the [Cue Zero topic](#) and the [Effects Section](#).

### Cue Zero Extract

The Cue Zero function is described in the [Cue Zero topic](#).

### Forced Position

It is possible to force the sequence to use only XYZ values or Pan/Tilt values when moving from one position to another. The default is Active position data. This will use the stored position data. Read more in the [XYZ vs. Pan/Tilt topic](#).

### Timecode

A sequence can have a link to the selected Timecode Slot or a specific Timecode Slot. This can be chosen here. It is relevant if there are cues that uses the timecode signal as the trigger. Read more about timecode in the [Timecode section](#).

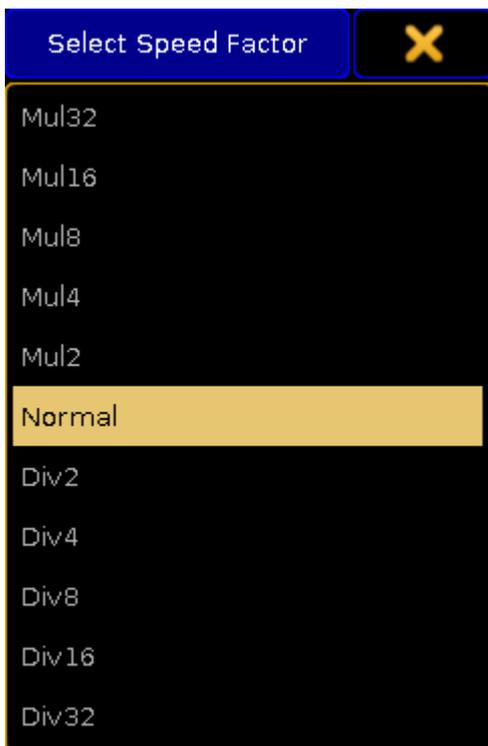
## Input Filter

The playback filter is described in the [Apply Worlds or Filters to Executors and Sequences topic](#).

## Speed

### Speed Factor

If an executor is assigned to an global Speed Master (read below) then it can be useful to adjust a speed factor. Tapping this button will open the Select Speed Factor pop-up. It looks like this:



*Small Select Speed Factor pop-up*

Here it is possible to select one of the multipliers or dividers. This multiply or divide the speed by the selected factor.

### Speed Master

The Executor has a speed master. It can be linked to a shared global Speed Master or it can have an individual speed master. Tapping this button will open the Select Speed Master pop-up. It looks like this:



*Small Select Speed Master pop-up*

Here it is possible to select the **Speed Individual** option for having an individual speed master for the executor or select one of the global Speed Masters.

Read more details in the [Speed Masters topic](#).

## Rate Master

The Executor has a rate master. It can be linked to a shared global Rate Master or it can have an individual rate master. Tapping this button will open the Select Rate Master pop-up. It looks like this:



*Small Select Rate Master pop-up*

Here it is possible to select the **Rate Individual** option for having an individual rate master for the executor or select one of the global Rate Masters.

Read more details in the [Rate Masters topic](#).

## Stepped Rate

Enabling this will bind the rate to defined steps instead of a variable value.

## Link Effect To Rate

This setting will link the effect speed to the rate. Read more about effects and speed in the [Effects section](#).

## Protect

### Swop Protect

Enabling this will protect this Executor from being swopped (temporary turned down) by other Executors.

## Kill Protect

Enabling this will protect this Executor from being killed (turned Off) by other Executors.

## Ignore Exec Time

When enabled, it will make the Executor use the stored timing and not allow the Exec Time fader to overwrite the timing. The Exec Time fader is described in the [Time Control Topic](#).

## Off On Overwritten

The Off On Overwritten function is described in the [Common Executor Options topic](#).

## MIB

Move In Black is described in [Working with MIB topic](#).

### MIB always

This setting will set the MIB to "Early" for every cue. This is marked with a white colored "!" in the MIB column all the cues that is able to MIB. Any other settings in the MIB column will stay. They will become active again if this setting is turned Off.

### MIB never

This setting will disable MIB for all the cues. This is marked with a red colored "!" in the MIB column all the cues that is able to MIB. Any other settings in the MIB column will stay. They will become active again if this setting is turned Off.

## Auto PrePos

This function affects all other attributes than dimmers. If this is Off, then the attribute values will use the cue timing to fade from a value to the next. If this is On, then the attributes will change without any fade timing moving as fast as possible. Individual attributes timing is also ignored.

Attributes that uses MIB will use the MIB timing.

## Function

### Chaser

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This will turn the sequence into a Chaser. Read more about chaser in the [Chasers section](#).

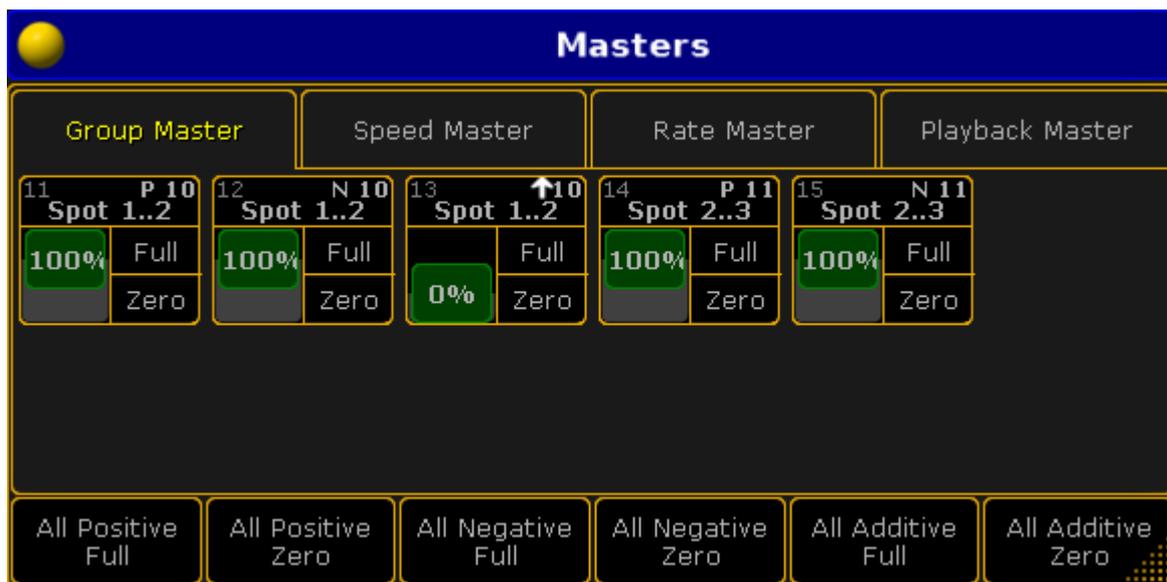
## Group Master Mode

This option is only visible if there is an group master assigned to the executor. This option is explained in the [Group Masters topic](#).

## 21.4. Masters Window

The Masters Window collects the Group, Speed, Rate, and Playback masters in one view.

It can be created using the [Create Basic Windows pop-up](#). It can be found in the **Other** tab. It could look like this:



*Masters Window - Group Master tab*

The four tabs have each of the four different master types.

Each master is represented by a square inside the tab. Each master is divided into three areas.

The top part labels the master. Pressing and holding the top part will perform a [Locate](#) command as long as it is pressed. Locate will change to the page where the master is assigned - if it is assigned. It will also change the look of the mini executor. It will write "Here" on a reds background for as long as the top part is pressed. It could look like this:



*Located master*

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The lower part of the master is divided into a left and right side. The left side represents the master fader. The right side represents the relevant buttons for the master.

At the bottom of each tab there are different buttons that can be used to command several masters at the same time. Read more about the Master Squares and the buttons in each section below.

The Masters Window can also be opened as a temporary view. This can be done by pressing and holding the **Group** key for 1 second. It could look like this:



*Temporary Master View - Group Master tab*

It is similar to the Master Window. Except the buttons below, are moved to be able to be controlled by X-keys.

## Group Master

Group masters are described in details in the [Group Master topic](#).

This is what each master could look like in the Group Master tab:



*Group Master*

The top area labels the master and in the group masters it also provides information about the executor number where it is assigned, the group number and the masters Mode.

The two buttons in the lower right side of the square gives access to set the master to **Full** and to **Zero**.

There are 6 buttons below the master squares. They are:

- **All Positive Full**
- **All Positive Zero**
- **All Negative Full**
- **All Negative Zero**
- **All Additive Full**
- **All Additive Zero**

They can be used to set each of the three types of masters to either Full or Zero.

## Speed Master

Speed masters can be used to synchronize multiple Effects or Chasers to a common speed. Read more about the speed masters in the [Speed Master topic](#).

This is what each speed master looks like:



*Speed Master*

The three buttons in the master gives access to double the speed (DS), half the speed (HS), or "tap" the speed using the [Learn](#) command.

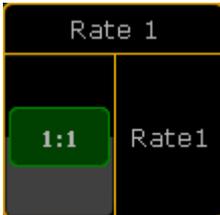
There are three buttons below the speed masters. They are:

- **All Double Speed:**  
This will double the speed on all the speed masters.
- **All Half Speed:**  
This will double the speed on all the speed masters.
- **All Learn:**  
This will perform the Learn command on all the speed masters.

## Rate Master

The Rate Masters can be used to synchronize the Rate across multiple Executors. Read more about the rate masters in the [Rate Masters topic](#).

This is what each rate master looks like:



*Rate Master*

The Rate Master only has one relevant button: **Rate1**. This will reset the rate master to the center position and set the rate to 1:1.

This means that there is also only one button below the masters: **All Rate1** - it resets all the rate masters.

## Playback Master

Playback masters are used as submasters for Executors. Read more about the playback masters in the [Playback Masters topic](#).

This is what each playback master looks like:



*Playback Master*

Each master has two buttons to set the master at **Full** and at **Zero**.

Below all the playback master are two buttons: **All Full** and **All Zero**. They set all the playback master to full or zero.

## 21.5. Special Masters

The Special Masters are five groups of masters. They are physical representations of masters that exists in the software.

The masters needs to be assigned to Fader Executors or to the 100mm master faders.

They can all be assigned using the [Assign Menu](#). They are found in the Special Masters section. Selecting this in the Assign Menu will reveal a tree structure separated into the five groups of Special Masters.

They can also be assigned (or adjusted) using the [SpecialMaster](#) keyword.

Assigning Special Masters to the 100mm faders are done by tapping the label above the faders. For more information see the [Master Section topic](#).

There are no options for the Special Masters and they have a limited selection of different functions to assign to the keys.

Special Masters cannot be more that 1 Executor Width.

Please read about the Special Masters in the subtopics.

### 21.5.1. Default Masters

The Default Masters are the 11 masters that each executor with a sequence can have assigned.

These Masters can be assigned to Executors and they will adjust to the levels on the selected executor.

Read about the functions of the masters in the [Assign a function topic](#).

The 11 masters are:

- **SpecialMaster 1.1 'Master'**
- **SpecialMaster 1.2 'XFade'** - this is also called Crossfade
- **SpecialMaster 1.3 'XFade A'** - this is also called CrossfadeA
- **SpecialMaster 1.4 'XFade B'** - this is also called CrossfadeB
- **SpecialMaster 1.5 'Rate'**
- **SpecialMaster 1.6 'Fade'** - this is also called StepFade
- **SpecialMaster 1.7 'MFade'** - this is also called MasterFade
- **SpecialMaster 1.8 'Temp'**
- **SpecialMaster 1.9 'Speed'**
- **SpecialMaster 1.10 'IFad'** - this is also called StepInFade
- **SpecialMaster 1.11 'OFad'** - this is also called StepOutFade

## 21.5.2. Grand Masters

The Grand Masters are a selection of 6 different masters that can be assigned to executors.

They are:

- **SpecialMaster 2.1 'Grand'**
- **SpecialMaster 2.2 'Program Time'**
- **SpecialMaster 2.3 'Exec Time'**
- **SpecialMaster 2.4 'Snd Out'**
- **SpecialMaster 2.5 'Snd In'**
- **SpecialMaster 2.6 'Snd Fade'**

The **Grand** is the Grand Master. This has a dedicated physical fader, but can also be assigned to any Executor.

**Program Time** and **Exec time** are described in the [Time Control topic](#). They are used to modify the fade time used by the programmer and to temporary overwrite the stored cue timing.

**Snd Out or Sound Out** is the volume of the console. There is a small build in speaker that can be used to play different system sounds.

The **Snd In or Sound In** is the master for the incoming sound. Read more about this and the **Snd Fade** in the [Sound Input topic](#).

## 21.5.3. Speed Masters

It is possible to assign 15 different Speed Masters to executors.

This group of masters also include the **BMP Master**. This master is controlled by the incoming sound and will adjust to the detected Beats Per Minute. Read more about it in the [Sound Input topic](#).

The Speed Masters can be assigned to Sequence executors, chasers or effects. This makes it possible to sync multiple elements to the same speed.

Read more about assigning masters to executors in the [Executor Options](#) topic. Read about assigning a Speed Master to an effect in the [Assign Effect to Executor topic](#).

All the Speed Masters can be seen and adjusted in the [Masters window](#).

## 21.5.4. Rate Masters

It is possible to assign 15 different Rate Masters to executors.

The Rate Masters can be assigned to sequence executors or effects. This makes it possible to sync multiple elements to the same rate.

Read more about assigning rate masters to sequence executors in the [Executor Options](#) topic. Read about assigning a rate master to an effect in the [Use Predefined Effects topic](#).

All the Rate Masters can be seen and adjusted in the [Masters window](#).

## 21.5.5. Playback Masters

It is possible to assign 50 different Playback Masters to fader executors.

The Playback Masters can be assigned to sequence executors. They function as a sub-master for the assigned sequence executors.

If a Playback Master is assigned then the small representation of the fader level in the Mini Executor will be split in two. It could look like this:



*Executor with a Playback Master*

The left of the two fader representations are the fader for the local executor. The right representation is the level of the Playback Master.

Read more about assigning playback masters to sequence executors in the [Executor Options](#) topic.

All the Playback Masters can be seen and adjusted in the [Masters window](#).

## 22. Clone

### Function

Clone is used to add fixtures to the rig which suppose to behave exactly the same as existing fixtures.

#### Requirements:

- Program your show using presets.
- Program relevant parameters in your presets.



#### Important:

Avoid using fixture specific functions, e.g., build-in fixture macros. Use generic functions only.

---

### How to Use Clone

It is possible:

1. To clone in order to copy values from fixture to fixture.
2. To clone a selection of fixtures to another selection of fixtures.
3. To clone using the [keyword Clone](#) or the [screen](#).



#### Important:

It is not possible to clone values from several fixtures to a single fixture. Cloning is only possible with one set of values.



#### Important:

It is possible to limit the scope of cloning by using the [keyword If](#).

By default, the cloning is done with low priority. This means that data is preserved wherever the destination fixtures or fixture types already contain data. The data from the source fixtures or fixture types is added to objects such as presets, cues, effects etc. where data does not exist yet.



#### Hint:

The console automatically clones dependencies e.g., presets and effects by reference to the cloned sequence whenever cloning with a limited scope. To protect existing data these dependencies are cloned with the default low priority clone option.

## Replace

Contrary to clone, replace does not preserve data, i.e., data is overwritten.

For more information on replace see [Search and Replace](#).

### 22.1. Clone In User Interface

It is possible to clone using the user interface.

#### Requirement:

- Prepare cloning
  1. To prepare cloning click on **Setup** -> Show -> Cloning.

It is also possible to use the command section:

2. Select source and destination of objects by using the command section.
  1. Click on copy twice (shortcut for clone)
  2. Fixture
  3. Number of fixtures to be in the source
  4. At
  5. Number of fixtures to be in the destination
  6. Please



#### Hint:

It is also possible to use the command line to type in your source and destination objects. For more information see the [keyword Clone](#).

After selecting the source and destination objects the pop-up **Prepare Cloning** opens.



Prepare cloning pop-up

**Prepare Cloning** consists of two parts divided by **Line Count** – left side and right side of the pop-up.

**Left side:**

- Lists source fixtures and/or fixture types.

**Right side:**

- Lists destination fixtures and/or fixture types.

## How to Prepare

 **Important:**  
The source of the objects matches the destination of objects.

1. To select the source fixtures or fixture types click on **Take Selection** on the left side of the pop-up.
2. To apply the selected fixtures or fixture types to their destination click on **Take Selection** on the right side of the pop-up.

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- The button **Remove Lines** on the right and left removes selected lines of the corresponding side of the button.



Clone From FixID>	ChaID>	Name>	Type>	Patch>	Line Count	Clone To >FixID	>ChaID	>Name	>Type	>Patch
1	1	Spot 1	4 VL350	1.201	1	102	102	LED 2	5 LED -	2.004
2	2	Spot 2	4 VL350	1.232	2	103	103	LED 3	5 LED -	2.007
3	3	Spot 3	4 VL350	1.263	3	104	104	LED 4	5 LED -	2.010
4	4	Spot 4	4 VL350	1.294	4	105	105	LED 5	5 LED -	2.013
5	5	Spot 5	4 VL350	1.325	5	106	106	LED 6	5 LED -	2.016
6	6	Spot 6	4 VL350	1.356	6	107	107	LED 7	5 LED -	2.019
7	7	Spot 7	4 VL350	1.387	7	108	108	LED 8	5 LED -	2.022
8	8	Spot 8	4 VL350	1.418	8	109	109	LED 9	5 LED -	2.025
9	9	Spot 9	4 VL350	1.449	9	110	110	LED 10	5 LED -	2.028
10	10	Spot 10	4 VL350	1.480	10					

Buttons: Take Selection, Remove Lines, Cut Lines, Paste Lines, Swop Line, Prepare

*Prepare cloning - remove lines*

- To activate the buttons **Paste Lines** and **Swop Lines** click on the button **Cut Lines** first.
- To paste fixtures into another cell in the source click on the left side of the column and then click on the button **Paste Lines**. To paste fixtures into another cell in the destination click on the right side of the column and then click on **Paste Lines**.

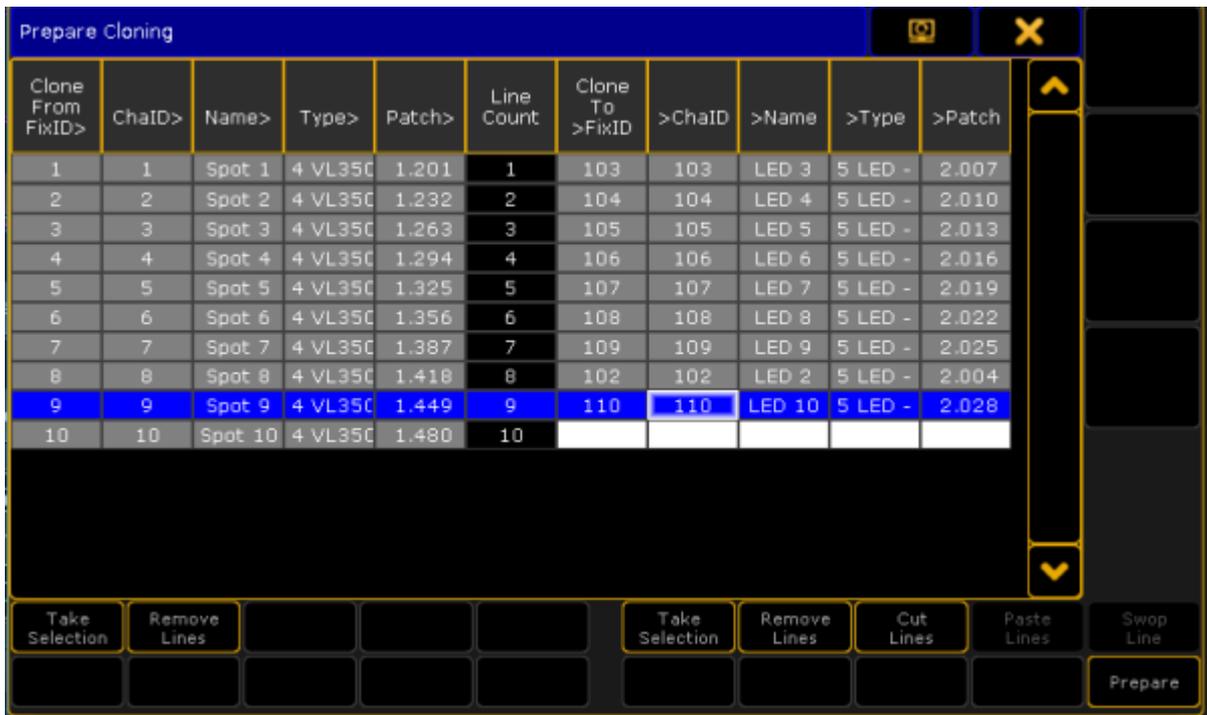
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Prepare cloning - paste lines

- Click on **Paste Lines** once again to paste the fixture 102. Now, fixture 102 is located between fixtures 109 and 110.
  - The data of source fixture 8 now corresponds to the destination fixture 102.



Prepare cloning - pasted line in the destination column

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7. To swap a line click on **Cut Lines** first.
8. Then click on the fixture you would like to swap. Here it is fixture 110.
9. Click on the fixture you would like to swap fixture 110 with. Here it is 103, which is now marked in blue; fixture 110 is now marked in red.



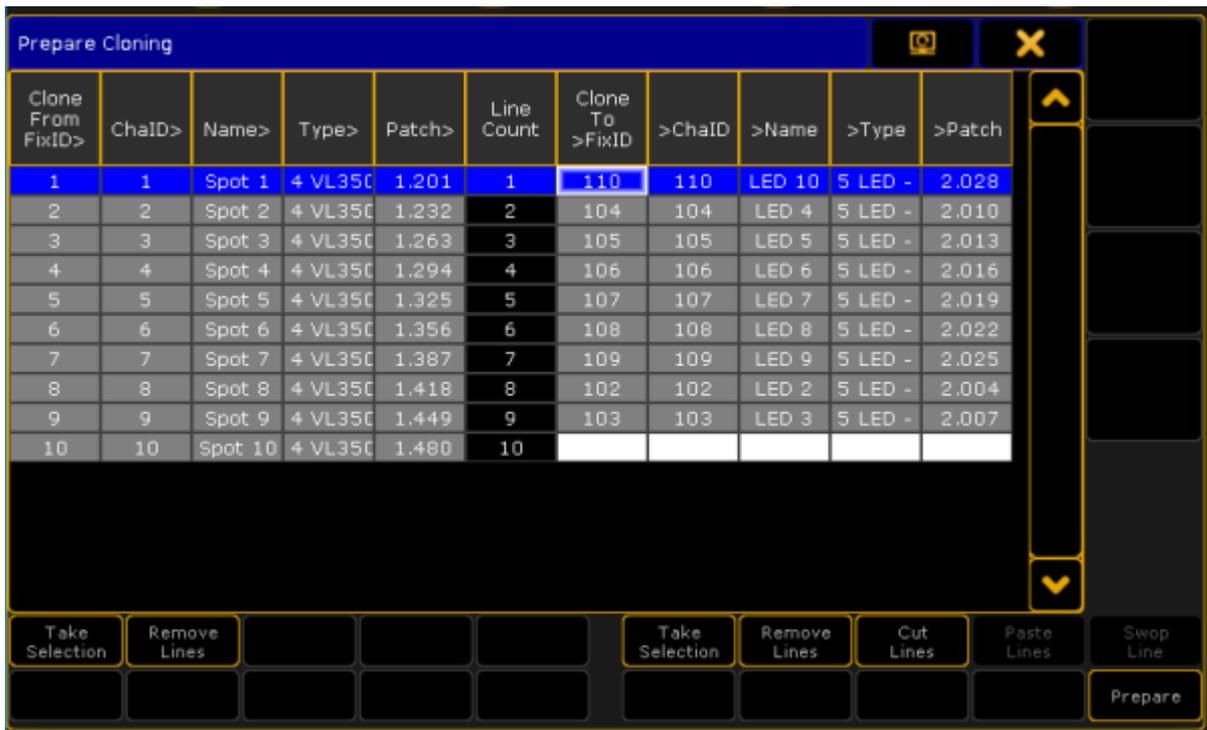
Clone From FixID>	ChaID>	Name>	Type>	Patch>	Line Count	Clone To >FixID	>ChaID	>Name	>Type	>Patch
1	1	Spot 1	4 VL350	1.201	1	103	103	LED 3	5 LED -	2.007
2	2	Spot 2	4 VL350	1.232	2	104	104	LED 4	5 LED -	2.010
3	3	Spot 3	4 VL350	1.263	3	105	105	LED 5	5 LED -	2.013
4	4	Spot 4	4 VL350	1.294	4	106	106	LED 6	5 LED -	2.016
5	5	Spot 5	4 VL350	1.325	5	107	107	LED 7	5 LED -	2.019
6	6	Spot 6	4 VL350	1.356	6	108	108	LED 8	5 LED -	2.022
7	7	Spot 7	4 VL350	1.387	7	109	109	LED 9	5 LED -	2.025
8	8	Spot 8	4 VL350	1.418	8	102	102	LED 2	5 LED -	2.004
9	9	Spot 9	4 VL350	1.449	9	110	110	LED 10	5 LED -	2.028
10	10	Spot 10	4 VL350	1.480	10					

Prepare Cloning

Take Selection Remove Lines Cut Lines Paste Lines Swop Line Prepare

*Prepare cloning - swap lines*

10. Fixture 110 and fixture 103 swapped places. Fixture 1 now has the data of destination fixture 110. Fixture 9 now has the data of destination fixture 103.



Prepare cloning - swapped lines

- To complete the preparing process click on the button **Prepare**.

## Cloning

If you click on the button **Prepare**, the pop-up **Cloning** opens.



*Cloning pop-up*

It is possible to address all elements by the buttons **All Items To All**, **All Items To None**, and **All Items To Chosen**.

Here you choose in which elements the fixtures you have assigned are cloned in:

- Sequences
- Groups
- Presets
- Worlds
- Effects
- Layouts

There is a swipe button for each of the elements containing the options:

- **No:**  
This element will not be cloned.
- **All:**  
Data will be cloned for all objects of this element.
- **Chosen:**  
This button activates the button **Choose** on the right of each element.

If you click on the button **Choose**, an additional window opens within the pop-up **Cloning**. Here it is the window **Select Sequences**.

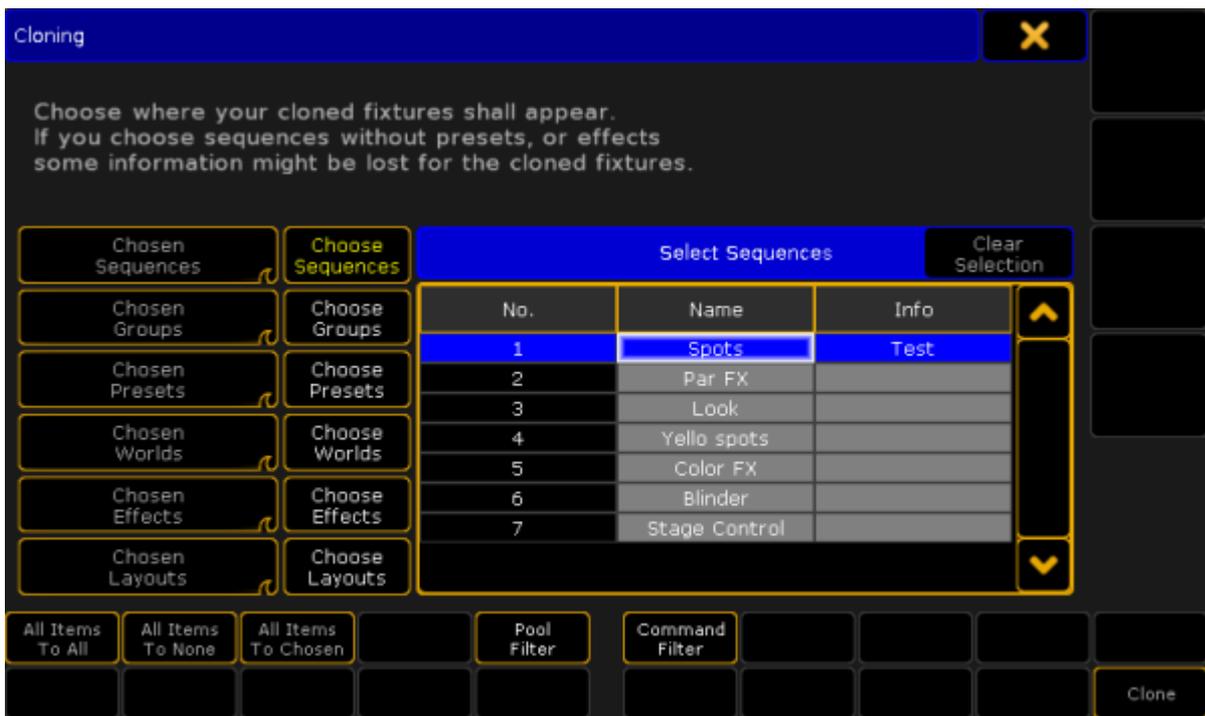
Choose sequences to which you copy the objects first and then clone these objects.

The info column displays information on corresponding objects.



**Hint:**

It is also possible to select several cells in the column by holding the button CTRL on your keyboard while clicking on the cells you would like to select.



*Cloning - select sequences*



**Important:**

Using **All Items To All**, **All Items To None**, and **All Items To Chosen** deletes the previous selection.

**All Items To All :**

-Addresses all elements for cloning.

**All Items To None :**

-Does not clone in any of the elements.



**Important:**

However, you can use **All Items To None** to select single objects of single elements.

To clone single objects of a single element:

- Press **All Items To None**

- This sets all elements to status "No"

- Swipe the element you would like to clone single objects in

- Click **Chosen** in the element you are in activating the button **Choose** on the right of the element

- Select single objects you would like to clone

**All Items To Chosen** :

- Sets all elements to **Chosen**.



**Important:**

Clicking on **All Items To Chosen** allows you to select single objects in every element.

---

## Set Filters

It is also possible to set filters in the window **Cloning**.

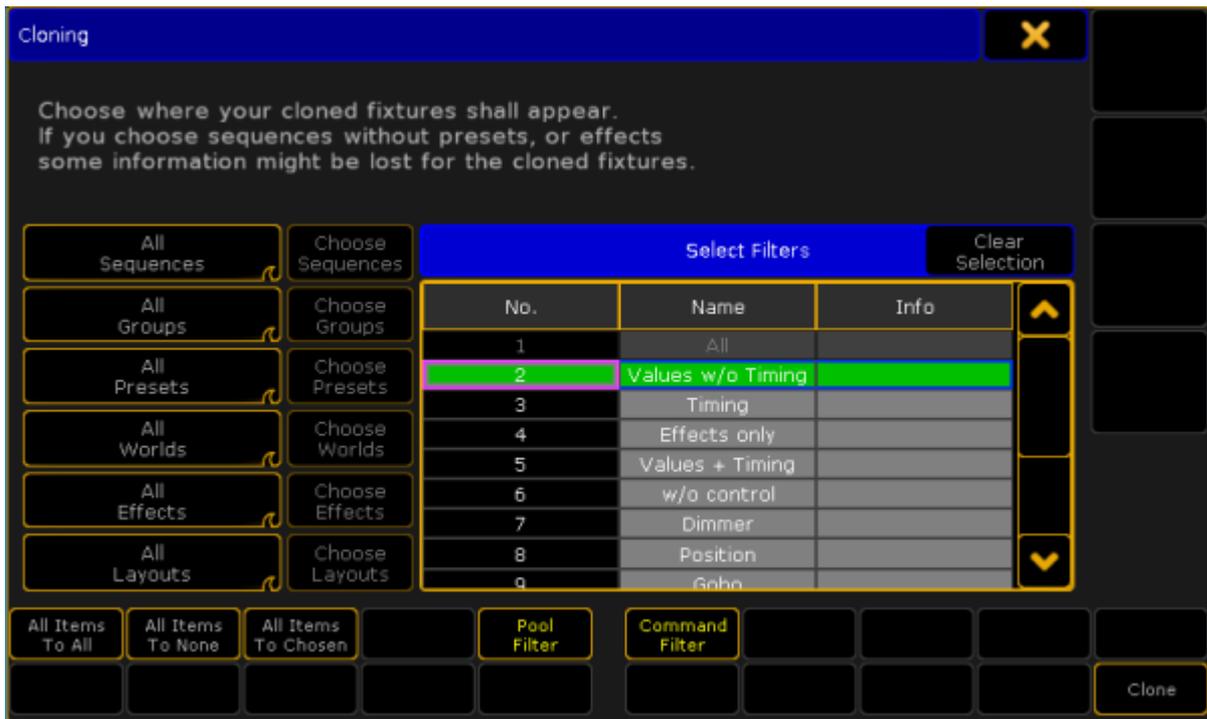
### Set Pool Filter

1. Click on **Pool Filter**.
2. The window **Select Filters** appears on the right side of the pop-up **Cloning**.
3. Choose a filter by clicking on a cell.
4. To reset the filter click on **Clear Selection** in the upper right corner of the window **Select Filters**.
5. To perform cloning click on **Clone** in the lower right corner of the window **Select Filters**.



**Hint:**

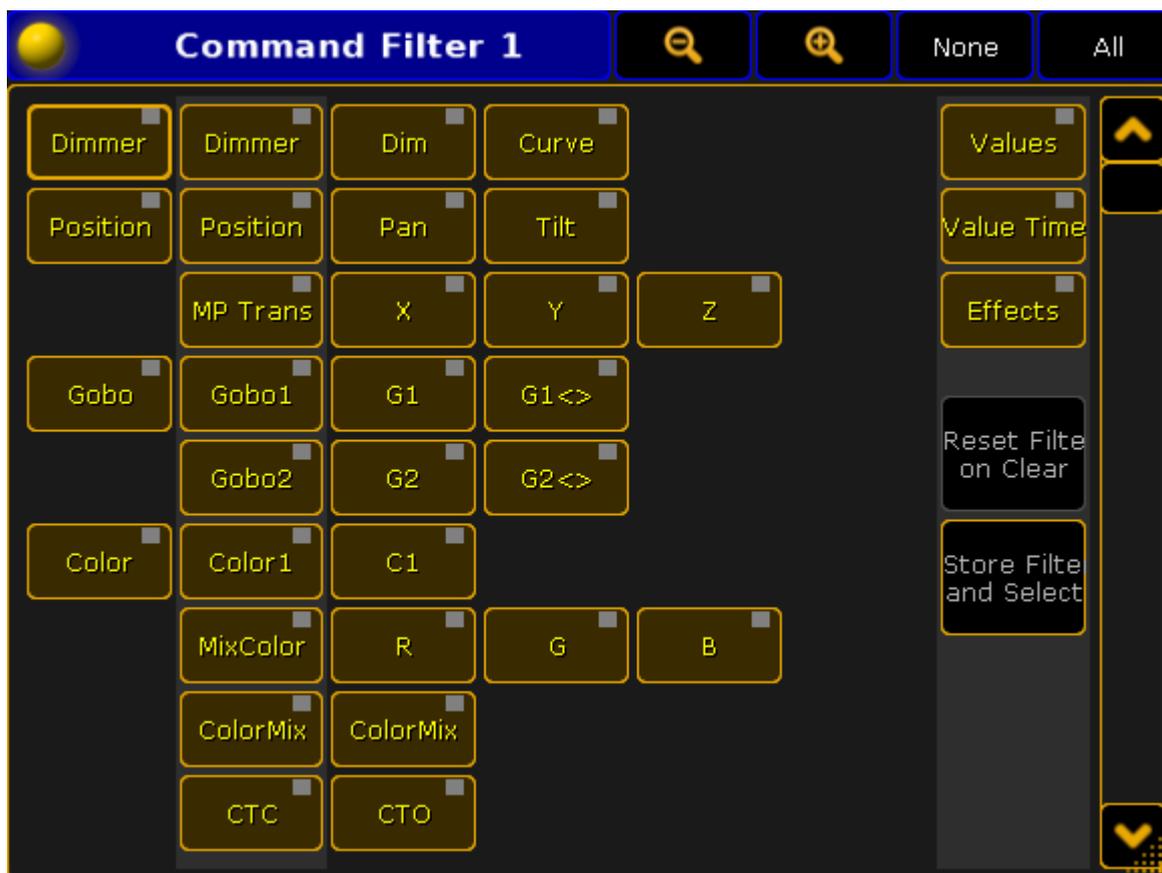
It is also possible to set a filter via the Filter Pool. For more information see [What are filters.](#)



Window cloning - select filters

## Set Command Filter

- To open this filter click on **Command Filter** and the window **Add Filter 1** opens.



Command filter window



### Important:

This is a temporary filter which displays current filtering and allows you to create temporary modifications. However, if you would like to set several filters use the **Pool Filter**.

For more information on how to use the Command Filter see [Create filters](#).

---

## How to Perform Cloning

After preparing and setting filters for the cloning process perform cloning by clicking on **Clone**.

The pop-up **Please Confirm** appears displaying four options:

1. **Cancel:**

Choosing this option cancels cloning and returns to the pop-up **Cloning**.

## 2. **Low Prio Merge:**

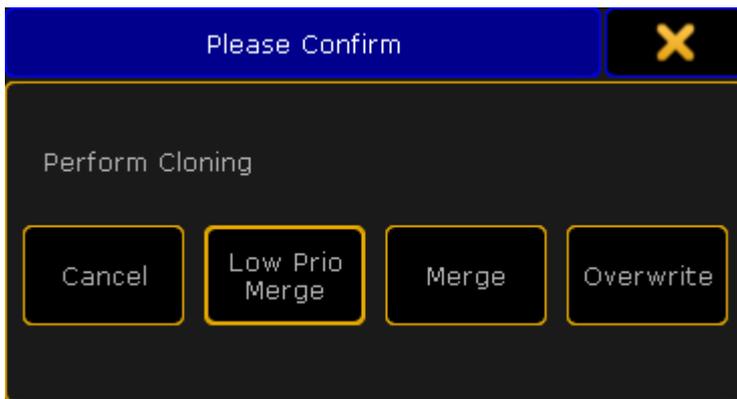
Choosing this option generates simple cloning with low priority. Here, values of source objects are cloned to the destination with no existing data only. No data will be overwritten or deleted.

## 3. **Merge:**

Choosing this option merges values from source objects with values from destination objects overwriting existing values. Values which are only located in the destination objects will not be overwritten.

## 4. **Overwrite:**

Choosing this option overwrites all values of the destination objects with existing and non-existing values in the source objects.



*Pop-up please confirm - perform cloning*

## 22.2. Examples



### **Important:**

It is possible to clone from fixture types or to fixture types in presets only. For more information see [Clone presets](#).



### **Important:**

The cloning option **Overwrite** removes and replaces original data of the destination by new data.

## Clone Fixture to Fixture

### 1. Example:

If you clone fixture 1 to fixture 2 with the default option, i.e., **Low Prio Merge**:

- This process creates selective data for fixture 2.
- Fixture 2 now does the exact same thing it did before cloning.
- Fixture 2 keeps the data of fixture 1 in case fixture 2 should not have any data for specific objects.

## 2. Example:

If you clone fixture 1 to fixture 2 with the option **Merge**:

- This process creates selective data for fixture 2.
- Fixture 2 now does the exact same thing as fixture 1.
- Fixture 2 keeps its data in case fixture 1 should not have any data for specific objects.

## 3. Example:

If you clone fixtures 1 and 2 to fixtures in group 10 in sequences 1 through 10:

- This process copies data from fixtures 1 and 2 to fixtures in group 10 within sequence 1 through 10 only.

## 4. Example:

If you clone fixture 1 to fixture 2 with the option **Overwrite**:

- This process creates selective data for fixture 2.
- Fixture 2 now does the exact same thing as fixture 1.

---

## Clone Fixture to Fixture Type



### **Important:**

Cloning fixtures to fixture types clones selective data to global data.

## 1. Example:

If you clone fixture 1 to fixture type 2 with the default option, i.e., **Low Prio Merge**:

- This process creates global data for fixture type 2.
- Fixture type 2 now does the exact same thing it did before cloning.
- Fixture type 2 keeps the data of fixture 1 in case fixture type 2 should not have any data for specific objects.

## 2. Example:

If you clone fixture 1 to fixture type 2 with the option **Merge**:

- This process creates global data for fixture type 2.
- Fixture type 2 now does the exact same thing as fixture 1.
- Fixture type 2 keeps its data in case fixture 1 should not have any data for specific objects.

## 3. Example:

If you clone fixture 1 to fixture type 2 with the option **Overwrite**:

- This process creates global data for fixture type 2
- Fixture type 2 now does the exact same thing as fixture 1.

---

## Clone Fixture Type to Fixture



### **Important:**

Cloning fixture types to fixtures clones global data to selective data.

## 1. Example:

If you clone fixture type 1 to fixture 2 with the default option, i.e., **Low Prio Merge**:

- This process creates selective data for fixture 2.
- Fixture 2 now does the exact same thing it did before cloning.
- Fixture 2 keeps the data of fixture type 1 in case fixture 2 should not have any data for specific objects.

## 2. Example:

If you clone fixture type 1 to fixture 2 with the option **Merge**:

- This process creates selective data for fixture 2.
- Fixture 2 now does the exact same thing as fixture type 1.
- Fixture 2 keeps its data in case fixture type 1 should not have any data for specific objects.

## 3. Example:

If you clone fixture type 1 to fixture 2 with the option **Overwrite**:

- This process creates selective data for fixture 2.
- Fixture 2 now does the exact same thing as fixture type 1.

---

## Clone Fixture Type to Fixture Type



### **Important:**

Cloning fixture types to fixture types clones global data to global data.

## 1. Example:

If you clone fixture type 1 to fixture type 2 with the default option, i.e., **Low Prio Merge**:

- This process creates global data for fixture type 2.
- Fixture type 2 now does the exact same thing it did before cloning.
- Fixture type 2 keeps the data of fixture type 1 in case fixture type 2 should not have any data for specific objects.

## 2. Example:

If you clone fixture type 1 to fixture type 2 with the option **Merge**:

- This process creates global data for fixture type 2.
- Fixture type 2 now does the exact same thing as fixture 1.
- Fixture type 2 keeps its data in case fixture type 1 should not have any data for specific objects.

## 3. Example:

If you clone fixture type 1 to fixture type 2 with the option **Overwrite**:

- This process creates global data for fixture type 2.
- Fixture type 2 now does the exact same thing as fixture type 1.

## 22.3. Clone Presets

Table of content:

- [Clone fixture to fixture](#)
- [Clone fixture to fixture type](#)
- [Clone fixture type to fixture](#)
- [Clone fixture type to fixture type](#)
- [Clone to universal fixture type](#)



### **Important:**

As mentioned in **Examples** cloning from or to fixture types is only possible in presets.

---

## Where to Use Clone

It is possible:

- To clone from fixture to fixture

- To clone from fixture to fixture type
- To clone from fixture type to fixture
- To clone from fixture type to fixture type

**Important:**

Cloning to fixtures adds selective data to presets.  
Cloning to fixture types adds global data to presets.

**Requirements:**

- Create a show file with presets
- Prepare cloning

For more information on how to prepare cloning see [Clone using screens](#).

## Clone Fixture to Fixture

### Example

- **Clone fixture 1 to fixture 11**

1. Initial situation before cloning:  
-Fixture 1 with pan and tilt values of min.

ID F/C	Name	Position	
		Pan	Tilt
1	Spot 1	min	min

*Clone Fixture to Fixture – Initial Situation*

2. Initial preset situation before cloning:  
-The preset contains selective data for fixture 1.



*Preset Pool – Selective Data*

3. Final result after cloning:  
-This process created selective data for fixture 11.  
-Fixture 11 now has the exact same pan and tilt values as fixture 1.

ID F/C	Name	Position	
		Pan	Tilt
1	Spot 1	min	min
11:	ALWa126V 1	min	min

*Clone Fixture to Fixture – Final Situation*

4. Final result after cloning:
  - The preset now contains selective data for fixture 11.



*Preset Pool – Selective Data*

---

## Clone Fixture to Fixture Type

Example

- **Clone fixture 1 to fixture type 4.1**

1. Initial preset situation before cloning:
  - Fixture 1 with pan and tilt values of min.

ID F/C	Name	Position	
		Pan	Tilt
1	Spot 1	min	min

*Clone Fixture to Fixture Type – Initial Situation*

2. Initial preset situation before cloning:
  - The preset contains selective data for fixture 1.



*Preset Pool – Selective Data*

3. Final result after cloning:
  - This process created global data for fixture type 4.1.
  - Fixture type 4.1 now has the exact same pan and tilt values as fixture 1.

ID F/C	Name	Position	
		Pan	Tilt
1	Spot 1	min	min
FT 4.1	[Preset] VL3500S Main Module	min	min

Clone from Fixture to Fixture Type – Final Result

4. Final result after cloning:  
-The preset now contains global data for fixture type 4.1.



Preset Pool – Selective and Global Data

---

## Clone Fixture Type to Fixture

### Example

- **Clone fixture type 4.1 to fixture 1**

1. Initial preset situation before cloning:  
-Fixture type 4.1 with pan and tilt values of min.

ID F/C	Name	Position	
		Pan	Tilt
FT 4.1	[Preset] VL3500S Main Module	min	min

Clone Fixture Type to Fixture – Initial Situation

2. Initial preset situation:  
-The preset contains global data for fixture type 4.1.



Preset Pool – Global Data

3. Final result after cloning:

- This process created selective data for fixture 1.
- Fixture 1 now has the exact same pan and tilt values as fixture type 4.1

ID F/C	Name	Position	
		Pan	Tilt
1	Spot 1	min	min
FT 4.1	[Preset] VL3500S Main Module	min	min

Clone Fixture Type to Fixture – Final Result

4. Final result:

- The preset now contains selective data for fixture 1.



Preset Pool – Global and Selective Data

## Clone Fixture Type to Fixture Type

### Example

- Clone fixture type 4.1 to fixture type 7.1

1. Initial situation:

- Fixture type 4.1 with pan and tilt values of min.

ID F/C	Name	Position	
		Pan	Tilt
FT 4.1	[Preset] VL3500S Main Module	min	min

Clone Fixture Type to Fixture Type – Initial Situation

2. Initial situation:

- The preset contains global data for fixture type 4.1.



Preset Pool - Global Data

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### 3. Final result after cloning:

-This process created global data for fixture type 7.1.

-Fixture type 7.1 now has the exact same pan and tilt values as fixture type 4.1.

ID F/C	Name	Position	
		Pan	Tilt
FT 4.1	[Preset] VL3500S Main Module	min	min
FT 7.1	[Preset] ALWa126V Main Module	min	min

*Clone Fixture Type to Fixture Type – Final Result*

### 4. Final result:

-The preset now contains global data for fixture type 7.1.



Preset Pool - Global Data

---

## Clone to Universal Fixture Type



### Important:

Universal data is data of all fixtures that have the same attribute. Also, it is redundant to clone universal preset data.

If the target data is to be universal, then clone to fixture type 1.1.



[Channel]> Clone Fixture 1 At FixtureType 1.1 If Preset 2.4

## 23. Search and Replace

Blank page

23.1. Search fixtures in the show file

23.2. Search fixtures in a sequence

23.3. Search for a preset

23.4. Search for values in a sequence

23.5. Replace channels or fixtures

23.6. Replace a channel or fixture in a sequence

23.7. Replace values in a channel or fixture

## 24. Image Pool

The grandMA2 has an image pool with predefined images, which cannot be edited.

### Open the Image Pool

To open the image pool:

1. Tap anywhere in the **user-defined area**.
2. The pop-up **Create Basic Window** opens.
3. Next, tap the tab **Pools**.
4. Then, tap **Images**.
5. The image pool opens.



### Image pool

Images in the image pool are either marked by:

-  (red padlock) symbolizes that the images are predefined.

-or-

-  (orange padlock) symbolizes that the image was locked by the user. These images, however, can be unlocked.

To lock or unlock an image, use the command line.

Example:

```
[Channel]> Lock Image 14
```

Locks image 14 and displays an orange padlock within the pool object.

## Usage of Images

It is possible to use the images in the grandMA2:

- In bitmap effects
- As background in layouts and assign images to objects in layouts
- As background in Desk Lock

---

## Image Options

To open the options of the image pool, tap  in the upper left corner of the pool.

The options of the image pool generally behave the same as in the most pools. Hence, see [adjust pool options](#).

### 24.1. Import Images and Videos

To import images or videos:

1. Open the image pool first.  
For information on how to open the image pool see [Image Pool](#).
2. Then press **Edit** and tap the pool object you would like to store your image or video to.
3. The **Image Viewer** opens.



*Image viewer*

4. Next, tap **Import Image**.
5. The dialog **Open File** opens.

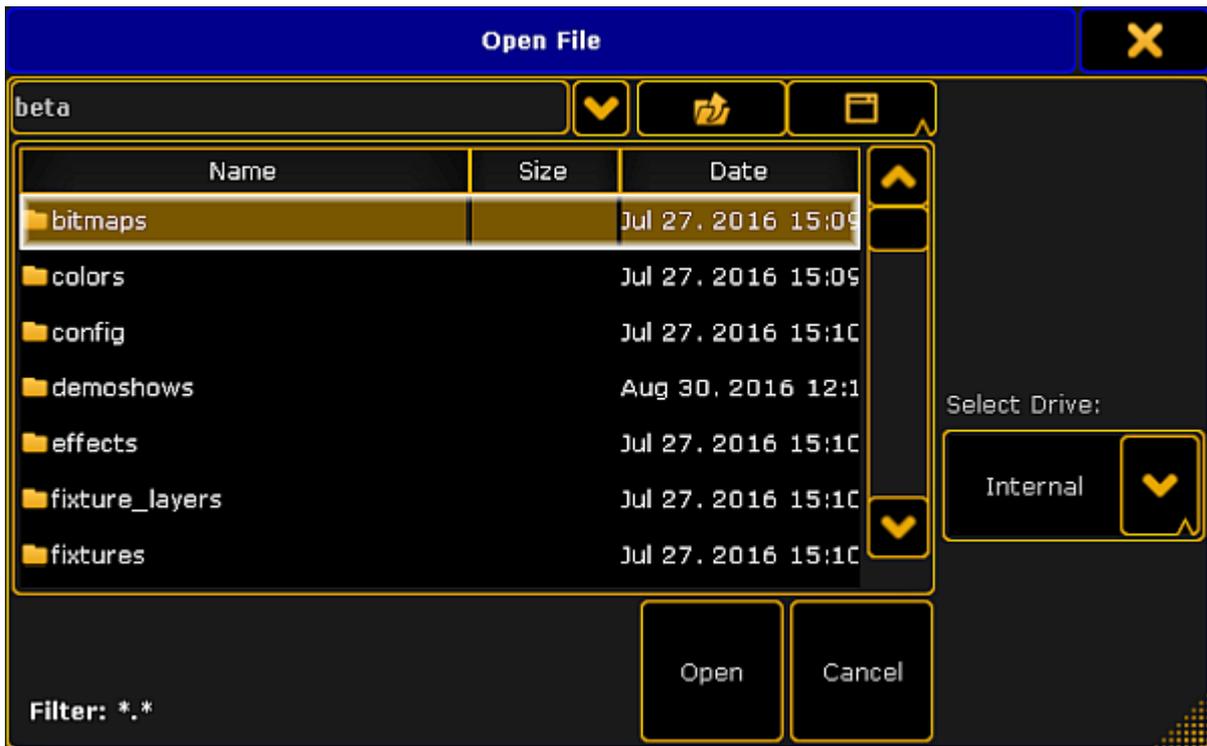


Image viewer – open file

6. To select the display of folder in the dialog, tap the screen symbol on the right of the title bar.
7. To select the drive, tap the triangle symbol on the right of the dialog.
8. Tap the folder symbol in the title bar of the dialog and then tap the folder **images** and subsequently the folder **predefined**.  
or:  
Tap the folder **bitmaps** and subsequently **predefined\_images** or **predefined\_videos**.
9. After choosing the folder, tap **Open** to import the image or **Cancel** to close the dialog.
10. To label the image or video you have just imported, tap **Label** on the right of the dialog **Image Viewer**.
11. The image or video you have imported is now in the image pool.



**Important:**

To import videos which were created via third-party protocols activate these protocols first. Either:

-Check the box during the initial startup.

-or-

-Press **Setup**. Next, tap **Console**, **Software Update**, **End User License Agreement**. Then, check the box where it says **Include third-party software**.



**Important:**

To import videos or images from a USB, save images or videos in the subfolder **gma2** on your USB first.

## 24.2. Image Limitations and Guidelines for Symbols

There are few limitations regarding the size of images and the pool there.

### Limitations

- Each image has a maximum of 2MB.
- The overall size of the image pool has a maximum of 10MB.
- Resolutions higher than 1920 x 1080 are scaled down automatically.

### Guidelines for symbols:

- Use the supported file formats (for more information see [supported file formats](#)).
- Maximum size of the canvas is 240 x 240.
- Maximum size of the image is 180 x 180.
- Outline of the symbol has to be 2 pixels in 50 % gray.
- Symbols have to be in alpha fill (transparent).
- The area around a symbol has to be black.

## 24.3. Supported file formats

If you are not sure which format you can save your videos or images in, see the tables below.

Make sure that you are using one of the following formats:

### Video file formats



#### Important:

To be able to use several and non-MA software video file formats, allow the usage of third-party software in the End User License Agreement. Allow usage of third-party in **Setup** – **Console** – **Software Update** – **End User License Agreement** or during the initial startup. If the console is in a session, the session master has to have the permission to use third-party software for all session members.

#### Format and filename extension

VP8 (.webm)

VP9 (.webm)

MPEG-2 Elementary Stream (for example .mpv, m2v)

MPEG-4 (.avi, .mov)

### Image file formats

#### Format and filename extension

Bitmap (.bmp)

JPG and JPEG (.jpg, .jpeg)

CompuServe GIF (.gif)

Portable Network Graphics (.png)

Tagged Image File Format (.tif, .tiff)

If you are using a file format that is not listed above, convert your file first before importing it into the grandMA2.

## 24.4. Delete Images and Videos

It is possible to delete an imported image or video in two different ways.

1. To delete single images:
  - Press **Del** and then tap the image or video you would like to delete.
2. To delete several images at once, type into the command line:

```
[Channel] > Delete Image 14 Thru 24
```

Deletes images 14 to 24 in the image pool.



**Important:**

It is not possible to delete or edit predefined images or videos for that matter.

## 25. Layouts

Layouts are basically two-dimensional drafts where it is possible to arrange channels and fixtures, draw shapes and add text, macros, presets and other pool objects.

Layouts are created in the layout pool and are displayed and edited in the layout view.

### 25.1. Create a Layout

It is possible to create layouts for each part of the stage.



**Important:**

Create a layout in the layout pool and edit the layout in the layout view. For more information see [Edit layout](#).

To create a layout:

1. Tap anywhere in the **user-defined area**.
2. The pop-up **Create Basic Window** opens.
3. Next, tap **Pools**.
4. Then, tap **Layout Pool**.
5. The layout pool opens.



*Layout pool*

6. Select fixtures or channels in the fixture sheet.

7. To add the fixtures or channels you have selected, press **Store** and tap a cell in the layout pool or tap the area in the layout view in which you would like to save fixtures or channels.

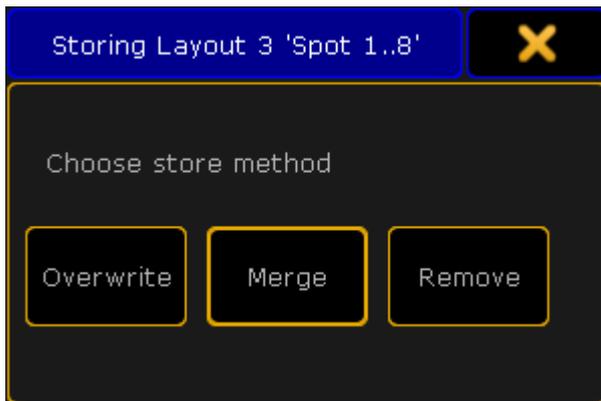
To add pool elements in the layout view, press for instance **Assign** **Group** **3** and then tap the area to which you would like to assign this group.

To merge objects in the layout view:

-Select fixtures or channels in the fixture sheet first.

-Press **Store** and then tap the layout view.

-A pop-up appears asking you to choose the store method.



Pop-up – Store layout

-Tap **Merge**.

-The objects have now been merged in the layout view.



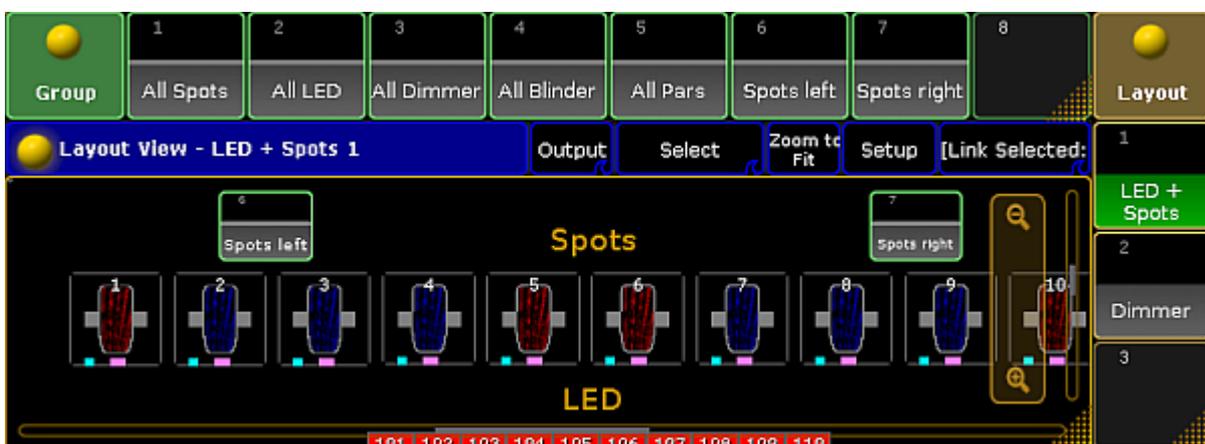
### Important:

Fixtures and channels can only appear once in the layout view. The console does not take fixtures or channels twice into the layout view.



### Hint:

To operate the layouts faster and to have all at a glance, arrange the layouts and the layout view on one screen.



All at a glance – layouts, groups and the layout view

## 25.2. Layout Pool Options

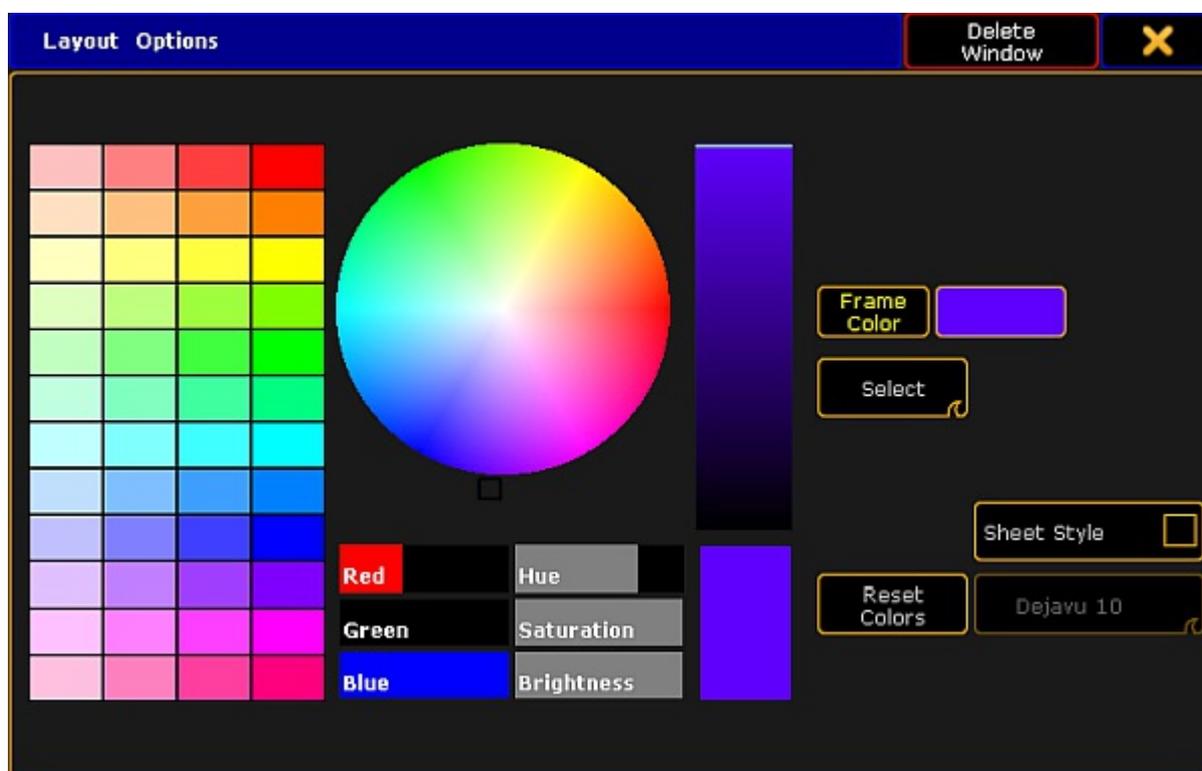


### Important:

This section comprises the description of functions specific for the layout pool. Please see all the general settings in [Adjust pool options](#).

### Open the Options

1. Open the layout pool first. For more information on how to open the layout pool see [Create a layout](#).
2. Then, tap  in the upper left corner of the layout pool.
3. The option dialog opens.



*Layout pool options*

4. To adjust the frame color, reset colors or to apply a different style and font size see [Adjust pool options](#).
5. To display the single layouts in the layout view, tap and swipe the button to **Select** below the button **Frame Color**.
6. If you want to set the layout for the bitmap fixture, tap and swipe the button to **At** below the button **Frame Color**.
7. If you have adjusted the options of the layout pool to your liking, leave the options:
  - Tap  in the upper right corner of the dialog and the dialog closes.
  - If you would like to close the layout pool altogether, tap **Delete Window**.

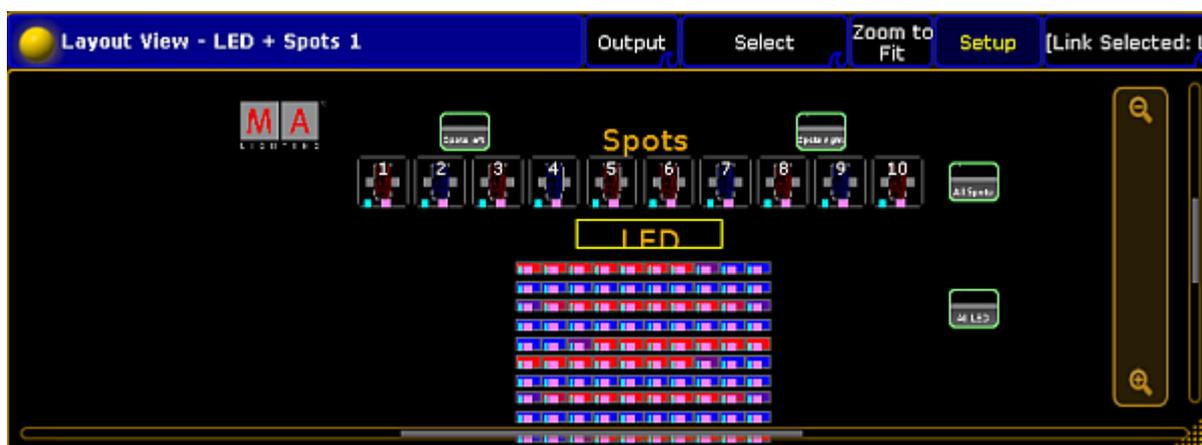
## 25.3. Edit Layout

### Requirement:

- Create a layout first.

### Open the Layout View

1. Tap anywhere in the **user-defined area**.
2. The pop-up **Create Basic Window** opens.
3. Next, tap **Other**.
4. Then, tap **Layout View**.
5. The layout view opens.



Layout view

### Edit the Layout View



#### Hint:

- It is possible to copy pool elements within the layout view:
- Select the pool element you would like to copy in the view.
  - Then, press **Copy** and tap the spot you would like to copy the pool element to.

1. After you have opened the layout view, enable **Setup** in the title bar.



#### Important:

Enabling **Setup** in the layout view allows editing of single objects. Whereas, disabling **Setup** allows editing as in the programmer.

2. The layout view encoder bar appears.

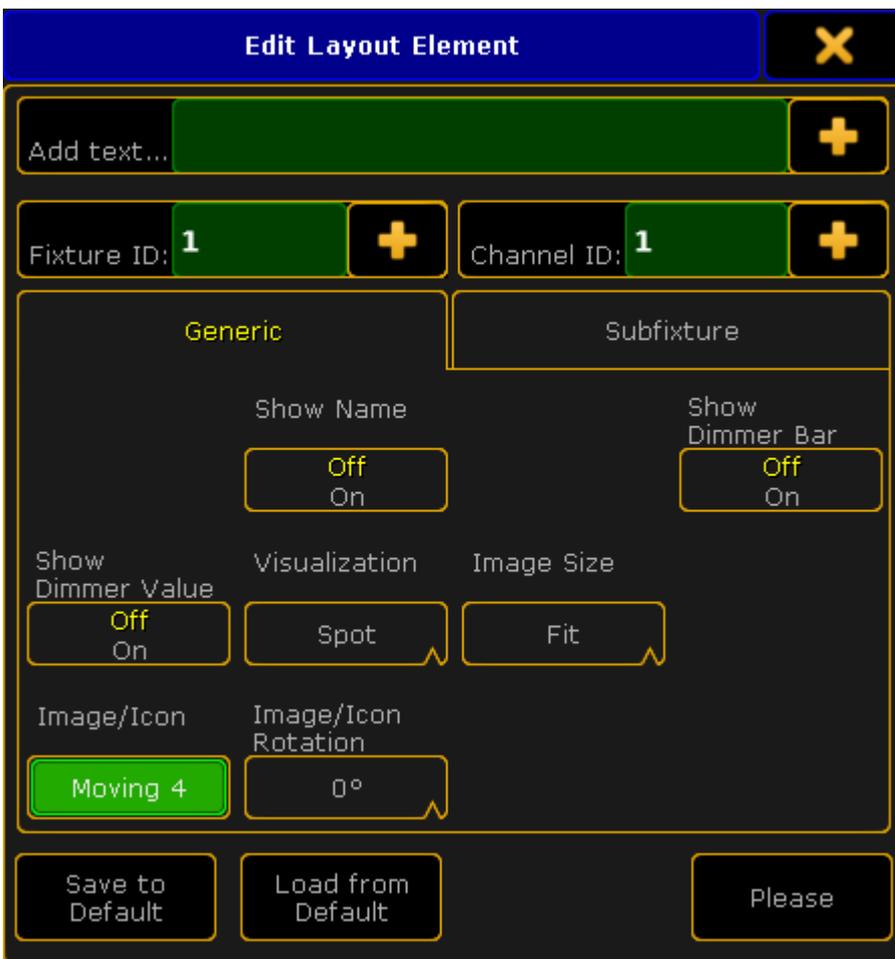


Layout view encoder bar

3. Select an object in the view.
4. To toggle between position, size and style, tap **Position 1 of 3**.

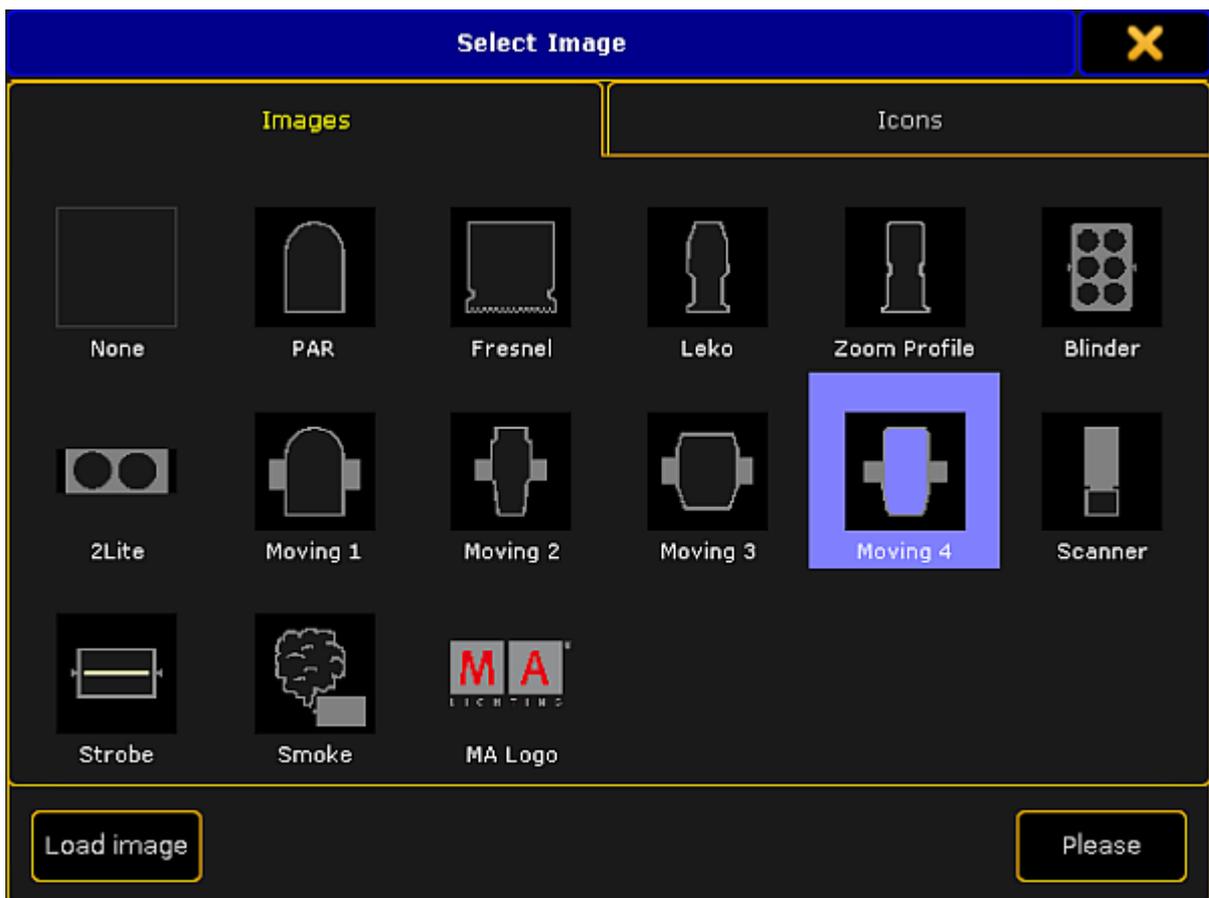
## Edit Selected

1. To edit objects, tap **Edit Selected** in the encoder bar.
2. The pop-up **Edit Layout Element** opens.



Pop-up Edit Layout Element

3. To add a name or a number on top of an object, tap  on the right of the pop-up, right below the title bar where it says **"Add text..."** .
  - The calculator opens.
  - Tap number or name you would like to be displayed on top of an element.
4. To exchange fixture and channel IDs, tap  on the right in the upper section of the pop-up where it says **"Fixture ID:"** and **"Channel ID:"**.
  - The calculator opens.
  - Tap the number you would like to exchange.
5. To see the name in an object, tap **Show Name**.
6. To see the dimmer bar in an object, tap **Show Dimmer Bar**.
7. To see the value of a dimmer in an object, tap **Show Dimmer Value**.
8. To choose between three different displays of color in an object, tap the drop-down button below **Visualization**.
9. To change the size of images, tap the drop-down button below **Image Size**.
10. To change the image or an icon, tap the button below **Image/Icon**.
  - The pop-up **Select Image** opens.



*Pop-up Select Image*

- To exchange an image or an icon (tab **Icons**), tap an image or an icon.
- Then, tap **Please** .
- To import a new image into the image pool, tap **Load image** .

For more information on the image viewer see [Import images and videos](#).

11. To define the angular degree of the rotation of an image or an icon, tap the drop-down button below **Image/Icon Rotation**.
12. To apply the settings directly, tap **Please**.
13. To take over the settings for pool objects, channels or fixtures to the current user profile, tap **Save to Default**.
14. To load settings from current user profile, tap **Load from Default**.

---

## Arrange

1. To edit several objects at a time, tap **Arrange** in the encoder bar.
2. The encoder bar adjusts to the function **Arrange**.



### Arrange – encoder bar

3. To arrange the objects of the layout view in different arrays, select the objects first and then select the array you would like to apply.
4. Once you have selected an array, you have the option to apply it or cancel it.
5. To return to the encoder bar of the layout view, tap **Element Properties**.

---

## T

The button **T** in the encoder bar stands for text.

1. To add text in the layout view, tap **T** in the encoder bar.
2. Then, select an area where your text is to be displayed via the "Lasso" gesture.
3. The calculator opens.
4. Label the area in the calculator.
5. Next, tap **Please**.
6. Right after tapping **Please** in the calculator, the pop-up **Edit Layout Element** opens.



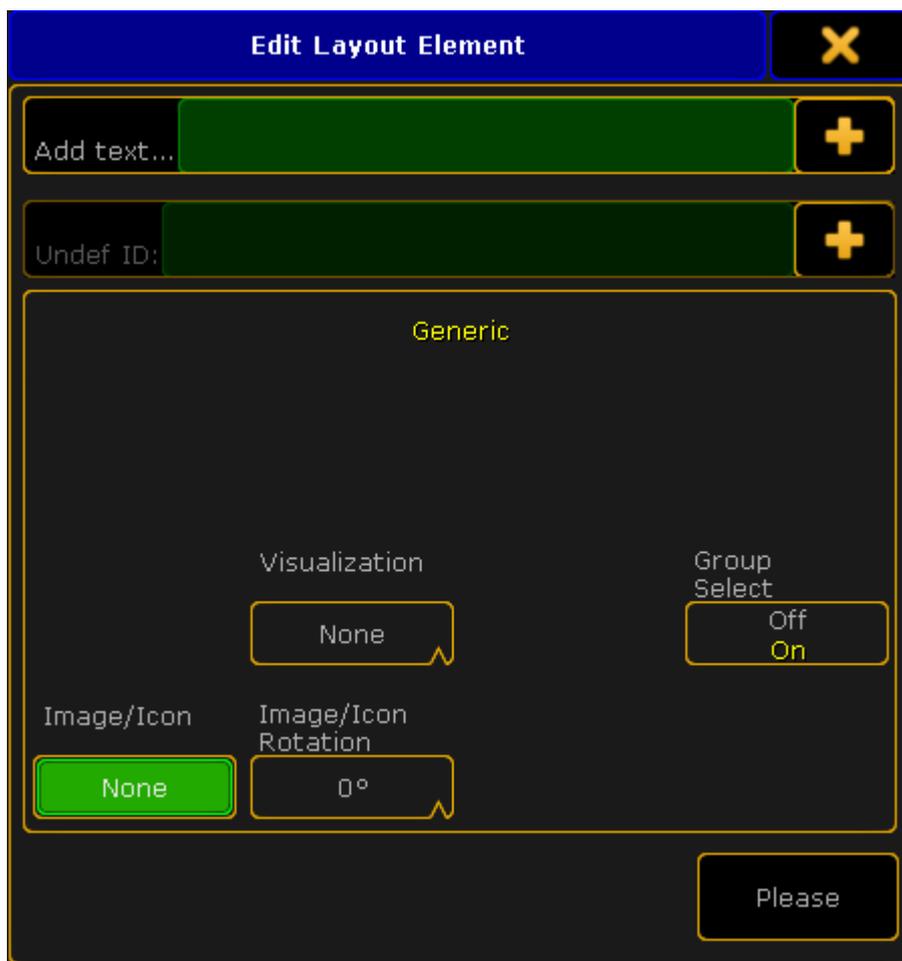
Pop-up Edit Layout Element – T

7. The settings **Image/Icon** and **Image/Icon Rotation** are basically the same as in the pop-up [Edit Layout Element of the button Edit Selected](#) (article 10-12).

## Rectangle

The rectangle button in the layout view encoder bar has three different functions:

1. **Group select:**  
To select a group of objects, tap the rectangle button and tap in the layout view. Then draw the "Lasso". The pop-up **Edit Layout Element** opens.



Pop-up Edit Layout Element – Rectangle symbol

-To disable group select, tap **Group Select**.

## 2. Bitmap:

To generate the function of a bitmap, tap the rectangle button in the layout view and draw the "Lasso". The pop-up **Edit Layout Element** opens.

-To apply the bitmap effect, tap the drop-down button **Visualization** and select a bitmap effect.



### Important:

All fixtures that are located within the rectangle generate the bitmap effect. Thus, the rectangle is a canvass here.

## 3. Background:

The rectangle symbol can also be used to generate a background.

-Tap the rectangle button in the layout view and then draw the "Lasso". The pop-up **Edit Layout Element** opens.

-To select an image or an icon as a background, tap the button below **Image/Icon** and the pop-up **Select Image** opens.

-You can now select your background.

## Move

The button **Move** moves the screen of the layout view.

1. To move the entire screen of the layout view, tap the button **Move** and then tap the layout view.
2. Now, move your finger and see how the screen displaces.

---

## Select

The button **Select** selects the objects via "Lasso".

- To select the objects, tap **Select** and then tap in the layout view and move your finger.



### Hint:

To select several objects, press and hold **Ctrl** on the keyboard in the drawer or an external keyboard and tap the objects you would like to add to your selection.



### Important:

It is possible to use the Double tap mode here. For more information see [Layout view options](#).

---

## Delete Pool Elements

To delete single objects, press **Del** and then tap the object you would like to delete in the layout view.

## 25.4. Layout View Options

### Open the Options

1. To open the options of the layout view, tap  in the upper left corner of the view.
2. The option dialog opens.



## Layout view options

- To navigate through different functions of the options, tap the corresponding tabs below the title bar of the layout view options.

## Pool Element Defaults

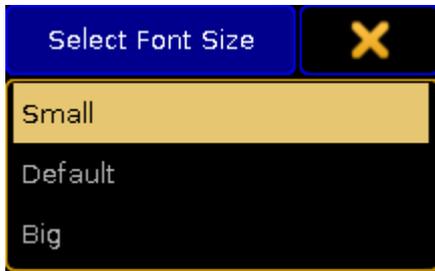


### Important:

Settings that are made in the tabs **Pool Element Default** and **Fixt./Chan. Defaults** will be applied with the next elements you add to the layout.

- To change the size of pool elements, tap the buttons below **Size X** and **Size Y** accordingly.
  - The calculator opens.
  - Type the size of the elements here.

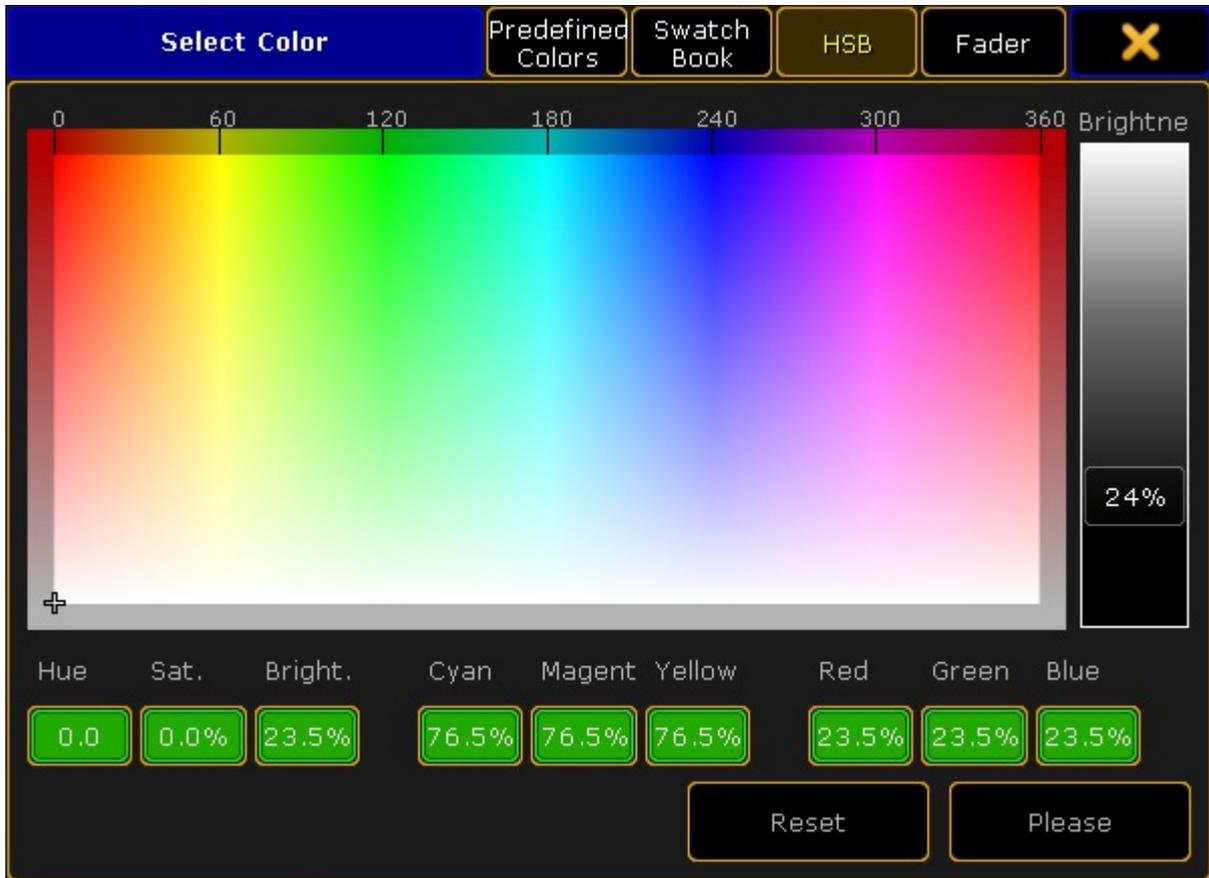
2. Next, adjust the font size:
  - Tap the drop-down box below **Font Size**.
  - The pop-up **Select Font Size** opens.



*Pop-up – Select Font Size*

- Now, tap to select one of the three font sizes.
3. To enable or disable the ID, name or type of the element in the layout view, tap the buttons below **Show ID**, **Show Name** or **Show Type**.

4. After setting this option, adjust the background color, border color and the text color of an element:
  - Tap the buttons below **Background Color**, **Border Color** and **Text Color**.
  - The pop-up **Select Color** opens.



*Pop-up – Select Color*

- Now, set set the display of colors and tap to choose between **Predefined Colors**, **Swatch Book**, **HSB** and **Fader**.
- To change the color, tap the color diagram or tap the buttons with the percentage number at the bottom of the diagram.
- To apply the color selected, tap **Please**.
- To reset the color, tap **Reset** or **Reset to White**.

5. Then, set the display of the symbols:

-Tap the drop-down button below Symbol and the pop-up **Select Symbol** opens.



*Pop-up – Select Symbol*

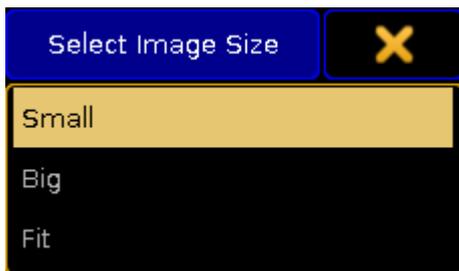
-Now, tap to select one of the three options.

6. To enable or disable the display of the dimmer bar and dimmer value, tap the buttons below **Show Dimmer Bar** and **Show Dimmer Value**.

7. Then, select the image size:

-Tap the drop-down button below **Image Size**.

-The pop-up **Select Image Size** opens.



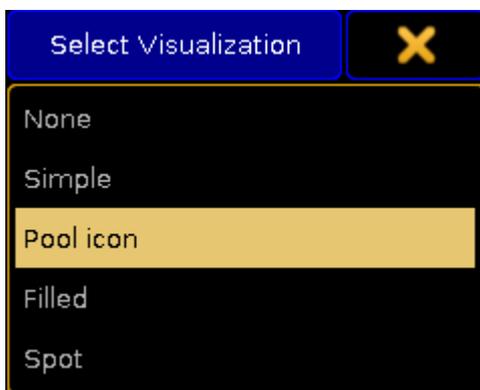
*Pop-up – Select Image Size*

-Tap to select one of the three image sizes.

8. Select the display of objects:

-Tap the drop-down button below **Visualization**.

-The pop-up **Select Visualization** opens.



*Pop-up – Select Visualization*

-Tap to select one of the options.

You have now adjusted the defaults for the pool elements in the current layout to your liking.



**Important:**

If you would like to apply these settings to new layouts, tap **Save to Default** in the title bar of the **Layout Options**.

## Fixt. / Chan. Defaults

The default options of fixtures and channels are similar to those of the pool elements. See [Pool Element Defaults](#) for orientation. However, there are still few differences there.

1. To enable or disable the display of the fixture or channel IDs in the layout view, tap the buttons below **Show Fixture ID** or **Show Channel ID**.
2. Next, enable or disable the notification of RDM in the layout view:
  - Tap the button below **RDM Notifications**.
  - If you enable the notification of RDM, RDM alert or warning will be shown in the layout view. For more information on RDM notifications see [Configure RDM notifications](#).

## Layout Data

Layout data refers to single layouts only.

1. Set the size of the grids:
  - To adjust the width and length of the grid or the snap grid, tap either the buttons below **Grid X** and **Grid Y** or the buttons below **Snap Grid X** and **Snap Grid Y**.
  - The calculator opens.
  - Now, type the size of of the corresponding grid.



**Hint:**

The grid stays visible whenever you edit its size. To make the grid invisible again, set one of the axes to zero.

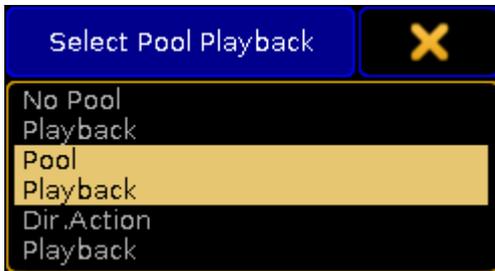
2. Enable or disable the snap grid:
  - It is possible for the snap grid to stay always visible whenever moving an object.
  - To do so, tap the button below **Snap Always** to toggle it to **Yes**.
3. After setting the grid, select the background color:
  - Tap the button below **Background**.
  - The pop-up **Select Color** opens.
  - To manage the color diagram, see [Pool Element Defaults](#).
4. To display the markers in the fixtures and channels, toggle the button below **Marker** to **Yes**.
5. To turn on the fast call, toggle the button below **Fast Call** to **Yes**.



**Hint:**

If the fast call is enabled in the tab **Title Buttons**, the button **Fast Call** will be highlighted in red in the title bar of the layout view.

- Next, select the playback you would like to use:
  - Tap the button below **Pool Playback**.
  - The pop-up **Select Pool Playback** opens.

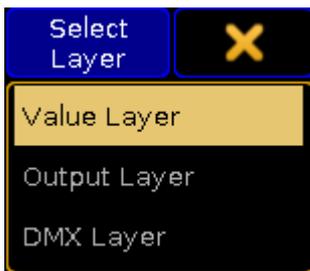


*Pop-up – Select Pool Playback*

For more information on playback see [Cues and sequences – Playing back cues](#).

-Select one option here.

- Then, select a layer by tapping the drop-down button below **Select Layer**. The pop-up **Select Layer** opens.



*Pop-up – Select Layer*

For more information on layers see [Layers in sheets – channel sheet and fixture sheet](#).

-Select one of the three layers here.

- To visualize the effects Gobo and Color even if the dimmer is closed, tap the button below **Symbols Features** and toggle it to **Always**.  
If the features are to comply with the dimmer, tap and toggle to **with Dimmer**.

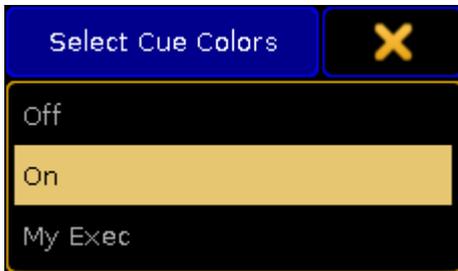
---

## Tools

The following settings are applied to the current layout view.

- To reverse the respective selection – select or move – enable the button below **Double tap mode**:  
Tap the exact same spot twice and then move your finger either to move the screen or to select the objects.

2. Next, set the cue colors:
  - Tap the drop-down button below **Cue Colors**.
  - The pop-up **Select Cue Colors** opens.



*Pop-up – Select Cue Colors*

- **Off:** Does not display cue colors.
  - **On:** Displays the cue colors of a selected executor.
  - **My Exec:** Displays the cue colors of the executor you have activated.
3. To display the zoom bar on the right of the layout view, enable the button below **Zoom Bar visible**.
  4. To use the screen encoder for zooming in and out of the layout view, enable the button below **Zoom Encoder**.
  5. Enable the horizontal and vertical scroll bar by tapping on the corresponding buttons below **ScrollBar horizontal** and **ScrollBar vertical**.
  6. To enable ruler, tap the button below **Rulers visible**.



**Hint:**

When adjusting the grid the ruler proves itself to be very useful.

7. Choose an edit mode to select certain objects:
  - Tap the drop-down button below **Select Edit Mode**.
  - The pop-up **Select Edit Mode** opens.



*Pop-up – Select Edit Mode*

---

## Title Buttons

Tap the button you would like to be displayed in the title bar of the layout view.

- Enabled buttons have a yellow check mark and are highlighted in yellow.
- Disabled buttons have a black background.

---

## Close the Options

After adjusting the options to your liking tap  in the upper right corner of the dialog. The window **Layout Options** closes.

To close the layout view altogether, tap **Delete Window**.

## 26. Worlds, Filters and Masks

The grandMA2 have three different functions that can help you work faster and more efficient.

They are called Worlds, Filters, and Masks.

Worlds are used to limit the access to fixtures and attributes.

Filters are used to filter attribute values when doing different actions.

Masks are used to hide fixtures and attributes from your views.

### 26.1. What are Worlds

Worlds are a functionality in the grandMA2 that allows you to limit what is possible to access and what is displayed in windows.

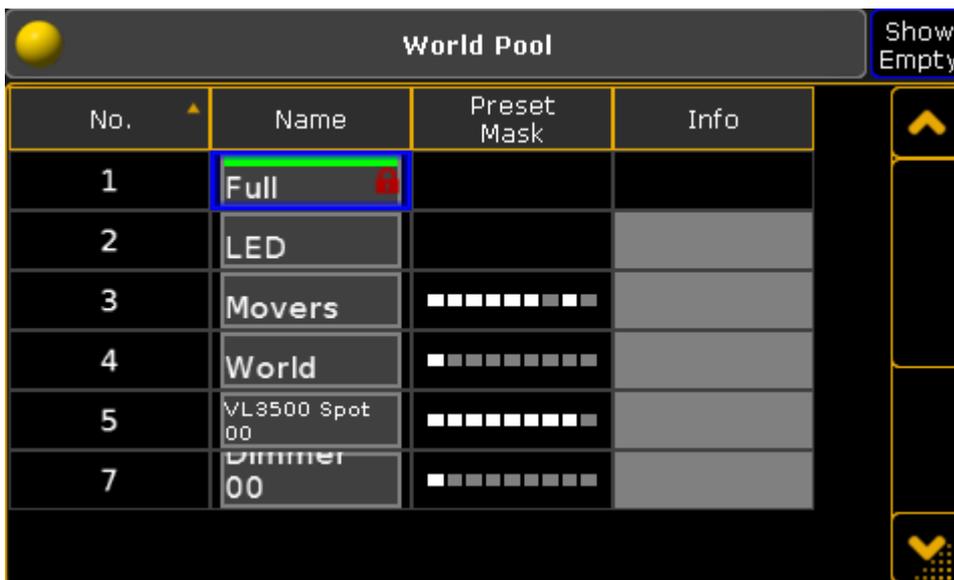
Worlds are organized in a World pool. Since it is a pool, it might be a good idea to read the [Pools in General section](#).

It could look like this:



*World pool - pool style*

It can be changed to "Sheet Style" in the pool options. Then it could look like this:



No.	Name	Preset Mask	Info
1	Full		
2	LED		
3	Movers	■■■■■■■■	
4	World	■■■■■■■■	
5	VL3500 Spot 00	■■■■■■■■	
7	Dimmer 00	■■■■■■■■	

*World pool - sheet style*

The first world in the pool is locked from the factory. It contains everything and is used when you do not want to exclude anything - it is called **Full**.

# grandMA2 User Manual

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The world pool is shared among all users in the show, but each user can have different worlds selected.

You can select a different world by simply pressing the pool object. The green line indicates the selected world.

If a world, other than number one (Full), is selected, then there is a World Icon  in the title bar of sheets and other windows that is affected by the world selection. The icon might also be in the Command Line Input - it depends on your Message Center settings.

Worlds can contain a selection of fixtures and/or a selection of Attributes.

If a world only have some (not all) Attributes then the pool object will display the [Preset Type Marker](#) at the bottom of the pool object.

Using different worlds can be a big help in multi user environment. It can be used to separate the lighting rig into different parts for different programmers.

Another good use is to be in a world without the attributes that is undesired to get programmed in sequences. This could be control channels to accidentally resets fixtures or turns off the lamps.

Selecting a world will hide fixtures, that are not a part of this world, in sheets and stage view/MA 3D. Attributes that are not in the world will not be visible in sheets.

It is important to know that you can only affect the fixtures and attributes in your selected world. This is valid for programming actions. Read more in the [Use worlds when programming topic](#).

Playback actions (executors and sequences) are not directly affected by your selected world.

You can assign a world to an executor or a sequence - but it is not linked to the worlds your user has selected. Read more in the [Apply worlds or filters to executors and sequences topic](#).

Worlds can be assigned to User Profiles. Then the users, with this User Profile, will be limited to only the assigned world and cannot select a different world. Read about it in the [Create User Profiles and Users topic](#).

Read the next page for more on how to [Create worlds](#).

## 26.2. Create worlds

Worlds are created in the programmer, and stored in the World Pool.

Worlds may be thought of as matrix with rows (fixtures) and columns (attributes), and you may eliminate rows and/or columns.

The created world will contain the rows of the current selection, and the columns of any active attribute. If no attributes were active, all columns/attributes will be included in the created world.

Try this:

1. Select fixture 1 Thru 5 (or any 5 fixtures in your show).
2. Press Store followed by an empty world in the **World Pool**.
3. Tap the new world.

You will now only have programming access to fixture 1 thru 5, which is reflected by the [Fixture Sheet Window](#). You have access to all attributes.

Worlds do not contain any values, but you need to have active attribute values if you want to have the attribute information or filtering in the world.

Try this:

1. Tap world 1 (Full) in the Worlds Pool.
2. Select fixture 1 Thru 5 (or any 5 fixtures in your show).
3. Give the fixtures a dimmer value - does not matter what value.
4. Press Store followed by an empty world in the World Pool.
5. Tap the new world.

Look in a Fixture Sheet. Here you can see that it is only allowed to select the five fixtures and it is only possible to control the dimmer values.

As usual it is really a good idea to name the worlds as soon as they are created.

## 26.3. Auto create worlds

grandMA2 can automatically create worlds, based on the selections.

It is done from the Auto Create menu. It is found by pressing the **Setup** key and then tapping the **Auto Create** button under Show.

The menu could look like this:



*Auto Create menu - World tab*

This menu has two different sides. The left one displays the Fixture Types or the Layers (depending on your settings - read below). The right side displays the content of the selection made on the left side.

There is a green input field where you can type the starting world - this is the worlds number where the created worlds will begin.

Everything, in the lists, that has a blue background is selected. Multiple selection is possible using the **Ctrl** key on a keyboard.

The idea is that worlds are created based on the Fixture Type or the Layers. The fixtures that is selected in each of the Fixture Types or Layers are the ones that will be in the worlds.

Auto created worlds contains the attributes relevant for the selected fixtures.

There are some buttons at the bottom of the window. The buttons are:

**Choose:**

This button has two different modes: **Fixture Type** and **Layer**. It chooses what the left side displays.

**Always ask for Name:**

When this is On (yellow text and background), you will get a name pop-up when you create worlds.

**Create:**

This will create worlds for each of the selected Fixture Types or Layers.

**Overwrite:**

This will allow for auto created worlds to overwrite existing worlds.

If this is off, and if there is a conflict, then a Auto Create Conflict pop-up appears - read about it in the [Auto Create Groups topic](#).

## Use:

This button have two modes. When it is **Earliest** the console will use the first free pool object. When it is **Latest** the console will use the first pool object after the last one used.

To cancel the auto creation, press the yellow X in the upper right corner.

## 26.4. Use worlds when programming

Worlds are a great tool when programming.

The point about the worlds is to apply a limitation to what fixtures and attributes you are affecting.

This can be very useful if you have a lot of different values in your programmer, but you only want to store some of the values. For instance if you want to store a color preset for some of your fixtures before storing all values in a cue.

Let us have a closer look at this example. Make sure you have a show with some different fixtures - you could load the "demo dimmer and more" show from the Demo shows.

Create a world for each of the different fixture types. Name the worlds: Spot, LED, Blinder, Par

This is the setup needed for all the following examples.

### Preset example

1. Make sure you are in the "Full" world.
2. Give your spots a dimmer value, a position value, and a color (do not use an existing color preset).
3. Give some of the other fixtures some colors and dimmer values.

This is our look on the stage that everyone is happy about. But you want to be a cool and organized programmer, so instead of just storing these values in the cue, you want to make color presets for the spots and use the preset in the cue.

4. Select your "Spots" world.

Notice that now you can only see your sports in the Fixture Sheet and in the Stage View. But a DMX Sheet will show you that you are still outputting all the other values as well.

5. Store a color preset.
6. If you do not use the "Keep activation" setting, then apply the preset, so you have preset link in your programmer.
7. Select the "Full" world

Now you are back to where you where. The output to the stage never changed! Entering a world do not change the output.

You can now store a cue that uses the color preset for the spots.

## Delete example

Using the same setup as mentioned above.

In the demo show there is a sequence called "Look". In this sequence there is something programmed for the Blinders.

The Look only contains one cue, but let us imagine that it was a bigger sequence and we wanted to remove the Blinders from this sequence.

1. Select the "Blinder" world
2. Delete the "Look" sequence - **Del Sequ 3 Please**
3. Confirm the deletion in the pop-up
4. Select the "Full" world

You did not actually delete the entire Sequence 3 ("Look"). You only deleted the fixtures and attributes that you could control. The Blinders are no longer in the "Look" sequence.

## Unwanted attributes example

Most of the time it is not desired to program fixture control channel information in a cue list. It is not fun when a fixture suddenly turns off the lamp or resets because it accidentally was programmed in the cues.

Worlds can be used to avoid this.

1. Select all your fixtures.
2. Make sure you have some values in your programmer for all attributes except the Control preset type.
3. Store a new world.
4. Select this world.

Now the Control Preset Type disappeared from the Preset Control Bar above your encoders. And you cannot accidentally get those attributes in your programmer and store it somewhere.

## Multi User example

In bigger shows it can be very useful and efficient to have multiple programmers working in the same show file. Often each programmer will have responsibility to program a smaller section of all the lights.

To avoid interfering with each other it is a good idea to create worlds with the sections of the rig for each programmer and then the programmers can comfortably work with their fixtures and not be disturbed by each other.

They still share the executors, so there is not a complete separation.

There are many other situations where worlds can help you work better.

There are two predefined macros called "World is Full" and "World is Selection". The first one selects world number one ("Full"). The second one creates a world based on your current selection (world number 999) and enters this world. This can be a very nice tool if you want to do something where a worlds would be nice and you do not have one that matches. Each time you use "World is Selection" then world number 999 is overwritten.

If you use a different default world then number one then you might want to edit the "World is Full" macro to select the world you use (remember macros are shared among all Users).

Remember that the world you select only affects your programmer and what is displayed on some windows. Executors and already programmed elements are not affected by the worlds you have selected.

But you can assign a world to an executor or a sequence. Read more about that in the [Apply worlds or filters to executors and sequences topic](#).

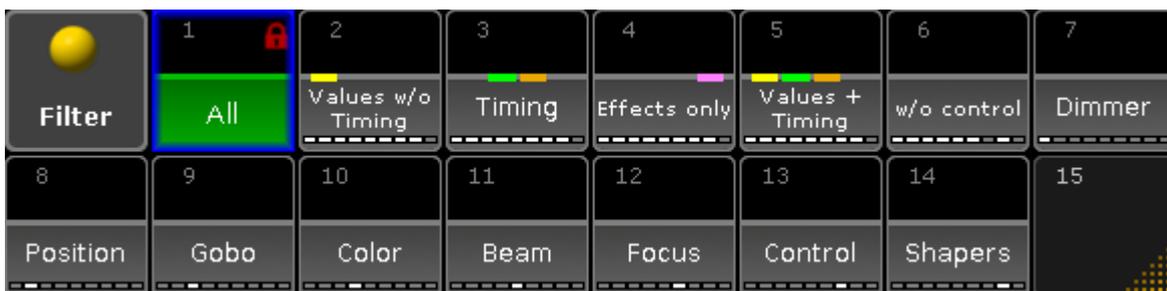
## 26.5. What are filters

The Filters are used to limit what can be stored, played back or retrieved using the "At" key.

Filters contain a selection of Attributes and data Layers (Value, Value Times and Effects). It does not contain any fixture information.

Filters are organized in a Filter pool. Since this is a pool it might be a good idea to read to [Pools in General section](#).

The Filter Pool could look like this:



*Filter pool - pool style*

It can be changed to "Sheet Style" in the pool options. Then it could look like this:

Filter Pool				Show Empty
No.	Name	Preset Mask	Info	
1	All			▲
2	values w/o Timing	■ ■ ■ ■ ■ ■ ■ ■		
3	Timing	■ ■ ■ ■ ■ ■ ■ ■		
4	Effects only	■ ■ ■ ■ ■ ■ ■ ■		
5	values + Timing	■ ■ ■ ■ ■ ■ ■ ■		
6	w/o control	■ ■ ■ ■ ■ ■ ■ ■		
7	Dimmer	■ ■ ■ ■ ■ ■ ■ ■		▼

Filter pool - sheet style

The filter pool is a global pool that is shared by all users.

Filters in the pool are used when you store values ([Use filter when storing topic](#)), make a circular copy, retrieve data using the **At** key ([Use filter when grabbing values topic](#)), or as a filter on Executors and Sequences ([Apply worlds and filters to executors and sequences topic](#)).

There is always one active filter. The first pool object is called "All" and it contains all attributes and layers. This means that it does not filter any data. It is also locked and cannot be edited.

A filter can be applied(called) and/or permanently selected. An applied filter have a green bar in the middle (behind the colored markers). A selected filter have a green background color in the name area (or number area in sheet style). You can select a different filter by pressing **Select** followed by the desired filter button. You can call a different filter temporarily by just pressing one of the filters.

A called filter overwrites the selected filter, but will only be used the next time an action is performed that uses the filter - then it will jump back to using the selected filter.

When a different filter than the "All" filter is selected, then the **At** key will flash and the filter icon  is in the command line and Message Center (default setting).

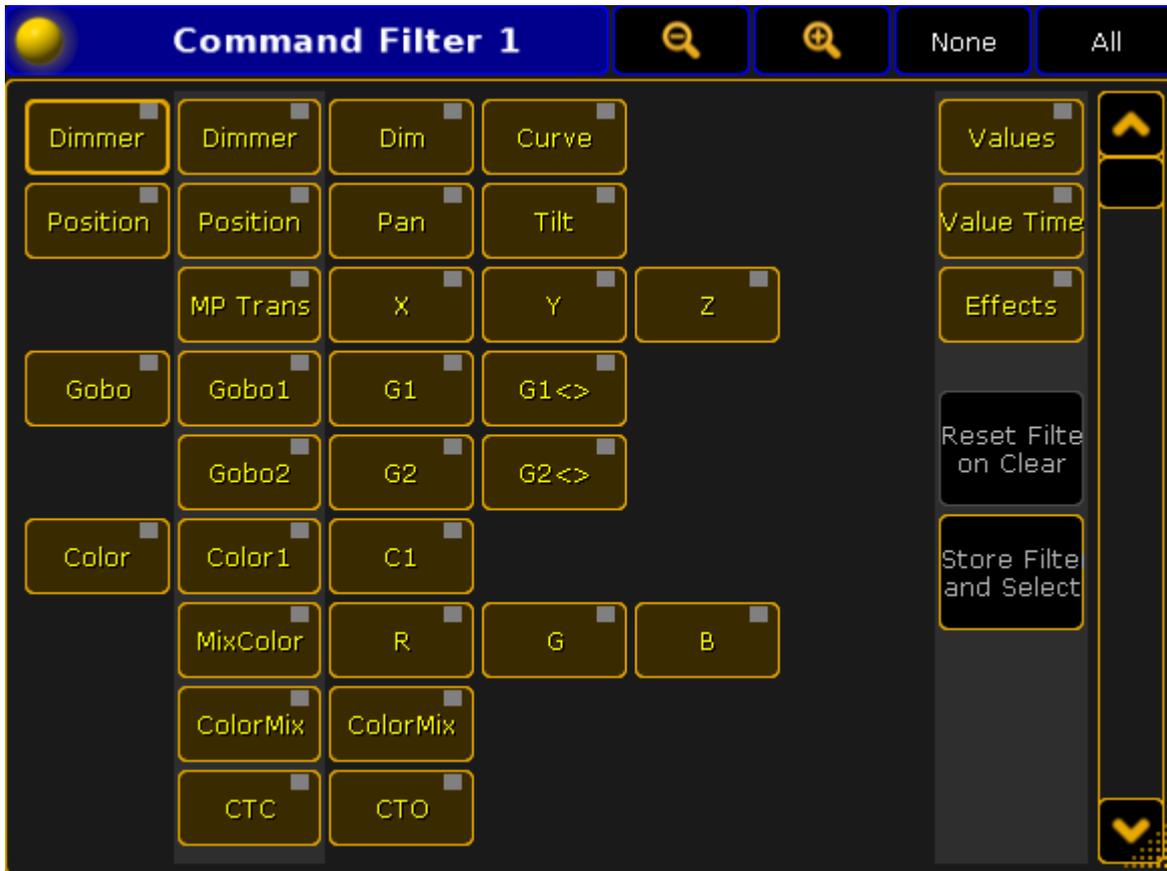
For more information about the colors and markers please read the [System Colors topic](#).

The data Layer Markers are only visible if there is one or more being filtered. It will then display the allowed layers. If all layers are Off (filtered) then there is also no markers. This would block all value data from passing the filter!

## The Command Filter window

It is possible to create a window that displayed the filter settings. It's called **Command Filter** and can be found in the "Other" tab in the Create Basic Window pop-up.

It could look like this:



*Command Filter window*

The primary functions of this window is described in the [Create filters topic](#).

This window will always show you the current filtering, and allow you to do temporary modifications.

## 26.6. Create filters

There are two different ways to create filters in the filter pool. You can edit one of the pool objects. This will give you the Edit Filter pop-up. The other way is when making a temporary filter using the Store key or the At key, you have the option to store it as a new (first available) filter - read more about the temporary filters in the [Use temporary filters topic](#).

The Edit Filter pop-up could look like this:



## *Edit Filter pop-up*

This pop-up is almost the same if you make temporary filters or if you are creating filters in the pool.

The idea about this pop-up is that you turn off the elements that you want the filter to block.

The attributes that have a yellow text are the ones that are selected and they will allow information to pass through the filter.

It is a little bit hard to see but there are some columns in this pop-up. The buttons on the left side is all the Preset Types in the system. The column of buttons on the right side of those are the Features in the system. The next (up to) four columns of buttons are all the Attributes in the system.

The elements in this list changes with your fixture setup.

On the right side you have three buttons to filter Value, Value Times and/or Effect data layers.

To learn more about Preset Type, Feature and Attribute, please read the [What are attributes, features and preset types topic](#).

To learn more about the data layers, please read the [Layers in Sheets topic](#).

## Title bar

In the title bar there are several buttons. The first two are for zooming in the window. This will decrease or increase the size of the buttons.

There are also two buttons that allow you to select None or All of the attributes.

The last button closes the pop-up.

## Selecting what to filter

When creating the filter you can turn off the elements you do not want passing through.

If you turn off an preset type then you actually turn off the features and the attributes in the preset type. But if you have turned off one element in a preset type then it shows that the preset type (and feature) is turned off.

### Example

In the "Demo Dimmer and More" demo show you have two attribute in the "Dimmer" Feature. They are "Dim" and "Curve".

If you create a filter without "Curve" then the settings will look like this:



*Filter without "Curve" attribute*

"Curve" is turned off this also turns off the indication in both "Dimmer" Preset Type and "Dimmer" Feature. The "Dim" attribute is still On and dimmer values will pass the filter.

Preset Type and Feature buttons are only On if all attributes inside them are On.

## 26.7. Use filters when you Store and use At

The active filter is used when you store values and data. It is also used when you use the [At command](#).

If your active filter is the first one, called "All", then it does not filter any data and you do not notice the filter is there.

As mentioned in the [What are filters topic](#), The filters can be selected and applied. The selected one is the one with the green background and the applied one is the one with a green line above the name.

### When Storing

When you store something, then the Applied filter is used and the Selected filter will become the Applied filter, ready for your next action.

When you do Store actions then both the Attributes and data Layer parts of the filters are used.

### Example

In the following example we are going to look at a practical situation where filters can help you work more efficient.

1. Use the "Demo Dimmer and more" demo show or a show with some fixtures and some filters.
2. If you do not have it, then create a filter that blocks the dimmer attributes but allows everything else including all Layers.

3. Make sure the Selected filter is the "All" filter.
4. Select a fixture and give it values on several attributes including Dimmer and maybe an effect.

So now we imagine that this is the look we want in a cue - it is going to be cue number 2.

We do not want to use the move in black function but we want the fixture to already be pre-positioned when we run cue number 2. So we are going to store all data except the dimmer in cue number 1 and then the dimmer value in cue number 2.

5. Tap the no-dimmer filter making it the Applied filter.
6. Press **Store** and then an empty executor button - creating a new cue 1 in a new sequence and executor.

Now you have stored only the values the filter allow in cue number 1 (everything but dimmer). You still have the dimmer values active in your programmer, but the rest is stored. Also now the selected "All" filter is Applied filter.

7. Press **Store** and then the same executor button.
8. In the pop-up select **Create Second Cue**.

That was the second cue. Clear your programmer and try to run the cues.

---

## When using the At command

When you use the At command to get values from one object to another, then the Applied filter is also used, and it jumps back to the Selected filter after use.

## Example

In the following example we are going to grab only the color values from one fixture and apply it to another.

1. Use the "Demo Dimmer and more" demo show or a show with some fixtures and some filters.
2. If you do not have it, then create a filter that only contains the color attributes and all layers.
3. Make sure the Selected filter is the "All" filter.
4. Select a fixture and give it values on several attributes including Dimmer, Position, and use the MixColor attributes to blend a new color.
5. Select a different fixture and give it another position and dimmer values.

Now we would like to grab the color values only from the first fixture. We do not want to grab the position and dimmer values from the fixture, only the color.

6. Tap the Color Only filter - making it the Applied filter.
7. Press the **At** key.
8. Tap the first fixture on the screens (or use the keys - **Fixture** [number] **Please** ).

Now both fixtures have the same color values.

---

Please also have a look at the [Use temporary filters topic](#) and the [Apply worlds and filters to executors and sequences topic](#).

## 26.8. Use temporary filters

Besides the filter pool with the defined or prepared filters, you can also use temporary filters.

They are used in the same actions as the filters from the filter pool.

The following text describes how to open a temporary filter pop-up. But you can also have the [Command Filter window](#) on one of your screens and use this.

In the following text we are going to explore the temporary filters using the same examples as in the [Use Filters when programming topic](#). If you have not read that, it is a strong suggestion to do that first.

### Temporary Store Filter

You can access the temporary Store filter by pressing the **Store** key. Now you got the [Store Encoder Toolbar](#) visible at the bottom of screen 2. In this toolbar you will find a button called **Store Filter**. Tapping this will open a filter editor pop-up. It works just as explained in the [Create filters topic](#). There are two extra buttons on the right side of the pop-up. They are called "Reset Filter on Clear" and "Store Filter and Select".

#### Reset Filter on Clear:

Usually the filter will reset back to the selected filter when you do the (store) action, but if you want to keep the filter. then you can activate this button. Then it is only the Clear(All) command that will reset to the selected filter.

#### Store Filter and Select:

Tapping this button will store the current filter settings as the next free available filter and you are prompted for a name. Also be aware that this new filter will be the Selected one. Not just the Applied filter.

### Example of the temporary store filter

The following example is the same as the one used in the [Use filters when programming topic](#).

We are going to look at a practical situation where filters can help you work more efficient.

1. Use the "Demo Dimmer and more" demo show or a show with some fixtures.
2. Make sure the Selected filter is the "All" filter so nothing is filtered already.
3. Select a fixture and give it values on several attributes including Dimmer.

So now we imagine that this is the look we want in a cue - it is going to be cue number 2.

We do not want to use the move in black function but we want the fixture to already be pre-positioned when we run cue number 2. So we are going to store all data except the dimmer in cue number 1 and then the dimmer value in cue number 2.

4. Press **Store** and then the **Store Filter** button in the Encoder Toolbar.
5. Turn off the "Dim" attribute in the Store filter pop-up.
6. Press an empty executor button - creating a new cue 1 in a new sequence and executor.

Now you have stored all values except the dimmer in cue number 1. You still have the dimmer values active in your programmer, the rest is stored. The temporary filter is now gone and nothing is filtered anymore.

7. Press **Store** and then the same executor button.
8. In the pop-up select **Create Second Cue**.

That was the second cue. Clear your programmer and try to run the cues.

---

## Temporary At Filter

The temporary At filter works just like the filter used as if you had it in a Filter pool.

Keeping the **At** key pressed for about 1 second will open the filter pop-up.

This pop-up also have the two extra buttons described in the temporary store filter above.

And at the bottom you will find three extra buttons. They are color transform buttons. They are used to select how to transform the color if the source and destination fixtures do not have the same color attributes.

### **MixColor:**

This will use the MixColor system. Depending on your settings it will also set an Open value in any color wheels.

### **Color Wheel:**

This will use the nearest color on the color wheels. Depending on your settings it will also set an Open value to the MixColor system.

### **MixColor + Col Wheel:**

This will use both the MixColor and the Color Wheels to create the best result.

## Example

The following example is the same as the one used in the [Use filters when programming topic](#).

In this example we are going to grab only the color values from one fixture and apply it to another.

1. Use the "Demo Dimmer and more" demo show or a show with some fixtures and some filters.
2. Make sure the Selected filter is the "All" filter.
3. Select a fixture and give it values on several attributes including Dimmer, Position, and use the MixColor attributes to blend a new color.
4. Select a different fixture and give it another position and dimmer values.

Now we would like to grab the color values only from the first fixture. We do not want to grab the position and dimmer values from the fixture, only the color.

5. Press and hold the **At** key until the filter pop-up appears.
6. Tap the None button on the title bar so no attributes are selected.
7. Tap the **Color** preset type so it turns on. This will allow all color information to pass the filter.
8. Tap the first fixture on the screens (or use the keys - **Fixture** [number] **Please** ).

Now both fixtures have the same color values.

---

## Temporary filtering using the If key

While storing or using the At command you can include an encapsulated condition. The condition can be almost anything and can include many different elements.

The condition is encapsulated using the **If** key. You can keep the key pressed if you are making a complex condition or press it shortly if it is a more simple condition.

The encapsulation is between the **If command** and the **EndIf command**. EndIf is available as a command using the **If** key after you have typed the first If command. Sometimes the software will automatically add the EndIf command.

The condition is usually made by pressing different elements on the screens, but it can just as well be written commands. The condition can be positive or negative. For example: If you want to only have position values then you can simply tap the **Position** button in the Preset Control Bar. If you want everything except the position values, then you can press the **-** key and then the **Position** button to get the following command: **If - PresetType "POSITION" EndIf** in the command line.

## Examples

The two examples used above can also be achieved using the **If** key.

1. Use the "Demo Dimmer and more" demo show or a show with some fixtures.
2. Make sure the Selected filter is the "All" filter so nothing is filtered already.
3. Select a fixture and give it values on several attributes including Dimmer.

So now we imagine that this is the look we want in a cue - it is going to be cue number 2.

We do not want to use the move in black function but we want the fixture to already be pre-positioned when we run cue number 2. So we are going to store all data except the dimmer in cue number 1 and then the dimmer value in cue number 2.

4. Press **Store**.
5. Press **If** and then **-**. Now the filtering is active and we have already selected that we want to exclude something.
6. We want to exclude the dimmer so now you can tap the **Dimmer** button in the **Preset Control Bar**.
7. Finish the temporary filter by pressing the **If** key again. Now the command line should read: **Store If - PresetType "DIMMER" EndIf**.
8. Press an empty executor button - creating a new cue 1 in a new sequence and executor.

Now you have stored all values except the dimmer in cue number 1. You still have the dimmer values active in your programmer, the rest is stored. The temporary filter is now gone and nothing is filtered anymore.

9. Press **Store** and then the same executor button.
10. In the pop-up select **Create Second Cue**.

This was an example on how to use the If command to exclude an attribute - actually an entire preset type.

The next example is about allowing some attributes to pass the filter.

In this example we are going to grab only the color values from one fixture and apply it to another.

1. Use the "Demo Dimmer and more" demo show or a show with some fixtures and some filters.
2. Make sure the Selected filter is the "All" filter.
3. Select a fixture and give it values on several attributes including Dimmer, Position, and use the MixColor attributes to blend a new color.
4. Select a different fixture and give it another position and dimmer values.

Now we would like to grab the color values only from the first fixture. We do not want to grab the position and dimmer values from the fixture, only the color.

5. Press **At** **Fixture** **1** **If**. Now you can select the filter you want to use.
6. We need all the color information so tap the **Color** button in the Preset Control Bar.
7. Now finish by pressing the **If** key (this adds the "EndIf" command and closes the filter condition)
8. Press one of the keys of an empty executor.

Now both fixtures have the same color values.

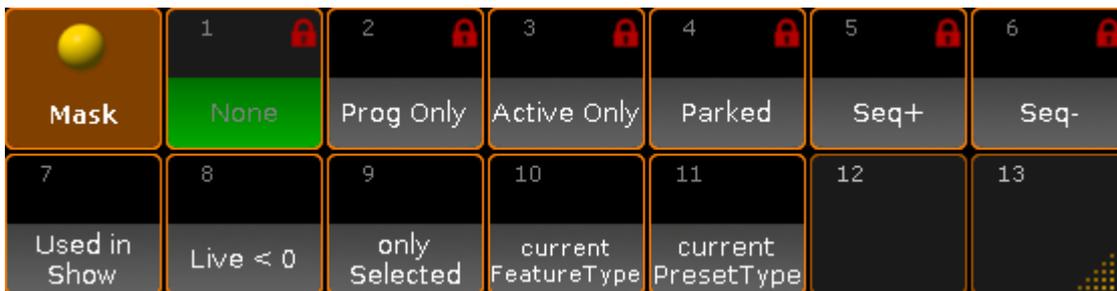
## 26.9. What are masks

Masks are a way to hide fixtures and attributes in some sheets and the Stage window.

Mask can be local to the window, but they can also be in the mask pool. Sheets and Stage can then listen to the selected mask in the pool and apply it to the sheet or stage window.

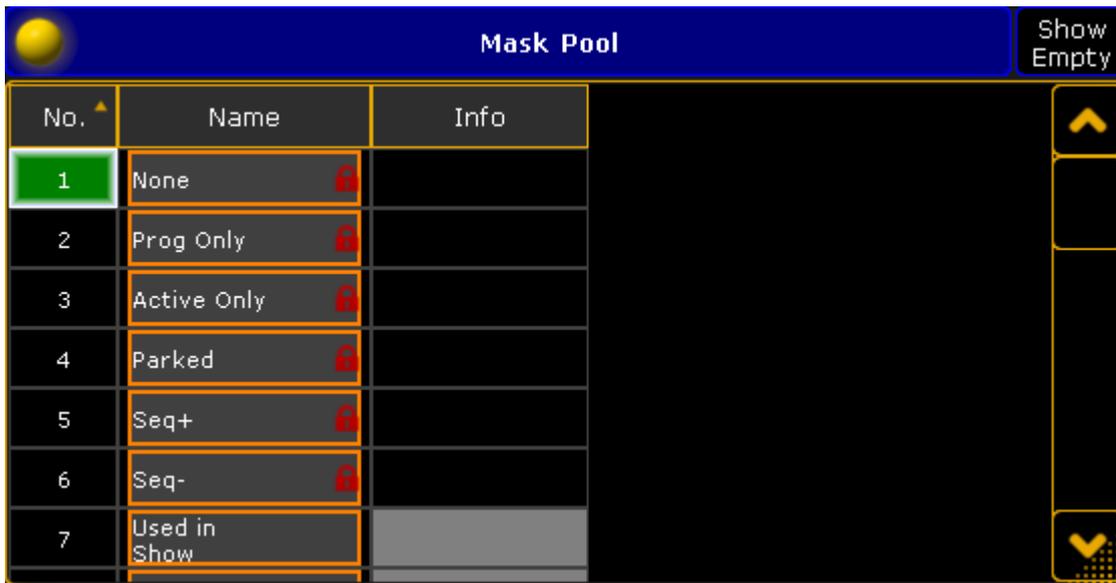
If you do not know about pools, then it is strongly suggested that you first read the [Pools in General section](#).

The Mask pool could look like this:



*Mask pool - pool style*

As with all pools, this can also be changed into Sheet style in the pool options. Then it could look like this:



*Mask pool - sheet style*

The selected mask is the one with the green background. You can simple select a mask by tapping it in the pool or by using the **Mask** command followed by the number or name. See more in the [Mask Keyword topic](#).

Hiding fixtures and attributes in windows does not restrict your access to fixtures or attributes, it just hides it.

There are 6 predefined masks in the pool. The following is a short description of the masks:

- **None:**  
This does not hide anything.
- **Prog Only:**  
This hides everything that is not in your programmer.
- **Active Only:**  
This hides everything that is not active values in your programmer.
- **Parked:**  
This will hide everything that does not have any parked values.
- **Seq+:**  
This mask will only show the fixtures and attributes that are stored in the selected sequences - including any default fixture values.
- **Seq-:**  
This mask will only show the fixtures and attributes that are stored in the selected sequences - but it will also hide any default fixture values stored.

Please read the [Create Masks topic](#) to learn how to create your own and the [Use Masks in sheets topic](#) to learn about using the masks in the sheets and Stage window.

## 26.10. Create masks

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You can create masks in the pool or in the individual windows. The workflow is the same.

If you do not know about the mask pool then please read the [What are masks topic](#).

Press the **Edit** key followed by one of the Mask Pool objects to open the Mask Editor:



*Edit Mask pop-up*

The mask editor has two sections. The top part have the mask settings and the bottom part have buttons that allows you to work faster and do other things. The lower part changes a bit depending on from where you access the editor.

## The Mask section

The left side masks fixtures. The right side masks attributes.

Each side has four rows and up to four columns. Each row is a mask criterion. A mask can have up to four criteria. That means that in order for a fixture or attribute to be visible it needs to follow all of the four criteria or rules.



## Mask rules

The left most column is used to decide if the row shows or hides the fixtures or attribute, depending on the rule in the third column.

The next column is used to invert the rule in the third column.

The third column is the rule column. Tapping the up arrow gives you a small select pop-up that allows you to choose the rule. The different options are almost the same for the fixture side and the attribute side:

### **(none) - both:**

The row doesn't contain any mask criterion.

### **Active - both:**

Displays fixtures and attributes that will be stored.

### **In Programmer - both:**

Displays fixtures and attributes that are in the programmer.

### **Parked - both:**

Displays parked fixtures and Attributes.

### **Used in Sel. Sequ (Selected Sequence) - both:**

Displays the fixtures and attributes that are stored in the selected sequence.

### **Used in Show - Both:**

Displays all fixture or attributes stored in cues, selective Effects, selective Presets or additive Group Masters.

### **Selected - both:**

Displays all (attributes of) selected fixtures.

### **DMX-tested - both:**

Display all fixtures with attributes that currently have values in the DMX tester. And on the attribute mask it displays all the attributes that have values in the DMX tester.

## Fade/Delay - both:

This will display all the fixtures and attributes with individual fade or delay timing in currently active cues or is active in the programmer.

## Effect - both:

Displays all fixtures and attributes currently using effect parameters at the output.

## In Object... - both:

This will give you the fourth column. Here you will get a button that opens the **Select Object pop-up**. Here you can select a specific Group, Effect, Preset, Sequence or World as your object. This will then display all fixtures or attributes currently using the defined object.

The pop-up could look like this:



*Select Object pop-up*

In this pop-up there are five different tabs with the different object types you can select. In each tab you will find the different object that exists in your show.

## Look - both:

This can be used to display fixtures and attributes that will be affected by the same options as when using the Look options when storing.

Applying this filter to the fixture side means:

- Show all fixtures with dimmer attributes.
- Show all fixtures without dimmer attributes but other active programmer content.
- Hide all fixtures without dimmer and no programmer content.

For the attribute side this means:

- Show all dimmer attributes.
- Show all attributes of fixtures with dimmer values above zero.

### **Live - fixture side:**

Displays the fixtures with a dimmer value above 0% or with a stored 0% value in the current cue.

### **In Saved Selection - fixture side:**

This will give you a new button in the fourth column called "Take Selection". Pressing this will store the current selection of fixtures. If none is selected, then the sheets will be empty!

### **Moved - fixture side:**

This will display all the fixtures that have stored changing (blocked) non dimmer values active at the output.

### **Full Patched - fixture side:**

Displays fixtures that are fully patched. They need to be patched in all DMX breaks to be fully patched.

### **Virtual Fixtures - fixture side:**

This will give you a button in the fourth column. Tapping this button allows you to make a selection of which type of fixture you want to see. The Select Virtual Fixture Types pop-up could look like this:



Select Virtual Fixture Types pop-up

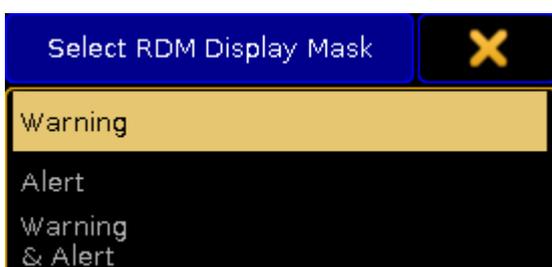
These are not exactly a question of the imported fixture types in your show file. It has to do with what class of fixture they are. This is defined in each of the fixture profiles. The list have all the possible fixture classes in the console. You can select multiple classes in this pop-up. When you are happy with your selection, then you close the pop-up by tapping the "X" in the upper right corner.

### No Parameter - fixture side:

This will display the fixtures that have the "No Parameter" option in the [EditSetup](#). This can be useful when you have fixtures that are only controlled by the VPU through the console, and you want to see what they do.

### RDM Notification - fixture side:

This will display fixtures with active RDM notifications. Selecting this will give you a new button in the fourth column. Tapping this will open the **Select RDM Display Mask pop-up**. It looks like this:



## *Select RDM Display Mask pop-up*

Here are three options. **Warning**, **Alert**, and **Warning & Alert**. Select the notification level you want in the pop-up. The select option is now displayed in the button in the fourth column.

### **At NonDefault - attribute side:**

Displays all attributes that currently have other than default values.

### **Of Current PresetType - attribute side:**

Displays the currently selected PresetType - for example Color.

### **Of Current FeatureType - attribute side:**

Displays the currently selected Feature - for example ColorMix.

### **In Saved Attributes - attribute side:**

Gives you a new button in the fourth column called "Define Mask". This will open a pop-up where you can select one or more of the attributes in the show. The pop-up is just like the attribute part of the Edit Filter pop-up. Read more about this in the [Create filters Topic](#).

## The Lower part

The lower part changes a little depending on how you get the mask editor. The different ways to get to the editor is discussed in the [Use masks in sheets topic](#).

There are four buttons that are almost always visible:



*Four buttons from the Mask Editor pop-up*

The two "Clear" buttons will clear all the criterions in each of their own sides. The two "Copy" buttons are used to copy the criterions from one side to the other. The arrows in the buttons show the direction it will be copied. Only common rules can be copied.

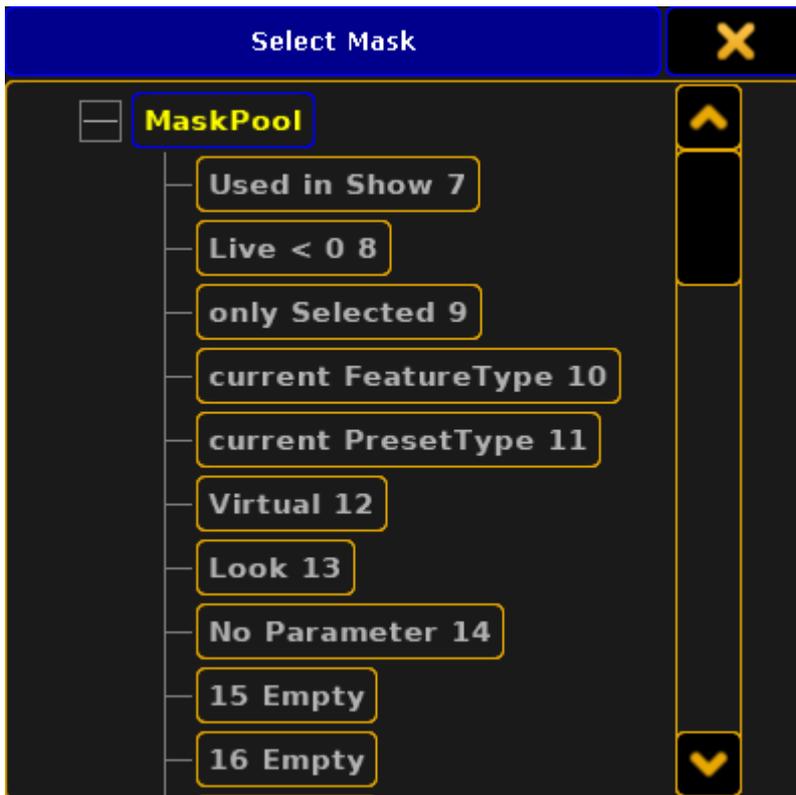
The other buttons that can be in the lower part is:

### **Label:**

Tapping this allows you to label the mask. This button is only an option when you edit a mask from the mask pool.

### **Save to:**

This button is available when you edit a mask from a sheet. This allows you to save the current criterions as a new mask in the pool. Tapping this opens a **Select Mask pop-up**. It lists all the unlocked pool objects in the mask pool. It could look like this:



*Small Select Mask pop-up*

## Load From:

This button is available when you edit a mask from a sheet. This allows you to load a set of mask criterions from the mask pool. Tapping this also opens a Select Mask pop-up - except this lists all the available masks.

## Save Always:

This button is only available if you have loaded a mask from the pool. This check box allows you to automatically save any changes you make back to the mask loaded from the pool.

## Save:

This button is only available if you have loaded a mask from the pool. This allows you to save the current criterions back to the loaded mask - if you have not activated "Save Always".

Please read the [Use Masks in Sheets topic](#) to learn more about how it use the masks in the different sheets and windows.

## 26.11. Use masks in the sheets and windows

If you come to this page without any knowledge about Masks then please read the [What are masks topic](#) and the [Create masks topic](#).

## Where can Masks be used

Mask can be used in the following sheets and windows:

- [Channel Sheet](#)
- [Fixture Sheet](#)
- [Sequence Content Sheet](#)
- [Sequence Tracking Sheet](#)
- [Stage View window](#)

All of these windows can have a local mask that only works for that view or they can follow the mask pool. A local mask only works in that version of the window. This means that you can have two fixture sheets but only one of them have a mask.

## Window options

Turning off or on the mask settings are gone from the windows options. They are opened by tapping the yellow ball in the upper right corner.

The options have three tabs that are interesting regarding masks. The first one is called **LayerMask** the second one is called **Title Buttons** and the last one is **Mask (Local)**.

The [Layer Mask topic](#) describes the options that are relevant for the mask function. This is where you can turn On or Off mask functions.

The [Title Button topic](#) describes how you enable the buttons that gives fast access to turning On or Of the mask function.

The [Mask \(Local\)](#) tab is where you can create a local mask. The [Create Masks topic](#) has the actual description about creating the mask.

## Assigning a mask on the fly

You do not need to go through the process of entering the options if you want to use a mask from the pool in one of the five windows mentioned above. Simply press the **Assign** Key and then the mask you want to assign and finally the title bar of window where you want to use the mask.

For example if you want to assign the **Programmer Only** mask to a **Channel Sheet**, then do the following:

1. Have both the Mask Pool and the Channel Sheet visible.
2. Press **Assign**.
3. Tap the **Prog Only** mask
4. Tap the title bar of the Channel Sheet.

This can of cause be done using command line input (using the [Mask command](#)) or better yet a combination of command line input and touching the Channel Sheet.

Same example:

1. Type **assign mask 2** - The Programmer Only mask is locked as mask number 2.

2. Tap the title bar of the Channel Sheet.

How you want to set up your sheets are completely up to you and it is often also a question about what kind of a show you are doing. This means that there is no one preferred solution or one way that most programmers or operators set up their views. It is completely user definable and up to your own preferences.

## 26.12. Apply worlds or filters to executors and sequences

Worlds and filters can be assigned to Executors or Sequences.

If you have come to this page without knowing about worlds and filters, then you should read the [What are Worlds topic](#) and [What are Filters topic](#).

### Playback Filter

Assigning a world or filter to an executor will use the world or filter when the executor is running the sequence.

For example a sequence might have stored colors and dimmer values. But if you assign a filter that does not allow color information to pass to the executor with the sequence then it will not execute the color information but only the dimmer information. It does not remove the color information from the sequence.

This is called a **Playback Filter**. Playback filters only work by attributes not by layers (Value, Value Times and Effects).

For Worlds this means that if you have applied a world that only contains the Effect layers, then everything is still played back. But a world that only has Fixture 1, then only the values for Fixture 1 will be played back.

For Filters it means that applying a filter that only contains the timing layers will still play back everything. Using Filters allows you to filter what attributes are played back from the executor.

### Input Filter

Assigning a world or filter to a sequence will use that world or filter when you add (store or update) values to the sequence.

For example a sequence might have a world assigned that only contains some fixtures. In your programmer you have values for those fixtures but also other fixtures. If you store a new cue in the sequence then you will only store the values for the fixtures in the assigned world.

This is called an **Input Filter**.

Since the Input Filter is applied to the sequence then it is also applied at all the executors that use this sequence.

## Assigning Worlds and Filters

You can assign the world or filter using the Assign key (read more below) or by opening the assign menu of a relevant executor.

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You can open the Assign menu by pressing Assign followed by any key on the relevant executor. Now make sure you have selected the Options button on the right side of the menu. It could look like this:



## Assign Menu - Options

This menu contains a lot of settings and options. The two we are interested in are the two bottom buttons in the Playback column and the Tracking Column.

Tapping one of these will open a **Select Playback Filter pop-up** or **Select Input Filter pop-up** - respectively. It could look like this:



*Select Playback Filter pop-up*

This will list all the Worlds and Filters in your show file. At the top is also the "No Filter" option - this allows you to remove a playback or input filter.

When you have set up your filters to your linking, then you can close the assign menu.

You can also assign the filters directly using the Assigning key.

## Playback Filter:

1. Have the World or Filter pool visible.
2. Press the **Assign** key.
3. Tap the World or Filter you want to assign.
4. Press an executor button on the executor where you want to assign the world or filter.

## Input Filter:

1. Have the World or Filter pool visible.
2. Have the Sequence pool visible
3. Press the **Assign** key.
4. Tap the World or Filter you want to assign.
5. Tap the sequence you want to use the world or filter.

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You can of course also use the command line: **Assign Filter 7 Sequence 8**

You can see in the mini executor if one or both of the filters are applied. It is a marking of either the executor number (Playback Filter) or sequence number (Input Filter).

Read more in the [Sequence mini executor topic](#).

## 27. MATricks

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### 27.1. What is MATricks

### 27.2. MATricks Pool

Manage the MATricks of your show in the MATricks pool.

1. Open the MATricks pool:

-Tap **Pools** in **Create Basic Window**. For more information on how to open a basic window see [Manage windows](#).

-Tap **MATricks** and the MATricks pool opens.



*Open the MATricks pool*

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## 2. Create new MATricks:

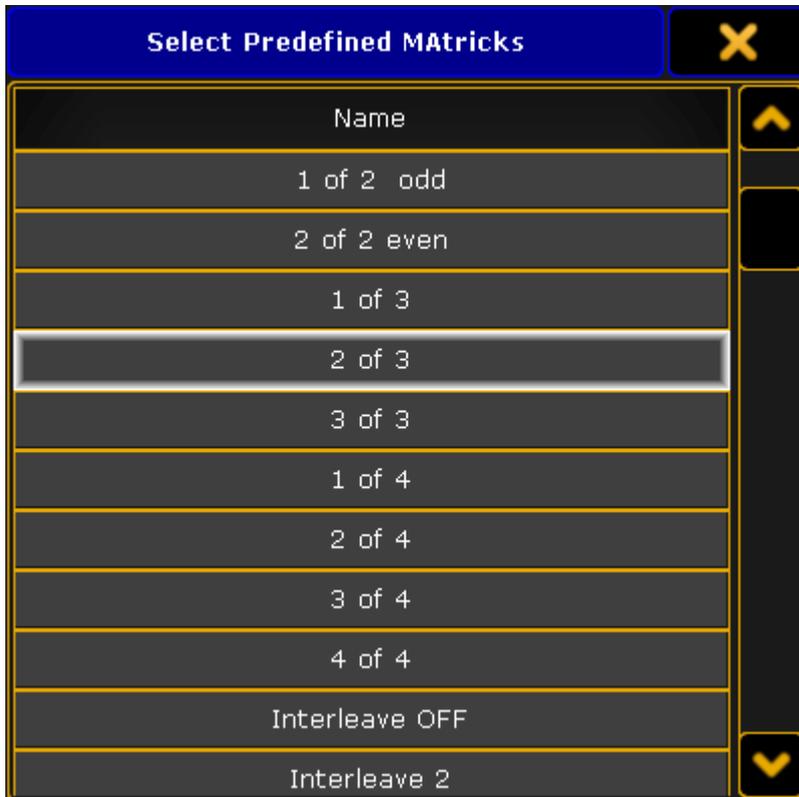
- Press **Edit** and tap an empty pool object in the MATricks pool.
- The window **Edit MATricks** opens.



*Edit MATricks*

- To set **Interleave**, **MATricks Filter**, **Single X**, **Block X**, **Align Group X**, **Wing**, **Wingstyle**, **Single Y**, **Block Y**, and **Align Group Y**, tap the plus or the minus sign displayed right below the name of the settings or tap the buttons **Off** or **None**:

- To use predefined MATricks, tap **Load Predefined**.  
-The **pop-up Select Predefined MATricks** opens.



*Select predefined MATricks*

- Tap to select predefined MATricks.
- The pop-up closes and the MATricks you have selected are now applied.



**Hint:**

You can also import predefined MATricks in **Setup** – **Import Export** – **Import** – **MATricks**. For more information on import see [Import using user interface](#).

- Label the MATricks:
  - Tap **Label** and a calculator opens.
  - Enter the name of the MATricks and press **Please**.
- To reset single MATricks in use, tap **Reset**.



**Hint:**

By default, **Reset** is always displayed in the first pool object of the MATricks pool. To reset all MATricks of the pool that are currently applied, tap the first pool object of the MATricks pool.

## 27.3. MATricks interleaves

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27.4. MAtricks blocks

27.5. MAtricks wings

27.6. MAtricks groups

27.7. Circular copy

## 28. Chasers

A chaser is a sequence that runs in a loop. It ignores the timing in the sequence and uses the speed setting to run through all the cues. Cues are referred to as steps. Each cue is a step in the chaser. Read more about cues in the [What are cues and sequences](#) topic.



**Hint:**

Chasers are used whenever you need a loop with more than two steps. If you only need two steps, then use an effect.

## 28.1. Create a chaser

To create a chaser, create a sequence with at least 2 cues assigned to an executor.

1. Change the sequence to a chaser by pressing **Assign** and one of the keys associated with the executor.
2. This opens the Assign menu. Tap **Options** on the right side.
3. To change the sequence to a chaser, tap **Chaser** located below the tab **Function**.

The mini executor is now cyan.

It is possible to change the functions of keys and fader associated with the Executor. For more information, see [Assign a function](#).

All timing and loop information in the sequence is ignored. Commands (CMD) are executed and the **CMD Delay** is the only timing from the sequence that is actually used. For more information, see [Commands in cues](#).

---

## Start, Stop and Pause the Chaser

- To **start** the chaser, press **Go+** and one of the keys associated with the executor. To fade in the chaser, press **Go+** **Time** and the fade time in seconds, for example **5**.
- To **stop** the chaser, press **Off** and one of the keys associated with the executor. To fade out the chaser, press **Off** **Time** and the fade time in seconds, for example **5**.
- To **pause** the chaser, press **Pause**. The chaser stops in the current step and contains the output from this step. To start the chaser again, press **Pause** once more.

## 28.2. Chaser settings

### The Chaser Encoder Toolbar

The **Chaser Encoder Toolbar** is useful to edit the chaser. To open the toolbar, press **Edit** and one of the keys associated with the executor.

There are several options to set up and play back the chaser, in the cyan **Chaser Encoder Toolbar**.



## Chaser encoder toolbar

### The Edit chaser key

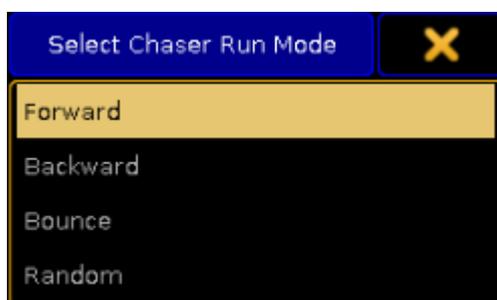
Tap the **Edit Chaser** key. This opens an **Edit Chaser Window**.



### Edit chaser window

To name the chaser tap **Label**.

To manage the direction of the chaser, tap **Direction**. The default direction is Forward. This key opens the **Select Chaser Run Mode** with four different directions.

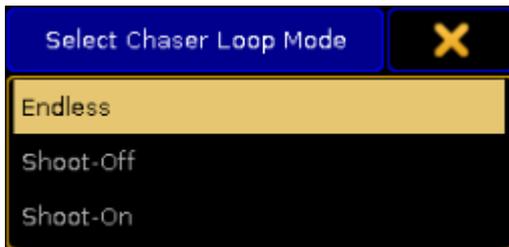


### Select Chaser Run Mode

- **Forward** and **Backward** runs the Chaser in the given direction.
- **Bounce** runs through the steps to the end and then backwards to the first step. It continues to bounce between the first and the last step.

- **Random** runs the steps in a random pattern.

Tap **Loop Endless** and the pop-up **Loop Options** opens, with three different **Loop** options:



*Select Chaser Loop Mode pop-up*

- **Endless** keeps the chaser running until it receives new information.
- **Shoot-Off** runs the steps once, then turns off the chaser.
- **Shoot-On** runs the steps once, and leaves the chaser in the last step.

**Edit Current**, **Edit Previous** and **Edit Next** buttons edit cues. For more information, see the topic [Looking at the cue sequence](#).

Set the **Speed** of the Chaser with **Speed Individual**. This opens the **Select Speed Group** Pop-up.



*Select Speed Group*

- **Individual speed** lets the chaser run with the speed set by the **Speed Encoder**
- **Speed 1** through **Speed 15** limits the speed of the chaser by a **Speed Master**. This is useful to keep the chaser in sync with other chasers and effects. For more information, see [Assign a Function](#).
- The **BPM** option measures the Beat from the Audio In signal. For more information, see [Sound In](#).

To enable or disable the **CMD** field in the Chasers Executor sheet, tap the **Cmd Disable** button. If the CMD is disabled, the **CMD Disable** turns cyan and all the Commands in the **CMD** row of the **Executor sheet** are displayed in red.

There is also the opportunity to test the command in the **CMD** field. If a current step is present and a command is entered in the **CMD** field, tap **Test Cmd** to test the function.

Sometimes the chaser has to keep the beat but double or half the speed.

- To half of the current value, tap **Half Speed**.
- To double the current value tap **Double Speed**.
- **Speed 1:1** resets the speed to the value set by the Speed Encoder, the Speed Master or the Audio In, depending on the selected Speed Group.

Another option is to tap **Speed**. This opens the pop-up **Select Speed Factor**. This is useful to multiply or divide the speed by 2, 4, 8, 16, or 32 of the selected Speed Group.

To exit the **Edit Chaser** window tap .

---

## The Playback Buttons

The buttons to start, stop and pause the chaser:

- To start the chaser, tap . This starts the chaser from the first cue to the last, and then loop to the first again.
  - To start the chaser, running from the last cue to the first, and then loop to the last again, tap .
  - To stop the chaser, tap .
  - To pause the chaser in the current step, and keep the actual output, tap . Tap the  to start the chaser again, from the current step.
  - To stop the chaser and step thru the steps one by one, tap  or .
- 

## The Encoders

The four encoders have 6 different functions. The four basic functions are available when the button shows **Basic 1 of 2**. By tapping the button again, it will change to **Advanced 2 of 2**.

Basic buttons starting from left:

1. The first encoder is a **Master**. This master controls the intensity of the chase measured in percent.
2. The second encoder is the **Speed**, default displayed in BPM (beats per minute). This will affect the time between the cues in the chaser. So if the speed is set to 60 BPM, the cues change every 1 second. The speed readout can be changed in Setup->User->Settings.
3. The third encoder is the **Step** fade measured in percent. This encoder is used to set the fade time between the steps. If the percent is 0, the chaser snaps between the steps. If it is set to 100 % it uses the time restricted by the speed encoder. If the percent is over 100, the chaser will start fading down, before the step is at full. The in-fade and the out-fade percent, can be adjusted individually. Read more below.
4. The fourth encoder is called **Master Fade** and manage the in-fade and the out-fade time of the chaser. The time is measured in seconds.

To enable two more options, tap the **Basic 1 of 2** key. The key changes to **Advanced 2 of 2**.

The two encoders, starting from left:

1. On the first encoder, the **In-fade** of the steps is set. If the percent is 0, the chaser snaps between the steps, and if it is set to 100 % it will use the time restricted by the speed encoder. If the percent is over 100, the chaser will start fading down, before the step is at full.
2. On the second encoder, the **Out-fade** of the steps is set. If the percent is 0, the chaser will snap the steps to zero, and if it is set to 100 % it will use the time restricted by the speed encoder.

## 28.3. Chaser mini executor

If a chaser is assigned to an executor, the mini executor view displays relevant chaser informations.

It could look like this:



*Mini Executor - Chaser*

The cyan colored frame indicates that a chaser has been assigned to this executor.

The Mini Executor is divided into three sections: a top part, a middle part and a lower part.

The top part and the lower part is similar to **Sequence Mini Executors**. Read more about [Sequence Mini Executor](#).

The middle part is divided into three lines.

- The first line reads the speed measured in beats per minute.
- The second line is the fade time set by the encoder **Step Fade**.
- The third line shows the current step out of the total steps. Pay attention to the numbers. These do not refer to the cue number or cue name, but only the current step out of total steps in the chaser.

## 29. Effects

An effect is an automated movement or change of color. In other words, it is an automated modulation of attributes.

### Example:

Dimmer channel that runs the fixtures in a sinusoid between two values – high and low.

---

### Effect Modes

There are four effect modes that are displayed in form of letters in the upper right corner of each object in the effect pool:

- **A:**  
A stands for an absolute effect. It moves in an absolute manner between the low and high values.
- **R:**  
R stands for a relative effect. The low and high values are added onto the actual value.



#### Hint:

Relative values are mainly used in pan and tilt.

- **S:**  
S stands for a selective effect. It is only valid for fixtures that are linked to this effect.
- **T:**  
T stands for a template effect. It is valid for all fixtures that contain the attributes of a particular effect.

For more information on the selective and template effects see [Use template and selective effects.](#)

### 29.1. Use Predefined Effects

The simplest way to use effects in the grandMA2 is to work with predefined effects.

#### Requirement:

- Apply fixtures in the **Patch & Fixture Schedule**.  
For more information on patching see [Adding fixtures to your show.](#)
- Import predefined effects.  
For more information on how to import effects see [Import via user interface.](#)

To apply the predefined effects:

1. Select fixtures in the fixture sheet.
2. Tap anywhere in the **user-defined area**.
3. The pop-up **Create Basic Window** opens.
4. Next, tap **Pools**.
5. Then, tap **Effects**.

6. The pool with predefined effects opens.

	1 AT	2 AT	3 AT	4 AT	5 AT	6 AT	7 AT	8 AT	9 AT
Effect	Dimmer Sin	Dimmer Chase	Dimmer PWM	Dimmer Random	Dimmer Even/Odd	Shutter PWM	RGB Rainbow	=RGB Rainbow	RGB Chase
10 AT	11 AT	12 AT	13 AT	14 AT	15 AT	16 AT	17 AT	18 AT	19 RT
RGB Blue White	RGB Even/Odd	RGB Random	CTO Sin.	Color 1 Ramp	Color 2 Ramp	Color 3 Ramp	Dim/P/T Ballyhoo	Dim/Tilt Flyout	Tilt Sin.
20 RT	21 RT	22 RT	23 RT	24 RT	25 RT	26 AT	27 AT	28 AT	29 AT
Pan Sin.	Tilt Sin Pan stomp	Pan Sin Tilt stomp	P/T Circle	P/T Wave	P/T Cross	BMP Pos X	BMP Pos Y	BMP Rot Z CW	BMP Scale In
30 RT	31 AT	32	33	34	35	36	37	38	39
BMP Circle	BMP Rainbow Hue								

Predefined effect pool

7. Tap an effect in the effect pool.
8. The effect has successfully been applied to the fixtures that were selected.

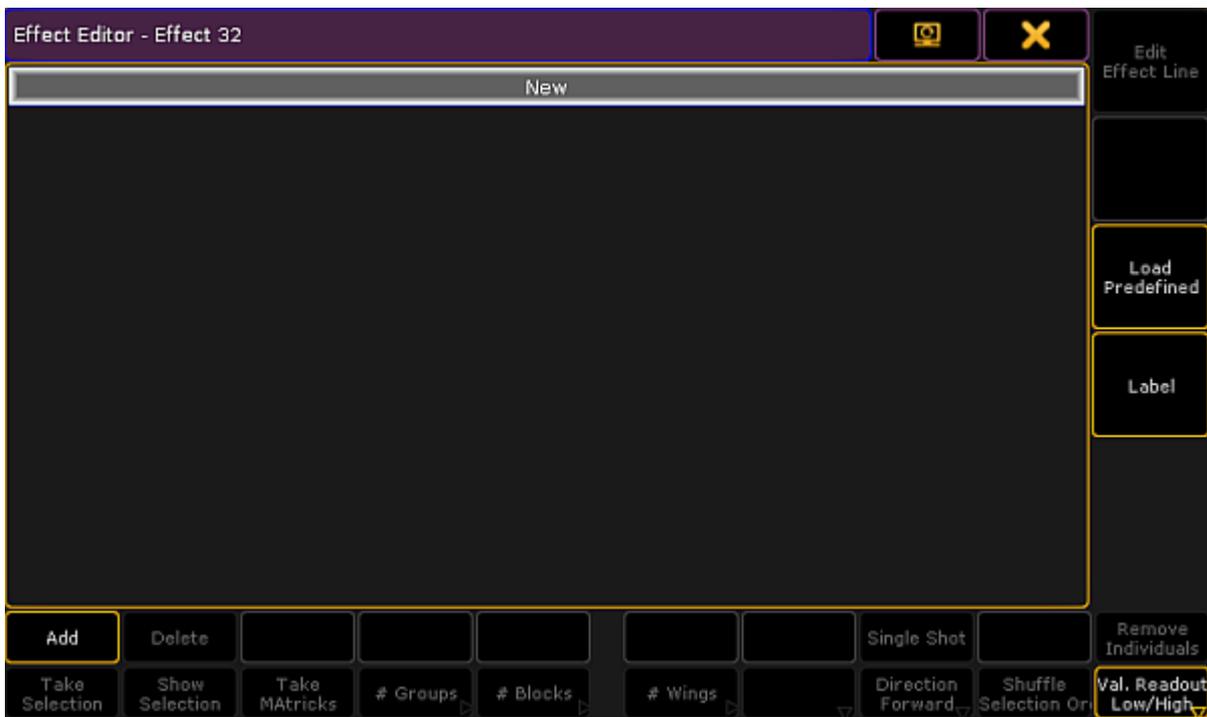


**Hint:**

It is also possible to add single predefined effects to the pool.

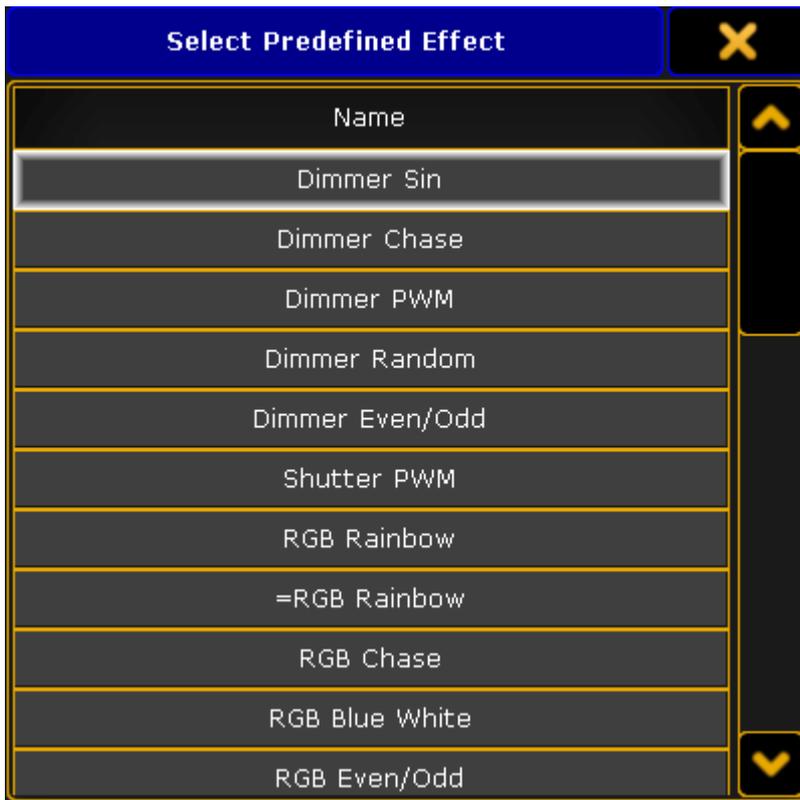
To do so:

1. Press **Edit** and tap an empty cell in the pool with predefined effects.
2. An empty effect editor opens.



Empty effect editor

3. Tap **Load Predefined** on the right of the window and the pop-up **Select Predefined Effect** opens.



*Pop-up – select predefined effect*

4. To add an effect, tap a name in the pop-up.
5. The [effect editor opens](#) and the effect is now displayed in the pool.

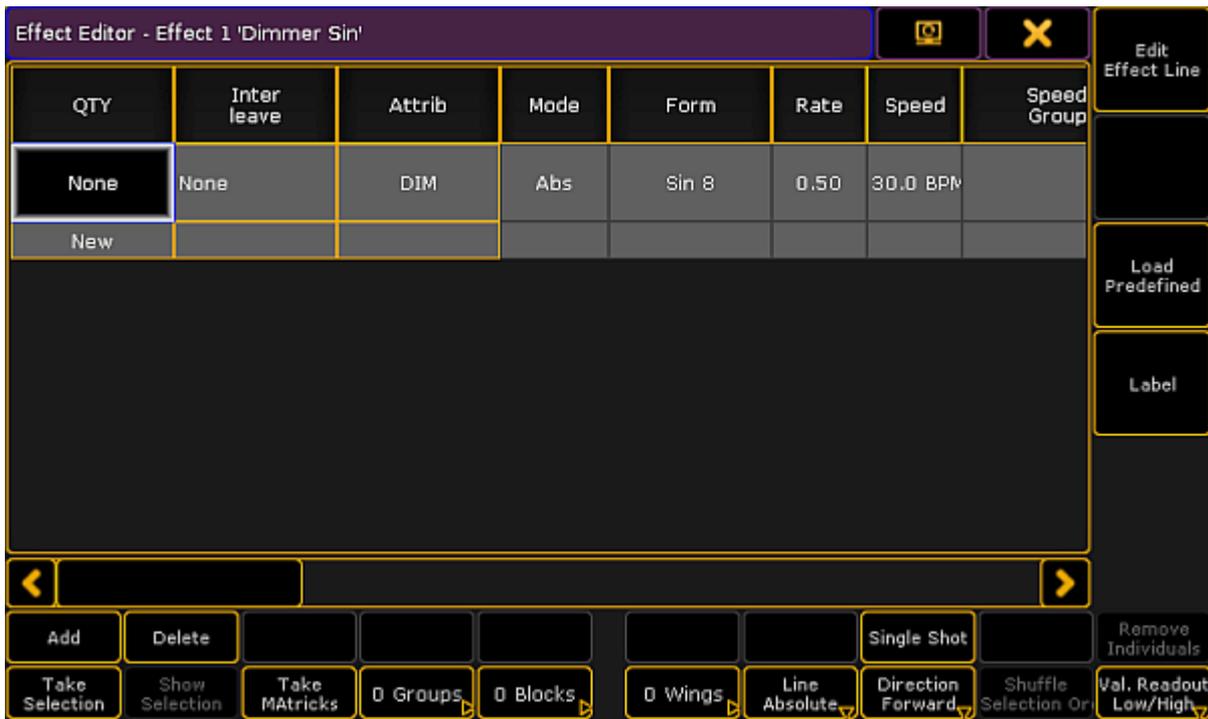
## Edit a Predefined Effect

To edit a predefined effect:

1. Press **Edit** and then tap an effect in the effect pool.  
-or-  
Use the command line entering for example:



2. The **Effect Editor** opens.



Pop-up – effect editor

## Columns in the Effect Editor

The effect editor contains the following columns and buttons:

- **QTY:**

The column **QTY** stands for quantity.

If it is set to **None**, it is a template effect.

To set the mode:

1. Select fixtures in the fixtures sheet.
2. Tap **Take Selection**.
3. This template effect is now a selective effect.  
To turn the selective effect back to a template effect:  
Press **Clear** and tap **Take selection**.



**Important:**

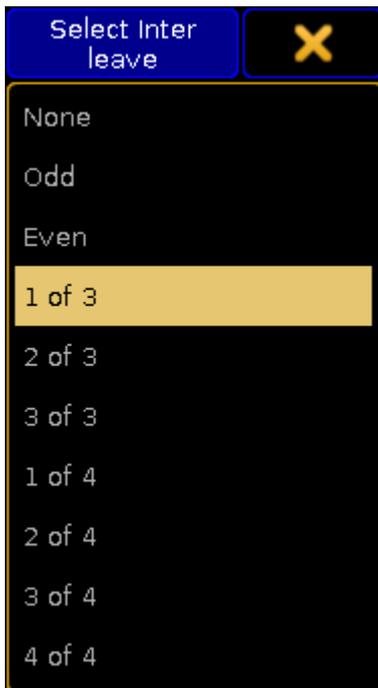
The following columns are all edited a similar manner, except for tapping different columns.

- **Interleave:**

Defines the fixtures that are to use the effect. Interleave only works in selective effects.

To set the interleave:

1. Press **Edit** and tap a cell or tap and hold a cell in the column **Interleave**.
2. The pop-up **Select Interleave** opens.



Pop-up – select interleave

3. Now, select the interval in which the effect is to run.

● **Attrib:**

Displays which attribute is used in the effect line.

1. To change the attribute, tap the corresponding column.
2. The pop-up **Select Effect Attribute** opens.



Pop-up – select effect attribute

3. Tap an attribute and then tap **Confirm**.
4. The effect lines now have the selected attribute.

## • Mode:

The column mode corresponds to the effect [modes absolute and relative](#).

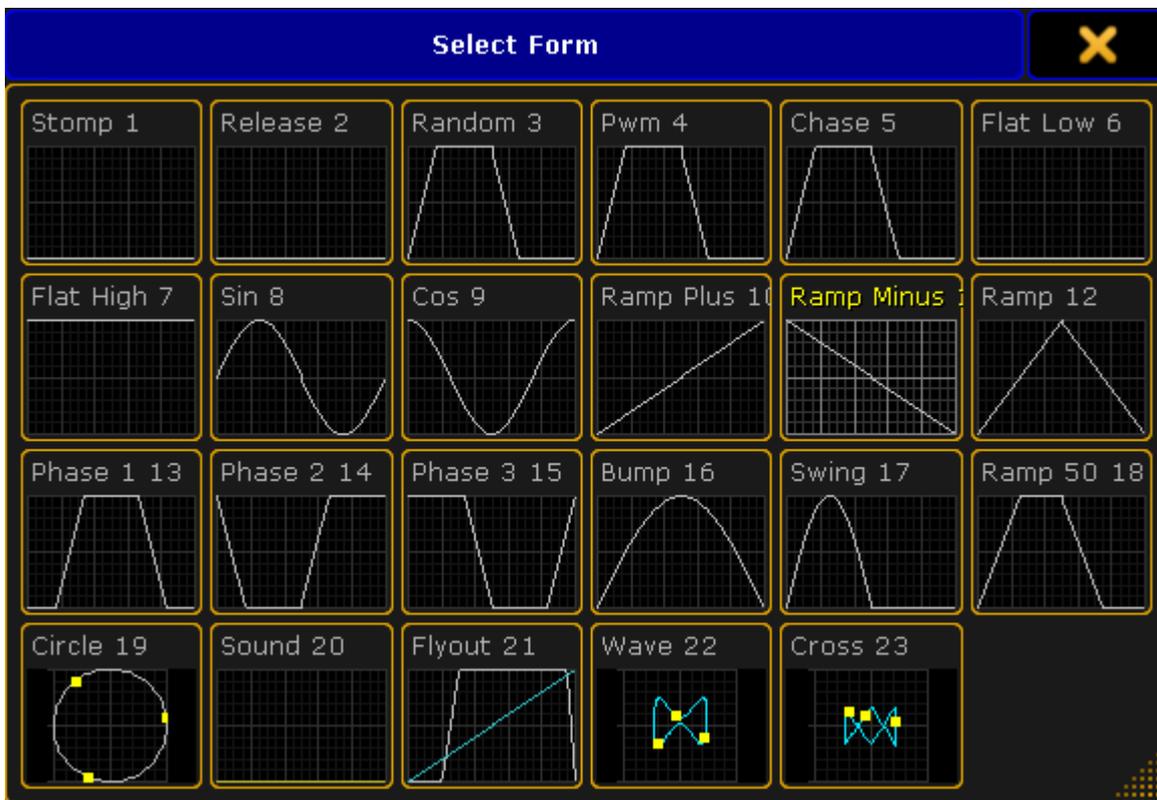
It is also possible to change the mode in the column via the button **Line Absolute** :  
To toggle the button to **Line Relative**, tap **Line Absolute** and vice versa.

## • Form:

Displays all 23 forms of predefined effects.

To apply a form:

1. Tap the corresponding column.
2. The pop-up **Select Form** opens.



*Pop-up – select form*

4. To take over the form automatically into the editor, tap a form.
5. The fixtures now run in an effect that was selected.



**Important:**  
Both, rate and speed set the speed of an effect.

## • Rate:

Rate represents the factor of speed.

The default setting is Rate 1 which corresponds to 60.0 BPM.

- **Speed:**

Speed represents the unit of the speed in BPM, hertz or seconds.



**Hint:**

Set the default of the unit of speed in **Setup** – **User** – **Settings** – **Speed Mode**.

Apply rate and speed:

1. Tap the corresponding column.
2. The calculator opens.
3. Set the rate or speed and tap **Please**.
4. The value is now applied.



**Important:**

It is sufficient to set either rate or speed, since the modes adjust to each other.

- **Speed Group:**

Links an effect to rate or the speed master.

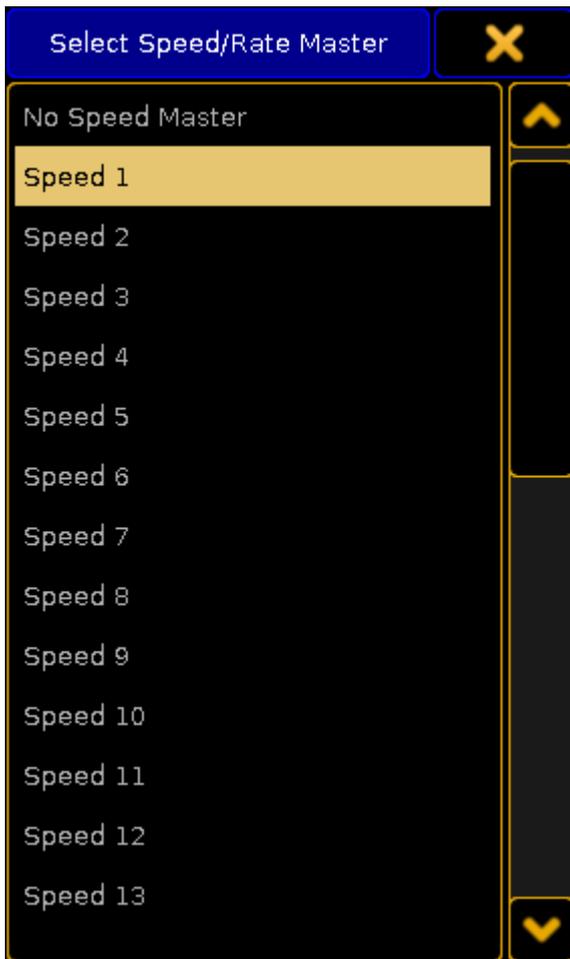


**Important:**

Using the effect on a speed master overwrites the speed set in an executor. For more information on the speed in an executor see [Advanced Executor Functionality – Speed masters](#).

To set a speed group:

1. Tap the corresponding column.
2. The pop-up **Select Speed / Rate Master** opens.



*Pop-up – select speed / rate master*

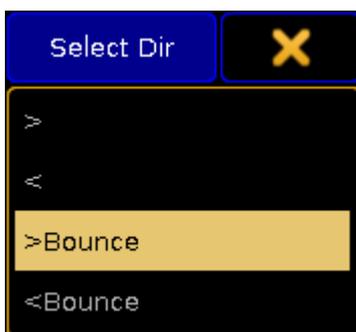
4. Select the speed group.
5. The group is now applied.

● **Dir:**

Dir displays the direction of the effect.

To select the direction:

1. Tap the corresponding column.
2. The pop-up **Select Dir** opens.



*Pop-up – select direction*

4. To apply the direction, select one.

5. The direction is now applied.

It is also possible to change the direction of an effect by tapping the button **Direction Forward**. To toggle between the directions, tap the button accordingly.

- **Low Value:**

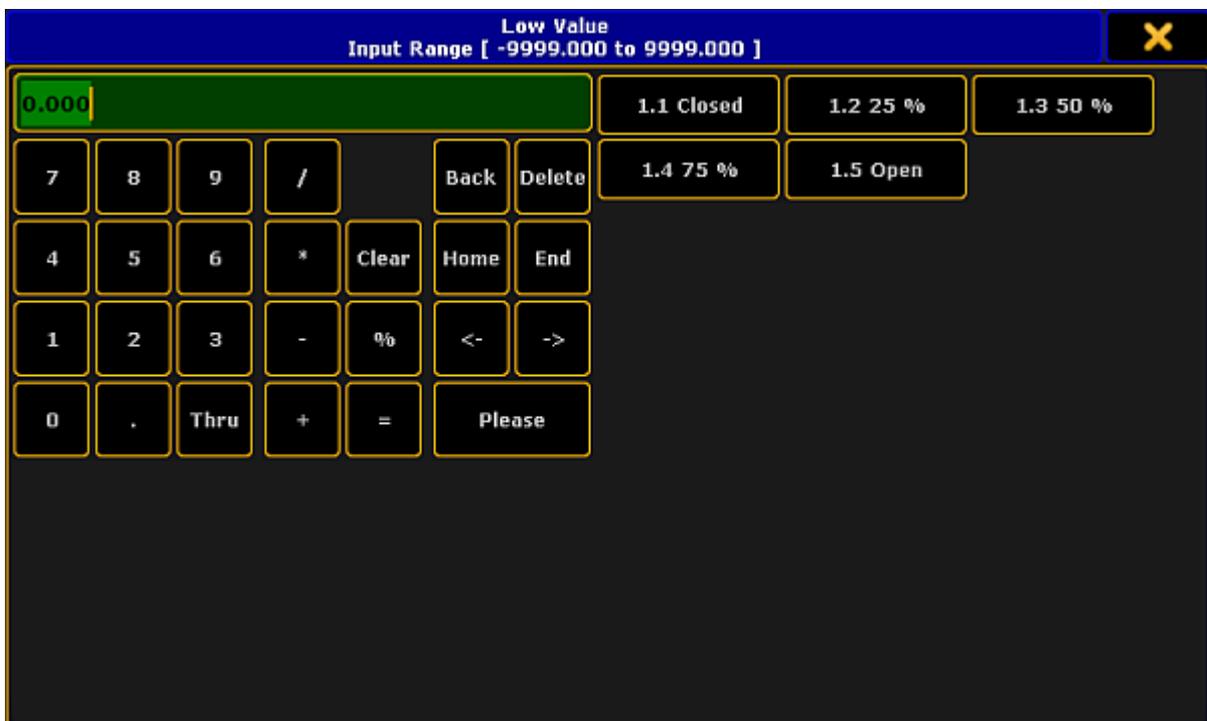
Sets the lowest point an effect reaches.

- **High Value:**

Sets the highest point an effect reaches.

To set the low and the high values:

1. Tap the corresponding column.
2. The calculator opens.



*Calculator – low values*

4. Set the value or tap a preset on the right of the calculator and then tap **Please**.
5. The value is now set.



**Hint:**

It is also possible to set a range of values in **Low Value** and **High Value**.

1. Type in the calculator the value starting the range.
2. Tap **Thru**.
3. Then type the second value ending the range.

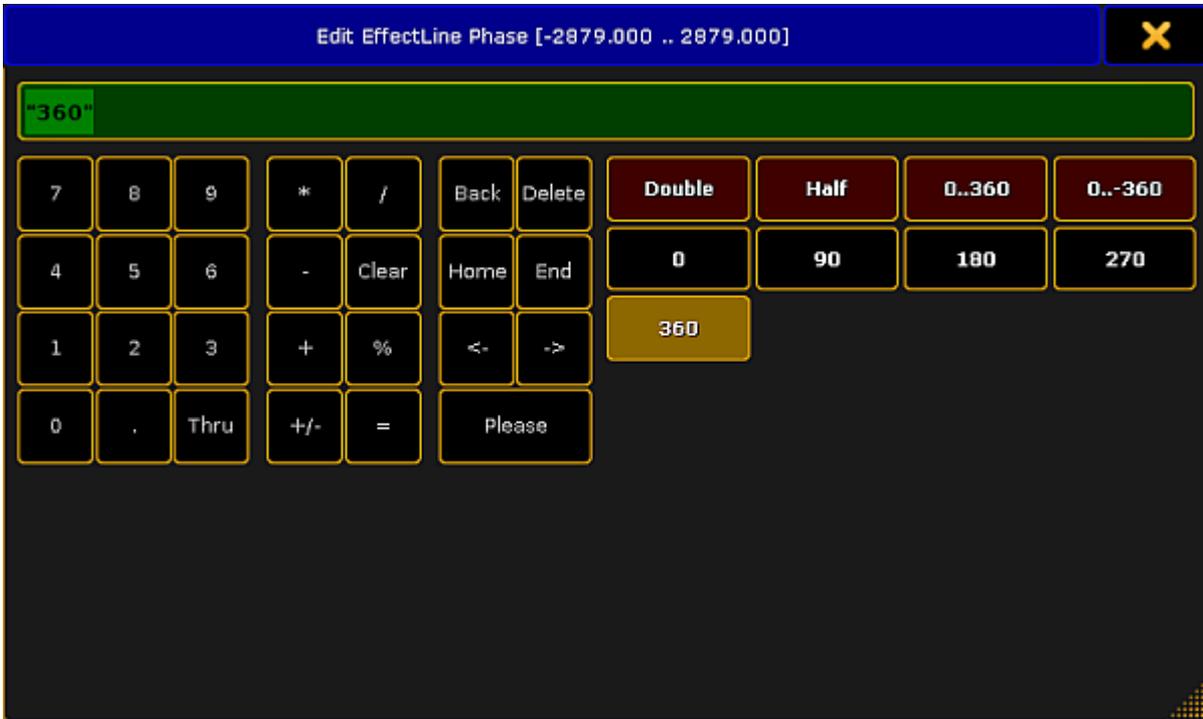
- **Phase:**

Displays the time setting that single fixtures use within an effect.

Phase is distributed among the number of fixtures.

To set the phase:

1. Tap the corresponding column.
2. The calculator **Edit EffectLine Phase** opens.



*Pop-up – phase*

4. Set the degrees in the numeric pad or tap the buttons on the right of the calculator.
5. The phase is now applied.

- **Width:**

Sets the width of an effect.



**Important:**

Width is not applied with the form Chase.

**Example:**

If you set the width of the form Pwm to 20 %, this percentage is displayed as the high value and the residual 80 % display the low value.

To set the width:

1. Tap the corresponding column.
2. The calculator opens.



*Pop-up – edit width*

4. Set the value and tap **Please**.
5. The value set is now applied to the effect.

- **Attack:**

Appears quickly and outfades the values.

To set the attack:

1. Tap the corresponding column.
2. The [same calculator](#) as in editing the width opens.
3. Set the value and tap **Please**.
4. The value is now applied to the effect.

- **Decay:**

Appears quickly and infades the values.

Set the decay in the same manner as the [attack](#).

Both, Attack and Decay display fade in and fade out times.



**Important:**

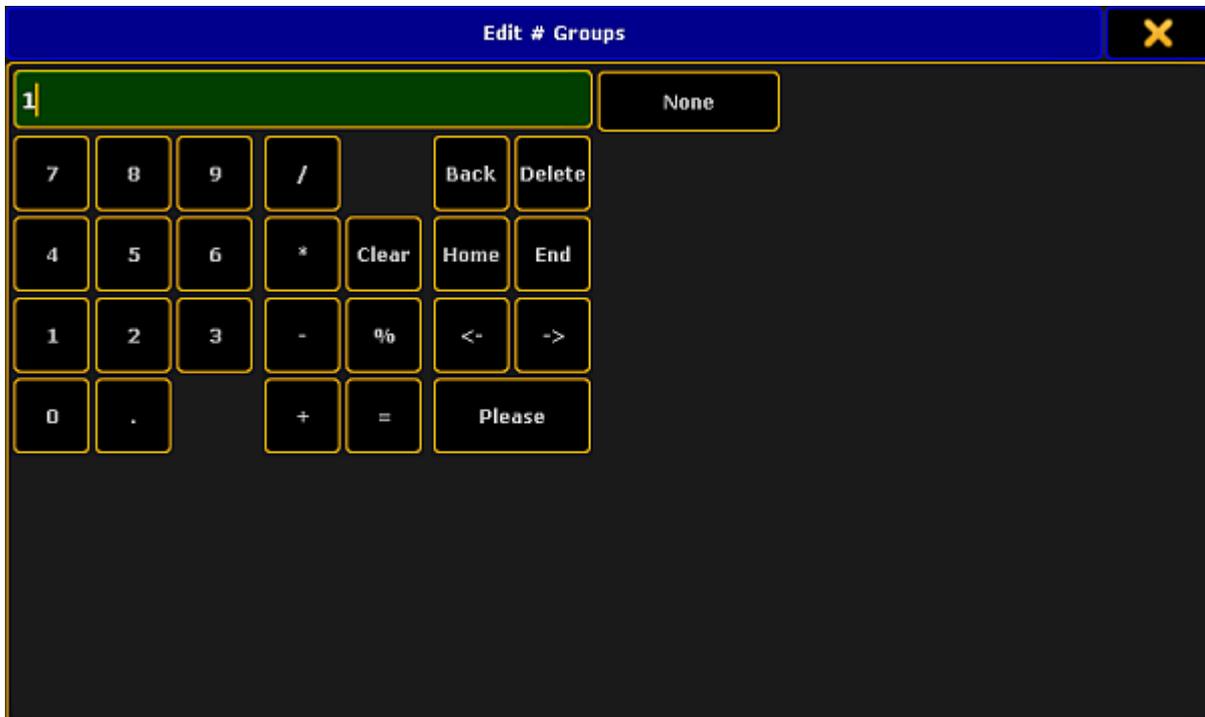
It is possible to apply **Attack** and **Decay** for the forms Random, Pwm and Chaser.

- **Groups:**

Phases are divided corresponding the number of groups.

To set the number of groups:

1. Tap the corresponding column.  
-or-  
Tap **0 Groups** at the bottom of the effect editor.
2. The calculator opens.



### Pop-up – edit groups

3. Set the number of groups and tap **Please**.
4. The number set is applied to the effect.

### • Blocks:

Blocks collaborate with Phase. Fixtures next to each other execute the same phase.

To set the number of blocks:

1. Tap the corresponding column.  
-or-  
Tap **0 Blocks** at the bottom of the effect editor.
2. The same calculator as in **Groups** opens.
3. To proceed see numbers **3 and 4** in **Groups**.

### • Wings:

The Phase is applied starting outwards and moving inwards.

To set the number of wings:

1. Tap the corresponding column.  
-or-  
Tap **0 Wings** at the bottom of the effect editor.
2. To proceed see numbers **3 and 4** in **Groups**.



## Important:

There is an exception to the cycle of wings. In Pan effects which consist of 2 wings, one of the wings is inverted. Hence, fixtures run towards each other.

### • Single Shot:

Displays one execution of effects.

To set a single execution of an effect:

1. Tap the corresponding column.
2. The cell now displays **Yes** and the button **Single Shot** is enabled (highlighted in yellow).
- or-  
To disable the single execution, tap the button **Single Shot** at the bottom of the effect editor.
3. To disable the single execution, tap and hold the cell displaying **Yes** or tap the button **Single Shot**.

## Buttons in the Effect Editor

This paragraph deals with buttons contained in the effect editor and their corresponding functions:

1. Add an new attribute to an effect, tap **New** in the column **QTY** and then tap **Add**.
- or-  
Tap **Add** in the lower left corner of the effect editor and the pop-up **Select Effect Attribute** opens.



*Pop-up – select effect attribute*

2. Select the attribute you would like to add to the effect line.
3. Then, tap **Confirm**.
- A new attribute is now applied to the effect line.
4. To delete effect lines, tap **Delete**.

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5. Display all fixtures that are assigned to an effect line.  
To do so, tap **Show Selection**.  
If fixtures are selected, this button is enabled. If it is a template effect, it is grayed out.
6. To randomly rearrange the execution of an effect, tap **Shuffle Selection**.  
The succession of the effect changes every time you tap the button.  
This button is enabled if fixtures were selected in the effect.
7. To take over the current MAticks settings into an effect line, tap **Take MAticks**.
8. Then, select the display of the values.  
To display the the values for relative values in the effect line, tap **Val. Readout Low/High** to toggle it to **Val. Readout Center/Size**.  
To set the readout of values automatically so it adjust to the values, tap to toggle to **Val. Readout Auto**.  
Relative effects are then automatically readout as Center/Size and absolute effects as high and low values.
9. To remove effects that deviate from the majority of the effects in an effect line, tap **Remove Individuals**.

For more information on the keyword see [RemoveIndividuals](#).

Example:

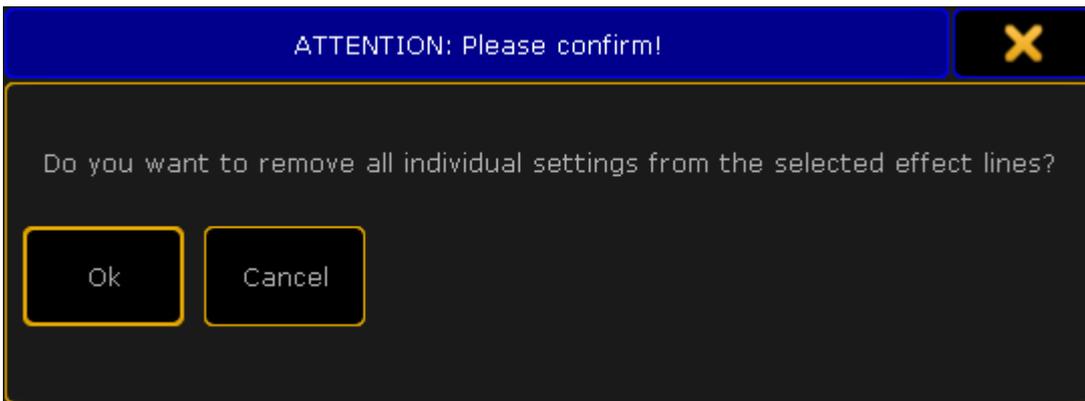
1. Select 10 fixtures in the fixture sheet.
2. Apply the effect cosine to 8 of the fixtures.
3. Then apply the effect sinus to the residual fixtures.

If you create two different effects in the programmer and store them into the effect pool, they are displayed in a dusky pink in the effect editor.

QTY	Inter leave	Attrib	Mode	Form	Rate	Speed	Speed Group
10	None	DIM	Abs	Sin 8	1.00	60.0 BPM	
New							

*Effect editor displaying individual values*

If you tap Remove Individuals, a warning appears.



Warning pop-up – remove individuals

To close the pop-up, tap **Cancel** or **X** in the upper right corner of the pop-up.

To remove the individual settings, tap **Ok**.

**Important:**  
Removing the individual settings modifies the effect.

10. Label the effect:
  - Tap **Label** on the right of the editor.
  - The calculator opens.
  - Type the name and press **Please**.
  - The effect is now labeled.
11. Edit the effect line:
  - Select an effect line in the effect editor.
  - Tap **Edit Effect Line**.
  - The **Effect Line Editor** opens.



## Pop-up – effect line editor



### Hint:

It is also possible to select and deselect the attributes on the right of the effect line editor, right below the .

- To deselect the effect line, tap the button.
- To select it, tap the button once again.

### Form:

Displays the graphic representation of the form in an effect.

### Attack and Decay:

Modifies the form of the effect with the help of faders.

- To modify the form of the effect, tap and move the faders in the columns **Attack** or **Decay** accordingly.

The faders on the right of **Form**, **Attack** and **Decay** represent the values of **Low**, **High**, **Speed**, **Phase** and **Width**.

- To set the values, tap and move the faders in the corresponding columns accordingly.

It is also possible to set the values via a calculator:

1. Tap a heading, for example **Low**.
2. The calculator opens.
3. Type the value and tap **Please**.
4. The values have been set via the calculator.

### Align:

Sets the range of a value.

1. To define the range of a value, tap **Align** below the corresponding fader.
2. The fader divides into two.
3. Set the range by moving the faders that were divided.
4. To select a preset, tap **Align** once more.
5. The button is now toggled to **Preset**. For more information on effects that use presets see [Create an effect that uses presets](#).
6. Tap **Preset** to toggle the button back to **Align**.

To close the effect line editor, tap  in the upper right corner.

---

## Delete an Effect

- To delete an effect in the effect pool, press **Del** and tap an object in the pool.

-or-

- Type into the command line:



```
[Channel]> Delete Effect "number"
```

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- To delete several effects in the effect pool, type into the command line:

```
[Channel]> Delete Effect "number" Thru "number"
```

- To delete all effects in the effect pool, type into the command line:

```
[Channel]> Delete Effect 1 Thru
```

## 29.2. Use Template and Selective Effects

This topic deals with template and selective effects.

### Requirement:

- Import predefined effects.  
For more information see [Import via user interface](#).

---

### Template Effects

To apply a template effect:

1. Create a template effect:  
Edit an object in the effect pool if no fixtures are selected. The column **QTY** is set to **None** in the effect editor.  
For more information see [Use predefined effects](#).
2. Select fixtures in the fixture sheet.
3. To take the effects into the programmer, tap a template effect in the effect pool.
4. All effect layers are taken into the programmer.
5. And the effect is instantly executed.

---

### Selective Effects

Selective effects are similar to presets. There is only a link in the object of the effect pool leading to the programmer.

To apply a selective effect:

1. Create a selective effect:  
Edit an object in the effect pool if fixtures are selected and tap **Take Selection**. The column **QTY** displays the number of the fixtures assigned.  
For more information see [Use predefined effects](#).
2. To select the fixtures, tap a selective effect.
3. To take the effect into the programmer, tap the selective effect once again.
4. The effect is executed.

## 29.3. Create an effect in the programmer

It is possible to generate an effect in the programmer.

### Requirements:

- Patch fixtures or channels.  
For more information on patching see [Adding fixtures to your show](#).
- Enable **Auto** in the fixture or channel sheet so that it obeys the encoder bar.

To create an effect in the programmer:

1. Select fixtures.
2. Then, select a preset type in the preset control bar.  
For more information see [Preset control bar](#).
3. Then, tap **Effect Layers** in the layer bar.  
For more information see [Layers in sheets – Channel sheet and fixture sheet](#).
4. Select a layer.
5. Now, select the attribute of your effect:  
To select, tap and swipe **Link Feature**.  
For more information on the different link settings see [Encoder toolbar](#).



**Important:**

An effect starts as soon as it has been select, since all effect layers have default values.

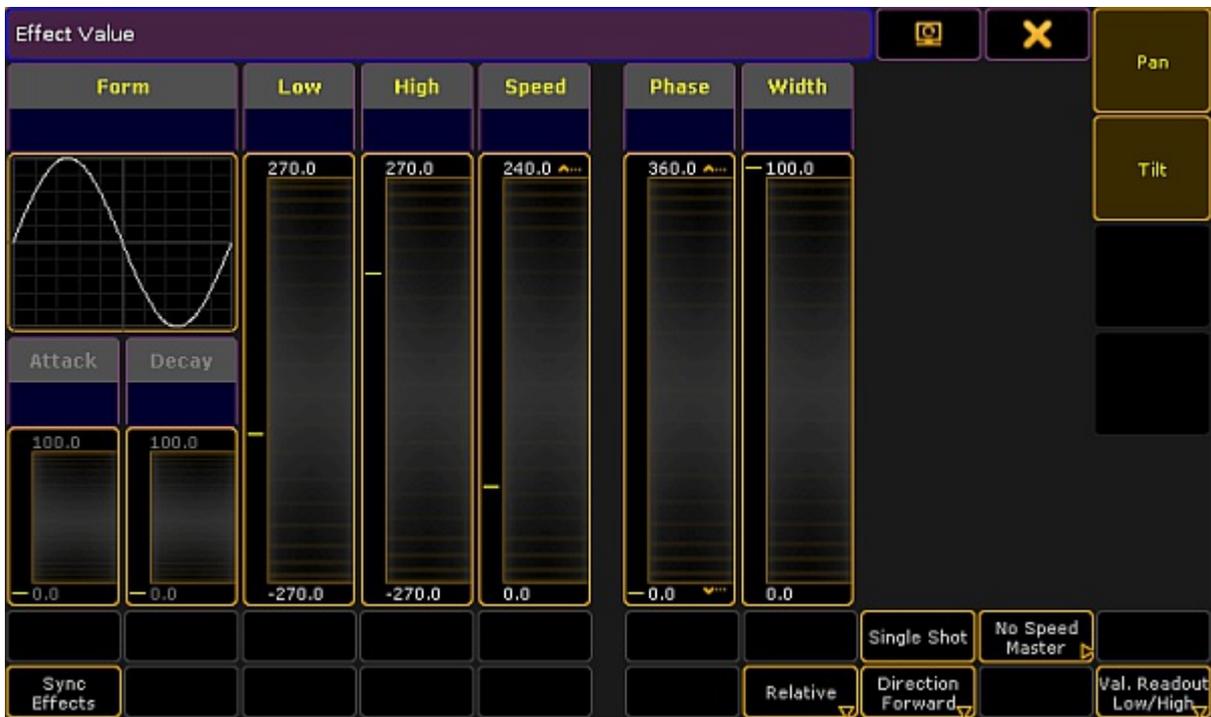
5. To adjust the values of a layer, turn the encoder left or right.



**Important:**

If you create an effect in the programmer, the layer **ID** does not have a red marker. **ID** only displays a red marker if the effect was started in the effect pool.

6. Adjust the values of the preset type:
  - Tap **Special Dialog**.
  - The **Effect Value** opens.



*Pop-up – effect value*



**Hint:**

This dialog looks similar to the effect editor, but has different functions.

