

CUECORE3 MANUAL



Revision History

Revision	Date	Author(s)	Description
8	15.09.2025	FL	Updated features and functionality such as Console. Structural overhaul for enhanced readability.
7	10.05.2025	FL	32 Universe, RdmNode, SpiNode and other functionality added. Errors fixed.
6	11.07.2024	FL	General updates and improvements.

© 2026 Visual Productions BV. All rights reserved. No parts of this work may be reproduced in any form or by any means - graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems - without the written permission of the publisher.

While every precaution has been taken in the preparation of this document, the publisher and the author assume no responsibility for errors or omissions, or for damages resulting from the use of information contained in this document or from the use of programs and source code that may accompany it. In no event shall the publisher and the author be liable for any loss of profit or any other commercial damage caused or alleged to have been caused directly or indirectly by this document.

Due to the dynamic nature of product design, the information contained in this document is subject to change without notice. Revisions of this information or new editions may be issued to incorporate such changes.

Products that are referred to in this document may be either trademarks and/or registered trademarks of the respective owners. The publisher and the author make no claim to these trademarks.

Art-Net™ Designed by and Copyright Artistic Licence

The Visual Productions logo and the term "CueCore" are registered trademarks of Visual Productions b.v.



EU Declaration of Conformity

We, **Visual Productions BV**, as the manufacturer, hereby declare under our sole responsibility that the following device:

Product Name: CueCore3
Product Type: Lighting Controller

complies with the requirements of the following directives and standards:

Applicable Directives:

- 2014/30/EU – Electromagnetic Compatibility (EMC)
- 2011/65/EU (as amended by 2015/863) – Restriction of Hazardous Substances (RoHS)

Applied Harmonised Standards:

- EN 61000-6-1:2019 – Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial, and light-industrial environments
- EN 63000:2018 – Technical documentation for the assessment of electrical and electronic products concerning the restriction of hazardous substances

This declaration is issued under the sole responsibility of the manufacturer, confirming that the object of the declaration complies with the relevant Union harmonisation legislation.

Authorised Representative:

Full name and identification of the person responsible for product quality and compliance with standards on behalf of the manufacturer:

Date: March 28, 2025
Place: Haarlem, The Netherlands



Ing. Maarten Engels
Managing Director
Visual Productions BV

SUPPLIER'S DECLARATION OF CONFORMITY (No. 2023/202-03)

This Declaration of Conformity is issued under the sole responsibility of the manufacturer

MANUFACTURER

Company name	Visual Productions BV
Full address	Izaak Enschedeweg 38A 2031 CR Haarlem
Country	The Netherlands

RESPONSIBLE PARTY – U.S. CONTACT INFORMATION

Company name	ACT Entertainment
Full address	3581 Larch Lane Jackson, MO 63755
Country	United States of America
Contact details (Phone)	+ 1 800 255 9822

DESCRIPTION AND IDENTIFICATION OF THE EQUIPMENT

Generic denomination	Lighting control system
Function/intended use	Architectural lighting controller
Model	CueCore3

The object of the Declaration described above is in conformity with all relevant provisions of:

FCC (47 CFR Part 15B)

Supplementary information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.



Signed for and on behalf of:

Place of issue: Haarlem
The Netherlands

Identity: Maarten Engels
Function: Managing Director

Date of issue: 13-06-2023

Signature:

A handwritten signature in blue ink, appearing to read 'Maarten Engels', with a horizontal line underneath.



QPS Evaluation Services Inc
Testing, Certification and Field Evaluation Body
Accredited in Canada, the USA, and Internationally

File
LR3268

CERTIFICATE OF COMPLIANCE
(ISO TYPE 3 CERTIFICATION SYSTEM)

Issued to	Visual Productions BV
Address	Izaak Enschedeweg 38A 2031 CR Haarlem The Netherlands
Project Number	LR3268-1
Product	Lighting Control System
Model Number	CueCore3, CueCore2, QuadCore, IoCore2, TimeCore
Ratings	9-24V DC, 0.5 A Powered by an approved LPS power supply, I/P:100-240Vac, 1.0A max 50-60Hz, O/P: 12Vdc, 1A, 12W max
Applicable Standards	CSA C22.2 No 62368-1:19 Audio/Video, Information and communication technology equipment- Part 1 and UL62368-1- Audio/Video, Information and communication technology equipment- Part 1
Factory/Manufacturing Location	Same as above

Statement of Compliance: The product(s)/equipment identified in this Certificate and described in the Report covered under the above referenced project number have been investigated and found to be compliant with the relevant requirements of the above referenced standard(s) and versions. As such, they are eligible to bear the QPS Certification Mark shown below, in accordance with the provisions of QPS's Service Agreement.

IMPORTANT NOTE

In order to maintain integrity of the QPS Mark(s), this certification will be revoked if:

- (1) Compliance with the above-mentioned Standard(s) – including any, informed through QPS Standard Update Notice (QSD 55) issued in future – is not maintained, or
- (2) The product/equipment is modified after certification is granted, without prior written consent from QPS.



Issued By: Andrew Saunders

Signature:

Date: June 28, 2024



The SCC and IAS Accreditation Symbols are official symbols of the respective accreditation bodies, used under license.
81 Kelfield St., Unit 8, Toronto, ON, M9W 5A3, Canada Tel: 416-241-8857; Fax: 416-241-0682
www.qps.ca



Contents

1	Introduction	1
2	Installation	5
3	Network	7
4	Purple Cloud	9
5	Settings	11
6	RdmNode, SpiNode and unlocking DMX Universes	23
7	Monitors	25
8	Patch	28
9	Console	32
10	Playbacks	38
11	Tracks	45
12	Showcontrol	51
13	Protocol Conversion	59
14	vManager	65
15	CueluxPro	70
	Appendices	74
A	Trigger Types	75
B	Task Types	86
C	Templates	98
D	Troubleshooting	101

I What's in the box

The CueCore3 packaging contains the following items (see figure 1):

- CueCore3
- Ethernet cable
- 6-pin terminal
- Power supply
- 4x international plug
- Information card



Figure 1: CueCore3 box contents

II Quickstart

To quickly get connected to your CueCore3, follow these steps:

1. Download and install the free vManager software from your app store. vManager is available for Windows, MacOS and Linux. Be advised: there is no version of vManager for mobile devices such as tablets and phones.
2. Connect your CueCore3 to a network switch.
3. If connected to a PoE port, this immediately powers up your CueCore3. Otherwise use the supplied power supply.
4. The LED on the back of the CueCore3 will pulse RED if in DHCP mode, or WHITE if in Static IP mode.
5. Make sure your computer is connected to the same network and subnet as the CueCore3.

6. Start the vManager app, and you should see your CueCore3 in the device list.
7. Select the CueCore3 and click 'Browse' to open its web interface in your web browser.
8. You can now start programming.

For a tutorial on how to connect to your device, have a look at this video on our Youtube channel: <https://www.youtube.com/watch?v=CU5Kj4HMxcs>

Chapter 1

Introduction

1 Introduction

Thank you for choosing the CueCore3; a lighting controller designed for (semi) permanent installations. The CueCore3 is the most powerful controller developed so far by the engineers at Visual Productions. Features and extensions are added regularly.

We hope you will create beautiful lighting installations using the CueCore3 and enjoy commissioning your CueCore3 projects as much as we enjoyed designing this controller.



Figure 1.1: CueCore3

At the time of writing this manual the CueCore3's release firmware was at version **1.30.25**.

1.1 Track Capacity

Featuring a flash memory more than 40 times the size of the memory in a CueCore2, the CueCore3 can store considerably longer DMX recordings. This makes the CueCore3 the preferred choice for channel heavy LED pixel projects, when combined with SpiNode.

1.2 Number of Playbacks

The number of playbacks has been increased from 6 to 16. The additional playbacks makes it easier to program multiple zones or create more interactivity by having various external triggers activate different playbacks.

1.3 Number of Actions

The CueCore3's larger memory also facilitates a higher number of actions and tasks to be programmed in the show control section. Taking the automation of the lighting controller to the next level.

1.4 RDM

The DMX ports are bi-directional and RDM capable, featuring RDM discovery, remote addressing and sensor data.

1.5 Four DMX ports

The CueCore3 is equipped with four DMX ports fitted with 5-pin XLR connectors. Each port has independent optical isolation: a surge on one DMX port is prevented from affecting the other ports.

1.6 Patch

The other CueCores did not contain fixture information; they only have DMX channel data. The CueCore3, however, features a fixture patch. In this patch the user can - it is optional - enter the fixture data like starting address and personality. When the patch is set up, the CueCore3 is capable of controlling the fixture's parameters via the integrated console or through ShowControl. Also, the patch is used for determining the intensity channels when smartly dimming playbacks containing pre-recorded tracks. In the CueCore2 this function relied on the *Intensity Map*.

1.7 Purple Cloud

The CueCore3 is designed to be remotely monitored and controlled by the Purple Cloud. The Purple Cloud is a cloud service that has been developed by Visual Productions parallel to the development of the CueCore3. See chapter 4.

2 Features

The feature set of the CueCore3 includes:

- Recording and playback of 4 universes extendible to 32 (requires RdmNode and / or SpiNode)
- 4x DMX-512 (ANSI E1.11) optically isolated port (bi-directional)
- RDM (ANSI E1.20)
- 4x GPI
- MIDI, MSC & MMC
- SMPTE, MTC & Art-Net timecode
- Art-Net, sACN & KiNet
- TCP, UDP & OSC messages
- Master-slave protocol for synchronising multiple CueCore3 units
- Scheduling with Real-Time clock, weekdays and sunrise/sunset
- NTP time synchronisation
- Desktop or DIN Rail mounted
- PoE (Power Over Ethernet) Class III
- Can be used with CueluxPro, vManager and Kiosc software

3 Limitations

The CueCore3 is a powerful device with many possibilities, there are however some limitations, as shown in the following table.

Playbacks	16
Cues per Playback	64
Tracks	128
Total recoded Track(s) size	1024MB
Action lists	Each source once
Actions system-wide	256
Tasks system-wide	512
Patched Fixtures	400
Variables	20
Timers	4
Timespans	4

4 Saving data to memory

The CueCore3's web interface is the main space to do your programming of the device. Changes you make are automatically saved. As a rule of thumb, **Wait for about 30 seconds after making a programming change before rebooting or powering down the device.**

5 Further Help

If, after reading this manual, you have further questions then please consult the online forum at <https://forum.visualproductions.nl> for more technical support.

Chapter 2

Installation

This chapter discusses how to set up the CueCore3.

1 DIN Rail Mounting

The device can be DIN Rail mounted. The device is prepared for DIN Rail mounting by using the 'DIN rail holder TSH 35' from Bopla (Product no. 22035000).



Figure 2.1: Bopla DIN rail adapter

This adapter is - amongst others - available from:

- Your authorized Visual Productions distributor
- Farnell / Newark (order code 4189991)
- Conrad (order code 539775 - 89)
- Distrelec (order code 300060)

2 Rackmount

There is an adapter available for mounting the CueCore3 into a 19" rack. The rackmount adapter is 1U and is sold separately. It fits two units, however, it is

supplied with one position closed by a blind panel, see figure 2.2.



Figure 2.2: Rackmount adapter

3 Power

The CueCore3 requires a DC power supply between 9 and 24 Volt with a minimum of 500mA (@9VDC). The 2,1 mm DC connector is center-positive. The CueCore3 is also Power-over-Ethernet (PoE) Class III enabled.



Figure 2.3: DC polarity

4 Installation Environment

Make sure the environment the CueCore3 is installed in is free from moisture ingress. The operational temperature range is -20°C to +50°C.

Chapter 3

Network

1 IP Address

The CueCore3 supports both static IP addresses and automatic IP addresses. By default, the CueCore3 is set to 'DHCP' in which it will be automatically assigned an IP address by the DHCP server in the network.

If the CueCore3 is set in DHCP mode and no DHCP server is present in the Network, it will automatically fall back to a random IP address in the range 169.254.XX.XX after a few seconds.

Static IP addresses are useful, for instance when there is a direct peer-to-peer connection between a CueCore3 and a computer. It is also useful in permanent installations where the IP address of the CueCore3 is known by other equipment and therefor should not change. When using DHCP there is often the risk of automatically being given a new IP address in the event that the IP lease time runs out. **When using static IP addresses make sure that all equipment on the network have unique IP addresses within the same subnet.**

The CueCore3's LED helps to determine which kind of IP address is set. The LED will indicate red when using DHCP and it will indicate white in the case of a static IP address.

There are three ways to change the IP address setting of the CueCore3.

- **vManager** can be used to detect a CueCore3 on the network. Once found, the vManager software (figure chapter 14) allows for changing the IP address, subnet mask and DHCP settings.
- If the IP address is already known then browsing to this address using the computer's browser will show the CueCore3's **web-interface**. The Settings page on this web-interface enable changing the same network related settings.
- Briefly pressing the **reset button** on the device toggles between static and automatic IP addresses. By pressing and holding the reset button (see figure 3.1) on the device for 3 seconds, it will reconfigure the unit



Figure 3.1: Reset button

to the factory default IP address and subnet mask. The white LED will flash a few times once the reset has been finished. No other settings will be changed. The default IP address is 192.168.1.10 with the subnet mask set to 255.255.255.0.

Chapter 4

Purple Cloud

The *Purple Cloud* is a cloud service created by Visual Productions. It allows CueCore3 and KioskTouch devices to be remotely monitored and controlled via the internet.

Communication between the devices and *Purple Cloud* is AES-256 CBC encrypted to ensure secure data transmission.

The *Purple Cloud* is accessible via <https://www.visualproductions.nl/cloud>. Registration is free of charge.

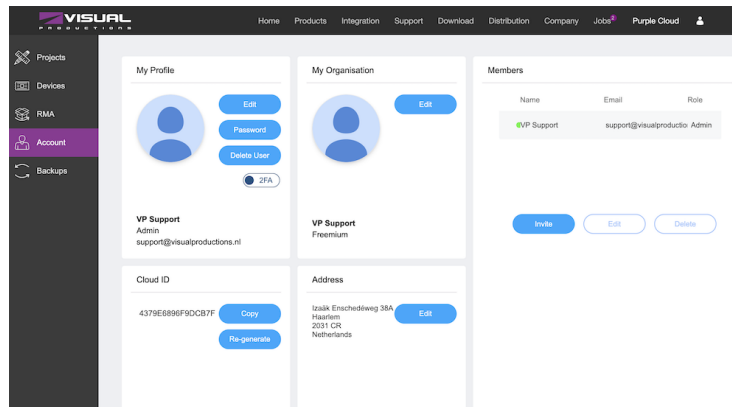


Figure 4.1: Account settings

Organisations can register an *Account* - see figure 4.1 - and add its team members as *Users*.

To connect your devices to your cloud account , you need to take the following steps:

1. Enter the Cloud ID
This ID can be found on the *Purple Cloud*'s Account page. Copy this ID into the Cloud ID field on the *Settings* page of the CueCore3.
2. See also page 16.

Your device should now be visible in the *Devices* page of the *Purple Cloud*, see figure 4.2

When the Cloud ID in the CueCore3's settings page has been validated by the Purple Cloud, its colour will go from orange to white.

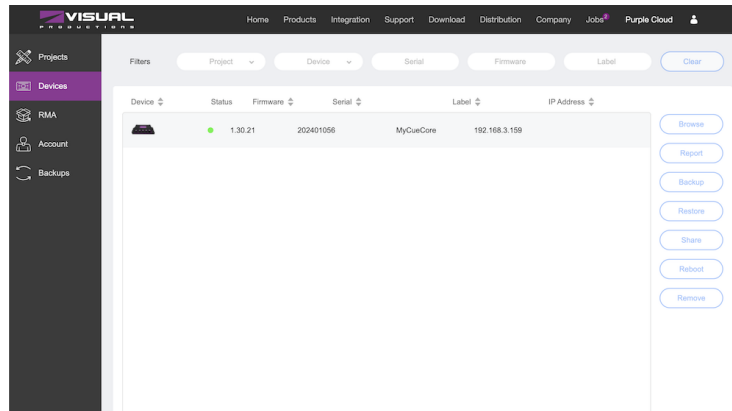


Figure 4.2: Devices overview

The CueCore3 can now be viewed by selecting the device in the table and clicking the 'Browse' button. This brings up a pop-up window that shows the CueCore3's web-interface.

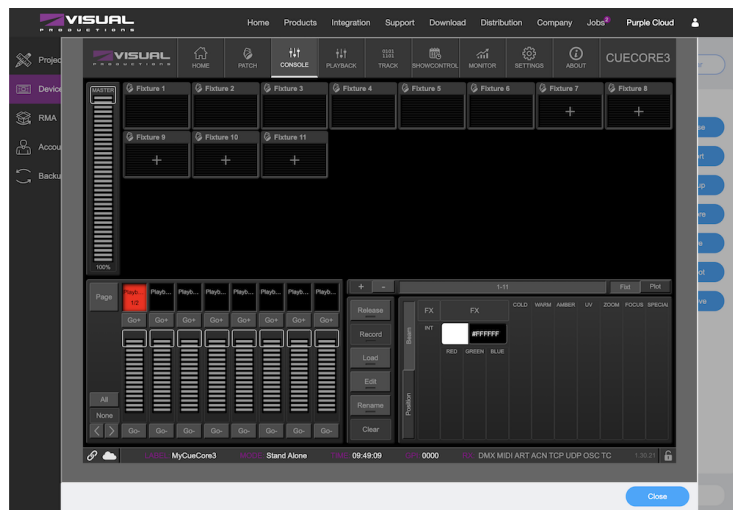
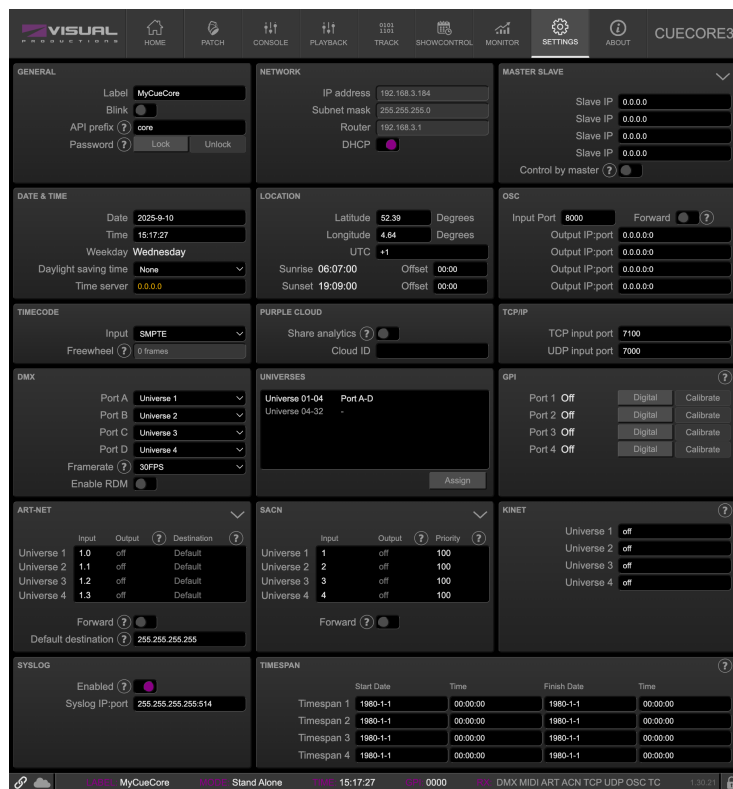


Figure 4.3: Remotely monitoring a CueCore3

Chapter 5

Settings

The CueCore3's settings are organised into sections, see the Settings page figure 5. This chapter will discuss each section.



1 General

Here you can change the CueCore3's label. This label can be used to distinguish the unit in a set-up with multiple devices.

By enabling the *Blink* checkbox the device's LED will blink to help to identify it amongst multiple devices.

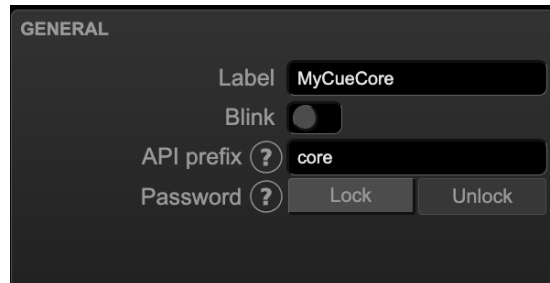


Figure 5.1: General Settings

The API commands discussed in appendix E start with a prefix that is set to *core* by default. When using multiple devices from Visual Productions it can be useful to assign unique labels to these prefix, especially when using broadcast messages. Read more about feedback loops in paragraph 5.1.

Unauthorised users can be prevented from making changes to the CueCore3 by enabling the *Password* protection. Once enabled, the password can be disabled via the web-interface (using the *Disable* button) When a password is lost or otherwise unknown, only a manual factory reset will remove it. This also results in the loss of all programming and tracks. See the Troubleshooting section on page 2 for details on how to perform that device reset.

2 IP

The IP fields are for setting up the IP address and subnet mask of the CueCore3. The *Router* field is only required when Port Forwarding is used. You can also enable or disable the DHCP feature (For more information see chapter 3 at page 7).

