High End Systems Hog OS
User Manual

Version 5.3.0

Part Number: 6111M1200-5.3.0 Rev: A

Released: 2026-Oct

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Hog Lighting Control System

User Manual Version 5.3.0 - EN

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1. Getting Started

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1.1 About this Manual

This manual describes the Hog OS as it pertains to the Hog OS and it range of consoles, processors, wings and accessories.

- Tour Hog
- Stage Hog
- Flex Hog
- Gig Hog
- HPU
- Hog PC
- Hog 4-18
- Hog 4
- Full Boar 4
- Road Hog 4
- Road Hog 4-21
- HedgeHog 4 (including 4X, 4S, 4N models)
- Rack Hog 4
- Playback Wing 4
- Command Wing 4
- Mini Wing 4

Some of the information contained in this manual will only apply to specific consoles in the Hog OS family but that information will be clearly identified as console specific.

In this manual the word '**key**' is used to indicate a hardware button on the console's front panel. For example: 'press the **Enter** key'. The word '**button**', when used in this manual, refers to 'virtual' buttons that can be pressed on the touch screens or clicked on with the Trackball or mouse.

This manual can be read in any order but if you haven't used a Hog console before you may want to start with the **Hog OS Fundamentals**. You can open your console's built in User Manual at any time by pressing the **Help** button on the **Window Control Toolbar**, at the top of the right-hand screen.

1.2 Manual Symbols

The following formatting conventions are used in the text of this manual:

XXXX - indicates the name of an interface element such as a button, key, or window.

[XXXX] - inside a set of brackets indicates a button that has a label specific to the show that is created by the console or the user.

XXXX - indicates information that you should literally input into the Hog OS verbatim.

[XXXX] - inside a set of brackets indicates the manual is only describing the type of information that you should input into the Hog 4OS.

XXXX , XXXX , XXXX- text separated by commas indicates key or button presses that are sequential.

XXXX + XXXX - text followed by + indicates a key or button press that is held down while the second key or button is pressed.

XXXX → XXXX → XXXX - text mixed with arrows indicates a sequence of operations that navigate you through windows and toolbars.

You will also find important or useful information highlighted:

Caution: Information regarding potential hazards to the equipment or your personnel.

Important: Information regarding items require special attention.

Tip: Information to help you be more productive in your programming.

2. Hog OS Fundamentals

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2.1 The Command Line

The majority of user input into Hog OS is handled through the command line. Keystrokes and button presses accumulate on the **Command Line Toolbar** where users build executable commands such as recording a cue. In some cases command line input is executed immediately but in most cases you must press **Enter** to confirm that the command is complete. To remove any unwanted keystrokes from the command line press the **Backspace** key once. To completely clear the command line double-press the **Backspace**key.

2.1.1 Command Line Syntax

The basic order and structure of the command line syntax is: Source, Mask, Command, Options, Destination.

- **Source:** The source is the object within the show that you want to take data from. It might be a palette, scene, cue, or the editable editor. With most commands the source object is not modified.
- **Mask:**The Mask is a filter for when you only want some of the data from that object. There are two types of mask: a fixture mask specifies only data for certain fixtures (for example Cyberlight 1); a kind mask specifies only data for certain kinds (for example Colour, Beam). If no mask is specified then the entire contents of the current active editor are included in the command.
- **Command:**The Command is the operation you want to perform. Commands include Copy, Record, Delete, Move, Merge, Knockout. Some of these only need a source to be specified, others only need a destination, but they all have the same syntactical form.
- **Options:**The behavior of some commands (for example Record) can be altered with options. These usually appear on a pop-up toolbar once the command key is pressed.
- **Destination:**The destination is the object that will be affected by the command. Again it might be a palette, cue, scene or the editable editor. If the destination already exists, and the action to take is unclear, then you will be asked what the console should do.

Some examples of command line syntax are shown in the table below. Note that a final press of the **Enter** key is required to tell the console to the command is complete and ready to be executed. If the command line text turns red then the syntax is invalid.

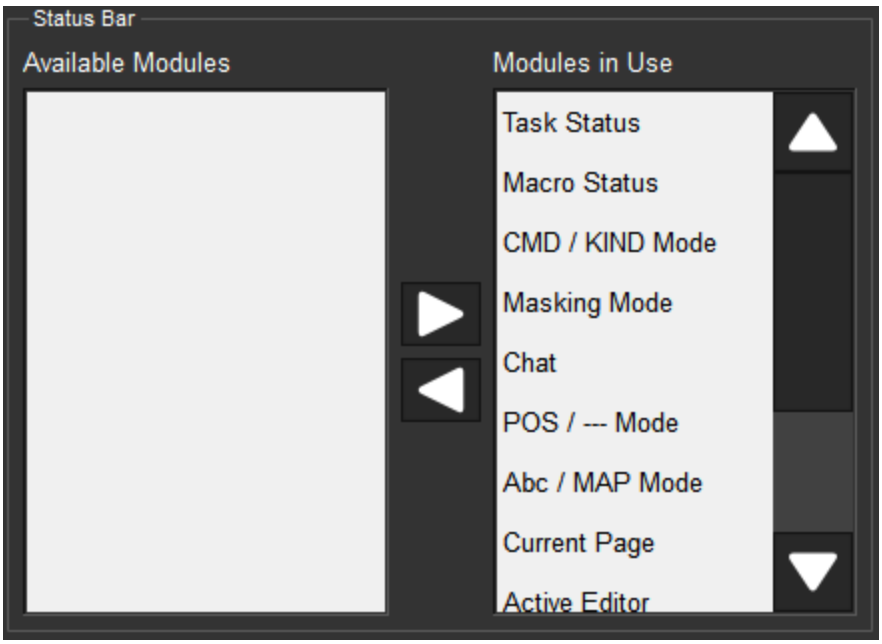
Source	Mask	Command	Options	Destination	Comments
		Record		Position 1	Records a position palette to location 1 in the position palette directory.No source is given, so the content of the current editor is assumed.
		Record	Replace	Position 1	The Replace option (on the Record Options Toolbar) ensures that the new palette replaces the previously recorded palette.
Position 1		Copy		Position 2	The Copy command takes the Position 1 palette as its source.
Position 1		Copy	Replace	Position 2	This example combines using a source and a record option.
Group 2		Record		Position 3	Here Group 2 acts as a mask for the record command, so that only fixtures in Group 2 are recorded into the Position 3 palette.
Cue 1Group 3	Position	Copy		Cue 5	Here the parameter values of fixtures in Group 3 are copied from Cue 1 to Cue 5. The Position option applied to the copy command means that only position parameters are included.

2.1.2 The Status Bar

To the right of the command line is the Status Bar. The Status Bar shows information about the of the state of console and provides touchable targets that allow operators to toggle the displayed state or launch a window related to that state.



Operators can choose which modules are displayed in the **Status Bar** by accessing the **Programming Tab** of the **User Preferences** Window and utilizing the drag and drop interface located under the Status Bar section.



The table below describes the different modules that can be shown / hidden on the **Status Bar**:

Module	States Displayed	Action When Pressed
Task Status	- (No tasks running) - (Tasks are running) - (Task failure)	Opens Task Status Window
Macro Status	- Keystroke macros idle - Keystroke macro playing - Keystroke macro recording	Opens Macros Directory Window
CMD / KIND Mode	**CMD** (function keys are in Command Mode) **KIND** (function keys are in Kind Mode)	Toggles the Function Key Mode
Masking Mode	**ADD** (console using additive masking scheme) **SUB** (console using subtractive masking scheme)	Toggles the Masking Mode
Chat	 (no new chat messages)  (unread chat messages)	Opens Chat Window
Pos / - Mode	**-** (trackball is in pointer mode) **POS** (trackball is in Position Mode) **POS, ortho** (trackball is in Position Ortho Mode)	Toggles Trackball Mode
Abc / MAP Mode	**Abc** (keyboard is in normal mode) **MAP** (keyboard shortcuts enabled)	Toggles Keyboard Mode
Current Page	Displays the number and name of the current Page on the local console.	Opens Page Directory Window
Active Editor	Displays the name of the active editor on the local console.	Opens or brings into focus the active editor window
Chosen Master	Displays the name of the show item assigned to the currently chosen master. If chosen master is empty the master number is displayed.	Opens the Master Window for the chosen master.
Network Status	- Network is stable - Data is syncing across consoles - Networked device needs upgrade - Network Fault, check connections	Opens Network Window
Clock	Displays the system clock for the local console.	Opens Clock Window

2.2 The Graphical User Interface

In addition to the conventional command line, the Hog OS uses a graphical user interface similar to those found on personal computers. The advantages of the graphical user interface are far-reaching, and will become fully apparent as you get more familiar with Hog OS.

Key Features of the GUI are:

- You can work with on-screen controls and windows using the touch screen or through a pointer controlled by the built in Trackball, or an external mouse. Left-clicking the mouse is the same as touching the screen and is used for selecting or activating controls, while right-clicking brings up a context-sensitive range of menu options.
- The Soft Keys adjacent to the touch screens provide another method of accessing functions, changing to match whichever toolbar is docked along that edge of the screen.
- The graphical environment is highly customizable, giving you complete control of the console and individual window layout. For example, you can rearrange column headers in list windows (e.g. the **Cuelist** and **Programmer** windows) to prioritise information that is most pertinent to a specific show or user. Information displayed can also be sorted or filtered. When a user logs out these preferences and settings are stored, and retrieved again on logging in.

2.2.1 Toolbar Management

The toolbars that appear at the top and bottom edges of the console displays provide a set of buttons and menus that assist with many core functions of Hog OS. The arrangement and presentation of these toolbars is different on each console, but their management is fairly easy to learn.

Most toolbars presented on Hog 4 series consoles can be repositioned using the toolbar handle located the far left of each toolbar. To show / hide the encoder wheel toolbar and slot toolbar hold the **Pig** key and press the **Period** key.

The system toolbar and the design toolbar on Tour Hog, Stage Hog, Flex Hog, and Hog PC (Tour Mode and Gig Mode) can be configured using the keyboard shortcuts presented in the table below.

Shortcut	Keyboard Shortcut
Setup + **.**	Resets toolbar layout to platform default
Setup + **0**	Show hide design toolbar from the main display
Setup + **1**	Toggles design toolbar on Display 1 (top, bottom, hidden)
Setup + **2**	Toggles design toolbar on Display 2 (top, bottom, hidden)
Setup + **3**	Toggles design toolbar on Display 3 (top, bottom, hidden)

2.2.2 Window Management

Opening Windows

Windows can be opened in five ways:

- **Press and hold on the touchscreen:** Press and hold on any empty section of the touchscreen (double click also works); this will bring up a menu window which contains button options for converting the menu window into a system window such as the programmer or output window. The initial size of the menu window depends on where you press the screen. For example, pressing and holding in one of the four corners of the screen will opens a quarter sized menu window while pressing and holding in the middle of the screen close to the Hog logo will open a menu window that is full screen.
- **From a Toolbar**: Some windows may have a dedicated button that can be pressed; the Programmer, for example.
- **With the Open Key**: To open a window using console keys, hold down **Open** and press the window's associated key or button. For example:
  - **Open** + **Position** : opens the Position Directory window.
  - **Open** + **List**: opens the Cuelist Directory window.
  - **Open** + **Choose** : opens the Cuelist window for the chosen master.

  You can also hold down the **Open** key to gain access the second level of the main toolbar with buttons for many of the console's windows, such as the Output and Parked windows.

- **From the Command Line**: You can specify the window to be opened using the command line, and then press the **Open** key. For example:
  - **Position 5 Open** : opens the editor window for Position Palette 5.
  - **Cue 4 / 8 Open**: opens the editor window for Cue 8 in the cuelist on Master 4.
- **Double Pressing Keys**: You can also open some windows by double-pressing the appropriate key:
  - **Position**, **Position** : opens the Position Directory window.

> Tip: If you prefer not to use the double-press shortcut to open windows, then assign the double-press time to zero to disable it: see Keys and Button Preferences.

Closing Windows

Windows can be closed using the "X" button located at the top right of the window. This is the icon: 

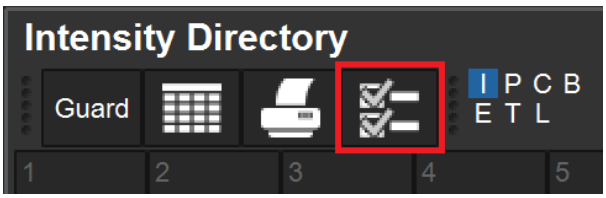
Windows can also be closed by pressing **Open** + **Backspace.**

Locking Windows

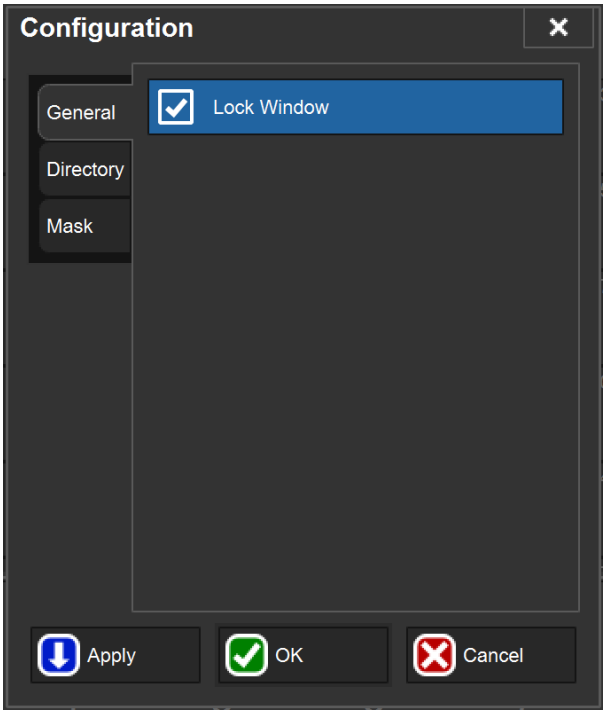
Some Hog OS child windows can be locked. Locking a child window prevents it from being closed by any method including recalling of views, using keyboard shortcuts, or pressing the close or close all button on the window control toolbar. A locked window is still eligible for re-sizing. Note: The window locking feature is currently only available on directory windows.

To Lock a window:

1. Click on the Window Configuration Button in the Window.



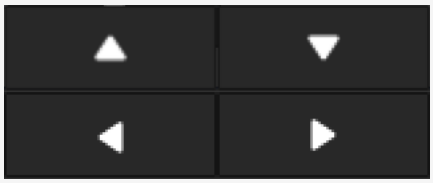
2. Enable the "lock window" option in the window configuration dialogue.



3. Click **OK**
4. The Window is now locked.

Window Control

The **Window Control Toolbar** is located at the top of the right-hand touch screen and provides a quick and easy way to manipulate windows. Its functions are also available as keyboard shortcuts.

Button	Function	Shortcut
	**Page Up**, **Page Down**, **Page Left** and **Page Right** scroll the currently selected window. The cursor isn't moved.	
Copy	**Copy** creates a copy of the selected window. This is helpful when you need to view two parts of the same window at once.	**Open** + **[slash]**
Size	Pressing the **Size** button cycles the window currently in focus through a set of preset window positions and sizes. Holding down the **Pig** key while pressing the **Size** button rotates through the options in the reverse order. Holding down the **Size** button unlocks window positions and allows for manual sizing using enlarged control handles	**Open** + **[plus] or [minus]**
Move	**Move Screen** moves the selected window between touch-screens and external displays.	**Open** + **@**
Max	**Maximize** toggles the size of the currently selected window between full screen and its previous size.	**Open** + **Full**
Focus	**Focus** switches between windows in turn, bringing each to the front.	**Open** + **Thru**
Unlock	When the **Unlock** is disabled windows cannot be repositioned or resized using window edges. When the **Unlock** is enabled each window can be repositioned and/or resized using enlarged control handles.	**Open** + **.**
Close	**Close** closes the front-most window.	**Open** + **Backspace**

Button	Function	Shortcut
Close All	**Close All** closes all windows	**Open** + **.**

TIP: The quantity and quality of the window presets that the sizing button goes through can be changed from four (2 x 2) to six (2 x 3) by enabling the option found at. **Setup** → **Preferences** → **Appearance** → **Sixths Layout**. Enabling this option is recommended for systems with larger displays.

Custom Positioning and Sizing Windows using the Mouse, Trackball, or Touchscreen

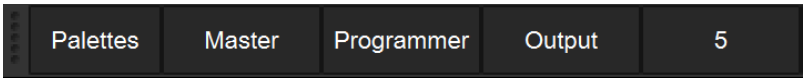
Custom window sizing and positioning is locked by default in Hog OS to present accidental window dragging or resizing during operation but can be quickly activated when needed.

To position and size windows in Hog OS:

1. Press and hold the **Size** button on the system toolbar (on Hog 4 series consoles enable the **Unlock** button)
2. To resize a window, press and drag on the **Resize Arrows** (double press on any resizing arrow to expand that edge to closest adjacent edge)
3. To position a window, press and drag on the **Center Target** in the window.
4. To return to normal press on any empty area of the display or press the **Size** button again. (on Hog 4 series consoles disable the **Unlock** button)

Desktop Views

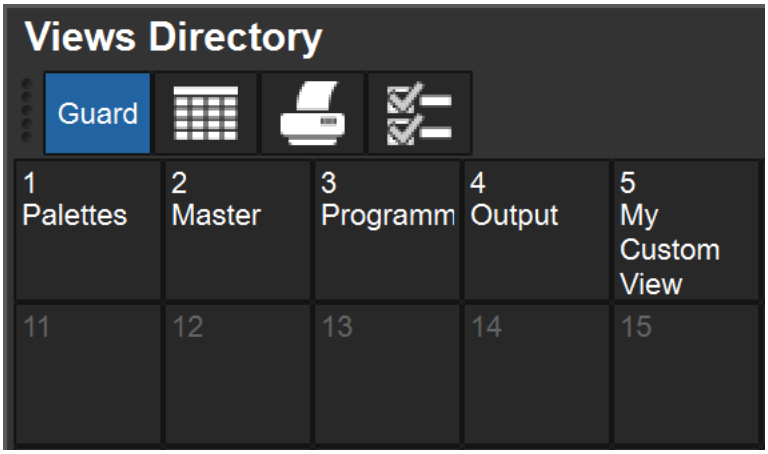
The View Toolbar



Desktop views allow you to store arrangements of windows for quick access so you do not have to re-open and re-arrange windows to perform specific tasks. For example, you could create a programming view that shows the group, palette and effects directories along with the Programmer window. A playback view could display the cuelist and scene directories, and the Output window.

Desktop views are managed by the View Toolbar at the top of the left-hand touch screen and the Views Directory. You can open the Views Directory by holding down the Open key and pressing the View button on the View Toolbar.

The Views Directory



Tip: When you create a new show, it automatically contains desktop views for palettes, cuelists, output and the Programmer.

Recording a Desktop View

To record a desktop view using the View Toolbar:

1. Arrange the console's windows as you want them stored in the desktop view.
2. Hold down the **Record** key and press one of the numbered buttons on the View Toolbar.

Naming a Desktop View

To name a desktop view using the View Toolbar:

1. Press the **Set** key together with the appropriate button on the View Toolbar. The **Quickname** window will open.
2. Enter a name, and click on **OK**.

To name a desktop view using the Views Directory:

1. **Open** + **View** : opens the **Views Directory**.
2. Select the button for the view you want to name. Make sure that the **Guard** button is depressed, otherwise you will activate the view instead of just selecting it.
3. Press the **Set** key. The **Quickname** window will open.
4. Enter a name, and click on **OK**.

> Tip: You can also assign view names, and add comments to them, in the spreadsheet view of the Views Directory. See Desktop View Options.

Recalling a Desktop View

You can recall desktop views in two ways:

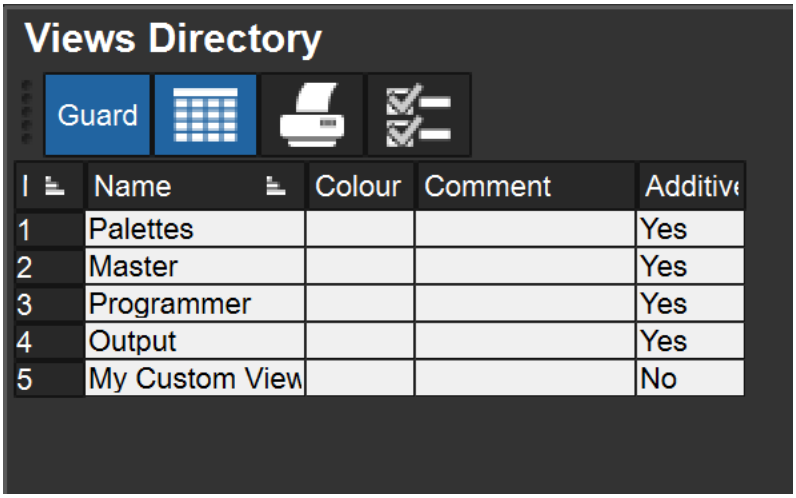
- **With the View Toolbar:** located at the top of the left hand screen. The views each have their own button, and are loaded in pages of ten onto the toolbar. You can load the next page by pressing the **Next** button at the right hand end of the toolbar, while **Pig** + **Next** loads the previous page.
- **With the Views Directory window**: press the view's button in the **Views Directory** window. Make sure that the **Guard** button is not depressed, otherwise you will only select the view, rather than activating it.

Desktop View Options

By default, when you recall one desktop view it replaces the previous one, so that all windows not part of the new view are closed. However, you can set views so that they are additive instead:

1. **Open** + **View** : opens the **Views Directory.**
2. Select the directory's spreadsheet view.
3. Select the view's cell in the **Additive** column.
4. Press the **Set** key to toggle between **Yes** and **No**.

The Views Directory in spreadsheet view.



I	Name	Colour	Comment	Additive
1	Palettes			Yes
2	Master			Yes
3	Programmer			Yes
4	Output			Yes
5	My Custom View			No

Deleting a Desktop View

To delete a desktop view using the **View Toolbar**:

1. Hold down the **Delete** key and press the appropriate button on the **View Toolbar**.
2. Press **OK** to confirm.

To delete a view using the Views Directory:

1. **Open** + **View** : opens the **Views Directory**.
2. Check that the directory's **Guard** button is depressed, so that you can select buttons within the directory without activating them.
3. Press the appropriate directory button and then the **Delete** key.
4. Click **OK** to confirm the delete.

Tip: If you prefer not to be asked to confirm the delete action, select **Don't Ask Me Again** in the confirmation window. You can re-enable the confirmation by going to **Setup** → **Preferences** → **Programming** and selecting **Confirm before deleting directory items**.

2.2.3 Multi-Touch and Touchscreen Gestures

The Hog OS family of consoles have built-in touchscreens that are capable of responding to a variety of multi-touch gestures that provide convenient and intuitive methods for interacting with the user interface of the Hog application. Most external touchscreen monitors that feature multi-touch input are also supported by Hog OS for multi-touch gesturing.

The following multi-touch features are available on both Hog PC and Hog OS consoles when a multi-touch screen is used:

- **Plots**: zoom in/out using two finger pinch and spread gesture; vertical and horizontal navigation of the plot area using two finger touch and drag
- **Any Window with scroll bars**: vertical and horizontal scrolling using two finger touch and drag within the frame of the window
- **File browser**: open context menu (cut, copy, paste...) using single touch and hold
- **Spreadsheets**: open context menu (copy, paste) using single touch and hold on a cell
- **Virtual Wing Window**: use multiple touch points to adjust the faders and press buttons

Important: Hog OS multi-touch does not allow for multiple windows or touchscreens to be controlled at once. For example, if a console operator is working with elements on the right touchscreen and a second operator touches the left touchscreen the touches will likely interfere with the cursor position and the goals of the first operator. Furthermore, most elements contained within a window can only be activated one at a time. For example, pressing two lists in the list directory will not result in execution of both lists.

2.3 Abstraction

A key advantage to the Hog OS is that you don't have to worry about the technicalities of how each lighting manufacturer implements the features of their lighting fixtures because the Hog OS acts as a layer between you and the lighting hardware, automatically converting ‘abstract’ ideas of intensity, colour, and so on into the specific instructions that the fixtures need, defined by their DMX protocol.

2.3.1 Referring to Fixtures

The Hog OS treats every fixture as a single entity. Every fixture is assigned a user number that allows users to easily recall a fixture and manipulate it's feature set no matter how many parameters it has. For more information on giving your fixtures custom user numbers, see Assigning User Numbers to Fixtures.

Hog OS treats conventional lights, consisting of a luminaire controlled by a dimmer, as a special kind of fixture known as a ‘desk channel’. A desk channel has only one parameter: intensity.

2.3.2 Real World Units

Fixture parameters are described as far as possible in real world units. For example, rotation is described in degrees while chases are described in beat per minute. This speeds up programming and allows fixtures of different types to be selected and adjusted at the same time: for example, you can assign several fixtures of different types to all strobe at 10 Hz without having to worry about the different DMX values required by each fixture to achieve this. Hog OS will give you the best possible match between fixtures; the only limitations are those of the fixtures themselves.

2.3.3 Complex Parameters

Some fixtures put more than one parameter onto a single DMX address. For example, a fixture might use DMX values in the range 0-127 for intensity, 128-250 for strobe, and 251-255 for fixture reset. The Hog OS separates such functions into independent parameters, so that you do not need to remember the detailed workings of a particular fixture; in the example given above, the intensity, strobe and reset functions all appear as separate parameters, so there is no possibility of going from strobe into reset. With parameters that share a DMX address, changing the value of one will override the value of all the others, since there can only be one DMX value. In the case of our example, assigning a strobe speed will override any intensity value; the console will show a ~ in place of the intensity value to indicate that this has happened.

2.3.4 Interchangeable Fixtures

Any fixture already programmed into a show can be replaced by a fixture of a different type at any time and Hog OS will as far as possible convert the programmed data to apply to the new fixture type. If the new fixture has more limited capabilities than the old one, this is handled as gracefully as possible. For more on replacing fixtures, see Changing the Fixture Type.

2.4 Tracking and Recording

2.4.1 Record Eligibility

Record Eligibility defines which programmer contents can be stored when performing a record, merge, or update operation. Hog OS automatically manages eligibility to prevent duplicate recordings and ensure efficient programming.

How Record Eligibility Works

- When a parameter is modified in the programmer, it becomes "record eligible".
- Once the operator performs a **Record**, **Merge**, or **Update** action, those parameters are marked as "record ineligible".
- The operator may continue editing without clearing the programmer.
- The next time the operator performs record, merge, or update action:
  - "Record eligible" edits will be stored.
  - "Record ineligible" will not be stored - unless an exception is met.

Exceptions:

"Record ineligible" parameters are stored in the following cases:

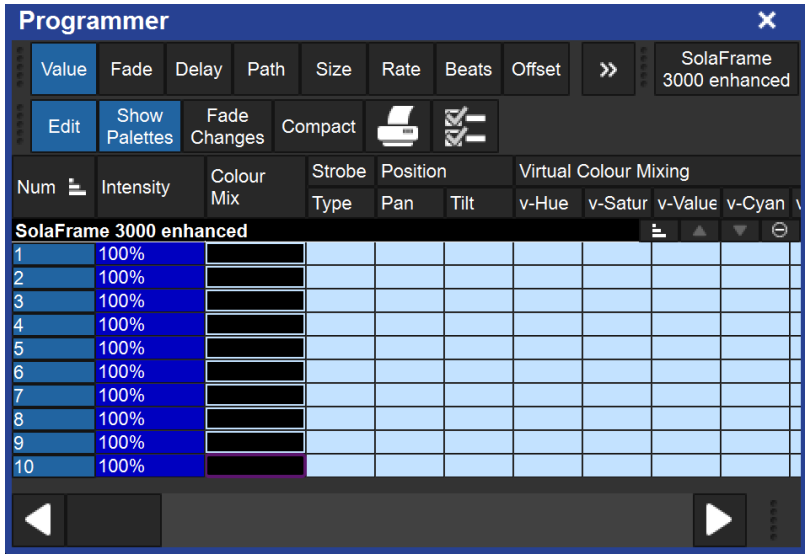
- Recording the first cue of a new list
- Recording a cue to a different list

Visual Indicators

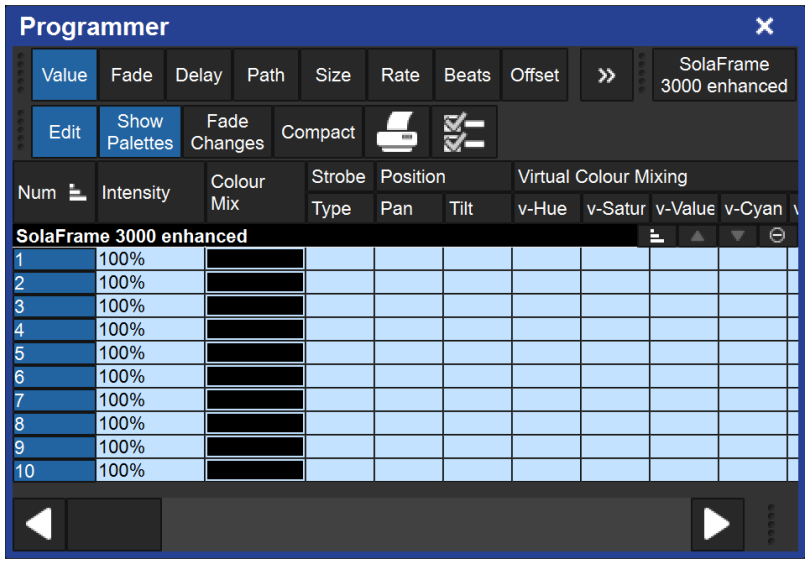
- Dark or Medium Blue Background → Parameter is "record eligible" and will be included in the next recording.
- Teal or White Background → Parameter is "record ineligible" and will NOT be included in the next recording.

Example Workflow

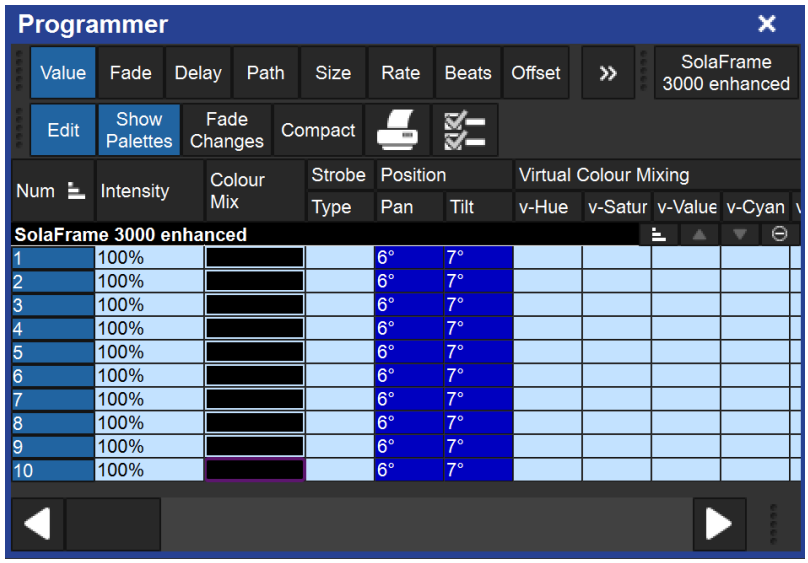
1. Operator selects 10 fixtures.
2. Operator sets intensity to 100%. Note the cells are Dark Blue



3. Operator records a new cue in a list.
4. The programmer window updates: intensity values change from dark blue to light blue, showing they are no longer eligible for recording.



5. Operator adjusts pan and tilt on the same fixtures.
6. Pan and tilt values appear with a dark blue background (eligible), while intensity remains light blue (ineligible).



2.4.2 Tracking

All Hog family consoles are tracking by default which means the Hog OS records only changed cue data into cues and scenes allowing unchanged data that was recorded in previous cues and scenes to track through until a change is recorded for that particular fixture parameter.

Below is an example of how a series of cues might be seen by a viewing audience:

Fixture:	A	B	C
Cue 1	100	50	100
Cue 2	100	25	50
Cue 3	100	75	75

With a non-tracking console, each value would have to be recorded into each cue as displayed above. However, with tracking consoles, the only data that really needs to be recorded is much simpler as shown in the table below:

Fixture:	A	B	C
Cue 1	100	50	100
Cue 2		25	50
Cue 3		75	75

As you can see fixture A only has to be recorded at 100% in cue 1 because that value will track all the way from cue 1 to cue 3. On the other hand, since fixtures B and C change value in each cue, the tracking console needs to have unique values recorded in each cue.

When discussing the contents of a cue or the state of playback on stage, the following terms are commonly used:

- **Hard Values / Touched Values**: Values programmed into the current cue
- **Tracked Values / Transparent Values**: Values assigned
- **State**: The summation of both tracked and hard-coded values in playback. The Hog OS automatically recalls the state of any cue regardless of whether or not the cuelist was played in order; this allows the console operator to jump around and play cues out of order while preserving the way the cue was meant to look.

