



Pixout ArtNet Recorder Manual

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Data	Page	Description
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10 Mar 2020	36 37 21	ArtNet DMX triggering universe numbering starting from 0 Changed ArtNet DMX triggering playback Introduced FPS grabbing and custom FPS
12 Aug 2020	46	Updated image URL for downloading
11 Sep 2020	25	How to import cuelists from USB drive
11 Sep 2020	39	GPIO Triggering pinout
27 Dec 2022	47	Raspberry PI 3B+ firmware image URL

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1. OVERVIEW

Our company vision - simple and user-friendly remote control interface adopted for both novice and tech savvy users, small size and cost effective device for outdoor usage with good performance resource. Based on this vision, we've created Pixout ArtNet Recorder.

What it is

Pixout ArtNet Recorder (hereinafter – the Recorder) is *a standalone, small sized, ArtNet DMX recorder device designed for outdoor environments.*

What it does

It grabs ArtNet DMX sequences from software/hardware source, saves it internally and playbacks as indicated.

You can remotely manage DMX sequences and adjust settings from Control Panels using web browser or mobile device.

Key features:

- Standalone Recorder
- Outdoor friendly
- IP65 enclosure with connectors
- Up to 255 ArtNet DMX universes
- Remote control (Android/Apple/Web/API)
- High reliability for architecture, museums, art spaces and other objects

How to do it

Connect the Recorder to your PC and use your favorite software to create your own ArtNet sequences. Another option is to use MIDI / Lighting Desk to compose sequences.

Tested software

The Recorder was tested using following software:

- Madrix
- Jinx!

- grandMA2
- Glediator
- MagicQ
- MadMapper

Package includes



- Pixout ArtNet Recorder S-100
- Power Supply
- RJ-45 plug with IP68
- Protection
- User Guide
- Extension cable with EU/US plug

Warning! Please, use only supplied parts for mounting your Recorder. 3rd-party PSU or connectors might damage the Recorder's hardware.

Warranty is not applicable in case of using the Recorder with non-supplied parts.

There are boxed and unboxed versions of the Recorder. Boxed version, as you might guess, is ready-to-use from the box. Please find the manual about connection in the section [CONNECTION](#).



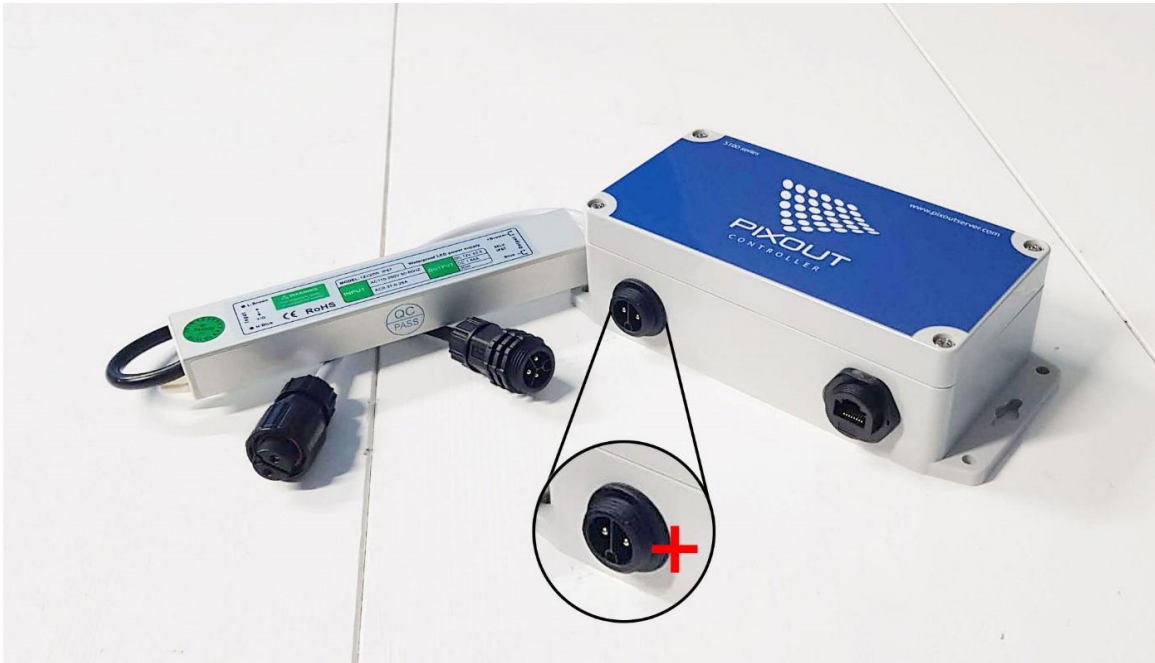
Unboxed version is built for those who want to assemble their own system, but need a stable firmware, which could work seamlessly.

We have various licensing options, which allow you to purchase a license for the quantity of universes you need. Please find detailed information about licensing policy in the section [LICENSING](#)

2. WARNINGS

It is extremely important to check the following details while setting up a connection for the Recorder.

Check DC polarity in case you'd like to use your own PSU or make any modifications or integration.



1. Check voltage and use provided PSU only



2. Please use the correct RJ45 IP68 connector. It is critical for outdoor usage.



IP68 connector for Ethernet patch cord comes with the package.



You can use 3rd-party PSU or connectors at your own risk.

3. CONNECTION

There is an extension cable with EU or US plug (NEMA 5-15P) on one side and 3-pin female connector on the opposite side of the package.



1. Connect extension cable 3-pin female with PSU 3-pin male.

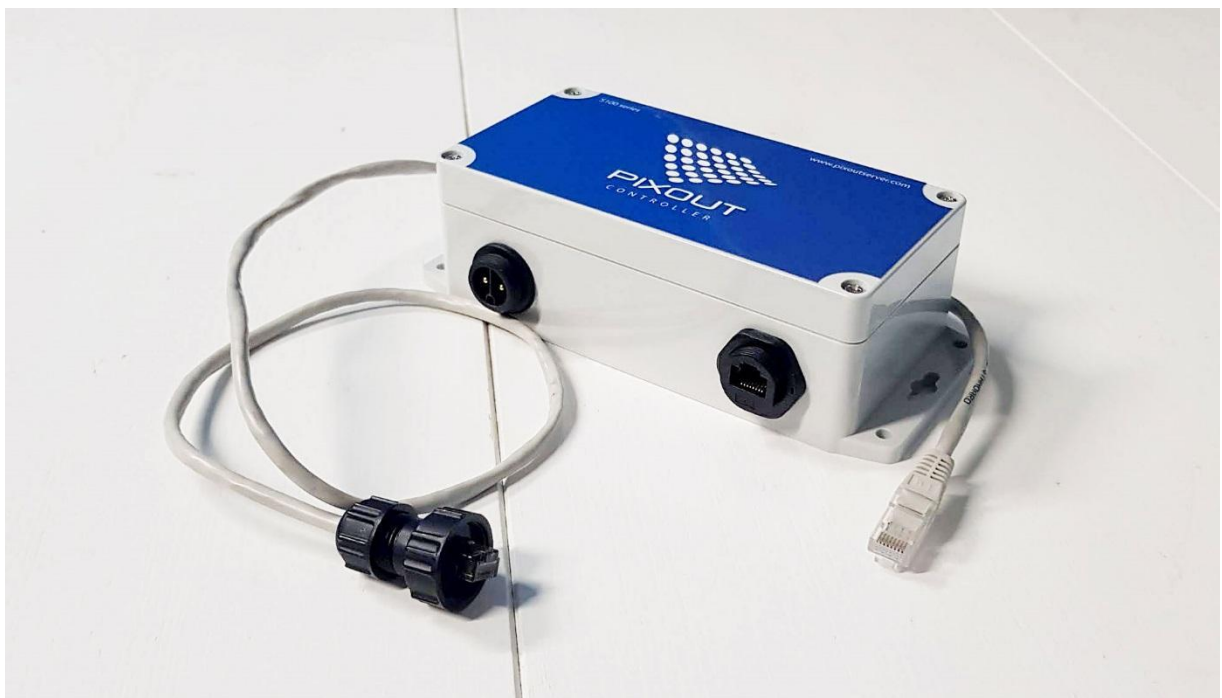


Unplugged

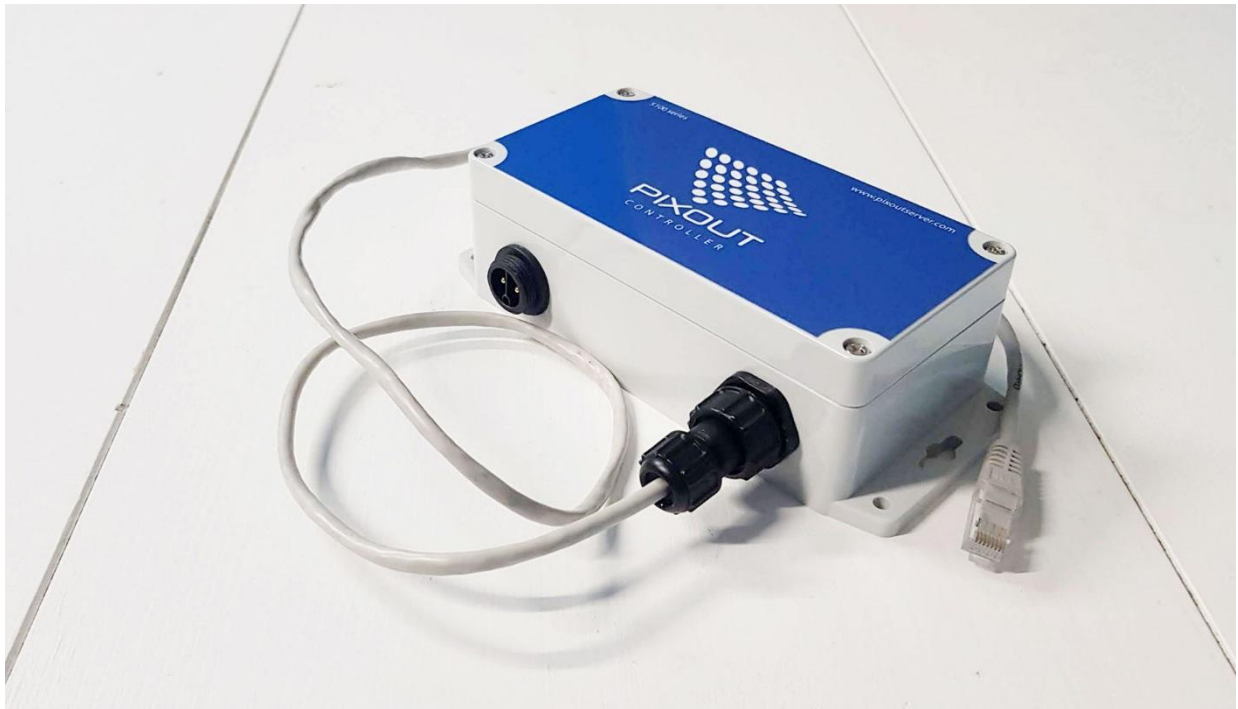


Plugged

2. Connect Ethernet male connector with the Recorder's female connector.



Unplugged



Plugged

Power ON! Let's go!