7. To deselect the attributes of the effect, tap one of the buttons on the right next to  in the title bar.
8. If effects are set one after another, it is possible to synchronize them.  
To start all effects located in the programmer, tap **Sync Effects**.



**Hint:**

Pressing **MA** + **Effect** also triggers synchronization of effects.

9. It is also possible to adjust the values in the effect value by tapping the yellow headings above each fader in the dialog.
  - To adjust values, tap a heading.
  - The calculator opens.
  - Set the value.
  - Values now appear in red bold font below the headings.
  - This means that the values adjusted were actively taken into the programmer.



*Pop-up – effect value containing programmer values*

10. To store the effect that was created in the programmer, press **Store** and then tap a cell in the effect pool or an executor button.
11. The effect is now saved in the pool or in a cue.

## 29.4. Create an Effect that Uses Presets

There are three methods to create an effects that uses presets.

It is possible to create such an effect in the:

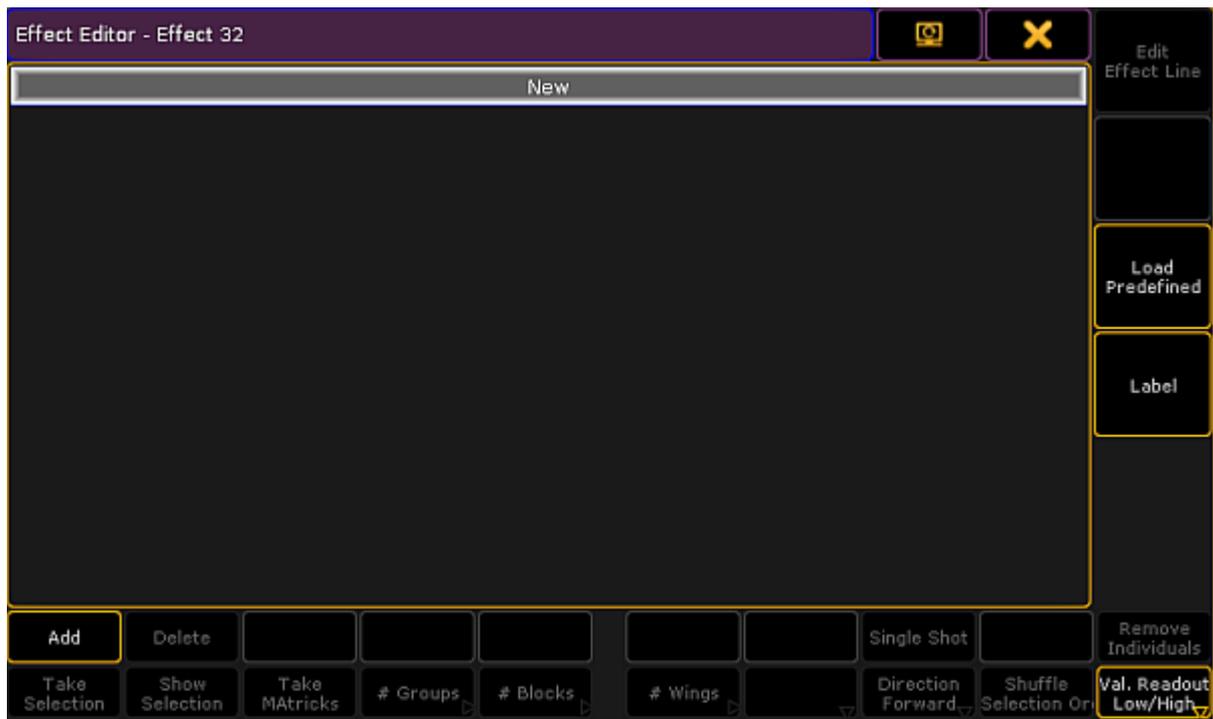
- [Effect editor](#)

- [Effect line editor](#)
- [Programmer](#)

## Effect Editor

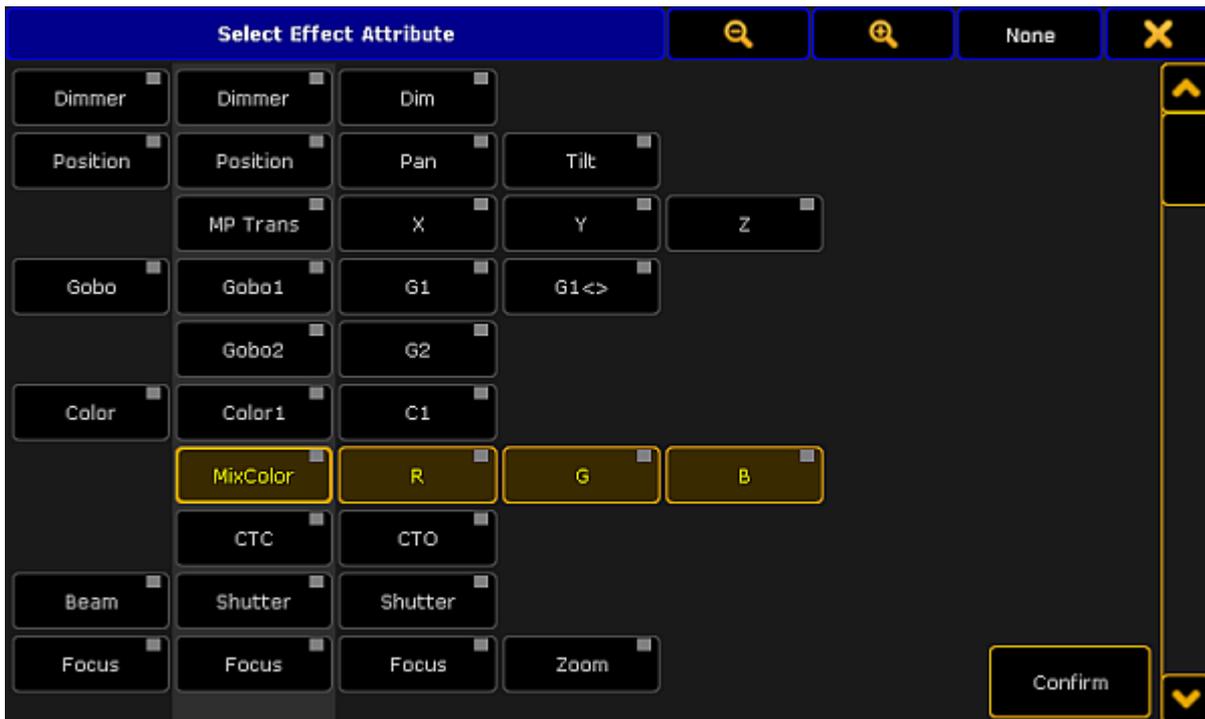
Create a new effect first:

1. Press **Edit** and tap an empty cell in the effect pool.
2. An empty effect editor opens.



### *Empty effect editor*

4. To select the attribute of an effect, tap **Add** in the lower left corner of the editor.
5. The pop-up **Select Effect Attribute** opens.



Pop-up select effect attribute

5. Select the attribute and tap **Confirm**.
6. The attribute is now in the editor.
7. If you would like to use a preset for the low value, press **Edit** and tap or tap and hold the cell below the column **Low Value**.
8. The calculator opens displaying the presets for the value.



Calculator – effect presets of low value

9. To apply a preset, tap one displayed on the right of the calculator.

10. The preset for the effect is now applied.
11. To use the preset for the high value as well, proceed the same as described in steps 7 to 9. Make sure to tap the corresponding cell.

## Effect Line Editor

Create an effect that uses presets in the effect line editor:

1. Tap **Edit Effect Line** in the effect editor.
2. The effect line editor opens.



Pop-up – effect line editor

3. Toggle the button **Align** to **Preset**. To do so, tap **Align** two times.
4. Tap inside the fader **Low** or **High**.
5. The [calculator displaying presets](#) opens.
6. To apply a preset, tap one on the right of the calculator.
7. The preset for the effect is now applied.

## Programmer



### Important:

Unlike in and editor, when creating an effect in the programmer there is no calculator.

Create an effect that uses presets in the programmer:

1. Open the programmer. For more information see [What is the programmer](#).
2. Select fixtures.
3. Tap **Effect Layers** and then tap for example the effect layer **Low**.

4. Then, tap a preset in the preset pool.
5. The preset is instantly applied and executed.

## 29.5. Create Effect Forms

The form is the basis of an effect.

To create a form, open the form pool first:

1. Tap anywhere in the **user-defined area**.
2. The pop-up **Create Basic Window** opens.
3. Next, tap **Pools**.
4. Then, tap **Forms**.
5. The pool Forms opens.



*Form pool*

Like the image pool, the form pool displays red padlocks. For more information on padlocks and their meanings see [Image Pool](#).



### Important:

Forms are locked so that predefined effects can fall back to the default values.

6. To edit an already existing object blocked by a red padlock, press **Copy**, then tap the object containing the red padlock, and then tap an empty cell in the pool.
7. Then, press **Edit** and tap the object you have copied.
8. To create a new form, press Edit and tap an empty cell in the form pool.
9. The graph editor opens.



Form pool – graph editor

## Settings in the Graph Editor

1. Then, set the focus by tapping the line.
2. Tap **Add Point** and move the line in one of the four directions.



### Important:

If the focus is not precise, the line jumps to the point that was inaccurately set.

3. To remove a point, tap **Delete Point**.
4. To add an additional graph, add **Add Graph**.

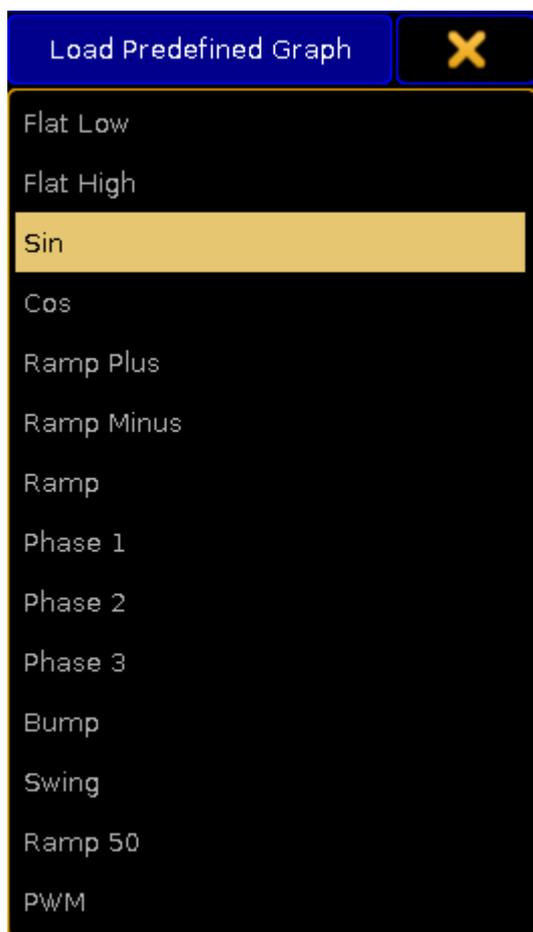


### Hint:

It is also possible to lock graphs so that you do not slip when editing various graphs in a row.

5. To lock a graph, tap **Lock Graph**.
6. To unlock graphs, tap **Unlock all Graphs**.
7. Depending on the form of the graph, it is possible to visualize it in 2D.
  - Tap **2D Mode**.
8. If you have several graphs, it is possible to link them.
  - Tap **Link Graphs**. Editing in one of the graphs linked together, applies the modification in all graphs linked. If the button is enabled, the font is displayed in yellow.
  - To delink the graphs, tap **Link Graphs** again. The font is now white.

9. Change the color of the graph:
  - Tap the name of the form displayed on the right or tap the graph you would like to change and then tap **Change Color**.
  - The pop-up **Select Color** opens containing a color picker.
  - Select the color and tap **Please**.
  - The color of the graph is now adjusted.
10. Label the graphs of a form:
  - Tap the name of a graph displayed on the right or tap the graph in the editor and then tap **Label Graph**.
  - The pop-up for entering names opens. Type the name and press **Please**.
  - The graph is now labeled.
11. Label the form in the form pool:
  - Tap **Label**.
  - The pop-up for entering name opens. Type the name and press **Please**.
  - The form is now labeled.
12. It is possible to use predefined graphs as well:
  - Tap **Load Predefined** on the right of the graph editor.
  - The pop-up **Load Predefined Graph** opens.



Pop-up – predefined graphs

- Tap to choose a form.  
-The form is instantly applied.

## Table Mode

1. To display the graph in form of a table, tap **Table Mode** on the right of the graph editor.  
The graph editor is now displayed in the table mode.



Graph editor in table mode

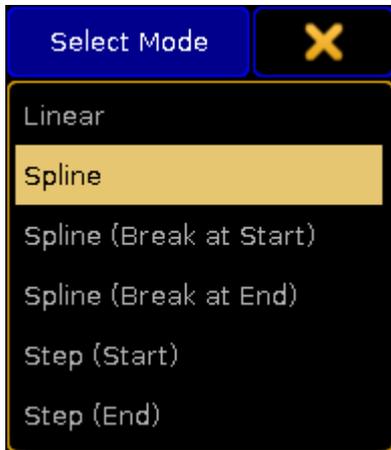
The table mode consists of a table and tabs.

- Each **tab** stands for a graph.
- The columns **X and Y** represent the position of points.
- The column **Mode** stands for modes of points.

2. To manually adjust the positions X and Y, tap and hold a cell or press the key **Edit** and tap a cell in the corresponding column.
  - The calculator opens.
  - Adjust the position and tap **Please**.
  - Position is modified.

3. Set the mode:

- Tap and hold a cell or press the key **Edit** and tap a cell in the column **Mode**.
- The pop-up Select Mode opens.



*Pop-up showing modes*

- Tap to choose a mode.
- The mode is applied.

4. To add a new point, tap and hold the cell in the line **New** at the bottom of the table.

To switch back to the graphic display, tap **Graphic Mode**.

---

## Modes

The modes are applied between two points.

- **Linear:**  
Creates a straight line between two points.
- **Spline:**  
Creates a soft-edged line intersecting the points.
- **Spline (Break at Start):**  
Creates an edged corner on the point that was marked (tapped) and a curve between the point marked (tapped) and the following point.
- **Spline (Break at End):**  
Creates an edged corner on the point following the point that was marked (tapped) and a curve between these two points.
- **Step (Start):**  
Creates a step leading from the point marked (tapped).
- **Step (End):**  
Creates a mirror-inverted step form the point following the point that was marked (tapped).

---

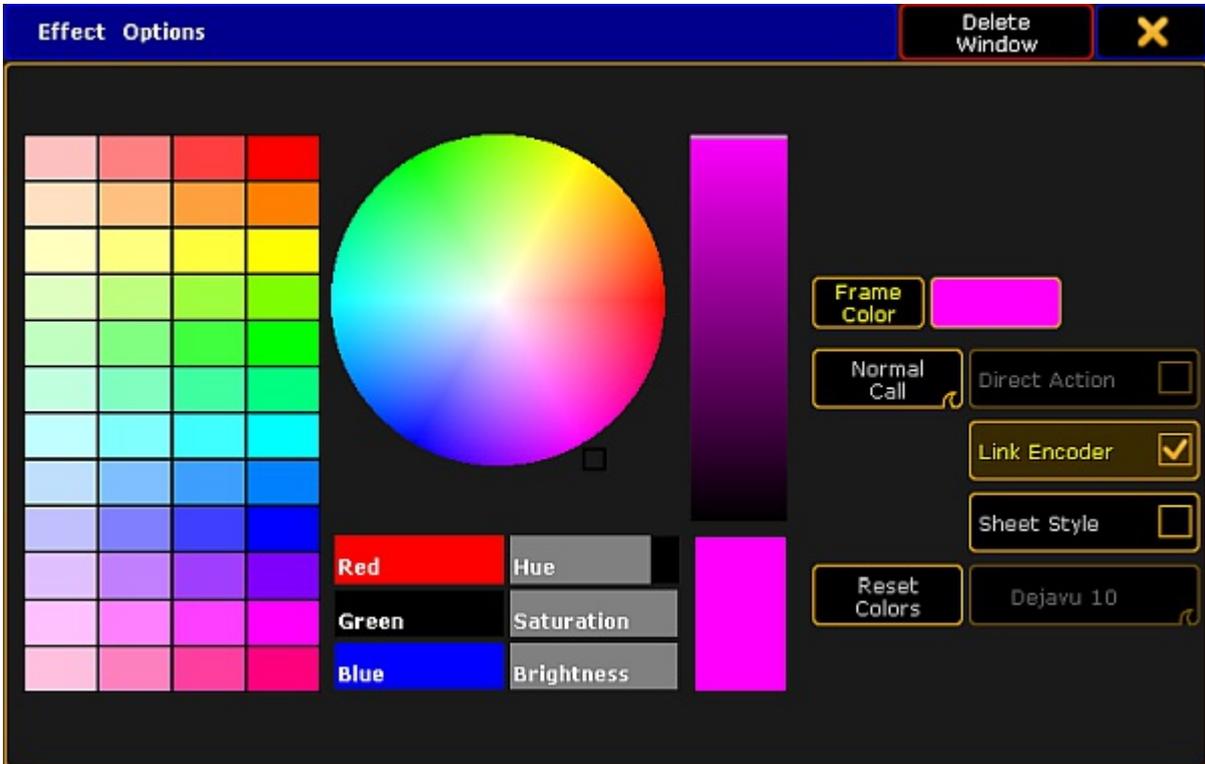
If all setting were adjusted accordingly, close the graph editor:

- Tap **X** in the upper right corner of the window and the editor closes.

## 29.6. Pool Options

There are two pools and their options that are related to the effects in general.

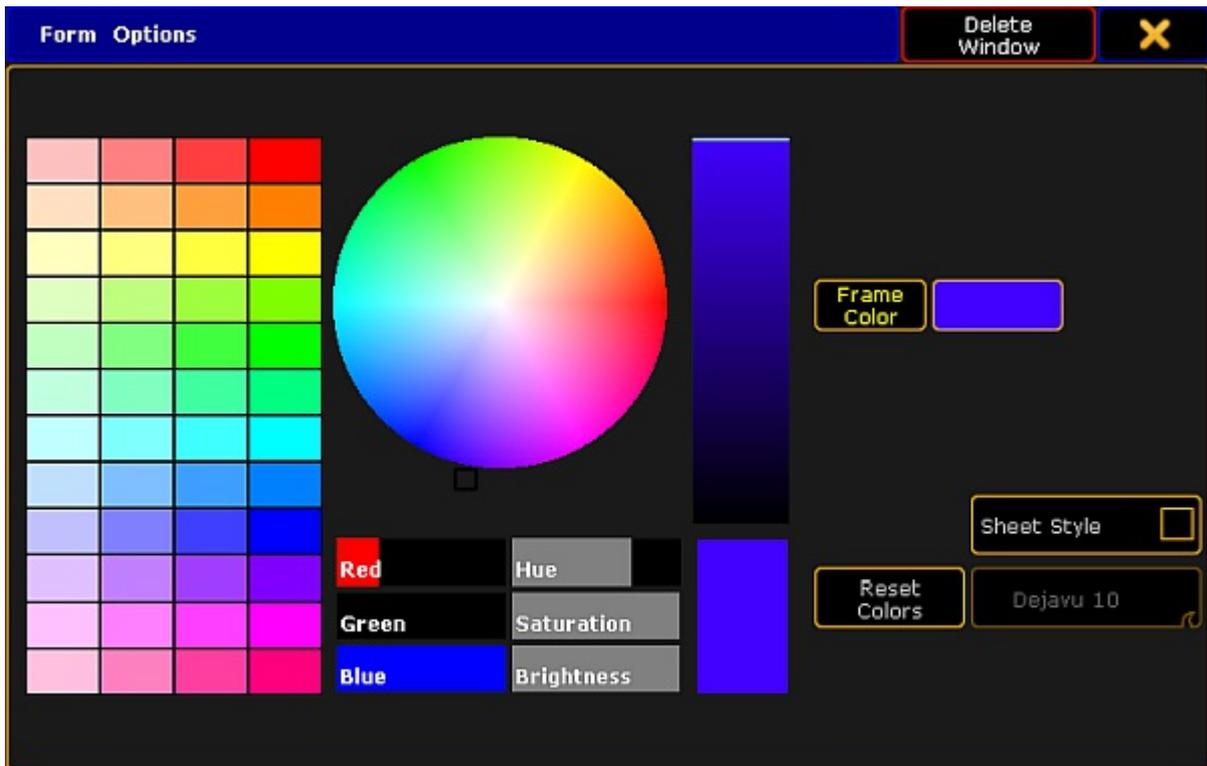
### 1. Options – effect pool



*Options of the effect pool*

-and-

### 2. Options – form pool



*Options of the form pool*

- To open and to adjust the pool options, see [Pools in General – Adjust pool options](#).

Additionally to the general settings, the effect pool has also the setting of different call modes.

For more information see [Pools in General – Call modes](#).

## 29.7. Effects in a Cue

It is possible to store effects in cues.

The following is explained with the help of a color effect.

1. Select fixtures.
2. Tap a color effect in the effect pool.
3. The fixtures are now actively in the programmer.
4. Now, press **Store** and press an executor.
5. The color effect is now saved on an executor in cue 1.



### Important:

Depending on the mode used in the effect, the color might not be applied correctly. Relative effects add values on top of existing values when creating second cue. Change the mode to "Absolute" in the effect editor. For more information see [Use predefined effects](#).

## 29.8. Assign effect to executor

It is possible to assign effects to executors.

If an effect is assigned to an executor, the information regarding the effect is displayed in form of an effect mini executor.

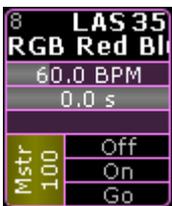


### Important:

However, this only works using selective effects.

To assign an effect to an executor:

1. Press **Assign** and tap an effect in the effect pool.
2. Then, tap an executor.
3. The effect mini executor is displayed in purple.



*Selective effect assigned to an executor*

Much the same as other mini executors, the effect mini executor is divided into different sections. For more information on the general sections see [Sequence mini executor](#).

---

## Sections Corresponding to the Effect Mini Executor

The third line (displaying BPM) and the fourth line (displaying s) correspond to the speed master.



Speed master in an effect assigned to an executor

- **BPM** corresponds to the executor time that is applied to the effect as a factor. 60 BPM correspond 1:1.



**Important:**

If you tap the upper area of the mini executor, the [assign menu](#) opens.  
Tapping the lower area of the mini executor opens the [effect editor](#).

Generally speaking, the speed of an executor influences the speed of an effect. For more information on the speed master in an executor see [Speed Masters](#).



**Important:**

The master of an effect executor affects the size of an effect.

- **s** corresponds to the master fade time that is applied to an effect when turning it on or off.



**Important:**

Speed groups only work if they were assigned to the executor and not the effect itself.

## 29.9. Live Edit an Effect

It is possible to live edit effects during a show if necessary.

To live edit an effect:

1. Select fixtures.
2. Tap a template effect.



**Hint:**

The sense and purpose of an template effect is that it is possible to select a template, adjust it without modifying the actual effect.

3. The encoder toolbar for live effects – also called the "Quick & Dirty Encoder Toolbar" – opens.



*Encoder toolbar for live edit*



## Important:

All adjustments made with the help of the encoder toolbar for live effects are taken into the live programmer. Thus, being taken over into the next cue if stored.

4. Adjust the values by turning the encoders.



## Important:

If the value Low is set to 0, tapping **Prop.** to toggle it to **Incr.** enables the encoders.

5. If you have more than two effects in the programmer, tapping **Select Effect** opens the pop-up **Select Effect**.



*Pop-up – select effect*

To edit the values of an effect, select the effect in the pop-up first.

If you have less than three effects in the programmer, tapping **Select Effect** toggles between the different effects.

6. **Edit Program.** indicates that editing currently takes places in the programmer.  
To open the effect editor, tap **Edit Progr.** It is then possible to edit the actual effect.

For more information see [Use predefined effects – effect editor](#).

7. To toggle between different modes, tap **Low/High Mode**.
8. To toggle between relative and absolute values, tap **Relative <> Absolute**.
9. Change the direction of the effect:  
-Tap **Direction <>**.
10. To turn off the effect and remove it in the programmer, tap **Off Effect**.
11. To take the release value into the programmer, tap **Release Effect**.
12. To take stomp values into the programmer, tap **Stomp Effect**.
13. To toggle the functionality of encoders, tap **Basics 1 of 2**.

For more information on the different functionalities see [Use predefined effects](#).



## Important:

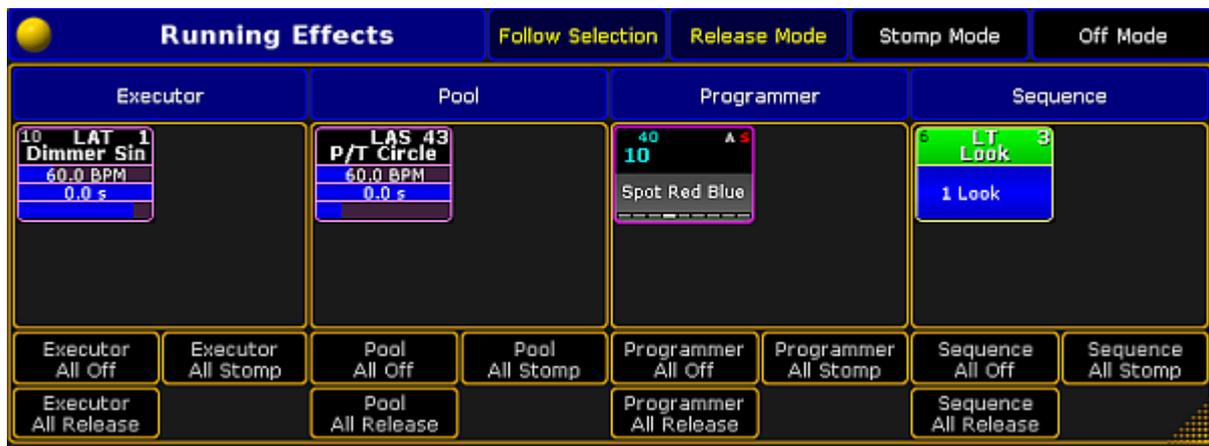
If you accidentally tap anywhere, the encoder toolbar for live edit disappears. To regain it, tap the cell with displaying the name of the effect pool.

## 29.10. Running Effects

The window **Running Effects** displays all the effects that are currently running.

To open Running Effects:

1. Tap somewhere in the **user-defined area**.
2. **Create Basic Window** opens.
3. Tap **Playbacks**.
4. Then tap **Running effects**.
5. The window opens.



### Running effects

The window Running Effects consists of four sections:

#### Executor:

Displays all effects running in an executor.

#### Pool:

Displays effects that were started as a pool playback.

#### Programmer:

Displays effects in the programmer. Whereas the effect is stored in the effect pool and is running the programmer. Effects created in the programmer are not displayed in this window. For more information see [Create an effect in the programmer](#).

#### Sequence:

Displays sequences containing effects that are currently running.

6. To apply the following functions to the fixtures or channels currently in selection, tap **Follow Selection** in the title bar of the window.
7. Turn off all effects in the section **Programmer**:  
Tap **Programmer All Off**.
8. Then, turn off a single effect in the section **Sequence**:  
Tap **Off Mode** in the title bar and then tap a sequence in the column Sequence.



#### Important:

Please note that tapping **Off Mode** turns off the entire sequence.

9. To actively take the stomp values of all effects running in the in the section **Pool**, tap **All Stomp** in the corresponding column.  
To take stomp values of single effects into the programmer, tap **Stomp Mode** on the title bar of the window and then tap the effect.
10. Now, take the release values of all effects into the programmer in the section **Executor**:  
Tap **All Release** in the corresponding column.
11. Pressing **Release Mode** in the title bar and then tapping an effect in the corresponding column of the window, takes release values of single effects into the programmer.
12. The settings are now applied.

## Running Effect Options

1. To open the options, tap the **X** in the upper left corner of the window **Running Effects**.
2. The options open.



### *Options of running effects*

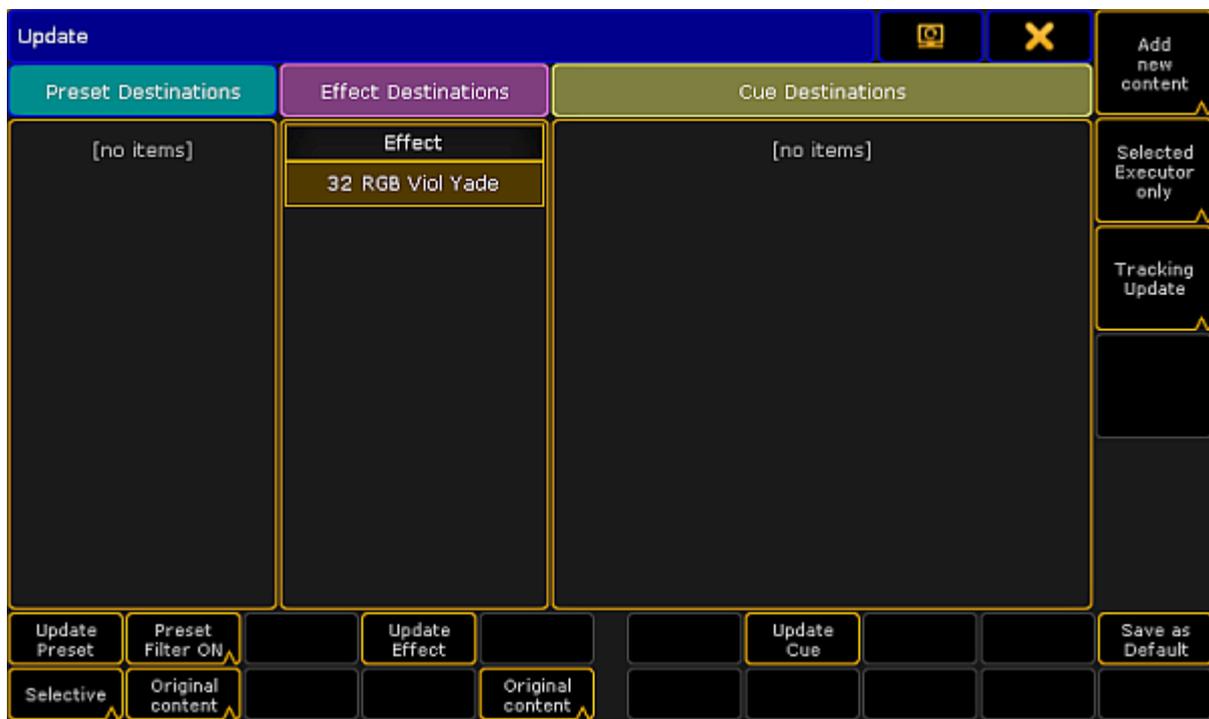
3. To delete columns **Pool** and **Executor** in the window, tap **From Pool** and **From Executor**.  
The window **Running Effects** now displays two columns – **Sequence** and **Programmer**.
4. After setting the options, close them:  
Tap **X** in the upper right corner of the window.
5. To close the entire window, tap **Delete Window**.

## 29.11. Update Effects

It is possible to update selective effects that have been modified.

To do so:

1. Tap the effect to be updated once.
2. The fixtures using this effect are now selected.
3. Tap the same effect once again.
4. The fixtures using this effect are now actively in the programmer.
5. Modify the value of this effect.
6. Then, press **Update**.
7. The **pop-up Update** opens.



### Update effect

8. Tap **Original content** to toggle it to **Add new content**:
  - To update the effect by the new values, tap **Original content**. **Add new content** is now displayed.
  - If you would like to add additional data, on top of existing values, tap **Add new content**. **Original content** is now displayed.
9. Now, tap **Update Effect**.
10. The effect is now updated.

## 30. Bitmap Fixture

The MA Lighting Bitmap fixture replaces the previous bitmap effects. The bitmap fixture is a virtual fixture and available in the fixture library.

The bitmap fixture allows to use images and videos from the image pool and map these images or videos to the patched fixtures. The visualization of the bitmap fixtures is realized in the layout view. Use the grandMA2 effect engine to animate bitmap fixtures.



**Hint:**

There are predefined BMP (= Bitmap) effects provided in the effect editor.

The bitmap fixture has its own dimmer and color attributes, like an MA VPU layer fixture.

The playback priority of the bitmap fixture is always the lowest priority in one priority range. Attribute values will overwrite bitmap fixture attribute values, if the same fixtures are used.

If you want to use a video for the bitmap fixture here's what it takes:

- Minimum of 30 frames per second
- Resolution double of the output. E.g. If you have an output of a pixel raster of 200 x 200, the video should have a minimum resolution of 400 x 400.  
Recommended are triple fold to four fold of the output.
- Only video data without audio data
- Constant bit rate (= CBR)

Make sure to use the supported image and video formats only. For more details see [supported file formats](#).

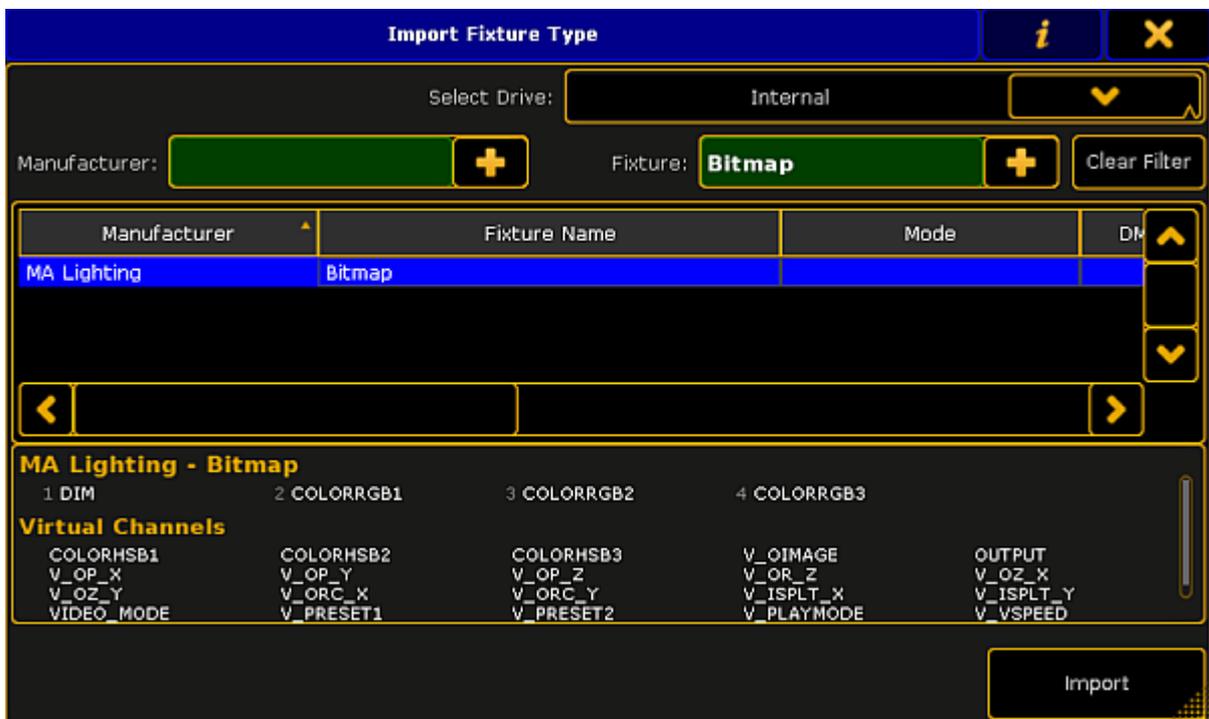
We recommend to test the videos during the show preparation before using them in a show situation.

## 30.1. Import bitmap fixture

To use the bitmap fixture it is necessary to import it in the show. The bitmap fixture is a virtual fixture. A DMX address is not required. For more general information about patch a fixture or channel, see [patching](#).

To import the bitmap fixture:

1. Press **Setup** and tap at **Patch & Fixture Schedule**.  
The **Edit Setup** opens.
2. Tap in the last row in the layer and press the screen encoder.  
The **Fixture Wizard** opens.
3. Tap in the structure tree at **From Library**.  
The **Import Fixture Type** window opens.
4. Type in the **Fixture** field **Bitmap**.  
The MA Lighting Bitmap fixture appears in the list.



*Import bitmap fixture*

5. Tap **Import**.  
You are back in the **Fixture Wizard**.
6. Tap **Apply**.  
You are back in the **Edit Setup**.
7. Close the Edit Setup by a tap at the **X** and tap **Yes** in the Warning.

The MA Lighting Bitmap fixture is imported in the show and visible in the fixture sheet.

Now, you can control the bitmap fixture. For more information, see [control bitmap fixture](#).

## 30.2. Apply bitmap fixture in the layout view

## 30.2. Apply bitmap fixture in the layout view

After the bitmap fixture is imported, it is necessary to have a layout containing the fixtures or channels, to use the bitmap fixture. The layout is the VObj (= Video Object) Output.

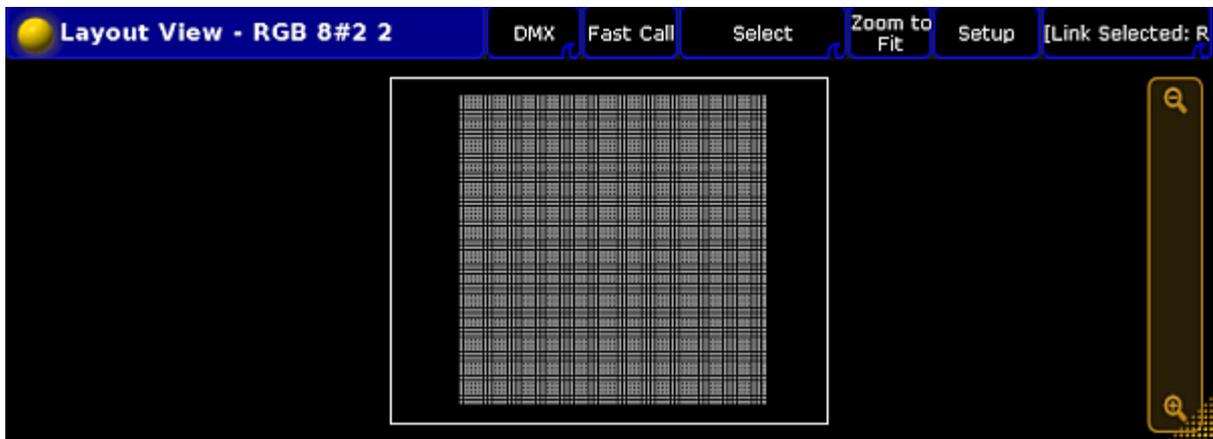
### Requirement:

- [An imported bitmap fixture](#)
- [A created layout view containing the fixtures using the bitmap fixture](#)

1. Tap in the title bar of the layout view **Setup**.  
The **layout encoder bar** opens.

2. Tap in the layout encoder bar at the **rectangle** .

3. Tap in the layout view and draw a rectangle around the fixtures or channels using the bitmap fixture.



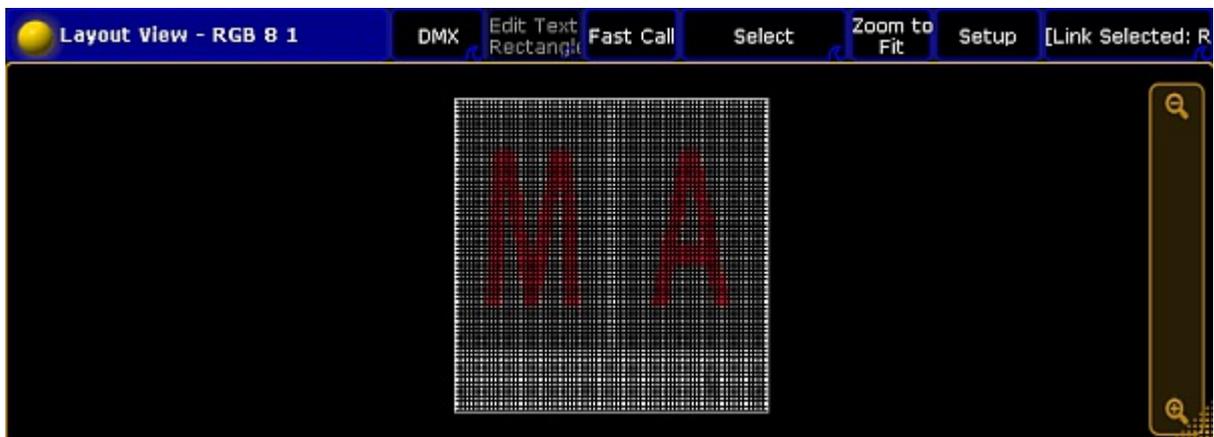
*Layout view with rectangle*

- The **Edit Layout Element** pop-up opens.



*Edit layout element pop-up - visualization*

- Choose if the fixtures or channels should visualize the content of the bitmap fixture:  
- Not mirrored, tap **Bitmap**

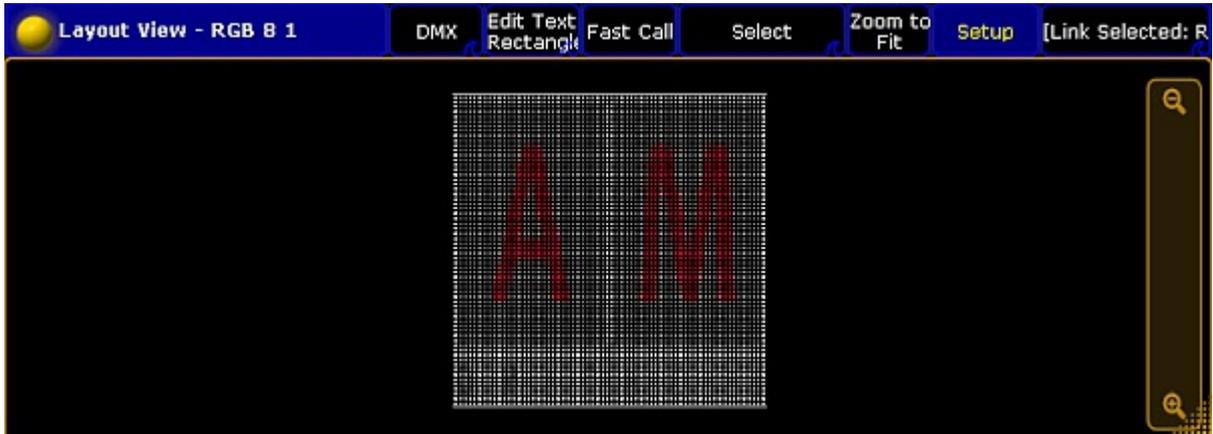


*Layout view bitmap not mirrored*

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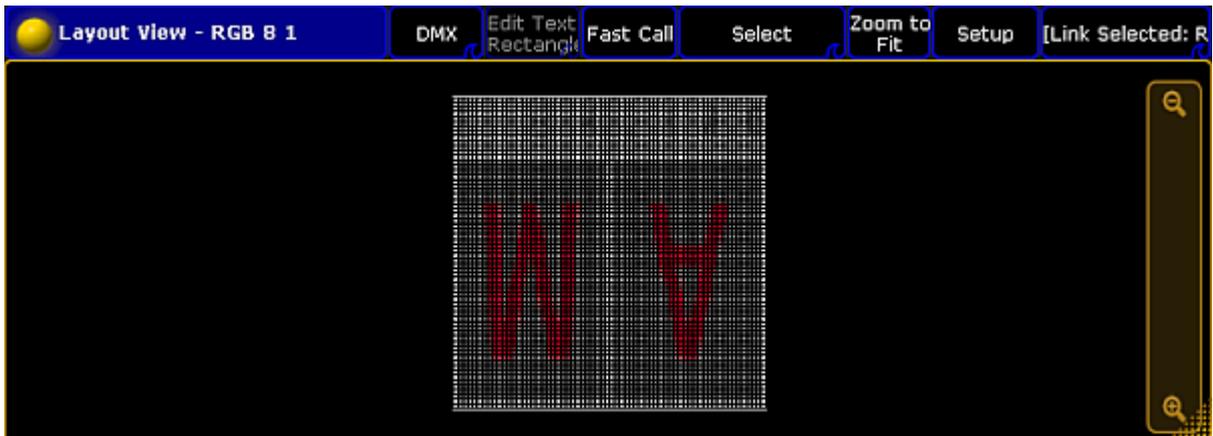
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- Horizontally mirrored on the x-axis, tap **Bitmap\_X**



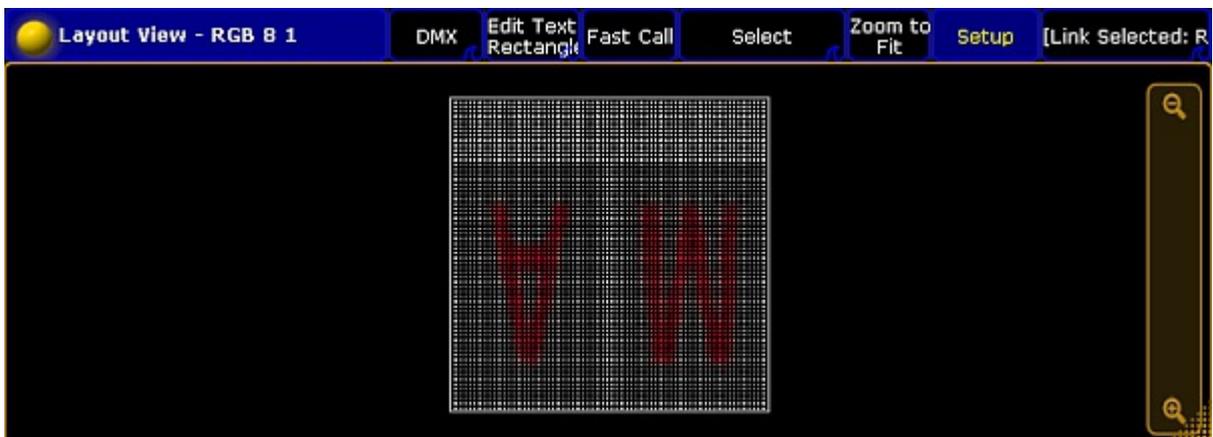
*Layout view bitmap x*

- Vertically mirrored on the y-axis, tap **Bitmap\_Y**



*Layout view bitmap y*

- Horizontally and vertically mirrored on the x- and y-axis, tap **Bitmap\_XY**



*Layout view bitmap xy*

6. Press **Please** or tap **Please**.



**Important:**

The rectangle is a visual display and it represents the side ratio of the picture or the video. It is possible to use several rectangles in a layout. The rectangles can be mirrored individually as shown above.



**Hint:**

To move the rectangle, use the **move x** or **move y** encoder or tap and hold the rectangle in the layout view and move it around.

To adjust the size of the rectangle for e.g. a 16:9 ratio, tap in the layout encoder bar at **Position 1 of 3** to get **Size 2 of 3**. Use the encoder to adjust **size x** and **size y**.

The bitmap visualization is assigned to the fixtures or channels in the layout.

### 30.3. Control bitmap fixture

After you imported a bitmap fixture in your show, you can control the bitmap fixture in the fixture sheet. For more information, see [fixture sheet](#).

The following table describes the specific bitmap fixture attributes. For more basic information about control fixtures or channels, see [control channels and fixtures](#).

Attribute	Description
Dimmer	Controls the dimmer intensity.
Mix Color (RGB)	Controls red, green, and blue.
HSB (Hue, Saturation, Brightness)	Controls hue shift, saturation, and brightness. HSB is a color correction of the selected RGB values.
Control Assert	<p><b>Important:</b> To restart stored bitmap fixtures in cues, it is necessary to store a control assert attribute in the cue.</p> <p>Every playback command increases the Assert value by one.</p>
VObj (= Video Object) Images	<p>Select the image from the image pool, used for the bitmap fixture. For more information, see <a href="#">import image</a>.</p> <p><b>Important:</b> By default are 100 images displayed, even if less images are in the image pool.</p>
VObj Output	<p>Select the layout from the layout pool, used for the bitmap fixture. For more information, see <a href="#">layouts</a>.</p> <p><b>Important:</b> By default are 100 layouts displayed, even if less layouts are in the layout pool.</p>

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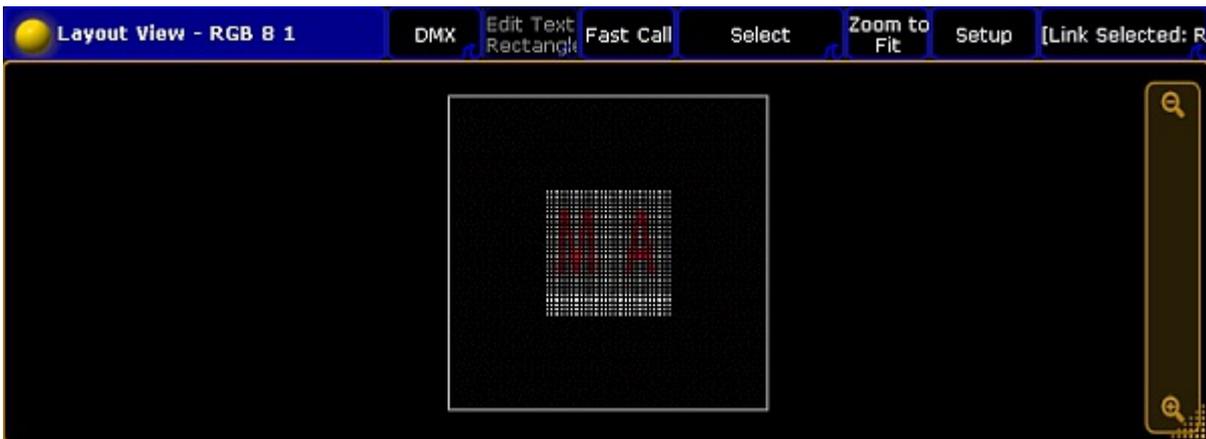
Attribute	Description
VPos (= Video Position)	Moves the position of the image on a relative x, y, z axis in the layout view. If you have two images about each other, the one with the lower z axis value is in front.
VRot (= Video Rotation)	Rotates the images around the z axis. The combination between CX (= Center X) and CY (= Center Y) moves the rotation midpoint of the z axis relative in the layout view. 0 is the center of the z axis.
VImg (= Video Image)	Select the video image: (See screenshots below the table for better visualization). <b>Tile -</b> : Image will be added behind. Every second image is mirrored. <b>No Tile</b> : No image will be added. <b>Tile +</b> : Image will be added behind.
VPlayer (= Video Player Playmode)	Select the video playmode: - <b>Play</b> loops endless. - <b>Once</b> plays once and stops with the last frame. - <b>Once Off</b> plays once and fades out with the last frame. - <b>Pause</b>
VPlayer Speed	Controls the speed of playing back videos.
VScale (= Video Scale)	Scales the image on the x and y axis. - <b>1:1</b> - <b>1:-1</b> mirrored
VPreset (= Video Preset Mode)	Select the video preset mode: - <b>Dimmer</b> (default for only dimmer fixtures) - <b>RGB + Dim</b> - <b>RGB</b> (default for fixtures using RGB) - <b>Preset Types</b> allows to have the bitmap fixture running between two presets of a preset type VP1 and VP2
VPreset VP1	Set the preset pool index of the low value (black), e.g. 1 (= red color).
VPreset VP2	Set the preset pool index of the high value (white), e.g. 2 (= green color).

After you have modified all the attributes, you can store the look in a cue. For more information, see [cues and sequences](#).

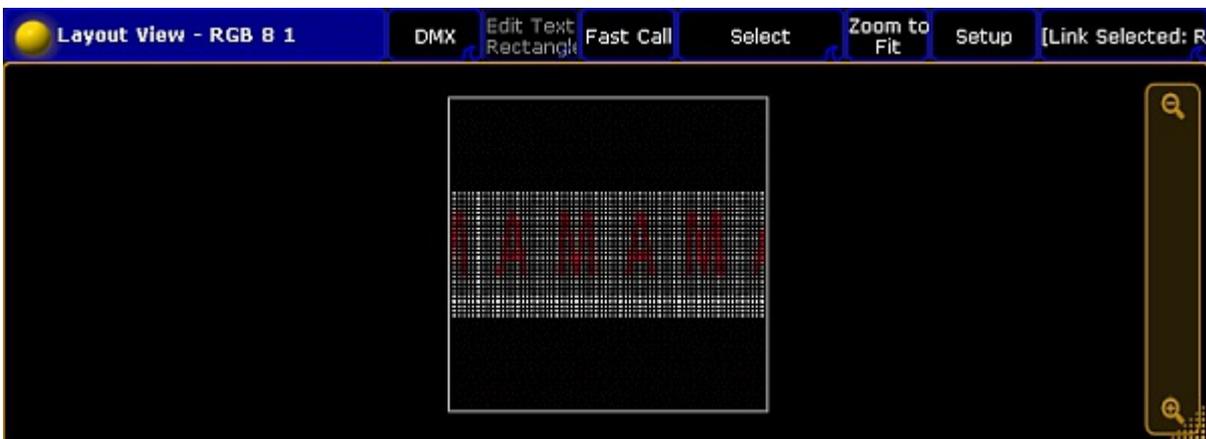
## Examples for VImg Attributes

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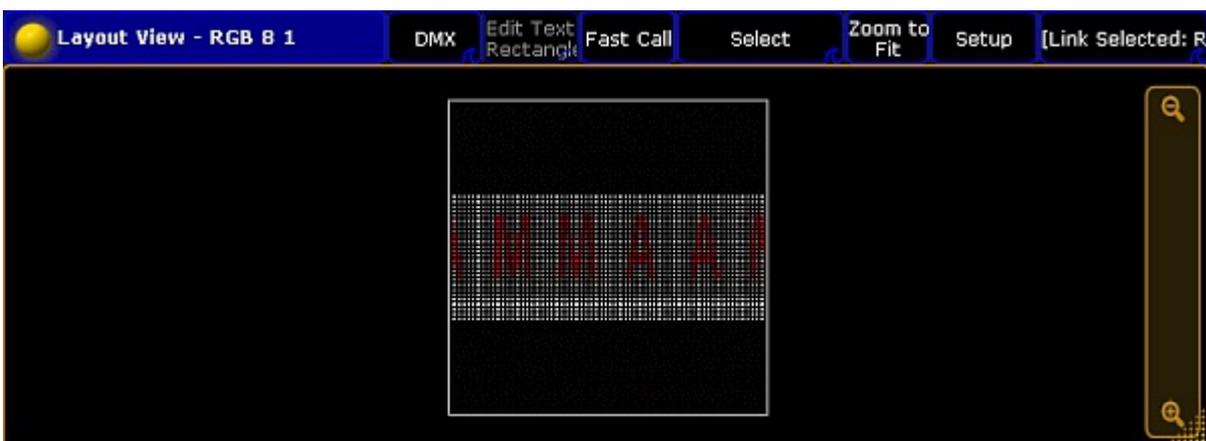
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*Layout view with bitmap Vlmg attribute no tile*



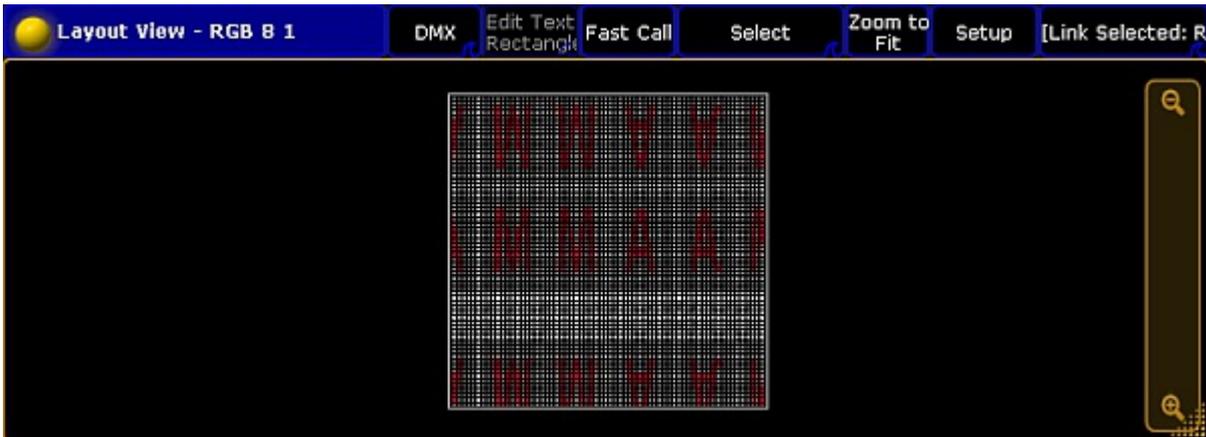
*Layout view with bitmap Vlmg attribute split x tile+*



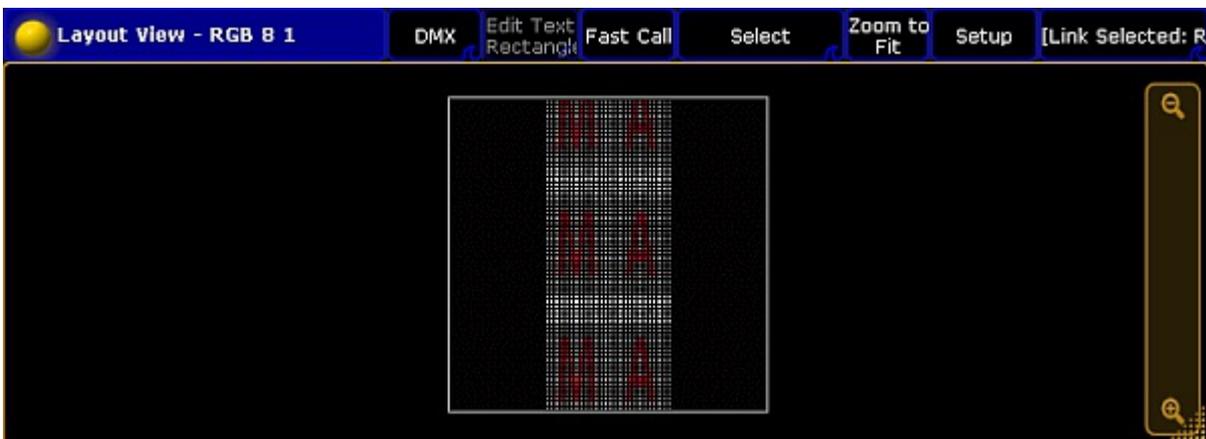
*Layout view with bitmap Vlmg attribute split x tile-*

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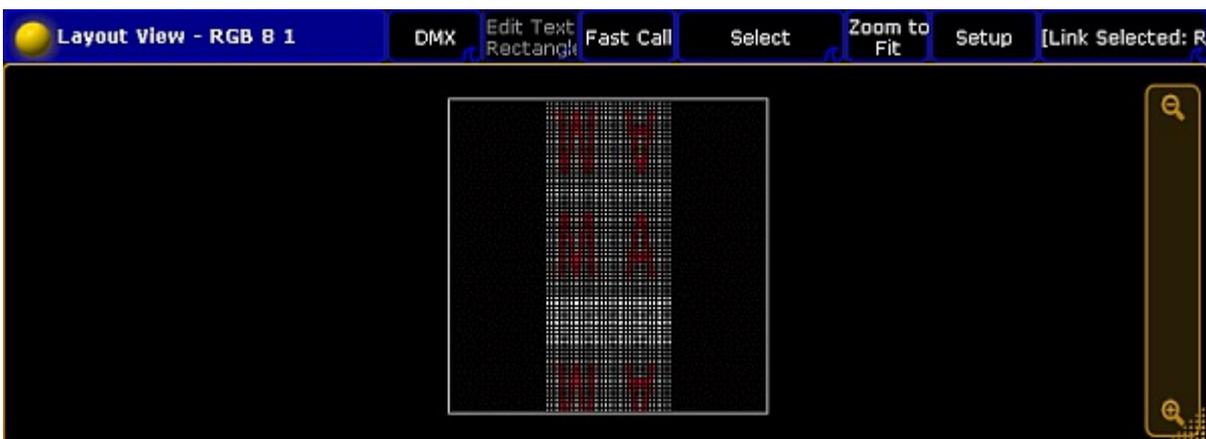
Version 3.3



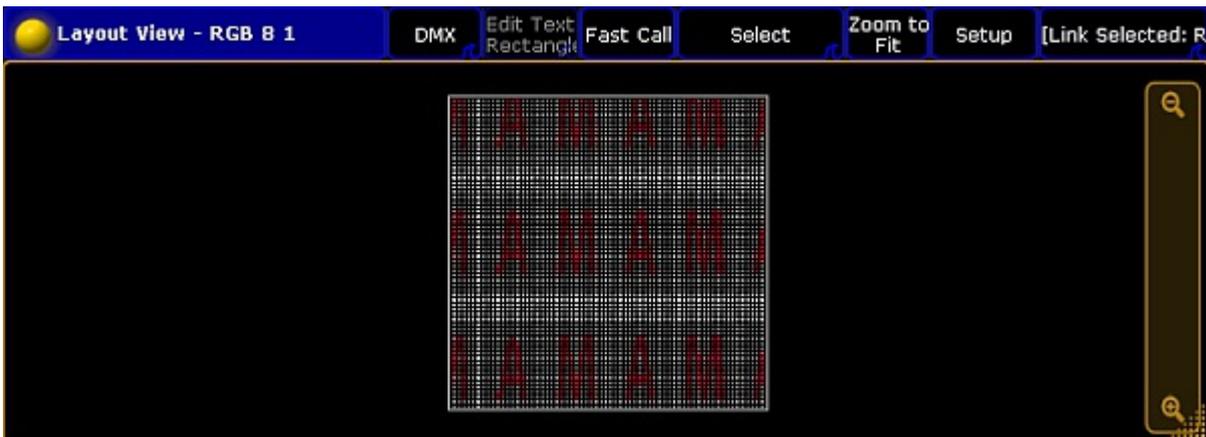
*Layout view with bitmap VImg attribute split x tile- split y tile-*



*Layout view with bitmap VImg attribute split y tile+*



*Layout view with bitmap VImg attribute split y tile-*



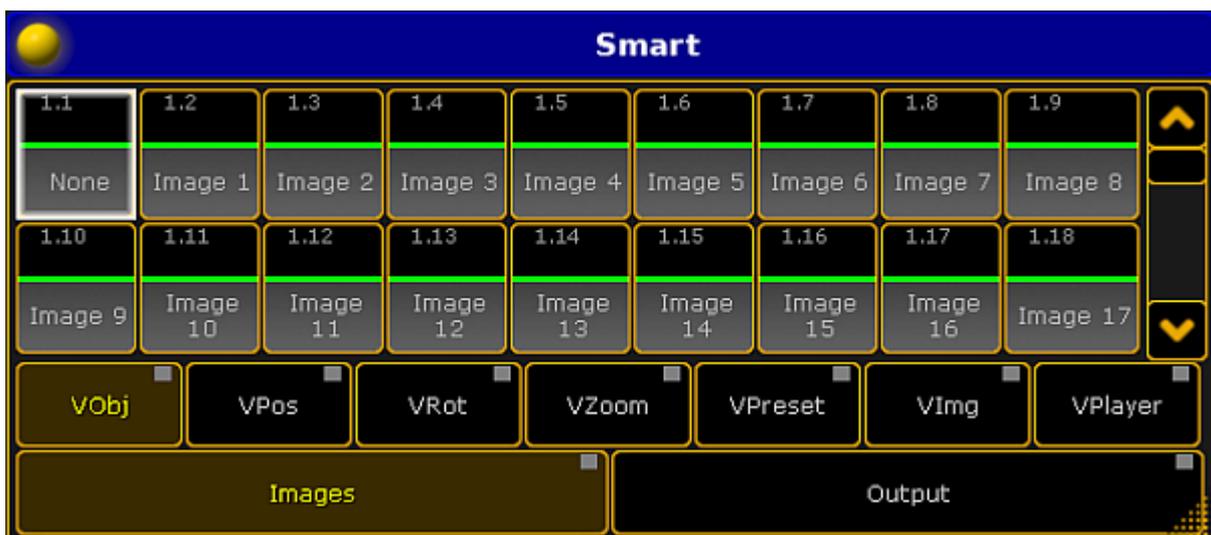
Layout view with bitmap VImg attribute split x tile+ split y tile+

## 30.4. Edit bitmap fixture

The bitmap fixture has 100 images and 100 layouts by default. If you need more than the 100 images or 100 layouts, you need to edit the bitmap fixture.

**Requirement:** [Imported bitmap fixture.](#)

1. To select the bitmap fixture, tap at the **bitmap fixture** in the fixture sheet.  
The bitmap fixture has a yellow font.
2. To select the attribute you like to edit, tap at the **attribute** in the fixture sheet, e.g. Images.
3. To open the smart view, tap at an empty space in the **user defined area**, tap at **Other**, and then **Smart**.  
The **Smart** window opens.



Smart view with images attributes of the bitmap fixture

4. Turn the encoder to e.g. 101, press **Store** and tap at the last **empty object tile** in the smart view.

The bitmap fixture is edited and has 101 images to select. For more information about the smart view, see [using smart view](#).

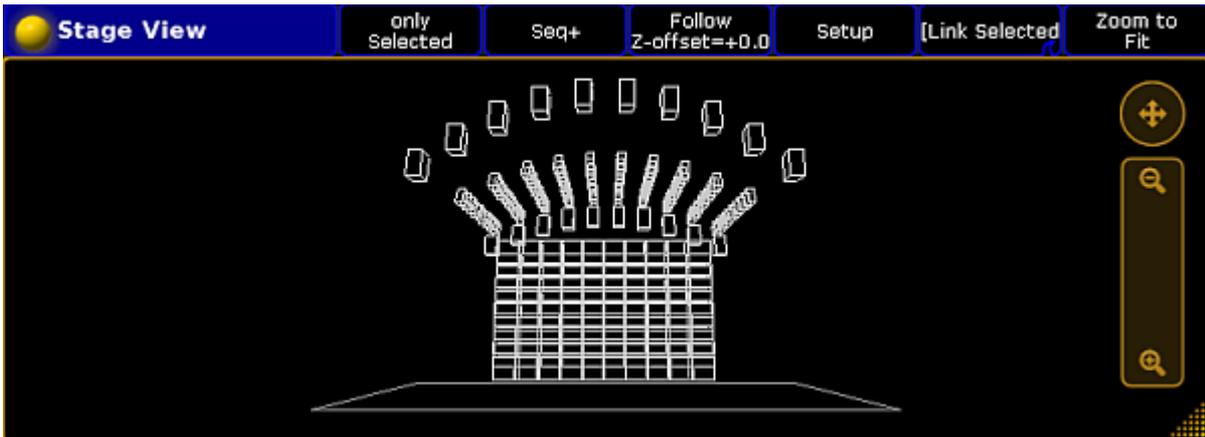
## 30.5. Example for bitmap fixture

This topic describes the bitmap fixtures on an example.

This example requires a few basic functions, like [storing cues](#), [create presets](#), and [assign effects](#). If you are not familiar with these functions, read the manual for these functions first.

### Initial situation:

A stage with many fixtures. The task is to create a pan tilt effect for these fixtures.



Stage view

### Requirement:

- [An imported bitmap fixture.](#)
- [A created layout including the fixtures for using the bitmap fixture.](#)

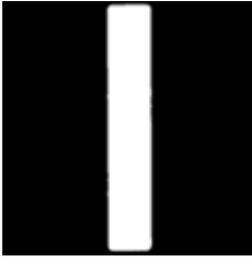


### Important:

Position presets have to have the values of pan tilt, since the values X, Y and Z are not supported.

1. Select all the fixtures in the fixture sheet for the pan tilt effect, press **At** **100** **Please**, and then **Store** and press the executor.
2. Draw a **rectangle** around the fixtures in the layout. The **Edit Layout Element** pop-up opens. Tap under Visualization **Bitmap**.

3. Import an image, which only displays a white bar, in the image pool.



*Image white bar*

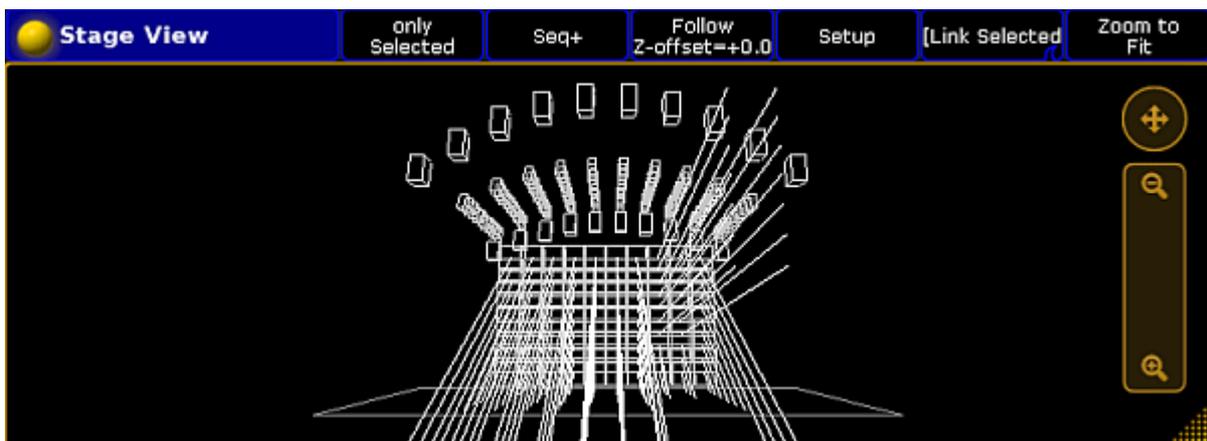


**Note:**

It is possible to use predefined images and videos also. For more information on how to import predefined images and videos see [Import an image](#).

4. Create two position presets in the position preset pool, the first with the lowest pan 0 and tilt 30, the second position preset with pan 0 and tilt -5.
5. Program the bitmap fixture in the programmer with the following values:
  - **Dimmer:** 100
  - **Images:** The white bar image from the image pool, e.g., 15.
  - **Output:** The layout including the bitmap fixture visualization, e.g., Layout 1.
  - **Mode:** Position Preset
  - **VP1:** Select position preset with low value
  - **VP2:** Select position preset with high value
6. Tap in the encoder bar effect layer, tap **VPos** (= Video Position) in the fixture sheet, turn the encoder for the x value and select **Ramp Plus 10**.
7. To store a sequence with the bitmap fixture, press **Store** and then another executor button than before.
8. Start both playbacks.

You have a pan tilt effect by using the bitmap fixture.



*Stage view with running bitmap fixture*

## 30.6. Priorities for bitmap effects

When working with bitmap effects in the programmer and in playbacks attention should be paid to the following priorities:

1. Bitmap effects always have the lowest priority within a level of priorities.  
Level of priorities are:
  - Super
  - Swp
  - HTP
  - High
  - LTP
  - Low
2. Bitmap effects are only visible within a sequence – **cue list**:
  - When the fixtures, which are running the bitmap effects, have no values and no effect values on the attributes in use.

For more information on priorities in general see [executor options](#).

Example:

If a dimmer value is saved in a cue for Fixture 1, the bitmap effect can only be used for Fixture 1 in the following cue when the dimmer value is released.

For more information on how to release see [What is tracking](#).

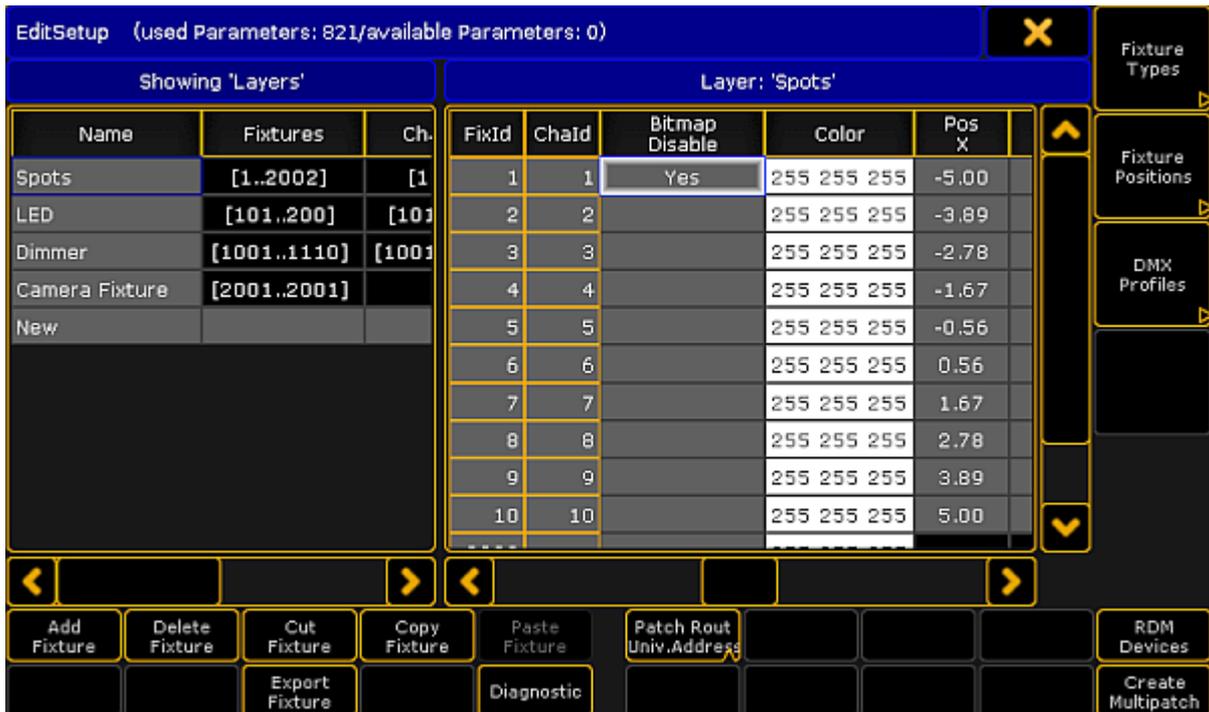
**This is a visual explanation of the example by means of illustration for Fixture 1:**

Tracking cue list	Dimmer	Explanation
cue 1	—	Bitmap effect operates Fixture 1 (dimmer)
cue 2	100	Value overwrites Fixture 1 (dimmer)
cue 3	(R)	Value is released, thus the bitmap effect from cue 1 or a new bitmap effect is visible

## 30.7. Disable bitmap for fixtures

To disable the bitmap visualization for specific fixtures, follow the steps below.

1. Press **Setup** and tap at **Patch & Fixture Schedule**.  
The **Edit Setup** opens.
2. Tap at the layer in the which the fixture is.
3. Tap at the fixture and scroll to the column **Bitmap Disable**.
4. Press the screen encoder until **Yes** is displayed in the cell.



*Edit Setup - Disable Bitmap*

5. To leave the **Edit Setup**, tap the **yellow X** in the upper right corner.  
A warning asks if you want to save the changes.
6. Tap **Yes**.

The bitmap visualization is disabled for the fixture.

## 31. XYZ

XYZ adds [virtual channels](#) to the fixtures.

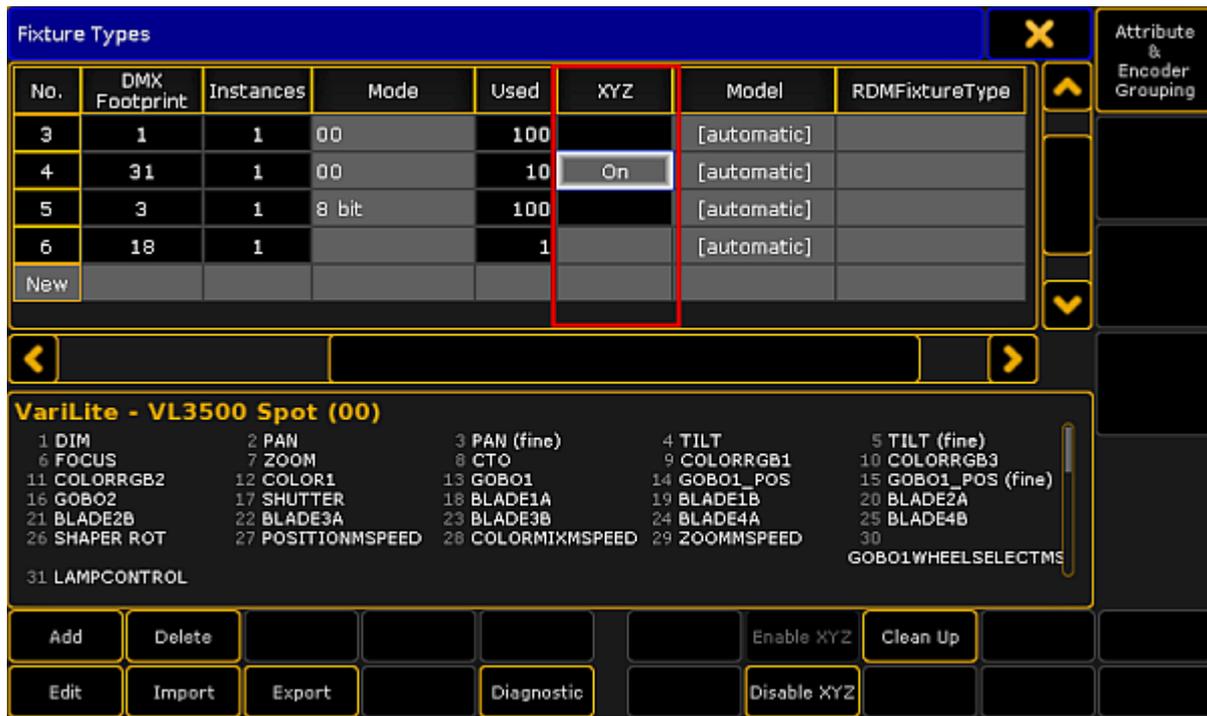
### Requirements:

- Patch fixtures or channels.

For more information on patching see [Adding fixtures to your show](#).

### Activate XYZ in fixture types:

1. Press **Setup**.  
The main menu opens.
2. Tap **Patch & Fixtures Schedule**.  
The **dialog Edit Setup** opens.
3. Tap **Fixture Types** on the right of the window.  
The **dialog Fixture Types** opens.
4. Tap and hold a grayed out cell in the **column XYZ**.  
-or-  
Tap a grayed out cell in the column XYZ and then tap **Enable XYZ**.
5. XYZ is now enabled and the cell displays **On**.



### Enable XYZ

6. To save the changes in the **Patch & Fixture Schedule**, close the **dialog Fixture Types**:
  - Tap **X** in the upper right corner of the dialog.
  - The **dialog Edit Setup** appears.
  - Tap **X** in the upper right corner of the dialog.
  - A warning pop-up appears.
  - Tap **Yes**.
7. The changes are now saved.

8. Select fixtures.
  9. Tap **Position** in the preset control bar.  
For more information see [Preset control bar](#).
  10. Tap the feature **Position** below the preset **Position**.  
-If you tap **Position**, the button toggles between the features **Position**, **Stage A**, and **Stage B**.
  11. Adjust the attributes of **Stage A** for example.  
-Tap **X** and the calculator opens.  
-Type the value for the x-coordinate or select a preset on the right of the calculator.
  12. The values are now adjusted.
- 

## Virtual Channels

If XYZ is enabled, the following virtual channels are added to the fixtures:

- **Stage (X):**  
X is the horizontal direction on the stage.
- **Stage (Y):**  
Y is the direction that runs toward or away from the audience.
- **Stage (Z):**  
Z is the vertical direction on the stage.
- **Flip:**  
Is the parameter to select the flip position. This parameter switches over between the flip modes: **Auto flip**, **Center**, and **No tilt flip**.  
**Auto flip:** Fixture flips automatically to reach the required XYZ position. It uses both axes to flip, pan, and tilt.  
**No tilt flip:** The fixture uses the pan axis only.  
**Center:** The fixture flips the same amount of times in each direction. That is, the flip value is 0.
- **Mark:**  
Sets the stage marker the fixture is to shine at.
- **Pan:**  
Fixture moves in the horizontal direction.
- **Tilt:**  
Fixture moves in the vertical direction.
- **Dist:**  
Is the distance between the point that the fixture shines at and the fixture itself. Dist is used when converting pan and tilt to XYZ and vice versa.
- **PosMode:**  
Switches over between the XYZ and pan/tilt values.

## 31.1. XYZ vs. Pan/Tilt

Note that a fixture always receives pan and tilt values.

However, if XYZ is activated, the pan and tilt values are converted to coordinates on stage.

### 31.1.1. XYZ and Pan/Tilt in cues and sequences

It is possible to individually set the position mode in a cue or a sequence.

Set the position mode when storing a cue using the temporary store options.

1. Open the **Store Options**.

For more information on the store options in cues and sequences and how to open them see [Store options and defaults](#).



*Set position mode when storing a cue or a sequence*

2. To toggle between the position modes when storing a cue or a sequence, tap **Active position data**.
3. Press **Please**.
4. The position mode you have selected is now applied.

## Position Modes

- **Active position data:**  
Stores position data as they are – XYZ or pan and tilt.
- **XYZ:**  
Converts the pan and tilt values to XYZ values and stores them.

- **Pan/Tilt:**

Converts the values to pan and tilt and stores them.

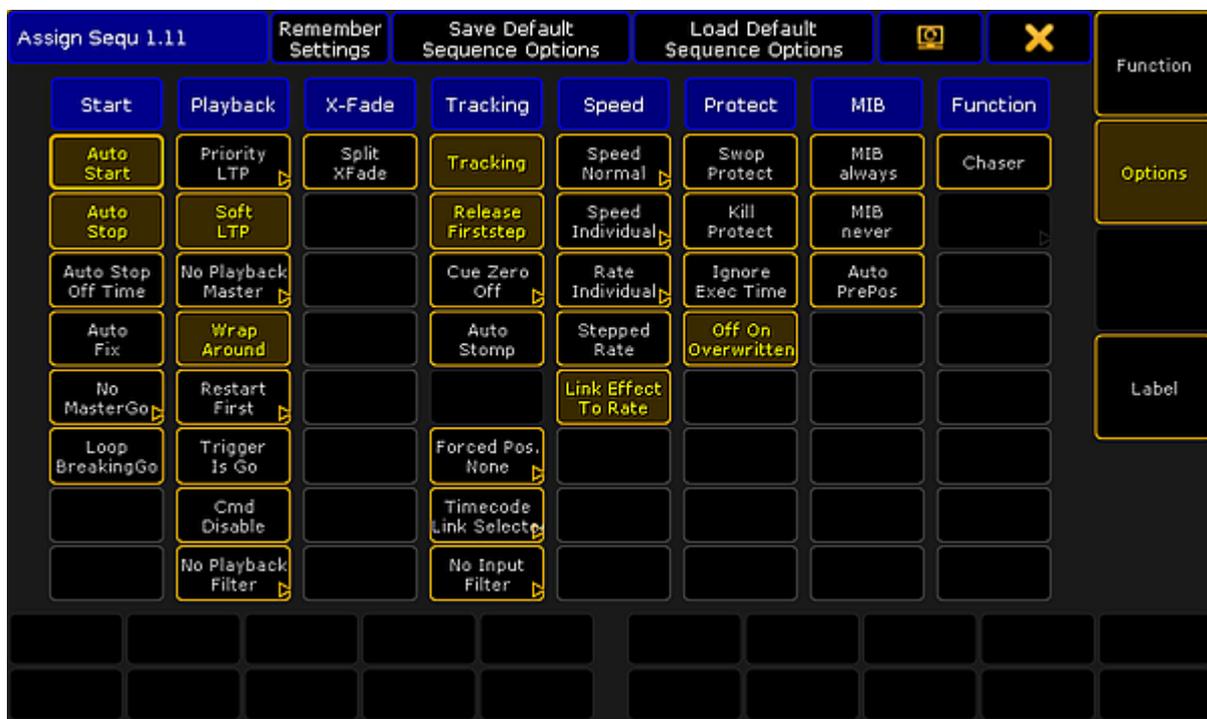
## Set Position Modes in a Sequence

Set a default position mode in the Assign Menu of a sequence for the entire sequence.

### Requirement:

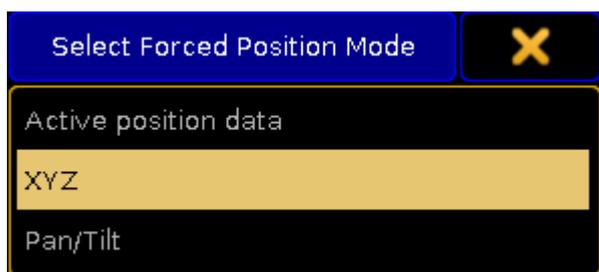
#### Assign a sequence to an executor

1. Open the **Assign Menu** of the sequence:
  - Tap **Assign** and press the executor you have saved the sequence on.
  - The **Assign Menu** opens.
  - Tap **Options** on the right of the menu.



Set a default position mode in a sequence

2. Tap the button **Forced Pos. Mode** in the column **Tracking** and the **pop-up Select Forced Position Mode** opens.



Select position mode

3. Tap the position mode you would like to set as the default of the sequence.

4. The default is now set.

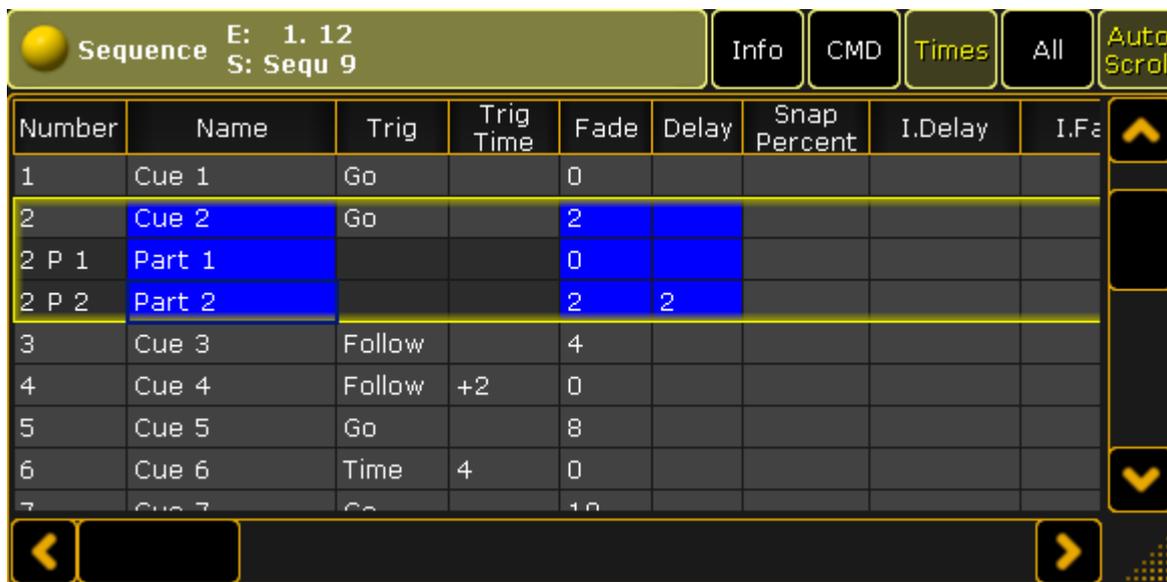
## Set Position Modes in the Sequence Executor Sheet

The **Forced Position Mode** in the sequence executor sheet allows to adjust the position in single cues after the positions were saved. It defines how pan and tilt is executed onstage.

### Requirement:

#### Store cues

1. Open the sequence executor sheet. For more information see [Manage windows – Create Basic Window](#).



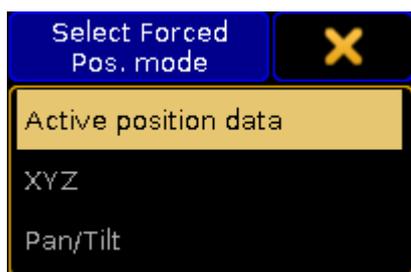
Open sequence executor sheet

2. Tap **All** in the title bar and scroll to the column **Forced Pos. mode**.



Adjust forced position mode in a single cue

3. Tap and hold the cell below **Forced Pos. mode** and the **pop-up Select Forced Pos. mode** opens.



Select the position mode of a cue

4. Tap the position you would like to set for the current cue.

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5. The position has been adjusted.

31.1.2. Flip the fixtures

31.2. Using stage markers

## 32. Remote Controlling the System

32.1. What are remote inputs

32.2. Set up remote inputs

32.3. Using the DMX input as programmer content

32.4. What is MIDI show control (MSC)

32.5. Setting up MSC input

32.6. Setting up MSC output

32.7. What is the web remote

32.8. Using the apple remote app

32.9. What is telnet remote

32.10. Decimal – hex table

## 33. Timecode

The Timecode section describes all the details for running cues or Executors using a timecode source.

The [What is Timecode and Timecode Show topic](#) describes the concept behind the different things involved with timecode controlled shows.

In [Record a Timecode Show](#) the two different ways to record cues are described.

For details about editing a Timecode Show please read the [Edit a Timecode Show topic](#) - here is the description of the Timecode Editor and the Options for Timecode Shows.

How to run or playback the recorded Timecode Shows is described in the [Playing Back a Timecode Show topic](#). This topic also describes the Timecode Generator.

Finally there is a topic with a few ideas or thoughts about shows with multiple Timecode Shows - [Organize Your Show with Multiple Timecode Shows](#).

### 33.1. What is Timecode and Timecode Shows

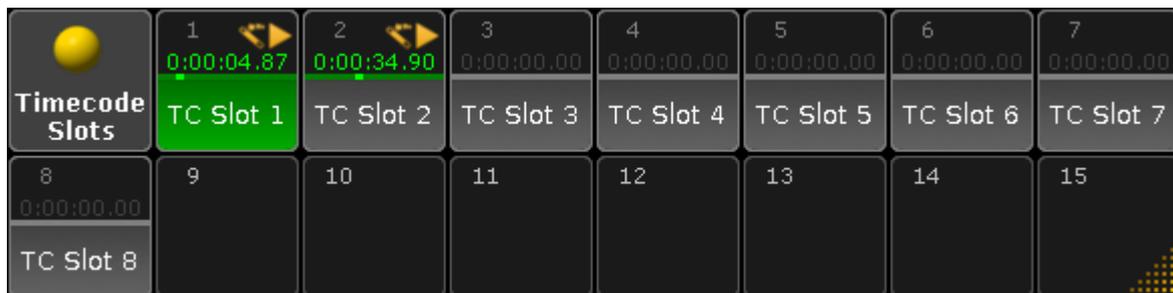
Timecode is a timing signal. The signal can come from an external source (SMPTE or MTC) or it can be generated from the grandMA2 software.

This timing signal can be used as a trigger for cues. It can also be used to create complex Executor operations, stored as [Timecode Shows](#).

The grandMA2 is capable of receiving 8 different external timecode signals at the same time. They are organized in the [Timecode Slots](#).

#### Timecode Slots

The 8 timecode slots are organized in a pool. It could look like this:



*Timecode Slots pool - pool style*

This pool is different than all other pools. It is not possible to Delete, Add, Move, Copy, or alter anything that would change the amount of the pool objects. There are 8 and they can be used and controlled, but the amount cannot be changed. Other pool options apply and they are described in the [Pools in General section](#).

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The pool can be changed to the Sheet Style in the options. Then it could look like this:

Timecode Slots Pool							
No. ▲	Name	Time	Sender IP	PreRoll	AfterRoll	Generator Start Time	Gr E
1	TC Slot	▶▶ 0:22:34	0.0.0.0	0.50	0.50	0:00:00.00	25
2	TC Slot	▶▶ 0:00:32	0.0.0.0	0.50	0.50	0:00:00.00	25
3	TC Slot	0:00:00.00	0.0.0.0	0.50	0.50	0:00:00.00	25
4	TC Slot	0:00:00.00	0.0.0.0	0.50	0.50	0:00:00.00	25
5	TC Slot	0:00:00.00	0.0.0.0	0.50	0.50	0:00:00.00	25
6	TC Slot	0:00:00.00	0.0.0.0	0.50	0.50	0:00:00.00	25
7	TC Slot	0:00:00.00	0.0.0.0	0.50	0.50	0:00:00.00	25
8	TC Slot	0:00:00.00	0.0.0.0	0.50	0.50	0:00:00.00	25

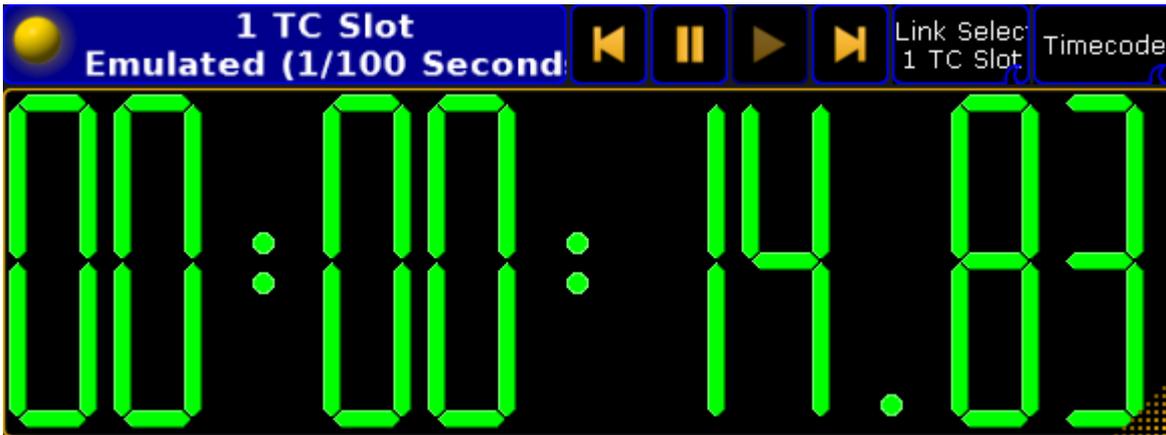
*Timecode Slots pool - sheet style*

Now it is possible to see a lot that actually can be changed for each of the 8 Timecode Slots. They are all explained in the [Playing Back a Timecode Show topic](#).

The time and status for each Timecode Slot is distributed in a session. This means that the time is shared by all stations in the session. The signal can enter the session at any station. The one that "hears" the signal first is the one distributing it to the others.

The Timecode Slot can also generate a time signal. This means that one operator in a session can start the generation of time and then all other stations can see and run shows based on this time signal. Read more about the generator in the [Playing Back a Timecode Show topic](#).

The Clock can be used to display the time of the Timecode Slots. This also offers fast access to the basic generate control. It could look like this (generated time signal):



*Clock with Timecode Slot 1*

The second button from the right in the clock title bar is used to select which slot is displayed.

In the picture above it is linked to the **selected** Timecode Slot. The selected one is the one with the green background in the name part of the Timecode Slot Pool (green number if in the Sheet Style).

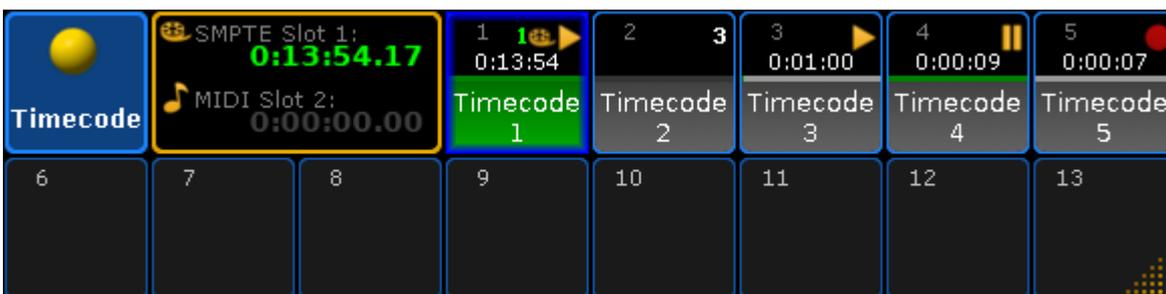
The default in a new show is that the SMPTE or LTC input on the station is assigned to slot number 1. The MIDI In port is assigned to slot number 2.

This can be changed in the **Setup -> Network -> MA Network Configuration -> Console** or **onPC**. There are two columns here called **MIDI TC** and **SMPTE TC**. Here it is possible to select different Timecode Slots that the incoming signal should be routed to.

## Timecode Shows

Timecode Shows are a recording of possibly complex Executor actions. It can store any executor actions, like Go and Goto, but it also stores the fader position and movement.

They are organized in the Timecode Pool. It could look like this when in pool style:



*Timecode pool - pool style*

It looks different than most pools, since the two first pool objects are replaced with a time information object. This area displays the time from the slots assigned to the inputs on your station - read about the Timecode Slots above. It

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is only for information, It cannot do anything. The time format and colors are discussed more in the [Playing Back a Timecode Show topic](#).

The pool behaves otherwise like most other pools - please read the [Pools in General section](#).

The Timecode pool could look like this if changed to the Sheet Style:

No. ^	Name	Time	Slot	Length	Offset	Show Empty
1	Timecode	▶ 0:13:54	Link Selected	16:26	0:00	E
2	Timecode		3 TC Slot	1:00:00.00	0:00	E
3	Timecode	▶ 0:01:00	Intern	54:21:00	0:00	E
4	Timecode	⏸ 0:00:09	Intern	9:16	0:00	E
5	Timecode	● 0:00:07	Intern	47:00:00	0:00	E

*Timecode pool - sheet style*

Now it is possible to see a lot more options about each Timecode Show. All these things are explained in the following topics.

Notice the "Slot" column. Here it is possible to selected if the Timecode Show should run using an internal time signal or it should be linked to one of the Timecode Slots - possibly linked to the selected slot.

The Timecode Pool objects gives a lot of information even when in the pool style.

The lower half of the pool object displays the same information as in the Name column - the name of the Timecode Show.

The middle line will start as light gray and get a green bar moving from left to right as the time passes thought the length of the show. The line can be dark gray for show that are inactive.

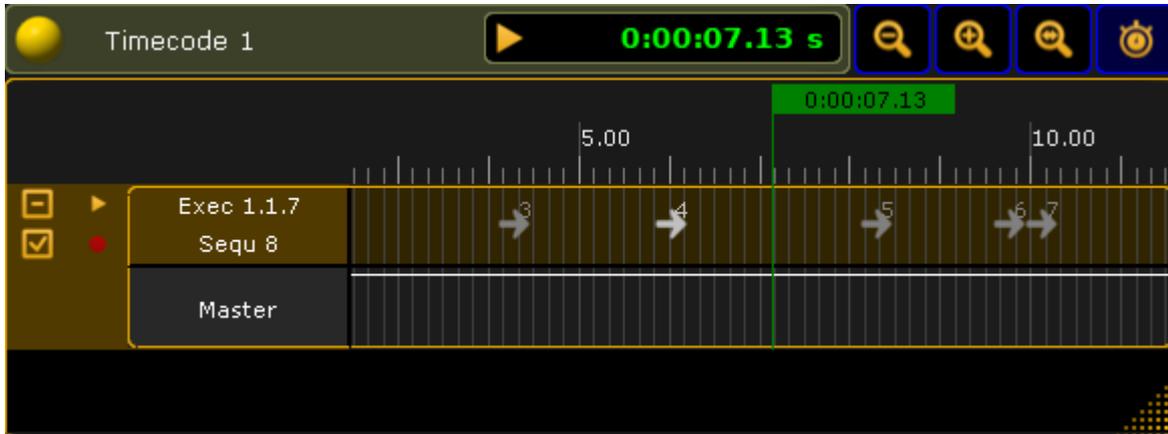
Above the line is displayed the current time of the timecode show - same as the Time column.

The pool object can also have some playback symbols in the top right side of the pool object. The same symbols will be displayed in the Time column.

If the Timecode Show is linked to a Timecode Slot, then this will be indicated by an extra number in the pool object. The number is green if it is the selected Timecode Slot, otherwise it will be white.

## Timecode View

A recorded Timecode Show can be viewed in the **Timecode View window**. It could look like this:



*Timecode View window*

This window shows the playback status and current time of the Timecode Show. The show cannot be edited in this window it is "read only".

The Timecode View is very similar to the Timecode Editor, except the editor has more options. Please read the [Edit a Timecode Show topic](#) for more information about the Editor and thereby also this viewer.

## 33.2. Record a Timecode Show

There are two ways a timecode signal can trigger cues. One is to set "Timecode" as the trigger for the cues and then add a time in the "Trig Time column". The other is to record a Timecode Show.

### Use timecode as cue trigger

A simple way to trigger cues using a timecode signal is the Timecode trigger in the [Sequence Executor Sheet](#). Read about the triggers in the [Playing Back Cues topic](#).

Each sequence can be assigned a Timecode Slot - see how in the [What are Cues and Sequences topic](#).

The time is then set in the "Trig Time" column in the Sequence Executor Sheet. When the assigned Timecode Slot reaches the time then the cue is triggered - it does not matter if the Executor is active or not.

The time can be typed manually or it can be recorded.

To do a recording the trigger needs to be set to "Timecode" and the executor needs to be set in record mode. Even though the time is recorded into the sequence, it is still the executor that needs to be set into record mode:

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Press **MA** + **Store** to get the [Record keyword](#), then press any of the keys associated with the executor where the sequence is assigned. It can also be typed as a command: **Record Executor [number]**

Now trigger the cues using a normal **GO** command and then the current received time is stored in the Trig Time column.

The recording mode is turned off by another Record command to the executor.

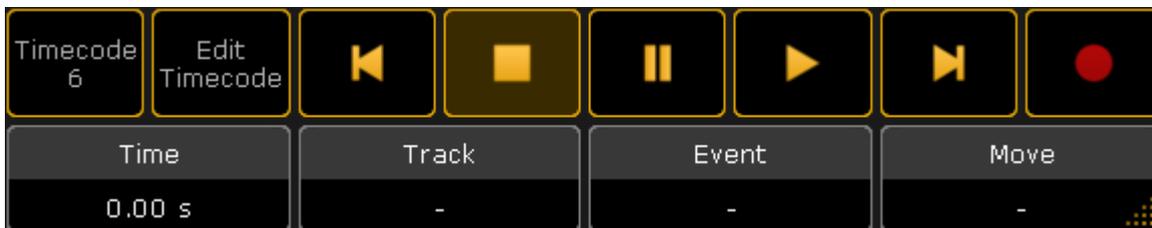
---

## Record a Timecode Show

This can do a lot more than just trigger cues.

A timecode show will store information as when different actions were performed on executors, this includes fader movement and position. A Timecode Show can run with an external time source or using "internal" time. This means that each timecode show can run on its own or follow an external synced source. See more about running the timecode show in the [Playing Back a Timecode Show topic](#).

The best way to record a new Timecode Show is to open the Timecode Pool on one of the screens and press the Store key and tap one of the empty pool objects. This creates the new show. Now tap it again so it gets a green background. Now it is the selected Timecode Show. The Encoder Toolbar changes to the Timecode version. It could look like this:



*Timecode Encoder Toolbar*

Now it is possible to control the playback of the Timecode Show. To start the recording tap the Record button on the right side.

If the Timecode Show uses an internal time source, the time will start running. Internal time source is the default. If the time source is external, then the time is only running if the assigned Timecode Slot has a running time.

The source can be changed in the options for the timecode show or if the Timecode Show pool is in Sheet Style. The options are explained in the [Edit a Timecode Show topic](#).

When the recording is running then all Executor actions are recorded.



## Important:

The Timecode Show is recording a **Goto** command and the cue number when running a **Go** command to the Executor. This is to make sure the actual cue is triggered when the show is played back. The difference between a Go and the Goto is that a Goto is actually a jump in the cue list (even though it might be the next cue), which might look different than a Go. Please read about the difference in the description of the [Go command](#) and the [Goto command](#).

When the recording is done then tap the Stop button in the timecode encoder bar.

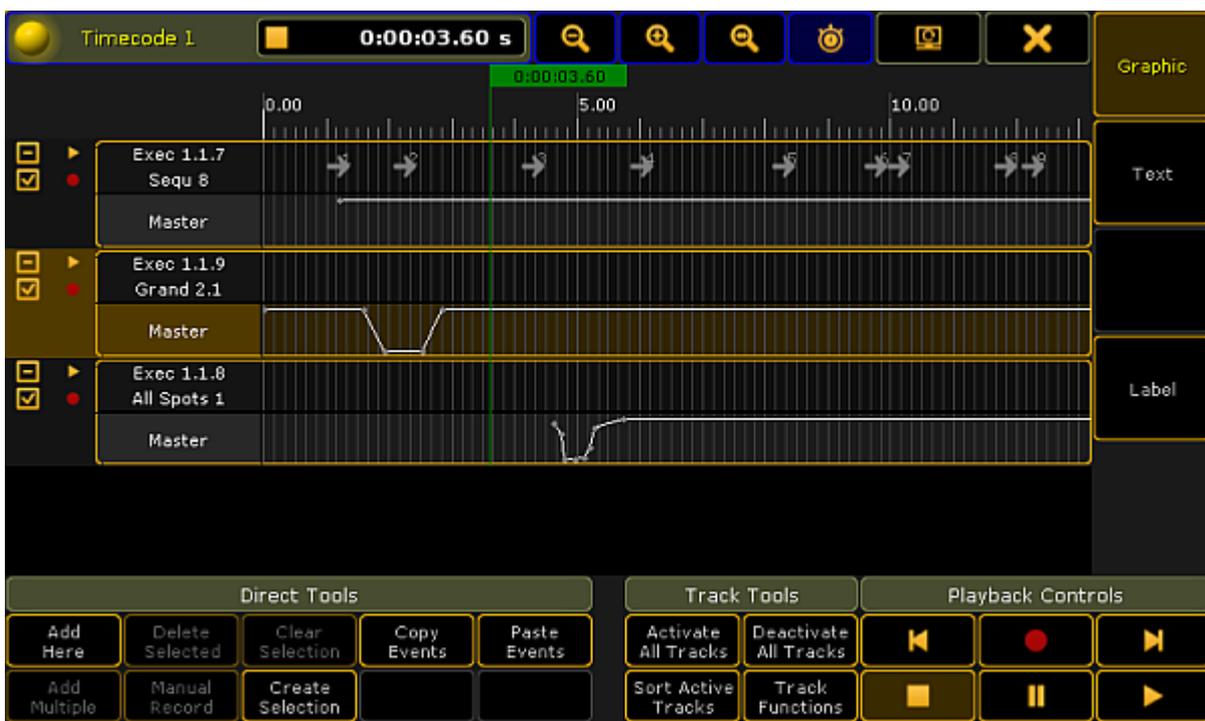
All these action can of cause also be done from the command line. Please see the [Timecode Keyword](#) description for examples of all of the actions mentioned regarding the Timecode Show..

## 33.3. Edit a Timecode Show

Editing a Timecode Show opens the Timecode Editor pop-up.

### Timecode Show Editor

The editor could look like this:



*Timecode Editor pop-up - Graphic style*

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It has two modes that can be changed using the buttons on the right side. The only difference is in the [Main part](#). Above is the **Graphic** style. Below is the **Text** style:



*Timecode Editor pop-up - Text style*

## Title Bar

The left side of the title bar has the standard yellow ball that will open the Options when it is tapped. Continuing from left to right in the title bar, the next thing is the name and number of the Timecode Show. There is an area that displays the playback status (Stop, Play, Pause, and Record icons) and the current time. If there is a "+" in front of the time then a time offset is added.

There are three buttons that zoom the timeline in the graphic viewer. The first two zoom buttons (from left) is normal zoom in and out. The next button will zoom to view the entire recorded Timecode Show.

The next "zoom" button is actually a toggle button - this is called **Follow Time**. When it is active, the display always shows the active cue or time. Like **Auto Scroll** in a sheet. It moves the the green time marker and line from the left side and into the center of the screen when the show is recording or playing.

The last two buttons in the title bar are the standard buttons for moving the Editor to a different screen, and the big X that closes the Editor.

Remember that if the Editor is on screen 1 then the Right side buttons and possibly the Bottom buttons can be operated by the U-keys and the X-keys. It is always possible to tap the buttons on the screens.

## Right side buttons

As mentioned briefly above, there are two buttons on the right side of the editor that changes the mode of the main part between a Graphic and Text mode.

The Label button opens an **Enter Name pop-up** that will label the Timecode Show.

## Bottom buttons

At the bottom there are a lot of buttons that allows for editing and controlling the timecode show. They are divided into three sections: Direct Tools, Track Tools, and Playback Controls.

### Direct Tools:

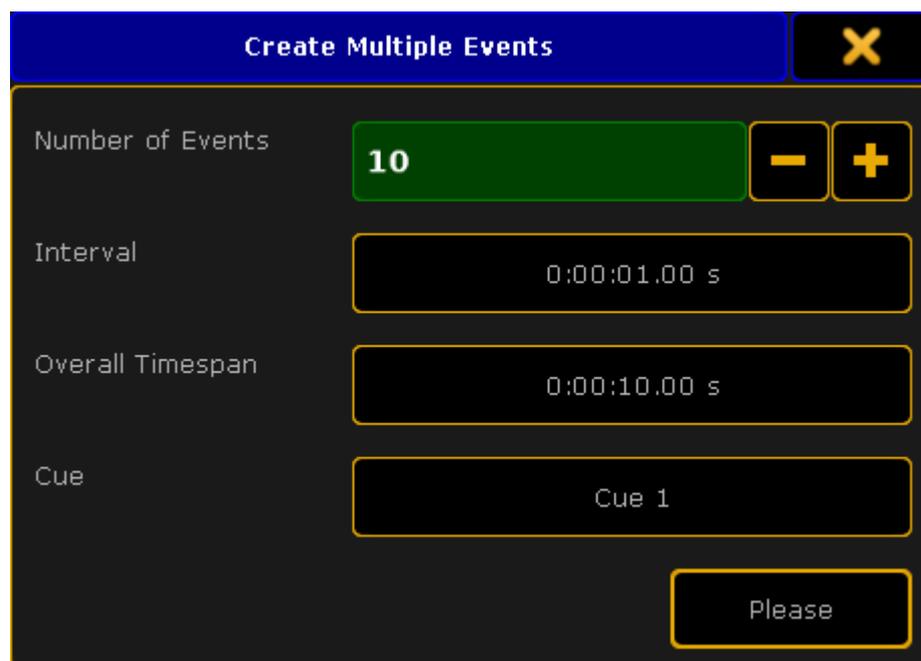
Tapping these buttons will add, copy/paste, select and delete events.

- **Add Here:**

Adds an event at the current frame. If there is already an event at this time frame, it will add the event at the next frame. It will not create an event, if there is also something at the next frame. It will automatically add a Goto next cue or insert a marker on the current fader position.

- **Add Multiple:**

This opens the **Create Multiple Events pop-up**.



*Create Multiple Events pop-up*

Here you can add more than one event at the same time. Set the **Number of Events** needed. Set an **Interval** or an **Overall Timespan** - they are linked based on the number of events. Finally set first cue for the events. The following cues will be added based on the number of events. If there are not enough cues, then the sequence is wrapped and the cues from the top are used.

- **Delete Selected:**

Deletes all selected events.

- **Manual Record:**

This function is currently not implemented.

- **Clear Selection:**  
Pressing this will deselect all selected events.
- **Create Selection:**  
This will open the **Create Selection pop-up**.



*Create Selection pop-up*

Here you can select multiple events. The left drop down list allows to select if the selection will be made **On Current Subtrack**, **On Selected Tracks**, or **On All Tracks**. The next three buttons allows to select all events **Before** (and including) the time marker, select **All** events, or all events **After** (and including) the time marker.

- **Copy Events:**  
Tapping this button will copy the currently selected events. It will copy all events in the selected track if there is no selected events. It is possible to select events from several tracks.
- **Paste Events:**  
This button inserts the copied events, at the current time marker. If entire tracks have been copied, then it will offset the events and paste them with the 0 frame at the current time marker position. If several tracks are copied, it will paste into the respective new tracks.

## Track Tools:

These are buttons that control how tracks are played back and it can be used to manually add or delete tracks.

- **Activate All Tracks:**  
This will display all tracks in the Text mode of the Editor.
- **Sort Tracks:**  
This will allow you to sort tracks in numerical order. Non-active tracks will be moved to the bottom of the list.
- **Deactivate All Tracks:**  
This will hide all tracks in the Text mode of the Editor (recorded events will be executed).
- **Track Functions:**  
Gives you the Track Functions pop-up. There are a lot of track functions. This pop-up opens other pop-ups and can do more complex operations. Please read more about the track functions [below](#).

## Playback Controls:

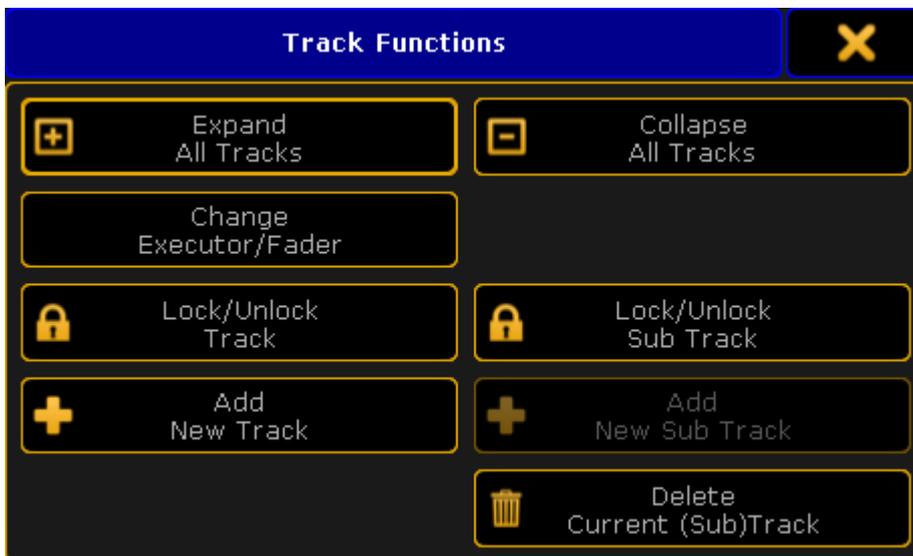
These buttons control the playback and record state of the Timecode Show.

- **Rewind (to the beginning):**  
Rewinds to the 0 time.
- **Stop:**  
Stop the running/playback or recording of the show.

- **Record:**  
Records the show from the current time. If the show is rewound and recorded again then it is possible to record more actions into the show. It will not delete what previously recorded.
- **Pause:**  
Temporary stops the running time or recording at the current time.
- **Forward (to the end):**  
Moves the time marker to the end of the show.
- **Play:**  
Plays the timecode show. Read more in the [Playing Back a Timecode Show topic](#).

## Track Functions

The Track Functions are opened by tapping the **Track Functions** button. It could look like this:



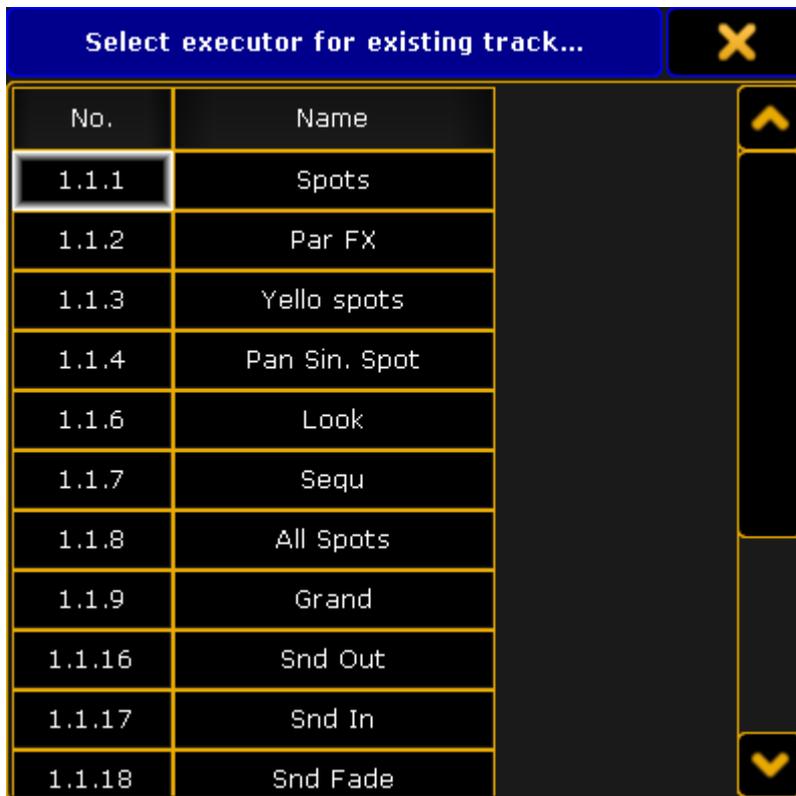
*Track Functions pop-up*

There are eight different buttons here:

- **Expand All Tracks:**  
This will expand all the sub tracks in the Timecode Show.
- **Collapse All Tracks:**  
This will collapse (hide) all the sub tracks in the Timecode Show.

- **Change Executor/Fader:**

Pressing this will open a **Select executor for existing track pop-up**. It could look like this:



*Select Executor for Existing Track pop-up*

Here one of the existing executors can be selected for the currently selected timecode track.

- **Lock/Unlock Track:**

Pressing this will lock or unlock the main AND sub tracks. Locked tracks get a yellow padlock icon.

- **Lock/Unlock Sub Track:**

Pressing this will lock or unlock only the selected track or sub track. Be aware that a sub track can be locked by both lock buttons. Locked subtracks gets a yellow padlock icon.

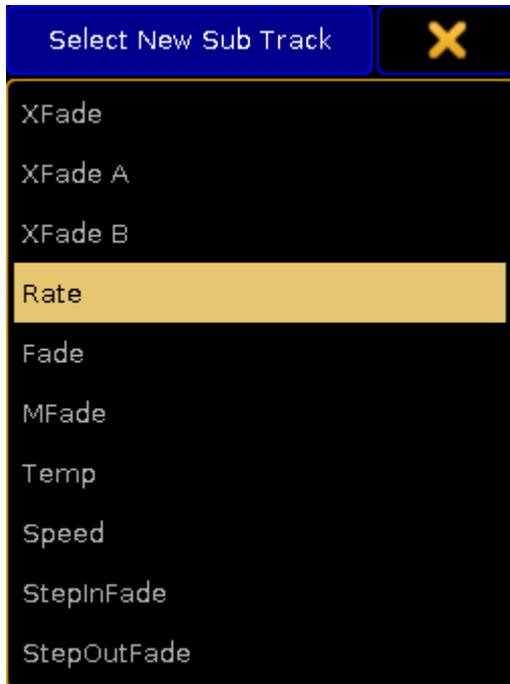
- **Add New Track:**

Pressing this will open a **Select executor for new track pop-up**. It looks exactly the same as the Select executor for existing track pop-up shown above.

Here a track can be selected from the list of executors. The selected executor will be added as a new track to the Timecode Show.

- **Add New Sub Track:**

Pressing this will open a Select New Sub Track pop-up.



*Select New Sub Track pop-up*

Here a fader function can be selected to be added as a new sub track to the Timecode Show.

- **Delete Current (Sub) Track:**

Pressing this will delete the track. If the current track is the main track then it will also delete the sub tracks.

## Main part.

The main part of the **Timecode Editor** has a time line at the top. With a green marker displaying the current position. This marker cannot have a minus value - since timecode cannot be a negative value.

On the left side there is a small area displaying the different tracks. There are at least one track that have all the Executor actions (key presses and releases). The main track is represented by an area with a dark background. There is the executor number on the top line and the sequence number and name on the next line. Below this there might be subtracks. Subtracks contain fader movement. The executor can be changed using the [Track Functions](#) or by pressing the **Edit** key and then press one of the tracks (or right-click them with the mouse), this will open pop-ups that can be used to select a new executor or subtrack type.

On the far left side next to each main track there are four different symbols. One of them is a small square with a plus or minus. This will expand or collapse the subtracks. There is also a small square with either a small check mark or it is empty. This will display or hide the track in the Text mode of the Editor. Then there is the small "play" icon. If this have a disabled symbol across it, then this track and subtracks will not be executed when the show is played back. The last icon is a "record" icon. If this have an disabled symbol across it, then this track and subtracks will not be changed during a recording. These icons are changed by tapping them.

The rest of the main part is different depending on what mode is selected.

## Graphic Mode

In the Graphic mode there are tracks expanding from the areas with the executor numbers and (if expanded) the faders. The events are displayed with different symbols.



*Timecode Editor pop-up - Main part Graphics mode*

The picture above shows the expanded track. The top row displays some of the different events. The subtrack rows displays the fader movement. All the events can be edited by right clicking them with a mouse.

The green vertical line is the current time. There is one time marker for each timecode show in a network session. If **Follow Time** is activated (in the title bar) then the last played action in the main track is automatically selected during playback. If the timecode source is the internal source, then the time will be paused if the 4th (right most) encoder is turned and this also moves the position of the last event.

The symbols in the top row differs with the different actions. The number next to some of the symbols is the cue number. There might also be a text, this is the cue name.

Right clicking one of the events opens the **Event Command pop-up**.



*Event Command pop-up*

Here it is possible to select a different action for the event.



## Important:

Event when the Go key was pressed during the recording then the stored action is actually a Goto action. This is to make sure that the recorded cue is the one being played back.

## Text Mode

The text mode changes the main part to something like this:



Time	Exec	Command	Value	Timing Overwrite
0.97 s	Timecode 1.8	Goto	Cue 1	
0.97 s	Timecode 1.8	Master	100.0%	
2.63 s	Timecode 1.8	Goto	Cue 2	
3.83 s	Timecode 1.8	Goto	Cue 3	
4.87 s	Timecode 1.8	Master	100.0%	
4.93 s	Timecode 1.8	Master	84.0%	
5.00 s	Timecode 1.8	FastOff		
5.03 s	Timecode 1.8	Master	0.0%	
5.30 s	Timecode 1.8	Goto	Cue 1	
5.30 s	Timecode 1.8	Master	12.0%	
5.40 s	Timecode 1.8	Master	100.0%	

*Timecode Editor pop-up - Main part Text mode*

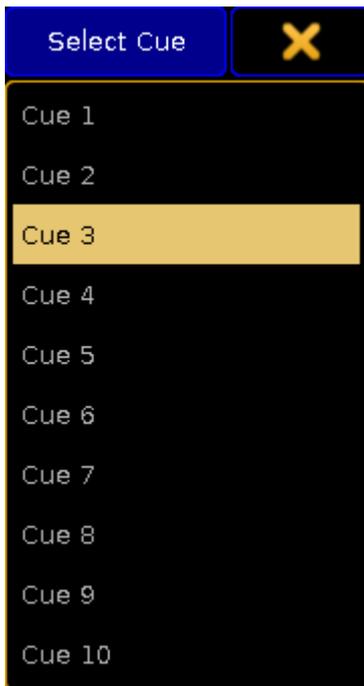
This is the events represented in a spread sheet style. There are 5 columns:

- **Time:**  
This is the time for the action or command.
- **Exec:**  
This is the name of the sequence and the number of the executor.
- **Command:**  
This is the command or action that is performed.
- **Value:**  
The value is the cue number or the fader position connected to the command/action.
- **Timing Overwrite:**  
A value here will open the Calculator pop-up. It can be used to write a new value that will be used as Fade time for cues actions instead of the otherwise stored time.  
It overwrites the stored cue timing. All delays are set to 0 (zero) and individual times are ignored. It affects all cue parts.

Each row is an event in the timecode show. The rows with the light gray background is the events in the selected track. The row with the green background is the selected event. Rows with a darker gray color is events in a not selected track.

The last executed event is automatically selected when the show is running. If the time source is the internal clock and the 4th encoder is turned during playback then the time will automatically pause and the selected event is moved.

Everything that does not have a very dark gray background can be edited. Editing a cell will open a pop-up that can edit the values. For instance editing a Value cell that is a cue, will open the **Select Cue pop-up**. It could look like this:



*Select Cue pop-up*

Here a different cue can be selected.

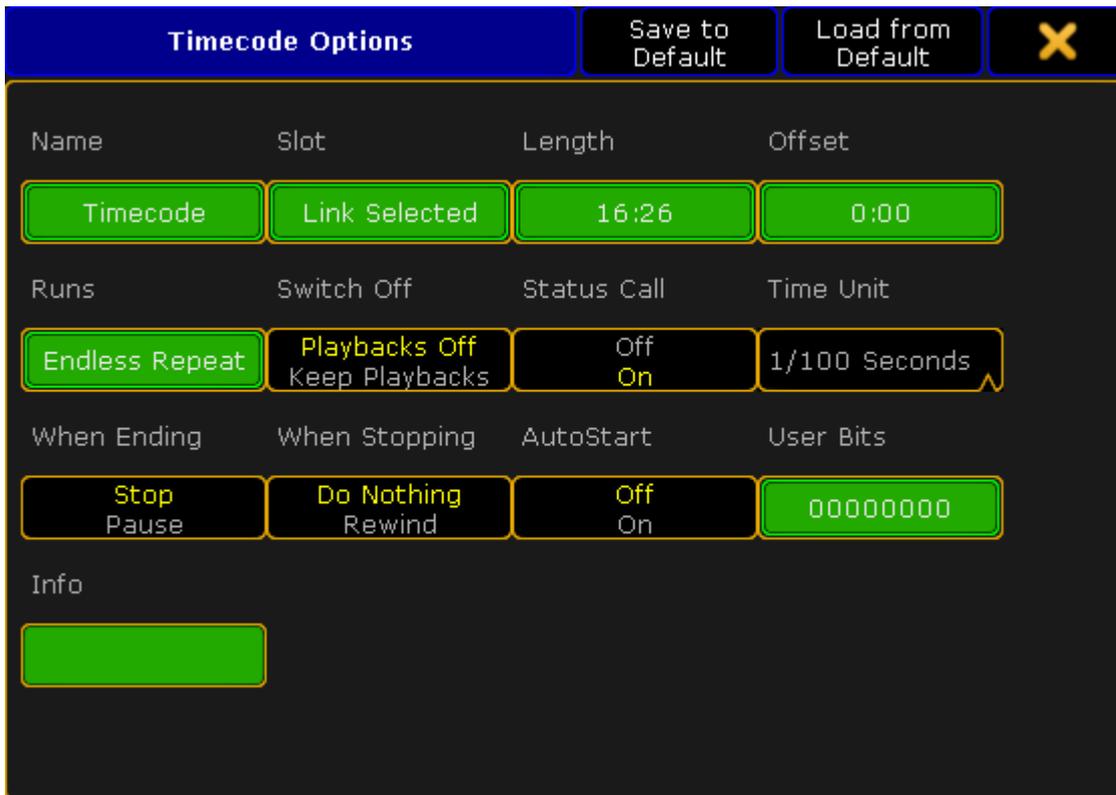
The columns can be sorted by tapping the column title and swiping up or down. This will sort the column ascending or descending and is also symbolized with a small arrow pointing up or down.

## Timecode Show Options

Tapping the yellow ball in the upper left corner of the **Timecode Editor** opens the options. The options could look like this:

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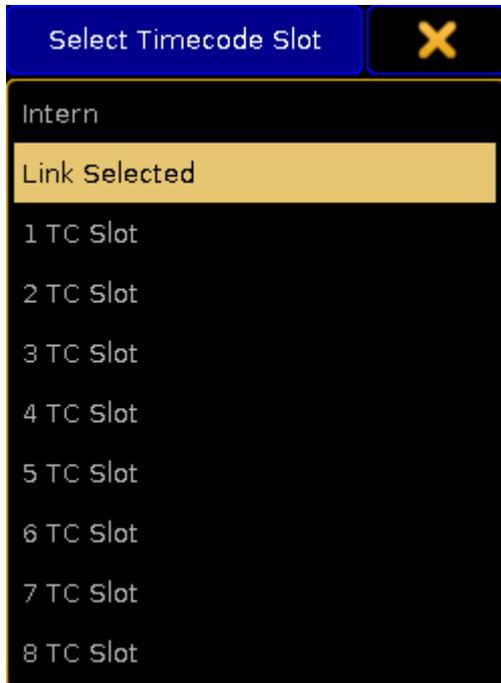
*Timecode Options pop-up*

This is a short description of the different options:

- **Name:**  
Here the name of the timecode show can be edited.

- **Slot:**

Tapping this field will open the Select Timecode Slot pop-up. Here it can be selected if the time source is internal, linked to the selected slot or fixed to one of the 8 slots. The pop-up looks like this:



*Select Timecode Slot pop-up*

- **Length:**

The total length of the show.

- **Offset:**

Allows to set a (positive) time offset for the entire timecode show. For instance adding an hour to the entire show without having to move all the events.

- **Runs:**

This is used if the time source is internal. Then the timecode show can be set to loop a number of times or do an endless loop (until stopped manually).

- **Switch Off:**

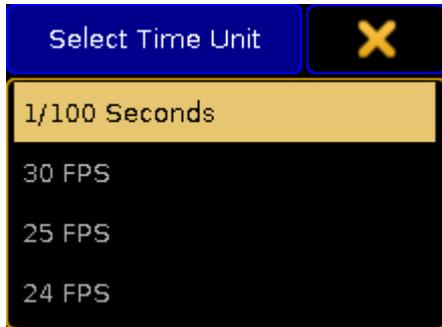
This has two options: **Playback Off** or **Keep Playbacks**. This defines what happens with playbacks (started by the timecode show) when the timecode show is turned off.

- **Status Call:**

When Status Call is turned on, then the timecode show will sync with the timecode signal instantly. When it is off it will execute the action when the event is reached. Example: The timecode show is turned on when the time is between a "Goto Cue 1" and a "Goto Cue 2". With Status call On, a Goto Cue 1 is immediately executed - it is the status the timecode show is suppose to have. When it is Off, it will not run cue 1 but wait till it reaches the "Goto Cue 2" event.

- **Time unit:**

Pressing here opens the **Select Time Unit pop-up**. It looks like this:



*Select Time Unit pop-up*

Here the displayed time unit can be selected. The options are: **1/100 Seconds**, **30 FPS**, **25 FPS**, or **24 FPS**. This is not depended on the incoming time signal. This is only for the graphic display mode. (FPS = frames per second).

- **When ending:**

This has two different options: **Stop** or **Pause**. This decides what happens when the timecode show runs out of recorded time. This option does not have any effect when using an external time source!

- **When Stopping:**

This has two different options: **Do Nothing** or **Rewind**. This decides what should happen when the timecode show is stopped.

- **Autostart:**

This has an **On** or **Off** option. Should the timecode show begin automatically when the time source is running. This option is not available when using an internal time source.

- **User Bits:**

Beside the 32 Bit for 8 digit Timecode time, timecode executes 32 User bits (8 digit) per frame. User Bits can transmit several kinds of information, for example a second Timecode Stream. So several incoming Timecode Streams can be discerned. This is not available when using an intern timecode source. Do not change this unless told by the ones supplying the time source.

- **Info:**

Here it is possible to add some info text to timecode show.

The options can be closed by tapping the yellow "X" in the upper right corner.

## 33.4. Playing Back a Timecode Show

The Timecode Shows can be controlled using the Timecode Encoder Toolbar or by the command line.

When a timecode show is tapped in the timecode pool then the Encoder Toolbar changes to this:



*Encoder Toolbar - Timecode Show*

This can be used to control the playmode of the show. This is a short description of the buttons in the top row (left to right):

- **Show info button:**  
This button does not do anything when tapped. It displays the name and number of the Timecode Show.
- **Edit Timecode Show:**  
Tapping this button will open the Timecode Editor - please read the [Edit a Timecode Show topic](#) for details.
- **Jump to Start:**  
This will set the Time to 0 (zero).
- **Stop:**  
This button will stop the Timecode Show.
- **Pause:**  
This will pause the Timecode Show.
- **Play:**  
This will set the Timecode Show in play mode. If the source is external then it will wait for the timecode source to begin. If the source is an "Intern" source then it will start to run from the position of the Time marker.
- **Jump to End:**  
Tapping this will jump to the end of the Timecode Show.
- **Record:**  
Tapping this will set the Timecode Show in Record mode - read more about recording a Timecode Show in the [Record a Timecode Show topic](#).

The four encoders has the following functions:

- **Time:**  
This is the Time marker. It displays the current time. If the source is "Intern" then the encoder can be used to set the current time.
- **Track:**  
This is used to select a track - read more in the [Edit a Timecode Show topic](#).
- **Event:**  
This is used to select events - read more in the Edit topic liked above.
- **Move:**  
This can be used to move the selected events - read more in the Edit topic liked above.

The encoders are primarily used together with the Timecode Editor.

## Using command line

A Timecode Show can also be controlled by the command line.

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A [Go](#) command will set the timecode show in play mode.

For example if you want to play Timecode Show 2:

```
[Channel]> Go Timecode 2
```

If you want to play Timecode Show 3 from a certain time and it is the "Intern" source, then the following command can be used (3 hours and 30 minutes):

```
[Channel]> Go Timecode 3 Time 3h30m
```

The show needs to have a lengths larger than the specified time.

It can also be paused to a specific time by using the command above but with [Pause](#) instead of Go.

[<<<](#) will jump to the time 0 (zero).

```
[Channel]> <<< timecode 4
```

[>>>](#) will jump to the end time (length in the options).

[Off](#) can be used to stop a timecode show.

## Timecode Generator

Each [Timecode Slot](#) can generate a timecode signal for the session. This signal will not be output by the LTC or MIDI ports, but it will be distributed in a session.

Tapping a Timecode Slot in the Pool will change the Encoder Toolbar to look like this:



*Encoder Toolbar - Timecode Generator*

In the top row there are a lot of buttons. This is a short description of them from left to right:

- **Slot Number Info:**
- This information button displays the Timecode Slot number and it writes "Emulated" and a frame per second if the generator is running.

- **Time format** - swipe button:
  - This is used to set the generated frames per second (FPS). The options are: **24 FPS**, **25 FPS**, **30 FPS**, and **1/100s**.
- **Loop** - toggle button:
  - When this is active then the generator will jump back to the Start time (set by the center left encoder) when it reaches the End time (set by the center right encoder).
- **Jump to Start**- also in the title bar of the clock when displaying the timecode slot:
  - This will jump to the Start time.
- **Rewind**:
  - Holding this button will rewind the time.
- **Stop**:
  - It stops the generator and sets the time to the start time.
- **Pause** - also in the title bar of the clock when displaying the timecode slot:
  - This will pause the generator at the current time.
- **Play**- also in the title bar of the clock when displaying the timecode slot:
  - Tapping this will start the timecode generator.
- **Fast forward**:
  - Holding this button will fast forward the time.
- **Jump to End**- also in the title bar of the clock when displaying the timecode slot:
  - This will make the generator jump to the End time. If loop is active then it will jump back to the Start time if the generator is running.

Three of the encoders can be used with the Timecode Generator. The left encoder does not do anything, but the label of the encoder displays the time for the slot. The next encoder can be used to set a Start Time for the generator. The third one can be used to set an End time for the generator.

## Using command line

The generator can also be controlled using commands.

To play or generate timecode slot 1 use the **Go** command:



Use **Off** to stop the generator. **Pause** will pause the generator.

## 33.5. Organize Your Show with Multiple Timecode Shows

This topic has a few tips and tricks when the show contains multiple Timecode Shows.

### Separate into songs or sections

Multiple Timecode Shows implies this. It is a good idea to separate the performance into smaller sections. If it is for a concert, then it is an obvious choice to make a Timecode Show for each song. If it is a theatrical or musical performance, then it might be more tricky but there is often obvious time to make separations.

For music it might also be a good idea to put each song on separate pages.

For an overview it can be a good idea to create a view with the Timecode Pool displaying all the recorded Timecode Shows. This makes it easy to see the play mode of the timecode show.

## Offset the start time

It is a good idea to agree with the ones supplying the time source signal that each section or song starts at a different time instead of all of them starting at time 0 (zero).

This can help void running the wrong tracks at the wrong time.

## Use Link Selected

If the time source is external, then it might be a good idea to set all the Timecode Shows to "Link Selected". That makes it very easy to "Turn Off" the external source if changes are needed or if there is rehearsals where the timecode starts and stop at different times without the need for the light to follow. Simply tap the relevant slot in the Timecode Slot pool.

## Consider not recording the Master intensity

Depending on your situation it might be an idea to not have the intensity Masters track stored in the Timecode Show.

If it is stored in the Timecode Show, then it is "locked" to the recorded position as long a the track is running. If it is not in the Timecode Show then it is possibly to adjust the master level while the tracks are running.

But this is a matter of preferences. Other likes to have the Master track stored, so they know that it is up and they do not forget to bring up the master.

## Macros can be a big help

Macros can be a big help in shows with multiple Timecode Shows.

It could be macros that selects the correct Timecode Show, changes the page, and maybe even set the play mode for the selected Timecode Show.

Macros that changes the play mode for the selected Timecode Show is very useful, just as macros that runs Off all Timecode Shows can be really good.

It can also be macros that selects the Timecode Slot.

This was some inspiration or thoughts that might help you organizing a show with multiple Timecode Shows.

## 34. Timers

### 34.1. Timer Pool & Options

Manage the stopwatch and the countdowns in the timer pool.

1. Open the timer pool:

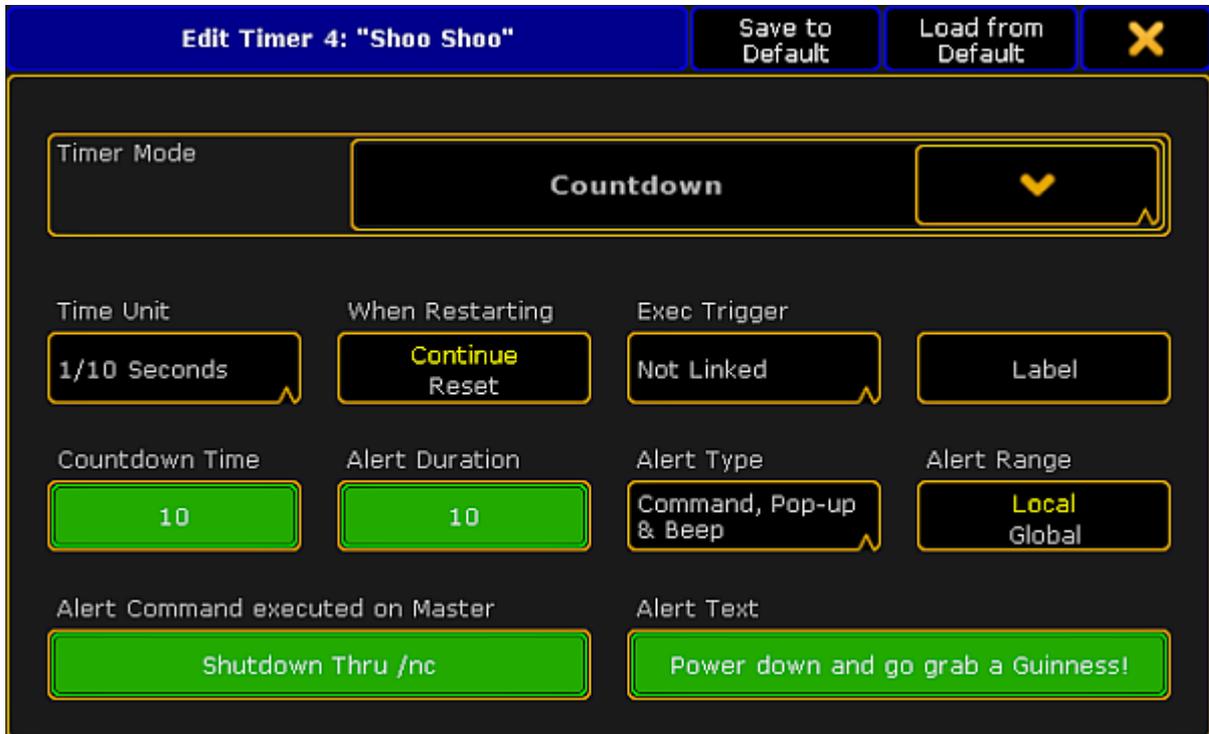
-Tap **Pools** in **Create Basic Window**. For more information on how to open a basic window see [Manage windows](#).

-Tap **Time** and the timer pool opens.



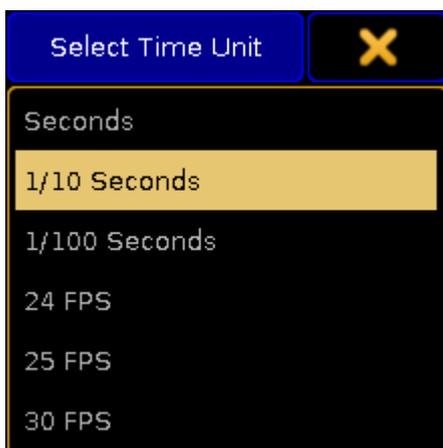
*Open the timer pool*

2. Set a new timer, for example **Countdown**:
  - Press **Edit** and then tap an empty cell in the timer pool.
  - The **pop-up Edit Timer** opens.



*Edit the timer Countdown*

3. Now, select the timer mode:
  - Tap the drop-down and tap **Countdown**.
4. Set the time unit:
  - To set the time, tap **Time Unit**.
  - The **pop-up Select Time Unit** opens.



*Select unit*

- Tap to select the unit, for example 1 / 10 Seconds.
5. To continue the countdown after restart, tap **When Restarting**. The button toggles between **Continue** or **Reset**.

- To set a link to an executor, tap **Exec Trigger**.  
-The **pop-up Select Exec Trigger** opens.



*Link timer to an executor*

-If you do not want to set a link to an executor, tap **Not linked**.

---

## Exec Triggers

- **LinkSelected-Start** and **LinkSelected-Toggle** are linked to the executors you have selected.  
-If an executor is linked as **LinkSelected-Start**, the commands GO, GOTO, and TOP start the timer.  
-If an executor is linked as **LinkSelected-Toggle**, the timer toggles between start and pause.
- **LinkLastGo-Start** and **LinkLastGo-Toggle** are linked to all executors, also the ones you have selected.  
-If the link is set as **LinkLastGo-Start**, the commands GO, GOTO, and TOP start the timer on all executors.  
-If the link is set as **LinkLastGo-Toggle**, the timer toggles between start and pause on all executors.

- 
- Label the timer you have set:
  - Tap **Label** and an editor opens.  
-Type the name of the timer and press **Please**.
  - Set countdown time and alert duration:  
-Tap the green button below **Countdown Time** and the calculator opens.  
-Enter the time of the countdown.  
-Tap the green button below **Alert Duration** and the calculator opens.  
-Enter the duration of the alert.

- Now, select the type of the alert:
  - Tap **Alert Type** and the **pop-up Select Alert Type** opens.



*Setting the type of an alert*

- Tap **Command, Pop-up & Beep**.
  - The alert can now be set off via the command line simultaneously displaying a warning pop-up and an audio signal on the console.
- Set the range of the alert:
    - To toggle the range of the alert to **Local**, tap **Alert Range**.
    - The alert only sets off on the console currently in use.
  - Type the command that is to be executed in the session master:
    - Tap the green button below **Alert Command executed on Master** and an editor opens.
    - Enter the command.
  - Enter the message that is to be displayed in the warning pop-up as soon as the alert sets off.
    - Tap the green button below **Alert Text**.
    - An editor opens.
    - Enter the message of the pop-up.
  - The countdown is now set.



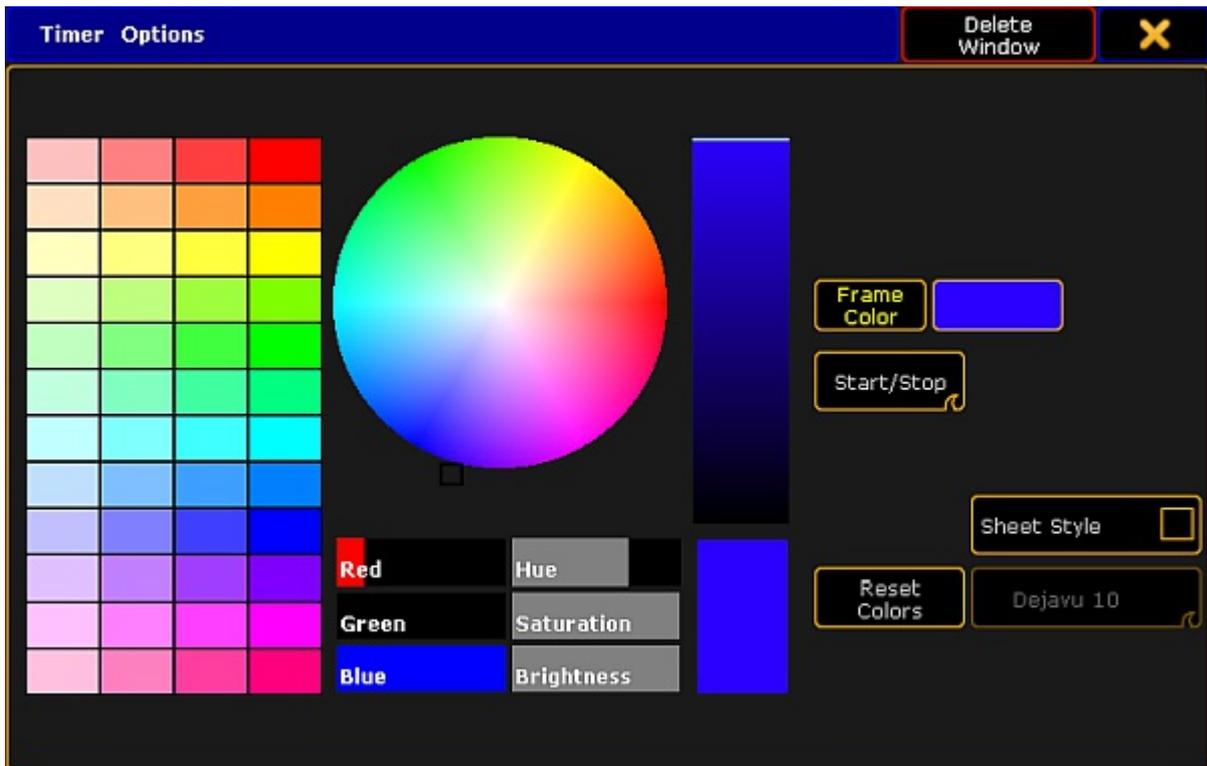
#### Hint:

The current time of the timer can be assigned as the timing of a cue. Use the following syntax "Assign fade \$timer1 cue 1 please" or **Assign Time** TimerPoolObject **Cue 1 Please**.

## Options

To open the options of the timer pool, tap the  in the upper left corner of the pool.

The option dialog opens.



*Setting the options of the timer pool*

1. To adjust the general settings such as the frame color, sheet style, font or the reset of colors, see [Adjust pool options](#).
2. To start or pause the timer directly in the pool, swipe the button **Select** to **Start / Stop**.
  - To start the timer, tap the pool object once.
  - To pause it, tap it once again.



**Hint:**

If you swipe the button back to **Select**, tapping the timer in the timer pool selects it.

34.2. Use the clock to display timers

34.3. Create a stopwatch

## 35. Agenda

### 35.1. What is agenda

### 35.2. Create an appointment in the agenda

### 35.3. Running or stopping the agenda

## 36. Macros

The macro system is a very powerful tool that can help with the programming and can be used to do make repetitive task simpler and faster.

All macros are kept in the macro pool. This pool is shared by all users in the show file.

Read the [What are Macros topic](#) to get a more general understanding about macros.

Read the [Manually create a macro topic](#) and the subtopics to learn about creating simple and complex macros.

It is also possible to record key presses into a macro. Read the [Record a macro topic](#) to learn how.

### 36.1. What are macros

Macros are commands stored in a pool object.

The commands can be simple, very complex, and everything in between.

This makes programming faster and more convenient. This allows you to do trivial or complex operations by a push of a button.

Macros are stored in the **Macro Pool**, but can be assigned to physical keys. The macro pool are shared between all Users in the show file. This means that if user number 1 is storing a macro on pool object number ten then it will also be available for User number 2 as macro number ten.

If you do not know about pools, then please read the [Pools in General topic](#).

#### Macro Pool

The Macro pool could look like this:

 <b>Macro</b>	1 <b>C</b> Call fast	2 <b>T</b> Clear DMX Tester	3 <b>i</b> Extract	4 <b>▶</b> Line 1 Knockout Selection	5 MA-tricks Reset	6 Group Master View	7 Network Info
8 Shuffle Selection	9 Version Info	10 Stomp At	11 Stomp Dimmer	12 Stomp Position	13 Stomp Gobo	14 Stomp Color	15 Stomp Beam
16 Stomp Focus	17 Stomp Control	18 Stomp Shapers	19 Stomp running Effects	20	21	22	23
24	25	26	27	28	29	30	31 Assign Effect Speed Group

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## Macro Pool - pool style

This is what it looks like in pool style. It can be changed in the options to Sheet Style. Then it looks like this:



No.▲	Name	Playmode	CLI	Timing	Info
1	Call fast			On	
2	Clear DMX Tester		On		
3	Extract		On	On	This is inof text.
4	Knockout Selection	▶ Line 1	On	On	
5	MA-tricks Reset		On	On	
6	Group Master View		On	On	
7	Network Info		On	On	

## Macro Pool - sheet style

Read the [Manually create a macro topic](#) to learn more about creating macros.

## Running Macros

You can run the macros by tapping them in the pool, using the keys, or using the command line. For example press **Macro 5 Please** to run macro number 5. Type **macro 5** followed by Enter/Please to run it from command line. Read more details about the macro command in the [Macro keyword topic](#).

Macros can also be assigned to Executors, X Keys, or View buttons. To learn more please read the [Assign a macro to a button topic](#).

## Advanced macros

Macros can be advanced. This means that you can make macros that presents a pop-up asking for user input, calculations, conditional macros lines, and user definable or system wide variables.

Since the grandMA2 is a command line driven software, then you can do almost anything with macros.

Please read the [Manually create a macro topic](#) and the subtopics for more about advanced macros.

If you need even more advanced access to the system behind the grandMA2 then you can use the grandMA2 Plugins. They allow for LUA scripts to be used to interact with the software. This is for the very advanced users. Read more about this in the [Plugins section](#).

## Timed or triggered macro lines

Macros can run as fast as possible, where a macro with multiple line will run the commands in each line as fast as possible. But they can also be timed so there is a delay between the execution of the next macro line. This can be a good idea if the command is something that might take a little while for the software to execute. For instance if a macro line is storing 1000 cues. It does not take the macro a long time to run the command, but the software might need half a second to actually to it. Then if the next macro line jumps to cue number 999, then you need to delay this macro line - the software needs to create the cues before you can jump to it.

A third option is a macro line that waits until it is triggered again by a user.

Read more about these options in the [Macro timing topic](#).

## Import and Export

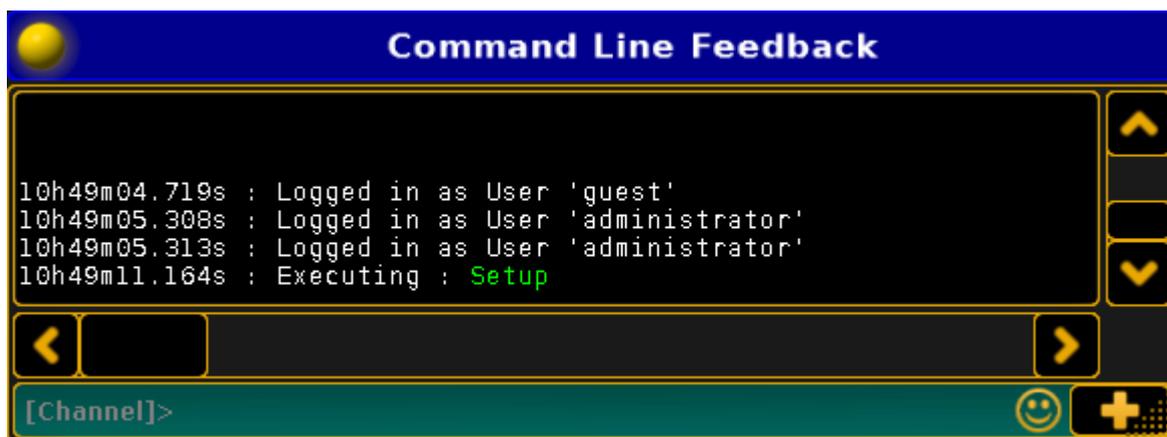
Macros can also be imported and exported. You can import macros stored on a USB stick or from the predefined macros in the software. Read more in the [Export and Import section](#) to learn more about how to export and import.

## Learn how to write macros

Macros are basically lines of text. The lines are executed as command line input for processing by the grandMA2 software. The power of macros is based on the power of the command line. If something can be done using the command line then a macro can do it.

To learn macros, you need to learn the grandMA2 command line syntax. This is described in details in the [Command Syntax and Keywords section](#).

Sitting down and learn everything about the grandMA2 syntax and keywords is a very big task. The easier way to begin to understand how it works is to always have a **Command line Feedback window** visible on one of your screens:



*Command Line Feedback window*

Most of your actions on the console will result in an entry in this window, and will be listed as "Executing", "Realtime", or "Macro".

```
[time] : Executing : Channel 1 At 50
```

```
[time] : Realtime : Go Executor 1.8
```

[time] : Macro : SaveShow

You do not have to worry about these 3 different classifications. This indicates the source of the processed command. **Executing** means that you have executed a command by pressing keys or other normal user input. **Realtime** means that the command originated from your pushing executor buttons and has been processed with a high priority. **Macro** means that the command is originating from some direct key press (like double tapping the Backup key), or a macro.

If it comes from a macro in the macro pool, then it also write the macro number and the line number that executed the command.

If the commands comes from a command in a cue, then it displays the sequence and cue number. This makes it easy to identify where the command comes from.

## 36.2. Manually create a macro



### Quick steps:

1. Edit an empty macro pool object.
2. Add a new line by tapping the **Add** button.
3. Type the desired command.
4. Add more lines if needed.
5. Label the macro by tapping the **Label** button and type the macro name.
6. Close the editor by tapping the X in the upper right corner.

This was the quick steps - Keep reading for more details.

You can create your own macros - this is one of the very powerful features of the grandMA2.

Macros are stored in the Macro Pool. The easiest way to create a new macro is to edit an empty macro pool object.

There are several ways to edit a pool object:

1. Right click with a mouse or trackball on the pool object.
2. Press the **Edit** key and then tap the pool object.
3. Tap the pool object and then tap the screen encoder.
4. Using the keys **Edit** **Macro** **pool object number** **Please**.
5. Type it in the command line.

The **Edit Macro pop-up** is used when editing a macro. It could look like this:



*Edit Macro pop-up*

In the image above you see a macro that is **not** empty. There is already a line with a command.

## Buttons in the editor

There are buttons on the right side and the bottom to help with the macro creation, settings and modifications. The following is a short description of the buttons:

### Add:

Tapping this button will add a line, in your macro, above the currently highlighted line (if there are any). It will also open the **Edit CMD pop-up** that allows you to type the desired command immediately.



*Edit CMD pop-up*

### Delete:

Tapping this button will delete the currently selected line in the macro.

### CLI:

CLI is short for Command Line Interaction. CLI is activated when the text is yellow - it is active by default. CLI allows you to interact with the pool object. This means that the command line will react to you tapping the macro in the pool. Read more details about CLI and Macros in the [Command line interaction topic](#).

### Timing:

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The Timing button allows you turn on the timing defined in each macro line or to just run it as fast as possible. Read more about macro timing in the [Macro timing subtopic](#).

## Test Macro:

This button allows you to test run the macro before closing the editor. All commands are executed, so this is not a macro simulation.

## Test Line:

This can be used to test the highlighted macro line (white or blue frame). This can be useful in the creation process.

## Load Predefined:

This button is used to load one of the predefined (factory made) macros. For more about this please read the [Import predefined macros topic](#).

## Label:

If you want to label the macro, then you can tap this button. It opens the **Enter Name for.. pop-up**. Here you can write the macro name.

## Main part

The main part of the editor is where you can add, edit, see, and delete the lines with the commands.

There are five columns in this part.

## No.:

This is the macro line number. You cannot edit it, but it can be useful to see the macro line number for instance when the macro is executed.

## CMD (Command):

The CMD is short for Command. This is where you type your macro command. You can use the keyboard to write the command. But when the **Edit CMD pop-up** is active then your command line input has a red background - like this:



*Command Line input with red background*

This means that you can also use the physical keys to type your command without executing the command - it is sent to the Edit CMD pop-up.

Each macro line has an automatic "Please" at the end of the line - even though it is not displayed. This executes the macro line. The exception to this is if the macro line finishes with a "@". This is special character used to allow the macros to interact with user input. Please read more about this in the [Command line interaction topic](#).

## Wait:

This is used to add a wait time until the next macro line is executed. This wait time is only used if Timing is activated. There are two special options here: **Go** and **Follow**. "Go" is used if you want the macro to wait until there is a new Go command to the macro. "Follow" means that the macro will continue as fast as possible. "Follow" is the same as setting the time to 0. Read more about macro timing in the [Macro timing subtopic](#).

## Info:

Here you can write information that explains the macro line. Might be a good idea for others to understand complex macros.

## Disable:

Disabled macro lines are not executed. You can change the state by editing the cell in this column. If the line is disabled it is displayed with a red text color.

When you are done creating your macro then you can close the pop-up by tapping the big X in the upper right corner.

Please read the subtopics for more more options in advanced macros.

## 36.2.1. Use variables in macros

It is possible to use variables in your macros and in any command line entry in the show.

Variables are containers of text that may be reused.

Variables may be used to store phrases of text, for later reuse by command line and macros, similar to what Presets are for Attributes.

## SetVar

Variables are defined using the [SetVar keyword](#) and the [\\$ character](#):

**SetVar \$nameofvariable="content of variable"**

Whenever the variable is later referenced in the command line, the variable is replaced by its content.

The variables can contain text strings - like names. They should be put in quotation marks. That makes the grandMA2 interpret that as a text string and it can contain a space in the name.

If you do not put it in quotation marks, then the text would be interpreted as commands.

For instance if you want to create a variable containing **This is Us** and write:

```
[Channel]> SetVar $song_name = This is us
```

Then the grandMA2 would interpret it as you defining a variable containing the text "This" and then the commands **InviteStation User**

```
[time] : Executing : SetVar $song_name = This InviteStation User
```

This is not what you wanted and it is not even a valid command.

So remember the quotation marks.

Variables can also contain numbers. If you create the variable and the content is a number then it is defined as an integer (whole number) or fixed point number (a whole number with 6 decimals after the point). If a number has become a fixed point number then you cannot convert it back to an integer. That was a little bit of technical math, that you most likely do not have to worry about.

Example

This is an example of using a variable in a cue list. See the [Example macros topic](#) for more examples of using variables in macros.

A common way to program lighting for a song, is to create a sequence of cues holding the base looks and major changes for each verse and chorus, and additionally trigger different chasers on and off via the command (CMD) column in the main sequence:

- ...
- Cue 5:"Chorus": CMD:Go Executor 201
- Cue 6:"Verse 2": CMD: Off Executor 201
- etc.

If only one chaser needs to be triggered, this simple syntax usually does the job.

By using variables, triggering of multiple chaser may be easily managed:

- Cue 1:"Intro": CMD:SetVar \$chorus\_Chasers="Executor 201 + 204 + 205"
- ...
- Cue 5:"Chorus":CMD:Go \$chorus\_Chasers
- Cue 6:"Verse2":CMD:Off \$chorus\_Chasers
- etc

```
[Channel]> SetVar $chorus_Chasers="Executor 201 + 204 + 205"
```

```
[time] : Executing : SetVar $chorus_Chasers="Executor 201 + 204 + 205"
```

```
[Channel]> Go $chorus_Chasers
```

```
[time] : Executing : Go Executor 201 + 204 + 205
```



**Hint:**

Your console will only process valid commands. If none of the Executors exist, the console will not bother to process the command, and you will not see this last line

## SetUserVar

Similar to the SetVar keyword is the [SetUserVar keyword](#).

The only difference is that a variable defined with the SetVar is a global variable for all users, while variables defined with SetUserVar applies to the current user only.

---

## ListVar and ListUserVar

With the keyword ListVar and ListUserVar, the command line feedback window will list current variables and their content.

```
[Channel]> ListVar  
[time] : Global : $CHORUS_CHASERS = Executor 201 + 204 + 205
```

The list is longer. ListVar shows both user and global variables. ListUserVar only shows the variables for the current user.

Notice that the variables are stored with capital letters. This means that the grandMA2 do not distinguish between two variables called \$thisIsGreat and \$thisisGREAT. For the grandMA2 it will just be \$THISISGREAT.

## Predefined Variables

If you try the ListVar command then you will see the list of all the variables. There are a lot of predefined variables in the grandMA2 that automatically gets updated.

Some of the most useful are:

### **\$SELECTEDEXEC:**

This is the number of the currently selected executor.

### **\$SELECTEDEXECCUE:**

This is the current active cue on the selected executor.

### **\$FADERPAGE:**

This is the page number of the Executor Fader page.

### **\$BUTTONPAGE:**

This is the page number for the Executors without faders.

### **\$SHOWFILE:**

This is the name of the show.

### **\$USER:**

This is the currently logged in user.

Even though these are listed as "Global" some are actually user variables. Two different users in the same session will not get the same result in some of these - for instance the \$USER will be different and they can also be on different pages and have different executors selected.

---

## Additions with Variables

There are two commands that allows you to do a little addition with variables: [AddVar](#) and [AddUserVar](#).

You can do math with numbers and you can append text to text or numbers (this will convert a number to text).

This is the possible syntax:

**AddVar \$variable = number**

**AddVar \$variable = "text"**

**AddVar \$variable = \$variable**

The only difference between AddVar and AddUserVar is that the first is used with the global variables and the second is for the current users own variables.

The variable needs to exist before you use AddVar/AddUserVar on it.

Examples

Adding numbers:

**SetVar \$my\_number = 1**

**AddVar \$my\_number = 1**

Result is that the variable \$my\_number is the number **2**.

Adding text:

**SetVar \$my\_executor = "Executor 10"**

**AddVar \$my\_executor = " + 11"**

Result is the text in the variable \$my\_executor is **Executor 10 + 11**.

Adding variables:

**SetVar \$date\_time = \$DATE**

**AddVar \$date\_time = " \_"**

## AddVar \$date\_time = \$TIME

Result of \$date\_time is a text string and is off course based on when you do this, but it could look like this:

**12.8.2016\_12h31m37.963s** notice that for better readability we added an underscore between the date and the time.

Adding a number to text:

## SetVar \$num\_text = 23

## AddVar \$num\_text = " bananas"

The result is converted to text and it will be: **23 bananas**.

Adding a text to a number:

## SetVar \$text\_num = "The answer is "

## AddVar \$text\_num = 42

The result is a text that reads: **The answer is 42**.

For more practical examples please read the [Example macros topic](#).

## 36.2.2. Create pop-ups in macros

Sometimes it can be very useful to create macros that can collect user input while running.

A macro can create a pop-up that prompts the user for input. The macro will halt and wait for the user to type the input before continuing.

Pop-ups are created by the use of parentheses.

The text inside the parentheses are used as text prompted to the user, while the response entered by the user will replace the parentheses and the prompting text.



### **Important:**

When you are using pop-ups to assign text to variables, you should use quotes inside the parentheses: **("What address?")** but when using pop-ups for commands and numbers, do not use quotes inside the parentheses: **(Which Fixture ID?)**.

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## Example 1:

We want a macro that selects the fixture patched to a specific DMX address. The macro should ask the user for a universe number and the DMX address. This is done using two prompts - one for each user input.

Since we are asking for numbers, the text put in the parentheses cannot be in quotes - the console would interpret it as text instead of numbers.

The macro looks like this:

Edit Macro 22		
No.	CMD	Wait
1	Selfix Dmx (Which Universe?).(Which Address?)	Follow
New		

*Edit macro pop-up with macro line*

When running the macro, the console first prompts for the universe number:



*First prompt of the macro - asking for universe number*

After the user types the number and finishes with Please/Enter, then it asks for the DMX address:



*Second prompt of the macro - asking for DMX address*

Processed, the macro executes the command. It could look like this:

```
16h22m15.517s : Executing : Clear
16h22m18.211s : Executing : Go Macro 22
16h22m21.125s : Macro 22 Line 1 : Selfix Dmx 1.232
```

*Command line feedback of the macro*

## Example 2:

We want a macro that we can use to login as a different user. We want to be prompted for the user name and password. In this macro we choose to store the user input in variables. All users needs a password for this macro to work.

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This is the macro:

No.	CMD
1	SetVar \$my_user=("What User do you want to login?")
2	SetVar \$my_password=("What is the password?")
3	Login \$my_user \$my_password
4	SetVar \$my_password=

Notice that we store the user input as text.

The fourth macro line removes the my\_password variable. Otherwise the password would have been readable by anyone.

It can often be a good idea to treat the user input as text. This for instance allows for the use of names instead of just numbers.

See more examples in the [Example macros topic](#).

## 36.2.3. Conditional expressions

In some situation you may want to only process a command, if the user has answered something specific in a popup, or if a variable is set to a specific value.

The grandMA2 supports simple conditional expressions, which must resolve to "True" for the following command line to be executed.

### Example:

No.	CMD
1	SetVar \$answer=("Really delete all groups? yes/no")
2	[\$answer=="yes"] Delete Group Thru

This macro will create a pop-up asking if you want to delete all groups. The answer is stored in a variable. Then the variable content is compared to a text string. If they are equal then the rest of the macro line is executed. If they are not equal then the rest of the line is ignored and the macro will continue to the next line if there are more.

Conditional expressions are recognized by Square Brackets, and accept the following logical operators:

- **a == b**  
a equals b
- **a > b**  
a greater than b
- **a < b**  
a less than b
- **a <= b**  
a less than or equal b
- **a >= b**  
a greater than or equal b



### Important:

The two arguments a and b are not compared as numbers, but as text-strings, character by character, e.g. "61" is considered to be greater than "599", as 6 is larger than 5.

## 36.2.4. Macro timing

As you may have noticed within the Edit Macro pop-up, in addition to the command text field, there is also a wait field for each macro line.

By default the macro will proceed immediately and start processing the next line, however this "Follow" may be changed to either a wait time in seconds, or a trigger to pause and wait for next Go (to the macro), before the macro proceeds with next line.

The last wait time is not needed and the value here will be displayed in red text.

## Setting a time

Wrong timing is the major pitfall when creating complex macros. The console is multi-tasking so when a command immediately follows another, the second command will start processing, even if the previous has not yet finished processing.

If a macro-line depends on an earlier line, to be processed correctly, you may need to add a wait-time, to prevent the next command to follow immediately and be processed too early. If you experience that a command works if you type it manually but not when you run it in a macro, then it can also be a sign that you need to add a small wait time.

Example:

Let us create a Macro that Parks Channel 10 at 50%:

No.	CMD	Wait
1	Channel 10 At 50	Follow
2	Park Channel 10	Follow

With the default "Follow" trigger, this macro does not work. Setting channel 10 to 50% takes a little bit of time, and our second macro line parks the channel before the first line has been fully processed.

Giving the first line 50 millisecond to be processed, before proceeding to the next line, solves the problem in this case:

No.	CMD	Wait
1	Channel 10 At 50	0.05
2	Park Channel 10	Follow

When creating complex macros it is wise to start with a small timing of something like 100 milliseconds per line (0.1 seconds). Then you might be able to speed it up by setting a smaller wait or set lines to "Follow" if the commands are running correctly.



### Important:

Necessary processing-time is not fixed. You may experience that a timing that worked when in Standalone is not enough in a session with multiple stations and NPUs.

## Using Go

You can use a "Go" instead of a wait time or the "Follow" time. This means that the macro will halt when it reaches a "Go" in the wait column. It will continue running only when receiving a go command.

Go is the default function for an executor key, when the macro is assigned to executors.

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Example:

Here is a fun example of a macro that turns on or off the sACN output and input. It also re-labels the macro depending on the status **and** it change the frame color.

No.	CMD	Wait
1	Assign Root "DMX_Protocols"."sACN" /OutActive=on /InActive=on	Follow
2	Appearance Macro "sACN OFF/on" /h=100 /s=100 /br=100	Follow
3	Label Macro "sACN OFF/on" "sACN ON/off"	Go
4	Assign Root "DMX_Protocols"."sACN" /OutActive=off /InActive=off	Follow
5	Appearance Macro "sACN ON/off" /h=30 /s=100 /br=100	Follow
6	Label Macro "sACN ON/off" "sACN OFF/on"	Follow

The macro needs to be labeled "sACN OFF/on" before running it the first time.

Line 1 and 4 are the ones that actually change the settings for sACN output and input.

Line 2 and 5 changes the frame color (appearance).

Line 3 and 6 re-labels the macro.

All line are have a "Follow" in the wait column except line 3. This is the one that separates the "on" and "off" parts, so this is where the macro needs to halt and wait for a new "Go".

If the ["Top"](#) command is sent to the macro then it will run the macro from the first line.

["GoBack"](#) will execute the previous macro line in a multi line macro. Looking at the example above it will run line 2 if the macro is at line 3 waiting for a Go. If the macro is not active then "GoBack" will run the last macro line.

Running macros can be paused using the ["Pause"](#) command. This only makes sense for timed macros with enough time to actually pause it before it is done. You need to do a Go command for the macro to continue.

## 36.3. Record a macro

You can make a live recording of a macro.

This is the workflow when recording macros:

1. Start the macro recording
2. Type the needed commands
3. Stop the macro recording

The recording only contains commands that are visible in the Command Line Feedback and the time between the commands.

It does not record fader movement and screen presses (unless they trigger a command).

The [Record command](#) is needed to start and stop the recording of macros. You can easily reach the Record keyword by pressing the **MA** key together with the **Store** key.

When you have the Record keyword in your command line then you press the **Macro** key and then type the macro number you want to record to - execute the command with a **Please**.

If the macro you want to recording to, has already some content, the new recorded content will be added after the existing commands.

To stop the recording you will need to use the Record keyword again. You can, but you do not need to specify the macro number.

**MA** + **Store** (Record) **Macro** **Please** ends the recording.

Different things happen while you are recording a macro:

- The background light of the **Store** and **Macro** keys are flashing.
- There is a small red circle in the upper right corner of the macro pool object you are recording to.
- There is a  icon in the message center part of the command line input.

The recorded macro will be a timed macro. This means that it will execute the commands with the same speed as they where recorded.

If you have a macro pool visible then you can also tap the pool object to start and stop the recording:

1. Press **MA** + **Store** (Record)
2. Tap the macro pool object

It is the same workflow for starting and stopping the recording.

## 36.4. Edit a macro

Editing or changing an existing macro is just like creating the macros. You need to open the Edit Macro pop-up.

You can open this by pressing the **Edit** key and then tapping the the macro you want to edit.

This will open the Edit Macro pop-up. It could look like this:



*Edit Macro pop-up*

Please have a look at the [Manually create a macro topic](#) for a detailed explanation about this pop-up.

In this editor you can select the line you want to edit and then press the **Please** /Enter key on the keyboard to open the **Enter CMD pop-up**.

If you are on a console it might be easier to tap the screen encoder to edit the line.

If you are using an onPC then you can right click the line to edit it.

Type the new command. finish by pressing **Please** /Enter and close the pop-up.

You have now edited the macro. If you want learn more about creating macros, then please read the [Manually create a macro topic](#).

## 36.5. Command line interaction

Command line interaction can mean two different things when we talk about macros - they are however connected.

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It can be the execution of the macro that you can choose to go to the command line - This is called CLI.

And it can be the commands in the macros that interact with the command line - This can be done using the special character "@".

## CLI

You can turn on or off the CLI when you create or edit a macro - read more about this in the [Manually create a macro topic](#) and the [Edit a macro topic](#).

When CLI is turned off for a macro, the actual press of the macro will no longer interact with your command line, but directly execute its commands. This means that if you for instance want to edit or delete a macro, you cannot just press the command key and then the macro button, you will need to type the actual keyword and ID - using keys or in the command line. For example **Edit Macro 5** will allow you to edit macro 5 if CLI is off. **Delete ViewButton 11.5** will remove a macro from the User1 X5 key. By disabling the command line interaction of the actual button or key press, you can make the commands of the macro lines interact, by the use of the @ character.

## @

This special command is only relevant in macros. It can be used in front of a macro command or behind it.

It is a placeholder for user commands. This allows you to interact with macro commands.

## Ending a macro line with @

When it is used at the end of a macro line then the line will not execute the command line. It will simply put the commands in the Command Line Input and then wait for you to complete the command. If your macro has several lines it will then continue with the next macro line after your input.

## Example:

You have a group (number 4) that you want to give a value and store as the next cue. You want to manually type the value.

No.	CMD
1	Group 4 At @
2	Store Cue

Running this macro will give you the following command line input:



Then it waits for you to type the value and finish with a **Please**.

After the please it will run macro line 2 and store the (next) cue.

## Beginning a macro line with @

If you begin the macro line with @, then it will append the macro line to already typed input.



## Important:

It is important that you turn off CLI for your macro for this to work properly - Otherwise your commands will fail.

Example:

Let us imagine that you like two different fade times: 5 seconds and 10 seconds. Every cue you make uses these two times.

Then you can make the following macro (Macro 1):

No	CMD
1	@ Fade 5

and the other macro (Macro 2):

No.	CMD
1	@ Fade 10

Now you can use these macro when you store a cue. For instance cue number 5:

**Store Cue 5** and before pressing Please you tap the macro 2 instead. This is your command line responds:

```
[time] : Executing : Store Cue 5 Fade 10
```

This can also be used to give individual fade time to fixtures:

**Fixture 8 At 80 Macro 1**

Will give fixture number 8 a dimmer value of 80 % and an individual fade time of 5 seconds.

@ before and after

You can surround a command in @s. This will basically just put the command in the command line. This allows you to create your own keys with commands that you use often, but does not have their own dedicated keys.

Example:

You often use the "Layout" command and you do not want to press MA+Group to get to the command. Then you can create the following macro (remember to turn off CLI)

No.	CMD
1	@ Layout @

Now you can assign this macro to an executor or view button and just press that when ever you want to use the layout command. Read more about assigning macros in the [Assign a macro to a key topic](#).

You can read more about the @ command in the [At @ topic](#).

## 36.6. Assign a macro to a key

Macros can be assigned to Executors, View buttons, and X-keys.

This can make it faster and easier to run and use the macros.

The Macro pool is shared by all users, but the assignment of macro to View buttons and X-keys/User is stored in your user profile. So this is not share by different users profiles (different users can use the same user profile).

Macros assigned to Executors are shared by all users.

The easy way to assign a macro is to press the **Assign** key, then tap the macro, and then the destination where you want it. Read below for more details about the three different locations.

### Executor

Any executor can have a macro assigned. You can use the method described above, the command line, or you can use the **Assign Menu**.

### Command line method

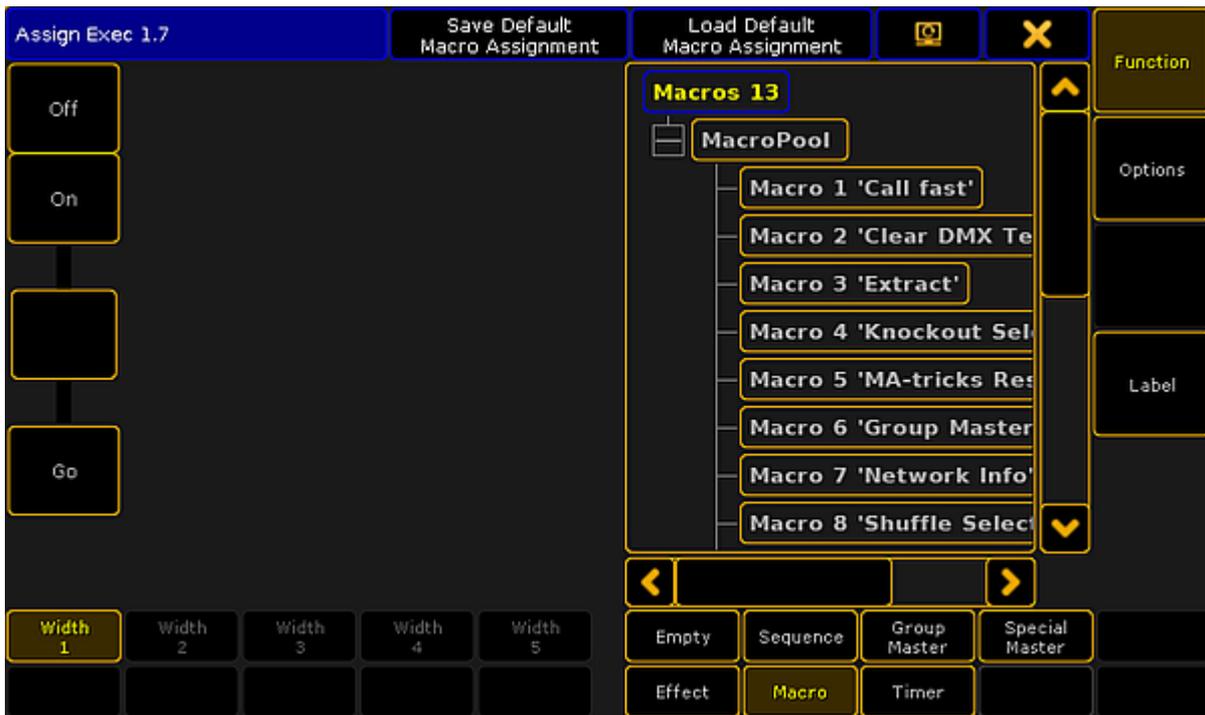
Macros can be assigned using the command line input. For example to assign macro number 1 to executor number 7 on page 2 you could write:

```
[Channel]> Assign Macro 1 At Exec 2.7
```

### Assign menu method

Macros can be assigned using the Assign Menu. The menu can be opened by pressing the **Assign** key and then press any key belonging of the executor where you want to assign a macro.

The menu could look like this:



*Assign menu with Macro selected*

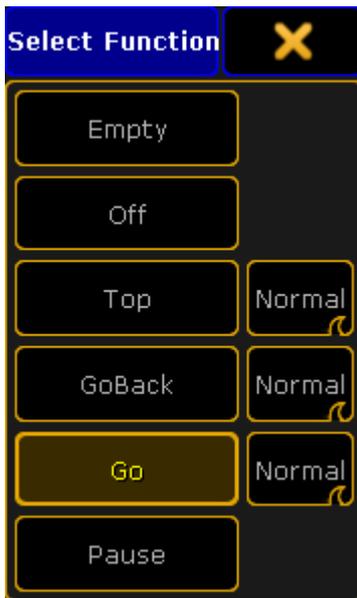
In this topic we are not going into details about the Assign Menu. If it opens and does not look like the image above then you might need to tap the **Function** button on the right side.

Now you need to select that you want to assign a macro. Tap the **Macro** button at the bottom of the menu. Now the right side displays a list of all the available macros.

Tap the one you want.

There are no options to an executor with a macro assigned and the "Width" can only be 1. You can change what the executor buttons do.

There is limited possibilities of functions for executor keys when a macro is assigned (compared with assigned sequences). You can choose the function by tapping one of the virtual executor keys on the left side of the menu. This opens a **Select Function pop-up**. It looks like this:



*Select Function pop-up for macros*

Here you can select the function wanted for the keys.

The different options next to "Top", "GoBack", and "Go" are not relevant for macros.

The most used function is the "Go" function. This is the one needed to run or activate the macro.

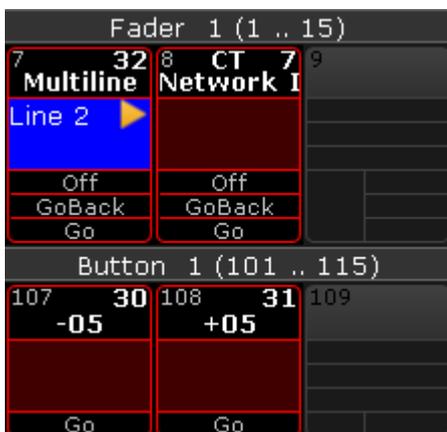
Read the [Macro Timing topic](#) for details about these functions.

You can close the Assign Menu using the "X" in the upper right corner of the menu when you are happy with your assigned macro and the executor button functions.

## Mini executor

When macros are assigned to executors you can see them in the Mini Executor Bar.

It could look like this:



*Macros assigned to executor faders and executor buttons*

In the Mini Executor Bar you can see the macro name in the top part of the mini executor.

The number on the right side of each executor is the macro number.

The number on the left side is the executor number.

If CLI is turned off then there is a "C" in the top middle part. If timing is turned off then there is a "T" in the top middle part.

The middle part displays the macro line number on a blue background when the macro is active. It will also display an icon showing the play mode.

The lower part shows the functions assigned to the executor buttons. Notice the difference between the macros assigned to an executor with a fader (three buttons) and the ones assigned to an executor without a fader (one button).

The frame is displayed in the same color as your macro pool. Macros with individual colored frames are not showing the individual colors in the frame on the Mini Executor Bar.

## View button

The view buttons can also have macros assigned.

The easiest way to assign a macro is to use the method described above with the **Assign** key, tapping the macro pool, and then the View button where you want it.

You can also use the command line. For example to assign macro number 2 at view button number 5 on view page 1 you could write the following:

```
[Channel]> Assign Macro 2 At ViewButton 1.5
```

Macros assigned to view buttons could look like this:



*View buttons with assigned macros*

Since the view button assignment is a user profile setting, it can also display the same frame color as the macro in the macro pool - this includes individually colored macros.

The top left corner of the view button displays the view button page and number.

Below this you can see the active line number and play mode - if it is active.

Below this is the macro name.

At the bottom you can see that it is macro assigned to the view button and the macro number.

You cannot see the "C" (CLI turned off) or "T" (timing turned off) letters in view buttons.

## User key / X-key

The X-keys or User keys function as either **Executors** or **View buttons**. Depending on what you have visible (List, User 1, or User 2) then they function as described above.

When macros are assigned to **Executor buttons** on screen 1, it could look like this:



*X-keys as executor with assigned macros*

The same three macros would look like this, when they are assigned to **View Buttons**, on screen 1:



*X-keys as view button with assigned macros*

The location, on screen 1, is very convenient for often used macros. Remember that macros assigned to Executors are shared by all users and macros assigned to View Buttons are a user profile setting.

## 36.7. Example macros

Here you can find some examples of macros.

Most can be found in the predefined macros. Read the [Import predefined objects topic](#) for information about importing them.

+05

This short macro will simply put 5% more on the dimmer value on the selected fixtures.

No.:	CMD:	Info:
1	At + 5	

## Executor CLI = off

This macro will turn off the **Exec CLI** setting in the Local settings in Setup.

No.:	CMD:	Info:
1	Assign Root ."Settings"."Local" /ExecCLI=off	

It assigns a new value for the "ExecCLI" option in the local settings. The local settings are addressed using the names of the settings and the "local" part of the settings.

## ExecTime on/off

This macro can be used to turn on or off (toggle) the Executor Time fader (the one shown on screen 2 lower right corner).

No.:	CMD:	Info:
1	Toggle SpecialMaster "grandmaster"."exec time"	Toggles the "Set Time" function on the Executor Time fader.

It sends a command to a special master in the "grandmaster" group. The special master is called "exec time" (Executor Time).

## Replace Fixture in Sequence

You can use this macro if you need to replace a fixture with a different one in a specific sequence.

No.:	CMD:	Info:
1	Replace Fixture (old Fixture?) With Fixture (New Fixture?) If Sequence (Sequence number?)	

This macro uses three pop-ups asking for the old and new fixture numbers and the sequence number. The pop-ups are re displayed when the macro reaches the parentheses. The title bar of the pop-up displays the text written inside the parentheses.

## Preset Live Fade

This macro is used to fade into a preset in 2 seconds. The idea is that you tap the macro and then the preset (in a preset pool) you want to fade to.

No.:	CMD:	Info:
1	On SpecialMaster "grandmaster"."program time"	Turn on the Program Time fader
2	SpecialMaster "grandmaster"."program time" At 2	Sets the Program time to 2 seconds
3	At Preset @	Selects a preset - waiting for the user to select a preset
4	Off SpecialMaster "grandmaster"."program time"	Turn off the Program Time fader

The first two lines turn on the Program Time fader and sets the fade time to 2 seconds. The third line will put the "At Preset" part in the command line and then wait for you to tap the preset. The last line turns off the Program Time fader.

## Set Show Running Status

This multi line macro is an example of the commands you could use to setup your console ready for a show start.

No.:	CMD:	Info:
1	ChangeDest "settings"	Enters the settings
2	Assign "Global" /Telnet= "Login Disabled"	Turns off telnet connections
3	Assign "Global" /Remotes= "Login Disabled"	Disables remote access
4	Assign "Global" /Agenda= "stopped"	Turns off any agendas
5	ChangeDest /	Exits the settings
6	Highlight Off	
7	Solo Off	
8	Blind Off	
9	BlindEdit Off	
10	PreviewEdit Off	
11	Off Executor 0.1.1 Thru	Turns off all the executors
12	World 1	Goes into the full world
13	ClearAll	Clears the programmer
14	ResetDmxSelection	This clears the selection in the DMX tester
15	Off DmxUniverse Thru	This clears the values in the DMX tester
16	SpecialMaster "grandmaster"."Grand" At 100	Sets the grand master to 100%

This is a macro that can be used as the foundation for a start show macro. You might want to add your own line after line 16. Your own lines would typically turn on the relevant executors and make sure they are turned up and in the right cue.

## SaveShow Enumerate

This is not a predefined macro.

This macro will allow you to save your show with an enumerate number each time you run the macro.

The first time it runs it will save the show with number 1 and then it will enumerate from there.

You need to edit the macro and change the "base" name of the show file (line number 4).

The macro needs to be labeled "SaveShow Enumerate" or you need to edit line 2 to match the macro name.

No.:	CMD:	Info:
1	SetVar \$show_number = 0	This defines a counter variable
2	Assign Root ."Macros"."Global"."SaveShow Enumerate".1 + 2 /Disabled="Yes"	This line will turn disable line 1 and 2 after the first run of the macro.
3	AddVar \$show_number = 1	This adds 1 to the counter.
4	SetVar \$show_name_base = "My Show_"	This is the base name. Numbers will be added to this.
5	SetVar \$show_name_current = \$show_name_base	This create a new variable with the "base" name.
6	AddVar \$show_name_current = \$show_number	This adds the number to the name variable.
7	SaveShow \$show_name_current /nc	This saves the show with the name. "/nc" suppresses any pop-ups.

In this macro you can see the use of variables and how you can use the AddVar command to append text to other text.

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## 37. Plugins

### 37.1. What are plugins

## 38. Partial Show Read

Partial Show Read is a function that allows for an easy import of elements from one show to another.

The two topics here is first a show introduction to Partial Show Read including some limitations and second a description of the process and the interface.

### 38.1. What is Partial Show Read (PSR)

The Partial Show Read (PSR) is a function that allows you to load or import elements from one show into another.

The following elements can be imported from the source show:

- Macros
- Presets
- Filters
- Groups
- Effects
- Sequences
- Timers
- Executors and ExecutorPages
- Layouts

Partial Show Read respects the worlds. This means that elements will only be imported if the selected world allows it.

If something is imported that needs other elements, then these elements are also imported. This means that if a sequence is imported that uses some presets, then the presets are automatically imported as well.

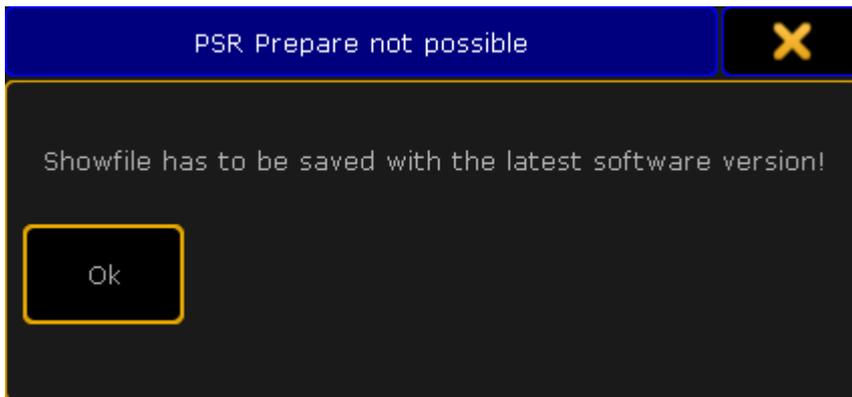
PSR is a two step process. First the two shows are compared and it is chosen what fixtures from the two shows needs to be used. It is also possible to choose the 3D environment and the fixtures 3D positions.

After the prepare phase it is possible to open the PSR menu and choose the elements that is to be imported.

#### A few limitations

The source show needs to be stored in the same version number as the destination show.

If an older version is tried to be loaded, then a warning pop-up like this appears:



*PSR Prepare not possible warning pop-up*

To fix this please the source show and store it in the latest version.