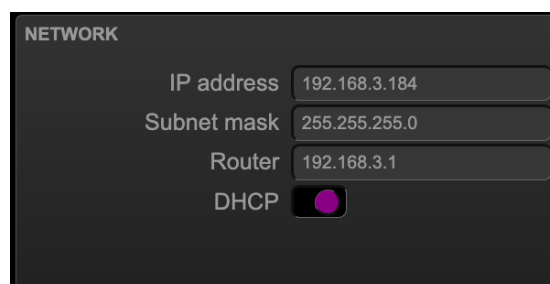


Figure 5.2: IP Settings

3 Master Slave

This section enables the master-slave synchronisation.

MASTER SLAVE

Slave IP 0.0.0.0

Slave IP 0.0.0.0

Slave IP 0.0.0.0

Slave IP 0.0.0.0

Control by master ? ☐

Figure 5.3: Master / Slave Settings

The master-CueCore3 should specify the IP addresses of its slaves. When the IP is indicated in white then the master-slave connection is established, otherwise the IP is indicated in orange. For creating a system with more than four slaves, a broadcast IP can be set. A message sent to a broadcast address may be received by all network-attached hosts. A typical broadcast IP address is 192.168.1.255, however, this depends on the subnet used.

The slave-CueCore3 units require the 'Allow control by master' checkbox to be enabled. **Enabling 'Allow control by master' checkbox will cause playback data to be overwritten.**

When a CueCore3 is in Slave mode, it will indicate that on the Status Bar at the bottom of the web-interface.

4 Date & Time

The date and time of the Real Time Clock (RTC) can be set here. The clock has a back-up battery to keep the time during a power down. Daylight Saving Time (DST) is supported for the regions Europe and United States.

DATE & TIME

Date 2025-9-10

Time 15:18:04

Weekday Wednesday

Daylight saving time None

Time server 0.0.0.0

Figure 5.4: Date & Time Settings

The Time Server field allows an NTP server to be specified. At start up, the CueCore3 will fetch the time and date from this server. And automatically after every hour. Additionally, an action can be used to refresh the time. The

DST and the Coordinated Universal Time (UTC) are taken into account when obtaining the time from the NTP server.

The following table lists some suggested NTP servers.

Continent	Server
North America	64.90.182.55
South America	201.49.148.135
Europe	216.239.35.8
Africa	196.23.245.74
Asia	133.100.9.2
Australia	137.92.140.80

More servers can be found at <https://www.ntppool.org>.

5 Location

The astronomical clock in the CueCore3 calculates the sunrise and sunset times based on day of the year, latitude, longitude from settings, and UTC from the RTC. The latitude and longitude values define the position in the world and should be entered in decimal degrees. The latitude is positive for North and negative for South, with the longitude being positive for East and negative for West.

The website <https://www.findlatitudeandlongitude.com> can help discover the latitude and longitude values for the current location. The time-zone and perhaps daylight saving time of the current location is expressed in the UTC value.

For example, Visual Productions' HQ is based in the city of Haarlem, the Netherlands. During the winter the UTC equals +1 and in the summer during day light saving time it is set to +2. So, the settings for the Visual Productions' HQ are shown in Figure 5.5.

The screenshot shows a dark-themed settings menu titled "LOCATION". It contains the following fields and values:

- Latitude:** 52.39 Degrees
- Longitude:** 4.64 Degrees
- UTC:** +1
- Sunrise:** 06:07:00
- Sunset:** 19:09:00
- Offset (for both Sunrise and Sunset):** 00:00

Figure 5.5: Location settings

The Offset fields allows to shift the sunrise and sunset triggers, both earlier and later. For example, to have a trigger half an hour before sunrise set the offset

to -00:30.

6 OSC

External equipment sending OSC messages to the CueCore3 need to be aware of the number specified in the 'Port' field. This is the port the CueCore3 listens to for incoming messages.

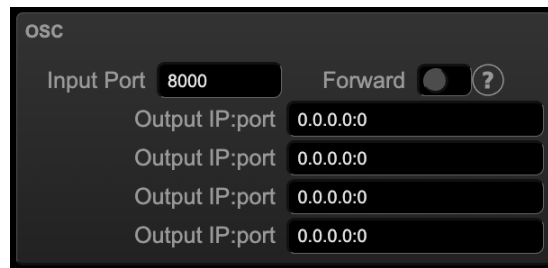


Figure 5.6: OSC Settings

The CueCore3 will send its outgoing OSC messages to the IP addresses specified in the 'Out IP' fields. Up to four IPs can be specified here. Use the 'ip-address:port' format in these fields, e.g. "192.168.1.11:9000". If a field should not be used then it can be filled with IP 0.0.0.0. It is possible to enter a broadcast IP address like 192.168.1.255 in order to reach more than four recipients.

Enabling the *Forward* checkbox will have the CueCore3 copy every incoming OSC message and send it the addresses specified in the 'Out IP' fields.

7 Timecode

The CueCore3 can receive SMPTE, MTC and Art-Net timecode. This section allows to choose one of these protocols as the timecode source. Alternatively, the CueCore3 also has 'internal' timecode; a timecode generated by the unit itself (Internal timecode cannot be outputted by the CueCore3). Synchronisation of playbacks and actions depend on this choice.

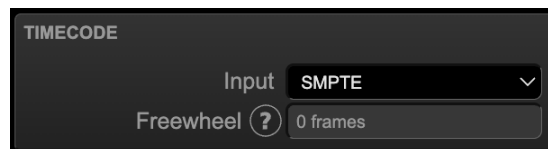


Figure 5.7: Timecode Settings

The timecode freewheel will allow continue for some frames after the timecode source stops. "Forever" can be entered to continue playback when no timecode is received.

8 Cloud

To connect your CueCore3 to the Purple Cloud, paste your *Cloud ID* here and enable the *Share Analytics* option.

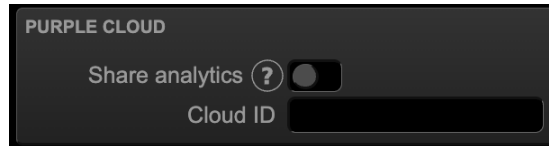


Figure 5.8: Cloud settings

9 TCP UDP

Defines the listening ports for TCP and UDP messages. External systems intending to send TCP or UDP message to the CueCore3 need to know the unit's IP address and this port number. By default both ports are set to 7000.

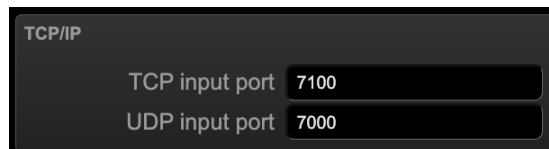


Figure 5.9: TCP/UDP settings

10 DMX

The *DMX* settings specify whether the DMX port is an *Input* or *Output*.

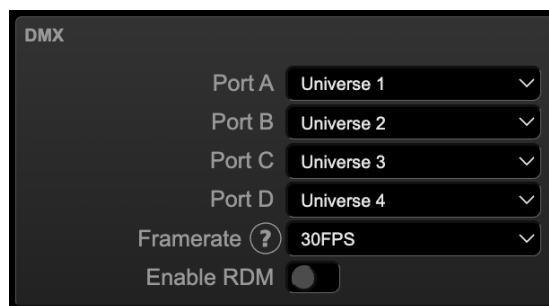


Figure 5.10: DMX settings

Under *Framerate* you can choose the outgoing framerate to match the needs of your DMX receiver. This is done to facilitate DMX fixtures that have difficulties keeping up with the optimal DMX transmission rate.

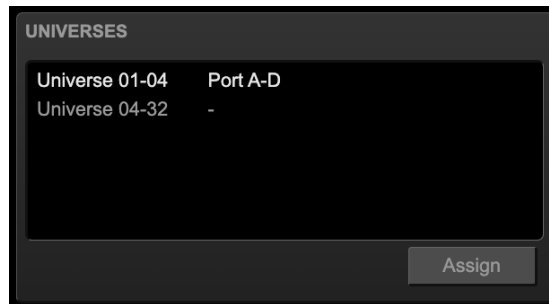


Figure 5.11: Universes

When programming a show that does not use all DMX universes it can be useful to set multiple DMX ports to the same universe. This can make cabling more efficient and perhaps prevent the need of a DMX splitter. For example, when using only 512 channels all DMX ports can be set to 'Universe A'.

RDM can be enabled by using the *Enable RDM* checkbox. This checkbox is repeated on the *Patch* page.

11 Universes

This is where you unlock additional DMX universes on your CueCore3.

By clicking *Assign* you can assign RdmNodes or SpiNodes that have been detected by your CueCore3 to a range of DMX universes of your choosing. An RdmNode will unlock 4 universes, and can be 'assigned' somewhere along the 32 universes. SpiNode unlocks 16 universes and at the moment can only be assigned to universes 5 and 21.

Simply drag and drop a detected node from the *Discovered Devices* field to *Universes*. See figure 5.12

Configuring which Art-Net or sACN universe will be sent to which node / address is configured in their respective settings sections in combination with settings on the node itself. One can also assign automatically using Art-Net by clicking the '*Configure using Art-Net*' button. See figure 5.13

12 GPI

The GPI ports can be configured either as digital (contact-closure) or as analog (0-10VDC) input.

In case a port is set as analog and the signal supplied falls within the 0-10V range (e.g. 1-5VDC), it is recommended to calibrate to port in order to map the minimal voltage to a logical 0% and map the maximum voltage to 100%.

To perform a calibration first enable the Calibrate button, then bring the incoming signal to the minimum level, bring the signal to the maximum level and then close the calibration process by clicking the Calibrate button again.

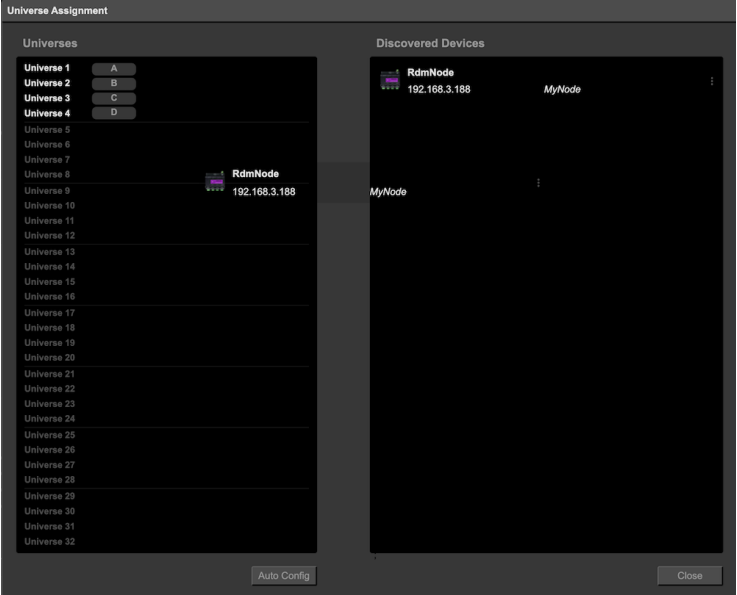


Figure 5.12: Drag and Drop your Node to *Universes*

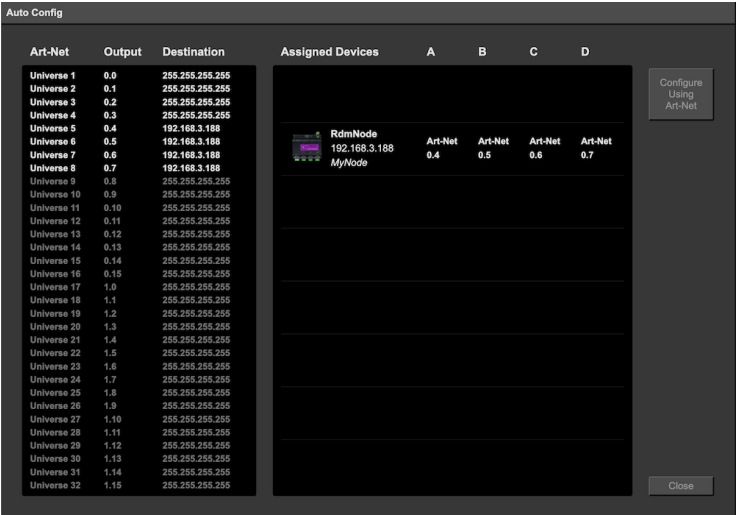


Figure 5.13: Configured using Art-Net universe 0.0

Terminal connections 1 and 6 provide 10V DC and Ground respectively for your convenience. **Do not apply more than 10V DC to the GPI port, as this could cause permanent damage.**

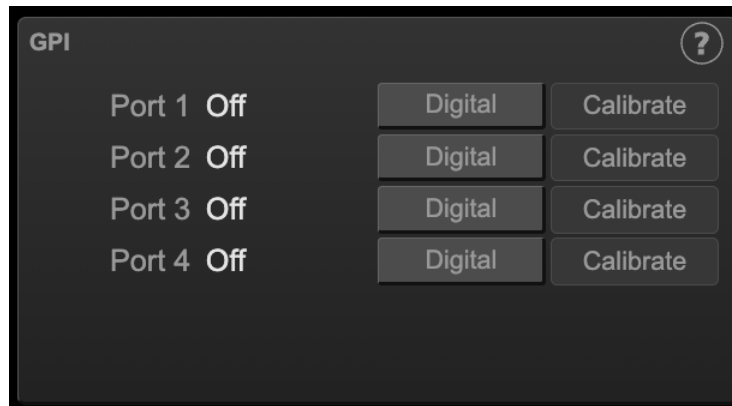


Figure 5.14: GPI Settings

Examples of common connections:

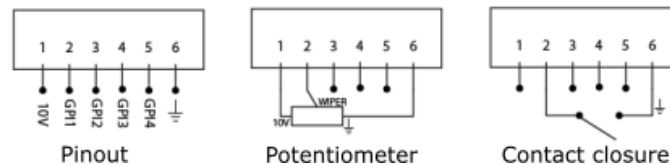


Figure 5.15: GPI connections

13 Art-Net

The *Art-Net* feature in the CueCore3 supports up to 32 universes in and 32 universes out.

These universes can be mapped to any of the 256 available universes in the Art-Net protocol. The universe is entered in the 'subnet.universe' format, and is '0' based, i.e. the lowest universe number is written as '0.0' and the highest universe number therefor is denoted as '15.15'. The outgoing Art-Net transmission can be disabled by entering 'off' in the output field. Use the *arrow down* icon to view all 32 universes. When an RdmNode or SpiNode is connected, this is where you specify the IP address of the node, and the universe(s) you will be sending to it.

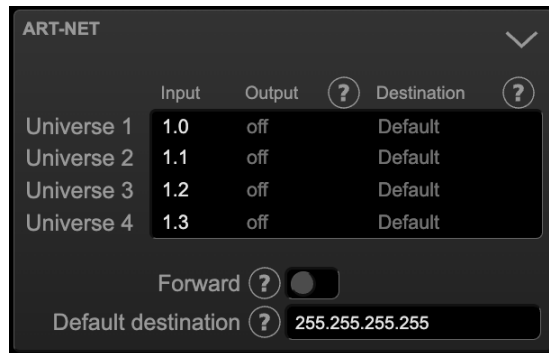


Figure 5.16: Art-Net settings

The *Destination IP* determines where the *default* outgoing Art-Net data will be sent to. Typically, this field contains a broadcast address like 192.168.1.255 which will send the Art-Net data to the 192.168.1.xx IP range. Another typical Art-Net broadcast address is 10.255.255.255. When using broadcast address 255.255.255.255 then all reachable devices on the network will receive the Art-Net data.

It is also possible to fill in a unicast address like 192.168.1.11; in this case the Art-Net data will be sent to one IP address only. This keeps the rest of the network clean of any Art-Net network messages.

14 sACN

The CueCore3 supports up to 32 incoming *sACN* universes and 32 outgoing universe. The universe field should hold a number in the range of [1,63999]. Outgoing sACN transmission can be disabled by entering *off* into the sACN output field.

When working with RdmNode or SpiNode, this, in conjunction with the settings / routing on the Node is where you decide which port on which Node the data is sent to.

Click the *arrow down* button to see all 32 universes.



Figure 5.17: sACN settings

Set priority field to control the priority level of the output universe. The priority can be set from 0 (lowest) to 200 (highest).

15 KiNet v1

The CueCore3 features transmission of DMX data via KiNet. It supports KiNet protocol version 1.



Figure 5.18: Kinet Settings

16 Timespan

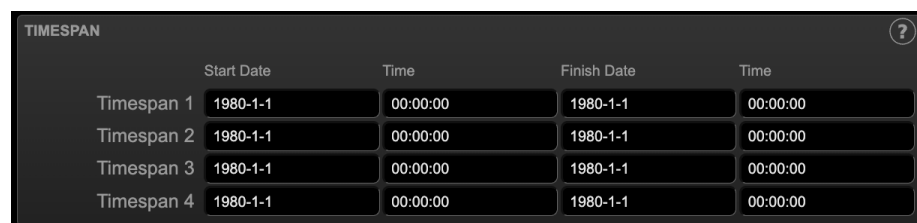


Figure 5.19: Timespan settings

The *Timespan* section allows for four periods of time to be defined. The beginning and end of the time periods will trigger actions in the show control page.

An advantage of *Timespans* over normal scheduler actions is that Timespans are power-cycle safe. When the CueCore3 is without power during the moment of a normal scheduler trigger, it will miss that trigger. *Timespans*, however, **will still receive the trigger once the power is restored** after the moment has occurred.

Timespans are ideal for defining periods of time during a year (like Christmas or Easter) or periods during the day (like opening times).

When entering the date and time data, XX's can be used to signify a 'don't care'. This allows for easily programming of yearly, monthly or daily recurring events.

With the addition of conditional programming (see chapter 6 on page 55) extra power is given to this feature.

Chapter 6

RdmNode, SpiNode and unlocking DMX Universes

The CueCore3 supports 4 DMX universes 'out of the box'. However, up to 28 additional universes can be unlocked to make a usable total of 32 DMX universes. To unlock universes, RdmNode and SpiNode devices (fig. 6.1) need to be assigned. They unlock 4 and 16 universes respectively. This enables you to program and control pixel heavy panels and façades for instance.

The on-board track memory can hold hours of lighting content, allowing you to fully unleash your design creativity.

1 RdmNode

The RdmNode by Visual Productions is designed to supply the CueCore3 with additional DMX outputs. There are four ports, and therefore universes, on each RdmNode. Art-Net and / or sACN are used to send the DMX data to the Node via ethernet network. Helping you reach further more cost effectively than you



Figure 6.1: The Rdm- and SpiNode

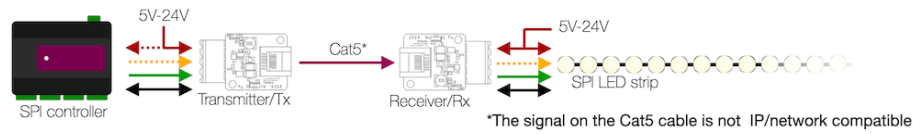


Figure 6.2: Diagram SpiNode and SpiExtender

would be able to with DMX cabling alone. As the name suggests, it is RDM capable, for ease of deployment and troubleshooting of your fixtures.

2 SpiNode

With the SpiNode, Visual Productions has entered the up and coming realm of SPI based lighting. These individually addressable pixels find their way into many projects these days. One SpiNode has 4 SPI ports, each capable of 1024 pixels. Since each pixel can have for instance RGBW as channels, this consumes quite a bit more DMX bandwidth.

The SPI protocol can reach up to 10 meters from the port on the SpiNode. Using the Visual Productions SpiExtender however, this can be lengthened to 200m. See figure 6.2.

3 Unlocking Universes

To use the RdmNode and SpiNode to unlock the additional universes, Go to the *Settings* page of the CueCore3 web interface, section *Universes*. See page 17 in this manual for an explanation of that section.

Chapter 7

Monitors

Knowing what information your device is sending, receiving, or otherwise manipulating is very important. On the monitoring page you find lots of constantly updated information about the state of your device.

1 Output

The live DMX output on any of the 32 universes is shown here. The page shows all 512 channels of one universe. Use the buttons on the right hand side to choose which universe, as well as whether it shows decimal values or a percentage.

2 Inputs

For inspecting incoming DMX values. Either on one of the four physical DMX ports on the CueCore3, or networked Art-Net or sACN. The setup is the same as for the output: 512 channels are shown, and universe selection is handled by the buttons on the right.

3 Message protocols

See what messages your CueCore3 is receiving and sending out. MIDI over either the MIDI port or network RTP-MIDI. TCP, UDP or OSC over network. This is a valuable tool for troubleshooting the communication between for instance your KioskTouch2 or B-Station2 and the CueCore3.

4 Timers and Variables

4.1 Timers

Under the *Timers* button you find the current state of the four on-board count-down *timers* and the 20 *variables*. Timers can be a handy tool to allow a certain interval between starting different playbacks, selecting certain fixtures

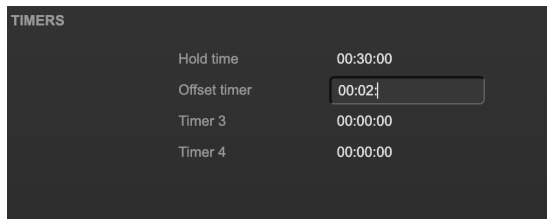


Figure 7.1: Editing timers

Variable	Value	Label	Maximum	
Locat	0	Barn	255	Edit
Colours	0	Red	5	Edit
Variable 3	0	-	255	Edit
Variable 4	0	-	255	Edit
Variable 5	0	-	255	Edit
Variable 6	0	-	255	Edit
Variable 7	0	-	255	Edit
Variable 8	0	-	255	Edit
Variable 9	0	-	255	Edit
Variable 10	0	-	255	Edit
Variable 11	0	-	255	Edit
Variable 12	0	-	255	Edit
Variable 13	0	-	255	Edit
Variable 14	0	-	255	Edit
Variable 15	0	-	255	Edit
Variable 16	0	-	255	Edit
Variable 17	0	-	255	Edit
Variable 18	0	-	255	Edit
Variable 19	0	-	255	Edit
Variable 20	0	-	255	Edit

Figure 7.2: Editing variable names

to be changed, or between changing values on a variable. These are just a few of the many possible scenarios.

