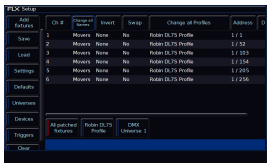
Setup

To enter Setup, press the Setup key on the front panel. Whilst within Setup, the LED in the Setup key will be lit. Navigate through Setup using the column of options on the left hand side of the screen. To exit Setup, press the Setup key again.

Find out more about each Setup tab...

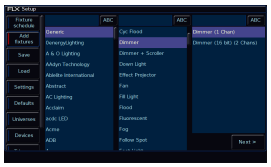
Fixture Schedule



The fixture schedule, lists all of the fixtures currently in your show, and allows you to edit them in various ways. The fixture schedule is automatically displayed after patching fixtures, and is the first window that opens upon tapping Setup, which opens ZerOS Setup.

For more information on the Fixture Schedule, click here to head to the Patching chapter.

Add Fixtures



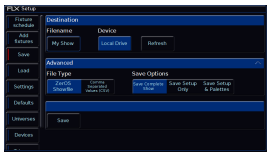
Add Fixtures, allows you to find the fixture you need from the console's fixture library to then patch into the console.

For more information on Add Fixtures, click here to head to the Patching chapter.

Save

Consoles in the FLX range will save the show automatically to their internal memory at regular intervals. External copies of the show data can be saved to a USB storage device.

> It is highly recommended to save external backups regularly – especially when leaving the console unattended for any amount of time.



To save the show, press Setup and then choose Save on the left hand side of the display.

If you have more than one USB storage device connected, first select the required device from the list under “Device”. If the device does not appear straight away, wait a few seconds and then click *Refresh* .

Tap the “Filename” button to type the show name using the onscreen keyboard and press Enter or *OK* . Press *Save* to save the show. After saving the show you can then press Setup to exit Setup if required.

Advanced

ZerOS is able to save shows in different file formats. Which file type you choose depends on what you plan to do with the show file. Choosing the correct file type is crucial.

ZerOS Show file

This is the default option, and should be used in most circumstances. These can be loaded back into the console or loaded onto any other console running ZerOS. For ultimate compatibility, it is suggested that both consoles are running the same software version.

When selecting *ZerOS Showfile* , you are given the option to Save Complete Show, Save Setup Only, or Save Setup & Palettes:

Save Complete Show : This option ensures all of the available information in the console, including setup options, patch, cue and palette data is saved in the show file. This file can then be reloaded at a later date to return the console to the same state as it was in when you saved it.

Save Setup Only : This option saves your console's patch, and all the configuration in Setup including network settings. It will not include any programming that may have been done outside of Setup.

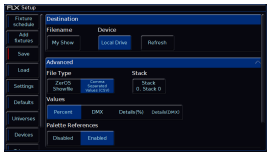
Save Setup & Palettes : This options saves everything EXCEPT Cues, UDKs and Macros.

It is recommended that you choose *Save Complete Show* , which is the default option.

ZerOS Show Files are saved with the file extension .zos

Comma Separated Values (CSV)

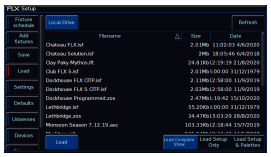
This saves the information into a text file that can be imported into most spreadsheet applications to get a print out of all the cues and the values of each fixture in each cue. These values cannot be loaded back into FLX or any other ZerOS console.



When selecting Comma Separated Values (CSV) you are given the option to select which Playback stack you wish to export (only one can be chosen at a time). You can then choose whether the fixture's parameter values are displayed as “Percentage”, “DMX Values“ “Details(%)” or "Details(DMX)". You can also choose if Palette References are included or not (palette references will display the palette used to change that value, rather than the value itself).

Once you have saved a copy of your show file, you can then use the quick save function to periodically create backups to USB. Click here for more information.

Load



The Load tab of Setup is used to load in various file types from a connected USB drive.

The option at the top of the window allows you to choose your USB storage device to load from. If your USB storage device doesn't appear, tap Refresh. You should then see a button for your USB drive, displaying its drive label.

The Filename, Size and Date columns, can be sorted, by tapping the column headers. This sorting choice will be remembered and recalled the next time you enter the Load menu. The first file in the list will be automatically selected, allowing you to quickly tap Load to load it.

The Date column is not shown on FLX S, as FLX S consoles do not have an internal clock.

On FLX, you can click on a file, and use the up/down arrows to navigate through the list of files.

The following file types can be loaded...

- ZerOS Show Files
- ASCII Show Files
- Fixture Files
- ZerOS Library
- ZerOS Software

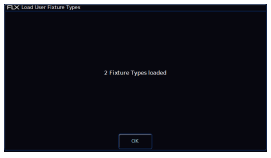
Fixture Files

If the fixture you need to control is not included in the latest ZerOS Library, don't worry! There are many options available to you to gain control of your fixture.

Click here for more information on what to do if your fixture is missing from the ZerOS Library

If you have a fixture file for a missing fixture, it can then be loaded into the console.

When you have a fixture file on a USB drive, plug the USB drive into the console. Then tap Setup -> *Load* , and choose the fixture file to load in from USB.



Once loaded, a confirmation will appear saying “x Fixture Types loaded” (x being the number of fixtures included within the single file).

Upon pressing OK, you will be taken to Add Fixtures, with your loaded fixtures "pinned" to the top, to allow you to quickly patch them.

See the Patching chapter for more information.

Fixture files come in three different formats:

- .zfix
- GDTF
- .ift

.zfix

If you export a fixture from your console it will be saved as a .zfix file. zfix files are in the same format as fixtures in the ZerOS Library, and so will be displayed like a normal library fixture in Add Fixtures and the Fixture Schedule. .zfix files may occasionally be provided by the Fixture Support team.

Click here for more information on Editing & Exporting fixtures from Add Fixtures

GDTF

GDTF, jointly developed by the GDTF Group, is an industry standard for entertainment fixture profiles, intended as a unified definition for the exchange of data for the operation of intelligent luminaires. A GDTF file for a specific fixture can be downloaded from the fixture manufacture's website, or GDTF Share, and loaded into the console.

Click here to head to the GDTF Share

Fixtures from manufactures who do not provide GDTF files can be built using the GDTF Builder online tool. This tool is the primary way to make comprehensive fixture personalities, including multicell fixtures.

Click here to access the GDTF Builder

GDTF fixtures may feature control parameters greater than 16bit. ZerOS will convert these parameters to 16bit when loading the fixture file.

.ift

The Windows Fixture Editor software can be used to create fixtures in the .ift format. These are custom fixture files, and will be displayed in red in Add Fixtures and the Fixture Schedule.

Click here for more information on the Windows Fixture Editor

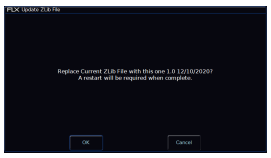
ZerOS Library

ZerOS software, will contain the latest ZerOS Library as of the date that version of ZerOS software was released. However, ZerOS Library is updated more regularly than ZerOS software, and so ZerOS Library files can be loaded into the console.

Click here to download the latest ZerOS Library file

Once downloaded, copy the library to the root of a USB stick, and plug into the console. You will then be able to tap Setup -> *Load* , and choose the library file to load in.

Contained in ZerOS Library, is the fixture library, auto effects, and Art-Net OEM codes. ZerOS Library will use the file extension .zlbr



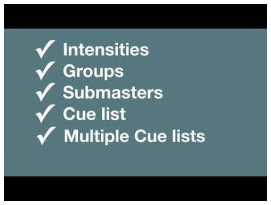
Upon loading the ZerOS Library file, the console will ask you to confirm, and inform you a power cycle will be required after installing the ZerOS Library update.

ASCII Show Files

ASCII show files are a generic file format that can be shared between a range of consoles from a range of manufactures. The ASCII show file specification has several limitations, such as only supporting dimmer channels (not moving lights etc) and a basic cue stack. However it is very useful, especially when touring. ZerOS supports “manufacture specific information” from within ASCII files for certain consoles. This includes ETC EOS/Ion consoles and Strand Genius Pro consoles. This adds support for moving lights, LEDs and other fixtures, along with referencing palettes. Submasters are imported as Playbacks with single cues. When loading large ASCII show files, ZerOS may take some time whilst it creates fixture personalities for the fixtures, and converts the show to the ZerOS format.

ASCII show files can have the following file extensions:

- .asc (ASCII)
- .alq (ASCII Light Cues)
- .txt



https://youtu.be/I5GsbexwpTY Take a look at this video for an explanation of ASCII show files.

ZerOS Software

ZerOS, the software running on FLX and FLX S, is regularly updated. Software updates can be downloaded from the ZerOS webpage, and installed onto your console.

Click here to go to the ZerOS webpage

Do not attempt to load "Phantom ZerOS" into the console. Phantom ZerOS is the Windows application which allows you to emulate a console running ZerOS on PC. It is not the software application for the console.

Always read the release notes prior to installing new software for important information, and handy tips.

Software updates completely wipe the console's memory. Ensure you have saved a copy of the current show file to a USB drive first, prior to installing the software.

Do not disconnect the USB stick or power during a software update. Doing so could render your console unusable.

1. From the ZerOS webpage, download the latest ZerOS Version
2. Once downloaded, go to your Downloads folder
3. Plug a USB drive into your computer
4. Copy the .exe software application file onto the root directory of the USB drive (not inside folders)
5. Once copied to the USB drive, plug the USB drive into the console.
6. Disconnect the DMX cables from the rear of the console - this will ensure that when the console reboots, it does not automatically patch and potentially readdress connected RDM fixtures.
7. On the console, tap Setup -> *Load* , and choose the software application to load in.
8. After choosing the software file to load in, the console will ask to confirm you are happy to proceed with the installation, and wipe the current show from the console. The console will also warn you, that disconnecting power mid installation could render the console unusable. Click Yes to proceed, or No to allow you to save your show file first.
9. The console will then warn you a second time. There's no excuse for not realising your show will be lost!
10. Once loaded, you will be required to switch the console off and on again to restart the console.
11. Upon rebooting, sometimes the console will state that a firmware update is required. This is because in some ZerOS software updates, a firmware update is included too. If this is the case, proceed with the firmware update, again ensuring the console's power will not be disconnected mid installation.
12. Once the firmware has installed, switch the console off and on again to restart the console.
13. You will then boot into the newly installed software, and can reload your show file if required.
14. Once the show file has been loaded, you can reconnect the DMX cables to the rear of the console.

ZerOS Show Files

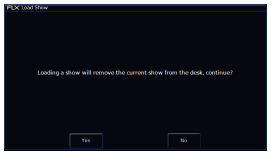
Any ZerOS Show file, saved from any console or Phantom ZerOS, can be loaded onto the console from a USB Storage Device. For ultimate compatibility, it is suggested that both consoles are running the same software version.

When loading a show file, all information on the console will be lost. Therefore, ensure you save your current show first before loading another file.

Two formats of ZerOS show files can be loaded; .zos and .isf files. .zos show files are ZerOS show files saved in ZerOS 7.9.8 or later. .isf show files are "legacy" show files, saved in ZerOS 7.9.7 or earlier.

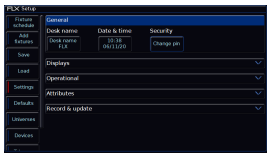
Select the show file you wish to load in and press *Load* to load the show. The console will load the show and you will automatically leave Setup.

When loading a ZerOS Show file, you are given three options – *Load Complete Show* , *Load Setup Only* and *Load Setup & Palettes* . Loading a complete show brings the console back to the same settings that were defined when the show was stored - Patch information, Cue Information, UDKs, Palettes, Groups, Macros, Desk Setup and Network settings will all be restored. Loading just the setup, will give all your settings and the patch, however load none of the programming in the show file. Loading setup and palettes, is especially useful if you always use the same rig with your console - your base configuration including palettes will be loaded, ready for you to program the next show.



After clicking "Load", the console will warn you that the current show on the console will be lost. Click Yes to proceed with loading the new show, and overwrite the current show on the console. Click No if you need to save the current show first, prior to loading in the new show.

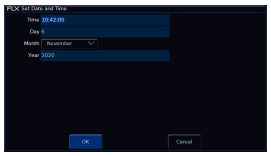
Settings



Settings within the Setup menu allows you to change various settings that affect the ZerOS system, such as monitor settings or switch between the various modes available.

Desk Name

The desk name is used to identify itself. For example, when using the mobile apps, the name of every console on the network will be displayed. By default, the desk name will be the console type (ie “FLX” or “FLX S24”) followed by the serial number, but this can be changed by selecting the desk name, using the onscreen keyboard to type a new name, and pressing *OK*



Set Date & Time

All ZerOS consoles except FLX S have an internal clock. Press the Date & Time button on the monitor to open the Set Date and Time window. Enter the correct time, day, month and year in the fields provided and then confirm by selecting the OK button. This setting is especially important when using Real Time cue triggers.

