

# MA Network Switch

# USER MANUAL

of MA Lighting



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## 1. Introduction

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.

Designed to simplify the set-up and management of today's lighting networks, the MA Network Switch is backed by the industry leading MA technical support team. Standard lighting terminology is used allowing most common lighting protocols to be filtered via a web interface designed specifically for lighting technicians. The tiered interface also allows advanced functionality for experienced network engineers. The MA Network Switch provides a local display for port status, applied filters and recognized MA equipment. Additionally it shows workload status of the switch and every single port for easier fault finding.

The MA network switch is compliant with IEEE 802.3ab Gigabit Ethernet and can be seamlessly integrated into existing Ethernet networking infrastructures. The ability to define port filtering with the common entertainment protocols combined with standard Ethernet protocols like IGMP and RSTP allow the switch to perform best in fixed installation as well as in temporary installations.

The MA Network Switch is housed in a typically robust 1RU chassis, with color coded filter and data indicators front and rear. The front panel features a single etherCON port and display screen. The rear panel incorporates 8 etherCON ports and 2 SFP cages to suit mini-GBIC fiber connections. Additionally, the MA Network Switch can be fitted with 2 optional heavy duty fiber connections for extended cable runs!

The following figure displays how a MA network with a MA Network Switch could look like in principle.

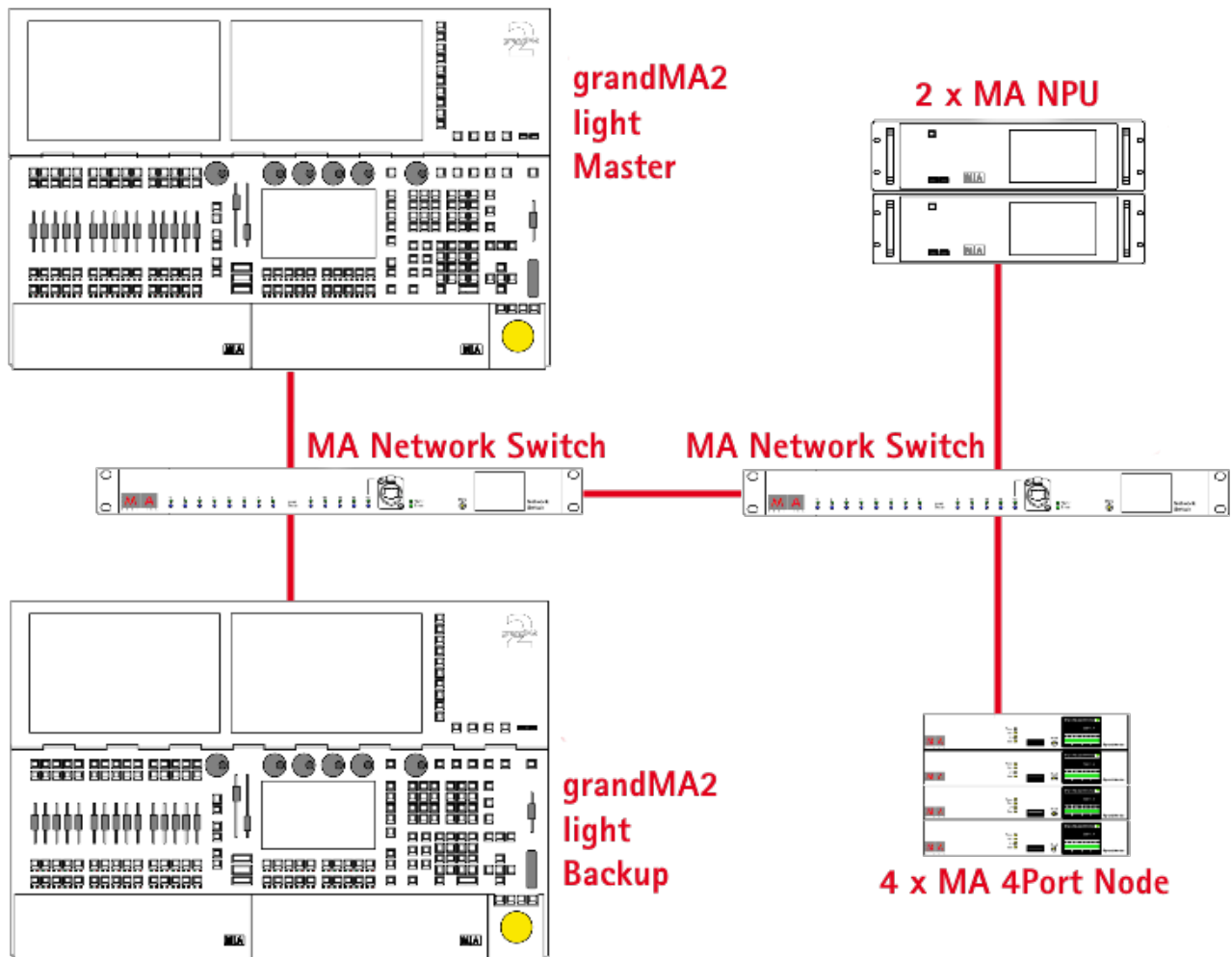


Figure: Principle Network Schematic

## 1.1. Intended Use

The MA Network Switch is intended to be operational right out of the box as a standard switch. In the default configuration, it will forward packets between connecting devices after power up.

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

MA Lighting does not cover damages which can result of a not intended use of the console.

## 1.2. Dangers caused by Electric Current

If the device or the power cable is damaged, there is a risk of death by an electrical shock.

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

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

## 1.3. General Safety Instructions

Follow the safety instructions, to avoid physical injury or material damage:

- Do not grab inside the device during it is running.
- The device and the power cable needs to keep away from children below 8 years.
- Children are not allowed to play with the device.
- Do not use any liquid or spray cleanser. Use a dry cloth.
- Do not block or cover any ventilation slots in the housing - they are necessary for the essential airflow within the unit and protect it against overheating.
- Place the device on stable surfaces only. If it is placed on unstable surfaces, it may fall and become damaged.

## 1.4. System Requirements

To use the web interface, your browser should have the following requirements:

- Microsoft® Internet Explorer® 11
- Mozilla Firefox 40
- Google Chrome 45
- Apple Safari 8

To use the online help manual, you need internet access.

## 1.5. SFP Transceiver Compatibility

The following SFPs transceivers are tested and compatible with the MA Network Switch.

- Cisco MGBT1 Gigabit 1000 Base-T Mini-GBIC SFP Transceiver
- Cisco MGBSX1 Gigabit SX Mini-GBIC SFP Transceiver
- Cisco GLC-SX-MM
- Emcore 871312
- Finisar FTRJ8519P1BNL-B1
- Finisar FTLF8519P2BNL

## 2. Device Overview

The following chapter gives you an overview about the device of the MA Network Switch.

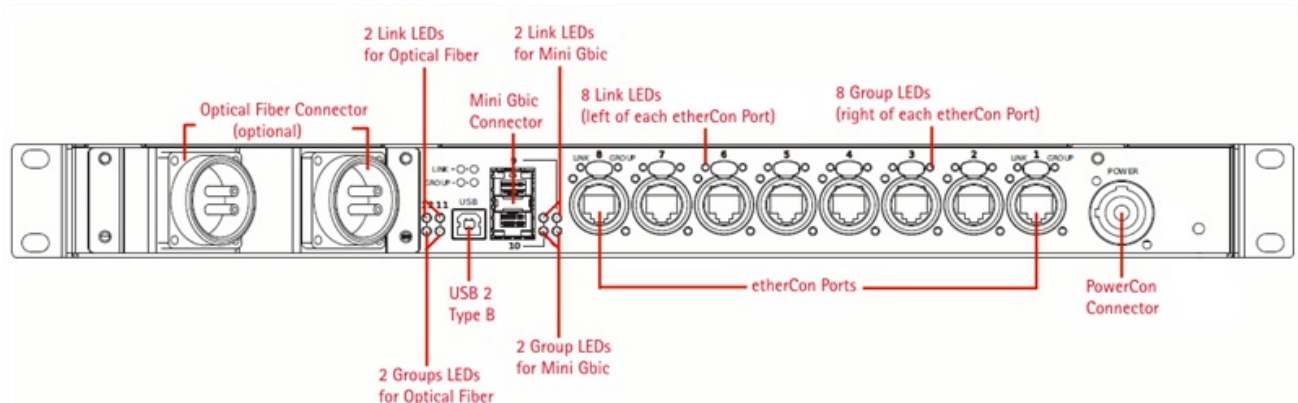
### 2.1. Front Panel



- 13 x Link LEDs
- 13 x Group LEDs
- 1 x 10/100/1000 Mbps shielded Neutrik etherCON connector
- 1 x Power LED
- 1 x Status LED
- 1 x Menu Button
- 1 x Front End Display



## 2.2. Rear Panel



- 2 x Optical Fiber Connectors (optional)
- 2 x Optical Fiber Link LEDs
- 2 x Optical Fiber Group LEDs
- 1 x USB2 Type B connector
- 2 x SFP cage for Mini-Gbic compliant transceiver (external)
- 2 x SFP cage for Mini-Gbic compliant transceiver (internal)
- 2 x Mini-Gbic Link LEDs
- 2 x Mini-Gbic Group LEDs
- 8 x 10/100/1000 Mbps shielded Neutrik Ethercon connectors
- 8 x etherCON Link LEDs
- 8 x etherCON Group LEDs
- 1 x powerCON Connector

## 2.3. LED Indicators

The following tables shows the LED indicators for the MA Network Switch along with the explanation of each indicator.

### Power LED

Status	Meaning
Off	No power
Green	Power supply OK
Red blink	Error

### Status LED

Status	Meaning
Green	All OK
Green blink	Update
Red	Error

### Link LED

Status	Meaning
Off	No link
Green blink	Gigabit connection
Orange blink	10/100 Mbps connection

### Group LED

Status	Meaning
Red	Group 1
Yellow	Group 2
Green	Group 3
Cyan	Group 4
Blue	Group 5
Magenta	Group 6
White	Trunk
Off	Manage

## 2.4. Factory Defaults

The following tables describes the factory defaults and what will happen to various settings when you reset the switch.

If you want to reset the switch, refer to [General Settings - Reset Settings](#).

## General Settings Defaults

This table describes the general settings defaults and what will happen to the general settings when you reset the switch.

Reset mode	Items affected
Reset ALL settings to factory default by using the web interface	<ul style="list-style-type: none"> <li>Reset IP address to the default IP address, displayed at the front end display. The default IP address is always the factory-given IP address per device.</li> <li>Reset subnet mask to 255.255.255.0</li> <li>Reset default gateway to 0.0.0.0</li> <li>Reset password to "admin"</li> <li>Reset name to "MA Switch"</li> </ul>
- and -	
Hard reset with the menu button at the front panel	<ul style="list-style-type: none"> <li>Reset ID to "1"</li> <li>IGMP Snooping "No"</li> <li>IGMP Querier "No"</li> <li>Unknown Flooding "Yes"</li> <li>Disable filters</li> <li>Disable speed</li> <li>RSTP enabled</li> <li>All ports are manage ports</li> </ul>

## Preset Defaults

The following lists describes what preset includes what filters by default and what will happen to the presets when you reset the switch.

### Preset MA-Net2

The preset MA-Net2 contains the following filters by default:

- MA-Net2 ctrl IPv4
- MA-Net2 data IPv4

### Preset dot2-Net

The preset dot2-Net contains the following filters by default:

- dot2-Net wing data
- dot2-Net wing

- dot2-Net wing ctrl
- dot2-Net ctrl IPv6
- dot2-Net data IPv6

## Preset Art-Net

The preset Art-Net contains the following filters by default:

- Art-Net

## Preset MA-Remote

The preset MA-Remote contains the following filters by default:

- HTTPS (dport 443)
- HTTPS (sport 443)
- HTTP (dport 80)
- HTTP (sport 80)
- MA Webremote (dport 8080)
- MA Webremote (sport 8080)
- MA Remote (7003)
- MA Remote (7002)
- MA Remote (7001)

## Preset MA-Net1

The preset MA-Net1 contains the following filters by default:

- MA-Net

## Preset grandMA2

The preset grandMA2 contains the following filters by default:

- PSN
- DNS
- NTP
- SSH (dport 22)
- SSH (sport 22)
- syslog
- AVAHI
- SNMP trap
- SNMP
- KiNet
- Art-Net
- sACN
- MA-Net2 ctrl IPv4
- MA-Net2 data IPv4

- MIDI Show Control
- VPU remote (dport 7005)
- VPU remote (sport 7005)
- VPU remote (dport 7004)
- VPU remote (sport 7004)
- HTTPS (dport 443)
- HTTPS (sport 443)
- HTTP (dport 80)
- HTTP (sport 80)
- MA Webremote (dport 8080)
- MA Webremote (sport 8080)
- MA Remote (7003)
- MA Remote (7002)
- MA Remote (7001)
- Telnet (dport 30000)
- Telnet (sport 30000)
- Telnet (dport 23)
- Telnet (sport 23)
- nmbd (tcp)
- nmbd (udp)
- SMB (tcp 139)
- SMB (udp 138)
- SMB (udp 137)
- NFS (tcp)
- NFS (udp)
- FTP
- CFTP MA
- CFTP
- ShowNet
- PathPort
- ETC Net2

## Preset sACN

The preset sACN contains the following filters by default:

- sACN

## Filter Defaults

The following tables describes what filters exist by default along with their frame match and what will happen to the filters when you reset the switch.

