Hippotizer V4

4.3.3 — Last update: 28 June 2021

Green Hippo

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Whats New In 4.3.3

Hippotizer Version 4.3.3 improves on the stability of 4.3.2

4.3.3 is a service release that adds a host of fixes to the Engine and Zookeeper of Hippotizer V4, most notably:

- The performance and stability of Hippotizer has been improved.

For a complete list of changes to this version, please see the release notes.

Before using Notch please see the additional information.

4.3.3 Release Notes

Hippotizer is continuously being developed and improved; please read these notes carefully to understand the changes and limitations with each version.

Release Date – 30/11/2017

As this is a service release, for Software Assurance, 4.3.3 has the same release date as 4.3.

All V4 and V4+ systems with Software Assurance valid as of the **30th of November, 2017** can install 4.3.3.

Current Codec Support

Resolution restrictions by Codec:

Codec	Width	Height	Max Height	Max Width	Min Height	Min Width
FlexRes Performance	Divisible by 4	Divisible by 4	16,384	16,384	64	64
FlexRes Quality (All Colour spaces)	Divisible by 4	Divisible by 4	16,384	16,384	64	64
FlexRes Lossless 4:2:0	Divisible by 4	Divisible by 4	16,384	16,384	64	64
FlexRes Lossless 4:2:2	Divisible by 4	Any	16,384	16,384	64	64
FlexRes Lossless 4:4:4	Divisible by 4	Any	16,384	16,384	64	64

Content that does not fit within these restrictions can still be encoded through resizing.

Version 4.2.1 Removes Support for MPEG-2 Playback; please re-encode all content to FlexRes.

Video File Types

Codec	Extension	Status
Mpeg2	.mpg	Does Not Work
Mpeg2	.m2v	Works
Mpeg4	.mp4	Works
Mpeg4	.m4v	Does Not Work
ProRes422	.mov	Works
ProRes420	.mov	Works
ProRes444	.mov	Works*
ProRes4444	.mov	Works*

FlexRes	.fxr	Works
AVI	.avi	Works
Animation RGB	.mov	Works
Animation RGB + Alpha	.mov	Works
h.264	varies	Works
HAP	.mov	Works**

Image File Types

Codec	**Extension**	**Status**
Tiff	.tiff	Works
PNG	.png	Works
Jpeg	.jpg	Works
Targa	.tga	Works

Image Sequences

Codec	**Extension**	**Status**
Tiff	.tiff	Works
PNG	.png	Works
Jpeg	.jpg	Works
Targa	.tga	Works

Audio Encoding

Codec	**Channels**	**bit depth**	**Status**
Wav	1	16b	Works
Wav	2	16b	Works
Wav	4	16b	Works***
Wav	6	16b	Works***
Wav	8	16b	Works***
Wav	2	24b	Works***
Wav	2	32b	Works***
.mp3	Any	Any	Does Not Work
.aif	Any	Any	Does Not Work
.mpa	Any	Any	Does Not Work
.wma	Any	Any	Does Not Work

Notes

- *Content encoded from ProRes 444 may show a slight colour shift compared to the original due to an issue in the 3rd party media encoder. The ProRes 444 family also has limited support in Windows so it is best to test the specific codec and resolution when establishing a content workflow.

- **As of Version 4.2, HAP content can be ingested without transcode.
- ***Audio files with more than two channels can be encoded if they are part of an image sequence (in the same folder as the image sequence with the same name, or are separated from the video file before encode. Place the audio file in the same path as the media to be encoded and ensure they have the same name.

Martin P3-PC compatibility

Hippotizer can send video directly to the Martin P3-PC application running on the same machine, this requires a P3 Dongle. The version of P3-PC and Hippotizer is important to ensure correct operation:

Hippotizer Version	P3-PC Version
4.1	4.2
4.2	4.2.2
4.2.1	4.2.2
4.2.2	4.2.2
4.2.2	4.2.2
4.3	4.3.1
4.3.1	4.3.1
4.3.2	4.3.1
4.3.3	4.3.1

Current CITP Support

CITP (Capture Interface Transport Protocol) is an open network protocol to allow visualisation software and lighting desks to exchange thumbnails and streaming previews from media servers. Green Hippo works to ensure CITP is working correctly with as many 3rd party applications as possible. Here is a list of currently tested systems against this version.

Desk or Software	Version Tested	Thumbnail Exchange	Streaming Previews
Grand MA2	3.3.4.3	Works	Works
MA-3D	3.2.2.3	N/A	Works
MSD	3.2.2.3	N/A	Works – Inverted about Y Axis
Martin M-PC	3.50.645.641	Works	N/A
Capture Argo	21.1.30	N/A	Works
Hog 4	3.2.5 (Beta)	Works	N/A
Avolites	Titan (9/10)	Works	N/A

WYSIWYG	R38	N/A	Does not Work

Current Datapath Drivers

- If using Dual DVI, Dual SDI or AV-SDI capture cards, we recommend Datapath Driver version **7.8**
- If using Quad SDI and Dual DP capture cards we recommend Datapath Driver version **v7178**

Current Display Drivers

Hippotizer Media servers use one of several type of graphics card, which are tested with current and former display drivers.

V4 System	**Driver**
V4 Taiga (All Types)	FirePro 15.201
V4 Boreal (All Types except Boreal DVI)	FirePro 15.201
V4 Boreal DVI-SL	Radeon 15.7.1
V4 Karst SDI or DP	Firepro 15.201
V4 Karst DVI	Radeon 15.7.1
V4 Amba (S/N: 240037 or Greater)	Fire Pro 15.201
V4 Amba (S/N: 240000 – 240036)	Radeon 15.7.1

V4+ System	**Driver**
V4 Taiga+ (All Types)	Radeon 17.Q4.1
V4 Montane+ (All Types)	Nvidia 387.92
V4 Boreal+ (All Types)	Radeon 17.Q4.1
V4 Karst+ SDI or DP	Radeon 17.Q4.1
V4 Karst+ DVI	Radeon 17.7.2
V4 Amba+	Radeon 17.10.1

> ! Drivers for V4+ Systems are extremely specific and will result in system instability if listed versions are not adhered to. **Do not deviate from the recommended drivers**.

Installation Notes

- 4.3 Is the minimum version of software supported by V4+ hardware .
- 4.3.4 can be run as an upgrade installation of 4.3 on V4 systems where it was previously installed.
- From version 4.2 Onwards the Hippotizer data is stored in new locations to comply with Microsoft Windows security guidelines.
- The binaries (executable files) are stored in: C:\Program Files\GreenHippo\HippotizerV4
- The settings are stored in: C:\Users\\AppData\Local\GreenHippo\4_3

- The Media folder by default on Portamus, Prep and Play is: C:\ProgramData\GreenHippo\MediaV4
- The Media folder by default on all other V4 and V4+ systems is D:\MediaV4

Major Changes In behaviour (From 4.3.2)

- None

DMX Personalities

Current Layer Personality: 4.3 Layer

Changes from 4.2 Layer

- Added NDI Capture and NDI Source Select

Current Mix Personality: 4.3 Mix

Changes from 4.2 Mix:

- Added NDI to mix
- Added Preset Select

Current Viewport Personality 4.2 Viewport

Changes from 4.1 Viewport

- Added 2 Channel space for Preset Select in 4.2 Viewport
- Added 16bit Preset select to 4.2 Viewport Presets

Features Added (Since 4.3.2 Release)

- Added 2nd input to Notch on layer. These pins are in the pin tree only. They are not in the UI.

Fixes (Since 4.3.2 Release)

Hippotizer fixes

- Fixed issue where content encoded toHAP-Alpha would show Alpha as false. *Case 15801*
- Fixed issue where components would report failure after they had imported incorrectly. *Case 14381*
- Fixed issue where the ‘h’ key could trigger HippoNet window to open or close. *Case 15131*
- Fixed issue where on V4+ machines the Output manager could fail to show any available outputs. *Case 15935 and Case 15364*
- Fixed issue where disabling interframe blending on 60FPS clips would decrease performance. *Case 15964*
- Fixed issue where the command line show importer would fail. *Case 15724*
- Fixed issue where the output could flash when switching to images with Alpha. *Case 15795*

- Fixed issue where the installer would not update Code meter if it was previously installed. *Case 15661*
- Fixed issue where imported Multicontroller exports would not re-map actions. *Case 15904*
- Fixed issue where a sub-folder in Media Manger was not created when importing a folder. *Case 15906*
- Fixed issue where the pinboard could fail to be edited after an aborted drag and drop. *Case 15896 and Case 14942*
- Fixed issue where replacing presets quickly could crash Zookeeper. *Case 15744*
- Fixed issue where media with more than 10 consecutive numbers in its name would crash Zookeeper *Case 15885*
- Fixed issue where rotation controllers in Multicontroller did not understand wrapping *Case 15791*
- Fixed a potential engine crash when deleting the Timeline component. *Case 15665*
- Fixed issue where sync bus would not pass speed of zero *Case 15807*
- Fixed potential zookeeper crash when a visualiser source is on the pinboard. *Case 15654*
- Fixed issue where the contents of Tabs would not restore with default layouts. *Case 15717*
- Fixed issue where Visualiser exports had a Media Looks watermark.•Improved performance ofNDISender on mix. *Case 16043*
- Fixed issue in Videomapper where tiles with flipped inputs would incorrectly scale the outputs. *Case 1606*

  • Fixed issue where engine would start up slowly the first time after clean show

SHAPE fixes

- Fixed issue where the dimming curve on SHAPE viewports did not match those from Hippotizer. *16203*
- Fixed issue where exporting a scene with spline controllers in it would crash SHAPE. *16232*

Known Limitations

V4+ Specific Limitations

- SHAPE on V4+ must run with Virtual Viewports enabled

General Limitations

- The capture hardware de-interlace (located in the configuration section of Zookeeper) setting will not work while capturing. To change de-interlace setting disable the capture by not using it on any layer, and then set the de-interlace. This limitation does not affect the software de-interlace controlled on each media layer.
- Media Layers using a sync bus to follow another layer may not display pause correctly. They will playback correctly however.
- Recalling Presets and Timeline with Notch parameters may not work on first application due to the delay in loading a block. Load the Notch effect and bypass it to reduce subsequent loading times.
- When using more than 4 × 4K (4096 × 2160) outputs always ensure they are arranged in Windows such that the total area in any axis does not exceed 16,000 Pixels.
- Presets are always saved with a playback position of 00.00.00:00. If it is desired to play a clip

back from a different position than the beginning use the in-point instead of play-head position.

- Deleting profiles from the Pixelmapper profile library does not work.
- Audio playback quality will degrade at speeds greater than 200%.
- The name of the network monitor in HippoNet is shown as host manager.
- newly created cues in Timeline may not trigger from Multicontroller action mappings. An engine restart will always fix this.
- Audio files with greater than 2 channels must be encoded alongside a video
- NDI may introduce a colour shift depending on the source. Hippo to Hippo NDI is colour-true, however 3rd party senders may show a shift. (Depending on the sender)

Special note about Notch

Using Notch in Hippotizer requires specific considerations: please read this warning carefully.

Notch is a 3rd part tool allowing for ground breaking generative and real-time effects.

To accomplish this, Notch utilises the Hippotizer's graphics card to calculate and render video in real time.

> ! **Rendering Notch effects can be extremely computationally heavy, and may lead to system instability including render failure at show time. Green Hippo strongly recommends thoroughly testing all Notch effects and cueing before use.**

All effort has been taken to ensure system stability, though the flexible nature of Notch makes any guarantee impossible. For this reason Green Hippo strongly recommends the following:

- Notch effects running within Hippotizer have the ability to disrupt or stop video rendering. Carefully plan the use of Notch and patch as little as possible to DMX to avoid accidentally rapidly changing block selection.
- Fully test all Notch effects and blocks before use in a live environment.
- Carefully plan and test Notch usage regarding performance; a single Notch effect can dramatically slow even the fastest Hippotizer.
- Do not load new blocks during show time as it will effect the output. Pre-load all blocks. If multiple blocks are to be used, consider using cached resources.
- Always have a back-up running, ideally not simply mirroring the main to avoid one issue affecting both systems.
- Carefully monitor Green Hippo's website for graphics driver updates. **Graphics driver crashes are the single biggest point of failure for Notch**
- In the event of a Notch Crash, **Restart the entire machine before continuing use**. Where the graphics drivers have crashed, a full system restart is the only way to continue regular operation.
- Green Hippo and Notch will support our products to the greatest extent possible — where graphics drivers are crashing often times the only timely solution is to re-engineer the Notch Block.
- In mission critical environments consider rendering Notch on a separate machine and capturing the output into the show machine.

More information about Notch in Hippotizer can be found here.

More information about the Notch application can be found here.

Hippotizer V4 and V4+ Notch Performance

Notch Marks	V4	V4+

Amba	3300	3700
Karst	8600	12500
Boreal	9500	15000
Taiga	10300	17000
Montane	NA	27300

Note: Use only the latest version of Notch when creating blocks for Hippotizer V4. **For Hippotizer Version 4.3, Notch Version 0.9.2.0 has been tested**.

Welcome To Hippotizer Version 4

Welcome to Hippotizer Version 4!

Hippotizer Version 4 combines the flexibility of a real-time media server with the power of a fully integrated 3D workflow. Designed to be intuitive to learn and use, yet powerful and flexible enough for the largest events. V4’s open structure allows it to be controlled seamlessly from a variety of sources such as Lighting desks, Timelines, show controllers or the Zookeeper Interface. Combined with SHAPE, Hippotizer is a fully configurable 3D media tool box.

Eurovision Song Contest 2016.
Video Design: Mikki Kunttu
Technical Manager Video: Morgan Brown
Video Operators: Fraser Walker, Pekka Martti, Neil Trenell
Hippotizer Technicians: Anders Granström,Magnus Grönberg
Photo Credit: Ralph Larmann
All Rights Reserved

Hippotizer software is continuously updated. Please visit our website for the most up to date software and manual.

What is Hippotizer?

Hippotizer is a real-time media server designed for the live events industry.

Lowlands festival 2016 – Bravo Stage
Hippos Supplied and Operated by: tenfeet
Photos: Bart Heemskerk, De fotomeisjes

Borne from visual jockey software first developed 15 years ago, Hippotizer uniquely combines ease of use and flexibility with the industries' most powerful 3D mapping engine; SHAPE.

Known as a real-time media server, Hippotizer reacts to changes from many different control sources instantly from DMX to Zookeeper. Built for stability and flexibility, Hippotizer is used to drive video on some of the largest live events worldwide.

Hippotizer is comprised of dedicated media server hardware running the Hippotizer V4 software.

The Hippotizer software is made of three applications: the Engine, Zookeeper and SHAPE.

- The **Engine** renders video. It runs on every Hippotizer machine and communicates over the network.
- **Zookeeper** is a remote management program creating an interface to Engine(s) on the network.
- **SHAPE** is a projection mapping tool-set that sits inside the Engine as a plugin. SHAPE has a

separate network based management application.

Hippotizer separates 2D and 3D workflows for the simple reason that content is 2D. Media Management, playback and manipulation is handled within the Hippotizer application. Increasingly however, content is being mapped onto 3D objects through projection mapping, this is where SHAPE comes in. SHAPE is the 3rd dimension of Hippotizer V4. SHAPE is made up of two pieces: a plugin within Hippotizer and a management application.

SHAPE enables the user to import a model and apply video from a Hippotizer V4 machine to the model. SHAPE allows you to edit model meshes and is able to assist with aligning, blending, masking and warping the projector(s).

SHAPE communicates via the network to Hippotizer V4 machines to allow real time manipulation. Once the model is configured, all settings are saved to the Hippotizer which then handles all content play back; the SHAPE application is then no longer required.

SHAPE’s manual can be found here: SHAPE Manual

Contacting us

We strive to ensure this manual is an inclusive guide to all of Hippotizer's features, though there inevitably will be places in the software that are not fully documented or are being used in a new way. For additional information, Green Hippo maintains a user forum, holds training sessions, operates telephone and email support, and benefits from a network of knowledgeable distributors and users world-wide: help is never far away.

There are different ways to contact Green Hippo depending on the nature of the Inquiry:

Sales and marketing inquires:

- Green Hippo Offices

Support and training:

- Support

Questions about the software or hardware:

- User Forum

Feedback and suggestions:

- Feedback

Green Hippo Offices

UK Main Office:

Green Hippo Ltd.
Unit 307 Parma House
Clarendon Road, Wood Green
London, United Kingdom.
N22 6UL

The UK offices handle sales and support for Europe, the Middle East and Asia as well as most of our research and development.

US Sales Office:

US Office Address:
425 E Colorado St
Suite 610
Glendale, CA 91205

The US offices handle sales and support for the Americas.

Support

The Hippotizer Media Server is a tool set used by media professionals world wide. With a wide range of skills and requirements, Green Hippo customers have a host of support methods at there disposal.

Local Distributor

Your local Hippotizer Distributor is frequently the best way to quickly answer questions.

Green Hippo support

Green Hippo operates a support system. For assistance, visit the support website:

Green Hippo Support

From here you can search support topics or create a support ticket.

Support tickets monitored seven days a week, with urgent queries answered as fast as possible, often within an hour. Please be sure to include the exact nature of your problem, the Hippotizer software version and hardware you are using.

User Forum

Green Hippo forum

With hundreds of users worldwide active, the Green Hippo forum is an invaluable resource. Green Hippo technical staff also monitor the forum and can help to answer questions.

http://forum.green-hippo.com/

Feedback

If you have a suggestions or feedback you would like to send to us, please email:

HippoFeedback@green-hippo.com

All feedback is read by Hippotizer’s Product Management and we may contact you to request more information.

Software Information

The Hippotizer software package is comprised of different elements developed both by Green Hippo and third parties. Some parts are covered by an End User License Agreement (EULA) these are below. Other software polices such as the Software Assurance Policy are also noted below.

End User License Agreements

- Hippotizer and SHAPE EULA
- 3rd Party Licenses

Other important software information

- Software Assurance Policy
- Beta Software

V4 and V4+ Software Compatibility

V4 Hardware

- Runs V3 In compatibility mode
- Runs V4 Software Version 4.0 and greater limited by Software Assurance

V4+ Hardware

- Runs V4 Software Version 4.3 and greater limited by Software Assurance
- Compatible with V4 systems running Software version 4.3 and greater.

Software Assurance Policy

The Software Assurance Policy details the period that systems are entitled to new software

Green Hippo will periodically, and at our discretion, release new versions of software for Hippotizer systems. Each new release will be available for download from our website. A release contains a version number containing a product identifier, major release number and minor release number in a numeric code separated with periods: **Product Identifier.Major Release Number.Minor release Number** For example, 4.2.1 is for the Hippotizer V4 Product, it is the 2nd Major release of V4, and the 1st Minor release of 4.2. Every release is internally coded with the release date which can be seen on the download.

By default, Hippotizer V4 system feature a three (3) year software assurance policy period. While software assurance is active, the Hippotizer V4 system is entitled to install all major releases of V4 with a release date within the software assurance period. The Hippotizer system is entitled to all minor versions within the allowed major version.

For example, assume that Version 4.2 is released in January, 2017 and 4.3 is released in January, 2018. If your software assurance expires in June of 2017, you will be able install 4.2 but not 4.3. Further, if Green Hippo releases minor release of 4.2 (such as 4.2.1) these can be installed as they are part of an allowed major version irrespective of release date. Minor versions of 4.3 will not install as they are part of a major version that is not allowed. Meaning 4.3.1 will not install in this example as it is part of 4.3 which was released after software assurance expired.

Note: Even after software assurance has expired the Hippotizer will continue to operate as normal. The license to run Hippotizer and output video is not time limited.

A Hippotizer system will not be able to install major releases created before or after the software assurance policy is active.

An early adopter extension was in effect for systems purchased in the first year of V4 (From November 2014 to February 2016) all systems purchased on or before February 2016 will end software assurance February 2019.

Systems purchased after February 2016 date have three (3) years of free software upgrades from time of delivery. The system will continue to work as normal after assurance has ended.

The software assurance period can be extended with the purchase of additional time. Please discuss extensions to the software assurance period with Green Hippo or your local distributor.

Hippotizer and SHAPE EULA

HIPPOTIZER V4 & SHAPE EULA

Please read carefully all the terms of this agreement for the use of Hippotizer V4 and SHAPE software. If you do not agree to all the terms please do not click Accept and return the Hippotizer to the location you purchased it.

GREEN HIPPO LTD ("The Company") hereby gives you a non-exclusive, perpetual license to use Hippotizer-V4 and SHAPE ("The Software").
The software is for use only in conjunction with a Hippotizer Media Server and a valid use license from Green Hippo Ltd. Any attempt to use this software under any other circumstances will result in legal action.
Should the software be a BETA version it must only be used by individuals or companies aware that BETA software may not function as advertised and should only be used in test environments.

You may
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- copy the Software for archival purposes, provided any copy contains all of the original Software's proprietary notices.

You may not
- modify, translate, reverse engineer, decompile, disassemble in whole or in part (except to the extent applicable laws specifically prohibit such restriction),
- create derivative works based on the Software;
- copy the Software (except as specified above);
- rent, lease, transfer or otherwise transfer rights to the Software to a third party unless as part of rental hire-stock and on the Hippotizer server to which the software was purchased;
- remove any proprietary notices or labels on the Software.

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The license to use will terminate automatically if you fail to comply with the limitations described above. On termination, you must destroy all copies of the Software and Documentation.

DATA COLLECTION
The Company will collect user information about you (name, email address, location) for the purpose of licensing the software correctly. This information may be stored on servers located in Europe.
System usage and performance data may be collected for the purposes of improving the product, providing support and other services.

DISCLAIMER OF WARRANTY
The Software is provided on an AS IS basis, without warranty of any kind, including without limitation the warranties of merchantability, fitness for a particular purpose and non-infringement.
The Supplier does not warrant that the use of the Software will be uninterrupted or error-free.

The entire risk as to the quality and performance of the Software is borne by you. Should the Software prove defective, you and not GREEN HIPPO LTD assume the entire cost of any service and repair.

The above disclaimer does not affect your warranty agreement on any hardware supplied by the Company. The above disclaimer does not affect your rights to technical support and response to bug-reporting. The software will be supported for an initial 3 years from purchase, and then on
LIMITATION OF LIABILITY
GREEN HIPPO LTD IS NOT RESPONSIBLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES.
Title, ownership rights and intellectual property rights in and to the Software shall remain in GREEN HIPPO LTD. The Software is protected by international copyright treaties.
This agreement and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims) shall be governed by and construed in accordance with the law of England and Wales.
If you have any questions on this agreement please contact Green Hippo Limited.

3rd Party Licenses and EULAs

Beta Software

A note about Beta versions:

Green Hippo frequently uses Beta releases to pre-view features with users and to garner feedback. A Beta release may contain known critical issues within the Zookeeper application including crashes. Those issues that are known at the time of a Beta release will be noted in the release notes as a known limitation. We will not release a Beta version with a known crash in the engine unless we can ensure users will work around it, though certainty of stability only comes with more testing. Please use Beta versions with caution being sure to test required functionality outside of a live environment. If you discover an issue, it would be helpful to feed this back to us by emailing: beta@green-hippo.com with a description of the issue and how to reproduce it.

Green Hippo’s Beta testers are an open and growing group of users worldwide. If you would like to help us test our next version of software please get in touch by emailing: beta@green-hippo.com

Hardware Information

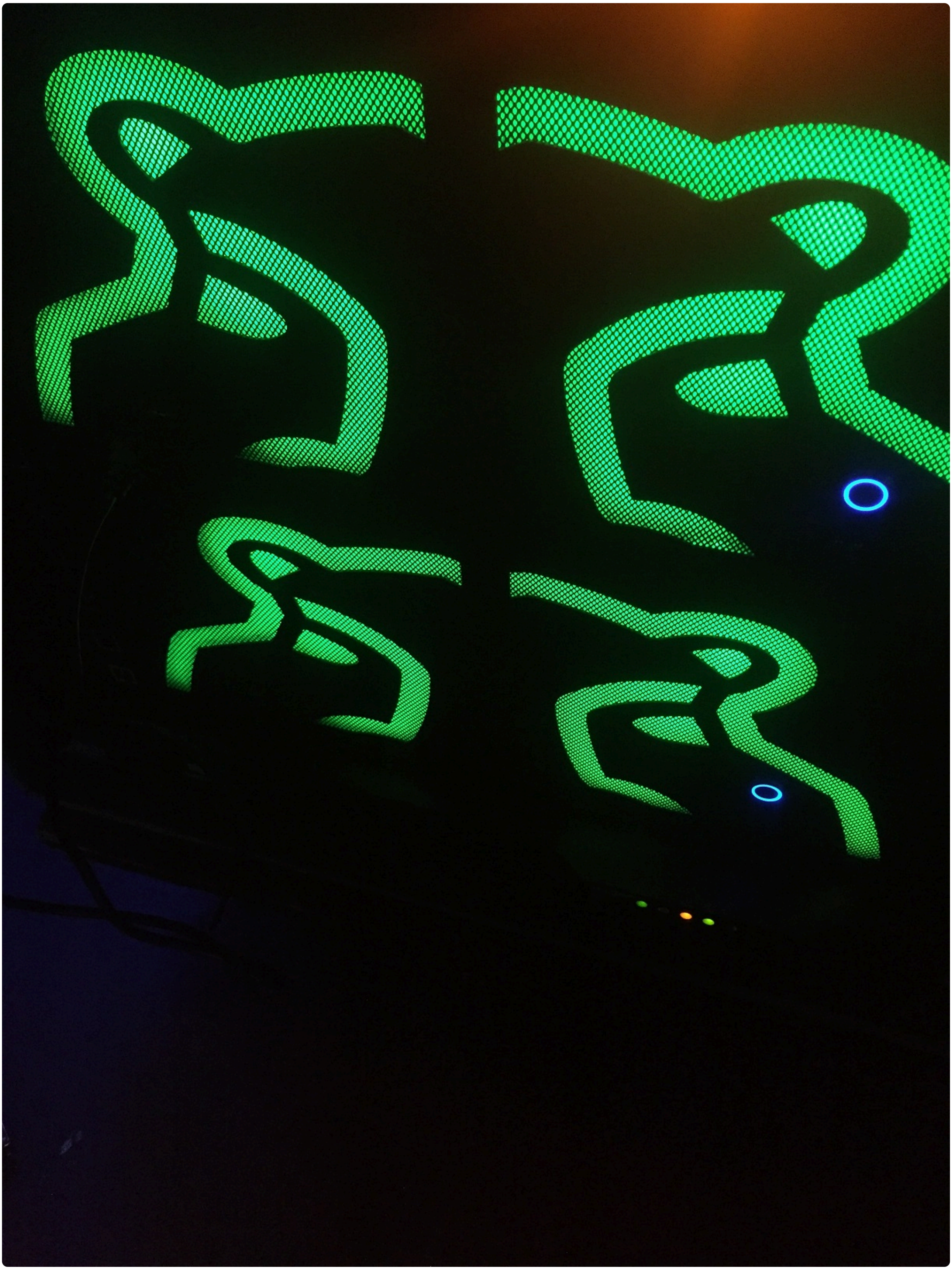
Below is some important information about the hardware and good practice for mounting and maintenance.

- FCC Declaration
- Rack Mounting
- Ventilation
- Power
- Hardware Changes
- Restore Utility
- Hardware Warranty
- SSD Refresh Tool
- Capture Cards
- V4+ System Information
- V4 System Information
- Audio
- EDID Emulation
- Genlock

FCC Declaration

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Rack Mounting



Hippotizer V4 systems are purpose built rack-mounted computers that are 1, 2 or 4 rack units (RU).

Included with each unit are front and back rack ears. It is important to ensure the units are properly supported with either a rack shelf or both front and back rack ears.

! Do not only rely on the front rack ears only to support the entire system. Use the back rack ears or shelves to distribute the load.

Accu-ride rails are available as an option from Green Hippo, please contact your distributor for details.

Green Hippo strongly suggests using shock mounted flight cases to reduce the risk of vibration damage to Hippotizer systems.

Ventilation

All V4 units use temperature controlled, forced air cooling. Air is ingested into the cases through filters on the front of the unit and ejected out the back. A single system can generate a significant amount of heat under normal operating conditions; it is imperative to ensure there is adequate ventilation in the front and back of the cases. Do not operate the units in a closed environment and do not obstruct any of the intake or exhaust vents.

! The top of the Karst and Amba can get quite warm [up to 50 Degrees C] under normal operating conditions. Take care when handling systems after they have been running and allow them to cool completely before moving.

Over time the intake filters will become dusty; a regular regime of vacuuming the filters out is strongly recommended. Simply pass a vacuum nozzle over the front of the intake filters to remove trapped dust.

Alternatively, the filters can be removed and washed with soap and water. Spare filters are available if required from your Green Hippo distributor.

The fans in all V4 systems are controlled with a temperature monitoring system. This works by varying fan speed with temperature measured from points within the case. It is normal for fan speeds to vary with usage. In the event of a failure of a temperature sensor, the fans will automatically go to full power.

Note: During power up, it is normal for the fans to go to full power for a few seconds. This is in order to eject dust.

Hippotizer systems are designed to operate with an external ambient temperature from 0 – 40 Degrees Centigrade (32 – 104 degrees Fahrenheit).

! Do not operate Hippotizer systems in wet or damp conditions

Power

Hippotizer V4 systems use an auto-sensing switch mode power supply that is capable of handling 110-250v 50/60hz power.

Note: The switch mode power supplies are sensitive to fluctuations in power supply voltage and power loss. Green Hippo strongly recommends using an Uninterruptible Power Supply (UPS) on all Hippotizer systems.

In common with all computers; allow the Hippotizer to boot down completely before removing the mains supply to the system.

Note: The Hippotizer Taiga and Boreal uses PCIe based solid state storage that must be shut down correctly. In the event that power is lost abruptly, the D: drive on a Taiga may not appear in Windows for several minutes on the next start-up. (Up to 10 minutes) This is normal as the drive re-builds itself. There is no data loss from this process. On a Boreal after an abrupt power loss the D: Drive may not appear in Windows without a further restart of the system.

The power inlet on a Karst, Boreal and Taiga are Neutrik PowerCon True1 with a pass through. Take care not to overload the input power by using the through connections: a Taiga for example uses 1100VA, which at 120v would mean only two systems can be connected to a 20Amp feed.

As an option, Taiga and Boreal can be fitted at the factory with a redundant power supply. This provides the system with two separate, hot-swappable power modules. In the event one of the supplies fails, an audible alarm will sound and the failed supply should be replaced as soon as possible.

Note: Taiga and Boreal use different wattage power supplies and can not be inter-changed.

! Hazardous voltage is contained within the enclosure. Do not open the case with mains power connected.

Take care when handling the Power supply as it may retain hazardous voltages long after being unplugged from a power source.

Never attempt to disassemble or repair a power supply.

Note: Hippotizer systems contain delicate electronic equipment that is sensitive to electrostatic discharge (ESD). Take appropriate ESD precautions before handling internal components of the system.

Hardware Changes

The Hippotizer V4 system is a purpose built computer designed and optimized for video playback.
Green Hippo cannot support after-market changes to the hardware specification of a Hippotizer.
Please do not attempt to change or upgrade components within the system.
Hardware changes are likely to cause the Hippotizer software to stop working, and Green Hippo support will only be able to re-license the software once the machine is returned to the original configuration.
In the event of a component failure please contact Green Hippo support for assistance.

Restore Utility

Every Hippotizer unit ships with a restore partition on the C: drive to enable the quick restoration of factory settings. This is accessed at boot-up, before Windows starts up by pressing F12 when prompted.

The F12 restore will delete all data from the C: drive and restore the factory loaded software and defaults. It is therefore important to store newer versions of Hippotizer software on an external drive or the D: drive for fast system rebuild.

3rd party back-up and restore tools may destroy the F12 restore function. If additional back-ups are required, please use the included Acronis software.

Included with the Hippotizer is also a single license for Acronis True Image, an easy to use imaging and restoration tool. Green Hippo strongly recommends regularly backing up each Hippotizer machine’s C: Drive to external storage to facilitate rapid recovery in the event of a hardware or software fault.

On Amba, Karst and Boreal the F12 menu is accessed from the prompt during boot-up. On a Taiga, press F8 during boot up and set the boot device to be the Acronis Boot loader.

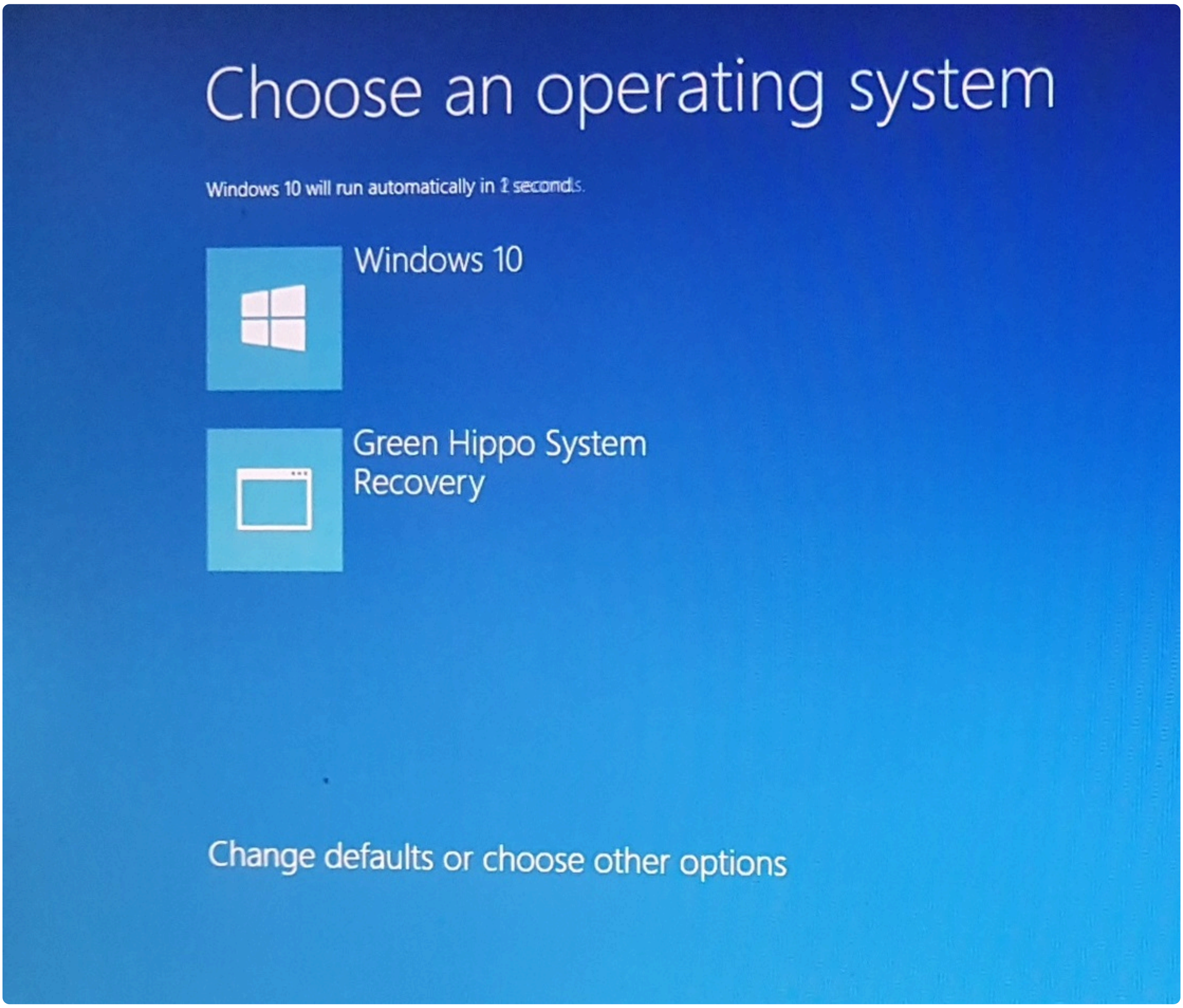
! It is critical to remove all USB and removable hard drives from the Hippotizer system BEFORE beginning an F12 restore. Failure to do so will result in the F12 failing to restore correctly.

V4+ System Recovery

Hippotizer V4+ servers feature a back-up and restore function called System Recovery.

System Recovery is accessible every time the computer starts up

Note: The System Recovery screen will appear for several seconds before the system continues to boot normally into Windows. On certain monitors or KVM switches it may take too long for the display to initialise to see this screen. In this case, move the mouse during boot up as this will halt the automatic start of Windows.



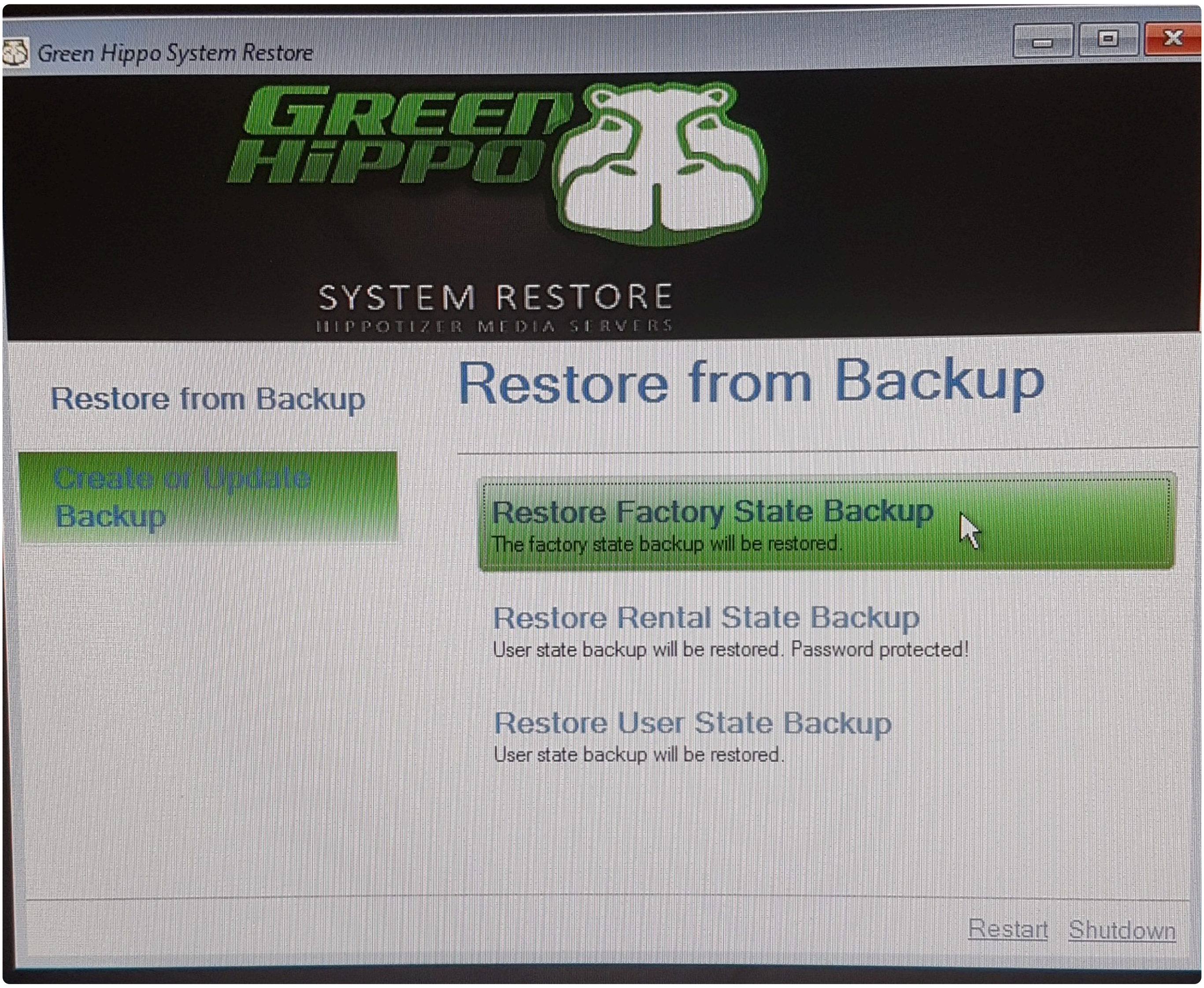
Choose an operating system

Windows 10 will run automatically in 2 seconds.

Windows 10
Green Hippo System Recovery
Change defaults or choose other options

To access System Recovery, choose **Green Hippo System Recovery**.

System recovery offers two basic options: Restore a backup or Create/Edit a Backup


Green Hippo System Restore
GREEN HiPPO
SYSTEM RESTORE
HIPPOTIZER MEDIA SERVERS
Restore from Backup
Create or Update Backup
Restore from Backup
Restore Factory State Backup
The factory state backup will be restored.
Restore Rental State Backup
User state backup will be restored. Password protected!
Restore User State Backup
User state backup will be restored.
Restart
Shutdown

Each system has the capability of storing three Backups: Factory, Rental and User

- The **Factory** Backup is created when the system is manufactured and cannot be overwritten or edited.
- The **Rental** Backup is intended for the system owner to create and edit and is accessed by a password.
- The **User** Backup is for general use and does not have any password protection.

System restore backs up and restores the contents of the C: Drive only. Anything stored on the media drive will NOT be saved or overwritten.

Software assurance dates are stored on a hardware dongle and are not affected by system restoration.

V4 Acronis

Every V4 Hippotizer unit ships with a restore partition on the C: drive to enable the quick restoration of factory settings. This is accessed at boot-up, before Windows starts up by pressing F12 when prompted.

The F12 restore will delete all data from the C: drive and restore the factory loaded software and defaults. It is therefore important to store newer versions of Hippotizer software on an external drive or the D: drive for fast system rebuild.

3rd party back-up and restore tools may destroy the F12 restore function. If additional back-ups are required, please use the included Acronis software.

On Amba, Karst and Boreal the F12 menu is accessed from the prompt during boot-up. On a Taiga, press F8 during boot up and set the boot device to be the Acronis Boot loader.

! It is critical to remove all USB and removable hard drives from the Hippotizer system BEFORE beginning an F12 restore. Failure to do so will result in the F12 failing to restore correctly.

Hardware Warranty

Hippotizer V4 and V4+ hardware carries a warranty against defects in material or workmanship for a period of one (1) year from the initial date of purchase.

This limited warranty protects the original and any subsequent owner(s) of the product for the warranty period.

Green Hippo Ltd does not warrant its products against any or all defects arising from unreasonable use, accidents, improper service or any other causes not arising from defects in materials and workmanship.

During the warranty period Green Hippo Ltd, its agents or subsidiaries will supply all parts and labor to repair or replace (at our discretion) defects covered by this limited warranty provided the equipment is returned to an approved Green Hippo repair centre or distributor.

All repairs must be accompanied by a Return Merchandise Authorization (RMA) and be approved by Green Hippo prior to any repairs being carried out.

Products must be returned with transportation costs and full insurance prepaid each way by the customer.

Liability of Green Hippo Ltd, its agents or subsidiaries is limited to the repair or replacement (at our discretion) of any defective part or product and shall not include incidental damages of any kind.

SSD Refresh Tool

As part of ongoing product testing, Green Hippo has discovered a fault with Solid State Drives used in certain Hippotizer V4 systems; this fault can severely impact playback performance and should be addressed urgently. While the drives will ultimately require warranty replacement, we have created a software based tool to ensure all systems in the field continue to operate normally indefinitely. This tool is available from 4.0.2 Beta 4. We want to make our distributors and users aware of this issue and distribute contact information to ensure free replacement of the affected drives.

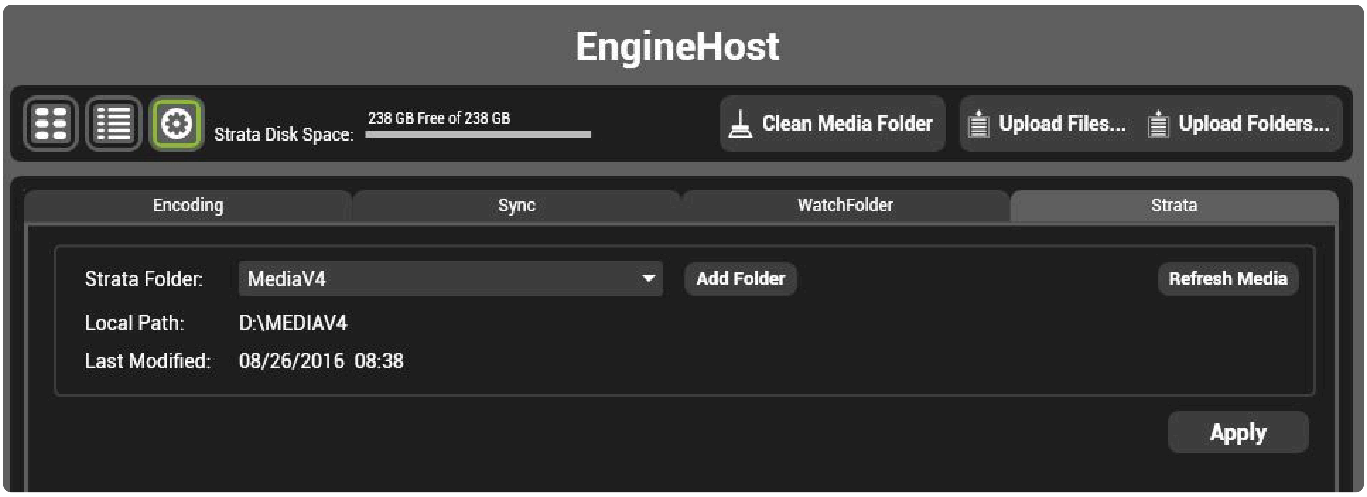
All Hippotizer V4 systems use multiple Solid State Drives (SSDs), for media storage (media drive) and one for general system use (OS Drive). Throughout the Hippotizer V4 line, Green Hippo uses several different makes and models of SSD. This bulletin concerns a specific type of SSD used as the media drive in Amba and Karst systems.

This affects Karst with serial numbers: 210036 – 210074
This affects Amba with serial numbers: 240038 – 240092

Testing has shown that files written on the drive for longer than two months can suffer from vastly reduced read speeds. For media files, this will manifest as un-even playback and jumping on the output. Often times the stock content will be the first files to be affected. Long running shows with the same content (such as tours) could also be affected by this issue.

Using the Refresh Tool

The refresh media tool is part of the STRATA dialogue in Media Manager’s settings.



Strata Disk Space: 238 GB Free of 238 GB

Strata Folder: MediaV4
Local Path: D:\MEDIAV4
Last Modified: 08/26/2016 08:38

Note: While the Media Refresh is being carried out the engine will be stopped. The refresh process can take a long time: up to a minute per gigabyte of media.

Capture Cards

V4 offers several hardware based video capture options to bring SDI, DVI and Display Port signals into Hippotizer systems. Capture cards are available fitted when the server is built, or can be fitted afterwards by a qualified technician. For Karst, Boreal and Taigas a capture card also requires new back plates which can be ordered from Green Hippo.

Note: Green Hippo strongly recommends sourcing cards from your local distributor to ensure compatibility.

Capture Cards per system

Each model Hippotizer system supports different numbers of capture cards based on the space available:

Amba or Amba+

- 1 x Capture Card or Accessory Card

Note: Amba and Karst does not support Quad SDI or Dual Display Port capture Cards

Karst or Karst+

- 1 x Capture Card or Accessory Card

Note: Amba and Karst does not support Quad SDI or Dual Display Port capture Cards

Boreal or Boreal+

- 2 x Capture Cards

and

- 1 x Accessory Card

Taiga+

- 2 x Capture Cards

and

- 1 x Capture Card and 1 x Accesory Card

Taiga

- 2 x Capture Cards

or

- 1 x Capture Card and 1 x Accesory Card

Montane +

- 2 x Capture Cards

or

- 1 x Capture Card and 1 x Accesory Card

Supported Capture Cards

The following lists supported capture cards:

- **Data Path VisionSDI2** — Dual 3G-SDI Capture
- **Data Path VisionSC-SDI4** — Quad 3G-SDI Capture
- **Data Path VisionSC-DP2** — Dual Display Port 1.2 Capture
- **Data Path VisionAV-SDI** — SDI, DVI and Composite Capture
- **Data Path VisionRGB-E2S** — Dual DVI Single Link Capture

Capture Drivers

Using the correct software driver for Hippotizer is critical to ensure proper functioning of the capture cards. Please refer to the release notes of the specific Hippotizer software version for guidance on which driver to use.

Note: The firmware of each capture card is updated during driver installation. For this reason it may be required to run the driver installation after a factory restore to ensure card firmware matches software.

V4+ System Information

Each Hippotizer V4+ has a distinct output configuration. Maximum resolution, supported standards and other information can be found below.

- Amba+
- Karst+
- Boreal+
- Taiga+
- Montane+
- Prep

Amba+

Outputs

Zookeeper:

The Amba+ has several output connectors for use with Zookeeper. These use the motherboard on-board graphics system. Multiple displays may be used at once; however, these will consume CPU resources so it is advised to connect a single zookeeper display only when the system is in production use.

Output

The Amba has DVI-I and Display Port Outputs from the main graphics card. The Amba supports the use of a single display output at a time.

DVI-I:

Max Resolution: **2560 × 1600 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**

Display Port:

Max Resolution: **4096×2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **Yes**
Supports Display Port to DVI adaptor (active): **Yes**

Karst+

Outputs

Zookeeper

The Karst has two connections for Zookeeper: a DVI and Display Port.

DVI:

Max Resolution: **2560 × 1600 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**

Display Port:

Max Resolution: **4096 × 2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**
Supports Display Port to DVI adaptor (active): **Yes**

Output (Karst DVI-2):

The Karst DVI has two DVI-DL outputs with a parallel HDMI and a Display Port (unpowered) connection:

DVI-DL:

Max Resolution: **2560 × 1600 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**

HDMI:

Max Resolution: **1920 × 1080 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Display Port:

Max Resolution: **4096 × 2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**

Supports Display Port to DVI adaptor (active): **Yes**

Output (Karst SDI-2):

The Karst SDI-2 has two HD-SDI outputs and a Display Port (unpowered) connection:

HD-SDI:

Max Resolution: **2048 × 1080 @ 60p (Supports SD/HD/3G SDI)**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Display Port:

Max Resolution: **4096 × 2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**
Supports Display Port to DVI adaptor (active): **No**

The third output of Karst+ DVI and SDI

Karst+ DVI and SDI have a 3rd production output which has important limitations.
Due to hardware limitations of the graphics card, the Display Port output does not have the power pin connected. (Display Port Pin 20). This means that Display port to DVI or HDMI adaptors that rely on Display Port power will not work.

Devices that provide their own power, such as Datapath FX-4 should work. Green Hippo strongly suggest the minimal required cable length is used — testing has shown that anything more than 6ft (1.8m) will not be reliable.

Output (Karst DP-2)

Display Port:

The Karst+ supports 2 concurrent display port 1.2 outputs.

Max Resolution:* 4096 × 2160 @ 60Hz*
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**
Supports Display Port to DVI adaptor (active): **No**

A Note about Display Port Adaptors and cables on Karst+

Display Port

Compatibility with all Display Port devices can never be guaranteed. Green Hippo has tested many cables, adaptors and displays to determine what works best with Hippotizer systems. The findings show that **Active** adaptors from Display Port to DVI are the most reliable with those made by Bizlink, Accell or Startech to be of consistent quality. Similarly, **Active** VisionTek or Tripplite Display Port to HDMI adaptors have also proven to be among the most reliable. The quality and availability of adaptors varies hugely. Always test a specific adaptor before attempting to use it.

Display Port connections directly from the Hippotizer to a Display Port display or signal handling equipment also relies on a good quality cable. Do not exceed the maximum recommended cable length (normally 6ft or 1.8m) especially when working at UHD or 4K resolutions. Use Vesa certified DP1.2 cable. A full list of which is available on the Vesa website.

Boreal+

There are different video outputs on Hippotizer systems. The specifications of each are detailed below.

Zookeeper:

The Boreal+ has two DVI-D Zookeeper connections.

DVI-D:

Max Resolution: **1920 × 1200 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Output:

There are several variants of the Boreal+

Boreal+ DVI:

Max Pixel Clock:: **330 MHz**
Example Supported Resolutions:

- 1920 × 1080 `50/60HZ
  * 2048 x 1080` 50/60HZ
- 1920 × 1200 `50/60HZ
  * 3840 x 1080` 50/60HZ
- 3840 × 2160 @ 30HZ
- Other resolutions will likely work provided they are within the maximum pixel clock.

Supports Splitters: **Yes**
Supported Splitters:

- Datapath X4
- Matrox DVI Dual Head to Go.

Supports Conversion to Analogue (VGA): **No**
Supports Genlock: Yes.

Boreal+ SDI

The Boreal+ SDI-4 has four HD-SDI outputs:

HD-SDI:

Max Resolution: **2048 × 1080 @ 60p (Supports SD/HD/3G SDI)**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**
Supports Genlock: Yes.

Display Port:

The Boreal+ DP has four Display Port outputs

Max Resolution: **4096 × 2160 @ 60p**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**
Supports Display Port to DVI adaptor (active): **Yes**

A Note about Display Port Adaptors and cables

Compatibility with all Display Port devices can never be guaranteed. Green Hippo has tested many cables, adaptors and displays to determine what works best with Hippotizer systems. The findings show that **Active** adaptors from Display Port to DVI are the most reliable with those made by Bizlink, Accell or Startech to be of consistent quality. Similarly, **Active** VisionTek or Tripplite Display Port to HDMI adaptors have also proven to be among the most reliable. The quality and availability of adaptors varies hugely. Always test a specific adaptor before attempting to use it.

Display Port connections directly from the Hippotizer to a Display Port display or signal handling equipment also relies on a good quality cable. Do not exceed the maximum recommended cable length (normally 6ft or 1.8m) especially when working at UHD or 4K resolutions. Use only Vesa certified DP1.2 cable. A full list of which is available on the Vesa website.

Taiga+

Outputs

The Taiga has two DVI-D Zookeeper connections.

DVI-D:

Max Resolution: **1920 × 1200 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Output (Taiga DVI-DL):

The Taiga DVI-DL supports 6 concurrent DVI-DL Outputs;

DVI-DL:

Max Resolution: **2560 × 1600 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**

Output (DP-6):

Display Port (Powered):

Max Resolution: **3840 × 2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**
Supports Display Port to DVI adaptor (active): **Yes**

Note:: The Graphics card is limited to how many active and passive DP to DVI adaptors it can support. If you are using more than 4 adaptors, they MUST all be active DVI convertors. For less than 4 total outputs, any mix of active and passive adaptors will work.

A Note about Display Port Adaptors and cables

Compatibility with all Display Port devices can never be guaranteed. Green Hippo has tested many cables, adaptors and displays to determine what works best with Hippotizer systems. The findings show that **Active** adaptors from Display Port to DVI are the most reliable with those made by Bizlink, Accell or Startech to be of consistent quality. Similarly, **Active** VisionTek or Tripplite Display Port to HDMI adaptors have also proven to be among the most reliable. The quality and availability of adaptors varies hugely. Always test a specific adaptor before attempting to use it.

Display Port connections directly from the Hippotizer to a Display Port display or signal handling equipment also relies on a good quality cable. Do not exceed the maximum recommended cable length (normally 6ft or 1.8m) especially when working at UHD or 4K resolutions. Use Vesa certified DP1.2 cable. A full list of which is available on the Vesa website.

Montane+

Outputs

Zookeeper:

The Montane+ has two DVI-D Zookeeper connections.

DVI-D:

Max Resolution: **1920 × 1200 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Output (Montane DP):

The Montane supports 2 Concurrent Display Port connections.

DP:

Max Resolution: **4096 × 2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**
Supports Display Port to DVI adaptor (active): **Yes**

A Note about Display Port Adaptors and cables

Compatibility with all Display Port devices can never be guaranteed. Green Hippo has tested many cables, adaptors and displays to determine what works best with Hippotizer systems. The findings show that **Active** adaptors from Display Port to DVI are the most reliable with those made by Bizlink, Accell or Startech to be of consistent quality. Similarly, **Active** VisionTek or Tripplite Display Port to HDMI adaptors have also proven to be among the most reliable. The quality and availability of adaptors varies hugely. Always test a specific adaptor before attempting to use it.

Display Port connections directly from the Hippotizer to a Display Port display or signal handling equipment also relies on a good quality cable. Do not exceed the maximum recommended cable length (normally 6ft or 1.8m) especially when working at UHD or 4K resolutions. Use Vesa certified DP1.2 cable. A full list of which is available on the Vesa website.

Prep

Hippotizer Prep is a hardware dongle that allows for unlimited mixes and windowed, watermarked outputs to be started.

Outputs

Zookeeper:

Prep Supports an unlimited number of Zookeeper outputs based on the hardware.

Output

Prep Supports an unlimited number of outputs.

> Note: Prep Outputs will be watermarked with a grey Hippo Head and Pixelmapper output will occasionally flash

Recommended Hardware

Hippotizer Prep will work on many Windows 8.1 and 10 machines, including Apple's running Bootcamp.

The performance of Prep is closely linked to hardware capabilities, specifically the Graphics card (GPU) and media drive.

Prep will generally run well on machines designed for high-resolution gaming. High-end and desktop replacement laptops are preferable to tablets.

Recommended GPUs:

For Desktops:

- AMD FirePro or WX Series (eg. WX7100)
- AMD R7, R9 and RX Series. (eg. RX580)
- NVIDIA GTX (eg. 1070 or 1080)
- NVIDIA Quadro (eg. P4000)

For Laptops:

Discrete Graphics are critical for desirable laptop performance.

- AMD or NVIDIA mobile GPU with at least 2GB of dedicated memory.

Media Drive considerations

The media drive speed and latency will partially determine how much media can be played back at once.

- Solid State Drives (SSD) are considerably faster than traditional drives and should be used wherever possible.
- For HD playback, the SATA interface is often fast enough.
- For 4K or uncompressed playback, the NVMe interface offers far higher read speeds. (M.2 or PCIe work)
- RAID arrays can be used to increase effective drive speed and size. (RAID is not used in Hippotizer hardware due to higher failure incidence)

Other considerations:

- Green Hippo has only tested Intel Processors (CPU). AMD will probably work, though it's stability and performance is unknown.
- CPU core frequency is more important than core count. So faster cores (even fewer of them) will be better then more slower cores.
- Intel i5 and i7 CPUs offer the best performance. Generation 5 and higher are recommended.
- A minimum of 8GB System RAM is recommended, up to 16GB can aid performance.
- Faster RAM (eg. DDR4 and / or multi-channel RAM) also will help performance.
- Always ensure the system is properly ventilated and cooled. Hippotizer software can draw maximum power from the CPU and GPU when in use.
- Avoid virtual machines such as VMware, or Parallels as hardware resource sharing frequently leads to instability.

Example Prep machine:

- Z270 Motherboard
- Intel i5-7600 CPU
- 16GB DDR4-2133 RAM
- 512GB SSD (SATA 6)
- AMD RX570 GPU

Capturing video into Prep

Hippotizer support Datapath capture cards only. Any Datapath Vision or Vision AV capture cards will work.

V4 System Information

Each Hippotizer has different output configurations with associated resolution limits.

- Amba
- Karst
- Boreal
- Taiga

Amba

Outputs

Zookeeper:

The Amba has several output connectors for use with Zookeeper. These use the motherboard on-board graphics system. Multiple displays may be used at once; however, these will consume CPU resources so it is advised to connect a single zookeeper display only when the system is in production use.Output

The Amba has DVI-I and Display Port Outputs from the main graphics card. The Amba supports the use of a single display output at a time.

DVI-I:

Max Resolution: **2560 × 1600 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **Yes**

Display Port:

Max Resolution: **4096×2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **Yes**
Supports Display Port to DVI adaptor (active): **Yes**

Karst

Outputs

Zookeeper

The Karst has two connections for Zookeeper: a DVI-I and Display Port.

DVI-I:

Max Resolution: **2560 × 1600 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **Yes**

Display Port:

Max Resolution: **4096 × 2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **Yes**
Supports Display Port to DVI adaptor (active): **Yes**

Output (Karst DVI-2):

The Karst DVI has two DVI-DL outputs with a parallel HDMI and a Display Port (unpowered) connection:

DVI-DL:

Max Resolution: **2560 × 1600 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**

HDMI:

Max Resolution: **1920 × 1080 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Display Port:

Max Resolution: **3840 × 2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**

Supports Display Port to DVI adaptor (active): **No**

Output (Karst DVI-2 Genlock):

The Karst DVI has two DVI-D outputs with a parallel HDMI and a Display Port (unpowered) connection:

DVI-D:

Max Resolution: **1920 × 1200 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

HDMI:

Max Resolution: **1920 × 1080 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Display Port:

Max Resolution: **3840 × 2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**
Supports Display Port to DVI adaptor (active): **No**

Output (Karst SDI-2):

The Karst SDI-2 has two HD-SDI outputs and a Display Port (unpowered) connection:

HD-SDI:

Max Resolution: **2048 × 1080 @ 60p (Supports SD/HD/3G SDI)**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Display Port:

Max Resolution:* 3840 × 2160 @ 60Hz*
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **No**
Supports Display Port to DVI adaptor (active): **No**

Boreal

Outputs

Zookeeper:

The Boreal has two DVI-D Zookeeper connections.

DVI-D:

Max Resolution: **1920 × 1200 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Output (Boreal DVI-4):

The Boreal supports 4 concurrent Outputs; each has parallel DVI-D and HDMI connections.

DVI-D:

Max Resolution: **1920 × 1080 @ 60Hz** Supports Splitters: **No** Supports Conversion to Analogue (VGA): **No**

HDMI:

Max Resolution: **1920 × 1080 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Output (Boreal SDI-4):

The Boreal SDI-4 has four HD-SDI outputs:

HD-SDI:

Max Resolution: **2048 × 1080 @ 60p (Supports SD/HD/3G SDI)**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Taiga

Outputs

The Taiga has two DVI-D Zookeeper connections.

DVI-D:

Max Resolution: **1920 × 1200 @ 60Hz**
Supports Splitters: **No**
Supports Conversion to Analogue (VGA): **No**

Output (Taiga DVI-DL):

The Taiga DVI-DL supports 6 concurrent DVI-DL Outputs;

DVI-DL:

Max Resolution: **2560 × 1600 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**

Output (DP-6):

Display Port (Powered):

Max Resolution: **3840 × 2160 @ 60Hz**
Supports Splitters: **Yes**
Supports Conversion to Analogue (VGA): **No**
Supports Display Port to DVI adaptor (passive): **Yes**
Supports Display Port to DVI adaptor (active): **Yes**

Note:: The Graphics card is limited to how many active and passive DP to DVI adaptors it can support. If you are using more than 4 adaptors, they MUST all be active DVI convertors. For less than 4 total outputs, any mix of active and passive adaptors will work.

Audio

Hippotizer Version 4 supports playback of audio containing video clips as well as audio only files. Stereo audio playback is supported on Karst, Boreal and Taiga systems through the XLR output connectors. These are electrically isolated by way of a transformer from the Hippotizer system and the earth (ground) can be disconnected with the earth lift switch.

Please Note: It is considered best practice to leave earth connected to the sound source whenever possible in audio systems as leaving the earth lifted on both source and destination can cause interference.

On the Amba, Audio output is from the Stereo Line out 3.5mm jack by default.

- Multichannel Audio

Multichannel Audio

In order to output multi-channel audio, an outboard audio interface must be used.

Green Hippo recommends the **Motu 828x USB** interface as a tested, and readily available product. In order to install the Motu, it must be designated as the default device and configured correctly:

- Stop the Hippotizer Engine and Zookeeper
- Run the included Motu Driver installer.
- Goto: Hippotizer (C:) > Program Files(x86) > MOTU > Audio

- Open MOTU Audio Console.
- Change audio sample rate to 48k (not crucial but recommended).
- Untick “Use Stereo Pairs for Windows Audio” .
- Close MOTU Audio Console.

- Plug in your MOTU 828x USB cable.
- Goto: Control Panel > Sound
- Select MOTU Analog and click Set Default.
- Close Control Panel.
- Launch Hippotizer

Other Windows compliant multi-channel audio devices should also work, though we do not test them. In every case, the device must be designated as the default playback device before starting Hippotizer.

EDID Emulation

Connecting and disconnecting displays from a Windows computer causes a complete re-discovery of all other displays. This process results in output flashing and can lead to Hippotizer becoming confused about output location. One method of ensuring this does not happen is to ensure that the computer does not see a display being disconnected which can be accomplished with **EDID Emulation**.

> **Note:** Extended Display Identification Data (EDID) technically refers to information carried by DVI and HDMI connections to describe displays to the computer. (The display tells the computer what resolutions it can handle). Though display port uses a different signalling standard it is colloquially refereed to as EDID as well.

Hippotizer uses three types of EDID emulation, depending on the system:

Hardware Emulation — DVI

Used by:

- Karst DVI
- Karst DVI Genlock
- Boreal DVI Single Link
- Boreal DVI Genlock

Hardware Emulation — SDI

Used by:

- Karst SDI
- Boreal SDI
- Taiga SDI

Software Emulation

Used by:

- Amba
- Boreal DVI-DL
- Taiga DVI-DL

Hardware Emulation DVI Output

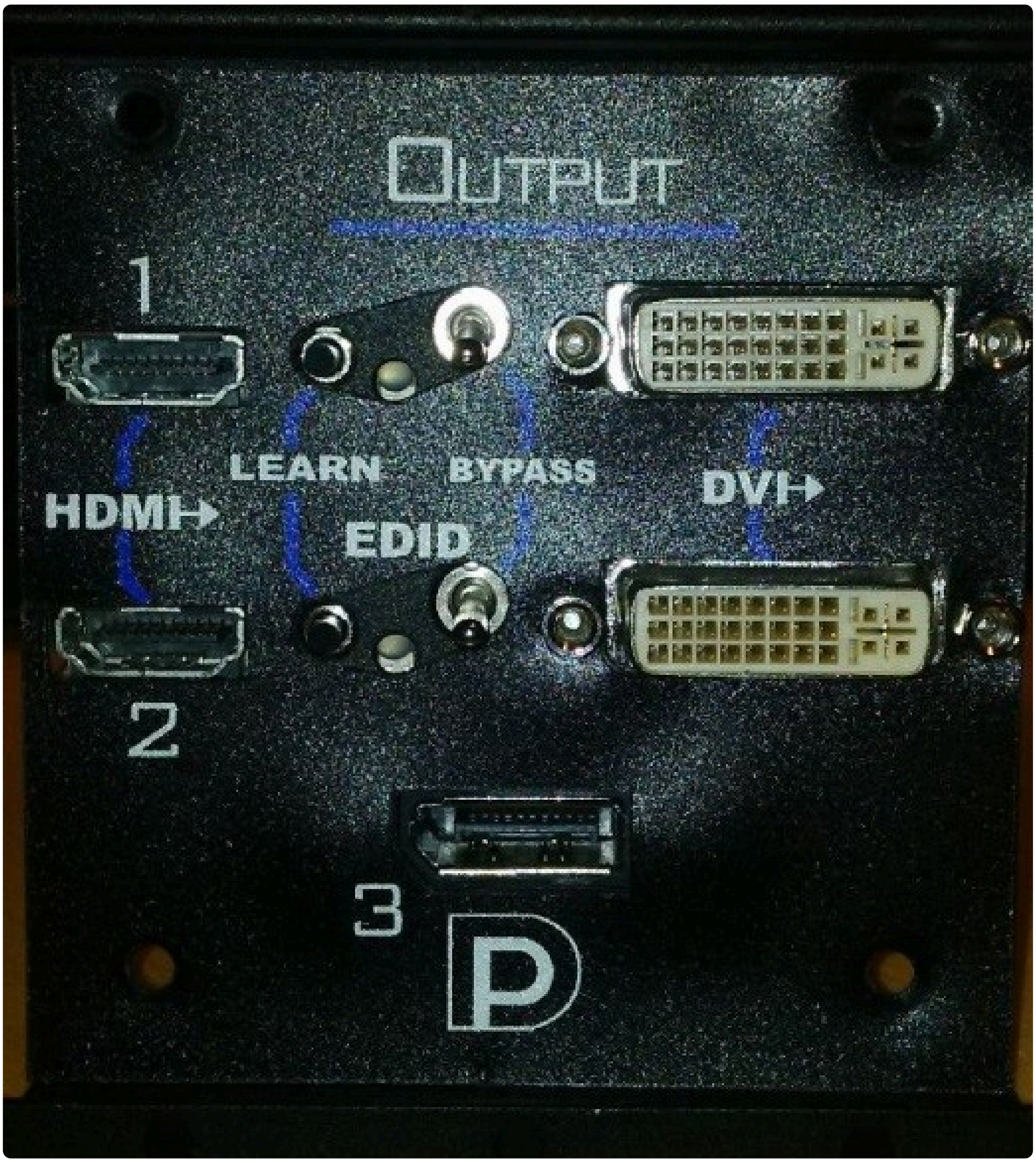
The Hippotizer Karst DVI and Boreal DVI feature a hardware EDID manager called a Mimic, on all production DVI outputs. This allows the system to emulate attached displays after they have been disconnected.

The Mimic can learn the EDID profile of a monitor connected to either its HDMI or DVI port. HDMI is limited to HDMI 1.3 (1080p) while the DVI extends to all supported DVI-DL resolutions.

Note: The Mimic can only learn from one display, so if both outputs are being used, disconnect one of them while learning.

Learning the EDID can be triggered from the emulator by pressing and holding the learn button for 2 seconds.. While the unit is in emulating mode, the LED will show Green. When bypassed, the LED shows Red.

Controls:



Toggle Switch

The switch controls the state of the emulator, Up enables the board, Down Disables it

Learn Button

Press and hold the black learn button for 2 seconds to trigger the emulator to learn the EDID from the attached display

LED Colour Codes

Green: Emulating EDID

Red: Bypassed, so EDID will pass directly from the attached display.

Flashing Amber: Learning EDID

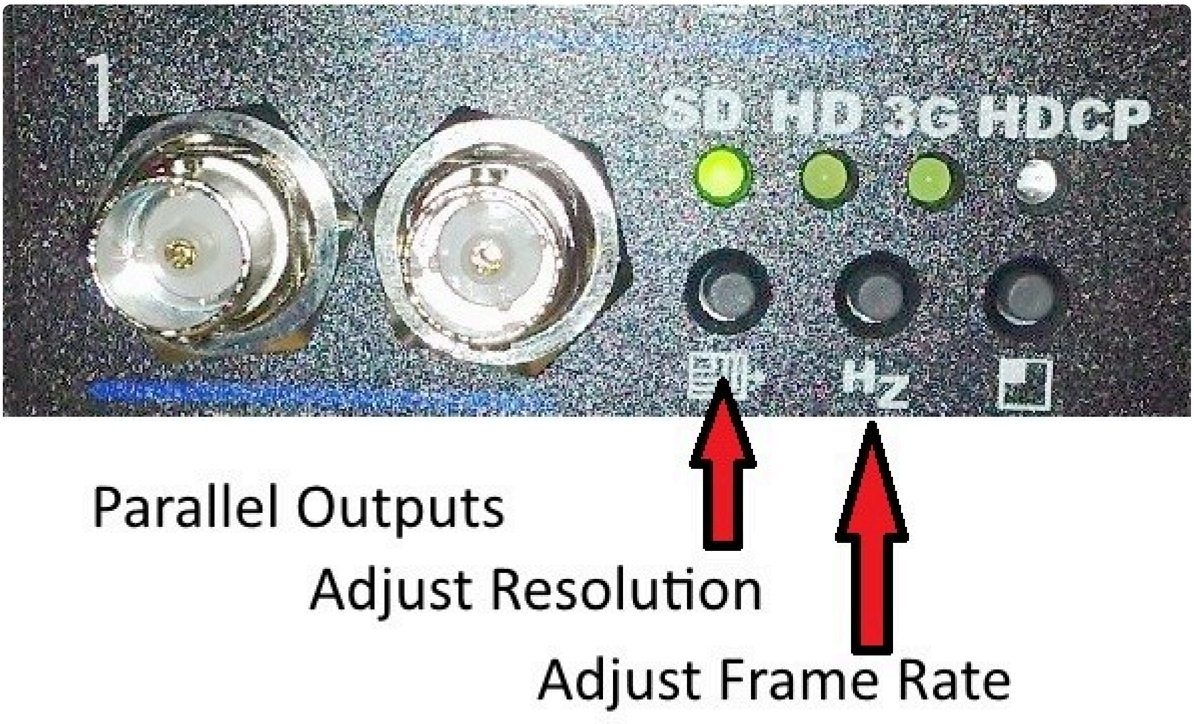
Flashing Red: EDID Learn failed

Splitting the signal to HDMI and DVI

The EDID board can also be used as a Distribution amp, sending the video signal to both the HDMI and DVI output at the same time. The only limitation is that of the HDMI which cannot go above HD resolutions. If higher resolutions are used them the HDMI will not output video.

SDI Outputs

As an option, some Hippotizer V4 units are fitted with an SDI output as standard. This accomplished by converting the output as an HDMI signal to SDI. Each output is individually controlled, accessed by three buttons on each output.



Changing Resolutions

To change the resolution, press the adjust resolution button. This will toggle between output resolutions. The output is capable of scaling any input resolution to any output resolution using an on-board scaler.

As the button is pressed, the resolution light will change to indicate which SDI standard is being used: SD, HD or 3G. A small box appears on the output to indicate what the output resolution is being sent.

Note: There are several resolutions within each SDI standard, so it takes several button presses to move from SD to HD.

Supported SDI output Resolutions

- 720 × 480i
- 1280 × 720P
- 1920 × 1080i

- 1920 × 1080p
- 2048 × 1080p

Changing Frame Rate

To change the frame rate, press the centre button. This will cycle between 50 and 60hz. It is advised to match the input and output framerates.
Output frame rates of 25, 30, 50, 59.97 and 60 are supported.

Note: All output frame-rates and resolutions are available in free run mode only.

Genlock

The SDI output has two modes of frame generation: Free-Run and Self Genlock. In Free-Run mode, any single can be scaled to any resolution. However multiple outputs will not be in-sync with each other. In order to ensure all outputs are synchronised, set the boards to Self Genlock. In Self Genlock mode, the outputs lock to the vertical refresh of the incoming signal. This means that as long as the outputs are Genlocked then the SDI will be as well.

To toggle the Genlock Mode, hold the centre button for several seconds. A window will appear on screen to say “Self Genlock” or “Free Run”.

Note: For Genlock to work correctly, the Graphics card must also be Genlocked through the ATI FirePro control centre.

In Genlock Mode, the scaling is limited:

An input of 720×480, Can be output as: 720×480i, 1280×720p, 1920×1080i and 1920×1080p

An input of 1280×720 can only output 1280 × 720p

An Input of 1920 × 1080 can output as: 1280 × 720p, 1920 × 1080i or 1920 × 1080p

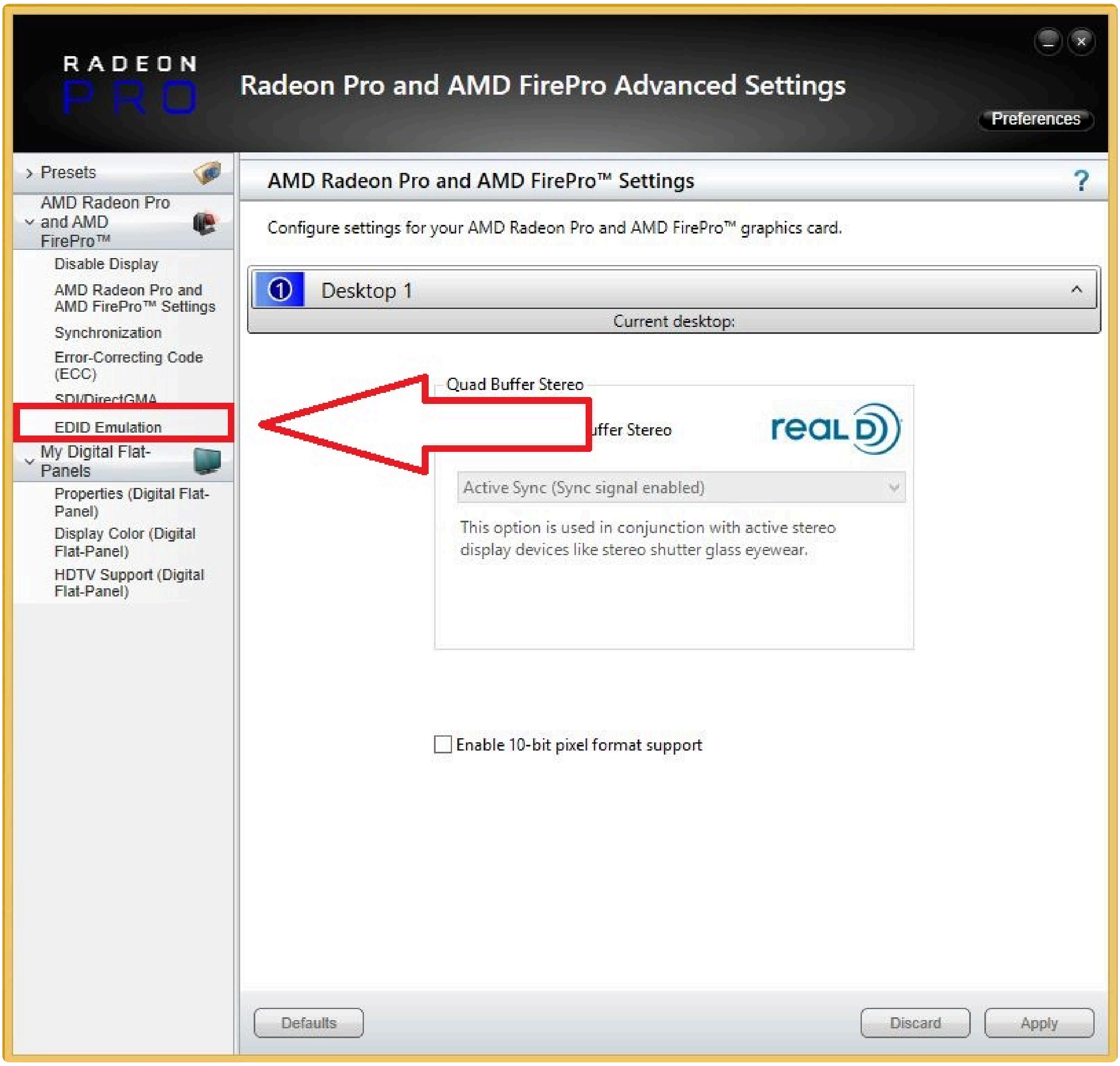
An Input of 2048 × 1080 can output as 2048 × 1080 only.

Software EDID Emulation

On systems with Genlock and Amba, the Graphics drivers provide a software based EDID emulation. This allows the computer to read connected displays and retain them even after the display has been unplugged.

To enable EDID emulation go to the advanced AMD control centre by right click on the computer's desktop and selecting **AMD Firepro Advanced**.

Select EDID Emulation from the left side menu.



RADEON PRO
Radeon Pro and AMD FirePro Advanced Settings
Preferences
Presets
AMD Radeon Pro and AMD FirePro™
Disable Display
AMD Radeon Pro and AMD FirePro™ Settings
Synchronization
Error-Correcting Code (ECC)
SDI/DirectGMA
EDID Emulation
My Digital Flat-Panels
Properties (Digital Flat-Panel)
Display Color (Digital Flat-Panel)
HDTV Support (Digital Flat-Panel)
AMD Radeon Pro and AMD FirePro™ Settings
?
Desktop 1
Current desktop:
Quad Buffer Stereo
uffer Stereo
realD
Defaults
Discard
Apply

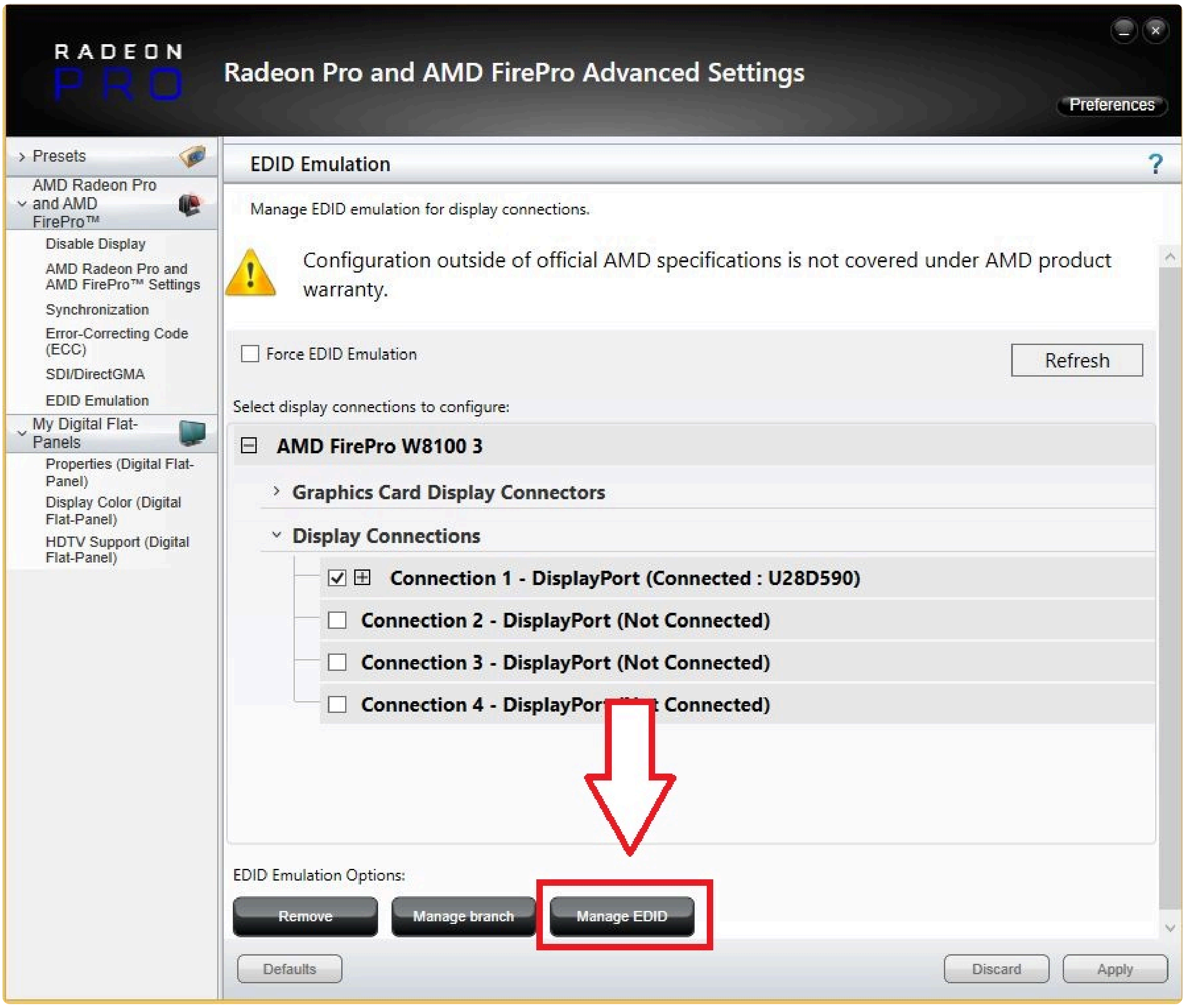
Configure settings for your AMD Radeon Pro and AMD FirePro™ graphics card.

Active Sync (Sync signal enabled)

This option is used in conjunction with active stereo display devices like stereo shutter glass eyewear.

☐ Enable 10-bit pixel format support

Tick the displays to manage from the list and click **Manage EDID**


RADEON PRO
Radeon Pro and AMD FirePro Advanced Settings
Preferences
Presets
AMD Radeon Pro and AMD FirePro™
Disable Display
AMD Radeon Pro and AMD FirePro™ Settings
Synchronization
Error-Correcting Code (ECC)
SDI/DirectGMA
EDID Emulation
My Digital Flat-Panels
Properties (Digital Flat-Panel)
Display Color (Digital Flat-Panel)
HDTV Support (Digital Flat-Panel)
EDID Emulation
Refresh
Remove
Manage branch
Manage EDID
Defaults
Discard
Apply

Manage EDID emulation for display connections.

Configuration outside of official AMD specifications is not covered under AMD product warranty.

☐ Force EDID Emulation

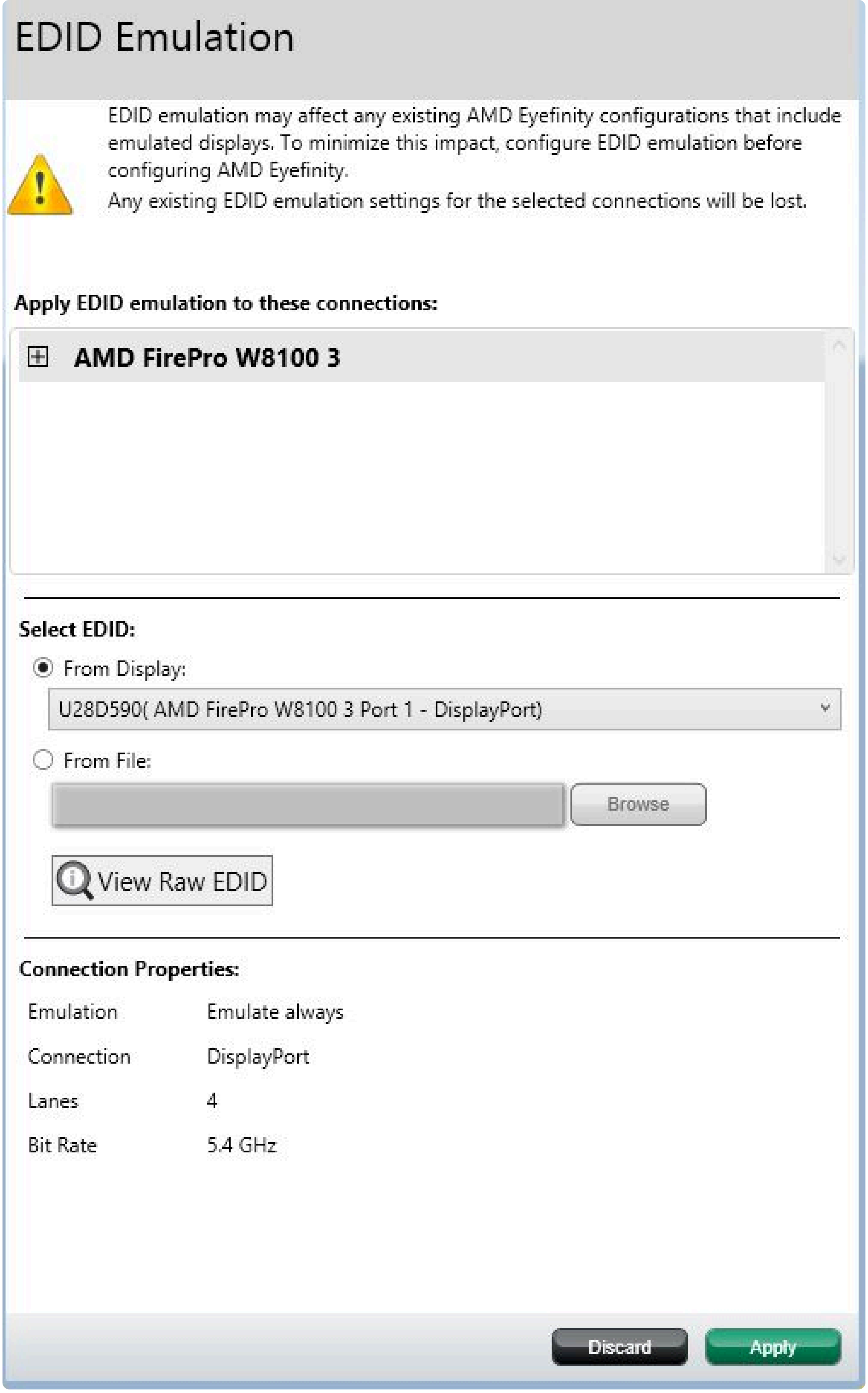
Select display connections to configure:

⊟ AMD FirePro W8100 3
- › Graphics Card Display Connectors
- ⌄ Display Connections
  - ☑ ⊞ Connection 1 - DisplayPort (Connected : U28D590)
  - ☐ Connection 2 - DisplayPort (Not Connected)
  - ☐ Connection 3 - DisplayPort (Not Connected)
  - ☐ Connection 4 - DisplayPort (Not Connected)

EDID Emulation Options:

The EDID can be learned from one display and applied to others, or or retrieved from a file saved on the machine.

Note: In order to genlock outputs they must have the same EDID. EDID emulation is the best way to guarantee this. Learn the EDID from one display to be Genlocked and save it to the others.



EDID Emulation

EDID emulation may affect any existing AMD Eyefinity configurations that include emulated displays. To minimize this impact, configure EDID emulation before configuring AMD Eyefinity.
Any existing EDID emulation settings for the selected connections will be lost.

Apply EDID emulation to these connections:

⊞ **AMD FirePro W8100 3**

Select EDID:

● From Display:
U28D590(AMD FirePro W8100 3 Port 1 - DisplayPort)

○ From File:

Connection Properties:

Emulation	Emulate always
Connection	DisplayPort
Lanes	4
Bit Rate	5.4 GHz

EDID Emulation will continue to work if the system has been restarted.

Genlock

Many Hippotizer system have the ability to use an external Genlock signal in order to ensure the vertical refresh occurs in sync across multiple systems.

Note: Genlock synchronises the vertical refresh only; synchronising frame playback is handled by timecode.

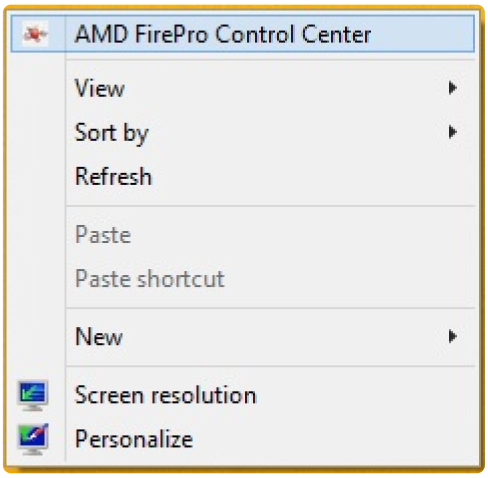
Genlock can be taken from an external source, refereed to has **house sync** or a display output can be used as a source. Where multiple systems are being used an external sync source must be used.

House Sync

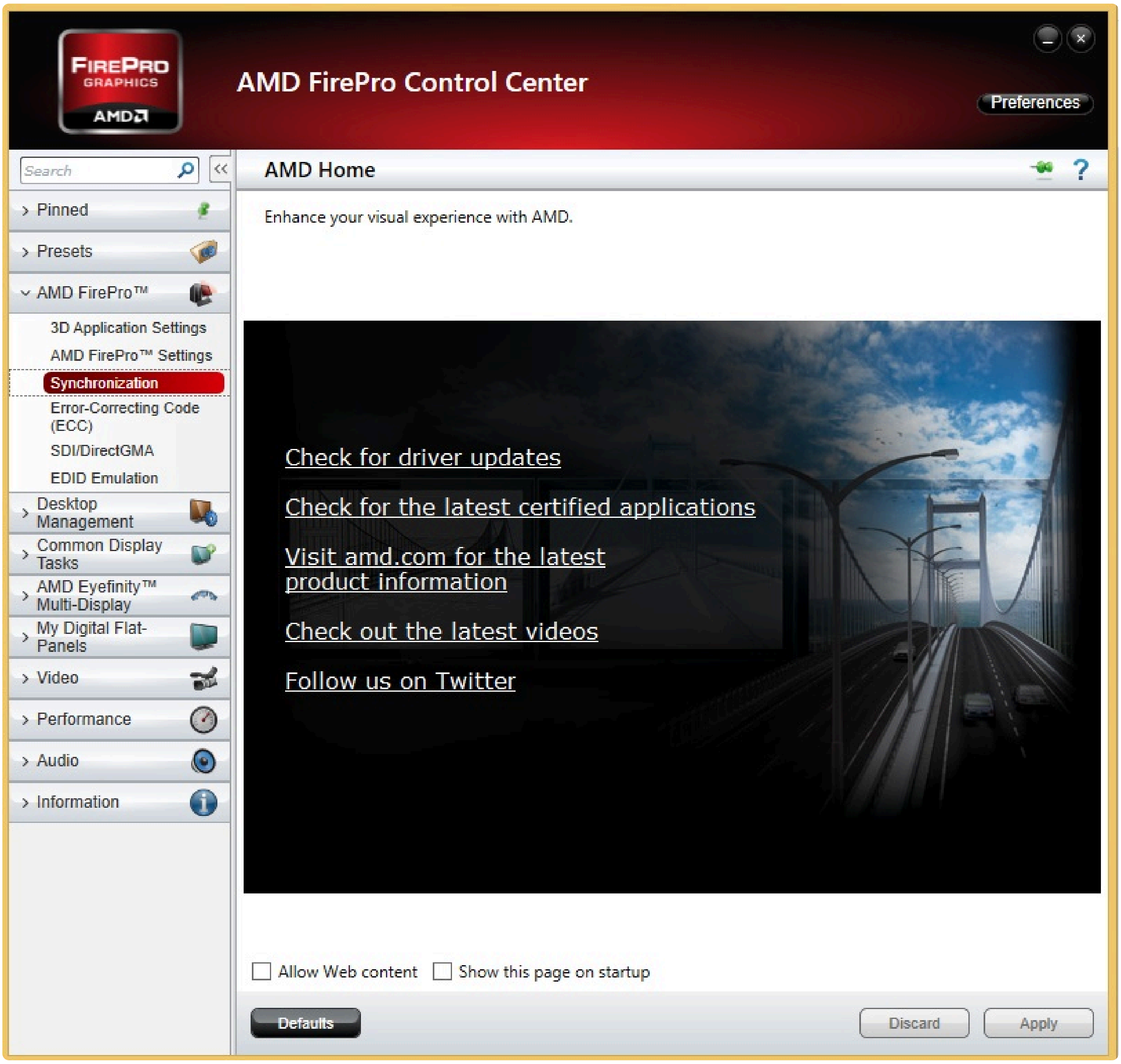
The Genlock input on Hippotizer can use many signals for sync including:

- Black Burst
- Tri-Level
- SD/HD/3G SDI signals.

To configure Genlock, navigate to the Firepro Control Centre by right clicking on the desktop


AMD FirePro Control Center
View
Sort by
Refresh
Paste
Paste shortcut
New
Screen resolution
Personalize

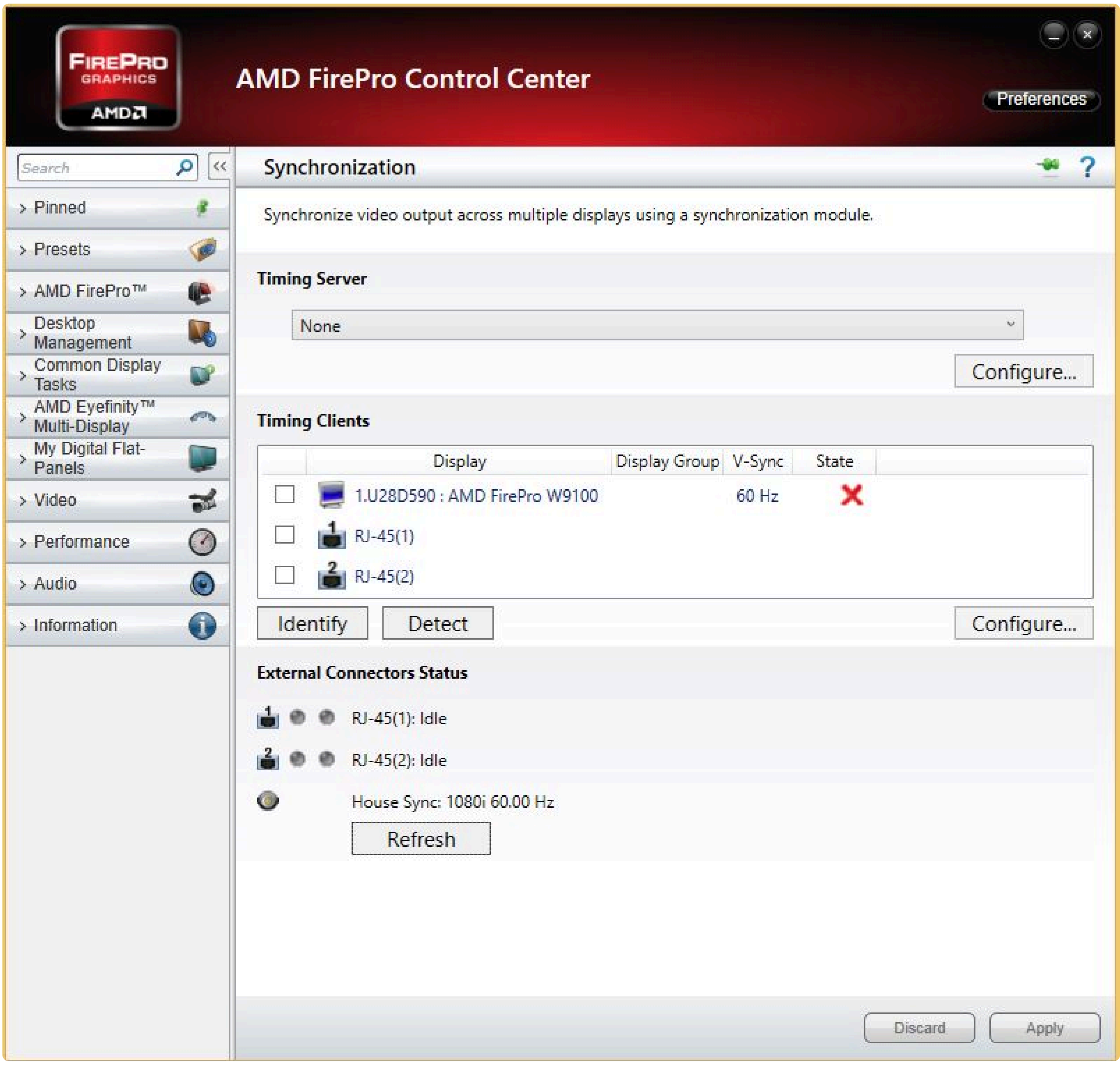
Navigate to the Sync settings in the Firepro tab


FirePro GRAPHICS AMD
AMD FirePro Control Center
Preferences
Search
Pinned
Presets
AMD FirePro™
3D Application Settings
AMD FirePro™ Settings
Synchronization
Error-Correcting Code (ECC)
SDI/DirectGMA
EDID Emulation
Desktop Management
Common Display Tasks
AMD Eyefinity™ Multi-Display
My Digital Flat-Panels
Video
Performance
Audio
Information
AMD Home
Check for driver updates
Check for the latest certified applications
Visit amd.com for the latest product information
Check out the latest videos
Follow us on Twitter
Defaults
Discard
Apply

Enhance your visual experience with AMD.

☐ Allow Web content ☐ Show this page on startup

The Sync window shows all attached displays and house sync (if present).


FirePro Graphics
AMD
AMD FirePro Control Center
Preferences
Search
Pinned
Presets
AMD FirePro™
Desktop Management
Common Display Tasks
AMD Eyefinity™ Multi-Display
My Digital Flat-Panels
Video
Performance
Audio
Information
Synchronization
Configure...
Identify
Detect
Configure...
Refresh
Discard
Apply

Synchronize video output across multiple displays using a synchronization module.

Timing Server

None

Timing Clients

	Display	Display Group	V-Sync	State
☐	1.U28D590 : AMD FirePro W9100		60 Hz	✗
☐	RJ-45(1)			
☐	RJ-45(2)			

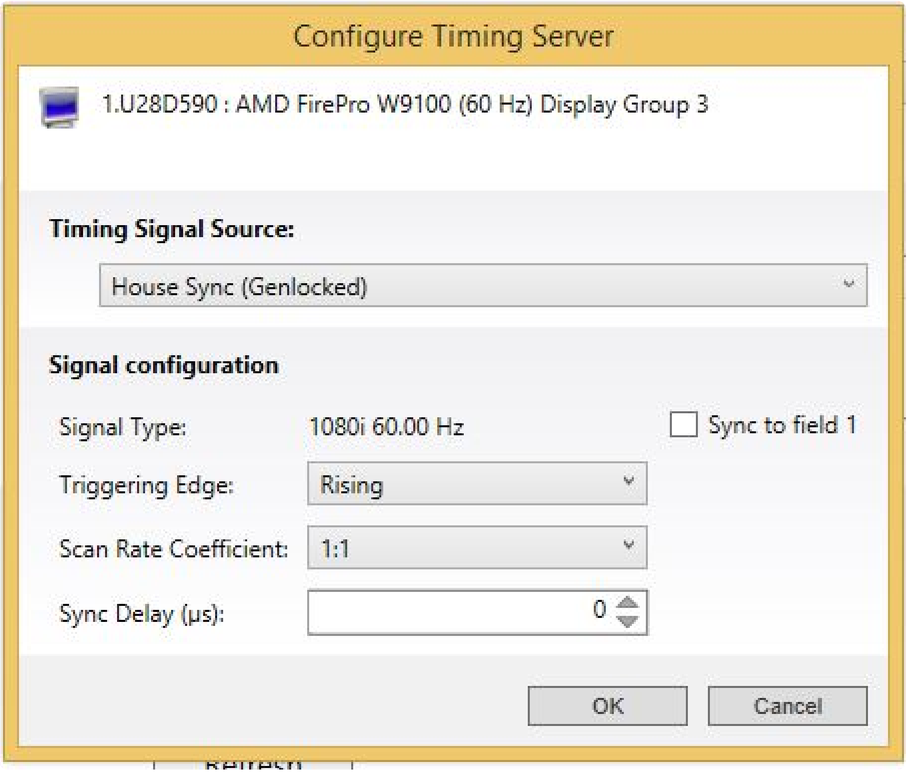
External Connectors Status

RJ-45(1): Idle

RJ-45(2): Idle

House Sync: 1080i 60.00 Hz

To set sync, in the timing server drop down menu select a display and press configure.



1.U28D590 : AMD FirePro W9100 (60 Hz) Display Group 3

Timing Signal Source: House Sync (Genlocked)

Signal configuration

Signal Type: 1080i 60.00 Hz

☐ Sync to field 1

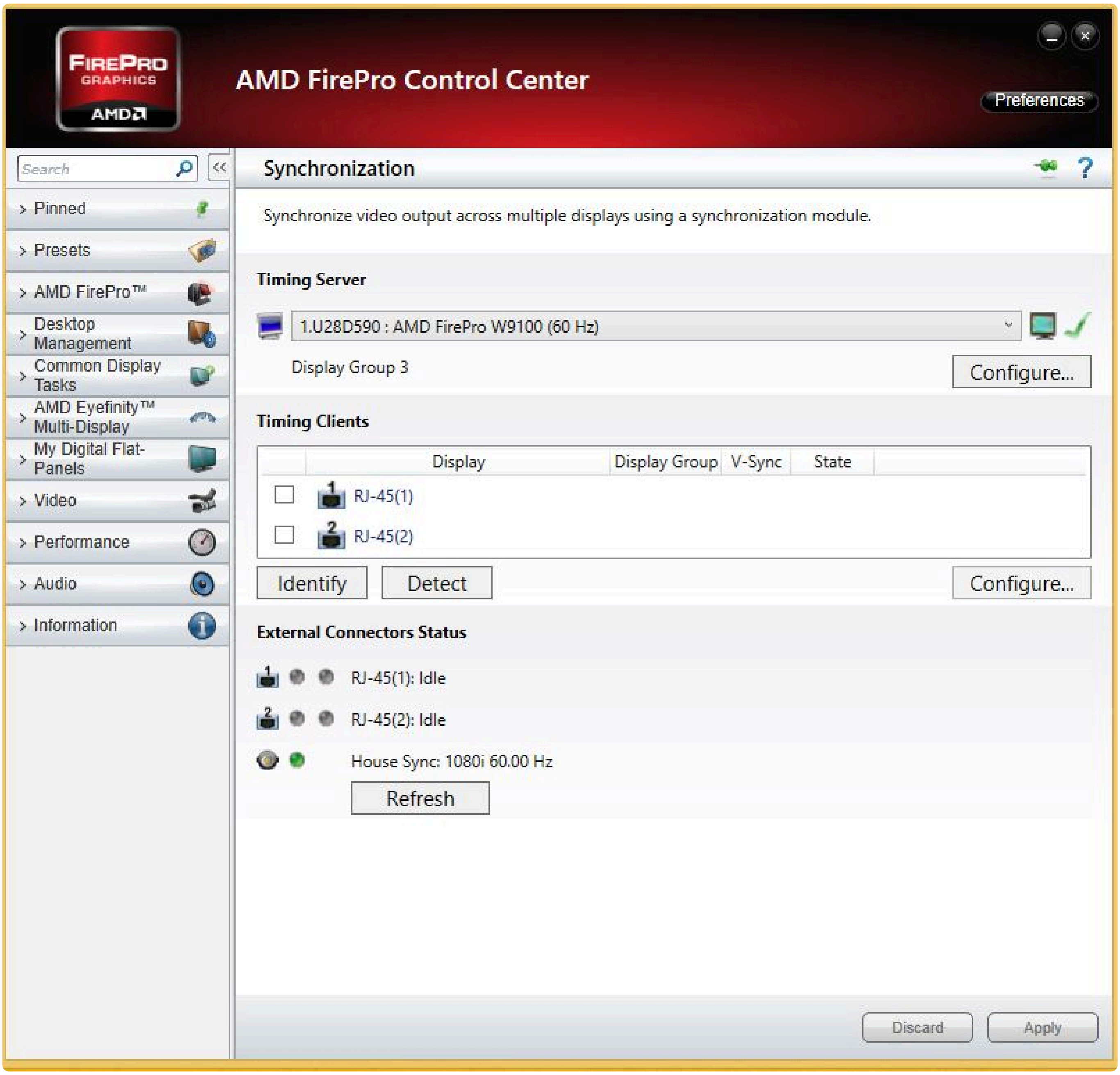
Triggering Edge: Rising

Scan Rate Coefficient: 1:1

Sync Delay (µs): 0

Set the timing source to either house sync or the display and press ok.

The timing server should now show a green check.


FirePro GRAPHICS
AMD
AMD FirePro Control Center
Preferences
Search
Pinned
Presets
AMD FirePro™
Desktop Management
Common Display Tasks
AMD Eyefinity™ Multi-Display
My Digital Flat-Panels
Video
Performance
Audio
Information
Synchronization
Configure...
Identify
Detect
Configure...
Refresh
Discard
Apply

Synchronize video output across multiple displays using a synchronization module.

Timing Server

1.U28D590 : AMD FirePro W9100 (60 Hz)

Display Group 3

Timing Clients

	Display	Display Group	V-Sync	State
☐	RJ-45(1)			
☐	RJ-45(2)			

External Connectors Status

RJ-45(1): Idle

RJ-45(2): Idle

House Sync: 1080i 60.00 Hz

To add displays to sync to the timing server tick the box next to them and press apply.

Note: It is common to have a long pause (up to a minute) after pressing apply while the catalyst window will be unresponsive. Please wait until it responds again before closing it.

Only displays that have identical resolutions and EDIDs can be synced together. It is strongly advised to emulate the same EDID on displays to be Genlocked. Information on EDID emulation can be found here.

Before you start

Hippotizer systems are designed to ‘work by default’ for easy and fast setup. Setting up the hardware and software for the first time correctly will ensure a better experience.

- Installing Hippotizer and Zookeeper
- Minimum system requirments
- Networking
- Disable Windows DPI Scaling

Installing Hippotizer and Zookeeper

All Hippotizer V4 systems come from the factory pre-installed with Hippotizer Version 4 software and Compatibility Mode (V3) software. The Hippotizer system contains a license that allows any Hippotizer Version 4 software to be installed. Only Green Hippo Hippotizer Version 4 hardware can operate the entire system and output video.

The Hippotizer V4 system is comprised of two separate pieces of software: The Engine, and Zookeeper.

- The Engine is the core of the Hippotizer system and carries out all video rendering, as well as running all components (such as DMX or Media Manager).

- Zookeeper is the user interface that talks to the engine. Zookeeper talks to the engine over the network and can be run anywhere on the local network to control one or many Hippotizers.

The Engine and Zookeeper are installed from the same installer. You do not need a separate piece of software to install Zookeeper only.

Note: The latest version of Hippotizer V4 can be found Here

The Hippotizer V4 installer will also install several other pieces of software that are critical with normal operation of Hippotizer systems including the Hippo Launch Application. This program manages Hippotizer V4, Compatibility Mode and SHAPE installations on the system.

Note: Zookeeper is a free application, to install it.simply run the Hippotizer installer and when the system requests a license key press ok, leaving the license field blank.

Minimum system requirments

All Hippotizer V4 systems use hardware designed for video playback. Zookeeper and Hippotizer Play however are often used on other hardware. The specification of this hardware can have a dramatic effect on performance.

ZooKeeper Minimum Specs

- Windows 8 or 10, 64bit
- 4GB RAM
- 8GB Drive space on system drive
- 1Gb Networking
- English Windows (UK or US)
- English Keyboard (UK or US)
- 1920 × 1080 Display
- Disable Screen Scaling

ZooKeeper Recommended Specs.

- Intel 4th Gen CPU or newer
- 8GB RAM
- SSD System Drive
- AMD or NVIDIA Discrete graphics with 1GB GDDR5 RAM
- English Windows (UK or US)
- English Keyboard (UK or US)
- 1920 × 1080 Display or greater
- Disable Screen Scaling

Hippotizer Play or Prep Minimum Specs

- Windows 8 or 10, 64bit
- 8GB RAM
- 8GB Drive space on system drive
- Intel i5 or i7 4th Gen CPU
- English Windows (UK or US)
- English Keyboard (UK or US)
- OpenGL 4.5
- 1920 × 1080 Display
- Disable Screen Scaling

Hippotizer Play or Prep Recommended Specs

- Intel 5th Gen i5 or i7 CPU or newer.
- 8GB RAM
- SSD System Drive with 20GB free space

- AMD Discrete graphics with 2GB GDDR5 RAM
- English Windows (UK or US)
- English Keyboard (UK or US)
- OpenGL 4.5
- 1920 × 1080 Display or greater
- Disable Screen Scaling

Windows on a Mac

Hippotizer Play and Zookeeper will run on Mac based hardware that has installed Windows 10 in Boot Camp

Note: Other methods of installing Windows onto a Mac (Such as Parallels) are not supported by Hippotizer due to resource sharing issues.

Networking

Hippotizer relies on the network to control systems, carry DMX data, synchronize playback and many other vital functions.

Computer networking is a complex topic that extends far beyond the scope of this manual. Simple best practice suggestions are offered here. If in doubt, it is strongly advised to to seek professional advice. A faulty network can lead to system instability.

Green Hippo strongly suggests using only static IPV4 networking.

In general, there are two networks to consider: HippoNet and Data.

HippoNet

HippoNet is the backbone of the Hippotizer system; it carries all the media previews, pin data and synchronization between Hippotizer and Zookeeper systems.

Data Network

The data network everything except HippoNet is carried. This is commonly ArtNet for DMX control, Pixelmapping output, CITP, and external triggers (such as TCP)

Firewalls

Firewalls are a software or hardware application that blocks specific data on a network. All Hippotizer systems ship with the firewalls configured correctly however, Zookeeper or Play systems may need to be set up manually.

HippoNet

Setting up a solid HippoNet Network is perhaps the most important aspect of a system design.

A malfunctioning network can result in slow user interfaces in Zookeeper, delayed or slow media uploads and many other undesirable behaviors.

What should be on HippoNet?

- All Hippotizer systems
- Remote Zookeeper systems
- Network Storage for watchfolders

HippoNet uses a mixture of UDP and TCP data to communicate with all Hippotizers and Zookeepers on the network.

Requirements

- Switched gigabit network
- Cat5e or better network cable
- Switching capable of handling high UDP loads (eg. Cisco SG series, Netgear or Luminex 1Gb switches).
- Static IP addresses for each system. (IPV4, Class C, eg. 192.168.0.xxx with a sub net of 255.255.255.0)
- Disable IGMP snooping on all managed switches

Recommendations and best practice

- HippoNet should only contain Hippotizer systems
- Physically separate HippoNet and other networks where possible avoiding virtual networks.
- Do not connect HippoNet network to the internet
- Avoid Cat5e cable run lengths greater than 90m (300ft) as packet loss can occur. For longer runs use fibre optic network cable.
- Where large media synchronizations are going to occur, consider using 10Gb networking.

Data Network

The Data Network is the ‘everything else’ connection.

What should be on the Data Network?

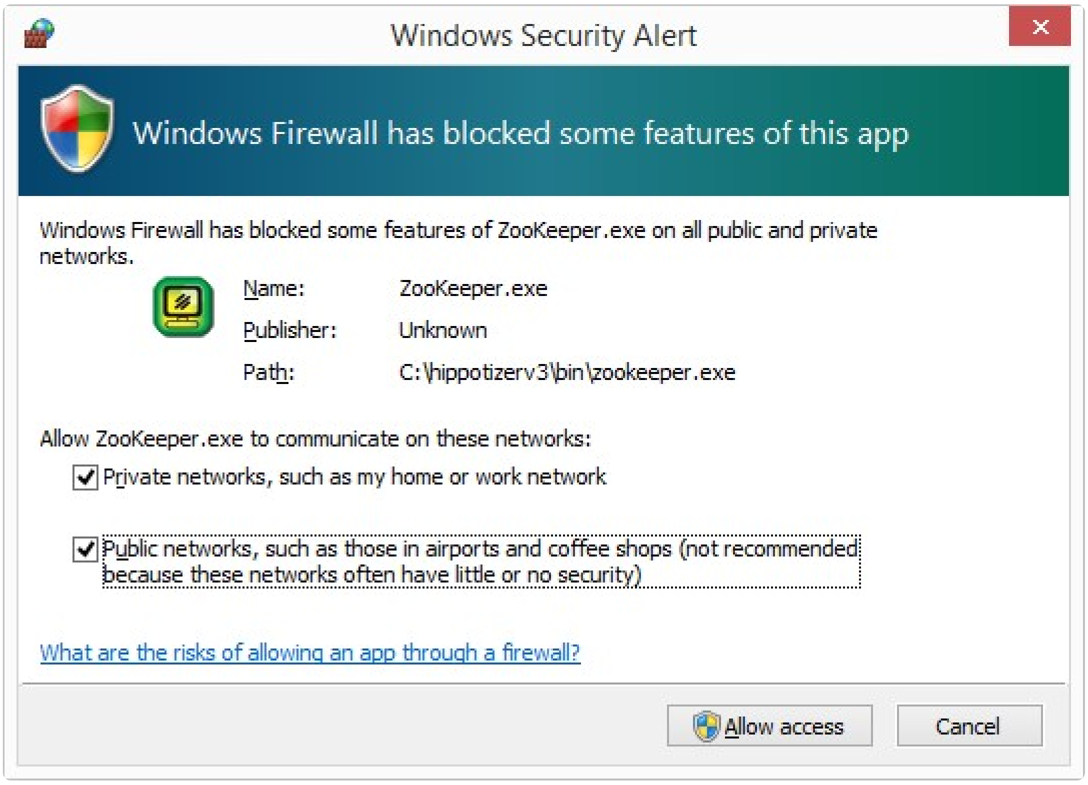
- DMX Control of HIppotizer over ArtNet
- Ma-Net
- CITP
- Remote Management
- TCP or other remote control protocols
- Internet connections
- Pixelmapper output
- Remote wake-up / magic packets

Recommendations and best practice

- ArtNet and Pixelmapper can generate high volumes of Multicast and Broadcast traffic; switches that are capable of handling this is important in larger setups.
- Large pixel-mapping projects should try to use sACN instead of ArtNet due to better traffic handling.
- If connecting to the internet, ensure there is firewall protecting the network

Firewalls

It is important to ensure that Hippotizer is given full access to the network by Windows firewalls.



Windows Firewall has blocked some features of this app

Windows Firewall has blocked some features of ZooKeeper.exe on all public and private networks.

Name: ZooKeeper.exe
Publisher: Unknown
Path: C:\hippotizerv3\bin\zookeeper.exe

Allow ZooKeeper.exe to communicate on these networks:

☑ Private networks, such as my home or work network

☑ Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)

What are the risks of allowing an app through a firewall?

Ensure all Hippotizer applications are allowed on both Public and Private networks.

Hippotizer sends and receives data over the network relying on a mixture of TCP and UDP data. In order for this to work, Firewalls must allow data through certain ports:

Hippo Launch
Port 9009

Hippotizer Engine and Zookeeper
Port 6091, 6092

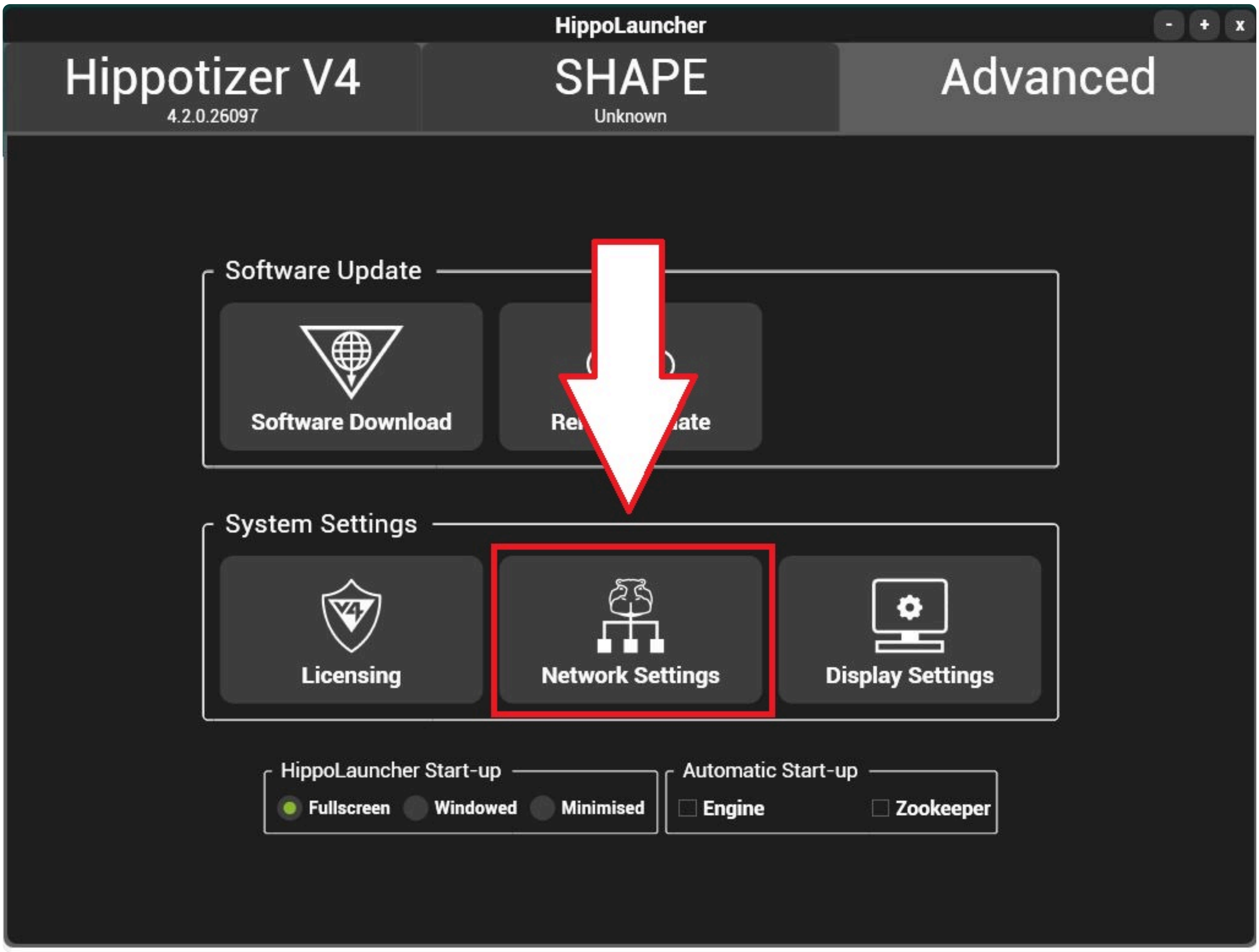
MongoDB
Port 27017

! Network connectivity is critical to Hippotizer’s normal function and may require ports not listed here. Green Hippo STRONGLY advises disabling all firewalls on show networks.

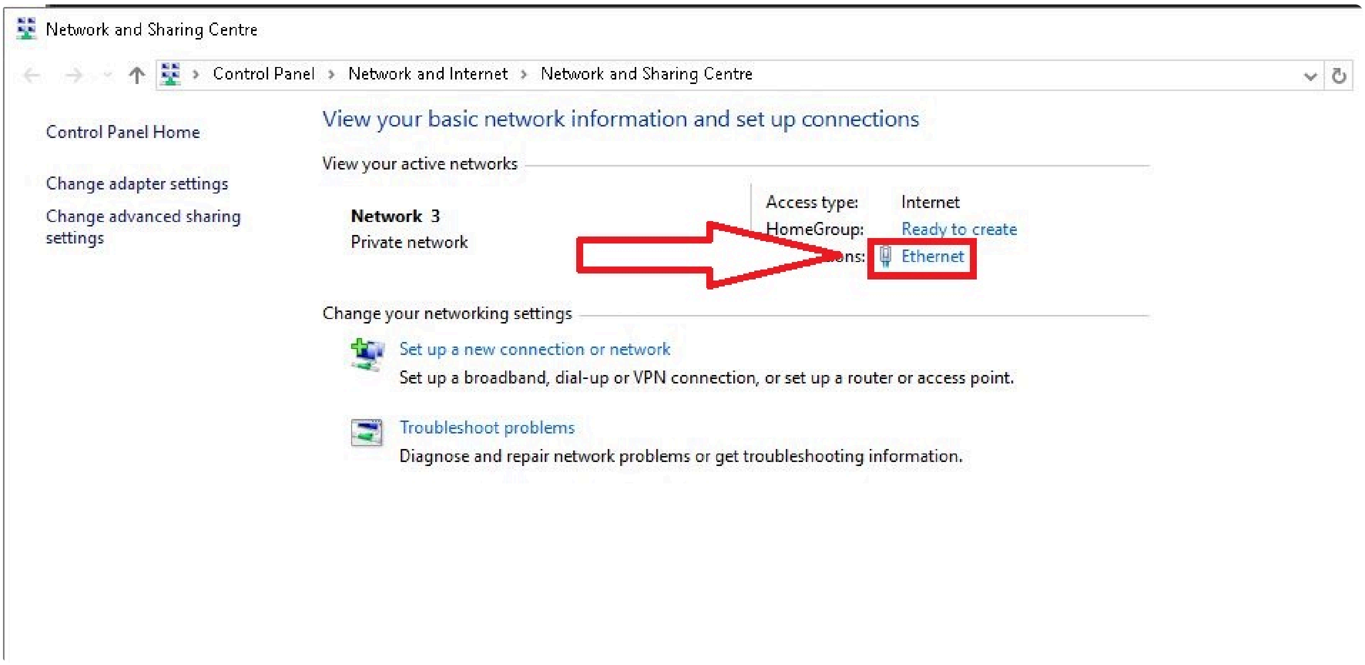
Setting a Static IP address

Every device on a network must have a unique IP address. Though automatic methods exist to set address (DHCP most commonly), it is considered best practice to manually set unchanging IP addresses (Static IPs) to avoid potential problems should the DHCP server fail.

IP addresses are set in Windows Network Configuration. This can be quickly accessed from within Hippolaunch's advanced tab.


HippoLauncher
- + x
Hippotizer V4
4.2.0.26097
SHAPE
Unknown
Advanced
Software Update
Software Download
Re ate
System Settings
Licensing
Network Settings
Display Settings
HippoLauncher Start-up
● Fullscreen
○ Windowed
○ Minimised
Automatic Start-up
☐ Engine
☐ Zookeeper

The Windows Dialogue for all Network interfaces will be shown


Network and Sharing Centre
Control Panel › Network and Internet › Network and Sharing Centre
Control Panel Home
Change adapter settings
Change advanced sharing settings

View your basic network information and set up connections

View your active networks

Network 3
Private network

Access type: Internet
HomeGroup: Ready to create
ns: Ethernet

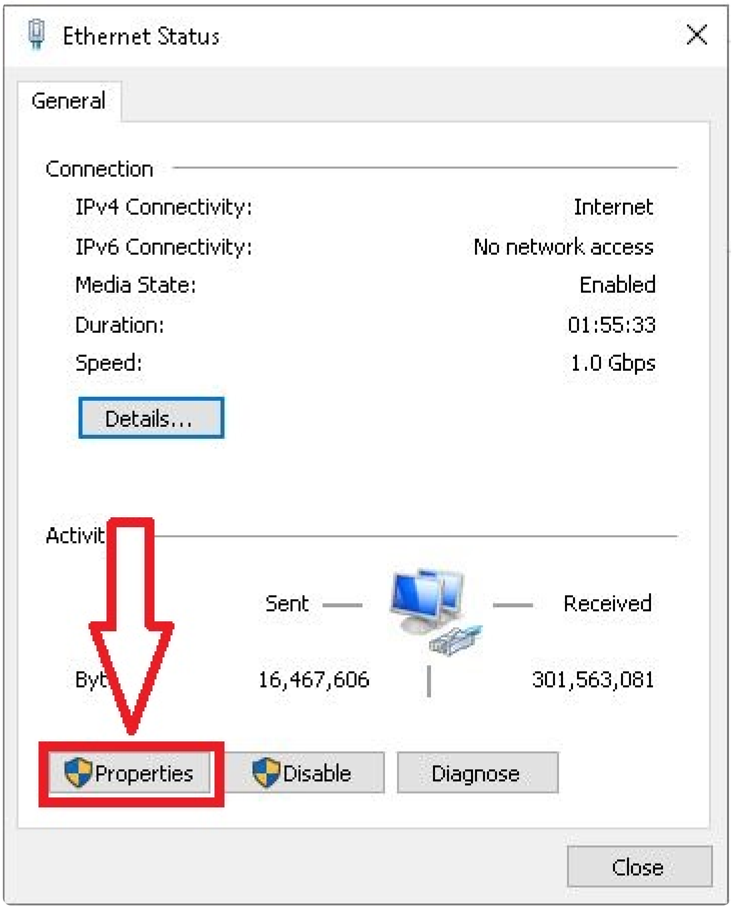
Change your networking settings

Set up a new connection or network
Set up a broadband, dial-up or VPN connection, or set up a router or access point.

Troubleshoot problems
Diagnose and repair network problems or get troubleshooting information.

Note: Only network connections that are plugged in and enabled will appear in the list of connections.

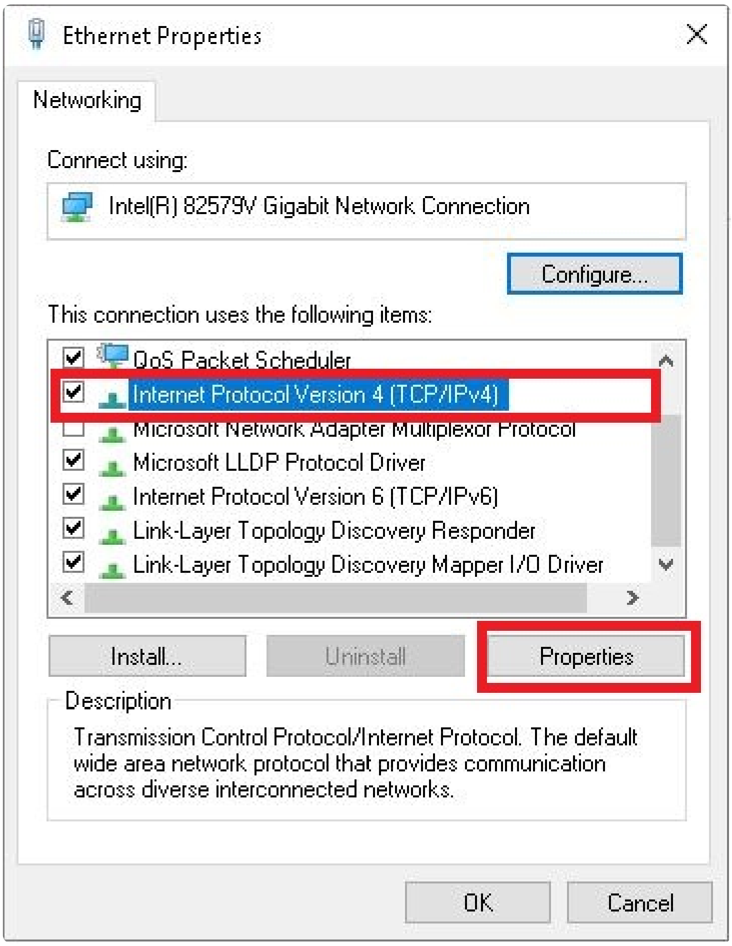
Clicking on the desired interface will open it’s properties.


Ethernet Status
General
Details...
Properties
Disable
Diagnose
Close

Connection
IPv4 Connectivity: Internet
IPv6 Connectivity: No network access
Media State: Enabled
Duration: 01:55:33
Speed: 1.0 Gbps

Activit
Sent — — Received
Byt 16,467,606 | 301,563,081

Click on the properties button.


Ethernet Properties
Networking
Configure...
Install...
Uninstall
Properties
OK
Cancel

Connect using:

Intel(R) 82579V Gigabit Network Connection

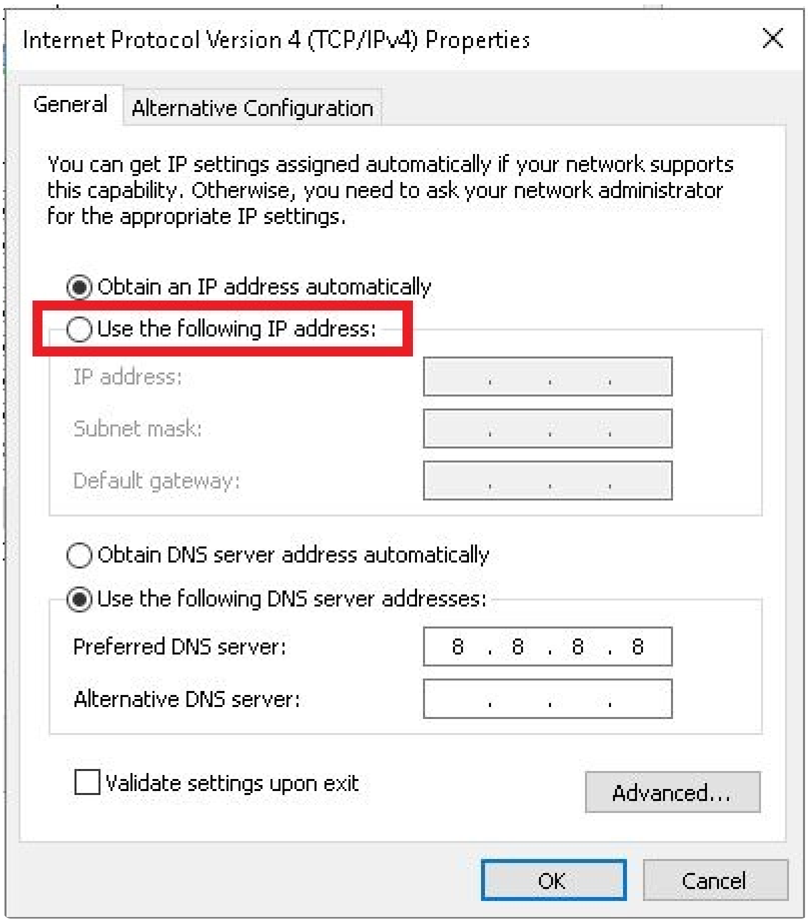
This connection uses the following items:

- ☑ QoS Packet Scheduler
- ☑ Internet Protocol Version 4 (TCP/IPv4)
- ☐ Microsoft Network Adapter Multiplexor Protocol
- ☑ Microsoft LLDP Protocol Driver
- ☑ Internet Protocol Version 6 (TCP/IPv6)
- ☑ Link-Layer Topology Discovery Responder
- ☑ Link-Layer Topology Discovery Mapper I/O Driver

Description

Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

Select **Internet Protocol Version 4** (IPV4) and the properties button to set an address.


Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternative Configuration
Advanced...
OK
Cancel

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

● Obtain an IP address automatically

○ Use the following IP address:

IP address: . . .

Subnet mask: . . .

Default gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

Preferred DNS server: 8 . 8 . 8 . 8

Alternative DNS server: . . .

☐ Validate settings upon exit

Finally, select **Use the following address**, set an IP and subnet mask.

Default Gataway and DNS settings can remain blank in most cases.

In general, a HippoNet Network should have an IP address similar to: `192.168.1.XXX` and a Subnet mask of `255.255.255.0` with each system having a unique number in the **XXX** field of the IP address.

Usually a Data Network carrying Art-Net will have an IP Address similar to: `2.0.0.xxx` and a Subnet mask of `255.0.0.0` with each system having a unique number in the **XXX** field of the IP address.

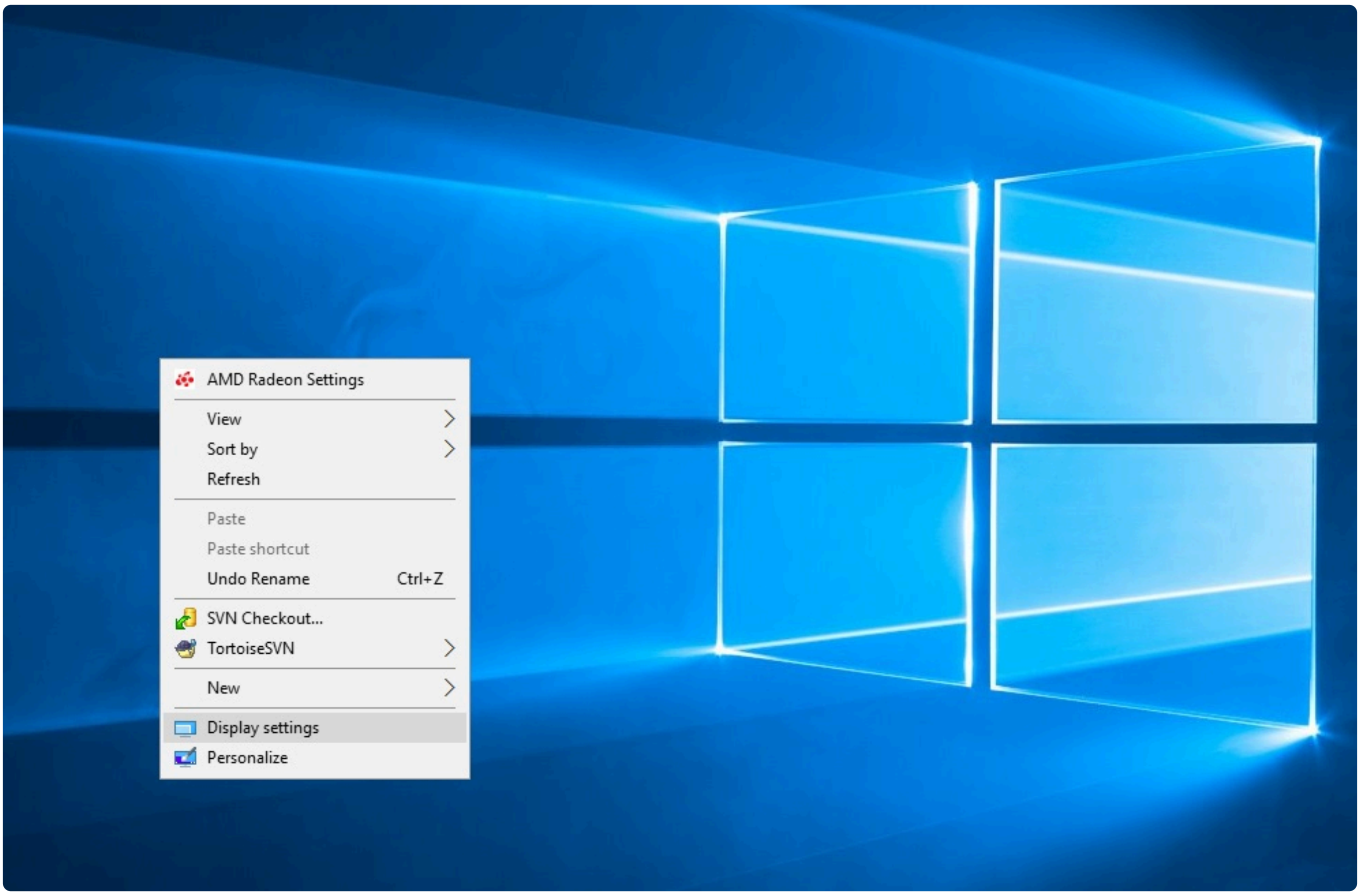
> ! This guide covers only the most simple network setups and should not be used in place of expert advice in any situation. Incorrect network configuration is the single largest cause of support calls that Green Hippo receives.