Security

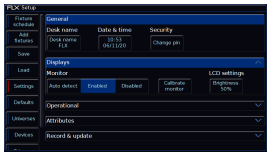
This allows you to change the Lock pin of the console. The default pin is 0000. It’s highly recommended that you change this pin. The console can be locked via the Z Key, so you can leave the console unattended safely.

Click here to find out more about locking your console

Find out about the remaining panel drop downs in the Settings tab...

- Displays
- Operational
- Attributes
- Record & Update

Displays



The Displays section of Settings contains "Monitor" settings for the external monitor, and "LCD Settings" for the internal touchscreen. FLX S24 only has the "LCD Settings", as there is no external monitor output on FLX S24 consoles.

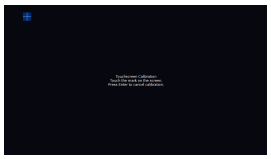
Monitor

FLX, FLX S48 and ZerOS Server have a DVI-D connector on the rear of the console for an external monitor output. This monitor can also be touchscreen if desired, which also plug into one of the USB connectors with a second cable. FLX will automatically detect if the external monitor is present, and the best resolution to use for that monitor. FLX S48 will not auto detect if a monitor is present, and will output at 1024 by 768 resolution. To manually change if a monitor is present or not, change “Monitor” to *Enabled* or *Disabled* (by default on FLX this is set to *Auto Detect*).

For more information on external monitor settings, click here

Calibration

If using a touchscreen, this monitor will need to be calibrated before the touch functionality will work. Click *Calibrate* .



The external monitor will now guide you through the calibration process – press the orange cross in the upper left corner, then the lower right corner, then the upper right corner.

If you find the touchscreen does not respond, wait a couple of seconds, and try again. Whilst in the calibration window, you may receive a message suggesting you press the Update button. If you receive the message, and the external monitor is not responding, press the Update key on the console, and try tapping the mark again.

This completes the calibration and ZerOS will ask you to draw on the screen to check the calibration has worked correctly. You should ensure that the line drawn is displayed in the same place you touch the monitor. Press Enter (or, on FLX S48 Z/Shift) to confirm and return to Settings.

A number of external touchscreens are supported by ZerOS. Although we will endeavour to add support for other screens where possible, we make no guarantees about this since the drivers may not be available in the correct format for the desk operating system. Please contact Zero 88 for details.

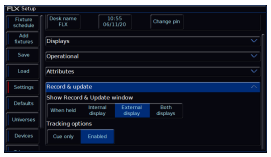
Resolution

On FLX and ZerOS Server, to manually change the monitor's resolution, click “Resolution” and select one of the listed resolutions (or select “Auto Detect”). FLX will change the resolution for 15 seconds, and then automatically revert it to the previous setting unless you click Keep on the internal monitor within those 15 seconds.

LCD Brightness

This Settings allow you to change the brightness of the internal display. The touchscreen brightness is a value between 0% and 100%. Recommended use is at 50% brightness. 0% will not allow the backlight to go out completely, but instead to a very dim level that can still be seen in most situations. The first encoder wheel will allow you to adjust this, as well as the on-screen numpad.

Record & Update



The Record & Update options of the Settings tab, allow for the Record & Update window to be configured, and the global tracking options to be set. These are explained below:

Show Record & Update Window

This can be changed to decide when these two windows should be shown during programming.

When held means the windows will only be displayed on the internal touchscreen when the Record or Update buttons are held for around half a second. This is useful if you are regularly programming palettes using the external monitor.

On internal display means the windows will be shown on the internal display as soon as the Record or Update buttons are pressed.

On external display (FLX & FLX S48 only) means the windows will be shown on the external display as soon as the Record or Update buttons are pressed, but only on the internal monitor if the buttons are pressed and held. This is the default option.

On both displays (FLX & FLX S48 only) means the windows will appear on both displays as soon as the Record or Update buttons are pressed.

Tracking Options

This option defines the behaviour of the desk when recording cues. It can be seen a little bit like a "Beginner" (Cue Only) or "Normal" (Enabled) mode. There are two options available:

Cue only means that tracking options will not be available within the Record and Update windows. Cues are programmed with a full capture of the stage output to ensure what you see on stage is exactly what is programmed, and exactly what will be played back when you replay the cue.

Enabled means that tracking options will be available within the Record and Update windows.

Click here for more information on the Tracking settings in the Record Options window

It is strongly recommended to use the console with Tracking Options enabled. This does NOT mean Tracking is enabled - it simply means the Tracking Options are available to you.

Cue Only should only be used when basic programming is required. Cue Only significantly limits the complexity of programming, and is not designed to allow for complex mixing between playbacks.

Switching the Tracking Options between "Enabled" and "Cue Only" can change data in existing cues. Therefore, this option should only be changed prior to programming.

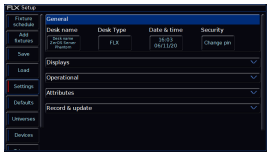
Desk Type

ZerOS Server can run as any of the following consoles that run ZerOS:

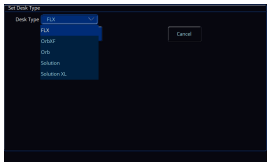
- FLX
- OrbXF
- Orb
- Solution
- Solution XL

By default, ZerOS Server will run as FLX.

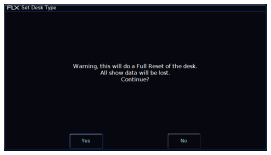
If ZerOS Server is being used as a Backup device in a Tracking Backup system, it must be configured to match the Desk Type of the Master console. Feature availability for ZerOS Server is based upon whichever console it's currently emulating.



To change the ZerOS Server's Desk Type, click Desk Type in Settings.



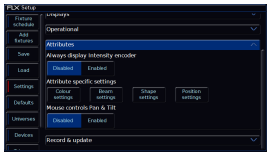
A drop-down can then be used to choose the console type. You can then click OK.



Changing the Desk Type will completely wipe the ZerOS Server's memory. On the Warning message, click Yes to proceed, or No to allow you to save your show to USB first.

After clicking Yes, the ZerOS Server will change the Desk Type, and ask you to switch off the server once complete. ZerOS Server will boot into the newly selected Desk Type when it is next powered.

Attributes



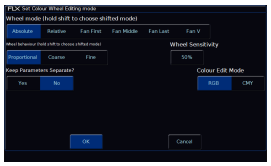
The attributes section allows you to edit global Intensity, Colour, Beam, Shape and Positon settings. These are explained below.

Always Display Intensity Encoder

This allows you to lock the first wheel to an Intensity control. This means all other options on the encoders will be shown on encoders two, three and four only. Using Intensity on a wheel is advantageous when you have multiple channels all at different levels, and you want to increase or decrease their levels all together. If you only plan to use this feature occasionally, leave this option disabled, and use the Intensity Wheel that becomes available when you press the Z Key.

For more information on the Intensity wheel, click here

Attribute Specific Settings



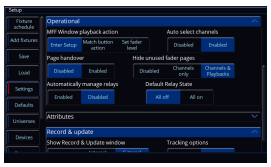
These options allow you to change various settings for each attribute. The same windows can also be opened outside of the Setup Window, by pressing Setup and the attribute button together (on FLX S, these are soft buttons along the top of the touchscreen).

For more information on Attribute Settings, click here

Mouse controls Pan & Tilt

This allows you to control the Pan and Tilt of a moving light by using an external USB device, such as a mouse or trackball. When enabled, this device will control the Pan and Tilt of any selected device when the “Position” attribute button is selected on the front panel.

Operational



There are several options in the Operational section of Settings. FLX S consoles do not have the last couple of settings pictured.

Operational settings are explained below.

MFF Window Playback Action

“MFF Window Playback action” defines what happens when you press an onscreen playback in the MFF (Faders) window. By default this opens the Playback’s Settings, but it can instead match the physical button action, or set a Fader Level.

When set to "Match button action", the button function is displayed in the MFF window.

When set to "Set fader level", this will also work in Channels function too.

For more information on the Faders window, click here

Auto Select Channels

This setting automatically selects a fixture when a channel fader is moved. This is enabled by default, however can be disabled if you wish, meaning you will need to manually select fixtures.

Page Handover

Page handover defines the behaviour of active playbacks when you change page. “Disabled” is the default behaviour, which means changing playback page will change the page of all the faders. When “Enabled”, changing page will only change the page of faders currently inactive. Any faders with active playbacks will remain on their previous page, until the respective Playback is released – at which point the fader will change to the current page.

Recovery Mode

On FLX, “Recovery Mode” defines how the console should react when it’s powered off and powered back on again:

- “Disabled” will release all playbacks when ZerOS starts, so no lights are on.
- “Enabled” will output the same cues that were active when the console lost power. This option is useful if you expect to lose power at any point, for example when running with temporary power. Transition timings of the "recovered" cue that outputs will already be complete. This includes Move On Dark timings ready for upcoming cues. If your lighting system is configured to hold last state when DMX data is lost, there should be no change in DMX values when FLX restarts with Recovery Mode enabled.

Rem Dim & Highlight options

These “High value” and “Low value” settings affect the values of Rem Dim & Highlight.

Rem Dim will take all unselected fixtures down to the “Low value”. If the selected fixtures are currently at 0%, RemDim will take the selected fixtures to the “High value”.

Highlight will take the selected fixtures to the “High value”.

For more information on Rem Dim and Highlight, click here

Hide Unused Fader Pages

By default, "Hide Unused Fader Pages" is enabled for *Channels & Playbacks* . This means only Channel pages with fixtures patched can be accessed, and only Playback pages with playbacks programmed can be accessed.

For example:

- On FLX:
- If only Channels 1-36 are patched, the Page Up / Page Down buttons will cycle between Page 1 & Page 2
- If Playbacks are only programmed on the first page, the Page Up / Page Down buttons will not function
- On FLX S:
- If Playbacks are only programmed on the first page, the Page button will not function

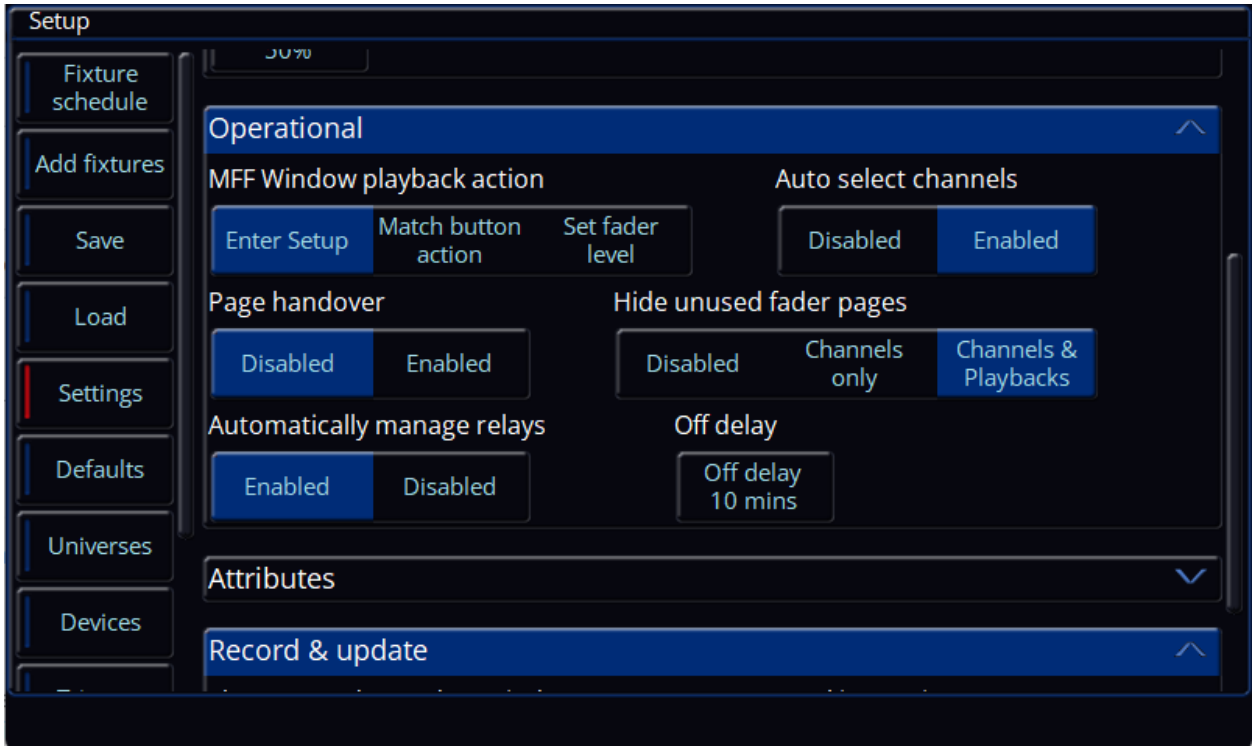
All playback pages are always available after tapping Record , holding Setup or View , or during a Copy/Move action.