4.2 Variables

Another feature, we find, that is very powerful and allows for quite versatile programming. Use variables to control which playback is chosen at a certain moment. Where to send a network message. Dis- or enable an actionlist. Et cetera. And with the newly added Conditions (see page 55 for more information), that programming power has only increased.

Both Timers and Variables can be edited on the fly. For instance:

- Doubleclick on a count down timer's name or time to change it. In figure 7.1 you see timers labeled as *Hold time* and *Offset timer*, with their values assigned manually.
- Doubleclick the variable name to change it. In figure 7.2 variables were assigned names

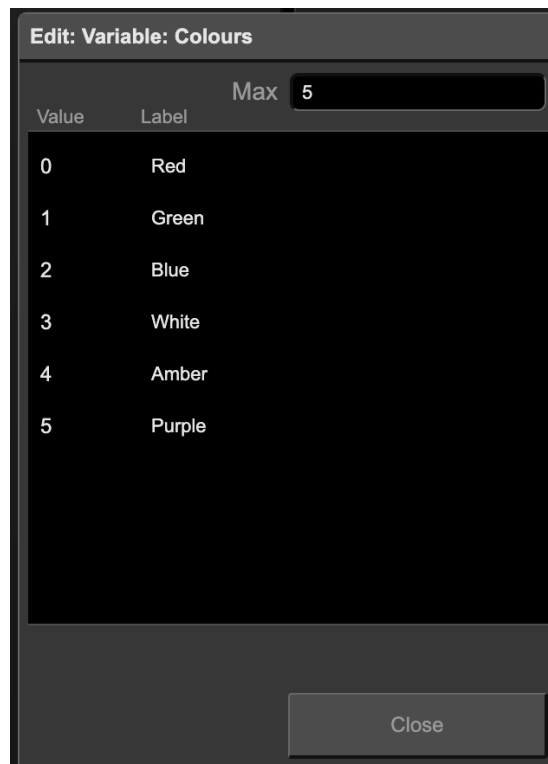


Figure 7.3: Editing variable labels

- Then use the '*Edit*' button to assign the labels: The amount of values limited, and each value given a label. See figure 7.3

Chapter 8

Patch

The *Patch* page is the starting point when using the CueCore3 to control DMX fixtures. This page is used for identifying which fixtures will be controlled. Up to 400 fixtures can be patched.

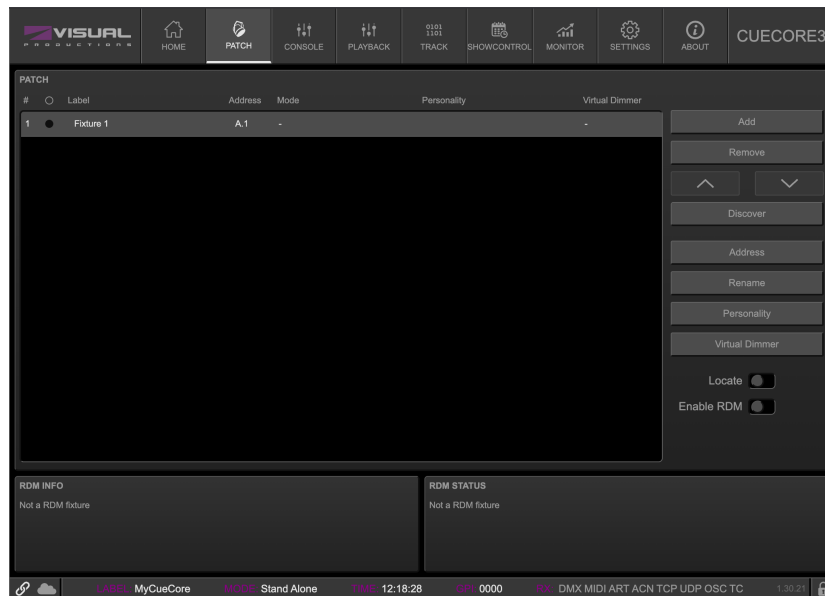


Figure 8.1: (empty) Patch Page

1 Adding fixtures

Press the *Add* button to add a fixture to the patch.

After setting the DMX address and a personality, you can quickly add many more fixtures with the same personality and sequential addresses. Make sure the fixture of choice is selected. Then press and hold the *Add* button. You will

be asked to give a number of fixtures to add. Then click *Add* again, and your fixtures will appear on the list.

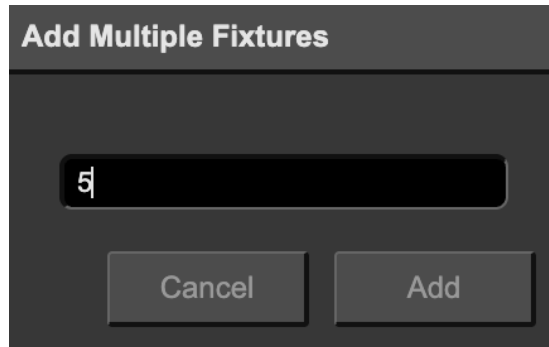


Figure 8.2: The number of fixtures to add

Similarly, to remove the entire patch, press and hold the *Remove* button. The list will be emptied after confirmation.

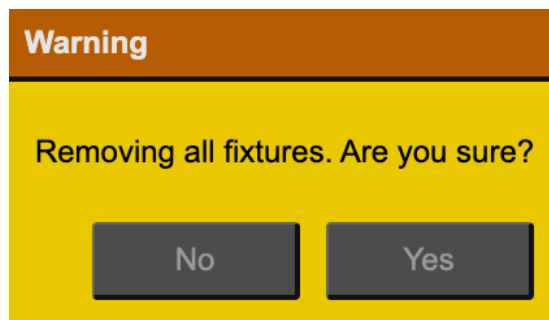


Figure 8.3: Removing all fixtures

2 DMX Address

DMX starting addresses range between 1 and 2048 (for the standard unit). If all universes have been unlocked the highest channel number is 16384. The CueCore3 automatically sets the DMX address when adding fixtures to the patch, by finding the first available DMX channel in your configuration. You are free to change the address.

If you have multiple fixtures selected, the CueCore3 will set the entered address for the first selected fixture and will automatically have the next selected fixtures follow the previous ones. For example, if you select four RGB fixtures in the patch and set the address to 101, this will result in addresses 101, 104, 107 and 110 for the selected fixtures.

3 Personality

Each fixture requires a *personality*; a profile that matches the fixture's DMX traits. See figure 8.4 for the available traits on the CueCore3. Traits can be set using the buttons, or by using text input.

When a parameter is 16-bit it requires two DMX channels. In this case, the *fine* channel is denoted by the parameter character in lowercase. E.g. a 16-bit RGB fixture, occupying 6 DMX channels, would have the following personality RrGgBb.

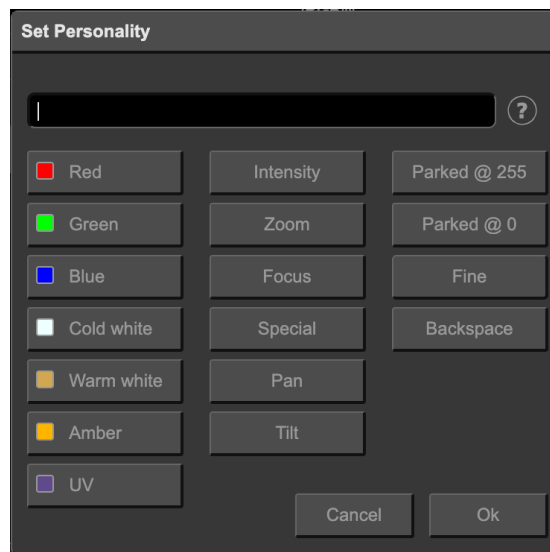


Figure 8.4: Personality dialog

4 Virtual Dimmer

Personalities with RGB but without Intensity will automatically be given the option for a virtual dimmer. This means that the CueCore3 can act as if the fixture has an intensity channel and allow for RGB and intensity to be programmed separately. However, it will actually modulate the intensity on the RGBCWA values.

5 Discover

Before using RDM, it needs to be enabled. This can be done on the *Patch* or *Settings* page. By default RDM is disabled.

Use the *Discover* button to search for RDM capable fixtures. Fixtures found via a RDM discovery will show their RDM UID in the patch table.

After discovery and adding to the patch, address, mode and label of the RDM enabled fixtures can be changed. This will be transferred to the fixture using

RDM Discovery

Universe A	3 Found	Universe B	1 Found	Universe C	0 Found	Universe D	0 Found
UID	Address	Model	Manufacturer	Label			
15D0:024E0074	A.69	ECLPTWCM2x1	ProLights Professional	ECLPTWCM2x1			
5253:00CB00D8	A.1	Robin Viva CMY	Robe Lighting s.r.o.	Robin Viva CMY			
5253:00CB00E9	A.33	Robin Viva CMY	Robe Lighting s.r.o.	Robin Viva CMY 4			
282B:0C0E6D05	B.1	RdmRelay	Visual Productions	MyRdmRelay			

Abort

Close

Figure 8.5: RDM Discovery

the RDM protocol.

Also, any status and error messages can be viewed here after selecting a fixture.

RDM INFO		RDM STATUS	
RDM UID: 5253:00CB00E9		Model: Robin Viva CMY	
Manufacturer: Robe Lighting s.r.o.		Category: Fixture Moving Y...	
Software version: 1.7		Head Temperature: 39 °C Ambient Temperature: 24 °C Base Temperature: 30 °C Wireless Signal State: 0	
		Yellow Error Yellow Error Yellow Error Yellow Error	

Figure 8.6: RDM information and status

6 Locate

When the *Locate* checkbox is enabled, all fixtures will be dark, except the selected fixture(s). This function will help identify specific fixtures. Especially in larger setups.

Chapter 9

Console

The *Console* page is where you can program scenes and cues with the fixtures in the *Patch*.

1 Views

In the viewport, you select which fixtures you will be changing to set up your scene or cue. There is a list of fixtures, or you can opt to freely place the fixtures around the screen to resemble your setup. Even import an image as a background for reference and set its opacity.

1.1 Fixture view

This is the default view. It lists your fixtures, and shows their intensity, colour and pan/tilt position. Select fixtures and use the console to adjust their parameters.

1.2 Plot view

Press the plot button at the bottom right of the viewport.

Then, to make full use of the plot view functionality:

- Press the Plot Edit mode button. See image 9.3
- The fixtures will be lined up on the viewport. Drag and drop them to the desired location on the view.
- Optionally, drag and drop a background image (.jpg, .png, .bmp, etc.).
The image will be automatically resized to fit the viewport.
- Set the opacity of the background using the slider.
- You can delete the background using the delete image button.
- Close Plot edit mode. Now the fixtures can no longer be moved.



Figure 9.1: Fixture View

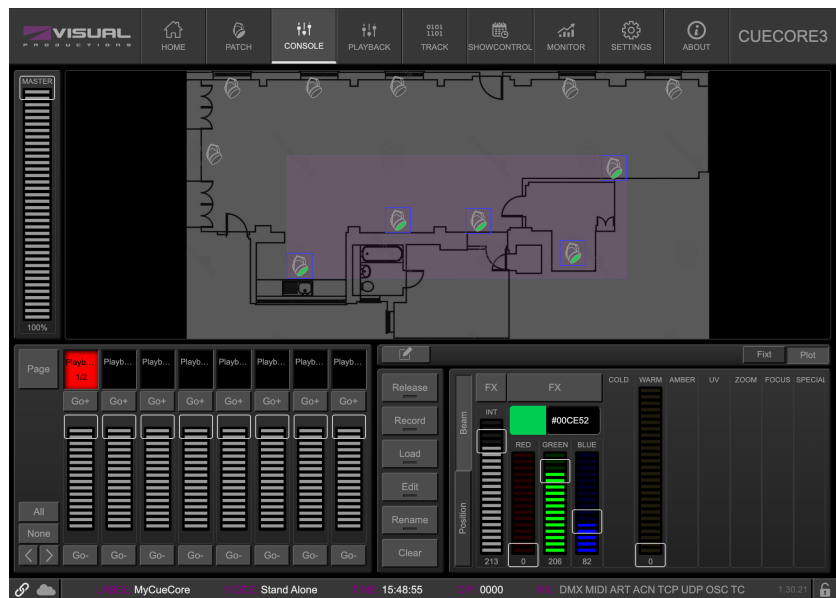


Figure 9.2: Plot View with background



Figure 9.3: Plot View edit controls

- Select the desired fixtures and adjust their parameters using the console.

2 Console

2.1 Beam

The '*Beam*' section of the Console is where you set up the intensity and colours of your fixtures of a new scene.

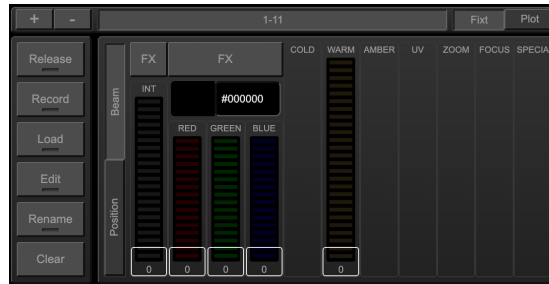


Figure 9.4: Beam settings

2.2 Position

And of course the '*Position*' will be where you make your moveable fixtures move.

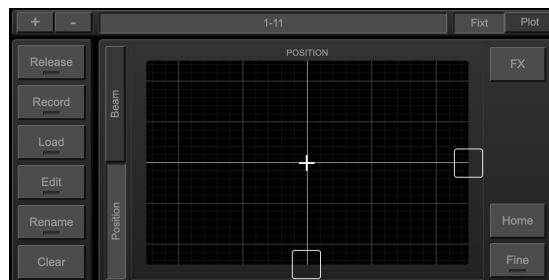


Figure 9.5: Position settings

2.3 Effects

There are three options to easily make automated effects in the CueCore3's console. You will find two '*FX*' buttons on the '*Beam*' console, and one on '*Position*'.

- Intensity effects, such as strobes and chases
- Colour effects, such as rainbows or colour fades
- Position effects, such as circles or waves

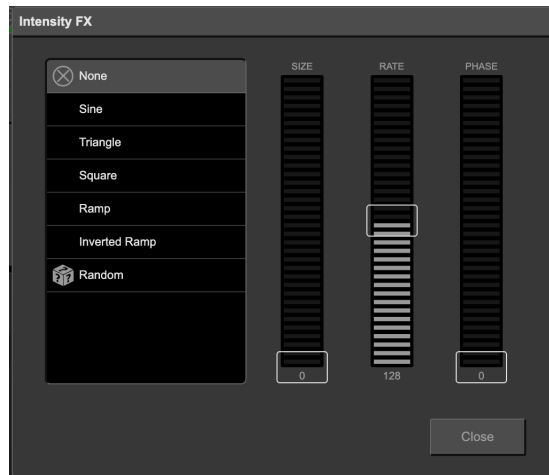


Figure 9.6: Making an Intensity effect

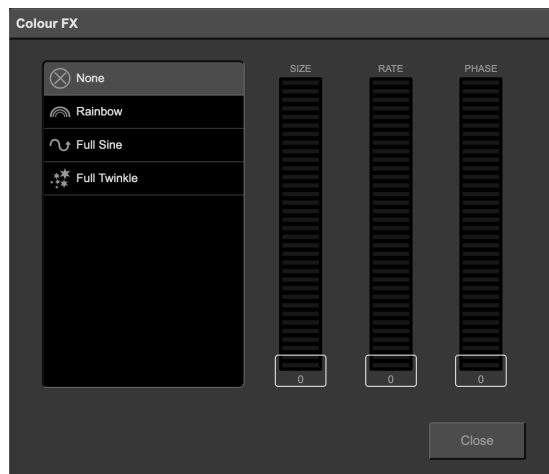


Figure 9.7: Making a Colour effect

3 Storing your Scenes

Make your scene by selecting and deselecting fixtures and giving them the colours, intensities and positions you need.

Press *Record* followed by a playback fader's *Go+* button to record the scene to the list of cues for that playback. If this is the second or more cue in the list, you will be asked where to add this scene. You can append, insert, replace or merge the cue into the list:

- append this cue at the end of the list
- insert after selected cue
- replace the selected cue

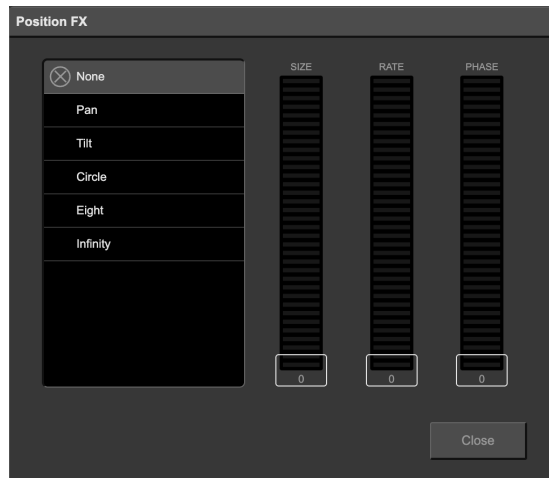


Figure 9.8: Making a Position effect

- merge the current composition *LTP* into the selected cue

Other console functionality. Press:

- *Load* to edit or copy a cue
- *Edit* to edit the playback parameters (same as double click).
- *Clear* to clear the workspace before starting fresh.

Be aware that the composition is persistent when changing pages and starting and stopping playbacks. So don't forget to *Clear* before starting playbacks.

4 Fader banks

This is where you store your scenes into playbacks as cues. 16 Playbacks are available in total. 8 are shown at any one time, but use the '*page*' button to switch between the two pages of 8 playback faders each.

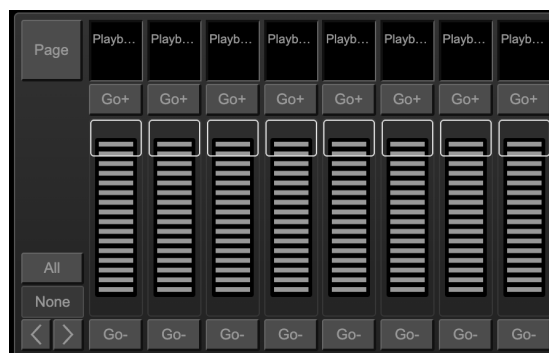


Figure 9.9: Console's Fader Bank

Scroll through your scenes. And quick selection of all or no fixtures, or select them one by one. Double click on a playback's status screen to edit the playback, or use the '*Edit*' button followed by the '*Go+*' button of the playback.

The options for you here are:

- Rename the scene
- Set the scene's priority, fade rate, release time, and timecode options
- See the added Cues and Tracks, order them to your wishes, rename them, and set their fade time and duration

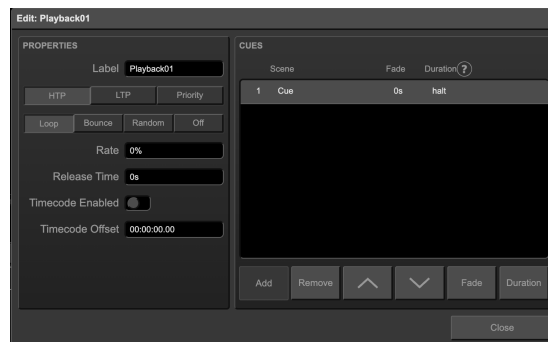


Figure 9.10: Editing Scene parameters

Chapter 10

Playbacks

A playback is capable of activating the lighting content stored in the tracks and cues. Tracks and cues are merely storage for lighting scene information and effects; the playbacks actually play them. The playbacks are located in the Playback page in the web-interface, see figure 10.1.

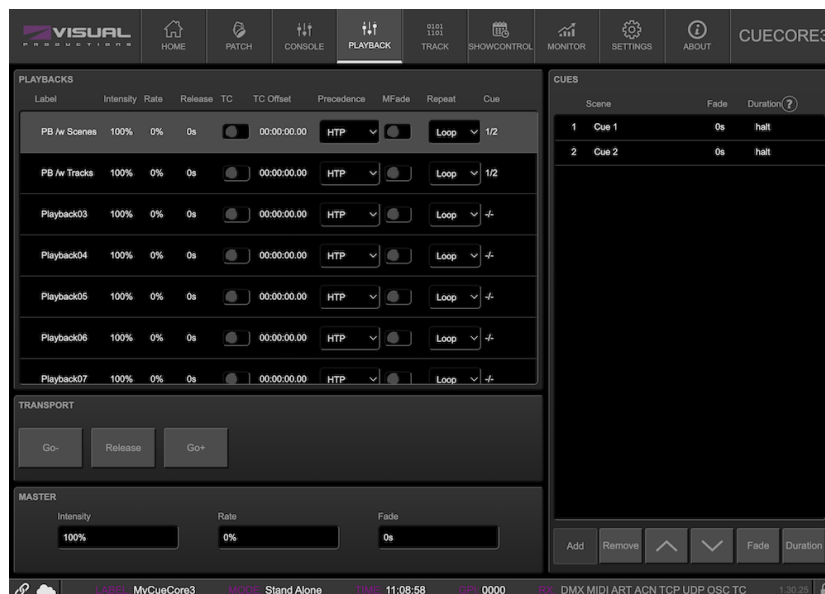


Figure 10.1: Playback page

There are 16 playbacks available. Each can contain up to 128 steps, called 'cues'. A cue will contain reference to cues plus additional information such as fade-time and duration. Figure 10.2 illustrates the structure of a playback. One Playback can either contain 'Tracks' or cues recorded using the '*Console*', shown here as 'Scene'. Not both.