4. HOW TO START

Default network setting

Your device out of the box has the following default network setting:

Ethernet connection:

IP: 2.0.0.230 **MASK:** 255.0.0.0

Wireless connection:

IP: DHCP **ZeroConfig:** <http://pixoutserver.local>

Connection setup

To connect to your Recorder:

1. Connect the Recorder to PC with Ethernet cable
2. Power up the Recorder
3. Setup static IP on your PC with the following values:
 - IP - 2.0.0.* (except 230)
 - Mask - 255.0.0.0
 - Gateway - 0.0.0.0
4. **Unboxed devices only** - Wait for about 5 minutes until the system is initiated for the first time
5. Type URL <http://2.0.0.230/px-admin/#/network> in browser address bar
6. Specify your wireless router connection data (SSID/PSK) in Admin Panel - <http://2.0.0.230/px-admin/#/network>
7. When device is successfully connected to the wireless network, you have to access it by ZeroConfig URL name <http://pixoutserver.local>
8. User Panel is available at <http://pixoutserver.local>
9. Admin Panel is available at <http://pixoutserver.local/px-admin>.

! USEFUL INFORMATION

If you use Microsoft Windows, you need to setup Bonjour drivers first to support URLs like <http://pixoutserver.local> in your browser. You can download Bonjour for Windows here:
<http://pixout.lighting/product-pixout/pixout-the Controller-downloads/>

! ATTENTION

Direct connection is intended for initial configuration and for sending / receiving data with ArtNet protocol. For routine work please connect by wireless and use <http://pixoutserver.local>

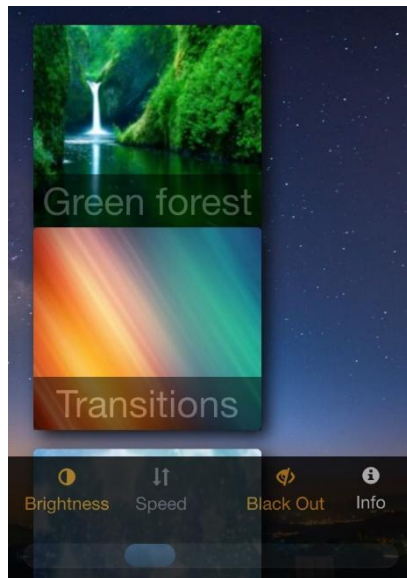
5. MANAGING YOUR RECORDER

Access Control Panel

Manage your Recorder's performance with Control Panels. Access Control Panel via any web browser installed on your PC/Mac or mobile device (iOS/Android).

There is an application for mobile devices, enabling easier access to the User Control Panel.

For iOS: [click to download](#)



Application gives access to User Panel via LAN or WAN. On first bootup you will be asked for LID – this is the Recorder's ID, you should use it to access your device. There is an option to request your own LID from our Support Team via support@pixoutserver.com. Or use default one:

Default LID: **local**

For Android: [click to download](#)



This application gives access to the User Panel from LAN only and there is no need for LID – simply connect to the Recorder by <http://pixoutserver.local> and start working.

6. CONTROL PANELS DESCRIPTION

There are two types of access:

- User Control Panel
- Admin Control Panel

6.1 USER CONTROL PANEL

Use the User Control Panel to adjust brightness, choose cue and start/stop playback. The User Panel has a status bar and a list of cues you can manage.

Access to User Control Panel: <http://pixoutserver.local>

User Control Panel allows to control:

- brightness level
- blackout
- play/stop cue

Handle these processes by clicking corresponding control and adjust playback speed and brightness. Blackout function might be used to decrease brightness to zero level and stop playback immediately.



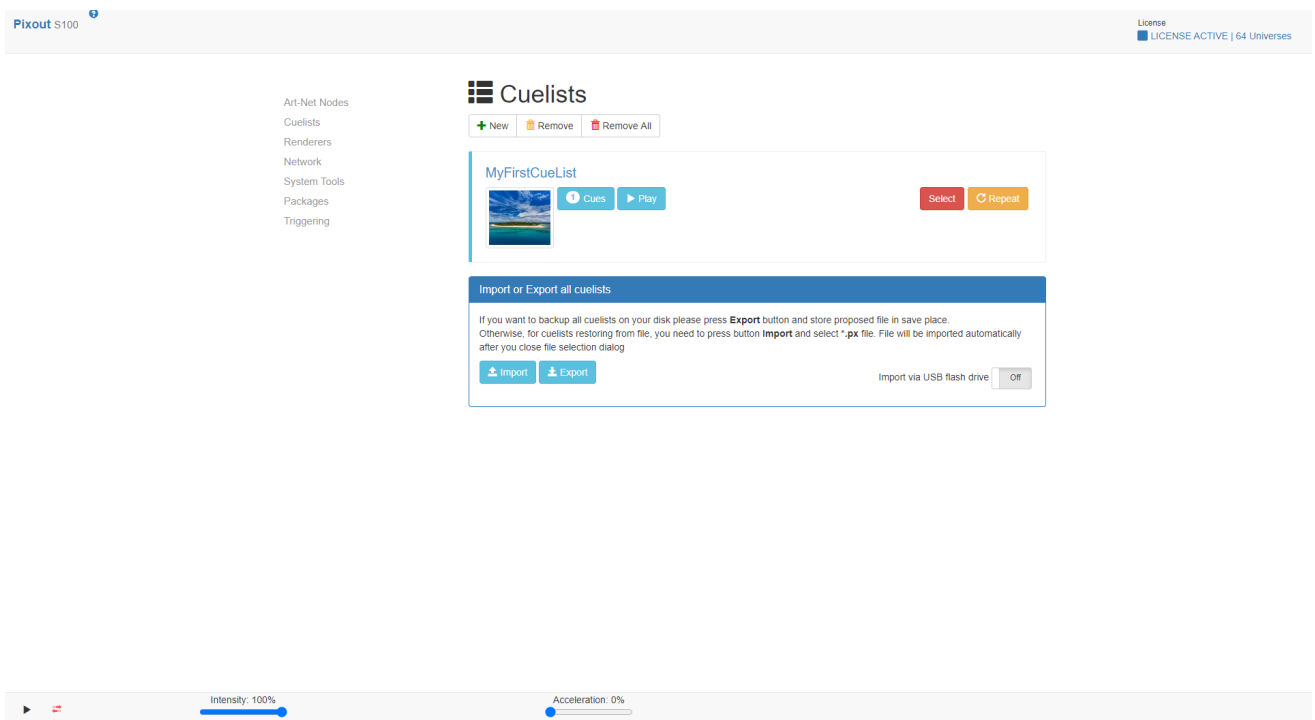
6.2 ADMIN CONTROL PANEL

Admin Control Panel is for experienced users only. It has some features that can affect performance and productivity of the Recorder. You should have an understanding of all working processes and be able to handle errors.

Access to Admin Control Panel: <http://pixoutserver.local/px-admin>

With Admin Panel you can setup the Recorder, configure network, prepare cue for playback, import/export cues, start/stop cue, check system logs and access other features.

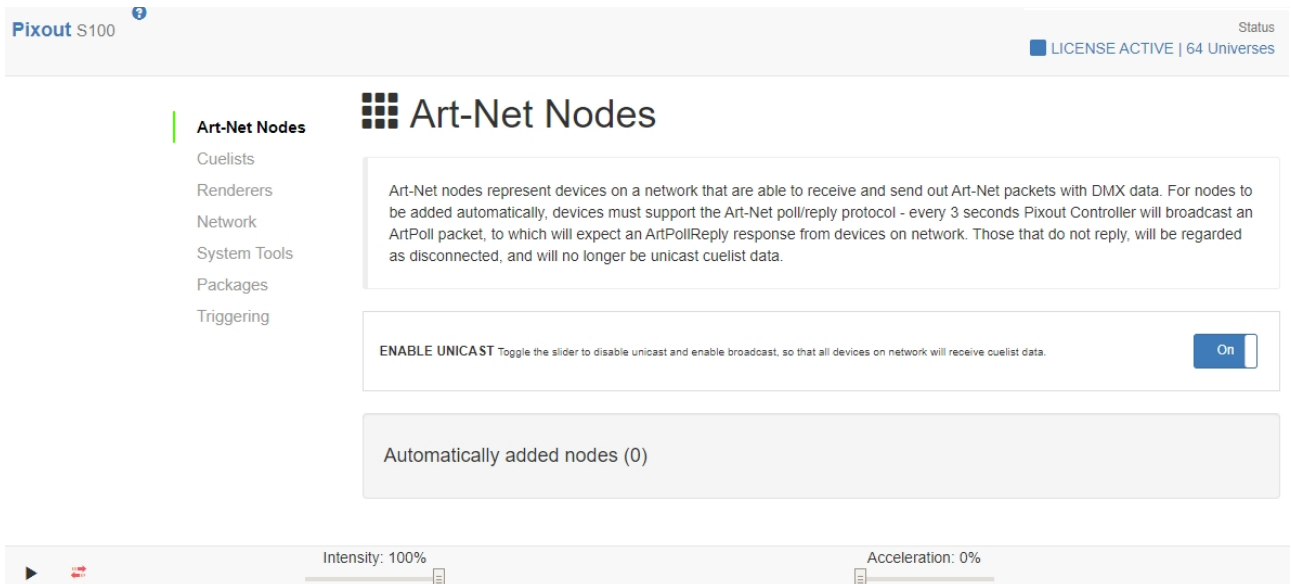
The main screen has a status bar with the same controls as the User Panel and Admin menu on the left side of the screen.



PAGE	DESCRIPTION
/ART-NET NODES	Automatic detection of any Art-Net node
/CUELISTS	Cues import/export and preparing cues for playback
/RENDERERS	Available renderers
/NETWORK	Network configuration for access to the Recorder
/SYSTEM TOOLS	System utilities: time, system restore, logging
/PACKAGES	List of installed packages

6.2.1 ART-NET NODES

Art-Net Nodes searches for all available devices on local networks, which support Art-Net poll/reply protocol and are able to send/receive Art-Net packets with DMX data.