Setting "Hide Unused Fader Pages" to *Disabled* , will allow all Channel and Playback pages to be accessed, irrespective of whether faders are populated. It is also possible to just limit this functionality to *Channels Only* , allowing all Playback pages to be accessed.

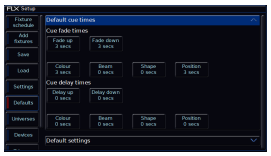
Automatically Manage Relays

When enabled:

- If a fixture's intensity goes above 0%, the associated relay is automtically turned on. If a fixture's intensity goes to 0%, the associated relay is automatically turned off after the "Off delay" (unless they are "on" for other reasons).
- If a Playback is active ("triggerd"), the associated relays of ALL fixtures programmed into that Playback are automatically turned on, even if the fixture isn't used until a future cue. When that Playback is released, the associated relays are automtically turned off after the "Off delay" (unless they are "on" for other reasons).



Defaults



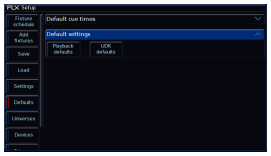
Defaults within the Setup menu allows you to change the default times and settings given to newly programmed Cues, Playbacks, or UDKs. Changing the default settings will never change existing Cues, Playbacks or UDKs.

Default Cue Times

These settings change the default times that cues are recorded with. Both the default fade and default delay of the Intensity Up, Intensity Down, Colour, Beam, Shape and Position times can be changed in this window. The default timings are pictured above.

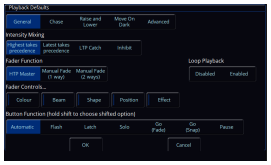
Cue 1 of each playback is always recorded with a 0s fade time by default. This is to ensure that the output of the first cue is inhibited by the playback fader only. This can be changed during the recording process on the encoders, or after the cue is recorded in the Playback Window

Default Settings



Default Settings allow you to configure the defaults of any future playbacks or UDKs that are programmed. On FLX S, "UDK defaults" will not be shown.

Playback Defaults



Clicking Playback Defaults will open the Playback Settings window, allowing you to change the default settings that are applied to any new playbacks. Playbacks are created when a cue is first recorded into that playback.

Loop Playback

“Loop Playback” can be “Enabled” or “Disabled”, to determine the behaviour of any future playbacks that are programmed. If neither "Enabled" or "Disabled" are shown as selected, the setting will be disabled on the Master Playback (when programmed) whilst enabled on all other playbacks (when programmed).

Button Function

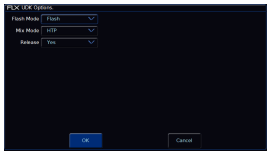
When the button function is left as "Automatic", this allows the button to automatically change function, dependent on the state of the playback. These states are as follows:

- A single cue on a playback - button function set to flash, shifted function set to Solo.
- Multiple cues on a playback - button function set to Go (Fade), shifted function set to Go (Snap)
- Chase - button function set to Tap Tempo, shifted function set to Go (Snap)

If the active button function is tapped, no button function will be selected, meaning the button of newly programmed playbacks will be disabled.

For more information on Playback Settings, click here

UDK Defaults

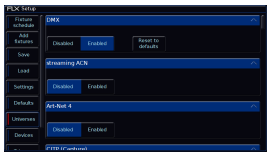


Clicking UDK defaults will open the UDK Options window, allowing you to change the default settings that are applied to new UDKs.

The default Flash Mode option is particularly useful if you wish to be able to tap your UDK, and your channel data be output, and then tap it again to release the UDK. To do this, configure the default Flash Mode to "Latch".

For more information on UDK Settings, click here

Universes



The Universes tab of Setup is a single place for configuring each separate method (“protocol”) of sending lighting data out of the console to your lighting rig.

Fixtures can be patched across 64 “Desk Universes”. The total number of channels used across the 64 universes cannot exceed the total number of channels your console is licenced for.

At the top of the “Universes” tab are panels for the global settings of each protocol – in most situations, these are all you will need. Below these are a panel for each of the 64 “Desk Universes”, providing a method of fine tuning your universe routing (for example, you could send the data for fixtures patch to “Desk Universe 5” to sACN Universe 5, Art-Net Universe 4 and DMX Output 1).

Find out more about the available protocols and the Desk Universes in the Universes tab...

- DMX
- streamingACN
- Art-Net 4
- CITP (Capture)
- Remote Device Management (RDM)
- Desk Universes

Remote Device Management

Remote Device Management is a protocol that expands the capabilities of DMX, providing a method for two-way communication between the console and the other devices in your rig, such as fixtures.

ZerOS’ implementation of RDM is called “RigSync” which allows ZerOS to manage the rig – ensuring the console and lighting rig are synchronised, not just at the point of “patching” but continuously through the performance. New fixtures are automatically added, problems such as collisions in DMX addresses are automatically fixed, and settings such as modes and alignments are automatically kept in sync between the console and the rig. If a new fixture is added, ZerOS automatically assigns it settings, adjusting other fixtures if necessary to ensure the rig works. Patched fixtures which don’t support remote management are avoided rather than ignored.

ZerOS will patch RDM fixtures with dimmers first, then LED fixtures, and then moving lights, in the order of their current DMX address.

When RigSync discovers RDM fixtures, "RigSync is processing x devices" will be shown at the top of the Output window, whilst ZerOS processes the fixtures and patches them. If any of the devices patched by RigSync go offline, whether that be because they lose DMX connection or power, an error notification will be shown in the Output window. You will be able to view the errors, or dismiss them. A red cross will be displayed next to the fixture numbers of fixtures that are currently offline.

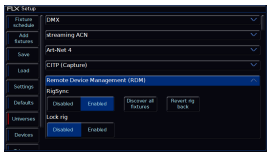
https://youtu.be/9d2XQKankbo

Take a look at this video to see RDM in action.

Image not found or type unknown

Take a look at this video to see RigSync in action.

https://youtu.be/1Rbfj0nvgYA



RigSync can be enabled or disabled within the RDM panel of the “Universes” tab within Setup. On FLX, RigSync is disabled by default. On FLX S, RigSync is enabled by default on DMX port 1.

Discover All Fixtures

The *Discover all fixtures* button discovers and patches all possible fixtures at the point it’s pressed. Although this usually happens automatically when RigSync is enabled, there are situations when it won’t. For example, if you delete a fixture that was discovered by RigSync, that fixture won’t be rediscovered and re-patched unless you press *Discover all fixtures* .

Revert Rig

The *Revert rig back* button reverts all fixtures to the settings they had when they were first discovered by RigSync. For example, if the whole rig was DMX Address 1, RigSync will remember those settings (and store them in the showfile) before automatically changing the DMX addresses so they don’t clash. Selecting *Revert rig back* will put all the fixtures back to DMX Address 1, and not automatically change them again.

Lock Rig

By default, Lock Rig is disabled. However when enabled, "Lock rig" instructs RigSync to continuously and automatically revert any changes which are made to settings on fixtures that could affect the show – such as DMX Address, Pan/Tilt Settings or Personality/Mode. When changes such as these are made on a fixture, RigSync will detect them and revert them back. These changes can continue to be made from the console without disabling “Lock Rig”.

Art-RDM

As well as RigSync using RDM on the DMX ports on the rear of the console to keep your console and fixtures synchronised, RigSync will also use RDM over Art-Net if Art-Net is enabled.

Click here to find out more about Art-Net

If Art-Net is enabled, pressing Discover All Fixtures will force Art-Net gateways to discover fixtures.

To go in depth on RDM, take a look at the session below...

https://youtu.be/F_6ANCol8dg

Sometimes, you may find that fixtures flicker, with the presence of RDM on the DMX line. If so, then unfortunately your fixtures are not truly DMX compliant.

To stop the flicker, you will need to remove RDM data from the fixture's DMX line. This can be done by either disabling RigSync completely, or disabling RigSync just on the DMX port the fixtures are connected to. Alternatively connect your non-compliant fixtures from a feed of a DMX Splitter with RDM removed.

Contact the fixture's manufacturer, to see if there is a firmware update to solve the flicker.

https://youtu.be/ViBPm4DEbvk

If you need to remove RDM from a DMX line, Splitter 8 has a switch to allow you to remove RDM data from the DMX Outputs. Watch the video to find out more.

Click here to go to the Splitter 8 page.

RigSync: The Concept

RigSync allows you to be completely unconcerned with the technical elements that allow consoles to talk to lighting rigs. RigSync doesn't simply read your rig or just patch your console, it manages your lighting rig with absolutely no interaction from you – ensuring your console and lighting rig are continuously synchronised and problem free by automatically and invisibly solving potential disputes such as collisions in DMX address or changes of fixture mode.

In a large percentage of low to medium sized events and venues, technicians are not concerned with DMX addresses so long as their fixtures are functioning correctly. Often, settings such as DMX address, mode, Pan / Tilt invert etc are not discussed or decided upon until the build. In these situations, the DMX addressing and patch processes (both on the physical fixtures and the console) often delay progress and are inefficient, resulting in messy notes on the back of a set list or within a script margin, while the console op shouts up to a technician in a cherry picker or up a ladder, attempting to get the rig and the console synchronised. The console op often is interrupted from their programming to test a fixture's new settings or, even worse, having to use trial and error to find the address or mode of an inaccessible fixture.

We see these as unnecessary steps that delay the operator from designing and programming their show, resulting in an inferior show. This is especially prevalent for the low end users we now see adopting colour mix and movers for the first time.

With RigSync, ZerOS manages the rig – ensuring the console and lighting rig are synchronised, not just at the point of "patching" but continuously through the performance. RigSync is the first implementation of DMX, RDM and ArtRDM in a lighting console that allows the installer and operator to be completely unconcerned and oblivious to the technical elements that allow their consoles to talk to their lighting rig. New fixtures are automatically added, problems such as collisions in DMX addresses are automatically fixed, and settings such as modes and alignments are automatically kept in sync between the console and the rig. If a new fixture is added, ZerOS automatically assigns it settings, adjusting other fixtures if necessary to ensure the rig works. Patched fixtures which don't support remote management are avoided rather than ignored.

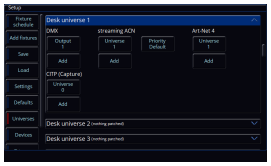
RigSync only changes settings when it's necessary to make the rig work. When the show is over, the user can choose to revert the rig back to its original settings, ensuring touring venues are left happy.

Users can choose to disable RigSync per output of the console, addressing issues often experienced on lower value equipment where the DMX & RDM specifications haven't been accurately implemented.

Desk Universes

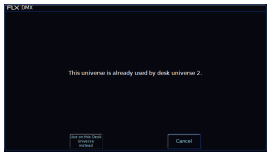
Below the various protocol settings within the Universes tab, is a panel for each of the console's 64 "Desk Universes".

The 64 Desk Universe panels provide a method of fine tuning your outputs (for example, you could send the data for fixtures patched to "Desk Universe 5" to sACN Universe 5, Art-Net Universe 4 and DMX Output 1).



Within each Desk Universe panel, you can configure the four different control protocols for that desk universe – DMX, streaming ACN, Art-Net 4, and CITP (Capture).

For each of the control protocols within a Desk Universe, an *Add* button allows you to add another universe of that protocol. For example, you could have Desk Universe 1 being output to both Art-Net Universe 1 and 2 (or more). This might be useful when visiting a venue that uses Ethernet to DMX gateways, as you can have the same data from both Art-Net ports without having to reconfigure the venue's gateway.



If you add a protocol universe to a desk universe, which is already in use by another desk universe, you will receive a popup with the option to Cancel, or Use on this Desk Universe instead.

DMX

To edit which DMX Output port a Desk Universe is being sent from, click on the *Output* button below DMX in the required Desk Universe, or click *Add* to add another.

You can then choose which physical output port you wish this Desk Universe to be routed from. FLX series consoles have a pair of DMX outputs on the rear of the console.

You can also Remove the DMX output from this Desk Universe.

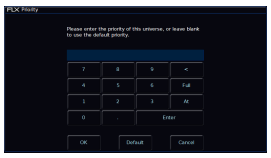
streaming ACN

To edit which streaming ACN universe a Desk Universe is being sent on, click on the *Output* button below streaming ACN in the required Desk Universe, or click *Add* to add another.

