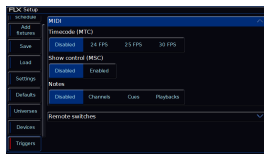


Triggers



The “Triggers” tab within Setup allows you to configure any triggers entering the console.

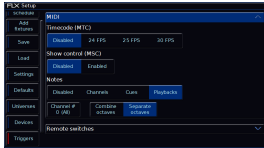
Click on the different methods of triggering ZerOS consoles to find out more...

- [MIDI Timecode \(MTC\)](#)
- [MIDI Show Control \(MSC\)](#)
- [MIDI Notes](#)
- [CAN](#)
- [Remote Switches](#)

MIDI Notes

A MIDI signal can be connected to your console using 5 pin DIN connectors, inserted into the MIDI Input port. There is also a MIDI Thru port, which can be used for daisy chaining other MIDI devices in your system. ZerOS does not support MIDI over USB protocols, and therefore to connect to software packages you may need a USB to MIDI interface box.

The Zero 88 team use the [MOTU FastLane USB MIDI interface](#) for testing and demonstrations using [QLab](#).



ZerOS supports the MIDI Notes protocol input. In the Triggers tab of Setup, you can define whether these Note commands trigger Channels, Cues or Playbacks.

After choosing Channels, Cues or Playbacks, select the MIDI Notes Channel number. This is essentially your console's MIDI address, so that if you have multiple devices listening to a MIDI Notes source, your console can be unique.

You can then use a MIDI Notes source, to send a Note Number, and that Note's velocity. MIDI Notes sources could be a software package running on a computer (with an appropriate USB to MIDI interface), or could be a MIDI button bank, or MIDI keyboard.

Channels

MIDI Notes information controls channel levels which are mixed HTP with the channel outputs. Velocity information from the Note-On commands is used to determine the fade up time, and velocity information from the Note-Off commands is used to determine the fade down time. The Note Number controls the console fixture number. A Velocity of 0 will not trigger the channel. A velocity of 1 will give a 5 second fade time to full, and as the velocity is increased, this will shorten the fade time, until you reach a velocity of 127 which will Snap.

Cues

A MIDI Note On command, will trigger the same cue number as the note number. For example a MIDI Note On of Note Number 10, will trigger cue 10. The playback used is the currently viewed/selected playback. Programmed Fade times are used, and velocity information is ignored.

MIDI Notes only allows for whole note numbers. Therefore if you have point cues you wish to trigger, you will need to renumber the cues in the playback. To do this hold SETUP and tap the playback's button, and from the settings choose Advanced -> Renumber.

If you wanted to simply emulate a Go button press with the same MIDI Note command, you can do this through programming a Macro.

Firstly, program a macro that presses your Go button. You can do this by tapping RECORD MACRO x ENTER (where x is an empty macro number) -> Keys -> Press your Playback's Go button -> MACRO. Now, view an empty playback, and program an empty cue. Go into this cue's settings -> Macros... -> Macro Add -> Choose your Macro -> OK -> OK. Now, whenever you send a MIDI Note 1 command and you are viewing this playback with a single macro trigger, it will emulate a Go button press of your main cue stack.

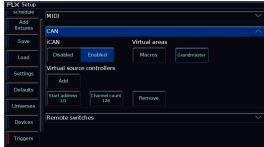
Playbacks

MIDI Notes controls playback levels which are mixed HTP with physical fader positions to control the level of the playback. Velocity information from the Note-On messages is used to determine the fade up time, and velocity information from the Note-Off commands is used to determine the fade down time. MIDI Note 0, will trigger playback 1, and so on. Notes are therefore mapped 0:1 with playbacks. Velocity of 0 will not trigger the playback. A velocity of 1 will give a 5 second fade time to full, and as the velocity is increased, this will shorten the fade time, until you reach a velocity of 127 which will Snap.

CAN

ZerOS Servers are available in CAN variants. ZerOS Servers with CAN are able to accept iCAN triggers from architectural lighting networks, to control DMX lighting networks.

This is done using the green phoenix connector on the rear of the server. If your ZerOS Server has a blanking plate instead of a green iCAN connector, CAN settings will be hidden from the Triggers tab of Setup.



CAN will be enabled by default on ZerOS Servers with CAN. When enabled various iCAN settings can be changed.

CAN Virtual Areas

The iCAN protocol sends "Area" number commands and "Scene" number commands. Areas can be mapped to Macros, the Grand Master, or Playbacks.

Grand Master

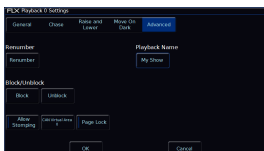
The Grand Master can be assigned a virtual Area Number from the Triggers tab of Setup. Scene Modify messages can be used to alter the current Grandmaster level (Latest Takes Precedence with the physical fader).

Macros

Macros can be assigned a virtual Area Number. Macros will be triggered when receiving the relative Scene Number from within the defined Area (Scene 1 = Macro 1 etc.). The Macro Virtual Area can be set in the Triggers tab of Setup.

Playbacks

Each Playback has the option of adding a CAN Virtual Area. This can be added once at least one cue has been recorded into a Playback. To map an area number to a playback, go into the playback settings.



To open the settings of a playback press and hold Setup and tap the playback's button. Then choose Advanced from the top and enter a number into 'CAN Virtual Area'.

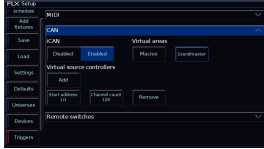
Scene messages will trigger the relative cue within that playback (Scene 1 = Cue 1 etc.). This means a Scene 0 will trigger cue 0 of that playback, turning off any active cues in the playback.

Select Next Scene and Get Current Scene commands are also supported. If an Alarm Set is received, Cue 132 will be triggered. If an Alarm Clear is received, Cue 1 will be triggered.