When the slider is in Off position, a unicast is disabled and broadcast is activated. In this case the Recorder will broadcast an ArtPoll packet every three seconds and wait for ArtPollReply from any device on the network. In case of no response from the device, this device will be regarded as disconnected.

When the slider is in On position, a unicast is active and broadcast is disabled. In this case all data will be sent to unicast IPs by default. If you want to change unicast behavior, use the filtering option. For more details check the section “CUE OUTPUT FILTERING”

! USEFUL INFORMATION

Even when slider On/Off, the Recorder will reply with ArtPollReply by ArtPoll request from the 3rd party software.

Art-Net Nodes will show universe values as +1, which means that universe 0 will be shown as 1, universe 1 will be shown as 2, etc.



6.2.2 CUELIST

In this section you can make modifications, import or export cuelists.

Creating a cuelist

In the “CueList” section press “New” button, fill in the cueList name in an input field and press “Submit” button.

CueLists

 New  Remove  Remove All

Import or Export all cueLists

If you want to backup all cueLists on your disk please press **Export** button and store proposed file in save place.
Otherwise, for cueLists restoring from file, you need to press button **Import** and select *.px file. File will be imported automatically after you close file selection dialog

 Import

Import via USB flash drive ☐ Off

USEFUL INFORMATION

CueList names may be edited afterwards by clicking on its name. When changes are made, click outside the input field, and the name will be saved.

Recording a cue

Now you have your own cueList, but it is still empty. You need to record data from any ArtNet source. Select your CueList by clicking on it and then click the “Cues” button.

Pixout S100

Status

LICENSE ACTIVE | 64 Universes

Art-Net Nodes

CueLists

Renderers

Network

System Tools

Packages

Triggering

MyFirstCueList

Back to cueLists

Record

Remove

Remove All

Name

firstCue

Recording not started

Off

Custom timings

FPS (frames per second)

30

PPF (packets per frame)

20

Rec

Stop

Schedule CueList start and stop time

Start time

Stop time

Note: You can leave stop or start time empty if you don't need it

Scheduled job will start at specific time every day

Schedule

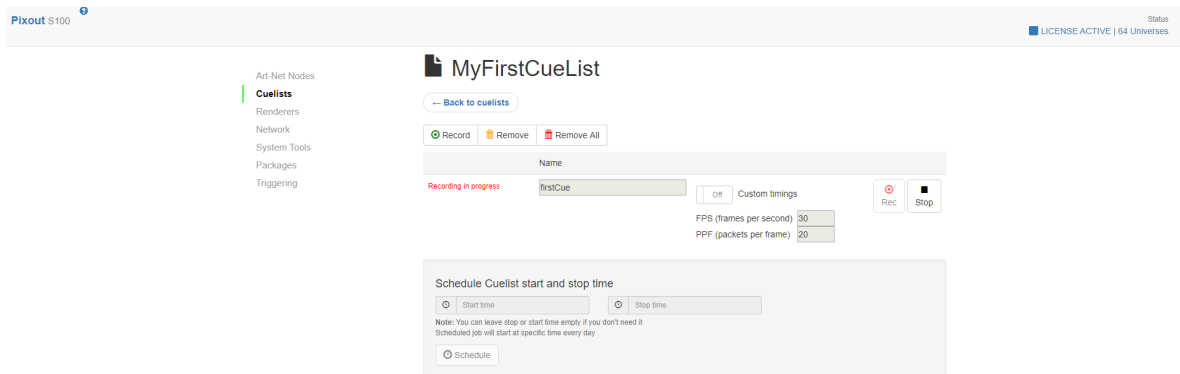
Name your cue, specify FPS and click the “Rec” button on the right of your cue. FPS will be grabbed from your source by default.

In case you would like to specify custom FPS so please uncheck ‘Custom timings’ switch and specify FPS. It should be the same as a source provided by the device. PPF is usually equal to universes count. You can see the “Waiting for data” message, which means that no data received and the Recorder is in a waiting state.

! USEFUL INFORMATION

Duration is not used at the moment and should have default value.

After ArtNet sequences reach the Recorder, you will see a message "Recording in progress"



You need to send ArtNet data from your software / hardware to the Recorder by broadcast / unicast address (2.255.255.255 / 2.0.0.230 accordingly) UDP port 6454 or use Auto node discovering.

ArtNet sequences recording may be stopped by clicking the “Stop” button. Repeating the previous steps, you can record as many cues as you need.

! USEFUL INFORMATION

If ArtNet DMX Triggering is enabled, recording will be started/stopped by triggering event only.

Total amount of cues and cue lists limited only by SD flash size. The provided SD card has a capacity of 8 GB and may be increased in size on

demand. At the moment we have limitations per one recorded cue. Maximal recorded length for one cue for 64 universes (30fps) is 10 min.

If you need to record a very long cue for more than 10 min, please split it into two or more parts.

Cue or cue list can be removed with the help of buttons “Remove” or “Remove all”. Before clicking “Remove” you need to select a cue or cue list accordingly and only then click “Remove” button. On the opposite, “Remove all” button will remove all items without selecting.

Cue output filtering

Filter recorded cue output by universe and specify IP for each universe or broadcast.

If you need to filter universes to different IP(s), please follow the syntax below:

Universe:IP:UDPport

Where:

Universe – Allowed characters [0123456789*]. Universe starting from 0 (e.g. in case of 64 universe first universe will be 0 and last 63). Wildcard character means all universes.

IP – Any allowed IP addresses

UDPport – ArtNet UDP port (usual 6454)

Examples:

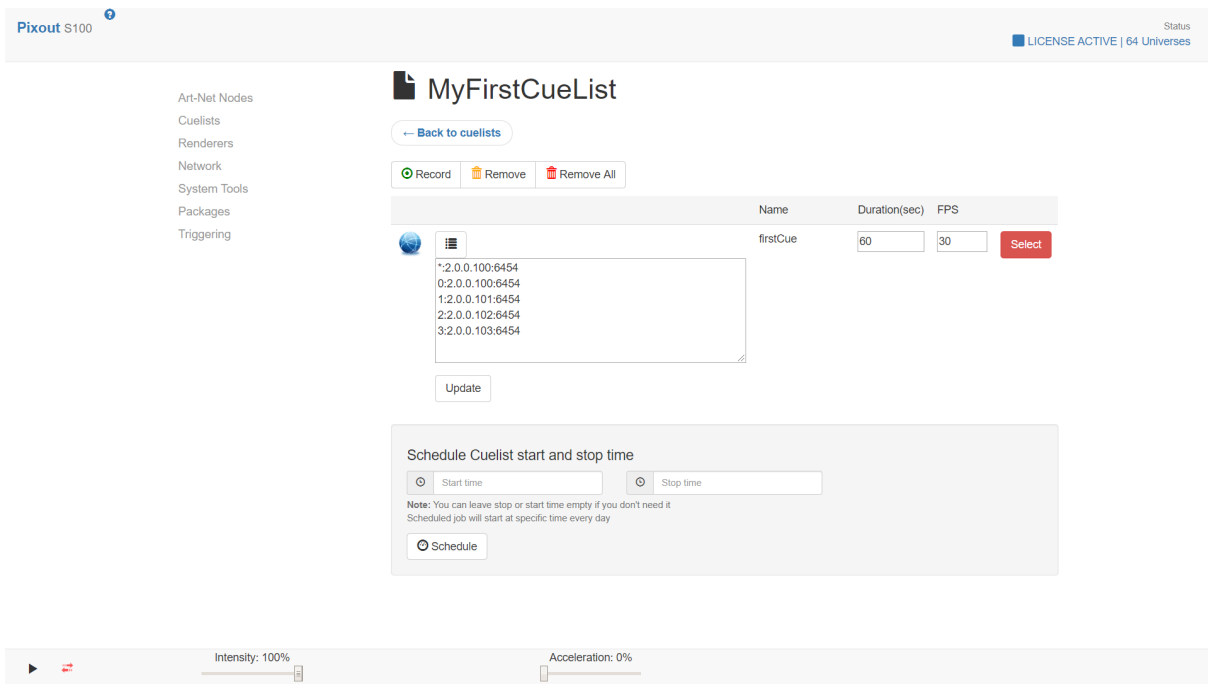
0:2.0.0.100:6454 – Send universe 0x00 to IP
1:2.0.0.101:6454 – Send universe 0x01 to IP
2:2.0.0.102:6454 – Send universe 0x02 to IP
3:2.0.0.103:6454 – Send universe 0x03 to IP

Note! For backward compatibility reasons, universe numbering starts from 0.

Universe duplication is allowed. You can send the same universe as many times you like to a different IP.

! USEFUL INFORMATION

Please check if IP exists before sending data to it. In case of sending data to non-existing IP, overall sending process would end with glitch.



Universes could be duplicated. For example send one universe to two different IPs, if you want the same effect on different ArtNet nodes.

Examples:

0:2.0.0.100:6454 – Send universe 0x00 to the IP 2.0.0.100

0:2.0.0.101:6454 – Send the same universe to another IP 2.0.0.201

! USEFUL INFORMATION

If the filtering box is empty, the Recorder will broadcast universes to 2.255.255.255 address. So if you specified two universes out of four, in this case two universes will be unicast and two broadcast.

Universe / IP / port filtering in cuelist settings will have a universe range starting from 0 (not from 1) – if user inputs "1:0.0.0.0:1234" – it will mean universe 2 is filtered to IP 0.0.0.0 on UDP port 1234.

Cuelist import and export

Import or Export all cuelists

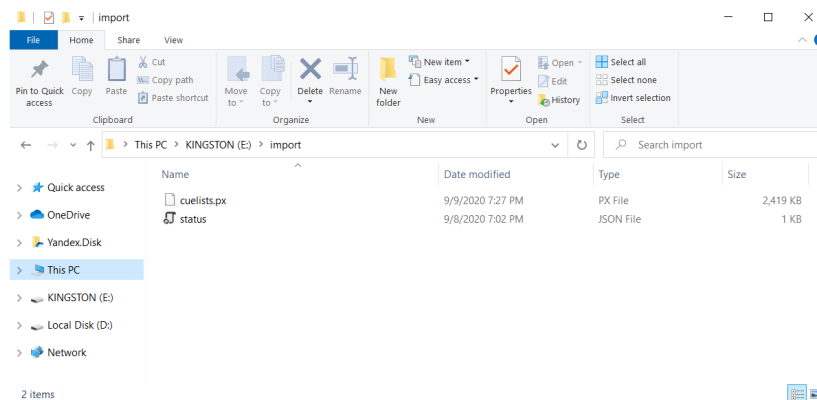
If you want to backup all cuelists on your disk please press **Export** button and store proposed file in save place. Otherwise, for cuelists restoring from file, you need to press button **Import** and select *.px file. File will be imported automatically after you close file selection dialog

ImportExport

Import via USB flash drive ☒

You can save, export or restore your cues onto external device, such a PC, with “Import” and “Export” buttons.