Disable Windows DPI Scaling

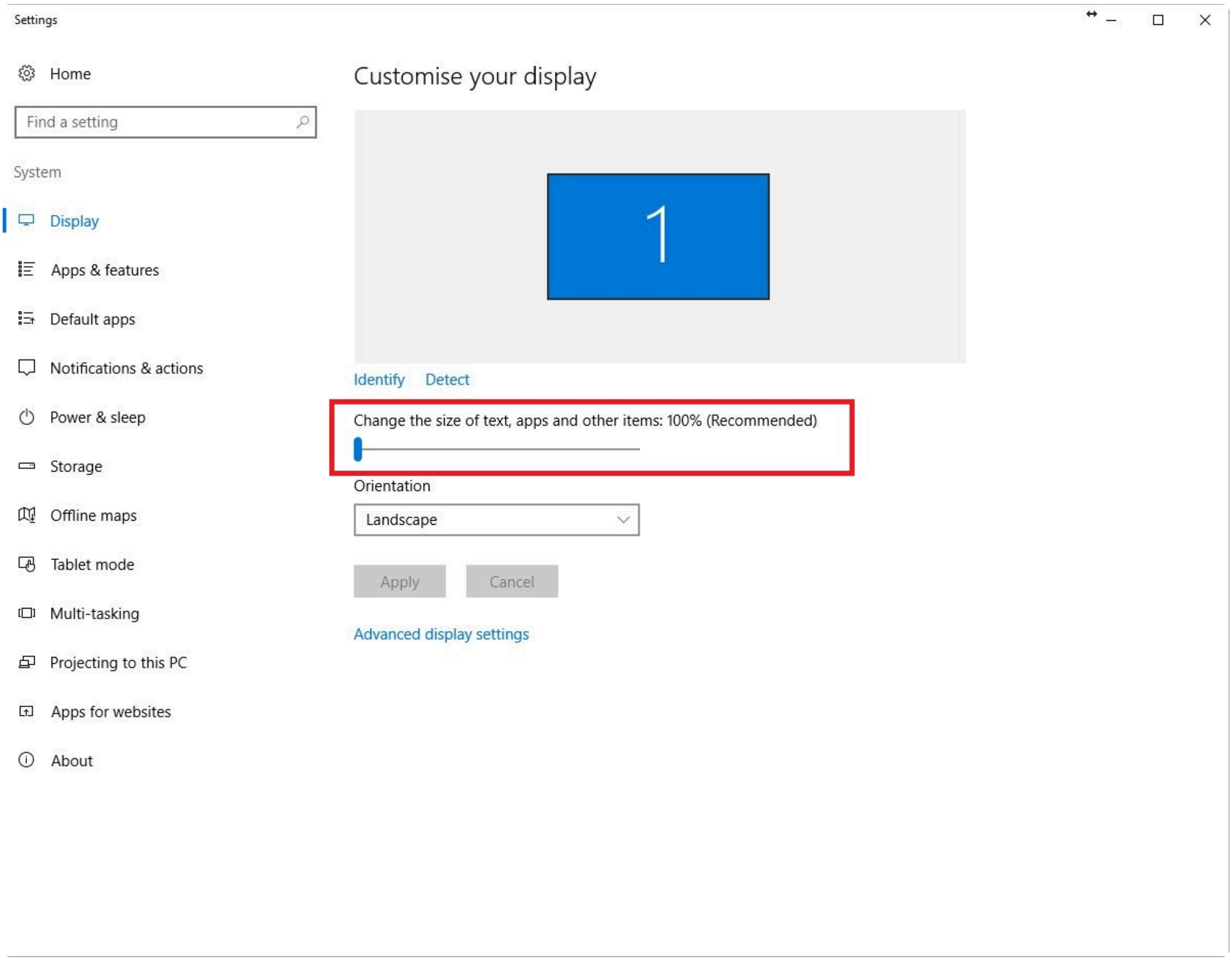
Windows 8 and 10 will scale outputs automatically to match pixel size between dissimilar resolution displays. This will cause the problems with Zookeeper and Output manager as they rely on pixel size to lay out screens. To solve this, disable DPI Scaling.

To Disable DPI Scaling:

Right Click on the desktop and select **Display Settings**


AMD Radeon Settings
View
Sort by
Refresh
Paste
Paste shortcut
Undo Rename Ctrl+Z
SVN Checkout...
TortoiseSVN
New
Display settings
Personalize

Select each display and ensure the scaling slider is set to 100%.



Change the size of text, apps and other items: 100% (Recommended)

Orientation: Landscape

Settings
Home
Find a setting
System
Display
Apps & features
Default apps
Notifications & actions
Power & sleep
Storage
Offline maps
Tablet mode
Multi-tasking
Projecting to this PC
Apps for websites
About
Customise your display
1
Identify
Detect
Apply
Cancel
Advanced display settings

Starting Up

Hippotizer V4 is comprised of three applications:

Hippolaunch

HippoLauncher is a management application for the Engine and Zookeeper, helping to start and stop the programs as well as provide some useful features.

More information on HippoLaunch can be found here

To Start Hippotizer, use Hippolaunch.

Hippolaunch will start two other applications automatically:

The Engine

The core of the system: the **Engine** renders video and receives external control (such as DMX).

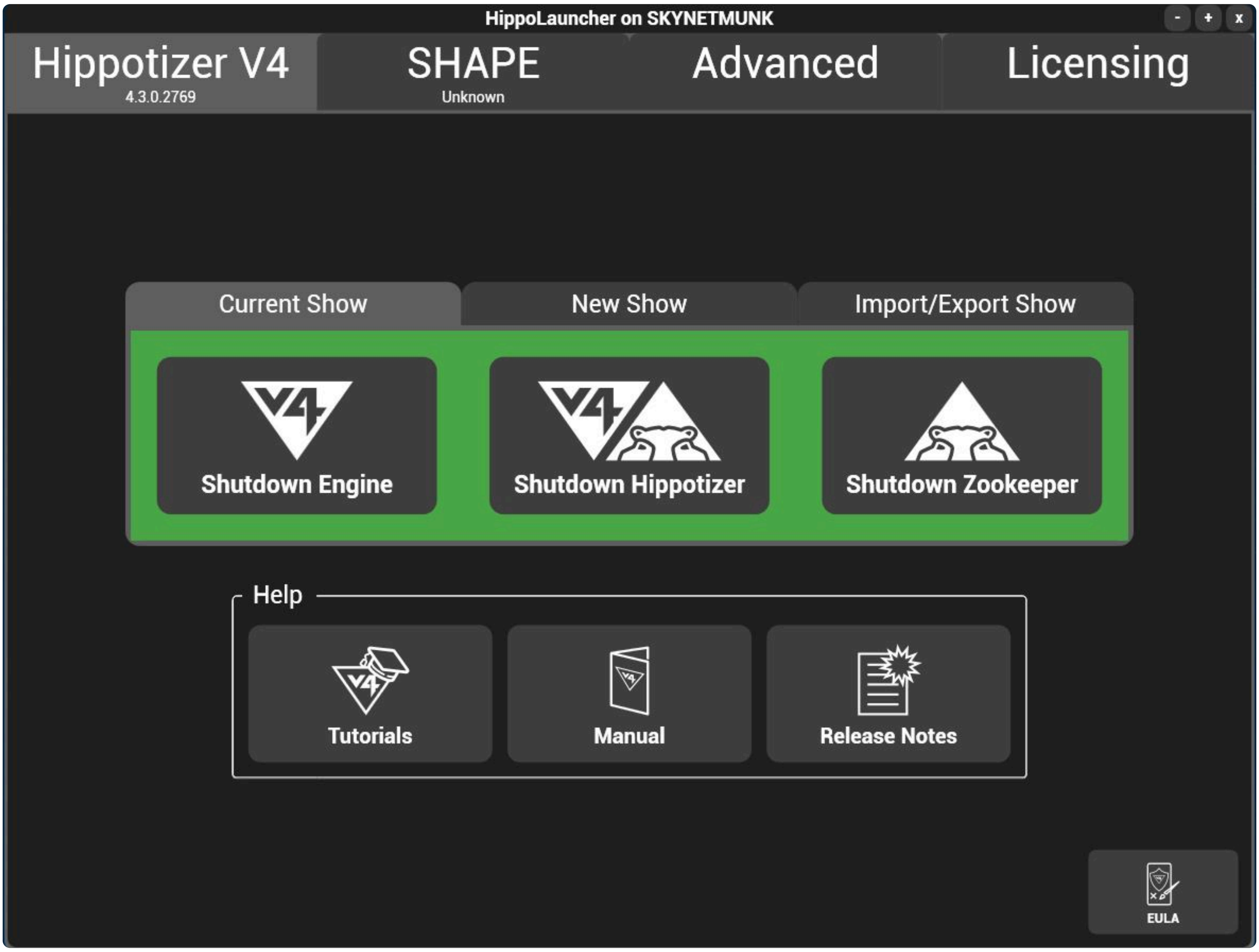
More information about the Engine can be found here.

Zookeeper

Zookeeper is the user interface for Hippotizer; it controls all engines on the local network.

More information about Zookeeper can be found here.

HippoLauncher

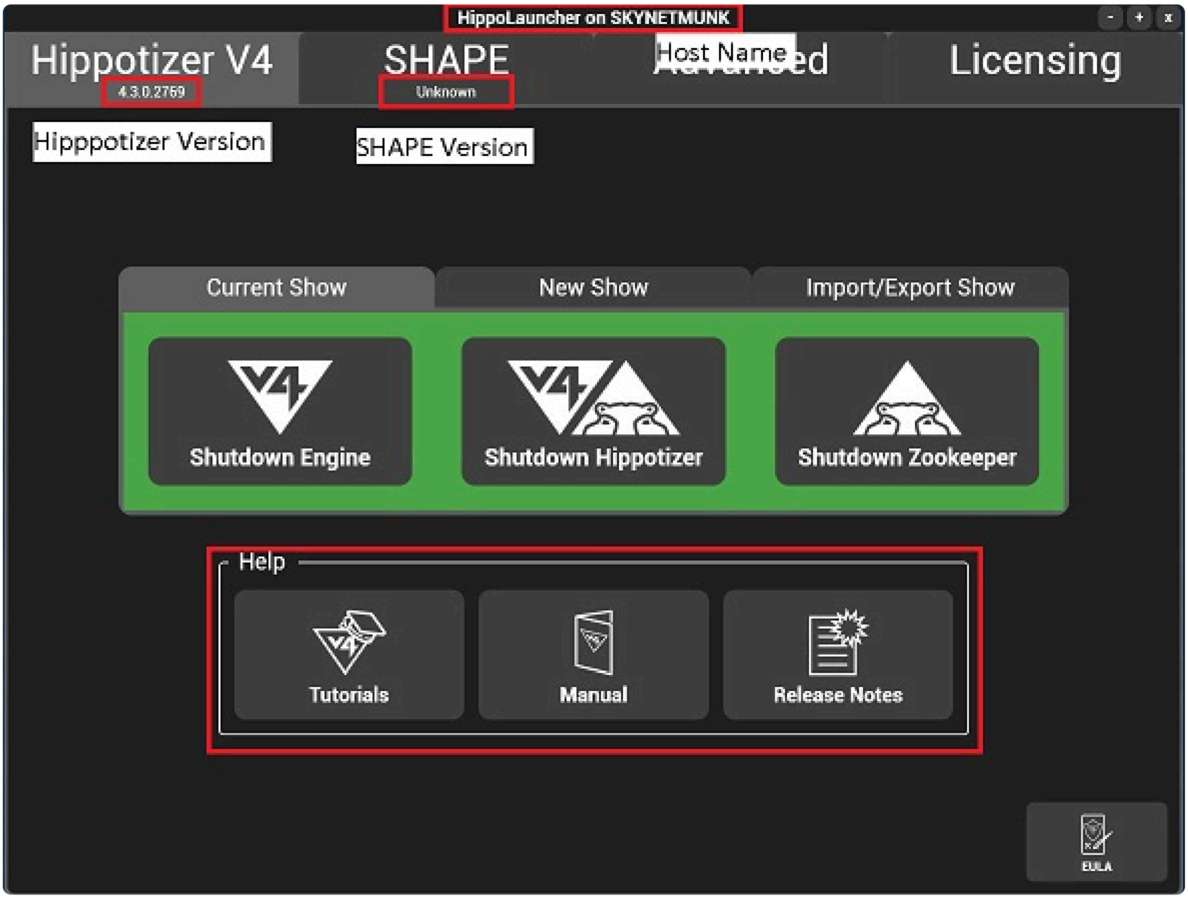

HippoLauncher on SKYNETMUNK
- + x
Hippotizer V4
4.3.0.2769
SHAPE
Unknown
Advanced
Licensing
Current Show
New Show
Import/Export Show
Shutdown Engine
Shutdown Hippotizer
Shutdown Zookeeper
Help
Tutorials
Manual
Release Notes
EULA

On a Hippotizer machine Hippolauncher will startup by default once the system completes boot-up.

Hippolaunch contains four or five tabs:

- Hippotizer V4 Tab
- Compatibility Mode Tab
- SHAPE Tab
- Advanced Tab
- Licensing Tab

Hippolaunch also contains important information about versions


HippoLauncher on SKYNETMUNK
Hippotizer V4
4.3.0.2769
SHAPE
Unknown
Host Name
Advanced
Licensing
Hipppotizer Version
SHAPE Version
Current Show
New Show
Import/Export Show
Shutdown Engine
Shutdown Hippotizer
Shutdown Zookeeper
Help
Tutorials
Manual
Release Notes
EULA

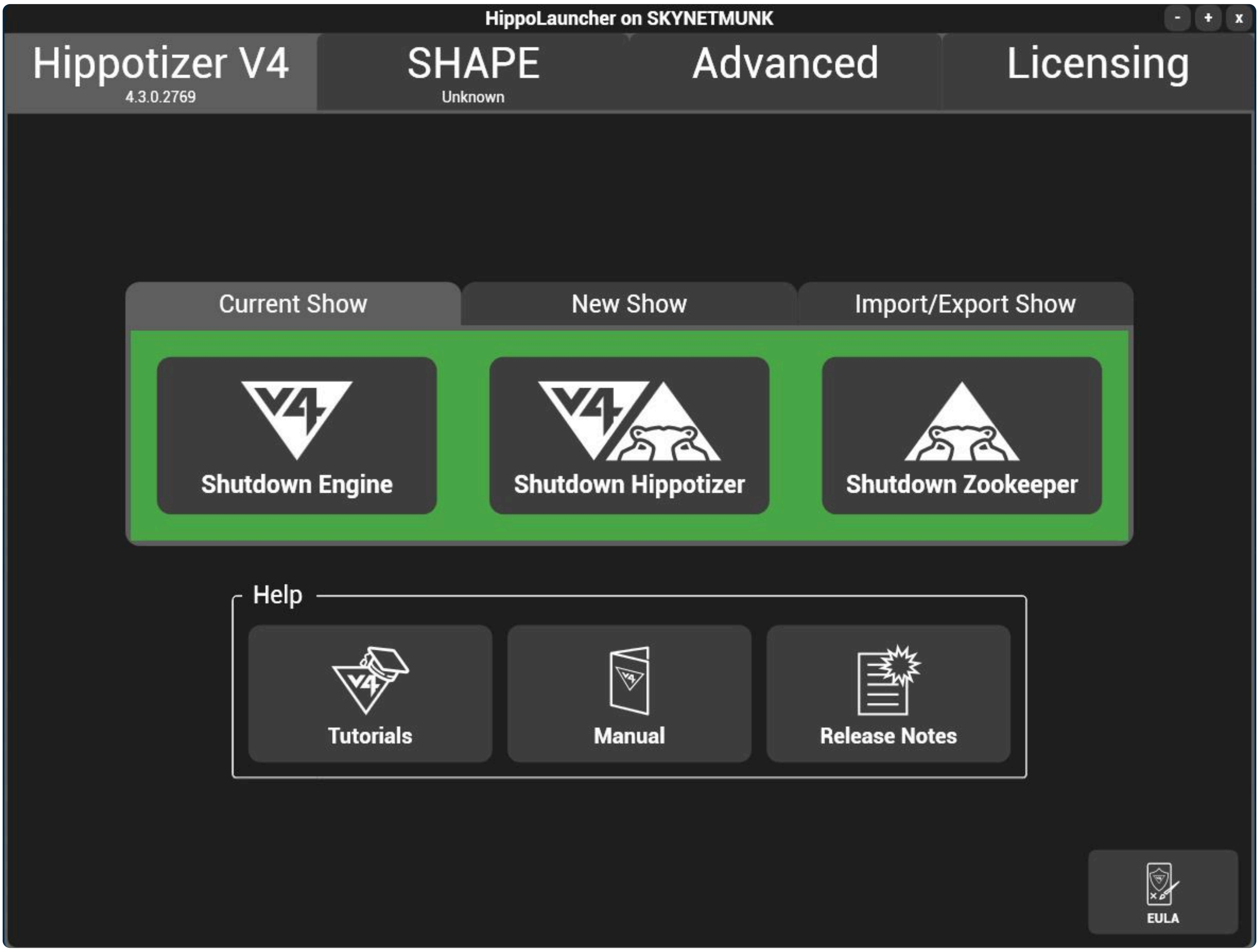
Hippotizer V4 Version

The version of Hippotizer installed. **4.3.1.2844** corresponds to Version 4.3.1 build 2844.

SHAPE Version

The version of SHAPE installed. If this must match that of Hippotizer. If it does not, navigate to the SHAPE tab and install from the **Copy Shape Installer button**.

Hippotizer V4 Tab


HippoLauncher on SKYNETMUNK
Hippotizer V4
4.3.0.2769
SHAPE
Unknown
Advanced
Licensing
Current Show
New Show
Import/Export Show
Shutdown Engine
Shutdown Hippotizer
Shutdown Zookeeper
Help
Tutorials
Manual
Release Notes
EULA

To start the currently installed Hippotizer V4 there are three options:

Current Show

- Starts Hippotizer using the settings that were saved on the last shutdown.
- Use this option to ‘pick up where you left off’

New Show

- Starts Hippotizer with clean settings.
- Existing settings are deleted.
- Use this option when starting a new project or show.

Import Export Show

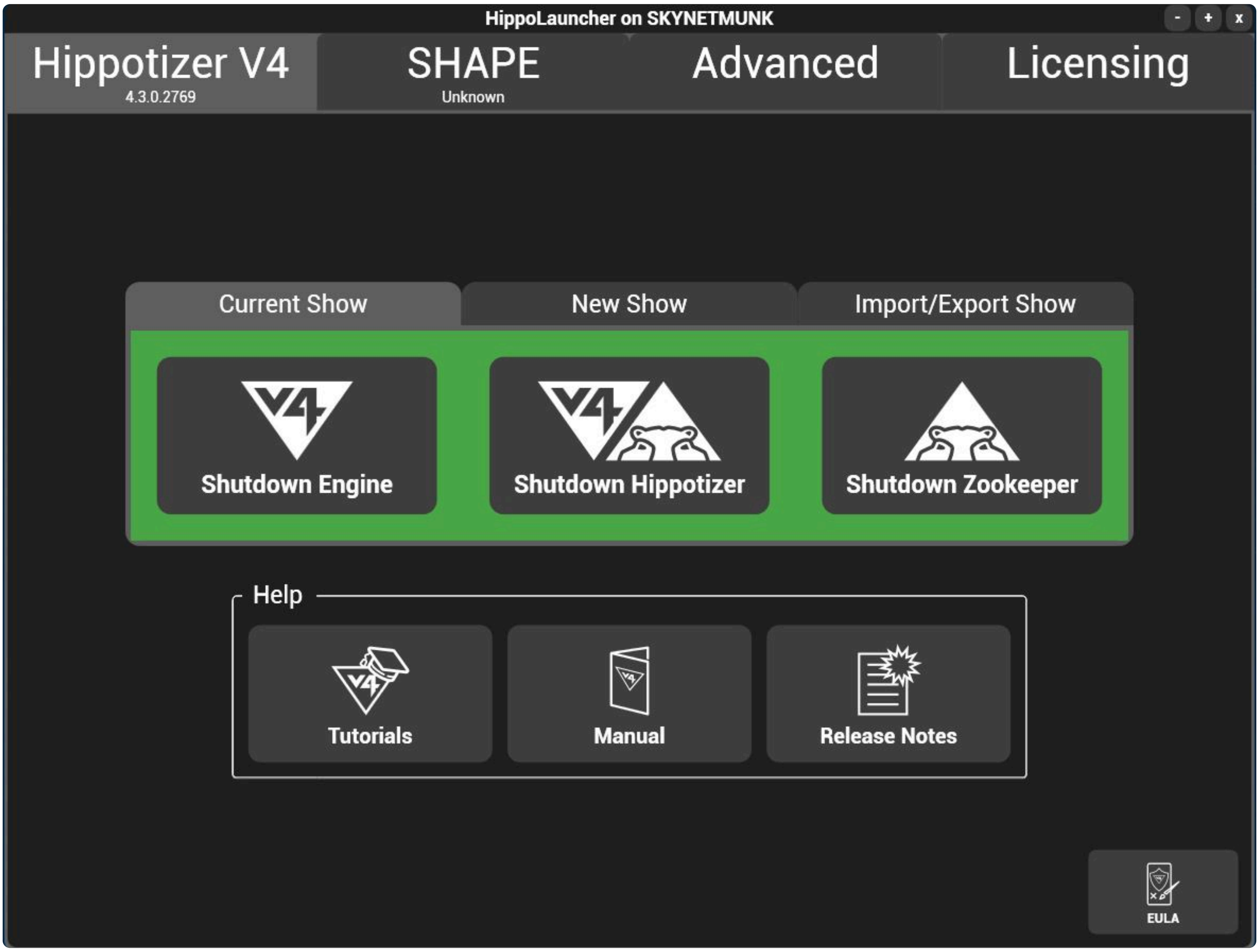
- Groups the component settings into a single folder for saving or loading.
- Use this to quickly load or save all the settings of a system.

- Only works for the local host.

Help

Hippolauncher also provides links to the Green Hippo tutorial Youtube channel, the manual and release notes.

Current Show


HippoLauncher on SKYNETMUNK
- + x
Hippotizer V4
4.3.0.2769
SHAPE
Unknown
Advanced
Licensing
Current Show
New Show
Import/Export Show
Shutdown Engine
Shutdown Hippotizer
Shutdown Zookeeper
Help
Tutorials
Manual
Release Notes
EULA

Starts Hippotizer with the settings that it had on last shut down.

Start Engine only

Start Engine Only Start the Hippotizer Engine Application only; allows rendering, receiving DMX and control over the network.

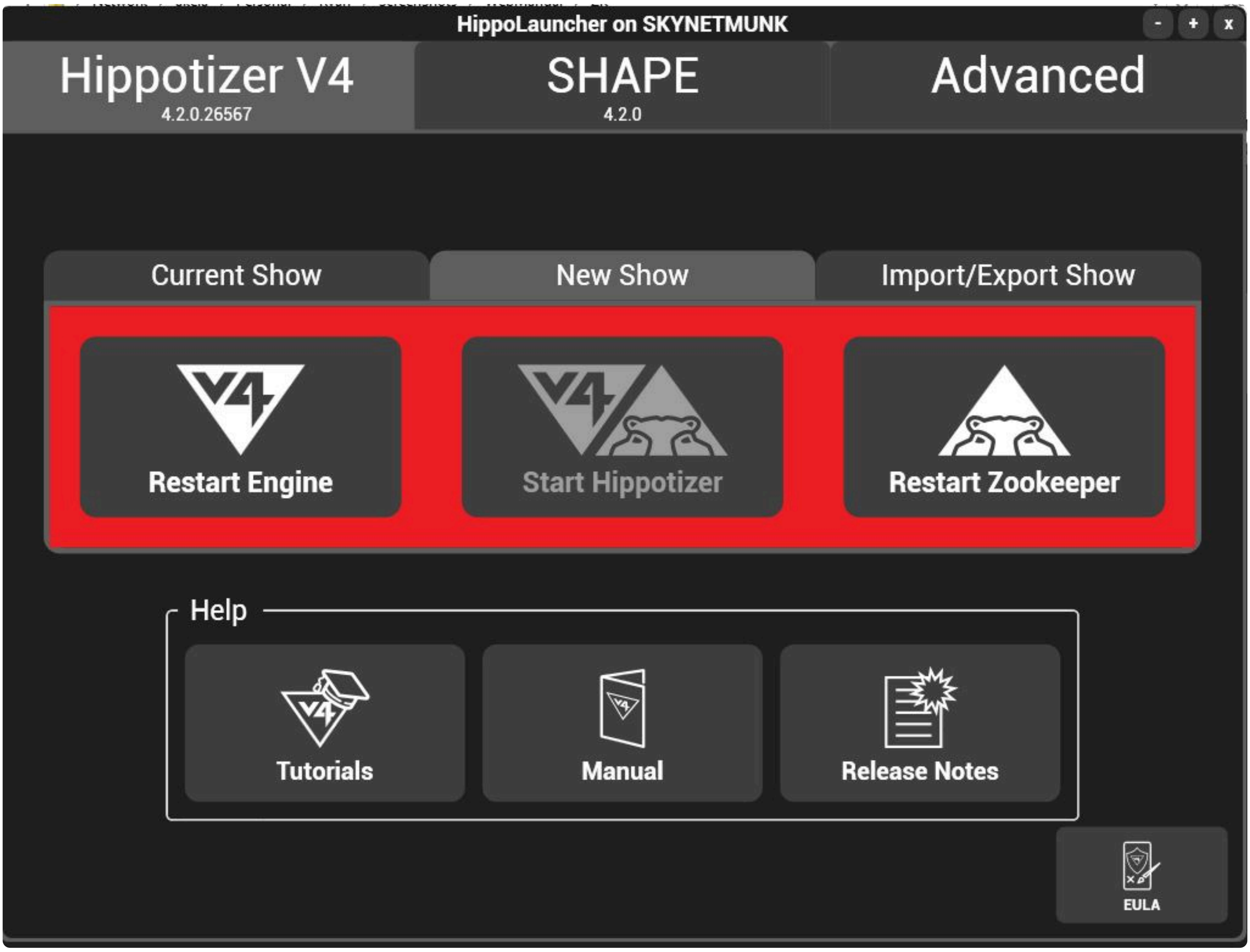
Start Zookeeper Only

Start ZooKeeper Only Starts Zookeeper for remote control from computers that are not outputting video.

Start Zookeeper and the Engine

Start Hippotizer Starts both the Hippotizer Engine and Zookeeper

New Show


HippoLauncher on SKYNETMUNK
- + x
Hippotizer V4
4.2.0.26567
SHAPE
4.2.0
Advanced
Current Show
New Show
Import/Export Show
Restart Engine
Start Hippotizer
Restart Zookeeper
Help
Tutorials
Manual
Release Notes
EULA

There are three options in new show:

Reset the Engine

Start Engine Only Resets the settings of all components and starts up.

The following settings are reset:

- Engine (host) network assignment
- DMX Patch
- Live masks are deleted
- Macromanager is reset and all macros deleted
- The Media Manager STRATA Path is reset to the default for the system type
- All Multicontroller settings and patches are deleted
- The output configuration is reset to 1 mix and 1 viewport.
- All Pin bridges are deleted.
- All Pixel maps are deleted and the Pixelmapper patch is reset

- All Presets are deleted
- All Screen Warps are deleted
- Sync Manager settings are reset
- All Timelines are deleted
- All Video maps are deleted.

Following reset, the system will start with the basic components running including:

- Engine
- Media Manager
- Preset
- LED
- Output Manager

Reset Zookeeper

Start ZooKeeper Only
Deletes all Zookeeper settings and then Starts Zookeeper

The following settings are reset:

- Zookeeper network assignment
- Custom Pinboards are deleted
- Visualiser settings are reset
- Default pinboards reset

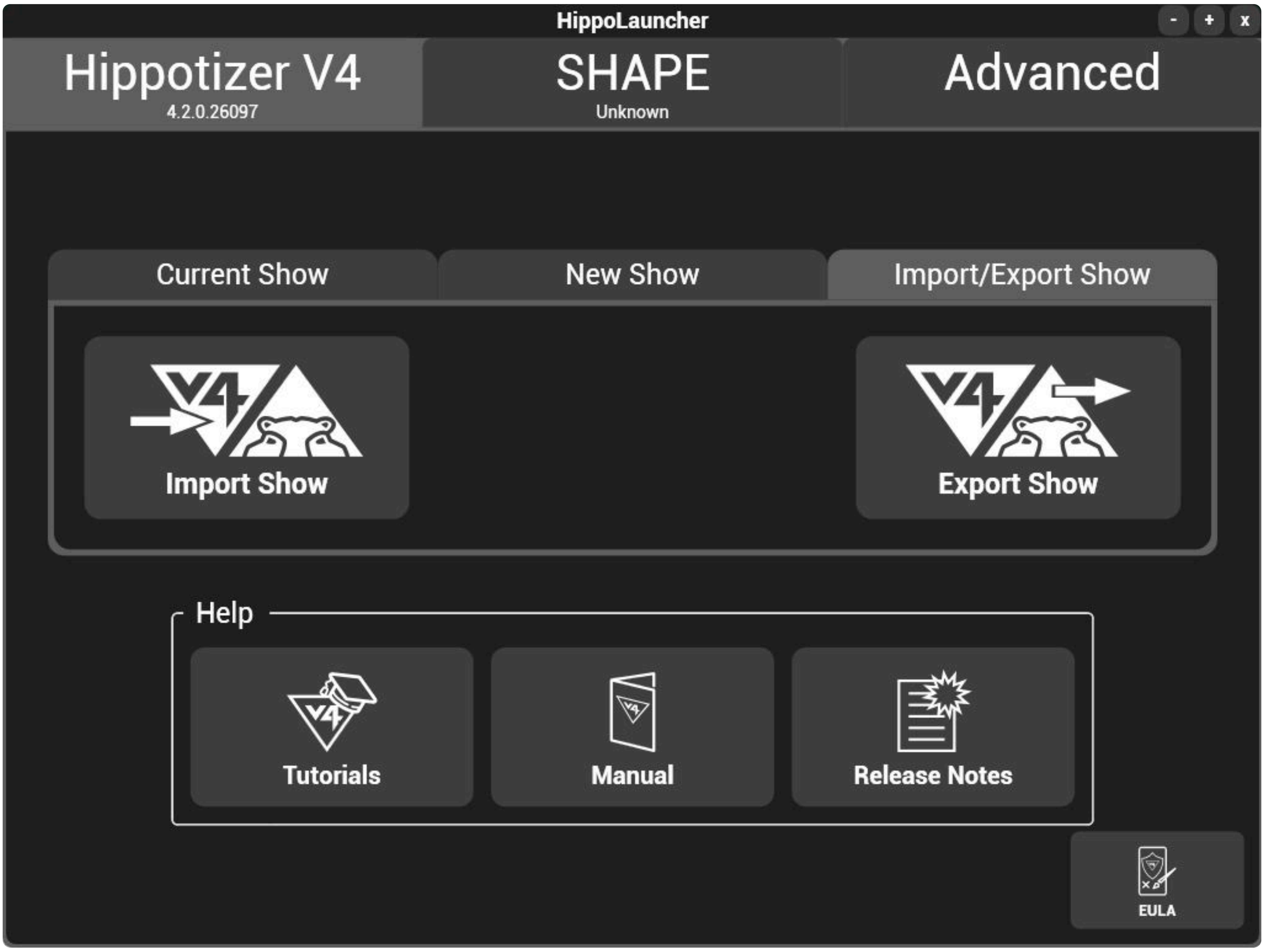
Reset Zookeeper and the Engine

Start Hippotizer
Starts both the Hippotizer Engine and Zookeeper

Resets both the Engine and Zookeeper before starting.

- Carries out all operations above of resetting the Engine
- Carries out all operations above of resetting the Zookeeper
- Starts both the Engine and Zookeeper.

Import Export Show


HippoLauncher
- + x
Hippotizer V4
4.2.0.26097
SHAPE
Unknown
Advanced
Current Show
New Show
Import/Export Show
Import Show
Export Show
Help
Tutorials
Manual
Release Notes
EULA

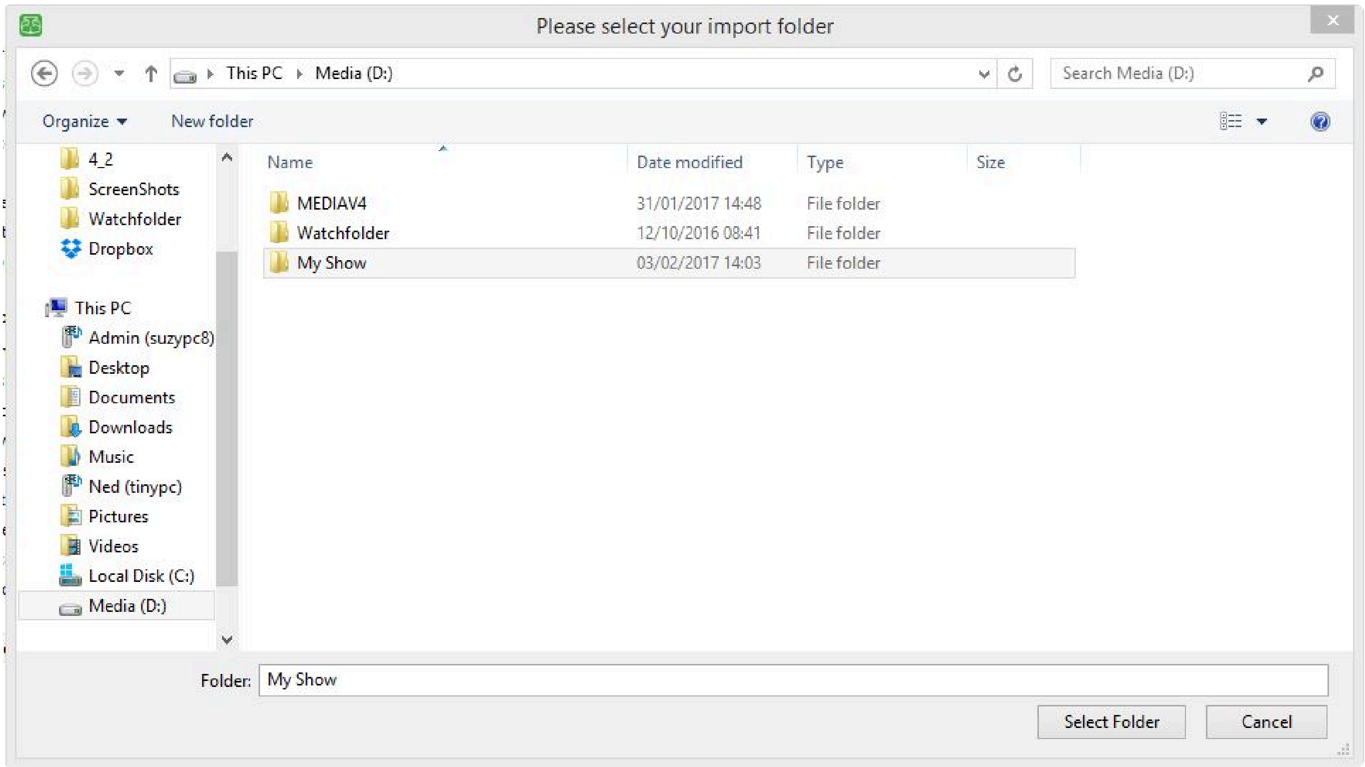
Import Show

Import show starts and loads all components from a folder at once.

Individual components can also be imported through the component import in Zookeeper's configuration.

[Saving and Loading Components from Zookeeper]

Selecting import show will shut down Zookeeper (if it is running) and launch ask for the directory containing the show.


Please select your import folder
This PC
Media (D:)
Search Media (D:)
Organize
New folder
4_2
ScreenShots
Watchfolder
Dropbox
This PC
Admin (suzypc8)
Desktop
Documents
Downloads
Music
Ned (tinypc)
Pictures
Videos
Local Disk (C:)
Media (D:)
Select Folder
Cancel

Name	Date modified	Type	Size
MEDIAV4	31/01/2017 14:48	File folder	
Watchfolder	12/10/2016 08:41	File folder	
My Show	03/02/2017 14:03	File folder	

Folder: My Show

Shows are a collection of component exports in a folder. Importing the folder is the same as importing each component separately.

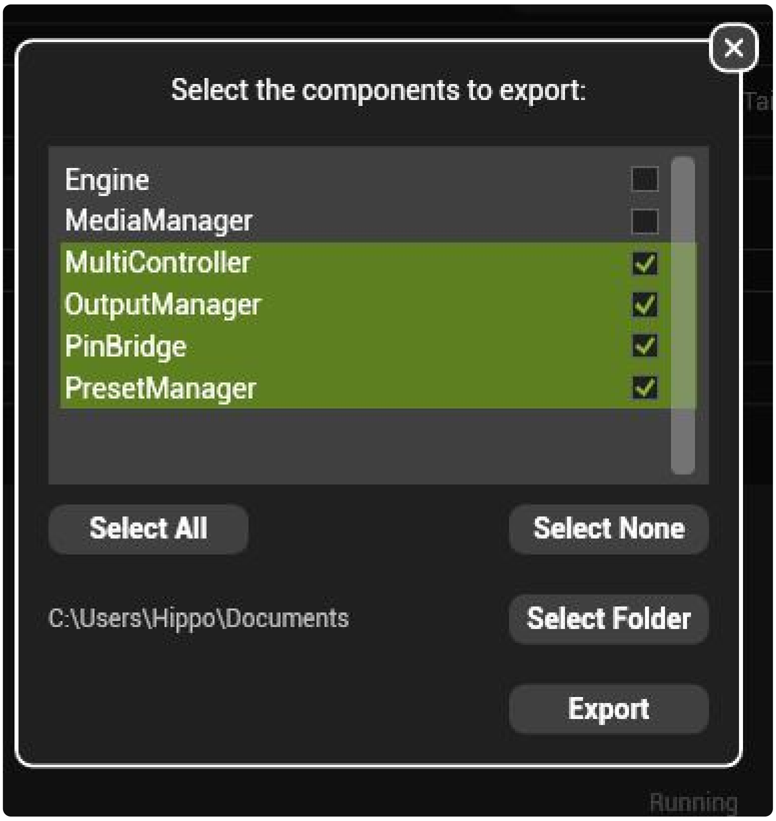
Export Show

A show can be exported from HippoLaunch or from the component settings of Zookeeper.

Saving and Loading Components from Zookeeper

To Export Show:

- Close Zookeeper
- In Hippolaunch choose export show
- Select Which components to export
- Choose the destination folder


Select the components to export:

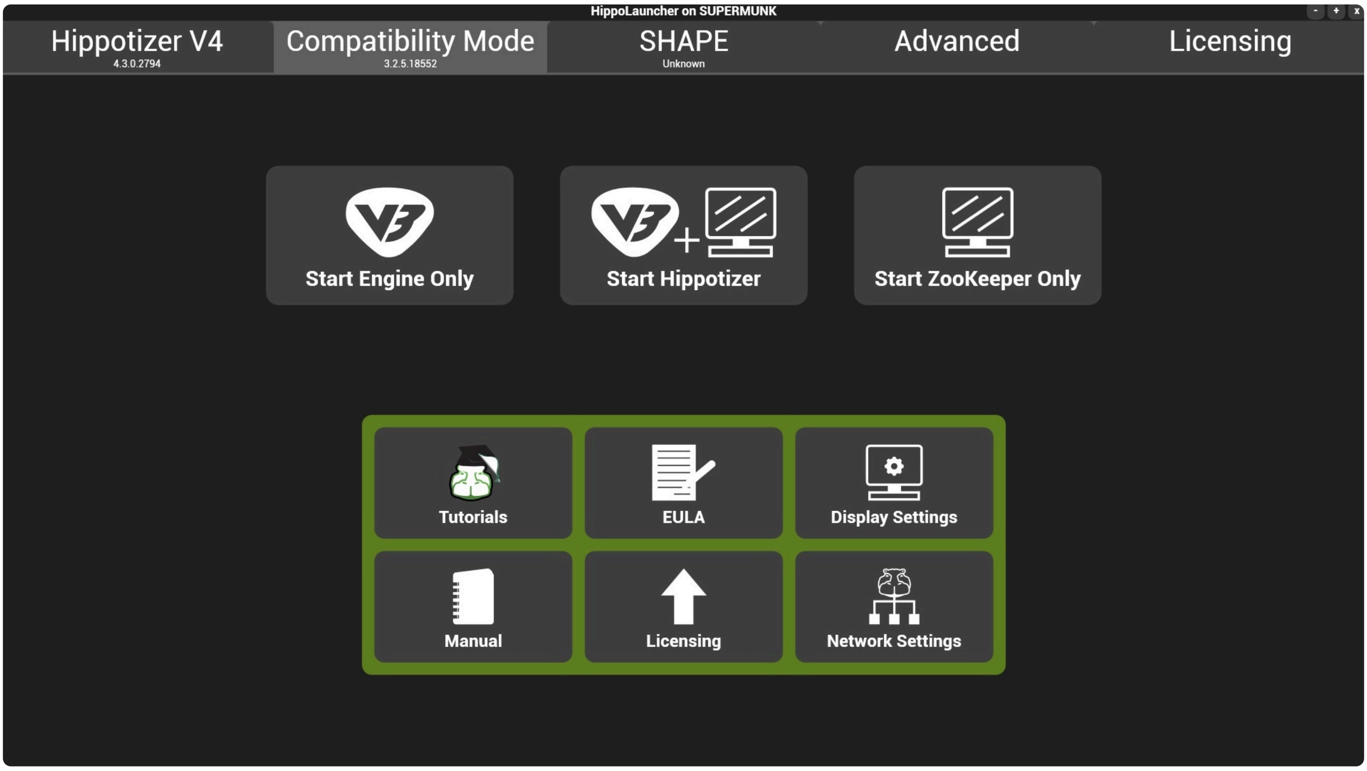
- Engine ☐
- MediaManager ☐
- MultiController ☑
- OutputManager ☑
- PinBridge ☑
- PresetManager ☑

C:\Users\Hippo\Documents

Select All
Select None
Select Folder
Export
Running

Note: Media Manager exports can be very large and take significant time to export. Take care there is enough space on the target drive for a media manager export.

Compatibility Mode Tab

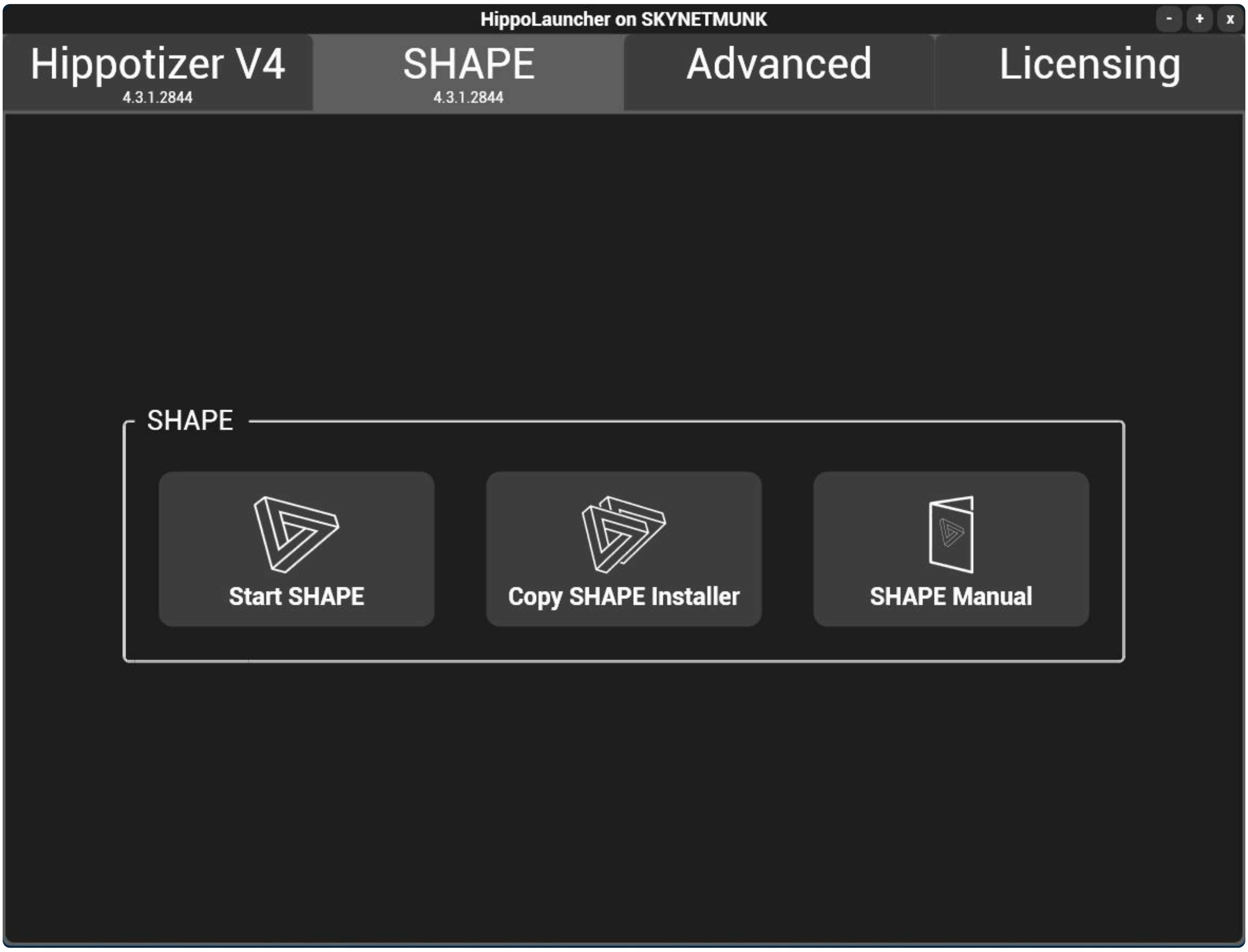

HippoLauncher on SUPERMUNK
Hippotizer V4
4.3.0.2794
Compatibility Mode
3.2.5.18552
SHAPE
Unknown
Advanced
Licensing
Start Engine Only
Start Hippotizer
Start ZooKeeper Only
Tutorials
EULA
Display Settings
Manual
Licensing
Network Settings

Compatibility mode starts V3 Hippotizer on a V4 machine.

! Compatibility mode is available only for Hippotizer V4 systems and not V4+.

More information about Compatibility mode can be found here.

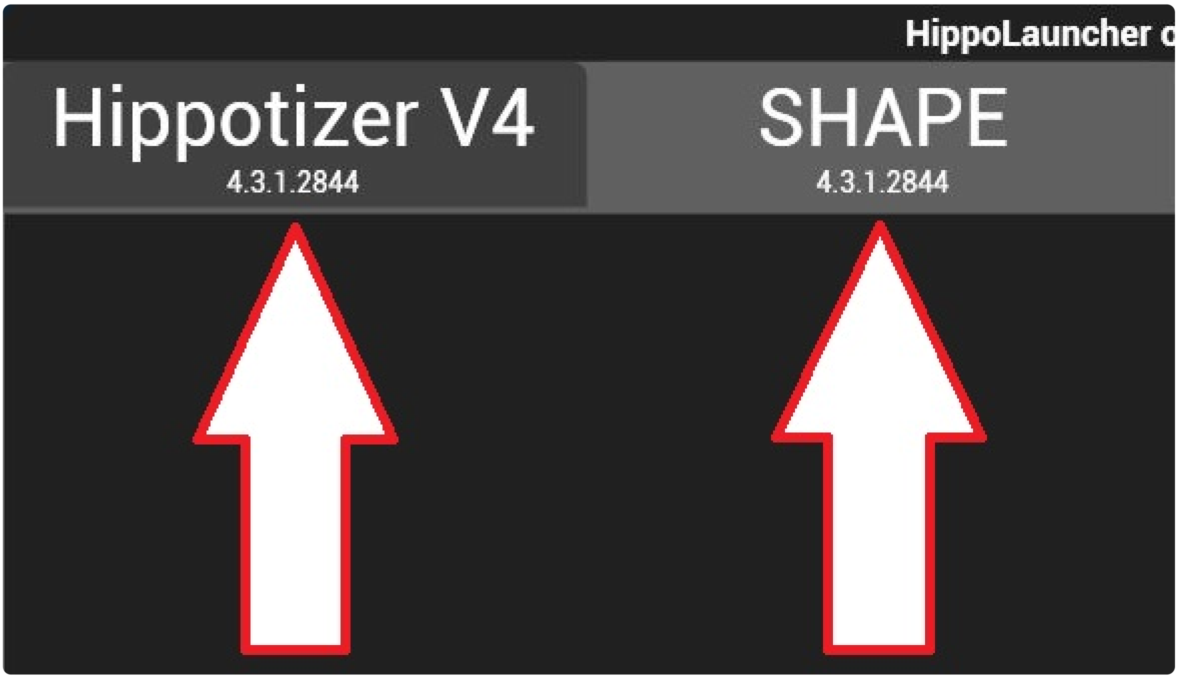
SHAPE Tab


HippoLauncher on SKYNETMUNK
- + x
Hippotizer V4
4.3.1.2844
SHAPE
4.3.1.2844
Advanced
Licensing
SHAPE
Start SHAPE
Copy SHAPE Installer
SHAPE Manual

Start / Install SHAPE

- If SHAPE is not already installed, the Install SHAPE button will show. Press this to Install SHAPE.
- If SHAPE is already installed then the option to Start SHAPE is shown.

! Take care that the SHAPE version always matches the Hippotizer V4 version.


HippoLauncher
Hippotizer V4
4.3.1.2844
SHAPE
4.3.1.2844

Copy SHAPE Installer

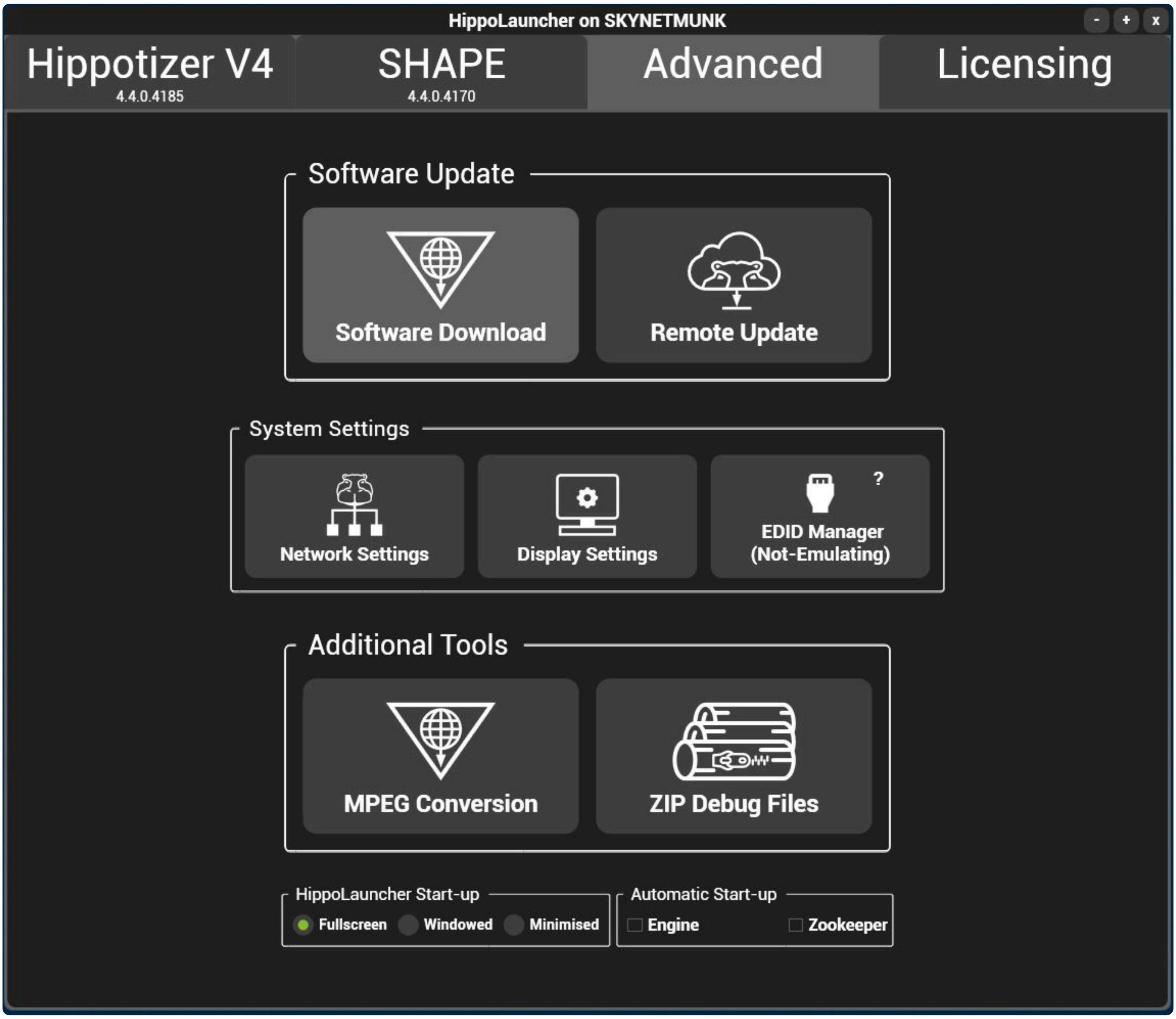
- Opens a file browser with the SHAPE installer selected so it can be quickly copied to a new location.
- Use this function to install the correct version of SHAPE on remote machines.

SHAPE Manual

- Opens a local copy of the SHAPE Manual

Advanced Tab

HippoLauncher has some features to make deploying and maintaining Hippotizer systems easier.


HippoLauncher on SKYNETMUNK
- + x
Hippotizer V4
4.4.0.4185
SHAPE
4.4.0.4170
Advanced
Licensing
Software Update
Software Download
Remote Update
System Settings
Network Settings
Display Settings
?
EDID Manager (Not-Emulating)
Additional Tools
MPEG Conversion
ZIP Debug Files

HippoLauncher Start-up: ● Fullscreen ○ Windowed ○ Minimised

Automatic Start-up: ☐ Engine ☐ Zookeeper

The advanced section of Hippolaunch contains functions and tools to help manage the system and software.

Software Update

Remote Update

Install new software remotely on other Hippotizers on the local network.

Software Download

Link to the Hippotizer software down load website

System Settings

- Display Settings

Opens the windows display settings dialogue. This is the recommended method for configuring outputs before starting the engine.

- Network Config

Opens the windows network settings dialogue.

Additional Tools

- Mpeg Conversion

Opens the mpeg converter tool to automatically transcode mpeg based media libraries to FlexRes.

- Zip Debug Files

Opens a file explorer to collate and compress all log files. Hippotizer support may request log files as part of diagnostic procedures.

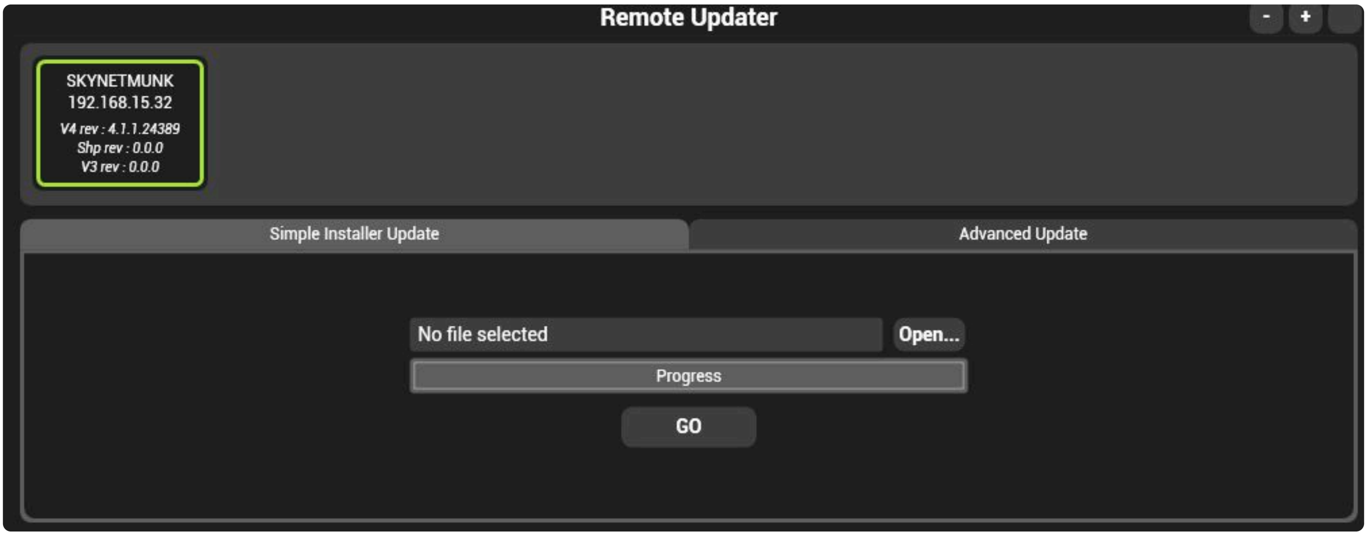
Remote Update

The launch application includes the ability to remotely update other Hippotizer systems on the network. This is accessed from the advanced tab of the launch app.

Note: In order for Remote update to function, Hippo Launch must be running on all target machines.

The remote update button will launch a separate application to set up and process the network updates.

Simple Installer Update

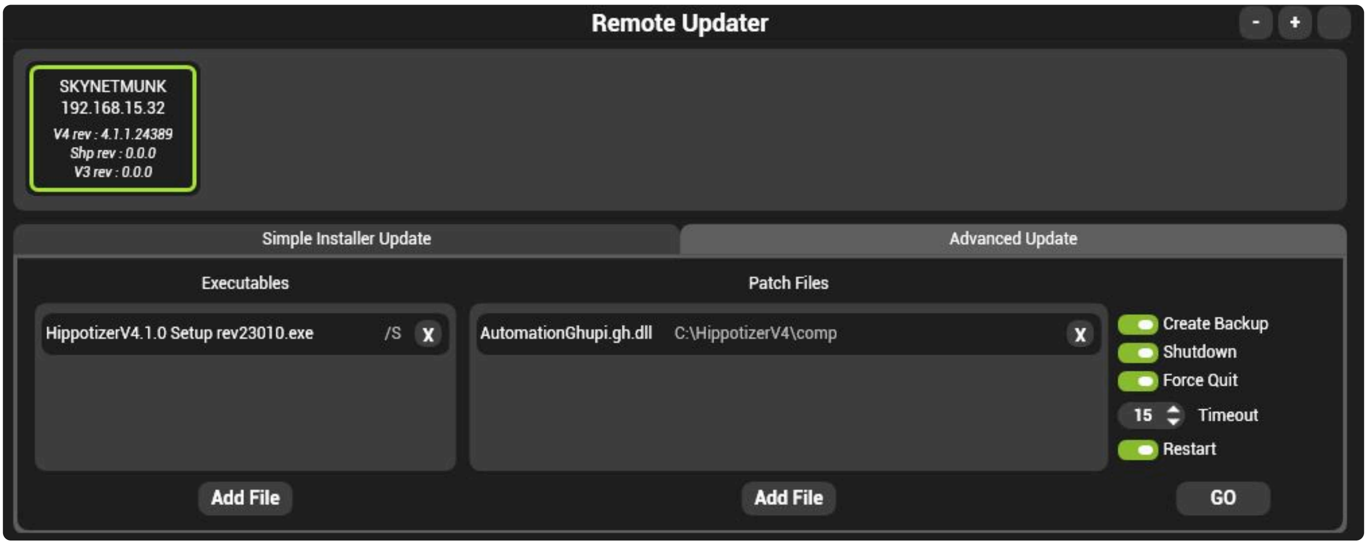

Remote Updater
-
+
SKYNETMUNK
192.168.15.32
V4 rev : 4.1.1.24389
Shp rev : 0.0.0
V3 rev : 0.0.0
Simple Installer Update
Advanced Update
No file selected
Open...
Progress
GO

To quickly update remote machines to a new Hippotizer version, simple update is the best way.

To update:

- Select the target machines in the top bar
- Select the installer to use for update
- Press Go

Advanced Update


Remote Updater
-
+
Simple Installer Update
Advanced Update
Executables
Patch Files
X
X
Add File
Add File
GO

SKYNETMUNK
192.168.15.32
V4 rev : 4.1.1.24389
Shp rev : 0.0.0
V3 rev : 0.0.0

HippotizerV4.1.0 Setup rev23010.exe /S

AutomationGhupi.gh.dll C:\HippotizerV4\comp

- Create Backup
- Shutdown
- Force Quit
- 15 Timeout
- Restart

Where patches need to be applied, advanced update allows for other files to be specified with the upload.

Create Backup

Copies Hippotizer directory to a backup directory before updating

Shutdown

Stops Hippotizer and Zookeeper on target machines they are running (required for update to occur)

Force Quit

Will kill the Hippotizer Application if it does not shut down (may result in data loss)

Timeout

How long to wait (seconds) before killing the application after requesting shutdown

Restart

Restart the application after updating

Software Download

Hippotizer V4 software is updated constantly, with a new release frequently available two or three times per year. The software download option will launch a web browser to Green Hippo's update site.

Update Site

Software Versioning

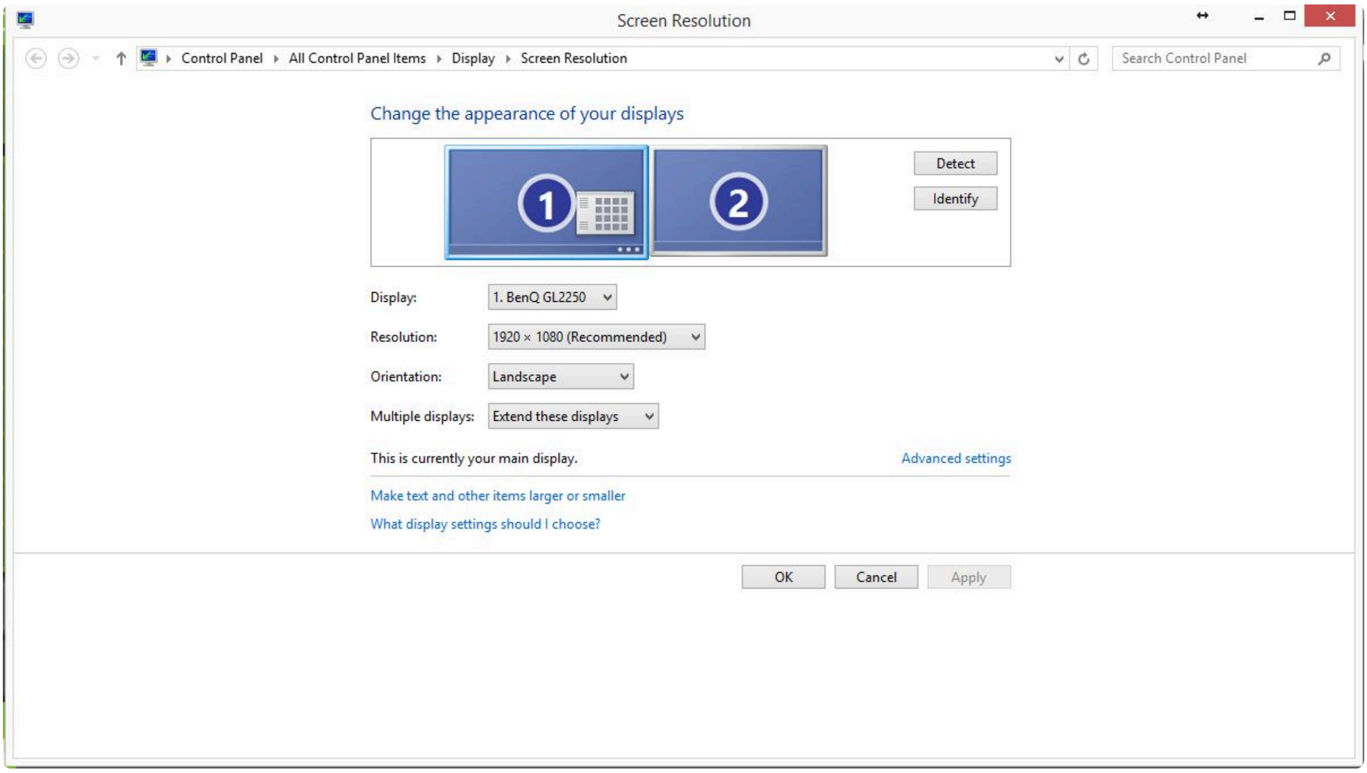
Each software version has a unique number in the format of **W.X.Y.Z**

- **W** = Product Number: indicating what product version the software is compatible with.
- **X** = Major Version Number: indicating that new features and fixes have been added to the software.
- **Y** = Minor Version Number: indicating that only fixes have been applied to the software.
- **Z** = Revision Number:used for debug and beta builds primarily, the revision number tells Green Hippo technical staff precisely when the software was created.

For example: 4.1.0.23010

- Installs onto Hippotizer Version 4 Hardware
- Is Major Version 1 indicating that new features were added from the previous 4.0 version.
- Is the first Minor version in 4.1
- Is Revision 23010.

Display Settings


Screen Resolution
Control Panel
All Control Panel Items
Display
Screen Resolution
Search Control Panel
1
2
Detect
Identify
Advanced settings
Make text and other items larger or smaller
What display settings should I choose?
OK
Cancel
Apply

Change the appearance of your displays

Display: 1. BenQ GL2250

Resolution: 1920 × 1080 (Recommended)

Orientation: Landscape

Multiple displays: Extend these displays

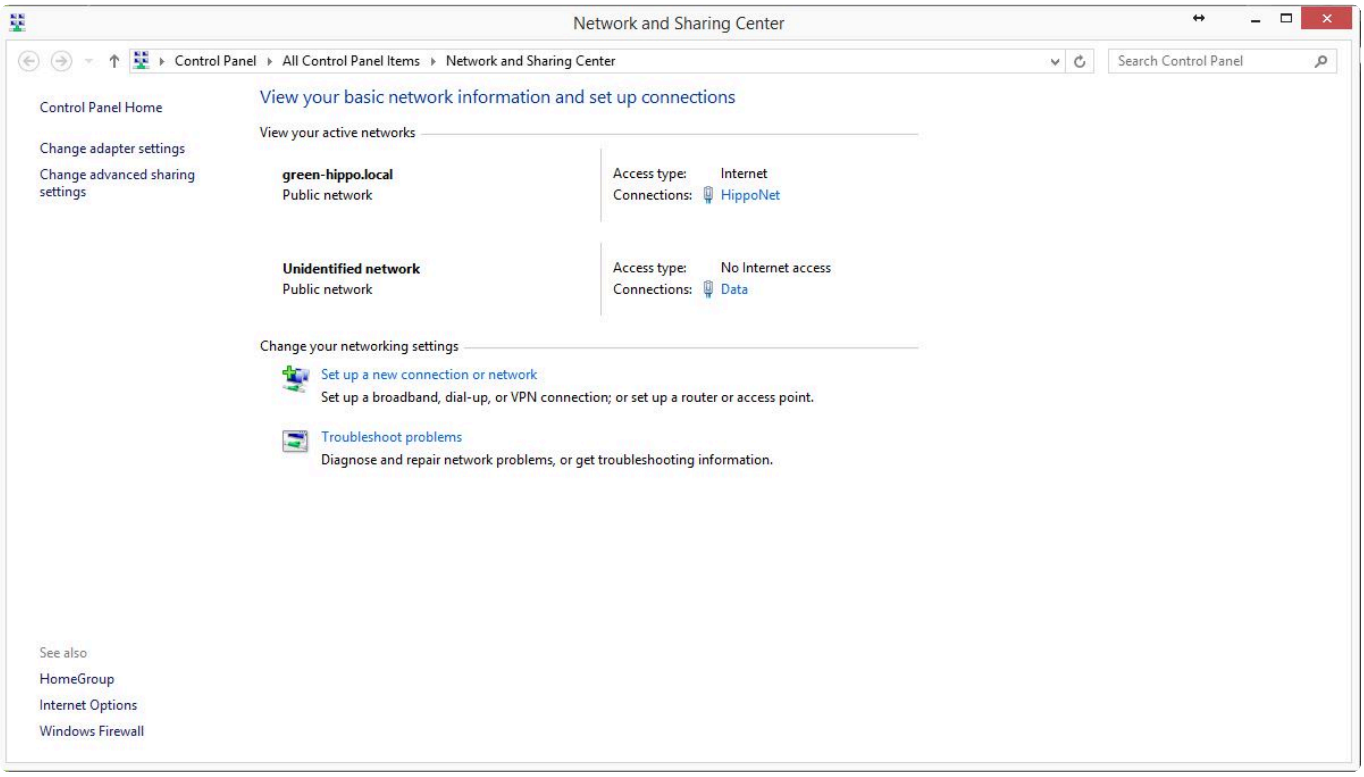
This is currently your main display.

Opens the Windows dialogue for display settings.

Before starting Hippotizer, it is important to ensure the displays are correctly configured.

The Zookeeper display should be the Primary, and it should be placed to the left of all other displays.

Network Config


Network and Sharing Center
Control Panel ▸ All Control Panel Items ▸ Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
See also
HomeGroup
Internet Options
Windows Firewall

View your basic network information and set up connections

View your active networks

green-hippo.local
Public network

Access type: Internet
Connections: HippoNet

Unidentified network
Public network

Access type: No Internet access
Connections: Data

Change your networking settings

Set up a new connection or network
Set up a broadband, dial-up, or VPN connection; or set up a router or access point.

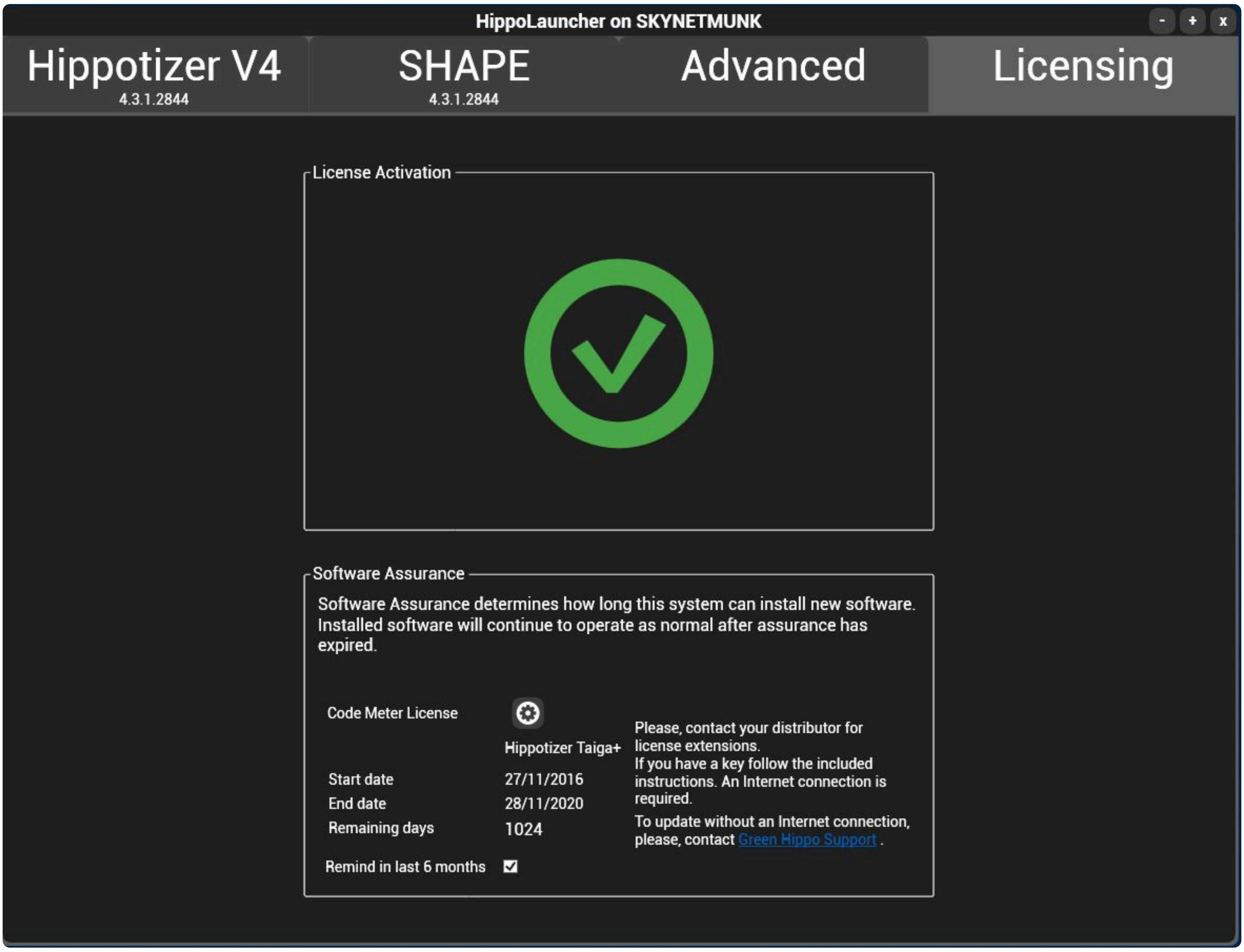
Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.

Opens the Windows Network Dialogue.

More information about Networking and Hippotizer Can be found here.

Zip Debug Files

Licensing Tab


HippoLauncher on SKYNETMUNK
-
+
x
Hippotizer V4
4.3.1.2844
SHAPE
4.3.1.2844
Advanced
Licensing
License Activation
Software Assurance

Software Assurance determines how long this system can install new software. Installed software will continue to operate as normal after assurance has expired.

Code Meter License	Hippotizer Taiga+
Start date	27/11/2016
End date	28/11/2020
Remaining days	1024
Remind in last 6 months	☑

Please, contact your distributor for license extensions.
If you have a key follow the included instructions. An Internet connection is required.
To update without an Internet connection, please, contact Green Hippo Support .

Hippotizer uses either a software based or dongle based licensing system.

- All new units ship from the factory fully licensed and ready to use.
- The license is not transferable. If drastic hardware changes occur, the Hippotizer software will cease functioning. Please contact Green Hippo for more details.

Hippotizer V4

Hippotizer V4, Compatibility mode and Play use a software based licensing system. [For more information, please see here.]

Hippotizer V4+

Hippotizer V4+ and Prep use a dongle based licensing system.

Software Activation.

New systems ship de-activated and must be activated before first use. This is instant and does not require an internet connection. For more information please see here.

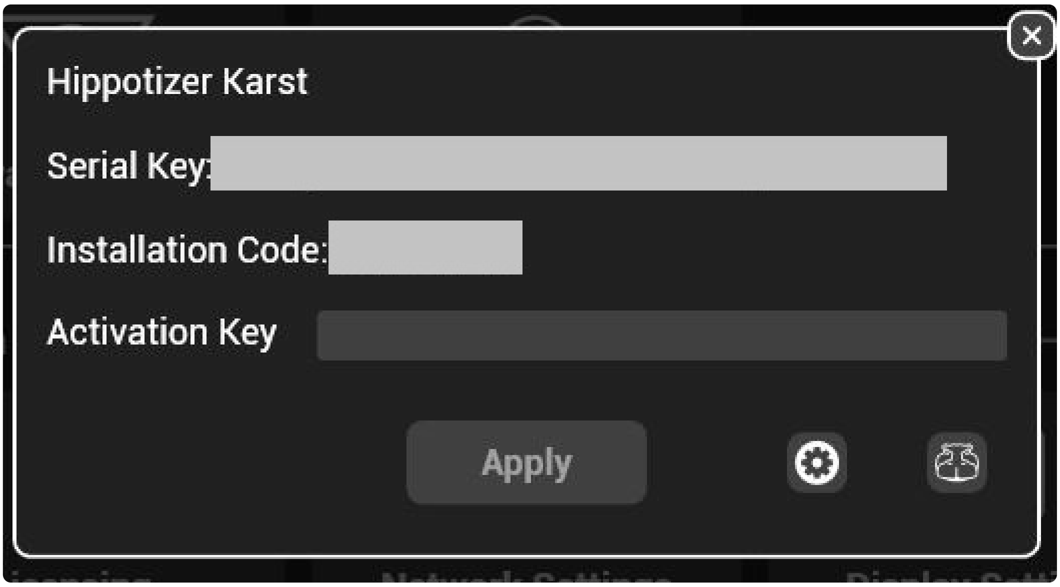
Software Assurance

Software Assurance determines how long a system can install new software. Installed software will continue to operate as normal after assurance has expired.

For more information about Software Assurance please see here.

Software Licensing

Hippotizer V4 uses a software based Licensing system. Under normal circumstances there is no user action required; the license is not affected by changes to the Hippotizer software or a system restore.



Serial Key: [redacted]

Installation Code: [redacted]

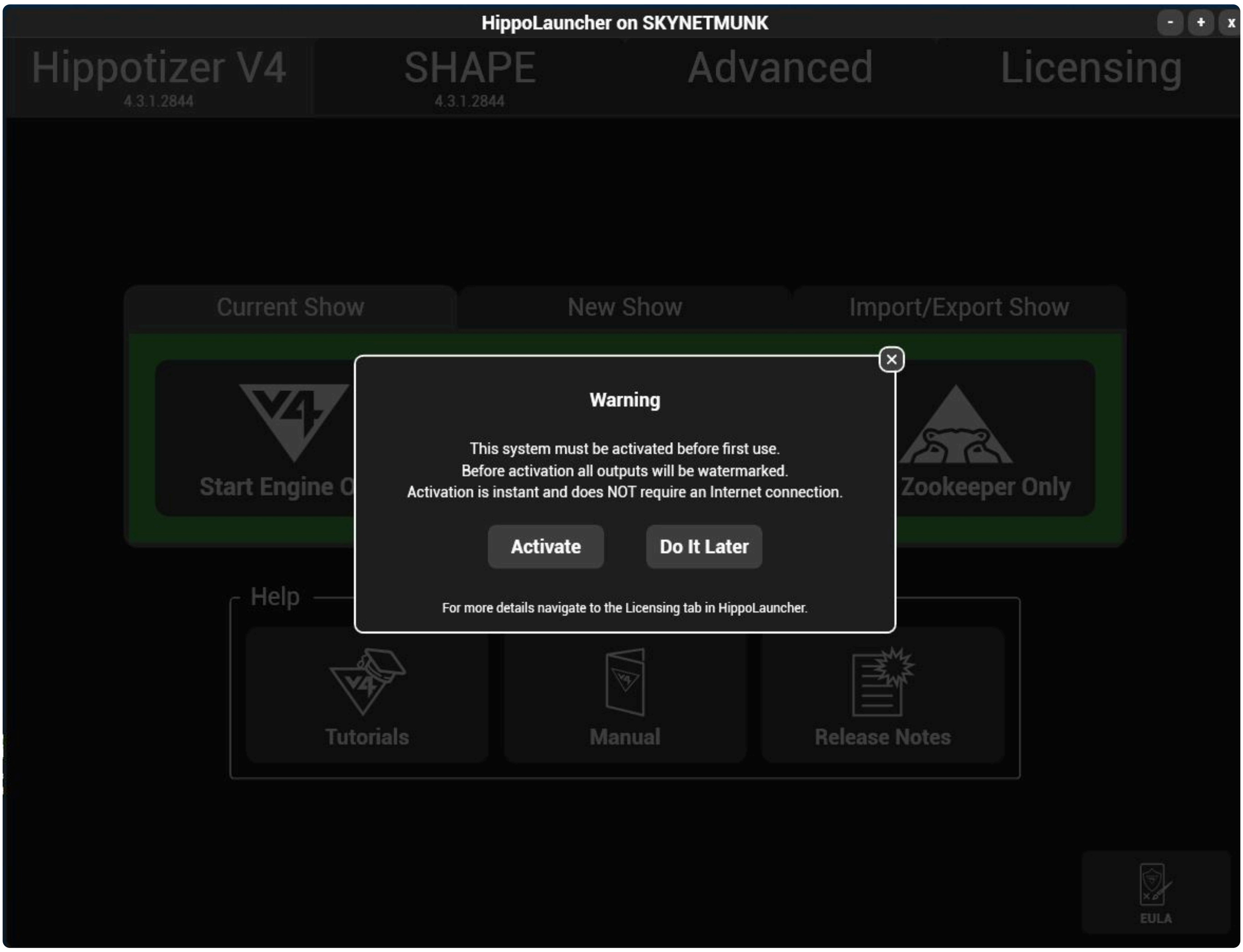
If required, Green Hippo may ask to see the Licensing diagnostics window which is accessed by pressing the settings cog in the licensing window.

> ! The license locks the Hippotizer software to the specific computer hardware that it was installed on to. Drastic changes to the hardware (such as a new motherboard) may cause licensing to stop the Hippotizer software from working. It is important to consult Green Hippo Support before attempting hardware changes on a Hippotizer machine. On a non-Hippotizer machine (such as for Zookeeper or Play) a hardware change may require a re-install of Hippotizer software to repair.

License Activation

License Activation

New V4+ systems will arrive with a de-activated license:

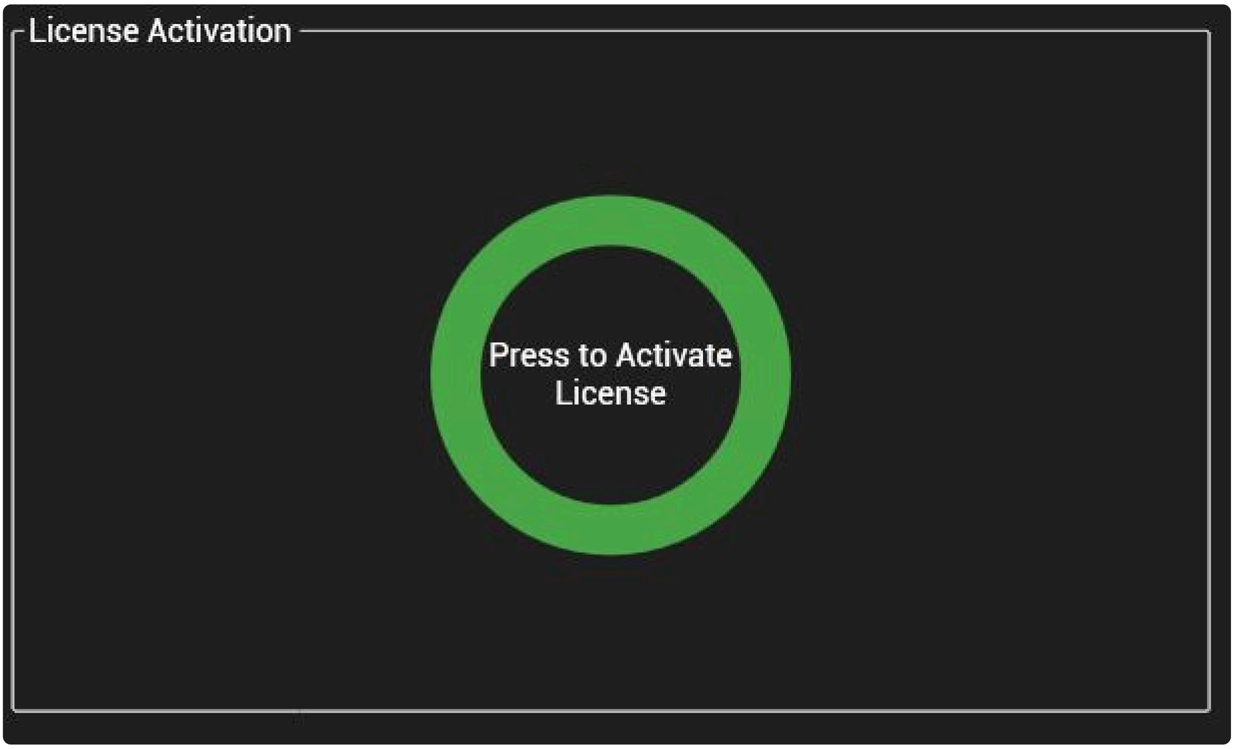

HippoLauncher on SKYNETMUNK
Hippotizer V4
4.3.1.2844
SHAPE
4.3.1.2844
Advanced
Licensing
Current Show
New Show
Import/Export Show
Start Engine O
Zookeeper Only
Help
Tutorials
Manual
Release Notes
EULA
Activate
Do It Later

Warning

This system must be activated before first use.
Before activation all outputs will be watermarked.
Activation is instant and does NOT require an Internet connection.

For more details navigate to the Licensing tab in HippoLauncher.

While the system is de-activated it will have watermarks on all outputs.
To activate the Hippotizer, simply click activate when prompted as Hippolaunch starts or navigate to the licensing tab and click where indicated.

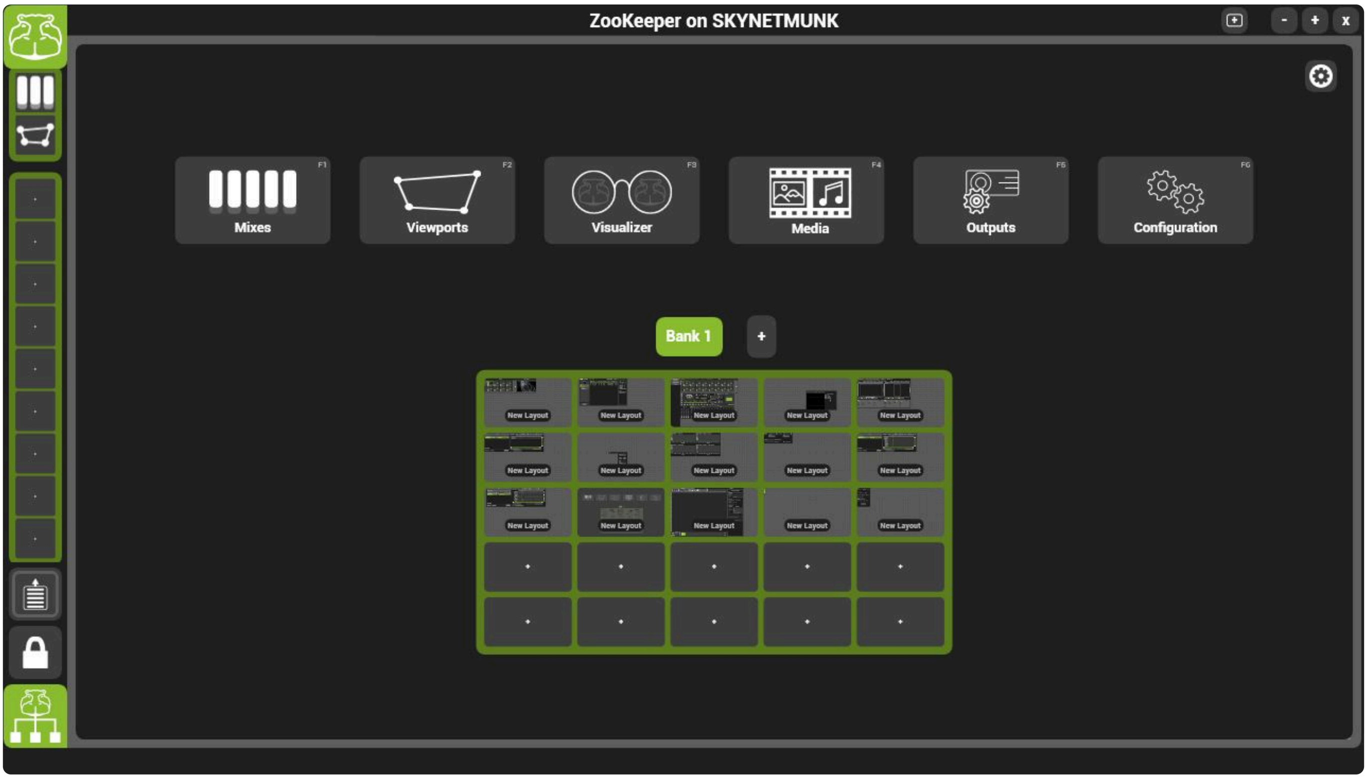

License Activation
Press to Activate License

Activation is instant, does not collect any personal information and does not require an internet connection.

Zookeeper

Zookeeper is the interface to Hippotizer; it allows for real-time control of the engine and all of it’s components, communicating with all Hippotizers on the local network.

On startup, Zookeeper opens to the home screen:


ZooKeeper on SKYNETMUNK
Mixes
Viewports
Visualizer
Media
Outputs
Configuration
F1
F2
F3
F4
F5
F6
Bank 1
+
New Layout

The home screen offers the six most common actions as buttons:

- Mixes Page Opens the default layer and mixes page
- Viewports Page Opens the default viewports page.
- Visualizer Page Opens Zookeeper’s built in 3D Visualiser.
- Media Page Opens Media Manager. Use this to upload media, manage the media map and synchronise media between systems.
- Outputs Page Opens Output Manager. Use this to configure how many mixes, layers and outputs are used.
- Configuration Page Opens the host manager. Use this to start and stop components.

- Advanced Startup options
- Customizing the Interface
- Layer Controls
- High Performance Mode
- Show Management
- Save and Import Settings

Installing Zookeeper

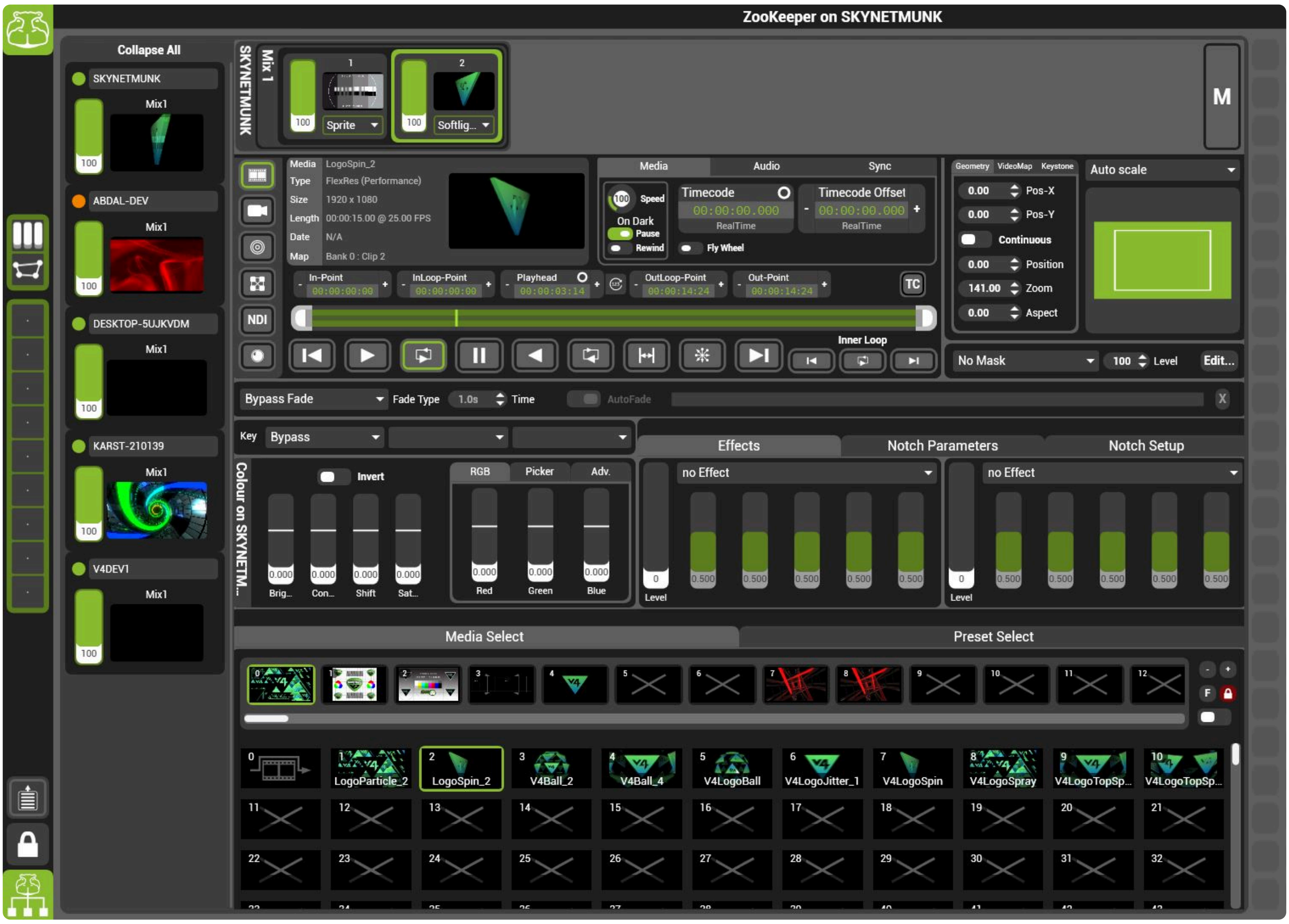
Zookeeper is installed automatically on every Hippotizer and Play system. It is also possible to use Zookeeper only, for free, on many Windows 8 and 10 computers. Simply run the Hippotizer installer and do not enter a license key when prompted to install Zookeeper.

Note: Zookeeper installations can be upgraded to Play after install by entering a license key.

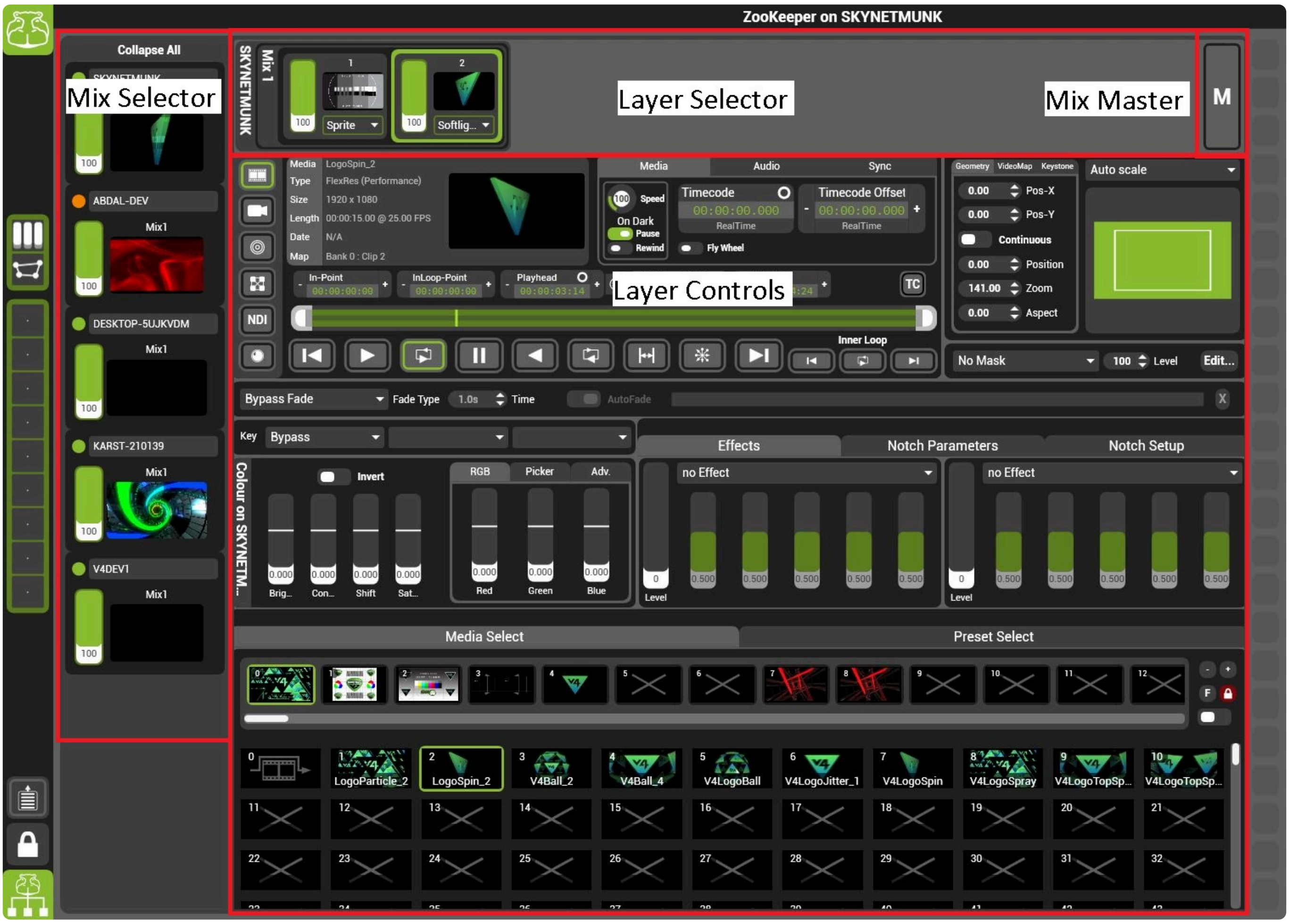
Mixes Page

The mixes page is where layers and mix master controls are accessed.

The mixes page is a default layout that can be reset from within Zookeeper Settings.


ZooKeeper on SKYNETMUNK
Collapse All
SKYNETMUNK
Mix1
ABDAL-DEV
DESKTOP-5UJKVDM
KARST-210139
V4DEV1
SKYNETMUNK
Mix 1
Sprite
Softlig...
M
Media LogoSpin_2
Type FlexRes (Performance)
Size 1920 x 1080
Length 00:00:15.00 @ 25.00 FPS
Date N/A
Map Bank 0 : Clip 2
Media
Audio
Sync
Speed
On Dark
Pause
Rewind
Timecode
Timecode Offset
Fly Wheel
Geometry
VideoMap
Keystone
Auto scale
Pos-X
Pos-Y
Continuous
Position
Zoom
Aspect
In-Point
InLoop-Point
Playhead
OutLoop-Point
Out-Point
TC
NDI
Inner Loop
No Mask
Level
Edit...
Bypass Fade
Fade Type
Time
AutoFade
Key
Bypass
Effects
Notch Parameters
Notch Setup
Colour on SKYNETM...
Invert
RGB
Picker
Adv.
Brig...
Con...
Shift
Sat...
Red
Green
Blue
no Effect
no Effect
Level
Level
Media Select
Preset Select
LogoParticle_2
LogoSpin_2
V4Ball_2
V4Ball_4
V4LogoBall
V4LogoJitter_1
V4LogoSpin
V4LogoSpray
V4LogoTopSp...
V4LogoTopSp...

The mixes page is comprised of four main sections:


ZooKeeper on SKYNETMUNK
Mix Selector
Layer Selector
Mix Master
Layer Controls
Collapse All
M
Media Select
Preset Select
Effects
Notch Parameters
Notch Setup

Mix Selector

The mix selector chooses which set of layers are shown in the layer selector. By default, the local mix will be selected if one is present. If no local mix is present then no mix will be selected.

Layer Selector

The layer selector chooses which layer the layer controls below are shown.

Mix Master

The mix master contains controls such as Pixelmapper and Master Presets that are applied to the entire mix.

More information about the Mix Master is here.

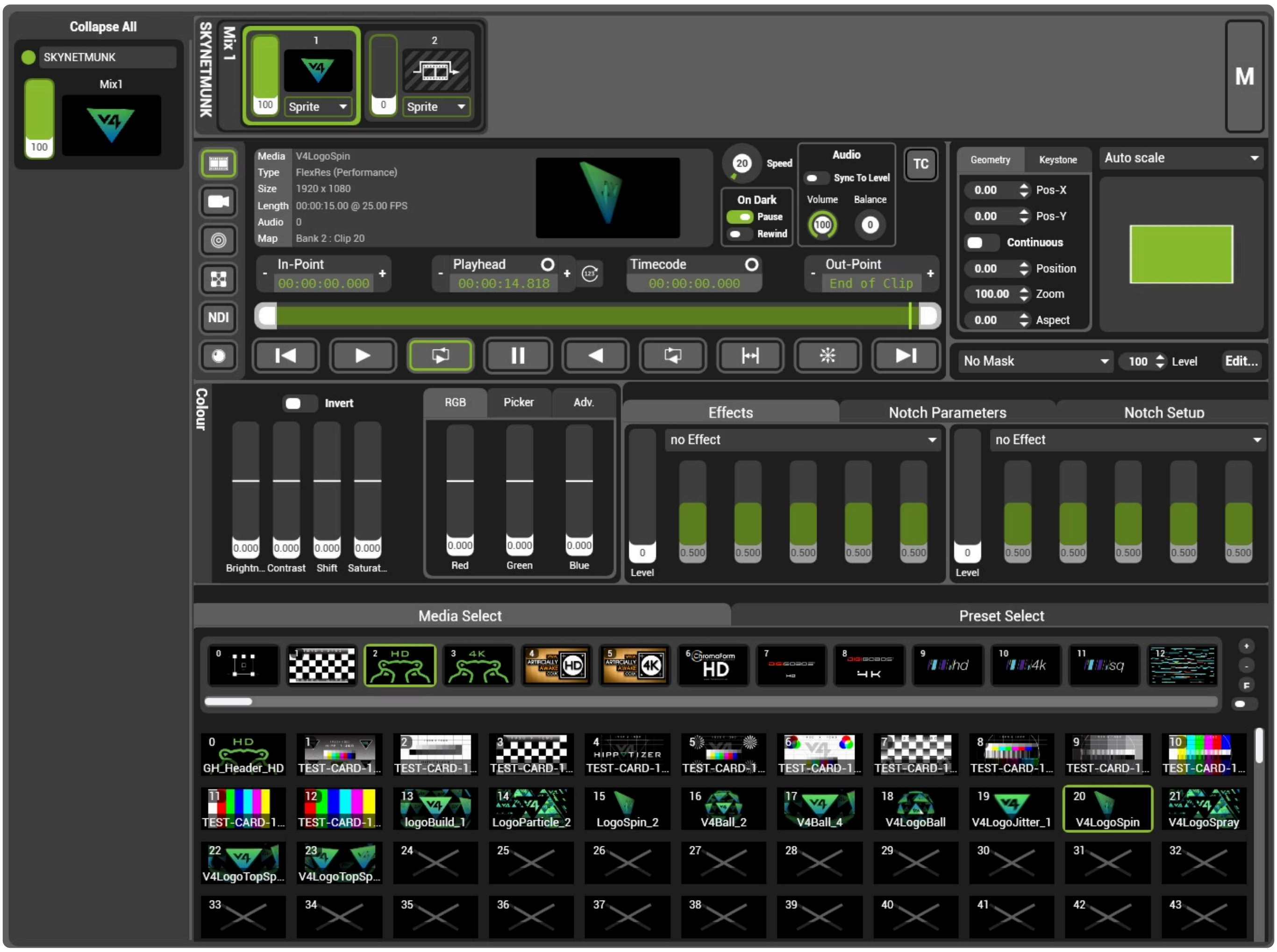
Layer controls

The layer contains controls such as media players, geometry and effects that are preset on each media layer.

More information about the Layer Controls are here

Layer Controls

The heart of the Hippotizer Media Server is the layer controls; here media is played, colour and geometry can be manipulated and effects are applied.



Media V4LogoSpin
Type FlexRes (Performance)
Size 1920 x 1080
Length 00:00:15.00 @ 25.00 FPS
Audio 0
Map Bank 2 : Clip 20

In-Point 00:00:00.000
Playhead 00:00:14.818
Timecode 00:00:00.000
Out-Point End of Clip

Collapse All
SKYNETMUNK
Mix1
Mix 1
Sprite
M
Speed
Audio
Sync To Level
On Dark
Pause
Rewind
Volume
Balance
TC
NDI
Geometry
Keystone
Auto scale
Pos-X
Pos-Y
Continuous
Position
Zoom
Aspect
No Mask
Level
Edit...
Colour
Invert
RGB
Picker
Adv.
Brightn...
Contrast
Shift
Saturat...
Red
Green
Blue
Effects
Notch Parameters
Notch Setup
no Effect
Media Select
Preset Select
GH_Header_HD
TEST-CARD-1...
logoBuild_1
LogoParticle_2
LogoSpin_2
V4Ball_2
V4Ball_4
V4LogoBall
V4LogoJitter_1
V4LogoSpin
V4LogoSpray
V4LogoTopSp...

Each media Hippotizer runs mixes comprised of layers; this configuration is set in Output Manager.

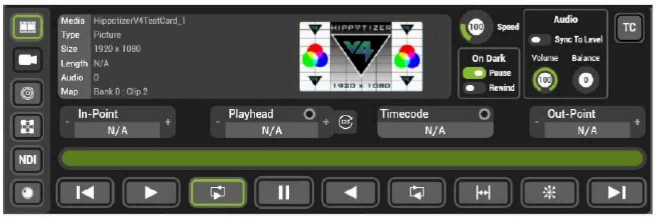
Layer Signal Flow

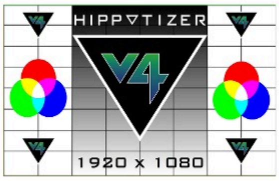
Each layer is an independent video processing system that is then composited by the mixer. The flow through that processor is described below.

Source: Media Player, Live Capture etc.

Content Output

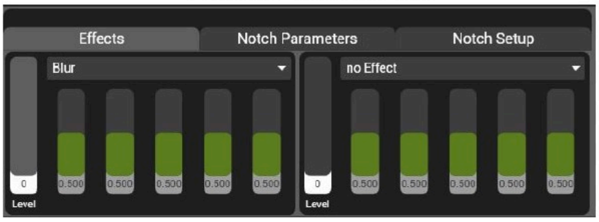
Other Outputs

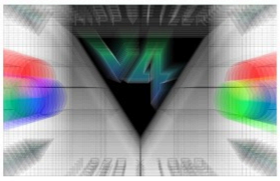

Media HippotizerV4TestCard_1
Type Picture
Size 1920 x 1080
Length N/A
Audio 0
Map Bank 0 : Clip 2
Speed
Audio
Sync To Level
On Dark
Pause
Rewind
Volume
Balance
TC
NDI
In-Point
N/A
Playhead
N/A
Timecode
N/A
Out-Point
N/A


HIPPOTIZER
1920 x 1080

Source Preview Send

Effects and Notch

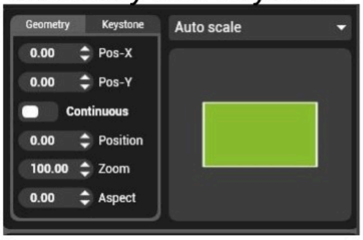

Effects
Notch Parameters
Notch Setup
Blur
no Effect
0
Level
0.500
0.500
0.500
0.500
0.500
0
Level
0.500
0.500
0.500
0.500
0.500

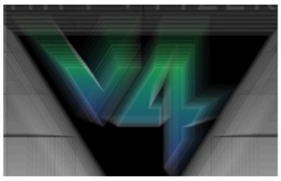


Relay Send

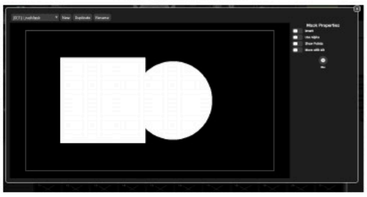
FX Preview Send

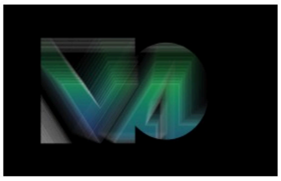
Geometry and Keystone


Geometry
Keystone
Auto scale
0.00 Pos-X
0.00 Pos-Y
Continuous
0.00 Position
100.00 Zoom
0.00 Aspect



Livemask





PreMix Preview Send

Output to Layer Compositor

Relay sends

As shown above, Relays are sent just before Geometry, Keystone and Masking, but after effects. The result is relays can have unexpected behaviour, which is by design:

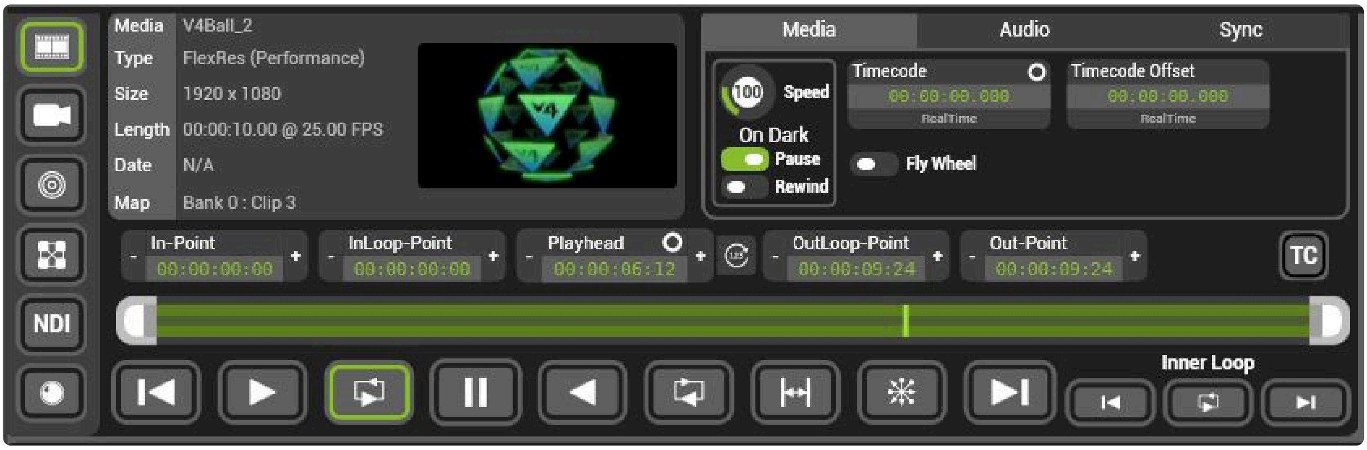
- Geometry (Including Keystone on layer) has no bearing on the relay send
- Relays are sent pre-layer level – so if media playback is required with the level down pause on dark must be disabled.
- Livemask will not affect relay sends. If a relay with masking is required use the mask effect.

Other components of Hippotizer that rely on relays as a source (such as SHAPE’s inputs 2-8) must consider the details of relays.

The parts of the layer are discussed in detail here

- The Source
- Geometry
- Notch
- Mixer
- Effects
- Livemask
- Colour
- Media Select

The Source



Media V4Ball_2
Type FlexRes (Performance)
Size 1920 x 1080
Length 00:00:10.00 @ 25.00 FPS
Date N/A
Map Bank 0 : Clip 3

Speed 100
Timecode 00:00:00.000 RealTime
Timecode Offset 00:00:00.000 RealTime

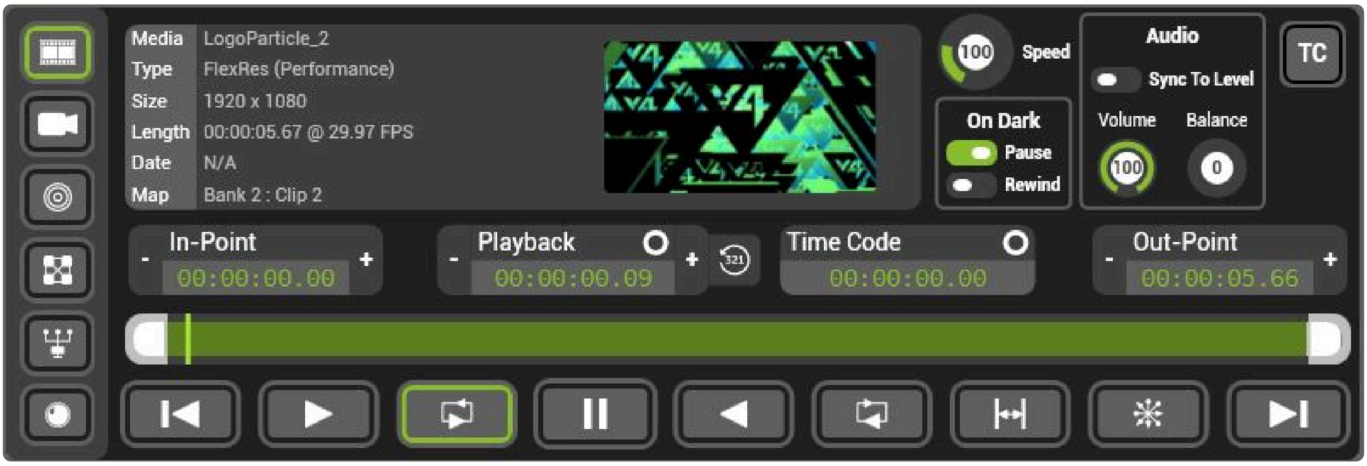
In-Point 00:00:00:00
InLoop-Point 00:00:00:00
Playhead 00:00:06:12
OutLoop-Point 00:00:09:24
Out-Point 00:00:09:24

The Source originates video for each layer, whether by playing media, showing a live capture stream or creating content with a generator. Each layer’s source is independent, and multiple layers can play the same media or live capture stream at the same time.

There are six source types to choose from:

- Media Player
- Live Capture
- Relays
- Generators
- NDI
- Spout Media Player

Media Player



Media	LogoParticle_2
Type	FlexRes (Performance)
Size	1920 x 1080
Length	00:00:05.67 @ 29.97 FPS
Date	N/A
Map	Bank 2 : Clip 2

In-Point 00:00:00.00

Playback 00:00:00.09

Time Code 00:00:00.00

Out-Point 00:00:05.66

Speed 100

Volume 100

Balance 0

The Media Player represents an independent playback engine for each layer in Hippotizer.

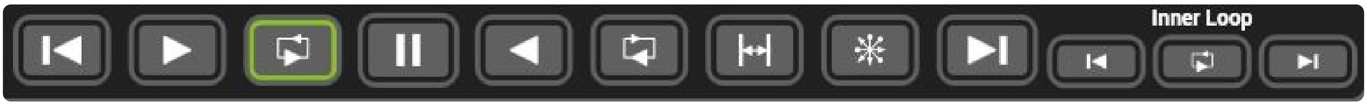
Each media player is capable of playing movies, images and audio files.

Any content to be played by the media player must first be encoded in Media Manager

The media player has many functions:

- Transport Controls
- TimeCode on Layer
- Audio Controls
- Other Media Player Functions

Transport Controls



Media Player Controls

The media player controls determine how a layer responds to timecode as well, that behavior is noted below.

In Frame Plays the first frame of the clip only. Use this play-mode to pre-load a clip before it is required.

Timecode: With Timecode, the clip will remain on the In-Frame.

Play Forward Plays from In to Out-Point and stops at the Out-Point.

Timecode: The clip will play to timecode. If Timecode exceeds the Out-Point the clip will hold on the out-frame.

Play Forward Loop Plays the clip forward and loops when it hits the out-frame.

Timecode: The clip will play to timecode and play to multiples of the clip length if Timecode exceeds the Out-point. For example, on a 5 minute clip a timecode value of 9 minutes will place the play-head at 4 minutes.

Pause: Stops playback at the current position.

Note: Pause can be triggered automatically when Pause on Dark is enabled which can clash with DMX. It is therefore advisable to either not use Pause from DMX (and use speed set to 0 instead) or set it to update only in the personality. Update only is the default setting in factory personalities.

Timecode: When paused the clip will hold at the play-head position. When un-paused it will jump to the current timecode value.

Play Backward Plays the clip from the Out-Point to the In-Point stopping at the In-Point

Timecode: Plays in time with timecode from the Out-Point to the In-Point.

Play Backward Loop Plays the clip from the Out-Point to the In-Point looping back to the Out-Point.

Timecode: Plays in time with timecode from the Out-Point to the In-Point looping at the In-Point.

Ping Pong Plays forwards to the Out-Point then backwards to the In-Point and repeats.

Timecode: Plays in time with timecode bouncing at the In-Point and Out-Point.

Random Plays random frames from between the In-Point and Out-Point.

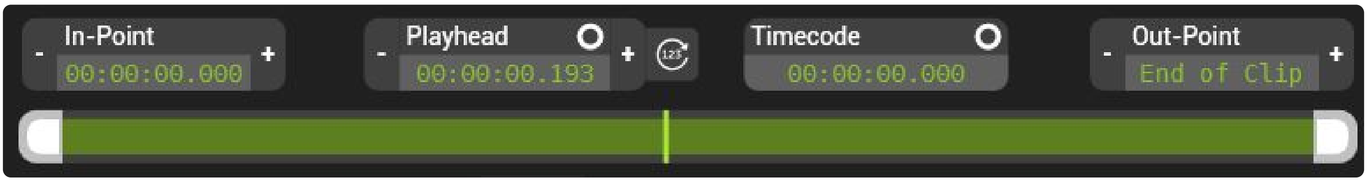
Timecode: Plays random frames while receiving time code.

Out Frame Plays the Out-Point frame and holds on that frame.

Timecode: With Timecode, the clip will remain on the Out-Frame.

Playback Position and In/Out-Point

Media plays between the In-Point to the Out-Point, which by default are the first and last frames of the clip.


In-Point 00:00:00.000
Playhead 00:00:00.193
Timecode 00:00:00.000
Out-Point End of Clip

The current Playback Position is called the Playhead which is displayed as its time and the relative position within the clip.

The playback position can also show the time from the In-Point or the Out-Point (time remaining) by toggling the countdown button.

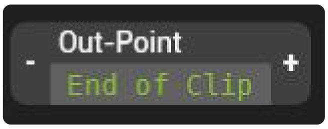
End of Clip

Controlling the outpoint of a clip presents a problem especially from an external controller such as DMX. The most commonly used out-point is normally the last frame of the clip which can create undesired behaviour when switching between clips of different length.

Throughout Hippotizer, an architectural rule is observed stating simply “pins must not change other pins”. The reasoning for this rule is rooted in the fact that Hippotizer is often controlled from many sources at once and uses a last takes precedence application logic. That is, Hippotizer will do whatever it is told to do last. This system allows Hippotizer to be controlled by DMX (with update only enabled) and the UI for example at the same time with predicable results — whatever command was given last will take precedence. (Many UI functions sit outside this rule, for example layer reset is a UI function that will change many pins, though there is no pin to reset a layer as that would be a pin changing other pins). Changing clips on the media player is a function where expected behaviour may entail pins changing pins — specifically with regard to the in and out points.

Take an example; moving from a short clip to a longer one. Consider a 10 second clip with the outpoint set to the final frame (10 seconds). After which a longer clip (20 seconds) is selected. By the rule of pins not affecting pins, the outpoint of the new clip should be 10 seconds. (the length of the previous clip). If controlled from DMX, then the 2nd clip will show an outpoint of 10 seconds as DMX will not ‘know’ to change the outpoint with the clip change.

To help clarify this, we have introduced the concept of **End of Clip** that sets the out-point the maximum value (596 hours) ensuring the clip will always play to its final frame.



Out-Point

End of Clip

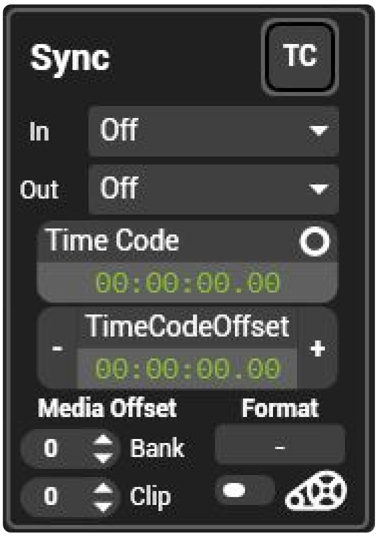
To set the out-point to End of Clip drag the out-frame on the play bar to the maximum. (Far right).

Note: Controllers such as DMX, Midi or TImeline do not have the concept of End of Clip. Ensure the out-point is set correctly with each clip change or set the outpoint to the channel maximum.

Frames or Time

The playback position, In-Point and Out-Point can be seen in time or media frames. This is changed by right-clicking on the time box label and selecting ‘show frames’.

TimeCode on Layer



Each media layer can lock to and send timecode information, this data is more generally known as Synchronization. TimeCode coming into the system from external sources (such as Linear Time Code) carries time only, while a layer generates a full **Sync State** which includes clip information, In-Point, Out-Point and playback speed.

To configure Timecode input, please see the Sync Manager

Sync Buses

Each Hippotizer has 16 Synchronization channels for use by media players refereed to as a **Sync Bus**. Sync buses do not rely on any components to operate.

More Information on Sync Buses

Sync In

Sets the layer to use either an external sync source or another layer as an input. Sync Bus 1-16 carry a full Sync State so control media selection and player state as well as playback. External 1 and 2 only carry time. To disable Sync into a layer, set the Sync In to be Off.

Sync Out

Sends the layer’s playback state to one of the 16 Synchronization buses to be use by other layers.

TimeCode Offset

Delays the layer’s response to TimeCode. For example, a layer with Offset of one minute would play a clip at time 0 when receiving timecode of one minute.

Flywheel

Determines if the layer stops playing when TimeCode stops being received. With FlyWheel enabled, the layer will carry on on loss of TimeCode. When disabled the layer will stop playing over the course of 5 seconds.

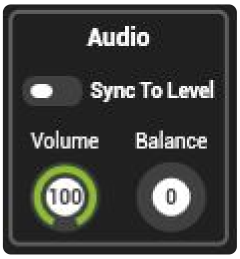
Media Offset

Used when receiving a Sync Bus from another layer; the clip and bank offset allow each layer to play different clips in time with each other.

Timecode Format

Type of timecode being received by the layer. A Sync Bus will show as “Time” while Linear Time Code will show it’s frame rate, for example 30 Drop Frame displays as “30DF”

Audio Controls



Each Media player is capable of playing stereo or multi-channel audio.

The audio controls offer basic volume and pan controls for stereo playback.

Note: For multi-track audio playback it is best to use the volume controls on the playback device to control individual channel levels

Sync To Level

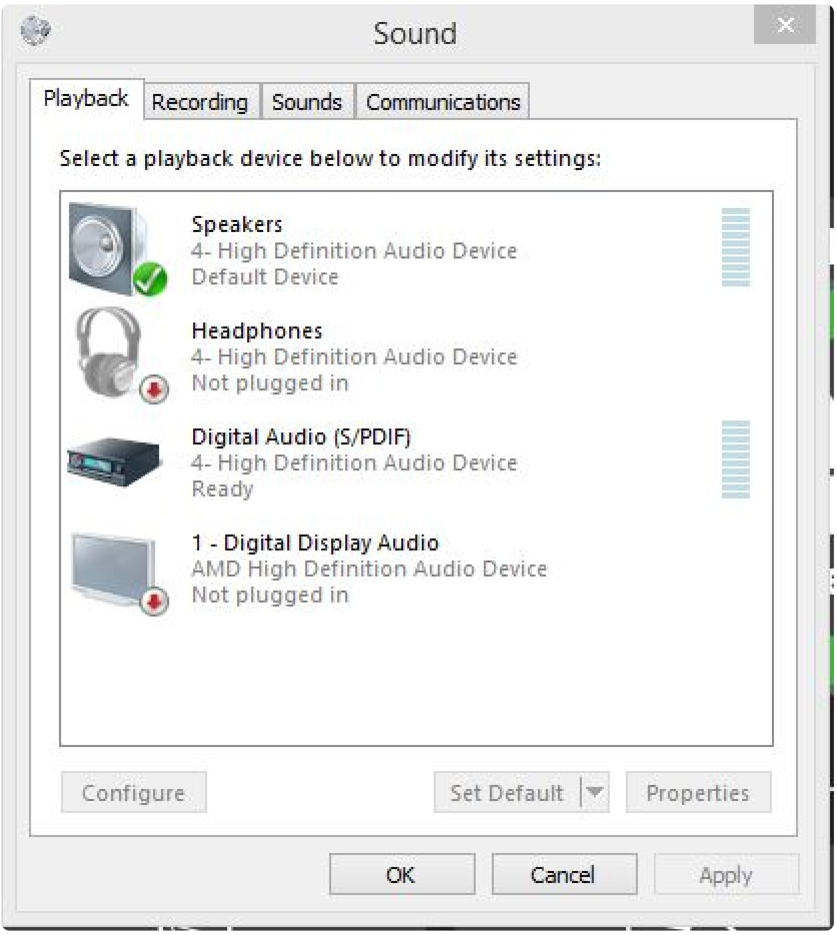
Sets the volume equal to the layer’s level.

Note: When the volume is linked to layer level and controlling from DMX, it is advised to set the volume to update only.

Audio Output

All Hippotizer V4 systems are fitted with stereo audio outputs on either XLR or 1/8” mini jack. For multi-channel audio, an output interface is required. Hippotizer supports most common Windows 8 compatible interfaces. Green Hippo recommends the Motu 828x

Hippotizer uses the Windows default playback to output audio. This is configured from within the Windows audio control panel;



Sound

Playback | Recording | Sounds | Communications

Select a playback device below to modify its settings:

Speakers
4- High Definition Audio Device
Default Device

Headphones
4- High Definition Audio Device
Not plugged in

Digital Audio (S/PDIF)
4- High Definition Audio Device
Ready

1 - Digital Display Audio
AMD High Definition Audio Device
Not plugged in

Configure
Set Default
Properties
OK
Cancel
Apply

Other Media Player Functions

Media Speed

The playback speed can be set from 0 (Paused) to 400 (4x Speed).

|Note: The default speed of 100 may not fall onto a whole number for DMX personalities. See here for details|.

Pause on Dark

Pauses media playback when the layer level is set to zero.

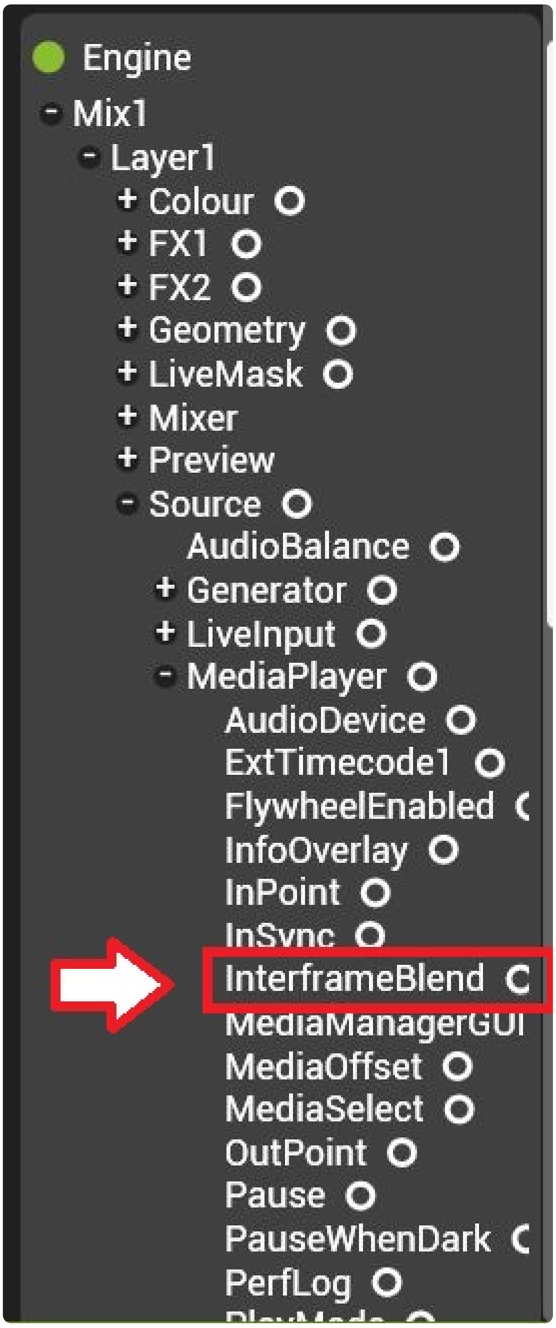
Rewind on Dark

Sets the media play-head to the In-Point when the layer level is set to zero.

Interframe Blending

The media player will by default always render a new frame for each render loop of the engine. This means that if the engine is running at 60 frames per second (FPS) and the media player is playing 30 FPS content, it will interpolate every other frame by blending the two adjacent frames, a process called interframe blending. In most cases this is desirable; content will look smoother especially when played at slow speed. However, there are cases where interframe blending is not ideal, such as when media frame rate matches engine frame rate.

Interframe blending is controllable on each layer with a pin:


Engine
Mix1
Layer1
Colour
FX1
FX2
Geometry
LiveMask
Mixer
Preview
Source
AudioBalance
Generator
LiveInput
MediaPlayer
AudioDevice
ExtTimecode1
FlywheelEnabled
InfoOverlay
InPoint
InSync
InterframeBlend
MediaManagerGUI
MediaOffset
MediaSelect
OutPoint
Pause
PauseWhenDark
PerfLog

Performance Log

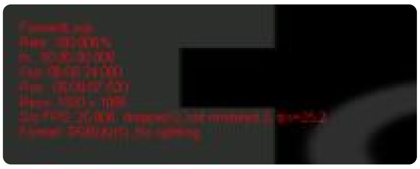
The media player contains two pins that show playback frame rate, frames dropped and frames skipped.

To use the log, drag two pins out of the pin tree onto a pinboard:

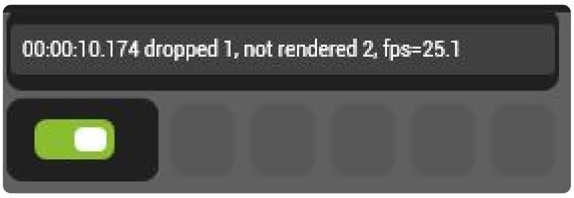
- Mix/Layer/Source/Mediaplayer/perflog
- Mix/Layer/Source/Mediaplayer/infooverlay

The Info overlay pin turns performance monitoring on, while the perflog string pin displays the results.

Note: Performance results are also stamped to the top left corner of the output in red letters.



The data displayed from the performance log can be very informative.



```
00:00:10.174 dropped 1, not rendered 2, fps=25.1
```

The **FPS** shown in the perf log is the actual framerate of the media being played. Under normal conditions this framerate will match that of the media. If the the system is unable to render at full speed due to load, this framerate will begin to slow. The **dropped frame** and **not rendered** counters indicate how many frames were skipped or failed to render in time respectively. Skipping frames is a normal consequence of media having a faster framerate to the engine. (if media is played back at high speed or 60FPS content being played on a 50FPS output).

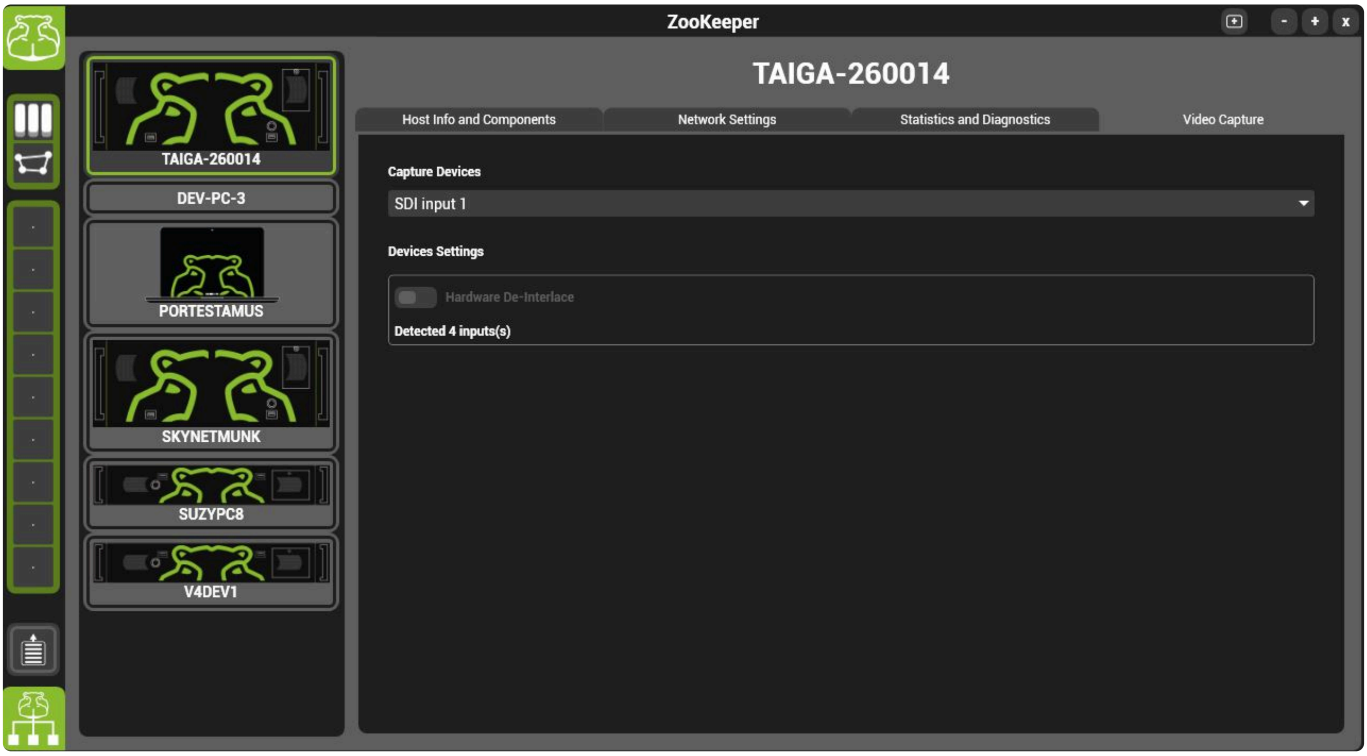
A small number of dropped or not rendered frames is normal especially during clip changes, speed changes or under timecode while scrubbing. Consistently increasing not rendered frames indicates the media player is unable to play every frame it should; which can lead to un-smooth playback.

If the media playback framerate is slower then the clip framerate, this is an indication that the system is saturating in playback capability. It is not always easy to determine the bottleneck for media playback as it depends on may factors including overall system load, codec, resolution and media drive speed. Most commonly, the CPU will saturate (indicated by 70% or higher utilisation as measured by task manager) or the media drive will be unable to upload data fast enough for rendering. CPU saturation can best be avoided by using FlexRes Performance wherever possible.

Live Capture

Live video from external sources such as cameras or computers may be brought into Hippotizer and used as a video source. A capture card is required. See Hardware Information on Capture Cards for more information.

Before using live capture, it is important to ensure the card has been properly detected by Hippotizer. This information is best accessed within the Live Capture Tab in the configuration page of Zookeeper.


ZooKeeper
TAIGA-260014
DEV-PC-3
PORTESTAMUS
SKYNETMUNK
SUZYPC8
V4DEV1
TAIGA-260014
Host Info and Components
Network Settings
Statistics and Diagnostics
Video Capture

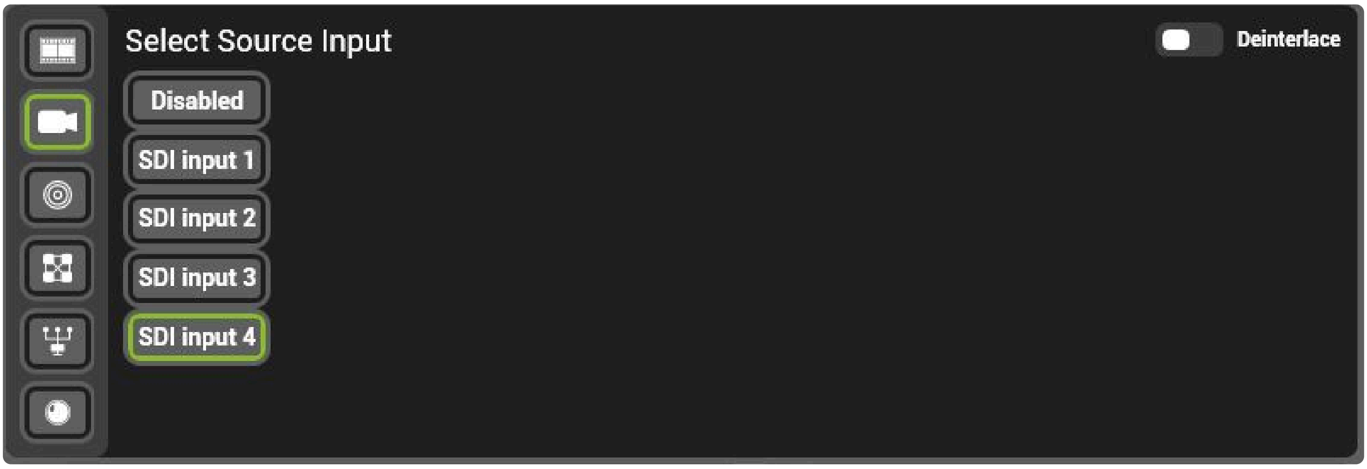
Capture Devices
SDI input 1

Devices Settings
Hardware De-Interlace
Detected 4 inputs(s)

In the above image an SDI capture card has been detected.

Note: If an installed capture card is not detected, this is commonly due to a driver issue. To fix it, stop the engine and Zookeeper and re-install the Datapath drivers. See the Hippotizer release notes for the currently supported driver version.