2.5 HTP and LTP

Traditional theater desks that are not designed to handle moving lights will work on a Highest Takes Precedence (HTP) basis. This means that if a fixture's intensity is being controlled by two different parts of the console, such as a playback and a sub-master, the intensity will be at the highest of the two levels. For example, if in the playback fixture 1 is at 50%, and in the sub-master it is at 100%, then the level seen on stage will be 100%. If the sub-master is reduced to 40%, then the on-stage level will be 50%, because the level in the playback is higher and will take precedence.

This system generally works well for non-moving light consoles, but moving lights introduce a problem. Parameters other than intensity don't have ‘higher’ and ‘lower’ values: a colour of red is not higher or lower than green, and a pan of 50% is not higher or lower than one of 20%. Working with moving lights needs a new way to decide the precedence, called Latest Takes Precedence (LTP).

With this system, the fixture parameters are at the value they have been most recently assigned. In our example, moving the sub-master to 40% would result in a level of 40%, because this is the latest instruction and will take precedence. The sub-master would effectively ‘grab’ control of the parameter from the playback. Of course, running another cue in the playback might grab it back again.

Many moving light consoles use HTP for intensity and LTP for all other parameters. By default, Hog OS uses LTP for all parameters, but you can assign individual cuelists to use HTP for intensities (all other parameters are still LTP); see Highest Takes Precedence (HTP).

2.6 Palettes and Directories

Palettes help to simplify the programming process by allowing pre-defined lighting 'elements' to be created and then used as required. Once you have created a palette, such as a particular set of position settings with moving lights, you can recall those settings instantly, and record them into cues. Palettes are stored in windows called directories.

A great advantage of palettes is that when you record a cue using the palette, the cue contains a reference to the palette, rather than the parameter values that the palette contains. If, later, you change the palette then all cues that have been recorded using the palette are also changed. This is especially useful if, for example, the position of a piece of set on stage is moved, and moving lights have been programmed to light it. The palette can be updated once to accommodate the change, rather than in every cue. For more information, see Palettes.

Palettes allow intensity, position, colour and beam parameters to be recorded as easily accessible 'building blocks' to be used when programming. Palettes are stored in classified directories. For information on directories see Directory Windows

When you use a palette to assign parameter values in the Programmer, and then record the contents of the Programmer as a scene or cue, the Hog OS records a reference to the palette rather than numerical values for the parameters. During playback, the console refers to the parameter values stored within the palette when outputting cue data to the stage. Because of this referencing, when you modify a palette's content, the cues and scenes that were programmed using it will, in effect, be automatically updated with the new values. The palette is said to be 'referenced' in the cue. This is a very powerful feature that allows you to make global changes to the show very simply and quickly, rather than having to re-program every cue individually.

If you wish to make a palette that is just a programming tool, where later changes to the palette will not cause cues, scenes and other palettes recorded with it to be updated, then you can use direct palettes. With direct palettes, actual parameter values are placed into cues, rather than references. See Direct Palettes.

Tip: Hog OS can automatically generate a useful set of palettes based on the fixtures in your show: see Creating Palettes and Groups Automatically.

Directory windows give you quick access to groups, palettes, scenes, cuelists and so on, and they all work in essentially the same way.

Display	Applies To	Description
. . C .	Palettes	Shows the parameter types recorded in the palette. I = intensity, P = position, C = colour, B = beam, E = effect, T = time. See Recording Palettes with Kind Masking.
D	Palettes	The palette is a direct palette. See Direct Palettes.
R	Palettes	The palette contains references to other palettes. See Reference Palettes.
H	Palettes	The palette is the Highlight Palette. See Customizing Highlight.
L	Palettes	The palette is the Lowlight Palette. See Customizing Highlight.
	Cuelists	The cuelist is a chase. See Using a Cuelist as a Chase.
0:00	Cuelists	The cuelist has timecode active. See MIDI.

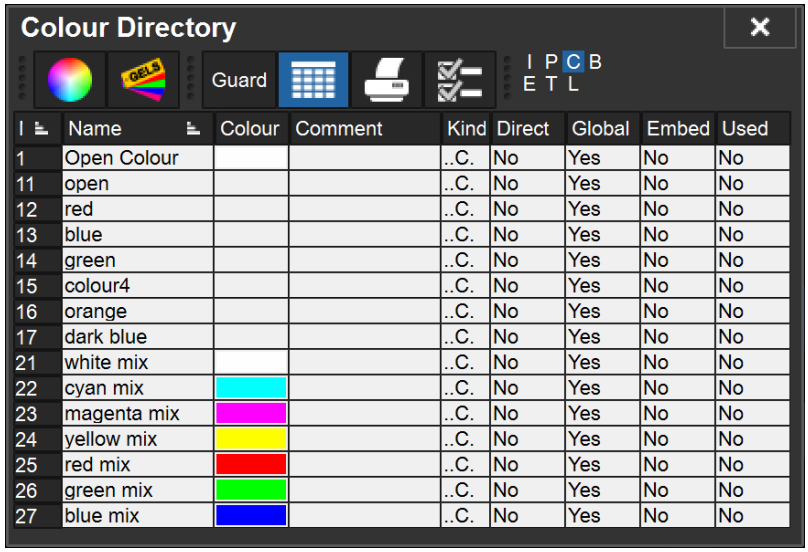
Display	Applies To	Description
	Cuelists	The cuelist has clock triggers that are enabled. See Clock Triggers.
	Pages	The page is the template page. See The Template Page.
	Pages	The page has a Restore Activity macro defined. See Restoring Activity When Changing Pages.
	Cuelists	The cuelist is cue only. See Cuelists and Tracking

You can rename the selected button (with the red border) by pressing the **Set** key. You can also hold **Set** and press any button to rename it.

At the top of the window there are four buttons common to all directories:

	Switches the directory to a spreadsheet view.
	Prints the contents of the window.
	Configure allows you to control various aspects of how the directory window displays information.
	When guard is enabled the buttons in the directory will not activate when touched but rather token on the command line.

A Typical Directory in Spreadsheet View



I	Name	Colour	Comment	Kind	Direct	Global	Embed	Used
1	Open Colour			..C.	No	Yes	No	No
11	open			..C.	No	Yes	No	No
12	red			..C.	No	Yes	No	No
13	blue			..C.	No	Yes	No	No
14	green			..C.	No	Yes	No	No
15	colour4			..C.	No	Yes	No	No
16	orange			..C.	No	Yes	No	No
17	dark blue			..C.	No	Yes	No	No
21	white mix			..C.	No	Yes	No	No
22	cyan mix			..C.	No	Yes	No	No
23	magenta mix			..C.	No	Yes	No	No
24	yellow mix			..C.	No	Yes	No	No
25	red mix			..C.	No	Yes	No	No
26	green mix			..C.	No	Yes	No	No
27	blue mix			..C.	No	Yes	No	No

Tip: You can override the effect of the Guard button by holding down the Pig key while pressing a directory button.

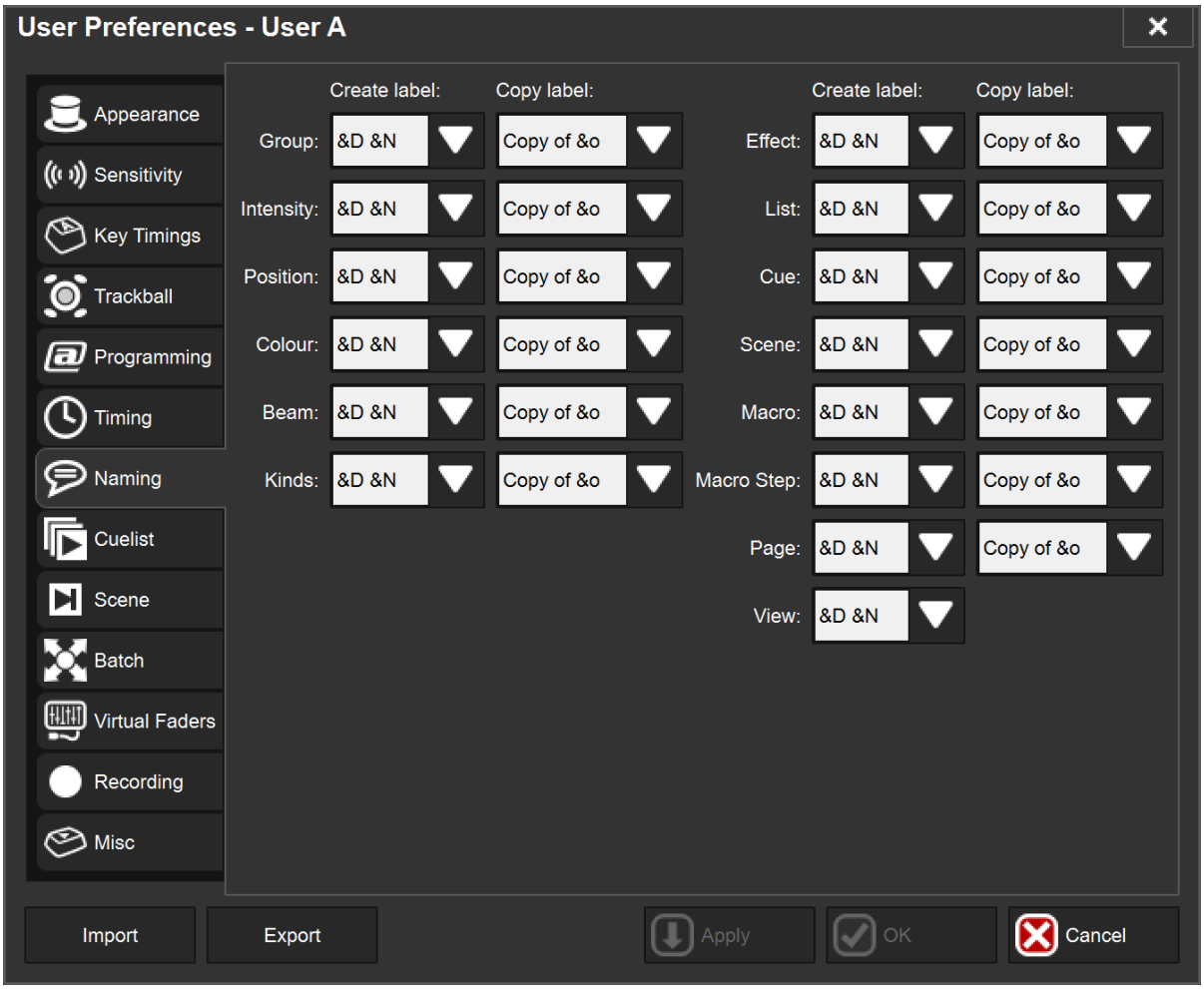
2.6.1 Automatic Naming of Directory Items

When you create or copy a directory item, the console automatically generates a name for the new item. For example, if you have two position palettes and them create a third, the new one will be recorded into location 3 in the directory and named ‘Position 3’. If you then copy this position palette, the copy will be recorded into location 4 in the directory and named ‘Copy of Position 3’.

You can customize how the console automatically generates these names in the Default Naming pane of the User Preferences window. To open the Default Naming pane:

- **Setup → Preferences → Default Naming**

The Default Naming pane of the User Preferences window



To customize the generated labels:

1. Click or press on the text box for the required type of directory (group, intensity, position, and so on). Labels for when the new directory item is created by recording or by copying are handled in separate text boxes.
2. **Set**, **[new label text]**, **Enter** : type in the label you want.
3. Alternatively, click or press on the arrow at the right hand end of the text box to get a list of useful labels. Click on the one you want.

You can use special tags to have the console insert text into the name for you, according to the directory name and the location in the directory:

- **&d**: the directory name
- **&D**: the directory name (dynamic)
- **&n**: the directory number
- **&N**: the directory number (dynamic)
- **&o**: the original text. This is used when a directory item is copied; the original text is the name of the item that has been copied.

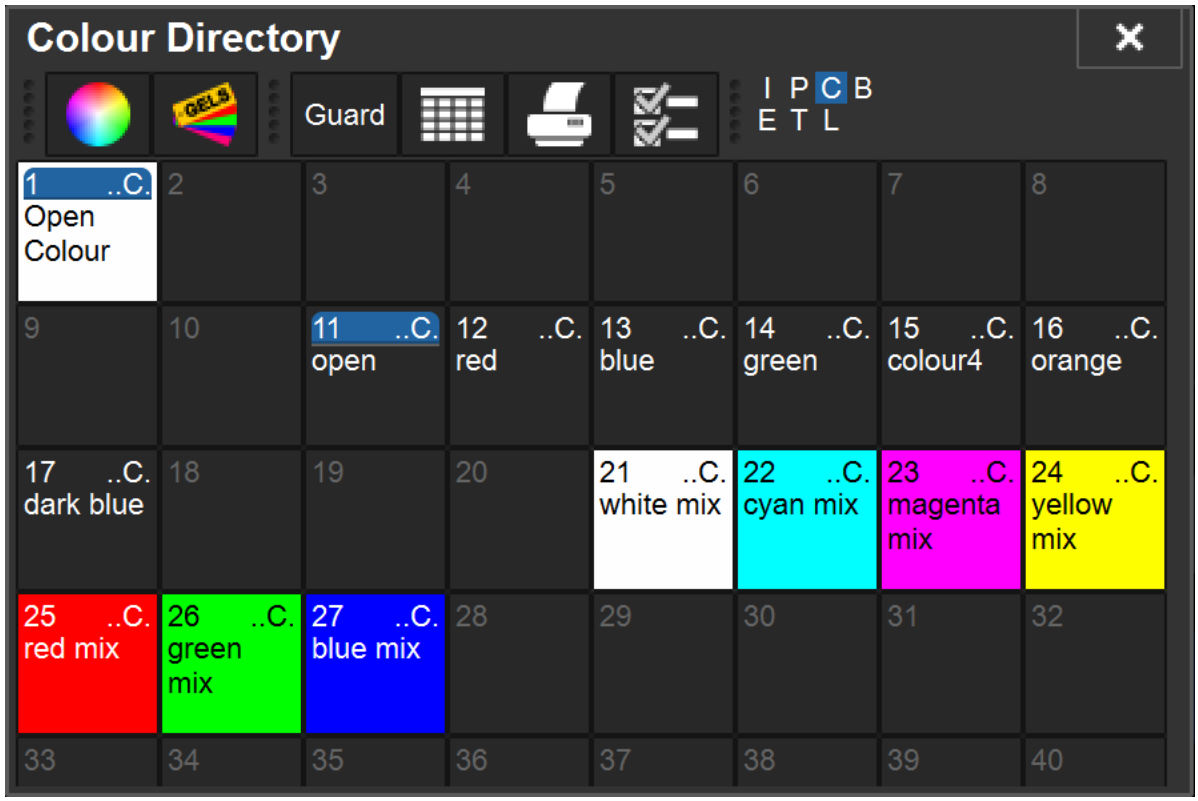
Lowercase tags are resolved once only, when the name is applied, while uppercase tags remain unresolved until the name is displayed (known as ‘dynamic’). So, pressing Set and entering the name of colour palette 3 as ‘&d &n’ will assign the name to be ‘Colour 3’. If you assign the name to be ‘&D &N’, the name will also be assigned to ‘Colour 3’. The difference is that moving this palette to position 4 will automatically correct the name to ‘Colour 4’.

2.6.2 Colour Coding Directory Items

Each directory window allows for unique colour coding of each button within the directory. The default colour for new directory items is standard grey. When you copy a directory item, the console will automatically copy the directory item's custom colour as well.

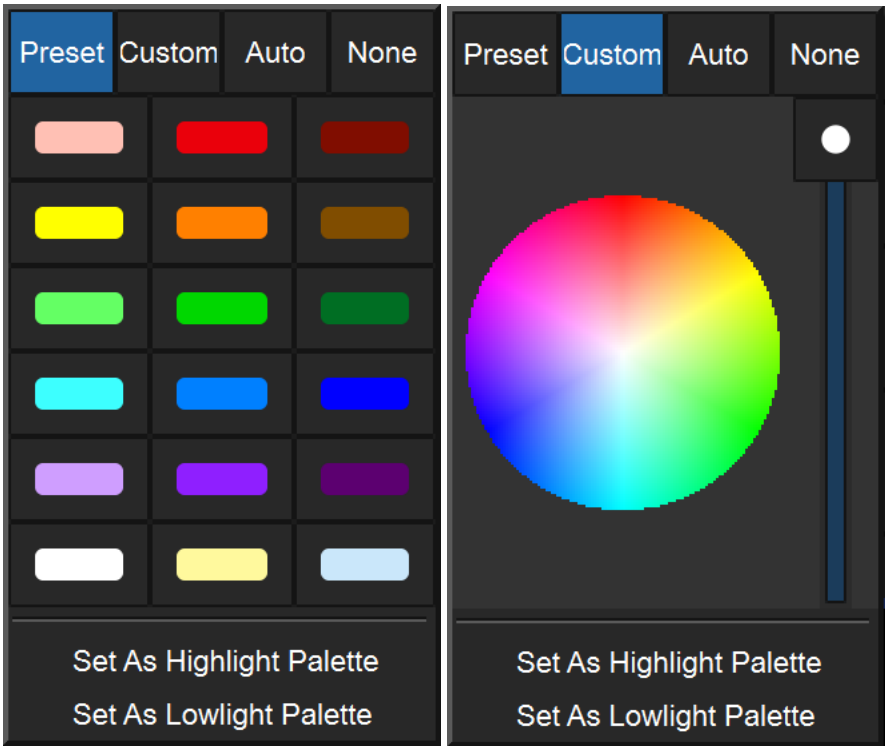
Note: The playback bar, view toolbar, and commands keys automatically reflect the colour-coding of the objects that they display. Colour-coding for these objects can only be changed in the directory and the is thus reflected everywhere that object is shown.

Example of Colour Coding of Directory Items



To customize a directory item in button view:

1. Using the mouse, right click on the directory button to open the right click menu.
2. Click on one of the 15 options to assign the directory item this colour.
3. Alternatively, click on **Custom** to select a custom colour from a colour wheel or click **None** to select the standard grey colour. Click on **Auto** to have palettes in the Colour directory automatically determine the button colour based upon the dominate colour value recorded in the palette.



To customize a directory item in spreadsheet view:

1. Select the Colour cell and press **Set** to open the colour selection menu.
2. Click on one of the 15 preset colours to assign the directory item this colour.
3. Alternatively, click on **Choose** to select a custom colour from a colour wheel or click **None** to select the standard grey colour. Click on **Auto** to have palettes in the Colour directory automatically determine the button colour based upon the dominate colour value recorded in the palette.

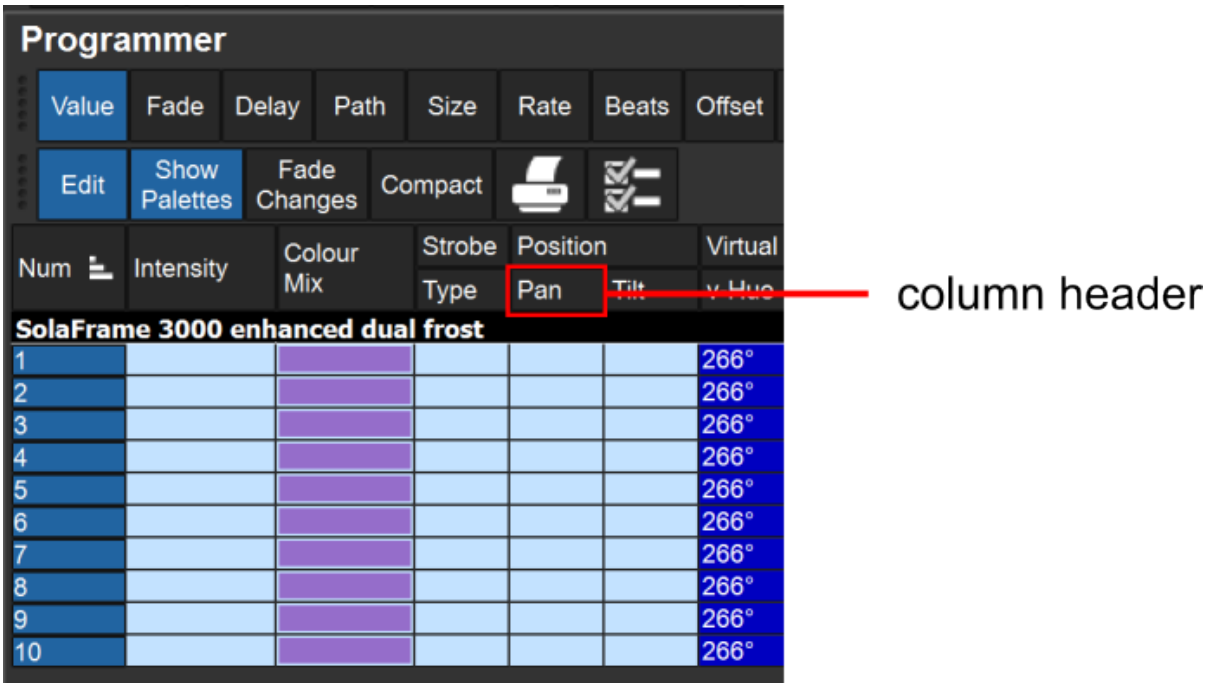
Tip: You can select multiple buttons or cells by clicking and dragging to assign the same colour to multiple items.

2.7 Spreadsheets

Similar to Excel spreadsheets, many windows in the Hog OS such as the programmer, output window, and cue editors are presented as spreadsheets.

All of the spreadsheets in the Hog OS share a common set of features:

- **To re-size a spreadsheet column**: Place the cursor over the right-hand edge of the column header. The cursor will change to a double-ended arrow. Click and drag to resize the column.



- **To move a spreadsheet column**: Click and drag on the column header.
- **To hide a spreadsheet column**: Right-click on the column header, and choose Hide.
- **To show a hidden spreadsheet column**: Right-click on a column header, and choose the name of the column from the menu.
- **To sort the spreadsheet**: Right-click on a column header and select Sort to sort the spreadsheet by the values in that column. Select Sort again to the reverse the direction of the sort. You can also right-click on a column header and select Sub-sort to assign a second level of sorting. For example, if you sort the Fixture window by fixture type, and sub-sort by Patch, then all the Desk Channels will be shown grouped together, in the order of their patch address.
- **To select all the cells in a spreadsheet column**: Double-click on the column header at the top of the spreadsheet.
- **To select a single spreadsheet cell**: Click or press in the cell. You can use the cursor keys below the Trackball to change which cell is selected. If the cell is editable, it will have a red border.
- **To select a range of cells in a spreadsheet**: You can click or press and then drag across a range of cells to select them all. Alternatively, you can click in the first cell, press and hold Thru, and click in the last cell; this is useful if you want to select a large range and need to scroll the window.

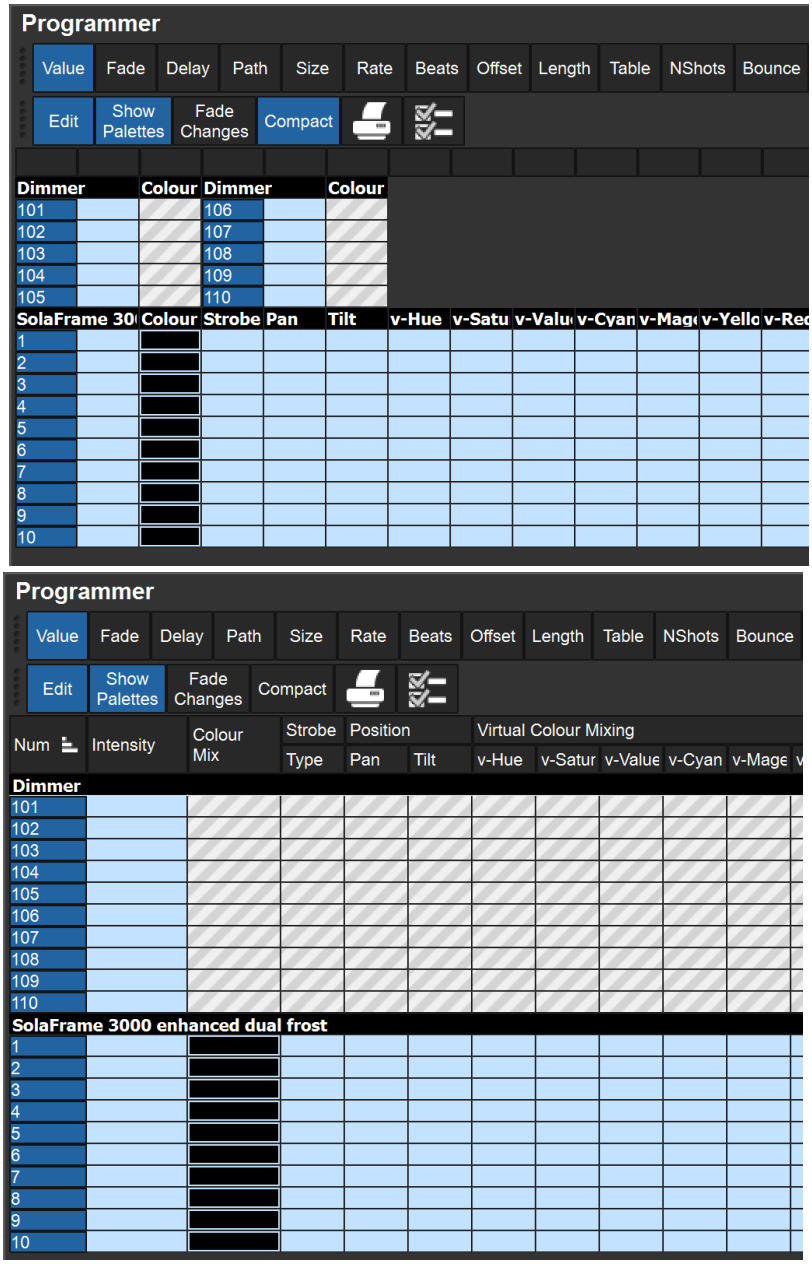
- **To edit the contents of cells in a spreadsheet**: Click or press in the cell and press the Set key, or double-click in the cell. Type in the new value, and press Enter. This works for both a single selected cell and a range. Cells that are editable have a red border when selected. Cells labeled Colour in cuelists and scenes will open the colour selection dialog to allow you to colour code the cell.

2.7.1 Compact Mode

In editor windows such as the Programmer, you can use compact mode to save space and get more information onto the screen without having to scroll as shown in the image below. In compact mode, fixtures only have columns for the actual parameters that they have, rather than for all the parameters of any fixture in the editor. The console uses the display space more efficiently by having multiple columns for fixture types with few parameters, such as desk channels.

You can toggle compact mode on and off with the Compact button in the window's toolbar.

A spreadsheet with and without Compact Mode



Note that you cannot sort a spreadsheet that is in compact mode.

2.7.2 Aggregation

Aggregation is an organizational feature in Hog OS sheets that groups related rows of data into structured, easy-to-navigate sections. These groups—called aggregates— make it easier to quickly locate and manage large sets of data.

Aggregation is determined by the primary sort column of the sheet. When you sort a sheet by a column, Hog OS groups rows within that column that share the same value into aggregates. The aggregates are represented in the sheet by a header row with a black background and a text label that identifies the aggregate. Sub-sorting of data within the aggregates is then made possible by clicking on any column header and choosing the Sub-sort option.

Note: When a sheet is sorted by the Fixture Type column, the AKA field is automatically used as the aggregate title if the first row in that aggregate contains an AKA name. If no AKA name is present, the fixture type name is used instead.

To disable aggregation:

- Press **Config** to open the Configuration window.
- Toggle the "Enable Aggregation" button off.
- Click on OK

Note: aggregation is always active for spreadsheet set to compact mode.

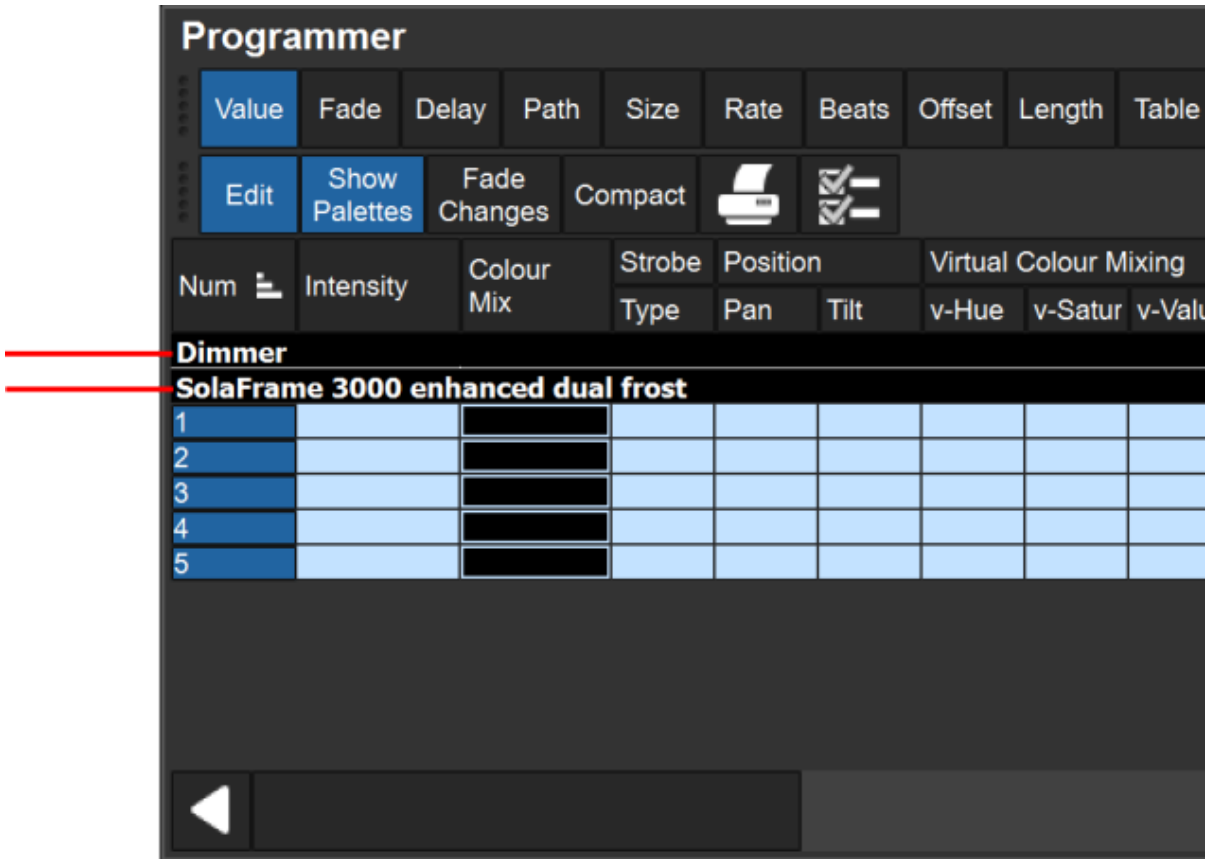
Collapsing Aggregated Sections

You can collapse aggregated sections to hide all the rows in that section as shown in the image below.

To collapse an aggregate section, r**ight click** the black heading bar and select **Collapse**.

To expand the aggregation section again, **right click** the section's black heading bar and select **Expand**.

An Aggregated Spreadsheet With Collapsed Rows



Priority of Aggregated Sections

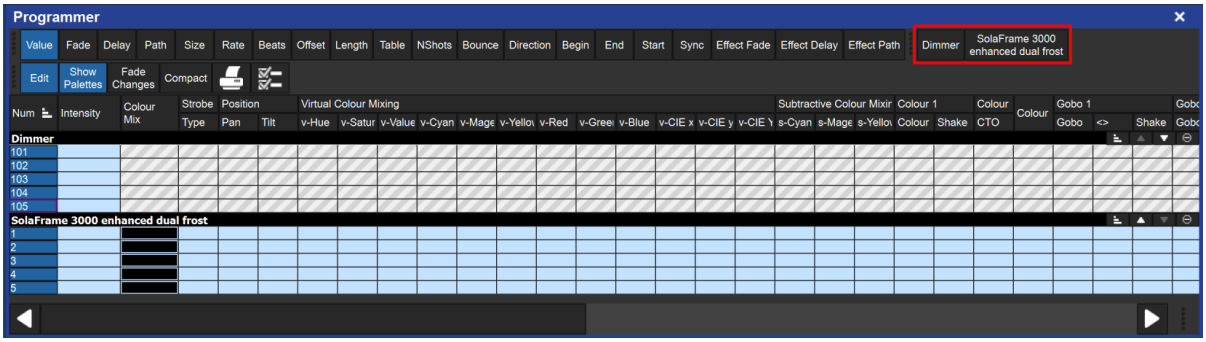
You can change the position of an aggregation section in the list by altering its priority. Raising a section's priority will make it appear nearer the top of the spreadsheet.

To move an aggregate row up or down in priority, **right click** the section's black header bar and then select **Raise Priority** or **Lower Priority**.