Import via USB flash drive allows to import **cuelists.px** from USB flash drive. This file should be located in **Drive:\import** directory. Import will be enabled only if the switch is located in ON position until the user turns it OFF.



Also, additional file **status.json** optional could be placed too. This file allows you to select which one parameters will be activated after importing. Which cuelist to play, brightness, speed.

status.json:

```
{
  "PID":0,
  "OP":"play",
  "Fps":0,
  "Intensity":100,
  "UpdateUID":227498933,
  "Renderer":"artnet_player"
}
```

Legend:

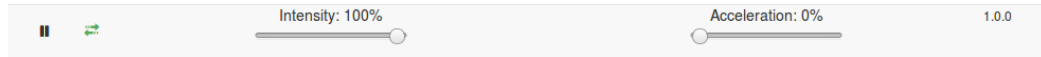
- PID - Cuelist ID
- OP - Operations “play” or “stop”
- Fps - Speed, usually 0
- Intensity - Brightness
- *UpdateUID - For internal usage*
- *Renderer - For internal usage. Please do not modify it*

! USEFUL INFORMATION




If cues are long, for example, longer than 5 min, the process can take some time. Please be patient.

Status bar

On the bottom of the screen you can find the status bar. Here you can change Intensity and Acceleration for the current cue list.



You can stop/play selected cue list using following buttons:

	Stop
	Play
	<p>Green icon indicates that there are no errors and cue is playing. Red icon shows that the Recorder stopped/no connection/error and cue is not playing stopped/no connection/error.</p> <p>The status bar shows information for current cuelist.</p>

6.2.3 RENDERS

The Recorder is a highly modular system with the possibility to adopt for any business needs. Render module is used to broadcast / unicast recorded ArtNet flow to the Ethernet.

We can provide additional renders for your needs. For example, we could output ArtNet flow to DMX or even WS28xx LEDs SPI.

Renderers

Renderer provides the possibility to read cuelist and transmit cues by specified protocols. Each renderer supports one or multiple output protocols (for example ART-NET and/or SPI).

ART-NET renderer (Static FPS)

This renderer writes ART-NET raw data with static FPS.



✓ Active

6.2.4 NETWORK

Configure your Recorder to have access by wireless or direct connection.

Wireless connection

Wireless connection is very important for the Recorder. You can work with the Recorder using wireless connection even if it broadcasts huge ArtNet data.

Wireless connection is used in the following cases:

Remote control – using mobile application or web browser;

Sends log information to the Pixout company server – in case of any errors our Support Team can find the root cause based on provided logs;

Automatic updates – every time the Recorder is turned on, it will check for updates directly from our server, if the Internet network is accessible.

Pixout S100 Status
■ LICENSE ACTIVE | 64 Universes

Network configuration

Wireless network configuration

Please choose a Wireless network to join. The operating distance or range of your wireless connection varies significantly based on the physical placement of the router/AP. For the best results, place Pixout controller device: Near the center of the area in which your wireless router/hotspot located, away from the potential sources of interference, such as PCs, microwaves, and cordless phones. Each wireless network has an own Name(SSID) that you need to specify (up to 32 characters) for a successful connection. The currently supported security type is: WPA/WPA2-Personal with a pre-shared key.

Wireless Network Name:

Security Type:

Password:

☐ Show password

Security
You can enter a password in ASCII characters and its length should be between 8 and 63 characters.

! USEFUL INFORMATION

If you are using Microsoft Windows, you need to setup Bonjour drivers first to support URL like <http://pixoutserver.local> in the browser. You can download Bonjour for Windows here:

<http://pixout.lighting/product-pixout/pixout-the-Controller-downloads/>

When the device is successfully connected to your WiFi network, you can get access to it by DNS-SD URL name <http://pixoutserver.local>.

Use <http://pixoutserver.local> for User Panel and <http://pixoutserver.local/px-admin> for Admin Panel.

! USEFUL INFORMATION

Use AES security method in your router to protect your devices.

Ethernet static IP configuration

You can configure IP parameters of Ethernet port manually.

Enter a new **IP** address of the Recorder in dotted-decimal notation.

Subnet Mask – an address code, which defines the size of the network.

Broadcast address – an address for data broadcasting for all devices in the network. This address should be specified accordingly to subnet mask (e.g. for 2.0.0.0 / 255.0.0.0 it is 2.255.255.255).

Cuelists

Renderers

Network

Static

Wireless

System Tools

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Triggering

Network configuration

Static IP configuration

You can configure IP parameters of Ethernet port manually. Enter a new **IP** address of the controller in dotted-decimal notation (factory default - 2.0.0.230). **Subnet Mask** - An address code that determines the size of the network. Usually 255.0.0.0 **Broadcast** address - Address for data broadcasting for all computers in network (factory default 2.255.255.255)

Static IP

Subnet mask

Broadcast

Warning! If you want to change static IP please be sure then you have configured Wireless connection. Because in case of any error you will still can get access till controller admin panel using Wireless connection. After you change the Ethernet port address, you must use new IP address to login to the controller user/admin panel.

! WARNING

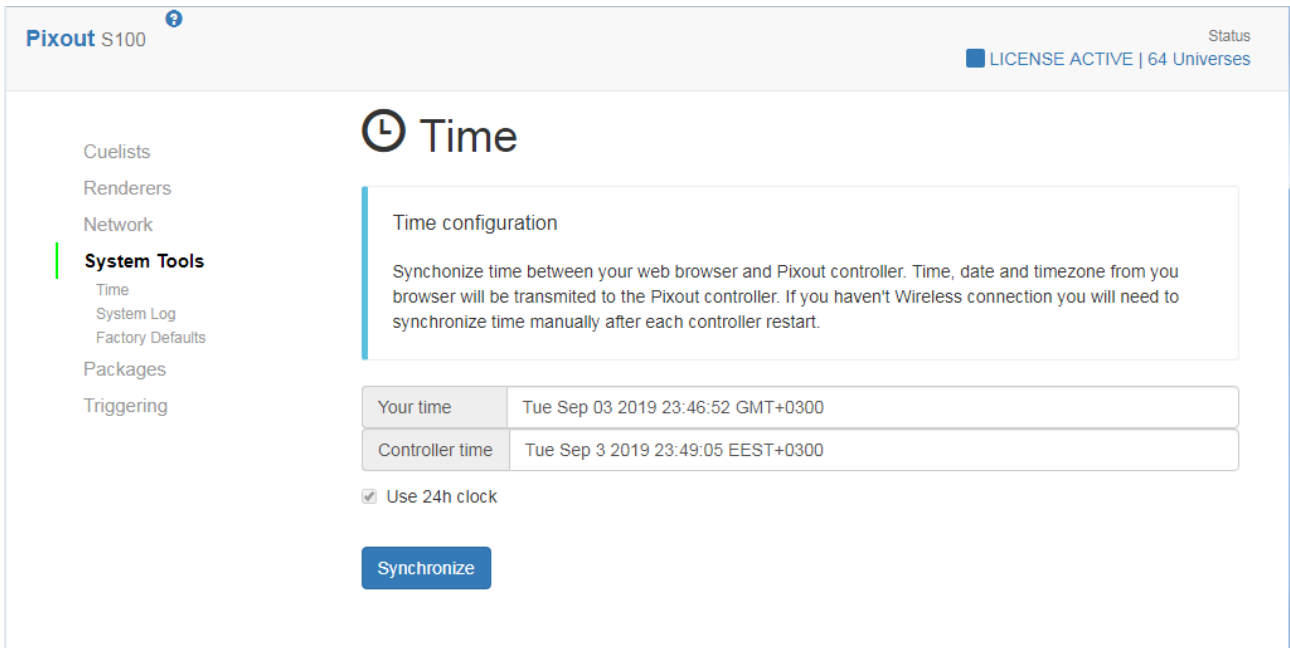
If you want to change static IP, make sure that you have configured wireless connection. In case of any errors, you will still have access to the Recorder's Admin Control Panel using wireless connection. After you change the Ethernet port address, you must use a new IP address to login to the Recorder's User/Admin Control Panel.

6.2.5 SYSTEM TOOLS

System tools are used to figure out what happens inside the system, restoring factory settings if needed, and also for synchronization.

Time

This section is used to synchronize time on your Recorder with time on your web browser. Click the “Synchronize” button and you’ll have the same time on both. Synchronizing is very important for scheduling cues playback.



The screenshot shows the Pixout S100 web interface. The top header includes the Pixout S100 logo, a status indicator, and a license status: "LICENSE ACTIVE | 64 Universes". The left sidebar contains a menu with options: Cuelists, Renderers, Network, **System Tools** (highlighted), Time, System Log, Factory Defaults, Packages, and Triggering. The main content area is titled "Time" with a clock icon. It contains a "Time configuration" section with a text box explaining synchronization. Below this is a table comparing "Your time" and "Controller time". At the bottom, there is a checkbox for "Use 24h clock" and a "Synchronize" button.

Time configuration	
Synchronize time between your web browser and Pixout controller. Time, date and timezone from you browser will be transmitted to the Pixout controller. If you haven't Wireless connection you will need to synchronize time manually after each controller restart.	
Your time	Tue Sep 03 2019 23:46:52 GMT+0300
Controller time	Tue Sep 3 2019 23:49:05 EEST+0300
<input checked="" type="checkbox"/> Use 24h clock	
<button>Synchronize</button>	

System Log

Click the “Show” button in the System Log tab to get detailed log information from the Recorder. This information can be sent to the Pixout Support Team if needed.

Pixout S100

?

STATUS

LICENSE ACTIVE | 64 Universes

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Display system logs

The system log shows activity inside the Pixout controller device. You can specify the level of information details in the right side of log dialog window in the edit box. The detail level can be changed from 0 (only important) to 6 (all include debug).