Once detected, live capture inputs will appear as a list of buttons in layer source.



Delay in Live Capture

It is often desired to have as little latency in live capture as possible. Properly configured, Hippotizer will add 2-3 frames of delay.

For best practice guidelines please see the section on reducing live delay

Interlaced video signals

Some SDI signals are **Interlaced**; this alternates lines between frames to reduce the data rate. (Frame 1 will have even lines, frame 2 odd lines and so forth) Interlaced signals are normally denoted with an i in their frame-rate. For example, 1920×1080 @60i sends 60 interlaced frames per second. Interlaced signals often show a jagged 'combing' effect with lateral motion making it necessary to de-interlace the signal.

Hippotizer has two de-interlacing tools. A software based one on layer, and a hardware based system on the capture card.

The software de-interlacer on layer simply crops the interlaced signal in effect halving the vertical resolution. This does not add delay but the reduction of resolution may not be desirable.

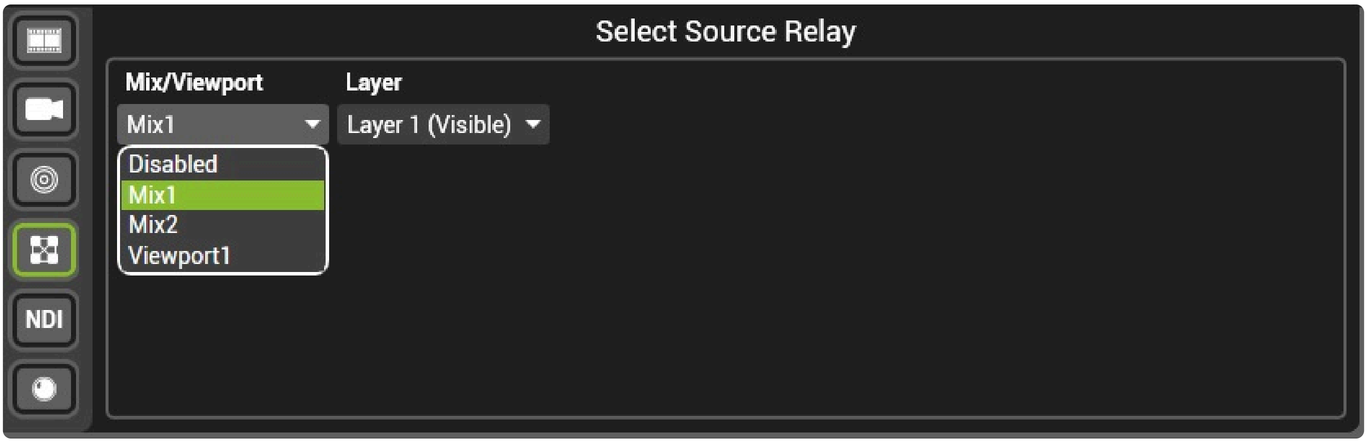
The hardware de-interlacer occurs on the capture card and works by combining preceding frames to create a full resolution stream. The buffering required for this process will add latency: typically one frame. The hardware de-interlacer is controlled from the Capture Card tab of the configuration section of Zookeeper.

Generally, the hardware de-interlacer offers better visual quality.

Relays

Relays allow video from one layer, viewport or mix to be sent to other layers as a source on the same machine.

To access relays, select the relay icon in the Source of the desired layer:



Relay Select is an integer pin which is populated based on how many relay sources are present on the machine.

The order of the Relay select pin is:

- 0 – Disabled
- Mixes
- Viewports
- Layers – increasing by mix and layer number. (Mix 1: Layer1 then Mix1: Layer2 etc.)

Relays are located after the media player and effects, but before colour geometry and the layer level in the render chain. Meaning a relay will convey clip information and effects but ignore colour, geometry and layer level.

Common uses for Relays:

- **Adding Effects to a Layer**

1. On Layer 1, leave the level down and play a clip
2. On Layer 2, set the Layer source to relay from Layer 1 and put the level up.
3. Use Layer 1’s media select and effects
4. Use Layer 2’s Geometry, colour, level and effects.

- **Sending a whole mix to a Pixelmapping mix**

1. Start 2 Mixes, using one to output to the Pixelmapper only and the other outputting video to screen
2. Set Layer 1 on the Pixelmapper mixes to relay from Mix the Mix Master of the output mix.
3. Pixelmapper will now exactly follow the output and corrections can be applied to pixel mapper

(Geometry, Colour, Level etc.)

- **Multiple Inputs into SHAPE**

1. Patch SHAPE
2. Navigate to the Viewports page of Zookeeper and click the SHAPE viewport
3. Inputs 2-8 of SHAPE are relays and can be changed in real time.

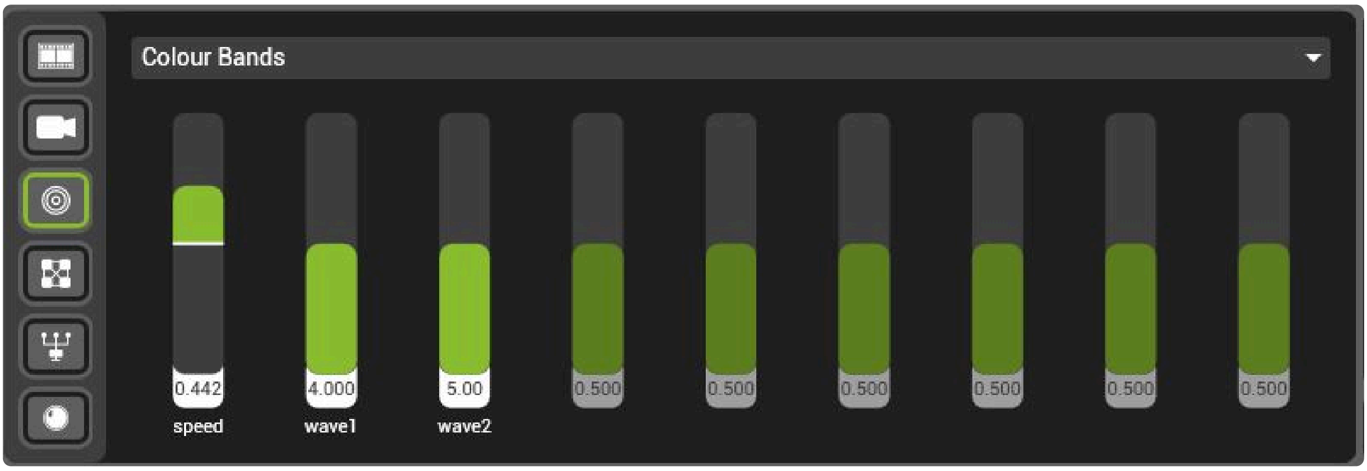
Generators

Generators are effects that render video in realtime.

Generators range from simple colours to geometric patterns, clouds or wave forms.

To use a generator, choose generator in the source of the desired layer.

Each generator has up to nine attributes, shown as faders.



Colour Bands

speed 0.442

wave1 4.000

wave2 5.00

0.500

0.500

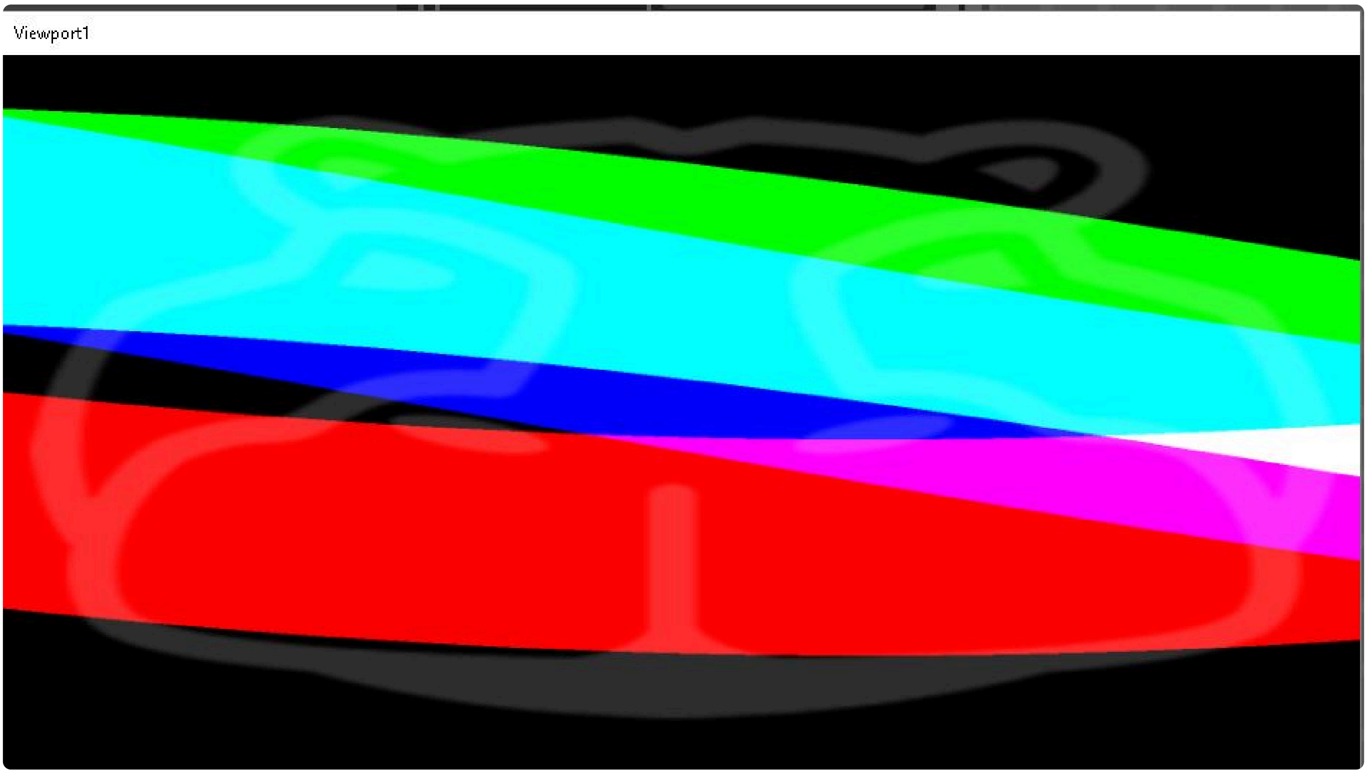
0.500

0.500

0.500

0.500

Using the generator **Colour Bands** yields the below output.



[A complete list of all generators is here.]

NDI

The Network Device Interface (NDI) is a method of transferring video over the network.

Developed by NewTek, NDI is a commonly used method to send video around a local network. NDI has a variety of tools freely available for download to send video from popular 3rd party applications such as Adobe Creative Cloud or the Unreal Engine.

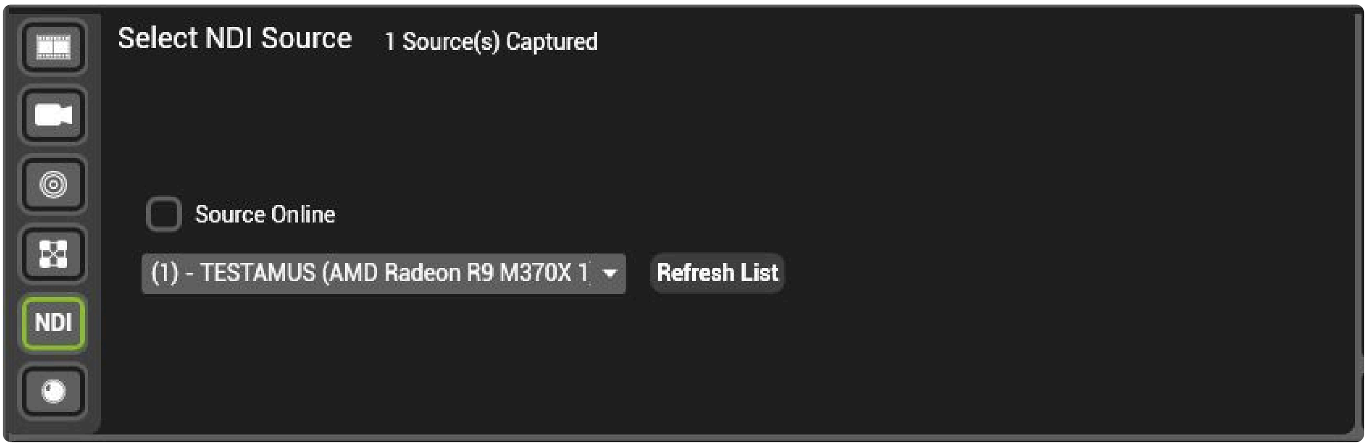
Newtek offers many applications for download here:

https://www.newtek.com/ndi/tools/

NDI on each layer

Each Hippotizer layer has an NDI receiver as a source.

NDI Sources are detected each time the **Capture** button is pressed and ordered by their IP Address. (Lowest IP address appears first)



Select NDI Source 1 Source(s) Captured

☐ Source Online

(1) - TESTAMUS (AMD Radeon R9 M370X 1

To select a source, press capture to update the list then choose the source and press capture again to begin receiving it.

Spout

Spout is a realtime video sharing framework for Windows, enabling a media layer to receive video from a supporting application running on the same machine.

Commonly used for integrating sound-reactive visuals with a Hippotizer, Spout offers enormous creative potential by combining innovative visual software with Hippotizer seamlessly.

To use Spout:

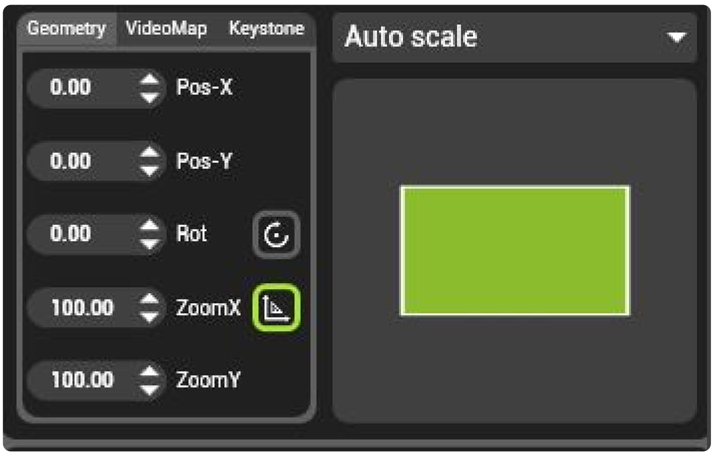
- Install the supporting 3rd party application onto the Hippotizer machine
- Start the Hippotizer and 3rd party application
- Enable Spout sharing in the application
- In Hippotizer, select Spout as a layer source and choose the stream.

Note: Running untested 3rd party software on your Hippotizer system is intrinsically risky; always test planned setups completely before using in a live environment.

Spout is a widely adopted application; for a full list of supporting software visit their website: http://spout.zeal.co/

Geometry

Each layer has independent Geometry control



0.00 Pos-X
0.00 Pos-Y
0.00 Rot
100.00 ZoomX
100.00 ZoomY

The basic Geometry controls place media onto the layer:

Pos-X

The ‘X’ or right to left position of the media.

Pos-Y

The ‘Y’ or up and down position of the media.

Continous

Switches the rotation control from **Position** to **Speed**. With Continuous disabled, rotation is similar to indexing a Gobo in a moving light.

Position / Speed

The position (or Index) or speed of rotation of a clip. This control is affected by the Continuous switch above.

Zoom

Zooms the content from 0 to 200% size on the layer.

Note: If additional zoom is required the mega zoom effect should be used.

Aspect

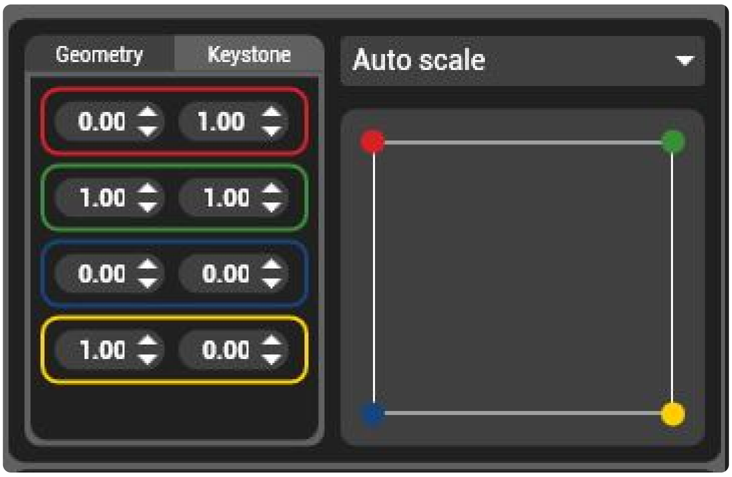
The aspect changes the aspect ratio of the media.

Additional Geometry controls

- Keystone on Layer
- Aspect Mode

Keystone on Layer

Every layer in Hippotizer features an independent Keystone control accessed from a tab within the Geometry section.


Geometry
Keystone
Auto scale
0.00
1.00
1.00
1.00
0.00
0.00
1.00
0.00

The Keystone is defined by four points, one for each corner.

Note: Keystone does not support concave shapes. In the event a concave keystone is created an un-keystoned image will be shown

The Keystone occurs after geometry controls in the signal chain so it is best to avoid using geometry on layers with keystone.

Aspect Mode

The Aspect Mode determines how media of different resolutions are fit to layers. The

Auto Scale

Stretches or shrinks the content to fit to the layer without changing the aspect ratio. The content will be stretched or shrunk until one dimension of the media resolution aligns with the layer resolution. If the media has a different aspect ratio to the layer this will result in black bars on either the top and bottom or the sides of the media.

- Preserves Aspect Ratio
- Will not crop
- Will result in black borders if media aspect ratio is different then the mix.

Pixel 1:1

Content is played without any size change.

Pixel 1:1 is recommended where pixel accuracy is important, such as with UV mapped content.

- Preserves Aspect Ratio
- Will result in cropping if media resolution is larger than the mix
- Will result in black borders if media resolution is smaller than the mix.

Fill

Stretches or shrinks the content to fit to the layer on both axis; can change the aspect ratio.

- Will change Aspect Ratio to match the media to the mix.
- Will not crop
- Will not result in black borders

4:3

Sets the content to a 4:3 aspect ratio and stretches or shrinks it to fit completely on the layer.

- Will force the Aspect Ratio of the media to 4:3.
- Will not crop
- Will result in black borders if the mix resolution is not 4:3

16:9

Sets the content to a 16:9 aspect ratio and stretches or shrinks it to fit completely on the layer.

- Will force the Aspect Ratio of the media to 16:9.

- Will not crop
- Will result in black borders if the mix resolution is not 16:9

16:10

Sets the content to a 16:10 aspect ratio and stretches or shrinks it to fit completely on the layer.

- Will force the Aspect Ratio of the media to 16:10.
- Will not crop
- Will result in black borders if the mix resolution is not 16:10

1:1

Sets the content to a 1:1 aspect ratio and stretches or shrinks it to fit completely on the layer.

- Will force the Aspect Ratio of the media to 1:1.
- Will not crop
- Will result in black borders if the mix resolution is not 1:1

Auto Fill

Preserves aspect ratio and stretches or shrinks the media to fit the layer resolution such that there is no borders.

- Preserves Aspect Ratio
- Will crop to fill the entire mix if media has different aspect ratio to the mix
- Will not result in black borders

Fit to Width

Clamps the media to the width of the mix changing the height to preserve aspect ratio

- Will not change Aspect Ratio
- Can lead to cropping
- Can lead to black borders

Fit to Height

Clamps the height of the media to the mix changing the width to preserve aspect ratio.

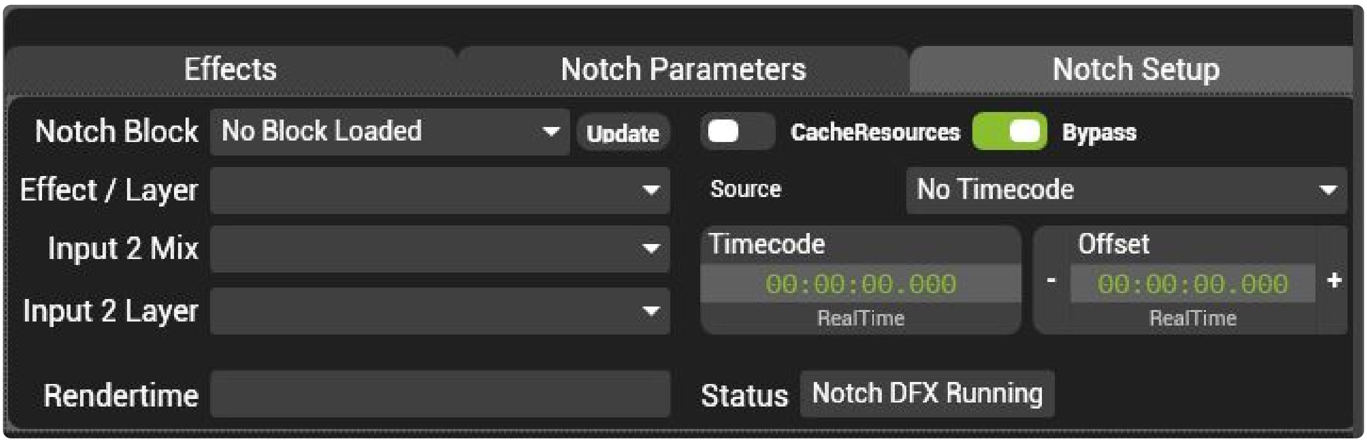
- Will not change Aspect Ratio
- Can lead to cropping
- Can lead to black borders

Note: Aspect mode affects all other geometry controls. It is prudent to set aspect mode first, then modify geometry.

Notch

Notch is 3rd party realtime, generative content creation and rendering software. Hippotizer V4 supports Notch playback with the correct software licenses.

Notch is presented on each Hippotizer layer in tabs behind the layer selector.


Effects
Notch Parameters
Notch Setup
Update
CacheResources
Bypass
Effect / Layer
Input 2 Mix
Input 2 Layer
Rendertime
Timecode
Offset
-
+
RealTime
RealTime

Notch Block: No Block Loaded
Source: No Timecode
Timecode: 00:00:00.000
Offset: 00:00:00.000
Status: Notch DFX Running

Notch is comprised of two tabs: **Setup** and **Parameters**

- Notch Setup
- Notch Parameters

To add or edit the order of Notch blocks, please see below.

- Adding and managing Blocks

The licensing of Notch is described in depth here:

- Notch Licensing

The recommended Notch workflow:

- Notch Workflow

Notch Licensing

Notch is a 3rd party application with a separate licensing system to Hippotizer, there are different levels of licenses to consider.

Hippotizer Montane+ Systems

All V4+ systems include a license to play 10 stock Notch effects.

V4+ systems will also playback 3rd party Notch effects with a watermark.

To play 3rd party Notch effects a Playback dongle is included for a period of 2 years.

Hippotizer V4+ Systems (excluding Montane+)

V4+ systems include a license to play 10 stock Notch effects.

V4+ systems will also playback 3rd party Notch effects with a watermark.

To play 3rd party Notch effects a Playback dongle is required.

Hippotizer V4 Systems

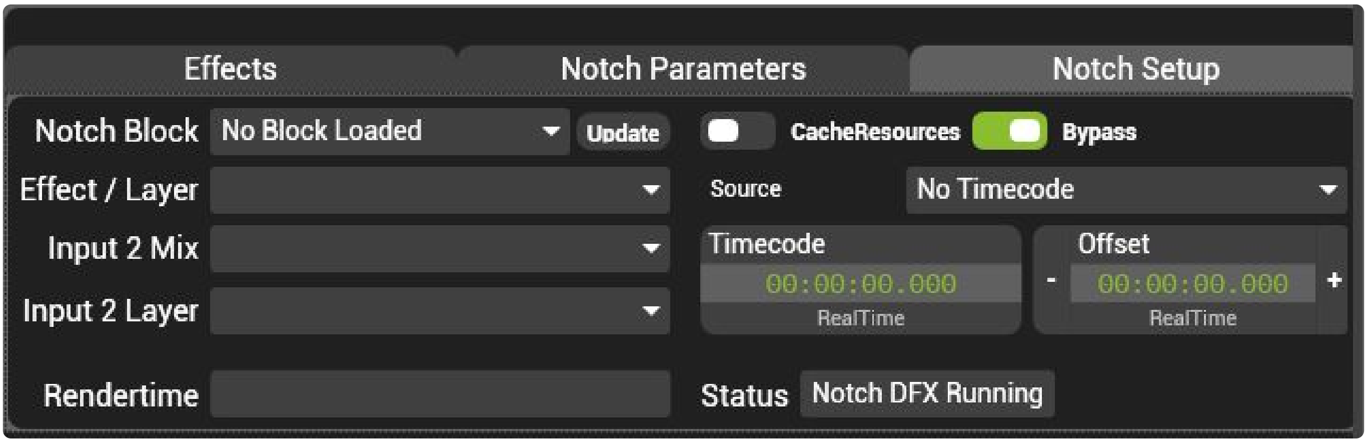
Hippotizer V4 systems do not have a license for stock Notch effects so will be unable to play them.

To Play V4+ Stock Notch effects a license must be purchased from Green Hippo.

V4 systems will not be able to play 3rd party Notch effects.

To play 3rd party Notch effects a Playback dongle is required.

Notch Setup


Effects
Notch Parameters
Notch Setup
Update
CacheResources
Bypass
Effect / Layer
Input 2 Mix
Input 2 Layer
Timecode
Offset
-
+
RealTime
RealTime
Rendertime

Notch Block No Block Loaded

Source No Timecode

Timecode 00:00:00.000

Offset 00:00:00.000

Status Notch DFX Running

Notch Block

Notch effects are grouped into **Blocks**, this pin chooses which block is loaded.

> ! Loading a Notch Block is extremely resource intensive and will temporarily stop all rendering. Only load blocks outside of live environments. If changing blocks live is required consider using multiple layers and bypass, or cached resources.

Effect / Layer

Selects which Notch Effect is loaded.

Cached Resources

When enabled, Notch blocks are stored in memory even when de-selected. Cached resources avoids the stutter in output playback when switching between blocks.

> Note: Each layer will save a copy of each block loaded potentially leading to very high resource usage. Take care to use the minimum number of layers as possible.

Bypass

Bypasses the active Notch block without unloading it from memory. Enable Bypass to quickly disable Notch on a layer without disrupting the rest of the system.

Rendertime

The real time measure of how long each frame is taking to render through Notch. At 60FPS, a render time of above 15ms will slow the engine down.

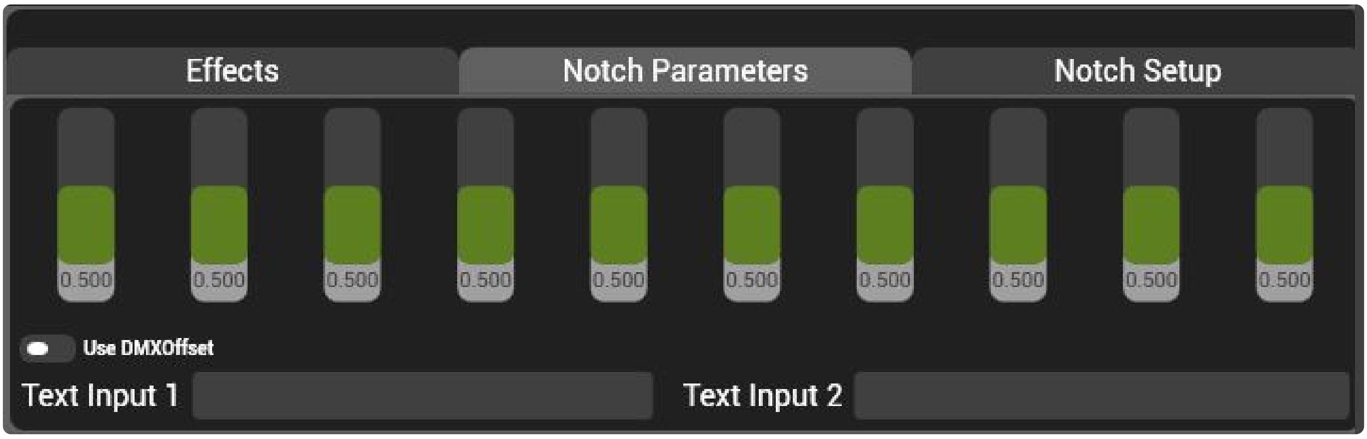
Status

An indication of the Notch status.

- **No Notch Block Loaded** No Block selected
- **Effect loaded OK** Normal run state when Notch is loaded and operating
- **Loading Notch Block** A new block is loading. The whole system output will stop while this is happening.

Notch Parameters

Notch controls are exposed as pins for control by Hippotizer


Effects
Notch Parameters
Notch Setup
0.500
0.500
0.500
0.500
0.500
0.500
0.500
0.500
0.500
0.500
Use DMXOffset
Text Input 1
Text Input 2

By default, there are 10 float and 2 string pins for the loaded Notch effect.

Each float control is 16bit internally, but may be controlled as 8 or 16bit by DMX as required.

If more parameters are required, the number of channels can be changed by adding a text file to the Notch Block folder:

- Shut down the Engine and Zookeeper
- On the Hippotizer, navigate to Documents/Green Hippo/Notch
- Create a text document and name it **Params.txt**
- Open the text document and add three lines:

```
numtextparams=5
numfaderparams=20
numinputs=8

* Save the text file and close it
* Restart the engine
```

The three variables to consider when editing the number of parameters of Notch:

Text Parameters

- 2 by default
- No Limit to how many can be created

Fader Parameters (Floats)

- 10 by defalt
- No limit to how many can be created

Inputs

- 1 by default
- up to 8 supported
- Inputs use relays as a source.

Adding and managing Blocks

Notch blocks are stored as files with the extension **.dfxdll**

To add blocks to Hippotizer, save them to the path:

C:\Users\Hippo\Documents\Green Hippo\Notch

Each block name must be preceded with a unique number, followed by an underscore. The number will determine the order blocks are choosen.

For example `01_V4PlusStock.dfxdll` will appear first in the list as V4PlusStock

The Hippotizer engine must be restarted before newly added Notch Blocks will be available for use.

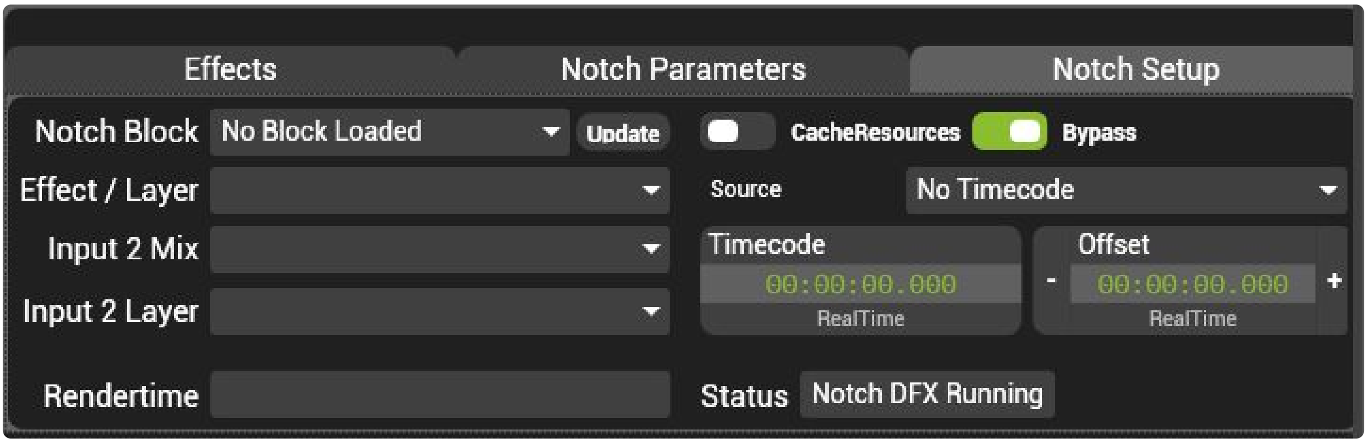
Using Notch

The primary concern when using Notch is to manage resources and avoid disrupting the output at show time. To accomplish this, there are some guidelines to follow:

Loading a Notch block into system memory is a time-consuming process and will disrupt the video output.

To avoid output disruption, Green Hippo strongly recommends the following workflow.

- Always use cached resources.
- load and test all Notch blocks before every show
- Notch blocks that are not used should remain loaded on the layer. Use the bypass switch to disable Notch.
- Plan the layers that will use Notch. **Use as few Hippotizer layers as possible**.



Notch Block: No Block Loaded

Source: No Timecode

Timecode: 00:00:00.000 RealTime

Offset: 00:00:00.000 RealTime

Status: Notch DFX Running

Managing Resolution

The resolution of a Notch effect is determined by the underlying media or capture resolution. If no media or capture is specified on a Hippotizer layer using Notch it will not render.

The layer resolution will to a large degree determine how computationally heavy Notch is. Always use the lowest resolution possible to maximise performance and overhead.

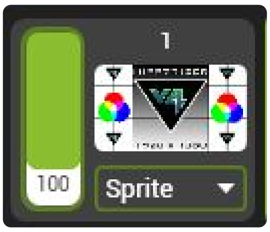
V4+ Stock Effects

V4+ Systems include free Stock Notch effects.

Note: V4 Systems do not support stock Notch effects as they do not have the correct license and generally lack the performance to run them well. Should you wish to license a V4 system to run V4+ stock effects please discuss this with Green Hippo.

Mixer

The Mixer controls how layers interact with each other.



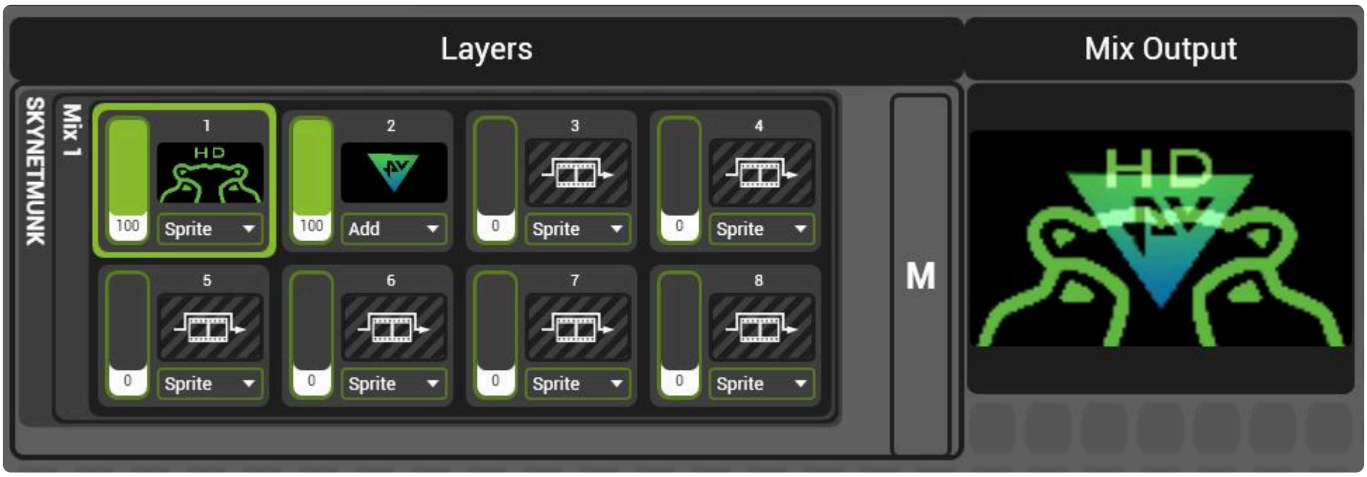
There are two controls for the mixer:

- Mix Mode
- Layer Level

Mix Mode

Add Mode

Add Mix Mode sums the current layer with all those below it.

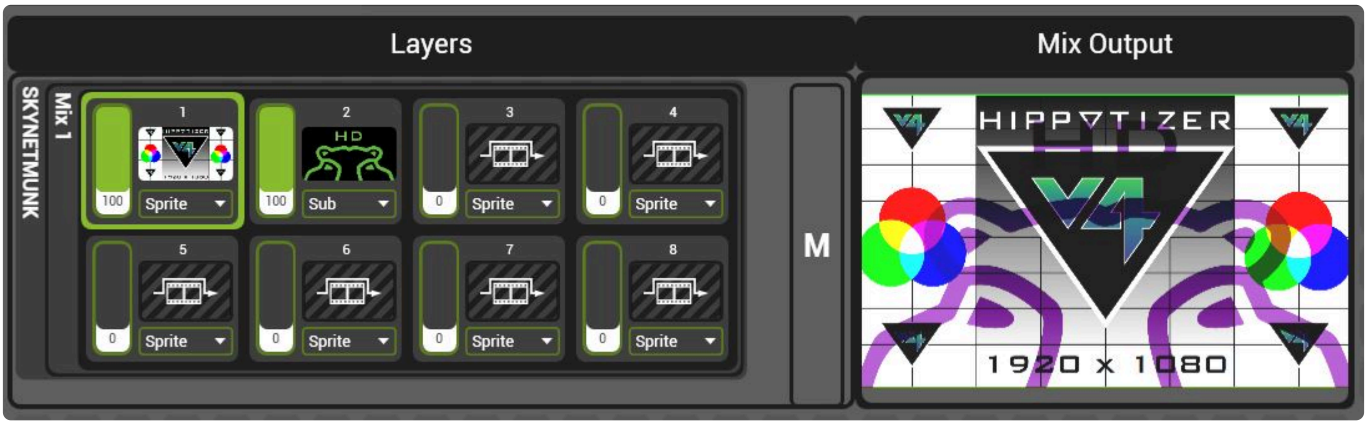

Layers
Mix Output
SKYNETMUNK
Mix 1
1
100
Sprite
2
100
Add
3
0
Sprite
4
0
Sprite
5
0
Sprite
6
0
Sprite
7
0
Sprite
8
0
Sprite
M

Considerations with Add Mode

- Pixel Colour values are simply added together
- The Alpha Channel is not considered, though full alpha is rendered as black so adds nothing to the composition and appears transparent
- The Area outside the layer's raster is rendered as black and is also transparent.

Subtract Mode

Subtract Mix mode deducts the colour of the layer from all those below it.


Layers
Mix Output
SKYNETMUNK
Mix 1
1
100
Sprite
2
100
Sub
3
0
Sprite
4
0
Sprite
5
0
Sprite
6
0
Sprite
7
0
Sprite
8
0
Sprite
M
HIPPOTIZER
1920 x 1080

Subtract Mix Mode Considerations

- The Alpha Channel is not considered, though full alpha is rendered black so has no effect
- Areas outside the layer raster are black so do not change the colour values

Darken Mode

Lighten Mode

Softlight Mode

Softlight Inverse Mode

Hardlight Mode

Overlay Mode

Difference Mode

Multiply Mode

Screen Mode

Opaque Mode

Sprite Mode

LumaKey Mode

Matte Mode

Alpha Mode

Layer Level

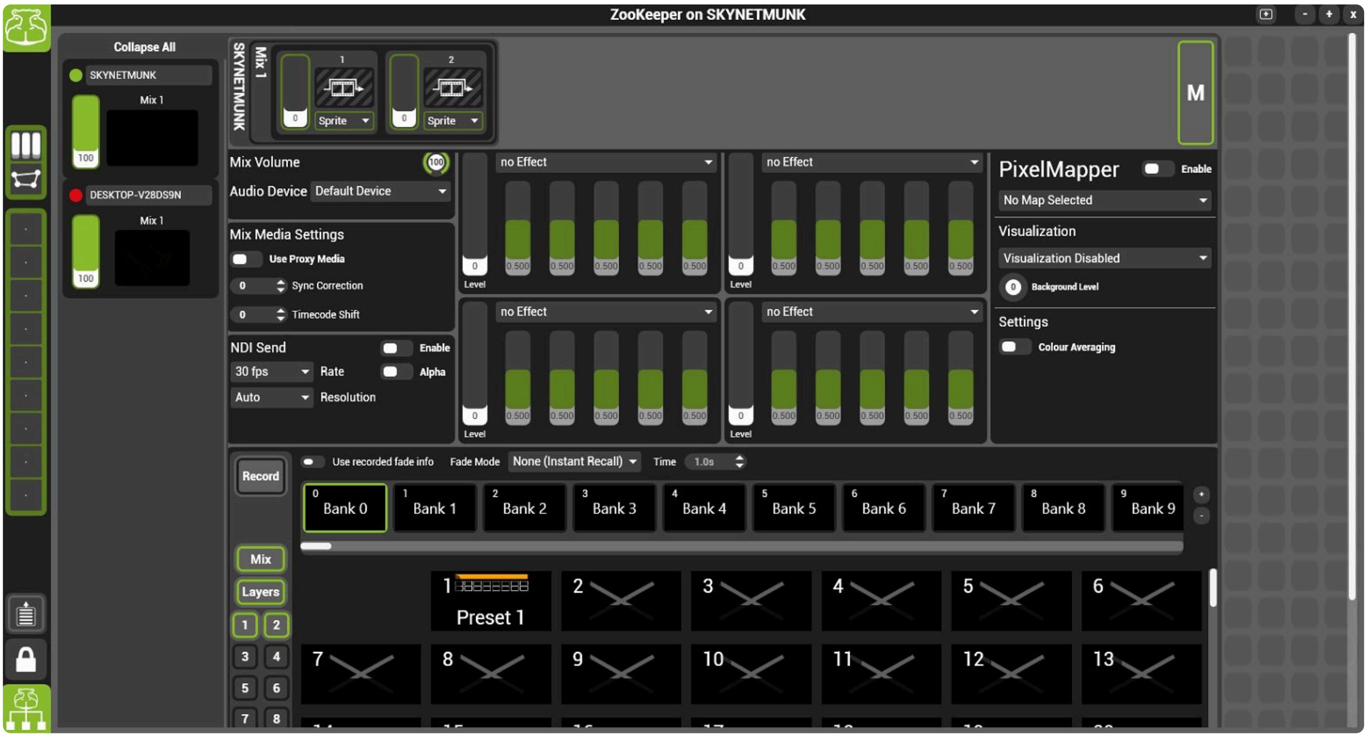
Effects

Livemask

Colour

Media Select

Mix Controls


ZooKeeper on SKYNETMUNK
Collapse All
SKYNETMUNK
Mix 1
DESKTOP-V28DS9N
Mix Volume
Audio Device
Default Device
Mix Media Settings
Use Proxy Media
Sync Correction
Timecode Shift
NDI Send
Enable
30 fps
Rate
Alpha
Auto
Resolution
no Effect
Level
PixelMapper
No Map Selected
Visualization
Visualization Disabled
Background Level
Settings
Colour Averaging
Record
Use recorded fade info
Fade Mode
None (Instant Recall)
Time
Bank 0
Bank 1
Bank 2
Bank 3
Bank 4
Bank 5
Bank 6
Bank 7
Bank 8
Bank 9
Mix
Layers
Preset 1
M

The mixes page represents the master controls for each set of media layers.

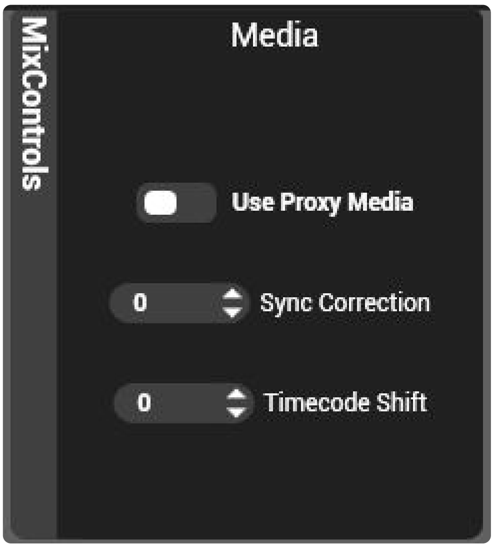
Each mix contains controls for the mix, presets and video output controls.

There are several section to mix controls

- Media Mix Controls
- Pixelmapper
- NDI Send

Media Mix Controls

Media Controls are global settings for all media players within that mix.



Use Proxy Media
0 Sync Correction
0 Timecode Shift

Use Proxy Media

When enabled, if proxy media has been encoded, all media players in that mix will use proxy media.

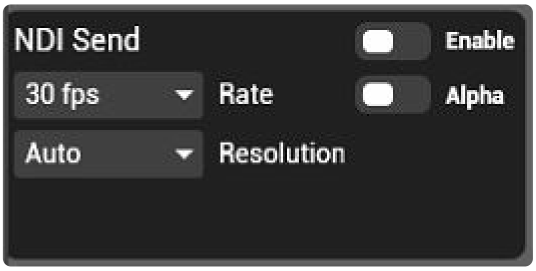
Sync Correction

A correction factor for the delay (in milliseconds) in passing synchronisation data between media players. The default of zero works in most cases.

Timecode Shift

A global shift (in milliseconds) applied to all timecode being sent into the media players on that mix. Use this setting to compensate for distance delay between mixes.

NDI Send



Each Mix can send an NDI feed over the network.

Enable

When enabled, NDI will broadcast the sender as Hostname/mix number. Once a connection is established it will begin to send.

Note: Sending NDI can be quite intensive on the system CPU.

FrameRate

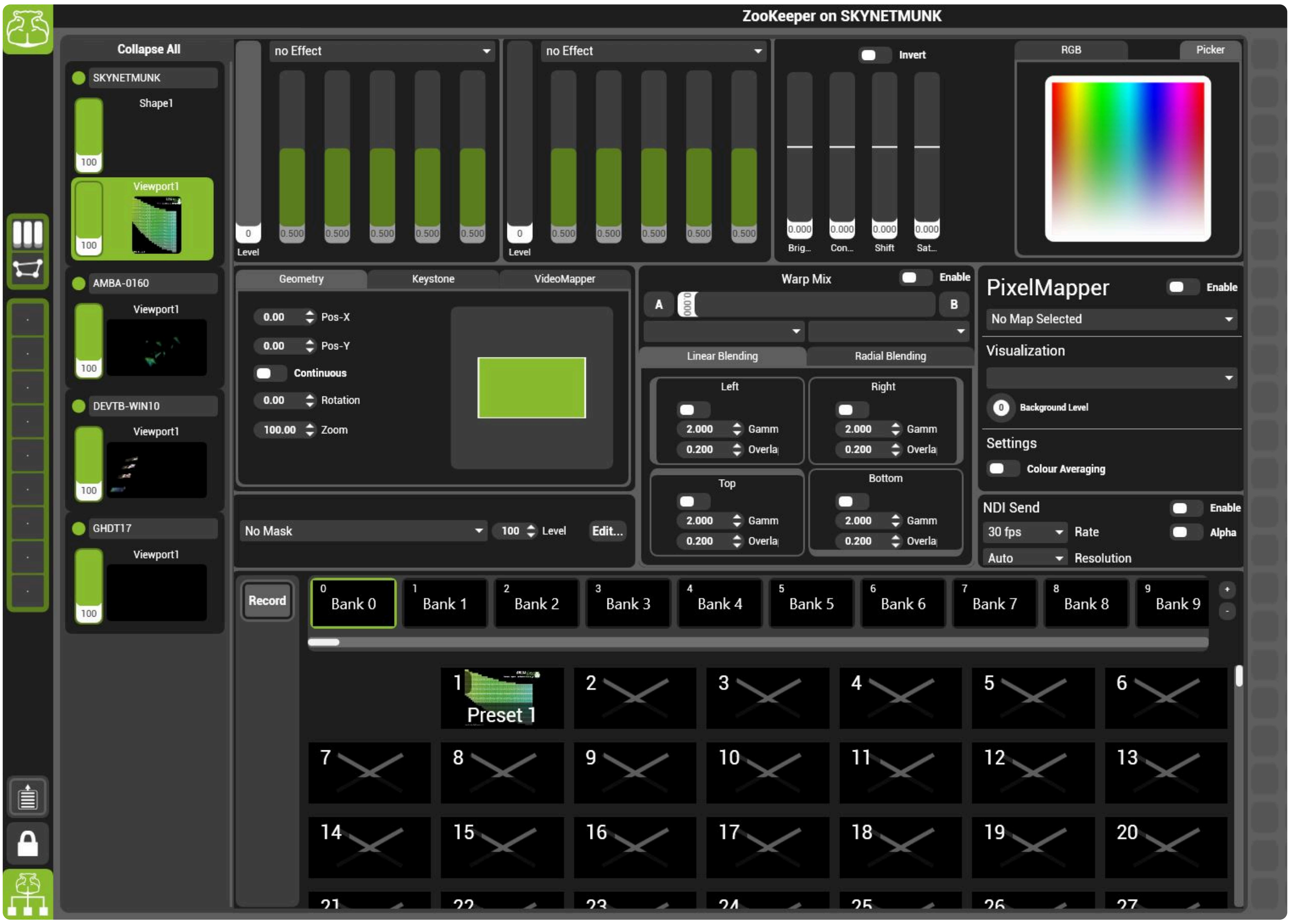
Sets the desired refresh rate of the NDI sender.

Receiving a slower framerate then is set by the sender can indicate an overloaded network, sender or receiver.

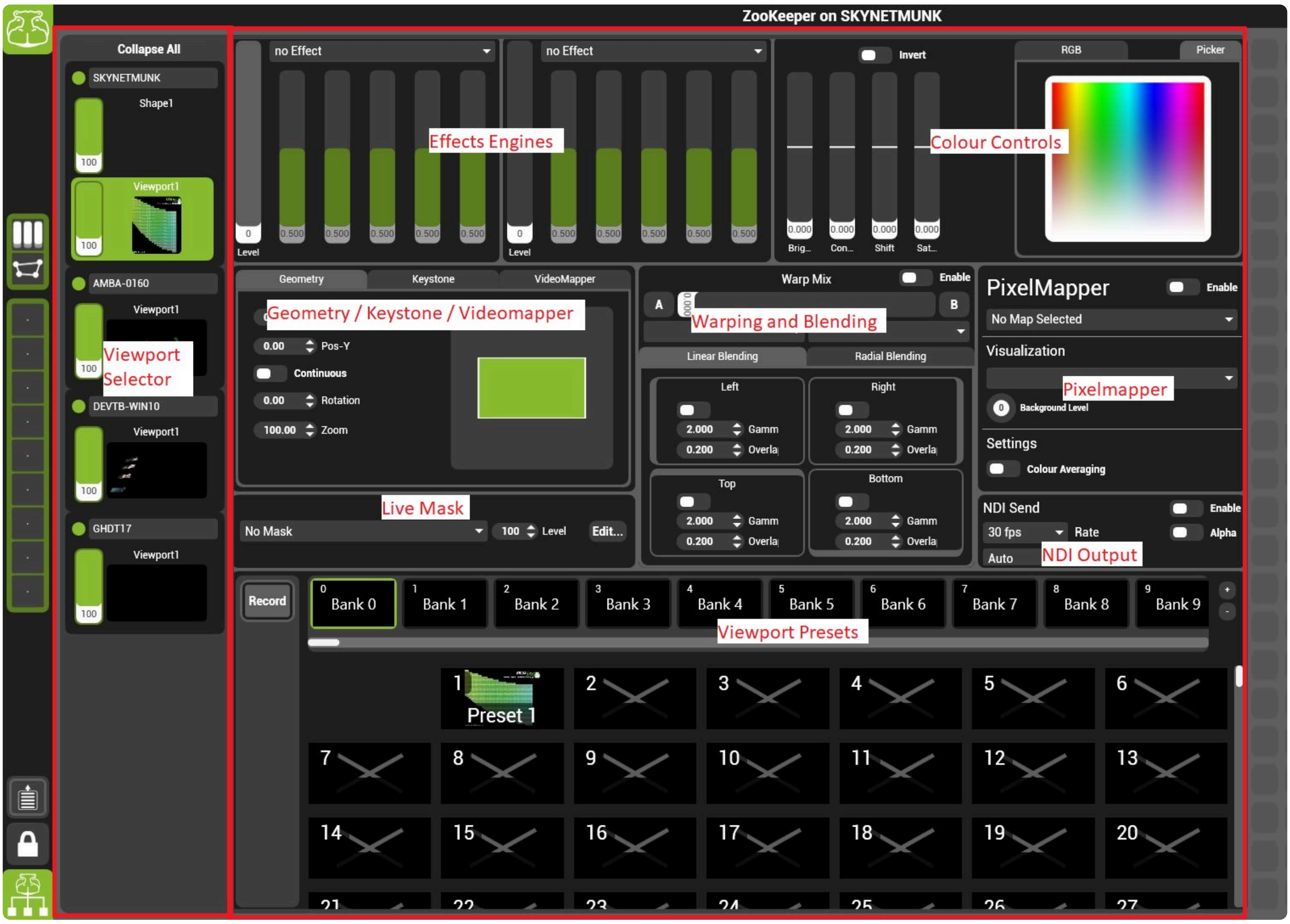
Viewports Page

The Viewports Page is where viewport controls are contained.

The Viewports Page is a default layout that can be reset from within Zookeeper Settings.


ZooKeeper on SKYNETMUNK
Collapse All
SKYNETMUNK
Shape1
Viewport1
AMBA-0160
DEVTB-WIN10
GHDT17
no Effect
Level
Invert
Brig...
Con...
Shift
Sat...
RGB
Picker
Geometry
Keystone
VideoMapper
Pos-X
Pos-Y
Continuous
Rotation
Zoom
Warp Mix
Enable
A
B
Linear Blending
Radial Blending
Left
Right
Top
Bottom
Gamm
Overla
PixelMapper
No Map Selected
Visualization
Background Level
Settings
Colour Averaging
NDI Send
30 fps
Rate
Alpha
Auto
Resolution
No Mask
Level
Edit...
Record
Bank 0
Bank 1
Bank 2
Bank 3
Bank 4
Bank 5
Bank 6
Bank 7
Bank 8
Bank 9
Preset 1

The Viewports Page is comprised of two main sections:


ZooKeeper on SKYNETMUNK
Collapse All
SKYNETMUNK
Shape1
Viewport1
AMBA-0160
DEVTB-WIN10
GHDT17
Viewport Selector
Effects Engines
no Effect
Level
Colour Controls
Invert
RGB
Picker
Brig...
Con...
Shift
Sat...
Geometry
Keystone
VideoMapper
Geometry / Keystone / Videomapper
Pos-Y
Continuous
Rotation
Zoom
Warp Mix
Enable
Warping and Blending
Linear Blending
Radial Blending
Left
Right
Top
Bottom
Gamm
Overla
PixelMapper
No Map Selected
Visualization
Pixelmapper
Background Level
Settings
Colour Averaging
Live Mask
No Mask
Level
Edit...
NDI Send
30 fps
Rate
Alpha
Auto
NDI Output
Record
Bank 0
Bank 1
Bank 2
Bank 3
Bank 4
Bank 5
Bank 6
Bank 7
Bank 8
Bank 9
Viewport Presets
Preset 1

Viewport Selector

All Viewports on the local network are displayed in the selector.

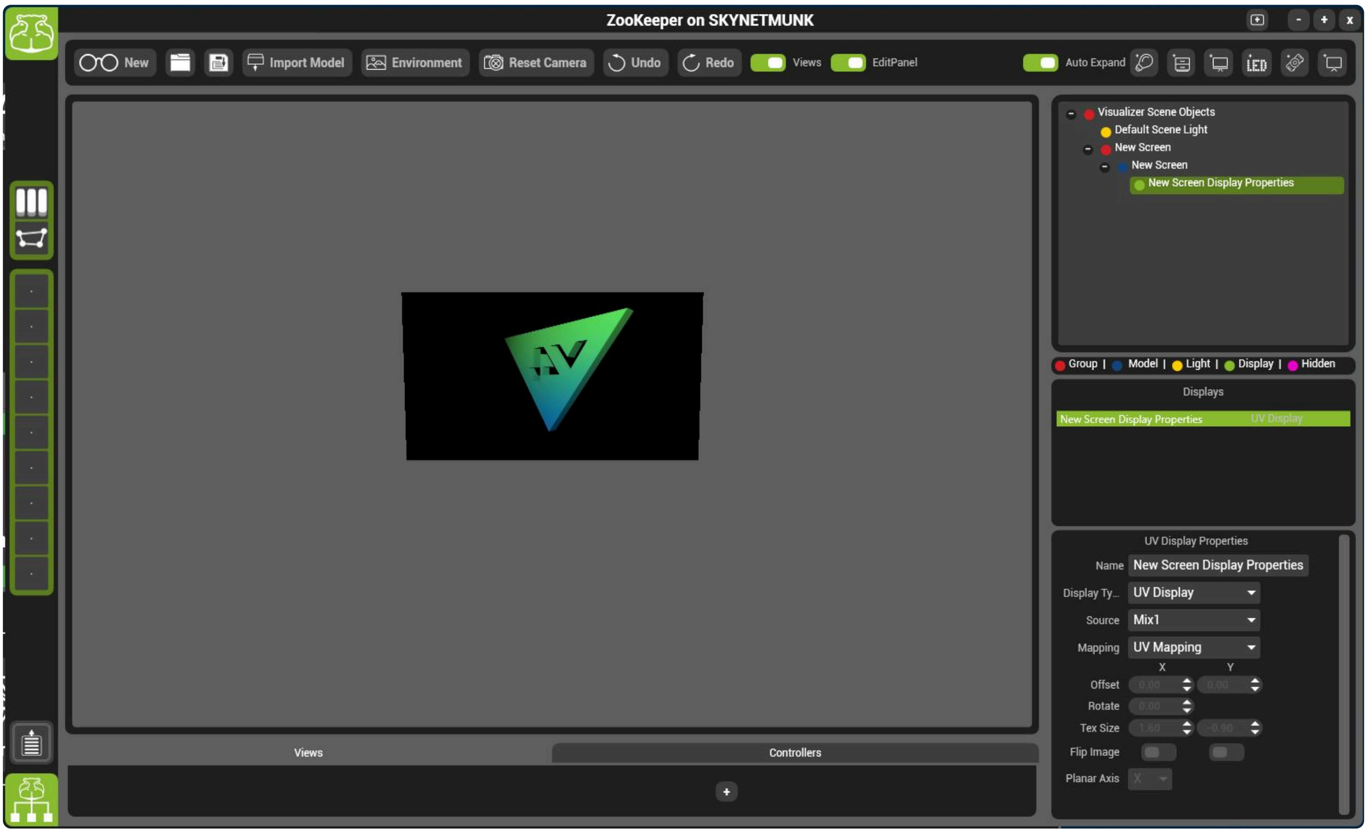
The high lighted viewport’s controls will appear in the viewport controls panel to the right of the selector.

Viewport Controls

The viewport controls are a collection of effects and components are commonly needed to correctly display video on a wide range of projection and display technologies.

Visualizer Page

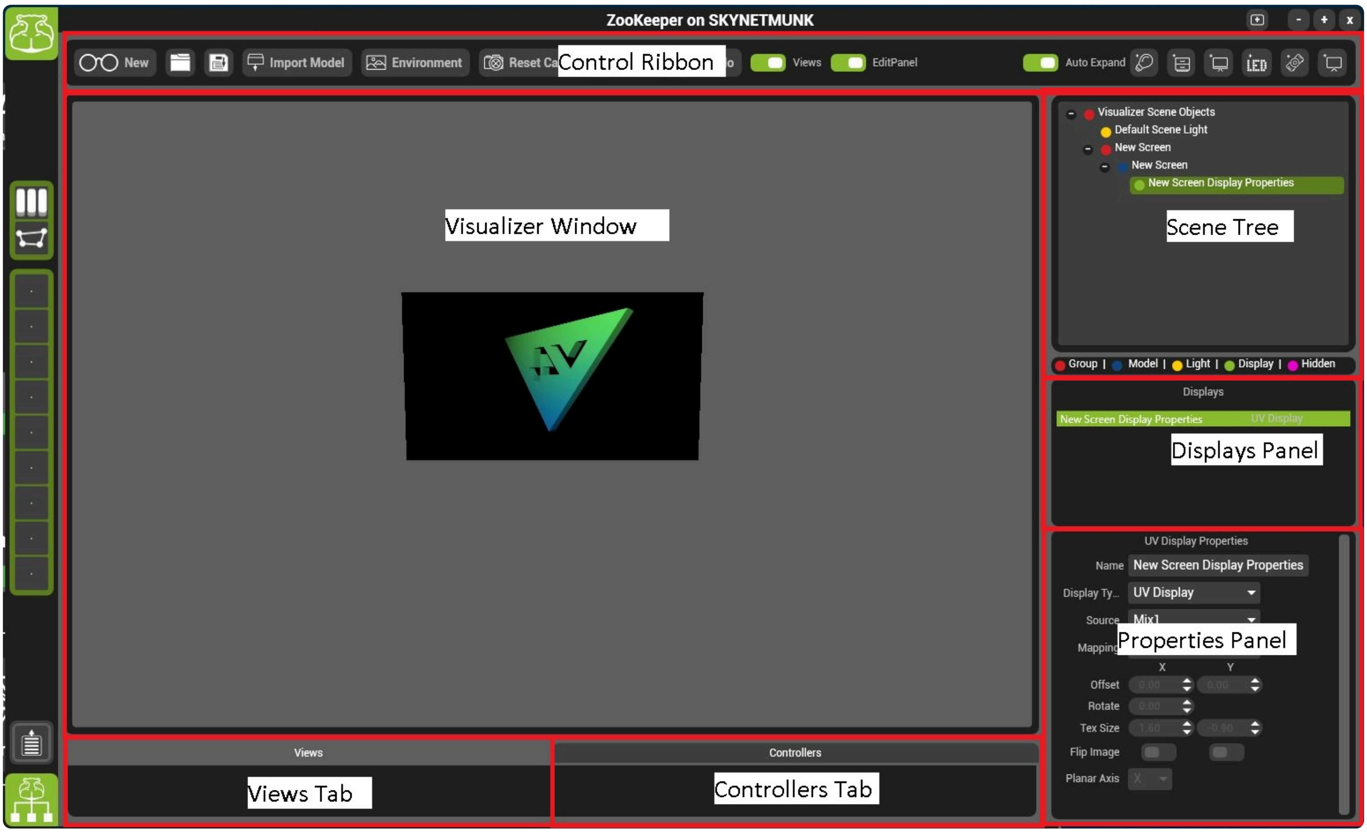
The Visualizer is a built in 3D video visualisation system.


ZooKeeper on SKYNETMUNK
New
Import Model
Environment
Reset Camera
Undo
Redo
Views
EditPanel
Auto Expand
Visualizer Scene Objects
Default Scene Light
New Screen
New Screen
New Screen Display Properties
Group | Model | Light | Display | Hidden
Displays
New Screen Display Properties
UV Display
Views
Controllers
+

UV Display Properties

Name: New Screen Display Properties
Display Ty...: UV Display
Source: Mix1
Mapping: UV Mapping
Offset: X 0.00, Y 0.00
Rotate: 0.00
Tex Size: X 1.60, Y -0.90
Flip Image
Planar Axis: X

The Visualizer is comprised of seven main sections:


ZooKeeper on SKYNETMUNK
New
Import Model
Environment
Reset Ca
Control Ribbon
Views
EditPanel
Auto Expand
Visualizer Window
Visualizer Scene Objects
Default Scene Light
New Screen
New Screen
New Screen Display Properties
Scene Tree
Group | Model | Light | Display | Hidden
Displays
New Screen Display Properties
UV Display
Displays Panel
UV Display Properties
Properties Panel
Offset
Rotate
Tex Size
Flip Image
Planar Axis
Views
Views Tab
Controllers
Controllers Tab

Name: New Screen Display Properties
Display Ty...: UV Display
Source: Mix1

Control Ribbon

The control ribbon houses many of the basic controls for Visualiser

Visualizer Window

The visualizer window displays the 3D environment.

Scene Tree

All objects in the visualizer window are show in the scene tree.

Displays Panel

All objects within the scene that have nominated as displays are shown in the displays panel.

Properties Panel

The selected object or display’s settings are shown in the properties panel.

Views Tab

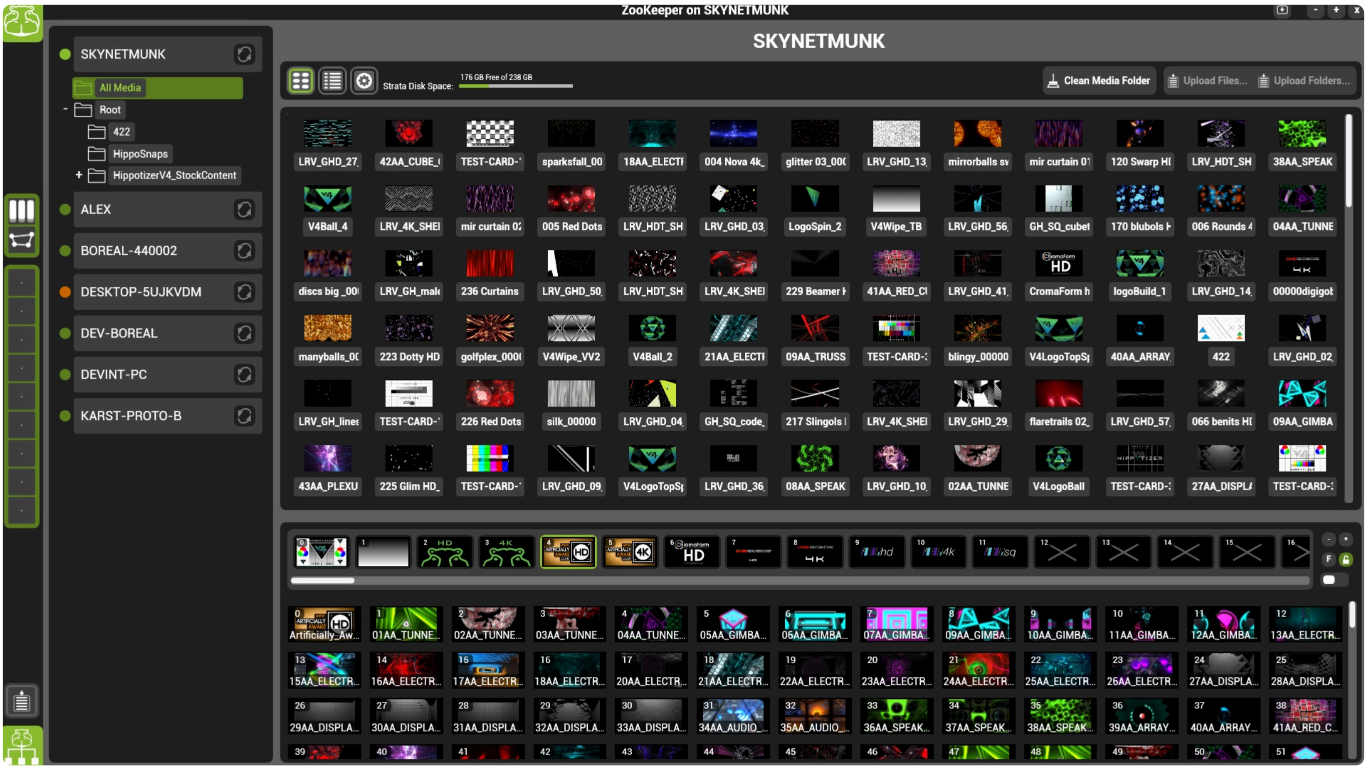
Lists saved views for rapid recall.

Controllers Tab

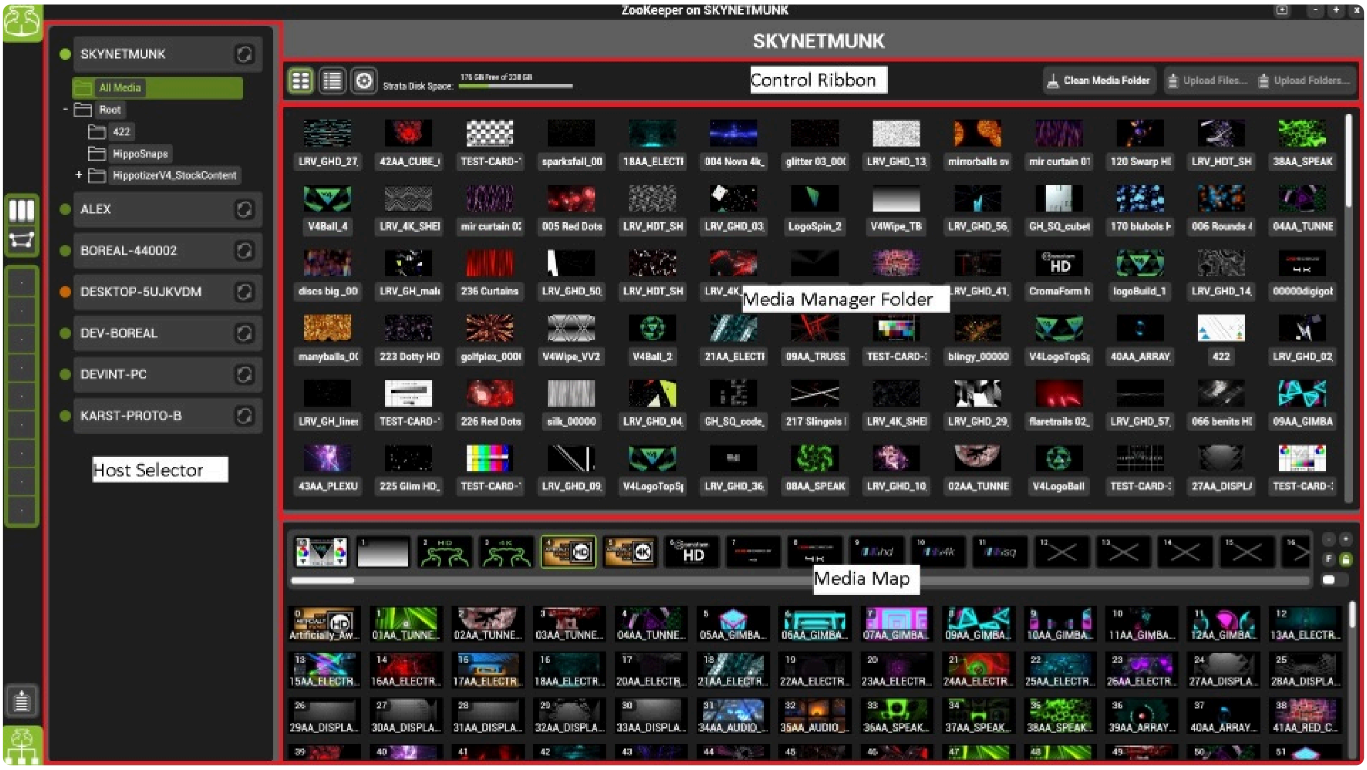
Lists all controllers in the scene.

Media Page

The Media Page controls Media Manager; all media upload, distribution and management is handled here.


ZooKeeper on SKYNETMUNK
SKYNETMUNK
All Media
Root
422
HippoSnaps
HippotizerV4_StockContent
ALEX
BOREAL-440002
DESKTOP-5UJKVDM
DEV-BOREAL
DEVINT-PC
KARST-PROTO-B
Strata Disk Space:
176 GB Free of 238 GB
Clean Media Folder
Upload Files...
Upload Folders...

The Media Page is comprised of four main sections:


ZooKeeper on SKYNETMUNK
SKYNETMUNK
Control Ribbon
Media Manager Folder
Host Selector
Media Map
All Media
Root
422
HippoSnaps
HippotizerV4_StockContent
ALEX
BOREAL-440002
DESKTOP-5UJKVDM
DEV-BOREAL
DEVINT-PC
KARST-PROTO-B
Strata Disk Space:
Clean Media Folder
Upload Files...
Upload Folders...

Host Selector

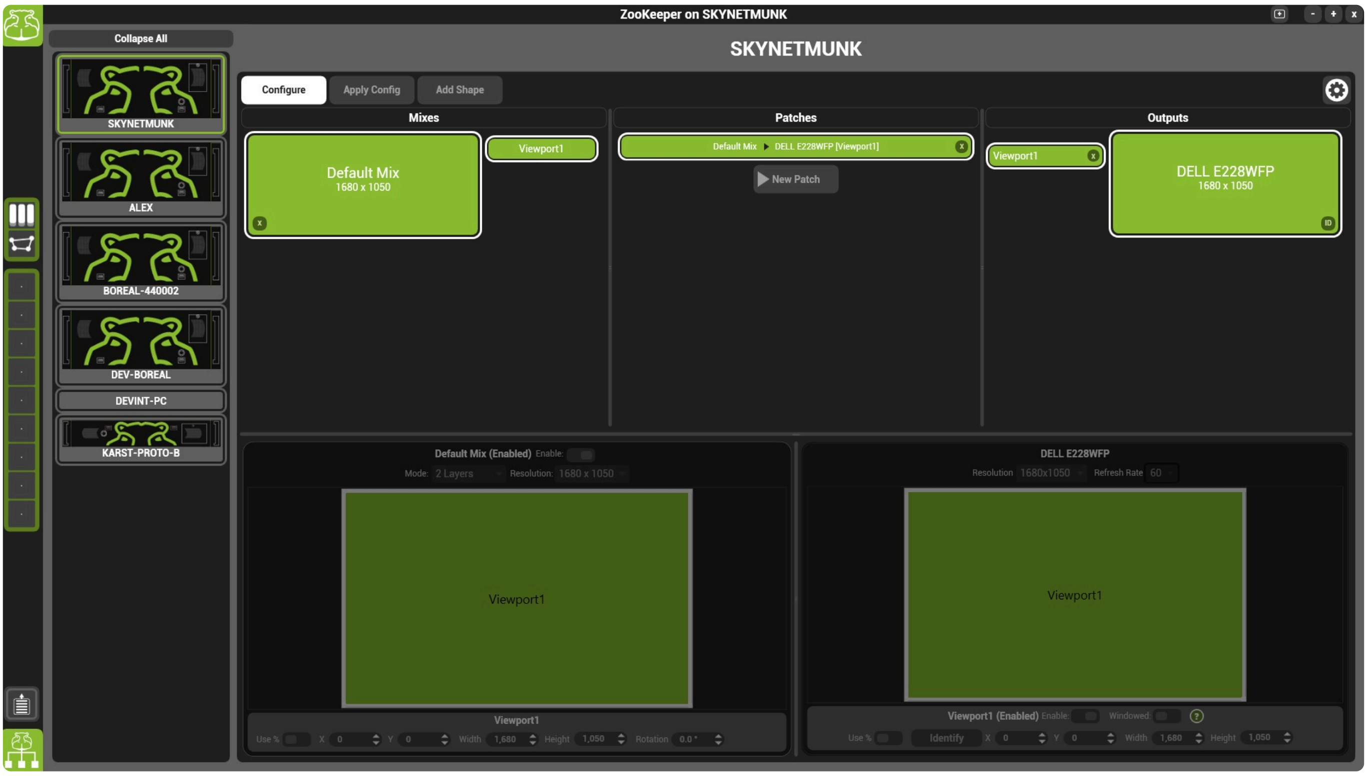
Control Ribbon

Media Manager Folder

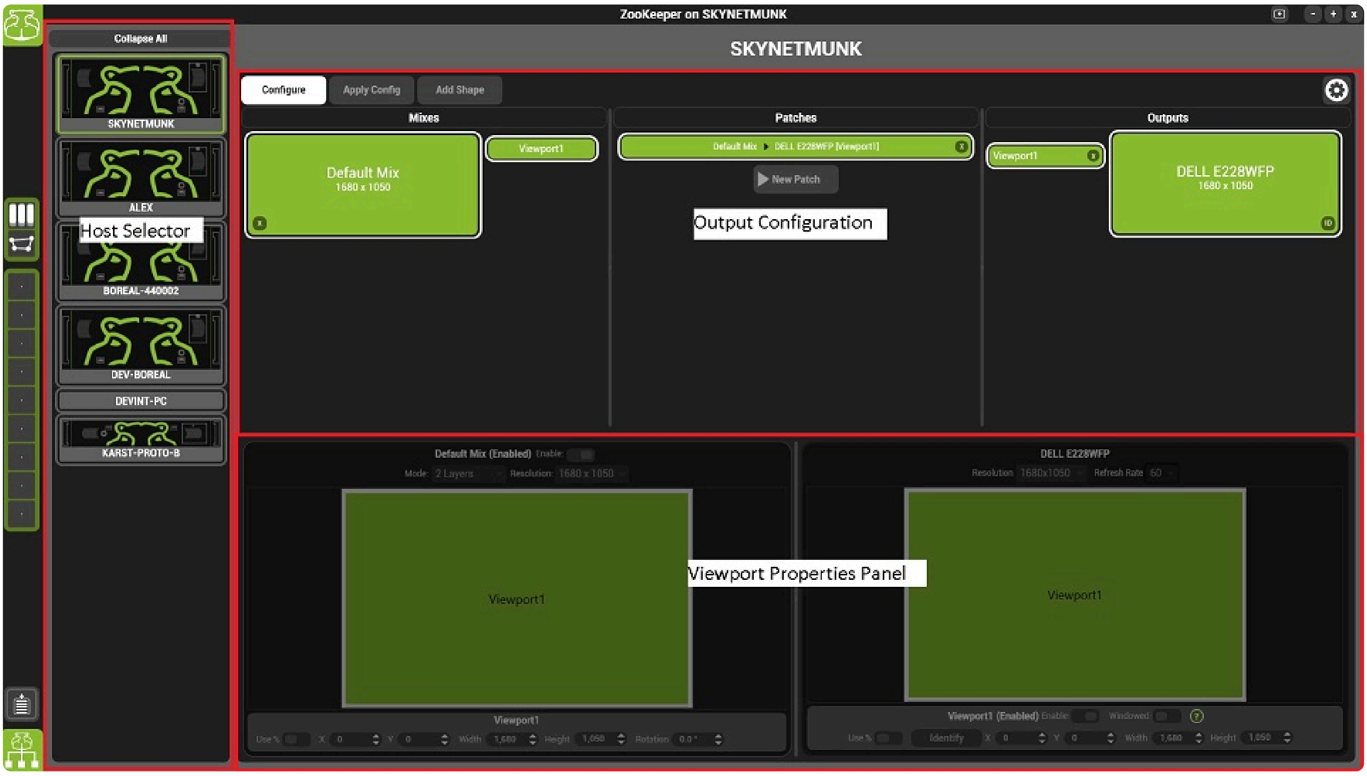
Media Map

Outputs Page

The Outputs page accesses the Output Manager component


ZooKeeper on SKYNETMUNK
Collapse All
SKYNETMUNK
ALEX
BOREAL-440002
DEV-BOREAL
DEVINT-PC
KARST-PROTO-B
Configure
Apply Config
Add Shape
Mixes
Patches
Outputs
Default Mix
1680 x 1050
Viewport1
Default Mix ▶ DELL E228WFP [Viewport1]
New Patch
DELL E228WFP
1680 x 1050
Default Mix (Enabled)
DELL E228WFP
Viewport1

The outputs page is comprised of three main sections:


Host Selector
Output Configuration
Viewport Properties Panel

Host Selector

Displays all hosts on the network. The selected host is shown in the output configuration and viewport properties panels.

Output Configuration

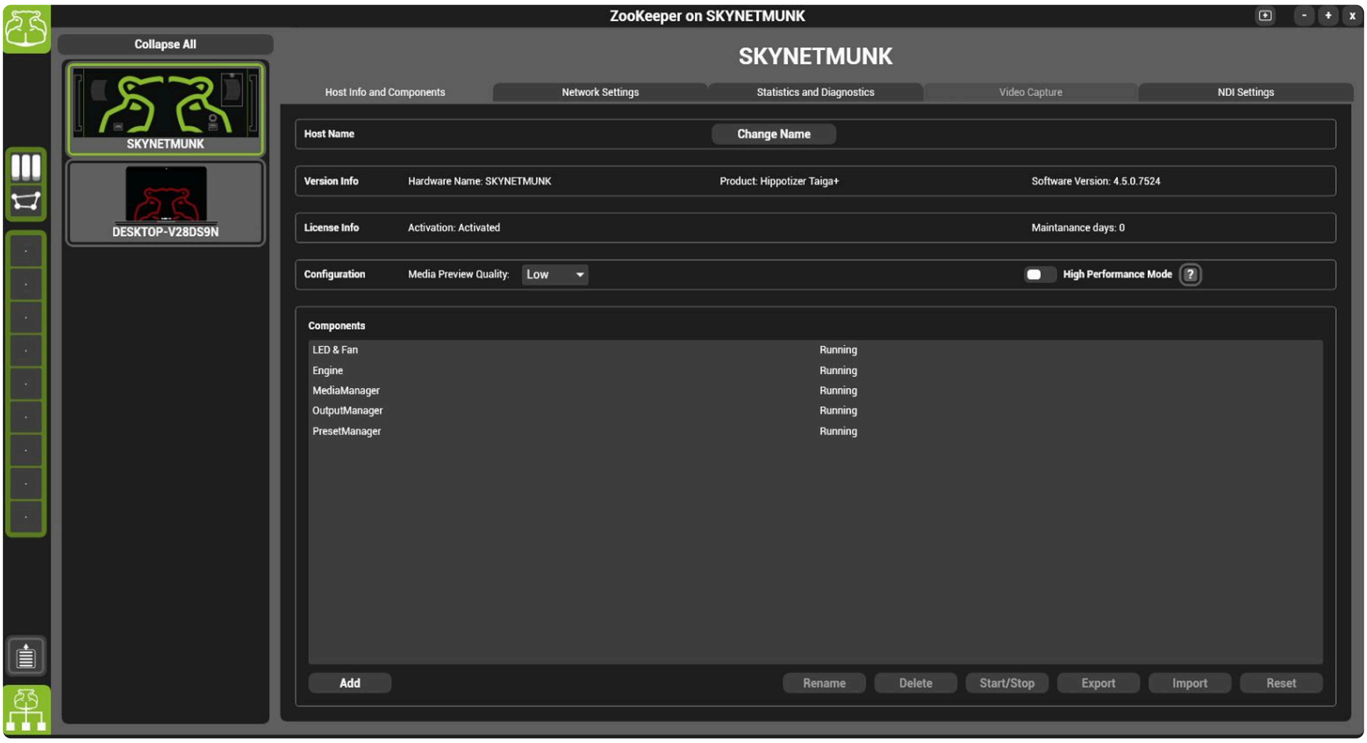
Displays the currently selected host’s mix, viewport and physical output configuration.

Viewport Properties Panel

Displays the selected viewport’s details.

Configuration Page

The Configuration Page contains general controls of Hippotizer.


ZooKeeper on SKYNETMUNK
Collapse All
SKYNETMUNK
DESKTOP-V28DS9N
SKYNETMUNK
Host Info and Components
Network Settings
Statistics and Diagnostics
Video Capture
NDI Settings
Change Name
Add
Rename
Delete
Start/Stop
Export
Import
Reset

Host Name

Version Info — Hardware Name: SKYNETMUNK — Product: Hippotizer Taiga+ — Software Version: 4.5.0.7524

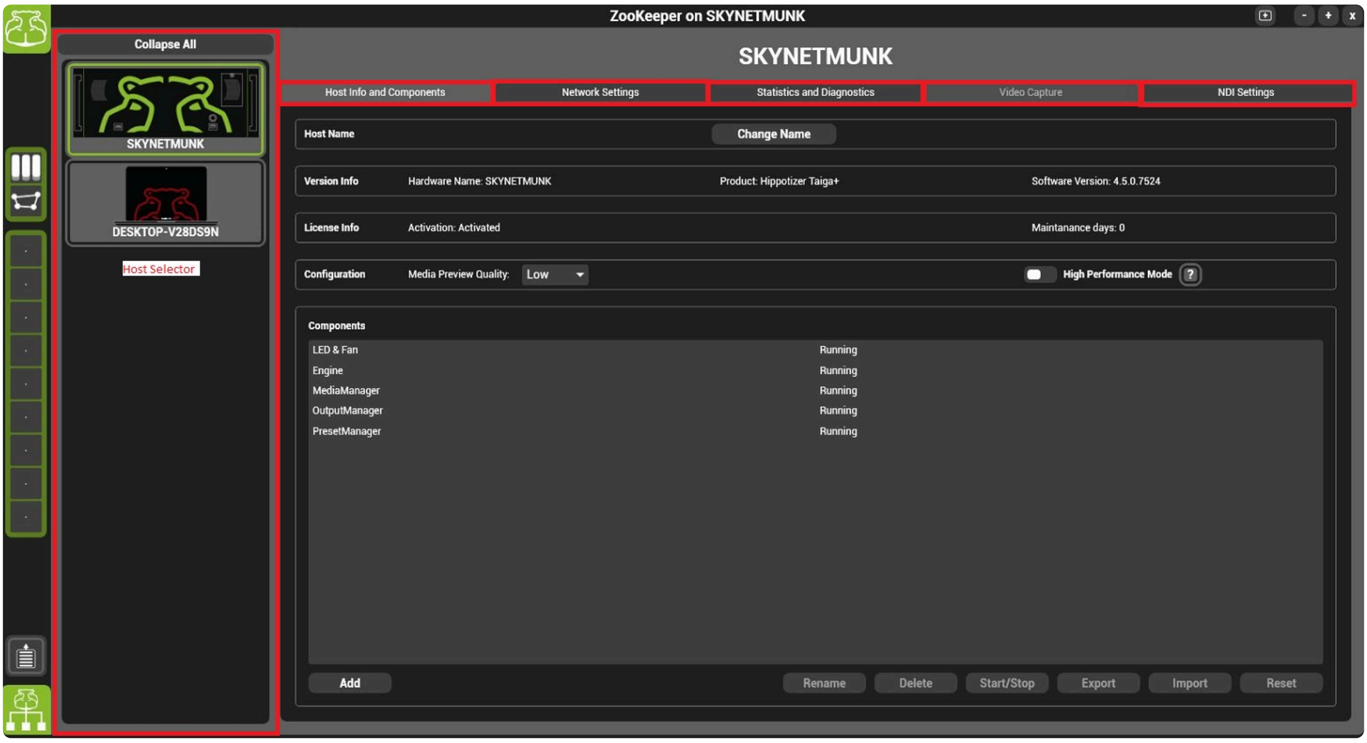
License Info — Activation: Activated — Maintanance days: 0

Configuration — Media Preview Quality: Low — High Performance Mode

Components

LED & Fan	Running
Engine	Running
MediaManager	Running
OutputManager	Running
PresetManager	Running

The Configuration Page has six main sections:


ZooKeeper on SKYNETMUNK
Collapse All
SKYNETMUNK
DESKTOP-V28DS9N
Host Selector
SKYNETMUNK
Host Info and Components
Network Settings
Statistics and Diagnostics
Video Capture
NDI Settings
Change Name
Add
Rename
Delete
Start/Stop
Export
Import
Reset

Host Name

Version Info — Hardware Name: SKYNETMUNK — Product: Hippotizer Taiga+ — Software Version: 4.5.0.7524

License Info — Activation: Activated — Maintanance days: 0

Configuration — Media Preview Quality: Low — High Performance Mode

Components

LED & Fan	Running
Engine	Running
MediaManager	Running
OutputManager	Running
PresetManager	Running

Host Selector

Displays all hosts on the local network. The highlighted host's settings are displayed to the right of the selector.

Host Info tab

The Host information tab is where components are started and stopped among other important functions.

Network tab

The Network Tab selects which adaptor the engine host uses.

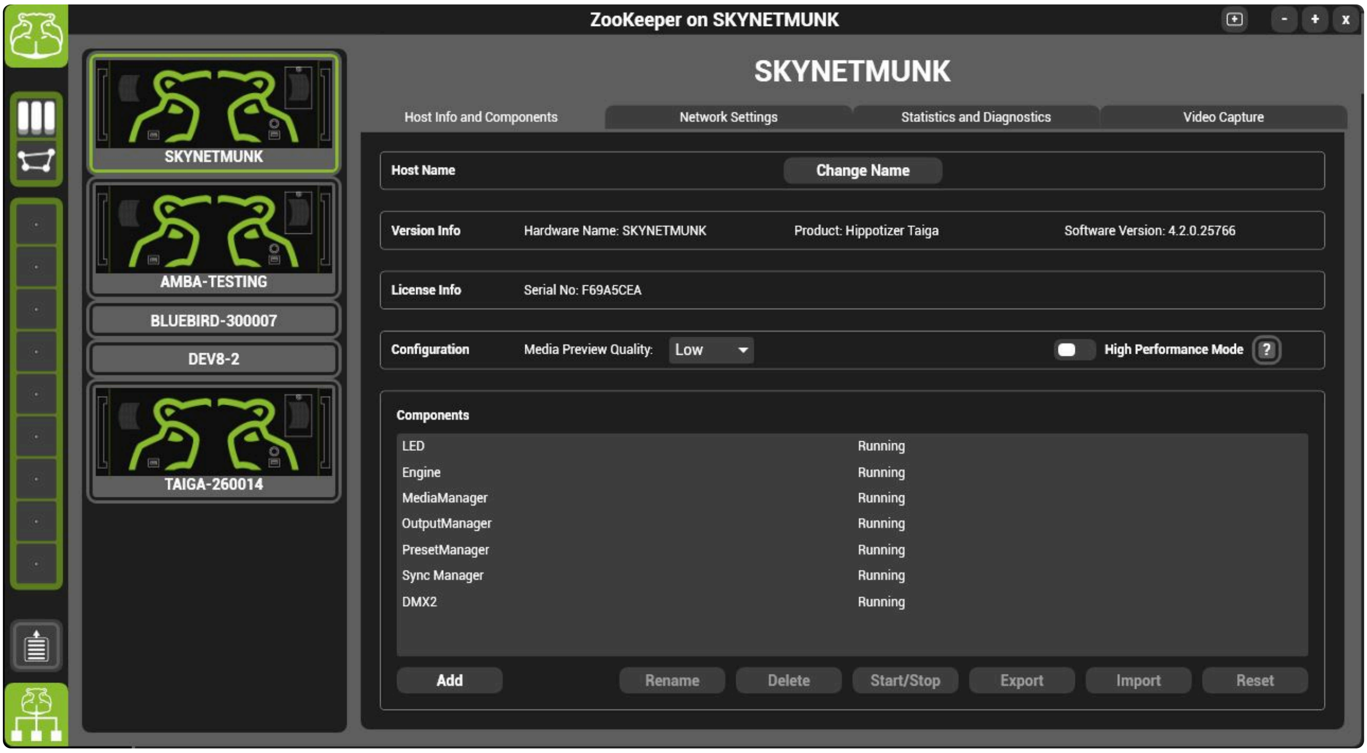
Diagnostics Tab

The diagnostics tab shows live log outputs of all the components as well as HippoNet statistics.

Capture Tab

The capture tab enables on systems with capture card(s) installed. It displays the detected cards and controls hardware de-interlace.

High Performance Mode


ZooKeeper on SKYNETMUNK
SKYNETMUNK
AMBA-TESTING
BLUEBIRD-300007
DEV8-2
TAIGA-260014
Host Info and Components
Network Settings
Statistics and Diagnostics
Video Capture
Change Name
Add
Rename
Delete
Start/Stop
Export
Import
Reset

SKYNETMUNK

Host Name

Version Info Hardware Name: SKYNETMUNK Product: Hippotizer Taiga Software Version: 4.2.0.25766

License Info Serial No: F69A5CEA

Configuration Media Preview Quality: Low ○ High Performance Mode ?

Components

LED	Running
Engine	Running
MediaManager	Running
OutputManager	Running
PresetManager	Running
Sync Manager	Running
DMX2	Running

Zookeeper naturally uses some of the resources of a Hippotizer system. The performance impact of Zookeeper can be reduced by disabling previews and using High Performance Mode.

Disable Previews

Rendering previews can cause occasional ‘hicks’ on the output of a system, especially when they are under significant load. Setting the **media preview quality** to off will improve this.

Previews must be disabled on each host to be effective.

Note: If there are no Zookeeper instances on a network, previews are disabled automatically.

High Performance Mode

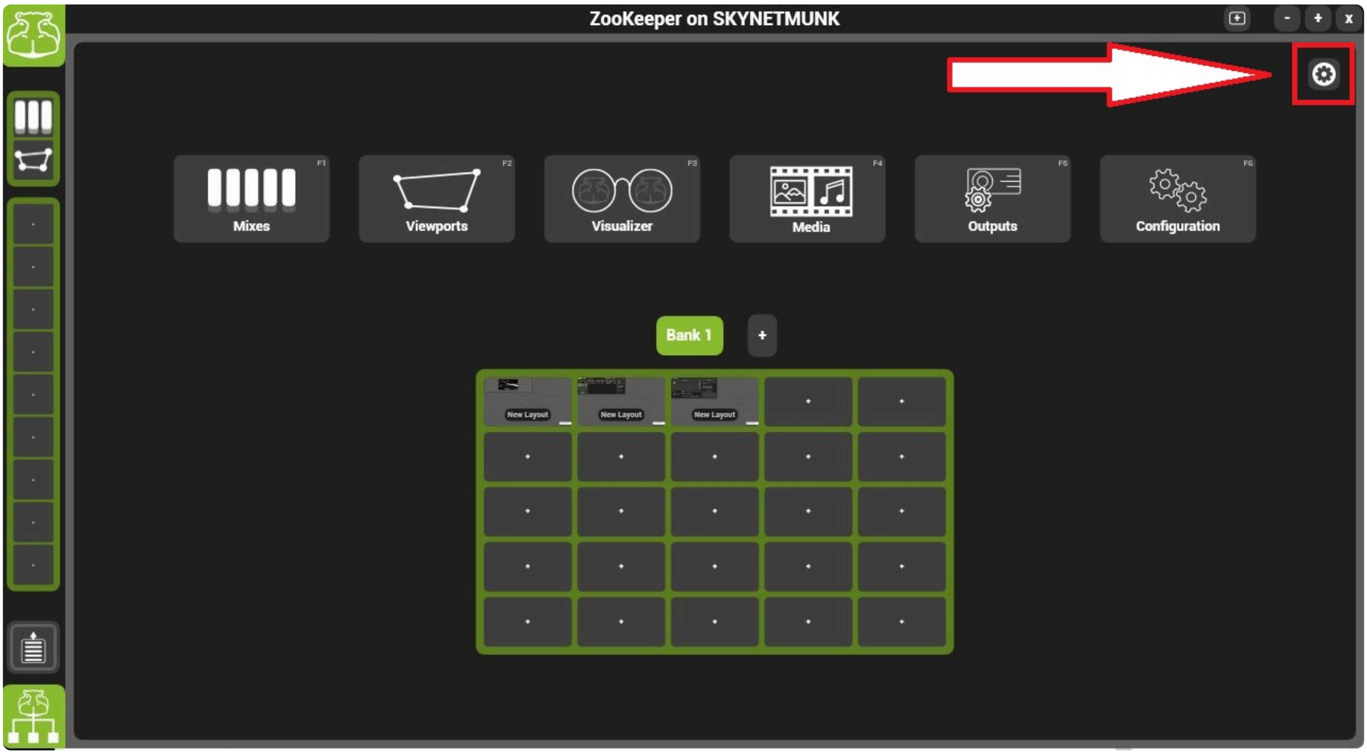
For situations with higher workloads and larger texture sizes (4K and above) it will also improve playback to enable High Performance Mode. This disables previews and also shuts down a texture sharing sub-system. When high performance mode is enabled, the Visualizer will not work.

Custom Pinboards

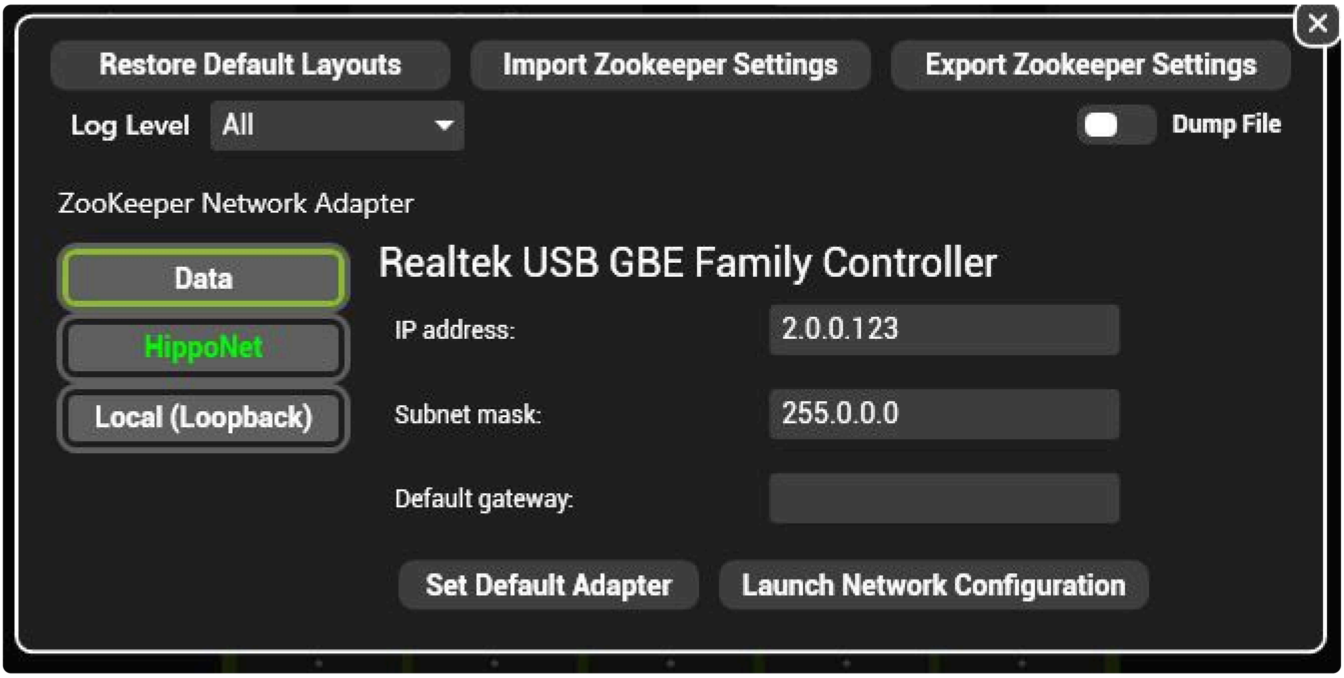
Zookeeper Settings

Save and Import Settings

The Layouts and custom pinboards of Zookeeper can be saved and imported. This is accessed from the settings menu in Zookeeper's main page:


ZooKeeper on SKYNETMUNK
Mixes
Viewports
Visualizer
Media
Outputs
Configuration
Bank 1
+
New Layout
New Layout
New Layout

This opens Zookeeper's advanced menu:


Restore Default Layouts
Import Zookeeper Settings
Export Zookeeper Settings
Dump File
ZooKeeper Network Adapter
Data
HippoNet
Local (Loopback)
Set Default Adapter
Launch Network Configuration

Log Level: All

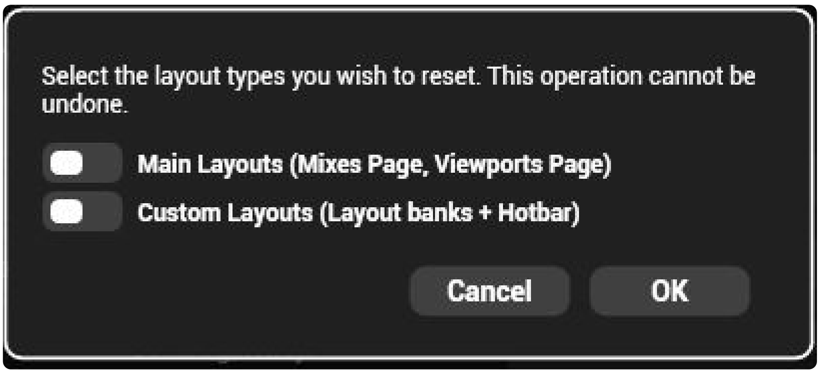
Realtek USB GBE Family Controller

IP address: 2.0.0.123

Subnet mask: 255.0.0.0

Default gateway:

Restore Default Layouts



Select the layout types you wish to reset. This operation cannot be undone.

Main Layouts (Mixes Page, Viewports Page)

Custom Layouts (Layout banks + Hotbar)

Main Layouts:

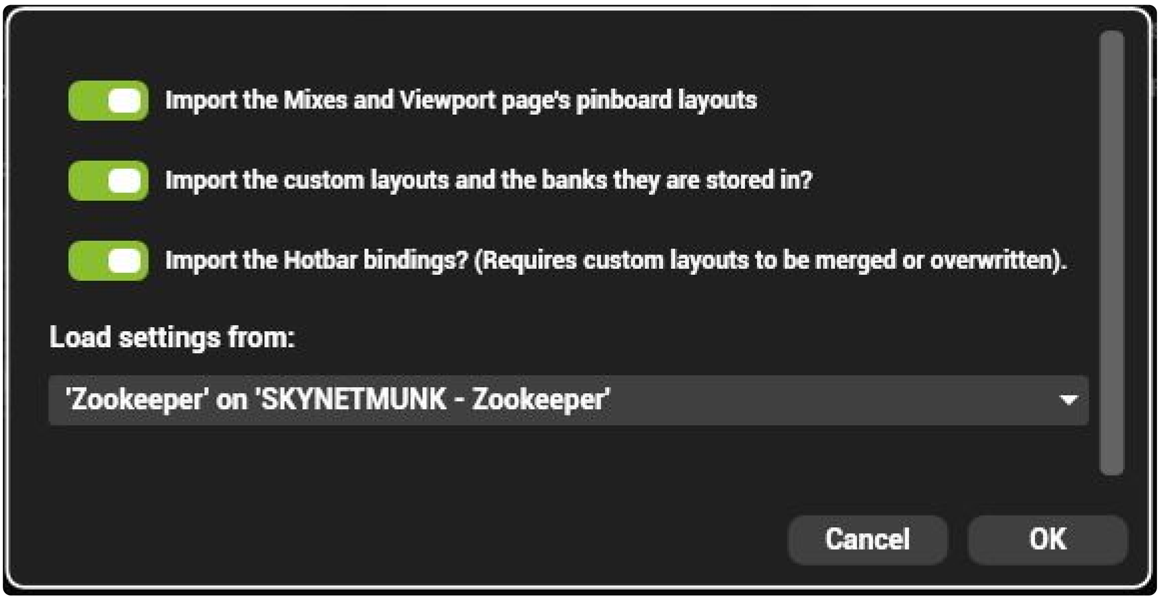
Resets the Mixes and Viewports page to the default state

Custom Layouts

Deletes all user created layouts

Import Zookeeper Settings

Loads layouts from a specified file.



Import the Mixes and Viewport page's pinboard layouts

Import the custom layouts and the banks they are stored in?

Import the Hotbar bindings? (Requires custom layouts to be merged or overwritten).

Load settings from:

'Zookeeper' on 'SKYNETMUNK - Zookeeper'

Import the mixes and viewports

Overwrites the mixes and viewports pages

Import custom pinboards

All custom layouts will be imported, overwriting the existing ones.

Import Hotbar bindings

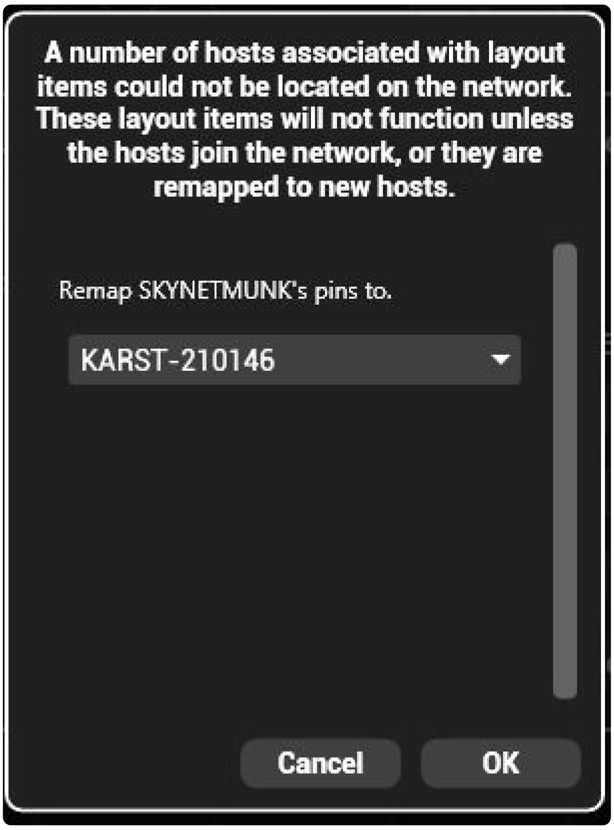
Imports the associations of layouts to the quick access tab

Load Settings from

Choose the zookeeper to load from. Most often there is only one option

Remapping Components

Each component item in zookeeper is associated with a specific host on the network. If that host is not present on import, it must be remapped.



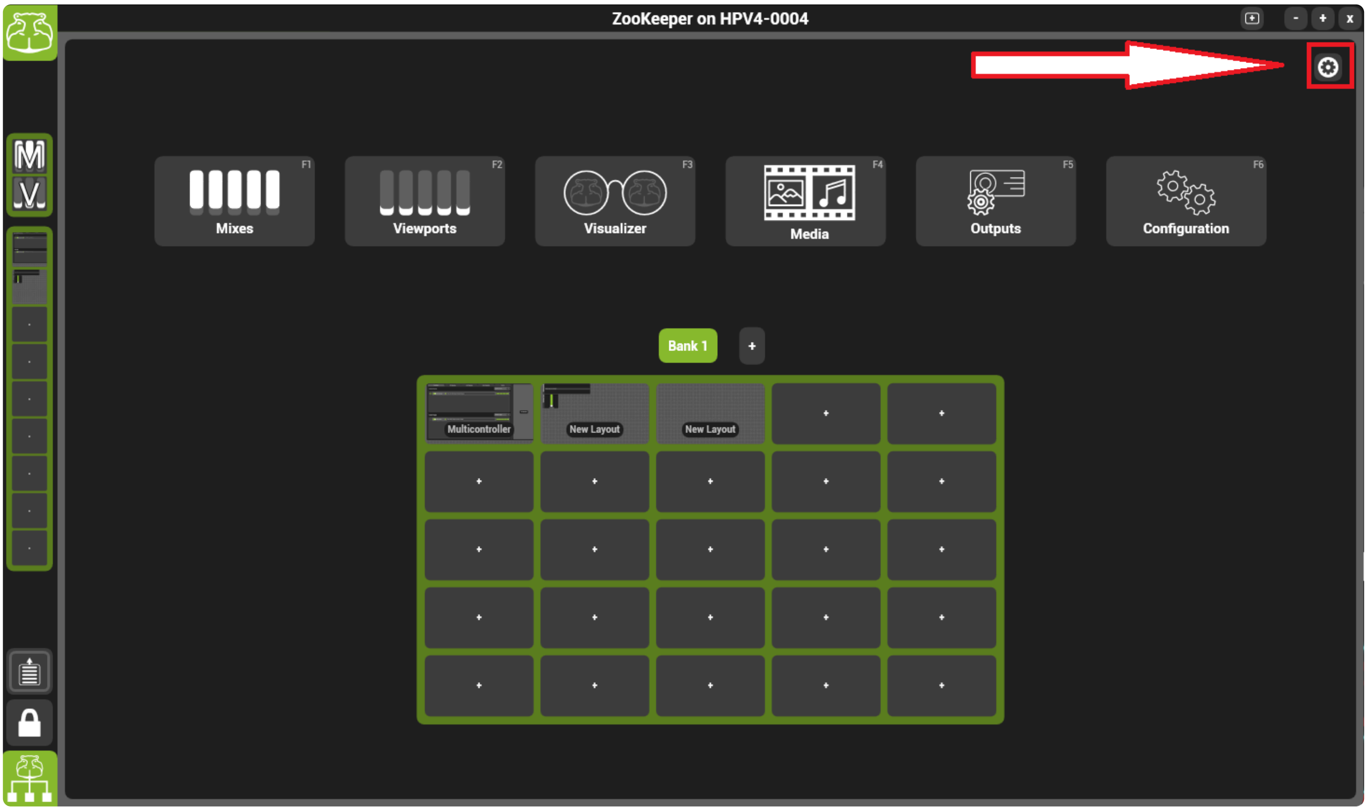
A number of hosts associated with layout items could not be located on the network. These layout items will not function unless the hosts join the network, or they are remapped to new hosts.

Remap SKYNETMUNK's pins to.

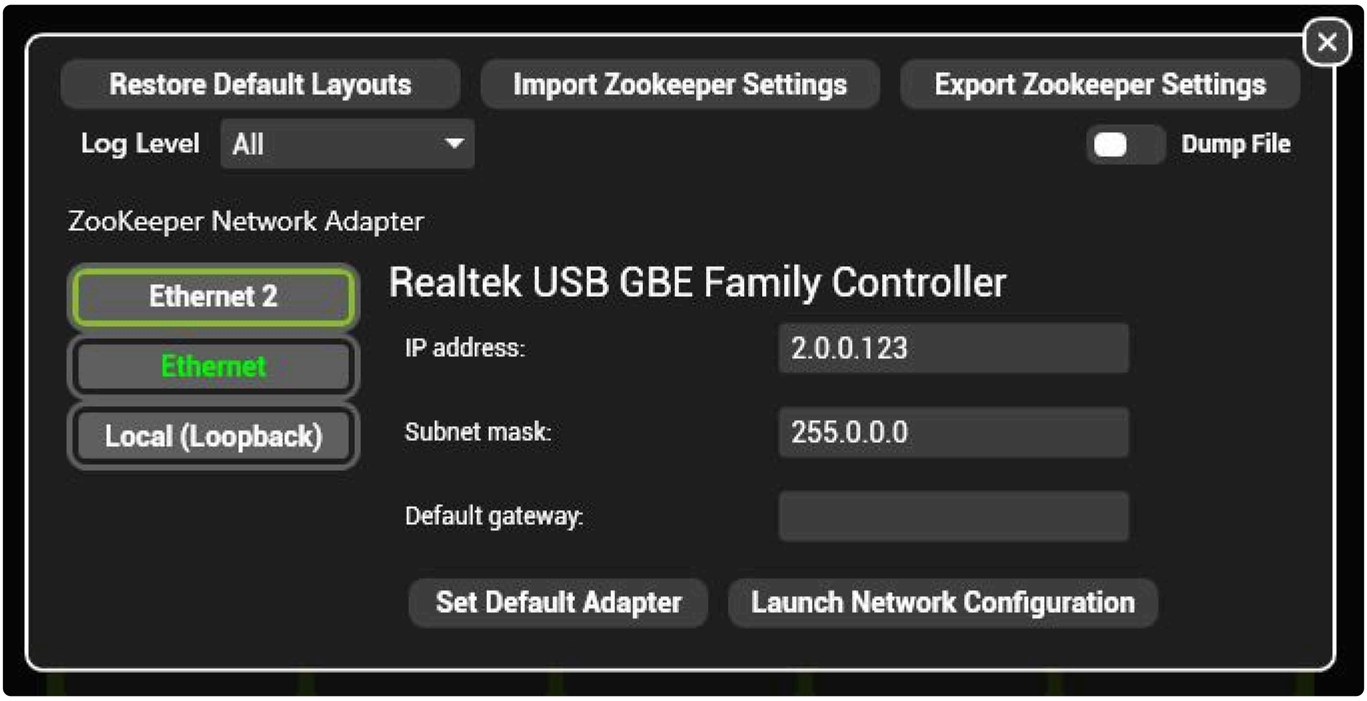
KARST-210146

Choose the hosts that replacing those that are missing.

Zookeeper Settings


ZooKeeper on HPV4-0004
Mixes
F1
Viewports
F2
Visualizer
F3
Media
F4
Outputs
F5
Configuration
F6
Bank 1
+
Multicontroller
New Layout
New Layout

Zookeeper has a few settings that may be required to change.


Restore Default Layouts
Import Zookeeper Settings
Export Zookeeper Settings
Ethernet 2
Ethernet
Local (Loopback)
Set Default Adapter
Launch Network Configuration

Log Level: All

Dump File

ZooKeeper Network Adapter

Realtek USB GBE Family Controller

IP address: 2.0.0.123

Subnet mask: 255.0.0.0

Default gateway:

Log Level

Zookeeper’s logs can be set to different levels. This is used mainly for diagnostic purposes; Green Hippo support may ask for this to be changed to help trace an issue.

Restore Default Layouts

Resets the user layouts (custom pinboards) or the Mixes and Viewports page.

Import Zookeeper Settings

Allows saved Pinboards and Layouts to be applied to the local Zookeeper from a file

Export Zookeeper Settings

Saves the current Pinboards and Layouts to a file.

Zookeeper Network Adapter

Choose which Network adapter Zookeeper uses to communicate with the engine.

The network adapter with green text is currently in use. (Wi-Fi in the above example)

If the Loop-back adapter is used the local system will not be visible to other Hippotizer's on the network.

✻ The network adapter of the Engine and Zookeeper must match if controlling a local engine.

A more in depth discussion of Networking in Hippotizer is here.

Customizing the Interface

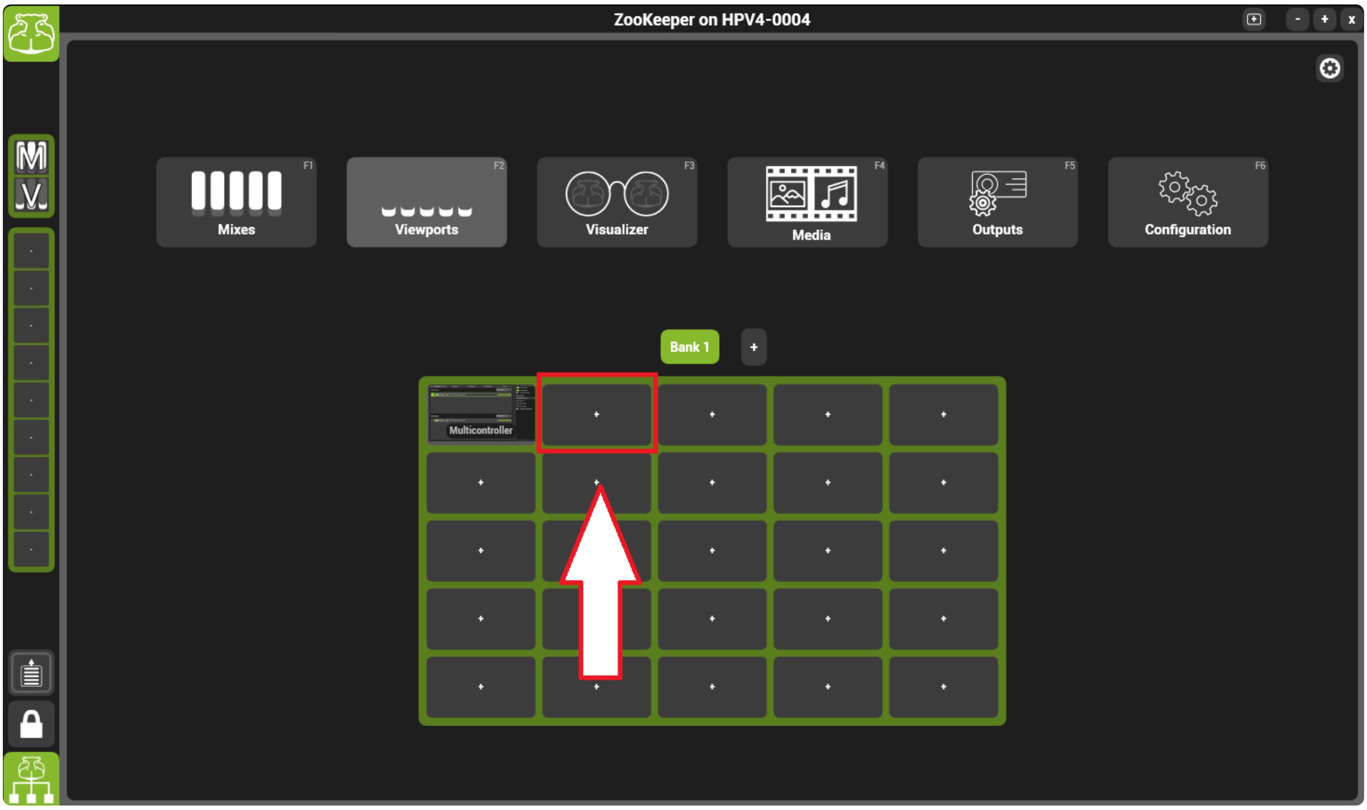
Creating a custom Zookeeper interface is among the most popular features of Hippotizer V4. The building blocks for the interface are:

- Pin Boards
- Adding Elements to a Pin Board
- Previews
- Selectors
- Tabbed Selector

Zookeeper Functions

Pin Boards

A **Pinboard** is the window on which controls are placed to create a layout. Zookeeper has banks of 25 pinboards available from the main page.

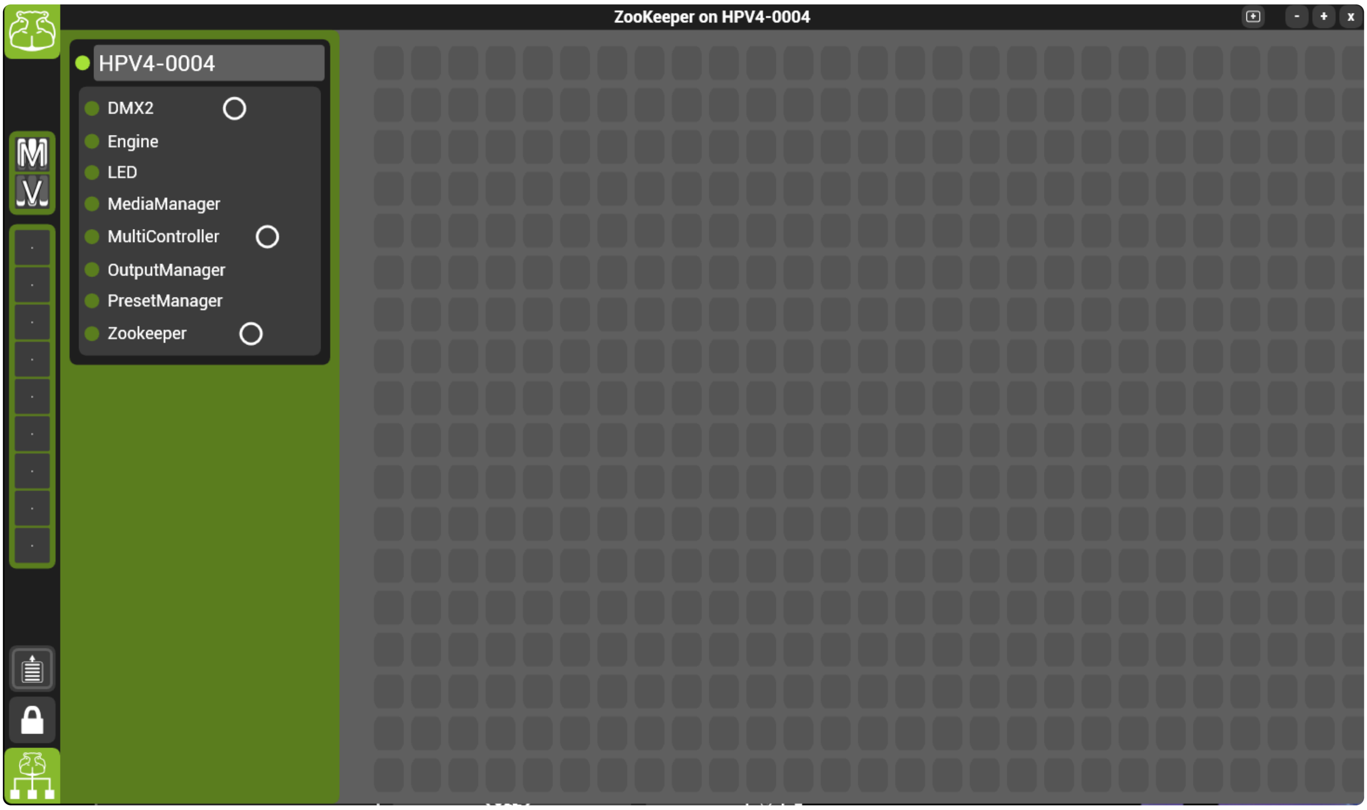

ZooKeeper on HPV4-0004
F1
Mixes
F2
Viewports
F3
Visualizer
F4
Media
F5
Outputs
F6
Configuration
Bank 1
+
Multicontroller

To create a new layout, double click on an empty Pinboard to open it.

Elements are added to the Pinboard by dragging items out of the Pin Tree.

Open the Pin tree by pressing the HippoNet button: at the bottom left corner of the window.

Once open, any item that can be added to the Pinboard has a small circle to the right of it. Drag the circle onto the pinboard to create a layout.

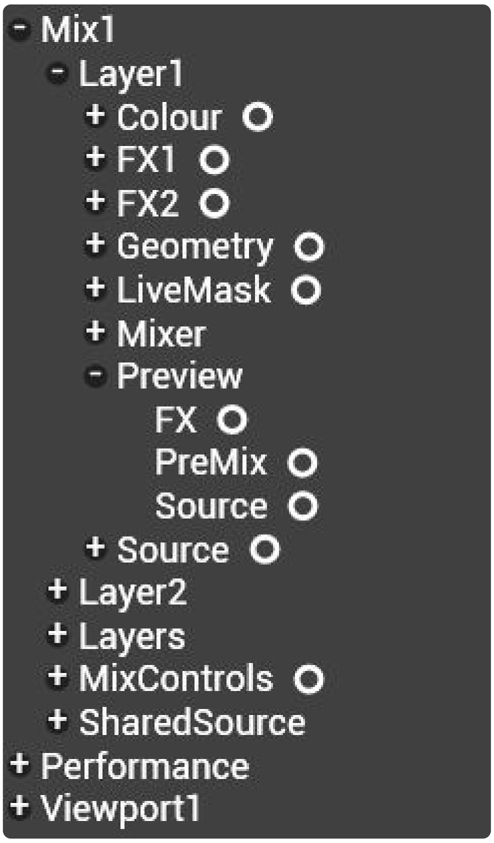


ZooKeeper on HPV4-0004
HPV4-0004
DMX2
Engine
LED
MediaManager
MultiController
OutputManager
PresetManager
Zookeeper

The order and layout of the pin tree is explained in depth here.

Adding Elements to a Pin Board

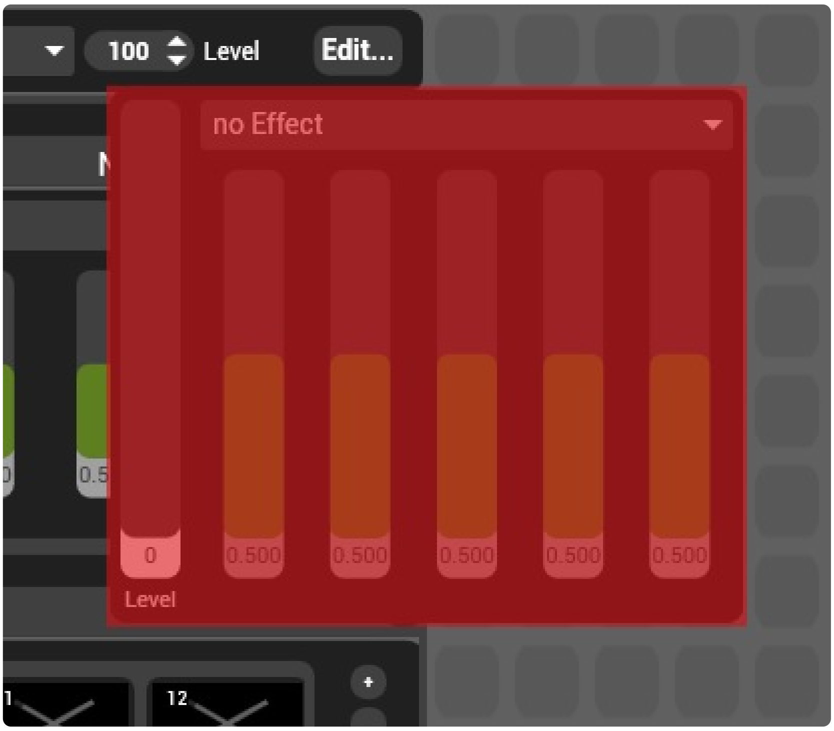
Every item in the pin tree with a circle after the name can be added to a pin board.

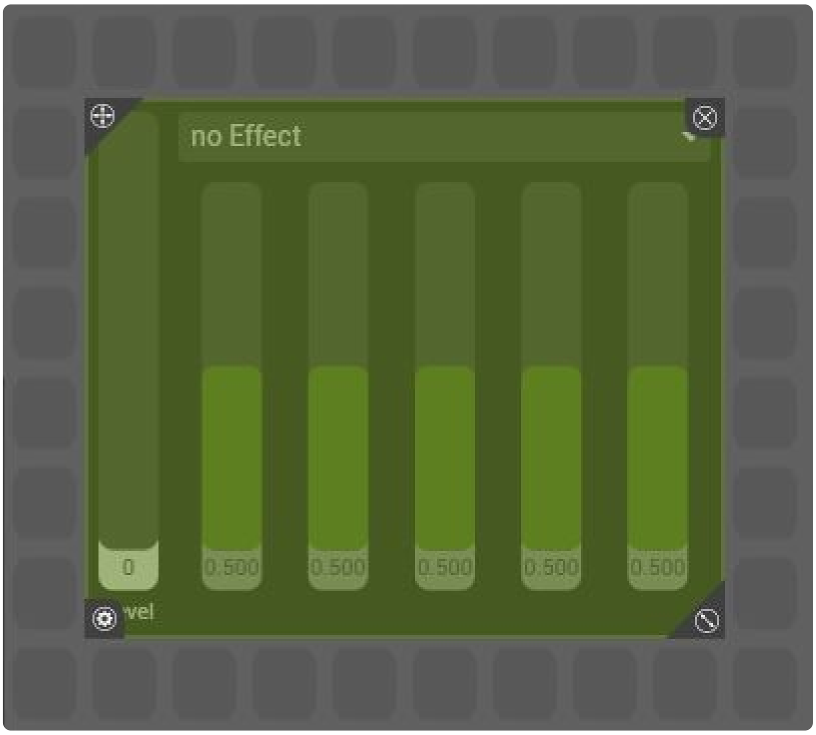


- − Mix1
  - − Layer1
    - + Colour ○
    - + FX1 ○
    - + FX2 ○
    - + Geometry ○
    - + LiveMask ○
    - + Mixer
    - − Preview
      - FX ○
      - PreMix ○
      - Source ○
    - + Source ○
  - + Layer2
  - + Layers
  - + MixControls ○
  - + SharedSource
- + Performance
- + Viewport1

To add it, click into the circle and drag it into the pin board to the desired location.

Elements will draw show red if the position to be dropped collides with existing controls and green if not.


100
Level
Edit...
no Effect
0
0.500
0.500
0.500
0.500
0.500
Level
12

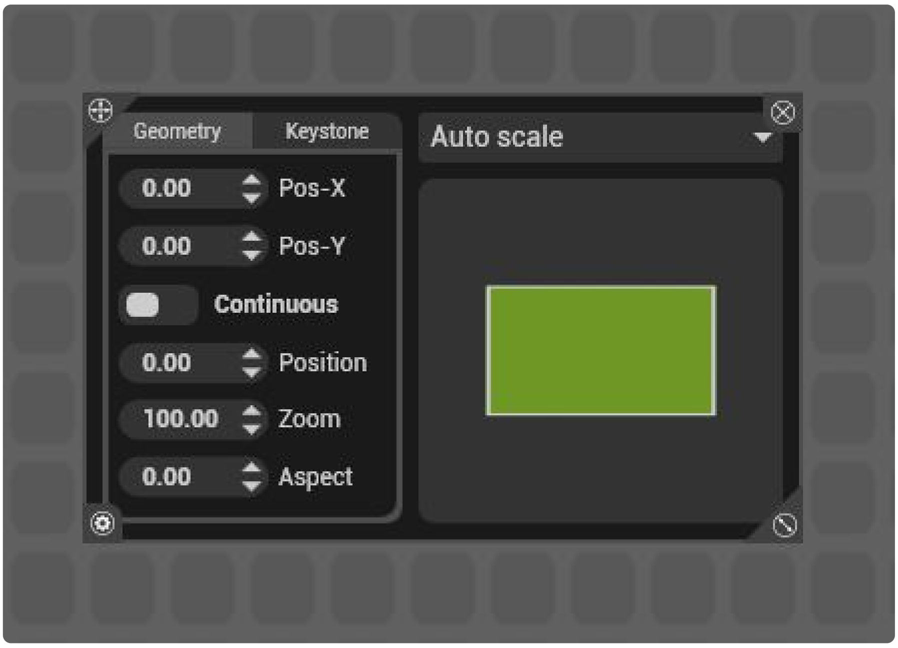

no Effect

0 0.500 0.500 0.500 0.500 0.500

Elements on the pin board can be moved, resized and deleted when the pin board is **unlocked**.

To unlock the pin board, click the lock in the bottom left corner of Zookeeper. 🔒

Each pin Item now will show four buttons to modify it:



0.00 Pos-X

0.00 Pos-Y

Continuous

0.00 Position

100.00 Zoom

0.00 Aspect

Auto scale

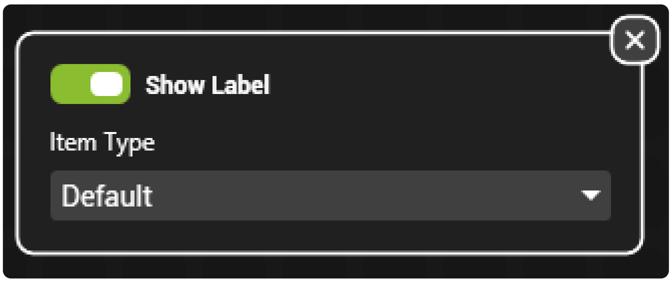
⊗ Deletes the pin board item

⊕ Click and drag to move the pin board item around the layout

Click and drag to make the item larger or smaller. Many controls have a minimum size.

Click to show the item's settings.

Pin Item Settings



Show Label

Item Type

Default

Show Label

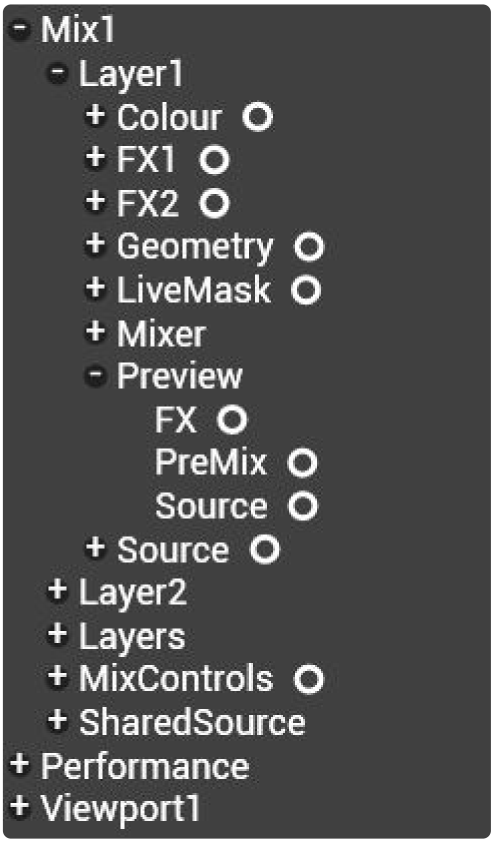
Displays the pin name of the item.

Item Type

Switches between different options for the pin item based on what the item is. For example Float Pins can be shown as sliders or dials. Some items such as the layer selector has options on how many mixes to show. .

Previews

A video preview item can be added to the Pinboard.

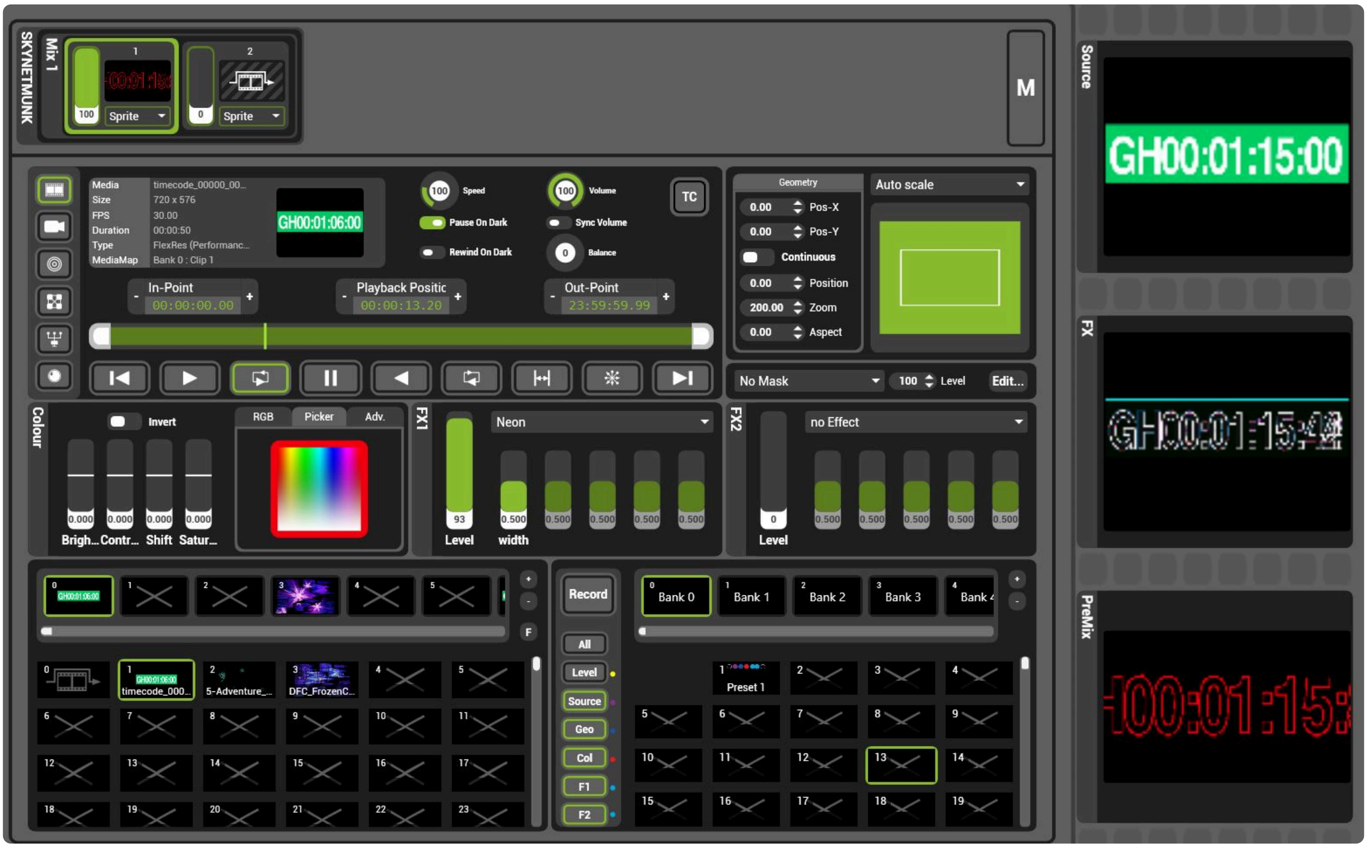


- − Mix1
  - − Layer1
    - + Colour ○
    - + FX1 ○
    - + FX2 ○
    - + Geometry ○
    - + LiveMask ○
    - + Mixer
    - − Preview
      - FX ○
      - PreMix ○
      - Source ○
    - + Source ○
  - + Layer2
  - + Layers
  - + MixControls ○
  - + SharedSource
- + Performance
- + Viewport1

Each layer, mix and viewport has previews that can be used.

In the layer and mix, there are three options of previews:

- **Source:** Shows what is playing in the source only (Media player, Generator etc.)
- **FX:** Previews the post-effects result.
- **PreMix:** Previews post Geometry and colour.


