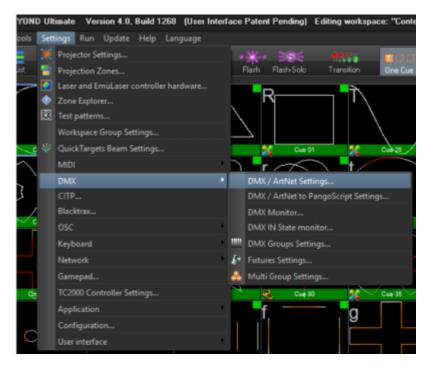
# Art-net DMX and sACN

BEYOND can be setup and controlled by an Incoming DMX signal (DMX input), or it can be setup to send DMX to control DMX Devices, both of these options are found within the "DMX / Art-Net Setup" window.



DMX (along with other 512 protocols) can be setup here, including USB DMX Devices like ENTTECH USB DMX devices, Streaming Data through serial port on FB4, the DMX input and output on the QM2000.net, and over the network with Art Net and sACN.

(For FB3-SE Users) - The DMX Daughter board on the FB3-SE hardware cannot be used for DMX input or output with BEYOND. The DMX daughter board on the FB3-SE Is only used by the FB3-SE for direct FB3-SE control and playback from a DMX console, controller or application.

DMX / Art-N	let Setup			-
Connection	Output option	Input optio	on EntTEC Art Net sACN	
DMX Outp	ut	h	Media	
🧹 DMX	Output 1:	1	EntTec DMX USB PR0	
🖌 DWX	Output 2:	•	Art-Net 0.4	
V DMX	Output 3:	•	sACN 1 unicast (0.0.0.0)	
V DMX	Output 4:	•	BEYOND FB4 Stream	
DMX Input		ŀ	Media	
V DMX	Input 1:	+	Art-Net 0.10	<u>^</u>
V DMX	Input 2:	•	Art-Net 0.11	
🗸 DMX	Input 3:	•	Art-Net 0.12	
V DMX	Input 4:	•	sACN 1 unicast (0.0.0.0)	
V DMX	Input 5:	•	sACN 2 unicast (0.0.0.0)	
× DMX	Input 6:	•	Disabled	
× DMX	Input 7:	•	Disabled	
× DMX	Input 8:	•	Disabled	
× DMX	Input 9:	•	Disabled	
× DMX	Input 10:	•	Disabled	-
			Options	<b>T</b>
			utput DMX data. It could be done by r ENTTEC DMX USB PRO Controli	
			OK Cano	el

There are many ways you may want to use DMX inside BEYOND, a few examples are; Control lighting fixtures or fog/ haze machines directly from BEYOND, controlling beyond from a lighting desk, controlling devices like optical benches through FB4 and even features like BEYOND server mode for advanced console control.

To find the main DMX Settings window, go to Settings> DMX> DMX / Art-Net Setup.

The window to the right Is what you will be presented with, (though by default all outputs and inputs will be disabled).

Beyond can send 4 DMX universes, and receive 265 DMX Universes.

## **Connection Tab**

DMX / Art-N	et Setup							
Connection	Output option	Input optio	n Ent	TEC	Art Net	sACI	N	
DMX Outp			1edia					
	Output 1:	-	Disab	led				
× DMX	Output 2:	*	0	Disat	oled			
× DMX	Output 3:			EntTe	ec USB	DMX	PRO	
× DMX	Output 4:			Art-N	Vet			
				sACN	<b>v</b>			
DMX Input		N		BEYC	OND FB	4 Stre	am	
× DMX	Input 1:	•	Disab	led				-î
× DMX	Input 2:	•	Disab	led				
× DMX	Input 3:	•	Disab	led				
× DMX	Input 4:	•	Disab	led				
× DMX	Input 5:	+	Disab	led				
× DMX	Input 6:	+	Disab	led				
× DMX	Input 7:	•	Disab	led				
× DMX	Input 8:		Disab	led				
× DMX	Input 9:	•	Disab	led				
× DMX	Input 10:	+	Disab	led				
					Opti	ions		
	opecify how to i neans of Art Ne				ata. It co	ould b		
					ОK		C	ancel

First tab you are presented with will be the connection tab. Here you can assign your input and output types and universes.