Jumping Between Aggregated Sections

You can quickly bring aggregated sections into view using the Jump Toolbar located on the upper right of a spreadsheet window. This has a button for each aggregation section; clicking a button will scroll the list to bring the section into view.

The Jump Toolbar



To enable the jump toolbar:

1. Press button to open the **Configuration** window.
2. Select **Enable Jump Toolbar**.
3. Click on **Apply**.

Tip: The jump toolbar is turned on by default in all editors, such as the Programmer.

2.7.3 Cut, Copy and Paste

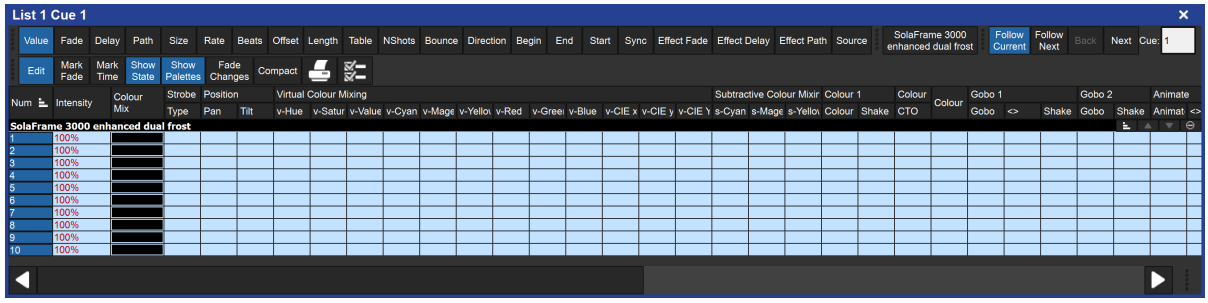
Cell contents can be copied and pasted using the following methods:

- Right-click to access **copy / paste** context menu
- Touch and hold to access **copy / paste** context menu
- **Pig** + **Copy** to copy
- **Pig** + **Move** to paste

2.8 Editors

Editors are windows where you can view and assign the parameter values of fixtures. The most important editor in the Hog OS is the programmer which acts as the default active editor for all parameter changes when no other editors are open or active. Individual cues, scenes, and palettes can all be opened in editors. Editing parameter values works in essentially the same way for all of editors; see Selecting Fixtures and Modifying Parameters.

A Typical Editor



You can open an editor window for any cue, scene or palette by holding down the Open key and selecting it from its directory window. Alternatively, you can use the command line:

- **Cue 1 Open** : opens an editor for Cue 1 and makes it editable.

2.8.1 Editor Window Controls

The main part of an editor window shows the fixture parameter values in a spreadsheet view, with each row representing a single fixture; see Spreadsheets.

At the top of the window there are three tool bars with buttons: the Editor Values Toolbar, the Editor Toolbar, and the Jump Toolbar. The following sections describe the buttons that are common across all editors; some editors have additional buttons that are specific to that type of editor, and these are described in the relevant part of the manual.

The Editor Values Toolbar

The Editor Values Toolbar has buttons for: Value, Fade, Delay, Path, Size, Rate, Offset, Length, Table, and N Shot. Use these buttons to display the different kinds of information associated with the fixture's parameters; see Fade, Delay, and Path.

The Editor Toolbar

The Editor Toolbar has the following buttons:

Button	Purpose
Edit	Press this to make the contents of the editor editable, rather than just to view it. Instructions given to the command line, or using the parameter wheels and I-Wheel, are directed to the editable editor.
Show State	In cue editors, press this to see all the parameters that will appear on stage, including those that have tracked through from earlier cues in the cuelist. With Show State deselected, only the hard values actually recorded in the cue are displayed.
Show Palettes	Press **Show Palettes**to see the palette name, rather than the parameter value; see Palettes.
Fade Changes	Press this to have parameter values changed in this editor fade rather than snap onto stage; see Fade Changes.
Compact	Press this to toggle compact mode on and off. Compact mode fits more information into the editor without having to scroll. However, the column for a particular parameter won't necessarily be aligned across different fixture types, so sorting is not possible.
	Reports. This allows you to print the contents of the window.
	Configure. This allows you to control various aspects of how the editor window displays information.

The Jump Toolbar

The Jump Toolbar provides quick-access buttons that scroll the window directly to each aggregated group of data. These aggregates are defined by the column currently used to sort the sheet. The Jump Toolbar reflects these groupings by showing one button per aggregate. If aggregation is turned off, then the jump toolbar is not displayed.

Each button in the Jump Toolbar is color-coded to match the color assigned to the first fixture in its corresponding aggregate, based on the active sort order. If the sheet is sorted by Fixture Type, both the aggregate headers and the Jump Toolbar buttons will use the AKA name of the first fixture in each group, if one is available.

2.8.2 Changing Parameter Values in the Editor

To make changes to the contents of an editor, you need to have its **Edit** button selected. You can have up to eight editors open, but only one can be editable at a time, and the parameter wheels, I-Wheel and command line all operate on the contents of the currently editable editor. If you have several editors open at once, you can use the **Edit** button to determine which one you are controlling (even if it is not the front-most window) or to ‘lock’ the editor to prevent accidental changes.

Tip: When an editor is opened all of the fixtures within the editor are automatically selected. To change this behavior disable the "Select All Fixtures when Activated" located under the Programming tab of the preference window.

After you have finished editing a cue, scene or palette, press the **Update** key to apply changes. Until you do this, changes won't show up if you run the cue or scene, or use the palette. The exception to this is when you are working in the Programmer, when the **Update** key will perform the Auto Update function; see Auto Update.

If you hold down the **Update** key, the Update Toolbar will appear. This allows you to select which parameter types are recorded, whether changes should track forwards, and whether references should be allowed when recording palettes. See Stopping Values from Tracking Forward and Reference Palettes.

If you close the editor without updating, you will be asked whether you want to save or discard the changes, or cancel the closing of the editor.

Tip: The name of the current editable editor is shown in the **Command Line Toolbar**. By default, it is the **Programmer**. The name of the item being edited appears in the title bar of the editor window.

2.9 Modifier Keys

The Hog OS and its family of consoles all share a common set of useful multi-purpose modifier keys that when held down extend the base functionality of other keys and wheels on the front panel similar way to a Shift or Control key works on personal computers. There are several modifier keys but the core modifier keys in the Hog OS are Pig, Open, Delete, Backspace, Set, Cue and Move.



Pig Key Modifier Examples:

1. **Pig**+ **I-Wheel** : Changes wheel to proportional intensity mode.
2. **Pig**+ **Move** : Pastes information into the selected location.

Hog OS Key Combinations has a full list of commands that use the Pig key.

2.10 Undo and Redo

The **Undo** button found on the Main Toolbar is similar to the undo command found in computer applications, allowing the user to work back through the last commands entered by the user, undoing them each time the button is pressed. In the Hog OS the undo key is global, working back through operations in chronological order. In cases where multiple consoles are networked together the undo task will only undo actions of the local desk.

Pressing the **Pig** button, together with the **Undo** button, will redo the last undone action. Again, if you have gone back through several undos, you can redo repeatedly until you get back to the most recent action.

The undo and redo feature works on your show data, but generally not on other things.

Undo is not available for:

- Changes to the fixture selection in the Programmer. However, the selection may change as a side effect of an undo action.
- Changes to Control Panel settings, and other things not directly related to your programmed show.
- Changes to window positions and views, and the like.

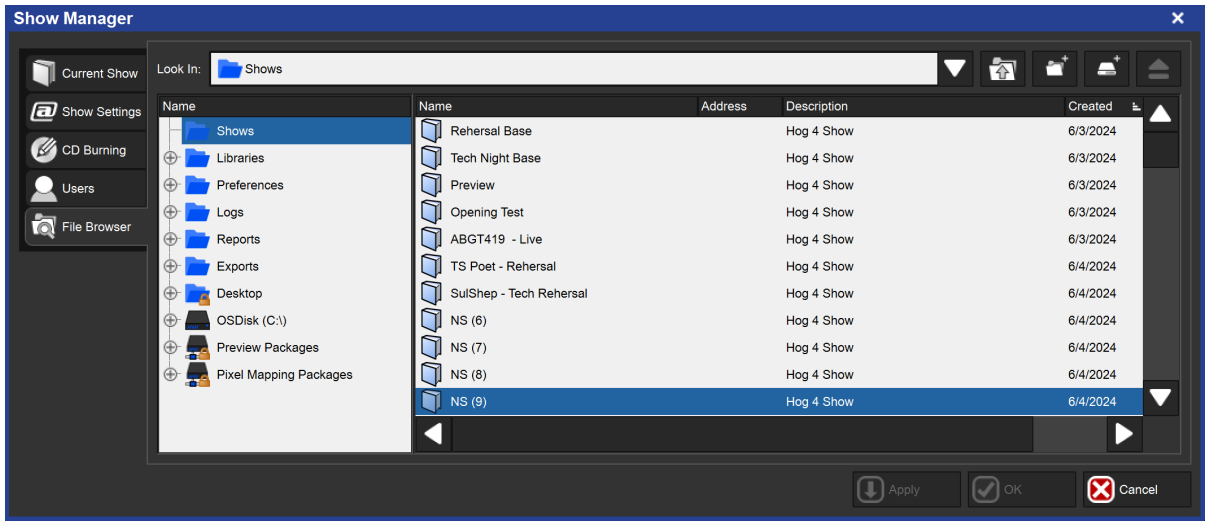
If undo is not available, you will always be asked to confirm important changes before they take place.

2.11 The File Browser

You can browse and organize several different kinds of system files in the File Browser pane of the Show Manager window as seen below. On the left is a list of the main console folders and the console's drives. Clicking on one of these will display its contents in the right hand list.

The browser shows the name, description, and creation date and time of the file, as well as the version number of the library used to create the show in parentheses. If the show is marked as modified, then the library has been altered through a library merge.

The Show Manager File Browser.



2.11.1 Moving, Copying, Deleting and Renaming Files

To move a file:

- Drag and drop files to destinations in the left hand folder list. Generally, you will find dragging with the mouse or Trackball much easier than using the touchscreen.

To copy a file:

- Drag and drop files while holding down the Pig key (or the Control key on an external keyboard).

To delete a file:

- Right-click or press and hold on a file, then select Delete from the contextual menu. You will be asked to confirm the action.

To rename a file:

- Right-click or press and hold on a file, then select Rename from the contextual menu Type in the new name and press Enter.

Tip: You can also copy and paste files by right-clicking on them and selecting Copy or Paste from the contextual menu.

2.11.2 Creating New Folders

You can create sub-folders in the Shows and Libraries folders to help organize your work:

1. Click on the folder you want to make a new folder in.
2. Click on this icon to create a new folder. 
3. Enter a name for the folder and press Enter.

Note: You cannot create folders on a CD-ROM.

Tip: You can also create a new folder inside an existing one by right clicking on it and using the contextual menu.

2.11.3 Ejecting Disks

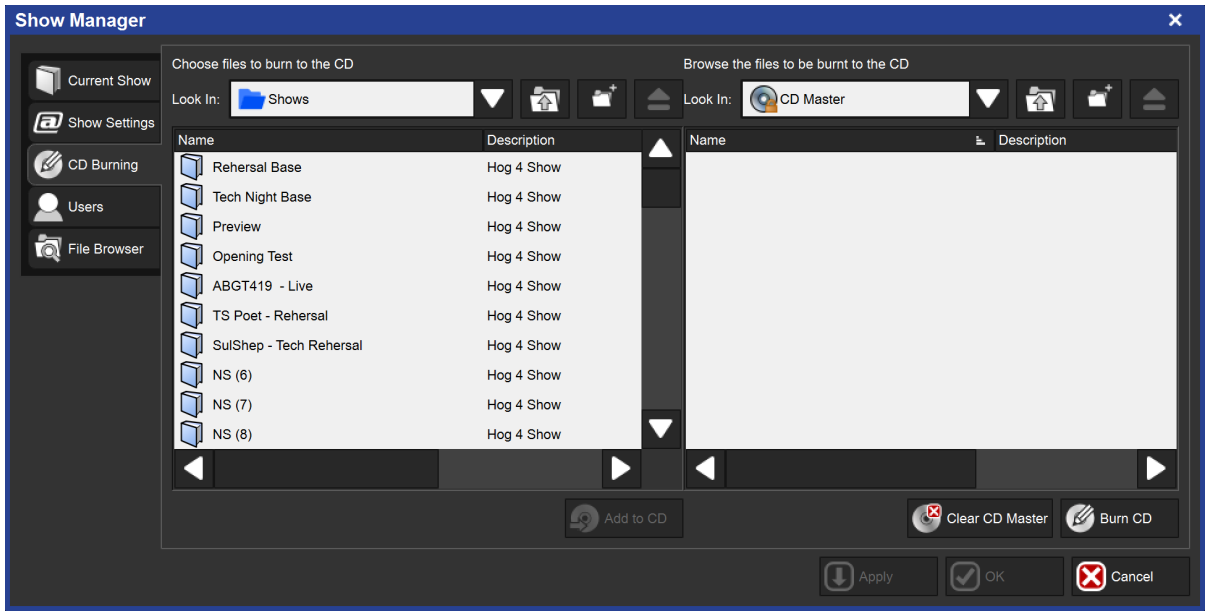
You cannot eject a disk in the console' CD drive if it is in use. Before ejecting, make sure that you don't have the disks folder selected in the File Browser. If a disk will not eject, check that you are not browsing its contents elsewhere, and that the console is not currently accessing it.

2.11.4 Burning files to CD

To burn files onto a recordable CD:

1. **Setup** → **Shows** → **CD Burning** : see image below.
2. Select a file to be copied in the left-hand list, and click the **Add to CD** button to move it to the right-hand list. You may be asked to archive the file before adding it to the list; click **OK** to agree to this.
3. Repeat for all the files you want to copy to the CD.
4. Insert a recordable CD into the CD drive, located under the console's front wrist rest.
5. Press the **Burn** button, and then the **Start Burn** button in the **CD Burning** tab. The window will show the progress of the writing operation.

The CD Burning pane of the Show Manager



Tip: You can use drag and drop to move files to the CD Master list. Note that files will always be copied, not moved.

2.12 Function Keys

The Function Keys are the twelve physical keys located on the front panel of Hog OS-based consoles. These keys provide direct access to User Kinds and Commands stored in the show file. While the underlying software functionality of the Function Keys is the same across all consoles, the hardware implementation varies slightly between models. The table below summarizes the Function Key hardware and display differences across the Hog OS console family:

Console	Function Key	Function Key Display
Tour Hog Stage Hog Flex Hog	12 Keys with RGB LED Backlite	128 x 128 TFT LCD
Hog 4 Hog 4-18 Full Boar 4	12 Keys with Blue LED Indicator	64 x 64 RGB LCD
RoadHog 4 Road Hog 4-21 Hedgehog 4x Hoglet 4 Nano Hog 4	12 Keys with Blue LED Indicator	No display on front panel Use onscreen Function Key Window

Function Key Shortcuts

Key Press	Resulting Action
Pig + **Enter**	Toggles the Function keys between Kind Mode and Command Mode
Enter + **Func**	Toggles the Function keys between Kind Mode and Command Mode
Func Key	Changes Function Keys to Next Page of Kinds / Commands
Pig + **Func**	Changes Function Keys to Previous Page of Kinds / Commands
Open + **Func**	Opens the Kind or Command directory window based on current Function key mode

3. Setting up the System

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3.1 Setting Up the Console

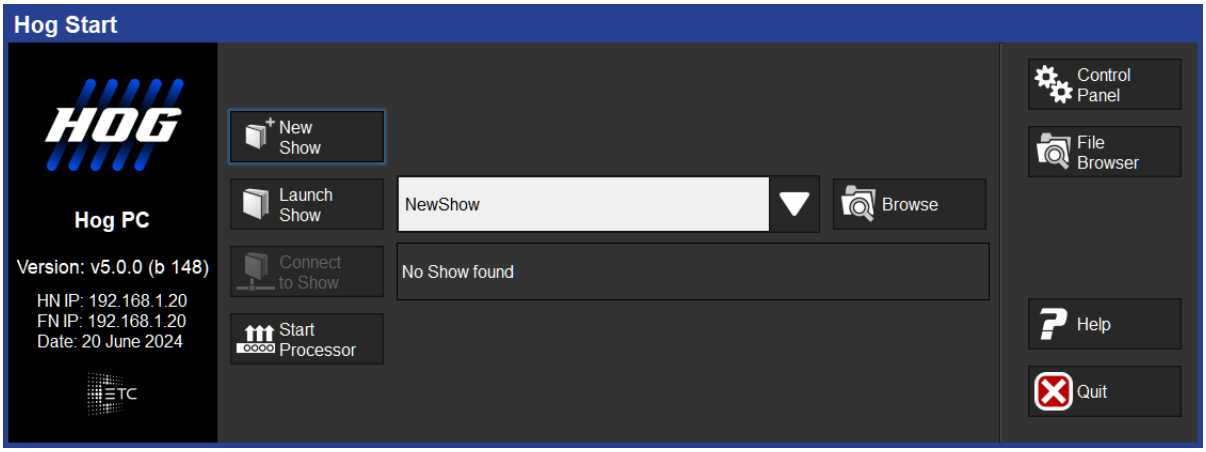
Setting up a Hog series console can take just a few seconds to a few minutes depending on the complexity of the lighting rig, network, and external devices being controlled by the console. Always ensure that the console is located in a dry location and is placed on a stable surface. When practical it is also advantageous to ensure the location allows for access to the console's rear ports and that ample space has been given for any extra wings, widgets, or third party outboard equipment.

3.1.1 Powering on the Console

To power on and start up the console plug one end of a standard IEC power cable into any 100-220 VAC power source and plug the other end into the console's dedicated IEC power port and then turn the power switch on the back of the console to the on position. Make sure that any external bootable media such as bootable USB flash drives or CDs are removed from the console before booting. When the console has finishing booting you will see the Hog OS start screen. Your console is now ready for operation.

Important: Using an ungrounded power source leads to a greater risk of shock and may cause the motorized faders on the Hog 4 and Full Boar 4 consoles to not function properly. Always make sure that the power source for your console is properly grounded.

Start Screen, your console is ready to use

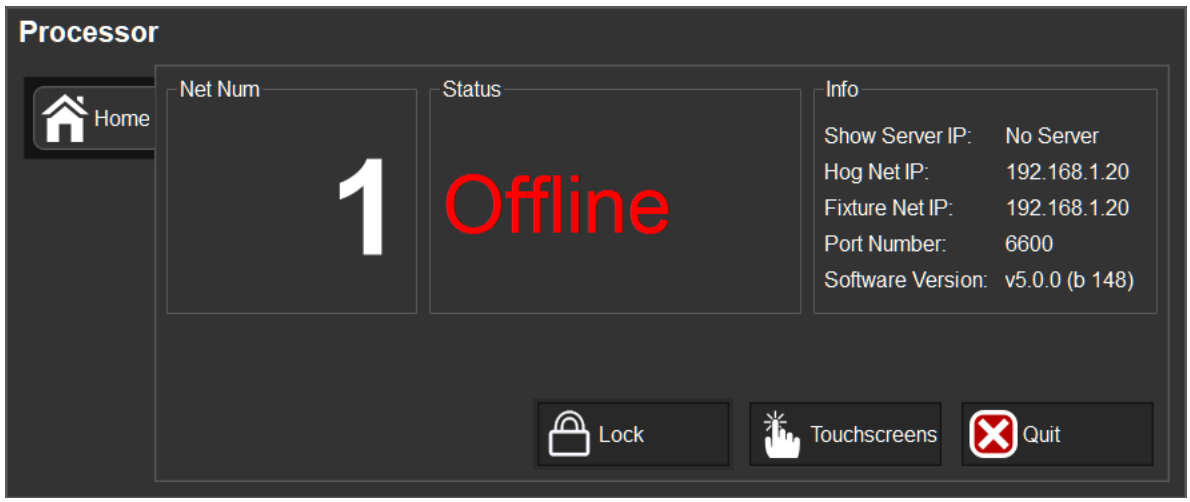


3.1.2 Start Processor

Pressing the start processor button on the Hog start screen launches a processor on the console which enables the console to connect to shows on the HogNet network and utilize the console's hardware to provide DMX, Art_Net, and sACN output similar to the traditonal function of a rackmount DMX Processor. If a console is shut down, restarted, or powercycled while running as a processor the console will automatically launch the processor again when it boots. Processor mode is also available on Hog PC but requires an ETC Nomad key or High End Sytems widget to license output.

The processor window provides basic details about the processor's connection status, IP addresses, net number, port number, and software version.

Processor Window



To adjust the HogNet IP and/or FixtueNet IP of the processor:

1. Press the **Quit** button on the processor window
2. Select **Log Off** from the shut down menu
3. Press the **Control Panel** button on the Hog Start screen
4. Adjust the IP settings in the **HogNet** and **FixtureNet** tabs and press **Apply**
5. Close the **Control Panel** window and press **Start Processor** on the launch screen
6. The console will now run as a processor using the IP settings you specified.

To adjust the Port Number and Net Number of the processor:

1. Press the **Quit** button on the **Processor** window
2. Select **Log Off** from the shut down menu
3. Press the **Control Panel** button on the Hog Start screen
4. Select the **StartUp** tab of the **Control Panel**.
5. Adjust the net number value located under the Processor section and / or adjust the Port Number value located under the Network section. When you are finished press **Apply**
6. Close the **Control Panel** window and press **Start Processor** on the launch screen
7. The console will now run as a processor using the settings you specified.

Tip: The "run processor" option located in the console section of the start up tab in the control panel relates to whether or not a local processor will run when launching shows or connecting to shows on the console. This setting has no effect on the standalone "start processor" option.

To upgrade or downgrade the software version of the processor running on a console simply upgrade or downgrade the console as described in Console Software Update.

The number of universes each console is licensed to operate when running as a processor is shown the table below.

Hardware Platform	Processor Mode Capability
Tour Hog	64 universes
Stage Hog	64 universes
Flex Hog	64 universes
HPU	64 universes
Hog 4-18	16 universes
Hog 4	16 universes
Rack Hog 4	16 universes
Full Boar 4	12 universes
Hog PC**	Up to 36 Universes
Road Hog 4-21	8 universes
Road Hog 4	8 universes
HedgeHog 4X	6 universes
HedgeHog 4, 4N, 4S	4 universes

** Output for Hog PC is enabled by connecting an ETCNomad license key, Gig Hog, Tour Wing, and / or legacy DMX widget to the PC. Multiples of connected hardware type(s) may not be supported.

3.1.3 Adjusting the Date and Time

The console has a built in clock which is shown at the far right end of the command line toolbar. To change the console's date, time, and time zone open the **Control Panel** and navigate to the **Time and Date** tab. To change the format in which the console displays the date and time in your show file open the **Preferences** window and navigate to the **Appearance** tab. The format preference is stored in the show file and will change based on which show file you load.

Note: In order to permanently store changes made to the time and date of the console you must restart the Hog OS or properly shutdown / reboot the console. Simply switching the console's power switch off / on will result in any time and date changes being lost.

3.1.4 Adjusting Tour Hog's Main Display

This section provides step-by-step instructions for safely unlocking, adjusting, and securing the Tour Hog’s main display. Whether preparing the console for operation or returning it to transport mode, following these procedures ensures proper handling, prevents damage, and maintains the integrity of the display mechanism.

Un-casing the Tour Hog

1. When Tour Hog's road case lid is removed the main display will be in a locked position.
2. In this position the display arms cannot be raised and may be used as grab points for lifting.

Raising the Tour Hog main display for use

1. Position yourself at the front of the console.
2. Locate the lock mechanisms on the left and right sides of the console.
3. Pull both locks towards you; you will feel a click on each side, indicating the locks are disengaged.
4. Adjust the display upward until the locks automatically re-engage. This will prevent accidental crashing of the display into the control surface.
5. The display arm now has free range of motion between the mid and back positions.
6. Adjust the display as needed for optimal viewing during use.

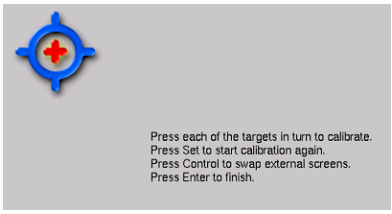
Collapsing the Tour Hog main display for transport

1. Position yourself at the front of the console.
2. Locate the lock mechanisms on the left and right sides of the console.
3. Pull both locks towards you; you will feel a click on each side, indicating the locks are disengaged.
4. With the locks released, grab the corners of the display.
5. Pull the display towards you while simultaneously tilting the display backwards. (The LCD should remain facing upward.)
6. As the display reaches its resting position you will hear clicks indicating the locks have re-engaged.
7. In this position, pulling on the arms should no longer allow for the display to be lifted upward.
8. The console is now ready for transport; the arms can be used as grab points as needed.

3.1.5 Calibrating the Touch Screens

The touch screens may occasionally need to be calibrated. To recalibrate the touchscreens before launching a show, select the **Touchscreens** button in the **Start** window. Touch each target as it appears sequentially across the screens. After the calibration sequence is complete, press **Enter**. You can press the **Set** key to start the process again if necessary. You can also calibrate the touch screens at any time while loaded in a show by pressing the **Calibrate Touch Screens** button in the **Displays** pane of the **Control Panel**. Users can also start the touchscreen calibration at any time on their console by holding the **Setup** key and pressing the encoder wheel button below the first main encoder wheel.

The calibration screen



3.1.6 Adjusting the Touchscreen LCD Backlight

To adjust the backlight level of the built-in touchscreens, hold down the **Setup** key and use the parameter wheels labeled **Backlight**. The available controls vary by console platform and may include **Backlight**, **Left Backlight**, **Right Backlight**, **Dashboard Backlight**. These same adjustments are also available as sliders in the **Preferences** window under the **Appearance** tab.

External displays are not affected by these settings; their backlight levels must be adjusted using the display's own physical controls and on-screen menu.

Tip: If you find the graphics on the screens are too bright, you can change the console's colour scheme to a darker one in **Setup** → **Preferences** → **Appearance**.

3.1.7 Changing the LCD Backlight Timeout

The backlights that illuminate the console's primary touch screens switch off automatically after a period of time if the console is idle. You can adjust the amount of time the backlights will wait before switching off in the **Appearance** pane of the **User Preferences** window:

1. **Setup** → **Preferences** → **Appearance**
2. Adjust the Backlight Off time located at the bottom of the pane, either by pressing the arrows to increment or decrement the value, or by clicking on the value, pressing Set and typing in a new value.
3. Select **OK** to apply and close.

> Tip: Once the Hog displays are asleep you can wake them up by pressing any key. It is a good idea to use the Pig key as this will prevent you from accidentally changing any data within the show.

3.1.8 Changing the HPU Vent Light Behavior

Follow these steps to set the default level on the HPU's vent light when the HPU is powered on:

1. Log into any show.
2. Set the HPU vent light to blue or white using the preferences. **Setup** → **Preferences** → **Appearance**
3. Hold the **Setup** key and use the second encoder wheel to set the HPU's vent light level.
4. Log off the show.
5. Press **Control Panel** in the Hog start screen.
6. Select the **Diagnostics** tab.
7. Press the **Store HPU Vent Light Start Up Level**.
8. Confirm the dialogue prompt. (Note: Do not power off for a minimum of 3 seconds after confirming.)
9. From this point forward HPU's vent light will initialize at the stored level when HPU is powered on.

> Please note: Regardless of the start up level the vent light will change to white at 100% intensity once the start up screen appears.

3.1.9 External Touchscreens / Displays

A wide variety of external displays and USB touchscreens are supported by Hog series consoles. When an external touchscreen is required High End Systems recommends using Master Wing 4 or Playback Wing 4 for the greatest level of compatibility and integration.

For stand-alone touchscreen monitors High End Systems recommends using plug'n play "Windows Compatible" touchscreens that do not require proprietary drivers.

To connect an external display and / or touchscreen to your console:

1. Power off the console.
2. Connect the external display's video signal cable to one of the video output connections on the back of the console. A video adapter may be required (see tip below).
3. If using a touchscreen: connect a USB cable from the touchscreen to one of the USB ports on the console.
4. Turn on the console.
5. In most cases each external monitor's native resolution will be detected by the console and no further adjustments to resolution will be required. In cases where the external monitor's resolution is not properly set automatically, press the control panel button on the start screen to open the control panel.
6. Select the "displays" tab of the control panel. Use the appropriate drop down menus to select a custom or preset monitor resolution, orientation, and/or position for the external display and then press the apply button.
7. If using a touchscreen: press the first encoder wheel button while holding down the setup key on the front panel. This will start the touchscreen calibration utility.
8. Touch all of the calibration targets on both the internal and external touchscreen displays. Once calibration is complete the cursor should follow your finger on both the internal and external touchscreen displays.

Tip:	
Hog 4-18	The display port output connections can be used directly with DP displays or ACTIVE DP video adapters to other connector types.
Hog 4-18	The display port outputs are NOT compatible with PASSIVE video adapters.
Full Boar 4	The DVI-D output connections do not support analog output to VGA displays.
Road Hog 4	VGA output is not supported. It is advised to only use the DVI-D output on the back of the Road Hog 4.

Caution: Some Elo Touchscreens do not follow the USB specification for back voltage (USB 2.0 Specification, Section 7.1.2 and 7.1.5) and may posed a risk to the BIOS on the following Hog consoles:

- Road Hog 4-21
- Full Boar 4
- HedgeHog 4X (2021)

For this reason Elo touch monitors are not recommended for use on these consoles.

3.1.10 Keyboard

Using an External Keyboard

You can connect an external keyboard to the console via the console's USB ports. Choose a keyboard model, and assign the keyboard layout according to the language of the keyboard you have connected, in the **Keyboard** pane of the **Control Panel**.

You can adjust the timings for Repeat Delay, Repeat Period, and Double Press in the **Key Timings** pane of the **User Preferences** window.

> Tip: You can use an external keyboard to control many of the console's functions, as well as entering numbers and text; see QWERTY Keyboard Shortcuts.

Using the On-screen Keyboard

The on-screen keyboard



You can use the on-screen keyboard to enter text when an external keyboard is not present. When prompted to insert text, press the **Set** key to launch a touch-screen keyboard. You can use the **Pig** key as a 'shift' for uppercase characters. Press the **Enter** key when you have finished typing. To close the on-screen keyboard without making any changes, press **Set** instead of **Enter**.

3.1.11 Trackball

Using an External Trackball

External USB trackballs can be connected to the console via the console's USB ports. Most external USB trackballs are supported only as an external mouse with left and right click capabilities however a select set of trackballs (listed below) are fully supported as functional Hog OS trackballs (support for all four trackball buttons and support for the use of the trackball in both pointer and POS mode):

- Kensington Expert Mouse (Model K64325)
- Kensington Orbit Wireless Mobile Trackball (Model K72352US)
- Kensington SlimBlade Trackball (Model K72327US)

3.1.12 Shutting Down and Restarting the Console

To properly shut down or restart the console while running a show: Setup → Quit. The Quit button is located on the right hand end of the Setup Toolbar. After pressing the quit button a Shut Down dialog will appear with the following options:

- **Shut Down**: Shutting down the console exits the software completely. All Art-Net, sACN, and 5-pin DMX transmission from the console is completely turned off. Processors attached to the show will stop transmitting Art-Net and sACN but will continue to output 5-pin DMX at a low 2 Hz refresh rate until they are powered off. Please note that shutting down the console does not power off the desk. To completely turn off the console's power flip the power switch to the off position. For HedgeHog consoles press and hold the power switch for 3 seconds. If the console is shutdown while running in "processor mode" then it will return to processor mode when rebooted.
- **Restart Console**: Restarting the console exits the Hog software completely, resets the computer, and re-boots the console to the start window. All Art-Net, sACN, and DMX 5-pin transmission from the console is turned off. Processors attached to the show will stop transmitting Art-Net and sACN but will continue to output DMX 5-pin at a low 2 Hz refresh until powered off or loaded into another show. If the console is restarted while running in "processor mode" then it will return to processor mode when it finishes rebooting.
- **Log Off**: Log off closes the current show file and returns to the user to the start window. If the console is in processor mode then logging off will return the user to the start window. The contents of the programmer as well as any cuelists or scenes that were active in playback will continue to output from the 5-pin DMX outputs of the console and processors at a low 2 Hz refresh rate until you log onto another show or until the console is powered off. Art-Net and sACN transmission is completely turned off on the console and processors upon log off.

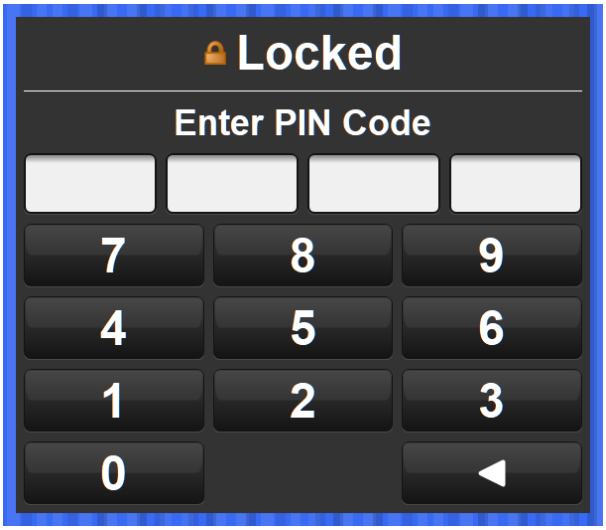
In all cases your show data is automatically saved to disk.