SKYNETMUNK
Mix 1
1
2
100
0
Sprite
Sprite
M
TC
Pause On Dark
Rewind On Dark
Sync Volume
Geometry
Continuous
Edit...
Colour
Invert
RGB
Picker
Adv.
Brigh...
Contr...
Shift
Satur...
FX1
FX2
Level
width
Record
All
Level
Source
Geo
Col
F1
F2
Bank 0
Bank 1
Bank 2
Bank 3
Bank 4
Preset 1
timecode_000...
5-Adventure_...
DFC_FrozenC...
Source
FX
PreMix
GH00:01:15:00

Media timecode_00000_00...
Size 720 x 576
FPS 30.00
Duration 00:00:50
Type FlexRes (Performanc...
MediaMap Bank 0 : Clip 1

Speed 100
Volume 100
Balance 0

In-Point 00:00:00.00
Playback Positic 00:00:13.20
Out-Point 23:59:59.99

0.00 Pos-X
0.00 Pos-Y
0.00 Position
200.00 Zoom
0.00 Aspect
Auto scale

No Mask
100 Level

Brigh... 0.000
Contr... 0.000
Shift 0.000
Satur... 0.000

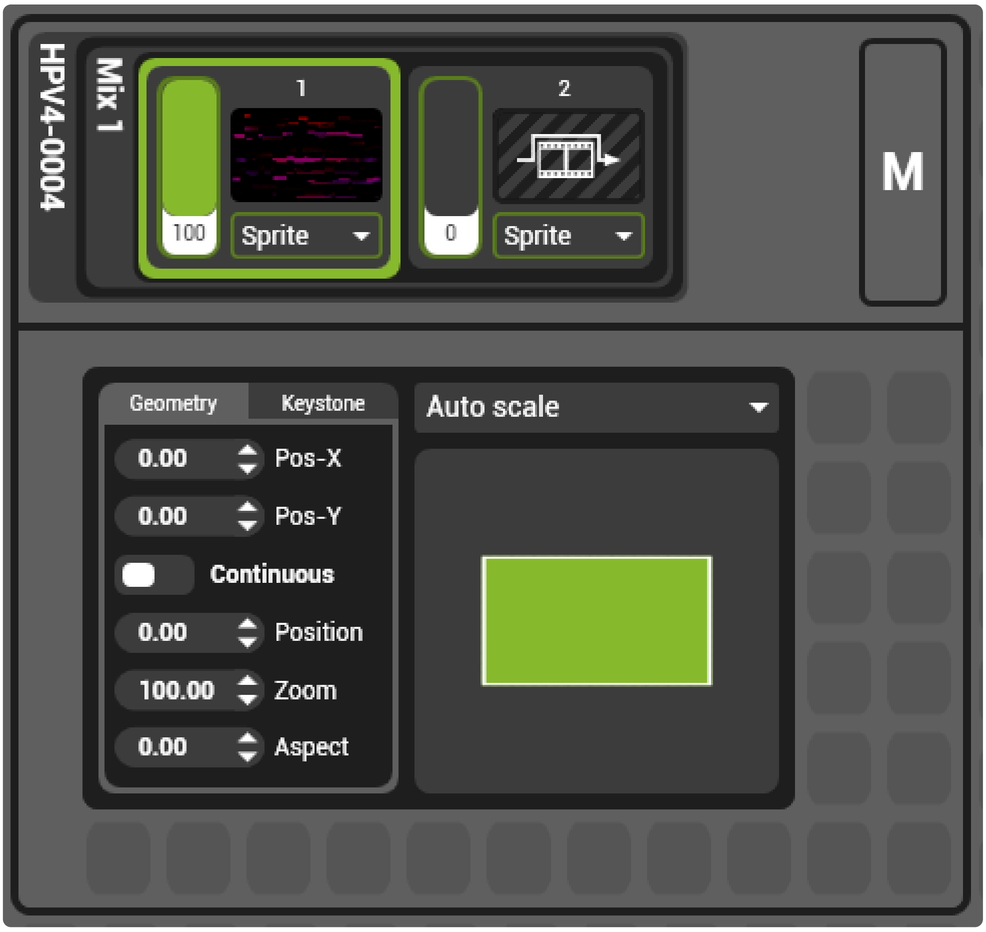
FX1: Neon
Level 93
width 0.500

FX2: no Effect
Level 0

Selectors

It is often not enough to place static items on the board, usually controls need to switch in context with a selection.

A **Selector** automatically sets all items within it to refer to the selected item.



0.00 Pos-X
0.00 Pos-Y
Continuous
0.00 Position
100.00 Zoom
0.00 Aspect

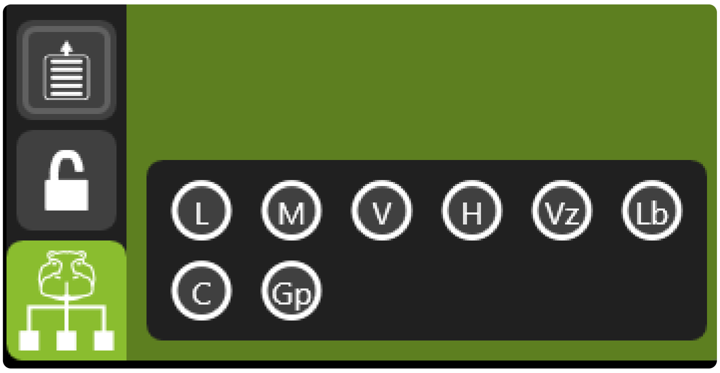
In the above image, the layer geometry has been placed inside a Layer selector. Click on layer two would automatically show layer two's geometry.

There are different types of selectors.

Adding a Selector to the Pinboard

- Unlock the pin board by clicking the lock 🔒
- Then expand Hippo net by clicking the Hippo Net Icon

The selectors are part of the the list of special Pin Items:


L
M
V
H
Vz
Lb
C
Gp

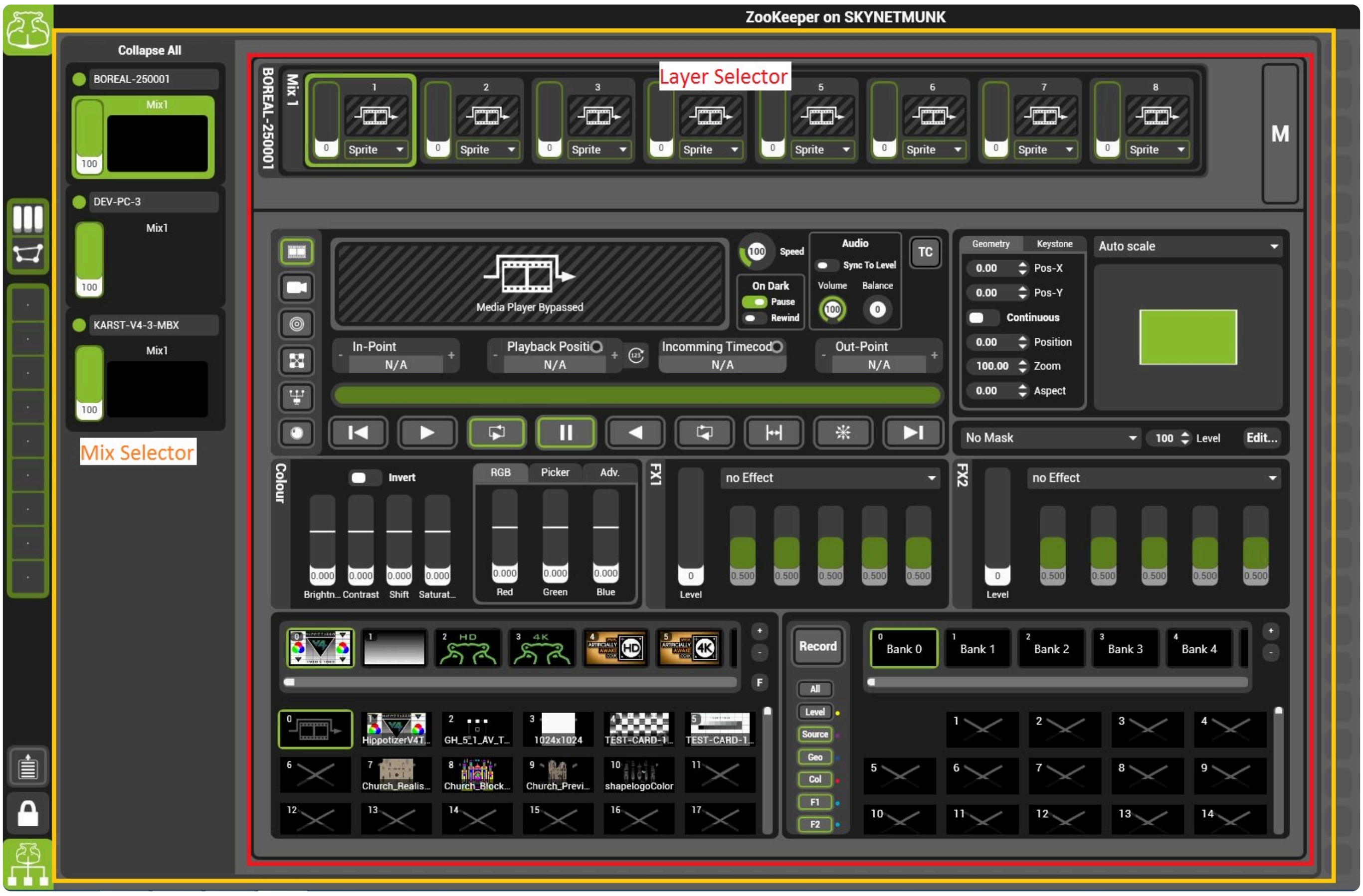
Ⓛ Layer Selector

Ⓜ Mix Selector

Ⓥ Viewport Selector

Ⓗ Host Selector

The default mix view has a good example of this.


ZooKeeper on SKYNETMUNK
Collapse All
BOREAL-250001
DEV-PC-3
KARST-V4-3-MBX
Mix1
Mix 1
Sprite
M
Media Player Bypassed
In-Point
Playback Position
Incomming Timecode
Out-Point
Auto scale
No Mask
no Effect
Record
Bank 0
Bank 1
Bank 2
Bank 3
Bank 4

Layer Selector

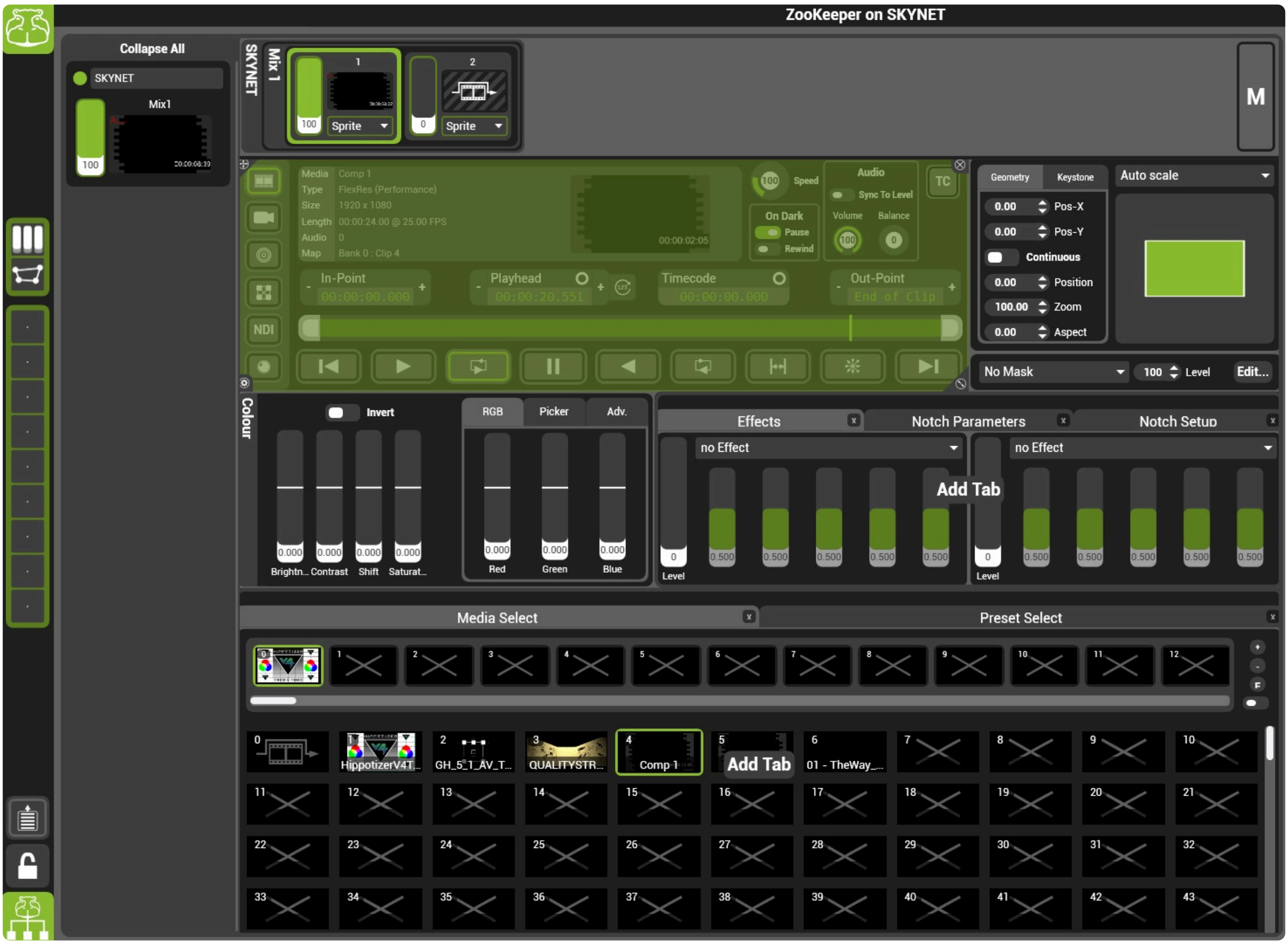
Mix Selector

The mixes page is actually a Mix selector with a layer selector nested inside.

Editing selectors.

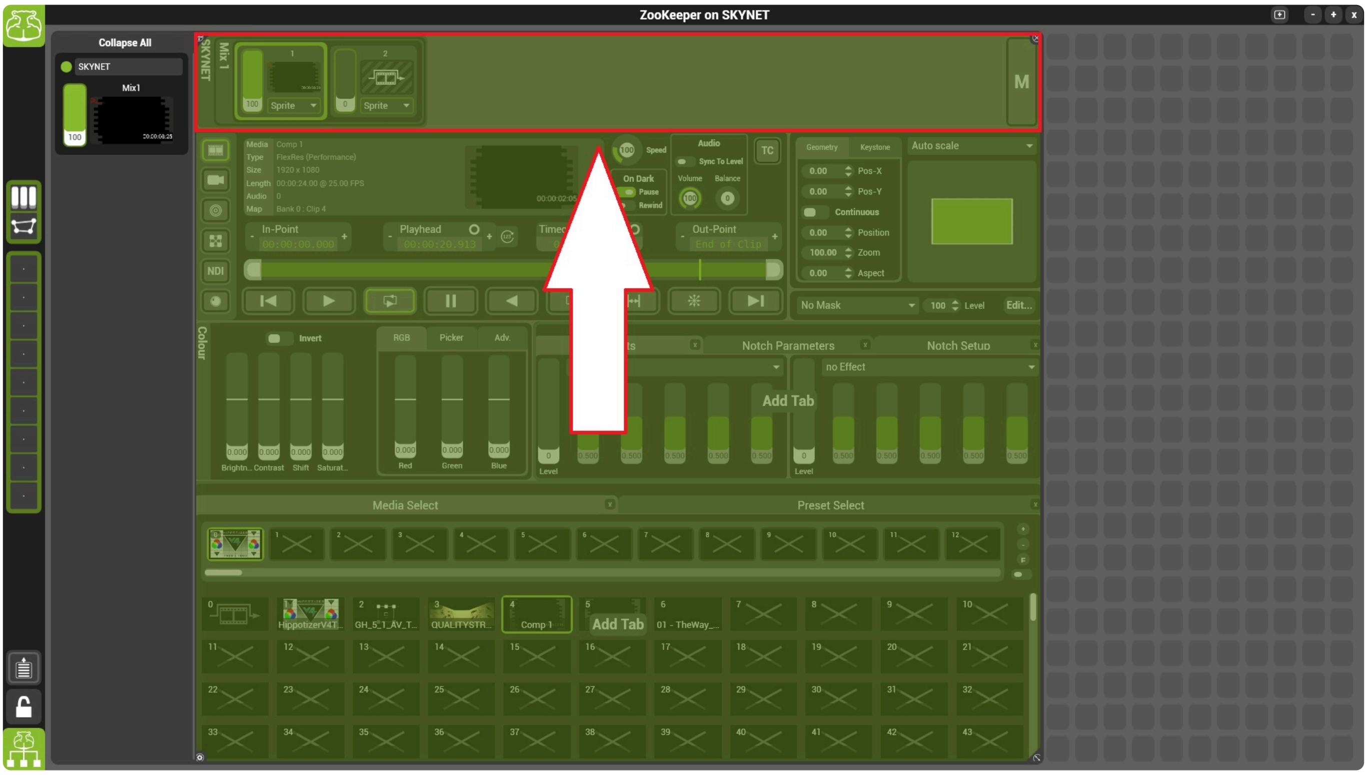
From version 4.3, the concept of a selected UI item when editing has been introduced.

With the pinboard unlocked, clicking on a UI item will select it for editing.

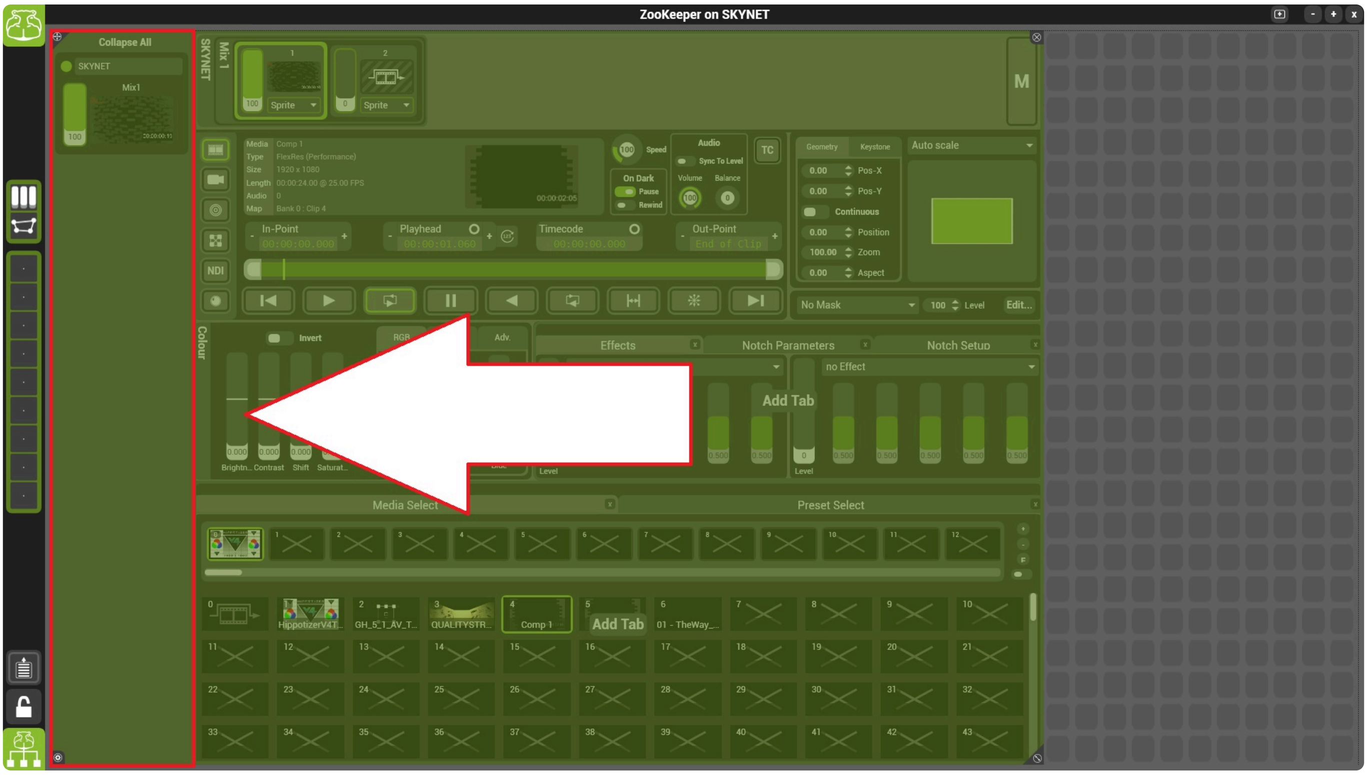

ZooKeeper on SKYNET
Collapse All
SKYNET
Mix1
SKYNET
Mix 1
Sprite
Sprite
M
Media Select
Preset Select
Effects
Notch Parameters
Notch Setup
no Effect
no Effect
Add Tab
Add Tab
Colour
Invert
RGB
Picker
Adv.
Brightn... Contrast Shift Saturat...
Red Green Blue
Level
Geometry
Keystone
Auto scale
Pos-X
Pos-Y
Continuous
Position
Zoom
Aspect
No Mask
Level
Edit...
In-Point
Playhead
Timecode
Out-Point
NDI
TC
Speed
Audio
Sync To Level
On Dark
Pause
Rewind
Volume
Balance
HippotizerV4T...
GH_5_1_AV_T...
QUALITYSTR...
Comp 1
01 - TheWay_...

Choosing to edit a selector requires specific areas to be clicked.

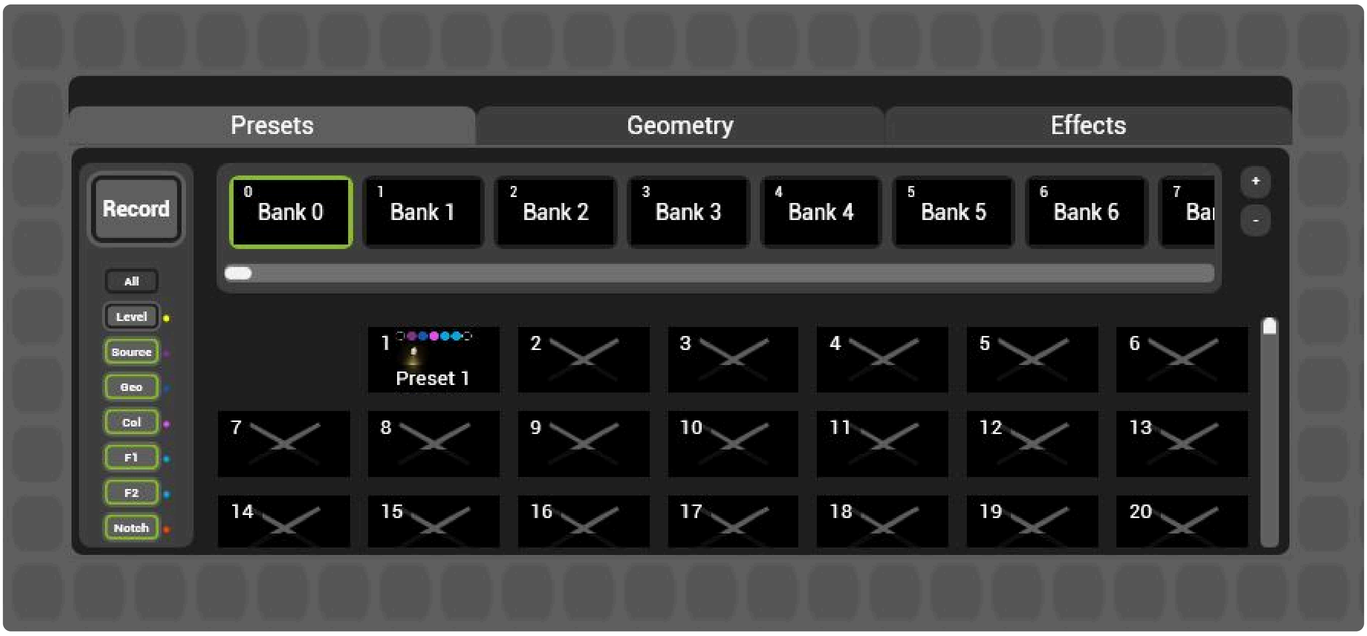
For the Layer selector click where layers are shown


ZooKeeper on SKYNET
Collapse All
SKYNET
Mix1
Mix 1
Sprite
M
Media Select
Preset Select
Add Tab

For the Mix Selector click where mixes are shown


ZooKeeper on SKYNET
Collapse All
SKYNET
Mix1
Mix 1
Sprite
M
Effects
Notch Parameters
Notch Setup
Media Select
Preset Select
Add Tab

Tabbed Selector

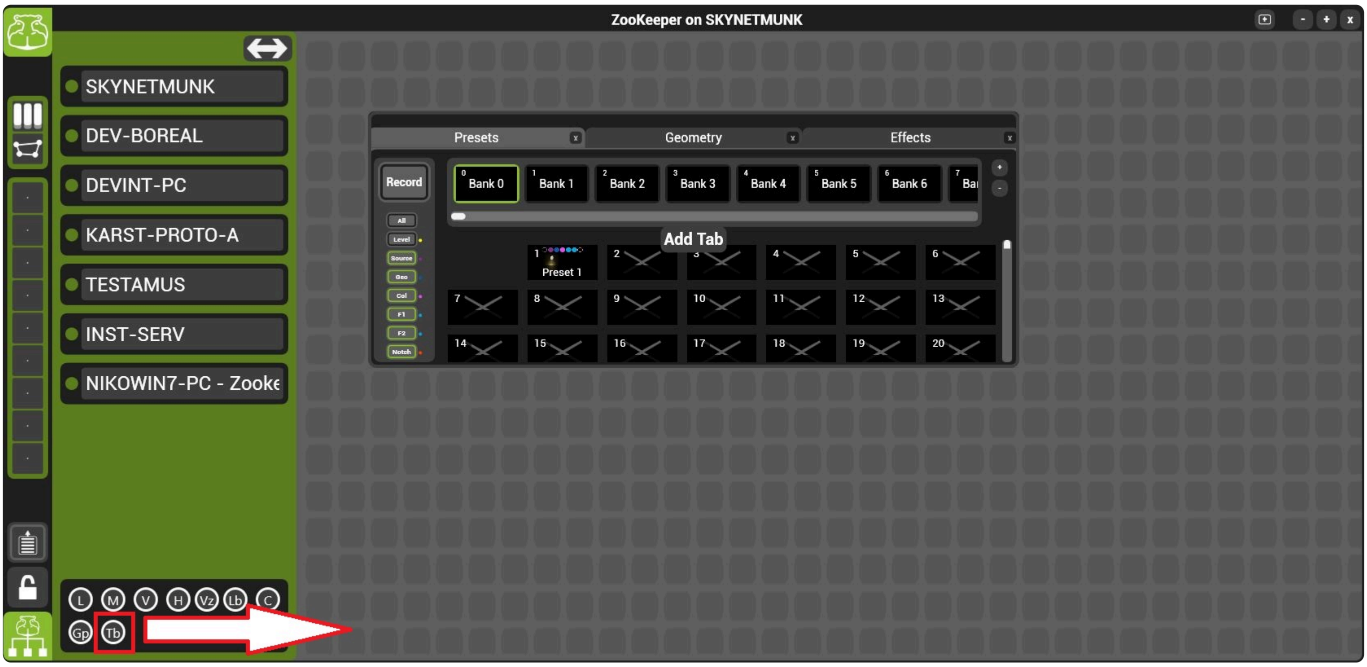

Presets
Geometry
Effects
Record
All
Level
Source
Geo
Col
F1
F2
Notch
Bank 0
Bank 1
Bank 2
Bank 3
Bank 4
Bank 5
Bank 6
Preset 1

Tabs are a good way to stack controls for rapid access.

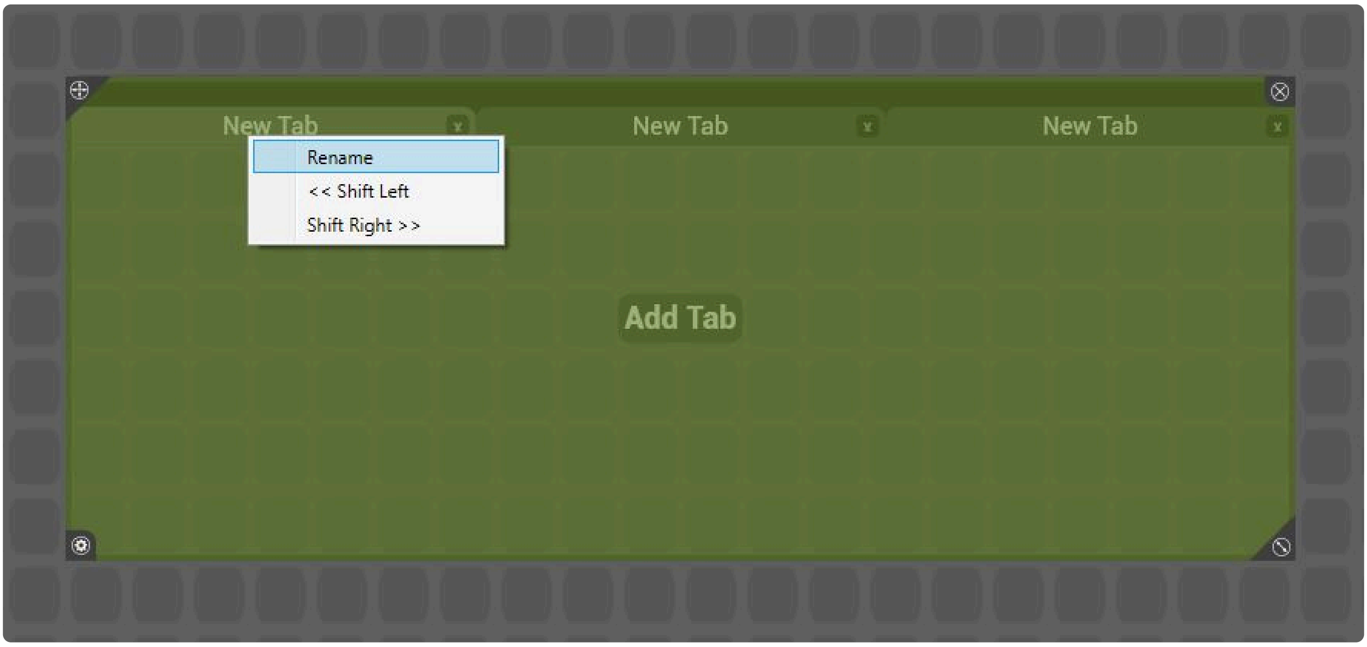
Tabs are similar to pinboards; they retain the hierarchy and rules of a standard pinboard.

Creating a Tab

To add a tabbed selector, drag it out from the HippoNet menu with the pinboard unlocked.


ZooKeeper on SKYNETMUNK
SKYNETMUNK
DEV-BOREAL
DEVINT-PC
KARST-PROTO-A
TESTAMUS
INST-SERV
NIKOWIN7-PC - Zooke
Presets
Geometry
Effects
Record
Add Tab
L M V H Vz Lb C
Gp Tb

The selector can be resized and moved when the pinboard is unlocked.


New Tab
x
Rename
<< Shift Left
Shift Right >>
New Tab
x
New Tab
x
Add Tab

Rename

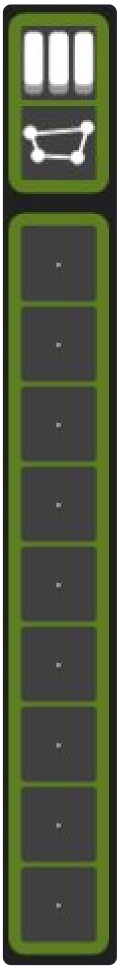
Names the tab. Tabs can also be renamed with the pinboard locked by right clicking and selecting rename.

Shift

Moves selected tab

Quick Access Buttons

On the left side of Zookeeper are two factory and nine user configurable quick access buttons.

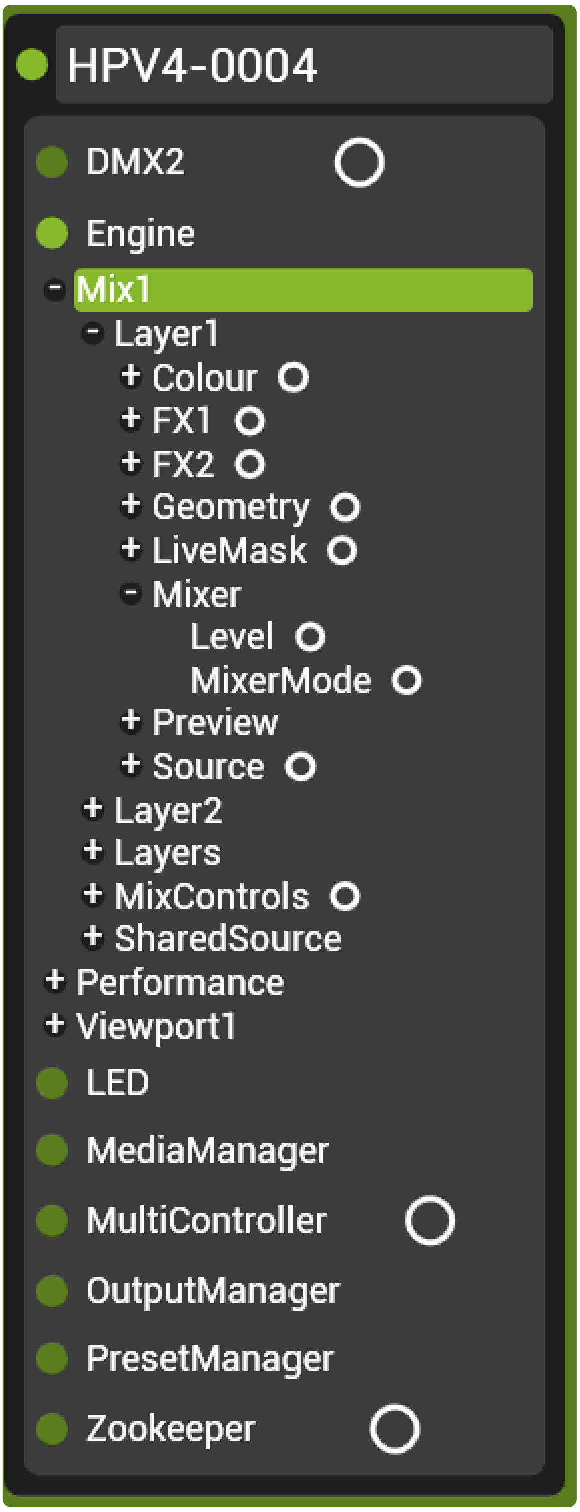


To add a Layout to quick access, drag it from the Zookeeper main page onto the desired button.

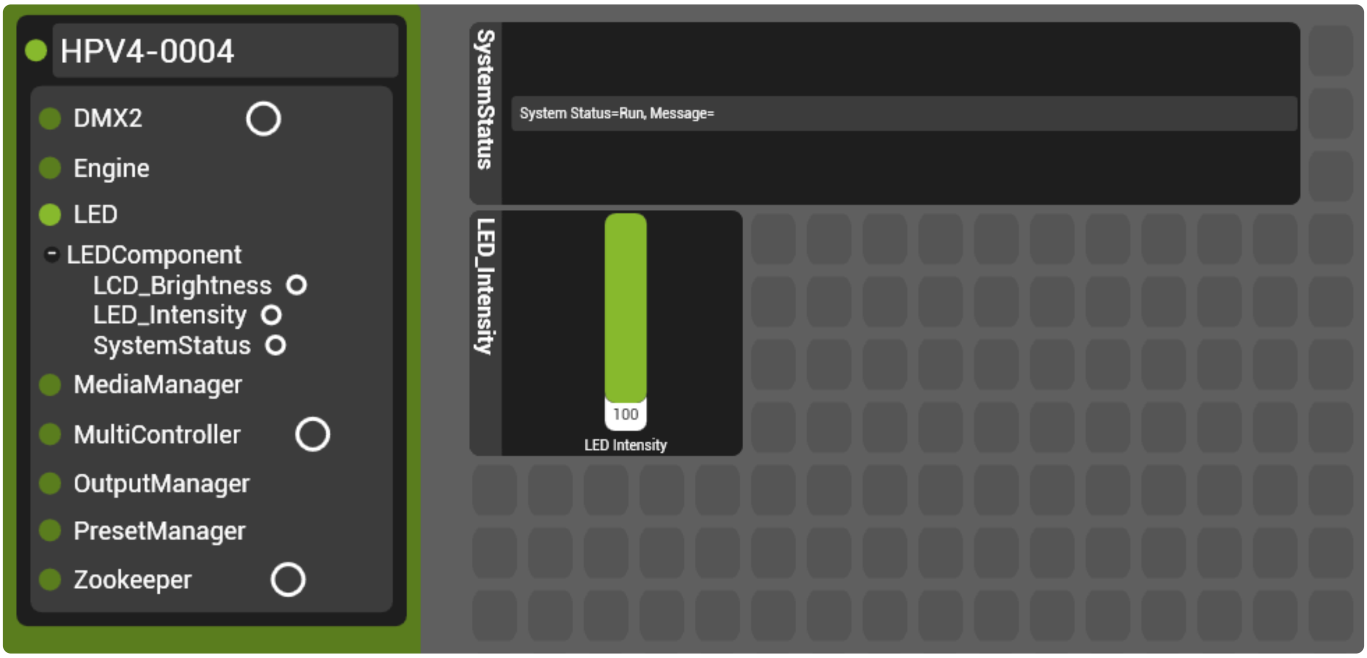
Hippo Net

The **Hippo Net** is the collection of network based controls that make up Hippotizer. Each control is refereed to as a **Pin** and are the way that engine can be communicated with. The Pins collectively are call the Pin Tree in reference to their hierarchical nature.

Each Hippotizer engine appears in the HippoNet window of Zookeeper with the components running on that system listed


HPV4-0004
DMX2
Engine
Mix1
Layer1
Colour
FX1
FX2
Geometry
LiveMask
Mixer
Level
MixerMode
Preview
Source
Layer2
Layers
MixControls
SharedSource
Performance
Viewport1
LED
MediaManager
MultiController
OutputManager
PresetManager
Zookeeper

Each component contains Pins based on its function; click on the component to view it's pins.


HPV4-0004
DMX2
Engine
LED
LEDComponent
LCD_Brightness
LED_Intensity
SystemStatus
MediaManager
MultiController
OutputManager
PresetManager
Zookeeper
SystemStatus
LED_Intensity
100
LED Intensity

System Status=Run, Message=

In the above example, the LED Component has been opened to show that it has a Pin controlling the LED and LCD Intensities as well as a status pin. The LED intensity has been dragged out as well as the status.

Some components, such as the Engine, will have a much more complex Pin Tree while others have none at all.

The organisation of the Pin Tree is important when controlling Hippotizer from external protocols such as OSC or TCP. Items that are shown only by unfolding the tree are said to be the children of that item. For example, in the LED Component above, the address or **Pin Path** for SystemStatus is expressed as:

LEDComponent/SystemStatus

Tip: The Pin Path of any item on the pin board can be seen quickly by hovering the mouse over it's name

Components

Hippotizer is based around a series of plugins called **components** each adding functionality.

Managing components is an important part of setting up the Hippotizer system.

Information about the basics of components can be found here.

Components in Hippotizer:

CITP

Enables the transfer of thumbnails and previews between Hippotizer and lighting desks or visualisation software.

DMX2

Enables Hippotizer to be controlled from DMX Lightning desks over ArtNet, MA-Net or sACN.

Engine

Runs by default renders the video output.

HippoSnapper

Allows a still image to be taken of a mix or layer and saved to the media map.

LED Component

Runs by default: operates the LED indicator lights on the front of Hippotizer systems.

MacroManager

Enables scripts (or Macros) to be written to customise Hippotizer functionality.

MediaManager

Runs by default: organizes and encodes media into Hippotizer.

MultiController

Sends and receives data from external controllers such as MIDI and TCP devices.

Output Manager

Runs by default: configures the number and resolution of mixes and places outputs on displays.

PinBridge

PinBridge allows functions to be grouped together and controlled by a single pin.

PixelMapperV4

Allows Hippotizer to control lights over ArtNet, KiNet or sACN.

Preset Manager

Runs by default saves and recalls sets of pin values for Layers, Mixes and Viewports.

ScreenWarp Manager

Creates warps and blends for use on viewport.

SHAPE

SHAPE is the 3rd dimension of Hippotizer to enable projection mapping, object tracking and advanced projection tools.

Sync Manager

Manages time synchronisation between systems including receiving timecode from external devices. (LTC and Midi Timecode)

Timeline

Allows the playback of sequences of values for show recall from video-editor based timelines.

VideoMapper

Transposes pixels from input to output textures for the mapping of complex output configurations. Frequently used for mapping video tiles.

Component Basics

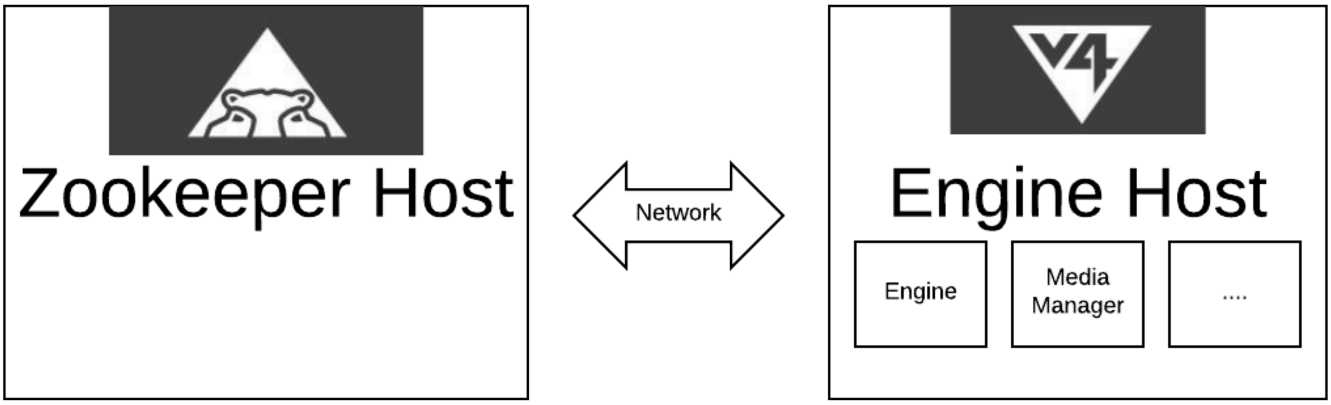
Each component in Hippotizer adds functionality. Some components run by default and should not be stopped, others can be enabled or disabled as required.

! Starting or stopping a component can be a disruptive action as the pin tree will change, potentially affecting every Hippotizer on the network. Do not start or stop components in a live environment.

- Starting and Stopping Components
- Saving or loading a component

The Hippotizer software runs a **host** within which each component operates.

Note: The words host, engine and HFW (Hippotizer FrameWork) are sometimes used interchangeably. In reality, Hippotizer operates on several levels; HFW is the overall container which runs Hosts. Zookeeper and the Engine run their own Hosts. Components run within a Host however only the engine host can start components.

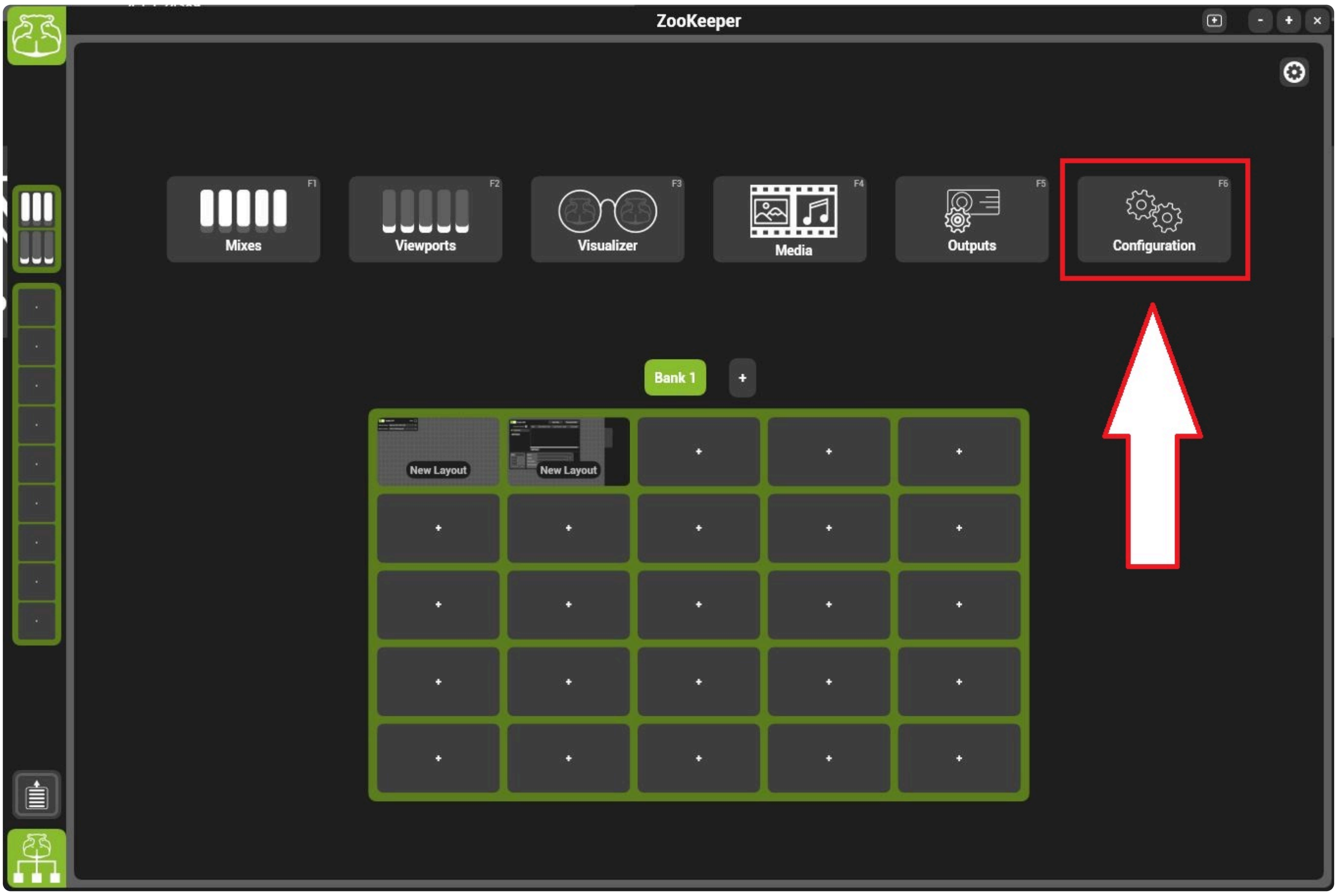


Starting and Stopping Components

Hippotizer V4 starts up by default with a few components which are required for basic operation. In order to enable additional functionalities, it is necessary to add the relevant component.

To start a new component:

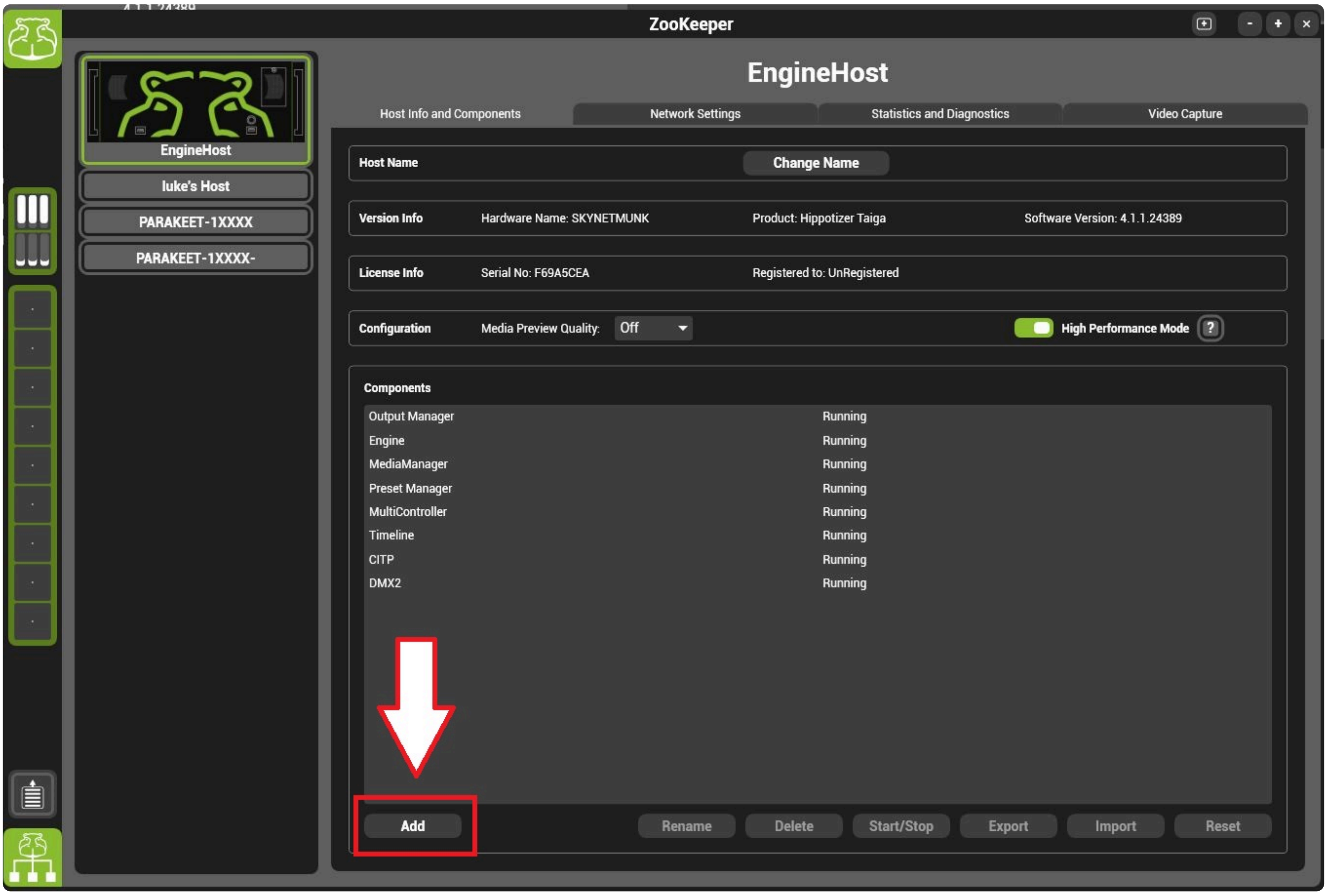
Go to the Configuration page of Zookeeper


ZooKeeper
Mixes
F1
Viewports
F2
Visualizer
F3
Media
F4
Outputs
F5
Configuration
F6
Bank 1
+
New Layout
New Layout

By Default, the configuration window will show a list of all components currently added to the system

Note: Once components have been added to the system they can be running or stopped. A stopped component retains it’s settings by will not function. Deleting a component will erase all of it’s settings.

To add a new component, press the add button and select the desired component from the list.


ZooKeeper
EngineHost
luke's Host
PARAKEET-1XXXX
PARAKEET-1XXXX-
Host Info and Components
Network Settings
Statistics and Diagnostics
Video Capture
Change Name
?
Add
Rename
Delete
Start/Stop
Export
Import
Reset

EngineHost

Host Name

Version Info Hardware Name: SKYNETMUNK Product: Hippotizer Taiga Software Version: 4.1.1.24389

License Info Serial No: F69A5CEA Registered to: UnRegistered

Configuration Media Preview Quality: Off High Performance Mode

Components

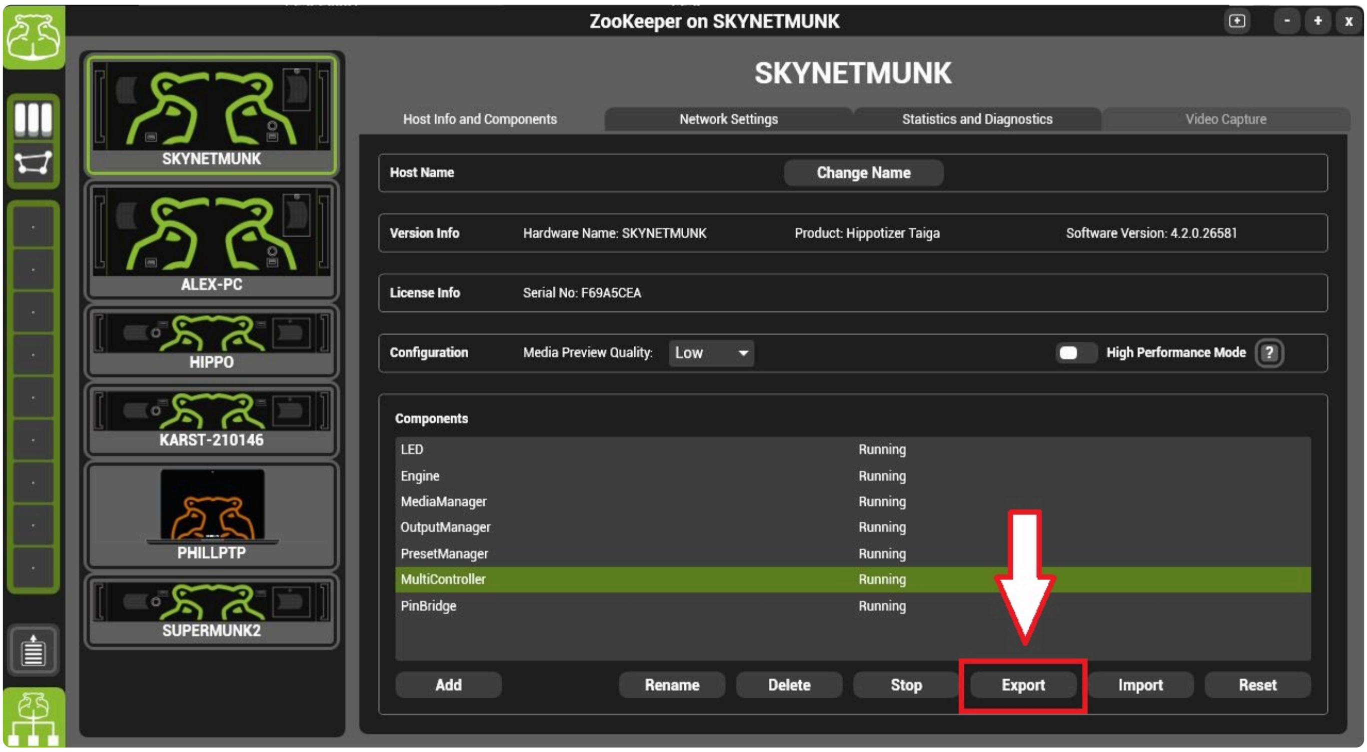
Output Manager	Running
Engine	Running
MediaManager	Running
Preset Manager	Running
MultiController	Running
Timeline	Running
CITP	Running
DMX2	Running

To stop or delete a component, select the component and select the operation from below list.

Saving or loading a component

Many components have information that can saved or imported.

Exporting a component


ZooKeeper on SKYNETMUNK
SKYNETMUNK
ALEX-PC
HIPPO
KARST-210146
PHILLPTP
SUPERMUNK2
SKYNETMUNK
Host Info and Components
Network Settings
Statistics and Diagnostics
Video Capture
Change Name
Add
Rename
Delete
Stop
Export
Import
Reset

Host Name

Version Info Hardware Name: SKYNETMUNK Product: Hippotizer Taiga Software Version: 4.2.0.26581

License Info Serial No: F69A5CEA

Configuration Media Preview Quality: Low High Performance Mode

Components

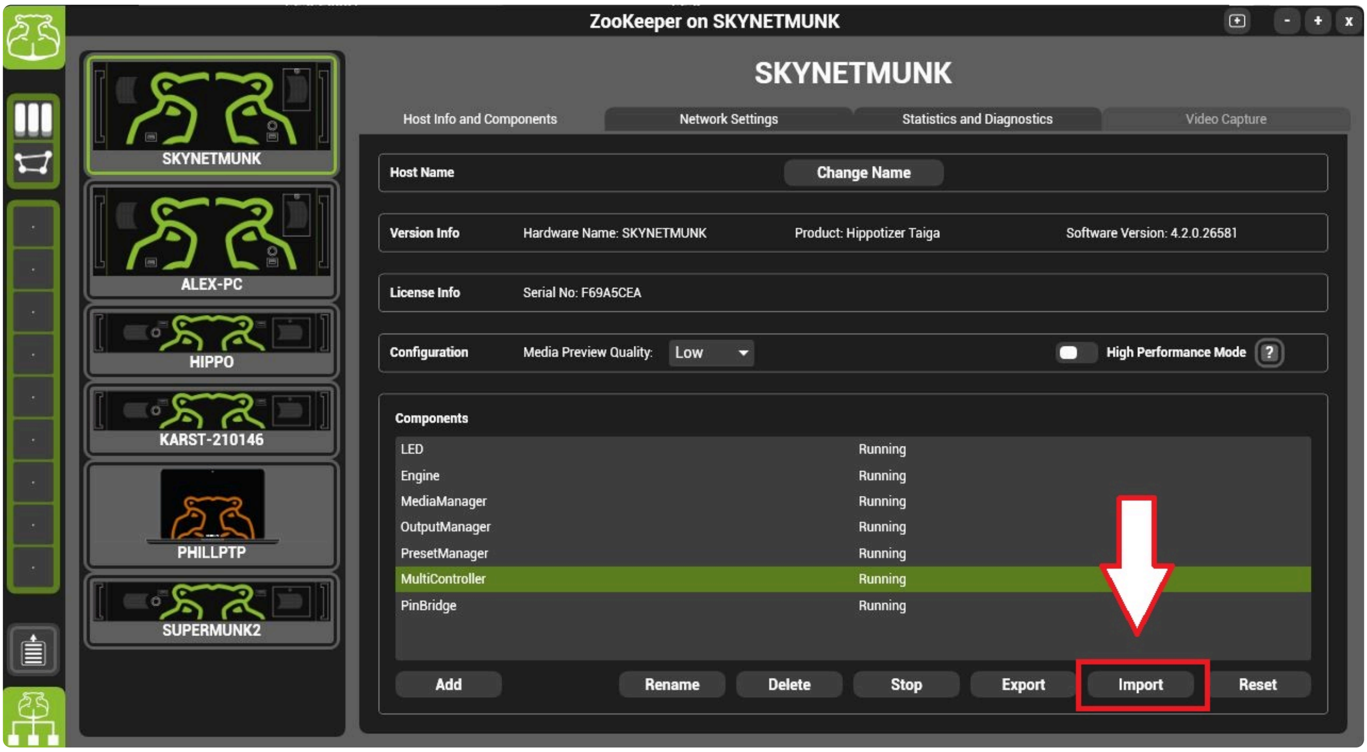
LED	Running
Engine	Running
MediaManager	Running
OutputManager	Running
PresetManager	Running
MultiController	Running
PinBridge	Running

To export data from a component:

- Choose the Component from the list in Zookeeper Configuration
- Select the Component
- Click Export
- Choose a location to save it

Component exports are saved as the component name .ghp. Each export is specific to the type of component, so it is best to leave the type of component clear in the name.

Importing a component



ZooKeeper on SKYNETMUNK
SKYNETMUNK
ALEX-PC
HIPPO
KARST-210146
PHILLPTP
SUPERMUNK2
Host Info and Components
Network Settings
Statistics and Diagnostics
Video Capture
Change Name
High Performance Mode
?
Add
Rename
Delete
Stop
Export
Import
Reset

SKYNETMUNK

Host Name

Version Info Hardware Name: SKYNETMUNK Product: Hippotizer Taiga Software Version: 4.2.0.26581

License Info Serial No: F69A5CEA

Configuration Media Preview Quality: Low

Components

LED	Running
Engine	Running
MediaManager	Running
OutputManager	Running
PresetManager	Running
MultiController	Running
PinBridge	Running

To import data to a component:

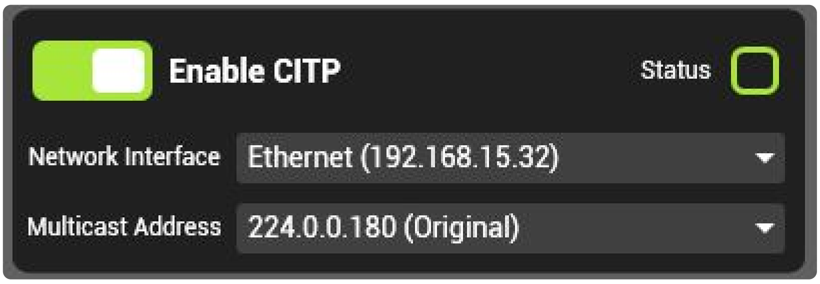
- Choose the component from the list in Zookeeper Configuration. If the component is not in the list, add it.
- Click Import
- Locate the file to import from

CITP

CITP is network based protocol for the transfer of information from a Media Server to a lighting console or Visualizer. CITP can transfer thumbnails and media names, as well as low resolution streaming previews to select lighting consoles and Visualization software.

Note: CITP can add significant load to the network and may negatively affect performance of the Hippotizer or other network systems. We do not advise therefore using CITP during a live show situation. Instead, it should be viewed as a programming aid only.

To use CITP, start the CITP component and add it to a Pinboard.



Network Interface: Ethernet (192.168.15.32)

Multicast Address: 224.0.0.180 (Original)

Enable CITP

Enables / Disables the CITP

Network Interface

Choose which Network port that CITP will use to send data.

Note: It is considered best practice to use the data port to carry CITP to avoid congestion on the HippoNet Network

Multicast Address

Choose which multicast grouping address CITP uses. Most of the time this does not make a difference as many applications support both the old and new standard.

What works with CITP in 4.3.3?

Please see the release notes

Setting CITP up can be a challenge, each combination of manufacture can have a unique trick. The following specific combinations are known to have a ‘trick’:

Avolites

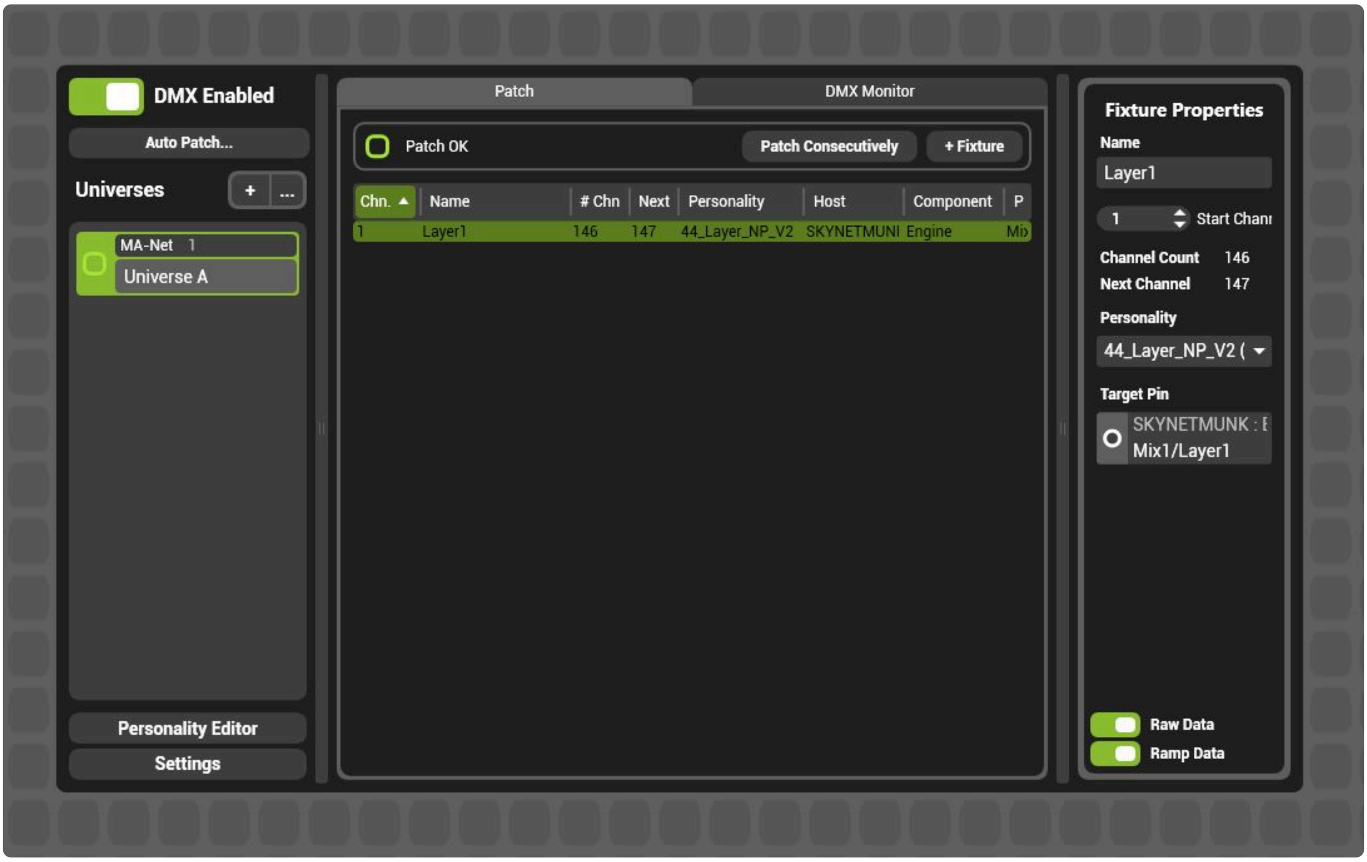
The Avolites desk must see the CITP component start up on Hippotizer to work. The easiest way to do this is set everything up and then turn the CITP component on Hippo off and on again to allow the desk to see layers.

DMX

The DMX Component receives DMX in Hippotizer to control layers, mixes and viewports from common network control protocols such as ArtNet, Ma-Net and sACN.

The DMX component is most commonly used to patch whole layers, mixes and viewports to a lighting desk.

To patch a single attribute it is faster to use the Multicontroller Component.


DMX Enabled
Auto Patch...
Universes
+
...
Patch
DMX Monitor
Patch OK
Patch Consecutively
+ Fixture
Personality Editor
Settings
Fixture Properties
Raw Data
Ramp Data

MA-Net 1
Universe A

Chn. ▲	Name	# Chn	Next	Personality	Host	Component	P
1	Layer1	146	147	44_Layer_NP_V2	SKYNETMUNI	Engine	Mi

Name
Layer1
1 Start Chan
Channel Count 146
Next Channel 147
Personality
44_Layer_NP_V2 (
Target Pin
SKYNETMUNK :
Mix1/Layer1

The DMX component relies on the network to carry data to the Hippotizer software; the first step then is to configure the network for Hippotizer.

For a detailed explanation of how to setup the network, please visit the networking section of this manual.

Getting started

The **Auto patch…** function quickly creates a default DMX setup.

DMX Component in Depth

- Auto Patch

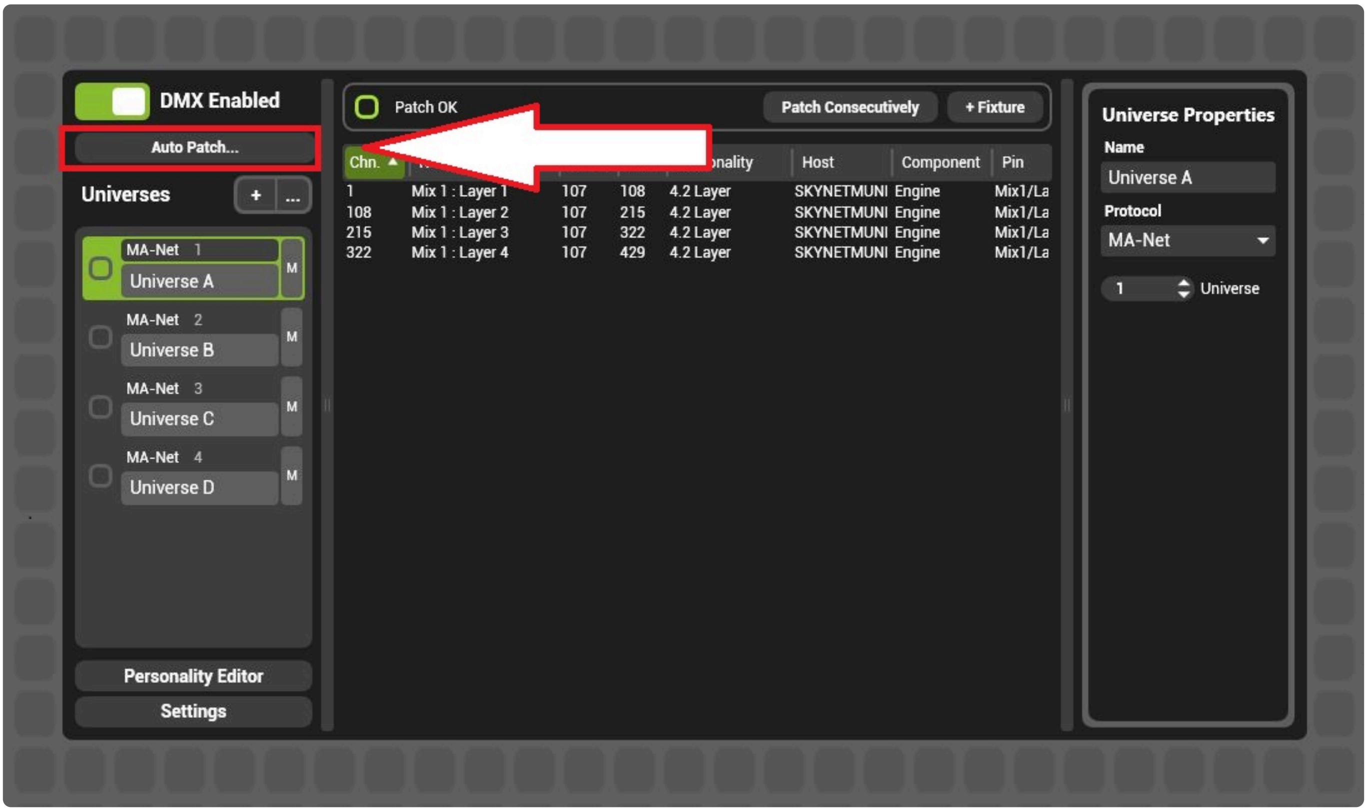
- Factory Personalities
- Basic Layout
- General Settings
- DMX Monitor

Auto Patch

The DMX component can automatically create a basic fixture patch that works in many scenarios.

To auto patch:

- Before beginning, ensure all hardware setup is complete. [Any network ports] and outputs should be attached and configured.
- [Configure the Hippotizer system with the desired number of Layers, Mixes and Viewports]
- [Start the DMX Component and add it to a Pinboard.]
- In the DMX Component, choose **Auto Patch...**


DMX Enabled
Auto Patch...
Universes
+
...
MA-Net 1
Universe A
M
MA-Net 2
Universe B
M
MA-Net 3
Universe C
M
MA-Net 4
Universe D
M
Personality Editor
Settings
Patch OK
Patch Consecutively
+ Fixture
Universe Properties

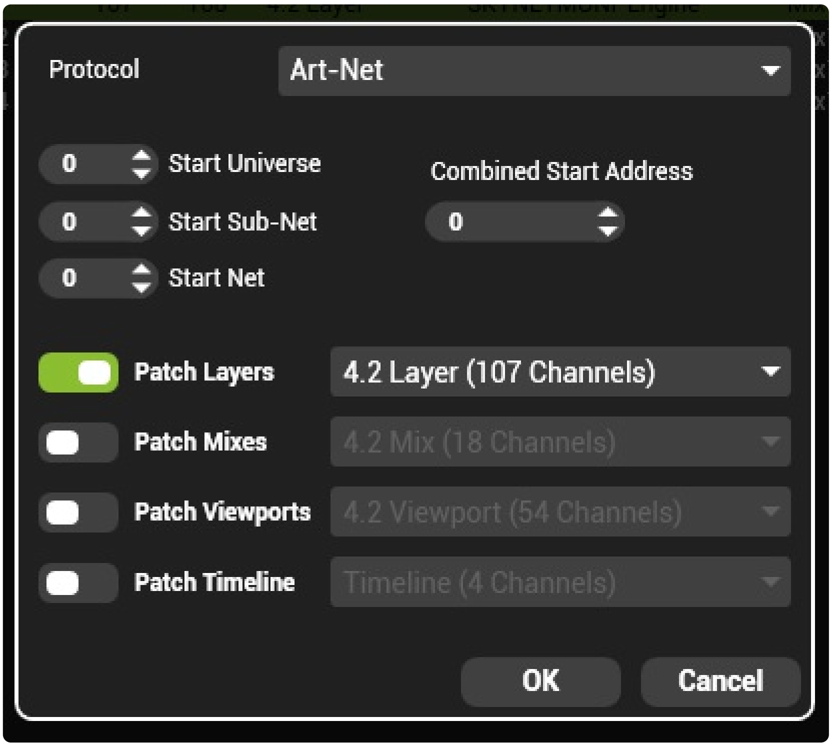
Chn.				nality	Host	Component	Pin
1	Mix 1 : Layer 1	107	108	4.2 Layer	SKYNETMUNI	Engine	Mix1/La
108	Mix 1 : Layer 2	107	215	4.2 Layer	SKYNETMUNI	Engine	Mix1/La
215	Mix 1 : Layer 3	107	322	4.2 Layer	SKYNETMUNI	Engine	Mix1/La
322	Mix 1 : Layer 4	107	429	4.2 Layer	SKYNETMUNI	Engine	Mix1/La

Name: Universe A

Protocol: MA-Net

1 Universe

- The auto patch dialogue will open



Protocol: Art-Net

0 Start Universe

0 Start Sub-Net

0 Start Net

Combined Start Address: 0

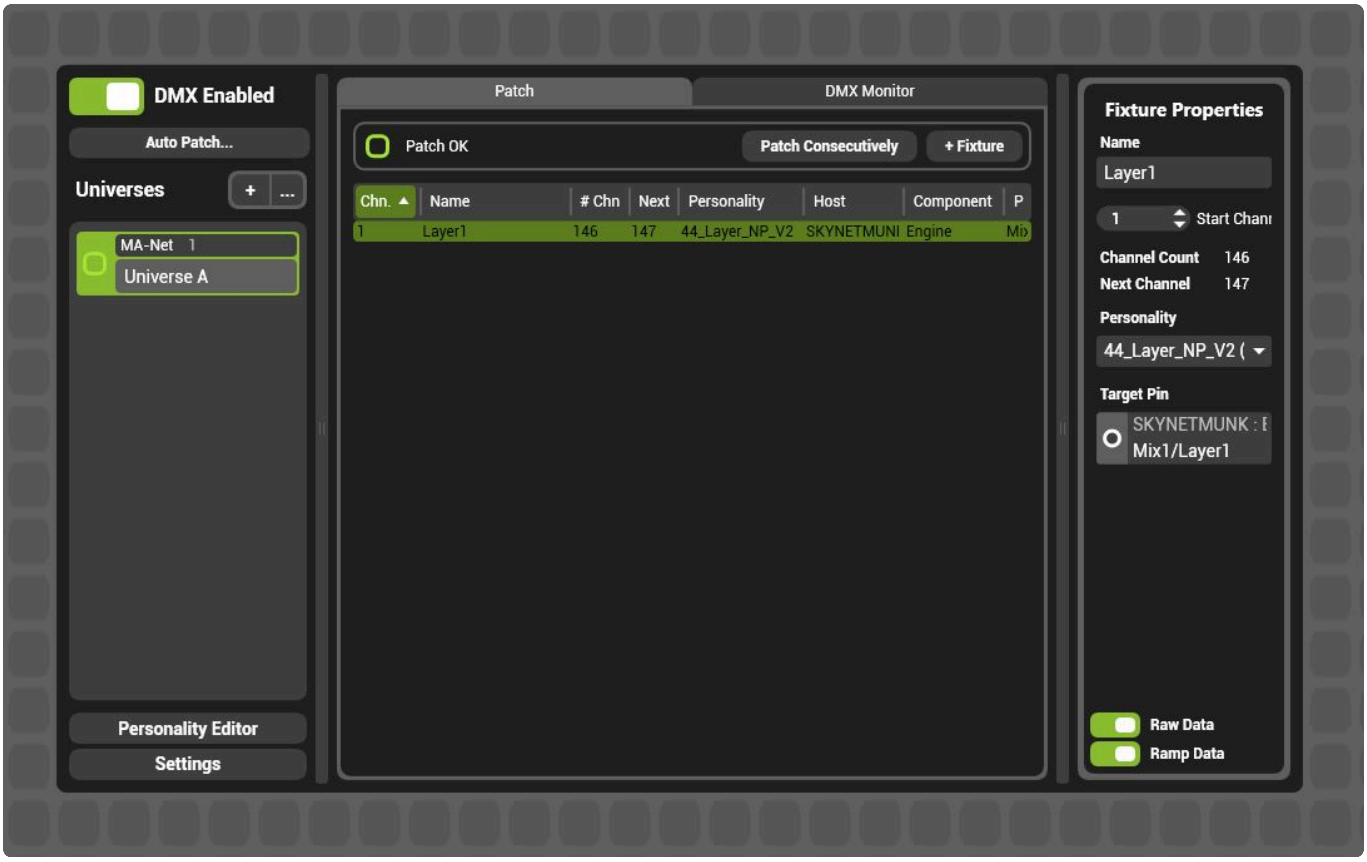
Patch Layers: 4.2 Layer (107 Channels)

Patch Mixes: 4.2 Mix (18 Channels)

Patch Viewports: 4.2 Viewport (54 Channels)

Patch Timeline: Timeline (4 Channels)

- Choose the desired protocol
- Based on the protocol, select a starting universe.
- Auto patch can assign layers, mixes, viewports and timeline if required. Use the on/off switch to determine which to patch.
- Choose the desired personality for each fixture type.
- Press OK.
- The DMX component is now patched.



DMX Enabled
Auto Patch...
Universes
+
...
Patch
DMX Monitor
Patch OK
Patch Consecutively
+ Fixture
Personality Editor
Settings
Raw Data
Ramp Data

MA-Net 1 Universe A

Chn.	Name	# Chn	Next	Personality	Host	Component	P
1	Layer1	146	147	44_Layer_NP_V2	SKYNETMUNI	Engine	Mi

Fixture Properties

Name: Layer1

1 Start Chann

Channel Count: 146

Next Channel: 147

Personality: 44_Layer_NP_V2 (

Target Pin: SKYNETMUNK : E Mix1/Layer1

Factory Personalities

Factory personalities

Green Hippo creates a default DMX definition of Layers, Mixes, Viewports and Timeline shipped with each software version called the **factory personalities**.

For a given software version current or older personalities will work. **Do not use a personality of greater number to the software version**

Hippotizer Software Version	Highest Supported Factory Personality
4.0.xxx	4.0.2
4.1	4.1
4.1.1	4.1
4.2	4.2
4.2.1	4.2

The release notes detail changes to DMX personalities, with the full channel layout published in the appendix of this manual.

Please Note: We **strongly** suggest using the factory personalities wherever possible, and editing them if desired. Creating a personality from scratch requires a significant amount of changes to avoid undesired behaviour.

Compatibility with Lighting desks

Green Hippo works with various lighting desk manufacturers to ensure console definitions align with Hippotizer personalities. Where we have a known good lighting desk personality, we will share it on the software download site.

If you would like to share your desk personality with others in the Hippotizer community, please post it on the forum.

Channel layout in Factory personalities

The channel layout of factory personalities will appear somewhat random. (Keystone on layer for example in 4.2 Layer is at the end instead of with the rest of Geometry controls). The reason for this is an continued desire to minimise changes between versions. Each new feature or channel added to the DMX personality is appended to the end of the factory personalty.

Presets and DMX personalities

Presets can be recalled from DMX as a single integer pin similar to the media select pin. To use presets correctly however, always use a Hippotizer personality designed with presets in mind. To understand why, consider the following example: The DMX lighting desk could be telling the layer to be red, while firing a preset telling the layer to be green. The lighting desk has no information about what a Hippotizer preset will do, so the layer will get conflicting instructions. In this case, the layer would flash green before switching back to red. Hippotizer’s last-takes-precedence architecture ensures that the continuous updates of DMX always win. (This is also the case with changes made in Zookeeper; a fader moved in the interface will snap back to what it is set to by DMX).

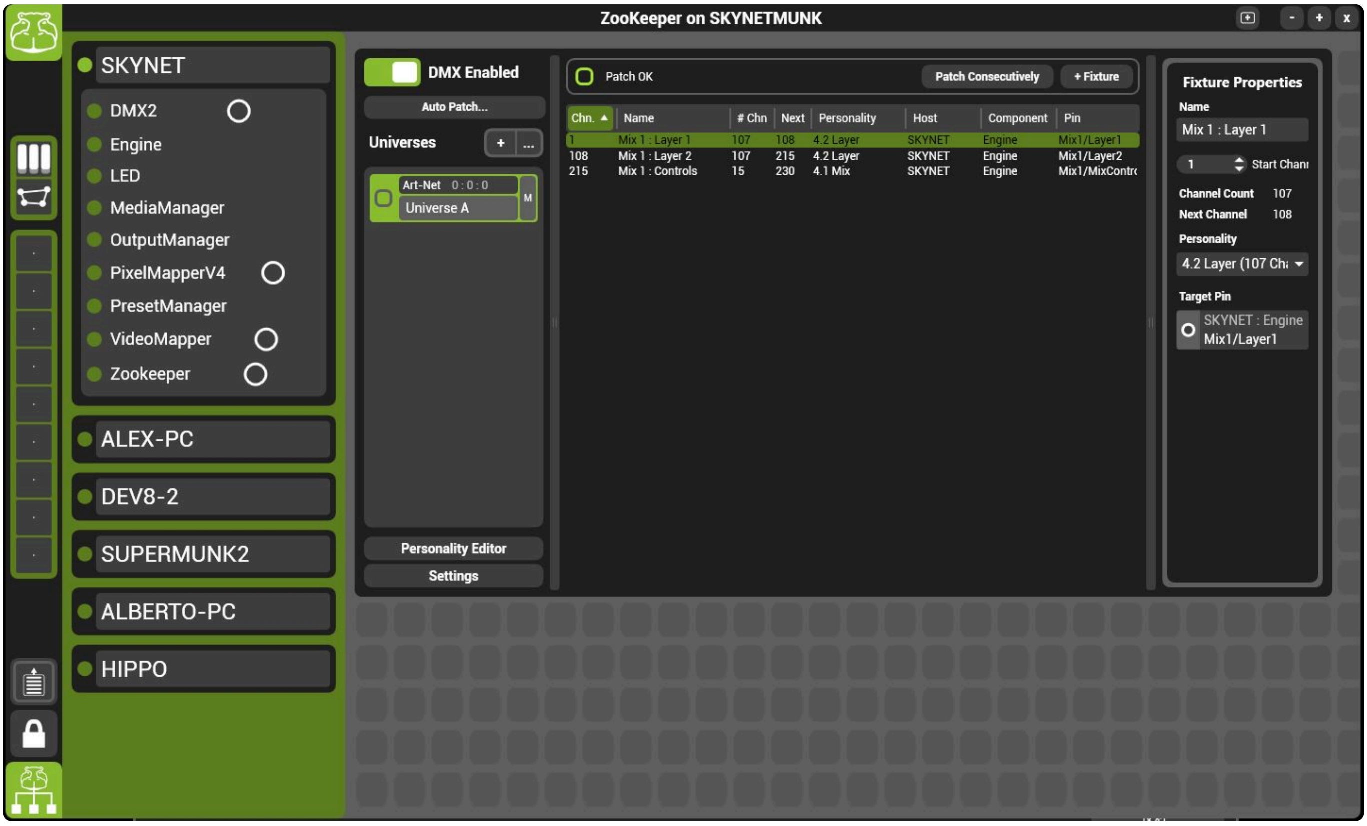
To avoid this problem, factory personalities designed for presets are set to **update only** to ensure that a preset will take priority over DMX until further changes are made.

Basic Layout

The DMX component is made of several pieces:

- Patch Window
- Personality Editor
- DMX Monitor

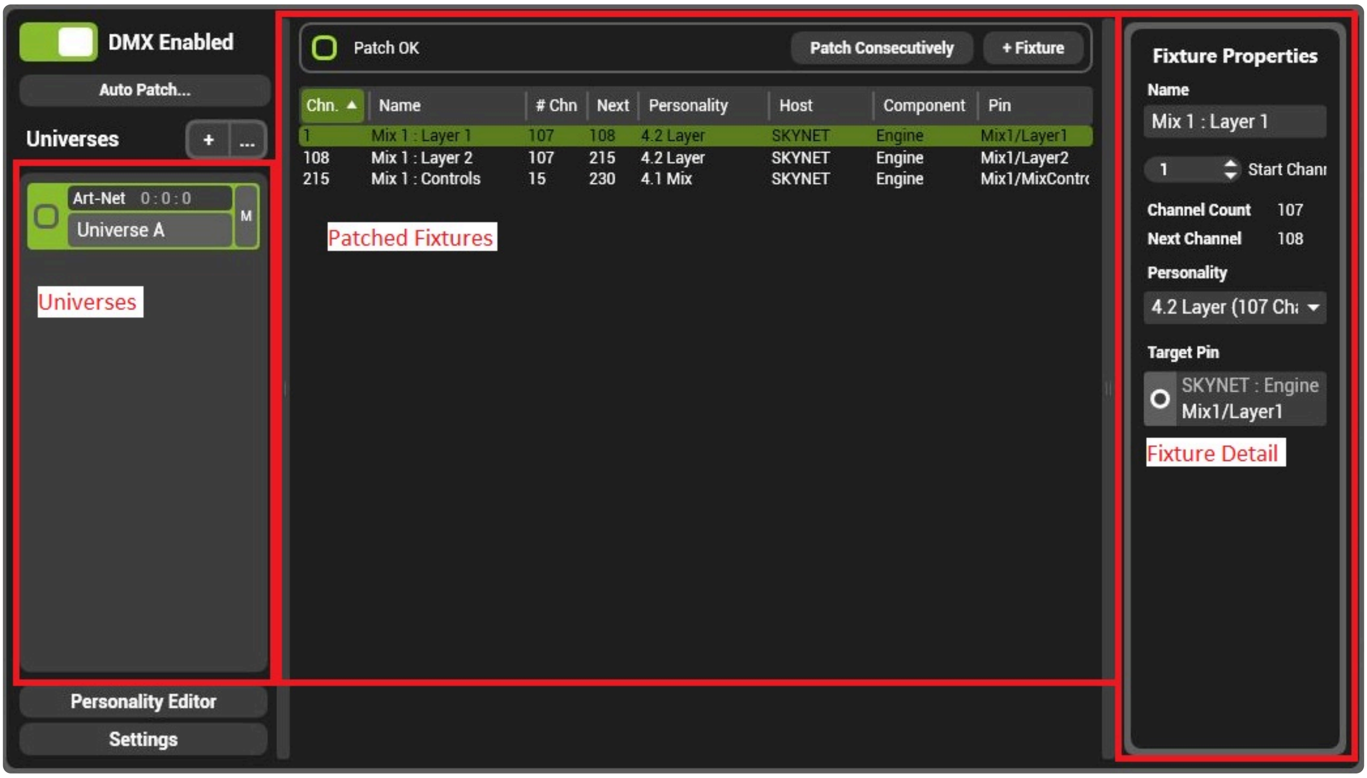
The default view of the DMX Component is the Patch Window. To begin, start the DMX component and add it to a Pinboard. Starting a new component.
Add the component to a Pinboard


ZooKeeper on SKYNETMUNK
SKYNET
DMX2
Engine
LED
MediaManager
OutputManager
PixelMapperV4
PresetManager
VideoMapper
Zookeeper
ALEX-PC
DEV8-2
SUPERMUNK2
ALBERTO-PC
HIPPO
DMX Enabled
Auto Patch...
Universes
+
...
Art-Net 0 : 0 : 0
Universe A
M
Personality Editor
Settings
Patch OK
Patch Consecutively
+ Fixture
Fixture Properties

Chn.	Name	# Chn	Next	Personality	Host	Component	Pin
1	Mix 1 : Layer 1	107	108	4.2 Layer	SKYNET	Engine	Mix1/Layer1
108	Mix 1 : Layer 2	107	215	4.2 Layer	SKYNET	Engine	Mix1/Layer2
215	Mix 1 : Controls	15	230	4.1 Mix	SKYNET	Engine	Mix1/MixContrc

Name Mix 1 : Layer 1
1 Start Chanı
Channel Count 107
Next Channel 108
Personality 4.2 Layer (107 Chi
Target Pin SKYNET : Engine Mix1/Layer1

The patch window is comprised of four parts:


DMX Enabled
Auto Patch...
Universes
+
...
Art-Net 0 : 0 : 0
Universe A
M
Universes
Personality Editor
Settings
Patch OK
Patch Consecutively
+ Fixture
Patched Fixtures
Fixture Properties
Fixture Detail

Chn.	Name	# Chn	Next	Personality	Host	Component	Pin
1	Mix 1 : Layer 1	107	108	4.2 Layer	SKYNET	Engine	Mix1/Layer1
108	Mix 1 : Layer 2	107	215	4.2 Layer	SKYNET	Engine	Mix1/Layer2
215	Mix 1 : Controls	15	230	4.1 Mix	SKYNET	Engine	Mix1/MixContr

Name: Mix 1 : Layer 1

1 Start Chann

Channel Count 107

Next Channel 108

Personality: 4.2 Layer (107 Ch

Target Pin: SKYNET : Engine Mix1/Layer1

- Universes
- Universes Detail
- Patched Fixtures
- Fixture Detail

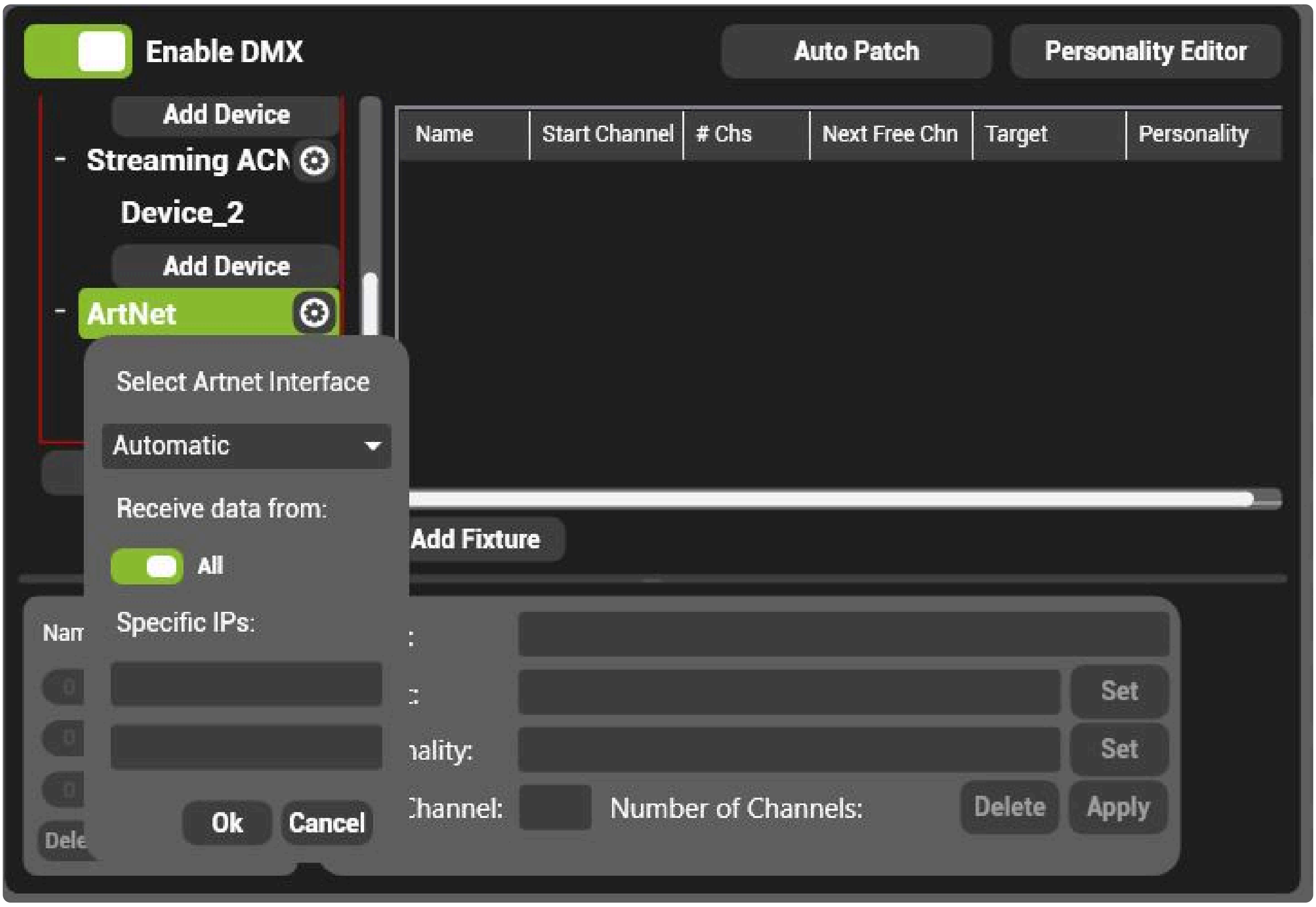
Universes

DMX component receives data over the network on one of three protocols:

- Art-net (1, 2 or 3)
- Ma-Net 2.9
- Streaming ACN (sACN)

Each universe of data the Hippo is receiving is represented by an object in the protocols list. The DMX component is capable of receiving many universes at once from multiple protocols.

Each protocol has specific settings that is accessed from the settings cog.


Enable DMX
Auto Patch
Personality Editor
Add Device
Streaming ACN
Device_2
Add Device
ArtNet
Name
Start Channel
# Chs
Next Free Chn
Target
Personality
Select Artnet Interface
Automatic
Receive data from:
All
Specific IPs:
Ok
Cancel
Add Fixture
Set
Set
Number of Channels:
Delete
Apply

GrandMA V2.9

- Session ID

The Session for Hippotizer to listen too. An MA network can have many sessions; select the session based on which is used on the lighting desks.

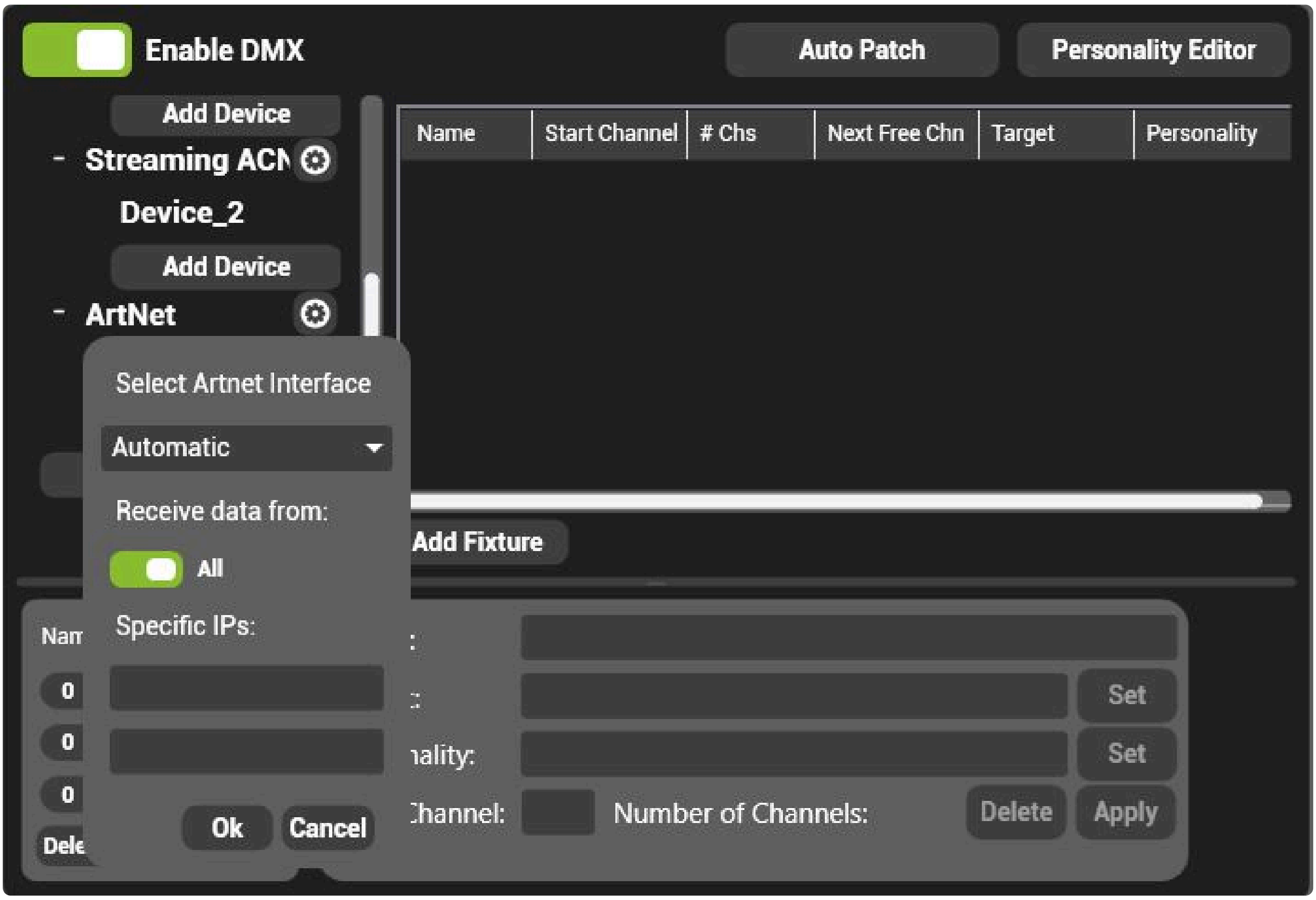
- Use Host Address

If enabled, the DMX component will expect data to come in on the same network port as the host (engine) is using.
If disabled, specify which adapter to use based on IP address.

- Network Adapter

If not using the host address, select which adapter to use based on it’s IP address.

ArtNet


Enable DMX
Auto Patch
Personality Editor
Add Device
Streaming ACN
Device_2
Add Device
ArtNet
Name
Start Channel
# Chs
Next Free Chn
Target
Personality
Select Artnet Interface
Automatic
Receive data from:
All
Specific IPs:
Ok
Cancel
Add Fixture
Set
Set
Number of Channels:
Delete
Apply

- Select Art-net Interface

Determines which network card DMX will use to receive Art-net data. The default **automatic** will use Art-net data regardless of which network card it arrives on.
Alternatively, choose the IP address for the interface as desired.

> ✻ The hardware loop-back adapter (127.0.0.1) should be used where the Art-net source is on the same computer as Hippotizer

- Receive data from

In situations where there is a lot of Art-net traffic on the network going to multiple destinations, the data source IP can be specified. If present, the DMX component will only react to Art-net data from the listed sources.

Universes Detail

Each device in the protocol list corresponds to a single universe of received data. One device is required for each universe to be used.

What settings are required depends on the type of Universe.

Art-net

Net

Art-net 3 functionality allowing for additional universes to be addressed, each Net can carry 16 SubNets (0-15)

SubNet

A group of 16 universes (0-15).

Universe

Corresponds to an individual DMX universe.

✻ Hippotizer addresses Art-net universes starting from 0 (as defined in the specification), which can lead to confusion as universe 0 is the first universe and will frequently be numbered one in lighting controllers. The same logic applies to Subnets and Nets.

In order to calculate the universe number, multiply the subnet by 16 and add the universe number, taking into account the fact that universe zero is actually one.

For example, universe 43 works out to the 2nd subnet (16 × 2 = 32) and the 11th universe (43 – 32 = 11). Which would be subnet 1, universe 10.

Streaming ACN

sACN only requires a Universe number which will be combined with the IP address of the interface

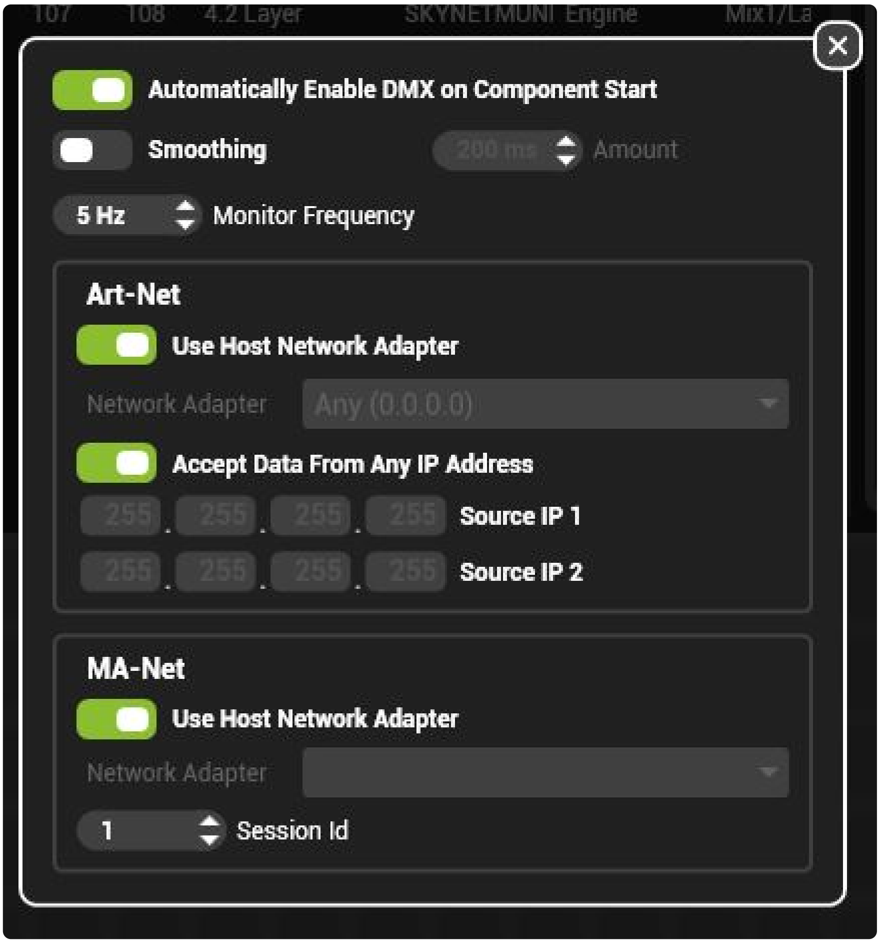
GrandMA V2.9

A universe number for each MA-Net universe is required. The Session number and IP will be taken from the protocol of Ma-Net.

Patched Fixtures

Fixture Detail

General Settings



☑ Automatically Enable DMX on Component Start

☐ Smoothing 200 ms Amount

5 Hz Monitor Frequency

Art-Net

☑ Use Host Network Adapter

Network Adapter Any (0.0.0.0)

☑ Accept Data From Any IP Address

255.255.255.255 Source IP 1

255.255.255.255 Source IP 2

MA-Net

☑ Use Host Network Adapter

Network Adapter

1 Session Id

Automatically Enable DMX on Component Start

When **On**, the DMX component will receive DMX immediately on Engine startup.

When **Off** the DMX component will not receive DMX on Engine startup.

Enable Smoothing

When **On** Float pins (pins that go from 0-1 eg Layer Level) will fade based on the smoothness time. (0-500 milliseconds). This function is used to compensate for uneven control signals or slow Art-Net refresh rates.

Monitor Frequency

Determines how often numbers are re-drawn the DMX monitor window.

Art-Net

Contains settings for receiving Art-Net.

Use Host Network Adaptor

When **on** Art-Net will be read from the same network interface as the host [Engine].

When **off** a network adaptor must be specified.

Note: Art-Net requires a 2.xxx.xxx.xxx or 10.xxx.xxx.xxx IP address to function.

Accept Data from any any IP Address

When **on** data from any source IP address will be used.

When **off** only data from specified sources will be used.

The default of receiving data from all IP addresses is the most common case; specifying sources is usually used on only the most complex networks.

MA-Net

Hippotizer will listen to MA-Net data as a passive node. It will consume parameters as a normal fixture. Hippotizer supports Grand MA 2 version 2.9 software and above.

Use Host Network Adaptor

When **on** MA-Net will be read from the same network interface as the host [Engine].

When **off** a network adaptor must be specified.

Note: MA-Net frequently uses very similar IP addresses to Hippotizer, take care to always separate MA and Hippo Networks physically and in addressing.

Session ID

Specify which MA Session to listen to.

Terminology

The DMX component uses a lot of specific terms which often overlap with lighting desks.

Art-Net

A network based protocol to carry DMX information, Art-Net is widely adopted by lighting controllers. Hippotizer V4 supports Art-Net versions 1, 2 and 3. Each new version extends the maximum number of universes by adding address space (Net, Sub-Net and Universe).

Auto Patch

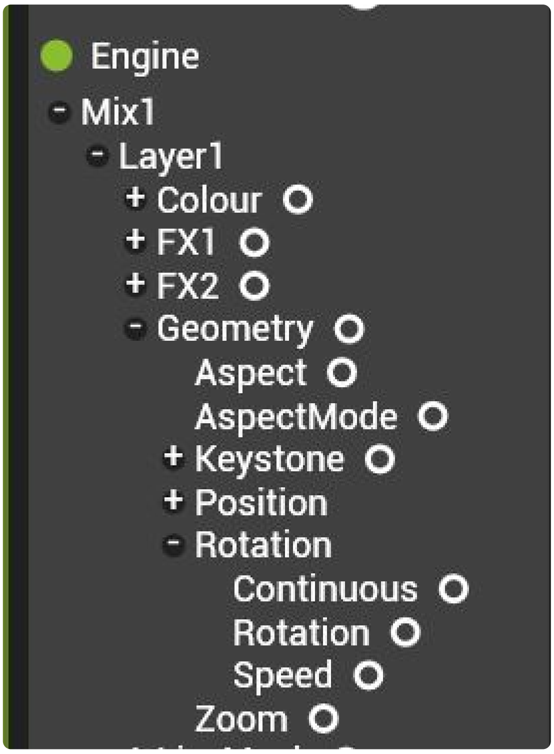
Frequently the fastest way to set up the system; this automatically patches each layer, mix and viewport with the desired personality.

Channel

Each universe is comprised of 512 Channels. Fixtures then patch a personality to a channel and universe.

Group Pin

Pins are organised in a hierarchy, (the pin tree) where similar pins are children of the same **Group Pin**.


Engine
Mix1
Layer1
Colour
FX1
FX2
Geometry
Aspect
AspectMode
Keystone
Position
Rotation
Continuous
Rotation
Speed
Zoom

In the above example, Rotation is a group pin with Continuous, Rotation and Speed as it’s children.

A DMX personality can only associate to a group pin; it cannot be made to a terminal pin such as speed.

The reason for this restriction is due to an invisible piece of information carried by each pin called the **pin class**. The pin class tells every aspect of Hippotizer how to handle a given pin. For example, the pin class of the Geometry group pin tells the interface to create a geometry control and not just a collection of float pins when the Geometry pin is added to the user interface. DMX relies on the same information to know which personalities can be patched to a given pin. The pin class of a terminal pin such as geometry/aspect is of it's type (in this case an Integer) which is too generic to be helpful for patching a personality. In order to create a DMX personality for a single terminal pin (such as rotation/speed) the parent group pin must be chosen.

Fixture

A fixture is the assignment (or patch) of a Personality to a channel and universe within the DMX component. Each fixture represents a unique patch.

MA-Net

A proprietary network protocol to MA Lighting enabling Grand MA Version 2 lighting consoles to communicate directly with Hippotizer V4.

Monitor

Shows a real-time view of received DMX values on the selected universe.

Patch

The assignment of a personality to a group pin and fixture.

Pin

Every attribute to be controlled by DMX in Hippotizer is a pin. There are three types of pins controllable from DMX:

- **floats** (0-1) such as level faders,
- **integers** (1,2,3,4…) most commonly seen in selectors such as FX select
- **Boolean** (on or off) used to enable functions such as colour invert.

Note: There are controls in Zookeeper that are not pins and cannot therefore be controlled by DMX, Preset filters are an example of this.

Personality

sACN

Smoothing

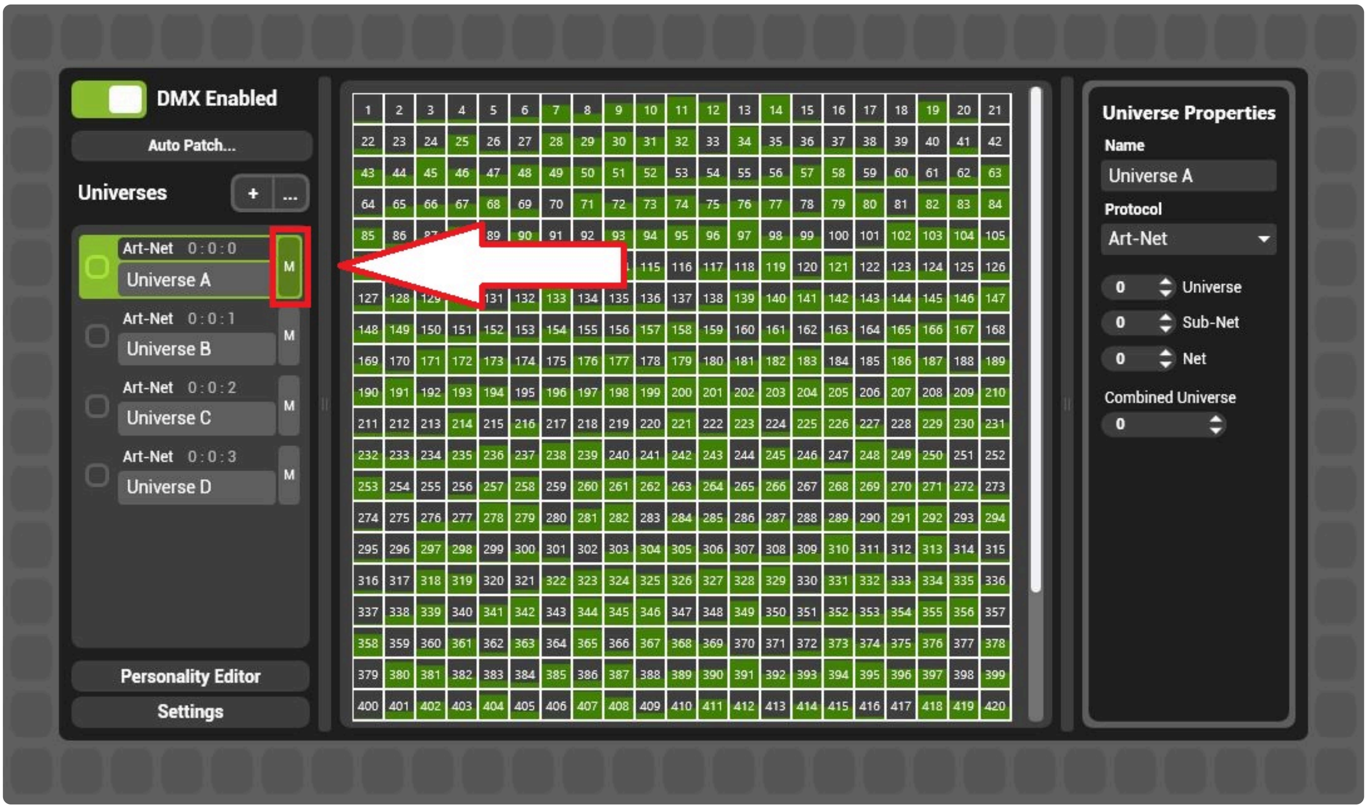
Universe

Update Only

DMX Monitor

A live indication of DMX values being received can be seen in the **DMX Monitor**

Each universe has it’s own monitor and can be quickly accessed by clicking the **M** button if the universe:

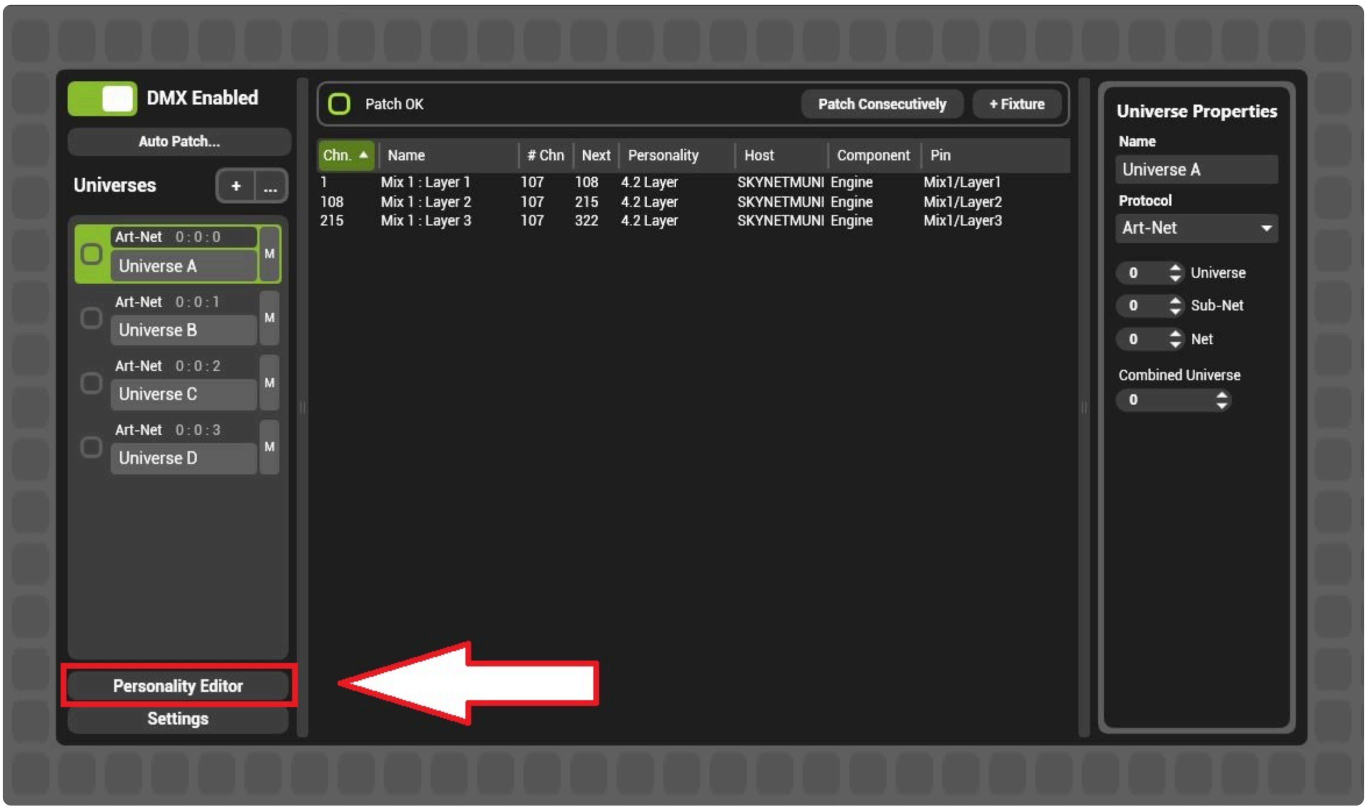

DMX Enabled
Auto Patch...
Universes
+
...
Art-Net 0:0:0
Universe A
M
Art-Net 0:0:1
Universe B
M
Art-Net 0:0:2
Universe C
M
Art-Net 0:0:3
Universe D
M
Personality Editor
Settings
Universe Properties

Name: Universe A
Protocol: Art-Net
0 Universe
0 Sub-Net
0 Net
Combined Universe: 0

Personality Editor

DMX personalities can be created or edited in Hippotizer to better suit the requirements of the project.

The Personality editor is accessed from the main screen of the DMX Component:


DMX Enabled
Auto Patch...
Universes
+
...
Art-Net 0 : 0 : 0
Universe A
M
Art-Net 0 : 0 : 1
Universe B
M
Art-Net 0 : 0 : 2
Universe C
M
Art-Net 0 : 0 : 3
Universe D
M
Personality Editor
Settings
Patch OK
Patch Consecutively
+ Fixture

Chn.	Name	# Chn	Next	Personality	Host	Component	Pin
1	Mix 1 : Layer 1	107	108	4.2 Layer	SKYNETMUNI	Engine	Mix1/Layer1
108	Mix 1 : Layer 2	107	215	4.2 Layer	SKYNETMUNI	Engine	Mix1/Layer2
215	Mix 1 : Layer 3	107	322	4.2 Layer	SKYNETMUNI	Engine	Mix1/Layer3

Universe Properties

Name: Universe A

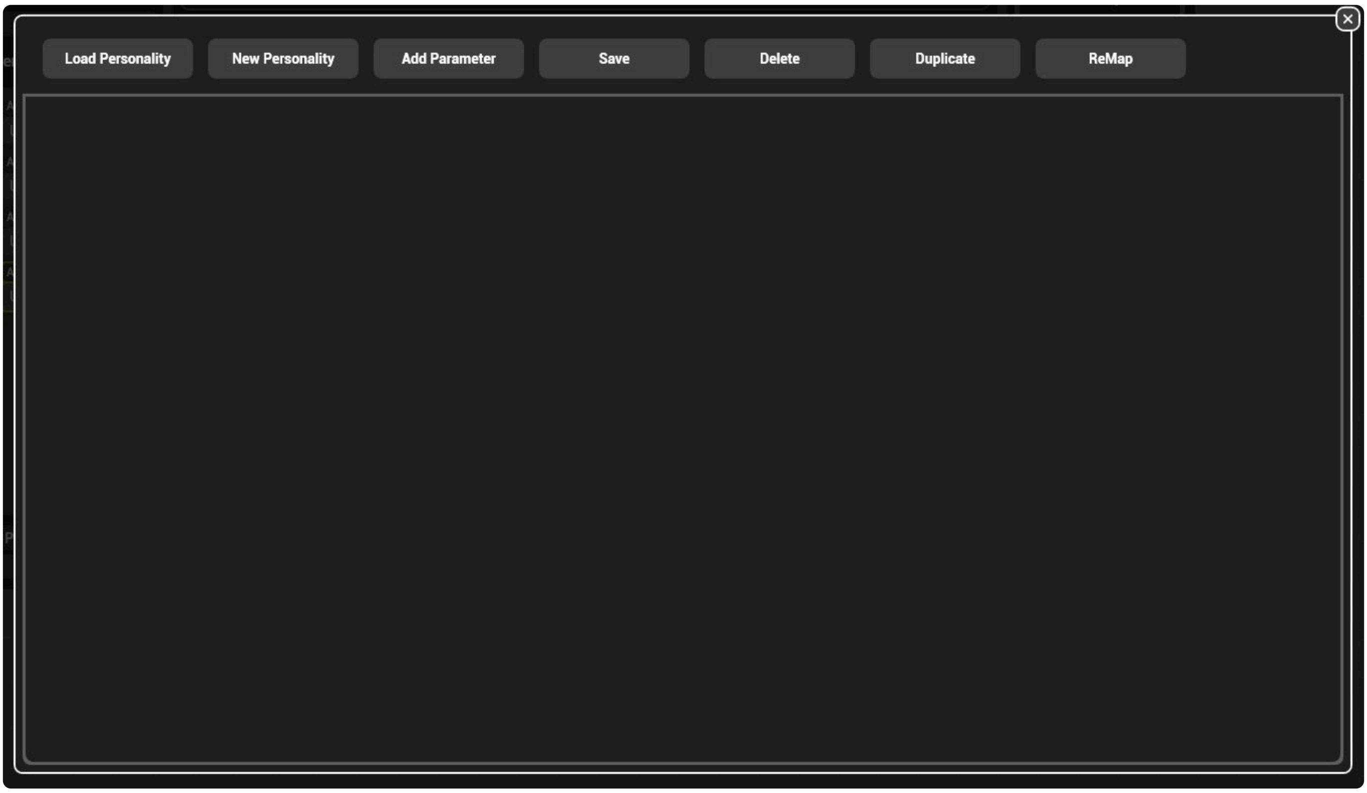
Protocol: Art-Net

Universe: 0

Sub-Net: 0

Net: 0

Combined Universe: 0

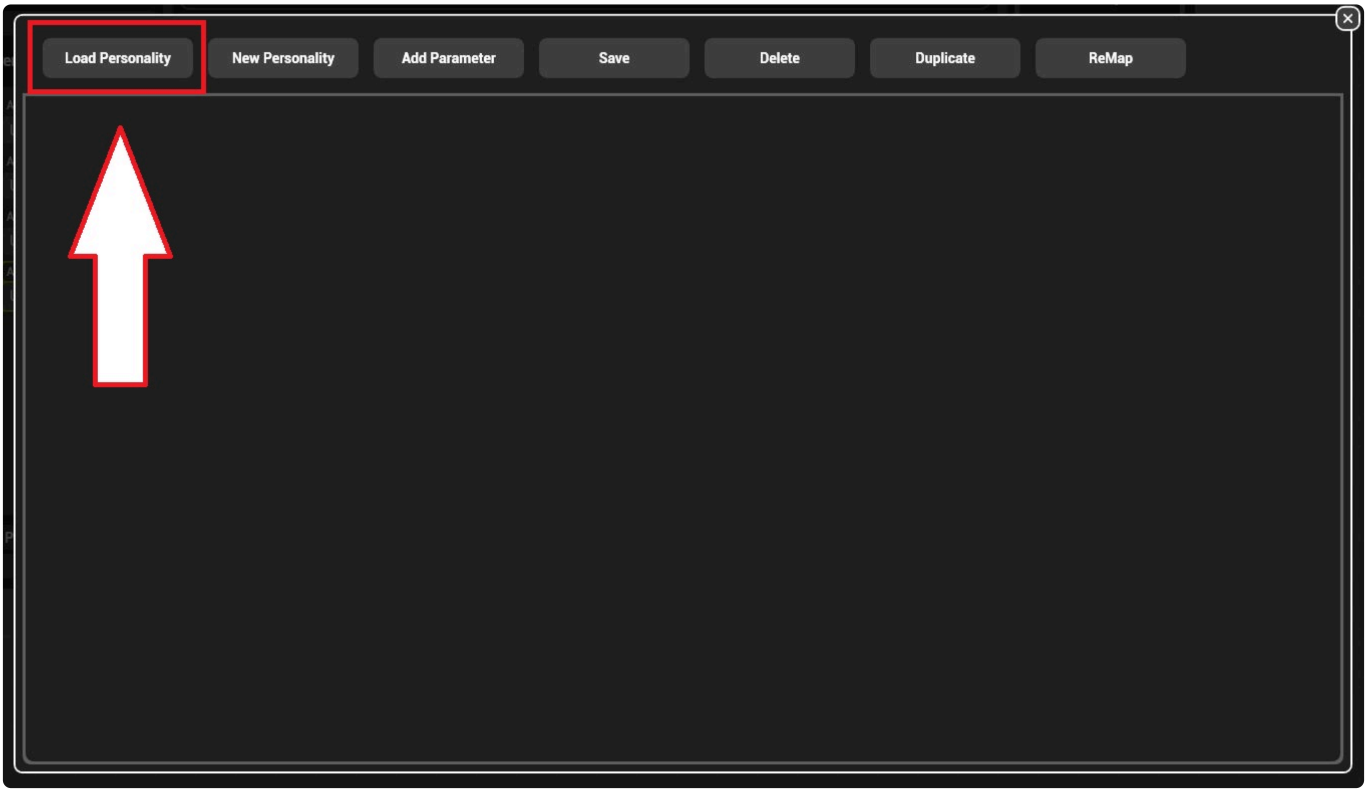

Load Personality
New Personality
Add Parameter
Save
Delete
Duplicate
ReMap

Editing a personality

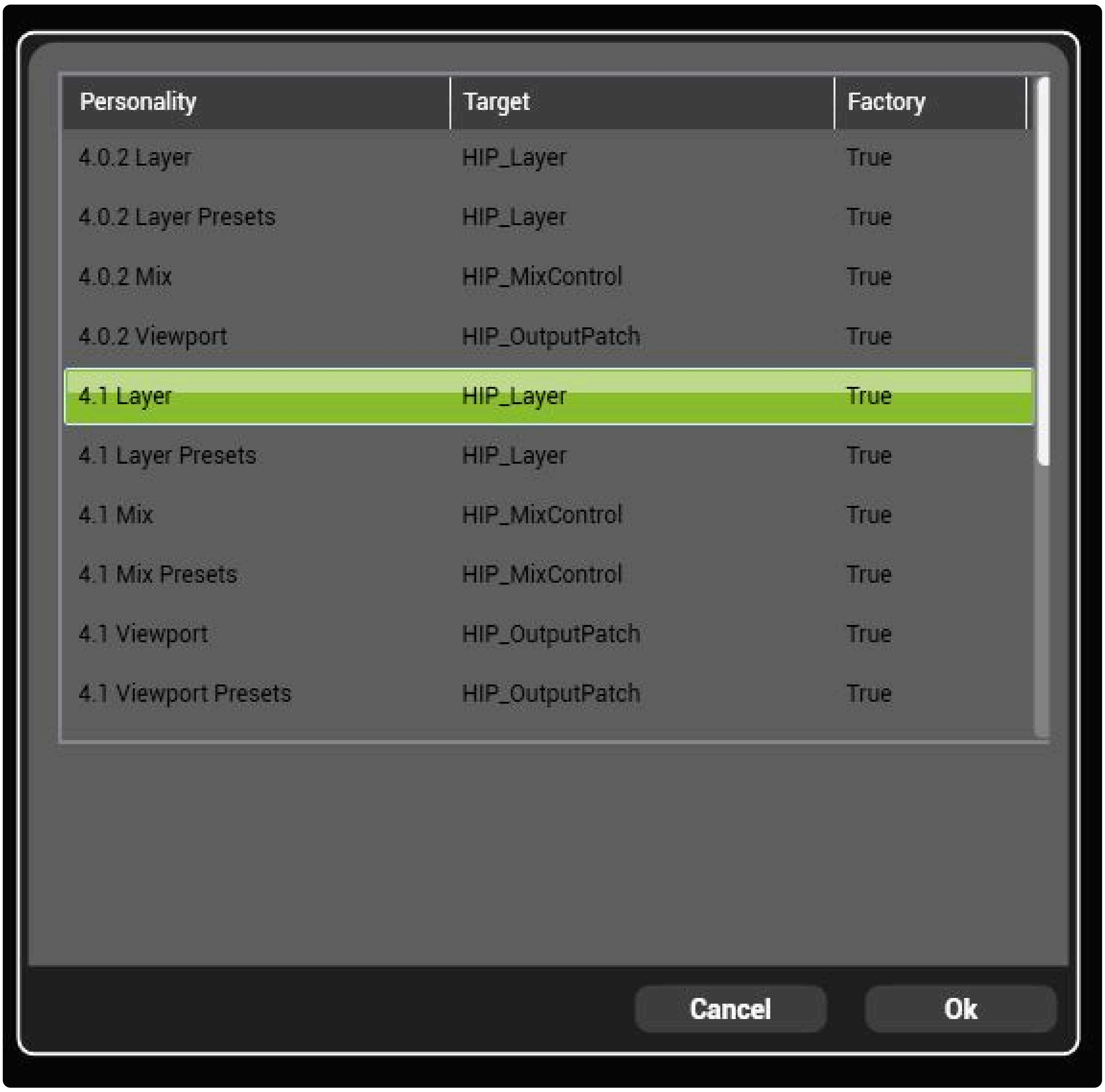
DMX Personalities can be modified.

Note: Factory personalities cannot be edited, to make changes create a duplicate and work with the copy.

To do this, first load the personality to work from:

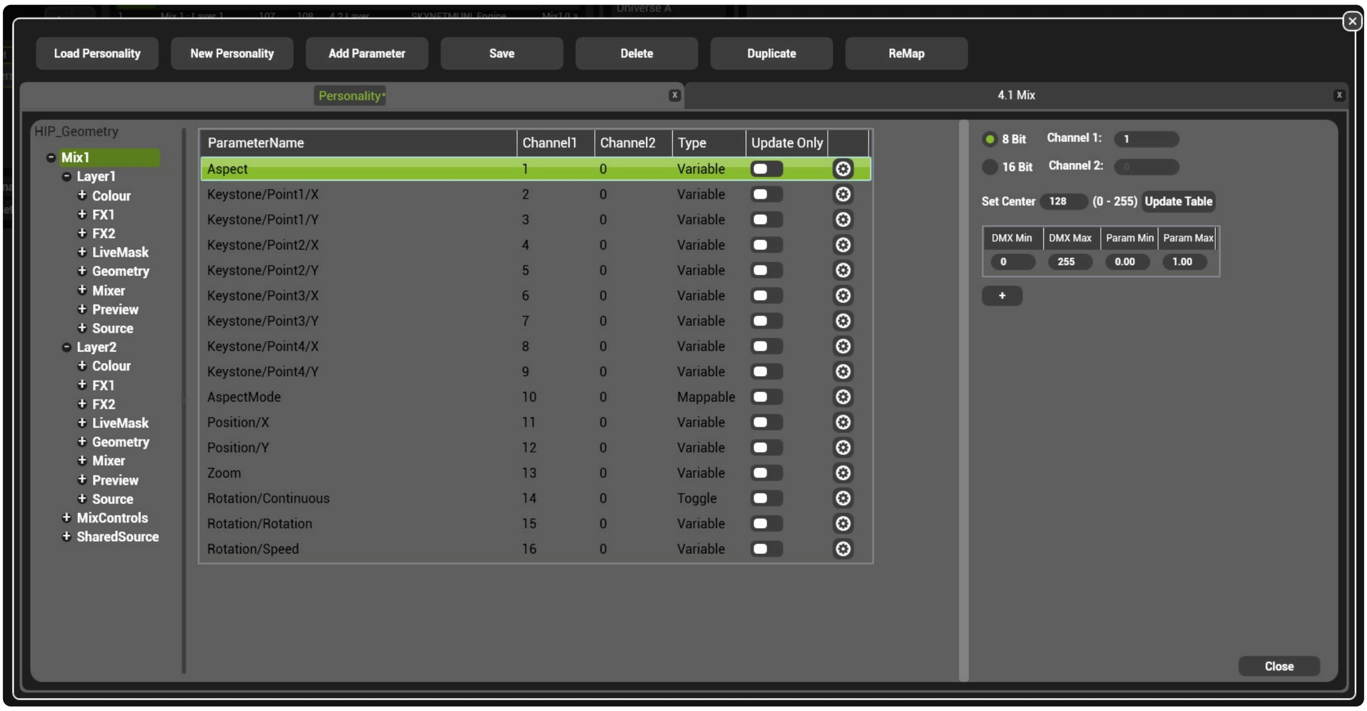

Load Personality
New Personality
Add Parameter
Save
Delete
Duplicate
ReMap

Choose the desired personality from the list:



Personality	Target	Factory
4.0.2 Layer	HIP_Layer	True
4.0.2 Layer Presets	HIP_Layer	True
4.0.2 Mix	HIP_MixControl	True
4.0.2 Viewport	HIP_OutputPatch	True
4.1 Layer	HIP_Layer	True
4.1 Layer Presets	HIP_Layer	True
4.1 Mix	HIP_MixControl	True
4.1 Mix Presets	HIP_MixControl	True
4.1 Viewport	HIP_OutputPatch	True
4.1 Viewport Presets	HIP_OutputPatch	True

The chosen personality will open:


Load Personality
New Personality
Add Parameter
Save
Delete
Duplicate
ReMap
Personality*
4.1 Mix
HIP_Geometry
Mix1
Layer1
Colour
FX1
FX2
LiveMask
Geometry
Mixer
Preview
Source
Layer2
Colour
FX1
FX2
LiveMask
Geometry
Mixer
Preview
Source
MixControls
SharedSource
Close

ParameterName	Channel1	Channel2	Type	Update Only
Aspect	1	0	Variable	
Keystone/Point1/X	2	0	Variable	
Keystone/Point1/Y	3	0	Variable	
Keystone/Point2/X	4	0	Variable	
Keystone/Point2/Y	5	0	Variable	
Keystone/Point3/X	6	0	Variable	
Keystone/Point3/Y	7	0	Variable	
Keystone/Point4/X	8	0	Variable	
Keystone/Point4/Y	9	0	Variable	
AspectMode	10	0	Mappable	
Position/X	11	0	Variable	
Position/Y	12	0	Variable	
Zoom	13	0	Variable	
Rotation/Continuous	14	0	Toggle	
Rotation/Rotation	15	0	Variable	
Rotation/Speed	16	0	Variable	

● 8 Bit Channel 1: 1

○ 16 Bit Channel 2: 0

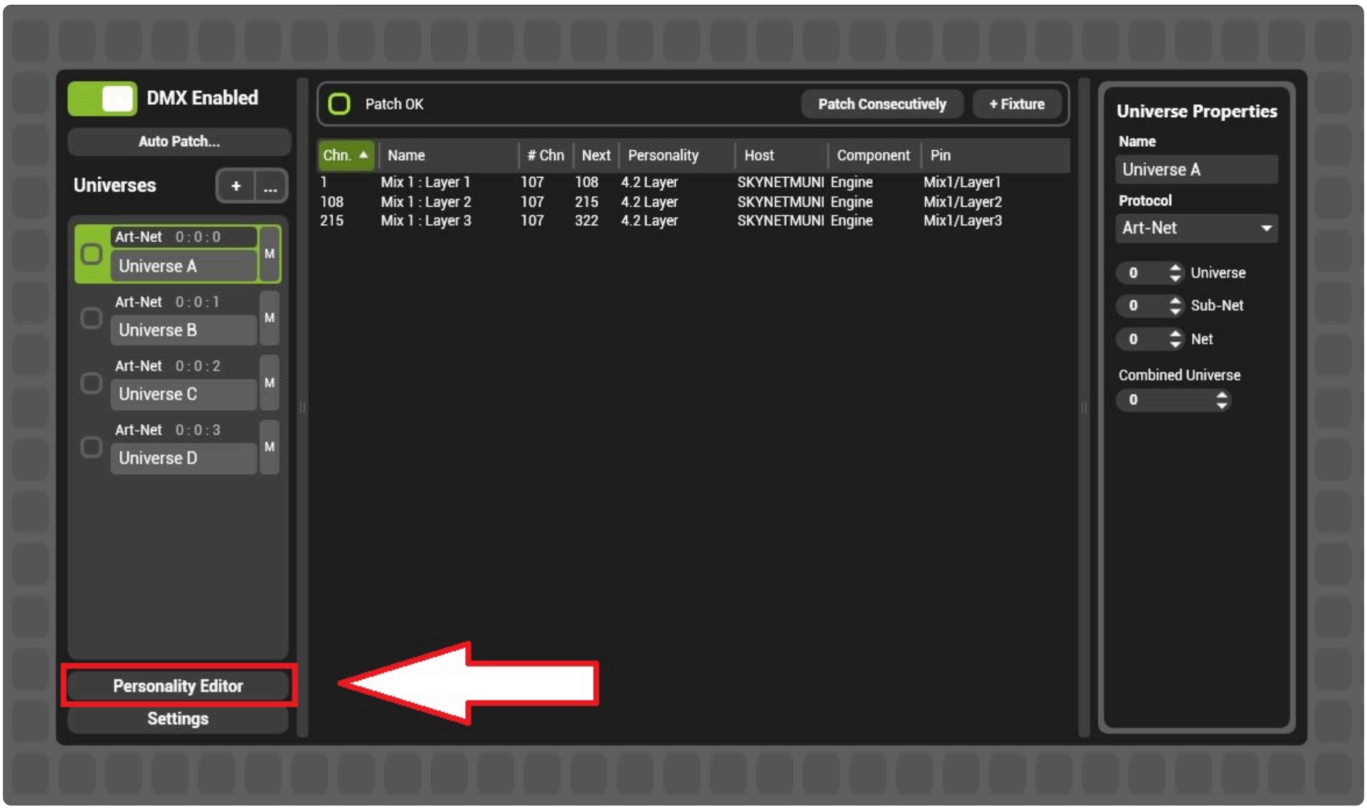
Set Center 128 (0 - 255) Update Table

DMX Min	DMX Max	Param Min	Param Max
0	255	0.00	1.00

Creating a new personality

New DMX personalities can be created from within DMX component.