Filter	Frame Match
PSN Standard	IPv4 UDP dport 56565

Filter	Frame Match
DNS	IPv4 UDP dport
NTP	IPv4 UDP dport 123
SSH (dport 22)	IPv4 TCP sport 22
SSH (sport 22)	IPv4 TCP dport 22
syslog	IPv4 UDP dport 514
AVAHI	IPv4 UDP dport 5353
SNMP trap	IPv4 UDP dport 162
SNMP	IPv4 UDP dport 161
KiNet	IPv4 UDP dport 6038
Art-Net	IPv4 UDP dport 6454
sACN	IPv4 UDP dport 5568
MA-Net2 ctrl IPv4	IPv4 UDP dport 29998
MA-Net2 data IPv4	IPv4 UDP dport 29999
dot2-Net wing data	IPv6 UDP dport 30014
dot2-Net wing	IPv6 UDP dport 30013
dot2-Net wing ctrl	IPv6 UDP dport 30012
dot2-Net ctrl IPv6	IPv6 UDP dport 30010
dot2-Net data IPv6	IPv6 UDP dport 30011
MIDI Show Control	IPv4 UDP dport range 6000-6020
MA-Net	IPv4 UPD dport 9138
VPU remote (dport 7005)	TCP dport 7005
VPU remote (sport 7005)	TCP sport 7005
VPU remote (dport 7004)	TCP dport 7004
VPU remote (sport 7004)	TCP sport 7004
HTTPS (dport 443)	IPv4 TCP sport 443
HTTPS (sport 443)	IPv4 TCP dport 443
HTTP (dport 80)	IPv4 TCP sport 80
HTTP (sport 80)	IPv4 TCP dport 80
MA Webremote (dport 8080)	IPv4 TCP dport 8080
MA Webremote (sport 8080)	IPv4 TCP sport 8080
MA Remote (7003)	TCP dport 7003
MA Remote (7002)	TCP dport 7002
MA Remote (7001)	TCP dport 7001
Telnet (dport 30000)	TCP dport 30000
Telnet (sport 30000)	TCP sport 30000
Telnet (dport 30001)	TCP dport 30001
Telnet (sport 30001)	TCP sport 30001
Telnet (dport 23)	TCP dport 23
Telnet (sport 23)	TCP sport 23
nmbd (tcp)	IPv4 TCP dport 445
nmbd (udp)	IPv4 UDP dport 445
SMB (tcp 139)	TCP dport 139
SMB (udp 138)	UDP dport 138
SMB (udp 137)	UDP dport 137

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Filter	Frame Match
NFS (tcp)	TCP dport 111
NFS (udp)	UDP dport 2049
FTP	TCP dport 21
CITP MA	TCP dport 30002
CITP	UDP dport 4809
ShowNet	UDP dport 2501
PathPort	UDP dport 3792
ETC Net2	UDP dport 6107

## 3. First Steps

This chapter describes, how to prepare the MA Network Switch for usage.

### 3.1. Unpack the Device

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

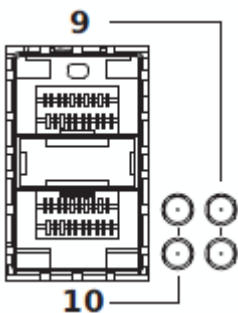
### 3.2. Install Mini-GBIC (SFP)

The MA Network Switch comes with up to four SFP cages. These cages accept mini-GBIC transceivers. Two are at the rear panel, port 9 and 10. Two are inside the MA Switch.



To install mini-GBIC transceivers inside the switch at port 11 and port 12, call your local distributor.

Install mini-GBIC at port 9 and 10



1. Remove the mini-GBIC from its protective packaging.



Be aware of the insertion direction.  
Port 9 must have the bail wire delatch on the top.  
Port 10 must have the bail wire delatch at the bottom.

2. Install the mini-GBIC into the slot 9 or 10 at the rear panel, until the mini-GBIC clicks into place.

For detailed description of your mini-GBIC transceiver, refer to the transceiver manual.

Remove mini-GBIC from port 9 and 10

1. Open the ball wire delatch to disengage and remove the mini-GBIC transceiver.
2. Replace the protective plastic cover on the mini-GBIC.

The mini-GBIC is removed from the port.



## 3.3. Installation in a Rack

The MA Network Switch is 1U high and will fit in most standard 19-inch racks.

1. Insert the switch into the 19-inch rack and secure with suitable screws.  
Ensure the ventilation holes are not obstructed.
2. Connect the switch to the power supply.
3. Connect the cables.

The MA Network Switch is installed in a rack.

## 3.4. Connect the Hardware

### **Requirement:**

Shielded twisted pair cable with RJ45 connector, min. Cat 5e

- or -

etherCON cable with Neutrik etherCON connector.

### Connection with a PC

1. Plug in the power cable into the switch.  
The switch starts booting.
2. Plug in a network cable into one of the Ethernet ports of the switch.  
For the PC connection and for further configuration, you have to use a manage group port. We recommend port 13 at the front.
3. Plug in the other end of the network cable into the Ethernet port on the PC.  
A green or orange link LED on the switch indicates a successful connection.

The MA Network Switch is connected with the PC.

### Connection with a grandMA2

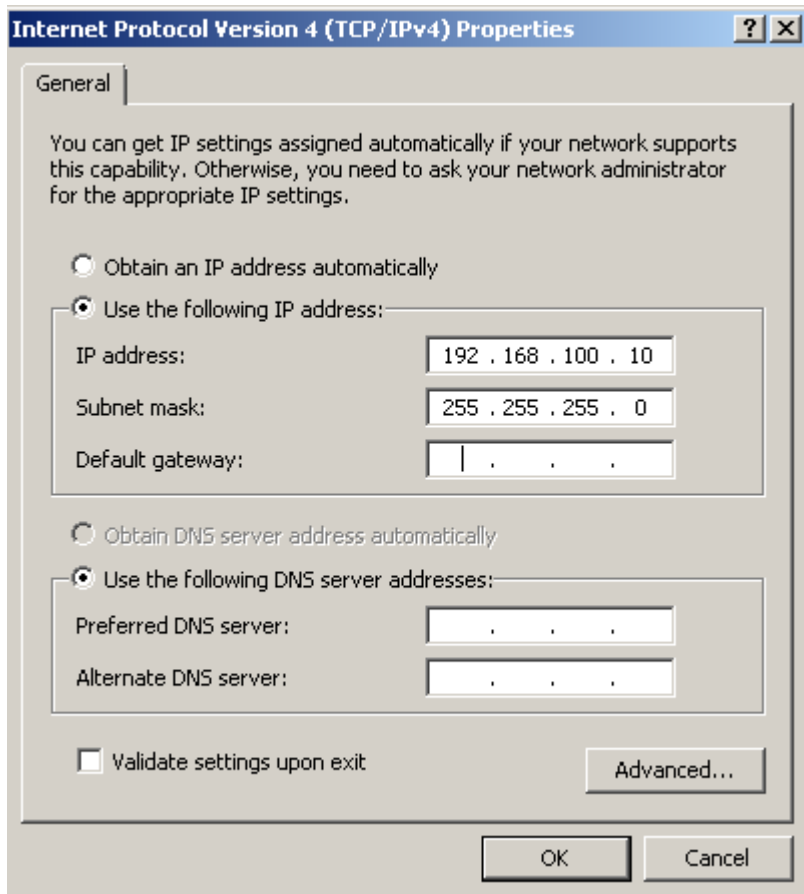
1. Plug in the power cable into the switch.  
The switch starts booting.
2. Plug in a network cable into one of the Ethernet ports of the switch.
3. Plug in the other end of the network cable into the Ethernet port 1 of the grandMA2 console.  
A green or orange link LED on the switch indicates a successful connection.

The MA Network Switch is connected with the grandMA2.

## 3.5. Set the IP Address on the PC

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 must be temporarily set to a compatible IP address.



1. Unplug the computer from the Local Area Network (LAN).
2. Go to the **Control Panel** on the computer.
3. Go to **Network and Sharing Center** and click on **Change adapter settings**.
4. Right-click the connection for your LAN, and then click **Properties**.  
If you're prompted for an administrator password or confirmation, type the password or provide confirmation.
5. Click the **Networking** tab. Under **This connection uses the following items**, click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.
6. Select **Use the following IP address** and enter a compatible IP address e.g. **192.168.100.10** and the default subnet mask **255.255.255.0**.

The PC is set to a compatible IP address.

## 3.6. Access the Web Interface

Use these steps to access the web interface home page for the switch.

### Requirements:

- Power (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 **web browser**.
2. Type the **switch IP address** in the address bar.



**Hint:**

The IP address is displayed at the front end display in the upper right corner.

The username and password dialog box opens.

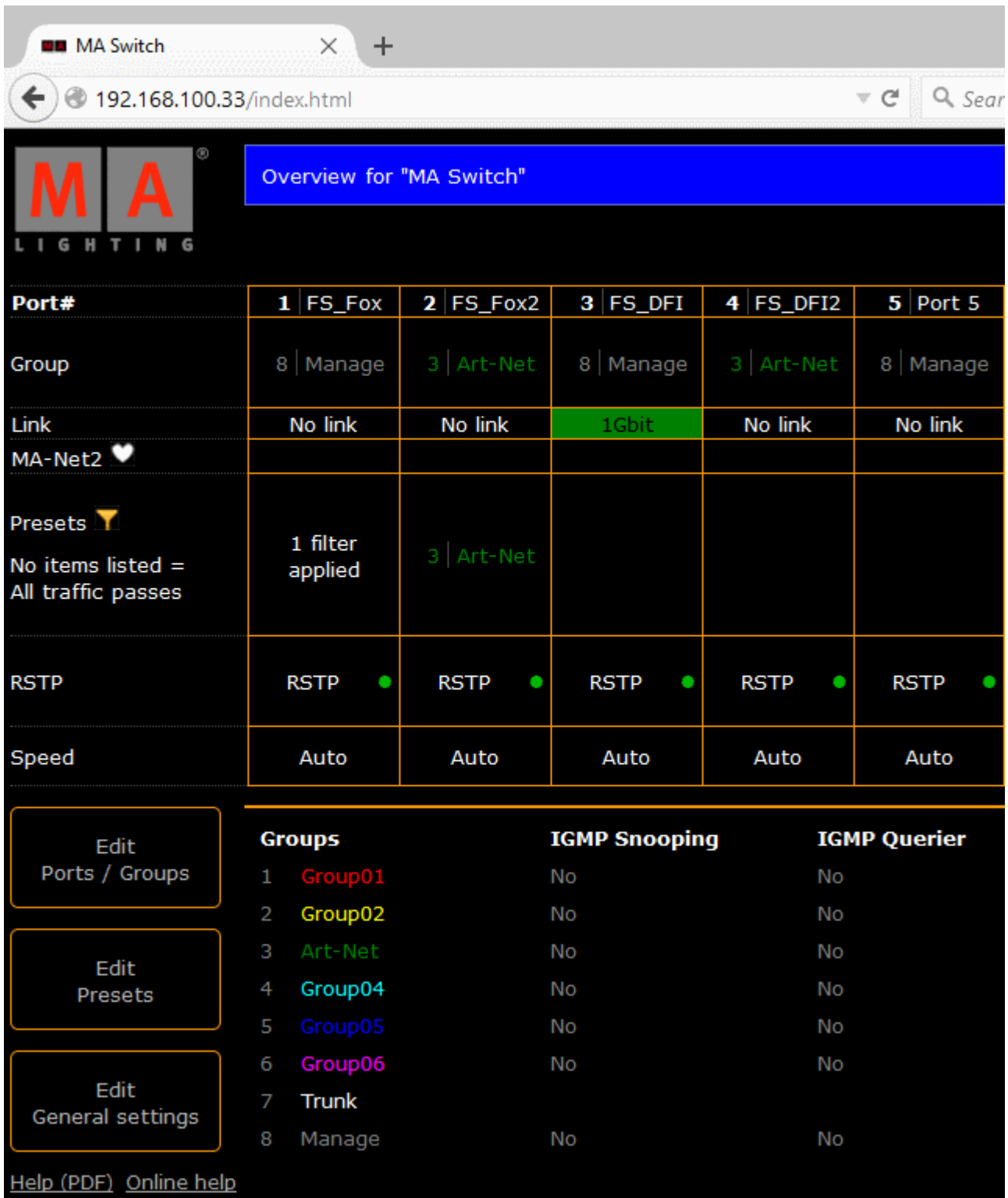
3. Type as username **administrator**.
4. Type the first time as password **admin**.



**Important:**

It is recommended to [change the password](#) after the first login.

The status page of web interface opens.



The screenshot shows the web interface for an MA Switch. The browser address bar displays '192.168.100.33/index.html'. The page title is 'Overview for "MA Switch"'. The MA LIGHTING logo is visible in the top left corner.

Port#	1   FS_Fox	2   FS_Fox2	3   FS_DFI	4   FS_DFI2	5   Port 5
Group	8   Manage	3   Art-Net	8   Manage	3   Art-Net	8   Manage
Link	No link	No link	1Gbit	No link	No link
MA-Net2					
Presets	1 filter applied				
No items listed = All traffic passes	3   Art-Net				
RSTP	RSTP	RSTP	RSTP	RSTP	RSTP
Speed	Auto	Auto	Auto	Auto	Auto

[Edit Ports / Groups](#)

[Edit Presets](#)

[Edit General settings](#)

Groups	IGMP Snooping	IGMP Querier
1 Group01	No	No
2 Group02	No	No
3 Art-Net	No	No
4 Group04	No	No
5 Group05	No	No
6 Group06	No	No
7 Trunk		
8 Manage	No	No

[Help \(PDF\)](#) [Online help](#)

Figure: Start Screen Web Interface

## 4. Display Navigation

The display offers basic information about the MA Network Switch.