On DMX Output, you are given 4 different "outputs" to choose from. Click on the arrow to assign your output type, and selection of universe if that Is an option, It will look like the picture to the right.

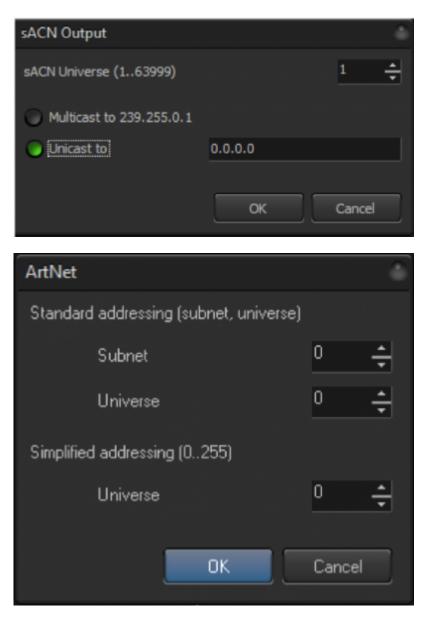
This is the same for DMX Inputs, you will be given options for what type of signal you would like to assign to that DMX Input number.

Please select which you would like to use, and It will give you a prompt depending on what you choose, the pictures below are some options.

Keep in mind which DMX Output, or Input number you have assigned, In areas of BEYOND where you can use DMX input, it will reference to the "DMX Input #" or "DMX Output #" instead of saying "Art-Net Universe 1" so keep that in mind for programming and recognizing which Input and output are which.

Once you have selected what type of input you would like, it will be bound to that number.

Keep in mind for network types you will need to have your network settings set up properly, and if you use USB Devices you will need the proper drivers installed.



## **DMX Signal Visualizers**

We will take a quick detour here to show off two ways you can check your dmx signals to ensure you are receiving, or sending DMX. The first Is the "DMX/ ArtNet/ Channels Monitor".

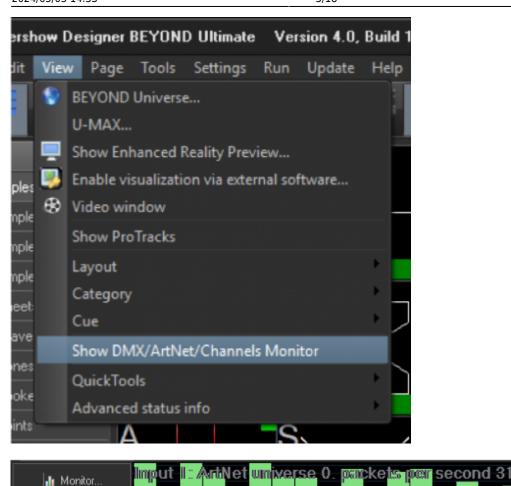
This can be found by clicking on View> Show DMX/ ArtNet/ Channels Monitor.

This will enable a view near the bottom of your beyond to show Input and output of DMX based on your selection, as bars within the space. You can change the bars size, and select different Inputs and outputs to monitor

If you would like a more advanced and through preview, you can use the full "DMX / ArtNet Monitor", you can find it here:

Settings > DMX > DMX Monitor

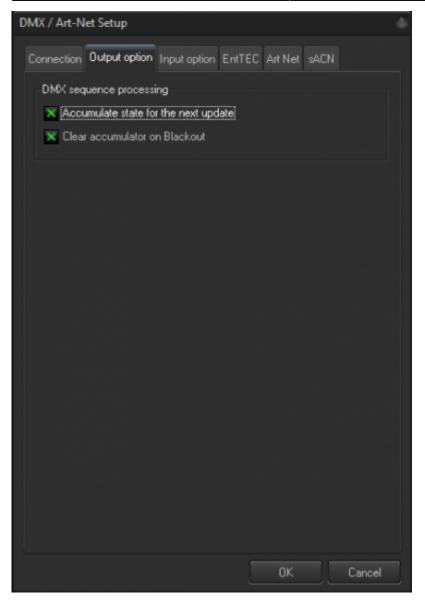
This will give you the window below, which will give you all channels and their values, as well as channel history if you click on a specific channel. Use this for full monitoring of your dmx data.