Hide

Log

3

2019-09-03T23:46:52+03:00 pixoutserver server[243]: 2019/09/03 23:46:52 [Playlist:ReSchedule] Start

2019-09-03T23:46:52+03:00 pixoutserver server[243]: 2019/09/03 23:46:52 [Playlist:Schedule] ID 2, start: , stop:

2019-09-03T23:46:52+03:00 pixoutserver server[243]: 2019/09/03 23:46:52 2019-09-03 23:46:52.023050937 +0300 EEST

2019-09-03T23:46:52+03:00 pixoutserver server[243]: 2019/09/03 23:46:52 2019-09-03 23:46:52.023050937 +0300 EEST

2019-09-03T23:46:52+03:00 pixoutserver server[243]: 2019/09/03 23:46:52 2019-09-03 23:46:52.023050937 +0300 EEST

2019-09-03T23:46:52+03:00 pixoutserver server[243]: 2019/09/03 23:46:52 [Playlist:Schedule] Reset all jobs with ID 2

2019-09-03T23:48:01+03:00 pixoutserver diag: CPU: 59°C, GPU: 58.0°C

2019-09-03T23:48:01+03:00 pixoutserver diag: PxDisk 6.8G / 56M (1%)

2019-09-03T23:50:01+03:00 pixoutserver diag: CPU: 59°C, GPU: 59.1°C


2019-09-03T23:50:01+03:00 pixoutserver diag: PxDisk 6.8G / 56M (1%)

▶

Intensity: 0%

Acceleration: 18%

There are three ways to send SystemLog to manufacturers' support.

1. Logs will be sent automatically, if there is an internet connection.
2. You can copy SystemLog information and send it via email to support@pixoutserver.com, if you are not connected to the Internet.
3. Click on  and send the last 1kB of system data to our Support Team.

Restore

If the system has become unstable or the file system was damaged, you can do a full system restore. It will reset the Recorder to the factory settings and restore the damaged file system. Please be patient, it could take 5 minutes or more.

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System tools

Cuelists

Renderers

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Triggering

Resetting the Pixout controller to factory defaults

Click the following button to reset all configuration settings to their default values.

- Default IP Address - 2.0.0.230
- Default Subnet Mask - 255.0.0.0
- Default demo cuelists
- Default demo cues

If you reset the device, the device will return to factory defaults, you will lose all your settings (cuelists, cues).

Pixout controller will be rebooted after pressing "Restore" button.

 Restore

! USEFUL INFORMATION

Do not reboot your system until it has finished restoring.

6.2.6 PACKAGES

Due to the modular nature of the Recorder software, all system components are located in packages. Packages can be upgraded automatically from our server on system startup or manually. Every package has its own version and name.

Packages

Packages are distributions of software and data. Packages also contain metadata, such as the software's name, description of its purpose, version number, vendor, checksum, and a list of dependencies necessary for the software to run properly. Pixout controller device works with two different approaches. First, it is Linux-based firmware without the possibility to modify it and second it is package management for an application and data with the possibility to modify them. You can see the available packages below.

AUTO UPDATE VIA INTERNET Package update via Internet starts automatically on system startup. Controller must be connected to the Internet. ☐ Off

UPDATE VIA USB FLASH DRIVE Package update via USB flash drive starts automatically on system startup. The drive must have valid update data on it. ☐ Off

AVAILABLE PACKAGES [Refresh list](#) [Hide list](#)

1	ARTNET_PLAYER - 1.6.0A
2	ARTNET_PLAYER_VFPS - 1.2.1
3	DATA-DEMO - 1.0.0
4	LC - 1.0.0
5	NEW-REPO-UPDATE - 0.0.9
6	PXCLIENT - 1.1.8
7	PXGRABBER - 1.2.0
8	PXINPUT - 1.0.4
9	PXSERVER - 1.3.0A

Intensity: 100% Acceleration: 0%

! USEFUL INFORMATION

All Recorders are provided with turned off Auto Update via Internet. Please check this setting (it should have Off position) before supply to an end-user. Turned on Auto Update with Internet connected may start updating system packages and it can affect ArtNet data proceeding.

Currently update via USB flash is available for unboxed version only.

6.2.7 TRIGGERING

Triggering means managing start, stop, intensity change of your cuelists by external event.

Trigger Recorder with the following methods:

- Time schedule
- ArtNet, ArtNet DMX, GPIO trigger
- MIDI
- Web panel – simplified for end-users and advanced for admins
- iOS / Android application

We can adapt our software to UDP triggering in short term on demand.

Time Scheduler

Pixout S100 ? Status
LICENSE ACTIVE | 64 Universes

Cuelists
Renderers
Network
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Packages
Triggering

Green forest

[← Back to cuelists](#)

Record Remove Remove All

Name	Duration(sec)	FPS	
Demo	60	30	Select

Schedule Cuelist start and stop time

⌚ 09:30:00 ⌚ 09:35:05

Note: You can leave stop or start time empty if you don't need it
Scheduled job will start at specific time every day

⌚ Schedule

You may schedule activity for every cuelist. You should go to **Cuelist**, select cue, click the “Cues” button. Then in section “Schedule Cuelist Start and Stop time” specify hour, minute and second for start and stop selected cue. You can’t specify the date, so the cuelist will be scheduled for the mentioned time every day: if you specify 17:45 start time for cuelist, it will start playing at this time every day.

! USEFUL INFORMATION

Pixout ArtNet Recorder S-100 doesn't have a real time clock and to sync time you need to have wireless connection to the Internet or make manual time sync from System Tools page every time after you switch on the device.

ArtNet

Art-Net triggering allows you to play or stop specified cuelist using Art-Net trigger command (ArtTrigger).

- Key = 1, Subkey = (cuelist number) – Play cuelist
- Key = 2, Subkey = (cuelist number) – Stop cuelist
- Key = 3, Subkey = (intensity value) – Set intensity

You can check ArtNet triggering with DMX-workshop software, yet this approach is very rarely used:

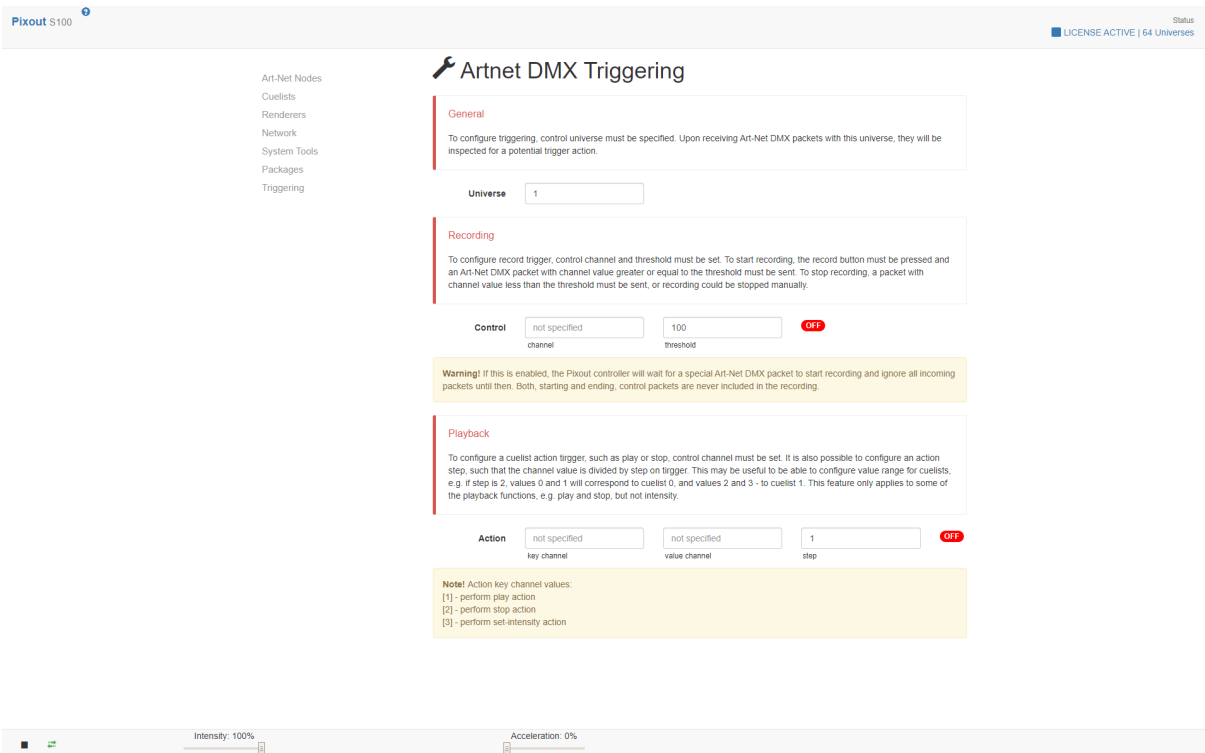
<https://artisticlicence.com/product/dmx-workshop/>.

ArtNet DMX

Another option is to trigger the cuelist by DMX value inside the ArtNet package. You should define the exact universe first. Set the **General** -> **Universe** to value in range 1–32767. This will specify the universe from the packet that The Recorder will interpret as a trigger.

Recording

Cue recording start/stop is triggered from outside by the Artnet DMX package.



1. Set *Recording -> Control -> Channel* to value in range 1–512

This specifies the channel in a packet that The Recorder will inspect to start or stop recording.

2. Set *Recording -> Control -> Threshold* to value in range 1–255

This specifies value that controls whether recording is to be started or stopped. If the Recorder receives a packet with channel value equal to or greater than this setting, it starts recording; if less, it will stop recording.

The Recorder is configured to start/stop recording using ArtNet DMX trigger, when both sections filled shows ON icon.

To start recording,

1. Go to Cuelist section
2. Select prepared cuelist
3. Click the “Record” button.

Now the Recorder is waiting for ArtNet data. Please find more detailed information about this in the section [CUELIST](#).

Playback

Cue Playback functions like Start/Stop/Intensity are triggered externally by the ArtNet DMX package.

Warning! If this is enabled, the Pixout controller will wait for a special Art-Net DMX packet to start recording and ignore all incoming packets until then. Both, starting and ending, control packets are never included in the recording.

Playback

To configure a cuelist action trigger, such as play or stop, control channel must be set. It is also possible to configure an action step, such that the channel value is divided by step on trigger. This may be useful to be able to configure value range for cuelists, e.g. if step is 2, values 0 and 1 will correspond to cuelist 0, and values 2 and 3 - to cuelist 1. This feature only applies to some of the playback functions, e.g. play and stop, but not intensity.