There are two different information screens available and the reset screen.

To change the view, press the menu button.

### 4.1. Groups View

The groups view is visible after booting the MA Network Switch.

MA Switch		IP: 192.168.100.1	
Back Ports		SFP A	
1	8 Manage	9	8 Manage
2	1 MA-Net2 ▼	10	8 Manage
3	1 MA-Net2 ▼♥	SFP B	
4	2 Art-Net ▼	11	
5	2 Art-Net ▼	12	
6	4 grandMA2	Front Port	
7	4 grandMA2	13	8 Manage
8	8 Manage R	V 3.1.200.0	

Figure: Groups View

The groups view displays the assigned group of each port in the group color.

The title bar displays the assigned switch name and the IP address.

If presets or filter are applied to a port, the **filter icon** is next to group name.

If RSTP (Rapid Spanning Tree Protocol) is disabled from a port, a red **R** is next to the group name.

If a MA device is detected by a port, the white heart is next to the group name.

The white heart indicates incoming MA-Net2.

In bottom right corner the version number is displayed.

## 4.2. Workload View

To open the workload view at the front end display, press the menu button.

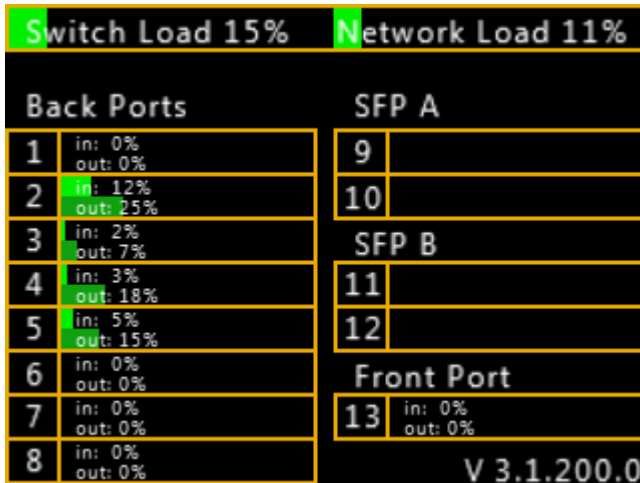


Figure: Workload View

In the title bar is the switch load and the network load in percent.

The switch load displays how much the CPU of the switch is used at the moment.

A high percentage means that the web interface or processes that are running require a lot of CPU resources, which can slow down your switch.

The network load in the title bar displays the average load of every connected ports.

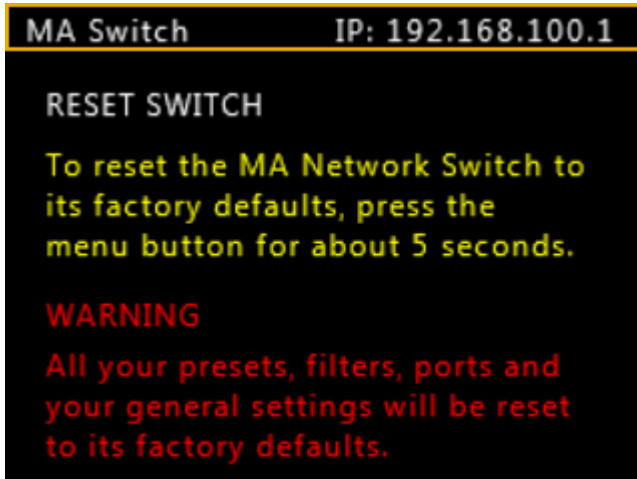
The percentage and the green load bar on every port, displays the in and out total network load per port.

In bottom right corner the version number is displayed.

## 4.3. Reset View

To open the reset view, press and hold the menu button for about 5 seconds.

The reset view opens.



*Figure: Reset View*

To reset the switch to its [factory defaults](#), follow the display instructions.

For more information, see [Edit General Settings - Reset Settings](#).

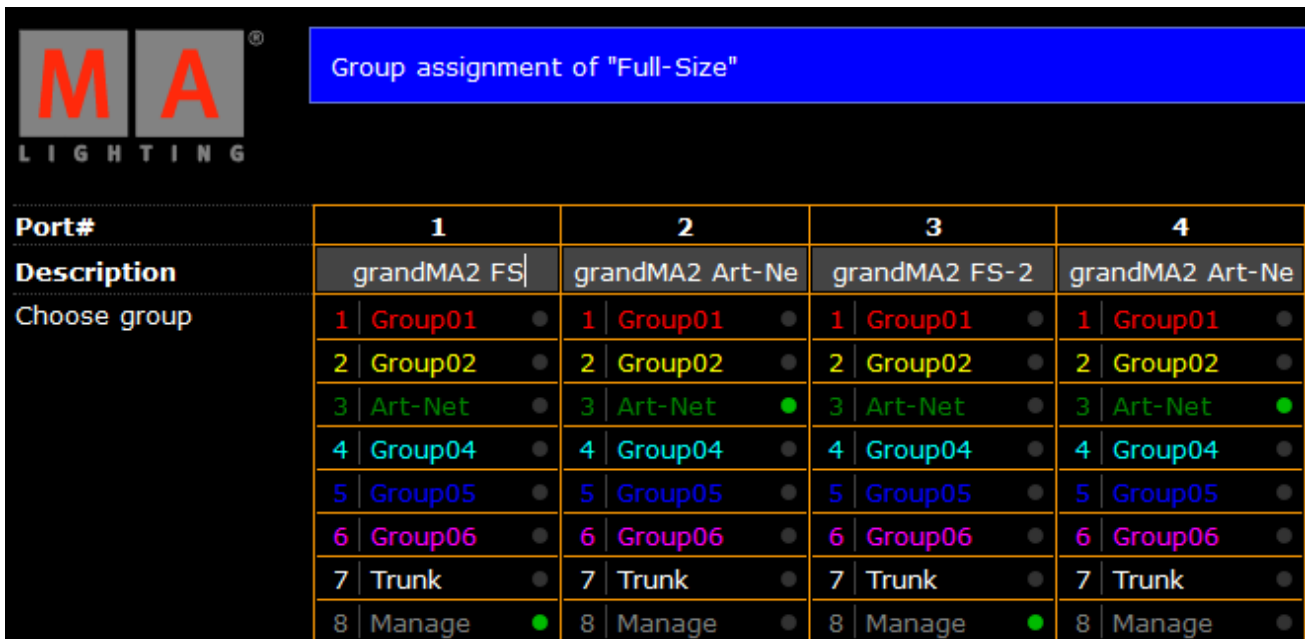
## 5. Ports / Groups

This chapter provides information about ports / groups options provided through the web interface.

For information about how access the web interface, refer to [First Steps - Access the Web Interface](#).

### 5.1. Change Port Description

To have a better overview about what is connected to what port you can change the port description of each port.



The screenshot shows a table titled "Group assignment of 'Full-Size'". The table has 4 columns representing different port groups (1, 2, 3, 4) and 8 rows representing different port types. The 'Description' column is currently empty, and the 'Choose group' column shows a list of available groups for each port. The 'Manage' row has green status indicators.

Port#	1	2	3	4
Description	grandMA2 FS	grandMA2 Art-Ne	grandMA2 FS-2	grandMA2 Art-Ne
Choose group	1 Group01 ●	1 Group01 ●	1 Group01 ●	1 Group01 ●
	2 Group02 ●	2 Group02 ●	2 Group02 ●	2 Group02 ●
	3 Art-Net ●	3 Art-Net ●	3 Art-Net ●	3 Art-Net ●
	4 Group04 ●	4 Group04 ●	4 Group04 ●	4 Group04 ●
	5 Group05 ●	5 Group05 ●	5 Group05 ●	5 Group05 ●
	6 Group06 ●	6 Group06 ●	6 Group06 ●	6 Group06 ●
	7 Trunk ●	7 Trunk ●	7 Trunk ●	7 Trunk ●
	8 Manage ●	8 Manage ●	8 Manage ●	8 Manage ●

#### Change Port Description

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 (\_)

**Requirement:** [Connection to the web interface](#).

1. Click **Edit Ports / Groups**.
2. Type the port description in the description box below the port number.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The port description is applied and saved in the startup configuration. The port description is visible in the web interface overview.



## 5.2. Assign Groups to Ports

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 at the Edit Ports / Groups Window.

By default, all groups are managed groups.

The assigned group has a green dot.

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.

Group assignment of "Full-Size"					
Port#	1	2	3	4	5
Description	grandMA2 FS	grandMA2 Art-Ne	grandMA2 FS-2	grandMA2 Art-Ne	MA 3D
Choose group	1 Group01 ●	1 Group01 ●	1 Group01 ●	1 Group01 ●	1 Group01 ●
	2 Group02 ●	2 Group02 ●	2 Group02 ●	2 Group02 ●	2 Group02 ●
	3 Art-Net ●	3 Art-Net ●	3 Art-Net ●	3 Art-Net ●	3 Art-Net ●
	4 Group04 ●	4 Group04 ●	4 Group04 ●	4 Group04 ●	4 Group04 ●
	5 Group05 ●	5 Group05 ●	5 Group05 ●	5 Group05 ●	5 Group05 ●
	6 Group06 ●	6 Group06 ●	6 Group06 ●	6 Group06 ●	6 Group06 ●
	7 Trunk ●	7 Trunk ●	7 Trunk ●	7 Trunk ●	7 Trunk ●
	8 Manage ●	8 Manage ●	8 Manage ●	8 Manage ●	8 Manage ●

Assign Groups

**Requirement:** [Connection to the Web Interface](#).

1. Click **Edit Ports / Groups**.
2. Click on the Group you want to assign to the port.  
The green dot is visible next to the group.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The selected group is assigned to the port and saved in the startup configuration.  
The group LED at the front panel indicates the assigned group in the group color.

## 5.3. Edit 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 support 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.



Figure 1: Edit RSTP

By default, RSTP is enabled.

- Disabled = Red dot  
The switch does not run RSTP for this port. If RSTP is disabled, LLDP (Link Layer Discovery Protocol) is disabled as well.
- Enabled = Green dot  
The switch runs RSTP for this port. If RSTP is enabled, LLDP (Link Layer Discovery Protocol) is enabled as well.

**Requirement:** [Connection to the web interface](#).

1. Click **Edit Ports / Groups**.
2. Click in the **RSTP** box for that port you want to enable or disable.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

RSTP is enabled or disabled for the selected port and saved in the startup configuration.

## Example

Let's assume, you have two connected MA Network Switches with two Trunk ports by accident.

If you have more than one connection between two devices, RSTP is necessary.

If RSTP is would be disabled in that example, there is no connection.

## 5.4. Edit Speed Setting

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. Refer to, [LED Indicators](#).

Speed setting	Auto <input checked="" type="radio"/>	Auto <input type="radio"/>	Auto <input type="radio"/>	Auto <input checked="" type="radio"/>
	100Mbit <input type="radio"/>	100Mbit <input checked="" type="radio"/>	100Mbit <input type="radio"/>	100Mbit <input type="radio"/>
	1Gbit <input type="radio"/>	1Gbit <input type="radio"/>	1Gbit <input checked="" type="radio"/>	1Gbit <input type="radio"/>

There are three speed settings available:

- Auto: The port detects automatically the speed of the connected device (default).
- 100Mbit
- 1Gbit

**Requirement:** [Connection to the web interface](#).

1. Click **Edit Ports / Groups**.
2. Click on the speed you want to select, e.g. 1Gbit.  
The green dot displays the current settings.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The selected speed is applied and saved in the startup configuration.

## 5.5. Change 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.

#	Group Names
1	Group01
2	Group02
3	Art-N
4	Group04
5	Group05
6	Group06
7	Trunk
8	Manage

*Edit Ports / Groups - Group Names*

**Requirement:** [Connection to the web interface.](#)

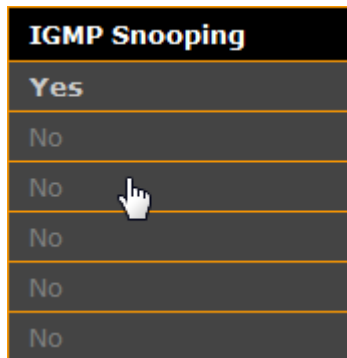
1. Click **Edit Ports / Groups**.
2. In the **group names column**, delete the old group name and type a new group name.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The new group name is applied and saved in the startup configuration.

## 5.6. Edit 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.

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit Ports / Groups**.
2. Click in the **IGMP Snooping column**, that box you want to enable or disable.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

IGMP snooping is enabled or disabled for the selected group, and saved in the startup configuration.

## 5.7. Edit 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
Yes
No
No
No
No
No

IGMP querier is disabled by default.