Last update: 2020	/06/11 19:23	be	eyon	d:art	net_	dm	k_sacr	htt	os://	wik	i.pa	ango	lin.	com	ı/do	ku.p	bhp	?id=	=be	yon	d:ar	tne	t_d	mx_	sac	n&r	ev=	-15	668	090	09
DMX / ArtNet M	Nonitor																														
Output 1				A	-1.0	01																									
Output 2		Inpu	t 1 (A	Art-N	et U.	0)																									
Output 3	U		1	2	3 4	5	6	7 8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	3
Output 4		0	255	0 25	5 172	0	255 20	2 130	0	202	0	178	202	0	101	47	65	154	219	0	225	0	83	0	0	0	0	0	0	0	
Input 1	31 FPS	32	0	0 (	0 0	0	0	) (	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 2		64	0	0 (	0 0	0	0 (	) (	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 3		98	0	0 (	0 0	0		) 0		_	0	_	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 4		128	0	0 (	0 0	0					0		0	_	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 5		160	0		0 0	0		) 0		_	0		0	_	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 6		192	0		0 0	0					0		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 7			-	_		0					_	_	_					_		-		0		_	_	U		_	_	_	
Input 8		224	0	- ·	0 0	0		0 0		_	0	_	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 9		256	0	_	0 0	0		0 0			0		0	_	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 10		288	0	-	0 0	0		0 0			0	_	0	_	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 11		320	0		0 0	0	-	) (			0	_	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 12		352	0	0 (	0 0	0	0 (	) (	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 13		384	0	0 (	0 0	0	0 (	) (	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 14		416	0	0 (	0 0	0	0 (	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 15		448	0	0 (	0 0	0	0 (	0 0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 16		480	0	0 (	0 0	0	0 (	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Input 17																															
Input 18		255										$\backslash$		Ch	anne	6															
Input 19																					- /										
Input 20																															
Input 21		128																													
Input 22																															
Input 23		0																													
Input 24																															

# **Output Option**

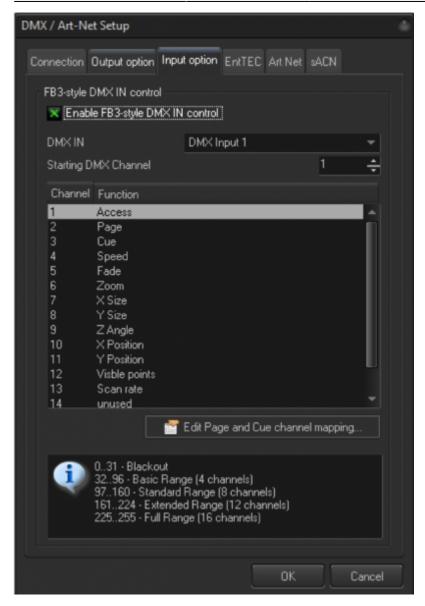
Now lets go back to the DMX / Art-Net Setup window.



Output option is simple and gives you a few options for your output and how beyond will calculate output FPS and state data. Leaving these at default will work for most people.

# **Input Option**

Input option is for basic control of BEYOND from a Lighting or DMX Console. This Is a basic 16 channel profile to make a console control beyond almost like a midi controller, allowing for all zone and cue setup within beyond, but then change of cue, color, shape, size etc are allowed.



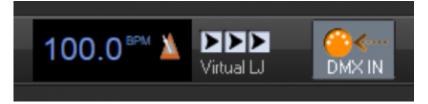
You can decide which DMX Input number you would like, and its starting DMX channel for your patch. This profile can be found on the pangolin website, and in the fixture library of most common consoles. If you see a 16 channel profile from Pangolin, this is that profile.