Single Executors can be imported or entire ExecutorPages. There are two limitations: Special Master will not be imported. Executors with a width above 1 will only be imported correctly if the entire ExecutorPage is imported.

The actual Partial Show Read cannot be done on a station that is in a session. Please leave the session before doing the Partial Show Read.

## 38.2. How to do a Partial Show Read

This topic is about the steps needed to perform a Partial Show Read.



**Hint:**

It is a good idea to save the show before doing any PSR. This makes it possible to return to the state before the PSR.

### Prepare the PSR

The Partial Show Read (PSR) is initiated from the **Backup Menu**. This can be accessed by pressing the **Backup** key.

The first thing to do is to load the show where you want to import elements - this is the Destination Show.

When the correct destination show is loaded then open the Backup Menu again and tap the **Partial Show Read Initialize** button. This opens a load pop-up that looks a lot like the normal load menu.

Select show that has the elements you want to import - this is called the Source Show.

The next pop-up that opens is the Partial Show Read Prepare pop-up. It could look like this:



### Partial Show Read Prepare pop-up

The main part has a left and right side. The left side is the current patch. The right side is the patch in the source show. The green background color indicates the patch that will be used after the prepare.

The patch can be changed by right-clicking the fixture on the side that is the desired fixture. The line can also be selected and then tapping the the buttons **Use Mine** and **Use Other** will change which of the two fixtures patch is used - the green background is moved.

In between the two sides are a gray column called **Match to ID**. This can be used to match the source fixture to a different (or new) Fixture ID.

**Important:**  
 Be aware that it is possible that a Partial Show Read can cause double patched addresses. A pop-up will warn about this and ask you to check the patch.

There are four other buttons below the main part.

Two of them can be used to select the source information regarding the 3D position of the fixtures. The other two select what 3D stage setup should be used.

There are two buttons on the right side that helps filtering the main part and a wizard that can be used to make an initial selection of patch.

Tapping the **Filter** button opens a small **Select Display Filter pop-up**. It looks like this:



*Select Display Filter pop-up*

This can be used to filter or mask the fixture list in the main part. The pop-up has five options:

- **All:**  
This displays all the fixture in the two shows.
- **Matched:**  
This will only display the fixtures that are matched in the two shows.
- **Unmatched:**  
This will only display the fixtures that only exist in one of the shows.
- **New:**  
This will only display new fixtures (from the source show).
- **Ignored:**  
This will only display the ignored fixture.

Tapping the **Wizard** button opens the small **Select Wizard pop-up**. It looks like this:



*Select Wizard pop-up*

This pop-up is used to select witch fixtures will be used in the Partial Show Read. It is quick way to select the base fixtures. This can then be modified after the wizard has selected fixtures.

There are three options:

- **Use Mine:**  
This will use the fixtures in the destination show.
- **Merge Other:**  
This will merge the fixtures from the source show into the current show. If there is an overlap of two fixtures then the ones in the destination show will be used.

- **Use Other:**

This will use the fixtures from the source show.

When the selection of fixtures are done, then tap the last button - **Prepare!**. Pressing this will prepare the patch and close the **Partial Show Read Prepare pop-up**.



**Restriction:**

It is only the data from the fixtures matched by ID numbers that are available for the actual Partial Show Read.

## PSR Menu

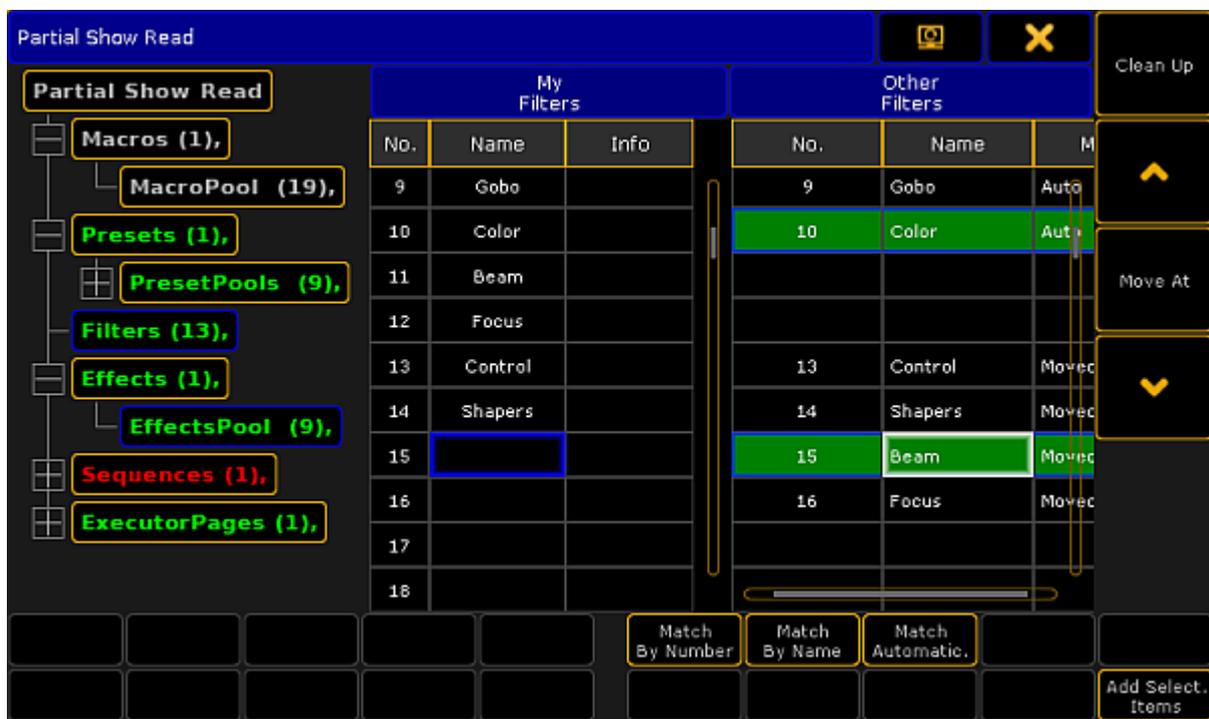
When the two shows have been prepared you are back at the Backup Menu. Now it is possible to tap the **Partial Show Read** button.



**Restriction:**

It is not possible to tap the button if the station is in a session. Please leave the session and try again.

Tapping the button opens the **Partial Show Read pop-up**. It could look like this:



*Partial Show Read pop-up*

On the left side there is a menu structure that shows all the elements that can be imported.

Green text colored elements on the structure means that they are newer in the source show. Red means that they are newer in the destination show. White color is elements that are the same.

When something is selected in the menu, then two tables are opened. They compare the current content in the destination show - this is called "My Something" - and the content in the source show - called "Other Something". "Something" is of course the selected element.

The two lists match the pools 1 to 1. It is possible to select one or more elements in the "Other" table. Selected elements get a green background.

The selected elements can be moved up or down by tapping the up and down arrows on the right side of the screen. There is also a button called "Move At". Tapping this will move the selected elements to the next location tapped in the table.

Below the tables there are three buttons that sort the elements. The buttons are:

- **Match By Number:**

The two tables are matched by the pool numbers.

- **Match By Name:**

Elements from the "Other" show are matched by name. In case of multiple elements with the same name, data from "Other" show is matched to first matching element in "My" show.

- **Match Automatically:**

This will automatically look for matching names and numbers and try to match the elements.

When some elements are selected and they are at the desired location in the list, then they can be imported by tapping the **Add Selected Items** button.

If something is imported to a location that already has something then a Please Confirm pop-up appears. It looks like this:



*Please Confirm (PSR) pop-up*

It has three options:

- **Cancel:**

This cancels the import.

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- **Merge:**  
This will merge the content into the element.
- **Overwrite:**  
This will delete the existing content and import the new content.

When the content is imported and there is a match between the content in the source and destination shows then the text color of the element changes to white in the menu structure.

The already matched elements can be removed from the menu structure by tapping the **Clean Up** button.

When the desired elements have been imported, then the Partial Show Read pop-up can be closed by tapping the X in the upper right corner.

If the show does not change structurally or is not reloaded, then it is possible to open the Partial Show Read pop-up again without doing the prepare first.

## 39. RDM

### Requirements:

A Remote Device Management (= RDM) directly connected to one of the devices of the following grandMA2 series:

- grandMA2 consoles
- MA onPC command wing
- MA onPC fader wing
- MA NPU
- MA 8Port Node, MA 8Port Node onPC
- MA 4Port Node, MA 4Port Node onPC, MA 4Port WM
- MA 2Port Node, MA 2Port Node onPC 2K, MA 2Port Node onPC 1K, MA 2Port WM



### Restriction:

RDM does not support the following devices of the grandMA1 series:

- MA 2Port Node
- MA 2Port Node PRO
- MA 2Port Node Flush-mounted
- MA NSP in 4Port Node Mode

RDM is a protocol that allows bi-directional communication between the grandMA2 and RDM compliant devices attached to it (= RDM compliant fixtures) over a standard DMX line. ANSI E1.20 - 2010 by PLASA specifies the RDM standard as an extension of the DMX 512 protocol.

Manual settings, such as adjusting the DMX starting address, are no longer needed. This is especially useful for devices installed in a remote area.

RDM is integrated in DMX without influencing the connections. The RDM data is transmitted via the standard XLR-poles – new DMX cables are not required. RDM ready and conventional DMX devices can be operated in one DMX line. The RDM protocol sends its own data packages in the DMX512 data feed and does not influence conventional devices.

Furthermore, RDM works simultaneously via Art-Net and MA-Net2. This allows configuration, status monitoring, and management of these devices.

RDM can provide the following uses, depending on the RDM device:

- Identification of the connected devices
- Addressing of devices controllable by DMX512
- Status reporting of fixtures (alerts and warnings)
- Configuration of fixtures by setting RDM parameters

RDM starts a discovery (= search) for the RDM device every six seconds. If an RDM device is offline, a timeout will be reported after three unsuccessful discoveries for RDM (= 18 seconds).

### 39.1. Turn RDM on

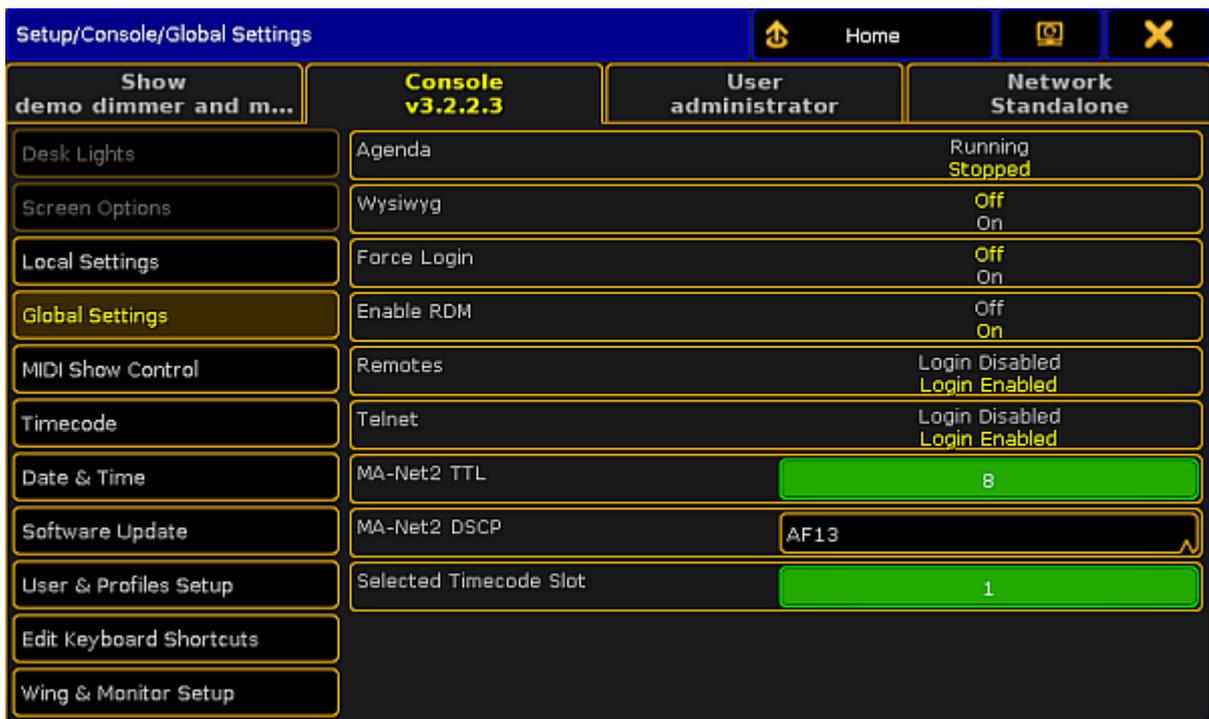
To use RDM (= Remote Device Management Protocol) you need to turn on RDM global. By default RDM is turned off.

## Turn on RDM global

### Requirements:

- One connected RDM device.
- One patched fixture or channel to have an outgoing DMX signal.

1. Press **Setup** and tap under **Console** **Global Settings**.



*Setup global settings*

2. Tap at **Enable RDM** until the **On** is yellow.

RDM is global turned on for all universes. The console starts to discover RDM devices.



### Hint:

To turn on RDM global, you can also go to **Setup -> Patch & Fixture Schedule -> RDM Devices** and tap **RDM Disabled** until **RDM Enabled** is displayed.

## Turn on RDM per universe

If RDM is turned off in global settings, then it's indicated by a red **RDM icon RDM** in the universe pool, the following example explains how to turn on RDM per universe.

**Requirement:** RDM is global turned on. For more information, see [turn on RDM global](#).

There are two ways to turn on RDM per universe.

Way A:

1. Tap on an empty space in the screen, tap **Pools**, and then item **Universes**.  
The **universe pool** opens.



*Universe pool*

2. Press **Edit** and tap at the universe you want to turn on RDM.  
The **Edit universe pop-up** opens.



No.	Name	DMX In Me	RDM	RDM Devices	Requested	Granted	Info
1	Conv. Spots	HTP		0	On	No	

*Edit universe*

3. Tap and hold in the RDM cell until **On** is displayed.



**Hint:**

To edit more universes at once, use the sheet style of the universe pool. Open the universe pool, tap at the **yellow ball**  in the title bar, and tap at **Sheet Style**. Swipe to select the cells you like to edit.



**Important:**

If the **On** is displayed in red, RDM is global turned off. For more information, see [turn on RDM global](#).

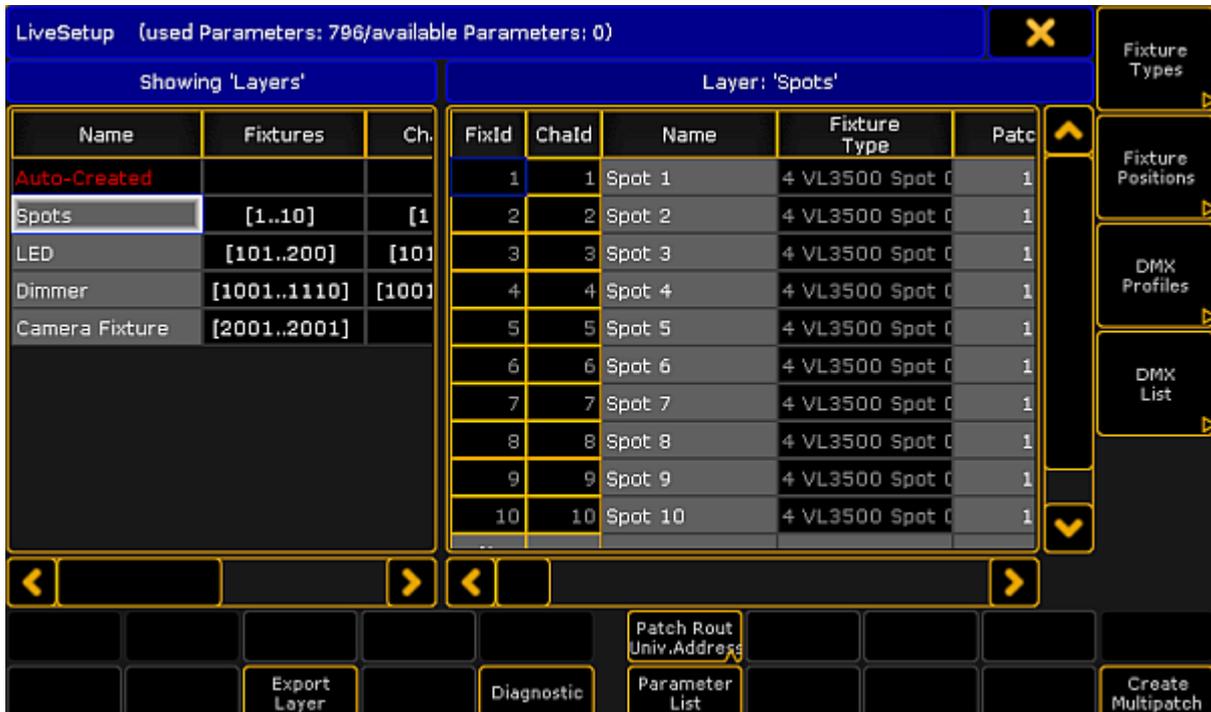
RDM is turned on for the selected universe. A **green RDM icon RDM** is displayed in the universe tile.

Way B:

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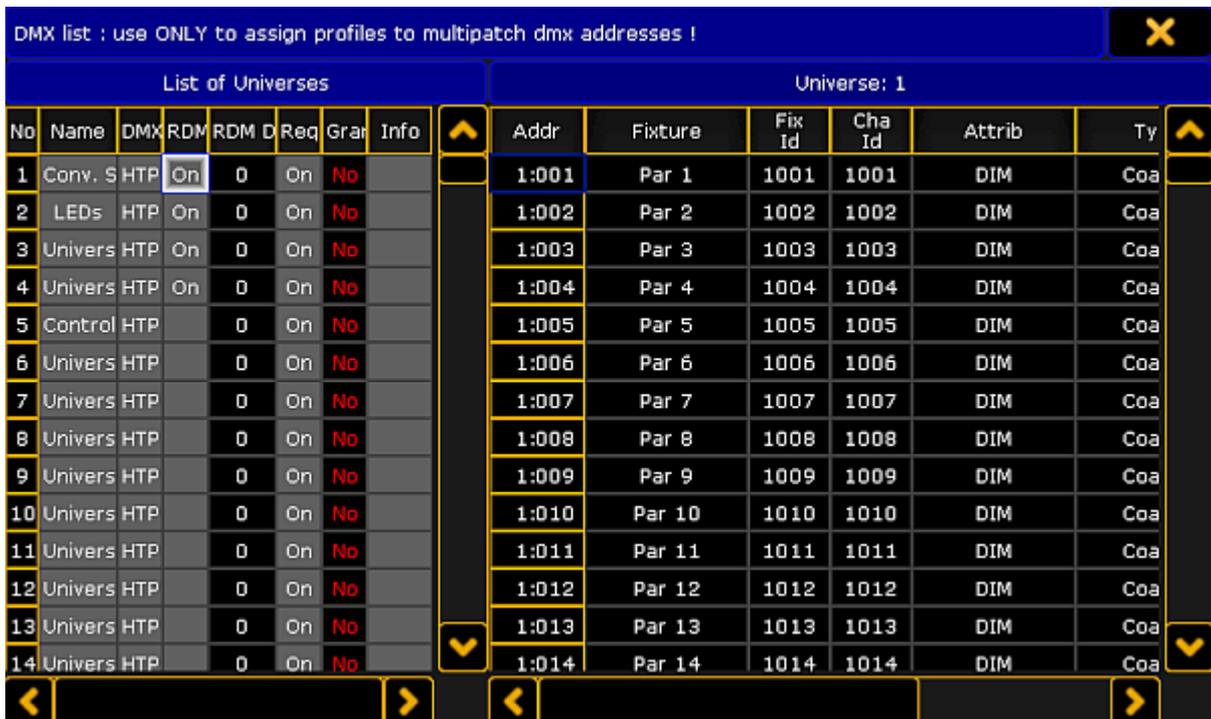
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1. Press **Setup** and tap under **Show Patch only (Live)**.  
The **Live Setup** opens.



*Live setup*

2. Tap **DMX List**.  
The **DMX list** opens.



*DMX list*

3. Under List of Universes is a column RDM. Tap and hold in the cell until **On** is displayed for that universe you want to turn on RDM.

RDM is turned on for the selected universe. A **green RDM icon RDM** is displayed for this universe in the universe pool.

## 39.2. Match RDM devices

After RDM (= Remote Device Management Protocol) is turned on the grandMA2 starts to discover RDM devices. The discovered RDM devices are displayed in the RDM devices window. On the left hand side there are the fixture types, on the right hand side the fixtures.

When working with parameters only you can skip the match RDM devices topic and continue with the topic [work with RDM parameters](#).

To work with sensors or notifications the RDM devices have to match to the patch. That means you have to select which fixture of the patch belongs to which RDM fixture. Footprint and DMX address have to be the same.

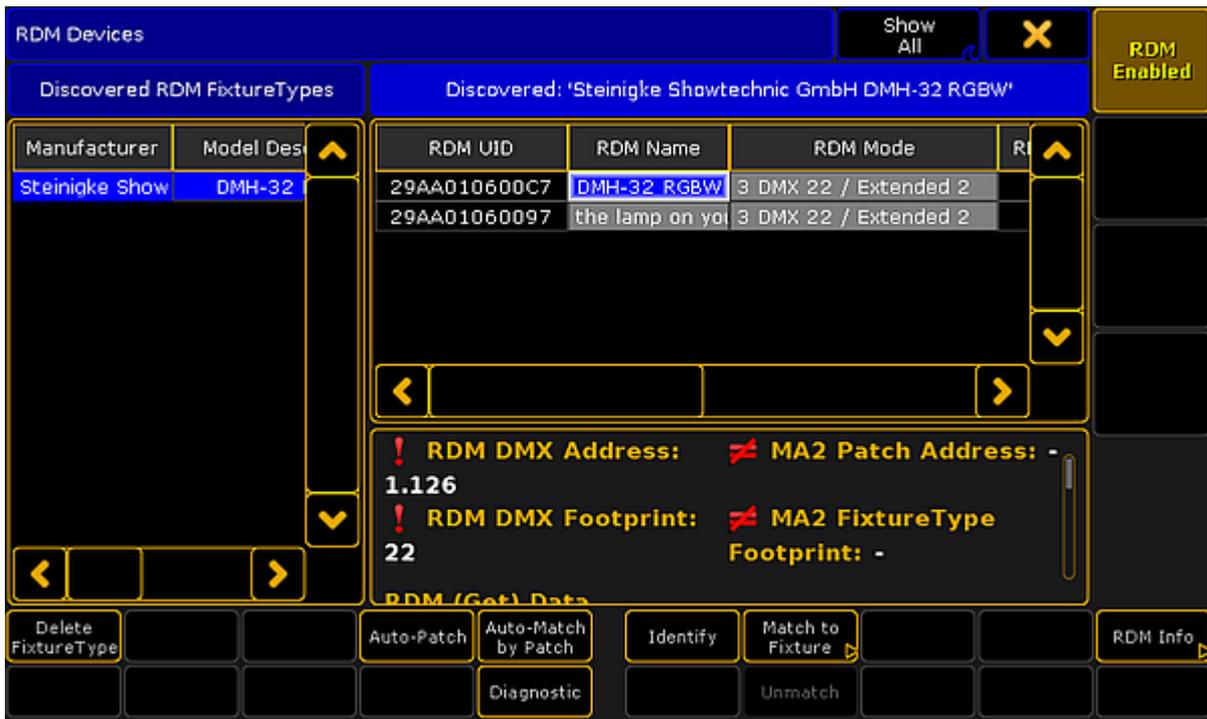
There are two ways to match RDM devices:

- [Match to Fixture manually](#)
- [Auto-Match by Patch](#)

---

### Match to fixture manually

The match to fixture manually is the preferred way when you are not sure if the MA Fixture and RDM Fixture have the same DMX address and the same DMX footprint. If you already double-checked the DMX address and the DMX footprint use the [auto-match by patch](#) function.



Discovered RDM devices

**Requirement:** RDM is turned on.

1. To open the RDM devices window press **Setup** and tap under **Show** at **Patch & Fixture Schedule**.  
The **Edit Setup** opens.
2. Tap in the lower right corner at **RDM devices**.  
The **RDM devices window** opens.
3. To select the fixture type you like to match tap at the corresponding fixture type under **Discovered RDM FixtureTypes**.  
The fixtures of the selected fixture type are displayed on the right side of the RDM devices window.
4. To select the fixture tap at the fixture in the table on the right screen side.
5. If you want to identify this fixture in the lighting-rig tap at **Identify**.  
The identify mode of the selected fixture starts. For more information about the identify mode see the fixtures manual.

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- If you have the to be matched fixture selected in the table tap at **Match to Fixture**.  
The **Match to MA Fixture** pop-up opens. This pop-up displays all fixtures in your patch.  
For a better overview you can:
  - Search in the green search field for fixture or channel ID.
  - Select in the title bar one of the patched layers.
  - Choose in the title bar if you want to see **All** fixtures, **Unmatched** fixtures or **Current FixtureType only**.



*Match to MA fixture pop-up*

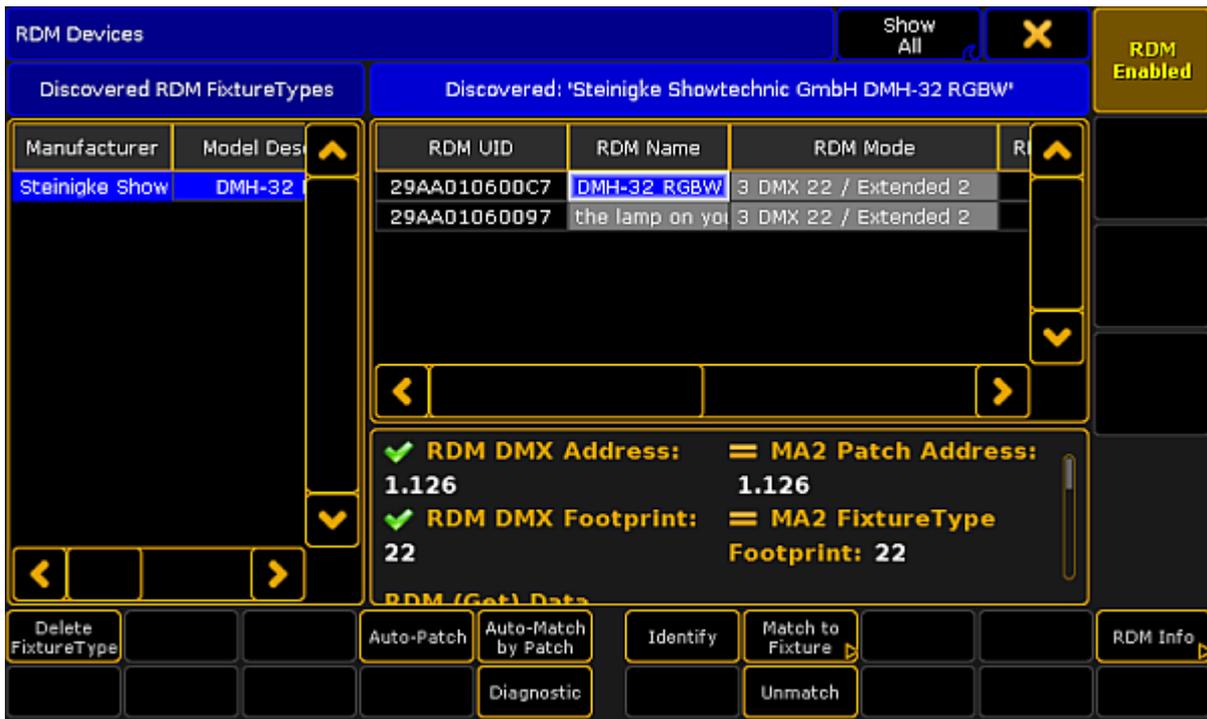
- Tap in the table at the fixture you like to match and tap **Match**.



### Important:

RDM universe and DMX universe has to be the same. If they are not the same, double-check the network configuration under **Setup -> Network -> MA Network Configuration** and / or the DMX wiring.

The patch of the selected fixtures matches to the RDM device. A successful match is indicated by green check marks in the field below the fixture table.



## Matched RDM devices

The fixtures are matched.

## Auto-Match by Patch



### Important:

Make sure that the MA Fixture and RDM Fixture have the same DMX address and the same DMX footprint. If they are not the same [match the fixture manually](#).

The auto-match by patch is a fast way to match fixtures.

1. To open the RDM devices window press **Setup** and tap under **Show** at **Patch & Fixture Schedule**. The **Edit Setup** opens.
2. Tap in the lower right corner at **RDM devices**. The **RDM devices window** opens.
3. To select the fixture type you like to match tap under **Discovered RDM FixtureTypes** at the fixture type. The fixtures to the selected fixture type are displayed on the right side of the RDM devices window.
4. To select the fixture tap at the fixture in the table on the right screen side.
5. If you want to identify this fixture in the lighting-rig tap at **Identify**. The identify mode of the selected fixture starts. For more information about the identify mode see the fixtures manual.
6. Tap **Auto-Match by Patch**.

The software checks if there is a matched MA fixture with the same DMX address and DMX footprint available. If a matched fixture is found the auto-match is successful. A successful match is indicated by green check marks in the field below the fixture table.

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RDM Devices Show All X RDM Enabled

Discovered RDM FixtureTypes Discovered: 'Steinigke Showtechnic GmbH DMH-32 RGBW'

Manufacturer	Model Des	RDM UID	RDM Name	RDM Mode	R
Steinigke Show	DMH-32	29AA010600C7	DMH-32 RGBW	3 DMX 22 / Extended 2	
		29AA01060097	the lamp on yo	3 DMX 22 / Extended 2	

**✓ RDM DMX Address: = MA2 Patch Address: 1.126**  
**✓ RDM DMX Footprint: = MA2 FixtureType Footprint: 22**

RDM (Get) Data

Delete FixtureType Auto-Patch Auto-Match by Patch Identify Match to Fixture RDM Info  
Diagnostic Unmatch

Matched RDM devices



**Hint:**

You can also use the [keyword RdmAutomatch](#) to auto-match RDM devices by using the command line.

## 39.3. Auto Patch RDM Devices

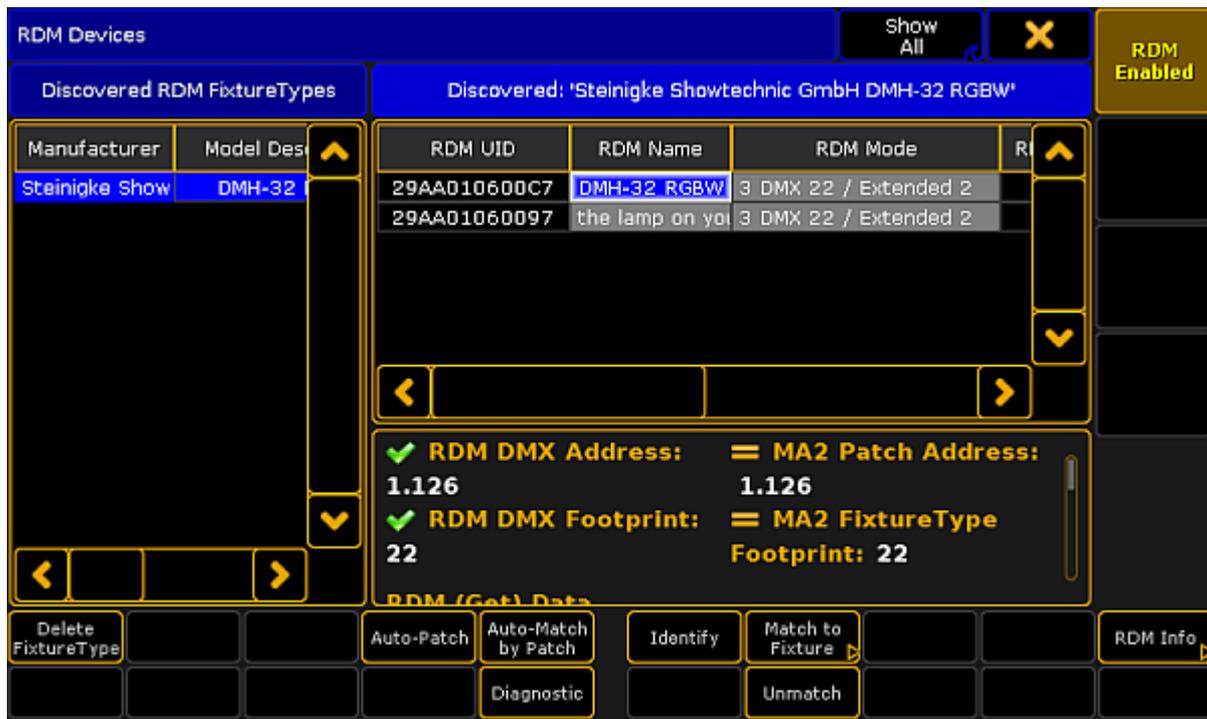
If the RDM fixture DMX address and the DMX address of the patch is not the same, you can auto-patch the fixture and send the patch DMX address via RDM to the fixture.

### Requirements:

- MA Fixture is matched
- MA Fixtures is patched
- MA Fixture and RDM Fixture have the same universe

1. Open the RDM devices window. Press **Setup**, and tap under **Show at Patch & Fixture Schedule**. The **Edit Setup** opens.
2. Tap in the lower right corner at **RDM devices**. The **RDM devices window** opens.
3. To select the fixture type you like to auto-patch, tap at the corresponding fixture type under **Discovered RDM FixtureTypes**. The fixtures to the selected fixture type are displayed on the right side of the RDM devices window.
4. To select the fixture, tap at the fixture in the table on the right screen side.
5. Tap **Auto-Patch**.

The patched DMX address will be sent via RDM to the RDM fixture. The selected fixture is auto-patched. The green check marks in the field below the fixture table indicates a successful match and patch.



Auto-patched RDM fixture



### Hint:

You can also auto-patch fixtures by using the [RdmAutopatch keyword](#).

## 39.4. Work with RDM parameters

After the RDM is turned on and an RDM fixture is discovered, you can:

- Send RDM commands to the RDM fixture see [Set RDM parameter](#)
- Add RDM parameter used by the fixture see [Add RDM parameter](#)
- Delete previous added parameters see [Delete RDM parameter](#)

### Set RDM parameters

The following examples will explain the set parameter function with the example of changing the fixture mode.

There are two ways to set RDM parameter.

**Requirement:** RDM is turned on and at least one RDM fixture is discovered.

Way A:

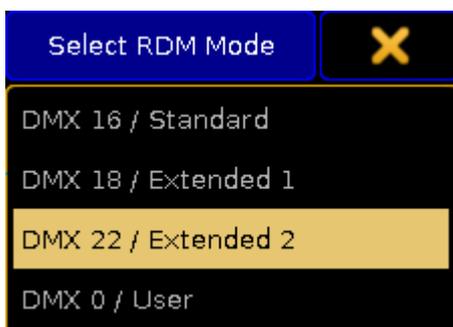
1. Open the RDM sheet. Tap on an empty space in the user defined area, tap at **Sheets** and then at **RDM**.
2. The **RDM sheet** opens.



ID Fixtur	ID Chan	Name	Universe	CLEAR STATUS ID	DEVICE MODEL	MANUFAC TURER	DEVICE LABEL	FACTORY DEFAULTS	LANGUAG CAPABIL
4	4	DMH32Ex2 1	1		DMH-32 RG	Steinigke SI	DMH-32 RG	False	
5	5	DMH32Ex2 1	1		DMH-32 RG	Steinigke SI	the lamp or	False	
6	6	D4Lu HS 1	1	-	Desire Lust	ETC	Default	-	en

*RDM sheet*

3. Scroll with the scroll bar to the column DMX PERSONALITY and tap at the cell you like to change the fixture mode. Press the screen encoder.
4. The **Select RDM Mode** pop-up opens.



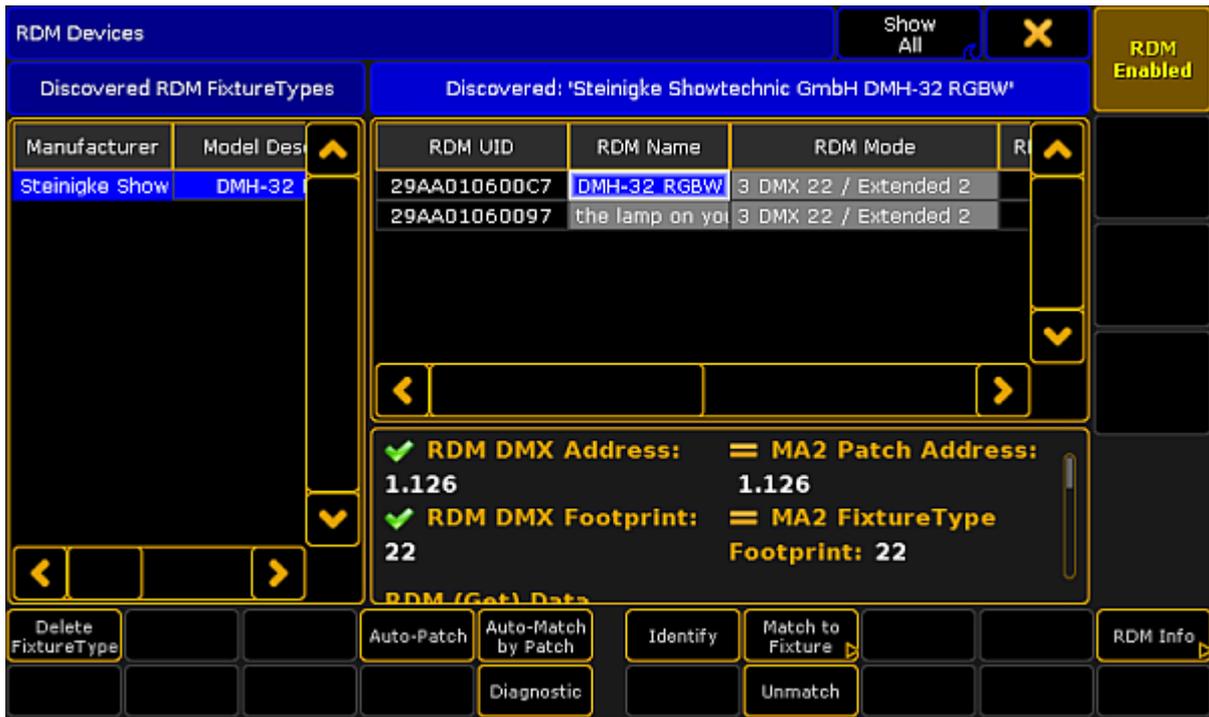
*Select RDM Mode pop-up*

5. Tap at the mode the fixture should use.

A new mode is set and transmitted via RDM to the RDM fixture.

Way B:

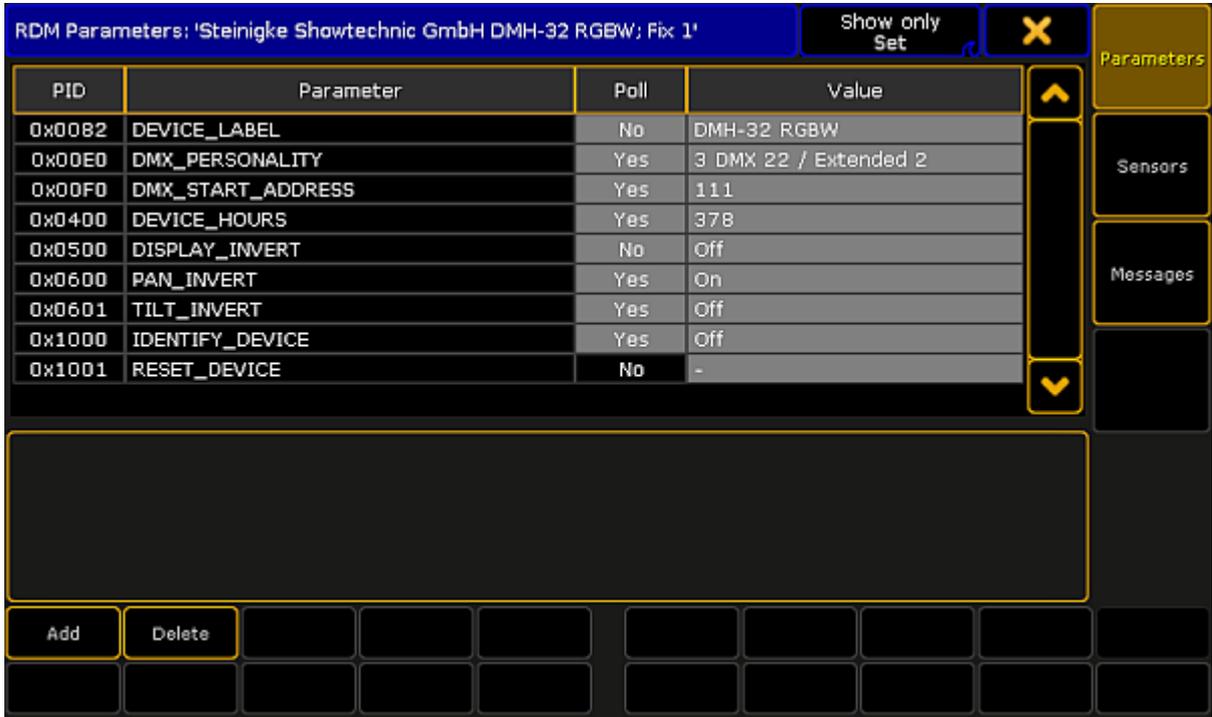
1. Open the RDM devices window. Press **Setup**, and tap under **Show** at **Patch & Fixture Schedule**. The **Edit Setup** opens.
2. Tap in the lower right corner at **RDM devices**. The **RDM devices window** opens. In this window, you can set the parameter of the DMX personality and the DMX start address of the RDM fixture.



*RDM devices window*

3. To select the fixture type you like set parameters to, tap at under **Discovered RDM FixtureTypes** at the fixture type. The fixtures to the selected fixture type are displayed on the right side of the RDM devices window.
4. To select the fixture, tap at the fixture in the table on the right screen side.

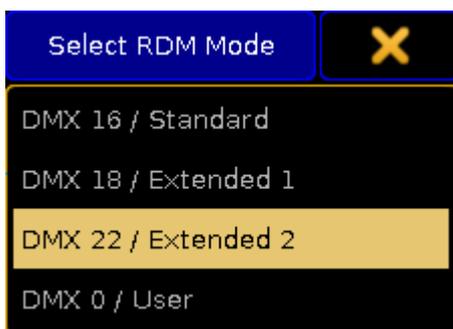
- Tap in the lower right corner at **RDM Info**.  
The **RDM Parameters** window opens. In the title bar, you can choose between **Show only Set**, **Show only Get**, **Show All**, and **FixtureType Messages**.



PID	Parameter	Poll	Value
0x0082	DEVICE_LABEL	No	DMH-32 RGBW
0x00E0	DMX_PERSONALITY	Yes	3 DMX 22 / Extended 2
0x00F0	DMX_START_ADDRESS	Yes	111
0x0400	DEVICE_HOURS	Yes	378
0x0500	DISPLAY_INVERT	No	Off
0x0600	PAN_INVERT	Yes	On
0x0601	TILT_INVERT	Yes	Off
0x1000	IDENTIFY_DEVICE	Yes	Off
0x1001	RESET_DEVICE	No	-

*RDM Parameters window*

- Tap and hold the **value** cell in the row **DMX\_PERSONALITY**.  
The **Select RDM Mode** pop-up opens.



*Select RDM Mode pop-up*

- Tap at the mode the fixture should use.
- Double-check if **Yes** is set in the cell of the column **Poll**.  
Yes means, that the information is collected from the fixture. If Poll is set to No, you can change the parameter but the changes are not visible in the console.  
If **No** is set, tap and hold in the cell until **Yes** is set.

A new mode is set and transmitted via RDM to the RDM fixture.

## Add RDM parameter

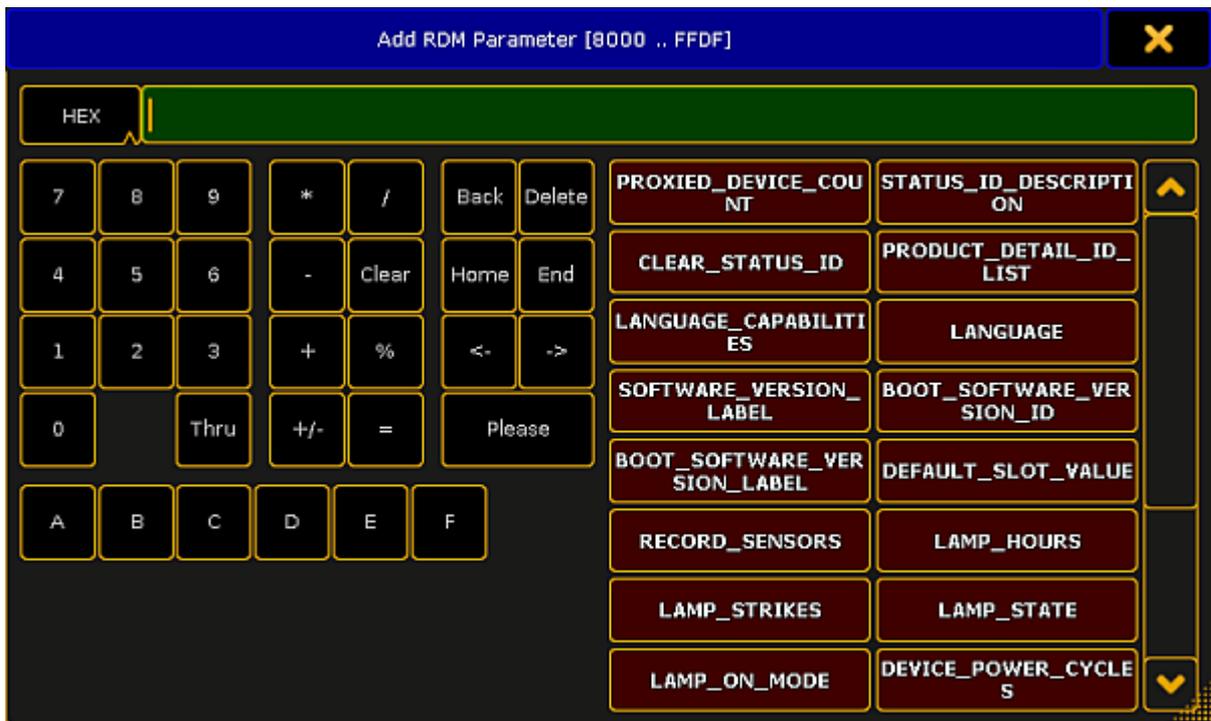
If the fixture uses RDM parameters but those parameters are not transmitted, you can add RDM parameter.

1. Open the RDM devices window.
  - Press **Setup**, and tap under **Show** at **Patch & Fixture Schedule**.
  - Tap in the lower right corner at **RDM devices**.
2. To select the fixture type you like to add parameters to, tap at under **Discovered RDM Fixture Types** at the fixture type.
 

The fixtures to the selected fixture type are displayed on the right side of the RDM devices window.
3. To select the fixture, tap at the fixture in the table on the right screen side.
4. Tap in the lower right corner at **RDM Info**.
 

The **RDM Parameters** window opens.
5. Tap **Add**.
 

The **calculator** opens.



*Calculator - Add RDM parameter*

6. Enter the hex value or tap at one of the standard RDM parameters.

The RDM parameter is added and visible in the RDM parameters window.

## Delete RDM parameter



### Important:

The delete RDM parameters functions is not oopsable.

You can delete previous added RDM parameters.

1. Open the RDM devices window.
  - Press **Setup**, and tap under **Show** at **Patch & Fixture Schedule**.
  - Tap in the lower right corner at **RDM devices**.

2. To select the fixture type you like to delete parameters from, tap at under **Discovered RDM FixtureTypes** at the fixture type.  
The fixtures to the selected fixture type are displayed on the right side of the RDM devices window.
3. To select the fixture, tap at the fixture in the table on the right screen side.
4. Tap in the lower right corner at **RDM Info**.  
The **RDM Parameters** window opens.
5. Tap at the to be deleted parameter.
6. Tap **Delete**.

The parameter is deleted.

## 39.5. Work with RDM sensors

After the RDM fixture is matched, you can:

- [Monitor RDM sensors via the RDM sheet](#)
- [Monitor RDM sensors via Edit Setup / Reset RDM sensors](#)

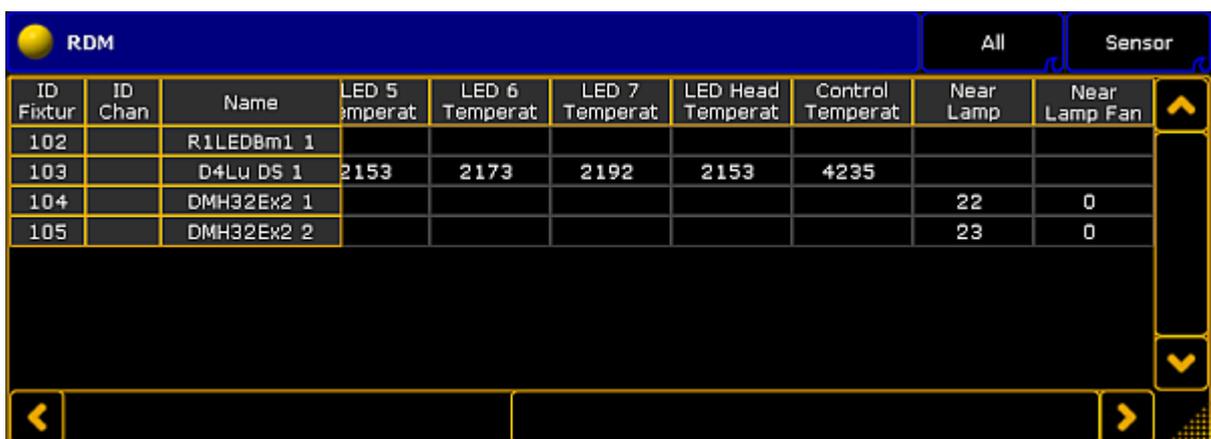
### Monitor RDM sensors via the RDM sheet

The following example explains how to monitor RDM sensors.

#### Requirements:

- RDM is turned on
- Fixture is matched
- Fixture is patched

1. Open the RDM sheet. Tap on an empty space in the user-defined area, tap at **Sheets** and then at **RDM**.
2. The **RDM sheet** opens.



ID Fixtur	ID Chan	Name	LED 5 Temperat	LED 6 Temperat	LED 7 Temperat	LED Head Temperat	Control Temperat	Near Lamp	Near Lamp Fan
102		R1LEDBm1 1							
103		D4Lu DS 1	2153	2173	2192	2153	4235		
104		DMH32Ex2 1						22	0
105		DMH32Ex2 2						23	0

RDM sheet - Sensors

3. To get the sensors displayed, tap at the right title bar button at **Sensor** or **Parameters and Sensors**.

In default the transmitted sensor data are displayed at the far right of the RDM sheet.

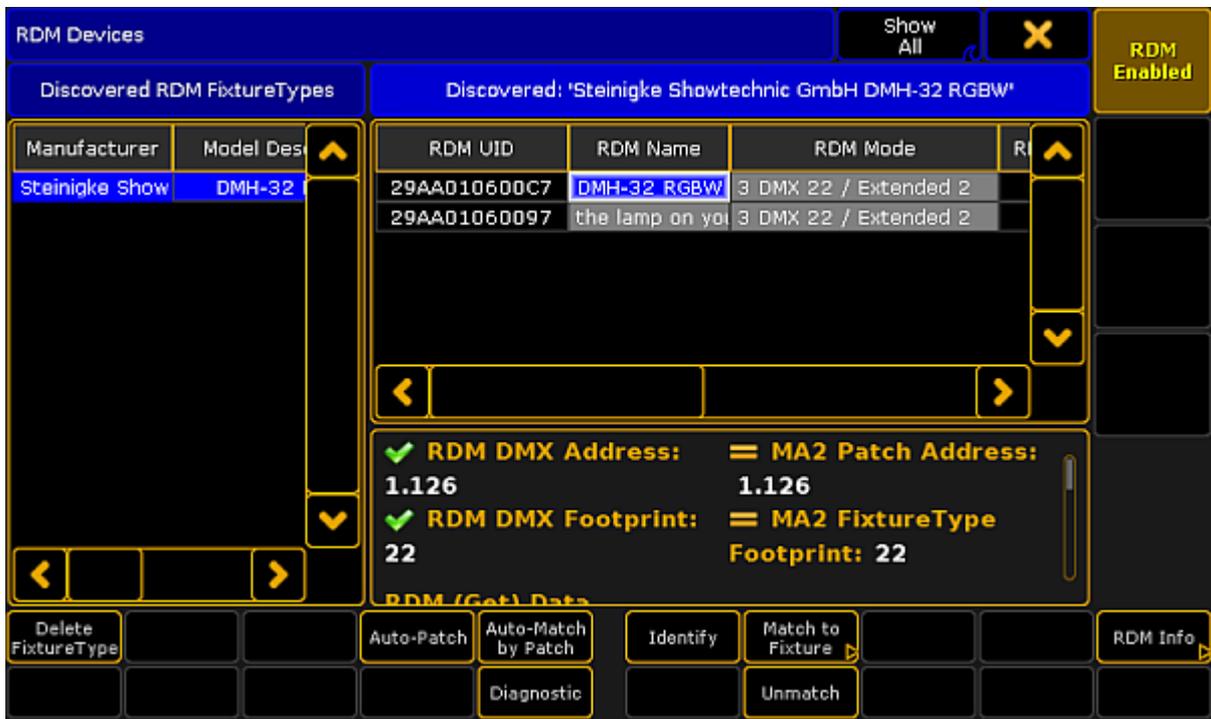


Hint:  
You can also monitor the RDM sensors by using the [RDMInfo keyword](#).

## Monitor RDM sensors via the Edit Setup / Reset RDM sensors

The following example explains how to reset an RDM sensor. This is also the way to monitor RDM sensors via the Edit Setup.

1. Open the RDM devices window. Press **Setup** and tap under **Show** at **Patch & Fixture Schedule**.  
The **Edit Setup** opens.
2. Tap in the lower right corner at **RDM devices**.  
The **RDM devices window** opens.



*RDM devices window*

3. To select the fixture type you like to reset the sensor for tap at the corresponding fixture type under **Discovered RDM FixtureTypes**.  
The fixtures to the selected fixture type are displayed on the right side of the RDM devices window.
4. To select the fixture, tap at the fixture in the table on the right screen side.
5. Tap at **RDM Info**.  
The **RDM Parameters** window opens.

- Tap on the right screen side at **Sensors**. This window displays the transmitted data to the sensors of the RDM device to monitor them.



*RDM sensors window*

- To clear the low and high values of a sensor, tap at the sensor in the table and tap **Reset Sensor**.

You have reset a sensor.

## 39.6. Configure RDM notifications

You can add or delete RDM notifications to or from the fixture types. RDM notification can be add for RDM parameters and for RDM sensors. Choose if the notification should be an RDM alert (displayed in red) or an RDM warning (displayed in yellow). The RDM notification are applied for all fixtures of the fixture type.

Depending on the settings in the windows, the RDM notifications icons are displayed in the:

- [Fixture Sheet](#)
- [Layout View](#)
- [Command line](#)

The RDM notifications themselves are displayed in the:

- [Message Center](#)
- RDM Messages, go to **Setup -> Patch & Fixture Schedule -> RDM Devices -> RDM Info -> Messages** or type [RdmInfo](#) in the command line and tap **Messages**.

## Add RDM notifications

The following example will explain how to add an RDM notification.

### Requirements:

- RDM is turned on
- Fixture is matched
- Fixture is patched

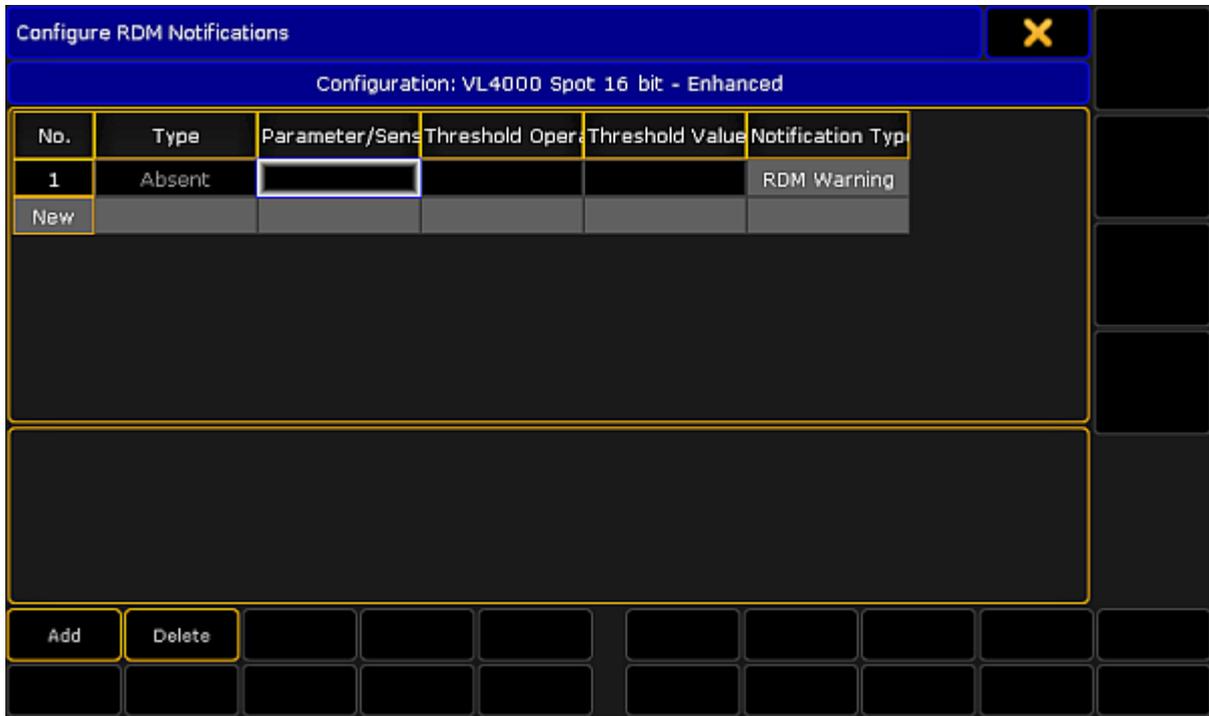
1. Open the **Fixture Type Editor**.
  - Press **Setup**, and tap under **Show at Patch & Fixture Schedule**.
  - Tap on the right screen side at **Fixture Types**.
  - Tap at the fixture type in the table you like to add a notification to and tap **Edit**.
 The **Fixture Type Editor** opens.



*Fixture Type Editor*

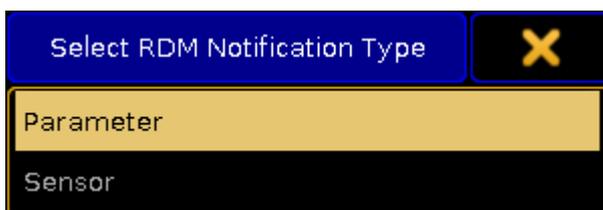
2. Tap on the right screen side **RDM Notifications**.

- The **Configure RDM Notifications window** opens.  
Absent is an RDM warning by default and can not be deleted. You can change the RDM Notification Type. The Absent warning appears if the RDM device is not reachable anymore.



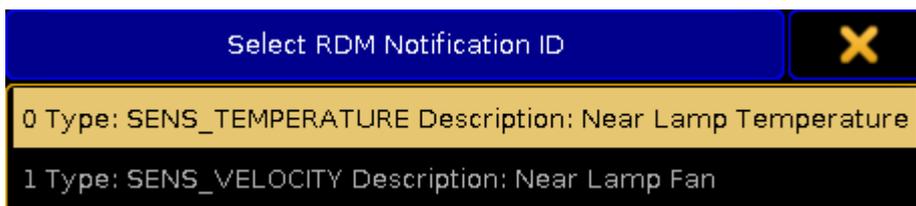
*Configure RDM Notifications window*

- Tap **Add** or tap in the cell of the column Type and press the screen encoder. The **Select RDM Notification Type pop-up** opens.



*Select RDM Notification Type pop-up*

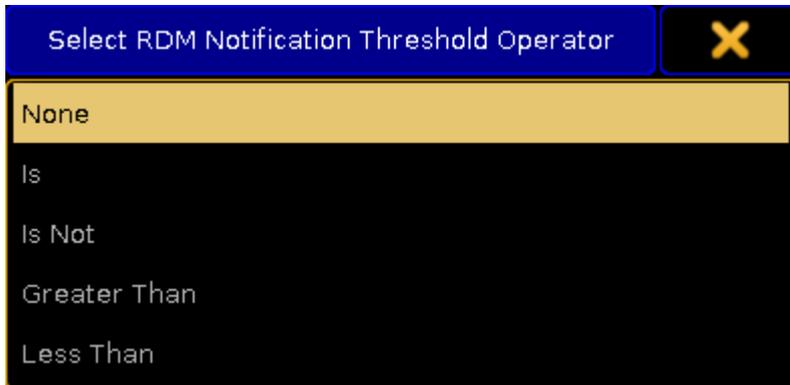
- Tap at **Parameter** or **Sensor**, depending for what type you want to add an RDM notification. To edit the next cell, tap at the Parameter/Sensor ID cell and press the screen encoder. The **Select RDM Notification ID pop-up** opens.



*Select RDM Notification ID pop-up*

6. Tap at the Parameter or Sensor you like to add an RDM notification for. To edit the next cell, tap at the Threshold Operator cell and press the screen encoder.

The **Select RDM Notification Threshold Operator pop-up** opens.



*Select RDM Notification Threshold Operator*

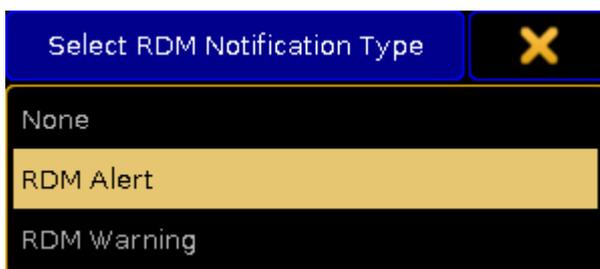
7. Select when the RDM notification should appear:
  - **None:** No RDM Notification.
  - **Is:** If exactly the threshold value is reached.
  - **Is Not:** If any value but not the threshold value is reached.
  - **Greater Than:** If a value greater than the threshold value is reached.
  - **Less Than:** If a value less than the threshold value is reached.

To edit the next cell, tap at the Threshold Value cell and press the screen encoder.

The **Calculator** opens.

8. Enter the threshold value in the calculator. The title bar displays the allowed value range. To edit the next cell, tap at the Notification Type cell and press the screen encoder.

The **Select RDM Notification Type pop-up** opens.



*Select RDM Notification Type pop-up*

9. Tap at **RDM Alert** (red) or **RDM Warning** (yellow).

The RDM notification is added.

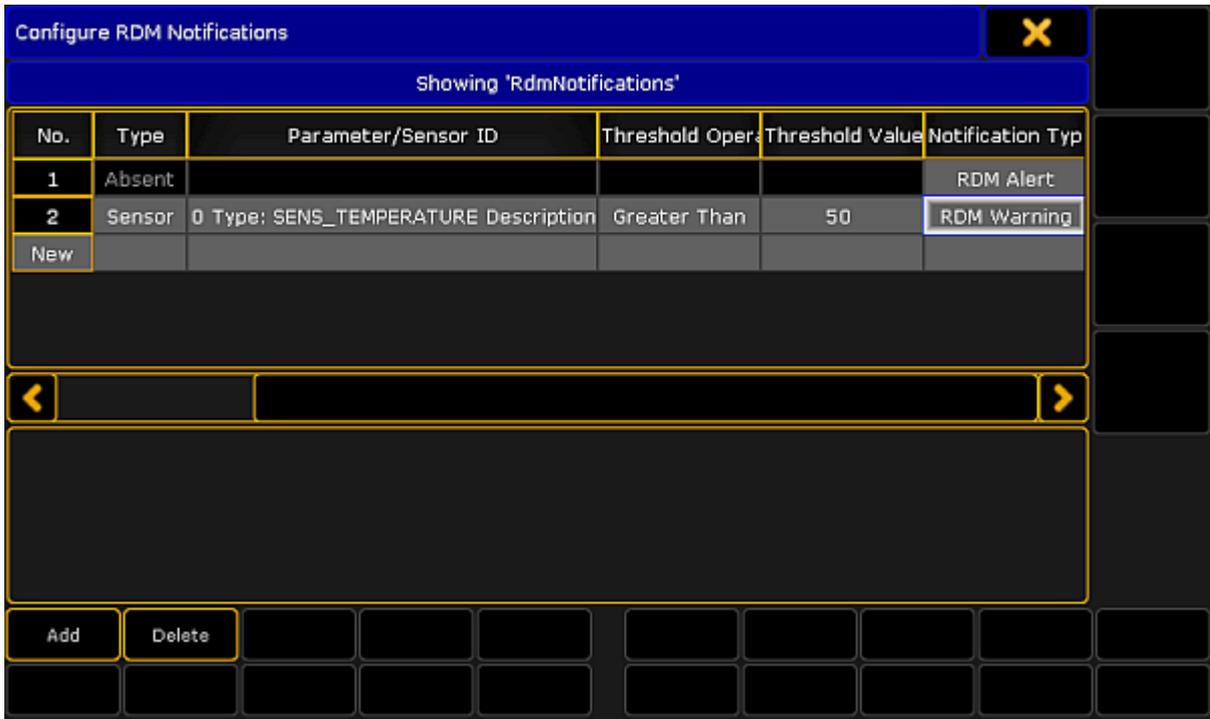
---

## Delete RDM notifications

If you do not need a previous added RDM notification anymore, you can delete the RDM notification from the fixture type.

The following example will explain how to delete an RDM notification.

1. Open the **Configure RDM Notifications** window.
  - Press **Setup**, and tap under **Show** at **Patch & Fixture Schedule**.
  - Tap on the right screen side at **Fixture Types**.
  - Tap at the fixture type in the table you like to add a notification to and tap **Edit**.
  - Tap on the right screen side **RDM Notifications**.The **Configure RDM Notifications** window opens.



*Configure RDM Notifications window*

2. Tap in the table at the to be deleted notification.
3. Tap **Delete**.

The RDM notification is deleted.

## 39.7. Use the RDM sheet

To open the **RDM sheet** tap at an empty space in the user defined area, tap at **Sheets** and then **RDM**.



ID Fixtur	ID Chan	Name	Universe	CLEAR STATUS ID	DEVICE MODEL	MANUFAC TURER	DEVICE LABEL	FACTORY DEFAULTS	LANGUAG CAPABIL
4	4	DMH32Ex2 1	1		DMH-32 RG	Steinigke SI	DMH-32 RG	False	
5	5	DMH32Ex2 1	1		DMH-32 RG	Steinigke SI	the lamp or	False	
6	6	D4Lu HS 1	1	-	Desire Lust	ETC	Default	-	en

*RDM sheet*

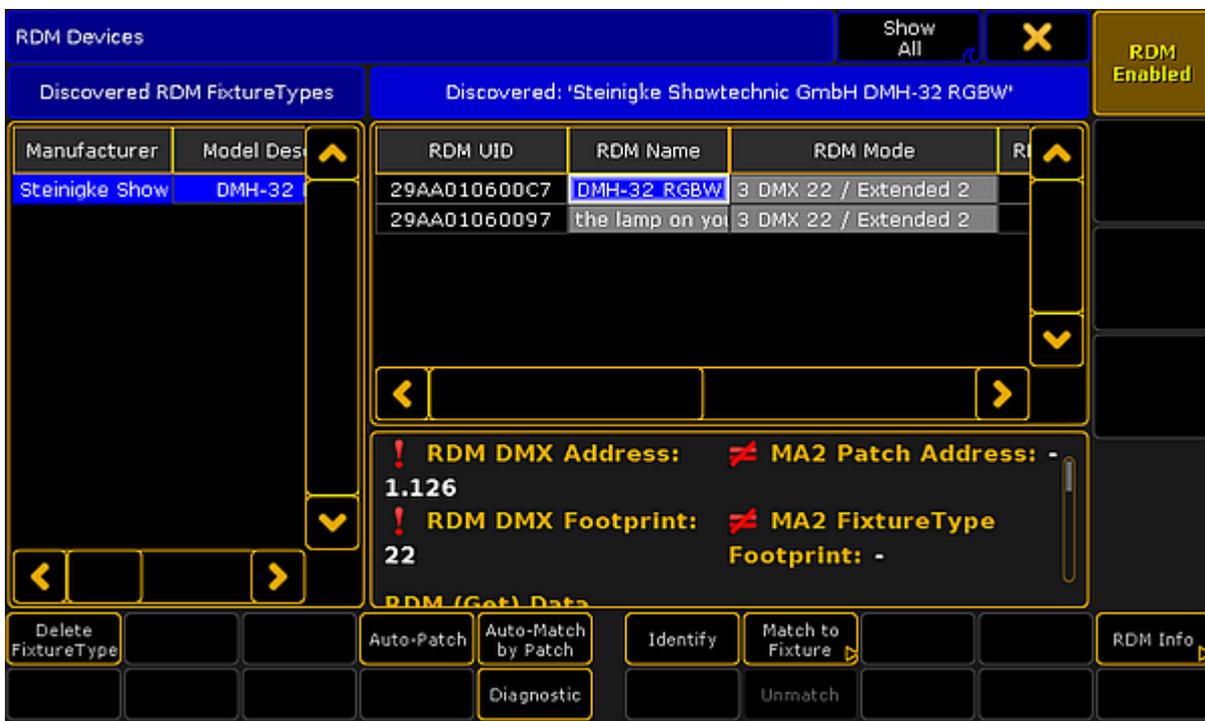
- The RDM sheet is used to have a quick overview about the discovered RDM devices, their parameters, and their sensors.
- You can set RDM parameter, see [work with RDM parameters](#).
- You can monitor RDM sensors, see [work with RDM sensors](#).
- The first title bar button in the RDM sheet allows to filter the RDM sheet by:
  - **All:** Displays all RDM discovered RDM devices
  - **Current Fixture Type:** Displays to the selected fixture or channel the RDM devices with the same fixture type.
  - **Selection:** Displays only the RDM devices of the fixture or channel selection
  - **Alerts/Warnings:** Displays only the RDM devices with a notification
  - **Unmatched Fixtures:** Displays only the unmatched RDM devices
- The second title bar button in the RDM sheet allows to filter the RDM sheet by:
  - **Parameters and Sensors**
  - **Parameters**
  - **Sensors**
- For a better overview, you can sort every column up-and-down. To sort a column tap and hold in a header cell of the RDM sheet or right mouse click in the header cell.

## 39.8. Unmatch RDM devices

To unmatch RDM devices from the patch:

1. Open the RDM devices window. Press **Setup**, and tap under **Show** at **Patch & Fixture Schedule**.  
The **Edit Setup** opens.
2. Tap in the lower right corner at **RDM devices**.  
The **RDM devices window** opens.
3. To select the fixture type you like to unmatch, tap at under **Discovered RDM FixtureTypes** at the fixture type.  
The fixtures to the selected fixture type are displayed on the right side of the RDM devices window.
4. To select the fixture, tap at the fixture in the table on the right screen side.
5. Tap **Unmatch**.

The selected fixture is unmatched from the patch.



*Unmatched RDM device*



**Hint:**

You can also unmatch RDM devices by using the [keyword RdmUnmatch](#).

## 39.9. Splitters and Mergers that Support RDM

MA Lighting tested splitters and mergers that flawlessly support RDM. See the table below.

Manufacturer	Series
Major	RDM DMX Booster
Swisson	XSR - 5B
EuroLite	DMX Split 8X RDM Splitter

## 39.10. Turn RDM off

To ensure a trouble-free DMX signal and to minimize network traffic, we recommend to turn RDM off for universes including only fixtures NOT providing RDM functionality.

---

### Turn off RDM per universe

There are two ways to do this.

Way A:

1. Tap on an empty space in the screen, tap **Pools**, and then item **Universes**.  
The **universe pool** opens.
2. Press **Edit** and tap at the universe you want to turn off RDM.  
The **Edit universe pop-up** opens.
3. Tap in the RDM cell until the cell is empty.

RDM is turned off for the selected universe. The **green RDM icon RDM** is not visible anymore in the universe pool - pool style.

Way B:

1. Press **Setup** and tap under **Show Patch only (Live)**.  
The **Live Setup** opens.
2. Tap **DMX List**.  
The **DMX list** opens.
3. Under List of Universes is a column RDM. Tap in the RDM cell until the cell is empty for that universe you want to turn off RDM.

RDM is turned off for the selected universe. The **green RDM icon RDM** is not visible anymore in the universe pool - pool style.

---

### Turn off RDM global

There are two ways to turn off RDM global.

Way A:

# grandMA2 User Manual

Version 3.3



1. Press **Setup** and tap under **Console** **Global Settings**.



*Setup global settings*

2. Tap at **Enable RDM** until the **Off** is yellow.

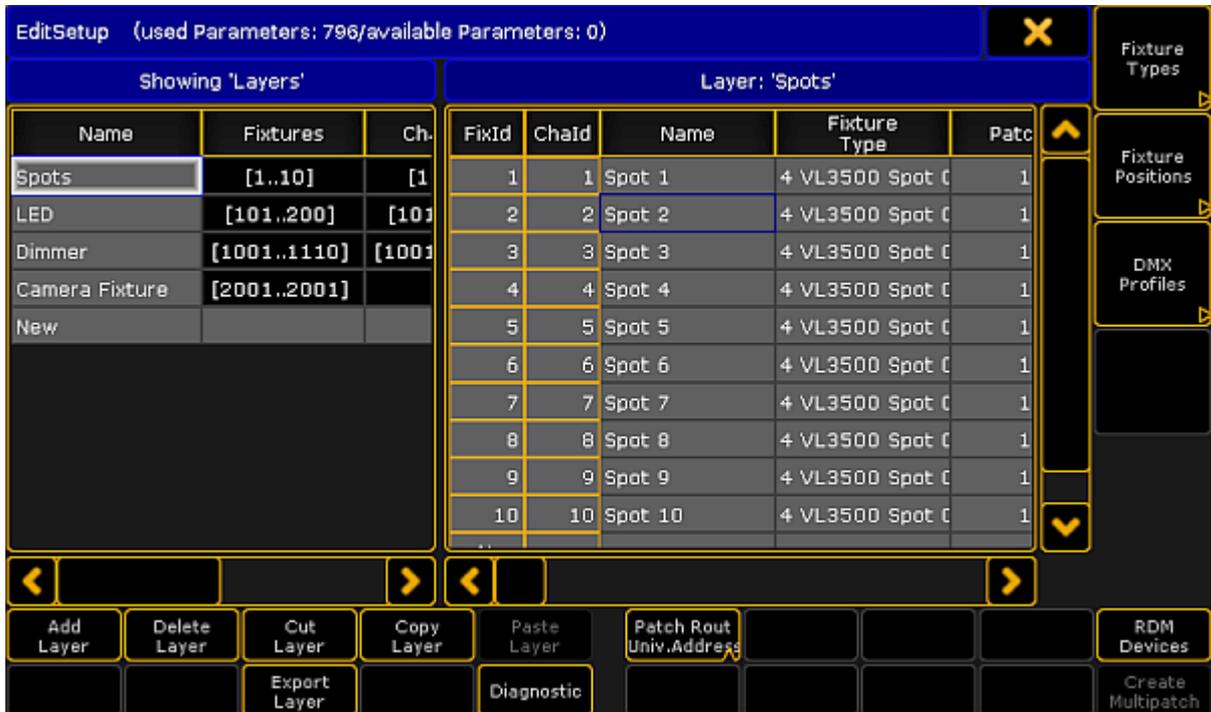
RDM is global turned off. The **red RDM icon RDM** is displayed in the universe pool - pool style, if RDM is on for that universe.

Way B:

# grandMA2 User Manual

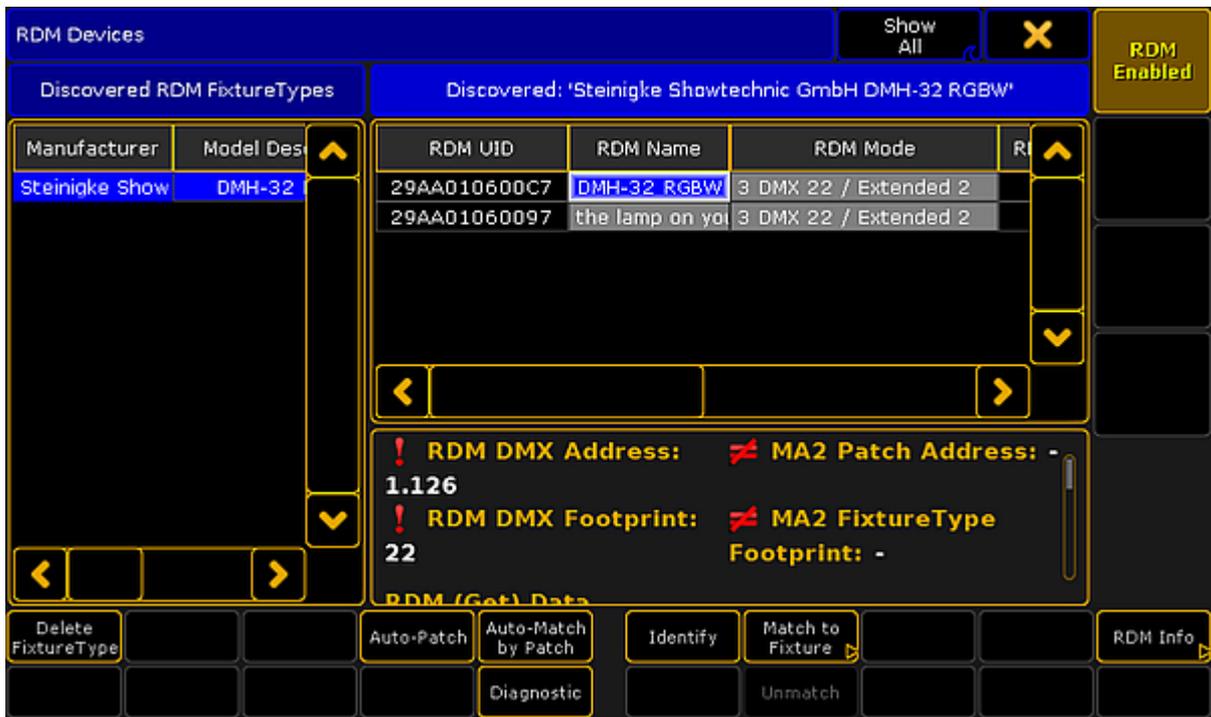
Version 3.3

1. Press **Setup** and tap under **Show Patch & Fixture Schedule**.  
The **Edit Setup** opens.



*Setup patch & fixture schedule (edit setup)*

2. Tap in the lower right corner at **RDM Devices**.  
The **RDM Devices** window opens.



*Setup - patch & fixture schedule - RDM devices*

3. Tap at **RDM Enabled** until **RDM Disabled** is displayed.

RDM is global turned off. The **red RDM icon RDM** is displayed in the universe pool - pool style, if RDM is on for that universe.

## 39.11. RDM specific keywords

Here is a list with links to all specific RDM keywords:

- [RdmAutomatch](#)
- [RdmAutopatch](#)
- [RdmFixtureType](#)
- [RdmInfo](#)
- [RdmList](#)
- [RdmSetParameter](#)
- [RdmSetpatch](#)
- [RdmUnmatch](#)

## 40. DMX Profiles

DMX profiles are used in attributes or in DMX channels. They can be displayed graphically with the help of the graph editor.

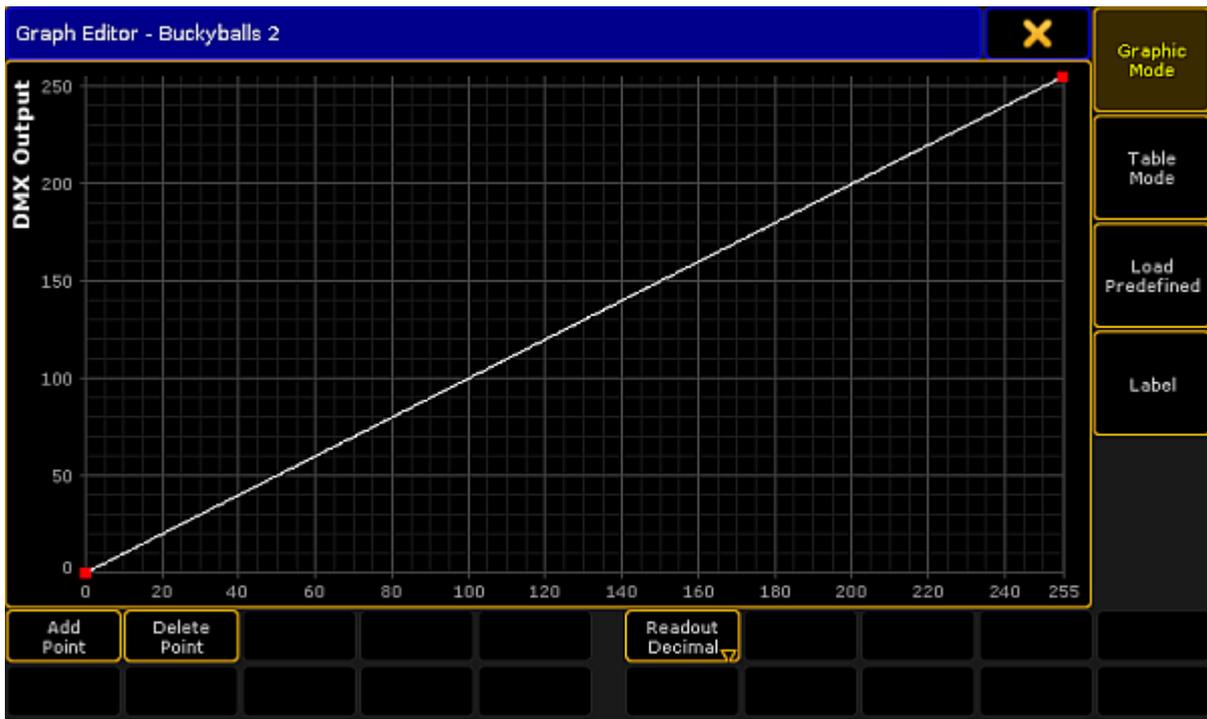
Open the the menu DMX Profiles:

1. Press **Setup**.
2. Tap **Patch & Fixture Schedule**.
3. **EditSetup** opens.  
For more information on patching see [Adding fixtures to your show](#).
4. Tap **DMX Profiles** on the right of the menu.
5. The menu **DMX Profiles** opens.



### *Creating DMX profiles*

6. To add DMX profiles, tap **Add** or tap and hold the row **New** in the menu.  
-A new row appears displaying DMX\_Profile.
7. Label the newly created row:  
-Tap and hold the row DMX\_Profile.  
-The **pop-up Edit Name** opens.  
-Label the DMX profile.  
-Press **Please** or Enter on the keyboard of your PC.
8. Edit a DMX profile:  
-Select a row you would like to edit.  
-Tap **Edit**.  
-The graph editor opens.



Graph editor – graphic mode

9. Make settings in the DMX profile graph.



**Hint:**

The general settings **Add Point**, **Delete Point**, **Graphic Mode**, **Table Mode**, **Load Predefined**, and **Label** are set in the same manner as in the graph editor in the form pool. For more information on these settings see [Settings in the Graph Editor in Create effect forms](#).

10. After the general settings were made, select the mode of display:
  - To display the DMX profile graph in percentage, tap **Readout Decimal** to toggle it to **Readout Percent**.
  - The graph is now displayed in percentage.
  - To display the graph in decimal digits, tap it once again to toggle it back to **Readout Decimal**.

The settings are now applied.

Now, close the graph editor:

- Tap the **X** in the upper right corner of the window.

## 41. Other system tools

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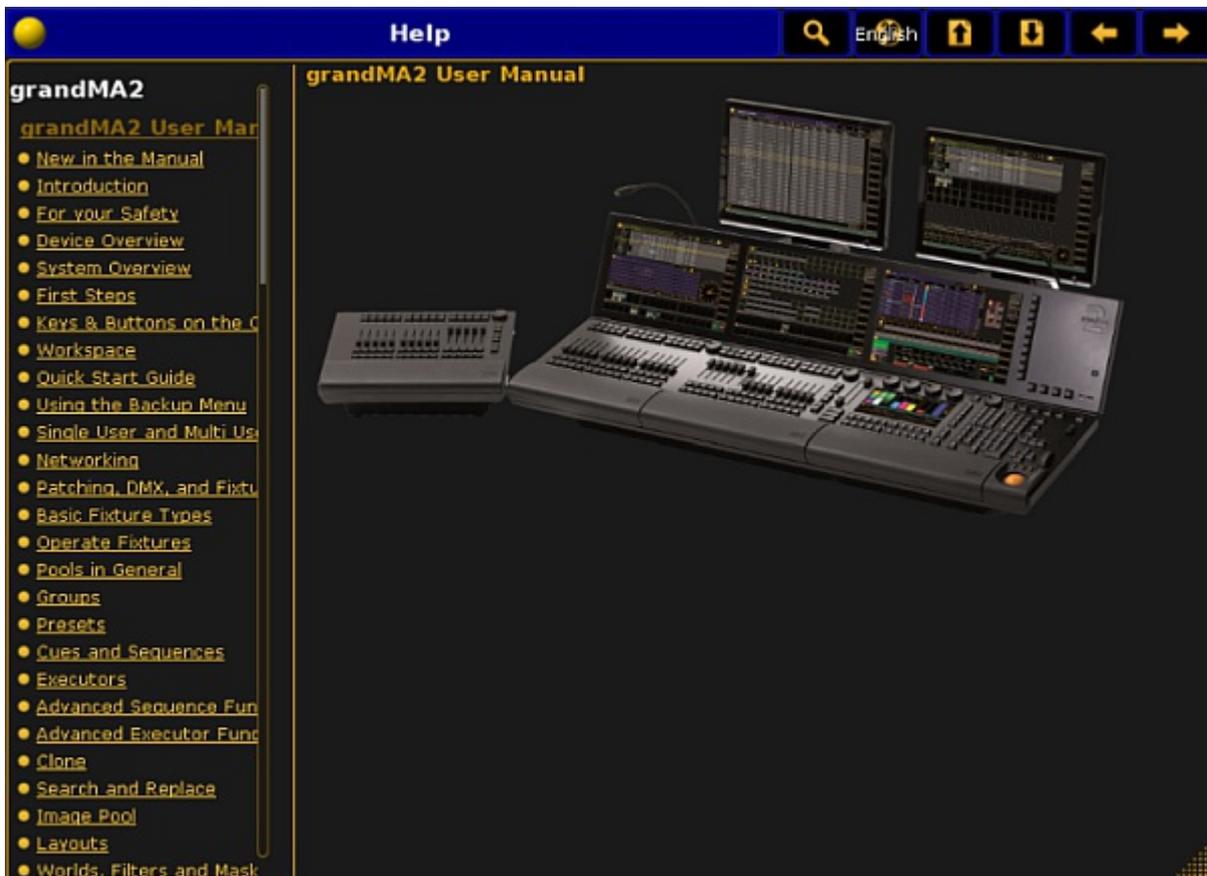
### 41.1. Message center

blank page

### 41.2. Help

To access the **Help** window, tap on an empty part of a screen. This must be at least 5 columns wide and 3 rows high. Tap **System** and then **Help**.

This will open the Help window.



*Help window*

To navigate in the help structure, tap the different topics on the left side of the window. In all the topics, there will be a list of sub-topics that contains more information of specific issues.

In the top of the window, there are 6 icons



*Help keys*

These are used to getting around in the **Help** topic:

- The **Magnifying glass** will let you search for specific words in the manual.
- The **English** key can be used, to change the language of the manual. At the moment, the only option is English.
- **Arrow up**, will display the previous topic in the help structure.
- **Arrow down** will display the next topic in the help structure.
- **Arrow left** will let you go back in the resent seen topics.
- **Arrow right** will let you go forward in the resent seen topics.



**Hint:**

The Help window contains help about the grandMA 2 consoles, onPC, MA 3D and MA VPU



**Hint:**

This Help manual are also available online. The website <https://help2.malighting.com> contains help to grandMA 2 products, dot2 products, MA Network Switch and MA Fixture builder. These manuals will be edited regularly and can be more up to date, than the manual in the console.

## 41.3. Clocks

To access the **Clock** window, tap on an empty part of a screen. This must be at least 2 columns wide and 2 rows high. Tap **System** and then **Clock**.

This will open the **Clock** window.



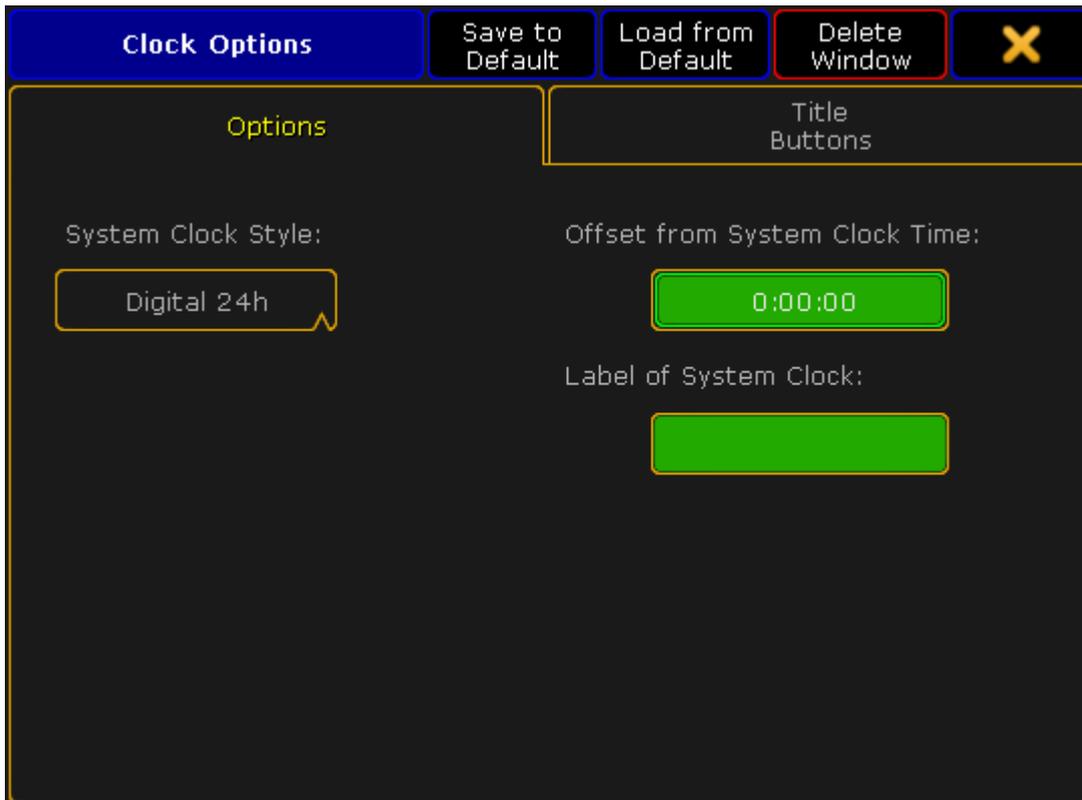
*Clock window*

## System Clock

As default, the **Clock** will open in System clock. This will display the current time, according to the console time. For more information, see the [Date and Time](#) topic.

It is possible to change the settings and readout of the clock, by tapping the yellow ball, in the upper left corner of the clock window.

This will open a Clock Option window.



*Clock option window*

In the System Clock Style, there are different opportunities for, what the clock shall readout. Tap the yellow box and a list will appears:

- **Analog** will display the current time as a analog watch.
- **Digital AM/PM** will display the current time in a 12-hour clock. This is a time convention in which the 24 hours of the day are divided into two periods: a.m. (from the Latin, ante meridiem, meaning before midday) and p.m. (post meridiem, meaning after midday)
- **Digital 24h** will display the current time in a 24-hour clock.
- **Date DD-MM-YYYY** will display the date in a day, month and year format. This is the most common format in Europe, Asia, Africa and South America.
- **Date MM-DD-YYYY** will display the date in a month, day and year format. This is the most common format in North America.
- **Dawn** will count up or count down till dawn
- **Sunrise** will count up or count down till sunrise
- **Sunset** will count up or count down till sunset

- **Dusk** will count up or count down till dusk

For more daylight information about dawn, dusk, sunrise and sunset, see the [Date and Time](#) topic.

It is also possible to offset the clock compared to the system time. To do this, tab in the green square labeled **Offset from System Clock Time**. This will open a calculator, where the time can be offset from -23.59.995 hours to +23.59.995 hours. This setting is individual for every clock, so it is possible to have different clocks with different time-zones for example.

To label the clock, tab on the green square, labeled Label of System Clock. This will open a pop-up, where it is possible to label each clock individually.



*Clocks with offset and label*



**Hint:**

In the top of the Clock Option window, it is possible to save the settings as default, and load the default settings.

Timecode

xxx

Timer

xxx

41.4. CITP viewer

41.5. DMX universes

41.5.1. Edit a universe

41.6. Sound input window

41.7. VPU pixel mapper view

[Pixelmapper](#)

41.8. Network dimmer monitor

41.9. RDM status

41.10. Desk status

41.11. Performance window

41.12. System monitor

## 42. Export and Import

### General Export and Import function

The export and import function is a tool to copy a part of the show file, and use it in another show. This may be an effect, a cue, a preset or something else.

Using the export and import function can be done, either by the **Command Line** or the Graphical User Interface (**GUI**).

The exported content stores in a .XML file. This is located in an importexport directory on the console, an USB stick in gma2/importexport and on an onPC solution it might be located C:\ProgramData\MA Lighting Technologies\grandMA\gma2\_V\_3.3\importexport.

### Export and import objects

Almost all objects from the showfile can be exported and imported. For example:

- Effects
- Macros
- Masks
- MAtricks
- Gobo bitmaps
- User Profiles
- Users
- Nodes
- Views
- Channels
- Pages
- Presets
- Sequences
- Cues
- Executors
- Groups
- Filters
- Cameras
- Forms
- Timecodes
- Fixtures
- Screens

To export or import **Macros, Effects, Masks, MAtricks, Gobo Bitmaps, User Profiles** and **DMX nodes**, it is easier to use the GUI. For more information see the [Export by using user interface](#) and [Import by using user interface](#) topics.

To Import an image to the Image Pool, read more in the [Import images and video](#) topic.

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It is not possible to export or import the show, or a part of the show to any other console format for example other manufactures consoles. To handle a ASCII file, see the [ASCII Show Read](#) topic.



Hint: It is possible to open show files from a dot2 console directly on a grandMA2 console or onPC.

## 42.1. Export by using command line

It is possible to use the **Command Line** to export all objects. For more information about the keyword and syntax, see the [Export keyword](#) topic.

### Example 1

The **Command Line** syntax to export group 1 thru 4 to a file named Front\_groups.xml

```
[Channel]> Export Group 1 Thru 4 "Front_groups"
```

### Example 2

The **Command Line** syntax to export a User Profile named Designer and overwrite the existing Designer.xml file

```
[Channel]> Export UserProfile "Designer" /Overwrite
```

## Export objects to a USB stick

To export objects to a USB stick, in this example a color, a USB stick has to be plugged in the console or onPC. A Command Line Feedback window has to be open.

### Steps:

1. To find the drive to export the objects to, type "SelectDrive" in the Command Line. The Command Line Feedback displays a list of the available drives.

```
[Channel]> SelectDrive
```

2. Select the USB stick (it might be number four), typing "SelectDrive 4". Drive number 4 is now the default drive.

```
[Channel]> SelectDrive 4
```

3. Export the color named cyan.

```
[Channel]> export preset 4 "Cyan"
```

## 42.2. Export by using user interface

There is a dedicated GUI for exporting **Macros**, **Effects**, **Masks**, **MATricks**, **Gobo Bitmaps**, **User Profiles** and **DMX Nodes**.

All of these, except **Gobo Bitmaps** and **DMX Nodes**, works similar. In the following example, it is an effect that has to be exported.

### Requirement:

To be able to export an effect, there needs to be at least one effect in the effect pool. If exporting to a USB stick, then a stick needs to be connected to the console or onPC.

Open the **Setup menu** and tap **Import Export** followed by **Export** and finally **Effects**

This opens a pop-up like this:



*Export effect pop-up*

### Steps:

1. Select the tab where to export the effect to. A USB stick called "Shows" is selected in the image above.
2. Pick the effects to export on the left side. Select multiple effects by holding **Ctrl** on the keyboard and tapping the effects in the effect list. The selected effects get a blue background. The effects are exported to an XML file, that can contain one or more effects.
3. On the right side, there are a list of existing XML files on the destination, selected in the tab above.

4. Activating **Always ask for Name** (tap it until the text is yellow), gives an opportunity to give the XML file a different name than the effect. If more than one effect is selected, you will always be asked for a new name.
5. Tap **Export**
6. Depending on the selections, you might be prompted for a name for the XML file.

## Result:

The selected effects are exported to the selected drive (Internal or to an USB stick)

## Export a Gobo Bitmap

To export a Gobo Bitmap, a USB stick has to be plugged in the console or the onPC.

Open the **Setup menu** and tap **Import Export** followed by **Export** and finally **Gobo Bitmap**

This opens a pop-up like this:



*Export gobo bitmap pop-up*

## Steps:

1. If more than one USB stick is connected, select the tab where to export the gobo bitmap to. A USB stick called "Shows" is selected in the image above.
2. Select the manufacture and then pick the bitmap to export on the left side. Select multiple bitmaps by holding **Ctrl** on the keyboard and tapping the bitmaps in the list. The selected bitmaps get a yellow background.
3. On the right side, there is a list of existing bitmaps on the destination, selected in the tab above.
4. Tap **Export**

5. If a bitmap has to be deleted from the internal gobo library or the USB stick, select the bitmap and tap **Delete**

## Result:

The selected bitmaps are exported to the selected USB stick.

## 42.3. Import by using command line

It is possible to use the **Command Line** to import all objects. For more information about the keyword and syntax, see the [Import keyword](#) topic.

### Example

The Command Line syntax to import the groups from a .xml file named "Front groups" to the group pool, starting from group 20.

```
[Channel]> Import "Front Groups" At Group 20
```

It is possible to import Macros, Effects, Masks, MAtricks, Gobo Bitmaps, User Profiles and DMX Nodes by using the import GUI For more information, see the [Import by user interface](#) topic.



It is not possible to import a show, or a part of a show from any other console manufactures or from ASCII files.



Hint:  
To import a bigger part of an other showfile, see the [Partial Show Read](#) topic.

## 42.4. Import by using user interface

There is a dedicated GUI for importing **Macros, Effects, Masks, MAtricks, Gobo Bitmaps, User Profiles,** and **DMX Nodes.**

In the following example is a macro that has to be imported from a USB stick. But it is the same procedure for the other objects.

## Requirement:

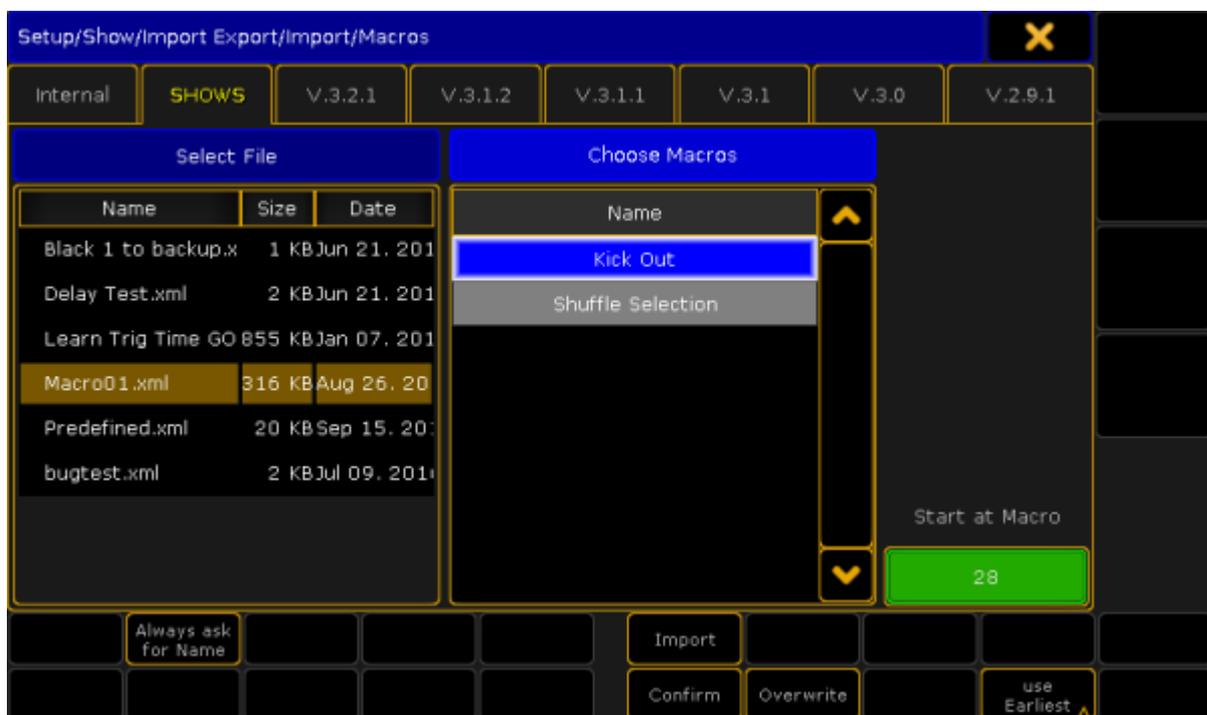
To be able to import an object it is needed to have the object exported to an .XML file. Please read the [Export by using commandline](#) to learn how to do this.

If the object is stored on a USB stick, plug the USB stick into the console or onPC.

## Steps:

1. Open the **Setup menu** and then tap the **Import Export** button followed by the **Import** button and then finally the **Macro** button.

This opens a pop-up like this:



*Import macro pop-up*

2. Select the tab that matches the USB stick.
3. Select the .XML file on the left side, that contains the macro to import.
4. On the right side is a list of the macros that are stored inside the XML file. An XML file may contain one or more macros. Select the ones to import. Select multiple macros by holding the **Ctrl** key on the keyboard and tapping the macros on the screen. The selected macros get a blue background.
5. [Optional] Activate **Always ask for Name** (tap it until the text is yellow) to rename the macros when imported.
6. [Optional] Activate **Confirm** (tap it until the text is yellow) to have a confirm pop-up to appear, after the import.
7. [Optional] Activate **Overwrite** (tap it until the text is yellow) to overwrite any macros that might already exist on the location where to import to.

8. Select where to place the imported macros in the macro pool. This can be done by specifying a number in the green input field or tap **Use** to toggle between the **Use Earliest** and **Use Latest** options. Earliest means the first available free macro pool object. Latest means the next available pool object after the last one used.
9. Tap **Import**
10. [Optional] If the "ask for name" button is selected, then a dialog box is now prompted for a new name - for each macro to import.
11. [Optional] If the "confirm" option is selected, tap **Ok** in the pop-up that informs about the amount of imported macros.

## Result:

The selected macros are imported to the selected location in the macro pool.

## 42.5. Import predefined objects

The predefined macros and effects are a collection made by MA Lighting.

They can be used to make programming faster and more convenient. They are also a great source for learning how macros and effects work.

The predefined macros are all inside a single XML file in the software. All the predefined effects are in another XML file. These XML files can be imported, as any other, using the methods described in the [Import by using command line topic](#) - although it is imported from the internal hard drive instead of a USB stick.

The predefined macros and effects are a little bit different because there is an extra way to import them.

In the following example, a predefined macro is imported. Effects can be imported in this way too.

### Import a predefined macro

In the [Manually create a macro topic](#) it is described how the Edit Macro pop-up works.

For instance edit an empty macro object in the pool.

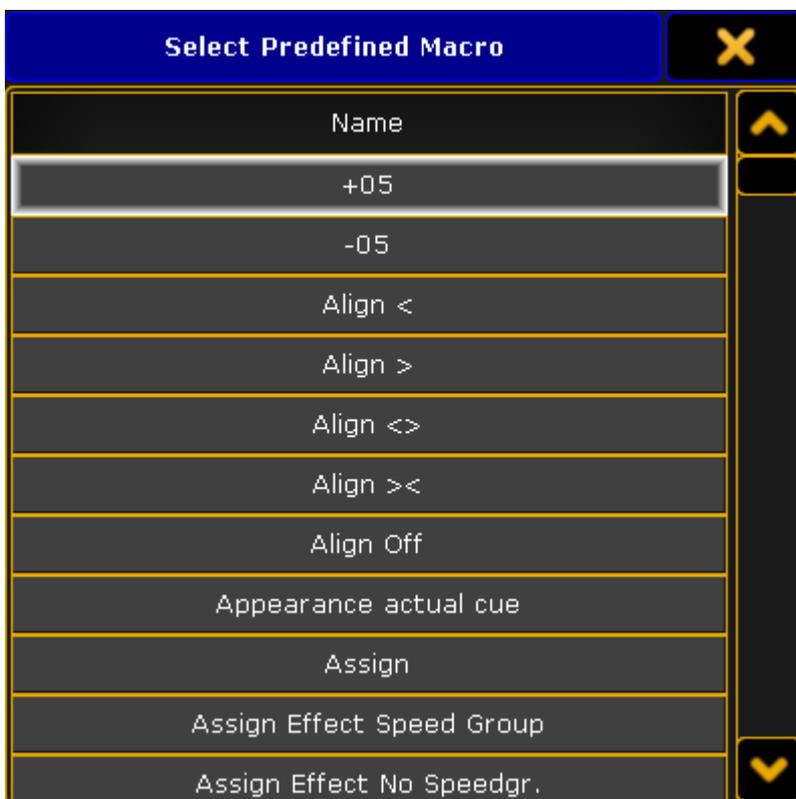
It could look like this (not an empty macro):



*Edit Macro pop-up*

Notice that on the right side is a button called Load Predefined.

If this is tapped then a small **Select Predefined Macro pop-up** appears. It look like this:



*Select Predefined Macros pop-up*

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This lists all the predefined macros in the internal hard drive. The list can be scrolled and selecting an element in the list will import the selected macro.

The import will label the macro and it may turn off CLI.

This is the fastest way to import single macros from the predefined macros. If you need to import more or all then it is faster to use the normal import methods where you can select multiple macros - links at the top of this topic.

## 43. Update the Software

The chapter gives you information about how to update the grandMA2 if a new software version is available.

To double-check what version you are using, enter the [version keyword](#) in the command line.

### Check for updates and download the latest version

To check if a new update for the grandMA2 software is available and download them:

1. Go to [www.malighting.com](http://www.malighting.com), click **Support and Downloads**, and click under MA Software Release Package complete at + .  
The first displayed version is the latest version.
2. Click at the version.

The download process start. Follow the on screen instructions.

### 43.1. Update via setup



#### **Important:**

This update process is available beginning with software version 2.8. If you have a software version 2.7 or older, use the update process via boot menu. For more information, see [update via boot menu](#).

This topic describes how to update the grandMA2 console via the Setup.

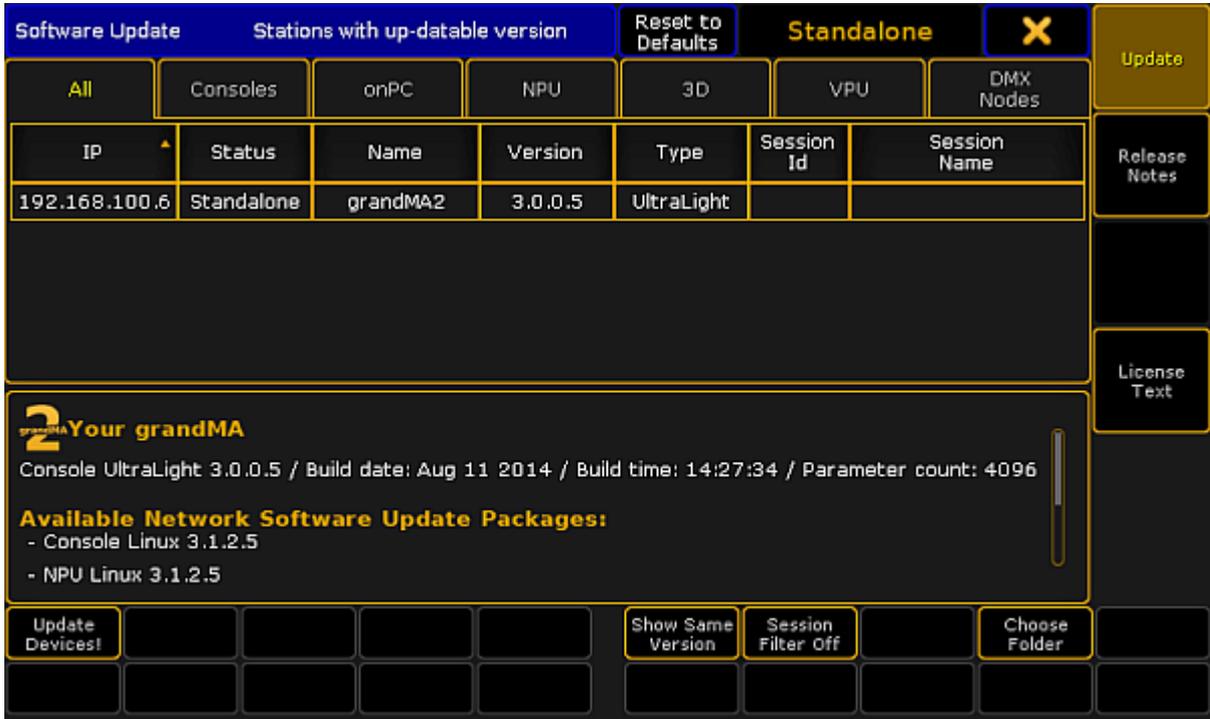
**Requirement:** A software version .update file (download the latest version at [www.malighting.com](http://www.malighting.com)).

1. Copy the **.update** file on an empty USB stick and insert the USB stick in a USB port of the console.

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2. Press **Setup** and tap under consoles **Software Update**.  
The software update window opens.



IP	Status	Name	Version	Type	Session Id	Session Name
192.168.100.6	Standalone	grandMA2	3.0.0.5	UltraLight		

**Your grandMA**  
Console UltraLight 3.0.0.5 / Build date: Aug 11 2014 / Build time: 14:27:34 / Parameter count: 4096

**Available Network Software Update Packages:**

- Console Linux 3.1.2.5
- NPU Linux 3.1.2.5

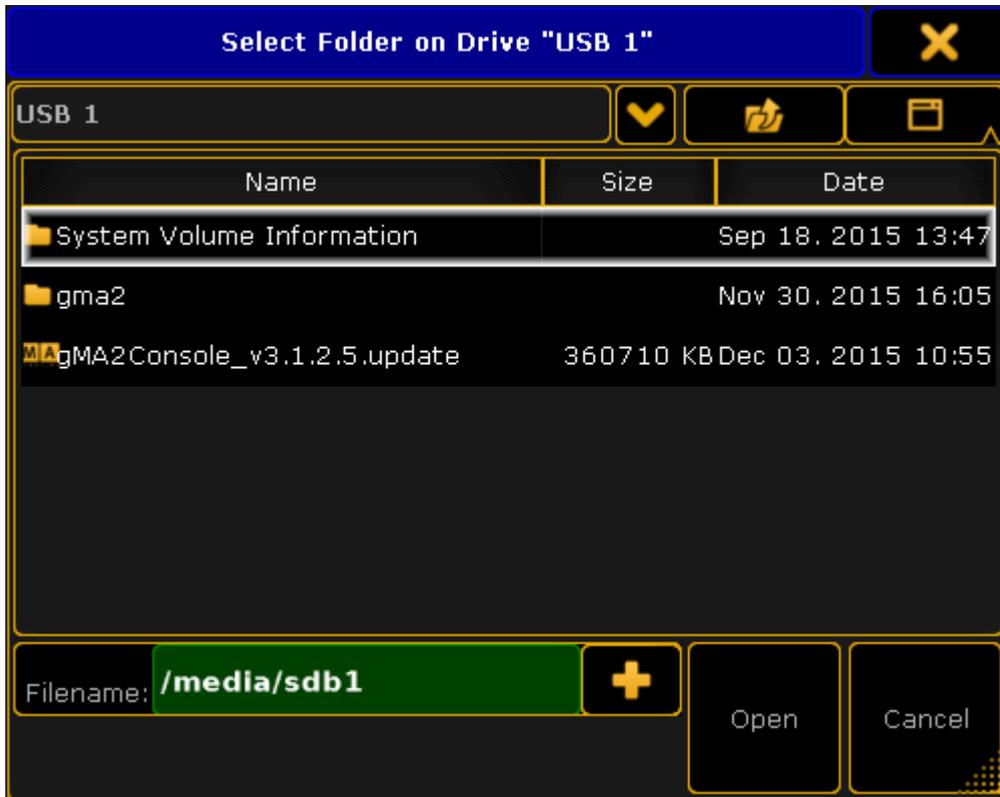
*Software Update*

3. Every device with an older version is listed.  
To see also the devices with the same version, tap **Show Same Version**.  
To see only the devices from a specific session number, tap **Session Filter Off**. The calculator opens and you can insert the session number you would like to see.

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- To choose a specific folder on the USB stick with the .update file, tap **Choose Folder**. The **Select Folder on Drive** pop-up opens.



*Select Folder on Drive pop-up*

Select the .update file and tap **Open**.

You are back in the Software Update window.

- Tap at the devices you want to update and tap **Update Devices!**. A pop-up opens and asks if you want to save the show file first.
- Tap **Save Showfile**. The update process starts. After the update process is finished, the console asks to reboot now.
- Tap **Reboot Now**.

The console reboots and the update process is finished.

You can also update the consoles software via command line.

For more information, see:

- [UpdateSoftware Keyword](#)
- [Reboot Keyword](#)

## 43.2. Format a USB stick for Linux

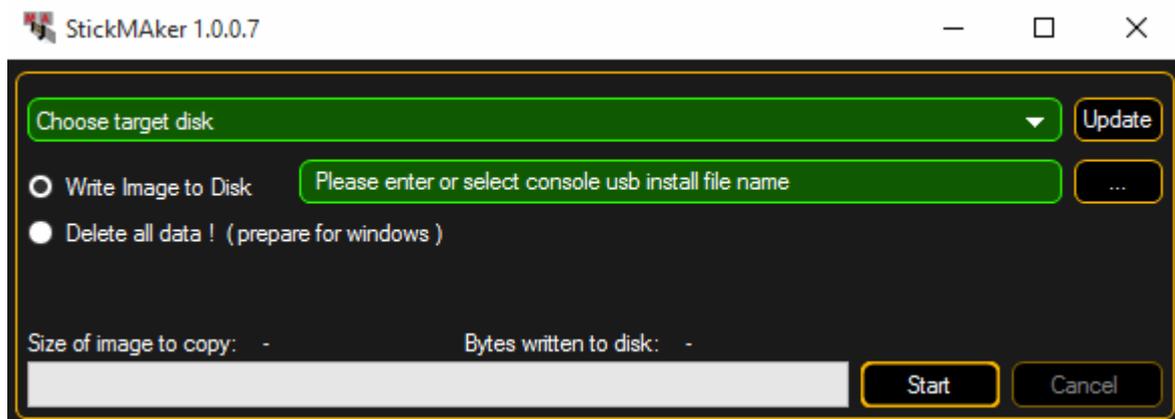
This topic describes how to format a USB stick for Linux. This is necessary for a later update via boot menu or a factory reset.

### Requirements:

- An empty USB stick
- A software version .imgz file (download the latest software version at [www.malighting.com](http://www.malighting.com))
- MA stickMAker (download the MA stickMAker at [www.malighting.com](http://www.malighting.com) under **Utilities**)

To format a USB stick for a later grandMA2 update:

1. Install the MA stickMAker by double click at the **StickMaker-x.x.x.exe**.  
You will be guided through the installation process.
2. Insert an empty USB stick in your computer.
3. Open the MA stickMAker by a right mouse click, and then click at **Run as administrator**.  
The **MA stickMAker** opens.



*MA stickMAker*

4. Select the **USB drive** in the green target field, then click at the three dots and select the **gMA2Console\_v\*.imgz** file. Click **Start**.  
The stick will be formatted to a Linux stick and the image will be written to the stick. This process takes about three minutes. When the copy operation is succeeded, a pop-up opens.
5. Click **Ok**.
6. Remove the USB stick from the computer.

The USB stick is formatted into a Linux USB stick and ready for a grandMA2 update or a factory reset.

## 43.3. Update or factory reset via boot menu

This topic describes how to update the grandMA2 software or do a factory reset via the boot menu.

**Important:**

Before you start to update your grandMA2 software or doing a factory reset, save your show files and any other user created data on a USB stick. If you do not save the show files first, the show files can be deleted or broken and cannot be recovered anymore.

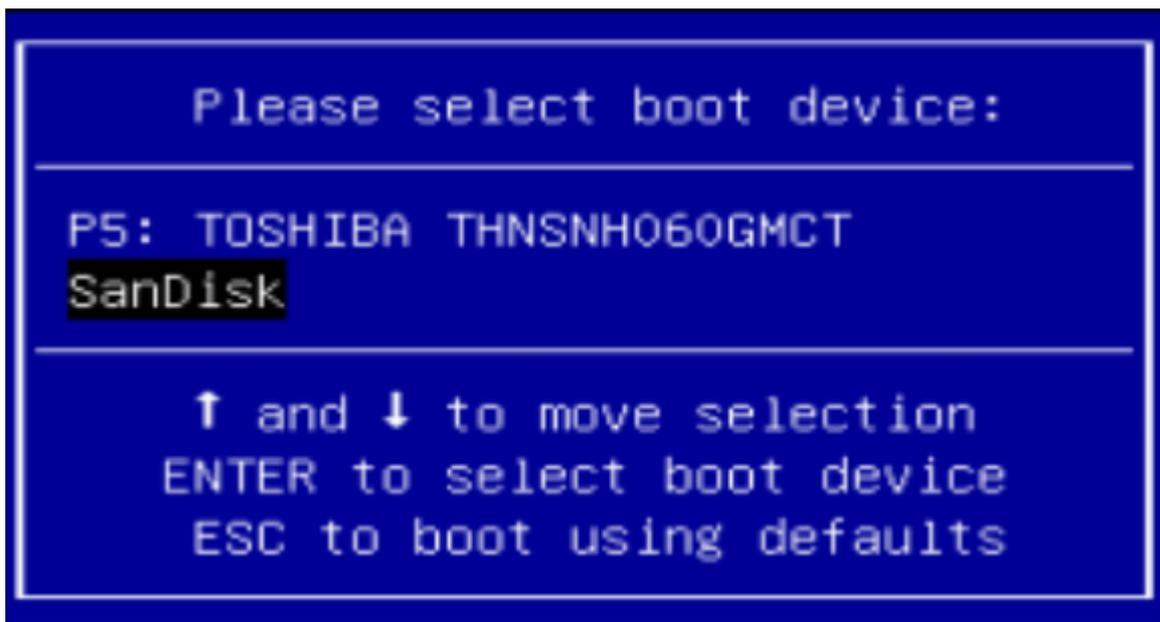
**Requirements:** A Linux formatted USB stick with a software version. For more information, see [format a USB stick](#).

1. Insert the formatted USB stick at a USB port on the grandMA2 console or grandMA2 RPU.
2. To turn the console on, press the power button.
3. When the startup screen appears, have a look at the last sentence on the bottom of the screen. This sentence tells what key you have to press to go to the boot menu. It could be F8, F11, F12, or Esc.

**Important:**

If the console asks to press F11 or F12 and you have no external keyboard connected, connect an external keyboard.

Press the key several times until the boot menu appears.



*Select boot device*

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4. Select your USB stick and press **Enter** or **Please**.  
The **MA installer screen** opens.



*MA installer screen*

5. Choose one of the following options:
  - If you want to update and keep the show data, choose **update software and keep shows/user data**.  
The touch screen calibration, the network station name, and the IP address will be remained.
  - If you want to update and delete the show data, choose **update software and CLEAN shows/user data**.  
The touch screen calibration, the network station name, and the IP address will be remained.
  - If you want to update on a clean hard drive, choose **factory reset**.  
The hard drive will get a new partition and it will be formatted. All data will be deleted.  
You have to calibrate the touch screens. The factory reset will set a DHCP IP address.
  - If you want to backup all show files first before doing an update or factory reset, choose **backup all shows**.
  - The memory test is for service members only.
6. Follow the on screen instructions.

The console is updated.

## 43.4. Restart from Linux

If an unexpected software crash happens, you can restart the console direct from the Linux operating system.

You can indicate the Linux operating system if you have only a white text visible on screen 1.

The bottom line displays "**root@[station name] #**".

### Restart with show load

**Requirement** only for grandMA2 ultra-light and grandMA2 replay unit: Connected external keyboard.

1. Press **arrow-up**. The word autostart is displayed.
2. Press **Enter** or **Please**.

The grandMA2 restarts and loads a backup copy of the show file from the backup menu. The show load can take a few seconds.

---

### Restart without show load

If the grandMA2 console crashes immediately again after a restart with show load, there could be something wrong with the show file. A restart without a load show is necessary:

**Requirement** only for grandMA2 ultra-light and grandMA2 replay unit: Connected external keyboard.

1. Press **arrow-up**. The word autostart is displayed.
2. Enter the word **noload** after autostart.
3. Press **Enter** or **Please**.

The grandMA2 restart with an empty show file.

## 44. Function of the Command Line

The usage of the command line is an essential way of communication between the console and its operator.

Using reserved words, keywords and numerical identifiers is how the operator tells the console to perform a task.



### Important:

Most of the commands have to be completed with a **Please**.

Type the word **Please** into the command line or press the key **Please** in the command section.

Example:



- or -



## Keywords

Most commonly used keywords have their own keys. Others may only be accessed by repeatedly pressing a key or press and hold a key.

For more information on multiple functions of keys see [Key overview](#).



### Important:

All keywords can be typed into the command line using the keyboard.

Moreover, you see the content being typed into the command line in the input field.

If you would like to see the commands you ordered the console to fulfill:

- Click  on the left of the command line to open the pop-up Command Line Feedback.

Here you will see the history of your commands.

Example:



For more information on how to use the command line in detail see [Command line](#).

## 44.1. General Syntax Rules

The command line syntax is used to create valid expressions out of keywords.

### General Rules

The general rules are:



**Important:**

Basic syntax is: **[Function] [Object]**

- All objects have a default function which is used if no function is given.
- Most functions have a default object or an object type which is used if no object is given.
- Objects are arranged in a hierarchical tree structure.
- If an object does not support the function applied, the function will be passed on to a child or parent object.

---

### Terminology

- [Square brackets]:  
Description of a non-literal content.
- (Parentheses):  
Description of an optional content.
- "Quotation marks":  
Quotation marks are used to enter a definite name or content. If the line ends after the word in quotation marks, the quotation marks at the end may be omitted. If the name or content is not a keyword and does not contain special characters, the quotation marks can be left out altogether.
- Capitalization:  
The console does not distinguish between upper case and lower case. Capitalization is used to improve readability only.

## 44.1.1. Helping Keywords

Helping keywords are used to create a relation between functions and objects.



### **Important:**

Helping keywords are the prepositions and conjunctions of the console, so to speak.

Example:

### **Helping keyword At:**



```
[Channel]> Copy Cue 3 At Cue 5
```

### **Helping keyword Thru:**



```
[Channel]> Delete Effect 4 Thru 6
```

---

## List of Helping Keywords

- [+ \[Plus\] keyword](#)
- [- \[Minus\] keyword](#)
- [And keyword](#)
- [At keyword](#)
- [CmdDelay keyword](#)
- [Delay keyword](#)
- [EndIf keyword](#)
- [Fade keyword](#)
- [If keyword](#)
- [Off keyword](#)
- [On keyword](#)
- [Or keyword](#)
- [OutFade keyword](#)
- [OutDelay keyword](#)
- [SnapPercent keyword](#)
- [Thru keyword](#)
- [Toggle keyword](#)

## 44.1.2. Object Keywords

Object keywords are used to allocate objects in your show file.



**Important:**

Object keywords are the nouns of the console, so to speak.

Example:



[Channel]> Store Fixture **3**

- or -



[Channel]> Delete Preset "**Red**"



**Important:**

Object keywords are object types which are usually **used with numbers, IDs, names, and labels.**

---

## List of Object Keywords

- [Agenda keyword](#)
- [Attribute keyword](#)
- [ButtonPage Keyword](#)
- [Camera Keyword](#)
- [Channel keyword](#)
- [ChannelFader keyword](#)
- [Cue keyword](#)
- [Default keyword](#)
- [Dmx keyword](#)
- [Effect keyword](#)
- [ExecButton1 keyword](#)
- [ExecButton2 keyword](#)
- [ExecButton3 keyword](#)
- [Executor keyword](#)
- [Fader keyword](#)
- [FaderPage keyword](#)
- [Feature keyword](#)
- [Filter keyword](#)
- [Fixture keyword](#)
- [FixtureType keyword](#)
- [Form keyword](#)
- [Full keyword](#)

- [Group keyword](#)
- [Layout keyword](#)
- [Macro keyword](#)
- [Mask keyword](#)
- [MAtricks keyword](#)
- [Normal keyword](#)
- [Page keyword](#)
- [Part keyword](#)
- [Preset keyword](#)
- [PresetType keyword](#)
- [PreviewExecutor keyword](#)
- [Remote keyword](#)
- [Root keyword](#)
- [Screen keyword](#)
- [Selection keyword](#)
- [Sequence keyword](#)
- [SpecialMaster keyword](#)
- [Timecode keyword](#)
- [Timer keyword](#)
- [User keyword](#)
- [UserProfile keyword](#)
- [View keyword](#)
- [ViewButton keyword](#)
- [ViewPage keyword](#)
- [World keyword](#)
- [Zero keyword](#)

### 44.1.3. Function Keywords

Function keywords perform a task or a function.

These keywords are often followed by objects to which the function or task is to be applied.



**Important:**

Function keywords are the verbs of the console, so to speak.

Example:



```
[Channel]> Goto Cue 3
```

- or -



```
[Channel]> Delete Preset "Blue"
```



**Important:**

Some functions are global and do not need to be followed by objects, for example **Blackout**.

## List of Function Keywords

- [>>> keyword](#)
- [<<< keyword](#)
- [AddUserVar keyword](#)
- [AddVar keyword](#)
- [Align keyword](#)
- [AlignFaderModules keyword](#)
- [All keyword](#)
- [AllRows keyword](#)
- [Assign keyword](#)
- [At keyword](#)
- [Backup keyword](#)
- [Black keyword](#)
- [Blackout keyword](#)
- [Blind keyword](#)
- [BlindEdit keyword](#)
- [Block keyword](#)
- [Call keyword](#)
- [ChangeDest keyword](#)
- [ChannelLink keyword](#)
- [Clear keyword](#)
- [CircularCopy keyword](#)
- [ClearActive keyword](#)
- [ClearAll keyword](#)
- [ClearSelection keyword](#)
- [Clone keyword](#)
- [CmdHelp keyword](#)
- [Copy keyword](#)
- [Delete keyword](#)
- [DeleteShow keyword](#)
- [DisconnectStation keyword](#)
- [DoubleRate keyword](#)
- [DoubleSpeed keyword](#)
- [Edit keyword](#)
- [EndSession keyword](#)

- [Export keyword](#)
- [Extract keyword](#)
- [Fix keyword](#)
- [Flash keyword](#)
- [Flip keyword](#)
- [Freeze keyword](#)
- [Go keyword](#)
- [GoBack keyword](#)
- [Goto keyword](#)
- [HalfRate keyword](#)
- [HalfSpeed keyword](#)
- [Help keyword](#)
- [Highlight keyword](#)
- [If keyword](#)
- [IfActive keyword](#)
- [IfOutput keyword](#)
- [IfProg keyword](#)
- [Import keyword](#)
- [Info keyword](#)
- [Insert keyword](#)
- [Invert keyword](#)
- [InviteStation keyword](#)
- [JoinSession keyword](#)
- [Kill keyword](#)
- [Label keyword](#)
- [Layer keyword](#)
- [Learn keyword](#)
- [LeaveSession keyword](#)
- [List keyword](#)
- [ListFaderModules keyword](#)
- [ListLibrary keyword](#)
- [ListEffectLibrary keyword](#)
- [ListMacroLibrary keyword](#)
- [ListShows keyword](#)
- [ListUserVar keyword](#)
- [ListVar keyword](#)
- [Load keyword](#)
- [LoadShow keyword](#)
- [Lock keyword](#)
- [Login keyword](#)
- [Logout keyword](#)
- [MasterFade keyword](#)
- [MAtricksBlocks keyword](#)

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- [MAtricksFilter keyword](#)
- [MAtricksGroups keyword](#)
- [MAtricksInterleave keyword](#)
- [MAtricksReset keyword](#)
- [MAtricksWings keyword](#)
- [Menu keyword](#)
- [MidiControl keyword](#)
- [MidiNote keyword](#)
- [MidiProgram keyword](#)
- [Move keyword](#)
- [NetworkInfo keyword](#)
- [NetworkNodeInfo keyword](#)
- [NetworkNodeUpdate keyword](#)
- [NetworkSpeedTest keyword](#)
- [NewShow keyword](#)
- [NextRow keyword](#)
- [Off keyword](#)
- [On keyword](#)
- [Oops keyword](#)
- [Park keyword](#)
- [Pause keyword](#)
- [Preview keyword](#)
- [PreviewEdit keyword](#)
- [PreviewExecutor keyword](#)
- [PrevRow keyword](#)
- [PSR keyword](#)
- [PSRList keyword](#)
- [PSRPrepare keyword](#)
- [Rate1 keyword](#)
- [Reboot keyword](#)
- [Record keyword](#)
- [SaveShow keyword](#)
- [Select keyword](#)
- [SelectDrive keyword](#)
- [SelfFix keyword](#)
- [SetIP keyword](#)
- [Setup keyword](#)
- [SetUserVar keyword](#)
- [SetVar keyword](#)
- [ShuffleSelection keyword](#)
- [ShuffleValues keyword](#)
- [Shutdown keyword](#)
- [Solo keyword](#)

- [Speed keyword](#)
- [StepFade keyword](#)
- [StepInFade keyword](#)
- [StepOutFade keyword](#)
- [Stomp keyword](#)
- [Store keyword](#)
- [StoreLook keyword](#)
- [Swop keyword](#)
- [SwopGo keyword](#)
- [SwopOn keyword](#)
- [Temp keyword](#)
- [TempFader keyword](#)
- [Toggle keyword](#)
- [Tools keyword](#)
- [Top keyword](#)
- [Unblock keyword](#)
- [Unpark keyword](#)
- [Update keyword](#)
- [UpdateFirmware keyword](#)
- [UpdateSoftware keyword](#)
- [UpdateThumbnails keyword](#)
- [Version keyword](#)

## 44.1.4. Work with Lists

There are several lists you can work with:

- Object list
- Selection list
- Executor list
- Attribute list
- Station list

For more information see the the single topics on the existing lists.

### 44.1.4.1. Object List

An object list is a list of objects of the same type.

Syntax

**[Object-type 1] [ID1]**

[Object-type 1] [ID1] [Object-type 1] [ID2]

[Object-type 1] [ID1] + [ID2]

[Object-type 1] [ID1] Thru [ID2] - [ID3]

[Object-type 1] [ID1] Thru

[Object-type 1] Thru [ID1]

[Object-type 1] Thru

[Object-type 1] "Name"

[Object-type 1] "Nam\*"

- If no object type is given, the list contains items of your current destination.
- If no object type is given and the current destination is root – no destination – the list contains the default object types for the function applied.
- If no object type is given and no function is applied, the list contains the current object type default of the command line.

Example:

```
[Channel] > Fixture 3 Thru 6
```

Selects fixture 3 through 6 (1, 2, 3, 4, 5, 6).

```
[Channel]> Fixture Thru 3
```

Selects fixture 1 through 3 (1, 2, 3).

```
[Channel]> Delete 3 Thru
```

Deletes cue 3 and the following upper cues.

```
[Channel]> Channel Thru
```

Selects all channels.

```
[Channel]> Channel 1 Channel 5
```

Selects channel 1 and 5.



Selects all fixtures with a name starting with mac.

## 44.1.4.2. Selection List

A selection list is a list of fixtures.

Syntax

**[Object]**

**[Object-type 1] [ID1]**

**[Object-type 1] [ID1] + [Object-type2] [ID2]**

**[Object-type 1] [ID1] Thru [Object-type2] [ID2]**

**[Object-type 1] [ID1] Thru [Object-type2] [ID2] - [Object-type 3] [ID3]**

**[Object-type 1] [ID1] Thru**

**[Object-type 1] Thru [ID1]**

**[Object-type 1] Thru**

**[Object-type 1] "Name"**

**[Object-type 1] "Nam\*"**



### Important:

In a selection list, contrary to the object list, each object type is broken down to its corresponding fixture objects. These fixture objects form the selection list.

- If an object type is missing, the object type that was entered last will be used.
- If no object type is given altogether, the current object type default of the command line will be used.
- If there is no ID before or after **Thru**, the first or last available ID will be used.
- If there is no ID for an object type, the current, active or next ID will be used, depending on the function applied.
- If the reference of an object type is nonexclusive, significant parent objects will be broken down by user defaults and currently selected or active objects.

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Example:

 [Channel]> **Fixture 3 + Channel 6**

Selects fixture 3 and channel 6.

 [Channel]> **Cue Thru 3 - Channel 4**

Selects fixtures in first 3 cues, but does not select channel 4.

 [Channel]> **Group 3 + Cue 4**

Selects fixtures in group 3 and fixtures in cue 4.

## 44.1.4.3. Executor List

An executor list is an object list of executors.

Syntax

**Executor [list]**

**Page [list]**

**FaderPage [list]**

**ButtonPage [list]**



### **Important:**

An executor list has the same syntax as an object list. Each object type is broken down to executor objects. These executor objects form the executor list.

Example:

```
[Channel]> Pause Page 1 Thru 3
```

Pauses executors on pages 1, 2, and 3.

```
[Channel]> Delete Executor 10 Thru 13
```

Deletes executors 10 through 13 of the current page.

## 44.1.4.4. Attribute List

An attribute list is an object list of attributes.

Syntax

**Attribute [list]**

**Feature [list]**

**PresetType [list]**



**Important:**

An attribute list has the same syntax as an object list. Each object type is broken down to attribute objects. These attribute objects form the attribute list.

Example:

```
[Channel]> On Feature "GOB01"
```

Activates attributes in feature "GOB01".

```
[Channel]> Off Attribute 8.1.1 Thru 4
```

Knocks out the first 4 shaper attributes out of the programmer.

## 44.1.1.4.5. Station List

Syntax

[IP-address]

[IP-address] Thru [IP-address]

[Host-ID]

[Host-ID] Thru [Host-ID]



**Important:**

The **IP address** is a 32-bit dotted decimal notation consisting of four numbers ranging from 0 to 255 and separated by dots, for example 192.168.0.101.

- The **host ID** is a unique part of the IP address within a network. The host ID usually comprises the last three decimal numbers of the IP address. The host ID of the IP address 192.168.0.101 is 101 and the network ID is 192.168.0.
- If the beginning or the end of the command **Thru** is missing, the first or the last occurrence will be used.

Example:

```
[Channel]> SetIP eth0 192.168.0.101
```

Sets the IP address.

```
[Channel]> Shutdown 1 Thru 4
```

Shuts down all the devices with the host IDs 1, 2, 3, and 4.

For more information on how to set the IP address see [SetIP](#).

## 44.2. Special Characters

Special characters fulfill special functions in the command line.

For more information see the corresponding characters.

[Asterisk \\*](#)

[At @](#)

[Dollar \\$](#)

[Dot .](#)

[Parantheses \( \)](#)

[Quotation marks " "](#)

[Semicolon ;](#)

[Slash /](#)

[Square brackets \[ \]](#)

### 44.2.1. Asterisk \*

To get the Asterisk \* in the command line press and hold **Shift** + **8**.

Description

The Asterisk \* is a wildcard character to substitute for any other character or characters in a name.

Examples

- Select all fixtures stored in a group and a name beginning with "Mac".

```
[Channel]> Group Mac*
```

- Select all fixtures with a name beginning with "backt" and ending with "blue".

```
[Channel]> Fixture backt*blue
```

## 44.2.2. At @ Character

To enter @ into the command line press and hold **Shift** + **2**.

### Description

The character @ functions as a place holder for user input in front or in the end of a macro line. For more information see [Command line interaction](#).



#### **Important:**

If you enter the character @ in the front of a macro line, you have to disable **CLI** (= command line interaction) in the macro. For more information see [Command line interaction](#). If CLI is enabled, the macro line does not work.

### Examples

To create a macro that enters Load into the command line type the following into the macro line:

- Load @

Tap at the macro, then press the executor and select the cue for load. The selected cue is now loaded.

---

To create a macro that enters Attribute Pan At into the command line type the following into the macro line:

- Attribute Pan At @

Tap the macro and then enter the value. Press **Please**.

---

To create a macro line that adds Fade 20 to the command line type the following into the macro line:

- @ Fade 20

After you have entered, for example Fixture 1 Thru 10 into the command line, tap the macro.

## 44.2.3. Dollar \$ Character

To get the \$ character in the command line, press and hold **Shift** + **4**.

### Description

The \$ character indicates variables in the command line. For more information about variables, see [use variables](#).

### Examples

Create and use a variable to turn the chaser executor off.

1. To create the variable enter in the command line:

```
[Channel]> SetVar $mychasers = "Executor 11 Thru 15"
```

2. To use the variables \$mychasers to turn executor 11 through 15 off, enter in the command line:

```
[Channel]> Off $mychasers
```

3. Press **Please**.

Executor 11 trough 15 are turned off by using the variable \$mychasers.

For more information to the SetVar keyword, see [SetVar keyword](#).

---

Create and use a variable to login into a user profile.

1. To create the variable enter in the command line:

```
[Channel]> SetVar $myname = "Ben Dover"
```

2. To use the variable to login into the user profile, enter in the command line:

```
[Channel]> Login $"myname"
```

You are logged in.

## 44.2.4. Dot . Character

To get the . dot in the command line, press .

### Description

The . dot is a separator for decimal fractions and hierarchical object IDs.

Two .. dots used along with the keyword ChangeDest, changes the destination one level up. For more information, see [ChangeDest keyword](#).

### Examples

- To set the pan attribute to 50.5 degrees, type in the command line:



- To go one level backwards in the structure tree, from Edit Setup/Universes to Edit Setup, type in the command line:



## 44.2.5. Parantheses ( ) Character

To get the ( ) parentheses in the command line, press and hold  +  or  + .

### Description

With the ( ) parentheses you create pop-up dialog in macros, to get user input. The user will be prompted with the text inside the round brackets, and a text input field. The macro line will be executed with the user input. For more information, see [create pop-ups in macros](#).

### Example

- Create a macro line with a pop-up that asks for the cue number and stores the cue. Enter in the macro line:

#### Store Cue ("Please enter the cue number to store")

If the macro is running, the pop-up opens and expect user input.

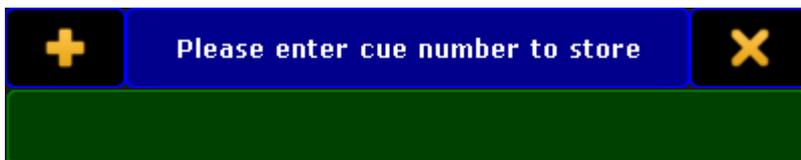


Figure 1: Macro pop-up

## 44.2.6. Quotation Marks " " Character

To enter " " quotation marks into the command line press and hold **Shift** and **"** .

### Description

With " " quotation marks you can enter text strings into the command line.



#### **Important:**

If you do not enter text strings using " " quotation marks, the console interprets the text strings as a command, which can lead to incorrect results.

### Examples

- To label a macro by using the command line enter into the command line:

```
[Channel]> Label Macro 3 "on"
```

Macro 3 is labeled as "on".

- To assign an info text for cue 1 enter into the command line:

```
[Channel]> Assign Cue 1 /info="run after music stops"
```

Cue 1 contains the information "run after music stops".

## 44.2.7. Semicolon ; Character

To get the ; semicolon in the command line, press **;** .

### Description

The semicolon separates multiple commands.



#### **Important:**

In front and after the ; semicolon has to be a space. If the space is missing, the console executes the first command and the further commands will be dropped.

### Example

- To turn off executor 5 and delete group 3, enter in the command line:

```
[Channel]> Off Executor 5 ; Delete Group 3
```

## 44.2.8. Slash / Character

To get the slash / in the command line, press **/** .

## Description

The slash separates entered object properties or parameter options.

The slash along with the function ChangeDest changes the destinations to the root level. For more information, see [ChangeDest keyword](#).

The slash along with a keyword and a question mark displays all available options to the keyword in the command line feedback window.

## Syntax

**[keyword] /?**

**Assign [object-list] /parameter = parameter value**

**[commandline-syntax] /option1 /option2 /option3 = value**

## Examples

To display the available options to the copy keyword in the command line feedback window:

1. Type in the command line:



2. Press **Please** .

The copy options are displayed in the command line feedback window.

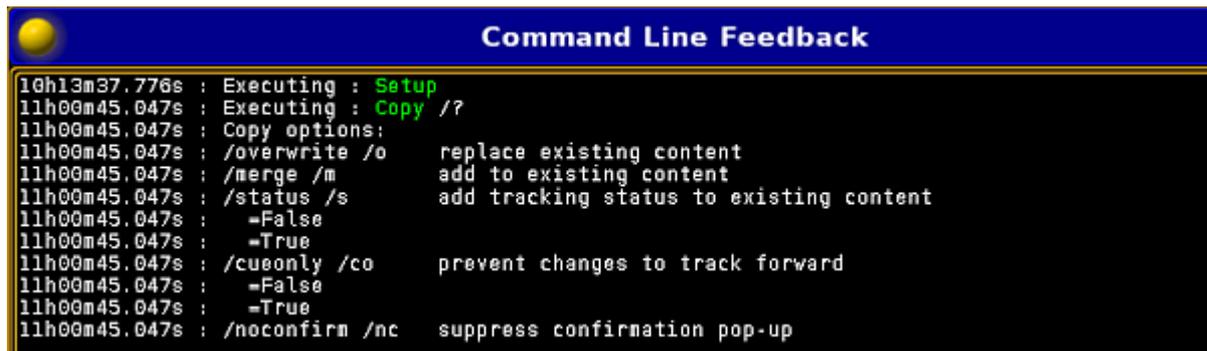


Figure 1: Command line feedback window - copy options

To change the parameters for cue 5 on the selected executor:

1. Type in the command line:



2. Press **Please** .

The parameters are assigned to cue 5 on the selected executor.

---

To exit the structure tree and go back to the root level:

1. Type in the command line:



2. Press **Please**.

You are back in the root level.

## 44.2.9. Square Brackets [ ] Character

To enter square brackets [ ] into the command line press **[** or **]**.

### Description

Square brackets [ ] are used in macros. For more information see [macros](#).

Using square brackets in macros sets a conditional expression which has to have the solution "True" to be able to execute the following commands. The expression takes user defined variables and logical operators.

a==b	a equals b
a>b	a greater than b
a<b	a less than b
a<=b	a less than or equals b
a>=b	a greater than or equals b



### Important:

The two arguments a and b are treated as text strings and not as numbers – character by character. For example "61" is considered to be greater than "599", as 6 is greater than 5.

### Examples

- To turn off page 3 only if \$myvar equals 5, type into the macro line:

**[\$myvar==5]Off Page 3**

---

- To goto Cue 1 if \$var is less than 5, and goto Cue 35 if \$var is greater or equals 5, type into the macro line:

**Goto Cue [\$var<5]1 [\$var>=5]35**

## 44.3. All keywords

This topic displays a list of all keywords.

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To go to the individual keywords either use the tree structure of the manual or click the the links here.

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[AlignFaderModules](#)

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## 44.3.1. <<< [GoFastBack] keyword

The keyword <<< **GoFastBack** is a function used to jump quickly to previous step (default without timing can be changed in setup).

To execute the keyword <<< **GoFastBack** type <<< or the shortcut < into the command line.

Syntax:

<<< [Executor-list]

<<< [Timecode-list]

The time used by this function may be adjusted via the GoFast property found under Setup -> Show -> Playback + MIB Timing.

For more information see [Working with MIB](#) and [Running playbacks](#).

Example:

A screenshot of a console window showing a yellow sphere icon followed by the text "[Channel]> <<< Executor 3".

```
[Channel]> <<< Executor 3
```

Jumps to previous cue on executor 3.



**Hint:**

To execute this function you can also use the key  on the console.

For more information see the key .

## 44.3.2. >>> [GoFastForward] keyword

The keyword >>> **GoFastForward** is a function used to jump quickly to next step (default without timing can be changed in setup).

To execute the keyword >>> **GoFastForward** type >>> or the shortcut > into the command line.

Syntax:

>>> [Executor-list]

>>> [Timecode-list]

The time used by this function may be adjusted via the GoFast property found under Setup -> Show -> Playback + MIB Timing.

For more information see [Working with MIB](#) and [Running playbacks](#).

Example:



Jumps to the next cue on executor 3.



**Hint:**

To execute this function you can also use the key **>>>** on the console.

For more information see the key [>>>](#).

## 44.3.3. - [Minus] keyword

- [Minus] is a helping keyword with various functions.

To execute the keyword - **[Minus]** type - into the command line.

Syntax:

- [Minus] is used to remove objects from a list or to indicate a negative value. When used as a relative indicator, with no value given, the value of 1 will be used.

When used to indicate a value it can indicate an absolute or relative value. Adding a space between - [Minus] and the value makes it relative. No space makes it an absolute value.

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E.g., giving a Pan attribute a value of **- 10** adds 10 degrees to the current location. Giving the Pan attribute a value of **-10** sets the pan at -10 degrees. See the difference between adding and not adding a space.

Using the numeric keys automatically adds the space.

If used as a starting keyword, - [Minus] creates a selection list, which is removed from the current selection.

Example:

```
[Channel]> Group 5 - Channel 2
```

Selects group 5 but not channel 2.

```
[Channel]> At - 10
```

Subtracts 10% from the current dimmer value of the selected fixtures.

```
[Channel]> - 5 Thru 7
```

Removes channel 5, 6 and 7 from the current selection.

```
[Channel]> Page -
```

Same as Page -1, which calls previous page.



**Hint:**

To execute this function you can also use the key **-** on the console.

For more information see the key **-**.

## 44.3.4. + [Plus] keyword

+ [Plus] is a helping keyword with various functions.

To execute the keyword + **[Plus]** type + into the command line.

Syntax:

+ [Plus] is used to combine multiple objects in a list or to indicate a relative value. When used as a relative indicator, with no value given, the value of 1 will be used.

If used as a starting keyword, + creates a selection list, which will be added to the current selection.

Examples:

```
[Channel]> Delete Cue 1 + 2
```

Deletes cue 1 and 2 from the selected executor.

```
[Channel]> At + 5
```

Adds 5 % to the current dimmer value.

```
[Channel]> + 5 Thru 7
```

Adds channel 5, 6 and 7 to the current selection.

```
[Channel]> Page +
```

Same as Page +1, which calls next page.



**Hint:**

To execute this function you can also use the key **+** on the console.

For more information see [±](#).

## 44.3.5. AddUserVar keyword

AddUserVar is a function used to change/extend content of user specific variables.

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To execute the keyword AddUserVar type **AddUserVar** or the shortcut **AddU** into the command line.

Syntax:

AddUserVar \$variablename = numericvalue

AddUserVar \$variablename = "text"

Example:

```
[Channel]> SetUserVar $myname = "John"
```

Sets the variable \$myname to **John**.

```
[Channel]> AddUserVar $myname = " Doe"
```

Sets the variable \$myname to **John Doe**.

```
[Channel]> SetUserVar $mycounter = 5
```

Sets the variable \$mycounter to 5.

```
[Channel]> AddUserVar $mycounter = 6
```

Sets the variable \$mycounter to 11.

For more information see the following links:

[\\$ \[Dollar-sign\]](#)

[ListUserVar Keyword](#)

[ListVar Keyword](#)

[SetVar Keyword](#)

[SetUserVar Keyword](#)

[AddVar Keyword](#)

[AddUserVar Keyword](#)

[\[ \] \[Square Brackets\]](#)

## 44.3.6. AddVar Keyword

To get the AddVar keyword in the command line type **AddVar** or the shortcut **Ad** in the command line.

### Description

AddVar is a function keyword to change or extend content of show specific variables.

### Syntax

**AddVar \$variablename = numericvalue**

**AddVar \$variablename = "text"**

### Examples

```
[Channel]> SetVar $myname = "John"
```

- Sets the variable \$myname to John

```
[Channel]> AddVar $myname = " Doe"
```

- Sets the variable \$myname to John Doe

```
[Channel]> SetVar $mycounter = 5
```

- Sets the variable \$mycounter to 5

```
[Channel]> AddVar $mycounter = 6
```

- Sets the variable \$mycounter to 11

## 44.3.7. Agenda Keyword

To execute the keyword Agenda, type **Agenda** or the shortcut **Ag** into the command line.

### Description

Agenda is an object type which holds scheduled tasks to be executed at specific dates and times.

### Syntax

Agenda [ID]

Assign Agenda [Object-list]/Start

Assign Agenda [Object-list]/Time

Assign Agenda [Object-list]/Duration

Assign Agenda [Object-list]/Repeat

Assign Agenda [Object-list]/CMD

Assign Agenda [Object-list]/Info

Assign Agenda [Object-list]/First

Assign Agenda [Object-list]/Last

## Options

To receive a list of all options for the keyword Agenda, type the following into the command line:



Option	Option Value	Description
Start	Absolute, Dawn, Sunrise, Sunset, Dusk	Sets the start of a task.
Time	hh/mm/ss	Sets the time of a task.
Duration	hh/mm/ss	Sets the duration of a task.
Repeat	None, Daily, Weekly, Monthly, Annually, Daily each month, Weekly each month, Daily each year, Weekly each year, Monthly each year, Every 2nd day, Every 3rd day, Every 4th day, Every 5th day, Every 6th day	Sets the recurrence of a task.
CMD	"Your command"	Sets the command of a task.
Info	"Your info text"	Sets the info regarding a task.
First	MM/DD/YYYY	Sets the date of the kick off of the first task.

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Option	Option Value	Description
Last	MM/DD/YYYY	Sets the date of the completion of the last task.

## Example

```
[Fixture]> List Agenda
```

Lists all agenda items stored.

```
[Fixture] > Agenda 1
```

Executes the command which was stored in agenda 1.



### Hint:

It is also possible to enter agenda into the command line by pressing the key **Macro** three times on the console.

For more information see the key [Macro](#).

## 44.3.8. Alert keyword

**Alert** is a keyword which generates an alert message in the message center.

To execute the keyword Alert type **Alert** or the shortcut **Ale** into the command line.

Syntax

**Alert "text"**

Typing the keyword **Alert** into the command line displays an alert message marked in red in the message center.

For more information on the icons, the colors of messages, and the center itself see [Message center](#).

Example:



The text you typed in in the quotation marks is displayed in red in the message center.

## 44.3.9. Align keyword

To toggle through the different align modes press **Align**.

### Description

Align is a function keyword to change the mode of the attribute encoders.

Call the mode by its name or index number.

Name	Index Number
Off	0
<	1
>	2
×	3
◇	4

When activating an Align-mode, the encoders will no longer adjust the whole selection equally, but adjust proportionally according to selection order, either most at the last, most at the first, most at the last & first (inverted), or most at the center of the selection.

Syntax:

**Align [mode]**

**Align Off**

Example

- To set the encoders to first align mode type in the command line:

```
[Channel]> Align "<"
```

- To turn off any align mode type in the command line:

```
[Channel]> Align 0
```

## 44.3.10. AlignFaderModules keyword

**AlignFaderModules** is a function used to configure connected external wings.

To execute this keyword type **AlignFaderModules** or the shortcut **AlignF** into the command line.



**Note:**

Wings are fader extensions and are intended to follow the faders built-in in the console.

Syntax:

### AlignFaderModules

Entering AlignFaderModules into the command line automatically sets up a surface with connected faders next to each other without overlapping.

- Command wing with faders 1 to 15
- Command wing with faders 16 to 30
- Command wing with faders 31 to 45

Example



```
[Channel]> AlignFaderModule
```

If a default surface already exists, this command sets automatically a second surface.

For more information on how to set surfaces see the keyword [Surface](#).



**Hint:**

It is also possible to configure external wings on the screen via Wing & Monitor Setup.

For more information see [Wing & Monitor Setup](#).

## 44.3.11. All Keyword

To get the All keyword in the command line type **All** in the command line.

### Description

All is a function used to set the MAtricks property Single X to *none (0)*, which means to reselect all fixtures, (or reselect all columns of fixtures, if Interleave is active).

For more information see [MAtricks](#).

### Syntax

#### All

### Example

- To reselects all fixtures or columns type in the command line:

```
[Channel]> All
```

## 44.3.12. AllButtonExecutors keyword

To get the AllButtonExecutors keyword in the command line type **AllButtonExecutors** or the shortcut **AIB** in the command line.

### Description

AllButtonExecutors is an alias for all button executors.

AllButtonExecutors may be used as an alias to address executor 101 and upwards, on all pages.

### Syntax

#### [Function] AllButtonExecutors

### Example

- To turn off all button executors type in the command line:

```
[Channel]> Off AllButtonExecutors
```

## 44.3.13. AllChaseExecutors Keyword

To get the AllChaseExecutors keyword in the command line type **AllChaseExecutors** or the shortcut **AIC** in the command line.

### Description

AllChaseExecutors is used as an alias to address all executors with chasers assigned.

### Syntax

#### [Function] AllChaseExecutors

### Example

- To turn off all executors with chasers type in the command line:

A screenshot of a terminal window with a dark green background and a yellow cursor. The text displayed is "[Channel]> Off AllChaseExecutors".

```
[Channel]> Off AllChaseExecutors
```

## 44.3.14. AllFaderExecutors Keyword

To get the AllFaderExecutors keyword in the command line type **AllFaderExecutors** or the shortcut **AIF** in the command line.

### Description

AllFaderExecutors is an alias for all fader executors.

AllFaderExecutors may be used as an alias to address executor 1 through 90, on all pages.

### Syntax

#### [Function] AllFaderExecutors

### Example

- To turn off all fader executors.

A screenshot of a terminal window with a dark green background and a yellow cursor. The text displayed is "[Channel]> Off AllFaderExecutors".

```
[Channel]> Off AllFaderExecutors
```

## 44.3.15. AllRows keyword

To get the AllRows keyword in the command line type **AllRows** or the shortcut **AIR** in the command line.

### Description

AllRows is a function used to set the MAtricks property Single Y to *none (0)*, which means to reselect all rows of fixtures in a virtual array created with MAtricksInterleave.

For more information see [MAtricks](#).

### Syntax

#### **AllRows**

### Example

- To reselect all rows of fixtures in an interleave array.

```
[Channel]> AllRows
```

## 44.3.16. AllSequExecutors Keyword

To get the AllSequExecutors keyword in the command line type **AllSequenceExecutors** or the shortcut **AIS** in the command line.

### Description

AllSequExecutors is an alias for all executors assigned with a sequence.

### Syntax

#### **[Function] AllSequExecutors**

### Example

- To turn off all executors with sequences.

```
[Channel]> Off AllSequExecutors
```

## 44.3.17. And keyword

To execute the keyword, type **And** or the shortcut **An** into the command line.

### Description

The keyword **And** is a helping keyword that adds selection or values.

### Syntax

[Function] [Object] [Number] [If] [Object] [Number] [Attribute] And [Object] [Number] [Attribute]

### Example



Deletes attributes pan and tilt in fixture 5.

## 44.3.18. Appearance keyword

You can change the frame color of pool objects and the background color of cues with the **Appearance** keyword.



### Important:

**Appearance** is used directly on objects. Thus, changing the color for all user profiles.

To execute this keyword press **Assign** 3 times, type **Appearance** or the shortcut **Ap** into the command line.

To reset assigned colors repeat the appearance command and select color pop-up **Reset** in the edit, then tap **Please**.

### Syntax

### Appearance

### Options

To see a list of all options of the keyword Appearance in the command line feedback window, type the following into the command line:



The keyword Appearance has the following options:

Option	Shortcut	Option value	Description
reset	r	no option value	Resets appearance.
color	no shortcut	Gel name from the Swatch Book in the color picker, e.g., medium amber; or hex value (000000-FFFFFF)	Sets color appearance.
red	r	0-100	Sets red component of the color appearance (0 by default).
green	g	0-100	Sets green component of the color appearance (0 by default).
blue	b	0-100	Sets blue component of the color appearance (0 by default).
hue	h	0-360	Sets hue of the color appearance (saturation and brightness 100 by default).
saturation	s	0-100	Sets saturation of the color appearance (hue 0 by default; brightness 100 by default).
brightness	br	0-100	Sets brightness of the color appearance (saturation and hue 0 by default).

Example: 1 - Change Frame Color of a Single Object

Assign preset object 1 a red frame in the preset pool.

1. Press **Assign Assign Assign** (=Appearance) and tap preset 1 in the preset pool .

The Edit Color pop-up opens.

2. Select a red color and tap **Please**.

Preset object 1 has a red frame around it.

Example: 2 - Change Frame Color of Several Objects

Assign group object 1 thru 5 a blue frame in the group pool.

1. Press **Assign Assign Assign** (=Appearance) **Group 1 Thru 5 Please** .

The Edit Color pop-up opens.

2. Select a blue color and tap **Please**.

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Group objects 1 thru 5 have a blue frame around them.

Example: 3 - Change Background Color of Cues

Change the background color of cue 1 of the selected executor. For more information see [change cue color](#).



## Important:

Cue color columns have to be enabled in the option menu.

1. Press **Assign Assign Assign** (=Appearance) **Cue 1 Please** .

The Edit Color pop-up opens.

2. Choose the color and tap **Please**.

Cue 1 of the selected executor has a new background color.

Example: 4 - Cue Background Color same as Group Color

Cue 1 is to have the same color as group 2.

Press **Assign Assign Assign** (=Appearance) **Cue 1 At Group 2 Please** .

Cue 1 has the same color as group 2.

Example: 5 - Use Command Line Only

Assign the All preset pool (0) object 1 a red frame using the command line only.

Type in the command line:

```
[Channel]> Appearance Preset 0.1 /h=0 /s=100 /br=50
```

Press **Please** .

- or -

```
[Channel]> Appearance Preset 0.1 /r=100 /g=0 /b=0
```

Press **Please** .

Pool object 1 has a red frame around it.

## 44.3.19. Assign keyword

**Assign** is a function used to define relationships between objects or give values to properties.

To execute the keyword Assign press the key **Assign**, type **Assign** or the shortcut **As** into the command line.

Syntax

**Assign [Object-list 1] (At) [Object-list 2]**

**Assign [Function] (At) [Object-list]**

**Assign [Helping-keyword] [Value-list] [Object-list]**

**Assign [Object-list] /[property1]=[value] /[property2]=[value]**

**Assign [Object]**

Options

To get a list of all available options for the keyword Assign in the command line feedback window type the following into the command line:



The keyword Assign has the following options:

Option	Shortcut	Option value	Description
break	b	1-8	Sets patch break.
multipatch	m	0 to 10,000	Sets multi patch slot.
reset	r	no option value	Removes existing patch.
x		-10,000 to +10,000	Sets the x-coordinate.
y		-10,000 to +10,000	Sets the y-coordinate.
noconfirm	nc	no option value	Suppresses confirmation pop-up.
special		normal; default; highlight	Sets special mode of Preset.
cue_mode	cm	assert; xassert; break; xbreak; release	Sets cue mode.

If no object type is given for the object list, the objects at the current destination are used. If the current destination is root (no destination), the current default object type of the command line is used.



**Hint:**

Assign is the only function that may be directly preceded by another function.

Example:



```
[Channel]> Assign Dmx 2.101 At Channel 5
```

Patches DMX address 101 on the second universe to channel 5.



```
[Channel]> Assign Sequence 1 Thru 5 At Executor6Thru 10
```

Assigns Sequence 1 thru 5 to Executor 6 thru 10.



```
[Channel]> Assign Toggle At Executor101
```

Assigns a toggle button to Executor 101.



```
[Channel]> Assign Fade 3 Cue 5
```

Assigns a fade time of 3 seconds to cue 5 from the selected executor.



```
[Channel]> Assign User JohnDoe /password=qwerty
```

Sets the password for JohnDoe to "qwerty".



```
[Channel]> Assign Executor 1
```

Opens the Assign Menu dialog for executor 1.

```
[Channel]> Assign Group 1 Layout 1 /x=5 /y=2
```

Assigns group 1 into layout 1 at position x 5 and y 2.

```
[Channel]> Assign Go ExecButton1 1.1 /cue_mode=xassert
```

Assigns Go button with cue mode "xassert" to ExecButton1 of the executor 1 on page 1.

## 44.3.20. At keyword

At may be used as a function to apply values or as a helping keyword for other functions to indicate destinations.

To execute this keyword press the key **At**, or type **At** or the shortcut **A** into the command line.

Syntax

**At [Value-list]**

**At [Value-type] [Value-list]**

**At [Object-list]**

**[Object-list] At [Value-list]**

**[Object-list] At [Value-type] [Value-list]**

**[Object-list] At [Object-list]**

**[Function] [Object-list] At [Object-list]** (as a helping keyword)

Options

To get a list of all available options for the keyword At in the command line feedback window type the following into the command line:

```
[Channel]> At /?
```

The keyword At has the following options:

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Option	Shortcut	Option value	Description
LAYER	no shortcut	Value; Fade; Delay; EffectForm; EffectBPM; EffectSpeedGroup; EffectLow; EffectHigh; EffectPhase; EffectWidth; EffectFade; EffectDelay; EffectID; Auto; Valueonly; Output; IDValueExec; IDEffectExec; IDValueCue; IDEffectCue; DMX	Sets destination layer.
ignoreselection	is	no option value	Ignores current selection.
values	v	=False; =True	Filters by layer, enables value layer.
valuetimes	vt	=False; =True	Filters by layer, enables fade and delay layer.
effects	ef	=False; =True	Filters by layer, enables effect layers.
disablecolortransform	dct	no option value	Disables color transformation (fetch hard attribute values).
prefercolorwheel	pcw	no option value	Prefers transforming colors to color wheel.
prefermixcolor	pmc	no option value	Prefers transforming color to MIXColor and color wheel.
prefercolorboth	pcb	no option value	Prefers transforming color to both MIXColor and color wheel.
status	s	=False; =True	At with tracking values.

At is "the exception that proves the rule". At is one of the few functional keywords which accept objects before the function.

As a starting keyword, At is a function that applies values in the programmer to the current selection.

If value type Fade or Delay is used, the value list will be applied as individual fade/delay times.

Following an object list, At is a function that applies values to the object list. If the object list does not support the At function, the object list is resolved into a selection list and At applies values in the programmer.

Following an object list that follows a function, At is a helping keyword for the starting function.



**Important:**

When At applies a range/list the values/objects are usually spread across the receiving objects, e.g., Fixture 1 Thru 3 At 0 Thru 100 will set 1 At 0, 2 At 50, and 3 At 100. However, there is one exception to this rule: If the applied range is a list of cues from a tracking sequence, all fixtures will be set to all cues. Thus, you can apply the tracking status of a cue with the At function (At Cue Thru x).

Example:

```
[Channel]> At 75
```

Sets the dimmer attributes of current selection to 75%.

```
[Channel]> At Cue 3
```

Sets the current selection to the values of Cue 3 from the selected executor.

```
[Channel]> Fixture 2 At Fixture 3
```

Selects Fixture 2 and sets it to the values of Fixture 3.

```
[Channel]> Executor 3 At 50
```

Sets the fader of Executor 3 to 50%.

```
[Channel]> Attribute "Pan" At 20
```

Sets the pan attributes of current selection to 20.

```
[Channel]> PresetType 2 Thru 9 At Delay 2
```

Sets individual delay time of 2 seconds to all attributes, except for dimmers, for the current selection.

```
[Channel]> Copy Group 4 At 10
```

Copies Group 4 to Group 10.

## 44.3.21. Attribute keyword

Attribute is an object type used as reference attributes of a fixture.

To execute this keyword type **Attribute** or the shortcut **Att** into the command line.

Syntax

**Attribute "Name"**

**Attribute [number]**

The default function for attributes is Call. Calling attributes will bring them to the encoder and select them in the fixture sheet (blue column header).

Pressing the button  twice takes over Attributes into the command line.

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Attributes are organized by Features, which in turn are organized by PresetType. This means that you can also call attributes with the Feature and PresetType keyword using numbers separated by a dot.



## Important:

The attribute number may change when new fixtures and attributes are added to the show file. We recommend you use the unique attribute library name in e.g., macros.



## Note:

By typing "List Attribute" into the command line presents you a list of attributes with their corresponding names and numbers used in the show file.

Example:

```
[Channel]> Off Attribute 1
```

Knocks out first attribute (Dim) for current selection.

```
[Channel]> Attribute "pan" At 120
```

Sets attribute "pan" to 120 degrees for the current selection.

```
[Channel]> Feature 3.1
```

Calls the first Attribute of the third Feature.

```
[Channel]> Feature $feature.1 At + 1
```

Increments the value of the first attribute of the current feature for the current selection.

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 [Channel]> PresetType 3.2.1

Calls the first Attribute of the second feature of the third preset type.

## 44.3.22. AutoCreate keyword

To execute the keyword AutoCreate, type **AutoCreate** or the shortcut **Au** into the command line.

### Description

The keyword **AutoCreate** automatically creates objects.



#### **Important:**

To auto create presets, create preset reference first.

For more information on AutoCreate in the Setup see [Auto create presets](#).

### Syntax

#### **AutoCreate [Object]**

### Options

To get a list of all options of the keyword AutoCreate, type the following into the command line:

```
[Channel]> AutoCreate /?
```

The keyword AutoCreate has the following options:

Option	Shortcut	Description
Add	No shortcut	Adds new objects.
Merge	m	Adds data to existing content.

### Example

```
[Channel]> AutoCreate Preset Fixture Type 2
```

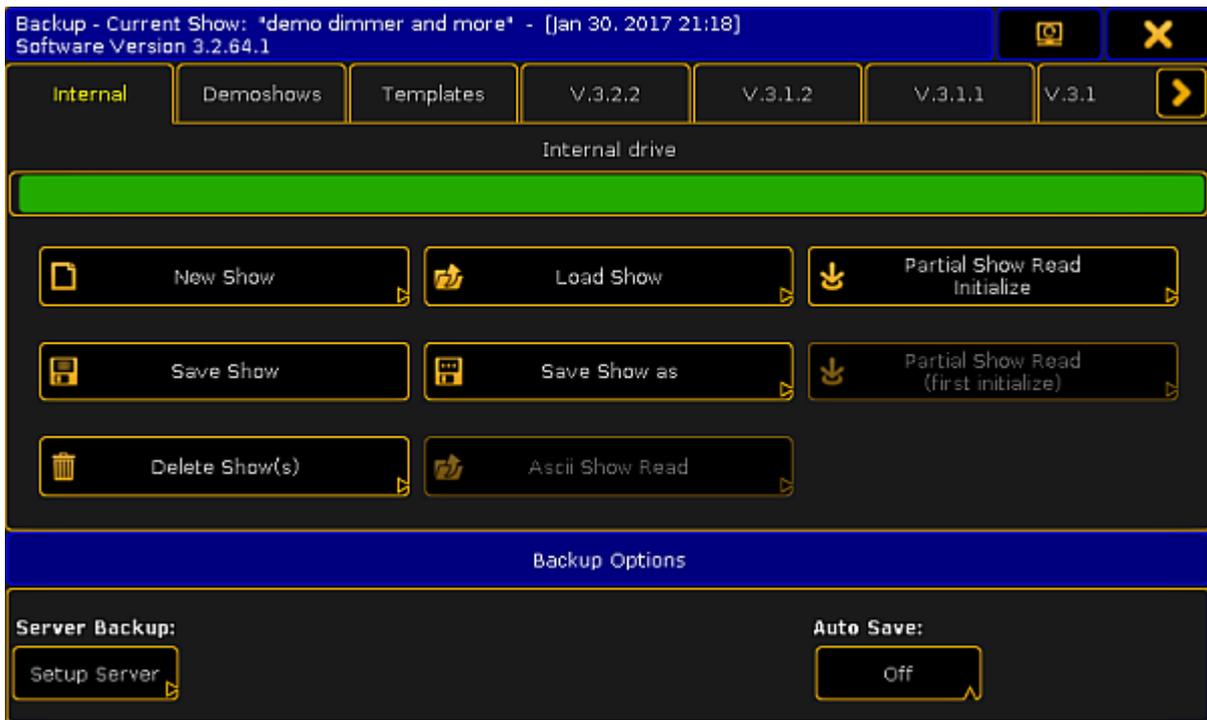
Generates all presets with preset references of fixture type 2 and merges them with the existing.

## 44.3.23. Backup Keyword

To get the Backup keyword in the command line, type **Backup** or the shortcut **Ba** in the command line.

### Description

The Backup keyword opens and close the Backup menu. For more information, see [Using the Backup Menu](#).



### Backup Menu



#### Hint:

Another way to open and close the Backup menu is to press the **Backup** key.

### Syntax

#### **Backup**

### Example

To open the Backup menu type in the command line:



## 44.3.24. Black keyword

**Black** is a function used to temporary override master level to zero on executing objects.

To execute this keyword type **Black** into the command line.

Syntax

**Black [Executor-list]**

**Black On [Executor-list]**

**Black Off [Executor-list]**

When the Black function is used with an Executor button the Black On command is executed when the button is pressed. The Black Off is executed when the button is released.

Example:

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow circular icon. The text in the terminal is "[Channel]> Black On Executor 1".

Overrides master level of Executor 1 to zero.

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow circular icon. The text in the terminal is "[Channel]> Black Off Executor 1".

Returns master level of Executor 1 to the master fader.

## 44.3.25. Blackout keyword

Blackout is a function used to force zero values on output for dimmer parameter of channels and fixtures. Fixtures with "React to Master" = off in the fixture edit menu do not react to Blackout. As long as Blackout is enabled the "B.O." button is on i.e., it is permanently burning.

To execute this keyword press the key **B.O.**, or type **Blackout** or the shortcut **Bl** into the command line.

Syntax

**Blackout**

**Blackout On**

**Blackout Off**

Blackout is a toggle function. This means that entering Blackout without any helping keyword will toggle Blackout mode on/off.

Example:

A screenshot of a terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text "[Channel]> Blackout On" is displayed in white.

Turns on Blackout mode.

A screenshot of a terminal window with a black background and a white border. The text "Blackout On" is displayed in white.

Command line response

## 44.3.26. BlackScreen keyword

To execute this keyword, type **BlackScreen** or the shortcut **BlackS** into the command line.

Description

The keyword BlackScreen is used to make single or all screens of the console turn black.

It is possible to revert the command for single and all screens of the console:

- Tap either **Show Display** or **Show All Displays** in the lower right corner of the screen.

## Syntax

### BlackScreen

## Options

To get a list of all options of the keyword BlackScreen, type the following into the command line:

```
[Channel]> BlackScreen /?
```

The keyword BlackScreen has the following options:

Option	Shortcut	Description
On	No shortcut	All screens turn black.
Off	No shortcut	All screens turn back on.

## Example

```
[Channel]> BlackScreen
```

All screens of the console turn black.

```
[Channel]> BlackScreen Off
```

All screens of the console turn back on.

```
[Channel]> BlackScreen 1
```

Screen 1 turns black.

## 44.3.27. Blind keyword

**Blind** is a function that suppresses the output of the live programmer. Programming is possible without a live output. Switching off the blind mode brings back the live programmer including changes made during blind mode.

To execute this keyword press the key **Blind**, or type **Blind** or the shortcut **Bli** into the command line.

Syntax

**Blind**

**Blind On**

**Blind Off**

Blind is a toggle function. This means that entering Blind without any helping keyword will toggle Blind mode on/off.

Example:



Turns on Blind mode (turns off output of programmer).

## 44.3.28. BlindEdit keyword

**BlindEdit** is a function used to switch the console between the Live and a separate Blind programmer.

To execute this keyword type **BlindEdit** or the shortcut **BlindE** into the command line.



**Hint:**

Pressing the button **Blind** for over two seconds takes over the command **BlindEdit** into the command line.

### Syntax

#### BlindEdit

#### BlindEdit On

#### BlindEdit Off

BlindEdit is a toggle function. This means that entering BlindEdit without any helping keyword will toggle between the Live and the Blind programmer.

Example:



Turns BlindEdit on, opens the Blind programmer.

## 44.3.29. Block keyword

**Block** is a function used to add data to prevent tracking. Tracking values (magenta colored) are converted to stored values (white colored).

To execute this keyword type **Block** or the shortcut **Blo** into the command line.

### Syntax

#### Block [Object-list] If [Selection-list] If [Attribute-list]

## Options

To get a list of all available options for the keyword Block in the command line feedback window type the following into the command line:

```
[Channel]> Block /?
```

The keyword Block has the following options:

Option	Shortcut	Option value	Description
defaultvalues	dv	no option value	Removes default values.
trackingshield	ts	no option value	Uses tracking shield.

If the object list does not contain any references to any cues, the Block function is applied to the current cue of the selected executor.

If syntax does not contain any selection list filter, all fixtures will be used.

If syntax does not contain any attribute list filter, all attributes will be used.

Example:

```
[Channel]> Block
```

Blocks all parameters in current cue of the selected executor.

```
[Channel]> Block Cue 5 If Fixture 4 If Feature "Position"
```

Blocks pan and tilt of Fixture 4 in cue 5 of the selected executor.

## 44.3.30. ButtonPage keyword

**ButtonPage** is an object type representing the button executor part of a page.

To execute this keyword type **ButtonPage** or **BP** into the command line.



**Important:**

**ButtonPage** enables executors 101 to 190.

### Syntax

#### **ButtonPage [ID]**

The default function for this object is Call. Calling a ButtonPage will change your physical executors to this page.



**Important:**

The ButtonPage keyword currently supports its default function Call only.  
The command **ButtonPage** can only call pages which were previously created, e.g., by saving an executor.

For more information on the default function for ButtonPage see [Call](#).

### Example:



```
[Channel]> ButtonPage 5
```

Changes your physical button executors to Page 5.

## 44.3.31. Call keyword

**Call** is a function used to apply/engage an object or its content (press 2x button "ON").

To execute this keyword type **Call** or the shortcut **Ca** into the command line.

If the Call function is used on objects which contain parameters (fixture values) these values will be loaded (added) into the programmer without a selection of the fixtures. If Call is used on other object types, their content will be applied in its context.

## Syntax

### Call [Object-list]

### Call [Object-list] / [option]

## Options

To get a list of all available options for the keyword Call in the command line feedback window type into the command line:

```
[Channel]> Call /?
```

The keyword Call has the following options:

Option	Shortcut	Option value	Description
status	s	=False; =True	Takes all values along with the tracking values actively into the programmer.
LAYER		no option value	Sets destination layer.
SCREEN		no option value	Sets destination screen.
toggle_activation	t	no option value	

Example:

```
[Channel]> Call Preset 3.1
```

Loads the content of Preset 3.1 into programmer without selecting the fixtures. At universal presets all fixtures supporting these attributes are affected.

```
[Channel]> Call Sequence 1
```

Status of the last cue of sequence 1 is loaded into the programmer without selecting the fixtures.

```
[Channel]> Call Cue 3
```

Takes all values of Cue 3 of the selected executors actively and all values of Cue 1 and 2 non-actively into the programmer.



**Note:**

All values which can be stored are called active values; Values which cannot be stored are called non-active values.

```
[Channel]> Call Cue 3 /status
```

Takes all values along with the tracking values actively into the programmer.

## 44.3.32. Camera keyword

To enter this Keyword into the console, type **Camera** or the shortcut **Cam** into the command line.

### Description

The keyword **Camera** is an object keyword.

### Syntax

**[Function] Camera [ID]**

### Example

```
[Channel]> Select Camera 1
```

Displays the front view in the stage view.

## 44.3.33. ChangeDest keyword

**ChangeDest** is a function used to change the destination of your command line.

To execute this keyword type **ChangeDest** or one of the shortcuts – **CD** or **Chang** – into the command line.

Syntax

CD [Element-index]

CD "Element name"

CD [Object-type] [Object-ID]

CD ..

CD /

Changing the destination is done by drilling down through a tree-structured database. To display the elements at a given destination use the function List.

For more information on the function List see [List](#).

Example:



```
[Channel] > CD 3
```

Enters the 3rd element of the current destination:



```
Settings 3 >
```



```
[Channel] > CD "Edit Setup"
```

Enters the element of the current destination named "Edit Setup":



```
Edit Setup >
```

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 [Channel] > CD Group

Enters the predefined destination Groups:

 Groups / Global >

 [Channel]> Edit Setup / Universes > CD ..

Exits one level up in the tree structure:

 Edit Setup >

 Edit Setup / Universes > CD /

Exits all levels up the root (no destination):

 [Channel] >

## 44.3.34. Channel keyword

Channel is an object type used to access fixtures with a Channel ID.

To execute this keyword type **Channel** or the shortcut **C** into the command line.

Syntax

**Channel [ID]**

**Channel [ID].[Sub-ID]**

The default function for channel objects is SelfFix. This means that entering channels without any specific function will select the channels in programmer.

For more information on default function for channel objects see [SelfFix](#).

Example:

A terminal window with a dark green background and a yellow border. On the left is a yellow sphere icon. The text inside the terminal reads "[Channel]> Channel 34".

Selects Channel 34.

A terminal window with a dark green background and a yellow border. On the left is a yellow sphere icon. The text inside the terminal reads "[Channel]> Channel 11.5".

Selects the fifth subfixture of the fixture Channel 11.

A terminal window with a dark green background and a yellow border. On the left is a yellow sphere icon. The text inside the terminal reads "[Channel]> Channel 11".

Selects all subfixtures of the fixture Channel 11.

## 44.3.35. ChannelFader keyword

**ChannelFader** is an object type representing a fader of the ChannelPages.

To execute this keyword type ChannelFader or one of the shortcuts – **CF** or **ChannelF** – into the command line.

Syntax

### ChannelFader [ID]



**Important:**

To use ChannelFader create a ChannelPage first.

For more information on how to create a channel page see [ChannelPage](#).

The default function for ChannelFader is Call. Calling a ChannelFader will change the executor faders to Channel mode.

For more information on call see [Call](#).

Example:



```
[Channel]> Assign Fixture 301 At ChannelFader 5
```

Assigns the dimmer of fixture 301 to fader 5 of the current channel page.



```
[Channel]> Assign Channel 201 Thru 215 At ChannelFader 2.1
```

Assigns Channel 201 thru 215 to fader 1 thru 15 of channel page 2.



```
[Channel]> Assign Fixture 3.2.1 At ChannelFader 2.11
```

Assigns the first attribute of the second subfixture of Fixture 3 to fader 11 of channel page 2.

## 44.3.36. ChannelLink keyword

**ChannelLink** is a function used to toggle the Channel faders to dynamic mode.

To execute this keyword type **ChannelLink** or the shortcut **ChannelL** into the command line.

Syntax

**ChannelLink**

**ChannelLink On**

**ChannelLink Off**

**ChannelLink [Attribute-List]**

If no attribute list is given, the ChannelLink mode will be Dimmer (fader controls the dimmer attributes of the current selection).

Example:

```
[Channel]> ChannelLink
```

Toggles ChannelLink mode on or off.

```
[Channel]> ChannelLink PresetType "Position"
```

Toggles ChannelLink mode on for pan and tilt.

```
[Channel]> ChannelLink Attribute "Iris" + "Focus"
```

Toggles ChannelLink mode on for iris and focus.

## 44.3.37. ChannelPage keyword

**ChannelPage** is an object type representing a page of channel faders.

To execute this keyword type **ChannelPage** or one of the shortcuts – **CP** or **ChannelP** – into the command line.



### Important:

To create ChannelPage type the command "Store ChannelPage" and the number into the command line. It is also possible to create ChannelPage by pressing the button Ch Pg+. By doing so you automatically jump to a ChannelPage.

For more information on Ch Pg+ see the button [Ch Pg+](#).

Syntax

### ChannelPage [ID]

The default function for ChannelPage is Call. Calling a ChannelPage will change the executor faders to channel mode.

For more information on the default function for ChannelPage see [Call](#).

Example:

```
[Channel]> ChannelPage 5
```

Changes your physical Faders to ChannelPage 5

```
[Channel]> ChannelPage +
```

Changes your physical faders to next ChannelPage.

```
[Channel]> DeleteChannelPage2
```

Deletes ChannelPage 2.

## 44.3.38. Chat keyword

The keyword **Chat** generates an information message in the message center.

To execute this keyword type **Chat** into the command line.

Syntax

**Chat "text"**

Typing the keyword **Chat** into the command line generates an information message marked in gray in the message center.

For more information on the icons, the colors of messages, and the center itself see [Message center](#).

Example:



The text you typed in in the quotation marks is displayed in gray in the message center.

## 44.3.39. CircularCopy keyword

**CircularCopy** is a function used to move attribute values within your current selection.

To execute this keyword type **CircularCopy** or one of the shortcuts – **CC** or **Ci** – into the command line.

Syntax

### CircularCopy [offset]

CircularCopy moves the attribute values within your currently selected fixtures in accordance with the selection order.

This function obeys the At filter.

For more information on how to use filters see [What are filters.](#)

Example:

```
[Channel]> CircularCopy 1
```

Fixture 1 copies its values to fixture 2, fixture 2 to fixture 3, and the last fixture copies its values back to fixture 1.

```
[Channel]> CircularCopy -2
```

Fixture 4 copies its values to fixture 2, fixture 3 to fixture 1, and the last fixture copies its values back to fixture 4.

## 44.3.40. Clear keyword

**Clear** is a function used to clear selection, active values or programmer.

To execute this keyword type **Clear** or the shortcut **C** into the command line.

Syntax

### Clear

The keyword Clear has three functions.

Depending on status of the programmer the function will sequentially:

1. Clear selection (unselects all fixtures)
2. Clear active values (deactivates all values)
3. Clear all (empties programmer)

For more information on each function of the keyword Clear see [ClearSelection](#), [ClearActive](#) and [ClearAll](#).

Example:



Clears selection, active values or programmer depending on the status/content of the programmer.

## 44.3.41. ClearActive keyword

**ClearActive** is a function used to inactivate all values in programmer.

To execute this keyword type **ClearActive** or the shortcut **ClearAc** into the command line.

Syntax

### ClearActive

The ClearActive function will inactivate any active values in the programmer.

Press the button **Clear** twice to inactivate all values.

For more information on further functions of the keyword [Clear](#) see [ClearAll](#) and [ClearSelection](#).

## 44.3.42. ClearAll keyword

**ClearAll** is a function used to empty the entire programmer.

To execute this keyword type **ClearAll** or the shortcut **ClearA** into the command line.

Syntax

### ClearAll

The ClearAll function clears the selection and discards all values in the programmer.

Press the button  for slightly over two seconds to clear the selection and to discard all programmer values.

For more information on how to use further functions of the keyword [Clear](#) see [ClearActive](#) and [ClearSelection](#).

## 44.3.43. ClearSelection keyword

**ClearSelection** is a function used to deselect any selected fixtures.

To execute this keyword type **ClearSelection** or the shortcut **ClearS** into the command line.

Syntax

### ClearSelection

The ClearSelection function clears the selection (deselects all fixtures).

To clear the selection press the button  once.

For more information on further functions of the keyword [Clear](#) see [ClearActive](#) and [ClearAll](#).

## 44.3.44. Clone keyword

It is possible to **clone** from fixture to fixture; from fixture to fixture type; from fixture type to fixture; or from fixture type to fixture type.

To execute this keyword press  twice, type **Clone** or the shortcut **Clo** into the command line.



#### **Note:**

Cloning to fixtures adds selective data to presets.

Cloning to fixture types adds global data to presets.

## Syntax

**Clone [Source Selection-list] At [Destination Selection-list]**

**Clone [Source Selection-list] At [Destination Selection-list] If [Scope Object-list]**

## Options

To get a list of all options available for the keyword **Clone** in the command line feedback window type the following into the command line:



The keyword **Clone** has the following options:

Option	Shortcut	Option value	Description
overwrite	o	no option value	Removes and replaces original data of the destination by new data.
merge	m	no option value	Adds data to existing content.
lowmerge	lm	no option value	Adds data to existing content and never destroys the existing content.
disablecolortransform	dct	no option value	Disables transformation of color (fetches hard attribute values).
prefercolorwheel	pcw	no option value	Prefers transforming color to color wheel.
prefermixcolor	pmc	no option value	Prefers transforming color to MIXColor.
prefercolorboth	pcb	no option value	Prefers transforming color to both MIXColor and color wheel.
noconfirm	nc	no option value	Suppresses confirmation pop-up.

**Important:**

However, using the keyword If may limit the scope of cloning to just cloning parts of your show file.

**Note:**

The keyword clone obeys the world and does not change data outside your current world. For more information see [World](#).

---

## 1. Example:

### Cloning fixtures to fixtures



```
[Channel]> Clone Fixture 1 At Fixture 2
```

Creates selective data for fixture 2. Fixture 2 now does the exact same thing it did before cloning. Additionally, fixture 2 keeps the data of fixture 1 in case fixture 2 should not have any data for specific objects.



```
[Channel]> Clone Fixture 1 + 2 At Group 10 If Sequence 1 Thru 10
```

Copies data from fixture 1 and 2 to fixtures in Group 10 within sequence 1 thru 10 only.



```
[Channel]> Clone Fixture 1 At Fixture 2 /merge
```

Creates selective data for fixture 2. Fixture 2 now does the exact same thing as fixture 1. Additionally, fixture 2 keeps its data in case fixture 1 should not have any data for specific objects.



```
[Channel]> Clone Fixture 1 At Fixture 2 /overwrite
```

Creates selective data for fixture 2. Fixture 2 now does the exact same thing as fixture 1.

---

2. Example:

### Cloning fixture to fixture type

```
[Channel]> Clone Fixture 1 At FixtureType 2
```

Creates global data for fixture type 2. Fixture type 2 now does the exact same thing it did before cloning. Additionally, fixture type 2 keeps the data of fixture 1 in case fixture type 2 should not have any data for specific objects.

```
[Channel]> Clone Fixture 1 At FixtureType 2 /merge
```

Creates global data for fixture type 2. Fixture type 2 now does the exact same thing as fixture 1. Additionally, fixture type 2 keeps its data in case fixture 1 should not have any data for specific objects.

```
[Channel]> Clone Fixture 1 At FixtureType 2 /overwrite
```

Creates global data for fixture type 2. Fixture type 2 now does the exact same thing as fixture 1.

---

3. Example:

### Cloning fixture type to fixture

```
[Channel]> Clone FixtureType 1 At Fixture2
```

Creates selective data for fixture 2. Fixture 2 now does the exact same thing it did before cloning. Additionally, fixture 2 keeps the data of fixture type 1 in case fixture 2 should not have any data for specific objects.

 [Channel]> **Clone FixtureType 1 At Fixture 2 /merge**

Creates selective data for fixture 2. Fixture 2 now does the exact same thing as fixture type 1. Additionally, fixture 2 keeps its data in case fixture type 1 should not have any data for specific objects.

 [Channel]> **Clone FixtureType 1 At Fixture 2 /overwrite**

Creates selective data for fixture 2. Fixture 2 now does the exact same thing as fixture type 1.

---

## 4.Example:

### **Cloning fixture type to fixture type**

 [Channel]> **Clone FixtureType 1 At FixtureType 2**

Creates global data for fixture type 2. Fixture type 2 now does the exact same thing it did before cloning. Additionally, fixture type 2 keeps the data of fixture type 1 in case fixture type 2 should not have any data for specific objects.

 [Channel]> **Clone FixtureType 1 At FixtureType 2 /merge**

Creates global data for fixture type 2. Fixture type 2 keeps its data in case fixture type 1 should not have any data for specific objects.

 [Channel]> **Clone FixtureType 1 At FixtureType 2 /overwrite**

Creates global data for fixture type 2. Fixture type 2 now does the exact same thing as fixture type 1.



**Note:**

It is also possible to clone using the screen. For more information on how to clone on screen see [Clone – Clone using screens](#).