**Requirement:** [Connection to the web interface.](#)

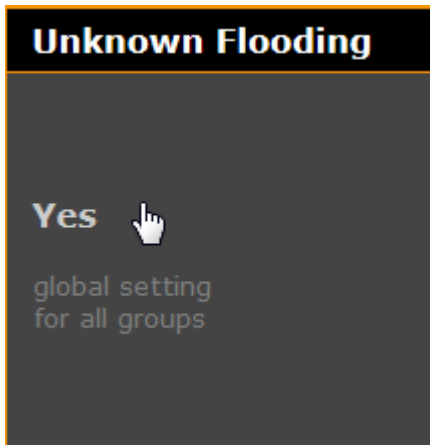
1. Click **Edit Ports / Groups**.
2. Click in the **IGMP Querier column**, that box you want to enable or disable.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

IGMP querier is enabled or disabled for the selected group and saved in the startup configuration.

## 5.8. Edit 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.

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit Ports / Groups**.
2. Click in the column **unknown flooding** at the gray box.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

Unknown flooding is enabled or disabled and saved in the startup configuration.

## 5.9. Change 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 4095.

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.

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit Ports / Groups**.
2. Click **edit** right beside VLAN ID.  
The VLAN IDs are editable.
3. In the **VLAN ID column**, delete the old VLAN ID of the group you want to change, and type in a new VLAN ID.
4. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The new VLAN ID for the group is applied and saved in the startup configuration.



## 6. Presets / Filters

This chapter provides information about the preset and filter options provided through the web interface.

### What are presets?

It is useful to apply presets or filters to ports for a higher network performance or for safety reasons, e.g. to block Telnet.

A preset contains collection of filters.

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:**

Filter will be only applied for outbound 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



**Important:**

Use presets only if a filter function is required. If you use the MA Network Switch in a MA System it is not mandatory to use the grandMA2 preset.

For more information, see [apply presets](#).

For more information about the predefined presets, see [factory defaults](#).

### What are filters?

Instead of using presets, you can use filters. For more information, see [apply filters](#).

Filters are objects consisting of:

- data type
- addressing
- further parameters depending on the data type

There are 43 predefined filters available. To get an overview about the predefined filters, go to the extended mode in the web interface. For more information about the predefined filters, see [factory defaults](#).

If you are a network configuration expert, you can create new presets and new filters. For more information, see [create new preset](#) and [create new filter](#).

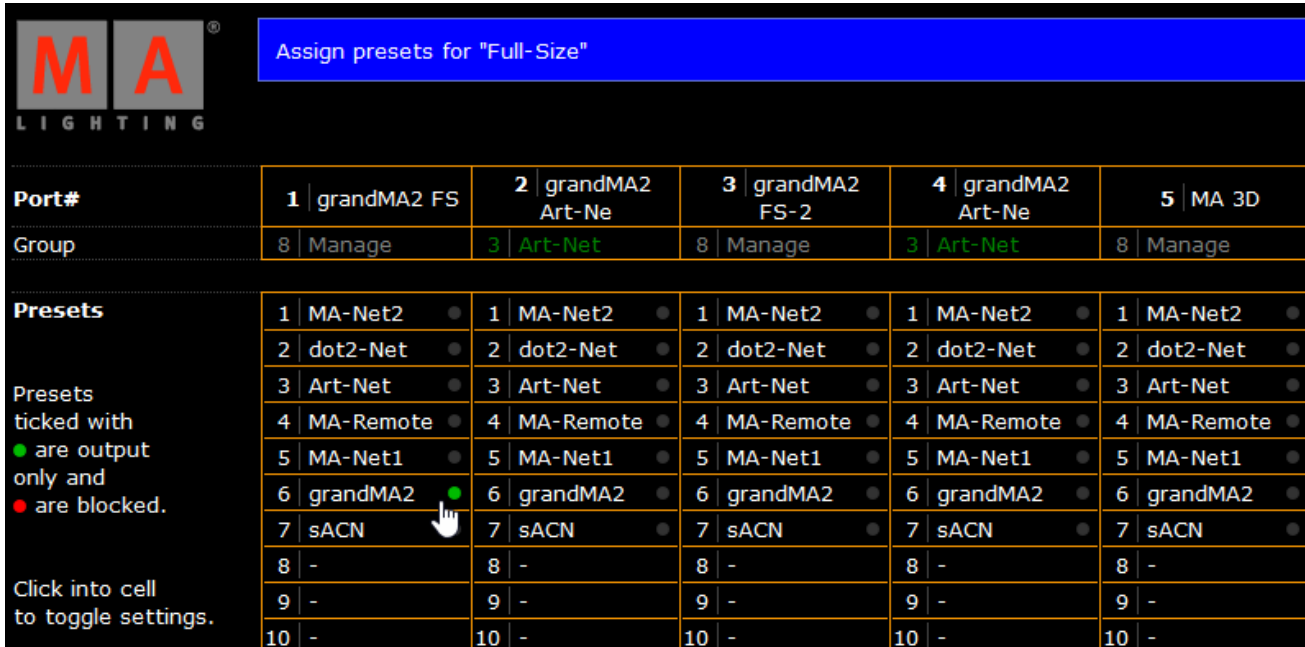
The following table displays the always forwarded filters to provide basic network functionality. These filter cannot be blocked.

Filter	Frame Match
IPMIPv6	IPv6 next-header 58
IPMIPv4	IPv4 protocol nr 1 (ICMP)
IGMP	IPv4 protocol nr 2 (IGMP)
DHCP client	IPv4 UDP port 68
DHCP	IPv4 UDP port 67
ARP	arp

## 6.1. Assign Presets to Ports

You can assign one preset per port.

For general information about presets, see [What are presets?](#).



Port#	1   grandMA2 FS	2   grandMA2 Art-Ne	3   grandMA2 FS-2	4   grandMA2 Art-Ne	5   MA 3D
Group	8   Manage	3   Art-Net	8   Manage	3   Art-Net	8   Manage
Presets	1   MA-Net2 ●	1   MA-Net2 ●	1   MA-Net2 ●	1   MA-Net2 ●	1   MA-Net2 ●
	2   dot2-Net ●	2   dot2-Net ●	2   dot2-Net ●	2   dot2-Net ●	2   dot2-Net ●
	3   Art-Net ●	3   Art-Net ●	3   Art-Net ●	3   Art-Net ●	3   Art-Net ●
	4   MA-Remote ●	4   MA-Remote ●	4   MA-Remote ●	4   MA-Remote ●	4   MA-Remote ●
	5   MA-Net1 ●	5   MA-Net1 ●	5   MA-Net1 ●	5   MA-Net1 ●	5   MA-Net1 ●
	6   grandMA2 ●	6   grandMA2 ●	6   grandMA2 ●	6   grandMA2 ●	6   grandMA2 ●
	7   sACN ●	7   sACN ●	7   sACN ●	7   sACN ●	7   sACN ●
	8   -	8   -	8   -	8   -	8   -
	9   -	9   -	9   -	9   -	9   -
	10   -	10   -	10   -	10   -	10   -

Presets ticked with ● are output only and ● are blocked.

Click into cell to toggle settings.

Figure: Edit Presets

**Requirement:** [Connection to the Web Interface](#).

1. Click **Edit Presets**.

### Information:

If manual filters are assigned to a port, you have to remove the filters first to assign a preset. You can identify that manual filters are assigned, if the presets are written in grey font.

2. To block the output, click once on a preset. Displayed by a red status dot. To allow the output, click twice on a preset. Displayed by a green status dot.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The preset is assigned and saved in the startup configuration. A filter icon is displayed right beside the group name in the front end display.

The assigned preset is visible in the web interface overview in green or red, depending on the selected status.

To remove a preset from a port, click on the preset until the status dot is grey.

To create a new preset, see [Create New Presets](#).

## 6.2. Apply Filters to Ports

Instead of [apply presets to ports](#) you can also apply filters to ports.

If a filter is set to allow, all other network packets not matching this filter, will be blocked.

**Requirement:** [Connection to the Web Interface](#).

1. Click **Edit Presets**.
2. Scroll down to the end of the page and click in the bottom right corner **Extended filter and preset config**.

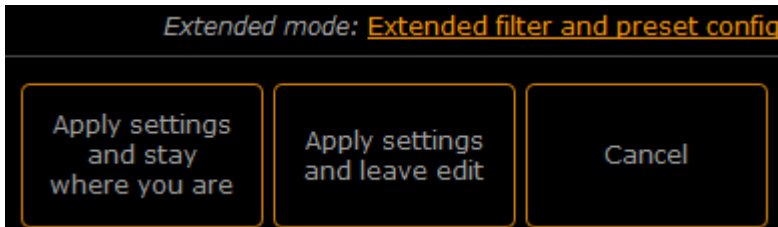


Figure 1: Access Extended Mode

The extended mode opens.

Edit filters directly to ports for "MA Switch"

Port#	1 FS_Fox	2 FS_Fox2	3 FS_DFI	4 FS_DFI2
Group	8 Manage	3 Art-Net	8 Manage	3 Art-Net
Preset	filters applied ●	3 Art-Net ●		

**Filters**

Click into cell to choose filters for the ports.

1	DNS ●	2	DNS ●	3	DNS ●	4	DNS ●
2	NTP ●	2	NTP ●	2	NTP ●	2	NTP ●
3	SSH ●	3	SSH ●	3	SSH ●	3	SSH ●
4	syslog ●	4	syslog ●	4	syslog ●	4	syslog ●
5	AVAHI ●	5	AVAHI ●	5	AVAHI ●	5	AVAHI ●
6	SNMP trap ●	6	SNMP trap ●	6	SNMP trap ●	6	SNMP trap ●
7	SNMP ●	7	SNMP ●	7	SNMP ●	7	SNMP ●
8	KiNet ●	8	KiNet ●	8	KiNet ●	8	KiNet ●
9	Art-Net ●	9	Art-Net ●	9	Art-Net ●	9	Art-Net ●
10	sACN ●	10	sACN ●	10	sACN ●	10	sACN ●
11	MA-Net2 ctrl ] ●	11	MA-Net2 ctrl ] ●	11	MA-Net2 ctrl ] ●	11	MA-Net2 ctrl ] ●
12	MA-Net2 data ●	12	MA-Net2 data ●	12	MA-Net2 data ●	12	MA-Net2 data ●

Figure 2: Extended Mode

**Information:**

To change the filter status from blocked to allow output or vice versa, you need to change the preset status.

**Hint:**

If allow output only is selected, all network packets matching the filter port will be forwarded. If a protocol needs more than one port, you have to apply multiple filters.

3. To change if the filter should allow the output (displayed by a green color) or block the output (displayed by a red color), click on the **preset number** or **preset name** in the header.

Port#	1   FS_Fox	2   FS_Fox2
Group	8   Manage	3   Art-Net
Preset	filters applied ●	3   Art-Net ●
Filters	1   DNS	
	2   NTP	2   NTP

Figure 3: Filters Applied

4. Select the filters for the port by clicking. If a preset was assigned to the port, the preset changes to **filters applied**.

5. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The selected filters are applied and saved in the startup configuration. A filter icon is visible right beside the group name on the front display.

To create new filter, see [Create New Filter](#).

## 6.3. Create New Presets

You can create up to 24 new presets additional to the 7 predefined presets.

If you need more customized presets than 24, you can delete the 7 predefined presets and create in total 31 customized presets.

A created preset contains the applied filters. If you use the same filter assignment frequently, you should save the filter assignment as a preset.

**Requirement:** [Applied Filters to Ports](#).



### Information:

The new preset will be applied for the selected port after saving.

1. Click at the end of the filter list **Save as preset**.

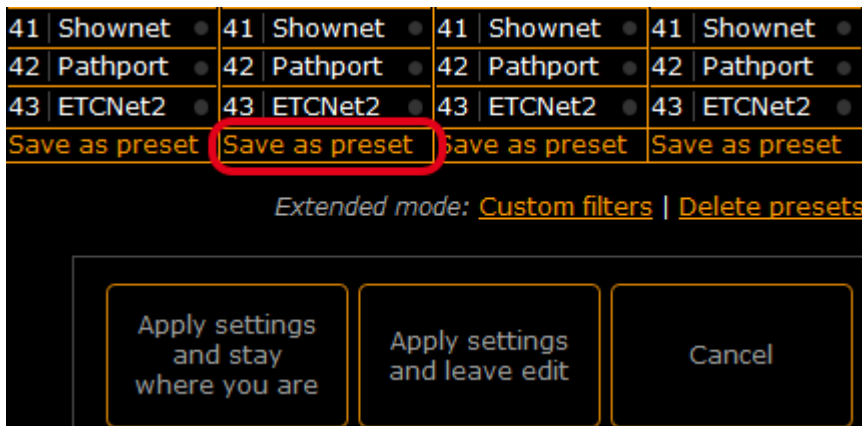


Figure 1: Extended Mode - Save as Preset

2. The save presets pop-up opens.

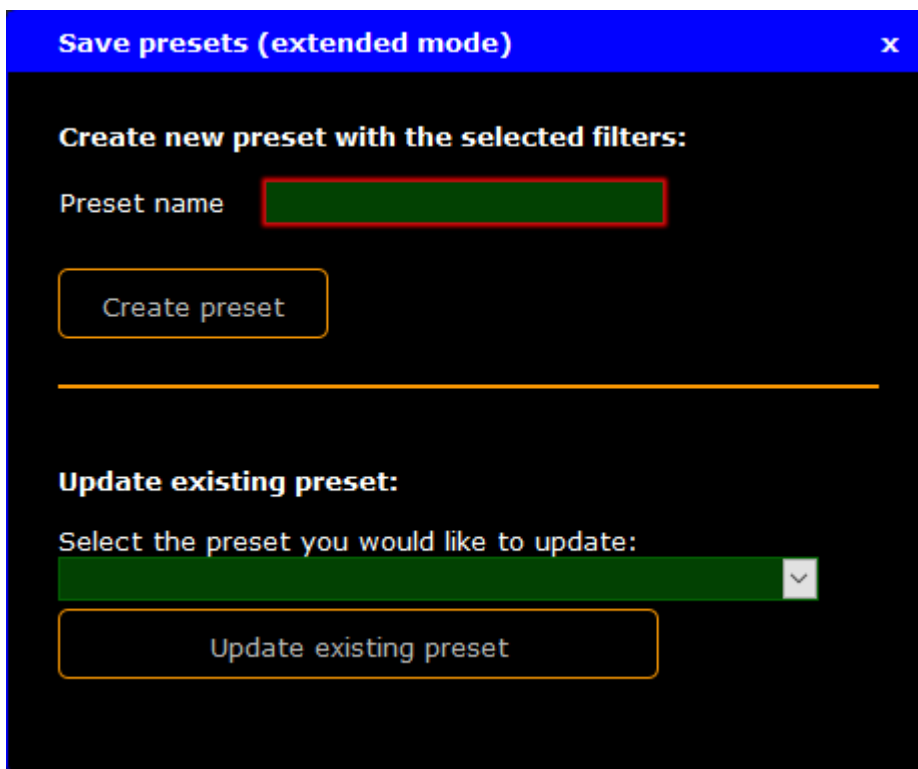


Figure 2: Save Presets

3. Enter a name for the new preset, e.g. Telnet All.
4. Click **Create preset**.

The new preset is created and applied for the selected port. The new preset is saved in the startup configuration. A filter icon is visible right beside the group name on the front end display.