Playbacks can be run independently of each other; they can all start or stop at different times. It is possible to control the same DMX channels from mul-

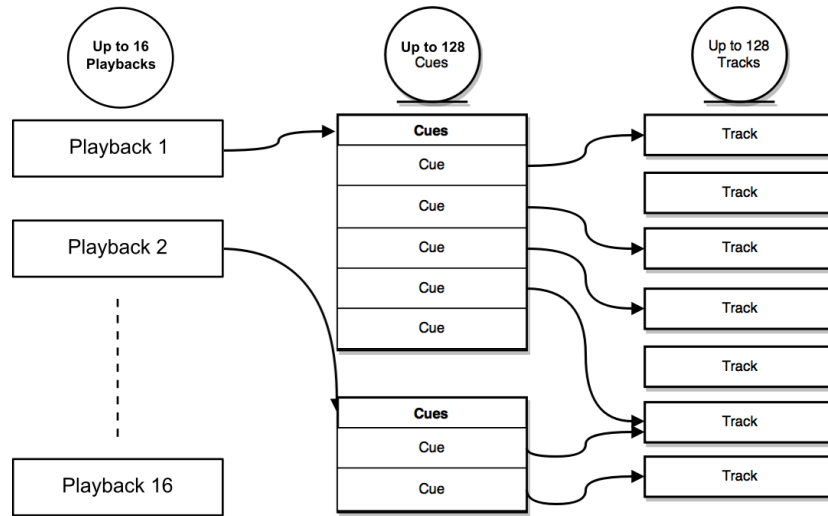


Figure 10.2: Playback structure

multiple playbacks and have them merged together. Also, it is possible to have each playback control a different set of DMX channels; making each playback responsible for a different zone in a building for instance. Figure 10.3 shows an example of controlling multiple zones in a hypothetical restaurant.

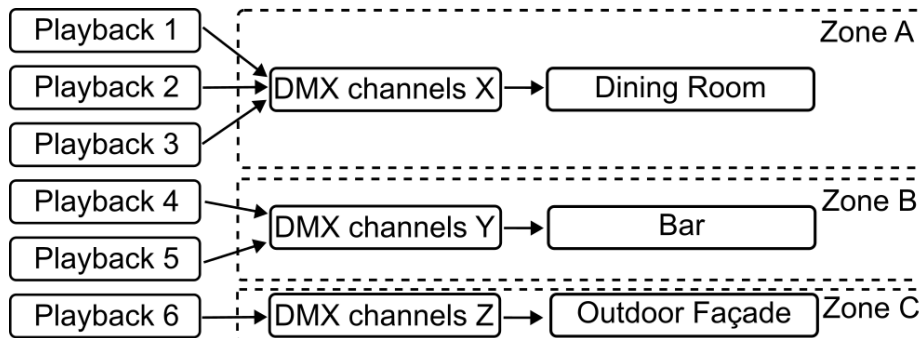


Figure 10.3: Playbacks controlling zones in a restaurant

1 Precedence

All active Playbacks produce DMX values. These values will be merged together and sent to the DMX output. The precedence setting determines how this merging is done. Each playback can be set to either HTP (Highest Takes Precedence), LTP (Latest Takes Precedence) or Priority.

HTP is the most common choice in precedence. With HTP the output of all playbacks is compared to each other; for each DMX channel the level is set to the highest value found in that particular channel amongst all playbacks. The table below shows an example of HTP merging.

	Playback 1	Playback 2	Playback 3	Merged Output
Channel 1	0%	0%	25%	25%
Channel 2	100%	0%	25%	100%
Channel 3	0%	0%	0%	0%
Channel 4	0%	100%	25%	100%

In the LTP approach only one playback is active amongst all LTP playbacks. The output of that active playback is included in the merge with all HTP playbacks. All other LTP playbacks are ignored. Which LTP playback is active is determined by which playback is started latest, or which received a Go+ command latest. Please consider figure 10.4.

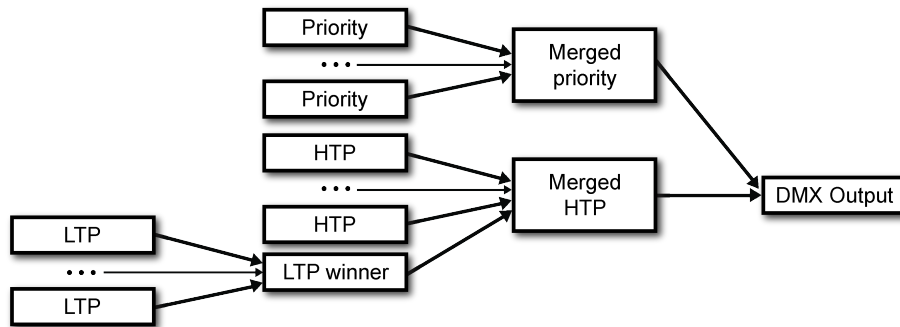


Figure 10.4: Playback precedence

If there is a playback active with its precedence set to Priority then all other playbacks are ignored. When there are multiple Priority playback then those will be merged together according to the HTP principle.

2 Playback Properties

Each playback provides a set of properties that can be used to customise the playback's behaviour. Some properties are changed by double-click.

Label	The name of the playback.
Intensity	The output level of the playback. Typically, a DMX recorder stores the values of the channels without knowing its functions. When reducing the output level at the Playback all channels are reduced, also the ones that contain information other than intensity/dimmer levels. This has the undesired effect that RGB or Pan Tilt channels are also affected, whereas ideally only the intensity levels should be lowered. This is a challenge all DMX recorders have. The CueCore3 overcomes this issue by using the information from the <i>Patch</i> page to check which channels control intensity, only those channels will be dimmed. If no fixtures are patched, then all channels will be dimmed.
Rate	The speed of the playback. By default, it is set to 0%. It can go up to 100% (faster) and down to -100% (slower).
Release	When released the playback can fade out to zero. This release time defines how long this fade out will take. Setting it to 0s will result in an instant release.
TC	When enabled, the playback is synchronised to the current timecode (TC). By default, TC is disabled. Note that the Settings page provides a field for selecting the timecode protocol, e.g. 'internal' or 'Art-Net'.
TC Offset	Specifies at which timecode frame the playback starts.
Precedence	Determines how the output of the playbacks is merged together, as explained on page 39.
MFade	Master Fade override. Normally the fade time between cues is determined by the 'fade' field in the cue properties. When <i>Mfade</i> is enabled then the playback will ignore the cue's fade times and use the master fade time for all its cues.
Repeat	This property determines what the playback does when it finishes the last cue. Loop: Will start over from the beginning. Bounce: Will make it traverse back to the beginning, and it will keep going back and forth. Random: The order of the cues will be random. Off: The Playback will automatically release when reaching the end of the cues.
Cue	Current/Total of Cues. Indicates which cue is currently active and indicates the total number of cues in the Playback.

The intensity and rate properties are not stored in the CueCore3's memory. A consequence of not storing these properties is that after a power cycle their levels will be reverted to the default values. If the intensity or rate requires to be permanently set to a value other than the default value then it is recommended to use the Show Control page and create an action in the 'System' action list.

This action can have its trigger set to 'Startup' and contain tasks to set the playback's intensity and rate to the desired values.

3 Cue

A cue is a step inside a playback. A playback can contain up to 128 cues. A cue does not contain a lighting scene, rather, it refers to a track or scene which has the lighting information. It is possible for multiple cues to refer to the same track. The cue does contain information on how long the cue should be played and if it should be cross-faded from the previous one.

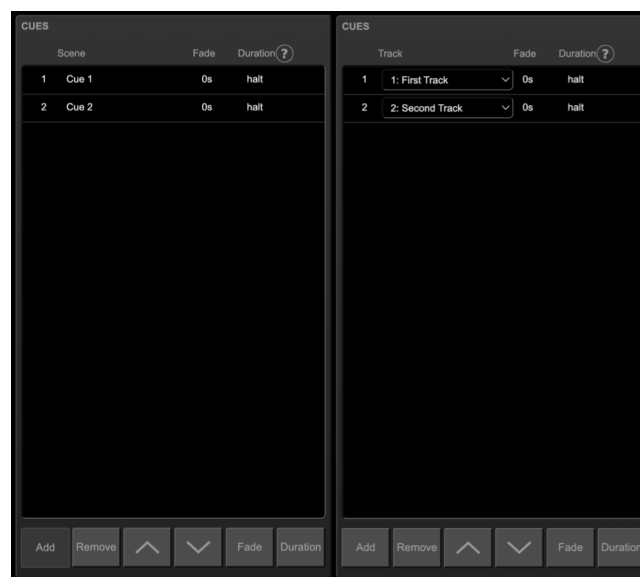


Figure 10.5: Cues in a playback: Either Scene or Track

Each cue provides the following properties:

Track	A reference to the track that will be played in this step.
Fade	The cue will fade from the current levels to its programmed levels. The time it takes to cross-fade is specified by 'Fade'. When the fade is set to 0 then there will be no cross-fade; the values will change instantly.
Duration	Determines how long the cue will be active before traversing to the next cue. This is the time between the completion of the cross-fade into this cue and the start of the cross-fade to the next cue. The duration field accept not only 'time' input such as ".5" "30s" or "1m15", it also accepts 'number of cycles'; the playback can run the cue "1x" or "10x". This is particularly useful when the track referred to by the cue contains a (seamless-)looped effect. Please note that if the track contains a static scene; i.e. the track only holds a single DMX frame, then running it for a number of cycles will create a very short cue as a single DMX frame only takes 25ms. The third option for the duration field is to input "halt". In this case the cue will continue to run indefinitely; it requires a Go+, Go-, Jump or Release command to traverse to the next cue.

The Playback page provides the following buttons to edit the cues:

- Add: Will add a new empty cue.
- Remove: Will remove the selected cue
- Up: Will move the selected cue up a position.
- Down: Will move a selected cue down a position.
- Fade: Will open a pop-up window where you can set the fade time.
- Duration: Will open a pop-up window where you can set the duration.

4 Transport

The transport section offers buttons to control the playbacks.

Go+	Jump to the next cue.
Go-	Jump to the previous cue.
Release	Deactivates the selected playback. Press and hold to release all playbacks.

5 Master

The master section provides features that are applied to all playbacks.

Intensity	The master intensity works like a theatrical 'grand master': it dims the output of all playbacks taking their individual intensity setting into account.
Rate	The master rate will control the play speed of all playbacks; with taking their individual rate settings into account.
Fade	The master fade time overrides the fade time of all cues. This only applies to playbacks that have ' <i>MFade</i> ' enabled.

Similar to some of the playback properties, the master properties are not stored in the internal memory. Please refer to the discussion on page 41.

Chapter 11

Tracks

A *Track* is a piece of lighting content that can be activated by a playback. Tracks can contain dynamic lighting effects; each track can be a 'DMX recording' with a certain duration. Of course, a static scene can also be stored in a track.

There are three different ways to put content inside the track. The *Track Editor* page allows the user to create and edit a static scene directly via the web-interface. This page also is capable of recording a static scene from an external DMX, Art-Net or sACN source. The *Track Editor* page is discussed in detail on page 46.

The second way for storing content into the tracks is done via the *Recorder* section; this section of the *Track* page contains control for recording dynamic DMX content from an external DMX, Art-Net or sACN source, such as a lighting console or computer software.

Furthermore, it is also possible to create the lighting content using our free-of-charge CueluxPro software and 'dump' it to the CueCore3. This can be both dynamic and static content. For more information on CueluxPro see chapter 15, page 70.

1 Number of Tracks

The CueCore3 has a fixed maximum number of 128 tracks.

2 Track Properties

The Track listing (See figure 11.1) displays the following track properties:

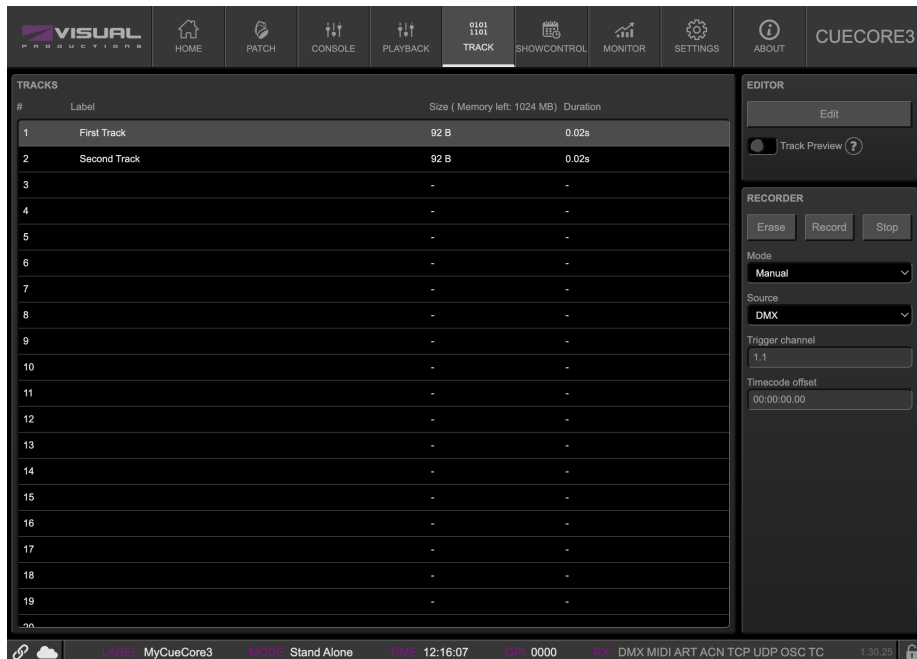


Figure 11.1: Tracks

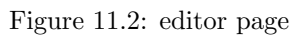
Label	The name of the track; this field can be changed by double-clicking.
Size	The number of bytes used by the data inside the track.
Duration	The length of the track displayed in hours:minutes:seconds.milliseconds.

3 Track editor

The Track Editor page (see figure 11.2) allows to edit a track directly through the web-interface, however, a track does need to be a static scene; it should only contain a single DMX frame. If the track already contains more than one DMX frame and thus is a dynamic track, then it can only be made static by erasing it. The track can be edited by selecting the track in the table and then pressing the *Edit* button. This will automatically enable the *Track Preview* checkbox so the content that is being edited in the editor page is also outputted live.

The 'Track Preview' is a useful option to briefly test the content stored in a track without having to configure a playback for it. Please note that any active playback will be released when the Track Preview is enabled.

Inside the Track Editor page the DMX values of the track can be changed by using the Command-line interface. The following table offers examples of the supported commands.



Instead of setting the values manually, the editor page also offers to make a snapshot - record the entire scene - from an external DMX, Art-Net or sACN source. The buttons in the Capture section become available when the CueCore3 is receiving the signal of the corresponding protocol. I.e. that the 'DMX' button is disabled unless the unit is receiving actual DMX. Please be aware that - once enabled - pressing one of the capture buttons will overwrite the current channel levels in **all** universes.

4 Recorder

The Recorder section is used to capture dynamic content from an external source and store it inside a track. In order to be stored in flash memory, a track requires to be erased first. It is advised to manually erase the track before starting a record. This is done by selecting it in the table and then pressing the 'Erase' button. In case a non-erased track will be directly recorded then the CueCore3 will automatically first erase the track, however, this gives less control over the timing of the start of the recording, especially in the Manual mode.

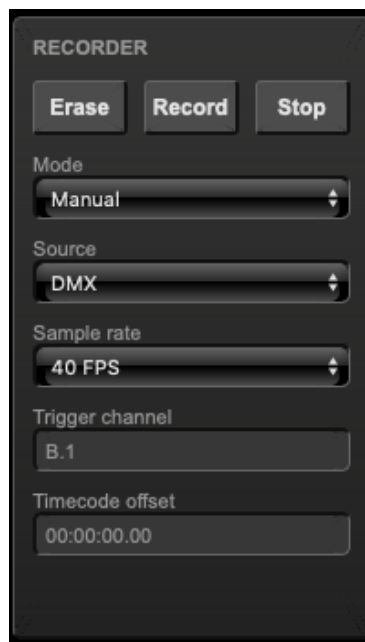


Figure 11.3: Recorder section

The icons in the track table visualise the different states of the recorder. The 'trash icon' indicates a track is being erased. The 'orange dot' signifies a track being ready to start recording, this corresponds to the Triggered or Timecode mode. A 'red dot' indicates a recording in progress.

4.1 Mode

The triggering modes define how the recorder is initiated. There are three different modes.

- The most simple mode is **Manual**. In this mode the user has to manually press the 'Record' button to start and press the 'Stop' button to end the recording. Although simple to operate, this mode does not give accurate control over the timing of the begin and end of the recording. Both human interaction and operation through a web-based user-interface will introduce some degree of lag.
- An automated way of starting and stopping the recording process is done

in the **Triggered** mode. One of the data channels is allocated to control the start/stop. The channel address is denoted by the 'Trigger Channel' field. It is advised to include this channel in the show programming done on the external source; a typical lighting console allows accurate timing of DMX channels which gives fine control over when the recording starts and ends in relationship to the show content. When using the Triggered mode pressing the 'Record' button will prepare the track for recording; it will be erased when necessary and then stay idle in anticipation of the trigger channel going over 50% to indicate 'start'. The recording is ended by setting the trigger channel back under 50%.

- The **Timecode** mode allows for the recording process to be synchronised by incoming timecode. Pressing the 'Record' button will prepare the track for recording; it will be erased when necessary and then stay idle in anticipation of the timecode to start running, it stops when the timecode stops running. If you want to record from an other frame than 00:00:00.00 set the 'TC Offset' property to the value you want your recording start from.

A typical challenge with recording dynamic DMX data is to create a seamless loop. Often the manual mode will most likely not be sufficiently accurate to achieve a seamless loop. The triggered mode offers a way to remote control and make the recording seamless. Alternatively, the lighting content can be designed in CueluxPro instead of recording from an external source, as CueluxPro automatically takes care of making its content seamless.

4.2 Sources

The CueCore3 is capable of recording DMX data from an external source by using three different protocols:

- DMX
- Art-Net
- sACN

Please consider that the operation of these protocols depend on their properties the Settings page.

4.3 Sample Rate

The Sample Rate setting will determine how many samples of the data are taken per second and stored in memory. This setting variants are 5, 10, 30 and 40 Frames Per Second (FPS). 40 FPS gives maximum quality in terms of smooth dimming curves. 5 FPS is a low value but useful for slow DMX changes and consumes much less memory. The 40 FPS setting is recommended unless there is a reason to reduce the sample rate.

4.4 XLR Adapter

The DMX ports on the CueCore3 are mainly used for outputting DMX and therefor are fitted with female XLR connectors. When using the ports as an input it is likely that the XLR needs to 'gender change' into a male connector.

Neutrik offers the NA5MM (figure 11.4), a 5-pin XLR male-to-male adapter for this purpose.



Figure 11.4: Neutrik NA5MM

5 Track Capacity

The CueCore3 has approximately 1GB is reserved for the tracks. The device uses a compression algorithm to store the data and optimise the storage for best use. The duration of the recording that the track can hold depends on several parameters: number of tracks, dynamic lighting content and the number of DMX channels used. Therefor the maximum duration is hard to specify, however, some guidance can be provided:

In a **worst-case** scenario with all channels of 32 universes actively changing to random values (pixel-mapping content) the CueCore3 can store **about 1h 30m of content**. Recording at 40 FPS.

Chapter 12

Showcontrol

ShowControl is a very powerful tool that gives the CueCore3 enormous versatility. From running automated tasks to processing inputs sent to the CueCore3 and have it then behave a certain way.

The new **Conditions** feature adds even more tools to your arsenal: Scheduling daily façade illumination with different effects for Easter, Christmas, National holiday or special event? Is now as easy as setting a variable. No more reprogramming during the year! See the section on Conditions on page 55.

This chapter is structured in order of operations. From selecting what needs to start the chain of events up to and including the final task that has to be executed, together with its specific values.

1 Example programming

If you want, you can follow along, programming OSC input to control Playbacks as an often used example. Relevant for instance when using a B-Station2 or KioskTouch. We will show the steps to set up an action that takes the incoming OSC message `/playbacktrigger`, to `'jump'` playback 1 to cue 3 as long as the Variable `'Colour'` is set to `'Purple'`.

2 Sources

As the name implies, *Sources* is where you choose what starts a chain of events. Is it a fixture changing intensity or colour? A network message coming in? Or detecting DMX on a certain input? Add a *Source* to the Action Lists field by selecting it and clicking `'Add >>'` or by simply double clicking the Source name.