## 44.3.45. CmdDelay keyword

**CmdDelay** is a helping keyword used to indicate delay times for the cmd link.

To execute this keyword type **CmdDelay** or the shortcut **CmdD** into the command line.

Syntax

**CmdDelay [Value-list]**

As a helping keyword for programming functions (e.g., Store) this keyword sets the cmd delay time of the object in question.

Form more information see key [Time](#).

Example:

A screenshot of a terminal window with a dark green background and a yellow cursor. The text '[Channel]> Store Cue 3 CmdDelay 4' is displayed in white.

```
[Channel]> Store Cue 3 CmdDelay 4
```

Creates cue 3 and sets its cmd delay time to 4 seconds.

## 44.3.46. CmdHelp keyword

**CmdHelp** is a function used to list all keywords in the response window of the command line.

To execute this keyword type **CmdHelp** or the shortcut **Cm** into the command line.

Pressing the key **Help** twice enters the keyword CmdHelp into the command line.

For more information see the key [Help](#).

Syntax

**CmdHelp [filter]**

This function lists all keywords with their corresponding shortcuts in green.

Example:

A screenshot of a terminal window with a dark green background and a yellow cursor. The text '[Channel]> CmdHelp' is displayed in white.

Lists all keywords.

A screenshot of a terminal window with a dark green background and a yellow cursor. The text '[Channel]> CmdHelp f\*' is displayed in white.

Lists all keywords starting with an f.

## 44.3.47. Copy keyword

**Copy** is a function used to create copies of an object.

To execute this keyword type **Copy** or the shortcut **Co** into the command line.

Syntax

**Copy [Object] At [target-ID]**

**Copy [Object-list] At [target-start]**

**Copy [Object] At [target-list]**

**Copy [Object-list]**

## Options

To get a list of all options available for the keyword **Copy** in the command line feedback window type the following into the command line:

```
[Channel]> Copy /?
```

The keyword **Copy** has the following options:

Option	Shortcut	Option value	Description
overwrite	o	no option value	Replaces existing content.
merge	m	no option value	Adds to existing content.
status	s	=False; =True	Adds tracking status to existing content.
cueonly	co	=False; =True	Prevents changes to track forward.
noconfirm	nc	no option value	Suppresses confirmation pop-up.

If no object type is given and the command line destination is root (no destination), the default object type – **Cue** – is used for this function.

If no target is given, the objects will be exported to clipboard.xml. The objects are used with the keyword Paste.

For more information see [Paste](#).

Example:

```
[Channel]> Copy Group 1 At 5
```

Copies group 1 to group 5.

```
[Channel]> Copy Group 1 Thru 3 At 11
```

Copies group 1 to group 11; group 2 to group 12; and group 3 to group 13.

```
[Channel]> Copy Group 2 At 6 Thru 8
```

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Copies group 2 to group 6, 7, and 8.

 [Channel]> Copy 2 At 6

Copies cue 2 to cue 6.

 [Channel]> Copy Macro 2 At 6

Copies macro 2 to macro 6.

 [Channel]> Copy Cue 5

Exports cue 5 to the temporary xml.-file clipboard.xml.

## 44.3.48. CrashLogCopy keyword

**CrashLogCopy** is a function used to copy crash log files from the internal drive to USB flash drive.

To execute this keyword type **CrashLogCopy** or the shortcut **CrashLogC** into the command line.

Syntax

**CrashLogCopy**

Example:

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow circular icon. The text in the terminal reads "[Channel]> CrashLogCopy".

If there are any crash log files on the internal drive, these are copied to the first USB flash drive. The files are available on your USB in the folder gma2 / temp.

## 44.3.49. CrashLogDelete keyword

**CrashLogDelete** is a function used to delete crash log files on the internal drive.

To execute this keyword type **CrashLogDelete** or the shortcut **CrashLogD** into the command line.

Syntax

**CrashLogDelete**

Example:

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. The text in the terminal reads "[Channel]> CrashLogDelete".

```
[Channel]> CrashLogDelete
```

If there are any crash log files on the internal drive, these are deleted.

## 44.3.50. CrashLogList keyword

**CrashLogList** is a function used to list existing crash log files in command line response window.

To execute this keyword type **CrashLogList** or the shortcut **Cr** into the command line.

Syntax

**CrashLogList**

Example:

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. To its right, the text "[Channel]> CrashLogList" is displayed in white.

If there are any crash log files, these are listed in the command line response window.

## 44.3.51. Crossfade keyword

**Crossfade** is an assignable function for executors.

To execute this keyword type **Crossfade** or the shortcut **Cro** into the command line.

Syntax

**Assign Crossfade (At) [Executor-list]**

Crossfade is a function that will gradually activate the next step of an executor in accordance with the position of the fader.

Example:

A screenshot of a terminal window with a dark green background and a yellow cursor. The text displayed is "[Channel]> Assign Crossfade At Executor 1 Thru 5".

```
[Channel]> Assign Crossfade At Executor 1 Thru 5
```

Gives fader 1 thru 5 crossfade functionality.

## 44.3.52. CrossfadeA keyword

**CrossfadeA** is an assignable function for executors.

To execute this Keyword, type **CrossfadeA** into the command line.

Syntax

**Assign CrossfadeA (At) [Executor-list]**

CrossfadeA is a function that gradually fades down dimmer attributes of the current step of an executor in accordance with the position of the fader.

Depending on the executor option AB/Split this function will either act as a crossfader for decreasing values or as a master for current cue (for dimmer attributes).

Example:

A screenshot of a terminal window with a dark green background and a yellow cursor. The text displayed is "[Channel]> Assign CrossfadeA At Executor 1".

```
[Channel]> Assign CrossfadeA At Executor 1
```

Assigns fader 1 the functionality CrossfadeA.

## 44.3.53. CrossfadeB keyword

**CrossfadeB** is an assignable function for executors.

To execute this keyword type **CrossfadeB** into the command line.

Syntax

**Assign CrossfadeB (At) [Executor-list]**

CrossfadeB is a function that gradually fades in dimmer attributes of the next step of an executor in accordance with the position of the fader.

Depending on the executor option AB/Split this function either acts as a crossfader for increasing values or as a master for next cue (for dimmer attributes).

No matter the option, CrossfadeB gradually activates the next step of an executor in accordance with the position of the fader for non dimmer attributes.

Example:

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow circular icon. The text in the terminal reads: [Channel]> Assign CrossfadeB At Executor 1

Assigns fader 1 the functionality CrossfadeB.

## 44.3.54. Cue keyword

**Cue** is an object type holding a look on stage.

To execute this keyword type **Cue** or the shortcut **Cu** into the command line.

Syntax

**Cue [ID.ID]**



**Important:**

Cue is the only object type that accepts numerical ID as decimal fractions. The ID allowed for cues ranges from 0.001 to 9999.999. In all other objects a dot indicates the ID of a parent or a child object.

The default function for cue objects is SelfFix. This means that calling cues without any specific function selects the fixtures of the cue.

For more information on the default function for cue objects see [SelfFix](#).

Cues are arranged in sequences and are divided in parts. If only cue ID is entered, you are applying functions to all parts of cues of the sequence assigned to the selected executor.

For more information see [Sequence](#).

To access cues of unselected sequences/executors add a parent object to the syntax, i.e., **Cue 3.001 Executor 1** or **Sequence 5 Cue 3.999**



The object sets are *Commutative* : **Sequence 1 Cue 2** is the same as **Cue 2 Sequence 1**

Example:



```
[Channel]> Cue 3
```

Selects fixtures in cue 3 of sequence assigned to selected executor.

## 44.3.55. Cut keyword

**Cut** is a function used to delete and export objects.

To execute this keyword type **Cut** into the command line.

Syntax

**Cut [Object-list]**

If no object type is given and the destination of the command line is root (no destination) the default object type for this function – Cue – is used.

For more information on the default function for object type see [Cue](#).

The objects given are exported to clipboard.xml and then deleted. The content of the clipboard can later be used with the keyword Paste.

For more information on the content of the clipboard see [Paste](#).



**Important:**

Do not cut & paste to move referenced objects (e.g., presets, effects) as any references is lost during deletion.

Example:



```
[Channel]> Cut Group 5
```

Exports group 5 to the temporary xml-file clipboard.xml then deletes group 5.

## 44.3.56. Default Keyword

To execute the keyword **Default** press and hold **MA** + **.**.

You can also type **Default** or the shortcut **D** into the command line.

### Description

The Default keyword sets the given attributes for the fixture or channel selection to default values. If no attribute list is given, all attributes of fixture or channel selection will be set to their default values.

If **individual default values** for the fixture or channel are set in the edit menu, the individual default value will be used.

If only **general default values** for the fixture or channel are set in the Patch and Fixture Schedule, the general default values will be used.

You can also use the **Default Link** in the calculator. For more information, see [Calculator](#).

Default values are displayed in the fixture or channel sheet in brackets.



ID F/C	Name	Color1 C1
1	Spot 1	(congo blue)
2	Spot 2	(open)
3	Spot 3	(open)

*Fixture sheet color default values*

### Syntax

#### Default

**Fixture [Fixture ID] Default PresetType [PresetType Number]**

**Channel [Channel ID] Default PresetType "PresetType Name"**

### Examples

- Set pan and tilt of the fixture selection to their default values.

```
[Channel]> Default PresetType "Position"
```

- Set all attributes of fixture 1 to their default values.

```
[Channel]> Fixture 1 Default
```

## 44.3.57. DefGoBack keyword

**DefGoBack** is a keyword which refers to the selected executor.

To execute this keyword type **DefGoBack** or the shortcut **DefGoB** into the command line.

Syntax

**DefGoBack**

**DefGoBack** calls the previous cue in the selected executor.

Example:

A screenshot of a console window showing a yellow sphere icon on the left and the text "[Channel]> DefGoBack" on a dark green background.

Calls the previous cue in the selected executor.



**Hint:**

It is also possible to enter this command by pressing the large **Go -** button on the console.

For more information on the key **Go -** see [Go - \(large\)](#).

## 44.3.58. DefGoForward keyword

**DefGoForward** is a keyword which refers to the selected sequence.

To execute this keyword type **DefGoForward** or the shortcut **DefG** into the command line.

Syntax

### DefGoForward

DefGoForward calls the next cue in the selected executor.

Example:

A screenshot of a console window showing a yellow sphere icon on the left, followed by the text "[Channel]> DefGoForward" in a dark green background with a yellow border.

Calls the next cue in the selected executor.



**Hint:**

It is also possible to enter this command by pressing the large **Go +** button on the console.

For more information see [Go + \(large\)](#).

## 44.3.59. DefGoPause keyword

**DefGoPause** is a keyword which refers to the selected executor.

To execute this keyword type **DefGoPause** or the shortcut **DefGoP** into the command line.

Syntax

### DefGoPause

**DefGoPause** pauses the current fade between cues and effects in the selected executor if the option "Link effect to rate" is on in the assign menu.

Example:

A screenshot of a console window showing a command prompt. On the left is a yellow sphere icon. The text in the prompt is "[Channel]> DefGoPause".

```
[Channel]> DefGoPause
```

Pauses the current cue in the selected executor.



**Note:**

It is also possible to enter this command by pressing the large **Pause** button on the console.

For more information see [Pause \(large\)](#).

## 44.3.60. Delay keyword

**Delay** is a helping keyword used to indicate delay times.

To execute this keyword type **Delay** or the shortcut **Dela** into the command line.

Syntax

**Delay [Value-list]**

As a helping keyword for programming functions (e.g., Store) this keyword sets the time of an object.

Used as a starting keyword, Delay applies individual timing in the programmer for the current selection and attributes.

Example:

A screenshot of a terminal window with a dark green background and a yellow border. It shows a yellow sphere icon followed by the text "[Channel]> Store Cue 3 Delay 4".

```
[Channel]> Store Cue 3 Delay 4
```

Creates cue 3 and sets its delay time to 4 seconds.

A screenshot of a terminal window with a dark green background and a yellow border. It shows a yellow sphere icon followed by the text "[Channel]> Delay 4".

```
[Channel]> Delay 4
```

Sets individual delay time for the current selection/attributes.

## 44.3.61. Delete keyword

**Delete** is a function used to remove data from the show file.

To execute this keyword type **Delete** or the shortcut **Del** into the command line.

Delete is a function used to remove data from your show file. If the object itself cannot be removed, any assignment to the objects will be removed.

If no object type or destination is given, the default object type for this function – Cue – is used.

For more information see [Cue](#).

If a selection list filter is given, only specified fixtures are deleted from the object list.

## Syntax

**Delete [Object-list] / [option] = [option value]**

**Delete [Object-list] [Selection-list filter]**

## Options

To get a list of all options available for the keyword **Delete** in the command line feedback window type the following into the command line:

```
[Channel]> Delete /?
```

The keyword **Delete** has the following options:

Option	Shortcut	Option value	Description
deletevalues	dv	no option value	Deletes values from cue if cue part is deleted.
cueonly	co	no option value	Prevents changes to track forward.
noconfirm	nc	no option value	Suppresses confirmation pop-up.
region	r	no option value	Deletes a region of elements in layout view.
element	e	no option value	Deletes a certain element in layout view.
condition	cnd	See <a href="#">messages keyword</a> .	See <a href="#">messages keyword</a> .

## Examples

```
[Channel]> Delete 7
```

Deletes Cue 7 in the selected executor.

```
[Channel]> Delete Messages
```

Deletes all messages in the message center.

```
[Channel]>
```

 [Channel]> Delete Group 3

Deletes Group 3.

 [Channel]> Delete World 6

Deletes World 6.

 [Channel]> Delete Fixture 4

Unpatches fixture 4 (removes assigned DMX objects).

 [Channel]> Delete Sequence 2 Fixture 4

Deletes all values of fixture 4 and all cues containing fixture 4 in Sequence 2 only.

## 44.3.62. DeleteShow keyword

**DeleteShow** is a function used to remove show files from hard drives.

To execute this keyword type **DeleteShow** or the shortcut **DeleteS** into the command line.

Syntax

**DeleteShow [filename]**

**DeleteShow [filename] /noconfirm**

**DeleteShow [filename] /backup**

**DeleteShow [filename] /show**

## Options

To get a list of all options available for the keyword **DeleteShow** in the command line feedback window type the following into the command line.

```
[Channel]> DeleteShow /?
```

The keyword **DeleteShow** has the following options:

Option	Shortcut	Option value	Description
backup	b	no option value	Deletes backup files ending in .backup.
show	s	no option value	Deletes show files ending in .show.gz.
noconfirm	nc	no option value	Suppresses confirmation pop-up.

This function deletes show files on the currently selected hard drive. Use wildcards (\*) in filename to delete multiple files. If /noconfirm option is included, the deletion of each file needs to be confirmed. To avoid constant confirmation add "nonconfirm" at the end of the command.

Example:

```
[Channel]> DeleteShow /backup
```

The corresponding shortcut

```
[Channel]> DeleteShow /b
```

Deletes show file backups only (file ending .backup).

```
[Channel]> DeleteShow /show
```

The corresponding shortcut

```
[Channel]> DeleteShow /s
```

Deletes show files only (file ending .show.gz).

## 44.3.63. DisconnectStation keyword

**DisconnectStation** is a function used to throw stations out of your session.

To execute this keyword type **DisconnectStation** or the shortcuts – **DS** or **Di** – into the command line.

Syntax

**DisconnectStation [Station-list]**

Options

To get a list of all options available for the keyword **DisconnectStation** in the command line feedback window type into the command line:

```
[Channel]> DisconnectStation /?
```

The keyword **DisconnectStation** has the following option:

Option	Shortcut	Option value	Description
noconfirm	nc	no option value	Suppresses confirmation pop-up.

Example:

```
[Channel]> DisconnectStation 192.168.0.10
```

Disconnects station with IP address 192.168.0.10.

```
[Channel]> DisconnectStation 10
```

Disconnects station with host ID 10 on your Network.

 [Channel]> DisconnectStation Thru

Disconnects all stations on your subnet.

## 44.3.64. Dmx keyword

**Dmx** is an object type representing the DMX outputs of the console.

To execute this keyword type **Dmx** or the shortcut **Dm** into the command line.

Syntax

**Dmx [Address]**

**Dmx [Universe].[Address]**

## DMX Tester

Entering a DMX address opens the DMX encoder bar which may be used for testing. You may also set a test level directly by combining the DMX address with the keyword **At**.

For more information see [At](#).

The DMX tester has priority over the normal output of the console (parked, executors, programmer) and HTP priority with DMX input.

## Patching

### **Assign [Fixture-list] (At) [DMX start]**

Assigning fixtures to a DMX start address removes all existing patch for the fixtures, and assigns the new DMX addresses.

### **Assign [DMX-list] (At) [Fixture]**

Assigning a list of DMX addresses adds them to the existing patch (multi patch) of the fixture. This does not add more fixtures to your grandMA2 3D visualizer.

### **Delete [DMX-list]**

Deletion of DMX addresses unpatches the fixtures using this addresses.

### **Delete [Fixture-list]**

Deletion of fixture unpatches all assigned DMX addresses.

Patching of fixtures with multiple breaks

## **Assign [DMX address] (At) [Fixture] /break=n**

Assigning a DMX address to a specific break.

Example:

```
[Channel]> Dmx 2.101
```

Selects address 101 on second universe in the DMX tester.

```
[Channel]> Assign Dmx 2.101 At Channel 5
```

Patches DMX address 101 on the second universe to channel 5.

```
[Channel]> Dmx 513 At 100
```

Sets the first address on the second universe to 100% in the DMX tester.

```
[Channel]> Off Dmx Thru
```

Releases all values in the DMX tester.

```
[Channel]> Assign Dmx 1.101 At Fixture 2 /break=1
```

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Patches DMX address 101 to the first break of fixture 2 (i.e., the dimmer of a VL5).

## 44.3.65. DmxUniverse keyword

**DmxUniverse** is an object type representing the DMX universes of the console.

To execute this keyword press the button **Channel** on the console three times or type **DmxUniverse** or the shortcut **DmxU** into the command line.

### Syntax

#### DmxUniverse [Universe]

The keyword DmxUniverse may be used to access DMX universes or all DMX channels of a universe.

Example:

A terminal window with a dark green background and a yellow border. It contains a yellow sphere icon followed by the text "[Channel]> Unpark DmxUniverse 1 Thru 4".

```
[Channel]> Unpark DmxUniverse 1 Thru 4
```

Unparks all DMX channels of universe 1 thru 4.

A terminal window with a dark green background and a yellow border. It contains a yellow sphere icon followed by the text "[Channel]> Delete DmxUniverse 2".

```
[Channel]> Delete DmxUniverse 2
```

Unpatches all DMX channels of universe 2.

A terminal window with a dark green background and a yellow border. It contains a yellow sphere icon followed by the text "[Channel]> Edit DmxUniverse 3".

```
[Channel]> Edit DmxUniverse 3
```

Opens universe editor to change its properties.

A terminal window with a dark green background and a yellow border. It contains a yellow sphere icon followed by the text "[Channel]> Move DmxUniverse 2 at 12".

```
[Channel]> Move DmxUniverse 2 at 12
```

Moves DmxUniverse 2 to DmxUniverse 12.

## 44.3.66. DoubleRate keyword

**DoubleRate** is a function used to double the current rate.

To execute this keyword type **DoubleRate** or the shortcut **DoubleR** into the command line.

Syntax

**DoubleRate [Object-list]**

Example:

A terminal window screenshot showing a yellow cursor icon followed by the text "[Channel]> DoubleRate Executor 5".

```
[Channel]> DoubleRate Executor 5
```

Doubles the rate of Executor 5.

## 44.3.67. DoubleSpeed Keyword

To get the DoubleSpeed keyword in the command line type **DoubleSpeed** or the shortcut **DS** in the command line.

Description

DoubleSpeed is a function to multiply the speed or the executor by 2.

Syntax

**DoubleSpeed [Object-list]**

Example

- To double the speed of executor 5 type in the command line:

A terminal window screenshot showing a yellow cursor icon followed by the text "[Channel]> DoubleSpeed Executor 5".

```
[Channel]> DoubleSpeed Executor 5
```

## 44.3.68. Down keyword

To execute the keyword Down, press the key **Down**, type **Down** or the shortcut **Do** into the command line.

For more information on the key Down see the [key Down](#).

### Description

The keyword Down scrolls down one page in the window you are currently in.

Down is a function keyword.

### Syntax

#### **Down**

### Example

A screenshot of a terminal window with a dark green background and a yellow border. On the left, there is a yellow sphere icon. The text in the terminal is "[Channel]> Down".

Scrolls down one page in the fixture sheet.

## 44.3.69. DropControl keyword

Type **DropControl** or the shortcut **Dr** into the command line.

### Description

DropControl is used if multiple users are in a session.

It drops the exclusive control over channel or attributes in playbacks in a current user profile.

The user that executes the keyword DropControl drops the sole control over playbacks in TakeControl fixtures and gains back the control over other playbacks.

To take control over fixtures and playbacks see the [keyword TakeControl](#).

### Syntax

#### **DropControl [fixture-list]**

### Example

A screenshot of a terminal window with a dark green background and a yellow border. On the left, there is a yellow sphere icon. The text in the terminal is "[Channel]> DropControl".

Regains full control over all playbacks in the current user profile.

## 44.3.70. Edit keyword

To enter the keyword Edit into the command line, press the key **Edit** or type **Edit** or the shortcut **E** into the command line.

### Description

Edit is a function keyword and it is used to modify values.

### Syntax

#### Edit [Object]

### Options

To get a list of all options of the keyword Edit, type the following into the command line:

```
[Channel]> Edit /?
```

The keyword Edit has the following options:

Option	Shortcut	Option Value	Description
noconfirm	nc	No option value	Suppresses confirmation pop-up.

### Examples

```
[Channel]> Edit Effect 2
```

Opens the effect editor to modify the effect 2.

```
[Channel]> Edit
```

Takes the first cue in the sequence of a selected executor. If the executor is in a certain cue, then this cue is edited.

## 44.3.71. Effect keyword

To enter the keyword into the console, press **Effect** or type **Effect** or the shortcut **Ef** into the command line.

### Description

The keyword Effect is an object keyword.

### Syntax

**[Function] Effect [ID]/[Name]/[Number]**

### Example

A screenshot of a terminal window with a dark green background and a yellow cursor. The text displayed is "[Channel]> Move Effect 1 At 37".

Moves the effect 1 to the cell 37 of the effect pool.

A screenshot of a terminal window with a dark green background and a yellow cursor. The text displayed is "[Channel]> SelFix Effect 1".

Selects fixtures in the fixture sheet that can run effect 1 if it is a selective effect.

## 44.3.72. EffectAttack Keyword

To get the EffectAttack keyword in the command line type **EffectAttack** or the shortcut **EffectA** in the command line.

### Description

EffectAttack is a helping keyword used to indicate individual EffectAttack of a pulse width modulation form.

For more information on effect attack see [effects](#).

### Syntax

#### **EffectAttack**

#### **EffectAttack [value list]**

### Examples

- To switch the encoder to adjust the effect attack layer type in the command line:

```
[Channel]> EffectAttack
```

- To knock out any EffectAttack values of the programmer for the selection or feature type in the command line:

```
[Channel]> Off EffectAttack
```

- To set the effect attack for the selection or feature to 50 % of the pulse width modulation width type in the command line:

```
[Channel]> EffectAttack 50
```

- To set the effect attack for "pan" for the selection to 50 % of the pulse width modulation width type in the command line:

```
[Channel]> Attribute "pan" At EffectAttack 50
```

## 44.3.73. EffectBPM Keyword

To get the EffectBPM keyword in the command line type **EffectBPM** or the shortcut **EffectB** in the command line:

### Description

EffectBPM is a helping keyword to indicate individual effect speed in BPM (= beats per minute).

For more information on effect speed see [effects](#).

### Syntax

#### **EffectBPM**

#### **EffectBPM [value list]**

### Examples

- To switch the encoder to adjust the effect speed layer type in the command line:

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> EffectBPM

- To knock out any effect speed values of the programmer for the selection or feature type in the command line:

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> Off EffectBPM

- To sets the effect speed for the selection or feature to 120 beats per minute type in the command line:

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> EffectBPM 120

- To set the effect speed for "pan" for the selection to 90 beats per minute type in the command line:

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> Attribute "pan" At EffectBPM 90

## 44.3.74. EffectDecay Keyword

To get the EffectDecay keyword in the command line type **EffectDecay** or the shortcut **EffectDec** in the command line.

### Description

EffectDecay is a helping keyword to indicate individual EffectDecay of a pulse width modulation form.

For more information on effect decay see [effects](#).

### Syntax

#### EffectDecay

#### EffectDecay [value list]

### Examples

- To switch the encoders to adjust the effect decay layer type in the command line:

```
[Channel]> EffectDecay
```

- To knock out any effect decay values of the programmer for the selection or feature type in the command line:

```
[Channel]> Off EffectDecay
```

- To set the effect decay for the selection or feature to 50% of the pulse width modulation width type in the command line:

```
[Channel]> EffectDecay 50
```

- To set the effect decay for "pan" for the selection to 50% of the pulse width modulation width type in the command line:

```
[Channel]> Attribute "pan" At EffectDecay 50
```

## 44.3.75. EffectDelay Keyword

To get the EffectDelay keyword in the command line type **EffectDelay** or the shortcut **EffectD** in the command line:

### Description

EffectDelay is a helping keyword to indicate individual effect delay times.

For more information on effect delay see [effects](#).

### Syntax

#### **EffectDelay**

#### **EffectDelay [value list]**

Example:

- To switch the encoders to adjust the effect delay layer type in the command line:

```
[Channel]> EffectDelay
```

- To knock out any effect delay values of the programmer for the selection or feature type in the command line:

```
[Channel]> Off EffectDelay
```

- To set the effect delay for the selection or feature to 4 seconds type in the command line:

```
[Channel]> EffectDelay 4
```

- To set the effect delay for "pan" for the selection to 2 seconds type in the command line:

```
[Channel]> Attribute "pan" At EffectDelay 2
```

## 44.3.76. EffectFade Keyword

To get the EffectFade keyword in the command line type **EffectFade** or the shortcut **EffectF** in the command line.

### Description

EffectFade is a helping keyword to indicate individual effect fade times.

For more information on effect fade times see [effects](#).

### Syntax

#### **EffectFade**

#### **EffectFade [value list]**

#### Examples:

- To switch the encoder to adjust the effect fade layer type in the command line:

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> EffectFade

- To knock out effect fade values of the programmer for the selection or feature type in the command line:

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> Off EffectFade

- To set the effect fade time for the selection or feature to 4 seconds type in the command line:

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> EffectFade 4

- To set the effect fade for "pan" for the selection to 2 seconds type in the command line:

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> Attribute "pan" At EffectFade 2

## 44.3.77. EffectForm Keyword

To get the EffectForm keyword in the command line type **EffectForm** or the shortcut **EffectF** in the command line:

### Description

EffectForm is a helping keyword to indicate individual effect form values.

For more information on effect form values see [effects](#).

### Syntax

#### **EffectForm**

#### **EffectForm [value list]**

### Examples

- To switch encoders to adjust the effect form layer type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> EffectForm' is displayed in white.

- To knock out any effect form values of the programmer for the selection or feature type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> Off EffectForm' is displayed in white.

- To set the effect form for the selection or feature to the 6th form type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> EffectForm 6' is displayed in white.

- To set the effect form for "pan" for the selection to the 6th form type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> Attribute "pan" At EffectForm 6' is displayed in white.

## 44.3.78. EffectHigh Keyword

To get the EffectHigh keyword in the command line type **EffectHigh** or the shortcut **EffectHi** in the command line.

### Description

EffectHigh is a helping keyword to indicate individual effect high values.

For more information see [effects](#).

### Syntax

#### **EffectHigh**

#### **EffectHigh [value list]**

### Examples

- To switch the encoders to adjust the EffectHigh layer type in the command line:

```
[Channel]> EffectHigh
```

- To knock out any EffectHigh values of the programmer for the selection or feature type in the command line:

```
[Channel]> Off EffectHigh
```

- To set the EffectHigh value for the selection or feature to 80 type in the command line:

```
[Channel]> EffectHigh 80
```

- To set the EffectHigh for "pan" for the selection to 20 type in the command line:

```
[Channel]> Attribute "pan" At EffectHigh 20
```

## 44.3.79. EffectHZ Keyword

To get the EffectHZ keyword in the command line type **EffectHZ** or the shortcut **EffectH** in the command line.

### Description

EffectHZ is a helping keyword to indicate individual effect speed in Hertz.

For more information see [Effects](#).

### Syntax

#### **EffectHZ**

#### **EffectHZ [value list]**

### Examples

- To switch the encoder to the effect speed layer type in the command line:

```
[Channel]> EffectHZ
```

- To knock out any effect speed values of programmer for the selection or feature type in the command line:

```
[Channel]> Off EffectHZ
```

- To set the effect speed for the selection or feature to 4 Hertz type in the command line:

```
[Channel]> EffectHZ 4
```

- To set the effect speed for "pan" for the selection to 2 Hertz type in the command line:

```
[Channel]> Attribute "pan" At EffectHZ 2
```

## 44.3.80. EffectID Keyword

To get the EffectID keyword in the command line type **EffectID** or the shortcut **EffectI** in the command line:

### Description

EffectID is a helping keyword to indicate the EffectID layer.

The EffectID value cannot be adjusted the same way as other effectlayers. This value is given by calling an Effect.

For more information on effects see [effects](#).

### Syntax

#### **EffectID**

### Examples

- To switch the encoder to display the EffectID layer type in the command line:

```
[Channel]> EffectID
```

- To knock out any EffectID values (effect reference) of the programmer for the selection/feature type in the command line:

```
[Channel]> Off EffectID
```

## 44.3.81. EffectLow Keyword

To get the EffectLow keyword in the command line type **EffectLow** or **EffectL** in the command line:

### Description

EffectLow is a helping keyword used to indicate individual effect low values.

For more information on effects see [effects](#).

### Syntax

#### **EffectLow**

#### **EffectLow [Value-list]**

### Examples

- To switch the encoders to adjust the effect low layer type in the command line:

```
[Channel]> EffectLow
```

- To knock out any effect low values of programmer for the selection/feature type in the command line:

```
[Channel]> Off EffectLow
```

- To set the effect low for the selection/feature to 20 type in the command line:

```
[Channel]> EffectLow 20
```

- To set the effect low for "pan" for the selection to -20 type in the command line:

```
[Channel]> Attribute "pan" At EffectLow -20
```

## 44.3.82. EffectPhase Keyword

To get the EffectPhase keyword in the command line type **EffectPhase** or **EffectP** in the command line.

### Description

EffectPhase is a helping keyword to indicate individual effect phases.

### Syntax

#### EffectPhase

#### EffectPhase [Value-list]

### Examples

- To switch the encoders to adjust the effect phase layer type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> EffectPhase' is displayed in white.

- To knock out any effect phase values of the programmer for the selection/feature type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> Off EffectPhase' is displayed in white.

- To set the effect phase for the selection/feature to 180 degrees type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> EffectPhase 180' is displayed in white.

- To Set the effect phase for "pan" for the selection to 180 degrees type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> Attribute "pan" At EffectPhase 180' is displayed in white.

## 44.3.83. EffectSec Keyword

To get the EffectSec keyword in the command line type **EffectSec** or **EffectS** in the command line.

### Description

EffectSec is a helping keyword to indicate individual effect speed in seconds.

### Syntax

#### **EffectSec**

#### **EffectSec [Value-list]**

### Examples

- To switches the encoders to adjust the EffectSpeed layer type in the command line:

```
[Channel]> EffectSec
```

- To knocks out any effect speed values of the programmer for the selection/feature type in the command line:

```
[Channel]> Off EffectSec
```

- To set the effect speed for the selection/feature to 2 seconds per cycle type in the command line:

```
[Channel]> EffectSec 2
```

- To set the effect speed for "pan" for the selection to 4 seconds per cycle type in the command line:

```
[Channel]> Attribute "pan" At EffectSec 4
```

## 44.3.84. EffectSpeedGroup keyword

To enter the keyword EffectSpeedGroup into the console, type **EffectSpeedGroup** or the shortcut **EffectSp** into the command line.

### Description

EffectSpeedGroup calls the effect layer **Speed Group**.

For more information on effect layers see [Layers in sheets – Channel sheet and fixture sheet](#).

To change to different layers, press  + **Time**.

### Syntax

#### EffectSpeedGroup

### Example



Jumps to the effect layer Speed Group.

## 44.3.85. EffectWidth Keyword

To get the EffectWidth keyword in the command line type **EffectWidth** or the shortcut **EffectW** in the command line.

### Description

EffectWidth is a helping keyword to indicate individual EffectWidth.

### Syntax

#### EffectWidth

#### EffectWidth [Value-list]

### Examples

- To switch the encoders to adjust the EffectWidth layer type in the command line:

```
[Channel]> EffectWidth
```

- To knock out any EffectWidth values of programmer for the selection/feature type in the command line:

```
[Channel]> Off EffectWidth
```

- To set the EffectWidth for the selection/feature to 50 % of the cycle type in the command line:

```
[Channel]> EffectWidth 50
```

- To set the EffectWidth for "pan" for the selection to 50 % of the cycle type in the command line:

```
[Channel]> Attribute "pan" At EffectWidth 50
```

## 44.3.86. Empty Keyword

To get the Empty keyword in the command line, type **Empty** or the shortcut **Em** in the command line.

### Description

With the Empty keyword, you can assign the function empty to executors. Empty means that the executors is deactivated. For more information, see [executors - assign a function](#).

The Empty keyword is a function keyword.

### Syntax

#### Assign Empty [Executor list]

### Example

To deactivate executor button 101, type in the command line:



Press **Please**.

Executor 101 is deactivated. The function empty is assigned.



*Deactivated executor indicated by the empty executor function field*

## 44.3.87. EndIf Keyword

To get the EndIf keyword in the command line type **EndIf** or the shortcut **En** in the command line.

### Description

EndIf is a helping keyword to indicate the end of an If statement. For more information see [If keyword](#).

The EndIf keyword enables If statements to be entered in the middle of a syntax. Upon processing, the If statement is moved to the end of the syntax, and is used as a filter/condition. This enables If syntax to be used in conjunction with pool items.

### Syntax

**[function] If [object condition/filter] EndIf [object]**

### Example

- To create preset 1.1 only for group 5 type in the command line:

```
Store If Group 5 EndIf Preset 1.1
```

```
Store Preset 1.1 If Group 5
```

## 44.3.88. EndSession Keyword

To get the EndSession keyword in the command line type **EndSession** or the shortcut **EndS** in the command line.

### Description

EndSession is a function keyword to end a session for all session members. The EndSession keyword disconnects all linked devices in the session. It is not possible to join an ended session again.

### Syntax

**EndSession / [noconfirm]**

### Options

To get a list of all available options to the EndSession keyword in the command line feedback window, type in the command line



```
[Channel]> EndSession /?
```

The EndSession keyword has the following options.

Option	Shortcut	Option Value	Description
noconfirm	nc	no option value	Suppresses confirmation pop-up.

### Examples

- To end the session for all session members with a confirmation pop-up type in the command line:



```
[Channel]> EndSession
```

- To end the session directly without a confirmation pop-up type in the command line:



```
[Channel]> EndSession /noconfirm
```

## 44.3.89. Escape keyword



### **Important:**

The keyword Escape is only used within a macro. To cancel commands that have not been executed, press **Esc**. For more information see the [key Esc](#).

To enter the keyword into the console, type **Escape** or the shortcut **Es** into the command line.

### Description

The keyword Escape closes modal dialogs within a macro.

### Syntax

### Escape

## 44.3.90. ExecButton1 Keyword

To get the ExecButton1 keyword in the command line type **ExecButton1** in the command line.

### Description

ExecButton1 is an object keyword for the first button of an executor.

If you apply a function or reference a property not supported by the ExecButton1 object, the command will be passed on to the parent Executor object.



#### Hint:

For Fader Executors, the buttons are numbered from the bottom and upwards; 1 is right below fader, 2 is right above fader, 3 is on the top.

### Syntax

**ExecButton1 [Executor]**

**ExecButton1 [Page],[Executor]**

**ExecButton1 [Pagepool],[Page],[Executor]**

### Examples

- To assign the toggle function to the first button of executor 5 type in the command line:

```
[Channel]> Assign Toggle At ExecButton1 5
```

- To delete executor 5 type in the command line:

```
[Channel]> Delete ExecButton1 5
```

## 44.3.91. ExecButton2 Keyword

To get the ExecButton2 keyword in the command line type **ExecButton2** in the command line.

### Description

ExecButton2 is an object keyword for the second button of an executor.

If you apply a function or reference a property not supported by the ExecButton2 object, the command will be passed on to the parent Executor object.



#### Hint:

For Fader Executors, the buttons are numbered from the bottom and upwards; 1 is right below fader, 2 is right above fader, 3 is on the top.

### Syntax

**ExecButton2 [Executor]**

**ExecButton2 [Page].[Executor]**

**ExecButton2 [Pagepool].[Page].[Executor]**

### Examples

- To assign the toggle function to the second button of executor 5 type in the command line:

```
[Channel]> Assign Toggle At ExecButton2 5
```

- To delete executor 5 type in the command line:

```
[Channel]> Delete ExecButton2 5
```

## 44.3.92. ExecButton3 Keyword

To get the ExecButton3 keyword in the command line type **ExecButton3** in the command line.

### Description

ExecButton3 is an object keyword for the third button of an executor.

If you apply a function or reference a property not supported by the ExecButton3 object, the command will be passed on to the parent Executor object.



#### Hint:

For Fader Executors, the buttons are numbered from the bottom and upwards; 1 is right below fader, 2 is right above fader, 3 is on the top.

### Syntax

**ExecButton3 [Executor]**

**ExecButton3 [Page],[Executor]**

**ExecButton3 [Pagepool],[Page],[Executor]**

### Examples

- To assign the toggle function to the third button of executor 5 type in the command line:

```
[Channel]> Assign Toggle At ExecButton 3 5
```

- To delete executor 5 type in the command line:

```
[Channel]> Delete ExecButton 3 5
```

## 44.3.93. Executor Keyword

To get the Executor keyword in the command line press **Exec**.

You can also type **Executor** or the shortcut **Ex** directly in the command line.

### Description

Executor is an object keyword acting as a control handle for other objects.

The default function for Executor objects is **SelfFix**. This means that calling executors without any function specified selects the fixtures of the executor in programmer.

If you apply a function or reference a property not supported by the Executor object, the command will be passed on its child: Button/fader or the object assigned to the executor.

### Syntax

**Executor [ID]**

**Executor [Page].[ID]**

**Executor [Pagepool].[Page].[ID]**

### Examples

- To remove the fifth executor on the current page type in the command line:

```
[Channel]> Delete Executor 5
```

- To set the fader of executor 5 to 50 % type in the command line:

```
[Channel]> Executor 5 At 50
```

- To delete cue 3 of the sequence assigned to executor 5 type in the command line:

```
[Channel]> Delete Cue 3 Executor 5
```

- To select the second executor on page 4 type in the command line:

```
[Channel]> Select Executor 4.2
```

## 44.3.94. Exit keyword

To enter the keyword Exit into the console, type **Exit** or the shortcut **Exi** into the command line.

### Description

Exit disconnects the connection to Telnet.

For more information see the keyword [Telnet](#).

### Syntax

#### **Exit**

### Example



```
[Channel]> Exit
```

Disconnects Telnet.

## 44.3.95. Export Keyword

### Description

Export is a function keyword to transfer data from the show file to the libraries in the console.

If no filename is entered to the keyword, one .xml file will be created for each object in object list, with file names generated based on object name/properties.

The Export keyword writes to the current selected hard drive. For export to an USB stick select it at the Backup Menu, or type "selectdrive 4" in the command line - 4 is for the first USB stick.

The exported files will be organized in folders according to object type for the following objects Effect, Macro, FixtureType (library), and Gel (colors).

Other objects will be placed in the importexport folder.

### Syntax

**Export [Object-list] ["filename"] / [option] = [option value]**

### Options

To get a list of all available options to the Export keyword in the command line feedback window, type in the command line:



```
[Channel]> Export /?
```

The Export keyword has the following options.

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Option	Shortcut	Option Value	Description
condition	cnd	See <a href="#">messages keyword</a> .	See <a href="#">messages keyword</a> .
noconfirm	nc	no option value	Suppress the confirmation pop-up.
overwrite	o	no option value	Replaces existing file in the folder.
path	p	for example "/data/ma/actual/gma2/ImportExport"	Specifies the path for the to be exported file.
schema	not available	no option value	Exports MA .xml schema definition.
style		html, csv, default (= xml with style sheet for timecode, messages, sequence, fixture, layer, and layers)	Specifies the style of the exported file.
transform	t	no option value	Transforms the file into the defined style.

## Examples

- To create an .xml file labeled mymacros in the macro folder with macro 1 thru 10, type in the command line:

```
[Channel]> Export Macro 1 Thru 10 "MyMacros"
```

- To create an .xml file labeled based on Effectname in the effect directory with effect 1, type in the command line:

```
[Channel]> Export Effect 1
```

## 44.3.96. Extract Keyword

To get the extract keyword in the command line type **Extract** or the shortcut **Ext** in the command line.

### Description

Extract is a function that applies hard values in the programmer and breaks any referenced links.

The Extract function used the same syntax as the At keyword. For more information see [At keyword](#).

Extract works recursively and breaks references also in subobjects, for example, a preset in a cue in an extracted sequence.

Extract will obey the At filter and the program time.

### Syntax

#### **Extract [Object list]**

### Examples

- To set the fixture selection to the preset "drummer". later changes to preset "drummer" will update the values, type in the command line:

```
[Channel]> At Preset "drummer"
```

- To set the fixture selection to hard values of preset "drummer". later changes to preset "drummer" will not affect the values, type in the command line:

```
[Channel]> Extract Preset "drummer"
```

- To break the references (converts attributes to hard values in the programmer) for the fixture selection type in the command line:

```
[Channel]> Extract Selection
```

- To set the fixture selection to the hard values of Cue 4 type in the command line:

```
[Channel]> Extract Cue 4
```

## 44.3.97. Fade Keyword

To get the Fade keyword in the command line press **Time**.

Another way is to type **Fade** or the shortcut **Fa** directly in the command line.

## Description

Fade is a helping keyword to indicate fade times.

As a helping keyword for playback functions (for example Goto), this keyword sets the time used to execute the function.

As a helping keyword for programming functions (for example Store), this keyword sets the fade time of an object.

Used as a starting keyword, Fade applies individual timing in the programmer for the current selection and attributes.



### Hint:

As long as the command line starts with a function, the fade keyword and value may appear anywhere in the command line.

## Syntax

### **Fade [Value-list]**

## Examples

- To crossfade to cue 3 in the selected executor in 4 seconds type in the command line:

```
[Channel]> Goto Cue 3 Fade 4
```

- To create cue 3 in the selected executor and set its fade time to 4 seconds type in the command line:

```
[Channel]> Store Cue 3 Fade 4
```

- To set the fade time of cue 2 in the selected executor to 3 seconds type in the command line:

```
[Channel]> Assign Fade 3 Cue 2
```

- To set the individual fade time of 2 seconds to the current selection/attributes type in the command line:

```
[Channel]> Fade 2
```

- To set the fixture selection to 50 % and give them an individual fade time of 2 seconds to the selected attributes type in the command line:

```
[Channel]> At 50 Fade 2
```

## 44.3.98. FadePath Keyword

To get the FadePath keyword in the command line type **FadePath** or the shortcut **FadeP** in the command line.

### Description

FadePath is an object type representing the possible transition paths of a cue part.

### Syntax

#### **FadePath [ID]**

### Example

To assign a high-low fade path to the main part of cue 4 type in the command line:

```
[Channel]> Assign FadePath 7 At Cue 4 Part 0
```

## 44.3.99. Fader Keyword

To get the Fader keyword in the command line type **Fader** in the command line.

### Description

Fader is an object keyword representing the fader of an executor.

If you apply a function or reference a property not supported by the fader object, the command will be passed on to the parent executor object.



#### Hint:

Even though button executors do not have a physical fader, they still have a virtual fader assigned as a master.

### Syntax

**Fader [Executor]**

**Fader [Page],[Executor]**

**Fader [Pagepool],[Page],[Executor]**

### Examples

- To assign the speed functionality to the fader of executor 5 type in the command line:

```
[Channel]> Assign Speed At Fader 5
```

- To set the level/position of fader of executor 5 to 50 % type in the command line:

```
[Channel]> Fader 5 At 50
```

## 44.3.100. FaderPage Keyword

To get the FaderPage keyword in the command line press **Page Page Page** (= FaderPage).

Another way is to type **FaderPage** or one of the shortcuts **FP** or **FaderP** directly in the command line.

### Description

FaderPage is an object keyword representing the fader executor part of a p.age

The default function for this object is **Call**. Calling a FaderPage changes the physical executors to that page.

If you apply a function not supported by the FaderPage object, the function will be passed on to the executor child objects of the FaderPage.

### Syntax

**FaderPage [ID]**

**FaderPage [Pagepool].[ID]**

### Example

To change the physical fader executors to page 5 type in the command line:



```
[Channel]> FaderPage 5
```

## 44.3.101. Feature Keyword

To get the Feature keyword in the command line type **Feature** or the shortcut **Fe** in the command line.

### Description

Feature is an object keyword representing features of a fixture.

The default function for features is **Call**. Calling features brings them to the encoders, and select them in the fixture sheet (yellow column header).

Features are organized by PresetType, which means that you can also call features with the PresetType keyword.

Features contains attributes, which means that you can also call attributes with the Feature keyword, using dot separated numbers.



#### **Important:**

The feature number may change when new fixtures and attributes are added to the show file. It is recommended to use the unique feature name, for example macros.

## Syntax

**Feature [number]**

**Feature "Name"**

**Feature [Feature].[Attribute]**

## Examples

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> Feature 2' is displayed in white.

```
[Channel]> Feature 2
```

Calls the second feature type in the command line.

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> List feature' is displayed in white.

```
[Channel]> List feature
```

Shows a current list of all feature numbers and names in the command line feedback view.

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> Feature "Gobo1"' is displayed in white.

```
[Channel]> Feature "Gobo1"
```

Calls feature "Gobo1" type in the command line.

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> Feature "Position".2' is displayed in white.

```
[Channel]> Feature "Position".2
```

Calls the second attribute of the feature "Position" type in the command line.

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> Feature \$feature.2' is displayed in white.

```
[Channel]> Feature $feature.2
```

Calls the second attribute of the current feature type in the command line.

```
[Channel]> PresetType "gobo".2
```

Calls the second feature of the preset type gobo type in the command line.

## 44.3.102. Filter Keyword

To execute the keyword Filter in the command line press **Group** **Group** **Group** (= Filter).

Another way is to type **Filter** or the shortcut **Fil** directly in the command line.

### Description

Filter is an object keyword representing attribute filter and layer filter from the filter pool.

The default function for this object is [Call](#). Calling a filter applies the filter temporary and limits the next programmer action.

Selecting a filter limits all programmer actions until filter 1 is selected.

For more information see [worlds, filters, and masks](#).

### Syntax

#### **Filter [ID]**

### Examples

```
[Channel]> Filter 4
```

Calls filter 4 (next programmer action uses this filter).

```
[Channel]> Select Filter 5
```

Selects filter 5 (all programmer actions use this filter).

## 44.3.103. Fix Keyword

To get the Fix keyword in the command line press **Fix**.

You can also type **Fix** directly in the command line.

### Description

Fix is a function keyword to fix objects on a page.

Fix is a toggle function. This means that using Fix without any helping keyword toggles the fixing of the objects on and off.

### Syntax

**Fix [executor list]**

**Fix On [executor list]**

**Fix Off [executor list]**

### Examples

- To fix executor 1 through 5 on the current page type in the command line:

```
[Channel]> Fix On Executor 1 Thru 5
```

- To toggle executor 3 from changing page, or not to changing page, type in the command line:

```
[Channel]> Fix Executor 3
```

## 44.3.104. Fixture Keyword

To get the Fixture keyword in the command line press **Fixture**.

Another way is to type **Fixture** or the shortcut **F** in the command line.

### Description

Fixture is an object keyword to access fixtures with a fixture ID.

The default function for fixture objects is [SelfFix](#). This means that entering fixtures without any function specified selects the fixtures.

### Syntax

**Fixture [ID]**

**Fixture [ID],[Sub-ID]**

### Examples

- To select fixture 34 type in the command line:

```
[Channel]> Fixture 34
```

- To select the fifth subfixture of the fixture cluster fixture 11 type in the command line:

```
[Channel]> Fixture 11.5
```

- To select all subfixtures of the fixture cluster fixture 11 type in the command line:

```
[Channel]> Fixture 11
```

## 44.3.105. FixtureType Keyword

To execute the keyword FixtureType press **MA** and **Fixture** or type **FixtureType** or one of the shortcuts **FT** or **FixtureT** into the command line.

### Description

FixtureType is an object keyword for the fixture types in the show file. Fixture types also contain global data in presets.



#### Important:

Most edits and command line actions with the keyword FixtureType has to be done while in the Edit Setup mode.



#### Hint:

Fixture types are displayed at the bottom of channel and fixture sheets.

### Syntax

#### FixtureType [ID]

### Example



```
Edit Setup> Assign FixtureType 2 At Fixture 1 Thru 10
```

Assigns fixture type 2 to fixtures 1 through 10.



```
[Channel]> Clone FixtureType 2 at 3 if Preset "Color".*
```

Clones global color presets of fixture type 2 to fixture type 3.

## 44.3.106. Flash Keyword

To execute the keyword Flash press   (= Flash).

Another way is to type **Flash** or the shortcut **Fla** in the command line.

### Description

Flash is a function used to temporary overwrite master level to full on executing objects without using times.

When the Flash function is used with an executor button, the Flash On command is executed when the button is pressed and the Flash Off is executed when the button is released.

If this function is used without the helping keywords On/Off, the function will toggle between on or off.

If the executor is not On when this function is applied, the executor will be temporary activated with zero timing.

### Syntax

**Flash [Executor-list]**

**Flash On [Executor-list]**

**Flash Off [Executor-list]**

### Examples

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. The text in the terminal is "[Channel]> Flash On Executor 1".

Overwrites the master level of executor 1 to full and starts first cue.

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. The text in the terminal is "[Channel]> Flash Off Executor 1".

Returns master level of executor 1 to the master fader and sets executor to off if it was not on.

## 44.3.107. FlashGo keyword

To execute the keyword FlashGo, type **FlashGo** or the shortcut **FlashG** into the command line.

### Description

FlashGo executes the keyword Flash and jumps into the next cue.

For more information see the keyword [Flash](#).

### Syntax

#### FlashGo [Executor-list]

### Options

To get a list of all options of the keyword FlashGo, type the following into the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> FlashGo /?' is displayed in white.

The keyword FlashGo has the same options as the keyword Goto.

For further information see the keyword [Goto](#).

### Example

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> FlashGo Executor 1' is displayed in white.

Overwrites master level temporarily and jumps into the next cue.

## 44.3.108. FlashOn keyword

To execute the keyword FlashOn, type **FlashOn** or the shortcut **FlashO** into the command line.

### Description

FlashOn activates the cue and ignores the fade times and the master level.

### Syntax

#### **FlashOn [Executor-list]**

### Options

To get a list of all options of the keyword FlashOn, type the following into the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> FlashOn /?' is displayed in white.

```
[Channel]> FlashOn /?
```

The keyword FlashOn has the same options as the keyword Goto.

For further information see the keyword [Goto](#).

### Example

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> FlashOn Executor 1' is displayed in white.

```
[Channel]> FlashOn Executor 1
```

Activates the cue of the executor and ignores its fade times.

## 44.3.109. Flip Keyword

To get the Flip keyword in the command line type **Flip** or the shortcut **FI** in the command line.

### Description

Flip is a function keyword to access the different pan/tilt combinations that points a moving head in the same direction.

Flip sets the pan of the fixtures to 180 degrees and inverts the tilt angle. Flip points the fixture in the same direction but with another pan/tilt combination.

If no selection list is entered, Flip is applied to the fixture selection.

If no flip number is entered, the function toggles through the different possible combinations.

### Syntax

**Flip [flip number] [selection list]**

### Examples

- To set the pan and tilt of the fixture selection to the next pan/tilt combination that points in the same direction, type in the command line:

```
[Channel]> Flip
```

- To set the pan and tilt of group 7 to the second of the pan/tilt combination that points in the same direction, type in the command line:

```
[Channel]> Flip 2 Group 7
```

## 44.3.110. Form Keyword

To execute the keyword Form type **Form** or the shortcut **Fo** into the command line.

### Description

Form is an object type with shapes used for dynamic effects.

Forms are used as source for effects to generate dynamic values.



#### Hint:

Forms are generated and edited in the form pool.

### Syntax

**Form [ID]**

**Form [ID].[subID]**

### Example



```
[Channel]> At Form 10
```

Sets the first attribute of the current feature to Form 10, "Ramp Plus".

## 44.3.111. Freeze Keyword



### Important:

If the Freeze keyword is entered in the command line by pressing the **Freeze** key, the keyword will be directly executed.

To execute the keyword Freeze directly press **Freeze**.

Another way is to type **Freeze** or the shortcut **Fre** directly into the command line.

### Description



### Important:

If Freeze is on, programmer values have a higher priority as playbacks. Only executor priority "Super" has a higher priority than Freeze.

Freeze is function keyword to change the priority of the programmer.

Freeze is a toggle function. This means that entering Freeze without any helping keyword toggles the Freeze-mode on/off.

### Syntax

**Freeze**

**Freeze On**

**Freeze Off**

### Example



```
[Channel]> Freeze On
```

Turns the freeze mode on.

## 44.3.112. Full Keyword



### Important:

If you enter the Full keyword in the command line by pressing the **Full** key, the keyword will be directly executed.

To get the Full keyword in the command line press **Full**.

The Full keyword will be directly executed.

Another way is to type **Full** or the shortcut **Fu** directly in the command line.

### Description

Full is an function keyword to set the dimmer values to 100 %.

The default function is At. This means that entering Full without any object sets the dimmer attributes of the current selection to 100 %.

### Syntax

#### Full

### Example

- To select channel 53 and set the dimmer to 100 % type in the command line:

```
[Channel]> Channel 53 Full
```

## 44.3.113. FullHighlight keyword

To execute the keyword FullHighlight, press **MA** + **Full** or press **Full** twice. It is also possible to type **Fullhighlight** or the shortcut **FullH** into the command line.

### Description

Fullhighlight takes all highlight values of the fixtures that are currently selected into the programmer.

### Syntax

#### Fullhighlight

### Example

```
[Channel]> Fullhighlight
```

Takes the highlight values actively into the programmer.

## 44.3.114. Gel keyword

To execute the keyword, type **Gel** or the shortcut **Ge** into the command line.

### Description

The keyword gel provides the opportunity to change the color in the color picker via a command.

### Syntax

[At] Gel ["Name"."Name"]

[At] Gel [Number."ID"]

[At] Gel ["Name".Number.]

### Examples

A terminal window with a dark green background and a yellow cursor icon on the left. The text inside the terminal is "[Channel]> At Gel "Lee"."Mauve".

```
[Channel]> At Gel "Lee"."Mauve"
```

Sets the color of the selected fixtures to Lee's color Mauve.

A terminal window with a dark green background and a yellow cursor icon on the left. The text inside the terminal is "[Channel]> At Gel 7. "126".

```
[Channel]> At Gel 7. "126"
```

Sets the color of the selected fixtures to Lee's key 126 in swatch book.

A terminal window with a dark green background and a yellow cursor icon on the left. The text inside the terminal is "[Channel]> At "Lee".44.

```
[Channel]> At "Lee".44.
```

Sets the color of the selected fixtures to Lee's key 44 in swatch book.

## 44.3.115. Go Keyword

To get the Go keyword in the command line press **Go**.

Another way is to type **Go** in the command line.

### Description

Go is a function keyword to activate the next step of an executing object.

If the target object have steps, it will go to the next step. If the object is step-less it will start running forward.

### Syntax

**Go [Object-list] / [Option] = [Option Value]**

### Options

To get a list of all available options to the Go keyword type in the command line:

```
[Channel]> Go /?
```

The Go keyword has the following options:

Option	Option Shortcut	Option Value	Option Value Shortcut	Description
cue_mode	cm	Normal	N	Normal Go mode.
cue_mode	cm	Assert	A	Go with assert in the original timing.
cue_mode	cm	XAssert	XA	Go with assert in the cuetiming of current cue.
cue_mode	cm	Release	R	Go finishes the fade-in and switches the executor off.
userprofile	upr	"Name of the user profile", e.g. "Klaus"	not available	Normal Go mode with specified user profile.

### Examples

- To go to the next step of executor 3 type in the command line:

```
[Channel]> Go Executor 3
```

- To start macro 2 type in the command line:

```
[Channel]> Go Macro 2
```

## 44.3.116. GoBack Keyword

To get the GoBack keyword in the command line press **Go -**.

Another way is to type **GoBack** or the shortcut **GoB** in the command line.

### Description

GoBack is a function keyword to activate previous step of an executing object.

If the target object has steps, it will go to the previous step. If the object is stepless, it will start running backwards.

Set the default fade time for GoBack in the **Setup | Show | Playback & MIB Timing | GoBack**.

### Syntax

**GoBack [Object-list] / [Option] = [Option Value]**

### Options

To get a list of all available options to the GoBack keyword type in the command line:

```
[Channel]> GoBack /?
```

The GoBack keyword has the following options:

Option	Option Shortcut	Option Value	Option Value Shortcut	Description
cue_mode	cm	Normal	N	Normal GoBack mode.
cue_mode	cm	Assert	A	GoBack with assert in the original timing.
cue_mode	cm	XAssert	XA	GoBack with assert in the cuetiming of current cue.
cue_mode	cm	Release	R	GoBack finishes the fade-in and switches the executor off.
userprofile	upr	"Name of the user profile", e.g. "Klaus"	not available	Normal GoBack mode with specified user profile.

### Example

To go to the previous step of executor 3 type in the command line:

```
[Channel]> GoBack Executor 3
```

## 44.3.117. Goto Keyword

To get the Goto keyword in the command line press Goto.

Another way is to type **Goto** or the shortcut **Got** in the command line.

### Description

Goto is a function keyword to jump in a list. Set the fade time for Goto in the **Setup | Show | Playback & MIB Timing | Goto**.

### Syntax

**Goto [Cue object] [Executor object] / [Option] = [Option Value]**

### Options

To get a list of all available options to the Goto keyword type in the command line:

```
[Channel]> Goto /?
```

The Goto keyword has the following options:

Option	Option Shortcut	Option Value	Option Value Shortcut	Description
cue_mode	cm	Normal	N	Normal Goto mode.
cue_mode	cm	Assert	A	Goto with assert in the original timing.
cue_mode	cm	XAssert	XA	Goto with assert in the cuetiming of current cue.
cue_mode	cm	Release	R	Goto finishes the fade-in and switches the executor off.
userprofile	upr	"Name of the user profile", e.g. "Klaus"	not available	Normal Goto mode with specified user profile.

### Examples

- To go to cue 3 of the selected executor type in the command line:

```
[Channel]> Goto Cue 3
```

- To go to cue 5 of executor 4 type in the command line:

```
[Channel]> Goto Cue 5 Executor 4
```

## 44.3.118. Group Keyword

To execute the keyword Group press **Group**.

Another way is to type **Group** or the shortcut **G** into the command line.

### Description

Group is an object type that contains a collection of fixtures and a selection sequence.

The default function for the group keyword is SelfFix. This means that calling groups without any function specified selects the fixtures of the group.

For more information see [SelfFix keyword](#).

### Syntax

**Group [ID]**

### Example

A screenshot of a terminal window with a dark green background and a yellow cursor. The text '[Channel]> Group 3' is displayed in white.

Selects the fixtures stored in group 3.

## 44.3.119. HalfRate Keyword

To get the HalfRate keyword in the command line type **HalfRate** or the shortcut **HalfR** in the command line.

### Description

HalfRate is a function keyword to divide the current rate by 2.

### Syntax

**HalfRate [Object-list]**

### Example

- To halves the rate of executor 5 type in the command line:

A screenshot of a terminal window with a dark green background and a yellow cursor. The text '[Channel]> HalfRate Executor 5' is displayed in white.

## 44.3.120. HalfSpeed Keyword

To get the HalfSpeed keyword in the command line type **HalfSpeed** or the shortcut **Ha** in the command line.

### Description

HalfSpeed is a function keyword to divide the current speed by 2.

### Syntax

#### **HalfSpeed [Object-list]**

### Example

- To halves the speed of executor 5 type in the command line:

A terminal window with a dark green background and a yellow border. On the left is a yellow sphere icon. The text inside the terminal reads "[Channel]> HalfSpeed Executor 5".

## 44.3.121. Help Keyword

To get the Help keyword in the command line press Help.

Another way is to type **Help** or the shortcut **H** directly in the command line.

### Description

Help is a function keyword to open the help window.

### Syntax

#### **Help**

#### **Help [keyword]**

### Examples

- To open the help window type in the command line:

A terminal window with a dark green background and a yellow border. On the left is a yellow sphere icon. The text inside the terminal reads "[Channel]> Help".

- To open the help to the Fixture keyword type in the command line:

A terminal window with a dark green background and a yellow border. On the left is a yellow sphere icon. The text inside the terminal reads "[Channel]> Help Fixture".

## 44.3.122. Highlight Keyword



### Important:

If you enter the Highlight keyword in the command line by pressing the **Hight** key, the keyword will be directly executed.

To get the Highlight keyword in the command line press **Hight**.

The Highlight keyword will be directly executed.

Another way is to type **Highlight** or the shortcut **Hi** directly in the command line.

### Description

Highlight is a function to apply the defined highlight values on selected fixtures.

Highlight is a toggle function. This means entering Highlight without a helping keyword toggles the Highlight mode on or off.

If Highlight is on the **highlight icon**  is displayed in the command line. For more information see [icons](#).

For more information see [Highlight key](#).

### Syntax

#### Highlight

#### Highlight On

#### Highlight Off

### Examples

To turn on the highlight mode type in the command line:

```
 [Channel]> Highlight On
```

## 44.3.123. IdentifyFaderModule keyword

To execute the keyword, type **IdentifyFaderModule** or the shortcut **Id**.

### Description

IdentifyFaderModule defines which module corresponds to which wing. That is, the wing starts to flash. The flashing automatically stops after approximately 10 seconds.

### Syntax

**IdentifyFaderModule [Number]**

### Example



Wing 1 starts to flash.

## 44.3.124. If Keyword

To get the If keyword in the command line press **If If If If** (= If).

Another way is to type **If** or the shortcut **I** in the command line.

### Description

The If keyword as a function keyword deselects fixtures not in the entered selection list.

As a helping keyword keyword to the Clone function, If sets the scope of the cloning. For more information see [clone keyword](#) and [clone or replace fixtures](#).

As a helping keyword keyword to other operational functions, If sets a filter for the operation.

To end an if statement use the [EndIf keyword](#).

### Syntax

**If [Selection-list]**

**Clone [Selection-list] At [Selection-list] If [Object-list]**

**[General syntax] If [Object-list]**

### Examples

- To deselect fixtures not in group 5 type in the command line:



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- To select fixtures which are a part of group 3 and group 5 type in the command line:

```
[Channel]> Group 3 If Group 5
```

- To delete channel 4 from cue 3 type in the command line:

```
[Channel]> Delete Cue 3 If Channel 4
```

- To delete fixture 4 and attribute "pan" from cue 3 type in the command line:

```
[Channel]> Delete Cue 3 If Fixture 4 Attribute "pan"
```

- To delete attribute "pan" of fixture 4 from cue 3 type in the command line:

```
[Channel]> DeleteCue 3 If Fixture 4 If Attribute "pan"
```

## 44.3.125. IfActive Keyword

To get the IfActive keyword in the command line press **If** **If** (= IfActive).

Another way is to type **IfActive** or the shortcut **IfA** in the command line.

### Description

IfActive is a function keyword to select fixtures with active values in the programmer.

If no filter is entered IfActive selects all fixtures with active values in programmer.

If a filter is entered, IfActive selects fixtures which are in the filter and have active values in programmer.

### Syntax

#### IfActive

#### IfActive [filter]

### Examples

- To select all fixtures with active values in the programmer type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> IfActive' is displayed in white.

```
[Channel]> IfActive
```

- To select only fixtures of group 5 which have active values in programmer type in the command line:

A terminal window with a dark green background and a yellow cursor. The text '[Channel]> IfActive Group 5' is displayed in white.

```
[Channel]> IfActive Group 5
```

## 44.3.126. IfOutput Keyword

To get the IfOutput keyword in the command line press **If**.

Another way is to type **IfOutput** or the shortcut **IfO** directly in the command line.

### Description

IfOutput is a function keyword to select fixtures based on their current output.

IfOutput selects fixtures that have values originating from the object list, or with dimmer attribute values, fade or delay times within the range of the value list.

If no argument is entered, the fixtures with a dimmer value above zero will be selected.

### Syntax

#### IfOutput

#### IfOutput [Object-list]

#### IfOutput At [Value-list]

#### IfOutput At Fade [Value-list]

#### IfOutput At Delay [Value-list]

### Examples

- To select all fixtures with a dimmer value above zero type in the command line:

```
[Channel]> IfOutput
```

- To select all fixtures currently using the color preset "Red" type in the command line:

```
[Channel]> IfOutput Preset "color"."Red"
```

- To select all fixtures with dimmer value between 50 % and 75 % type in the command line:

```
[Channel]> IfOutput At 50 Thru 75
```

## 44.3.127. IfProg Keyword

To get the IfProg keyword in the command line press **If If If** (= IfProg).

Another way is to type **IfProg** or **IfP** in the command line.

### Description

IfProg is a function keyword to select fixtures with values in the programmer.

If no filter is entered, IfProg selects all fixtures with values in programmer.

If a filter is entered, IfProg selects the fixtures which are in the filter and have values in programmer.

### Syntax

#### **IfProg**

#### **IfProg [filter]**

### Examples

- To select all fixtures with values in the programmer type in the command line.

```
[Channel]> IfProg
```

- To select only the fixtures of group 5 which have values in programmer type in the command line:

```
[Channel]> IfProg Group 5
```

## 44.3.128. Image keyword

To execute the keyword, type **Image** or the shortcut **Ima** into the command line.

### Description

The keyword Image is an object keyword. It is used to handle images via command line.

It can be used in bitmap fixtures.

### Syntax

**Image [ID]**

**[Function] Image [ID]**

### Examples

A terminal window with a dark green background and a yellow cursor icon on the left. The text "[Channel]> Edit Image 14" is displayed in white.

Opens the image viewer to edit image 14.

A terminal window with a dark green background and a yellow cursor icon on the left. The text "[Channel]> At Image 16" is displayed in white.

Takes the images into the programmer if a bitmap fixture is selected.

A terminal window with a dark green background and a yellow cursor icon on the left. The text "[Channel]> Delete Image 14" is displayed in white.

Deletes the image 14 in the image pool.

## 44.3.129. Import Keyword

To get the Import keyword in the command line type **Import** or the shortcut **Im** in the command line.

### Description

Import is a function keyword to bring data from external libraries into the show file.

The Import command loads data into the current command line destination from external .xml and .xmlp files.

The Imported objects appears after the existing objects in show file.

The Import command will look for files on the currently selected hard-drive.

The supported import objects are:

- Effect
- Macro
- FixtureType
- Color



**Important:**

Importing FixtureTypes is only allowed in the Edit Setup.

## Syntax

**Import "filename" [destination-object] / [option] = [option value]**

## Options

To get a list of all available options to the Import keyword in the command line feedback window, type in the command line

```
[Channel]> Import /?
```

The Import keyword has the following options.

Option	Shortcut	Option Value	Description
noconfirm	nc	no option value	Suppresses the confirmation pop-up of the import.
quiet	q	no option value	Suppresses the feedback of the import in the command line feedback window.
path	p	for example "/data/ma/actual/gma2/ImportExport"	Specifies the path for the to be imported file.

## Examples

- To import a generic dimmer as a new fixture type in the show file type in the command line:

```
[Channel]> Import "generic@dimmer@00"
```

- To import macros from the file MyMacros.xml after the last used macro ID type in the command line:

```
[Channel]> Import "MyMacros"
```

- To import macros from files with names starting with "macr" type in the command line:

```
[Channel]> Import "macr*
```

- To import the effect MyCoolEffect as Effect 101 type in the command line:

```
[Channel]> Import "MyCoolEffect" Effect 101
```

- To import "MyMacro" as Macro 20 from the Import folder in the gma2 folder type in the command line:

```
[Channel]> Import "MyMacro" At Macro 20 /path =  
"/data/ma/actual/gma2/ImportExport"
```

## 44.3.130. Info Keyword

To get the Info keyword in the command line type **Info** in the command line.

### Description

Info is a function keyword to add or display user info to an object.

If text is included to the command, this will be set as the info for the objects. If no text is included to the command, existing info will be displayed in the Info window and the Commandline Feedback window.

### Syntax

**Info [Object-list] "Some info to add"**

**Info [Object-list]**

### Examples

- To add a info to group 3 type in the command line:

```
Info Group 3 "these fixtures are in the backtruss"
```

- To get the info of group 3 displayed in the command line feedback window type in the command line:

```
Info Group 3
```

## 44.3.131. Insert Keyword

To get the Insert keyword in the command line press **Move Move Move** (= Insert).

You can also type Insert or the shortcut Ins in the command line.

### Description

The Insert keyword is a function keyword to insert pool objects between two other already taken pool objects. The following pool objects will be moved to the next empty destination.

When the Insert keyword is in the command line by pressing **Move Move Move**, you can insert pool objects by drag and drop.

### Syntax

**Insert** [Object-list] **At** [Destination Start-ID]

### Example

- To insert Group 5 between Group 9 and 10 type in the command line:

```
[Channel]> Insert Group 5 At 9
```

## 44.3.132. Interleave keyword

To execute the keyword Interleave, type **Interleave** or the shortcut **Int** into the command line.

### Description

Interleave is used to set ranges in the MAticks or to create a virtual array of the fixtures selected.

The keyword Interleave is a synonym for the keyword MAticksInterleave.

For more information see [MAticksInterleave](#).

### Syntax

**Interleave** [Number]

### Example

```
[Channel]> Interleave 10
```

If you selected from fixture 11 to 100, pressing the key **Next** selects fixture 11, 21, 31 etc.

## 44.3.133. Invert Keyword

### Description

Invert is a function to invert the selection status of fixtures.

Invert acts on the selected fixtures. If a fixture is selected it will be deselected. If a fixture is not selected it will be selected.

If no selection list is given invert will work on all fixtures and channels.

### Syntax

#### **Invert [Selection-list]**

### Example

Let's say Fixture 1, 3 and 5 was already selected and you will get a selection with Fixture 2, 4 and 6.

A screenshot of a terminal window with a dark green background and a yellow border. It shows a yellow cursor icon followed by the text "[Channel]> Invert Fixture 1 Thru 6".

```
[Channel]> Invert Fixture 1 Thru 6
```

## 44.3.134. InviteStation Keyword

To get the InviteStation keyword in the command line type **InviteStation** or one of the shortcuts **IS** or **Invi** in the command line.

### Description

InviteStation is a function keyword to bring other stations into the session.

InviteStation asks stations on the list to join the session. If they accept the invitation, your show file will be uploaded to them and they will become part of the session.

### Syntax

#### **InviteStation [Station-list]**

### Examples

- To invite the station with IP-address 192.168.0.10 type in the command line:

```
[Channel]> InviteStation 192.168.0.10
```

- To invite the station with Host ID 10 on your network type in the command line:

```
[Channel]> InviteStation 10
```

- To invite all stations on your network type in the command line:

```
[Channel]> InviteStation Thru
```

## 44.3.135. Item3D keyword

To enter the keyword into the console, type **Item3D** or the shortcut **It** into the command line.

### Description

Item3D is an object keyword used to modify 3D objects in grandMA 3D.

For more information see [3D objects](#).

### Syntax

**[Assign] Item3D [ID]**

**[Delete] Item3D [ID]**

### Example



Deletes all unused 3D objects in a show.

## 44.3.136. JoinSession Keyword

To get the JoinSession keyword in the command line type **JoinSession** or one of the shortcuts **J** or **JS** in the command line.

### Description

JoinSession is a function used to join or create a session. If no option is given the recent entered settings in the MA Network Control will be used.

### Syntax

**JoinSession / [option] = [option value]**

### Options

To get a list of all available options to the JoinSession keyword, type in the command line:

```
[Channel]> JoinSession /?
```

The JoinSession keyword has the following options:

Option	Option Shortcut	Option Value	Examples	Description
password	pw	"1234"		Enters the session password.
sessionnumber	s	"1"		Enters the session number.
sessionname	n	"FOH"		Enters the session name.

### Example

To join session called FOH with the session name and the password 1235 type in the command line:

```
[Channel]> JoinSession /s="1" /n="FOH" /pw="1235"
```

## 44.3.137. Kill Keyword

To get the Kill keyword in the command line press **Top Top** (= Kill).

You can also type **Kill** or the shortcut **K** in the command line.

### Description

Kill is a Go+ function that additionally will turn off all other executor objects. Kill works as an ordinary Go+ function on the executors it is applied, but will additionally send an Off command to all other executors - if they are not protected by kill protect - function (see Assign executor menu).

### Syntax

**Kill [Executor-list] /[Option] = [Option Value]**

### Options

To get a list of all available options to the Kill keyword type in the command line:

```
[Channel]> Kill /?
```

The Kill keyword has the following options:

Option	Option Shortcut	Option Value	Option Value Shortcut	Description
cue_mode	cm	Normal	N	Normal Kill mode.
cue_mode	cm	Assert	A	Kill with assert in the original timing.
cue_mode	cm	XAssert	XA	Kill with assert in the cuetiming of current cue.
cue_mode	cm	Release	R	Kill finishes the fade-in and switches the executor off.
userprofile	upr	"Name of the user profile", e.g. "Klaus"	not available	Normal Kill mode with specified user profile.

### Example

To go to next cue on executor 1 and turn off other executors type in the command line:

```
[Channel]> Kill Executor 1
```

## 44.3.138. Label Keyword

To get the Label keyword in the command line press **Assign** **Assign** (= Label).

### Description

Label is a function used to give names to objects.

If multiple objects are labeled, and the name contains a free-standing number, the number will be enumerated for each object.

If no name is given, you will be prompted with a dialog to enter the name.

### Syntax

**Label [Object-list] "Name"**

For more information on quotes see [Special Characters - Quotes](#).

### Examples

To label group 4 as "All Studiocolors" type in the command line:

```
[Channel]> Label Group 3 "All Studiocolors"
```

To label Fixture 1 thru 10 as "Mac700 1", "Mac700 2" an so on type in the command line:

```
[Channel]> Label Fixture 1 Thru 10 "Mac700 1"
```

To rename the color-preset "Red" to "Dark Red" type in the command line:

```
[Channel]> Label Preset "color"."Red" "Dark Red"
```

## 44.3.139. Layer Keyword

To get the Layer keyword in the command line type **Layer** or the shortcut **Laye** in it.

### Description

Layer is a function keyword to change the working layer of the attribute encoders.

The layer can be called by its name or by its layer ID (1-9).

Layer ID	Layer Name
1	Value
2	Fade
3	Delay
4	EffectForm
5	EffectSpeed
6	EffectSpeedgroup
7	EffectLow
8	EffectHigh
9	EffectPhase
10	EffectWidth
11	EffectFade
12	EffectDelay
13	EffectAttack
14	EffectDecay
15	EffectID

### Syntax

**Layer [layer ID]**

**Layer [layer name]**

### Examples

To switch the encoder to adjust delaytime layer type in the command line:

```
[Channel]> Layer 3
```

To switch the encoders to adjust EffectForm layer type in the command line:

```
[Channel]> Layer EffectForm
```

## 44.3.140. Layout Keyword

To get the Layout keyword in the command line press **MA** + **Group** (= Layout).

You can also type **Layout** or the shortcut **Lay** in the command line.

### Description

**Layout** is an object-type representing a layout of fixtures and other objects.

The default function for Layout objects is Select. This means that calling Layouts without any function specified selects the Layout, and any Layout Views with **Link Selected** enabled shows this Layout.

### Syntax

#### Layout [ID]

### Examples

To select Layout 3 for display in the Layout View, type in the command line:

```
[Channel]> Layout 3
```

To create Layout 5 and add the fixture selection to this layout, type in the command line:

```
[Channel]> Store Layout 5
```

To add Group 5 as a button in Layout 4, type in the command line:

```
[Channel]> Assign Group 5 Layout 4
```

To add the selected bitmap effect to Layout 1, type in the command line:

```
[Channel]> At Layout 1
```

## 44.3.141. Learn Keyword

This page describes the syntax and how to use the learn command.

To go to the learn command press **Learn** on the console.

Learn is in the command line now.



### Description

With the learn command you set the speed by tapping for:

- Chaser
- Effects
- Master rate
- Master speed

### Syntax

#### **Learn [Object-list]**

### Examples

Here are a few examples how you can use the learn command.

#### Example 1

Let's assume you will set the speed of a chaser.

Press and hold **Learn** and press the executor button of the chaser several times in that speed you like to have it.

The chaser learns the speed of the tapping of the executor button.

#### Example 2

Let's assume you will set the speed of an effect.

Press and hold **Learn** and press the executor button of the effect several times in that speed you like to have it.

The effect learns the speed of the tapping of the executor button.

#### Example 3

Let's assume you will set the speed of the master rate.

Press and hold **Learn** and press the executor button of the master rate several times in that speed you like to have it.

The master rate learns the speed of the tapping of the executor button.

## 44.3.142. LeaveSession Keyword

To get the LeaveSession keyword in the command line, type **LeaveSession** or one of the shortcuts **LS** or **Le** in the command line.

### Description

The LeaveSession keyword is a function keyword to leave the current session.

### Syntax

#### LeaveSession

### Example

- To leave the current session, type in the command line:



```
[Channel]> LeaveSession
```

## 44.3.143. List Keyword

To go to the List keyword press and hold **MA** + **List**.

You can also type **List** or the shortcut **Li** in the command line.

### Description

The List keyword displays show data in the command line feedback window.

You can list:

- Cues of the selected executor
- Groups
- Presets
- Messages

If the list does not specify any object-type the data from the current destination will be displayed.

The List keyword is a function keyword.

### Syntax

#### List [Object-list] / [Option]= [Option Value]

### Options

To get a list of all available option to the List keyword, type in the command line:



```
[Channel]> List /?
```

Option	Option Shortcut	Option Value	Description
condition	cmd	See Messages command.	The option condition is only valid in combination with the <a href="#">Messages command</a> .

## Examples

- To list all cues of the selected executor in the command line feedback window type in the command line:

```
[Channel]> List Cue
```

- To list the first ten groups of the groups pool in the command line feedback window type in the command line:

```
[Channel]> List Group Thru 10
```

- To list all attribute names existing in the show file in the command line feedback window type in the command line:

```
[Channel]> List Attribute
```

- To list all color presets starting with the letter m in the command line feedback window type in the command line:

```
[Channel]>List Preset "color". "m*"
```

- or -

```
[Channel]>List Preset 4. "m*"
```

## 44.3.144. ListEffectLibrary Keyword

To get the ListEffectLibrary keyword in the command line, type **ListEffectLibrary** or the shortcut **ListEf** in the command line.

### Description

The ListEffectLibrary is a function keyword to displays the .xml files in effects folder of the selected drive in the command line feedback window.

To change the drive, see [SelectDrive keyword](#).

### Syntax

#### **ListEffectLibrary [filter]**

#### Example

- To list all effect .xml files starting with **My**, type in the command line:

```
[Channel]> ListEffectLibrary "My*"
```

## 44.3.145. ListFaderModules Keyword

To get the ListFaderModules keyword in the command line, type **ListFaderModules** or the shortcut **ListF** in the command line.

### Description

The ListFaderModules keyword is a function keyword to display all available internal and external wings (= executor modules) in the command line feedback window.

### Syntax

#### **ListFaderModules**

#### Example

- To get all available internal and external wings displayed in the command line feedback window, type in the command line:

```
[Channel]> ListFaderModules
```

## 44.3.146. ListLibrary Keyword

To get the ListLibrary keyword in the command line, type **ListLibrary** or the shortcut **ListL** in the command line.

### Description

The ListLibrary keyword is a function keyword to display the fixture type library in the command line feedback window.

### Syntax

#### ListLibrary [filter]

### Example

- To get all fixture types from the fixture type library displayed in the command line feedback window starting with **Martin**, type in the command line:

```
[Channel]> ListLibrary "Martin*"
```

## 44.3.147. ListMacroLibrary Keyword

To get the ListMacroLibrary keyword in the command line, type **ListMacroLibrary** or the shortcut **ListM** in the command line.

### Description

The ListMacroLibrary is a function keyword to displays the .xml files in macro folder of the selected drive in the command line feedback window.

To change the drive, see [SelectDrive keyword](#).

### Syntax

#### ListMacroLibrary [filter]

### Example

- To list all macro .xml files starting with **My**, type in the command line:

```
[Channel]> ListMacroLibrary "My*"
```

## 44.3.148. ListOps Keyword

To get the ListOps keyword in the command line, type **ListOps** or the shortcut **ListO** in the command line.

### Description

The ListOps keyword is a function keyword to get the Ops list in the command line feedback window displayed.

The Ops list displays all oopsable actions.

### Syntax

#### ListOps

### Example

- To get all oopsable actions in the command line feedback window displayed, type in the command line:

A screenshot of a terminal window with a dark green background and a yellow border. On the left, there is a yellow sphere icon. To its right, the text "[Channel]> ListOps" is displayed in white.

## 44.3.149. ListOwner Keyword

To enter the keyword ListOwner into the console, type **ListOwner** or the shortcut **ListOw** into the command line.

### Description

ListOwner is used as a troubleshooting keyword in case of a multi user access conflict. If a multi user access conflict occurs, execute the ListOwner keyword. The ListOwner keyword lists the users currently editing the same in a session and hence causing the conflict.

### Syntax

#### ListOwner

### Example

A screenshot of a terminal window with a dark green background and a yellow border. On the left, there is a yellow sphere icon. To its right, the text "[Channel]> ListOwner" is displayed in white.

The command feedback displays all the owners which to show the reason for the conflict.

## 44.3.150. ListPluginLibrary Keyword

To get the ListPluginLibrary keyword in the command line type **ListPluginLibrary** or the shortcut **ListP** in the command line.

### Description

The ListPluginLibrary is a function keyword to displays the .xml files in the plugins folder of the selected drive in the command line feedback window.

To change the drive, see [SelectDrive keyword](#).

### Syntax

#### **ListPluginLibrary [filter]**

#### Example

- To list all plugin .xml files starting with **My**, type in the command line:

```
[Channel]> ListPluginLibrary "My*"
```

## 44.3.151. ListShows Keyword

To get the ListShows keyword in the command line, type **ListShows** or the shortcut **ListS** in the command line.

### Description

The ListShows keyword is a function keyword to display the show files on the selected drive in the **Command Line Feedback** window.

### Syntax

#### **ListShows [Filter]**

#### Examples

- To get all show files in the command line feedback window displayed, type in the command line:

```
[Channel]> ListShows
```

- To get all show files beginning with f in the command line feedback window displayed, type in the command line:

```
[Channel]> ListShows f*
```

## 44.3.152. ListUpdate Keyword



### Important:

If you enter the ListUpdate keyword in the console, by press and hold **MA** + **Update**, the keyword will be directly executed.

You can also use the command line along with the keyboard and type the word ListUpdate in.

To get the ListUpdate keyword in the command line, press and hold **MA** + **Update**.

You can also type **ListUpdate** one of the shortcut **LU** or **ListUp** in the command line.

### Description

The ListUpdate keyword is a function keyword to get the objects in the command line displayed that can be updated.



### Hint:

Another way to get the objects displayed that can be updated is press **Update** if the Update key is highlighted.

### Syntax

#### ListUpdate

### Example

- To get the objects displays that can be updated if a sequence is running and you have values in the programmer, type in the command line:



```
[Channel]> ListUpdate
```

## 44.3.153. ListUserVar Keyword

To get the ListUserVar keyword in the command line, type **ListUserVar** or the shortcut **ListUs** in the command line.

### Description

The ListUserVar keyword is a function keyword to get the user specific variables and their values in the **Command Line Feedback** window displayed.

### Syntax

#### ListUserVar [Filter]

### Examples

- To get all user specific variables in the command line feedback window displayed, type in the command line:

```
[Channel]> ListUserVar
```

- To get all user specific variables beginning with f in the command line feedback window displayed, type in the command line:

```
[Channel]> ListUserVar f*
```

## 44.3.154. ListVar Keyword

To get the ListVar keyword in the command line, type **ListVar** or the shortcut **ListV** in the command line.

### Description

The ListVar keyword is a function keyword to get the variables and their values in the **Command Line Feedback** window displayed.

### Syntax

#### **ListVar [Filter]**

### Examples

- To get all variables in the command line feedback window displayed, type in the command line:

A screenshot of a terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text "[Channel]> ListVar" is displayed in white.

- To get all variables beginning with f in the command line feedback window displayed, type in the command line:

A screenshot of a terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text "[Channel]> ListVar f\*" is displayed in white.

## 44.3.155. Load Keyword

To get the Load keyword in the command line, press **Goto** **Goto** or type **Load** in the command line.

### Description

The load keyword is a function keyword to prepare an executor to jump with the next press on the big **Go +** key (= [DefGoForward keyword](#)) to a step/cue in an assigned sequence.

### Syntax

**Load [Cue] [ID] Executor] [ID]**

### Example

- To load cue 3 on the selected executor, type in the command line:



Cue 3 is loaded. To indicate that a cue is loaded, a red **Loaded 3** (= Cue 3) starts flashing.



*Selected executor - cue 3 loaded*

## 44.3.156. LoadNext

To execute the keyword LoadNext, type **LoadNext** or the shortcut **LoadN** into the command line.

### Description

LoadNext is a function keyword. If an executor stands in a cue, LoadNext loads the next cue of the sequence selected. Pressing the large key  executes the cue.

### Syntax

#### LoadNext

### Example

A screenshot of a terminal window with a dark green background and a yellow border. It shows a yellow sphere icon followed by the text "[Channel]> LoadNext".

If an executor stands in cue 1, LoadNext loads cue 2. "Loaded 2" starts flashing in red at the bottom of the sequence.

For reference see the [keyword Load](#).

## 44.3.157. LoadPrev keyword

To execute the keyword LoadPrev, type **LoadPrev** or the shortcut **LoadP** into the command line.

### Description

LoadPrev is a function keyword. If an executor stands in a cue, LoadPrev loads the previous cue of the executor selected. Pressing the large key  executes the previous cue.

### Syntax

#### LoadPrev

### Examples

A screenshot of a terminal window with a dark green background and a yellow border. It shows a yellow sphere icon followed by the text "[Channel]> LoadPrev".

If an executor stands in cue 2, LoadPrev loads cue 1. "Loaded 1" starts flashing in red at the bottom of the mini executor.

For reference see the [keyword Load](#) and the [keyword LoadNext](#).

## 44.3.158. LoadShow Keyword

To go to the LoadShow keyword, type **LoadShow** or the shortcut **Loa** in the command line.

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## Description

The LoadShow keyword loads a show from the selected drive. For more information, see [SelectDrive keyword](#).

If the show file does not exist on the selected drive, a new empty show file will be loaded.

If the console is in a session, the show file will be uploaded to all connected stations.

The LoadShow keyword is a function keyword.

## Syntax

**LoadShow "Showname" / [Option]**

## Options

To get a list all available options to the LoadShow keyword, type in the command line:

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. The text in the terminal reads "[Channel]> LoadShow /?".

```
[Channel]> LoadShow /?
```

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The LoadShow has the following options:

Option	Option shortcut	Description
full	f	Clears the following data if from a new show will be loaded. Loads the following data if from an existing show will be loaded. - Show data - Global Settings - Network Protocols - User Profiles - Time Config - Local Settings - Network Config
globalsettings	g	Clears the global settings if from a new show will be loaded. Loads the global settings if from an existing show will be loaded.
localsettings	l	Clears the local settings if from a new show will be loaded. Loads the local settings if from an existing show will be loaded.
network	n	Clears the network configuration if from a new show will be loaded. Loads the network configuration if from an existing show will be loaded.
noconfirm	nc	Suppress the warning pop-up that asks if you want to save the show file first.
nodata	No shortcut available	Keeps the current show data in the new show (column one in the setup).
nosave	ns	Does not save the current show file.
protocols	p	Clears the network protocols if from a new show will be loaded. Loads the network protocols if from an existing show will be loaded.
save	s	Saves the current show file.
timeconfig	t	Clears the time config.
user	u	Clears the user profiles.

## Examples

- To load the show file with the file name "Macbeth", type in the command line:

```
[Channel]> LoadShow "Macbeth"
```

- To load the show file with the file name "Macbeth" and clear the
  - Show data
  - Global Settings
  - Network Protocols
  - User Profiles
  - Time Config
  - Local Settings
  - Network Config ,type in the command line:

```
[Channel]> LoadShow "Macbeth" /full
```

## 44.3.159. Locate Keyword

To get the Locate keyword in the command line, type **Locate** or the shortcut **Loca** in the command line.

### Description

The locate keyword is a function keyword to locate assigned objects on executors. The page will change to that page where the object is assigned and a HERE is displayed.

To turn locate off, repeat the Locate keyword with no object.

### Syntax

**Locate [Object]**

**Locate**

### Example

- To locate sequence 1 and see where it is assigned, type in the command line.

```
[Channel]> Locate Sequence 1
```



*Executor with located sequence 1*

## 44.3.160. Lock Keyword

To get the Lock keyword in the command line, type **Lock** or the shortcut **Loc** in the command line.

### Description

The lock keyword is a function keyword to lock objects.

A locked object is indicated by a **yellow lock icon** . A locked cue is indicated by a **black background** and a **red font** in the sequence executor sheet. A locked executor or sequence is indicated by a **red executor number** or **red sequence number** in the [mini executor bar](#).

A locked object can not be changed or deleted.

### Syntax

**Lock [Object-list]**

**Lock Off [Object-list]**

### Example

- To lock cue 3 of the selected executor, type in the command line:

```
 [Channel]> Lock Cue 3
```

## 44.3.161. Login Keyword

To get the Login keyword in the command line, type **Login** or the shortcut **Log** in the command line.

### Description

The Login keyword is a function keyword to login another user.

### Syntax

**Login**

**Login "User-name" "password"**

### Example

To logout the current user and login as user Jimmy Page with the password mac, type in the command line:

```
 [Channel]> Login "Jimmy Page" "mac"
```

## 44.3.162. Logout Keyword

To get the Logout keyword in the command line, type **Logout** or the shortcut **Logo** in the command line.

### Description

The logout keyword is a function keyword to logout the current user and change to the guest user.

### Syntax

#### Logout

### Example

To logout the current user and change to the guest user, type in the command line:

A terminal window with a dark green background and a yellow cursor. The text "[Channel]> Logout" is displayed in white.

## 44.3.163. Lua Keyword

To execute the keyword Lua, type **Lua** into the command line.

### Description

This keyword helps to execute commands written in the script language Lua.

After entering Lua into the command line, type in the script language Lua version 5.3. The grandMA2 will directly execute the commands written in Lua.

### Syntax

#### Lua "gma.feedback('text')"

### Example

A terminal window with a dark green background and a yellow cursor. The text "[Channel]> Lua "gma.feedback('hello world')"" is displayed in white.

"hello world" is displayed in the command line feedback in yellow.

For more information see [Plugins](#).

## 44.3.164. Macro Keyword

To go to the Macro keyword, press **Macro**.

You can also type **Macro** in the command line or the shortcut **Ma**.

## Description

The **Macro** keyword is an object keyword access Macros.

The default function for macro is **Go +**. This means calling macros without any function specified starts the macro.

For more information, see [Macros](#).

## Syntax

**[Function] Macro [ID]**

**[Function] Macro [Macro-pool]. [ID].[macro-line]**

**Assign Macro [Macro-pool]. [ID].[macro-line] / [Parameter] = [Parameter Value]**

## Parameter

The following table displays the assignable parameters for the **macro object** via the command line.

Parameter	Parameter Value	Description
Name	"Macro name"	Assign the macro name.
CLI	"On", "Off"	Assign if the command line interacts with the macro or not.
Timing	"On", "Off"	Assign if the macro follows the timing or not.
Info	"Information Text"	Assign additional information to the macro object.

The following table displays the assignable parameters for the **macro lines** via the command line.

Parameter	Parameter Value	Description
CMD	"A valid command"	Assign the command executed by the macro line.
Wait	"Go", "Follow", "0.000 - 9999.000"	Assign a delay time or a go or follow after the macro line is executed.
Info	"Information Text"	Assign additional information to the macro line.
Disabled	"Yes", "No"	Assign if the macro line is disabled or not.

## Examples

- To start macro 5, type in the command line:

```
[Channel]> Macro 5
```

- To set the wait time of macro 3 line 4 to go, type in the command line:

```
[Channel]> Assign Macro 1.3.4 /wait="Go"
```

- To store a new empty macro 2, type in the command line:

```
[Channel]> Store Macro 2
```

## 44.3.165. ManualXFade keyword

To enter the keyword ManualXFade, type **ManualXFade** or the shortcut **Man** into the command line.

### Description

ManualXFade activates the cross fade function in a cue – a green marker appears.

The green marker starts flashing if cross fade is active.

For more information see [Time control](#).

### Syntax

**[Function]+[Object]+[Number] ManualXFade**

### Example

```
[Channel]> ManualXFade On SpecialMaster 2.3
```

Activates the ManualXFade in the special master Executor Time.

## 44.3.166. Mask Keyword

To execute the keyword Mask press and hold

**MA** and **Group** **Group** **Group** or type **Mask** into the command line.

### Description

The Mask keyword is an object keyword to access Masks in the Mask pool. The default function is [Select](#).

For more information, see [worlds, filters, and masks](#).

### Syntax

**[Function] Mask [ID]**

Examples:

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. The text in the terminal is "[Channel]> Mask 3".

Selects mask 3 in the mask pool.

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. The text in the terminal is "[Channel]> Mask \"My Mask\"".

Selects mask with the name "My Mask".

## 44.3.167. Master Keyword

To get the Master keyword in the command line, type **Master** or the shortcut **Mas** in the command line.

### Description

The Master keyword is a function keyword to assign an executor the function master. Master is a function that will scale the output of intensity-values of an executor, according to the position of the fader.

### Syntax

#### Assign Master (At) [Object-list]

### Example

- To assign executor 28 as a master, type in the command line:

```
[Channel]> Assign Master Exec 28
```

## 44.3.168. MasterFade Keyword

To get the MasterFade keyword in the command line, type **MasterFade** or the shortcut **MasterF** in the command line.

### Description

The MasterFade keyword is an object keyword to assign executors as a master fade. A master fade controls the on and off fade time of chasers and effects. It also controls the off fade time for executors.

### Syntax

#### [Function] MasterFade

### Example

- To assign executor 28 as a master fade, type in the command line:

```
[Channel]> Assign MasterFade Exec 28
```

## 44.3.169. MAtricks Keyword

To get the MAtricks keyword in the command line type **MAtricks** or the shortcut **MA** in the command line.

Syntax

**MAtricks [ID]**

**MAtricks On**

**MAtricks Off**

**MAtricks Toggle**

Description

The MAtricks keyword acts as an object type and as a mode.

Used with an ID, MAtricks represents MAtricks objects stored in the MAtricks pool.

With the helping keywords On, Off and Toggle, MAtricks may temporary be enabled/disabled. Calling an MAtricks will enable the MAtricksmode.

For more information on MAtricks see [MAtricks](#).

Examples

- To store the current MAtricks settings as MAtricks 2 in the MAtricks pool type in the command line:

```
[Channel]> Store MAtricks 2
```

- To recall the MAtricks settings stored in MAtricks 3 type in the command line:

```
[Channel]> MAtricks 3
```

- To temporary disable the MAtricks mode type in the command line:

```
[Channel]> MAtricks Off
```

## 44.3.170. MATricksBlocks Keyword

To get the MATricksBlocks keyword in the command line type **MATricksBlocks** or one of the shortcuts **MB** or **MATricksB** in the command line.

### Description

MATricksBlocks is a function to set the MATricks Blocks values.

With the function MATricksBlocks, x fixtures are treated as one block when aligning or sub selecting.

For more information on MATricks see [MATricks](#).

### Syntax

**MATricksBlocks [block-size]**

**MATricksBlocks [block-size x].[block-size y]**

**MATricksBlocks + x | - x**

**MATricksBlocks Off**

### Examples

- To set the block size 2 columns wide type in the command line:

```
[Channel]> MATricksBlocks 2
```

- To set the block size 2 columns wide and 3 rows high (if MATricksInterleave is active) type in the command line:

```
[Channel]> MATricksBlocks 2.3
```

## 44.3.171. MATricksFilter Keyword

To get the MATricksFilter keyword in the command line type **MATricksFilter** or one of the shortcuts **MF** or **MATricksF** in the command line.

### Description

MatricksFilter is a function keyword to set the Matricks filter values.

With the function MatricksFilter, fixtures of the current selection that matches the given filter, will be sub selected.

For more information see [MATricks](#).

### Syntax

**MatricksFilter [filter number]**

**MatricksFilter "filter name"**

**MatricksFilter + | -**

**MatricksFilter Off**

### Examples

- To select the second filter (EvenID), only Channels/fixtures with last digit 2/4/6/8/0 will be actively selected type in the command line:

```
[Channel]> MF 2
```

- To select the "OddID" filter, only channels/fixtures with last digit 1/3/5/7/9 will be actively selected type in the command line:

```
[Channel]> MatricksFilter "OddID"
```

## 44.3.172. MATricksGroups Keyword

To get the MATricksGroups keyword in the command line type **MATricksGroups** or one of the shortcuts **MG** or **MATricksG** in the command line.

### Description

MATricksGroups is a function keyword to set the Align Groups.

With the MATricksGroups function the distribution of aligned values may be limited to n fixtures, for then to be repeated.

For more information see [MATricks](#).

### Syntax

MATricksGroups [group size]

MATricksGroups [group size x].[group size y]

MATricksGroups + x | - x

MATricksGroups Off

### Examples

- To set the aligning for four fixtures always type in the command line:

```
[Channel]> MATricksGroups 4
```

- To repeat the aligning for every sixth column an every third row of an interleave array type in the command line:

```
[Channel]> MATricksGroups 6.3
```

## 44.3.173. MATricksInterleave Keyword

To get the MATricksInterleave keyword in the command line type **MATricksInterleave** or one of the shortcuts **MI** or **MATricksI** in the command line.

### Description

MatricksInterleave is a function keyword to create a virtual array of the fixture selection.

With the function MatricksInterleave the selection is wrapped onto a new row for every n'th fixture, creating a virtual array.

For more information see [MATricks](#).

### Syntax

**MATricksInterleave [array width]**

**MATricksInterleave [column],[array width]**

**MATricksInterleave + | -**

**MATricksInterleave Off**

### Examples

- To select the first column of a 2 column wide array = first of every second fixture = "Odd" type in the command line:

```
[Channel]> MatricksInterleave 1.2
```

- To increase the array width type in the command line:

```
[Channel]> MatricksInterleave +
```

## 44.3.174. MAtricksReset Keyword

To get the MAtricksReset keyword in the command line, type **MAtricksReset** or one of the shortcuts **MR** or **MAtricksR** in the command line.

### Description

The MAtricksReset is a function keyword to turn off all active MAtricks settings.

### Syntax

#### **MAtricksReset**

### Example

- To turn off all active MAtricks settings, type in the command line:

```
[Channel]>MAtricksReset
```

## 44.3.175. MAtricksWings Keyword

To get the MAtricksWings keyword in the command line type **MAtricksWings** or one of the shortcuts **MW** or **MAtricksW** in the command line.

### Description

MAtricksWings is a function keyword to set the MAtricks Wings value.

With the MAtricksWings the fixture selection is splitted in x parts and each part is mirroring the previous part.

For more information see [MAtricks](#).

### Syntax

#### **MAtricksWings [parts]**

#### **MAtricksWings + | -**

#### **MAtricksWings Off**

### Example

To divide the fixture selection in two parts and the second part mirrors the adjusted values type in the command line:

```
[Channel]> MAtricksWings 2
```

## 44.3.176. MediaServer keyword

To enter the keyword, type **MediaServer** or the shortcut **Med** into the command line.

### Description

The keyword MediaServer is an object keyword and is used in connection with CTP.

For more information see [Streaming CTP](#).

### Syntax

**[Function] [Object-list] MediaServer [Number]**

### Example

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow circular icon. The text in the terminal reads: [Channel]> Change Destination MediaServer 1

Changes the destination of the media server 1 in CTP.

## 44.3.177. Menu Keyword

To go to the **Menu** keyword type Menu or the shortcut **Men** in the command line.

### Description

With the Menu keyword you can open and close menus. If the Menu keyword is used without an On or Off keyword, it toggles.

### Syntax

**Menu [On or Off keyword] "[menu name]" / [option]**

### Options

To get the list of the available options to the Menu keyword in the command line feedback window, type in the command line:

```
[Channel]> Menu /?
```

The Menu keyword has the following options:

Option	Shortcut	Description
list	li	Lists all menus you can open by using the Menu keyword.
reset	r	Switches all dialogs back to their default screen. For more information, see <a href="#">encoder settings</a> .

### Examples

- Open the Setup.

```
[Channel]> Menu "setup"
```

The Setup opens.

- 
- List all menus you can open by using the Menu keyword.

```
[Channel]> Menu /list
```

The command line feedback window lists all menu you can open by using the Menu keyword.

## 44.3.178. Message Keyword

To get the **Message** keyword in the command line, type **Message** or the shortcut **Mes** in the command line.

### Description

The **Message** keyword is a function keyword to create **Messages** in the system monitor.

This is useful if you want to export the system monitor as an .xml file and you will set specific markers in the system monitor.

### Syntax

**Message "message text"**

### Example

- To enter in the system monitor a message "test marker 1", type in the command line:

A screenshot of a terminal window with a dark green background and a yellow cursor. The text "[Channel]> Message \"test marker 1\"" is displayed in white.

## 44.3.179. Messages Keyword

To get the **Messages** keyword in the command line, type **Messages** in the command line.

### Description

With the **Messages** keyword you can

- list messages in the command line feedback window.
- export messages as a messages.xml file.
- delete messages from the message center, for example, from previous show files.

For more information to export files, see [general export function](#).

The **Messages** keyword is an object keyword.

### Syntax

**[Function] Messages / Condition = [Condition] [Operation Syntax] [Condition Value]**

### Conditions

The **Messages** keyword can only be used with the option **condition**. The short cut for condition is **cnd**.

The following table displays the supported condition values.



**Important:**

String comparison with wild cards are possible. Values are case-insensitive.

Condition	Condition Value
"new", "unread"	'true', 'false', 'yes', 'no'  'YYYY-MM-DDThh:mm:ss', 'YYYY-MM-DD', 'hh:mm:ss'
"time" (= message receive time)	When the date is used standalone, the time will be set to 00:00:00, for example, 2016-03-20T00:00:00.  When the time is used standalone, the date of today will be set, for example, 2016-03-20T12:05:00.
"sender"	message sender user profile name
"station"	message sender station IP + type
"msg"	message
"type" (= message type)	'Info', 'Warning', 'Alert', 'Error'
"cat" (= message category)	'General', 'Power', 'Network', 'Show', 'Chat', 'CITP', 'RDM',  'Backup Server', 'Blind', 'CITP Traffic', 'DMX Tester Output', 'Exec CLI', 'Filter', 'Highlight', 'IP Conflict', 'Macro', 'Masters', 'Missed Stations', 'Network', 'Parameters', 'Parked', 'Patch', 'Power', 'Preview', 'RDM Alert', 'Session', 'Solo', 'Stage', 'Timecode(MIDI)', 'Timecode(SMPTE)', 'Unassigned Ports', 'World', 'Global Autofix', 'Exec. Time', 'Prog. Time', 'Rate 1', 'Speed 1', 'Default Go', 'RDM Warning'
"subcat" (= message subcategory)	

The following table displays the supported operation syntax via command line.



**Important:**

If you use operation syntax, the operation has to be surrounded by spaces.

"condition1 = 'conditionvalue1'"

Operation	Syntax
and	"and", "&"
or	"or", " "
not	"not", "!"

Operation	Syntax
greater (only for condition time and type)	">"
less (only for condition time and type)	"<"
greater or equal (only for condition time and type)	">="
less or equal (only for condition time and type)	"<="
equal (only for condition time and type)	"="

## Examples

- List all messages in the command line feedback window, with the condition type and condition value alert.

```
[Channel]> List Messages /cnd = "type = 'alert'"
```

- Export all warning, alert, and error messages before 12:45 as a messages.xml.

```
[Channel]> Export Messages /cnd="(type >= 'warning' or time <= '12:45:00') and !  
(new = 'true')"
```

- Delete all alert messages from the message center.

```
[Channel]> Delete Messages /condition="type = 'alert'"
```

## 44.3.180. MidiControl Keyword

To get the MidiControl keyword in the command line, type **MidiControl** in the command line or the shortcut **MidiC**.

### Description

The MidiControl keyword is a function keyword to transmit MIDI control change messages via the MidiOut port.

If no MIDI channel is given, the MIDI channel of the MIDI Show Control in the Setup is used.

### Syntax

**MidiControl [controller] [value]**

**MidiControl [midichannel].[controller] [value]**

### Example

- To transmit a value of 64 for controller 1, type in the command line:



## 44.3.181. MidiNote Keyword

To use to the MidiNote keyword, type **MidiNote** or the shortcut **Mn** in the command line.

### Description

With the MidiNote command, you send MIDI Note messages via the Midi Out port at the back of the console. For more information, see [Device Overview](#).

If a MIDI channel is entered in the command, the entered MIDI channel will be used.

If no MIDI channel is entered, the MIDI channel in the **Setup -> Midi Show Control** is used.

If a velocity is entered in the command, the entered velocity will be used.

If no velocity is entered, a velocity full (127) will be used.

If the Off command is used, a MidiNote Off is sent.



#### Hint:

Double-check the sent MIDI Notes in the **Setup -> Midi Show Control**.

For more information, see [What is MIDI Show Control \(MSC\)](#).

### Syntax

**MidiNote [note]**

**MidiNote [midichannel] . [note]**

**MidiNote [note] [velocity]**

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MidiNote [midichannel] . [note] [velocity]

MidiNote [note] Off

MidiNote [midichannel] . [note] Off

MidiNote [note] [velocity] Off

MidiNote [midichannel] . [note] [velocity] Off

Example

Let's assume, you will send a MIDI note on a specific cue to trigger a sound station.

## Requirements:

- Connected sound station device e.g. computer on the MIDI Out connector.
- Stored cue in a sequence on an executor.

Open the sequence executor sheet and type in the CMD (= command) column the following syntax: **MidiNote 12**

Sequence		E: 1. 6		S: Look 3		Info	CMD	Times	All	Link Selected	Auto Scroll
Number	Delay	Out Delay	Snap Percent	MIB	Mode	AE	CMD				
1				*			MidiNote 12				

*Sequence Sheet with MidiNote command*

The MIDI note will be send if the cue is executed and will trigger the connected sound station.

## 44.3.182. MidiProgram Keyword

To get the MidiProgram keyword in the command line, type **MidiProgram** in the command line or the shortcut **MidiP**.

### Description

The MidiProgram keyword is a function keyword to transmit MIDI program change messages via the MidiOut port.

If no MIDI channel is given, the MIDI channel of the MIDI Show Control in the Setup is used.

### Syntax

**MidiProgram [program]**

**MidiProgram [midichannel],[program]**

### Examples

- To transmit a program change of 12.

```
[Channel]> MidiProgram 12
```

## 44.3.183. Model Keyword

To get the Model keyword in the command line, type **Model** or the shortcut **Mod** in the command line.

### Description

The Model keyword is an object keyword to access 3D models.

### Syntax

**[Function] Model**

### Examples

- To list all 3D model of the show file in the command line feedback window, type in the command line:

```
[Channel]> List Model
```

- To assign a 3D model to a fixture, type in the command line:

```
[Channel]> Assign Model 2 At Item3d 10
```

## 44.3.184. Move Keyword

To get the Move keyword in the command line, press **Move**.

You can also type **Move** or the shortcut **Mo** in the command line.

### Description

The Move keyword is a function keyword to move objects and give them new object ID.

If the destination is already taken, the moved object and the destination object will swap.

### Syntax

**Move [Object-list] At [Object-list]**

### Example

- To move group 5 at group 9, type in the command line:

```
[Channel]> Move Group 5 At 9
```

## 44.3.185. Move3D Keyword

To go to the Move3D keyword, type **Move3D** in the command line or use the shortcut **Move3**.

### Description

The Move3D keyword moves 3D objects in the [Stage View](#).

If the Move3D keyword is used without values, the selected fixtures will be reset to zero.

If the option relative is used, the move function uses the relative position.

Move3D is a function keyword.

### Syntax

**Move3D At [x y z] /relative**

### Example

Move the selected 3D object in the [Stage View](#).

```
[Channel]> Move3D At 2.5 -5 3.3
```

## 44.3.186. NetworkInfo Keyword

To get the NetworkInfo keyword in the command line, type **NetworkInfo** or the shortcut **Net** in the command line.

## Description

The NetworkInfo keyword is a function keyword to display information about the network in the command line feedback window.

## Syntax

**NetworkInfo / [Option] = [Option Value]**

## Options

To get a list of all available option to the NetworkInfo keyword, type in the command line:

```
[Channel]> NetworkInfo /?
```

Option	Option Shortcut	Option Value	Description
number	g	No option value.	Displays only the devices in my session.
type	t	Undefined	Displays only undefined devices.
type	t	Console	Displays only consoles.
type	t	NPU	Displays only MA NPUs (Network Processing Unit).
type	t	3D	Displays only MA 3Ds.
type	t	Video	Displays only MA VPUs (Video Processing Unit).
type	t	Node	Displays only MA Nodes.
type	t	NDP	Displays only NDPs (Network Dimmer Processor).
type	t	Remote	Displays only MA Remotes.
type	t	Bridge	Displays only bridges.
type	t	Switch	Display only MA Network Switches.
ipv4	No option shortcut available.	No option value.	Displays the ipv4 addresses in the command line feedback window.
ipv6	No option shortcut available.	No option value.	Displays the ipv6 addresses in the command line feedback window.

## Example

- To get information about the network, type in the command line:

```
[Channel]> NetworkInfo
```

The network info is displayed in the command line feedback window.

```
Command Line Feedback
Executing : NetworkInfo
Sessions:
  15 FWD [Fast]
Console :
[x64 Connected ] FWD Light      172.16.14.9    1000 Mbits S=15. 0 3431 MB ETH1:2.250.173.17
[x64 Master    ] FWD Fullsize   172.16.14.10  1000 Mbits S=15. 1 3440 MB ETH1:2.7.82.156 R
[x64 Connected ] FWDSchreibtisch 172.16.14.1    1000 Mbite S=15.30 8123 MB ETH1:10.0.18.162
```

Command Line Feedback Window - NetworkInfo

## 44.3.187. NetworkNodeInfo Keyword

To get the NetworkNodeInfo keyword in the command line, type **NetworkNodeInfo** or the shortcut **NNI** or **NetworkN**.

### Description

The NetworkNodeInfo keyword displays all in the network available MA Nodes in the command line feedback window.

To get only the MA Nodes of the session, use the option **number**.

For more information, see [Configure DMX ports](#).

### Syntax

**NetworkNodeInfo / number**

### Example

- To get information about all in the network available MA Nodes, type in the command line:

```
[Channel]> NetworkNodeInfo
```

```
Command Line Feedback
14h55m57.409s : Executing : NetworkNodeInfo
14h55m57.409s : Visible Network Nodes (Firmware 1.79):
14h55m57.409s :   172.16.14.35(Node)   3.1 Session 15 '2port'
14h55m57.409s :   172.16.14.34(Node)   3.1 Session 15 '2port onPC 1k'
14h55m57.409s :   172.16.14.36(Node)   3.1 Session 15 'Wallmount'
14h55m57.409s :   172.16.14.31(Node)   3.1 Session 15 'Magda'
14h55m57.409s :   172.16.14.33(Node)   3.1 Session 15 'FWD 8-Port'
14h55m57.409s :   172.16.14.32(Node)   3.1 Session 15 'Toll'
```

Command Line Feedback Window - NetworkNodeInfo

## 44.3.188. NetworkNodeUpdate Keyword

To execute the keyword NetworkNodeUpdate, type **NetworkNodeUpdate** or one of the shortcuts **NNU** or **NetworkNodeU** into the command line.

### Description

NetworkNodeUpdate is a function keyword used for the update of the following MA Nodes:

- MA 2Port Node onPC
- MA 2Port Node Pro
- MA 2Port Node Flush Mount

It is also possible to update the ports of the grandMA 1 series via **Setup** – **MA Network Configuration** – **2Port SW Update**.

For more information see [Adding devices to your session](#).



#### Important:

The keyword NetworkNodeUpdate is only used for the MA nodes of the grandMA1 series. To update the xPort nodes of the grandMA2 series use the keyword [UpdateSoftware](#) or see [Update via setup](#).

### Syntax

#### NetworkNodeUpdate

### Example

```
[Channel]> NetworkNodeUpdate
```

Automatically updates all nodes of the grandMA1 series.

## 44.3.189. NetworkSpeedTest Keyword

To get the NetworkSpeedTest keyword in the command line, type **NetworkSpeedTest** or the shortcut **NetworkS** in the command line.

### Description



#### Important:

Do not use the NetworkSpeedTest keyword in show situations. The NetworkSpeedTest keyword blocks all other network traffic and DMX traffic for some seconds.

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The `NetworkSpeedTest` keyword checks the current network performance in the network of the following MA devices in the session:

- grandMA2 consoles
- grandMA2 replay unit
- grandMA2 onPC
- MA 3D
- MA VPU (Video Processing Unit)
- MA NPU (Network Processing Unit)

Use the `NetworkSpeedTest` keyword as a troubleshooting tool. `NetworkSpeedTest UDP` (=User Datagram Protocol) packets will be send at port 29998.

The result of the `NetworkSpeedTest` is displayed in the `MAnet Speed Test` pop-up.

IP	Time	Sequence Errors	Data Errors	Packets Received
172.16.14.10(Cons	0.333 s	0	0	100.000%
172.16.14.9(Conso	0.300 s	0	0	100.000%

*MAnet SpeedTest pop-up*

The console what sends the command is not listed in the `MAnet SpeedTest` pop-up.

In the `MAnet SpeedTest` pop-up are five columns:

## IP:

Displays the IP address of the tested network device.

## Time:

Displays the duration between sending and receiving the packets. In a 1000 Mbit network the time for a console should be 0.1 s.

## Sequence Errors:

Displays of how many packets the order was swapped.

## Data Errors:

Displays how many packets are damaged.

## Packets Received:

Displays the percentage of correctly delivered packages. In a 1000 Mbit network the received packets should be 100%. If this is not the case, the reason could be a bad network connection or an overloaded device.

Syntax

## NetworkSpeedTest / [Option]

Options

To get a list of all available option to the `NetworkSpeedTest` keyword, type in the command line:

```
[Channel]> NetworkSpeedTest /?
```

Option	Option Shortcut	Description
noconfirm	nc	Suppress the danger and warning pop-up.
data	d	Network speed test at UDP port 29999.

## Example

To perform a network speed test of the MA devices in the network for troubleshooting:

1. Type in the command line:

```
[Channel]> NetworkSpeedTest
```

A danger pop-up asks if you really want to perform the network test.

2. Tap **Ok**.

A continue pop-up asks that the network traffic will disrupt for some seconds.

3. Tap **Ok**.

The network speed test will be performed and the MAnet SpeedTest pop-up displays the result.

## 44.3.190. NewShow Keyword

To get the NewShow keyword in the command line, type **NewShow** in the command line or use the shortcut **New**.

### Description

The NewShow keyword is a function keyword to create new shows.

### Syntax

**NewShow "Showname" / [Option]**

### Options

To get a list all available options to the NewShow keyword, type in the command line:

```
[Channel]> NewShow /?
```

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The NewShow has the following options:

Option	Option shortcut	Description
full	f	Clears the: - Show data - Global Settings - Network Protocols - User Profiles - Time Config - Local Settings - Network Config
globalsettings	g	Clears the global settings.
localsettings	l	Clears the local settings.
network	n	Clears the network config.
noconfirm	nc	Suppress the warning pop-up that asks if you want to save the show file first.
nodata	No shortcut available	Keeps the current show data in the new show (column one in the setup).
nosave	ns	Does not save the current show file.
protocols	p	Clears the network protocols.
save	s	Saves the current show file.
timeconfig	t	Clears the time config.
user	u	Clears the user profiles.

## Examples

- To create a new show file with the file name "Macbeth", type in the command line:

```
[Channel]> NewShow "Macbeth"
```

- To create a new show file with the file name "Macbeth" and clear the
  - Show data
  - Global Settings
  - Network Protocols
  - User Profiles
  - Time Config
  - Local Settings
  - Network Config ,type in the command line:

```
[Channel]> NewShow "Macbeth" /full
```

## 44.3.191. Next Keyword



### Important:

If you type the Next keyword in the console, by press the **Next** key, the keyword will be directly executed.

You can also use the command line along with the keyboard and type the word Next in.

To get the Next keyword in the command line and directly execute it, press **Next**.

You can also type **Next** or the shortcut **N** in the command line.

### Description

If no fixtures or channels are selected and the default keyword is Fixture or Channel, the Next keyword selects the fixture with lowest fixture or channel ID.

If only one fixture selected and the default keyword is Fixture or Channel, the Next keyword selects the fixture with the next fixture or channel ID.

If multiple fixtures or channels are selected, the Next keyword selects the next fixture or channel in the selection order.

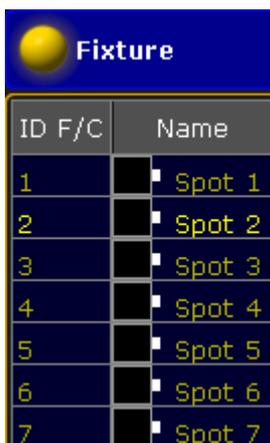
For more information, see [MAticks](#).

### Syntax

#### Next

### Example

- To step thru the fixtures of the fixture selection in the selection order, press **Next**.



ID	F/C	Name
1		Spot 1
2		Spot 2
3		Spot 3
4		Spot 4
5		Spot 5
6		Spot 6
7		Spot 7

*Fixture selection is fixture 1 thru 7, current selected with next is fixture 2*

## 44.3.192. NextRow Keyword

To get the NextRow keyword in the command line type **NextRow** or the shortcut **NextR** in the command line.

If fixtures are selected in the fixture sheet and single y is defined for MAtricks, press and hold  +  to execute NextRow directly.

### Description

NextRow is a function keyword to increase the MAtricks property single y.

If MAtricksInterleave is active, NextRow will increase the MAtricks Single y property, effectively subselecting fixtures row by row.

For more information see [MAtricks](#).

### Syntax

#### NextRow

### Example

To select the first row of 4 fixtures type in the command line:

```
[Channel]> MAtricksInterleave 4
```

```
[Channel]> NextRow
```

## 44.3.193. Normal Keyword



### Important:

If you enter the Normal keyword in the console, by double press the **At** key, the keyword will be directly executed.

You can also use the command line along with the keyboard and type the word Normal in.

To get the Normal keyword in the command line and directly execute it, press **At At**.

You can also type **Normal** or the shortcut **No** in the command line.

### Description

With the Normal keyword you set the dimmer of the fixtures to the defined Normal value.

To change the Normal percent, see [user settings](#).

Normal is an object keyword.

### Example

- To set the dimmer of the selected fixtures to the defined Normal value of 60 percent, press **At At**.

The selected fixtures have a dimmer value of 60 percent in the programmer.

## 44.3.194. Off Keyword

To get the On keyword in the command line press **Off**.

You can also type **Off** or the shortcut **Of** in the command line.

### Description

The Off keyword can be a function keyword or a helping keyword.

With the Off keyword as a function keyword you can:

- Stop an executor.
- Knock out parameters of the programmer.
- Knock out selections of the programmer.
- Knock out active attributes of the programmer.

With the Off keyword as a helping keyword you indicate the end of a temporary function, or the disabled state of a toggling function.

### Syntax

**Off [Object-list]** (function keyword)

**[Function] Off [Object-list]** (helping keyword)

**[Function] Off** (helping keyword)

### Examples

- To knockout the parameters of cue 1 from the selected executor, type in the command line:

```
[Channel]> Off Cue 1
```

- To knockout the parameters of fixture 1 and 3 from the programmer, type in the command line:

```
[Channel]> Off Fixture 1 + 3
```

- To indicate a released flash executor 1.2.4, type in the command line:

```
[Channel]> Flash Off Executor 1.2.4
```

- To turn highlight off, type in the command line:

```
[Channel]> Highlight Off
```

## 44.3.195. On Keyword

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To get the On keyword in the command line press **On** or type **On** in the command line.

## Description

The On keyword can be a function keyword or a helping keyword.

With the On keyword as a function keyword you can:

- Start or restart an executor.
- Activate parameters in the programmer.
- Activate selections in the programmer.
- Activate attributes in the programmer.

With the On keyword as a helping keyword you indicate the start of a temporary function, or the enabled state of a toggling function.

## Syntax

**On [Object-list] / [Option] = [Option Value]** (function keyword)

**[Function] On [Object-list] / [Option] = [Option Value]** (helping keyword)

**[Function] On** (helping keyword)

## Options

To get a list of all available options to the On keyword, type in the command line:



The On keyword has the following options:

Option	Option Shortcut	Option Value	Option Value Shortcut	Description
cue_mode	cm	Normal	N	Normal on mode.
cue_mode	cm	Assert	A	On asserts the original timing.
cue_mode	cm	XAssert	XA	On asserts the cuetiming of current cue.
cue_mode	cm	Release	R	On finishes the fade-in and switches the executor off.
userprofile	upr	"Name of the user profile", e.g. "Dominik"	not available	Normal On mode with specified user profile.

## Examples

- To activate the parameters of cue 1 from the selected executor, type in the command line:

```
[Channel]> On Cue 1
```

- To activate the parameter of fixture 1 and 3 in the programmer, type in the command line:

```
[Channel]> On Fixture 1 + 3
```

- To flash executor 1.2.4, type in the command line:

```
[Channel]> Flash On Executor 1.2.4
```

- To turn highlight on, type in the command line:

```
[Channel]> Highlight On
```

## 44.3.196. Oops Keyword

To get the Oops keyword in the command line, type **Oops** or the shortcut **O** in it.

### Description

The Oops keyword is a function keyword to undo the last:

- Command line actions
- Fixture selections
- Programmer actions

Oops can undo the last 100 actions.

For more information, see [Oops and undo](#).

### Syntax

#### Oops / [Option]

### Options

To get a list of all available option to the Oops keyword, type in the command line:

```
[Channel]> Oops /?
```

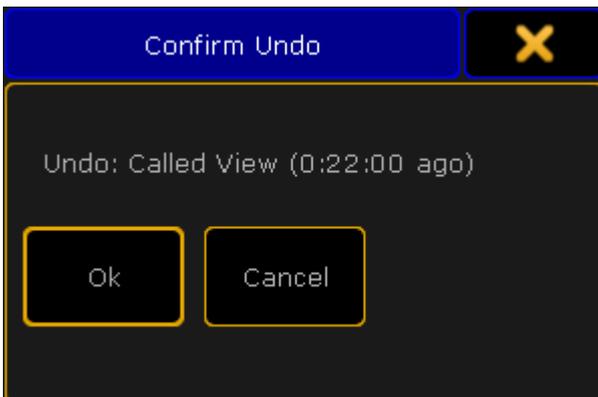
Option	Option Shortcut	Description
noconfirm	nc	Suppress the confirm undo pop-up.
clear	c	Clears the oops list in the oops pop-up.

## Examples

- To undo the recent done action, type in the command line:

```
[Channel]> Oops
```

The confirm undo pop-up opens.



*Confirm undo pop-up*

- To undo the recent done action and suppress the confirm undo pop-up, type in the command line:

```
[Channel]> Oops /noconfirm
```

## 44.3.197. Or keyword

To enter the keyword, type **Or** into the command line.

### Description

Or is a helping keyword and is usually used along with the keyword If.

For more information see [keyword If](#).

### Syntax

**[Function] [Object-list] [If] [Object-list] Or [Object-list]**

### Example

```
[Channel]> Delete Cue 1 If Channel 2 or 3
```

## 44.3.198. OutDelay Keyword

To get the OutDelay keyword in the command line by using the command keys, it is necessary to press another function key before, e.g. **Store** and then press **Time Time Time Time** (= OutDelay).

You can also type **OutDelay** or the shortcut **OutD** in the command line.

### Description

The OutDelay keyword is a helping keyword to either execute an outdelay time, or set an outdelay time.

Out delay is a waiting time for getting smaller dimmer values.

### Syntax

**[Function] OutDelay [Value-list]**

### Examples

- To change to cue 3 after 4 seconds for the selected executor, type in the command line:

```
[Channel]> Goto Cue 3 OutDelay 4
```

- To store cue 3 with an outdelay time of 4 seconds, type in the command line:

```
[Channel]> Store Cue 3 OutDelay 4
```

## 44.3.199. OutFade Keyword

To get the OutFade keyword in the command line by using the command keys, it is necessary to press another function key before, e.g. **Store** and then press **Time Time** (= OutFade).

You can also type **OutFade** or the shortcut **Ou** in the command line.

### Description

The OutFade keyword is a helping keyword to either execute an outfade time, or set an outfade time.

Indicate out fade times for getting smaller dimmer values.

### Syntax

**[Function] OutFade [Value-list]**

### Examples

- To fade out the current cue in 4 seconds, and fade in in cue 3 in 2 seconds, type in the command line:

```
[Channel]> Goto Cue 3 Fade 2 OutFade 4
```

- To store cue 3 with an outfade time of 4 seconds, type in the command line:

```
[Channel]> Store Cue 3 OutFade 4
```

## 44.3.200. Page Keyword

To get the Page keyword in the command line, press **Page**.

You can also type **Page** or the shortcut **Pag** in the command line.

### Description

The Page keyword is an object keyword to access pages. The default function is Call. For more information, see [Call keyword](#).

If you apply a function not supported by the page object, the function will be passed on to the executor child objects of the page.

### Syntax

**[Function] Page [ID]**

**Assign Page / [Parameter] = [Parameter Value]**

## Parameter

The following table displays the assignable parameter by using the command line.

Parameter	Parameter Value	Description
Name	"Page name"	Assign name of the page.
Info	"Page info"	Assign information to the page.

## Examples

- To change to page 5, type in the command line:

```
[Channel]> Page 5
```

- To pause all executors on page 3, type in the command line:

```
[Channel]> Pause Page 3
```

- To assign an information to page 3, type in the command line:

```
[Channel]> Assign Page 3 / Info = "This are all my executors on page 3"
```

- To call a page by using the page name, type in the command line:

```
[Channel]> Page "song name"
```

### 44.3.201. Park Keyword

To get the Park keyword in the command line, press **Pause** **Pause** (= Park).

You can also type **Park** in the command line.

## Description

The Park keyword is a function keyword to lock DMX output values of attributes. You can also lock DMX output values of a fixture selection, or group of attributes for the current selection.

If no value is given, the attribute is parked at current value.



### Hint:

Parked DMX channels are indicated by a blue marker. For more information, see [marker colors](#).



**Hint:**

To unpark previous parked values, use the [Unpark keyword](#).

## Syntax

**Park [Selection-list] (At [Value])**

**Park [Attribute-list] (At [Value])**

## Examples

- To park the current values of fixture 5, type in the command line:

```
[Channel]> Park Fixture 5
```

- To park the pan attributes of the fixture selection, type in the command line:

```
[Channel]> Park Attribute "pan"
```

- To park channel 1 through 10 at 100 %, type in the command line:

```
[Channel]> Park Channel 1 Thru 5 At 100
```

- To park DMX channel 1.2 type in the command line:

```
[Channel]> Park DMX 1.2
```

### 44.3.202. Part Keyword

To get the Part keyword in the command line, press **Cue** **Cue** (= Part).

You can also type **Part** or the shortcut **P** in the command line.

## Description

The Part keyword is an object keyword to segment cues in parts.

Parts are useful to assign and edit different timings of groups of fixture parameters.

## Syntax

**[Function] Part [ID]**

## Example

- To create a second part of cue 3 for the selected executor, type in the command line:

```
[Channel]> Store Cue 3 Part 2
```

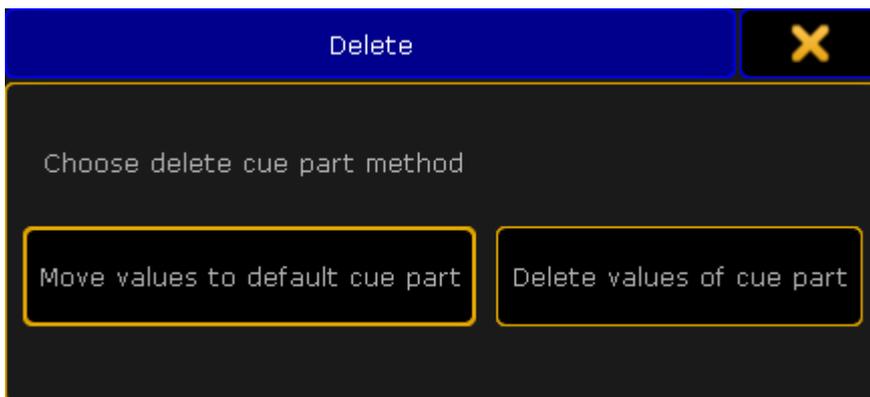
- To move part 2 of cue 2 at part 3 of cue 2 for the selected executor, type in the command line:

```
[Channel]> Move Cue 2 Part 2 At Cue 2 Part 3
```

- To delete part 2 of cue 1 for the selected executor, type in the command line:

```
[Channel]> Delete Cue 1 Part 2
```

The choose delete cue part method pop-up opens.



*Choose delete cue part method pop-up*

To move the fixture or channel values to the main cue tap, **move values to default cue part**. Timings will be deleted.

To delete the part with all values tap, **delete values of cue part**.

The part is deleted.

## 44.3.203. Paste Keyword

To get the Paste keyword in the command line, type **Paste** or the shortcut **Pas** in the command line.

### Description

With the Paste keyword, you paste previous copied or cut content from the clipboard.xml. If no object is given and the command line destination is root (no destination) the default object is Cue. For more information, see [Cut keyword](#) and [Copy keyword](#).

The Paste keyword is a function keyword.

### Syntax

**Paste [start object]**

### Example

To paste the previous cut group 1 at group 5, type in the command line:

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. The text in the terminal reads "[Channel]> Paste Group 5".

```
[Channel]> Paste Group 5
```

## 44.3.204. Pause Keyword

To get the Pause keyword in the command line, press the small **Pause**.

You can also type **Pause** or the shortcut **Pau** in the command line.

### Description

The Pause keyword is a function keyword to pause:

- Crossfades between cues
- Chaser executor
- Timer
- Selective effect executor
- Timecode shows
- Macro

Pause is a toggle function between pause on and pause off.

### Syntax

**Pause [Object-list]**

**Pause On [Object-list]**

**Pause Off [Object-list]**

### Example

- To pause the running chaser executor 3, type in the command line:

```
[Channel]> Pause Executor 3
```

- 
- To start running again paused chaser executor 3, type in the command line:

```
[Channel]> Pause Executor 3
```

## 44.3.205. Plugin Keyword

To get the Plugin keyword in the command line, type **Plugin** or the shortcut **PI** in the command line.

### Description

The Plugin keyword is an object keyword to access Plugins. The default function for the Plugin keyword is [Go+](#).

Plugin 1 is a predefined plugin and not editable.

For more information, see [Plugins](#).

### Syntax

**[Function] Plugin [ID]**

**Assign Plugin [ID] /[Parameter]=[Parameter Value]**

### Parameter

The following table displays the assignable parameter via command line.

Parameter	Parameter Value	Description
Name	"Create Sequence"	Assign the plugin name.
ExecuteOnLoad	"Yes", "No"	Assign if the plugin be directly executed during show upload.
Info	"Additional Information"	Assign additional information.

### Examples

1. To executor plugin 2, type in the command line:

```
[Channel]> Plugin 2
```

2. Press **Please**. Plugin 2 is executed.

1. To change the name of plugin 2 to "Create Sequence", type in the command line:

```
[Channel]> Assign Plugin 2/name="Create Sequence"
```

2. Press **Please**. Plugin 2 has the name "Create Sequence".

## 44.3.206. PMArea Keyword

To get the PMArea (= Pixel Mapper Area) keyword in the command line, type **PMArea** or the shortcut **PM** in the command line.

## Description

The PMArea keyword is an object keyword to access pixel mapper areas and pixel mapper outputs. You can store, copy, and delete pixel mapper setups. For more information, see [MA VPU pixel mapper](#).

The default function for the PMArea keyword is SelfFix. For more information, see [SelfFix keyword](#).

## Syntax

**[Store / Copy / Delete] PMArea [pixel mapper area ID].[pixel mapper output ID] / [option]**

**Assign PMArea [pixel mapper area ID].[pixel mapper output ID] / [parameter] = [parameter value]**

## Options

To get a list of all available options to the PMArea keyword, type in the command line:

```
[Channel]> PMArea /?
```

Option	Option Shortcut	Option Value	Description
merge	m	no option value	Adds to the existing content. By default, the 3D coordinates will be used.
overwrite	o	no option value	Replace the existing content. By default, the 3D coordinates will be used.
remove	r	no option value	Removes the selected content.
autoalign	aa	no option value	Ignores the 3D position data and stores as a matrix (equal to the layout view).
x (only if the option autoalign is used)	no shortcut available	1.000...500.000	Defines the position of the x axis in the pixel mapper area.
y (only if the option autoalign is used)	no shortcut available	1.000...500.000	Defines the position of the y axis in the pixel mapper area.
axis	no shortcut available	All possible combination with + and -, e.g. +x+y, +x+z	Defines the horizontal and vertical axis.
3dcoordinates	no shortcut available	no option value	Uses the 3D position coordinates of the fixture. See Patch & Fixture Schedule.
noconfirm	nc	no option value	Suppress the storing output pop-up.

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## Parameter

The following table displays the assignable parameter for **pixel mapper areas** via command line.

Parameter	Parameter Value	Description
Name	"Area 1"	Assign the pixel mapper area name.
DimX[m]	1.000...500.000	Assign the dimension of the x axis in meter.
DimY[m]	1.000...500.000	Assign the dimension of the y axis in meter.

The following table displays the assignable parameter for **pixel mapper outputs** via command line.

Parameter	Parameter Value	Description
Name	"Output 1"	Assign the pixel mapper output name.
RenderIP	"192.168.0.4"	Assign the VPU IP address.
Camera	"Camera 4"	Assign one of the patched cameras.
ResX[Px]	1...4096	Assign the resolution of the x axis in pixel.
ResY[Px]	1...4096	Assign the resolution of the y axis in pixel.
VirtOut	"None", "Virtual Output 1"... "Virtual Output 16"	Assign if the camera, and resolution in pixel should be use for a virtual output.
Protocol	"Art-Net", "sACN", "MA-Net2"	Assign the protocol.
Priority	"Super", "Swp", "HTP", "High", "LTP", "Low"	Assign the pixel mapper priority.
Art-NetMode (only if the protocol is Art-Net)	"Broadcast", "Unicast", "Auto"	Assign the Art-Net mode.
Art-NetStartAddress (only if the protocol is Art-Net)	1...128 : 0..F : 0..F	Assign the Art-Net start address.
sACNMode (only if the protocol is sACN)	"Multicast", "Unicast"	Assign the sACN mode.
sACNVersion (only if the protocol is sACN)	"Final", "Draft"	Assign the sACN version.
sACNPriority (only if the protocol is sACN)	0...200	Assign the priority. The highest number has the highest priority.

Parameter	Parameter Value	Description
sACN TTL (only if the protocol is sACN)	0...255	TTL = Time to live  Assign the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network. For each router (hop), the original specified TTL is decremented by one (1). When its TTL reaches a value of zero (0), each multicast datagram expires and is no longer forwarded through the network to other subnets.
sACN Start (only if the protocol is sACN)	0...63999 or "Original"	Assign the sACN universe. Original uses the same as patched.
Delay(ms) (only if the protocol is sACN or Art-Net)	0.000...2.500	Assign the packet delay.
FrameDelay (1/30s)	0...8	Assign the frame delay.

## Examples

- To store the selected fixtures in the existing pixel mapper area 1 output 2 with a horizontal +x axis and a vertical +z axis, type in the command line:

```
[Channel]> Store PMArea 1.2 /axis=+X+Z /noconfirm
```

- To assign the pixel mapper area 1 the name "Sunstrips", type in the command line:

```
[Channel]> Assign PMArea 1 /name="Sunstrips"
```

### 44.3.207. Preset Keyword

To get the Preset keyword in the command line, press **Preset**.

You can also type **Preset** or the shortcut **Pres** in the command line.

## Description

With the Preset keyword you can:

- Select the fixtures stored in a preset.
- At a preset to the fixture or channel selection.

If no fixtures or channels are selected in the programmer, the default function is **SelfFix**. For more information, see [SelfFix keyword](#).

If fixtures or channels are selected in the programmer, the default function is **At**. For more information, see [At keyword](#).

## Syntax

### Preset [ID]

### Preset [Preset-type].[ID]

### Preset "Name"

### Assign Preset [ID] / [Parameter] = [Parameter Value]

## Parameter

The following table displays the assignable parameters via command line.

Parameter	Parameter Value	Description
Name	"PresetName"	Assign the preset pool name.
Special	"Normal", "Default", "Highlight", "Stage"	Assign the special mode. For more information, see <a href="#">What are special modes?</a>
Info	"additional information"	Assign additional information. Assigned information are displayed in the <a href="#">info window</a> .

## Examples

- Select the fixtures stored in preset 5 of the selected preset type, e.g. dimmer.

```
[Channel]> Preset 5
```

- Select the second preset of preset type 3 (gobo).

```
[Channel]> Preset 3.2
```

- Select all fixtures stored in the preset type with the label "DarkRed".

```
[Channel]> Preset "DarkRed"
```

### 44.3.208. PresetType Keyword

To get the PresetType keyword in the command line, press and hold **MA** + **Preset**.

You can also type **PresetType**, **PresetT**, or **PT** in the command line.

## Description

With the PresetType keyword you can:

- Call PresetTypes and select them in the preset type bar.
- Select PresetTypes in the fixture sheet. A selected preset type is indicated by a yellow font in the column header.
- Activate PresetTypes for the selected fixtures in the programmer.
- Store only values of the given preset type.

Preset types contains features and attributes, which means that you can also call features and attributes with the PresetType keyword, using dot-separated numbers.

## Syntax

PresetType [PresetType Number]

PresetType "PresetType Name"

PresetType [PresetType Number] . [Feature Number]

PresetType [PresetType Number] . [Feature Number] . [Attribute Number]

[Function Keyword] PresetType [PresetType Number] . [Feature Number]

## Examples

- Call preset type 3 in the fixture sheet and in the preset type bar.

```
[Channel]> PresetType 3
```

- Call preset type color in the fixture sheet and in the preset type bar.

```
[Channel]> PresetType "Dimmer"
```

- Call preset type 3, feature 1, in the fixture sheet and in the encoder bar.

```
[Channel]> PresetType 3.1
```

- Activate the second color feature for the selected fixtures.

```
[Channel]> On PresetType "Color".2
```

- Call the second feature of the current selected preset type.

```
[Channel]> PresetType $preset.2
```

- Call preset type 3, feature 2, attribute 1, in the fixture sheet and in the encoder bar.

```
[Channel]> PresetType 3.2.1
```

- Store only the pan/tilt values for the fixture selection.

```
[Channel]> Store If PresetType Position If Selection
```

## 44.3.209. Preview Keyword

To go to the Preview keyword, press **Prw**.

You can also type **Preview** in the command line.

### Description

The Preview keyword creates a preview of the programmed output without having an actual DMX output.

Preview loads the given cue or part in Previeweditor and enables this editor. (PreviewEdit On)

If no cue is given, the current cue of the selected executor will be used.

The Preview keyword is a function keyword.



#### Hint:

If the console is in the preview editor, the **Prw** key is blinking and the title bar from the sheets changes into red.



#### Hint:

To leave the preview editor, press **Esc** or **Off Prw** or **Prw Prw** on the console.

### Syntax

**Preview [cue-object] / [option] = [option value]**

**Preview [part-object]**

**Preview Next**

**Preview Previous**

### Options

To get a list of all available options to the preview keyword, type in the command line

```
[Channel]> Preview /?
```

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The preview keyword has the following options.

Option	Option Shortcut	Option Value	Description
add	not available	False, True	Additional preview playback.
autoupdate	au	False, True	Every programmer value updates automatically.
keepselection	ks	False, True	Keeps selection when entering preview.
keepprogrammer	kp	False, True	Keeps programmer content when entering preview.

## Examples

- Load cue 5 from the selected executor in the preview editor.

```
[Channel]> Preview Cue 5
```

- Load cue 5, part 2 of the selected executor in the preview editor.

```
[Channel]> Preview Cue 5 Part 2
```

- Load current cue of executor 3 in the preview editor.

```
[Channel]> Preview Executor 3
```

## 44.3.210. PreviewEdit Keyword

To go to the PreviewEdit keyword, press **Prw** **Prw** (= PrwEdit).

You can also type **PreviewEdit** in the command line or use the shortcut **PreviewEd**.

To close the PreviewEdit, press **Prw** **Prw** again.

### Description

The PreviewEdit toggles between the live programmer and the blind preview editor.

The PreviewEdit keyword is an object keyword.

### Syntax

#### PreviewEdit

#### PreviewEdit On

#### PreviewEdit Off

### Example

Turn the preview editor on.



The preview encoder bar is displayed. The title bar of the fixture sheet, channel sheet, and layout view is red. The **Prw** key is flashing.



### *Preview Encoder Bar*

## 44.3.211. PreviewExecutor Keyword

To go to the PreviewExecutor keyword, press **Go +** + **Prw** (= PreviewExecutor).

You can also type **PreviewExecutor** in the command line or use the shortcut **Pre**.

### Description

**Requirement:** Selected sequence in the preview editor.

The PreviewExecutor keyword is an alias for sequence in the preview editor.

The PreviewExecutor keyword is an object keyword.

### Syntax

#### [Function] PreviewExecutor

### Examples

- **Requirement:** Selected sequence in the preview editor.  
Run the next cue in PreviewEditor with timing.

```
[Channel]> Go PreviewExecutor
```

- **Requirement:** Selected sequence in the preview editor.  
Store cue 5 in the preview sequence.

```
[Channel]> Store Cue 5 PreviewExecutor
```

## 44.3.212. Previous Keyword

To go to the Previous keyword, press **Prev**.

You can also type **Previous** in the command line or use the shortcut **Previo**.

### Description

The Previous keyword has multiple functions.

- If no fixture or channel is selected, the fixture or channel with the highest ID will be selected.
- If one fixture or channel is selected, the fixture or channel with the previous ID will be selected.
- If **MAtricks** are active, the Previous keyword has special functions depending on the selected **MAtricks** options. For more information, see [MAtricks](#).

### Syntax

#### Previous

### Example

Select the last fixture of the selected group 5 in the selection order.



## 44.3.213. PrevRow Keyword

To go to the PrevRow keyword, press and hold **MA** + **Prev**.

You can also type **PrevRow** in the command line or use the shortcut **PrevR**.

### Description

If **MAtricksInterleave** is on, PrevRow reduce the Single Y value by one.

If Single Y was at 0, the last Single Y value will be used. For more information, see [MAtricks](#).

The PrevRow keyword is a function keyword.

### Syntax

#### PrevRow

### Example

Select the last row of fixtures, if **MAtricksInterleave** is on.



## 44.3.214. Profile Keyword

To get the Profile keyword in the command line, type **Profile** or the shortcut **Pro** in the command line.

### Description

The Profile keyword is an object keyword to access DMX profiles and DMX profiles points. For more information, see [DMX profiles](#).

### Syntax

**[Function] Profile [DMX Profile ID].[DMX Profile Point ID]**

**Assign Profile [DMX Profile ID],[DMX Profile Point ID] /[Parameter]=[Parameter Value]**

### Parameter

The following table displays the assignable parameter for **DMX profiles** via command line.

Parameter	Parameter Value	Description
Name	"80%"	Name of the DMX profile.

The following table displays the assignable parameter for **DMX profile points** via command line.

Parameter	Parameter Value	Description
X	0..1	Assign the x position in physical values of the point.
Y	0..1	Assign the y position in physical values of the point.

### Example

To export DMX profile 1 from the grandMA2 onPC to the folder C:\ProgramData\MA Lighting Technologies\grandma\gma2\_V\_3.1\importexport:

1. Type in the command line:



2. Press **Please**.

The DMX profile 1 is exported as a .xml file.

## 44.3.215. Protocol Keyword

To go to the Protocol keyword, type **Protocol** in the command line or use the shortcut **Prot**.

## Description

The Protocol keyword is an object keyword to access the network protocols.

You can store or delete network protocols and assign parameters.

For more information, see [Network DMX Protocols](#).

## Syntax

**[Function] Protocol [Network Protocol ID] . [Row ID]**

**Assign Protocol [Network Protocol ID] / [Parameter] = [Parameter Value]**

**Assign Protocol [Network Protocol ID] . [Row ID] / [Parameter] = [Parameter Value]**

The following table displays the available network protocol along with their ID.

Network Protocol	ID
Art-Net	1
ETC Net2	2
Pathport	3
sACN	4
Shownet	5
Kinet1	6

## Parameter

The following table displays the assignable parameter by use the command **Assign Protocol [Network Protocol ID] / [Parameter] = [Parameter Value]**.

Network Protocol	Parameter	Parameter Value	Description
Art-Net, sACN, Kinet1	OutActive	"On", "Off"	Assign if the output is set to on or off.
Art-Net, sACN, Kinet1	InActive	"On", "Off"	Assign if the input is set to on or off.
Art-Net	MaxUnicast	0...10	<b>Only if the mode is OutputAuto:</b> Assign the maximal amount of members until Art-Net switches from unicast to broadcast.
Art-Net, ETC Net2, Pathport, sACN, Shownet, Kinet1	Info	"Information text"	Assign additional information.

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Network Protocol	Parameter	Parameter Value	Description
ETC Net2, Pathport, Shownet	Active	"On", "Off"	Assign if the console transmit or hide the network protocol.
ETC Net2, Pathport, Shownet	LocalStart	1...256	Assign the DMX universe to transmit or receive the network protocol.
ETC Net2, Pathport, Shownet	Amount	<b>ETC Net2 and Pathport:</b> 1...64 <b>Shownet:</b> 1...256 or "None"	Assign the amount of DMX universes to transmit the network protocol.
ETC Net2, Pathport, Shownet	ExternStart	1...64	Assign the transmitted or received DMX universe.
ETC Net2	Groups	1...6	ETC Net2 uses multicast groups to simplify and optimize the transmission. Assign the group to transmit to.
			Assign the priority to decide who a node should listen to in a conflict. <b>ETC Net2:</b> The lowest number has the highest priority.
ETC Net2, Shownet,	Priority	<b>ETC Net2:</b> 1...20 <b>Shownet:</b> 0...16	<b>Shownet:</b> A DMX512 slot can be patched to multiple Netslots with each Netslot assigned to a different priority. The DMX512 slot outputs the level of the Netslot with the highest priority if HTP is not selected.

Network Protocol	Parameter	Parameter Value	Description
ETC Net2, Pathport	TTL	0...255	<p>TTL = Time to live</p> <p>Assign the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network. For each router (hop), the original specified TTL is decremented by one (1). When its TTL reaches a value of zero (0), each multicast datagram expires and is no longer forwarded through the network to other subnets.</p>

The following table displays the assignable parameter by use the command **Assign Protocol [Network Protocol ID]. [Row ID] / [Parameter] = [Parameter Value].**

Only available for:

- Art-Net
- sACN
- Kinet1

Network Protocol	Parameter	Parameter Value	Description
Art-Net, sACN	Mode	<p><b>Art-Net:</b>                      "OutputBroadcast",                      "OutputUnicast",                      "OutputAuto", "Input"</p> <p><b>sACN:</b>                      "OutputMulticast",                      "OutputUnicast",                      "InputMulticast",                      "InputUnicast"</p>	Assign the output or input mode.

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Network Protocol	Parameter	Parameter Value	Description
Art-Net, sACN	DestinationIP	"1.2.3.4"	<b>Only if the mode is OutputUnicast.</b> Assign the the destination IP address.
Art-Net, sACN, Kinet1	LocalStart	1...256	Assign the DMX universe to transmit or receive the network protocol.
Art-Net, sACN, Kinet1	Amount	1...256	Assign the DMX universe to transmit or receive the network protocol.
Art-Net	Network	1...128	Assign the network.
Art-Net	Subnet	0...15	Assign the subnet.
Art-Net	Universe	0...15	Assign the universe.
Art-Net, sACN	Delay(ms)	0.000...5.000	<b>Only if the mode is an output mode.</b> Assign the milliseconds between the packets.
sACN	sACNUniverse	1...64000	Assign the sACN universe.
sACN	Priority	0...200 or "None"	Assign the priority to decide who a node should listen to in a conflict. The highest number has the highest priority.
sACN	Protocol	"Final" or "Draft"	Assign a sACN protocol. Some equipment have implemented the draft version of sACN before the final release.

Network Protocol	Parameter	Parameter Value	Description
			TTL = Time to live
sACN	TTL	0...255	Assign the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network. For each router (hop), the original specified TTL is decremented by one (1). When its TTL reaches a value of zero (0), each multicast datagram expires and is no longer forwarded through the network to other subnets.
sACN, Kinet1	Info	"Information text"	Assign additional information.
Kinet1	ExternStart	0...255 or "None"	Assign the transmitted universe number.
Kinet1	IPAddress	"1.2.3.4"	Assign the IP address.

## Example

- Set the sACN output to active.

```
[Channel]> Assign Protocol 4 /outactive=on
```

- Send grandMA2 universe 9 to Art-Net universe 9.

```
[Channel]> Assign Protocol 1.1 /mode=outputauto /localstart=9 /amount=2 /network=1 /subnet=0 /universe=9
```

## 44.3.216. PSR Keyword

To go to the PSR keyword, type **PSR** in the command line.

### Description

**Requirement:** The partial show read is prepared.

The PSR keyword executes a partial show read for the specified object.

The PSR keyword is a function keyword.

For more information, see [Partial Show Read \(PSR\)](#).

### Syntax

**PSR [Object] If [Object-list] /[Option]**

### Options

To get a list of all available options to the PSR keyword, type in the command line

```
[Channel]> PSR /?
```

The PSR keyword has the following options.

Option	Short Cut	Description
merge	m	Adds to existing content.
overwrite	o	Replaces existing content.

### Examples

- Partial show read on sequence 1.

```
[Channel]> PSR Sequence 1
```

- Partial show read on sequence 1, if channel 1 through 3 are used.

```
[Channel]> PSR Sequence 1 If Channel 1 Thru 3
```

## 44.3.217. PSRList Keyword

To use the PSRList keyword, type **PSRList** or the shortcut **PSRL** in the command line.

### Description

The PSRList keyword lists all available and changed sequences of the show file which can be inserted. The PSRList keyword displays the same as the partial show read pop-up tree under Sequence. For more information, see [Partial Show Read \(PSR\)](#).

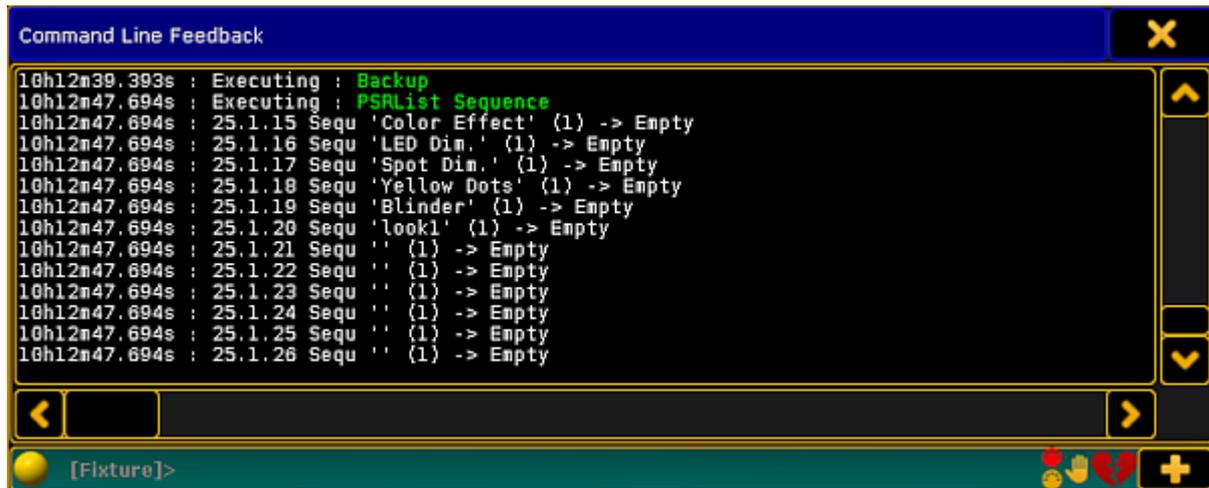


Figure:

Command Line Feedback - PSRList Sequence

The PSRList keyword is a function keyword.

### Syntax

**PSRList [Sequence]**

### Example

**Requirement:** A prepared partial show read.

Show all available and changed sequences of the show file which can be inserted.



## 44.3.218. PSRPrepare Keyword

To use the PSRPrepare keyword, type **PSRPrepare** or the shortcut **PSR** in the command line.

### Description

PSRPrepare prepares a showfile for PartialShowRead.

The PSRPrepare keyword used standalone opens the Partial Show Read Prepare Window.

For more information, see [Partial Show Read \(PSR\)](#).

The PSRPrepare keyword is a function keyword.

### Syntax

**PSRPrepare [filename] / [option]**

### Options

To get a list of all available options to the PSRPrepare keyword, type in the command line

```
[Channel]> PSRPrepare /?
```

The PSRPrepare keyword has the following options.

Option	Short Cut	Description
usemine	u	Uses the current setup.
mergeother	mo	Merges with the new setup.
useother	uo	Overwrites the current setup and uses the new setup.

### Example

Open the Partial Show Read Prepare Window for the demo dimmer and more show.

```
[Channel]> PSRPrepare "demo dimmer and more.show.gz"
```

## 44.3.219. Rate Keyword

To use the Rate keyword, type **Rate** in the command line.

### Description

The Rate keyword

- stores a special rate master on an executor
- set the rate

The Rate keyword is a function keyword.

### Syntax

#### Store Rate

#### Rate [Factor]

### Example

- Store the first rate master on executor 6.

```
[Channel]> Store Rate Exec 6
```

- Set the rate of the sequence from the selected executor.

```
[Channel]> Rate 5
```

## 44.3.220. Rate1 Keyword

To get the Rate1 keyword in the command line, press **Learn** **Learn** (= Rate1).

You can also type **Rate1** or the shortcut **Rat** in the command line.

### Description

The Rate1 keyword resets the rate to 1:1.

The Rate1 keyword is a function keyword.

### Syntax

#### Rate1 [Object-list]

### Example

Reset the rate of executor 5 back to 1:1.

```
[Channel]> Rate1 Executor 5
```

## 44.3.221. RdmAutomatch Keyword

To get the RdmAutomatch keyword in the command line, type **RdmAutomatch** or the shortcut **RdmA** in it.

### Description

#### Requirements:

- MA Fixture is not matched
- MA Fixture and RDM Fixture have the same DMX address
- MA Fixture Type has no or the same RDMFixtureType ID as the RDM Fixture
- MA Fixture Type has the same DMX footprint as the RDM Fixture
- All Subfixtures of the MA Fixture are in the current World and Filter

The RdmAutomatch keyword automatches RDM Fixtures.

Possible objects are:

- Channel
- Fixture
- FixtureType
- RDMFixtureType
- Group
- Sequence
- Cue
- Executor
- Preset (only selective Presets)
- Selection
- World

If no object is given, the current selection will be used.

RdmAutomatch is a function keyword.

For more information, see [RDM](#).

### Syntax

#### RdmAutomatch [Object List]

#### Examples

- To automatch the selected fixtures, type in the command line:

```
[Channel]> RdmAutomatch
```

- To automatch the fixtures used in group 1, type in the command line:

```
[Channel]> RdmAutomatch Group 1
```

- To automatch only the fixtures used in group 1 and also used in sequence 2, type in the command line:

```
[Channel]> RdmAutomatch Group 1 If Sequence 2
```

## 44.3.222. RdmAutopatch Keyword

To get the RdmAutopatch keyword in the command line, type **RdmAutopatch** in the command line or use the shortcut **RdmAutop.**

### Description

#### Requirements:

- MA Fixture is matched
- MA Fixture is patched
- MA Fixture and RDM Fixture have the same universe

The RdmAutopatch keyword patches the RDM fixtures to the DMX address in the setup.

Possible objects are:

- Channel
- Fixture
- FixtureType
- RDMFixtureType
- Group
- Sequence
- Cue
- Executor
- Preset (only selective Presets)
- Selection
- World

If no object is given, the current selection will be used.

RdmAutopatch is a function keyword.

For more information about, see [RDM](#).

### Syntax

#### **RdmAutopatch [Object List]**

### Examples

- To autopatch the selected fixtures, type in the command line:

```
[Channel]> RdmAutopatch
```

- 
- To autopatch the fixtures used in group 1, type in the command line:

```
[Channel]> RdmAutopatch Group 1
```

- To autopatch only the fixtures used in group 1 and also used in sequence 2, type in the command line:

```
[Channel]> RdmAutopatch Group 1 If Sequence 2
```

## 44.3.223. RdmFixtureType Keyword

To get the RdmFixtureType keyword in the command line, type **RdmFixtureType** or the shortcut **Rd** in the command line.

### Description

The RdmFixtureType is an object keyword to access Rdm fixtures with a Rdm fixture type ID.

To get the RdmFixtureType ID, go to **Setup -> Patch & Fixture Schedule -> RDM Devices**. The RdmFixtureType ID is displayed in the information field.



#### Hint:

To get the RdmFixtureType ID you can also enter in the command line, **CD** **RDM\_Data.RDM\_Fixture\_Types**. Then enter in the command line **List**, press **Please**, and open the command line feedback window.

For more information, see [RDM](#).

### Syntax

**[RDM Function] RdmFixtureType [ID]**

### Examples

- To automatch RDM fixture type 1, type in the command line:

```
[Channel]> RdmAutomatch RdmFixtureType 1
```

- To unmatch RDM fixture type 1, type in the command line:

```
[Channel]> RdmUmatch RdmFixtureType 1
```

## 44.3.224. RdmInfo Keyword

To get the RdmInfo keyword in the command line, type **RdmInfo** or the shortcut **Rdmi** in the command line.

### Description

The RdmInfo keyword opens the RDM info pop-up with the actual RDM information to the entered fixture or channel.

The RdmInfo keyword is a function keyword.

For more information, see [RDM](#).

Syntax

**RdmInfo [Channel / Fixture] [ID]**

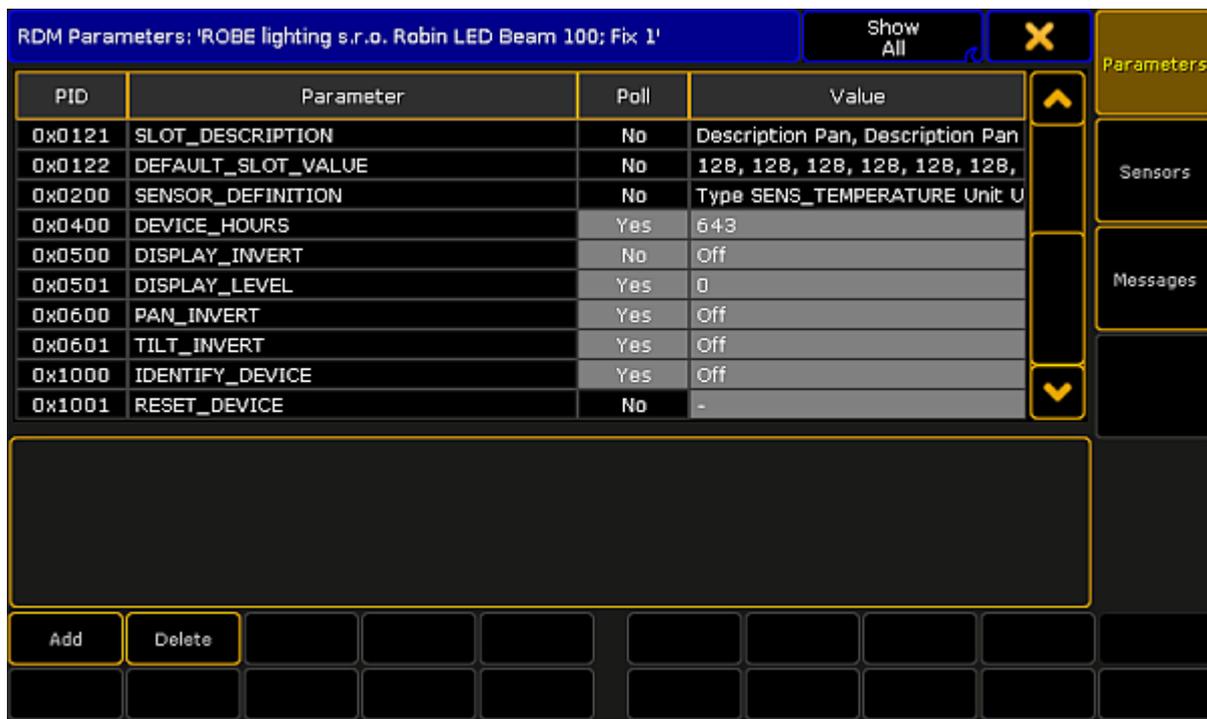
**RdmInfo [Channel / Fixture] [ID] / [screen] [ID]**

Examples

To open the RDM Info pop-up for fixture 3, type in the command line:

```
[Channel]> RDMInfo Fixture 3
```

The RDM Info pop-up opens.



*RDM Info pop-up*

To open the RDM Info pop-up for fixture 3 on screen 3:

1. Type in the command line:

```
[Channel]> RDMInfo Fixture 3/screen = 3
```

2. Press **Please**.

The RDM Info pop-up opens on screen 3.

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## 44.3.225. RdmList Keyword

To get the RdmList keyword in the command line, type **RdmList** or the shortcut **RdmL** in the command line.

### Description

The RdmList keyword generates a list of the received RDM data. The list is displayed in the command line feedback window.

If no fixture or channel ID is given, all RDM data will be listed.

The RdmList keyword is a function keyword.

### Syntax

**RdmList [Channel / Fixture] [ID] / [Option] = [Option value]**

### Options

To get a list all available options to the RdmList keyword, type in the command line:

```
[Channel]> RdmList /?
```

The RdmList has the following options:

Option	Option shortcut	Option value	Description
filename	f	e.g. "data"	Generates the RDM list in the temp folder called data.txt. If no filename is given, the filename is called RDM.txt.
multipatch	m	e.g. 3	Generates the RDM list only for the third multipatch fixture.
UID	no shortcut available	e.g. "43500F019FCB"	Generates the RDM list for this specific UID.

### Examples

- To get the RDM list of fixture 3 in the command line feedback window, type in the command line:

```
[Channel]> RdmList Fixture 3
```

- To get the RDM list of fixture 3 in the command line feedback window and as a .txt file called **RDM Fixture 3** in the temp folder, type in the command line:

```
[Channel]> RdmList Fixture 3 / filename = "RDM Fixture 3"
```

## 44.3.226. RdmSetParameter Keyword

To get the RdmSetParameter keyword in the command line, type **RdmSetParameter** in the command line or use the shortcut **RdmS**.

### Description

With the RdmSetParameter keyword you can set RDM parameters by using the command line.

If no Unique ID is given, the fixture selection will be used.

The RdmSetParameter keyword is a function keyword.

### Syntax

**RdmSetParameter [Parameter ID ] [Parameter Value] / [Option] = [Option value]**

### Parameter ID (= PID)

You can enter the PIDs in the command line by using the PID name or the PID hex number.



#### Important:

If you enter manufacturer specific PIDs or PID values in the command line, it is necessary to use the hex value. A manufacturer specific PID name or PID value name can not be processed from a grandMA2 command line.

The following table lists the supported PIDs along with the command line and the parameter value.

The PIDs will be processed only, if the RDM device supports the PID.

PID name	PID hex value	PID value name	PID value hex value	Description
CLEAR_STATUS_ID	0x0032	No value.	---	Clears the status message queue.
DEVICE_HOURS	0x0400	32 bit number.	---	Retrieves or sets the number of hours of operation.
DEVICE_LABEL	0x0082	ASCII text label. Up to 32 characters.	---	Provides a means of setting a descriptive label for each device.
DEVICE_POWER_CYCLES	0x0405	Power Cycle Count (32-bit)	---	Retrieves or sets the number of power-up cycles. Some devices may only support the GET_COMMAND for this operation and not allow the device's power-up cycles to be set.

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PID name	PID hex value	PID value name	PID value hex value	Description
DISPLAY_INVERT	0x0500	Off	0x00	Retrieves or changes the display invert setting. Invert is often used to rotate the display image by 180 degrees.
		On	0x01	
		Auto	0x02	
DISPLAY_LEVEL	0x0501	Display Level	Manufacturer specific. See fixture manual.	Retrieves or changes the display intensity setting.
DMX_PERSONALITY	0x00E0	Current Personality # of Personalities	---	Sets the responder's DMX512 personality. Many devices such as moving lights have different DMX512 personalities. Many RDM parameters may be affected by changing personality.
DMX_START_ADDRESS	0x00F0	DMX512 Address (16-bit).	---	Sets the DMX512 start address
FACTORY_DEFAULTS	0x0090	False	0x00	Reverts the device to its factory default user settings or configuration.
		True	0x01	
IDENTIFY_DEVICE	0x1000	Off, Stop	0x00	Physically identifies the device represented by the UID.
		On, Start	0x01	
LAMP_HOURS	0x0401	Lamp Hours (32-bit)	---	Retrieves the number of lamp hours or to sets the counter to a specific start value.
LAMP_ON_MODE	0x0404	LAMP_ON_MODE_OFF	0x00	Retrieves or changes the current Lamp On Mode. The Lamp On Mode defines the conditions under which a lamp will be struck.
		LAMP_ON_MODE_DMX	0x01	
		LAMP_ON_MODE_ON	0x02	
		LAMP_ON_MODE_AFTER_CAL	0x03	
		Manufacturer-Specific Modes	0x80 – 0xDF	
LAMP_STATE	0x0403	LAMP_OFF	0x00	Retrieves or changes the current operating state of the lamp.
		LAMP_ON	0x01	
		LAMP_STRIKE	0x02	
		LAMP_STANDBY	0x03	
		LAMP_NOT_PRESENT	0x04	
		LAMP_ERROR	0x7F	
LAMP_STRIKES	0x0402	Lamp Strikes (32-bit)	---	Retrieves the number of lamp strikes or to sets the counter to a specific start value.
		Manufacturer Specific States	0x80 – 0xDF	
LANGUAGE	0x00B0	2 character alpha code for ISO 639-1	---	Changes the language of the messages.

PID name	PID hex value	PID value name	PID value hex value	Description
PAN_INVERT	0x0600	Off On	0x00 0x01	Retrieves or changes the pan invert setting.
PAN_TILT_SWAP	0x0602	Off On	0x00 0x01	Retrieves or changes the pan/tilt swap setting.
PERFORM_SELFTEST	0x1020	SELF_TEST_OFF Manufacturer Tests SELF_TEST_ALL	0x00 0x01 – 0xFE 0xFF	Executes any built in self-test routine that may be present.
POWER_STATE	0x1010	POWER_STATE_FULL_OFF POWER_STATE_SHUTDOWN POWER_STATE_STANDBY POWER_STATE_NORMAL	0x00 0x01 0x02 0xFF	Retrieves or changes the power state.
REAL_TIME_CLOCK	0x0603	Year (16-bit), Month, Day, Hour, Minute, Second	---	Retrieves or set the real-time clock in a device.
RECORD_SENSORS	0x0202	Sensor Number	---	Instructs devices such as dimming racks that monitor load changes to store the current value for monitoring sensor changes.
RESET_DEVICE	0x1001	Warm Reset Cold Reset	0x01 0xFF	Resets the responder.
SENSOR_VALUE	0x0201	Sensor #, Present Value (16-bit), Lowest Detected Value (16-bit), Highest Detected Value (16-bit), Recorded Value (16-bit)	---	Retrieves or reset sensor data.
TILT_INVERT	0x0601	Off On	0x00 0x01	Retrieves or changes the tilt invert setting.

## Options

To get a list all available options to the RdmSetParameter keyword, type in the command line:

```
[Channel]> RdmSetParameter /?
```

The RdmSetParameter has the following options:

Option	Option shortcut	Option value	Description
multipatch	m	0 = multipatch for all fixtures 1 = multipatch for one fixture and so on	Sets the multipatch index.
UID	No shortcut available	e.g. "43500F019FCB"	Sets the RDM UID to send RDM Parameter to the device.

## Examples

- To set the DMX start address to 3 of a RDM device, type in the command line:

```
[Channel]> RdmSetParameter dmx_start_address 3 / UID = 43500F019FCB
```

- To invert the display of a RDM device for the selected fixture, type in the command line:

```
[Channel]> RdmSetParameter invert_display 1
```

### 44.3.227. RdmSetpatch Keyword

To get the RdmSetPatch keyword in the command line, type **RdmSetPatch** or the shortcut **RdmSetPat** in it.

#### Description

With the RdmSetPatch keyword you set the DMX address of a RDM fixture by using the command line.

If no Unique ID is given, the fixture selection will be used.

The RdmSetPatch keyword is a function keyword.

For more information, see [RDM](#).

#### Syntax

**RdmSetPatch [DMX address] / [Option] = [Option Value]**

#### Options

To get a list all available options to the RdmSetPatch keyword, type in the command line:

```
[Channel]> RdmSetPatch /?
```

The RdmSetPatch has the following options:

Option	Option shortcut	Option value	Description
multipatch	m	0 = for all multipatches and the fixture 1 = multipatch for the first multipatch fixture and so on	Sets the multipatch index.
UID	No shortcut available	e.g. "43500F019FCB"	Sets the RDM UID to send RDM Parameter to the device.

## Examples

- To set the fixtures of the current fixture selection to the DMX address 25, type in the command line:

```
[Channel]> RdmSetPatch 25
```

- To set the fifth multipatch fixture of the current fixture selection to the DMX address 25, type in the command line:

```
[Channel]> RdmSetPatch 25 / multipatch = 5
```

- To set the DMX address of the fixture with the UID 43500F019FCB to 25, type in the command line:

```
[Channel]> RdmSetPatch 25 / UID = 43500F019FCB
```

## 44.3.228. RdmUnmatch Keyword

To get the RdmUnmatch keyword in the command line, type **RdmUnmatch** or the shortcut **Rdm** in the command line.

### Description

The RdmUnmatch keyword unmatches previous matched RDM devices in the show file. If no object is given, the current selection will be used.

Possible objects are:

- Channel
- Fixture
- FixtureType
- RDMFixtureType
- Group
- Sequence
- Cue
- Executor
- Preset (only selective Presets)
- Selection
- World

The RdmUnmatch keyword is a function keyword.

### Syntax

#### **RDMUnmatch [Object-List]**

### Examples

- To unmatch the selected fixtures, type in the command line:

```
[Channel]> RdmUnmatch
```

- To unmatch the fixtures used in group 1, type in the command line:

```
[Channel]> RdmUnmatch Group 1
```

- To unmatch the fixtures used in group 1 and in sequence 2, type in the command line:

```
[Channel]> RdmUnmatch Group 1 If Sequence 2
```

## 44.3.229. Reboot Keyword

To go to the Reboot keyword, type **Reboot** in the command line or use the shortcut **R**.

### Description

The Reboot keyword, shutdown the station and boot it up again.

If the station is a session member, the reboot a confirmation pop-up opens on the local station.

If the confirmation is missing, after 10 seconds the reboot function will be executed.

The Reboot keyword is a function keyword.

### Syntax

**Reboot / [option]**

**Reboot [station-list] / [option]**

### Options

To get the list of the available options to the reboot keyword in the command line feedback window, type in the command line.



```
[Channel]> Reboot ?
```

The reboot keyword has the following options.

Option	Option Shortcut	Description
save	s	Saves the show file before reboot.
nosave	ns	Do not saves the show file before reboot.
noconfirm	nc	Suppress reboot confirmation pop-up.
force	f	Forces a reboot.

### Examples

- Reboot the current console.



```
[Channel]> Reboot
```

- Reboot a station with the IP address 192.168.0.32 in the network.



```
[Channel]> Reboot 192.168.0.32
```



#### Hint:

To be faster, type only the part of the IP address in the command line what is differently. If the console has the IP address 192.168.0.11, the command **Reboot 11** is enough.

## 44.3.230. Record Keyword

To get the Record keyword in the command line, press **MA** + **Store** (= Record).

You can also type **Record** or the shortcut **Rec** in the command line.

### Description

The Record keyword records real time actions as timecodes or macros. For more information, see [record a timecode show](#) or [record a macro](#).

It toggles between start and stop.

The Record keyword is a function keyword.

### Syntax

#### Record [Object]

### Examples

- Start to record executor actions as timecode 1.

```
[Channel]> Record Timecode 1
```

- Stop all running timecode records from the timecode pools.

```
[Channel]> Record Timecode
```

- Start to record command line actions as macro 5. The **macro record icon**  is visible in the command line, if in the message center options for macro status yes selected is. The keys **Learn** and **Macro** are flashing.

```
[Channel]> Record Macro 5
```

- Stops all running macro records from the macro pools.

```
[Channel]> Record Macro
```

- Record the receiving timecode as **trig time** by calling the cue, if the selected trigger is **timecode**. The **timecode record icon**  is visible in the command line.

```
[Channel]> Record Executor 1
```

- Turn off the timecode executor record from executor 1.

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 [Channel]> Record Off Executor 1

## 44.3.231. Release Keyword

To go to the Release keyword, press **Delete Delete Delete** (= Release).

You can also type **Release** in the command line or use the shortcut **Rel**.

### Description

The Release keyword enters release values in the programmer for attributes by the given object list, filtered by the current selection.

Release values used with a store merge, release previous tracked values from the tracking list and the fixtures uses their default values.

If you release an object, the release is applied to the value layer.

If you release an effect, the release is applied to the effect layer for the running effect attributes. The effect form release is used.

### Syntax

**Release [Object-list]**

**Release [Effect-list]**

### Examples

- Enter release values in the programmer for all attributes of the fixture selection in the value layer. A **(R)** is displayed in the value layer.



```
[Channel]> Release Selection
```

- Enter release values in the programmer for pan and tilt attributes of the fixture selection.



```
[Channel]> Release PresetType "position"
```

- Enter release values in the programmer for the running effect 4 .



```
[Channel]> Release Effect 4
```



#### Hint:

To enter release values in the programmer for effects you could also type in the command line, **At Form 2**

## 44.3.232. ReloadPlugins Keyword



### Important:

The creation and use of plugins can go deeper into the system as the normal use of a console. Therefore the technical support team of MA Lighting may not be able to help you in all circumstances when using complex LUA plugins. LUA plugins might have to be rewritten when migrating show files to future grandMA2 software version.

To go to the ReloadPlugins keyword, type **ReloadPlugins** or the shortcut **Relo** in the command line.

### Description

The ReloadPlugins keyword restarts the LUA engine.

The restart of the LUA engine is necessary after you did any changes regarding LUA because this could change how the LUA behaves.

You may want to test the integrity of the LUA system to make sure that it behaves as expected also next time you load the show. This is important as the saved show file does not contain a snapshot of the LUA memory, it only contains the inbuilt functions and the code in the defined plugins.

When the show file is loaded, the LUA engine and plugins code is (re)loaded, which may result in a different state than when you switched off the console or saved the show.

The ReloadPlugins keyword is a function keyword.



### Hint:

Double-check the executed command in the [system monitor](#).

### Syntax

#### ReloadPlugins

### Example

Restart the LUA engine after LUA programming.



```
[Channel]> ReloadPlugins
```

## 44.3.233. Remote Keyword

To go to the Remote keyword, type **Remote** in the command line or use the shortcut **Rem**.

### Description

The Remote keyword is an object keyword to access the remote input types.

You can store or delete remote input types and assign parameters.

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For more information, see [What are Remote Inputs?](#) and [Set up Remote Inputs.](#)

Syntax

**[Function] Remote [Remote Input Type ID] . [ID]**

**Assign Remote [Remote Input Type ID] . [ID] / [Parameter] = [Parameter Value]**

The following table displays the available remote input types along with their remote input type ID.

Remote Input Type	Remote Input Type ID
Analog Remote	1
MIDI Remote	2
DMX Remote	3

If you store a remote input type, the IDs needs to be in an order and beginning from 1.

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## Parameter

The following table displays the assignable parameter via the command line, using the [Assign keyword](#).

Parameter	Parameter Value	Description
name	"remote name"	Assign the remote name.
<b>Only for analog remote:</b> input	1...64	Assign the input from the connected DC remote control.
<b>Only for MIDI remote:</b> note	0...1023	Assign the MIDI note.
<b>Only for MIDI remote:</b> channel	1...16 or "All"	Assign the MIDI channel.
<b>Only for DMX remote:</b> DMX	1.001 to 256.512 [universe]. [dmx address]	Assign DMX universe and address.
type	"None", "Exec", "CMD", "Hardkey" <b>Only for DMX remote:</b> "Programmer"	Assign the type of action the console does when the contact is active.
page	0...9999 or "current"	For type Exec. Assign the executor page number. Current is for the active page.
executor	1...220	For type Exec. Assign the executor number.
button	"Button 3", "Button 2", "Button 1", "Fader"	For type Exec. Assign the button or fader the console should activate.
keycode	"every hardkey", e.g. "X1", "Go", "List"	For type Hardkey. Assign the hardkey the console should activate.
cmd	"a command" e.g. "Group 1"	For type CMD. Assign the command the console should execute.
info	"additional information"	Assign additional information.

## Examples

- Store new DMX remote.

```
[Channel]> Store Remote 3.1
```

- Assign an existing remote a DMX address, a remote type and a command.

```
[Channel]> Assign Remote 3.1 /dmx=5.1 /type=cmd /cmd="Group 1"
```

## 44.3.234. RemoteCommand Keyword

To go to the RemoteCommand keyword, type **RemoteCommand** in the command line or use the shortcut **RemoteC**.

### Description

The RemoteCommand keyword executes commands at a specific console.

RemoteCommand is a function keyword.

### Syntax

**RemoteCommand [IP address] "Command"**

### Examples

- Call view 3 at the station with the IP address 192.168.0.4.

```
[Channel]> RemoteCommand 192.168.0.4 "View 3"
```

- Start macro 4 only on a specific console.

```
[Channel]> RemoteCommand 192.168.0.4 "Macro 4"
```

## 44.3.235. Remove Keyword

To go to the Remove keyword, press **Delete** **Delete** (= Remove).

You can also type **Remove** in the command line or use the shortcut **Remov**.

### Description

The Remove keyword enters remove values in the programmer for attributes by the given object list, filtered by the current selection.

Remove values used with a store merge function, removes previous stored values. If a stored value is removed, values from the previous cue will be tracked again.

The remove values are applied to all layers by default.

### Syntax

**Remove [Object-list]**

**Remove [Effect-list]**

### Examples

- Enter remove values in all layers for all attributes of the current selection.

```
[Channel]> Remove Selection
```

- Enter remove values for pan and tilt in all layers for the current selection, or for all fixtures if no selection.

```
[Channel]> Remove PresetType "position"
```

- Enter remove values for dimmer attribute for fixture 1.

```
[Channel]> Remove Fixture 1 If PresetType 1
```

## 44.3.236. RemoveIndividuals Keyword

**RemoveIndividuals** is a command used to delete individual values of effects and effect lines.

Syntax

### RemoveIndividuals



**Important:**

If you type the command into the command line, a warning pop-up appears. Note that removing individual settings of an effect alters the effect altogether.

For more information see the example in [Use predefined effects](#).

Example:



```
[Channel]> RemoveIndividuals Effect 1
```

Removes the individual values in effect 1.



```
[Channel]> RemoveIndividuals Effect 1.11.2
```

Removes the individual values in the second effect line of the effect 11.

## 44.3.237. Replace Keyword

To get the Replace keyword in the command line, press **Move** **Move** (= Replace).

You can also type **Replace** or the shortcut **Rep** in the command line.

Description

The replace keyword replaces object and values. For more information, see [search and replace](#).

The replace keyword is a function keyword.

Syntax

### Replace search\_for\_objects WITH replace\_with\_objects [IF search\_in\_objects]

Examples

- Add 10° to all pan values in all cues and presets.

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 [Channel]> Replace Attribute "Pan" At - 270 Thru 270 With - 260 Thru 280

- Subtract 10 % from all dimmer values in all cues from sequences 3.

 [Channel]> Replace Attribute "Dim" At 0 Thru 100 With 0 Thru 90 If Sequence 3

- Replace the individual fade time of 5 by 10 for attribute tilt.

 [Channel]> Replace Attribute "Tilt" Fade 5 with Fade 10

- Exchange fixture 1 and 2 by fixture 2 and 1 in sequence 10.

 [Channel]> Replace Fixture 1 + 2 With Fixture 2 + 1 If Sequence 10

- Cut all values from fixture 1 and paste this values to fixture 2.  
**Requirement:** Fixture 2 must have only default values (= low priority merge).

 [Channel]> Replace Fixture 1 With Fixture 2

- Delete a specific fixture from everywhere where it is linked to.

 [Channel]> Replace Fixture 1 With

## 44.3.238. ResetDmxSelection Keyword

To go to the ResetDmxSelection keyword, type **ResetDmxSelection** in the command line or use the shortcut **ResetD**.

### Description

The ResetDmxSelection keyword clears the selection in the [DMX tester](#).

ResetDmxSelection is a function keyword.

### Syntax

#### ResetDmxSelection

### Example

- Reset DMX Selection in the DMX tester.

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. The text in the terminal reads "[Channel]> ResetDmxSelection".

```
[Channel]> ResetDmxSelection
```

## 44.3.239. ResetGuid keyword

To execute the keyword, type **ResetGuid** or the shortcut **Rese** into the command line.

### Description

ResetGuid resets the identifiers that are unique in every object. This command is mainly used with the Partial Show Read.

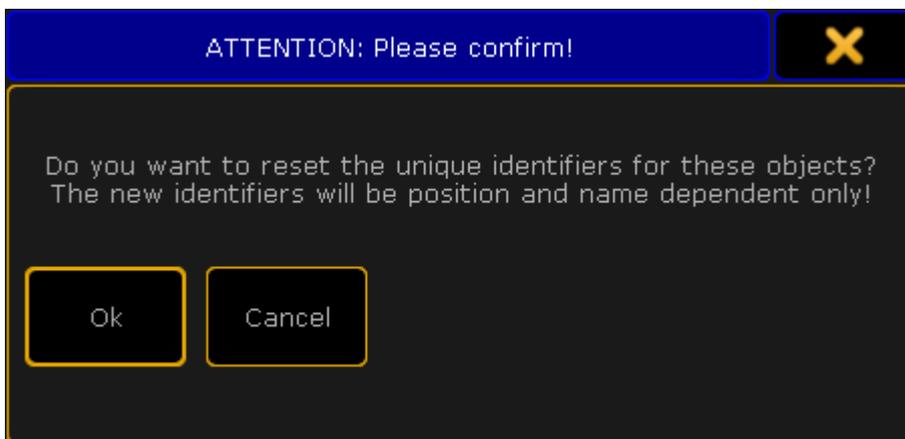
For more information see [How to do a PSR](#).



#### Important:

Note that once executed, there is no opportunity to reverse this command!

Once the command was entered into the command line and **Please** was pressed, the following pop-up appears:



*Attention pop-up – keyword ResetGuid*

- To reset the identifiers, tap **Ok**.
- To abort the execution of the command, tap **Cancel** or the **X** in the upper right corner of the pop-up.

### Syntax

#### ResetGuid

### Example



Resets the identifiers of the objects.

## 44.3.240. Restart Keyword

To go to the Restart keyword, type Restart in the command line or use the shortcut **Res**.

## Description

The Restart keyword restarts the application. This is the same as close the program and open it again.

A restart is necessary after an IP address change.

The Restart keyword is a function keyword.

## Syntax

### Restart

#### Restart [IP address] / [option]

## Options

To get the list of the available options to the restart keyword in the command line feedback window, type in the command line.



The restart keyword has the following options.

Option	Option Shortcut	Description
save	s	Saves the show file before restart.
nosave	ns	Do not saves the show file before restart.
noconfirm	nc	Suppress restart confirmation pop-up.
force	f	Forces a restart.

## Examples

- Restart the console.



- Restart the console with the IP address 192.168.0.32 in the network.



### Hint:

To be faster, type only the part of the IP address in the command line what is differently. If the console has the IP address 192.168.0.11, the command **Restart 11** is enough.

## 44.3.241. Root Keyword

To go to the Root keyword, type **Root** in the command line or use the shortcut **Ro**.

### Description

The Root keyword access the root in the object tree.



#### **Important:**

We recommend to use the actual root index name. If you use root index numbers, it is necessary to double-check after every release if the root index number is still valid. If the root index number changed, you need to adjust the macros.

The Root keyword is an object keyword.

### Syntax

**Root [root-index]**

**Root [root-index] . [sub-index]**

**Root [root-index] . [sub-index] . [sub-sub-index] etc**

### Examples

- Change the destination of the command line to DMX\_Protocols/Art-Net.



```
[Channel]> ChangeDest Root DMX_Protocols.Art-Net
```

- Export all live setup layers from the grandMA2 onPC to the folder C:\ProgramData\MA Lighting Technologies\grandma\gma2\_V\_3.1\fixture\_layers.



```
[Channel]> Export Root LiveSetup.Layers
```



#### **Hint:**

Another way to export layers is, press **Setup** | tap **Patch only (Live)** | tap **Export Layer**.

## 44.3.242. Rotate3D Keyword

To go to the Rotate3D keyword, type **Rotate3D** in the command line or use the shortcut **Ro**.

### Description

The Rotate3D keyword rotates 3D objects in the [Stage View](#).

If the Rotate3D keyword is used without values, the rotation of the selected fixtures will be reset to zero.

If the option relative is used, the rotate function uses the relative rotation position.

Rotate3D is a function keyword.

### Syntax

#### **Rotate3D At [x y z] /relative**

### Example

Rotate the selected 3D object in the [Stage View](#).

```
 [Channel]> Rotate3D At 2.5 -5 3.3
```

## 44.3.243. SaveShow Keyword

To go to the SaveShow keyword, type **SaveShow** in the command line or use the shortcut **Sa**.

### Description

The SaveShow keyword saves the show on the selected drive. For more information, see [SelectDrive Keyword](#).

If no show name is entered, the show will be saved with the current show name.

If already an other show file exist with the entered show name, the console asks if you want to overwrite the existing show file or cancel.

The SaveShow keyword is a function keyword.

### Syntax

#### SaveShow "Showname" /noconfirm

The option noconfirm suppress the save show confirmation pop-up.

### Examples

- Save the show as "Macbeth".

```
[Channel]> SaveShow "Macbeth"
```

- Save the show.

```
[Channel]> SaveShow
```



#### **Hint:**

To save the show file by a shortcut, press **Backup Backup** .

## 44.3.244. Screen Keyword

To get the Screen keyword in the command line, press **MA** + **View** (= Screen).

You can also type **Screen** or the shortcut **Scr** in the command line .

### Description

The Screen keyword represents the screens.

The Screen keyword is an object keyword.

### Syntax

**Screen [screen-number]**

**Screen [screen-number].[window-number]**

### Example

- Clear screen 2 to get an empty screen.



#### Hint:

Another way to clear the screen is, press and hold the **MA** key and tap **Clear Screen** .

- Assigns mask 5 to the third window of the second screen.



## 44.3.245. Search Keyword

To get the Search keyword in the command line, press **MA** + **Move** (= Search).

You can also type **Search** or the shortcut **Sea** in the command line.