You can choose to send DMX data on any streaming ACN universe from 1 to 63,999.

You can also Remove streaming ACN universes from this Desk Universe.

Each sACN Universe has the option to set a custom priority, which is a value from 0 to 200. streaming ACN receivers will listen to the controller that has the highest priority value for the universe they are set to receive.



To change a streaming ACN universe's priority, press "Priority" and either enter the new number, or click “Default”. Clicking default means this universe will then use the default streaming ACN priority value set in the global streaming ACN settings at the top of the Universes tab of Setup.

Art-Net 4

To edit which Art-Net universe a Desk Universe is being sent on, click on the *Output* button below Art-Net 4 in the required Desk Universe, or click *Add* to add another.

You can choose to send DMX data on any Art-Net 4 universe from 0 to 32,767. It is recommended to avoid using Art-Net universe 0 if you can, and start with Art-Net universe 1, to avoid any offset confusion.

You can also Remove Art-Net universes from this Desk Universe.

CITP

To edit which CITP universe a Desk Universe is being sent on, click on the *Output* button below CITP in the required Desk Universe, or click *Add* to add another.

You can choose to send DMX data on any CITP universe from 0 to 255.

You can also Remove CITP universes from this Desk Universe.

DMX

The DMX section of the Universes tab in Setup, allows you to configure the behaviour of the DMX ports of the rear of the console. FLX series consoles have two DMX ports.

If you are outputting DMX over the network, and you are not using the DMX ports, it is possible to disable them.

DMX Out

By default, DMX port 1 outputs Desk Universe 1 and DMX port 2 outputs Desk Universe 2 (on 1 Universe FLX S consoles, both DMX ports output Desk Universe 1). This means as soon as a fixture is patched onto universe 1, DMX will be output from DMX port 1.

To configure which Desk Universe is sent from a DMX Output, scroll down to the "Desk Universe" you need. You can then add a DMX port to the Desk Universe, so that the Desk Universe is then sent from the chosen DMX Output.

Click here to find out more about routing Desk Universes out of your console

When a DMX port is configured as a DMX Output, a RigSync switch will be shown for that port, allowing you to Disable or Enable RigSync on that port. For example, both DMX Outputs could be sending the same Desk Universe, however one with and one without RDM data.

RigSync must be enabled globally, to allow RigSync to be enabled on either DMX output.

Click here to find out more about RigSync

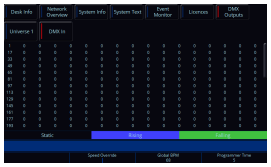
DMX In

Either of the console's DMX ports, can be configured as a DMX Input rather than an output. Using a male-to-male XLR adapter, this allows you to send a DMX signal into your console from an external DMX source, which can then be used to control fixture intensities, or playback levels.

Only one DMX port can be used as an input at a time.

Click here to find out about controlling fixture intensities with DMX input

Click here to find out about controlling playback levels with DMX input



Once a DMX port is configured as a DMX Input, the incoming DMX can be viewed in Z -> System Information -> DMX Outputs -> DMX In

FLX series consoles will only receive DMX from DMX sources that send a whole DMX universe. DMX controllers that only send the first few channels, for example a Zero 88 Level 6, will not work.

Vision.Net

FLX series consoles can receive Vision.Net commands over RS-485, using either of the DMX ports. Once you have chosen the DMX port you wish to receive Vision.Net messages, you can then configure Vision.Net in the Triggers tab of Setup.

A Vision.Net to XLR adapter is required with the following pinout:

Vision.Net 9-Pin connector:

1. Data +
2. Data -
3. (nothing)
4. 24V
5. COM
6. 24V
7. COM
8. 24V
9. COM

Click here for information on configuring Vision.Net

Transmission

You can change the DMX Transmission between Continuous or Delta. Continuous transmission will result in DMX data being sent at a steady refresh rate, and is the default option. FLX series consoles transmit at 29Hz.

Changing the Transmission to Delta, will result in the console sending DMX "updates". This means DMX frames will be sent whenever there are level changes on the console. If there are no level changes, DMX will be transmitted at 1Hz. If you are controlling a fixture that doesn't seem to be responding correctly, change the Transmission to see if the fixture prefers the change in frame rate. If it does, your fixture is not truly DMX compliant.

Reset to Defaults

If you have configured individual Desk Universes, you can press the Reset to Defaults button to reset the DMX Outputs to their default settings.

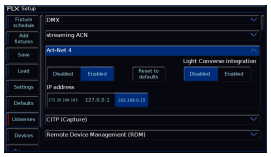
Take a look at the session below for some DMX theory...

https://youtu.be/F_6ANCol8dg

Art-Net

Art-Net 4 is a lighting protocol which sends DMX data over Ethernet. The protocol allows for multiple DMX universes to be sent over a single Ethernet cable.

For more information, click here to head to the Art-Net website



Within the Art-Net 4 panel, you can choose to enable Art-Net 4. Once enabled, you will be able to configure the Art-Net 4 protocol.

By default, Art-Net 4 universes will be mapped 1:1 with Desk Universes.

To customise your universe routing, click here to find out about Desk Universe configuration

If you have changed the Art-Net 4 settings per Desk Universe, you can choose to “Reset to defaults”. This will prompt you to start the Universe numbering from either Art-Net Universe 0 or Art-Net Universe 1. Technically the first available Art-Net 4 universe is “Universe 0”, but on modern devices it’s usual to ignore Universe 0, and start at Universe 1 – providing a “1-to-1” numbered universe patch, rather than an offset of 1.

IP Address

The IP address options will allow you to configure your Art-Net network settings. You can choose between using a DHCP address, a static IP address, or a Primary/Secondary IP address.

The Primary/Secondary IP address are predefined IP addresses, in the format 2.x.x.x for the primary, and 10.x.x.x for the secondary (both with subnets of 255.0.0.0). Many Art-Net devices default to either a 2.x.x.x or 10.x.x.x IP, and so the Primary and Secondary option are quick ways to get you communicating with Art-Net devices with as little configuration required as possible.

Art-Net will be set to use the Primary (2.x.y.z) IP address by default.

Art-Net 4 traffic is mostly transmitted as “Unicast” data.

For information on network settings, see the Networking chapter

https://youtu.be/L-dI4ZLf1gs

Once you have transmitted your Art-Net data from the console, you can then send it to your fixtures over Ethernet. Often, Art-Net universes are then converted back to DMX universes, using an Ethernet to DMX Gateway.

Zero 88 manufacture Gateway 4 and Gateway 8 Ethernet to DMX Gateways.

Click here to head to the Gateway 4 page.

Click here to head to the Gateway 8 page.

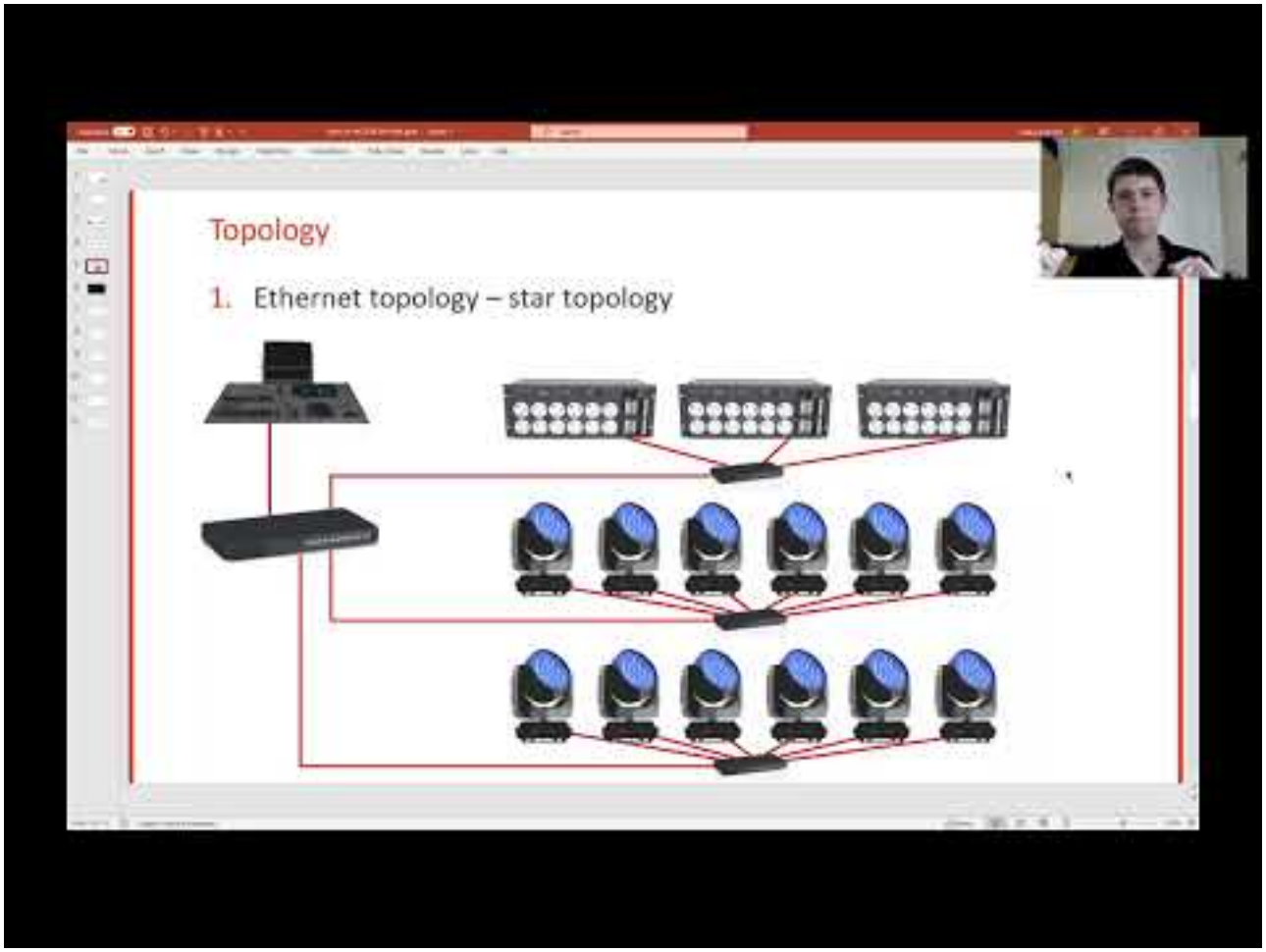
Watch the video here for an overview of Gateway 4 and Gateway 8.

Once Art-Net has been enabled, and network settings configured, any Art-Net devices that your ZerOS console can see, will be displayed in the Devices tab of Setup. Click here to find out more.

Once Art-Net has been enabled, ZerOS will tell other controllers on the network which Art-Net universes are currently being transmitted. ZerOS uses the Art-Net OEM code of 0x2BFE.

The console's Desk Name, set in Setup -> Settings -> Desk Name, is reported as the console's Art-Net name. This cannot be edited by other Art-Net devices.

Take a look at the session below for an introduction to Art-Net...



https://youtu.be/WSBGaCqnKHM

CITP

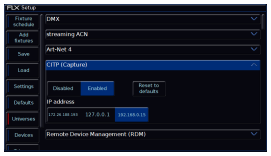
CITP is a lighting protocol which sends DMX data over Ethernet. The protocol allows for multiple DMX universes to be sent over a single Ethernet cable, and has been designed specifically for communication between lighting consoles, visualisers and media servers.

CITP is primarily used to connect ZerOS to Capture visualisation software. When connected using CITP, ZerOS & Capture integrate seamlessly, allowing for two-way control and selection communication. Therefore if using Capture visualisation software, we recommend using the CITP protocol.

CITP data can be sent from Phantom ZerOS PC software to Capture visualisation software without the need for a Phantom ZerOS Unlock Dongle.

For more information on Capture Visualisation software, click here

For more information on the CITP protocol, click here



Within the CITP panel, you can choose to enable CITP. Once enabled, you will be able to configure the CITP protocol. By default, CITP universes will be mapped 0:1 with Desk Universes.

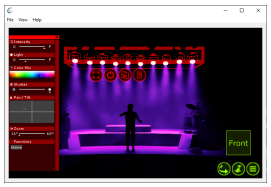
If you have changed the CITP settings per Desk Universe, you can choose to “Reset to defaults”. This will prompt you to start the Universe numbering from either CITP Universe 0 or CITP Universe 1. If using Capture visualisation software, Start at CITP Universe 0.

IP Address

The IP address options will allow you to configure your CITP network settings. You can choose between using a DHCP address, or a static IP address.

CITP will be set to DHCP by default.

> For information on network settings, see the Networking chapter



Selection

When using CITP to communicate with Capture visualisation software, as well as DMX information being sent over Ethernet from ZerOS to Capture, selection information is sent too. Selected fixtures are then indicated in Capture with the fixtures selecting in red.