3.1.13 Locking the Console for Access

Consoles can be locked for access while a show is loaded by hitting the setup key on the console front panel and then pressing the lock button on the quit toolbar. Consoles can also be locked remotely by enabling the "lock local access" button under the security tab of the console settings window for the console on the network you wish to lock.

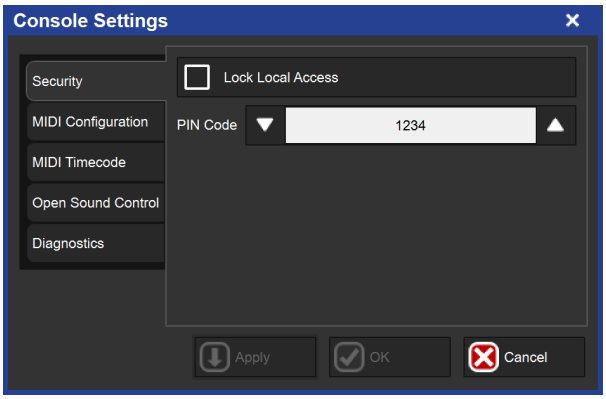
When the console is locked the user cannot access any part of the show file or change any DMX output to the stage. To unlock the console enter the PIN code you have setup for your console using the touch screen, the numeric keypad on the front panel, or an external keyboard. The onscreen keypad will auto-hide after a few seconds. If the onscreen keypad is not shown on the displays then press the **pig** key on the console's front panel or the **Ctrl** key on the keyboard and the onscreen keypad will reappear.

The Lock Window Requesting Pin



By default the lock code for consoles is 1234. To change the lock PIN code for the console open the network window, right click on the console you want to change the settings for, click on settings, and navigate to the security tab. Change the PIN code to the desired value and hit apply.

The security tab of console settings window



If you forget the passcode and are locked out of the console you will need to powercycle the console and relaunch the show in order to regain access to the show. Lock pin codes are stored per show and per console.

Custom Lock Screen Image

To specify a custom lock screen image:

1. Open the Control Panel and select the Displays tab.
2. Press the Set Lock Image button.
3. Choose an image file using the file browser window that pops up and then press OK.

The following formats are supported for custom lock images: JPEG, PNG, and BMP.

High End Systems recommends the following image resolutions for each console:

Tour Hog - Main Display	1920 x 1080
Tour Hog - Dashboard Display	1280 x 480
Stage Hog - Dashboard Display	1280 x 480
Flex Hog	(depends on attached display)
Hog 4-18	1920 x 1080
Hog 4	1280 x 768
Full Boar 4	1366 x 768
HPU	1600 x 480
Full Boar 4 (2016 and later model)	1920 x 1080
Road Hog 4	1680 x 1050
Road Hog 4-21	1920 x 1080
HedgeHog 4	1280 x 800

To revert the console back to the standard lock screen image press the **Reset Lock Image** button in the displays tab of the control panel. Custom lock screen images are stored per console and persist for all show files loaded on the console. Lock screen images are NOT stored per show.

3.1.14 Wi-Fi Connectivity

Tour Hog, Stage Hog, Flex Hog, and HPU+ support the connection of third-party Wi-Fi devices which include:

- Mobile Phones
- Tablets
- Laptops / Desktops

To connect a Wi-Fi device directly to the console, follow these steps:

1. Click on the clock display in the system toolbar
2. Press the **Wi-Fi** button to open the **Wi-Fi** tab of the **Control Panel**.
3. Ensure the Wi-FI radio is **enabled**
4. Configure the **SSID** to use a custom text string of your liking (2-8 characters)
5. Change the **password** to a WEP compliant string.
6. On your wireless device find the settings menu for Wi-Fi.
7. Select the SSID that coordinates with your console's settings and enter the password established in the console settings.
8. Once connected the Wi-Fi device can sent wireless communications to the console including these protocols:
    - Open Sound Control (OSC)

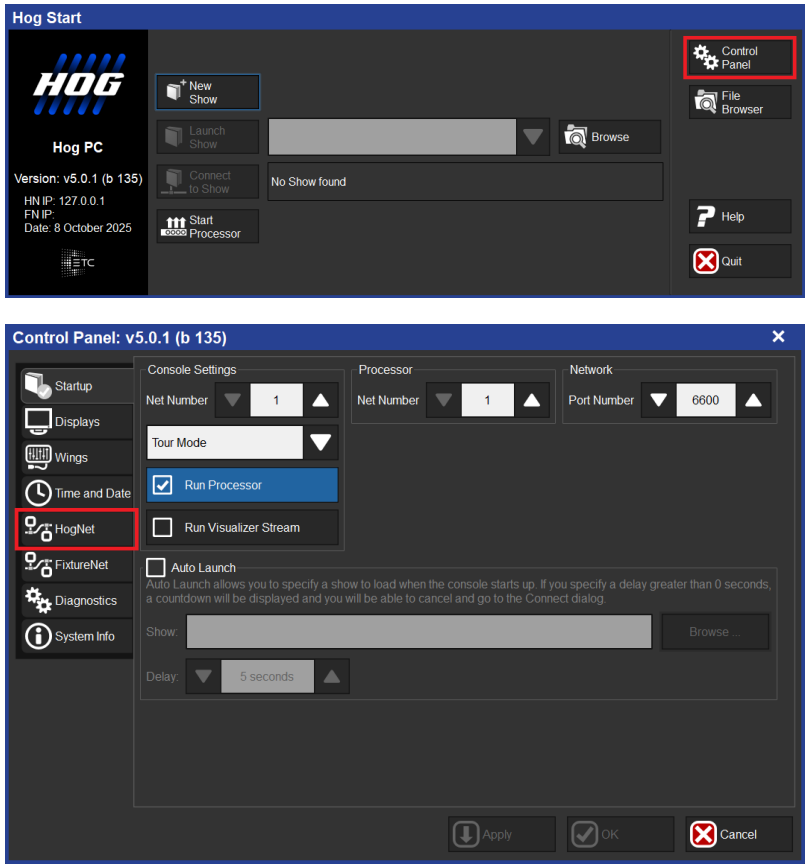
3.2 HogNet Network Setup

HogNet is the networking protocol used in Hog OS Consoles and Hog PC to facilitate communication between devices in a Hog lighting control system.

This includes consoles, processors, remote network storage devices, and third party OSC devices. A typical HogNet network includes the following:

- **Basic**: A single console connected directly to an external processor.
- **Intermediate**: One console with multiple processors connected through a network switch.
- **Advanced**: Multiple consoles, Hog PC systems, and processors connected via switches, providing distributed control for complex lighting rigs.

Settings and information for HogNet Network can be found in the **Control Panel** under the **HogNet** tab.



3.2.1 HogNet Ports

On the back of most Hog consoles is a dedicated Ethernet port used specifically for HogNet Communications.

- If multiple Ethernet ports are available, the port labeled **HogNet** or **HN** should be used for console specific traffic.
- On some HedgeHog 4 and Road Hog 4 consoles, the ports may not be labeled. In these cases, the HogNet or HN port is the right-hand Ethernet jack when viewed from the rear of the console.

For **Hog PC** systems, at least one standard Ethernet adapter (100 Mbps or faster) must be installed and enabled on the PC to enable HogNet communication.

The Stage Hog and Tour Hog consoles also offer the option to utilize one of the Fiber Optic ports on the rear of the console as HogNet port. This option can be selected by selecting the “Fiber 3” or “Fiber 4” option listed in the network adapter selection menu located under the HogNet tab of control panel window in Hog OS.

3.2.2 HogNet Cabling and Switch Requirements

When utilizing the traditional HogNet port on the rear of the console, the following network components are required:

- Cabling
  - Minimum: Cat 5e Ethernet
  - Cabling Recommended: Cat6, Cat6a, or Cat7 Ethernet (for improved performance and shielding)
- Network Switch
  - Minimum: 100 Mbps Ethernet switch (suitable for basic connectivity and smaller setups)
  - Recommended: 1,000 Mbps Ethernet switch (recommended for larger systems to ensure higher throughput)

When utilizing the Fiber Optic ports on the Tour Hog or Stage Hog console, the following network components are required:

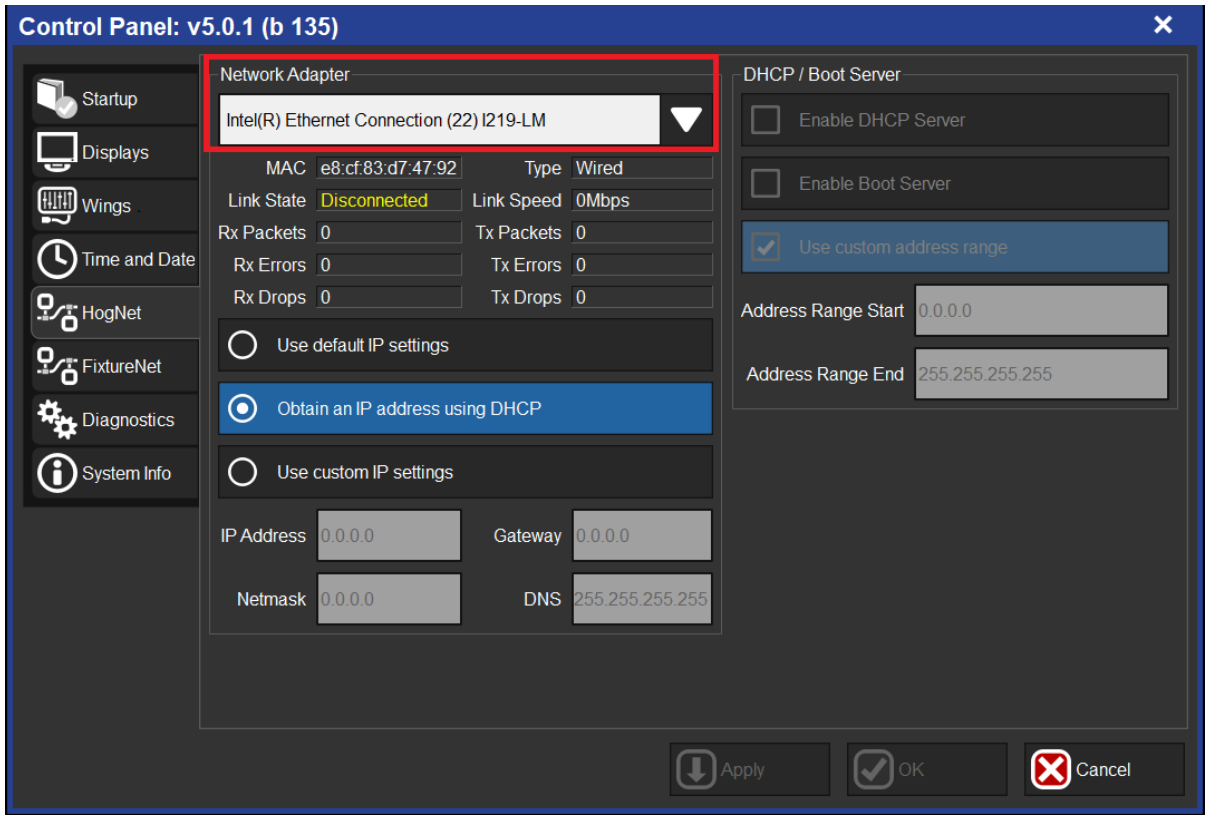
- Cabling
  - Minimum: OM3 multimode fiber with LC connectors
  - Recommended: OM3 multimode fiber with Neutrik OpticalCon Duo connectors (more rugged)
- Network Switch
  - Minimum: 1,000 Mbps switch with LC SFP connectivity (adequate for most applications)
  - Recommended: 10,000 Mbps switch with LC SFP connectivity (needed for extreme cases only)

The fiber optic ports on the Tour Hog and Stage Hog consoles support connectivity distances of up to 300 meters (984 feet) when using OM3 multimode fiber with appropriate connectors like LC or Neutrik OpticalCon Duo.

3.2.3 Selecting a HogNet Adapter

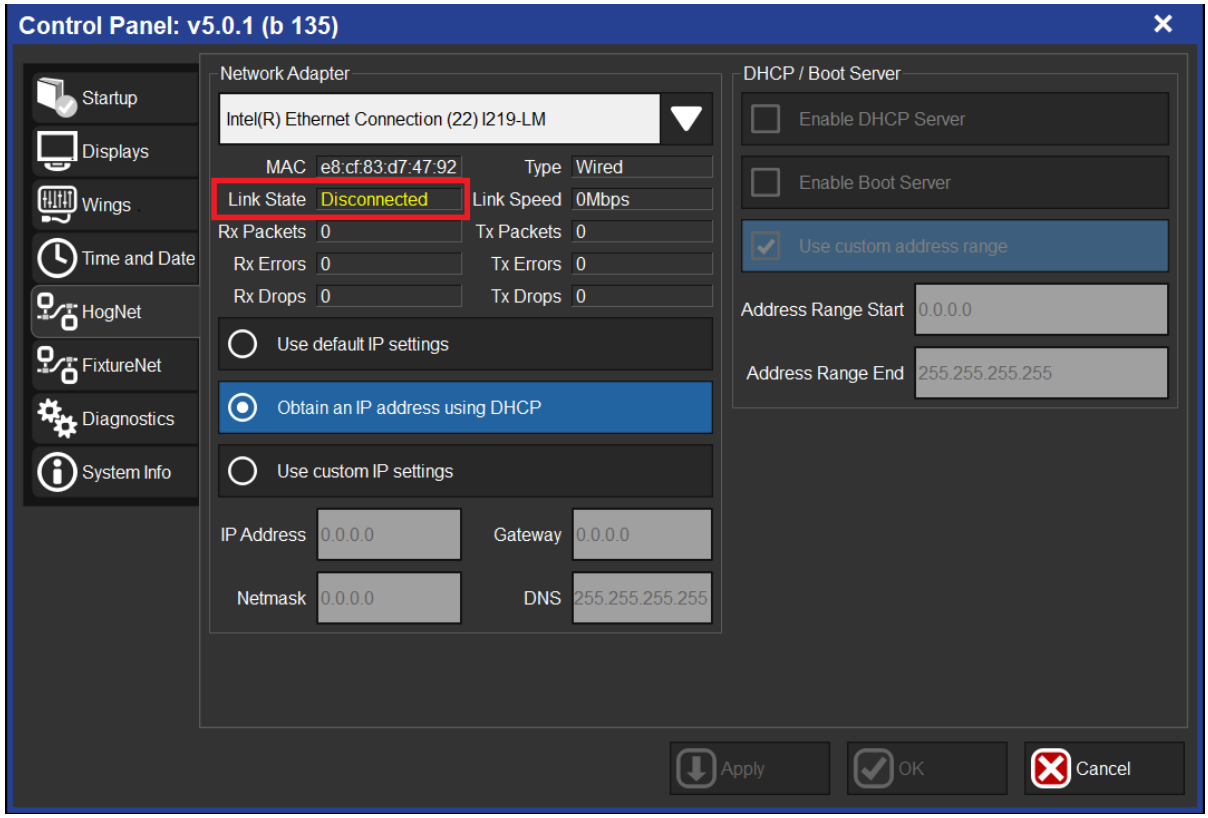
The HogNet Adapter is configurable using the **HogNet** tab of the Control Panel Window. At the top of the **HogNet** tab is the adapter selection drop-down list. This selected adapter determines which physical port on the console is assigned to HogNet traffic.

- On most Hog consoles only a single adapter is shown and cannot be changed.
- On most Tour Hog and Stage Hog consoles multiple adapters can be selected including the Fiber 3 and Fiber 4 ports.
- On Hog PC systems, multiple adapters may be listed depending on the computer's installed and enabled hardware.



Note: Example Image from a Hog PC System

3.2.4 Checking the Status of the HogNet Adapter



Once an adapter is selected its current status is displayed in the table below the network selection menu:

- **Up:** The adapter is connected to a network and ready to communicate with other devices.
- **Disconnected:** The adapter is active, but no valid network connection is detected (e.g., cable unplugged).
- **Down:** The adapter is disabled or in an unstable state and is not usable for show operation.

Important: Only adapters with a status of Up can communicate on the network. If no adapters are in this state, Hog OS will default to standalone mode using a loopback address.

3.2.5 Configuring the IP Address of the HogNet adapter

The IP address and NetMask of the selected HogNet adapter on a console, processor, or Hog PC can be adjusted using a set of options located in the HogNet tab of the Control Panel Window.

- **Default IP address:** Assigns an address 172.31.0.1 with a NetMask of 255.255.0.0
- **Obtain automatically (DHCP):**Requests an IP address from a DHCP server, such as a router or other Hog console acting as a DHCP host.
- **Custom IP address:** Allows for manual configuration of the IP address and subnet mask.

Tip: If DHCP is selected but no DHCP server is present, the console will fall back to a loopback address (127.0.0.1), which cannot be used for show networking. A custom IP address must be set.

3.2.6 Enabling a DHCP Server on the HogNet Adapter

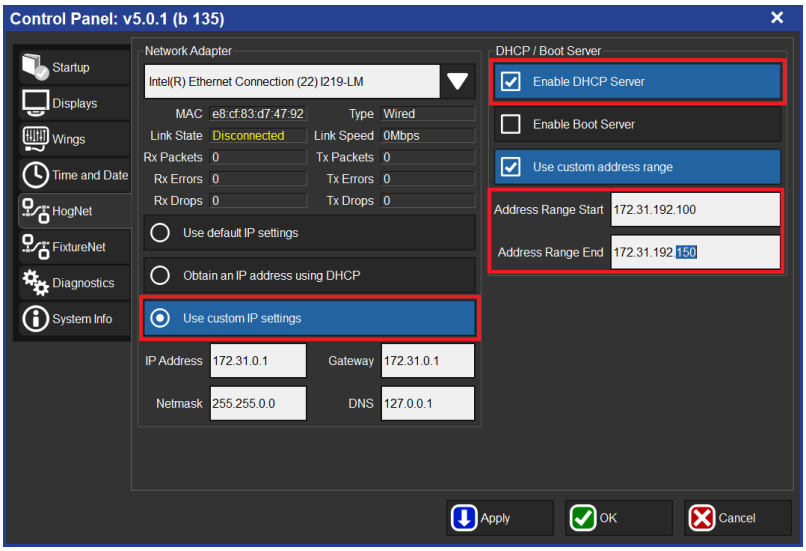
The HogNet adapter can be configured to function as a DHCP server which is a service that assigns IP addresses to other devices on the network that are configured to obtain an IP address using DHCP.

When the DHCP Server option is enabled, by selecting the **Enable DHCP Server** checkboxfor the HogNet adapter, any devices connected to the HogNet network that are configured to **Obtain an IP address using DHCP** will initiate a negotiation with the DHCP server to receive a valid IP address assignment.

Caution: DHCP **server** should only be enabled on **one device** per HogNet network to avoid conflicts. In larger or permanent installations, static IP addressing may still be preferred for consistency and control.

In more complex networks the **Use custom address range** option allows the DHCP Server to assign network addresses to organize devices on the network or prevent conflicts.

To configure a custom IP address range for the DHCP service enable the **Use custom address range option** and set the **Address Range Start** and **Address Range End**



3.2.7 Firewalls and HogNet Traffic

The HogNet protocol relies on a mixture of unicast, broadcast, and multicast communications. Firewalls that block or filter HogNet traffic can interrupt and even prevent successful connections on the HogNet network.

To ensure reliable operation:

- Configure firewall exceptions or allow rules for HogNet traffic (multicast UDP) instead of disabling the firewall outright.
- If the system is part of a secure network isolated from the internet and external access, disabling the firewall entirely may be an acceptable option to simplify configuration.
- For systems connected to larger or shared networks, always follow IT security best practices: allow only the required HogNet traffic while maintaining other protections.

3.2.8 HogNet Multicast Communications

HogNet uses multicast as its primary communication method, enabling consoles and processors to discover each other and exchange show data efficiently. By leveraging multicast groups, multiple nodes can share information simultaneously without duplicating traffic for each recipient.

The multicast range used by HogNet is derived from the show session's decimal port number broken into high and low bytes from its hexadecimal form. This method ensures each show session has a unique multicast group range tied directly to its show port.

Multicast Service Address:

`239.(hibyte).(lobyte).x`

- **hibyte** = hex high byte of the show port number
- **lobyte** = hex low byte of the show port number
- **x** = address of Hog OS service (see below)

Example: How to calculate the Multicast IP Range.

1. Convert show session port number to hexadecimal: 6600 = 0x19C8
2. Split into bytes:
    - **hibyte** = hexadecimal 0x19 = decimal 25
    - **lobyte** = hexadecimal 0xC8 = decimal 200
3. Apply hibyte and lobyte to create the multicast address

`239.(hibyte).(lobyte).0 – 239.(hibyte).(lobyte).255`

Result: 239.25.200.0 – 239.25.200.255

The last octet of the multicast IP address determines the service type. This allows HogNet nodes to subscribe groups only relevant to their function, thus reducing unnecessary traffic.

Multicast Address Ending	Service / Data Type
239.25.200.**0**	HogNet core
239.25.200.**1**	Database
239.25.200.**2**	Live Data
239.25.200.**3**	Playback Data
239.25.200.**4**	DMX Data
239.25.200.**5**	Timecode Data
239.25.200.**6**	Focus (Visualizer)
239.25.200.**7**	Task Data
239.25.200.**9**	Log Data
239.25.200.**10**	Clock
239.25.200.**12**	Command
239.25.200.**13**	Timecode
239.25.200.**14**	Effects
239.25.200.**32**	State

Operator Tips:

Additional IP Address Requirements

- Any valid IPv4 address and subnet mask may be used.
- All HogNet nodes must reside in the same subnet.
- Bridging VLANs is not recommended.

Switch Considerations

- HogNet requires **multicast support** for show discovery and session services.
- **Managed switches** often mishandle multicast, leading to “node down” errors.
- **Unmanaged** switches are strongly recommended.
- Example: TP-Link TL-SG1024 has been used successfully in the field.

When analyzing Wireshark captures

- Filter by `ip.addr==239.25.200.x` to isolate HogNet traffic.
- Use port filters (e.g., `udp.port==6600`) to distinguish between services.
- Confirm multicast packets are flowing; absence usually indicates switch misconfiguration.

3.3 DMX Output

Hog consoles and HPU provide physical DMX ports located on the rear panel. In most cases, these DMX ports are automatically mapped to the local processor when a new show is created, however, certain situations may require mappings to be added or adjusted.

To configure DMX output:

1. Launch into a show.
2. Open the Network window.
3. Locate the DMX Processor running on the local console. (If multiple processors are listed, the processor with the same IP address as the console is the local processor).
4. Select the processor and then press Settings at the top of the Network window.
5. In the Processor Settings window, navigate to the Output tab.
6. Press Add Mappings.
7. Choose the universe(s) you want to map and enable the Widget option to indicate that these mappings should be assigned to a local DMX Widget.
8. Press Apply to confirm your changes.

Configuring Refresh Rate

The refresh rate of each processor node in the show can be adjusted by changing the Refresh Rate value in the Output tab of the Processor Settings window. This setting affects all outputs from that node, including DMX, Art-Net, and sACN.

To set a refresh rate above 25 Hz, you must select an Inter-slot Time of 0 ms.

Keep in mind that different Hog consoles use different DMX output cards, and their capabilities vary by model. These differences impact factors such as the number of physical DMX ports and the maximum supported refresh rates. Refer to the table below for the DMX refresh rate options available for each console.

Console	DMX Device	Availble Refresh Rates
Tour Hog	Ports 1-4 (Rev 2)	44hz
Stage Hog	Ports 1-4 (Rev 2)	44hz
Flex Hog	Ports 1-4 (Rev 2)	44hz
Gig Hog	Gadget II (rev 2)	44hz
Hog 4-18	Internal DMX	10 - 40hz
Hog	Internal DMX	10 - 40hz
Full Boar 4	Internal DMX	10 - 42hz
Road Hog 4-21	Internal DMX	10 - 30hz
Road Hog 4	Internal DMX	10 - 42hz
Rack Hog 4	Internal DMX	10 - 42hz
Hedge Hog	Internal DMX	10 - 42hz

Console	DMX Device	Availble Refresh Rates
HPU	Internal Ports 1-4 (Rev 1)Internal Ports 4-8 (Rev 1)	19, 27, 34, 40hz
HPU	Internal Ports 1-4 (Rev 2)Internal Ports 4-8 (Rev 2)	44hz
External Gadget	Gadget II (Rev 1)	19, 27, 34, 40hz
External Gadget	Gadget II (Rev 2)	44hz

3.4 Setting up a Show Network

After the physical HogNet network has been fully established, all connected consoles and processors must be correctly configured to initiate a show session. A show session refers to a coordinated network environment in which multiple devices are interconnected and synchronized to control a single lighting production. Hog OS supports the simultaneous operation of multiple active show sessions within a single HogNet infrastructure, allowing for flexible and scalable show management.

The following sections detail the configuration options available in Hog OS, explaining how each setting contributes to the creation, operation, and isolation of show sessions. They also outline the procedures for configuring individual nodes to ensure seamless integration within their designated session.

3.4.1 Port Number

The port number is the mechanism used in Hog OS for isolating show sessions within a shared HogNet network.

To participate in the same show session, all devices must be configured to use an identical port number. Devices assigned different port numbers will remain isolated, operating in separate show sessions–even when connected to the same physical HogNet network.

To configure the port number of a Console, Processor, or Hog PC:

1. Log off or start up the console to the Hog Start Screen
2. Open the **Control Panel**
3. Select the **Startup** tab
4. Use the port number field to enter the desired port number for the device

3.4.2 Net Number

The net number is the mechanism used in Hog OS to define a device's role within a show session. The devices participating in the show session load and store their unique node settings in the show file based on their user assigned net number. Node settings vary by device type but often include things like DMX, SMPTE and MIDI device mappings and PIN codes for locking the device.

Assigning the same net number to multiple processors within a show session is **not supported** and will result in the duplicated processor remaining idle until reassigned a unique net number within the show session.

3.4.3 Show Session Data Distribution and Redundancy

Beginning with Hog 5.x, Hog OS has adopted a “database everywhere” model. This section describes behaviors that likely represent an operational change for existing Hog operators.

When a console or processor joins a show session, Hog OS automatically distributes a complete copy of the show database to that device’s local hard disk. Throughout the show session, each device maintains real-time synchronization of the show database, ensuring that every change is instantly reflected and stored across all participating nodes. This architecture minimizes network delays, ensures smoother performance, and provides built-in redundancy.

Hog Data Distribution in practice:

1. When a new or existing show is launched on a console within the HogNet network, it initiates a new show session. Consoles configured with the same port number as the initiating console are prevented from launching a separate show session on that port. Instead, they are presented with the option to join the existing show session.
2. When a console joins an active show session, the entire show database is copied to its local hard disk, replacing any existing copy of the show with the same file name.
3. When a processor joins an active show session, the complete show database is replicated to its local hard disk. However, this data is transient. If the processor disconnects from the show session, regardless of the reason, the processor’s local copy of the show database is immediately and permanently deleted.
4. When a console is logged off a show session, a local copy of the show database is retained on its local hard disk.
5. A show session remains active as long as one console remains connected. Additional consoles can freely log off/on without disrupting the show session.
6. If all consoles are logged off a show session, the show session is considered terminated. Any processors connected to the show session will delete their local copy of the show database and return to scanning the port for a new show session.
7. The last console to log off a show session retains the most up-to-date version of the show database. To preserve recent changes and prevent data loss, this console should be the first to load the show when restarting the system. Launching from an archived backup is also a reliable method, especially when the last console cannot be clearly identified or is unavailable. This helps maintain data integrity and ensures a consistent starting point for all participating consoles.

Large show files may result in increased show join times for consoles (about 1 second per 100 MB of show data on a gigabit network).

Operating a show session with two or more consoles is recommended for live production scenarios as it provides system redundancy in the event of hardware failure, power loss, or the accidental disconnection of the primary console.

3.4.4 Show Session Failures and Error Handling

Beginning with Hog 5.x, Hog OS adopted the database everywhere model. This section describes new simplified behaviors that are a change for existing Hog operators.

Maintaining reliable communication between consoles, processors, and other nodes in a show session is critical. While Hog OS is designed to be resilient, network failures can still occur due to hardware issues, cabling faults, switch misconfigurations, or power loss.

Hog OS provides several visual and system alerts to indicate network issues:

- **Network Status Icon**: located at the far right of the system toolbar and in the status bar to the right of the command line. The network status icon provides a visual indication of the health of the physical network as it relates to connectivity between nodes participating in the show session. The most important status to be aware of is a network fault which indicates a console or processor has unexpectedly left the show session. Clicking on the network status icon opens the network window for a more detailed look at the consoles and processors within the show session. See Sect 2.1.2 for images of the network status icon states.
- **Pop-up Notifications**: if a console exits the show session through any method other than a user-initiated log off–such as a network interruption, power failure, or system crash–the remaining consoles will display a pop-up alert indicating that they can no longer detect other members of the show session. This serves as a warning that the session may have become partitioned, and immediate attention is required to restore full synchronization and prevent data inconsistencies.
- **Task Status Icon**: located in the status bar to the right of the command line. The task status icon offers real-time visual feedback on the status of Hog OS operations. This icon reflects whether system tasks are actively running or have encountered a failure. A task failure icon signals that one or more tasks have failed. While this does not inherently point to a network communication issue, it can be a critical diagnostic indicator when investigating anomalies within a show session. See Sect 2.1.2 for images of the task status icon states.

Network Connectivity Loss and Show Session Partitioning

One of the most troubling issues that can affect show sessions is the loss of network connectivity between consoles. This disruption can stem from various causes, including brief network traffic interruptions, disconnected cables, switch malfunctions, or software anomalies. Hog OS handles these conditions with a process known as partitioning which allows consoles and processors to continue operating when separation events like this occur.

When network connectivity issues occur, the following things happen:

- Consoles and processors that have remained connected to one another form a partition.
- Consoles and processors within a partition continue to operate normally, creating and storing show data within their group and controlling any aspects of the show that they have output to.
- If the connectivity issue within the physical network is resolved, the partitions remain in place until all consoles within a partition are logged off and then back on to a singular partition. Hog OS does not automatically merge changes between partitions, as it cannot determine which version is authoritative.

Continuing a partitioned show session is not recommended. Proceeding in a partitioned state risks show data divergence. It is always best to manually heal the show session partitions as soon as they occur.

To manually heal a partitioned show session, follow these steps to ensure data integrity and restore system synchronization:

1. Determine the Most Current Partition: Identify which partition contains the most up-to-date show data. If the partitioning event was caught immediately, it's likely that all partitions still share identical data on their local hard disks.
2. Backup Before Proceeding: If you're unable to confirm which console holds the latest show file, create a backup from each partitioned console. This precaution ensures that no data is lost during the healing process.
3. Log Off Outdated Consoles: Log off all consoles that are part of partitions with outdated or uncertain show data. This step prevents stale data from re-entering the session.
4. Rejoin the Unified Session: Once the non-primary consoles are logged off, they can safely rejoin the main show session from their start screen. In some cases, processors may require a soft reset or power cycle to fully reintegrate.

3.4.5 Page and Chosen Master Tracking

The feature is changing from a net number implementation to an explicit console setting

Page and Chosen Master tracking is a feature in Hog OS that enables consoles in the same show session to synchronize their current page and chosen master with one another while still maintaining independent desktop layouts and programming environments.

This feature is most beneficial in situations where a backup console is established in the show session and is tasked with being on the same page and master as the primary console.

To Configure page and master tracking between consoles:

1. Assign both consoles the same Net number.
2. Start a show session with Console A, then connect Console B to the same show session.
3. Console A and Console B will mirror each other's current page and chosen master.

By assigning multiple consoles to the same net number within a show session, the system gains robust redundancy, both at the data level through the distributed database and at the playback level via mirrored page and master synchronization. In the event of a primary console failure, the tracking backup console can instantly take over, ensuring uninterrupted show continuity.

3.5 Art-Net and E1.31 (sACN)

Art-Net and E1.31 (also known as streaming ACN) are two communication protocols supported by the Hog OS that allow for DMX512 data to be sent over Ethernet. While each protocol is unique in terms of specification and implementation, they both provide the ability to carry many DMX universes over a single cat 5 Ethernet cable. This section of the manual will help you to understand how to properly configure your console or Hog PC to output Art-Net and E1.31.