It is important to note there Is a more complex way to control BEYOND from a console, and we will cover this at the end of the manual.

You are also allowed to edit the page and cue channel mapping, if the number of cue/ page access channels is to small for you, note you will have to adjust your consoles profile to your settings if you do this.

A common mistake/ issue people encounter is enabling access, on channel one (and Is usually marked as a control parameter on consoles) must be at full to access the profile. This is for safety reasons.

As well in the top bar of beyond there will be a "DMX IN" Button that looks like this, make sure this is depressed (like the picture) or else beyond will not react to DMX Input.



## EntTEC

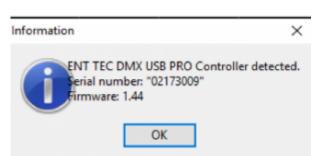
This window is so you can connect and setup USB DMX device settings.

C	M	X / Art-N	et Setup						
	Co		Output option		EntTEC	Art Net si	ACN		
		COM3	DMX USB PRI	J				٦	
			Update list			Connect			
			Opdate list			Connect			
		DMX Out	put settings						
		Number	of channels				512	÷	
		Break De	elay				96	÷	
		Mark-Aft	er-Break Delay				11	÷	
		Start cod	le				0	아 아 아 아	
		Controlle	r output rate (0-	Auto)			0	÷	
		🔤 Ignor	re EntTEC error	messages					
		Clear	r input buffers						
			Reset to defaul	ts		Apply			
		Status Connecte	ed						
						OK	_ C	ancel	

Before you can use a USB DMX Device with beyond, you must download and install the driver for that device to your PC. Once you have done that, BEYOND will recognize devices on COM Ports like the picture indicates. To connect, click on the com port, and click connect.

When successfully connected, an information window will pop up letting you know it has connected

properly.



From there you can change other settings, like the number of channels, delays, and other options.

You will be directed to this tab if you added an "EntTEC" device to an input or output in the connection tab.

At the bottom, you also will see the status, if your device is connected or not.

## Art-Net

Artnet is a network protocol widely used to send 512 DMX Data over network applications.

#### 2024/05/03 14:53

C	Connection	Output option	n Input option	EntTEC	Art Net	sACN		
	Settings							
	Station n BEYONI							
		, 						
	Adapter	the state of the second						
	Automa	tic (default cor	inectionJ			_		
						Ap	ply	
	Informatio	on						
	ArtNet po	ort: 6454 UDP						
	State of a	subsystem: rea	idy					
	Out sent	packets: 5325	53					
	Input thre	ead loops: 532	53					
	Output th	nread loop: 101	1686					
					ОК		Cancel	
							Contraction of the second	

In this tab you can give BEYOND a station name to be recognized over the network and select the adapter you would like your artnet to be sent and received on.

It's important to note, art-net prefers to be on either 2.0.0.0 or 10.0.0.0 networks, and many consoles are default to 2.0.0.0 networks. To ensure BEYOND can send and receive Art-Net data, use a network port configured with an IP within this range.

As well you can see some data points related to Art-Net, such as Packets, loops and your network port.

### SACN

SACN is a newer type of network based 512 DMX, with higher frame rates and improved reliability, it is the preferred choice of many, but is less common then Art-Net.

DM	IX / Art-Net Setup		
C	onnection Output o	option Input option EntTEC Art Net SACN	
	Settings		
	Station name		
	BEYOND		
	Adapter		
	Local host (127.0	.0.1) 👻	
		Apply	
	Details		
	GUID	(686E5889-47C3-4681-840A-8CE660469FBE)	
	Piority	100 🜩	
		OK Cancel	

Here you can give BEYOND a station name, and select the adapter you would like to use.

As well you can give your GUID and What network priority you would like to set.

#### Where you can use DMX in BEYOND

DMX can be used in many places within beyond, from simple dmx cues and chases to animating large value sets. Below we will give you just a few of the options. We have gone in depth about these segments In different manuals.