## 6.4. Update Presets

You can modify the filter assignment for existing preset and update them.

**Requirement:** [Applied preset to a port.](#)

1. Click **Edit Presets** and then click **Extended filter and preset config.**
2. Modify the filter assignment for the preset in the assigned port column.
3. Click **Save as preset** at the end of the port column.

The save presets pop-up opens.

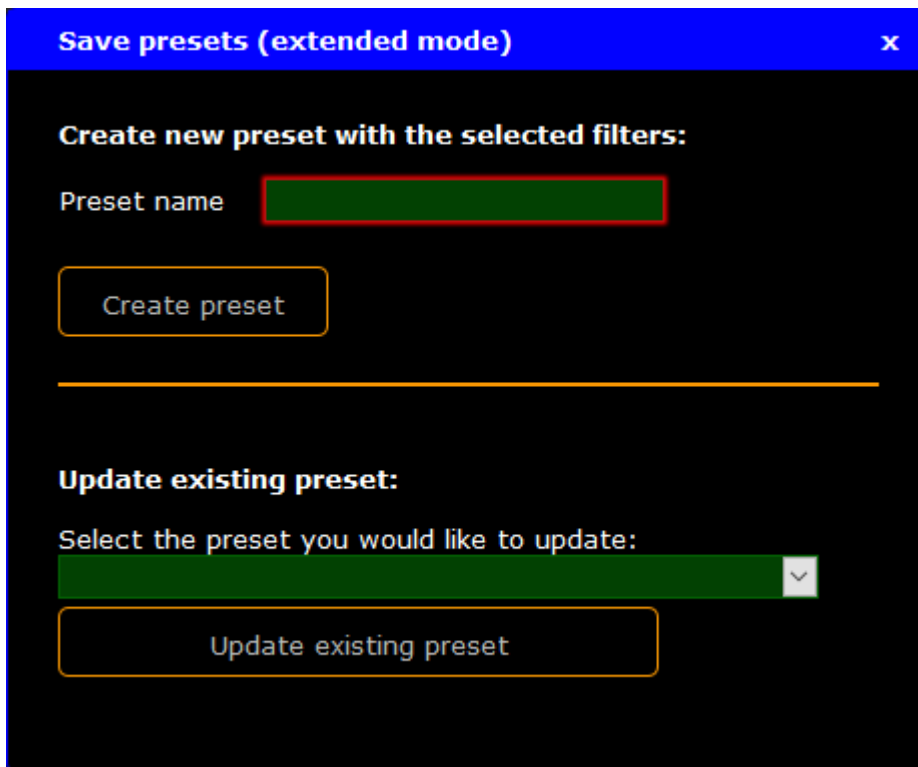


Figure: Update Preset

4. Select in the drop down the preset you want to update.
5. Click **Update existing preset.**

The preset is updated with the new filter assignment and saved in the startup configuration.

## 6.5. Create New Filter

You can create 85 new filters, additional to the 43 predefined filters.



### Important:

The combination of filter name, data type and addressing must be unique for each filter. If this data are not unique, it is not possible to create a new filter.

Open Edit Filters pop-up

**Requirement:** [Connection to the Web Interface](#).

1. Click **Edit Presets**.
2. Click at the bottom right corner **Extended filter and preset config**.
3. Click at the bottom right corner **Custom filters**.

The Edit filter pop-up opens.

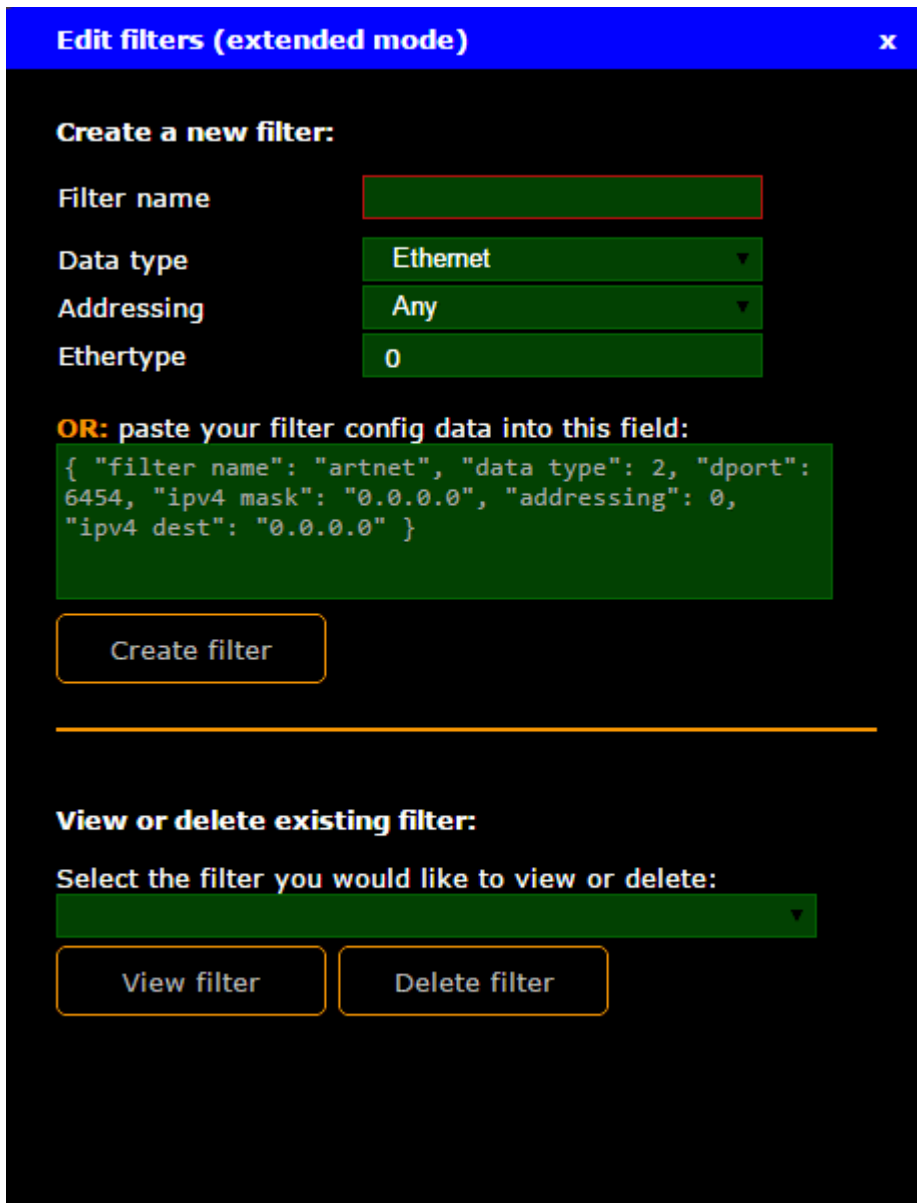


Figure 1: Edit filters pop-up

The edit filters pop-up is open.

## Create Ethernet Filter

To create an Ethernet filter:



1. Open the Edit Filters pop-up.
2. Enter the **Filter name**.  
Each filter name must be unique. The filter name contain letters, numbers, and hyphens (-).
3. Select the **Data type Ethernet**.
4. Select in the drop down if the **Addressing** is
  - Any
  - Unicast
  - Multicast
  - Broadcast
5. Enter the **Ethertype**.  
Valid Ethertypes are
  - 0x600 - 0x7ff
  - 0x801 - 0x805
  - 0x807 - 0x86dc
  - 0x86de - 0xffff
6. Click **Create filter**.

The Ethernet filter is created and visible the end of the filter tables. The filter is saved in the startup configuration.

## Create IPv4 UDP Filter or IPv4 TCP Filter



### Information:

The mask is used to determine the range of the IP destination.

#### Example 1:

IP destination: 192.168.1.129

IPv4 mask: 255.255.255.255

All packets send to IP address 192.168.1.129 match the filter.

#### Example 2:

IP destination: 192.168.1.129

IPv4 mask: 255.255.255.0

All packets send to IP address 192.168.1.0 - 192.168.1.255 match the filter.

To create an IPv4 UDP filter or IPv4 TCP filter:

1. Open the Edit Filters pop-up.
2. Enter the **Filter name**.  
Each filter name must be unique. The filter name contain letters, numbers, and hyphens (-).
3. Select the **Data type**. IPv4 UDP or IPv4 TCP.
4. Select in the drop down if the **Addressing** is
  - Any
  - Unicast
  - Multicast
  - Broadcast
5. Select the **DPort type** (= destination port type). Choose between **Single Port** or **Port Range**.
6. Enter the **DPort** (= destination port number). Valid port numbers are between 0 - 65535.
7. Enter the **IPv4 destination**.

8. Enter the **IPv4 mask**.
9. Click **Create filter**.

The IPv4 UDP or TCP filter is created and visible the end of the filter tables. The filter is saved in the startup configuration.

---

## Create IPv6 UDP Filter or IPv6 TCP Filter

To create an IPv6 UDP filter or IPv6 TCP filter:

1. Open the Edit Filters pop-up.
2. Enter the **Filter name**.  
Each filter name must be unique. The filter name contain letters, numbers, and hyphens (-).
3. Select the **Data type**. IPv6 UDP or IPv6 TCP.
4. Select in the drop down if the **Addressing** is
  - Any
  - Unicast
  - Multicast
  - Broadcast
5. Select the **DPort type** (= destination port type). Choose between **Single Port** or **Port Range**.
6. Enter the **DPort** (= destination port number). Valid port numbers are between 0 - 65535.
7. Click **Create filter**.

The IPv6 UDP or TCP filter is created and visible the end of the filter tables. The filter is saved in the startup configuration.

---

## Create ARP Filter

To create an ARP filter:

1. Open the Edit Filters pop-up.
2. Enter the **Filter name**.  
Each filter name must be unique. The filter name contain letters, numbers, and hyphens (-).
3. Select the **Data type ARP**.
4. Select in the drop down if the **Addressing** is
  - Any
  - Unicast
  - Multicast
  - Broadcast
5. Click **Create filter**.

The ARP filter is created and visible the end of the filter tables. The filter is saved in the startup configuration.

---

## Paste Filter Configuration

If you already have a filter configuration for a new filter, you can paste the configuration data into the field.

**Important:**

You have to use the same style as it is displayed in the configuration data field. Write the configuration in one row. If you are using new lines, the configuration can not be applied.

**Requirement:** [Open edit filters pop-up.](#)

1. Paste the configuration data into the field.
2. Click **Create filter**.

The filter is created and visible at the end of the filter tables. The filter is saved in the startup configuration.