Platform	Output Capability
Tour Hog	64 Universes
Stage Hog	64 Universes
Flex Hog	64 Universes
HPU	64 Universes
Rack Hog 4	16 Universes
Hog 4-18	16 Universes
Hog 4	16 Universes
Full Boar 4	12 Universes
Road Hog 4	8 Universes
Hedgehog 4x	6 Universes
Hedgehog 4	4 Universes
Hog PC**	Up to 36 Universes

** Output for Hog PC is enabled by connecting an ETCNomad license key, Gig Hog, Tour Wing, and / or legacy DMX widget to the PC. Multiples of connected hardware type(s) may not be supported.

3.5.1 Identifying the FixtureNet Port

The FixtureNet port is the Ethernet port Hog OS uses to send Art-Net and/or E1.31 data to fixtures, media servers, and DMX converters that are capable of receiving these protocols over Ethernet. The FixtureNet port is located on the rear panel of the console.

When using Hog PC you have the option to select which of your computer's network adapters will act as the FixtureNet port for outputting Art-Net and/or E1.31.

To assign one of your computer's network adapters to act as the Hog PC FixtureNet port:

1. **Control Panel** → **FixtureNet**
2. Select a network adapter from the list of available adapters at the top of the window. If only one network adapter is available then it will be selected automatically and the drop down box will be greyed out. If no network adapters are available the drop down menu will be blank and greyed out.

Important: It is recommended that you do not combine HogNet and Art-Net or E1.31 (sACN) within the same network. This can produce network errors and unreliable data. When using Hog PC you have the ability to assign both HogNet and Art-Net/E1.31 to a single adapter but using separate network adapters is strongly advised.

3.5.2 Configuring the FixtureNet Port

In order to successfully output Art-Net or E1.31 from your console, or Hog 4PC, you must first properly configure the FixtureNet's IP address to settings that are appropriate for your network.

To configure the Hog console or Hog PC's assigned FixtureNet port from the console:

1. **Setup** → **Network** : open the Network window.
2. Select the local internal processor, likely assigned to net number 1 and press **Settings**.
3. Select the **FixtureNet** pane of the **DMX Processor Settings** window.

From these configurations menus you can configure the FixtureNet's IP address (source address) in one of two ways:

- **Obtain an IP address using DHCP**: select this option when running the Art-Net side of the console on a network that contains a DHCP server such as a DHCP router. When using DHCP, the **IP Address, Netmask**, and **Gateway** fields will be grayed out. The information contained with them is not relevant to the DHCP configuration.
- **Use Custom IP Settings**: This option allows you to specify the IP address and subnet mask settings of the FixtureNet adapter. This option is most commonly used on networks where a DHCP server is not present. Once selected you will need to enter the **IP Address, Netmask**, and **Gateway** for this device on the network.

Important: If you select **Obtain an IP address using DHCP** on the console and no DHCP server is present on the FixtureNet network then the FixtureNet adapter will revert to a loopback address of 127.0.0.1.

3.5.3 Configuring Art-Net Output

Art-Net output is configured using the Outputs tab of the Processor Settings window.

1. **Setup** → **Network** : open the **Network** window.
2. Select a processor and press **Settings**.
3. Select the **Output** pane of the **Processor Settings** window.
4. Press the Add Mapping(s) button.
5. Use the Add Mapping(s) dialogue pop-up dialogue to specify a universe range to map, enable the Art-Net option, and press Ok.
6. An Art-Net output mapping entry will be added to the table with following configurable properties:

   Destination: configure Art-Net output destination to Broadcast or enter an IP address for unicast.

   Port: configure the Art-Net output subnet (0-15) and universe (0-15) or single combined decimal value.

   Changes Only: check this box to transmit only changes to Art-Net data.

7. Once the Art-Net mapping is configured to your liking press OK or apply to confirm the changes.

3.5.4 Configuring E1.31(sACN) Output

E1.31 Output is configured using the Outputs pane of the Processor settings window.

1. **Setup** → **Network** : open the Network window.
2. Select the processor and press **Settings**.
3. Select the **Output** pane of the **Processor Settings** window.
4. Press the **Add Mapping** button.
5. Use the Add Mapping(s) dialogue pop-up dialogue to specify a universe range (start universe < end universe), enable the sACN option, and press **OK**.
6. An sACN output mapping entry will be created in the table with following configurable properties:

   Destination: configure the multi-cast address or specify an IP address for Unicast

   Port: configure the sACN universe.

   sACN Priority: configure the sACN universe priority.

   Channel Priority: enable and configure sACN per channel priorities.

   Changes Only: check this box to transmit only changes to sACN data.

7. Once the sACN mapping is configured to your liking press **OK** or **Apply** to confirm the changes.

E1.31 supports two styles of priority. The first is a per-universe priority that defines a single priority for all of the slots within the universe. The second style, per-channel priority, allows a separate priority be assigned to each individual channels within that universe. Not all E1.31 receivers support per-channel priority. On those receivers that support per-channel priority, the per-universe priority will be ignored when per-slot priority is enabled.

- **Priority** : : double-click on the sACN universe priority cell to prioritize the E1.31 data being sent for that universe of data. Valid settings range from 0 to 200, with higher numbers representing higher priority.
- **Per Channel Priority** : : double-click on the Per Channel cell and use the pop-up menu to configure the per-slot priority values for individual slots within that universe. Valid settings range from 0 to 200. Higher numbers represent higher priority. A slot priority of 0 indicates that the slot should be ignored.
- **-/ +** : click these keys to expand or reduce the number of E1.31 configurations for a specific DMX universe.

3.6 Gig Hog

The Gig Hog requires a host computer or console to operate. Gig Hog can be connected to a Windows computer running Hog PC or a Hog console via a single USB-C cable. Additionally, the Gig Hog console can provide up to 100W of power to devices connected through its USB-C port, provided the connected device can negotiate a suitable connection.

3.6.1 Setting Up the Gig Hog:

1. Use a True One power cable to connect Gig Hog to an AC power source.
2. Connect Gig Hog to a host computer or Hog console using a USB-C cable.
3. Start Hog PC and/or the host console.

Important: It is highly recommended to connect the Gig Hog directly to a host computer or console. Using a USB hub between the Gig Hog and the host computer may lead to usability issues, touch performance problems, or other difficult-to-diagnose issues.

3.6.2 Operating Gig Hog with Hog PC:

When using Gig Hog with a Window's PC running Hog PC, it's recommended to select the "Gig Mode" option in the startup tab of the control panel:

1. Launch Hog PC (Ensure you are using Hog PC version 5.0.0 or greater)
2. Press the **Control Panel** button on the Hog start screen.
3. Select the **Startup** tab in the Control Panel window.
4. In the console settings section, use the drop-down menu to select **Gig Mode**.
5. Press **Apply** and then **OK** to close the Control Panel window.

The Gig Hog can also operate when Hog PC is set to **Tour Mode**. However, in this mode, the master ranges of Gig Hog will increment in half steps through the attached playback bar.

Compatibility Note: Gig Hog's internal DMX Output ports currently not function if Gig Hog is connected to a PC that has an ARM based processor. For more information regard Hog PC computer requirements please refer to **Hog PC system requirements**.

3.6.3 Operating Gig Hog with a Console:

When using Gig Hog with a Console there are some things to be aware of:

- The console must be running Hog OS v5.0.0 or greater
- The master ranges of Gig Hog will increment in half steps through the attached playback bar.
- The programmer section of the Gig Hog will automatically work without any need to do additional mapping.

- The playback section of Gig Hog will automatically map to the next available playback bar on the console that does not already have a hardware device connected.

3.6.4 Rack Mounting Gig Hog:

Gig Hog can be mounted into a standard 19” rack using the optional Rack Mount accessory kit sold separately (ETC Part Number 6113K1002).

Included in the Rack Mount Kit

- 1x Left Rack Ear Bracket
- 1x Right Rack Ear Bracket
- 4x Mounting Screws
- 4x Mounting Washers

Tools Required

- PH2 screwdriver

Follow these steps to securely install the rack ears onto your Gig Hog chassis

1. Turn off and unplug Gig Hog.
2. Use a PH2 screwdriver to remove the four screws securing the bottom feet of the chassis.
3. Set the screws and rubber feet aside – you’ll reuse them shortly.
4. Align the left rack ear with the screw holes on the left side of the chassis.
5. Align the right rack ear with the screw holes on the right side of the chassis.
6. Ensure both ears sit flush against the chassis for proper fit.
7. Use the PH2 screwdriver to reinstall the four screws and rubber feet through the rack ears and into the chassis. Tighten securely, but do not overtighten.
8. Confirm that both rack ears are firmly attached.
9. Gig Hog is now ready to mount into a 19” rack using the supplied mounting screws and washers.

3.7 Adding Playback Wings

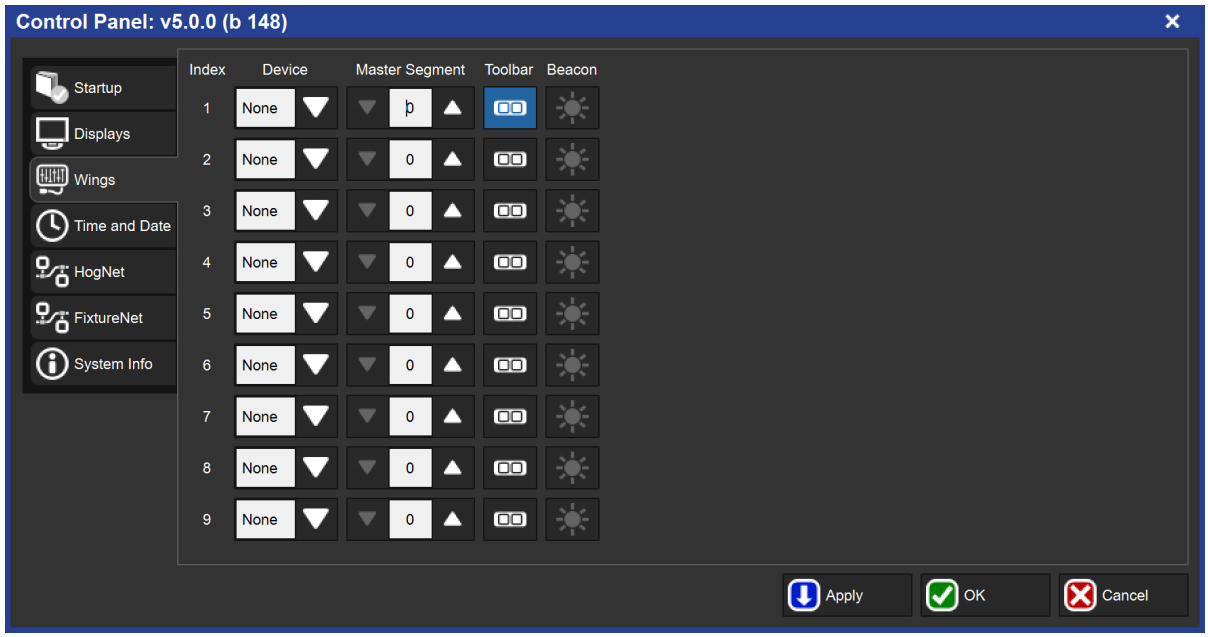
The physical playback controls of all Hog Series consoles (including Hog PC) can be expanded through the use of external USB playback wings.

The following playback wings are supported:

- Gig Hog Wing - 5 masters / motorized faders / play, pause, play backwards, flash, skip fwd/bck controls
- Tour Wing - 10 masters / motorized faders / play, pause, play backwards, flash, U keys / 12.3" touchscreen display
- PlayBack Wing 4 - 10 masters / motorized faders / play, pause, play backwards, flash, skip fwd/bck controls / 15.6" touchscreen display
- MiniWing 4 - 10 masters / manual faders / play, pause, flash, and skip fwd/bck controls
- Master Wing 4 - 30 fader-less masters / play, flash, skip fwd/bck controls / 15.6" touchscreen display

To attach a playback wing to the console:

1. Apply AC power to the wing and connect the wing to the console via USB.
2. The wing will automatically be paired to a playback bar.
3. For a detailed view of playback wing mappings open the Control Panel window and select the Wings tab. (See image below).
4. To un-map previously paired wings press the red X button to the right of the wing mapping.



5. To show / hide a playback bar on the desktop, toggle it's button in the Control Panel. Playback Bars can also be shown / hidden on the desktop by holding the Pig key and pressing the number on the numeric keypad that coordinates with the playback bar. For example, to show / hide Playback bar 1 press and hold the Pig key and then press the 1 key on the numeric keypad.

Notes:

The Full Boar 4's DVI-D monitor output connections do not support analog output to VGA.

For wings with a display, connect the DVI or VGA port on the back of the wing to one of the Console's display outputs. An adapter may be required.

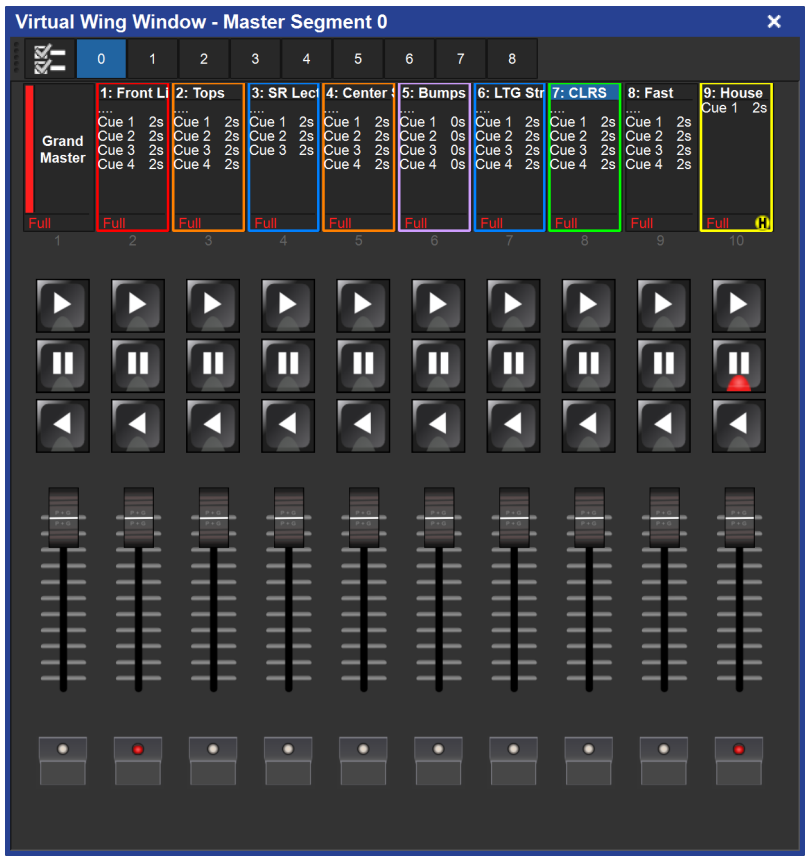
3.8 Virtual Playback Wings

To display a Virtual Wing Window on the console:

1. Press and hold the touchscreen to bring up the menu window.
2. Press the **Virtual Wing** button in the menu window.
3. Use the jump toolbar at the top of the Virtual Wing Window to view the associated playback bar in the Virtual Wing Window.
4. To adjust how the physical controls are displayed in the Virtual Wing Window click on the button. Virtual Wing window configuration settings are stored per window and are stored and recalled in views.

Alternatively, Hold the **Open** key and select **Virtual Wing** from the main toolbar.

The Virtual Wing Window



3.9 High End Systems USB DMX Widgets

The High End Systems USB DMX Widgets listed in the table below are supported by all Hog OS Consoles, and Hog PC



Single Widget (1 Universe)



Super Widget (4 Universes)



Super Duper Widget (8 Universes)

High End Systems USB DMX widgets can be mapped to any of the DMX universes being processed by the hardware platform it is connected to.

The table below shows the number of DMX universes processed by each hardware device. Multiple widgets can be connected and mapped to these DMX universes.

More platform capacities can be found in the respective technical specifications pages

Hardware Platform	DMX Processing Capability
Tour Hog	64 Universes
Stage Hog	64 Universes
Flex Hog	64 Universes
Gig Hog	12 Universes
HPU	64 Universes
Hog 4-18	16 Universes
Hog 4	16 Universes
Full Boar 4	12 Universes
Hog PC	12 Universes
Road Hog 4	8 Universes
HedgeHog 4X	6 Universes
HedgeHog 4, 4N, 4S	4 Universes

Mapping a High End Systems USB DMX widget to a universe provides two benefits:

1. Physical 5-pin DMX output for the universe
2. Unlocks Art-Net & sACN output for the universe (Hog PC Only)

To connect and map a High End Systems Widget:

1. Connect the DMX widget via USB to a Hog Console, Windows PC, or Processor.
2. Start a new show or launch an existing show on the console.
3. **Setup** → **Network**; opens the Network window.
4. Click on the processor to which the DMX widget is attached. (this is most likely DMX Processor #1)
5. Press the **Settings** button at the top of the network window to open the processor settings window.
6. Select the **Output** pane of the processor Settings window.
7. Press the **Add Mapping(s)** button to create a new universe mapping on the processor.
8. Use pop up window to specify a universe range and enable the Widget option. Click **OK**.
9. A new widget mapping will be added to the processor. The destination cell displays the DMX widget type and ID. The port cell displays the widget's physical DMX port.
10. Click **OK** or **APPLY** to confirm the mapping. All of the widget's status LEDs except for "RX Mode" should now be illuminated and the widget should be outputting DMX.

3.9.1 High End Systems DMX Widget Status LEDs

LED	Status
TX Mode	Indicates widget is transmitting DMX
RX Mode	(Not implemented)
DMX OK	Indicates widget is outputting DMX Slow flash indicates loss of connection to processor and transmitting DMX at 2 HZ
Active	Indicates widget is mapped and connected to an active DP
Link	Widget has loaded its firmware

3.10 ETC Gadget II

The following ETC output devices are supported by Hog OS Consoles and Hog PC:

Device Name	ETC Part Number
Gadget II	4267A1004
Gadget II v2	4267A1104

The ETC Gadget II is a two port DMX output device that can be mapped to universes that are licensed for processing by the console or PC to which it is connected.

To connect and map an ETC Gadget II for DMX output:

1. Connect the Gadget II via USB to the console or PC. If using Hog PC then an ETCnomad key is also required for output.
2. Start a new show or launch an existing show file.
3. Open the Network window (**Setup** → **Network**)
4. Click on one of the processors listed in the network window and press the settings button to open the Processor Settings window.
5. Select the “Outputs” tab in the processor Settings window.
6. Press the Add Mapping button.
7. Use the pop up dialogue to specify a universe range and select the Widget type option. Click OK to confirm.
8. A new widget mapping will be added to the processor. The destination cell displays the Gadget type and ID. The port cell displays the Gadget's physical DMX port.

   Hog PC: A yellow ! icon in the license priority column for a Gadget II mapping indicates an ETCnomad key is not found and the Gadget II will not output.

9. Click OK or APPLY to confirm the mapping. The Gadget II's status LEDs should now be flashing green.

3.10.1 Gadget II Refresh Rates

Gadget II outputs DMX at the refresh rates listed in the table below when operated with Hog OS consoles and Hog PC.

Processor Refresh Rate	Gadget II Output	Gadget II v2 Output
10 < 25 Hz	19 Hz	44 Hz
26 < 29 Hz	27 Hz	44 Hz
30 < 35 Hz	34 Hz	44 Hz
36 < 40 Hz	40 Hz	44 Hz

3.10.2 Gadget II Status LED

LED	Status
Solid Red	Device is Enumerating USB
Solid Green	USB is Enumerated / Firmware OK
Blinking green	Receiving commands from the USB Host
Slow Blinking Red	awaiting firmware from host computer
Rapid Blinking Red	loading firmware from host computer

3.10.3 Gadget II Firmware

Gadget II firmware cannot be updated using a Hog console or Hog PC. Please use Eos software to manage firmware on ETC Gadget II devices.

3.11 Hog PC with ETCnomad Key

An ETCnomad Key is small USB device that unlocks the following features when attached to a computer running Hog PC:

- Universes mapped to the local processor are licensed for output up to the key's maximum parameter count
- OSC and Midi input for Encoders and Faders are enabled in Hog PC

Note: Only one ETCnomad Key can be plugged into the computer at one time. Stacking keys is not supported.

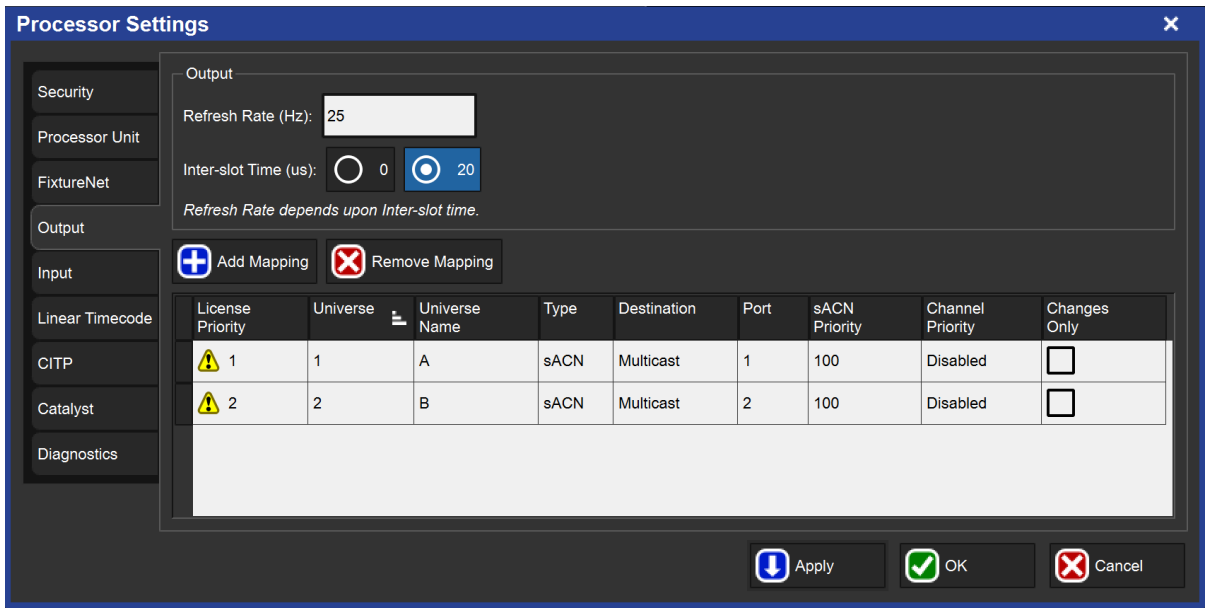
Note: ETCnomad keys currently do not add functionality to consoles.

3.12 Processor Output Map

A processor's output map indicates which of the universes patched in the fixture window will be output from the processor. Each row in the output mapping table indicates the mapping of a specific universe to an output. There is no limit on the number of entries a processor map can hold but the number of universes that a physical processor will actually output depends on its license. See the table listed in section 3.7 for the number of universes licensed by each Hog 4 family hardware device.

To access the Output Map of a processor:

1. Open the network window by pressing: **Setup** → **Network**
2. Select a processor in the network window.
3. Press the **Settings** button at the top of the network window to open the settings window for the selected processor.
4. Select the **Output** tab of the **Processor Settings** window.



Listed below is a description of what each column in the output mapping table represents:

- **License Priority**: If the number of universe mapping exceeds the number of universe that the processor is licensed for then the License Priority field can be used to prioritize which universe entries will be output by the processor.
- **Universe**: Indicates which universe to output; please note this refers to a universe established in the fixture patch; this is not a reference to an Art-Net or sACN universe.
- **Universe Name**: Indicates the name that has been applied to the Hog Universe (can also be changed via the fixture window)
- **Type**: Indicates the output protocol used for the mapping entry (DMX, Art-Net, or sACN)

- **Destination**: Varies based on the mapping entry's protocol, as reference in the Type column.
  - For DMX mapping entries the destination indicates which physical device the data will be sent to.
  - For Art-Net and sACN mapping entries the destination field indicates how the data will be sent (Unicast, Multicast, or Broadcast) and the destination IP address.
- **Port**: Varies based on the mapping entry's protocol, as reference in the Type column.
  - For DMX mapping entries the port indicates the physical port on the destination device the data will be output from.
  - For Art-Net mapping entries the port indicates the Art-Net Universe the data will be sent on.
  - For sACN mapping entries the port indicates the sACN Universe the data will be sent on.
- **sACN Priority**: The priority at which the sACN Universe will be sent.
- **Channel Priority**: Allows the operator to enable and configure per channel priorities when the mapping entry type is sACN
- **Changes Only**: When enabled, this option will temporarily lower the refresh rate of the output if there aren't any DMX value changes happening on the Universe.

For detailed information on how to add new output map entries for DMX Devices, Art-Net, and sACN please refer to the following topics:

Configuring Art-Net Output

Configuring E1.31(sACN) Output

High End Systems USB DMX Widgets

ETC Gadget II

3.13 Dashboards

The Tour Hog and Stage Hog consoles are equipped with two 12.3” front panel displays. The right display functions as the Programmer Dashboard and the left display functions as the Playback Dashboard. These dashboards allow operators to design and execute in parallel without cluttering the main interface with high-frequency operations.

While the dashboards feature a dynamic user interface, they are not fully customizable like traditional Hog OS application windows. Here are some examples of how they differ from traditional displays:

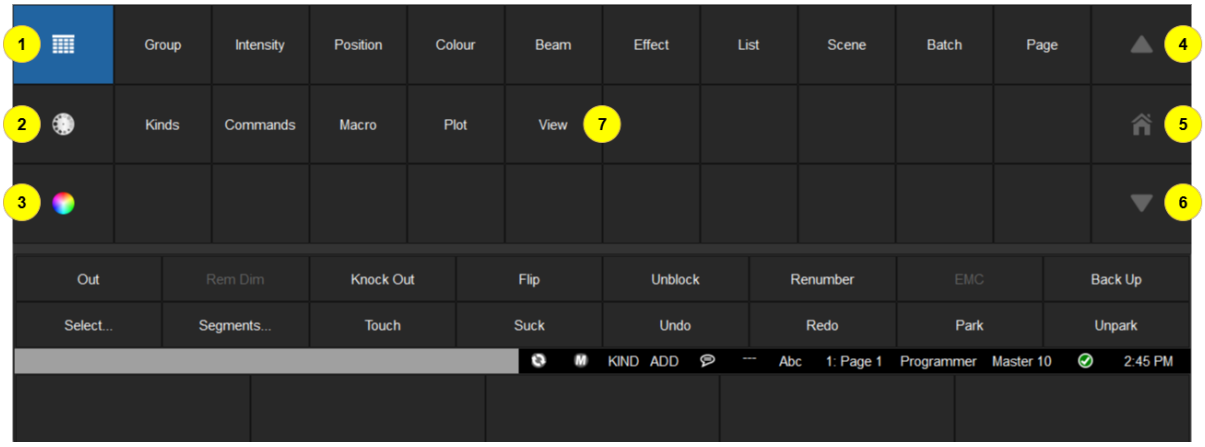
- Windows cannot be opened, resized, or fronted on the dashboards.
- The state of the dashboard user interface is not affected by the recording or recalling of views
- The mouse cursor does not travel onto the dashboard displays.

These may seem like undesired limitations, but they are intentional traits that allow the dashboards to operate as extensions of the front panel, not as auxiliary monitors. Replacing complex windowing, cursor interaction with the dashboards provide a focused, tactile workflow that is easy to learn and quick to navigate.

3.13.1 Programmer Dashboard

The Programmer Dashboard provides access to the encoder wheel attributes, select / edit buttons, directories, slotted fixture media, and color mixing tools.

The top section of the programmer dashboard features a grid of 36 buttons. The far left and far right columns act as persisted controls which manipulate what is shown on the inner 30 buttons.



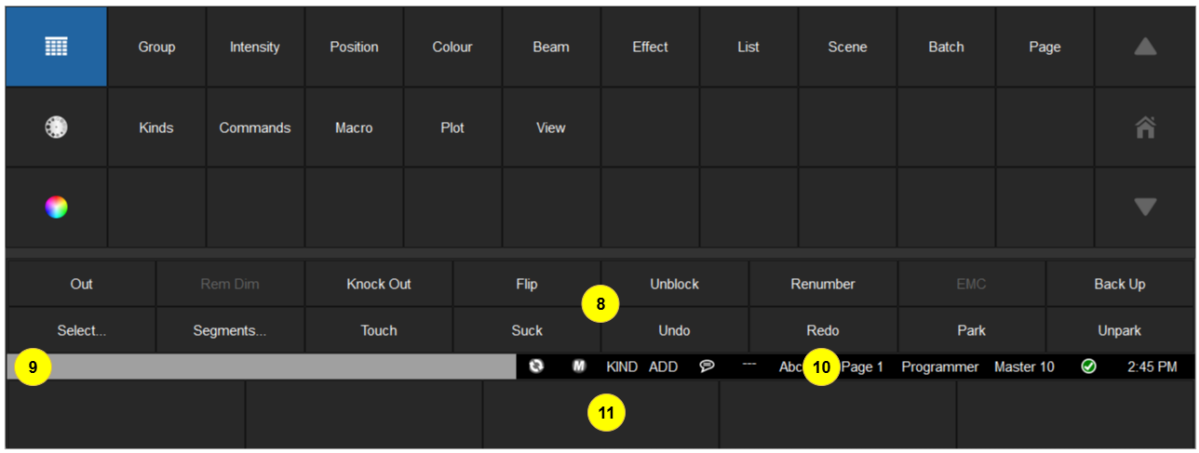
1. **Directories** - changes grid to access show item directories (palettes, groups, etc.)
2. **Media** - changes grid to select slotted functions based on the current fixture selection.
3. **Color** - changes grid to allow access to color mixing tools (Color picker, Tinting tools, Gel books.)
4. **Up Arrow** - scrolls the grid contents up 30 cells at a time.
5. **Home** - scrolls the grid contents to the top.
6. **Scroll Down** - scrolls the grid contents down 30 cells at a time.
7. **Dynamic grid** - displays the controls and or content determined by the menu selection.

When the dynamic grid set is to directories, the following tasks are supported:

- **Select** - press on cell; always acts as un-guarded.
- **Open** - hold open and press on cell.
- **Delete** - hold delete and press on cell.
- **Record** - press record key, then press on cell.
- **Record over existing directory items** - always replaces existing; user not given options.
- **Merge** - press merge key, then press directory cell.
- **Move** - press on source cell, press move key, press on destination cell.
- **Rename** - hold set key and press on cell; a pop-up quick name dialogue on dashboard.

> Tip: Pressing on the Directory, Media, or Color buttons once will recall those controls / content where it was last configured. Pressing the button a second time will revert that set of controls to its top-level menu.

The bottom section of the programmer dashboard features design toolbar elements that are consistent with the same onscreen controls available in the main user interface of Hog OS.



8. Button grid - provides traditional button menus for select, open, delete, record, merge, and setup.
9. Command line
10. Status bar
11. Encoder wheel Display,

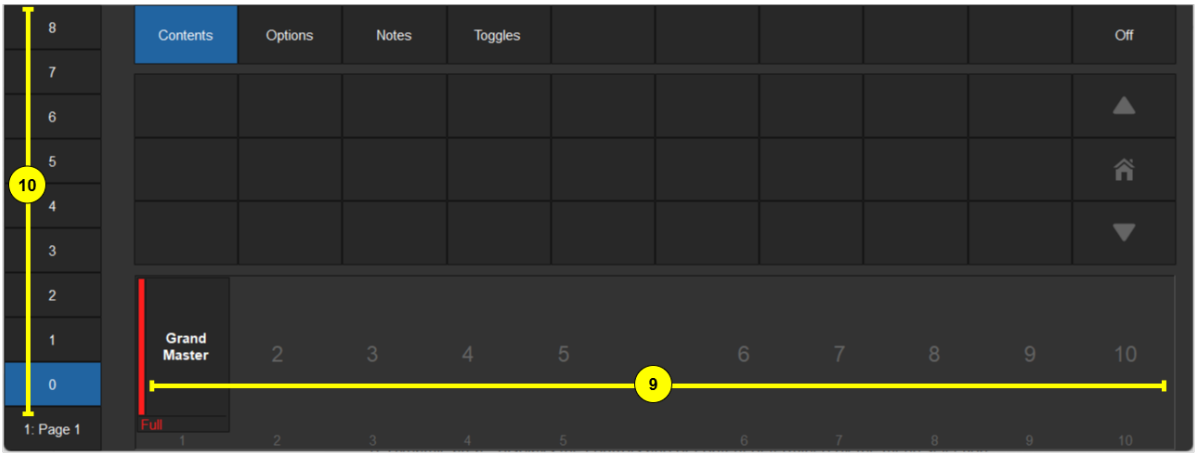
3.13.2 Playback Dashboard

The Playback Dashboard provides access to…

The top section of the playback dashboard features a dynamic user interface that changes based on the selected menu item at the top of the playback dashboard.