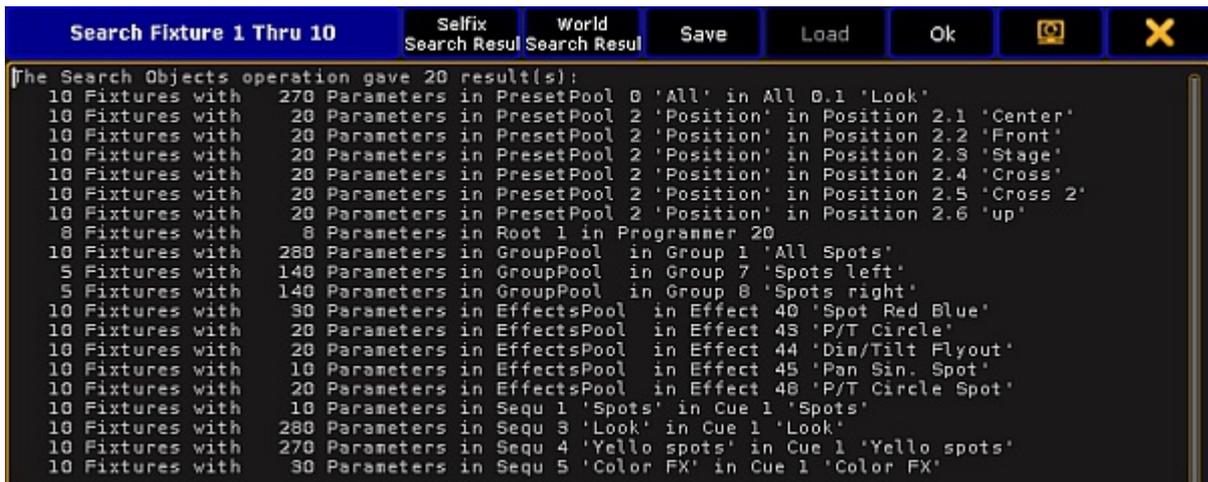
### Description

The Search Keyword searches for objects and values in the show. For more information, see [search and replace](#).



#### Information:

If you search only for a value, it will be searched for dimmer attributes.



Search

## Result Pop-Up

The Search keyword is a function keyword.

## Syntax

### Search search\_for\_objects [[At] search\_values] If search\_in\_objects

## Examples

- Search for all dimmer attributes with 50 %. The search result opens.

```
[Channel]> Search Value 50
```

- Search on what places fixture 1 through 10 is used, e.g. presets, groups, or sequences. The search result opens.

```
[Channel]> Search Fixture 1 Thru 10
```

- Search for all sequences with fixture 1.

```
[Channel]> Search Fixture 1 If Sequence Thru
```

- Search for all preset pools / presets, sequences / cues and selective effects with the attribute pan of fixtures 2.

```
[Channel]> Search Fixture 2 Attribute "Pan"
```

- Search for all fixtures, sequences / cues with preset 1.1.

 [Channel]> Search Preset 1.1

## 44.3.246. SearchResult Keyword

To get the SearchResult keyword in the command line, press and hold **MA** + **Group** **Group** (= SearchResult).

You can also type **SearchResult** or the shortcut **SR** in the command line.

### Description

The SearchResult keyword opens the world search result after an executed search command. The search result world includes only the fixtures or channels from the last search command.



*Fixture Sheet World Search Result*

To close the SearchResult world, select another world in the world pool.

To select all fixtures from the last search command, use the **Selfix SearchResult**.



#### Hint:

You can also use the **Selfix Search Result** button and/or the **World Search Result** button in the title bar of the search result pop-up.

The SearchResult keyword is a function keyword.

### Syntax

#### SearchResult

#### Selfix SearchResult

#### Search [object-list] If SearchResult

### Examples

- Opens the search result world with the fixtures from the last search command.

 [Channel]> SearchResult

- Select only the fixtures from the last search result.

```
[Channel]> SelFix SearchResult
```

- Search in the last search result for fixtures with the attribute green at 20.

```
[Channel]> Search Fixture Thru Attribute "G" At 20 If SearchResult
```

## 44.3.247. Select Keyword

To get the Select keyword in the command line, press **Select**.

You can also type **Select** or the shortcut **Se** in the command line.

### Description

The Select keyword, selects objects as default objects.

The **selected executor** is the target for all executor related commands, e.g. **Store Cue 4**. The selected executor is displayed in the [master section](#) in indicated by green color.

The selected executor is displayed in the Sequence Executor and Sequence Tracking Sheet, if the **Link Mode** is **Link Selected**.

The **selected layout** is displayed in the Layout View, if the **Layout Selection** is **Link Selected**. For more information, see [layouts](#).

The **selected mask** is used by any sheet (except DMX sheet), if the option **Follow Selected Mask** is **On**.

The **selected filter** is used by any action involving fixture parameters, e.g. store or delete a cue.

The **selected timer** is displayed in the clock, if the option **Select Timer** is **Link Selected**.

The **selected timecode slot** is displayed in the clock, if the option **Select TC Slot** is **Link Selected**.

The **selected timecode** is displayed in the timecode view, if the option **Timecode** is **Link Selected**.

The **selected camera** is displayed in the stage view and in the MA 3D, if the **Camera Selection** is **Link Selected**.

### Syntax

**Select [Executor-object]**

**Select Layout [ID]**

**Select Mask [ID]**

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Select Filter [ID]

Select TimecodeSlot [ID]

Select Timecode [ID]

Select Timer [ID]

Select Camera [ID]

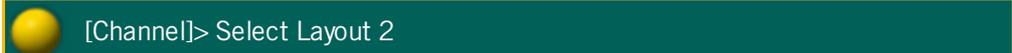
Examples

- Select executor 5 as the default.

A screenshot of a terminal window with a dark green background and a yellow border. On the left, there is a yellow sphere icon. The text in the terminal reads "[Channel]> Select Executor 5".

```
[Channel]> Select Executor 5
```

- Select layout 2 in the layout view.  
**Requirement:** Layout Selection is set to Link Selected.

A screenshot of a terminal window with a dark green background and a yellow border. On the left, there is a yellow sphere icon. The text in the terminal reads "[Channel]> Select Layout 2".

```
[Channel]> Select Layout 2
```

## 44.3.248. SelectDrive Keyword

To get the SelectDrive keyword in the command line, type **SelectDrive** or the shortcut **SD** in the command line.

### Description

The SelectDrive keyword select the drive in the [Backup Menu](#), for the following functions:

- [SaveShow](#)
- [LoadShow](#)
- [Import](#)
- [Export](#)

If the SelectDrive keyword is executed standalone, the available showfile drives, mounted USB-sticks and earlier software installations will be listed along with their ID in the command line feedback window.

If a read only media (like older installations) is selected, write functions will change the selected drive to 1 (Internal).

The SelectDrive keyword is a function keyword.

### Syntax

#### **SelectDrive [ID]**

### Examples

- Display all available drives in the command line feedback window.

```
[Channel]> SelectDrive
```

- Load demoshow "demo dimmer and more".

```
[Channel]> SelectDrive 2; LoadShow "demo dimmer and more"
```

## 44.3.249. Selection Keyword

To go to the Selection keyword, press **Fixture** **Fixture** (= Selection).

You can also type **Selection** in the command line or use the shortcut **Selecti**.

### Description

The Selection keyword represent the current channels and fixtures selection in the programmer.

The Selection keyword is an object keyword.

### Syntax

#### Selection

### Example

Knockout all programmer values of the current fixture selection from the programmer.

A screenshot of a terminal window with a dark green background and a yellow border. On the left side, there is a yellow sphere icon. The text in the terminal reads "[Channel]> Off Selection".

```
[Channel]> Off Selection
```

## 44.3.250. SelFix Keyword

To go to the SelFix keyword, press **Select** **Select** (= SelFix).

You can also type **SelFix** in the command line or use the shortcut **SelF**.

### Description

The SelFix keyword creates fixture selections in the programmer.

If fixtures are only selected, the SelFix keyword adds additional fixtures to the selection.

If fixtures are selected and active in the programmer, the SelFix keyword replaces the selection by the SelFix selection.

If the exact same SelFix command is used multiple times in a row, the second command starts to activate values in the programmer, the third deactivates the values in the programmer.

SelFix is the default function for the most objects, e.g. Fixture or Channel.

SelFix is a function keyword.

To clear the selection, press **Clear**.

### Syntax

#### **SelFix [Object-list]**

### Examples

- Select all fixtures or channels stored in a sequence on executor 1.



- Select all fixtures stored in preset 1.



- Select all fixtures used in effect 3.



## 44.3.251. Sequence Keyword

To get the Sequence keyword in the command line, press **Sequ**.

You can also type **Sequence** or the shortcut **Seq** in the command line .

### Description

The default function of the sequence keyword is [SelFix](#).

If the Sequence keyword is used with an ID, all fixtures in the sequence will be selected.

If the Sequence keyword is used with a function, the function will be passed on to the object child cue.

### Syntax

**Sequence [ID]**

**Sequence [Sequence pool],[ID]**

### Example

- Select all fixtures used in sequence 5.

```
[Channel]> Sequence 5
```

- Block all cues of sequence 5.

```
[Channel]> Block Sequence 5
```

## 44.3.252. SetHostname Keyword

To get the SetHostname keyword in the command line, type **SetHostname** in the command line.

### Description

The SetHostname keyword, sets the station name of the console.



#### Important:

The SetHostname keyword works only on grandMA2 consoles. It is not possible to change the station name in a grandMA2 onPC. The station name on a grandMA2 onPC is the computer name. To change the station name on a grandMA2 onPC you need to change the computer name.

The SetHostname keyword is a function keyword.

### Syntax

#### SetHostname "text"

### Example

Change the host name to grandMA2.



```
[Channel]> SetHostname "grandMA2"
```

## 44.3.253. SetIP Keyword

To execute keyword SetIP type **SetIP** into the command line.

### Description

The SetIP keyword changes the IP address of the Ethernet interfaces of the console or station.

If SetIP is used standalone, the command line feedback window lists the available Ethernet interfaces with their IP addresses.

A grandMA2 console has two network interfaces, **eth0** and **eth1**, which are on the back of the console labeled as **Ethernet 1** and **Ethernet 2**.



#### Important:

To apply the changed IP address, a reboot is necessary.



#### Hint:

Another way to change the IP address of the Ethernet-interfaces of the console or station is, press **Setup** | tap **MA Network Configuration** | column **IP ETHERCON 1(ETH0)** or **IP ETHERCON 2 (ETH1)**. For more information see [Networking - Set the IP address in onPC](#).

## Syntax

**SetIP [network interface] [IP address] / [option] = [option value]**

## Options

To get a list of all available options to the SetIP keyword in the command line feedback window, type in the command line

```
[Channel]> SetIP /?
```

The SetIP keyword has the following options.

Option	Shortcut	Option Value	Description
mask	m	e.g. 255.0.0.0	Sets the subnet mask of the Ethernet adapter.
dhcp	not available	no option value	Enables DHCP for the Ethernet adapter.
gateway	not available	e.g. 192.168.0.1	Sets the default gateway for the Ethernet adapter.
noconfirm	nc	no option value	Suppress the SetIP confirmation pop-up.

Example:

```
[Channel]> SetIP eth0 192.168.0.5
```

Sets the IP address of the first Ethernet interface.

```
[Channel]> SetIP eth0 /DHCP
```

Activates DHCP client which takes over the IP address automatically from the server.

```
[Channel]> SetIP eth1 2.0.0.10 /mask=255.0.0.0
```

Sets IP address and network mask for the second Ethernet interface.

```
[Channel]> SetIP
```

Lists available Ethernet interfaces along with their IP addresses in the command line feedback window.



**Important:**

Do not use DHCP on eth1, unless you are a skilled network operator.

For more information on what DHCP is see the [Glossary](#).

For more information on how to use DHCP see [Using DHCP in MA devices](#).

## 44.3.254. SetNetworkSpeed Keyword

To go to the SetNetworkSpeed keyword, type **SetNetworkSpeed** in the command line or use the shortcut **SNS**.

### Description

The SetNetworkSpeed keyword, changes the port speed of the first network adapter of grandMA2 consoles and MA NPU.

It makes sense to reduce the port speed, if grandMA series 2 devices are together with grandMA series 1 devices.



**Important:**

To apply the changed port speed by using the SetNetworkSpeed keyword, a restart is necessary. If you do not restart the device, the new port speed is not applied.



**Hint:**

To double-check the link speed, use the [NetworkInfo keyword](#) or press **Setup** | column **Network** | tap **MA Network Control** | column **Link Speed**.

The SetNetworkSpeed keyword is a function keyword.

### Syntax

**SetNetworkSpeed 100 [IP address]**

**SetNetworkSpeed 1000 [IP address]**

### Example

Set the port speed of the first network adapter to 100 Mbit.



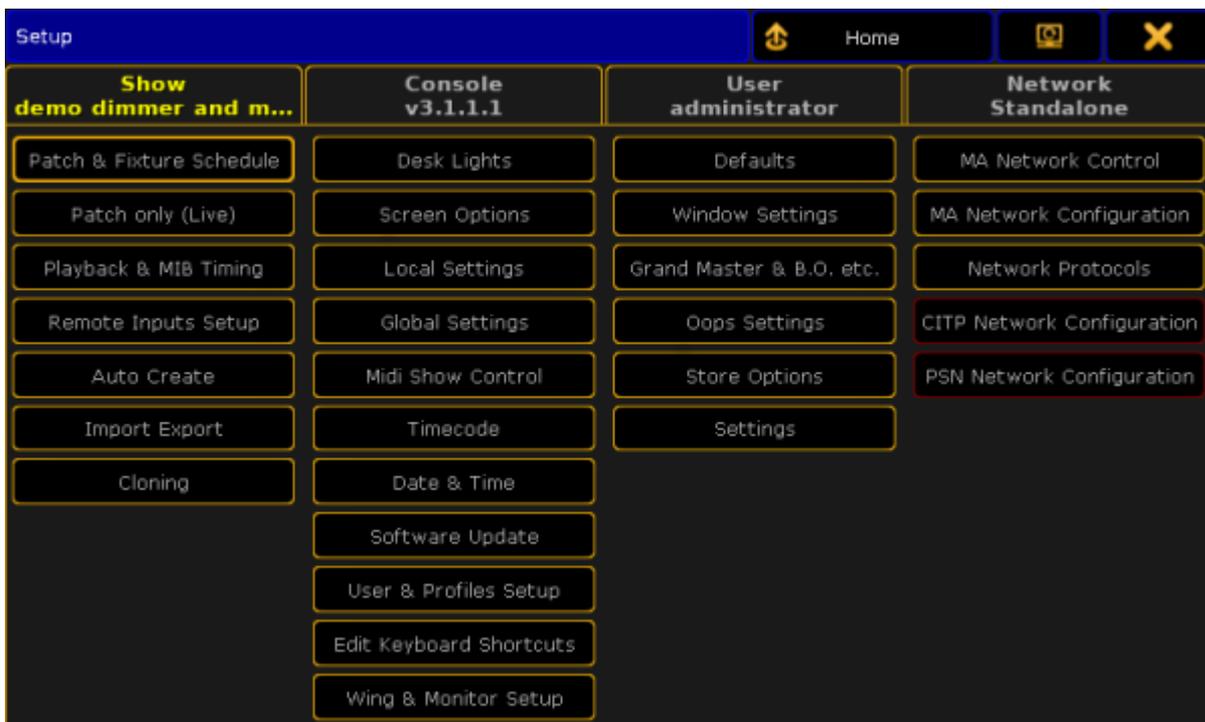
```
[Channel]> SetNetworkSpeed 100 192.168.0.32
```

## 44.3.255. Setup Keyword

To get the Setup keyword in the command line, type **Setup** or the shortcut **Set** in the command line.

### Description

The Setup keyword opens or closes the setup menu.



### Setup Menu



#### Hint:

Another way to open or close the Setup is, press the **Setup** key.

The Setup keyword is a function keyword.

### Syntax

#### Setup

### Example

Open the setup menu.



## 44.3.256. SetUserVar Keyword

To get the SetUserVar keyword in the command line, type **SetUserVar** or the shortcut **SetUs** in the command line.

## Description

The SetUserVar keyword sets user profile specific variables. For more information, see [Macros - Use Variables](#).

## Syntax

**SetUserVar \$variablename = numericvalue**

**SetUserVar \$variablename = "text"**

**SetUserVar \$variablename = ("text")**

**SetUserVar \$variablename = nothing**



### Hint:

To see the set user variables in the command line feedback window, use the [ListUserVar keyword](#).

## Examples

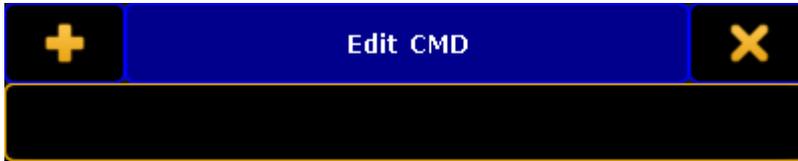
Create a macro in the macro pool that asks "Cue number to store?", stores and labels the cue for the selected executor.

1. Open the Macro Pool.
2. Press **Edit** and tap on a empty macro pool tile.  
The Edit Macro pop-up opens.



*Edit Macro Pop-Up*

3. Tap **Add**.  
The Edit CMD pop-up opens.

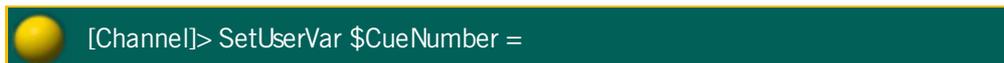


*Edit CMD (= Command) Pop-Up*

4. Type **SetUserVar \$CueNumber = ("Cue number to store?")**
5. Type **Store Cue \$CueNumber**
6. Type **Label Cue \$CueNumber**

The macro is ready to use.

- Delete a variable.



## 44.3.257. SetVar Keyword

To go to the SetVar keyword, type **SetVar** in the command line or use the shortcut **SetV**.

### Description

The SetVar keyword sets global show variables. Every user profile can use these variables. For more information, see [Macros - Use Variables](#).

### Syntax

**SetVar \$variablename = numericvalue**

**SetVar \$variablename = "text"**

**SetVar \$variablename = ("text")**

**SetVar \$variablename = nothing**



#### Hint:

To see the set variables in the command line feedback window, use the [ListVar keyword](#).

### Examples

Create a macro in the macro pool that asks "Which song?", and opens the respective page.

1. Open the Macro Pool.
2. Press **Edit** and tap on a empty macro pool tile.

The Edit Macro pop-up opens.



*Edit Macro Pop-Up*

3. Tap **Add**.

The Edit CMD pop-up opens.



*Edit CMD (= Command) Pop-Up*

4. Type SetVar \$Songname = ("Which song?")



**Important:**

Quotes are necessary to indicate a text string. If you do not indicate a text string by quotes, the console interprets the text as commands.

5. Type Page \$"Songname"

The macro is ready to use.

- Delete a variable.



## 44.3.258. ShuffleSelection Keyword

To get the ShuffleSelection keyword in the command line, type **ShuffleSelection** or the shortcut **Shuf** in the command line .

### Description

The ShuffleSelection keyword mix-up the order of the selected fixture or channel.



#### Hint:

Another ways to shuffle the selection is,

- go to the Tools menu and tap a **Shuffle Selection Order**

or

- use the predefined macro ShuffleSelection.

### Syntax

#### ShuffleSelection

### Example

Mix-up the order of the selected fixtures or channels.



```
[Channel]> ShuffleSelection
```

## 44.3.259. ShuffleValues Keyword

To get the ShuffleValues keyword in the command line, type **ShuffleValues** or the shortcut **ShuffleV** in the command line .

### Description

The ShuffleValues keyword mix-up the values of the selected fixtures or channels.



#### Hint:

To deselect attributes from the shuffle values keyword, press and hold the **At** key and use the At filter.



#### Hint:

Another way to shuffle values is, open the Tools menu and tap **Shuffle Values** .

The ShuffleValues keyword is a function keyword.

### Syntax

#### ShuffleValues

### Example

- Mix-up the values of the fixture selection.



```
[Channel]> ShuffleValues
```

## 44.3.260. Shutdown Keyword

To go to the Shutdown keyword, type **Shutdown** in the command line or use the shortcut **Sh**.

### Description

The shutdown keyword switches the grandMA2 console off or close the grandMA2 onPC.

A shutdown needs a confirmation at the local station.

The shutdown can be canceled on a remote station within 10 seconds.

### Syntax

#### Shutdown

#### Shutdown [station-list] / [option]

### Options

To get the list of the available options to the shutdown keyword in the command line feedback window, type in the command line.

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```
[Channel]> Shutdown /?
```

The shutdown keyword has the following options.

Option	Option Shortcut	Description
save	s	Saves the show file.
nosave	ns	Do not saves the show file.
noconfirm	nc	Suppress shutdown confirmation pop-up.
force	f	Forces a shutdown.

## Examples

1. Switch station off, by using the IP address.

```
[Channel]> Shutdown 192.168.0.10
```

2. Switch station off, by using the host ID of the network.

```
[Channel]> Shutdown 10
```

3. Switch current console off.

```
[Channel]> Shutdown
```

## 44.3.261. SnapPercent Keyword

To get the SnapPercent keyword in the command line by using the keys, it is necessary to press another function key before, e.g. **Store** and then five times **Time**.

You can also type, **SnapPercent** or the shortcut **Sn** in the command line.

### Description



#### Important:

To use the SnapPercent it is necessary that attributes of the fixture types must have Snap On. Go to the **Patch & Fixture Schedule | Fixture Types**. Select a fixture and click **Edit**, in the column **Snap** select **On**.

With the SnapPercent keyword, you set a snap time in percent.

The snap time is a delay time for not fading attributes, eg. gobo or colorwheel.



#### Hint:

To see the assigned snap percent, press **Edit** and then the executor button. The edit executor pop-up opens. In the table is a column snap percent, what displays the assigned snap percent.

### Syntax

#### **SnapPercent [Value-list]**

### Examples

- Store a cue with a snap percent of 4.

```
[Channel]> Store Cue 1 SnapPercent 4
```

- Assign a snap percent to an existing cue.

```
[Channel]> Assign Cue 1 SnapPercent 4
```

## 44.3.262. Solo Keyword

To get the Solo keyword in the command line, type **Solo** or the shortcut **So** in the command line.

If you press **Solo**, the command will be directly executed.

### Description

The Solo keyword forces zero values for intensity output for attributes of all unselected fixtures or channels. Only the selected fixtures or channels will have intensity output for attributes.

To remove a fixture from the solo function, go to the **Setup | Patch & Fixture Schedule**. In the column **React to Master** remove the On.

If Solo is used standalone, it toggles between Solo On and Solo Off.

If Solo is on and in the message center options yes is selected for Solo the status, the **solo icon**  is visible in the command line.

The Solo keyword is a function keyword.

### Syntax

**Solo**

**Solo On**

**Solo Off**

### Example

- Turn Solo on.

A screenshot of a terminal window with a dark green background. On the left side, there is a yellow circular icon. To its right, the text "[Channel]> Solo On" is displayed in white.

## 44.3.263. SpecialMaster Keyword

To enter the keyword SpecialMaster, press **Exec** **Exec** (= SpecialMaster).

Type **SpecialMaster** into the command line or use the shortcut **SM**.

### Description

Specialmaster is an object type that holds predefined objects for global control.

For more information on the 5 special masters see [Special masters](#).

### Syntax

**SpecialMaster [ID]**

**SpecialMaster "GroupName" . "Name"**

**Assign SpecialMaster Name = "Name"**

### Examples

```
[Channel]> SpecialMaster "grandmaster" . "grand" At 50
```

- Sets the grandmaster level to 50 %.

```
[Channel]> Assign SpecialMaster 2.4 At Executor 15
```

- Turns the executor 15 into a fader to control the volume of the sound output.

## 44.3.264. Speed Keyword

To get the Speed keyword, type **Speed** or the shortcut **Spee** in the command line.

### Description

With the Speed keyword, you assign faders the function speed. Speed adjust the effect speed in the cues and the speed of a chasers for the selected executor.

You can also assign the speed of the speed fader, depending on the selected speed mode in the **Setup I User I Settings I Speed Mode**.

For more information, see [executors - assign a function](#).

The Speed keyword is a function keyword.

### Syntax

**Speed [Executor-list]**

**Speed [Sec/Hz/BPM]**

### Examples

- Assign executor 28 as a speed fader.

```
[Channel]> Assign Speed Exec 28
```

- Set the speed fader level to 50 BPM of the selected executor.

```
[Channel]> Speed 50
```

## 44.3.265. StepFade Keyword

To get the StepFade keyword, type **StepFade** or the shortcut **Ste** in the command line.

### Description

With the StepFade keyword, you assign executors as a step fader. A step fader controls the fade time between the steps of a chaser.

For more information, see [executors - assign a function](#).

The StepFade keyword is a function keyword.

### Syntax

#### **StepFade [Executor-list]**

### Examples

- Assign executor 28 as a step fader.

```
[Channel]> Assign StepFade Exec 28
```

- Set the stepfade to 50 % on executor 3.

```
[Channel]> StepFade 50 Exec 3
```

## 44.3.266. StepInFade Keyword

To get the StepInFade keyword, type **StepInFade** or the shortcut **StepI** in the command line.

### Description

The StepInFade keyword assigns executors as a step in fader. A step in fader controls the step in time of each step of a chaser.

For more information, see [executors - assign a function](#).

### Syntax

#### **StepInFade [Executor-list]**

#### **StepInFade [Percent]**

### Examples

- Assign existing executor 28 as a step in fader.

```
[Channel]> Assign StepInFade Exec 28
```

- Set the step in fade level to 50 % on executor 3.

```
[Channel]> StepInFade 50 Executor 3
```

## 44.3.267. StepOutFade Keyword

To get the StepOutFade keyword, type **StepOutFade** or the shortcut **StepO** in the command line.

### Description

With the StepOutFade keyword, you assign executors as a step out fader. A step out fader controls the step out time of each step of a chaser.

For more information, see [executors - assign a function](#).

The StepOutFade keyword is a function keyword.

### Syntax

**StepOutFade [Executor-list]**

**StepOutFade [Percent]**

### Examples

- Assign executor 28 as a step out fader.

```
[Channel]> Assign StepOutFade Exec 28
```

- Set the step out fader level to 50 % on executor 3.

```
[Channel]> StepOutFade 50 Exec 3
```

## 44.3.268. Stomp Keyword

To get the Stomp keyword in the command line, press and hold **MA** + **At** (= Stomp).

You can also type **Stomp** in the command line or use the shortcut **Stom**.

### Description

The Stomp keyword applies values and stops running effects. Stomp will be applied only if an effect is running.

If you stomp channels, fixtures, or groups, all attributes of the selection will be stomped.

If you stomp attributes, features, or preset types, the given attributes for the current fixture or channel selection will be stomped.

If you stomp attributes, features, or preset types, without any fixture or channel selection, all fixtures or channels with running effect will be stomped.

If you stomp a value or an object that contains values, the new values will be applied and add stomp to the affected parameters.

### Syntax

**Stomp [Selection-list]**

**Stomp [Attribute-list]**

**Stomp [Value-list]**

**Stomp [Object-list]**

### Examples

- Set the dimmer attributes to 75 % and stops running dimmer effects of the current fixture selection.

```
[Channel]> Stomp 75
```

- Move the current fixture selection to preset "drummer" and stops the current running circle effect.

```
[Channel]> Stomp Preset "drummer"
```

- Select fixture 2, set its dimmer to zero and stops the current running dimmer effects.

```
[Channel]> Fixture 2 Stomp 0
```

## 44.3.269. Store Keyword

To go to the Store keyword, press **Store**.

You can also type **Store** in the command line or use the shortcut **S**.

## Description

The store keyword, stores functions in the show file.

If no object-type or destination is given, the object-type **Cue** will be used for the sequence of the selected executor.

Store is a function keyword.

## Syntax

**Store [object-list] "Name" / [option] = [option value]**

## Options

To get a list of all available options to the store keyword, type in the command line

```
[Channel]> Store /?
```

The store keyword has the following options.

Option	Option Shortcut	Option Value	Description
addnewcontent	an	False, True	False is the same as originalcontent.
auto	not available	no option value	Stores preset values with the default preset scope.
cueonly	co	False, True	Prevents changes to track forward.
effects	ef	False, True	Filters or enables effect layer.
embedded	e	False, True	Creates embedded preset.
global	g	no option value	Stores preset with global values.
keepactive	ka	False, True	Keeps values active.
noconfirm	nc	no option value	Suppress stores confirmation pop-up.
originalcontent	or	False, True	Stores the original content of the preset, effect, or cue. False is the same as addnewcontent.
presetfilter	p	False, True	Sets preset filter on or off.
screen	not available	1..6	Stores view with selected screen.
selective	s	no option value	Stores preset with selective values.
source	so	Prog, Output, Dmx In	Defines data source.
tracking	t	False, True	Stores with tracking. False is the same as cueonly.
trackingshield	ts	no option value	Use tracking shield for store.
universal	u	no option value	Stores preset with universal values.

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Option	Option Shortcut	Option Value	Description
useselection	use	Active, Allforselected, Activeforselected, All, Look	Sets selection.
values	v	False, True	Filters or enables value layer.
valuetimes	vt	False, True	Filters or enables value times layer.
x	not available	x coordinate in the layout view, e.g. -9.17441	Sets the x coordinate in the layout view. For more information, see <a href="#">Layouts</a> .
y	not available	y coordinate in the layout view, e.g. 7.93822	Sets the y coordinate in the layout view. For more information, see <a href="#">Layouts</a> .

## Example

1. Store cue 7 in the sequence of the selected executor. For more information, see [Store Cues](#).

```
[Channel]> Store 7
```

2. Store dimmer preset 3 with all attributes and keep the values active in the programmer. For more information, see [Store Presets](#).

```
[Channel]> Store Preset 1.3 /presetfilter=false /ka
```

3. Store the programmer values as cue 1 through cue 10 and cue 20 through cue 30.

```
[Channel]> Store Cue 1 Thru 10 + 20 Thru 30
```

## 44.3.270. StoreLook Keyword

To go to the StoreLook keyword, type **StoreLook** in the command line or use the shortcut **StoreL**.

### Description

StoreLook stores all dimmer values from all fixtures in the show.

If the dimmer value is bigger than 0, it stores additional all further attributes.

If the dimmer value is 0, it stores only the dimmer value because there is no further visible output.



**Hint:**

To exclude channels or fixtures from StoreLook, deactivate **React to Master** in the Patch & Fixtures Schedule.

For more information, see [What are the store options?](#)

StoreLook is a function keyword.

Syntax

**StoreLook [object] / [option] = [option value]**

Options

To get a list of all available options to the storelook keyword, type in the command line



The storelook keyword has the following options.

Option	Option Shortcut	Option Value	Description
append	a	no option value	Adds new cue.
cueonly	co	False, True	Prevents changes to track forward.
effects	ef	False, True	Filters or enables effect layer.
merge	m	no option value	Adds to existing content.
originalcontent	or	False, True	Stores the original content of the preset, effect, or cue. False is the same as addnewcontent.
overwrite	o	no option value	Replace existing content.
release	rea	no option value	Releases content.
remove	r	no option value	Removes content.
source	so	Prog, Output, Dmx In	Defines data source.
statusmerge	sm	no option value	Adds tracking status to existing cue.
tracking	t	False, True	Stores with tracking. False is the same as cueonly.

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Option	Option Shortcut	Option Value	Description
trackingshield	ts	no option value	Use tracking shield for storelook.
values	v	False, True	Filters or enables value layer.
valuetimes	vt	False, True	Filters or enables fade and delay layer.

## Example

Store all dimmer values from all fixtures in the show as cue 1 on executor 1.

```
[Channel]> StoreLook Executor 1
```

## 44.3.271. Surface Keyword

To go to the Surface keyword, type **Surface** in the command line or use the shortcut **Su**.

### Description

The Surface keyword, loads a created surface from the [Wing & Monitor Setup](#).

The default function for this object is **Call**. Call a Surface activates the settings of the given surface.

Surface 1 is non-editable and configures all fadermodules and screens 1:1.

The Surface keyword is an object keyword.

### Syntax

#### Surface [ID]

## Example

Load surface 2 from the wing & monitor setup.

```
[Channel]> Surface 2
```

## 44.3.272. Swop Keyword

To go to the Swop keyword, type **Swop** in the command line or use the shortcut **Sw**.

### Description

The Swop keyword temporary overrides the master level of executors to full and set all other master levels to zero.

If Swop is assigned as an executor button function, pressing the executor button is Swop On, release the executor button is Swop Off.

The executor is off after releasing the executor button.

If Swop is used standalone, Swop toggles between Swop On and Swop Off.

To protect an executor from the swop function, assign Swop Protect in the Assign Menu. To open the Assign menu, press **Assign** , then the executor button, tap **Options** and then tap under **Protect** **Swop Protect** .

The Swop keyword does not react to any assigned timing.

### Syntax

**Swop [Executor-list]**

**Swop On [Executor-list]**

**Swop Off [Executor-list]**

### Options

To get a list of all options of the keyword Swop, type the following into the command line:

```
[Channel]> Swop /?
```

The keyword Swop has the same options as the keyword Goto.

For further information see keyword [Goto](#).

### Examples

- Override master level of executor 1 to full and all other master levels to zero.

```
[Channel]> Swop Executor 1
```

- Returns the master level to the master fader position and turns the executor off.

```
[Channel]> Swop Off Executor 1
```

## 44.3.273. SwopGo Keyword

To go to the SwopGo keyword, type **SwopGo** in the command line or use the shortcut **SwopG**.

### Description

The SwopGo keyword temporary overrides the master level of executors to full and all other master levels to zero, and goes to the next cue.

If SwopGo is assigned as an executor button function, pressing the executor button is SwopGo On, release the executor button is SwopGo Off.

The executor stays tuned on.

If SwopGo is used standalone, it toggles between SwopGo On and SwopGo Off.

To protect an executor from the swop function, assign Swop Protect in the [Assign Menu](#).

The SwopGo keyword do not react to any assigned timing.

### Syntax

**SwopGo [Executor-list]**

**SwopGo On [Executor-list]**

**SwopGo Off [Executor-list]**

### Options

To get a list of all options of the keyword SwopGo, type the following into the command line:

```
[Channel]> SwopGo /?
```

The keyword SwopGo has the exact same options as the keyword Goto.

For further information see keyword [Goto](#).

### Example

1. Step to the next cue, override master level of executor 1 to full and all other master levels to zero.

```
SwopGo Executor 1
```

2. Returns the master level to the master fader position. The executor stays on after releasing the executor button.

```
SwopGo Off Executor 1
```

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## 44.3.274. SwopOn Keyword

To go to the SwopOn keyword, type **SwopOn** in the command line or use the shortcut **SwopO**.

### Description

The SwopOn keyword temporary overrides the master level of executors to full and all other master levels to zero.

If SwopOn is assigned as an executor button function, pressing the executor button is SwopOn On, release the executor button is SwopOn Off.

The executor stays tuned on.

If SwopOn is used standalone, SwopOn toggles between SwopOn On and SwopOn Off.

To protect an executor from the swap function, assign Swop Protect in the [Assign Menu](#).

The Swop keyword do not react to any assigned timing.

### Syntax

**SwopOn [Executor-list]**

**SwopOn On [Executor-list]**

**SwopOn Off [Executor-list]**

### Options

To get a list of all options of the keyword SwopOn, type the following into the command line:

```
[Channel]> SwopOn /?
```

The keyword SwopOn has the exact same options as the keyword Goto.

For further information see keyword [Goto](#).

### Example

1. Override master level of executor 1 to full and all other master levels to zero.

```
[Channel]> SwopOn Executor 1
```

2. Returns the master level to the master fader position. The executor stays on after releasing the executor button.

```
[Channel]> SwopOn Off Executor 1
```

## 44.3.275. SyncEffects Keyword

To get the SyncEffects keyword in the command line, press and hold **WA** + **Effects** (= SyncEffects).

You can also type **SyncEffects** in the command line or use the shortcut **Sy**.

### Description

The SyncEffects keyword starts all running effects synchronous.



#### Hint:

You can also use the **Sync Effects** button in the **Special Dialog | Effect Value**.

### Syntax

#### SyncEffects

### Example

Synchronize the PWM (= Pulse-width modulation) effect for the selected fixtures.



```
[Channel]> SyncEffects
```

## 44.3.276. TakeControl Keyword

To go to the TakeControl keyword, type **TakeControl** in the command line or use the shortcut **Ta**.

### Description

TakeControl is a keyword used if multiple users are in a session.

The TakeControl keyword, takes the exclusive control of channels or attributes from fixtures, for the current user profile.

All other users can not start these fixtures or channels anymore as playback. The fixtures or channels are still controllable in the programmer.

The user who executes the TakeControl command has only the control about playbacks with the Takecontrol fixtures. The control about all other playbacks is lost.

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Fixture									
ID	F/C	Name	Dimmer Dim	Position		Gobo1		Gobo2	Color1
				Pan	Tilt	G1	G1<>	G2	C1
1		Spot 1	close	+	center	o	per zero	o	ope
2		Spot 2	close	+	center	o	per zero	o	ope
3		Spot 3	close	+	center	o	per zero	o	ope
4		Spot 4	close	+	center	o	per zero	o	ope
5		Spot 5	close	+	center	o	per zero	o	ope
6		Spot 6	close	+	center	o	per zero	o	ope
7		Spot 7	close	+	center	o	per zero	o	ope
8		Spot 8	close	+	center	o	per zero	o	ope
9		Spot 9	close	+	center	o	per zero	o	ope
10		Spot 10	close	+	center	o	per zero	o	ope

Fixture Sheet with controllable (gray font) and not controllable (dark blue font) attributes from playbacks

For more information about the system colors, see [Colors](#).

To drop the control of the fixtures or channels back, use the [DropControl keyword](#).

Syntax

**TakeControl [fixture-list]**

**TakeControl [channel-list]**

**TakeControl [sequence-list]**

Example

Take the exclusive control of fixture 1 through 10 for the current user profile. All other fixtures are not controllable from playbacks anymore.

```
[Channel]> TakeControl Fixture 1 Thru 10
```

## 44.3.277. Telnet Keyword

To go to the Telnet keyword, type **Telnet** in the command line or use the shortcut **Tel**.

### Description



#### Important:

The telnet receiver needs to read the commands without a telnet login. If the telnet receiver asks for a login, the command can not be processed.

The Telnet keyword sends Telnet commands via grandMA2 command line directly to a telnet receiver.

The Telnet keyword is a function keyword.

For more information, see [What is Telnet remote?](#).

### Syntax

**Telnet [IP address] : [Port] "String"**

### Example

The telnet receiver starts an specific function, if the receiver gets the command "Artist1".

```
[Channel]> Telnet 192.168.0.1 : 23 "Artist1"
```

## 44.3.278. Temp Keyword

To get the Temp keyword in the command line, press **Temp**.

You can also type **Temp** in the command line or use the shortcut **Te**.

### Description

The Temp keyword turns an executor on, as long as you hold the executor button.

The Temp keyword follows cue timing, off timing and the position of the master fader from the executor.

If you keep the hands off from the executor button, the executor is off again. The Temp Off keyword will be executed.

The Temp keyword is a function keyword.

### Syntax

**Temp [Object-list] / [Option] = [Option Value]**

**Temp On [Object-list] / [Option] = [Option Value]**

**Temp Off [Object-list] / [Option] = [Option Value]**

### Options

To get a list of all available options to the Temp keyword, type in the command line:

```
[Channel]> Temp /?
```

The Temp keyword has the following options:

Option	Option Shortcut	Option Value	Option Value Shortcut	Description
cue_mode	cm	Normal	N	Normal temp mode.
cue_mode	cm	Assert	A	Temp state asserts the original timing.
cue_mode	cm	XAssert	XA	Temp state asserts cuetiming of current cue.
cue_mode	cm	Release	R	Temp finishes fade-in and switches the executor off.
userprofile	upr	"Name of the user profile", e.g. "Dominik"	not available	Normal temp mode with specified user profile.

## Examples

- To turn executor 1 temporary on, type in the command line:

```
[Channel]> Temp On Executor 1
```

- To turn executor 1 temporary off, type in the command line:

```
[Channel]> Temp Off Executor 1
```

## 44.3.279. TempFader Keyword

To get the TempFader keyword in the command line, type **TempFader** or the shortcut **TempF** in the command line .

### Description

The TempFader keyword, assigns executors as a temp fader.

A temp fader crossfades the cue on when pulled up, and crossfades the cue off when pulled down.

For more information, see [executors - assign a function](#).

The TempFader keyword is an object keyword.

### Syntax

**[Function] TempFader [Object] [ID]**

**TempFader [Percent]**

### Examples

- Assign executor 28 as a temp fader.

```
[Channel]> Assign TempFader Exec 28
```

- Set the temp fader to 50 % for the selected executor.

```
[Channel]> TempFader 50
```

## 44.3.280. Thru Keyword

To go to the Thru keyword, press **Thru**.

You can also type **Thru** in the command line or use the shortcut **T**.

### Description

The Thru keyword reference a range of objects / values.

If the start or end is not defined, it will be used the first or last available object / values.

### Syntax

[Start of range] Thru [End of range]

### Example

1. Select fixture 3 through 6.

```
[Channel]> Fixture 3 Thru 6
```

2. Select all fixture from the beginning through 10.

```
[Channel]> Fixture Thru 10
```

3. Delete all cues, beginning with cue 3, from the selected executor.

```
[Channel]> Delete Cue 3 Thru
```

4. Select all fixtures. Press **Thru** (= Fixture Thru).

```
[Channel]> Fixture Thru
```

5. Turn off all executor from the current page.

```
[Channel]> Off Thru
```

## 44.3.281. Timecode Keyword

To get the Timecode keyword in the command line, press **Macro Macro** (= Timecode).

You can also type **Timecode** in the command line or use the shortcut **TC**.

### Description

The Timecode keyword, select the timecode by default.

With the Timecode keyword, you can

- store

- play (go)
- record
- edit
- label
- assign
- rewind (top)

timecode shows.

The Timecode keyword, is an object keyword.

For more information, see [Timecode](#).

Syntax

## **[Function] Timecode [ID]**

### **Assign Timecode [ID] / [Parameter] = [Parameter Value]**

Parameter

The following table displays the assignable parameters by using the [Assign keyword](#).

Parameter	Parameter Value	Description
Name	"Timecode show name"	Assign the timecode show name.
Slot	"Intern" (-1), "Link Selected" (0), "1", "2", "3", "4", "5", "6", "7", "8"	Assign the timecode show to a timecode slot.
Length	0s to 255h59m58.96s	Assign the timecode show length in total.
Offset	0s to 255h59m58.96s	Assign an offset to the timecode show, to move the entire timecode show forward.
Runs	"Endless Repeat" (0), "No Repeat" (1), 2..1000	<p><b>Only for timecode shows syncing to the internal clock.</b></p> <p>Assign, if the timecode show runs:</p> <ul style="list-style-type: none"> <li>● Endless (Endless Repeat)</li> <li>● Once and stop (No Repeat)</li> <li>● A specific number of times (number between 2 and 1000)</li> </ul>
SwitchOff	"Playbacks Off", "Keep Playbacks"	<p>Assign, if the playbacks running during a timecode show:</p> <ul style="list-style-type: none"> <li>● Turns off (Playbacks Off)</li> <li>● Stays on (Keep Playbacks)</li> </ul> <p>when the timecode show turns off.</p>

Parameter	Parameter Value	Description
StatusCall	"On", "Off"	Assign, if the timecode show will: <ul style="list-style-type: none"> <li>• Sync with the timecode signal instantly (on)</li> <li>• Execute the signal when they are reached (off)</li> </ul>
TimeUnit	"1/100 Seconds", "24 FPS", "25 FPS", "30 FPS"	Assign the time unit for the graphic display mode.
WhenEnding	"Stop", "Pause"	<b>Only for timecode shows syncing to the internal clock.</b> Assign what happens when the timecode show runs out of recorded time.
WhenStopping	"Do Nothing", "Rewind"	Assign what happens when the timecode show is stopped.
AutoStart (only available with external timecode slot)	"Off", "On"	<b>Only available when syncing to an external source.</b> If a timecode signal is received, the timecode show switches from the off mode into the play mode.

**Only available when syncing to an external source.**

**User Bits** 0 .. FFFFFFFF, 0 .. 4294967296  
 Assign user bits in hex or decimal, to transmit several kinds of information, e.g. a second Timecode Stream. So several incoming Timecode Streams can be discerned.

- Store new timecode show 2 in the timecode pool.

```
Info [Channel]> Store Timecode 2
```

- Record executor action for timecode show 2.

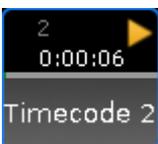
```
[Channel]> Record Timecode 2
```



*Pool Object Record Timecode*

- Play timecode show 2.

```
[Channel]> Go Timecode 2
```



*Pool Object Go Timecode*

- 
- Rewind timecode show 2.

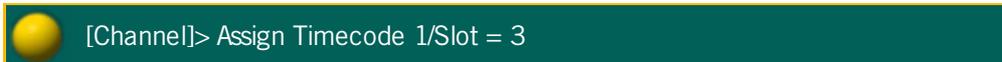


- 
- Label timecode show 2 in the timecode pool. The Enter Name for Timecode pop-up opens.



*Enter Name for Timecode pop-up*

- 
- Assign timecode show 1 the timecode slot 3.



Timecode slot 3 is assigned to timecode show 1.

## 44.3.282. TimecodeSlot Keyword

To get the TimecodeSlot keyword, type **TimecodeSlot** or the shortcut **TimecodeS** in the command line.

### Description

The TimecodeSlot keyword, selects the timecode slot.

The TimecodeSlot keyword is a function keyword.

### Syntax

#### TimecodeSlot [ID]

### Examples

- Select timecode slot 3.



*Pool Object Selected Timecode Slot*

## 44.3.283. Timer Keyword

To get the Timer keyword in the command line, press and hold  + **Macro** (= Timer).  
You can also type **Timer** in the command line.

### Description

With the Timer keyword you can edit, start, pause, restart, switch off, select, lock, unlock, and assign timers.

Timer 1 is a predefined stopwatch and not editable.

For more information, see [Timers](#).

The Timer keyword is an object keyword.

### Syntax

#### [Function] Timer [ID]

#### Assign Timer [ID] / [Parameter] = [Parameter Value]

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## Parameter

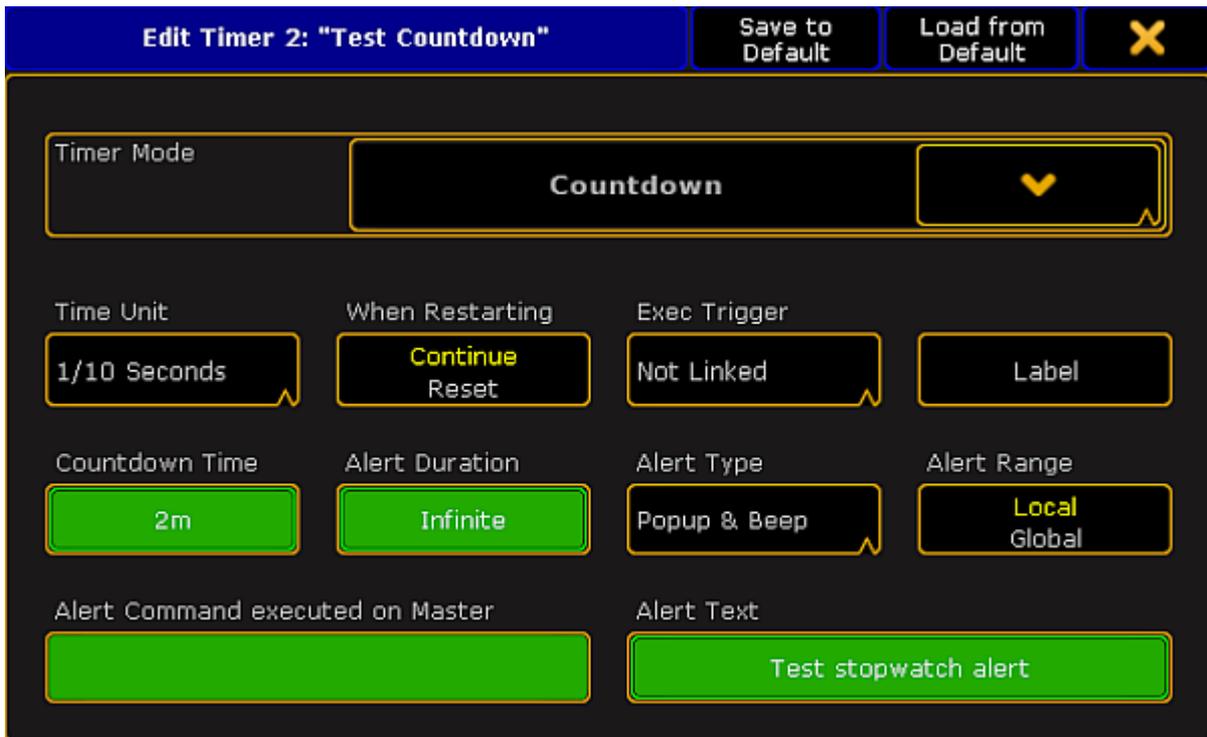
The following table displays the assignable parameters via command line.

Parameter	Parameter Value
Name	"Timename"
TimerMode	"Stopwatch", "Countdown"
WhenRestarting	"Continue", "Reset"
TimeUnit	"Seconds", "1/10 Seconds", "1/100 Seconds", "24 FPS", "25 FPS", "30 FPS"
ExecTrigger	"LinkSelected-Start", "Not Linked", "LinkLastGo-Start", "LinkSelected-Toggle", "LinkLastGo-Toggle"
AlertType (only if timer mode is countdown)	"None", "Popup", "Popup & Beep", "Command", "Command & Popup", "Command, Popup & Beep"
AlertRange (only if timer mode is countdown)	"Local", "Global"
Countdowntime (only if timer mode is countdown)	0.01S .. 23H59M59.99S

## Examples

- Edit timer 2. The Edit Timer pop-up opens.





*Edit Timer pop-up*

- Assign a countdown time of 20 seconds to the existing timer 2.

```
[Channel]> Assign Timer 2 /countdowntime = 20
```

## 44.3.284. ToFull Keyword

To get the ToFull keyword in the command line, press **>>>** **>>>** **>>>** (= ToFull).  
You can also type **ToFull** or the shortcut **ToF** in the command line.

### Description

The ToFull keyword sets the masterlevel of objects to 100 %.

ToFull is a function keyword.



#### Important:

ToFull adjusts only masterlevels to 100 % and NOT e.g. speedmaster or crossfader.  
To set all faders to 100 %, use the [At keyword](#).

### Syntax

**ToFull [Executor-list] / [Option] = [Option Value]**

**ToFull SpecialMaster [ID] / [Option] = [Option Value]**

### Examples

- Sets the masterlevel of executor 1 to 100 %.

```
[Channel]> ToFull Executor 1
```

- Sets the grandmaster to full.

```
[Channel]> ToFull SpecialMaster "grandmaster" . "grand"
```

- - or -

```
[Channel]> ToFull SpecialMaster 2.1
```

- Sets the fader of executor 1 with cue mode assert to full.

```
[Channel]> ToFull Executor 1 / cm = A
```

## 44.3.285. Toggle Keyword

To go to the Toggle keyword press **Temp Temp** (= Toggle).

You can also type **Toggle** in the command line or use the shortcut **Tog**

### Description

The Toggle keyword acts as an on or off keyword, depending of the on/off-status of the object or function/mode it is applied to.

If object or function/mode is on, it turns it off. If object or function/mode is off, it turns it on.

For further information see the keywords [On](#) and [Off](#).

Toggle is a function and helping keyword.

### Syntax

**Toggle [Object-list]**

**[Function/Mode]Toggle**

### Options

To get a list of all options of the keyword Toggle, type the following into the command line:

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> Toggle /?

```
[Channel]> Toggle /?
```

The keyword Toggle has the exact same options as the keyword Goto.

For further information see the keyword [Goto](#).

### Example

1. Turn the running executor 4 off.

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> Toggle Executor 4

```
[Channel]> Toggle Executor 4
```

2. Turn the blind mode off.

A terminal window with a dark green background and a yellow border. A yellow sphere icon is on the left. The text reads: [Channel]> Blind Toggle

```
[Channel]> Blind Toggle
```

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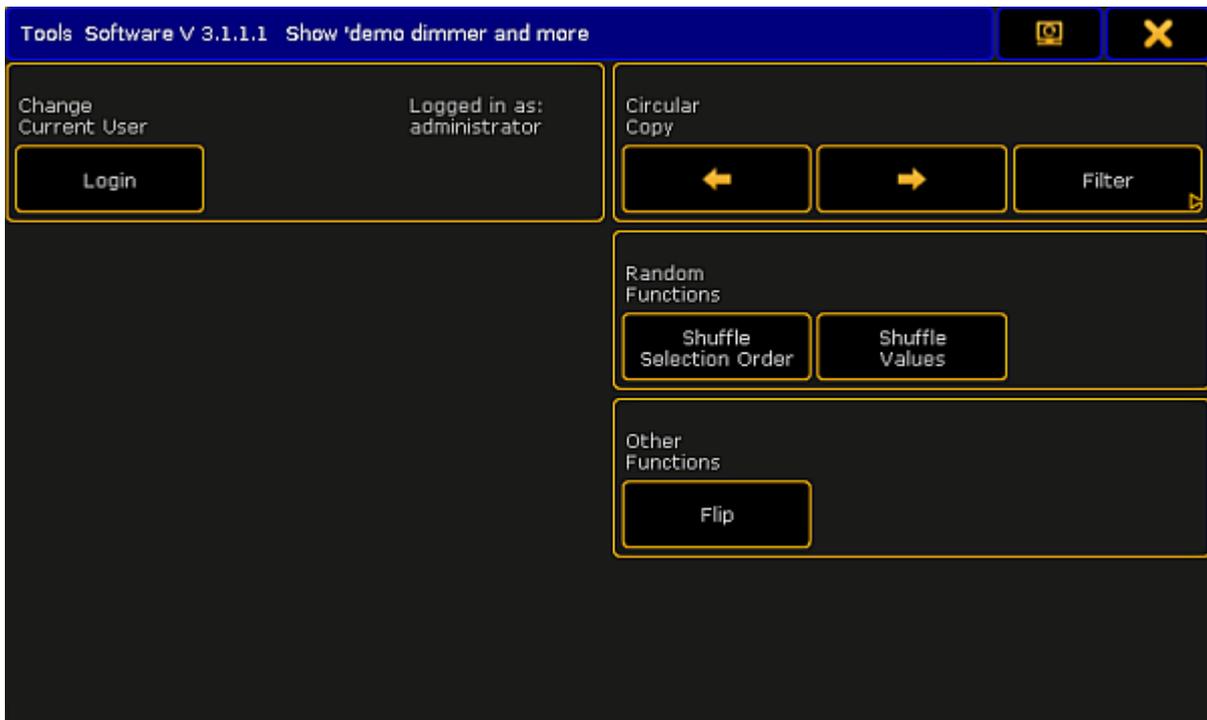


## 44.3.286. Tools Keyword

To go to the Tools keyword, type **Tools** in the command line or use the short cut **To**.

### Description

The Tools keyword opens or closes the tools menu.



### Tools menu

The Tools keyword is a function keyword.



#### Hint:

Another way to open the Tools menu is, press the **Tools** key.

### Syntax

#### **Tools**

### Example

Open the tools menu.



## 44.3.287. Top Keyword

To go to the Top keyword, press **Top** or type **Top** in the command line.

## Description

The Top keyword jumps to the beginning of the cue list or sets the timecode marker at the beginning of the timecode show.

The Top keyword is a function keyword.

## Syntax

**Top [Executor-list] / [Option] = [Option Value]**

**Top [Timecode-list]**

## Options

To get a list of all available options to the top keyword, type in the command line



The top keyword has the following options.



### Important:

The cue mode options along with the top keyword are only necessary if the cue zero mode is set to on, all, dimmers only, or effects. For more information, see [Using cue modes](#).

Option	Option Shortcut	Option Value	Option Value Shortcut	Description
cue_mode	cm	Normal	N	Goes to the top of the sequence and calls the first cue normal.
cue_mode	cm	Assert	A	Goes to the top of the sequence and calls the first cue with an assert.
cue_mode	cm	XAssert	XA	Goes to the top of the sequence and calls the first cue with a xassert.
cue_mode	cm	Release	R	Goes to the top of the sequence and calls the first cue and release it.
cue_mode	cm	Break	B	Goes to the top of the sequence and calls the first cue and sets a break before the cue.
cue_mode	cm	XBreak	XB	Goes to the top of the sequence and calls the first cue and sets a xbreak before the cue.

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Option	Option Shortcut	Option Value	Option Value Shortcut	Description
userprofile	upr	"Name of the user profile", e.g. "Dominik"	not available	Goes to the top of the sequence and calls the first cue with specified user profile.

## Examples

- Go to the top of the cue list on executor 5.

 [Channel]> Top Executor 5

- Go to the top of the cue list on executor 5 in 3 seconds.

 [Channel]> Top Executor 5 Fade 3

## 44.3.288. ToZero Keyword

To go to the ToZero keyword, press  (= ToZero).

You can also use the command line and type **ToZero** or use the shortcut **ToZ**.

### Description

The ToZero keyword sets the masterlevel of objects to zero.

ToZero is a function keyword.



#### Important:

ToZero sets only masterlevels to zero and NOT e.g. speedmaster or crossfader.  
To set all faders to zero, use the [At keyword](#).

### Syntax

**ToZero [Executor-list] / [Option] = [Option Value]**

**ToZero SpecialMaster [ID] / [Option] = [Option Value]**

### Examples

- Sets the masterlevel of executor 1 to zero.

```
[Channel]> ToZero Executor 1
```

- Sets the grandmaster to zero.

```
[Channel]> ToZero SpecialMaster "grandmaster" . "grand"
```

- or -

```
[Channel]> ToZero SpecialMaster 2.1
```

- Sets the fader of executor 1 with cue mode assert to zero.

```
[Channel]> ToZero Executor 1 / cm = A
```

## 44.3.289. Unblock Keyword

To go to the Unblock keyword, type **Unblock** in the command line or use the shortcut **UB / Unb**.

### Description

The unblock keyword convert blocked values in cues (displayed white) into tracking values (displayed magenta).

If the selected executor is on, the unblock keyword will be applied for the current cue of selected executor.

If the selected executor is off, the unblock keyword will be applied for all cues of the selected executor.

If unblock does not contain any selection-list, all fixtures will be used.

If unblock does not contain any attribute-list, all attributes will be used.

Unblock is a function keyword.

### Syntax

**Unblock [Object-list] If [Selection-list] If [Attribute-list] / [Option]**

### Options

The following table displays the available Unblock options.

Option	Shortcut	Description
defaultvalues	dv	Removes the default values.

### Examples

- Unblock all values after programming from the selected executor. The selected executor is off.

```
[Channel]> Unblock
```

- Unblock all values from the current cue. The selected executor is on.

```
[Channel]> Unblock
```

- Unblock all values from feature position, fixture 1 in cue 3.

```
[Channel]> Unblock Cue 3 If Fixture 1 If Feature "Position"
```

- Unblock all default values from sequence 1.

```
[Channel]> Unblock Sequ 1 /dv
```

## 44.3.290. Unlock Keyword

To use to the Unlock keyword, type **Unlock** in the command line or use the shortcut **UL / Unl**.

### Description

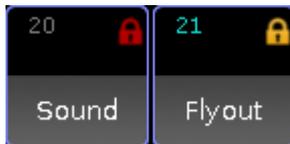
With the unlock keyword, you can unlock previous locked objects.



#### Information:

A yellow lock indicates a locked object what can be unlocked.

A red lock indicates a locked object what is fixed by default. It can not be unlocked.



*Figure: Locked Pool Objects*

The Unlock keyword is a function keyword.

### Syntax

#### **Unlock [Object-List]**

### Examples

1. Unlock cue 3 to edit the cue.

```
[Channel]> Unlock Cue 3
```

2. Unlock world 3 to edit the world.

```
[Channel]> Unlock World 3
```

## 44.3.291. Unpark Keyword

To go to the Unpark keyword, press the small **Go +** twice (= Unpark).

You can also type **Unpark** in the command line or use the shortcut **Unp**.

### Description

With the Unpark keyword, you can unpark previous parked DMX channels.



#### Information:

Parked channels are displayed with a blue indicator.

The park icon in the command line indicates that there are DMX channels parked.

### Syntax

**Unpark [Selection-list]**

**Unpark [Attributes-list]**

### Examples

1. Unpark previous parked DMX channels.

```
[Channel]> Unpark DMX 1.1 Thru 1.10
```

2. Unpark all fixtures and channels.

```
[Channel]> Unpark DmxUnivers Thru
```

3. Unpark PresetType Dimmer, of the current fixture selection.

```
[Channel]> Unpark PresetType Dimmer
```

4. Unpark Fixture 2.

```
[Channel]> Unpark Fixture 2
```

### Related Links

- [Park Keyword](#)
- [Go + Key \(small\)](#)
- [Command Line](#)

## 44.3.292. Up Keyword

To go to the Up keyword type **Up** in the command line.

### Description

The Up keyword scrolls one page up in focused window. It is the same as press the **Up** key on the console. See [Up Key](#).

The Up keyword is a function keyword.

### Syntax

#### **Up**

### Example

Scroll one page up in the fixtures sheet.



## 44.3.293. Update Keyword

To go to the Update keyword, press **Update**.

You can also type **Update** in the command line or use the shortcut **Upd**.

### Description

The update keyword, updates functions in its source objects.

Update is a function keyword.

### Syntax

**Update [object-list] / [option] = [option value]**

### Options

To get a list of all available options to the update keyword, type in the command line



The update keyword has the following options.

Option	Option Shortcut	Option Value	Description
addnewcontent	an	False, True	False is the same as originalcontent.
auto	not available	no option value	Updates preset values with default preset scope.
cueonly	co	False, True	Prevents changes to track forward.
effects	ef	False, True	Filters or enables effect layer.

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Option	Option Shortcut	Option Value	Description
embedded	e	False, True	Creates embedded preset.
global	g	no option value	Updates preset with global values.
keepactive	ka	False, True	Keeps values active.
noconfirm	nc	no option value	Suppress update confirmation pop-up.
originalcontent	or	False, True	Updates the original content of the preset, effect, or cue. False is the same as addnewcontent.
presetfilter	p	False, True	Sets preset filter on or off.
screen	not available	1..6	Updates view with selected screen.
selective	s	no option value	Updates preset with selective values.
source	so	Prog, Output, Dmx In	Defines data source.
tracking	t	False, True	Update tracking. False is the same as cueonly.
trackingshield	ts	no option value	Use tracking shield for update.
universal	u	no option value	Updates preset with universal values.
useselection	use	Active, Allforselected, Activeforselected, All, Look	Sets selection.
values	v	False, True	Filters or enables value layer.
valuetimes	vt	False, True	Filters or enables value times layer.

## Example

1. Update current cue of the selected executor, according to the update defaults. For more information, see [Update a Cue](#).

```
[Channel]> Update
```

2. Update cue 4 with values that originates from cue 4, as cue only.

```
[Channel]> Update Cue 4 /originalcontent /cueonly
```

3. Update color preset 2 with global values, keep them active in the programmer, and without confirmation pop-up. For more information, see [Update Presets](#).

```
[Channel]> Update Preset 4.2 /global /keepactive=true /noconfirm
```

## 44.3.294. UpdateFirmware Keyword

To go to the UpdateFirmware keyword type **UpdateFirmware** in the command line or use the shortcut **UpdateF**.

### Description



#### **Important:**

The update firmware process can take up to 60 seconds. To double-check if the update firmware process is still running, use the [Version keyword](#).

If the update process is still running, the version keyword will display it. If not, the version keyword function is as usual.

You can also use the system monitor window, **Create Basic Window -> System -> System Monitor**.

With the UpdateFirmware keyword, you update the firmware of the hardware components at the console.

This is useful if you have hardware issues.

If the UpdateFirmware does not solve the issue, contact the MA tech support. See the email address of tech support in the footer of this website.

The UpdateFirmware keyword is an object keyword.

### Syntax

#### **UpdateFirmware**

### Example

Update the hardware components of the firmware.

A screenshot of a terminal window with a dark green background and a yellow border. It shows a yellow sphere icon followed by the text "[Channel]> UpdateFirmware".

```
[Channel]> UpdateFirmware
```

## 44.3.295. UpdateSoftware Keyword

To go to the UpdateSoftware keyword, type **UpdateSoftware** in the command line or use the shortcut **UpdateS**.

You can also update the software in the Setup. For more information, see [update the software](#).

### Description

#### Requirement:

An inserted USB stick with a .update file for the appropriate device or program in the root directory.

Download the latest software on [www.malighting.com](http://www.malighting.com).

With the UpdateSoftware keyword, you can update the software of every MA device or program in the network.

The UpdateSoftware keyword is a function keyword.

### Syntax

#### UpdateSoftware [IP address]

### Example

Update the MA 4Port Node with the IP address 192.168.0.32 in the network.

A screenshot of a terminal window with a dark green background and a yellow border. It shows a yellow sphere icon followed by the text "[Channel]> UpdateSoftware 192.168.0.32".

```
[Channel]> UpdateSoftware 192.168.0.32
```



#### Hint:

To be faster, type only the part of the IP address in the command line what is differently. If the console has the IP address 192.168.0.11, the type **UpdateSoftware 11**.

## 44.3.296. UpdateThumbnails Keyword

To go to the UpdateThumbnails keyword, type **UpdateThumbnails** in the command line.

### Description

The UpdateThumbnails keyword updates the thumbnails of the media servers.

For more information on media servers see the [keyword MediaServer](#).

### Syntax

#### **UpdateThumbnails MediaServer [RowID]**

The row ID is the row in the window CTP Network Configuration. For more information see [Thumbnail exchange](#).

### Example

Update the thumbnails of media server, row 2.



## 44.3.297. User Keyword

To use the User keyword, type **User** the shortcut **Us** in the command line.

### Description

The User keyword displays user details in the command line feedback window.

- Name
- Password
- UserProfile
- Rights
- LoggedIn
- Info



```
14h32n01.794s : Application is 64 bits release
14h32n16.291s : Executing : List User
14h32n16.291s :
14h32n16.291s : NewUser 1 administrator ***** Default Admin English 1
14h32n16.291s : NewUser 2 guest Default Playback English 0
14h32n16.291s : NewUser 3 Remote Remote Admin English 0
14h32n16.291s : NewUser 4 Programmer1 Programmer Setup English 0
```

Command Line Feedback List User

The User keyword is an object keyword.

For more information, see [create user profiles and user](#).

### Syntax

**User [ID]**

### Example

- List user details to user 1.



```
[Channel]> List User 1
```

- List all user details.



```
[Channel]> List User
```

## 44.3.298. UserProfile Keyword

To execute the keyword UserProfile, type **UserProfile** or the shortcut **UPR** into the command line.

## Description

The keyword `UserProfile` displays the user profiles in the command line feedback.

- Number
- Name
- Used
- LoggedIn
- Info
- Subtrees in parantheses

`UserProfile` is an object keyword.



```
11h38m42.057s : Executing : ChangeDest /
11h38m48.191s : Executing : Channel
11h38m55.832s : Executing : List UserProfile
11h38m55.832s :
11h38m55.832s : UserProfile 1 1 Default 2 1 (26)
11h38m55.832s : UserProfile 2 2 Remote 1 0 (26)
11h38m55.832s : UserProfile 3 3 Programmer 1 0 All programmers use this (26)
```

*Keyword `UserProfile`*

For more information see [create user profiles](#).

## Syntax

### **UserProfile [ID]**

## Examples

- Lists all user profiles that are available.



```
[Channel]> List UserProfile
```

- Lists user profile 1.



```
[Channel]> List UserProfile 1
```



### **Hint:**

User profiles can be limited to a specific world.

There are three commands that generate the same result:

- Assigns the user profile 2 to world 1.

```
[Channel]> Assign UserProfile 2 At World 1
```

```
[Channel]> Assign World 1 UserProfile 2
```

```
[Channel]> Assign UserProfile 2World=1
```

## 44.3.299. Value Keyword

To go to the Value keyword, type **Value** in the command line or use the shortcut **Va**.

### Description

With the value keyword you can:

- Search values
- Replace values
- Change to value layers

### Syntax

**Value [Value-List]**

**[Function] [Object-List] Value [Value-List] [Function] [Value-List]**

### Examples

- Search fixtures and channels with dimmer value 50.

```
[Channel]> Search Value 50
```

- Replace value 50 at channel 1 through 10 with value 60.

```
[Channel]> Replace Channel 1 Thru 10 Value 50 With 60
```

- Change to the value layer.

```
[Channel]> Value
```

## 44.3.300. Version Keyword

To go to the version keyword, type **Version** in the command line or use the shortcut **Ve**.

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## Description

The version keyword gives you access to version details of the console or software in the commandline feedback window.

It displays the following details.

- version number
- build date
- build time
- vhash
- showfile
- showpath
- current user
- parameter count

The version keyword is a function keyword.

## Syntax

### Version

## Example

To see the version details of the console or the software.

- Type **Version** in the command line and press **Please**.

[Channel]> Version

```
Commandline Feedback
17h40n45.948s : Showpath is 'C:/ProgramData/MA Lighting Technologies/grandma/gma2_V_3.1.1/demo
17h40n45.948s : Current user is 'administrator'
17h40n45.948s : Parameter count is 0
17h40n45.949s : Application is 64 bits release
17h41m00.941s : Executing : Version
17h41m00.941s : Console onPC 3.1.1.1
17h41m00.941s : Build date is Jul 9 2015
17h41m00.941s : Build time is 18:10:35
17h41m00.941s : VHash is 671bf1916708673e74f02e64a250be4218b72ab4
17h41m00.941s : Showfile is 'demo dinner and more'
17h41m00.941s : Showpath is 'C:/ProgramData/MA Lighting Technologies/grandma/gma2_V_3.1.1/demo
17h41m00.941s : Current user is 'administrator'
17h41m00.941s : Parameter count is 0
17h41m00.941s : Application is 64 bits release
```

*Version details in the commandline Feedback pop-up*

The version details are displayed in the commandline feedback pop-up.

### 44.3.301. View Keyword

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To get the View keyword in the command line, press **View** or type **View** in the command line.

## Description

The view keyword calls views on a screen.

With the option **/screen** you select

on which screen the view will be called

- or -

which screens will be stored in a view.

## Syntax

### View [ID]

### View [ID] / screen = [ID]

### View [ID] / [option] = [option value]

## Options

The following table displays the assignable options along with the [Assign keyword](#).

Option	Option Value
Name	View name, e.g. "Stage Extern".
Info	Additional information to the view, e.g. "all I need".

## Examples

- Call view 2 from the view pool on that screen where it is stores from.

```
[Channel]> View 2
```

- Call view 5 on screen 2.

```
[Channel]> View 5 /screen = 2
```

- Store the content of screen 2, 3, and 4 at view object 5.

```
[Channel]> Store View 5 /screen = 234
```

- Assign view 2 the name Stage Extern.

```
[Channel]> Assign View 2/name = "Stage Extern"
```

## 44.3.302. ViewButton Keyword

To go to the ViewButton keyword, press **View View** (=ViewButton).

You can also use the commandline and type ViewButton or use the shortcut **VB**.

### Description

The ViewButton keyword calls the assigned function on the [view button](#). The call function works only if the assigned object supports a call.

The ViewButton keyword is an object keyword.

### Syntax

#### **ViewButton [ID]**

#### **ViewButton [ViewPage].[ID]**

### Example

Delete the assigned function of view button 4 from the current view page.

```
[Channel]> Delete ViewButton 4
```

Label the assigned view button 5 at view page 2.

```
[Channel]> Label ViewButton 2.5 "Layout"
```

Store a view at key X1.

```
[Channel]> Store ViewButton 11.1
```

### Related Links

- [ViewPage Keyword](#)
- [View Key](#)
- [V-Keys](#)
- [X-Keys](#)

## 44.3.303. ViewPage Keyword

To go to the ViewPage keyword, press **View View View** (=ViewPage).  
The commandline shortcut is **VP**.

### Description

The ViewPage keyword calls the view pages. There are 11 view pages available.  
This is the same as press and hold the **MA** and a V-Key.

The ViewPage keyword is an object keyword.

### Syntax

#### **ViewPage [ID]**

### Example

Call view page 2.



### Related Links

- [View Key 1 - 10](#)
- [View Key](#)

## 44.3.304. WebRemoteProgOnly Keyword

To go to the WebRemoteProgOnly keyword, type **WebRemoteProgOnly** in the command line or use the shortcut **W**.

### Description

The WebRemoteProgOnly keyword, selects in the [web remote](#) fixture sheet the option **Prg Only** (= Programmer Only).

The WebRemoteProgOnly is a function keyword.

### Syntax

#### **WebRemoteProgOnly**

### Example

Select function Prg Only in the web remote fixture sheet.



## 44.3.305. With Keyword

To go to the With keyword, press **Move** **Move** (= Replace), enter search for object values, press **Move** (= With) again.

You can also type **With** in the command line or use the shortcut **Wi**.

### Description

The With keyword is necessary for the replace function.

The With keyword is a helping keyword.

### Syntax

#### With replace\_with\_objects [IF search\_in\_objects]

#### Example

1. Add 10 degrees to all pan values for all cues and presets.

```
[Channel]> Replace Attribute "Pan" At - 270 Thru 270 With - 260 Thru 280
```

2. Replace dimmer value 50 by dimmer value 55 in the programmer, in all sequences, and cues.

```
[Channel]> Replace PresetType 1 At 50 With 55
```

3. Replace dimmer value 50 by dimmer value 55 only in the programmer.



#### **Information:**

This command structure works only, if you type the command by using the keyboard.  
If you type the command by using the command keys, the **At** key will interrupt the replace command.

```
[Channel]> Replace At 50 With 55 If Programmer
```

### Related Links

- [Search and Replace](#)
- [Replace Keyword](#)
- [Move Key](#)

## 44.3.306. World Keyword

To go to the world keyword, type **World** in the command line.

### Description

The world keyword call worlds along with its filter, and limit the access to the parameters in the word. World 1 is fixed by default and includes all parameters (fixtures and attributes) in the show.

World is an object keyword.

### Syntax

#### **World [ID]**

### Examples

Call a world.

A terminal window with a dark green background and a yellow cursor. The text "[Channel]> World 4" is displayed in white.

Label a world.

A terminal window with a dark green background and a yellow cursor. The text "[Channel]> Label World 4 \"All Fixtures\"" is displayed in white.

### Related Links

- [World, Filters, and Masks](#)

## 44.3.307. Zero Keyword



### Important:

If you enter the keyword Zero into the console by pressing two times the key **.**, the keyword will be directly executed.

You can also type the keyword Zero into the command line.

To execute this keyword, double-press the **.** on the console, type **Zero** or the shortcut **Z** into the command line.

### Description

The keyword Zero sets the intensity of the dimmer to zero:

- If fixtures or channels are selected
- In a selection of fixtures or channels
- From an executor

This keyword is a helping keyword.

### Syntax

#### Zero

### Examples

Sets the intensity of the selected fixtures or channels to zero.

```
[Channel]> Zero
```

Sets the intensity of fixture 1 trough 10 to zero.

```
[Channel]> Fixture 1 Thru 10 Zero
```

Sets the master of executor 1 to zero.