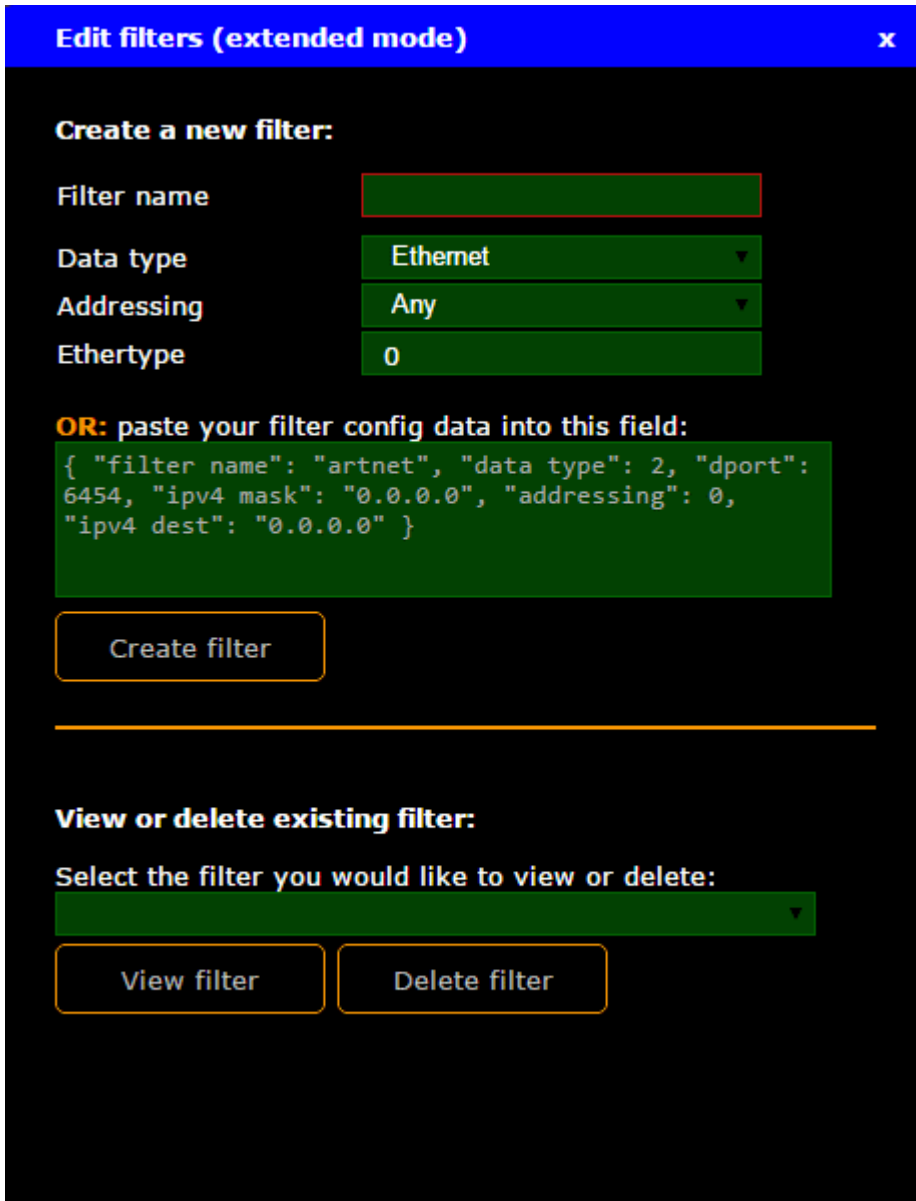
## 6.6. View Filter Data

If you are not sure what data a filter has, you can view the filter data of the existing filters.

**Requirement:** [Connection to the Web Interface.](#)

1. Click **Edit Presets**.
2. Scroll down to the end of the page and click **Extended filter and preset config**.

3. Scroll down to the end of the page and click **Custom filters**.  
The Edit filters pop-up opens.



**Edit filters (extended mode)** x

**Create a new filter:**

Filter name

Data type **Ethemet** ▼

Addressing **Any** ▼

Ethertype **0**

**OR: paste your filter config data into this field:**

```
{ "filter name": "artnet", "data type": 2, "dport": 6454, "ipv4 mask": "0.0.0.0", "addressing": 0, "ipv4 dest": "0.0.0.0" }
```

Create filter

---

**View or delete existing filter:**

Select the filter you would like to view or delete:

View filter Delete filter

Figure 1: Edit Filters pop-up

4. Select the filter you want to view in the drop down.
5. Click **View filter**.

A pop-up opens what displays the filter data.

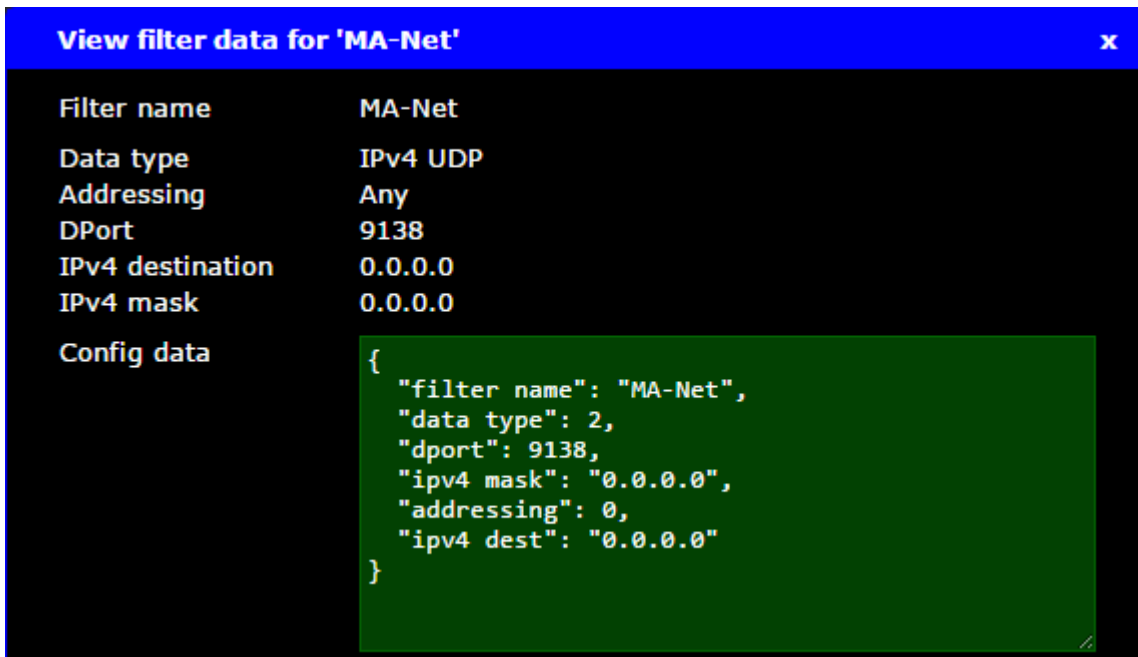


Figure 2: View Filter pop-up

## 6.7. Delete Presets

If you created presets that you no longer use or need, delete them.  
You can delete previous created presets and the predefined presets.



### Warning:

After you delete a customized presets, you can not restore them.  
The predefined presets can be restored by a [factory reset](#).

**Requirement:** [Connection to the Web Interface](#).

1. Click **Edit Presets**.
2. Click in the bottom right corner **Extended filter and preset config**.

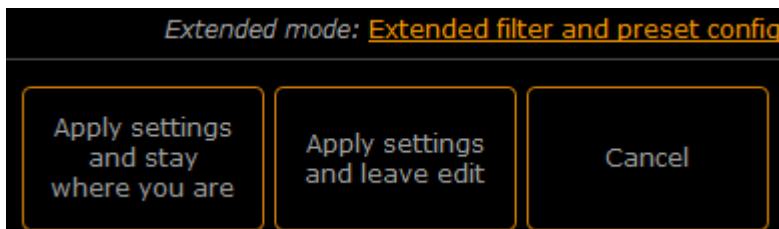


Figure 1: Access Extended Mode

The extended mode opens.

3. Click in the bottom right corner **Delete presets**.  
The delete presets pop-up opens.

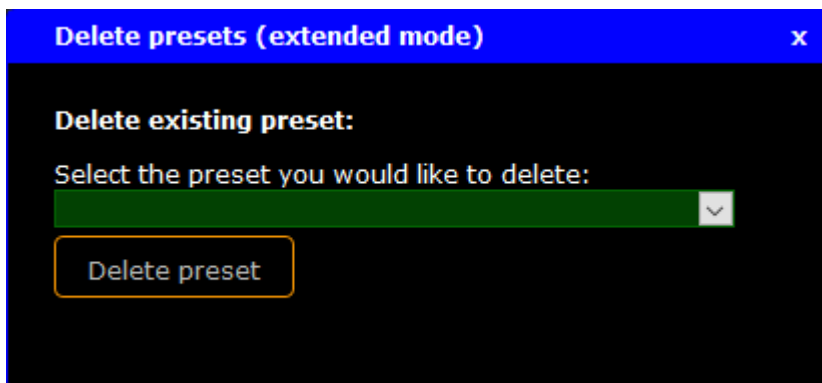


Figure 2: Delete Presets Pop-Up

4. Select in the drop down the preset you would like to delete and click **Delete preset**.  
A warning asks if you really want to delete this preset. Click **OK**.

The preset is deleted from the startup configuration. If the deleted preset was applied to a port, the filters in the preset are still applied to this port.

## 6.8. Delete Filter

If you have created custom filters that you no longer use or need, you can delete them.

You can delete custom filters and predefined filters.



**Warning:**

After you delete a customized filter, you can not restore them.  
The predefined filters can be restored by a [factory reset](#).

**Requirement:** [Connection to the Web Interface](#).

1. Click **Edit Presets**.
2. Scroll down to the end of the page and click **Extended filter and preset config**.
3. Scroll down to the end of the page and click **Custom filters**.

The Edit filters pop-up opens.

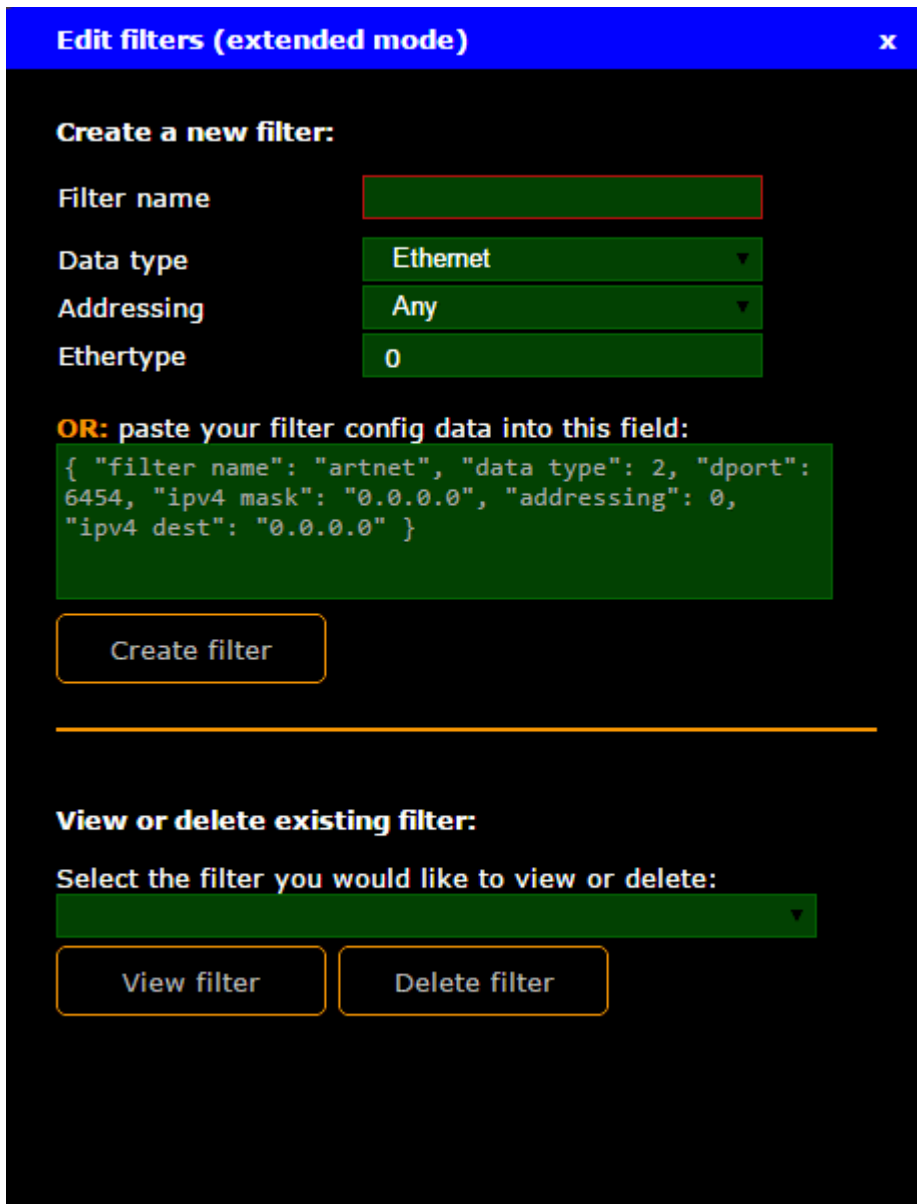


Figure: Edit Filters pop-up

4. Select the filter you want to the delete in the drop down.

5. Click **Delete filter**.

A warning asks if you really want to delete this filter.

**Information:**

If the filter you tried to delete is contained in a preset, a warning asks if you want to delete this filter anyway.

6. Click **OK**.

The selected filter is deleted from the startup configuration.



## 7. General Settings

The following topics describe how to edit the general settings of the MA Network Switch.



The screenshot displays the configuration interface for an MA Network Switch. At the top, a blue header bar contains the text "General settings for 'MA Switch'" on the left and "IP: 192.168.100.33" on the right. The main configuration area has a black background with white text and green input fields. On the left side, there are several settings: "Name:" with a green field containing "MA Switch"; "ID:" with a green field containing "1" and a dropdown arrow; "DHCP client:" with radio buttons for "enabled" (selected) and "disabled"; "Static IP address:" with a green field containing "192.168.100.33"; "Static subnet mask:" with a green field containing "255.255.255.0"; and "Static default gateway:" with a green field containing "0.0.0.0". On the right side, there are four buttons: "Change password", "Update firmware", "Switch configuration", and "Reset ALL settings to factory defaults". A "WARNING!" message is displayed in red text, stating: "This will reset IP address, password and every port to its defaults. The default IP address is shown in the top right corner of the switch display." At the bottom right, there are three buttons: "Apply settings and stay where you are", "Apply settings and leave edit", and "Cancel".