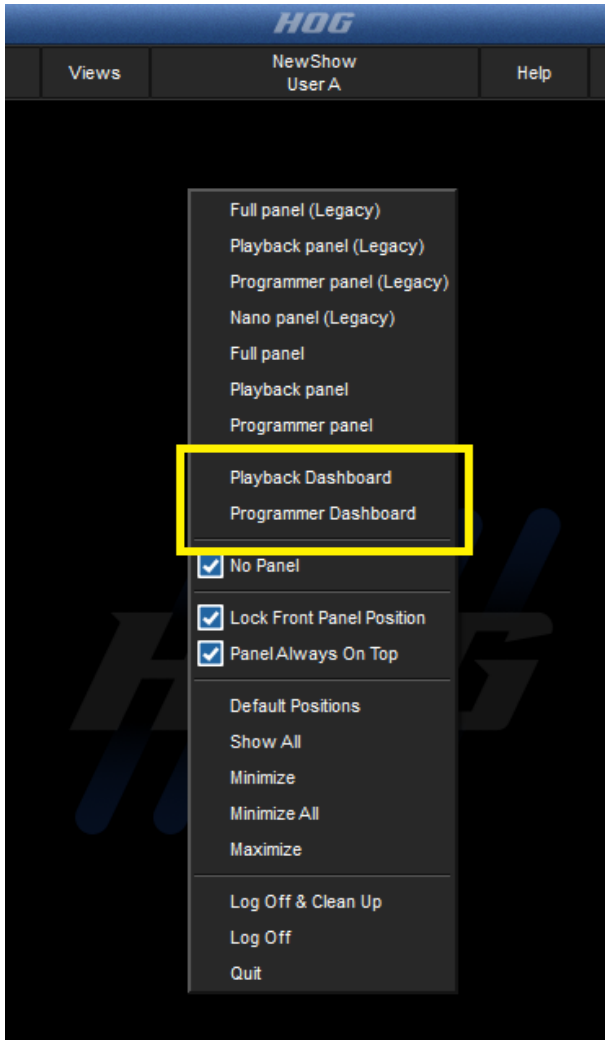
1. Contents - changes grid to show the content of the chosen master; press on a cell in contents mode always acts as un-guarded execute command
2. Options - changes grid to show a subset of the options for the chosen master
3. Notes - changes grid to show the notes for the chosen master
4. Toggles - changes grid to show all the scenes set to toggle
5. Up Arrow - scrolls the grid contents up 30 cells at a time
6. Home - scrolls the grid contents to the top
7. Scroll Down - scrolls the grid contents down 30 cells at a time
8. Dynamic area - displays the controls and or content determined by the menu selection



9. At the bottom the playback dashboard is an interactive display for playback bar 0 which is always connected to the console's front panel hardware controls.
10. The left-hand section of the playback dashboard is a column of buttons that allows the operator to directly select which master segment the console front panel is controlling. The last button at the bottom of the button column displays the current page number and name. Pressing on this cell opens the page directory window on the main console displays. For more on master segments see Section 17 of this help manual.

3.13.3 Accessing Dashboards on Hog PC

The playback and programmer dashboards can be used in Hog PC by right clicking in the main parent window and toggling on / off the dashboards using the context menu that appears.



To size the dashboards to a 1:1 ratio so that they match the same dimensions of the Tour Hog and Stage Hog console toggle Hog PC into ABC mode and then press Ctrl + Shift + F12 on the keyboard.

4. Shows

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4.1 Launch a New Show

To launch a new show:

1. Press the **Launch New Show** button in the start window.
2. Use the browser window to select the directory where you wish to store the show, give it a name, and then press the finish button.
3. Congratulations! You are now running a new show file.

TIP: If the launch new show button is greyed out or unavailable make sure that the "run server" option is checked in the start screen's settings window. If "run server" is checked but the new show button is still greyed out then it's possible another console is running a show on the same port on the network.

4.2 Launch an Existing Show

To launch an existing show press the **Launch Existing Show** button in the start window to launch the last launched show file. Alternatively you can press the **Browse** button to select from existing shows on your console's hard drive, a USB flash drive, or a CD. Show files with a icon are "ready to launch" existing show files. Show files that have a icon are archived show files and will need to be extracted to the hard drive in order to load. The un-archiving process is done automatically by the console but will slightly lengthen the amount of time needed to launch the show.

4.3 Connect to a Network Show

To connect to a show already running on the network look at the "connect to show" section of the start window. If a show is running on the network and on the same port number then it's file name will show up on the button. Pressing the button will connect the console to that show.

If "No Show found" is displayed on the button then it's possible your network settings may need to be reconfigured in order to connect to a network show. First check the following :

- Make sure your console is set to the same port number as the server console on the network.
- Check that your console's IP address settings are correct for that particular network setup.

4.4 Change Currently Loaded Show

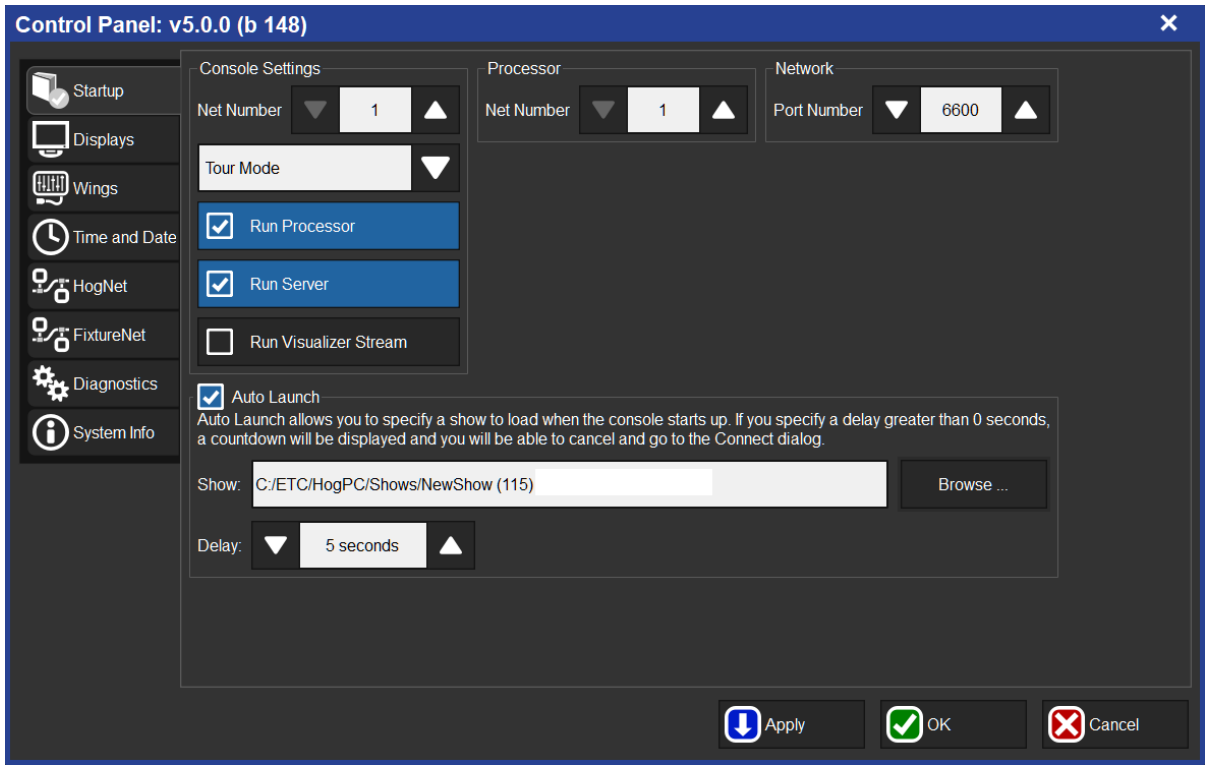
If you are logged into a show but want to change to a different show:

1. **Setup** → **Quit**
2. Select **Log Off.**
3. In the Start window, either launch a new show or browse to launch an existing show.

4.5 Auto Launch a Show at Startup

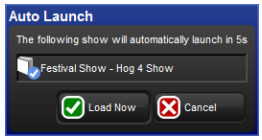
You can assign the Hog OS to automatically launch an existing show file at startup:

1. **Setup** → **Control Panel** → **Startup**
2. Select **Enable Auto Launch**.
3. Choose a show file you wish to auto-launch.
4. Assign a delay time which will determine how long the console will wait before the show is automatically launched.



At start up, a pop-up window will tell you that the show will be launched automatically after the assigned delay as seen in the window below. Click **Load Now** to ignore the remaining delay and launch the show immediately. Click **Cancel** to return to the Start window. If you specified a delay of 0 seconds, the delay window will not be displayed.

Auto Launch Window



4.6 Managing Show Data

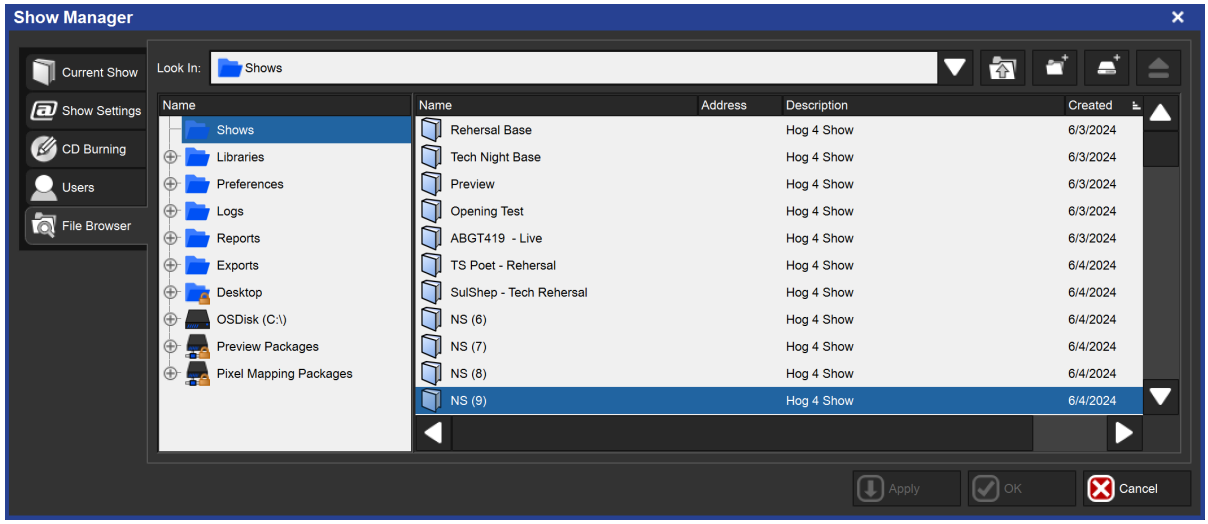
All show data is stored on the internal hard disk of the console. Show files and folders are stored in the Shows folder while libraries are stored in the Libraries folder.

As you edit your show file all of your changes are immediately saved to the console's internal hard disk. In the event of power failure the Hog OS will have already saved the show data to disk so that none of your work is lost.

You can use the **Show Manager** to backup your current show file, check the integrity of your current show file's data, or to move, copy, and delete existing shows files. Please note that the currently loaded show file cannot be deleted or renamed.

To open the Show Manager:

- **Setup** → **Shows**



4.6.1 Recovering Show Files from a console that won't boot

In the rare even that the console will not boot into the Hog OS, the show files stored on the console's hard drive can be recovered and copied to an external USB flash drive using the following procedure:

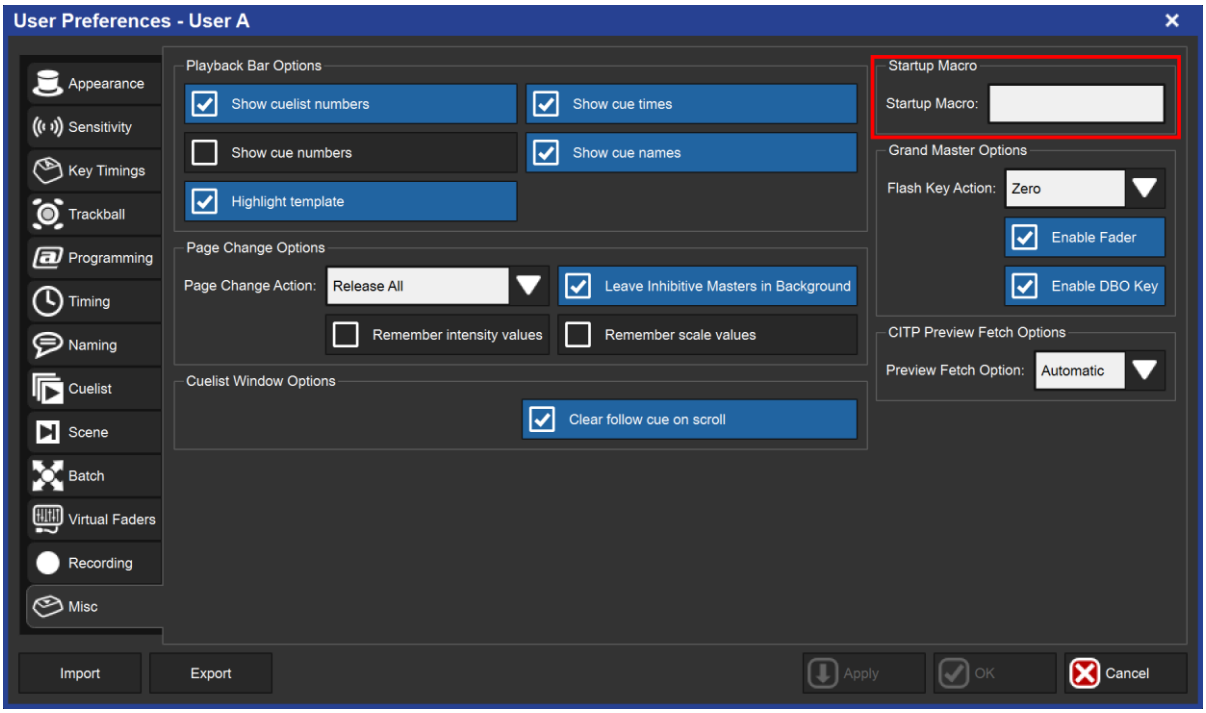
1. Power off the console.
2. Connect an external USB keyboard to the console. (Use internal for Hog 4)
3. Power on the console.
4. Press the ESC key on the keyboard once the BIOS splash screen (High End Systems Logo) has passed.
5. Select Show Recovery using the arrow keys on the keyboard and press enter.
6. Follow the on screen instructions.

4.7 Startup Comment Macros

You can assign comment macros to be executed when a show file is launched. Comment macros can be used to automate a variety of tasks such as recalling views or changing pages. Startup comment macros are assigned in the Misc pane of the **User Preferences** window:

- **Setup → Preferences → Misc**

Macro entry box in User Preferences.



For details of the macro syntax, see Macros.

Tip: Startup macros only execute when the show file is initially launched. Any consoles joining a network show will not execute the startup macro.

4.8 Backing Up Your Show

It is recommended that you backup your show file regularly by saving a compressed copy of your show file on the console's hard disk or on a USB Flash Drive. Backup files are small in size and are also easy to transfer from one console to another. Compressed backups provide a method for reverting to older archives of your show file should a major problem occur with your show file.

Use the following steps to make a compressed show file backup:

1. **Setup** → **Shows** → **Current Show**
2. Click **Backup**.
3. Browse to a location on the hard drive or an external disk to save the backup file.
4. Click **OK**. A compressed copy of your show will be saved with '_bck' appended to its file name.

During the back-up (archive) process the console checks for errors in the show file archive. If errors are found the backup will fail and a dialogue with further instructions on how to remedy the issue will appear. Follow the instructions and try performing another backup. If failures continue please **contact support** for further assistance.

> Tip: You should backup your show files to external media regularly so that if something catastrophic happens to you console or internal hard drive you can still access the backups.

The Hog 4, Hog 4-18, and Full Boar 4 consoles also feature a quick backup button on the bottom right hand side of the right screen's main toolbar. Clicking on the "backup" button will quickly generate a backup of your show file in the shows directory using your show file's name. If other backups with the same name exist in the shows directory the console will automatically append the new backup file with a number.

4.9 Optimizing Show Files

When working with show files originally created with older versions of the Hog OS or Hog 3 OS it is sometimes beneficial to optimize the show file's data to take advantage of the latest methods used by the Hog OS to compress and store show data. Running the compress show utility can sometimes help to significantly reduce the size of a show file, improve log on/off times, speed up show backups, and/or improve network reliability.

1. **Setup** → **Shows** → **Current Show**
2. Click **compress show**.
3. The console will now scan the look data in the show (cues, palettes, scenes, etc.) and re-write the data in the show file using the most current and optimized methods utilized in the Hog OS.

4.10 User Preferences

Settings within the User Preferences window are stored per user as part of the show file. If a show has more than one user the console will prompt the operator to select a user when the show is launched. (see Users)

4.10.1 Desklight, Worklight, and Vent Light Preferences

You can individually adjust the brightness of the console's desklights, worklight, and front panel key LEDs by holding down the **Setup** key and adjusting the coordinating parameter wheel.

The vent light brightness level on the Hog 4, Full Boar 4, and Road Hog 4 consoles is controlled by a slider that is located in the **Appearance** pane of the **User Preferences** window. The vent light will turn off during periods of console inactivity as determined by the Changing the LCD Backlight Timeout setting. Similar to the desk lights, the vent light will come on at full intensity on a cold boot before you have loaded a show file.

The desklights on most of the consoles in the Hog 4 family feature both blue and white LEDs, with the exception of HedgeHog 4 which only has white led desklights. By default the desklights are white during normal activity and turn blue during periods of inactivity as determined by the LCD Backlight Timeout setting. If you prefer the desklights to always be blue, you can select **Use Blue Desklights** in the **Appearance pane** of the **User Preferences** window.

4.10.2 Touchscreen Backlight Brightness

You can adjust the brightness of each of the console's touchscreen backlights by holding down the **Setup** key and adjusting the coordinating parameter wheel.

4.10.3 Trackball and Trackball Ring Preferences

The Trackball and Trackball Ring preferences apply to all consoles that include a physical Trackball and Trackball Ring, such as the Hog 4, Hog 4-18, and Full Boar 4. These settings may also appear on other console models for convenience, ensuring compatibility when a show file is loaded onto hardware that *does* include a Trackball assembly.

The Trackball and it's outer ring have two modes:

- **Pointer Mode**: The trackball controls the on-screen pointer, like a mouse on a personal computer while the trackball ring acts as a vertical scroll wheel.
- **Position Mode**: The trackball lights up in blue and controls the position (pan and tilt) of fixtures while the trackball ring controls whichever function is assigned to it in the Trackball tab of the **User Preferences** window.

You can switch between the two modes by pressing the top right Trackball key.

To lock the Trackball to one mode:

1. **Setup** → **Preferences** → **Trackball**
2. Select **Pointer** or **Position** from the drop down menu to lock the Trackball in that mode. Select **Toggles** to restore the ability to change modes with the top right Trackball key.
3. Select **OK** to apply and close.

> Tip: Make sure you have an external mouse connected if you lock the Trackball in position mode, and you don't want to control the on screen pointer only by pressing the touchscreens.

Trackball Keys

You can configure the function of the four keys surrounding the Trackball according to the current mode (pointer or position). For example, in pointer mode you can have Right Click, Left Click, Flip and Ball Mode mapped while in position mode you could have Flip, Next, Ortho Toggle and Ball Mode mapped. The Trackball keys are assigned in the **Track Ball** pane of the **User Preferences** window.

The Track Ball pane of the User Preferences window



The following navigation functions are available:

- **Ball Mode**: switches the Trackball between position and pointer modes.
- **Ortho Toggle**: switches the Trackball between Ortho and Normal. When in position mode, with ortho on, the Trackball will only control pan or tilt, not both at the same time. This can be useful for accurately setting fixtures.
- **Right Click**: the same as a right-click with the mouse. This is usually used to bring up a contextual menu with commands such as copy and paste.
- **Left Click**: the same as left-click with the mouse.
- **Open**: mimics the open button on the front panel
- **Set**: the same as the **Set** key, but closer to the Trackball for quick cell editing. (not compatible with trackball POS mode)
- **Close Window**: closes the active window.
- **Toggle Kind Keys/Cmd keys**: toggles the function keys between kind mode and command key mode.

In addition, the following fixture and playback functions are available:

- **Next**: sub-selects the next fixture in the current selection. See Sub Selections.
- **Back**: sub-selects the previous fixture in the current selection. See Sub Selections.
- **Select All:** selects all the fixtures currently in the Programmer. See Select All.
- **Flip**: changes the pan and tilt of a moving head fixture to point at the same position on the stage, but from the other end of its movement range. See Flip.
- **Fade Changes**: toggles the state of the Fade Changes button in the active editor. See Fade Changes.
- **Next Page**: advances to the next page in the page directory. See Changing Page.
- **Out**: assigns the current selection's intensity to zero; see Intensity.

The default settings for the Trackball keys are:

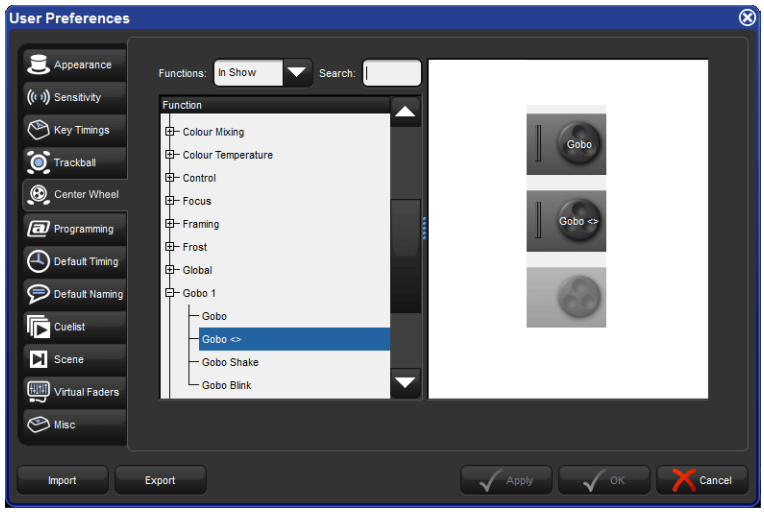
Trackball Key	Pointer Mode	Position Mode
top left	Func. Key Mode	Func Keys Mode
top right	ball mode	ball mode
bottom left	left click	next
bottom right	right click	flip

4.10.4 Center Wheel Preferences

The Center Wheel preferences apply only to consoles equipped with a physical Center Wheel, specifically the Hog 4 and Hog 4-18. These options may still appear on other console models to maintain show-file compatibility when loading onto hardware that includes a Center Wheel.

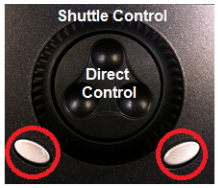
The assignment of fixture functions to the Center Wheel is managed in the **Center Wheel** pane of the **User Preferences** window. You can assign any number of functions by dragging them from the list on the left side of the window to the Center Wheel display on the right.

To remove a function from the Center Wheel, select it in the right-hand pane (it will highlight in blue), then press the **Delete** key on the console front panel.



When a fixture selection is made functions assigned to the center wheel will be displayed on the toolbar located at the bottom of the front panel's center display. Functions that you've assigned to the center wheel will only be displayed if they are valid for your current fixture selection.

To cycle the center wheel through the functions press the button to the bottom right of the center wheel. The action of the button to the bottom left of the center wheel is determined by the Encoder Wheel Options preference (see Encoder Wheel Button Options). The inner part of the center wheel acts exactly like the main encoder wheels on the desk. The outer spring loaded ring of the center wheel acts more like a shuttle whereby a move in either direction will initialize a value change at a fixed rate. The more you turn the ring the higher rate of change will occur.



4.10.5 Encoder Wheel Button Options

You can adjust the action that occurs when pressing the grey encoder wheel button (located to bottom left of each encoder wheel) in the Programming pane of the User Preferences window:

Setting	Function
Fine Mode (default)	makes encoder wheel adjustments more refined (same as holding pig key) when encoder wheel button is held down
Cycle Feature Mode	changes the feature mode of the function assigned to the encoder wheel when the encoder wheel button is pressed
Set	opens a direct entry dialogue box for the encoder wheel when button is pressed (similar to holding set and turning encoder wheel)
Max/Min	sets wheel to max value when button is pressed first time; sets wheel to minimum value when pressed second time
Neg/Pos	sets wheel to negative value when button is pressed first time; sets wheel back to positive value when pressed second time
Adjust by One	increments wheel by one real world value when button is pressed (decreases wheel value by one when holding pig and pressing button)

4.10.6 Keys and Button Preferences

You can adjust various key timings in the Key Timings pane of the User Preferences window:

Setting	Function
Key repeat delay	When you hold down a key, this is the delay before it starts to repeat.
Key repeat period	When you hold down a key, this is the time between repeats.
Key double press time	When you press a key twice within this time, the console interprets this as a double-press.

Note: these timings only apply to the physical keys on the console's front panel, and not to the on-screen buttons.

Tip: Double-pressing a key is often a shortcut way of opening the window associated with the key; for example, double pressing the **Beam** key will open the Bean directory window. If you prefer not to use the double-press shortcuts, then assign the double-press time to zero to disable it.

4.10.7 U Keys

U Keys (user keys) are user assignable software keys located in the programming section of the Tour Hog, Stage Hog, Flex Hog, and Gig Hog front panels. User Keys can be assigned to actions that an operator may want quick access to but is not otherwise provided in the standard Hog front panel layout.

To assign an item / action to a U Key:

1. **Setup** → **Preferences** → **U Keys tab**
2. Use the drop-down menus to assign Item / Action pairings to the U Keys

The modifiers are available:

Setting	Function
Standard Assignment	Action when a U key without modifiers held
Double Press Assignment	Action when a U key is double pressed without modifiers held
Pig Key Held Assignment	Action when Pig key is held and U key is pressed
Open Key Held Assignment	Action when Open key is held and U key is pressed

Example: if U1 is assigned to **Cursor Right** as a standard assignment then pressing the U1 Key will act as cursor right.

The list of assignable commands

Command	Function
Backup	Runs the backup show command
Chat	Opens the Chat Window
Cursor Down	Key Command, equivalent to pressing the Down Cursor button
Cursor Left	Key Command, equivalent to pressing the Left Cursor button
Cursor Right	Key Command, equivalent to pressing the Right Cursor button
Cursor Up	Key Command, equivalent to pressing the Up Cursor button
Effect Size +5	Increases the base effect size of the chosen master by 5%
Effect Size -5	Decreases the base effect size of the chosen master by 5%
Effect Size Reset	Resets the base effect size of the chosen master
Effect Rate +5	Increases the base effect rate of the chosen master by 5 bpm
Effect Rate -5	Decreases the base effect rate of the chosen master by 5 bpm
Effect Rate Reset	Resets the base effect rate of the chosen master
Flip	Flip Pan / Tilt values.
Help	Opens the Help Window
Intensity Bump +	Increment the Intensity
Intensity Bump -	Decrement the Intensity
Invert	Modify the selection set
Knock Out	Remove fixture from current editor
Lock Console	Lock console access, lock screen will be displayed
Network	Opens the Network Window
Page Back	Loads previous set of objects in Page Directory
Page Next	Loads next set of objects in Page Directory
Park	Locks current value on stage
Paste	Applies cut or copied content.
Programmer	Opens the Programmer Window
Redo	Re-does the command affected by Undo
Report	Opens the Report Window
Script	Opens the Script Window
Select All	Select All fixtures
Select Even	Select Even fixtures
Select Odd	Select Odd fixtures
Select Shuffle	Select a randomized group of fixtures
Unblock	Removes redundant hard parameter values
Undo	Un-does the previous command

4.10.8 Importing and Exporting Show Preferences

You can export the user preference settings as a separate file so that you can later import them into any show that you are working on. To export your user preferences:

1. **Setup** → **Preferences** : open the User Preferences window.
2. Click on the **Export** button, and select a location to save the preferences file to.

To load your preferences into the current show:

1. **Setup** → **Preferences** : open the User Preferences window.
2. Click on the **Import** button, browse to the location of your preferences files, and select a preferences file to import.

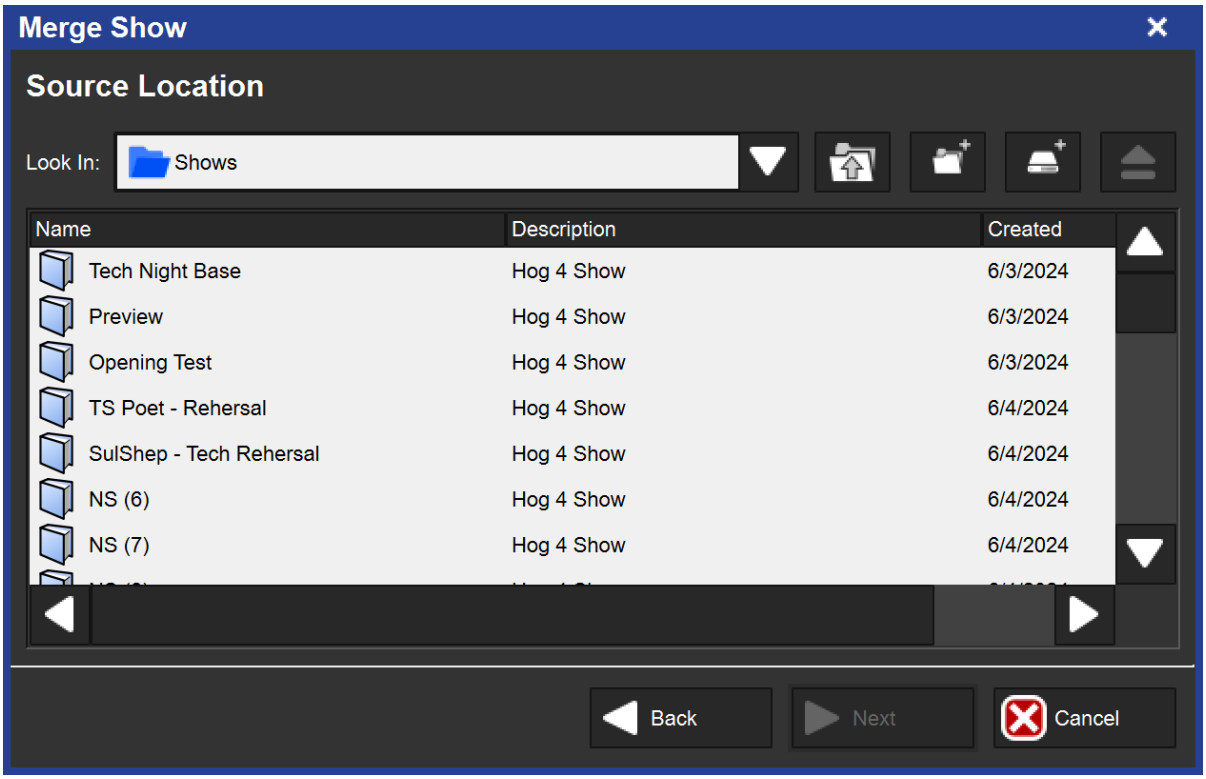
4.11 Merging Shows

Show merging allows you to take the programming from one show and merge it into another show. To merge show files you must first load the show you want to merge data into. This is known as the current show. The show you then select to merge data in from is called the source show.

To select a source show to merge in:

1. **Setup** → **Shows** → **Current Show** : opens the Current Show pane of the Show Manager.
2. Press **Merge** to be guided through the merge process. The Merge Show window will open; see image below
3. Choose a source show file. Note that if you have chosen a backup (.bck or .shw) file, it may take a few extra moments for the console to uncompress the show file and read its contents.
4. Once you have chosen a source show, you will be offered several options for data that can be merged: Fixture Types, Fixtures, and Programming (user kinds, groups, palettes, plots, cuelists, scenes, pages, macros, views, and reports).