Action

not specified

key channel

not specified

value channel

1

step

OFF

Note! Action key channel values:

[1] - perform play action

[2] - perform stop action

[3] - perform set-intensity action

This section has 3 fields:

1. Key channel
2. Value channel
3. Step

In key channel value user will send 1(play), 2 (stop), 3 (intensity) and in value channel user will send the value for the action (cuelist id if key is 1 or 2, and intensity level if key is 3).

For example for Key channel 2, Value channel:3 and Step: 1

You need to send following DMX data to start playing (1) cuelist 10:

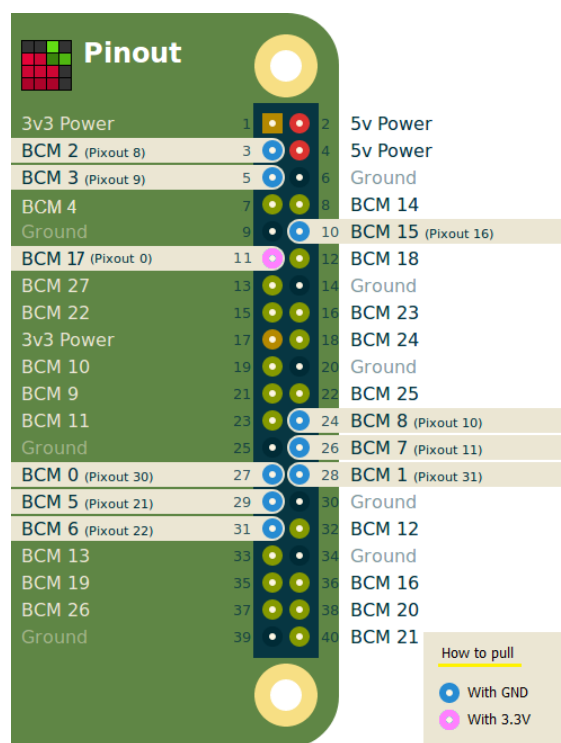
0x00, 0x01, 0x0A

The Recorder is configured to perform playback actions using ArtNet DMX trigger, when corresponding sections show ON icon. Recording should not be in progress, if you want the Recorder to listen to the trigger.

GPIO trigger

Use GPIO pinout to trigger DMX action. It will allow to toggle specified cuelist using GPIO pull-up button on a PIN. If you click the button once – toggle will be ON and cuelist will start playing, and if you click button for the second time – toggle will go OFF and cuelist will be stopped.

Please find GPIO PIN numbers at the bottom of this page. To configure GPIO triggering, please go to the section *Triggering* -> *GPIO* and choose cuelist that should be associated with The Recorder's PIN.



! USEFUL INFORMATION

It would be beneficial, if you use Pixout PIN numbering. We have our own numeration system, so don't get scared. It is very easy to figure out how it works altogether with "classic" numeration. By pressing on the next GPIO, which is linked to corresponding cuelist, the previous one will be stopped automatically.

MIDI

Use triggering from external devices such as MIDI or Lighting desk or other to manage cue. Using MIDI commands you can select cuelist,

change speed or brightness. Every time the button is clicked, it would trigger or stop the cuelist. The Recorder can also output control change values from 0 to 100 controlled by faders. Two of these channels are assigned to brightness and speed.

On note, CID=0x09, Pitch = (cuelist number) – Toggle cuelist playing/stopping

On control change, CID=0x0B, Channel0, Instrument number = (0-100)
– Brightness

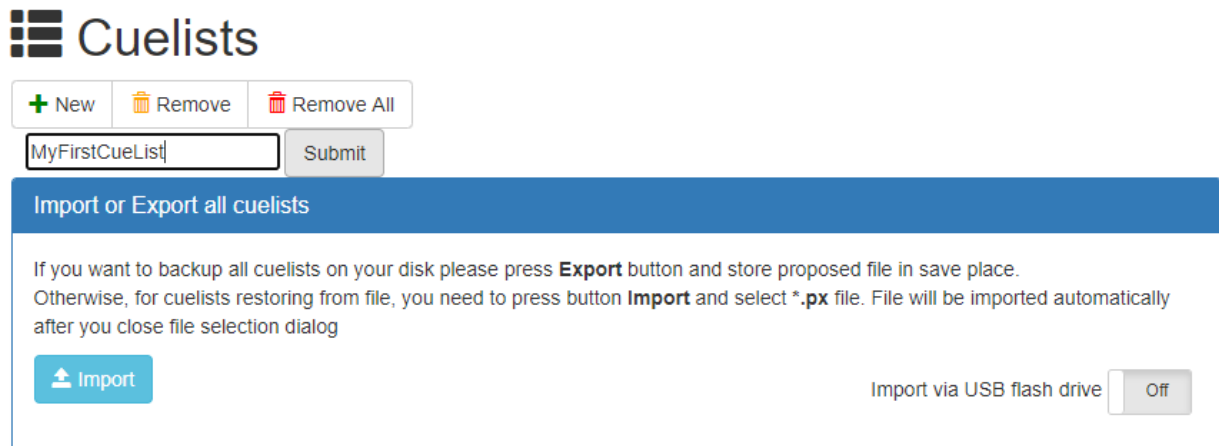
On control change, CID=0x0B, Channel1, Instrument number = (0-100)
– Speed

Any external device can be connected with a USB port, so that's why this type of triggering is available only for **unboxed** versions.

7. STEP BY STEP EXAMPLE: HOW TO RECORD A NEW CUE FROM MADRIX

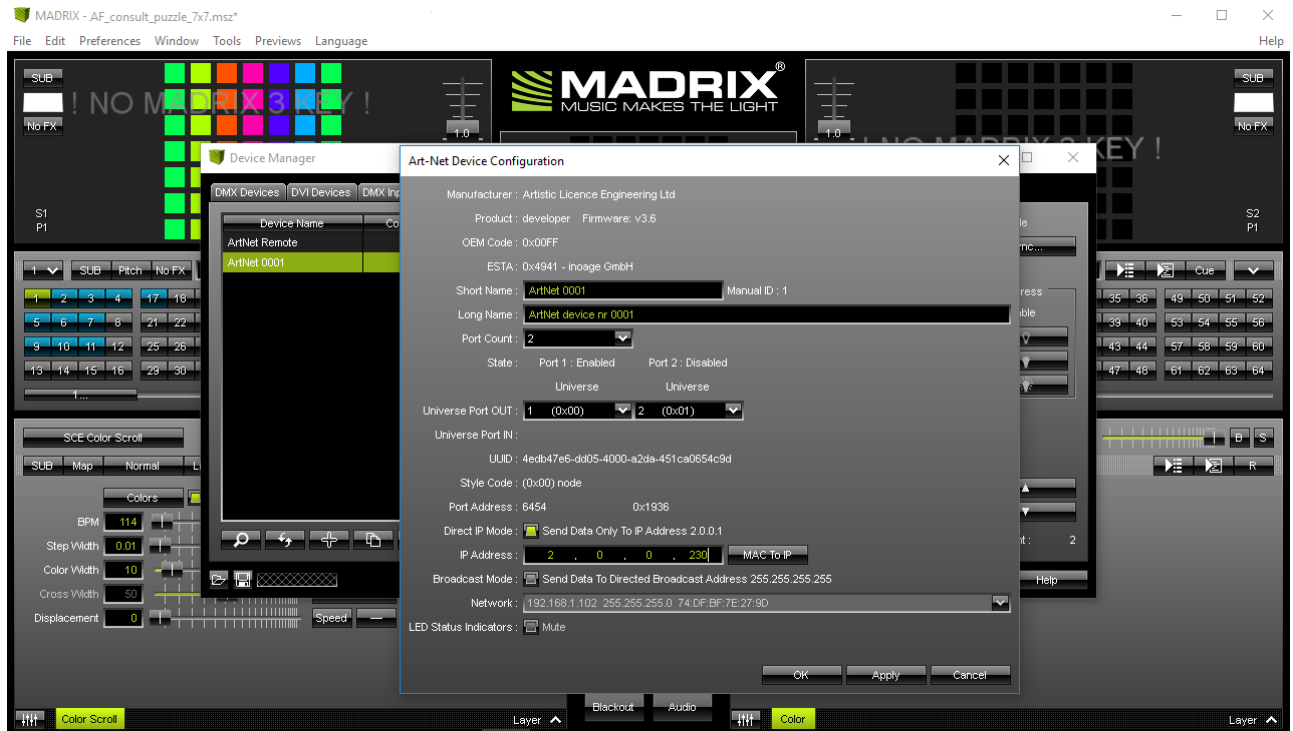
1. You need to connect the Recorder and PC to Internet switch, initially Madrix should not be started;
2. PC should be set up to 2.0.0.99 static IP;
3. Type 2.0.0.230/px-admin address in your Internet browser;
4. Find the “Cuelists” page, click “New” button.

If done correctly, you would see the screen as below:



The screenshot shows the 'Cuelists' web interface. At the top left is the 'Cuelists' logo. Below it are three buttons: '+ New' (green), 'Remove' (orange trash icon), and 'Remove All' (red trash icon). Below these is a text input field containing 'MyFirstCueList' and a 'Submit' button. Below the input field is a blue header bar with the text 'Import or Export all cuelists'. Below the header bar is a white box containing the following text: 'If you want to backup all cuelists on your disk please press **Export** button and store proposed file in save place. Otherwise, for cuelists restoring from file, you need to press button **Import** and select *.px file. File will be imported automatically after you close file selection dialog'. Below this text is a blue button with an upload icon and the text 'Import'. To the right of this button is a toggle switch labeled 'Import via USB flash drive' which is currently set to 'Off'.

1. Specify a cue list name and click the “Submit” button. Congrats! You successfully created empty cue list, it’s time to populate it;
2. Click the “Cues” button on the cue list. New dialogue should pop up, where you can record ArtNet sequences by clicking the “Record” button. You need to specify cue name, FPS and press “Rec” and “Stop” buttons accordingly;
3. Start the Madrix and select latest project file;
4. Go to Preferences → Device Manager → ArtNet and double click on ArtNet device, now you are in ArtNet device configuration;
5. Tick on “Sdirect IP mode” and set 2.0.0.230 address or use “Search” button to retrieve Pixout IP automatically.