External Level Set

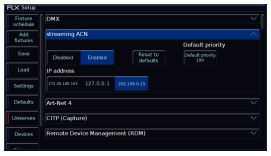
When using CITP to communicate with Capture visualisation software, as well as ZerOS sending DMX information to Capture, Capture can send DMX information back to ZerOS. This allows you to use the fixture controls in Capture to control your fixtures, which you can then record as a cue in ZerOS. You will see the parameter values live updating in ZerOS, and "External Level Set" will be displayed in the command line, as ZerOS receives the updates from Capture.

> In Capture, when you have moving lights selected you can right-click on a position on stage, and your moving lights will move to that location. Therefore connect your ZerOS console to Capture with CITP, and in Capture right click on the location you want your movers to go to. Then record that as a cue or palette in ZerOS.

streamingACN

Streaming ACN (sACN) is a lighting protocol which sends DMX data over Ethernet. The protocol allows for multiple DMX universes to be sent over a single Ethernet cable. The protocol is approved by ANSI and ESTA as the standard

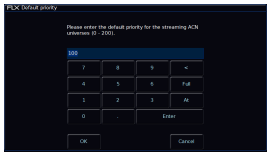
for DMX over Ethernet and allows ZerOS to communicate with a multitude of sACN enabled devices already available from a range of manufactures.



Within the sACN panel, you can choose to enable sACN. Once enabled, you will be able to configure the sACN protocol. By default, sACN universes will be mapped 1:1 with Desk Universes.

Reset to Defaults

If you have changed the sACN settings in individual Desk Universes, you can choose to “Reset to defaults” (which outputs each Desk Universe on the equivalent number sACN Universe).



Default Priority

Transmitted sACN universes can be defined a priority level (0-200). sACN receptive devices will automatically listen for the highest priority number received and respond to that signal. In this way, multiple consoles can be running on a network at the same time and can automatically take over from one another. Each sACN universe can have its own Priority configured in each Desk Universe panel, or can be set to use the “Default priority” listed in the sACN panel.

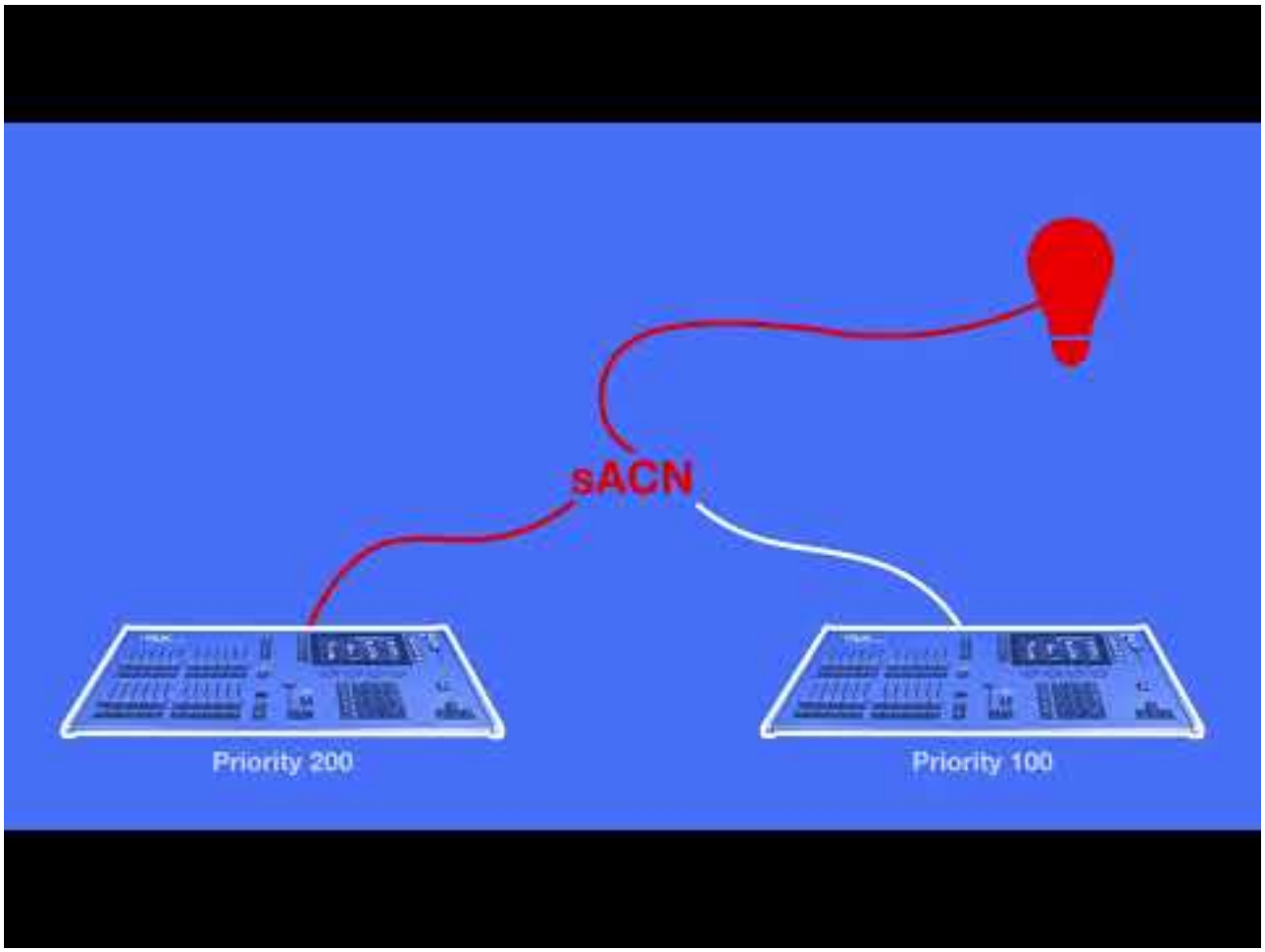
IP Address

The IP address options will allow you to configure your sACN network settings. You can choose between using a DHCP address, or a static IP address.

sACN will be set to DHCP by default.

For information on network settings, see the Networking chapter

Take a look at the short video below for an explanation of sACN...



https://youtu.be/AIBMe9XvK94

https://youtu.be/L-dI4ZLf1gs

Once you have transmitted your sACN data from the console, you can then send it to your fixtures over Ethernet. Often, sACN universes are then converted back to DMX universes, using an Ethernet to DMX Gateway.

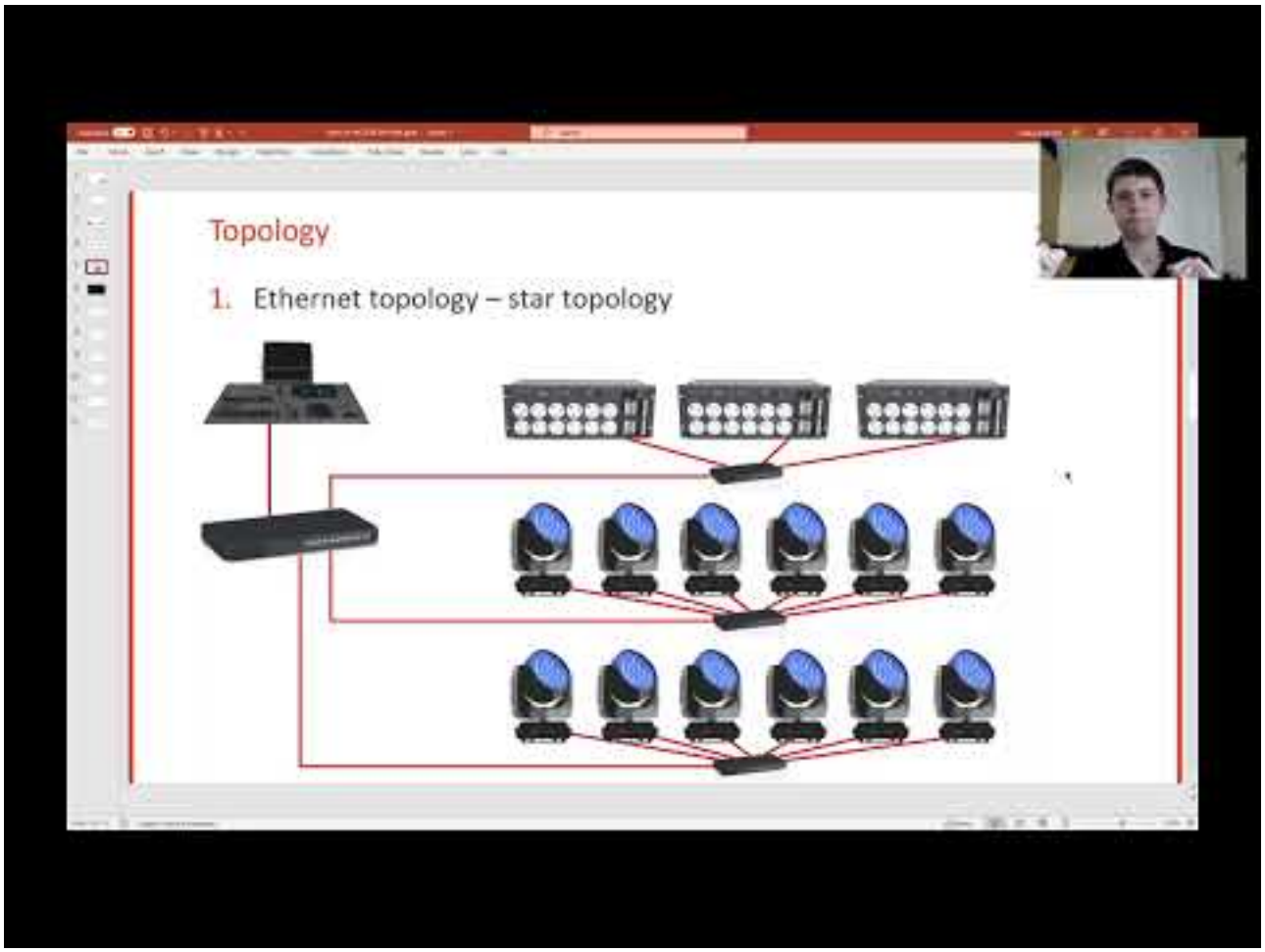
Zero 88 manufacture Gateway 4 and Gateway 8 Ethernet to DMX Gateways.

Click here to head to the Gateway 4 page.

Click here to head to the Gateway 8 page.

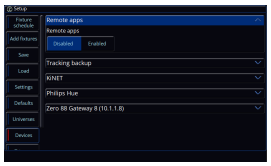
Watch the video here for an overview of Gateway 4 and Gateway 8.

Take a look at the session below for an introduction to streaming ACN...



https://youtu.be/WSBGaCqnKHM

Devices



The Devices tab displays settings for any devices connected to the console which can be remotely configured.

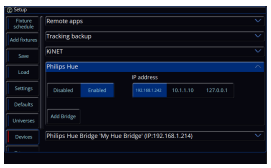
Click on the following Devices to find out more...

- Remote Apps
- Tracking Backup
- KiNET
- Philips Hue
- Art-Net Devices
- Enttec USB to DMX Devices
- RDM Devices

Philips Hue

FLX S24, FLX S48, FLX and ZerOS Server can control the full range of Philips Hue Smart Light Bulbs and Philips Hue Smart Plugs when connected via Ethernet to a Philips Hue Bridge. Smart Light Bulbs are controlled within ZerOS in the same way as a LED fixture, whilst Smart Plugs are controlled like a relay. These can be programmed into standard cues, allowing simultaneous control with the rest of the entertainment lighting system.

Click here to head to the Philips Hue website



Philips Hue can be enabled from the Devices tab of Setup, in the Philips Hue panel. Once enabled, the Philips Hue network settings can then be configured.

IP ADDRESS

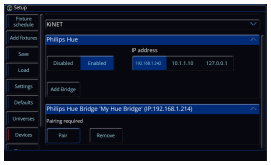
The IP address options will allow you to configure the Philips Hue network settings. You can choose between using a DHCP address, or a static IP address.

The Hue connection will be set to a Static IP address of 192.168.1.10 (Subnet Mask 255.255.255.0) by default.

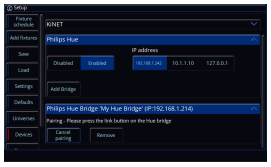
Hue Bridges will default to DHCP. Therefore, if you have a DHCP server on your console's network, you will be able to connect the Hue Bridge, and simply choose *DHCP* on your console. The DHCP server will then ensure yourconsole and your Hue Bridge can talk to one another. If you do not have a DHCP server on your console's network,the Hue Bridge's network settings will need to be manually configured, to a static IP address in range of your console.