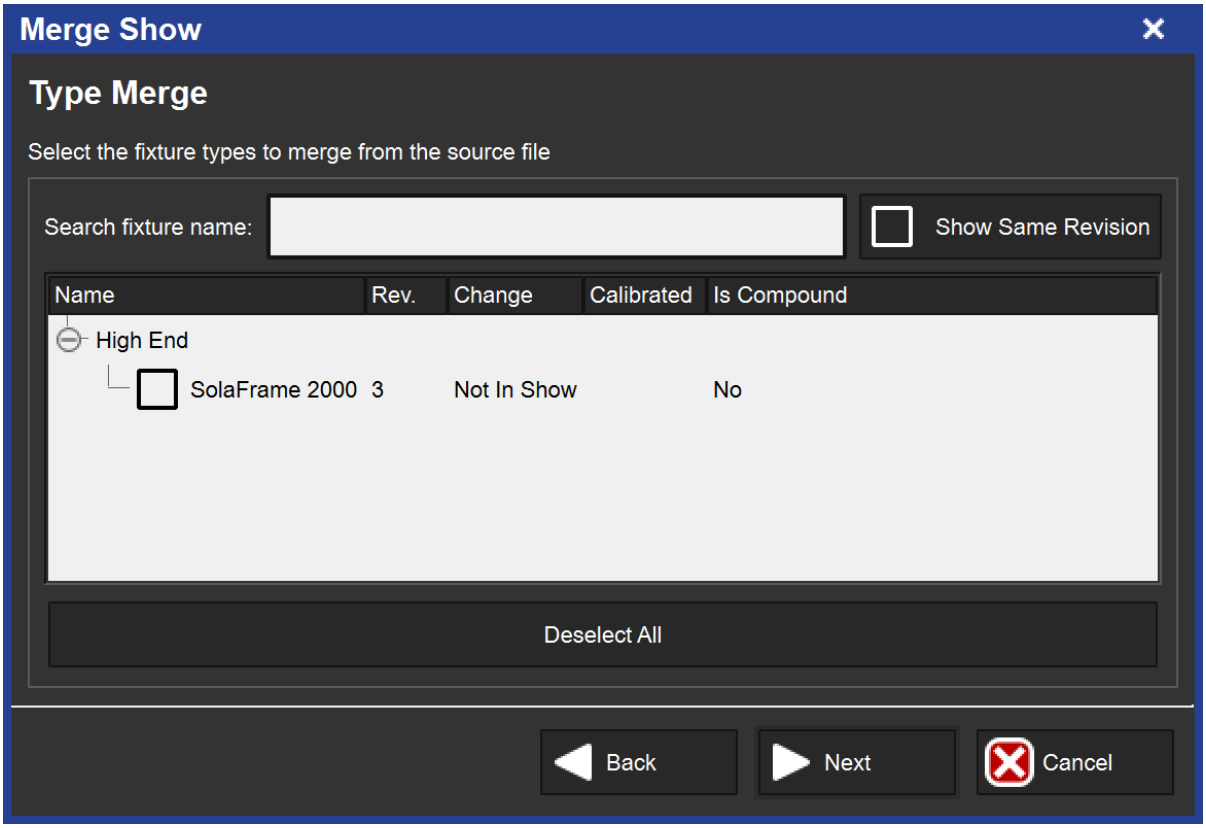
Merge Show window



4.11.1 Merging Fixture Types

Once you have selected a source show, Hog OS compares the fixture types contained within each show file and creates a list of fixture types which have changed.

The Type Merge page of the Merge Show window



An expanding tree shows the fixture types that do not match exactly and will explain what their differences are:

- **Newer**: the fixture type in the source show is a newer revision.
- **Older**: the type in the source show is an older revision.
- **Not In Show:** the type is in the source show but not the current show.

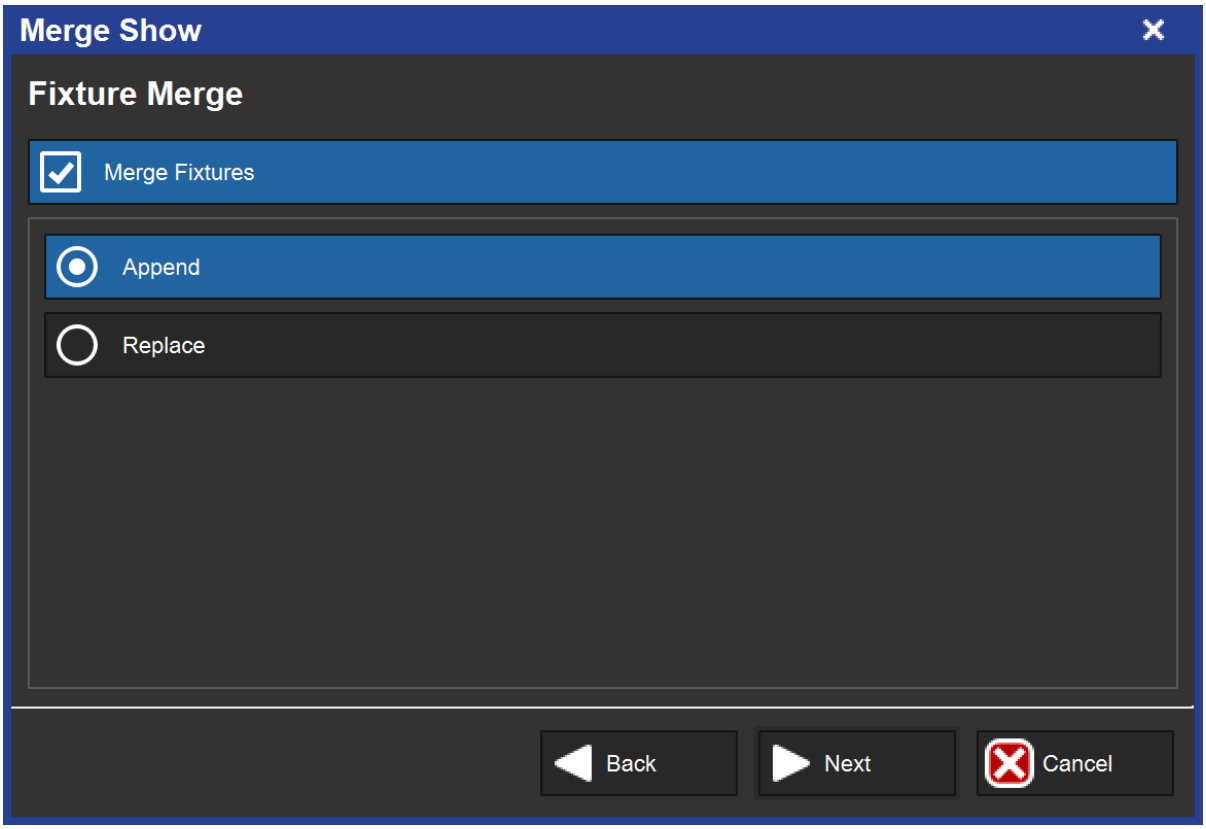
If you want to see all fixture types in the source show file even if they match the fixture types destination show, press **Show Same Revision**.

Select the fixture types to merge by clicking on their check boxes. The **Deselect All** button allows you to clear the current selection and start again. Press **Next** to continue.

4.11.2 Merging Fixtures

After choosing to merge fixture types, you can merge the fixtures used in the two shows. If you choose not to merge fixtures, you will not be able to merge any programming other than macros, views, and reports.

The Fixture Merge page of the Merge Show window



There are two options for merging fixtures:

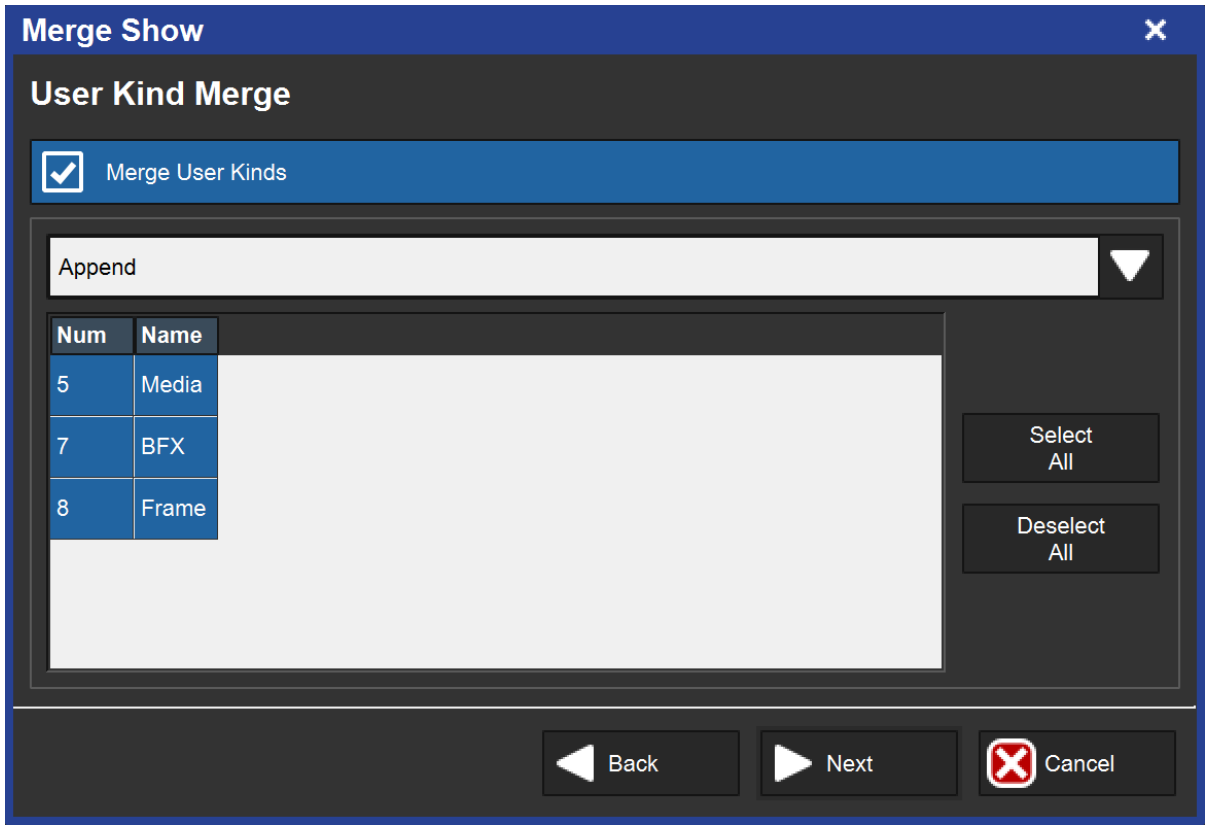
- **Append**: appending fixtures will add a copy of all of the fixtures from the source show into the current show. Any programming that is merged from the source show will use the appended fixtures and all programming in the current show will continue to use the same fixtures as before.
- **Replace**: replacing fixtures will match fixtures from the source show with fixtures in the current show using a combination of the fixture type and user number. If a match is made, the fixture in the current show is replaced with the one in the source show and all programming in the source and current show that used that fixture will use the merged fixture. If no match is made, the source fixture is appended to the current show as above.

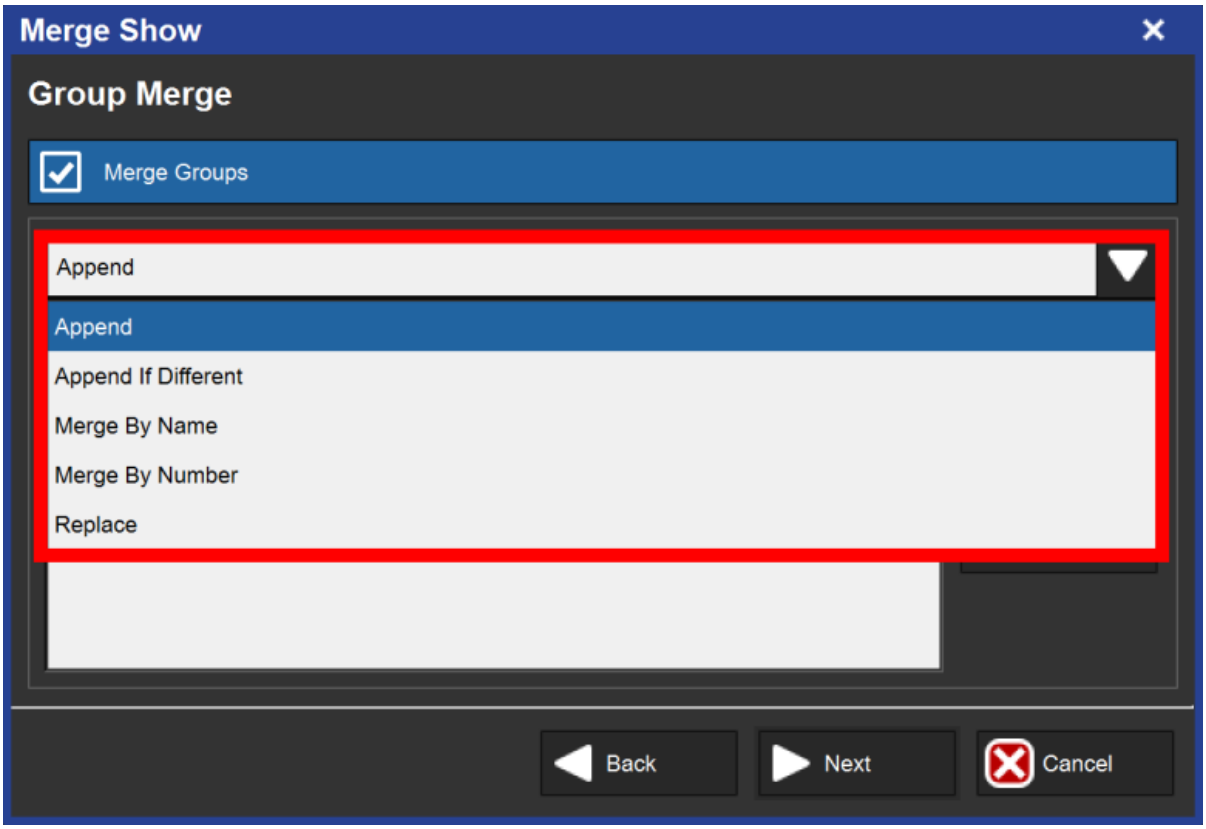
Important: If you merge fixtures and then merge programming, because both the source show and the current show are using the same fixture, any programming from the source show using that fixture will overwrite the programming in the current show.

4.11.3 Merging Programming

After merging fixtures, you can merge the programming (user kinds, groups, palettes, plots, cuelists, scenes, pages, macros, views, and reports) from the source show. As shown below.

The Kind Merge page of the Merge Show window





When merging programming the following merge methods are available from the drop down menu in the **Merge** field:

- **Append**: appends all of the programming from the source show to the current show.
- **Append Different**: appends programming from the source show if programming of the same type and name cannot be found in the current show.
- **Merge By Name**: merges source show programming into the current show when programming objects of the same type and name cannot be found in the current show; if programming objects of the same type and name already exists in the current show then the source show programming is not merged in.
- **Merge By Number**: merges source show programming into the current show when programming objects of the same type and number cannot be found in the current show; if programming objects of the same type and number already exists in the current show then the source show programming is not merged in.
- **Replace**: replaces current show programming with source show programming when programming object numbers match; appends source show programming objects that do match current show programming objects.

After selecting the merge method, you can select which programming objects to merge by clicking on each item displayed in the window. Items highlighted in blue are selected for merging.

Tip: You cannot replace palettes in the current show because you could replace a palette with one that doesn't contain programming for fixture parameters that other programming expects it to have.

4.11.4 Dependencies

In order to merge certain parts of a show, you must have chosen to merge other parts:

- To merge groups, you must have merged fixtures.
- To merge palettes, you must have merged fixtures.
- To merge cuelists and cues, you must have merged fixtures and palettes.
- To merge scenes, you must have merged fixtures and palettes.
- To merge batches, you must have merged fixtures, groups, palettes, cuelists, and scenes.
- To merge pages, you must have merged fixtures, cuelists, and scenes.
- To merge plots, you must have merged fixtures.

4.11.5 How Patching is handled when merging shows

When performing a show merge the console will automatically do the following:

- Fixtures appended to the current show file will maintain their patch information unless their patch information conflicts with patch information already used by fixtures in the current show file; in the case that patch conflicts exist then the appended fixtures will be added to the current show file without patch information.
- Fixtures in the source show file that are replacing fixtures in the current show file will use the patch information of the current show file.

To summarize: Hog OS will always protect the patch records of the current show file and will only allow appended fixtures to bring their patch records into the current show file provided that conflicts don't exist.

4.11.6 Merging Examples

Example 1: You have programmed your show on two separate consoles (perhaps one controlling moving fixtures and one controlling conventional fixtures) and you want to merge the shows for playback on one console. Each show file contains identical palette and cuelist structures, but they just control their own fixtures.

In this case, Append fixtures and Merge By Name for all programming.

Example 2: You have two shows programmed using the same rig, which you now want to merge. Each show contains exactly the same fixtures.

In this case, Replace fixtures, and Append Different all of the programming (assuming all of the programming has unique names).

4.12 Show Import and Export

The Show Import and Export functionality allows Hog show files to be exported as specially formatted XML data that can be imported into a new show.

Using this feature requires the operator to agree to the terms and conditions of this software feature.

FILE DATA IMPORT DISCLAIMER

High End Systems, Inc., and ETC Inc. (collectively, “ETC”) have been requested to import your show file data (the “Data”) from a prior version of the Hog operating system to a newer version of the Hog operating system (the “Services”). The Services are being provided by ETC at no charge to you and with no guarantee of accuracy or performance.

DISCLAIMER OF WARRANTIES. YOU AGREE THAT THE SERVICES ARE BEING PROVIDED BY ETC “AS IS, WHERE IS” AND WITH ALL FAULTS AND ETC EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY WHATSOEVER WITH RESPECT TO THE SERVICES INCLUDING ANY (A) WARRANTY OF MERCHANTABILITY; (B) WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; (C) WARRANTY OF TITLE; OR (D) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY, WHETHER ARISING BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE, OTHER OTHERWISE. YOU ACKNOWLEDGE, BY CLICKING THE “I ACCEPT” BUTTON BELOW, THAT YOU HAVE NOT RELIED ON ANY REPRESENTATION OR WARRANTY MADE BY ETC OR ANY OTHER PERSON ON ETC’S BEHALF. WITHOUT LIMITING THE FOREGOING, ETC MAKES NO WARRANTY OF ANY KIND THAT THE SERVICES, OR THE COMBINATION OF THE DATA WITH THE HOG OPERATING SYSTEM, WILL MEET YOUR OR ANY OTHER PERSON’S REQUIREMENTS, OPERATE WITHOUT INTERRUPTION, ACHIEVE ANY INTENDED RESULT, BE COMPATIBLE WITH OR WORK WITH ANY SOFTWARE, SYSTEMS, OR OTHER SERVICES, OR BE SECURE, ACCURATE, COMPLETE, FREE OF HARMFUL CODE OR ERROR FREE.

You, and not ETC, are solely responsible for reviewing the Data imported as part of the Services to confirm the accuracy, operability, compatibility, and completeness of the Data after the Services have been completed.

4.12.1 Exporting Show Data

Use the following procedure to export show data to an XML file.

1. **Setup** → **Shows**: opens the Show Manager Window
2. Press the **Export Show** button in **Current Show** tab of the Show Manager window.
3. A file browser dialogue to provide a file name and destination for the export.
4. Press the **OK** button to execute the export.
5. A confirmation dialogue will appear when the export is complete.

4.12.2 Importing Show Data

Use the following procedure to import show data from a properly formatted XML file.

1. **Setup** → **Shows**: opens the Show Manager Window
2. Press the **Import Show** button in **Current Show** tab of the Show Manager window.
3. Use the **Import** file browser dialogue to choose an XML file and press **OK**
4. The console will now scan the data in the XML file. This process can take several minutes depending on how much show data contained within the XML file.
5. Once the scan is complete an **Import Show** filter will appear.
6. Use the buttons to select the data types you wish to import and then press **Next**.
7. A warning dialogue will appear containing a set of disclaimers, terms, and conditions. Please read carefully.
8. Check the box to agree to the terms and conditions, then press the **OK** button to fully execute the import.
9. Once the import is complete a confirmation dialogue will appear: **Show Import Complete**.
10. Press the **OK** button to dismiss.

4.12.3 Data Supported by Show Import / Export

The show import/export feature supports the following types of show data:

- **Fixtures** - fixture types, user created fixture types, notes and settings as shown in fixtures window
- **Fixture Patch** - fixture-to-universe patch
- **Processor Output Map** - DMX, Artnet, and sACN output settings for all processors
- **Scenes** - number, name, comment, color, macros, all options, fixture programming data
- **Cues** - number, name, color, comment, trigger, user fields, macros, fixture programming data **

- **Views** - number, name, color, comment, additive, basic child window sizes and positions
- **Batches** - number, name, color, comment, objects assigned to the batch
- **Pages** - number, name, color, comment, restore activity, macros, master assignment data
- **Plots** - number, name, color, comment, layout of fixtures, pixelmaps, shapes, background images, and show objects
- **Groups** - number, name, color, comment, assigned fixtures in selection order data
- **IPCBE Palettes** - number, name, color, comment, programming data
- **Visualizer Map** - visualizer number, IP Address, changes only, Manufacturer, Protocol
- **Kinds** - user kind number, user kind name, user kind wheelset data
- **Commands** - number, name, color, comment, action and target data
- **Preferences** - all settings as shown in the preferences window
- **Keystroke Macros** - number, name, color, comment, steps data
- **MIDI Maps** - all maps, all entries
- **MIDI Note Macros** - all entries

4.12.4 Data Not Supported by Show Import / Export

The following types of show data are not supported by the show import/export feature:

- User imported Media Picker Content
- User imported Pixel Mapping Content
- Views contain positional data only.
  - Window configuration options such as button sizes not included
  - Views that recall specific Plot windows will open blank plot windows
  - Views that are supposed to recall a specific list or scene editor will open an editor for list 1 or scene 1
- Chat history

4.12.5 Handling of Imported Show Data

The following rules and implementation details of the show import/export feature should be considered.

- If a show object is mentioned in the XML file but doesn't exist in the target show then the show object is created in the show.
- Show objects in the target show file are never deleted during import, but their existing properties may be modified.
- If the properties an imported show object reference a show object that has been filtered out from import, then the association will be ignored.
- Cues are not included in the filter options as they must be contained within a list.
- If a data type is not selected during import, then it is simply ignored during the import task.



Example: Page 1 references list 43 as an assigned property of one of its masters. If list 43 is not imported or does not otherwise exist in the destination show file then the master is left blank.

4.12.6 Show Import Errors and Solutions

Due to the complexity and variation of real-world show files, some issues may occur when utilizing the show import/export feature. Here are some ways to work around errors you might encounter.

Error: Import fails due to failure to import a fixture type

1. Load the source show file
2. Open the fixture builder
3. Ensure that all user created types can be built
4. Fix or delete any user created types that cannot build
5. Log off / on
6. Export the Show again
7. Re-attempt the import

Error: Import fails if destination show has an existing patch

Show import is not intended to merge patches between the source show file and the target show file. The process will fail if a patch incompatibility is found in the target show. Show import is only intended to import into a blank new show.

An example dialog:

Patch: Collision detected while trying to patch fixture...

Tip: In situations where the show import fails due to a footprint change with the root cause being a DMX patch record collision, the user will need to un-patch the fixtures in the source show file and re-export to XML or manually edit the XML to remove patch records for those fixtures if the original source show file is no longer available.

4.13 Importing Cuelist Data from Third Party Sources

Some third party applications are capable of exporting basic time stamp data in a format that can be imported into a Hog show file as a means to establish cue timing and naming. This section covers the supported third party applications and the procedures for managing the supported data.

4.13.1 Importing Cuelist Data from Reaper

Regions/Markers created in Reaper (a dedicated Digital Audio Workstation Application) can be exported to a csv file that can be imported into Hog show files. Importing Reaper Region/Marker data does not create, modify, delete, or alter fixture programming data in the show file. Imported Reaper data only adds/modifies non-look data such as list names, cue names, and timecode values for cues.

To export Reaper Regions and Markers to a csv file follow this procedure:

1. Ensure the Reaper project timeline is set to Hours:Minutes:Seconds:Frames (this can be set by right clicking on the timeline area of the Reaper application)
2. Open the Marker/Region Manager Window in Reaper (ctrl+alt+shft+R)
3. Look at the top right hand corner of the Marker/Region Manager Window and ensure the "marker" and "region" options are both checked
4. Right click inside the Marker/Region Manager window and select "Export regions/markers..."
5. Select an easy to access destination such as the desktop or an external USB flash drive and click OK.
6. A separate csv file will now be created in that location which can be imported into Hog OS using the import instructions provided in this chapter.

To import a Reaper region / marker CSV file into a Hog show follow this procedure:

1. List → Open : opens list directory window.
2. Press the Reaper Import button located at the top of the list directory window.
3. Select the Region/Marker csv file previously exported from Reaper and press OK.
4. If the import is successful a dialogue box will appear confirming the import is complete.
5. Press OK.
6. If non-conforming data or errors are detected the import WILL NOT complete and an error dialogue box will appear.
7. Press the details button on the error to see more information about the errors detected in the csv file.
8. Make note of the errors mentioned in the dialogue box, make the necessary adjustments in Reaper, re-export the region/marker csv file from Reaper, and then re-attempt to import into Hog OS.

How Hog OS interprets Reaper Data:

- Regions are imported as cuelists and markers are imported as cues. Therefore, markers contained within a region's timespan are interpreted as cues within a cuelist.
- If no regions are found in the csv file exported from Reaper then all markers will be imported into as a single cuelist which will be appended to the end of the list directory.
- Markers are assigned cue numbers according to their relative timecode position within a region; therefore, a marker's ID number has no correlation to the cue number it is assigned during import.
- Regions are assigned cuelist numbers according to their ID number in Reaper; therefore, a Region's ID number in Reaper and the cuelist number it is assigned during import are directly correlated.
- The import will fail if reaper project contains regions that don't have markers. Be sure to check that all the regions in the Reaper project have at least one marker within them.
- Importing Reaper data will not modify, delete, or alter fixture programming data in the show file. Importing Reaper data only adds/modifies non-look data such as cuelist and cue names and associated timecode values.

4.13.2 Importing Cuelist Data from Inqscribe

Transcript data created using Inqscribe (a dedicated transcript notation application) can be exported to a separate XML file which can be imported into Hog show files. Importing Inqscribe data does not modify, delete, or alter any existing cuelists data or fixture programming data in the show file. Importing Inqscribe data only results in a single new cuelist being appended to the show that contains the data transcribed in the Inqscribe project.

1. To export Inqscribe transcripts to an XML file follow this procedure:
2. Open the Inqscribe transcript settings window. Make sure the "inserted timecode format" is set to one of the bracketed formats (if the timecode entries in the transcript are not bracketed the import will not succeed).
3. Create a transcript in Inqscribe. Refer to How Hog OS interprets Inqscribe Data for help with creating a transcript that is compatible for Hog cuelist import.
4. Click on File, Export, and select XML.
5. Select an easy to access target destination such as the desktop or an external USB flash drive and click export. A separate XML file will now be created in that location which can be imported into Hog OS using the import instructions provided in this chapter.

To import an Inqscribe XML file into a Hog show:

1. **List** → **Open** : opens list directory window.
2. Press the **Inqscribe Import** button located at the top of the list directory window.
3. Select the XML file previously exported from Inqsribe and press **OK**.
4. If the import is successful a dialogue box will appear confirming the import is complete. Press **OK**.
5. If non-conforming data or errors are detected the import WILL NOT complete and an error dialogue box will appear. Press the details button on the error to see more information about the errors detected in the XML file. Make note of the errors mentioned in the dialogue box, make the necessary adjustments in Inqsribe, re-export the XML file from Inqscribe, and then re-attempt to import into Hog OS.

How Hog OS interprets Inqscribe Data:

- Each Inqscribe XML document is imported as a single cuelist which is appended to the end of the list directory as a new cuelist.
- It is not possible to alter existing cuelist data using the cuelist import feature with Inqscribe exported XML files.
- A bracketed timecode entry in the Inqscribe transcript is interpreted as a single cue entry with a time-code wait column value.
- Plain text following a timecode entry is interpreted as the cue name for the cue that is generated for that timecode entry.

WARNING: A plain text entry MUST follow each and every timecode entry in your transcript, otherwise the XML export from Inscribe will not conform to the Hog import standard and cue data be missing / incorrect.

Here is an example of an Inscribe Transcript that is compatible with Hog cuelist import:

[00:00:10.12] Opening

[00:00:16.08] Add US Truss

[00:00:22.01] Colour Change

[00:00:37.14] Tilt DS Fixtures

[00:00:53.23] Add Blue Pars

[00:01:18.03] Fan out to audience

[00:01:29.04] DSC Spot Solo

[00:01:39.19] Fade Out

4.13.3 Importing Cuelist Data from Cue Points

Markers created in CuePoints (a third-party workflow and cue-planning tool) can be exported to an XML file that can be imported into Hog show files. Importing CuePoints data does not create, modify, delete, or alter fixture programming data in the show file. Imported CutPoints data only adds non-look data such as list names, cue names, and timecode values for cues.

To export CuePoints data to an XML file follow this procedure:

1. File -> Export
2. Select Hog 4 tab at the top of the Export window
3. Ensure the cue types and tracks you wish to export are check marked.
4. Set the Cue List destination value to match the empty list number in your show for which the recorded CuePoints will be used. Note: CuePoints data cannot be imported on top of existing lists in Hog show files.
5. If you have multiple tracks within your CuePoints project you may want to choose the option for "cuelist per track" to ensure that each track is imported to a unique list.
6. Click on Export to Hog 4 XML
7. A separate XML file will now be created which can be imported into Hog OS using the import instructions provided in this chapter.

To import a CuePoints file into a Hog show follow this procedure:

1. **List** → **Open** : opens list directory window.
2. Press the **CuePoints Import** button located at the top of the list directory window.
3. Select the XML file previously exported from CuePoints and press **OK**.
4. If the import is successful a dialogue box will appear confirming the import is complete.
5. Press **OK**.

4.14 Users

Users are managed in the users tab of the show manager window. Each user in a show file has its own customizable set of preferences (see User Preferences) and is able to send messages in the chat window from their designated user name. A single user called “User A” will be created for all new and pre-existing show files when loaded in Hog OS v3.6.0. When more than one user exists in a show file the console will prompt the operator to select a user when logging into the show file.

4.14.1 Managing Users

To add a new user to a show:

1. **Setup** → **Shows** : opens the show manager window.
2. Select the **Users** tab.
3. Type a name in the “create” field and press enter.

To remove an existing user from a show:

1. **Setup** → **Shows** : opens the show manager window.
2. Select the **Users** tab.
3. Select any user in the window so that it is highlighted in blue.
4. Press the **remove** button and confirm.

Note: Local and Remotely logged on users cannot be removed. Only user accounts that are not logged onto the show can be removed.

To switch to another user in a show:

1. **Setup** → **Shows**: opens the show manager window.
2. Select the **Users** tab.
3. Select the user you wish to switch to so that it is highlighted in blue.
4. Press the **switch** button and confirm.

To clone an existing user in a show:

1. **Setup** → **Shows**: opens the show manager window.
2. Select the **Users** tab.
3. Select a user in the window so that it is highlighted in blue.
4. Press the **clone** button.

To rename an existing user in a show:

1. **Setup** → **Shows**: opens the show manager window.
2. Select the **Users** tab.
3. Select a user in the window so that it is highlighted in blue.
4. Press the **set** key.
5. Type in a new name and then press **enter** to confirm.

4.14.2 Chat

To start a global show-wide chat with other users logged onto the same show via the HogNet network:

1. Click on the chat icon on the main toolbar. The chat icon is a white speech bubble with blue text.
2. Type in the message field of the chat window and press enter to send.
3. Chat messages are tagged with the user name of the sender and are viewable by all consoles and all users logged onto the show.

If the chat window is closed when a new messages is posted by another user on the network the chat icon will turn green to indicate there are unread messages. Chats are also broadcast from the console via OSC and can be received using the path hog / status / chatline/

> Tip: Chat is not only useful for communicating between networked consoles but also a great tool for typing messages to other operators on a single console system which may be shared by multiple operators for given show.

4.15 Tips for Working With Large Shows

Shows that operate hundreds of moving lights and / or thousands of LED fixtures inherently demand more resources. Listed below are a few tips on how to craft large shows in Hog OS so that the workload is manageable by both the console and processors running the show.

- Unblock cuelists. This reduces cue sizes which helps editors to load faster and takes up less memory on all the processors running the show.
- Only Mark cues that need marking. When a cue is marked the processors have to do twice the amount work and with really large cues containing tens of thousands of parameters the result is often a delay in output or a drop in refresh rate.
- Balancing, or evenly spreading, the number of fixtures patched to each processor does not improve any single processor's memory usage and only slightly improves refresh rate output performance.
- Eliminate redundant fixtures from the show that output the same values in your programming and just double-patch a single copy of the fixture.
- Turn off "select all fixture when activated" under the Programming tab of the User Preferences window. This reduces the amount of time a large cue takes to open in an editor especially if the media picker and / or palette directories are open.
- Aggregate fixtures using dotted users numbers so that clusters of fixtures can be selected using more memorable whole numbers. For example fixture 40.20 could be fixture 20 in row 40, whereby selecting fixture 40 would select all fixtures in row 40.
- Keep each plot window under 1,000 fixtures when possible. Create separate plots for different areas of the stage to reduce the load on any single plot window. This reduces the amount of drawing any single open plot window has to do and also improves desktop responsiveness when making large fixture selections. If more than 1,000 fixtures are needed in a single plot for the purposes of PixelMapping then only open that plot window to adjust its layout or properties as the desktop might feel sluggish as it tries to refresh the plot window.