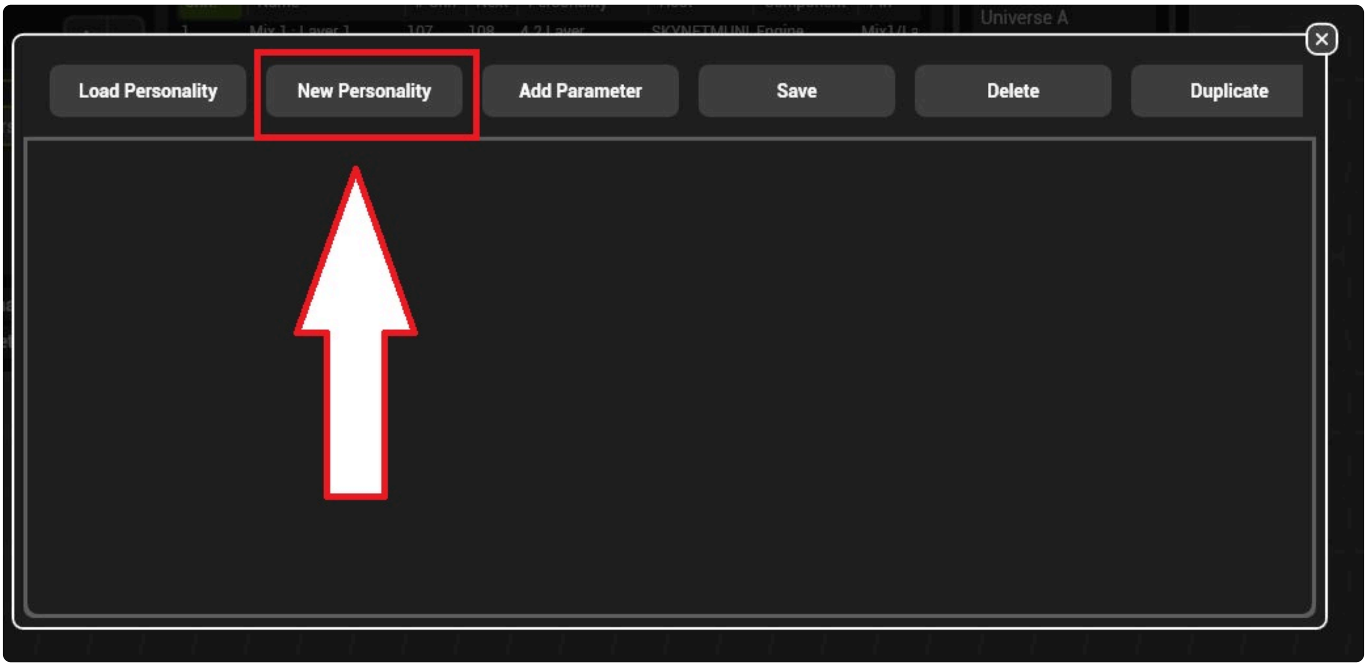
To do create a new personality, choose personality editor


DMX Enabled
Auto Patch...
Universes
+
...
Art-Net 0 : 0 : 0
Universe A
M
Art-Net 0 : 0 : 1
Universe B
M
Art-Net 0 : 0 : 2
Universe C
M
Art-Net 0 : 0 : 3
Universe D
M
Personality Editor
Settings
Patch OK
Patch Consecutively
+ Fixture
Universe Properties

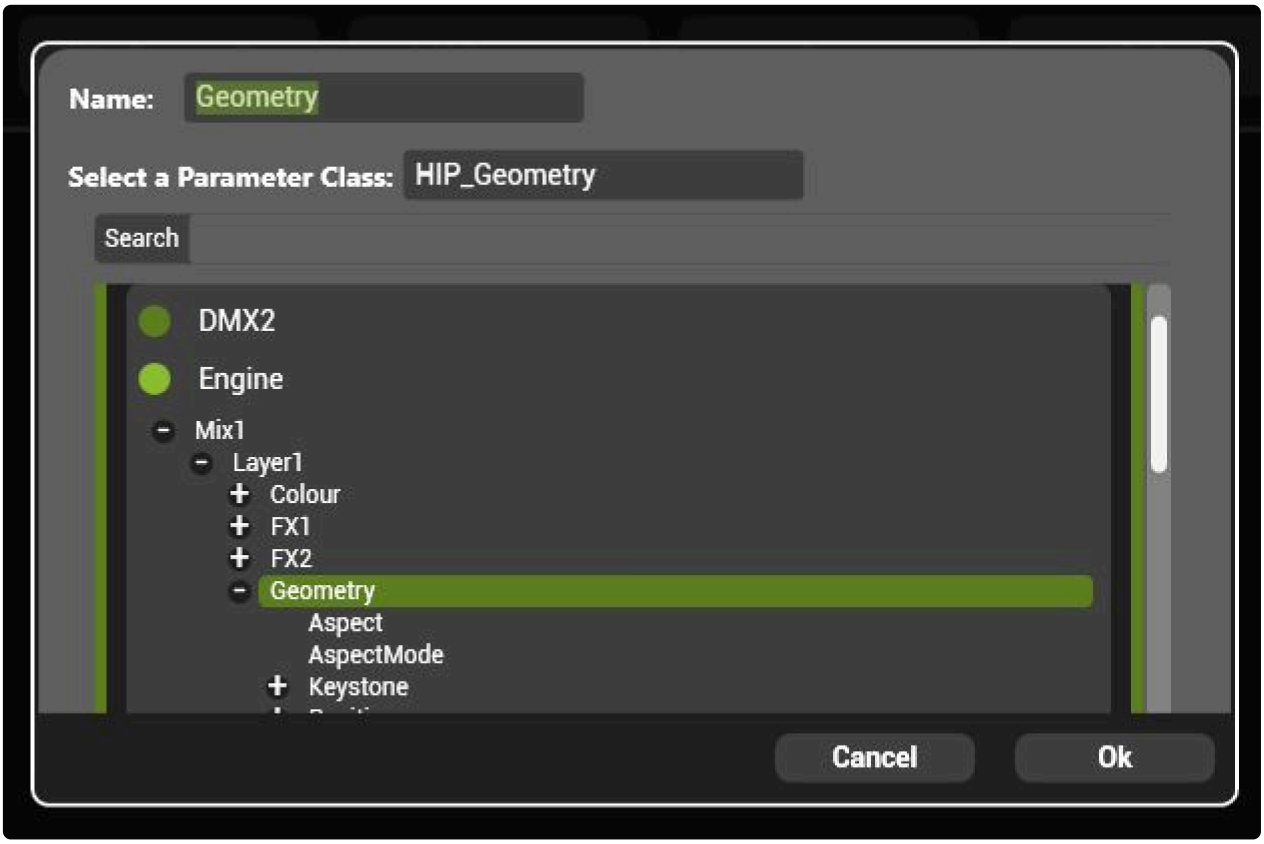
Chn. ▲	Name	# Chn	Next	Personality	Host	Component	Pin
1	Mix 1 : Layer 1	107	108	4.2 Layer	SKYNETMUNI	Engine	Mix1/Layer1
108	Mix 1 : Layer 2	107	215	4.2 Layer	SKYNETMUNI	Engine	Mix1/Layer2
215	Mix 1 : Layer 3	107	322	4.2 Layer	SKYNETMUNI	Engine	Mix1/Layer3

Name: Universe A
Protocol: Art-Net
0 Universe
0 Sub-Net
0 Net
Combined Universe: 0

Then choose new personality.


Load Personality
New Personality
Add Parameter
Save
Delete
Duplicate

A menu will open directing you to select the target of the personality



Name: Geometry

Select a Parameter Class: HIP_Geometry

A personality must associate with a Parameter (or Pin) Class; choose the desired pin from the pin tree in this dialogue.

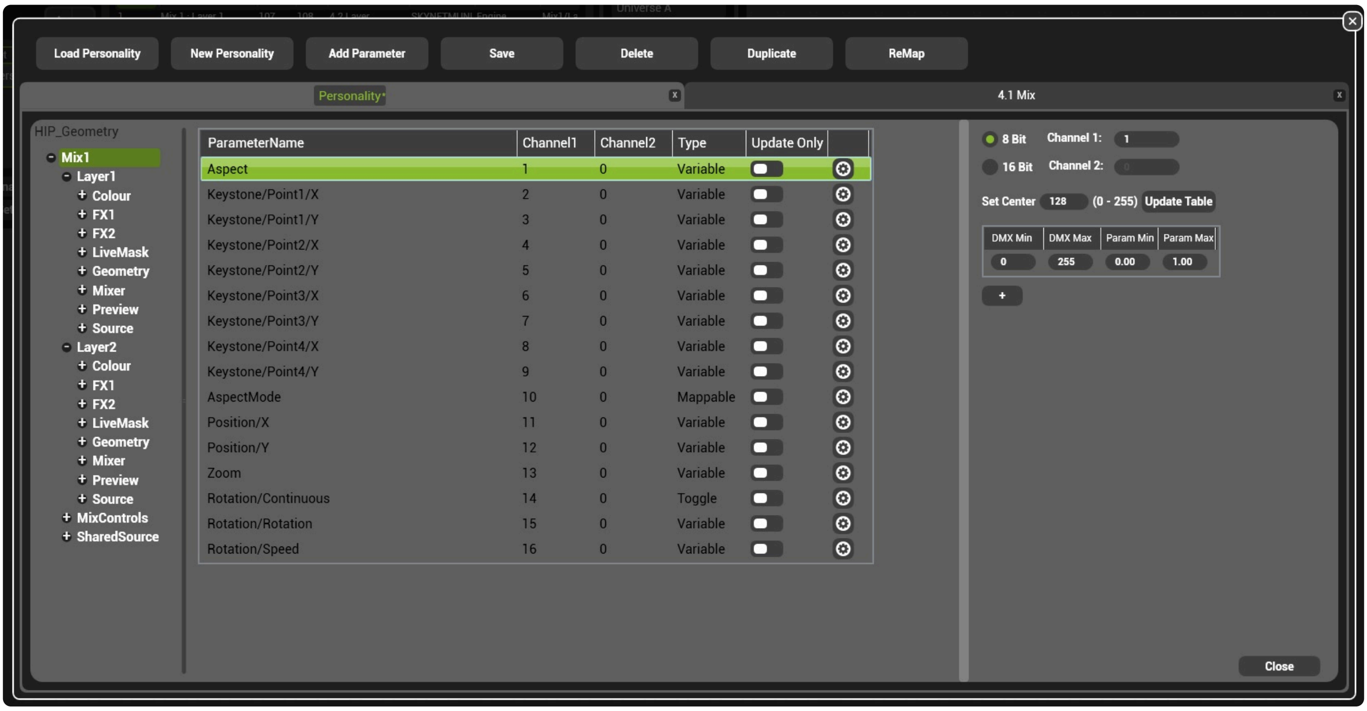
In the above example, the Geometry group pin has been selected.

A Parameter Class (or Pin Class) tells every aspect of Hippotizer how to handle a given pin. For example, the pin class of the Geometry group pin tells the interface to create a geometry control and not just a collection of float pins when the Geometry pin is added to the user interface. DMX relies on the same information to know which personalities can be patched to a given pin. The pin class of a terminal pin such as geometry/AspectMode is of it’s type (in this case an Integer) which is too generic to be helpful for patching a personality. In order to create a DMX personality for a single terminal pin (such as rotation/speed) the parent group pin must be chosen.

Add all child pins

Automatically adds all members of the chosen group pin to the new personality. The fastest way to create a new personality is usually to add all children and then delete parameters that are not needed.

Click ok to create the new personality and edit it


Load Personality
New Personality
Add Parameter
Save
Delete
Duplicate
ReMap
Personality*
4.1 Mix
HIP_Geometry
Mix1
Layer1
Colour
FX1
FX2
LiveMask
Geometry
Mixer
Preview
Source
Layer2
Colour
FX1
FX2
LiveMask
Geometry
Mixer
Preview
Source
MixControls
SharedSource
+
Close

ParameterName	Channel1	Channel2	Type	Update Only
Aspect	1	0	Variable	
Keystone/Point1/X	2	0	Variable	
Keystone/Point1/Y	3	0	Variable	
Keystone/Point2/X	4	0	Variable	
Keystone/Point2/Y	5	0	Variable	
Keystone/Point3/X	6	0	Variable	
Keystone/Point3/Y	7	0	Variable	
Keystone/Point4/X	8	0	Variable	
Keystone/Point4/Y	9	0	Variable	
AspectMode	10	0	Mappable	
Position/X	11	0	Variable	
Position/Y	12	0	Variable	
Zoom	13	0	Variable	
Rotation/Continuous	14	0	Toggle	
Rotation/Rotation	15	0	Variable	
Rotation/Speed	16	0	Variable	

● 8 Bit Channel 1: 1

○ 16 Bit Channel 2: 0

Set Center 128 (0 - 255) Update Table

DMX Min	DMX Max	Param Min	Param Max
0	255	0.00	1.00

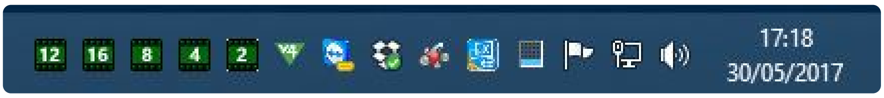
The newly created personality will open.

See “Editing a personality “

Engine

The Engine Component handles the rendering of video.

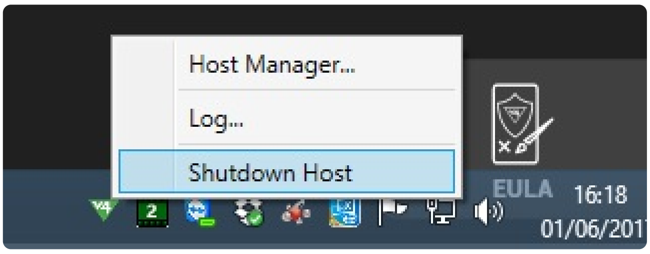
As the engine is frequently run without a Zookeeper interface, it is represented by icons in the system tray of Windows.



Shows the Engine is running this is called the **Engine Host**.

Indicates a **Mix** is running and denotes the layer mode of that mix.

Right Clicking on the Engine Icon brings up options:



Host Manager is the basic local control of the engine component without using Zookeeper.

Log… Displays a live output of the Engine Host Log.

Shutdown Host Saves and shuts down the Engine Host.

There are no functions associated with clicking the mix icons.

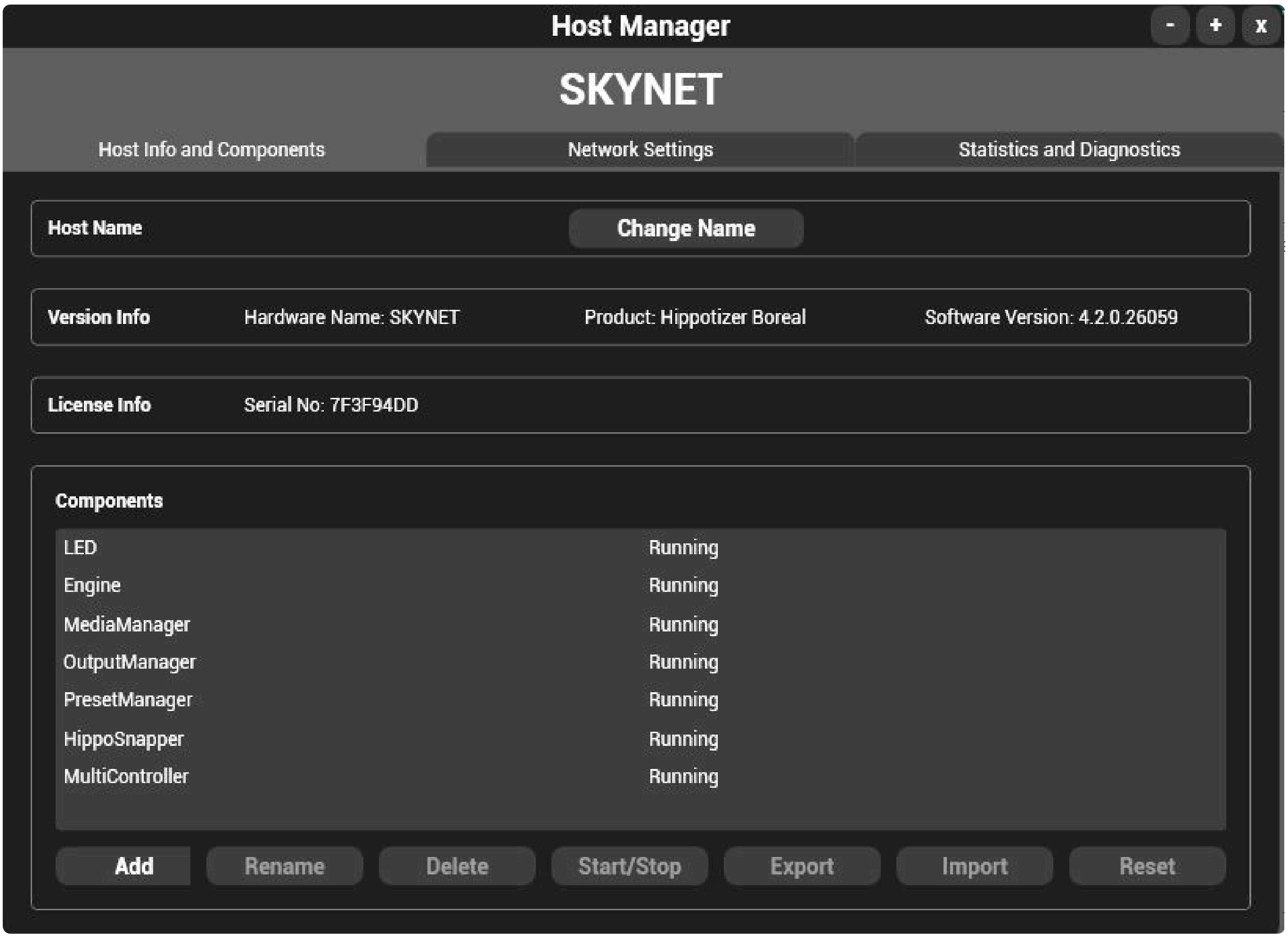
Additional Information: The words **Engine** and **Host** are used interchangeably within the interface and documentation, though they are very different. The Host is actually an umbrella application that runs all components, of which the Engine is one referred to as the Engine or Render Component. The Engine component itself carries only livemask information. Other components such as DMX or Media Manager also run within the Host. Shutting down the Host automatically saves and shuts down all components contained within it. In most cases, shutting down the engine actually refers to shutting down the host.

Host Manager

The Host Manager is the basic local control of the engine component without using Zookeeper.

There are three sections of the Host Manager shown as tabs:

Components


Host Manager
-
+
x
SKYNET
Host Info and Components
Network Settings
Statistics and Diagnostics
Change Name
Add
Rename
Delete
Start/Stop
Export
Import
Reset

Host Name

Version Info Hardware Name: SKYNET Product: Hippotizer Boreal Software Version: 4.2.0.26059

License Info Serial No: 7F3F94DD

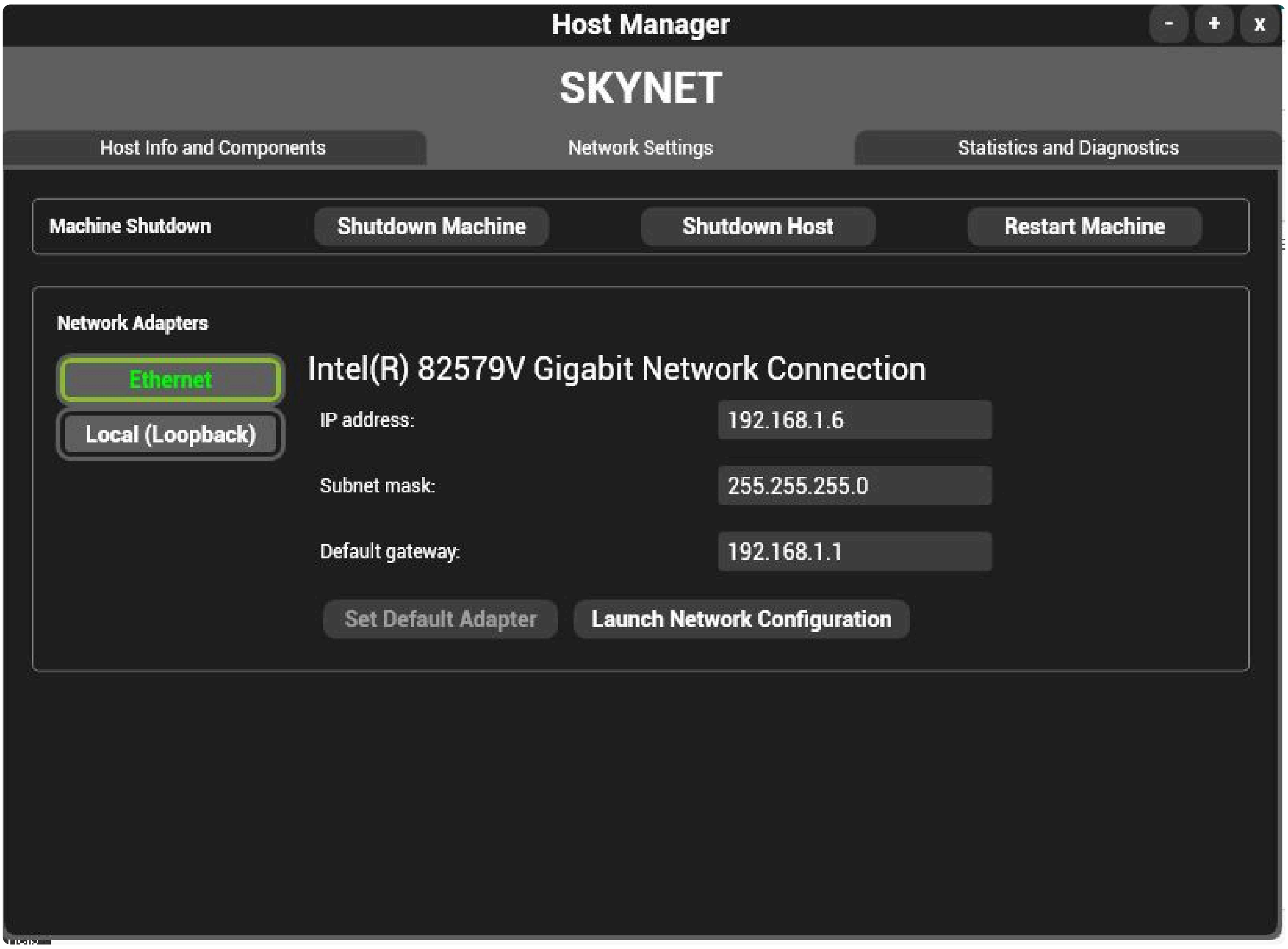
Components

LED	Running
Engine	Running
MediaManager	Running
OutputManager	Running
PresetManager	Running
HippoSnapper	Running
MultiController	Running

Components can be added, removed and stopped. The Host name can also be changed from this prompt.

Note: When adding or removing components from Zookeeper, this is accessing the same list so it is not necessary to use the Host Manager when Zookeeper is running.

Network

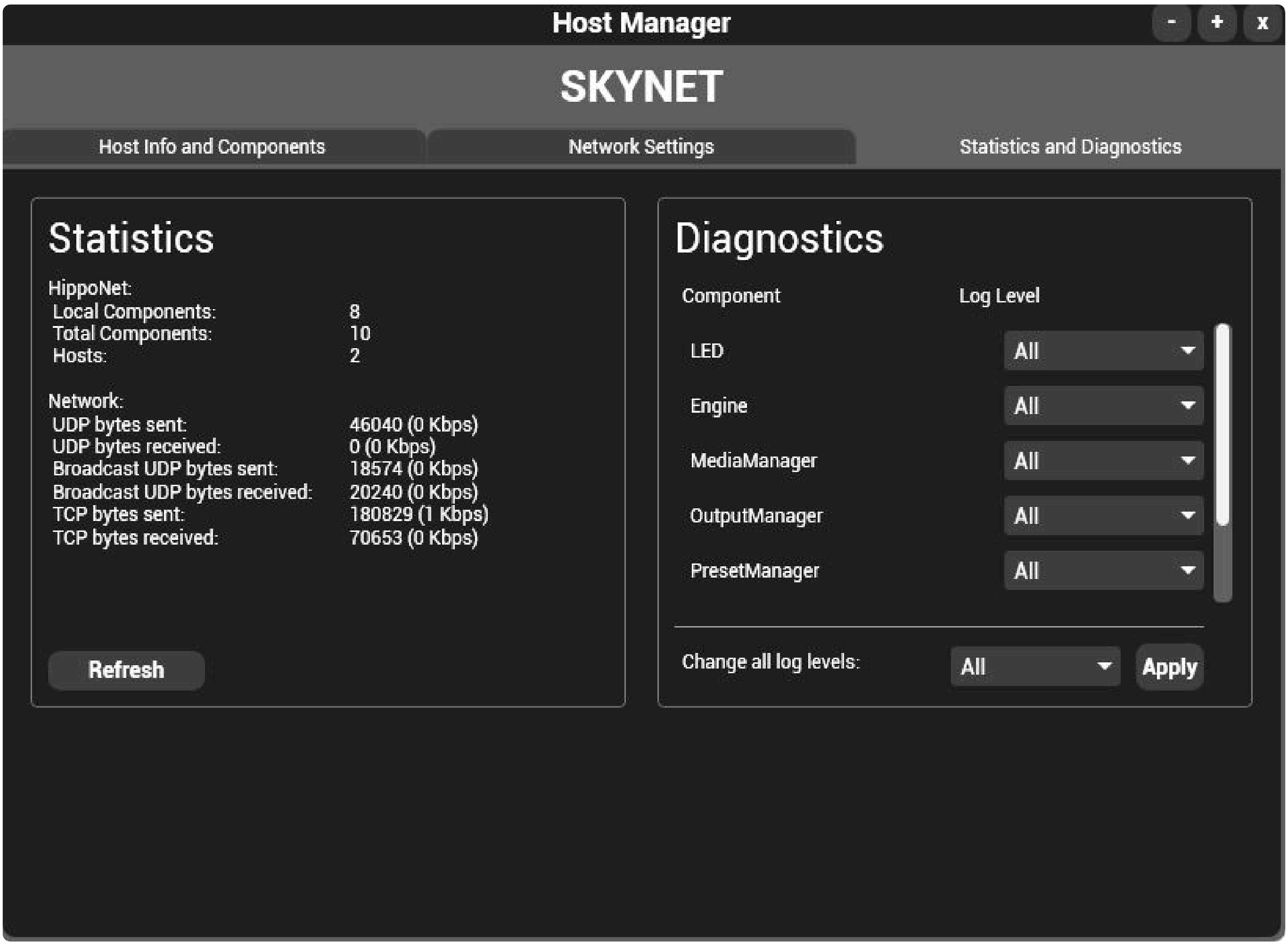

Host Manager
-
+
x
SKYNET
Host Info and Components
Network Settings
Statistics and Diagnostics
Machine Shutdown
Shutdown Machine
Shutdown Host
Restart Machine
Network Adapters
Ethernet
Local (Loopback)
Set Default Adapter
Launch Network Configuration

Intel(R) 82579V Gigabit Network Connection

IP address: 192.168.1.6
Subnet mask: 255.255.255.0
Default gateway: 192.168.1.1

Selects which network adapter the Engine uses to communicate. This must match the network adapter used by Zookeeper.

Diagnostics


Host Manager
- + x
SKYNET
Host Info and Components
Network Settings
Statistics and Diagnostics

Statistics

HippoNet:

Local Components:	8
Total Components:	10
Hosts:	2

Network:

UDP bytes sent:	46040 (0 Kbps)
UDP bytes received:	0 (0 Kbps)
Broadcast UDP bytes sent:	18574 (0 Kbps)
Broadcast UDP bytes received:	20240 (0 Kbps)
TCP bytes sent:	180829 (1 Kbps)
TCP bytes received:	70653 (0 Kbps)

Refresh

Diagnostics

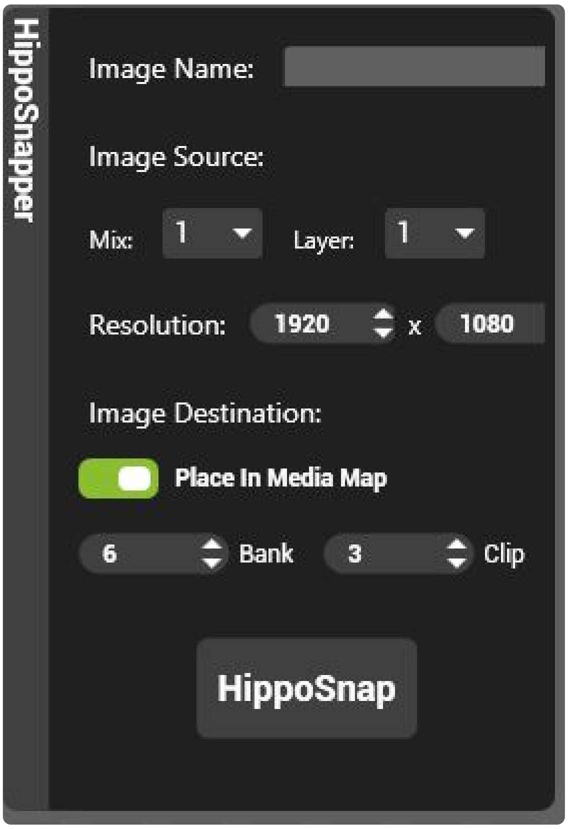
Component	Log Level
LED	All
Engine	All
MediaManager	All
OutputManager	All
PresetManager	All

Change all log levels: All

Sets log levels and shows network diagnostics.

Hippo Snapper

Hippo Snapper takes a still image of a selected layer and saves it to the media map. This is commonly used to save a logo.



Mix: 1

Layer: 1

Resolution: 1920 x 1080

Place In Media Map

6 Bank

3 Clip

Image Name

The name of the picture that will appear in the media map.

Image Source

The Mix and Layer that the image will be taken from

Resolution

The resolution of the image that will be created. For best results, this should be set to be the same as the source's resolution.

Image Destination

The position in the media map where the image will be placed

HippoSnap

Saves the image each time the button is pressed.

> ✻ Saving an image with Hippo Snapper can cause the output to freeze momentarily.

All the controls of Hippo Snapper are pins so they can be accessed from DMX or a Timeline for automating tasks.

LED

The LED component runs by default and controls the coloured Hippo-head on the front of Hippotizer V4 hardware.

THe LED component has a Pin: “LED_Brightness” that can be used to dim the front panel LED’s if desired.

Macro Manager

Macro Manager uses the Lua scripting language to automate functions within Hippotizer.

In addition to normal Lua scripting commands and syntax there is also Hippo specific functions and parameters; these are documented here.

- Example Macros
- Hippotizer API

For more information about Lua please see their website:

www.lua.org/

Hippotizer API

The interface with Hippotizer's Engine and Components involves some specific parameters and functions.

Globals		
Properties		
Property Name	Return Data Type	Description
TriggerPinName	String	Returns the name of the UserPin that triggered this macro, or empty string if it was trggered by another method
TriggerPinMonitorName	String	Returns the name of the PinMonitor that triggered this macro, or empty string if it was trggered by another method
HippoNet	HippoNet Object	Returns The Global HippoNet object
PinMonitors	Lua Table [String,Object]	Returns a table of PinMonitor pin values indexed by the name of the PinMonitor value can be String,Bool or Number
UserPins	Lua Table [String,Object]	Returns a table of UserPin values indexed by the name of the UserPin, value can be String,Bool or Number

There are a number of more specific APIs.

- HippoNet API
- Host API
- Component API
- DMX Component API
- Pin API
- Engine API
- Mix API
- Layer API
- Media Manager API
- Media API
- Pin Bridge API
- Helper Functions
- Viewport API

HippoNet API

HippoNet contains all the pins and components of Hippotizer. Use this API to find components, host names and pin paths.

HippoNet			
Properties			
Property Name		**Return Data Type**	**Description**
LocalHost		Host Object	Returns the host object that this Macro Manager is running on
HostNames		Lua Table [Number,String]	Returns a table of all the HippoNet hosts found on the network, indexed by an increasing integer
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
FindHost	(String HostName)	Host Object or Nil	Returns the host object called or Nil if it cannot find it
SearchHostNames	(String Pattern)	Lua Table [String,Host Object]	Returns a table of all the Host objects that have a name containing indexed by their Host Name
FindComponent	(String HostName, String ComponentName)	Component Object or Nil	Returns the Component object called running on Host called or Nil if it cannot be found
FindPin	(String HostName, String ComponentName, String PathFromRootPin)	Pin Object or Nil	Returns the Pin object at path on component running on Host or Nil if it is not found

Host API

The Host contains references to local components and Engine commands.

Host			
Properties			
Property Name		**Return Data Type**	**Description**
Name		String	Returns the name of this Host
ProductName		String	Returns the string name of the product that the host is running on eg.
IpAddress		String	Returns a string representation of the IP address of this Host in the form of xxx.xxx.xxx.xxx
ComponentNames		Lua Table [Number,String]	Returns a table of the names of all the components running on this Host indexed by increasing integer
StoppedComponentNames		Lua Table [Number,String]	Returns a table of the names of all the components on this host that are not currently running indexed by increasing integer
Engine		Engine Component Object or Nil	Returns the Engine Component Object running on this host if it exists or Nil if it does not or is stopped
DMX		DMX Component Object or Nil	Returns the DMX2 Component Object running on this host if it exists or nil if it does not or is stopped
MediaManager		MediaManager Component Object or Nil	Returns the MediaManager Component Object running on this host if it exists or nil if it does not or is stopped
MacroManager		MacroManager Component Object or Nil	Returns the MacroManager Component Object running on this host if it exists or nil if it does not or is stopped
PresetManager		PresetManager Component Object or Nil	Returns the PresetManager Component Object running on this host if it exists or nil if it does not or is stopped
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
FindComponent	(String Name)	Component Object or Nuil	Returns the Component Object called running on this host or Nil if it cannot be found
SearchComponentNames	(String Pattern)	Lua Table [Number, Component Object]	Returns a table of all the Components running on this host whose name includes indexed by increasing integer

Host			
ShutdownHostSoftware	()	Nothing	Attempts to shutdown Hippotizer software on this machine, returns nothing
ShutdownHostMachine	()	Nothing	Attempts to shutdown this machine and all the software running on it, returns nothing
RestartHostMachine	()	Nothing	Attempts to restart this machine , returns nothing
StartComponent	(String ComponentName)	Boolean	Attempts to start Component with name if it is stopped, returns True if successful or False if it failed
StopComponent	(String ComponentName)	Boolean	Attempts to stop Component with name if it is running, returns True if successful or False if it failed

Component API

The component API works across all components. Some components contain additional commands that are detailed separately.

Component (All Component Types)			
Properties			
Property Name		**Return Data Type**	**Description**
Name		String	Returns the name of this component
TypeName		String	Returns the Type of this component eg.
OwnerHost		Host Object	Returns the Host Object that this component is running on
OwnerHostName		String	Returns the name of the Host Object that this component is running on
AllPinPaths		Lua Table [Number,String]	Returns a table of the paths to all the pins in the pin tree of this component from the root pin indexed by increasing integer
RootPin		Pin Object (GroupPin)	Returns the topmost Pin Object in this components pin tree which is parent to all other pin objects
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
FindPin	(String PathFromRoot)	Pin Object or Nil	Returns the Pin Object with a path of from the component Root Pin or Nil if it cannot be found
SearchAllPinPaths	(String Pattern)	Lua Table [Number,Pin Object]	Returns a table of all the Pin Objects with a path from Root that contains indexed by increasing integer
Stop	()	Nothing	Attempts to stop this component
Import	(String FilePath)	Boolean	Attempts to import a component settings file at location from disk, returns True is successful or False if it failed for any reason
Export	(String FilePath)	Boolean	Attempts to export this components settings to location on disk, returns True is successful or False if it failed for any reason

DMX Component API

DMX Component		
Properties		
Property Name	**Return Data Type**	**Description**
Enabled	Boolean	Returns True if DMX is active or False if it is disabled, value can be read or set
Universes	Lua Table [String,DMX Universe Object]	Returns a table of all the DMX Universes used on this DMX component indexed by Universe Name
NetworkAdapters	Lua Table [Number,String]	Returns a table of all the IP addresses of the network adapters on the machine that DMX is running on indexed by increasing integer
LocalIp	String	Returns the IP address of the Network adapter being used to receive DMX and MANet data, this value can be read or set
MANetSessionId	Number	Returns the current MANet Session ID, this value can be read or set
DMX Universe		
Properties		
Property Name	Return Data Type	Description
Name	String	Returns the name of this Universe Object, this value can be read or set
Protocol	String	Returns the description of the protocol used on this Universe Object eg.
Fixtures	Lua Table [String,DMX Fixture Object]	Returns a table containing all the Fixture Objects patched in this Univers Object indexed by Fixture Object Name
Address	Number	Returns the universe number of this DMX Universe Object in the range 1 – 65535, this value can be read or set
DMX Fixture		
Properties		
Property Name	**Return Data Type**	**Description**
Name	String	Returns the name of this DMX Fixture Object, this value can be read or set
StartChannel	Number	Returns the start channel address of this DMX Fixture Object, this value can be read or set
TargetPinPath	String	Returns the full path to the target pin of this DMX Fixture Object

Pin API

The Pin API is used to access and set Pin values.

Pin (All Types)			
Properties			
Property Name		**Return Data Type**	**Description**
Name		String	Returns the name of this Pin Object
Path		String	Returns the full path of this object from the Root Pin
ParentName		String	Returns the name of this Pin Objects parent or an empty string if this is the Root Pin
IsRootPin		Boolean	True if this is the Root Pin or False if not
OwnerComponent		Component Object	The Component Object that hosts this Pin Objects pin tree
ChildPinNames		Lua Table [Number,String]	Returns a table containing all the names of the direct children of this Pin Object indexed by increasing integer
ChildPinPaths		Lua Table [Number,String]	Returns a table of all the paths of the direct children of this Pin Object indexed by increasing integer
DescendentPinPaths		Lua Table [Number,String]	Returns a table of all the paths of all the children and descendents of this Pin Object indexed by increasing integer
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
SearchChildNames	(String Pattern)	Lua Table [Number,String]	Returns a table of all the pin names of all the direct children of this Pin Object that contain in their name indexed by increasing integer
SearchChildPinPaths	(String Pattern)	Lua Table [Number,String]	Returns a table of all the pin paths of all the direct children of this Pin Object that contain in their path indexed by increasing integer
SearchDescendentPinPaths	(String Pattern)	Lua Table [Number,String]	Returns a table of all the pin paths of all the children of this Pin Object and their descendents that contain in their path indexed by increasing integer

Engine API

Used to query mixes and viewports on the specific Engine.

Engine Component			
Properties			
Property Name		**Return Data Type**	**Description**
MixCount		Number	Returns the number of Mixes running on this engine
ViewportCount		Number	Returns the number of Viewports running on this engine
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
FindMix	(Number MixIndex)	Mix Object or Nil	Returns the Mix Object with index of or nil if is out of range
FindViewport	(Number ViewportIndex)	Viewport Object or Nil	Returns the Viewport Object with index of or nil if is out of range

Mix API

Mix			
Properties			
Property Name		**Return Data Type**	**Description**
Index		Number	Returns the numerical index of this Mix
Path		String	Returns the full path of the Root Pin of this mix from the Engine Root Pin
LayerCount		Number	Returns the number of layers in this Mix Object
Layers		Lua Table [Number,Layer Object]	Returns a table of all the Layer Objects on this mix indexed by their layer index
Level		Number	Value between 0.0 and 1.0 that represents the level of the mix master on this mix, this value can be read or set
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
FadeLevel	(Number From,Number To,Number FadeTime)	Nothing	Fades the level of this mix master in the background from a value of to a value of over Seconds, does not halt script execution
FadeLevel	(Number To,Number FadeTime)	Nothing	Fades the level of this mix master in the background from it’s current value to a value of over Seconds, does not halt script execution
FadeLevelWait	(Number From,Number To,Number FadeTime)	Nothing	Fades the level of this mix master from a value of to a value of over Seconds, does halt script execution while in progress
FadeLevelWait	(Number To,Number FadeTime)	Nothing	Fades the level of this mix master from it’s current value to a value of over Seconds, does halt script execution while in progress
SetPreset	(Number PresetIndex)	Nothing	Attempts to load a Mix Preset with index onto this Mix Object if the preset exists
Reset	()	Nothing	Resets the Mix and all it’s Layers back to their default state

Layer API

Layer			
Properties			
Property Name		**Return Data Type**	**Description**
Index		Number	Returns the numerical index of this Layer Object
Path		String	Returns the full path of the Root Pin of this Layer from the Engine Root Pin
Level		Number	A value between 0.0 and 1.0 that represents the level of this Layer Object, this value can be read or set
Pause		Boolean	Returns True if the media player on this Layer Object is paused, False if it is not, this value can be read or set
Position		Number	Returns the position of the mediaplayer playhead in milliseconds from the start of the media clip, this value can be read or set
InPoint		Number	Returns the position of the InpoInt flag in milliseconds from the start of the media, this value can be read or set
OutPoint		Number	Returns the position of the OutPoint flag in milliseconds from the start of the media, this value can be read or set
PlayMode		String	Returns a string that represents the playmode of the mediaplayer from one of these values:\nforward forwardLoop backward backwardLoop pingPong random in out This value can be read or set
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
FadeLevel	(Number From,Number To,Number FadeTime)	Nothing	Fades the level of this Layer Object in the background from a value of to a value of over Seconds, does not halt script execution
FadeLevel	(Number To,Number FadeTime)	Nothing	Fades the level of this Layer Object in the background from it’s current value to a value of over Seconds, does not halt script

Layer			
			execution
FadeLevelWait	(Number From,Number To,Number FadeTime)	Nothing	Fades the level of this Layer Object from a value of to a value of over Seconds, does halt script execution while in progress
FadeLevelWait	(Number To,Number FadeTime)	Nothing	Fades the level of this Layer Object from it's current value to a value of over Seconds, does halt script execution while in progress
SetMedia	(Number MediaIndex,String PlayMode(optional),Number Position(optional),Number InPoint(optional),Number OutPoint(optional),Number MediaWait(optional))	Nothing	Attempts to load the media with an index of into the mediaplayer and set the playmode to , InPoint to Ms, OutPoint to Ms, Playhead to Ms and then wait for Seconds before proceeding with script
SetPreset	(Number PresetIndex)	Nothing	Attempts to load a Layer Preset with index onto this Layer Object if the preset exists
FindPin	(String PathFromRoot)	Pin Object or Nil	Returns the Pin Object with a path of from the Root Pin of this Layer Object
Reset	()	Nothing	Resets the Layer Object to it's default values

Media Manager API

MediaManager Component			
Properties			
Property Name		**Return Data Type**	**Description**
MediaLibrary		Lua Table [Number,Media Object]	Returns a table of all the Media Objects contained in the mediaManager in no particular order indexed by increasing integer
MediaMap		Lua Table [Number,Media Object]	Returns a table of all the Media Objects in the MediaMap indexed by their MediaMap slot index, this value can be read or set
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
SetMediaMap	(Lua Table [Number,Media Object] MediaMap,Boolean ClearExisting(optional))	Boolean	Attempts to place the medias in into the mediamap indexes contained in . If is set to True it clears the existing MediaMap first. Returns True if the action succeeded or False if it failed
SetMediaMapIndex	(Number MapIndex,Media Object(or Nil) Media)	Boolean	Attempts to place MediaObject into the mediamap at position . If is Nil then the slot at position is cleared. Returns True on success or False on failiure
SetMediaMapIndex	(Number MapBank,Number MapClip,Media Object(or Nil) Media)	Boolean	Attempts to place MediaObject into the mediamap at bank Clip . If is Nil then bank Clip is cleared. Returns True on success or False on failiure

Media API

Media			
Properties			
Property Name		**Return Data Type**	**Description**
Name		String	Returns the name of this Media Object, this value can be read or set
Path		String	Returns the full folder path and Name of this MediaObject, this value can be read or set
FileType		String	Returns the description of the filetype of this MediaObject eg.
Duration		Number	Returns the duration in milliseconds of this Media Object
FileSize		Number	Returns the filesize in bytes of this Media Object
Width		Number	Returns the width in pixels of this Media Object
Height		Number	Returns the height in pixels of this Media Object
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
Delete	()	Boolean	Attempts to delete this Media Object , returns true is succeeded or false if the file is in use or locked
Equals	(MediaObject Media)	Boolean	Returns True if this Media Object is the same as or False if it is different

Pin Bridge API

PinBridge Component			
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
AddFloatBridge	(String BridgeName, Lua Table [Pin Object] Targets)	Nothing	Attempts to create a Float PinBridge with name and adds the Pins to that bridge
AddBoolBridge	(String BridgeName, Lua Table [Pin Object] Targets)	Nothing	Attempts to create a Boolean PinBridge with name and adds the Pins to that bridge
AddIntBridge	(String BridgeName, Lua Table [Pin Object] Targets)	Nothing	Attempts to create an Integer PinBridge with name and adds the Pins to that bridge
AddStringBridge	(String BridgeName, Lua Table [Pin Object] Targets)	Nothing	Attempts to create a String PinBridge with name and adds the Pins to that bridge

Helper Functions

Helper Functions			
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
scale	(Number Input,Number InputMin,Number InputMax,Number OutputMin,Number OutputMax,Boolean ClipToOutputRange(optional))	Number	Scales the value < Input> according to the ratio between – and – . Restricts the output to the stated output range if ClipToOutputRange is True
mediaIndex	(Number Bank,Number Clip)	Number	Converts a and to a media index
mediaClip	(Number MediaIndex)	Number	Returns the Clip portion of a media index
mediaBank	(Number MediaIndex)	Number	Returns the Bank portion of a media index
time	(Number Hours,Number Minutes,Number Seconds,Number Milliseconds(optional))	Number	Returns and as total milliseconds
timecode24	(Number Hours,Number Minutes,Number Seconds,Number Frames)	Number	Returns a value that represents the entered timecode as total milliseconds based on a timecode format of 23.98 fps
timecode25	(Number Hours,Number Minutes,Number Seconds,Number Frames)	Number	Returns a value that represents the entered timecode as total milliseconds based on a timecode format of 25 fps
timecode30NonDrop	(Number Hours,Number Minutes,Number Seconds,Number Frames)	Number	Returns a value that represents the entered timecode as total milliseconds based on a timecode format of 30.00 fps Non Drop
timecode30Drop	(Number Hours,Number Minutes,Number Seconds,Number Frames)	Number	Returns a value that represents the entered timecode as total milliseconds based on a timecode format of 29.97 fps Drop Frame
sleep	(Number Milliseconds)	Nothing	Forces the script execution to pause for Milliseconds
regexMatch	(String Input,String Pattern,Boolean IgnoreCase(optional))	Boolean	Returns True if the string < Input> matches the regex pattern , false if it does not match
regexReplace	(String Input,String Replacement,String Pattern)	String	Returns a new String where the string < Input> is modified with string according to the regex string
ping	(String IP,Number TimeOut)	Boolean	Returns true if a response is received to a network ping to address before the timeout of Milliseconds
udpSend	(String Data,String IP,Number Port,String LocalIP(optional))	Boolean	Attempts to send the String using UDP to target IP on port using the local network

Helper Functions			
			adapter with IP Address . Returns true if data was sent to target, false if there was an error
tcpSend	(String Data,String IP,Number Port,String LocalIP(optional),Number TimeOut(optional))		Attempts to send the String using TCP to target IP on port using the local network adapter with IP Address . Returns true if data was sent to target within Milliseconds, false if there was an error or it took too long
httpGet	(String Address)	String	Performs an Http Get request to address *and returns the message received back as a string*
httpPost	(String Address,String Data	String	Performs an Http Post request to address *including the added data and returns the message received back as a string*

Viewport API

Viewport			
Properties			
Property Name		**Return Data Type**	**Description**
Index		Number	Returns the numerical index of this Viewport
Path		String	Returns the full path of the Root Pin of this viewport from the Engine Root Pin
Level		Number	Value between 0.0 and 1.0 that represents the level of the viewport master on this viewport this value can be read or set
Functions			
Function Name	**Parameters**	**Return Data Type**	**Description**
FadeLevel	(Number From,Number To,Number FadeTime)	Nothing	Fades the level of this viewport in the background from a value of to a value of over Seconds, does not halt script execution
FadeLevel	(Number To,Number FadeTime)	Nothing	Fades the level of this viewport in the background from it’s current value to a value of over Seconds, does not halt script execution
FadeLevelWait	(Number From,Number To,Number FadeTime)	Nothing	Fades the level of this viewport from a value of to a value of over Seconds, does halt script execution while in progress
FadeLevelWait	(Number To,Number FadeTime)	Nothing	Fades the level of this viewport from it’s current value to a value of over Seconds, does halt script execution while in progress
SetPreset	(Number PresetIndex)	Nothing	Attempts to load a Mix Preset with index onto this Viewport Object if the preset exists
Reset	()	Nothing	Resets the Viewport and all it’s Layers back to their default state

Example Macros

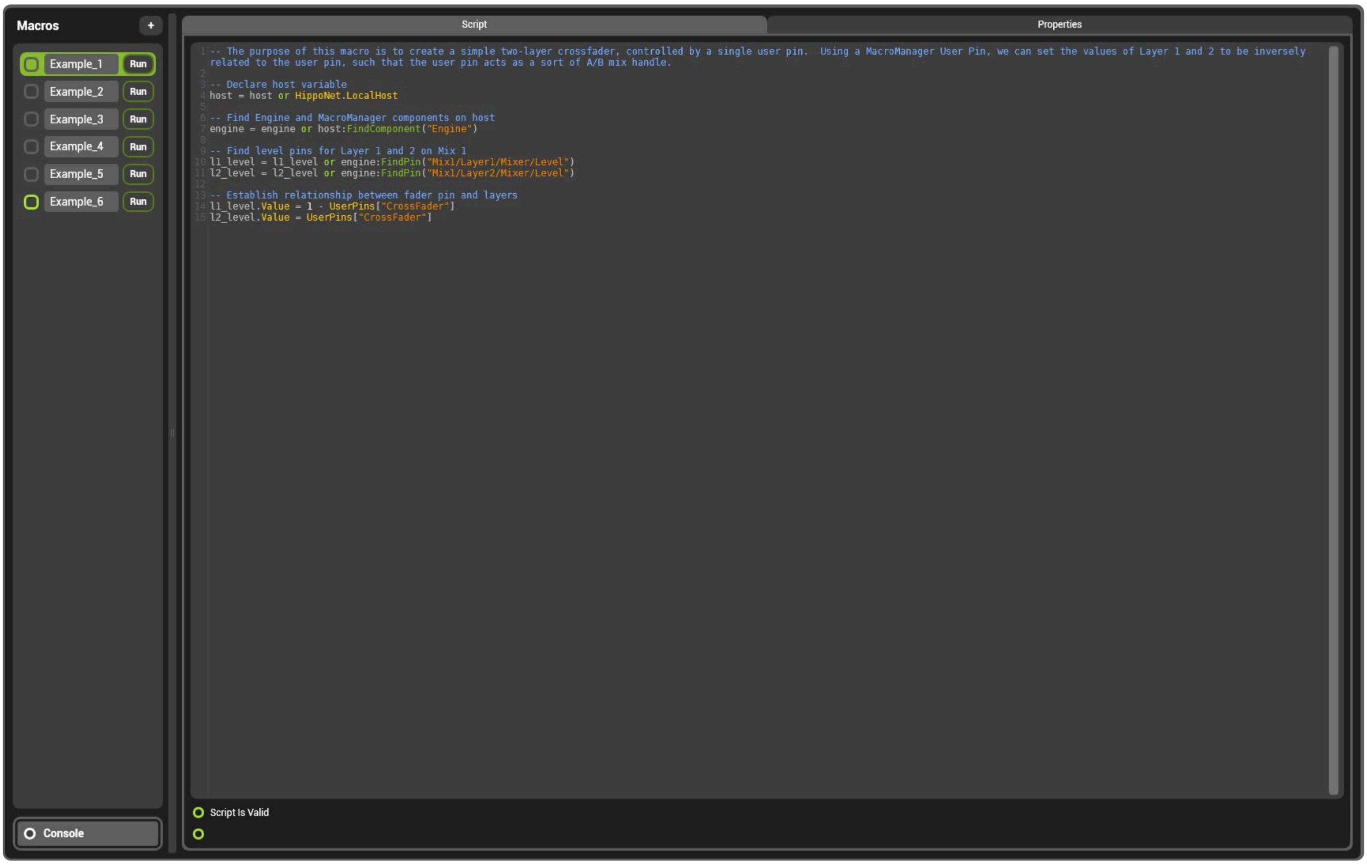
The easiest way to learn Macro Manager is to use examples:

- Fading Layer Level

Additional Examples are available for download as a Macro Manager export

Fading Layer Level

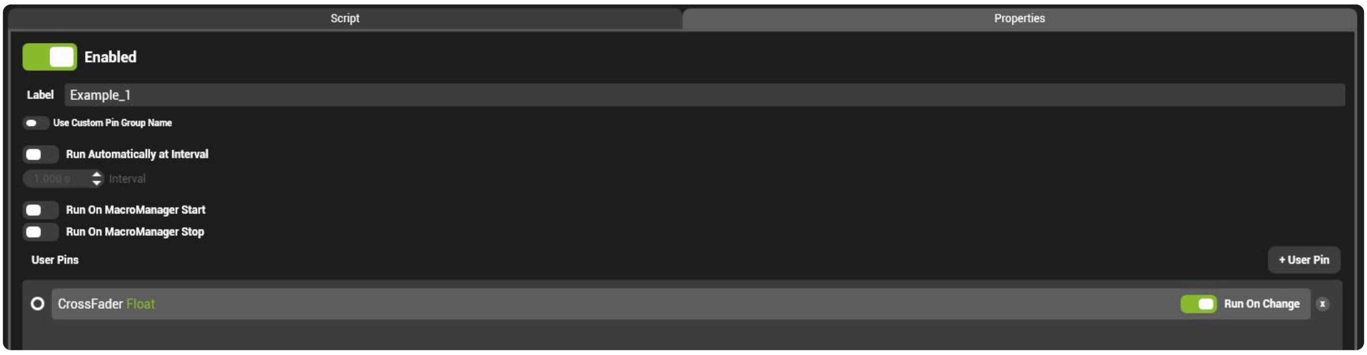
A two layer cross fade



```
-- The purpose of this macro is to create a simple two-layer crossfader, controlled by a single user pin.  Using a MacroManager User Pin, we can set the values of Layer 1 and 2 to be inversely
related to the user pin, such that the user pin acts as a sort of A/B mix handle.

-- Declare host variable
host = host or HippoNet.LocalHost

-- Find Engine and MacroManager components on host
engine = engine or host:FindComponent("Engine")

-- Find level pins for Layer 1 and 2 on Mix 1
l1_level = l1_level or engine:FindPin("Mix1/Layer1/Mixer/Level")
l2_level = l2_level or engine:FindPin("Mix1/Layer2/Mixer/Level")

-- Establish relationship between fader pin and layers
l1_level.Value = 1 - UserPins["CrossFader"]
l2_level.Value = UserPins["CrossFader"]
```

Script Is Valid

A user pin must also be created



Enabled

Label Example_1

Use Custom Pin Group Name

Run Automatically at Interval

1.000 s Interval

Run On MacroManager Start

Run On MacroManager Stop

User Pins

CrossFader Float — Run On Change

The code for this macro is below

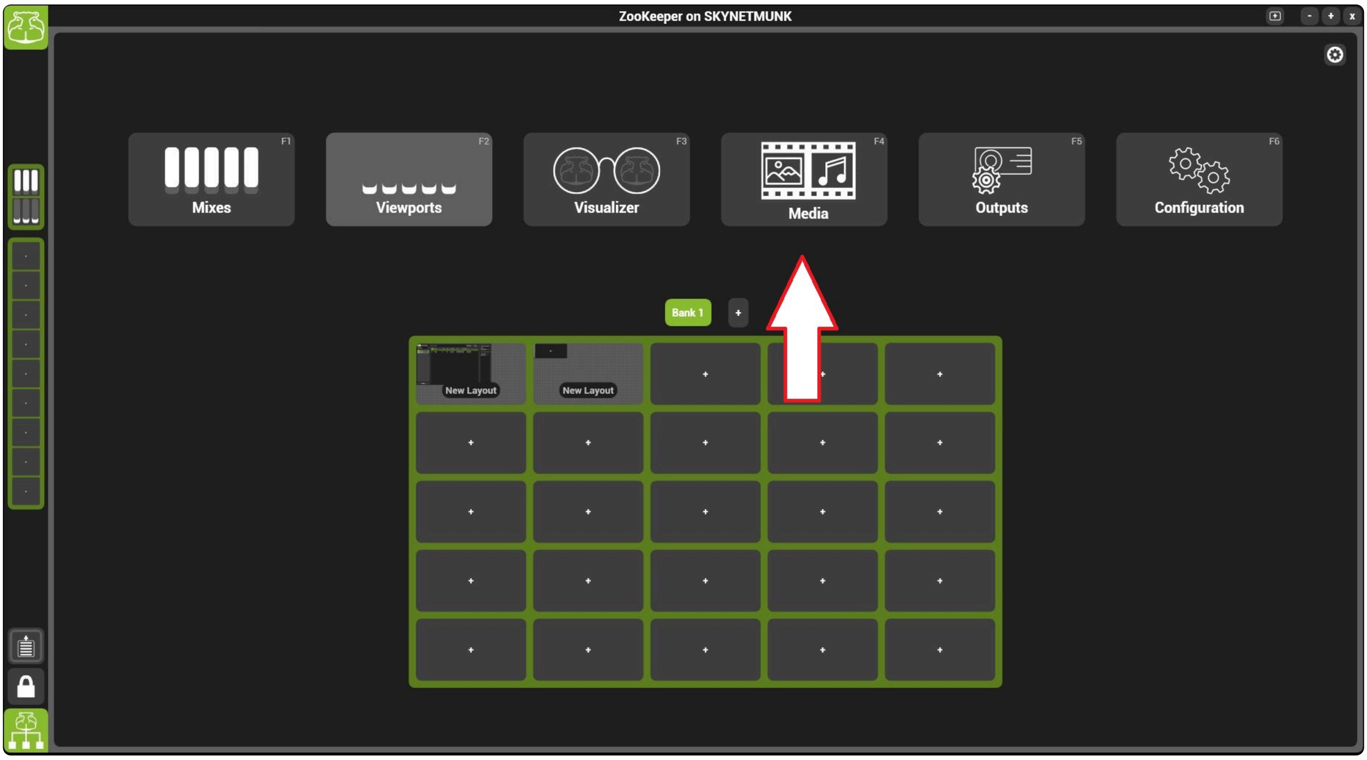
```
-- The purpose of this macro is to create a simple two-layer crossfader, controlled by a single user pin.  Using a MacroManager User Pin, we can set the values of Layer 1 and 2 to be inversely related to the user pin, such that the user pin acts as a sort of A/B mix handle.

-- Declare host variable
host = host or HippoNet.LocalHost
```

```
-- Find Engine and MacroManager components on host
engine = engine or host:FindComponent("Engine")

-- Find level pins for Layer 1 and 2 on Mix 1
l1_level = l1_level or engine:FindPin("Mix1/Layer1/Mixer/Level")
l2_level = l2_level or engine:FindPin("Mix1/Layer2/Mixer/Level")

-- Establish relationship between fader pin and layers
l1_level.Value = 1 - UserPins["CrossFader"]
l2_level.Value = UserPins["CrossFader"]
```

Media Manager

Media Manager is a complete content organisation system built into Hippotizer V4. Handling the encode, storage and playback of all video and audio files, Media Manager is an integral part of the Hippotizer.

To open Media Manager, click the media tab in Zookeeper's home screen.


ZooKeeper on SKYNETMUNK
F1
Mixes
F2
Viewports
F3
Visualizer
F4
Media
F5
Outputs
F6
Configuration
Bank 1
+
New Layout
New Layout

! Media Manager is critical for the normal operation of Hippotizer. The component should not be stopped or deleted.

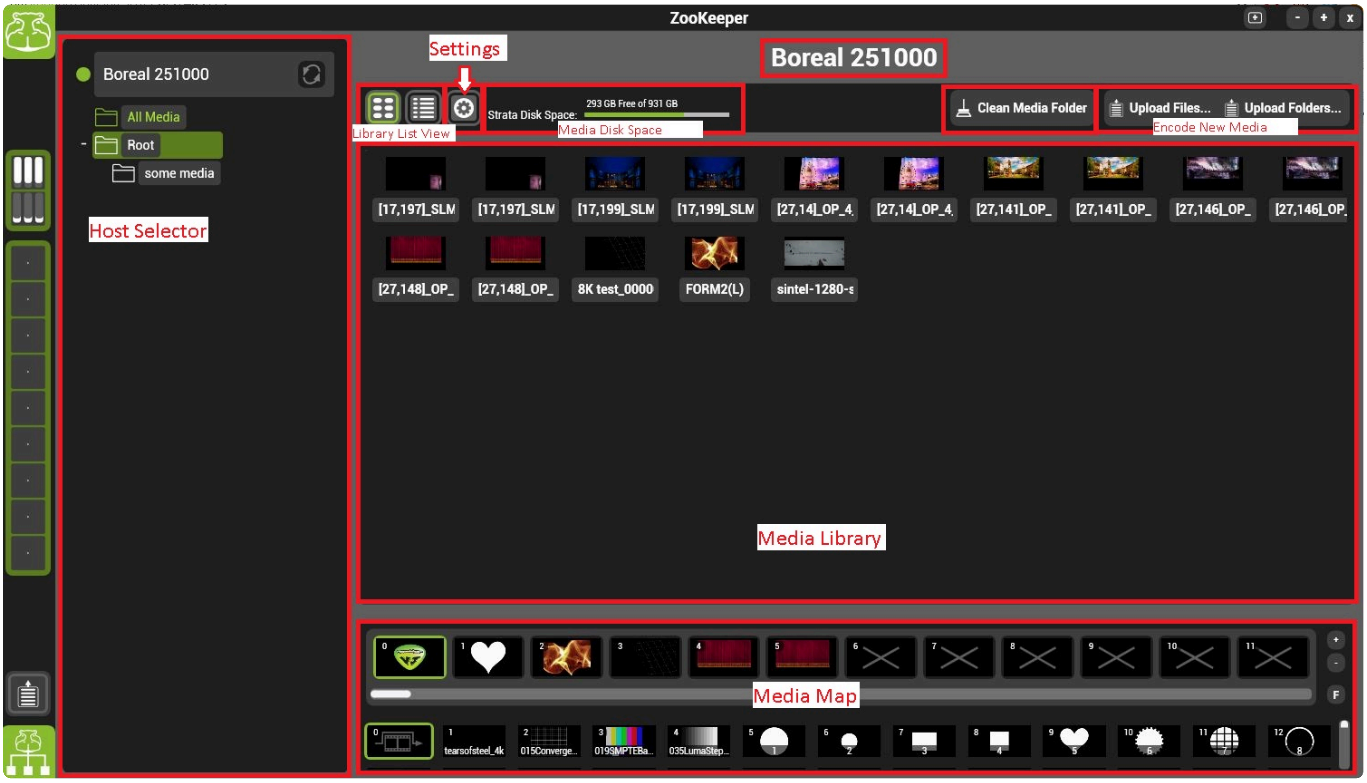
Sections of Media Manager

- Basic Layout
- Encoding Media
- Media Manager Settings
- Tags and Notes

Basic Layout

Media Manager stores and encodes all movies, images and sound files in the Hippotizer system. Clips in Hippotizer are stored in the **Media Library**, and can be assigned to the **Media Map** for playback.

The Media Manager can control all Hippotizers on the network from one interface.


ZooKeeper
Settings
Boreal 251000
Boreal 251000
All Media
Root
some media
Host Selector
Strata Disk Space:
293 GB Free of 931 GB
Library List View
Media Disk Space
Clean Media Folder
Upload Files...
Upload Folders...
Encode New Media
[17,197]_SLM
[17,197]_SLM
[17,199]_SLM
[17,199]_SLM
[27,14]_OP_4
[27,14]_OP_4
[27,141]_OP_
[27,141]_OP_
[27,146]_OP_
[27,146]_OP
[27,148]_OP_
[27,148]_OP_
8K test_0000
FORM2(L)
sintel-1280-s
Media Library
Media Map
tearsofsteel_4k
015Converge...
019SMPTEBa...
035LumaStep...

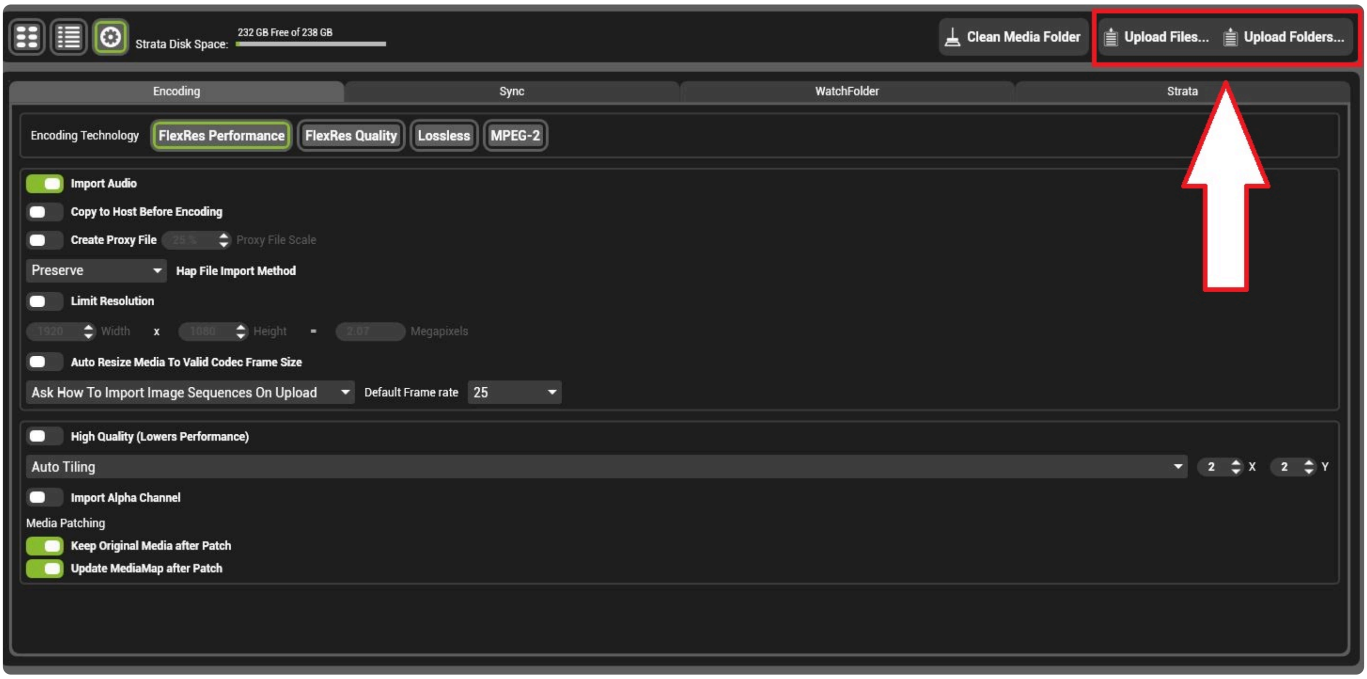
There are different sections to the interface:

[Encode New Media](#)

Encoding Media

Media Manager automatically converts external video files into the selected internal codec.

To Encode media, choose either the option to upload a file or folder from the Media Manager's main window.


Strata Disk Space:
232 GB Free of 238 GB
Clean Media Folder
Upload Files...
Upload Folders...
Encoding
Sync
WatchFolder
Strata

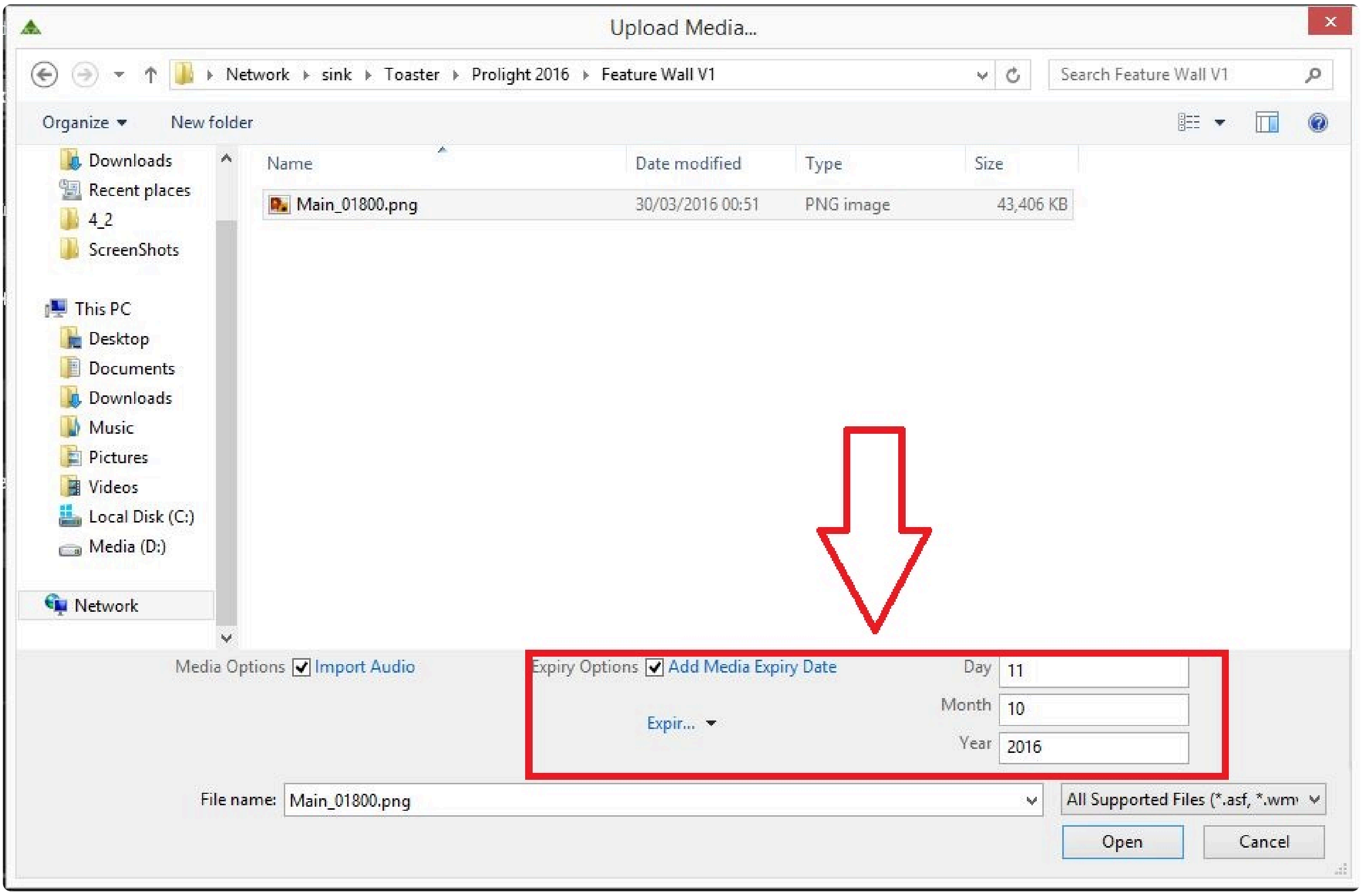
Encoding Technology: **FlexRes Performance** | FlexRes Quality | Lossless | MPEG-2

☑ Import Audio
☐ Copy to Host Before Encoding
☐ Create Proxy File — 25 % Proxy File Scale
Preserve — Hap File Import Method
☐ Limit Resolution
1920 Width x 1080 Height = 2.07 Megapixels
☐ Auto Resize Media To Valid Codec Frame Size
Ask How To Import Image Sequences On Upload — Default Frame rate 25

☐ High Quality (Lowers Performance)
Auto Tiling — 2 X 2 Y
☐ Import Alpha Channel
Media Patching
☑ Keep Original Media after Patch
☑ Update MediaMap after Patch

Use **Upload Files…** to choose individual clips within a folder and use **Upload Folders…** to select an entire folder for encoding.

The selection dialogue box also contains an option for **media expiry**.


Upload Media...
Network ▸ sink ▸ Toaster ▸ Prolight 2016 ▸ Feature Wall V1
Search Feature Wall V1
Organize
New folder
Downloads
Recent places
4_2
ScreenShots
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Media (D:)
Network
Expir...
All Supported Files (*.asf, *.wmv
Open
Cancel

Name	Date modified	Type	Size
Main_01800.png	30/03/2016 00:51	PNG image	43,406 KB

Media Options ☑ Import Audio

Expiry Options ☑ Add Media Expiry Date

Day 11

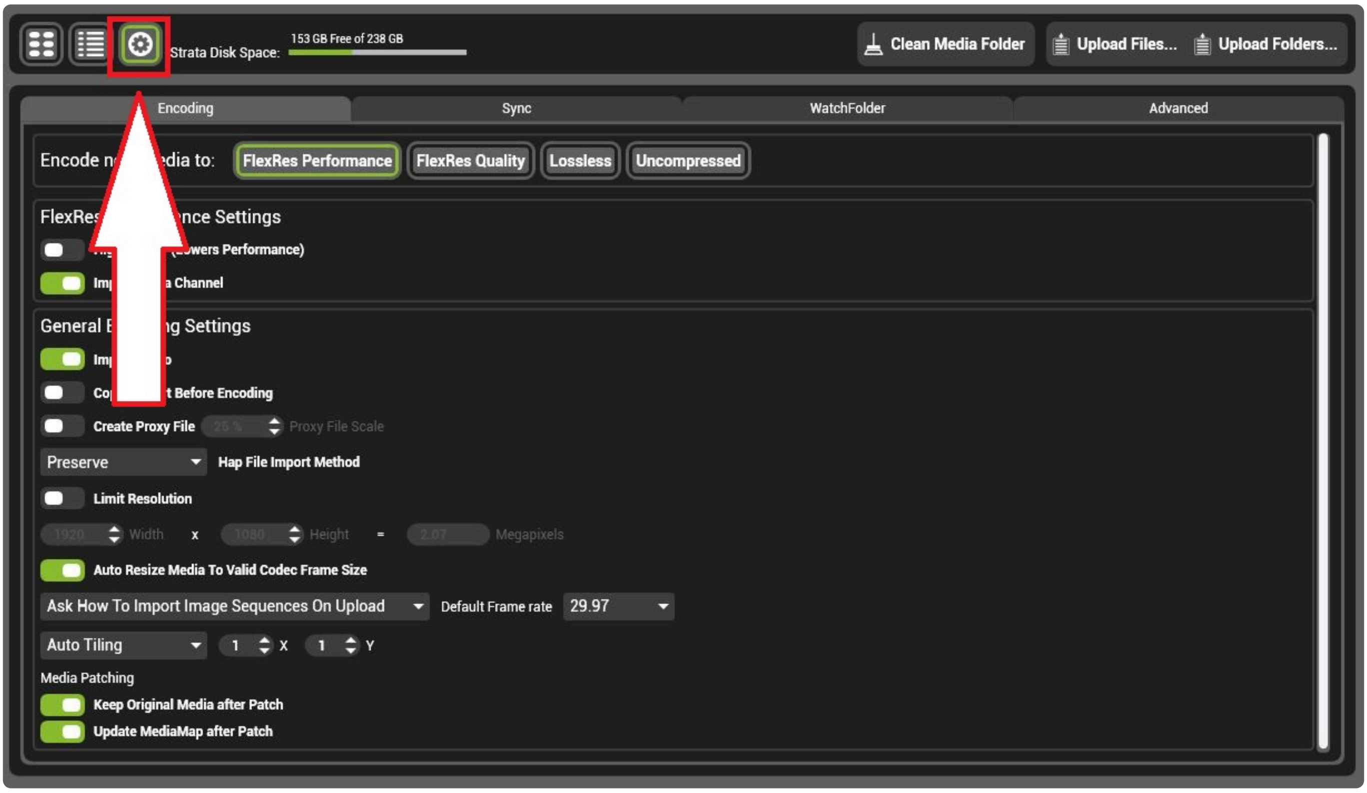
Month 10

Year 2016

File name: Main_01800.png

If this is enabled, the media will not play after the expiration date.

Media Manager Settings


Strata Disk Space:
153 GB Free of 238 GB
Clean Media Folder
Upload Files...
Upload Folders...
Encoding
Sync
WatchFolder
Advanced
Encode n edia to:
FlexRes Performance
FlexRes Quality
Lossless
Uncompressed
FlexRes nce Settings
(Lowers Performance)
Imp a Channel
General E ng Settings
Imp
Co t Before Encoding
Create Proxy File
25 %
Proxy File Scale
Preserve
Hap File Import Method
Limit Resolution
1920
Width
x
1080
Height
=
2.07
Megapixels
Auto Resize Media To Valid Codec Frame Size
Ask How To Import Image Sequences On Upload
Default Frame rate
29.97
Auto Tiling
1
X
1
Y
Media Patching
Keep Original Media after Patch
Update MediaMap after Patch

Media Manager’s Settings control how media is encoded, where it is stored as well as other important functions.

In the settings menu, there are four main areas:

- Encoding
- Sync
- Watchfolders
- Advanced

Encoding

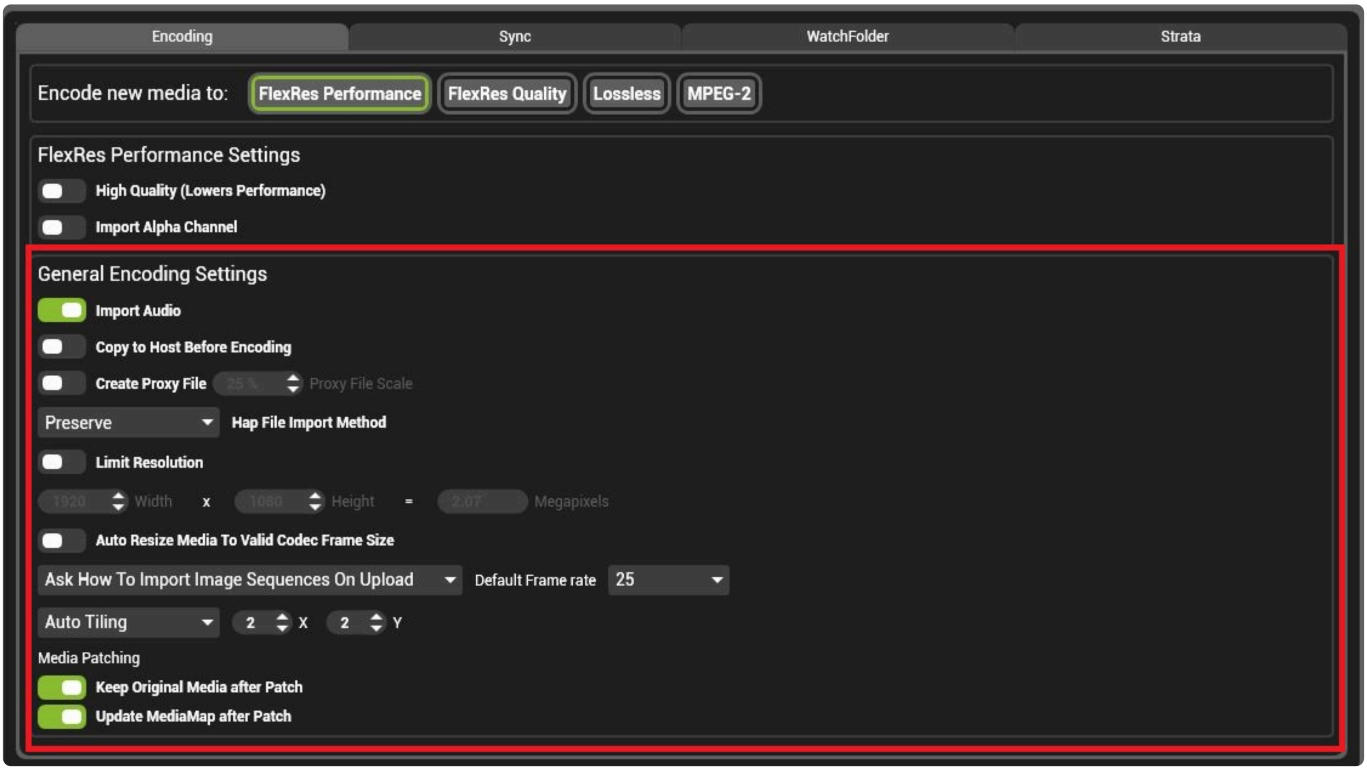
All movie files are converted automatically to a format that Hippotizer can play back. This process, called **Transcoding** is handled by media manager. Clips are converted to one of four internal Codecs:

- FlexRes Performance
- FlexRes Quality
- Lossless
- Uncompressed

Each codec offers strengths and weaknesses; it is best to consider the specific requirements of the production when choosing which codec to use.

General Encode Settings

Many settings in Media Manager apply to all content regardless of which Codec is selected:



Encode new media to: FlexRes Performance

FlexRes Performance Settings

☐ High Quality (Lowers Performance)

☐ Import Alpha Channel

General Encoding Settings

☑ Import Audio

☐ Copy to Host Before Encoding

☐ Create Proxy File 25 % Proxy File Scale

Preserve Hap File Import Method

☐ Limit Resolution

1920 Width x 1080 Height = 2.07 Megapixels

☐ Auto Resize Media To Valid Codec Frame Size

Ask How To Import Image Sequences On Upload Default Frame rate 25

Auto Tiling 2 X 2 Y

Media Patching

☑ Keep Original Media after Patch

☑ Update MediaMap after Patch

Import Audio:

If enabled, audio attached to clips will be encoded as well. If the source is an image sequence and an audio file is present in the folder with the same name as the sequence, then the audio file will be attached to the encoded clip.

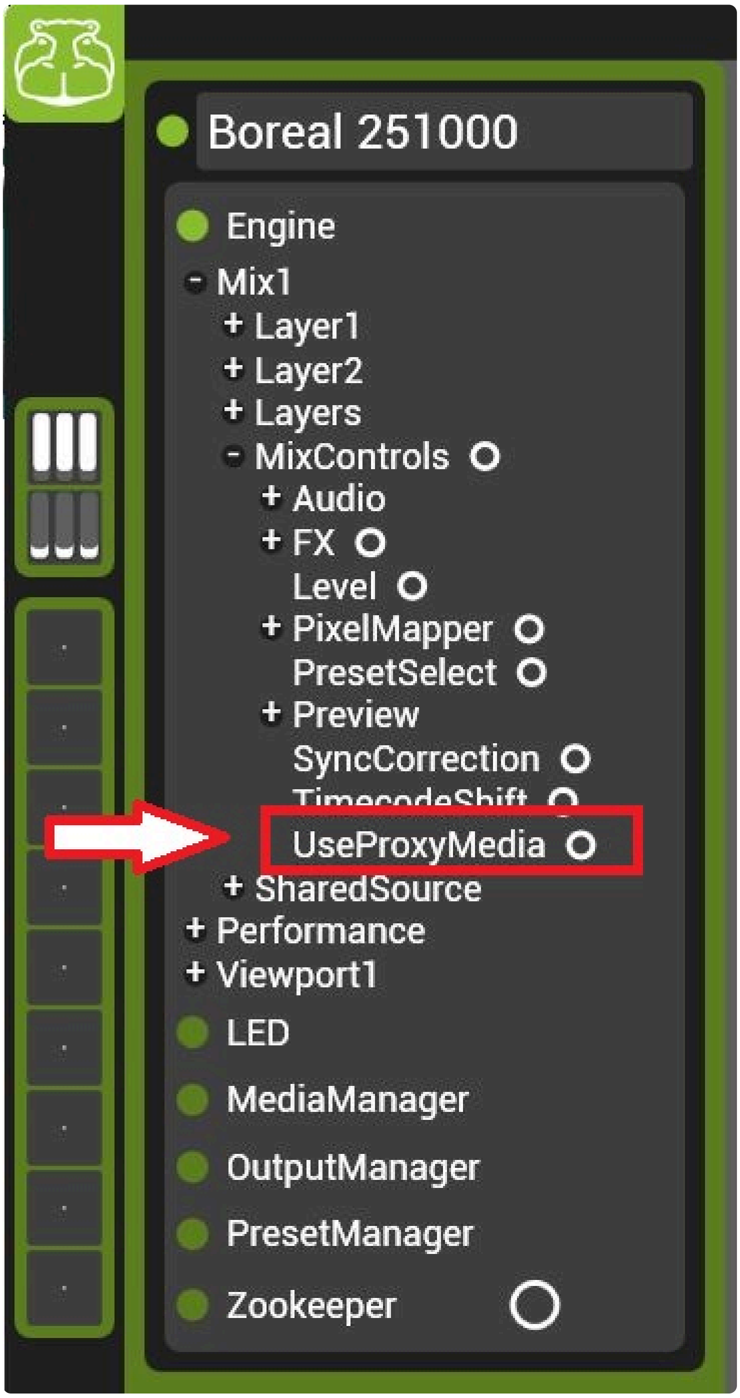
Please Note: Separate audio clips can be associated with image sequences to do this, place the audio file in the same folder as the target image sequence when it is encoded.Take care to ensure the resulting video clip is the same length as the audio file.

Copy to host before Encoding:

If enabled media is copied to the local machine before encode. This is not recommended as it will create an extra copy operation and consume drive space.

Create Proxy

If enabled a smaller version (a proxy) of each media file will be created and saved in addition to the full resolution media. Proxy media is useful when using a visualiser to simulate larger multi-Hippotizer systems. Each mix can be set to use proxy or full resolution content with the pin UseProxyMedia under mix controls.


Boreal 251000
Engine
Mix1
Layer1
Layer2
Layers
MixControls
Audio
FX
Level
PixelMapper
PresetSelect
Preview
SyncCorrection
TimecodeShift
UseProxyMedia
SharedSource
Performance
Viewport1
LED
MediaManager
OutputManager
PresetManager
Zookeeper

HAP File Import method

Files encoded directly to HAP can be encoded to Hippotizer with little or no transcode saving significant time in media ingest. To do this, files must be rendered directly to HAP.

Please Note: Rendering to HAP can itself be a slow process, especially in QuickTime. If you are using PC based AfterEffects or Nuke it will be faster to use FlexRes plugins to render directly to FlexRes.

Any HAP files that are then encoded will follow the chosen transcode method:

! Only HAP, HAP-Alpha and HAP-Quality is supported. HAP-Quality Alpha is not supported.

Preserve: The fastest method: files are copied straight to the media library.

Repack: Files are re-wrapped but not transcoded. This is still fast, but may improve playback compared to normal HAP files.

Transcode: Files are re-encoded with the FlexRes wrapper applied.

Limit Resolution

If enabled will downscale all encoded media to the desired resolution. The limit resolution values must respect the limits of the target codec; so for FlexRes Performance it must be divisible by four in height and width.

Auto Re-size media to valid codec size

If enabled, content that is not within the resolution limits of the selected codec will be automatically resized to work. Otherwise the content will fail to encode.

Please Note: Content will be cropped to fit. So a clip that was originally 1922 × 1080 would encode to 1920 × 1080. This slightly changes the aspect ratio so may not be desirable.

Ask how to Encode Image sequences

When files in the same folder to be encoded are detected as a series of images with sequential numbers in the name, Media Manager will assume they are image sequences and act accordingly. By default, it will ask the user to confirm that it is an image sequence instead of a series of discrete images to be encoded.

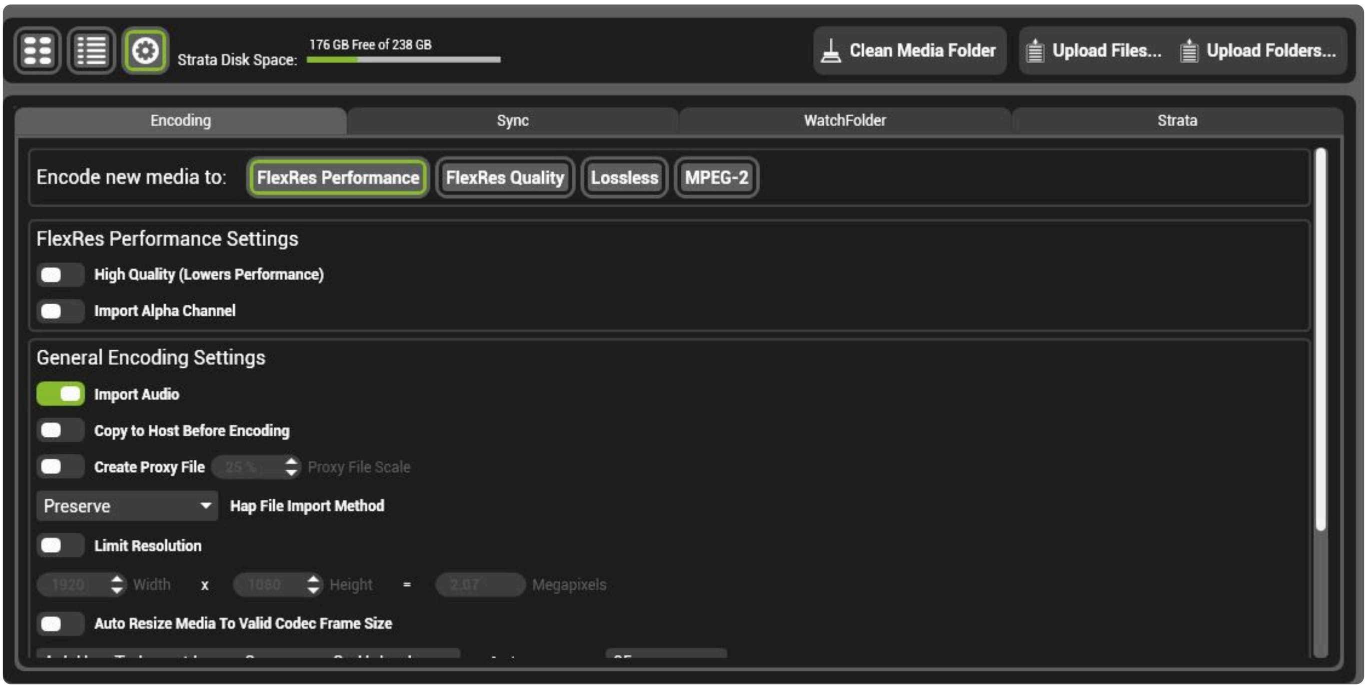
Default Frame Rate

The frame rate of the resulting clip when an image sequence is encoded.

FlexRes Performance

Building on the widely used HAP family of codecs, **FlexRes Performance** offers very low playback load with reasonable visual quality. The HAP codec uses GPU based decoding (the graphics card) to playback video which generally results in better overall system performance. HAP typically has a lower compression ratio than FlexRes Quality so encoded media can take up more space on disk and requires greater disk read performance.

To encode to FlexRes Performance, select it Media Manager’s settings.



Encode new media to: **FlexRes Performance** FlexRes Quality Lossless MPEG-2

FlexRes Performance Settings

☐ High Quality (Lowers Performance)

☐ Import Alpha Channel

General Encoding Settings

☑ Import Audio

☐ Copy to Host Before Encoding

☐ Create Proxy File 25 % Proxy File Scale

Preserve Hap File Import Method

☐ Limit Resolution

1920 Width x 1080 Height = 2.07 Megapixels

☐ Auto Resize Media To Valid Codec Frame Size

Strengths

- Very low playback overhead

Weaknesses

- Reduced colour space can result in banding especially with colour gradients.
- Colour sub-sampling carried out in 4×4 pixel blocks can make diagonal lines appear ‘steppy’.
- Low compression ratio results in large files on disk

Tip: Applying noise to generated content with colour gradients can help to reduce the visibility of banding.

Resolution Limits

- Height and Width must be divisible by four.
- Max Resolution: 16,384 × 16,384
- Minimum Resolution: 64 × 64

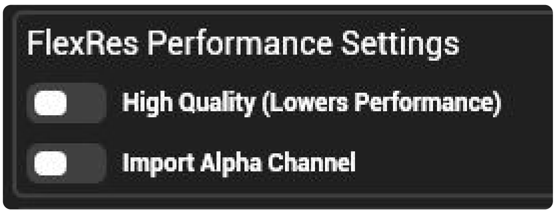
Frame Rates Supported

- Up to 60 FPS

Alpha Support

- Yes, in FlexRes Performance Alpha only

FlexRes Performance offers three encoding options:

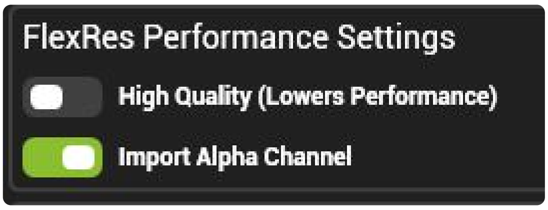


FlexRes Performance Settings

☐ High Quality (Lowers Performance)

☐ Import Alpha Channel

Performance Uses basic HAP; Offers the lowest data rate with the most compression. Visual artifacts are most noticeable on high contrast diagonal lines (where it will appear as steps) and in colour gradients: especially in warm colours.

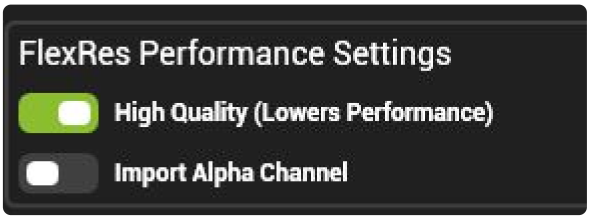


FlexRes Performance Settings

☐ High Quality (Lowers Performance)

☑ Import Alpha Channel

Performance Alpha Uses HAP-Alpha; adds alpha transparency support to HAP. Due to the extra data of the alpha channel, media file size and playback load is higher than that of normal HAP.



FlexRes Performance Settings

☑ High Quality (Lowers Performance)

☐ Import Alpha Channel

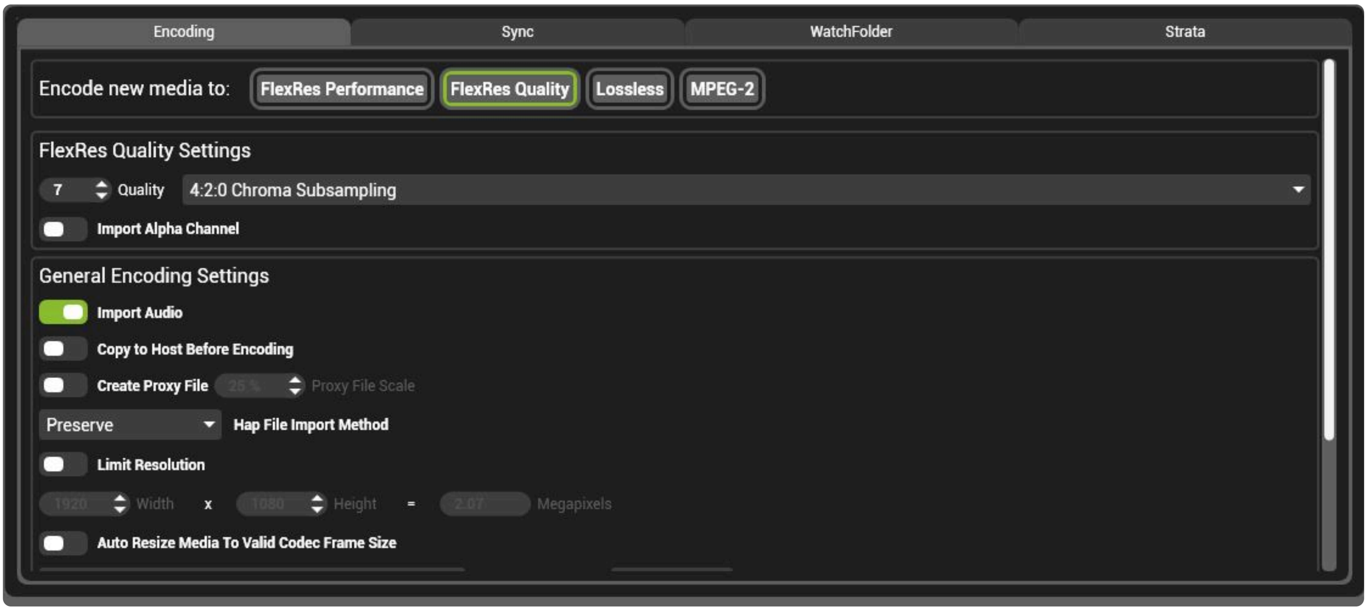
Performance High Quality Uses HAP-Q: offers improved image quality with a similar data rate and load as HAP-Alpha. Does not support alpha transparency.

Tiling

- Tiling is an internal method that Hippotizer uses to optimise playback of greater than HD clips. It is best to leave this set to automatic.

FlexRes Quality

FlexRes Quality uses a codec developed by Green Hippo to combine low playback overhead with better visual quality.



Encode new media to: FlexRes Quality

FlexRes Quality Settings

7 Quality 4:2:0 Chroma Subsampling

☐ Import Alpha Channel

General Encoding Settings

☑ Import Audio

☐ Copy to Host Before Encoding

☐ Create Proxy File 25 % Proxy File Scale

Preserve Hap File Import Method

☐ Limit Resolution

1920 Width x 1080 Height = 2.07 Megapixels

☐ Auto Resize Media To Valid Codec Frame Size

Strengths

- Choose what quality and colour sub-sampling is required
- 4:2:0 Quality 7 has comparable quality as FlexRes Performance with a smaller size on disk in most circumstances. (better compression)
- Good at encoding live (not rendered) content

Weaknesses

- Higher Quality and colour spaces can dramatically increase playback load.
- Relies partially on the computer’s CPU for decoding
- Computer generated content with gradients and uniform colours do not compress well

Resolution Limits

- Height and Width must be divisible by four.
- Max Resolution: 16,384 × 16,384
- Minimum Resolution: 64 × 64

Frame Rates Supported

- Up to 60 FPS

Alpha Support

- Yes

FlexRes Quality has three encoding settings:

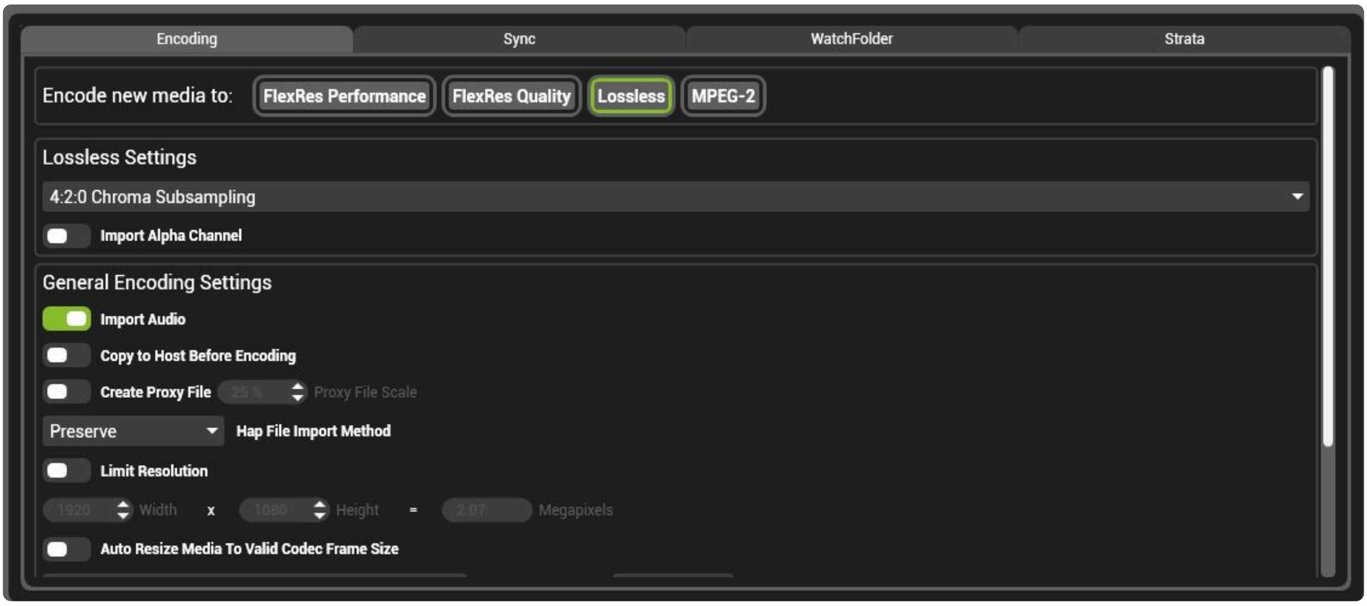
- **Chroma Sub-sampling** One method of image compression reduces the colour space of the video by only encoding certain colour channels for each 2 × 2 pixel block of video. The specifics of this process extend beyond the scope of this manual. In brief, 4:2:0 is encoding only half as much colour information as 4:4:4 which does not compress the colour data at all. The most visible artifact from colour compression is banding in colour gradients (as similar colours are rounded together forming a band) and steppy diagonal lines in areas of high contrast.

- **Quality** In addition to colour, FlexRes Quality also carries data out compression per frame. The degree of this compression is user configurable with 10 being visually lossless and 1 being very highly compressed.

- **Tiling** Tiling is an internal method that Hippotizer uses to optimise playback of greater than HD clips. It is best to leave this set to automatic.

Lossless

FlexRes **Lossless** uses a compression method that allows the source data to be perfectly reconstructed. FlexRes Lossless is designed for scenarios where perfect video reproduction is vital. Lossless has the potential to create relatively large files and can be very heavy to playback so is best used with caution.



Encode new media to: Lossless

Lossless Settings

4:2:0 Chroma Subsampling

○ Import Alpha Channel

General Encoding Settings

● Import Audio

○ Copy to Host Before Encoding

○ Create Proxy File 25 % Proxy File Scale

Preserve Hap File Import Method

○ Limit Resolution

1920 Width x 1080 Height = 2.07 Megapixels

○ Auto Resize Media To Valid Codec Frame Size

Strengths

- Perfect video reproduction when set to 4:4:4 colour.

Weaknesses

- Very High Playback load
- Large file size on disk

Note: Due to the potentially huge file size of Lossless media, it is very important to consider drive space carefully for each application.

Resolution Limits

- Width must be divisible by four when using 4:2:0 or 4:2:2 chromatic sub-sampling
- Max Resolution: 16,384 × 16,384
- Minimum Resolution: 64 × 64

Frame Rates Supported

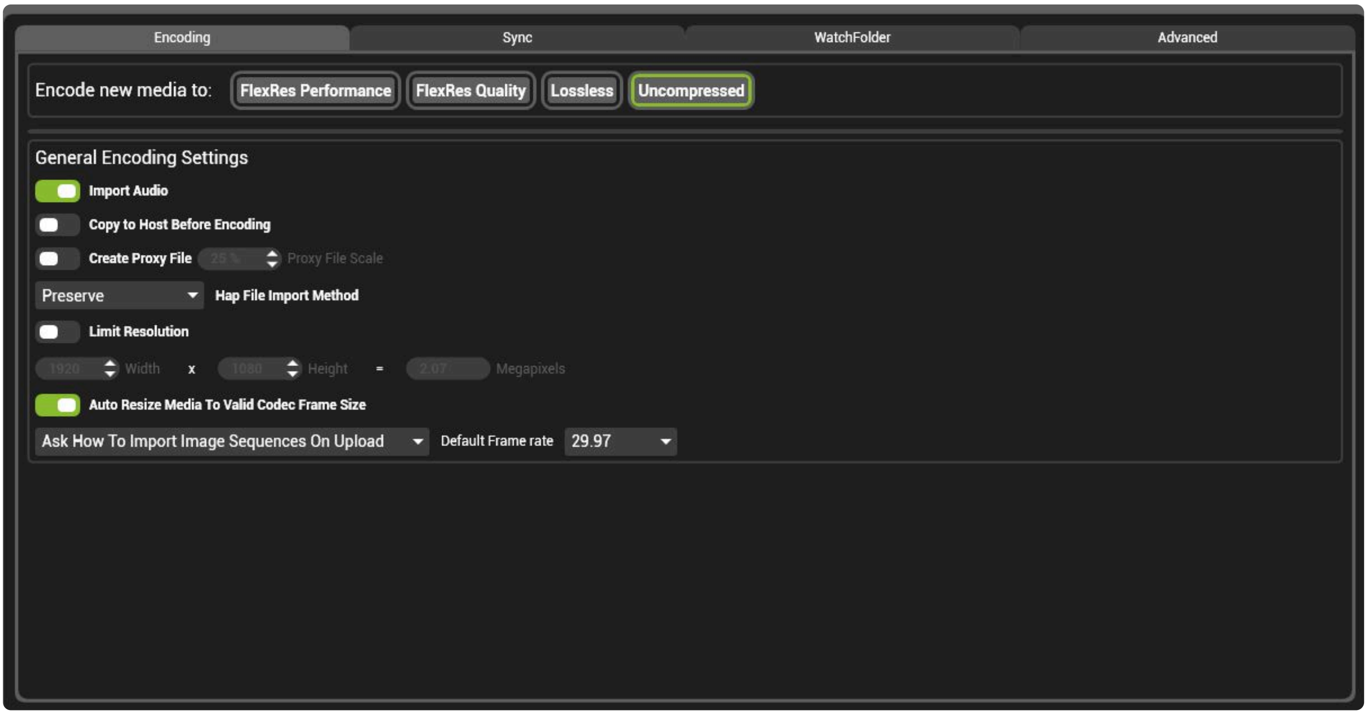
- Up to 60 FPS

Alpha Support

- Yes

Uncompressed

FlexRes **Uncompressed** uses no compression when storing video files. Without data compression a single frame of 1920 × 1080 alpha containing video stores at 8MB.



Encode new media to: Uncompressed

General Encoding Settings

Import Audio: on

Copy to Host Before Encoding: off

Create Proxy File: off — 25 % Proxy File Scale

Preserve — Hap File Import Method

Limit Resolution: off

1920 Width x 1080 Height = 2.07 Megapixels

Auto Resize Media To Valid Codec Frame Size: on

Ask How To Import Image Sequences On Upload

Default Frame rate 29.97

Strengths

- Perfect video reproduction
- No CPU usage to decompress.

Weaknesses

- Very High Playback load
- Huge file size on disk

Note: Due to the potentially huge file size of Lossless media, it is very important to consider drive space carefully for each application.

Resolution Limits

- Max Resolution: 16,384 × 16,384
- Minimum Resolution: 64 × 64

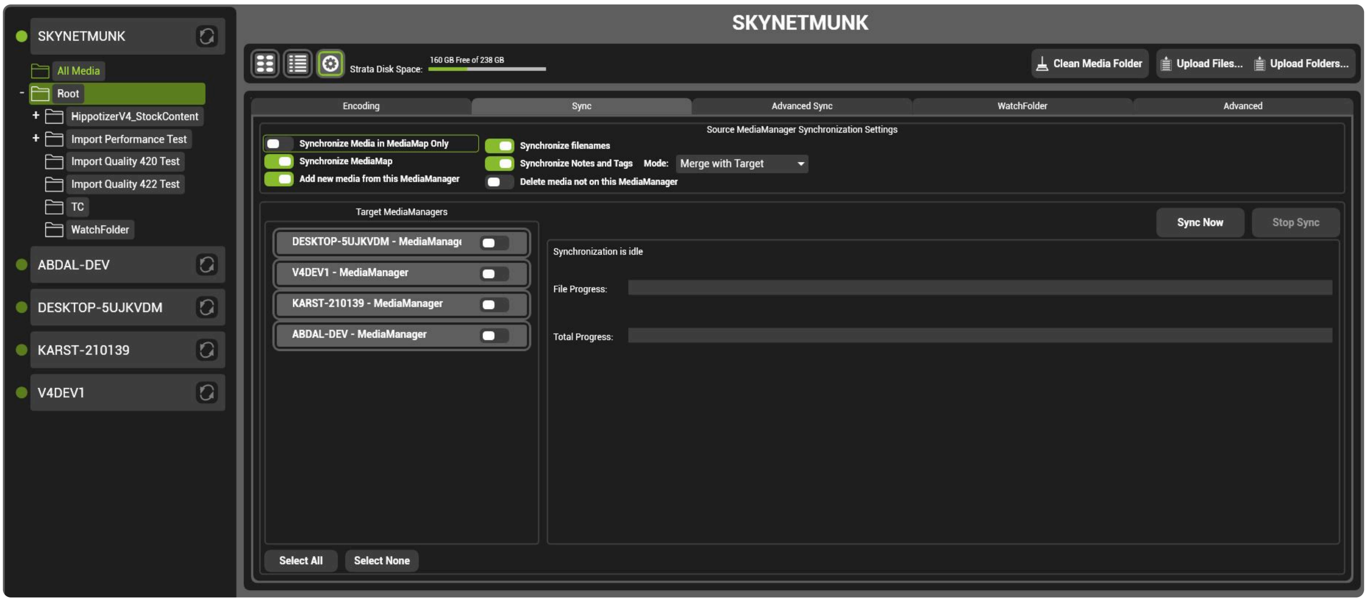
Frame Rates Supported

- Up to 60 FPS

Alpha Support

- Yes

Sync


SKYNETMUNK
All Media
Root
HippotizerV4_StockContent
Import Performance Test
Import Quality 420 Test
Import Quality 422 Test
TC
WatchFolder
ABDAL-DEV
DESKTOP-5UJKVDM
KARST-210139
V4DEV1
SKYNETMUNK
Strata Disk Space:
160 GB Free of 238 GB
Clean Media Folder
Upload Files...
Upload Folders...
Encoding
Sync
Advanced Sync
WatchFolder
Advanced
Source MediaManager Synchronization Settings
Target MediaManagers
Sync Now
Stop Sync
File Progress:
Total Progress:
Select All
Select None

☐ Synchronize Media in MediaMap Only
☑ Synchronize MediaMap
☑ Add new media from this MediaManager
☑ Synchronize filenames
☑ Synchronize Notes and Tags Mode: Merge with Target
☐ Delete media not on this MediaManager

☐ DESKTOP-5UJKVDM - MediaManag
☐ V4DEV1 - MediaManager
☐ KARST-210139 - MediaManager
☐ ABDAL-DEV - MediaManager

Synchronization is idle

Media Manager can send its media and media map to other Hippotizers on the network.

Note: In V4 there has been a major change from Version 3 Hippotizer with media identification. V3 Hippotizer created a identification number for each piece of media based on certain attributes of the media file. This means that the same media encoded on two Hippotizer V3 systems created the same ID. Due to cases where the identification could fail to be unique, V4 uses a random ID for each media file. This changes the behaviour of media sync as the same clip encoded to two different Hippo V4s now appears as a different clip. For this reason, the first media sync in V4 will likely send all media. Subsequent syncs will only send new media.

Media is Synced from the source system and sent to Target system(s)

In order to determine what media to send, some settings are applied on the source system:

Synchronise Media in Media Map only

Only media that is used in the media map will be sent.

Synchronise Media Map

Sends the media map as well as media.

Add new Media from this media Manager

If disabled, only deletions are synchronised. If Enabled all additional media will be sent.

Synchronise file names

If enabled and a file on the destination system has the same ID as the source but a different name, the name will be changed on the destination.

Delete Media not on this media manager

Deletes any media that are not present on the source machine.

Target Media managers

Choose which media managers to sync to.

Watchfolders

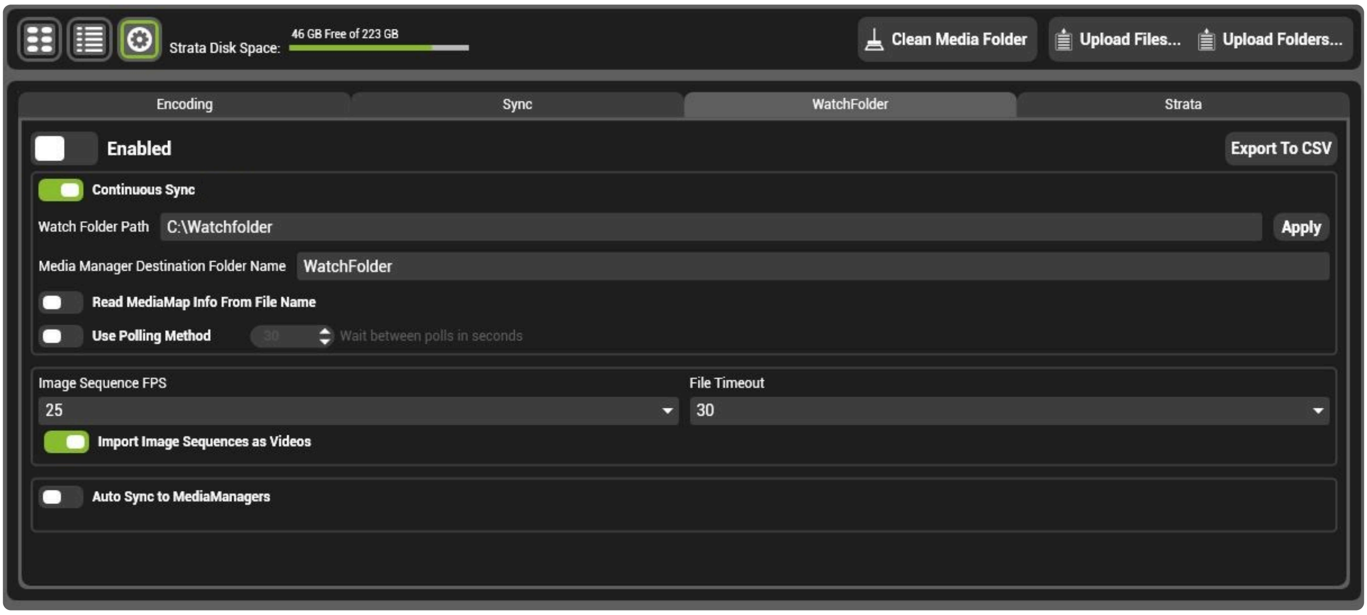
Watchfolders automatically encodes media files in a selected folder. The media will be placed in Hippotizer's media library where it can be added to the media map and sent to other systems across the network.

Watchfolders is used in many ways to save time and improve the media workflow to:

- Instantly encode content as it is created by watching a shared network folder
- Synchronize media on primary and backup systems by watching the same folder with two (or more) systems.
- Automatically download new content from web based folders such as Dropbox
- Remotely update the media map of an installation

> Watchfolders is a powerful tool to automate the media ingest and distribution workflow. It can automate media changes and deletions so should be used with great caution; disable it in show critical situations.

Watchfolders is configured from within media manager's settings.



Strata Disk Space: 46 GB Free of 223 GB

☐ Enabled

☑ Continuous Sync

Watch Folder Path: C:\Watchfolder

Media Manager Destination Folder Name: WatchFolder

☐ Read MediaMap Info From File Name

☐ Use Polling Method 30 Wait between polls in seconds

Image Sequence FPS: 25

File Timeout: 30

☑ Import Image Sequences as Videos

☐ Auto Sync to MediaManagers

Enabled

If enabled, Watchfolders will automatically encode any media placed in the designated watch folder path.

With the above settings:

Media Placed in `C:\Watchfolder` will automatically encode using the codec chosen in media manager's settings and be placed in the `Watchfolder` folder in media manager. Files deleted from the watchfolder will not be changed in media manager.

Note: When Watchfolders is enabled it will check to see if the folder on the watchfolder path exists, if it doesn't the folder will be created. Watchfolders will also place a small hidden file on the designated folder, this is integral for normal function of Watchfolders: do not delete or modify it.

Continuous Sync

If enabled, Watchfolders will synchronise file deletes from the Watchfolder to the Media Manager.

Continuous Sync only deletes media that is deleted while it is enabled; it does not synchronise the folder when it is enabled

Media deleted while Continuous Sync is disabled will be deleted from Media Manager if the engine is restarted with Continuous Sync is enabled.

Note: Media deletes are synchronised across media manager no matter what folder the clip is placed in. **This setting will result in media being deleted automatically from media manager and the media map; use with caution.**

Watch Folder Path

The source folder where Watchfolders reads from. Networking and Watchfolders can be complex. More info is here.

Media Manager Destination

The folder in media manager where content is encoded to. Folder trees in the Media Manager Path will be replicated in the destination.

Read Media Map Info from File Name

If enabled, any clips that contain `[bank number, clip number]` in the name will automatically be placed in the media map.

For example:

`Layout[10,10].mov` will be placed in bank 10, clip 10 of the media map.

Note: This will overwrite any media already present in this media location.

Use Polling Method

An alternate way to detect media changes to using Windows. By default, Watchfolders uses a Microsoft Windows subsystem to detect when files are added to the Watchfolder. On some Network Attached Storage (NAS) devices this is not supported. Polling will manually check the designated folder for changes at every poll interval. Polling is a more intensive system than using Windows notifications so should be used only where required.

More info on different folder methods can be found here.

Image Sequences and Watchfolders

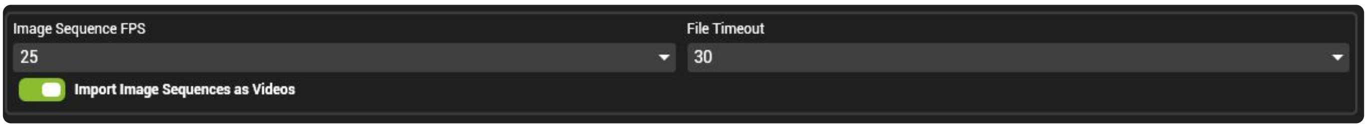


Image Sequence FPS

25

File Timeout

30

Import Image Sequences as Videos

Watchfolders will encode any numbered sequence of images as an image sequence providing they are named correctly:

- All images in the sequence share the same name preceding the file number `Filename_####`
- The number must be at least 4 digits. For files of number less than 1000, use preceding zeros. `Filename_0001`
- Images files must be contained within a folder with the same name.
- When using bank and clip information, it should be between the file name and the frame number. `FileName_[##,##]_0001`

Frame Rate

Image sequences are encoded at the set frame rate. The setting for Media Manager's image sequence frame rate and that of Watchfolders are separate. All other encode settings are shared.

File Timeout

Watchfolders can import image sequences however it is a little more complicated than in a normal file encode. This is due to the fact that as an image sequence is added to the watchfolder path Hippotizer will detect the image files being added one at time but not know when to start encoding them. (There is no way to know the copy has been completed). To fix this, Watchfolders has a **File Timeout** which is the time in seconds that it will wait before attempting to encode an image sequence from the time the last image was added. After each image is added Watchfolders waits for the File Timeout period, if the time elapses and no additional frames of that sequence are added it will be encoded. As a new frame is added the file timeout is reset. The default setting of 30 seconds is appropriate for most applications.

Auto Sync to Media Managers

Will synchronise media encoded with Watchfolders to selected media managers on the network as they are uploaded.

Setting up Networked Watchfolders

Hints for setting up various networking scenarios:

Choosing a NAS to use.

Networked Attached Storage (NAS) is a very good way to store data on the network and share it to Watchfolders. Multiple content creators can add media to a single NAS and watchfolders can encode it automatically creating a seamless content ingest path. When choosing the NAS, it is best to ensure that it supports Windows Files Notifications. In general, only a NAS running a Windows operating system (such as Microsoft Storage Server). Other operating systems may work in one folder, but not in sub folders for example.

Where a NAS does not support Windows File Notifications, use Polling.

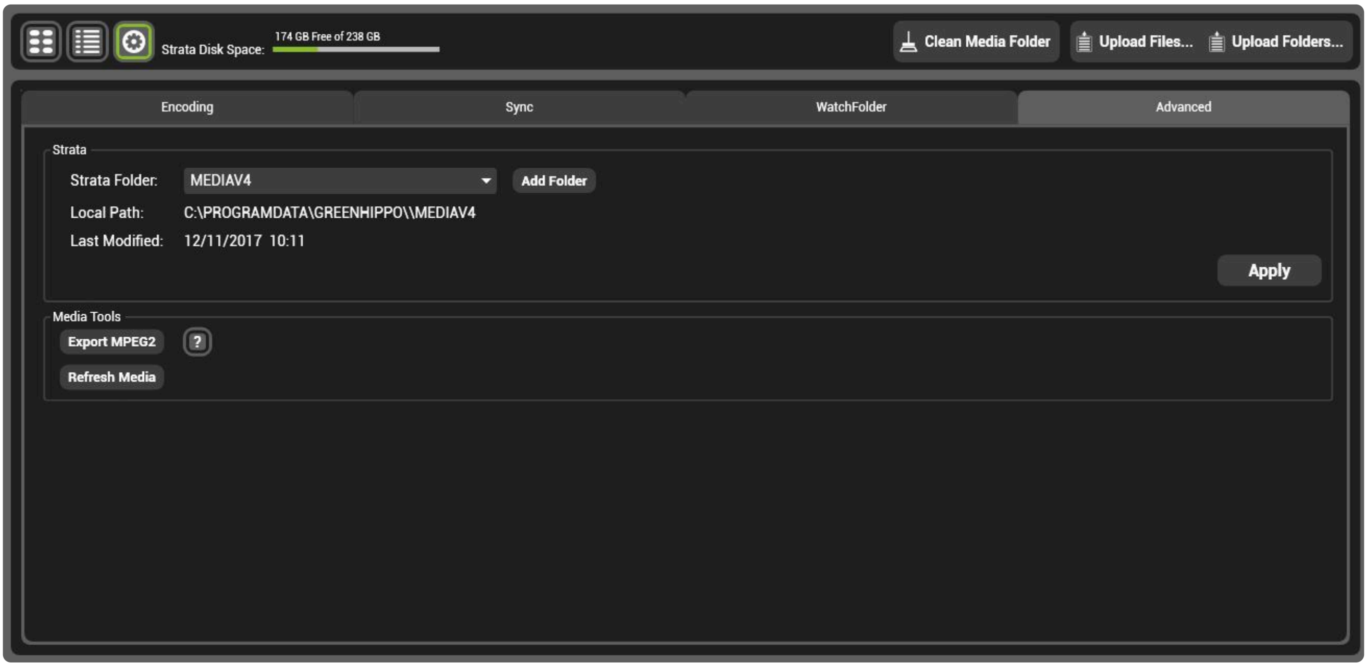
Sharing a Mac folder with Windows

1. Create a folder on the Mac to share
2. Use SMB sharing (Samba)
3. The username and password will need to be entered after a restart

Sharing with Dropbox or similar cloud storage

1. Use the cloud storage’s client to create a folder that synchronises with the online content on a networked machine (we do not advise directly connecting a Hippo to the internet)
2. Share the folder with the Hippotizer
3. Point watchfolders to this folder.

Advanced


Clean Media Folder
Upload Files...
Upload Folders...
Encoding
Sync
WatchFolder
Advanced
Strata
Add Folder
Apply
Media Tools
Export MPEG2
?
Refresh Media

Strata Disk Space: 174 GB Free of 238 GB

Strata Folder: MEDIAV4

Local Path: C:\PROGRAMDATA\GREENHIPPO\\MEDIAV4

Last Modified: 12/11/2017 10:11

STRATA Drives

- STRATA

Export Mpeg2

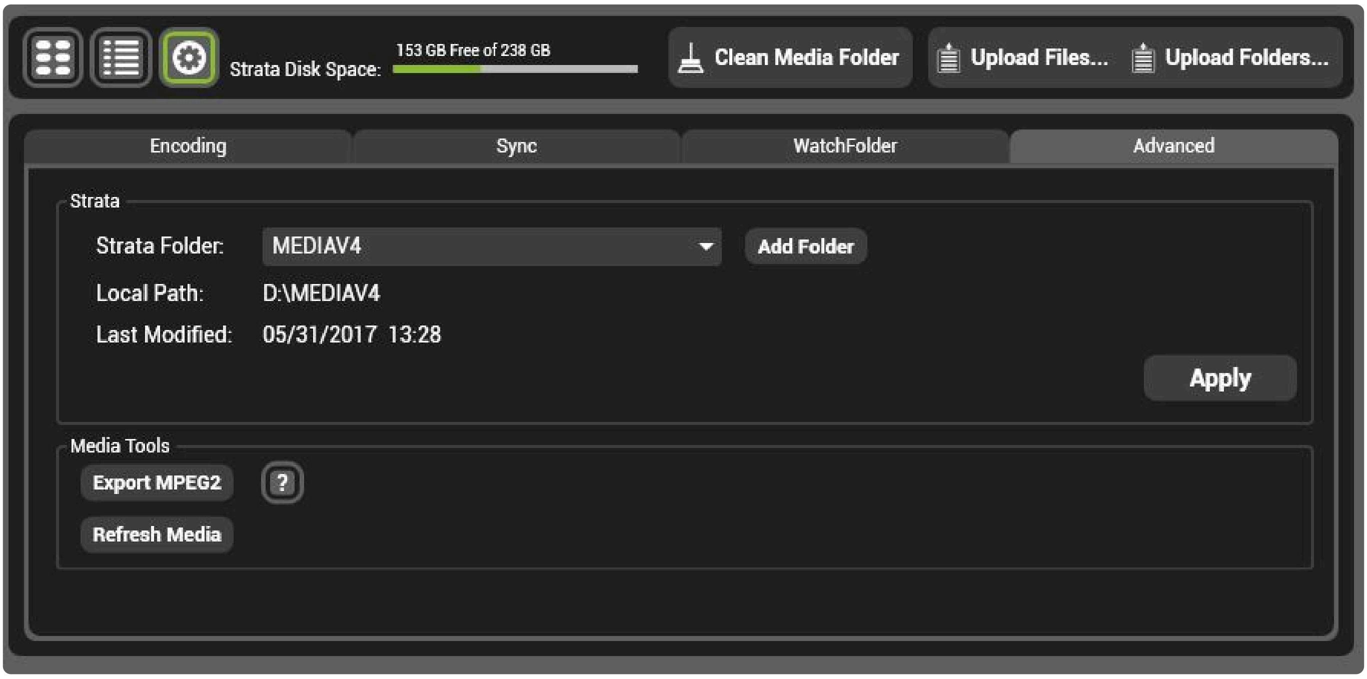
- Export Mpeg2

Refresh Media

- Refresh media

STRATA

The folder that Media Manager uses to store and retrieve media is called the STRATA path.



Strata Disk Space: 153 GB Free of 238 GB

Strata Folder: MEDIAV4

Local Path: D:\MEDIAV4

Last Modified: 05/31/2017 13:28

Clean Media Folder
Upload Files...
Upload Folders...
Encoding
Sync
WatchFolder
Advanced
Strata
Add Folder
Apply
Media Tools
Export MPEG2
?
Refresh Media

By Default on a production Hippotizer (except Portamus) the media is stored on `D:\MediaV4`

On Play and Portamus the media is stored on `C:\ProgramData\GreenHippo\MediaV4`

This path can be changed to a new drive or folder as required.

Note: Hippotizer’s performance is heavily dependant on the read speed and latency of the media drive. Amba and Karst use Solid State Drives rated for 400MB/s of continuous read, while Boreal and Taiga use PCI based storage with 1200 MB/s and 2500MB/s read speeds respectively. For best results use the removable drive bay and Sata 6G SSDs to hold media. Never use USB Drives, network locations or conventional hard drives. Where possible on Boreal and Taiga copy media to the D: Drive for playback.

Tags and Notes

In order to assist with Media Management and versioning, Notes and Tags can be applied to media in media manager.

This is accessed from the list view in Media Manager:

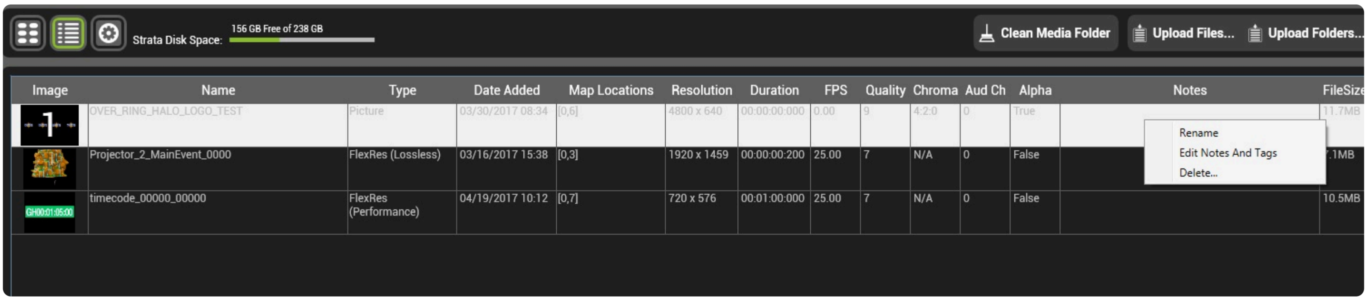
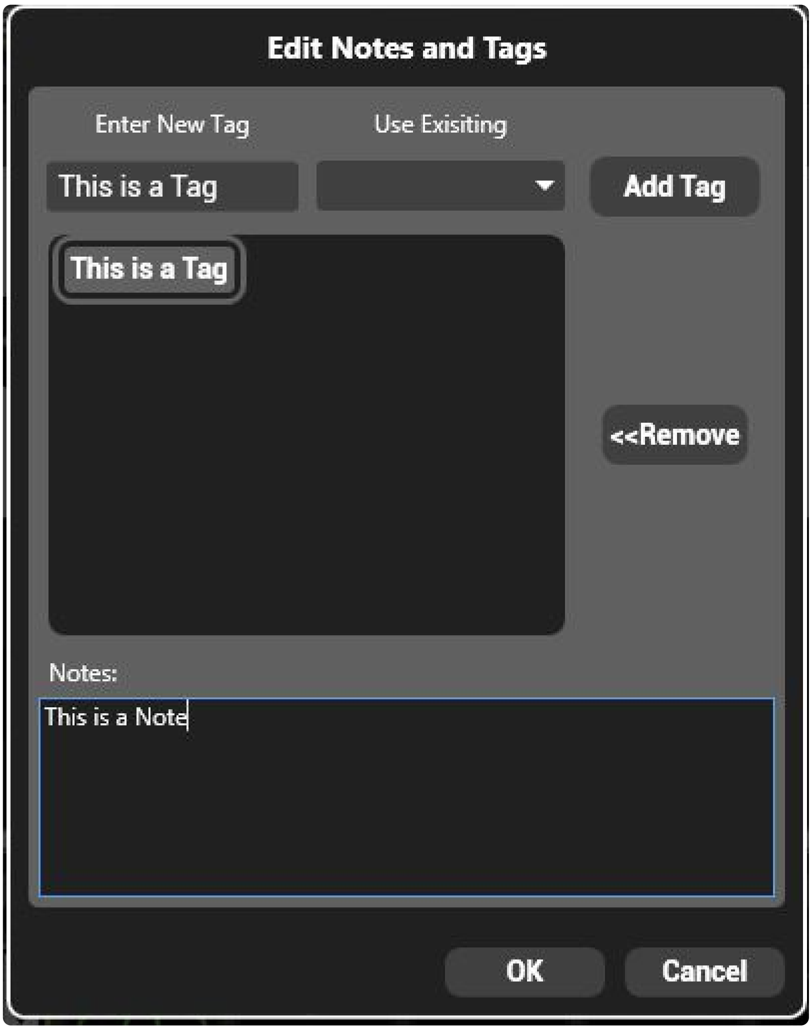

Strata Disk Space:
156 GB Free of 238 GB
Clean Media Folder
Upload Files...
Upload Folders...
Rename
Edit Notes And Tags
Delete...

Image	Name	Type	Date Added	Map Locations	Resolution	Duration	FPS	Quality	Chroma	Aud Ch	Alpha	Notes	FileSize
1	OVER_RING_HALO_LOGO_TEST	Picture	03/30/2017 08:34	[0,6]	4800 x 640	00:00:00:000	0.00	9	4:2:0	0	True		11.7MB
	Projector_2_MainEvent_0000	FlexRes (Lossless)	03/16/2017 15:38	[0,3]	1920 x 1459	00:00:00:200	25.00	7	N/A	0	False		.1MB
GH00:01:05:00	timecode_00000_00000	FlexRes (Performance)	04/19/2017 10:12	[0,7]	720 x 576	00:01:00:000	25.00	7	N/A	0	False		10.5MB

Right click in the Notes Field to open the editor:


Edit Notes and Tags
Enter New Tag
Use Exisiting
Add Tag
<<Remove
OK
Cancel

Enter New Tag: This is a Tag

This is a Tag

Notes:
This is a Note

Tags

A tag is a short, generic descriptor of a media file such as “blue” or “120BPM” to enable rapid searching of content.

Hippotizer Version 4.3 will introduce a Tag searching feature.

Notes

Text can be added to each clip that is visible in Media Manager. This can be useful to

Entering a new Tag

To create a tag, type the desired name in and press **Add Tag**

Removing a Tag

Select the Tag and press **Remove**

Adding or editing notes

Click into the notes field and type or edit the note.

Converting Mpeg2 to FlexRes

From Version 4.2.1 Hippotizer does not support Mpeg2 playback.

If Mpeg encoded content is present in your media library it must be converted to FlexRes to play in Version 4.2.1 onwards.

Converting a library should follow these steps:

1. Back up the Media Library
2. Mpeg Export Tool
3. MPEG Conversion

! The Mpeg conversion process can be very time consuming (depending on size) and could lead to corrupt media. **It is critical to create a back-up copy before attempting to convert**

Back up the Media Library

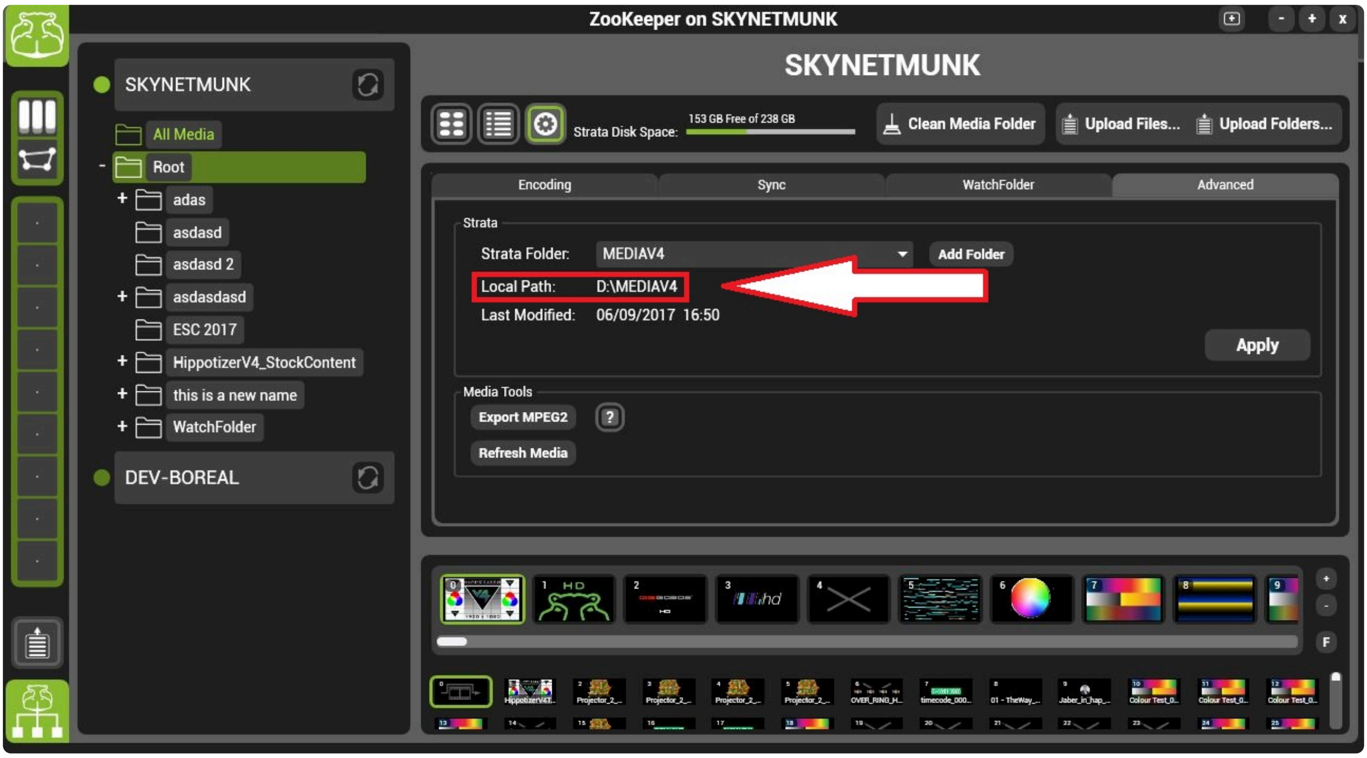
Before beginning the process of transcoding media from Mpeg2 to FlexRes it is vital to back up the media library.

To create a back-up, follow these steps.

Note: In most cases, an external hard drive or large USB stick will be required.

Locate the media folder:

The STRATA Path is listed in the advanced tab of Media Manage:



Strata Disk Space: 153 GB Free of 238 GB

Strata Folder: MEDIAV4

Local Path: D:\MEDIAV4

Last Modified: 06/09/2017 16:50

ZooKeeper on SKYNETMUNK
SKYNETMUNK
All Media
Root
adas
asdasd
asdasd 2
asdasdasd
ESC 2017
HippotizerV4_StockContent
this is a new name
WatchFolder
DEV-BOREAL
Clean Media Folder
Upload Files...
Upload Folders...
Encoding
Sync
WatchFolder
Advanced
Strata
Add Folder
Apply
Media Tools
Export MPEG2
Refresh Media

Note: The STRATA path is local to the engine; a remote Zookeeper will not be able to see the media folder.

Locate this folder on your Hippotizer system from the STRATA Folder and copy it. If there is enough space, making a copy to the same drive is ok, otherwise the copy must be made to an external drive or USB stick.