Each *Source* can be represented in the *Actionlist* only once. Most Sources speak for themselves. A few are worth a separate mention, though. In order on the list:

2.1 Fixture

Uses the data from the *Patch*, to determine each fixture's states of Intensity and Colour. Useful, for instance, when sending feedback information to a KioskTouch or B-Station2.

2.2 Kiosk

Allows you to use a KioskTouch or Kiosk app, directly linked to the CueCore3, without the need for a setup and design with our KioskEditor software. When network settings are correct on both devices, you will see the CueCore3 on the 'Remote' devices list in the settings of the KioskTouch. The buttons, faders, etc. are arranged on the Kiosk in a grid pattern. The size of the grid is set on the Kiosk, in Settings => Grid Size. They are then placed in the task list order, from left to right, and top to bottom. So if you have 16 items, and a grid size of '8x5' you will get one page with two rows of 8 items, with space below. Items that 'overflow' the amount of space on the grid of a page will generate a consecutive page. See figure C.1 on page 99 as an example.

Note: no feedback can be sent to the items on the Kiosk in this case. They are to be used as inputs to the CueCore3 only.

2.3 Timer

The CueCore3 has access to 4 on board timers. They can be accessed directly on the *Monitor* page, by clicking *Timers* on the right. These timers count down from a user-set value to 0, with 1 second increments. They can be set to hours:minutes:seconds. Use them to have tasks perform for a limited amount of time. Or to start after a certain wait.

Note: Timers should not be confused with the use of Timecode, for synchronising playbacks. They have very different formats and functions.

2.4 Randomizer

Randomizer can add some spice to your programming. Coupled with the Randomizer *Task Type* (see page 82), this Action can be used to add (pseudo) random numbers to parameters. Choosing a random colour, scene, chase speed etc.

2.5 Scheduler

With Scheduler actions, you help your CueCore3 operate autonomously. Here you tell it when to start or stop certain playbacks or change cues. When to enable or disable physical buttons connected to the GPI input (see page 17). When to change to a different page on the KioskTouch that interfaces with the system (using Network Messages)

2.6 User Lists

User Lists can come in very handy when you need to be able to enable and disable certain functionality. Coupled with the 'Actionlist' *Task Type*.

2.7 Example

For our example scenario, select the OSC Source and click 'Add >>' to move it to the Actionlists as shown in figure 12.1

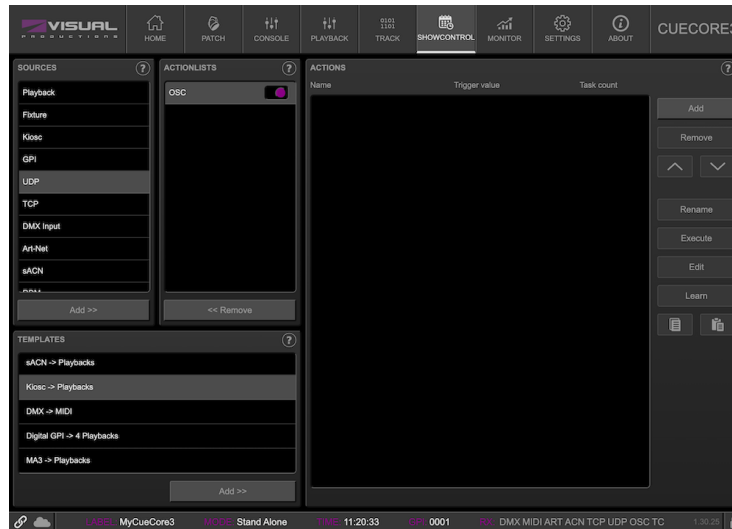


Figure 12.1: Example: Adding OSC Source to Actionlists

3 ActionLists

The *ActionLists* is the collection of *Sources* and where you select which *Source* to add an action to.

4 Actions

Actions are the backbone of ShowControl. They contain the information on what specific circumstance triggers the action, and how to follow up that trigger. As they also contain the tasks that have to be executed once the trigger conditions have been met.

In the ShowControl screen, with an Actionlist selected, an action that has been triggered will momentarily change its colour to green in real time.

4.1 Action names

Actions are handled by their *Trigger*, so the order in which they appear in the list is not crucial.

However, make use of the option to rename and move them: Select an action and press the 'Rename' button, or double click on the action name in the list. And use the arrows to move actions up or down the list.



Figure 12.2: Choosing an action, with versus without name.

Not only does this allow you to keep track of what does what, it is also especially useful when using Action *Tasks*, as they will be shown by their names.

The CueCore3 has a maximum of 128 actions, that can be divided over all action lists. One Actionlist can contain all 128 actions, but consequently will not leave actions available to be added to other Actionlists.

4.2 Example

For our example scenario, click 'Add' to make a new Action appear in the Actions section: figure 12.3.

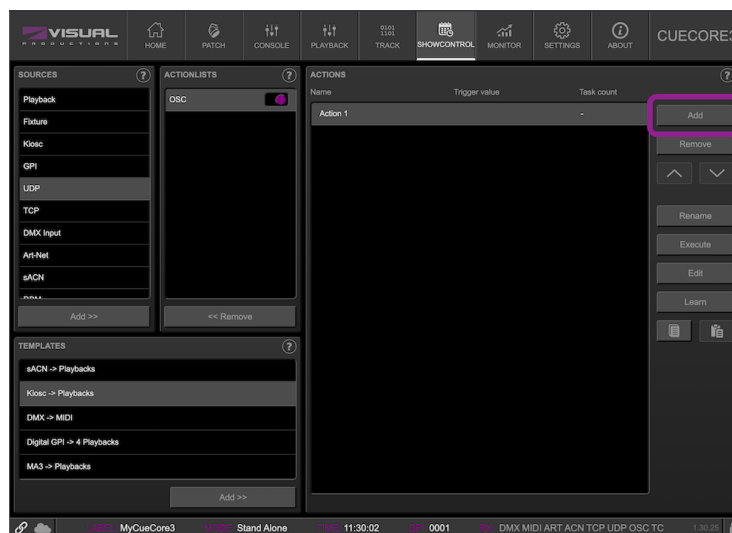


Figure 12.3: Example: Adding an Action

5 Triggers

Each action will have a *Trigger*. A 'situation' that then sets of the chain of tasks. The actions in User Lists are an exception in that they do not have triggers and are generally called on directly. See more information on User Lists on page 52.

5.1 Trigger Type

The available options in *Trigger Type* depends on the chosen Source. See page 75 for explanations on the Trigger Types used per Source.

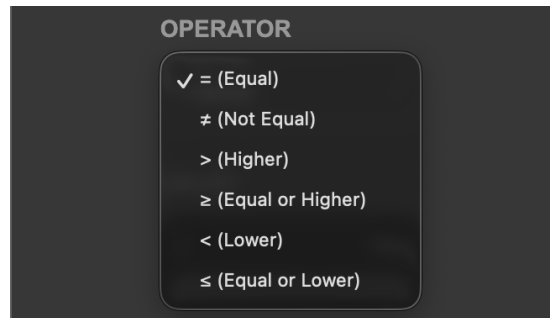


Figure 12.4: Choosing your variable operator

Example

We choose the Trigger Type 'message'. This lets us receive a specific message to start the process. See figure: 12.6

5.2 Trigger Value

Some trigger types are inherently connected to values. Such as *Variable*, or *Timecode*. In those cases you can set the desired *Trigger Value*.

Example

Set *Trigger Value* to '/playbacktrigger' See figure: 12.6

5.3 Trigger Flank

Trigger Flank are what A simple *Change* of state, a press of a 'button' (*Down*), the release of a 'button' (*Up*), when something stops or starts, or when it becomes equal to or stops being equal to. *Trigger Flank* can have different options to choose from. They depend on the type of *Action* and *Trigger Type*.

Example

Set *Trigger Flank* to 'Down'. This takes the pressed down state of the button as the trigger flank. See figure: 12.6

6 Conditions

This new feature allows you to only trigger if that trigger coincides with one or two additional *Variable* conditions.

The logic operator between these conditions is always *AND*. Meaning all (maximum) three conditions have to be true for the trigger to be fired.

Within a condition, there is also an operator, because you are comparing the value of a variable. This operator can be *Equal*, *Not Equal*, *Higher*, *Equal or Higher*, *Lower* or *Equal or Lower*. See figure 12.4

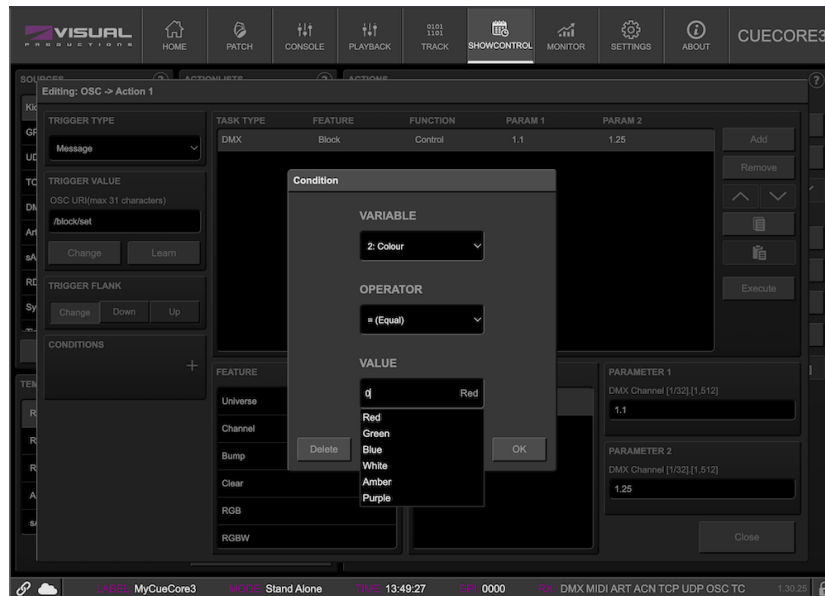


Figure 12.5: Choosing your variable value

With the ability to give variables and their values names and labels, it is much easier to keep track of what you are programming. See image 12.5 below.

When assigning names to the values, do keep in mind that values are ultimately defined by their number. So a name, 'lower' or further down the list on the screen actually has a higher value!

Example

Edit variables if needed, then set to 'Colour' 'Equals' 'Purple'. See figure: 12.6

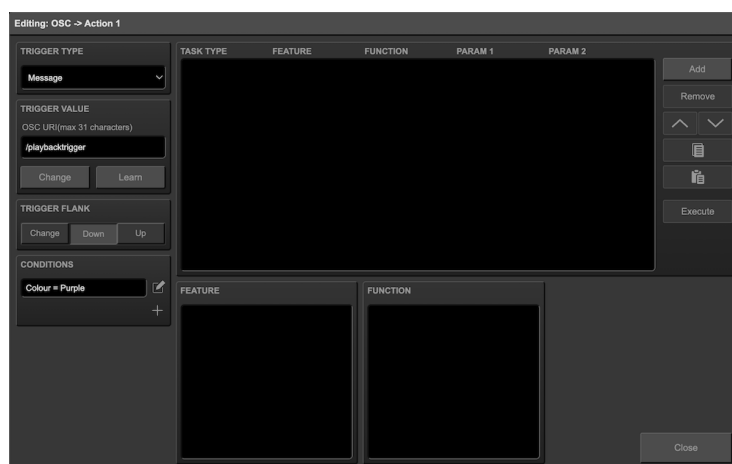


Figure 12.6: Example Trigger completed

7 Tasks

Tasks get processed in the order of appearance on the list, from top to bottom. This can influence the behaviour of your programming. So make use of the option to move them up and down the list with the two arrow buttons.

The CueCore3 has a maximum of 256 tasks, that can be divided over all actions. One Action can contain all 256 tasks, but consequently will not leave Tasks available to be added to other Actions.

In the Action edit screen, a triggered action will show the consecutive tasks momentarily change to green in real time.

7.1 Task Type

There are many Task Types to choose from. We have assembled them in an Appendix to this manual. So for detailed information on a specific Task Type, read from page 86

7.2 Feature

Task *Features* are the first distinction in what the task is about to 'do'.

7.3 Function

Functions depend on the *Feature*, and further specify what has to be executed.

7.4 Parameters

Parameters are extra 'values' you send along with your task.

Usually, there are two:

1. The first, parameter 1, can for example be fixture(list), a label for a network message, the specific variable to store something into, or a Playback number to control, etc.
2. Parameter 2 can be a value (integer, float) a boolean (e.g. on / off), a Playback's cue number, a colour, a timecode, etc. Of course the exact option depends on the *Task Type*, *Feature* and *Function* chosen

Note: Parameter two is deactivated when a *Function* has been set to 'Control', as the trigger value itself will be used instead.

7.5 Example

For our example, we use *Task Type* 'Playback', *Feature* 'Jump' and *Function* Set. After that, we choose Playback 1 as *Parameter 1* and type '3' in the field for *Parameter 2*. Your screen should look like figure 12.7 Close this Action edit screen.

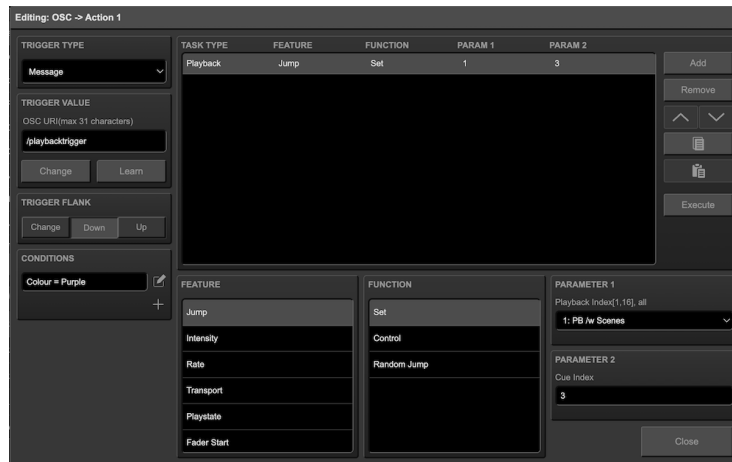


Figure 12.7: Example Action completed

8 Templates

In the *Templates* section, you will find a number of often used scenarios pre-programmed for your convenience. Once added, they can then be tailored to your specific setup and needs. Add a template by selecting it and pressing 'Add >>'

Which Template does exactly what is explained in detail from page 98.

Be advised that adding a Template to your programming will override any previously programmed actions in the ActionList(s) used by this Template.

This completes the explanation of the ShowControl functionality of your CueCore3.

Chapter 13

Protocol Conversion

The CueCore3 is fitted with several communication ports and additionally supports various Ethernet-based protocols. Although some protocols are predominantly used for triggering the internal playbacks (such as GPI, MIDI, UDP, OSC, etc.) and some other protocols are mainly used for recording (such as DMX input, Art-Net and sACN) the CueCore3 is capable of converting one protocol into another. This chapter provides an insight on which conversions are possible and how to set them up.

All possible conversions can be organised into two categories: Converting Control Protocols and Converting DMX Universe Protocols.

1 Converting Control Protocols

The first category of conversions comprise the protocols typically used for triggering or transporting one piece of information. The following table shows these protocols and what kind of information they are able to carry.

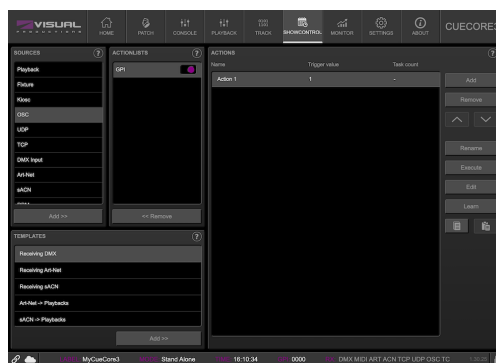
Control Protocols	Information
Digital GPI	On/Off
Analog GPI	percentage [0%,100%]
MIDI	number [0,127]
UDP	-
TCP	-
OSC	percentage [0%,100%], number, string, colour, On/Off
DMX	number [0,255]
Art-Net	number [0,255]
sACN	number [0,255]

Although DMX, Art-Net and sACN are dedicated lighting protocols and natu-

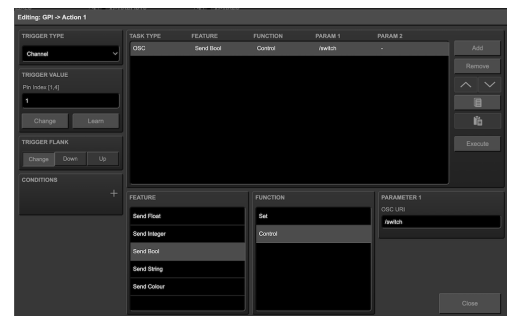
rally fit in the next category, their individual channels lend themselves well for conveying control messages.

Setting up a conversion is done in the Show Control page. First add the incoming protocol from the 'Sources' table into the 'Action list' table. Then add an action to this new action-list. Inside this action the trigger-flank field (if visible) should be set to Change; as this action should be triggered every time the incoming signal changes. Furthermore, a task need to be added, the task-type determines which protocol is the output of our conversion. It is important that the 'function' in this task is set to 'Control'. This will make sure that the output is not a fixed value, rather it will output the information received from the incoming signal.

Please consider two examples. Figure ?? shows a conversion between Digital GPI and OSC. This example assumes the GPI Port 1 is set to 'Digital' on the Settings page.



(a) Step 1



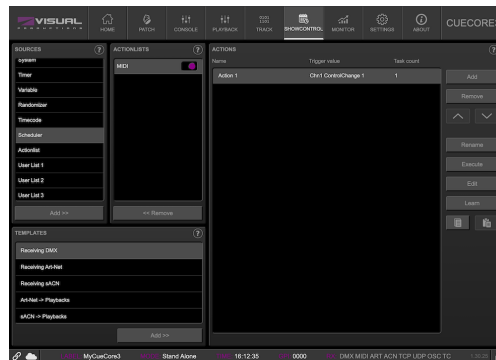
(b) Step 2

Figure 13.1: Conversion from GPI to OSC

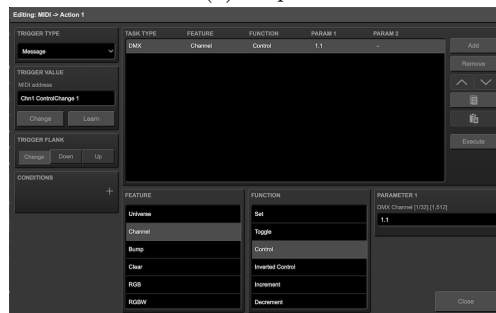
Figure ?? shows a conversion between MIDI and DMX. This example assumes the DMX Port A is set to 'Output A' on the Settings page.

2 Converting DMX Universe Protocols

This category includes all protocols that carry a DMX Universe (a block of 512 DMX channels). These protocols are DMX, Art-Net, sACN and to some extend KiNet. The CueCore3 is capable of receiving a complete DMX universe from one protocol and sending it out on a different protocol. Furthermore, it is able to merge DMX universes from multiple sources into one output protocol. All this is done with a minimal amount of configuration in the CueCore3. The following table lists examples of the conversions that can be made.



(a) Step 1



(b) Step 2

Figure 13.2: Conversion from MIDI to DMX

Example DMX Universe Conversions

DMX ->Art-Net

Art-Net ->DMX

DMX ->sACN

sACN ->DMX

DMX ->KiNet

Art-Net ->sACN

Art-Net ->KiNet

sACN ->KiNet

It is also possible to create combinations of the examples above. For instance you could set up a conversion from DMX to both Art-Net and sACN. Or merge incoming Art-Net and sACN together into the DMX output. Also, at any point it is possible to merge the incoming DMX data with the data generated by the internal playbacks.

To set up the conversion go to the Show Control page and choose the incoming protocol from the 'Sources' table and add it to the 'Action lists' table. Then add an action for each DMX Universe you wish to convert; e.g. when converting two

DMX ports to Art-Net it requires two action to programmed. The trigger-type in the actions should be set to 'Universe' to make the CueCore3 process the 512 channels as a whole rather than process individual channels. Each action should contain a DMX-task with the 'feature' set to 'Universe'; all DMX Universe data is first being copied into the CueCore3's internal DMX buffer. From this buffer it can be copied to the DMX outlet or the other protocols such as Art-Net and sACN. Figure ?? provides a schematic for this data flow.

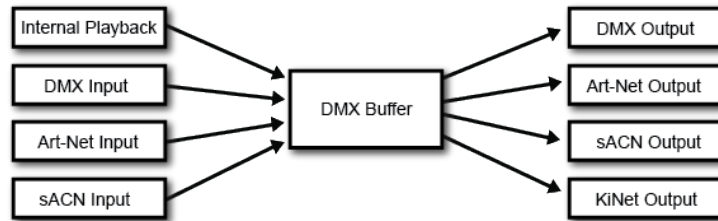


Figure 13.3: DMX merging data flow

The function needs to be set to *Control HTP*.

Function

Control HTP Highest Takes Precedence

Clear

All channels are compared and the highest levels are used for the merged output (HTP precedence).

The additional 'Clear' function is not related to the data merging precedence; it is just a function to clear the whole universe to zero.

Please note that the 'Templates' table provides pre-programmed configurations for the most popular conversions.

A very typical conversion that can illustrate as an example is to convert Art-Net universes 0.0 and 0.1 to DMX output A and B respectively. Figure ?? shows action-list, figure ?? show the contents of 'Action 1' and figure ?? show the required configuration of the Settings page.