```
[Channel]> Executor 1 Zero
```

## 45. Advanced Fixture Types

blank page

### 45.1. What are multi-instance fixtures

### 45.2. What are wheels

### 45.3. What are modules

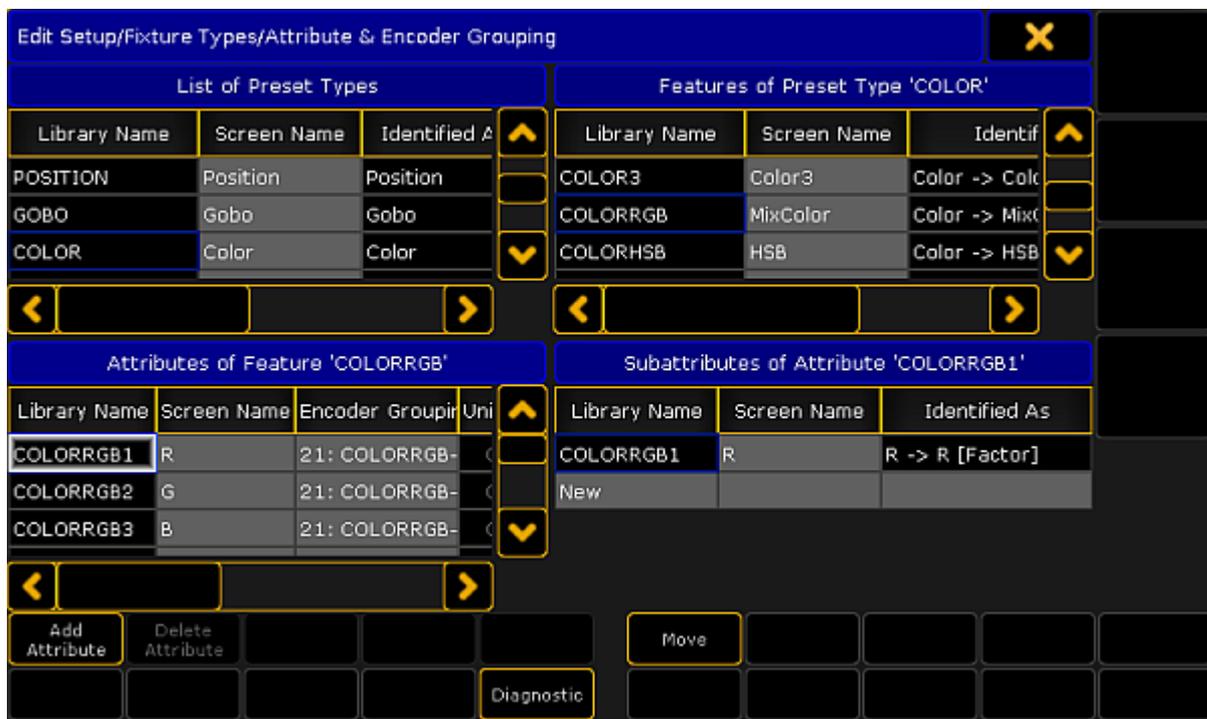
### 45.4. Physical description

### 45.5. Create complex fixtures

### 45.6. Attribute & Encoder Grouping

Full access to the Attribute and Encoder Grouping can be by pressing **Setup** -> **Patch & Fixture Schedule** -> **Fixture Types** -> **Attribute & Encoder Grouping**.

It could look like this:



#### Attribute & Encoder Grouping menu

This menu can do a lot of different things. The Attribute part is connected to the structure in the console and it is one of the structures behind fixtures.

# grandMA2 User Manual

Version 3.3



Attribute Control

Preset Type Default Scope

This is mentioned in Preset Pool Options

Encoder Grouping

Encoder Resolution

## 46. grandMA2 onPC Details

The grandMA2 onPC has a special menu only available for the onPC.

This menu can be opened from the "Command" screen. In the upper left corner there is a yellow ball. Clicking it with the mouse will open a menu like this:



*grandMA2 onPC menu*

This menu has the following elements:

- **Clear Screen:**  
This will clear the virtual screen on the "Command" page.
- **Clear All Screens:**  
This will clear all the virtual screens.
- **Debug Window:**  
This opens a new window that shows the [System Monitor](#) as a separate window (not a part of the onPC windows).
- **Cascade Windows:**  
This will cascade all the open onPC windows (if there is more than one).
- **Reset Size of Windows:**  
The onPC screens can be changed in size. This will reset them to a 1:1 pixel size - if possible.
- **Reset Time to Systemtime:**  
This will set the time of the grandMA2 onPC to the time from the computer.
- **Options...:**  
This opens an options pop-up. It is described below.
- **About grandMA2 onPC...:**  
This opens a small pop-up showing the version number and the date the software was build.

- **Quit:**

This will close the grandMA2 onPC.

## Options

The onPC options are divided into three tabs.

### View Tab

This tab has multiple options.

The **Mode** option changes how the onPC handles screens of the onPC. Changing this requires a reboot of the onPC software. The options are:

- **MultiScreen:**

This will open multiple screens on the onPC. It will make the screen buttons on the right side toggle buttons that will open or close screens. This is great if you have enough computer monitor resolution - multiple computer monitors or 4K monitors.

- **SingleScreen:**

This will only open one instance of the onPC. The screen buttons on the right side will change between the different screens.

- **SingleScreen (Internal only):**

This is the same as the SingleScreen except for the External screens. They will open up in the resolution defined (read more below).

The **Windows Frames** option is an On or Off option. It will display or hide the normal Windows frames around the onPC screen. Changing this option will require a reboot of the onPC software before taking effect.

**Encoder Style** changes how the onPC encoders look and behave. There are two options:

- **Rotation:**

This is like the physical encoders. In the onPC it looks like this:



*Encoder in "Rotation" mode*

- **MA:**

This is a different way the encoder can be used in the onPC. Click and holding while moving the encoder Left and Right will change the value in a coarse resolution. Moving Up and Down will change the values in a normal resolution. The encoder looks like this:



Encoder in "MA" mode

There are two options for setting the **resolution** on the two **external screens**. Tapping the resolution will open a list of all the available resolution options.

The **CmdWing Bar** option can be turned On or Off. It changes how the bottom of screen 2 looks. It can match the look of the consoles or it can change to match the physical controls on the MA onPC Command Wing. See more in the [Command Wing Bar topic](#).

## Misc. Tab

The only option here is the **Priority**. There are two options:

- **Normal:**

This will make the onPC software run with a normal priority in windows.

- **High:**

This will make the onPC run with a high priority in windows. This is a good idea if the onPC is the primary station in the system.

## MIDI Tab

There are three options regarding the MIDI settings for onPC.

There is the option called **MIDI from OnPC Command Wing** can be used to turn On or Off the MIDI input and output from a connected onPC Command Wing.

The next two options needs a MIDI device connected to the computer.

There is also a **MIDI In Device** option that can be used to selected the MIDI device that will be used to input MIDI.

# grandMA2 User Manual

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The **MIDI Out Device** can be used to choose the MIDI device that will output the MIDI.

## Keyboard shortcuts

It is possible to activate the keyboard shortcuts by tapping the "Ins" key. Read more in the [Keyboard shortcuts topics](#).

## The Wings

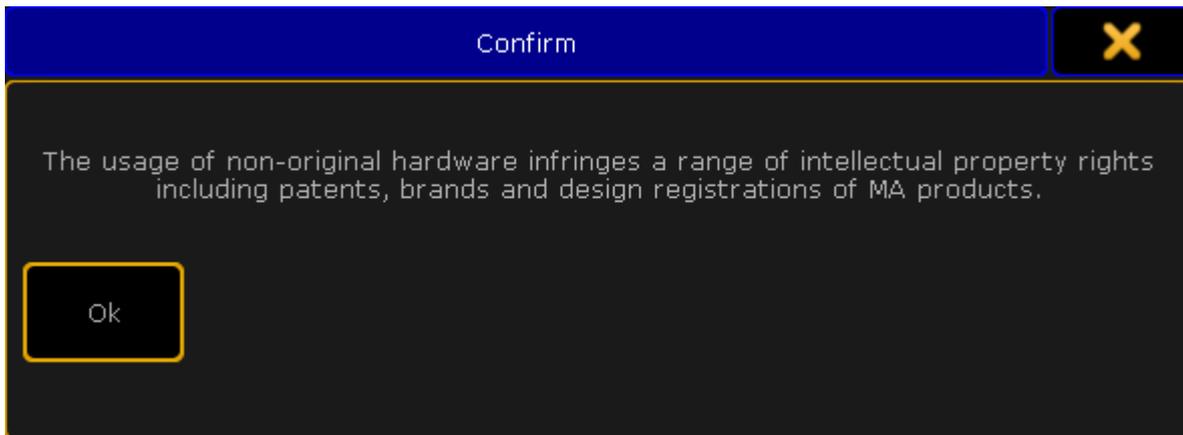
Since version 3.3 it is needed to reboot the wings after the onPC has booted. When the wing connects there is a Confirm pop-up like this:



*Original hardware Confirm pop-up*

Unfortunately there are an increasing number of counterfeit products on the market. MA Lighting reserves the right to verify the use of original hardware. This is done to ensure the continued development of the hardware and software.

You must accept the pop-up by tapping **Yes** to continue using the wing. If **No** is tapped then another pop-up appears:



*Second Original hardware Confirm pop-up*

The connected wing cannot be used unless the first pop-up is accepted.

It is possible to connect 1 [grandMA2 onPC Command Wing](#) and 2 [grandMA2 onPC Fader Wings](#) to 1 grandMA2 onPC.

If there are 2 Fader Wings connected then they need to be identified. This is done in Setup->MA Network Configuration->onPC.

Here are two buttons called **Identify Fader 1** and **Identify Fader 2**. Tapping one of these followed by one of the keys on the Fader Wings will identify the wing in the system. It is only necessary if there are 2 Fader Wings connected to same onPC.

It can be changed what block of 15 executors each wing should handle in the [Wing & Monitor Setup](#). There is a green check mark in the detected hardware.

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## 47. Control the MA VPU

### 47.1. Patch the VPU

### 47.2. Change VPU settings from the console

### 47.3. Hints for the operation of the VPU

# grandMA2 User Manual

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## 48. Control the MA NDP

## 49. Control the MA Network Switch from a grandMA2

The MA Network Switch is the perfect device for a full lighting control solution. The combination of console, switch and networking devices provides the easiest solution even for complex lighting systems.

You can control the MA Network Switch by using the web interface or directly with a grandMA2 console or grandMA2 onPC. For more information about how to control the MA Network Switch by using the web interface see [MA Network Switch manual](#).

This chapter explains how to control the MA Network Switch from a grandMA2 console or grandMA2 onPC. You will find out how to add the MA Network Switch to the network configuration, configure ports, or edit groups and presets.

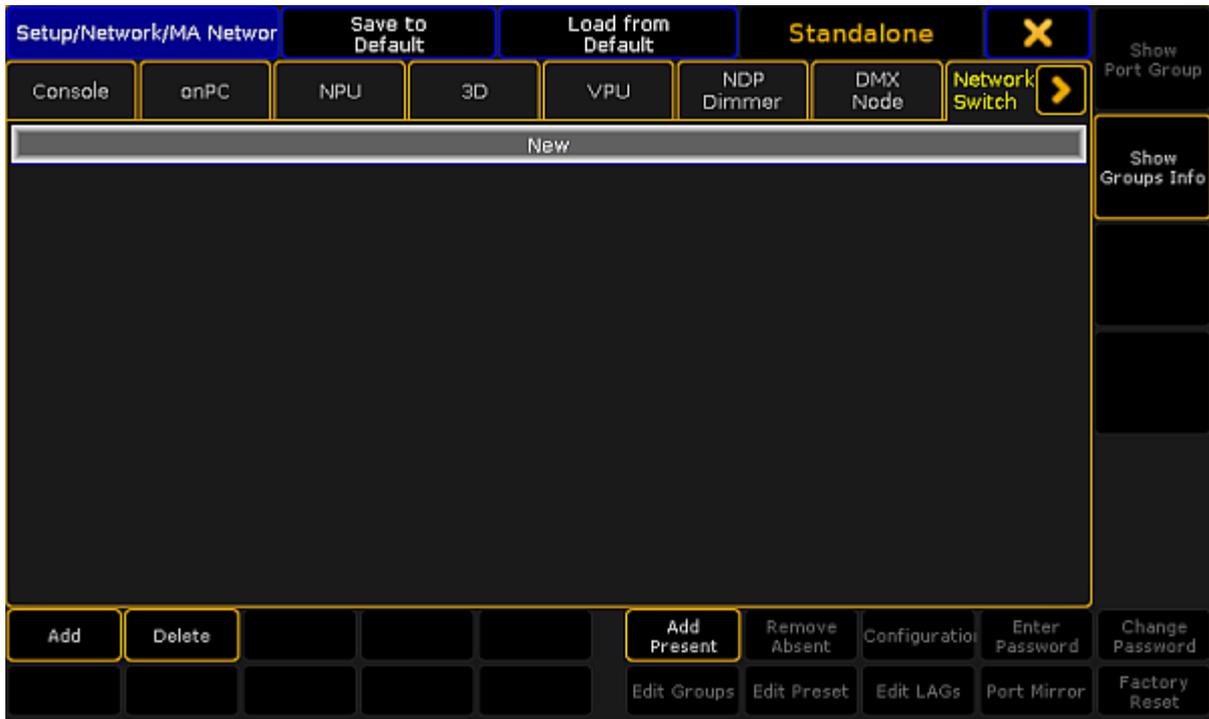
### 49.1. Add the MA Network Switch to the network configuration

Use these steps to add the MA Network Switch to the network configuration.

#### Requirements:

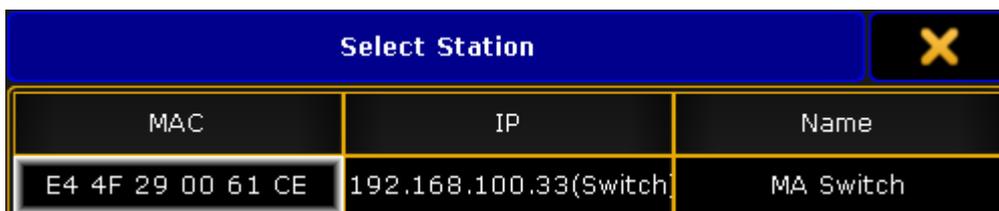
- The default IP address of the switch is a 192.168.100.xxx. It is displayed at the front end display.  
The default subnet mask of the switch is 255.255.255.0.  
  
This means your PC or grandMA2 station needs to be set to a compatible IP address. For more information about how to change the IP address see chapter [Networking](#).
- Power on (indicates by a green power LED)
- Hardware connection between the MA Switch and a computer (indicates by a green or orange blinking link LED)
  1. Open the MA Network Configuration.
    - Press **Setup**, and tap under **Network** **MA Network Configuration**.The MA Network Configuration window opens.

2. Tap at **Network Switch**.



*MA Network Configuration window*

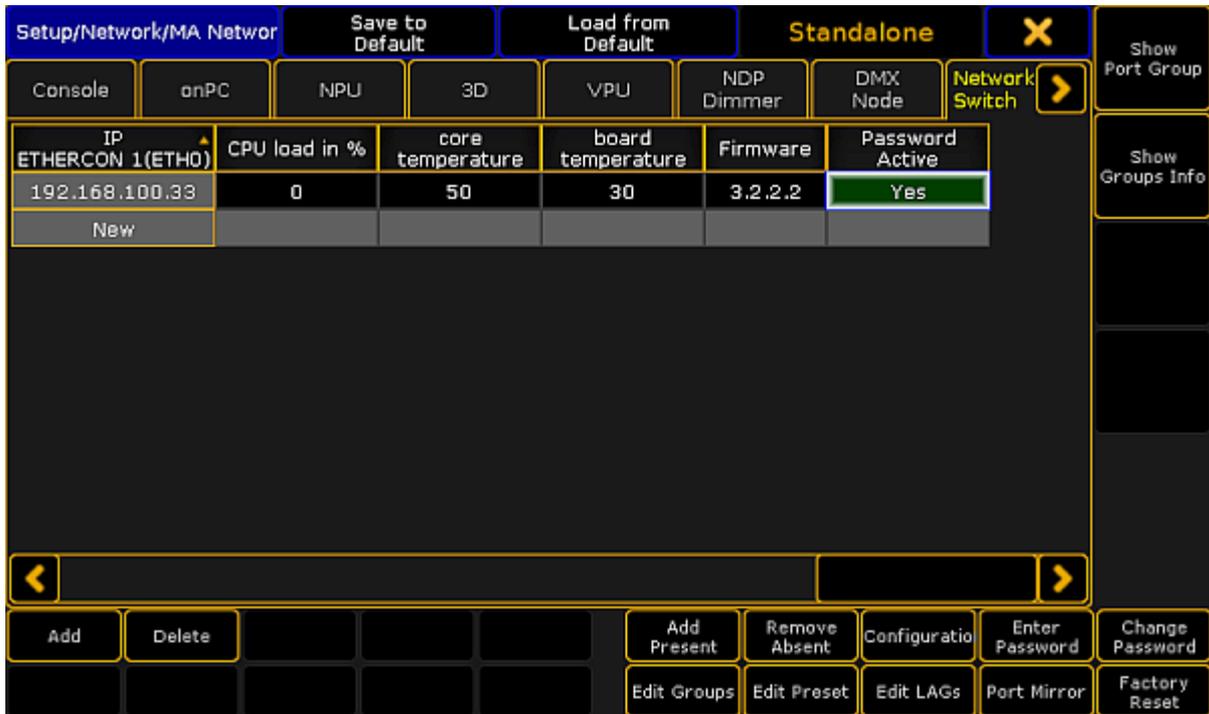
3. To add every present MA Network Switch, tap **Add Present**.  
Every present MA Network Switch is added to the MA Network Configuration. Continue with step 6.
4. To open a pop-up to select the station you like to add, tap **Add** or press the screen encoder.  
The Select Station pop-up opens.



*Select Station pop-up*

5. Tap at the station you like to add.

6. Scroll at the right screen side and check if the MA Network Switch has an active password protection.



MA Network Configuration - Password Active

7. If **Yes** is set and the cell is red the MA Network Switch has an active password protection.

 **Important:**  
The default password admin of the MA Network Switch is not an active password protection. An active password protection is when the default password was change to an individual password.

8. Tap **Enter Password**.  
The **Enter switch password pop-up** opens.  
Type the MA Network Switch password in the green edit line and press **Please**. If the input was successful the Password Active cell changes the color to green.

The MA Network Switch is added to the network configuration and ready for further configuration.

## 49.2. Change IP address of the MA Network Switch

You can change the IP address of the MA Network Switch from a connected grandMA2 console or a connected grandMA2 onPC.

The IP address will be used to reach the web interface and to reach the connected grandMA2 console or the connected grandMA2 onPC.

The current IP address is displayed in the IP ETHERCON 1(ETH0) or in the IP ETHERCON 1(ETH0.1) column, depending on the used Ethernet connector.



**Important:**

If you change the IP address and the new IP address is within another subnet, it is necessary to set the IP address on your computer or grandMA2 console to connect to the web interface. For more information about how to change the IP address see [Networking](#).  
If the computer or the grandMA2 console and the switch are in different subnet, the connection is not possible.



**Important:**

Make sure that every device in the network has its unique IP address. If two devices have the same IP address in a network the devices might not be reachable.

**Requirement:** [Added MA Network Switch in the network configuration.](#)

1. Open the MA Network Configuration.
  - Press **Setup**, and tap under **Network** **MA Network Configuration**.
 The MA Network Configuration window opens.
2. Tap at **Network Switch**.



*MA Network Configuration - Network Switch*

3. Navigate to the cell with the IP address you like to change and press the screen encoder or tap and hold in the cell.  
The **Edit IP ETHERCON 1 pop-up** opens.
4. Type the new IP address in the green edit line. Tap at the **plus**  to open the virtual keyboard.
5. Press **Please**.

The IP address is changed and saved in the startup configuration.

## 49.3. Enable DHCP client for the MA Network Switch

If the network is equipped with a DHCP server enable the DHCP client of the switch for it to receive automatically an IP address from the DHCP server.

The previous assigned IP address will be used if there is no DHCP server available.

**Requirement:** [Added MA Network Switch to the network configuration.](#)

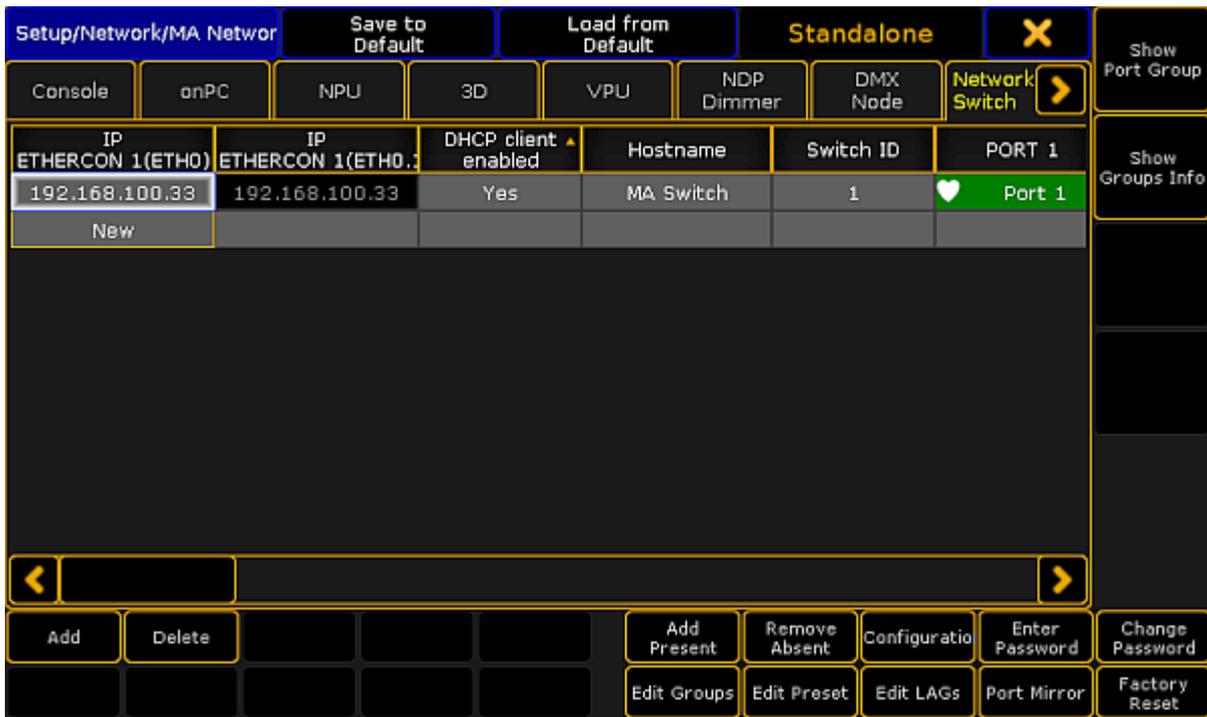
1. Open the MA Network Configuration.
  - Press **Setup**, and tap under **Network** **MA Network Configuration**.
  - The MA Network Configuration window opens.
2. Tap at **Network Switch**.



MA Network Configuration - Network Switch

3. Tap and hold the cell in the column DHCP client enabled until **Yes** is displayed.

The DHCP client is enabled. The DHCP settings are saved in the startup configuration.



MA Network Configuration - Network Switch - DHCP yes

The column IP ETHERCON 1(ETH0) displays the used DHCP IP address. The column IP ETHERCON 1(ETH0.1) displays the default IP address of the MA Network Switch.

If DHCP is on, the MA Network Switch is reachable only with the DHCP IP address.



**Hint:**

You can also enable the DHCP client by using the command line.

- Change the destination of the command line to **NetConfig/Network Switch 8**. For more information see [ChangeDest keyword](#).
- Type in the command line **Assign 1 / DHCPclientenabled = "Yes"**.  
The DHCP client of the NetworkSwitch 1 is enabled.

## 49.4. Change hostname of the MA Network Switch

You can change the name of the MA Network Switch.

The name is displayed at the front end display and in the title bar of the web interface.

The maximum length of the name are 12 characters.

The following characters are allowed.

- Upper case letters A...Z
- Lower case letters a...z
- Numbers 0...9
- Spaces, minus (-), plus (+), underscore (\_)

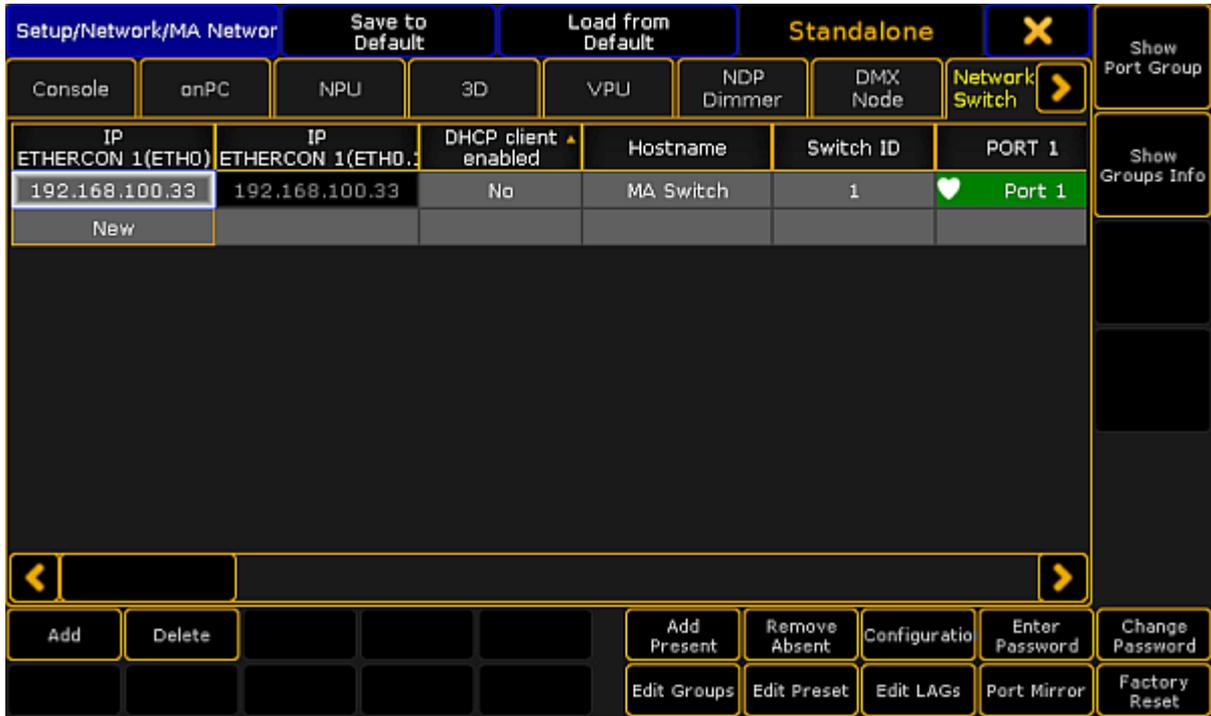
# grandMA2 User Manual

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**Requirement:** [Added MA Network Switch in the network configuration.](#)

1. Open the MA Network Configuration.
  - Press **Setup**, and tap under **Network** **MA Network Configuration**.The MA Network Configuration window opens.
2. Tap at **Network Switch**.



*MA Network Configuration - Network Switch*

3. Tap and hold the cell in the column hostname or tap in the cell and press the screen encoder until the **Edit Hostname pop-up** opens.
4. Enter the new name, e.g. Stage Left. Tap at the **plus**  to open the virtual keyboard.
5. Press **Please**.

The new name is applied and saved in the startup configuration.

The front end display of the MA Network Switch displays the new name.



## Hint:

You can change the hostname by using the command line.

- Change the destination of the command line to **NetConfig/Network Switch 8**. For more information see [ChangeDest keyword](#).

- Type in the command line **Assign 1 / Hostname = "Stage Left"**.

The hostname of the NetworkSwitch 1 is changed.

## 49.5. Change switch ID

The switch ID is used for better identification in the network.

You can change the switch ID of the MA Network Switch.

The allowed characters are 1...999.

**Requirement:** [Added MA Network Switch to the network configuration.](#)

1. Open the MA Network Configuration.
  - Press **Setup**, and tap under **Network** **MA Network Configuration**.The MA Network Configuration window opens.
2. Tap at **Network Switch**.



*MA Network Configuration - Network Switch*

3. Tap and hold the cell in the column Switch ID or tap in the cell and press the screen encoder until the **Calculator** opens.
4. Enter the new switch ID, for example 2.
5. Press **Please**.

The MA Network Switch has a new ID. The new ID is saved in the startup configuration.

## 49.6. Configure ports of the MA Network Switch

This topic describes the different port settings and [how to configure the ports.](#)

You can configure the following options:

- [Port description](#)
  - [Group](#)
  - [RSTP](#) (= Rapid Spanning Tree Protocol)
  - [Speed](#)
  - [LAG](#) (= Link Aggregation Group)
- 

## Port description

To have a better overview about what is connected to what port, you can change the port description of each port.

The port description has a maximum length of 8 characters.

The following characters are allowed.

- Upper case letters A...Z
  - Lower case letters a...z
  - Numbers 0...9
  - Spaces, minus (-), plus (+), underscore (\_)
- 

## Groups

You can assign one group for each port. Two devices must be part of the same group to communicate.

Groups are a logical segment of network users (= VLAN). With groups it is possible to send different signals in different groups via the same network cable without affect the other signal. For example sound and light signals.

The groups for port 1 through 13 can be manually configured. By default, all groups are managed groups.

The assigned group is visible at the front end display of the MA Network Switch and indicated by the group LED.

The switch has eight different groups.

1. Group01 (Red)
2. Group02 (Yellow)
3. Group03 (Green)
4. Group04 (Cyan)
5. Group05 (Blue)
6. Group06 (Magenta)
7. Trunk (White)
8. Manage (Gray)

If more than one switch is in a network and more than one group is in use, the Trunk is needed to forward all group packets to the other switches. The Trunk bundles all other groups.



### **Important:**

You need at least one manage group in the network.

If no manage port is in the network you can not configure the switch anymore. A [factory reset](#) is necessary.

**Hint:**

Use port 13 on the front panel as management port to connect the PC for switch configuration via the web interface.

## RSTP

Rapid Spanning Tree Protocol (RSTP) uses point-to-point wiring and provides rapid convergence of the spanning tree.

If there are more than one point-to-point connections between two switches RSTP manages the redundant link unless the original connection fails.

**Important:**

The MA Network Switch supports an implementation of RSTP that is compatible with the IEEE 802.1w standard and does not support per VLAN RSTP. This means that the MA Network Switch will send out and expect to receive untagged RSTP messages.

By default, RSTP is enabled.

- Disabled  
The switch does not run RSTP for this port. If RSTP is disabled, LLDP (Link Layer Discovery Protocol) is disabled as well.
- Enabled  
The switch runs RSTP for this port. If RSTP is enabled, LLDP (Link Layer Discovery Protocol) is enabled as well.

## Speed settings

You can edit the port speed of each port on the MA Network Switch.

The selected speed is visible at the status page on the web interface.

If a port is connected, the link LED is blinking in the speed color. For more information see [MA Network Switch manual](#).

There are three speed settings available:

- Auto: The port detects automatically the speed of the connected device (default).
- 100Mbit
- 1Gbit

## LAG

The Link Aggregation Group (LAG) combines a number of physical ports for them to behave as one connection.

Configure the LAGs via the web interface or in the [MA Network Configuration menu – Edit LAGs](#). For more information see [MA Network Switch](#).

Select between 6 LAGs:

- None
- LAG01
- LAG02
- LAG03
- LAG04
- LAG05
- LAG06



**Hint:**

Set a port to an LAG in the same manner as in setting a group to a port.



**Important:**

-If a port is set to an LAG, its settings – group, speed etc., – are adjusted to the default settings of the LAG.

-Changing settings on a port that has an LAG membership, changes these settings in other ports of the LAG.

---

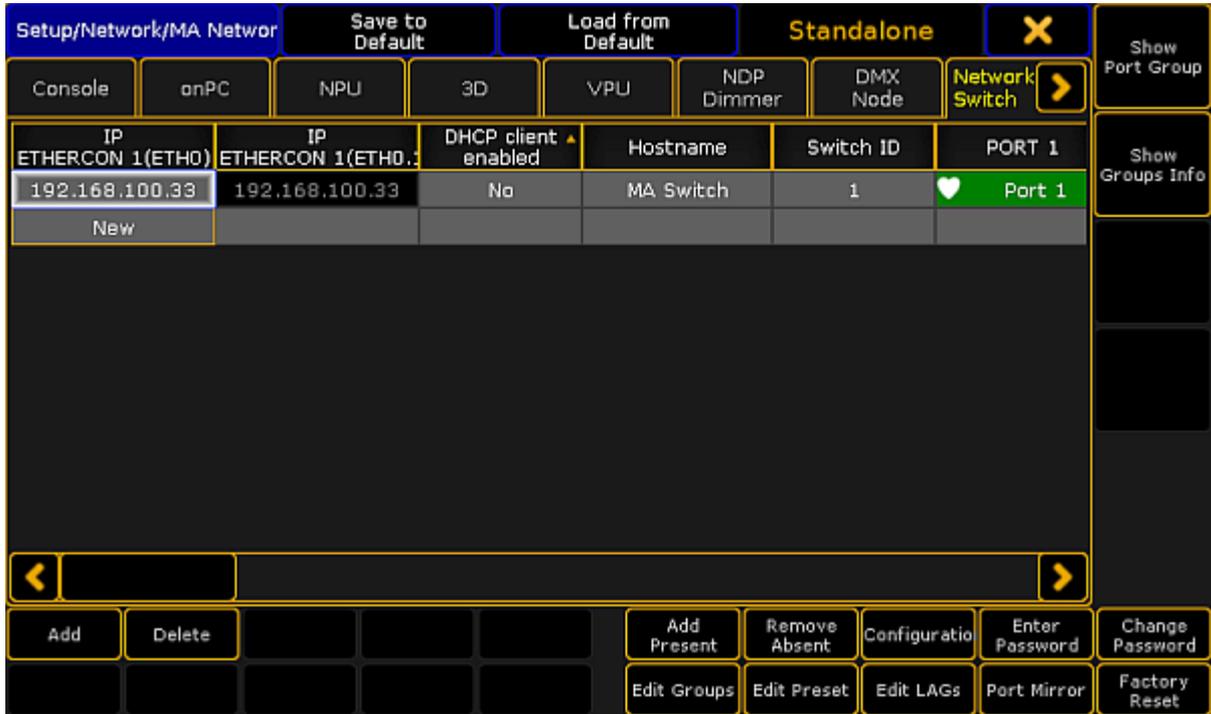
## Configure ports

**Requirement:** [Added MA Network Switch to the network configuration.](#)

To configure the ports:

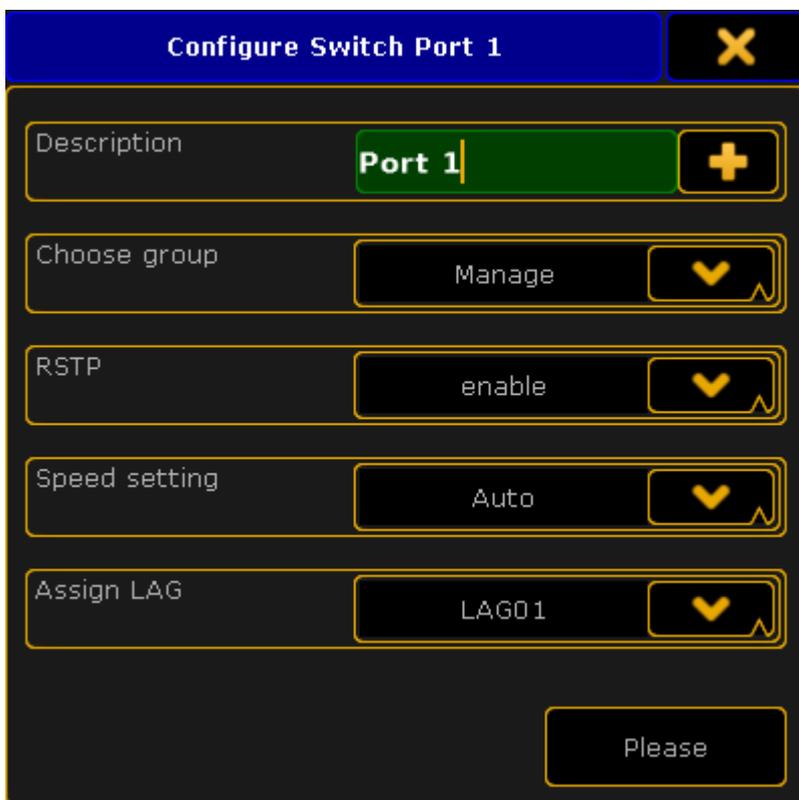
1. Open the MA Network Configuration.
  - Press **Setup**, and tap under **Network** **MA Network Configuration**.The MA Network Configuration window opens.

2. Tap at **Network Switch**.



*MA Network Configuration - Network Switch*

3. Tap and hold in the cell of a port or tap in the cell and press the screen encoder. The Configure Switch Port pop-up opens.



*Configure Switch Port pop-up*

4. Configure the port.
  - Enter in the green edit line a new port description.
  - To choose a group tap in the groups field at the arrow down and tap at a group in the drop-down.
  - To disable RSTP tap in the RSTP field at the arrow down and tap at disable.
  - To change the speed settings tap in the speed setting field at the arrow down and at a speed setting in the drop-down.
  - To assign an LAG, tap the drop-down in the filed **Assign LAG**.
5. Press **Please** or tap **Please**.

The port is configured and the changes are saved in the startup configuration.

## 49.7. Edit groups of the MA Network Switch

This topic describes the different group settings and [how to edit the groups](#).

You can edit the following option:

- [Group Name](#)
- [IGMP Snooping](#)
- [IGMP Querier](#)
- [Unknown Flooding](#)
- [VLAN ID](#)

---

### Group Name

You can change the group name of every group except Trunk and Manage. For a better overview every group name is displayed in a different color.

**Important:**

The group name is a label for better overview and does not affect the VLAN.

---

### IGMP Snooping

IGMP snooping avoids ports to be flooded with undesired multicast packets.

It is a smart way to manage multicast packets, and forward them to the registered ports.

IGMP snooping is disabled by default.

**Hint:**

To forward only known multicast network packets, enable IGMP Snooping and IGMP Querier. Disable unknown flooding.

## IGMP Querier



### Important:

IGMP snooping requires at least one switch in a group (VLAN) to act as a querier to ensure IGMP snooping functionality.

Querier register the multicast packets to the corresponding ports.

If more than one querier is activated per group, the switch with the lowest IP address will be elected as querier.

This election process is automated.

IGMP querier is disabled by default.

---

## Unknown Flooding

Unknown flooding is for multicasted frames destined for an address for which the switch has not seen a join.

In that case the switch uses the flooding mask to forward that frame to every port.

Unknown flooding can be global enabled or disabled for all groups.

By default, unknown flooding is enabled.

- Yes = All unknown packages will be forwarded
- No = All unknown packages will be dropped



### Hint:

To forward only known multicast network packets, enable IGMP Snooping and IGMP Querier. Disable unknown flooding.

---

## VLAN ID

All groups of the switch have a default VLAN ID, except Trunk.

If you implement the switch in an existing network, it can be necessary to change the VLAN ID of the groups.

You can change the VLAN ID of group 1 through group 6. The VLAN ID of group 8 (= manage group) is 1 and fixed.

Possible VLAN IDs are from 1 to 4094.

Group	Default VLAN ID
1	100
2	200
3	300
4	400
5	500
6	600



## Important:

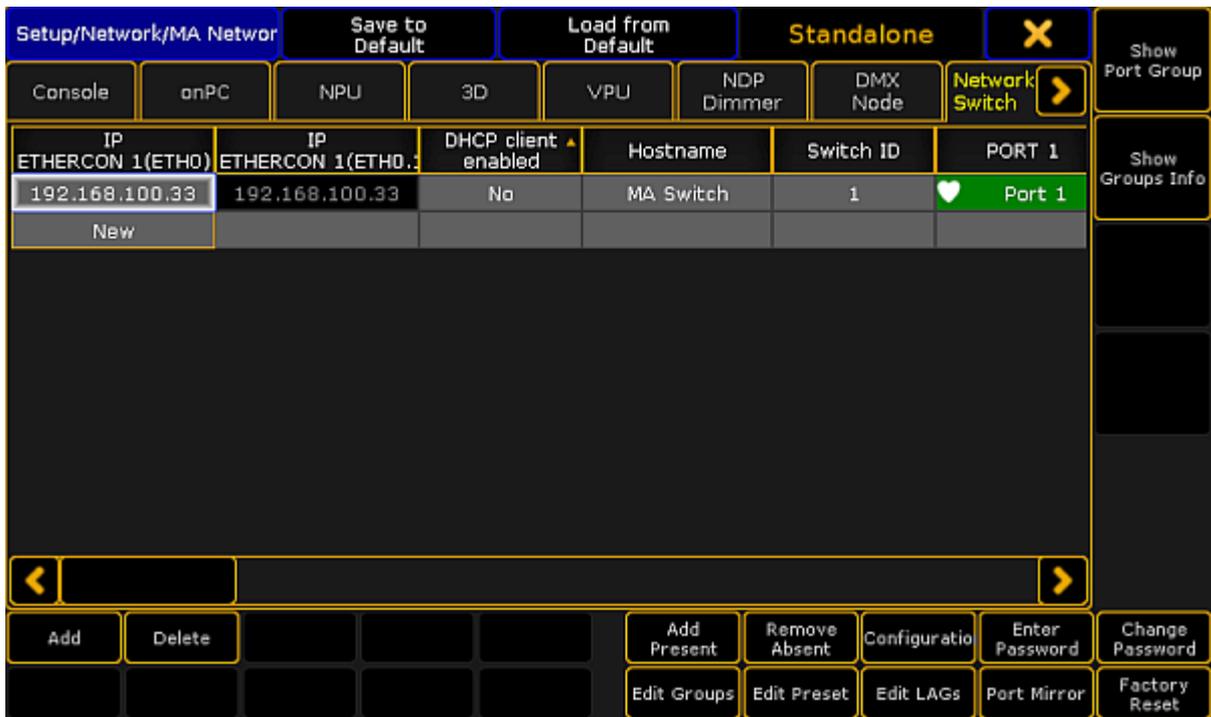
If you change the VLAN ID of a group, you need to change the VLAN ID of each switch using this group. The VLAN IDs of the groups which should communicate to each other, have to be the same. If the VLAN IDs of groups are not the same, they do not communicate with each other.

## Edit Groups

**Requirement:** [Added MA Network Switch to the network configuration.](#)

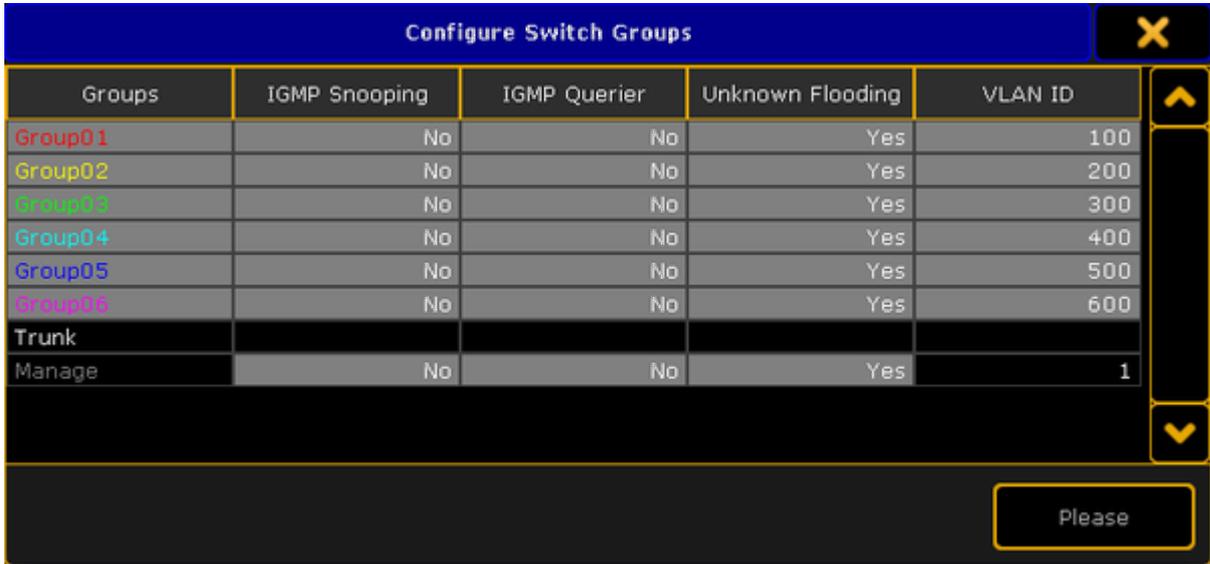
To edit groups:

1. Open the MA Network Configuration.
  - Press **Setup**, and tap under **Network** **MA Network Configuration**.The MA Network Configuration window opens.
2. Tap at **Network Switch**.



MA Network Configuration - Network Switch

3. Tap at a cell in the row of the MA Network Switch you like to edit and tap **Edit Groups**. The **Configure Switch Groups pop-up** opens.



Groups	IGMP Snooping	IGMP Querier	Unknown Flooding	VLAN ID
Group01	No	No	Yes	100
Group02	No	No	Yes	200
Group03	No	No	Yes	300
Group04	No	No	Yes	400
Group05	No	No	Yes	500
Group06	No	No	Yes	600
Trunk				
Manage	No	No	Yes	1

*Configure Switch Groups pop-up*

4. Tap and hold the cell you like to edit or tap in the cell and press the screen encoder.
5. Edit the group and press **Please** or tap **Please**.

The groups are configured and the changes are saved in the startup configuration.

## 49.8. Edit presets of the MA Network Switch

It is useful to apply presets to ports for a higher network performance or for safety reasons, e.g. to block Telnet.

A preset contains collection of filters. For more information about filter see the [MA Network Switch manual](#).

Presets are used to allow or to block the selected output.

If a preset is set to allow (= green), the network packets matching the filters in the preset are allowed. All other network packets not matching the filters of this preset, will be blocked.

If a preset is set to block (= red), the network packets matching the filters in the presets are blocked. All other network packets not matching the filters of this preset, will be allowed.



### Important:

Presets are applied in the outbound as well as in the inbound network traffic of the specific physical connector.

There are seven predefined presets available:

- MA-Net2
- dot2-Net
- Art-Net

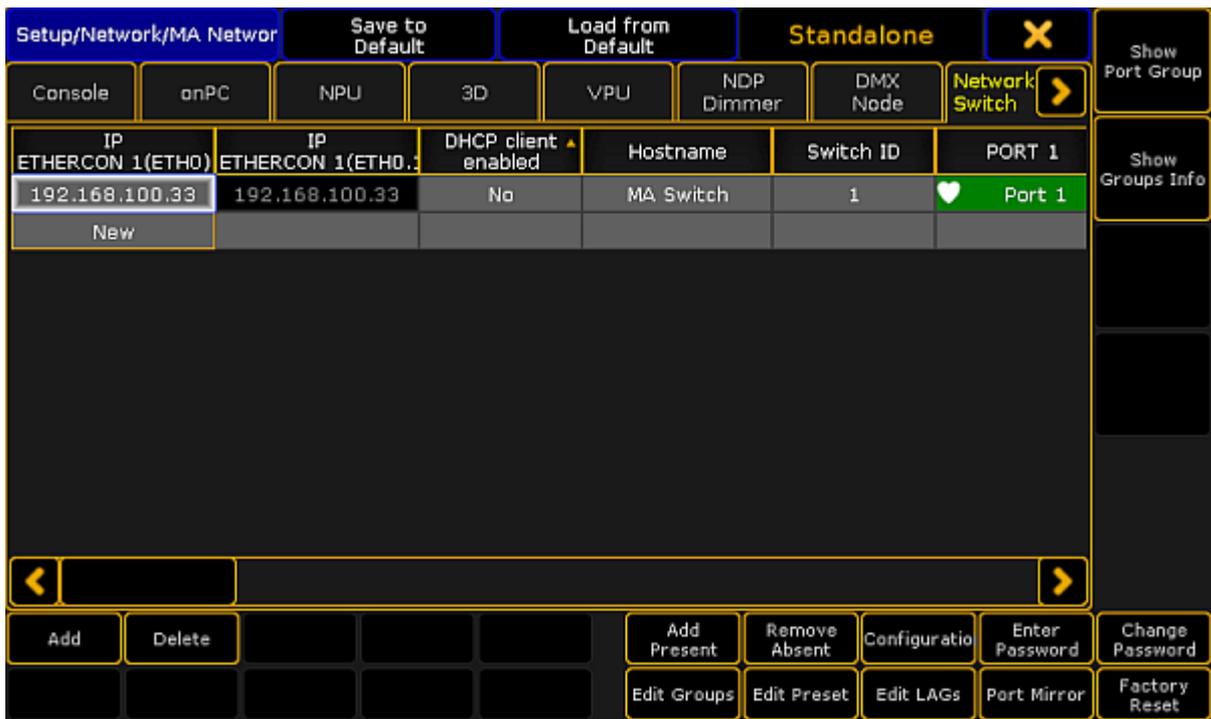
- MA-Remote
- MA-Net1
- grandMA2
- sACN

**Requirement:** [Added MA Network Switch to the network configuration.](#)

To edit presets:

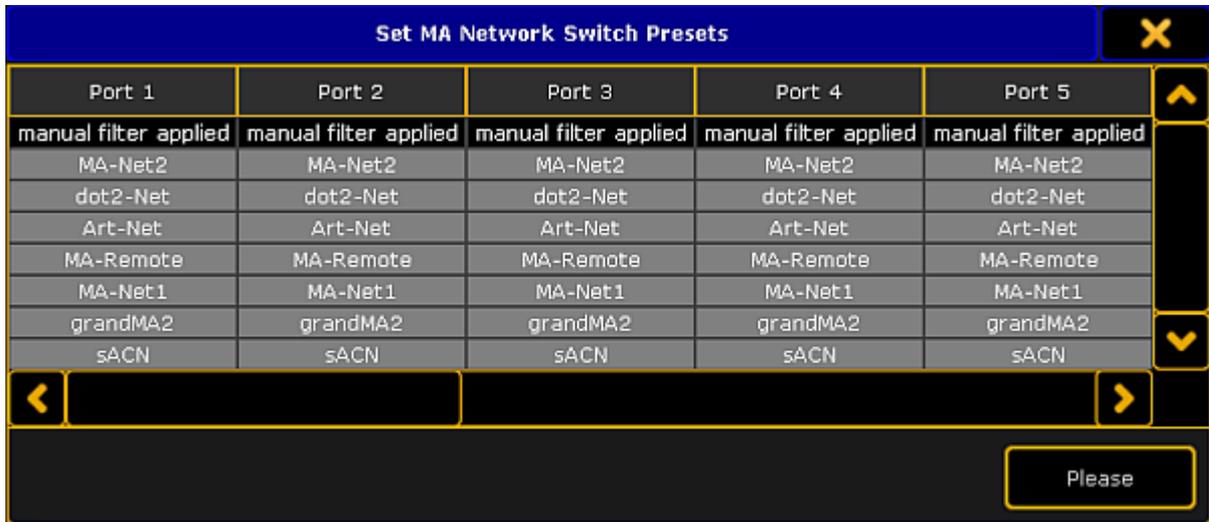
 **Important:**  
If manual filters are assigned to a port an assigned preset will delete the previous assigned filter from the port.

1. Open the MA Network Configuration.  
- Press **Setup**, and tap under **Network** **MA Network Configuration**.  
The MA Network Configuration window opens.
2. Tap at **Network Switch**.



MA Network Configuration - Network Switch

- Tap at a cell in the row of the MA Network Switch you like to edit and tap **Edit Preset** .  
The **Set Switch Presets pop-up** opens.



*Set Switch Presets pop-up*

- Navigate to the to be edited port.  
To block the preset press the screen encoder once until the background of the preset cell is red.  
To allow the preset only press the screen encoder twice until the background of the preset cell is green.
- Press **Please** or tap **Please** .

The preset is assigned to the port and saved in the startup configuration. The **filter icon**  is visible in the port cell and on the front end display of the MA Network Switch.

## 49.9. Edit LAGs of the MA Network Switch

The Link Aggregation Group combines several physical ports to create a single high-bandwidth data path as well as to implement the traffic load shared among the member ports in a group. LAG enhances the connection reliability and efficiency.

The first port joining an LAG sets its settings – group, speed, etc., – to default settings of the LAG.

### Requirement:

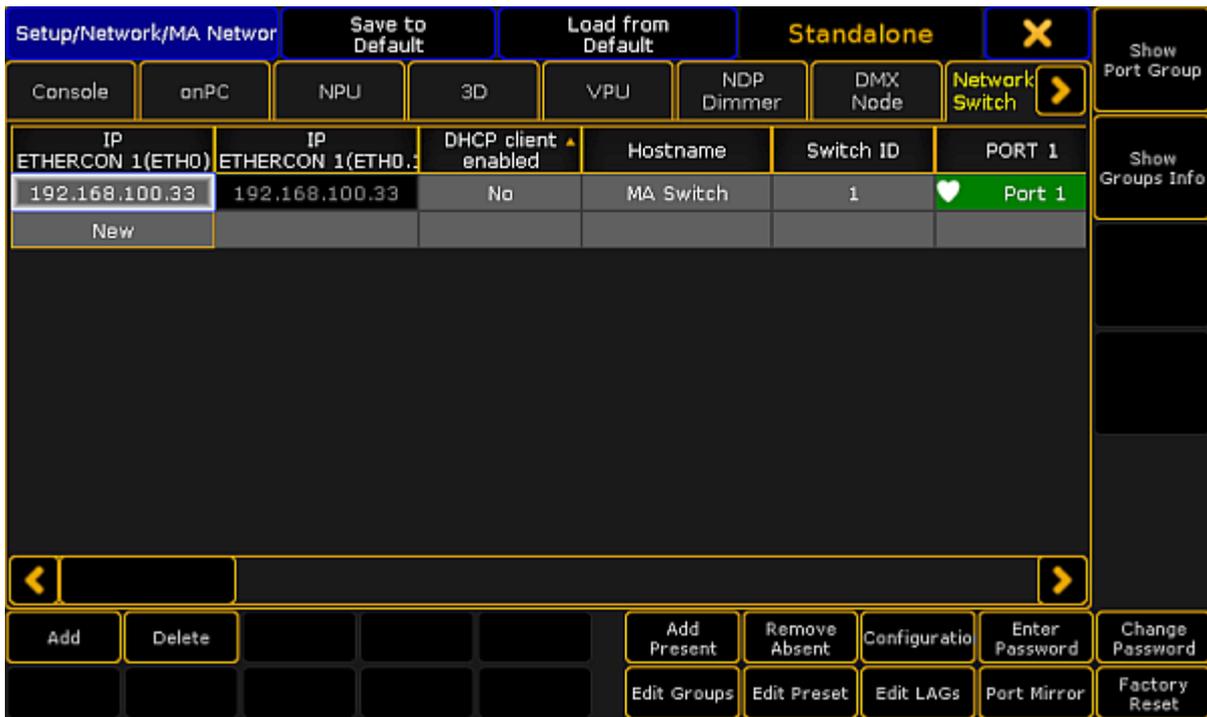
- [Add MA Network Switch to the network configuration](#)

To edit LAGs:

- Open the **MA Network Configuration**:  
-Press **Setup** and tap **Network MA Network Configuration** .  
-The window **MA Network Configuration** opens.

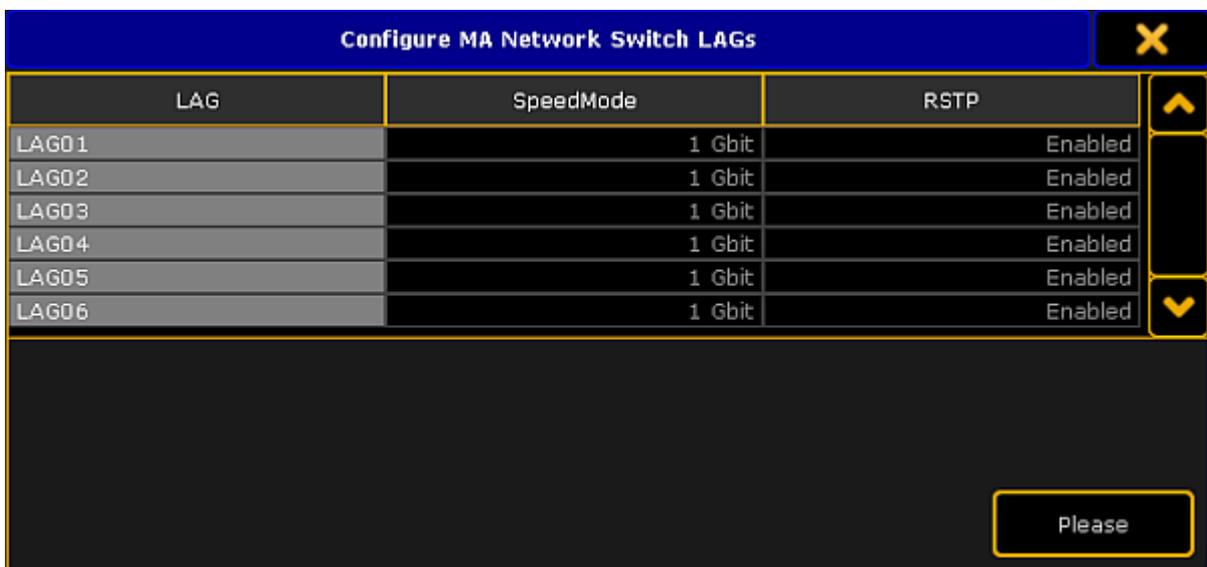
# grandMA2 User Manual

Version 3.3



## MA Network Configuration – Network Switch

2. Tap **Network Switch**.
3. Tap a cell in the row of the MA Network Switch you would like to edit and tap **Edit LAGs**.  
-The **pop-up Configure MA Network Switch LAGs** opens.



## Configure LAGs

4. To individually label an LAG, tap and hold a cell in the column LAG.  
-A calculator opens.  
-Enter the name of the LAG and press **Please**.



### Important:

Use a maximum of 8 characters.

5. After adjusting the names of the LAGs tap **Please**.
6. The LAGs are now edited.

## 49.10. Mirror Ports of the MA Network Switch

In port mirroring, the entire traffic that arrives at a port is mirrored onto a mirror port of the MA Network Switch.

Port mirroring is most commonly used in debugging or for the analysis of the network traffic such as the network load.



### Important:

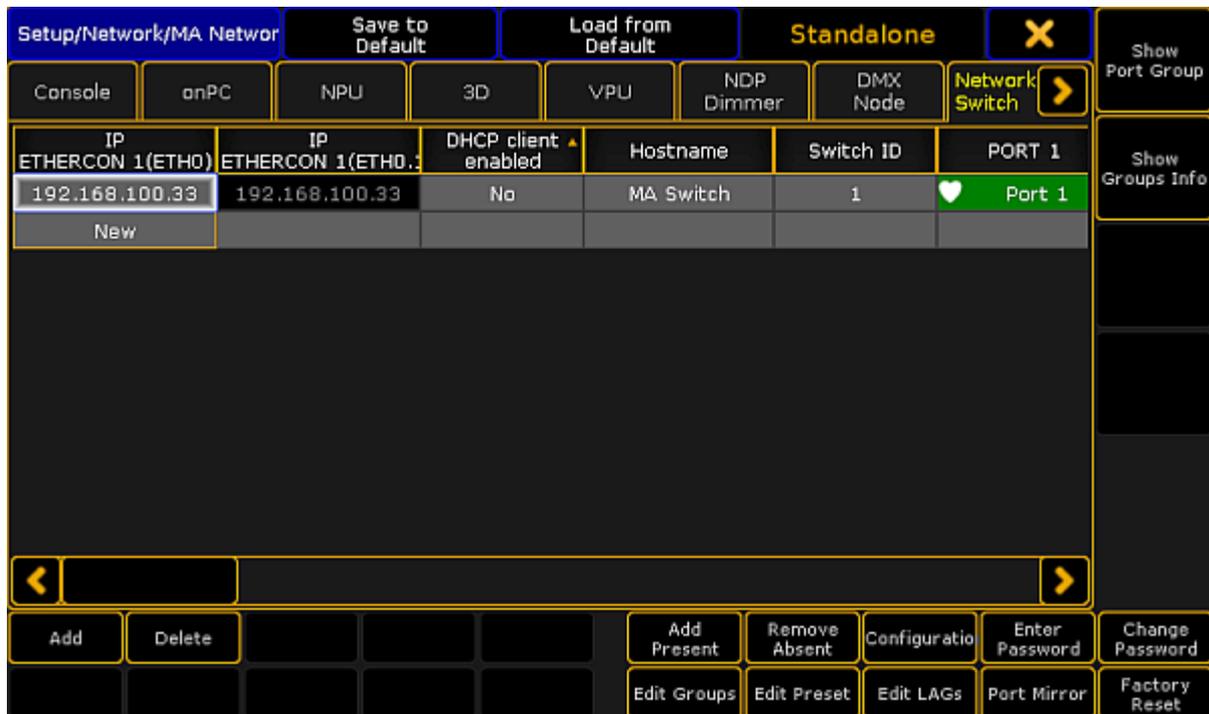
The MA Network Switch mirrors several source ports to one destination port. Vice versa, it is possible to set a single destination port at a time.

### Requirement:

- [Add MA Network Switch to the network configuration](#)

To mirror ports:

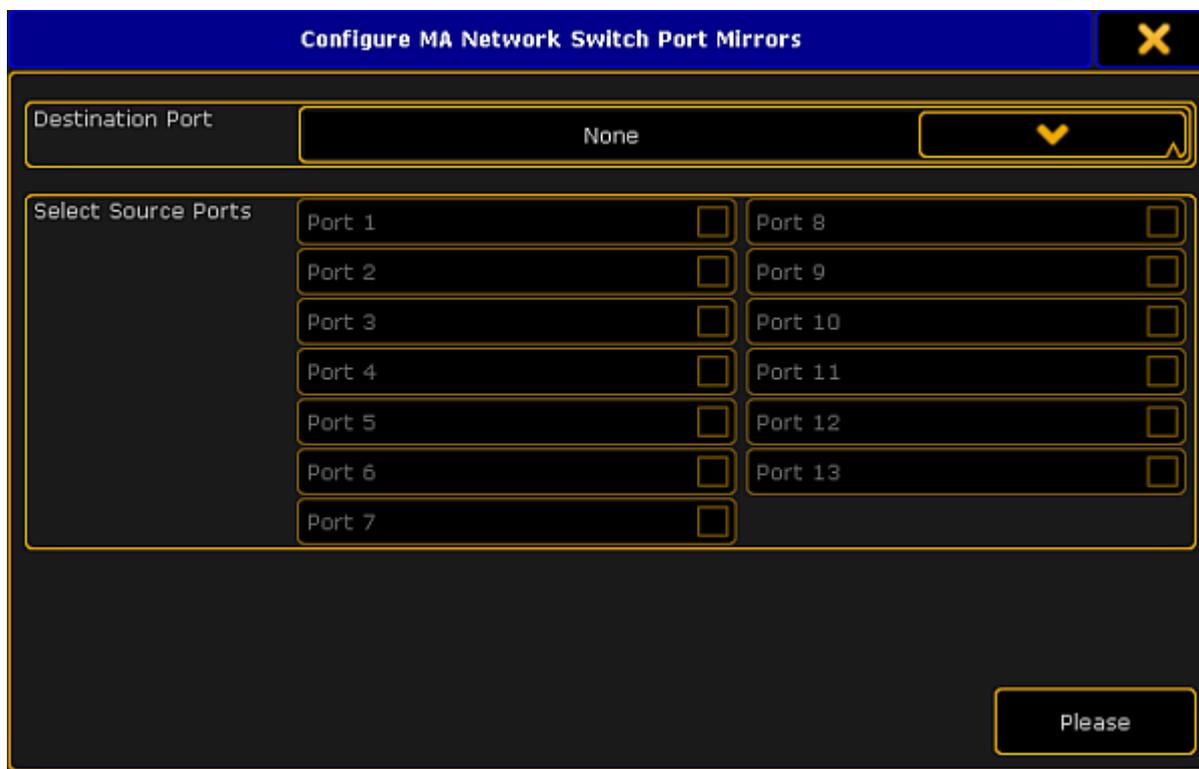
1. Open the **MA Network Configuration**:
  - Press **Setup** and tap **Network MA Network Configuration**.
  - The window **MA Network Configuration** opens.



*MA Network Configuration – Network Switch*

2. Tap **Network Switch**.

3. Tap a cell in the row of the MA Network Switch you would like to edit and tap **Port Mirror**.  
-The **pop-up Configure MA Network Switch Port Mirrors** opens.



## Mirror ports

4. Select destination port:  
-Tap the button in the field **Destination Port** and select a port.
5. Select source ports:  
-Check the checkboxes corresponding to the source ports.
6. After checking one or several source ports tap **Please**.
7. The ports are now mirrored.



### Hint:

A port is never destination and source at the same time.

## 49.11. Work with the switch configuration

The configuration is the customized set of parameters that you have selected to run the switch.

You can get the current switch configuration or upload a previous exported switch configuration.

### Requirements:

- [Added MA Network Switch to the network configuration](#)
- grandMA2 console and MA Network Switch needs to be in the same subnet

# grandMA2 User Manual

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## Get switch configuration

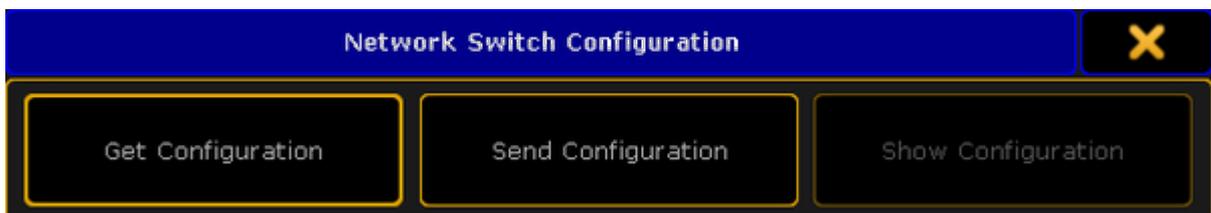
To get the switch configuration for later import is useful, if the same configuration must be used in multiple switches.

1. Open the MA Network Configuration.
  - Press **Setup**, and tap under **Network** **MA Network Configuration**.
2. The MA Network Configuration window opens. Tap at **Network Switch**.



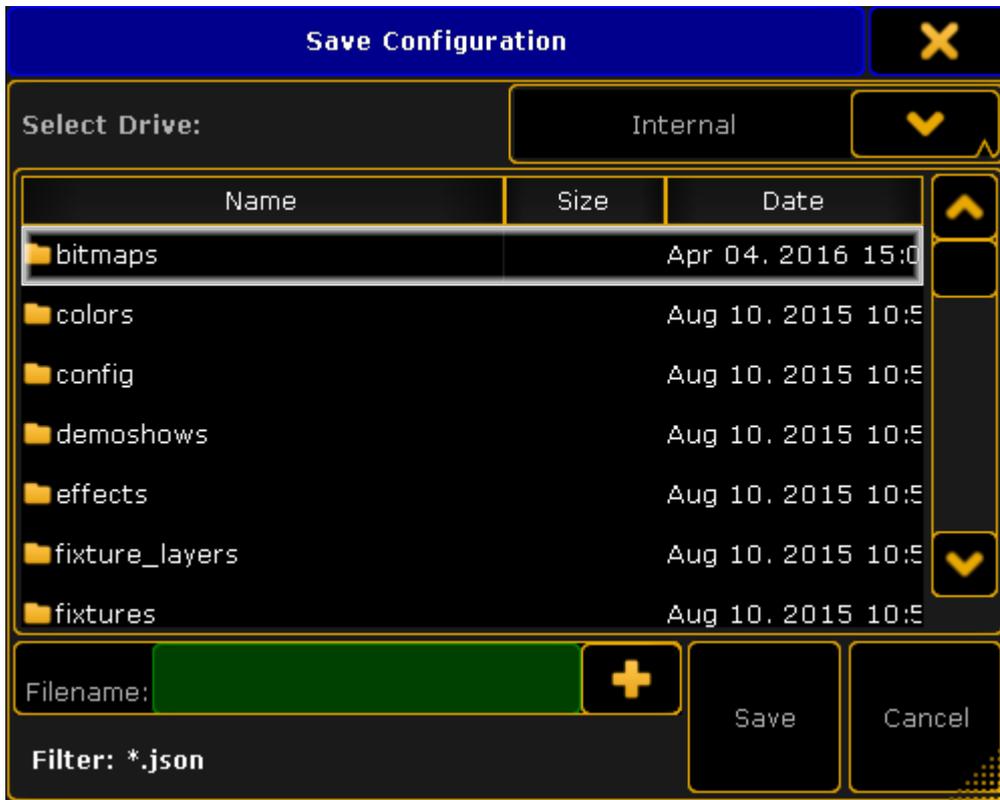
MA Network Configuration - Network Switch

3. Tap **Configuration**.  
The **Network Switch Configuration pop-up** opens.



Network Switch Configuration pop-up

4. Tap **Get Configuration**.  
The Save Configuration pop-up opens.



*Save Configuration pop-up*

5. Select drive and folder and type the file name in the green edit line. Tap at the **plus**  to open the virtual keyboard.
6. Tap **Save**.

The MA Network Switch configuration is saved on the selected drive. If you are using a grandMA2 onPC the MA Network Switch configuration is in the hidden folder C:\ProgramData\MA Lighting Technologies\grandmagma2\_V\_3.1\.



**Important:**

The configuration file uploaded via the onPC does not affect the IP address. The configuration file uploaded via the web interface, however, does affect the IP address.

## Send Configuration



**Important:**

The configuration file has to be written in a JSON (JavaScript Object Notation) data format. If the configuration is not in a JSON data format, the switch can not read the configuration file.



**Hint:**

If you are not sure how to write the configuration file, [get the current switch configuration](#) and modify this file.

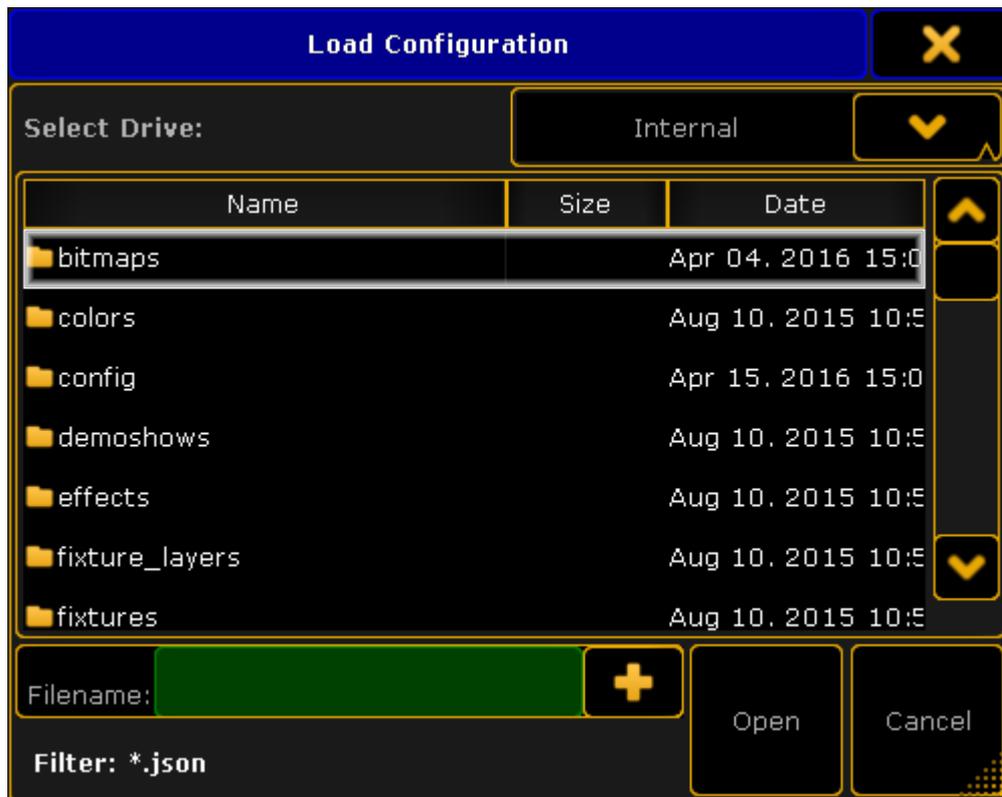


**Important:**

If you upload only parts of switch configuration, e.g. only the filters, it is necessary that the entire filters configuration part is included in the configuration file. If parts are missing in the configuration file, the configuration upload does not work.

1. Open the MA Network Configuration.  
- Press **Setup**, and tap under **Network** **MA Network Configuration**.
2. The MA Network Configuration window opens. Tap at **Network Switch**.
3. Tap **Configuration**.  
The **Network Switch Configuration pop-up** opens.
4. Tap Send Configuration.  
The Load Configuration pop-up opens.

If you are using a grandMA2 onPC the MA Network Switch configuration is in the hidden folder  
C:\ProgramData\MA Lighting Technologies\grandma\gma2\_V\_3.1\.



*Load Configuration pop-up*

5. Select the MA Network Switch configuration .json file for upload.
6. Tap **Open**.

The switch configuration is uploading. The update process can take about 60 seconds.

The switch configuration is uploaded and saved in the startup configuration.

## 49.12. Change password of the MA Network Switch

You can change the password of the MA Network Switch.

The password is necessary to login into the web interface and to unlock the MA Network Switch on the grandMA2 console or grandMA2 onPC if the switch is password protected.

The default password is **admin**.

The following characters are allowed.

- Upper case letters A...Z
- Lower case letters a...z
- Numbers 0...9
- Spaces, minus (-), plus (+), underscore (\_)

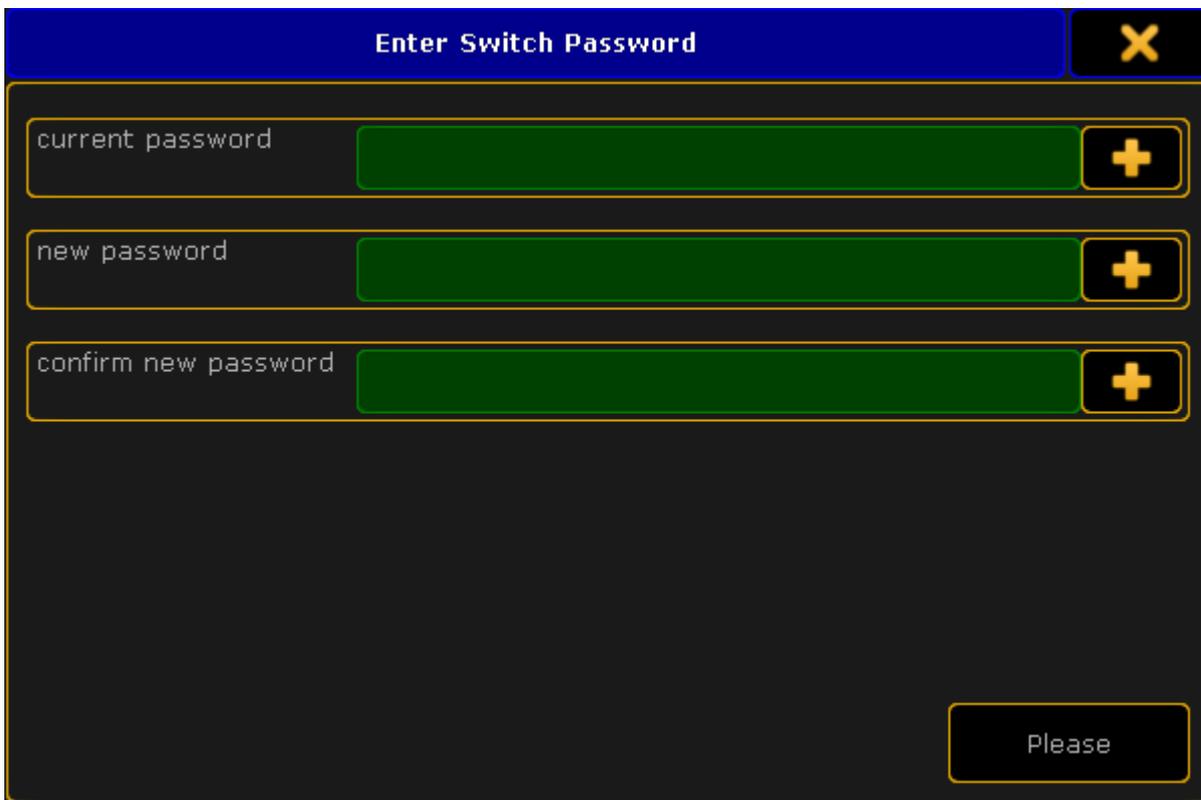
**Requirement:** [Added MA Network Switch in the network configuration.](#)

1. Open the MA Network Configuration.
  - Press **Setup** and tap under **Network** **MA Network Configuration**.The MA Network Configuration window opens.
2. Tap at **Network Switch**.



MA Network Configuration - Network Switch

3. Tap **Change Password**.  
The **Enter Switch Password** pop-up opens.



*Enter Switch Password pop-up*

4. Type the old password, type the new password, type the new password again to confirm it, and then tap **Please** or press **Please**.

The password is changed and you are logged in with the new password.

If you have forgotten the password you can reset the password to the default by a [factory reset](#).

## 49.13. Update firmware of the MA Network Switch

You can update the firmware of the MA Network Switch by using a grandMA2 console or grandMA2 onPC.

The current firmware is displayed at the bottom right corner at the front end display of the MA Network Switch, in the MA Network Configuration window, and in the web interface.

Download the latest version of the switch at [www.malighting.com](http://www.malighting.com).

### Requirements:

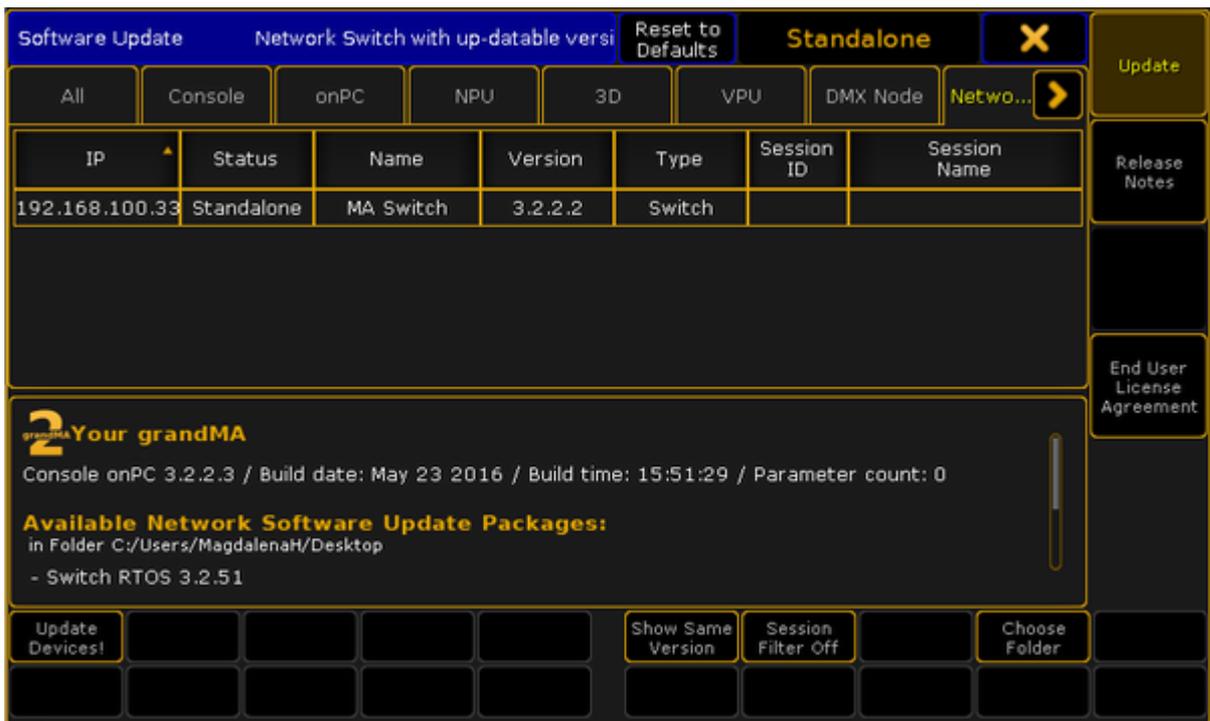
- grandMA2 console and MA Network Switch needs the same subnet
- Inserted USB stick with the new software version in the root directory



## Important:

It is necessary that only one update files for the MA Network Switch is on the USB stick. If two or more update files are on the USB stick the update files has to be in separate folders.

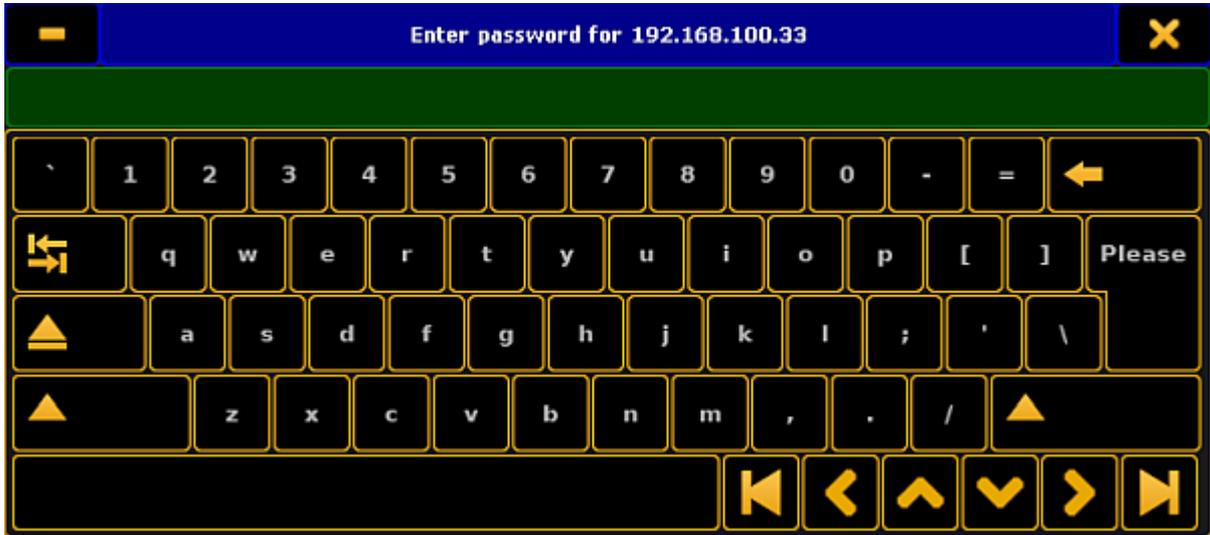
1. Open the Software Update window.
  - Press **Setup**, and tap under console **Software Update**.The Software Update window opens.
2. Tap at **Network Switch**.



Software Update - MA Network Switch

3. Tap **Choose Folder**. The file browser opens. Select the folder in which the update file is.

4. Tap in the table at the MA Network Switch you want to update and tap **Update Devices!**.  
The **Enter MA Network Switch password** pop-up opens.



*Enter MA Network Switch password*

4. Enter the password of the MA Network Switch and tap **Please** or press **Please**. If no password is set enter the default password **admin**.

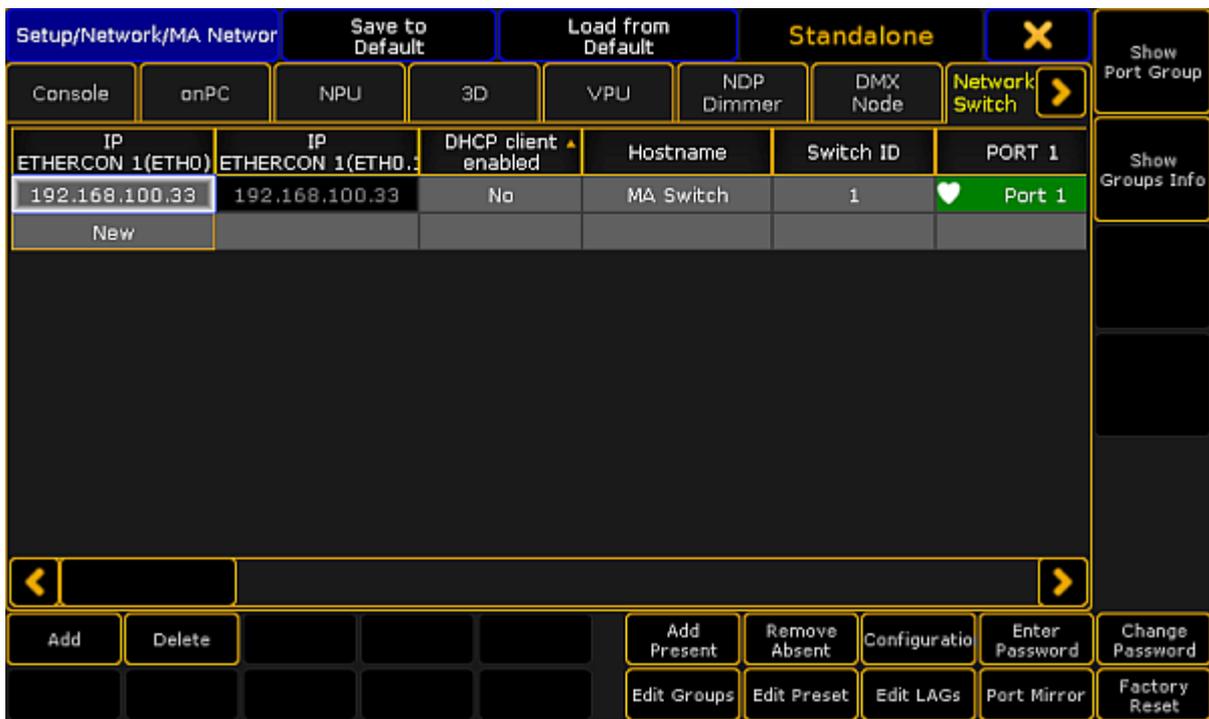
The switch is updating and reboots. This can take up to 5 minutes.

## 49.14. Reset the MA Network Switch to its factory defaults

By resetting the MA Network Switch, you return the switch to the state it was in when it was first time powered. This is useful for troubleshooting problems that might be caused by manual changes after first time powered. Refer to the [MA Network Switch manual](#) for a complete list of all settings and information they are reset.

Resetting the MA Switch is not reversible. After a reset, all previous settings are lost and cannot be recovered.

1. Open the MA Network Configuration.
  - Press **Setup**, and tap under **Network** **MA Network Configuration**.The MA Network Configuration window opens.
2. Tap at **Network Switch**.



MA Network Configuration - Network Switch

3. Tap at the line of the Network Switch you like to reset and tap **Factory Reset**.  
A warning asks if you want to reset all MA Network switch settings to factory defaults.
4. Tap **Ok**.

It might take a little while for the process to complete.

The MA Network Switch restarts. All settings are set back to the factory defaults.

To see the MA Network Switch in the MA Network Configuration window again, it is necessary to add the MA Network Switch again. For more information see [Add MA Network Switch](#).

For more information to the MA Network Switch factory defaults, see [MA Network Switch - Factory Defaults](#).

# grandMA2 User Manual

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## 49.15. Delete MA Network Switch from the network configuration

Use these steps to delete the MA Network Switch from the network configuration.

1. Open the MA Network Configuration.
  - Press **Setup**, and tap under **Network** **MA Network Configuration**.The MA Network Configuration window opens.
2. Tap at **Network Switch**.



MA Network Configuration window

3. Tap **Delete**.

The MA Network Switch is deleted from the network configuration.

## 50. Control the MA xPort Node

The MA 8Port Node, MA 4Port Node, MA 4Port Node WM, MA 2Port Node, MA 2Port Node WM set an additional benchmark in MA Lighting's networking product range as they feature the 1 Gbit/s bandwidth capability. They allow the conversion of Ethernet data into DMX and vice versa.

It is possible to configure all xPort nodes of the grandMA2 series in a browser. Furthermore, it is possible to configure the nodes via splitters and mergers.

Moreover, you can use an NSP as a 4Port Node and the 2Port Node from the grandMA1 series in the grandMA2 system.

For more information on nodes see [What are MA nodes.](#)

This chapter deals with the configuration of xPort Nodes of the grandMA2 series, splitters and mergers and their corresponding functions.

For more information read the corresponding topics.

### 50.1. Configure xPort Nodes on the Console

The configuration is a customized set of parameters you have set to run an xPort node.



#### **Important:**

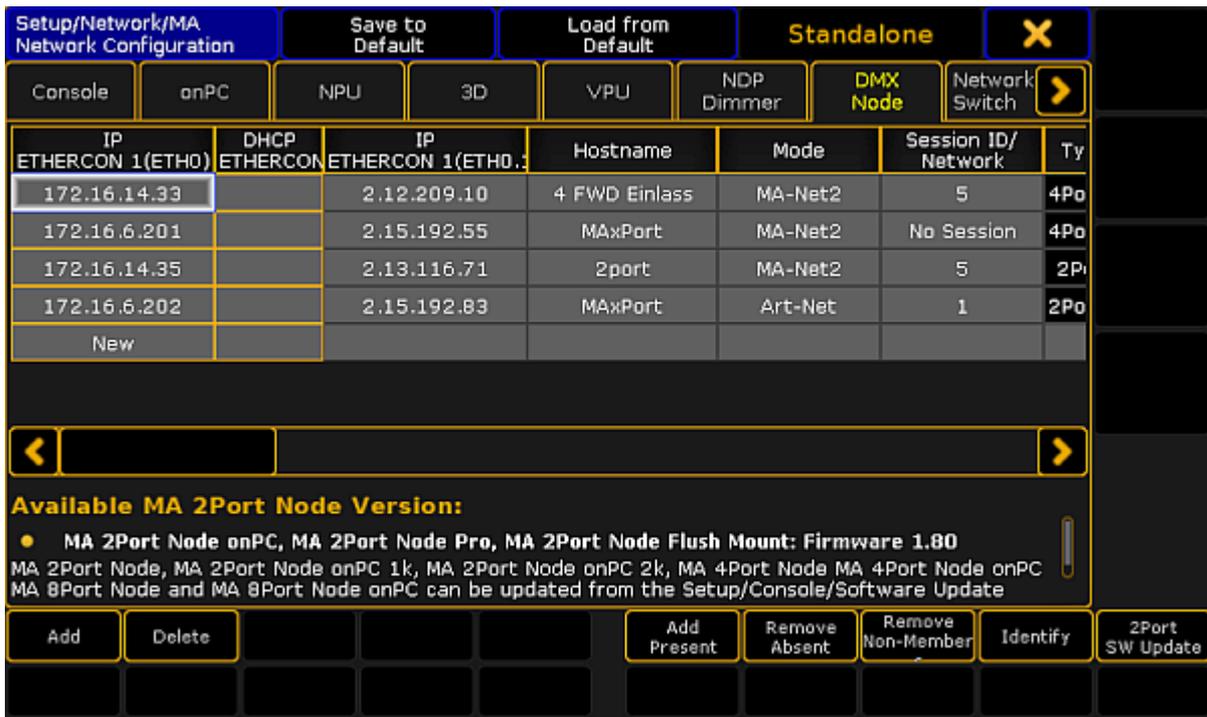
This topic treats subject areas that are important for the configuration of nodes. General settings are treated in the topics [Adding devices to your session](#) and [Configure the DMX ports on MA devices.](#)

#### **Requirements:**

- Add an MA xPort Node to the network configuration
  - grandMA2 console and the MA xPort Node have to be in the same subnet, if DMX should be put out
1. Open the **MA Network Configuration**.
    - Press **Setup** and tap **MA Network Configuration**.
  2. The window **MA Network Configuration** opens.
    - Tap **DMX Node** and then **Add Present**. All the nodes present in the network will be displayed.

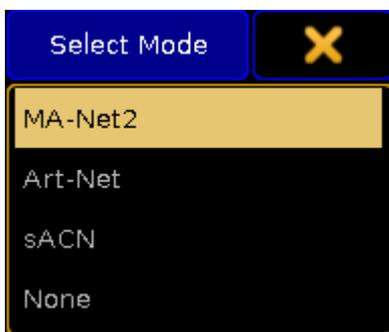
# grandMA2 User Manual

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## MA Network Configuration – DMX Node

- Then, tap a cell in the column **Mode**.
  - The **pop-up Select Mode** opens.
  - Select one of the modes here.



## Pop-up Select Mode

For more information on the four modes see [Adding devices to your session](#).

- To configure the ports, tap a cell in one of the **XLR columns**.
  - The pop-up **Configure DMX Port** opens.



Pop-up – Configure DMX Port (MA-Net2 Mode)

- Next, set the **Port Mode** by tapping the drop-down box.
  - Set the port mode to "Out".
- Select the universe by tapping the minus or the plus sign.
  - Enter universe 5.

For more information on the different port modes and merge settings of DMX data see [Configure the DMX ports on MA devices](#).



**Important:**

The **DMX Fail Mode** can be set in DMX xPort Nodes from the version 3.3 on.

- Now, select a **DMX Fail Mode**.
  - Tap the drop-down box and select for example the fail mode Timeout 1m.

For more information on the DMX Fail Mode see [DMX Fail Mode in Configure DMX ports on MA devices](#).

- Set the outfade time.
  - Enter 5 seconds using the plus or the minus sign.
- After you have adjusted the configuration settings tap **Please**.

The configuration settings have now been applied to the node.

## 50.2. Configure xPort Nodes in a Browser

Besides configuring nodes on the console, it is also possible to configure MA xPort Nodes in a browser.



### **Important:**

This topic treats subject areas that are important for the configuration of nodes in a browser. General settings are treated in the topics [Adding devices to your session](#) and [Configure the DMX ports on MA devices](#).

### **Requirement:**

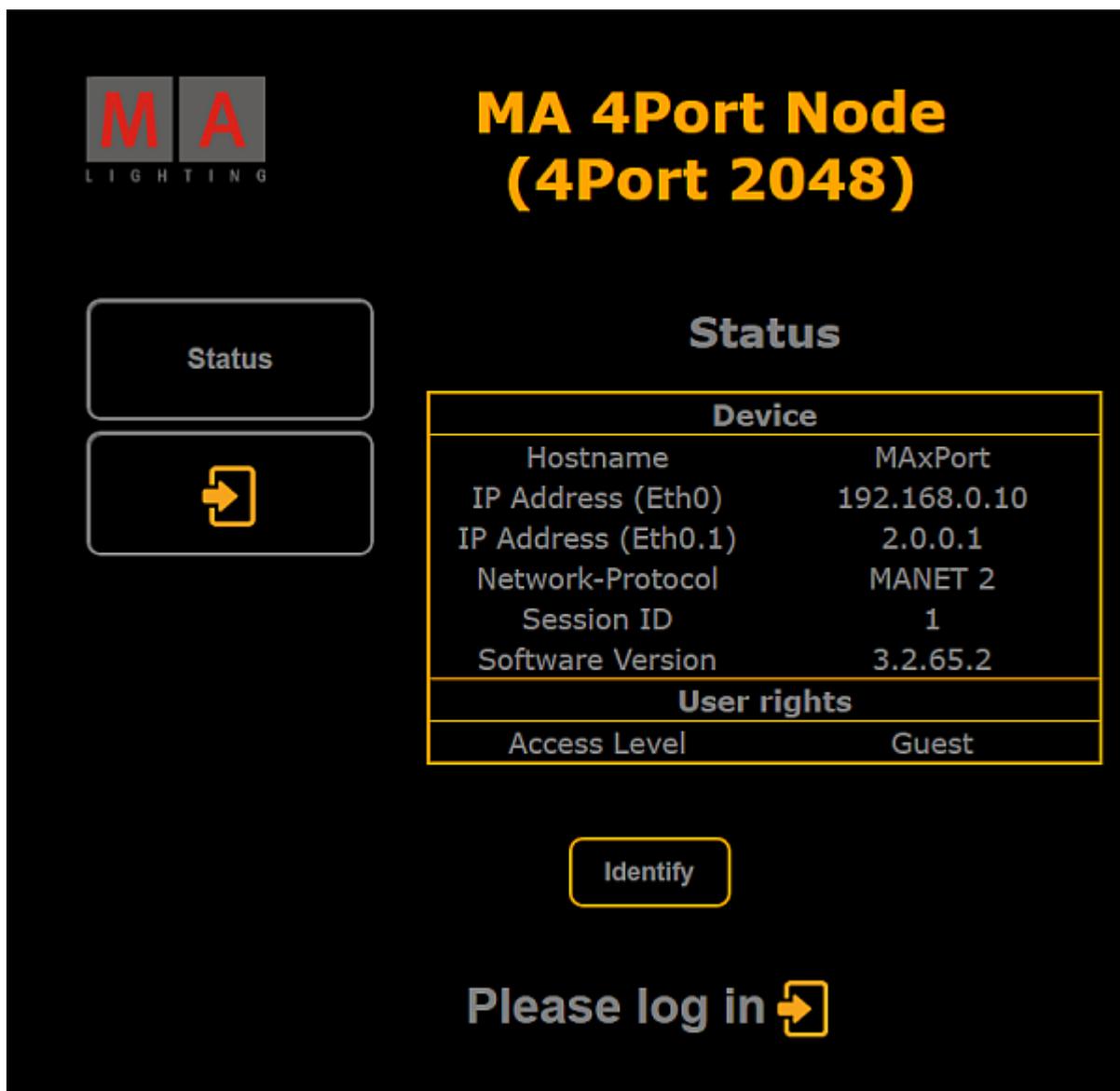
- Connect the MA xPort Node directly to your PC using a network cable. Or connect the xPort Node with a network cable via an MA Network Switch or a network hub.
- Change the IP address of your PC to the same IP address space of the node (the last block of the IP address has to differ from the node).



### **Important:**

The IP address of the node is located on its display.

1. Type the IP address of the node into the address bar of the browser.
2. The status window opens.



Status window – Configuration of nodes in browser



**Hint:**

Also, see the status of the node on its display.

- To light up the display of the node, **click Identify** – located below the status table – **once**.  
The browser page turns green.  
To turn off the illumination of the display, **click Identify once again** and the background of the browser page turns black again.
- Next, log in:  
-Click **Please log in** below the button **Identify** or click the button with the arrow pointing right below the button **Status**.
- The login form opens.



*Login form – Configuration of nodes in browser*

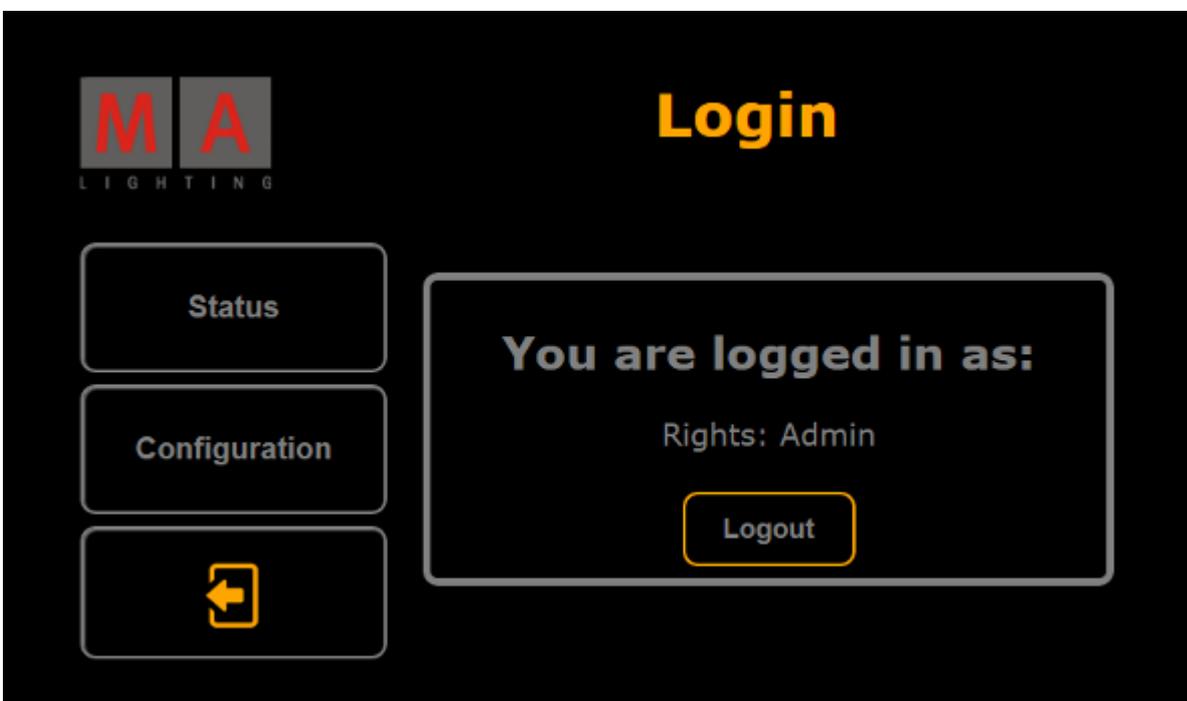
6. Type **admin** into the password input mask and then click **Please**.



**Hint:**

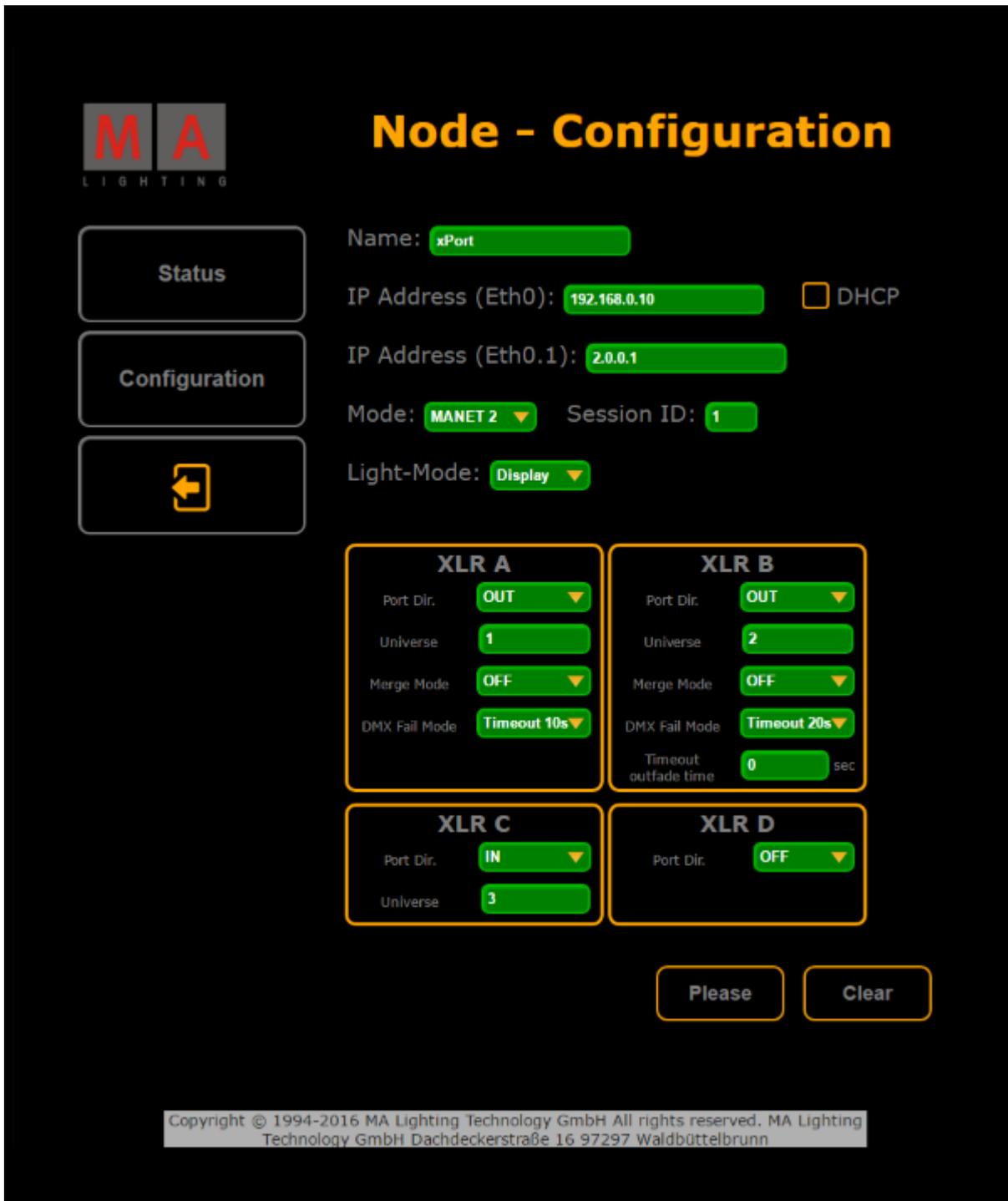
To return to the status window, click the button **Status** on the left.

7. If you have successfully logged in, a window opens showing the login credentials.



*Successful login – Configuration of nodes in browser*

8. If you would like to leave this window, click **Logout** now.
9. To proceed, click **Configuration**.  
The window **Node - Configuration** opens.



## Node Configuration

### 10. Adjust the settings:

- Enter the name of the node, the two IP addresses and the ID of the session in the corresponding input fields.
- Select the mode and light mode in the corresponding drop-down menus.
- Check the checkbox **DHCP**.

For more information on DHCP see [Using DHCP in MA devices](#).

11. Adjust the ports in **XLR A**, **XLR B**, **XLR C**, and **XLR D**:
  - Select the port in the drop-down menu **Port Dir**.
  - For more information on the port and merge modes see [Configure the DMX ports on MA devices – Port Mode](#) and [Configure the DMX ports on MA devices – Merge Mode](#).
  - Enter the number of the universe.
  - Then, select the merge mode in the drop-down menu **Merge Mode**.
  - Select the DMX fail mode in the corresponding drop-down menu.
  - And enter the timeout outfade time if necessary.
12. To apply the settings you have made, click **Please**.  
Your settings have now been applied.
13. If you would like to reset the settings that have not been applied yet, click **Clear**.
14. You can now log out:
  - Click the button with the arrow pointing to the left below the button **Configuration**.
  - Then, click **Logout** in the box.

You have successfully logged out.

## 50.3. Configure xPort Nodes as Splitters or Mergers

It is possible to configure MA xPort Nodes as a splitter or a merger on one universe.

To do so:

- Configure the node on the console or in a browser first.

For information on how to configure nodes see [Configure nodes on the console](#) or [Configure nodes in a browser](#).

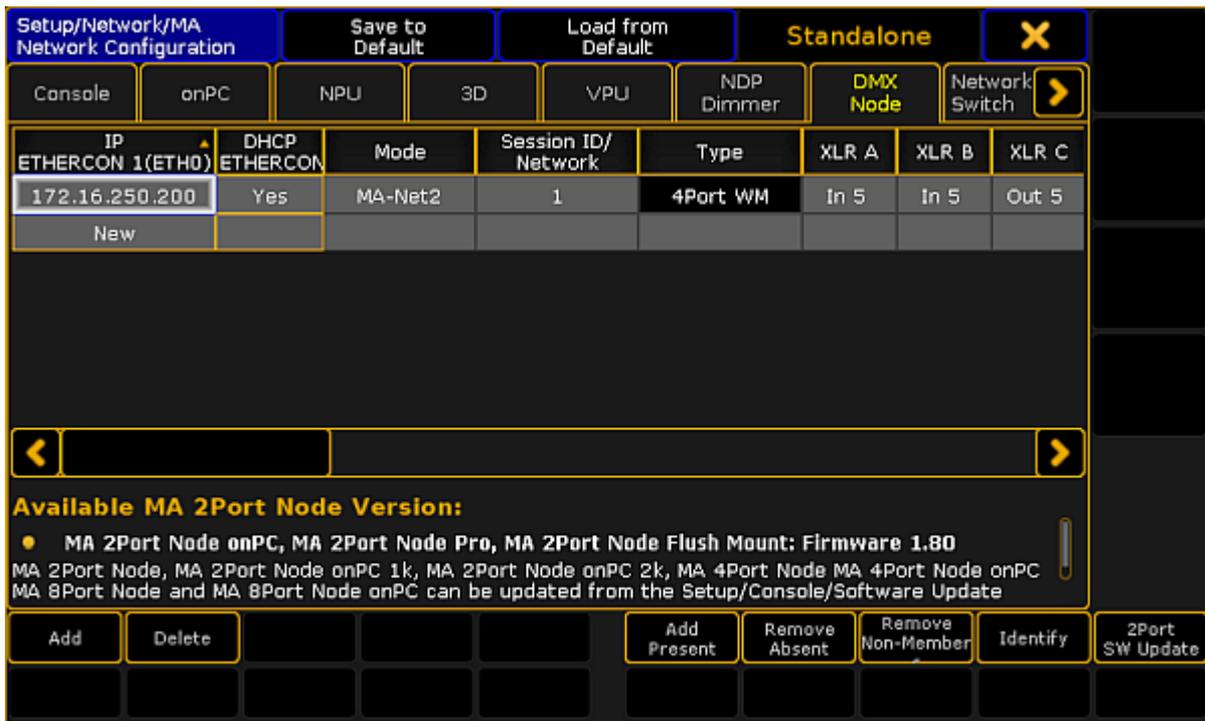
The following example displays how to configure the nodes as splitters or mergers on a console.

---

### Configure the Node as a Merger

If the node is used as a merger, it is possible to merge one or two DMX inputs into one universe.

1. To configure the node as a merger:
  - Add an MA xPort Node to the network configuration.
  - For more information see [Adding devices to your session](#).
2. Select the same universe for all ports in the pop-up **Configure DMX Port (MA-Net2 Mode)**.  
For more information see [Configure nodes on the console](#).
  - Then, set a maximum of 2 ports to the port mode "IN" and 1 port to the port mode "OUT".



Configure node as a merger



### Important:

If the xPort node is used as a merger, it must not be used in a session or connected to other xPort nodes via the network.

You have successfully configured the node as a merger.

## Configure the Node as a Splitter

- To configure the node as a splitter:
  - Add an MA xPort Node to the network configuration.  
For more information see [Adding devices to your session.](#)
- Select the same universe for all ports in the pop-up **Configure DMX Port (MA-Net2 Mode)**.  
For more information see [Configure nodes on the console.](#)
  - Then, set at least 3 ports to the port mode "OUT" and 1 port to the port mode "IN".

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Setup/Network/MA Network Configuration

Save to Default Load from Default Standalone X

Console onPC NPU 3D VPU NDP Dimmer DMX Node Network Switch

IP	DHCP	Mode	Session ID/ Network	Type	XLR A	XLR B	XLR C	XLR D
ETHERCON 1(ETH0)	ETHERCON							
172.16.250.200	Yes	MA-Net2	1	4Port WM	Out 5	Out 5	Out 5	In 5
New								

Available MA 2Port Node Version:

- MA 2Port Node onPC, MA 2Port Node Pro, MA 2Port Node Flush Mount: Firmware 1.80

MA 2Port Node, MA 2Port Node onPC 1k, MA 2Port Node onPC 2k, MA 4Port Node MA 4Port Node onPC MA 8Port Node and MA 8Port Node onPC can be updated from the Setup/Console/Software Update

Add Delete Add Present Remove Absent Remove Non-Member Identify 2Port SW Update

*Configure node as splitter*

You have successfully configured the node as a splitter.

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## 51. Console Settings

Use the console settings to adjust the console to the environment.

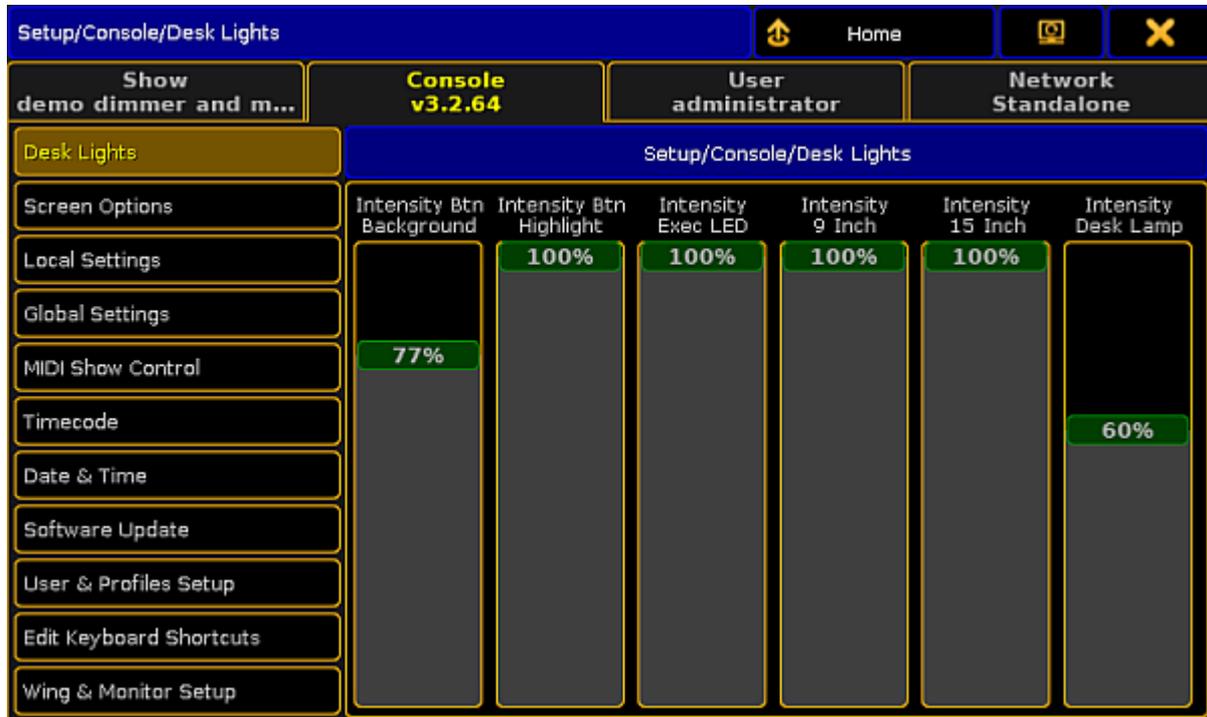
For more information on the various settings see the links below:

- [Adjust the intensity of desk lights](#)
- [Change screen options](#)
- [Local settings](#)
- [Wing & monitor setup](#)
- [Date & time](#)

## 51.1. Adjust Intensity of Desk Lights

Use the Setup Menu

The intensity of the desk lights is located in the **Setup I Desk Lights**.



*Setup – Adjusting desk lights*

Adjust the intensity of the:

- Background of keys and buttons
- Executor LEDs
- Screens
- Desk lamp

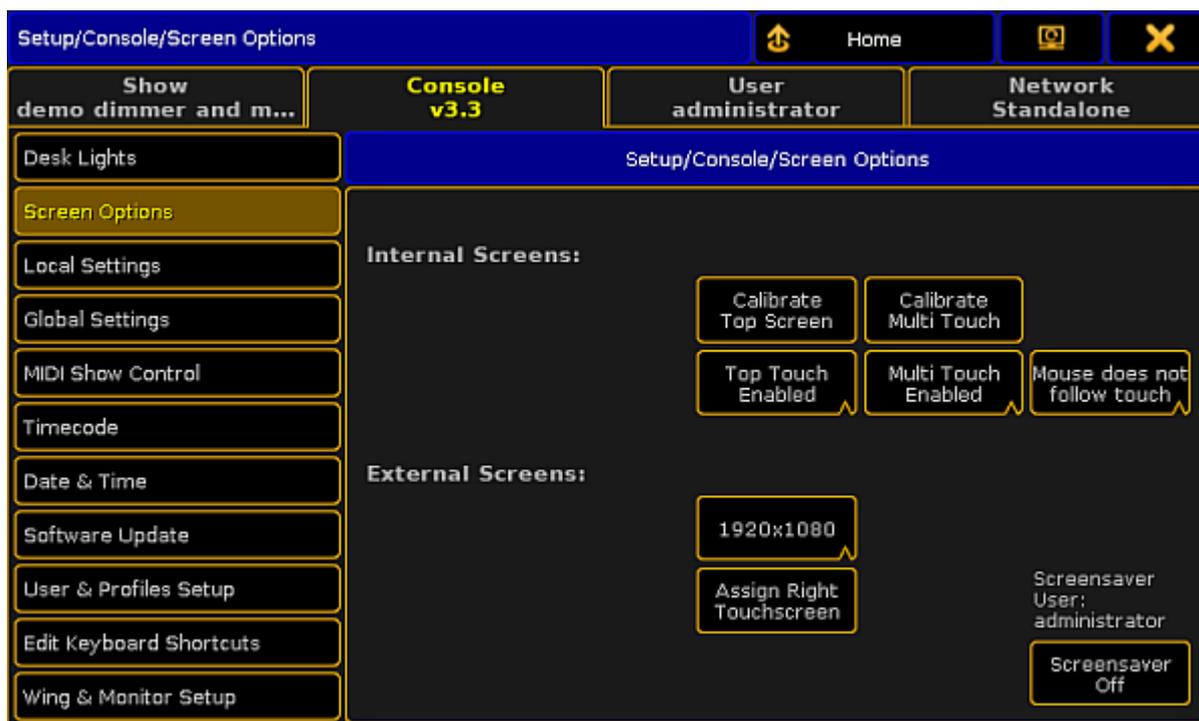
To adjust the intensity of the desk lights:

1. Open the Setup by pressing **Setup**.
2. Then, tap **Desk Lights**.
3. To dim the light of your desk, tap the fader and move it downward.  
To lighten the desk, tap the fader and move it upward.

The light of your desk has now been adjusted.

## 51.2. Change Screen Options

The screen options are located in the **Setup I Screen Options**.



## Setup – Screen Options

In this view you can

- [Calibrate screens](#)
- [Change the touch function](#)
- [Change mouse settings](#)
- [Assign external touchscreens](#)
- [Change screen resolution for external screens](#)
- [Turn on screensaver](#)

## Calibrate Screens

You can calibrate the internal and external screens if assigned.

To adjust how accurately your screen senses when using a pen or finger:

1. Open the Setup by pressing the **Setup** key, then tap **Screen Options**, and select the screen you would like to calibrate.
2. Follow the on-screen instructions.

The screen selected is now calibrated.

## Change the Touch Function

You can disable and / or enable the touch function for every screen on the console.

By default, the touch function is enabled.

To change the touch function:

- Open the Setup by pressing the **Setup** key, then tap **Screen Options**, and tap at the screen you would like to change the touch function, for example **Left Touch Enabled**.

The touch function of the screen selected is disabled or enabled.

---

## Change Mouse Settings

You can choose if the mouse should or should not follow the touch.

By default, the mouse does not follow the touch.

Change the mouse setting to follow the touch:

- Open the Setup by pressing the **Setup** key, then tap **Screen Options**, and tap **Mouse does not follow touch**.

The mouse follows the touch.

---

## Assign External Touch Screens

**Requirement:** [Connected external touchscreen](#).

To assign an external touch screen:

1. Open the Setup by pressing the **Setup** key, then tap **Screen Options**, and tap on the screen you want to assign, for example **Assign Right Touchscreen**.
2. Follow the on-screen instructions.

The selected touch screen is now assigned.

---

## Change Screen Resolution for External Screens

Screen resolution refers to the acuity of the text and images displayed on your screen. At higher resolutions, such as 1600 x 1200 pixels, items appear sharper.

The larger the monitor the higher the resolution. Increase of screen resolution depends on the size and capability of your monitor.

**Requirement:** [Connected External Screen](#).

To change the screen resolution:

1. Open the Setup by pressing the **Setup** key, then tap **Screen Options**, and then tap the current screen resolution, for example **1920x1080**.  
A list with all available screen resolutions opens.
2. Choose a screen resolution.

The screen resolution is changed.

---

## Turn on Screen Saver

The grandMA2 console comes with a screen saver.

5 minutes after the screen saver starts, the backlight of the 15" inch screens shuts down.

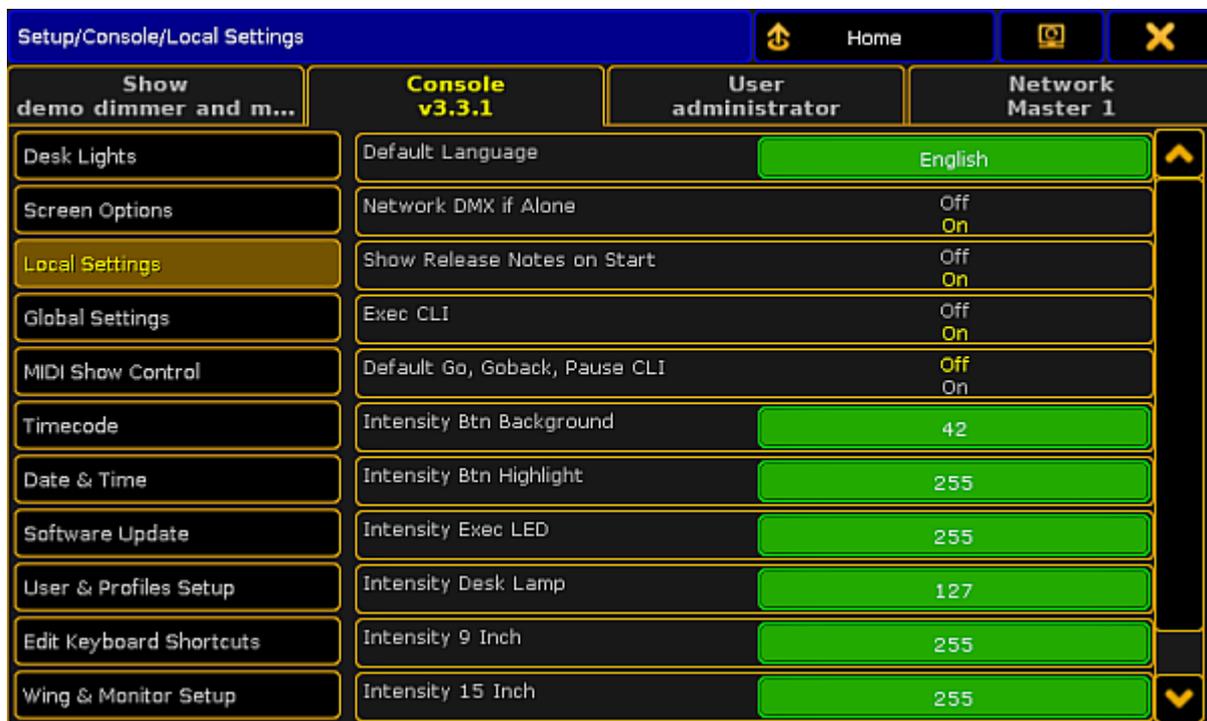
To turn on the screen saver :

1. Open the Setup by pressing the **Setup** key, then tap **Screen Options**, and then tap **Screensaver Off**.  
The calculator opens.
2. In the green edit line, type in after how many minutes the screen saver should turn on.
3. Tap **Please**.

The screen saver turns on after the timeout selected.

## 51.3. Local settings

The local settings are located in the **Setup | Console | Local Settings**.



*Local settings window*

### Default Language

It is not possible to change this setting, as the console, at the moment, only supports English language.

### Network DMX if alone

When this is "On", the console will output DMX over network when only one desk (as master) is in the session.



## Important

This setting can conflict with other console (as master), sending out DMX in the network.

Show release notes on start

Turn **Show Release Notes on Start** "On" or "Off", to see the release notes on startup.

Flashing error LED on wrong fader position

Turn **Flashing error LED on wrong fader position** "On" or "Off" to let a red LED flash, if the fader is in a wrong position.



## Important:

This function is only available on a GrandMA2 UltraLight and an onPC with a wing. On UltraLight it relates the red LEDs under the faders, in the onPC it relates the LEDs in the keys over the faders.

Exec CLI

Turn **Exec CLI** (Command Line Interaction) "On" or "Off" to let the Command Line interact with the executors.

In the following example **Exec CLI** is "Off".

If **Select** is pressed, followed by an **Executor button**, this will NOT select the executor, but perform the action assigned to the button.

Default Go, Goback, Pause CLI

Turn **Default Go, Goback, Pause CLI** "On" or "Off" to let the Command Line interact with the big **Default Go**, **Goback** and **Pause** keys.

In the following example **Default Go, Goback, Pause CLI** is "Off".

If a macro is edited and **Default Go** is pressed, the system will NOT enter DefaultGo in the macro-line, but execute the next cue in the selected executor.

## Intensity Btn Background

The background light of the keys on the console can be set. Follow these steps:

1. Tap the green square in the **Intensity Btn Background** area.
2. Tap the intensity as a number between 0 and 79. 0 is no light and 79 is full.

## Intensity Btn Highlight

The highlight light of the keys on the console can be set. Follow these steps:

1. Tap the green square in the **Intensity Btn Highlight** area.
2. Tap the intensity as a number between 0 and 255. 0 is no light and 255 is full.

## Intensity Exec LED

The background light of the executors on the console can be set. Follow these steps:

1. Tap the green square in the **Intensity Exec LED** area.
2. Tap the intensity as a number between 0 and 255. 0 is no light and 255 is full.

## Intensity Desk Lamp

The desklight on the console can be set. Follow these steps:

1. Tap the green square in the **Intensity Desk Lamp** area.
2. Tap the intensity as a number between 0 and 255. 0 is no light and 255 is full.

## Intensity 9 Inch

The backlight of the screens on the console can be set. Follow these steps to set the backlight of the 9 inch screens:

1. Tap the green square in the **Intensity 9 inch** area.
2. Tap the intensity as a number between 0 and 255. 0 is dark and 255 is bright.

## Intensity 15 Inch

The backlight of the screens on the console can be set. Follow these steps to set the backlight of the 15 inch screens:

1. Tap the green square in the **Intensity 15 inch** area.
2. Tap the intensity as a number between 0 and 255. 0 is dark and 255 is bright.



**Important:**

The **Intensity** functions are not available on an onPC.

## Desklock background

It is possible to lock the console, so no faders and keys can be used, by pressing **Pause** on the keyboard or press and hold **MA** and press **Fix**. **Desk Locked** appears on the screen. To unlock the console, press **Pause** or press and hold **MA** and press **Fix** again. The background of the desklock screen can be set to either **Black**, **Image Pool Picture** or **Current Desk UI**

- **Black** will let the background be black.
- **Image Pool Picture** opens the Image Pool for the current show file, to select one of these to be the background.
- **Current Desk UI** leaves the screens as they are, but places a red Desk Locked sign above the content.

## 51.4. Wing & Monitor Setup

Assign wings to an executor or assign external displays to internal screens in Wing & Monitor Setup.

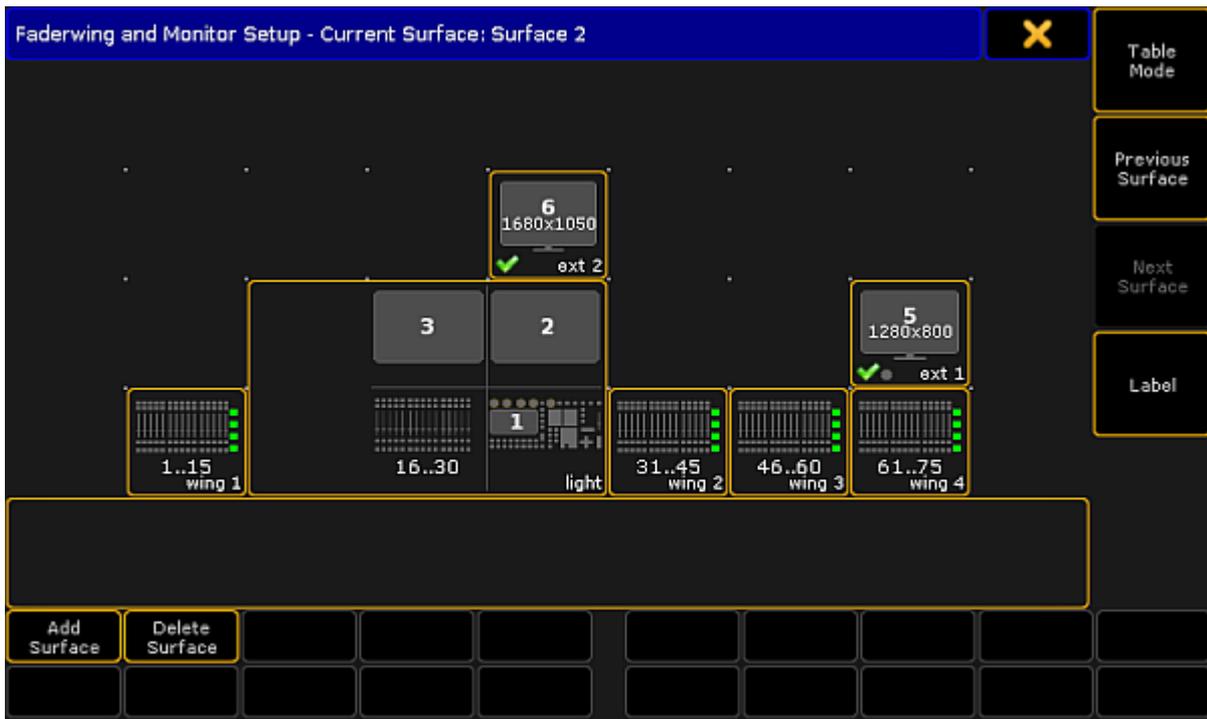
**Requirements:**

- The resolution of the external screen has to be set to 1280 x 800 before assigning the internal screen to it.
- The external screen has to be calibrated before assigning the internal screen.

For more information on how to set the resolution see [Change Screen Resolution for External Screens](#).

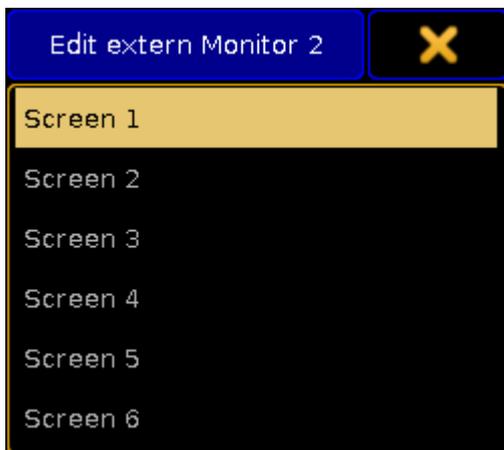
Open the Wing & Monitor Setup:

1. Press **Setup**.
2. Tap **Wing & Monitor Setup** in the column **Console**.
3. The menu **FaderWing and CommandWing Setup** opens in the graphic mode.



Display of a current surface in grandMA2 – graphic mode

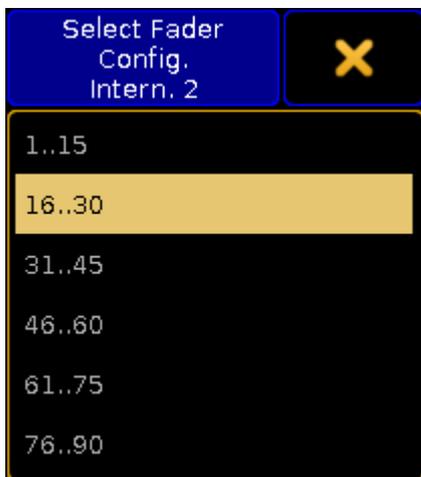
4. To remove the write protection and to add a new screen, tap **Add Surface**.
5. Assign the internal screen to an external screen:
  - Tap and hold an external screen displayed in the menu above.
  - A pop-up opens displaying the screens.



Assign a screen to an external screen

- Tap for example Screen 1.
  - The internal screen 1 is now assigned to an external screen.
6. Tap and move an external screen to a favored position in menu.
    - If an external screen is moved to the side, using the tracking ball or a mouse moves the cursor to the side.
    - If an external screen is moved to the top, using the tracking ball or a mouse moves the cursor to the top.
    - When operating a console move an external screen using a wing. Use the encoder of the wing to navigate in the screen.

7. Configure an internal or external wing:
  - Edit the command wing displayed at the bottom of the current surface.
  - A pop-up opens displaying the configuration.



*Configuration of wings*

- Tap to select a wing.
8. To label the surface, tap **Label** on the right of the menu.
  9. Change surfaces:
    - To return to the previous surface, tap **Previous Surface**.
    - To jump to the next surface, tap **Next Surface**.

You can also call a surface using the command line. For more information see the [Surface keyword](#).

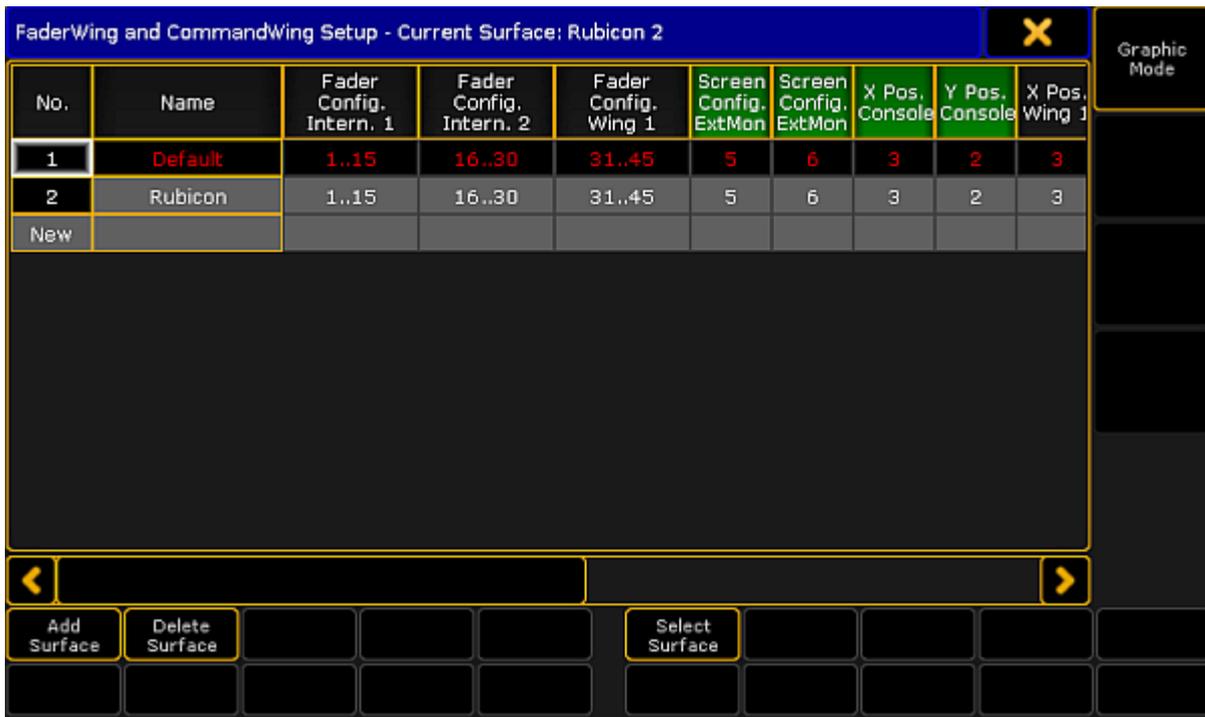
10. To delete a surface, tap **Delete Surface**.

The settings are now applied.

---

## Table Mode

1. To display the settings in a table, tap **Table Mode** on the right of the menu.
2. The menu opens.



Wing & monitor setup – table mode

3. Add a surface:
  - Tap **Add Surface** or tap and hold the cell **New** in the column **No.** or an empty cell in the column **Name**.
4. Label the surface:
  - After adding a surface, tap the cell **Surface**.
  - A pop-up **Edit Name** opens.
  - Enter the name.
  - The surface is now labeled.
5. Apply a surface:
  - Tap **Select Surface**. The cell you have tapped is now applied.
6. Edit cells:
  - To edit single cells, tap and hold the cell.
  - A pop-up opens displaying the wings.
  - Tap to select a wing.
  - The wing you have selected is now applied.
7. To revert to the graphic mode, tap **Graphic Mode**.

All settings are now applied.

## 51.5. Date & time

Sometimes the console needs to know the current date and time, and sometimes also the location of the console. These settings are important if an **Agenda** is used. For more information, read the **Agenda** topic.

The date and time settings are located in the **Setup | Console | Date & Time**.



*Date & Time window*

## Date and time

To adjust the date and time, tap the green squares with hour, minute, second, day, month or year. This will open a calculator where it is possible to enter the current value.



### **Important:**

If the console is connected to an NTP server or a GPS, the date and time will be synchronized from the server or maybe the GPS and it will not be possible to set these manually. Read more about NTP server and GPS below.

## Location

In the **Location** tab, it is possible to enter the current timezone and the current longitude and latitude.

The Timezone refers to international standard GMT or UTC. Tap the green square and a calculator appears. Enter the current timezone, for example +1 for Central Europe, -5 for New York or +3 for Moscow.

It is also possible to enter the current location by tapping the green squares at Longitude and Latitude. The default position (9.94 - 49.79) is the center of Würzburg in Germany.

If the longitude is above zero, the position is north of the equator, and if it is below zero, the position will be placed on the southern hemisphere.

If the latitude is above zero, the position will be east of Greenwich (London) and if it is below zero, the position will be west of Greenwich.

## Daylight Saving

Daylight Saving is the practice of setting the clocks forward 1 hour from standard time during the summer months, and back again in the fall, in order to make better use of natural daylight.

Use the green squares to set the day, month and time where the daylight saving starts and stops.

To enable or disable daylight saving, tap **Daylight Saving Enable**.

## NTP

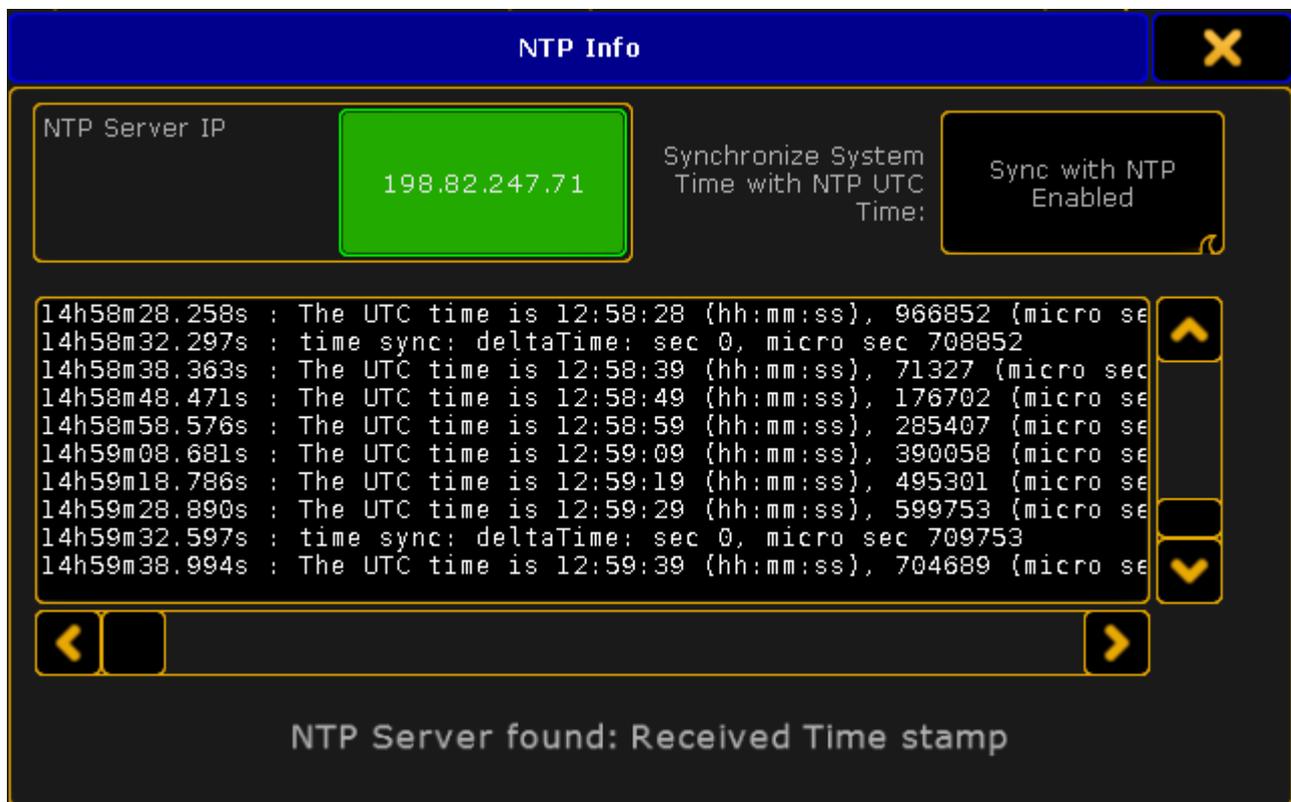
Network Time Protocol (NTP) is a networking protocol for clock synchronization. There are NTP servers all over the world, and it is a good idea to find a server in the local area.



### Important:

To use this function, a station with internet connection (onPC) or connection to an NTP server must be in the session.

Tap **NTP info** and a pop-up appears.



*NTP info pop-up*

# grandMA2 User Manual

Version 3.3



The steps to let all of the consoles in the session synchronize to a NTP server. This has to be done on a station with a connection to the NTP server:

1. Tap the green field and type in the IP-address of the NTP server
2. Tap **Sync with NTP**, until it shows **Enable**

A note in the bottom of the pop-up labeled **NTP server found: Received Time stamp** appears, when there is a connection to the server.



## Hint:

The IP address on the image above is the NTP server on VirginiaTech University, connected by an onPC with a internet connection.

## Daylight info

To get information about Sunrise, Sunset, Dusk and Dawn according to the position or timezone, tap **Daylight Info**.

Daylight Info 				
	Dawn	Sunrise	Sunset	Dusk
Yesterday	5:41:45	6:50:40	18:12:25	19:22:15
Today	5:39:40	6:48:32	18:14:01	19:23:53
Tomorrow	5:37:33	6:46:24	18:15:37	19:25:31

All times are local times. timezone and daylight savings are taken into account. Forecast will only work if the correct global location is given! Times are calculated by reference to a flat horizon at sea level. Maximum precision for all times is +/- one minute.

*Daylight info pop-up*

These are the times the **Agenda** uses.

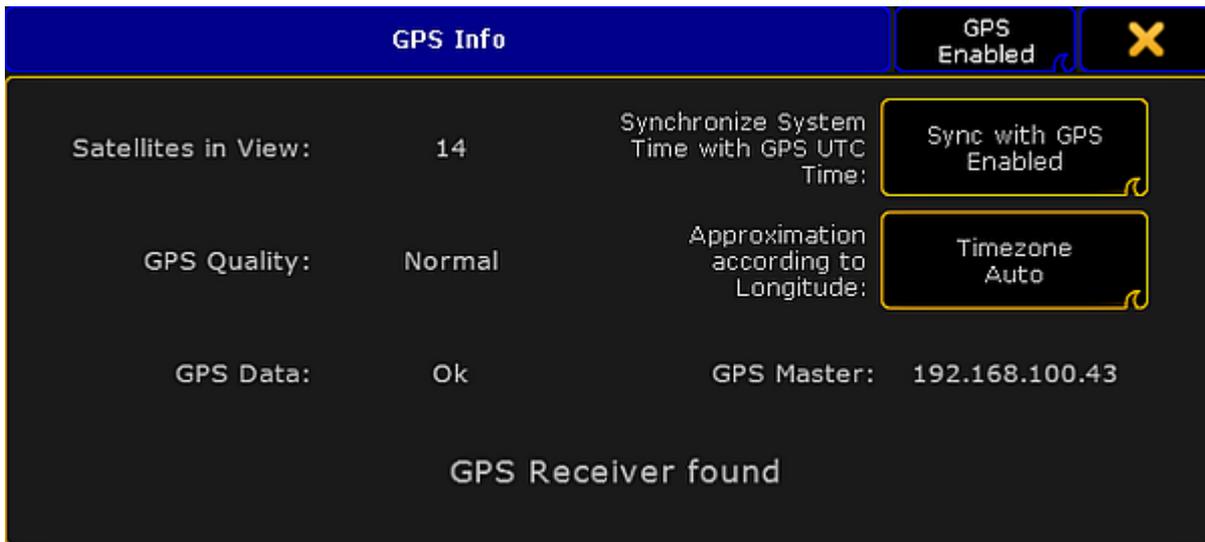
## GPS

Tap GPS to open the GPS pop-up



## Important:

To use the GPS function, an NMEA 0183 (4800/8-N-1) USB GPS receiver has to be connected.



*GPS info pop-up*

To use a GPS on the system do as followed:

1. Connect the GPS to one of the USB ports
2. Tap **GPS** until it is labeled Enable
3. [Optional] Tap **Sync with GPS** to synchronize the system time with the GPS UTC time. Tap until it is labeled Enabled. Then, it is not possible to set the time manually.
4. [Optional] Tap **Timezone** until it is labeled **Auto**, to let the GPS manage the timezones. Then, it is not possible to set the timezone manually.

The GPS Master refers to the console, were the GPS is connected.

## 52. Shut Down the System

Once you have finished your show, make sure to adequately shut down the system.

[grandMA2 and grandMA2 onPC](#)

[MA VPU Plus](#)

[MA VPU Basic and MA VPU Light](#)

[MA 3D](#)

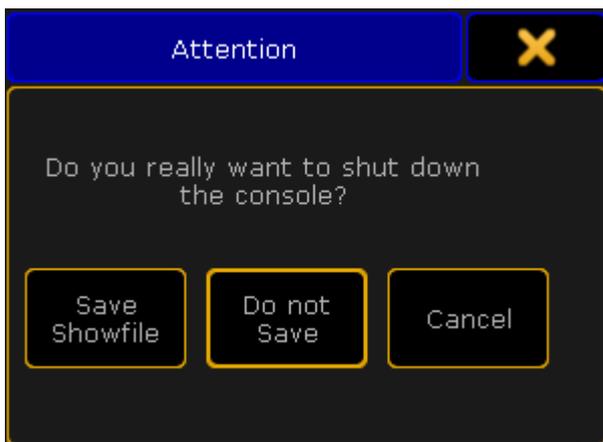
[MA NDP, MA Port WM and MA Network Switch](#)

[MA xPort Node](#)

---

### grandMA2 and grandMA2 onPC

1. Press the power key on the right of the monitor wing or the gray cross in the upper right corner of the onPC.
2. A warning pop-up appears.



*Shut down the system*

3. If you forgot to save the show, tap **Save Showfile**. The console or the onPC then saves the show file and powers down.  
To cancel the shut down, tap **Cancel**.  
To proceed the shut down without saving the show, tap **Do not Save**.



#### **Important:**

- If the onPC is set to **MultiScreen**, the window **Command** is the main window that closes the application.
- In **SingleScreen**, all views are displayed in the main window, hence, every window closes the application.
- In **SingleScreen (internal only)**, all windows, except for **Extern 1** and **Extern 2**, close the application. Please note that whenever changing the mode, a restart is required.

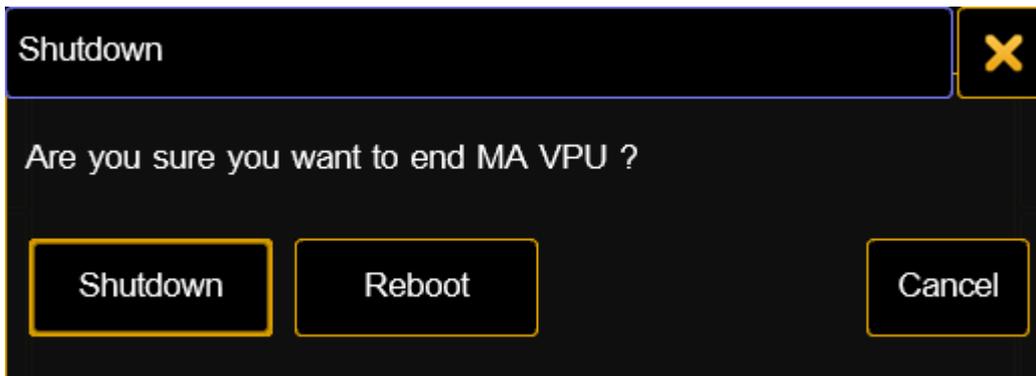
4. The console is successfully powered down.
5. Turn off the power switch on the rear panel and disconnect the plug.

For more information on the location of power key and the power switch see [grandMA2 console](#).

---

## MA VPU Plus

1. To power down the VPU Plus, tap **Shutdown** on the touch screen of the device.
2. A warning pop-up appears.



*Warning pop-up – VPU Plus*

3. Tap **Shutdown**.
  4. The MA VPU Plus is now powered down.
- 

## MA VPU Basic and MA VPU Light

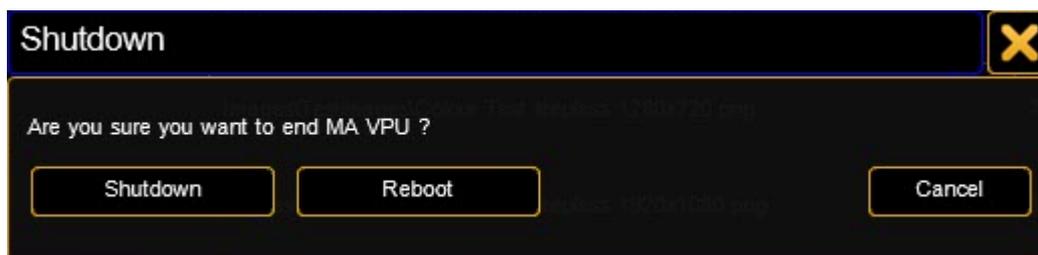
### Requirement:

- Connect a monitor, keyboard and mouse to the MA VPU Basic or Light.
  1. To power down, click **File** in the upper left corner of the graphic user interface.
  2. A drop-down menu opens.



*Powering down via the graphic user interface*

3. Click **Exit**.
4. A warning pop-up appears.



*Warning pop-up – VPU Basic and Light*

5. Click **Shutdown**.
6. The MA VPU Basic or Light is now powered down.

---

## Power Down at a Distance

If the MA VPUs are not located in close proximity of the area you operate in, there are two possibilities to power down at a distance.

1. Power down using the command line
2. Power down using the master fixture

### 1. Power Down Using the Command Line

To power down the MA VPU at a distance, type the following command and the IP address of the VPU into the command line:



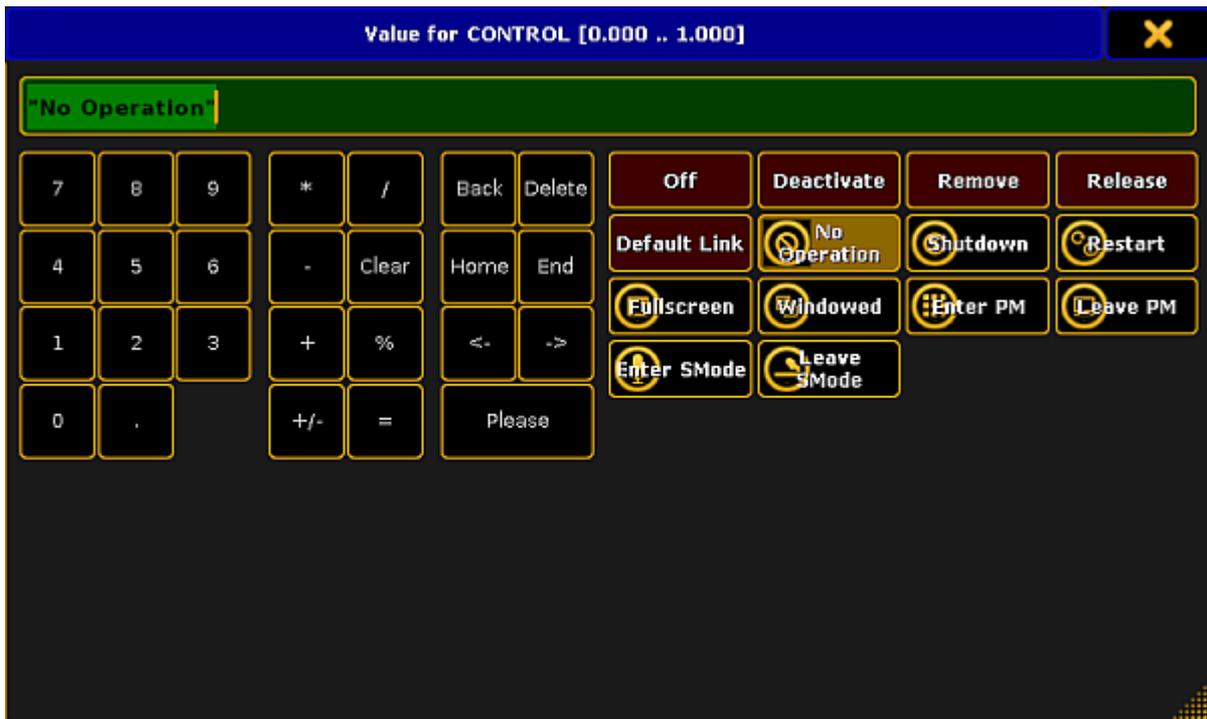
### 2. Power Down Using the Master Fixture

#### Requirement:

- Create a master fixture first

For more information on how to create a master fixture see [MA VPU – Data Management –Layer Properties](#).

1. To power down the MA VPU, type the number of the master fixture into the command line and press **Please**.
2. Tap **Control** in the preset type bar.
3. A calculator opens displaying several channel sets on the right.



Shut down the system using the master fixture



**Hint:**

It is also possible to arrange these channel sets in a smart view. For more information see [Using the smart view](#).

4. Tap **Shutdown**.
5. A countdown starts counting down from 10 seconds on.



**Important:**

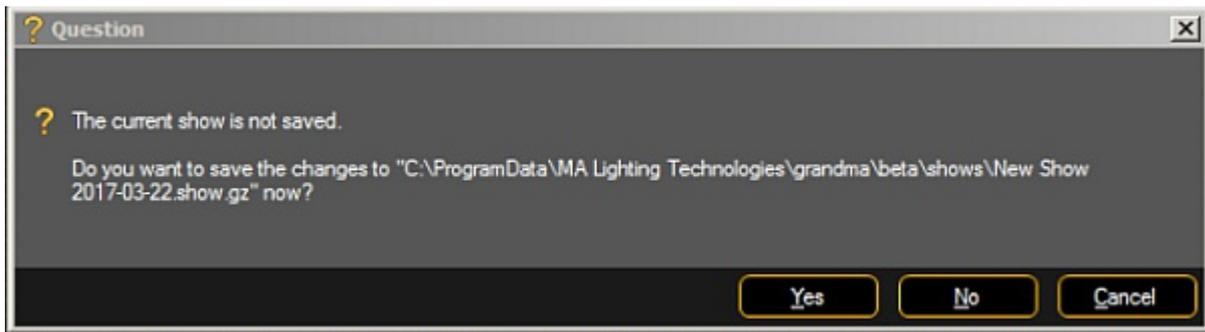
It is possible to stop the countdown by tapping **No Operation**.

6. The system is powered down after the countdown has ended.

## MA 3D

To power down the MA 3D application:

1. Click **File** in the left upper left corner of the graphic user interface.
2. A drop-down menu opens.
3. Click **Exit**.
4. A warning pop-up appears.



## *Warning pop-up – MA 3D*

5. Click **Yes** to save the show file and power down the application.
6. The MA 3D application is now powered down.

---

## MA NDP, MA xPort WM and MA Network Switch

NDP, xPort WM, and the Switch are connected via a power cable or an Ethernet cable to power.

- To power down the MA NDP or the MA Network Switch, unplug the power cable.
- To power down the xPort WM, unplug the Ethernet cable.

The devices are now powered down.

---

## MA xPort Node

- To power down an xPort Node, turn off the switch on the back panel of the device.

The xPort Node is now powered down.

## 53. Release Notes 3.3.2.2

### [Important Information for Updating](#)

#### [New Features](#)

- [New help system](#)
- [Improvements for Partial Show Read](#)
- [MA Fixture Share](#)
- [RDM via Art-Net](#)
- [User profile improvements](#)
- [XYZ Store modes](#)
- [MIB improvements](#)
- [Adjustable x-Port Node DMX fail behavior](#)

#### [Additional Updates](#)

##### [onPC](#)

##### [3D](#)

##### [VPU](#)

##### [Network Switch](#)

##### [Fixed Bugs](#)

##### [onPC - Fixed Bugs](#)

##### [3D - Fixed Bugs](#)

##### [VPU - Fixed Bugs](#)

##### [Appendix](#)

##### [Known Limitations](#)

You will find the latest system requirements for several products on [www.malighting.com](http://www.malighting.com)

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## Important Information for Updating

### **Update dimMA system:**

If you would like to update the dimMA system from any version below 7.x, contact your MA-dealer or MA directly for any update information. Should you use grandMA2 along with dimMA solutions, get in touch with us. A console update requires an NDP update and vice versa. We are happy to assist you.

### **Update grandMA2 onPC and MA 3D:**

The current versions of grandMA onPC and MA 3D require at least Windows® 7. Microsoft® .NET Framework (4.0) will be installed on your computer.

## Update MA VPU

If you would like to update the MA VPU basic or the MA VPU light from any version to v3.2 or higher, at least one screen and one mouse has to be connected to the MA VPU.

## Update MA Network Switch

If you would like to update the MA Network Switch in v3.1 or v3.2 to v3.3 or a subsequent version, execute the display reset after the update has been installed. As soon as Booting is displayed on the display of the MA Network Switch after the update:

1. Disconnect the power.
2. Then, press and hold the yellow menu button on the left side of the display.
3. While holding the button, power up the MA Network Switch again.
4. Release the button as soon as Booting appears on the display of the MA Network Switch.

To execute a fallback on v3.3 or a subsequent version in v3.1 or v3.2, proceed in the same manner.

---

## New Features

The latest release of grandMA2 3.3.2.2 rolls out several new features and enhancements that enrich your lighting experience. Read on for a quick introduction and find links to resources that offer more information.

---

## New help system

 Enhanced in this release of grandMA2

- Completely updated help
- New interface of the help in grandMA2
- New help page online

---

## Improvements in Partial Show Read (PSR)

 Enhanced in this release of grandMA2

- PSR Prepare
  - Now supports the switchover of fixture or channel IDs of the source patch. Therefore, the new column "Match to ID" was introduced. This helps the user to configure the final setup in the PSR Prepare dialog.
    - It is only possible to set a new fixture ID or channel ID for a fixture or channel at a time.
  - The new buttons "Use My 3D Position" and "Use Other 3D Position" define which 3D positions of the imported fixtures will be taken.
  - Only fixtures/channels that have a ID entered in the "Match to ID" column will be imported when pressing the prepare button.

- PSR
    - After selecting a pool (for example Group pool), both pools (My Pool and Other Pool) are displayed 1:1 next to each other as lists. This helps to see where objects come from and where they will be merged in the show file. Both pool lists show also the names of the corresponding showfiles. The left list represents the actual showfile, while the list on the right hand side displays the content of the showfile to be imported.
    - Provides possibility to arrange the objects of the source before importing objects:
      - Arrow up, down buttons on the far right moves the selected item(s) up or down by one position. If the new position already contains an object, then both objects will exchange their positions.
      - Pressing the "move at" button and tapping a destination line in the list moves the selection to the destination.
      - The buttons "Match By Number", "Match By Name" and "Match Automatic." resort the entire list by matching the objects to the corresponding IDs, names or automatically.
      - Rearranging has to be done in the source list before selected items are added into the current show by pressing the "Add Select. Items " button.
    - Hints for importing objects with PSR:
      - Multi-width executors can only be imported correctly if you import the entire page.
      - Special masters cannot be imported with PSR.
- 

## MA Fixture Share

- The new MA Fixture Share can be found on <http://www.fixtureshare.malighting.com> (not accessible from a grandMA2 desk)
  - The MA Fixture Share provides the up-to-date MA Lighting fixture library and a many user created fixture types for grandMA2 to download.
  - This database provides nearly all kind of fixture types with relevant modes and firmware versions.
  - The MA fixture Share is constantly growing and with the help of users, who provide their fixture types it will grow even faster.
  - If you need help with the MA Fixture Share, please refer to the specific help section of the MA Fixture Share: <http://fixtureshare.malighting.com/help/start.htm>
  - Downloaded fixture types of the original MA library (\*.xmlp files) can only be imported into grandMA2 v3.3 or higher.
- 

## RDM via Art-Net

### + New in this release

- grandMA2 is now capable of RDM via Art-Net.
    - Art-Net node must be capable of RDM via Art-Net.
    - Fixtures capable of Art-Net must support RDM via Art-Net.
  - Furthermore, xPort nodes support RDM in Art-Net mode.
- 

## User Profiles

### + New in this release

- User profiles can now be limited to a specific world.

- This can be set:
    - In Setup/Console/User & Profiles Setup
    - Via command line
      - "Assign UserProfile X /World=<index or name or -1 for reset>"
  - Users whose user profile is limited to a world are not able to change to any other world.
- 

## Pan/Tilt Offsets

### + New in this release

- For the case, that fixtures are mounted on the real stage in a non-matching way to the setup prepared in the grandMA2, e.g., display as orientation of the fixture to the side instead of to the front, it is now possible to adjust a Pan and/or Tilt offset for every patched fixture.
  - This makes it redundant to adjust every single position preset by hand to correct the offset.
  - The Pan and/or Tilt offset can be adjusted for every patched fixture that has Pan and/or Tilt attributes.
  - The offset can be adjusted in Patch & Fixture Schedule or in the Patch only menu.
- 

## Store Mode for Position Values

### + New in this release

- Additional store filter to store every position preset or cue either with Pan/Tilt or XYZ values.
  - This option can be changed in the Store options, and has the states: Active position data, XYZ and Pan/Tilt.
  - Depending on the option selected, position values will be:
    - Active position mode: Stores position data as they are (as Pan/Tilt or XYZ values)
    - XYZ: Converts and stores position data as XYZ values
    - Pan/Tilt: Converts and stores position data as Pan/Tilt values
- 

### + Extensive Bug Fixing of MIB:

- After a station has left the session, MIB will not be reverted anymore and fixtures do not fall back to non-MIB values.
- If the next cue, containing fixtures that are preposition by MIB, is faded by crossfade with the fade not being completed and reverted, MIB will not be reverted anymore.
- After Goto, GoBack, etc. MIB was not executed again.
- MIB was not working if a playback was switched off and started again.
- MIB was reverted after updating a cue of the active sequence.

### + Adjustable xPort Node DMX Fail Behavior

- DMX fail mode for xPort nodes in case of not receiving DMX data via the network anymore.
- It is possible to choose between a hold (infinite hold of the last DMX frame) or various timeout periods (the last DMX frame is hold for the time chosen before the DMX port switches into the state High Z).
- Offered timeout periods are: 10s (default), 20s, 30s, 1m, 10m, 30m and 1h.
- For all timeout periods it is also possible to adjust an outfade time up to 10s. All DMX channels of the output universe will be then faded to 0 on their own.

- All these settings can be configured in the DMX nodes section of the MA Network Configuration. These options can be set per port individually.

## Additional Updates

- + Merge settings in Art-Net mode of xPorts nodes.

This setting can be configured in the section "DMX nodes" of the MA Network Configuration. This option can be set per port individually.

- + New command RemoveIndividuals for deleting individual values of effects and effect lines.

RemoveIndividuals Effect 1 removes all individual values for Effect 1.

RemoveIndividuals Effect 1.11.2 removes the individual values for the second effect line of effect 11.

- + New high contrast color scheme for programmer available.

It can be activated per user profile in Setup/User/Settings/Programmer Colors.

The command line option is called ProgrammerColors and has the states "Standard" and "HighContrast"

Assign Root "UserProfiles"."Default"."UserSettings" /ProgrammerColors="HighContrast"

- + Increased the limit of links between stage markers and PSN trackers from 64 up to 1024.

- + External touch screens have now the touch function if they are configured as internal screens.

### Requirements:

- The resolution of the external screen has to be set to 1280 x 800 before assigning the internal screen to it.
- The external screen has to be calibrated before assigning the internal screen.

---

## onPC

- + Executing onPC.exe with parameter -s allows the user to specify a show file for loading.

Example: <path>/gma2onpc.exe -s my\_showfile

This loads the showfile my\_showfile.show.gz from the gma2/shows-folder of the corresponding software version.

- + onPC installer has the option to choose the install directory.

---

## 3D

- + 3D: More models are available containing the manual zoom Arri Fresnel.

---

## VPU

- Improved the Warper
  - Warper 3D object now supports three modes. These are "Stretched", "3D" and "Orthogonal".
  - The mode can be set creating the object and can be changed in the edit dialog of the warper 3D object in the warper editor. The default mode is "Stretched" which is also the behavior of prior versions of the MA VPU. When using a warper object on a camera the mode "3D" is not supported and behaves like "Stretched".

- Using the warper object on a layer:
  - Stretched: The warper object is stretched to fit the output and ignores the ratio of the warper 3D object. This mode does not support any 3D functionality such as positioning, rotation or scaling.
  - 3D: The warper object is drawn with its defined resolution. The center of the object matches the center of the output. This mode supports the entire functionality inside the 3D space. The object can be positioned, rotated and scaled like other 3D objects. However, remember that the warper object itself is still a two-dimensional object.
  - Orthogonal: The warper object is drawn with its native resolution. The center of the object matches the center of the output. This mode does only support positioning on the x- axis and the y-axis. Positioning in this mode moves the object without interpolating pixels so the mesh stays pixel-accurate. As the orthogonal mode is a two-dimensional mode, it is the most pixel-accurate one of the three modes.
- Using a warper object on a camera:
  - Stretched: The warper object is stretched to fit the output. 3D functionality such as positioning, rotation or scaling is not supported.
  - 3D: This mode can be used on a layer only. If it is used on a camera, it behaves like "Stretched".
  - Orthogonal: The object is drawn with its native resolution. The center of the object matches the center of the output. The object can be positioned with the PosX and PosY attribute of the cameras 3D Key feature. Orthogonal mode is also the most pixel-accurate one when using the object on a camera.
- Improved the UV mapping of a mesh. In prior versions, the calculation of UV mapping referred to the width and height of the parent warper 3D object. Now, the width and the height of a texture can be defined as base values of the calculation of the corresponding UV values.
  - E.g., a warper object has a dimension of 1920 x 1080 which also fits the resolution of the output.
  - The content has a resolution of 7680 x 1080 (4 times full HD).
  - In this example the warper object is used on a layer and shall "grab" the third full HD space from the texture using the UV mapping.
  - For this case the UV mapping is: U from 3841 to 5760 of 7680 and V from 1 to 1080 of 1080.
  - The UV parameters are based on pixels and are scaled to one. If you have a texture with a resolution of full HD, enter the parameters from 1 to 1920.
  - All position parameters of the warper are pixel-based and scaled to zero. Position 0,0 corresponds to the top left of the screen.
- Added a UV tool to graphically modify the UV mapping of a warper mesh. The tool can be used in grid mode only. Activate the button "UV mode" at the tool bar of the warper editor. You can also use the "u" key of a connected keyboard to toggle the UV mode. The controls "Move", "Rotate" and "Scale" then modify the UV mapping of selected spaces instead of the mesh itself.
- Vertex data of a mesh can now be edited numerically.
  - The vertex position as well as its UV coordinates can be modified.
  - To edit a vertex, change to the grid mode and select a vertex. Then click "Edit Vertex" the tool bar. The related keyboard short cut is "V".
  - Editing of vertex data requires knowledge in the field of UV mapping and vertex addressing conversion from pixel to texel.
- Increased the maximum size of warper objects. A warper object and a mesh can now have a maximum resolution of 16384 x 16384. Please note that using very high resolution meshes does cost performance.
- Increased the zoom range of the warper editor to improve the handling of very high resolution meshes.

- Warper meshes with a low grid resolution can now be rendered with a higher sub grid resolution to reduce artifacts. This option is enabled by default.
  - The maximum size of a tile in the grid can be adjusted in the options of a mesh. The default is set to a maximum size of 32 pixels.
  - The higher the value of the maximum size, the coarser the sub grid. If the value is set to "none", the mesh resolution equals the grid resolution. Use this value to improve the performance if you do not warp the mesh.
- A mesh now can also be rotated and scaled using the arrow keys.
- Added Mixmodes
  - Mixmodes define how a layer is mixed with other layers that are behind its z-position.
  - Added feature "Mixmode" to the MA VPU Layer fixture type.
  - This feature contains an attribute called "Blending" which, on the other hand, contains 9 mixmodes. The default "none" is the known behavior from prior versions of the MA VPU. The new mix modes are: Add, Sub, Darken, Lighten, Multiply, Negative Multiply, Sub Soft and Add Inverse.
- Improved the functionality "Take a screenshot".
  - In the MA VPU go to "File -> Take a screenshot". A target path can be set in the upcoming dialog.
  - Further screenshots will be stored in this path.
  - Also, it can be defined from which outputs a screenshot is taken.
- Masking: You can now add a mask to a camera. E.g., a mask can be used to define blank parts of a projection.
  - Masks can be added to the camera in the Content Editor, Tab VPU Camera, Tab Mask.
  - All specified image files can be used as a mask. These are: .bmp, .png, .jpg and .tga.
  - White parts of the image become transparent while black parts stay opaque. Grey scales can be used to create semi-transparent spaces.
  - We recommend that the resolution of the mask fits the resolution of the output. Otherwise, the mask is scaled to full output resolution ignoring the ratio of the mask. The mask will always be drawn full screen.
  - A mask attribute was added to the MA VPU camera fixture type to select a mask.
  - Screenshots can be used as a mask. Take some layers to create your mask, go to File - Take a screenshot and enable the "Add as mask to camera" button. If this option is enabled for every screenshot taken, a channel set is created at the channel function of the mask attribute. So the screenshots are automatically added to the camera as a mask. If you want to invert the screenshots used as a mask, you can do this by enabling the "invert" option in the screenshot dialog.
  - There are several ways to take a screenshot or create a mask. In all four cases a screenshot will be taken with the settings given at the "Take a screenshot" dialog of the MA VPU.
    - 1) Go to "File -> Take a screenshot" and use the "Take a screenshot" button.
    - 2) Attach a keyboard to the MA VPU and press the [Print] key.
    - 3) In the desk, go to "Setup -> MA Network Configuration -> Tab VPU", select an MA VPU and tap the "Take a screenshot" button.
    - 4) In the command line use the command `VPUScreenshot <IP> or vs <IP>` e.g., `VPUScreenshot 192.168.0.10`

- Content distribution can now be triggered in the command line.
    - The command is contentdistribution or cdist.
    - If you use the /nc command, the content distribution will be started with the last defined settings. Using /nc the content distribution will be executed even if some of the receivers are not online.
    - Content distribution can now be fully configured and started at any MA VPU in the session.
      - To set MA VPUs as distributor or receiver go to "File -> Settings -> Network". There is a new column called "Content" to set the state. Cells that are editable display an orange triangle.
    - The content distribution can be started by a button called "Content Distribution" in the tool bar of the Content Editor or the network settings. Also, there is a button in the network settings at the internal touch screen of an MA VPU Plus.
  - No parameter highlight: Fixtures that are stored to an output of a pixel mapper can now be highlighted from the desk by using the highlight key.
    - Even if the fixtures are set to "no parameter" in the patch. If a fixture is set to "no parameter" and stored to an output of a pixel mapper, the highlight values of the channels are calculated and output at the network output of the MA VPU which is rendering the output.
    - If a fixture is NOT set to "no parameter" and stored to the output of a pixel mapper, the highlight values of the channels are calculated and output in the MA VPU only if the protocol of the pixel mapper is set to Art-Net or sACN. If the protocol is set to MA-Net2, the highlight values are calculated by the desk.
    - The highlight functionality belongs to the user who is currently logged in in the MA VPU
  - Increased the maximum dimensions of virtual outputs and pixel mapper outputs. The new maximum dimensions in X and Y are 8192 pixels.
  - Hap Converter target path: It is now possible to define a target path for the converted files of the Hap Converter.
  - Hap Converter now offers the option to discard the audio track of a media clip during conversion. For that matter, an additional option called "Discard Audio" was added to the Hap conversion options.
  - A progress bar was added to the media preview window at the Multi Preview which indicates the playback position of the preview window.
  - Added a chessboard background to the preview of the layers in the multi preview. The background can be switched off with a button called "Chessboard Background" in the tool bar of the Multi Preview.
  - Updated fixture type "VPU Camera". Attribute "Mask" added.
  - Updated fixture type "VPU Layer". Feature "Mixmode" added.
  - The mode of the MA VPU fixture types now displays the minimum required version of the MA VPU.
  - Updated VPU demo show, VPU teaser show and VPU new show.
- 

## Network Switch

### + Port Mirror

- It is now possible to mirror several source ports to one destination port.
- Only one port mirror destination is possible at a time.
- Configuring the port mirror is possible via web interface (Tools/Edit General Settings - Edit Port Mirroring) or MA Network Configuration menu.

### + Link Aggregation Group (LAG)

- Link Aggregation Group collects several physical ports to act and to behave as if they were one connection.

- Configuring the LAG is possible via web interface (Edit Ports/Groups) or MA Network configuration menu.
  - It is possible to choose between 6 different Link Aggregation Groups. Their names can be set individually.
  - Setting a port to a LAG can be done in the same manner as setting a group to a port.
  - If a port is set to LAG, its settings, such as groups and speed, are adjusted to the default settings of the LAG.
  - The first port joining a LAG sets its settings (group, speed setting, etc.) as the default settings for the LAG.
  - Changing settings on a port that has an LAG membership also changes these settings for the other ports of the LAG.
- + Presets and filters block or forward now the traffic of a port in both directions.
- + Password pop-ups for MA Network Switches in the Software Update menu show now the IP of the switch for a better recognition in case of multi selections.
- + New screens available that show the port names respectively the LAG membership in the display. New order of screens: Group membership, Names, Load and LAG membership.
- + RSTP status for each port(active or blocking) is now displayed in webinterface of the switch.

## Fixed Bugs

### Description

Improved - Fixture editor: Edit row button is grayed out until an editable row is available.

Fixed - "Locate" on multi-width executors is displayed in an incorrect manner.

Fixed - Edit macro: Calculator for the waiting period does not display the unit for the input.

Fixed - Special Dialog Shaper does not fade.

Fixed - Replace fails depending on the order of the fixture ID entered. There is also existing data.

Fixed - If an object is linked to a stage marker, the box of the object will be displayed in the stage view.

Fixed - Content sheet in "manual" Mode: The screen encoder does not work in cues.

Fixed - Using next and previous keys with only parts of multi instance fixtures in a world does not work correctly.

Added- Folder-up button is missing for the Lua importer.

Fixed - Newly imported images do not show the file type in the label.

Fixed - New command ListCANFirmware for showing the firmware of CAN-Bus modules in the system monitor.

Fixed - Entering ranges for low and/or high values of effects are incorrectly calculated.

Fixed - Not all executor or sequence options are taken by PSR.

Fixed - The agenda shows events that are repeated daily in combination with the last day setting also on dates where it should not be executed anymore.

Improved - RDM switch is incorrectly labeled in Setup/Show/Patch & Fixture Schedule/RMD Devices. Relabeled to RDM Off and RDM On

Improved - Enable RDM switch is incorrectly labeled in Setup/Console/Global Settings. Relabeled to RDM.

# grandMA2 User Manual

Version 3.3



## Description

Improved - Additional title bar text "use ONLY to assign profiles to multipatch DMX addresses" is obsolete.

Improved - Fixture and Channel labels are incorrectly labeled in the Patch to- and Match to-dialogs.

Added - New attributes CONGOBLUE(ColorRGB20), ROYALBLUE(ColorRGB21) and LIGHTGREEN(ColorRGB22)

Fixed - Effect line editor is not taking selection properly.

Fixed - Downdate to v3.1 does not work.

Fixed - Appearance /? does not list all possible options.

Fixed - Cloning sequences with effects can add additional attributes to the destination.

Fixed - Trying to enter a fixture ID of an multi instance fixture for a fixture object in a layout does not work.

Fixed - Labels of presets are not centered.

Fixed - Store pop-up for presets is not displayed by the web remote.

Fixed - Fixed executors are not displayed properly in the web remote.

Fixed - Console can crash if the web remote has the executor sheet opened with a large data in it.

Fixed - Update pop up for presets is not displayed by the web remote.

Fixed - Global Autofix is displayed in the message center if a dot2 show file will be loaded.

Fixed - Not all preset pools have the symbol options.

Fixed - If multiple USB sticks have the same name, only one is listed in the backup menu.

Fixed - Empty macros show a play symbol if the user tries to start them.

Fixed - Fixed executors cannot be controlled in the web remote.

Improved - Preset pool sheet style column label "Preset Mask" is incorrect. Relabeled to "included Preset Types"

Fixed - Load and Goto without function on special masters of section default masters.

Improved - Filter option "Reset Filter on Clear" was incorrect and got relabeled to "Keep Filter until Clear".

Added - On screen keyboard for the name field of the fixture wizard is missing.

Improved - Record Macro is incorrectly indicated by blinking Learn and Macro buttons. This is changed to blinking Store and Macro buttons.

Fixed - Deleting a cue in a timecode show creates unexpected event reference when storing a new cue.

Fixed - Cue trigger Timecode triggered cue fades too fast.

Fixed - Copy timecode pool elements missed goto values.

Fixed - If a external screen is remapped to be an internal one, screen encoder does not work.

Fixed - Text is not completely readable if a mask was loaded in the tab "mask" of the options of a fixture or channel sheet.

Fixed - Address encoder of the DMX patch window in Patch & Fixture Schedule displays incorrect value for address 512.

Fixed - Edit timecode slot pop-up on screens 2-4 will also hide the mini executor bar.

# grandMA2 User Manual

Version 3.3



## Description

Fixed - Color picker in swatch book mode shows always scrollbars.

Fixed- Image pool IDs are marked cyan if the corresponding picture is used in the show.

Fixed - Edit Selection does not work.

Fixed - Under special circumstances, color presets may not be converted correctly if the fixture type is exchanged.

Improved - Temporary store options pop-up is labeled incorrectly.

Fixed - Position attributes in the incorrect order can cause a crash when using XYZ.

Fixed - If a camera is attached to a stage marker, it does not take the position and rotation of the stage marker.

Fixed - Entering Patch & Fixture schedule while a special dialog is opened, brings the special dialog back to the front if a fixture was patched.

Fixed - Changing desk light intensity via command line does not update the desk lights menu, if it is open.

Improved - Executing combinations of Previous, Set and Next hardkeys is difficult.

Fixed - Special dialog shaper does not work correctly while dragging the corners or turning the encoders.

Fixed - Changing the focus between sheets with different readouts does not change the encoder readout.

Improved - Editing a fixture type offers now the possibility to change the readout of Mode Start and Mode End between natural and DMX values.

Fixed - Locate command does not respect the setting "Link Fader & Button Page".

Fixed - Move Cue Part 0 crashes the desk.

Fixed - Malformed layouts can cause a crash.

Fixed - Setting RDM parameters Clear Status ID and Reset Device do not work properly in the user interface.

Fixed - Color pool may not always show the thumbnails of each preset.

Fixed - If more than 100 single fixture groups are selected, the number of the selection order is not shown properly.

Fixed - If the selection frame in the fixture sheet of a connected desk is drawn over the borders of the view, it stays on the screen.

Fixed - The button "Merge Same Values" contains a typo in the options of sheets.

Fixed - Changing specific user defaults for the color picker, changes also other color picker defaults.

Fixed - Echo for NACKs and retransmissions in the system monitor are missing.

Fixed - Import and export of DMX nodes have an incorrect sorting of node entries.

Fixed - Patching fixtures with a DMX offset that would go over multiple universes does not respect the offset from the second universe onward.

Fixed - Encoder grouping of bitmap fixture can be changed.

Improved - Improvements for storing presets with selective, global or universal data in one preset.

Fixed - Universe info is not stored in show files and is not streamed into the network.

Added - New predefined mask w/o Fixture Types.

Fixed - Crash when exchanging fixture types.

Fixed - Universe pool Show empty button does not work.

# grandMA2 User Manual

Version 3.3



## Description

Fixed - Screen saver is not stopped when touching the executor faders.

Fixed - Pools can overlap.

Fixed - Delete pop-up does not remember its last setting.

Fixed - Markers for sequence pool objects show incorrect state for High and Low priorities.

Fixed - Single fixture groups are relabeled when loading a show file from former versions.

Fixed - Waiting time in a macro is not shown in red if timing is disabled for the macro.

Fixed - Smart view shows incorrect channel sets after clearing and selecting a different fixture.

Fixed - Crash when using dynamic preset pool.

Fixed - Crash when switching off a sequence.

Fixed - Edit Next Cue and Edit Previous Cue inside the edit sequence dialog do not work if cues are not consecutively numbered.

Fixed - Canceling the update of a preset does not cancel, but updates it.

Improved - Global and universal presets work per attribute and not per feature.

Fixed - Store remove does not work if only a part of fixtures is used to remove data of a preset.

Added - Layout view contains rulers. Switch can be found in the layout view options.

Fixed - Effect encoder bar does not show all parameters possible if the form was changed.

Added - DMX fail option for xPort nodes implemented. This setting can be set per port individually.

Fixed - Session members can drop receiving channel information before processing them in large environments.

Fixed - Delete cue pop-up allows to deactivate both options.

Fixed - Crash when copying channel types in edit setup.

Fixed - Extract destroys link of former activated preset so that no preset can be updated.

Fixed - Crash when executing illegal syntax in edit setup.

Fixed - Crash when loading a show with a damaged user profile.

Improved - Text for match fixture/channel ID pop-up in PSR prepare.

Added - Match fixture/channel ID pop-up has a channel button to input the colon for matching to channels.

Fixed - Copying agenda entries via command line does not copy all information.

Fixed - Effect values are activated when changing values in the color picker.

Fixed - Incorrect color output in effects if global presets are used.

Fixed - Incorrect color calculation for colors mixed with white.

Added - Possibility to set gMA2 devices and xPort nodes via the MA Network Configuration to DHCP.

Fixed - Crash when pressing Oops while operating the Network Config Select Station pop-up.

Fixed - Cloning to fixtures does not always add selective data to presets.

# grandMA2 User Manual

Version 3.3



## Description

Fixed - Incorrect color of CongoBlue in the attribute definition.

Improved - Commands RdmSetPatch and RdmSetParameter work only in the current selection. Now all of them can be used in combination with these keywords:

RdmFixtureType, RdmFixture, Sequence, Cue, Fixture, Subfixture, FixtureType, Group, Executor, Preset and Selection.

Fixed - DMX in and out of the same universe at one xPort node causes a incorrect output if a session master is present.

Fixed - Fixtures marked as "no parameters" are removed from world 1.

Added - PSR shows no progress bar if you PSR many objects.

Added - Creating many multi patch fixtures does not show a progress bar.

Fixed - PSR overwrite of macros does not work properly.

Fixed - Web remote floods the browser cache on some devices. This causes delays when operating the web remote.

Added - New Carallon library 13.1

Fixed - Changing the fixture type to one with a different patch order of the instances needs a manual repatch of the fixture.

Fixed - Fixtures always show the DMX patch address of the first instance and not the smallest DMX patch address.

Removed - Command FlightRecording is available via shortcut.

Fixed - PSR does not respect the input filter of a sequence.

Fixed - PSR: 1 cue sequences do not show the correct sequence and executor label.

Fixed - Crash when changing DMX from/to values of fixture types with class marker.

Fixed - Cloning sequences adds additional selective data to global presets anywhere needed.

Fixed - Fade and delay times are not converted from P/T to XYZ and vice versa with the new store option. Now the fade time of the first attribute is taken.

Fixed - Store /Overwrite of presets while being in a world does not work correctly.

Fixed - Fixture at fixture and combinations with channel, group, etc. does not work correctly if the source values come from a playback.

Fixed - 2Port (grandMA1 series): Node sends 0 after uploading a show if a station joined the session with higher priority and became master.

Fixed - Goto Cue X Executor \*.Name' does not work correctly if there are multiple sequences with the same name.

Fixed - Real time editing of multi line effects does not always update the output correctly.

Fixed - Updating embedded presets does not update the output of the sequence.

Fixed - LUA Plugin 1 'LUA' is able to be imported via PSR.

Fixed - Crash when loading show with cue link to embedded preset.

Fixed - Crash when assigning channels or fixtures with multi patches to DMX addresses.

Fixed - Double characters inserted for info column in universe pool.

Fixed - Multi user access conflict when oopsing the move of a cue in a multi user environment.

Fixed - Import/export of special values in presets if created with preset reference.

# grandMA2 User Manual

Version 3.3



## Description

Fixed - New presets cannot be stored if update preset default is set to Original content only.

Fixed - Incorrect color for ColorRGB15 by default.

Added - Web remote: Moved Highlight buttons to be more consistent.

Fixed - Typo in Aleda K20 fixture types.

Fixed - Crash when logging in with a user profile that does not have view pages.

Fixed - xPort nodes do not report the correct state of RDM, NetIndex and WebConfig in ArtPollReply-packets.

Fixed - Web remote: Cancelling the login pop-up will suppress the login promptly.

Fixed - Configuring port settings in the MA Network Config on screen 1 can cut off the pop-up.

Fixed - Stage view calibration rectangle can be hidden by the stage plane.

Fixed - Loading dot2 show files locks Effects.

Fixed - Multi patches are not always created as a child of the correct fixture.

Fixed - Copying user profiles does not copy the labels of the sequence executor sets.

Fixed - If a preset type is deleted, the sequence executor sheet continues to display it.

Fixed - xPort does not respect the MA-Net2 merge mask if input and output is on the same device.

Improved - Pop-up after importing patch with PSR if the complete patch addresses could not be imported.

Improved - NPU IP configuration dialog has no possibility to set the IP to DHCP.

Fixed - Not all running timecode shows are switched off if everything off in the off menu is used by different station in the session.

Fixed - Web remote: Not all options of pop-ups are applied.

Fixed - Changes in the setup can disarrange fixture positions.

Fixed - Storing more than 10000 objects at the same time crashes the desk. Limit is now changed to 10000 objects. If the user tries to add more than 10000 objects, they will get an error in the command line feedback.

Fixed - Effects which are created in the programmer and then stored into the effect pool may differ from the effect originally created.

Fixed - ID collisions pop-up can appear if there is no collision.

Fixed - Using the shaper special dialog can crash the desk if you use shaper attributes that were not expected.

Fixed - Updating presets does not work if you have user right preset.

Fixed - Predefined effect BMP Pos Y contains an incorrect low value.

Fixed - Edit Sequence pop-up loses information and scrollbars disappears when changing the screen.

Fixed - RDM is tuned off in all universes if you load show files from v3.1.2.5.

Fixed - Unpatching fixtures via command line creates a warning pop-up only if executing the command twice.

Fixed - Ooping the auto creation of groups does not work correct.

Fixed - Label of the assign mask in the title bar of a sheet is not reset when changing to the option "follow mask".

Fixed - Auto create channel pages do not apply page names entered.

# grandMA2 User Manual

Version 3.3



## Description

Fixed - Drawing a lasso selection in sheets and pressing the screen encoder keeps the lasso frame on screen.

Fixed - Entering ranges for high and low values in effects is no longer possible.

Fixed - Web remote login can be omitted by pressing ESC.

Fixed - Web remote pop-up does not apply settings selected in the checkbox.

Fixed - Web remote cancel button in pop-ups does not work.

Improved - The time span during a show upload in which no network protocols are sent has been reduced.

Fixed - New 2Port node version v1.81.

Fixed - Crash caused by network protocols during show load.

Fixed - Assigning options to effects on executors does not work.

Fixed - Crash when exchanging fixture type to exceed parameter limit.

Fixed - Possible crash when initializing a show file in PSR.

Fixed - Removed - Web remote does not support the function Align.

Fixed - Crash when oopsing the deletion of fixtures in the patch & fixture schedule.

Fixed - The mode Start/End values is displayed incorrectly at times.

Fixed - Crash when editing sets in the sequence executor sheet in a new show.

Fixed - Sorting by name in the load show menu does not work at the first attempt.

Fixed - Goto and pressing a cue x.y in the pop-up does not go to the correct cue.

Fixed - Typos in the message center.

Fixed - Preview with XYZ values does not work in preview mode.

Fixed - PSR with XYZ values does not work.

Fixed - Network status after PSR initialization is incorrect.

Fixed - Improved - Sequence executor sheet now shows the cue number of the cue loaded.

Fixed - Executor and encoder labels do not show a correct label if an executor with an effect was switched off using the release mode in the menu Running Effects.

Fixed - Backup on FTP servers does not work if there is less than 40 % of free memory.

Fixed - Pause does not work for macros.

Fixed - Crash when deleting a temporary view.

Fixed - Better handling of colors in the color picker.

Fixed - Page title bar of the web remote overlaps with other elements.

Fixed - Fixtures are doubly created in the layout when cloning.

Fixed - Layout of numeric pad does not correspond to the keys of the desk.

Fixed - Typos in the web remote.

Fixed - Labels of temporary assigned mask are not transmitted in the session.

Fixed - Copying user profiles does not copy all settings of sheets.

Fixed - If attributes of the same feature does not fit into the wheels screen, the feature pages are labeled incorrectly.

Added - PSR menu lists the corresponding show file names.

Fixed - Fixtures having deviant firmware versions are not displayed as separate RDM fixture types.

Fixed - Crash when using smart view.

Fixed - xPort nodes merge modes

## Description

Fixed - MA Network Configuration displays a merge mode for 2Port nodes in Art-Net mode.

Improved - 2Port nodes version 1.77 and the following versions do not support MA-Net1. Also, MA-Net1 is not displayed in the MA Network Configuration.

Fixed - xPort node brings back old DMX frame if a new signal from a different source is input.

Fixed - xPort node holds the last signal if merge mode is switched over from LTP to HTP.

Fixed - Goto fades differently using Speed 1 speed group compared to using other speed groups.

Fixed - xPort web remote has no possibility to change IP to DHCP.

Fixed - xPort web remote clear button does not clear all unsaved settings.

Fixed - "From values" and "to values" differ from each other in natural and physical values of Clay Paky fixture types.

Improved - Sending empty messages via telnet will add a CRLF to these messages.

Fixed - MIB drop-down does not open when pressing Please on the internal keyboard in the sequence executor sheet.

Fixed - Crash when opening the image importer.

Fixed - Update file is not available on the desk after network update.

Fixed - Crash when deleting an executor, which is locked by the assign executor-tab of the tracking sheet.

## onPC - Fixed Bugs

### Description

Fixed - Time stamps of shows are changed by selecting them in the menu Load Show in an onPC.

Fixed - onPC: If you export plugins, they are written on the internal disk only.

Fixed - Crash in onPC when trying to change values in the tracking sheet.

Fixed - onPC button labels for button page up and down are not the same as displayed on the desk.

Fixed - Changing sheets into vertical style can crash the onPC.

## 3D - Fixed Bugs

### Description

Fixed - Progress bar of show download is not displayed properly at times.

Fixed - Bug with complex multi instances fixture structures can cause problems in the UI.

Fixed - Rotation of multi instance fixtures in 3D does not work correctly.

Fixed - 3D parameter \_XAQ is not exported with fixture types.

Fixed - Deleting a stage marker also deletes the 3D objects of the fixtures connected.

## VPU - Fixed Bugs

### Description

Fixed - Hap clips which were converted to Hap in the file browser of the Hap converter does not display the warning message that the media file is not specified any more if they are added to a show.

Fixed - Make a screenshot: Screenshots do not show a watermark if a valid dongle is attached.

Fixed - Make a screenshot: In some cases no screenshot was taken from output 1 if more than one output was enabled.

Fixed - The termination of a running content distribution works again.

Fixed - Fixtures which were set to "no parameter" in the patch could not be selected in the desk. This is fixed. These fixtures can be selected again e.g., for moving them in the pixel mapper.

Fixed - Changing the UV mapping of a mesh while the mesh is set to grid mode works again.

Fixed - Changing the resolution of a mesh while the mesh is set to grid mode works again.

Fixed - Two or more meshes of one warper 3D object are not shifted anymore if they are on top of each other.

Fixed - Increase resolution in grid mode does now work properly if faces have been deleted.

Fixed - A mesh now shows the correct UV mapping even if the UV coordinates indicate a field near the border of a texture e.g., 1900 to 1920 of a full HD texture.

Fixed - Editing a warper mesh does not cause other MA VPUs in the same session to crash any longer.

Fixed - Pixel Mapper status message is not visible any longer if the warper GUI is toggled off in the warper editor.

Fixed - The "delete" key of an attached keyboard is working again as a short cut to delete faces at the grid mode of the warper editor.

Fixed - The dialog "delete faces" displays the proper amount of faces.

Fixed - Switching between bezier and grid mode does now force a proper refresh of the GUI.

Fixed - There is no artifact line at the lower end of a warper object any longer if the object is used on a camera and the camera is moved with VCamPos.

Fixed - An MA VPU does not render a Pixel Mapper output any longer if the rendering of the Pixel Mapper is enabled, but the render IP which is set does not match.

Fixed - An MA VPU now does only render a virtual output if it is used or if the GUI is active and showing the Multi Preview.

Fixed - Selection of virtual output 9-16 added to the render settings of an MA VPU at the network settings of the desk.

Fixed - A video clip does not contain an incorrect time base any longer if the dimmer is opened during preload.

Fixed - The VPU application does not crash any longer if the value of the clip frame cache is changed while the layer dialog of the docking frame is maximized.

# grandMA2 User Manual

Version 3.3



## Description

Fixed - The MA VPU application does not crash any longer if thumbnails of MPEG-2 media clips are created while the MPEG-2 memory limit is exceeded. No thumbnails from MPEG-2 video clips will be created in this case.

Fixed - The MA VPU application does not crash any longer if MPEG-2 media clips are converted to Hap with the Hap Converter while the MPEG-2 memory limit is exceeded. In this case MPEG-2 clips will not be converted until enough memory is released for this operation.

Fixed - Default setting for inserting content folders by drag and drop is "fill gaps" now. There will be no collisions of channel functions any longer if using drag and drop.

Fixed - A Pixel Mapper output does not flash white any longer if a fixture is moved in the Pixel Mapper view of the desk and a delay > 0 is set for the output.

Fixed - An output of a Pixel Mapper that contains unpatched fixtures now works flawlessly.

Fixed - The view does not change to the Preview after importing function blocks.

Fixed - Frame blending for SDI inputs now work flawlessly again.

Fixed - Possible crash when entering external video-in configuration.

## Appendix



Downdating the MA Network Switch from v3.3 or higher to older version will reset the configuration to factory defaults. It is possible to backup the configuration before the downdating and restore it afterwards.



Using the Bitmap Fixture in sequences with several cues causes the bitmap fixture to restart the playback with every cue the bitmap fixture is programmed in. If the bitmap fixture is to be used in a sequence with several cues, we suggest programming it in single cue sequences and call these sequences within the master sequence with cue links.



Import of all kinds of XML-files is only possible if the files were exported from the same or an older grandMA2 version.



If a World is edited while a user has entered this specific world, the changes are not applied to the user. The user has to change to a different world to see the changes of the world.



RDM: Connecting 2 outputs of a grandMA2 System with one cable can cause trouble in RDM.



Down dating to grandMA2 release v3.0.0.5 and previous versions requires a factory reset (Format and Install). Please backup your show files before down dating.



Inserting the command "store /remove" or pressing [store][cue][2] and select [remove] in the pop-up will remove the whole attribute with all (!!) its layers of fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards, the operator needs to update the cue, or has to use store /merge to remove the specific layers.



If multiple fixtures are selected with a lasso in the layout view, the snap grid settings are applied to interpolate small position differences of fixture icons. The order of selection is always made inside of one snap grid cell first. Afterwards following the succession, line by line in the direction of the lasso movement.



The network switch IGMP Snooping functionality has to be switched off in order to be able to update MA 2Port nodes.



A grandMA1 compatibility mode is no part of grandMA2 console software 3.0 and subsequent versions. If grandMA1 compatibility mode is needed, grandMA2 consoles and MA NPUs have to be down dated to grandMA2 v2.9.1.1



The MA-Net2 protocol has changed to support the 8Port Node devices. All MA devices need a new network streaming protocol in the 2.9 software. Once updated to the correlating version to grandMA2 v2.9, 2Port, 4Port, 8Port, NSP 4Port Node and the NDP will no longer work in a session with an older network streaming protocol (e.g., grandMA2 v2.8). Down dating MA 2Port Nodes or NSP running in 4Port Node Mode to be v2.8 compatible is only possible via grandMA1 v 6.801. All other devices can be down dated via USB or windows installer only.



Exec Time can be used for Executor buttons and Executor Faders. The new Executor option "Ignore Exec Time" has been added. If this option is enabled, the referring executor uses its own off time instead of the Exec Time Fader Timing. Show files stored in grandMA2 v2.9.1 and previous versions are converted. This option is then enabled in all fader executors. Executor option defaults are valid for fader and button executors. If storing new fader executors, these executors listen to Exec Time by default.



Fixture type preset reference contains values only. It is not possible to add any fade, delay or effect data to fixture type preset references.



ASCII show import supports Strand, Transtechnik and ADB ASCII show files.



A CIP connection is not possible when running CIP sender and CIP receiver at the same computer.



The Pixel Mapper of an MA VPU works best if the resolution X of the output can be divided by 8.



Lua 5.3 is implemented in grandMA2 v3.1 or subsequent versions. LuaSocket is approved for Lua 5.1 only. Therefore, not all functions of LuaSocket are supported within Lua 5.3.



Following syntax can be used to switch off faders only or buttons only of current page or of all pages except the current page:

- **Off Executor 1 thru 100** - This switches off all faders of current page.
- **Off Executor 101 thru 240** - This switches off all buttons of current page.
- **Off Executor 1 thru 100 Page Thru - \$faderpage** - This switches off all faders of all pages except the current page.
- **Off Executor 101 thru 240 Page Thru - \$buttonpage** - This switches off all buttons of all pages except current the current page.



Addressing executors via command line has been improved to provide support for addressing by name or number. This can be used when sending playback commands to specific executors or when storing to a specific executor, sequence or cue for example. All existing cue links and macros of show files stored with former grandMA2 versions will be converted as far as possible. Please check cue links and macros of existing shows when loading them the first time with this version. Some cue links and macros may have to be adjusted. When creating new macros or cue links or editing existing ones, the new syntax as described below has to be used.

- Go Exec "exec name" - starts executor with specified name on current page.
- Go Exec "exec number" - starts executor with specified number on current page.
- Go Exec "\*"."exec name" - starts executor with specified name on all pages.
- Go Exec "\*"."exec number" - starts executor with specified number on all pages.
- Go Exec "page name"."exec name" - starts executor with specified name on specified page.
- Go Exec "page name"."exec number" - starts executor with specified number on specified page.
- Go Exec "page number"."exec name" - starts executor with specified name on specified page.
- Go Exec "page number"."exec number" - starts executor with specified number on specified page.

## Known Limitations

- Pan/Tilt offsets should not be set to higher values than the fixture type provides due to its physical limitations. Setting values out of the physical range can affect the correct visualization in the stage view of the grandMA2 and MA 3D.
- Active dimmer values given from the desk do not cause the VPU to send its merge defaults for the color attribute. This may cause an unexpected output if only the dimmer of a fixture is controlled by the desk. To avoid this and to gain full control, just set the color attribute actively in the programmer. Or store the color information to an executor which is set to a higher priority than the pixel mapper output. Do not forget to switch off this executor if the output of the pixel mapper is to be active again.
- If using the Set button in the web remote, the command line default will be changed to MATricks.

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- At the initial start after the installation or the update of the VPU application, the end user license agreement is shown. The MA VPU application will not start, until the end user license agreement is confirmed. If you are using a VPU Plus, the end user license agreement is shown at the internal touch display. If you are using a VPU basic or VPU light, the end user license agreement is shown at the first external DVI-output - so please make sure you have a display and a mouse attached to the VPU Basic or VPU Light.
- Ma-Net1 is not supported for MA 2Ports Version 1.77 or higher.
- MA onPC command wing DMX input is supported for the ports "DMX In" and "DMX out A" only. The port "DMX out B" can only be used as DMX out!
- Before loading show files stored with grandMA2 **v2.7.x** the first time with grandMA2 v2.9.x, attribute Colormix4 and 5 and Colordim4 and 5 of self-made fixture types have to be manually adjusted to fulfill the color specification. Amber has to be Colormix 4 invert or Colordim 4 without invert, and White has to be Colormix 5 invert or Colordim 5 without invert. Otherwise, color information of these fixture types will be lost after loading show file with v2.9.
- The feature name for ColorDim/ColorMix has changed into MixColor. Macros using one of these feature names have to be adjusted.
- Known limitation when loading show files stored with **v2.8.x** for the first time in v2.9
  - Special Masters have a new data structure in grandMA2 software.
    - All Special Master custom labels will be reset to MA default labels
    - Assignment of 100mm faders will be reset to default.
    - Macros referring to special masters have to be adjusted and have to use the new naming and numbering of special masters.
  - Macros referring to relative values have to be adjusted according to new relative/absolute syntax.
  - User profiles exported to USB drives using v2.8 and previous versions have to be manually moved from folder importexport to user\_profile folder in order to import these profiles using grandMA2 v2.9 and subsequent versions.
- 4Port and 8Port Nodes have to be updated to v1.0.9 or subsequent versions to be compatible with grandMA2 v2.9. 2-Port Nodes have to be updated to 1.77 or subsequent versions in order to be compatible to grandMA2 v2.9.
- Channel set labels of fixture types have to be unique to be visible and accessible in calculator. E.g., if channel sets of Attribute Shutter are closed, open, open, open, only one open is visible in the calculator. Changing channel set labels to closed, open, open(2), open(3), results in all channel sets being visible in the calculator.
- Astronomical clock always calculates time according to standard time zone. Additional summer times are not recognized and cannot be adjusted manually when using sunset, dusk, dawn, and sunrise in the agenda.
- Bitmap fixtures can be applied to physical parameters only. Virtual parameters such as a virtual dimmer or XYZ attributes are not supported.

## 53.1. Release Notes - Version 3.2

New functions and features in detail:

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## • How to:

- To activate the RDM the user has to switch RDM on globally. It is possible to do so in Setup/Console/Global Settings or in Setup/Show/Patch & Fixture Schedule/RDM Devices.
- It is possible to switch the RDM off and on separately for every universe in the universe pool or in Setup/Show/Patch Only(Live)/DMX list.
- It is now possible for the user to do the first steps in the new RDM Sheet. The new RDM sheet lists all fixtures discovered per RDM. The RDM sheet shows all RDM information. The user changes the RDM parameters for single fixtures here(e.g. DMX start address, etc.) by editing the corresponding cell. The RDM sheet shows sensor values also.
- All discovered RDM fixtures are displayed in Setup/Patch & Fixture Schedule/RDM Devices and can be matched to the fixtures of the grandMA2 patch via the match to fixture function on the bottom. The button identify activates the identify mode of the selected RDM device in the lighting rig. This helps the operator to match RDM fixtures with fixtures in the patch.

## **New commands for RDM:**

- New command RDMSetParameter
  - RDMSetParameter <PID> <Value>/UID=<UID> /multipatch=<multipatch>
  - PID - can be the name, as IDENTIFY\_DEVICE or a hex number, e.g. 1000.
  - Value - e.g. 200 if PID is DMX\_START\_ADDRESS, DMX address of Fixture will be changed to 200; Value could not be specified for such PIDs as FACTORY\_DEFAULTS.
  - UID - for sending message to specific device.
  - Multi Patch - 0 = for all multi patch, 1.. = for specific multi patch fixture index.
  - If this command is entered at a connected console, the master will get the command remote for each UID.
  - RDMSetParameter works also with the current selection.
  - Supported PIDs:
    - FACTORY\_DEFAULTS
    - LANGUAGE
    - RESET\_DEVICE
    - DISPLAY\_INVERT
    - DMX\_PERSONALITY
    - SENSOR\_VALUE
    - REAL\_TIME\_CLOCK
    - COMMS\_STATUS
    - CLEAR\_STATUS\_ID
    - DEVICE\_LABEL
    - IDENTIFY\_DEVICE
    - DMX\_START\_ADDRESS
    - PAN\_INVERT
    - TILT\_INVERT
    - DISPLAY\_LEVEL
    - DEVICE\_HOURS
    - LAMP\_HOURS
    - LAMP\_STRIKES
    - RECORD\_SENSORS
    - LAMP\_STATE
    - LAMP\_ON\_MODE
    - DEVICE\_POWER\_CYCLES
    - PAN\_TILT\_SWAP
    - POWER\_STATE
    - PERFORM\_SELFTEST
- New command RDMInfo
  - RDMInfo <Channel/Fixture x>
  - RDMInfo opens a pop-up with the actual RDM information for the selected Channel or Fixture.
  - Channel/Fixture has to be matched to a RDM Fixture for this feature.

- New Command RDMAutoMatch
  - RDMAutoMatch <Object>
  - If no Object is set, the current selection will be used.
  - Possible objects are: Channel, Fixture, Fixture Type, RDMFixture Type, Group, Sequence, Cue, Executor, Preset(only selective), Selection.
  - To get the IDs for the objects enter the RDMFixture Types cd RDM\_Data/RDM\_Fixture\_Types into the command line.
  - Rules for RDMAutoMatch:
    - MA Fixture and RDM Fixture have to have the same DMX address.
    - MA Fixture Type and the RDM Fixture have either no or the same RDMFixture Type ID.
    - MA Fixture Type has to have the same DMX footprint as the RDM Fixture.
    - All sub-fixtures of the MA Fixture have to be in the current World and Filter.
- New command RDMUnmatch
  - RDMUnmatch <Object>
  - Removes the match between the selected fixture and its RDM fixture.
- New command RDMAutoPatch
  - RDMAutoPatch <Object>
  - Sets via RDM the DMX start address of the physical Fixture to the address of the patched MA2 Fixture.
  - To use this command the user has to manually match the MA2 Fixture with an RDM Fixture in the Setup/Show/Patch and Fixture Schedule.
- New command RDMSetPatch
  - RDMSetPatch <DMX address>
  - Changes the RDM DMX address.
  - Works with current selection.
  - This command is a shortcut for the command RDMSetParameter DMX\_START\_ADDRESS x
  - Available options are: multi patch, UID.
  - Multi patch: sets RDM DMX address of a specific multi patch device.
  - UID: changes RDM DMX address of a specific UID.
- New command RDMList
  - RDMList <Object>
  - RDMList generates a list of RDM data in MA2 system. If no object is specified, all RDM data is taken.
  - Available options are: filename, multi patch, UID.
  - filename(e.g. filename=data): exports the data into a text file named data.txt in temp folder.
  - Multi patch: lists RDM data of a specific multi patch device.
  - UID: lists RDM data of a specific UID.
- RDM macros are also available in the predefined macros pool.

## New sheets and functions for RDM

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- RDM alerts and RDM warnings:
  - If there are RDM notifications for a fixture, fixture sheet and layouts have indicators for RDM Alerts(red) and Warnings(yellow).
  - RDM notifications depend on the type parameter(e.g. LAMP\_STATE, DMX\_PERSONALITY, etc.) or the sensor(temperature, fan speed, e.g.).
  - The user decides whether it is an RDM Alert or RDM Warning for each notification.
  - RDM Alerts and Warnings are also shown in the Message Center. An RDM symbol appears in the area of the Message Center of the Command line.
  - RDM Alerts and Warnings can be set to Status(Message-Center-Area in the command line) and/or pop-up.
  - All RDM icons in Universe pool turn red if RDM is disabled in Global Settings.
- It is possible to export and import RDM information(including ESTAIId, DeviceModelId, SoftwareVersionId and DmxPersonalityId) and notifications with the Fixture Type.
- Added RDM button in Edit fixture pop-up.
- Implemented RDM filters for fixture sheet and channel sheet, layouts and masks.

## ● New bitmap fixture

- How to:
  - To choose an image or video change to video preset type and turn the encoder of attribute image to switch through the images of the image pool.
  - Creating a rectangle in a layout opens the edit rectangle dialog.
  - The content played back will be resized to the rectangle as the rectangle provides the aspect ratio for the bitmap fixture.
- New features for bitmap fixture implemented:
  - Some sample images and videos for bitmap fixtures are available in the bitmap folder.
  - Limitation of the image pool is a total of 100MB and has a maximum size of 64MB for a single object.
  - There are two ways of using the bitmap fixture with images: enter At and image into the command line or press At and tap an image in the image pool.
  - There are two ways of using the bitmap fixture with layouts also: enter At and layout into the command line or press At and tap at a layout in the layout pool.
  - If the At mode for the layout pool is active, tapping a layout sets the layout for the bitmap fixture. If the select mode for the layout pool is active, tapping a layout shows the layout in the layout view.
  - Support of PNG Alpha.
  - Added Z position attribute. Z pos only works within the same priority, e.g. programmer or LTP or HTP, etc. When mixing programmer Z pos with Z pos of an HTP playback will not work properly.
  - Speed control for playing back videos.
  - Added play modes for bitmap effects: play loops endlessly. Play Once will play clip one time, and stop with the last frame. Play Once Off plays clip one time, and fade out with the last frame.
  - Improvements for rendering the Content at the Fixtures. The issue was that Pixels were not positioned correctly or colors were fading out at the borders.
  - Rotation function added: Rotation, Rotation Center X and Rotation Center Y.
- Implemented modes for bitmap effects:
  - Dim is default for only dimmer fixtures; RGB is default for fixtures with RGB.
  - Additional modes are possible: RGB+Dim, and presets (All, Dimmer, Position, Gobo, Color, Beam, Focus, Control, Shapers and Video).
  - "Black and white presets"(VP1 and VP2) can also be chosen for the preset modes in the bitmap fixture.
  - The number adjusted for VP1 and VP2 refers to the corresponding preset of the chosen preset type.
- Added 100 channel sets for images and outputs to the bitmap Fixture Type.

## ● Internal time code generator

- Implemented internal timecode generator.
- A timecode generator can be configured with edit TimecodeSlot X for every timecode slot.
- To start, stop or pause the generator uses the commands Go TimecodeSlot X, Pause TimecodeSlot X or Off TimecodeSlot X
- The timecode generator can also operate within the clock view.

- **Light mode and web remote for MA xPort node**
  - The light mode for MA xPort nodes changes the intensity of the display.
  - The light mode changes between black (dark) and full.
  - Web remote for xPortNodes implemented. Connect with a browser to the IP of the xPortNode.
  - Password for login is admin.
  - It is possible for the user to change all the settings in the MA network configuration and via web remote.
- **Split up exec CLI into 2 options**
  - Exec CLI affects executors only .
  - Default Go, Goback, Pause CLI affects the default Go+, Go- and Pause key of the 100mm faders.
  - Both options can be changed separately in Setup - Console - Local Settings.
- **Improved preset workflow**
  - **Storing and updating presets**
    - Set update menu settings and defaults for presets, effects and cues individually.
    - Store and update presets are separated from store defaults. Defaults for updating the presets are in the update menu.
    - Define defaults for store in the store options. To open this dialog hold the store button for two seconds.
    - Define defaults for update in the update dialog. Press highlighted update button to open this dialog.
  - **Improved cloning rules**
    - New cloning rules:
      - The clone destination decides if the new data is global or selective.
      - It is possible to clone from fixture to fixture, from fixture to Fixture Type, from Fixture Type to fixture or from Fixture Type to Fixture Type.
      - Cloning to Fixtures adds selective data.
      - Cloning to Fixture Types adds global data.
    - Examples:
      - Example 1: Preset contains global data for Fixture Type 1(fixture 1 is of Fixture Type 1, fixture 11 is of Fixture Type 2).
        - Cloning fixture 1 to fixture 11 creates selective data for fixture 11.
        - Cloning fixture 1 at Fixture Type 2 creates global data for Fixture Type 2. Fixtures of Fixture Type use this preset.
        - Cloning Fixture Type 1 at Fixture Type 2 creates global data for Fixture Type 2.
      - Example 2: Preset contains selective Data for Fixture 1.
        - Cloning fixture 1 to fixture 11 creates selective data for fixture 11.
        - Cloning fixture 1 at Fixture Type 2 creates global data for Fixture Type 2.
        - Cloning Fixture Type 1 at Fixture Type 2 does not create new data as there is no global data for Fixture Type 1 that could be cloned.



**Note:**

It is redundant to clone universal preset data. Therefore, it is not listed here.

- **Improved time code as cue trigger**
  - It is now possible to use time code as cue trigger.
  - Change cue trigger to time code.
  - Start time code record with [Record] Executor X.
  - [MA]+[Store] is the shortcut for [Record].
  - Go the cues to get the actual time code as trigger time.
  - Stop time code record with [Record] Executor X.
  - Using the [Record] command only, executes time code record for the main executor.
- **Special dialogs for shapers, border, keystone of VPU fixtures**
  - New shaper dialogs for shapers, border, keystone for VPU fixtures.
- **Web remote**
  - Playback view
  - Executor sheet
  - Preset pools are now available.
  - Added fade layers, delay layers and output layers for sheets.
- **Delete command for messages from message center**
  - Supported fields for conditions:
    - "subcat" 'Message Center'??? Dominik will ask Dima???
  - General rules:
    - All operations have always to be surrounded by spaces, e.g. "field1 = 'value1'"
    - Values must be inside single quotes: 'value'
    - For "type" relations are following: 'Info' < 'Warning' < 'Alert' < 'Error'

## Fixed bugs and improved functionality

- Fixed - Changed button label "Abort Command" to "Cancel Command" in CTP menu.
- Fixed - Option direct action has no function in layout options.
- Fixed - Message boxes are not correctly displayed with the option for all or only actual screen.
- Fixed - Preview always shows super priority per fixture.
- Fixed - Focus of select MIB pop-up is out of view.
- Fixed - Wrong labels for priorities in the off-menu.
- Fixed - Wrong font size for readout button in effect line editor.
- Fixed - Selection in tracking sheet only shows wrong fixtures when stepping through the selection.
- Fixed - After loading old show files a stored help view can appear as empty.
- Fixed - Some Clay Paky fixtures have wrong gobo index rotation values.
- Fixed - sACN only analyses packets with start code 0 for input.
- Fixed - Crash when sending thousands of commands via telnet.
- Fixed - Color wheel color is also shown in layout objects of visualization type filled.
- Fixed - Virtual keyboards for text input fields in the layout pop ups missing.
- Fixed - PSR Prepare wizard shows not correct amount of fixtures when using option merge others.
- Fixed - Assign options field mode for group masters does not show in the field border, that it has more than 2 options.

- Fixed - onPC crashes when cloning the same fixtures on a x64-computer.
- Fixed - Loading a show file with a selected surface will switch off some executor faders.
- Fixed - Endless loop when opening a pop up while pressing tab-key.
- Fixed - 2Port Node: If 2Port node is in art net mode, and the art net sender disappears the last frame is hold forever.
- Fixed - Looping of macros is not working. Goto has to be used to jump directly to a specific macro line.
- Fixed - Command line shows not, if the user is in EditSetup(Patch & Fixture Schedule) or in LiveSetup(Patch only). Command line default(e.g. Channel or Fixture) is now replaced while being in one of these two setups with the correct identifier. All command line operations can still be executed. For selecting e.g. fixtures, the user has to enter the Fixture manually into command line as in the setup is no command line default available.
- Fixed - Seq- mask without function.
- Fixed - Image pool importer shows question mark if file could not be imported.
- Fixed - Import and Export of Pages does not work for all playback options.
- Fixed - Colors for preset-type timings are wrong.
- Fixed - Thumbnails for Image-Pool is set to small by default.
- Fixed - Sorting of Layers in Patch & Fixture Schedule is wrong.
- Fixed - Crash when importing Sequence xml files with corrupt data.
- Fixed - UpdateFirmware does not show correct informations.
- Fixed - Crash when opening diagnostics pop-up and desk is out of memory.
- Fixed - Knocking in fixtures does not use a applied filter.
- Fixed - Assigned Effects are shown as running after Off Page command.
- Fixed - Better error message in system monitor, if wheel slot has no media image.
- Fixed - Selection only-mask is not working in Tracking Sheet.
- Fixed - Web remote: Users with user-right none can see playbacks.
- Fixed - Blind- and Preview-mode clear programmer after store or update.
- Fixed - System monitor will bring an error message, if content can't be played back.
- Fixed - Replace Fixture 1 with Fixture 2 fails.
- Fixed - Export and Import Page does not handle all executor options.
- Fixed - Replace without value replaces the default.
- Fixed - Dimmer values of some Martin- and SGM-Fixtures.
- Fixed - Record-command does not work as toggle.
- Fixed - Crash when loading a show-file with empty patch lines.
- Added - Limitation of Image-Pool: In total 100MB, maximum size of single object is 64MB.
- Fixed - Pasting a cue will create cue with same cue number.
- Fixed - Default Sequence Options are not recalled correct.
- Fixed - Default link value can't be changed with middle mouse button in tracking sheet.
- Added - Disabled macro lines will be shown in red in edit macro mode.
- Fixed - Executors with width >2 show priority correct.
- Fixed - Encoder Grouping for barn doors in new shows.
- Fixed - Updating a global preset with store mode selective and Original Content Only is changing global values.
- Fixed - Copy Executor-pop up has no Merge-button.
- Fixed - Sequence option Cue Zero Extract is not executed, when Cue Zero is already on.
- Fixed - Update-files are deleted after install.
- Fixed - Release and Default values are not exported correctly in Sequences.

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- Fixed - Desk lock prevents screen saver to start.
- Fixed - Inverting Pan and/or Tilt is not possible, if more than 1 Pan/Tilt-attribute is in the show.
- Fixed - Session Collision-dialog provides too many buttons, if both masters are in different subnets.
- Fixed - Missing number-column in CIP Network Configuration.
- Fixed - Renamed Layout Selection-button to Select Layout.
- Fixed - After disabling remote-input, the state of the remote is not reset.
- Fixed - Move Screen-command does not work.
- Fixed - SearchResult is not working as command filter.
- Fixed - Fade is not correct, if a sequence is overtaking values from the programmer.
- Fixed - Oops is switched on, of Oops-List will be opened.
- Fixed - Oops is possible in DMX Patch dialog.
- Fixed - Crash in year view of Agenda.
- Fixed - Changing a running template effect does not refresh output.
- Fixed - Macro state is not displayed on Executors.
- Fixed - Crash when trying to apply a DMX profile.
- Fixed - Storing multiple views can freeze the screen.
- Fixed - Changing Effect-parameters of running selective effects in the programmer restart the effects.
- Fixed - Crash when doing PSR initialize.
- Fixed - Rotation of Bitmap Fixture has impact on changing position.
- Fixed - Wrong ranges in FixtureTypes.
- Fixed - PSR does not copy infos.
- Fixed - Exporting pages does not export playback- and input-filters.
- Fixed - Crash when creating additional presets.
- Fixed - 3D Objects are not sorted by Fixture ID.
- Fixed - Goto messes up fade times, when values are tracked from part cues.
- Fixed - Crash when executing GoBack with a macro.
- Fixed - Go works not for macro lines, if timing is disabled.
- Fixed - Encoder tool-bar for editing a Layout does not reopen after changing to PresetType encoder tool-bar and back.
- Fixed - Using form Release in an effect, does not apply the correct values.
- Fixed - Changing running Effects in a network environment.
- Fixed - MSC over Ethernet is always sending MSC at the session master.
- Fixed - Web remote: Pop-ups can be canceled by pressing escape-key or close-button.
- Fixed - World symbol disappears in the Message Center after show upload.
- Added - At command for Gel, e.g. At Gel "Lee"."Mauve" or At Gel 7."126" or At "Lee".61. Also added a new predefined macro called "Gel".
- Fixed - Web remote: All Views doesn't remember their last scroll position when coming back from a pop-up.
- Fixed - Using Release as Effect form is destroying cue values.
- Fixed - Web remote: Store-pop-up does not appear.
- Fixed - Not all element-options of layout-elements are exported.
- Fixed - Creating a new xPortNode in MA Network Configuration shows only 4 ports.
- Fixed - Effect playback can be out of sync after inviting a NPU into session.
- Fixed - Presets can't be deleted if it was imported and Fixture Type is missing.

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- Fixed - Moving Exec Pages is not transferred in the network.
- Fixed - Playbacks are not switched off, if Fixture Type has values in the programmer.
- Fixed - Crash when changing Fixture Type of a Fixture via command line.
- Fixed - Internal Art-Net-routing is not working.
- Fixed - HSI visualization is not working.
- Fixed - Overlay-Attribute is now a child of Gobo-Feature.
- Fixed - Disabled macro lines have to be skipped by pressing Go, if Wait is set to Go.
- Fixed - Priority of effects assigned to an executor cannot be changed via command line.
- Fixed - Parameter and Sensor-buttons are merged into RDM Info-button in RDM devices-window.
- Fixed - Resetting multi patch fixtures does not work in stage view.
- Fixed - Deleting layout elements is not possible after changing IDs.
- Fixed - Fixture Type-macros are not listed in a Fixture Type in command line.
- Fixed - Wrong values in calculator for ColorRGB when using CMY readout.
- Fixed - pop-up when copying Executor 1 at 2 has too much options.
- Fixed - Not all Sequence-options are streamed correct in the network.
- Fixed - LampOn-Function Set is labeled as Closed.
- Fixed - Extended possible physical range for Fixture Types from -40000 to +40000
- Fixed - Recording Macros won't record pressing Executors.
- Fixed - Loading a show in MA 3D won't disconnect the station of the session.
- Fixed - Desklock-options shows always Images, also if option is set to black or current screen.
- Fixed - Unmatch-button is always available.
- Fixed - RDM is enabled for all Universes for older show files.
- Fixed - RDM-ID-pop-up has only 1 Close-Button.
- Fixed - pop-up for creating new Notification is in the wrong place.
- Added - Preset-mode Button in Update-Menu for updating Presets.
- Fixed - Focus is set wrong in RDM Devices-window when closing a pop-up.
- Added - RDM Parameters can be set in RDM View.
- Fixed - Minor Bugs with Buttons in RDM-Match-Dialog.
- Fixed - PMArea-keyword has no options listed.
- Fixed - RDM-Devices window is not updated, when open.
- Added - Iris Pulse Open, Iris Pulse Close and Iris Pulse Random is now visualized.
- Fixed - Only RDM DMX Footprint is changed, when changing RDM Fixture Type.
- Fixed - MA Network Config: IP-column is now sorted by default.
- Fixed - Bitmap Fixture uses own timebase and not the one of the video.
- Fixed - Infos of Macros is not completely shown in grid view of Macro-Pool.
- Fixed - Web remote: Auto-Scroll in Sequence Executor Sheet.
- Fixed - Web remote: Improved texts for too many connections and disabled remote login.
- Fixed - Improved Import Images-pop-up for better use with Screen-Encoder and Please-key.
- Fixed - Calculators on Encoders when editing a Layout.
- Fixed - Programmer of different User in multi-user-environment is also cleared, if user clears his programmer , when XYZ is used.
- Fixed - Bug with Search & Replace.

- Fixed - Bitmap Fixture is updated live, if arrangement of Fixtures in Layout is changed, while using a Bitmap Fixture.
- Fixed - Crash when entering Network Protocols-menu.
- Fixed - Web remote: Faders are updated too slow.
- Fixed - BPM has no Function-Buttons in Master-Section.
- Fixed - Crash when using multi patch fixtures with Bitmap Fixture.
- Fixed - Stored fader positions are recalled correctly, if faders at position 0 were moved.
- Fixed - Universe column in RDM-Sheet is not fixed anymore.
- Fixed - Crash when deleting Image, while a Bitmap Fixture is it using.
- Fixed - Web remote: Lasso selection outside Fixture-Sheet can make it non operable.
- Fixed - Wrong conversion of Group names.
- Fixed - Zoom for Bitmap Fixture works now correct.
- Fixed - Preview in Import Image-Dialog is not working.
- Fixed - Network for Art-Net is calculated wrong.
- Fixed - Fixture Types are labeled correct in all views.
- Fixed - Wrong output when updating a cue while a fade is still running.
- Fixed - Assign Model x at Item3D is not working.
- Fixed - Flickering of Action Buttons.
- Fixed - Shuffle selection order for effect is not updating a effect running in the programmer.
- Fixed - Z-Parameter for Bitmap Fixture is not working.
- Fixed - Scroll- and focus-position in Universe-Pool in sheet-style is wrong after show upload.
- Fixed - Navigation in Import Image-dialog is limited after importing images from a USB-Stick.
- Fixed - RDM Devices-dialog is not updated, User has to leave and reenter it for updates, if new RDM-Fixtures were detected.
- Fixed - Import Image-dialog is not importing all Images when using multi selection.
- Fixed - Edit Fixture showed wrong data.
- Fixed - Default form for effects changed back to Sinus.
- Fixed - Wrong coordinates for new elements in existing Layouts.
- Fixed - Multi User Access Conflict when trying to unblock a Cue.
- Fixed - Behavior of Exec CLI and Default Go, Goback and Pause-CLI.
- Fixed - Wrong place for RDM-Icon in Layout-Objects.
- Fixed - Importing Sequence can cause a crash.
- Added - Title-Button Edit Mode in Setup-Mode of Layouts got more options.
- Fixed - Warning in diagnostics if Fixture Type has only a fine or ultra-channel.
- Fixed - Crash when editing a DMX-Profile via command line.
- Fixed - New default order for columns in RDM-Sheet.
- Fixed - Edit RDM-ID shows only UID of last detected RDM-Fixture.
- Fixed - Attribute Encoder grouping for ColorHSB.
- Fixed - Crash when trying to assign a new function to buttons of Master-Section.
- Fixed - Users with user right Preset can't update Presets.
- Fixed - Single Shot-state is correctly transmitted within the network.
- Fixed - Several Fixture Types that were generated wrong.
- Fixed - Command Assign Camera X/Fixture="FixtureName" is not working.

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- Fixed - RDM Match to MA Fixture-dialog reacts not on press of screen encoder.
- Fixed - RDM Devices-dialog shows sometimes wrong RDM DMX footprint in filtered view.
- Fixed - Multi patch of Fixtures without class is not possible.
- Added - Save to Default and Load from Default-Buttons for RDM-Sheet.
- Fixed - Fixture Types can't be stored in Cues anymore.
- Fixed - Changing pool colors are not visible immediately.
- Fixed - Reset Settings for Pools is not working correct.
- Fixed - Assigning DMX-Profiles to virtual channels is possible.
- Fixed - Web remote: Pressing Connect-Button will logout from Web remote.
- Fixed - New Carallon Library, v12 implemented.
- Fixed - Shaper position of VL1000&VL1100 in MA 3D.
- Fixed - DMX-Tester is not releasing in network.
- Fixed - Link Effect to Rate-Option for Executors is not set correctly.
- Fixed - Web remote: Pressing escape stays in Edit Preset-mode at Web remote.
- Fixed - DMX Remotes with type programmer are not changed if within a DMX frame more than 512 channels are changed.
- Fixed - Visualization of illegal ranges for From/To DMX-values in Diagnostics-dialog.
- Fixed - Command Update Cue thru with applied filter will reset filter after updating first cue.
- Manually arranged Features(columns) in the Fixture-Sheet are now stored within the View.
- Fixed - Sound-Input for RPU.
- Fixed - Color Dialog does not follow selected Feature, if Fixture has ColorRGB and HSB.
- Added - Copy and Move Cue-Parts.
- Fixed - Updating Setup is destroying Cue-data.
- Fixed - Focus is not set to Off-Menu, if it is opened.
- Added - If Arrange is used, the new arrangement will be placed in the center of the current view in the layout.
- Fixed - If any User is in Edit Setup, the Patch To-Functionality of the DMX-Tester can also be used.
- Fixed - XML object files of future grandMA2-Versions can be imported into same or older versions.
- Fixed - Import of media from a USB-Stick will create an invalid object.
- Fixed - Crash if the creating of the current logged in User and User-Profile is oopsed.
- Fixed - Info for Macros is not transmitted in the network.
- Fixed - Column-width for user created Attributes is not saved with the view.
- Fixed - Follow-function in Stage-View is not working correct.
- Fixed - Crash when importing a special User-Profile into a new show.
- Fixed - Storing selective data into a Universal-Preset will store Universal- and Global-data.
- Fixed - Moving Executors can cause the old Fader to stay on top.
- Fixed - Replaced MASTERINTENSITY-Attributes with DIM and RED/GREEN/BLUEMASTER with COLORRGB1/2/3.
- Fixed - Changed DMX-Refresh to 1.06sec(sACN, etc.)
- Added - /gateway-option for SetIP-command.
- Fixed - Physical range for Gobo Index is limited to 0°-45°.
- Added - grandMA2 supports now up to 8 Patch-Breaks.
- Fixed - Over-style for paths is replaced by Medium-style.
- Fixed - Ooping a selection results in un-selectable Fixtures or Groups.
- Fixed - Aborting Macros will show their status correctly and restart it, if the User executes it again.

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- Fixed - xPortNodes: IP of second interface(eth0.1) is not generated correctly when doing a Full Install.
- Added - Empty-Keyword for assigning Empty to executor buttons.
- Fixed - Removed Mirror-Button in Edit Effect line Phase.
- Added - Web remote for xPort-Nodes. Password is admin.
- Fixed - Wrong sorting of Direct Access-Shortcuts in Setup/Console/Edit Keyboard Shortcuts.
- Fixed - Title bars of onPC show wrong label "Display X". Changed to "Screen X".
- Removed - Keyboard\_Shortcuts.xml, predefined.xml is used.
- Fixed - Crash when Info-Cue-pop-up is open and user tries to Label the Executor.
- Fixed - Indicators in Wing and Monitor Setup are not updated, after grandMA2 FaderWing is disconnected.
- Fixed - Oops title bar relabeled from Multi-Ooops to Oops.
- Fixed - Relabeled RDM address to RDM DMX address.
- Added - World-Indicator in Setup/Show/AutoCreate.
- Added - DHCP-Support in MA xPortNode.
- Fixed - Some Fixture Types duplicate Fixture-Macros when changing setup.
- Fixed - Crash when editing Presets, if Fixture Type is initialized wrong.
- Fixed - Better scaling and resolution calculation for Bitmap Effects.
- Fixed - Selective All-Presets can be converted to global after changing Setup.
- Added - New global variable SHOWFILE.
- Fixed - Plugins will not create Multi-User-Access-Conflicts.
- Fixed - Allowed : as character for labels.
- Fixed - Unified Scrollbar-Labels in View-Options.
- Fixed - Removed the word "Mode" at the end of every entry in Groupmaster-drop-down.
- Fixed - Changed name "Powerfailure" to "Power Failure" in Message Center.
- Fixed - Changed "Enable Marker" to "Marker" in Sheet-Options.
- Fixed - LUA: gma.gui.confirm freezes the desk.
- Fixed - LUA: gma.import()-Function is broken.
- Fixed - Crash when importing ASCII-Files of non-supported Desks.
- Fixed - Resized Setup/User/Settings/Trackball Rotation Dialog to provide enough space for title label.
- Fixed - Relabeled Value times to Value Times in Command Filter.
- Fixed - Relabeled different variations of Groupmaster into Group Master in the whole UI.
- Fixed - Command line Names for DMX Nodes, NDP Dimmer, etc. in NetConfig is broken. cd "DMX Nodes" does not work.
- Fixed - Position of vertical Scrollbar is not stored inside the View.
- Added - Web remote: Added Page label in Playback-View.
- Fixed - Update Please is not working with Sequences on locked Executors.
- Fixed - Crash: When changing in Assign-Menu to Options via hard key U2, if Select Fader Function-pop-up is open.
- Fixed - U is not shortcut for Update anymore.
- Improved - Oops-Handling of 3D-Items in Edit Setup.
- Fixed - Changing label for Objects in Image-Pool Sheet-Style is not possible.
- Fixed - Crash: When leaving Setup, if another User in the Session has opened a Goto-pop-up.
- Fixed - Crash: When enabling "Only Selected" in DMX-View, if using Multi-Instance-Fixtures.
- Fixed - Content of selected USB-Stick is not shown when opening Import Plugin-Dialog.

- Fixed - Crash: If Off is enabled, Attributes in Select Effect Attribute-pop-up are deselected, and Off-Key is pressed again.
- Added - Auto-Option added for Store to use the PresetScope.
- Added - Columns for RDM and Info in Universe-Pool Sheet Style.
- Fixed - MA NSP DMX In is missing in 4Port-Mode.
- Fixed - onPC has problems to interact correctly between Shapers-special dialog and Preset Type-Bar.
- Fixed - Renamed Cmd Delay to CMD Delay in Sequence Executor Sheet.
- Fixed - If focus is not on first screen when starting onPC Return-key events or scrolling with mouse wheel can be lost.
- Fixed - Copying Pool Objects to a range-destination will freeze the desk.
- Fixed - Auto update of single Fixture-Groups is not done, when ID or Fixture-name is changed.
- Fixed - Removed X-&Y-Options for Update.
- Fixed - Removed useless Options for Storelook.
- Fixed - Preset Type-Timings are not manipulated, if a Rate-Master is used.
- Fixed - Outgoing telnet-commands don't have carriage return and line feed at the end of the command.
- Fixed - Park Channel X at Full does not work.
- Fixed - Lasso-Selection in Timecode-Editor can exceed windows boundaries.
- Fixed - Web remote: Store + tapping a Pool-Object does not work.
- Fixed - Web remote: Loading a show while connected with Web remote can cause a crash.
- Fixed - Web remote: Problems with Login.
- Fixed - Fixture-Library: Fixture Types with FOCUS2 and FOCUS3-Attributes have wrong default values.
- Fixed - Desk crashes when Telnet-connection is closed too early.
- Fixed - Crash when doing a LayoutSelection in combination with Off-command.
- Fixed - Edit MATricks show Single X and Y input fields.
- Fixed - Removed horizontal scrollbar for DMX-sheet.
- Fixed - Function Sets of Fixture Types that have the same names as default functions(Off, Remove, Release, etc.), will not call the Function Sets.
- Fixed - Sound Form 6 and 7 are not called correctly in the calculator.
- Fixed - Loss of performance with 2 external FullHD-Screens.
- Fixed - Edit Cue: Cue numbers dialog rounds numbers.
- Fixed - Issues with external Touch screens: Acer T232HLAbmjz.
- Fixed - DMX Nodes-Tab Session/Network-column is to small.
- Added - Additional Desklock with MA + Fix for consoles.
- Fixed - Update global Preset.
- Fixed - X-Keys are not lit up, if a Sequence is stored on it.
- Fixed - Auto-created-Flag(#) for Presets is still shown, if Presets are imported over Auto-created-Presets.
- Fixed - ASCII import matches Fixtures to the wrong Fixture Types.
- Improved - Handling of illegal characters.
- Fixed - Crash when editing a fixture position column containing fixtures without body.
- Fixed - Channel Sheet-Options: Channel Sort is labeled as Fixture Sort.
- Verified - MA grandMA2 onPC & MA 3D are tested with Windows 10.
- Fixed - Split Xfade for non-tracking Sequences is not working.
- Fixed - MSC is not sending Cue number when executing GoBack.
- Fixed - MSC does not support all Pages and Executors.

- Fixed - Mounting a FTP-Server fails sometimes.
- Cleanup - pop-ups for Crashme- and No Parameters-pop-ups adjusted.
- Fixed - Store Cues into free cue numbers shows wrong Store-pop-up.
- Fixed - CITP thumbnail exchange fails in special circumstances if there are no elements in the folder on the server.
- Fixed - The width of the navigation-area is not adjustable in the Help-View.
- Fixed - Crash when using Executors above 220.
- Improved - Better text for UpdateSoftware-pop-up.
- Fixed - Park DMX 1.1 Thru will freeze the desk for some seconds.
- Added - Implemented Carallon Library v11.6.
- Fixed - Shaper Special Dialog: shaper rotation does not work with values below zero.
- Fixed - Assert Effect transitions are not working.
- Fixed - Crash when importing XML-files.
- Fixed - Empty Executors can be fixed in some circumstances.
- Fixed - New Show: Clear Time Config does not reset the Date&Time-options to default.
- Added - Info-Column per Network Protocol implemented.
- Changed - Network Control and MA Network Config: Station name is now labeled as Hostname.
- Network Control: If Text is longer than cell, ... is showed at the end of the cell.
- Added - Useless Effect functions for the actual Effect-Form are grayed out.
- Fixed - Bug with onPC: Effect Pool Object didn't update the label when renaming.
- Fixed - PresetScope changed by user are now stored with the show file.
- Fixed - Flickering of Multi-Width-Executors when refreshing the Page.
- Fixed - onPC shows in timecode-encoder bar the full timecode ID.
- Fixed - Removed all entries of Rate16 in the UI.
- Fixed - Assigning Effects on Executors.
- Fixed - Options for some function keywords.
- Fixed - Continuous enumeration of Cha-/Fix-IDs repaired.
- CleanUp - Wheel Mode and Wheel Resolution changed to Dimmer Wheel Mode and Dimmer Wheel Resolution.
- Fixed - Interaction between Encoder-Settings-pop-up and User-Settings for Dimmer Wheel improved.
- Fixed - DMX [Please] brings DMX-key-word back to command line as default.
- Fixed - Redraw-Bug: Gobo-Thumbnails are not updated in Gobo-Preset-Pool when entering a world.
- CleanUp - Encoder Settings pop-up-Text got alignment is improved.
- Fixed - Command line-Options for Clone missed /noconfirm.
- Fixed - W as shortcut for World was broken.
- Added - Warning for Universe-Pool implemented if Pool-Object should overwrite another.
- CleanUp - Sheet Options: Layer Mask-dropdown was labeled with Select Select Layer Mask.
- CleanUp - Execs without a Fader-Function don't show a "0" as fader value anymore.
- Fixed - Improved Preset mode handling: Cloning "deleted" Universal-Indicator of Presets.
- CleanUp - Removed Follow-column in Oops-Menu.
- Fixed Crash: Cloning of sub-fixture.
- Fixed - Layout-View: If too many objects were too big, not all objects could be rendered - > white objects.
- Fixed - NDP: Session is not slowed down if NDP is in Session.
- Fixed - Clone FT at FT failed.

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- Added - AutoCreate HSB-Presets: Sort option for HSB implemented.
- Fixed - Timers are not counting down to zero when using a value with fractions of seconds.
- Fixed - Assigned Effects remember their Priority-Settings.
- Fixed - Executor were triggered instead of Effect Pool-Object.
- Fixed - X-Keys Button back-light is wrong when using User-keys.
- Fixed - JPG were not correctly imported.
- Fixed - Bitmap effects didn't work properly with 32bit Bitmaps.
- Added - Implemented new Desk Lock-Screen-Functions: Lock with black screen, Lock and show background of desk, Lock with User-Image.
- Fixed - Info View: Options-pop-up cannot be closed with Escape-Key.
- Fixed - Selective effect editor calculator is not updating programmer output when played back in programmer.
- Fixed - onPC-Key "Encoder Settings" uses the layout of the Encoder-key of the desk(Nipple-Button).
- CleanUp - Command line Feedback is relabeled to Command Line Feedback.
- Fixed - Several Out of Memory-Crashes.
- Changed - GrandMaster & B.O. renamed to GrandMaster & Misc Keys.
- Fixed - Thumbnail-default in Preset-Pools is "No thumbnails".
- Fixed - Help View: Size of navigation area is not changeable.
- Fixed - FTP-Server allows anonymous-user to log in & mget is not possible.
- Fixed - Edit + Macro assigned on a X-Key fires Macro.
- Fixed - All U-Buttons are flashing when only pressing one U-Key.
- Fixed - Littlight renamed to Desk Lamp.
- Fixed - Preview: Part-Encoder is labeled different in Encoder-Bar and Encoder-Bar-View.
- Changed - Language column text alignment is center.
- Fixed - Sequence Editor View has grid cell gradient.
- Fixed - Default PresetScope is Selective for all Preset Types.
- Fixed - Low Prio-Merge when cloning Color-Presets.
- Fixed - Better BPM handling for SoundToLight.
- Fixed - Minor UI improvements in MA Network Control: Hostname instead of Station name; Cells with larger text show "..."
- Fixed - Bug with importing timecode-shows stored in 3.0
- Fixed - Fixture macros don't generate waste in the Fixture Types anymore.
- Fixed - Crash when exporting an User profile.
- Improved - Command line-Options for a lot of commands.
- Fixed - Individual PresetScope is not lost any longer.
- Improved - Effect Editor calculator is updating the programmer output, while played back in programmer.
- Fixed - MFade shows now correct OFF-Time.
- Fixed - Crash when deleting Fixture Layers.
- Fixed - Crash when updating running Effects.
- Fixed - Color transformed data is not lost anymore when cloning.
- Added - Info column in Network Protocols per Protocol-Entry.
- Improved - Better handling of Prism-Attributes in Fixture Types.
- Fixed - Cue Zero Extract is converted correctly.
- Added - Programmer Sync with executing Top.

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- Fixed - Effect Pool Objects are updated after label, if Effect Pool and Effect Editor are displayed on the same screen.
- Fixed - Some crashes with PSN
- Added - Stage View Position Calculator has now an "+/-"-Key.
- Fixed - Timers are now counting always to zero.
- Fixed - Help interaction of Command Filter-View
- Fixed - It's now possible to use the Previous/Next-Buttons in Edit Fixture again.
- Fixed - Cell width in Edit Fixture is saved.
- Fixed - Parked Preset Types are now shown correctly.
- Fixed - Crash when using DMX-Sheet-Option "Only Selected" and XYZ-mode.
- Fixed - Better Handling of Store ViewButton, when a View is assigned to the ViewButton.
- Fixed - Individual ChannelType Color and Minimum DMX Time are not lost after reimport.
- Improved - Better displaying of DX-values in DMX-Sheet while using BlindEdit- or Preview-Mode.
- Improved - Better handling of Effect cells, which can't be used with the actual chosen form.
- Improved - grandMA2 Pixel Mapper-View: improved user interface.
- Improved - Crashlogcopy writes crash-log directly to the USB-Stick, ejecting it, is not required anymore in this case.
- Added - Store View-options supports now more screens, e.g. Store View 22 /SCREEN=2,3,4,6.
- Fixed - Swop kills only dimmer effects.
- Fixed - Sequence Executor Sheet shows now the same duration time as a Mini Executor progress bar.
- Fixed - Chat Messages does not appear on the sending station anymore.
- Fixed - VPU icons are now visualized in the Video Preset-Pool.
- Fixed - Presets created from Preset Reference.
- Improved - Individual Timings in the Sequence Sheet are now editable per Cue Part.
- Improved - Auto-naming of Presets.
- Fixed - Flickering of Multi-Width-Executors, when calling the same Page again.
- Fixed - Smart View does not jump back to first line.
- Fixed - Touch sensitive Faders are reacting to the "Playback Big"-View.
- Fixed - Linking Cues to timecode events after import of timecode-show.
- Fixed - Merging of Remove-Values in Presets.
- Fixed - Problems when naming Forms duplicated from the default ones.
- Added - Command line support for No Master, Speed- and Rate-Master in Effects: Assign Effect x/SpeedGroup="No Master"; Assign Effect x/SpeedGroup="Speed Y"; Assign Effect x/SpeedGroup="Rate Z";
- Fixed - Storing an Effect out of Programmer will save also the chosen Form.
- Fixed - Selection Only in Tracking Sheet.
- Fixed - Partial Show Read (PSR) for Forms.
- Fixed - ProgramTime X-Fade also works with ClearAll.
- Fixed - grandMA2 Pixel Mapper-View: Rulers are optimized for bigger dimensions.
- Fixed - IfOutput for Effects only selects Dimmers above 0.
- Fixed - Extract Preset works also with LAYER=EffectLow/EffectHigh.
- Added - VPU supports now 16 Cameras.
- Fixed - Color transformation works now with at least one Color-Component.
- Fixed - Remote DMX input works also for Special Masters.
- Fixed - Crash when deleting Multi-Width-Executors.

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- Fixed - Embedded Presets with no active data are not shown in the Update-List.
- Improved - Better Calculator-limits in the Sequence Executor-Sheet.
- Fixed - Midi Show Control(MSC) Set Fader supports more than the first Page.
- Fixed - Prohibited editing Position and Rotation of sub-fixture, if the Instance is locked.
- Fixed - Color-picker Link Encoder works now.
- Fixed- Conversion Bug of show files 2.[0-6]
- Fixed - Color conversion in Cues after exchange of Fixture Types.
- Fixed - Sunset/Dusk times are reversed.
- Fixed - Deleting an Effect will not start an assigned one.
- Fixed - Crash when deleting a fixed Multi-Width-Executor.
- Fixed - XYZ support in BlindEdit.
- Fixed - Goto + a cue in a Sequence Executor Sheet, will execute the command for the shown Executor.
- Fixed - Setup/User/Windows Setting/Presets/ will show now also buttons for Sheet Style, Font and Call-Mode.
- Fixed - Timecode-show now stops, when Option "When Ending Stop" is chosen.

## MA 3D

- Coordinate input fields got labels.
- Fixtures without DMX-controllable blade and zoom, can have now properties for blade and zoom in 3D. Use new 3D-Model Conventional-Source Four.
- MA 3D has now a better rendering of beams with and without using prism.
- Stage Markers are working in Stage View and 3D.
- Reset selected Object has now an Undo-Function.
- Maximum Beam length increased by factor 10.
- Fixed - 3D: Some 3D models have wrong textures.
- Fixed - 3D: Progress bar is not showing current state while show download.
- Fixed - 3D: Replacing 3D model with a custom one will cause wrong model orientation.
- Fixed - 3D: Clearing programmer is not removing a gobo wheel spin from the render engine.
- Fixed - 3D: Crash while session download if show contains video textures.
- Fixed - 3D: UV mapping of some predefined objects is wrong.
- Fixed - 3D: Ranges for manual blades, barndoors, zoom, etc. are wrong.
- Fixed - 3D: Optimize column-function works not correct.
- Added - 3D: Visualization of CTO, CTC and CTB. The user has to make sure, to add the correct physical values to the FixtureType.(e.g. a color temperature of 3000K is a physical value of 3000).
- Fixed - Beam angle is correct rendered, when using prism.
- Fixed - When scaling a 3D model, the beam size will not be scaled.
- Fixed - Moving Items in Object-list via drag'n'drop mixes up the object order.
- Fixed - Some 3D Models are not working correct.
- Fixed - Coordinates of Cameras are not reset-able with "Reset selected Objects"-Button.
- Fixed - MA 3D-Menu shortcuts only shown in English.
- Fixed - Reset Selected Objects-function is not working.
- Fixed - MA 3D Truss elements are not aligned correctly when using correct numeric positions values.
- Fixed - Loop-back device is always present.

- Fixed - Selection Bar in Camera/Camera Movement-Menu does not disappear anymore.
- Fixed - 3D shows also Network Interface, if no network cable is plugged in.

## MA VPU

- At the initial start after the installation or the update of the VPU-application, the end user licence agreement is shown. The MA VPU application will not start, until the end user licence agreement is confirmed. If you are using a VPU Plus, the end user licence agreement is shown at the internal touch display. If you are using a VPU basic or VPU light, the end user licence agreement is shown at the first external DVI-output - so please make sure you have a display and a mouse attached to the VPU Basic or VPU Light. At the end user licence agreement the user has the choice to install additional third party codecs, which can be used at the new Hap-Converter.
- Added a 64-bit version of the VPU application:
  - Setup file contains the 64-bit and 32-bit binaries.
  - The 64-bit application will automatically be installed, if you are running a 64-bit OS.
  - MA VPU Setup now installs the Main Concept 32-bit and 64-bit MPEG-2 Demo Decoder in accordance to the operation system. If you own a licensed version of the Main Concept Decoder and you are running the VPU application on a Media PC with a 64-bit OS, you need to install the Main Concept 64-bit MPEG-2 Decoder Pack manually.
- MA VPU now supports playback of video clips using the Hap-Codec:
  - Hap is an open-source GPU accelerated video codec.
  - The main benefits of Hap are:
    - Increased performance
    - Playback of clips with a resolution higher than 1920x1080
  - Support of alpha-transparency:
    - There are 3 formats of Hap-Clips: Hap1, HapQ and HapAlpha
    - Hap1: Good quality, higher compression, smaller files, higher CPU load, less hard-disk load
    - HapQ: Best quality, lower compression, bigger files, less CPU load, higher hard-disk load
    - HapAlpha: support of Alpha-channel
    - To convert a media-clip to Hap, the resolution in both dimensions must be a multiple of 4. Important: If you are using the Hap Quicktime codec to encode media clips with tools like e.g. After Effects, we strongly recommend to use version 8. Hap Clips created with the Hap Quicktime codec version 9 are not supported and can not be played back.
    - If the additional third party codecs are not installed, Hap can only be played back from an avi-container. If the additional third party codecs are installed, Hap can be played back from an avi- and a mov-container.

- Added the Hap Converter:
  - The new built in Hap Converter allows to convert clips from MPEG2 to Hap or from Hap to Hap, if the additional third party codecs are not installed.
  - If the additional 3rd party codecs are installed, content with various formats can be converted to Hap.
  - Additional third party codecs can not be used to play back media content, but only to convert files to Hap.
  - Supported additional video-codecs are: H.264, H.265, MPEG-4, Apple ProRes (without support of alpha channel), Quicktime Animation (with support of alpha channel), Theora and VP8.
  - Supported additional audio-codecs are: AAC, AC3, Flac, Opus and Vorbis.
  - Supported additional media-containers are: flv, mkv, mov, m4v, mp4, ogg and webm.
  - If you go to the Content Editor-Tab, the Hap Converter will be shown at the docking frame.
  - The Hap Conversion Options are:
    - "Auto convert new Content" - If the check box is enabled, all content, which is inserted to the show will be converted to the options given.
    - "Delete Source after Conversion" - If the check box is enabled, the source file will be deleted after the conversion is done.
    - "Compress": If the check box is enabled, the clip will be additionally compressed, which results in a smaller file size with a variable bitrate. If the check box is disabled, the clip will not be additionally compressed, which results in a bigger file size with a constant bitrate.
    - "Overwrite": Files with the same filename will be overwritten by the converter, if the check box is enabled.
    - "Format": You can choose between Hap1, HapQ, HapAlpha and Auto. If you choose "Auto", a MPEG2 File will be converted to Hap1. If the source is a Hap-File, its format will not be changed during conversion.
    - "Change Resolution": If enabled, you can define the resolution of the resulting clip. Also there is the option to keep the ratio of the source.
    - The converted Hap-file will be in the same directory of the hard disc as the source file.
    - "Start Conversion": This button starts the conversion of the selected clips. Files can be selected within the Content Editor or the Browser of the Hap Converter. So you are able to convert clips, which are not added to the show.
    - Selected Content State (left of the Hap Conversion Options) shows the attributes of a selected media file and also works with a multi selection of media files.
    - The tab "Job-queue" at the Hap Converter shows the queue of the conversion jobs and additional information of the actually running job. There are also three buttons, which belongs to the jobqueue:
      - "Pause": Pauses the Converter.
      - "Delete": Deletes the jobs, that are selected. This only deletes the conversion-job, but will not delete the file itself or will remove the file from the show.
      - "Top Priority": If you press this button, the selected jobs will be set to the top position of the queue.
    - Converter jobs are not saved to the show file, but locally on the VPU. If you shutdown or restart the VPU, the jobs will not get lost. This offers the advantage, that you can use the Converter standalone. Status messages of the Hap Converter can be found at the Info dialog of the Dialog Docking Frame. There is also a new filter option "Converter". The Converter is automatically paused during Showmode.

**Note:**

To convert a media-clip to Hap, the resolution in both dimensions must be a multiple of 4.

- Improved the Content Editor:
  - Channel sets now show a small icon, which indicates if a video clip is Hap1, HapQ, HapAlpha or MPEG.
  - Sound files now will be tagged with a small sound-icon.
  - Channel sets now show additional information of the Hap Converter.
  - There is a progress bar, which shows the state of the conversion.
  - The small number shows the actual position of the conversion-job in the queue of the Converter.
  - The "+" gives you the option to set a conversion-job to top priority.
  - The pause-button pauses the Converter. The Converter can be (re-)started by pressing the play-button.
  - An conversion-job can be deleted by pressing the button, that shows a "trash-bin".
  - Files and folders now can be inserted to the show by drag and drop from the browser below the Hap Converter.
  - Content Preview at the Content Editor now supports alpha-transparency.
- Pixel Mapper:
  - Pixel Mapper Priority: It is now possible to set a priority for each output of the Pixel Mapper. The Pixel Mapper priority is quite simpler than executor priority. If there is a equal or higher priority for a fixture coming from the desk, the Pixel Mapper sets its output for these fixtures to black. So the desk gets full control about the fixture. The Pixel mapper Priority can be set at the Output Options at the Pixel Mapper Editor of the VPU and the VPU Pixel Mapper View of the desk. A fade-in-time and fade-out-time can be set by a new attribute called "PM-Fade", which can be found at the preset-type "Control" of the VPU Camera-Fixture. The fadetime can be set between 0 and 10 seconds. The default value is 0 seconds.
  - Pixel mapper output by Art-Net and sACN now supports Unicast.
  - Pixel mapper network statistic now shows tries per cycle and count of universes send per cycle.
  - Delete hard key now also works to delete fixtures at the VPU Pixel Mapper View in the desk. For this reason the delete soft key has been removed from the Pixel Mapper View.
  - Pixel Mapper Art-Net/sACN-start universe: It is now possible to remap the patch of a Pixel Mapper Output. Therefore a new start universe can be defined at the options of the Pixel Mapper Output. Art-Net/sACN Start is set for the lowest universe used in this Pixel Mapper Output. If Art-Net/sACN-Start is set to "Original", the patched universes from the grandMA2 are used.
  - Pixel mapper Output by Art-Net and sACN now supports Unicast.
  - Added Title button to change the arrangement of the view at the VPU Pixel Mapper View of the desk.
- New VPU Fixture Types implemented:
  - VPU Layer: Added attributes for routing to camera 9-16.
  - Added channel-sets for virtual inputs 9-16.
  - Changed values for VPU play modes.
  - VPU Camera: added pixel mapper fade time
  - added field of view
  - added camera rotation

The new fixture type may not be compatible with existing shows. If you have replaced the VPU layer fixture type of your existing show with the new one, please make sure to run the new predefined macro "Replace VPU play modes" once to convert the play mode values.

- Updated VPU demo show, VPU new show and VPU teaser show.
- MA VPU now supports 16 cameras. Also 16 virtual out- and inputs are supported now.

- DHCP: Network configuration of a VPU now supports DHCP. If DHCP is enabled, the VPU tries to get its IP address from a DHCP-server in the network. If there is no DHCP-server present, but DHCP is activated, the VPU sets an IP address within the APIPA-Range (169.254.x.y).
- File -> Make a Screen-shot: Use this to make a screen shot of the outputs. The screen shots are saved to C:\Users\MA\Documents - you can get to this directory by the VPU-Browser.
- Added Special Dialogs to the desk for improved and comfortable handling of Border (VPU-Layer), Softedge and Keystone (VPU-Camera).
- Show-mode also disables FPS in full screen.
- Filters at Docking frame -> Info are arranged in alphabetical order.
- Delete-key of an attached keyboard now works as a shortcut to delete files at the browser.
- GUI now indicates if there is no Pixel Mapper-Output, because the Pixel Mapper is globally disabled at the Global VPU Settings.
- A Fixture Layer can now be assigned to a VPU via the command line or a Macro: The command at cd Netconfig/VPU is: Assign <ID>/Layer=Name with <ID>=ID of the VPU and Name=Name of the Fixture Layer you want to assign. The Name needs to be in \", if the name contains blanks.
- Delay for Outputs: It is now possible to set a delay for every DVI- and Pixel Mapper-Output of a VPU. These delays can be set separately for every output to align the outputs in time, if there are different signal run times between the output of the VPU and e.g. your projectors or LED-walls. Delay for the DVI-outputs can be set at the Display-Settings between 0 and 15 frames with regard to the refresh rate of your DVI-outputs. Delay for the Pixel Mapper can be set at the options of every output between 0 and 8/30 seconds. An audio delay can be set at the Main Options between 0 and 15 frames with regard to the refresh rate of the DVI-outputs.
- Camera-Rotation and FOV: The VPU Camera-Fixture now supports camera-rotation. Two kinds of rotation are possible. First option is to rotate the Camera around its own centerpoint and the second option is to rotate the Camera around the centerpoint of the 3D space of the VPU. Also the Field of view (FOV) of the VPU Camera Fixture now can be adjusted.
- Improved support for running VPU on Windows 8 and Windows 8.1.
- Windows 10: MA VPU now supports more than one output. However the performance is decreased due to limitations of Windows 10, if more than one output is used. In this case a pop-up will appear.
- Improved Memory-Graph in Dialog Docking Frame
- Implemented functionality for un-installing the VPU application at "Programs and Features" of the Windows Control Panel.
- Un-installing of the VPU application now also deletes the related folder at the Windows Start-Menu.

## Fixed MA VPU bugs and improved functionality

- Fixed - Graphical View at the VPU Pixel Mapper View will not be zoomed far out anymore, if you leave "Areas and Outputs" after you have changed the focus to another area.
- Fixed - Same Virtual Output can't be assigned to more than one Output of the Pixel Mapper at the same time anymore.
- Fixed - A Warper Mesh will not be shown displaced anymore on the 2nd or 3rd Output, if this Output is running on another resolution than the first.
- Fixed - Adjusted the default values for the size of Warper Meshes to make them more pixel accurate. The default is now 1 through e.g. 1920 (was 0 through e.g. 1920)
- Fixed - "Toggle Warper GUI"-shortcut now also works, if the focus is not at the mesh view.
- Fixed - Invalid file names at "Save Show as" and "Export Function Blocks" cause a crash.
- Fixed - Fixture Layer-selection of a VPU is not properly updated after a show-download or if a new show is loaded at the VPU.

- Fixed - Ratio of SDI-Inputs is wrong.
- Fixed - A Layer will not shrink to half height anymore, if it is set to @native and Position, Rotation or Scale is changed.
- Fixed - Moving fixtures at the Pixel Mapper-Setup will not cause played back videos to get out of sync anymore.
- Fixed - Inserting content to a show doesn't cause other VPU's in the same session to crash anymore.
- Fixed - A hostname of a desk longer than 23 characters won't cause a crash of the VPU anymore.
- Fixed - A channel set will not be duplicated anymore but moved, if it is moved by drag and drop to another content slot at the Content Editor.
- Fixed - Moving a content folder to another slot by drag and drop is working again at the Content Editor.
- Fixed - Fixed a bug, where the alpha channel of a png was not shown transparent during a Single Layer Transition.
- Fixed - Deleting a large number of channel functions at the same time, does not cause other VPU's in the Session to crash anymore.
- Fixed - Position-animation-Z if the Layer flies towards the camera.
- Fixed - The length of a sound file now will be shown correctly at the Content Editor.
- Fixed - A bug related to alpha transparency and the effects Ascii, Scratch, Luma Key, Luma Key Black and Luma Key White.
- Fixed - The effect SBlur not working properly on the Camera.
- Image Animation on a Layer does not run twice as fast anymore, if an effect is used on the Camera.
- Fixed Warping Mesh was not shown at the Warper.
- VPU does not freeze anymore, if you try to shut it down at the internal display, while the VPU-Settings are opened at the external GUI.
- Fixed a bug if Function Blocks were imported after the Standard-Slot (Slot 0) was deleted.
- Fixed a crash which occurred, if a fixture was deleted, which was added to an old Pixel Mapper setup. Also fixtures can't be stored to an old Pixel Mapper anymore.
- Channel Functions and Channel Sets with an index higher than 255 will not be created anymore, if there are dropped more directories or files to the Content Editor than there are free slots left.
- Different fixture types with same Long name will not appear as same Fixture anymore, if they are added to the Pixel Mapper.
- Graphical View at the VPU Pixel Mapper View will not be zoomed far out anymore, if you leave "Areas and Outputs" after you have changed the focus to another area.

## Appendix:



RDM: Connecting 2 Outputs of a grandMA2-System with one cable can cause trouble in RDM.



A Fixture needs to be re-patched, if the Fixture Type is exchanged with a similar one, which has a different patch-order of the instances.



Down-dating to grandMA2 Release v3.0.0.5 and earlier requires a Factory reset (Format and Install). Please backup your show files before down-dating.



Inserting the command "store /remove" or pressing [store][cue][2] and select [remove] in the pop-up will remove the whole attribute with all (!!) its layers of fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.



When multiple fixtures are selected with a lasso in the layout view, the snap grid settings to interpolate small position differences of fixture icons are respected. The selection order will always be made inside of one snap grid cell first, afterwards line by line in the direction of the lasso movement.



The network switch IGMP Snooping functionality has to be switched off in order to be able to update MA 2Port nodes.



A grandMA1 compatibility mode is no part of grandMA2 console software 3.0 and later. When grandMA1 compatibility mode is needed, grandMA2 consoles and MA NPU's have to be down-dated to grandMA2 v2.9.1.1.



The MA-Net2 protocol has changed to support the 8Port Node devices. All MA devices need a new network streaming protocol with the 2.9 software. Once updated to the correlating version to grandMA2 v2.9, 2Port, 4Port, 8Port, NSP 4Port Node and the NDP will no longer work in a session with an older network streaming protocol (e.g. grandMA2 v2.8). Down-dating MA 2Port Nodes or NSP running in 4Port Node Mode to be v2.8 compatible is only possible via grandMA1 v 6.801. All other devices can be down-dated via USB or windows installer only.



Exec Time can be used for Executor buttons and Executor Faders. The new Executor option "Ignore Exec Time" has been added. When this option is enabled, the referring executor will use its own off time instead of the Exec Time Fader Timing. Show files stored with grandMA2 v2.9.1 and earlier will be converted. All Fader executors will have this option enabled. Executor option defaults are valid for fader and button executors. When storing new fader executors, these executors will listen to Exec Time by default.



Fixture type preset reference contains values only. It is not possible to add any fade, delay or effect data to fixture type preset references.



ASCII show import supports Strand, Transtechnik and ADB ASCII show files.



A CIP connection is not possible when running CIP sender and CIP receiver at the same computer.



Following syntax can be used to switch off faders only or buttons only of current page or of all pages except current page:

- **Off Executor 1 thru 100** - This switches off all Faders of current page.
- **Off Executor 101 thru 240** - This switches off all Buttons of current page.
- **Off Executor 1 thru 100 Page Thru - \$faderpage** - This switches off all Faders of all pages except current.
- **Off Executor 101 thru 240 Page Thru - \$buttonpage** - This switches off all Buttons of all pages except current.



Addressing executors via command-line has been improved to provide support for addressing by name or number. This can be used when sending playback commands to specific executors or when storing to a specific executor, sequence or cue for example. All existing cue links and Macros of show files stored with former grandMA2 versions will be converted as far as possible. Please check cue links and Macros of existing shows when loading them the first time with this version. Some cue links and Macros may have to be adjusted. When creating new Macros or cue links or editing existing ones, the new syntax as described below has to be used.

- Go Exec "exec name" - start executor with specified name on current page
- Go Exec "exec number" - start executor with specified number on current page
- Go Exec "\*"."exec name" - start executor with specified name on all pages
- Go Exec "\*"."exec number" - start executor with specified number on all pages
- Go Exec "page name"."exec name" - start executor with specified name on specified page
- Go Exec "page name"."exec number" - start executor with specified number on specified page
- Go Exec "page number"."exec name" - start executor with specified name on specified page
- Go Exec "page number"."exec number" - start executor with specified number on specified page

## Known Limitations



- If using the Set-button in the Web remote, the command line default will be changed to MATricks.
- At the initial start after the installation or the update of the VPU-application, the end user licence agreement is shown. The MA VPU application will not start, until the end user licence agreement is confirmed. If you are using a VPU Plus, the end user licence agreement is shown at the internal touch display. If you are using a VPU basic or VPU light, the end user licence agreement is shown at the first external DVI-output - so please make sure you have a display and a mouse attached to the VPU Basic or VPU Light.
- Ma-Net1 is not supported for MA 2Ports Version 1.77 or higher.
- MA onPC command wing DMX input is supported for the ports "DMX In" and "DMX out A" only. The port "DMX out B" can only be used as DMX out!
- Before loading show files stored with grandMA2 **v2.7.x** the first time with grandMA2 v2.9.x, attribute Colormix4 and 5 and Colordim4 and 5 of self-made fixture types have to be manually adjusted to fulfill the color specification. Amber has to be Colormix 4 invert or Colordim 4 without invert, and White has to be Colormix 5 invert or Colordim 5 without invert. Otherwise, color information of these fixture types will be lost after loading show file with v2.9.
- The Feature name for ColorDim/ColorMix has changed into MixColor. Macros using one of these feature names have to be adjusted.
- Known limitation when loading show files stored with **v2.8.x** for the first time in v2.9
  - Special Masters have a new data structure in grandMA2 software.
    - All Special Master custom labels will be reset to MA default labels
    - Assignment of 100mm faders will be reset to default.
    - Macros referring to special masters have to be adjusted and have to use the new naming and numbering of special masters.
  - Macros referring to relative values have to be adjusted according to new relative/absolute syntax.
  - User profiles exported to USB drives using v2.8 and earlier have to be manually moved from folder importexport to user\_profile folder in order to import these profiles using grandMA2 v2.9 and later.
- 4Port and 8Port Nodes have to be updated to v1.0.9 or later to be compatible with grandMA2 v2.9. 2-Port Nodes have to be updated to 1.77 or later in order to be compatible to grandMA2 v2.9.
- Channelset labels of fixture types have to be unique to be visible and accessible in calculator. E.g.: If channel sets of Attribute Shutter are closed, open, open, open, only one open is visible in the calculator. Changing channel set labels to closed, open, open(2), open(3), will result in all channel sets being visible in the calculator.
- Astronomical clock always calculates time according to standard time zone. Additional summer times are not recognized and cannot be adjusted manually when using sunset, dusk, dawn, and sunrise in the agenda.

Bitmap fixtures can be applied to physical parameters only. Virtual parameters like a virtual dimmer or XYZ-attributes are not supported.

## 53.2. Release Notes - Version 3.1

## Release Notes - Version 3.1

### grandMA2 - version 3.1.2.5



#### **Important:**

- If you would like to update the dimMA system from any version below 7.x, contact your MA-dealer or MA directly for any update information. Should you use grandMA2 along with dimMA solutions, get in touch with us. A console update requires a NDP update and vice versa. We are happy to assist you.
- The current versions of grandMA onPC and MA 3D requires at least Windows® 7. Microsoft® .NET Framework (4.0) will be installed on your computer.
- Hints and known limitations are in the appendix at the end of this document.

#### Main feature overview:

- Improved Preset editing
- Programmer Playback Interaction
- grandMA2 Webremote
- Tracking Shield
- Preset Type Timing
- Improved Clock, Time
- More Timecode Slots
- 64bit grandMA2 application
- Programmable Camera Dolly Simulator

## Bugfix Release - Version 3.1.2.5

Released 25.02.2016

#### Fixed Bugs and improved functionality

- Carallon Library v11.4 included.
- Load Show command can be executed by user having User Right Setup.
- sACN-support for Universes higher than 257.
- Fixed - Leaving BlindEdit when being in a World selects all Objects of Layout-View.
- Fixed - Empty Executor-Button does not interact with command line.
- Fixed - Attribute-order of Shapers is mixed up.
- Fixed - Loading an empty show of an old version has no default Dimmer-FixtureType.
- Fixed - Update for Global presets.
- Fixed - Cloning removes Universal-Attributes of Presets with 2 or more Preset-Indicators.
- Fixed - Cloning Color-Presets from RGB- to RGBW-Fixtures.

- Fixed - Importing Fixtures and cloning data creates a lot of FixtureMacros in the FixtureType.
- Fixed - Please Please does not remove Preset-Link for Position-Presets in combination with XYZ-Fixtures.
- Fixed - Update Software via network might freeze the desk.
- Fixed - Flickering when changing wheel resolution via command-line or web remote.
- Fixed - Crash when loading a show file stored during an automated executor fade.
- Fixed - Presets can't be deleted if a Fixture has no Cha/Fix-ID.
- Fixed - Store Remove for global Presets, when Fixtures have no Cha/Fix-ID.
- Fixed - Enabled XYZ-support and forcing cues to XYZ breaks Position data.
- Fixed - Groupmasters and GrandMaster are ignored during show upload when VPU, NPU or 4Port are in the same Session.
- Fixed - Effect restarts, when an other playback with the same effect is started.
- Fixed - Bitmap-Effects doesn't work properly with 32bit Bitmaps.
- Fixed - Edit Effect does not open Edit Effect-Encoder Bar.
- Fixed - Edit Effect-Encoder Bar doesn't show Unit for Speed Encoder.
- Fixed - Effect Line Editor doesn't show Direction-Button on X18.
- Fixed - Crash when using the executor setting Cue Zero Effects in combination with Tracking disabled.
- Fixed - Crash when creating MultiPatch-Fixtures of Multi-Instance-Fixtures.
- Fixed - Typing Store into command line and pressing a ViewButton will overwrite the View.
- Fixed - Encoder-steps for Off-Times are not 0,1s.
- Fixed - Art-Net-Input switch repaired.
- Fixed - Conversion of Executor Autostart in Timecode-Shows creates unwanted Go-Events.
- Fixed - Loop Breaking Go- and Auto Stomp-flags are not copied with the Executor.
- Fixed - DMX-In at MA xPorts.
- Fixed - PresetScope is lost when storing a show.
- Fixed - Timecode-Shows lost events when importing shows from 3.0 or before.
- Fixed - Crash when scrolling in Dynamic Preset Pool in an empty show.
- Fixed - Import of Sample LUA-Plugin.

## MA VPU

- Fixed - Selection of Fixtures in the gMA2 VPU Pixel Mapper View.
- Fixed - Issues with window options of the gMA2 VPU Pixel Mapper View

## Bugfix Release - Version 3.1.1.1

### Fixed Bugs and improved functionality

- Fixed - Unexpected value fade when updating cues with long fade times.
- Fixed - Conversion of Startup macros.
- Fixed - Changing cue time via macro in a network environment.
- Fixed - Temp button trigger while executor out-fade is still running.
- Fixed - Patch collision warning of multi-patch fixtures.
- Fixed - Crash when scrolling and leaving patch and fixture schedule.

# grandMA2 User Manual

Version 3.3



- Fixed - 3D and stage view visualization of not patched multi-patch fixtures.
- Fixed - Unexpected fade when using program time in combination with Follow mode in Stage view.
- Fixed - Unexpected fade when using program time between Pan/Tilt- and XYZ-presets
- Fixed - Effect executor priority is saved in show file and shown when using multi width executors.
- Fixed - Flash-button of effects assigned on executors.
- Fixed - Conflict between fixed executors and pool playbacks.
- Fixed - Using commands in combination with Layout View lasso selection.
- Fixed - Importing image file to image pool inside layout view in a network environment.
- Fixed - Selection of fixtures in locked layouts.
- Fixed - Double added lines when editing fixture types.
- Fixed - Visible special dialog when locking desk.
- Fixed - Order of modules when stepping through Modules of multi instance fixtures in patch and fixture schedule.
- Fixed - Color conversion when cloning of selective and global color presets.
- Fixed - Crash when changing PSN Tracker IDs at PSN servers while being connected to grandMA2.
- Fixed - Conversion of store option "Cue Only" when loading show files stored with grandMA2 v3.0.0.5.
- Fixed - Conversion of Assign option "Cue Zero Extract" when loading show files stored with grandMA2 v3.0.0.5.
- Store preset pop-up can be executed using the numeric keypad please key.
- Improved fixture library for better prism and prism rotation visualization in MA 3D.
- Improved cloning of global presets.
- Improved speed of macro processing.
- Added absolute +/- button in stage view setup position calculator.

## MA 3D

- Fixed - Loop-back network address 127.0.0.1 was not always present (on computer with only one network card).
- Fixed - Visualization of not patched multi-patch fixtures.

## MA VPU

- Fixtures built up of a main module and several LED-instances won't cause a patch collision in the Pixelmapper of the VPU anymore.
- Values given by the grandmaster will take effect on the output during a showupload after leaving the patch.
- Z-Position-Animation fixed, if a layer is set to its default values. MA VPU Layer-fixture type has to be exchanged with the one included in this version.
- Windows in Multi Preview won't overlay the bar graph anymore, if "Channels" are turned off.
- "Import Function Blocks" doesn't cause problems with standard-content anymore.
- Updated MA VPU fixture type and VPU demo shows.

## Release Notes - Version 3.1.0.8

New functions and features in detail:

## Presets

Improved workflow when editing presets.

- Preset pool objects can contain universal, global, and selective data. Indicates by a displayed U, G and S depending on the included data. If more than one type of data is stored to a preset, e.g. a global preset with selective data for some fixtures, both referring letters, e.g. G and S, are displayed in the preset pool object.
- Default Preset scope can be adjusted per preset type in the Setup/Show/Patch & Fixture Schedule/Fixture Types/Attribute & Encoder Grouping or via preset pool options menu.



Changing the preset scope will change the preset scope for all preset pools of the same preset type.

- New store option **Preset Type Default** creates or merges presets according to the preset types default scope.
- The store option **Preset Type Default** is set by default when creating a new show file.
- New command line store option **/auto** to store presets using preset type default scope.
- Store **/merge** and **Update** will never change the type of preset. These commands will just add the stored data according to the current store mode.
  - **/selective** - merges programmer into preset
  - **/global** - merges programmer into preset and removes all selective data of fixtures of the same fixture type with active programmer values of the preset.
  - **/universal** - merges programmer into preset and removes all selective and global data of fixtures and fixture types with active programmer values of this preset.
- Fixture type fixtures
  - New keyword "FixtureType" (= **MA** + **Fixture**) to address Universal and Global Fixture Type Fixtures via command line.
  - One global fixture type instance will be created per fixture module. Having e.g. a LED Moving Head containing one main module and one RGB cluster module with multiple RGB cluster instances, the global fixture type fixture will contain one main module instance and one RGB cluster instance.
  - Global fixture type fixtures are only displayed and accessible, when at least one fixture using this fixture type has a valid Channel or Fixture ID.
  - Knocking via Please Please can be used in the preset edit mode.
  - Command **FixtureType X at FixtureType Y** and **Clone FixtureType X at FixtureType Y** to copy or clone Global preset type content from one fixture type to another.
  - Sheet masking rules like **Prog only** or **active only**, can be used when editing presets. These masks will apply for real and virtual fixtures.
- New programmer mask functionality. When editing a preset, the programmer will show fixture types representing the global/universal data stored in the preset. Editing and storing the values of these "special" fixtures will change the global/universal value stored in this preset.
- New sheet mask option **Virtual Fixtures** to create sheet masks showing only real fixtures and/or only fixture types in sheets.
- Update menu provides possibility to show and update embedded presets.

## Programmer Playback Interaction

- Improved interaction between executors and programmer.
- Priority of effects assigned to executors can be adjusted via assign menu executor options.
- The following order of priorities is used by all sequence and effect playbacks. The priority can be adjusted in the executor assign menu options.
  - Super New executor priority **Super**. This priority is the LTP priority above any other playback or even programmer priority. With activated executor option Soft LTP, intensity super playback will be mixed with other playbacks until master fader is at 100%. When SOFT LTP is deactivated, the intensity will snap to master fader level of super priority executor when starting this executor.
  - Programmer Programmer is fixed at this priority. This Priority is reserved for programmer only and cannot be assigned to any executor. Further adjustment of interaction between programmer and playback can be done by toggling the Freeze function on or off. When having Freeze off, also playbacks with lower priority can overwrite the programmer.
  - Swap LTP with higher priority than HTP.
  - HTP Highest Takes Precedence
  - High High LTP priority
  - LTP Normal LTP priority.(Latest Takes Precedence)
  - Low Low LTP Priority.
- Preview and Blind Programmer will be cleared when user logs out.

## grandMA2 web-remote

GrandMA2 provides an operating system independent web remote interface. To connect to the grandMA2 console web remote, make sure your tablet or computer network interface has the same subnet as your console. Open your web browser and type the consoles IP address at the browser address field. The following screens are included in this first version of the web remote.

- Command line
- Wheels to adjust attributes
- Fixture Sheet
- Channel Sheet
- Group Pool



Requirement browser version to run the web-remote:

- Internet Explorer 10
- Safari and iOS 8.1
- Opera 26
- Chrome 31
- Chrome for Android 39
- Firefox 33

If the browser does not fulfill minimum requirements of MA Webremote, a HTML fallback page will be displayed.



Setup/console/global settings/ remotes has to be enabled.

## Tracking Shield

- New Store option **/Tracking Shield (/ts)** is implemented. Tracking shield helps protecting the "look" of later cues when storing or updating a cue between other cues. Tracking shield operates by looking down the tracking sheet at each fixture that is about to be stored, searching for the next occurrence of the dimmer value is above zero. The system, for the lifetime of the Store operation, temporarily blocks the data that needs protection. Toggle the new store option Tracking Shield using the user key U3 in the store options menu.
- Additional Tracking Shield button in store encoderbar and update menu.



Store options Tracking Shield and Cue Only are mutually exclusive. Enabling one of these options disables the other.

## Clock, Time

- Custom alarm text can be added to countdown timers. The added text will be shown in the pop-up when a countdown expires.
- Command syntax can be executed when a countdown timer expires. Both options can be set in the countdown options dialog.
- Additional trigger modes for stopwatch and countdown. Link selected toggle and Link last go toggle. First press of GO starts Stopwatch/Countdown, second press of GO stops the stopwatch/countdown.
- Algebraic sign of location longitude was wrong and has been inverted.



grandMA2 uses the following definitions of positive and negative decimal latitude and longitude values:

- Positive latitude values for coordinates of northern hemisphere, negative latitude values for coordinates of southern hemisphere.
- Positive longitude values for eastern hemisphere, negative longitude values for coordinates of western hemisphere.

- Support for USB GPS receivers added. GPS receiver has to be NMEA 0183 compatible. GPS position can be synced. Console time can be synced to GPS received time. Console time zone can be synced to longitude approximation of time zone. All settings can be enabled or disabled in the Setup / Console / Date and Time / GPS dialog.
- If not synced to GPS, Daylight savings can be adjusted in Setup / Console / Date and Time.
- Console time can be synced to Network Time Protocol (NTP) servers.

## Timecode

- New timecode slot pool contains 8 configurable slots.
- Timecode slot pool in sheet style shows IP address of session member, receiving timecode, and provides access to edit pre roll and after roll per slot.
- Possibility of receiving up to 8 different SMPTE or MTC timecode signals per session simultaneously.
- Timecode slot pool shows type of receiving timecode. In sheet style, it shows IP address of console currently receiving this timecode in addition.
- Slot number can be chosen per timecode object in the timecode pool editor options.
- Chosen timecode slot is displayed in the upper right corner of each object in the timecode pool. Slot number of current selected timecode slot is displayed green colored, all other slots are displayed white colored.
- Mapping of XLR inputs to timecode slots can be done in the Setup/Network/Network Configuration/ dialog.
- New command: Assign Timecode X/Slot=Y to assign the timecode show X to the timecode slot Y via command line.
- Export timecode style-sheet time format 1/100 added.

## Views

- Additional Info View modes, Link current cue and Link next cue. These modes will show the info of current/next cue of selected sequence.

- **Sheets:**

- **Preset Type Timing**

Fade and delay times for each preset type can be edited inside the sequence executor sheet. If preset type time is set to anything other than none, cue fade and delay time will be overwritten by the preset type time for the referring preset type.

- When enabled, CueZero is visible in the sequence executor sheet. Timings of cue zero can be edited. These timings will be used e.g. when GoBack with option cuetiming is used to fade from a values or effect value back to values tracking from cue zero. Cue Zero timing is also used when using Autostomp setting of executors.
- All non-editable columns and rows of cues and cue parts are indicated by a black background.
- New sheet filter **Look**, to show only attributes stored when using StoreLook command.

## Command line

- Command line support for time unit inputs added. Example: Store Cue 1 Fade 1m15s.
- New command RemoteCommand [IP] "[Command]" to execute commands at a specific console. E.g. RemoteCommand 192.168.0.4 "View 3" will call view 3 at the station with the IP 192.168.0.4
- New commands to set fader levels of sequence and effect executors:
  - Rate x [factor]
  - Speed x [Sec/Hz/BPM]
  - Master x [Percent]
  - Crossfade x [Percent]
  - CrossfadeA x [Percent]
  - CrossfadeB x [Percent]
  - StepFade x [Percent]
  - MasterFade x [Percent]
  - TempFader x [Percent]
  - StepInFade x [Percent]
  - StepOutFade x [Percent]

Examples:

- Rate 5 Please sets Rate of current selected sequence to 5.
- Speed 30 Please sets Speed of current selected sequence to 30 Sec,Hz or BPM depending on user chosen speed readout.
- Rate 3 and pressing any executor button instead of please will set Rate of pressed executor to 3.
- New command UpdateThumbnails Mediaserver X. to trigger CITP UpdateThumbnails via macro. X is the row index of the media server in the CITP network dialog.
- New command option Assign Cue X/Loop=None to remove loop settings of cues via command line.
- New option /noconfirm for the command update when editing cues or presets.
- New Clone command parameter /noconfirm to execute clone commands without confirmation pop-ups.
- Command Call can be used in combination with filters.
- Command Call can be used in combination with XYZ-attributes.
- Command Assign Cue X/Loop=Y can also be used when Looping forward. It is allowed to assign a loop Y greater than cue X.
- Command IfOutput please selects all fixtures having dimmer output above zero post sequence master fader.
- Command Kill has been extended to kill other running sequence and effect playbacks.
- New command restart to restart the grandMA2 or MA NPU application without rebooting.
- New command FullHighlight and new keyboard shortcut **MA** + **Full** to load Highlight values in programmer.

## 64bit grandMA2 application

grandMA2 has been migrated to 64bit. grandMA2 onPC and MA 3D application installer automatically installs 32bit or 64bit application depending on host operating system.



Type of application can be checked with the command version in the command line response.

## • Network DMX Protocols

### • Art-Net

- DMX output via Art-Net supports Auto detection and manually setting of Broadcast or Unicast network traffic per universe.
  - OutputAuto sends each DMX Universe Unicast to up to 5 receivers detected via ArtPoll. If more than 5 receivers or no receiver is requesting the referring universe, the referring universe will be send as broadcast.
  - OutputUnicast sends the referring DMX Universes unicast to the IP address set in the IP column.
  - OutputBroadcast sends the referring DMX Universes broadcast.
- Support of Art-Net 3 has been implemented. Art-Net 3 provides 128 networks of 255 Universes. To be compatible with Art-Net 2 devices, set the Network parameter to 1.
- Art-Net Universe parameters have been split into Network(Range 1 thru 128), Subnet(Range 0 thru F) and Universe(Range 0 thru F).
- Art-Net traffic speed can be slowed down per config row via delay parameter.

### • Streaming ACN(sACN)

- DMX output via sACN supports Unicast and Multicast network traffic.
  - When choosing Output Unicast mode, a valid IP address has to be entered in the IP column of the network protocols/sACN tab, Universes configured in this row will be sent Unicast to this IP address.
  - When choosing Output Multicast, sACN will be sent as multicast network packets, the IP column will not be available in this case.
  - sACN network traffic speed can be slowed down per network config row via delay parameter.
- DMX input via sACN supports Unicast and Multicast network traffic.
  - To change from output to input the column mode has to be edited. There are two possible input modes, Input Multicast and Input Unicast.
  - Input Multicast will join the Multicast group of the referring DMX Input Universe.
  - Input Multicast is limited to max. 10 Universes. If more than 10 rows are configured as Input Multicast, all rows beyond Multicast input row 10 will be invalid.
  - Input Unicast is not limited and receives sACN data for the referring universe without joining any multicast group.



sACN input of grandMA2 console ignores sACN priorities.

## • Misc

- Effect parameter Single Shot added. Single Shot effects can be started/restarted using Go, On or At command.
- Secondary IP of grandMA2 consoles and MA 4Port and 8Port Nodes can be viewed and changed inside the network config. Secondary IP of grandMA2 onPC, MA 3D and MA VPU can be viewed and changed in the Microsoft® Windows® network configuration.
- IP address of NPUs can be changed via network config dialog.
- MA-Net2 DSCP network setting can be adjusted in setup/console/global settings. This network parameter can be used in networks providing quality of service(QoS).



DSCP setting is supported by grandMA2 consoles and MA NPUs only.

# grandMA2 User Manual



Version 3.3

- SetIP commands always have to include an interface name. E.g. SetIP eth0 192.168.0.4 - SetIP commands ignore invalid interface names.
- DHCP
  - SetIP eth0 /DHCP enables DHCP support for the specified Interface. Use SetIP eth0 [IPaddress] to set interface to a specific address and disable DHCP.
  - DHCP in combination with the “zero-configuration networking” technology will be the new factory default when executing the Format and Install.
  - grandMA2 version 3.1.0 supports DHCP for grandMA2 console, grandMA2 onPC, MA NPU, MA 3D and MA VPU.
  - If a grandMA2 console or MA NPU with activated DHCP cannot connect to a DHCP server, the console will use an automatically generated IP address in the range 169.254.1.0 to 169.254.254.255. The first grandMA2 console or MA NPU in network will get the IP address 169.254.3.3.



The IP range 169.254.x.y is a defined area for Automatic Private IP Addressing (APIPA) also known as zero-configuration networking technology. This technology generates collision free IP addresses in this defined IP subnet 169.254.x.y without forcing the user to set-up and maintains any DHCP and DNS Server.

The IP range 169.254.x.y is a class B subnet with the associated subnet Mask 255.255.0.0. This means all IP addresses between 169.254.0.0 and 169.254.255.255 are in the same subnet.

grandMA2 software version 3.0.0.5 and earlier forced the user to handle the IP addresses himself. Default IP address of MA devices was 192.168.0.4 and connecting more than one console or peripheral device resulted in IP collisions the user had to handle by applying unique IP addresses to each device. In current Microsoft Windows and Apple OS X operating systems, DHCP in combination with the “zero-configuration networking” technology is the standard. Enabling DHCP together with the “zero-configuration networking” technology also for grandMA2, simplifies networking for grandMA2 users. Advanced users still have the possibility to change the IP address, but are not forced to change the IP addresses anymore. Simple users can just connect windows computers running grandMA2 onPC, MA 3D or MA VPU with a console using default network settings without having to configure IP addresses or handling IP collisions.

- PSN protocol updated to v2.0.



Be aware PSN protocol 1.7 and PSN protocol 2.0 are not compatible. All devices have to support the PSN protocol v2.0 to establish a valid PSN connection with a grandMA2 v3.1 and later.

- User rights have been reviewed. User rights "None" allows changing views and selecting fixtures to sort or mask sheets only.

# grandMA2 User Manual

Version 3.3



- grandMA2 fixture library changes
  - Library updated to Carallon Library v10.8
  - Multi Instance Headmovers are visualized in MA 3D. If the physical data of the single pixels is not provided by the manufacturer, pixels are arranged automatically inside the head.
  - Module beam Intensity of Main module reduced to zero, if light emitting instances are present in the fixture type.
  - DMX Footprint of MultilInstance fixtures is displayed correctly in the fixture types table in setup.
- DMX Nodes config can be exported and imported via Setup/Show/Import/Export dialog. When importing DMX node config, Port configuration will be matched to existing nodes having the IP address of the node stored in the exported config file.
- Creating, joining a MA session, or inviting session members is an exclusive grandMA2 console or grandMA2 onPC feature. Peripheral devices like MA NPU, MA 3D, MA VPU or MA Nodes can be invited or dismissed using the grandMA2 Network configuration dialog. MA 3D and MA VPU interface buttons to create, join or leave a session have been removed.
- Reworked IP column order and labels in the network configuration dialog. Secondary IP settings are supported for grandMA2 consoles and MA NPUs only.
- Press and hold **List** + Preset button to show temporary preset pool of current preset type.
- The command option */?* extended to show all possible options of playback commands.
- The commands Flash and Black cannot be used in combination with Channels or Fixtures any more.
- The commands, FlashOn, FlashGO, Go, Goback, Goto, Kill, On, Swop, SwopOn, SwopGo, Temp, Toggle, Top can be combined with cue modes. E.g. Goto Cue 5 /CueMode=XAssert. This command will Goto Cue 5 in XAssert Mode ignoring current stored cuemode of cue 5. These options can also be assigned to executor buttons using command line or the new assign executor button function pop-up.
- Reworked assign executor button pop-up. This pop-up shows all possible buttons. In case of options, a swipe button is shown next to the button.
- New Backup menu title button for Save removing of external USB devices.

- grandMA2 Plugin
  - grandMA2 provides now the possibility to create custom plugins.
  - Plugin pool can be found at the “create basic window” system tab.
  - Currently running plugins are shown in the most right tab of the Off menu.
  - Plugins have to be created in programming language LUA 5.3. In addition special grandMA2 LUA commands are available. API and example files can be found in the /gma2/plugin folder.



LUA in general is an extendible scripting language, providing a small set of general features that can be extended to fit different problem types. In our case LUA is intended to provide a tool to automate complex tasks that occur from time to time and to expand in general the possibilities of our consoles when needed in special situations. Nowadays our customers face more frequently than ever before the requirement to use our consoles in ways they weren't originally intended to perform when we designed it. In many cases such requirements are unique and only relevant for individual particular applications. It wouldn't be a good idea to add a 'one off' as a general functionality to the software core of our console.

Especially television game shows, scenery parks and shows on fairs like the IAA and other motor-shows demand more and more logical and processing control from our system. Many of the topics could be handled by creating Macros. At times those Macros become ridiculously long and overwhelming to debug. Some ideas could not be realized with what we have. As LUA acts as an interpreter based language it provides the means to overcome the limitations of Macro writing for advanced users of our console.

With the grandMA2 Software Release V3.1 the implemented LUA-Version is totally overhauled and more childproof now. It changed its character from being a pure development tool without a safety-net to a fairly secure while powerful instrument. In general LUA-scripting is no longer more dangerous than a Macro can be or the Delete-Button is. It is ready to be exposed now. Without doubt the community of more advanced users is waiting for such a tool. Sales might use the LUA-feature as a USP for customers with special needs. Application engineers can support user faster and better fitting.

The included demo file contains also a description of how to use it. Users facing problems to work with LUA from there, might consider to not create their own scripts. The MA-share.net can be a proper place to exchange to LUA experience.



Creation and using of plugins can go deeper into the system as the “normal” usage of a console. Therefore the technical support team of MA Lighting may not be able to help you in all circumstances when using complex LUA plugins and LUA plugins might have to be rewritten when migrating show files to future grandMA2 software version.

## onPC only

- Two MA onPC fader wings connected to one grandMA2 onPC provides 4096 parameters.

## MA xPort Node

- Streaming ACN support added.

## MA 3D

- Added Selected Camera. MA 3D Stage view can use Selected Camera or custom camera of currently logged in user. All Stage views of console and MA 3D with chosen option "Selected Camera" will show currently selected camera. Camera can be selected in the camera pool.
- Camera setting "Step Through" can be edited from the console using the edit camera command.

### Programmable Camera Dolly simulator

- New Ma fixture type MA Camera Control. MA Camera Control fixtures can control camera position, rotation and Zoom of linked cameras.
- How to use this feature:
  1. ● Add and patch a MA Camera Control fixture in Patch and Fixture Schedule.
  2. ● Create a camera pool at an empty part of one of the console screens.
  3. ● Press **Edit** and touch a camera pool object to open the editor.
  4. ● Set the focus to the fixture column, press the screen encoder and choose one of the patched MA Camera Control fixtures.
  5. ● As long as a camera is linked to a camera control fixture the camera can be controlled only via the camera control fixture.
  6. ● Camera control fixtures provide control of position, rotation and zoom values of the connected camera.
  7. ● It is possible to control more than one camera with one camera control fixture.
  8. ● X-Y-Z and rotation data of the camera is used as offset to the position and rotation parameters of the camera control fixture.



It is not possible to manually move a camera currently linked to a camera control fixture.

## MA VPU

- New Pixel Mapper implemented. The MA VPU use now the library of the grandMA2 console and will automatically copy patch, position, and fixture type into the VPU. If needed, changes of these values are automatically copied into the VPU as well. So if the positions are setup in the grandMA2 Stage View, the setup of the Pixel Mapper can be linked to grandMA2 console.
- How does it work: Fixture Types do not have to be written separately for the VPU. So if the fixtures have been written and patched in the grandMA2 console, the VPU will use the Color RGB 1, Color RGB2 and Color RGB 3 Parameters of the patched Fixture Types. If no Color RGB 1 - 3 parameters are found, but a Dimmer Channel, RGB Data will be merged and send to the Dimmer Channel as intensity control instead. All other parameters will be send with the value of "0" by default. The editing of the Pixel Mapper Setup can be done in the VPU and in the grandMA2 console.

- In the VPU:

Go into the Pixel Mapper and in the library tab on the left side you can now select each Fixture Layer of the Setup that contains Fixtures you want to use. Select these Fixtures and use the "Add to Output" button. A pop-up will ask, which axis is used: any combination can be done and each axis can even be inverted. This is used to "transfer" the position from the 3D Stage View Environment into the 2D footprint in the VPU. This process is comparable to the option "take Camera" in the Layout View, but with fixed positions.

Fixtures and channels can be stored in various Pixel Mapper Outputs, if needed to create a different mapping. The position data in the Pixel Mapper is not identically to the position data in the Stage View. It is only a two dimensional abstraction with its own position data. E.g. Fixture 1 thru 10 can be inserted with axis +x+z (the default axis, from the front view), while Fixture 11 thru 20 can be inserted with axis +x+y (from the top view). If the same Fixtures get inserted again into the same Output (or an overlapping range), the user gets prompted: "Overwrite positions from existing Fixtures." or "Add only new Fixtures. Existing Fixtures are untouched.". After Fixtures have been "transferred" into the Pixel Mapper, their position can be moved and adjusted. This will not cause any feedback into the grandMA2 console, just as in the Layout View. If, however the positions shall be updated again in the VPU, insert the Fixtures again into the wanted Pixel Mapper Output and choose "Overwrite". Patch and Fixture Type data are always connected to the grandMA2 setup. So if anything is exchanged in the console, these changes will be recognized and calculated for the VPU Pixel Mapper, e.g. a change from a Martin Mac 700 Wash to a GLP Impression will not be a problem any more.

- In the grandMA2 console: A visual representation of the Pixel Mapper editor of the VPU has been built into the grandMA2. Create a new window in Other / VPU Pixel Mapper View. This window looks very similar to the window in the VPU. Only the library tab is missing. To work with this window, you can do the following: Areas and Outputs can be created, deleted, and edited as known from the VPU. To store fixtures and channels into an existing Pixel Mapper Output, select them, press **Store** and click into the area of your chosen output. If fixtures or channels have been selected, you can also use the command "Store PMArea 1.2 /axis=+X+Z " to store into Area 1, Output 2 with the Axis +X+Z. All parameters of each Pixel Mapper Area / Output can be controlled by the command line, too. Use the command "ChangeDestination PMArea" to get to the Pixel Mapper containers in the root. Pixel Mapper setups can also be copied or deleted. They can also be merged via command-line. E.g. copy PM 1.1 at 1.2 /merge. The following store options are implemented:
  - /merge
  - /overwrite
  - /remove
  - /autoalign (shortcut = /aa) to ignore the 3D position data and to store like in the layout view as a matrix
  - /x=3 /y=3 to define a position if the option autoalign is used
  - /3dcoordinates to use the 3d coordinates
  - and additionally the Axis /+x+y /+x+z and all the possible combinations with plus and minus
  - /noconfirm



Note: Import / Export does not work via command-line in this version.

After the Fixtures have been inserted into the Pixel Mapper, they can be selected by a rubber-band, moved and rotated, just as in the VPU Pixel Mapper editor. Use the top-line buttons **select / move** to change mouse behavior. To allow editing, activate the **Setup** button in the headline of the window. Also the Encoder Bar can be used to change these values.



Note: MA-Tricks support is not implemented, yet. The handling of this editor is very close the Layout View of the grandMA2.

- The grid mode shows all the options of each panel (the abstraction of fixtures and channels in the Pixel Mapper Editor) in a tabular view. Values can also be edited here, too. To send the data via MA-Net2, select the protocol in the options of the Output and enable the Pixel Mapper Main Render flag. A maximum of 256 universes can be sent, and all 3 protocols share the same amount.

So e.g. you can send 200 universes of MA-Net2, 20 Universes Art-Net and 36 Universes sACN. MA-Net2 is put out on Ethernet1, sACN and Art-Net are put out on Ethernet 2(on a VPU). To send the Pixel Mapper data back into the console, no additional Ethernet Cable is required.

- To create a VPU Pixel Mapper setup that has more parameters than the console can calculate, use the following approach: In the setup of the grandMA2 console a new column per Fixture has been inserted **No Parameter**. If this column is set to yes, all the programming for this fixture is lost, it does not consume any parameters any more in the grandMA2 and the VPU will send out the default values defined in the fixture profile additional to the Color RGB 1-3 values. The idea: if this flag has been set (No Parameter), the Fixtures can still be selected, but only controlled by the VPU, not the console. Additionally the set default values for this Fixture are transmitted. These values can be changed (e.g Dimmer to 100%) in the grandMA2 / Patch & Fixture Schedule / Fixture Types.
- New Pixel Mapper supports fixture types that allow circular pixel positioning. Since the restrictions are only from the grandMA2 side, any pixel / sub-fixture positioning can be done. A good example is the Ayrton Magic Panel 602 R.
- Pixel Mapper does now support MA-Net2 protocol to merge directly into the grandMA2 console. MA-Net2 is only possible for Pixel Mapper Outputs that are created in the new version.
- New and improved sACN and Art-Net stack for the Pixel Mapper implemented.
  - Art-Net: is now Art-Net 3.0 compatible and allows Unicast (Auto Mode). Requirement for Art-Net Unicast is an Art-Net receiver sending out valid ArtPoll reply packets. Otherwise these Universes will be send broadcast. This mode can be set per Output in the Art-Net mode. A delay can be set here to create an output shaping. A default value of 0.1 is a good value. Since Art-Net 3.0 supports more than 256 universes, the output can be shifted in 256 steps. By default the Art-Net Network is set to 1, which will result in the previous standard of universe 1 thru 256. To send in Universe 257 thru 512, set the Art-Net Network value to "2".
  - sACN: The user can define: sACN Mode: Multicast or Broadcast sACN Priority: 0 thru 200, Default will be 100 (as in the grandMA2 console) sACN TTL: 0 thru 255 Even the last Output or Area can be deleted in the VPU now.
- Pixel Mapper Setups are merged HTP in the VPU if they overlap. E.g. the user creates two setups for the same Fixtures, but he designs the Pixel Mapping differently with 2 different Camera inputs. Now the user can send the two outputs simultaneously and they are HTP merged in the VPU before the same universes get send out only once.
- VPU Integrated Pixel Mapper: a VPU software running on any PC / Laptop can now transmit Pixel Mapper data on the universes that are granted in the DMX List / Universe Pool. This depends on the amount of unlocked Parameters of the Session, where the PC / Laptop with VPU software running has to be a session member.

## No VPU Hardware is required!

Install the VPU software on any Windows 7 / 8 PC, install the Main Concept MPEG2 Decoder. Start the VPU software, take it into the session that has granted universes (e.g. even an onPC with an 2Port Node onPC in session) and allow Pixel Mapper Outputs, that are set to MA-Net2, to be transmitted. This is then merged (HTP) into the grandMA2. Only the Parameters in an output, that are granted, are transmitted.



Note: sACN and Art-Net are not transmitted.



Pixel Mapper created in version 3.0.0.5 or below, cannot be changed or edited. Only the Output Parameters can be changed. No new fixtures can be inserted and the Output cannot be changed to MA-Net2, since the patching is not necessary alike to the grandMA2. If the "new features" shall be used, the setup of the Pixel Mapper has to be done again in the new style. In contrast to the grandMA2 console, the VPU Pixel Mapper works based on Fixtures and not on Sub-Fixtures. So only entire Fixtures can be controlled, not single pixels of it. If the resolution of the rendered output is low, the layer objects are not in the center automatically. This has to be adjusted manually via the V\_Pos-Parameters. The selection of Panels in the grandMA2 VPU Pixel Mapper View and in the VPU itself are not synced. If the Pixel Mapper Tab is opened in the VPU software, then this may result in low FPS output rate. For show situations, please enable the Show Mode to avoid this or switch to another tab if no changes on the Pixel Mapper Setup are needed any more.

- Restart, Reboot and Shutdown-Behaviour is now equal to the grandMA2-Series:
  - Restart-command restarts the VPU-Application
  - Reboot-command reboots the whole VPU
  - Shutdown-command shuts down the VPU

Also Media-PCs listen to these commands. There is a new Flag 'Accept Shutdown commands' in the Settings-Main-Menu for Media-PCs for allowing to execute the Reboot and Shutdown-Commands. If this flag is disabled, only a Restart of the VPU-Application is forced instead of rebooting or shutting down the whole Media-PC.

- VPU grabs now another IP address as the preferred one, if cable is not inserted by booting. This is also indicated with a red background in the IP-field on status screen and in the Networks-Settings.
- The VPU software does now support Portrait view settings in the VPU software.
- CITP MSEX connection is now also compatible with version 1.0 and 1.1 of the protocol. That allows CITP MSEX video streams to be displayed in WYSIWYG Version 34.
- New display of the Teaser Mode in the Status Bar in the bottom of the UI screen. If no Dongle is inserted and the Teaser Mode Conditions are met, the Dongle Indicator changes to Teaser Mode and displays a green check-mark.
- The Text Ticker can now be used easily on different resolutions. The setup of the Text Ticker object is now relative and the text ticker is rendered.
- New Fixture Types added for Layer and Camera.
- New Mask "No Parameter" to show or hide Pixel Mapper only fixtures in sheets.

- New Effects added
  - `box_displacement`: displace the image like a checkerboard
  - `cutout-mask-scale 1`: displace filter 1
  - `cutout-mask-scale 2`: displace filter 2
  - `cutout-mask-scale 3`: displace filter 3
  - `cutout-mask-scale 4`: displace filter 4
  - `cutout-mask-scale 5`: displace filter 5
  - `cutout-mask-scale 6`: displace filter 6
  - `cutout-mask-scale 7`: displace filter 7
  - `cutout-mask-scale 8`: displace filter 8
  - `cutout-mask-scale 9`: displace filter 9
  - `cutout-mask-scale 10`: displace filter 10
  - `kaleidoscope_anim`: animated kaleidoscope with two running parameters
  - `ripple`: animated displacement effect
  - `split_animation_bars_horz`: moving bars
  - `split_animation_bars_scale_horz`: moving bars
  - `split_animation_bars_vert`: moving bars
  - `split_animation_bars_scale_vert`: moving bars
  - `split_animation_cutout_horz`: moving uv displacement
  - `split_animation_cutout_vert`: moving uv displacement
  - `split_animation_tiles_horz`: moving uv displacement
  - `split_animation_tiles_vert`: moving uv displacement
  - `water_drop`: animated water drop effect
  - `zoom`: animated zoom effect
  - `zoom_rotation`: animated zoom effect in combination with rotation

## Fixed bugs and improved functionality

- Autostomp
  - Autostomp is completely reworked for a better interaction with other playbacks and the programmer. Previous Autostomp functionality is extended by a new cue zero Mode "Effect". When enabling this mode, a stomp is added to cue zero for each attribute stored in any cue of the related sequence.
- Fixed - Special dialog box for effects layers is not refreshing effect layer value display, when toggling one attribute.
- Fixed - Executor setting will be exported and re-imported when exporting/importing user profile.
- Fixed - Fixture sheet with enabled option hide empty cells drawing issue with left border of cells.
- Fixed - Fixture sheet column width and arrangement is not stored in View.
- Fixed - CIP crash when requesting a lot of streams simultaneously.
- Fixed - CIP crash when requesting CIP thumbnail exchange for a third party media server while having chosen a MA VPU fixture layer.
- Fixed - CIP Video streaming when client doesn't send MSEX/Conf. This is needed for some third party visualizers.
- Fixed - 15,4 inch back light intensity should be set to former value, when exiting screen saver.

- Fixed - External screen resolution problems with EDID. Default resolutions for external screens added. These defaults will be used in case of screens sending faulty EDID signal or requesting default resolution below 800 x 600 pixels. The minimum screen resolution of external screens is 800 x 600.
- Fixed - Off command stays in command line triggered via macro to switch off direct action playbacks.
- Fixed - Record macro command records commands of default profile only.
- Fixed - Macro and command line execution of conditions in combinations with variables.
- Macro editor default column width increased for better readability when creating a new show.
- Fixed - Effect pool does not refresh when toggling between absolute and relative mode.
- Fixed - Effect pool grid view pool playback color display.
- Fixed - Pool playbacks fade times are executed when starting pool playbacks in network.
- Fixed - Programmer shows changes made by template effect editor at current selection.
- Fixed - Off time encoder of assigned effects shows off timing.
- Fixed - Crash when shuffle selection is used in the effect editor in combination with blocks, groups and wings.
- Fixed - Fixtures were removed from effect, when using shuffle selection in combination with groups, blocks and wings setting.
- Fixed - Group selection/de-selection with + Group X and - Group X
- Fixed - Start timing of assigned effects in network.
- Fixed - Kill assigned effect uses off time setting.
- Fixed - Direction setting of assigned effects.
- Fixed - Crash when importing more than 5000 effects at effect pool position 5000 and beyond.
- Fixed - Changing direction of reversed phasing effect using the Goback command.
- Fixed - Additive group master icon in Mini Executor view.
- Fixed - Crash when trying to auto-create groups greater 10000.
- Fixed - Playback View at console and onPC and onPC Executor view channel page fader level is missing.
- Fixed - Selecting executors stored at page 4097 thru 9999
- Fixed - Lock and unlock of multi width executors.
- Fixed - Store and tab inside sequence exec sheet to choose cue shows wrong cue number in pop-up.
- Fixed - Renumbering cues of any sequence prevents delete of any sequence by another user.
- Fixed - Delete Cue only and Delete Cue only in combination with Oops.
- Fixed - Crash when trying to execute the non-supported command Move cue part. Move commands in combination with cue parts will be blocked by command line.
- Fixed - Editing Cue CMD supports numeric keypad please key.
- Fixed - Tracking sheet does not show current selected fixtures.
- Fixed - Breaking Go when stepping through sequences more than once or when jumping in sequences.
- Fixed - Sequence executor sheet progress bars of part cues show part cue timing.
- Fixed - Sequence pool sheet style Filter column re-labeled to Input filter.
- Fixed - Symbols are removed when switching preset types while having a dynamic preset pool containing empty presets.
- Fixed - Pressing the empty X1 key in the special dialog color should not open predefined colors dialog.
- Fixed - Fixture Sheet column order is not stored in a view anymore.
- Fixed - Decimals of negative values displayed in sheets and encoder bars.
- Fixed - Layout View Setup mode should not modify locked layouts.
- Fixed - Layout view crash when lasso selecting a huge amount of fixtures.

- Fixed - Layout view toggle selection has been improved to be consistent with toggle selection of sheets and pools.
- Fixed - Crash in Layout view when having a non existing layout view assigned as layout view object.
- Fixed - Info window cursor position and cursor display mismatch depending on font size.
- Fixed - Timer pool grid view lasso selection and editing.
- Fixed - Crash when using the move to another screen pop-up of an already closed dialog.
- Fixed - DMX grid crash might happen when leaving Patch & Fixture Schedule.
- Fixed - DMX encoder bar appearing unexpectedly when link encoder is switched off.
- Fixed - Missing scrollbar in patch dialog.
- Fixed - Scrollbar in sheet style pools.
- Fixed - Enabling Fixture Type Module setting local doesn't crash MA 3D application any more.
- Fixed - Fixture Type import when having focus in the first line of the fixture type schedule.
- Fixed - Unexpected ID collision pop-up when assigning current fixture ID.
- Fixed - Unexpected #-symbol when naming a preset directly via store command.
- Fixed - Store encoder bar remains visible unexpectedly when canceling store command.
- Fixed - Store column width of agenda window in a view.
- Fixed - Crash when auto-creating preset from Preset reference created with former grandMA2 versions.
- Fixed - Autocreate presets from reference creates new preset after last stored preset of the referring pool.
- Fixed - Auto-create preset from reference should start with the first empty pool position.
- Fixed - Visibility of number of fixtures using a preset when preset pool is set to Symbol big.
- Fixed - Showing Channelsets containing degree sign in the calculator.
- Fixed - Crash when deleting an encoder bar view while displaying the Layout view setup encoder bar.
- Fixed - Crash when scaling a Fixture model down to zero.
- Fixed - Crash when assigning already patched DMX addresses at fixtures currently using these DMX addresses.
- Fixed - Crash when oopsing creation of fixture type while editing.
- Fixed - Crash when oopsing just stored executors.
- Fixed - Crash when oopsing replace commands.
- Fixed - Crash when assigning masks to fixture sheets.
- Fixed - Crash when resizing pool while moving pool objects.
- Fixed - Crash when deleting the window while pressing any button inside the window.
- Fixed - Console freeze after take over after session collision while having active Art-Net Input and output.
- Fixed - Show name when creating a new show at the slave console.
- Fixed - Chasers cannot be edited at connected stations.
- Fixed - Chaser direction backwards after session join.
- Fixed - Visible user password when using onscreen keyboard.
- Fixed - PSN console freeze when used in combination with CTP.
- Fixed - Telnet via command line timeout reduced to 100ms. If receiver does not accept telnet command sent via command line within 100ms, command will be dropped.
- Fixed - MA NSP DMX In configuration in 4Port Node Mode.
- Fixed - Crash when sorting a huge amount of DMX Nodes by IP address.
- Fixed - Pasting objects at empty pool positions.
- Fixed - Pool Playback Fade in in combination with MA NPU.
- Fixed - Wrong Info View cursor position when editing multi line Infos.

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- Fixed - Assign masks to stage view.
- Timers assigned to executors can also be used to assign cue timing. E.g. Assign Cue 4 Fade and press an executor button of an executor with assigned timer to get the time of this timer as fade time of cue 4 of your selected executor.
- Default Go+/- executes GO+/- for all selected executors if more than one executor is selected.
- Cut and Paste can be used while being connected in a MAnet session.
- Insert command has been improved. Empty pool positions will be ignored when moving pool objects when inserting.
- Executor settings "Ignore Exec Time", "Master Go", "Master Top" can be modified via command line.
- Level wheel has been renamed to Dimmer wheel.
- Cues always have to be in correct numeric order. In case cue numbers are mixed up Cue numbers are automatically corrected by adding x.001 to current cue number. This prevents sequences from getting invalid after conflicting multi user operations.
- MA VPU, MA 3D and MA NDP are not allowed to be Master of a session containing one or more grandMA2 consoles or grandMA2 onPCs
- Stage View Setup Encoder bar is re-called when setting focus to a stage view with activated setup mode.
- Clock readout AM/PM displays noon and midnight as correct 12:xx:xx.
- Custom clock labels can be deleted.
- Clone dialog is not triggered any more when using clone syntax with parameters.
- Pressing Enter Enter at an external keyboard toggles programmer activation of current selection similar to Please Please at the numeric keypad.
- Search and Replace commands respect active command filters.
- Auto generated labels for groups.
- Auto generated labels for global and universal presets.
- Non-supported command Record Presettype "x" does not destroy preset type.
- Improved scaling of object labels in pool for better readability.
- Pool button font size scaling on external screens has been improved.
- Smart View scroll bar is reset when changing selection.
- New Command line feedback view option "show status" to show or hide message center icons.
- MATricks Next and Previous in combination with Interleave and Blocks has been fixed.
- MATricks ranges increased to a maximum of 10000.
- Whole-colored thumbnails of wheel slots are converted to the referring color value.
- Added encoder support for Special dialog color and window colorpicker Swatchbook dialog.
- Multi-patch fixtures can be edited in Patch only(Live) fixture schedule also.
- Channel and Fixture ID of Multi-patch will be displayed correctly when moving a multi-patch from one fixture to another.
- Improved fixture type exchange of multi module multi instance fixture types.
- Fixture type wheels and wheel slots can be edited and deleted in Patch only(Live) setup.
- Not-used attributes cannot be accessed via attribute command any more.
- Semicolon can be used as command separator at the end of command options.
- Position and rotation data of non-locked sub-fixtures can be edited via Patch only(Live) setup.
- As the Patch only(Live) setup provides access to fixtures of current world only, current world is displayed in the patch only(Live) title bar.
- Editing the Setup/Playback+MIB Timing /Startup command can be done via hard keys.

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- Layout View background color picker reset button resets background color to black.
- Layout View shows DMX profile marker only in the DMX layer.
- Layout View edit channel/fixture object provides possibility to choose another channel or fixture.
- Layout View delete Lasso selection fixed.
- Layout View Group objects are not automatically selected when entering Layout View setup mode.
- Layout View option show ID can be used independent from the show name option.
- Outfade and Outdelay command can be combined with - key to decrease current timing.
- Chaser Single Shot On and Single Shot Off will always stop at the last cue of the Chaser.
- Delete running executor provides a warning before execution of command.
- The command executor 1 please selects fixtures of executor 1.
- Manual fixed executors will not be auto unfixed when executor option autofix is enabled.
- Fixing executors will not automatically fix pool playbacks.
- Setting "XKeys always for exec" does not affect U-keys anymore.
- On/Off time of sequences, effects and bitmap effects is limited to 60s
- New sequence executor setting "Auto Stop Off Time". When this setting is enabled executor will use off time when auto stopped by moving the fader to zero.
- FlashGo can be used in combination with Load cue command.
- Flash and Temp do not reset current running Autofade of sequences.
- Specialmasters can be faded using the Fade command. E.g. SpecialMaster 3.1 at 240 Fade 5 will fade Speedmaster 1 to 240 in 5 seconds.
- Effect encoder bar appears also when tabbing an empty effect pool position while having link encoder option enabled.
- Effect Phase default is set to 0 thru -360.
- Effect direction of all predefined effects has been set to forward. Effect Phase of predefined effects has been set to default 0 thru -360.
- Default Links can be used as Effect Low/High values.
- Pressing effect executor label twice provides access to effect playback bar.
- Sound input fader at zero stops any incoming sound input.
- Sound input dialog soft faders can reach zero and 100.
- Changing assignment of executor loads default executor options of new assigned object type.
- Manual X-Fade Pull up warning added for fader executors.
- Moving executor pages un-fixes executors of moved page.
- DMX profile editor readout button toggles input and output axis readout.
- DMX Tester indicator added to DMX Universe Pool.
- Selected Filter is applied at all other stations logged in with the same user profile.
- Partial Show Read(PSR) Timecode shows adds all objects used by the PSR timecode show in addition.
- Button and Fader assignment is merged when partial show reading (PSR) executors or executor pages.
- Timecode Pre roll and after roll zero are valid pre/after roll values.
- Network control session speed slow is displayed in the network speed column.
- Network parameters MAnet2 TTL and MAnet2 DSCP can be configured via Setup/Console/Global Settings.
- Improved identification of own station in network config. Own station will be displayed with bright green background, other stations of the same session with dark green background.
- Show download progress bar is shown at all stations when new station joins the session.
- Improved PSN tracker timeout, sorting and deleting.

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- Interactive console help shows context sensitive help files for Colorpicker, Colorpicker pop-up, Autocreate and RemoteInputs dialog.
- Remote input setup option CLI on Master is disabled by default when creating a new show.
- Selected executor will be executor 1 at page 1 when creating a new show.
- Push and hold Page+ and Page- at the same time jumps to executor page 1.
- Improved CTP error pop-up possibilities. In case of having any receiving thumbnail error when exchanging thumbnails, the error pop-up provides the possibility to Retry, Cancel, Ignore or Ignore All.
- Incoming Midi Notes will be displayed in the system monitor again.
- Crash fixed when deleting cues in a MidiShowControl environment.
- Current Help window page can be stored to a view.
- Fixed Thru commands in combination with multiple exclusions. E.g. "Off Page Thru -2 -1 -4"
- DMX Tester status has been added to status view and message center.
- Crash fixed when having invalid Art-Net or sACN configuration.
- Dimmer wheel incremental will not snap to former values anymore after calling another cue.
- Software update via network warning added in case of insufficient disc space at the target device.
- Import dialog provides possibility to import pool objects at pool positions beyond 5000.
- Windows 8 compliant external touchscreen support added.

## grandMA2 onPC

- onPC executor view provides possibility to select empty executors.
- grandMA2 onPC windows are restored to maximized when the grandMA2 onPC was closed with maximized windows.
- Quick save (double press of backup key) does not jump to screen 1 when backup menu is assigned to another screen.
- Improved grandMA2 onPC mouse handling of high resolution mouse hardware like Microsoft® Comfort Mouse 4500.
- grandMA2 onPc will not stay black until reboot if graphic adapter has been reset or changed during runtime.
- Amount of available memory displays available physical memory of the host PC only.
- CrashlogCopy command can be used at grandMA2 onPC stations to copy crashlogs automatically to the connected USB drive.
- Triggering appearance window via command line in MA onPC shows appearance window at current visible screen.
- MA updater shows Logo when updating grandMA2 onPC or Ma 3D via network update.

## MA xPort Node

- Improved DMX signal sync of MA xPort nodes in MAnet2 mode.
- DMX merge mode none will not flicker anymore when receiving the same DMX universe from multiple sources.

## MA 2Port Node

- New 2Port Node version 1.79.
- Improved MA 2Port Node DMX output and DMX output sync.
- MA 2Port Node can be updated from grandMA2 onPC and grandMA2 console.

## MA 3D

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- Amount of possible visible cameras in MA 3D camera pop-up has been increased.
- When CITP source is not available, "Content not found" bitmap will be rendered instead of gradient.
- MA 3D application freeze fixed when toggling "CITP Enabled" button at a grandMA2 console or onPC.
- Fixed - Crash when scaling a Fixture model down to zero.
- CITP Frame rate is not changed any more when leaving the full-screen mode.
- 3D Subfixture Instances of LED Movingheads cannot be selected or moved in MA 3D any more.
- The current versions of MA 3D requires at least Microsoft® Windows® 7. The latest version of Microsoft® .Net Framework (4.0) will be installed on your computer.
- If Fixtures have the option "No Parameter" set or are unpatched, they do not put out light any more. With the button highlight unpatched these fixtures create open white output in MA 3D.
- Copy and paste in MA 3D table view implemented.
- Create, Join and Leave Button have been removed from the network sessions dialog.
- MA 3D is now running on NVidia Mobile GFX cards of the newer Generation (600m, 700m and 800m series) and the Stage View is rendered correct again. As these GFX cards do not support the "clipping functionality", Make sure to have the application window on one screen only to avoid performance issues.
- Gobo rotation is visualized in blind mode.
- Reset selected object sets position and rotation values of 3D object to zero.
- Deleting Moving paths do not delete objects linked to that moving path anymore.
- View options menu shows current view option status.
- 3DS importer crash fixed when trying to import corrupted 3DS files.
- MA3D help file updated.
- Reset selected objects can be undone.

## MA VPU

- Image-Textures up to 8192x8192px are now played back.
- Teaser Mode representation is working again in the Docking Frame.
- grandMA2 console does not crash any more, if user starts CITP thumbnail exchange with Arkaos media server but accidentally defines a VPU Fixture Layer for it.
- If a Class B or A IP address is set in the VPU, the subnet mask is set accordingly now.
- Import Export function blocks is not crashing the VPU any more
- Cutout Mask 4 Effect is working again.
- If show-files from version 3.0 or earlier are loaded, the Name will be displayed correctly in the Grid view of the VPU.
- Layer fades now correct, if Warper-objects are used in a camera.
- VPU doesn't crash anymore, if an effect is edited in the Content Editor of an old show file.
- Allocation from Camera to Display-Output is now shown correct in the grandMA2-Menu.
- VPU and grandMA2 show now the correct refresh rate of outputs, when the VPU is inserted for the first time into a session.
- CITP stream is sent again after VPU reinit.
- Animation detection is fixed: If an animation is done around the default value, the animation will not snap to default value anymore.
- Changes made in the Live Setup are now updated to the VPU.
- Bug fixed when fading a layer in front of a background with the same color, both on a warper.
- VPU does not block output, when importing function blocks.

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- Inserting new content sets the Auto\_Create-Flag of the VPU Fixture Layer-FixtureType correct.
- Textures of Multi Texture Objects are now handled correct, if they are imported from outside.
- Effects on Multi Texture Objects are applied to the right textures.
- The kaleidoscope effect does now support anti-aliasing to create smooth border lines per output to archive the optimum quality.
- If SBlur Effect is used, VImg>< is still applied to the output now.
- If the application is started, then the Test Image is not activated accidentally.
- VPU Software does now support the new AMD Catalyst Driver 14.4 and onwards.
- The ratio of any applied effect is now correctly related to the output resolution.
- Resolutions and Refresh Rate can be set from the grandMA2 console again.
- The Preview in the Pixel Mapper does work correct now with high aspect ratios (e.g. 10x1m).
- Pixel Mapper ID has been removed.
- Add from Library Button has been removed in the top headline in the VPU.

## Appendix



Down-dating to grandMA2 Release v3.0.0.5 and earlier requires a Factory reset (Format and Install). Please backup your show files before down-dating.



Inserting the command "store /remove" or pressing [store][cue][2] and select [remove] in the pop-up will remove the whole attribute with all (!!) its layers of fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.



When multiple fixtures are selected with a lasso in the layout view, the snap grid settings to interpolate small position differences of fixture icons are respected. The selection order will always be made inside of one snap grid cell first, afterwards line by line in the direction of the lasso movement.



The network switch IGMP Snooping functionality has to be switched off in order to be able to update MA 2Port nodes.



A grandMA1 compatibility mode is no part of grandMA2 console software 3.0 and later. When grandMA1 compatibility mode is needed, grandMA2 consoles and MA NPUs have to be down-dated to grandMA2 v2.9.1.1



The MA-Net2 protocol has changed to support the 8Port Node devices. All MA devices need a new network streaming protocol with the 2.9 software. Once updated to the correlating version to grandMA2 v2.9, 2Port, 4Port, 8Port, NSP 4Port Node and the NDP will no longer work in a session with an older network streaming protocol (e.g. grandMA2 v2.8). Down-dating MA 2Port Nodes or NSP running in 4Port Node Mode to be v2.8 compatible is only possible via grandMA1 v 6.801. All other devices can be down-dated via USB or windows installer only.



Exec Time can be used for Executor buttons and Executor Faders. The new Executor option "Ignore Exec Time" has been added in the Assign menu. When this option is enabled, the referring executor will use its own off time instead of the Exec Time Fader Timing. Show files stored with grandMA2 v2.9.1 and earlier will be converted. All Fader executors will have this option disabled. Executor option defaults are valid for fader and button executors.



Fixture type preset reference contains values only. It is not possible to add any fade, delay or effect data to fixture type preset references.



ASCII show import supports Strand, Transtechnik and ADB ASCII show files.



A CIP connection is not possible when running CIP sender and CIP receiver at the same computer.



Following syntax can be used to switch off faders only or buttons only of current page or of all pages except current page:

- **Off Executor 1 thru 100** - This switches off all Faders of current page.
- **Off Executor 101 thru 240** - This switches off all Buttons of current page.
- **Off Executor 1 thru 100 Page Thru - \$faderpage** - This switches off all Faders of all pages except current.
- **Off Executor 101 thru 240 Page Thru - \$buttonpage** - This switches off all Buttons of all pages except current.



Addressing executors via command-line has been improved to provide support for addressing by name or number. This can be used when sending playback commands to specific executors or when storing to a specific executor, sequence or cue for example. All existing cue links and Macros of show files stored with former grandMA2 versions will be converted as far as possible. Please check cue links and Macros of existing shows when loading them the first time with this version. Some cue links and Macros may have to be adjusted. When creating new Macros or cue links or editing existing ones, the new syntax as described below has to be used.

- Go Exec "exec name" - start executor with specified name on current page
- Go Exec "exec number" - start executor with specified number on current page
- Go Exec "\*"."exec name" - start executor with specified name on all pages
- Go Exec "\*"."exec number" - start executor with specified number on all pages
- Go Exec "page name"."exec name" - start executor with specified name on specified page
- Go Exec "page name"."exec number" - start executor with specified number on specified page
- Go Exec "page number"."exec name" - start executor with specified name on specified page
- Go Exec "page number"."exec number" - start executor with specified number on specified page

## Known Limitations



- MA onPC command wing DMX input is supported for the ports "DMX In" and "DMX out A" only. The port "DMX out B" can only be used as DMX out!
- Before loading show files stored with grandMA2 **v2.7.x** the first time with grandMA2 v2.9.x, attribute Colormix4 and 5 and Colordim4 and 5 of self-made fixture types have to be manually adjusted to fulfill the color specification. Amber has to be Colormix 4 invert or Colordim 4 without invert, and White has to be Colormix 5 invert or Colordim 5 without invert. Otherwise, color information of these fixture types will be lost after loading show file with v2.9.
- The Feature name for ColorDim/ColorMix has changed into MixColor. Macros using one of these feature names have to be adjusted.
- Known limitation when loading show files stored with **v2.8.x** for the first time in v2.9
  - Special Masters have a new data structure in grandMA2 software.
    - All Special Master custom labels will be reset to MA default labels
    - Assignment of 100mm faders will be reset to default.
    - Macros referring to special masters have to be adjusted and have to use the new naming and numbering of special masters.
  - Macros referring to relative values have to be adjusted according to new relative/absolute syntax.
  - User profiles exported to USB drives using v2.8 and earlier have to be manually moved from folder importexport to user\_profile folder in order to import these profiles using grandMA2 v2.9 and later.
- 4Port and 8Port Nodes have to be updated to v1.0.9 or later to be compatible with grandMA2 v2.9. 2-Port Nodes have to be updated to 1.77 or later in order to be compatible to grandMA2 v2.9.
- Channelset labels of fixture types have to be unique to be visible and accessible in calculator. E.g.: If channel sets of Attribute Shutter are closed, open, open, open, only one open is visible in the calculator. Changing channel set labels to closed, open, open(2), open(3), will result in all channel sets being visible in the calculator.
- Astronomical clock always calculates time according to standard time zone. Additional summer times are not recognized and cannot be adjusted manually when using sunset, dusk, dawn, and sunrise in the agenda.
- LUA command `gma.gui.confirm()` is not supported by this version.

### 53.3. Release Notes - Version 3.0

#### Release Notes - Version 3.0

##### grandMA2 - version 3.0.0.5



## Important:

- The MA-Net2 protocol has changed to support the 8Port Node devices. All MA devices need a new network streaming protocol with the 2.9 software. Once updated to the correlating version to grandMA2 v2.9, 2Port, 4Port, 8Port, NSP 4Port Node and the NDP will no longer work in a session with an older network streaming protocol (e.g. grandMA2 v2.8). Down-dating MA 2Port Nodes or NSP running in 4Port Node Mode to be v2.8 compatible is only possible via grandMA1 v 6.801. All other devices can be down-dated via USB or windows installer only.
- If you would like to update your dimMA system from any version below 7.x please contact your MA-dealer or MA directly for any update information. Should you be using grandMA2 together with our dimMA solutions, please get in touch with us, since a console update will now require a NDP update and vice versa. We are happy to assist you.
- The current versions of grandMA on PC and MA 3D require at least Windows® XP with Service Pack 3. Microsoft® .NET Framework (4.0) will be installed on your computer.
- Hints and known limitations can be found in the appendix at the end of this document.

## Main feature overview:

- Layout View improvements
- Sheet Style pool views
- Timer Pool containing Countdowns and Stopwatches
- Message center
- Search and Replace
- Auto-create Swatch book Color Presets
- Network Troubleshooting Tools
- Individual Colors per cue and pool object
- Dynamic preset pool
- Preset auto naming
- Extended command-line support when calling objects via name.
- C1TP M5EX video streaming at grandMA2, MA 3D and MA VPU
- Unified installer file names and version numbers.

## Bugfix Release - Version 3.0.0.5

- Fixed - grandMA2 onPC restores maximized windows at start up.
- Fixed - grandMA2 onPC DC Remote Control input at MA onPC command wings.
- Fixed - Possible DMX sheet crash.
- Fixed - Fixture Type Module visualization of High End Systems Showbeam, High End Systems Showgun and Martin Mac Aura.
- Fixed - Crash when pressing User1 x-keys while editing cue numbers at the same console.
- Support for MA 2Port WM and MA 4Port WM added.

## Bugfix Release - Version 3.0.0.4

- Fixed - Crash when executing clone command twice via clone dialog.
- Fixed - Crash when mapping internal screens of MA RPU to external displays.
- Fixed - Pressing Escape at an external keyboard blackouts MA NPU screen until reboot.
- Fixed - Channel Page fader level display of Playback views.
- Fixed - Restoring 15.4inch display backlight settings when ending the screen saver.
- Fixed - Effect Pool indicators refresh when editing effects.
- Fixed - Sheet Style pool view was accidentally activated for some user profiles when loading show files stored with former grandMA2 versions.
- MA onPC command wing and MA onPC fader wing contact bounce suppression of buttons has been improved.

## Release - Version 3.0.0.2

### New functions and features in detail:

- **Layout View**
  - New "Edit selected" button in layout view setup mode encoder bar.
  - New symbol feature settings:
    - "with dimmer" displays color and gobo in relation to current dimmer value.
    - "Always" displays color and gobo disregarding current dimmer value. Dimmer value can be visualized separately via dimmer bar or dimmer value.
  - As it is not allowed to have multiple items of the same fixture inside one layout, a pop-up will warn the user if he tries to change the fixture ID of one item to the fixture ID of another fixture already existing in the same layout.
  - Support of direct action for objects capable of pool playbacks (sequences, effects) has been added.
  - Running pool playbacks will be visualized as mini executor icons inside layout view when assigned to a layout.
  - Sheet Cue Color settings has been added to layout view. User can choose whether to only display the cue colors of playbacks of the current user or the cue colors of all running playbacks.
  - The "Please" hard-key of the Edit layout object dialog can be used to tab through "Add text", "ID" and "confirm" button.
  - Layout object background, border and text color editor provides a "reset color" button which resets the background color to transparent, and the text as well as border color to white.
  - An editable border color has been added for layout view text objects.
  - Multiple image files can be imported into image pool simultaneously.
- Stage View lasso selection respects the order of selection of lasso.
- "Follow mask" button has been added in Stage view.

## ● Pools

- The frame color can be changed for each pool object by using the command-line command "Appearance" (3 times assign key) and touching a pool object. E.g.: Insert "Appearance Preset 1.5" and choose a color from the pop-up. Possible parameters for command "Appearance" are "r" (red), "g" (green), "b" (blue) or "h" (hue), "s" (saturation), "br" (brightness). Hue value ranges from 0 to 360, all other parameters have a value range between 0 and 100. E.g.: "Appearance Group 1 /h=180 /s=95 /br=100"
- A "Reset Colors" button has been added to pool options. It removes all individual frame colors of any object inside this pool.
- Frame colors can be copied from one object to another. E.g.: "Appearance group 10 through 15 at group 5" will copy frame color of group 5 to group 10 through 15.
- All pools have a sheet style in addition to the already known Icon mode
- Pools in sheet style mode can hide or show empty pool items.
- All Macro pool items show the red colored special symbols 'C' and 'T' when the 'CLI' or 'Timing' option is disabled.

## Clock and Timer

- The Timer pool containing stopwatch and countdown functionality has been implemented.
- Stopwatch
  - The Time unit of the stopwatch can be chosen.
  - The effect of stopping and starting the stopwatch can be set to either continuing or restarting from zero.
  - The start trigger can be set to link selected, not linked or link last go. When linked, the commands GO, GOTO, and TOP of the linked executor will start the stopwatch.
- Countdown
  - When the countdown function is enabled, the following settings will be available (additionally to the stopwatch settings):
    - The countdown can be set to any time between 1s and 24h
    - The alert duration sets how long the pop-up will be seen. Zero means that the pop-up will stay until confirmed, any other timing will automatically close it.
    - Additionally to the pop-up, the user can choose to get an audible alert when the countdown has run down.
    - The alert range can be local (i.e. the alarm will only go off at one station) or global (i.e. the whole session will be notified). Be aware, Special Master Sound out has to be set above zero to hear countdown alarm sounds.
  - The command "Load from default" loads defaults from current user profile. The command "Save to default" saves the current settings as defaults to the current user profile.
  - The Timer pool objects show the current time of the timer. The letter S stands for stopwatch, the letter C for countdown, the letter G for global alert and the letter L for local alert.
  - The command-line commands GO, PAUSE, TOP and OFF Timer x can be used to start, stop, reset and switch off a timer.
  - The Timer can be assigned to executor buttons, x-keys or view buttons.
  - The current time of the timer can be assigned as timing of a cue by using the syntax "Assign fade \$timer1 cue 1 please" or by pressing the buttons "Assign Time TimerPoolObject Cue 1 Please".
  - All running timers are listed in off menu.
  - The timer keyword can be accessed via hard-key: MA + Macro.
  - Additional features of grandMA2 clock view.
    - A Date display has been added.
    - Additional time and date formats.
    - Adjustable Time offset for world clocks.
    - In addition to system time, SMPTE and MIDI timecode, timers can be displayed as well. The clock can be linked to any timer by using the select timer setting.

## Message Center

grandMA2 Message Center provides an overview as well as a history of status, warnings and alerts.

- The status icons to the right of the command-line show current active warnings and alerts. Most of those icons can be hidden by using the message center options dialog. To open the options menu, touch the yellow ball of the Message Center Overview title bar. Critical alerts like power-loss cannot be hidden.
- All currently valid status symbols, including those that have been hidden, will be displayed as long as the MA hard-key is pressed.
- The message center overview can be accessed by pressing any of the message center icons in the command-line.
- The message center overview provides a list of all currently valid symbols, their description and the number of available detail messages. The "Show All" button will provide a list of all available symbols with description and number of new and archived messages.
- Touching any row inside the message center overview will open the detailed message history of this topic.
- All Message Center messages can be accessed and exported via command-line. Possible commands are "List messages", which will have all messages listed inside the command-line feedback, or "Export messages", which will export all messages into a XML file. The syntax can be filtered by using conditions, e.g. "List Messages /condition=alert" will only list all alert messages.
- A stylesheet has been added to the Messages export. Loading the exported messages.xml using any browser like Internet Explorer, Safari or firefox will display a sortable table of messages. The style folder containing the stylesheet will automatically be copied to the USB drive when messages are exported.

## Search and Replace

The Search and Replace function can be used to search for fixtures, presets, values,... and replace these with other fixtures, presets, values,...

## SEARCH search\_for\_object [[AT] search\_values] [IF search\_in\_object]

- search\_for\_object can be any kind of object to search for, e.g.:
  - Fixture 1 thru 5
  - Attribute "PAN"
  - Fixture 2 Attribute "PAN" + "TILT"
  - Preset 4.1
  - Sequence 3
- search\_values could be:
  - Value 10 thru 20
  - Fade 3 Thru 10
  - Delay 15
- search\_in\_objects can be any kind of object to be inspected, e.g.:
  - Sequence 2
  - Executor 1 thru 30
  - Preset 0.1 thru 0.100 ..to search for embedded presets or presets containing specific values
  - Preset 4.1
  - Sequence 3



Be aware that searching for presets and effects is searching for fixtures using this preset or effect in presets, cues, and effects. It is not searching for values of this preset or effect.

- Examples:
  - "Search Fixture 1" - lists all objects containing any Attribute of fixture 1
  - "Search Effect 10 If Sequence Thru" - lists all sequences and cues referring to effect 10.
  - "Search Fixture Thru At Fade 10 Thru 20 if Sequence Thru" - lists all sequences and cues containing individual fade times between 10 and 20 seconds.
- In order to search for e.g. all fixtures stored with a specific color, search results can be used as a filter for the next search. E.g.:
  - "Search Fixture Thru Attribute "ColorRGB1" At 100 If Sequence Thru" - All fixtures that have the attribute Red at 100 will be found.
  - "Search Fixture Thru Attribute "ColorRGB2" At 0 If Searchresult" - All fixtures that have the attribute Red at 100 and the attribute Green at 0 will be found.
  - "Search Fixture Thru Attribute "ColorRGB3" At 0 If Searchresult" - All fixtures that have the attribute Red at 100, the attribute Green at 0 and the attribute Blue at 0 will be found.

## REPLACE search\_for\_object WITH replace\_with\_object [IF search\_in\_object]

- Replace syntax is similar to search syntax. The additional part of the syntax starts by using the keyword WITH.



The Replace syntax can be used in two "modes", either replacing objects or values.



The syntax "Replace search\_for\_object WITH" without adding a "replace\_with\_object" will delete the "search\_for\_object".

## Examples

- "Replace Preset 3.1 With Preset 3.3 If Sequence 1" - Replaces Preset 3.1 with Preset 3.3 in any cue of sequence 1.
- "Replace Fixture 1 With Fixture 201 If Sequence 1 thru 10" - Replaces Fixture 1 with Fixture 201 in any cue of sequence 1 through 10.
- "Replace Fixture 1+2 With Fixture 2+1" - Exchanges Fixture 1 with Fixture 2 and vice versa in any preset, effect, cue, ... of the whole show file.
- "Replace Fixture 1 With If Sequence 1 thru 10" - Removes Fixture 1 from all cues of sequence 1 thru 10.
- "Replace Attribute "Tilt" Fade 5 with Fade 10" - The individual fade time of 5 seconds of attribute Tilt of any fixture will be replaced with fade time of 10.
- Hard-key access to keywords:
  - Search - MA + Move
  - Replace - 2x Move
  - With - Move if Replace search\_for\_object is already written in the command line.
  - SearchResult - MA + 2x Group
- When Groups, Filters, Worlds, or Selections are used in search/replace commands, the channels or fixtures included are being searched or replaced. E.g.: If Group 1 contains fixture 1 through 5 the commands "Search Fixture 1 Thru 5" and "Search Group 1" are equivalent commands.
- The command "Searchresult Please" creates a "Search-result-world". This world will filter all Sheets and command lines according to the fixtures, channels and attributes of the current search-result. To exit this world, execute the command "World 1 Please" or select the World you were working with again.
- The command "Selfix Searchresult" selects all fixtures of the current search-result.
- It is highly recommended to use search and replace syntaxes inside Macros. The option /nc can be used to hide pop-ups and result windows when using search and replace.
- New predefined Macros for search and replace.
  - Replace Channels, Replace Fixtures
  - Replace Channels In Sequence, Replace Fixtures In Sequence
  - Replace Values for Channels, Replace Values for Fixtures
  - Search Fixtures in Sequence
  - Search Fixtures in Show file
  - Search Presets
  - Search Values in Sequences

## Setup

- Patch and Fixture Schedule
  - Patch and fixture schedule and live setup Fixture Position dialog provides an encoder bar for position, scale and rotation having the same functionality as stage view encoder bar.
  - The order of the patch and fixture schedule table is kept, even when leaving and re-entering setup.
  - The Fixture type multi patch column includes a multi-patch index
  - The Fixture Type editor has been enhanced: Now there is the possibility to apply a "Minimum DMX Fade Time" to the channel type to limit speed of DMX value change. The minimum DMX time describes the minimum fade time for changing from minimum to maximum DMX value. This setting can be used to limit the speed of the DMX value change of a scroller in order to avoid for instance gel string breaks.
  - Fixtures and Channels that are not included in the currently selected World cannot be manipulated inside Live Setup any more.
- Remote Input Setup
  - An input monitor can be displayed at the bottom of the Midi and analog remote dialog to check incoming midi and analog remote signals. The Toggling title bar Info button will toggle the input monitor.
  - The button "CLI" has been renamed to "CLI on Master" as remote inputs are always executed at the master console.
  - Setup / Show / Remote Inputs Setup: The selection type "Current" has been renamed in "Current Page on Master" to better describe its functionality.
  - Setup / Show / Remote Inputs Setup: Name and Info can be added to each remote input.
  - The Midi note input signals can be offset by any value between -1023 and +1023 for each individual station inside the network config dialog.
  - The "Analogue Remotes" input can be offset by any value between 0 and + 48 for each individual station inside the network config dialog. This offset can be defined in the column "Analog Offset" and will be added to the incoming Analog channels. E.g.: If the offset entry is 16, channel 1 becomes channel 17 for this desk, channel 2 becomes 18 and so on. In the column "Midi Offset" the Midi Notes can be adjusted corresponding to the offset.

- Auto Create

- To automatically generate color presets for fixtures with Mixcolor attributes there is the new tab "Additional Presets" . In the upper section there are 2 input fields to determine the number of presets to be generated. The entry in the field "Amount Hue" determines how many different color values are generated out of the "Hue"-scale . The entry in the field "Amount Saturation" determines how many different color saturation shades are to be generated . The selection from the field "Use" decides of which Mixcolor attributes the presets are created. If "all Mixcolor" is selected, those color attributes are preferred for each fixture type which are not RGB. For example, having a RGBA fixture means that the amber LED is mainly used to create different tones of orange color. When the "Encoder Grouping" button is turned on additionally supplemental color channels, such as the color wheel "Color1" with the default value (open), whilst the presets are generated, the default value will be added to the presets (i.e. the corresponding color attributes are added to the Encoder grouping of the Mixcolor attributes). The "Add global Mixcolor " button creates individual global presets for each selected fixture type on the left side. The "Merge global Mixcolor " button creates common global presets for all selected fixture types on the left side at a time. The generated presets will have the name of their H (Hue) and S (Saturation) values .
- Auto-create additional presets: Color presets can be created from swatch book. One or multiple colors can be selected by using lasso or pressing CTRL and touching elements of the swatch book. The auto generated name can be set to be the name of the color, the colorkey or both.
- There is a new swatch book called "MA predefined colors" which contains 13 basic colors.

- Software Update

- Update Software via Network: Separate tabs have been added for every station type in addition to the already existing all tab.
- Update SW via Network: A menu to select a folder containing update files from USB drive(Console) or from any drive (onPC) has been added. Be aware that the folder is not allowed to contain multiple version of the same update file, but only one file per station type.
- The Disable Blind Button functionality of /Setup/User/Gandmaster + B.O. etc. has been extended. Possible settings are: "Disabled" = Button is disabled, "Blind Edit only" = Button can only edit the blind mode by being pressed for a long time, "Enabled" = Button can be used for blind by being shortly pressed and can edit blind mode by being pressed for a long time.

- **Network troubleshooting tools**

- The new command "networkspeedtest" checks the current network performance of any detected grandMA2 consoles, grandMA2 onPC, MA NPUs, MA VPU's and MA 3D devices. Attention: This will block all other network traffic and DMX Traffic for some seconds - don't use it in show situations!
- After having finished the network speed-test, a pop-up shows all stations with their IP address. The column "time" shows the relation data rate against time. In a 1000Mbit network the value for a console should usually be 0.1. The column "sequence errors" shows how much packets have been sent out of order. "Packets received" shows the percentage of correctly delivered packages. In a 1000Mbit network this value should be 100%. If this is not the case, the reason could be a bad network connection or an overloaded device.
- There is an IP collision detection in the system monitors of all other connected consoles which are not participants of this IP conflict.
- The speed of the first network adapter of consoles and NPUs can be changed via the commands "SetNetworkSpeed 100 x" and "SetNetworkSpeed 1000 x". x stands for the last block of the IP address . ATTN: Devices must be rebooted !

## Sequence and Executor

- Cue or Part Cue row background color can be adjusted by
  - using the command-line command "Appearance" (3 times assign key). E.g.: Insert "Appearance Cue 1" and choose a color from the pop-up. Possible parameters for the command Appearance are "r" (red), "g" (green), "b" (blue) or "h" (hue), "s" (saturation), "br" (brightness). The hue value range is 0 through 360, all other parameters have a value range between 0 and 100. E.g.: Appearance Cue 1 /h=180 /s=95 /br=100
  - using the Edit color button inside the edit cue number dialog.
- The new Sequence Executor sheet option Cue Color Column has been added to choose columns to display any individual cue background color.
- New buttons for fast access to Edit Next Cue, Edit Previous Cue and Edit Current Cue in Edit Sequence pop-up have been added.
- Pressing and holding MA+Goto and pressing executor buttons executes "Load Next" at each pressed executor button until releasing MA+Goto
- The Edit sequence pop-up provides the same command-line interaction as the sequence executor sheet. E.g.: Store, Update, Delete and touch a cue row will execute the referring command.
- The text of the Edit sequence executor title bar shows the Page, Executor and Sequence ID.
- The Tracking Sheet can be sorted by Channel ID or Fixture ID.
- The Tracking Sheet edit values calculator supports relative values in addition to absolute values. E.g.: multiply current value by 2: \*2

## Presets

- A Dynamic preset pool has been implemented. The user can create Basic Window, Presets or Dynamic. This pool is linked to the current type of preset of the encoder bar.
- The auto-naming of color presets when being stored as new presets has been added.
- The auto-naming of dimmer and gobo presets when being stored as new presets has been added.
- All auto-named presets will be marked with the special sign "#" in the end. This sign is not a part of the preset name. When updating an auto-named preset, the name will also be updated.
- Effect layer values can be stored inside Presets. When knocked in programmer or stored inside cues, the presets will be used as templates which are not linked to those presets anymore.

## Command-line

- Macros can trigger Macros. Triggering Macro B from Macro A will result in Macro A waiting for Macro B to finish before continuing with the next Macro Line of Macro A.
- The possibility to move DMX universes inside the Universe pool, directly or via command-line, has been implemented. E.g. **Move DMXUniverse 2 at 5**
- The command-line now supports multiple wildcards (\*), even in combination with dots in between. E.g. **Delete Preset \*.\*** deletes all presets of all Presettypes.
- There are new parameters for the DeleteShow command: **Deleteshow /b** deletes .backup files only. - **Deleteshow /s** deletes .show.gz files only.

- Addressing executors via command-line has been improved to provide support for calling by name or number.



All existing cue links and Macros of show files stored with former grandMA2 versions will be converted as far as possible. Please check cue links and Macros of existing shows when loading them the first time with this version. Some cue links and Macros may have to be adjusted.

- Go Exec "exec name" - start executor with specified name on current page
- Go Exec "exec number" - start executor with specified number on current page
- Go Exec "\*"."exec name" - start executor with specified name on all pages
- Go Exec "\*"."exec number" - start executor with specified number on all pages
- Go Exec "page name"."exec name" - start executor with specified name on specified page
- Go Exec "page name"."exec number" - start executor with specified number on specified page
- Go Exec "page number"."exec name" - start executor with specified name on specified page
- Go Exec "page number"."exec number" - start executor with specified number on specified page

This can also be used to store to specific executors, sequences or cues by name instead of number.

- New command: **List Attribute thru** will display all available attributes in the command-line feedback menu. This command also exists as a predefined macro.



If new fixture types are included in the show the list will be restructured

- Every Channel / Fixtures keyword can be combined with any Attribute keyword. E.g.: **Fixture 1 Attribute "Pan" at 20** sets Attribute Pan of Fixture 1 at 20 or **Park Attribute "Tilt"** parks the Tilt values of the current selection. Correct naming of attributes can be checked by using the "List Attribute thru" command.
- System variables have been added. These variables can be referred to inside Macros or when using command-line syntax. Predefined Macros like "Off Page minus current" are already using these variables. Available variables are e.g.
  - \$TIME - current system clock time
  - \$DATE - current system clock date
  - \$USER - current logged in user
  - \$USERRIGHTS - User rights of currently logged in user
  - \$FADERPAGE - number of current fader page
  - \$BUTTONPAGE - number of current button page
  - \$CHANNELPAGE - number of current channel page
  - \$SELECTEDEXEC - number of currently selected executor
  - \$FEATURE - name of currently chosen Feature
  - \$ATTRIBUTE - name of currently chosen Attribute

A full list of available system variables and their current value can be viewed when using the command **ListVar**. Be aware, the command **ListVar** lists both system variables and variables created using the **SetVar** command.

## CITP MSEX video streams

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- The CIP video viewer window can be used to view CIP MSEX video streams of MA VPU and third party media servers at the desk.
- The Setup CIP menu title bar shows the current CIP multicast address. This address can be changed. Changing this address changes the CIP multicast address for all MA stations (consoles, MA 3D, MA VPU) in the current session. Be aware that after having changed this address, the connection to third party CIP stations might not be possible anymore.
- The compression quality of CIP video streams can be chosen per session inside the CIP Network Configuration menu.
- The CIP Video streams have been tested with versions of the following media servers: MA VPU, Green Hippo Hippotizer, PRG MBOX, Arkaos MediaMaster, Coolux Desktop Streamer.
- The CIP video and thumbnail compression format can be changed in the options menu of the CIP Network Config Yellow Ball.



A CITP connection is not possible when running CITP sender and CITP receiver at the same computer.



The CITP Multicast address can be configured by pressing the title bar button in the CITP Network Configuration menu. The CITP Multicast address 224.0.0.180 is not forwarded by many switches as soon as IGMP Snooping is enabled. The CITP Multicast address of MA products can be switched to 239.224.0.180 in order to use CITP in combination with IGMP Snooping. Be aware that the alternative multicast address 239.224.0.180 is not yet supported by many other media server manufacturers. Please check the compatibility with the manufacturer of your media server prior to changing the CITP Multicast address and enabling the IGMP Snooping while using CITP.



Streaming videos via network needs bandwidth. A single CITP video stream of 30fps generates up to 15Mbit/s. Video streams are sent as multicast. Requesting the same video stream from different grandMA2 consoles or MA 3Ds will not generate additional network traffic.

Some hints to keep network stability when using CITP:

- The list below gives a brief overview over the data rate of one 30 Frames per second CITP video stream. When having compressed streams, the data rate varies depending on the compressibility of the video content.
  - Uncompressed RGB8 stream: 15Mbit/s
  - PNG compressed stream: 7Mbit/s up to 15Mbit/s depending on video content.
  - JPG compressed stream: 1Mbit/s up to 8Mbit/s depending on video content.
- The minimum network speed is 1000Mbit/s. Do not enable CITP in an 100Mbit/s network environment.
- The maximum amount of CITP network data rate should not exceed 30Mbit/s per physical network. When exceeding this limit, reduce the video stream quality by choosing a higher compression (jpg) or request less different video streams. Otherwise visualizers and video stream viewers running at computers with installed operating system Microsoft Windows may not receive all video stream data resulting in CITP video stream fps dropping below 1 fps.



The MA VPU CITP video streams frame rate is limited to 30fps shared by all requested outputs and 10fps shared by all requested layers of CITP video streams. E.g.: When requesting CITP video streams of Output1 and Output2, each stream will have a maximum refresh rate of 15 fps.



The MA VPU reduces CITP video streams frame rate if the CITP network traffic of current connected network exceeds 30Mbit.

## • Misc

- The additional Clone menu buttons "All Items to All", "All Items to None", and "All Items to Chosen" have been added to speed up the operation of this dialog.
- The autostop feature uses executor off timing.
- Exec Time can be used for Executor buttons and Executor Faders. The new Executor option "Ignore Exec Time" has been added in the Assign menu. When this option is enabled, the referring executor will use its own off time instead of the Exec Time Fader Timing. Show files stored with grandMA2 v2.9.1 and earlier will be converted. All Fader executors will have this option disabled.



Executor option defaults are valid for fader and button executors.

- Logged-In Remote and Telnet stations are shown in the desk status view.
- Smart View will provide access to a vertical scrollbar if the amount of channel sets does not fit to the current view size.
- Predefined colors have been added to the color picker.
- The color picker also shows color values of currently selected fixtures played back from cues.
- Support of GIF and TIFF image formats when importing images to the image pool has been added.
- A special dialog Shaper has been implemented: the commands Invert B, Set All, Invert All can be accessed via x-keys, when enabling Linked Encoders.
- The new Store Mode Store Look stores the dimmer attributes of all channels, fixtures, and sub-fixtures, all attributes of channels, fixtures and sub-fixtures having dimmer values above zero, and programmer active attributes of fixtures and sub-fixtures not having any dimmer attribute. Be aware, the store look respects Worlds and filters. The command-line syntax is: Store /use=look Executor x.
- The headline of the backup menu shows the name of the currently loaded show file, date and time of last stored version.
- The multi-line info pop-up is closed when pressing please. To add a new line press Shift+Please
- The Pan/Tilt values of fixtures referring to stage markers are updated when their 3D position is changed in stage view.
- The possibility to change the screen title button for the fixture editor pop-up has been implemented.
- Carallon fixture library 10.2 has been added.
- The function load predefined in form editor can be used in graph and table mode.

## • onPC only

- The resizing of grandMA2 onPC with deactivated window frame has been implemented.
- The onPC MA software button will automatically reset after the next execution of any function. Double pressing the MA software button will latch the button until it is pressed again.
- The encoder setting button is reset after the first action of the encoder setting pop-up is executed.
- Improved onPC Midi Input handling: The onPC options provide the possibility to choose the midi input device. Also, the command wing midi input can be enabled or disabled. This setting can be found in the yellow ball options menu of grandMA2 onPC.

## Additional predefined macros

- Exchange 2 Channels, Exchange 2 Fixtures
- List All Attributes
- Off Page Minus Current
- Replace Channels, Replace Fixtures
- Replace Channels In Sequence, Replace Fixtures In Sequence
- Replace Values for Channels, Replace Values for Fixtures
- Search Fixtures in Sequence
- Search Fixtures in show file
- Search Presets
- Search Values in Sequences
- MA-net Speed Test

## MA 3D

- CITP Video streams can be assigned as 3D object texture inside MA 3D using MA 3D object material manager.
- CITP info has been added to MA 3D Video Player.
- The MA 3D selection order is transmitted to other network stations.
- MA 3D warns the user when he tries to add objects in MA 3D while another user is editing the Patch and Fixture Schedule.
- Fixed - MA 3D crash when changing fixture type module class using Patch only/fixture type editor.
- Fixed - Paste of objects in MA 3D 3D object grid view.

## Unified file names and version numbers.

All MA products specific software version numbers have been unified to the grandMA2 release version number. The part one, two and three of the version number of all MA products has to match when connecting these products in a session.

- "gMA2Console\_v3.0.x.x.update"
- "gMA2Console\_v3.0.x.x.imgz"
- "gMA2onPC\_v3.0.x.x.exe"
- "MA3D\_v3.0.x.x.exe"
- "MAVPU\_v3.0.x.x.exe"
- "4port\_v3.0.x.x.update"
- "MANDP\_updater\_v3.0.x.x.exe"

## Fixed Bugs and improved functionality

- Fixed - Crash when leaving setup at a connected console while having assign menu label pop-up visible at master desk.

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Version 3.3



- Fixed - Crash when cloning from channels to multi instance fixtures.
- Fixed - Crash when unparking a huge amount of lasso selected channels in channel sheet.
- Fixed - Attributes of worlds are not masked when applying the world as temporary sheet filter.
- Fixed - Calculator issue when using open end syntax like "1 thru".
- Fixed - Tracksheet edit calculator does not show special values.
- Fixed - Valid calculator ranges are wrong when having RGB and RGB invert fixtures selected at the same time.
- Fixed - Calculator Clear button does not call default values.
- Fixed - Cloning color data cue data blocks tracked values.
- Fixed - Next cue of content sheet does not follow loops nor load cue commands.
- Fixed - Update windows with active original content only does not show HTP playbacks.
- Fixed - HTP executors are wrongly switched off when overwritten by programmer values.
- Fixed - Button press leads to the loss of feedback of IF, AT and Thru.
- Fixed - Macro line syntax check adds unnecessary spaces between names and dots.
- Fixed - Sheet title button settings are exported and imported together with user profile.
- Fixed - Setting of pool colors are exported and imported together with user profile.
- Fixed - ViewButtonPage names are exported and imported together with the user profile.
- Fixed - Positions of fixed executors are exported and imported together with user profile. Be aware, sequences assigned to fixed executors are not included and have to be partial show read separately.
- Fixed - Import User Profile when focus is set to new line
- Fixed - Crash when trying to receive more thumbnails via CITP than having free memory.
- Fixed - Info icon is displayed in pools while having empty info string.
- Fixed - Mask editor Copy and Clear buttons are not working.
- Fixed - Release Selection command is not executed.
- Fixed - Layout View Default settings per user are not used when creating a new layout view.
- Fixed - Stage marker value "not set" can be knocked in programmer
- Fixed - Context sensitive help of stage view does not show correct help page.
- Fixed - Context sensitive help of CITP window does not show correct help page.
- Fixed - Mini executor, executor sheet and edit sequence dialog shows next cue in list disregarding looping or loading of another cue.
- Fixed - Sequence Executor Sheet focus box cannot be scrolled outside visible area.
- Fixed - Sequence exec sheet blue and green fade bars have been mixed up when using Crossfade A/B.
- Fixed - Tracking sheet mask Selection Only shows some cues not containing any data of current selection.
- Fixed - Numeric keypad and keyboard cursor position is wrong when partly typed commands are edited in-line.
- Fixed - Macros assigned to view buttons cannot be switched off by pressing Off hard-key and view-button with assigned macro.
- Fixed - Fixture sheet flip indicator is not visible when switching to DMX Layer.
- Fixed - fixture sheet column command-line interaction when touching the inside of the grid in combination with Feature Sort.
- Fixed - Scroll encoder cannot be used to scroll inside command filter view and pop-up.
- Fixed - Layout view and stage view title buttons do not show correct color when in blind or preview mode.
- Fixed - Wrong labels in the options menu of playback views.
- Fixed - Choose layer option in setup/show/auto create/group menu.
- Fixed - Single layouts are not exported correctly.
- Fixed - Reset button for the Border color of the edit dialog for the layout objects.

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Version 3.3



- Fixed - Layout view choose layout button is updated when changing Layouts in the pool.
- Fixed - Permanent button highlight of view buttons with assigned macros.
- Fixed - Stage view follow mode support for mirror class fixtures.
- Fixed - Stage view masking "Seq+" and "Seq-" when selecting another executor.
- Fixed - Enable Mask/Follow Mask button toggling in the stage view
- Fixed - Flash unpress label in timecode encoder bar.
- Fixed - Number display in timecode encoder bar and grid.
- Fixed - Timecode settings pre-roll and after-roll store issues.
- Fixed - Decimal and hexadecimal support for virtual dimmer values.
- Fixed - Skipped patched setting in patch sheet is ignored when entering patch dialog.
- Fixed - Mini executor Off time display of effects assigned to executors.
- Fixed - Effect editor encoders don't come back once editor regains focus
- Fixed - Currently selected drive display in backup menu when changing drive via command-line.
- Fixed - Backup menu Load Show browser always shows detailed view.
- Fixed - Executor labels when loading a show file with enabled option "Force Login"
- Fixed - Windows and Views at Slave consoles when loading show file with enabled option "Force Login".
- Fixed - Speedgroup BPM label in effect editor Speedgroup column.
- Fixed - Presetbar refreshes when changing Presettype, Feature or Attribute naming.
- Fixed - Losing embedded Preset references at target fixtures when cloning fixtures.
- Fixed - Missing preset section names in XML file.
- Fixed - Midi Show Control via Ethernet in combination with loop-back address.
- Fixed - Backspace handling when editing macro lines.
- Fixed - Negative group master display in multi user environment.
- Fixed - Color Preset transformation when exchanging fixtures.
- Fixed - 4 digit display of pool numbers.
- Fixed - Smart view Focus Frame GUI glitch
- Fixed - User1 back-light turns off and remains off after dialog boxes open and close on screen 1
- Fixed - Deleted executors are visible in off menu
- Fixed - Multiple Oops via GUI respects limit of 100 Oops steps.
- Fixed - Focus at unexpected position inside Edit Fixture dialog
- Fixed - BPM effects black border pixels bug.
- Fixed - Crash when sorting load image dialog in image pool.
- Fixed - Wing and Monitor setup in console and onPC.
- Fixed - Store Cue .5 command unexpectedly creates cue 5 instead of cue 0.5.
- Fixed - Executing Goto Cue syntax with any exec button of an executor with width greater than 1.
- Fixed - Enabling Network Protocol option "DMX out If Alone" resets Surface setting to Default surface.
- Pressing User1 or User2 key will switch X-keys to User1 or User2. Pressing List key will switch X-keys to executor buttons 201 thru 220. Toggle functionality has been removed.
- FlashOn and FlashGO overwrites programmer values when Freeze is off. Only Flash will not override Programmer values.
- Compressed command-line prompt, if command-line prompt would take more than 40% of available command line space uncompressed.
- Extended Macro command-line: GO MACRO X as default steps to next Macro line. CALL MACRO restarts Macro.
- Macros assigned to user buttons show the current line and current state while being active.

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Version 3.3



- Sheet title bars always display mask and world index together with the referring symbol.
- Removed useless "Physical" readout from DMX sheet view options.
- Reduced distance between vertical scrollbar and cell in the DMX sheet.
- Store view to X-button pop-up automatically chooses screen 1 as view button content. User can select other screens inside this pop-up as needed.
- Improved handling of MidiNote command when triggering executor faders. Midi NoteOn commands without velocity will set executor fader to Midi velocity 127. Midi NoteOn commands with parameter velocity will set executor fader to referring fader position. Midi NoteOff commands will automatically set executor fader to zero.
- sACN Default Priority of new show files is set to 100. Priority of existing show files will not be changed.
- Current position of selected camera is stored when storing a new camera in the camera pool.
- Command-line response warning when trying to patch a fixture without assigned fixture type.
- Channel and fixture sheet symbol feature follows into blind mode.
- Improved cloning of Mixcolor fixtures to Scroller fixtures.
- UV color attribute interaction with special dialog color improved. UV attribute is set to neutral when using the color picker to choose another color.
- Fixture At Fixture command uses physical values when available.
- Toggling between day, week and month view is transmitted to other desks using the same user profile.
- Toggling image pool options is transmitted to other desks using the same user profile.
- Big Icon option added to Smart View.
- Stage marker value "not set" can be knocked in programmer
- Mini executor, executor sheet and edit sequence dialog shows next cue also when looping or loading another cue.
- Fixture type grid XYZ column displays On instead of + when XYZ support is enabled for this fixture type.
- Changing fixture position in setup/patch only (live) updates stage view immediately.
- Storing new channel sets in Smart View is visualized in Smart view immediately
- Tracksheet option hides empty cells and empty effect cells.
- Encoder grouping is not ignored any more when calling values from Smart View.
- Unifying multiple individual times using sequence executor sheet I.Fade and I.Delay column, can again be split to separate timings as long as selection order is not shuffled.
- Editing executors with assigned group or special masters or macros does not show an empty encoder bar any more.
- Special Masters cannot be deleted any more.
- Name dialog of export menu input file checks and prevents illegal characters in file names.
- Layout view title buttons Pool Playback and Fast Call are next to each other when enabled.
- Special dialog Encoder: Screen encoder focus is automatically set to Rotate when enabling shaper encoder bar.
- Setup/Network Protocols: disabling "Network out if Alone" will stop all outgoing DMX Data via Ethernet when having only one station in network.
- Partial Show Read
  - Timers have been added to Partial Show Read.
  - Partial show reading filters from another show file includes attribute and layer settings.

## grandMA2 onPC

- Pressing the command wing encoder always opens calculator at Screen 1 and brings screen 1 on top of all other screens.
- Pressing off and any executor soft button in playback view executes the command Off executor and clears the command-line.
- Improved onPC Midi Input handling: The onPC options provide the possibility to choose the midi input device. Also, the command wing midi input can be enabled or disabled.

## Appendix



Inserting the command "store /remove" or pressing [store][cue][2] and select [remove] in the pop-up will remove the whole attribute with all (!!) its layers of fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.



When multiple fixtures are selected with a lasso in the layout view, the snap grid settings to interpolate small position differences of fixture icons are respected. The selection order will always be made inside of one snap grid cell first, afterwards line by line in the direction of the lasso movement.



The network switch IGMP Snooping functionality has to be switched off in order to be able to update MA 2Port nodes.



A grandMA1 compatibility mode is no part of grandMA2 console software 3.0 and later. When grandMA1 compatibility mode is needed, grandMA2 consoles and MA NPUs have to be downgraded to grandMA2 v2.9.1.1



Exec Time can be used for Executor buttons and Executor Faders. The new Executor option "Ignore Exec Time" has been added. When this option is enabled, the referring executor will use its own off time instead of the Exec Time Fader Timing. Show files stored with grandMA2 v2.9.1 and earlier will be converted. All Fader executors will have this option enabled. Executor option defaults are valid for fader and button executors. When storing new fader executors, these executors will listen to Exec Time by default.



Fixture type preset reference contains values only. It is not possible to add any fade, delay or effect data to fixture type preset references.



ASCII show import supports Strand, Transtechnik and ADB ASCII show files.



A CIP connection is not possible when running CIP sender and CIP receiver at the same computer.



Following syntax can be used to switch off faders only or buttons only of current page or of all pages except current page:

- **Off Executor 1 thru 100** - This switches off all Faders of current page.
- **Off Executor 101 thru 240** - This switches off all Buttons of current page.
- **Off Executor 1 thru 100 Page Thru - \$faderpage** - This switches off all Faders of all pages except current.
- **Off Executor 101 thru 240 Page Thru - \$buttonpage** - This switches off all Buttons of all pages except current.



Addressing executors via command-line has been improved to provide support for addressing by name or number. This can be used when sending playback commands to specific executors or when storing to a specific executor, sequence or cue for example. All existing cue links and Macros of show files stored with former grandMA2 versions will be converted as far as possible. Please check cue links and Macros of existing shows when loading them the first time with this version. Some cue links and Macros may have to be adjusted. When creating new Macros or cue links or editing existing ones, the new syntax as described below has to be used.

- Go Exec "exec name" - start executor with specified name on current page
- Go Exec "exec number" - start executor with specified number on current page
- Go Exec "\*"."exec name" - start executor with specified name on all pages
- Go Exec "\*"."exec number" - start executor with specified number on all pages
- Go Exec "page name"."exec name" - start executor with specified name on specified page
- Go Exec "page name"."exec number" - start executor with specified number on specified page
- Go Exec "page number"."exec name" - start executor with specified name on specified page
- Go Exec "page number"."exec number" - start executor with specified number on specified page

## Known Limitations



- MA onPC command wing DMX input is supported for the ports "DMX In" and "DMX out A" only. The port "DMX out B" can only be used as DMX out!
- Up to now, the 4Port and 8Port Nodes do not support the SACN protocol.
- Before loading show files stored with grandMA2 **v2.7.x** the first time with grandMA2 v2.9.x, attribute Colormix4 and 5 and Colordim4 and 5 of self-made fixture types have to be manually adjusted to fulfill the color specification. Amber has to be Colormix 4 invert or Colordim 4 without invert, and White has to be Colormix 5 invert or Colordim 5 without invert. Otherwise, color information of these fixture types will be lost after loading show file with v2.9.
- The Feature name for ColorDim/ColorMix has changed into MixColor. Macros using one of these feature names have to be adjusted.
- Known limitation when loading show files stored with **v2.8.x** for the first time in v2.9
  - Special Masters have a new data structure in grandMA2 software.
    - All Special Master custom labels will be reset to MA default labels
    - Assignment of 100mm faders will be reset to default.
    - Macros referring to special masters have to be adjusted and have to use the new naming and numbering of special masters.
  - Macros referring to relative values have to be adjusted according to new relative/absolute syntax.
  - User profiles exported to USB drives have to be manually moved from folder importexport to user\_profile folder in order to import these profiles using grandMA2 v2.9
- 4Port and 8Port Nodes have to be updated to v1.0.9 or later to be compatible with grandMA2 v2.9. 2-Port Nodes have to be updated to 1.77 or later in order to be compatible to grandMA2 v2.9.
- Channelset labels of fixture types have to be unique to be visible and accessible in calculator. E.g.: If channel sets of Attribute Shutter are closed, open, open, open, only one open is visible in the calculator. Changing channel set labels to closed, open, open(2), open(3), will result in all channel sets being visible in the calculator.
- When using Agenda and astronomical clocks, grandMA1 and grandMA2 geographical position data input and calculation of astronomical clocks uses longitude coordinates with mixed up algebraic sign according to GPS standard coordinates. Workaround to get a correct astronomical clock until this bug is fixed is to invert the longitude coordinate of your current position to get the correct calculated times of sunset, dusk, dawn, and sunrise.
- Astronomical clock always calculates time according to standard time zone. Additional summer times are not recognized and cannot be adjusted manually when using sunset, dusk, dawn, and sunrise in the agenda.

## 53.4. Release Notes - Version 2.9

## Release Notes - Version 2.9



### Important:

- The MA-Net2 protocol has changed to support the 8Port Node devices. All MA devices need a new network streaming protocol with the 2.9 software. Once updated to the correlating Version to grandMA2 v2.9, 2Port, 4Port, 8Port, NSP 4Port Node and the NDP will no longer work in a session with an older network streaming protocol (e.g.: grandMA2 v2.8). Down-dating MA 2Port Nodes and NSP running in 4Port Node Mode to be v2.8 compatible is possible only via grandMA1 v 6.801. All other devices can be down-dated via USB or windows installer only.
- If you would like to update your dimMA system from any version below 7.x please contact your MA-dealer or MA direct for any update information. Should you be using grandMA2 in connection to our dimMA solutions, please get in touch with us, since a console update will now require a NDP update and vice versa. We are happy to assist you.
- The current versions of grandMA onPC and MA 3D require minimum Windows® XP with Service Pack 3. Microsoft® .NET Framework (4.0) will be installed on your computer, if not already installed.

## grandMA2 - Version 2.9.1.1

### Fixed Bugs and improved functionality

- Solved: Tracksheet edit release values does not block default values instead any more.
- Solved: Calling channel sheet view containing Mask If Live freezes console.
- Solved: Delete cue range with option Cue Only does not delete the whole cue range at other stations in the network.
- Solved: HTP Exec should not be overwritten when knocking in values in programmer.
- Solved: Autocreate single groups of multi patched fixtures crash the desk.
- Solved: Delete selection does not un-patch channels at other stations in the network.
- Solved: Changing Agenda view mode crashes the desk.
- Solved: Info View may crash when selecting another sequence, cue, macro,... to show its containing info.
- Solved: Executor button "load" functionality in combination with an "up" or "down" key crashes the desk.
- Solved: Fixture editor: delete all attributes from a module crashes the desk.
- Solved: Start desk with force login does not show executor bar.
- Solved: Timecode events from show files stored with version 2.8 may not be converted correctly.
- Solved: The alternative flip solution in stage calibration menu may crash the desk.
- Solved: Assign a cue times using command line are not spread in network.
- Solved: MA 2Port Node freeze when changing between Session and standalone mode
- Solved: MA 2Port Node delayed output of sACN and Artnet
- MA 2Port Node v1.77: Improved synchronization between grandMA2 onPC and MA 2Port Node.
- NDP Minimal Streaming Version set to 2.9.1

## grandMA2 - Version 2.9.1.1

# grandMA2 User Manual

Version 3.3



## Main feature overview:

- The color picker is now able to handle multi-color LEDs and color wheels
- A Q fader fades from purest color through maximum brightness to a clean RGB mix
- The color picker is an independent view now
- Copy, paste and insert at many places, e.g. for fixtures and layers inside the setup
- Import and export of users and user profiles (new menus)
- Import and export of preset references together with fixture types
- New running playbacks view
- The layout view can contain images (new image pool) and pool objects showing real-time graphics, e.g. timecode as well as static video thumbnails
- New camera pool to directly control MA 3D cameras
- Filters can be applied to the stage view
- It is possible to have a height offset for the follow function inside the stage view
- Time code shows do also record group and special masters
- Pools and presets can be stored without specifying numbers
- Screens can be turned to black
- New flash on, flash go, swop on and swop go commands
- Load next and load previous commands for executors
- Different infade and outfade times for Chasers
- New syntax allows aligning several ranges of values at the same time.
- New improved calculator functionality
- Improved x-y-z engine setup
- Improved clarity for the setup dialog
- New Clone menu
- New views inside the grandMA2 onPC optimized for onPC command/fader wing usage
- Implementation of the non-proprietary PosiStageNet(PSN) protocol for real-time x-y-z tracking systems
- clean-up and improvements of multiple places in views and menus

## New functions and features in detail:

## ● Color Mixing System

- Color special dialog has new operating elements which define which color attributes are used to mix the color. In addition to colorRGBs, color wheels(C1...) and scroller are supported.
- RGB (Headline in fixture sheet) was renamed in Mix color and contains all additive colors.
- There is a "RAW Faders" view. All color channels of the current selected fixtures are displayed e.g. R G B A W.
- The "HSB" view has a "Q" Fader. Only active when fixtures are selected which have also other additive color channels than RGB. Set to 0% / Pure, the color is mixed mainly from the additional color channels(e.g.. Amber). Set to 50% / Max, maximum Intensity together with the RGB color is adjusted. Set to 100% / Primary, only RGB channels are used for mixing.
- There is also a new button which decides color mixing preferences
  - "Prefer MIX color" = prefer Mix color and set all color wheels to open white.
  - "Mixcolor only" = only ColorRGB attributes are controlled by this dialog.
  - "Colorwheel only" = only Color wheels (color 1, 2, 3) and scrollers are controlled by this dialog.
- The values of the "Hue" Fader are displayed from 0-360. When option "Link Encoder HSB" is active the encoder wraps around."

## ● Setup

### ● Patch and Fixture Schedule

- "Setup / Show / Patch + Fixture Schedule: with "Cut...", "Copy...", and "Paste..." row can be moved or copied. Button names change automatically according to context (left area "Layers" or right area "Layer". When one or more rows are marked red ("cut") they can be pasted anywhere else. When copying fixtures or layers the ID Numbers and the Patch will be ignored (not allowed to exist twice). When pressing "paste" after having copied and selected a new row a pop-up will ask whether to overwrite or to insert the line(s).
- Export Patch and Fixture Schedule to File for viewing (HTML-Browser), or printing (Excel). Till now this was possible via predefined macros. Setup/Show/Patch + Fixture Schedule or Patch only: "Export Layer" or "Export Fixture", depends on selected row, one or more Layers / Fixtures can be exported. A pop-up will ask for a file-name if multiple rows are selected. When a USB Stick exists, it will be asked whether to store to USB drive or to internal hard drive. In an additional pop-up a style must be selected.
  - "Only Xml" = will create a xml file only.
  - "fixture + layer + layers@html@default.xml" = an HTML File for usage with an HTML Browser.
  - "fixture + layer + layers@csv.xml" = a CSV File which can be e.g. imported to Excel.
  - A folder "Fixture" or "Fixture\_Layers" will be created automatically, depending on exported type.
- Select Fixture Type pop-up when exchanging fixture types (Edit Setup) displays the amount of DMX channels and the amount of instances per fixture type. e.g. FixtureType10(DMX 20 Ins. 2)
- If "Patch Readout Absolute Address" is activated in the patch menu the "Universe" Encoder will be suppressed. DMX address of all universes can be addressed via the "Address" Encoder only. Also the DMX addresses on the right side of the menu are displayed absolute.
- 3D environment can be modified inside Setup/Patch Fixture Schedule / Fixture Positions. 3D objects are listed in a separate layer inside this dialog.

## ● Fixture Types

- 2 new columns in "Fixture Types" menu: "DMX Footprint" and "Instance". Number of DMX addresses and instances is shown.
- In the Info area attribute to DMX address mapping of the selected fixture type is shown. Virtual attributes are shown below.
- FixtureType and FixtureLayer Export - exporting multi selection creates one file per object.
- The "Clean-up" button converts fixture types from former show files to collect duplicate features to provide a better overview in the calculator.
- Attribute editor: "Identified As" column of sub-attributes show also the unit of the physical value in "[ ]" if there is one
- When opening Import Fixture Dialog: keyboard focus is at manufacturer filter and screen encoder focus is at fixture type grid.

## ● Fixture Type Editor

- Carallon lib 9.6 fixture library included.
- MIB can be disabled per attribute inside fixture type editor.
- "React to Master" can now be switched on/off for color attributes even if there is no dimmer channel.
- When fixture types are imported from the library into a show file they have extended channel sets. Minimum and maximum values for attributes with physical values are now displayed as e.g.. "open Iris", "min Strobe", "max Frost". The ranges of the physical sub-attributes are shown with units e.g. Unit of Position, Zoom and Iris is "degrees", Strobe is "Hertz" and Gobo rotation is "RPM". Also channel-sets and mode dependencies of animation wheels have been extended
- Fixture types with CMY color mixing system: A lot of fixtures have mode dependencies on their color channels or having integrated macro functions mapped to the upper part of CMY attributes DMX channels CMY attributes of these fixture types are converted to RGB by converting only the range of the DMX channel controlling the color.
- Setup/Patch and Fixture Schedule/ Fixture Type editor sub-attribute selection dialog is similar to attribute selection dialog.
- Fixture Type: Overlapping functions of channels or non-unique natural to DMX mapping result in non-operate-able fixture type. Diagnostic screen will show error message for the user, when having such an error in fixture type.

## ● Cloning

- Cloning of fixtures: Setup / Show / Cloning: the menu "Prepare Cloning" is divided into 2 parts: Left part of view displays the source - right part of view the destination fixtures. Fixture have to be selected and applied to the left or right side using the left or right side "take selection" button. Prepare will lead to the cloning menu. Here can be chosen whether the prepared fixtures are cloned in all sequences/presets/worlds/... or only in selected ("chosen sequences/presets/worlds/..."). The button "Clone" will open the "Perform cloning" pop-up. The clone priority can be defined here:
  - "Low Prio. Merge" = simple cloning with low priority. Takes only values which are containing in the source fixture and are free in the destination fixture (no existing data of destination will be overwritten or deleted).
  - "Merge" = Mixes Values from the source fixture into the destination fixture and overwrites also already existing values. Values only containing in the destination fixture and not in the source fixture are not overwritten
  - "Overwrite" = All values of the destination fixture are overwritten with the existing and non-existing values of the source fixture"

## ● Import/Export Gobo Bitmaps

- Setup / Show / Import Export includes a user interface for importing and exporting Gobo Bitmaps. Exporting Gobo bitmaps to USB drives will export to /gma2/gobos/user\_gobos folder. Gobo bitmaps have to be copied to this folder at the USB drive to be able to import them to a grandMA2 onPC or console.

## ● Import/Export User Profiles

- User Profiles can be exported and imported at / Show / Import/Export/User Profile. Export menu displays all user profiles of current show file on the left and all user profile xml files stored at /gma2/user\_profile folder of current selected drive at the right column. Enabling "Always ask for Name" will provide possibility to custom label xml file when exporting. Import menu displays all user profile xml files stored at /gma2/user\_profile folder of current selected drive at the left column. Button to the right toggles between import user profile only an import user profile and create user. Enabling Always ask for name provides possibility to rename user profile and user when importing user profile. Export and import of user profiles is limited to one user profile per file when using this dialogue. If you would like to export multiple user profiles into one single xml file, please refer to grandMA2 online help command line syntax for exporting and importing multiple user profiles. When trying to import a file containing multiple user profiles using Import/export menu, only the first user profile of this file will be imported. All exported user profile xml files will be stored to /gma2/user\_profile folder of your hard drive or usb drive. User profiles which have been exported with grandMA2 v2.8.3 or earlier have to be manually copied from /gma2/importexport to /gma2/user\_profile to be able to import these profiles in grandMA2 v2.9.

## ● User + User Profiles

- Import/export user profiles includes view button thumbnails.
- Import/Export User profile can be done using Import export menu or buttons in /Setup/Console/User and Profile Setup
- Cut-Copy-Paste has been added to the User and User-Profile dialog. Cut-Paste doesn't work for User Administrator and guest and UserProfile Default.
- If in Setup / Console / User + Profiles a user has the focus, the button "Login" gives the ability for a direct login. In case of password protection the pop-up to login is displayed. In the headline the current user name is shown.
- When copying or exporting user profiles, they always store the mask pool and the information on which screens the menus are to be opened

## ● Network

### ● MA Network Control

- New command and button inside Setup /Network /MA Network Config /Endsession to end a session for all session members.
- Setup / Network / MA Net Control: Current Focus frame affects accessibility of buttons. Buttons without function for current focused object (console/session) will be grayed out.

### ● MA Network Configuration/DMX Nodes

- DMX Node configuration can be exported to and imported from a XML file. Setup / Network / MA Network Configuration / DMX Nodes: the button "Export Config" saves the configuration of the DMX Nodes tab inside the "gma2 / network\_nodes" folder. The button "Import Config" loads exported configuration files and overwrites current DMX Nodes configuration with the one from the file.
- 
- MA 8-Port-Nodes can be configured using / Setup / Network / MA Network Configuration / DMX Nodes

- **Auto Create/Create Preset Reference**
  - Presets can be added to fixture types as preset reference. Setup/ Autocreate provides access to create a preset reference and to create presets from a preset reference. Preset reference is part of the fixture type and will be exported and imported inside the fixture type file.
  - Preset references can be created via command line. At first a fixture of a fixture type must be selected. With the command "Store Fixturetype x.5" all presets of the currently selected fixtures are added to this fixture type. If a reference already exists, a pop-up occurs. The command can be restricted to single presettypes : "Store Fixturetype x.5 if Presettype "color". With "Autocreate Preset Fixturetype x" all preset of that type will be generated and to eventually existing merged (same name). With the extension "/add" always new presets are added. This can be limited with "if" for each presettype. Presets are identified by their name of each presettype and applicable overwritten. Example: "Store Fixturetype x.5 /remove if Presettype "color".
  - Autocreate Presets creates preset label by merging channelset and attribute label.
- **Misc**
  - Blind button can be disabled at Setup / User / Grand Master + B.O. etc.
  - Update local console reboot dialog provides a reboot now button.
  - Setup / Show / Remote Inputs Setup: column "Macro" in the remote menu renamed to "CMD". Accordingly the remote Type "Macro" has been renamed to "CMD"
- **Views and Pools**
  - **Layout View Improvements**
    - Layout view: Following elements can be shown and visualized as a pool icons: effects, bitmap effects, filter, forms, groups, images, macros, channel pages, executor pages, sequences, timecodes and worlds"
    - Clean-up of Stage View and Layout view title bar buttons and view options
      - 1. Move and Select title buttons were combined into one list title button without icons
      - 2. Zoom In, Zoom Out title buttons have been exchanged by zoom bar (already known from stage stage view) zoom bar can be hidden via layout view options. Deactivate zoom on the screen encoder. 4.
    - Title button was renamed to "Reset camera" Title buttons in the layout view are customizable now.
    - The Layout View options have been divided into 5 areas.
    - Pool Element defaults: Basic adjustments for pool elements are defined if they have been added with the "assign" command into a new layout
    - Fixt. / Chan. defaults: Basic adjustments for fixtures and channels when they are added with the "store" command
    - Layout Data: basic adjustments for the layout itself e.g. "visible marker"
    - Tools: basic adjustments for the layout e.g. zoom Bar, zoom Encoder ,Scrollbar deactivation. Display of Dimmer value regarding fixture sheet ("Cue colors")
    - Title Buttons: Button in the title bar can be enabled/disabled. New are also "Pool Playbacks" in the headline
    - Frames in Layout View: In the "Setup" mode of the layout view frames can be created(via the Encoder bar). Frames are always displayed on the lowest level. To edit this level the option "Edit Rectangle" must be active. Images then can be selected in the edit menu or via the encoder bar. If the frame shall only visualize one background image, the selection of the frame can be switched off in the edit menu ("Group Select" -> "off")
    - New structure of elements in layout: The display of a pool / fixture Element can have different levels. The lowest is the visualization of fixtures: Brightness, color and gobos above those Images and Icons are displayed. These can contain alpha channels, means they can be transparent. Text, Id Numbers and Dimmer Values are on Top.

- Edit of Channel / Fixture elements: Pressing "Edit" and onto a fixture in the layout view the fixture editor comes up. Same in "Setup" Mode opens the editor for the selected layout element. The assignment to a fixture can be exchanged by changing the ID Number. Additional Text and adjustments like visualization, size or image / icon rotation per element are possible. In Tab "Subfixture" Element Channel Id and Fixture Id can be switched on or off
- Editing of Pool Objects: Pressing "Edit" and then onto a pool element in the layout view, e.g. a preset, a "normal edit" will be executed, means the preset is taken into the programmer. Same in "Setup" Mode opens the editor for the selected pool element. E.g. a preset can be exchanged via the Id as well. "Visualization": "Simple" -> shows the object as usual. "Pool Icon" shows the pool element like in its own pool. For preset and bitmap elements the display of the symbols can be adjusted via Tab "Pool" "Spot", and "Filled".
- Dimmer values and dimmer bar can be visualized for group pool elements "Filled" add colors and "Spot" Gobos in addition. The values of the last channels / fixtures in the group are used. Same for display of markers, when there are switched on in the layout.
- Copy in layout view : In setup mode pool elements, text, frame elements can be copied with the "copy" button. Press "Copy", select pool element, click onto new position in layout. Fixtures and channels cannot be copied. These can only be used once per layout
- Copy of Layout Views: With command "Copy Layout 1 at 2 /merge" it is possible to merge 2 different layouts. Layouts can be imported with PSR (Partial Show Read) as well.
- Cloning fixtures can also be used to clone layouts.
- Video attribute thumbnails are displayed in a layout now (like in a Preset pool).
- Command "Assign" and multiple touch of object works same as "Move"
- Image Recommendations for gMA2 layout view:
  - Format PNG
  - Canvas Size max 240X240
  - Colour Black
  - Image size max 180X180
  - Symbols outline 5 pixels 50% grey
  - Symbols shall have alpha fill
  - Area around symbols shall be black

## ● Stage View and XYZ

- New Stage View camera mode "Link Selected". Stage views will follow currently selected camera. Camera can be selected by touching a camera object inside camera pool or via command line "Select Camera ID/Name" E.g. "Select Camera "Front" or "Select Camera 1"
- Stage view yellow ball options menu has been extended. Calibration tab provides access to fixture position calibration dialog Follow tab provides access to set z-offset of the stage view follow functionality. mask tab can be used to mask a stage view similar to masking any sheet. Title buttons tab provides the possibility to enable/disable title buttons.
- Fixtures can be edited using stage view. Pushing edit and touching any fixture inside stage view or right mouse clicking any fixture in stage view provides access to edit fixture dialog
- Stage View Setup encoderbar provides possibility to "Reset Position" or "Reset Rotation". Resetting Position will move 3D models of current selected fixtures to XYZ position 0:0:0 Resetting Rotation will reset fixture rotation of current selection to 0. New command line keywords "Move3D [at X Y Z]" and "Rotate3D [at X Y Z]". Using Move3D or Rotate3D without coordinates will reset current selected fixtures to zero. E.g. "Move3D at 2.5 -5 3.3" positions current selected fixtures at X = 2.5, Y = -5 and Z = 3.3
- Stage View Setup mode encoder bar position encoders (x, y, z) show range of values min..max.
- Stage View fixture calibration dialog New functionality and new button "Reset all Values"
- Selection of channels or fixtures in stage view has been improved.
- Stage View options defaults can be adjusted per user profile. Options can be found at Setup/User/Window Settings/Other/Stage
- Calibrate fixture dialog got a new button (Find alternative flip solution) to calibrate fixtures having wrong physical values. Pushing this button will toggle through all 4 possible calibration positions.
- 3D object parameters can be modified at the fixture position dialog of the setup (Patch and Fixture Schedule or Live Setup). Same as in MA 3D object Size input readout can be toggled between meters and Scaling factor.
- Stage Markers and XYZ Offset can be stored selectively to different cues.
- Stage View Follow Mode default has been defined by "No tilt flip"
- Auto-generated 3d object for stage marker: orange ball with 25cm diameter
- Stage markers are automatically collected inside a Stage marker folder in 3D assert view.

## ● Channel and Fixture Sheet

- New Edit Fixture dialog title buttons Next and Previous to edit next or previous fixture without having to close and reopen the editor.
- Sheet and Stage view title bar set buttons can be edited inside the sheet options title buttons tab.
- Readout decimal and hex have been split. Decimal and hex always shows 8bit values while decimal16 and hex16 always shows 16bit values.

## ● Sequence Executor Sheet

- "I.Fade and I.Delay are editable inside executor sheet. Right mouse click will delete individual timing, holding down middle mouse button and moving mouse up or down will increase or decrease all individual timings. "

## ● Tracking Sheet

- Additional warning message box when trying to delete the complete content of a sequence from the tracking sheet edit dialog

- **Content Sheet**

- New Content sheet sorting option. Content sheet can be sorted by Fixture ID or Channel ID first.
- "Remove", "Off" and "Deactivate" buttons added to content sheet cell edit calculator.

- **DMX Sheet**

- DMX View: new option "Readout is absolute DMX Address" - universe overlapping

- **Timecode**

- In addition to sequence executors also groupmasters, specialmasters, effects assigned to executors and bitmap effects assigned to executors can be recorded into a timecode show.
- Timecode shows can be merged together. Timecode Tracks, Timecode Subtracks and Timecode Events will be merged. Timecode show options will not be altered.
- Timecode options can be saved to default and loaded from default using timecode option title bar buttons. Default options will be used when creating new timecode pool objects.
- Adjustment of "Pre Roll" and "After Roll" for SMPTE and Midi possible ->. Setup / Console / Timecode.
- Timecode editor options have been moved from separate options button to Title bar Yellow Ball options menu.
- Jumping in timecode shows is possible via command line. Syntax: Go Time (time) Timecode (number). E.g. "Go Time 3h5m Timecode 1" Timecodeshow 1 will start and jump to 3 hours and 5 minutes. "Pause Time 6s Timecode 4" will position timecode show 4 at 6 seconds and pause timecode show 4. "Goto Timecode X" or "Load Timecode x" will provide a list of events of timecode x to select the event to jump to. Pressing the button Time (Fade) will be processed as keyword time in combination with timecode.
- New Command line Time unit input possibility; dot separated input [h].[m].s[.1/10s]. E.g. "Goto Timecode x Time 3" jumps to 3 seconds. "Time 3.4" = 3 seconds and 40/100 frames. "Time 2.3.4" = 2 minutes 3 seconds and 40/100 frames. "Time 1.2.3.4" = 1 hour 2 minutes 3 seconds and 40/100 frames.
- Timecode shows can be loaded from another show file using partial show read
- Timecode FastOff event is in the list of manually addable events

## ● Misc

- Special dialog color can be assigned to any view using Create basic window dialog tab other. In addition to the functionality already known from the special dialog, labels below the color picker can be hidden.
- New view: Create basic Window / Playbacks / Running Playbacks. All running playbacks are displayed. (Similar to temp. Off menu). In the headline there are 4 buttons: "Only my Playbacks" shows only playbacks started with own user profile. "Preview Playbacks" shows only in Preview Mode started playbacks. If "Link Encoders" is active, Playbacks can be operated in the command line and if "Off Mode" is on, playbacks can be directly switched off by clicking on them. The selected executor has in the first column a green background. In the option menu the font size is adjustable and an info column can be turned on. All options can be turned on and off in the headline as "Title Buttons".
- New User-Pool: "Camera". "Store" on an empty pool object creates a new 3d Camera, which can be positioned. Clicking on the pool object will select this camera (object gets green). Works via command line as well: "Select Camera "Front" or "Select Camera 1".
- "Pictures in layouts: There is a new pool to administrate pictures which can be used in the layout view as "Image" which can be assigned to the objects -> Create Basic Window / Pools / Images. Formats: bmp, gif, jpg, lossless jpg, png, tif, targa. To avoid huge show file, the size is limited per picture to 2MB, and the total size of the image pool to 10MB. Resolutions larger than FullHD (1920 x 1080) are downscaled automatically. With "Store" or "Edit" a pool object can be created or modified. With the button "Load Image" in the editor Pictures can be loaded into the pool from the "Bitmaps" Folder of the desk or the "gMA2" Folder of a memory stick. They are then part of the show file. The resolution and the size is displayed. In the option menu of the image pool the symbol size can be chosen (small / big) "
- Command section window height limit has been removed. Command section can be scaled up to any screen size bigger Minimum size of command section is 2x3 grid cells.
- OnScreen keyboard has been added to Info View multi-line editor.

## ● Command line

- Store Presettype X Please will store at the next empty pool object of the referring pool.
- Storing a new preset generates a default name containing type of preset and index of preset inside preset pool. E.g. Store Preset 2.5 will generate a Position preset labelled "Position 5"
- Move/copy/insert can be used to copy ONE empty object.
- New command line command BlackScreen [Screennumber]. The command BlackScreen will blackout all screens. The command BlackScreen 5 will blackout screen 5. Screens can be reactivated using the button "Show Screen" or "Show All Screens" in the bottom right corner of each screen or by using the command BlackScreen Off.
- Command line Feedback displays not existing commands also. A yellow message shows "Command not executed". If SpecialMaster 2.4 is on ("SpecialMaster "Snd out" at 100"), error sounds will be replayed (Not in grandMA2 onPC)
- New command IfOutput Fade(Delay) [time range] [Executor] selects all fixtures of a sequence currently using an individual fade or delay time. E.g. Ifoutput Fade 3 Executor 1 selects all fixtures stored or tracked with an individual fade time of 3 seconds at current cue of the sequence assigned to executor 1. Ifoutput Fade Executor 1 selects all fixtures stored or tracked with any individual fade time at current cue of the sequence assigned to executor 1. Ifoutput Fade 1 thru 10 selects all fixtures stored or tracked with an individual fade time between 1 and 10 seconds at current cue of selected executor.
- New command option "At": "/status". Example: "Fixture 1 thru 5 at Cue 5 /status". Result: Fixture 1 thru 5 get the values from Cue 5 including tracking values from Cue 0 to 4 active in programmer"
- Command line command "Edit DMX x" or pushing Edit hard key and touching any cell inside DMX Sheet opens edit fixture dialog of fixture using this DMX address x.

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- Store Cue 2.1 thru 3.1 will create following cues: 2.1 + 2.2 + 2.3 + 2.4 + 2.5 + 2.6 + 2.7 + 2.8 + 2.9 + 3.0 + 3.1
- Absolute and relative negative Values in the command line can be distinguished by not adding a blank between "minus" and number. Example: "Attribute "Tilt" at -10" sets absolute (negative) Value -10. "Attribute "Tilt" at - 10" sets the value relative - 10 to the current value relative. This may have impact on existing macros (e.g. add a value (+5) now (+ 5))
- Screens can be copied to other screen using new copy screen x at y command. Screens can be merged or overwritten. Hard key combination MA+View adds keyword screen to command line.
- Off Time of Executors can be modified via command line. Example 1: Assign Executor 1 /OffTime = 10. Example 2: Assign Executor 1 /OffTime = "default".
- Similar the Default Off Time: Example: "Assign Root 3.3 /off= 5s".
- Fixture At Fixture will extract preset information, if target fixture is not included in preset currently used by source fixture.
- Command "Fixture x at Fixture y" does now also work when the origin (y) is deriving from a sequence with Master Fader less 100%
- Playback Master are assignable to sequence executors via command line. Example: "Assign Executor 1.1 /PlaybackMaster = 2" (0 for none). To assign a Playback Master to an empty executor: "Assign Specialmaster "Playback 2" Executor y"
- Telnet commands can be sent from grandMA2 command line directly using the Syntax: Telnet IP-address:Port "String"
- Current active pages can be changes per userprofile via command line using a command like "Assign Userprofile x /CurrentFaderPage=1" possible parameters are "CurrentChannelPage" "CurrentFaderPage", "CurrentButtonPage" It is not possible to jump to non-existing executor or channel pages.
- Command SetUserVar works also with float values
- Command At EffectForm "form name" (e.g. "PWM") works
- Attribute and feature keyword in combination with numbers respects current presettype selection.
- Command line support to assign loops in sequences. Assign Cue X /Loop=Y.

## ● Executors

- New executor commands and executor button assignments: Flash+On, Flash+Go, Swop+On, Swop+Go. FlashON flashes executor, but does not switch off executor when releasing flash button. FlashGO flashes executor, steps to next cue and does not switch off executor when releasing flash button. SwopOn swops executor, but does not switch off executor when releasing swop button. SwopGo swops executor, steps to next cue and does not switch off executor when releasing Swop button.
- New Executor button functionality, "Load Next" and "Load Prev". This will load the next/prev cue of the current loaded cue.
- 2 new Special Master: "StepInFade" and StepOutFade". Special Masters are divided into 5 groups of functions. Necessary to avoid renumbering for future extensions. Macros which contain special masters must be adapted.
  - Already done for predefined macros
  - Default Master 1.1 - 1.11
  - Grand Master 2.1 - 2.6
  - Speed Master 3.1 - 3.16
  - Rate Master 4.1 - 4.16
  - Playback Master 5.1 - 5.50"
- Keys X1 - X20 can have a fixed link to Exec201 - 220. -> "Setup / User / Settings" Option "XKeys always for Exec". If turned on, User 1+2, and special menus (e.g. colour Picker) are only operable with touch-screen soft-keys.
- New Sequence Executor assign menu option "Loop breaking Go". With this option activated a go command will break a currently running loop and will step to the next cue after the loop.
- Sequence Executor assign menu defaults also include playback masters.
- Sequence Executor assign menu defaults also include Input filter.
- Sequence option "Forced Position Mode" can be adjusted using Edit Sequence dialog

## ● Encoderbars

- Special dialogs can be moved to other screens using Change screen title bar button.
- Encoder Bar Frames follow current layer, value layer Yellow, fade layer Green, delay layer Orange and all effect layers Magenta.
- New button "Link Encoder" in "Special dialog Shaper". This button switches encoders for all shaper modes
  - Angle Mode (Invert B)" inverts the B attribute. In this mode the encoder changes all positive and negative values at the same time.
  - "Set All" selects all attributes.
  - "Invert All" inverts selection
  - A mouse click on the attribute value opens the calculator. Pressing on the encoder switches the attribute selection."
- 100mm Fader on-screen buttons are using default button assignment of specialmaster assigned to the referring 100mm fader.
- In the DMX Encoderbar (open e.g. with "Channel Channel 1") there is a new button "Universe / Absolute". In Position "Universe" the DMX address can be adjusted as usual with the Encoders "Universe" and "Address". In position "Absolute" only the "address" encoder can be used.
- Encoder button menu Clear Screen soft button will also close any temporary window or pool.
- Encoder bar encoder mode "Link defined" and "Link defined active" have been replaced by the new modes "Link Filter" and "Link Filter active" These options use the current setting of the filter pool respectively command filter

## ● New Calculator

- New calculator: multiple entries in one line e.g. "0 thru 50 thru 0 thru 100" are possible. With the + - \* / Buttons values can be changed. When an attribute has more functions, this is displayed above the input line. In the right area only the "channelsets" of the selected "Function" are displayed. For each function also "Min" and "Max" Buttons exist. When the calculator is open, it is possible to scroll through the channelsets via the encoder - by pressing and turning through the feature.
- Calculator +/- button can be used to input absolute values.
- Input of complex ranges does work with the numeric keypad as well
- Presetbar readout is updated by following tracking and content sheet in addition to fixture and channel sheet.
- User option "Single Digit input" is used in commandline and calculator for dimmer attributes only.

## ● Misc

- PosiStageNet (PSN) realtime tracking protocol added. Setup / Network / PSN Network Configuration. This allows to transmit XYZ Stage Positions to the grandMA2 System. Every tracking system which supports that protocol can drive stage marker and X,Y,Z positions of moving lights.
- New iOS MA Remote app v1.011. Support for grandMA2 v2.9 and iPod/iPhone 5 added.
- Create basic window clean-up: All system windows have been moved from the other tab to the new system tab.
- Last called View button of each screen is highlighted.
- The headline of the update menu is shown whether a filter is active.
- Store and label message box title bar shows target object.
- A pop-up warns the user if trying to label any object using illegal characters.
- grandMA2 ultralight screen encoder 2 can be assigned to an external screen using Faderwing and Monitor. To assign the encoder to an external screen move the screen icon above the fader section of the grandMA2 ultralight icon.
- Resolution of virtual Dimmer and XYZ Attributes has been increased to 24bit.
- Programmer values of all users are not active anymore when loading a show file. (regardless of the last storage state)
- AT Filter dialogue can be moved to other screens using Select screen title bar button.
- Option buttons in pop-ups will be displayed with a checkbox. E.g. Copy Cue pop-up Cue only option button.
- Tools / Login Screen: The keyboard "TAB" can be used to move cursor between "name" and "password" entry field.
- Improvement in Setup Dialogue-> When entering the setup all submenus for the 4 main tabs are displayed. With "Home" you get back from a sub menu to this setup overview.
- Show files from ADB consoles can be converted via "ASCII Show Read" to grandMA2 show files.
- grandMA2 CIP implementation supports different version for the same structure in CIP messages. So you should not face LSta message errors with Hippotizers anymore.
- CIP Progress bars for Green Hippo Update Thumbnails functionality has been improved.
- MBOX Content attributes are detected automatically when choosing a MBOX Fixture layer in the CIP menu

## ● grandMA2 onPC

- New grandMA2 onPC Mode "Single Screen (Internal only). grandMA2 onPC Mode can be changed via options dialog (yellow dot left upper corner of the command screen). In "Single Screen (Internal only)" mode, all internal screens can be accessed in one single Microsoft® Windows® window and external monitors will be displayed in two additional Microsoft® Windows® windows. Moreover the button "CmdWing Bar" allows to adapt the encoderbar on screen 2 to an MAonPC command wing layout (means additional 6 playback fader)
- New windows start menu short-cut to launch grandMA2 onPC "Launch onPC CleanStart". Using this short-cut will reset all grandMA2 onPC Windows to default size and starts grandMA2 onPC with a blank show.
- Command Wing bar can be chosen as window from the create basic window other tab. This bar contains a command line, an encoder bar, a 100mm fader GUI and a six executor wide mini playback view.
- grandMA2 onPC select screen buttons labels change to the following labels when connecting a grandMA2 onPC wing. "Screen 2" = "CMD Wing", "Screen 3" = "Fader Wing 1", "Screen 4" = "Fader Wing 2"
- grandMA2 onPC native resolution has been increased to 1352 x 800 to be able to display original sized view buttons.

## ● grandMA1To2 Show Converter

- grandMA1 STROBE and STROBE\_RATIO Attributes are converted to grandMA2 SHUTTER Attribute to be compatible with grandMA2 library.
- Further conversion improvements: Executor Assignment, Attribute Names , Presettype Names , 16bit Attributes , "React to dim" , color mixing system, Attack and Decay in Effects, Effect Links in Cues , Page numbers in Cue links, Macros , Agenda entries.
- Effects, Group Master and Special Master in timecode shows are converted.
- The Feature "PanTilt" is converted to "Position".
- Effects and Cues do not create empty lines anymore"

## Fixed Bugs and improved functionality

- Importing fixture layer via command line in another show does not crash the desk anymore
- Import Fixture Type input filters using on screen keyboard are automatically applied.
- Editing a Faderwing inside graphical Faderwing + monitor setup has been improved.
- Command DMX 2.1 Thru 20 At 100 means DMX 2.1 Thru 2.20 At 100
- Maximum values for timecode options "length" and "offset" have been increased to 255h59m59s.
- Setting a Speedmaster to a specific value via command line will reset any speedmaster scaling.
- Unblocking cues in the tracking sheet in a network environment does not crash the desk anymore
- Channel Sheet redraw bug after toggle vertical Scrollbar has been fixed.
- "Link Fader and Button Page" option will not offset Fader and button pages anymore when using channel pages in between.
- Setup / Show / Patch and Fixture Schedule: Newly added layers or fixtures are immediately sorted to correct grid position
- grandMA2 NPU USB mouse support has been fixed.
- Red Programmer markers of virtual dimmers are also displayed in Layout View DMX Layer readout mode.
- Error handling when patching fixtures containing patch collisions of subfixtures has been improved.

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- Newly created show files also display default gobo and color wheels symbols in a fixture sheet, regardless of current programmer status.
- Setting Executors containing off times to specific values via command line respects Auto Start and Stop setting.
- Mixed up crossfade A/B has been fixed. Crossfade A fades decreasing values, Crossfade B fades increasing values.
- Disabling GrandMaster, Highlight, Solo, Blind,... resets the disabled button function to default state
- Layout View: Value display and readout Option (DMX, Output, Value) is stored in show file.
- Setup / Network / MA Network Configuration / onPC: Column type displays the type of wing (MA onPC command or MA onPC fader wing)
- Edit Fixture dialog grid can be sorted by highlight column.
- Forced Fixture ID of single fixture groups has been removed. Fixture ID can be removed when labelling a single fixture group.
- Setup / Network / MA Network Configuration / DMX Nodes: The column "Firmware" shows firmware version of MA 4Port Nodes.
- Action buttons can be edited again using the edit hardkey and pressing an action button afterwards.
- Setup / Network / MA Network Configuration / DMX Nodes: The first 2 columns (id, name) are always visible when scrolling horizontal
- Fixture names display of dynamic channel faders has been improved.
- Moving masks in pool does not destroy link to links to sheets anymore.
- Tracking sheet layer Values only is displayed correct in combination with merge same values option.
- Dynamic channel fader pages can be used in combination with color readout CMY
- Channel page flash buttons respect world of current user.
- It is not allowed to copy or move fixtures or layers in live setup. These actions can be done in full edit setup only.
- The command line feedback view can display more characters per line. E.g. List Executor shows all possible executor options.
- The command "goto cue "name" " has been fixed.
- Max amount of sACN input universes per grid row is one universe. Amount cell of sACN input rows are not editable.
- Fixed color preset import from grandMA2 v2.7
- Sequence Sheet follow cue fade time display has been fixed.
- Empty Fixture sheet cells in vertical styled fixture sheets do not show off-colors anymore.
- Changing sheet color readout changes also encoder bar readout.
- Visible button glowing added at Autocreate dialog
- Setup/Patch Only/Fixture Position ID and name column is always visible, even when scrolling horizontally.
- The command "Selfix Bitmap x" selects all fixtures in a bitmap, even the bitmap is not linked to any executor
- Info window does not show wrong object numbers for fixtures anymore
- Patched DMX addresses of break 2-4 are displayed on the left side of the patch menu , when they belong to a subfixture
- grandMA1@grandMA2 hardware default keyboard layout has been set to English.
- Readability of Smart View Icons labels area has been improved.
- Backup Server Windows share mounting has been fixed.
- Network configuration DMX node clean-up: Mode column provides access to available modes of a MA 4port node only.
- Fixed "/use=allforselected" bug when storing XYZ values using this option.
- MAticks button is available while having encoders linked in special color dialog
- Effect editor follows user profile mixcolor readout switch.

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- Session collision pop-up does not disappear anymore when unlocking a desk.
- Knocking in XYZ values in combination with markers knocks in correct XYZ offset values.
- Editing Multiple effect lines at the same time will keep attribute selection when closing effect layer calculator.
- Reassign another SpecialMaster to an executor already containing a special master automatically loads special master button defaults.
- Color Special dialog link encoders have been changed to relative to be able to use them in combination with Align.
- Effect Editor encoder push and turn is 10 times faster than turning without push.
- Effect Editor / Edit Effect Line Low and High value wheels handling of template effects has been improved.
- Programmer effect encoder bar supports "Off Effect", "Release Effect" and "Stomp Effect" also when set to "All"
- When moving executors (move Executor 1 at 2) the motor fader of the empty exec will be moved to 0
- "The "Snap Percent" values of a sequence are obeyed when being executed as a chaser. The percent value will be calculated to the fade time of the chaser
- When desk is locked and non-motorized faders are moved, output does not jump anymore after unlocking the desk
- MSC (MidiShowControl) Slave takes over when becoming Master
- Off menu is working also with a few hundred pages of allocated executors
- Command "Update Cue" combined with a name will only be executed when the exact name already exists
- Trying to login with non-existing user using command line login command will not logout current user anymore.
- Command "Attribute 1.1.1 at 50" without fixture selection does not work anymore
- Command "Kill" does not exist for bitmap and effect executors anymore, because it is only possible for sequence executors
- With the editor in the content sheet individual timings can be removed
- LED Fixtures with a real dimmer are displayed in the output layer of the layout view with same intensity as LED Fixtures with virtual dimmer.
- Command Store If Attribute "dim" + "pan" EndIf works with both attributes
- Learn speed function for Bitmap effect executors has been implemented.
- Bitmap effect editor button naming has been changed. Basic tab scale mode has been renamed to "Scale Bitmap". Tools tab Scale 1:1 and Scale Fit has been renamed to Scale Modulator 1:1 and Scale Modulator Fit
- BPM speed master is assignable to bitmap effect playbacks
- Partial Show Read: When importing a show via PSR into an existing show which contains multi-patches , these will be not be destroyed anymore
- "Partial Show Read: Playback Settings of executors will be taken correct into a show(Priority / Off On Overwritten)."
- Selecting Fixtures using command line will be executed without please when touching inside the colorpicker dialog afterwards.
- Timecode show option "Status Call" can also be used when timecode signal has been interrupted and cues were triggered manually.
- Timecode editor does not automatically jump to next event deleting current event.
- Creating Reports for USB export using the List command will automatically create new folder "Report" inside USB drive gma2 folder structure. Workflow to create reports for USB: Choose USB drive in backup menu, select an executor with assigned sequence, "List Cue /Filename="mycuelist"
- Clone command respects locking of objects. It is not possible to clone new fixtures into locked objects.
- Logged in user will not reset to administrator when receiving an show download from a slave console leaving Patch and Fixture Schedule.

- Agenda calculator month and year button labels have been fixed.
- **grandMA2 onPC**
  - grandMA2 onPC Encoder Mode Rotation resolution has been decreased so one turn (360deg) will be the same value change as when turning console encoders
  - Windows® 8 grandMA2 onPC Wing driver are installed automatically when installing grandMA2 onPC
  - onPC Faderwing + monitor setup: switch screen 5 + 6 will exchange screens as expected.
  - Users without admin rights are allowed to shutdown grandMA2 onPC
  - grandMA2 onPC executor views display empty executors with a grey frame instead of an orange one

## Appendix



The command "store /remove" or pressing [store][cue][2] and the select [remove] in the pop-up will remove the whole attribute with all (!! ) its layers for fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.



Selecting multiple fixtures with a lasso in the layout view is respecting the snap grid settings to interpolate small position differences of fixture icons. The selection order will always be made inside of one snap grid cell first, afterwards line by line in the direction of the lasso movement.



The 4Port and 8Port Nodes do not supporting the SACN protocol by now.



The gma2 folder on your USB stick needs 3 additional new folders:

- a. gma2/user\_profile (copy your old user profile xml files from the gma2/importexport folder to this new folder)
- b. gma2/network\_nodes (this folder will be used to Import/Export the Node Configurations)
- c. gma2/fixture\_layers (this folder will be used when you Export Layer in the Patch and Fixture Schedule menu)



Network switch IGMP Snooping functionality has to be switched off to be able to update MA 2Port nodes.

## Known Limitations



- Release version **2.3** of grandMA2 divorced values and effect values! Therefore older show files might not be 100% compatible. Therefore please check your show file with the new version before using it live!
- With Version **2.5.70** the default speed of effects and the rate of effect lines has been exchanged by a single speed per line. Therefore older show files might not be 100% compatible. Please check your show file with the new version before using it live!!
- ASCII show import supports Strand, Transtechnik and ADB ASCII show files only.
- MA onPC command wing DMX input is supported for the ports "DMX In" and "DMX out A" only. The port "DMX out B" is allowed to be used as DMX out only!
- Before loading show files stored with grandMA2 **v2.7.x** the first time with grandMA2 v2.9.x, attribute Colormix4 and 5 and Colordim4 and 5 of self-made fixture types have to be manually adjusted to fulfill color specification Amber has to be Colormix 4 invert or Colordim 4 without invert, and White has to be Colormix 5 invert or Colordim 5 without invert. Otherwise color information of these fixture types will be lost after loading show file with v2.9.
- The Feature name for ColorDim/ColorMix has changed into MixColor. Macros using one of these feature names have to be adjusted.
- Known limitation when loading show files stored with **v2.8.x** for the first time in v2.9
  - Special Masters have a new data structure in grandMA2 software.
    - All Special Master custom labels will be reset to MA default labels
    - Assignment of 100mm faders will be reset to default.
    - Macros, referring to special masters have to be adjusted and have to use the new naming and numbering of special masters.
  - Macros referring to relative values have to be adjusted according to new relative/absolute syntax.
  - User profiles exported to USB drives have to be manually moved from importexport folder to user\_profile folder to be able to import these profiles using grandMA2 v2.9
- 4Port and 8Port Nodes have to be updated to v1.0.9 to be compatible with grandMA2 v2.9. 2-Port Nodes have to be updated to 1.74 to be compatible with grandMA2 v2.9.
- Channelset labels of fixture types have to be unique to be visible and accessible in calculator. E.g. Channel sets of Attribute Shutter = closed, open, open, open,... only one open is visible in the calculator. Changing channel set labels to closed, open, open(2), open(3),... will result in all channel sets are visible in the calculator.

## 53.5. Release Notes - Version 2.8

### Release Notes - Version 2.8

Released 2014-02-16



## Important:

- If you would like to update your dimMA system from any version below 7.x please contact your MA-dealer or MA direct for any update information. Should you be using grandMA2 in connection to our dimMA solutions, please get in touch with us, since a console update will now require a NDP update and vice versa. We are happy to assist you.
- The current versions of grandMA onPC and MA 3D require minimum Windows® XP with Service Pack 3. Microsoft® .NET Framework (4.0) will be installed on your computer, if not already installed.

## grandMA2 - Version 2.8.3.1

### Fixed Bugs and improved functionality

- Patching fixture types containing more than 4 breaks crash the console - fixed.
- Vertical Style fixture sheet crash with a specific amount of columns - fixed.
- Multiple file selection crash in bitmap importer - fixed.
- Bitmap editor modulator sheet was not usable - fixed.
- Agenda events were not executed if event was not created or edited at the same day - fixed.
- Possible crash when leaving Patch and Fixture Schedule - fixed.
- grandMA2 Replay Unit system slow down if no grandMA2 Faderwing was connected - fixed.
- MA 4Port Node DMX Output drops merged DMX Universes - fixed.
- grandMA2 Backup Server Windows share mounting was not always possible - fixed.
- External keyboards connected to NPUs may not be recognized correctly - fixed.
- Partial Show Read of presets which have been moved inside a preset pool was not always possible - fixed.
- Layout View lasso selection is able to handle a mixture of Fixture and Channel IDs - fixed.
- Backup menu "Mark all" has to be renamed to "Check All"
- Wysiwig DMX Invert - fixed.
- Install of grandMA2 onPC Wing driver has been improved when using Windows® 8.

## grandMA2 - Version 2.8.3

### Fixed bugs:

- FixtureTypes using mode channels with multiple dependent channelsets limit DMX output to range of first dependent channelset - fixed.
- Wrong sorting of color values in tracksheet when using part cues - fixed.
- Starting Preview mode does not remove input filter anymore.
- DMX Tester Encoder bar Encoder 3 is updated when DMX channel is selected via command line.
- Readability of cue numbers using more than 5 digits has been improved inside sequence executor sheet cue renumber dialog.
- Editing multiple grid cells using Lasso selection in combination with edit hardkey - fixed.
- Info View cursor position offset has been fixed.

# grandMA2 User Manual

Version 3.3



- Link fader pages could be Offset, when using link fader pages in combination with dynamic channel pages. This has been fixed. It is not possible to have Buttons and faders at different pages while Link fader pages user Setting is active.
- Default effect mode has been set to Absolute for Feature ColorRGB.
- Color Special Dialog refresh if Color Output is changed by starting a new playback or calling a cue.
- MA onPC command wing button longpress toggle bug has been fixed. E.g. Longpress Store will open Store Options in the same way as it is done at grandMA2 consoles.
- MA onPC command and fader wing are displayed in the network config onPC tab type column.

## grandMA2 - Version 2.8.2.6

### Main feature overview:

- Software Update via Network
- New Handling of additive and subtractive color mixing fixtures.
- Graphical Faderwing and Monitor Setup
- Improved and new structured fixture library
- Improved Patch Dialog
- Macro Pool objects status indicator
- XYZ Stage Marker
- Sound In
- grandMA2 onPC Wing Configuration

### New functions and features in detail:

## ● Software Update via Network

- Software Update via Network has been implemented. Minimum Streaming version for software update via network is grandMA2 [2.8.0]. Stations running former grandMA2 versions have to be updated the known way via USB. Network Update can be found at /setup/console/Software Update. List of stations to update can be filtered by session ID. Stations already running same version are hidden by default. Activating show same version will also show stations running same version. Software Update via network also supports updating multiple stations simultaneously by press and hold CTRL and select multiple stations. grandMA2 consoles and grandMA2 onPCs can be used to update other grandMA2 consoles, NPUs, MA 3D, MA VPUs MA 4Port Nodes and grandMA2 onPCs running grandMA2 Streaming [2.8.0] or later.

To be able to update via network, please download the following files from MALighting.com:

- grandMA2[streaming gMA2][streaming gMA1].update
- 4Port\_[version].update,
- MA 3D Installer ( gMA3D\_[version][streaming].exe )
- MA VPU Installer ( gMA-VPUs\_[version][streaming].exe )
- grandMA2 onPC installer. ( gMA2onPC\_[version][streaming].exe )

Copy all files needed for your devices to an empty USB drive root directory. USB drive should use FAT32 file system. The USB drive has to be connected to the transmitting grandMA2 console or computer running grandMA2 onPC while updating.

- Software update via network is also possible using command line. Syntax would be "UpdateSoftware [IP-Address]" Update Please would update current console. USB drive containing update files as described above has to be connected to grandMA2 console or computer running grandMA2 onPC while updating via command line as well.

## ● Setup

# grandMA2 User Manual

Version 3.3



- New Handling of additive and subtractive color mixing fixtures.
  - Due to the raising amount of LED fixtures and to improve fixture exchange, the former features Colormix and Colordim have been exchanged by a new Feature called ColorRGB. grandMA2 library has been converted. Show files will be converted when loading the show file the first time with grandMA2 v2.8.0.
  - Generic LED fixtures from grandMA2 library always contain a dimmer. Fixtures not having a real dimmer inside their dmx footprint will get a virtual one. Virtual dimmers work like a master for all ColorRGB attributes.
  - New sheet readout option to choose sheet and encoder readout between Default, RGB and CMY. Per Default all sheets will follow global readout setting which can be changed at /setup/user/settings/Default Color mode. . This option changes the readout only. Fixture types will still use ColorRGBs. Encoder Color readout will follow last touched sheet readout. For fast readout switching a special title button color readout can be activated inside sheet options title button tab.
  - Special Dialogue Color has new option Link Encoders to control special dialog faders via encoder. With activated link encoder encoder 1, 2 and 3 will control the choosen special dialog colorfaders.
  - Edit Setup / Fixture Types / Attribute + Encoder Grouping: New Color Feature "ColorRGB". This feature replaces former features Colormix and ColorDim. Default ColorRGB colors are: ColorRGB1=Red, ColorRGB2=Green, ColorRGB3=Blue, ColorRGB4=Amber, ColorRGB5=White, ColorRGB6=Warm White, ColorRGB7=Cool White, ColorRGB8=Orange, ColorRGB9=Red Orange, ColorRGB10=Purple, ColorRGB11=Indigo, ColorRGB12=Cyan, ColorRGB13=Magenta, ColorRGB14=Yellow, ColorRGB15=UV, ColorRGB16=Green Cyan, ColorRGB17=Medium White.
  - Attribute and Encoder Grouping and Edit Fixture Type dialogue got a new column Color. These Colors will be used for displaying light output color inside StageView and 3D and will also be used for colorpicker color calculation at future grandMA2 versions.
- grandMA2 Fader Wing
  - Graphic mode has been added to Setup / Console / Faderwing + Monitor Setup. Current connected hardware is marked by green check marks. New surfaces can be added or removed inside this dialog. This dialog can be used to arrange screens for mouse cursor navigation through all screens. To assign a screen encoder of an external fader wing to an external screen, the fader wing has to be moved above or below the screen. A grey encoder icon inside external screen symbol displays a correct assigned screen encoder. Pressing edit and touching any module or right mouse click any module can be used to assign a different part of current executor page to a fader module and to change screen assignment of external screens. Default surface 1 is locked and cannot be changed.
  - Surfaces can also be changed using command line. E.g. The command Surface 2 will switch to surface 2.

## ● Fixture Types

- Fixture type library menu has been improved. Library will be displayed as table and can be sorted by any column and filtered by manufacturer or fixture type. DMX footprint, number of instances and fixture info is also displayed inside this menu. Manufacturer and Fixture Type filter algorithm has been improved to be able to find fixtures without knowing the exact file name. Fixture filter filters by fixture and mode column. Info window displays attribute to DMX mapping, Info and Revision Notes of currently focused fixture. Info window can be hidden using the *i* title bar button.
- By default, all fixture types are using a generic 3D model depending on the class of the fixture module. Custom 3D models can be assigned to fixture types inside module manager using model column. Module manager can be found at /Setup/Patch and Fixture Schedule/Fixture Types/Module Manager. Multi Instance fixtures can have a fixture housing model in addition to the module manager subfixture models. These housing 3D models are assigned by choosing them inside model column of fixture type table. Exporting a fixture type includes assigned 3D model. Exchanging a 3D model of a single fixture can be done using 3D application or using /Setup/Patch Live/Fixture Position/ dialog model column.
- "New keyword ""Model"" for 3d models in show file E.g. the command ""List Model"" lists all 3D models of this show file. The already existing keyword ""Items3D"" has been renamed to ""Item3D"" The syntax Assign [model] at [item3d] has been implemented to assign 3D models to fixtures using command line or macros. E.g. "Assign model 2 at item3d 10"
- Fixture type info editor has been reworked. Fixture types can contain Infos and Revision Notes with time stamps. Time stamps are automatically created, when manually adding Infos or revision notes.

## ● Patch

- Patch dialog has been reworked. Touching a DMX address at the right part of the patch dialog patches current focused fixture to touched DMX address. Right hand side of patch dialog only shows one universe at a time. Universe can be chosen via green soft key above scrollbar. A new Patch encoder bar has been implemented. Encoder one can be used to scroll through left all fixtures displayed at the left side of patch dialog. Encoder 2 and 3 can be used to choose DMX Universe and Address. Pressing Encoder 3 will patch current focused fixture(s) to chosen DMX address.
- Patch dialog DMX Test Output functionality has been implemented. Encoder 4 of the new Patch dialog encoder bar can be used to set to a Level to test current chosen DMX address. Be aware using the Test DMX Output functionality of the patch dialog also affects and resets DMX Tester generated DMX Output.
- Setup / User / Settings: New User Option "Patch Column Readout is absolute DMX Address". Activating this option will display DMX Addresses as absolute values instead of separated by Universe and Address inside this universe. E.g. 2.500 = 1012. Additional, this option can be changed inside DMX Patch dialog.
- Create Multipatch has been moved from patch to fixture layer dialog. Multipatches can include 3D models to be visualized in Stage View and MA 3D. Multipatch fixtures will be displayed as Master/Slaves in Fixture Layer. Deleting Master will move next multipatch up to be new Master. Position of Multipatch fixtures can be adjusted inside fixture position dialog which can be found at the Patch and Fixture Schedule or Patch Live dialog.
- Patching using Commandline: Assign Fixture X at DMX Y deletes current patch of fixture X and patches fixture X at DMX address Y. Assign DMX Y at Fixture X creates a Multipatch for DMX Y at Fixture X. Assign DMX Y at Fixture X/reset will delete any MultiPatch of Fixture X.
- Multi Selection of Executors has been implemented. Press and hold select key and choose more than one executor. Last selected executor is displayed with light green background, all other selected executors are displayed with dark green background. The commands On, Off, Go+, Go-, Pause, Fast Forward, Fast Backwards and Top Please will be executed by all currently selected executors. Selecting a single Executor will deselect all other executors.

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- grandMA2 consoles and NPUs can be remote rebooted or shut down via network using station IP address. E.g. The command Shutdown 192.168.0.4 will shutdown console or NPU with IP address 192.168.0.4 Reboot and shutdown can be canceled within 10s at the station receiving a remote reboot or shutdown command.
- Column width of setup tables has been included in user profile.
- Improved Multiuser Access Conflicts. E.g. As long as a user is changing a name, number or timing of a cue, other users cannot modify this cue. If another user tries to edit or modify this cue, he will get a automatically disappearing warning pop-up.
- Pressing MA+. will add Default to the command line without automatically executing this command anymore. E.g. Pressing MA+. and an Encoder bar Presettype button afterwards will add default values for chosen Presettype.
- New command "menu /reset" to switch all dialogs back to default screen.
- New option for command Call: status Call Cue 3 activates all values of Cue 3 in programmer. Values of Cue Zero thru Cue 2.999 will be inactive in programmer. Call Cue 3 /status activates all values of Cue Zero thru Cue 3 in programmer.
- It is possible to reference Fader and Button pages by name using wildcards. E.g. Off Page "Song\*" will switch off all pages with page labels starting with "song".
- The store option "Status Merge" includes also effects.
- The commands Record Macro x and Record Timecode x will create a new macro/ timecode object, if object does not already exist. The commands Off Macro and Off Timecode without any following number will switch off all currently running macros or timecode playbacks.
- Channelpage buttons can be disabled and Faderpage and Buttonpage buttons can be linked to switch complete pages. Option can be set at Setup / User / GrandMaster + B.O. Settings.
- "add multiple" to add more than one new remote input row in Setup / Show / Remote Inputs Setup / Analog - Midi - DMX Remotes.
- Setup / Network / MA Network Configuration: onPCs are displayed inside a new TAB.
- Fixture Type Creation Choose Attribute dialog has been improved.
- Kill can be used with or without considering Executor Off-time. Option can be set using Setup/Show/Playback+MIB Timing.
- New Option in User Setting: Setup / User / Settings / "Disable Viewbutton and View CLI". (CLI = Command line Interaction). With this option activated Views and Viewbuttons will not interact with the command line anymore. E.g. Hitting the store button to store a group and realizing you have to change the View to get a group pool would not accidentally store a view anymore.
- "Value Encoder resolution can be changed per attribute using Attribute and Encoder Grouping dialog or by using command line: Assign Attribute """"/EncoderResolution. E.g. Assign Attribute ""Tilt"" /EncoderResolution=fine.

## ● Pools and Sheets

- Macro Pool objects show their current status (Play, Pause and record) and the number of the current active macro line.
- Sequence Executor Sheet: Multiple CMD cells can be selected using CTRL and edited at the same time.
- New Sheet option "Merge Same Values". This option defines whether Attributes of the same feature currently having the same value are display as one value or as one value per attribute. This option does not apply for presets.
- Editing any MATricks objects displays a new MATricks editor. Using this editor, MATricks object can be labeled, modified or exchanged by a predefined one.
- Executor Assign menu list buttons are got list button indicator.
- Info View window has been renamed to Info Sequence Window. New Info window can be used to create Info for any object. New Info View Window works like a text editor. Link Selected will display Info of selected sequence. using the Info title button and touching any object afterwards will show editable Info of this object, e.g. sequence, group, preset,...
- All pool items display a small i, if a pool object contains a Info and is not locked.
- Specialmaster BPM can be assigned as Effect Speed Group. Effects will follow calculated Sound-IN BPM signal. One Shot per BPM trigger.
- Effect editor displays Rate and Speed column. These columns are related to each other.
- Effect size defaults for P/T reduced to +/- 50

## ● XYZ

- StageView Follow can be aligned. Activating any align mode and touch and move inside follow mode stage view will fan selected fixtures beam positions.
- Stage Markers have been implemented. Stage markers are Moving Paths other fixtures using XYZ can refer to. XYZ beam position of fixtures not assigned to any stage marker are absolute XYZ coordinates in 3D space. XYZ beam position of fixtures assigned to a stage marker are relative to this stage marker's position. Moving, Rotating or Scaling a Stage marker will recalculate all XYZ beam positions of fixtures using this stage marker according to the changes made with the stage marker.
- New Executor assign menu option "Forced Pos." to choose fixture position feature fades between always Pan/Tilt Fade (PT), always XYZ Fade(XYZ) and Auto. Auto mode will fade attributes as stored. Pan Tilt values fade in Pan Tilt mode and XYZ values fade in XYZ mode. The same setting can be chosen per cue using new sequence executor sheet column. A forced transition mode per cue will always overwrite forced transition mode set per sequence.
- Stage View Calibration mode provides new button Stage values. This button will set current selected fixtures attributes to values of the fixture type stage column. Warning: grandMA2 library fixtures stage values are not set to be able to use this functionality stage values have to be set in fixture type first.

## ● Sound

- Sound In has been implemented. Sound In View provides access to Special Masters related to Sound In. These Special Masters can also be assigned to executors. Sound In has to be connected to be able to see any information in this window.
- Cues can be triggered using Sound or BPM trigger. Column Trig Time can be used to further adjust Sound trigger frequency or BPM scaling factor.
- Chaser can be assigned to BPM master using Edit Chaser dialog. Chaser will then follow Sound-In calculated BPM value.
- Load Show and New Show dialog enhanced by "set all markers" button.

- Speed masters can be set to values beyond 225 BPM using learn button or double or half speed button. Speed master max value will be automatically changed any time when using this buttons.
- Executors triggered via timecode or command line will be transmitted via Midi Show Control.
- Pop-up will be displayed if commands cannot be executed because of insufficient user rights.
- Session Collision Box will be displayed at all Screens. Session collisions have to be solved before being able to continue.
- Changing executor assign menu options will ask for confirmation if playback needs to be switched off for applying changed option.
- Swipe functionality has been changed. Swipe menu will only stay open if swipe gesture is moved out of swipe menu before releasing touch.
- Timecode Autostop Option "Switch Off" uses the Executor Off-Timing.
- grandMA2 library updated to Carallon 9.0.
- New ESP Vision driver enabling support for up to 255 MAnet2 DMX Universes.
- Thumbnails received via CIP are shown in fixture type editor wheel slots manager.
- **grandMA2 onPC**
  - Setup / Network / MA Network Configuration: grandMA2 onPCs will be displayed in a separate TAB. Each grandMA2 onPC is always listed with all possible connected MA onPC Command and MA onPC fader wings. If more than one MA onPC fader wing is connected to a grandMA2 onPC, MA onPC fader wings have to be assigned to a logical fader wing 1 or 2 by using the "Identify Fader 1" or "Identify Fader 2" and press any button on that MA onPC fader wing within 10 seconds.
  - Support for grandMA2 onPC has been added to Wing and Monitor configuration menu. Menu can be found at /setup/console/Faderwing and Monitor Setup. In Multi Screen Mode This menu can be used to remap faders or mirror internal screens to external screens. Surface 1 is a locked default surface. Editable surfaces can be added using "Add Surface" button.
  - "Additional external screen resolutions have been added to onPC multi-screen mode: 2048x1152, 1650x1050 and 1280x768.

## Fixed Bugs and improved functionality

- Crash fixed when enabling all Tracksheet headline buttons.
- Crash fixed when activating and deactivating XYZ without leaving Patch and Fixture Schedule in between.
- Crash fixed when editing tracking part cue values.
- Crash fixed when one console (or onPC) with an opened Label Bar (label group x), while receiving a show download from another station.
- Sequence speed and rate assigned to executors can be faded using the Executor x at y fade z command.
- Setup Fixture Layer: Columns FixId and ChId are fixed when scrolling horizontal.
- Using Coolux Pandoras Box Desktop Streamer in combination with CIP doesn't crash grandMA2 software any more.
- Off menu is sorted from first called to last called from bottom to top. Any playback calling will bring this playback to the top of the off menu list. After show uploads this list is initialized from bottom to top.
- If station, which currently calculates channels, will leave the session, output will stay as is for cue with active crossfade or temp fader.
- Content Sheet window resize functionality is also possible in combination with horizontal scroll bar.

- Partial Show Read doesn't mix up the attribute and encoder grouping of current loaded show file any more. All Attributes from current show file will stay at their position. Attributes coming from partial show read show file will be moved to the referring position of current loaded show file.
- Partial Show Read Prepare merges also 3D Environment. With the soft key use other stage also the stage plane of the partial show read show file can be merged.
- Partial Show Read: If fixtures coming from partial show read show file create a patch collision, these fixtures will be unpatched leaving the patch of current loaded show file included fixtures untouched.
- grandMA1To2 Show file converter: Semi colon in macro lines will be converted to grandMA2 show file.
- Program and Exec time assigned to executors can be faded using the Executor x at y fade z command. E.g. Executor 1 at 50 fade 3.
- The command "executor x at 50" also works for Temp faders.
- Auto Stomp functionality of high priority executors in combination with deactivated Soft LTP has been improved.
- Chasers started using Temp faders are able to run forwards or backwards.
- Insert executor pages has been improved and does not move unnecessary pages anymore.
- Alternating between Scroll bar and scroll encoder inside big lists is possible at any position.
- Executor Assign menu Save Default Sequence Options also saves current Input filter setting.
- Encoder resolution settings have been included in user profile.
- Command Import "" at cue x import at specified cue number. If cue already exist then user will be asked.
- grandMA 1To2 Show Converter: Effect default speed is 60 BPM. Dim and Move Paths are converted correctly. Highlight and Zoom From values in Fixture types are converted correctly. Command links in cues that have more than one command are converted correctly as far as possible.
- Goto Cue x Executor y thru z calls Cue x for all executors y thru z containing a cue x.
- Command Assign Executor 1 thru 10 /option=value assign option to all possible executors of given executor range.
- Fixtures profiles are allowed to use more than 512 DMX channels.
- onScreen Keyboard: long press Backspace key has been fixed.
- Follow cues are automatically triggered correctly after finishing manual x-fade to the cue in front of the follow cue.
- "Xfade and Temp fader are using the Snap percent setting of the cue / Snap% works with XFade and Temp Fader also when fading down.
- Renumber Cue dialog: Stepping though the dialog using Please when renumbering a single cue has been fixed.
- Timed macros can be triggered via TelNet.
- Tracksheet option extract preset can be used in combination with lasso selection.
- Playback Big View soft fader bounce has been fixed.
- The command "Menu Update" always opens update menu, even if there is nothing to update - update button is not highlighted.
- Highlight is not automatically disabled any more when a user in the session forces an upload by leaving Patch and Fixture Schedule.
- Patch dialog calculator is able to summate dmx addresses input via mathematical expressions like 25+24.
- Macro wait time ranges can be spread to multiple macro lines if more than one macro line is selected.
- Button Executor master is automatically reset to 100% when an executor is assigned, copied or moved to a button executor.
- Group master overview displays different mode group masters of one group separately.
- 7inch Multitouch functionality has been implemented for pool playbacks.
- Fixtures not having any 3D body cannot be positioned inside Setup, stage view or 3D any more.

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- Single fixture group name executor display has been improved and looks the same as single fixture group pool name display.
- Motor Fader functionality of reassigned external fader wings connected to a grandMA2 Ultralight has been fixed.
- Playback filters of running playbacks are initialized correctly when loading a show file.
- Setup DMX Patch column always displays first used DMX Address (DMX start address) of this fixture instead of DMX start address of first subfixture.
- Running effects view does not show already deleted effects any more.
- No more additional space is reserved for an additional dimmer attribute, if it's not present in any fixture having a channel ID.
- Tracksheet autoscrolling in Preview of 'Not Linked' tracksheets has been fixed.
- Reassigning a fixture type does not destroy link to moving paths any more.
- Auto created groups can also be used as masking objects.
- Off + lasso in a fixture sheet has been improved to also work on multiple attributes.
- Stage Plane dimensions can be adjusted using MA 3D application only.
- Fixture position and rotation changes can be undone using oops.
- Sequence Executor Sheet multi-selection using CTRL+touch or CTRL+mouse click has been implemented.
- Update Oops Update does update the correct part cue again.
- Fixed Faders are reassigned correctly after changing surfaces.
- Edit Sequence dialog "Test Cmd" works also with Part Cues or multiple cues selected.
- DMX Profile editor got a Label Profile button.
- Nonfunctional Add and Delete buttons inside /setup/Patch only have been removed.
- Preset pool display of 4 digit preset pool numbers has been improved.
- Fixture sheet column width of last column can also be saved to default or remembered when recalling a view.
- Import dialog: Use earliest/use latest softbutton label is changing when using hardkey X19.
- Edit Cue X - Update please updates all values to their correct part cue.
- Stage view rotation calculator respects Group/Single rotation.
- Triggering a button executor from a macro is now respecting current exec time setting.
- Fixtures can be removed from presets using programmer "Remove" values.
- Deleting an executor page will automatically unfix all fixed executor of the deleted page.
- Sheet title bar Preview indicator will stay visible after updating cues in Preview mode.
- Snap Percent setting will be used when using Exec Time Set Time or Exec Time Manual X-Fade Mode.
- Activating Auto Fix of already running executors immediately will auto fix executor.
- Attribute filter menu background has been changed from red to dark grey.
- Labeling CueParts within store operations also works without having to label Cue Part 0 first.
- Autofixed Effects using off time are un fixed after being switched off.
- Split XFade A / B has been improved for non-tracking sequences.
- Switching off paused chasers considers Off time.
- Xfade revert is working as expected when jumping inside sequence using Goto or Load.
- Channel X At +/-Y knocks in current output value +/- Y and is respecting Sequence Masters.
- MA onPC Wing DMX In has been improved.
- grandMA2 onPC has been improved to run more smooth on older graphic cards.
- Numeric keypad hard keys can be assigned to other functions than numbers as well via onPC Keyboard shortcuts.

## Appendix



If you would like to update your dimMA system from any version below 7.x please contact your MA-dealer or MA direct for any update information. Should you be using grandMA2 in connection to our dimMA solutions, please get in touch with us, since a console update will now require a NDP update and vice versa. We are happy to assist you.



The command "store /remove" or pressing [store][cue][2] and the select [remove] in the pop-up will remove the whole attribute with all (!! ) its layers for fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.



Selecting multiple fixtures with a lasso in the layout view is respecting the snap grid settings to interpolate small position differences of fixture icons. The selection order will always be made inside of one snap grid cell first, afterwards line by line in the direction of the lasso movement.



- Release version **2.3** of grandMA2 divorced values and effect values! Therefore older show files might not be 100% compatible. Therefore please check your show file with the new version before using it live!
- With Version 2.5.70 the default speed of effects and the rate of effect lines has been exchanged by a single speed per line. Therefore older show files might not be 100% compatible. Please check your show file with the new version before using it live!!

## Known Limitations



- show file Conversion from Version 2.2 and earlier: The speed of a selective effect, stored in a cue, will not be brought correct into programmer, if the cue gets edited and the default speed of the effect in the pool is not 60 BMP.
- ASCII show import supports Strand ASCII show files only.
- MA onPC command wing DMX input is supported for the ports "DMX In" and "DMX out A" only. The port "DMX out B" is allowed to be used as DMX out only!

### 53.6. Release Notes - Version 2.7

#### Release Notes - Version 2.7.0.10

Released 2013-01-08



## Important:

- If you would like to update your dimMA system from any version below 7.x please contact your MA-dealer or MA direct for any update information. Should you be using grandMA2 in connection to our dimMA solutions, please get in touch with us, since a console update will now require a NDP update and vice versa. We are happy to assist you.
- The current versions of grandMA onPC and MA 3D require minimum Windows® XP with Service Pack 3. Microsoft® .NET Framework (4.0) will be installed on your computer, if not already installed.

## Bugfix Release - Version 2.7.0.10

### Fixed Bugs and improved functionality

- DMX drop to Zero while show upload - fixed
- Sorting the effect editor grid crashes the console - fixed
- Crashes when using auto generate with broken fixturetypes - fixed
- Changing the selection in timecode view/editor in a multiuser environments led to crashes - fixed
- It was possible to open the prepare menu twice within partial show read - this led to a crash - fixed
- Using the command copy screen x at y crashed the console - fixed
- When in preview jumping to Cue Zero caused problems (crash) - fixed
- Inside the fixture sheet it was not possible to combine a command line entry (e.g. Off) with a lasso selection - fixed
- gMA2 external screens are not displayed full screen and are missing parts of the screen - fixed
- Presets containing RGB and/or CTC from show files generated with gMA2 software Version 2.5 were not converted correctly - fixed
- onPC Windows® XP onPC incompatibility bug - fixed.
- onPC GUI login does not work without physical keyboard - fixed
- onPC in Single screen mode: Encoderbar malfunctions in screens other than the first - fixed
- onPC external Displays in multiscreen mode: additional resolutions: 2048x1152, 1280x768

## Bugfix Release - Version 2.7.0.6

### Fixed Bugs and improved functionality

- Network session freeze fixed, when loading show files containing illegal XYZ Cue data.
- Mask Seq- has been fixed
- Crash fixed when patching fixtures containing illegal attributes
- grandMA2 onPC CIP update thumbnails freeze bug has been fixed.
- Crash fixed when trying to create a new encoder grouping.
- Colordim preset pool color symbols bug has been fixed.
- Pan and Tilt Encoder invert conversion bug when loading old show files has been fixed.
- Dummy channels cannot be controlled by calculators any more

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- Bug fixed which prevented in some cases the positioning of multi instance fixtures in stage view.
- Edit Cue X will bring the status of cue X in the programmer, Cue content as active values, tracked content as inactive values.
- Playback fades should not be affected when storing or updating objects anymore.
- Reselecting fixture X after Off fixture X bug has been fixed.
- Cropped external screens bug has been fixed.

Release - Version 2.7.0.3

## Main feature overview:

- XYZ - Virtual Position Feature
- CITP/MSEX - Media server thumbnail exchange
- Timecode clock view.
- Improved Timecode editor
- Timecode trigger as cue trigger.
- grandMA2 Fader Wing alignment of internal and external fader modules.
- Live recording of Macros
- Expanded DMX Sheet
- Session password
- Group master overview expanded to Special master overview
- Free scalable grandMA2 onPC
- Changed grandMA2 onPC parameter count.

## New functions and features in detail:

## • XYZ

- Stage View XYZ Follow Mode has been added. Activating the follow mode will temporarily deactivate all other stage view modes (Select, Orbit, Panning and Zoom) until the follow mode is disabled. Touching the stage view with activated follow mode will move the beams of the currently selected fixtures with enabled XYZ to this position if possible.
- Virtual XYZ Attributes can be added to any fixture using physical pan/tilt attributes by pressing the new "+XYZ" button at the fixture type editor. Pressing the "-XYZ" button at the fixture type editor will remove the virtual XYZ attributes of the edited fixture type. This will also remove any XYZ values stored for fixtures using this fixture type from your show. XYZ Encoder Resolution Normal = 0.1m, fine=0.01m, ultra=0.001m. The following virtual attributes are added, when adding XYZ support to a fixture.
  - PosMod: Mode Attribute to switch between Pan/Tilt and XYZ Mode.
  - X, Y and Z: 3 Attributes to define the illuminated position on stage.
  - Flip: Attribute to define which flip position of a moving head fixture should be used to reach a certain XYZ position. Special flip modes are:
    - AutoFlip: fixture flip is avoided as far as possible.
    - NoTiltFlip: fixture tilt axis will never be flipped. This is needed to avoid upside down projections of Gobos or Shaper modules.
  - Mark: Reference Markers attribute is for future use.
  - Distance: This attribute is needed for seamless transitions between Pan/Tilt and XYZ. The distance attribute value is the distance between a fixture and the illuminated position/object.
- Stage view displays positions of 3D objects with activated "Follow Target" option at the stage view. When creating a new show or loading a show file from a previous version, follow target is activated for the stage plane only.
- New MATricks wing-style modes "X", "Y", "Z" and "X+Y" in addition to the already existing Pan and Tilt wing-style modes.



Do not unblock sequences containing a mixture of XYZ and Pan/Tilt position data nor store /remove or remove values to remove single attributes of the position preset type of cues when using virtual XYZ. This could result in unexpected loss of position data inside your sequence!

- Stage fixture position calibration implemented.
  - The button to open the Stage fixture position calibration dialog can be found at the stage view options menu. Press the yellow ball to open this menu.
  - To be able to calibrate, please mark and measure the corner points (A,B,C,D) of a rectangle at the stage.
  - There are two modes of entering the positions of the points A,B,C and D at the calibration dialog.
    - Absolute Mode: Please Select fixture(s) and enter the coordinates of point A (X,Y,Z) and the correct distances to the points B and D.
    - Free Mode: Select fixtures and enter the correct coordinates of point A (X,Y,Z), B (X,Y,Z), C (X,Y,Z).
  - Focus each fixture to position A using pan and tilt attributes.
  - Select all fixtures again and press the **Store** button followed by the soft button **A**. The position of the current selection will be stored for point A.
  - Repeat steps 3 and 4 for points B, C and D.
  - Select all fixtures again and press the soft button **Calibrate**. The physical positions of all selected fixtures are calibrated now.



It is possible that each individual fixture can be calibrated within a separate physical rectangle. A'(\*)' means that the parameters of the rectangles are not equal across current selection.

## ● CITP/MSEX 1.0

- CITP/MSEX is a network communication protocol designed for communication between lighting consoles and Media servers or visualizers. This first implementation includes thumbnail exchange between third party media servers and grandMA2 consoles.
- The CITP configuration can be found at /Setup/Network/CITP Network Configuration.
- The CITP Enabled button in the upper right corner of this dialog is a global switch to enable/disable CITP session wide.
- There are 4 tabs inside this dialog, Lighting consoles, Media Servers, Visualizers and Operation Hubs.
  - **Lighting consoles tab:** When pressing add present button at the lighting console tab, any lighting console with enabled CITP will be listed here (for information purposes only).
  - **Media Servers tab:** At the Media Server Tab, Media Server can be manually added using the add button, or automatically when using the add present button.
    - If the row of a media server is red, the media server is not present at the current network, or the CITP functionality of the media server has been switched off.
    - If a row of a media server is displayed green, media server is present at the current network.
    - At fixture layer column, grandMA2 fixture layer containing media server fixtures has to be chosen.
    - If the library and the image subattribute of the media server is not automatically recognized correctly, the user can change them manually by editing the referring grid cell. After pressing the button update thumbnails, the thumbnails of the video or image content will be copied from the media server to wheels inside the fixturetype of the first fixture of the chosen fixture layer. Attribute mode dependencies and channelsets of the chosen library and image attribute of the fixturetype of the first fixture of the chosen layer will be updated. Depending on the number of received thumbnails and the speed of your network, this may take some time. A progress bar at the CITP command cell of the respective media server row is displayed until the transmission is finished.
  - Visualizers tab: for future use.
  - Operation hubs: for future use.

## ● Timecode improvements

- New clock view modes: SMPTE Timecode and Midi Time Code. Incoming Timecode signals may be displayed using these new clock modes. Receiving valid Timecode signal is displayed by green text color while the text color is grey as long as no valid Timecode signal is received.
- The Timecode Editor Cursor position is not allowed to be negative anymore.
- The current time marker stays in center of timeline while playback or record at the Timecode Editor and Timecode Viewer.
- The number of selected events is shown in the label of encoder 4 "Turn to move n events" at the Timecode editor encoder bar. The new button "clear selection" deselects all currently selected Timecode events.
- Timecode show: There is one time cursor per Timecode show in a network session. The selection of Timecode events and the focus of Timecode tracks is per user profile in a network session.
- Encoder 3 of Timecode bar is now also available in the Timecode view. Events will only be focused and not selected because Timecode view is read only.
- As long as follow time is active in the time code editor or viewer, in graphic mode, the last triggered event of the currently selected track/subtrack is automatically selected/focused during playback. In Text mode, the last triggered event of all currently visible tracks/subtracks is automatically selected/focused during playback. If Timecode sync is set to intern, the Timecode show playback is paused as soon as an event is moved using encoder 4.

- "Copy and paste has been implemented in the Timecode editor. If no event is selected, but a subtrack is focused, all events of that focused subtrack will be copied. In this case the time offset before the first event will be used while pasting at the destination. If events of one subtrack are selected, these events will be copied to the clipboard. The focus has to be set to the target subtrack and the time position the first selected event should be pasted before pressing the paste button. If events of more than one subtrack are selected, all selected events will be copied to the clipboard. The focus has to be set to the first target subtrack and the time position the first selected event should be pasted before pressing the paste button. Pasting multiple subtracks is possible, if the type of the target subtracks matches the source subtracks. "
  - The Timecode pool has a "link encoder" option. As long as this option is activated the Timecode encoder bar will be present as soon the Timecode pool is touched.
  - A right mouse click on the title of a command track in the Timecode editor opens the "change executor" window.
  - A right mouse click on the title of a subtrack in the Timecode editor opens a popup to change the subtrack function.
  - Timecode Editor: "Add Here" adds event at next frame, if there is already a event at the current position of the current subtrack. If there is also a event at next frame, no event will be added
  - Selecting a Timecode event will show the current trigger time of the selected event above the event. Touching and moving this flag will move the event. When selecting more than one event, the flag will be at the last selected event.
  - Timecode editor calculator is using the current Timecode show time unit. The time unit of a Timecode show can be adjusted at the Timecode editor options menu.
  - Timecode editor calculator maximum time has been increased to 255h59m59s29F
  - Add multiple events wizard at the Timecode editor. The number of added events can be adjusted at the first input box. The second and the third input box are related to each other when changing one of them the other will automatically be recalculated. At the fourth input box, the cue of the first event can be selected. Hitting please will create the events. If the number of cues is less than the number of events to add, the wizard will continue adding event starting from the first cue of the sequence.
  - There are 4 symbols in front of all Timecode tracks at the Timecode editor: a plus/minus to expand or collapse the subtracks of each track, a checkbox for toggling the visibility of each track in text view, a play symbol (arrow) to enable/disable the playback of each track and a record symbol (red dot) to enable/disable the record functionality of each track.
  - Timecode tracks and subtracks can be locked and unlocked using the referring button at the track functions popup. A padlock will be displayed, if a object is locked.
  - The Timecode editor text view grid can be sorted by any column. Touching and swipe upwards or downwards at the headline of a column sorts the grid by this column. The sorting order is displayed by a small arrow inside the headline of the column.
- 
- Two more trigger types have been added as cue triggers, SMPTE and MTC. The Timecode position has to be entered at the trig time column of the sequence executor sheet. As any other cue trigger, the SMPTE and MTC trigger will only trigger the referring cue if the sequence playback is on and the cue previous to the Timecode triggered cue is active.

## ● Fader Wing setup

- The mapping of the logical 15 fader wide blocks of executors to the physical internal fader modules and external fader wings can be setup at this menu.
- The Fader Wing setup can be found at the /setup/console/Faderwing and Monitor Setup
- The button Add Wing setting adds a new configuration set.
- The button Delete Wing setting deletes the current focused setting.
- The button select Wing setting activates the currently focused setting. The currently used setting is displayed at the menu headline and by an green cell background color.
- The Page+/Page- buttons of the external fader wings can be disabled at this dialog too.



Monitor configuration setup is not supported yet



The Mini executor displays of screen 3 and 4 are not following the remapped executors, when remapping the internal fader modules.

- New DMX Sheet headline buttons: "Programmer Colors" displays the DMX values in the same colors as the fixture sheet does. At the "Show additional" button the following options can be chosen: "Show only values" shows only the DMX values; "Show IDs" shows the Channel/Fixture ID, name and the DMX value; "Show Attributes" shows the Attribute controlled by this DMX Channel, and "Show Address" shows all single DMX Addresses above the DMX Value.

## • Command Line

- Remove has been added to the calculators of the following effect layers: low, high, phase and width.
- New oops option: "oops /clear" deletes all oops events.
- Moving executors will not switch off the executors any more.
- New command: Selfix DMX [universe].[address] will select the channel/fixture patched at the referring DMX address. Pushing "Selfix" (2xSelect), and touching any cell at a DMX sheet will select the fixture patched at this address.
- The Default camera of MA 3D can be set by the new command "Select Camera [name of the camera]"
- New Command Line command: "Update Cue Thru /addnewcontent" ("/an") will store the current active values at all cues of the selected executor. "Update Cue Thru /originalcontent" ("/or") will update the current active values at the cues of the selected executor already containing the origin values for this attribute.
- Test buttons for macro/sequence/agenda editor implemented. The button can be found at the X10 hard key in the edit sequence dialog, at the X9 and X10 hard key in the macro editor dialog and at the left side of the agenda day view.
- New Macro editor functions: disable single lines and enable/disable macro timing.
- New COMMENT character # in Command Line. Everything behind the command character will be ignored (of course the comment character can still be used inside strings)
- Live recording of macros has been implemented. The Syntax "Record Macro X" starts the live recording. The hardkey combination MA+Learn will provide direct access to the record keyword. An alternating Learn and Macro button backlight will indicate an active Macro recording. Hitting "Record Macro Please" again will switch off the recording mode. Live Recording of Macros will always generate timed macros.

## ● Graphical User Interface

- Mouse cursor and touch cursors have been separated; there is one permanently visible mouse cursor (white arrow) representing the hardware mouse. Each internal touch screen has its own touch cursor and will not set the mouse cursor of the hardware mouse anymore. External touch screens will share the mouse cursor with the hardware mouse. The mouse cursor can be set to an internal touch screen position by holding down the nipple button while touching the screen. The mouse cursor will always follow the touch cursor, if this option is activated at the Setup/Console/Screen Options.
- Buttons provide visual feedback when pressed. - glow after button click is visible for 0.2 seconds after mouse up.
- Numeric keypad can be used to input a cue number at the load cue pop up.
- The current logged in user is displayed additionally at the tools menu
- Frame color of macros assigned at view buttons or x-keys is linked to the frame color of the macro pool.
- Layout View: double tab temporarily toggling between select and move mode can be activated/deactivated at the layout view options.
- Bitmap files import/export GUI has been added to the Setup - Show - Import/Export dialog. In addition to import the files this dialog can also create one bitmap effect per file by changing the option "import files only" to "import files and create bitmap objects"
- View Pool display options have been extended: Symbols displays small screenshots of the view at the pool item for single screen views and a screen layout icon for multi-screen views. Stored screen displays the screen layout icon for all views. No Symbols displays a view containing more space for naming.
- When choosing a bitmap in the bitmap editor, also USB drives can be used as bitmap source.
- Fixture positions can be set at the setup/patch+fixture schedule layer view. The position and rotation columns are sorted to the far right at the referring fixture rows.
- Former group master view has been extended to the master view. The master view contains tabs displaying group masters, rate masters, speed masters and playback masters.
- Repeating agenda events will be displayed at every day/month/year the event will be executed.
- New menu commands:
  - Menu ""User1"" or Menu ""U1"", to switch the X-key display to userkeys 1 thru 20.
  - Menu ""User2"" or Menu ""U2"" will switch the X-key display to userkeys 21 thru 40 and
  - Menu ""List"" or Menu ""L"" will switch the X-key display to executor buttons 201 thru 220.

At a Replay unit the x-key display will be shown at the encoder bar area."

## ● Bitmap

- It is possible to delete Bitmaps from the internal drive at the Setup / Show/ ImportExport/Import Bitmaps dialog.
- Bitmap Effects Color Correction defaults and ranges have been improved.
- Bitmap Effects: The new option "Add Dimmer" at the basic tab sets the dimmer value of all fixtures controlled by this bitmap effect to 100% while the bitmap is applied to the colormix attributes.

## ● Setup

- 3D models of fixture types are dynamically created. The physical set up of a fixture type can be changed at Setup/Patch + Fixture Schedule/Fixture types/Edit/Module Manager. Editing one of the 6 new columns "Size X Y Z" or "Axis X Y Z" will open the body description dialog showing a graphic representation of the fixture class chosen at the class column of the module manager. Each body dimension can be edited. At a connected MA 3D application.
- The possibility to connect to a console using telnet can be disabled at the Setup / Console / Global Settings / Telnet.
- The session wide network setting TTL (Time to live) and TOS (Type of Service) can be set at the setup/console/global settings dialog.
- Changed MA Network Control dialog: Sessions can be protected using a session password. The "Create/Join Session" button has been separated into two buttons. Start Session creates a new session using the settings of the MA Network Control dialog. Join session joins the session currently highlighted by the white focus frame. Pressing the join session button while the white focus frame is set to unconnected the console will leave the current session. Consoles with disabled autojoin option will not create nor join a session at startup.
- The current network status and session ID is permanently displayed at the network configuration screen headline.
- The encoders for the attributes Pan and Tilt can be inverted to adjust the encoder rotation to the moving direction of each fixture. This setting can be done per fixture at the Patch + Fixture Schedule or when editing the fixture using the Edit Fixture command.
- Setup/Patch+Fixture Schedule/Fixture Types/Attribute+Encoder Grouping/Attributes of Feature: New column Universal. Universal presets only work as real universal presets for attributes with this column switched on. Universal presets of attributes with this column empty show global preset behavior. Black cells inside this column are not editable predefined; e.g Gobo attributes.
- The minimum needed version of the MA NDP is displayed at the lower part of the Setup / Network / MA Network Control / NDP tab.

## ● grandMA2 onPC

- grandMA2 onPC parameter count has been changed. A network session of an grandMA2 onPC without any console connected is limited to 4096 parameters. The parameters of one command wing and all connected MA 2Port Nodes onPC, MA 2Port Nodes onPC Pro and MA NSP in 4Port Node mode are counted until the limit of 4096 parameters is reached.
- Edit macro Line or Sequence CMD column popup also supports the onPC Executor View. Assignable playback views cannot be used as input for the macro line and have to be entered using the command hard keys instead.
- grandMA2 onPC can be scaled by the user.
- Improved onPC Wing Firmware
- New indicator feature of the onPC wing executor button backlight:
  - Button 1 backlight off: Executor is empty;
  - Button 1 backlight dark: Executor is not empty;
  - Button 1 backlight bright: Executor is active;
- New Calibration dialog for the 15.4 touch screens.

- New screensaver has been implemented. The backlights of the 15.4 screens are turned off after 5 minutes of screensaver activity
- If the sequence pool is full, it will not be possible to store new sequences anymore. In this case, a popup will warn the user and an error will be displayed in the command line response.
- Special touch cursor added, to display the current touched position at the screen.
- Update keyword and update menu: second press of the update hardkey cancels the update keyword at the Command Line and closes the update dialog.
- The GUI support for parking single attributes has been implemented. E.g. pressing the park hardkey and the tilt encoder label afterwards will park tilt values of current selection.
- Buttons have been added to the mini executor view above the 100mm faders. The specialmasters 1 thru 9 display the buttons of the selected sequence; all other special masters display the buttons referring to this special master. This feature can be deactivated at the setup/user/setting Special Fader Buttons option.
- The current version of the MA 2 port node software is displayed at the lower part of the Setup / Network / MA Network Control / 2Port tab.

## Fixed Bugs and improved functionality

- Removing fixtures from the setup also removes these fixtures from the layout view.
- Fixture Type used column counts used fixtures instead of used sub fixtures.
- The align function will be reset as soon as the fixture selection changes.
- The commands Preview Next and Preview Previous are self-terminating. Confirmation please is not needed anymore.
- The Effect encoder bar provides access to attack and decay only, when these parameters are supported by the chosen effect form.
- The screen encoder function has been improved when the Setup - user - setting are visible at screen 1
- Channel and Fixture sheet are automatically updated when leaving the Patch and fixture schedule after adding channel or fixture IDs to the fixtures
- The Art-Net 2 network protocol will send to up to two Art-Net 2 receivers unicast. If more than two receivers are requesting a specific Universe, this universe will be sent broadcast.
- The Edit Effect Line dialog low/high respectively center/size wheels have been fixed when setting the value readout to auto.
- The X6 thru X10 + X16 button at the off-menu have been fixed
- The setup /? crash has been fixed.
- Crash fixed when deleting a form while editing the same form at the same time.
- Trig Time column does show a + again when the trigger is set to "Follow"
- The layout view headline is drawn red immediately when activating edit blind.
- Selecting a DMX channel at the DMX sheet will set the DMX encoder bar correct in "Selected only" mode as well.
- Sequence Executor sheet break lines will be drawn at small sequence executor sheets as well.
- Assigning a playback filter to a running executor will switch off this executor.
- Crash fixed which occurred sometimes when touching multiple times at the color special dialog.
- Calling a filter at the layout view bug has been fixed.
- View pool no symbol setting gets not lost any more when loading a show file.

- Tracksheet bug has been fixed. Deleting multiple values of one attribute at the Tracksheet will not result in changed values of other attributes anymore.
- Fixture sheet does display the values at the correct attribute column if other attributes of this feature are not used by this fixture
- It is not possible to set the From Cue to a higher cue than the To Cue any more when renumbering cues at sheets.
- The Command "Copy Cue x at y" Pop-up remembers the last status of the "cueonly" and "Status" button.
- Extract fixture X functionality has been changed: Extract Fixture X without having a selection will exchange the preset reference with the hard values stored at that preset. Extract Fixture X while having some fixtures selected will set the current selection to the hard values stored at the preset currently used by fixture X.
- Moving Executors will not affect other executors any more.
- Bug fixed which forced the user to press the list button again after closing a dialogue at screen 1 to reactivate the X-key button executor function again.
- Dimmer wheel animation is displayed correct again, when moving the onPC Command wing dimmer wheel.
- Moving executors and oopsing this action afterwards has been improved at large network environments
- USB drive is displayed at the Import/Export dialog when inserting a USB drive while the import export dialog is opened.
- Import Export dialog will not display the not useable Template folder any more.
- AT CUE do not add tracked values to the programmer anymore. CALL CUE will add tracked values as inactive programmer values to the programmer.
- Update menu is not displaying preview playbacks any more, when not in preview mode.
- Preview visualization at the Sequence pool has been fixed.
- Fixed color settings of fixtures containing subfixtures. Changing the visualization color of the fixture at the setup will change the color for all subfixtures. To change the color of a single subfixture, the color has to be changed at the edit subfixture dialog (e.g. edit fixture 2.3)
- Selection Sheet masking bug fixed which corrupted the sheet masking if the fixture schedule has been changed afterwards.
- Changing a stored value to default link using the Tracksheet calculator has been fixed.
- Crash fixed when executing a Macro containing two locate commands without having added a wait time.
- It is possible to renumber a single cue to x.999 if next cue =x+1
- Store /statusmerge [target range] will not create new cues or sequences if at least one cue or sequence of the target range already exists.
- Locked effects assigned to executors are marked by a red effect pool number in the upper right corner of the mini playback view
- Bug fixed at the edit effect line dialog attribute selection.
- The align buttons and the speed group button are activated/deactivated correct at the effect line editor.
- Running effect overview off mode has been fixed and will not open the edit edit window while switching off effects.
- Removing effects using speedgroups from the programmer will use a eventually set program time to fade out.
- Shuffle Selection will be done per effect instead of per effect line. All effect lines will use the same shuffled selection afterwards.
- Absolute and Relative effect mode is not inverted anymore when loading show files stored with grandMA2 software prior 2.3.
- Automatically fading XFADE Executors using the command Executor x at 100 Fade z will not crash the desk any more.
- Bug fixed which prevented "OffOnOverwritten" when calling cues containing mostly Release values and some hard values.

- Bigger Update menu rows for easier touchscreen access.
- Setup/Network/Network Config/2Port pressing the Identify button without any Ethernet connection doesn't crash the desk anymore.
- Setup/Network/Network Config/2Port load from default has been fixed and load default setting for currently selected MA 2Port Nodes.
- The timestamp of show files is displayed correct again at the grandMA2 onPC backup dialog.
- The onPC Screen encoder up/down was mixed up at the DMX Profile Editor. This has been fixed.
- Timecode editor remembers the mode (graphic/text) it has been used last, when reopened.
- Off menu will not be opened anymore, when pressing the Off key more than once while editing a cue CMD or macro.
- Fixed executors restore their former position correctly when unlocking the desk.
- Label object command will respect the current world. E.g. when inside a world commands like label channel thru will only label channels contained in the current world.
- Removing a playback filter and oopsing this action afterwards has been fixed.
- Double tab groups to activate deactivate programmer content of this group is oopsable now.
- The "Open" button has been relabeled to "Load Show" in the backup menu.
- When the current selected world does not contain color attributes, the special dialog color will be locked.
- Active programmer "Remove" values are displayed in sheets filtered by "Programmer Only".
- Editing values using the content sheet has been improved. The editing features are similar to the edit features of the Tracksheet.
- Save default exec options saves the playback filter.
- Fixture and Gobo library updated to Carallon 8.5.

## Appendix



The command "store /remove" or pressing [store][cue][2] and the select [remove] in the pop-up will remove the whole attribute with all (!!) its layers for fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.



Selecting multiple fixtures with a lasso in the layout view is respecting the snap grid settings to interpolate small position differences of fixture icons. The selection order will always be made inside of one snap grid cell first, afterwards line by line in the direction of the lasso movement.



- Release version **2.3** of grandMA2 divorced values and effect values! Therefore older show files might not be 100% compatible. Therefore please check your show file with the new version before using it live!
- With Version 2.5.70 the default speed of effects and the rate of effect lines has been exchanged by a single speed per line. Therefore older show files might not be 100% compatible. Please check your show file with the new version before using it live!!

## Known Limitations



- show file Conversion from Version 2.2 and earlier: The speed of a selective effect, stored in a cue, will not be brought correct into programmer, if the cue gets edited and the default speed of the effect in the pool is not 60 BMP.
- ASCII show import supports Strand ASCII show files only.
- MA onPC command wing DMX input is supported for the ports "DMX In" and "DMX out A" only. The port "DMX out B" is allowed to be used as DMX out only!

## 53.7. Release Notes - Version 2.6

### Release Notes - Version 2.6.1

2012-07-27



#### Important:

- If you would like to update your dimMA system from any version below 6.x please contact your MA-dealer or MA direct for any update information. Should you be using grandMA2 in connection to our dimMA solutions, please get in touch with us, since a console update will now require a NDP update and vice versa. We are happy to assist you.
- The current versions of onPC and 3D require minimum Windows® XP with Service Pack 3 (Microsoft® .NET Framework (4.0) will be installed on your computer, if not already installed).
- With Version 2.5.70 the default speed of effects and the rate of effect lines has been exchanged by a single speed per line. Therefore older show files might not be 100% compatible. Please check your show file with the new version before using it live!!

## Bugfix Release - Version 2.6.1

## Fixed Bugs and improved functionality

- Move in black in combination with Release values has been fixed.
- Fixture sheet does not display the values centered at the feature column anymore, if the fixture is using only one attribute of this feature.
- Sequence executor sheet break lines are also drawn at narrow sheets.
- Crash fixed which occurred in some cases when deleting multiple lasso selected values at the tracksheet.
- DMX Tester encoder bar universe encoder follows the selected universe while DMX sheet link encoder option is enabled.
- Calling a filter at the layout view has been fixed.
- X-keys will automatically switch back to the previous X-key mode when closing a special dialog, setup or backup view at screen 1.
- Shaper dialog POV bug fixed.
- Crash fixed which occurred sometimes when touching multiple times at the color special dialog.
- Fading an XFade-executor using the command Executor X at Y Fade Z does not crash the desk anymore.
- Crash fixed when executing a Macro containing two locate commands without having added a wait time.
- Setup /? crash has been fixed.
- Edit none attributes fixture crash has been fixed.
- Deleting a form at the form pool while editing the same form crash has been fixed.
- Crash fixed when pressing the Identify button at the 2Port network configuration without having any network cable connected.
- View pool no symbol setting will be saved at the show file.
- Crazy effect dialog center/size low/high calculator readout bug has been fixed.
- Edit effect button activation/deactivation when deselecting/selecting attributes has been improved.
- Art-Net 2 implementation has been improved. The Art-Net 2 network protocol will send to up to two Art-Net 2 receivers unicast. If more than two receivers are requesting a specific universe, this universe will be sent broadcast.

Release - Version 2.6.0

## New functions and features

- **Playback**
  - Xfade is now aborting x-fade if fader returns to 0%
- **Pools**
  - Pools: objects can be moved around as long as the "Move Button" is switched on.( similar to grandMA series 1)
  - New Command "Insert" in Pool ( press 2 times "Move"-Button )

## ● Sheets

- Fixture, channel, tracking and content sheets: frames of empty cells can be suppressed in the option menu via "Hide Empty Cells"
- New button in sequence view / option menu: "Hide timing countdown". If active absolute values will be displayed and not the cue timing countdown
- Track Sheet: with the tracking options presets can be exchanged or the value of an attribute exchanged with a preset. The available presets are shown in the calculator with the preset numbers. The destination button in the tracking option pop-up is now also valid for preset exchange
- New functionality in user options (setup/user/window settings/preset) ->"Reset all preset pool colors"
- Running effect view: New Button: "Follow selection". This decides whether the current selection is respected in "Release Mode" or "Stomp Mode". If switched off then Release/Stomp will be executed for all fixtures of an effect, regardless of the fixture selection
- View Pool: New option: Symbols / no symbols: content view of screen can be shown. Only possible when one monitor is in that view
- Agenda: pressing the encoder pops up a new calculator which makes it easier to edit the entries
- Profile editor: Scale conversion either percent or decimal
- Exec Mini Dialog: When an executor is locked, the number in the exec mini sheet is displayed in red. Similar for the sequence number
- MATricks Load predefined provide access to all predefined MATricks stored at the predefined.xml
- Live effect bar ( Quick & dirty Encoderbar ) : Buttons "Off effect", "release effect" and "stomp effect" added
- DMX view: New button in caption bar: "Only selected". If active only the DMX universes patched, current selected fixtures are shown.
- First MATricks pool object is now "Reset" (MATricks)
- MATricks encoder bar: Circular copy, shuffle selection buttons added
- Edit effect menu: New button "predefined". Predefined template effects can be loaded ( similar to the import function ). Effects corresponding to non-existing attributes in the show will be set to NONE.
- Form Editor and DMX Editor: Table mode has a separate index column per row to display the point index
- Preset in effect line is now shown in 2 lines: preset number and preset name
- Presets which only containing timing do show an Indicator for selective, global or universal
- Effect editor and effect special dialog: the button "value readout (for changing the columns "Low value" / "High Value" or "Center" / "Size" ) has an additional option "Auto". When "Auto" is selected columns are changing on their own - dependent on editing an relative or an absolute effect
- Menu which were restricted to be opened in screen 1 or 2 can be opened on all available screens now using the select screen pop-up.
- The store and the off menu can be opened at any screen using the select screen pop-up.
- The encoder hardkey options have a new button "switch dialogs to default screen". This option will reset all dialogs back to their default screen.

## ● Command line

- Is a view button in a pool pressed during an active move command the move command will not be interrupted
- Random for chasers is "lighting random", not real random. (like grandma1). That means, that it will be avoided to play 2 directly following cues
- During deleting Effect/Presets/Forms which are in use Console warn user that it is not oopsable. The elements will be restored but the link to the sequence lists not
- New button combination "MA+At+4" ( 4 e.g. for a number ) means Stomp presettype color
- New button combinations: 3 times <<< brings an master fader of an executor to zero. 3 times >>> to full
- Playbacks are now divided into 4 sections: value / value timing / effect / effect timing. Example: When a fixture with dimmer values and individual dimmer fade times is played back out of a sequence it is now possible to take only the fade time active into the programmer.
- Combining the store options "status merge" and "prog." will overtake the preset links. Combining "status merge" and "output" will not do so.
- Increased max multipatch to 1024 ( had been 15 before )
- New option for the commands "At", "Stomp" and release: "/IgnoreSelection" (Abbr. "/is" ). A command e.g. "Stomp Presettype Dimmer /is" does not regard the current selection
- New: Hard key access to PresetType: MA+Preset
- Goto Cue X works with executor ranges and sequence ranges
- "Auto Stomp" in assign menu does now work for temp faders and temp buttons. Attn.; "Auto stomp" only refers to effects from other sequences.
- Command "fixture x at cue y" is obeying filter now
- Setting Effect Speeds via Command line works now in BPM. E.g. "Assign Effect x/Speed=y".
- Remote via DMX - In ( Setup / Remote Inputs Setup / DMX Remotes; Executors, macros or hardkeys are triggered with value around 128 ( like grandMA sereis 1 ) (was 255 before )
- Long press store does not cancel already active store anymore.
- Import Export 3D cameras obeys camera name and rotation
- With the AT filter it is possible to apply multidimensional forms to specified attributes. Select a presettype , set the link option to "link feature" and choose a form in the form pool. With the AT filter you can select all attributes to which this form should not be applied
- New command line access : Art-Net input on/off. sACN on/off
- Command DMX at full and DMX at 0 will be executed without "please"
- OFF fixture thru or Off selection use now the programm time. "OFF fixture thru fade x" and "OFF selection fade y" follow the time as well
- New Command: RESETDMXSELECTION: Resets the selection in the DMX Tester
- New Hardkey to access "Mask": MA+2xGroup

## ● Setup

- Create / change fixture types: the attributes Colordim do work with fixturetypes with a real dimmer
- Colordim attributes extended to 17 : "COLORDIM1" = red "COLORDIM2" = green. "COLORDIM3" = blue."COLORDIM4" = amber. "COLORDIM5" = white."COLORDIM6" = warm white"COLORDIM7" = cool white"COLORDIM8" = orange"COLORDIM9" = red orange"COLORDIM10" = purple"COLORDIM11" = indigo"COLORDIM12" = cyan"COLORDIM13" = magenta"COLORDIM14" = yellow"COLORDIM15" = uv"COLORDIM16" = green cyan"COLORDIM17" = medium white
- New and updated gobos from carallon lib 8.2

## ● onPC

- grandMA2 onPC external displays: 800x480 possible
- grandMA2 onPC command wing DMX-In support has been implemented.

## Fixed Bugs and improved functionality

- Bitmap effects do follow a virtual fade master. That means that on- and off switching times will work without a motorical move of the executor masters
- Calling macros and views does NOT reset the command filter anymore
- Effect option bounce: PWM does work even if attack and decay values are set
- Stage View setup mode encoder bar is now closing when closing the stage view. fixed in: Stage view, Layout view, Timecode, Agenda, DMX patching address dialog
- When a just executed temp fader executor will be overwritten from another one by the " off on overwritten" option , this temp fader now can be pushed to zero without being executed again
- Selective effects using presets are updated, when updating the preset
- Off presetype x respects program time
- When cues are updated in edit or blind this will be executed not directly , but calling the cues again
- TC shows with recorded temp faders are looking same with different start position of the temp fader
- Pressing the "Delete" button and clicking in the Headline does now work in Layout View, Smart View, Clock, Agenda, Encoderbar, CMD Line, CMD Section, Help View, Info View, Groupmaster View, running Effect View, Stage View, System Monitor View...
- Setup/ Full and Live access Sorting the layers by fixture or channel ID is now sorting correctly
- Fixed Executors in the Action button view are only display when the Option "Button Page floating" in the option menu is active. With the option "select page" the existing links on an executor are shown
- Autofix is cleared when switching off an executor using an OFF time
- Switching Abs/Rel mode of effect doesn't change size values anymore
- Command "Extract" also extract default link values in normal default values
- If an executor is assigned to "empty", Selfix will no longer be executed
- Layout view does not forget its internal layout data anymore after going and leaving to full setup ( arrange functions )
- When editing an executor the focus stays in the current cue
- Lasso renumber cues does now work when release of lasso is on a CuePart >0
- When storing a scrolled fixture sheet as a view the position will be stored regardless whether a mask is switched on or not.
- Executors on x-keys are usable even if an edit pop-up or assign pop-up or the off menu was open
- Form Editor: changing from graphical to table mode and vice versa sets the focus to the currently selected graph and point
- Assert effect bug fixed. Effect phasing at non tracking sequences will always assert its phasing.
- Invalid amount of pathport universes does not crash the desk anymore
- OOPs when adding effectlines will no longer crash the desk
- Import/Export for TimeCodeShow: all data will be exported
- Pool playback effects: network bug removed

- Track Option: Block/Unblock... with Encoder Grouping
- New: Per default selected preset type is Dimmer.
- Command "goto cue x sequence y" does now work ( without the sequence having to be assigned to an executor ( pool playback ) )
- Oops for values called from the Smart View is working now
- Effect editor: when assigning low or high presets to attributes in columns they will be listed in numeric order
- Active highlight or solo will not be taken onto the blind or preview programmer
- Command "Executor 1 at full" is working right now
- PSR with effects is working
- grandMA2 Ultra-Light + Fader Wing bug with first motorfader on wing fixed ( channel fader mode )
- Changing the speed group using the crazy effect dialog speed group popup will not assign the wrong speed group any more.
- Manually adding Timecode events using the timecode editor will not generate additional unexpected events at other connected consoles any more.
- GUI glitch of the Mini Exec Dialog priority arrows has been fixed.
- Losing the master of a session will recalculate the currently running sequences in the correct order.
- onPC X-keys view thumbnails: when storing a screen 1 view using the onPC x-keys, the view thumbnail will be displayed with the original color.
- onPC Installer will add a link to the show folder at the start menu.
- onPC only: The enter key from the keyboard will open the "Patch new layer" popup.
- onPC only: Crash fixed when disconnecting and reconnecting onPC Command Wing.
- onPC: Automatic closing of the command overlay when switching screens will not leave non visible commands in the command line anymore.
- onPC freeze has been fixed when windows has been locked and unlocked while onPC2 was still running.
- onpc scaling bug fixed. Overlays can be operated by the mouse at the scaled onPC.

## Appendix



The command "store /remove" or pressing [store][cue][2] and the select [remove] in the pop-up will remove the whole attribute with all (!!) its layers for fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.



Selecting multiple fixtures with a lasso in the layout view is respecting the snap grid settings to interpolate small position differences of fixture icons. The selection order will always be made inside of one snap grid cell first, afterwards line by line in the direction of the lasso movement.



Release version **2.3** of grandMA2 divorced values and effect values! Therefore older show files might not be 100% compatible. Therefore please check your show file with the new version before using it live!

## Known Limitations



- Show file Conversion from Version 2.2 and earlier: The speed of a selective effect, stored in a cue, will not be brought correct into programmer, if the cue gets edited and the default speed of the effect in the pool is not 60 BMP.
- ASCII show import supports Strand ASCII show files only.

## 53.8. Release Notes - Version 2.5

### Release Notes - Version 2.5.70.6

Released 2012-04-03



#### **Important:**

- If you would like to update your dimMA system from any version below 6.x please contact your MA-dealer or MA direct for any update information. Should you be using grandMA2 in connection to our dimMA solutions, please get in touch with us, since a console update will now require a NDP update and vice versa. We are happy to assist you.
- The current versions of onPC and 3D require minimum Windows® XP with Service Pack 3 (Microsoft® .NET Framework (4.0) will be installed on your computer, if not already installed).
- With Version 2.5.70 the default speed of effects and the rate of effect lines has been exchanged by a single speed per line. Therefore older show files might not be 100% compatible. Therefore please check your show file with the new version before using it live!!

## Bugfix Release - Version 2.5.70.6

### Fixed Bugs and improved functionality

- Sequence Executor Sheets do not lose their scroll position any more when updating a cue.
- Knock in bug has been fixed. Store mode all and store mode all for selected work as expected now.
- Missing Reset of the Store bar filter has been fixed.

- Channel sheet columns are resized correctly again when resizing the channel sheet.
- Colordim fixtures with a real master dimmer are visualized correctly at the 3D and Stage view.
- Command line default is not changed when hitting update.
- Preset symbols display has been fixed.
- Effects running from HTP executors can be stomped.
- Effect off time calculation bug has been fixed.
- Very fast running chasers do not blip the DMX universes any more.
- DMX remote triggering buttons threshold has been set to 128 instead of 255.
- Touch screen long press has been improved for sheets.
- Library subfixture spacing has been fixed for a huge amount of fixtures.
- Crash fixed, when using the command line to patch or unpatch fixtures.
- grandMA2 onPC resizing has been improved. The grandMA2 onPC will resize to the screen it has been started. The onPC only changes its size when started. If you move the onPC from one screen to another, you have to restart the onPC to resize it to the new resolution. The maximum resolution of the internal screens is 1280 x 800, the resolution of the external screens can be adjust at the onPC options when using multiscreen mode.

Release - Version 2.5.70

## Fixed Bugs and improved functionality

### ● Command line

- The command "update please" updates the current cue of the selected sequence obeying the settings of "Add new Content / Original Contents only" and "Tracking Update / Update Cue Only" (inside the Update menu). Using the command extension "Update (Cue) x" allows to update Cues not outputted at the moment. Accordingly pushing the hardkey "Update" an Executor Button does the same.
- Setup/Console/local settings/ "Exec CLI": When CLI (Command Line Interaction) for Executors is disabled a combination of the command line content with- with the exception of the selected Executor.
- Automatic MAtricks Single X and Y Reset: The current "Single X" and "Single Y" settings of the MAtricks will be reset if a fixture selection changes or gets canceled using "clear".
- The functionality of the commands "Stomp", "Release" and "Remove" for effects are brought into line. Using one of the above commands in combination with an effect will add the referring command to the programmer for attributes of current selection currently using this effect. "Stomp/Release/Remove Effect x", without having fixtures selected: Signs all attributes of Effect x with "Remove" set active into the programmer, to e.g. store/merge this into an existing Cue and thereby remove all such effect information.
- Implemented the "edit next/prev" functionality. With "Edit Please" the editing function for the selected sequence of the first Cue (when switched off), resp. for the current cue. "Edit Next" edits the next Cue - "Edit Prev" the previous one.
- Playback commands can be filtered by user profiles, e.g. "off page 1 /UPR=2" or "OFF EXEC 1 /userprofile="Gabi". Only the executors last used by User 2 (resp. "Gabi") will be considered.
- Using the command "info" with an object (Pool): Info property is listed in command line for: BMP, Effect, Fade Path, Filter, Fixture, Fixture Layer, Fixture Type, Form, Group, Macro, Master, MATrix, Page, Preset, Sequence, Time Code, User, User Profile and View.

- Workflow using the decimal keyboard in the command line: "Channel 1 at 50". The selection will be executed right after keying in the channel / fixture (before an AT). This can be helpful in case e.g. channels shall be re-sorted in a view -> actual values can be seen before changing them.
- New Commands: "CrashLogCopy", "CrashLogDelete", and "CrashLogList". The command "CrashLogCopy" copies existing Log files coming from a crash to the first recognized USB-Stick to the folder gma2/temp". "CrashLogList" views such files in the "Command line Feedback" view. "CrashLogDelete" deletes them from the harddrive.
- The Show file History can be displayed in the "Command line Feedback" view. The command "List 1.1 thru" displays this show file information.
- Pages can be called with their names (alias): e.g. instead of typing "Page 1" the command "Page "Admission"" can be used. The names need to be typed in completely - no wildcards (\*,...) are allowed.
- "Shuffle selection" works in combination with MAtricks.
- The executor buttons have new functions in the assign menu: "ToFull" and "ToZero". "ToFull" sets the master fader of an executor to 100%, - "ToZero" to 0%. When "auto start" or "auto stop" is active sequences and effects on this executor will be switched on/off as well,.
- Rate / Rategroups, Speed / Speedgroups can be used in the command line.e.g.. "Assign Specialmaster x at Effect y thru z". With the "List" command entries in the command feedback view can be executed. "List 19.1.1.1".
- When effect values are entered via the command line different attributes get the default adjustments "absolute/relative".
- Opening the calculator of an encoder it follows the "Program Time"
- Lock / unlock: Complete pools can be locked. Indicator is a yellow lock sign. If cues in a sequence are locked and the sequence will be deleted the locked cues remain existing. Indicator: red font colour.Lock / unlock follows oops. When trying to update locked cues, effects or presets, the update menu shows this with red font colour as well.
- Command "Selection" can be combined with "if".e.g.. "Store if Presettype Position if Selection" = only pan/tilt is stored for the current selection.
- Command "default" (keys "MA" and "." ) accepts filters.e.g. set only attribute position at default. "Default if Filter x" .
- "List function" (e.g. list 19.1.1.1) in the command feedback display uses more colors . green: changeable values (assign /speed=30). yellow: Assignable values (Assign Specialmaster 16 Effekt 1). red: unchangeable (locked ) values
- When executing Cue Mode "Release" will no more be break nor assert cues.
- New Option"overwrite all" in overwrite Popup when exporting- e.g.. "export Preset 0.1 thru /overwrite". ( similar as "/noconfirm" before)
- The Fixture Button has a new function: 2 x press= "Selection"
- The Delete Button has new functionality: 2 x press = "Remove", 3 x press = "Release". This can be filtered with an IF as well. e.g.. Fixture 1 thru 5 are selected: "Remove if Presettype Position" = Write Pan and Tilt for the selected fixtures with remove into the programmer. These can be removed out of a sequence with a store/merge.
- Fixture and sequence views: Moving Attribute / Functions in the headline will insert them at the target position.
- New view (create Basic Window/ "Others") : Command Filter. The AT / Store Filter is shown permanently and visible.

## ● Effects

- Effect Editor and Effect Line Editor: With "Take selection" in the Edit Effect menu the current selection in the selected effect lines will be taken as usual. With the new button "Take MATricks" the "Block X", "Align Group X" and "Wing" adjustments will be taken from the current MATricks. With "Show selection" the selection and groups, blocks and wings are also taken into the MATricks. (If more than one sequence lines with different adjustment are selected the adjustments of the last selected are taken).
- New structure of effect speeds in effect editor: the "default effect speed" and the possibility to replace the start speed with a speed group has been completely taken out. The column "Rate Group" has been changed in "Speed Group". This enables to use a speed group or a rate group to each effect line. This is always active when using the effect in the programmer as well as storing the effect in a cue. The column "Rate" has been changed in "Speed". In the headline the unit is shown (Hz, BPM, Sek in Userprofil adjustable) and times can be directly entered. (If rate groups in older version were used you will now find them in the speed group column). Also in channel, fixture and misc. views the layer "Rate" was exchanged with "Speed". That means that no more a factor can be entered, but the speed directly. In the command line speeds have to be entered in Hz. If an effect which follows a speed group is stored in a sequence this effect can only be changed with the speed group - no longer with the speed fader of the sequence executor
- When starting an selective Effect in the Effectpool, only the Effect ID will be taken into the programmer ( not the rate ( now speed) anymore )
- New Mode Buttons in the "Running Effect" View. If no mode selected, clicking an effect opens the corresponding encoder bar. Switching to the "Off Mode" or "Stomp Mode", this action takes place on the afterwards selected effect. If "All Stomp" or "All Off" in single columns is selected, all Effects of a column will be switched off, or with "Stomp" taken into the programmer. Attention: "Off" in column "Sequence" switches off the complete sequence, in the column "Programmer" the effects will be taken out of the programmer.
- If "Link Feature" ( encoder bar ) is selected when creating an effect, it is possible with the command "at Form 19" (Circle) to add directly to both sub-forms the attributes pan and tilt e.g. for preset type position. This also works when in the special effect dialog more than one attributes are selected ( U-Keys) and a form with multiple subforms is selected.
- New button "Shuffle Selection" in Edit Effect menu. Works for currently selected effect lines. Shuffle Selection does not work for template effects (no Selection in Effect lines available).
- In Form Editor new button "Link Graphs" can combine 2 graphs - means they have a similar number of points in 2D Mode.
- Form Editor: editing a form with 2 Graphs in 2d Mode, "Load Predefined" gives new 2 dimensional form which are shown animated in the editor.
- New buttons in Assign menu: "Stepped Rate" and "Link Effect To Rate". If "Stepped Rate" active, the rate fader does not work analog but discrete: 1:32, 1:16, 1:8, 1:4, 1:2, 1:1, 2:1, 4:1, 8:1, 16:1, 32:1. If "Link Effect To Rate" active, the rate fader does not only change the fade times of a cues but also the speed of effects in cues. Attention: This only works with effects not using speed groups.
- Rate Fader can be tapped with the "learn" Button. The "Stepped Rate" in the executor assign menu has to be switched on.
- Edit Effect Dialog: entering presets for "Low", "High", "Center" or "Size" will change the effect lines from "Relative" in "Absolute"
- Effect Editor : buttons which have temporarily no functionality are not displayed anymore e.g.. Effect has no selection (Temp. Effect).
- On/off times for Chaser/Effects and off times for Sequence - Toggle fade now via a virtual master.
- FAST\_OFF - FAST\_ON for Chaser and Effect

## ● Layout View

- Defaults for layout views can be stored now: Setup / User / Defaults / Layout defaults. The new buttons "Save to default" and "load from default" in the caption bar of the layout view options will store / recall these settings. The size of new inserted fixtures and elements is corresponding to the values "Grid X" and "Grid Y". (a little bit smaller to have a distance).
- Circle arrangement in Layout view: Special behavior if angle sum is 360 degrees: Last element is at "next to last" position. Otherwise last element is at last position.

## ● Sheets

- Tracking Sheet: Create Individual times (where there had only been default times).
- Tracking view: Tracked values can be changed directly. Selected Cells will be blocked automatically, when they are changed via middle mouse button or via edit button in option menu. With new "Edit Cue Only" button in the headline it can be choose whether the cells in the next cue are blocked as well so that the changed values will not be tracked. The editor can be opened with the mouse as well ;press middle and right mouse button and then release right mouse button.
- Touchscreen long-press edit has been implemented for Sheets and layers. (same behavior as right mouse click or hitting edit and touching the sheet or layer ).
- Masks (in Mask Pool) can now be displayed with a selection: e.g. "Assign Fixture x Mask y" or "Assign selection" and click in the mask pool
- New options in fixture masks: Full Patched
- Sequence Sheet: If "Move in Black" is possible in a cue , the column "MIB" displays "!Y", when "MIB always" is active in the assign menu. Corresponding "!N" is displayed in red , when "MIB never" is active.
- Tracking view: Attribute can be also edited on Effect Layers.
- A long touch press or right mouse button click on a layer in Channel or Fixture views (Value, Fade, Form...) opens the calculator directly.
- A input filter assigned to a sequence is also visible in the sequence pool
- Worlds and Masks are displayed clearly in the headlines
- Tracking + Sequence Sheet: CueNumber Pop-up provides the option to block or unblock the selected cues.
- Fixture and Content Sheets do have in vertical mode the button "Namefield" in the Options menu.
- Fixture Sheet :Fixture Sort Function active : If more fixtures which can be shown at a time are selected and next" or "prev" are used to step through, the view scrolls automatically
- The Button Function PARK and UNPARK on a Group Master Fader now works
- Exec Master Dialogs = special masters on executors have now short names in the naming area: "Sp" Speed Group, "Ra" Rate Group , "PI" Playback Master.

# grandMA2 User Manual

Version 3.3



## • Setup

- grandMA2 onPC also provides grandMA 1 style keyboard shortcuts. (Setup / Console / Edit Keyboard Shortcuts / import)
- Page Pool Buttons in Layout views can be executed now.
- Copying Presets does obey the Preset Mode (Selectiv, Global, Universal).
- "Setup encoder bar will not disappear unexpected when adding objects to the 3 Layout"
- Buttons Setup / Network / MA Network Control menu are better readable.
- Parameter list in Setup/Patch only dialog. In this list all single parameter of all fixtures in fixture layers are displayed. Sorting: click right mouse button in the caption of a column (or with finger in touch screen) , and then move upwards or downwards
- Import / Export in Setup/Show is also available for MAtricks.
- Setup / User / Settings: new options for trackball buttons "Trackball Sequence" "Mouse - Off" and "Mouse - Wheel - Off"
- New Info column in setup in layers and fixture types.
- Clear filter button inside the fixture library - display info field for selected fixture type.
- Fixture and Gobo library updated to Carallon 8.1
- Setup: If fixtures are added with the "Add new fixtures wizard" then ID Numbers can only be given when a fixture type was selected.
- Load Show Dialog : New button "I" (Info). Info Text (show description) and history are displayed. Show files are automatically stamped with Software Versions.
- Midi Show Control(MSC) dialogue has a MSC Input and a MSC output info window. MSC commands will not be displayed any more at the system monitor.

## ● Miscellaneous

- New views ( especially for working with onPC )
  - "Command section" ( with "Master Section" and "Time Controls" ) /
  - "Command line" (with"Entry Field" to show command input )
  - "Encoderbar". You can find them in in "Create Basic Window" / other
- U3 = Label for Sequence Editor, Effect Editor, Form Editor, Macro Editor, MATricks Editor, TimeCode Editor
- MATricks Pool: editing an empty Pool Button lets select predefined MATricks (Button "Predefined").
- View Pool with display of stored screens. Rule: pressing a View Pool Button which contains only one screen it will be opened there. In case or more stored screens they will be opened where they have been stored.
- Executor Assign menu: column "Start" 4th button of Options menu has new option: "Master Top" -> If "Auto Stop" is switched off and the Master Fader of Executors is 0 -> pulling again the master sets the sequence to first cue
- ArtNet IP Adresse 10.x.x.x is outputed, even when the Subnet Mask is not 255.0.0.0 (e.g.. 255.255.254.0)
- The IF Button works again with clone e.g.: "clone Fixture 1 thru 10 at Fixture 101 thru 110 if Sequence 1"
- Fixed : Multi-instance fixtures are not visualized correctly
- 8bit grandMA series 1 mode channels are now converted correctly to grandMA2 mode channels
- Fixture / Channel views: when the Option "Readout" in the caption bar changes the display of the values, now the value range of the encoder ( and calculator) changes as well
- When "Cue Zero" is active on an executor, "Block Sequence x" now has the same result as "Block Cue Thru".
- PWM Effects with Attack or Decay times > 0 do now fade equally in or out
- When importing / exporting Macros, Effects, Masks, or MATricks the Screen Encoder now has the focus on the left side : "Select File".
- Filter 1 in Filter Pool is now named "All", (was "Full" before )
- Fixed: when pressing Backup / Save Show (both OnPC and console), the Backup key backlight will turn Off, while is should be kept On, until exiting the Backup menu
- Tracking Sheet improvements: horizontal scroll offset
- Selecting the Prog only view in a connected iOS remote software does not crash the console anymore
- 22 Presettypes do not crash the desk anymore
- Sequence executor Sheet X-Break lines drawn correctly now
- Form pool identification (Used forms has blue Pool number) is correct...
- When a fixture type has more than one attribute,or one attribute which is not a dimmer, the fixture wizard automatically suggests a Fixture ID
- The command "Assign Channel 1 Thru 513 at DMX 256.1 does not patch invalid DMX channels anymore. Result: Channel 1 to 512 will be patched to the last universe, Channel 513 is not patched.
- Sequence Executor view: When in the last Cue of a Sequence the Mode "Release" is executed,Cue one will not show the delay progress bar anymore.
- Long Cue names result in graphical glitches in the mini executor view in onPC
- Moving executors does not automatically switch on MIB anymore
- Very slow dimmer wheel movements result in slowly changing dimmer values

## Bugfix Release - Version 2.5.4.3

### New functions and features

- onPC Command Wing support added.



#### Known Restrictions:

DMX In is not yet supported by the onPC Command Wing.

Midi Show Control is not yet supported by the onPC Command Wing.

- onPC scales its size automatically to the screen resolution, if the screen resolution is smaller than 1280x800 pixels.

### Fixed Bugs and improved functionality

- MA-Net2 network session member handling improved. NPUs and VPU should not stay in non-existing sessions any more.
- Cue Mode "Release" will no longer be a break cue. A Cue with cue mode release will finish fade in of this cue and then release the executor using executor off time.
- Stomp Presettype will add stomp to the programmer only for attributes of selected fixtures currently using effect parameters.
- Playback settings should be copied correctly when copying executors
- Release first step executor option switch has been fixed.
- Exec/Remote CLI mode bug has been fixed.
- Crash fixed when entering or leaving patch and fixture schedule while having more than 22 presettypes.
- MidiShowControl compatibility bug has been fixed.
- The size of the MA network control columns at screen 1 is adjustable again.
  
- GUI glitch fixed when scrolling the help pages at the onPC help popup.
- Store popup will be displayed at all screens if onPC is used in single screen mode in combination with onPC wing hardkeys.
- onPC should be compatible with HP Elitebooks.
- Activating the Prog only view at a connected iOS remote app does not crash the desk any more.
- Scaling of the resolution buttons has been fixed.
- Multi instance fixtures are visualized correctly again, when added to a show file.

Release - Version 2.5.3.6

Main feature overview:

- Sheet Masks
- Filter
- Playback Filter
- grandMA Show Converter

Overview Worlds, filters, masks.

- Worlds are containing a selection and an attribute filter. Calling a world filters all views and programmer access.
- The new attribute filter is replacing the former separated Store filter and At filter. This filter contains an attribute filter and a layer filter (Value, Value Times, Effects). This filter can be stored at the new filter pool. A filter from the pool can be used temporarily (calling the filter), permanent (selecting the filter) or together with If at the command line.
- Worlds and filters can be used as input filters for sequences and as playback worlds for executors.
- Masks provide wide variety combinations for masking sheets to display only fixtures and attributes following these criteria at a sheet. These masks can be stored at the new mask pool and can be assigned to any sheet.

New functions and features in detail

- The sheet masking has been revised and extended. The Feature Mask from previous versions has been improved and can be found by setting the right hand side of the new sheet mask options to: Show if in Saved Attributes, then pressing the 'Define Mask' button to choose what features or attributes to display.
- Interactive Sheet Masking
  - Fixtures, Groups, Worlds, Filters, Masks, Presettypes ... can be assigned at sheet headlines to mask the current sheet to only show fixtures/attributes of the assigned object.
  - Example: **Assign Group 1** fixture sheet headline; the fixture sheet will display only fixtures of group 1.
- Assigning an object to a sheet headline will be displayed by a red ghost. Any other active mask will be displayed by a orange ghost. Every sheet can only be masked by one mask at the same time. Using a set button or assigning a mask to the sheet headline will overwrite the local mask with the new settings.

- Sheet Masking
  - Sheets have a new sheet mask editor in the sheet options.
    - The **Show if / hide if** button decides whether this line will be shown or hidden.
    - The  black tick box is for inverting the current line.
    - The pull down menu provides all possible masking settings.
    - With the **Save to** button the current mask settings can be stored to the Sheet Mask pool.
    - With the **Load from** button masks can be loaded from the mask pool.
    - With the **Copy andgt;andgt;andgt;** / **Copy andlt;andlt;andlt;** buttons mask settings can be copied from the fixture to the attribute side and vice versa.
  - Sheet masks can be stored into the new Sheet mask pool. With this pool, sheet masks can be created once and can be used by multiple sheets.
  - The pool objects 1 to 6 are predefined and cannot be modified or deleted.
  - Sheet masks are able to mask fixtures and attributes.
  - Right mouse click a sheet headline mask button will call this button and edit this button.
  - Sheet mask is selectable and editable. The currently selected mask is displayed by a green button background.
  - Sheets can be switched to follow selected mask mode.
  - Hitting a mask pool object will select this mask and all sheet set to follow selected mask will follow this mask.
  - Sheet mask can be assigned to a sheet using ASSIGN, touch a sheet mask in the pool and hit a sheet headline afterwards.
  - Up to 10 customizable Set buttons can be assigned to the sheet headlines to provide fast access to sheet masks.
  - In addition to the already known masks, the following new criteria for creating masks have been included.
    - at the Fixture Section
      - **"Used in Show"** displays all fixtures stored in cues, selective effects, selective presets or additive group masters.
      - **"Selected"** displays currently selected fixtures.
      - **"DMX tested"** displays all fixtures with one or more attributes are overwritten by DMX tester values.
      - **"Fade/Delay"** displays all fixtures with individual fade or delay timing stored at currently active cues or is active in programmer.
      - **"Effect"** displays all fixtures currently using effect parameters at the output.
      - **"In Object"** displays all fixtures currently using the defined object. Object can be a Group, Effect, Preset, Sequence or World.
      - **"Live"** displays all fixtures with a dimmer output above 0% or with dimmer output at 0% blocked in current active cue.
      - **"In Saved Selection"** displays the saved selection. The current selection can be saved by the take selection button.
      - **"Moved"** displays all fixtures with blocked non dimmer values at cues currently active at the output.

- at the Attribute section:
  - **"Used in Show"** displays all attributes stored in cues, selective effects, selective presets or additive group masters.
  - **"Selected"** displays all attributes of currently selected fixture.s
  - **"DMX tested"** displays all attributes overwritten by DMX tester values.
  - **"Fade/Delay"** displays all attributes with individual fade or delay timing stored at currently active cues or is active in programmer.
  - **"Effect"** displays all attributes currently using effect parameters at the output.
  - **"In Object"** displays all attributes currently using the defined object. Object can be a Group, Effect, Preset, Sequence or World.
  - **"at Non Default"** displays all attributes currently having non default values.
  - **"Of current Presettype"** displays the presettype currently selected at the encoder bar.
  - **"Of current Featuretype"** displays the featuretype currently selected at the encoder bar.
  - **"In Saved Attributes"** displays the attributes defined by the define attribute button.
- New sheet headline button to change the sheet readout.
- Filter Pool
  - Store filter, At filter, Circular Copy filter and link defined filter have been merged together to one attribute filter and can be stored and recalled by the filter pool. The filter pool is a global pool used by all users.
  - Store a filter at the filter pool will store the current status of the filter into the pool object. As at the world pool also at the filter pool filter pool object 1 is reserved for the all filter and is not editable.
  - Filters can be called (small green bar in the filter pool icon) or selected (Lower half of the filter pool icon is displayed green).
  - The selected filter will be used for any store/at/copy... operation until another filter is selected. Selecting Filter 1 will reset the filter to all attributes.
  - Filter can be selected by pressing **select** and touching the filter pool object afterwards.
  - The called filter will override the selected filter and will be used for the next operation and will be falling back to the current selected filter afterwards.
  - If the setting "Reset filter on clear " is active in the "Attribute filter menu" a called filter will stay active until 3x clear is pressed (former At filter behavior).
  - A temporary filter set in the store menu or by long pressing the At key can be stored to the next empty filter pool object by pressing the button "Store filter and select"
  - Filter can be called by touching the referring pool item.
  - The flashing **AT** key indicated an active attribute filter.

- Playback Worlds
  - Worlds or filters can be assigned as sequence executor playback filters. The filtered sequence executor will only playback fixtures and attributes of the assigned world or filter.
  - If a filter is used as a playback world, the playback will be filtered by attributes only, it will not filter by layer (Value, Value Times, Effects).
  - Worlds or filters can be assigned by using command line: `Assign World 3 Executor 1 Please`, by using the assign menu, or by pressing `Assign World 3` pressing an executor button of an executor with assigned sequence.
  - A orange executor number background in the mini executor view identifies an assigned playback world.
- Input Filter
  - Worlds or filters can be assigned as sequence input filters. The filtered sequence will only store fixtures and attributes of the assigned world or filter.
  - Worlds or filter can be assigned by using command line: `Assign World 3 Sequence 1 Please`, by using the assign menu, or by pressing `Assign World 3` pressing a pool sequence button.
  - A orange sequence number background in the mini executor view identifies an assigned input filter.
- New if function to filter while store, delete and at operations with.
  - New keyword endif. The Endif offers the possibility to use the phrase if condition1 + condition 2 ... endif in the command line syntax and execute this command with an executor button.
  - Pressing the `If` key and any object you want to filter by will add the touched object and endif automatically to the command line.
  - Pressing the `If` key will add Endif to the command line if an if is already in the current command line string.
  - Holding down the `If` key while hitting multiple object will filter by any of these pushed objects.
  - Possible objects are for example the encoder bar
    - Presettype buttons,
    - Groups,
    - Worlds,
    - Sequences,
    - Cues
    - Filter pool objects,
- Examples:
  - `Store Cue 2 If Dimmer Executorbutton 1.1.16` will add "Store Cue 2 If Presettype "Dimmer" Endif Executorbutton 1.1.16" and will store only active dimmer data at cue 2 of executor 1.1.16 and keep other active attributes in the programmer.
  - `Store Cue 2 If + Dimmer Color Position If Executorbutton 1.1.16` will add "Store Cue 2 If Presettype "Dimmer" + "Color" + "Position" Endif Executorbutton 1.1.12" at the command line and will store only active Dimmer, Color and Position data at cue 2 of executor 1.1.12 and keep other active attributes in the programmer.
  - `Store If - Dimmer If Cue X` will add "Store If Presettype "Dimmer" Endif Cue X" at the command line and will store all active attributes except the Presettype "Dimmer" to cue X

- Please can be used to step through the Edit Cue Number Window.
- Export sequence command has been improved.
  - New parameter /style for the export command to select a xsl-stylesheet for the exported xml file. Example: `&Export Sequence 1 "NiceFileName" /style="sequ@executorsheet"`. By now included styles `sequ@executorsheet.xml`, `sequ@trackingsheet.xml`, `sequ@html@default.xml`. If no style parameter will be added to the export command, the stylesheet with the filename containing `@default` will be used.
  - The command `export sequence 1 "nice-sequence" /transform` will generate an HTML Table of the sequence. This command can be combined with the `/style=...` parameter as well.
- Shortcut **MA** + **1...9** to switch to the referring presettype. Hitting the same number multiple times while pressing MA to go through the Features of the referring Presettype.
- Shortcut: Hitting **Time** steps through Value, Fade, Delay. Hitting **MA** + **Time** to go through the effect layers. Long-press **Time** always switches to the value layer.
- All pool elements used in show are marked by a cyan pool item number instead of the grey one.
- DMX using Art-Net can also be sent and received alternatively at 10.x.x.x. Former versions of the grandMA2 software were only capable to send Artnet at 2.x.x.x. The IP address of the Art-Net network interface can be changed using the command `SetIP 10.x.x.x. 255.0.0.0`. After changing the IP address, a reboot is necessary.

Be aware it is not possible to send to 2.x.x.x and 10.x.x.x at the same time.

- New function Lock object to lock or unlock objects like Sequences, Cues, Presets,... by using the command line. Locked object have to be unlocked to edit or update them.
  - Objects locked by the system are displayed by a red padlock at the referring pool item. Objects locked by the system cannot be unlocked by the user.
  - Object locked by the user are displayed by an orange padlock and can be unlocked by the command `unlock object X`
  - Examples
    - Lock Preset 1.1 thru 1.10 will lock the dimmer presets 1 thru 10.
    - Unlock Preset 1.5 will unlock dimmer preset 5.
    - Unlock Sequence Thru will unlock all sequences
- Shortcuts: Keyboard shortcuts have been implemented for OnPC. Pressing the keyboard Insert key (**Ins**) toggles the shortcut mode.
  - The shortcuts can be configured at the / Setup / Console / Edit Keyboard Shortcuts.
  - The **Reset to Defaults** button will reset the keyboard shortcuts to the build-in default settings.
  - the current keyboard shortcut setting will be stored automatically to the `keyboard_shortcuts.xml` file, when pressing save at the displayed pop up when leaving this dialog.
  - Add will ask for a function and a keyboard key and will add the shortcut assignment.
  - Multiple keyboard keys can be assigned to one function, but only one function can be assigned per key. The Select key pop-up will only provide available keys. If a key is already in use, it has to be deleted before it can be reassigned.
  - Shortcuts will be temporarily disabled as long as a text input pop-up is present.

# grandMA2 User Manual

Version 3.3



- OnPC improvements
  - Encoders can be controlled via mouse wheel. Position the mouse pointer at the encoder and just turn the mouse wheel to adjust the referring parameter.
  - Right button mouse click at an encoder will open the referring calculator.
  - OnPC will return the last viewed screen after leaving the setup or backup dialog.
- MA remote improvements
  - Consoles with disabled remote login are displayed with a red background at the MA remote available console screen.
  - It is possible to logout from one console and login at another console without closing the app by using the new Logout button at the selecting view pop-up.
- Delete button works interactive with sheet and pool headlines. E.g. Hitting Del and touch a fixture sheet headline will delete this sheet.
- New command "Delete Screen X " to clear a single or multiple screens via command line or macro.
- grandMA Show Converter



- grandMA Show Converter will convert only show data.
- grandMA1 macros and Cue command links will be converted as far as possible. Commands not compatible with grandMA2 syntax will not be converted!
- grandMA1 userprofiles are not compatible with grandMA2 and will not be converted at all.
- grandMA1 effects, bitmap effect, layouts and modulators will not be converted at all and have to be rebuilt with the grandMA2 effects engine.
- grandMA1 Fixture Schedule function invert per fixture will not be converted.
- A fully featured list of all converted parts of a grandMA1 show can be found at the [grandMA Show Converter Help](#).

- The grandMA1 show files have to be stored with grandMA1 Version 6.615
- The converted show files can only be loaded with grandMA2 versions beyond current version.

## Fixed Bugs and improved functionality

- Off Feature X, Off Attribute X and Off Presettype X is using program time now.
- Store options are temporarily visible while holding down the store button. Long-press of the store button will display the store options pop-up also after releasing the store button.
- Goto / Load pop-up will be visible at all screens, if the option Messagebox on all screens is set to on.
- Improved Cue Zero handling in preview mode.

- Session collision handling has been improved. Session collision dialogs have to be solved by the user and should not disappear automatically anymore.
- Updating a preset currently visible at the output should not drop the output to the previous preset values before the updated values are present anymore.
- Orange progress bar is drawn correct in the executor sheet now.
- Deleting a cue will not affect the edit executor sheet column width anymore.
- No more useless Cue only pop ups, when deleting the last cue of a cue list.
- Fixtures with already done MIB will not snap back to their origin position when knocking the fixture in the programmer or updating a cue of that sequence.
- Sheets with activated fixture sort react to selection change again. E.g. when using shuffle selection.
- Select DMX Profile pop up position has been improved.
- Resizing the column width inside the "Patch & Fixture Schedule" or "Patch Only" dialog will not shrink other column width anymore.
- Sometimes not working store encoder bar encoders have been fixed.
- Deleting an effect while this effect is displayed at the running effects window will not crash a console anymore.
- Deleting an assigned effect was not displayed correctly in the effect overview.
- The not very useful command assign and hitting an encoder afterwards does not crash the desk anymore.
- Move multiple executors at executor 220 will not crash the desk anymore.
- Trying to move or copy a sequence executor to a channel page does not crash the desk anymore.
- Crash when trying to access the tools menu while full access enter layer name pop up is visible has been fixed.
- Importing a sequence with activated cue zero does not crash the desk anymore.
- Crash fixed when calling the Command line Response while the Full Access window was open at the same screen.
- Setup / Network / MA Network Configuration: delete the first Line of any Menu = the content of the line do not jump to the left side anymore.
- Special dialog shaper is able to display default link values.
- Graphical artifacts of the Analog clock hands have been removed.
- Chaser have been improved, especially when using Backward, Random, Bounce, Loop Shot-Off and Loop Shot-On chasers will not overshoot one step anymore.
- Chasers running backward or random chasers are correctly calling their tracking status now.
- On screen keyboard improvements
  - State(opened/closed) of the on screen keyboard will be restored when a text pop up is created.
  - Closing the on screen keyboard at one screen will close the on screen keyboard at all screens.
- Not working X-keys at the startup of the console have been fixed.
- Swipe graphic position has been adjusted. BTW.



- You don't have to wait for the swipe icon to use the swipe, just swipe the referring button to open the pull down menu.

- Missing Oops, when assigning an object to a layout view has been fixed.
- Further improvements of ASCII Show Read.
- NPU dark screen bug has been fixed.

- Setup / Network / MA Network / Configuration / NDP: NDP software version color display has been fixed. A red software version number means, the NDP software version is not compatible to the current console software version and the referring NDP is not allowed to be a session member of this MANet2 session.
- NDP dimmer profiles can be edited in the dimmer view table as well as in the edit dimmer module view now.
- Fixture Library has been updated to Carallon Lib 7.7
- Creating a multi-attribute effect in programmer and storing this to the effect pool will not create unnecessary lines anymore.
- Temp-faders will not switch off other executors with activated option OffOnOverwritten anymore.
- Hitting the Align encoder bar soft-key will not reset the command line anymore.
- Effect stomp and effect release will be ignored by the ifoutput command.
- Leaving the edit blind mode after loading a show file stored in the edit blind mode does not crash the console anymore.
- Further improvements of the Sheet masking
- Leaving the Partial Show Read Initialize dialog with the X-key has been fixed.
- Flashing Ultralight red LED as indicator of a wrong fader position is adjustable in local settings. (Setup/Console/Local settings: "Error LED is flashing when fader position is wrong.")
- Create basic window pop-up is able to display up to 20 Icons per tab without scrolling.
- Wrong display of the autosave countdown at the Backup menu after loading show files has been fixed.
- Import Export of fixtures also imports exports the fixture 3D position scaling and rotation.
- Keyboard focus issue when labeling pool objects has been fixed.
- Leaving blind mode directly after loading a show file stored in blind mode will not crash the desk anymore.
- Crash fixed when using the used in object sheet mask in combination with user profiles from previous software versions.
- Calling an Executor X without any function will execute a selfix executor X.
- DMX Tester retain mode bug at the onPC has been fixed.
- Patch diagnostics screen also show unpatched subfixtures now.
- Not working fixed executors in action button view have been fixed.
- Fixture Schedule: The column "Master" has been renamed to "React to Master".
  - Only fixtures with "React to Master"=On will react to the Grandmaster and the Solo function.
  - Edit Fixture or Edit Fixture Type: Only attributes with "React to Master"=On will react to the Grandmaster and the Solo function.
- Improved ASCII Show read:
  - "Link go" / "Link toggle" : ASCII show file effects will be converted to grandMA2 chasers and assigned at executors. A "Link Go" or a "Link toggle" will be added to the referring cue command column of the main sequence.
  - "Effect Prio.LTP / Effect Prio.High The assigned chaser will be set to Priority
- Edit Bitmap Effects has been fixed.
- Saving show files in network sessions has been changed. Storing a show file at one console will force all grandMA2 consoles and onPC2s and 3D Applications of this network session to save the show file.



The VPU will not save any show file in a network session anymore. The VPU will only save its show file when shutting down.

- The command "Executor X at 100 Fade 5" is also possible for executors with assigned bitmap effects.

- Command line response of the command "List Sequence X" shows the correct Cue Zero setting.
- MIB has been changed and is only possible for cues instead of part cues now.
- Missing gobos or content symbols will not be displayed as open symbols anymore.
- Fixed executors in action button view are working now.
- Knocking out effect layers using the Quick and Dirty bar has been fixed.
- Deleting an effect line doesn't change the selection of other effect lines anymore.
- Exchanging fixture types will not destroy the link to a moving path for that fixture at the 3D anymore.
- Displaying pool playbacks as fixed executors (orange background) bug fixed.
- Console does not crash anymore, if the Content Distribution window has been left open for a long time.
- Cues with stored dummy attributes can be deleted again.

## Appendix



The command "store /remove" or pressing [store][cue][2] and the select [remove] in the pop-up will remove the whole attribute with all (!!) its layers for fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.



Selecting multiple fixtures with a lasso in the layout view is respecting the snap grid settings to interpolate small position differences of fixture icons. The selection order will always be made inside of one snap grid cell first, afterwards line by line in the direction of the lasso movement.



Release version **2.3** of grandMA2 divorced values and effect values! Therefore older show files might not be 100% compatible. Therefore please check your show file with the new version before using it live!

## Known Limitations



- show file Conversion from Version 2.2 and earlier: The speed of a selective effect, stored in a cue, will not be brought correct into programmer, if the cue gets edited and the default speed of the effect in the pool is not 60 BMP.
- ASCII show import supports Strand ASCII show files only.

## 53.9. Release Notes - Version 2.4

### Release Notes - Version 2.4.3.2

released 2011-11-22



#### **Important:**

- Release version 2.3 of grandMA2 divorced values and effect values! Therefore older show files might not be 100% compatible. Therefore please check your show file with the new version before using it live!
- If you would like to update your dimMA system from any version below 6.x please contact your MA-dealer or MA direct for any update information. Should you be using grandMA2 in connection to our dimMA solutions, please get in touch with us, since a console update will now require a NDP update and vice versa. We are happy to assist you.
- The current versions of onPC and 3D require minimum Windows® XP with Service Pack 3 (Microsoft® .NET Framework (4.0) will be installed on your computer, if not already installed).

#### Main feature overview:

- Preview
- Cue Zero
- Default Reference
- Temporary Pool Views
- Maximum Program Time and Exec Time can be defined per user.
- Random functions
- Info View

#### Bugfix Release - Version 2.4.3.2

released 2011-11-22

- Knockin of values into programmer takes the output values, if there are only values to knockin. If there are values and effects to knockin, the cue content will be knocked, disregarding the current executor fader position.
- Deleting an effect line of a multi-line effect will not change the selection of the other lines any more.
- The Small stage view inside the Bitmap effect editor has been fixed.
- Handling of Cue Zero when updating a cue in Preview has been fixed.
- Orange progress bar display at the sequence executor sheet has been fixed.
- Further improvements of ASCII Show Read regarding 16bit channels, toggle/go and effect priority.
- Triggering macros with programmer commands using Midi Show Control (MSC) doesn't crash the desk any more.
- Importing sequences or effects from older versions doesn't crash the desk any more.

- Network Timing improvements of MA-Net2. Especially for networks with NDPs.

## Bugfix Release - Version 2.4.1.2

released 2011-09-29

- Cue zero extract mode has been fixed.
- Remote popup bug fixed.
- Pressing store preview does not crash the desk any more.
- Deleting the last cue of a sequence will not ask for cue only any more.
- Reserved DMX In merge mode has been removed.
- HTP Exectutor Preview Bug has been fixed.
- CanBus Firmware update to version 1.36.
- Crash fixed, when deleting an effect while this effect was displayed at the effect overview.
- It is possible to store or update an selective effect at a cue with an already stored stomp or release.
- Effect Default setting have been changed. The user setting effect default relative/absolute has been exchanged by the following settings.
  - Absolute effect as default for Dimmer, Color and any wheels.
  - Relative as default for anything else.
  - Relative effects default start with center value of zero when a new effect line is created in the effect editor.
  - Effect Release has been converted to a effect form.

## Release - Version 2.4.0.2

released 2011-09-08

## New functions and features in detail

- **PreviewEdit**
  - PreviewEdit mode is very similar to working in normal Live mode, but without any programmer actions or Store/Update actions affecting the output on stage.
  - What is the difference between EditBlind and PreviewEdit? EditBlind is only a second programmer not affecting the output at all. EditBlind will not show you any cue transitions or effects. Whilst PreviewEdit will start a preview playback which behaves like a normal playback beside the fact that there will be no output on stage. The advantage of using EditBlind is a particularly lower usage of performance resources compared to PreviewEdit.
  - Fixture-, channel- and stage- views as well as a 3D logged in with the same user are following the "Preview Edit". In "Preview Edit"-Mode the title bars in all views are kept in red. Sequence-, tracking- or content- sheets display a preview (and turn to the red title bar) only when either the Mode "Link Selected" together with Preview for the selected sequence - or the Mode "Link last Go" is enabled. When selecting the Mode "Not linked" a Preview is only displayed when an assigned Executor is called. 3D follows Preview only when enabled the option "Follow into Preview" (located inside 3D's tools menu).

- When in sequence- or tracking sheet the title bar is displayed in red the previewed Cue is indicated by a red frame, too. In case the displayed sequence is identical with the selected sequence the current Cue (going Live) is indicated by a yellow frame. In Preview Mode the fixture- and channel- views mask all values but the content of the Preview Cue which are displayed in Cue colors. Tracked values coming from former Cues are displayed in magenta. Even a Cue involves several Parts initially the complete Cue is displayed. Using the Part Cue Encoder allows to highlight single Parts in Cue colors while all other Parts are displayed in magenta.
- Hitting the **Preview** button will bring the Preview keyword into the command line and opens the Preview Encoder Bar.
- How to enter Preview Mode:
  - **Preview Please** or softbutton Preview Selected will enter PreviewEdit mode for all parts of the CURRENT cue of the selected executor or the next cue if this executor is not active.
  - **Preview Next** will enter PreviewEdit mode for all parts of the next cue of the current executor (Selected Executor in live mode, PreviewExecutor in PreviewEdit-mode)
  - **Preview Previous** will enter PreviewEdit mode for all parts of the previous cue
  - **Preview Cue 5** will enter PreviewEdit mode for all parts of cue 5 of the selected executor.
  - **Preview Cue 3 executor 3** will enter PreviewEdit mode for all parts of cue 3 of the executor 3.
- Hitting the **Preview** button twice while in PreviewEdit mode will leave the PreviewEdit mode.
- Hitting the **Preview** button twice while not in PreviewEdit mode will recall the PreviewEdit mode with the state it has been left before.
- Keeping the **Preview** button pressed allows selecting more than one Executor. The Preview merge the result. Only the last selected will be displayed in Cue colors
- Pushing and releasing the **Preview** button and then selecting an Executor resets all former Previews and displays just the one selected in Cue colors
- **OFF Preview** turns off the Preview for the last chosen Executor and switches back to Live Mode
- **ESC** switches back to Live Mode without turning off the Preview Playbacks
- Hitting a playback command button like Go+ or Top and the Preview button afterwards while in PreviewEdit mode, will execute the referring command for the current previewed sequence with cue timing and follow cues.
- Hitting **Assign Time x Preview** changes the fade time of the current previewed cue to x seconds.

- New Preview Encoder Bar:
  - The new Preview Encoder Bar pops up every time the preview key is hit.
  - The buttons **Preview Previous** and **Preview Next** switch to the previous or next cue of the sequence which is currently previewed. If there is no previewed sequence the buttons will activate preview for the selected executor (without Cuetiming) .
  - The button **Preview selected** switches to the current cue of the selected sequence or, if not active, to the first cue of the selected sequence.
  - If **AutoUpdate** is activated, all changes will automatically update the currently previewed cue. A alternating flashing edit and update button will indicate this mode.
  - If **Cue Only** is activated in addition to **AutoUpdate**, the automated update will be done cue only.
  - If **Keep Selection** is active, the programmer will keep its selection, when entering the PreviewEdit mode.
  - If **Keep Programmer** is active, the content of the live programmer will be copied to the preview programmer when entering the PreviewEdit mode.
  - Using the left "Sequence" Encoder allows to scroll thru the sequence pool. While scrolling only the one in focus will be previewed while the former will be closed. Touching into the Seq. field above the encoder opens a window to select from all sequences. Again the former selected sequence will be closed.



Keep Programmer and AutoUpdate are not allowed to be activated at the same time. When activating one of these, the other will be turned off.

Keep Selection and Keep Programmer are only used, when entering the PreviewEdit mode. The preview programmer will never be copied to the live programmer.

It is not possible to use the blind hardkey while PreviewEdit mode is active.

- Preview Playback button in the Off Menu
  - When the Preview Playback button is activated (located bottom left inside the Off Menu) only the enabled Preview Playbacks will be displayed. As usual single Playbacks can be switched off.
  - When Preview Playback is activated the Everything Off button only switches off Preview Playbacks. Live Playbacks will not be touched.



- In Preview Mode Trigger Follow and Trigger Times will not be executed except playback commands like > GO PreviewExecutor < are used.
- In Preview Mode Cue commands (CMD) will not be executed.
- Unless re-entering the saved state of Preview, Preview Mode uses the world, which has been used live last. Changing the world while in Preview Mode will not change the live world when leaving the Preview Mode.

- **"Default value"** button in the calculator has been replaced by a **Default link** button: This button will basically work as a preset and provide a link to the fixture default values, which can be changed in the setup or when editing the fixture. To get the hard default values like in earlier versions, you have to extract (refer to extract in the help) the default link afterwards.

The "Default Link" values are marked by bracketed values in all sheets.

## ● Cue Zero

Cue Zero is an option in the sequence executor Assign Menu. Cue Zero is an automatically created cue containing a link to default values of attributes. Cue Zero cannot be modified manually. A Cuelist with activated Cue Zero will start at the first cue after Cue Zero. This cue provides default values when starting the sequence and provides the missing default data when moving or copying cues.

- **Cue Zero Off**: Cue Zero will not be created and Cue zero will be deleted Cue Only.
  - **Cue Zero On**: Cue Zero will be created and will contain default values for all attributes used by this sequence.
  - **Cue Zero Dimmers Only**: Cue Zero will be created and will contain default values for dimmer attributes only.
  - **Cue Zero All**: Cue Zero will be created and will contain default values for all attributes of fixtures that have any of its attributes stored in the sequence.
- 
- In addition to the default value reference, the cue zero will also include a stomp for every attribute that is using an effect in that sequence.
  - "Cue Zero extract" will extract the default link and store hard values of the current fixture defaults into Cue Zero.
  - Switching off "Release First Step" is not possible in combination with cue zero on or cue zero all.



There will be NO "CUE ZERO" in a "Non-Tracking-sequence"

Sequences with only one CUE will NOT have a "CUE ZERO"

The "CUE ZERO" cannot be selected nor edited nor updated.

## ● Temporary Pool Views

- can be accessed via macro/commandline "menu object". e.g. "menu View" or via hardkeys. Both hardkeys have to be pressed at the same time. Possible pools are:
  - **List + View**
  - **List + Effect**
  - **List + Page**
  - **List + Macro**
  - **List + sequence**
  - **List + Group**
- **ESC** closes the view

- **Template show file folder:**

This folder is a read only folder. Show files cannot be stored inside this folder from the consoles user interface. Users can save show files in this folder only by using a FTP connection. When connected to the console using a FTP client, the template show file folder can be found at /ma/templateshows. The purpose of this new folder is to allow the user to create his own show file templates and protect them against any overwriting. Even a software update will not overwrite this folder. The only exception is a full install.



As the new template folder is the third tab in the backup menu, the drive number of backup servers and usb stick connected to the console will be increased by one. Macros using commands like "selectdrive 3" or "sd 3" need to be corrected respectively.

- **"Info" - View**

- With the current implementation the Info view window lists only the Sequence Cue info. The selection of one particular sequence depends on the activated button Link Selected or Link last Go in the title bar.
- Cue numbers and names are displayed in green Letters. The current Cue will be displayed in yellow letters.

- **New command Info**

- Any console object which can be labeled is able to hold an information text, e.g. fixtures, sequences, cues, presets.
- New commands for setting and reading Information of objects:
  - Info [object] "Information" to store Information to an object.
  - Info [object] to read the stored Information in the command line response
- Example:
  - The command >Info Sequence 3 "This is the Information of sequence 3"< will add the quoted text as Information to Sequence 3.
  - The command >Info Sequence 3< or >Info Sequence Thru< will list the Information of sequence 3 or of all sequences in the command line response.

- New **Odd/Even Channel ID MATricksFilter** function for filtering a selection by odd or even Channel/Fixture ID. The filter will always refer to the Channel ID, in case there is no channel ID it will refer to the fixture ID. This filter may also be accessed by the commands MaTricksFilter "Off" (Shortcut: MF 0), MaTricksFilter "OddId" (Shortcut MF 1) and MaTricksFilter "EvenID" (Shortcut: MF 2)

- **New command line commands and options in the Tools menu**

- **CircularCopy**

The CircularCopy function does a filtered move of values through a selection. The movement can be performed forwards or backwards. Forwards means, that the values of each fixture is moved to the next fixture of selection. CircularCopy can be filtered by applying the At Filter.

- Circular copy can be accessed

- by typing the command >CircularCopy +1< or >CircularCopy -1< or using the shortcut >cc +1< and >cc -1<
- by entering the new circularcopy section inside the tools menu. The At Filter may also be accessed by softkey from the tools menu.

- **Random functions**

- Using ShuffleSelection: one can randomly change the order of the current selection.
- Using ShuffleValues: one can randomly change the assignment of the values in respect to the selected fixtures.

- **New function Flip:** one can point a moving head to the same position with different Pan and Tilt values.

- ShuffleSelection, ShuffleValues and Flip can be accessed

- by typing the command: ShuffleSelection, ShuffleValues, Flip
- by entering the new Random Function section of the tools menu.

- Maximum Program and Exec Time can be defined by the user. The settings can be found at /Setup/User/Settings.

- Multi-Touchscreen can be switched on/off by pressing the nipple button and hit the "Enable Multitouchscreen"/"Disable Multitouchscreen" button in the lower right corner of the internal screens.

- Active additive group masters are indicated in the Channel and Fixture Sheet by a white arrow up.

- New sequence executor option setting "CMD Disable". With this setting, the CMD column of the sequence is deactivated and will not be executed.

- Fixture library has been updated to Carallon lib 7.5.

- Sheet headlines have been reworked and can be customized. There is a new tab in the sheet options to select the headline buttons, the sheet should display.

- Sheet masks can be switched On/Off by the new Mask button in the sheet headlines. Watch out for the ghost!

- sACN improvements

- Setup/network/network protocols/sACN menu (similar to Art-Net setup): It is possible to add more lines (by pushing the Add button). Inputs and Outputs can be configured as usual.
- It is possible select the new sACN Protocol ACN E1.31 in the Protocol column. It is listed as: "Draft 10/2008".



Limitation: A maximum of 10 lines can be used for Inputs, each addressing just 1 DMX Universe.

- New option "React to Dimmer" inside the "Edit Fixture Types" menu. Using this option allows to limit an attribute value by applying a linear or inverse limitation controlled by the attribute dimmer. Example: Provided that a fan attribute has a default of 80% and is linear linked to a dimmer attribute. As a result the fan will be controlled in accordance to the dimmer value. If the dimmer value is at 100% the fan will run at 80%. If the dimmer is at 50% the fan will run at 40%. If the fan attribute and the dimmer value are inverse linked the fan would run at 100% when the dimmer value is 0. When the dimmer is set to 100% the fan value would be 80%.

- Using the command "List Agenda" lists all entries of the agenda in the command view (similar to the options menu agenda view).

- By using the command "Assign *function* At Fader x.x.x" "Assign *function* At Executor x.x.x" it is possible to assign functions e.g. master or rate to executor faders without using the assign menu.
- The command "List Executor x.y" lists all settings from the assign menu of one executor in the command view which are not directly assigned in the sequence. It is possible to change those settings via the command line (e.g. by using macros). Example: The command "assign Executor 1.1 /cmdDisable=1" suppresses the execution of Cue commands (CMD).
- New option for Cue colors (channel and fixture sheet options): Off/On/My Executor
  - Off: All Cue values are displayed with yellow letters.
  - On: The selected sequence values are displayed in Cue colors.
  - My Executor: Displays in Cue colors only Executors started with user profile used on my console - Executors started by others are grayed out.
- New Stomp button in the effect overview headlines. This Button will add a stomp to the programmer for all attributes used by effects of this section.
- New exec button functionality, hitting the exec key twice will enter the keyword "SpecialMaster" at the command line.
- Edit FixtureType menu: setting or removing a DMX fine address will automatically adjust the corresponding "functions of channel". If the range of the "functions of channel" is not corresponding to the DMX address settings, the line will have a red background and a warning will be given at the diagnostics screen.
- Edit cue X: Handling of the "Update Last Object" dialog has been changed. It is possible to abort this dialog without leaving the edit mode now. Same for all other edit object commands.
  - **OK** will update the edited object.
  - **Cancel** will end the edit mode without updating the edited object.
  - **X** will close the dialog and stay in the edit mode.
- Tracksheet performance improved for huge show files.
- Changing the command line default, e.g. "Fixture Please" is also possible by macro now.
- Button Executor Goback and Goto functions will use the exec time, if set to cue timing by the show settings.
- MATricks Pool elements can be merged or overwritten.
- New command >Menu "CR"< or >Menu "CommandLineResponse"< will pop up a temporary command line response window.
- New feature at the Edit Timecode View: The table in the text view mode has a new column timing overwrite.
  - If this column is empty, the command of this line will be executed with their normal timing setting. Off will use off timing, go will use cue timing, goto will use the settings from Setup/Show/Playback + MIB Timing ...
  - If this column is not empty all other fade and delay timings will be ignored and the referring command of this line will use the timing overwrite time. As a result of this, all Parts of a cue will be called simultaneously.

- New DMX Universe Pool. Can be found at the pools tab of the create basic window pop-up.
  - The letters in the first line of each icon indicate the status of DMX universe.
    - A blue P indicates parked DMX addresses.
    - A red R indicates Requested = off.
    - A red G indicates DMX universe granted = off.
    - The white letter shows DMX IN merge mode (no letter = none, H=HTP, Lo = LoTP).
  - The small green square in the second line displays changing DMX output.
  - The second line also displays the valid DMX In sources (DMX In, ArtNet, Streaming ACN). Maximum 2 different Input sources are allowed per universe.
  - White font color of the universe name indicates at least one address of this universe is used by a fixture/channel.
  - DMX universes can be labeled using command line >Label DMX Universe X < or using the DMX Universe pool.
  - A DMX universe can be edited using the command >Edit DMX Universe X< or hitting **Edit** and touching a DMX pool object afterwards.
- It is possible to use Partial Show Read again. Console has to be in Standalone Mode to enable Partial show Read.
- Partial Show Read tree view shows the names of all objects.
- Partial Show Read ("PSR") should not muddle object IDs any more, if the target object is empty.

## Fixed Bugs and improved functionality

- Single group masters show their correct name in the Mini executor view and the group master overview now.
- Ooping group selection was not always displayed correctly in the group pool.
- Programmer effect rate wheels and encoders cannot be turned into a virtual negative any more.
- Store Cue X/merge executor Y generates a new sequence if executor Y is empty.
- Sheets don't lose their horizontal scroll position any more when changing layers.
- Oops also works for Default and Highlight presets again.
- When moving Cues, oops that move and then press go does not crash the desk any more.
- Off selection will redraw the programmer encoder bar.
- The problem with redrawing the display when moving a range of executors and Oops afterwards has been fixed.
- The command "At Cue X" will respect the selection, the At Filter and the MATricks.
- Effect Editor: Form encoder changes the form of the first line only, if more than one line has been selected
- Storing presets obey the Store Filter, even if the Preset Filter is switched off
- Create basic window popup buttons are sorted in alphabetic order now. The only exception is the preset tab, which is sorted by presettype numbers.
- Improvement: The assigned timing to the command "goFast" ( >>> ) will be displayed in the sequence view while the command is executed.
- Crash removed: "Move Executor 2 + 3 at 1" (moves executor to already allocated targets) doesn't lead to a crash anymore.

- Midi note remote inputs can control executors with assigned group masters and other non user profile related special masters. E.g. Program and Exec time are user profile related and cannot be controlled via midi.
- Executor assign menu option "MIB always" can be stored as user default.
- ARTNET IN is only possible at the network interface eth1(console ethernet port 2). It is not possible any more to use ethernet port 1 as ARTNET IN port.
- Changing the effect size don't alter effect center any more. If the range of center or size are exceeded, a warning will be given above the corresponding encoders.
- Patching of fixtures with more than 3 modules and multiple instances has been fixed.
- MIB late functionality bug fixed, when the last cue in front of the cue with MIB has been deleted, MIB late was not working any more.
- Copying with overlapping source and target ranges does not crash the desk any more.
- When moving or copying objects, the original spacing between the source objects will only be kept, when copying cues. e.g.
  - copy cue 3 + 6 at cue 13 will copy cue 3 at cue 13 and cue 6 at cue 16 if there is no other cue in between.
  - but copy preset 1.3 + 1.6 at 1.13 will copy preset 1.3 at preset 1.13 and preset 1.6 at preset 1.14.
- Import of a single layer will also import the DMX Adresses.
- Editing a Default or Highlight preset will bring the values from the preset into the programmer.
- The MIB indicator (\*) also be displayed correctly for Part Cues.
- The command > Goto Cue X Fade t < is respecting the snap time settings.
- Black and Flash is also possible for Rate Masters.
- Goto/Load Popup has been resized and displays the active cue.
- Manual entered timecode events can be undone by using oops.
- Assigning a new sequence at an executor with an already assigned sequence will not reset the executor options any more.
- X-Key layout at the running effects overview improved.
- NPUs shut down properly and should not stop at the OS console.
- Drop down dialogs at external screens are controllable by the internal mouse.

## Appendix



The command "store /remove" or pressing [store][cue][2] and the select [remove] in the pop-up will remove the whole attribute with all (!!) its layers for fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.



Selecting multiple fixtures with a lasso in the layout view is respecting the snap grid settings to interpolate small position differences of fixture icons. The selection order will always be made inside of one snap grid cell first, afterwards line by line in the direction of the lasso movement.

## Known Limitations



- Show file Conversion from Version 2.2 and earlier: The speed of an selective effect, stored in a cue, will not be brought correct into programmer, if the cue gets edited and the default speed of the effect in the pool is not 60 BMP.
- ASCII show import supports Strand ASCII show files only.

## 53.10. Release Notes - Version 2.3

Version 2.3 - released 2011-06-2



### **Important:**

Updating to this release version 2.3 of grandMA2 the values and effect values are divorced! Therefore older show files might not be 100% compatible. Therefore please check your show file with the new version before using it live!

If you would like to update your dimMA system from any version below 6.x please contact your MA-dealer or MA direct for any update information. Should you be using grandMA2 in connection to our dimMA solutions, please get in touch with us, since a console update will now require a NDP update and vice versa. We are happy to assist you.

The current versions of onPC and 3D require minimum Windows® XP with Service Pack 3 (Microsoft® .NET Framework (4.0) will be installed on your computer, if not already installed).

Main feature overview:

- Values and effects are now separated from each other.
- Values and effects have their own, separated Tracking.
- Values and effects have their own, separated individual fade and delay timings.
- Multidimensional effect forms.
- New sheet layers and markers.
- External touch screen integration for many touch screen types.
- New encoder-bars.
- Pool playbacks.
- Store filter.
- Individual fade and delay times are displayed in the executor sheet.
- Further improvements on Strand Show file conversion.

Version 2.3.0.3 - released 2011-06-27

New functions and features in detail:

- Renamed "universal effects" to "Effect Templates" .These effects are marked with a "T" inside the effect pool.
- Effect Overview can be accessed using long press on the Effect hardkey
- Effect Overview can be assigned as a view on a screen. In the option menu of that view, it can be assigned which types of running effects will be displayed .



The effect needs to be stored in the effect pool first to be visible in the running effect overview. Cues with stored effect layers without an effect ID will not be displayed

- Editing an effect template will automatically reapply the template for currently selected fixtures



To edit a Template blind, make sure to have none fixtures selected

- Effect templates can be created using universal and/or global presets
- Phase range has been extended to +/-2880 (= +/- 16 Pi)
- New encoderbar added Effect Programmer encoderbar ("quick & dirty" Bar): With activated "link encoder" option in the effect pool options, the bar appears when an effect is called from the pool or when the effect pool headline gets pressed. With deactivated "link encoder" option, the bar will only appear by pressing the effect pool headline. The Effect Programmer encoderbar edits active effect layers of all attributes or attributes of a specific effect for the selected fixtures in the programmer. The "select effect" button allows selecting for editing between ALL or a particular single effect. One can use the AT-Filter to filter the attributes, the Crazy Effect encoderbar is manipulating. The button "edit programmer"/"edit effect" toggles between "quick and dirty bar" and the edit effect bar and dialog.
- New keyword: Stomp (MA+At)
  - Note: "Stomp" works similar to the "At" keyword, but suppresses additionally the running effects on this parameter, e.g.
  - "channel x at 50" takes only the value 50 in the programmer (potentially running effects -for example- from cues continue)
  - "channel x stomp 50" takes the value 50 and the effect form "stomp" in the programmer (but suppresses the effect).
  - "channel x stomp preset 1.1" takes the preset 1.1 and the effect form "stomp" in the programmer
  - The stomp command can be used with presettypes/features/attributes.
  - Fast access is possible using MA+At and the Presettype buttons of the encoderbar afterwards
  - "stomp presettype "Position"" without a selection will stomp all fixtures, that are currently using Position Effect parameters
  - "stomp presettype "Position"" with some fixtures selected will stomp the fixtures of the current selection, that are currently using Position Effect parameters
- A new sequence option in the assign menu: "Auto Stomp".

- New keyword: Extract ( MA+At+At )
  - "Extract" works basically the same as the "At" keyword, but it will break any reference and apply hard values into programmer and suppresses the links to an effect or preset,
  - e.g. "Channel x At Preset 2.1" takes the link to the preset 2.1 into the programmer
  - "Channel x Extract Preset 2.1" takes the hard values stored in preset 2.1 into the programmer without any link to preset 2.1
  - "Channel x Extract Effect 1" takes the hard values out of effect 1 into programmer without any link to effect 1
  - "Fixture 2 Extract Fixture 1" selects fixture 2 and sets it to the hard values of fixture 1
  - "Group 3 Extract Cue 4" selects Group 3 and sets it to the hard values of Cue 4 "Extract Please" throws away the preset link of the current selection
- Multidimensional effect forms can be stored and edited in the form pool. They can be assigned to effects.
  - There are three ways to open the graph editor: 1. push "edit" and "form"; 2. push three times the "effect" button or 3. click with the right mouse button into the form pool.
  - Inside the graph editor new points can be created by "add point". Forms can be manipulated by moving those points. "add Graph" creates sub forms within a form. Editing a form while it is used by a fixture or running effect will automatically update the output. While editing an effect and selecting just one effect line a pop up menu will appear to allow a selection from possible sub forms. While editing an effect and selecting more than one effect line the related sub forms will be assigned in numerical order. Note 1: Using this new functionality allows to create form combinations for effects, e.g. combination of a ramp form to modulate the attribute tilt and a PWM form for the attribute dimmer will result in an effect so called "fly out".
  - Note 2: The predefined forms 1 to 18 in the form pool cannot be manipulated or deleted by the user. Predefined forms are displayed with a lock symbol in form pool.
  - Note 3: User created forms ( > Form 18) will be handled as presets. Changing a form will automatically update sequences, selective and template effects using this form. If a form is deleted, sequences and effects using this form will not function any more. Note 4: Subforms can also be used via "at", e.g. "At Form 18.2"
-  Different from all other pools: The items in the form pool cannot be moved.
-  Deleting a form will destroy all effects using this form without any warning.
- Fade and delay time calculator have a new option: "remove" works for times similar to the former "basic", and will remove any individual timing when updated or merged to a cue.
- New Executor Sheet columns: individual fade and individual delay In addition, the cue fade and cue delay columns get a green/orange background, if there are any individual times stored in this cue
- By default all lines are selected when Effecte ditor is opened, to enable fast editing of all lines via the Encoderbar or the Multitouch effectline-editor.
- Effects have their own fade and delay times. (new layer in sheets)
  - Effects in cues use by default cuetiming, or individual value fade/delay timing if available, or individual effect-fade/delay timing if available.
-

# grandMA2 User Manual

Version 3.3



- Effect Layers Attack and Decay are displayed in sheets
  - The fade in time "Attack", and the fade out time "Decay" are only available for the special Effect forms: Random, PWM and Chaser.
  - The values "Form", "Attack" and "Decay" will always be activated together inside the programmer. Even just changing an effect form inside the programmer "Attack" and "Decay" will be activated, too.
  -
- Effects do have a "default effect speed" which can be set. In this entry field one can also assign a speedmaster. Note: The default speed is used when an effect is assigned to an executor, is started as pool playback or brought into the programmer. Changing the speed of an effect, assigned to an executor will not change the default speed of this effect.
- Calling a selective effect will bring the selective effect ID and its related speed as active layers into the programmer. If a rate master has been assigned to an effect line, the programmer -and after storing this to a cue, also the cue- will use this ratemaster. Note: If you knock out (deactivate) the rate before storing this into a cue, the effect will use the default speed of the sequence when the cue is recalled. It will not store the speed it was running with when the cue has been stored.
- The edit effect dialog now has a new column: "Interleave". This column defines the selection gaps, e.g. "odd" or "even". Inside the direction column "dir" contains also the function "bounce" now.
- Effects can be set to "absolute" or "relative" as default. (setup/user/defaults/effect defaults). This setting applies to the effect pool. In the special effect dialog and in the programmer this applies only if the effect form was selected first. The factory default is set to "relative" In sheets, a "R" or "A" in front of the Form ID in the Effect Layer Form indicates whether the effect is relative "R" or absolute "A"
- New Button in Effect menu: "value readout" with the options "low/high" and "center/size" Note: The former "value1" and "value2" are renamed to "low" and "high" (which seems to be more intuitive)
- Effect form calculator has new options: remove: Store a "remove"-value to a cue: The option will remove earlier stored effect forms release: Store a "release"-value to a cue: The option will release earlier stored effect forms in this cue stomp: Store the "stomp"-value to a cue: All effects will be suppressed (applies to ALL! executors).
- New options for the effect phase calculator "0 thru 360", "0 thru -360", The "0 thru -360" can be used to change the direction of the pattern. This is necessary, as a sinus function, for example, will be executed mathematically correct from left to right per fixture. Nevertheless the resulting pattern on stage will look like a moving pattern from right to left, if the Phase is set to "0 thru 360". Changing the phase to "0 thru -360" will change the pattern direction to from left to right. (Same as grandMA series 1)
- The attribute-encoder-linking (Link Single, Link Feature...) which is part of the General Encoderbar works now also for Low and High effect layers. Note: The attribute filter opens automatically if "Link defined" or "link defined active" is selected
- New command line syntax: "IfOutput Effect X" will select all fixtures currently running Effect X "IfOutput Effect" will select all fixtures currently running any Effect. An additional "If Executor x", "If Sequence x" or "if Sequence x cue y" afterwards will filter the selection so that only fixtures used by this executor, Sequence or Cue and currently running an effect will be selected

- Pool playbacks: It is possible to start sequences, selective effects directly from a pool without assigning them to an executor.
  - Press Go+ and then the wanted item in the pool. This will create a pool playback. This will behave as if the items had been assigned to an executor.
  - The hardkeys Go+ , Go- , Goto , Top , >>> etc can also be used together with a running pool playback icon. Hitting the hardkey and afterwards the pool item will execute the chosen command.
  - Optional effect and sequence pools can be set to pool playback mode. The first touch of a pool object will start the pool playback of that object and will switch the icon to a mini executor icon with the same functionality as the mini executor icon has in the mini executor view above the executors.
  - With the option "direct action", every touch of a pool object will then execute the default single button executor assignment command (e.g. Go, Toggle, ...) on that item.
  - Pushing the assign hardkey and a running pool object afterwards will open the assign menu options to set the pool playback options for that effect, sequence or chaser.
  - Pool playbacks can be switched off using the Off hardkey and touching the pool item or using the Off menu (hit the off hardkey twice to enter the off menu)
  - With the new button "remember settings" in the Assign menu headline, it is possible to set the pool playback options for an effect, sequence or chase to the current settings of the same item assigned to a real executor.
  - This item is also listed in the off menu with the executor number O.x.y. The first digit identifies the user (for pool playbacks: 0, in normal cases: 1). The second digit either identifies the network slot for pool playbacks, (exception: As a standalone console has no network slot the 2nd digit is set to 1), or the executor page in case of standard playbacks. For pool playbacks the third digit will be automatically assigned in the order of the call. For normal playbacks it represents the number of the executor. It is also possible to recall pool playbacks via the option "pool playback" from either the effect, bitmap effect or sequence pool. These sequences can also be manually switched off, paused, go+ or even updated from the programmer (e.g. Inside a sequence pool: Press the hard-key "top" followed by a sequence in the pool will go to the first cue in that sequence). Each additional press on sequence e.g. will perform a "Go+" by default. Any other operational instruction can be added together with a pool entry, just as with a regular executor.
  - Only one pool playback per Effect X / Sequence X is allowed. Pool playback effects, or effects assigned directly to an executor are colored in dark pink in the fixture / channel sheet. Pool playback effects, or effects assigned directly to an executor have a higher priority than sequence executors.
- Effects and chasers assigned to executors or started as pool playbacks use the default or individual On/Off timings [not working properly as of 2.3.0.3]
- New layout view option: "Pool Playback". If "pool playback" and "fast call" is activated in the Layout View Options, presets will be fast called; sequences and effects will create a pool playback.

- All sheets have new dynamic markers:
  - Red = the value is active in the programmer (as before) (not available in tracking and content sheet).
  - White = the value is in the programmer (as before) (not available in tracking and content sheet)
  - Yellow = the value is called from a cue. Green = the individual fade time for a value is active in the programmer (as before).
  - Orange = the individual delay time for a value is active in the programmer (as before). Cyan = the value comes from a preset (as before).
  - Magenta = an effect is in use (channel and fixture sheet)/is stored (tracking and content sheet)
  - Magenta + red on the right side = the effect is active in the programmer (not available in tracking and content sheet).
  - Magenta + white on the right side = the effect is in the programmer (not available in tracking and content sheet).
  - Magenta + red + green = an individual fade time for the effect is active in the programmer.
  - Magenta + red + orange = an individual delay time for the effect is active in the programmer.
  - Grey = a profile is in use (as before)/(not available in tracking and content sheet). (only displayed in output layer - DMX)
  - Dark blue = The attribute is parked (as before)/(not available in tracking and content sheet). (only displayed in output layer - DMX.) Additionally: A small line marker means: This is a tracked value/effect A half width effect marker means: This is a stomp effect. Redesign of Programmer Encoderbar
- Sheets have a new layer control bar. The layers are now sorted in 3 general groups: "value layer", "effect layer" and "output layer". Channel and fixture sheets have additional output layers: "effect executor id", "effect seq. id" and " DMX ". Channel and fixture sheets have additional effect layer: "fade", "delay", "attack" and "decay". Note 1: the DMX layer shows also values altered by a profile (with an grey marker), and parked values (with an blue marker). Note 2: DMX values generated in the DMX-tester are displayed with a white background.
- The layer in fixture and channel sheets have new dynamic markers: Red marker in value layer/effect layer = there is an active programmer value in the corresponding layer. White marker in value layer/effect layer = there is a programmer value in the corresponding layer. Blue marker in the output layers = an attribute is parked.
- The layer in the tracking sheet has new markers: The value layer shows a yellow marker, when at least one value in the whole sequence was stored. The effect layer shows a magenta marker, when at least one effect in the whole sequence was stored.
- The layers in the content sheet have new markers: The value layer shows a yellow marker, when at least one value in the displayed cue was stored The effect layer shows a magenta marker, when at least one effect in the displayed cue was stored.
- The touchbuttons in the middle line of the encoder toolbar (align/activation/attribute) or in the store encoder toolbar (progr/selection/ask) are in swipe button style now. Keeping the touchbutton pressed, swipe the finger upwards. The pop-up opens to allow selections. The popup menu will also open by a long press.
- Fade and delay times can be stored without values in cues if values already exist. Note 1: It is not allowed to store only a fade or delay time in an empty cue (a cue without values). Note 2: When you delete a value, the individual fade and delay timing will be deleted, too. Note 3: An effect uses a value-fade or value-delay only if a value is stored in this cue, too.
- "Trigger is GO" as Executor Playback Option added. Pressing this key will switch on "Trigger is GO". The Sequence/Chaser can only be controlled by the GO button and will ignore Follow and Trigger times.
- New button in the headline of sequence sheet, content sheet and tracking sheet: "Link encoders". Touching the sheet will only open sequence playback encoderbar when this option is activated.
- 3 new Filter options for the "At" filter: "Values", "Value times" and "Effects". These buttons are specifying what will be used for "At" command.

- New colors in the channel and fixture sheets when working in the network: The values from playbacks controlled by another user are displayed in grey colors. Executor IDs and Value IDs are displayed by using the cue colors for background.
- The executor sequence sheet has a new option in the "mode" column: "release". A cue with the "release" option switches the executor off when its cue time is completed. Note: "release" uses also the "executor off timing".
- Better workflow with parts: The command "store part x" stores a partcue in the actual cue of the selected sequence. The command "store cue x part y" needs only one press to the button "cue" after the first "cue" press.
- New Function: "Single digit value". (setup/user/settings) as it used to be in grandMA Series1. All numeric cue value inputs below ten will be multiplied by 10
- The command: "channel x at y time z" brings the value "y" with the timing "z" live on stage and into the programmer) if the "program time" is switch on. Note: The program timing will be overwritten.
- New Syntax: "At Remote 3" activates the current selection to the incoming values of the Remote-DMX-In Type Programmer in order to create a kind of snapshot.
- DMX sheet: New buttons "link encoders" and "release all" in the headline. When the button "link encoders" is active, every touch in the DMX sheet, opens the DMX-tester encoder bar. A double click in the DMX sheet brings this address in the DMX-tester. The new "release all" button has the same function, as the button in the DMX-tester.
- Auto shutdown popup (when power is lost with grandMA2 light or full-size only) has a new button "continue for 120 seconds". If you choose this option, the popup reappears after 120 seconds.
- Setup/patch & fixture schedule: Diagnostic report is now sorted by errors and warnings.
- When saving big show files, the compression of the Show data will be done in the background. During this process the backup button will be blinking and there is a new progressbar indicating, while one can continue to work.
- Console supports external touch screens (input-device-technologies only (e.g. APR-Technology from ELO is not supported by now)). External Touch screens need to be connected before powering up the console (no plug & play). On first usage the operator needs to assign and calibrate the touchscreens (setup/console/screen options). The correct order: 1. If not detected automatically, the operator needs to set up the desired screen resolution. 2. Pushing the button "assign left touch screen" displays an identification bar on the screen the console supposed to be the left one. The operator needs to touch this screen within the time frame indicated by the identification bar. 3. Same procedure is required for the right touch screen. Known Limitation: After a software update, the external touch screens have to be reassigned and recalibrated.
- 3D default camera (grandMA 3D can follow it) can be changed via command line: e.g: change default camera of the first userprofile to the first camera: `cd 31 (userprofiles) cd 1 (user default) Assign 16 /DefaultCamera=1`
- 3D camera of stage view is fully controllable from the command line: e.g. set position, rotation and zoom (fov) of the first camera of the first userprofile: `cd 31 cd 1 cd 16 Assign 1 /X=1.27 /Y=-4.32 /Z=3.93 /Rot.X=-21.41 /Rot.Y=0.0 /Rot.Z=22.58 /FOV=0.79`
- New columns and colors in MA network configuration: The column "name" shows the device-name. The column "memory" shows the complete and free memory of the devices. The color green shows that a network party is a session member. The color grey shows that a network party is present in network, but in no session. The color red shows that a network party is member of another session, when a version number is visible, or is not available in network, when no version number is visible.
- The off menu (off off) now displays from which user profile an executor or an effect had been started, i.e., from which the latest go had been given. The new button "show only my playbacks" filters all running executors from other users. With this option activated, all other buttons in this menu will only affect the playbacks of the current user. Playbacks with colored background belong to the current user. Playbacks with black background belong to other users.
- New option in the update sheet: "Executor called by me" Note: Filters the "cue Destinations"-display for Executors latest touched by me.

- Timecode record has now a user selective mode. (setup/show/playback + MIB timing) Note: When "timecode record single user" is turned to "on" the executor playbacks will be recorded only from the user who switch the record button on.
- New fade option for executors: the command line entry "Executor 1 At 50 Fade 5" will fade the executor 1 to 50% in 5 seconds.
- Export/Import of effects includes the forms, used by these effects.
- Export function for user Command syntax: Export user <range> <file\_name> <please> <range> - can be: [Nummer]; [Nummer\_first] Thru [Number\_Last];
- Import function for user. Command syntax: Import <file\_name> at user <Number>
- Export/import function for userprofile Example: Export Userprofile 5 "filename" Export Userprofile "Tom" "filename" Import "filename" at Userprofile 2
- Export/import function for layout Export Layout 10 "filename" Import "filename" at layout 10
- Export/import function for executor and page Export page 5 "filename" Import "filename" at page 7
- Export/import function for presets Export preset 2.13 "filename" Import "filename" at preset 2.15
- 16 special Rate masters added.
- A warning appears when one tries to delete a profile which is in use.
- Store options gets new button: "Store Filter". Press and hold the store button to enter the store options. A new button "filter" appears in the top right corner of the frame. This allows filtering to be used when storing items (presets, features, attributes, effect times and effect values). Works similar to the AT-filter.



"Clear all" reset this filter except you save the entries as default.



The store filter also affects the update function. If you deactivate the effect layers in the store filter, you will not be able to update effect layers either.

- Store bar has new filter buttons for fast access to the most important store filter options Pushing the "Store Filter" button will open the store filter at screen 1 The store filter button is highlighted, if the filter is set to anything else than all. The button "values", "value times" and "effects" have the same functionality as the have inside the store filter. They define whether values, timing and/or effects will be stored.
- Store command. There are new options in command line: "store /source=<source type>". Source type could be: "prog", "output" or "dmxin" "store /useselection=<selection type>". (Short name: "/use" ) Selection type could be: "active", "Allforselected", "Activeforselected", or "all". "store /values" means that only values will be stored. (Short name "/v" ) "store /valuetimes" means that only value times will be stored. (Short name "/t" ) "store /effects" means that only effects will be stored. (Short name "/e" ) If in the command line several command filter options are used (/values, /valuetimes /effects) then they will be mixed. e.g. "store /v /e" means that value and effect data will be stored. Note: The option "/filter" got renamed to "/presetfilter" (short name "/pf" )
- New ways to toggle activation of channels, fixtures, or groups individually. Double press on group button toggles attribute activation of grouped fixtures in programmer Command line: Entering [Channel]/[Fixture]/[Group] [1] [Please] twice toggles activation of Channel/Fixture/Group 1
- New keyword: DmxUniverse (push the "channel" button 3x) Syntax: Park DmxUniverse 5 Unpark DmxUniverse 5

- Groupmaster Overview can be accessed using a long press of the Group hardkey. The group masters can be selectively, depending on their kind (positive, negative, additive) set to 0 or 100. Inside the overview every group master can be changed individually. Pressing on the headline of a group master makes the executor page jump to where the group master is assigned. The group master overview can also be assigned as a view (create basic window / other).
- Setup / Show / Patch & Fixture Schedule: Fixture Wizard will auto open every time a new layer is generated.
- MIB Indicator (\*) is back.
- Autosave function has been changed: Autosave only saves the show file at a defined interval, if the show file has been changed since the last saved show file version.
- If the focus is at the patch column it is possible to use the numeric pad for editing.
- If a macro line can be executed by "go" it can be executed reversely by "go-".
- New command line help function lists command combinations e.g. "store /?" lists all command combinations for the store command in the command line. Additional examples: "copy /?" "delete /?" "assign /?" "loadshow /?"
- If the option "fixture sort" is activated and there are more fixtures selected than visible in the fixture sheet, stepping through the selection using "next" or "previous" will scroll the fixture sheet to have the current selection visible at the screen.
- Many menus can be called directly via command line or macro. Example: "menu >"menu name"<" will toggle the called menu "menu >status<"menu\_name"<" will set the menu to the specified status, status could be: "on", "off" or "toggle". The command "menu /?" list the current menu list names. Example: the command " menu "groupmaster" " switches the group master overview on and off.
- The Layout view shows dimmer values of the selected sequence in cue colors.
- Stage View: Fixtures can be deselected using the minus("-)- hardkey and touch the fixture to be deselected in the stage view.
- The selected sequence section at screen 2 shows the executor page of the selected executor.
- A light-blue number in the sequence pool shows the number of executors using this sequence.
- A button in the Smart View is marked with an "m" (=merged), if more than one fixture type has a Channelset with that name.

## Fixed Bugs and improved functionality

- User passwords will be hidden while typed in.
- User passwords are case sensitive now. Administrator password is "admin"
- MIB will not be executed, if dimmer values >0 or dimmer effects are running formerly only dimmer values prevented MIB
- Setup Full Access: Fixture sort by number has been fixed.
- Sequence Flash Button is not overwriting an assigned Playback Master anymore.
- DMX Tester -> Park and UnPark Current have been changed to Park and Unpark Selection of DMX Tester.
- Calculator buttons "Half" and "Double" multiply correctly if more than one fixture is selected
- Two commands have received a new Shortcut: s - store ; sh - Shutdown;
- When a channel has a default value >0, htp cues work correct now.
- Edit timecodebar does not crash the desk anymore
- It's forbidden (and the console prevents it now) to make changes in "live access", while another desk in the session is in state "full access" already. (Before: the "live access" desk crashed when the "full access" desk leaves the "full access" state with "save")

- Deleting the last cue of a sequence with the Delete button from the keyboard in edit sequence does not crash the desk anymore
- External desk inputs (DMX/midi remotes) will still operate even when the desk is locked.
- Store/Merge for a range of cues is working again even when the cue range is not linear. (1,3,4,7,9..)
- Off time for executors is working now correctly with follow cues.
- Moving a chaser doesn't reset direction and loop settings to default anymore.
- Content Distribution will not crash the console anymore if the user presses Oops after the distribution took place.
- 50% values (127:128) lock into the one (127) or the other state (128) and do not jump anymore for long cue fadetimes.
- When moving a cue to a new cue list position located between two other cues, and Oops this action, will no longer result to a confusion of the numbering of the cue list.
- The command fixture at fixture considers now also effect values which are coming from an effect executor.
- Colors in Preset pool: When a preset has a fade or delay timing additional to a value, the value is displayed now with a yellow marker. (before it was red).
- Agenda: Entries in the week view are back.
- NPU: Workload representation has now a 100% grid.
- Playback bar: State of playback buttons in the playback bar in now correct.
- Stage view and grandMA 3D support 4 color wheels (before 2)
- Timecode show: after deleting a cue the referring event is assigned to "No Cue".
- Partial show read evaluates about wheels and mode dependencies.
- The "off timing" (setup/show/playback + MIB timing) works now also with the function "toggle" for executors.
- OffOnOverwritten is no longer recorded as "off-event" in timecode shows.
- Bug fixed: HTP-Cue at executor with values below default value increased the output value
- Selection of a bigger number of fixtures in the Layout view does not crash the desk any more.
- PWM Effect: No more "blips" if effect was running in reverse mode.
- FTP Access to grandMA1 folder at grandMA2 hardware has been fixed.
- Delete an All Preset in the Layout View using GUI has been fixed.
- Store with Source DMX-In stores the virtual dimmer with 100% as soon as one of the related CMY-channels is stored with a value >0.
- It is not allowed any more to patch Multi Instance fixtures across DMX universe borders.
- Patch Dialog is not auto closed anymore before all fixtures are patched.
- Patch Dialog: Pressing the screen encoder or please opens the calculator.
- Renaming a fixture will automatically reset the related subfixture names.
- The "Use Value" Section got renamed to "Use selection".
- When a timecode sequence is recorded, only manual key presses and fader moves are stored. A "release" in the mode option of a cue is not handled as a recorded event any more. The same is true now for manual set release times of executors (the release will be no longer recorded).
- Fixture library has been updated to Carallon Version 7.3
- Auto generated groups are broadcasted correctly to all session members.
- MIB and AE (assert effect) are not usable with non-tracking sequences and are deactivated for this sequences in the executor sheet.
- Content Sheet: Size of the name and the number column can be stored in views.
- Status views can be assigned with different font sizes at the same time.
- Scrolling fast through the desk help files is not crashing the desk any more.

- Merging setups using Partial Show Read Initialize is still possible.
- Backup menu: Load "userprofiles" from a showfile, overwrites the existing user and all userprofiles. Note: A normal "load show data" without userprofiles, merges userprofiles. Notes regarding the NEW Effect-handling:

## Bugfix Release 2.3.1.1 - released 2011-07-27

- It is possible to enter fade and delay times in seconds, minutes and hours with the calculator.
- Groupmasters can be set with fade time. Example: Executor 1 is a Groupmaster. CMD: Executor 1 at 100 Fade 5 will bring executor 1 to 100% in 5 seconds
- Deactivate button is back in the calculator.
- Console help search function has been improved
- Speed- and Ratemaster can be paused.
- Improved renumbering for copying cues, cues with negative range will get a step width +1 if possible. Example: copy cue 5+3 at cue 7 will copy cue 5 at cue 7 and cue 3 at cue 8 (if cue 8 does not exist)
- Sequence assign menu speed factor setting has been fixed
- Release values can be set to normal values using the encoders again.
- Moving or deleting an executor will not start other executors any more.
- Groupmaster overview shows also names of single fixture groups now.
- Crash fixed when entering the Agenda option menu
- At filter popup will not close any more, if another user is using a grandMA remote.
- Pools don't lose keyboard focus any more after labeling pool objects
- It is possible to oops while in setup/live or full access
- improved programmer update function, when editing effect templates
- Crash fixed, when moving or copying cues and oopsing this afterwards.
- Using update or store /merge will not start effects stored in later cues in the current cue any more.
- Analog, Midi and DMX Remote for button executors can be used at any page, not just current page again.
- When adding lines in the DMX-In Remote view, the screen will not jump to the first row any more.
- Users with Userrights "Preset" or "Playback" are not allowed to overwrite existing effects or macros, when importing new ones.
- It is possible to use the command "Extract Effect x" for selective effects and effect templates now
- Switching of Effect Pool Playbacks will respect the exec time.
- When assigning a selective effect to an executor, the effect will use the default off-time.
- If you want to set a individual off time for that executor, please use the effect playback bar.
- As it is not possible to start effect templates as pool playback, they are darken, when effect pool is switched to playback mode.
- Oops is possible for Highlight and Default Presets as well.
- Improved conversion of Show files, stored with version 2.2.0.13 and earlier.
  - Effects from show files, stored with version 2.2.0.13 or earlier will be converted to run the same direction as when they have been stored in the previous version.
  - Release Values and Effects will be converted correctly.
  - Tracking Sheet views with activated AutoScroll converted from older show files will autoscroll again.

## Appendix



How to use 'Speed' and 'Rate' in Sequences 1. All cue fade times can be modified in relation to their programmed timings (faster if rate > 1, slower if rate < 1) by using a rate fader assigned to a sequence executor or the rate encoder of the sequence playback bar. If the option "Effect Speed" in the assign menu is enabled, the rate fader modifies the speed of effects stored in cues, too. When turning off the executor the rate fader switches back to its default value (1:1), allowing setting up a new rate value before turning the executor back on again. 2. A speed fader assigned to a sequence executor relates only to the speed of the effects stored in this cue. When a sequence executor is carried out as a chaser the speed fader also controls the speed of the chaser. When turning off the executor of a sequence the speed fader switches back to its default value (60BPM/1Hz/1sec). When a sequence executor is carried out as a chaser the speed fader doesn't switch back to default. 3. Consequently: When a rate fader and a speed fader is assigned to a sequence executor the rate fader controls the fade times between cues while the speed fader is in charge for the effects (Provided the option "Effect speed" inside the assign menu is turned off). 4. There's no difference when assigning rate master and speed master instead of individual rate and speed faders beside the exception that they won't reset to default when switching of the executors. Notes regarding the removing of layers and attributes in cues.



The command "store /remove" or pressing [store][cue][2] and the select [remove] in the popup will remove the whole attribute with all (!!) its layers for fixtures having any value or effect layer of this attribute active in programmer. It can be filtered to only remove values, value timings or effects by using the buttons in the stored encoder bar. To remove only specific layers, for example only individual effect fade, the operator needs to open the calculator for these layers and select "remove" in the calculator. Afterwards the operator needs to update the cue, or has to use store /merge to remove the specific layers.

### Known limitations:

- Partial Show Read has been disabled in the current version. Merging setups using Partial Show Read Initialize is still possible.
- It is not possible to store or update an selective effect at a cue with an already stored stomp.

#### Workaround:

- The stomp has to be removed from the cue first.
- Then it is possible to store or update an selective effect at that cue.
- Show file conversion from Version 2.2 and earlier: The speed of an selective effect, stored in a cue, will not be brought correct into programmer, if the cue gets edited and the default speed of the effect in the pool is not 60 BMP.

## 53.11. Release Notes - Version 2.2

Version 2.2.0.13 - released 2011-05-11

Version 2.2.0.12 - released 2011-03-22

Version 2.2.0.9 - released 2011-03-04

Version 2.2 - released 2011-02-14

## New functions and features in detail:

- New help functions: Search function added in help view. (Magnifying Glass) Pushing and holding the "help" hardkey while pushing another hardkey, brings up information about this key. Pushing the "help" hardkey, pushing another hardkey and completing with "please", brings up a help about the keyword. (for "edit" or "store", the command must be written in the command line).
- Server backup: The desk automatically creates a folder structure (similar to the one which would be created when using an USB stick) when using the backup option "ftp / windows shared folder", (gma2 / shows... macros...) for the first time. Note: The first show which is saved, after a backup server is configured, creates the folder "gma2/shows"
- Backup menu: Loading only "userprofiles" (without data) from a show file overwrites the existing user and all userprofiles. Note: A normal "load show data" without userprofiles, adds user and userprofiles.
- Backup menu: In the option "delete show(s)" it is now possible to select several lines by using a lasso.
- New button assignment and defaults for special master. New functions "halfspeed" and "doublespeed" for speedfader added.
- New representation in mini executor sheet, when a sequence has only one cue.
- The "mini executor sheets" (above the executor fader) have an indicator in the small fader bar, when a "playback master" is assigned.
- "Setup / show / midi show control" menu has a "msc in monitor" field for incoming msc commands.
- MSC (midi show control) supports now also "flash" and "black" button presses.
- Added hardkey support for keyword "Call": Push 2x "on"
- "call cue x" for a nontracking sequence loads actual content of (selected sequence) Cue x into the programmer and activates these values. "call cue x" for a tracking sequence loads tracking values of (selected sequence) Cue x into the programmer (as non-active values) and loads actual content of Cue x into programmer and activates these values. Note: "call thru x" loads the status of cue x in the active programmer.
- Speed master has now a status LED.
- The speedmaster status is now stored in showfile.
- Sequence executors have now "halfspeed" and "double speed" buttons. Note: They are working synchronized to the rate.
- Better workflow when using "at filter": target - source - filter. e.g. "fixture 2 at fixture 1", then long press of "at", choose filter, "please".
- The DMX tester has a new "unpark" button.
- The command "shutdown" has now the options: "Save", "Don't save" and "Esc."
- Edit an embedded preset now shows the original preset name/number in the fixture sheet.
- Random function in effects improved.
- Sequence executor sheet: Set a time in the column "trig time" switches the trigger automatically from "go" to "time".
- Bitmap Effects support 32bit BMP -files.
- The command "delete sequence x" deletes only fixtures of the current world in this sequence. If the current world includes all fixtures which are stored in this sequence, the whole sequence will be deleted. (same as before).
- The command "assign time" "please" (without values) assigns the default time (Setup/User/Defaults/Sequence defaults) to the current cue of the selected sequence.
- "program time" and "exec time" assigned to a executor fader, shows the function (with an indicator) in mini executor sheet.

- "Oops" now works for "park", "unpark" and "import"
- Content sheet in "manual" mode has a new focus: Touch in the grid, the scroll-encoder scrolls inside the shown cue. Touch in the titlebar, the scroll-encoder scrolls inside the cue list.
- The 100mm faders have a new option "empty".
- Typing the command "label" before doing a lasso selection in the channel sheet allows to label all selected channel names in one go.
- MSC - Cue commands having less than three digits had been ignored - no longer!
- Tracking sheet: The width of the "number" + "name" columns is now stored in views.
- Setup: The "user" tap redraws, when changing the user via the command line.
- Assign menu: The "empty" field works now.
- DMX-Tester selection is now cleared on show-load, new-show, and show-download.
- CMDHELP filter operates again. E.g. "cmdhelp c\*" shows all commands starting with "c".
- "CMD link" in cues works now when executor started with a "flash" or "temp" button, too.
- In the tracking sheet the height of rows adapt to the font size.
- Desk light status is now loaded from show file. (setup / console / local settings)
- Follow Cues, timed cues, or chaser overwrite now also contained values in the programmer, when "freeze" is off. Note: Before only the first cue did overwrite programmer values
- "edit preset x.y" / "update", destroyed the preset filter and the embedded mode - no longer.
- Export of large Cue lists doesn't crash the desk anymore.
- The "special master"s 1 thru 8 are displayed in green. Note: They apply only to the "selected sequence".
- A sequence on an executor fader can now be started with a X-fader, even the x-fader is up (on 100).
- Delete a running sequence / chaser with a opened edit view will not crash the desk anymore.
- When deleting show files from a USB drive, the drive is synchronized immediately.
- "edit executor x", the focus of the edit popup view is now in the actual cue, and can be changed directly with the encoder.
- The command "assign view 1 thru 5 viewbutton 11.1 thru" works correctly.
- Delete the selected sequence and store a new cue on the same executor, the selection is no longer lost.
- You can't delete channel faders which are not in your world no more.
- An executor "temp or flash button" does not switch off another executor, when "off on overwritten" is switched on. e.g.: Now you can assign the same sequence on the executor 1 (cues with colors) and executor 111 with a flash button.
- The desk has now only one single ftp access: User=data, password=data. No access to the /root anymore (user "root" will be no longer supported)
- "Copy cue only" works when the target cue does not exist.
- The magenta color frame is displayed correctly now, when a jumping by "go-" into a looped cue.
- Pushing the "flash" button on a channel fader shows the output value now in the mini executor window (above the fader)
- The "load" and "goto" popups can be operated with the numeric keys.
- The replay unit (RPU) displays the preset types in the encoder tool bar now.
- Fixtures with virtual dimmer display the correct values in the Stage View (and 3D), when working in edit blind programmer
- Park / unpark and a lasso in the channel sheet is working again.
- The keyword "color" is switched to "gel". (press the hardkey "preset" 3x) - b.t.w the respective functionality does not exist by now
- The command "assign selection channelfader 1" is working now.

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- The command "store cue 1 /m" and push an executor hardkey, works now.
- Moving a fixed executor moves now also the fix status.
- A virtual channel has now the "virtual DMX range" 0-255 (before 0-1).All channel functions and channel settings can be created/edited related to that range.(MIB works now for fixtures with virtual dimmer.)
- Import keyword using in the command line:if "bla-xml" contains two macros the command import "bla" at macro 10 will import these two macros to macro 10 and macro 11. If macro 11 already exists the user will be asked whether to overwrite it. (To prevent overwrite by mistake.)import "bla" at macro 15+20 will import the macros to 15 and 20."import" shows some info in the commandline Parameter "/noconfirm" skips overwrite warning. Parameter "/quiet" disables the extra info in the command line
- New Features, attributes and subattributes will be inserted at a better position (before they were always added at the end).E.g. if "gobo1" and "gobo3" exists, "gobo2" will be created in-between.Or if the attribute "movingpath->translation-y" exists, "translation-x" will be inserted before; "translation-z"will be added after. This belongs to manual creation of these objects and to the import of fixture types, too.

## Known bugs and limitations:

- Remote configuration of 2Port Nodes via grandMA2 is shown right in the display of the nodes, but do not change the real output online. After resetting the nodes (disconnect/connect mains) everything is working fine.
- Fixture Types with more than 2 Mode channels may not work

## 53.12. Release Notes - Version 2.1

- \* Means something was changed/fixed.
- + Means something was added.
- Means something was removed.

### Version 2.1.0.6 - released 2010-11-30

#### **MAIN FEATURE OVERVIEW:**

- + grandMA2 iPod/iPad Remote
- + Partial show read
- + DMX Tester
- + Full VPU configuration
- + RDM
- + Artnet in / new protocols

#### **IN DETAIL:**

- + Remote for i-pod is implemented. Remote must be enabled in the setup. (setup/console/global settings)

Note: It is not allowed to login as administrator or as guest. Remote needs a own user / userprofile. Max. two remotes are permitted to connect with a desk. <http://itunes.apple.com/app/grandma2-remote/id403226319?mt=8>

+ Implementation of Partial show read (PSR).

1. Use the "partial showread initialize" dialog. (backup menu)
2. In the view "partial show read prepare" a wizard helps you to select. Attn. Your setup might be changed.
3. Inside the "partial show read" a "PSR tree" dialog will show to help to merge or overwrite new parts to the existing show.

Note1: PSR follows the current world

Note2: When a sequence which contains effects based on presets is the source, then PSR imports sequence, effects, presets simultaneously

Note3: The current implementation doesn't work with user profiles.

PSR Syntax for commandline:

"PSRLIST Sequence" ( shows all available/changed sequences of the showfile which should be inserted )

"PSRPrepare [filename] [/usemine]" (uses the current setup).

or "PSRPrepare [filename] [/mergeother]" (merge with the new setup).

or "PSRPrepare [filename] [/useother]" (overwrites the current setup and uses only the new setup).

Shortcuts are:

[/usemine] = [/um]

[/mergeother]" = [/mo]

[/useother] = [/uo]

"PSR seq x" ( eg. x=1 ; PSR on the sequence )

"PSR seq x if channel y thru z" (PSR on seq with filtered "if")

+ "DMX tester" is implemented (Direct access to DMX values).

A click into the dmx sheet, or double click on the channel button (DMX) opens a new encoder toolbar.

Note1: The values from the DMX tester are indentified by a blinking white square.

Note2: The priority of the DMX tester output is higher than all other values, even parked. Exception: In case of DMX-in / Artnet-in values they'll be only overwritten HTP-wise.

+ The dmx-sheet can be used interactive with the commands park, unpark, off. e.g. "park" and touch on a Address in the dmx view. (park this channel)

e.g. "assign channel x" and touch on a Address in the dmx view. (patched this channel)

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+ VPU content distribution is implemented. (setup/network/ma network configuration/video).

+ VPU backup manager implemented. (setup/network/ma network configuration/video).

+ Full VPU configuration from desk. (setup/network/ma network configuration/video). (Display, sdi, pixelmapper, main settings, ...)

+ RDM found its first implementation (setup/show/patch&fixture schedule/RDM devices)

RDM must be enabled in the setup. (setup/console/global settings)

"update" displays the basic information from the RDM devices over all DMX outputs connected to your grandMA2 or MA NPU.

Note1: RDM is disabled by default everytime when loading a show.

Note2: The RDM information are only visible on the session Master (or a standalone desk).

A better GUI, Error checks and more device information will be provided in later software versions.

WARNING: Please disable RDM if you experience strange behaviour of attached DMX devices (like fixtures, etc.). Some of those doesn't have the compliant DMX implementation and will corrupt the whole DMX output.

+ Artnet-in is implemented (setup/network/dmx protocols/artnet)

Artnet can be setup in a more detailed way (multiple rows)

Notes: In the column "mode" you can switch between input and output. Every MA universe can be assigned only to one artnet universe. The column "Valid" indicates that the settings are correct. On the right side, you can switch the input and output active.

+ All network protocols are send from the master in a network session only. When there is no slave in the session, the "Network DmxOut if alone" button must be switch on, to send out the protocols. This option is stored for every desk. You'll find it in the setup/console/local settings. (a red frame = protocols are not send, a green frame = send)

+ Pathport OUT protocol is implemented (setup/network/dmx protocols/pathport)

+ KINET-1 network protocol is implemented. (setup/network/dmx protocols/KINET1)

Note: It is used by Philips Color Kinetics.

+ Enhanced EXPORT / IMPORT - functionality

Deep changes in the way Export and Import is performed are done.

The following parts of a Showfile can be exported: Macros, Colors, Effects, Fixture Types, Layers, Fixtures, Subfixtures, Sequences, Cues.

More parts will follow in further releases.

For those who can handle xslt-files you'll find first templates for stylesheets in the "styles"-folder.

When exporting any of above mentioned parts to an USB-stick one of the following folders will be added: "macros"; "library"; "effects"; "colors" importexport (all the rest).

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In case a fitting stylesheet exists (on the USBStick or inside the desk) additionally a folder called "styles" will be created inside the existing folder importexport. In order to display the output the usage of a standard web browser is required (tested on Internet Explorer and Firefox). The browser will automatically use the stylesheet named in the exported XML-file.

Using this feature it is possible to create a customized "documentation" following definable rules by editing the template stylesheet.

+ Backup over external server is implemented: (Backup menu, bottom left).

The backup can be performed from the master console only. It's possible to backup on USBstick, internal Harddrive or (when configured) on an external server.

In case an external server is configured every backup on every medium will additionally create a backup on this server. From "YourServer"-Tab it is only possible to load show files.

+ Executor Pages Pool displays the current Fader and Button Pages, shown "F" or "B"

+ Cuepartnames are possible.

+ Presettypes in the encoder toolbar show an indication which presettype a selected fixture has.

+ The feature Field in the encoder toolbar is reduced to accessible features (filtered by fixtures). e.g. a LED shows only "colormix", a moving light shows "color1", "color2" and "colormix".

+ Midi show controll: Midi Input is active, if Network is selected.

+ grandMA 3D: new column in materials grid: "Owner Name" (shows the name of the 3d object that owns it).

+ New (empty) shows contain always the fixture type "Dimmer 8Bit".

+ Widgets can show context sensitive help.

Press "Help" (or type "help" into the commandline) and click in the title of a window. -> help opens a page explaining that window. (this works also on the bars at bottom of several sheets).

+ 4-port nodes support dmx-in on xlr-3 and xlr-4 now.

+ Playback masters are assignable. (Executor assign menu)

+ Highlight Mini Executor by Fader touch

+ Recursive Macros can be interrupted ("OFF + MACRO" stops all macro execution including cue links and startup macros)

+ Switch off a desk brings a popup "save" / "don't save" showfile.

+ In the calculator it is possible to work with open alignments, e.g. "1 thru"

+ Store output works also for paused cue fades or effects now.

+ COLORDIM channels are real light emitter channels now. (stage view and 3d). They are active light sources of the fixture - equal to a "DIM" channel.

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"COLORDIM1" = red = RGB red

"COLORDIM2" = green = RGB green

"COLORDIM3" = blue = RGB blue

"COLORDIM4" = amber

"COLORDIM5" = white

"COLORDIM6" = warm white

"COLORDIM7" = cool white

"COLORDIM8" = orange

"COLORDIM9" = red orange

"COLORDIM10" = purple

"COLORDIM11" = indigo

"COLORDIM12" = cyan

"COLORDIM13" = magenta

"COLORDIM14" = yellow

"COLORDIM15" = uv

Note: Real (non-virtual) DIM channels are multiplied with the current output color. Other color channels are filters (subtractive color).

+ Layout View shows the dimmer bar for virtual dimmer.

+ "Master SpeedRate fader" are automatically labeled now.

Used by a sequence = rate

Used by a chaser = speed

+ New canbus version 1.33 (Individual LED dimming, for service purposes only)

\* The console settings in setup have been divided in "local settings" and "global settings".

Note: "local settings" are used only on the current desk, "global settings" are for all desks in a network session.

\* The actual World for a user is stored in the showfile. Load a showfile brings every user in his world. When a user leave the full access, all other user keep there world after the show download.

\* "Fixture sort" in channel or fixture sheet, shows now the right selection order. (no longer the physical order)

\* When a user leaves the session, only highlight and solo are deactivated, programmer values will remain.

\* Command and value columns inside the timecode-editor are editable via right click.

# grandMA2 User Manual

Version 3.3



- \* Macros asking for keyboard entries can be cancelled by pushing "ESC"
- \* Number of Speed groups increased to 16
- \* MIB popup can now be used with the screen encoder.
- \* "Off effect 1 thru 10" repaired.
- \* Using "Load Cue" with a not existing cue number doesn't show that Cue number anymore (does actually nothing now).
- \* "Pause" works for effects in cues, when the option "effect speed" is switched on in the assign menü.
- \* "store /m group x" works now and merges without further demand.
- \* Remotes to executors uses the correct executor on the correct page again.
- \* When turning on the desk, the green LEDs indicating enabled executors are remembered again.
- \* The presettypes (eg. "Position") above the encoders change their functionality no more, when selecting a presets from other presettypes (eg. "Color").
- \* Screen 1/2 Navigation Encoder follow now all popup windows.
- \* Edit an empty macro pool object (blue Focus is on the line "new"), the first key press on keyboard opens a popup and is used as first letter for the command.
- \* A desk freezes no more when it is alone in the network with the screensaver on over long period.
- \* The special master "programmer time" is changed to the shorter name "program time" in new shows created with Ver. 2.1. and higher.
- \* Stage View and 3d: "Reset Camera" is repaired. \* grandMA 3D: Initialization of shows runs a lot of faster.
- \* "off effect" does now work for all fixtures which are running with this effect. (in version 2.0 this command does only work for the selected fixtures)
- \* Build an effect with the "special effect" menu, does not put a "width" value into the programmer anymore
- \* Store an effect in a cue with individual effect information only (not from the effect pool) does work now.
- \* ASCII Profiles revised
- \* When cancelling a "session colisson dialog" with the "ESC" button, the desk leaves the session.
- \* Release tracking values (R) in tracking sheet, displayed darker now.
- \* It is no longer possible to change the sACN priority.
- \* Edit Fixture: By changing the attribute of a fixture module, the subattribute follows the change automatically, if...
  - the channel type has exactly ONE channel function
  - the existing channelfunction's subattribute is a default subattribute of the existing channeltype's attribute (default subattribute means, that the subattribute is the first child of its parent attribute)

# grandMA2 User Manual

Version 3.3



- \* The command "park selection" works now. (as a new predefined macro available)
- \* Default values of COLORDIM channels will be set to 0, if the fixture has no dimmer channel.
- \* Layout View: Changing background color of a frame, the z-order is fixed now. Frames are always drawn behind fixtures. Change color to "transparent": Just rotate the color encoder counterclockwise. The color will turn to black and then to transparent.
- \* When 2 different users are working in the same world then changes given to this world by User A are displayed and updated also for User B.
- \* Fixture types in the setup are always displayed with a number at the beginning of their name and their mode (to distinguish similar fixture types).
- \* Updated fixture types and gobos from carallon lib 6.7
- \* New predefined macros. In all predefined macros, CLI = on.
- \* Sequence sheet: loop starts from the last cue, when trigger is "time" or "follow".
- \* Edit fixture types: The AutoCreate default for all channel sets inside channel function with the subattribute "DUMMY", "RESERVED", "NOFEATURE", "UNKNOWN", "MACROPART" is "False" (no AutoCreate will be performed)
- \* Fixture Sheet: After disabling "feature sort" features will be sorted back to default.

## Known bugs and limitations:

- Remote configuration of 2-Port Nodes via grandMA2 is shown right in the display of the nodes, but do not change the real output online. After resetting the nodes (disconnect/connect mains) everything is working fine.
- Fixture Types with more than 2 Mode channels may not work

## 53.13. Release Notes - Version 2.0

- \* Means something was changed/fixed.
- + Means something was added.
- Means something was removed.

### Version 2.0.0.6 (Bugfix) - released 2010-10-19

- \* The presettypes (eg."Position") above the encoders change their functionality no more, when selecting a presets from other presettypes (eg."Color").
- \* crash 'copy Layout inside a layout' removed
- \* crash 'export effect from demo show' removed

# grandMA2 User Manual

Version 3.3



- \* crash 'move cue x at y from not selected sequence' removed
- \* crash 'poolsize too small for giant shows' removed
- \* this version automatically removes invalid doubled DMX-Remotes from folder

## Known bugs and limitations:

- Remote configuration of 2-Port Nodes via grandMA2 is shown right in the display of the nodes, but do not change the real output online. After resetting the nodes (disconnect/connect mains) everything is working fine.
- Fixture Types with more than 2 Mode channels may not work

Version 2.0.0 released 2010-09-01

## IMPORTANT!!!!!!

THE CURRENT VERSIONS OF OnPC AND 3D DEMAND MINIMUM WINDOWS® XP WITH INSTALLED Service Pack 3 (Microsoft® .NET Framework (4.0) WILL BE INSTALLED IF NOT EXISTING ON YOUR COMPUTER)

## IMPORTANT!!!!!!

## MAIN FEATURE OVERVIEW:

- + Layout
- + MAtricks
- + Auto create
- + "fast call"
- + "Dynamic Channel Fader"
- + Tracking sheet options
- + MA network dimmer

## IN DETAIL:

+ Layout pool and layout view are implemented (New hardkey combination: press "MA" + "group")

You can store a selection of channels or fixtures in the layout pool.

Pressing a layout pool button selects this layout.

This shows the layout directly in the layout view. (If the layout view is "link selected")

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Note 1: "setup" opens the layout encoderbar. Hardkey "clear" deselects all objects when "setup" is turned on. It's possible to assign macros, preset, effects or groups onto a layout button ("assign macro x layout y"), or directly in the layout view. Assign presets in a layout is only possible via the commandline, because a command "assign preset x" will open directly the assign options. Right mouse button on an object assigns a text.

Note 2: Layout view options: "snap always" setting "no" can be temporarily disabled by pressing and turning the encoder button. ("setup" in layout view must switched on). Layout view options: "fast call" is a direct call for presets and effects.

Note 3: Hardkey "delete" and afterwards pressing onto a layout-object will delete this. via commandline: "delete layout 1 fixture x"

Note 4: Selection of multiple cha/fix via frame object possible

Note 5: Copying fixture positions from the stage view to the layout view: Store the fixtures in the layout, push the button "arrange" in the layout-setup encoderbar. The button "camera" enables to select all stage view cameras via an encoder. Positions from selected objects will be directly mapped into the layout view "apply" will take the stage positions. "line", "circle" and "rectangle" work similar, and take the new positions with the "apply" button as well the "element properties" button will bring you back to the position encoder bar.

+ MAtricks implemented (new button in the encoder bar)

Select any Fixtures.

"interleave" is the matrix size.

(The "set" button indicator lights up.)

"single X" selects your "MAtricks" in horizontal order.

"prev" and "next" buttons do the same.

"single Y" selects your "MAtricks" in vertical order.

"MA+prev" and "MA+next" buttons do the same.

"MAtricks active" has the same function as the "set" button, it toggles between the whole selection and the MAtricks selection.

"blockXY" generates blocks of selections.

"Align group XY" generates groups of selection for alignment.

"Wingstyle" does only work for Pan and Tilt.

A long "clear" (AllClear) resets the MAtricks.

All settings (green background) can be stored in the new "MAtricks Pool"

Note 1: Its possible to assign a MAtricks pool button to a user button (X1 - X20). The MAtricks pool is user based. (Same as view pool)

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Note 2: Use via commandline:

	Next (inc)	Prev (dec)	Next & Prev (reset)
-none-	Next	Previous	All
+MA (vertical)	NextRow	PreviousRow	AllRows
+Set (Interleave)	MatricksInterleave +	MatricksInterleave -	MatricksInterleave off
+MA & Set (Blocks)	MatricksBlocks +	MatricksBlocks -	MatricksBlocks off

+ Auto create group/world/preset/channel pages implemented (setup/show)

Notes group/world: Multi selection is possible (Fixture types/single fixtures) with the "ctrl" button. "use earliest" takes the first free pool button, "use latest" takes the first pool button after the last used. "always ask for name" does not work for "create single groups"

Notes presets 1: if the button "encoder grouping" is set, preset combinations are produced on the based on the encoder grouping settings in channel sets. (setup/show/patch&fixture schedule/fixture types/attribute&encoder grouping) E.g. "Gobo 1 and gobo 2 open", "color 1 and colormix open"

Notes presets 2: The channel sets of fixtures now have a new column "auto create" Notes channel pages: Only attribute dimmer will be auto created to channel fader.

+ Clone is implemented (New hardkey combination: press "copy"-key twice)

The syntax for using the clone cmd is:

```
"CLONE SourceFixtureList AT DestinationFixtureList [IF CloneObjectList] [/merge] [/overwrite]"
```

Options:

No option - simply clone (low priority merge) does only clone data which exist in the source - not in the target

Merge - executes a normal merge that overwrites existing data - additional information which only exists at the destination remains untouched

Overwrite - as the name implies the destination object is completely overwritten by the source object (Note: all existing data at destination will be removed, resp. exchanged) the option shortcuts are /m /o

Note 1: Without specifying options, clone is a performing a "low-priority" merge which is non-destructive. It does not overwrite already existing data, and it does not remove already existing data. If clone is performed on a specific object list, it will perform a clone also for the dependencies of those objects (like presets and effects used in a sequence). This second level run (it may also perform a third and a fourth if necessary) is always performed with the non-destructive default setting.

Note 2: Clone respects the "at" filter

Note 3: Clone respects worlds for the destination. But it is possible to clone data from outside into the current world.

Example 1: CLONE FIXTURE 1 AT 2 IF SEQUENCE 1 -> if fixture 2 has nothing else to do, it will do what fixture 1 did.

Example 2: CLONE FIXTURE 1 AT 2 IF SEQUENCE 1 /merge -> fixture 2 will do everything fixture 1 did, but it may have additional data that existed before.

Example 3: CLONE FIXTURE 1 AT 2 IF SEQUENCE 1 /overwrite -> fixture 2 will do exactly what fixture 1 did and nothing else

+ New option "fast call" for presets and effect pools (indicated by a red background in the pool). In the Mode "normal call", the first press on a preset/effect select the fixtures, the second press executes the preset/effect. (as before). In the mode "fast call" the preset/effect does not need a selection. It executes directly for the stored selection (selective/global/universal)

Note: The command "call" can also be used ( via a macro) with the commandline. Call [object] will do a fast call, in a normal call pool.

+ New option "fast call" for sequence pool (indicated by a red background in the pool). In the Mode "normal call", the press on a sequence button only selects the fixtures. In the mode "fast call" it will bring the status of the last cue into the programmer.

+ "Dynamic Channel Fader" Mode implemented. (Headline of channel/fixture sheet) When an attribute e.g. "Position" is selected in the headline of a fixturesheet and the "link" button is pressed, all selected fixtures with pan/tilt will automatically be mapped at the new dynamic channel fader page With the following commands (for macros) usable:

>ChannelLink< = Toggle the function on/off.

>ChannelLink on< = Switch the function on.

>ChannelLink on Feature "colormix"< = shows all selected fixtures with colormix.

>ChannelLink on Attribute "Iris"< = shows all selected fixtures with Iris.

>ChannelLink on Attribute "dim" + "Iris"< = shows all selected fixtures with dimmer + iris.

>ChannelLink on Presettype 0< = shows all attributes off selected fixtures.

>ChannelLink on and than type on a preset type button< = show this preset type.

Note: >ChannelLink< toggles from current stade to attribute "dimmer".

+ "Dynamic channel Fader": Whether only the selected channels/fixtures or all are displayed can be choosen via an option (setup/user/settings)

+ Channel page width implemented (setup/user/settings) Command: >assign channel thru channelpage 1.1< Note: "normal" uses the number of channelfader of your console (fullsize or light/ultra) "half page" -> 15 channelfader p. page "full page" -> 30 channelfader p. page

+ Import/export macros and effects implemented (setup/show)

Note: To import effects you need to create fixture types in the edit setup first, otherwise the attributes wiil not be transferred.

+ Export/Import of FixtureType will also include the used profiles of the FixtureType(s)

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Note: If a DMX profile is imported with a fixture type and this profile does already exist, then the profile will be renamed (name extended by a number)

+ Tracking options implemented (right mouse or edit on a selection in tracking sheet).

Note: The "edit" button opens the calculator for the selected fields.

+ Tracking sheet: It is possible to select columns with the same attribute horizontal and edit the values with the middle, or "middle and right" (opens the calculator), mouse button.

Note: Only values, not for presets at this time.

+ Move cues implemented.

Note: The target must be empty.

+ New commands:

"delete sequence x fixture y": delete this fixture from this sequence.

"delete cue x fixture y": delete this fixture from this cue.

"delete group x fixture y": delete this fixture from this group.

"delete preset x.x fixture y": delete this fixture from this preset.

Note: This only works for selective presets.

+ session collision dialog is implemented

+ "Highlight" and "solo" does now work per User in Network (was desk local before.)

Note 1: "highlight" and "solo" will be switched off when the user logs out.

Note 2: When the user works in different worlds, every user has his own "solo".

Note 3: When the user works in the same world, user A can take fixtures in his programmer, which were controlled from highlight or solo from user B.

+ MA network dimmer (NDP) for MA-Net2 has been finally implemented Since NDPs are fully integrated in MA-Net2, it becomes necessary to run the same streaming version on consoles and NDPs!

+ Poolwindows have frames.

+ Patching and labelling is possible on the channelpages.

+ [assign] and pressing a preset button opens a pop-up to change the Special Preset Mode directly. ( Special Preset Modes: Normal, Default, Highlight ).

+ Breaks in Cues: Changing values in a tracking sheet, does now respect break cues.

+ Views on user keys (X1 - X20) show witch view is stored.

+ 2 Ranges of combined selections are possible. e.g. "store seq 1+3+5 cue 5+7".

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Example: You have 3 Sequences, called "truss red" "truss blue" and "truss green", The command "store truss\* cue 2" stores a cue 2 in all 3 sequences.

+ New preset symbols:

e.g. a color preset has values from color1 and colormix is open = coloured circle and small square

e.g. a color preset has values from colormix and color1 is open = coloured square and small white circle

+ New preset indicator. When a preset is not part of a world, the preset name is displayed in red. When parts of a preset with multiple presettypes are not in the current world, the presettype indicator is displayed in red

+ "page down" long press jumps to page 1. (about 2 seconds)

+ The cmd command "/noconfirm" executes the command with no warnings.

Example: "Assign Fixture 1 At DMX 1.1 /noconfirm" does not give any warning.

+ Programmer values in network: When a user logs out of a session, his programmer will be cleared.

+ Setup/console/user+profiles setup: Display which user/profile is used.

+ Mini-scrollbar in text views (e.g. in help view) can now be used for mouse scrolling (before it displayed only the current position).

+ New function for executor fader with "special master programmer time" or "special master exec time": MXF = manual x-fade (to switch on/off programmer times and button executor times)

+ New grids allow sorting the data in a grid via a mouse gesture:

Click into head cell and drag to top or to bottom. (old style via right click also possible)

e.g. Swatch book in detail view.

+ Fixture Type Revision Notes can be edited. (Scroll down to "Make Editable") Note: Line breaks are not supported. Long notes will be cutted.

+ Backup: Show backups are deletable.

+ "auto pre pos" is implemented. (assign menu)

+ "Default at" Value implemented. (setup/user/settings: at normal percent)

+ Copy cue with multiple cues implemented. The copy will get the same name as the origin cue - extended by a number.

+ Setup/user/settings: "Trackball sequence" show the function of the mouse button

+ Setup/user/settings: "Trackball rotation" rotates the position of the trackball.

Note: First implementation only for "pan/tilt", "xyz stage" will follow.

+ Fixtures invert pan/tilt: The inversion flags do now only change the output, not the stage view and 3D.

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Note: Please check your xyz position and rotation in 3D and stage view. This has only influence on inverted pan and tilt attributes from older showfiles.

+ Sequence pool button: Right Mouse button opens the edit sequence popup.

+ New focus management Scroll focus (blue frame) and keyboard focus (white frame, can be used with the "please" from the keyboard) are separated.

+ New fixture wizard:(setup/show/patch&fixture schedule) Usability issue, works now as expected.

Single click places the cursor at the clicked point - entered text is added at that point.

Double-click selects all text entries in the field - entered text replaces existing text.

+ It is possible now to update the On-desk help files via USB-stick without reinstalling the console (setup/console/software update/update resource). This is because the help files are completed after the final implementation of features.

Download resource-file and copy it to a /gma2/import/ folder on your USB-stick (<http://www.grandma2.de/help/download>)

New command "ImportResource [filename] /import", e.g. for help update Parameter "list" to list all update files on current drive. (ImportResource /list)

+ edit setup: new button "same as channel id" in the calculator of fixture id's.

+ "swap" (pan / tilt) is implemented.

+ The command "delete fixture x" (to unpatch this fixture) will bring up a warning dialogue.

+ "Time to live" (TTL) is implemented. (setup/network/ma network control) and (setup/network/DMX protocols/ETC net 2 and streaming ACN).

Note: The Time-To-Live (TTL) value specifies the number of routers (hops) that multicast traffic is permitted to pass through before expiring on the network. For each router (hop), the original specified TTL is decremented by one (1). When its TTL reaches a value of zero (0), each multicast datagram expires and is no longer forwarded through the network to other subnets.

+ Very simple csv report function for the command line command "list" added.

E.g. "list cue thru /f="test" or "list /filename="test" saves the list output at the folder "reports" as file "test.csv"

\* The command keywords of matrixes have changed. When you use the old (predefined) macros, the "interleave" keyword is wrong. Please use the new matrixes functions in the encoderbar, and store them in the "matrixes pool" .

\* Changed: "preset times" names now "programmer times"

\* The shortcut for "userprofile" has been changed from "up" to "upr" because "up" is reserved for the up button function.

\* Focus in "store popup" changed: When the box appears with the "Create Second Cue" option, this is default selection. When the box appears without the "Create Second Cue" option, "merge" is default selection.

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\* Pressing a timecode pool button select this timecode directly.

Note: This shows the selected timecode in the in the timecode view.

\* Id's in sheets have a new representation:

When a fixture has only a fixture id: 20:

When a fixture has only a channel id: :20

When a fixture has both ids: 20

Note: In all option menus of sheets the visibility of channel or fixture ids can be switched off.

\* "if output", "if active" and "if programm" do no more select fixtures from other users.

Note: "if output" selects all channel/fixtures with dim >0 from the own programmer and all running sequences with dim >0.

\* Rate fader has now much more dynamic towards the end position.

\* The "Invert" cmd does now work when active values are in the programmer

\* The list button shows in screen 1 the button page number.

\* >Fixture y AT Cue THRU X< loads active values into the programmer.

\* Changing the video layer in network configuration. A scrollbar appears when you have more then 10 layers ( multitouch ).

\* Smart view now also works with preset times.

\* "Assign Time x Please" adjusts the fade time only for the current cue in the selected executor.

\* Labelling speedgroups works in network environment.

\* Changing userprofiles in network is locked, when the profiles are in use.

\* The gofast (>>>) timing is be displayed rightin sequence executor sheet.

\* Edit Effect: "kill individuals" does now work for all selected lines at once.

\* "programmer times" (means "preset times" in former versions) do now work also with colorpicker and swatch book.

\* Group Master can now be selected and used on the 100mm fader.

\* system time between onPC and desks are now correct

\* Pan and tilt axis of all mirror fixture models corrected. Take the new fixtures from the library

\* When assigning a group with a single Fixture as a Groupmaster, labelling does now take the name of the Fixture automatically, just like the Group already did

\* If you swap a fixturetype in your show file, the snap/invert/default/highlight values are swapped correctly now

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- \* The "Red Filter" / "Green Filter" / "Blue Filter" from catalyst fixtures are changed to colormix 1, 2, 3 and do now work with the colorpicker.
- \* onPC now supports special characters, e.g. @
- \* onPC in single screen mode with option "messageboxes on all screens": The on screen keyboard has now the right functionality.
- \* When using the internal DMX-out as source for DMX-in remote while starting the show it is no longer possible to receive undefined internal DMX streams.
- \* Multi oops view crashes the desk no more when "clear screen" is in the list.
- \* Edit Setup: sort a Layer by the Fixture Id's: Results: 1,2,3,..,10,11,12..
- \* user fade time (setup/user/defaults/sequence defaults) is now used immediately after change.
- \* We can now directly label a new stored color preset, even the colorpicker is open.
- \* Midichannel 1 thru 16 via commandline use now the same enumeration as Midi-Remotes and MSC-setup, Channel 1=1 Channel 16=16 (before 0 thru 15)
- \* Representation of Groupmaster (darker name field in fixture + channel sheet) remains when a NPU is in the Session.
- \* Chaser and sequences have now own user defaults (assign menu).
- \* An option button inside the Showfile browser became new titles: "Viewing Shows", "Viewing Shows & Backups", "Viewing Backups Only" - the functionality remained the same.
- \* Edit fixture types: if a channelset value (from or to) is identical with the minimal or maximal value of the parent channel\_TYPE\_, the programmer will no longer be set to the center of the channelset value range. Instead the programmer will be set to the boundary value. As a result a DIM "closed" channel set will be shown in a channel sheet exactly as 0.0 (before e.g 0.2)
- \* Artnet does no longer send wrong Artnet sequence information (caused delayed output to artistic licence nodes )
- \* Additional plausibility check for network address (e.g. 192.168.0.0) and broadcast address.
- \* Fixture sheet: Having selected an Attribute cm1, cm2 or cm3, an edit of a colormix value with the right mouse button opens directly the calculator.
- \* The green and blue fade-time bars in Tracking and Sequence sheet are displaying right values, when fading the cue with the A + B Crossfader.
- \* Sequence executer sheet progress bars displays now the right information, when a switched-off sequence will be switched-on with a "load cue x".
- \* The "move" button in "attribute & encoder grouping" does work as in grandMA series 1.
- \* After a showdownload in a session a "locked desk" remains locked.
- \* selecting a dimmer now changes the encoderbar to presettype dimmer.

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- \* The commandtree numbering has changed. Macros which are based on these numbers may call wrong functions- pls use function names or use the new predefined macros
  - \* Auto join mechanism in network improved
  - \* Network: the "join session" button has new label "start/join session".
  - \* The "update view" refresh follows now the "selected executor only", when changing the selection afterwards.
  - \* The LED of the "def. pause" button is working.
  - \* Patch operation shows progress bar (...when patching large amount of fixtures).
  - \* Create presets in a completely new show does work.
  - \* Macros with fade or delay work if they are combined with "(" or ")".
  - \* The command "block cue thru fixture x" does work.
  - \* "edit preset x", "update", keeps the right status (selectiv/global/universal).
  - \* The commands "ifoutput full" and "ifoutput .." do work. Note: "ifoutput" does not work for default values.
  - \* The commands "dmx y full" and "dmx y .." do work.
  - \* The command "attribute 1 thru 9 at 100" does work with world attribute filter.
  - \* The "if" command "group x if group y" does work.
  - \* Units of measurement from encoders are now in sync with the displayed readout from the actual channel/fixture sheet. (natural/percent/decimal/hex/physical).
  - \* The "symbol output" field in channel sheet shows now also highlight values and values from additive group master.
  - \* Profiles on dmx level have now also functionality in network.
  - \* Edit timecode: Press the "event encoder" will open and execute the event list immediately. (press the event encoder on "goto" opens the cue selection list).
  - \* If the subattribute of a channel function is changed (or a channelfunction was created) and the physical values are empty, default physical values will be set.
  - \* Values in phys columns of channel functions in setup are extended by their unit sign - e.g. "20 hz". \* Update cue/presets clears programmer when playback is updated.
  - \* Fixture library updated.
  - \* Changing the colors in the "edit fixture" "edit color wheel", the smartview will be updated.
  - \* "channel fader" and "dynamic channel fader" have new button assignment
- Note: The "off" button does not deselect the current selection.
- \* The keyword to transmit MIDI Program Change messages is changed from "MidiPage" to "MidiProgram".

- \* "flash" in a running sequence will only flash the dimmer.
- \* Move fixed executors, moves also the fixing.
- \* After storing a preset and name it, the fixture sheet will display the name directly.
- \* "invert" does work without a 2nd selection.

## Known bugs and limitations:

- Remote configuration of 2-Port Nodes via grandMA2 is shown right in the display of the nodes, but do not change the real output online. After resetting the nodes (disconnect/connect mains) everything is working fine.
- Fixture Types with more than 2 Mode channels may not work

## 53.14. Release Notes - Version 1.X

- \* Means something was changed/fixed.
- + Means something was added.
- Means something was removed.

### Version 1.9.0 - released 2010-05-25

- + "Force login" implemented. (Setup/console/global settings).

Note 1: When Force login=off and you start a new show, you are logged in per default as administrator (no longer as guest) When Force login=on, you are logged in per default as guest. You can change the user (tools/login) with your user name and password.

Note 2: When you start a show in a network the login popup does not work .

- + User rights implemented.

Note: The user "guest" has only the permission to "playback". All shows where the user formerly had the profile "guest", are now converted to the profile "administrator". It is possible that macros which were created by the user "guest", will not work correctly. In this version the user right "preset" and "none" is not yet available.

+ Sequence Executor sheet: A and B columns are canceled. Now you have a column mode. This allows "assert" as normal (it takes the cue times from the cue, where the assert values are stored), "x-assert" (applies the current cue timings to the "assert" values) "break" treats values as "cue only" values. It interrupts a tracking list. "x-break" (the same timing behavior as "x-assert").

Note 1: The "break" includes the assert functionality.

Note 2: Values which are stored afterwards in a prior cue, will be released in the as "break" marked cue.

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Note 3: Known limitation in this version: Update Original Content ignores Breaks when locating the original value(s). If these updated values then track into a "Break" cue, they will be treated as described above and will NOT track into the current cue(s) being updated.

Note 4: Any tracking sheet edit ignores break as well.

+ copy cue with status / cue only implemented.

Note: "copy cue" will copy all part-cues + engine for cue transition profiles (path) fully implemented Note: Path works for all parameters in a cue/part-cue (In grandMA series 1 this does only work as dimPath and movePath).

+ New Playback "Action Buttons" View.

Note 1: when the option "direct action" in the headline of this view is active, the whole executor touch button has the function from the hardkey.

Note 2: The Playback button view has multitouch functionality.

+ Chaser Speed Mode implemented (setup/user/settings).

+ A/B cross-fade implemented. "Split X-fade" is set to default.

Note: The settings "Split X-fade" and "AB X-fade" have also impact on the normal X-fader.

+ Effects do have now speedgroups.

+ Speedgroups can be assigned on the 100mm Fader.

+ DMX list implemented (setup/show/patch only).

Note 1: In the list of universes you can merge DMX-in and additionally assign which universe will be calculated by the existing parameter count.

Note 2: On the right side you see the DMX patch per channel and can assign profiles directly to the DMX channels. (only coarse) (In the DMX list of grandMA series 1 you can assign profiles only to parameters).

Attention: When you assign a profile to a parameter and at the same time to the same DMX channel, it might neutralize the setting for both assignments.

Note 3: A right click in the headline sorts by columns.

+ Align Function in special color dialog in HSB and Fader view implemented.

Note: In HSB view, the brightness will be displayed with varying crosses. Fixtures with different colours have own markers.

+ Add new Fixtures in the setup does now show more patch lines in the fixture wizard, when the fixtures have more than 1 break (dmx start addresses).

+ High speed MA-net possible Note: when the desk is switched on, the network card determines the current status (100MB / 1GB). In a session is started, the network speed is determined by the slowest participant. You can see this in the commandline view with the command "ni" (networkinfo).

+ In the headline from the edit setup the number of available / used parameters is displayed.

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+ executor buttons are now assignable as temp buttons Note: active OffOnOverwritten will NOT be ignored ( as in series1 ).

+ Commandline history implemented. Use the up / down buttons from the keyboard, when the focus is in the commandline in screen 1 or 2.

+ Confirmation box to save old showfile before loading new one.

+ Automatic save show (when switching off the desk) only when the showfile is changed. (the call of views, or a change of pages only, does not force a save show file).

+ NPU does now display the used memory in the main screen.

+ Patch collision dialog implemented.

+ Fixture and Channel Id collision dialog implemented.

+ Multipatch in the patch dialog implemented.

+ Added acceleration of selection via PLEASE key in patch dialog.

+ Telnet access requires login for safety ( Uses user login data).

+ Telnet supports request from command line.

+ Delete cue only implemented.

+ Deleting cue parts methods implemented.

Note: with deleting parts you can also move the values to the default part.

+ Startup macro line implemented (Setup/show/playback+MiB timings).

Note: This commands are executed when the show is loading.

+ Store Option "dmx in" implemented.

+ Sequence Executor sheets interact with commandline.

Note 1: you can use the hardkeys store / label / del directly with a cue line.

Note 2: This interaction works only with the sequence executor sheet, not with the edit sequence sheet.

+ ASCII show read: reading and converting now grandMA series 1 exported files.

+ Backup/load show: select shows or backups or both.

Note: "saveshow" creates one backup for every show with the ending .backup.

Additional: System wide can exist up to 10 backup files with the ending .x.backup (where x is a number from 1..10).

+ Effects can now be switched off in the off-menu.

+ Touchscreens can now be disabled (setup/console/screen options).

# grandMA2 User Manual

Version 3.3



+ A new software installer examines the storage capacity of the desk / npu and allows to delete old software versions.

Note: it is not allowed to delete the last software version, because we need the last console settings (iP address..)

+ The Layer from a VPU can now be selected from the Desk (setup/network/ma network configuration/video)

Note: This operation is not possible via commandline.

+ The user from a 3d can now be switched from the desk. (setup/network/ma network configuration/visualizer).

+ Special Presets are now marked in the preset pools.

Note 1: With the command "assign preset x.y /special=z" you can build a special preset Variable "z": 0=normal, 1=default, 2=highlight, 3=stage (3 is not implemented yet).

Note 2: These presets will change the fixture/channel default/highlight values directly in the setup!!!

Note 3: You will find new predefined Macros to create special Presets.

+ Edit the MiB field in sequence executor sheet opens now a "select MiB" menu.

Note 1: Known limitation: "late" works only in cues with a full cue number (with cues like 1.1, or 2.3 it will not work).

Note 2: Known limitation: does not work for nontracking sequences.

+ Oops History List implemented (long press on Oops button).

Note 1: it is allowed to select a row in the popup window and oops more operations at one time.

Note 2: Leaving the "patch & fixture schedule" by save, clears the oops list.

+ "Trackball Mode" can be set in user defaults (setup/user/settings).

+ Diagnostic View implemented (Setup/Patch&Fixture Schedule) It shows a report of warnings/errors from the current range, you are.

Note: When you will leave the edit setup you see a selection menu, when they are warnings.

+ "Manual x-fade" for presets and executor buttons implemented (encoder bar).

Note 1: When enabling the function "set time" or "manual x-fade" for presets the number of attributes from the selected fixtures are displayed. When enabling the function "manual x-fade" for executor buttons, the number of different buttons, pushed prior to the manual fade will be displayed The LEDs of the corresponding executor buttons blink.

Note 2: This timings are not working with the colorpicker at this time.

Note 3: The preset times does work for all programmer actions except effects.

+ Predefined Profiles are implemented. (setup/patch+fixture schedule/DMX profiles/edit profile).

+ Timecode editor: New Buttons "add track", "change executor" and "add subtracks" (in track functions).

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Note: The "Delete Track"-Button now also deletes "Sub Tracks" If a command sub track is selected [first subtrack], the whole track will be deleted. Otherwise only the selected subtrack will be deleted.

+ Timecode editor - text view: added lasso selection im timecode grid.

+ "DMX at" implemented ( similar to grandMA series1 ).

+ Fixture library updated. (from carallon lib 6.2) + Color library updated.

Note: The color library is only reimported in a new, empty show To use in old showfiles: commandline: cd 9, delete \*, import swatchbook, cd/.

+ Fituresheets are now able to display 16 attributes of one feature (previous versions 8).

+ Option menu in preset pools has now a "reset color" button. (also in setup/user/window settings/presets/...).

\* deleting a fixture layer and then saving the showfile does no longer destroy the showfile.

\* Progress bars show better status of showupload / download and save showfile.

\* The "auto shutdown" popup must be confirmed on the touchscreen and cannot be confirmed accidentally with the "please" button of the keyboard anymore (there is no focus automaticly in the popup).

\* Close the Expand Virtual Keyboard in Backup / new Show, will no more created directly a new show.

\* In the "cue renumbering popup" the numeric keypad does work also.

\* "ifoutput" in combination with bitmap effects crashes the desk no more.

\* Loop funktion now also works for cues with timed trigger.

\* Content sheets with Part cues cannot crash the desk anymore.

\* Crash in SequenceExecutorSheet Fade Bars removed.

\* Temp fader in network is working.

\* Content Sheet: assigning an executor directly (not linked) the "manuel mode" does now work.

\* Relative effects from old showfiles were imported as absolute.

\* Save Show and Quicksave do reset the Auto-Save timer now.

\* Playback view has no longer random color frames.

\* A cue jump with the loop function in sequence executor sheet does now display the right color.

\* Setup/Show/Playbacktiming: The time is displayed in seconds now.

\* The faders in special dialog "color" does now work , when RGB or CMY all at "100".

\* "X fade reload=off" does now work on 100mm Faders.

\* Cue numbers and cue names can be renamed in the tracking sheet t cue.

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- \* onPC: Encoder settings are displayed on screen 1.
- \* The fixture sheet in "vertical mode" updates fixture names, when changing these names in live access.
- \* The learn button on speedgroups and effects works again.
- \* Edit profiles: Graph editor limits movement of points to the current value range. ...means you can no longer drag points of a dmx profile outside the display area.
- \* Smart view to control video: The view of images will be updated, when changing the i-pool with the encoder.
- \* The screen encoder does work in colorpicker.
- \* The softbutton "sync effects" in special effect dialog (multitouch) is displayed.
- \* Backup menü: It is allowed to delete showfiles from old software versions.
- \* Right mouse click on the fixture id number in fixture sheet does open the edit fixture popup.
- \* Empty executors are not longer fixed, when loading a new show.
- \* Edit timecode options: Only "User Bits" and "Auto Start" will be disabled if timecode sync mode is "Intern".
- \* Edit timecode "direct tools": The command "add here" does add "goto (next cue)" in the timeline.
- \* Edit timecode "text mode": In the column "values" the cue number and the cue name are displayed.
- \* When switching off fixtures, the Channel and fixture sheets ( with "prog only" option) are refreshed.

## Changes:

- \* "X fade reload" has been moved from the assign menu of all executors to the defaults. (Setup/show/playback+MIB timing).
- \* "Knightrider effect" is taken out (locked state of console).

## Known bugs and limitations:

- Remote configuration of 2-Port Nodes via grandMA2 is shown right in the display of the nodes, but do not change the real output online. After resetting the nodes (disconnect/connect mains) everything is working fine.
- Fixture Types with more than 2 Mode channels may not work.

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Version 1.8.0 - released 2010-04-12

+ Move in Black (MIB) with the possibility to enter the MIB-executing cue in the MIB column Additional Options: "Early" / "Late" / "-x" (cues) (while MIB is running, the LEDs of the Executor Button flash: fast = MIB delaytime, slow = MIB fadetime).

Note: First MIB now works without storing a zero dimmer-value before. (this was necessary in grandMA series 1).

+ "temp fader" and "temp master fader" (for selected sequence) implemented also in combination with "restart first cue" and "restart next cue".

Note: "temp fader" fades also swap attributes. "x-fader" switch the swap attributes.

+ New Fixture editor - Divided into "module manager", "wheel manager" and "instance manager".

+ Attribute & encoder grouping with new subattributes The column "encoder grouping" includes names.

+ New Keyword: "shuffleselection" (You will find it in the predefined Macros also).

+ New Keyword: "clearactive" (clear II). (You will find it in the predefined Macros also).

+ New Keyword: "cmdhelp". ( a overview of all Keywords).

+ New Keywords: "Layer Value", "Layer Fade", "Layer Delay", "Layer EffectForm", "Layer EffectRate", "Layer EffectValue1", "Layer EffectValue2", "Layer EffectPhase", "Layer EffectWidth".

+ Playback and MIB defaults in Setup / Show. New >>> + <<< timings (The default timings are stored in the showfile).

+ An effect can now be "absolute", "relative" or "transparent". This is shown in a new column in the edit effect view, and in the effect pool in the headlines of the effects as A, R, T .

Let's assume we have 2 different executors: exec 1 has some beams on stage positions and exec 2 has a circle effect (cuelist style, not directly assigned effect). How normal modes (absolute or relative) behave:

a) Starting exec 1 first and then overwriting it with exec 2 would by default make the beams circle around their center positions and not around the stage position from exec 1, because that is overwritten.

b) Starting exec 2 first and then overwriting it with exec 1 would by default stop the circle and the beams would go to a steady stage position because the effect is overwritten.

How transparent mode behaves:

a) looks different, because the circle effects will be laid 'transparently' over the exec 1 stage positions.

If you assign a high priority to exec 2, then also b) looks different, because it will always overlay other normal or low priority executors in this transparent way.

As an easy reminder : Transparency defines whether effects and values are combined between different playbacks.

+ Effect pools now also show the number of the current fixtures using this effect, even they are out of cues. We can switch of any of these fixtures, when making a fixture selection and "off" this effect. When there is no fixture selection, an "off effect x" switches off the whole effect.

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- + New effect button in presetbar
  - + Press and hold the wheel button opens a popup for the encoder, the wheel resolution and clear screens
  - + New patch dialog in setup
  - + Fixture, channel and tracking sheet: Preset values can now be shown by their name or by their number (selectable in the option menu)
  - + The commands "on", "off", "park" and "unpark" now work in combination with the feature field in the attribute encoder bar.
  - + DMX-in merge: The grandMA2 now merges 2 DMX-in Universe HTP to 1 DMX-out. The DMX-in can be plugged-in on different consoles or NPU's in the network. (known limitation: this currently does not work with 2-port Nodes) When plugging in more the 2 universes, only the first 2 will be used, all others will be ignored.
  - + New preset style: Global "selective" stores values for single fixtures "global" stores values for fixture types "universal" stores values for all fixture types which own the currently stored attributes.
- Note1: "universal" works only for the attributes Dimmer, Pan Tilt, RGB, CMY, ( Stage positions xyz will be implemented later ).
- Note2: the function "universal" from grandMA series 1 had to be changed to "global", due to have "universal" equal in presets and effects.
- + Loops call up the tracking status of a cue now (same as goto x).
  - + Assign menu: The option buttons are rearranged. MIB never is added.
  - + New functions in "special dialog" of swatch book: "clear filter" + "live preview".
  - + Midi Remotes: velocity works on Executor Fader.
- Note1: if "auto start = on" and "auto stop = on" then velocity brings up the fader to 100% (velocity = 127). When velocity is going to "0", the fader remains untouched and the executor is switched off. If "auto start = on" and "auto stop = off" then velocity brings the fader up and down and the executor stays on.
- Note2: you can see the incoming midi notes and their velocity in the "system monitor"
- + "Fast off" for "auto stop" implemented.
- Note: "executor off times" are ignored when pulling the master fader to 0 ("auto stop = on") When the master fader is >0: the first "off" takes the "off times", the second "off" switches the executor directly off. Switching off over the "off menu" will follow the "off times".
- + Import / Export effects implementiert Note: to export via commandline: "sd 3" (selectdrive) followed by "Export effect x thru y "nameofFolder" To import: command "sd 3" (selectdrive) followed by "cd effect" (change to effect folder on the harddisk) and then "import \*".
  - + New firmware update 1.28 (adjusts the brightness of the new LEDs in new consoles).
  - + grandMA2 onPC will automatically and temporarily add an artnet IP-address to adapter ( if not already defined ).

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Version 3.3



- \* Faderwings now store their position in the console.
- \* "Load cue" now loads the status of a tracking cue when the cue is started with an "x fader" or a "tempfader".
- \* Delete cues or merge new cues does not confuse the timecode-links anymore.
- \* Command entry via the numerical block >Channel x full<, >time time 0 thru 5< does work correct now.
- \* "at filter view" now supports internal mouse control.
- \* The backup menu now can show the filenames as symbols or list, or details.
- \* Label an existing View on a Viewbutton does now show the existing name.
- \* Open a Calculator of an attribute with more than 28 channel sets -> now there is a scroll bar.
- \* Edit Chaser brings up the chaser playback bar directly to the encoder.
- \* Loading a show containing NPU's -> active sequences have output.
- \* External timecodeview cannot crash the desk anymore when the view is in text mode.
- \* Deleting an effect when the effect edit view is open will not crash the desk anymore.
- \* Flashing fixtures which are running a chaser effect do have the right timing now.
- \* In a macro line the "+, - and thru" do now work from numeric keypad.
- \* Remove a fixture from the current world now refreshes the Fixture sheet.
- \* Fixture x at fixture y now copies also effects which have been started from a cuelist.
- \* A effect assigned directly on an executor can now also be started with go-.
- \* Fixture sheet: The layer "values only" does no more show the channel sets.
- \* Predefined macros which are switching the remotes on / off had to be reworked because the folder structure was changed.
- \* Effects where "phase from" and "phase to" have the same value do work now.
- \* Saving shows with illegal filenames doesn't crash the network anymore.
- \* Backwards running effects with low rate do work now correctly.
- \* Remote DMX-in to programmer works again.
- \* Multiselection in effect editor enabled (with "ctrl").
- \* Multiple dummy channels possible when building a new fixture.
- \* Update Bug in the Off menu in Freeze Mode fixed.
- \* Spezial effect dialog shows the right "default width" values.

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Version 3.3



## Info:

When using a NPU in grandMA 1 compatibility mode as 4-port node, you must update the NPU with the newest software version also.

All RGB fixtures from the new Library have no more RGB Attributes, they are converted to inverted CMY Fixtures. Whenever you create a new Fixture, and need RGB attributes with a real or a virtual dimmer, please take the CM1, CM2 and CM3 inverted attributes.

The old RGB attributes are now named colordim1 (red), colordim2 (green), colordim3 (blue), colordim4 (amber), colordim5 (white).

## Know bugs and limitations:

- Remote configuration of 2-Port Nodes via grandMA2 is shown right in the display of the nodes, but do not change the real output online. After resetting the nodes (disconnect/connect mains) everything is working fine.

## Version 1.7.0 - released 2010-02-19

- + NPU has a NSP compatibility mode.
- + New Help view.
- + Select Timecode implemented / timecode viewer follows current selected timecode.
- + Timeline can be fixed or in follow mode ( regarding currently incoming timecode ).
- + within the timeline graphical view the wipe gesture is supported to scroll left and right.
- + Help Button and afterwards keyword button (e.g. "help effects or help exec button" ) shows a context sensitive help Help in commandline: e.g. "help assign please" opens a help popup. The old non-graphical commandline help can be called via using the parameter "/cmd" (e.g. "help m\* /cmd" to show all commands that begin with m).
- + Language in help view switchable ("world" symbole ).
- + New Filter "active only" in Headline of Channel und Fixture Sheet.
- + New symbol "output selection" in fixture and channel sheet.
- + The fixture attributes do now overlay the encoder in the encoder toolbar.
- + In cue link and commandline more than one Comands are allowed. Set a ";" between the commands.
- + New "store only" button direct in the "store encoder bar".

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Version 3.3



- + Save Yes/No dialog when leaving the Patch & Fixture Schedule.
- + Special Master "sound in" and "sound out" (for built in speaker).
- + In the "choose store method" dialog >prev< and >next< keys are available to navigate.
- + send "Midi-Notes" via command-line implemented e.g. "MN 5 on/off".
- + New NVidia driver.
- + a new label dialog in the store view pop up.
- + new button "default value" in the calculator of an attribute encoder.
- + Fixture Library updated.
- + Midi Interface in grandMA2 onPC implemented.
- + Midi show control: MSC output is working. Input not yet implemented.
- + Content sheet: stored values can be changed with the calculator(right click)- except presets.
- + Store new values for independent channels in smart view.
- + The screen 2 encoder can now set Preset/Exec.time faders when focus is on the touch fader.
- + Ctrl+C (copy) und Ctrl+V (paste) do work in text fields. E.g. info in a cue.
- \* Attributes with snap function do follow now the cue delay times.
- \* Push encoder opens and closes edit now.
- \* Closing Editing an entry with "Please" now jumps into the next line.
- \* Selecting Pages in the Playback View does not crash anymore.
- \* "set Time and Date" Bug fixed (every date - time containing "1" causes malfunction of the agenda).
- \* Highlight in network works now better.
- \* The screen 2 encoder does not control the 100mm fader anymore , after having set the focus in an empty area of the encoder-bar.
- \* Copy executor does not lose the chaser- assignment anymore.
- \* The red points in smart view are back when values in programmer.
- \* mixed presets of color and colormix are displayed now the right thumbnails.
- \* Artnet does now work in compatibility Mode.
- \* "Updatef" command does now force the firmware update even if the modules are not recognized.
- \* Flash executor buttons don't lose the blue bar in the executor labels anymore.
- \* Select colors from the swatch book works now also in detail view.

# grandMA2 User Manual

Version 3.3



- \* Little workflow enhancement in Fixture Type Grid: LongName sets FixtureType:ShortName if empty (or reverse). Same with Manufacturer <-> ShortManu.
- \* "on fixture x" now activates the update funktion. "Fixture x at Fixture y" activates the update function as well.
- \* the Flash buttons on channel pages have now a function. Note: the values do not goes into the programmer.
- \* Kill Function does now work on first press.
- \* store a new sequence on an empty executor button in playback view does work now.
- \* Fixture + Channel Sheet: "Prog. only" + "Fixture sort" do work when in "edit effect" "show selection" is selected.
- \* The layer "effect id" in the tracking sheet and content sheet does now show the stored effects.
- \* Fixtures in the content sheet are now sorted by the fixture id.
- \* "name" column of tracking sheet: width is now stored in the views.
- \* new "fixture wizard" in edit setup.
- \* In update view: By moving on the touch screen in an empty area it is now possible to cancel an update after having selected already a cue, effect or preset line.
- \* Clear all does not clear the parked attributes in a fixture sheet with a park mask.
- \* Fixture + channel sheet: Prog only + fixture sort does now work when the "show selection" in "edit effect" is executed.
- \* Multiuser attribute activation does not destroy the selection for all users anymore.
- \* Ctrl and Shift Button does now work with the console integrated mouse.
- \* Changing values with the calculator in tracking sheet has now the right display.
- \* Label viewpages with long names are displayed with carriage return.
- \* Resizing a sound input view does now work correctly.
- \* Changing fixture types in edit setup deletes the dmx patch when the new fixture have more parameter than the old fixtures otherwise the patch remains untouched.



Editing a fixture and adding a one or more new attributes will cause wrong dmx patch. Repatch is necessary.

- \* Update Cue or Store Cue Merge when a preset was stored in the cue will work as well.
- \* Changed default for consoles DMX In to OFF.

## Known bugs and limitations:

# grandMA2 User Manual

Version 3.3



- Remote configuration of 2-Port Nodes via grandMA2 is shown right in the display of the nodes, but does not change the real output. After resetting the Nodes (disconnect/connect mains) everything is fine.
- when starting a show and a NPU is in the session the desk has no output from active sequences.
- DMX in on consoles does not work when a DMX in signal is first connected to the desk or NPU and afterwards the desk switch on.

## Version 1.6.0.3 - released 2009-12-22

- \* Crash removed when scrolling in content sheets and track sheets
- \* Crash removed when deleting timecode view
- \* unpatch fixtures when fixture type is substituted

## Version 1.6.0 - released 2009-12-18

- + Timecode is implemented. Operating philosophy as in grandMA Series 1 Additional: A new timecode view can be positioned freely on all screens. In timecode pool you now see the status from the timecode. The time is displayed green, if the incoming time is in the current record range Repeat function for Internal TC shows New Commandline Keyword record Userbits can identify an incoming timecode signal
- + Backup Menu: Automated copy of all showfiles of older versions in current folder is now suppressed. Now , there will be an own folder created for each version. That means that older showfiles can be loaded there and then will be stored in the current version folder. The old version showfiles remain untouched.
- + Attributes & Encoder grouping is implemented (Setup / Show / Patch & Fixture Schedule / Fixture Types) Note 1: it is now possible to delete preset types, after moving the attributes into another preset type. The remaining preset types will then be renumbered automatically. When you call a preset type from a macro, use the preset type name, not the id. Note 2: In this version the encoder grouping works only with numbers. When you activate an attribute in the programmer, all attributes with the same number will be activated as well.
- + Restart Options in assign menu First Step, Current Step, Next Step
- + Channel Pages are working in a first way: You can assign your own Fixtures to the channel pages: Switch to Channel Page to create a blank page >assign channel 1 thru< and push the first channelfader - this assigns all dimmer channels ( similar to grandMA series 1 ) >Assign channel x channelfader y< - this assigns this channel to the current channelpage (shortcut for channelfader = cf ) >Assign channel x channelpage y.z< - ( shortcut for channelpage = cp ) Note: The Flash button does not work in the programmer.
- + Setup / User / Settings Message box on all screens.
- + Setup / User / Settings: Wheel Mode The Wheel Mode is also displayed in screen 2
- + New Set Time button for preset time fader and executor Button time fader in screen 2. In addition you can assign an on and off button for this speciale Master to an executor.

# grandMA2 User Manual

Version 3.3



- + Solo now works in the selected user-world.
- + Profiles can now be assigned to single attributes in single fixtures ( >Edit Fixture x< )
- + Patch in setup opens a new view with an overview of the current patched DMX channels.
- + Import Export Fixture Types
- + Macros to / from USB
- \* If Merge if not empty is switched on ( Store Options ), new Presets and Groups can be stored. The command >store 1 thru 6 merge< executed on a current cuelist which only contains cues 1, 3, +5 does not create new cues anymore.
- \* ATTN: Midi Notes send and receive numbering is now consistent ( means old setups +-1 )
- \* Setup / Remote inputs / midi remotes: Midi Channel set to 0 means "all" channels from one note
- \* Specialized shaper dialog: U1-U3 buttons have now functions, same as Softbuttons
- \* >channel x at channel y< displays now the correct Values, when the values from channel y comes from an selective preset.
- \* Split X Fade in non Tracking Sequences is working now correctly
- \* Tracking Sheet: when editing the predefined sets (1-5) corresponding window will be opened
- \* Fixture Sheet: Column order does not change anymore by accident
- \* Agenda: week view improved
- \* Agenda: Slave desk are now allowed to make entries
- \* Patch Fixtures with Breaks works now over commandline: >assign Fixture 1 true 10 at DMX 2.1/break=1<
- \* Running a preset or calling a viewbutton with the focus active in the presetpool does not switch the encoder bar anymore. Only focussing the title of a pool or calling the preset type name from the command line switches the bar now
- \* Short fadetimes in network ( after a showupload ) are working now in all network protocols
- \* The command Terminate effects now works in programmer
- \* If onPC2 runs with window frames the windows are only moveable by grabbing the title bar. Without window frames the only possibility to move the window is to hit the background.
- \* Follow cues without times run saver in networks with NPUs
- \* Deleting DMX Adresses via commandline from a slavedesk removes also the DMX Values on the output
- \* Sequence sheet: after moving the columns the content can be changed via the Encoder
- \* Update Cues original content only does work again
- \* Copy userprofiles does now work correctly in the network

# grandMA2 User Manual

Version 3.3



- \* Store and Remove with Active for Selected does work now
- \* Chase encoder bar: reverse button has function now
- \* After a restart the user login stays same
- \* No encoder playbar when fixtures or channels in selection

## Version 1.5.0.3 - released 2009-10-30

- \* Closing views does not crash the desk anymore.
  - \* Preset Values in Cues could not be removed via Update.
  - \* Smart Window always took focus after any Programmer change.
  - \* Sheets Feature Sort do work now.
  - \* Drop outs in the face panel have been removed.
- + New profile editor in setup / Show / Patch & Fixture Schedule Profiles only useable with Fixture Types.
- + New colors and options in fixture, channel, content and tracking sheet. Colored bars (marker): You can switch off the marker in the sheet options. "Programmer only" button in the headlines of fixture and channel sheet.
- Red = active values in programmer.
  - White = not active values in programmer.
  - Green = fade values in programmer.
  - Orange = delay values in programmer.
  - Cyan = values from presets.
  - Magenta = values from effect.
  - Blue = parked values.
  - Grey = profile is assigned.
- + Chaser edit menu implementiert (Trigger with Sound / BPM is currently not available.).
- + Edit cue number menu implementiert (right mouse click in the "number" column of the sequence executor sheet)
- incl. Cue renumbering.
- + The current focus can be stored in a view now.
- + New function: when updating "dimmer value full" on an executor with master fader on 50%, then a dimmer value of 200% will be stored.
- + Universal effects. (analogue to universal presets) effects can be used with all attributes of the type, the effect was created with.(The programmer timing is currently not available).
- + Off effect does now work in the programmer.

# grandMA2 User Manual

Version 3.3



- + New keyword: "syncEffects" (press >MA< + >effect<) synchronizes effects in programmer.
- + The grandmaster and the 100mm faders work now motorized in Ultralight.
- + Backup / Load show have now a virtual keyboard.
- + At filter works now with world filter together and has Zoom buttons.
- + ASCII import from Strand Genius Plus: Profiles are now implemented.
- + Edit view (open it with press on the small executor window above the executor) can be displayed on screen 1 or screen 2 (adjustable).
- + >lfoutput at time 1 thru 5< selects all fixtures with individuall times from 1 thru 5 seconds.
- \* The motorized Fader of faderwings does now work together with Ultralight please use the "alignf" command to arrange the wings to the fader positions 16 thru 30.
- \* ETC Net2: CCL is updated after Patch or Park changes.
- \* Smart view does not show wrong deactivated programmer values anymore.
- \* Macros with multiple text inquiries do now work.
- \* At filter does now work for >fixture x at cue y sequence z<.
- \* >lfoutput< now selects only dimmer values >0 (similar to grandMA series 1).
- \* Resizing sheets does not destroy buttons in headlines anymore.
- \* >Save as< now uses new name of show on all consoles within a session.
- \* Default hardkeys GO / GoBack / Pause: function is now displayed in the command line feedback.
- \* >Clear< now only clears selected worlds (no more the hidden worlds).
- \* TEMP and FLASH buttons now acting correct with executor buttons.
- \* Predefined macro library has been revised.
- \* Invalid command >fixture thru at world x< does not crash the desk anymore.
- ~ Edit timecode and timecode view are not yet working!
- + New profile editor.
- + Profiles are displayed in channel / fixture Sheet with a white bar.
- + Storing multiple pools / sheets as a view on a screen, the current focus is also stored.
- + Updating "dimmer value full" on an executor with master fader on 50%, dimmer value of 200% will be stored.
- \* Display problems in sequence sheet.
- \* Smart view shows wrong deactivated programmer values.

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- \* Macros with multiple text inquiries does not work.
- \* At filter does not work at >fixture x at cue y sequence z<.
- \* Edit view (open it with press on the small executor window above the executor) can be displayed on screen 1 or screen 2 (adjustable).
- \* >If at time 1 thru 5< selects all fixtures with individuell times from 1 thru 5 seconds.
- \* When in setup / any layer, a lot of fixtures, deleting a single fixture out of the list in the bottom, then the focus jumps up to the top.
- \* Resizing sheets destroys buttons.
- \* >Save as< did not use new name of show on all consoles within a session.