For information on network settings, see the Networking chapter.

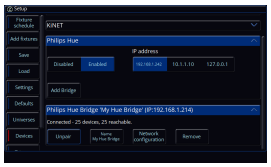
Philips Hue Smart Bulbs and Smart Plugs must be paired to a Hue Bridge first, prior to connecting the Hue Bridge to your console. To pair Hue Smart Bulbs and Smart Plugs with a Hue Bridge, the Hue Bridge must be connected to the Internet. Once paired, the Hue Bridge can then be connected to your console's network.



Once the network settings have been configured, Hue Bridges on your console's network should automatically appear after a few seconds, and will be displayed as separate panels in the Device tab. Once a Hue Bridge has been found, it will be displayed with its name and IP address shown.



You will then need to pair your console with your Hue Bridge. To do this, click the "Pair" button in the Hue Bridge's panel within the Devices tab. The console will then be ready to pair. You can then press the large link button on top of the Hue Bridge.



Once paired, ZerOS will detect all of the Smart Light Bulbs and Smart Plugs that may be connected to the Hue Bridge, and add them into the console. This functionality is very similar to RigSync detecting and patching RDM fixtures.

Once ZerOS has been paired with a Hue Bridge, it will have control. No other Philips Hue controls, such as Smart Switches or the Philips Hue app, will be able to take control, until ZerOS has been unpaired.

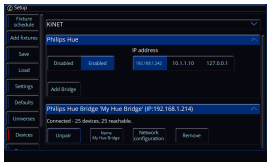
After all the Smart Light Bulbs and Smart Plugs have been added in, you can then exit Setup on your console by tapping the Setup key. You will then be able to control and program the connected Smart Light Bulbs and Smart Plugs. The Smart Light Bulbs and Smart Plugs will be named using their preconfigured Hue names.

Hue Bridges can be renamed from ZerOS. To rename a Hue Bridge, click the Name button within a Hue Bridge's panel in the Devices tab.

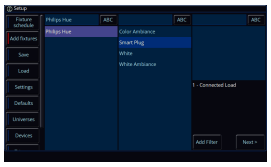
It is possible to remotely change a detected Hue Bridge's network settings from ZerOS. To do this, click the "Network Configuration" button within the Hue Bridge's panel in the Devices tab. You can then choose whether the bridge is set to DHCP, or a Static IP address.

If a Hue Bridge does not automatically appear in Devices, ensure the network settings on both the Hue Bridge and ZerOS are correct.

If you need to manually connect to a Hue Bridge, click the Add Bridge button in the Philips Hue panel, and type in the IP address of your bridge.



To remove a Hue Bridge that has been manually added, click the Remove button within the added Hue Bridge's panel.



Philips Hue Smart Light Bulbs and Smart Plugs will be automatically added, but are also available in Add Fixtures.

Philips Hue Gradient lights will be treated as a single full colour Smart Bulb, with a single set of colour controls for the whole strip.

RDM Devices

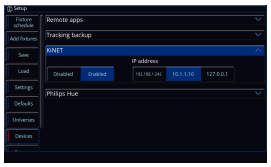
Some RDM devices are not "fixtures", and don't have any DMX control channels. If RigSync discovers an RDM device with no DMX channels, the device will be displayed in the Devices tab of Setup, along with options applicable to that device.

Click here for information on RigSync

KiNET

KiNET, an Ethernet-based lighting control protocol from Color Kinetics, is designed to enable larger lighting projects and provide control over luminaires which is beyond the limitations of other protocols. ZerOS can use KiNet to control a range of Color Kinetics architectural luminaires.

Click here to find out more about Color Kinetics



KiNET can be enabled from the Devices tab of Setup, in the KiNET panel. Once enabled, the KiNET protocol network settings can then be configured.

IP ADDRESS

The IP address options will allow you to configure KiNET network settings. You can choose between using a DHCP address, or a static IP address.

KiNET will be set to a Static IP address of 10.0.0.1 (Subnet Mask 255.0.0.0) by default.

For information on network settings, see the Networking chapter.

Once KiNET has been configured, KiNET devices on the network will then automatically appear in the Devices tab. For each KiNET device that appears, you can use the device's Universe field to assign a Desk Universe to it. Fixtures can be patched onto this assigned Desk Universe in the usual way from Add Fixtures.

If patching Color Kinetics fixtures with multiple cells, go to Add Fixtures, and under Generic, you can choose an RGB, RGBA, RGBAW or RGBW multicell fixture. You can then choose the relevant number of cells from the Mode column.

Remote Apps

ZerOS consoles can be remotely controlled using free remote applications, compatible with iOS, Android and Windows 10.

There are two applications available:

- "ZerOS Remote" enables wireless control of your rig, allowing you to manipulate, control and playback your shows. This is available for iOS and Android devices including iPads and tablets, but is mainly designed for use on smart phones.
- "ZerOS Monitor" emulates a wireless additional external touchscreen monitor. This is available for iOS, Android and Windows 10.

If you're on an iOS device...

- Click here to go to the App store to download the Remote app
- Click here to go to the App store to download the Monitor app

If you're on an Android device...

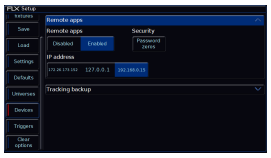
- Click here to go to the Google Play store to download the Remote app
- Click here to go to the Google Play store to download the Monitor app

If you're on a Windows device...

Click here to download ZerOS Monitor for Windows.

When running the ZerOS Monitor app on Windows 10, keyboard shortcuts are available to remotely control the console.

Click here to find out more about keyboard shortcuts.



To enable access to the console from these apps, change “Remote” to “Enabled”.

Security

Your network should already include security measures to ensure unauthorised access isn’t possible, however the password on the console adds an additional layer of security (this security is simply a password the remote will prompt you for before connecting - ensure you change the password from the default one).To disable this level of security, leave the Password option blank – this will disable the password.

IP Address

The IP address options will allow you to configure your Remote network settings. You can choose between using a DHCP address, or a static IP address.

The Remote connection will be set to a Static IP address of 192.168.1.10 (Subnet Mask 255.255.255.0) by default.

For information on network settings, see the Networking chapter

Once you have configured your console's remote settings, connect your remote device to the same network as your console. You can then start the app on the remote device, and your console should be found. Press on the name of your console, and click the connect button.

Click here to find out how to build a Remote Network.

On ZerOS Server, when the Remote is enabled, the IP address and subnet are displayed on the front display when the "Remote" LED is illuminated. The IP address will be displayed first, and then the display will cycle to show the subnet.

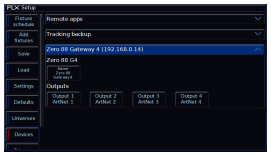
If you see 0.0.0.0 shown on the front display when the "Remote" LED is illuminated, this means ZerOS Server's Remote IP has been set to DHCP, however there is no DHCP Server on the network.

Take a look at this training session for more information on the Remote Apps...

https://youtu.be/LjHvt6vVl-0

Art-Net Devices

If you enable the Art-Net protocol in the Universes tab of Setup, any Art-Net devices ZerOS can see will be displayed in the Devices tab.



In this image, Zero 88 Gateway 4 can be seen by ZerOS. This is how most Ethernet to DMX gateways (sometimes referred to as "nodes") will be displayed in Devices.

In the panel header of an Art-Net device, the name of the device will be displayed, along with the IP address.

The name of Art-Net devices can be customised, by clicking on the "Name" field in the device's panel. This is very useful if you have multiple gateways in different locations, so you know which is which.

You can also remotely configure the individual DMX Output ports of the gateway using the "Outputs" fields. This allows you to choose which Art-Net universe that physical port will output. For example, you may configure all the ports to output Art-Net universe 1.

With some Ethernet to DMX Gateways, such as Gateway 4 and Gateway 8, you can remotely configure whether the port outputs streaming ACN or Art-Net data. This allows you to use the sACN standard for your DMX over Ethernet, and then just use Art-Net for configuration and monitoring. This is configured with the switch at the bottom of the Output port configuration window, if your particular Ethernet to DMX gateway has this capability.

Some Art-Net devices allow their individual DMX Output ports to be renamed. If they do, a "Port Label" field will be available to the left of the "Cancel" button.

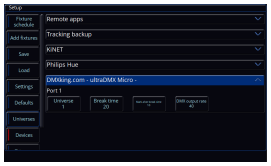
For example, if port 2 of the gateway is outputting universe 2, and your Stage Left Movers are on universe 2 connected to that port, you could rename the port, so you know exactly which fixtures are connected to this physical DMX output.

If you change a setting of an Art-Net device, but the setting reverts a second or two later, this suggests the device does not allow its settings to be remotely configured. Consult your Art-Net device's manual for configuration information.

Enttec USB to DMX Devices

USB to DMX devices which use Enttec's DMX USB Pro Widget API will be displayed within this panel. Many USB to DMX devices from many different manufacturers support this API.

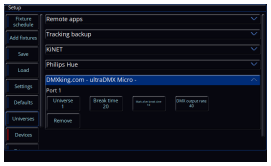
Click here to find out more about Enttec



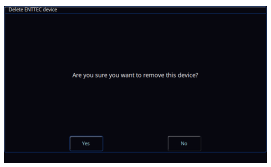
This image shows a DMX King ultraDMX Micro dongle connected to ZerOS.

The Desk Universe output from the USB to DMX dongle's port can be configured using the "Universe" field. The Enttec USB to DMX protocol allows for DMX timings to be edited, such as the Break Time (BT), Mark After Break Time (MAB) and DMX Output Rate (Hz).

The options available for each device depend on the device present.



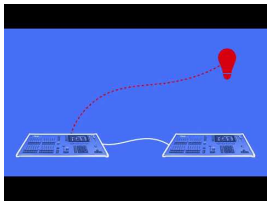
Upon unplugging a USB to DMX device, the device will remain displayed in the Devices tab of Setup. This allows you to continue configuring it. These settings will then take affect when the device is plugged back in. A Remove button is shown to allow you to Remove the device from the console.



Upon clicking Remove, ZerOS will ask you to confirm the operation.

Tracking Backup

Tracking backup allows a continuous and full back up of a master console to another device, which will automatically take over if anything happens to your main console. Tracking backup is ideal for show-critical scenarios where a backup solution must be provided.



https://youtu.be/txg3IDjG01A

Click the video for a description of Tracking Backup.

https://youtu.be/L-dI4ZLf1gs

The most common system to use with tracking backup, is a Master console and a Backup console networked together, which both have the ability to control any Ethernet devices on the network, such as an Ethernet to DMX gateway. The Master and Backup devices will then be able to send DMX to the Ethernet devices, using the sACN or Art-Net 4 protocols.

See the video to find out about the Zero 88 Gateway 4 and Gateway 8 Ethernet to DMX gateways.

Click here to find out more about sACN

Click here to find out more about Art-Net

Due to the way Art-Net data is cast, Art-Net cannot be used with tracking backup when Art-Net is configured to use a static IP.

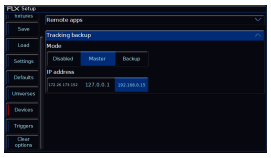
This is because when the Master and Backup synchronise, they will share the same Ethernet over DMX IP address when configured to use a static IP. This is fine for sACN, however because Art-Net data is unicast, no two Art-Net controllers can share the same IP. Therefore to use Tracking Backup with Art-Net, ensure your master is configured to use a DHCP address, or the Primary/Secondary IP. The backup will then use its respective setting when synchronised.

The following can be used as the backup device in a Tracking Backup system:

- Another console of the same type - for example a master and backup FLX
- ZerOS Server - running as the same desk type as the master console.
- SCD Server - running as the same desk type as the master console.
- Phantom ZerOS on PC with an Unlock Dongle - running as the same desk type as the master console.

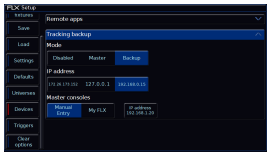
Ensure your backup device is licenced for the same number of DMX Channels as the master you are backing up if you wish the backup to fully takeover in the event that the master goes offline.

The Master and Backup device must be running the same software version.



To configure your Tracking Backup system, first choose "Master" on the console you wish to be the Master device. The IP address options will allow you to configure your Tracking Backup Master console network settings. You can choose between using a DHCP address, or a static IP address.

You can then exit Setup on the Master device, and continue to program or run your show.



On the console you wish to be the backup device, choose Backup under the Tracking Backup settings. The IP address options will allow you to configure your Tracking Backup Backup console network settings. You can choose between using a DHCP address, or a static IP address.