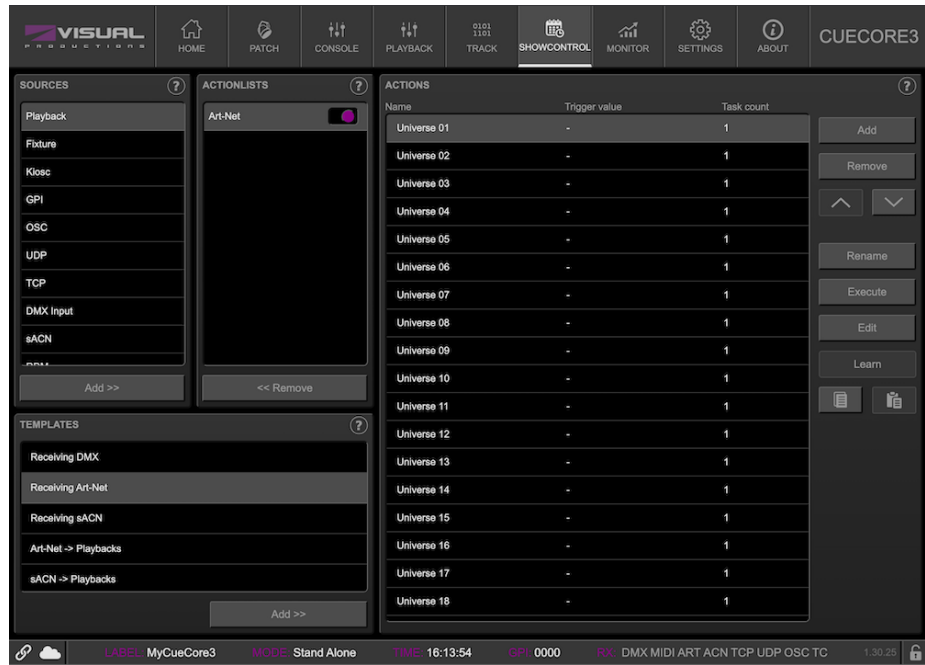


Figure 13.4: Converting Art-Net to DMX step 1

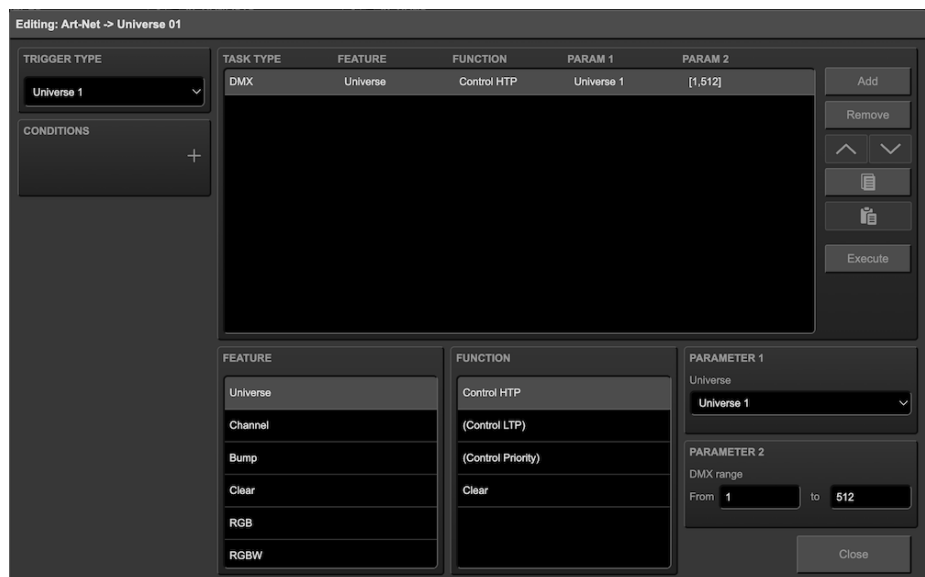


Figure 13.5: Converting Art-Net to DMX step 2

DMX

Port A

Universe 1

▼

Port B

Universe 2

▼

Port C

Universe 3

▼

Port D

Universe 4

▼

Framerate

?

30FPS

▼

Enable RDM

☐

ART-NET

▼

	Input	Output	?	Destination	?
Universe 1	1.0	off		Default	
Universe 2	1.1	off		Default	
Universe 3	1.2	off		Default	
Universe 4	1.3	off		Default	

Forward

?

☐

Default destination

?

255.255.255.255

Figure 13.6: Converting Art-Net to DMX step 3

Chapter 14

vManager

A free-of-charge software tool called vManager has been developed to manage the devices. vManager allows you to:

- Label your device with a distinguishable name
- Configure the IP address, subnet mask, router and DHCP
- Backup and restore the device's data and settings
- Perform firmware upgrades
- Set the real-time clock of the CueCore3 (The computer's date and time will be used)
- Identify a specific device (in a multi device set-up) by blinking its LED
- Revert to factory defaults

The following section explains the buttons in the vManager, as seen in figure 14.1.

1 Backup

Backups of all the programming data inside the CueCore3 can be made. This backup file is saved on the computer's hard-disk and can be easily transferred via e-mail or USB stick. The data of the backup can be restored via the *Restore* button. You have the option to choose subsections of a backup, such as just ShowControl, or Settings and Tracks, for example. Use the checkboxes on the right to make your choice.

All options are enabled, so a full backup is made, by default.

Apps distributed by app stores are not always allowed to access files outside their designated location. It is important to know where vManager is storing its files, in case you wish to transfer a backup file to a memory stick or dropbox.

This file location differs per operating system and can be a long and obscure path. For this reason, vManager provides you with a shortcut to the correct file

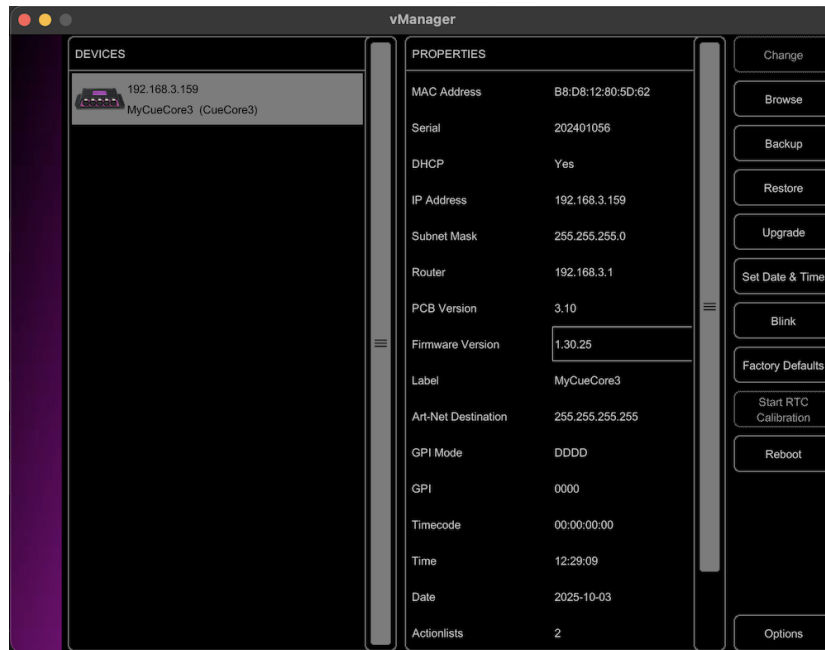


Figure 14.1: vManager



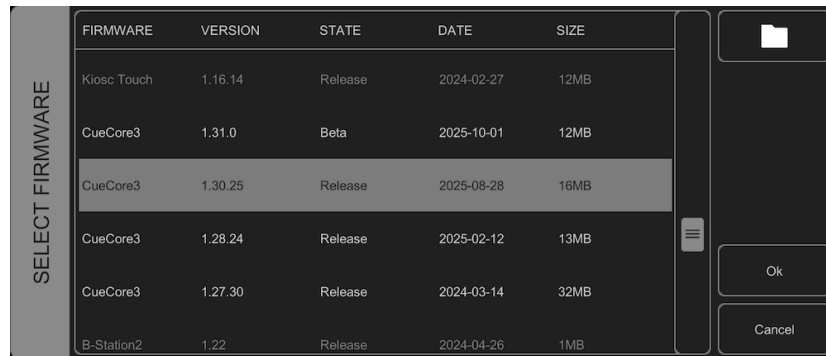
Figure 14.2: Creating a backup for the CueCore3

location. A *Folder* button can be found in the file related dialogs. Clicking this button will open a file browser at the appropriate folder.

2 Upgrade Firmware

vManager will show the firmware version of a selected device in orange when a newer *Release* version is available. To upgrade the firmware, make sure the device is selected and press the *Upgrade* button. The dialogue allows for selecting from the list of available firmware versions. Firmware versions in the list

will show whether they are stable 'release' versions or 'beta' with new and or experimental functionality. We, at Visual Productions, advise to not use beta versions in production environments.



FIRMWARE	VERSION	STATE	DATE	SIZE
Kiosc Touch	1.16.14	Release	2024-02-27	12MB
CueCore3	1.31.0	Beta	2025-10-01	12MB
CueCore3	1.30.25	Release	2025-08-28	16MB
CueCore3	1.28.24	Release	2025-02-12	13MB
CueCore3	1.27.30	Release	2024-03-14	32MB
B-Station2	1.22	Release	2024-04-26	1MB

Figure 14.3: Firmware upgrade

Warning: Make sure the power to the device is not interrupted during the upgrade process.

3 Set Date & Time

The computer's date and time can be quickly copied to the unit by selecting a device and clicking the *Set Date & Time* button. Not all Visual Productions devices feature an internal real-time clock.

4 Blink

The device's status LED can be set to *Blink* fast for about 2 seconds, to identify the specific unit amongst multiple devices. This blinking is enabled by double-clicking on a device in the Devices list or by selecting a device and then clicking the Blink button. Alternatively, browse to the Settings page of the device, and choose Blink in the top left. Now the device will blink as long as the slider is set to 'on'.

5 Factory Defaults

All the user data, like cues, tracks and actions are stored in the on-board memory. They will be completely erased and all settings reverted to their defaults by pressing the *Factory Defaults* button. This action does not affect the device's IP settings.

6 RTC Calibration

The CueCore3 features an internal real-time clock (RTC) that is used for generating scheduler triggers (date, time, sunrise, etc). In case the clock drifts, i.e.

slowly falling behind or getting ahead of the real time, it can be calibrated again using the vManager. The procedure is as follows:

1. Select the CueCore3
2. Click on the *Start RTC Calibration* button
3. wait approximately 30 minutes
4. Click on the *Stop RTC Calibration* button
5. Apply the recommended calibration value in the dialog (figure 14.4)

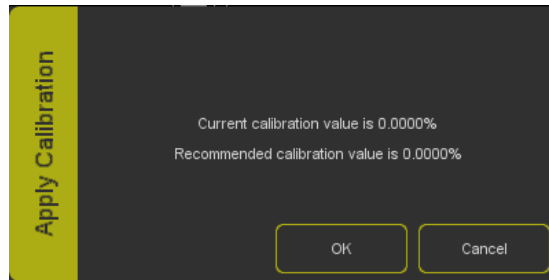


Figure 14.4: Apply calibration value

7 Reboot

The *Reboot* button allows you to remotely restart the device. This is useful for testing the unit's behaviour after a power-cycle.

8 Installing vManager

The vManager app is available on the most common range of operating systems.

The software is distributed through app-stores to make receiving future updates automatic and very easy.

Note: vManager is no longer provided for mobile devices such as tablets or mobile phones.

8.1 Windows

Visit the Microsoft store at <https://www.microsoft.com/en-us/p/vmanager/9nblggh4s758>.

Windows 10 is required.

8.2 macOS

Visit the Apple macOS app store at <https://apps.apple.com/us/app/vmanager/id1074004019>.

macOS 11.3 is recommended.

8.3 Ubuntu

You can acquire the vManager from Snapcraft at <https://snapcraft.io/vmanager>.

Alternatively, it can be installed by using the command-line:

```
snap find vmanager  
snap install vmanager
```

To update the apps later on via the command-line type:

```
snap refresh vmanager
```

Ubuntu 22.04 LTS is recommended. The software is only available for the amd64 architecture.

Chapter 15

CueluxPro

Visual Productions provides the free-of-charge application called CueluxPro. With CueluxPro, you can create lighting content for your CueCore3. This content can subsequently be stored in tracks on the CueCore3 and output to your fixtures.

The aim of this manual is not to explain how to create the content in CueluxPro. Find its manual on our downloads page: <https://www.visualproductions.nl/downloads>.

However we will address how to connect your CueCore3 to CueluxPro, and how to 'dump' your scene to a track of choice in the CueCore3.

1 Patching in CueluxPro

Patching your CueCore3's DMX universes to CueluxPro goes as follows:

1. Open the *Patch* page of CueluxPro, then select *Universe*

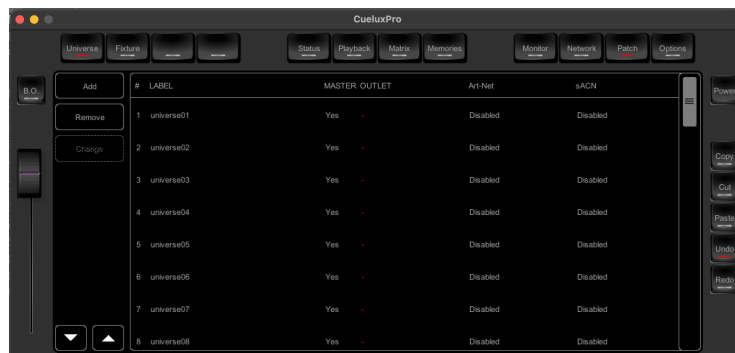


Figure 15.1: CueluxPro's Universe Patch page

2. Make sure you have the needed DMX universes added to the Patch.

3. Double click the first universe's 'Outlet'. This opens the Select Device menu.

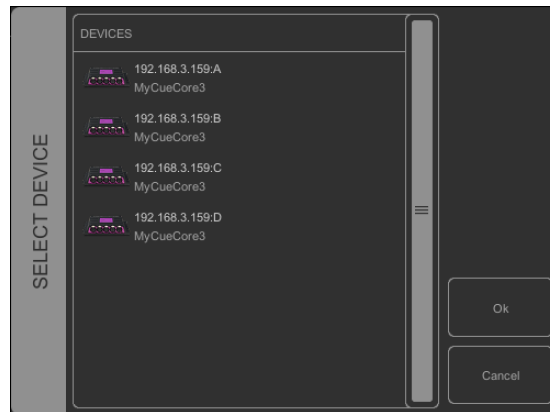


Figure 15.2: Select your device's DMX universe

4. Your CueCore3's IP address should show up in this menu, with one entry per (unlocked) universe.
5. Select the universe on the CueCore3 you want to output to.
6. Repeat for additional universes CueCore3's.
7. Once a patch to a universe is successful, the colour of the IP address will turn from orange to white. Additionally, the CueCore3's web interface

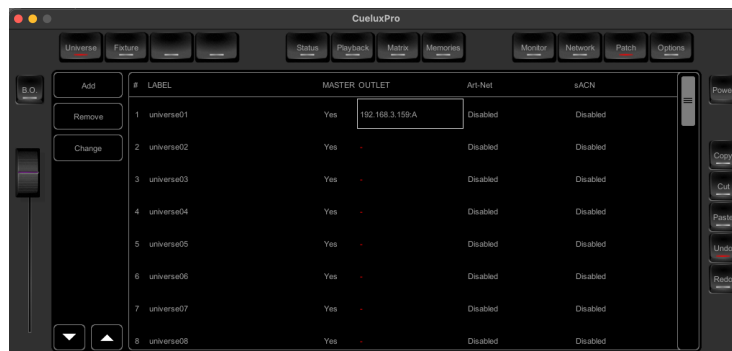


Figure 15.3: Completed patch in CueluxPro

will show 'CueluxPro' as the operating mode in the status bar.

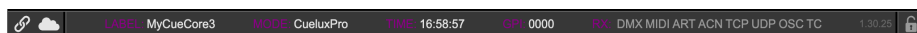


Figure 15.4: CueCore3's status bar

You are now ready to write some content to the CueCore3.

2 Dump your scene to CueCore3

To do this, take these steps:

In CueluxPro:

- Save your dynamic or static scene under a button or fader cue list.
- Then, with the console 'cleared', enable the '*Dump*' button, followed by the play button of the chosen cue list.
- The console will now show DUMP and the type, bank and number of the cue list. e.g. PF1.1 for the first playback fader of bank 1; PB4.3 for playback button 3 from bank 4, etc.
- Use the numbers on keyboard or console to enter the number of the track on your CueCore3 where you want the content to be stored.



Figure 15.5: The CueluxPro console ready to dump

- click '*Enter*' to proceed. You will be given the option to select the sample rate of the track.

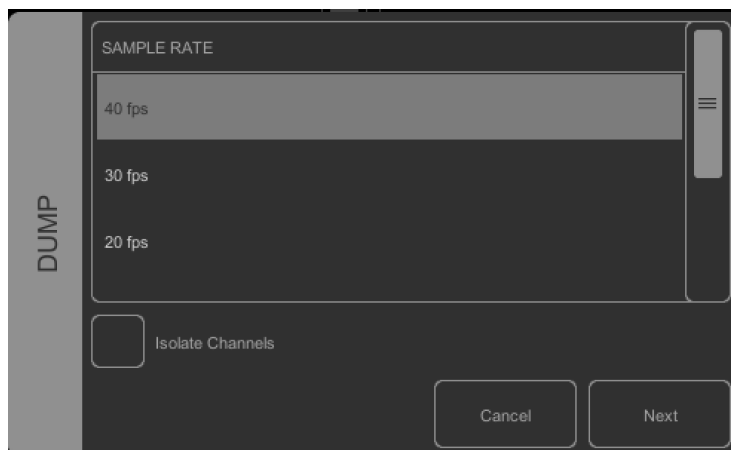


Figure 15.6: Select your sample rate

- Once selected, click '*Next*' to start the dump.
Depending on the content, this may take some time.

- Once done, you can (save and) quit CueluxPro to release the CueCore3 back into Stand Alone mode.

On the CueCore3:

- Navigate to the *Tracks* page and find the number of the Track you chose earlier.
- The label of that track should show the name of the Cuelist you selected to dump, together with a size and duration.

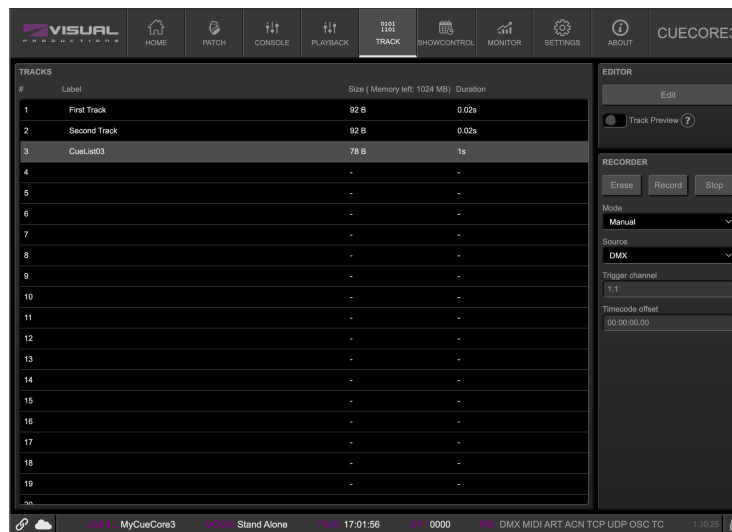


Figure 15.7: Track shows new content

This indicates a successful transfer.

Appendices

Appendix A

Trigger Types

The following tables list the different types of triggers that can be used in the CueCore3. The different types are accompanied with values and flanks.

1 Playback

Trigger Type	Trigger Value	Flank	Description
Active	Playback Index	Change	Playback starts or stops
Active	Playback Index	Released	Playback stops
Active	Playback Index	Start	Playback starts
Release	Playback Index	Change	Playback starts or finishes releasing
Release	Playback Index	Released	Playback finished releasing
Release	Playback Index	Release	Playback starts releasing
Released	Playback Index	Change	Playback starts or stops
Released	Playback Index	Playing	Playback starts playing
Released	Playback Index	Released	Playback finished releasing
Playing	Playback Index	Change	Playback starts or stops
Playing	Playback Index	Release	Playback starts releasing
Playing	Playback Index	Playing	Playback starts playing
Running	Playback Index	Change	Playback starts or pauses
Running	Playback Index	Paused	Playback pauses
Running	Playback Index	Playing	Playback starts playing
Intensity	Playback Index	Change	Playback intensity changes
Intensity	Playback Index	Non-zero	Playback intensity becomes >0%
Intensity	Playback Index	Zero	Playback intensity becomes 0%
End	Playback Index	-	Playback stops playing
CueChange	Cue Index	Change	Cue activated or deactivated
CueChange	Cue Index	Inactive	Cue becomes inactive
CueChange	Cue Index	Active	Cue becomes active
CueIndex	Playback Index	-	Active cue index changed
CueLabel	Playback Index	-	Label of the current Cue
TrackBegin	Playback Index	-	Track starts

2 Fixture

Trigger Type	Trigger Value	Flank	Description
Intensity	Fixture index [1,256]	-	A fixture's intensity changes
Colour	Fixture index [1,256]	-	A fixture's colour changes

3 DMX Input

Trigger Type	Trigger Value	Flank	Description
Channel	DMX Address	Change	Channel changes
Channel	DMX Address	Non-zero	Channel becomes non-zero
Channel	DMX Address	Zero	Channel becomes zero
UniverseA	-	-	A DMX level change in the first universe
UniverseB	-	-	A DMX level change in the second universe
UniverseC	-	-	A DMX level change in the third universe
UniverseD	-	-	A DMX level change in the forth universe
Receiving	-	Change	Start receiving or loose DMX signal
Receiving	-	Stop	Lost DMX signal
Receiving	-	Start	Start receiving DMX signal

4 RDM

Trigger Type	Trigger Value	Flank	Description
Count	DMX port [A,D]	-	A RDM discovery has been performed. The number of RDM fixtures found will be passed on with this trigger.