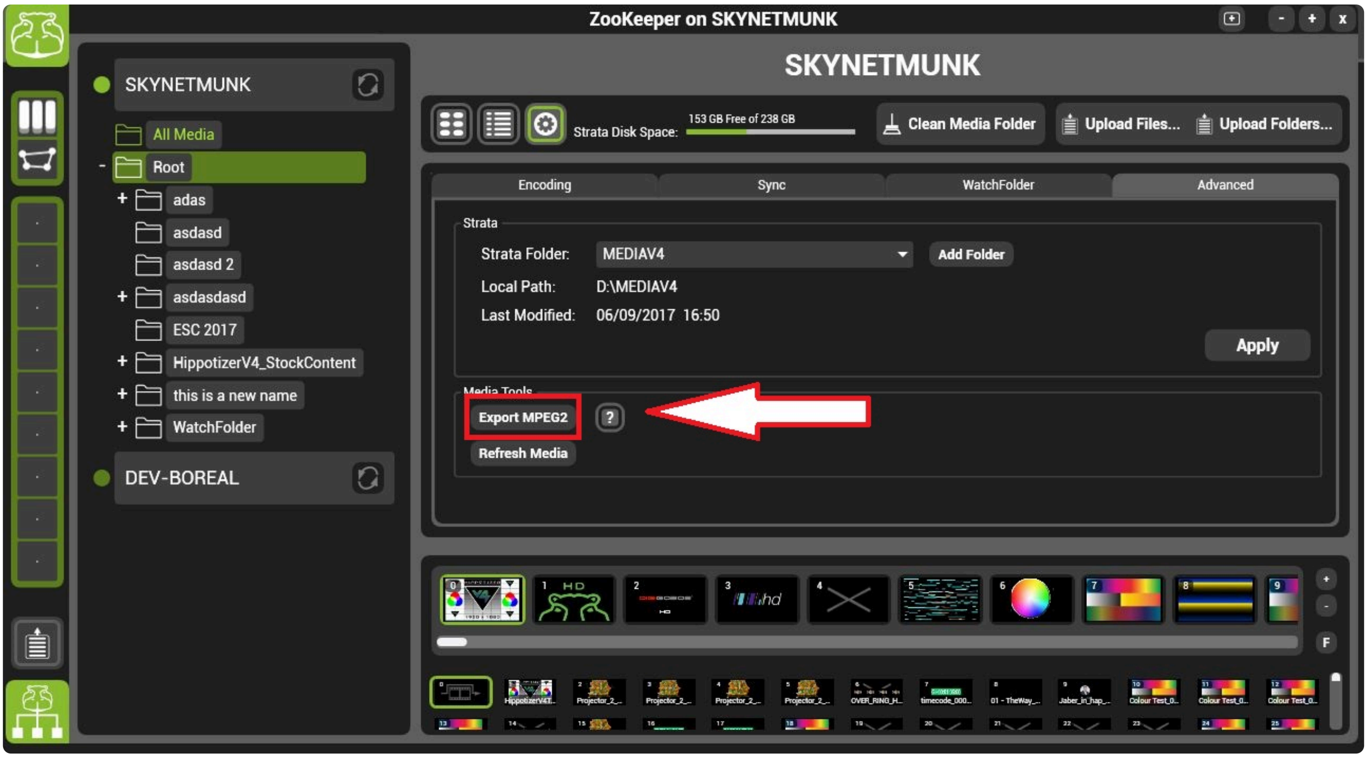
! The size of the media folder will increase when it is converted from Mpeg2 to FlexRes. Be sure to leave at least **6 Times** the media folder space free on the media drive. For example, if the media folder is 5GB, be sure there is 30GB free on the media drive before proceeding.

Mpeg Export Tool

The Mpeg Export tool copies all Mpeg based media out of the media folder and saves it to a new directory. The media's original name is restored in this process.

! This tool simply copies media out and renames it; media containing alpha will not play normally in a media player.

The media export tool is accessible from the advanced tab of media manager:



Strata Disk Space: 153 GB Free of 238 GB

Strata Folder: MEDIAV4

Local Path: D:\MEDIAV4

Last Modified: 06/09/2017 16:50

ZooKeeper on SKYNETMUNK
SKYNETMUNK
All Media
Root
adas
asdasd
asdasd 2
asdasdasd
ESC 2017
HippotizerV4_StockContent
this is a new name
WatchFolder
DEV-BOREAL
Clean Media Folder
Upload Files...
Upload Folders...
Encoding
Sync
WatchFolder
Advanced
Strata
Add Folder
Apply
Media Tools
Export MPEG2
?
Refresh Media

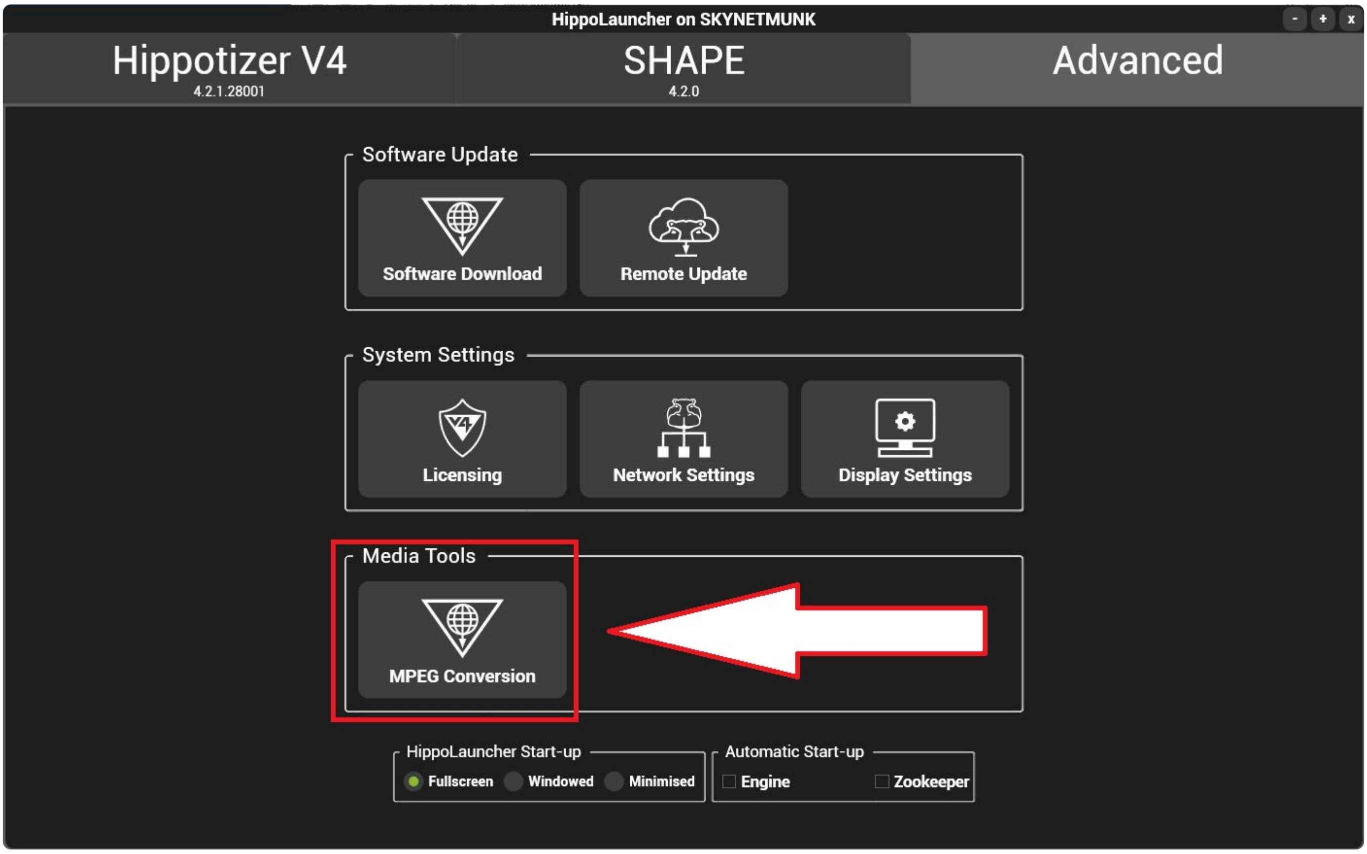
Note: Media is not deleted as it exported, only copied.

MPEG Conversion

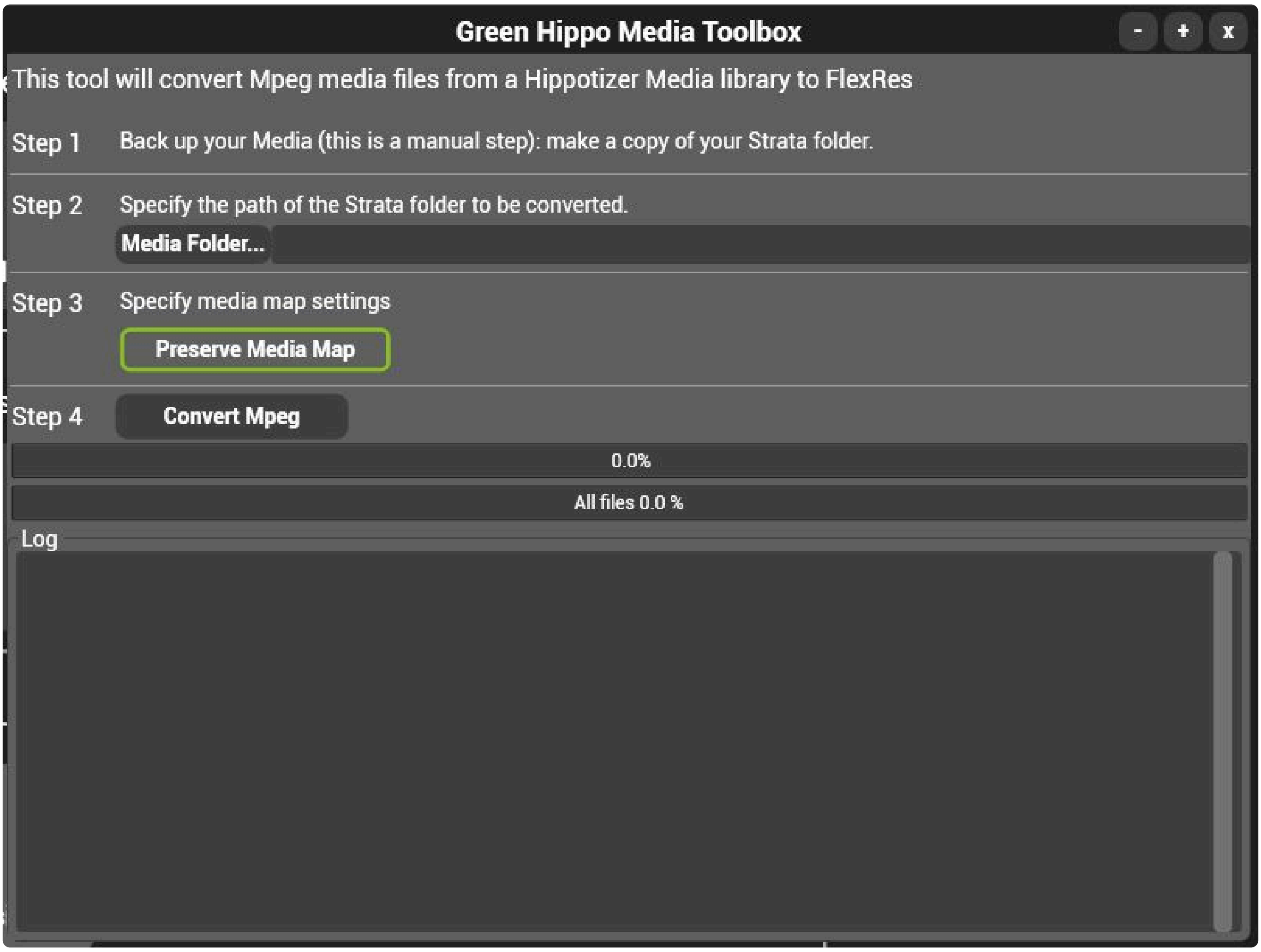
The final step to transcode Mpeg content to FlexRes is to run the Mpeg Conversion tool.

The Mpeg Conversion Tool can be found in the media toolbox in Hippo Launch.

Note: The engine and Zookeeper must not be running to use media tool box.


HippoLauncher on SKYNETMUNK
Hippotizer V4
4.2.1.28001
SHAPE
4.2.0
Advanced
Software Update
Software Download
Remote Update
System Settings
Licensing
Network Settings
Display Settings
Media Tools
MPEG Conversion
HippoLauncher Start-up
● Fullscreen ○ Windowed ○ Minimised
Automatic Start-up
☐ Engine ☐ Zookeeper

This opens the Media toolbox:



Green Hippo Media Toolbox

This tool will convert Mpeg media files from a Hippotizer Media library to FlexRes

Step 1 Back up your Media (this is a manual step): make a copy of your Strata folder.

Step 2 Specify the path of the Strata folder to be converted.

Step 3 Specify media map settings

Step 4

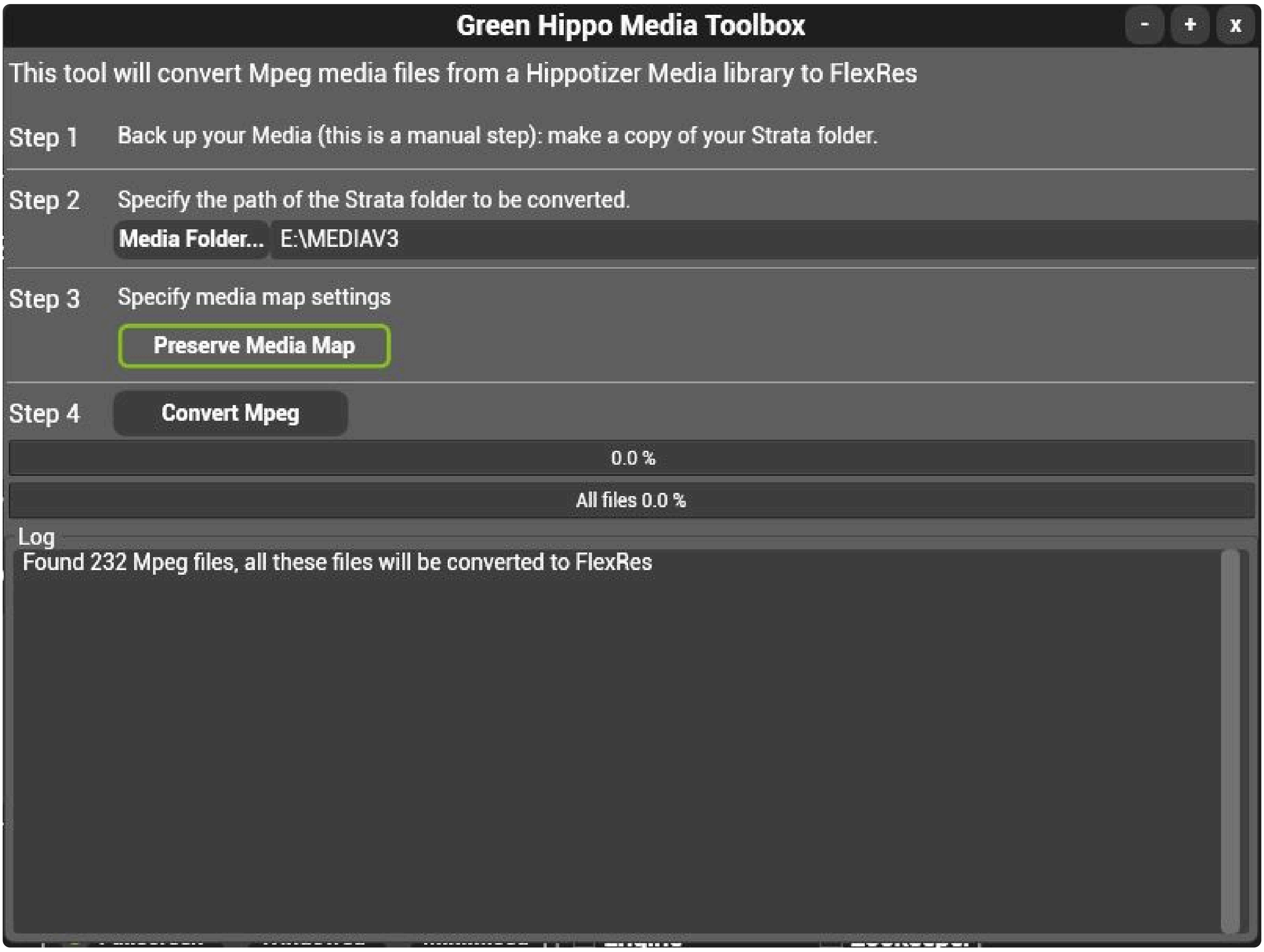
Step 1: Back up the media library before converting.

A separate back up folder is the only way to ensure there is no data loss should a failure occur during transcode.

Step 2: Choose the media folder to convert.

Note: The transcode process will increase file size by four to five times. A media library that was 2GB will inflate to 8-10GB. Ensure sufficient disk space is available before proceeding.

When a folder is selected, Media Toolbox will scan it for Mpeg media and display the results in the log.



Green Hippo Media Toolbox

This tool will convert Mpeg media files from a Hippotizer Media library to FlexRes

Step 1 Back up your Media (this is a manual step): make a copy of your Strata folder.

Step 2 Specify the path of the Strata folder to be converted.

Media Folder... E:\MEDIAV3

Step 3 Specify media map settings

Preserve Media Map

Step 4 Convert Mpeg

0.0 %

All files 0.0 %

Log

```
Found 232 Mpeg files, all these files will be converted to FlexRes
```

Step 3: Choose to preserve the media map or not

If **enabled**, the media map will be updated with the FlexRes encoded clips.

If **disabled**, the media map will not be changed.

Step 4: Convert Mpeg

The conversion process will proceed automatically once **Convert Mpeg** is chosen. Any files that fail conversion will be noted in the log.

Step 5: Test the content

We strongly recommend testing the converted content to ensure it is visually correct before using in a live environment.

Step 6: Delete Mpeg content

Once everything has been tested the mpeg content can be deleted from inside media manager.

Additional considerations

Mpeg clips with an alpha channel

Hippotizer V3 allowed alpha to be encoded in to media files. Due to the fact that mpeg-2 does not support alpha, the clip was divided in half horizontally with one half encoding the RGB values and the other half the alpha channel. The media player combines the two halves on playback. This method results in the halving of vertical resolution; so the maximum resolution of alpha containing clips is 1920 × 540.

Preserve Media Map

Before making changes to the media map a back-up is made and stored into the media folder. The active media map is `DMXMediaMap.v3.xml` while the back up is `DMXMediaMap.v3.xml.backup`. Should it ever be necessary to revert to the original media map simply replace the active media map with the backup.

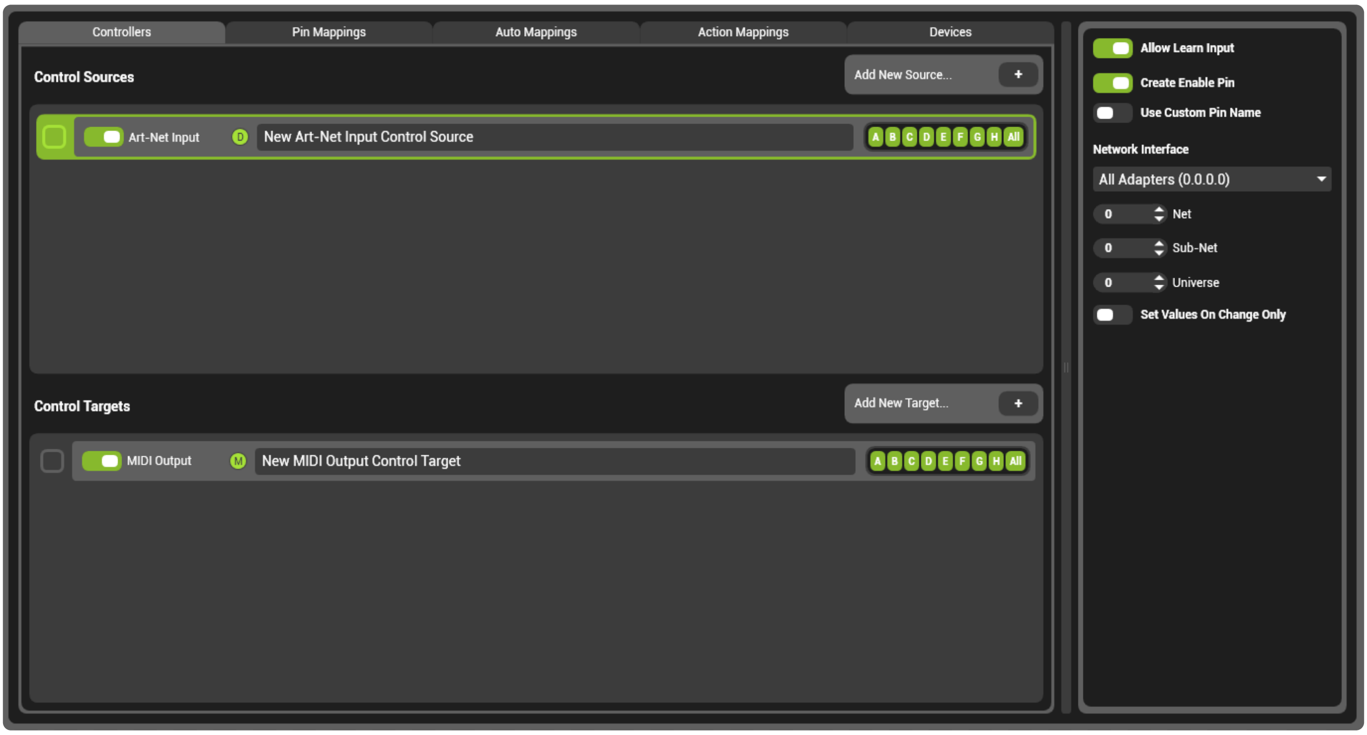
Media Quality

Mpeg clips are converted to FlexRes Performance by default by the media tool box as this offers a good balance of visual quality and playback performance. Some clips may noticeably degrade in FlexRes Performance however, especially those with colour gradients or high contrast edges. If better visual quality is required, clips can be encoded in Media Manager into a lower compression format such as FlexRes Quality.

Multicontroller

Multicontroller combines many of the ways that Hippotizer interfaces with the world around it into one component.
Multicontroller supports Midi, OSC, TCP, and ArtNet as well as myriad Automation protocols.
The component can also directly control select devices such as BlackMagic Videohubs or Lightware Matrix's.

Note: Multicontroller can receive DMX input over ArtNet, however to control Hippotizer from a lighting desk it is best to use the DMX component.


Controllers
Pin Mappings
Auto Mappings
Action Mappings
Devices
Control Sources
Add New Source...
+
Art-Net Input
D
A B C D E F G H All
Control Targets
Add New Target...
+
MIDI Output
M
A B C D E F G H All

New Art-Net Input Control Source

New MIDI Output Control Target

Allow Learn Input

Create Enable Pin

Use Custom Pin Name

Network Interface: All Adapters (0.0.0.0)

0 Net

0 Sub-Net

0 Universe

Set Values On Change Only

Multicontroller is made up of five sections represented as tabs in the interface:

Controllers:

Define the inputs and outputs of Multicontroller. Whether a TCP port or a MIDI device, each controller is added as a separate item in this menu.

Mappings

The most important concept to understand in Multicontroller is **Mappings**: the connection between a controller (such as a Midi controller or TCP listener) to a pin in Hippotizer (such as the level of a layer). There are three types of mappings in Multicontroller

Pin Mappings

Specify individual pins in Hippotizer to send or receive data.

For example: Set layer 1’s level fader to respond to a MIDI controller with a Midi Mapping.

Auto Mappings

Specify whole groups of pins to send of receive data.

For example: Set Mix 1, Layers 1 thru 8 to listen to OSC information with a Text Mapping.

Action Mappings

Some pins are not easily mapped such as preset select or Timeline controls. Action Mappings allow for these functions to be controlled simply. Frequently, Action Mappings are used to create a trigger that is then controlled from a Timeline, DMX or within a the Zookeeper interface directly.

For example: Create a trigger pin to play Timeline 2, Cue 10.

Devices

Similar to a personality, Devices are pre-built profiles to communicate with specific third party equipment. Devices must be created by Green Hippo. To request a new device to be added please contact us.

Adding a device creates a series of pins to control the functions of that device. These pins can then be controlled from DMX, a Timeline or within Multicontroller.

For example: Create a Black Magic video hub to create pins controlling the input and output patch of the video hub.

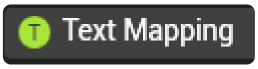
Controllers

Multicontroller is able to handle external devices controlling Hippotizer as well as trigger actions in connected equipment. In both cases, the protocol used, and specifically the format of data, determines how information is handled by Multicontroller. For example, TCP commands are actually strings of text transmitted over the network, so they use a text mapping in Multicontroller.

Controllers and their mappings:

	Text	**MIDI**	**DMX**	**Automation**	**GPIO**
ArtNet Input			X		
BlackTrax				X	
DEAP				X	
GHAP				X	
LabJack					X
MIDI		X			
OSC	X				
PoKeys					X
Posi Stage Net				X	
PRG Automation				X	
TCP	X				
UDP	X				

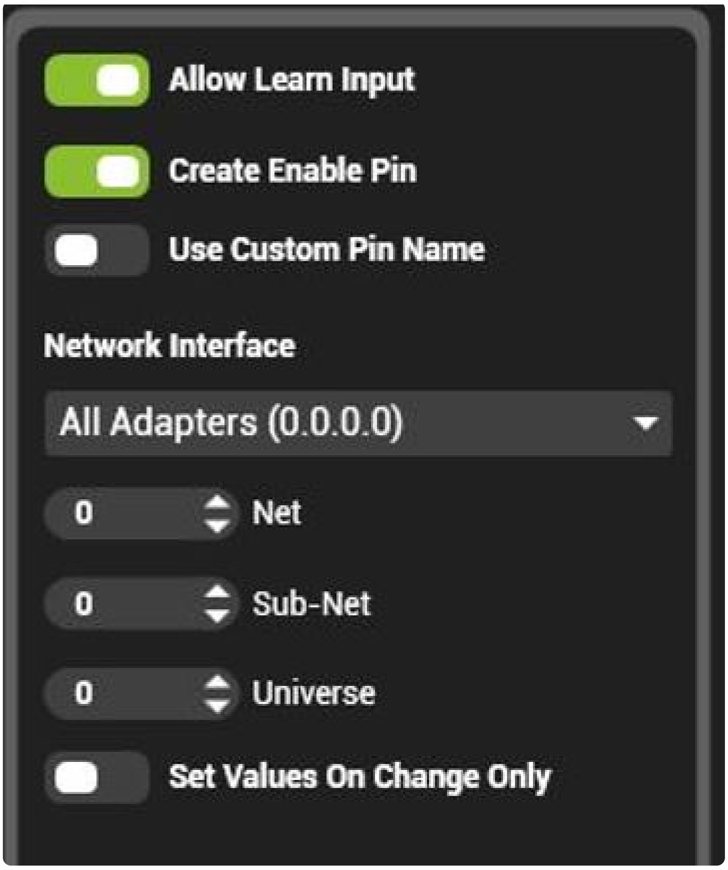
The mapping for each controller and target is indicated in Multicontroller as a letter in a green circle.



Each Controller has a unique configuration.

- ArtNet Input
- BlackTrax
- DEAP / GHAP
- Labjack / Pokeys
- Midi
- OSC
- Posi Stage Net
- PRG Automation
- TCP Listener

ArtNet Input



☑ Allow Learn Input

☑ Create Enable Pin

☐ Use Custom Pin Name

Network Interface

All Adapters (0.0.0.0)

0 Net

0 Sub-Net

0 Universe

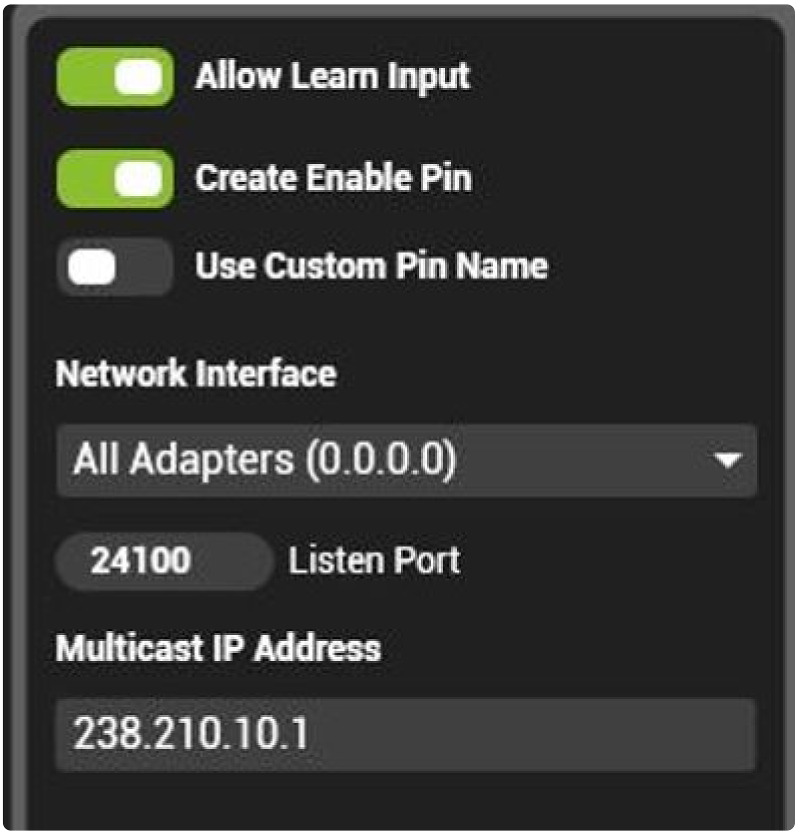
☐ Set Values On Change Only

The ArtNet input allows for easy mapping of single ArtNet based DMX channels to specific functions in Hippotizer. The DMX component is still the best way to patch a DMX lighting desk to an entire layer where Multicontroller is useful for setting a show controller to recall presets for example. ArtNet uses a DMX mapping.

- **Allow Learn Input**: If enabled, the input can be used to automatically assign to a mapping with the learn button. It is advisable to disable allow learn input on sources that are constantly sending data as it will interfere with other sources associating.
- **Create Enable Pin**: Creates a new pin (Bool) to allow the controller to be turned on or off.
- **Use Custom Pin Name**: Allows user to name enable Pin.
- **Network Interface**: Choose which network interface connection to receive data from.
- **Net**: ArtNet 3 Only, defines which net to receive data from. Devices that are not ArtNet 3 compliant normally default the net number to 0.
- **Sub-Net**: defines which ArtNet sub-net to receive data from
- **Universe**: defines which ArtNet universe to receive data from
- **Set Values on Change Only**: Similar to update only in DMX2, pin values are only changed when

the incoming
ArtNet changes. Often known as Last Takes Precedence (LTP).

BlackTrax



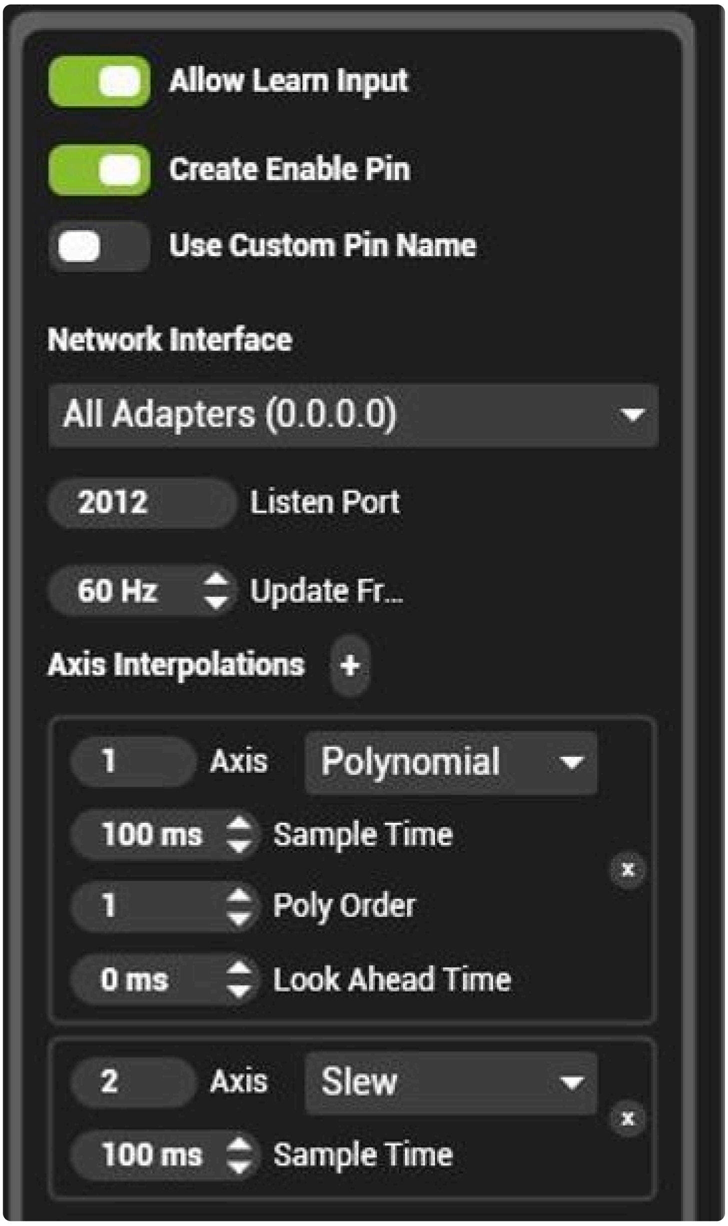
Allow Learn Input: ●
Create Enable Pin: ●
Use Custom Pin Name: ○
Network Interface: All Adapters (0.0.0.0)
Listen Port: 24100
Multicast IP Address: 238.210.10.1

BlackTrax is Cast Software’s proprietary object tracking system based on infra-red beacons and calibrated cameras. The BlackTrax system is able to communicate to Hippotizer the location in 3D space of the beacons. BlackTrax integration is most commonly used with SHAPE to move 3D objects around in a scene, for that application in order to reduce latency, we suggest receiving the automation directly in SHAPE and not through Multicontroller. For other applications, such as using BlackTrax together with the Visualiser, use Multicontroller.
BlackTrax uses an Automation Mapping.

- **Allow Learn Input**: If enabled, the input can be used to automatically assign to a mapping with the learn button. It is advisable to disable allow learn input on sources that are constantly sending data as it will interfere with other sources associating.
- **Create Enable Pin**: Creates a new pin (Bool) to allow the controller to be turned on or off.
- **Use Custom Pin Name**: Allows user to name enable Pin.
- **Network Interface**: Choose which network interface connection to receive data from.
- **Listen Port**: Defines which network port data is received. Must match the port set by the BlackTrax sender.
- **Multicast IP Address**: Defines which multicast group to subscribe to, set by the multicast IP address. This must match the settings of the BlackTrax sender.

It can be confusing to configure IP settings when receiving multicast data. In general, the Network interface on the sender and the receiver should be set as a normal static local network: (192.168.0.xxx with a subnet mask of 255.255.255.0). The multicast IP address is only an identification of the multicast group used by network equipment, and should not be set as an address. The most common error in setup of BlackTrax (or any automation protocol) is with IP configuration.

DEAP / GHAP



☑ Allow Learn Input

☑ Create Enable Pin

☐ Use Custom Pin Name

Network Interface: All Adapters (0.0.0.0)

2012 Listen Port

60 Hz Update Fr...

Axis Interpolations +

1 Axis Polynomial
100 ms Sample Time
1 Poly Order
0 ms Look Ahead Time

2 Axis Slew
100 ms Sample Time

DEAP (Disney Automation Protocol) and GHAP (Green Hippo Automation Protocol) are network based methods for transferring movement information from encoders. Commonly used for tracking moving set pieces, each encoder reports the position of a specific axis.

Both DEAP and GHAP use an Automation mapping.

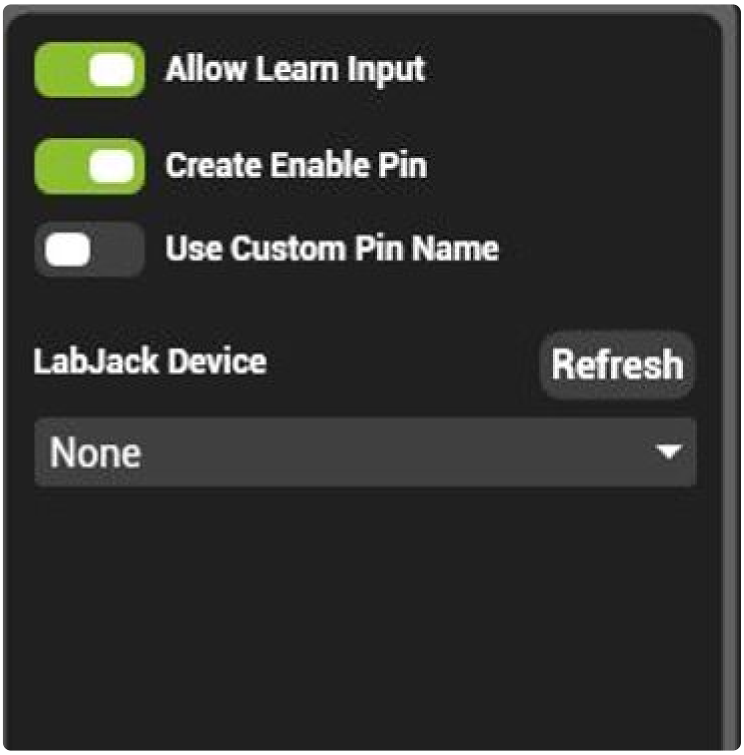
- **Allow Learn Input**: If enabled, the input can be used to automatically assign to a mapping with the learn button. It is advisable to disable allow learn input on sources that are constantly sending data as it will interfere with other sources associating.
- **Create Enable Pin**: Creates a new pin (Bool) to allow the controller to be turned on or off.
- **Use Custom Pin Name**: Allows user to name enable Pin.
- **Network Interface**: Choose which network interface connection to receive data from.
- **Listen Port**: Defines which network port data is received. Must match the port set by the automation sender.

- **Update Frequency**: Sets how often data is sent from Multicontroller. This essentially sets the frequency of interpolation. It is recommended to set this to the output video frequency. (50 or 60Hz usually).
- **Axis Interpolations**: As the data refresh rate from most encoders is much slower than the output frame rate, it is often desirable to ‘smooth’ the movement. There are two methods for smoothing automation data in Hippotizer: Polynomial and Slew.

Polynomial looks at a set of received values defined by the sample time, and attempts to find an equation to approximate them. Using this equation, it then tries to predict what values will come in next based on the look ahead time setting. The complexity of the equation is its Poly Order; an order of 1 would be a static number, 2 a straight line and 3 a curved line for example. In general, lower Poly Order produces better results.

Slew is a simple interpolation: it takes data across it’s sample time and creates data points in-between. Both interpolation methods must introduce delay in order to function and may cause objects in Hippotizer to disagree with the real world, especially when changing speed.

Labjack / Pokeys



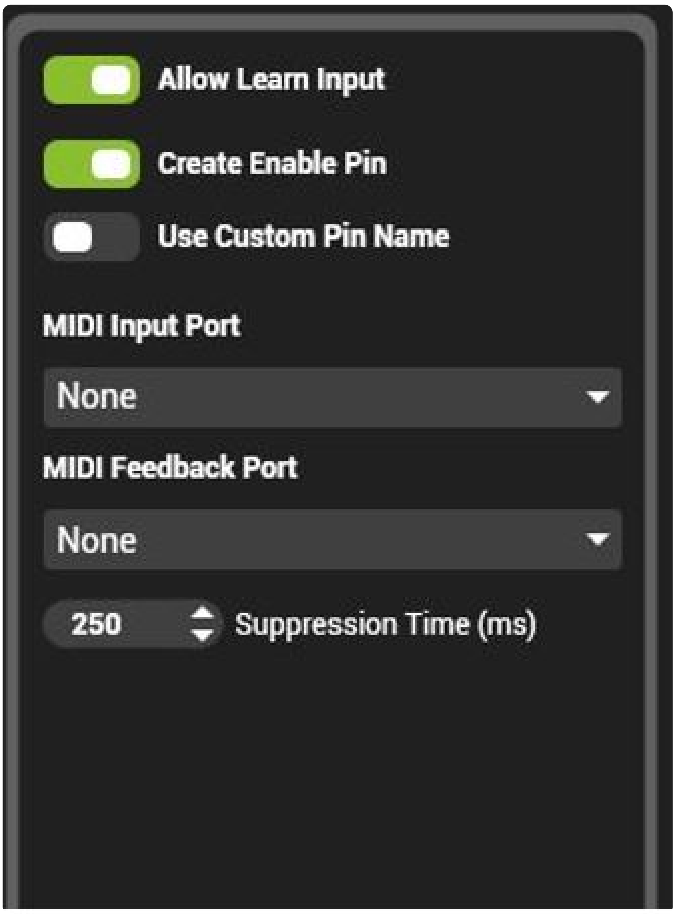
LabJack https://labjack.com/ make a series of USB and Ethernet based analogue and digital input and output devices. These devices offer a reliable way to integrate sensors and buttons with Hippotizer.

Pokeys https://www.poscope.com/PoKeys57U are a lower cost USB based input device.

LabJack and Pokeys uses a GPIO mapping.

- **Allow Learn Input**: If enabled, the input can be used to automatically assign to a mapping with the learn button. It is advisable to disable allow learn input on sources that are constantly sending data as it will interfere with other sources associating.
- **Create Enable Pin**: Creates a new pin (Bool) to allow the controller to be turned on or off.
- **Use Custom Pin Name**: Allows user to name enable Pin.
- **LabJack Device**: Select from connected lab jacks.

Midi



Allow Learn Input: on

Create Enable Pin: on

Use Custom Pin Name: off

MIDI Input Port: None

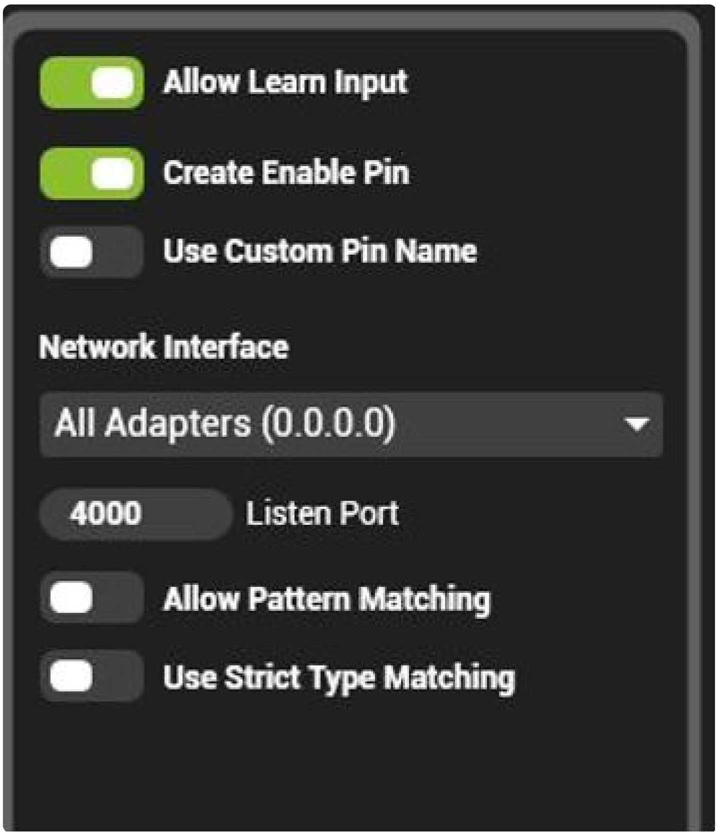
MIDI Feedback Port: None

250 Suppression Time (ms)

Midi used by many popular controllers such as a BCF2000 or Launch Pad. Midi devices rely on Windows USB drivers to function properly; install the device and confirm it is working in Windows before using it in Hippotizer.

- **Allow Learn Input**: If enabled, the input can be used to automatically assign to a mapping with the learn button. It is advisable to disable allow learn input on sources that are constantly sending data as it will interfere with other sources associating.
- **Create Enable Pin**: Creates a new pin (Bool) to allow the controller to be turned on or off.
- **Use Custom Pin Name**: Allows user to name enable Pin.
- **Midi Input Port**: Select which midi device to use for input. In order to appear in this list, the device must be plugged in with drivers installed.
- **Midi Feedback Port**: Select which midi device to send feedback to (if desired). This is frequently used for midi controllers with motorised faders.
- **Suppression Time**: When a device is using feedback, the data sent to Hippo must be delayed before being sent back to the device in order to avoid feedback loops. This is most commonly noticed as motorized faders ‘snapping back’ after they have been moved. The default setting of 250ms has been found to be correct for many Midi controllers.

OSC



☑ Allow Learn Input

☑ Create Enable Pin

☐ Use Custom Pin Name

Network Interface

All Adapters (0.0.0.0)

4000 Listen Port

☐ Allow Pattern Matching

☐ Use Strict Type Matching

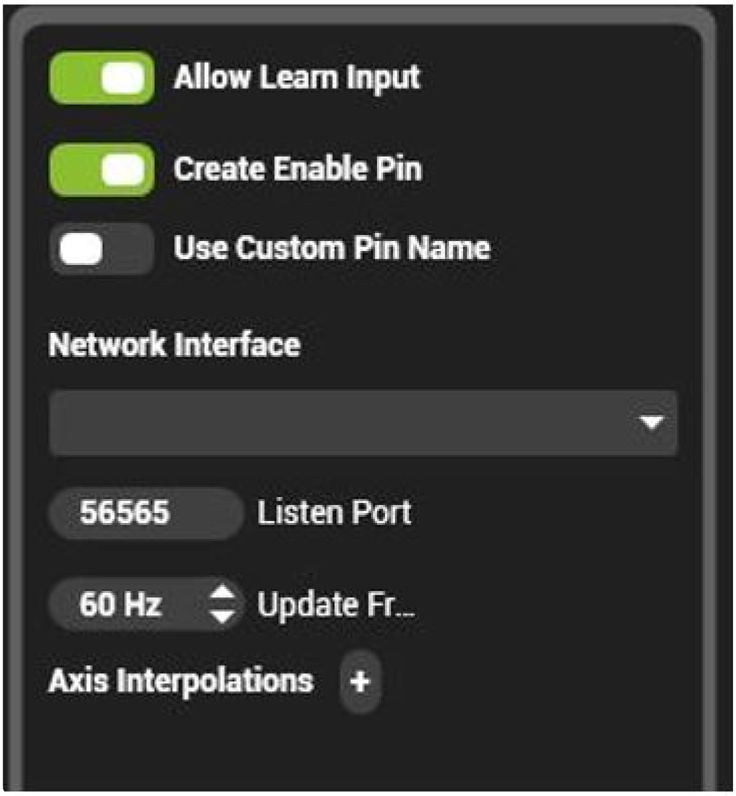
OSC, or Open Sound Control is an open-ended network protocol designed to connect musical instruments such as synthesizers together. http://opensoundcontrol.org/introduction-osc Due to its flexibility, OSC is an easy way to send commands from 3rd party devices such as an iPad application to Hippotizer. (TouchOSC is popular for this). OSC sends strings of data, (words basically) across the network which Multicontroller can listen to.

OSC input uses a Text Mapping.

- **Allow Learn Input**: If enabled, the input can be used to automatically assign to a mapping with the learn button. It is advisable to disable allow learn input on sources that are constantly sending data as it will interfere with other sources associating.
- **Create Enable Pin**: Creates a new pin (Bool) to allow the controller to be turned on or off.
- **Use Custom Pin Name**: Allows user to name enable Pin.
- **Network Interface**: Choose which adaptor to use for receiving OSC data
- **Port**: Choose which port to use for receiving OSC data, this must match the sender’s settings.
- **Allow Pattern Matching**: Enables OSC Pattern Matching as defined in the OSC spec:
- ‘?’ in the OSC Address Pattern matches any single character
- ‘*’ in the OSC Address Pattern matches any sequence of zero or more characters
- A string of characters in square brackets (e.g., “[string]”) in the OSC Address Pattern matches any character in the string. Inside square brackets, the minus sign (-) and exclamation point (!) have special meanings:
- two characters separated by a minus sign indicate the range of characters between the given two in ASCII collating sequence. (A minus sign at the end of the string has no special meaning.)

- An exclamation point at the beginning of a bracketed string negates the sense of the list, meaning that the list matches any character not in the list. (An exclamation point anywhere besides the first character after the open bracket has no special meaning.)
- A comma-separated list of strings enclosed in curly braces (e.g., “{foo,bar}”) in the OSC Address Pattern matches any of the strings in the list.
- Any other character in an OSC Address Pattern can match only the same character.
  Source: http://opensoundcontrol.org/spec-1_0
- **Use Strict Type Matching**: If strict type matching is on, data types from OSC must match exactly the data type of the pin to be set. For example, float messages will only apply to float pins even if the address matches. This is off by default as it can lead to undesired behaviour. TouchOSC for example only sends float messages, so enabling strict type matching would make it impossible to control Int pins.

Posi Stage Net



Allow Learn Input: ● on
Create Enable Pin: ● on
Use Custom Pin Name: ○ off
Network Interface:
Listen Port: 56565
Update Fr...: 60 Hz

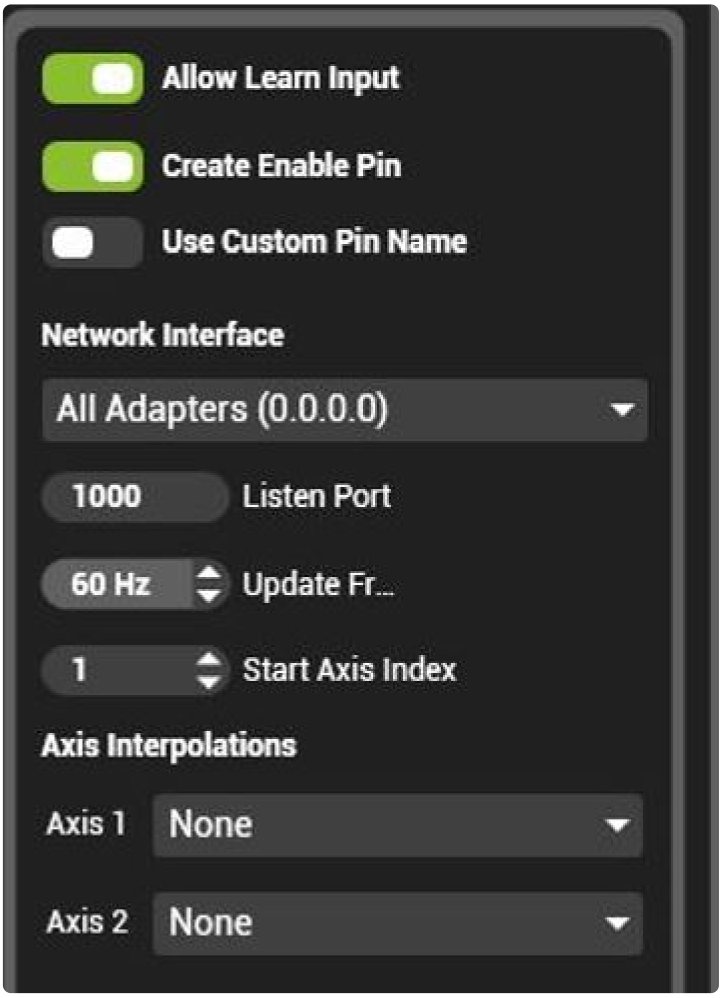
PosiStageNet (PSN) is an open protocol for streaming 3D positioning of objects on stage developed by VYV and Ma Lighting. http://www.posistage.net/ PSN is a network based protocol that reports the position, velocity and acceleration of multiple objects.

PSN uses an Automation mapping.

- **Allow Learn Input**: If enabled, the input can be used to automatically assign to a mapping with the learn button. It is advisable to disable allow learn input on sources that are constantly sending data as it will interfere with other sources associating.
- **Create Enable Pin**: Creates a new pin (Bool) to allow the controller to be turned on or off.
- **Use Custom Pin Name**: Allows user to name enable Pin.
- **Network Interface**: Choose which adaptor to use for receiving PSN data
- **Listen Port**: Choose which network port to receive on, must match the settings of the sender.
- **Update Frequency**: Sets how often data is sent from Multicontroller. This essentially sets the frequency of interpolation. It is recommended to set this to the output video frequency. (50 or 60Hz usually).
- **Axis Interpolations**: As the data refresh rate from most encoders is much slower than the output frame rate, it is often desirable to 'smooth' the movement. There are two methods for smoothing automation data in Hippotizer: **Polynomial and Slew.**
- Polynomial looks at a set of received values defined by the sample time, and attempts to find an equation to approximate them. Using this equation, it then tries to predict what values will come in next based on the look ahead time setting. The complexity of the equation is its Poly Order; an order of 1 would be a static number, 2 a straight line and 3 a curved line for example. In general, lower Poly Order produces better results.

- Slew is a simple interpolation: it takes data across it’s sample time and creates data points in-between.
  Both interpolation methods must introduce delay in order to function and may cause objects in Hippotizer to disagree with the real world, especially when changing speed.

PRG Automation



☑ Allow Learn Input

☑ Create Enable Pin

☐ Use Custom Pin Name

Network Interface

All Adapters (0.0.0.0)

1000 Listen Port

60 Hz Update Fr...

1 Start Axis Index

Axis Interpolations

Axis 1 None

Axis 2 None

PRG Automation Reader brings data into Hippotizer from the proprietary PRG Automation system.

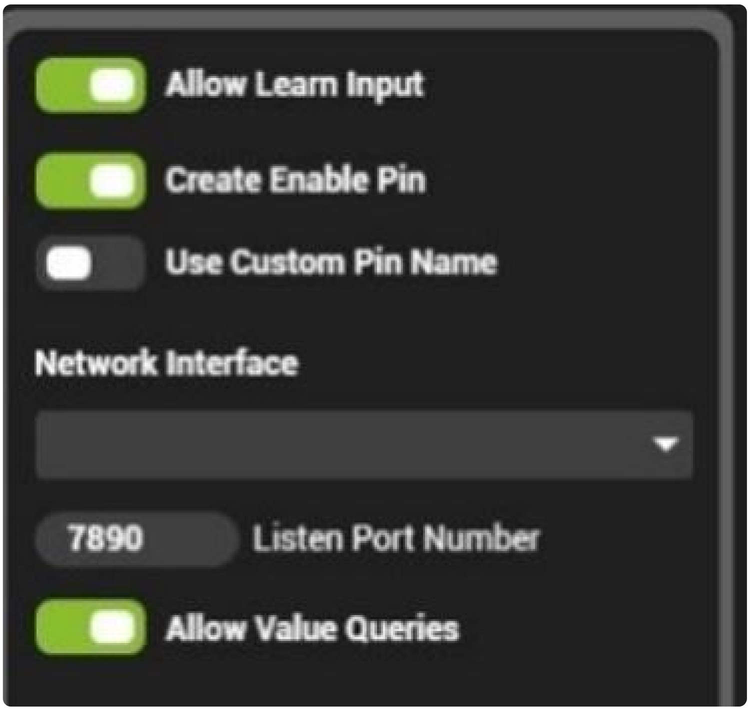
PRG uses an Automation mapping.

- **Allow Learn Input**: If enabled, the input can be used to automatically assign to a mapping with the learn button. It is advisable to disable allow learn input on sources that are constantly sending data as it will interfere with other sources associating.
- **Create Enable Pin**: Creates a new pin (Bool) to allow the controller to be turned on or off.
- **Use Custom Pin Name**: Allows user to name enable Pin.
- **Network Interface**: Choose which adaptor to use for receiving PSN data
- **Listen Port**: Choose which network port to receive on, must match the settings of the sender.
- **Update Frequency**: Sets how often data is sent from Multicontroller. This essentially sets the frequency of interpolation. It is recommended to set this to the output video frequency. (50 or 60Hz usually).
- **Axis Interpolations**: As the data refresh rate from most encoders is much slower than the output frame rate, it is often desirable to ‘smooth’ the movement. There are two methods for smoothing automation data in Hippotizer: **Polynomial and Slew.**
- Polynomial looks at a set of received values defined by the sample time, and attempts to find an equation to approximate them. Using this equation, it then tries to predict what values will come in

next based on the look ahead time setting. The complexity of the equation is its Poly Order; an order of 1 would be a static number, 2 a straight line and 3 a curved line for example. In general, lower Poly Order produces better results.

- Slew is a simple interpolation: it takes data across it’s sample time and creates data points in-between.
  Both interpolation methods must introduce delay in order to function and may cause objects in Hippotizer to disagree with the real world, especially when changing speed.

TCP Listener



7890 Listen Port Number

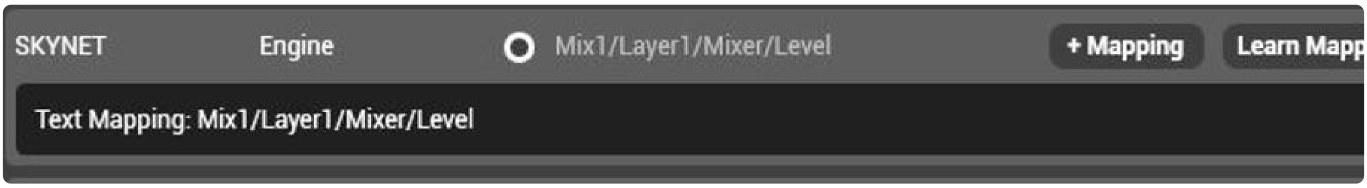
TCP Listener allows Hippo to interface with network based TCP commands. Frequently used by controllers such as Crestron or AMX systems, TCP can be used to trigger events in Hippo or to query the status of a system.

TCP uses a Text mapping.

- **Allow Learn Input**: If enabled, the input can be used to automatically assign to a mapping with the learn button. It is advisable to disable allow learn input on sources that are constantly sending data as it will interfere with other sources associating.
- **Create Enable Pin**: Creates a new pin (Bool) to allow the controller to be turned on or off.
- **Use Custom Pin Name**: Allows user to name enable Pin.
- **Network Interface**: Choose which adaptor to use for receiving TCP data
- * Listen Port*: Choose network port number to receive data on: must match sender's settings.
- **Allow Value Queries**: TCP can be used to get the values of pins to determine the status of a system. For example, getting the value of the performance/FPS pin can be a good way to see how the engine is running. When this is enabled queries are allowed.

Commands for the TCP listener are formatted as the **Identifier** followed by the command. The Identifier is set in the pin mapping:

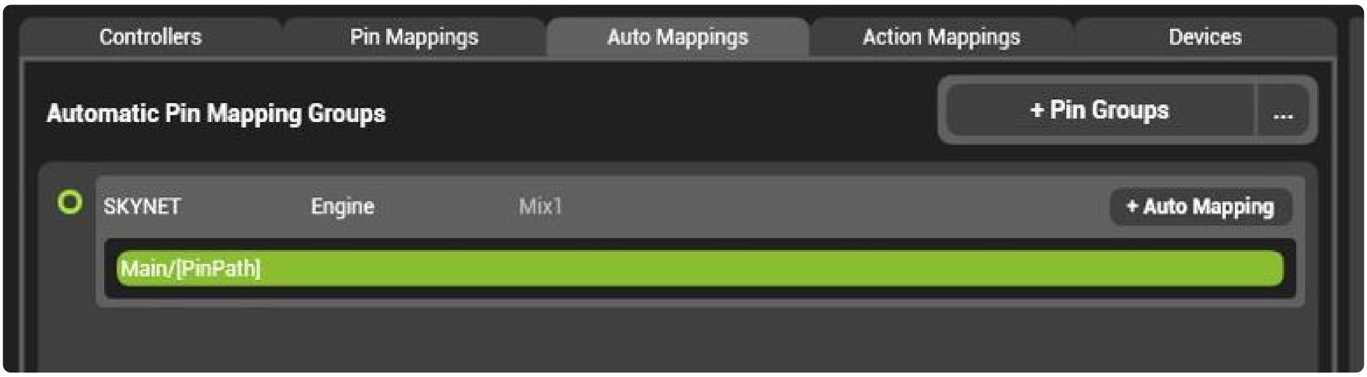
For single pins, the identifier is in the text mapping:



Mix1/Layer1/Mixer/Level

Text Mapping: Mix1/Layer1/Mixer/Level

For auto mappings the identifier looks different:


Controllers
Pin Mappings
Auto Mappings
Action Mappings
Devices
Automatic Pin Mapping Groups
+ Pin Groups
...
SKYNET
Engine
Mix1
+ Auto Mapping
Main/[PinPath]

TCP command syntax

Commands take the basic form as the identifier followed by a comma, the value and then a carriage return.

To set a value:

`[Identifier],[Value]\r`

E.g.

`DmxEnable,1\r`

Returns (if successful):

`[Identifier],[Value]:OK\r`

E.g.

`DmxEnable,1:OK\r`

To Trigger a Command:

`[Identifier]\r`

E.g.

`TestPattern\r`

Returns (if successful):

`[Identifier]:OK\r`

E.g.

`TestPattern:OK\r`

To Query a Value:

`[Identifier],?\r`

E.g.

`Fps,?\r`

Returns (if successful):

`[Identifier]_[ValueType]=[Value]\r`

E.g.

`Fps_(float)=60.\r`

ValueType can be:

- bool (on/off values),
- int (whole numbers),
- float (fractional numbers)
- string (text).

Errors

One of the following may be returned if there is an error:

`[Identifier]:NOK_SYN\r` – Command syntax is incorrect
`[Identifier]:NOK_VAL\r` – Failed to set value (can happen when sending the wrong value type, e.g. text to a number value)
`[Identifier]:NOK_STR\r` – Identifier was not found.

Pin Mappings

Each Mapping corresponds to a certain format of data. Each mapping is represented by a green dot in Multicontroller.

Text Mapping

Stings of plain text. Used by network based protocols to send data such as TCP, UDP and OSC.

Midi Mapping

The unique data format used by Midi controllers.Can carry different types of midi information such as midi notes and midi show control.

DMX Mapping

An Array of number values associated with a single universe of ArtNet.

Automation Mapping

Used by automation systems to send information about the location of items. This is normally an axis number and a displacement, though some protocols such as Posi Stage Net carry additional information such as acceleration.

GPIO Mapping

General Purpose Input Output mapping, the GPIO is used to interface with devices that read analogue or digital inputs.

A controller’s mapping type is determined by how that controller sends data. Pins in Hippotizer are assigned mappings as required.

Multicontroller does not require the user to specifically patch a controller to a target; by default any sources or targets with the same mapping will automatically be connected.

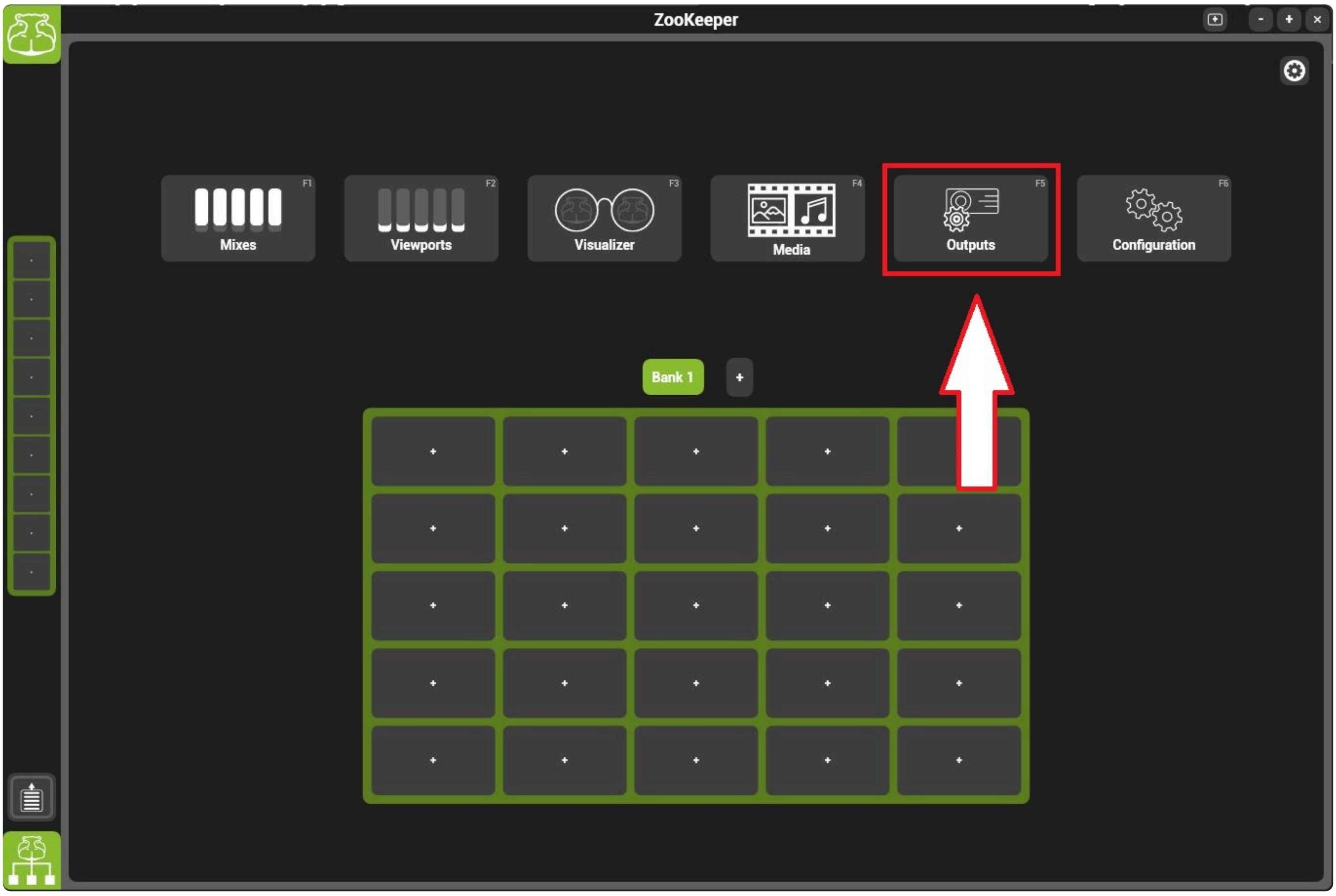
Action Mappings

Output Manager

Output Manager is the component which starts and manages layers, mixes and viewports. Output Manager is used to configure many important aspects of Hippotizer V4 including:

- Basic Layout
- Basic Configuration
- Patching SHAPE
- Viewports and mix resolution
- Windowed Outputs
- Startup behaviour
- Re-patching Outputs

Access the output manager by clicking the ‘Outputs’ tab in Zookeeper’s Home screen.


ZooKeeper
Mixes
F1
Viewports
F2
Visualizer
F3
Media
F4
Outputs
F5
Configuration
F6
Bank 1
+

Output Manager is critical for the normal operation of Hippotizer. The component should not be stopped or deleted.

Video Tutorial of Output Manager

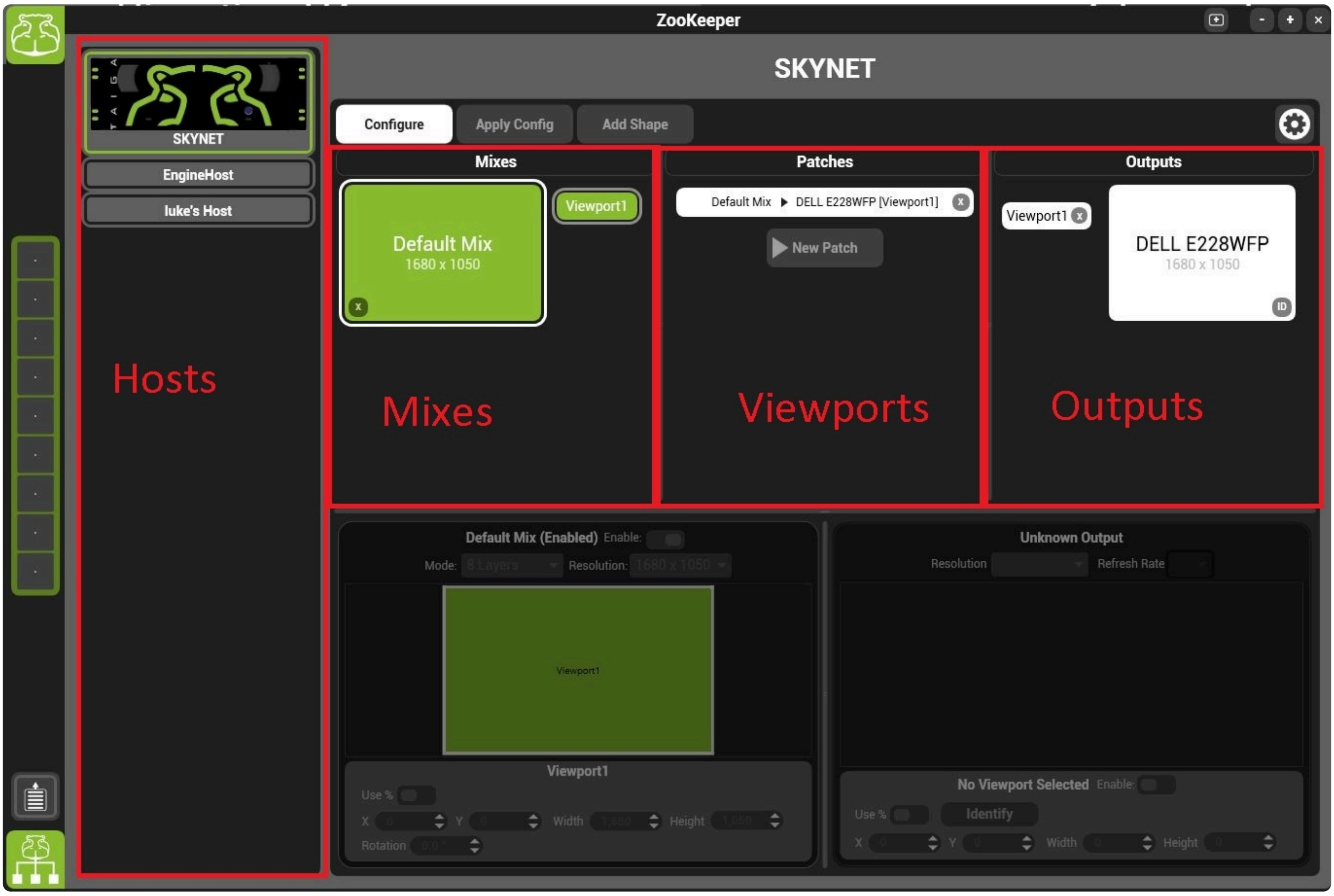
BOREAL-25-SEANS

https://www.youtube.com/embed/020gJw2yd70?rel=0

Basic Layout

Output Manager has a few basic parts

1. The Host Selector
2. Mixes
3. Viewports (Patches)
4. Outputs


ZooKeeper
SKYNET
EngineHost
luke's Host
Hosts
Configure
Apply Config
Add Shape
Mixes
Default Mix
1680 x 1050
Viewport1
Patches
Default Mix ▶ DELL E228WFP [Viewport1]
New Patch
Viewports
Outputs
Viewport1
DELL E228WFP
1680 x 1050
Default Mix (Enabled) Enable:
Mode: 8 Layers
Resolution: 1680 x 1050
Viewport1
Use %
X
Y
Width
Height
Rotation
Unknown Output
Resolution
Refresh Rate
No Viewport Selected Enable:
Identify

Host Selector:

Shows all systems running in HippoNet. Simply click on the host to select it and view it’s settings.

Mixes:

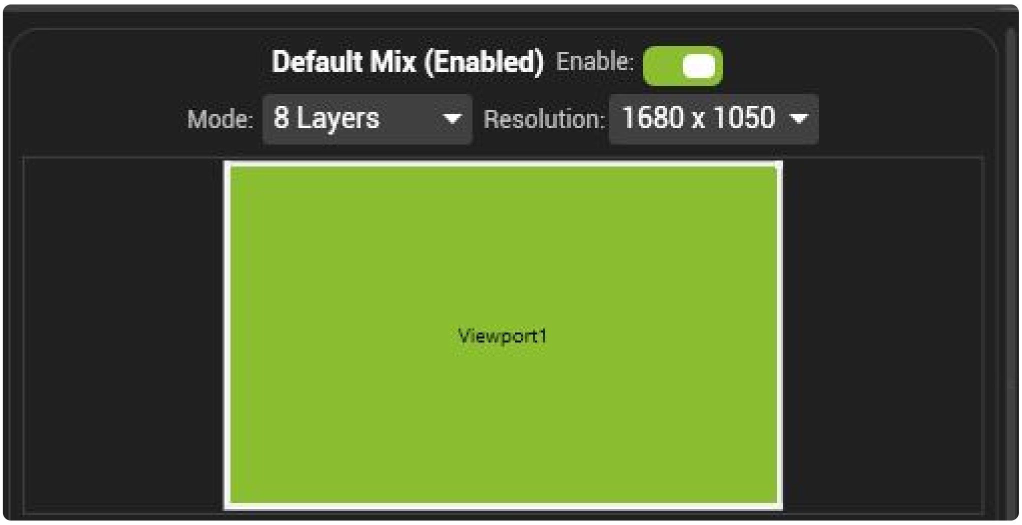
A mix is a collection of media layers that are composited based on mix modes. Each mix can run up to 16 layers, which are capable of playing clips, still images or live camera feeds.

The number of mixes that a system can run is based on what type of Hippotizer it is:

- Amba / Portamus: 4 Mixes
- Karst: 8 Mixes

- Boreal: 12 Mixes
- Taiga: No Limit

Clicking on a mix selects and will show it’s details in the menu below the Mixes list.



Default Mix (Enabled) Enable:

Mode: 8 Layers Resolution: 1680 x 1050

Each Mix has three attributes:

- Enable
  Mixes are on by default. Disabled mixes will not start their media layers.

- Mode
  The number of layers that the mix will start.

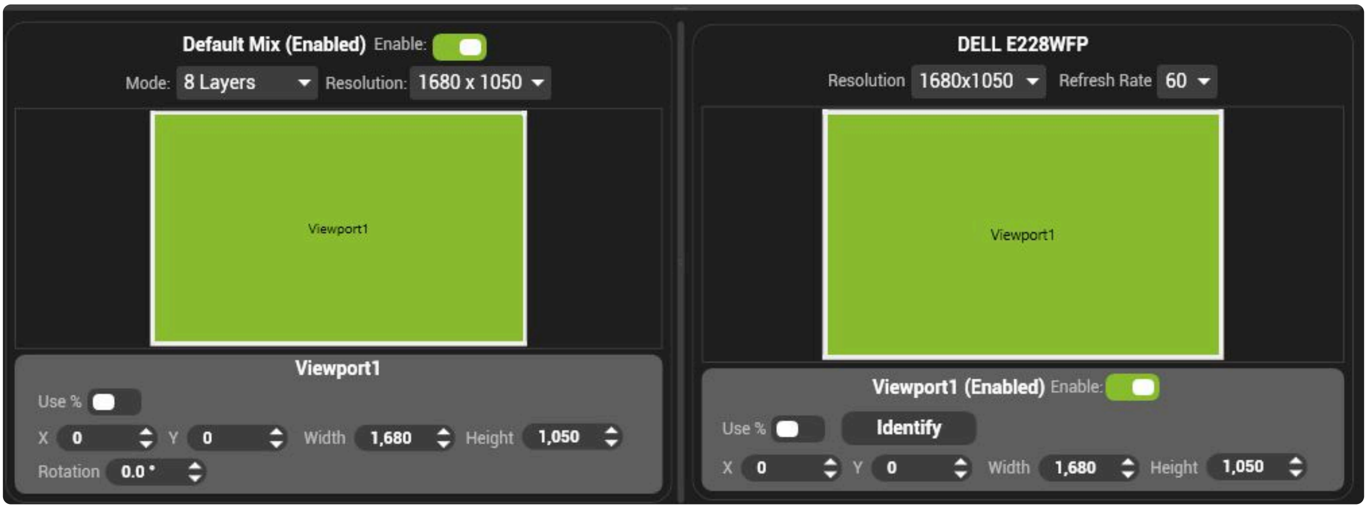
✻ Media layers use resources to run even if they are not doing anything. To maximize performance only start as many layers as required.

- Resolution
  The size in pixels of all layers in that mix. The Mix resolution is usually best set to be as high as the highest content resolution. Media of different resolutions can be played on the same mix however playing content of a higher resolution than the mix will result in down scaling.

✻ The resolution of a mix can have a large impact on performance. It is best to set the resolution only as high as required.

Viewports

Viewports patch mixes to outputs. A Viewport contains controls for blending, warping and video mapping usually a viewport is associated with a single display device (such as projector or LED processor). The viewport is represented as bars in the patches section of Output Manager. Click on them to show their settings in the details windows below.



Default Mix (Enabled) Enable:
Mode: 8 Layers
Resolution: 1680 x 1050

Viewport1
Use %
X 0
Y 0
Width 1,680
Height 1,050
Rotation 0.0 °

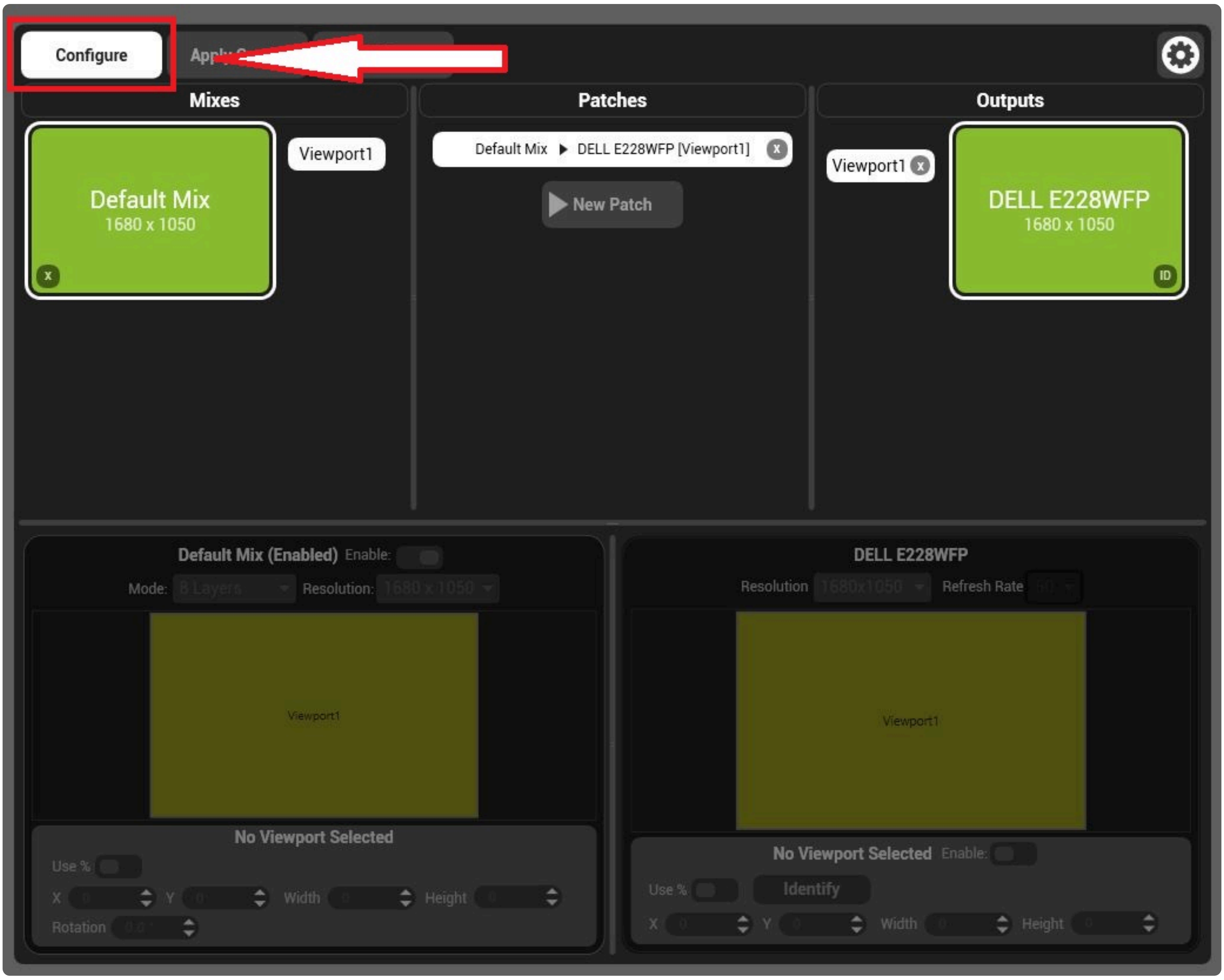
DELL E228WFP
Resolution 1680x1050
Refresh Rate 60

Viewport1 (Enabled) Enable:
Use %
X 0
Y 0
Width 1,680
Height 1,050

A viewport is comprised of an input window and an output window. The input window is where in the Mix the viewport samples, while the output determines where on the output the viewport is placed.

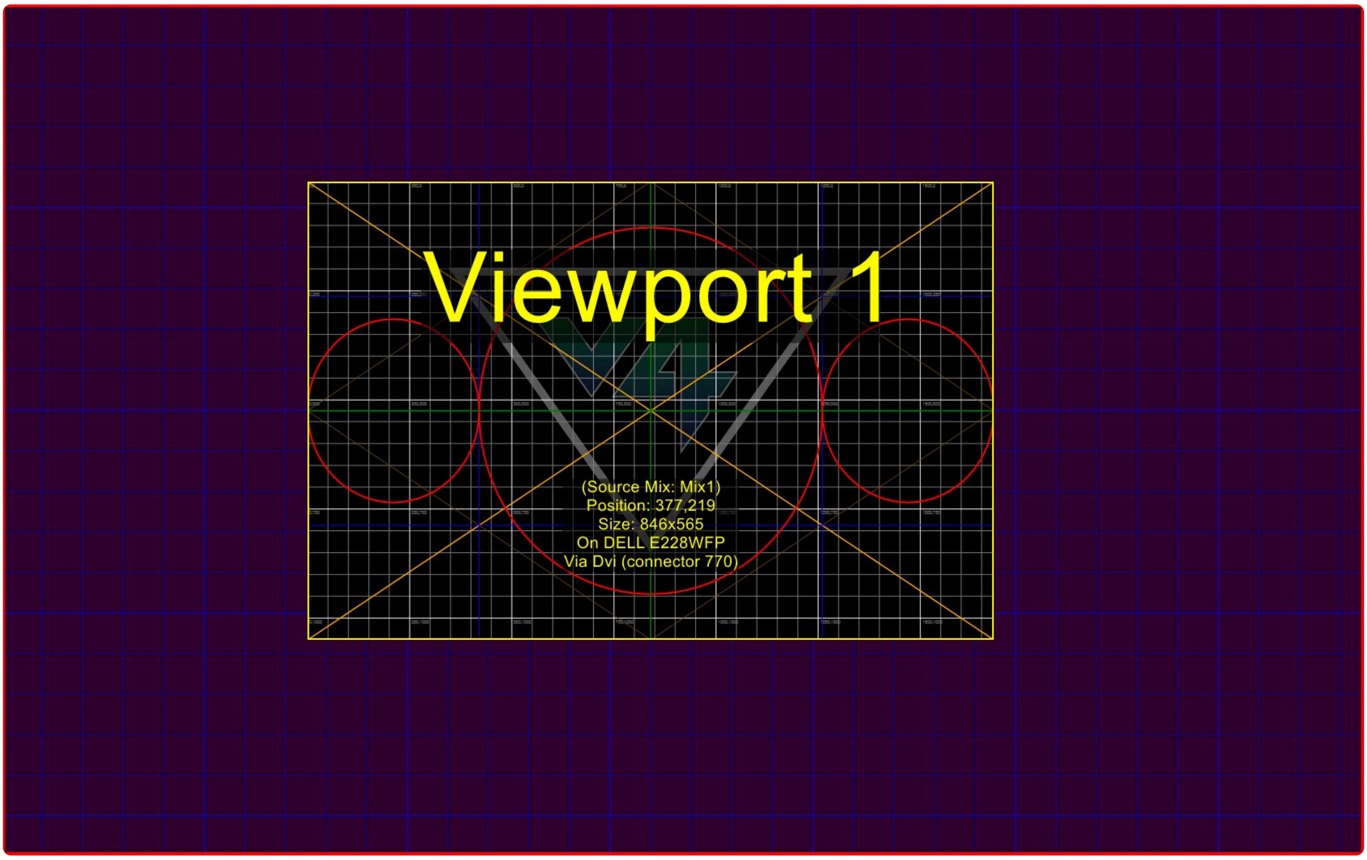
Basic Configuration

When the system is running and playing video, the Output manager's settings can be viewed but not edited. In order to make changes in Output Manager, press the configure button.

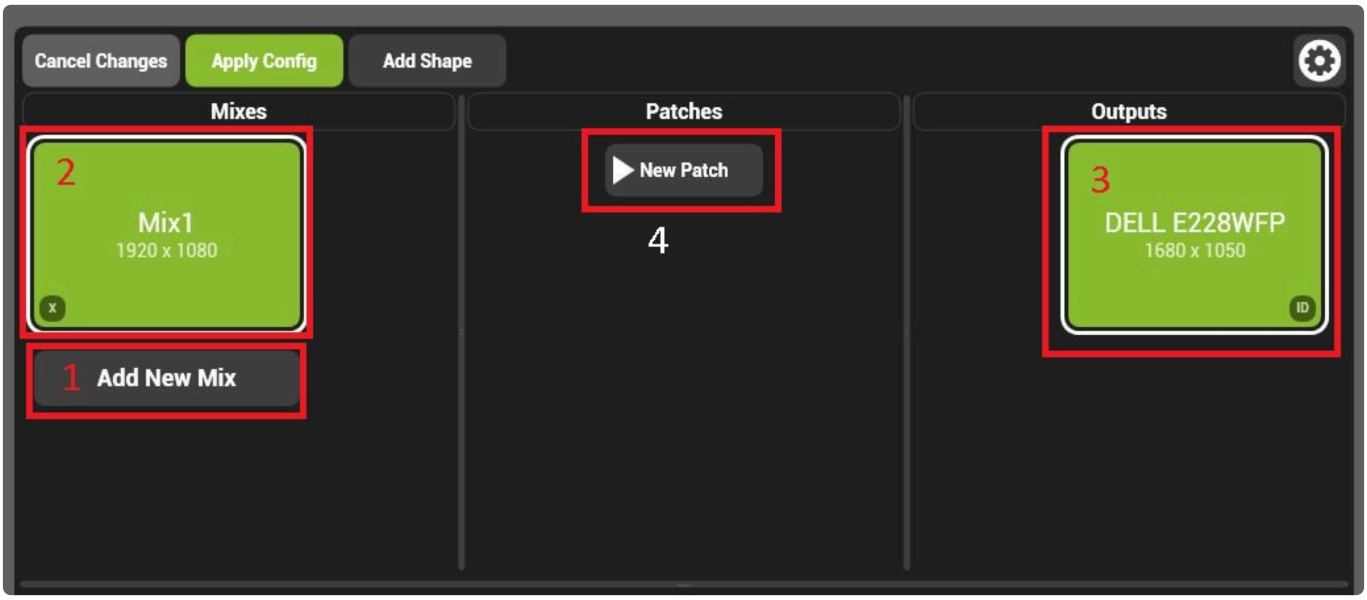

Configure
Mixes
Patches
Outputs
Default Mix
1680 x 1050
Viewport1
Default Mix ▶ DELL E228WFP [Viewport1]
New Patch
DELL E228WFP
1680 x 1050
ID
Default Mix (Enabled)
Mode:
Resolution:
No Viewport Selected
Use %
X
Y
Width
Height
Rotation
Refresh Rate
Identify
Enable:

! When the Output Manager is being configured media is not rendered and test grids are displayed on all outputs.

All detected outputs will display a purple test grid while viewports will appear as black test grids.


Viewport 1
(Source Mix: Mix1)
Position: 377,219
Size: 846x565
On DELL E228WFP
Via Dvi (connector 770)

To send a mix to an output; add a mix, select it, then click the target output and press New Patch.


Cancel Changes
Apply Config
Add Shape
Mixes
Patches
Outputs
2
Mix1
1920 x 1080
x
1
Add New Mix
New Patch
4
3
DELL E228WFP
1680 x 1050
ID

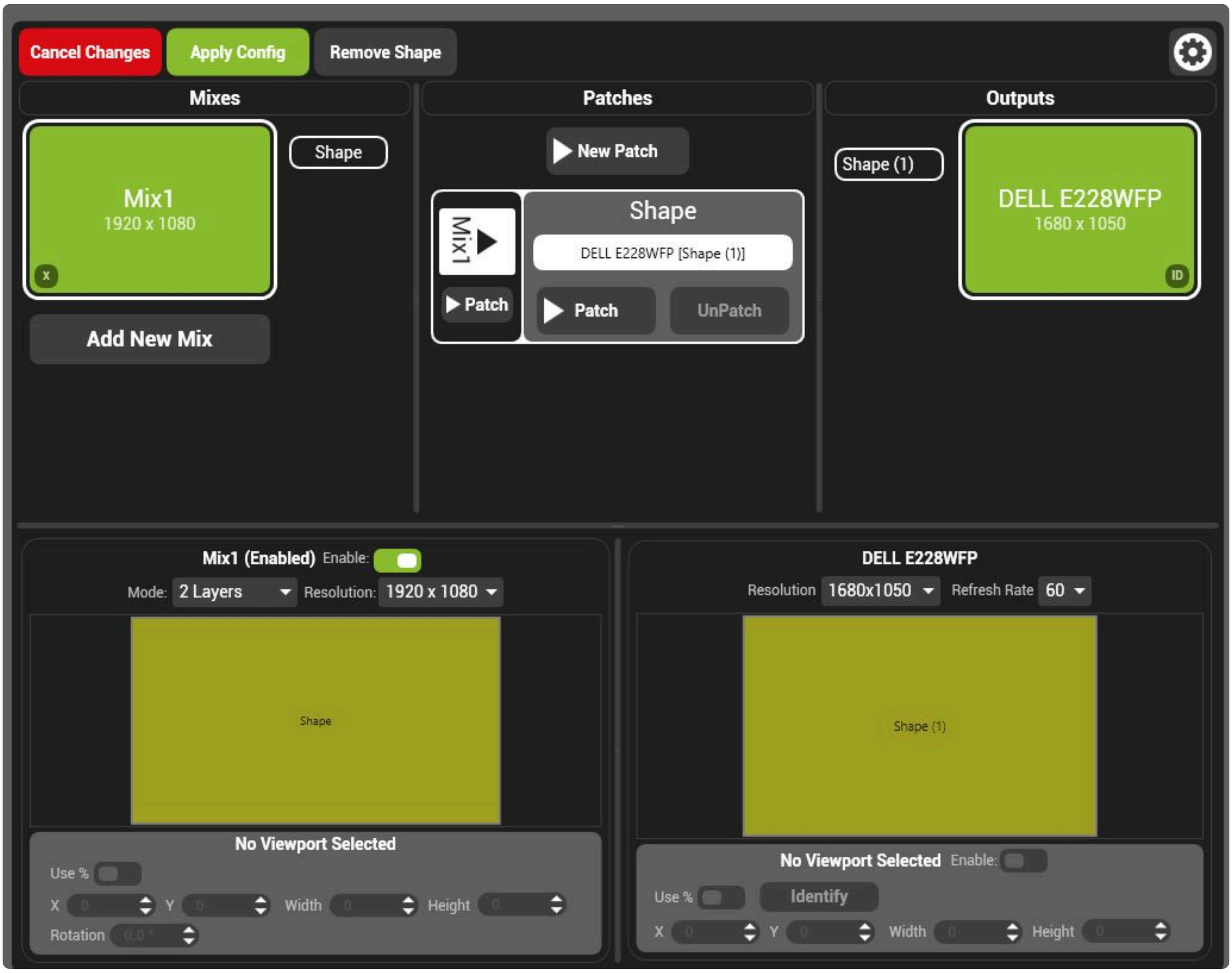
By Default, a new mix will be created with the resolution of the output and the viewport will send the whole mix to the whole output.

Pressing the apply config button now will save these changes and start the rendering engine.

> Starting the engine can take some time depending on how many media layers are being started. Each media layer will appear as a green film strip in the system tray.

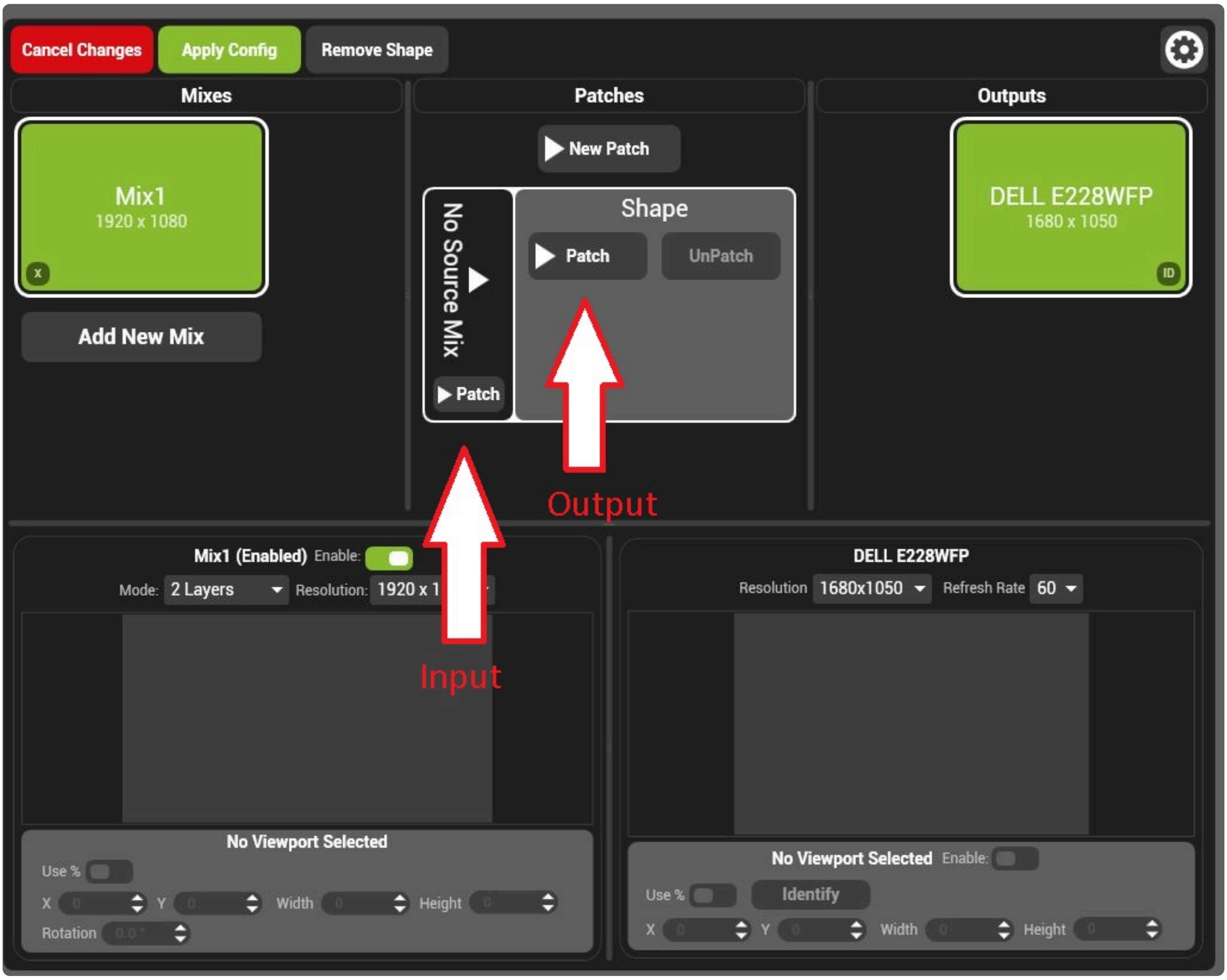
Patching SHAPE

SHAPE is the third dimension of Hippotizer V4 allowing for real time rendering of video on a 3D model. SHAPE is comprised of two parts: a plug-in in Hippotizer and an editor. The SHAPE plugin is started from Output Manager while the editor is a separate application. To add the SHAPE plugin, enter configuration mode and press the Add SHAPE button.


Cancel Changes
Apply Config
Remove Shape
Mixes
Patches
Outputs
Shape
Mix1
1920 x 1080
Add New Mix
New Patch
Mix1
Patch
Shape
DELL E228WFP [Shape (1)]
Patch
UnPatch
Shape (1)
DELL E228WFP
1680 x 1050
Mix1 (Enabled) Enable:
Mode: 2 Layers
Resolution: 1920 x 1080
Shape
No Viewport Selected
Use %
X
Y
Width
Height
Rotation
DELL E228WFP
Resolution 1680x1050
Refresh Rate 60
Shape (1)
No Viewport Selected Enable:
Use %
Identify
X
Y
Width
Height

SHAPE is patched in a similar way to a viewport: it has an input mix and is patched to one or more outputs.

> ✻ The input mix of SHAPE feeds the 1st of eight input textures. The other seven inputs are controlled from the SHAPE viewport.


Cancel Changes
Apply Config
Remove Shape
Mixes
Patches
Outputs
Mix1
1920 x 1080
Add New Mix
New Patch
No Source Mix
Patch
Shape
Patch
UnPatch
DELL E228WFP
1680 x 1050
Output
Input
Mix1 (Enabled) Enable:
Mode: 2 Layers
Resolution: 1920 x 1
No Viewport Selected
Use %
X
Y
Width
Height
Rotation
DELL E228WFP
Resolution 1680x1050
Refresh Rate 60
No Viewport Selected Enable:
Use %
Identify
X
Y
Width
Height

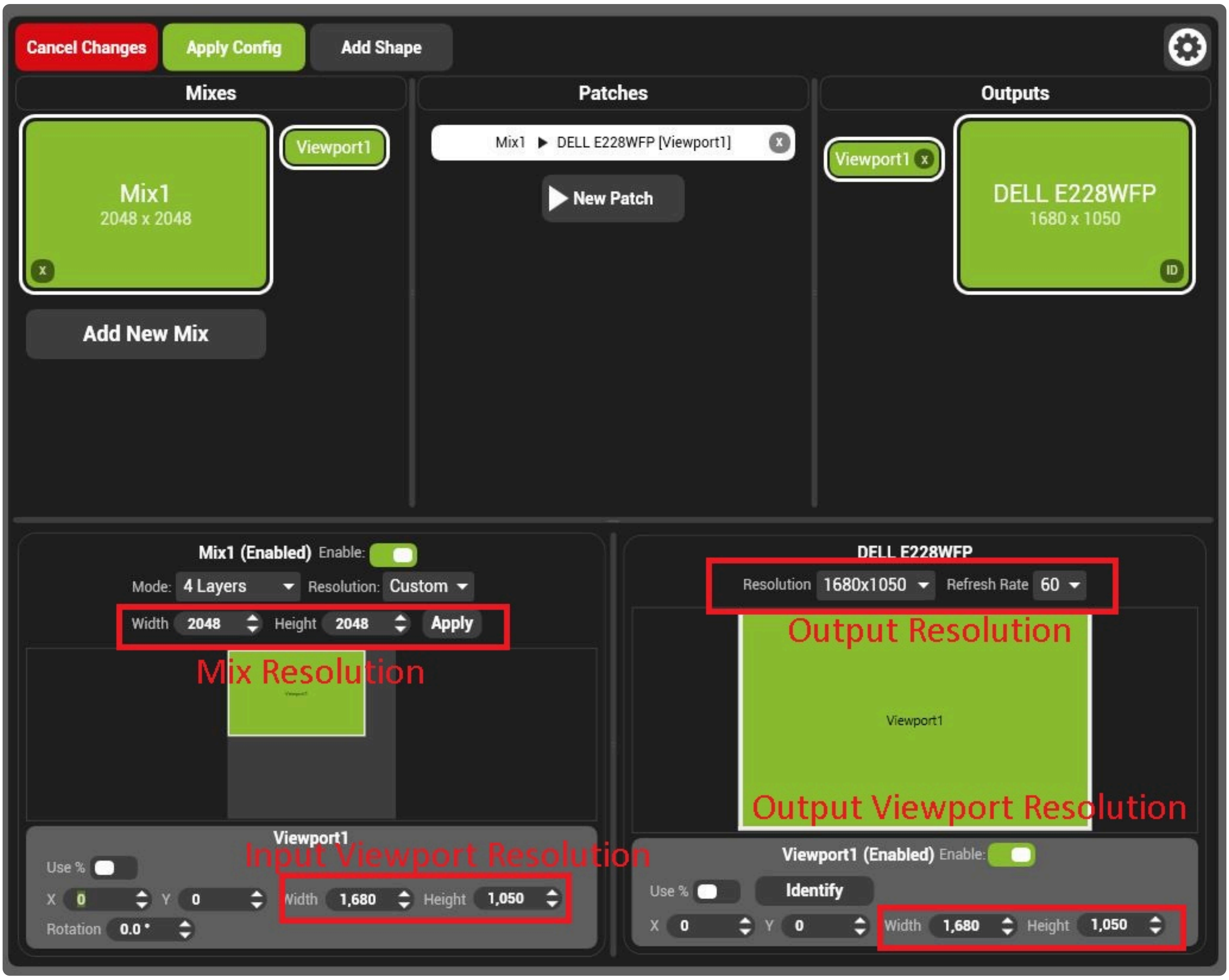
SHAPE should be patched to a physical output for each projector in the SHAPE model. The assignment of projectors to outputs is handled from within the SHAPE project in the SHAPE application.

https://www.youtube.com/embed/YPl2fArWG0A?rel=0

Viewports and mix resolution

When setting up the Output Manager there are several different resolutions to consider:

- Mix Resolution
- Input Viewport Resolution
- Output Viewport Resolution
- Output Resolution


Cancel Changes
Apply Config
Add Shape
Mixes
Patches
Outputs
Mix1
2048 x 2048
Viewport1
Add New Mix
New Patch
DELL E228WFP
1680 x 1050
ID
Apply
Identify
Mix Resolution
Output Resolution
Output Viewport Resolution
Input Viewport Resolution

Mix1 ▶ DELL E228WFP [Viewport1]

Mix1 (Enabled) Enable:
Mode: 4 Layers
Resolution: Custom
Width 2048 Height 2048

Viewport1
Use %
X 0 Y 0
Width 1,680 Height 1,050
Rotation 0.0 °

DELL E228WFP
Resolution 1680x1050 Refresh Rate 60

Viewport1 (Enabled) Enable:
Use %
X 0 Y 0
Width 1,680 Height 1,050

Mix Resolution

The Mix resolution is the pixel size of the layer mixer; where media layers are composited. Every mix has an independent layer mixer and can have different resolutions.. Each media layer will automatically take the resolution of the clip it is playing, however that will then be scaled by the layer mixer according to the mix resolution.

Input Viewport Resolution

The input viewport is the window through which the viewport samples the mix. The input viewport is usually set to match the resolution of the output it is associated with. A common exception would be where an output splitter (such as Datapath FX-4) is used.

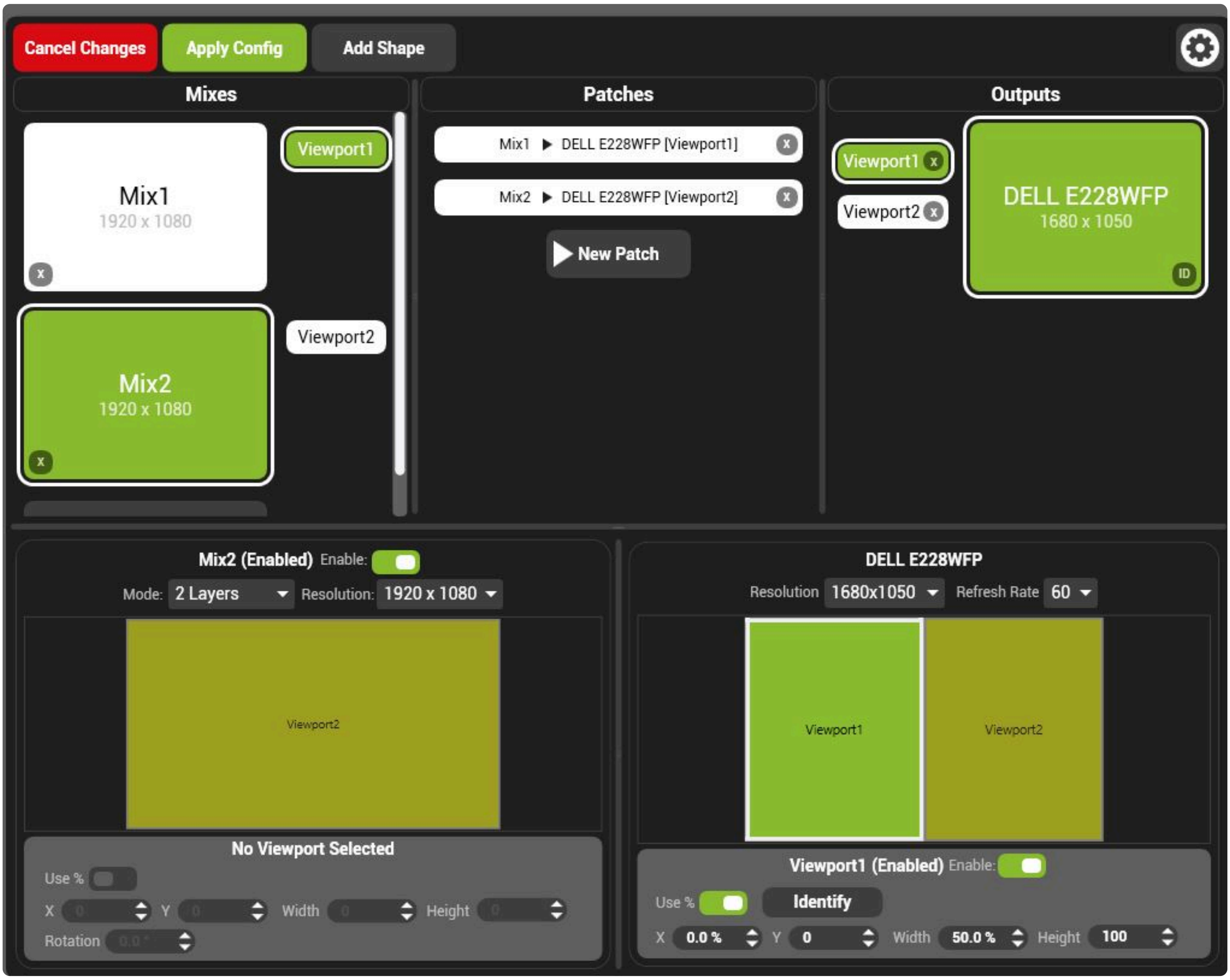
✻ The input viewport resolution is also the input resolution for any videomaps on that viewport.

Output Viewport Resolution

The output viewport dictates where on a physical output the viewport is displayed. On a simple display, the viewport may fill the entire output. Where a splitter is used, several viewports would be placed on an output.

✻ Output viewports may not overlap each other. Any overlapping viewports will be disabled by default.

The resolution of an output viewport is dictated by the physical output itself; normally it is set to the whole output, or a portion of the output based on a video splitter.


Cancel Changes
Apply Config
Add Shape
Mixes
Patches
Outputs
Mix1
1920 x 1080
Viewport1
Mix2
1920 x 1080
Viewport2
Mix1 ▶ DELL E228WFP [Viewport1]
Mix2 ▶ DELL E228WFP [Viewport2]
New Patch
Viewport1
Viewport2
DELL E228WFP
1680 x 1050
ID
Mix2 (Enabled) Enable:
Viewport2
No Viewport Selected
Use %
X
Y
Width
Height
Rotation
DELL E228WFP
Viewport1
Viewport2
Viewport1 (Enabled) Enable:
Identify

Mode: 2 Layers Resolution: 1920 x 1080

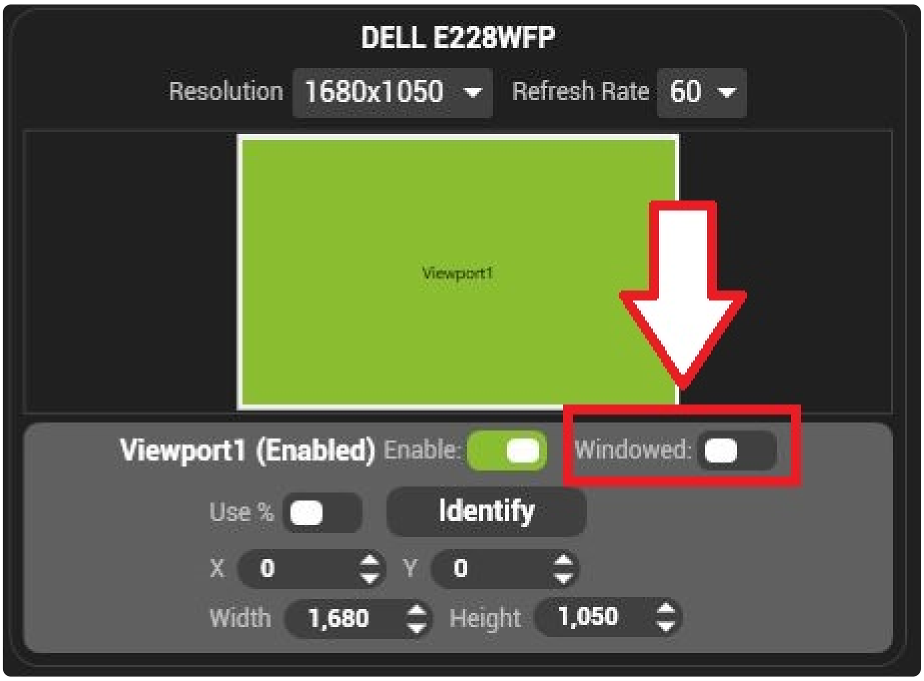
Resolution 1680x1050 Refresh Rate 60

Use % X 0.0 % Y 0 Width 50.0 % Height 100

✻ The output viewport resolution is also the output resolution of any videomaps on that viewport.

Windowed Outputs

In normal operation, the Hippotizer renders video to entire outputs. However there are times where it is better to see only a small windows of the video output; for pre-programming for example. This can be achieved in Output Manager by setting the viewport to be Windowed.


DELL E228WFP
Resolution 1680x1050
Refresh Rate 60
Viewport1
Viewport1 (Enabled) Enable:
Windowed:
Use %
Identify
X 0
Y 0
Width 1,680
Height 1,050

In order to set a viewport to be windowed, Enter Configuration mode, select the viewport and enable Windowed mode.

Placing windowed outputs on Zookeeper displays (driven from the Zookeeper graphics card) can result in poor performance. Always ensure windowed outputs are on displays driven from the more powerful graphics card.

Startup behaviour

The first time your Hippotizer starts up, or after a clean show is started, Output Manager will create a default setup based on the output configuration at startup.

✻ It is always best to ensure all displays are attached and are visible in Windows before starting the Hippotizer software. The windows primary display should be set to the Zookeeper (control) output.

Output Manager’s defaults are based around the number of displays and where the Windows primary display is assigned.

If only one display is present, a single output viewport will be created in Windowed mode on that output.

If two or more displays are present a single full screen output will be created on the non-primary display

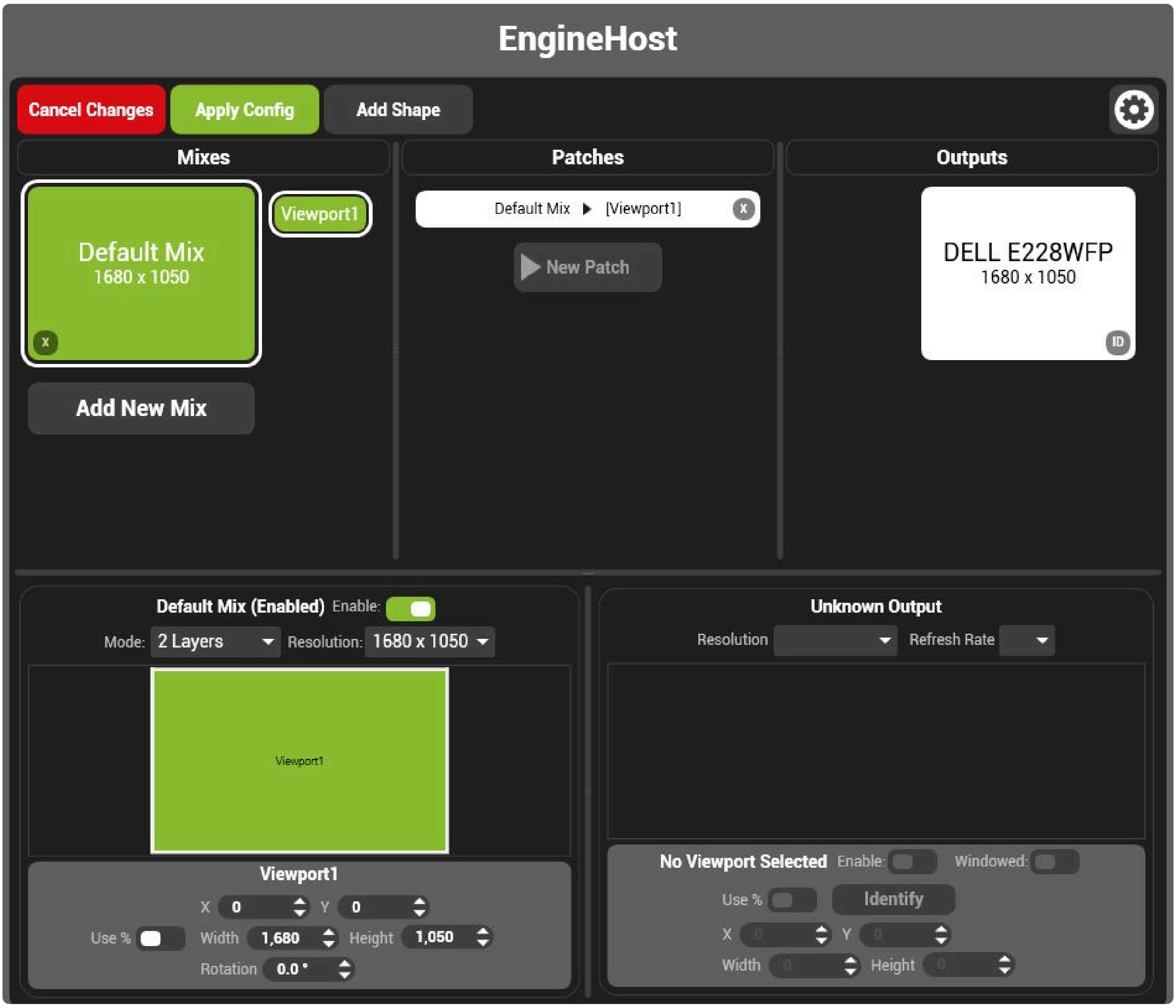
✻ Holding CTRL + ESCAPE for four seconds will put Output Manager into configuration mode. This is a good way to break out of situations of where you can not see the desktop because it is covered with an output.

After the first run, Output Manager saves the previous settings and will attempt to place the system back into the same state it was at shut down. This based on the display name as give to Hippotizer by EDID. If the same displays are not detected, Viewports will appear un-patched and can be re-patched from within Output Manager.

See Re-patching outputs.

Re-patching Outputs

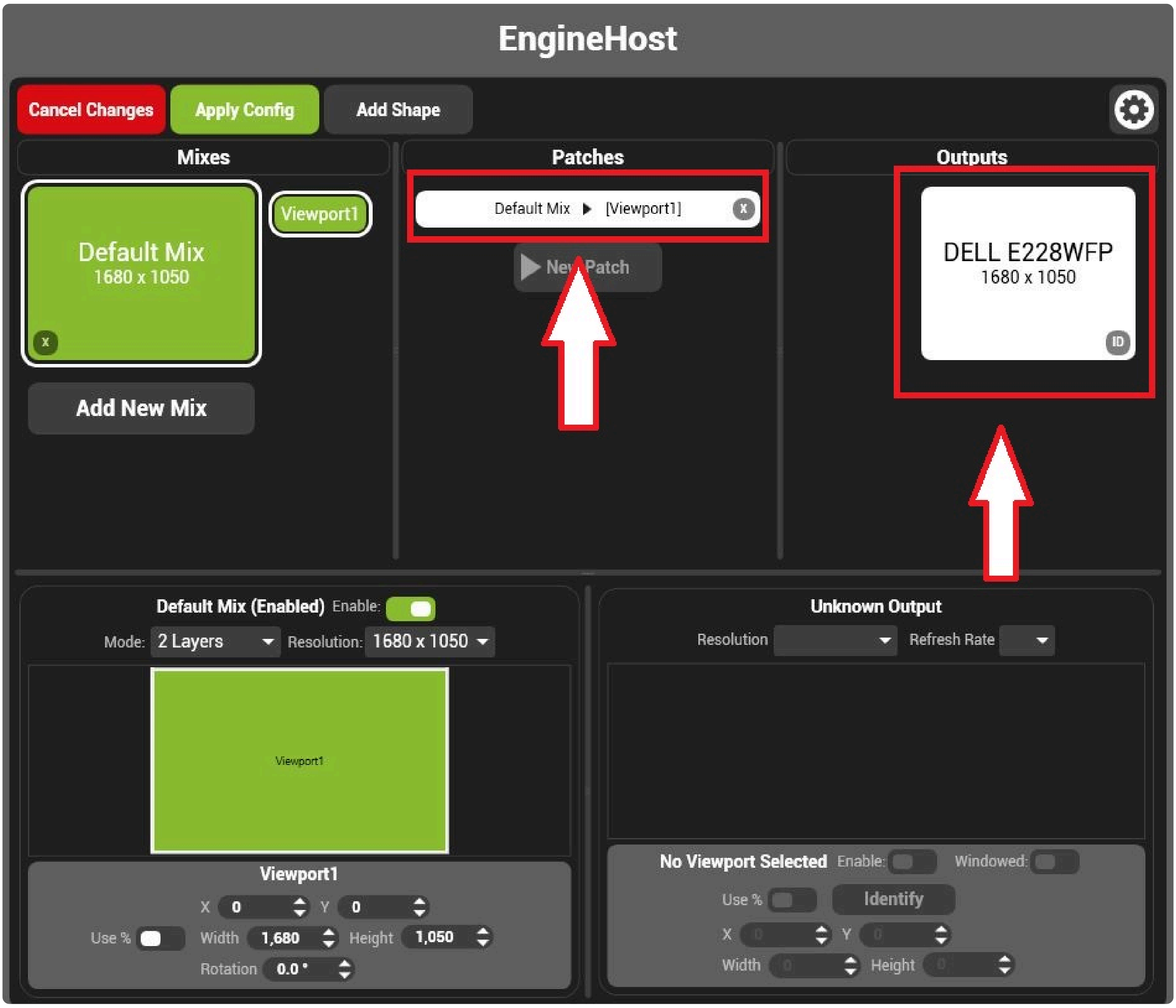
On every startup of Output Manager, viewports will attempt to re-attach to the output they were previously patched to. This is based on the name of the display and what physical output port it is on. If that changes, the Output Manager will not know which viewport should be patched to which output. To avoid confusion, it will create the viewport “unpatched”


EngineHost
Cancel Changes
Apply Config
Add Shape
Mixes
Patches
Outputs
Default Mix
1680 x 1050
Viewport1
Add New Mix
Default Mix ▶ [Viewport1]
New Patch
DELL E228WFP
1680 x 1050
ID
Unknown Output
Identify

Default Mix (Enabled) Enable: ●
Mode: 2 Layers
Resolution: 1680 x 1050
Viewport1
X 0
Y 0
Use %
Width 1,680
Height 1,050
Rotation 0.0 °

Unknown Output
Resolution
Refresh Rate
No Viewport Selected Enable:
Windowed:
Use %
X 0
Y 0
Width 0
Height 0

To Repatch the viewport, in configuration mode, select the viewport to re-patch, select the output to patch it to and press “Repatch”.


EngineHost
Cancel Changes
Apply Config
Add Shape
Mixes
Patches
Outputs
Default Mix
1680 x 1050
Viewport1
Add New Mix
Default Mix ▶ [Viewport1]
New Patch
DELL E228WFP
1680 x 1050
ID
Unknown Output
Identify

Default Mix (Enabled) Enable:

Mode: 2 Layers Resolution: 1680 x 1050

Viewport1

X 0 Y 0

Use % Width 1,680 Height 1,050

Rotation 0.0 °

Resolution Refresh Rate

No Viewport Selected Enable: Windowed:

Use %

X 0 Y 0

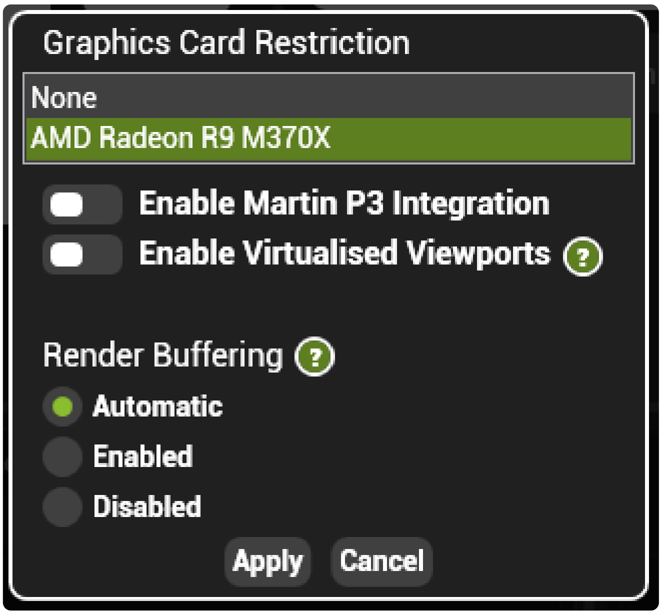
Width 0 Height 0

Advanced Options

Some setup options in output manager are in the advanced menu:

- Graphics Card Restriction
- Martin P3 Integration
- Virtualised Viewports
- Render Buffering

Graphics Card Restriction



Graphics Card Restriction

None

AMD Radeon R9 M370X

Enable Martin P3 Integration

Enable Virtualised Viewports

Render Buffering

● Automatic

○ Enabled

○ Disabled

Output manager will only show the displays of the output graphics card as available for patching. If attached displays are not shown in output manager or creating an output on the Zookeeper monitor is desired, then this restriction can be changed.

Select the graphics card from the list or choose none to see all outputs.

> Although outputs can be placed onto the Zookeeper graphics card, the performance will be will be significantly reduced. Where a single output is required (such as for visualisation) it is best to use the more powerful graphics card by plugging into a production output.

Martin P3 Integration

Working in conjunction with Martin Professional’s P3 controller software, Hippotizer can send video directly to P3 running on the same machine. Use this to control a limited amount of Martin P3 fixtures directly from the Hippotizer.

✻ A Martin USB Dongle is required to run P3 software, purchased from your local Martin distributor.

P3 integration allows the Martin software to detect and automatically capture local mixes and viewports running in Hippotizer.

To set up P3 integration:

1. Install P3 software onto the Hippotizer machine
2. Start Hippotizer and start a mix
3. Start the P3 software on the same machine
4. Enable P3 integration in Hippotizer
5. The mixes and viewports of Hippotizer should now be visible to the P3 software as sources

Virtualised Viewports

Virtualised viewports change the way that the output windows are created and can dramatically improve Hippotizer performance when using more than four viewports.

Normally, each viewport is created inside a discrete window which is placed on the output. This works well where there are four or less viewports. However, for more than four viewports it is more efficient to use one large window. Virtual viewports creates a single window around all the viewports and renders each viewport inside that window. There is no difference to the user; viewports are created and patched the same way in both modes.

> ✻ Virtual Viewports will create a window that surrounds all viewports; this requires that the zookeeper output is not placed between two production outputs as it would be covered by a black window. Be sure that the Zookeeper monitor is placed to one side of the output displays in the Windows Display management control.

It is usually best to disable render buffering when using virtualised viewports.

Render Buffering

In order to ensure output smoothness in all cases, by default Hippotizer stores several frames for each output before displaying them in a buffer. This buffer will increase the delay of live capture so may need to be disabled in certain situations.

There are three settings:

Automatic

Enables render buffering where there are four or less viewports.

Enabled

Buffers the output by up to three frames. Capture latency with buffering enabled will be roughly five frames. Using render buffering with more than four viewports will likely result in un-smooth output.

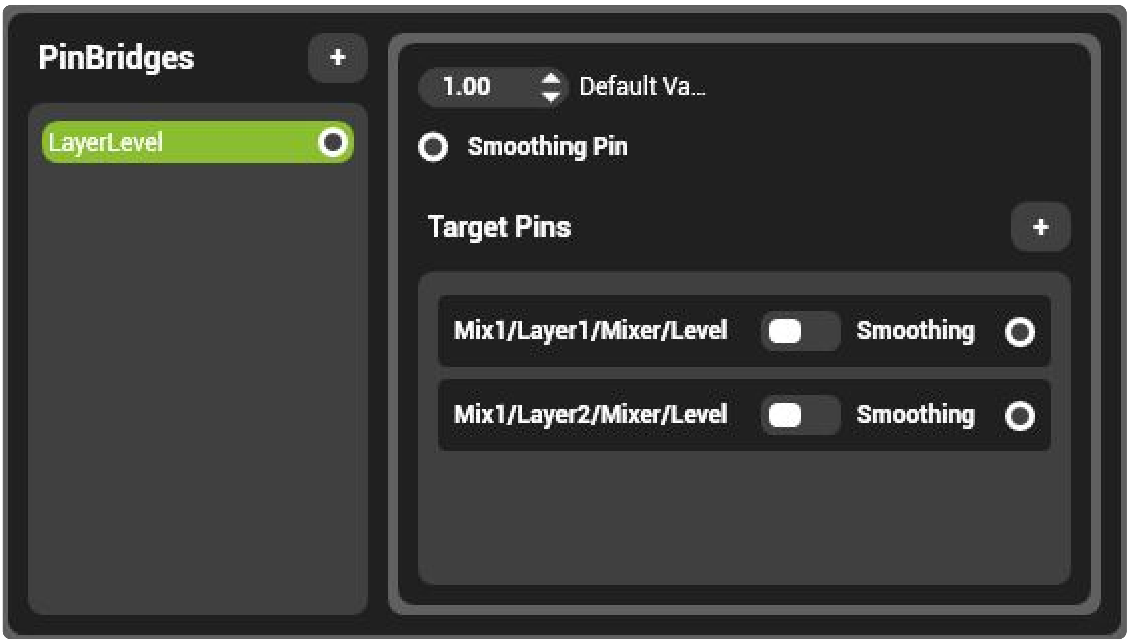
Disabled

Removes the buffer. Capture latency with buffering disabled will be between two and three frames.

✻ With buffering disabled output smoothness will be dependent on the timing of each display. It is advised to genlock the outputs together and ensure that Zookeeper outputs have the same frame rate as production outputs to ensure smooth playback.

PinBridge

PinBridge allows functions to be grouped together and controlled by a single pin.



LayerLevel

1.00 Default Va...

○ Smoothing Pin

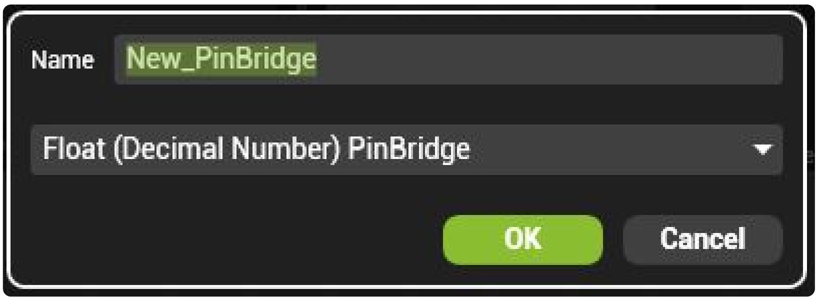
Mix1/Layer1/Mixer/Level

Mix1/Layer2/Mixer/Level

Creating Pin Bridges

To create a new PinBridge:

Press the new bridge button (the + symbol)



Name New_PinBridge

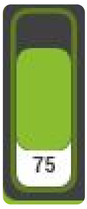
Float (Decimal Number) PinBridge

Name the PinBridge

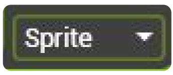
Note: As creating a PinBridge will create a new Pin in HippoNet, they cannot be renamed once created.

Select the type of Bridge to use.

Boolean Pin: Can be on or off, represented by a switch in Zookeeper.



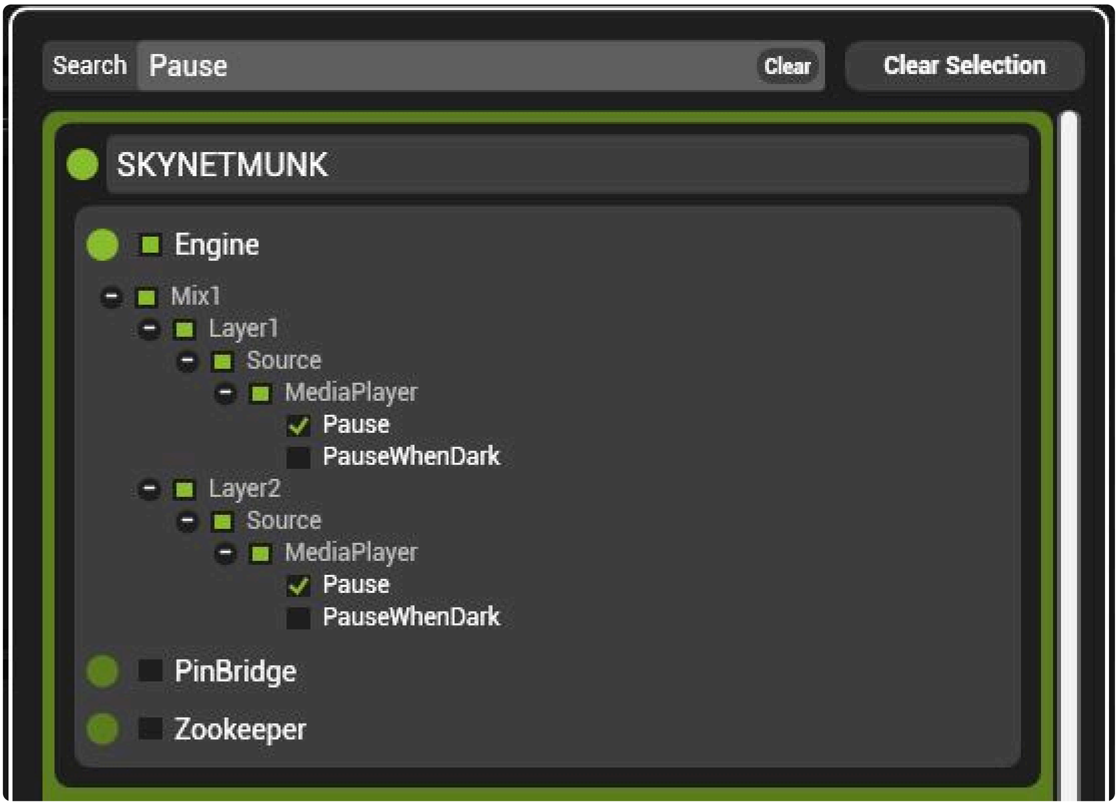
Float Pin: Can be a number value from 0 to 1 ad are most commonly shown as faders in Zookeeper.



Integer Pin: Can be a whole number (1,2,3…) used to pick options from a list such as Mix modes.

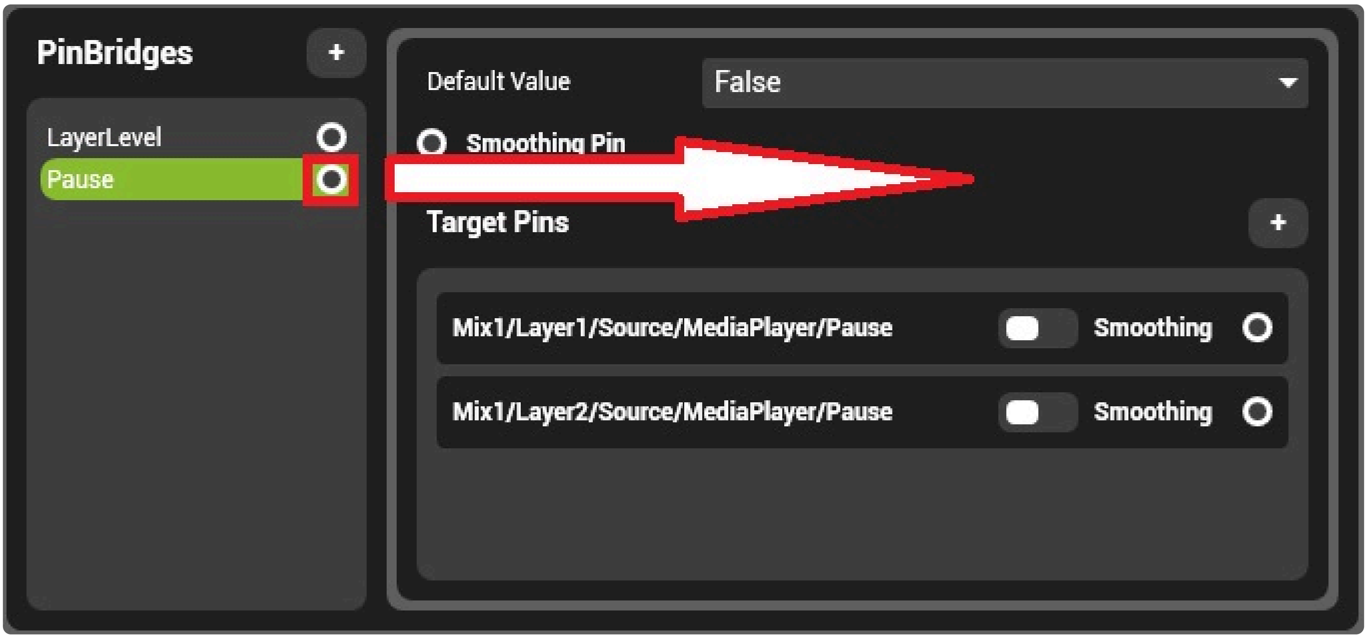
String Pin: Carries text — Very rare to use this in a PinBridge.

Select the pins to control


Search
Pause
Clear
Clear Selection
SKYNETMUNK
Engine
Mix1
Layer1
Source
MediaPlayer
✓ Pause
☐ PauseWhenDark
Layer2
Source
MediaPlayer
✓ Pause
☐ PauseWhenDark
PinBridge
Zookeeper

Adding Bridges to the Pin Board

To add a PinBridge control to the pin board simply drag the bridge out from the component:

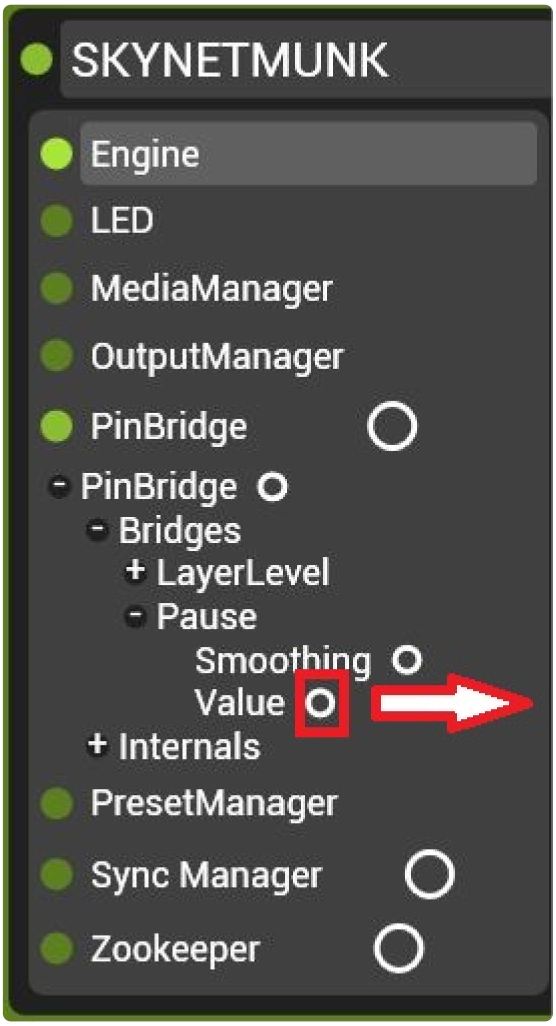

PinBridges
+
LayerLevel
Pause
Smoothing Pin
Target Pins
+

Default Value: False

Mix1/Layer1/Source/MediaPlayer/Pause Smoothing

Mix1/Layer2/Source/MediaPlayer/Pause Smoothing

Or, drag the Pin out from the pin tree:


SKYNETMUNK
Engine
LED
MediaManager
OutputManager
PinBridge
PinBridge
Bridges
LayerLevel
Pause
Smoothing
Value
Internals
PresetManager
Sync Manager
Zookeeper

Pixelmapper

Pixelmapper turns DMX controlled lights into part of the video screen by using video to control the colour or intensity of fixtures.