For information on network settings, see the Networking chapter

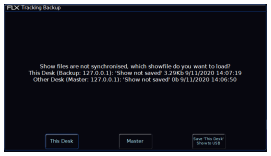
Both the Master and Backup device can have their own Remote connection enabled. This means you can

remotely connect to the Master or Backup device in the system.

Once your network settings are configured, on both the Master and Backup devices, the Backup device will then display any Master consoles it can see on the network under "Master Consoles". The Desk Name of the Master console will be displayed. This can be configured in Setup -> *Settings* -> *Desk Name* on the Master console.

Click on the Master console you wish to backup. If it isn't displayed, your network settings are either incorrect, or the Master and Backup devices are not on the same network and port forwarding is required. In these cases *Manual Entry* can be chosen, and the IP address of the master console can be manually entered.

You can then exit Setup on the backup device.



Upon exiting Setup on the backup device, both the Master and Backup will receive a popup, asking you to confirm which show file you wish to use. This popup will display the IP address of the Master and Backup device, the show name of the Master and Backup device (if the show has been saved to USB), and the last time the show was saved to the devices internally.

ZerOS is therefore asking whether you wish to send the Master's show file over the network to the Backup, or the Backup's show file to the Master. In most cases you will require the backup to take the master's show file, and therefore the master show is sent to the backup.

Choosing to send the Master's show to the Backup, will overwrite the current show on the Backup.

Choosing to send the Backup's show to the Master, will overwrite the current show on the Master.

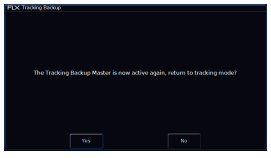
Therefore, a third option is provided, to allow you to save the current show to USB first.

After choosing your show, the show will then be sent over the network. Once the Master and Backup are synchronised, the synchronisation screen will be shown on the Backup device (pictured).

The Backup device is now tracking the master, and programming changes made on the master, are automatically sent to the backup. If the Backup looses sight of the Master console on the network, whether that be because the Master looses power or network connection, the Backup device will automatically take control of the rig.

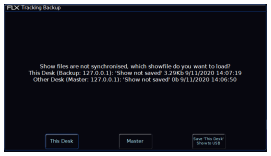
In the Synchronisation screen, the playback status table is shown, indicating which playbacks and cues are currently running on the master device currently in control (Stack 0 is the Master Playback).

A *Take Control* button is provided in the Synchronisation screen, giving the option for the backup device to manually take control. Pressing this, would then result in the Master console tracking and backing up the Backup device, and the Master would then be displaying the Synchronisation screen.



If the Master has gone offline, the Backup will automatically take control. If the Master then comes back online, it will not automatically take control again. Instead, the Master will display a Take Control button, and the Backup device will alert you that the Master has come back online (pictured).

You can then choose for the Backup device to go back to tracking the master.

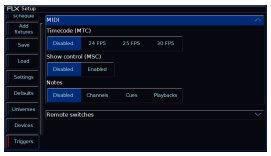


If whilst the Master has been offline changes have been made to the show file on the Backup device, again you can choose which show file you wish to use.

On ZerOS Server, when Tracking Backup is enabled to either Master or Backup modes, the IP address and subnet of Tracking Backup are displayed on the front display when the "Backup" LED is illuminated. The IP address will be displayed first, and then the display will cycle to show the subnet.

If you see 0.0.0.0 shown on the front display when the "Backup" LED is illuminated, this means ZerOS Server's Tracking Backup IP has been set to DHCP, however there is no DHCP Server on the network.

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...

- OSC
- MIDI Timecode (MTC)
- MIDI Show Control (MSC)
- MIDI Notes
- Vision.Net
- CAN
- Remote Switches
- DMX In

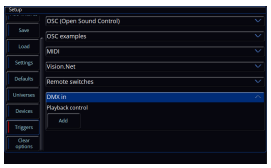
DMX In

ZerOS can receive a DMX input from an external DMX source, which allows another lighting console to remotely control playback levels in ZerOS.

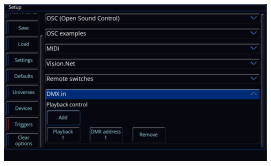
Some ZerOS consoles have a physical DMX input connector that can be used to receive DMX.

On FLX, FLX S24, FLX S48 & ZerOS Server, either of the physical DMX output ports can be configured as an input instead.

Click here for information on configuring a DMX Output as a DMX Input



The DMX In section in Triggers will be shown on consoles with a DMX input configured. An Add button is available, to allow you to map a DMX Input to a playback.



Upon pressing Add, a Playback field, and a DMX address field will appear. This allows you to choose which playback you wish to control, and the DMX address you wish to use to control it.

A Remove button is also available to remove DMX control from a playback.

Once a playback has been assigned a DMX address, this playback's level can be controlled by the level of the respective DMX slot.

DMX Input levels will mix Highest Takes Precedence with playback levels in ZerOS.

If the level of the assigned DMX slot is @ 0, and the DMX slot level is snapped to full, this will emulate a press of the playback's button.

Once a playback has been configured, clicking Add another time, automatically populates the next playback number and DMX address.

If you attempt to assign a playback a DMX address that is already in use by another playback, you will receive an error message.

MIDI Show Control

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.

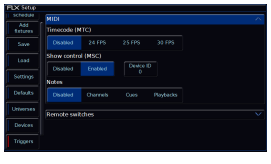
The MIDI Show Control (MSC) protocol is a suite of messages that can be used to trigger lighting cues. The MSC source is often a computer software package, with a USB to MIDI interface. MSC can be used to trigger the lighting in sync with other media (such as sound & video).

MIDI Show Control messages consist of a "Q_List" and Q_Number" ID. Therefore a Q_List 0, Q_Number 2 message, will be triggering cue 2 on the Master Playback.

If the received MSC message has a blank Q_List ID, ZerOS will trigger cues on the currently viewed playback.

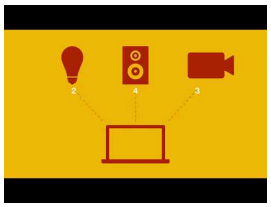
Action commands supported by ZerOS are:

- GO - Go will trigger the cue number defined in the MSC message. If no cue number is defined, the next cue in the playback will be trigger using its fade time.
- STOP - Stop will pause the defined playback.
- LOAD - Allows you to choose the next cue, without going to it.
- 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.

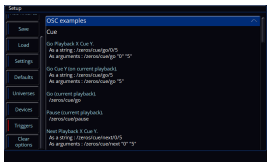


https://youtu.be/IUIWG0jW_SM

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.

OSC Examples



The OSC Examples section of the Triggers tab, lists all of the OSC commands that ZerOS can receive.

Commands can be received as a string, as an argument (with or without quotes) or combined. For example, the following commands would all trigger Cue 5 of Playback 1:

- /zeros/cue/go/1/5
- /zeros/cue/go/1 “5”
- /zeros/cue/go “1”,“5”
- /zeros/cue/go “1/5”

The below table lists all available commands. Where alternative "shorthand" commands are listed in the same cell, these are interchangeable - made available to speed up programming. For example "/zeros/cue/go" and "/lx/q/go" have identical functionality - the first being easier to read, and second being quicker to type.

1st	2nd	3rd
/zeros /flx /lighting /lx	/cue /q	/go
		/pause
		/next
	/playback /pb	/go
		/pause
		/level
		/release
		/view
	/blackout /bo /dbo	
	/grandmaster /gm	/level *(can be omitted)*
	/macro	

Find out about the types of OSC messages...

- Cue
- Playback
- Macros, Grand Master & Blackout
- Unsupported

Cue

Go

	String	Combined	Argument (with or without quotes)
Go Playback X Cue Y	/zeros/cue/go/X/Y	/zeros/cue/go/X "Y"	/zeros/cue/go "X","Y" /zeros/cue/go "X/Y"
Go Cue Y (current playback)	/zeros/cue/go/Y		/zeros/cue/go "Y"
Go (current playback)	/zeros/cue/go		

Pause

	String	Combined	Argument (with or without quotes)
Pause (current playback)	/zeros/cue/pause		

Next

	String	Combined	Argument (with or without quotes)
"Next" Playback X Cue Y	/zeros/cue/next/X/Y	/zeros/cue/next/X "Y"	/zeros/cue/next "X","Y" /zeros/cue/next "X/Y"
"Next" Cue Y (current playback)	/zeros/cue/next/Y		/zeros/cue/next "Y"

Playback

Go

	String	Combined	Argument (with or without quotes)
Go Playback X	/zeros/playback/go/X		/zeros/playback/go "X"
Go (current playback)	/zeros/playback/go		

Pause

	String	Combined	Argument (with or without quotes)
Pause Playback X	/zeros/playback/pause/X		/zeros/playback/pause "X"
Pause (current playback)	/zeros/playback/pause		

Playback levels

	String	Combined	Argument (with or without quotes)
Playback X to level Y% over Z seconds	/zeros/playback/level/X/Y /zeros/playback/level/X/Y/Z	/zeros/playback/level/X "Y" /zeros/playback/level/X/Y "Z" /zeros/playback/level/X "Y","Z" /zeros/playback/level/X "Y/Z"	/zeros/playback/level "X","Y" /zeros/playback/level "X/Y" /zeros/playback/level "X","Y","Z" /zeros/playback/level "X/Y/Z"
	Level in %. Optional fade time, in seconds *If fade time is not set, ZerOS will use the raise/lower time ("move" rather than "fade")*		

Release

	String	Combined	Argument (with or without quotes)
Release Playback X	/zeros/playback/release/X		/zeros/playback/release "X"
Release (current playback)	/zeros/playback /release		

View

	String	Combined	Argument (with or without quotes)
View Playback X	/zeros/playback/view/X		/zeros/playback/view "X"

Macros, Grand Master & Blackout

	String	Combined	Argument (with or without quotes)
Run User Macro X	/zeros/macro/X		/zeros/macro "X"
Grand Master to level Y% over Z seconds	/zeros/grandmaster/level/Y /zeros/grandmaster/level/Y/Z /zeros/grandmaster/Y /zeros/grandmaster/Y/Z	/zeros/grandmaster/level/Y "Z" /zeros/grandmaster/Y "Z"	/zeros/grandmaster/level/ "Y" /zeros/grandmaster/level "Y","Z" /zeros/grandmaster "Y" /zeros/grandmaster "Y","Z"
	Level in % (The word "Level" is optional within the string. It is not required but can be included to match the equivalent Playback level command). Optional fade time, in seconds		
Blackout	/zeros/blackout/X		/zeros/blackout "X"
	To turn Blackout on, X can = "1", "on", "enable", "enabled", or "true" *To turn Blackout off, X can = "0", "off", "disable", "disabled", or "false"*		

Click here to view these examples as a PDF

Unsupported Commands

Time tag

OSC allows for time tags within "bundles" of messages. ZerOS only supports bundles of messages with the time value of "immediately". If a timestamp is present, ZerOS will ignore the WHOLE message and not run the command.

Wildcards

OSC allows for wildcards. ZerOS does not support wildcards. If a wildcard is present, ZerOS will ignore the WHOLE message and not run the command.

Vision.Net

Vision.Net, a command protocol from Vari-Lite, is designed to fully integrate lighting systems that scale from a single room to large multi-building campuses. ZerOS consoles can be triggered using Vision.Net button panels, touchscreens, sensors and I/O modules.

Click here to find out more about Vision.Net

The Vision.Net protocol has 0-255 Room IDs. Within a Vision.Net Room, you can send "Presets" or "Levels":

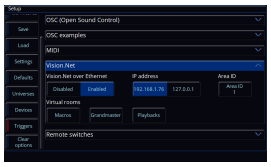
- A Room can have 0-32 Presets, which can be used to trigger cues on a particular playback, or trigger macros.
- A Room can have 0-127 Levels messages, which can be used to control the levels of playbacks or the Grand Master. Levels come in three forms, but are received by ZerOS in the same way, so any can be used:

- "Slider Stations" (VN Message ID 4)
- "Submasters" (VN Message ID 17)
- "Sliders" (VN Message ID 19)

ZerOS can receive Vision.Net messages over the network via Ethernet, or over RS485 via the physical DMX ports.

Click here for information on receiving Vision.Net commands using the console's DMX ports.

Vision.Net Over Ethernet



To receive Vision.Net over Ethernet, enable Vision.Net from the Triggers tab of Setup in the Vision.Net panel. Once enabled, the Vision.Net protocol network settings can then be configured.

IP ADDRESS

The IP address options will allow you to configure your Vision.Net network settings. You can choose between using a DHCP address, or a static IP address.

Vision.Net will be set to a Static IP address of 192.168.1.10 (Subnet Mask 255.255.255.0) by default.

For information on network settings, see the Networking chapter.