5 Art-Net

Trigger Type	Trigger Value	Flank	Description
Channel	DMX Channel	Change	Channel changes
Channel	DMX Channel	Non-zero	Channel becomes non-zero
Channel	DMX Channel	Zero	Channel becomes zero
UniverseA	-	-	A DMX level change in the first universe
UniverseB	-	-	A DMX level change in the second universe
UniverseC	-	-	A DMX level change in the third universe
UniverseD	-	-	A DMX level change in the forth universe
Receiving	-	Change	Start receiving or loose Art-Net signal
Receiving	-	Stop	Lost Art-Net signal
Receiving	-	Start	Start receiving Art-Net signal

6 sACN

Trigger Type	Trigger Value	Flank	Description
Channel	DMX Channel	Change	Channel changes
Channel	DMX Channel	Non-zero	Channel becomes non-zero
Channel	DMX Channel	Zero	Channel becomes zero
UniverseA	-	-	A DMX level change in the first universe
UniverseB	-	-	A DMX level change in the second universe
UniverseC	-	-	A DMX level change in the third universe
UniverseD	-	-	A DMX level change in the forth universe
Receiving	-	Change	Start receiving or loose sACN signal
Receiving	-	Stop	Lost sACN signal
Receiving	-	Start	Start receiving sACN signal

7 OSC

Trigger Type	Trigger Value	Flank	Description
Message	URI	Change	Receive a message that matches the URI
Message	URI	Down	Receive a message that matches the URI and the value non-zero
Message	URI	Up	Receive a message that matches the URI and the value is zero
Receiving	-	-	Receive any message

The user can define his own URI as the trigger value of a message, however, the OSC specification dictate this string must start with a '/' sign. Please note that this string has a maximum length of 31 characters, including the '/'.

8 UDP

Trigger Type	Trigger Value	Flank	Description
Message	String	-	Receive a message that matches the trigger-value
Receiving	-	-	Receive any message

The user can define his own string as the trigger value of a message. Please note that this string has a maximum length of 31 characters.

It is possible to pass a parameter along with a message. In order to do this use the syntax `trigger=value`. For example when the trigger type is set to 'mes-

sage' and the trigger value is set to **intensity** then the transmitting equipment can pass an intensity level by sending **intensity=255**, where 255 can be any number in the range [0,255].

9 TCP

Trigger Type	Trigger Value	Flank	Description
Message	String	-	Receive a message that matches the trigger-value
Receiving	-	-	Receive any message

The user can define his own string as the trigger value of a message. Please note that this string has a maximum length of 31 characters.

10 GPI

Trigger Type	Trigger Value	Flank	Description
Channel	Port number	Change	Port state changes
Channel	Port number	Down	Port is closed
Channel	Port number	Up	Port is opened
Channel 0-19%	Port number	Change	Analog level enters or leaves the range
Channel 0-19%	Port number	Enter	Analog level enters the range
Channel 0-19%	Port number	Leave	Analog level leaves the range
Channel 20-39%	Port number	Change	Analog level enters or leaves the range
Channel 20-39%	Port number	Enter	Analog level enters the range
Channel 20-39%	Port number	Leave	Analog level leaves the range
Channel 40-59%	Port number	Change	Analog level enters or leaves the range
Channel 40-59%	Port number	Enter	Analog level enters the range
Channel 40-59%	Port number	Leave	Analog level leaves the range
Channel 60-79%	Port number	Change	Analog level enters or leaves the range
Channel 60-79%	Port number	Enter	Analog level enters the range
Channel 60-79%	Port number	Leave	Analog level leaves the range
Channel 80-100%	Port number	Change	Analog level enters or leaves the range
Channel 80-100%	Port number	Enter	Analog level enters the range
Channel 80-100%	Port number	Leave	Analog level leaves the range
Binary	Combination value	-	A combination of ports being closed
Short press	Port number	-	Short closure on port
Long press	Port number	-	Long closure on port

Use the Binary trigger type to catch port combinations when they are set as digital. Specify the port combination by adding the values that correspond to the ports (see table below). This value is entered as the trigger value.

Port	Value
1	1
2	2
3	4
4	8

For example, to trigger on both port 1 and 2 being closed fill in trigger value 3 (1+2). To trigger on port 3 and 4, fill in value 12 (4+8).

11 MIDI

Trigger Type	Trigger Value	Flank	Description
Message	MIDI address	Change	Receive a message that matches the address
Message	MIDI address	Down	Receive a message that matches the address and the value non-zero
Message	MIDI address	Up	Receive a message that matches the address and the value is zero
Receiving	-	-	Receive any message

MIDI address can be any note-on, note-off or control-change.

12 Timecode

Trigger Type	Trigger Value	Flank	Description
Time	Frame	-	Timecode frame
Receiving	-	Change	Start receiving or loose timecode signal
Receiving	-	Stop	Lost timecode signal
Receiving	-	Start	Start receiving timecode signal

13 Kiosc

Trigger Type	Trigger Value	Flank	Description
-	-	Change	Button/Fader goes up or down
-	-	Down	Button is pressed
-	-	Up	Button is released

When editing the Kiosc actionlist it will be possible to add different kind of actions such as Button, Fader and Colour Picker. These elements will be displayed in the Kiosc software.

More details on Kiosc can be found on page 52.

14 Scheduler

The scheduler depends on the *Date & Time* settings, as well as the *Location* settings that are located in the *Settings* page. These settings are discussed on page 13.

Trigger Type	Trigger Value	Flank	Description
WeekdayAndTime	-	-	Enable weekdays and specify a time (don't care 'X' can be used)
DateAndTime	-	-	Specify a specific date and time (don't care 'X' can be used)
Sunrise	-	-	When the sun rises in the morning
Sunset	-	-	When the sun goes down in the evening
DaylightST	-	Change	Daylight Saving Time period starts or ends
DaylightST	-	Stop	Daylight Saving Time period ends
DaylightST	-	Start	Daylight Saving Time period starts
Timespan	Index [1-4]	Change	Timespan starts or ends
Timespan	Index [1-4]	Start	Timespan starts
Timespan	Index [1-4]	Finish	Timespan ends

Timespans can be used to define periods of time. E.g. Christmas holiday or the daily opening hours of the venue. The timespan can be used for triggering in the show control page. If the CueCore3 will be power cycled during the start or finish of a timespan, then the trigger will still be fired as soon as the unit powers up. Timespans are defined on the *Settings* page.

15 Randomizer

The *Randomizer* will generate a pseudo-random number, this functionality is discussed on page 52.

Trigger Type	Trigger Value	Flank	Description
Result	-	-	The Randomizer made a new value
Specific Value	Number in the range of [0,255]	-	The Randomizer made a value that matches

16 System

Trigger Type	Trigger Value	Flank	Description
Startup	-	-	The CueCore3 has been powered up
Network Connection	-	Change	Network connection established or lost
Network Connection	-	Stop	Network connection lost
Network Connection	-	Start	Network connection established
ReleasedByMaster	-	Change	Master (e.g. CueluxPro) released or obtained connection
ReleasedByMaster	-	Stop	Master released connection
ReleasedByMaster	-	Start	Master obtained connection

Use *Startup* if something needs to happen as soon as the CueCore3 is powered on. Please note that ethernet network might not be online yet.

Use the *Network Connection* trigger if something needs to happen as soon as the ethernet network becomes online after a power-cycle.

ReleasedByMaster is a trigger that will happen when the CueCore3 is disconnected from CueluxPro or released from a Master/Slave connection.

17 Variable

Variables can contain a number between 0 and 255.

Trigger Type	Trigger Value	Flank	Description
Channel	Variable Index	-	The specified variable changes
Variable 1	Number [0,255]	Change	Variable 1 becomes = or # to the specified number
Variable 1	Number [0,255]	Equal	Variable 1 = number
Variable 1	Number [0,255]	Stop Equal	Variable 1 stops to be = to number
Variable 2	Number [0,255]	Change	Variable 2 becomes = or # to the specified number
Variable 2	Number [0,255]	Equal	Variable 2 = number
Variable 2	Number [0,255]	Stop Equal	Variable 1 stops to be = to number
Variable 3	Number [0,255]	Change	Variable 3 becomes = or # to the specified number
Variable 3	Number [0,255]	Equal	Variable 3 = number
Variable 3	Number [0,255]	Stop Equal	Variable 1 stops to be = to number
...			
Variable 19	Number [0,255]	Change	Variable 19 becomes = or # to the specified number
Variable 19	Number [0,255]	Equal	Variable 19 = number
Variable 19	Number [0,255]	Stop Equal	Variable 19 stops to be equal to number
Variable 20	Number [0,255]	Change	Variable 20 becomes = or # to the specified number
Variable 20	Number [0,255]	Equal	Variable 20 = number
Variable 20	Number [0,255]	Stop Equal	Variable 20 stops to be = to number

18 Timer

There are four timers in the CueCore3. This functionality is explained on page 52.

Trigger Type	Trigger Value	Flank	Description
Channel	Timer Index	Change	The timer starts or stops
Channel	Timer Index	Stop	The timer stops
Channel	Timer Index	Start	The timer starts
Time	Timer Index	-	A Stream of the current time of that timer

The timer will automatically stop when it reaches 00:00.0. An *Action* needs to be programmed in order to restart the timer and make it loop.

19 Actionlist

Actionlists are discussed in detail on page 53. The Actionlists have a checkbox for enabling/disabled. Changing this checkbox generates a trigger.

Trigger Type	Trigger Value	Flank	Description
-	Actionlist Index	Change	The actionlist enable checkbox changes
-	Actionlist Index	Down	The actionlist is enabled
-	Actionlist Index	Up	The actionlist is disabled

20 User List (1-4)

User lists have no triggers. Actions inside user lists can only be activated by other actions through *Action* task using the *Link* feature.

Appendix B

Task Types

Tasks allow you to automate the functionality in the CueCore3. All this functionality is categorized in task-types. This appendix provides a listing of the various task-types. The tables present an overview of all available *Features* and *Functions* per task-type.

1 Playback

Manipulate one of the 16 playbacks.

Feature	Function	Parameter 1	Parameter 2
Jump	Set	Playback Index	Cue index
Jump	Control	Playback Index	-
Jump	Random Control	Playback Index	-
Intensity	Set	Playback Index	percentage [0%,100%]
Intensity	Control	Playback Index	-
Intensity	Inverted Control	Playback Index	-
Intensity	Increment	Playback Index	percentage [0%,100%]
Intensity	Decrement	Playback Index	percentage [0%,100%]
Intensity	Stop Continuous	Playback Index	-
Intensity	Increment Continuous	Playback Index	percentage [0%,100%]
Intensity	Decrement Continuous	Playback Index	percentage [0%,100%]
Set Rate	Set	Playback Index	percentage [-100%,100%]
Set Rate	Control	Playback Index	-
Transport	Pause	Playback Index	-
Transport	Release	Playback Index	-
Transport	Go+	Playback Index	-
Transport	Go-	Playback Index	-
Transport	Solo	Playback Index	-
Transport	Random Solo	Playback Index	-
Play State	Toggle	Playback Index	-
Play State	Control	Playback Index	-
Play State	Inverted Control	Playback Index	-
Fader Start	Toggle	Playback Index	-
Fader Start	Control	Playback Index	-
Fader Start	Inverted Control	Playback Index	-

The *Fader Start* feature controls the playback's intensity while at the same time start the playback when the intensity is higher than 0% and release when the intensity reaches 0%.

2 Playback Master

Manipulate the master settings on the Playback page.

Feature	Function	Parameter 1	Parameter 2
Intensity	Set	-	percentage [0%,100%]
Intensity	Control	-	-
Intensity	Inverted Control	-	-
Intensity	Increment	-	percentage [0%,100%]
Intensity	Decrement	-	percentage [0%,100%]
Intensity	Stop Continuous	-	-
Intensity	Increment Continuous	-	percentage [0%,100%]
Intensity	Decrement Continuous	-	percentage [0%,100%]
Set Rate	Set	-	percentage [-100%,100%]
Set Rate	Control	-	-
Fade time	Set	Time	-
Fade time	Control	-	-
Release	All	-	-

3 Fixture

Manipulate a fixture.

Feature	Function	Parameter 1	Parameter 2
Intensity	Set	Fixture index	percentage [0%,100%]
Intensity	Control	Fixture index	-
RGB	Set	Fixture index	Colour
RGB	Control	Fixture index	-
Cold White	Set	Fixture index	percentage [0%,100%]
Cold White	Control	Fixture index	-
Warm White	Set	Fixture index	percentage [0%,100%]
Warm White	Control	Fixture index	-
Amber	Set	Fixture index	percentage [0%,100%]
Amber	Control	Fixture index	-
Select	Set	Fixture index	-
Select	Control	-	-
Select	Increment	-	-
Select	Decrement	-	-
Zoom	Set	Fixture index	percentage [0%,100%]
Zoom	Control	Fixture index	-
Focus	Set	Fixture index	percentage [0%,100%]
Focus	Control	Fixture index	-
Special	Set	Fixture index	percentage [0%,100%]
Special	Control	Fixture index	-
UV	Set	Fixture index	percentage [0%,100%]
UV	Control	Fixture index	-
Clear	Set	-	-

4 OSC

Send an OSC message via the network. The OSC recipients are specified in the Settings page.

Feature	Function	Parameter 1	Parameter 2
Send Float	Set	URI	floating point number
Send Float	Control	URI	-
Send Integer	Set	URI	positive number
Send Integer	Control	URI	-
Send Bool	Set	URI	true or false
Send Bool	Control	URI	-
Send String	Set	URI	String of characters
Send String	Control	URI	-
Send Colour	Set	URI	RGB colour
Send Colour	Control	URI	-

Please note that string in parameter 1 has a maximum length of 31 characters, including the compulsory leading '/' sign.

5 UDP

Send a UDP message via the network. Specify the recipient in Parameter 2. For example "192.168.1.11:7000".

Feature	Function	Parameter 1	Parameter 2
Send Float	Set	floating point number	IP address & port
Send Float	Control	-	IP address & port
Send Unsigned	Set	positive number	IP address & port
Send Unsigned	Control	-	IP address & port
Send Bool	Set	true or false	IP address & port
Send Bool	Control	-	IP address & port
Send String	Set	text string	IP address & port
Send String	Control	-	IP address & port
Send String Hex	Set	text string	IP address & port
Send String Hex	Control	-	IP address & port
Send Bytes	Set	Hex string	IP address & port
Wake On Lan	Set	MAC Address	IP address & port

Please note that string in parameter 1 has a maximum length of 31 characters.

The *Send Bytes* enables you to send a string of characters, where the characters are specified by their hexadecimal *ASCII* code. This allows for non-printable characters - e.g. NULL (0x00) and CR (0x0D) to be sent. For example to

send the string `Visual` with an added CR and LF enter `56697375616C0D0A` in parameter 2.

When using the Wake On Lan feature parameter 1 should contain the MAC Address of system's NIC (Network Interface Controller) you wish to wake up. The recommended value for parameter 2 is `255.255.255.255:7`. This broadcasts the message to the whole network at port 7 which is most commonly used for Wake On Lan.

6 DMX

Manipulate the DMX levels. These are the levels that can also be sent out via Art-Net or sACN.

Feature	Function	Parameter 1	Parameter 2
Universe	Control HTP	Universe #	-
Universe	Clear	Universe #	-
Channel	Set	DMX Channel	DMX Value
Channel	Toggle	DMX Channel	-
Channel	Control	DMX Channel	-
Channel	Inverted Control	DMX Channel	-
Channel	Decrement	DMX Channel	-
Channel	Increment	DMX Channel	-
Bump	Set	DMX Channel	DMX Value
Bump	Control	DMX Channel	-
Clear	All	-	-
RGB	Set	DMX Address	RGB Colour value
RGB	Control	DMX Address	-
RGBW	Set	DMX Address	RGBW Colour value
RGBW	Control	DMX Address	-
XY	Control	DMX Address	-
XxYy	Control	DMX Address	-
Ii	Set	DMX Address	Intensity Value
Ii	Control	DMX Address	-
Block	Control	DMX address and footprint	Fixture count
Set Source	-	-	-

The *Bump* feature will momentarily set the value of a DMX channel and then take it back to 0, effectively creating a pulse.

XY will take an incoming position and translate it to two DMX channels. *XxYy* will translate it to four DMX channels; a 16-bit pan and a 16-bit tilt level.

The *Ii* feature can take an incoming value and translate it to two-channel DMX 16-bit value.

Block can set a number of DMX channels to the same value. Parameter 1 will denote the starting channel and parameter 2 determines how many channels will be set. The footprint field in parameter 1 offers the possibility to have 'space' between the channels.

7 RDM

Perform a fixture count using the RDM protocol.

Feature	Function	Parameter 1	Parameter 2
RDM Count	Start	DMX port [A,D]	-

8 TCP

Send a TCP message via the network. Specify the recipient in Parameter 2. For example "192.168.1.11:7000".

Feature	Function	Parameter 1	Parameter 2
Send Float	Set	floating point number	IP address & port
Send Float	Control	-	IP address & port
Send Unsigned	Set	positive number	IP address & port
Send Unsigned	Control	-	IP address & port
Send Bool	Set	true or false	IP address & port
Send Bool	Control	-	IP address & port
Send String	Set	text string	IP address & port
Send String	Control	-	IP address & port
Send String Hex	Set	text string	IP address & port
Send String Hex	Control	-	IP address & port
Send Bytes	Set	Hex string	IP address & port
Wake On Lan	Set	MAC Address	IP address & port

Please note that string in parameter 1 has a maximum length of 31 characters.

The *Send Bytes* enables you to send a string of characters, where the characters are specified by their hexadecimal *ASCII* code. This allows for non-printable characters - e.g. NULL (0x00) and CR (0x0D) to be sent. For example to send the string *Visual* with an added CR and LF enter 56697375616C0D0A in parameter 2.

When using the Wake On Lan feature parameter 1 should contain the MAC Address of system's NIC (Network Interface Controller) you wish to wake up. The recommended value for parameter 2 is 255.255.255.255:7. This broadcasts the message to the whole network at port 7 which is most commonly used for Wake On Lan.

9 System

Miscellaneous tasks.

Feature	Function	Parameter 1	Parameter 2
Blink	Set	On or Off	-
Blink	Toggle	-	-
Blink	Control	-	-
Blink	Pulse	Seconds	-

The Blink feature controls the LED on the unit as seen in figure 3.1.

10 Timer

Manipulate on of the four internal timers.

Feature	Function	Parameter 1	Parameter 2
Playstate	Start	Timer #	-
Playstate	Stop	Timer #	-
Playstate	Restart	Timer #	-
Time	Set	Timer #	Time

11 Randomizer

Trigger the Randomizer to generate a new random number.

Feature	Function	Parameter 1	Parameter 2
Refresh	Set	Minimum value	Maximum value

The Randomizer functionality is discussed on page 52.

12 Variable

Manipulate one of the 20 variables.

Feature	Function	Parameter 1	Parameter 2
Set Value	Set	Variable #	Number in the range of [0,255]
Set Value	Toggle	Variable #	Number in the range of [0,255]
Set Value	Control	Variable #	-
Set Value	Inverted Control	Variable #	-
Set Value	Decrement	Variable #	Delta
Set Value	Increment	Variable #	Delta
Set Value	Stop Continuous	Variable #	-
Set Value	Continuous Decrement	Variable #	Delta
Set Value	Continuous Increment	Variable #	Delta
Set Value	Control Scaled	Variable #	-
Set Value	Control Offset	Variable #	-
Refresh	Set	Variable #	-
Single Dimmer	Set	Variable #	Delta
Curve	Control	Variable #	Curve
Curve	Inverted Control	Variable #	Curve

The Single Dimmer feature is used to increase or decrease a level by using only one switch. When controlling this task through a GPI action , then closing the GPI will increase or decrease the level. Opening the GPI port will freeze on the current level.

A short press will toggle the value of the variable between 0 and the last value set. This feature is useful for controlling an intensity with just one button.

13 Action

Use the Link feature to have an action trigger another action.

Feature	Function	Parameter 1	Parameter 2
Link	Set	Action	-

14 Actionlist

Manipulate an actionlist.

Feature	Function	Parameter 1	Parameter 2
Enable	Set	Actionlist	On or Off
Enable	Toggle	Actionlist	-
Enable	Control	Actionlist	-
Enable	Inverted Control	Actionlist	-

15 sACN Setting

Change the universe routing for sACN. These settings are visible in the *Settings* page.