Pixelmapper is comprised of three parts:

- **Pixel Maps** The two dimensional representation of the fixture layout.
- **Settings** Controls how to send data out of Pixelmapper over the network. Choose output protocols and IP addresses.
- **Mix Controls** Assign pixelmaps to a mix to choose the video source for pixelmapper.

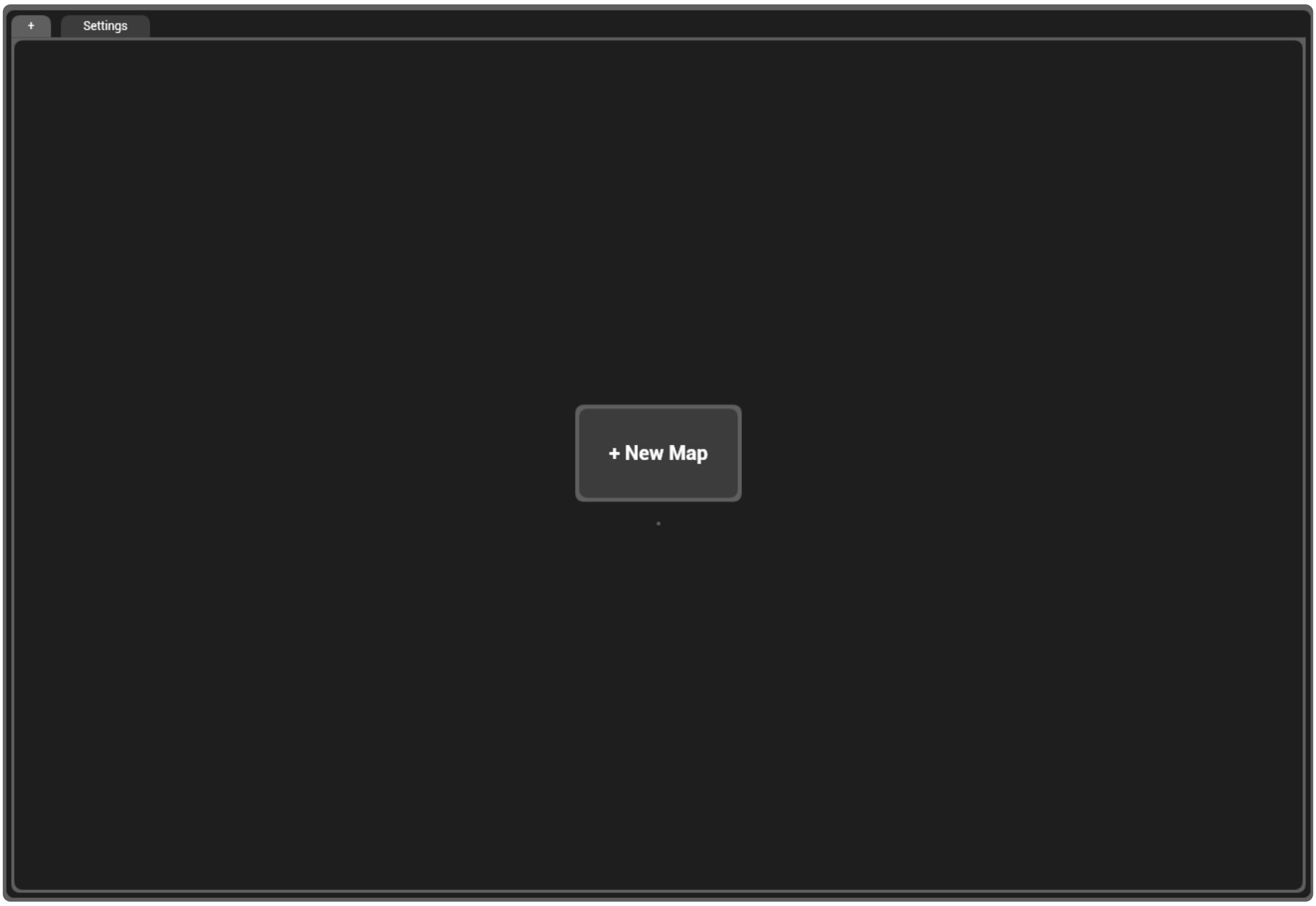
Pixel Maps

A **Pixel Map** is the representation of where lighting fixtures are located to determine how video is applied to them.

Pixelmapper can have many different maps. Each map has a name and Index number and are opened from the Pixelmapper component.

To Create a new pixel map:

- Start the Pixelmapper Component
- Add the component to a pin board.
- Click + New Map

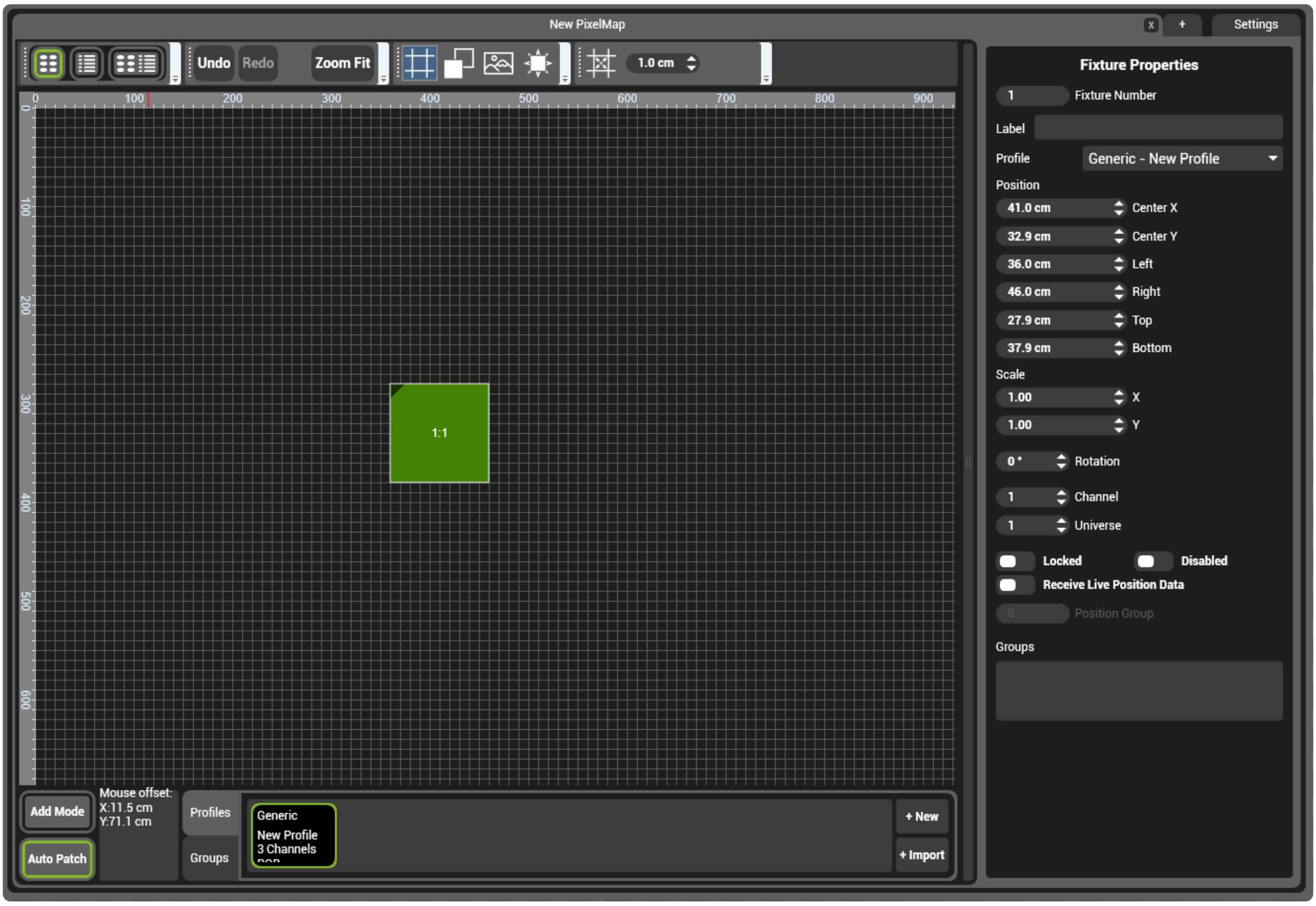


This will open a new Pixel map where fixtures can be created, added and patched to universes.

There are three basic modes used when working with pixel maps:

- Pixel Map Properties
- Fixture Profile Properties
- Fixture Properties

The active mode is show in the right side context menu.


New PixelMap
x
+
Settings
Undo
Redo
Zoom Fit
1.0 cm
0
100
200
300
400
500
600
700
800
900
1:1
Add Mode
Auto Patch
Profiles
Groups
+ New
+ Import

Mouse offset:
X:11.5 cm
Y:71.1 cm

Generic
New Profile
3 Channels

Fixture Properties

1 Fixture Number

Label

Profile: Generic - New Profile

Position

41.0 cm Center X
32.9 cm Center Y
36.0 cm Left
46.0 cm Right
27.9 cm Top
37.9 cm Bottom

Scale

1.00 X
1.00 Y

0 ° Rotation

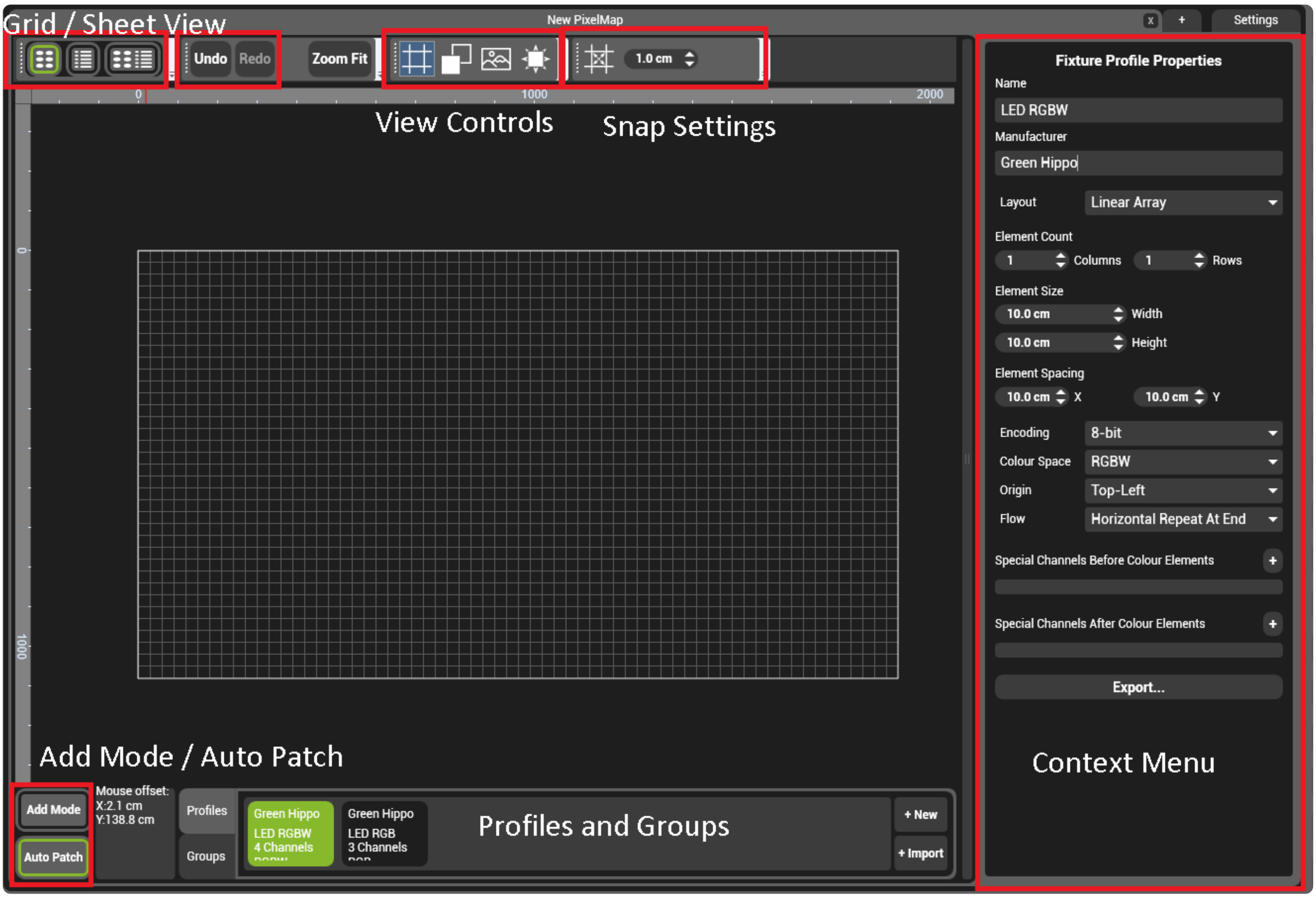
1 Channel
1 Universe

Locked
Disabled
Receive Live Position Data
0 Position Group

Groups

Clicking the map, a fixture or a profile will switch the properties to that object.

Around the pixelmap are a series of controls.


New PixelMap
Settings
Grid / Sheet View
Undo
Redo
Zoom Fit
1.0 cm
0
1000
2000
View Controls
Snap Settings
Add Mode / Auto Patch
Add Mode
Auto Patch
Profiles
Groups
Green Hippo LED RGBW 4 Channels
Green Hippo LED RGB 3 Channels
Profiles and Groups
+ New
+ Import
Export...
Context Menu

Mouse offset:
X:2.1 cm
Y:138.8 cm

Fixture Profile Properties

Name: LED RGBW

Manufacturer: Green Hippo

Layout: Linear Array

Element Count: 1 Columns, 1 Rows

Element Size: 10.0 cm Width, 10.0 cm Height

Element Spacing: 10.0 cm X, 10.0 cm Y

Encoding: 8-bit

Colour Space: RGBW

Origin: Top-Left

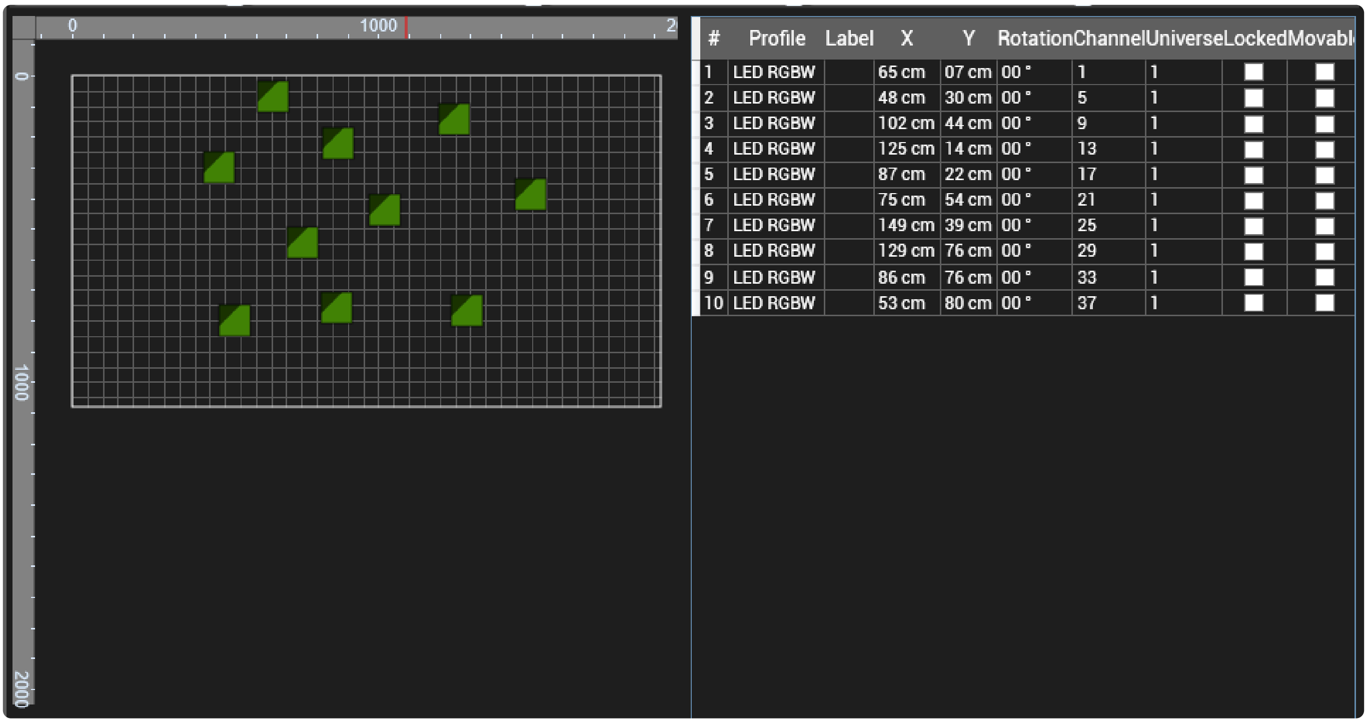
Flow: Horizontal Repeat At End

Special Channels Before Colour Elements +

Special Channels After Colour Elements +

Grid / Sheet View

Changes the map view to be either full map, half data grid or full data grid.



#	Profile	Label	X	Y	Rotation	Channel	Universe	Locked	Movabl
1	LED RGBW		65 cm	07 cm	00 °	1	1	☐	☐
2	LED RGBW		48 cm	30 cm	00 °	5	1	☐	☐
3	LED RGBW		102 cm	44 cm	00 °	9	1	☐	☐
4	LED RGBW		125 cm	14 cm	00 °	13	1	☐	☐
5	LED RGBW		87 cm	22 cm	00 °	17	1	☐	☐
6	LED RGBW		75 cm	54 cm	00 °	21	1	☐	☐
7	LED RGBW		149 cm	39 cm	00 °	25	1	☐	☐
8	LED RGBW		129 cm	76 cm	00 °	29	1	☐	☐
9	LED RGBW		86 cm	76 cm	00 °	33	1	☐	☐
10	LED RGBW		53 cm	80 cm	00 °	37	1	☐	☐

View Controls

Shows or hide the back ground grid

Show fixtures as wire-frame or as solid

Show or hide background image, also click to edit background image settings.

Flashes selected fixture sending 0 and full DMX values to all channels of that fixture.

Snap Settings

When enabled, fixtures will be placed in multiples of the snap distance. So if set to 5, fixtures would only be placed at 0, 5, 10 etc.

Context Menu

Shows the properties of the selected item.

Profiles and Groups

Fixture Profiles define how a fixture is laid out similar to a personality in a lighting desk. Every fixture on the pixel map references a profile and if the profile is changed, the fixtures using that profile will also change.

Fixture Groups allows fixtures to be grouped together for easier editing.

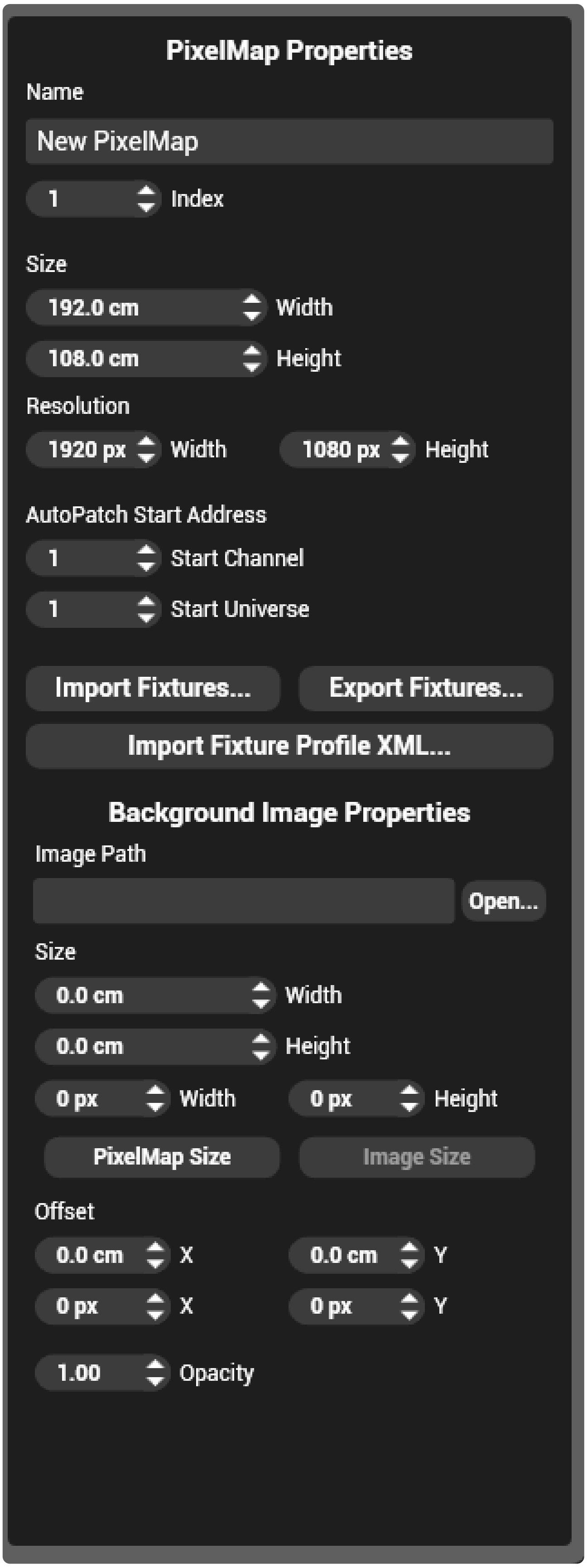
Add mode / Auto Patch

Add Mode When enabled, left clicks in the pixel map will add the selected fixture.

Auto Patch All new fixtures added to the pixel map are placed in the next available DMX Address.

Pixel Map Properties

Each Pixel Map has configuration and settings to determine the resolution and size of the map.



PixelMap Properties

Name: New PixelMap

Index: 1

Size

Width: 192.0 cm

Height: 108.0 cm

Resolution

Width: 1920 px

Height: 1080 px

AutoPatch Start Address

Start Channel: 1

Start Universe: 1

Import Fixtures...
Export Fixtures...
Import Fixture Profile XML...

Background Image Properties

Image Path:

Open...

Size

Width: 0.0 cm

Height: 0.0 cm

Width: 0 px

Height: 0 px

PixelMap Size
Image Size

Offset

X: 0.0 cm

Y: 0.0 cm

X: 0 px

Y: 0 px

Opacity: 1.00

Click in the pixel map grid to show map properties in the context menu.

Name

The name of the pixel map as it appears in map select menus. This does not need to be unique.

Index

The order the pixel map will be shown in lists and selected by DMX. Zero is reserved for bypassed.

Size

The physical size of the pixel mapped area.

The combination of the size and the resolution of a pixelmap determine the physical size of each pixel. For example, the default is set to 192cm x 108cm with a resolution of 1920×1080. This equates to 10 pixels per centimeter.

Resolution

The resolution of the pixel mapped area.

Note: Pixelmapper will not scale the input into it. In order to maintain Pixel 1-to-1 behavior therefore, it is important to set the pixel map's resolution to match that of the mix.

Auto Patch Start Address

Sets the address that auto patch will start patching fixtures. Once a fixture is placed auto patch will increment to the next free address.

Import / Export Fixtures

Saves or loads a comma delimited file (csv) of the fixture patch.

Note: The csv export uses the globally unique identification (GUID) to reference the fixture profiles, so it is important to save the fixture profile with the csv export.

Import Fixture Profile XML

Import a Fixture patch from a Grand MA 2 lighting desk. To do this, use the option in Grand MA to export the patch as XML.

Background Image Properties

A Background image can be placed in the pixelmap to aid with fixture placement.

Image Path

location of the image

Size

Size of the image

Pixelmap / Image Size

Set the image to be the full size of the pixel map or the native size of the image (in pixels)

Offset

Location of the top left corner of the image.

Opacity

Determines the transparency of the image.

Fixture Profile Properties

The fixture profile defines the channel layout and attributes of each fixture type used in the pixel map.

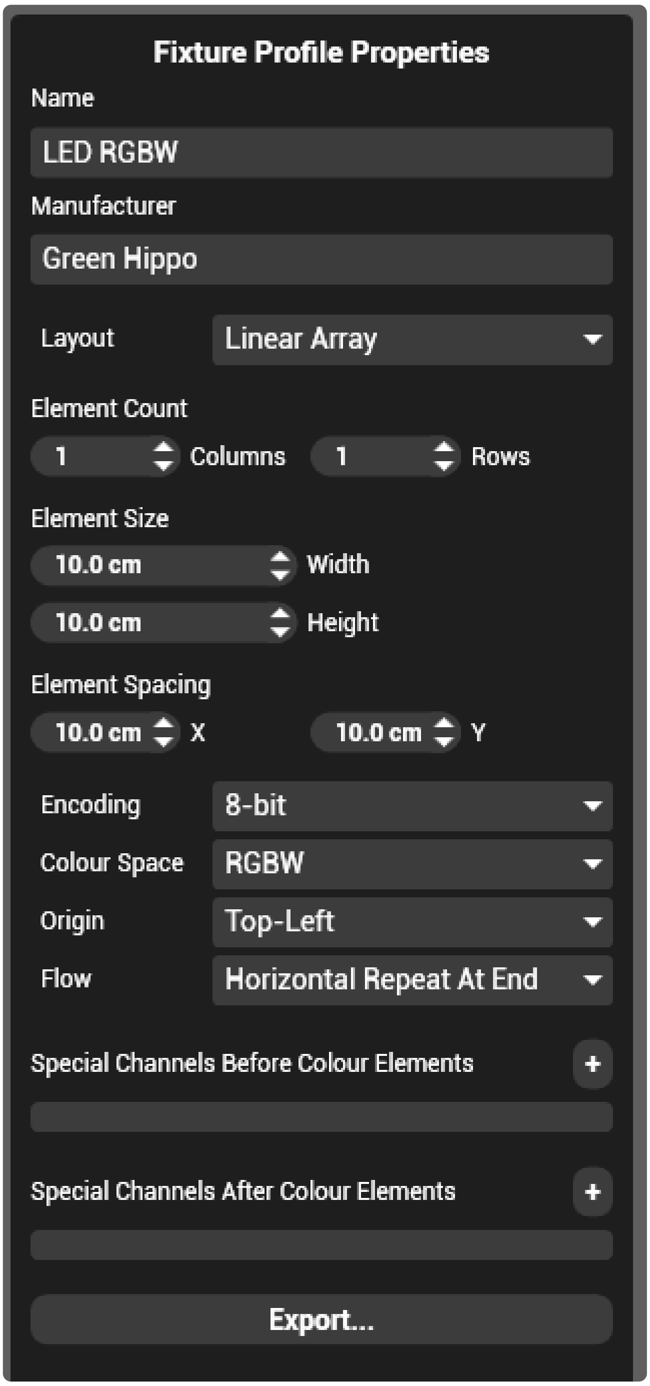
A fixture profile is required for each type of light being used.

Fixture profiles can be saved and shared between maps and systems. so they only need to be created once.

Saving Fixture Profiles

Fixture profiles are saved as part of each pixelmap. To use fixture profiles in other maps, right click on them and select copy to profile library. A copy of the profile is now stored in the profile library. Any map can copy from that profile using the profile import button. + Import

The Fixture Profile Properties pane



Fixture Profile Properties

Name: LED RGBW

Manufacturer: Green Hippo

Layout: Linear Array

Element Count: 1 Columns, 1 Rows

Element Size: 10.0 cm Width, 10.0 cm Height

Element Spacing: 10.0 cm X, 10.0 cm Y

Encoding: 8-bit

Colour Space: RGBW

Origin: Top-Left

Flow: Horizontal Repeat At End

Special Channels Before Colour Elements
+
Special Channels After Colour Elements
+
Export...

Name

The Name of the fixture. This does not need to be unique.

Manufacturer

Further identification for the fixture

Layout

The pattern of emitters of the light. **Linear Array** is the most common type of fixture comprising rectangular rows and columns of lights.

Note: As of Version 4.2, Free-form fixtures have not been implemented. To work around this create a linear array fixture that is 1×1.

Element Count

The number of individually controllable lights in the fixture.

Element Size

The size (Diameter) of each emitter element.

Element Spacing

The amount of space between each emitter measured from the centre of one light to the centre of the other.

Encoding

Sets the DMX information to the fixture to be either 8 or 16 bit.

Colour Space

Sets what colour mixing system the fixture uses.

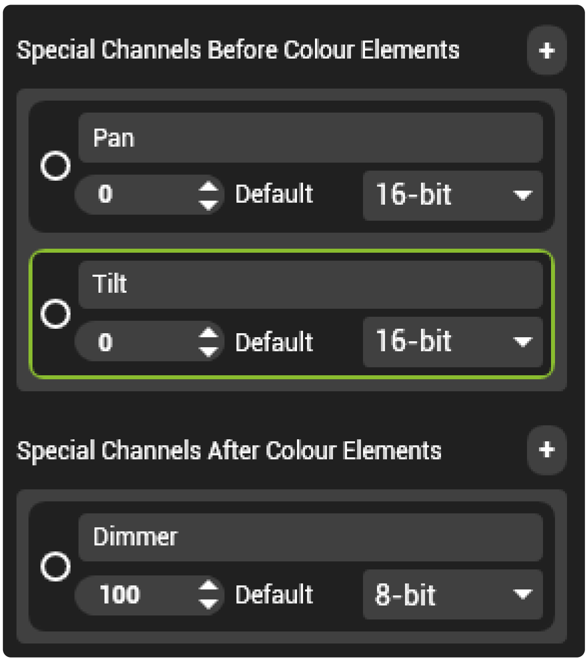
Origin

When addressing the emitters within the fixture, sets where to start counting.

Flow

Sets how to count up in address from the origin.

Special Channels


Special Channels Before Colour Elements
+
Pan
0
Default
16-bit
Tilt
0
Default
16-bit
Special Channels After Colour Elements
+
Dimmer
100
Default
8-bit

Special Channels are spacers in the channel layout of the fixture. In the above example, the personality would leave 4 channels empty (2 × 16bit channels) before the colour information and 1 channel empty after the colour information. This is frequently used to patch moving lights or LED fixtures that have macro or strobe channels.

Note: The default value of each special channel is output from Pixelmapper at all times as DMX does not allow channels to be skipped.

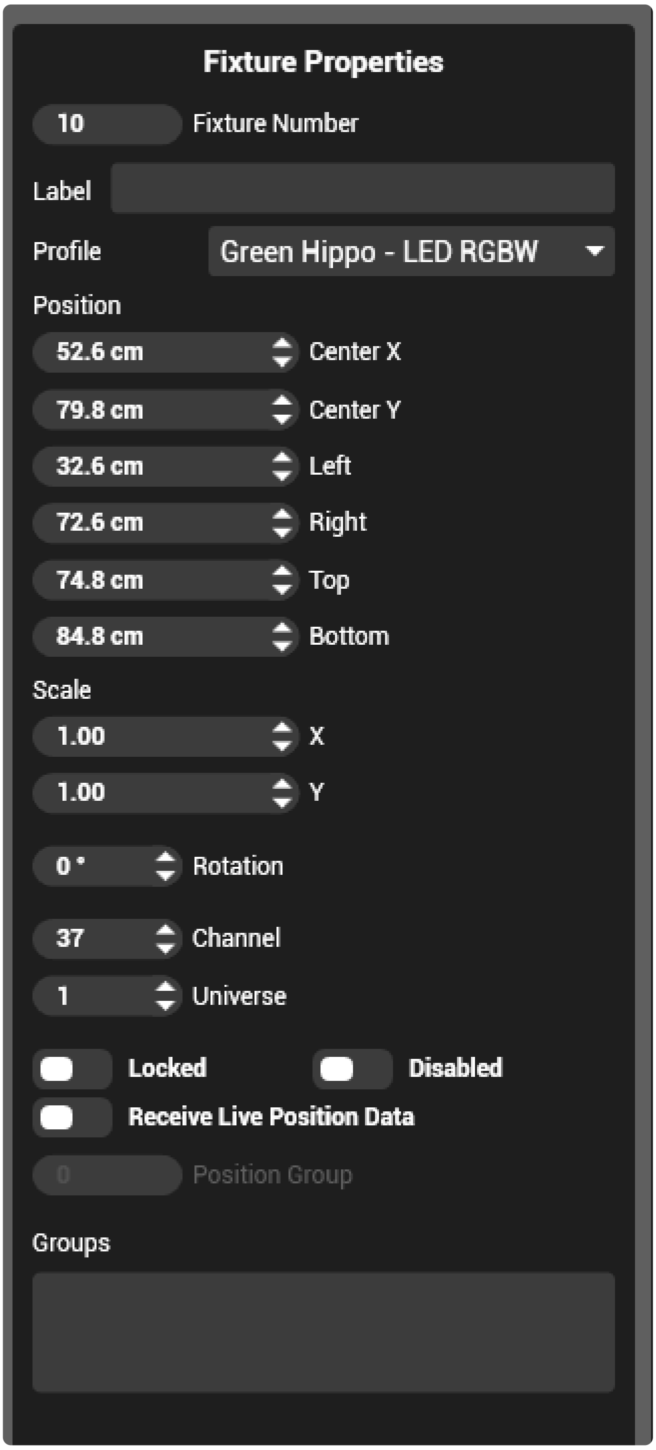
Export

Saves the personality file as an XML to allow it to be loaded onto other systems.

Fixture Properties

Each Fixture has a set of properties such as it’s patch, location and scaling.

To view the properties of a fixture, select it and the context menu will change to show that fixture’s information.



Fixture Properties

10 Fixture Number

Label

Profile Green Hippo - LED RGBW

Position

52.6 cm Center X

79.8 cm Center Y

32.6 cm Left

72.6 cm Right

74.8 cm Top

84.8 cm Bottom

Scale

1.00 X

1.00 Y

0 ° Rotation

37 Channel

1 Universe

Locked

Disabled

Receive Live Position Data

0 Position Group

Groups

Fixture Number

A user assignable number for each fixture. Two fixtures can have the same number.

Label

An optional text field for each fixture

Profile

Select which profile the fixture references.

Position

The location in the map. As the center of the fixture can be confusing when arraying fixtures, the location of the corners are also given.

Note: The position of a fixture is measured from the bounding box containing the un-rotated fixture.

Scale

Allows the fixture to be made smaller or larger. The scale is a factor, so scale of 10 will make the fixtures 10 times larger in that axis.

Rotation

Rotation of the fixture in degrees.

Channel

The starting DMX channel of the fixture.

Universe

The pixelmapper universe that the fixture will transmit on.

Note: Pixelmapper universes are patched to outputs in the settings of Pixelmapper.

Locked

Locks the fixture so it can not be moved on the map by accident

Disabled

Stops output to the fixture

Receive Live Position Data

Allows the fixture to be controlled from live position data provided by a the Coordinator component.

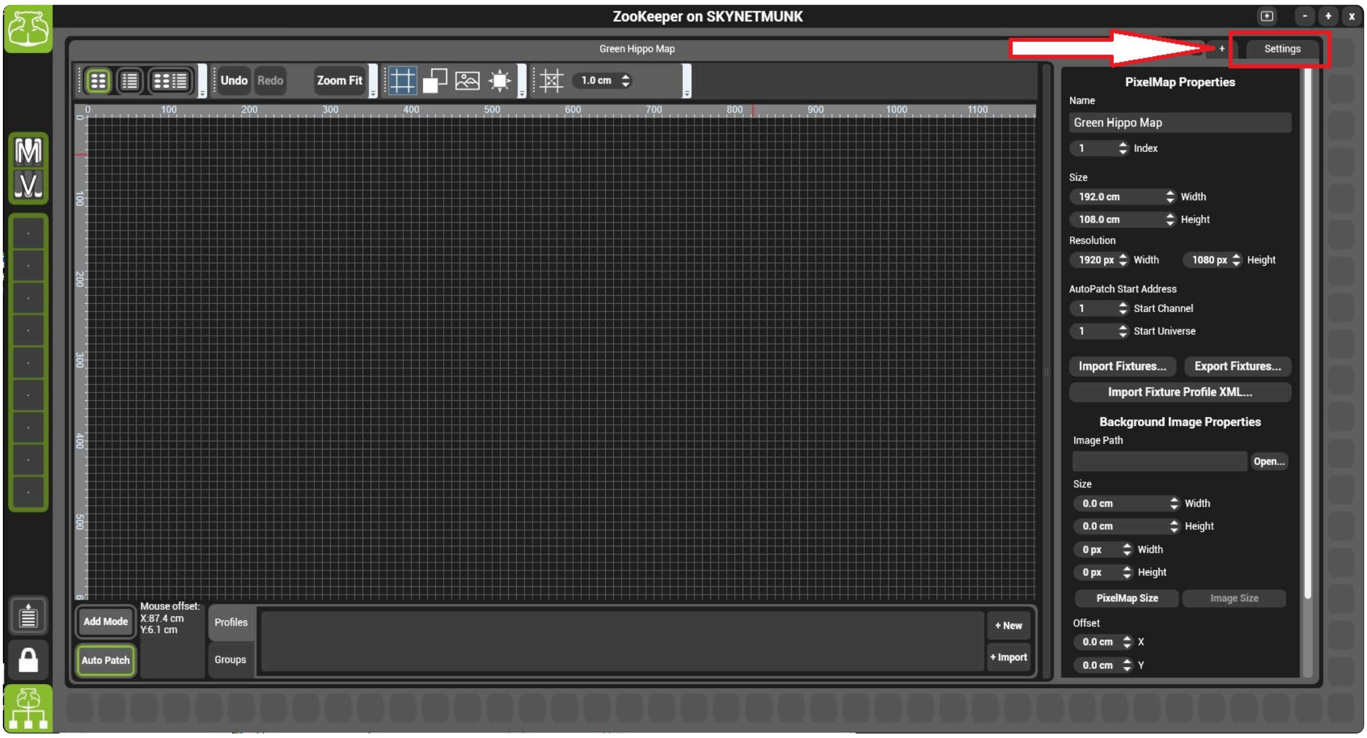
Note: As of 4.2 release, live tracking by Pixelmapper is available on request. Please contact Green Hippo for more details.

Groups

Any group(s) that the fixture has been assigned to.

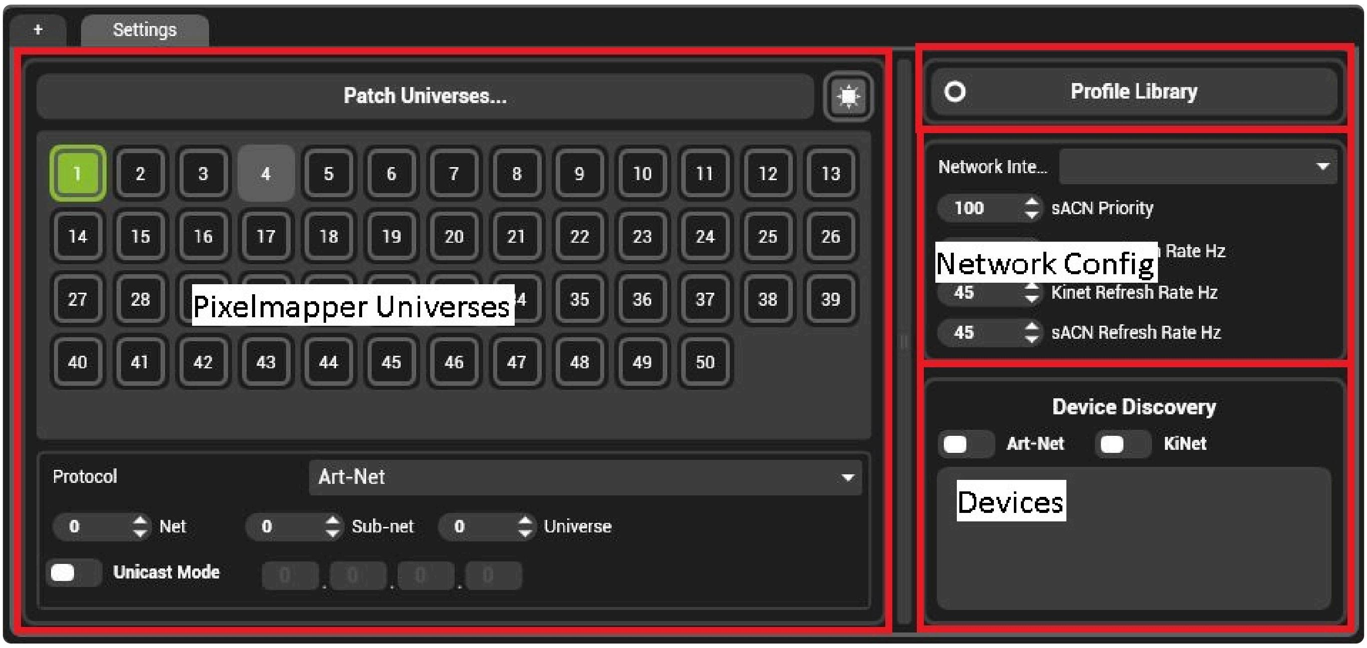
Settings

The patch of pixelmapper is configured within the Settings tab of the component.


ZooKeeper on SKYNETMUNK
Green Hippo Map
Settings
Undo
Redo
Zoom Fit
1.0 cm
PixelMap Properties
Import Fixtures...
Export Fixtures...
Import Fixture Profile XML...
Background Image Properties
Open...
PixelMap Size
Image Size
Add Mode
Auto Patch
Profiles
Groups
+ New
+ Import

Name: Green Hippo Map
Index: 1
Size: Width 192.0 cm, Height 108.0 cm
Resolution: Width 1920 px, Height 1080 px
AutoPatch Start Address: Start Channel 1, Start Universe 1
Background Image Properties – Image Path
Size: Width 0.0 cm, Height 0.0 cm, Width 0 px, Height 0 px
Offset: X 0.0 cm, Y 0.0 cm
Mouse offset: X:87.4 cm Y:6.1 cm

The Pixelmapper settings page is comprised of several parts.


+
Settings
Patch Universes...
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 34 35 36 37 38 39
40 41 42 43 44 45 46 47 48 49 50
Pixelmapper Universes
Profile Library
Network Config
Device Discovery
Devices

Protocol: Art-Net
Net 0, Sub-net 0, Universe 0
Unicast Mode
Network Inte...
100 sACN Priority
Rate Hz
45 Kinet Refresh Rate Hz
45 sACN Refresh Rate Hz
Art-Net
KiNet

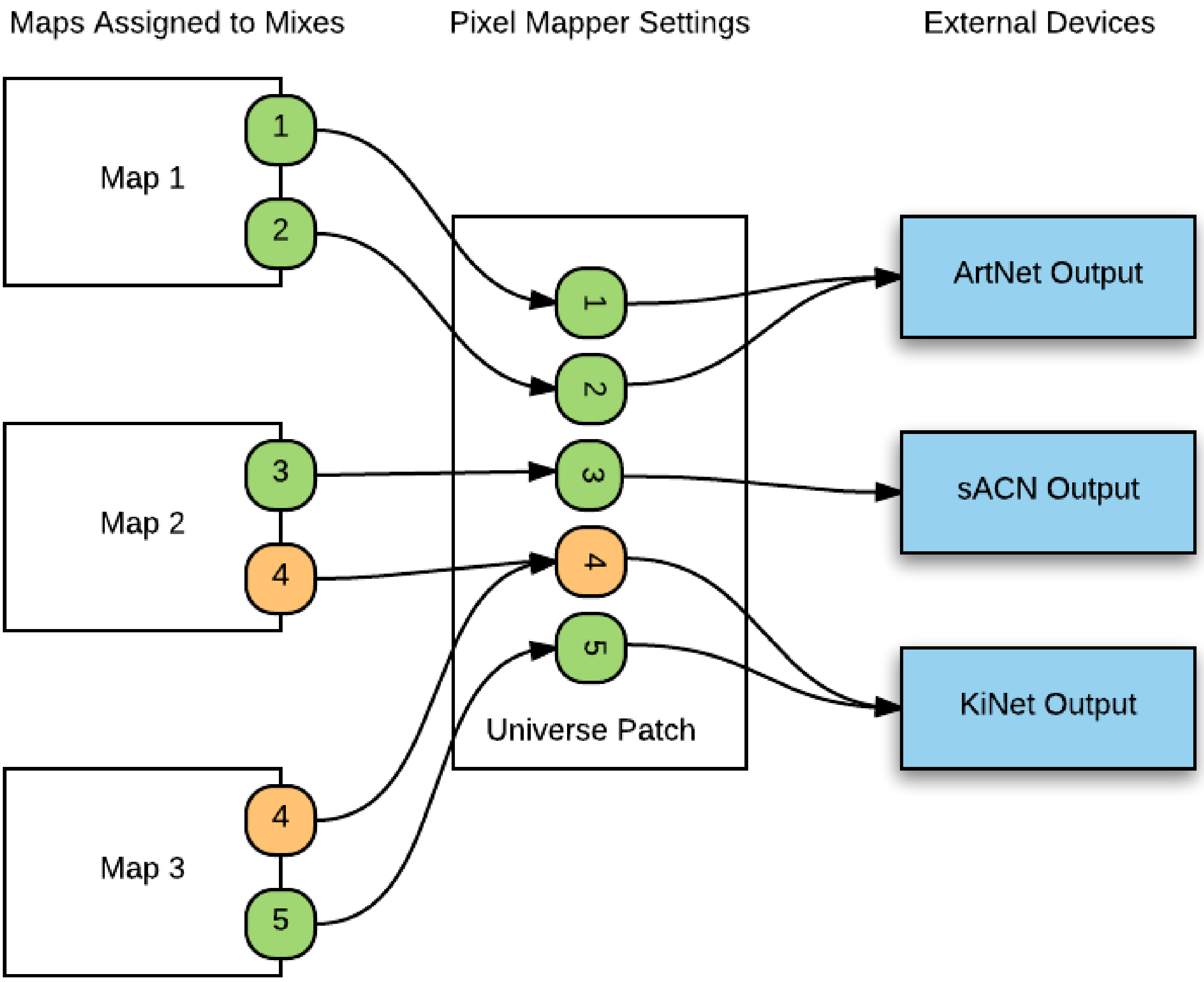
- [Pixelmapper Universes]
- [Network Config]
- [Devices]
- [Profile Library]

Pixelmapper Universes

In order to know where to send data to, each **Pixelmapper Universe** must be patched to an output device.

Pixelmapper Universes

Pixelmapper combines all data universes used by all active pixelmaps into a single pool represented in the settings menu as Pixelmapper universes. This allows pixelmaps to be created without regard for how each universe will be transmitted (e.g. by Art-Net and to what IP).

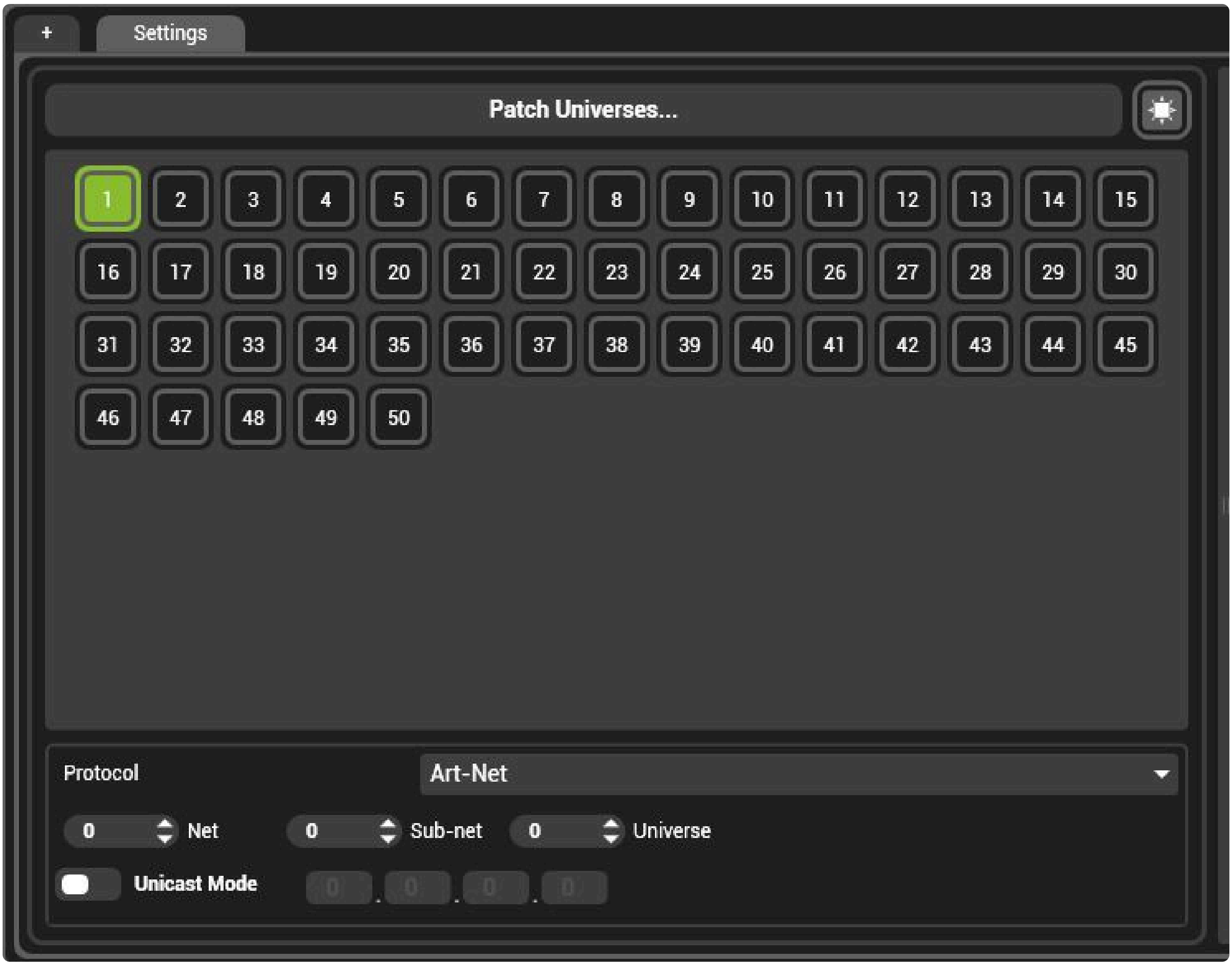

Maps Assigned to Mixes
Pixel Mapper Settings
External Devices
Map 1
1
2
Map 2
3
4
Map 3
4
5
1
2
3
4
5
Universe Patch
ArtNet Output
sACN Output
KiNet Output

In the above example, there are three pixelmaps loaded onto three different mixes. Each pixelmap uses two universes.

Note: Universe four above is used by two maps simultaneously. This is allowed; any values that are in both maps will be taken on a Last Take Precedence basis.

Each Pixelmapper universe outputs to the network using one of three protocols: Artnet, Kinet or sACN.

A pixelmapper universe must be assigned a protocol and applicable settings. These settings are accessible in the pane below and apply to the highlighted universe.


+
Settings
Patch Universes...
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
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

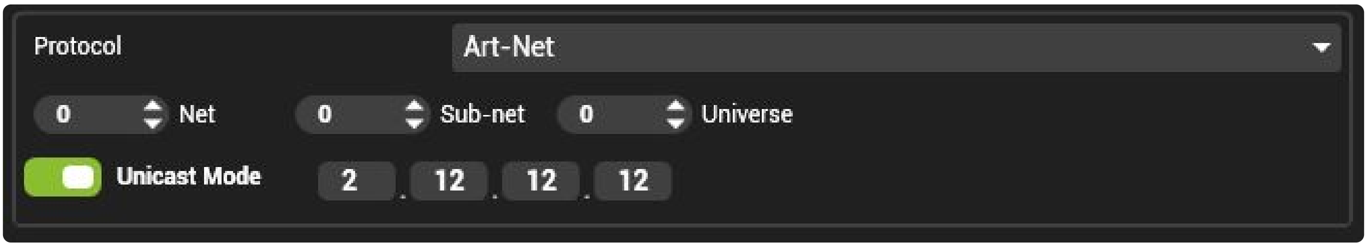
Protocol: Art-Net

0 Net 0 Sub-net 0 Universe

Unicast Mode 0 . 0 . 0 . 0

- **Art-Net Output**
- **Kinet Output**
- **sACN Output**

ArtNet Output


Protocol: Art-Net

Net: 0

Sub-net: 0

Universe: 0

Unicast Mode: 2 . 12 . 12 . 12

Art-Net is a very common DMX over network protocol; Pixelmapper supports Art-Net Versions 1, 2 and 3 as well as discovery and Artsync.

Net:

Used for Art-Net 3, Net increases the number of universes that can be carried in Art-Net's address space.

For devices that do not support Art-Net 3 this setting should normally be left at 0.

Note: Art-Net 3 has a larger capacity to address universes however it does not have any better data handling than previous iterations, as such do not expect any higher capacity than Art-Net 1 or 2.

Universe and Sub-Net:

Output Universe assignment used for Art-Net 1 and 2.

Unicast Mode:

Unicast sends data to a specific IP address instead of using broadcast. To use unicast, a destination IP address for each node must be set.

Many Art-Net Nodes support discovery, this is accessed from the devices section of Pixelmapper, and can simplify the process of setting unicast addresses.

Note: Using unicast as opposed to broadcast dramatically reduces network load and will increase the amount of channels.

How many universes can be sent?

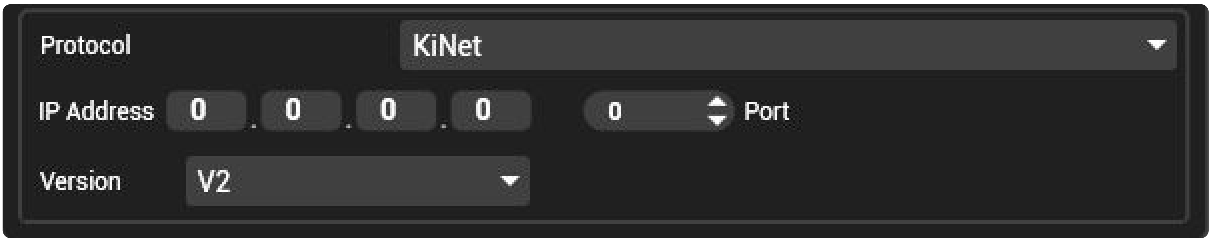
The question of how many universes can be sent from a particular system type is not easily answered; the natural response is always (and unhelpfully) "it depends".

There is no software limit in Hippotizer on how many universes can be created or sent. Most commonly the limit is dictated by the network or the receivers.

Best practices to maximise Art-Net data carrying capacity

- Use unicast addressing for all universes
- Reduce the Art-Net refresh rate if receivers start to flicker or fail
- Use a gigabit switched network that have non-blocking switches (are capable of switching at full wire speed). Most modern models from reputable brands have this.

KiNET Output



Protocol: KiNet

IP Address: 0 . 0 . 0 . 0

Port: 0

Version: V2

KiNET is a proprietary network based protocol used by many Color Kinetics brand LED control nodes.

Similar to other network based control systems, KiNET addresses each output node by IP address. Each port of the node is then given a number.

IP Address

The IP address of the output node. Usually in the 10.xxx.xxx.xxx range, nodes can be discovered on the network using discovery.

Port

The port number of the string of devices to be controlled.

Version

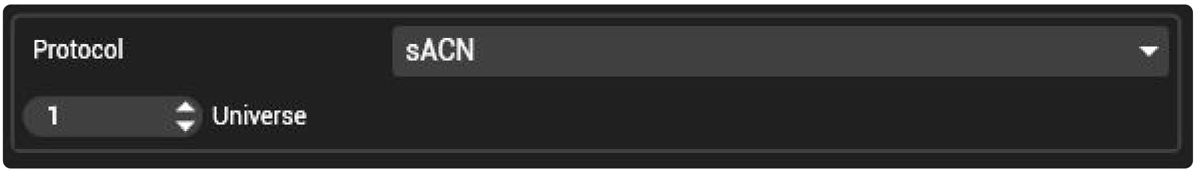
KiNET control version, this is defined by the receiving hardware.

Getting the most from KiNET

- KiNET networks can quickly become clogged when a node drops offline. It is important to un-patch nodes that are not present.
- Older output nodes (Such as PDS-60) can saturate on busy networks. This can be helped by reducing sending frame-rate and reducing the network speed to the node. (10base is frequently best).

sACN Output

Streaming Architectural Control Network (sACN) is a protocol for sending DMX data across the Architectural Control Network (ACN) family of protocols. sACN has been developed by a group of lighting industry professionals (ESTA) to improve upon other methods of sending DMX on a network such as Art-Net. sACN has a several key advantages over Art-Net including support for multi-casting, controller priority and low processing overhead.



Protocol sACN

1 Universe

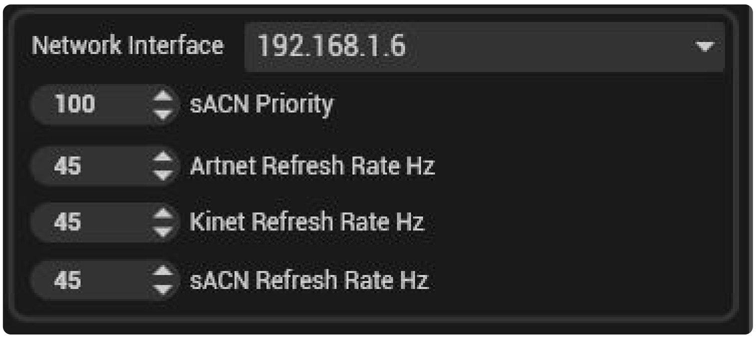
sACN uses the IP address and priority set in Pixelmapper’s network configuration

Universe Number

sACN receivers are addressed based on what Universe they respond to. Set this for each Pixelmapper universe.

Please Note: sACN relies on multi-cast grouping so disabling network functions such as IGMP snooping can seriously degrade the efficiency of sACN. Careful network planning and management is critical to maximise the amount of data that can be carried.

Network Config



Network Interface 192.168.1.6

100 sACN Priority

45 Artnet Refresh Rate Hz

45 Kinet Refresh Rate Hz

45 sACN Refresh Rate Hz

Network Interface

Specifies which network port Pixelmapper will use to output data. This is defined by the IP address of available network cards.

Only IP Addresses from enabled and connected Network Cards will appear in this list.

Note: The configuration of IP addresses should be carried out before starting Pixelmapper. A guide to setting IP addresses can be found here.

sACN Priority

Sets the behaviour of receivers where multiple sACN senders are present on the network. This can be used to define what happens in the event a controller stops transmitting. The higher priority station on a network takes control. If a higher priority station stops transmitting, the next highest priority sender will take control after a short delay.

Two senders with the same priority will normally merge their values on each receiver.

Note: The exact priority behaviour depends on the make and model of receiver.

Artnet Refresh Rate

How often a new frame of Art-Net is sent over the network. Older Art-Net receivers or very congested networks may benefit from a lower refresh rate.

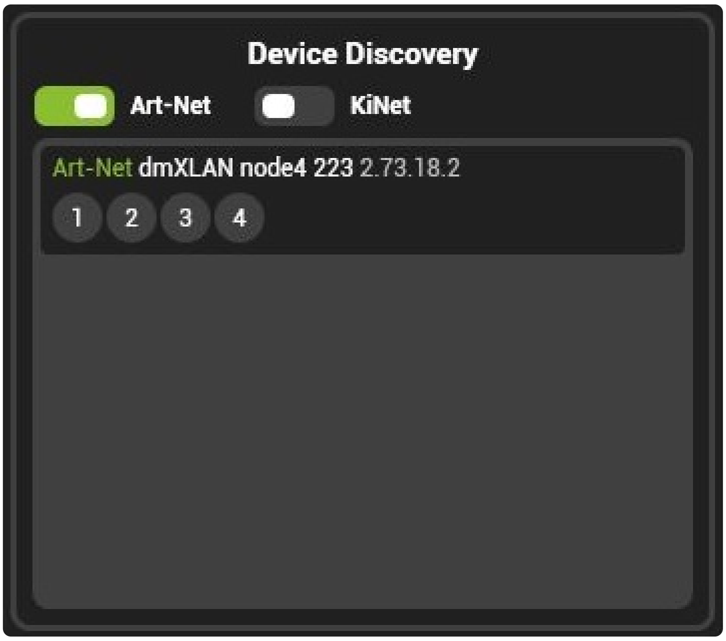
KiNET Refresh Rate

How often a new frame of KiNET is sent over the network. Older KiNET receivers or very congested networks may benefit from a lower refresh rate.

sACN Refresh Rate

How often a new frame of sACN is sent over the network.

Devices

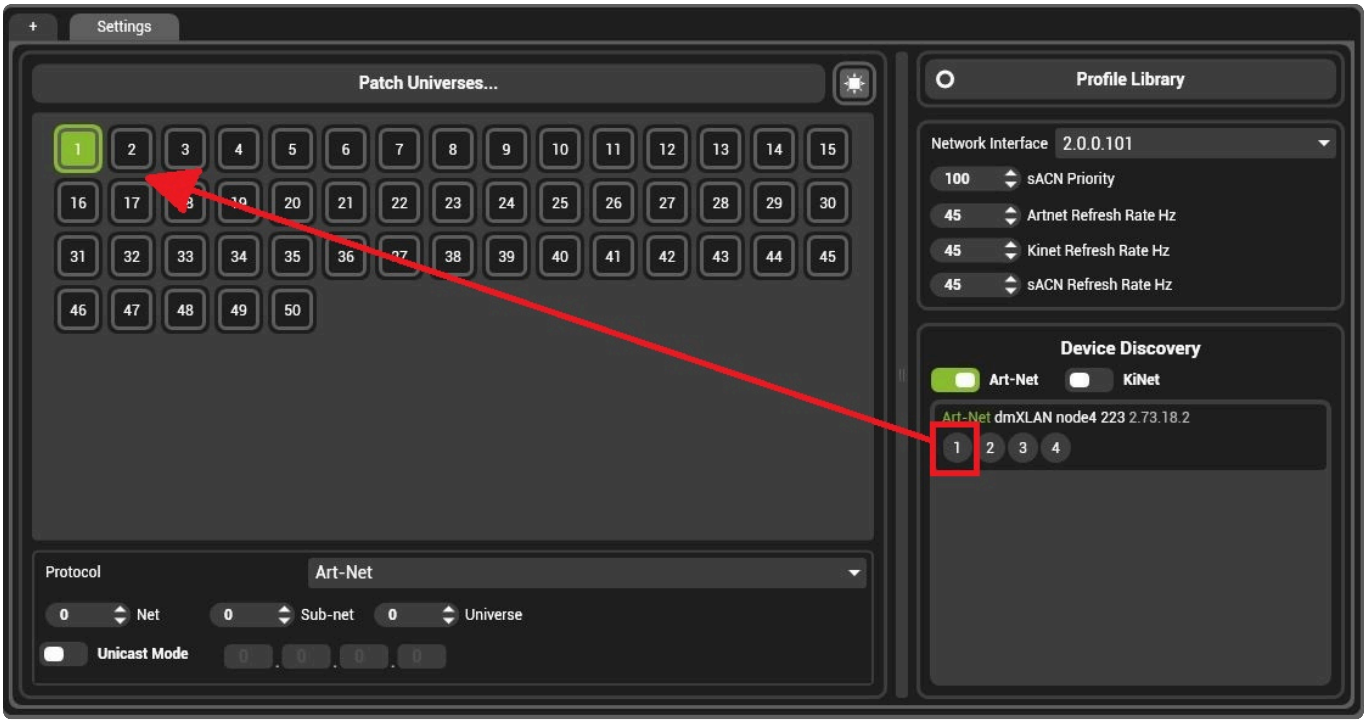

Device Discovery
Art-Net
KiNet
Art-Net dmXLAN node4 223 2.73.18.2
1
2
3
4

Pixelmapper can discover attached Art-Net and KiNET nodes; enable the relevant discovery to populate the list.

All discovered nodes appear with the number of reported ports. Depending on the device, the reported number of ports may not correlate with physical ports on the node. (KiNET nodes for example usually report two ports despite only having one).

The IP address and name of any discovered devices can also be seen.

To quickly patch a Pixelmapper universe to a device port, simply drag the port onto the pixelmapper universe.


+
Settings
Patch Universes...
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
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45
46 47 48 49 50
Unicast Mode
Profile Library
Device Discovery
Art-Net
KiNet
1 2 3 4

Protocol Art-Net

0 Net 0 Sub-net 0 Universe

Network Interface 2.0.0.101

100 sACN Priority

45 Artnet Refresh Rate Hz

45 Kinet Refresh Rate Hz

45 sACN Refresh Rate Hz

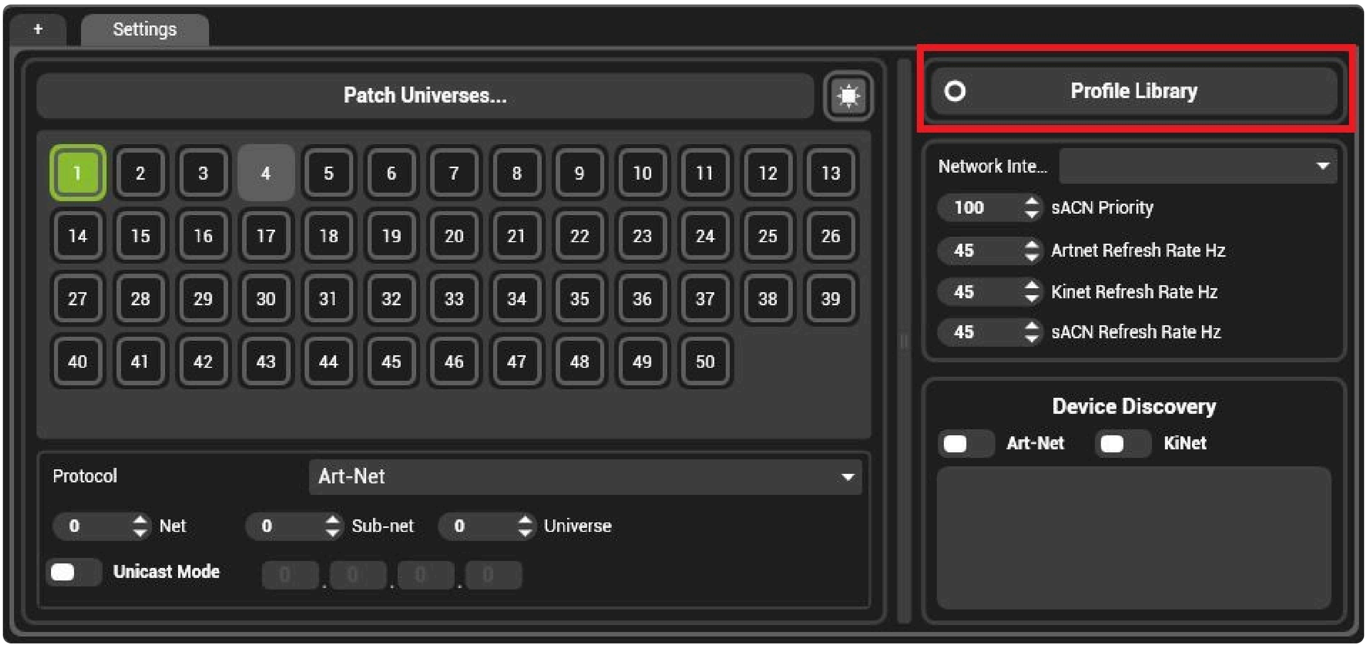
Art-Net dmXLAN node4 223 2.73.18.2

Dragging the port onto the Pixelmapper universe will apply the correct network and port settings to the universe. The network settings will be retained in the event discovery is turned off or connection is lost.

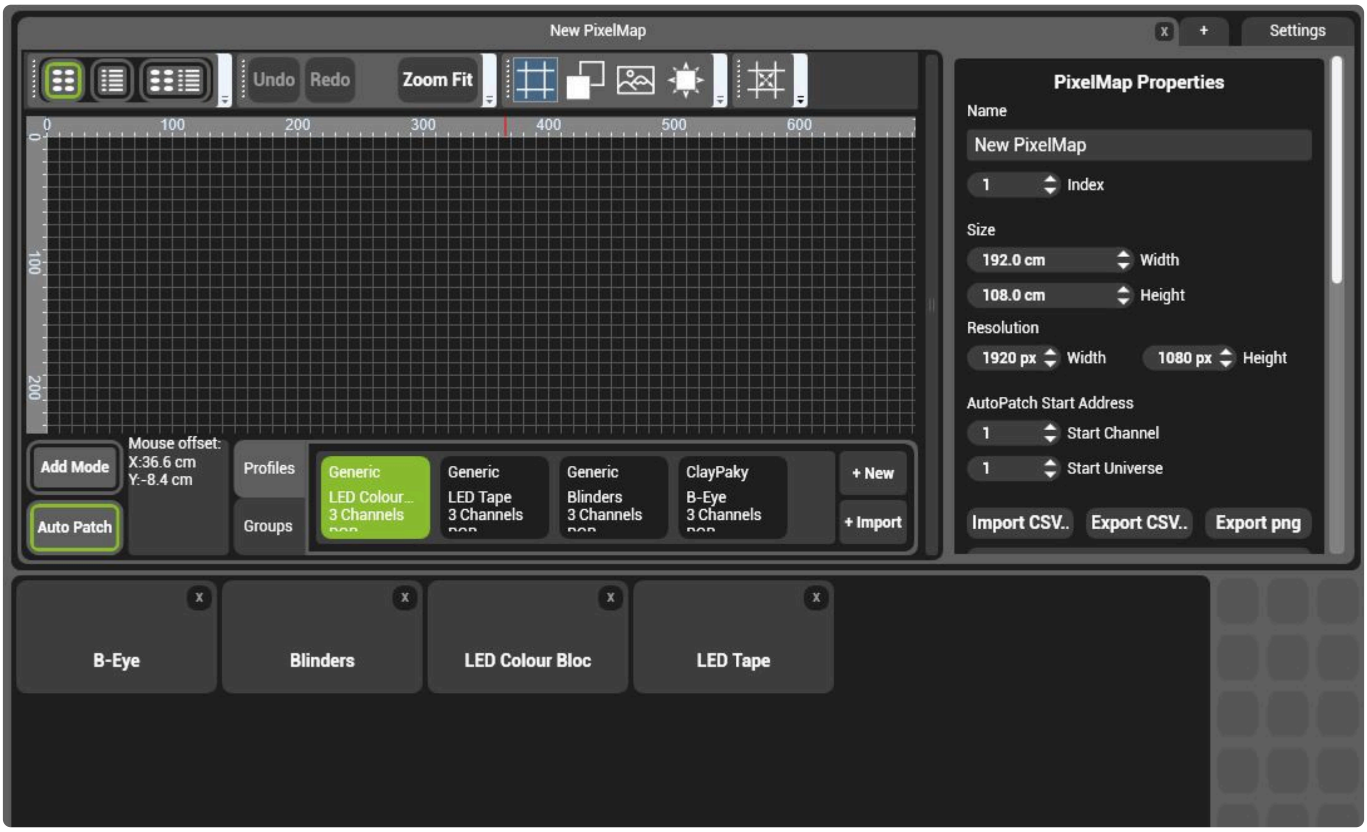
Profile Library

The Profile Library allows fixtures to be shared between Pixel maps; a profile created in one map is saved to the library so that it can be used in other maps.

The Profile Library exists in the settings tab of Pixelmapper.

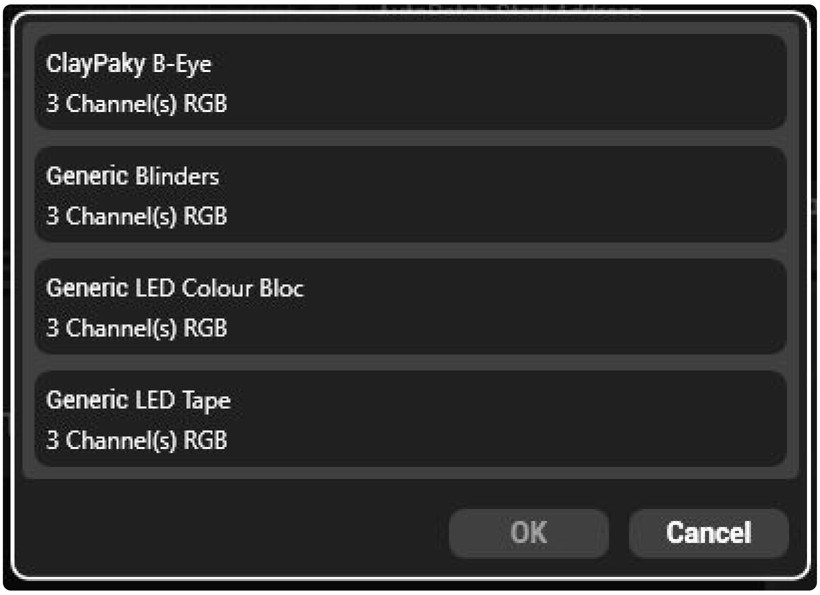

+
Settings
Patch Universes...
1 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25 26
27 28 29 30 31 32 33 34 35 36 37 38 39
40 41 42 43 44 45 46 47 48 49 50
Protocol
Art-Net
0 Net
0 Sub-net
0 Universe
Unicast Mode
Profile Library
Network Inte...
100 sACN Priority
45 Artnet Refresh Rate Hz
45 Kinet Refresh Rate Hz
45 sACN Refresh Rate Hz
Device Discovery
Art-Net
KiNet

The library can be viewed by either clicking on it or adding it to a pinboard.


New PixelMap
Settings
Undo
Redo
Zoom Fit
Add Mode
Auto Patch
Mouse offset:
X:36.6 cm
Y:-8.4 cm
Profiles
Groups
Generic
LED Colour...
3 Channels
Generic
LED Tape
3 Channels
Generic
Blinders
3 Channels
ClayPaky
B-Eye
3 Channels
+ New
+ Import
PixelMap Properties
Name
New PixelMap
1 Index
Size
192.0 cm Width
108.0 cm Height
Resolution
1920 px Width
1080 px Height
AutoPatch Start Address
1 Start Channel
1 Start Universe
Import CSV..
Export CSV..
Export png
B-Eye
Blinders
LED Colour Bloc
LED Tape

To add fixtures from a map to the library right click on them and select *Copy to Profile Library”

To add fixtures to a pixel map from the library click the **Import** button in the pixelmap.



ClayPaky B-Eye
3 Channel(s) RGB

Generic Blinders
3 Channel(s) RGB

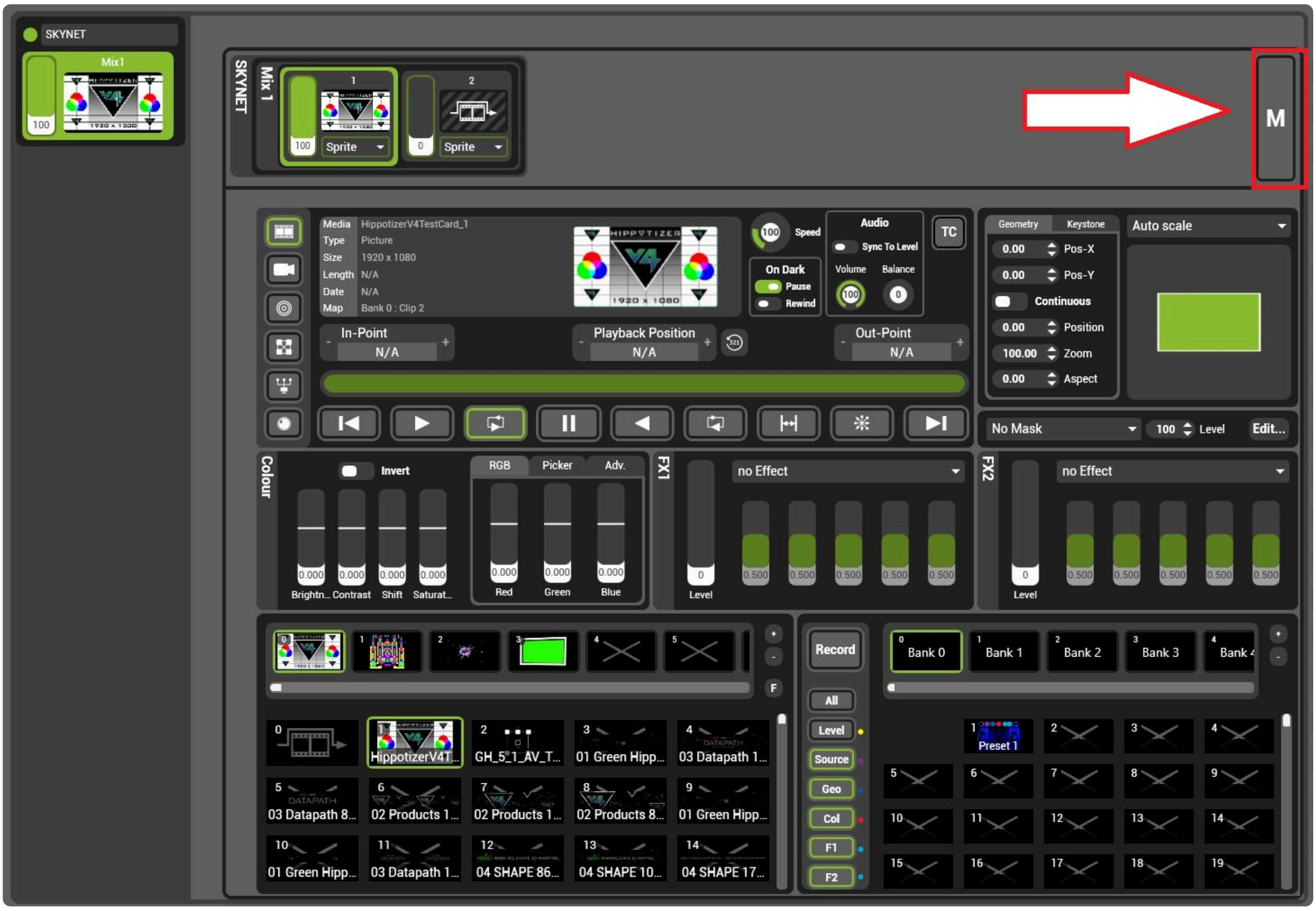
Generic LED Colour Bloc
3 Channel(s) RGB

Generic LED Tape
3 Channel(s) RGB

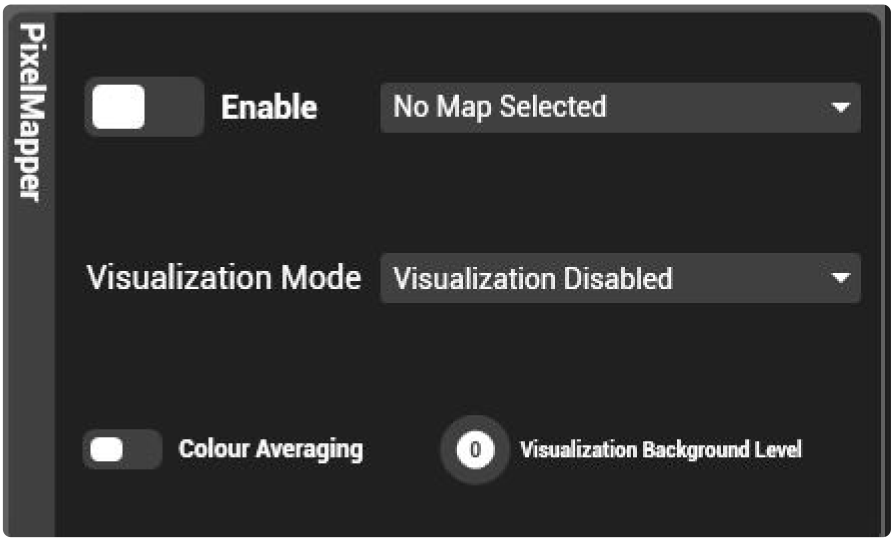
Once a profile has been added to the pixelmap it can be edited without affecting the library copy of the profile.

Mix Controls

Pixel maps are assigned to a mix using the mix controls. Enter the mix controls by pressing the ‘M’ button in a layer selector.


SKYNET
Mix1
Mix 1
Sprite
M
Media HippotizerV4TestCard_1
Type Picture
Size 1920 x 1080
Length N/A
Date N/A
Map Bank 0 : Clip 2
Speed
Audio
Sync To Level
TC
On Dark
Pause
Rewind
Volume
Balance
In-Point
Playback Position
Out-Point
Geometry
Keystone
Auto scale
Pos-X
Pos-Y
Continuous
Position
Zoom
Aspect
No Mask
Level
Edit...
Colour
Invert
Brightn...
Contrast
Shift
Saturat...
RGB
Picker
Adv.
Red
Green
Blue
FX1
FX2
no Effect
Record
All
Level
Source
Geo
Col
F1
F2
Bank 0
Bank 1
Bank 2
Bank 3
Preset 1

Each mix has a pixelmapper control panel:


PixelMapper

Enable

No Map Selected

Visualization Mode: Visualization Disabled

Colour Averaging

Visualization Background Level: 0

Enable

When disabled, Pixel mapper is shut off for that mix.

Visualisation

By default, there is no video output to the mix from pixelmapper; it only samples pixels and sends the data out over the network. The mapping can be seen live on the mix output by selecting an option in the visualisation menu.

Colour Averaging

Colour averaging calculates the average colour for each cell based on all pixels it intersects.

With Colour Averaging disabled, cells that span across multiple pixels will take the colour of the pixel that hits the centre of the cell. When enabled, all pixels that are overlapped by a cell are averaged together and used to determine the colour for that cell.

Colour averaging can have a dramatic impact specifically with very large or very small cells.

Where cells span across multiple pixels, colour averaging will have the effect of smoothing out colour changes that otherwise would appear too fast. **In the case of larger cells, colour averaging is frequently desirable.**

Where cells are only only one pixel, colour averaging makes it very difficult to place fixtures perfectly as they not overlap any adjoining pixels. **In the case of small, or single pixel cells colour averaging is likely better disabled.**

Visualisation Background Image

Sets the level of the background video when using pixelmapper visualisation on the mix. When visualisation is on, an area of the output not covered by a pixelmapper fixture is black by default. Visualisation Background Image allows the video to be show as well as the mapped fixtures.

Pixelmapper and Engine performance

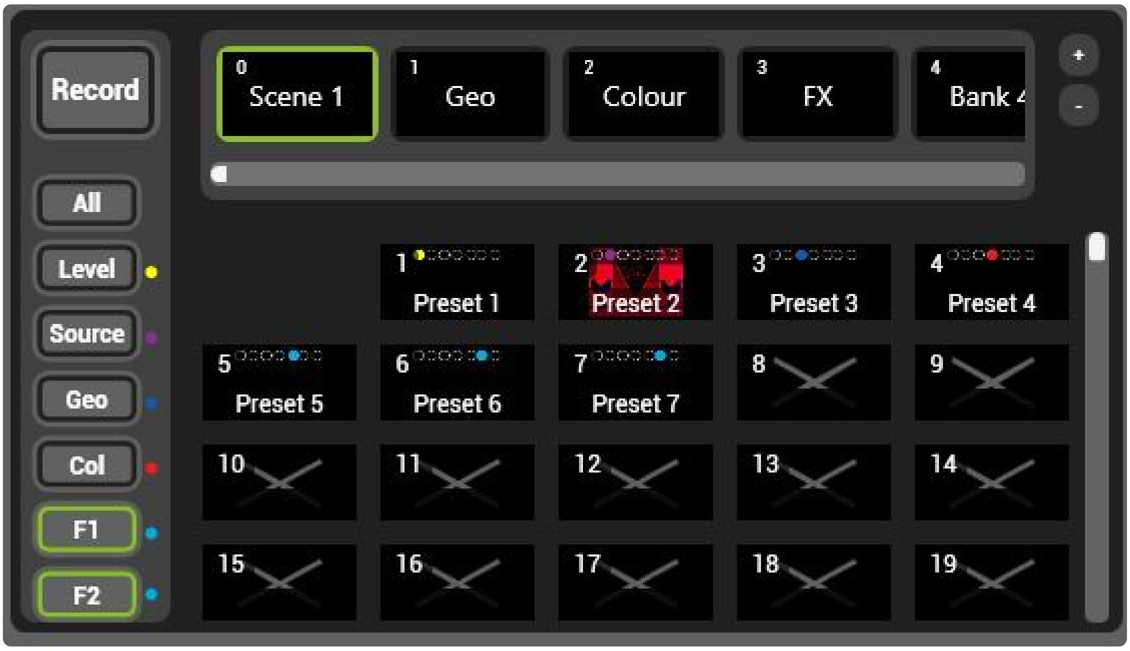
Pixelmapper can add significant load to a system, especially with large and complex maps. This results in a slowing of the video output frame-rate.

Preset Manager

Presets are collections of pin values that are saved on each Layer, Mix and Viewport. Presets are a quick way to save a state for quick recall.

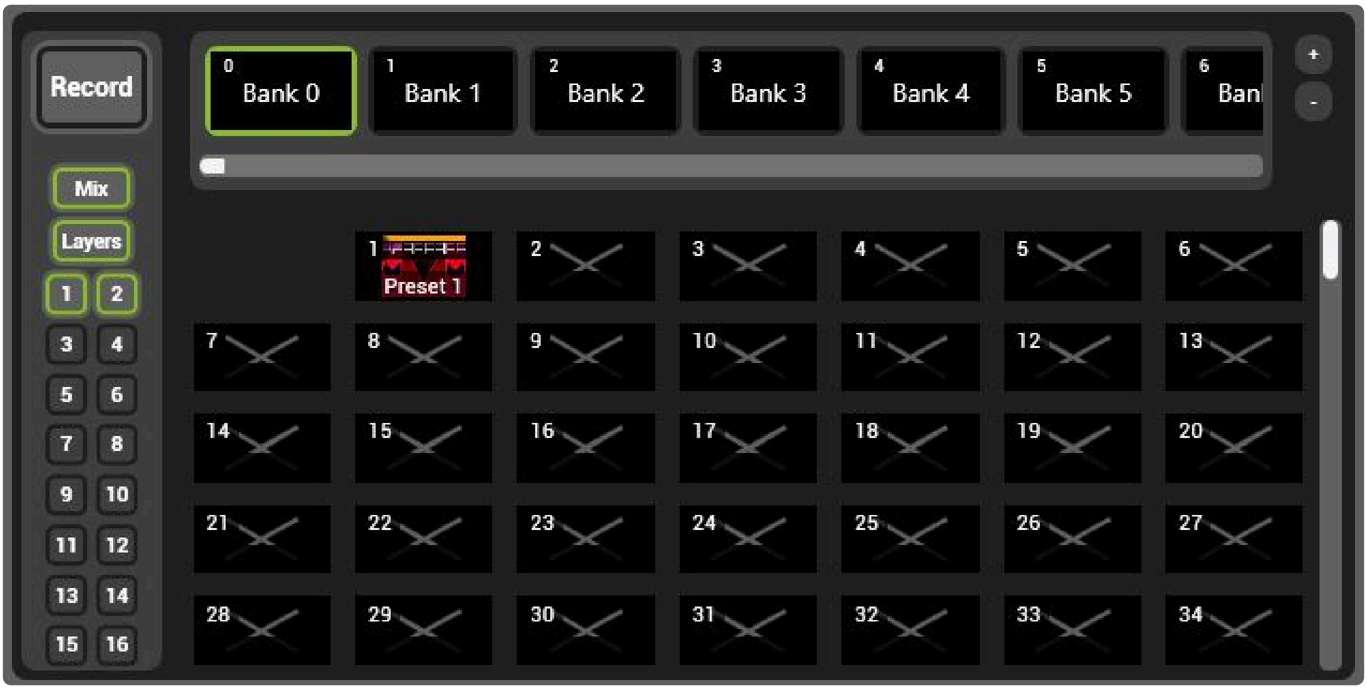
Presets can be saved for Layers, Mixes or Viewports.

Layer Presets


Record
All
Level
Source
Geo
Col
F1
F2
0 Scene 1
1 Geo
2 Colour
3 FX
4 Bank 4
+
-
1 Preset 1
2 Preset 2
3 Preset 3
4 Preset 4
5 Preset 5
6 Preset 6
7 Preset 7
8
9
10
11
12
13
14
15
16
17
18
19

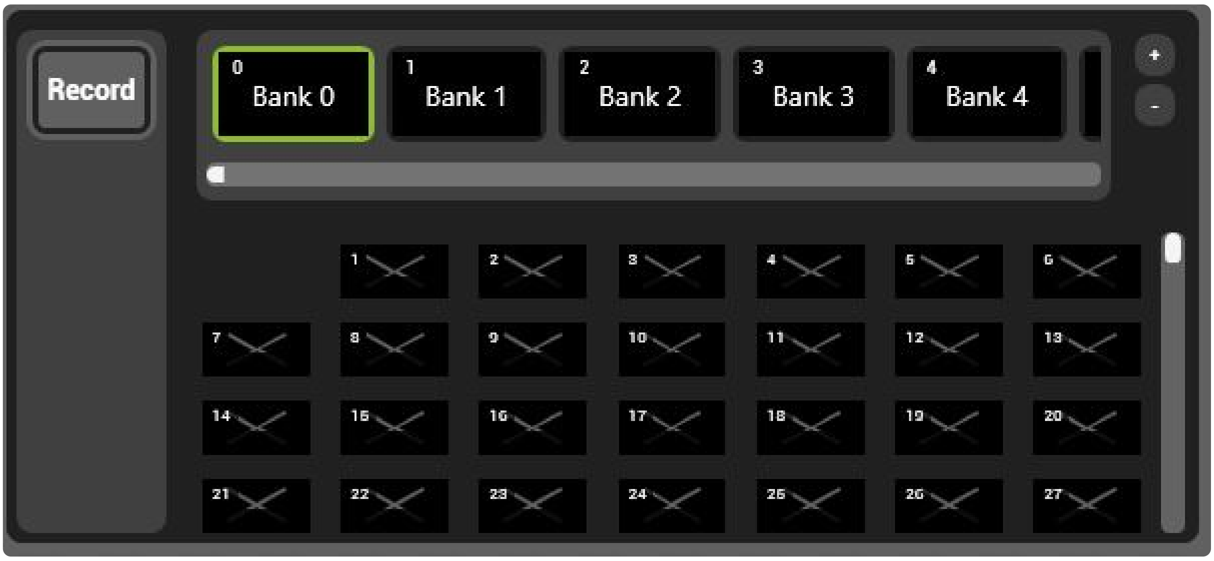
Layer Presets save information from each layer such as level, media playing, colour, effects and geometry.

Mix Presets


Record
Mix
Layers
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
0 Bank 0
1 Bank 1
2 Bank 2
3 Bank 3
4 Bank 4
5 Bank 5
6 Ban
+
-
1 Preset 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 31 32 33 34

Mix Presets save the mix effects and pixelmapper information and can save some or all layers in that mix.

Viewport Presets


Record
0 Bank 0
1 Bank 1
2 Bank 2
3 Bank 3
4 Bank 4
+
-
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

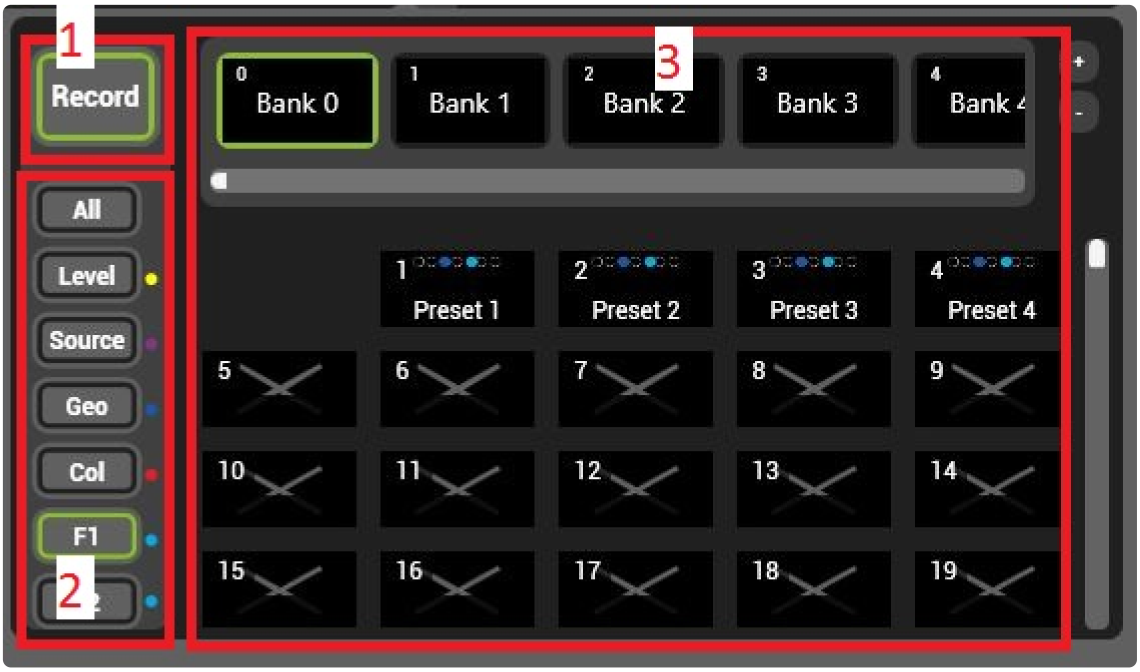
Viewport Presets save information such as warp, keystone and video mapper assignments.

Saving Presets

Saving and Editing Presets

Presets record the current state of the selected Layer, Mix or Viewport.

Recording a preset follows a simple 3-step process:


1
Record
2
All
Level
Source
Geo
Col
F1
3
Bank 0
Bank 1
Bank 2
Bank 3
Bank 4
1 Preset 1
2 Preset 2
3 Preset 3
4 Preset 4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19

1. Press Record

- Single clicking the record button will highlight it with green indicating a after a single preset is saved record will disable.
- Double clicking the record button will highlight it with orange indicating that it will remain in record mode after saving a preset. Use this to quickly snapshot many states.

2. Select the desired record filters

- On **Layer**, filters allow for only certain attributes such as level, geometry or effects to be saved.
- On **Mix** filters allow for certain layers or the mix controls to be saved.
- There are no filters for **Viewports**.

3. Choose the bank and slot to save the preset in.

Presets and Timelines

Presets and DMX

ScreenWarp Manager

Screen Warp Manager is Hippotizer’s blending and warping system

Note: SHAPE has a warping and blending system for use with SHAPE Viewports.

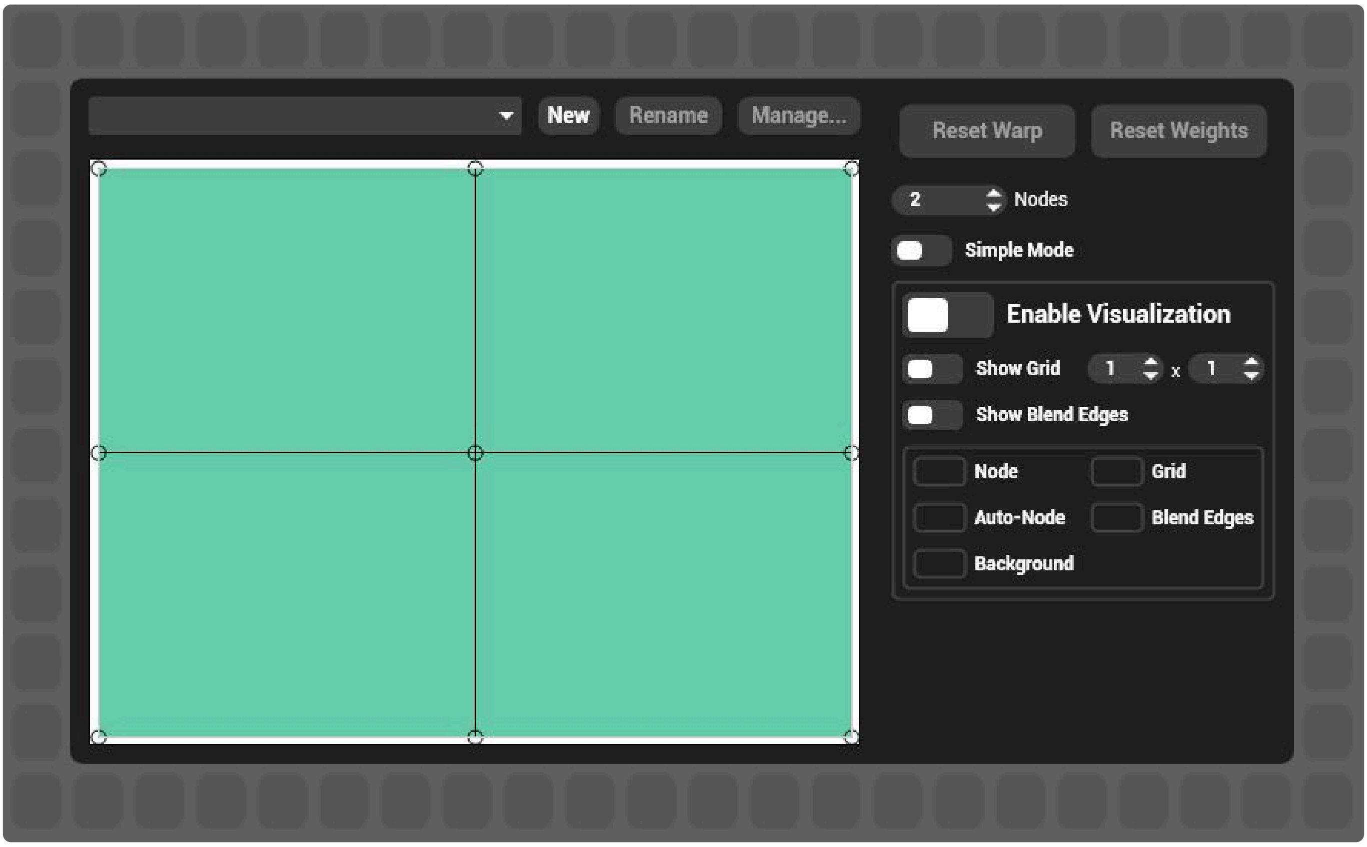
Screen Warp is a component that does not run by default; it must be started before use.

More information on starting a component can be found here.

Basic Layout

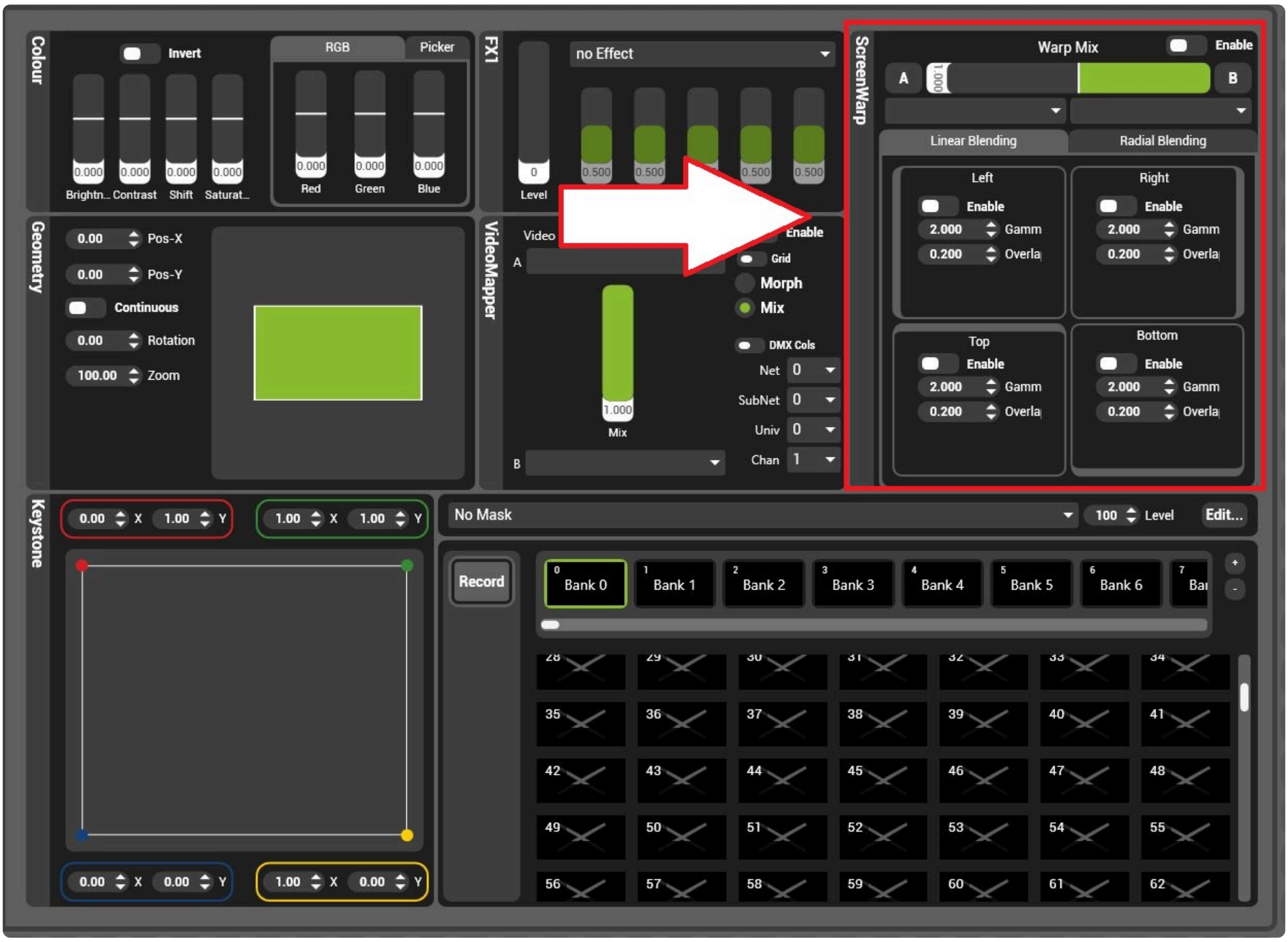
Screen Warp is made up of two parts: the warp editor and viewport controls.

Warp Editor


New
Rename
Manage...
Reset Warp
Reset Weights
2
Nodes
Simple Mode
Enable Visualization
Show Grid
1
x
1
Show Blend Edges
Node
Grid
Auto-Node
Blend Edges
Background

The warp editor is where warps are created and edited.

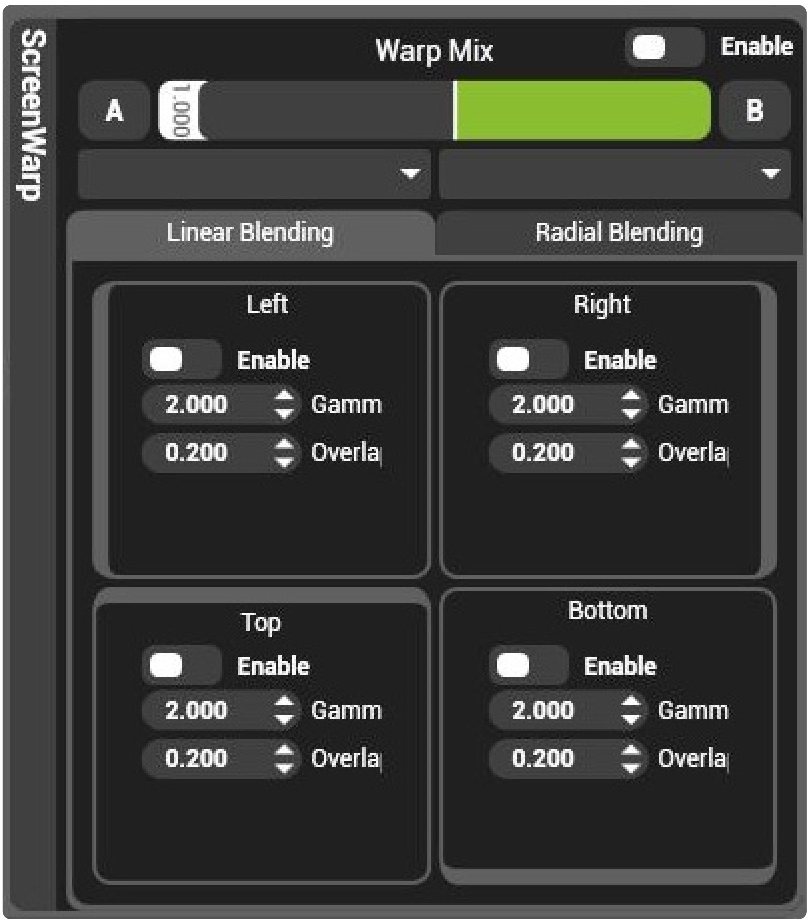
Viewport Controls


Colour
Invert
RGB
Picker
Brightn...
Contrast
Shift
Saturat...
Red
Green
Blue
FX1
no Effect
Level
ScreenWarp
Warp Mix
Enable
A
B
Linear Blending
Radial Blending
Left
Right
Top
Bottom
Enable
Gamm
Overla
Geometry
Pos-X
Pos-Y
Continuous
Rotation
Zoom
VideoMapper
Video
Grid
Morph
Mix
DMX Cols
Net
SubNet
Univ
Chan
Keystone
No Mask
Level
Edit...
Record
Bank 0
Bank 1
Bank 2
Bank 3
Bank 4
Bank 5
Bank 6

Each warp can be assigned to one or more Viewports. The viewport controls also contain blending controls enabling square and radial blending.

Screen Warp Viewport Controls

Each Viewport selects whether to use Screen Warp and sets blending.


ScreenWarp
Warp Mix
Enable
A
1.000
B
Linear Blending
Radial Blending
Left
Enable
2.000 Gamm
0.200 Overla
Right
Enable
2.000 Gamm
0.200 Overla
Top
Enable
2.000 Gamm
0.200 Overla
Bottom
Enable
2.000 Gamm
0.200 Overla

The viewport controls are made of two sections:

Enable

Turns the screen warp rendering on that selected viewport on or off.

Warp Mix

Two screen warps can be loaded to each viewport and faded between with the warp mix fader.

Blending

On each viewport all four edges can be blended individually or a radial (circular) blend can be applied.

Each blend has two attributes:

Gamma

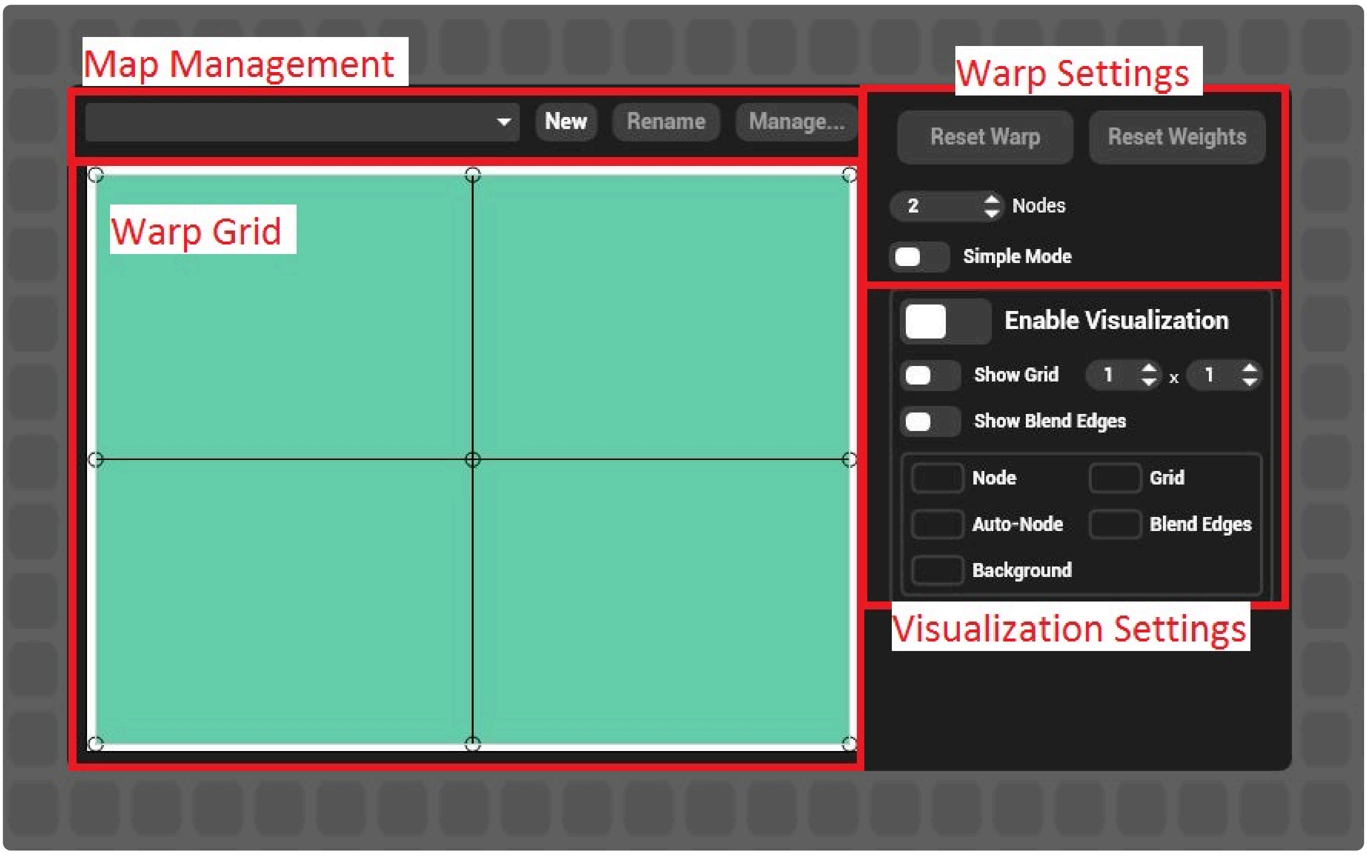
Measured from 1 – 3, a gamma of 1 is a steeper curve while a gamma of three is flatter.

Overlap

Sets the starting point for the blend as a proportion of the overall width of the viewport.

Screen Warp Editor

The Screen Warp editor is where warps are created and modified.


Map Management
New
Rename
Manage...
Warp Settings
Reset Warp
Reset Weights
2 Nodes
Simple Mode
Warp Grid
Enable Visualization
Show Grid 1 x 1
Show Blend Edges
Node
Grid
Auto-Node
Blend Edges
Background
Visualization Settings

The Editor is comprise of four sections:

Map Management

Screen warps are saved as part of a list of warps accessible by each viewport.

Warp select drop down list

Selects which warp is visible in the screen warp editor.

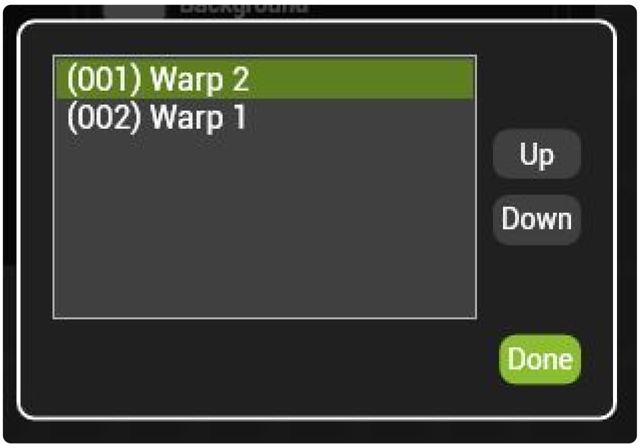
New

Creates a new screen warp and adds it to the end of the screen warp list.

Rename

Renames the selected warp

Manage…



Each warp has an index to determine how they are recalled from the warp select pin. The manage dialogue allows the list to be re-ordered by moving warps up and down in the list.

Note; DMX, Timeline and Preset recall of warps is by index number; changing the index may affect existing programming.

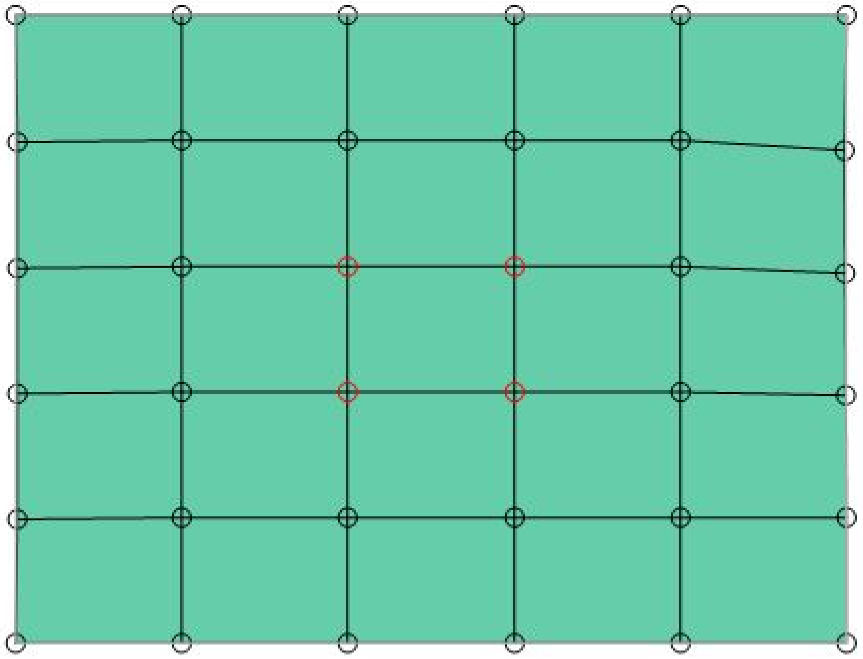
Warp Grid

The warp grid represents the distortion of the selected screen warp.

Controls

Editing a warp begins by selecting the desired node to modify. Multiple node can be selected by clicking and dragging over them with the mouse or holding CTRL while selecting the nodes.

Selected nodes appear red.



Once selected, there are different ways to edit a warp depending on the situation.

Left Click and drag on the desired node to move it with the mouse. To edit multiple nodes select them first then click on one node in the selection to move the entire selection. Holding SHIFT while dragging with the mouse is a fine adjustment.

Arrow Keys Select the desired node and use the arrow keys to move it. Holding SHIFT + Arrow keys is a fine adjustment.

Right Click and drag changes the selected node’s **weight**. This is best thought of pushing the node into or pulling it out of the screen.

Warp Settings

Reset Warp

Sets the position and weight of all nodes to default.

Reset Weight

Sets the weight of all nodes to default.

Number of nodes

Sets the number of nodes (in the and X and Y dimensions)

Hint: The warp grid does not move when you add points, so it is faster to use as few nodes as possible and add them as needed.

Simple Mode

In simple mode, only the corner points are editable to facilitate quick basic warps.

Visualisation settings

Warps can be shown on the output as they are edited.

Show Grid

Draws a lineup grid on the output with the selected number of lines

Show blend edges

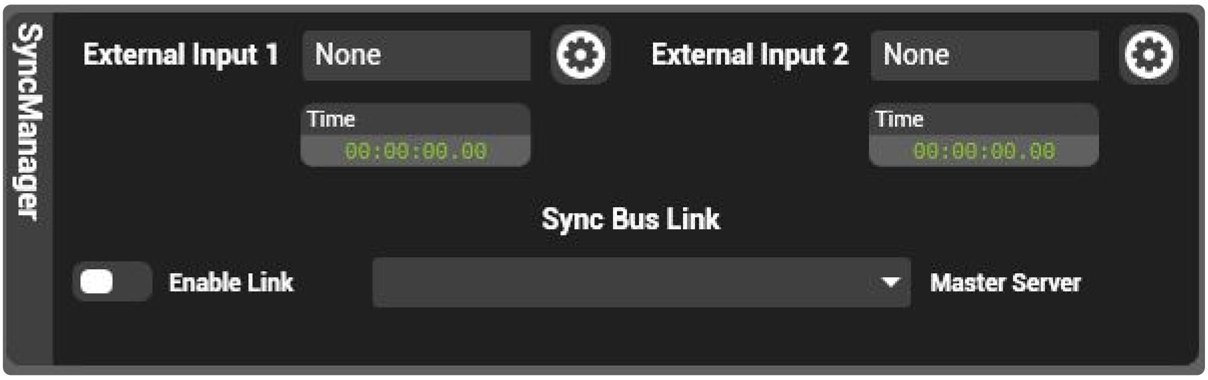
Displays where the beginning of the gamma curve is applied to the edge of the viewport

Colours

The colour of each aspect of screen warp visualisation can be edited by left clicking on the colour tags.

Sync Manager

Sync Manager handles timecode in Hippotizer V4; it receives time signals from external devices and sends it to local or network based Hippotizer systems.


SyncManager
External Input 1
None
Time
00:00:00.00
External Input 2
None
Time
00:00:00.00
Sync Bus Link
Enable Link
Master Server

Sync Manager has two basic functions: reading timecode and sending it to Hippotizer components locally and on the network.

Receiving or generating timecode

Sync Manager can listen to timecode different sources:

- Audio Input
- HippoNet
- MIDI
- Alpermann Velte

Sync Manager can also generate timecode:

- Generator Input

An external source such as Linear Time Code (LTC) or the clock generates timecode, this must be converted to a Time signal by Sync Manager for use by Hippotizer.

Time vs. Media Control

Synchronization information inside Hippotizer is distributed as two pins which together are refereed to as **HippoSync**. The two pins called “Time” and “Sync State” together carry time and Media control.

When dealing with synchronization and timecode it is important to understand the terminology:

Timecode

Timing sent to Hippotizer by an external source such as LTC or the Generator.

HippoSync

HippoSync is how timing information is carried in Hippotizer, and is comprised of two parts: Time and Media Control. A sync bus carries one channel of HippoSync around the Hippotizer network. HippoSync can be created by the Sync Manager or by a media player.

Time

Carried by Hippo Sync: sets the play-head position of a clip.

Media Control

Carried by HippoSync: sets clip selection, in-point, out-point and play mode.

Sync Buses

Sync Buses allow a HippoSync Channel to be sent between media players.

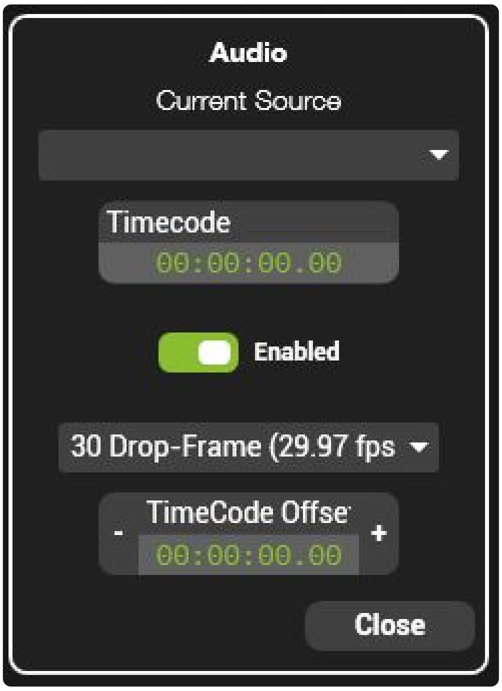
More information on Sync Buses

29.97 Non Drop Timecode

Non real-time timecode requires special considerations as Time and Timecode differ.

See here for more details.

Audio Input


Audio
Current Source
Timecode
00:00:00.00
Enabled
30 Drop-Frame (29.97 fps
TimeCode Offse
-
+
00:00:00.00
Close

Linear Time Code (often called SMPTE timecode) encodes a time signal into audio, Hippotizer can read this signal from any audio input.

Current Source

Lists all active audio input sources on that machine. This list is managed by Windows and determined by which devices are discovered, so if a device does not appear here it is likely down a driver issue.

Timecode

The time received from the selected source

Enabled

On/Off control for the source.

Frame Rate Drop Down

Select the type of timecode received. (This is determined by the timecode source)

Timecode Offset

Add a set amount of time to the incoming timecode in order to compensate for delays.

To Configure

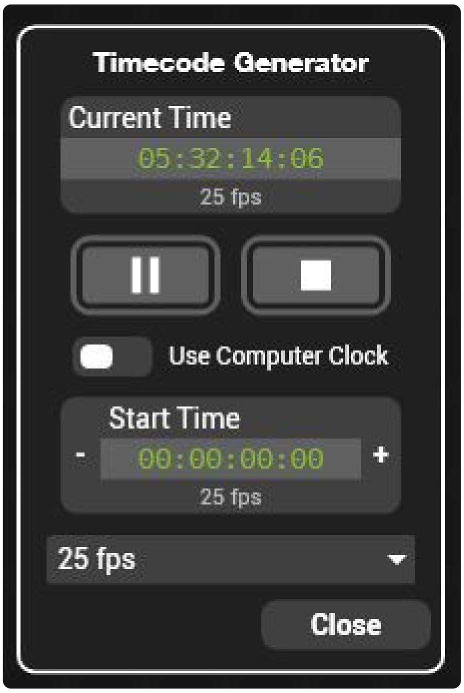
1. Plug the audio input into your Hippotizer system (Audio must be going into the system running the Sync Manager Component)

2. Goto Sync Manager in Zookeeper and select Audio as an External Input
3. Click the settings cog
4. Select the Audio input device as the Current Source; this will depend on what is used to bring audio into the system.
5. When Set correctly, the time readout will reflect the timecode being received

Note: As timecode is being carried by a normal audio line, the gain (volume) must be set correctly to function. It is frequently necessary to experiment with various combinations of the output device volume and the input gain to find a correct setting.

Generator Input

The Timecode Generator creates timecode from the computer's clock or from a user specified time.


Timecode Generator
Current Time
05:32:14:06
25 fps
Use Computer Clock
Start Time
-
00:00:00:00
+
25 fps
25 fps
Close

Using the computer clock

1. Set the external input in Sync Manager to be Generator
2. Open the settings by clicking the settings cog
3. Ensure the switch "Use Computer Clock" is enabled.

When using the computer clock, the stop jog control is disabled, while play and pause can be used to hold and restart timecode.

Note: Automatic changes to the computer clock (such as for daylight savings time) will be reflected in this time.

Using an arbitrary time

1. Set the external input in Sync Manager to be Generator
2. Open the settings by clicking the settings cog
3. Ensure the switch "Use Computer Clock" is disabled
4. Set the desired start time in the "Start Time" readout

When using an arbitrary time the stop jog control resets the timecode to the Start Time. Pausing and restarting will not reset to the start time.

HippoNet

MIDI

Hippotizer can use Timecode over MIDI via a USB interface to receive Timecode.

Supported Devices:

Rosendahl Mif 4

[Mif 4 Website](#)

mif 4
midi timecode interface
SOURCE
LTC
MIDI
USB
GEN
10.00.00.00
FPS
24
25
30
DF
DISPLAY
TC
UB
CAL
REF
PRESS AND HOLD TO START GENERATOR
ROSENDAHL
LTC
level
IN
OUT
designed and manufactured in germany
MIDI
IN
OUT
SD/HD SYNC IN
internally terminated
USB 2.0
MIDI device class compliant
USB powered 5V 300 mA

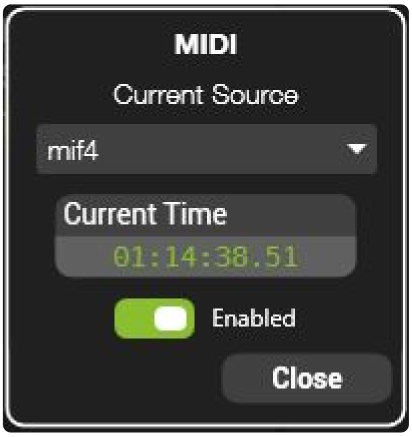
Adrienne Electronics USB LTC/RDR

[USB-TC Website](#)

USB TIME CODE READER
ADRIENNE ELECTRONICS CORPORATION

To Configure:

1. Stop the Hippotizer Engine and Zookeeper
2. Plug in the USB Time Code device and allow Windows to discover it and install drivers. (Follow manufacturer instructions)
3. Start the Engine and Zookeeper and select the Midi source as an external source in Sync Manager
4. Click the settings cog and select the desired midi device
5. Enable the source. If timecode is being received the time counter should reflect it.


MIDI
Current Source
Close

mif4

Current Time 01:14:38.51

Enabled

Alpermann Velte

Hippotizer supports an internal timecode card using the Alpermann Velte PCIe TC card.

If fitted, the Alpermann will appear as a timecode source option in Sync Manager’s External inputs.

To Configure:

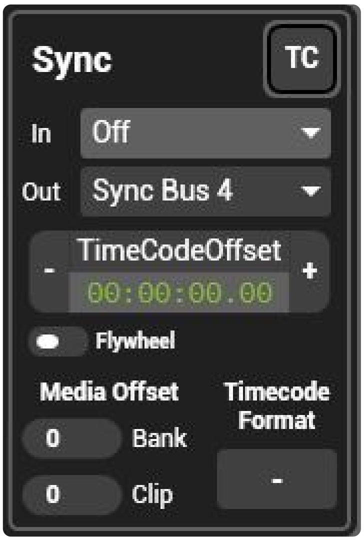
1. Ensure the Alpermann Card is fitted and drivers are correctly installed.
2. In Sync Manager, set the External Input source as Alpermann
3. Click the settings cog to view and edit the Alpermann card’s options

Sync Buses

Sync Buses send channels of HippoSync between media players.

A Hippotizer has 16 Sync Buses that each can send HippoSync from a source media player to one or many target media players.

Sync Buses are visible on each Media Player by clicking the TC button:



Sync

TC

In Off

Out Sync Bus 4

TimeCodeOffset 00:00:00.00

Flywheel

Media Offset

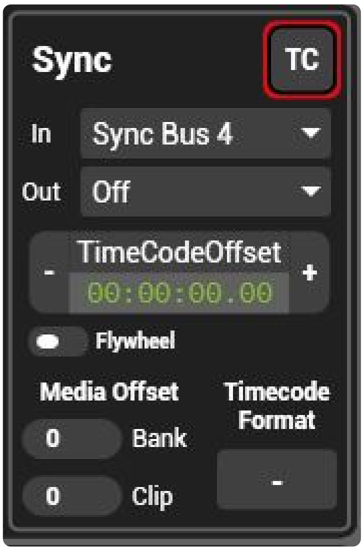
0 Bank

0 Clip

Timecode Format -

Above the layer's sync information is being sent to Sync Bus 4.

Any layer that chooses it's Sync Bus in as Bus 4 will follow the source layer



Sync

TC

In Sync Bus 4

Out Off

TimeCodeOffset 00:00:00.00

Flywheel

Media Offset

0 Bank

0 Clip

Timecode Format -

Media Offset

As the Sync Bus carries a full HippoSync channel containing time and media control information, all target layers will show the same clip as the source layer. The target layer can show a different clip as the source by using the Media Offset control. For example, if the offset is set to Bank: 1, Clip: 1 and the source is set to Bank 2, Clip 1, the target will play Bank 3, Clip 2.

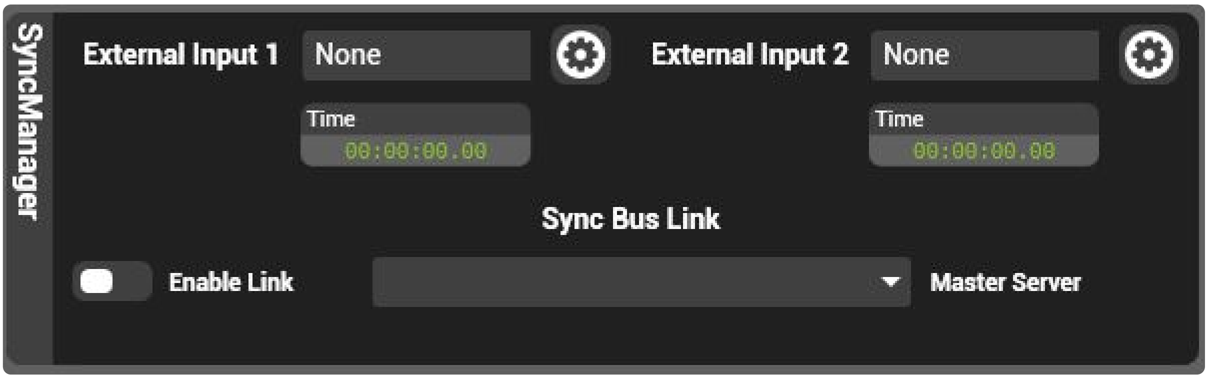
Sync Buses can be sent between systems using Sync Bus Link

Sync Bus Link

Normally Sync Buses are local to each machine; in order to share them across the network the Sync Bus Link function in Sync Manager must be used.

Sink Bus Link connects machines together in a Master / Slave arrangement, where the Slaves listen to the Sink Buses of the Master.

Each master can send to multiple slaves.


SyncManager
External Input 1
None
Time
00:00:00.00
External Input 2
None
Time
00:00:00.00
Sync Bus Link
Enable Link
Master Server

To configure Sink Bus Link

1. On the Master and the slave machines start the Sync Manager Component
2. On the slave machine(s) enable the Sink Bus Link toggle in Sink Manager
3. In the drop down, select the master machine

The sink buses on the slave machines will now use the HippoSync from the master machine.

Non Real-Time Timecode

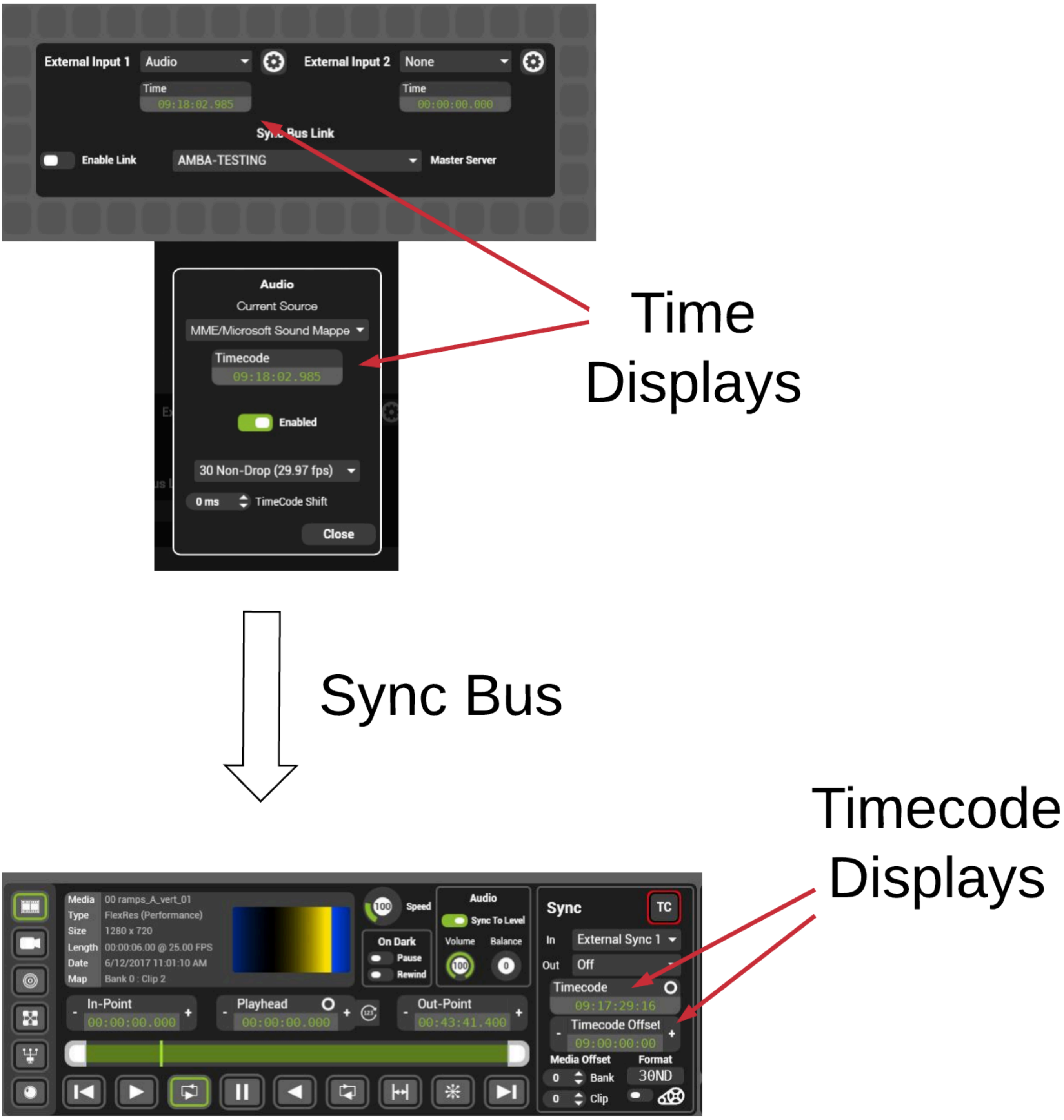
Hippotizer V4 supports many Timecode standards, including 29.97 FPS Non Drop-Frame (NDF) a “Non real-time” time code format.

29.97 Non Drop Frame is a somewhat archaic standard that for legacy reasons differs from the time it is meant to represent. Unless there is a specific reason to use this format, we strongly advise using another more common standard of timecode.

Note: The logic and mathematics behind 29.97 NDF extends beyond the scope of this manual, however there is a very good explanation of how and why this format exists here:
http://www.connect.ecuad.ca/~mrose/pdf_documents/timecode.pdf

In 29.97 NDF, the **time** and the **timecode** differ by 1.8 frames of video per minute, which equates to a drift of 3.6 seconds per hour. This means that timecode of `01:00:00:00` equals a time of `01:00:03:18`.

Hippotizer’s media player uses time to know which frame of video to play, this requires all timecode to be converted to time. Under normal circumstances, these two values are identical, meaning it does not matter which value is displayed or controlled. 29.97 NDF however breaks this convention, making it very important to know where time and timecode is used in Hippotizer.



External Input 1: Audio
Time: 09:18:02.985
External Input 2: None
Time: 00:00:00.000
Sync Bus Link
Enable Link: AMBA-TESTING
Master Server

Audio
Current Source: MME/Microsoft Sound Mappe
Timecode: 09:18:02.985
Enabled
30 Non-Drop (29.97 fps)
0 ms TimeCode Shift
Close

Media: 00 ramps_A_vert_01
Type: FlexRes (Performance)
Size: 1280 x 720
Length: 00:00:06.00 @ 25.00 FPS
Date: 6/12/2017 11:01:10 AM
Map: Bank 0 : Clip 2
Speed: 100
Audio: Sync To Level
On Dark: Pause, Rewind
Volume: 100
Balance: 0
In-Point: 00:00:00.000
Playhead: 00:00:00.000
Out-Point: 00:43:41.400
Sync: TC
In: External Sync 1
Out: Off
Timecode: 09:17:29:16
Timecode Offset: 09:00:00:00
Media Offset: Bank 0, Clip 0
Format: 30ND

Sync manager receives the timecode signal and will convert it to **time**, displaying it as **time** in the Sync manager interface and detailed views.

The time signal then travels to media player(s) over a sync bus, which also displays in **time**.

The Media Player then converts it back into **timecode** so it can be correctly edited and viewed. The timecode offset control also displays **timecode**.

The timecode offset pins work in **timecode**.

This mixture of time and timecode means that for 29.97 NDF it is normal to see slightly different numbers in each interface depend on where in the signal flow you are.