#### Quick DMX

If all you are looking for is simple DMX cues and chases, then you can use the QuickDMX tab on the bottom of the BEYOND screen and create those looks. Then you can save these to cues in the workspace,

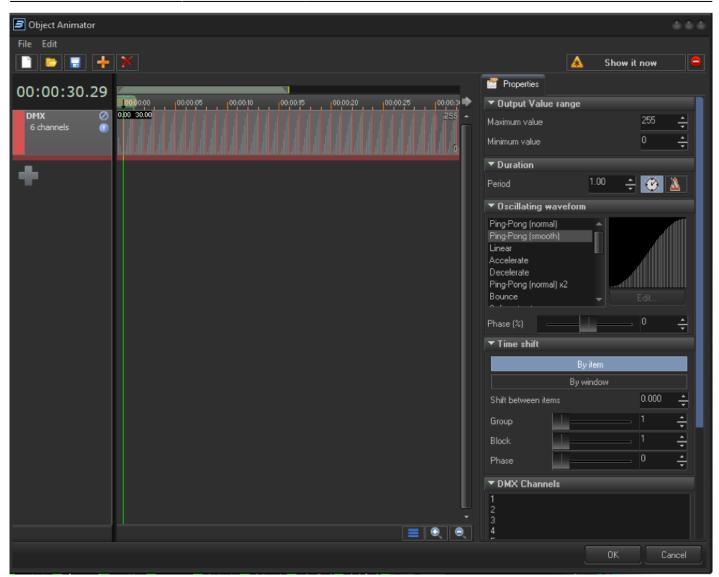
#### or on a timeline.

🔻 QuickText 🞇 QuickShape 🖸 SMS 🔸 QuickTrace 🕇	የ QuickDMX 1 QuickCapture 🔣 QuickFX 🔠 Workspace 🚢 Audio 💱 UTool
📁 Menu 👻 🕂 🎽 Step Duration 1.0 🚑	📶 🛞 🕨 🔳 📴 🔯 📊 DMX Input 1 🔷 📧 🗶 💌 🐔 Show it now
1 Step 1 255 0 255 172 0	
	6     7     8     9     10     11     12     13     14     15     16     17
	Close

#### **Object Animator**

If you would like to create more complex animations Instead of just chases, you can use the "Object Animator" cue type, this allows you to animate any controllable object inside of beyond, this includes DMX channels, and even channel groups.





#### Pangoscript

BEYOND gives you the ability to customize its response to incoming DMX signals from the "DMX/ArtNet to PangoScript settings". Here you can create a pangoscript to react to information coming on specific DMX Universe and channel. As soon as the value changes, BEYOND activates the corresponding script. It is also possible to script ranges, and if statements for this input. 15/18

DMX to PangoScript Settings		
📔 🔁 📳 🗙 🕨 🜠	<u> </u>	
DMX/ArtNet to Code Settings Background	l scripts	
DMX Input	Script	
Input 1, Ch 1		<b>A</b>
Input 1, Ch 2		
Input 1, Ch 3		
Input 1, Ch 4		
Input 1, Ch 5		
Input 1, Ch 6		
Input 1, Ch 7 Input 1, Ch 8		
Input 1, Ch 9		
Input 1, Ch 10		
Input 1, Ch 11		
Input 1, Ch 12		
Input 1, Ch 13		
Input 1, Ch 14		
Input 1, Ch 15		
Input 1, Ch 16		
Input 1, Ch 17 Input 1, Ch 18		
Input 1, Ch 19		
Input 1, Ch 20		
Input 1, Ch 21		
Input 1, Ch 22		
Input 1, Ch 23		
Input 1, Ch 24		
Input 1, Ch 25		
Input 1, Ch 26 Input 1, Ch 27		- 11
Input 1, Ch 28		- <b>-</b>
Show channel value		
		<b>↓</b>
	OK Car	ncel

#### **Control of effect Parameters**

You can use DMX input as a control of a variable inside of an effect, anywhere you see an option like Imaged below, you can assign a dmx channel Input to control that parameter.