When using Vision.Net over Ethernet, you have 1-1000 Area IDs. Each of these areas contains the standard 0-255 Vision.Net Room IDs. This is a bit like DMX - when using RS485, you have a single universe ("Area" in Vision.Net), whereas when using Ethernet, you have multiple universes ("Areas" in Vision.Net).

ZerOS can be assigned an Area ID, so that it will receive messages within this Area. By default, Vision.Net devices default to an Area ID of 1. However, if you would like ZerOS to be triggered by Vision.Net devices on a different Area ID, the Area ID can be changed by clicking the *Area ID* button in the Vision.Net settings.

Virtual Rooms

Once Vision.Net has been enabled, you then need to tell the console which Vision.Net Room ID you are using, and what part of ZerOS you want your Preset/Level messages to control. The following aspects of ZerOS can therefore be assigned to a particular Vision.Net Room...

- Macros
- Grandmaster

- Playbacks
- Cues

Macros

Macros on the console can be triggered using Vision.Net Preset commands. Vision.Net Presets 1-32 are mapped 1 to 1 with Macros on the console.

To trigger macros using Vision.Net commands, click the Macros button under Virtual rooms in the Vision.Net settings. Vision.Net preset commands with this room number, will then trigger their respective macro number.

So if Macros are assigned a room of 2, and ZerOS receives a Vision.Net Room 2, Preset 5 message, this will trigger macro 5.

Click here to find out more about Macros

Grandmaster

The Grandmaster level on the console can be adjusted using Vision.Net Level messages, by using Vision.Net Raise & Lower buttons, or Vision.Net Sliders/Submasters.

The Grandmaster can be assigned a room by clicking "Grandmaster" under Virtual rooms in the Vision.Net settings. Level 0 messages within the assigned room, will adjust the Grandmaster.

Playbacks

The levels of the console's playbacks can be adjusted using Vision.Net Level messages. Vision.Net Level messages are mapped 1 to 1 with playbacks.

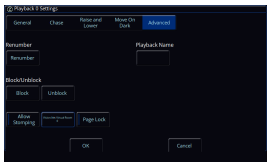
As well as controlling playback levels with Vision.Net Level messages, playbacks can be triggered and released by sending Vision.Net Toggle Up or Toggle Down commands.

Playbacks can be assigned a room by clicking "Playbacks" under Virtual Rooms in the Vision.Net settings. Vision.Net Level messages and Toggle messages within the assigned room, will control playbacks.

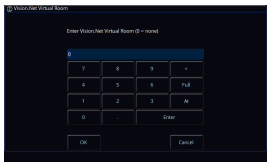
So if the Playbacks room is set to 2, and you receive a VN Channel 5 Toggle Down message, within Room 2, playback 5 will be triggered. A VN Channel 5 Toggle Up message, within Room 2, will release playback 5.

Cues

Any programmed cue, can be triggered with Vision.Net Preset commands by assigning a particular playback a room number.



To assign a playback a room number, press and hold Setup, and tap a playback's button, to open the playback's settings. Go to the Advanced tab at the top, and then choose the Vision.Net Virtual Room button.



You can then enter the room number. If ZerOS receives Vision.Net preset commands with this room number, the preset number will trigger the respective cue number in the playback.

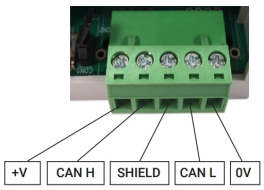
So if playback 1 is given a room number of 2, and ZerOS receives a Vision.Net Room 2, Preset 3 message, this will trigger cue 3 on playback 1.

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.

Connecting ZerOS Server to the iCANnet Network

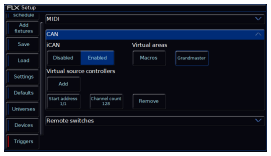


The phoenix connector uses this pinout.

Function	iCANnet Cable Colours
0V	Black
CAN L	Blue
Shield	Silver
CAN H	White
+VDC	Red

These colours are used.

Configuring CAN



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

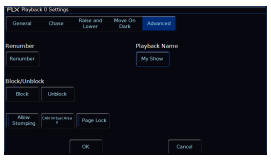
The Grand Master can be assigned a virtual Area Number from the Triggers tab of Setup. Scene Modify messages can be used to alter the current Grandmaster level (Latest Takes Precedence with the physical fader).

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’.

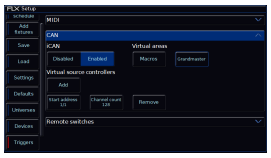
Scene messages will trigger the relative cue within that playback (Scene 1 = Cue 1 etc.). This means a Scene 0 will trigger cue 0 of that playback, turning off any active cues in the playback.

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.



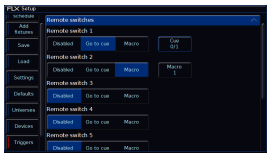
To do this, CAN must first be enabled within the Trigger tab of Setup. In the CAN settings of the Triggers tab, virtual Source Controllers can be created by pressing “Add”. Each virtual Source Controller requires a DMX Start Address and a number of Channels. Only create Source Controllers you intend 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.

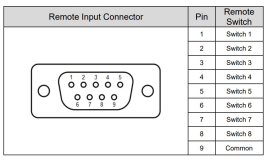
Remote Switches

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.



Remote Input Connector	Pin	Remote Switch
	1	Switch 1
	2	Switch 2
	3	Switch 3
	4	Switch 4
	5	Switch 5
	6	Switch 6
	7	Switch 7
	8	Switch 8
	9	Common

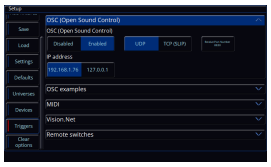
A 9 pin D-sub connector providing 8 remote switches (common ground) can be found on the rear of the console. Short pin 1-8 to pin 9 (common) to simulate a button push.

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.

OSC

ZerOS can receive triggers over OSC. Support includes Cues (Go, Pause, Next), Playbacks (Go, Pause, Playback Level with optional fade time, Release, View), Macros, Grand Master (with optional fade time) and Blackout.

Click here to find out about OSC



OSC can be enabled from the Triggers tab of Setup, in the OSC panel. Once enabled, the OSC protocol network settings can then be configured.

OSC differs from other protocols that can be configured in ZerOS. This is because the network port number that OSC is received on can be customised. ZerOS uses "8830" as the default port number, but this can be configured using the *Receive Port Number* field.

OSC messages can also be sent as "UDP" or "TCP (SLIP)". The setting in ZerOS will need to match the option set in the application sending the OSC messages. UDP is the default setting.

IP ADDRESS

The IP address options will allow you to configure your OSC network settings. You can choose between using a DHCP address, or a static IP address.

OSC will be set to a Static IP address of 192.168.1.10 (Subnet Mask 255.255.255.0) by default.

Once configured, your console will be listening for OSC commands.

For information on network settings, see the Networking chapter.

Click here to find out the OSC commands that ZerOS can receive

MIDI Timecode

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.

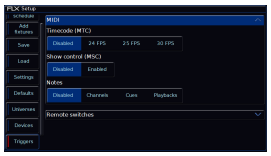
MIDI Timecode (MTC) is a clock signal, with time given in Hours:Minutes:Seconds:Frames. Any cue across any playback can be assigned a Time Code stamp, meaning that when this clock time is received from a MTC clock source, this cue will be triggered. This is configured by opening the settings of the cue 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.

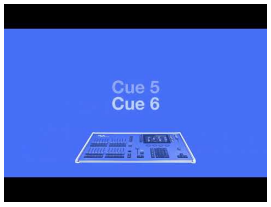
MTC has the option to be streamed in 24 fps (frames per second), 25 fps, and 30 fps. When a MTC signal is present, ZerOS will automatically detect the frame rate. If you wish to define timings before a clock signal is present, tap Setup -> *Triggers* -> Time Code, and choose the frame rate.

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

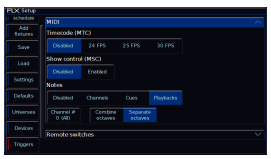
https://youtu.be/KgtmkD9K0co

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 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 #* . 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.

Combine Octaves

When MIDI Notes Octaves are combined, only the first 11 Channels, Cues or Playbacks can be triggered. For example, if MIDI Notes is set to trigger channels:

- Note 1 thru Note 11 triggers Fixture 1 thru 11
- Note 13 thru Note 23 triggers Fixture 1 thru 11
- Note 25 triggers Fixture 1, and so on.

Separate Octaves

When MIDI Notes Octaves are separate, the first 127 Channels, Cues, or Playbacks can be triggered. The "First Note" field can be used to set a MIDI Notes offset. For example, if MIDI Notes is set to trigger channels:

- When First Note = 0 : Note 1 triggers Fixture 1
- When First Note = 1 : Note 2 triggers Fixture 1

Channels

MIDI Note-On and Note-Off commands can be used to turn fixture intensities on or off respectively. MIDI Notes intensity control is mixed HTP with ZerOS 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.

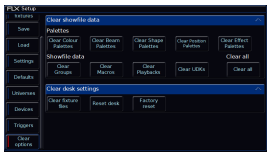
Firstly, program a macro that presses your Go button. You can do this by tapping RECORD MACRO x ENTER (where x is an empty macro number) -> Keys -> Press your Playback's Go button -> MACRO. Now, view an empty playback, and program an empty cue. Go into this cue's settings -> Macros... -> Macro Add -> 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 Note-On and Note-Off commands can be used to turn playbacks on or off respectively. Playback levels 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 Notes are mapped 1 to 1 with playbacks. Therefore, MIDI Note 0 will trigger the Master Playback, MIDI Note 1 will trigger playback 1, and so on. 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.

Clear Options



Clear options allows you to clear certain areas of the console, or reset the console back to factory settings. The Clear Options are split into Showfile Data, and Desk Settings.

Clear Show File Data

Data stored on the console is separated into nine types, each of which can be cleared independently to each other. Alternatively, *Clear All* will clear all nine types in one go, and therefore clear all programming on the console.

Options will only be shown if data has been created in the current show file for that data type. Selecting any of these options will offer confirmation before clearing. Once confirmed, this action cannot be undone.

These data types are:

- Colour Palettes
- Beam Palettes
- Shape Palettes
- Position Palettes
- Effect Palettes
- Macros
- Groups
- Playbacks
- User Definable Keys

Clear Desk Settings

Clear Fixture Files

A separate option, that is not included within *Clear All* , is *Clear Fixture Files* . This removes all custom fixtures from the console, that are not contained in the fixture library. It will therefore clear all fixtures which are displayed in red in the Fixture Schedule and Add Fixtures. It will not remove fixture files that are currently patched, meaning you can clear fixtures files knowing your programming won't be affected. It also means if you need to clear all custom fixtures apart from one, temporarily patch the one you want to keep, and then clear fixture files to remove the rest.

Unpin Add Fixtures

Fixture manufacturers & models that have already been patched, and fixtures that have been loaded into the console, will be "pinned" to the top of Add Fixtures. This allows you to easily patch a fixture you are already using again. To "unpin" fixtures that are no longer in use, tap Setup -> *Clear Options* -> *Unpin Add Fixtures*

Reset

Reset desk will reset all settings and data on the console, excluding network settings and touchscreen calibration. This cannot be undone.

Factory Reset completely wipes the console back to a fresh installation of ZerOS.

After confirming a Factory Reset, the console will need to be restarted.

Upgrade

If your console is fully upgraded to the maximum number of universes, the Upgrade tab in Setup will be hidden.

Therefore the Upgrade tab will be hidden on:

- 2 universe FLX S24 and FLX S48 consoles
- 16 universe FLX and ZerOS Server

The Upgrade tab will also be hidden in Phantom ZerOS, as Phantom ZerOS will run the fully upgraded variant of the chosen Desk Type.

FLX, FLX S24, FLX S48 and ZerOS Server have the ability to have their channel count upgraded in individual universe increments.

FLX and ZerOS Server, can be upgraded to a maximum of 16 universes of channels (8192 channels), patchable across the 64 desk universes. They can come as a 16 universe version from the factory, or have extra universes added at a later date.

FLX S24 and FLX S48 can be upgraded to a maximum of 2 universes of channels (1024 channels), patchable across the 64 desk universes. FLX S can either come as a 2 universe version from the factory, or have the additional universe added at a later date.

To upgrade, tap Setup, and choose "Upgrade", which will be the bottom tab from the left-hand options.

Then click *Save Details* to save a text file to USB which includes all the information required for the upgrade.

Then, click here to email your console's Universe Upgrade file to us

Once your universe upgrade has been approved, you will be emailed your console's universe upgrade code file. This can then be saved to a USB drive, and loaded into the console from Setup -> *Upgrade* -> *Load File*

After loading the unlock code, the console will then ask to be restarted. The next time the console boots, the extra universes will be unlocked.

Unlock codes are **not** transferable between consoles.