Feature	Function	Parameter 1	Parameter 2
Input	Set	Universe [A,D]	sACN Universe [0,63999]
Input	Control	Universe [A,D]	-
Output	Set	Universe [A,D]	sACN Universe [0,63999]
Output	Control	Universe [A,D]	-
Priority	Set	Universe [A,D]	Priority [0,200]
Priority	Control	Universe [A,D]	-

16 Art-Net Setting

Change the universe routing for Art-Net. These settings are visible in the *Settings* page.

Feature	Function	Parameter 1	Parameter 2
Input	Set	Universe [A,D]	Art-Net Universe [0.0, 15.15]
Input	Control	Universe [A,D]	-
Output	Set	Universe [A,D]	Art-Net Universe [0.0, 15.15]
Output	Control	Universe [A,D]	-

17 GPI

Manipulate the GPI port.

Feature	Function	Parameter 1	Parameter 2
Refresh	Set	-	-

18 MIDI

Send a MIDI message.

Feature	Function	Parameter 1	Parameter 2
Send	Set	MIDI Address	MIDI Value
Send	Control	MIDI Address	-

19 Time Server

Fetch a time from the NTP time server. Please refer to the Settings on page 13.

Feature	Function	Parameter 1	Parameter 2
Refresh	Set	-	-

20 Timecode

Manipulate the internal timecode generator.

Feature	Function	Parameter 1	Parameter 2
Playstate	Start	-	-
Playstate	Stop	-	-
Playstate	Restart	-	-
Playstate	Pause	-	-
Time	Set	-	Time

21 Track

Manipulate the settings on the Track page or record a snapshot.

Feature	Function	Parameter 1	Parameter 2
Program	Stop	-	-
Program	Record	Track Index	-
Program	Erase	Track Index	-
Snapshot	Clear	-	-
Snapshot	Capture DMX	-	-
Snapshot	Capture Art-Net	-	-
Snapshot	Capture sACN	-	-

The *Snapshot* fea-

ture records a static scene from an incoming protocol like DMX, Art-Net or

sACN.

22 MMC

Send a MMC (MIDI Machine Control) message via the MIDI port.

Feature	Function	Parameter 1	Parameter 2
Send	Start	MIDI Channel	-
Send	Stop	MIDI Channel	-
Send	Restart	MIDI Channel	-
Send	Pause	MIDI Channel	-
Send	Record	MIDI Channel	-
Send	Deferred Play	MIDI Channel	-
Send	Record Exit	MIDI Channel	-
Send	Record Pause	MIDI Channel	-
Send	Eject	MIDI Channel	-
Send	Chase	MIDI Channel	-
Send	Fast Forward	MIDI Channel	-
Send	Rewind	MIDI Channel	-
Send	Goto	MIDI Channel	Time

Appendix C

Templates

This section explains the *Action Templates* available in the CueCore3.

A template contains a predefined set of *Sources*, *Actions* and *Tasks*. There are templates available for typical tasks that can be performed by the device. Users are encouraged to use a template as a starting point and make the necessary changes to the actions and tasks created by the template. Please note that adding a template can overwrite existing actions.

1 Receiving DMX

Requires one or more of the 4 physical DMX ports on the CueCore3 to be configured to 'Input' on the *Settings* page. Adds the *DMX Input* Source to the Actionlists and uses the *DMX* Task Type to set the 4 ports to control the (first) 4 universes using HTP priority. Any of the 32 available universes can be chosen as the output. Also, other priorities are available to the user.

2 Receiving Art-Net

Adds the *Art-Net* Source to the Actionlists and uses the *DMX* Task Type for 32 Art-Net universes to control all 32 CueCore3 universes using HTP priority.

3 Receiving sACN

Adds the *sACN* Source to the Actionlists and uses the *DMX* Task Type for 32 sACN universes to control all 32 CueCore3 universes using HTP priority.

4 Art-Net -> Playbacks

Adds the *Art-Net* Source to the Actionlists and uses the *Playback* Task Type and Fader Start *Feature* to set the first 16 channels of Art-Net to control the 16 Playback faders. See page 87 for more information on the task type and feature.

5 sACN -> Playbacks

Adds the *sACN* Source to the Actionlists and uses the *Playback* Task Type and Fader Start *Feature* to set the first 16 channels of Art-Net to control the 16 Playback faders. See page 87 for more information on the task type and feature.

6 Kiosc -> Playbacks

This template works in conjunction with the *KioscTouch* interface, or the *Kiosc App*. Both available from Visual Productions. It adds the *Kiosc* Source to the Actionlists and uses the *Playback* Task Type to control the 16 Playbacks on the CueCore3. On the Kiosc, go into settings and 'Remote'. Find the IP address of your CueCore3 and select it. Then click 'Grid Size' in the menu, and select the '8x5' option. Close the settings and you will see two pages have been created by the CueCore3, each with 8 Playback controls: Release, Go+, an intensity fader and Go-.

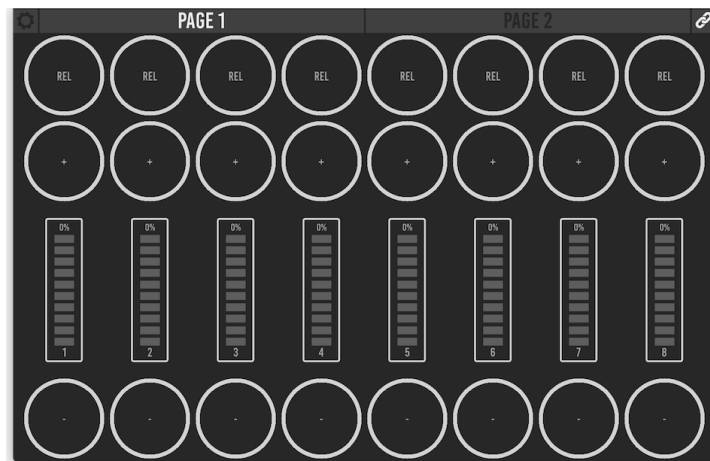


Figure C.1: Kiosc template screen

7 DMX -> MIDI

Adds the *DMX* Source to the Actionlists and uses the *MIDI* Task Type and Send *Feature*. It then takes the value of the first 8 channels of the first DMX universe to send ControlChange messages on the first 8 MIDI channels.

8 Digital GPI -> 4 Playbacks

Adds the *GPI* Source to the Actionlists and uses the *Playback* Task Type and Playstate *Feature*. Assuming 4 digital buttons are connected to the 4 GPI ports (see page 17 for more information) to control the playstate of the first 4 Playbacks. When a button is pressed, the corresponding Playback will start. When the button is released, so will the Playback.

9 MA3 ->Playbacks

Intended to be used alongside the MA3 Macros plugin provided by Visual Productions. With the plugin installed on your MA3, this template then adds the *OSC* Source to the Actionlists and *Playback* Task Type to control Cue choice and Playback release of the first 6 Playbacks.

Find the MA3 Macros plugin on: <https://www.visualproductions.nl/downloads/miscellaneous>.

Appendix D

Troubleshooting

1 LED indicator

The LED indicator on the back of the CueCore3 can give an indication of the devices state of operation. In normal operation, the light will pulse in either *red* (network in DHCP mode) or in *white* (network in Static IP mode). However, in rare cases, when the unit has become unresponsive, you might see the LED be on, or flash, in *red AND white*. When you observe this, a power cycle is needed.

2 Common issues

Here we discuss some common situations / mistakes

2.1 Network connections

We recognize that not everybody is well versed in computer networking. Especially in more complex systems, or with certain access restriction requirements, external help should be called in from a third party specialized in networks. For small setups, here are some pointers to help you on your way.

peer-to-peer

The most basic connection one can make is between the CueCore3 and a computer, using nothing but a network cable. Since in this situation there is no server to provide network (IP) addresses, both devices will fall back to a self-assigned address in the range 169.254.xx.xx. This should enable you to see your device in vManager, and browse to its web interface for programming or monitoring.

router / switch

One step up is the most common setup in any building with an internet connection: a *router* that has several ports for network cables. A router usually

fulfils the roll of DHCP server. The service that provides network addresses to connected devices.

Connect both computer and CueCore3 with network cables to the router. Make sure the LED on the back of the CueCore3 shows in *RED*, indicating DHCP mode. Your CueCore3 will now show up in vManager.

2.2 API versus other network messages

We sometimes see that people have some difficulty differentiating between API messages and 'generic' OSC, UDP or TCP messages. The difference is that the API messages, which you can find on page 104, do not require any programming on the CueCore3. When correctly formatted, they will be executed immediately. Generic OSC, UDP and TCP messages sent to the CueCore3 need corresponding actions programmed in *ShowControl* to have them interpreted and actioned. More on that on page 51.

2.3 Monitoring

Whether it is unclear if you are outputting the correct DMX information, receiving Art-Net or sACN, or you want to check that your network messages are sent and received correctly: you will find useful information on the Monitoring page. Here you can also set and inspect Variables and Timers under the 'Timers' button.

2.4 IP settings reset

To reset only the network settings to their factory values with a static IP address of *192.168.1.10*, press and hold the reset button for about 3 seconds. The LED indicator will flash white when the reset has finished.

2.5 Factory reset

Some situations warrant the need to factory reset the CueCore3. Such as deploying it in a different project, or removing a device password that has been forgotten or lost. A factory reset can be performed in two ways:

1. Through vManager:
 - find your CueCore3 in the device list
 - click the *factory reset* button
 - acknowledge the warning
2. Using the reset button on the device:

The steps to take are:

- disconnect power from your CueCore3
- press and hold the reset button
- connect power to the device whilst holding down the reset button
- the indicator LED will pulse in *white and red*

- wait for about 10 seconds and let go
- the LED indicator flashes white
- Your CueCore3 will reboot and reconnect to the network

Appendix E

API

The CueCore3 is pre-programmed to make its internal functionality available via OSC, TCP, UDP and HTTP. There is a simple API implemented for each protocol. Notwithstanding these API's, it is possible to create your own OSC, TCP and UDP implementation in the Show Control page.

The API is originally designed for external equipment to control the CueCore3, however, it is also capable to send information back. This feedback mechanism is discussed at the end of this chapter, on page 111.

1 OSC

The following table uses playback #1 as an example. The number '1' can be replaced by any number in the range of [1,16].

URI	Parameter	Description
/core/pb/1/go+*	-	Jump to the next cue in playback #1
/core/pb/1/go-	-	Jump to the previous cue in playback #1
/core/pb/1/jump	integer	Jump to a specific cue in playback #1
/core/pb/1/release	-	Release the playback
/core/pb/1/intensity	float	Set the playback's intensity
/core/pb/1/rate	float	Set the playback's intensity
/core/pb/release	-	Release all playbacks
/core/pb/intensity	float	Set the master intensity
/core/pb/rate	float	Set the master rate
/core/pb/fade	string	Set the master fade time
/core/pb/solo	integer	Start a solo playback

* This command does not work when the parameter is off or a 0 value.

The following table uses track #1 as an example. The number '1' can be replaced by any number in the range of [1,128].

URI	Parameter	Description
/core/tr/select	integer	Select a track
/core/tr/erase	-	Erase the selected track
/core/tr/record	-	Start recording the selected track
/core/tr/stop	-	Stop recording
/core/tr/1/erase	-	Erase track #1
/core/tr/1/record	-	Start recording track #1
/core/tr/snapshot/dmx	-	Record a snapshot of the current DMX input
/core/tr/snapshot/artnet	-	Record a snapshot of the current Art-Net input
/core/tr/snapshot/sacn	-	Record a snapshot of the current sACN input

The following table only applies when Internal is selected as timecode in at the settings page.

URI	Parameter	Description
/core/tc/start	-	Start the internal timecode
/core/tc/stop	-	Stop the internal timecode
/core/tc/restart	-	Restart the internal timecode
/core/tc/pause	-	Pause the internal timecode
/core/tc/set	string	Set the internal timecode

The following table uses actionlist #1 as an example. The number '1' can be replaced by any number in the range of [1,16]. The table also uses action #2 as an example. The number '1' can be replaced by any number in the range of [1,48].

URI	Parameter	Description
/core/al/1/2/execute	bool/float/integer	Execute action #2 inside action list #1
/core/al/1/enable	bool	Set the 'enable' checkbox for action list #1

The following table uses timer #1 as an example. The number '1' can be replaced by any number in the range of [1,4].

URI	Parameter	Description
/core/tm/1/start	-	Start timer #1
/core/tm/1/stop	-	Stop timer #1
/core/tm/1/restart	-	Restart timer #1
/core/tm/1/pause	-	Pause timer #1
/core/tm/1/set	time-string	Set timer #1 at the time-string

The following table uses variable #1 as an example. The number '1' can be replaced by any number in the range of [1,20].

URI	Parameter	Description
/core/va/1/set	integer	Set the value of variable #1
/core/va/1/refresh	-	Refresh variable #1; a trigger will be generated as if the variable changed value
/core/va/refresh	-	Refresh all variables; triggers will be generated

The following table shows how to active miscellaneous functions.

URI	Parameter	Description
/core/dmx/1	integer	Set the value of a DMX channel
/core/blink	-	Momentarily flashes the CueCore3's LED
/core/hello	-	The unit will reply with the same Hello message

2 TCP & UDP

TCP (Transmission Control Protocol) is a protocol for sending messages across an Ethernet network. TCP provides reliable, ordered and error-checked delivery of messages between programs running on computers connected to a local area network, intranet or the public Internet.

UDP (User Datagram Protocol) is a simple protocol for sending message across the network. It does not provide any error checking. Although UDP is a bit faster than TCP, it is less secure.

Typically either TCP or UDP is supported by various media devices like video projectors and show controllers.

The functionality within the CueCore3 can controlled by using the following ASCII strings (human readable text) messages:

The following table uses playback #1 as an example. The number '1' can be replaced by any number in the range of [1,16].

String	Description
core-pb-1-go+	Jump to the next cue in playback #1
core-pb-1-go-	Jump to the previous cue in playback #1
core-pb-1-jump=<integer>	Jump to a specific cue in playback #1
core-pb-1-release	Release the playback
core-pb-1-intensity=<float>	Set the playback's intensity
core-pb-1-rate=<float>	Set the playback's intensity
core-pb-release	Release all playbacks
core-pb-intensity=<float>	Set the master intensity
core-pb-rate= <float>	Set the master rate
core-pb-fade=<text>	Set the master fade time
core-pb-solo=<integer>	Start a solo playback

The following table uses track #1 as an example. The number '1' can be replaced by any number in the range of [1,128].

String	Description
core-tr-select=<integer>	Select a track
core-tr-erase	Erase the selected track
core-tr-record	Start recording the selected track
core-tr-stop	Stop recording
core-tr-1-erase	Erase track #1
core-tr-1-record	Start recording track #1
core-tr-snapshot-dmx	Record a snapshot of the current DMX input
core-tr-snapshot-artnet	Record a snapshot of the current Art-Net input
core-tr-snapshot-sacn	Record a snapshot of the current sACN input

The following table only applies when Internal is selected as timecode in at the settings page.

String	Description
core-tc-start	Start the internal timecode
core-tc-stop	Stop the internal timecode
core-tc-restart	Restart the internal timecode
core-tc-pause	Pause the internal timecode
core-tc-set= <string >	Set the internal timecode

The following table uses actionlist #1 as an example. The number '1' can be replaced by any number in the range of [1,16]. The table also uses action #2 as an example. The number '1' can be replaced by any number in the range of [1,48].

String	Description
core-al-1-2-execute=<arg>	Execute action #2 inside action list #1
core-al-1-enable=<bool>	Set the 'enable' checkbox for action list #1

The following table uses timer #1 as an example. The number '1' can be replaced by any number in the range of [1,4].

String	Description
core-tm-1-start	Start timer #1
core-tm-1-stop	Stop timer #1
core-tm-1-restart	Restart timer #1
core-tm-1-pause	Pause timer #1
core-tm-1-set=<text>	Set timer #1 at the time-string

The following table uses variable #1 as an example. The number '1' can be replaced by any number in the range of [1,20].

String	Description
core-va-1-set=<integer>	Set the value of variable #1
core-va-1-refresh	Refresh variable #1; a trigger will be generated as if the variable changed value
core-va-refresh	Refresh all variables; triggers will be generated

The following table shows how to activate miscellaneous functions.

String	Description
core-dmx-1=<integer>	Set the value of a DMX channel
core-blink	Momentarily flashes the CueCore3's LED
core-hello	The unit will reply with the same Hello message

3 HTTP

HTTP (Hyper Text Transfer Protocol) is the standard protocol to access web pages. It can also be used to control the CueCore3, using the URLs listed below.

The following table uses playback #1 as an example. The number '01' can be replaced by any number in the range of [01,16].

Description	URL	Parameter Range	Example
Playback Go Forward	/ajax/pb/XX/go+	-	http://192.168.1.10/ajax/pb/01/go+
Playback Go Back	/ajax/pb/XX/go-	-	http://192.168.1.10/ajax/pb/01/go-
Playback Jump	/ajax/pb/XX/jump	[1, 32]	http://192.168.1.10/ajax/pb/01/jump
Release playback	/ajax/pb/XX/release	-	http://192.168.1.10/ajax/pb/01/release
Set playback intensity	/ajax/pb/XX/intensity	[0.0, 1.0]	http://192.168.1.10/ajax/pb/01/intensity=0.55
Set playback rate	/ajax/pb/XX/rate	[-1.0, 1.0]	http://192.168.1.10/ajax/pb/01/rate=0.55
Release all playbacks	/ajax/pb/release	-	http://192.168.1.10/ajax/pb/release
Set master intensity	/ajax/pb/intensity	[0.0, 1.0]	http://192.168.1.10/ajax/pb/intensity=0.55
Set master rate	/ajax/pb/rate	[-1.0, 1.0]	http://192.168.1.10/ajax/pb/rate=0.55
Set master fade	/ajax/pb/fade	text	http://192.168.1.10/ajax/pb/fade=3s
Start a solo playback	/ajax/pb/solo	[1, 6]	http://192.168.1.10/ajax/pb/solo=3

Description	URL	Example
Record a snapshot of DMX	/ajax/tr/snapshot/dmx	http://192.168.1.10/ajax/track/snapshot/dmx
Record a snapshot of Art-Net	/ajax/tr/snapshot/artnet	http://192.168.1.10/ajax/track/snapshot/artnet
Record a snapshot of sACN	/ajax/tr/snapshot/sacn	http://192.168.1.10/ajax/track/snapshot/sacn

The following table uses actionlist #1 as an example. The number '01' can be replaced by any number in the range of [01,16].

Description	URL	Parameter Range	Example
Execute action	/ajax/al/XX/XX/execute	true/false	http://192.168.1.10/ajax/al/01/02/execute=true
Enable actionlist	/ajax/al/XX/enable	true/false	http://192.168.1.10/ajax/al/01/enable=false

Description	URL	Parameter Range	Example
Blink LED	/ajax/blink	-	http://192.168.1.10/ajax/blink

You can send your HTTP GET requests to port 80.

4 Feedback

The CueCore3 is able to send feedback to external equipment using its API, so called 'clients'. The CueCore3 keeps a memory of the last four OSC clients and last four UDP clients. The clients will automatically receive updates on several playback related state changes.

Below is a table listing the messages the CueCore3 will send back to its clients.

The `hello` command is ideal for polling the device; it allows you to verify that the CueCore3 is online at the IP address and port that you expect.

A power-cycle will clear the internal client lists. Send `/core/goodbye` or `core-goodbye` to explicitly be removed from the client list.

Consider programming custom action in the show control when additional feedback functionality is required.

4.1 Preventing a feedback loop

Feedback is automatically send to a device which uses the OSC or UDP API. If the external device is also a Visual Productions unit then the feedback message could be interpreted by the external unit a new command. This can result in another feedback message being generated. An endless stream of feedback messages can stall the units involved.

This feedback loop can be prevented by assigning a unique label to the device's API prefix. This setting is discussed on page 11.

5 Feedback

The CueCore3 is able to send feedback to external equipment using its API, so called 'clients'. The CueCore3 keeps a memory of the last four OSC clients and last four UDP clients. The clients will automatically receive updates on several playback related state changes.

Below is a table listing the messages the CueCore3 will send back to its clients. Please consider that the API-prefix is at the default value 'core' in this listing.

OSC	UDP
/core/pb/1/intensity	core-pb-1-intensity
/core/pb/1/rate	core-pb-1-rate
/core/pb/intensity	core-pb-intensity
/core/pb/rate	core-pb-rate
/core/pb/fade	core-pb-fade
/core/pb/1/active	core-pb-1-active
/core/pb/1/cue	core-pb-1-cue
/core/al/1/enable	core-al-1-enable
/core/gpi/<pin number>	core-gpi-<pin number>=ON/OFF
/core/gpi/<pin number>	core-gpi-<pin number>=50%
/core/hello	core-hello

The **hello** command is ideal for polling the device; it allows you to verify that the CueCore3 is online at the IP address and port that you expect.

A power-cycle will clear the internal client lists. Send **/core/goodbye** or **core-goodbye** to explicitly be removed from the client list.

Consider programming a custom action in Show Control when additional feedback functionality is required.

5.1 Preventing a feedback loop

Feedback is automatically sent to a device which uses the OSC or UDP API. If the external device is also a Visual Productions unit then the feedback message could be interpreted by the external unit as a new command. This can result in another feedback message being generated. An endless stream of feedback messages can stall the units involved.

This feedback loop can be prevented by assigning a unique API prefix to the device. How to do this is discussed on page 11.