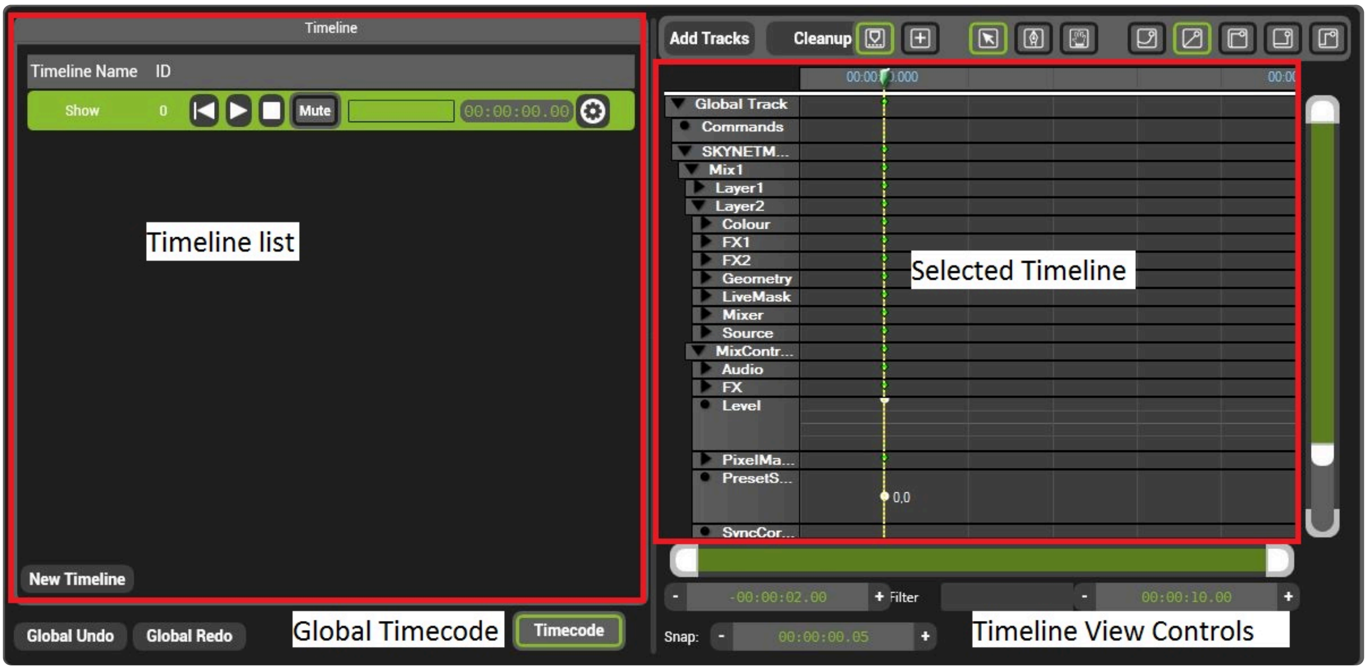
Timeline

Timeline allows a Hippotizer V4 to save and playback complex shows across the Hippotizer network. Timeline programming is a skill and the best method depends on how it will be used. The basics of timelines and their use are covered here while the nuances of advanced timeline programming are beyond the scope of this manual; for additional information please contact Green Hippo for training.

Starting Timeline

Timeline is a component, to use it start the component.

Basic Component Layout


Timeline
Timeline Name
ID
Show
0
Mute
00:00:00.00
Timeline list
New Timeline
Global Undo
Global Redo
Global Timecode
Timecode
Add Tracks
Cleanup
Global Track
Commands
SKYNETM...
Mix1
Layer1
Layer2
Colour
FX1
FX2
Geometry
LiveMask
Mixer
Source
MixContr...
Audio
FX
Level
PixelMa...
PresetS...
SyncCor...
Selected Timeline
0,0
-00:00:02.00
Filter
00:00:10.00
Snap:
00:00:00.05
Timeline View Controls

Timeline List

All timelines on the system are shown here. They can be ordered by index or name.

Selected Timeline

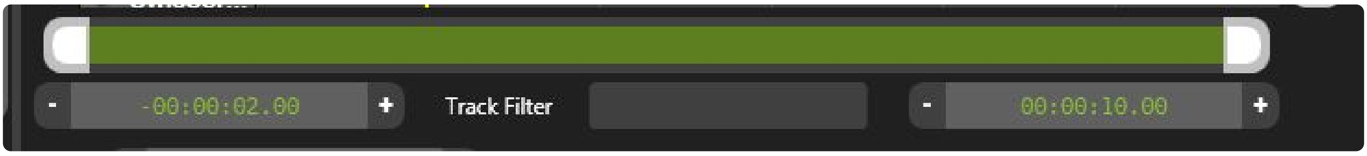
Shows the detail of the timeline selected in the timeline list.

Global Timecode

Enables / Disables timecode going to all timelines

Timeline View Controls

View Bar



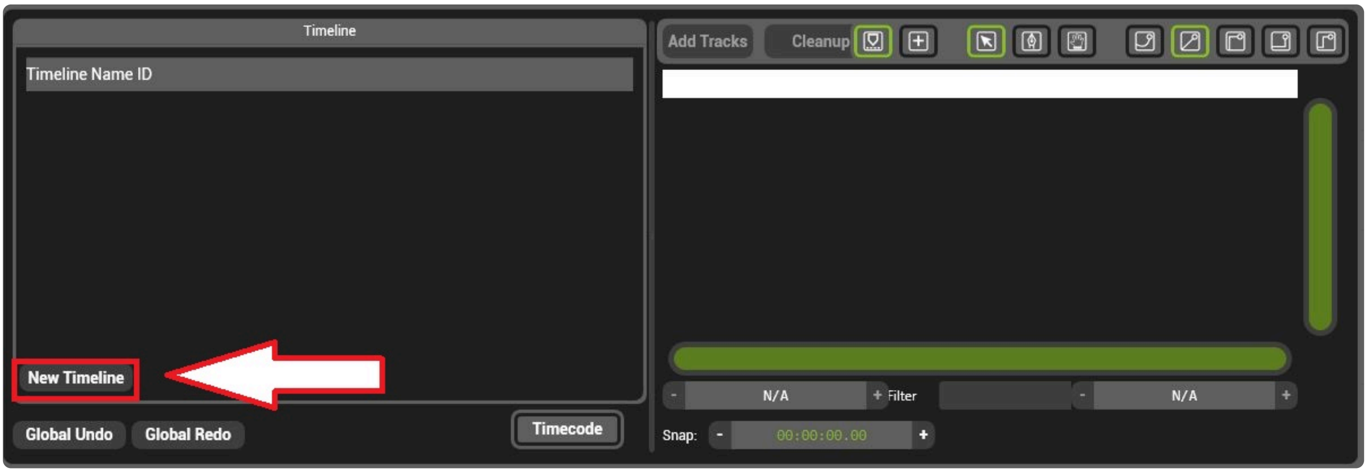
The view in the selected timeline window extends from the two times shown.

Track Filter

Will only show the tracks matching words in the filter. To see **mixer/level** type `level` and the timeline will show only tracks with level in the name.

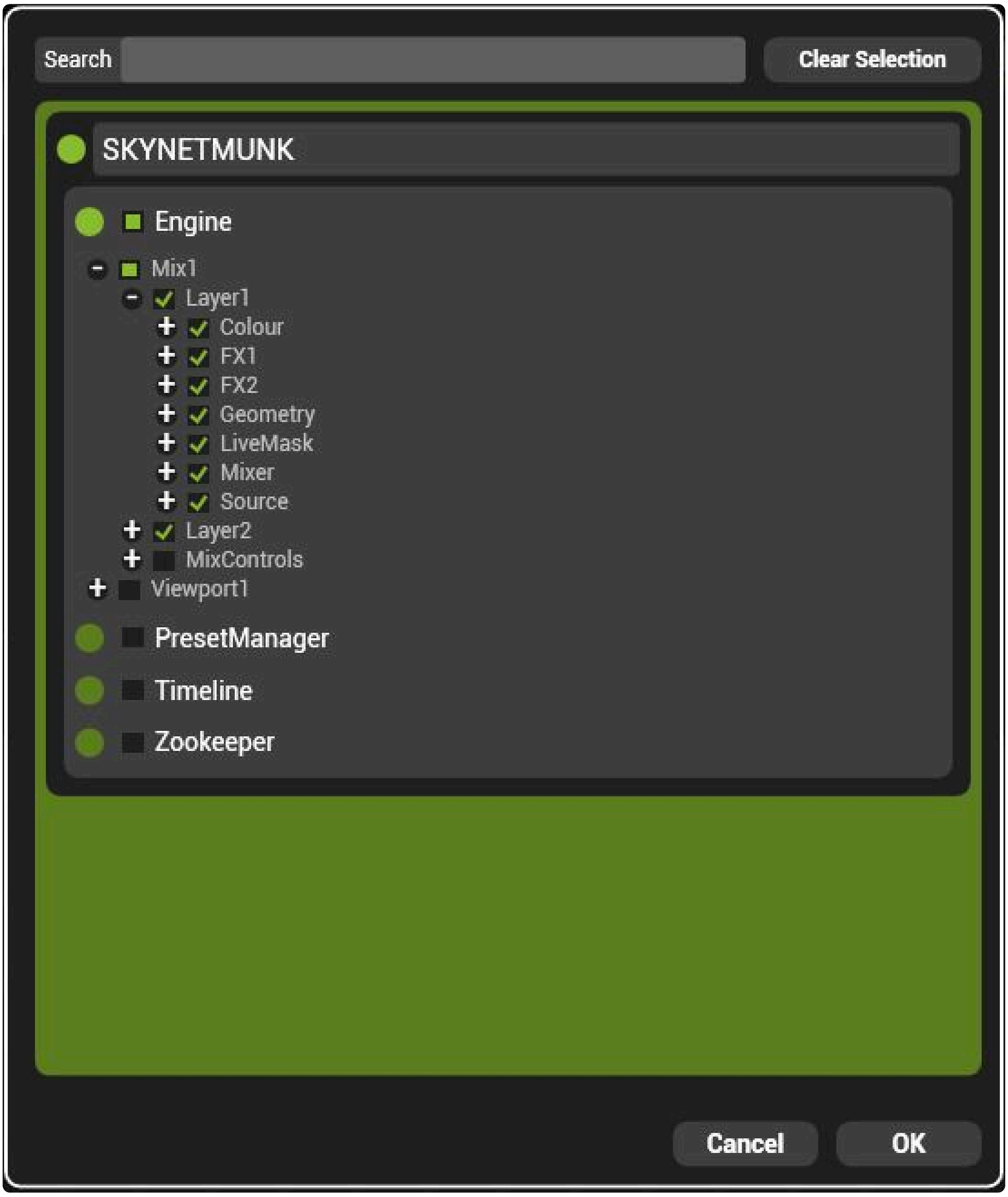
Creating a new Timeline

Timelines control pins: the first step in making a Timeline is to choose which pins to control.


Timeline
Timeline Name ID
New Timeline
Global Undo
Global Redo
Timecode
Add Tracks
Cleanup
N/A
Filter
N/A
Snap:
00:00:00.00

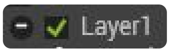
Click **New Timeline** to create a Timeline.

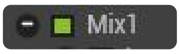
A Pin Selector Window will open



- ● SKYNETMUNK
  - ● ▪ Engine
    - − ▪ Mix1
      - − ✓ Layer1
        - + ✓ Colour
        - + ✓ FX1
        - + ✓ FX2
        - + ✓ Geometry
        - + ✓ LiveMask
        - + ✓ Mixer
        - + ✓ Source
      - + ✓ Layer2
      - + ☐ MixControls
    - + ☐ Viewport1
  - ● ☐ PresetManager
  - ● ☐ Timeline
  - ● ☐ Zookeeper

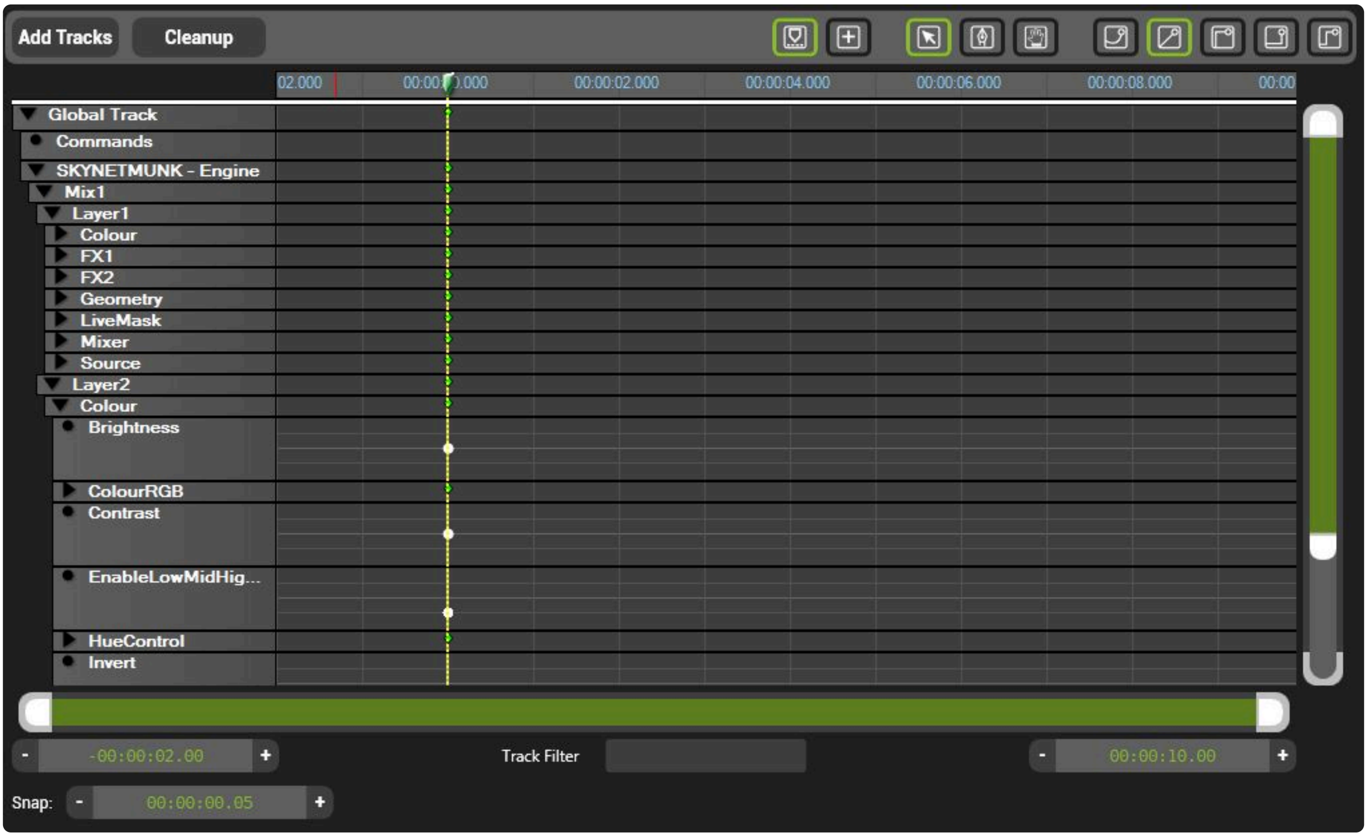
The pin tree will show all local and networked Hippotizer systems, expand the groups to select desired pins.


− ✓ Layer1 Groups that have had all child pins selected are shown ticked.


− ▪ Mix1 Groups that have some but not all child pins are show with a square.

Once all desired pins have been selected click OK to create the timeline and name it.

Timeline Structure


Add Tracks
Cleanup
02.000
00:00:00.000
00:00:02.000
00:00:04.000
00:00:06.000
00:00:08.000
00:00
Global Track
Commands
SKYNETMUNK - Engine
Mix1
Layer1
Colour
FX1
FX2
Geometry
LiveMask
Mixer
Source
Layer2
Colour
Brightness
ColourRGB
Contrast
EnableLowMidHig...
HueControl
Invert
-00:00:02.00
Track Filter
00:00:10.00
Snap:
00:00:00.05

The Timeline window is comprised of a series of controls around the tracks window.

Basic Timeline Controls

Scrolls the timeline view to keep the play head in view

Opens the insert timeline dialogue to embed one timeline into another. Timelines can also be dragged from the timeline list into the Global Track to embed them.

Sets the mouse to allow selecting of nodes or groups of nodes.

Sets the mouse to add values to a track with a single click. Pressing **ALT** will temporarily set insert mode.

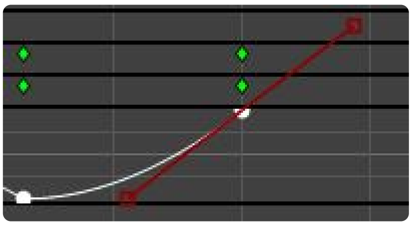
Sets the mouse to scroll the view by left clicking and dragging.

Transition controls

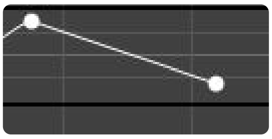
The transition between two points on a float pin’s track can be set in different ways.

Note: Only float pins (those going from 0-1) can be faded, other pin types such as integers do not fade.

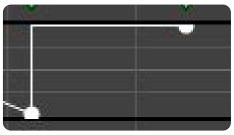
Creates a curve between two points in a track. The Spline’s curve is controlled by modifying the red Spine bar.



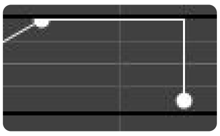
Linearly fades between the two points.



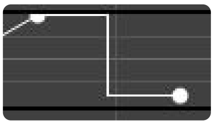
Snaps from the first value to the second value immediately



Snaps from the first value to the second value at the second value.

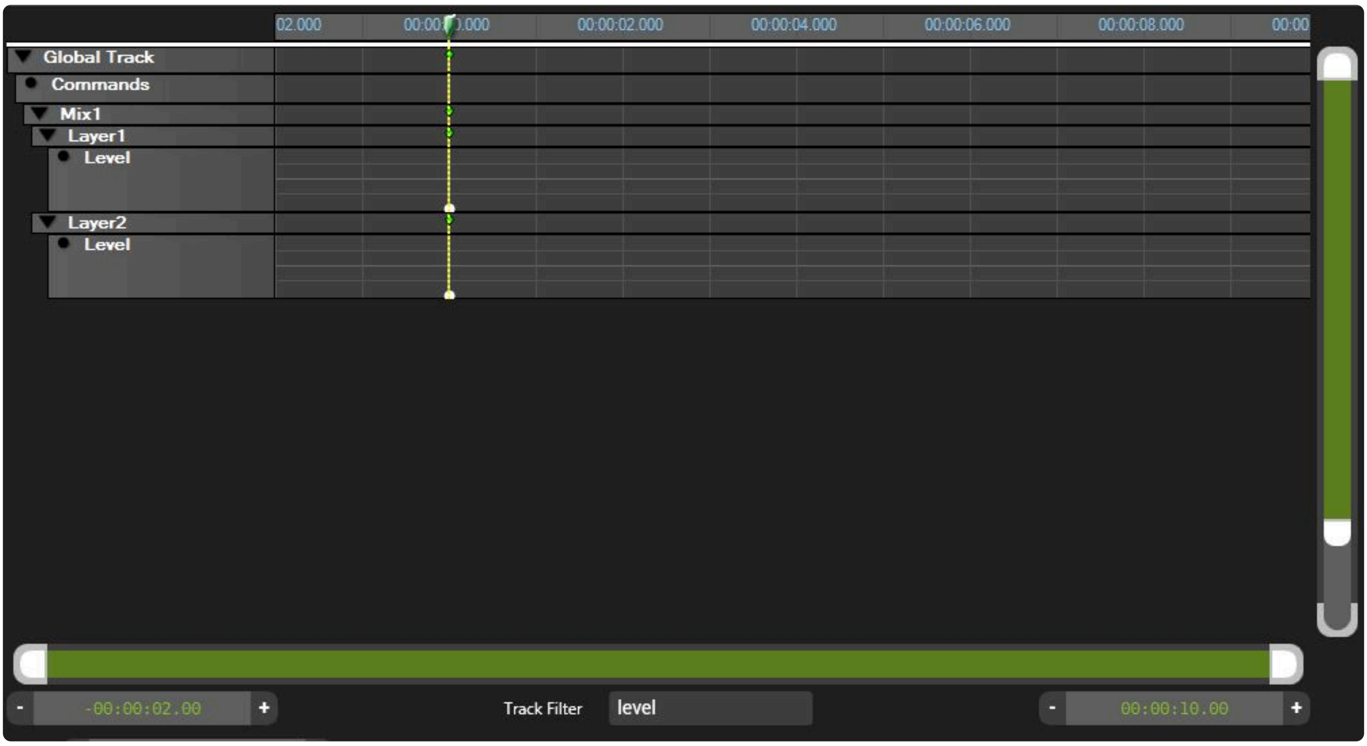


Snaps from the first value to the second value at the centre point time between the two.



Track Filter

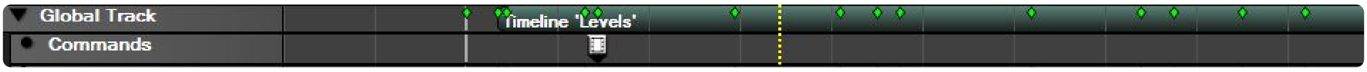
The timeline will show all tracks inside of it by default. For larger timelines this can prove daunting. To temporarily hide tracks, type a filter into the **Track Filter** box. The filter will hide all pins that do not match the filter text.


02.000
00:00:00.000
00:00:02.000
00:00:04.000
00:00:06.000
00:00:08.000
00:00
Global Track
Commands
Mix1
Layer1
Level
Layer2
Level
-00:00:02.00
00:00:10.00

Track Filter: level

Global Track

The Global contains any timelines that are embedded into the current timeline.


Global Track
Commands
Timeline 'Levels'

To embed timelines either drag the timeline to be nested into the global track of the current timeline or select the Insert Timeline button. ⊞

Command Track

The command track controls how the timeline is played.

To create a command, select insert mode (or press the ALT key) and click in the command track where the desired command should be placed.

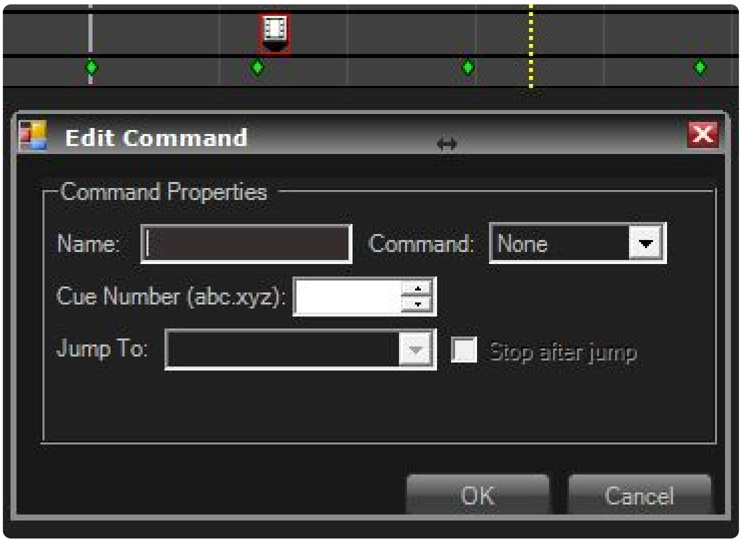
New commands will be created matching the command before them, or as blank commands if no commands are before them.

Event takes no action

Stops the play head at the action. Pressing Play again resumes the timeline.

The Play head will jump from the command to either the beginning of the timeline or another event based.

Set command types and edit them by right clicking on them:


Edit Command
Command Properties
Name:
Cue Number (abc.xyz):
Jump To:
Stop after jump
OK
Cancel

Command: None

Jump (1) A jump command that has been named ‘Jump’ and given the cue number 1.

Cue Number

Cue numbers allow Timelines to be started from points within the timeline as required. Cue numbers must unique within the timeline. The Cue number is used by DMX component and Multicontroller to start timelines.

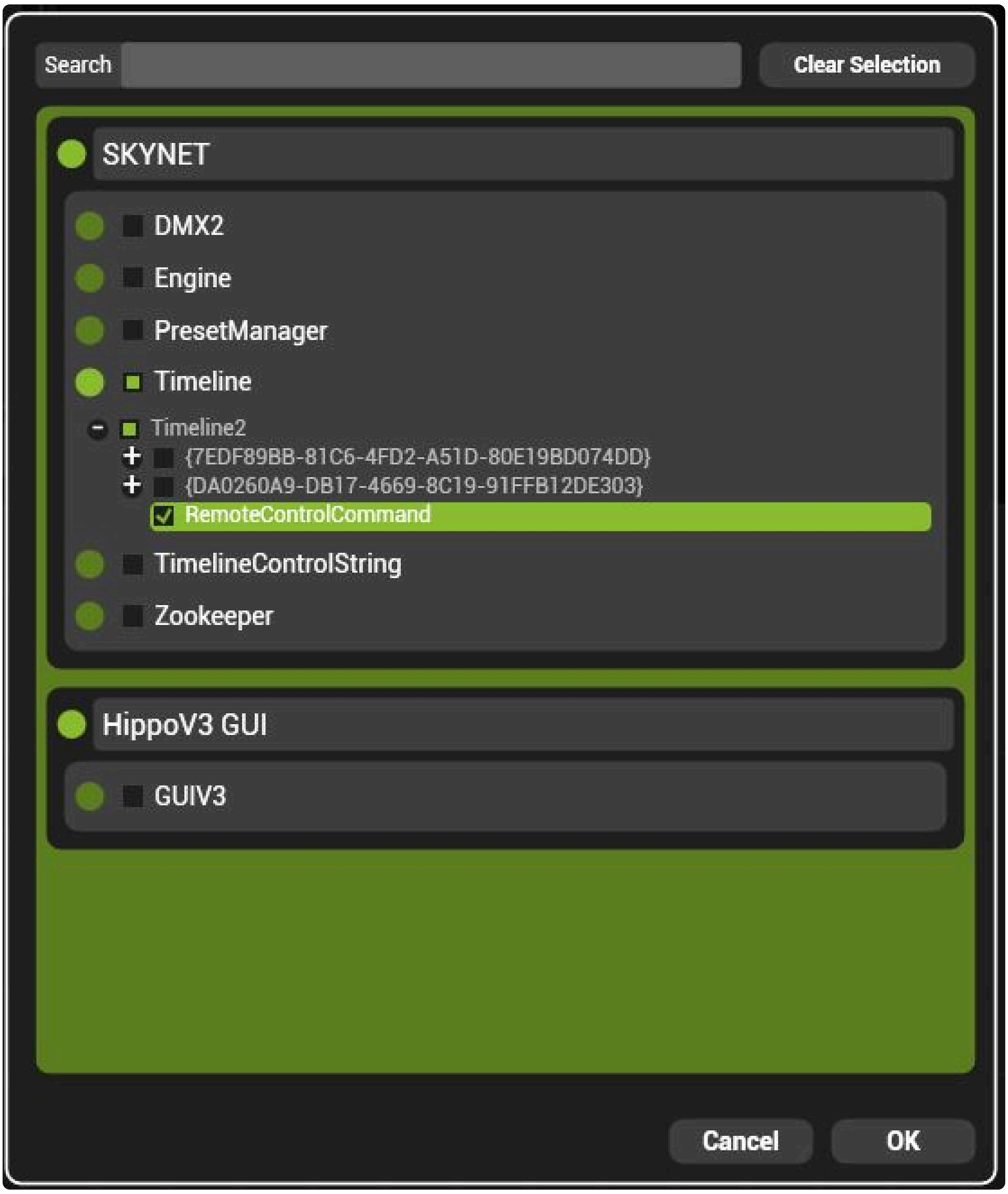
Control of Timelines

Timelines can be triggered in different ways from either a remote device such as a DMX lighting desk or locally from Zookeeper. Timelines can also trigger other timelines.

Triggering a timeline from another timeline.

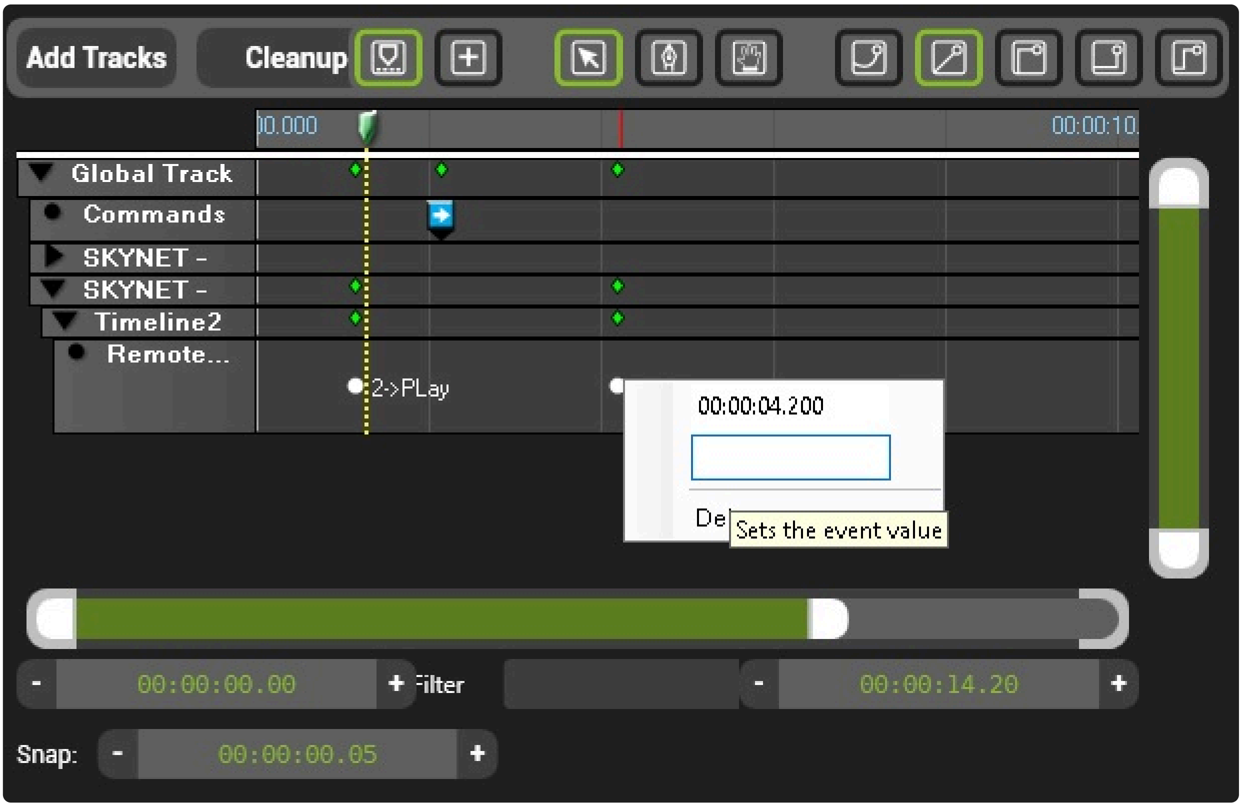
The timeline component contains a String Pin: **RemoteControlCommand** this pin receives commands for all timelines on it’s timeline component.

Add this pin to a timeline to trigger other timelines.


Search
Clear Selection
SKYNET
DMX2
Engine
PresetManager
Timeline
Timeline2
{7EDF89BB-81C6-4FD2-A51D-80E19BD074DD}
{DA0260A9-DB17-4669-8C19-91FFB12DE303}
☑ RemoteControlCommand
TimelineControlString
Zookeeper
HippoV3 GUI
GUIV3
Cancel
OK

To add a command:

- Add a point on the remote control track at the desired position. (ALT + Left Mouse Click is a quick way).
- Right click on the point and choose the blank field:


Add Tracks
Cleanup
00.000
00:00:10.
Global Track
Commands
SKYNET -
SKYNET -
Timeline2
Remote...
2->PLay
00:00:04.200
De
Sets the event value
00:00:00.00
Filter
00:00:14.20
Snap:
00:00:00.05

- Type in the command.

Remote control pin Syntax:

Play Timeline

Plays a timeline referenced by the timeline ID.

```
2->Play
```

Stop Timeline

Stops a timeline referenced by the timeline ID.

```
2->Stop
```

Pause Timeline

Pauses a timeline referenced by the timeline ID

```
2->Pause
```

Go to a Cue

Moves timeline playhead the designated cue number. Cue numbers are referenced with three trailing zeros. So cue 1 is shown as cue 1000. Cue 1.001 would be 1001.

```
2->GoCue(1000)
```

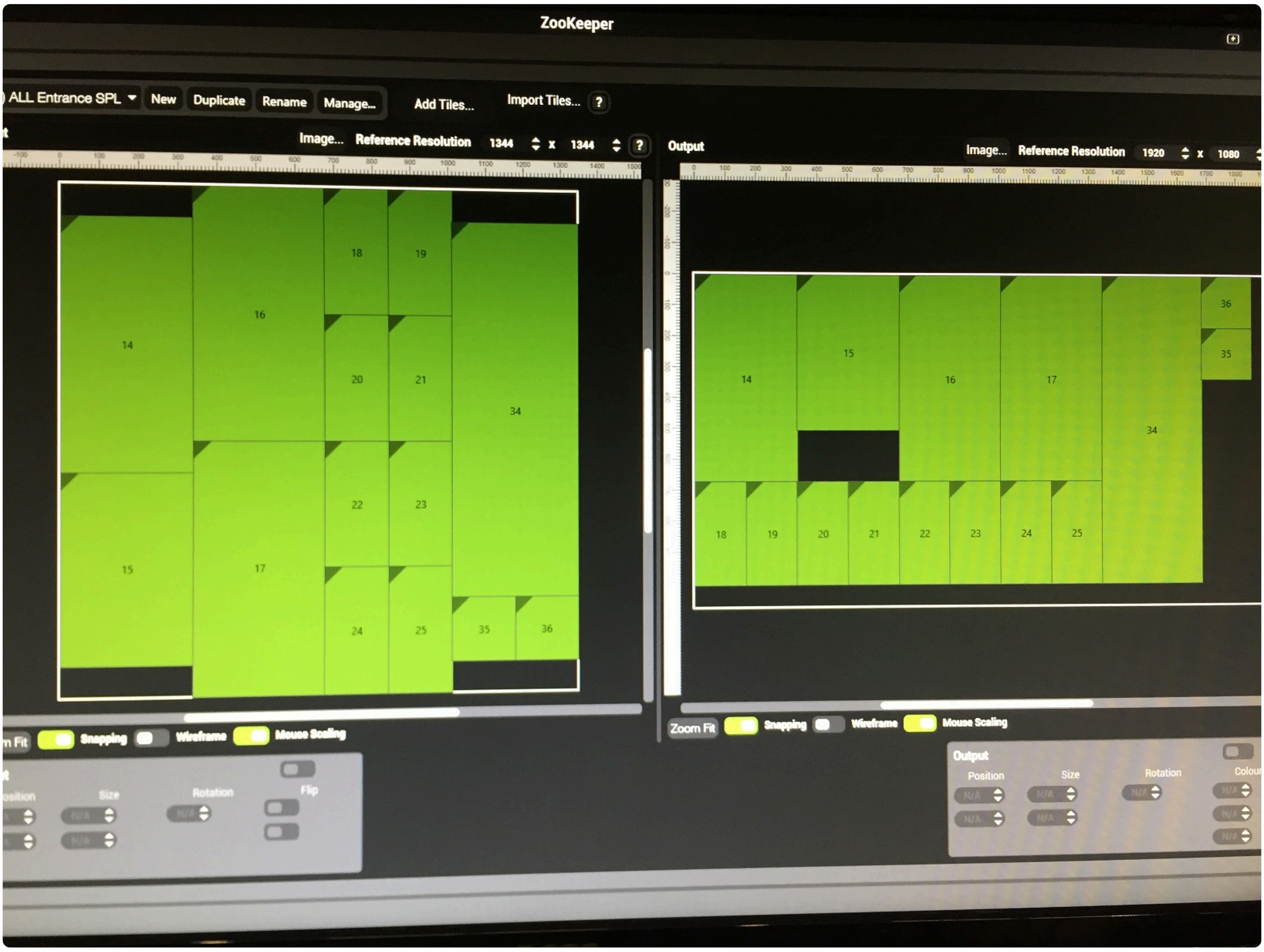
Video Mapper

Boston Major 2016
Video Design: Starladder
Supertech: Cory Froke
All Rights Reserved

Video Mapper converts an input texture to an output texture pixel accurately. Frequently used to map LED tiles, Video Mapper is one of the most commonly used components in Hippotizer.

- Creating a Video Map
- Properties of a Video Map
- Adding Tiles
- Properties of a Tile
- Viewport Controls
- CSV Import
- Colour Blocks

Creating a Video Map


ZooKeeper
ALL Entrance SPL
New
Duplicate
Rename
Manage...
Add Tiles...
Import Tiles...
?
Image...
Reference Resolution
1344
x
1344
Output
Image...
Reference Resolution
1920
x
1080
Snapping
Wireframe
Mouse Scaling
Zoom Fit
Snapping
Wireframe
Mouse Scaling
Size
Rotation
Flip
Output
Position
Size
Rotation
Colour

Starting Video Mapper

Video Mapper is a component and must be started in order to function:

Starting a Component

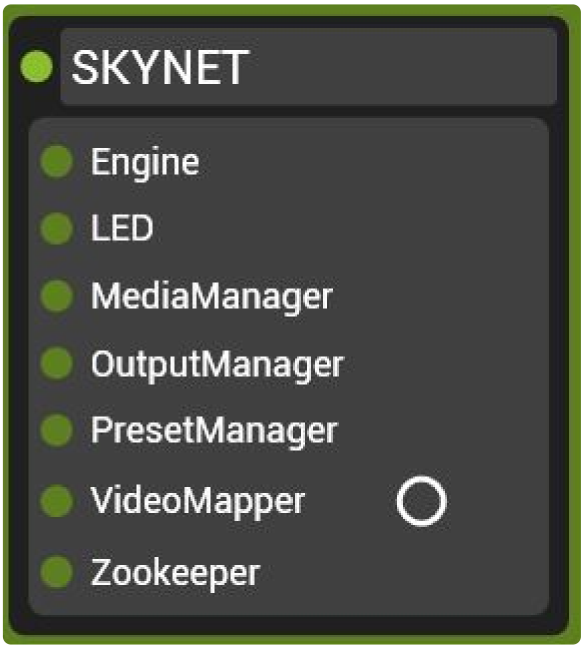
Basic Structure

Video Mapper is comprised of two parts; the interface and viewport controls.

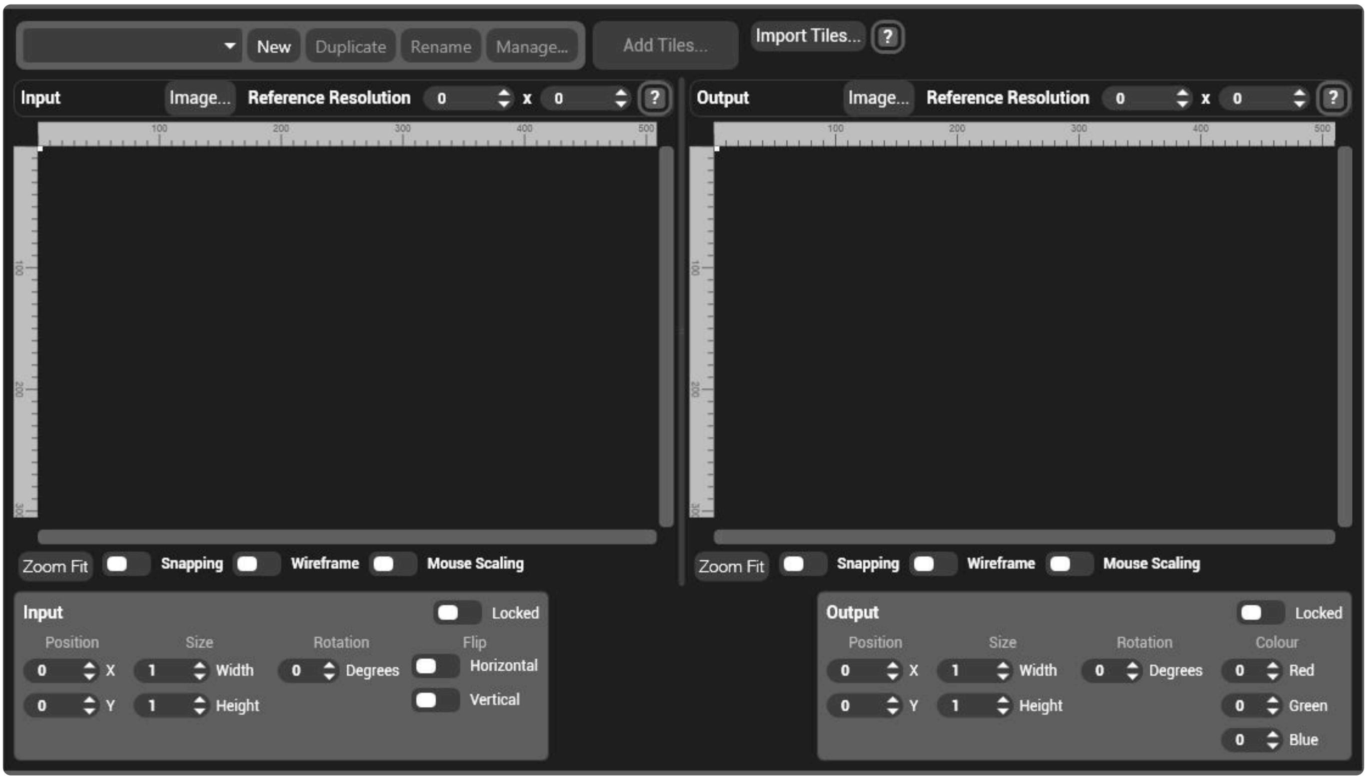
- The interface is used to create and edit video maps. The interface must be added to a pin board.
- Viewport controls are used to assign videomaps to viewport(s) and are part of the viewport controls by default.

Adding the interface to a Pin Board.

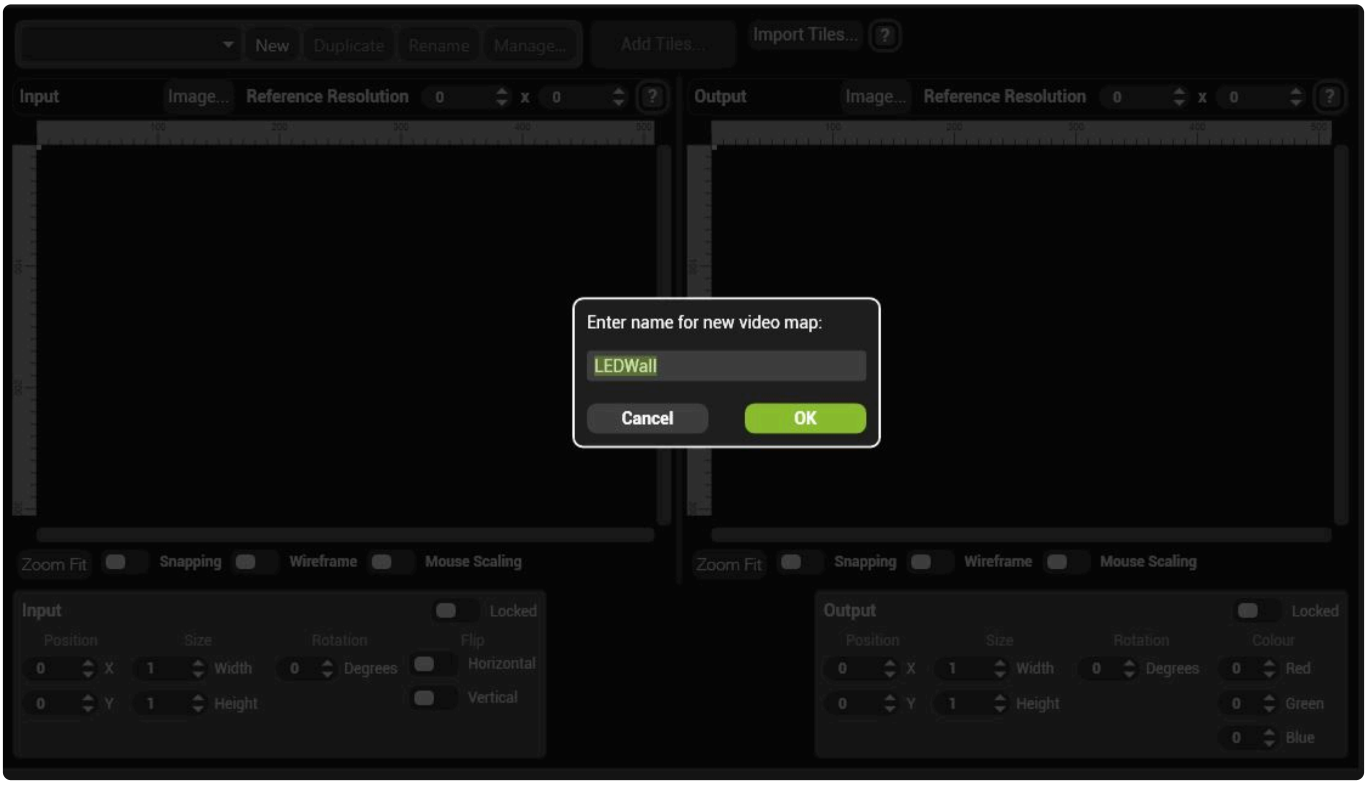
Once the component has been started, it will appear in the Pin Tree.


SKYNET
Engine
LED
MediaManager
OutputManager
PresetManager
VideoMapper
Zookeeper

Drag the Video Mapper component onto a blank Pin Board ‘grabbing’ it by the circle next to the name.


New
Duplicate
Rename
Manage...
Add Tiles...
Import Tiles...
?
Input
Image...
Reference Resolution
0
x
0
Output
Image...
Reference Resolution
0
x
0
Zoom Fit
Snapping
Wireframe
Mouse Scaling
Input
Locked
Position
Size
Rotation
Flip
0 X
1 Width
0 Degrees
Horizontal
0 Y
1 Height
Vertical
Output
Locked
Position
Size
Rotation
Colour
0 X
1 Width
0 Degrees
0 Red
0 Y
1 Height
0 Green
0 Blue

Select **New** in the top bar of the Video Mapper interface to create a map and name it.


New
Duplicate
Rename
Manage...
Add Tiles...
Import Tiles...
?
Input
Image...
Reference Resolution
Output
Zoom Fit
Snapping
Wireframe
Mouse Scaling
Locked
Position
Size
Rotation
Flip
Width
Height
Degrees
Horizontal
Vertical
Colour
Red
Green
Blue
Cancel
OK

Enter name for new video map:

LEDWall

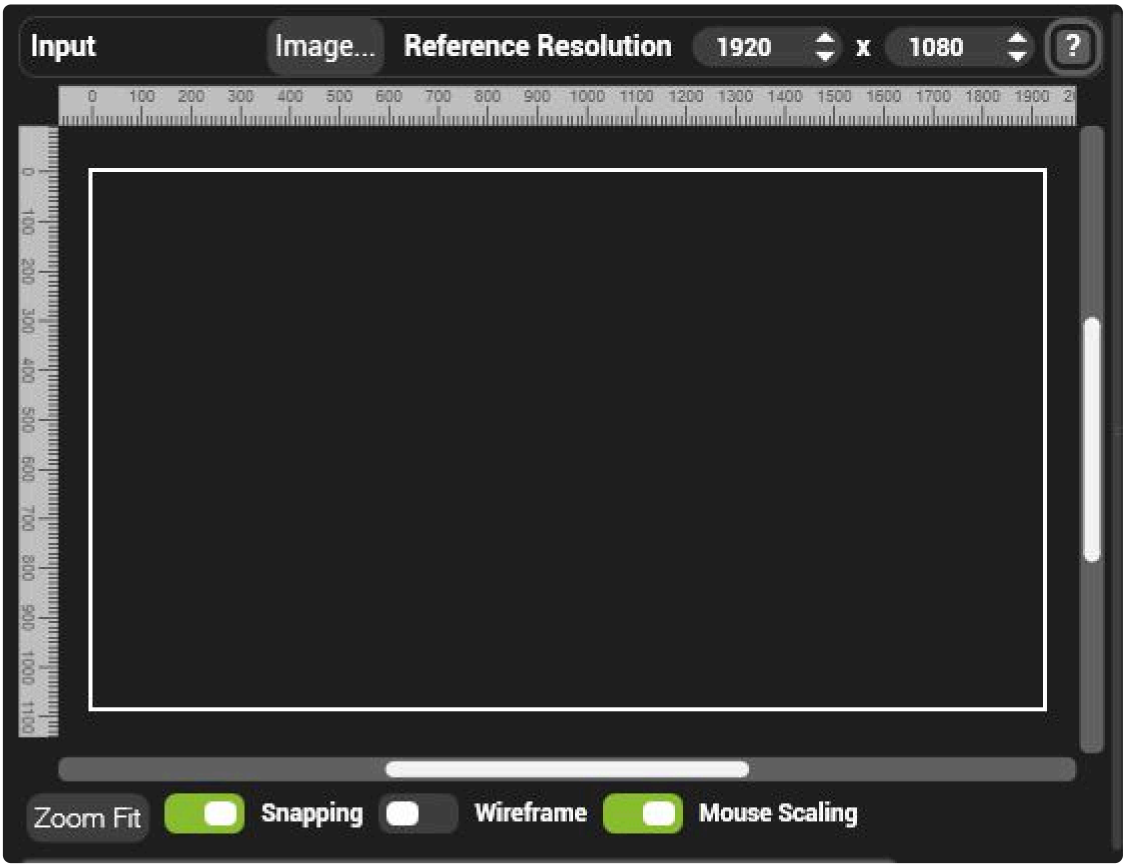
Note: The name of a Video Map does not need to be unique and can be changed later.

Once created, editing a video map has several steps:

- Adding Tiles
- Properties of a Video Map
- CSV Import

Properties of a Video Map

A video map has a set of properties that are to aid drawing and manipulating the map


Input
Image...
Reference Resolution
1920
x
1080
?
Zoom Fit
Snapping
Wireframe
Mouse Scaling

Image…

Allows a background image to be placed on the video map

Reference Resolution

Video maps do not have an intrinsic resolution; they use the resolution of the Mix and Viewport to which they are assigned. The **Reference Resolution** simply provides guide lines to aid with placing tiles.

Note: As of version 4.2 Each video map is limited to 8192 × 8192 Pixels to allow for improved anti-aliasing.

Zoom Fit

Shows the entire video map

Snapping

When enabled, tiles will automatically move to abut one another when placed close together.

Note: Snapping can cause undesired behavior if small gaps are required between tiles. In this case it is best to disable snapping.

Wireframe

Tiles are rendered as a clear box (better if a background image is present).

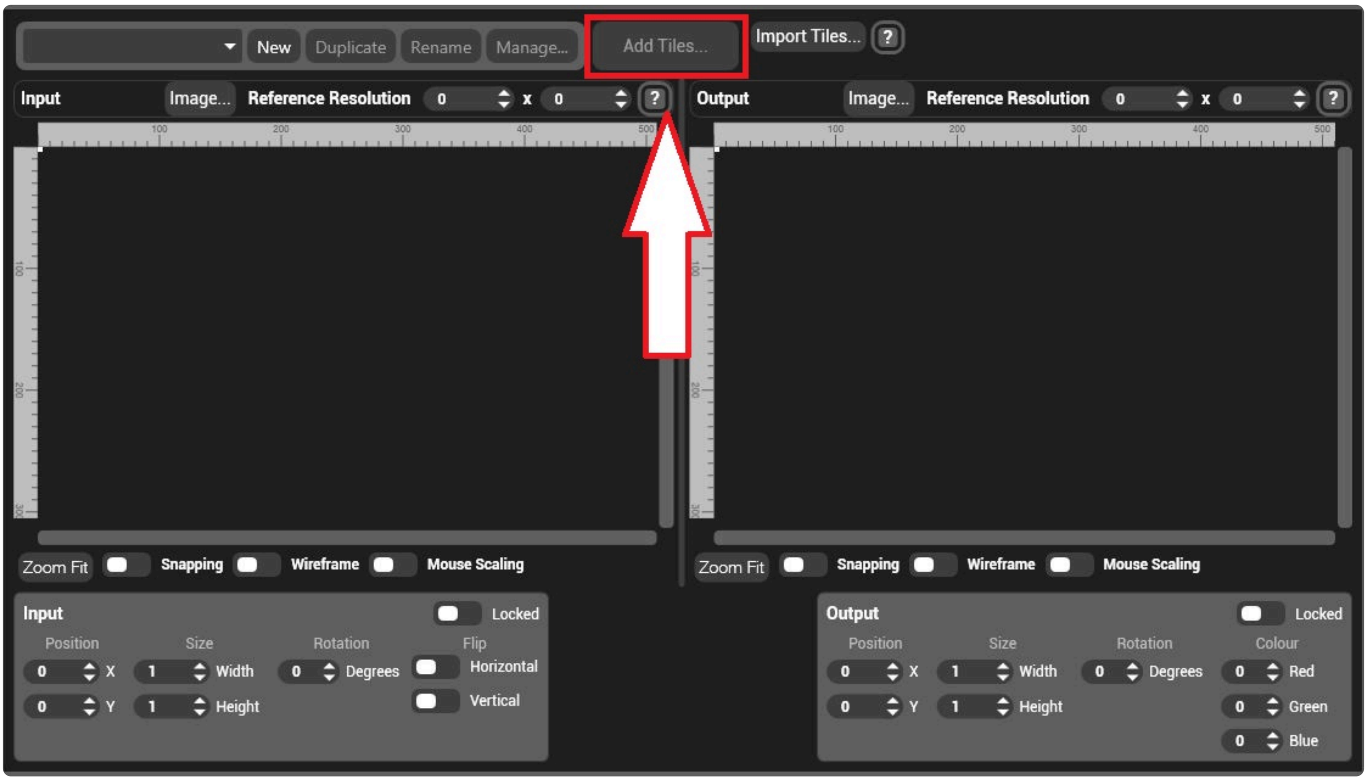
Mouse Scaling

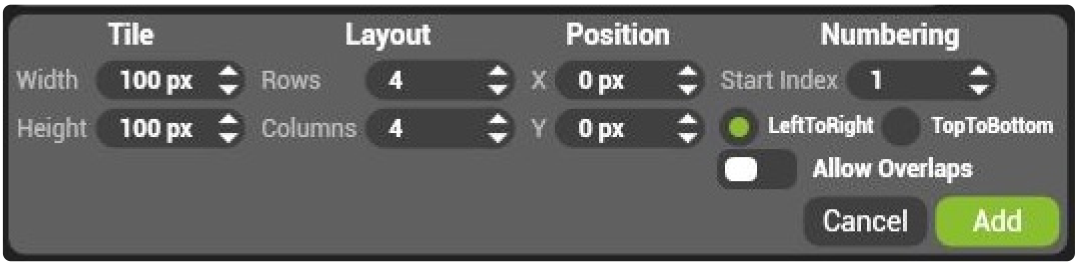
When enabled, tiles can be dragged larger or smaller with the mouse.

Adding Tiles

A Video Map is comprised of tiles. A tile normally corresponds to the resolution of a video wall panel.

To create tiles, use the Add Tiles Dialogue.


New
Duplicate
Rename
Manage...
Add Tiles...
Import Tiles...
?
Input
Image...
Reference Resolution
0
x
0
Output
Zoom Fit
Snapping
Wireframe
Mouse Scaling
Locked
Position
Size
Rotation
Flip
X
Y
Width
Height
Degrees
Horizontal
Vertical
Colour
Red
Green
Blue


Tile
Layout
Position
Numbering
Cancel
Add

Width 100 px
Height 100 px
Rows 4
Columns 4
X 0 px
Y 0 px
Start Index 1
● LeftToRight ○ TopToBottom
Allow Overlaps

Tile Width and Height

The size in pixels of the tiles to be created

Layout

The number of tiles to be created. By default, new tiles are created in a grid with a number of rows and columns. Tiles can be re-arranged after they are created.

Position

The location of the top left corner of the array of tiles

Numbering

The starting number of the tiles. By default this is the next available number.
The numbering can be set **Left To Right** or **Top to Bottom**:

Left to Right

Number starting at the top left corner and works to the right increasing along the row. At the end of a row, the numbering jumps to the next row down.

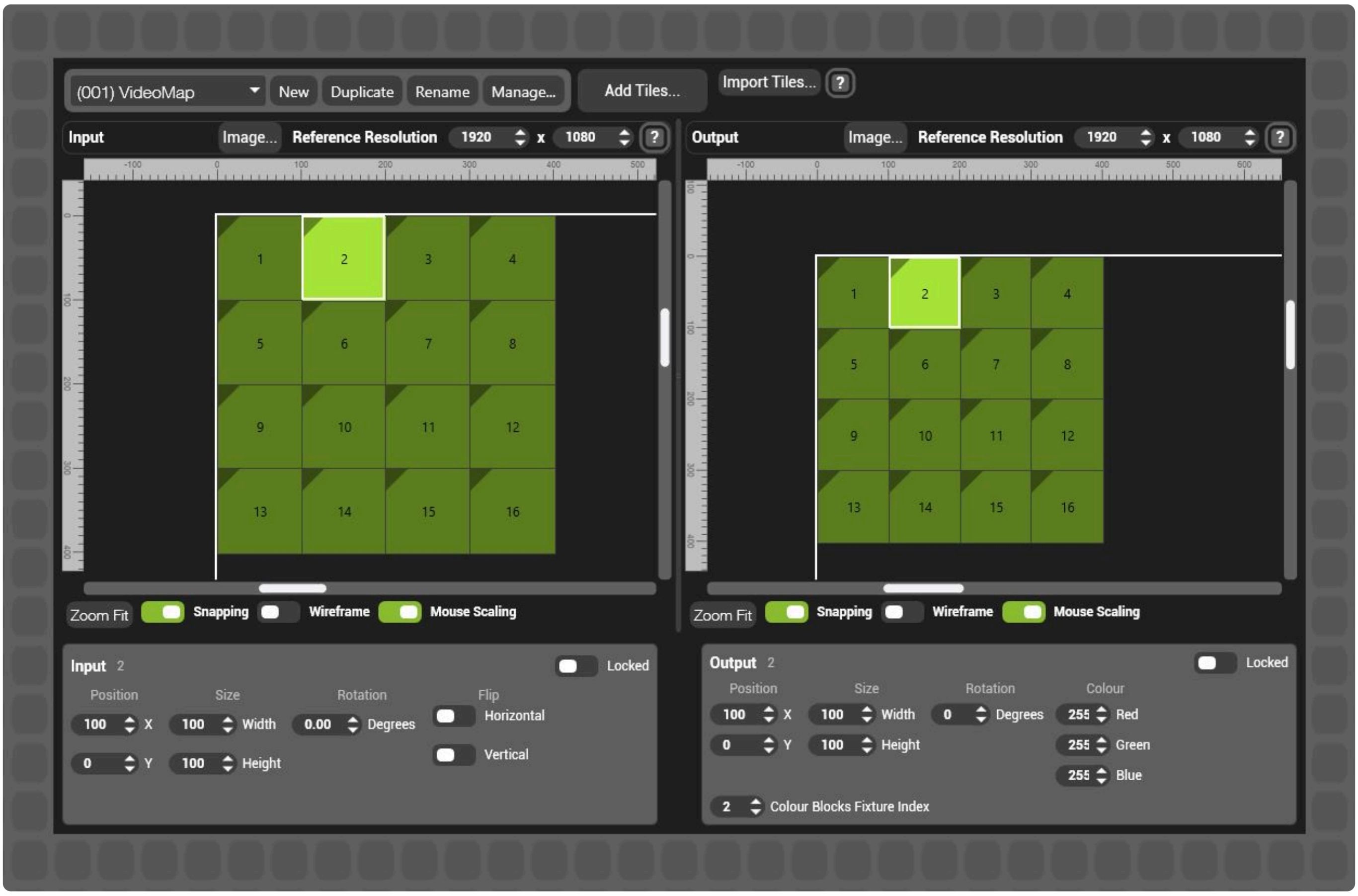
Top to Bottom

Numbering starts at the top left and travels down each column before shifting one row right and moving down again.

Allow Overlaps

When enabled, two tiles may have the same Colour blocks index.

Once added, tiles can be arranged by dragging them or by setting the position in the tile properties.


(001) VideoMap
New
Duplicate
Rename
Manage...
Add Tiles...
Import Tiles...
?
Input
Image...
Output
Image...
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Zoom Fit
Snapping
Wireframe
Mouse Scaling
Locked

Input Reference Resolution 1920 x 1080

Output Reference Resolution 1920 x 1080

Input 2

Position: 100 X, 0 Y

Size: 100 Width, 100 Height

Rotation: 0.00 Degrees

Flip: Horizontal, Vertical

Output 2

Position: 100 X, 0 Y

Size: 100 Width, 100 Height

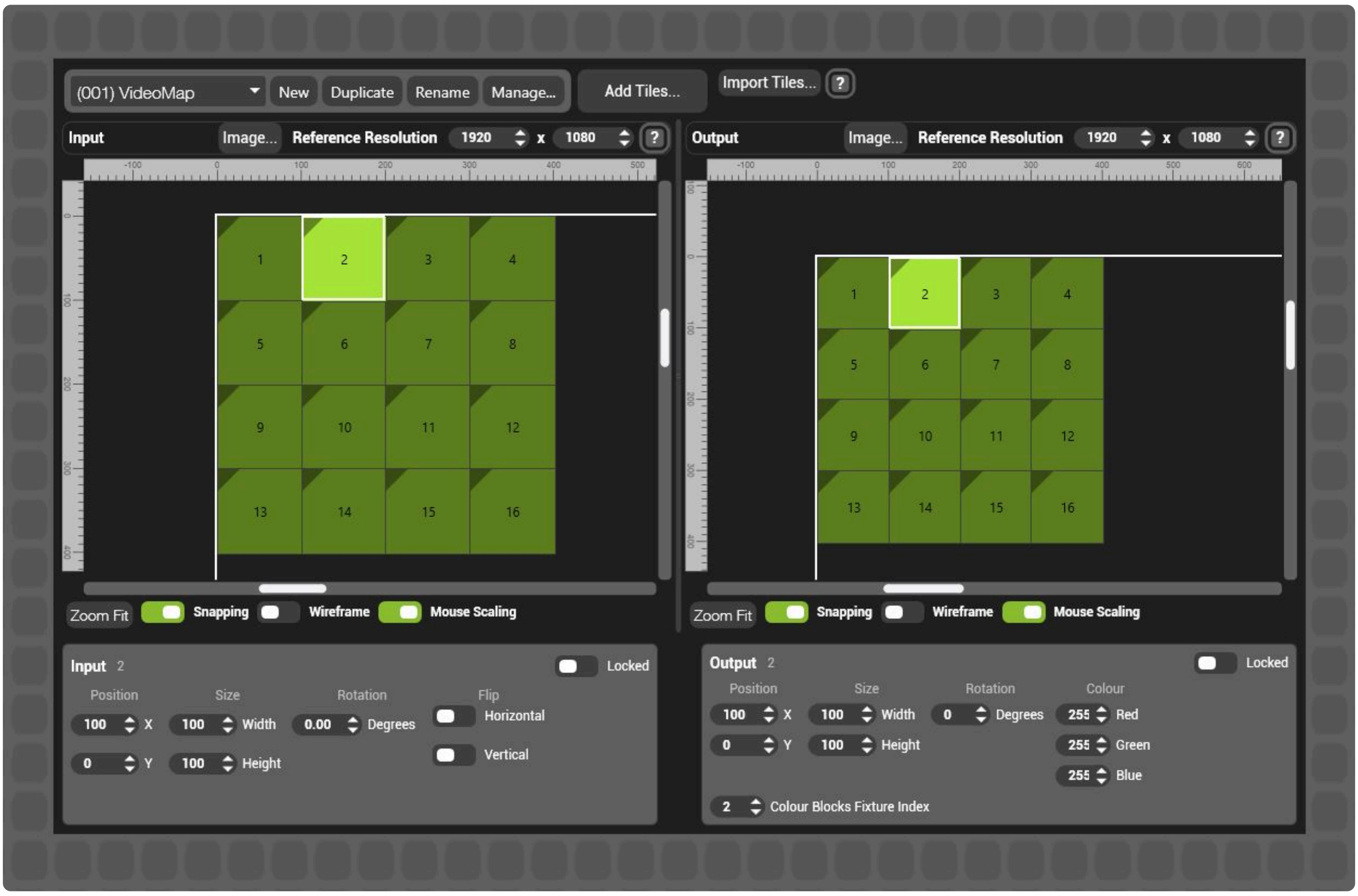
Rotation: 0 Degrees

Colour: 255 Red, 255 Green, 255 Blue

2 Colour Blocks Fixture Index

Properties of a Tile

Each video map tile represents a section of pixels that are transposed from input to output.


(001) VideoMap
New
Duplicate
Rename
Manage...
Add Tiles...
Import Tiles...
?
Input
Output
Image...
Zoom Fit
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Input: Reference Resolution 1920 x 1080

Output: Reference Resolution 1920 x 1080

Snapping ● Wireframe ○ Mouse Scaling ●

Input 2 — Locked ○
Position: 100 X, 0 Y
Size: 100 Width, 100 Height
Rotation: 0.00 Degrees
Flip: Horizontal ○, Vertical ○

Output 2 — Locked ○
Position: 100 X, 0 Y
Size: 100 Width, 100 Height
Rotation: 0 Degrees
Colour: 255 Red, 255 Green, 255 Blue
2 Colour Blocks Fixture Index

Each tile exists on the input and on the output of a video map.

Input Tile Properties

The input video map is often drawn to match the physical setup of LED tiles or displays.

Position

The location in pixel space of the top left corner of the tile.

Size

The size in pixels of the input tile

Rotation

The rotation in degrees of the tile.

Note: The position of a rotated tile can be confusing. The position of a tile is always referenced to the location of the top left corner of that tile if it was not rotated.

Locked

Protects the tile from being edited.

Flip

Mirrors the image on the tile about the Horizontal or Vertical axis.

Output Tile Properties

The output video map is frequently drawn to match the content’s layout

Position

The location in pixel space of the top left corner of the tile.

Size

The size in pixels of the output tile.

The output tile can be a different size than the input, Videomapper will scale in this instance. If a pixel-accurate pipeline is desired then the input and output tiles must be the same size.

Rotation

The rotation in degrees of the tile.

Note: Input tiles can be rotated to any angle. Output Tiles can only be rotated in increments of 90 degrees.

Locked

Protects the tile from being edited.

Colour

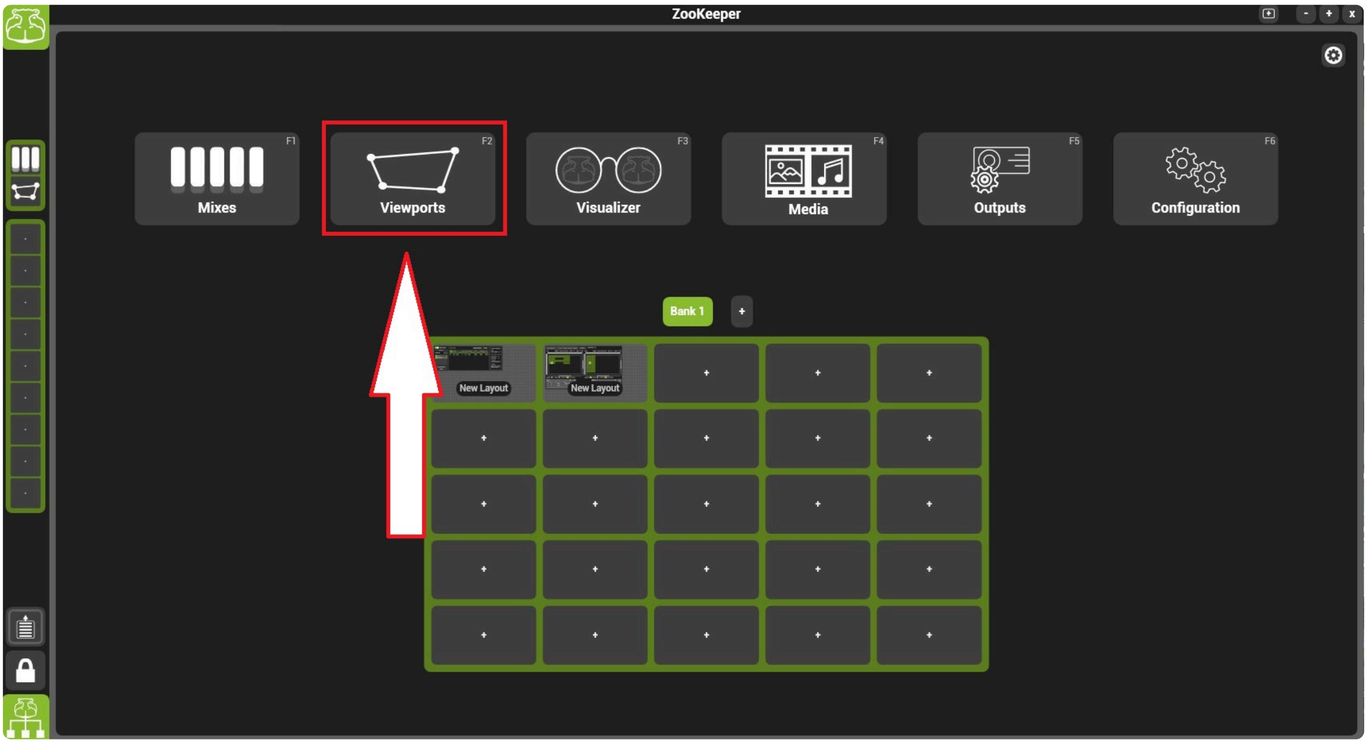
Sets the maximum colour values (RGB) that can be sent to each tile. This can be used to colour balance panels or displays.

Colour Blocks Fixture Index

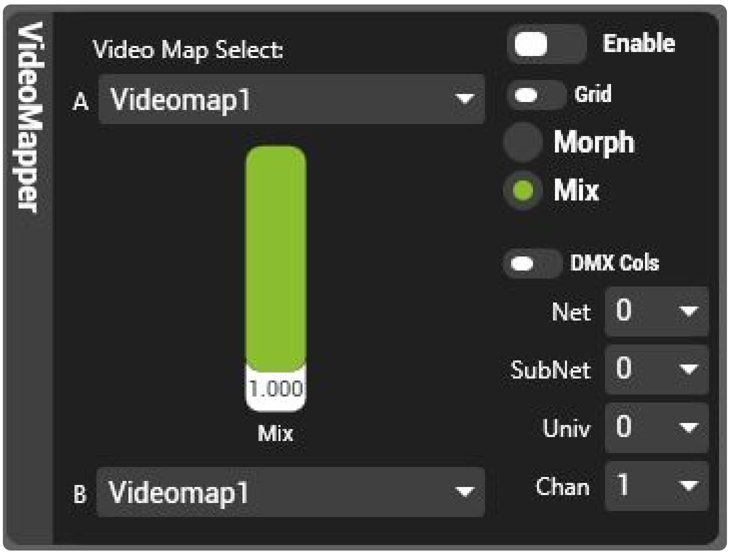
The value that Colour Blocks will use to address that tile. By default, the index matches the tile number. Unlike the tile number, Index can be changed at any time.

Viewport Controls

Video maps are assigned on a per viewport basis in the viewport controls window.


ZooKeeper
Mixes
Viewports
Visualizer
Media
Outputs
Configuration
F1
F2
F3
F4
F5
F6
Bank 1
New Layout
New Layout

Each Viewport can load two different video maps, or multiple viewports can use the same maps.


VideoMapper
Enable
Grid
Morph
Mix
DMX Cols
Mix

Video Map Select:
A Videomap1
1.000
B Videomap1
Net 0
SubNet 0
Univ 0
Chan 1

Viewport controls

Video Map Select

Each viewport can load two maps to allow for fading between maps. Select which maps to load from the drop down and use the Mix control to fade between them. The fade between maps can be a **Mix** or a **Morph**.

Mix

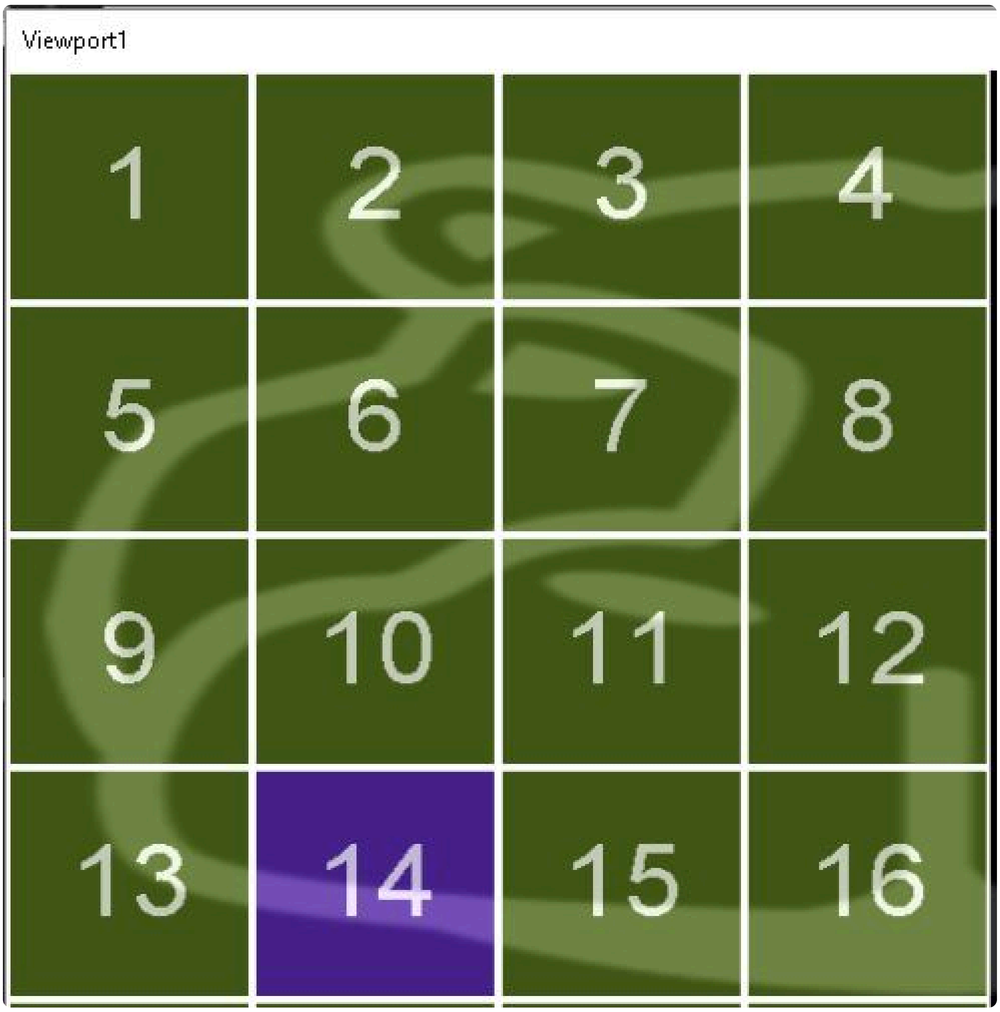
Cross-fades between the two video maps; fading the intensity of map 1 out as it fades map 2 up.

Morph

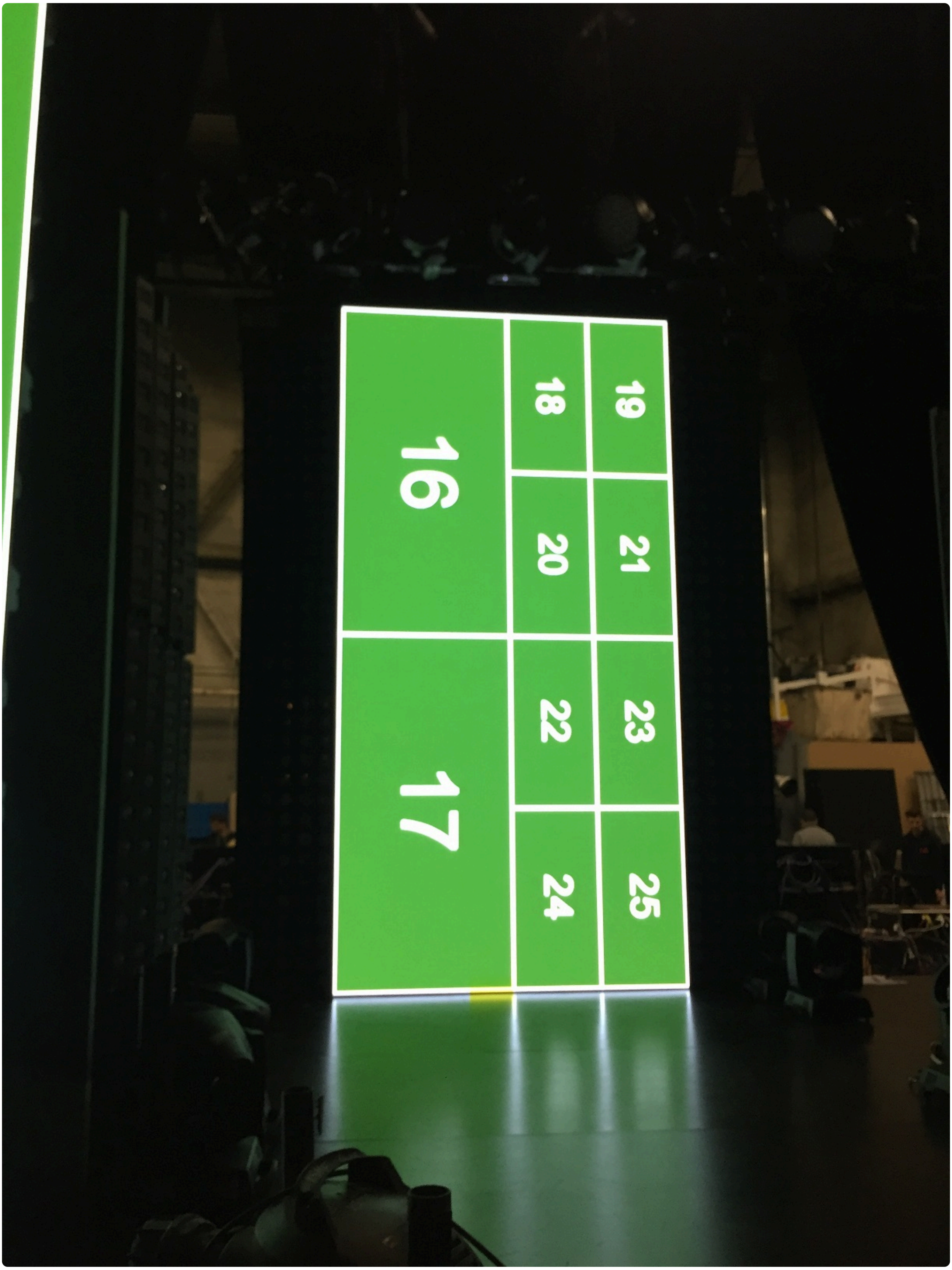
Content is stretched between the two maps as it transitions.

Grid

Displays each tile as a solid green numbered box with a 2 pixel white outline.



Note: Mix and Morph do not work when grid is enabled.


16
17
18
19
20
21
22
23
24
25

Boston Major 2016
Video Design: Starladder
Supertech: Cory Froke

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DMX Colour

Direct control of tile colour from DMX.

CSV Import

For complex video maps, it can be faster to create the map in a 3rd part application such as Cinema 4D and then import the data to Hippotizer. Video Mapper supports importing data from Comma Separated Values (CSV) files.

CSV files should have the data separated by a comma with a carriage return at the end of each line. A row represents a single input/output tile in Video Mapper.

Data Format:

- Input X Position (Pixels from top Left),
- Input Y Position (Pixels from top Left),
- Input X Size of Tile (Pixels),
- Input Y Size of Tile (Pixels),
- Input Rotation of Tile (Degrees),
- Input Tile Flipped X (True/False),
- Input Tile Flipped Y (True/False),
- Output X Position (Pixels from top Left),
- Output Y Position (Pixels from top Left),
- Output X Size of Tile (Pixels),
- Output Y Size of Tile (Pixels),
- Output Rotation of Tile (Degrees),
- Red Level (0-255 255=Default),
- Green Level (0-255 255=Default),
- Blue Level (0-255 255=Default)
- Colour Block Index (Number)

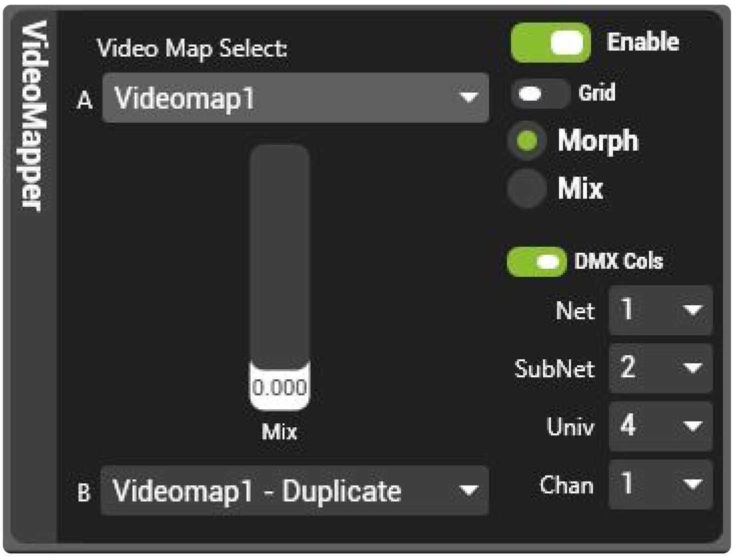
Example Row

0,0,100,100,90,False,False,100,100,100,100,0,255,255,255

Creates a single tile at 0,0 on input and 100,100 on output with 90 degree rotation on the input.

Colour Blocks

Allowing direct control the colour of each video map tile, Colour Blocks can be used to ‘bit map’ video mapped tiles from a lighting desk.



Video Map Select:
A Videomap1
B Videomap1 - Duplicate
Mix 0.000
Net 1
SubNet 2
Univ 4
Chan 1

Configuring colour blocks

- The start address for colour blocks is set in the Viewport controls. Set this to the desired Art-net address.
- Colour Blocks uses Art-Net received from any sender irrespective of which NIC it is received on.
- Each tile is addressed based on the tile number.
- Each tile uses four DMX channels: Red, Green, Blue and Intensity (alpha),
- The intensity value acts as a mixer between the video and the colour; Intensity at full is all colour and at zero is all Video.

Note: Colour Blocks must be set to a different address than other Art Net receiving components in Hippotizer such as DMX or Multicontroller to avoid conflict.

Colour block tile index can be edited in the video map. Select the tie(s) and choose the desired colour block index.

Compatibility Mode

Included with Hippotizer V4 systems is the ability to run a purpose built version of V3 software. This is called compatibility mode. Compatibility mode will operate with other V3 Hippotizer machines running 3.2.4 or 3.2.5 only.

Compatibility mode software has been modified to run on the Windows 8.1 Hippotizer V4 systems and will not install on any other hardware.

Compatibility Mode can be accessed from the Hippo Launcher application which appears automatically after start-up.

Compatibility mode is limited in outputs and features to that of Hippotizer V3 and cannot make use of all the outputs of the larger V4 systems.

Compatibility mode is fully inter-operable with other V3 machines running on Windows XP: the systems are able to share media, networking and component exports.

Hippotizer V4 systems running compatibility mode will be assigned a legacy machine type based on system size:

- Amba is equivalent to a Grasshopper and can have 1 Output.
- Karst, Boreal and Taiga are equivalent to an HD using up to 2 Outputs.

Using compatibility mode is identical to V3, so please consult the V3 manual for information about the Hippotizer software.

Pan Mode

With the change to Windows 8.1, the Pan Output mode in compatibility modes must be configured in a different way. In order to configure Pan Mode, the two panned outputs must be configured as an eyefinity group in the ATI catalyst control centre.

Details of this procedure can be found in the knowledge base section of support website at: www.Green-hippo.com/support

Once eyefinity is configured then start the Hippotizer V3 engine and set it to single mode, with the resolution of the group of displays. (3840 × 1080 for example for 2 – 1920 × 1080 outputs).

This will then function in pan mode.

On Boreal or Taiga, more outputs can be used as part of a Pan or Dual mode by adding more displays to the Eyefinity group.

Advanced Topics

Hippotizer V4 is a tool box that is used in may different ways depending on requirements.

Querying Component Status with TCP

Each Component in Hippotizer has a string pin to report it’s status in real time. These can be found in the pin tree under each component.

The status pin carries the state of the component and an info tag.

The state can be:

- Config
- Run
- Limited
- Problem

Each component has specific responses

DMX2

If no Devices have been created it will return an empty string, if one or more devices are enabled it will return a comma separated list of the status of each Device:

Example:

“Artnet0:OK,Artnet1:OK,Artnet2:No Data,sACN_1:OK”

It will give an OK if and DMX data has been received at a rate of 1 Hz or more. On each device universe.

Sync Component

Will return: Running or No Data for each of the two External Timecode sources separated by a comma:

Example:

“EXT1:Running,EXT2:No Data”

Output Manager

Will be one of the following:

“Just Started”
“Waiting for Engine Component”
“Waiting for Engine Component to Start”
“Waiting for Eingine Component to Reconfigure” -> yes, there is a spelling mistake !
“Running”
“Configuring”

“Error – Waiting for Reset”
“Unknown”

LED Component

Returns one of the following statuses

“run” -> normal operation, no problems
“config” -> one or more components are being reconfigured
“limited” -> there is an issue that is not stopping system from working but needs attention
“problem” -> A major issue is stopping normal operation of the system

For all of the above except “run” there is also a component name and a description of the issue or operation, far too many to list here.

Example:

“System Status=run, Message=”

Or

“System Status=config, Message=Media Manager : Media Files Syncing”

Or

“System Status=problem,Message=Engine : Viewports Overlapping On Output”

Changing In/Outpoint Behavior on Media Change

By default, when media is changed the in and out-points are reset to the in and out-frames of the new media. Though this is often expected, it may not be desirable in certain circumstances. To change it, the Engine XML must be edited.

- Stop the Engine and Zookeeper
- Find the Engine XML, it is located in: C:\Users\*User*\Hippo\Appdata\Local\GreenHippo\4_2\HFWStorage
- The Engine XML is a Unique ID prefaced with “Engine”.
- Open the XML with note pad
- Locate the line containing **bMediaSelectModifiesInOut**

By Default this reads:

```
<StorageEntry Name="bMediaSelectModifiesInOut" Class="bool" Value = "true"/>
```

Change this to:

```
<StorageEntry Name="bMediaSelectModifiesInOut" Class="bool" Value = "false"/>
```

- Save the file and close it
- Restart the engine and Zookeeper

Note: New Show will reset these changes.

Minimizing Capture Delay

Reducing the delay (or latency) of a video system is a huge topic that extends beyond the scope of this manual. Here we can offer some best practice guidelines specifically to do with Hippotizer to reduce delay.

Disable Render Buffering

In output manager, there is the option to buffer the outputs. Render Buffering adds up to three frames of delay. To reduce delay, disable render buffering.

Use as high frame rate signals as possible

Delay occurs per frame; an operation that takes one frame will take 16 milliseconds (ms) at 60 frames per second (FPS), or 33ms at 30fps. Changing to 60FPS capture signal from 30 for example will reduce the delay from 80ms to 40ms.

Ensure the engine is running at full frame rate

Similar to the capture signal’s frame rate, the engine frame rate also can have a large effect on delay. Ensure systems are running at full frame rate when latency is critical.

Genlock the whole signal chain

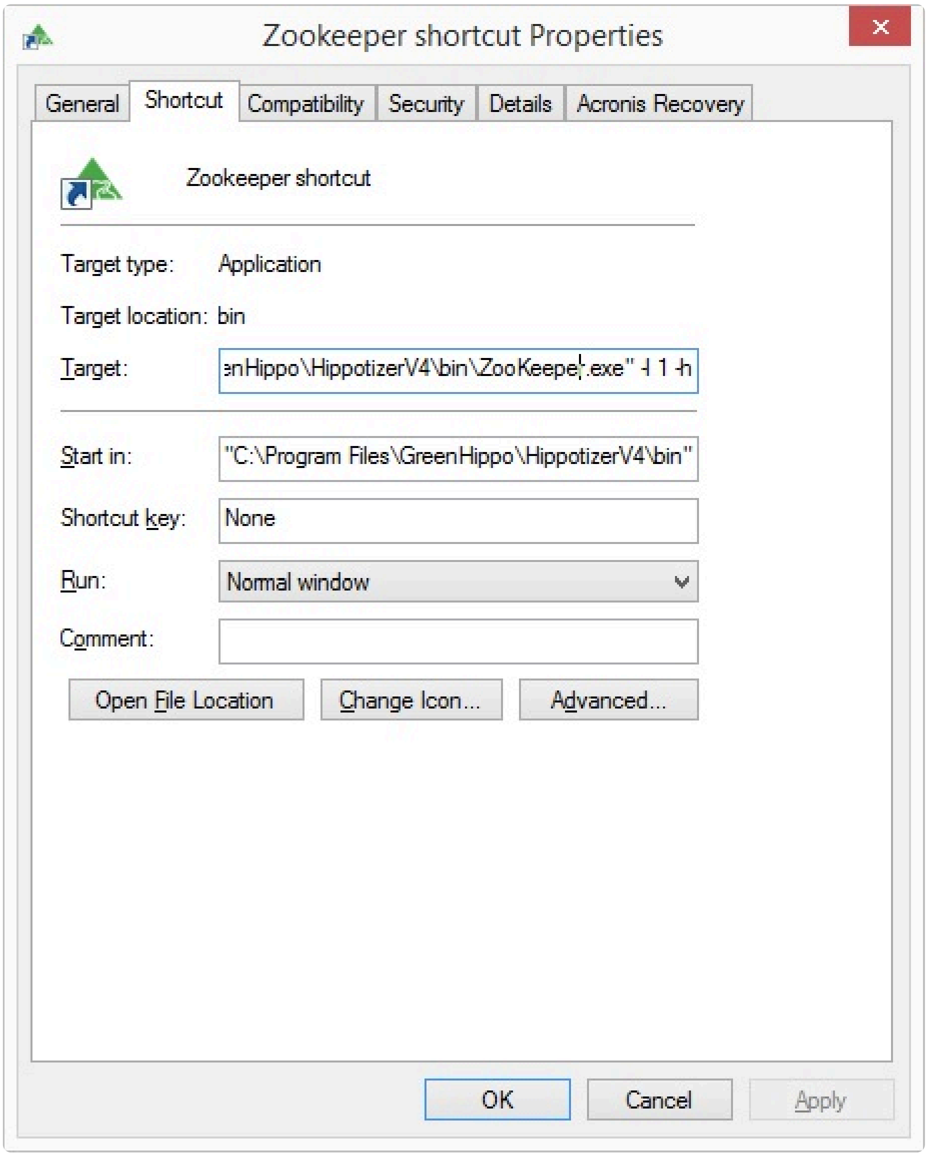
Genlocking the Hippotizer to the capture source will slightly improve delay (less than a frame) and will improve smoothness.

Advanced Startup options

The startup behaviour of Zookeeper can be edited to open into a default window or to disable editing of Pinboards.

Starting up into a specific layout

Zookeeper can be set to go to a specific layout on startup with arguments that are added to the launch shortcut.


Zookeeper shortcut Properties
General
Shortcut
Compatibility
Security
Details
Acronis Recovery
Open File Location
Change Icon...
Advanced...
OK
Cancel
Apply

Zookeeper shortcut

Target type: Application

Target location: bin

Target: enHippo\HippotizerV4\bin\ZooKeeper.exe" -l 1 -h

Start in: "C:\Program Files\GreenHippo\HippotizerV4\bin"

Shortcut key: None

Run: Normal window

Comment:

Launch Zookeeper into a specific Pinboard

Add `-l 1` to launch into the 1st layout of the 1st bank. Each bank has 25 layouts so to launch into layout 1 of bank 2, use: `-l 26`

Note: The precise syntax is a hyphen and then lowercase letter “L”

Launch Zookeeper without the ability to edit pinboards or navigate to new pages

Add `-h` to the launch short cut to hide the navigation bar of Zookeeper. Navigation Keyboard shortcuts will also be disabled.

Appendixes

Glossary

Hippotizer uses some technical terminology. Here is a list of frequently used terms.

Last Takes Precedence (LTP)

As with lighting desks, Hippotizer is frequently mixing control inputs from different sources. To do this, all pin values will always take the latest input they have been given. There are common cases where LTP becomes important to understand.

DMX Control + Zookeeper

Zookeeper may be controlling a system that is also being triggered from DMX. A value that is controlled from DMX will always ‘snap’ to the DMX value if moved in Zookeeper. This is normal, DMX is constantly refreshing so sets the pin values many times per second. In affect, DMX is always last.

Note: Setting a DMX channel to update only changes this behaviour. With Update only enabled the pin value is only applied when the DMX value coming in changes.

Multiple Zookeepers controlling one system

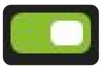
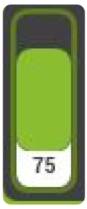
More than one Zookeeper interface can be used to control a Hippotizer system. In this case the last change made will take priority.

Timeline and Zookeeper

Timeline applies changes to it’s target pins only when there values or fades at the Timeline play-head and it is playing. Values are set once by timeline so other interface methods can be used in parallel with timeline with predictable results.

Pins

Pins are the ‘handles’ used to control attributes within the Hippotizer Engine. Each Pin is available to all systems on the network over HippoNet. There are different types of Pins depending on what information they convey.

- **Boolean Pin:** Can be on or off, represented by a switch in Zookeeper.
-  **Float Pin:** Can be a number value from 0 to 1 ad are most commonly shown as faders in Zookeeper.

-

Integer Pin: Can be a whole number (1,2,3…) used to pick options from a list such as Mix modes.

- **String Pin:** Sends text which can be letters and numbers. Used to report the status of Components and for other tasks where complex data needs to be transferred. For example, Timeline remote control uses String Pins to select and start timelines.

Pin Path

Each pin has a unique address that is derived from the Pins's address. This is expressed as a hierarchy, for example, the level of a layer is show as: **Mix1/Layer1/Mixer/Level**

DMX Charts

DMX profiles are built in to Hippotizer software and can be viewed from within DMX component.

Default Personalities

- 4.2 Layer
- 4.2 Mix
- 4.2 Viewport
- Timeline

4.2 Layer

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
Layer Level	1		0	0-255		
Mixer Mode	2		128	0-9	Additive Dissolve	
				10-19	Subtractive Dissolve	
				20-29	Darken	
				30-39	Lighten	
				40-49	Softlight	
				50-59	Softlight Inverse	
				60-69	Hardlight	
				70-79	Overlay	
				80-89	Difference	
				90-99	Multiply	
				100-109	Screen	
				110-119	Opaque	
				120-129	Sprite	
				130-139	Luminance Key	
				140-149	Matte	
				150-159	Alpha	
				160-169		
Live Mask	3		0	0-255	Live Mask Select	
Red	4		128	0-127	Subtract Red	
				128	No Change	
				129-255	Add Red	
Green	5		128	0-127	Subtract Green	
				128	No Change	
				129-255	Add Green	
Blue	6		128	0-127	Subtract Blue	
				128	No Change	
				129-255	Add Blue	
Brightness	7		128	0-127	Darken layer	
				128	No Change	
				129-255	Brighten Layer	
Contrast	8		128	0-127	Reduce Contrast	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
				128	No Change	
				129-255	Increase Contrast	
Invert Colour	9		0	0-127	Invert Off	
				128-255	Invert On	
Advance Colour	10		0	0-127	Disable Advance Colour	
				128-255	Enable Advance Colour	
Advance Red Low	11		128	0-127	Subtract Red Low	
				128	No Change	
				129-255	Add Red Low	
Advance Red Mid	12		128	0-127	Subtract Red Mid	
				128	No Change	
				129-255	Add Red Mid	
Advance Red High	13		128	0-127	Subtract Red High	
				128	No Change	
				129-255	Add Red High	
Advance Green Low	14		128	0-127	Subtract Green Low	
				128	No Change	
				129-255	Add Green Low	
Advance Green Mid	15		128	0-127	Subtract Green Mid	
				128	No Change	
				129-255	Add Green Mid	
Advance Green High	16		128	0-127	Subtract Green High	
				128	No Change	
				129-255	Add Green High	
Advance Blue Low	17		128	0-127	Subtract Blue Low	
				128	No Change	
				129-255	Add Blue Low	
Advance Blue Mid	18		128	0-127	Subtract Blue Mid	
				128	No Change	
				129-255	Add Blue Mid	
Advance Blue High	19		128	0-127	Subtract Blue High	
				128	No Change	
				129-255	Add Blue High	
Layer Rotation	20	21	16384	0-32768	Index Position	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
				32769-49151	Continuous Clock-Wise Rotation	
				49152	Stop	
				49153-65535	Continuous CounterClock-Wise Rotation	
Position X	22	23	32768	0-32767	Move Left	
				32768	No Change	
				32769-65535	Move Right	
Position Y	24	25	32768	0-32767	Move Up	
				32768	No Change	
				32769-65535	Move Down	
Aspect Ratio	26		128	0-127	Distort Aspect Ratio	
				0	No Change	
				129-255	Distort Aspect Ratio	
Zoom	27	28	32768	0-32767	Zoom Layer	
				32768	No Change	
				32769-65535	Zoom Layer	
Aspect Mode	29		0	0-14	Auto Scale (Fits image to nearest axis)	
				15-24	Pixel 1:1	
				25-34	Fill	
				35-44	4:3	
				45-54	16:9	
				55-64	16:10	
				65-74	1:1	
				75-84	Future Use	
				85-94	Future Use	
Effects 1 Select	30		0	0-255	See Effects List	
Effects 1 Level	31		0	0-255		
Effects 1 Parameter 1	32		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 2	33		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 3	34		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 4	35		128	0-255	Determined by Selected Effect	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
Effects 1 Parameter 5	36		128	0-255	Determined by Selected Effect	
Effects 2 Select	37		0	0-255	See Effects List	
Effects 2 Level	38		0	0-255		
Effects 2 Parameter 1	39		128	0-255	Determined by Selected Effect	
Effects 2 Parameter 2	40		128	0-255	Determined by Selected Effect	
Effects 2 Parameter 3	41		128	0-255	Determined by Selected Effect	
Effects 2 Parameter 4	42		128	0-255	Determined by Selected Effect	
Effects 2 Parameter 5	43		128	0-255	Determined by Selected Effect	
Source Type	44		0	0-14	Media Player	
				15-24	Live Input (Capture)	
				25-34	Generator	
				35-44	Relays	
Media Bank Select	45		0	0-255	Bank 0, Clip 0 Bypasses the Media player	
Media Clip Select	46		0	0-255		
Media Player Play Mode	47		15	0-14	Play Forward Once	
				15-24	Play Forward and Loop	
				25-34	Play Backwards Once	
				35-44	Play Backwards and Loop	
				45-54	Play Forwards then Backward, looping	
				55-64	Random Frame	
				65-74	In Frame	
				75-79	Out Frame	
Relay Select	48		0	0-9	Disabled	
				10-255	Selects Relays: depends on Mix config	
Playback Speed	49		64	0-63	Slows Media Playback: 0-99%	
				64	Playback Normal Speed	
				65-255	Faster Playback Speed: 101-400%	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
Media In-Point	50	51	0	0	First Frame	
				1-65535	Moves Inpoint into clip	
Media Pause	52		0	0-127	Pause Off	
				128-255	Pause On	
Media Out-Point	53	54	65535	65535	Last Frame	
				65534-0	Moves Outpoint into clip	
Live Input Select	55		0	0-9	Disabled	
				10-19	Input 1	
				20-29	Input 2	
				30-39	Input 3	
				40-49	Input 4	
				50-59	Input 5	
				60-69	Input 6	
				70-79	Input 7	
				80-89	Input 8	
Live input De-Interlace	56		0	0-127	De-interlace Off	
				128-255	De-interlace On	
Generator Select	57		0	0-255	See List of Generators	
Generator Parameter 1	59		128	0-255	Determined by Selected Generator	
Generator Parameter 2	60		128	0-255	Determined by Selected Generator	
Generator Parameter 3	61		128	0-255	Determined by Selected Generator	
Generator Parameter 4	62		128	0-255	Determined by Selected Generator	
Generator Parameter 5	63		128	0-255	Determined by Selected Generator	
Generator Parameter 6	64		128	0-255	Determined by Selected Generator	
Generator Parameter 7	65		128	0-255	Determined by Selected Generator	
Generator Parameter 8	66		128	0-255	Determined by Selected Generator	
Generator Parameter 9	67		128	0-255	Determined by Selected Generator	
Pause on Dark	75		255	0-127	Disabled	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
				128-255	Enabled	
Rewind on Dark	76		0	0-127	Disabled	
				128-255	Enabled	
Layer Audio Volume	77		0	0-255		
Audio Pan	78		128	0-127	Pan Left	
				128	Centre	
				129-255	Pan Right	
Sync Audio to Layer Level	79		255	0-127	Do Not Sync to Layer Level	
				128-255	Sync to Layer Level	
Timecode On Layer (Sync In)	80		0	0-9	Sync In – Off	
				10-19	Sync In – Sync Bus 1	
				20-29	Sync In – Sync Bus 2	
				30-39	Sync In – Sync Bus 3	
				40-49	Sync In – Sync Bus 4	
				50-59	Sync In – Sync Bus 5	
				60-69	Sync In – Sync Bus 6	
				70-79	Sync In – Sync Bus 7	
				80-89	Sync In – Sync Bus 8	
				90-99	Sync In – Sync Bus 9	
				100-109	Sync In – Sync Bus 10	
				110-119	Sync In – Sync Bus 11	
				120-129	Sync In – Sync Bus 12	
				130-139	Sync In – Sync Bus 13	
				140-149	Sync In – Sync Bus 14	
				150-159	Sync In – Sync Bus 15	
				160-169	Sync In – Sync Bus 16	
				170-179	Sync In – External Sync 1	
				180-255	Sync In – External Sync 2	
Time Code Offset: Hours	81		0	0-255	TC on Layer Offset Hours	
Time Code Offset: Minutes	82		0	0-255	TC on Layer Offset Minutes	
Time Code Offset: Seconds	83		0	0-255	TC on Layer Offset Seconds	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
Time Code Offset: Mili Seconds	84		0	0-255	TC on Layer Offset Milliseconds	
Colour Shift	85		128	0-255	Shifts colour gamut of layer	
Colour Saturation	86		128	0-255	Saturates / Desaturates colours	
Preset select Bank	89		0	0	Bank 0	
				1	Bank 1	
				2	Bank 2	
				…	…	
				255	Bank 255	
Preset Select Slot	90		0	0	No Preset Selected	
				1	Preset 1	
				2	Preset 2	
				…	…	
				255	Preset 255	
Timecode on layer Fly Wheel	91		0	0-127	Disable Fly Wheel	
				128-255	Enable Fly Wheel	
Keystone 1X	92	93	0	0-65535		
Keystone 1Y	94	95	0	0-65535		
Keystone 2X	96	97	65535	0-65535		
Keystone 2Y	98	99	0	0-65535		
Keystone 3X	100	101	65535	0-65535		
Keystone 3Y	102	103	65535	0-65535		
Keystone 4X	104	105	0	0-65535		
Keystone 4Y	106	107	65535	0-65535		

4.3 Layer

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
Layer Level	1		0	0-255		
Mixer Mode	2		128	0-9	Additive Dissolve	
				10-19	Subtractive Dissolve	
				20-29	Darken	
				30-39	Lighten	
				40-49	Softlight	
				50-59	Softlight Inverse	
				60-69	Hardlight	
				70-79	Overlay	
				80-89	Difference	
				90-99	Multiply	
				100-109	Screen	
				110-119	Opaque	
				120-129	Sprite	
				130-139	Luminance Key	
				140-149	Matte	
				150-159	Alpha	
				160-169		
Live Mask	3		0	0-255	Live Mask Select	
Red	4		128	0-127	Subtract Red	
				128	No Change	
				129-255	Add Red	
Green	5		128	0-127	Subtract Green	
				128	No Change	
				129-255	Add Green	
Blue	6		128	0-127	Subtract Blue	
				128	No Change	
				129-255	Add Blue	
Brightness	7		128	0-127	Darken layer	
				128	No Change	
				129-255	Brighten Layer	
Contrast	8		128	0-127	Reduce Contrast	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
				128	No Change	
				129-255	Increase Contrast	
Invert Colour	9		0	0-127	Invert Off	
				128-255	Invert On	
Advance Colour	10		0	0-127	Disable Advance Colour	
				128-255	Enable Advance Colour	
Advance Red Low	11		128	0-127	Subtract Red Low	
				128	No Change	
				129-255	Add Red Low	
Advance Red Mid	12		128	0-127	Subtract Red Mid	
				128	No Change	
				129-255	Add Red Mid	
Advance Red High	13		128	0-127	Subtract Red High	
				128	No Change	
				129-255	Add Red High	
Advance Green Low	14		128	0-127	Subtract Green Low	
				128	No Change	
				129-255	Add Green Low	
Advance Green Mid	15		128	0-127	Subtract Green Mid	
				128	No Change	
				129-255	Add Green Mid	
Advance Green High	16		128	0-127	Subtract Green High	
				128	No Change	
				129-255	Add Green High	
Advance Blue Low	17		128	0-127	Subtract Blue Low	
				128	No Change	
				129-255	Add Blue Low	
Advance Blue Mid	18		128	0-127	Subtract Blue Mid	
				128	No Change	
				129-255	Add Blue Mid	
Advance Blue High	19		128	0-127	Subtract Blue High	
				128	No Change	
				129-255	Add Blue High	
Layer Rotation	20	21	16384	0-32768	Index Position	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
				32769-49151	Continuous Clock-Wise Rotation	
				49152	Stop	
				49153-65535	Continuous CounterClock-Wise Rotation	
Position X	22	23	32768	0-32767	Move Left	
				32768	No Change	
				32769-65535	Move Right	
Position Y	24	25	32768	0-32767	Move Up	
				32768	No Change	
				32769-65535	Move Down	
Aspect Ratio	26		128	0-127	Distort Aspect Ratio	
				0	No Change	
				129-255	Distort Aspect Ratio	
Zoom	27	28	32768	0-32767	Zoom Layer	
				32768	No Change	
				32769-65535	Zoom Layer	
Aspect Mode	29		0	0-14	Auto Scale (Fits image to nearest axis)	
				15-24	Pixel 1:1	
				25-34	Fill	
				35-44	4:3	
				45-54	16:9	
				55-64	16:10	
				65-74	1:1	
				75-84	Future Use	
				85-94	Future Use	
Effects 1 Select	30		0	0-255	See Effects List	
Effects 1 Level	31		0	0-255		
Effects 1 Parameter 1	32		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 2	33		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 3	34		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 4	35		128	0-255	Determined by Selected Effect	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
Effects 1 Parameter 5	36		128	0-255	Determined by Selected Effect	
Effects 2 Select	37		0	0-255	See Effects List	
Effects 2 Level	38		0	0-255		
Effects 2 Parameter 1	39		128	0-255	Determined by Selected Effect	
Effects 2 Parameter 2	40		128	0-255	Determined by Selected Effect	
Effects 2 Parameter 3	41		128	0-255	Determined by Selected Effect	
Effects 2 Parameter 4	42		128	0-255	Determined by Selected Effect	
Effects 2 Parameter 5	43		128	0-255	Determined by Selected Effect	
Source Type	44		0	0-14	Media Player	
				15-24	Live Input (Capture)	
				25-34	Generator	
				35-44	Relays	
Media Bank Select	45		0	0-255	Bank 0, Clip 0 Bypasses the Media player	
Media Clip Select	46		0	0-255		
Media Player Play Mode	47		15	0-14	Play Forward Once	
				15-24	Play Forward and Loop	
				25-34	Play Backwards Once	
				35-44	Play Backwards and Loop	
				45-54	Play Forwards then Backward, looping	
				55-64	Random Frame	
				65-74	In Frame	
				75-79	Out Frame	
Relay Select	48		0	0-9	Disabled	
				10-255	Selects Relays: depends on Mix config	
Playback Speed	49		64	0-63	Slows Media Playback: 0-99%	
				64	Playback Normal Speed	
				65-255	Faster Playback Speed: 101-400%	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
Media In-Point	50	51	0	0	First Frame	
				1-65535	Moves Inpoint into clip	
Media Pause	52		0	0-127	Pause Off	
				128-255	Pause On	
Media Out-Point	53	54	65535	65535	Last Frame	
				65534-0	Moves Outpoint into clip	
Live Input Select	55		0	0-9	Disabled	
				10-19	Input 1	
				20-29	Input 2	
				30-39	Input 3	
				40-49	Input 4	
				50-59	Input 5	
				60-69	Input 6	
				70-79	Input 7	
				80-89	Input 8	
Live input De-Interlace	56		0	0-127	De-interlace Off	
				128-255	De-interlace On	
Generator Select	57		0	0-255	See List of Generators	
Generator Parameter 1	59		128	0-255	Determined by Selected Generator	
Generator Parameter 2	60		128	0-255	Determined by Selected Generator	
Generator Parameter 3	61		128	0-255	Determined by Selected Generator	
Generator Parameter 4	62		128	0-255	Determined by Selected Generator	
Generator Parameter 5	63		128	0-255	Determined by Selected Generator	
Generator Parameter 6	64		128	0-255	Determined by Selected Generator	
Generator Parameter 7	65		128	0-255	Determined by Selected Generator	
Generator Parameter 8	66		128	0-255	Determined by Selected Generator	
Generator Parameter 9	67		128	0-255	Determined by Selected Generator	
NDI Capture	68		0	0-127	Disabled	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
				128-255	Enabled	
NDI Source Select	69		0	0-9	Disabled	
				10-19	Input 1	
				20-29	Input 2	
				30-39	Input 3	
				40-49	Input 4	
				50-59	Input 5	
				60-69	Input 6	
				70-79	Input 7	
				80-89	Input 8	
Pause on Dark	75		255	0-127	Disabled	
				128-255	Enabled	
Rewind on Dark	76		0	0-127	Disabled	
				128-255	Enabled	
Layer Audio Volume	77		0	0-255		
Audio Pan	78		128	0-127	Pan Left	
				128	Centre	
				129-255	Pan Right	
Sync Audio to Layer Level	79		255	0-127	Do Not Sync to Layer Level	
				128-255	Sync to Layer Level	
Timecode On Layer (Sync In)	80		0	0-9	Sync In – Off	
				10-19	Sync In – Sync Bus 1	
				20-29	Sync In – Sync Bus 2	
				30-39	Sync In – Sync Bus 3	
				40-49	Sync In – Sync Bus 4	
				50-59	Sync In – Sync Bus 5	
				60-69	Sync In – Sync Bus 6	
				70-79	Sync In – Sync Bus 7	
				80-89	Sync In – Sync Bus 8	
				90-99	Sync In – Sync Bus 9	
				100-109	Sync In – Sync Bus 10	
				110-119	Sync In – Sync Bus 11	
				120-129	Sync In – Sync Bus 12	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
				130-139	Sync In – Sync Bus 13	
				140-149	Sync In – Sync Bus 14	
				150-159	Sync In – Sync Bus 15	
				160-169	Sync In – Sync Bus 16	
				170-179	Sync In – External Sync 1	
				180-255	Sync In – External Sync 2	
Time Code Offset: Hours	81		0	0-255	TC on Layer Offset Hours	
Time Code Offset: Minutes	82		0	0-255	TC on Layer Offset Minutes	
Time Code Offset: Seconds	83		0	0-255	TC on Layer Offset Seconds	
Time Code Offset: Mili Seconds	84		0	0-255	TC on Layer Offset Milliseconds	
Colour Shift	85		128	0-255	Shifts colour gamut of layer	
Colour Saturation	86		128	0-255	Saturates / Desaturates colours	
Preset select Bank	89		0	0	Bank 0	
				1	Bank 1	
				2	Bank 2	
				…	…	
				255	Bank 255	
Preset Select Slot	90		0	0	No Preset Selected	
				1	Preset 1	
				2	Preset 2	
				…	…	
				255	Preset 255	
Timecode on layer Fly Wheel	91		0	0-127	Disable Fly Wheel	
				128-255	Enable Fly Wheel	
Keystone 1X	92	93	0	0-65535		
Keystone 1Y	94	95	0	0-65535		
Keystone 2X	96	97	65535	0-65535		
Keystone 2Y	98	99	0	0-65535		
Keystone 3X	100	101	65535	0-65535		
Keystone 3Y	102	103	65535	0-65535		
Keystone 4X	104	105	0	0-65535		

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
Keystone 4Y	106	107	65535	0-65535		

4.2 Mix

Channel Function	DMX	DMX (16bit)	Default	DMX Range (0-255)		Notes
Mix Level	1		255	0-255		
Effects 1 Select	2		0	0-255	See Effects List	
Effects 1 Level	3		0	0-255		
Effects 1 Parameter 1	4		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 2	5		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 3	6		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 4	7		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 5	8		128	0-255	Determined by Selected Effect	
Preset select Bank	9		0	0	Bank 0	
				1	Bank 1	
				2	Bank 2	
				…	…	
				255	Bank 255	
Preset Select Slot	10		0	0	No Preset Selected	
				1	Preset 1	
				2	Preset 2	
				…	…	
				255	Preset 255	
Pixelmapper Enable	11		0	0-127	Disabled	
				128-255	Enabled	
Pixel mapper map select	12		0	0-255		
Visulisation mode	13		0	0-9	Visulization Disabled	
				10-19	Output Buffer	
				20-29	Buffer View Overlay	
				30-39	Element Locations	
				40-49	Element Colours	
Colour Avageing	14		0	0-127	Disabled	
				128-255	Enabled	

Channel Function	DMX	DMX (16bit)	Default	DMX Range (0-255)		Notes
Vis background level	15		0	0-255		
Audio Level	16		255	0-255		
Timecode shift	17	18	32767	0-65535		

4.3 Mix

Channel Function	DMX	DMX (16bit)	Default	DMX Range (0-255)		Notes
Mix Level	1		255	0-255		
Effects 1 Select	2		0	0-255	See Effects List	
Effects 1 Level	3		0	0-255		
Effects 1 Parameter 1	4		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 2	5		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 3	6		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 4	7		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 5	8		128	0-255	Determined by Selected Effect	
NDI Enable	9		0	0-127	Disabled	
				128-255	Enabled	
NDI Frame Rate	10		0	0-9	15FPS	
				10-19	25 FPS	
				20-29	29.97 FPS	
				30-39	30 FPS	
				40-49	50 FPS	
				50-59	59.94 FPS	
				60-69	60 FPS	
				70-79	Free Run	
Pixelmapper Enable	11		0	0-127	Disabled	
				128-255	Enabled	
Pixel mapper map select	12		0	0-255		
Visulisation mode	13		0	0-9	Visulization Disabled	
				10-19	Output Buffer	
				20-29	Buffer View Overlay	
				30-39	Element Locations	
				40-49	Element Colours	
Colour Avageing	14		0	0-127	Disabled	
				128-255	Enabled	

Channel Function	DMX	DMX (16bit)	Default	DMX Range (0-255)		Notes
Vis background level	15		0	0-255		
Audio Level	16		255	0-255		
Timecode shift	17	18	32767	0-65535		
Preset select Bank	19		0	0	Bank 0	
				1	Bank 1	
				2	Bank 2	
				…	…	
				255	Bank 255	
Preset Select Slot	20		0	0	No Preset Selected	
				1	Preset 1	
				2	Preset 2	
				…	…	
				255	Preset 255	

4.2 Viewport

Channel Function	DMX	DMX (16bit)	Default	DMX Range (0-255)		Notes
ViewPort Level	1		255	0-255		
Red	2		128	0-127	Subtract Red	
				128	No Change	
				129-255	Add Red	
Green	3		128	0-127	Subtract Green	
				128	No Change	
				129-255	Add Green	
Blue	4		128	0-127	Subtract Blue	
				128	No Change	
				129-255	Add Blue	
Brightness	5		128	0-127	Darken layer	
				128	No Change	
				129-255	Brighten Layer	
Contrast	6		128	0-127	Reduce Contrast	
				128	No Change	
				129-255	Increase Contrast	
Colour Saturation	7		128	0-255	Saturates / Desaturates colours	
Colour Shift	8		128	0-255	Shifts colour gamut of layer	
Invert Colour	9		0	0-127	Invert Off	
				128-255	Invert On	
Effects 1 Select	10		0	0-255	See Effects List	
Effects 1 Level	11		0	0-255		
Effects 1 Parameter 1	12		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 2	13		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 3	14		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 4	15		128	0-255	Determined by Selected Effect	
Effects 1 Parameter 5	16		128	0-255	Determined by Selected Effect	
Rotation Positon (Index)	17	18	16384	0-32768	Index Position	

Channel Function	DMX	DMX (16bit)	Default	DMX Range (0-255)		Notes
				32769-49151	Continuous Clock-Wise Rotation	
				49152	Stop	
				49153-65535	Continuous CounterClock-Wise Rotation	
Position X	19	20	32768	0-35767	Move Left	
				32768	No Change	
				32869-65535	Move Right	
Position Y	21	22	32768	0-35767	Move Up	
				32768	No Change	
				32869-65535	Move Down	
Viewport Zoom	23	24	32768	0-35767		
				32768	No Change	
				32869-65535		
Keystone AntiAliasing	25		0	0-127	Disable	
				128-255	Enable	
Keystone Point 1X	26	27	0	0-255		
Keystone Point 1Y	28	29	0	0-255		
Keystone Point 2X	30	31	65535	0-255		
Keystone Point 2Y	32	33	0	0-255		
Keystone Point 3X	34	35	65535	0-255		
Keystone Point 3Y	36	37	65535	0-255		
Keystone Point 4X	38	39	0	0-255		
Keystone Point 4Y	40	41	65535	0-255		
Livemask Select	42		0	0-255	Live Mask Select	
Videomapper Enable	43		0	0-127	Enable	
				128-255	Disable	
Videomapper Mix	44		0	0-255		
Videomapper Mix/ Morph	45		0	0-127	Mix	
				128-255	Morph	
Videomap A Select	46		0	0-255		
Videomap B Select	47		0	0-255		
Screen Warp Enable	48		0	0-127	Enable	

Channel Function	DMX	DMX (16bit)	Default	DMX Range (0-255)		Notes
				128-255	Disable	
Screen Warp Select A	49		0	0-255	Screen Warp A Select	
Screen Warp Select B	50		0	0-255	Screen Warp B Select	
Screen Warp Mix	51		128	0-255		
Preset select Bank	52		0	0	Bank 0	
				1	Bank 1	
				2	Bank 2	
				…	…	
				255	Bank 255	
Preset Select Slot	53		0	0	No Preset Selected	
				1	Preset 1	
				2	Preset 2	
				…	…	
				255	Preset 255	
LiveMask Level	54		0	0-255		

4.3 Notch 10ch

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
Bypass	1		0	0-127	Off	
				128-255	On	
Cached Resources	2		0	0-127	Off	
				128-255	On	
Notch Effect	3		128	0-9	Effect 1	
				10-19	2	
				20-29	3	
				30-39	4	
				40-49	5	
				50-59	6	
				60-69	7	
				70-79	8	
				80-89	9	
				90-99	10	
				100-109	11	
				110-119	12	
				120-129	13	
				130-139	14	
				140-149	15	
				150-159	16	
				160-169	17	
				170-179	18	
				180-189	19	
				190-199	20	
				200-209	21	
				210-219	22	
				220-229	23	
				230-239	24	
				240-249	25	
				250-255	26	
Notch File	3		128	0-9	File 1	
				10-19	2	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
				20-29	3	
				30-39	4	
				40-49	5	
				50-59	6	
				60-69	7	
				70-79	8	
				80-89	9	
				90-99	10	
				100-109	11	
				110-119	12	
				120-129	13	
				130-139	14	
				140-149	15	
				150-159	16	
				160-169	17	
				170-179	18	
				180-189	19	
				190-199	20	
				200-209	21	
				210-219	22	
				220-229	23	
				230-239	24	
				240-249	25	
				250-255	26	
Parameter 1	5		0	0-255	Depends on Effect	
Parameter 2	6		0	0-255	Depends on Effect	
Parameter 3	7		0	0-255	Depends on Effect	
Parameter 4	8		0	0-255	Depends on Effect	
Parameter 5	9		0	0-255	Depends on Effect	
Parameter 6	10		0	0-255	Depends on Effect	
Parameter 7	11		0	0-255	Depends on	

CHANNEL FUNCTION	DMX	DMX (16BIT)	DEFAULT	DMX RANGE (0-255)		NOTES
					Effect	
Parameter 8	12		0	0-255	Depends on Effect	
Parameter 9	13		0	0-255	Depends on Effect	
Parameter 10	14		0	0-255	Depends on Effect	

Timeline

Timeline Control allows you to trigger and control any Timeline from within DMX.

So it allows to merge using the timeline, but triggering when what timeline is playing conveniently from a lighting console.

In the timeline list in the User Interface you need to set the ID for each timeline as this will be referenced by the first DMX channel. Channel 2 triggers the action on this particular timeline.

Please note that a command will only be triggered if a DMX value changes.

For example timeline 1->Play (DMX values 1, 10) will trigger a play command the first time this is issued.

If the timeline runs into a stop command and you wish to play again simple sending 1->Play won’t do anything as the values have not changed.

you need to insert a “nothing” cue in between (values 1, 0) before issued 1_Play again (1,10).

Function	DMX	DMX (16bit)	Default	Range	Notes
Timeline Select	1		0	0 – 255	
				0	No Timeline Selected
				255	Timeline 255 Seclected
Playback Command	2		0	0-9	Nothing
				10-19	Play
				20-29	Pause
				30-39	Stop
				40-49	GoCue and Play
				50-59	Go Cue and Pause
Recall Cues Command	3	4	0	0-65535	Recall Cues
				0	Recall Cue 0.00
				100	Recall Cue 1.00
				65535	Recall Cue 655.35

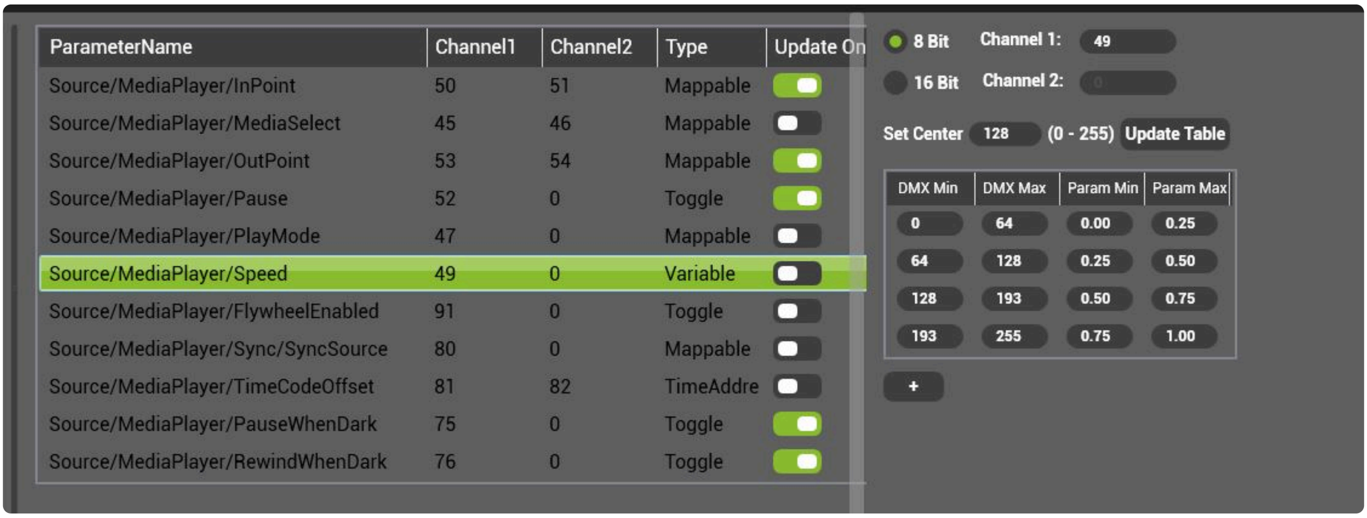
Creating DMX Personalities

Controlling a Hippotizer from a DMX lighting desk is easy and the software come complete with stock personalities.

However, it is can be necessary to create custom personalities. This requires some specific decisions and mappings. These are detailed here.

Layer Playback Speed

The speed of a layer should be set to 25% exactly by default. This requires mapping the value of 25% to a DMX value of 64:



ParameterName	Channel1	Channel2	Type	Update On
Source/MediaPlayer/InPoint	50	51	Mappable	☑
Source/MediaPlayer/MediaSelect	45	46	Mappable	☐
Source/MediaPlayer/OutPoint	53	54	Mappable	☑
Source/MediaPlayer/Pause	52	0	Toggle	☑
Source/MediaPlayer/PlayMode	47	0	Mappable	☐
Source/MediaPlayer/Speed	49	0	Variable	☐
Source/MediaPlayer/FlywheelEnabled	91	0	Toggle	☐
Source/MediaPlayer/Sync/SyncSource	80	0	Mappable	☐
Source/MediaPlayer/TimeCodeOffset	81	82	TimeAddre	☐
Source/MediaPlayer/PauseWhenDark	75	0	Toggle	☑
Source/MediaPlayer/RewindWhenDark	76	0	Toggle	☑

● 8 Bit Channel 1: 49

○ 16 Bit Channel 2: 0

Set Center 128 (0 - 255) Update Table

DMX Min	DMX Max	Param Min	Param Max
0	64	0.00	0.25
64	128	0.25	0.50
128	193	0.50	0.75
193	255	0.75	1.00

Pixelmapper Map select update only

To avoid a serious impact on performance, ensure the Map Select pin in mix controls is set to update only.

Effects List

Group	FX number/ DMX	Description	Level	Var1	Var2	Var3	Var4	Var5
General	0	No Effect						
	1	Blur	Level					
	2	Radial Blur	Level	Amount	Whirl	Quality	Fade Out	Shift X
	3	Motion Blur	Level					
	4	StrobeFreeze	Level					
	5	Mask	Level					
	6	Alpha Transition	Level	Mask	Blur	Smooth		
	7	Displacement effect	Level	Input		Smooth		
	8	XY-Shifter	Level	X	Y	Speed X	Speed Y	
	9	Shutter	Level	Left	Right	Top	Bottom	
	10	ChromaKey	Level	Hue	Tolerance	Transparancy		
	11	Johans Effect	Level	Squash X	Squash Y			
	12	Scroller	Level	X	Y	Speed X	Speed Y	
Colour	13	RGB Tint	Level	Red	Green	Blue		
	14	Colour Studio	Level	Shift A	Shift B	Bright		
	15	Strobe	Level	Frequency	Symmetry	Colour		
	16	Neon	Level	Width				
	17	ColourTrafo	Level	Saturation	Hue	Brightness	Speed	
	18	DuoTone	Level	Col 1	Col 2	Contrast		
	19	RGB Pallette	Level	Red	Green	Blue	Speed	
	20	Bloom	Level	Bloom				
	21	Interlace	Level	Stripes	Sat			
	22	Colourizer (random)	Level	Mymul	Shifter	Randomizer	Speed	
	23	Karls Eye	Level	K1	Shift X	Shift Y	Zoom	
	24	Mega Zoom	Level	Zoom	Rotate	Shift X	Shift Y	Aspect
	25	Noise	Level	Colouredness	Frequency	Grain Size		
	26	Leave Colour	Level	Hue	Tolerance	Transparency		
	27	Rings	Level	Rings				
	28	Cube Style	Level	Size	Patern A	Pattern B	Speed A	Speed
	29	Bump	Level	Bump	Light X	Light Y	Zoom	

Group	FX number/ DMX	Description	Level	Var1	Var2	Var3	Var4	Var5
	30	LED	Level	Density	Softness	Brightness		
	31	Pixelate	Level	Pixels				
	32	Film	Level	Flicker	Flickrate	Dirt		
	33	Halftone	Level	Size	Angle			
	34	Inv LumaKey	Level	Threshold	Softness	Invert		
	35	Colour Change	Level	Blue2Red	Blue2Green	Green2Red	Green2Blue	Red2G
	36	Colour Enhancer	Level	Red	Green	Blue		
Distortion	37	Plasma	Level	D1	D2	Light	Anim	
	38	Flower	Level	Flora				
	39	Flip	Level	Flip X	Flip Y			
	40	Kaleidoscope	Level	Leaves	Angle	Shift	Speed A	Speed
	41	Roto Zoom	Level	Rot	ZoomOut			
	42	Glass	Level	Glass				
	43	Aqua	Level	Wave A	Wave B	Speed A	Speed B	
	44	Tunnel	Level	Cam	ZoomOut	Speed X	Speed Y	
	45	Planes	Level	Anim Rot	Anim Shift	Wip	Dist shift	Distpla
	46	FluidDistortion	Level	X	Y	Z	Speed A	Speed
	47	Polarwave	Level	Flower	Caleido	Leaves	Speed	
	48	Twisted	Level	Twist	Flower	Leaves	Speed	Twisty
	49	Rectangles	Level	Width	Height	Num X	Num Y	Speed
	50	Ripple	Level	Numwaves	Speed			
	51	Wave	Level	Wave				
	52	Jitter	Level	Speed	Rotation	X	Y	Zoom
	53	Stripes	Level	Frequency	Scale			
	54	Infinite zoom	Level	Speed				
	55	Sven’s digits	Level	Zoom	Height	Width	digits	
	56	Pixel Dunst	Level	Direction	Frequency	GrainSize		
	57	Bounce	Level	Speed	X move	Y move	Zoom	
	58	Infinity	Level	Speed				
	59	RB MultiMirror	Level	Vert	Horiz	X-Flip	Y-Flip	
	60	Zoom Area	Level	Left	Right	Top	Bottom	
Softedge	61	SE-Left	Level	Gamma	Factor	Offset		

Group	FX number/ DMX	Description	Level	Var1	Var2	Var3	Var4	Var5
	62	SE-Right	Level	Gamma	Factor	Offset		
	63	SE-Left Right	Level	Gamma	Factor	Offset		
	64	SE-Top	Level	Gamma	Factor	Offset		
	65	SE-Bottom	Level	Gamma	Factor	Offset		
	66	SE-Top Bottom	Level	Gamma	Factor	Offset		
	67	SE-Pan	Level	Gamma	Width	Pos		
	68	SE-Frame	Level	Range	Gamma			
	69	DropShadow	Level	Distance	Size	Alpha	Softness	
	70	Radar Screen	Level	Speed	Glow Curve Radar	Number of Rings	Glow Curve Content	Color
	71	Crop_De-Interlace	Level	Crop Left	Crop Right	Crop Top	Crop Bottom	
	72	SEDualPan	OverlapLeft	Pos Left	Gamma Left	Overlap Right	Pos Right	Gamma Right
	73	SEPanV	Level	gamma	width	position		
	74	Displace Mixer	Level	X	Y			
	75	Magnifier	Level	Size	X	Y	Manual	Speed
	76	Curtain Down	Level	Rotation				
	77	Burn Out	Level	Gamma				
	78	Moving Blurb	Level	Gamma				
	79	DeGapper	Level	X Reps	X Gap	Y Reps	Y Gap	
	80	Tilt Shift	Level	Shift X	Shift Y	Angle	DOF	
	81	Tilt Shift Radial	Level	Shift X	Shift Y	DOF		
	82	Cady Colour	Level	Speed	Colours	Saturation		
	83	Idiot Strobe	Level	Freq	Symmetry	colour	Wash	Rando
	84	Neils Gamma	Level	Gamma	Black	White		
	85	Neon 2	Level	Width				
	86	Super 8	Level	Speed	Rot	X	Y	Zoom
	87	JR Fade	Level	Hue	Saturation	Offset	Width	Rotate
	88	Reflection	Level	Gamma	Factor	Angle	Zoom	
	89	Katie Mirror	Level	Speed	Splits	Direction		
	90	Mirror Max	Level	Source	Orient			
	91	Blinder	Level					

Group	FX number/ DMX	Description	Level	Var1	Var2	Var3	Var4	Var5
	92	Fader	Level	Fader				
	93	Line Displacement	Level	Lines	Y-Shift	Width		
	94	RGB Key	Level	Red Key	Green Key	Blue Key		
	95	RGB Split	Level	Red X	Red Y	Blue X	Blue Y	Greenz
	96	Contour Drop	Level	X	Y	R	G	B
	97	Ken Burns Effect	Level	Speed	Zoom			
	98	RB Jitter Mask	Level	Size	Speed	Pattern	Edges	
	99	Lens Flare	Level	Shift X	Shift Y	Darken	Size	Spikes
	100	Bad TV	Level	Noise	Wobble	Frequancy	scroll	Interlac
	101	UV Tile	Level	U Tile	V Tile	U Offset	V offset	
	102	TV Wall	Level	SizeX	SizeY	Curve	Mode	Dodgin
	103	Console Daze	Level	Invert	Pixels	Constrast	Pallette	
	104	Colour Crush	Level	BitDepth	CrushR	CrushG	CrushB	
	105	Recursion Window	Level	Shift X	Shift Y	Zoom		
	106	MulitiImage	Level	Size	Aspect			
	107							
	108							
	109	Pufferizer	Level	BaseHeight	Repeat	Rotate X	Rotate Y	Mode
	110	CTBO	Level	Filter	Bright			
	111							
	112							
	113							
	114							
	115							
	116							
	117							
	118	Tiles Flip	Level					
	119	Water FX	Level					
	120							

Generator List

Generator number	Description	Par 1	Par 2	Par 3	Par 4	Par 5	Par 6	Par 7	Par 8	Par 9
0	RGB colour Generator	Red	Green	Blue						
1	HSV Colour Generator	Hue	Saturation	Bright						
2										
3	Rings Generator	X	Y	Z	Size	Smooth	Animmation			
4	Chess Generator	X	Y	Edge X	Edge Y	XY	Zoom	Anim		
5	Interference CC	Speed	Red 1	Green 1	Blue 1	Red 2	Green 2	Blue 2		
6	Interference CC Retro	Speed	Red 1	Green 1	Blue 1	Red 2	Green 2	Blue 2		
7	Interference RC	Speed	Red 1	Green 1	Blue 1	Red 2	Green 2	Blue 2		
8	Interference RCretro2	Speed	Red 1	Green 1	Blue 1	Red 2	Green 2	Blue 2		
9	Interference RC Retro	Speed	Red 1	Green 1	Blue 1	Red 2	Green 2	Blue 2		
10	Interference RR	Speed	Red 1	Green 1	Blue 1	Red 2	Green 2	Blue 2		
11	Interference RR Retro2	Speed	Red 1	Green 1	Blue 1	Red 2	Green 2	Blue 2		
12	Interference RR Retro	Speed	Red 1	Green 1	Blue 1	Red 2	Green 2	Blue 2		
13	Clouds	Lightness	Speed	Softness	Scale					
14	Flowerz	Rotspeed	Zoom	Fade	Colour	Colour Speed				
15	Fog	Lightness	Speed							
16	Rain	Density	Length	Angle	Speed					
17	Starfield	Speed								
18	Gradient	Hue 1	Sat 1	Hue 2	Sat 2	Angle	Speed 1	Speed 2	Rot Speed	
19	Colourgames	Speed	Size	Offset	Boost	Cutoff				
20	Globulars 1	Speed	Size	Offset	Boost	Cutoff				
21	Globulars 2	Speed	Size	Offset	Boost	Cutoff				
22	Globulars 3	Speed	Size	Offset	Boost	Cutoff				
23	Colour	Speed	Wave 1	Wave 2						

Generator number	Description	Par 1	Par 2	Par 3	Par 4	Par 5	Par 6	Par 7	Par 8	Par 9
	bands									
24	Smoke	Lightness	Speed							
25	Squares	X	Y	Z	Size	Smooth	Animmation			
26	Radar	Speed	Glow curve radar	Number of rings	Glow Curve Content	Speed 1	Speed 2	Speed 3		
27	Countdown	TSec	Tmin	Thour	Tday	Tmonth	Tyear			
28	Digital Clock	Blink	Height	Contrast						
29										
30										
31										
80	Pong (bouncer)	Block 1	Block 2	Speed						
100	Sound Spectrum	Bar Width	Bar Pattern	Peak Falls Off	X	Y	Offset	Zoom		
101	WaveForm	Scale	Red	Green	Blue	Width				
121										

Key Board Shortcuts

General control methodology

In designing the controls for Hippotizer, we have made some assumptions:

- Users will always have at least two-button mouse with scroll wheel
- A screen resolution of 1280 × 720 minimum, 1920 × 1080 or greater is ideal.
- A keyboard is present for naming and keyboard shortcuts though not critical.

Engine Short-cuts

- Holding CTRL + ESCAPE for 5 seconds will put output manager into configuration mode.This shortcut works only local to the engine and does not require Zookeeper to be running.

General Zookeeper Shortcuts

- **F1** Navigate to Mixes Page
- **F2** Navigate to Viewports Page
- **F3** Navigate to Visualiser
- **F4** Navigate to Media Manager
- **F5** Navigate to Output Manager
- **F6** Navigate to Configuration Page
- **Escape** Toggle Home screen; returns to home screen if in a pinboard or navigates to previous page if in the home screen.
- **CTRL+1-9** Navigates to quick launch screen 1-9.
- **SHIFT** holding shift while moving faders with the mouse makes changes 10x more fine.

Mixes Page

The geometry controls have specific set of shortcuts in addition to **SHIFT:**

- **X + Click and drag** Locks geometry movement in the X-Axis
- **Y + Click and drag** Locks geometry movement in the Y-Axis
- **CTRL + Click and drag** Locks geometry movement to position (Indexed rotation)
- **ALT + Click and drag** Locks geometry movement to Zoom

Timeline

- **Spacebar** Starts or stops selected timeline
- **ALT** enters insert mode to quickly add nodes or commands
- **Scroll Wheel** Navigate up and down the timeline

Screen Warp

- **Scroll Wheel** Zoom in and out on the warp

Live Mask

- **Scroll Wheel** Zoom the selected shape
- **CTRL + Click** Move blur point
- **CTRL + Scroll Wheel** Zoom all blur points