1. Click "Apply" button and go back to the Madrix home screen;
2. Now you are ready to record! Please keep in mind that without the dongle Madrix is working for around 40 sec and goes blackout for around 20 sec. You need to be ready with recording during 40 sec. You can save the project under different names (for example: setup_for_recording);
3. If ArtNet sequences reach the Recorder, you will see message "Recording in progress", otherwise you will see "Waiting" message;
4. Click the "Stop" button to stop ArtNet sequences recording. New recorded cue by will be approved automatically.
5. Click the "Show output" button after cue is recorded. See the following screenshots for details:

Art-Net Nodes

Cuelists

Renderers

Network

System Tools

Packages

Triggering

MyFirstCueList

← Back to cuelists

Record

Remove

Remove All

	Name	Duration(sec)	FPS	
<div> <div></div> <div></div> </div> <div> <div><Universe>:<IP>:<Port></div> <div>Update</div> </div>	firstCue	60	30	Select

After you are done with recording, stop the Madrix and go back to 2.0.0.230/px-admin in the Internet browser. Now you can select the cue to play.

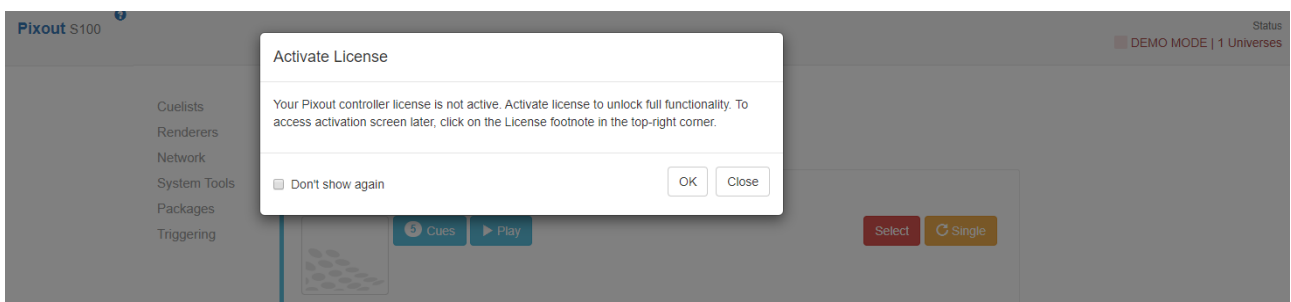
8. LICENSING

You can buy a license for 4/16/32/64/.../255 DMX.

Without activating the license, you will have only 1 DMX universe for demo purposes. You should activate the license, after you get it.

There are two ways to activate the license: online and offline. Online activation is possible using wireless Internet connection. In case you don't have an Internet connection, please use the Offline activation option.

When connecting to the Recorder for the first time, you will see the following screen:



Now it is possible to skip the activation step and continue to work in demo mode with limitation to one universe. Otherwise, please activate the license and get full functionality according to the purchased license.

To activate your license, please click the "OK" button and get to the License section.

If you are connected to the Internet, it is better to activate license online. Just put the token which you received when purchasing your Recorder and click the "Activate" button.

If you are not connected to the Internet, you can use Offline activation. You should send an activation request to our Support Team via support@pixoutserver.com with copied "Request Key". Then put a provided token to "Response Key" field and click the "Activate" button.

See the image below.

Art-Net Nodes
Cuelists
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License

Active license unlocks full potential of the Pixout controller. License can be activated online or offline. Below are unique numbers that identify your device.

SN	000000
UUID	0fb9d865d286a6372e0b5c83c2b4a90c

Online activation

Please enter the token, that you received upon purchase, to activate the device

Token

Offline activation

Please contact support@pixoutserver.com to request offline activation. In the email please quote the token, that you received upon the purchase, and the request key below. We will generate the response key and email that back to you, please enter that in the input field below.

Request Key

Response Key

REACTIVATION

If your SD card is corrupted, you should flash a new SD card, as described in section “6. UNBOXED VERSION” and reactivate your license.

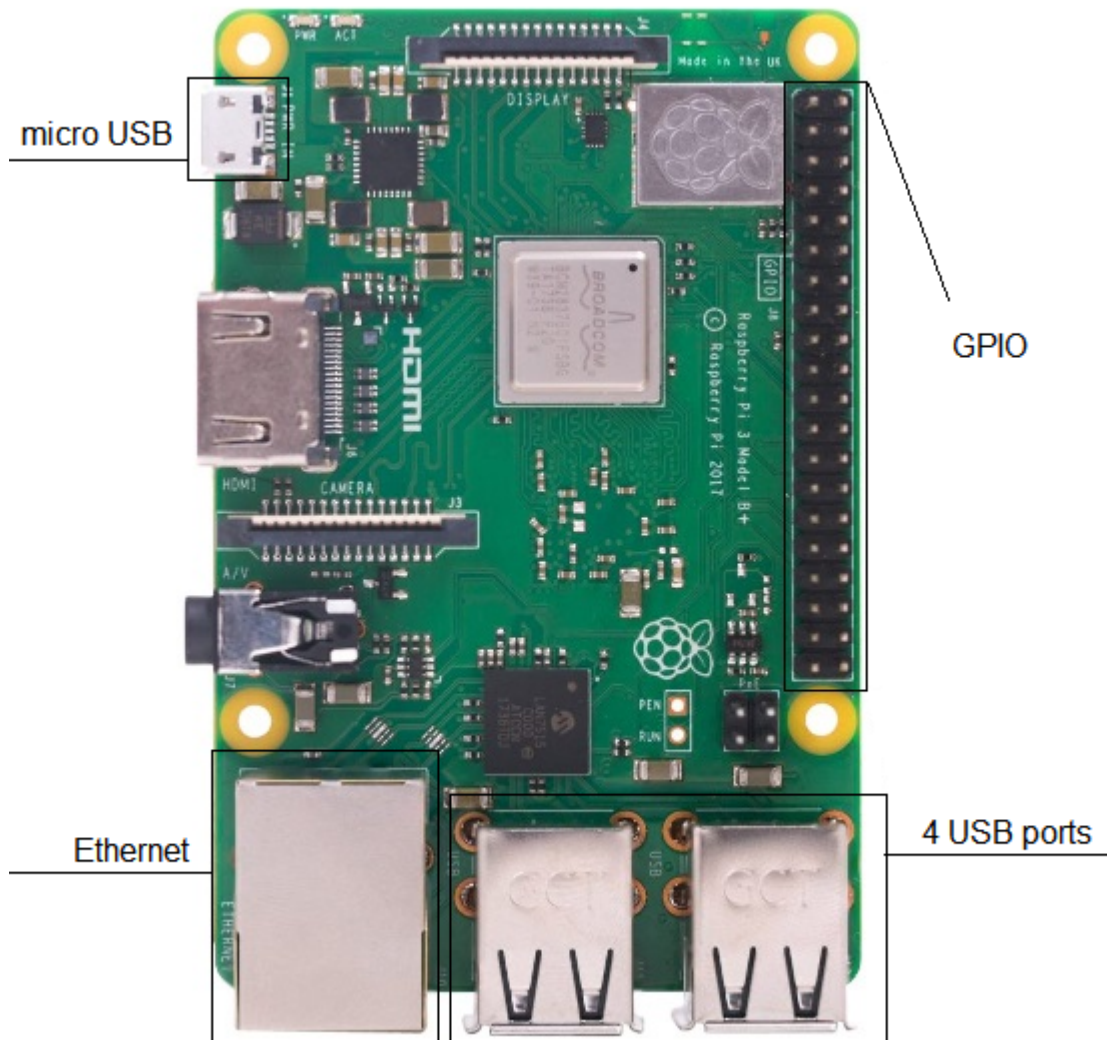
RENEW THE LICENSE

If your Raspberry Pi has stopped working and you can't access it, you should use a new device and renew your license for it. If this is the case, please feel free to contact our Support Team via support@pixoutserver.com

UPGRADE THE LICENSE

If you need more DMX universes than you have, you don't need to buy a new Recorder with a new license. Please buy only one new license and use it with your current device. Activate your new license the same way as for the first time.

9. FOR UNBOXED VERSION



SPECIFICATION

Hardware: Raspberry Pi

- RPI 1B+ – with Edimax EW-7811Un Wi-Fi dongle
- RPI 2B v1.1 – with Edimax EW-7811Un Wi-Fi dongle
- RPI 2B v1.2 – no Wi-Fi supported
- RPI 3B – with Wi-Fi
- RPI 3B+/CM3 – with Wi-Fi

- RPI 4 - in progress

Protocol: ArtNet DMX

Internal storage: micro SD card

Dimensions: L/W/H, 85.6x53.98x17 mm

Connection:

- RJ45 socket for 10/100Base-TX
- Wireless network 150Mbps

Power:

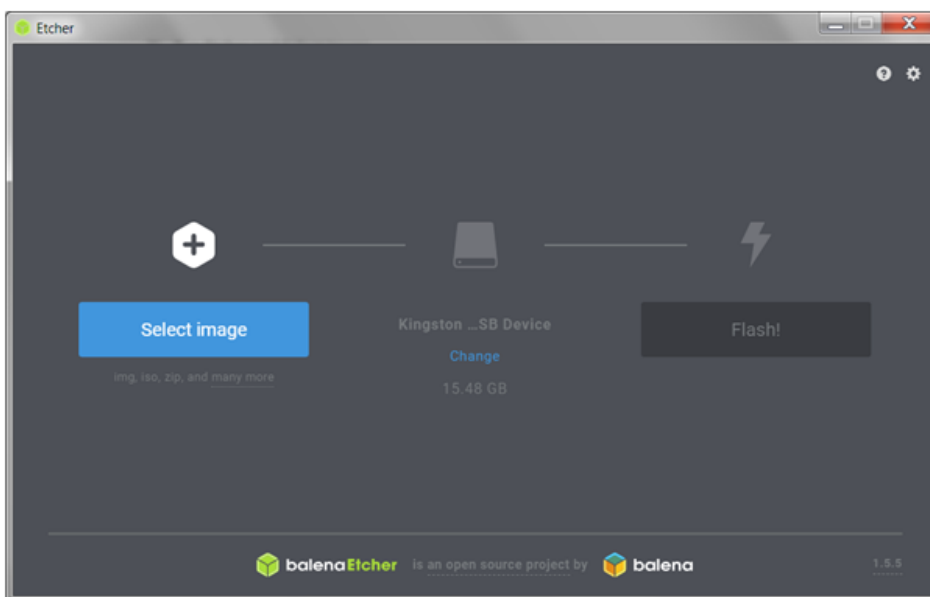
- DC power 5V micro USB

GETTING READY TO USE

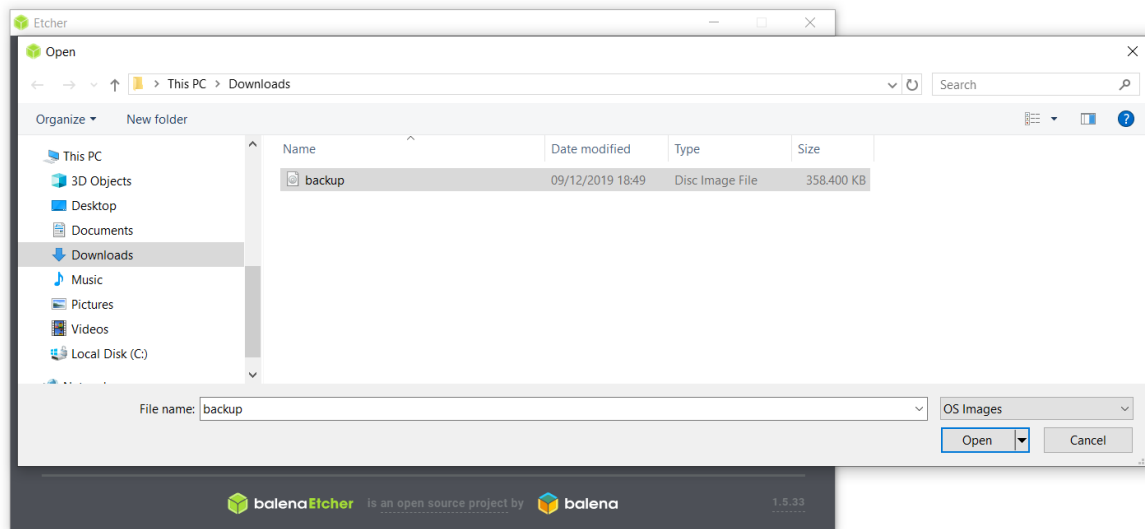
After purchasing the Unboxed version (PIXOUT SOFTWARE ONLY), please install firmware on SD card for using with your Raspberry Pi.

To flash your Raspberry Pi with Pixout Software, please follow the next steps:

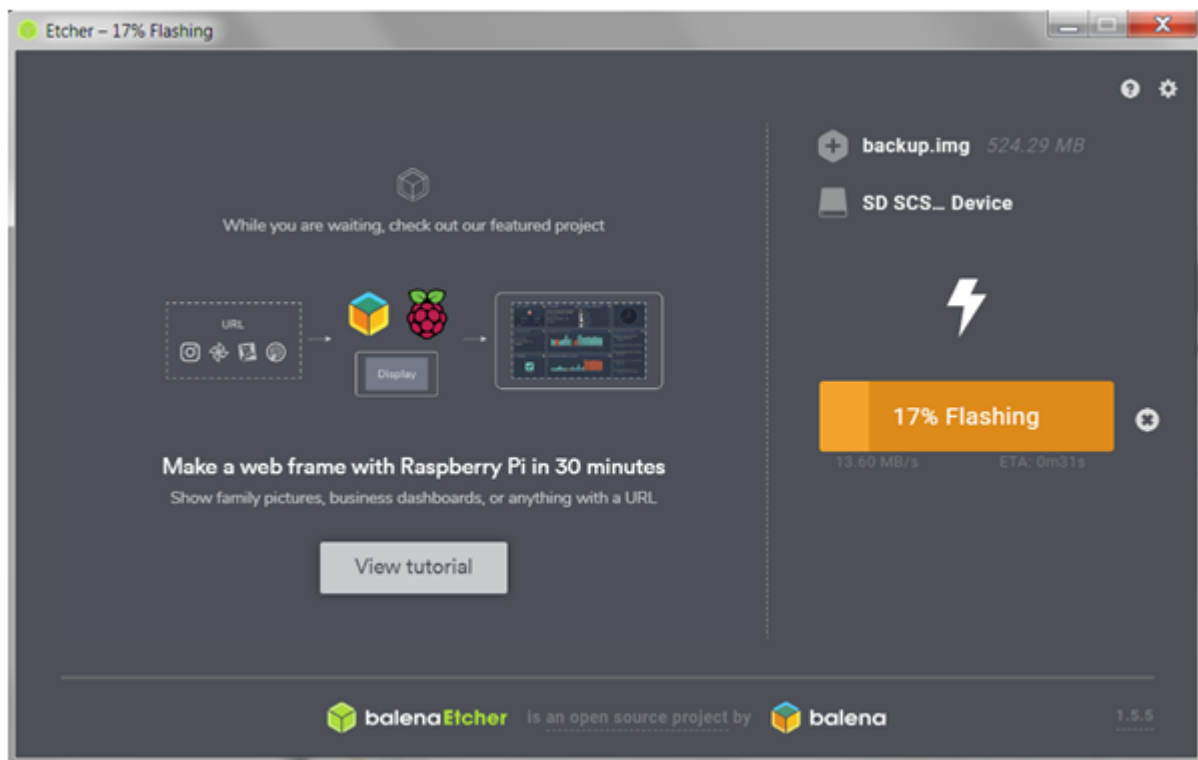
1. Download and Extract Pixout Software image:
<https://pixout.lighting/downloads/images/pixout-rpi3bp-ver2.zip>
2. Download and Install Etcher tool:
<https://www.balena.io/etcher/>
3. Run Etcher



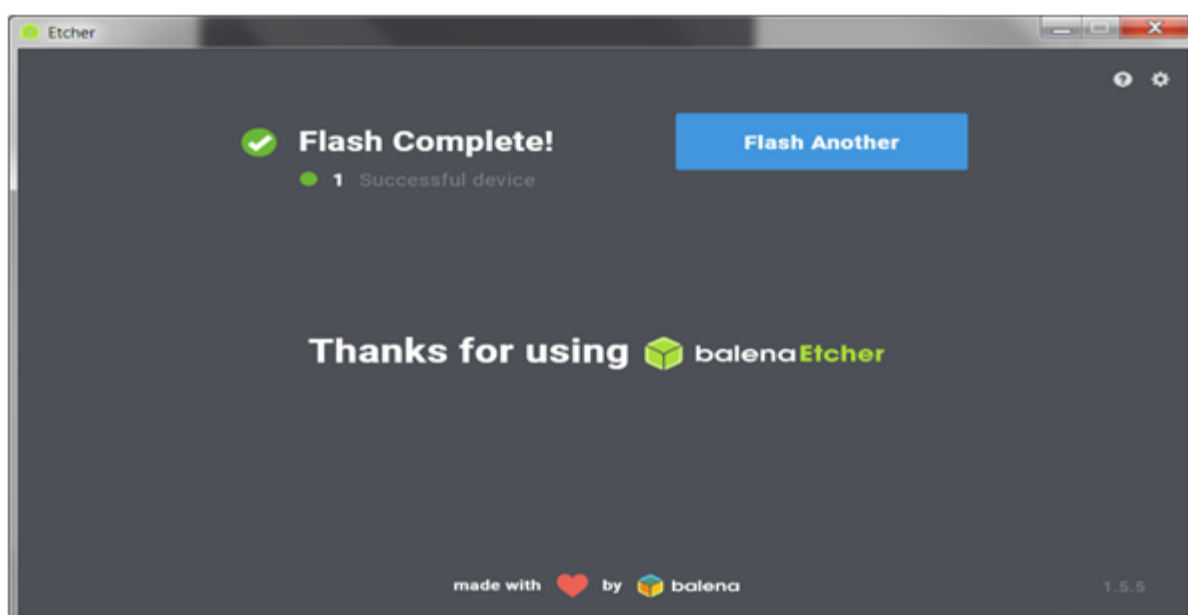
4. Select extracted Image “backup.img”



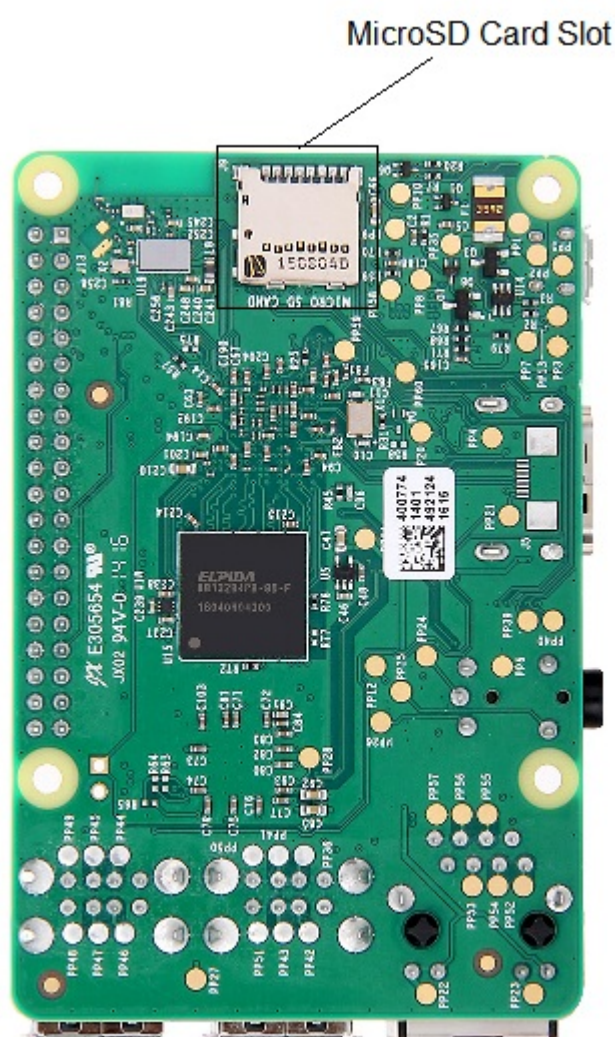
5. Select “Drive” where installed SD card and click “Flash” button



6. After Flash is completed, you are ready to use Pixout software.



7. Insert SD card into appropriated slot



Your device is ready to use!

Last thing is to connect to your device as described in section HOW TO START and activate your license as described in the section [LICENSING](#).

| 10. CONCLUSION

We are happy that you chose Recorder to manage your lightning!

This user guide describes basic operations with the Recorder. Our team is working hard on developing new features and constantly seeks to expand the Recorder's functionality. Check our web site <https://pixout.lighting> for all the updates and full information.

You will find documentation and download software on our website. Please check FAQ for customization and integration availability.

If you still have any technical questions about our product, please don't hesitate to contact our Support Team via support@pixoutserver.com.

If any financial queries, feel free to contact our Sales Team via sales@pixoutserver.com

ENJOY YOUR PIXOUT ARTNET RECORDER !

Delightfully yours,

Pixout