Figure: Edit General Settings

## 7.1. Change Name

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 (\_)

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General Settings.**
2. Enter the new name, e.g. Stage Left.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit.**

The new name is applied and saved in the startup configuration.

The front end display and the title bar of the web interface displays the new name.

## 7.2. Change ID

The ID is used for better identification in the network.

You can change the ID of the MA Network Switch.

The allowed characters are 1...999.

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General Settings.**
2. Enter the new ID, e.g. 2.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit.**

The MA Network Switch has a new ID. The new ID is saved in the startup configuration.

## 7.3. Change DHCP Client

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.

If DHCP is enabled, the settings for static IP address, static subnet mask, and the static default gateway, are not changeable anymore.

The previous assigned IP address will be used if there is no DHCP server available.

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General Settings**.
2. Click under DHCP client **enabled** or **disabled**.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The DHCP client is enabled or disabled. The DHCP settings are saved in the startup configuration.

## 7.4. Change IP Address

You can change the IP address of the MA Network Switch.

The IP address will be used to reach the web interface.

The current IP address is displayed at the upper right corner of the front display and in the title bar of the web interface.



**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](#) to connect to the web interface.

If the computer and the switch are in different subnet, the connection to the web interface 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:** [Connection to the web interface.](#)

1. Click **Edit General Settings**.
2. Type the new IP address in the **IP address field**.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The new IP address is displayed at the front end display of the switch.

The IP address is changed and saved in the startup configuration. To access the web interface, type the new IP address in the **address field** of the browser and press **Enter**.

## 7.5. Change Subnet Mask

You can change the subnet mask of the MA Network Switch.

The subnet mask is used to determine where the network number in an IP address ends and the device number in and IP address begins.

### **Example:**

IP address: 192.168.1.129

Subnet mask: 255.255.255.0

The network number is 192.168.1. The device number is 129.

All devices in the network need to have the same first three blocks, 192.168.1. and the last block needs to be different.

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General Settings**.
2. Type the subnet mask in the **subnet mask field**.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The new subnet mask is applied and saved in the startup configuration.

## 7.6. Change Default Gateway

You can change the default gateway of the MA Network Switch.

The default gateway IP address is 0.0.0.0.

If your network has no specified gateway leave the IP address 0.0.0.0 in it.

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General Settings**.
2. Type the default gateway in the **default gateway field**.
3. Click **Apply settings and stay where you are** or **Apply settings and leave edit**.

The new default gateway is applied and saved in the startup configuration.

## 7.7. Change Password

You can change the password of the MA Network Switch.

The password is necessary to login into the web interface.

The default password is **admin**.

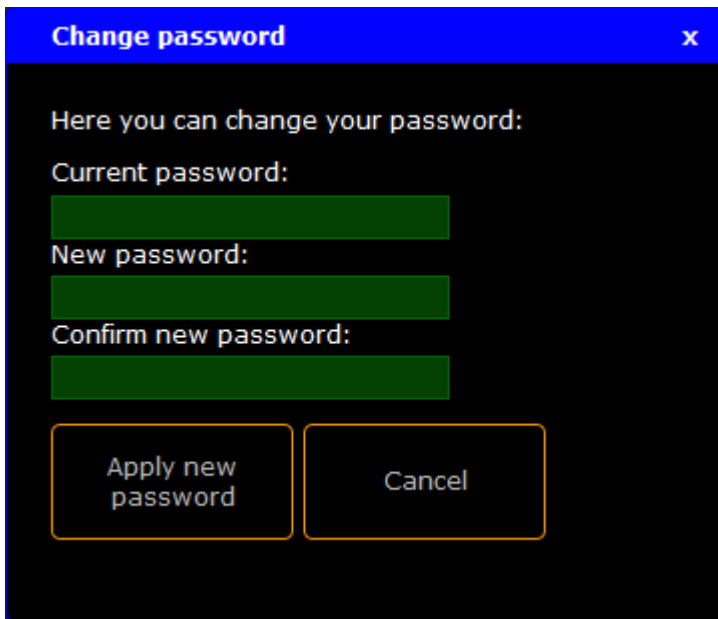


Figure 1: Change Password

The following characters are allowed.

- Upper case letters A...Z
- Lower case letters a...z
- Numbers 0...9
- Spaces, minus (-), plus (+), underscore (\_)

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General Settings**.
2. Click **Change password**.
3. Type the old password, type the new password, type the new password again to confirm it, and then click **Apply new password**.

The new password is applied and saved in the startup configuration. The Authentication Required pop-up opens.

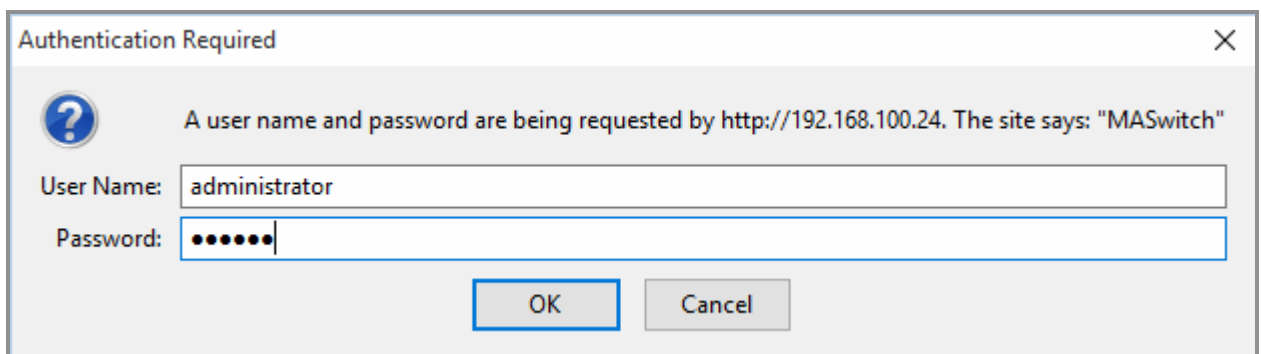


Figure 2: Authentication Required

4. Type the new password and click **OK**.

The password is changed and you are logged in with the new password.

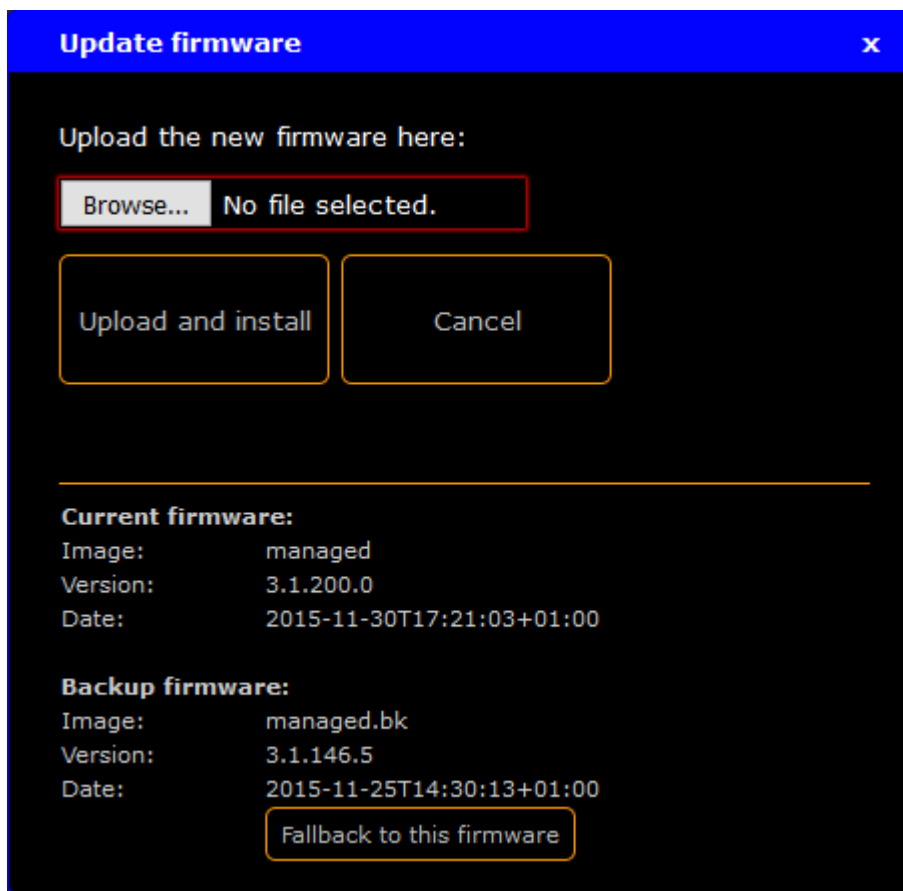
If you have forgotten the password, you can reset the password to the default by a [factory reset](#).

## 7.8. Update Firmware

You can update the firmware of the MA Network Switch.

The current firmware is displayed at the bottom right corner at the front end display of the switch and in the web interface.

Download the latest version of the switch at [www.malighting.com](http://www.malighting.com).



**Requirement:** [Connection to the web interface](#).

1. Download the latest firmware at [www.malighting.com](http://www.malighting.com) and save it.
2. Click **Edit General Settings**.
3. Click **Update firmware**.
4. Click **Browse** and select the .update file of the new firmware.
5. Click **Upload and install**.

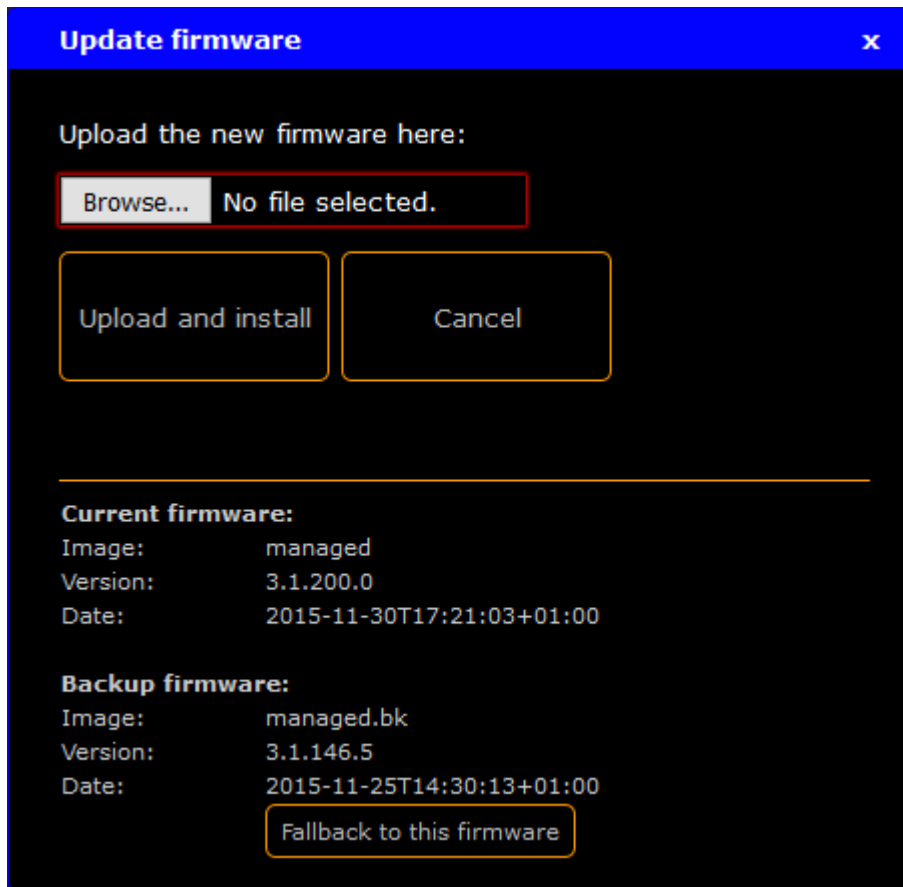
The switch is updating and reboots. This can take up to 5 minutes.

## 7.9. Fallback to Backup Firmware

You can downgrade the firmware of the MA Network Switch to the previous firmware version.

The current firmware is displayed at the bottom right corner at the front end display of the switch and at in the web interface.

We recommend, that the switches in the same network always runs the same firmware.



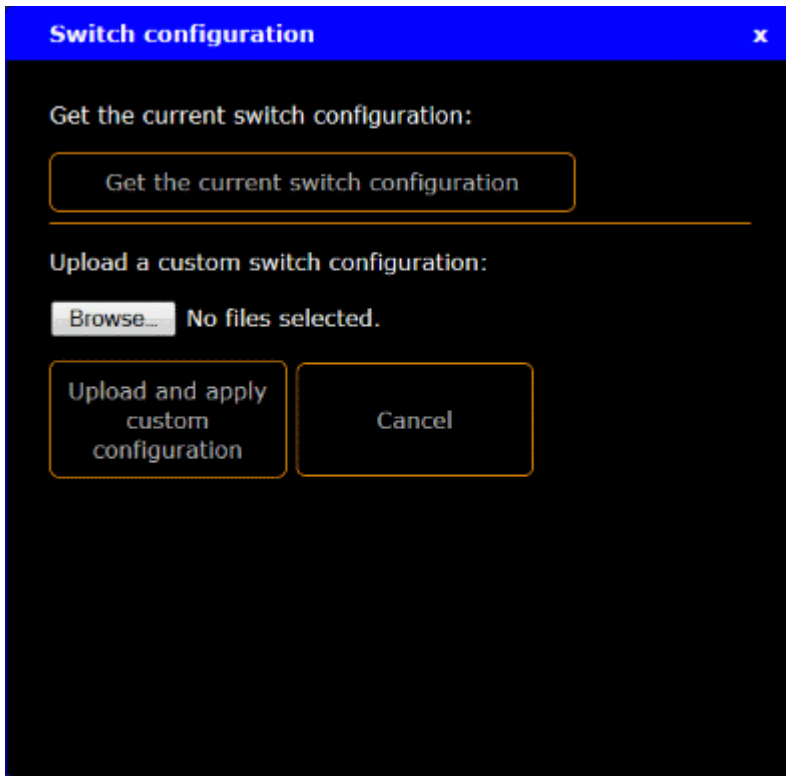
**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General Settings**.
2. Click **Update firmware**.
3. Click **Fallback to this firmware**.  
A warning asks if you want to restore the current firmware to the backup firmware.
4. Click **OK**.