An Area number of 0 means the playback will not be triggered by iCAN.

Virtual Source Controller

ZerOS Server can be configured to emulate a Source Controller. This allows DMX from ZerOS Server to be controlled as 'physical channels' of one or more virtual source controllers. Normal source controller operations of programming and outputting scenes are supported.



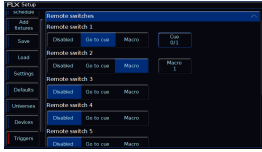
To do this, CAN must first be enabled within the Trigger tab of Setup. In the CAN settings of the Triggers tab, virtual Source Controllers can be created by pressing "Add". Each virtual Source Controller requires a DMX Start Address and a number of Channels. Only create Source Controllers you intend to use, as large channel counts can take long periods of time to be read into iCAN Soft. Behaviour from this point forward is as per any physical Source Controller on an iCAN network—scenes can be programmed via iCANsoft and can be triggered via iCAN messages.

Intensity Mixing

ZerOS fixtures, patch, and other fixture settings are not applied to the Source Controller Emulation. Source Controller Emulation only has access to direct DMX addresses. When both the Source Controller Emulation and ZerOS Desk Interface are being used together, operation is completely separate until the DMX is generated. At this point, ZerOS performs a Highest Takes Precedence (HTP) mix on the outputs. This means that a DMX channel will be outputted at whichever value is highest between ZerOS Desk Interface and CAN Source Controller Emulation.

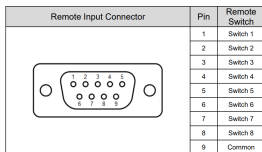
Remote Switches

There are 8 close-contact remote switches available. These can be wired in and configured to trigger either a specific cue or a macro when the circuit is made.



For each switch, choose between Disabled, Go to Cue, or Macro.

For Go to Cue, you can then type x/y, where x is the playback number and y is the cue number. Cue 0 of a playback can be triggered as a way to release it.



A 9 pin D-sub connector providing 8 remote switches (common ground) can be found on the rear of the console. Short pin 1-8 to pin 9 (common) to simulate a button push.

As well as the close contact input on the rear of the console triggering these remote switches, keyboard shortcuts can too. Ctrl-F1 to Ctrl-F8 will mimic a press of Remote Switch 1 through to 8, giving you 8 keyboard hotkey functions.

MIDI Timecode

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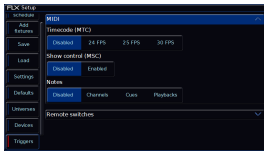
MIDI Timecode (MTC) is a clock signal, with time given in Hours:Minutes:Seconds:Frames. Any cue across any playback can be assigned a Time Code stamp, meaning that when this clock time is received from a MTC clock source, this cue will be triggered. This is configured by opening the settings of the cue you would like to trigger, and from the Trigger drop down menu choose MIDI. You can then define the time, and click OK.

[Click here to find out more.](#)

MTC has the option to be streamed in 24 fps (frames per second), 25 fps, and 30 fps. When a MTC signal is present, ZerOS will automatically detect the frame rate. If you wish to define timings before a clock signal is present, tap **Setup** -> **Triggers** -> Time Code, and choose the frame rate.

To see the incoming MIDI clock signal, view a playback, and along the bottom of the cue list you should see "Realtime" displayed in the status bar. Press this, and this will take you to your MIDI Time Code clock.

To use MIDI Timecode (MTC), there needs to be a MTC clock source, which is commonly a software package such as QLab running on a computer. The MTC clock source is typically started on a computer at the same time as an audio track, to allow lighting, sound, and other departments, to be synchronised.



The MIDI Timecode frame rate can be configured in the Triggers tab.



Watch this quick video for an introduction to time codes

<https://youtu.be/zczQimvjsR8>

If you wish to Timecode cues to multiple songs, it is common to record each song as a separate playback, containing all the lighting states required for that song. In each cue's settings, you can then put the MTC time stamp this cue needs to run at. A common way to do this, is start each song at a new hour. Therefore track one outputs timecode at 1:00:00:00, song two at 2:00:00:00 and so on.

MIDI Show Control

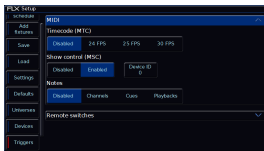
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The MIDI Show Control (MSC) protocol is a suite of messages that can be used to trigger lighting cues. The MSC source is often a computer software package, with a USB to MIDI interface. MSC can be used to trigger the lighting in sync with other media (such as sound & video). MIDI Show Control will only trigger cues on the Master Playback.

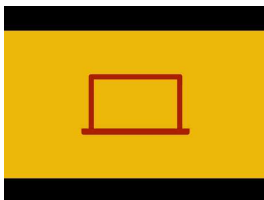
Commands supported by ZerOS are:

- Go - Go will by default trigger the next cue using its fade time, however the next cue can be defined.
- Stop - Stop will Pause the Master Playback.
- Load - Allows you to define the next cue.
- All_Off - Blackout
- Restore - Turn Blackout off (opposite of All_Off).
- Reset - Go to cue 0.



To enable MIDI Show Control, go into Setup, and enable MIDI Show Control. You can then define the MIDI Device ID, which by default will be 0. The MSC source can "tag" a MSC message with a Device ID, so that only the device with the defined ID in the MIDI daisy chain will listen to the message - a little bit like a DMX address in a DMX daisy chain.

If you choose a Device ID of 127, ZerOS will listen to all Device IDs.



<https://youtu.be/KxiClIvAvyk>

Watch the quick video for an introduction to MIDI Show Control.

[To see the incoming MIDI Show Control commands, go to the Event Monitor window. Click here to find out more.](#)