🛃 Live (	Control 🕚 Time Control	Effect
Cue "Cu	e 41"	
🕂 Add	1 🕂 🐺 🚺 🗁 🗐	
🧹 Ch: 1284,	Oscillating effect - Zoom [10%100%] Pin	g-Po 🖵
Start <del>+</del>		10 ÷
Finish <del>+</del>		<sup>100</sup> ÷
Input	DMX Input 1, Ch: 5	
Beats <del>•</del>	1.00	÷Δ
	plus 0 🔶 / 3	÷
Delay (%) <del>-</del>		0.0 ÷
Options	<ul> <li>Ping-Pong (normal)</li> </ul>	
applied when	nel is used to control an effect, the Start value the channel value is 0% and the Finish value then channel value is 100%	
Still state <del>-</del>		1.00 ÷
Damping <del>+</del>		0.00 ÷
	Action	
Center X 🗸		0 ÷
Center Y 🕶		0 ÷ 0 ÷
Center Z 🕶		0 ÷

# **BEYOND DMX Server**

An advanced use of DMX inside of beyond is known as "BEYOND DMX Server" This allows you to control each individual zone Inside of beyond as a fixture inside of a console.

To use this feature, you first want to go to you projection zones, and then go to the advanced tab.

Projection zones		۵
File Edit View Output Zones		
🗋 🔁 📑 🔺 🕂 🚺	htness: 10% - 🚺 📄 🔥 Show	it now 🔋 😑
Main Graphics Projector 1: Demo Projector		eam Attenuation Map
Raster Graphics Projector 1: Demo Projector	🖸 💮 Also to 🔀 Advanced 🗱 Unresolved zone names: 1 🔊 Effect	🥻 Distribution
Targeted Beam     Projector 1: Demo Projector	Beam-related Prevent the Master Size and Master Position settings from affecting the size and position of this :	zone
Atmospheric Effects Projector 1: Demo Projector	Prevent the 3D settings and Showtime Effects from affecting the scale, rotation and position of t	his zone
Secondary Graphics Projector 1: Demo Projector	Prevent the 'Minimum number of points' from affecting this zone	
Scanner 2 Main Projector 2	These options are typically checked for beam zones, where you don't want the size, angle or position of beams to move, and where you want maximum brightness with	
Scanner 3 Main Projector 3:	minimum time spent during beam retrace.	
Scanner 4 Main Projector 4:	External visualization Fixture number 1 ÷	
Overhead sweeping beams Projector 1: Demo Projector	In this number is greater than 0, then BEYOND will send laser information to external visu	alization offluero
Hot Beams Projector 1: Demo Projector	including LIGHTCONVERSE, Depence V3D, Realizzer, WYSIWYG and CapturePolar.	alization solovare,
Secondary Atmospheric Projector 1: Demo Projector	DMX Server	
	Mode DMX IN	
	DMX Server Disabled DMX Input 1 Classic FB3 style (16-channel, simple profile)	-
	Mid-size profile (32 channels with finer control over movements) Max-size profile (50 channels; Mid-size plus full effect control) Base address	1 💠
		)K Cancel

At the bottom of this window, you can select which profile/ mode you would like to use, the standard 16 channel mode, 32 channel mode and 50 channel mode, these profiles can be downloaded from the pangolin website. From there you select which DMX input number you would like to listen to, and its Base address, you can do this for as many zones as you would like. Each zone then has its own "instance" of beyond, and you can select different cues for each projector, and use beyond effects, motions, size control, offsets etc. all from a lighting desk, this is a feature commonly used in very large scale laser setups usually over 40 projectors.

We have a full tutorial and manual for this in separate documents, but hopefully this gives you an idea at the power and control inside of BEYOND with DMX control.

### Download

Manual

From: https://wiki.pangolin.com/ - **Complete Help Docs** 

Permanent link: https://wiki.pangolin.com/doku.php?id=beyond:artnet\_dmx\_sacn&rev=1566809009

Last update: 2020/06/11 19:23