The MA Network Switch is installing the backup firmware and reboots.

## 7.10. Get Switch Configuration

The configuration is the customized set of parameters that you have selected to run the switch. You can export the current switch configuration for later import. This is useful if the same configuration must be used in multiple switches.



**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General Settings**.
2. Click **Switch configuration**.
3. Click **Get the current switch configuration**.  
A browser window opens.
4. Click **Save File** and **OK**.  
Depending on the browser settings, the browser asks to choose the folder.  
You can also rename the file.

The switch configuration is downloaded and saved as a config.json file or the given file name, for later upload. For more information to the upload, see [Upload Switch Configuration](#).

## 7.11. Upload Switch Configuration

You can upload a previous exported switch configuration, or parts of switch configuration. This is useful if you have to configure several switches with the same configuration.



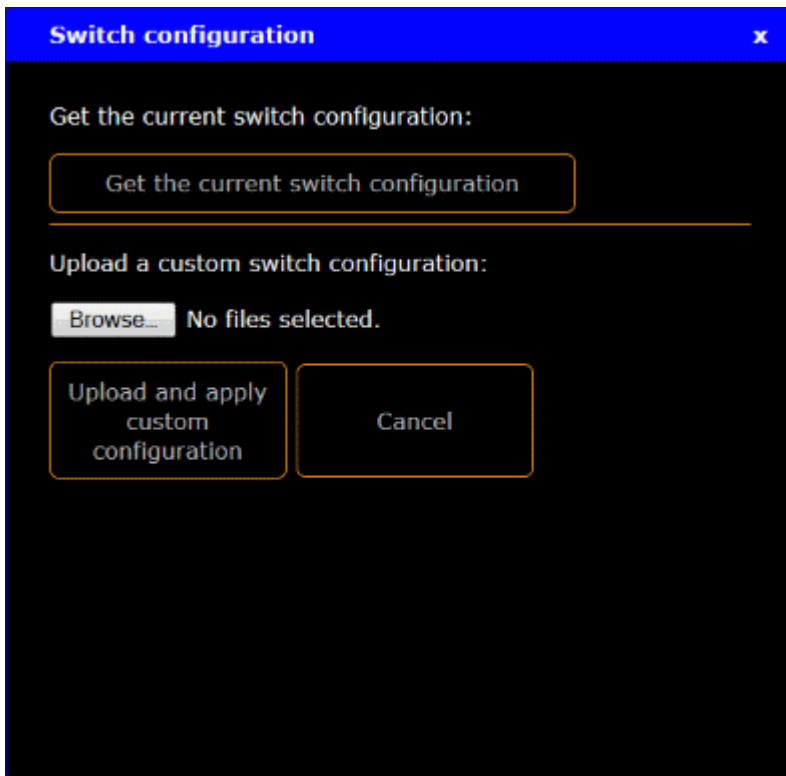


Figure 1: Switch Configuration



**Important:**

The configuration file has to be written in a JSON (JavaScript Object Notation) data format. If it 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.

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General Settings**.
2. Click **Switch configuration**.
3. Click **Browse**.  
The explorer opens.
4. Select the switch configuration for upload.
5. Click **Upload and apply custom configuration**.  
A warning asks if you really want to apply the configuration.

6. Click **OK**.

The switch configuration is uploading. The update screen opens.

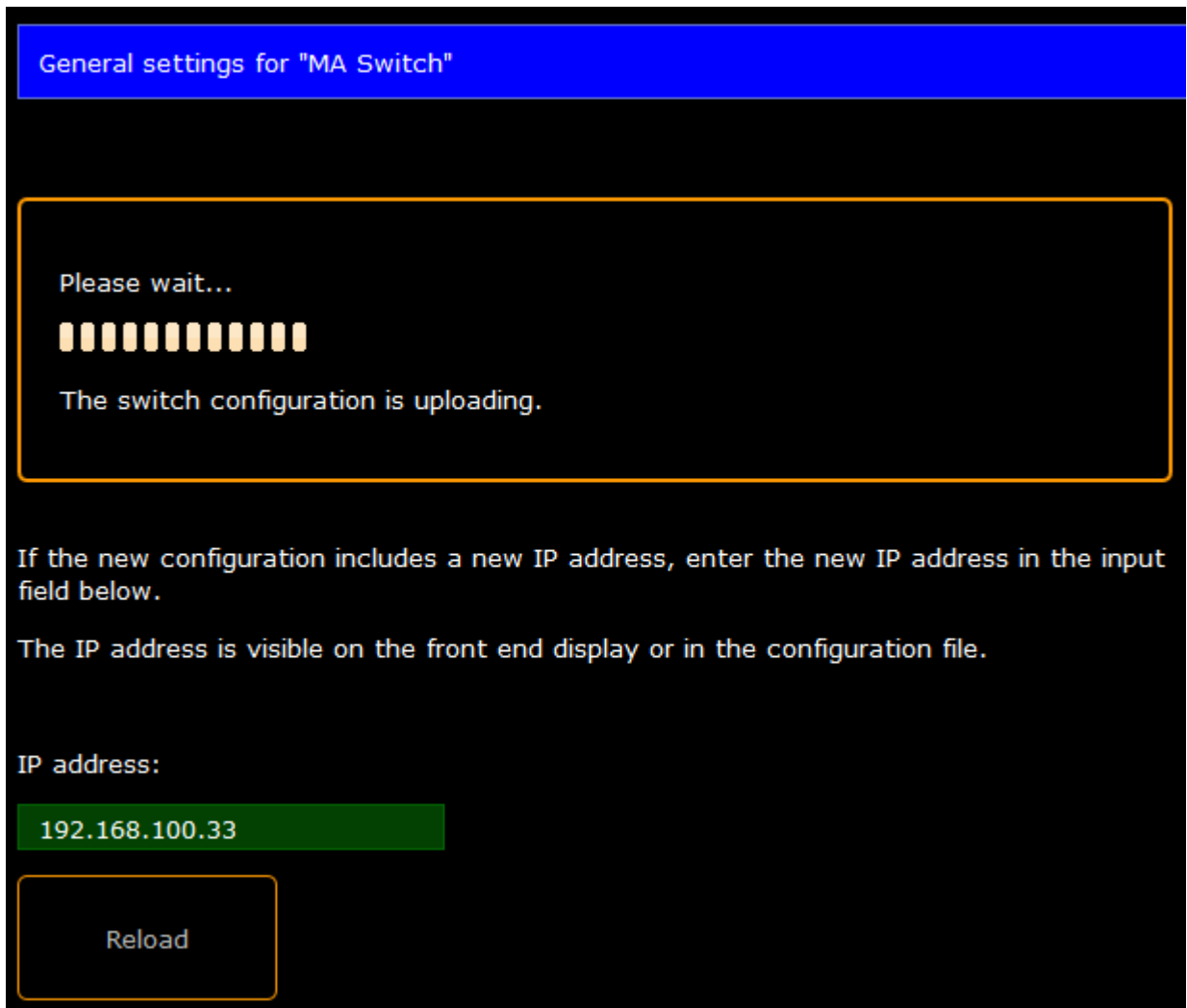


Figure 2: Update Screen

The update process can take about 60 seconds.

7. Follow the screen instructions and click **Reload**.

The switch configuration is uploaded and saved in the startup configuration.

## 7.12. Reset Settings

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, [factory defaults](#) 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.

### Use the Web Interface

**Requirement:** [Connection to the web interface.](#)

1. Click **Edit General settings**.
2. Click **Reset ALL settings to factory defaults**.  
A warning asks if you are really sure to reset to factory default.
3. Click **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](#).

### Use the Menu Button

1. Press the **menu button** on the switch for at least 5 seconds until the reset screen appears.
2. Press the **menu button** again for at least 5 seconds until the booting screen appears.

The MA Network Switch turns off and restarts. All settings are set back to the [factory defaults](#).

## 8. Specifications

### Connectivity

Network	9 x 10/100/1000 Mbps shielded Neutrik etherCON connectors 1 on the front, 8 at the rear
	4 SFP cages (mini-GBIC) 2 at the rear, 2 inside the MA Network Switch
Power	1 x Neutrik powerCON In

### Switch Features

RSTP	Yes
Groups (=VLANs)	Yes
Fan	2
Ethernet Compliance	IEEE 802.3, IEEE 802.3u, IEEE 8023x Flow Control, IEEE 802.3ab Gigabit Ethernet
Supported Protocols	MA-Net2, MA-Net, sACN, Art-Net, and many more. IEEE 802.1p CoS (Class of Service) DiffServ (DSCP) IEEE 1588 PTP V2
Sound Protocol Compliance	Yes, Low jitter
Ethernet Switch Type	Full non blocking wire-speed switching performance
Memory	4Mb
MAC Address Table	8912 Entries
Address Learning / Aging	Self learning, Auto aging
Switching Throughput	32Gbps
IGMP Support	Yes
IGMP Snooping	Yes

## Port Features

Port Sensing	Auto negotiation
Auto Crossover	MDI / MDIX (allow to use straight or cross wired cable)
Auto Sensing	Full or Half Duplex (Gigabit is Full Duplex)

## Status Reports

Front End Display	Yes
Ethernet Port Connection	Link, Group
Ethernet Port Speed	100/1000Mbps LED
Device	Status LED (Green/Red)
Power	Status LED (Green/Red)

## Management

Configuration	Through the web interface.
---------------	----------------------------

## Power Input

Power Input	100 - 240VAC 50 - 60Hz
Power Consumption	Maximum 1A

## Environmental

Operating Temperature	0 °C to +45 °C 32 °F to 113 °F
Storage Temperature	-10 °C to +60 °C 14 °F to 140 °F
Humidity (non condensing)	20% to 80% relative humidity

## Physical

Enclosure	Metal housing
Dimensions (W x D x H)	483 x 233 x 43 mm 19" x 9,17" x 1,69"
Weight without optical fiber connector	3,5 kg 7.7 pounds
Weight with optical fiber connector	3,7 kg 8.2 pounds

## Approvals

CE	Yes
EN 55103-1	Yes
EN 55103-2	Yes
EN 60950-1	Yes
RoHS Compliance	Yes

## 9. Support

### Access the Help

To access the help, click at the bottom right corner in the web interface,

- with no internet access, click **Help (PDF)**. The help pdf opens.
- with internet access, click **Online help**. The online help opens.

### MA System Specialist Training

To become a MA System Specialist visit the MA University.

The MA System Specialist Training gives you information about complex networking constructions e.g. with lighting panels, specifics of the MA system, or specifics of networks in the lighting world, see the [MA System Specialist Training](#).

### 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 e-mail (in English or German) to [tech.support\(at\)malighting.com](mailto:tech.support(at)malighting.com) with your contact details and subject information. This e-mail 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, this 24/7 hotline is strictly for emergency cases – for people being in trouble out in the field.**

## 10. Glossary

### A

#### **Art-Net:**

Art-Net 3 Ethernet communication standard. A protocol for transmitting the lighting control protocol DMX 512-A over the User Datagram Protocol of the Internet Protocol suite.

#### **ARP** (= Address Resolution Protocol):

A telecommunication protocol used for resolution of network layer addresses into link layer addresses, a critical function in multiple-access networks. To create ARP filter, see [Create New Filter](#).

### 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.

### E

#### **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.

### G

#### **Groups:**

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.

### 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.

### K

#### **KiNET:**

A protocol used by Color Kinetics to control their LED fixtures and power supplies.

### 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. For more information, see [Edit RSTP](#).



## M

### **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.

### **Mbps** (Megabit per second):

Unit of data transfer rate. The data transfer rate of the etherCON ports is 10/100/1000 Mbps.

### **Mini-Gbic** (Gigabit Interface Converter):

A transceiver that converts electric currents (digital highs and lows) to another signal types. Mostly optical signals. The Gbic is typically employed in fiber optic and Ethernet systems as an interface for high-speed networking. The data transfer rate is one gigabit per second (1 Gbps) or more.

There are two Mini-Gbic cages at the rear panel and two inside of the MA Network Switch.

## R

### **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.

## S

### **sACN** (streaming Architecture for Control Networks)

ANSI E1.31-2009. A protocol to transport DMX512 data over IP networks.

### **SFP** (Small form-factor pluggable):

A specification for a new generation of optical modular transceivers. The devices are designed for use with small form factor (SFF) connectors, and offer high speed and physical compactness.

### **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.

## T

### **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.

## V

### **VLAN** (Virtual local-area network):

Refer to, [Groups](#).

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