```
//----- ASCII import from Strand Genius Plus
===== Setup ASCII import of Profiles not implemented. ASCII
import of Parameter Limits EXPERIMENTAL - watch out for fixtures such as DLCs which can rely on this feature to
prevent the scroller from ripping off the end. Cues The cuelist has been imported as a fully unblocked, tracking
sequence. Before editing, you may wish to look at your Strand showfile and re-instate the blocks before you begin to
edit your show. Submasters Check that the priority of the executor faders is correct. Also note that Inhibitive
Submasters are Negative Group Masters on MA2 and are imported accordingly. Effects It is very likely that you will
want to convert the imported effect sequences into chasers (and change the cue triggers to 'Go'), or re-write them
as MA2 Effects.If you want to keep the Strand effects as they are imported, you will need to make changes so they
actually go off - unfortunately, the Effect Off options are not exported to the ASCII file so you will need to go through
your show and make sure all effect sequences have an off trigger. Here are some ideas: Effects Off commands in the
Cuelist Look through your Strand Cuelist and where you see the lower case 'f', change the corresponding MA2 Cmd
Link to stop the sequence. Effects Off after Cycles Turn off [Wrap Around] Loop the last cue to the first and add the
desired loop count Create a new blank cue at the end, set the Trigger type as desired so it will run when the loop is
completed and assign the relevant Cmd Link to stop the sequence. Effects Off after Time Create a blank cue 0.001
at the very beginning of the sequence. Assign the Cmd Delay to the time you need and fill in the Cmd field to
instruct the sequence to stop. Use the Loop function on the remaining cues to ensure this cue is never re-triggered
after it's first execution. //-----
```

## Version 1.4.1 - released 2009-09-30

- + New 2Port Node Version 1.36: Performance of the 2Port Node increased when a lot of Parameters change their values at the same time.
- + New assign menu options for Sequences
  - Auto Stop has to be disabled, Master Go is activated, when taking the fader up again the next cue will be started.
  - Master On: same as explained above, but when taking the fader up the actual cue will be started again.
  - Master Go Off: same as explained above, but the cue is still active, only the dimmer is changed when the fader is taken up, the same cue is active all the time.

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- + Virtual Dimmer functionality is now for CMY implemented.
- + New settings in the fixture sheet: readout "natural" reflects the range settings for the Fixture type itself. This means that you now can define the ranges for controlling fixtures yourself by editing the Fixture in the setup and changing the settings in the fixture sheet to shift also the units of your control encoders.
- + When starting a new show or saving a show identically with an existing show name, then a user prompt will warn the user.
- + The Encoder Selection Button for the screen encoder of screen 1 and 2 is intelligent now and changes its state with a focus change on screen 1 or screen 2.
- + Setup/Network/MA Network Control does only list consoles now All other stations can be configured, invited or dismissed via Setup/Network/MA Network Configuration.
- + Library of fixture types improved in grandMA2.
- + Multi patch can now be applied via the command line (e.g. Assign Channel 1 at DMX 1.1 thru 1.50 overwrites the actual patch of Channel 1. Assign DMX 1.60 at Channel 1 is adding a multi patch. DMX universes can also be addressed absolute now: e.g. Assign Channel 1 DMX 513 thru 1025.
- + RPU does have a screen saver option now.
- + MA button plus "." (dot) button does copy default values in the programmer for the selected Fixtures.
- \* Copy Cue X at Cue Y does copy all values now that have been entered in the Sequence Executor Sheet.
- \* Individual timings can now be taken out of the programmer by applying the option "basic" via the calculator, so cue timings are applied instead.
- \* Console settings, local exported macros, locally stored bitmap and fixture files are now copied when a new release is installed.
- \* Fixture X at Fixture Y does only copy non default values like in grandMA series 1 and uses the At Filter at the same time.
- \* Preset Time Fader can now be adjusted in seconds.
- \* If the width of a column in a sheet is adjusted and stored in a view, this adjustment is recalled when opening the view again.
- \* The option Multi Control is working again in the Fixture- and Channel Sheet.
- \* If Fixtures or Channels have been released, this is indicated with an (R) displayed in the Channel and Fixture Sheet.
- \* Text input in macros (e.g. Group("Which Group do you want to select?")) allows you to write a question mark in the user prompt text now.
- \* Off All Buttons, Off All Faders and Everything Off in the Off Menu is applied to all Executor Pages now.
- \* Activating dimmer values of Channels and Fixtures below 100% does only activate the value now and does not cause a jump to 100% now.

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- \* The Smart View is automatically updated now.
- \* When controlling Fixtures which do not have the identical parameter (e.g. one with Pan / Tilt and one without) you can now enter values via the calculator again.
- \* You can select the units used for display above the Attribute Encoders via the Fixture Sheet. If more than one Fixture Sheet is used, then the last selected one controls them.
- \* Snap Delay Defaults in Setup/User/Defaults/Sequence Defaults/ are working now.
- \* When a Fixture Sheet is scrolled to do a certain selection, it keeps this state even if the user selects different Worlds now.
- \* The progress bar of Executors is now also considering Goto and Off commands combined with timings (e.g. Goto Cue 5 Fade 4).
- \* The At Filter is now working when used in combination with at Cue, At Preset and At Effect.
- \* Beam Intensities when editing fixture types can now have values above 180 (for 3D visualiser).
- \* Opening an edit window for an Executor and deleting Cue 1 does not crash the console any more.
- \* Disconnection of a session master automatically keeps the session alive by choosing another master station in the Session.
- \* When 2 consoles are connected and the slave console enters the setup and leaves it again, you will see no Art-Net value interruption any more.
- \* When you disconnect the association of a Channel or Fixture to the Grandmaster then you will see no Art-Net value interruption any more.
- \* Parked values are kept now when leaving the setup of a master console that is connected to a slave console.
- \* Relative Effects can now also have negative value ranges.
- \* It is now possible to copy ranges of Cues (e.g. Copy Cue 2 thru 4 at Cue 9).
- \* Edit Exec X and a Delete Cue Y does not crash the console any more.
- \* Edit Cue X does bring the status of the Cue in the Programmer including tracked information and not only the actual stored values in the Cue.
- \* If Part Cues are stored, a user prompt is only displayed now if the part already existed.

Version 1.4.0.2, released 2009-09-11

## **General explanation of effects Short introduction into effects of grandMA2:**

When you think of the new effects - compare them very much to universal presets as you know them.

Effects contain 2 different kind of data sets:

- The first set contains generic rules.
- The second set contains individual overwrites for the generic rules per channel.

You may also want to compare this behaviour to basic/individual timing in cues.

Therefore we will call effect parameters that come from the generic rule BASIC, while we call the other effect parameters INDIVIDUAL.

### **If you create a new effect by:**

- editing an empty effect
- adding one or more effect lines
- assigning attributes to the effect lines
- taking the current selection for the effect lines
- and playing around with the parameters

.. you will have a fully basic effect.

### **There are 3 ways to run your new effect:**

- calling it like a preset into the programmer
- assigning it directly to an executor
- or storing it into a cue, after you called it like a preset

When you run it, you will see the effect parameters in the fixture sheet in grey, because your new effect only contains basic parameters.

But as soon as you switch your encoders to effect parameters and turn the encoder, you will activate individual overrides in the programmer and the update LED turns on.

Depending on the origin of your effect parameters, the update window will present you the choice to update the effect or alternatively to update the cue.

Updating the effect will store the individual changes into the effect, and all cues that use this effect in a basic way will also show the new effect parameters after the next go.

Updating the cue on the other side, will apply the individual changes to that cue only, and other cues that use the same effect in a basic way are not affected.

After updating, try to run the effect/cue again. The individual effect parameters are now standing out clearly in the fixture sheet, because they are coloured.

If you updated the effect and have a look at it in the effects editor, you might find 2 different things there:

- The effect changed its general rule by analysing the individual parameters The effect was also optimized in a way, that the the majority of parameters that complied with the general rule is no more individual

- Effect lines that have individual parameters will be shown with a slightly red background

## Another thing that differs from grandMA series 1 effects:

The output of an effect is calculated differently now. It is a value between VALUE1 and VALUE2 which are parameters of an effect line. The transition between VALUE1 and VALUE2 is controlled by the chosen FORM. It is even possible to use presets as VALUE1 or VALUE2 !!!

~ Programmer can not fade effects

## + AsciiShowRead

*reads all files from USB sources.*

*supported at this time: Manufacturer 'Strand' Console 'GENIUSPLUS'*

*There is a warning, if you use a different source.*

*Goto Backup->USB->AsciiShowRead*

*Read All : create Setup + Data in an empty show.*

*Read create only the Setup in an empty show. (you can Setup: now check and maybe change the setup)*

*Read create only the Data (works only if there is a Data: matching Setup)*

*Group x below 900 will be at Preset All x.*

*Sub x will be assigned to Exec x.*

*Sub x Inhibit will be assigned to Exec x Group x.*

*Cuelist will be assigned to Exec 201 as DefaultExec.*

*Effect x will be assigned to Exec 100+x. Mode \$\$Bounce is supportet now.*

## Other things:

+ Move functionality implemented

+ Saving a show to an existing filename or starting a show and naming that one identically to an existing filename does give you a prompt now if you want to overwrite it or cancel the process Writing "newshow anyshow /noconfirm" in the commandline creates a newshow without taking care if the chosen name is existing and no prompt will occur

+ Copy Cue implemented

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- \* NPU did not recognise a unpark command for Fixtures or values and did output the parked values until new values were
- \* "Off" hardkey and a pressdown on one of the Attribute encoders deactivates that value in the Programmer but left an "off" in the commandline
- \* "Assign Cue X Time Y" assigned time y to all the Cue and all Part Cues
- \* Change of patch in "Patch&Fixture Schedule" sets DMX-values to zero when you leave the "Patch&Fixture Schedule"
- \* Entering Modulator Sheets during a "Edit Bitmap X" crashed the console
- \* Automatic numbering when setting Fixture names (e.g. Mac 1)P did not work
- \* Copy Page x at Page y crashed the console
- \* Identification of fixture type on the commmandline view of the setup implemented
- \* User fixture files with 16Bit resolution did only send the fine channels and not both DMX channels
- \* Opening an Executor Sheet for a Sequence and doing a "Edit Sequence" / turning the "A" (Assert) or "MIB" encoder crashed the console
- \* Stored Views in the Fixture Sheet did not correspond on a Page Down / Page Up selections (Fixture Sort has to be turned off)
- \* Toggle assigned as a button function for an Executor does now reflect off timings
- \* "Store Cue Thru" and choosing the option "remove" inserted new cues when gaps in Cue numbers were present in a Sequence
- \* "Copy Preset x at Preset y" and choose "merge" allows you to merge two Presets now
- \* Smart View is now linked with Attribute Encoders
- \* Fixture Sheet options for Preset / Layer / Filter Control works correct again
- \* Scrolling in an opened At Filter Menu deleted all selections in the filter
- \* Entering the setup from the GUI and from the command line and leaving the setup again crashed the console
- \* Entering the setup via Telnet is not possible anymore when any user is in the Setup via the GUI
- \* Store Preset X, label Preset X "33%", label Preset X "33% new" crashed the console
- ~ Attribute column of channel function is editable
- ~ Move Cue under development

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Version 1.3.0.1 - released 2009-08-25

\* Change of patch in "Patch&Fixture Schedule" sets DMX-values to zero when you leave the "Patch&Fixture Schedule"

Version 1.3 - released 2009-08-13

+ 4 Port Nodes are now implemented. Configuration only possible from grandMA2 console when the mode has been manually changed at the hardware interface of the NSP. The NSP has to run with version 6.123 from a update from grandMA series 1

+ New 2Port Node Version: 1.35. Configuration now possible from the grandMA2 console

+ A new user interface implementation for the effect engine has been started. This is not finalised, yet. Effect handling has not been improved until now

+ Goto Cue x Time y and Store Cue x Time y is now implemented (store Time y does store the next cue with a fade time and shortens the syntax)

+ Assign Time Time Time x Cue y assigns Delaytime x to cue y

+ Pressing Store or Assign and then Time button several times gives the following possibilities "Basic Fade", "Basic Out Fade", "Basic Delay", "Basic Out Delay", "Snap Percent" and "Command Delay"

+ Groups in the Group Pool do get a red bar if they are not part of the current world

+ Executors do now support Off Timings. Off Master allows to set a value between 0 to 10 sec

+ Option settings of the assign menu of an Executor are now also saved in the user profile. This covers Executor defaults, Chaser defaults, Effect Defaults, Bitmap Effects, Group Master and Special Master

+ Predefined Macros can now be inserted in the Macro menu. This is comparable to the Quikeys in grandMA

+ The Assignmenu, the edit Macro and the edit Effect menu can now be on Screen 1 or on Screen 2

+ Revised Backup menu: you can now create a new show and define with what settings to start

+ Grandmaster, Blackout, Solo and Highlite can be deactivated per user in Setup / User / Grandmaster B.O. etc. settings

+ Edit Channel x, Fixture x does open a edit dialogue on Screen 1

+ New functions in MA Network Configuration: Add Present, Remove Absent and Remove Non-Members

+ New function in MA Network Configuration: all members of the actual session will be displayed in green and can be invited / dismissed

+ Priorities of Executors are now displayed: < = Low, L = LTP, > = High, H = HTP, S = SWAP

+ The World Pool does now include a Attribute filter indicator

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- + Remote DMX Input: new functionality "Programmer" = changed values from DMX In are now directly inserted into the Programmer
- + User profiles are now stored not only in the showfile but also in the consoles This means that loading a new show will keep the actual profile
- + Executing a save show command does save the show on the master and all other consoles in the session
- + In Backup / Load Show you can now select what to load from the showfile
- + "Edit Group" as a command does give you update functions now
- + "Copy Executor x <Page Up> at Executor y does allow copying of Executors across pages + "Edit Preset" or "Edit Group" does label the pool button now
- + In the remote settings there is now a new popup menu to select keycodes
- + All sheets do now display the World the user is working in
- \* Focus corrected: storing a Preset that was created in specialized color or - shaper dialogue the focus is now on the Preset and this can be directly labelled now
- \* VL3500 physical values of the shapers corrected
- \* Copy viewbutton x viewbutton y does work now
- \* Fixture sort in the Tracking Sheet does now work correctly
- \* Load Cue is now also displayed in the Tracking Sheet
- \* Executors can now display if they are selected, fixed or both at the same time
- \* Editing the Fade times with the calculator does now work for several cues in the Edit Sequence window
- \* Display for selected world works now in World Pool
- \* Gobo library revised
- \* Fixture type library revised (especially default values, highlight values and gobo wheels)
- \* Editing a Group in a Group Pool does open a Edit Menu and the Group is labelled with an "Edit" mark
- \* Delete or Edit Group x did not work when the user was not in a Full World
- \* The order of columns in a horizontal Fixture Sheet can also be stored in Views
- \* When having a Telnet connection to a console and working in the desk setup you can now close the telnet session without necessarily leaving the setup

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Version 1.2 - released 2009-07-20

- + 2Port Node is implemented for grandMA2. To update the 2port node use grandMA or grandMA onPC 6.122 as usual. The update in this version from grandMA2 does not work. There is no other way since the node in version 1.32 or below does not speak "grandMA2" language. In the future this procedure will work if the 2Port Node has ever seen Version 1.34.
- + 2Ports are now handled the way as NSP's are in grandMA and they have to be manually inserted in the setup. When clicking add you can see a list of all available units. In the future you can update the nodes from the console. "NNU" (network node update) in the command line and the "Software Update" soft button will do the job.
- + "NNI" (network node info) in the command line list the information about all available 2Port Nodes in the network.
- + Going out of desk lock the 100mm Main Executor and the Grandmaster recover their last position.
- + Graphical interface for DMX-port configuration of own console and devices in network.
- + Sequence Sheet has 5 Sets of columns.
- + Special Master functionality added to 100mm main executors.
- + Layer Control Bar in Channel- and Fixture Sheet does now reflect fade and delay values when in auto mode.
- + Assert option added in sequence content sheet This option reacts in terms of playback: if a value is tracked and not blocked in first sequence and overwritten by another sequence on an executor, enabling assert for the first sequence will output the tracked value of the first sequence even though the other executor is running.
- + Preset Time Fader for programmer now user independent over the whole network.
- + Update dialog implemented when editing a cue.
- + New wizard in the setup and patch and fixture schedule.
- + Renowned display of in- and outfade- and delay times in the sequence sheet.
- + Show upload is now compressed and allows shorter upload times.
- + Autosave is now implemented.
- + Onscreen keyboard implemented for command line for use in RPU / NPU.
- + Load Cue is also displayed in the Sequence Executor Sheet.
- + "Set to default" is now working for button assignments.
- \* Dummy Parameters in fixtures could crash the desk when opening stage view.
- \* Scrolling in smart view is now possible.
- \* Graphical display of smart view is now correct.
- \* Non motorized faders can now be grabbed and the red LED of faders not at the right position is now blinking.
- \* Pressing Delete Hardkey and clicking on one of the numbers in Sequence Executor Sheet crashed the desk.

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- \* In the Sequence Executor Sheet delay and fade times are displayed correct now after transition is finished.
- \* Assign Flash Executor Function Button 1 was always done on button 3.
- \* Assign menu / "priority normal" changed to "priority LTP".
- \* Less jitter and better notice of physical fixture limits in Crazy-Shaper-Dialog.
- \* Better physical values in many build-in fixture types (e.g. for pan, tilt, zoom, shaper blades, beam angle, gobo rotation, ...).
- \* Colors in color library corrected (mainly dark colors).
- \* Fixed Playback View Pages took away the fixation of Executors.
- \* Cue Fade and Delay times were not executed when jumping from the last to the first step of a sequence.
- \* Update of Part Cues now possible.
- \* Update window does close now automatically after an update process is finished.
- \* "Edit Group" crashed the desk.
- \* A Sequence over 2 Fader Executors and with speed on the second fader crashed the desk.
- \* A fixture without Pan / Tilt attribute is not editable any more in setup and Edit Fixture Window.
- \* Streaming ACN implementation redone.
- \* Power Button of the RPU is working now.
- \* Display of the ScrLck key is now working.
- \* Everything Off in the off menu is now working.
- \* Stations that do have a different streaming version or with Station Invitation "disabled" are now displayed red in the MA Net Control Window.
- \* The console crashed when "thru" was inserted in info column of the Sequence Sheet.
- \* A blade that was dragged to far out of the Shaper Dialogue could freeze and not be moved any more.
- \* Cue Colour did not work as an option in the Fixture Sheet.

## Version 1.1 - released 2009-06-17

- + Copy programmer values from other fixtures: Fixture [Fixture List] At Fixture [Fixture List].
- + Artnet2 implemented (if not more then 2 Nodes per universe are found).
- + AT-Filter-Window (long press on "AT").
- + Improved Off Menu.

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- + Activating the Scroll-Lock key interprets any keyboard press to the command line.
- + Improved Update Menu.
- + Page names are now displayed in the console.
- + Invite Station is now implemented in the network options.
- + Auto Invite option added to the network options.
- + Improved Art-Net and Streaming ACN protocol implementation.
- + Desk Lock dialogue now implemented.
- + Part Cues contain now additional info column.
- + Closing Edit Windows for sequences now automatically closes the bar above the encoders.
- + To keep the bar above encoders Edit Windows now feature a option: Keep Bar.
- + Editing fixtures in the fixture sheet gives access to the swatch book to select colours.
- + Channel and Fixture sheets now store their internal cut out.
- \* Inviting / dismissing a NPU caused all DMX values to default.
- \* Selecting several rows in a layer in the setup caused a crash.
- \* Changing worlds when having a fixture sheet with programmer only option enabled caused a crash.
- \* Renaming all fixtures of a layer in the setup caused a crash.
- \* Editing a selected Executor and deleting anything caused a crash.
- \* Editing a Executor and pushing down Encoder 1 caused a crash.
- \* When shutting down the console while being in the fixture schedule the console crashed.
- \* Focus and zoom were not displayed right in the Fixture Sheet.
- \* Presets were not storeable when the encoders were assigned for video presets.
- \* Some attributes were not displayed above the encoders.
- \* Dimmer encoder was controlling the master of a sequence when opening a edit sequence window.
- \* Turing Window Encoder 3 caused a Update when a update windows was already open.
- \* When entering command line information a turn a Window Encoder deleted the entry in the command line.
- \* Networked consoles did not handle the motor fader correct when changing pages.
- \* Ifoutput selected also fixtures that had values other then their defaults (e.g. Gobo).
- \* The contents of Presets were deleted when adding new Fixtures.

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- \* Changing Effects in their form caused a crash.
- \* Activating Blind Mode caused wrong output in stage view.
- \* Controlling RGB and CMY fixtures with the special colour dialogue now possible at the same time.

## Version 1.0 - released 2009-05-19

- + The Loop function in Sequence is now active.
- + The Executor default button and fader assignment is storable as default now.
- + The Shaper-Dialog remembers point of view (POV) of each fixture inclusive undo.
- + There is a new Color library function available in the Crazy-Multitouch-Color-Dialog.
- + A new Column "Id" (Fixture-/Channel-Id) is added in the Setup/Fixture-Positions.
- + Crazy-Multitouch-Shaper-Dialog: A new reset button to reset all shapers.
- + HSB- Color Picker in the Crazy-Multitouch-Color-Dialog has now a "fat finger" border.
- + Bitmap Effects Editor: Added some menus with better control.
- + GOTO and LOAD command implemented.
- + COLOR keyword command implemented.
- + FLIP command implemented. Syntax: FLIP [flipnumber] [objectlist]
- + IFOUTPUT command implemented. Syntax: [+/-/INVERT] IFOUTPUT [AT from\_value THRU to\_value] [+/-/INVERT] [objectlist]. The [+/-/INVERT] selection mode can be in front or in the middle of the command as you prefer to type it. grandMA 1 syntax allowed the selection mode only in the middle of the command.
- + Release notes and version info at "Setup -> Console -> Software Update".
- + Group Selection has Order Numbers now.
- + Speed Group Master works for Chaser and Sequence now.
- + A new Store View Dialog with screen selection.
- + 50 Playback Special Master for Sequence.
- + Split Fade and A/B Fade option button.
- + Kill protect / Swap protect option button.
- + Swop function in the button assignment.
- + Update Menu implemented.
- + Off Menu implemented. The Off timing is not available now.

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- + A new Pool option : Frame color.
- + The Desk lock function works with ALT+Pause.
- + Screen saver time and off setting in the Setup menu.
- + Patch Subfixtures is supported now.
- + RPU has now network functionality.
- \* Crazy-Multitouch-Color-Dialog ignores (last selected) fixtures without RGB/CMY-Channels.
- \* Stage-Wizard / Matrix-Arrangement: Width -> Horizontal Interval (=Width/Columns Count); Height -> Vertical Interval (=Height/Rows Count) new direction settings.
- \* Arrangement-Wizard remembers last selected arrangement type.
- \* Stage-Wizard and Stagebar respects the order of selection.
- \* MA Network control menu now in setup/Network.
- \* Sequence executor sheet modified.

## 54. Error Messages

If the following error messages do not solve the problem, please call or send an email to the tech support. See the email address in the footer of this web page.

Phone: +49 5251 688 865 30

Phone for emergency services only: +49 5251 688 865 99 **(Use this hotline only if troubles occur shortly before an upcoming event.)**

Error	Reason
# 0 Unknown error	There is an unknown error in the console.
# 1 Unknown command	The command entered is unknown.
# 2 Input too long	The command entered is too long.
# 3 Illegal character	The command entered is illegal.
# 4 Command not implemented	The console does not support the command entered.
# 5 Number expected	The console expects a number.
# 6 IP expected	The console expects an IP address.
# 7 Number too large	The number entered is too large.
# 8 Number too small	The number entered in the command is too small (minimum 1 character).
# 9 Number too large	The number entered in the command is too large (maximum 1 character).
# 10 Expected	The console expects more input.
# 11 Expected argument	The command entered is missing an argument.
# 12 Expected name	The console expects a name, for example if the <a href="#">keyword Label</a> was canceled.
# 13 Illegal name	The object name entered is not allowed. Use English characters only.
# 14 Object does not exist	The object you tried to work with does not exist (for example if you tried to assign a function to an executor without any cues stored).
# 15 Object not accessible	The object entered is not accessible.
# 16 Resize forbidden	It is forbidden to resize the command entered.
# 17 Delete forbidden	It is forbidden to use the command Delete to delete an object.
# 18 Create forbidden	It is forbidden to use the command Create to create an object.
# 19 Illegal range	The value entered exceeds the range of the value allowed.

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Error	Reason
# 20 Multi user access conflict	Another user is currently trying to execute the same action.
# 21 Cannot leave current destination	You cannot leave the current destination as this may cause a multi user conflict.
# 22 Cannot enter destination	Another user is currently accessing the destination.
# 23 File not found	You are trying to import a non-existing file.
# 24 File format invalid	The format of the file is incorrect for the destination.
# 25 No unique sequence given	You are trying to access a cue of multiple sequences.
# 26 No unique page given	The command entered needs a unique page number.
# 27 Syntax error	The syntax entered is incorrect.
# 28 No cue source given	Cue number is missing in the source.
# 29 Illegal cue number	The number of the cue entered is invalid.
# 30 No default executor	You are trying to access a default executor, but you have not selected one yet.
# 31 Limit exceeded	You are exceeding the limit.
# 32 Unknown option	The option you have selected does not exist.
# 33 Destination not empty, no copy mode given	You are trying to copy an object to a destination already occupied by another object, and you have not specified yet how the console is to react.
# 34 No cue for part given	The number of cue required is missing.
# 35 Edit single object only	You are trying to edit multiple objects, but you only can edit one.
# 36 Too many numbers	There are too many numbers in the command.
# 37 Copy N to M elements not supported	You are trying to copy a larger number of objects to a smaller number of objects.
# 38 Move N to M elements not supported	You are trying to move a larger number of objects to a smaller number of objects.
# 39 Move 1 to M elements not supported	You are trying to move one object to several destinations.
# 40 Missing hardware	You are trying to access hardware you do not have.
# 41 Illegal layer	The layer you are trying to access is illegal.

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Error	Reason
# 42 Illegal file name	The file name entered is invalid.
# 43 Login needed	Login is required.
# 44 Insufficient user rights	You do not have sufficient user rights.
# 45 Not a valid clone source	The source of your clone action is invalid. There may be a mismatch between the source fixture and the destination fixture.
# 46 Not a valid clone destination	The destination of your clone action is invalid. There may be a mismatch between the source fixture and the destination fixture.
# 47 Clone source fixture list expected	The console expects a list of the source fixture.
# 48 Clone destination fixture list expected	The console expects a list of the destination fixture.
# 49 Expected object to be cloned	The console expects more fixtures.
# 50 Invalid version	This version does not support this function.
# 51 Illegal time format	The time format entered is invalid.
# 52 Operation aborted by user	You canceled the operation.
# 53 PSR not available	You cannot use Partial Show Read in the shows you have selected.
# 54 Variable not found	The variable entered is empty or does not exist.
# 55 Preview is only for cues	The object entered does not support preview.
# 56 Object does not support info command	The object entered does not have information.
# 57 Object is locked	You are trying to access an object that is locked.
# 58 Illegal destination	The object cannot be moved to the destination.
# 59 Edit not possible	You cannot edit the object.
# 60 Move not possible	You cannot move the object.
# 61 Copy not possible	You cannot copy the object.
# 62 Command not supported	The command entered is invalid.
# 63 Insert forbidden	You cannot insert the object.
# 64 Can not assign	You cannot assign the object.

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Error	Reason
# 65 Value too small	The value entered is too small.
# 66 Value too big	The value entered is too large.
# 67 No cut or copy buffer for paste	You cannot paste since the clipboard is empty.
# 68 Cut buffer is empty	You cannot paste since the clipboard is empty.
# 69 Paste not possible	You cannot paste since the clipboard is empty.
# 70 Command not executed	The execution of the command entered cannot be fulfilled (for example if you try to enable an executor without cues).
# 71 Illegal timer	The timer selected is invalid.

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## 55. Technical Data

### grandMA2 full-size

Technical Data	
Operating Voltage	120 V / 230 V
Supply Voltage	50 / 60 Hz (automatic detection)
Net weight	54 kg / 119 lbs
Power	350 VA
Dimensions	1,284 x 204 x 661 mm / 50.6 x 8 x 26 inch
Output Connectors	6 x XLR 5pin (DMX) 2 x DVI (external monitor) 2 x etherCON 1 x MA-Link (grandMA2 fader wing) 2 x USB 1 x DIN (Midi) 2 x XLR 4 pin (Desklight)
Input Connectors	1 x XLR 5pin (DMX) 1 x XLR 3pin (Sound) 1 x XLR 3 pin (SMPTE) 1 x DIN (Midi) 1 x Sub-D 25pol (Analog Remote) 1 x powerCON

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## grandMA2 light

### Technical Data

Operating Voltage	120 V / 230 V
Supply Voltage	50 / 60 Hz (automatic detection)
Net weight	44 kg / 97 lbs
Power	350 VA
Dimensions	935 x 204 x 661 mm / 36.8 x 8 x 26 inch

Output Connectors	6 x XLR 5pin (DMX)
	2 x DVI (external monitor)
	2 x etherCON
	1 x MA-Link (grandMA2 fader wing)
	2 x USB
	1 x DIN (Midi)
	2 x XLR 4 pin (Desklight)

Input Connectors	1 x XLR 5pin (DMX)
	1 x XLR 3pin (Sound)
	1 x XLR 3 pin (SMPTE)
	1 x DIN (Midi)
	1 x Sub-D 25pol (Analog Remote)
	1 x powerCON

## grandMA2 ultra-light

### Technical Data

Operating Voltage	120 V / 230 V
Supply Voltage	50 / 60 Hz (automatic detection)
Net weight	35 kg / 77 lbs
Power	350 VA
Dimensions	935 x 204 x 661 mm / 36.8 x 8 x 26 inch

Output Connectors	6 x XLR 5pin (DMX)
	2 x DVI (external monitor)
	2 x etherCON
	1 x MA-Link (grandMA2 fader wing)
	2 x USB
	1 x DIN (Midi)
	2 x XLR 4 pin (Desklight)

Input Connectors	1 x XLR 5pin (DMX)
	1 x XLR 3pin (Sound)
	1 x XLR 3 pin (SMPTE)
	1 x DIN (Midi)
	1 x Sub-D 25pol (Analog Remote)
	1 x powerCON

## grandMA2 replay unit (RPU)

### Technical Data

Operating Voltage	120 V / 230 V
Supply Voltage	50 / 60 Hz (automatic detection)
Net weight	10 kg / 22 lbs
Power	150 VA
Dimensions	485 x 126 x 445 mm / 19 x 5 x 17 inch
Output Connectors	6 x XLR 5pin (DMX) 2 x DVI (external monitor) 2 x etherCON 1 x MA-Link (grandMA2 fader wing) 2 x USB 1 x DIN (Midi) 2 x XLR 4 pin (Desklight)
Input Connectors	1 x XLR 5pin (DMX) 1 x XLR 3pin (Sound) 1 x XLR 3 pin (SMPTE) 1 x DIN (Midi) 1 x Sub-D 25pol (Analog Remote) 1 x powerCON

## grandMA2 fader wing

### Technical Data

Operating Voltage	via grandMA2 console
Supply Voltage	via grandMA2 console
Net weight	8 kg / 17.6 lbs
Dimensions	425 x 162 x 367 mm / 16.7 x 6.4 x 14.5 inch
Output Connectors	1 x MA-Link
Input Connectors	1 x MA-Link

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## MA onPC command wing

### Technical Data

Operating Voltage	120 V / 230 V
Supply Voltage	50 / 60 Hz (automatic detection)
Net weight	6 kg / 13.2 lbs
Power	40 VA
Dimensions	536 x 395 x 70 mm / 21.1 x 15.6 x 2.8 inch
Output Connectors	2 x XLR 5pin (DMX) 1 x USB 1 x DIN (Midi)
Input Connectors	1 x XLR 5pin (DMX) 1 x XLR 3 pin (SMPTE) 1 x DIN (Midi) 1 x Sub-D 25pol (Analog Remote)

## MA onPC fader wing

### Technical Data

Operating Voltage	120 V / 230 V
Supply Voltage	50 / 60 Hz (automatic detection)
Net weight	4.5 kg / 9.9 lbs
Power	40 VA
Dimensions	365 x 395 x 70 mm / 14.4 x 15.6 x 2.8 inch
Output Connectors	4 x XLR 5pin (DMX) 2 x USB
Input Connectors	1 x USB

## 56. Glossary

### A

**Art-Net:**

Art-Net 3 Ethernet communication standard. A protocol for transmitting the lighting control protocol DMX 512-A via the User Datagram Protocol of the Internet Protocol suite. For information on how to use Art-Net see [Network Protocols](#). For information on how to assign Art-Net Presets on ports for the MA Network Switch see [Control the MA Network Switch - Edit Presets](#).

**Attributes:**

Controllable function of a fixture, e.g., pan or gobo wheel3.

**Auto Fixed:**

If you change the page, all executors which are on will automatically be fixed.

### B

**Blind:**

Create values without DMX output. For more information see [Blind Key](#) and [Blind Command](#).

**B.O. (black out):**

Brings dimmer values to zero. For more information see [B.O. Key](#).

**BPM (beats per minute):**

Speed of chasers or effects is counted in beats per minute.

### C

**Channel:**

For more information see [Channel Sheet](#).

**Channel Sets:**

Predefined values within the fixture type for fast access.

**Chaser:**

A chaser is an executor mode that runs randomly, in a loop or bounces in the cue list. For more information see [Chasers](#).

**Cmd (Command):**

Instructions you enter into the console.

**Command Section:**

Area on the right of the console used to enter commands into the command line using keys. For more information see [Command section](#).

**Command Line:**

The command line is located at the bottom of screen 1 and screen 2. It is used to enter commands into the console. For more information see [Workspace - User Interface - Command Line](#).

## **Constant bit rate (CBR):**

Constant bit rate defines the bit rate images are encoded with. The data stream is constant. This means that every image has the same size. Constant bit rate is used in [bitmap fixtures](#).

## **Control:**

Control attributes are, for example lamp control, fixture global and scan rate.

## **Cue:**

Cues contain values that were stored. For more information see [What are cues and sequences](#).

## **Cue List:**

List containing more than one cue and which is stored on an executor.

## D

### **DHCP** (Dynamic Host Control Protocol):

Is a standardized network protocol used on Internet Protocol (IP) networks for dynamically distributing network configuration parameters, such as IP addresses for interfaces and services. With DHCP, computers request IP addresses and networking parameters automatically from a DHCP server, reducing the need for a network administrator or a user to configure these settings manually. To enable or disable DHCP for the MA Network Switch see [Control the MA Network Switch - Enable DHCP client](#).

### **Dimmer Wheel:**

The wheel located rightmost on the console. It is always assigned to the dimmer attributes of the selected fixtures.

### **DMX** (digital multiplex, DMX 512):

Communication protocol that connect light consoles with fixture types.

### **DMX address:**

Is the start address which you have on the fixture and in console.

### **DMX channel:**

Each attribute of a fixture needs one (8bit) or two (16bit) DMX channels. 512 DMX channels are one DMX universe.

### **DMX footprint:**

Is an indicator for how many DMX channels the fixture type needs.

### **DMX universe:**

One DMX universe contains 512 DMX channels. You can connect one universe to one XLR connector.

### **DVI-D** (digital visual interface - digital):

Connection for external screen. For more information see [Device Overview](#).

## E

### **Effect:**

Manipulates and creates looping changes of values from attributes.

### **Encoder:**

The five round rotary knobs below screen 1, to control values of attributes or scroll on the screen. For more information see [Device Overview](#).

**Ethernet:**

Is a local network with bus topology, what allows multiply devices access at the same time. It is used for communication between light consoles. The grandMA2 consoles have two Ethernet connectors. For more information see [Device Overview](#).

**Executor:**

Button and fader executor on the console and executor in the virtual playbacks. You store cues on an executor. For more information see [What are executors](#).

**Executor Button:**

Physical key on the console to execute cues.

**Executor Fader:**

Physical fader on the console to execute cues.

**Executor Time Master:**

Overrides cue fade and on/off times and sets the cue delay to zero.

## F

**Fade time:**

Time for changing from one value to another value.

**Fader Wing:**

Is an extension for the console with additional faders and executor Buttons.

**Feature:**

Group of attributes.

**Fixture ID:**

Unique identifier for each fixture. Set the fixture ID in the [Patch & Fixture Schedule](#).

**Fixture Library:**

Library with all common fixture types to import fixture types into the show file.

**Fixture Type:**

Every device you can control from the console. In the fixture type is the assignment of the attributes to the DMX channels.

**Flip:**

Flip is a function to change the pan and tilt combination and point your fixture in the same direction. Refer to, Position Preset Type View.

**Frame (fps = frames per second):**

Is a picture frequency. The default setting is 30 fps. From this follows that 1 frame is equivalent to 0.03 seconds.

## G

**Grand master:**

Fader rightmost at the console to reduce all dimmer values. For more information see [Device Overview](#).

Groups relating to the Groups Pool:

**Groups** relating to the MA Network Switch:

A logical segment of network users and resources grouped by function, team, or application. This segmentation is without regard to the physical location of the users and resources. Also known as VLAN. To edit groups see [Control the MA Network Switch - Edit Groups](#).

H

**Hue:**

The color of a color notation in an angle between 0 and 360 degrees.

I

**IGMP** (Internet Group Management Protocol):

A protocol that manages how adapters and other components join and leave multicast groups. IGMP snooping is a feature of IGMP that allows Ethernet switches to look (snoop) inside packets to determine which destinations really need to receive the data. To edit IGMP settings for the MA Network Switch see [Control the MA Network Switch - Edit Groups](#).

**Instances:**

Single controls of the fixture types, e.g. one pixel of a LED panel.

**Iris:**

An aperture that controls the beam size of a fixture.

L

**LLDP** (Link Layer Discovery Protocol):

Used by network devices for advertising their identity, capabilities, and neighbors on an IEEE 802 local area network. LLDP will be disabled or enabled along with RSTP. To enable or disable RSTP see [Control the MA Network Switch - Configure Ports](#).

**Lua:**

Is a multi-paradigm programming language primarily designed for embedded systems and clients.

M

**Macro:**

Prerecorded command combinations.

**MA-Net2:**

Integral part of the MA System architecture. All MA series 2 devices are connected via the MA-Net2 as if they were one device. All of these components contain all system data that is needed to control the processes and to synchronize the outputs in real-time. To use MA-Net2 see [Network Protocols](#). To assign MA-Net2 Presets on ports for the MA Network Switch see [Control the MA Network Switch - Edit Presets](#).

**Master Rate:**

The master rate multiplies all timings by a factor.

The factors from the master rate goes from Stop (= no further output) via 1:1 (=stored timings) up to 256 (=multiplies the timing by 256).

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The master rate is a dynamic fader that means, if that fader has the position of 50 % the rate fader has the factor 1:1. From 1:1 the fader goes dynamic up to 256 that equates a fader position from 100 %. It is the same from 1:1 down to Stop.

## **Master Speed:**

Controls the speed of effects and the playback speed of chasers.

## **Mbps** (Megabit per second):

Unit of data transfer rate. The data transfer rate of the etherCON ports is 10/100/1000 Mbps.

## **MIDI** (musical instrument digital interface):

A standard to exchange control signals with the console.

## **MSC** (MIDI Show Control):

MSC sends the executor functions via MIDI signal to another device, e.g. another console or a MIDI sequencer.

## N

## **Natural Values:**

The dot2 displays all raw channel views in natural values with one decimal place.

Usually the range is from 0 to 100 and equates the DMX values from 0 to 255.

Exception: The range from pan is -270 to 270 and from tilt is -125 to 155.

## O

## **Out Delay:**

Wait time for dimmer values going to a lower intensity level.

## P

## **Pan:**

Horizontal movement axis of an fixture.

## **Presets:**

There are nine preset types to control from the console. Refer to, Preset Pool View and Preset Type Bar.

## **Priority:**

Some values have a higher priority than others. In other words, they will not be overwritten by those with a lower priority. The programmer, for instance, has a higher priority than an executor.

## **Programmer:**

Is a container with the current selection of fixtures and values of manual adjusted attributes. Programmer values are red values. For more information about the colors see [Workspace – Colors](#).

## **Program Time Master:**

The program time master controls the fade times of all program values and effects between the 0 and 10 seconds.

Adjust time in **Setup – User – Settings – Max. Program Time**.

This affects both, the adding of new values into the programmer, and the removing of values from the programmer with the **Clear** key.

The program time master can be a fader. Refer to, Empty Executor Window.

## R

### **RDM** (= Remote Device Management Protocol):

Permits intelligent bidirectional communication between devices from multiple manufacturers using a modified DMX512 data link. RDM is an EF 1.0 implementation of ANSI E1.11 (DMX512-A). To use RDM see [RDM](#).

### **Rpm** (revolutions per minute):

Rotation speed of a gobo wheel in the unit revolutions per minute.

### **RSTP** (Rapid Spanning Tree Protocol):

Provides significantly faster spanning tree convergence after a topology change, introducing new convergence behaviors and bridge port roles to do this. To enable or disable RSTP for a port see [Control the MA Network Switch - Configure Ports](#).

## S

### **sACN** (streaming Architecture for Control Networks)

ANSI E1.31-2009. A protocol to transport DMX512 data over IP networks. To use [sACN see Network Protocols](#).

### **Shutter:**

Fast open and close of the light output of a fixture type.

### **SMPTE** (society of motion picture and television engineers):

Is a timecode to synchronize different devices from different manufacturers in the audio and video technology.

### **Snap:**

A lot of fixture types with gobo and color wheels have snap channels.

That means those attributes will be directly executed disregarding the cue fade time.

### **Snap Percent:**

Is a setting after how much percent of the fade time the attribute will be executed.

The default value for snap channels is 0 %.

### **Spanning Tree:**

Used with network topologies that provide more than one physical path between two devices, spanning tree protocol manages path redundancies while preventing undesirable loops in the network. If a fault should occur on an active port, the switch will begin transmitting out one of the blocked ports.

### **Special Master:**

Is an executor with a special function, e.g. Program Time Master or Master Rate.

### **Speed Master:**

See Master Speed.

### **Strobe:**

Repeating fast open and close of the light output of a fixture.

## T

**Tilt:**

Vertical movement axis of an fixture.

**Trig (Trigger):**

Call of a cue.

**Trunk:**

This is the name given to the interconnection links between switches in a network. The Trunk links are meant to forward the groups based packets. In most case, the Trunk links will be the redundant links. To assign a port the Trunk group see [Control the MA Network Switch - Configure Ports](#).

## U

**UID (= Unique Identifier):**

All RDM devices have a unique identifier (UID) that consists of a manufacturer ID and serial number. The UID can be used as an option for several RDM keywords. To get a list of all available RDM keywords, see [specific RDM keywords](#).

**Universe:**

See [DMX Universe](#).

## V

**VLAN (Virtual local-area network):**

For more information see [Groups](#) relating to the MA Network Switch.

## W

**Web remote:**

Grants remote access to the grandMA2 console via a web browser.

## X

**XFade:**

Is the right fader next to the Master Fader. With the XFade you fade manual from one cue to the next cue.

**XLR A-D:**

Four pin connector for DMX signal at the back of the console. For more information see [Technical Data](#).

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