5. Adding, Patching and Managing Fixtures

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5.1 Adding Fixtures

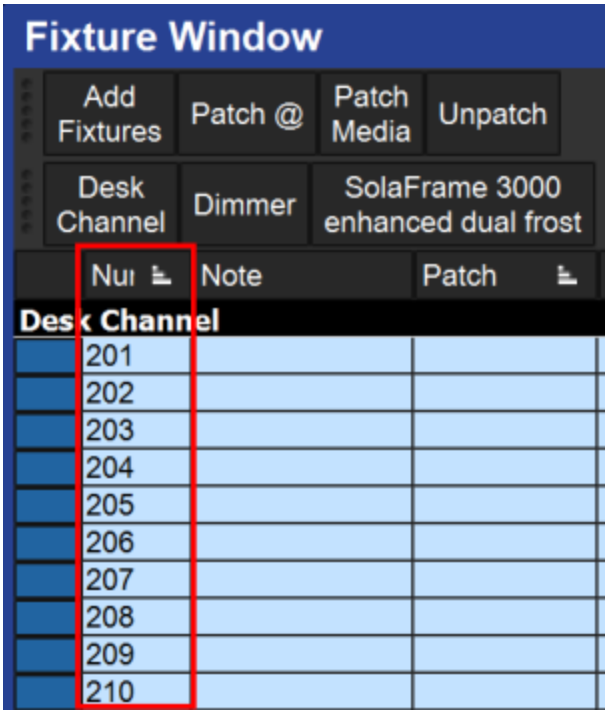
To add a fixture to a show:

1. **Open** + **Fixture** : opens the Fixture window.
2. Press the **Add Fixtures** button in the top left hand corner of the Fixture window. The **Fixture Schedule** window will open with a list of fixture personalities in the current show file as well as fixtures that are part of the currently chosen Fixture Library.
   - The currently chosen fixture library is listed at the bottom of the fixture selection window. To add fixtures from another library you must first install the library onto your console. See **Download and Install Fixture Libraries** for details.
   - Each fixture is listed under its manufacturer, while conventional fixtures such as Desk Channels and Scroller-Dimmers are listed under Generic.
   - Unverified fixtures are shown with a robot icon and a warning to indicate they have not been verified by High End Systems. Be sure to test these fixture types with a real fixture in the appropriate mode before programming them into the show. If adjustments to the fixture type are needed, follow the steps listed in **Creating a Fixture Type from an Existing Type**
   - The DMX Footprint column displays each fixture's total DMX channel count. This can often be helpful when determining which fixture you should schedule when several modes or options exist.
   - To filter the names of the fixtures to more quickly find the exact fixture type you are looking for type a fixture name into the **Search fixture name** field at the top of the window.
   - To filter the list of fixtures to only the fixtures currently scheduled in the show by click on the **Limit to fixture in use** button at the top of the Fixture window.

     To view the individual parts of compound fixtures click on the **Show Compound Parts** button. This is recommended for advanced users only.
3. Click on the fixture type that you want to add and use the count column to input the number fixtures of that type your wish to add to the show.
4. Press the **OK** button. The fixtures have now been added to the fixture window where they can be assigned user numbers and patched to DMX outputs. To add more fixtures to the show repeat this procedure from step 1.

5.2 Assigning User Numbers to Fixtures

The User Number is the number used to select a particular fixture when programming. By default, Hog OS gives each fixture type its own range of user numbers. However, if you manually re-assign more than one fixture to the same user number, the console will display an asterisk next to the fixture's user number in the Fixture window to indicate that user number is not unique in the show file:



To change the User Number:

1. **Open** + **Fixture**
2. Select the fixture's **Num** cell (short for User Number).
3. **Set**, **[new number]**, **Enter**

To change several User Numbers at once:

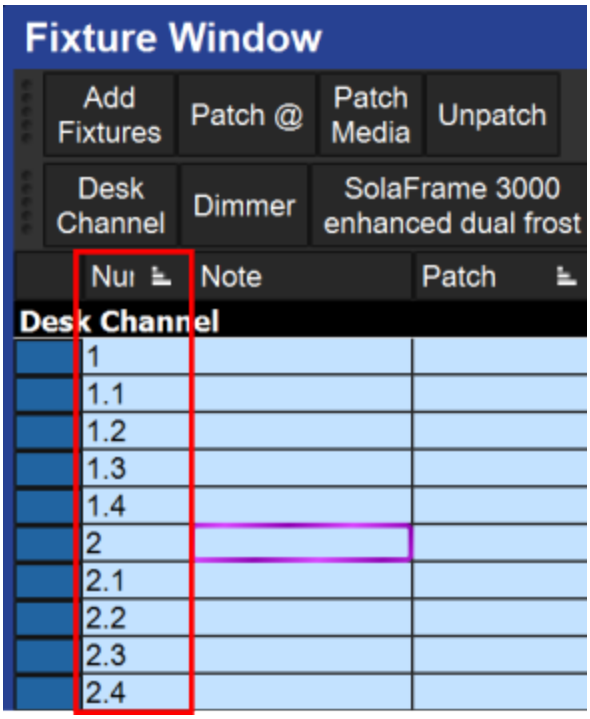
1. **Open + Fixture**
2. Select a range of User Number cells by pressing or clicking, and then dragging.
3. **Set**, **[new number]**, **Enter** : allocates a range of User Numbers starting with the number that you enter and increments the remaining user numbers by one.

> Tip: You can renumber the fixtures in your show so that each one has a unique number irrespective of its type. By doing this you never have to specify the type when selecting fixtures, which can speed up programming. See Selecting Fixtures.

.

5.3 Assigning Dotted User Numbers to Fixtures

Dotted user numbers are composed of a whole number and a part number. For example, you may assign a fixture a dotted user number of 1.3 whereby 1 is the whole number portion of the fixture and 3 is the part number portion of the fixture. Utilizing dotted user numbers can help to reduce the amount of whole numbers used in a show, gives the user the ability to aggregate fixtures, and take advantage of the advanced fixture selection mechanisms explained in Selecting Fixtures.



To change a fixture's user number to a dotted user number:

1. Open + Fixture
2. Select the fixture's Num cell (short for User Number).
3. Set, [new number].[new number], Enter

To change the user numbers of several fixtures to dotted user numbers at once:

1. **Open** + **Fixture**
2. Select a range of User Number cells by clicking / pressing and dragging.
3. **Set**, **[whole number] / [parts per whole number]**, **Enter**. This syntax will allocate a range of User Numbers to the selected cells starting with the specified whole number and will increment the value of each of the selected cells by one part number until the specified number of parts per whole number is reached at which point the whole number value will increase by one.

Example A: [1] / [3] will assign the selected user num cells values of [1] , [1.1] , [1.2] , [1.3] , [2] , [2.1] , and so on.

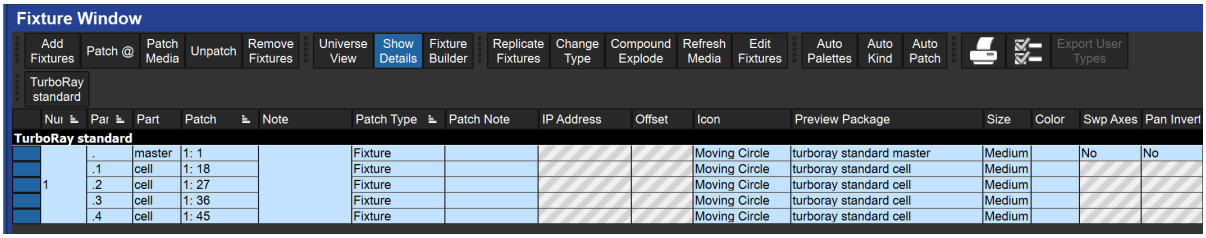
Example B: [1.1] / [3] will assign the selected user num cells values of [1.1] , [1.2] , [1.3] , [2.1] , [2.2] , [2.3] , [3.1] , and so on.

Example C: [1.1] / [1] will assign the selected user num cells values of [1.1] , [2.1] , [3.1] , and so on.

5.4 Compound Fixtures

Compound fixtures are single fixture entities comprised of one or more selectable fixture parts. Compound fixtures are added to a show using the fixture schedule window the same way as ordinary fixtures. Once a compound fixture is scheduled all of its parts can be viewed in the fixture window by enabling the show details button at the top of the fixture window. The part numbers assigned to the individual parts of a compound fixture can be modified in the fixture window when show details is enabled by clicking on the part number cell and pressing the set key. Please note that every part number within a single compound fixture must be unique and that dot (period) is a legitimate part number on its own.

Example of a compound TurboRay fixture shown in the fixture window when the show details button is enabled:



All parts of a compound fixture can be selected by entering the whole number assigned to the compound fixture on the command line and pressing enter. Individual parts of a compound fixture can be selected by entering the whole number and part number of the fixture part on the command line and pressing enter. See Selecting Fixtures for more details on selecting compound fixtures and aggregated fixtures with dotted user numbers.

5.4.1 Compound Fixture Explode

The parts of a compound fixture can be broken up into individual stand-alone fixtures by opening the fixture window, selecting the compound fixture, and pressing the Compound Explode at the top of the fixture window. The new individual fixtures that result from the compound explode retain their programming but now function as regular stand-alone fixtures that can be patched, programmed, and change typed on an individual basis.

5.4.2 How to avoid double-dimming with Compound Fixtures

Operators who use compound fixtures in their show may experience a “double dimming" conflict when programming. This occurs when two parts of a compound fixture both attenuate the intensity of the same aspect the fixture’s output. For example, an LED bar might have a master intensity for all LED cells in the fixture as well as individual intensity control for each cell. In this case setting both the master intensity and cell intensity parts of the fixture to 50% intensity would lead to the cells actually only outputting at 25%. There are a few ways to avoid this issue:

Use Sub Selections

One of the simplest ways to avoid double-dimming in compound fixtures is to avoid selecting all parts of the compound fixture at once when applying intensity changes to the fixture. In most cases the master part of a compound fixture is designated with only a dot whereas sub-parts are designated with a dot and a number. In these cases adding .0 to the fixture's whole number on the command line selects only the sub-parts of the fixture. For example, 301.0 selects the sub-parts of fixture 301 and not the master part. Alternatively, adding a dot to the fixture's whole number on the command line will select only the master part. For example, 301. only selects the master part of fixture 301.

Park parts at 100%

Parking the intensity for parts of a compound fixture is another option to avoid the double dimming conflict that can occur with compound fixtures. With this approach the operator can still program intensity values for all parts into the show but can rest assured the parked value will always be applied in the DMX engine's output.

Use Edit Fixtures to set minimum Intensity to 100%

Setting the minimum intensity for parts of a compound fixture in the edit fixtures window to 100% prevents those parts from being programmed at a level below 100%. This differs from the parking method mentioned above because setting the minimum intensity of a part to 100% does not allow the intensity value of the part to be stored in programming at any level other than 100%. For example, typing 301 @ 50% will program the parts with a minimum intensity value of 100% to 100% in the editor whereas the other parts will be at 50% in the editor.

5.5 Fixture Aggregation

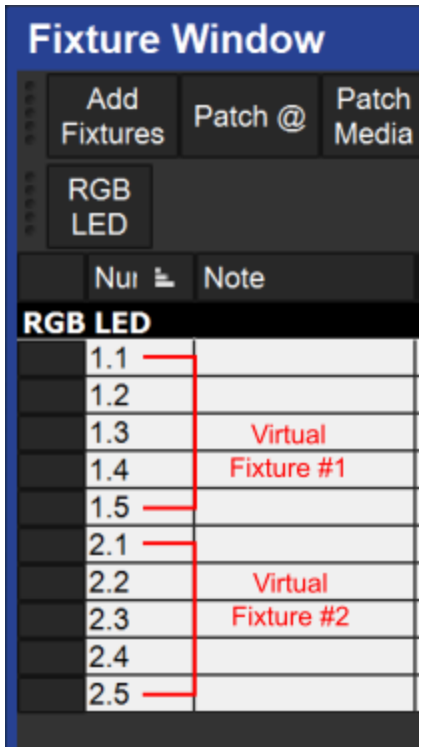
Sometimes a cluster of fixtures, although separate and independent from one another, frequently need to be selected and programmed together while still maintaining the ability to be selected, programmed, and patched individually. Hog OS solves this problem with a feature called fixture aggregation. To aggregate fixtures, simply assign dotted user numbers to the fixtures you wish to cluster together, ensuring that they share a common whole number and unique part numbers. For details on how to assign dotted user numbers to fixtures refer to Assigning Dotted User Numbers to Fixtures.

To select all fixtures in an aggregation: enter the common whole number shared among the fixtures on the command line and press enter.

To select an individual fixture in an aggregation: enter the whole number and part number of the fixture on the command line and press enter.

The fixture selection mechanisms described in Selecting Fixtures can also be used to further sub-select, range select, or laterally select specific fixtures in the aggregated fixture cluster.

Fixture window showing aggregated RGB LED



Important: Compound fixtures cannot be aggregated.

5.6 Patching Fixtures

Once fixtures have been added to a show they must be patched so that the console knows where to send control data for the fixtures (the address) and what type of data to send to the fixtures (the protocol). Many fixtures, such as moving lights, are assigned a DMX address and utilize the DMX-512 protocol for remote control of their various parameters whereas other devices such as video switchers are assigned an IP address and utilize IP protocols for remote control of their device parameters. The following sub-chapters provide instructions on how to patch fixtures using these protocols.

5.6.1 Patching DMX Protocol Fixtures

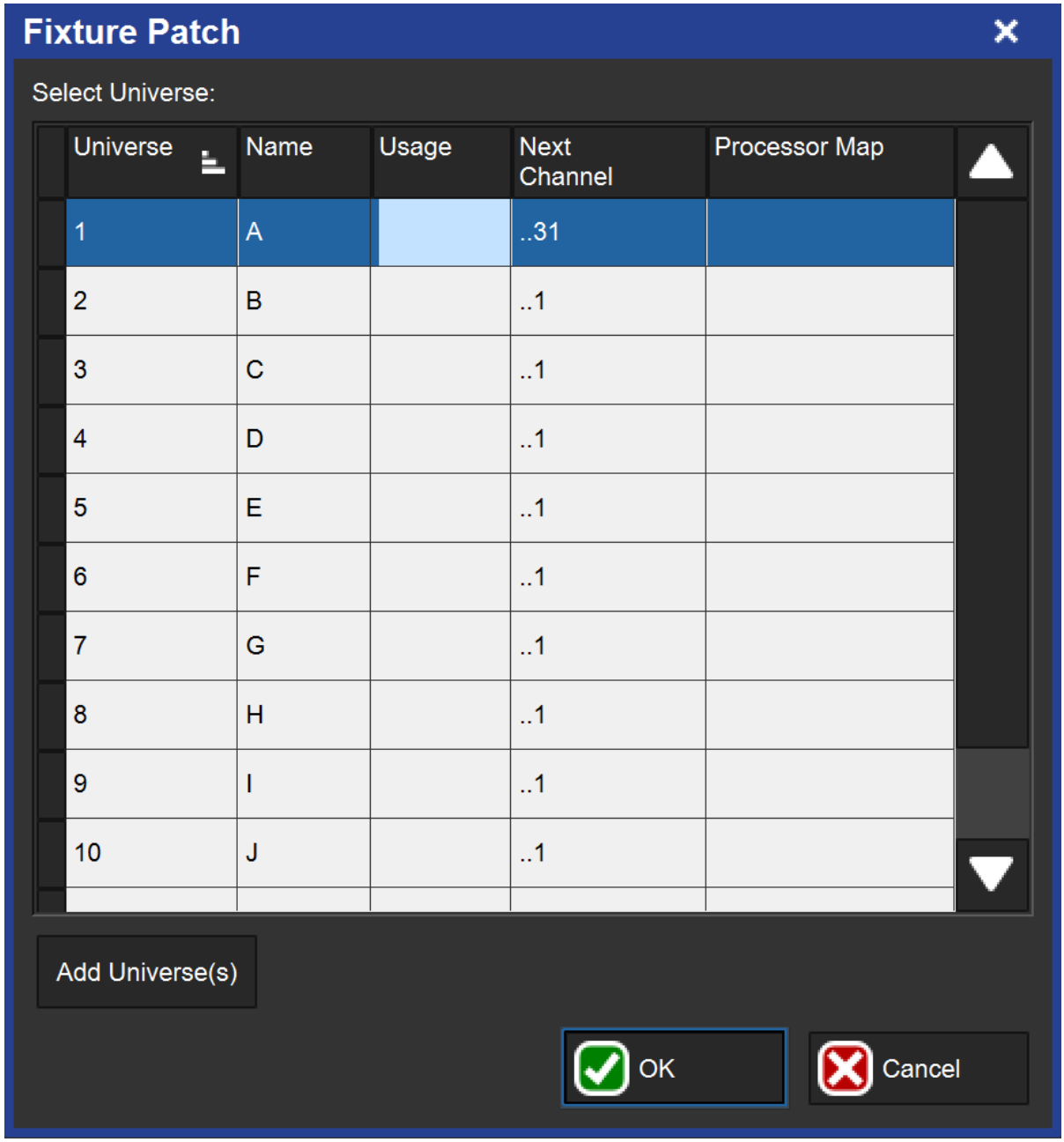
The vast majority of moving lights and dimmers receive their control data using a control protocol called DMX-512. Under this protocol, fixtures are controlled via DMX channels and are assigned a DMX address (also known as the 'start address'). The number of DMX channels occupied by a fixture beyond its start address varies by fixture and by mode so it is important to ensure the fixture type scheduled in the show matches the fixture that is hung the lighting rig.

Important: When the "show details" button is enabled in the fixture window the DMX patch points for a compound fixture's individual parts are displayed, however these internal patch points are fixed and cannot be modified. To identify the true patch point of a compound fixture turn off the "show details" button.

To patch a fixture using the DMX protocol:

1. **Setup** → **Patch** : this opens the **Fixture** window.
2. Select a fixture by entering its user number on the command line. Press the Patch @ button to open the Fixture Patch window.
3. Select a universe from the Fixture Patch window. To patch to a universe that isn't listed, press the Add Universe(s) button.
4. Click or press on a DMX universe. The usage column provides a basic graphical view of which addresses are already occupied.
5. Use the keypad to type in a number for the fixture's DMX start address on the command line. If an address is not supplied on the command line the next free DMX address of the selected universe will be used.
6. Click on **OK** or press **Enter**.

The fixture patch window



You can also use the keypad to patch fixtures. For example, to patch Studio Color 1 to Universe 4, address 17:

- **Fixture 1 @ 4/17 Enter**

To patch further fixtures to the same universe you can use the shorthand:

- **Fixture 2 @ 33 Enter**

To patch a fixture at the next available address on the same universe:

- **Fixture 3 @ Enter**

Patching Several Fixtures at Once

If you select several fixtures and patch them, Hog OS will allocate them to a continuous range of DMX addresses, assigning each fixture's patch address so that it follows on from the last.

For example, to patch 5 Studio Colors, starting at DMX address 1:

1. **Open** + **Fixture** : open the Fixture window
2. **Fixture 1 Thru 5 Patch @ 1** , **Enter** : You can use the **@** key as an alternative to the **Patch @** button.

Studio Colors 1 to 5 will now have the incremental patch addresses of 1:1, 1:17, 1:33, 1:49, and 1:65. Note that the fixtures selected do not have to be from a contiguous range, and they can be of different types.

> Tip: When you patch a range of fixtures, Hog OS takes the selection order into account, so that Fixture 1 Thru 10 @ 1 patches the fixtures starting with Fixture 1 and going up in numerical order, while Fixture 10 Thru 1 @ 1 patches the fixtures starting with Fixture 10 and going down in reverse numerical order.

Patching Fixtures to Multiple DMX Addresses

You can patch one fixture to multiple different DMX addresses; this can be useful with desk channels, where you want one desk channel to control several dimmer channels. This is sometimes known as ‘soft patching’.

To patch a fixture to a second DMX address, select the fixture again and patch it as before. Alternatively, using the command line:

- **Fixture [Desk Channel] 1 @ 1/1 + 2/5, Enter** : patches the desk channel to universe 1, address 1, and to universe 2, address 5.

Similarly, you can patch a fixture multiple times so as to fill a specified range of DMX addresses. This can be useful if you want to soft patch a desk channel to a continuous series of dimmer DMX addresses.

- **Fixture [Desk Channel] 1 @ 1 Thru 10**, **Enter** : patches the desk channel to each address between 1 and 10.

> Tip: You don't have to patch fixtures before you start programming. Once the fixtures have been added they can be programmed. However, without a patch you will not be able to output DMX.

Patching Fixtures with DMX Gaps

To specify a DMX channel gap when patching press the @ key a second time when the “fixture patch” window is open. This will put the word “Gap” on the command line. Input a numerical value after the word Gap and press enter.

Example:

[1<3 @ 1 Gap 5] will result in the following patch if the fixtures being patched are 3 channels each:

Fixture 1 occupies DMX channels 1 < 3 (then a five channel gap: 4,5,6,7,8)

Fixture 2 occupies DMX channels 9 < 11 (then a five channel gap: 12,13,14,15,16)

Fixture 3 occupies DMX channels 17 < 19

Patching Fixtures with DMX Offsets

To specify an offset to be used between the start addresses of fixtures when patching press the @ key a third time when the “fixture patch” window is open. This will put the word “Offset” on the command line. Input a numerical value after the word Offset and press enter.

Example:

[1<3 @ 1 Offset 5] will result in the following patch if the fixtures being patched are 3 channels each:

Fixture 1 occupies DMX channels 1 < 3

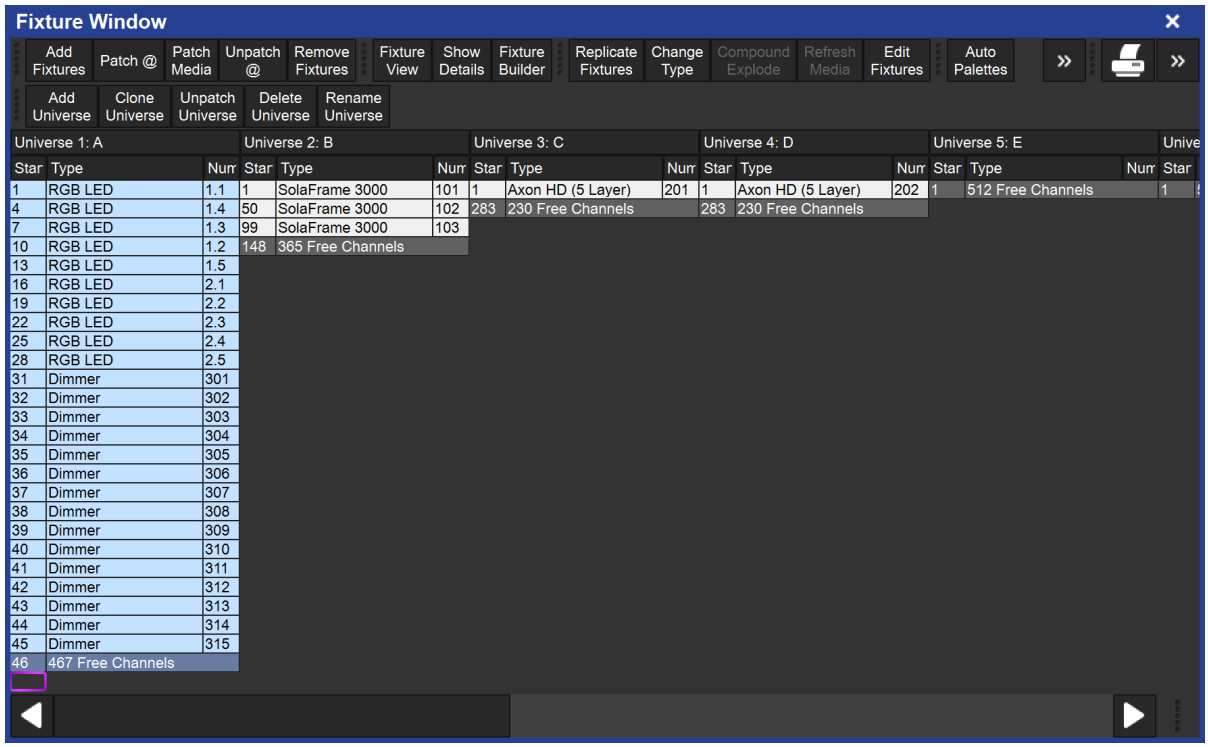
Fixture 2 occupies DMX channels 6 < 8

Fixture 3 occupies DMX channel 11 < 13

Finding Unused DMX Addresses

To see an overview of all patched fixtures in the Fixture window enable Universe View button at the top of the fixture window.

The Universe view.



Universe View shows a spreadsheet with start address, fixture type and user number for each universe. Additional rows show where there is an available space in the allocated addresses. This is useful for finding free address ranges when patching additional fixtures to established universes. To show this view:

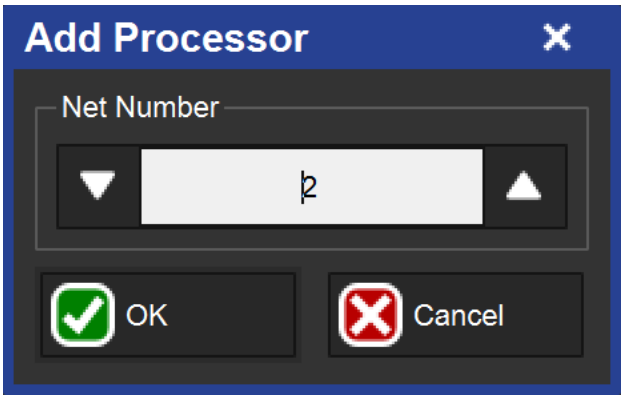
- **Setup → Patch → Universe View.**

Press the Fixture View button to return the Fixture window to its normal view.

Assigning Universes to Processors

Universes must be mapped to processors in order to achieve DMX, Art-Net, or SACN output. To map universes to a processor:

1. Open the network window.
2. Select a processor from the list of processors and press the **Settings** button at the top of the network window. If the processor you wish to configure isn't listed in the network window then press the **Add Processor** button at the top of the network window. The **Add Processor** window will open. Choose a net number for the new processor and click **OK**. Then open the settings window for the newly added processor.



3. Select the Output tab of the processor settings window.
4. Press the **Add Mapping** button.
5. Use the Add Mapping(s) dialogue window to specify a range of universes to map and then enable one or more of the mapping type buttons. Press **OK** when finished.
6. The console will now map the universe to the processor using a default set of values. To customize a mapping simply click on any one of its properties in the mapping table and press the **set** key.
7. Press the **apply** or **OK** button to confirm and store the mapping.

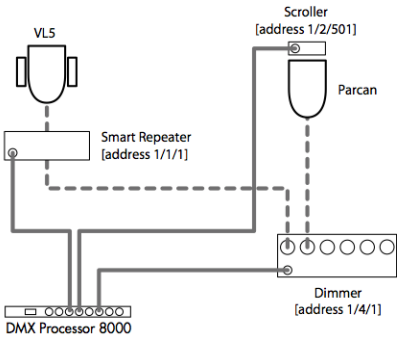
To remove a processor from a show file:

1. **Setup** → **Network** : open the **Network** window.
2. Right click on the processor you wish to remove from the show file and select the **Remove Processor** option. A confirmation dialog will open. Press **OK** to un-map and remove the processor from the show.

Fixtures with Multiple DMX Patch Points

Some fixture types consist of several separate elements that work together, each with their own DMX address. An example is a par-can with a scroller, which operationally you want to treat as a single fixture (‘a light that can change brightness and colour’) but that physically consists of a dimmer-controlled lamp and a colour scroller that have separate and often non-sequential patch points.

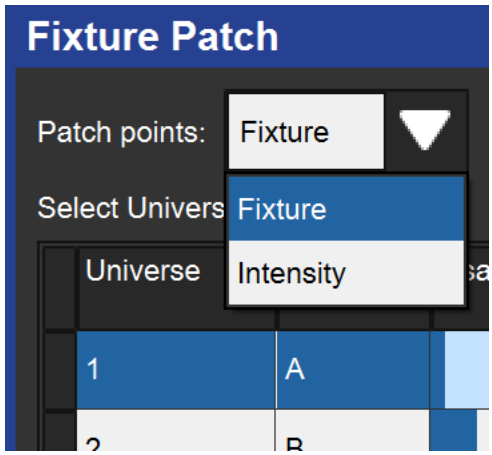
Examples of Fixtures requiring Multiple Patch Points



With such fixtures, there are two or more DMX start addresses, which may not be numerically adjacent, and indeed may be on different universes and processors. Hog OS handles this by giving these fixtures multiple ’Patch Points‘, which you address separately in the Fixture Patch window.

For example, to achieve a multiple patch point setup.

1. **Setup** → **Patch** : Open the Fixture window.
2. **Fixture [Scroller Dimmer] 1 @** : Opens the Fixture Patch window.
3. Select the **Fixture** Patch Point (for the scroller) from the drop down list in the top right corner of the Fixture Patch window:



4. Click DMX 2 to select the second DMX universe.
5. **[501] Enter** : Enter the DMX address for the scroller.
6. **Fixture [Scroller Dimmer] 1 @** : Opens the Fixture Patch window again.
7. Click DMX 4 to select the fourth DMX universe.
8. Select the **Intensity** Patch Point (for the dimmer) from the drop down list.
9. **[2] Enter** : Enter the DMX address for the dimmer.

In the **Fixture** window, these types of fixture will span more than one row - one for each Patch point; see image below

A Fixture with Multiple Patch Points

Scroller Dimmer				
2	11		2: 23	Intensity
			4: 420	Fixture

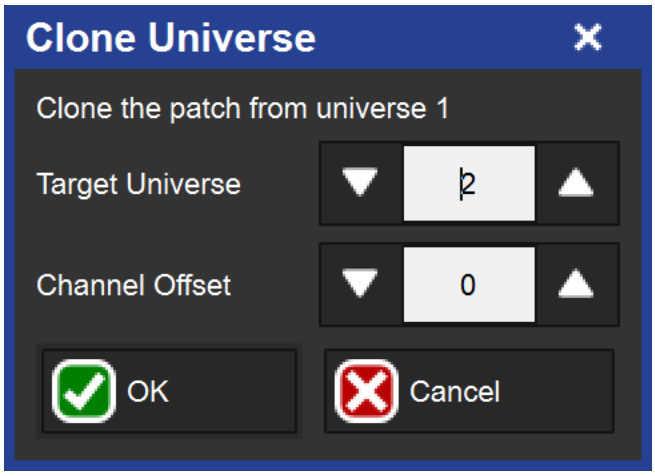
Cloning Universes

Cloning a Universe will copies all of the fixture patch points and associated with the selected universe to another universe.

To clone the patching of one universe to another:

1. **Setup** → **Patch** → **Universe View** : open the Fixture window in Universe View.
2. Select the universe to clone by clicking on the column in the spreadsheet. The selected universe is highlighted in blue.
3. Press Clone Universe. The Clone Universe window will open
4. Select a destination universe. Click on OK when you have finished.

The clone universe



If cloning will overwrite patch information in the destination, you will be asked for confirmation. The console will only unpatch previous fixtures that are in the way of new ones; the rest of the destination universe will be untouched.

Tip: You can also move patching from one universe to another by cloning the patch to the new universe, and then unpatching the old universe; see Unpatching Fixtures from DMX Channels.

Unpatching Fixtures from DMX Channels

You can unpatch a fixture in order to re-patch it with a different start address, or to stop output being sent to it. Unpatching does not erase any programming for the fixture in groups, palettes, cues and so on.

There are two ways to unpatch. Unpatching by fixture removes all patching information for that fixture, even if it has been patched to several start addresses or has multiple patch points. Unpatching by start address only unpatch a specific start address, leaving other start addresses associated with the fixture intact.

Unpatching by Fixture

To unpatch all patch information associated with a fixture:

1. **Setup** → **Patch** : open the **Fixture** window.
2. Select the fixture by clicking on it, then press **Unpatch** at the top of the **Fixture** window. This un-patches the fixture, but leaves all programming for the fixture intact.

Unpatching by DMX Address

To unpatch a specific DMX start address change the Fixture window to Universe View.

1. **Setup** → **Patch** : open the Fixture window.
2. **Universe View** : change the Fixture window to Universe View.

When Universe View is selected, the **Unpatch @** button is available on the top toolbar of the Fixture window. To unpatch start address 200 in the currently selected DMX universe (highlighted in blue):

- **Unpatch @ 200**

To unpatch several start addresses:

- **Unpatch @ 2/200 + 3/300**

To unpatch a range of start addresses:

- **Unpatch @ 200 Thru 300** : un-patches all start addresses between 200 and 300.

To unpatch an entire universe:

1. Click or press on the universe to unpatch, so that it is highlighted in blue.
2. Press **Unpatch Universe** at the top of the Fixture window and confirm that you want to unpatch.

5.6.2 Patching Video Protocol Fixtures

Hog OS supports direct control (via FixtureNet) of a variety of Ethernet based video switching devices as listed below:

- Barco MatrixPro-II SD/HD/3G-SDI 8x8, 16x16, 32x32
- Blackmagic Smart VideoHub 12x12, 20x20, 40x40
- Lightware MX 4x4, MX 6x6, MX 8x4, MX 8x8, MX 9x9, MX 12x12, MX 16x16
- AJA KUMO 16x16, 32x32

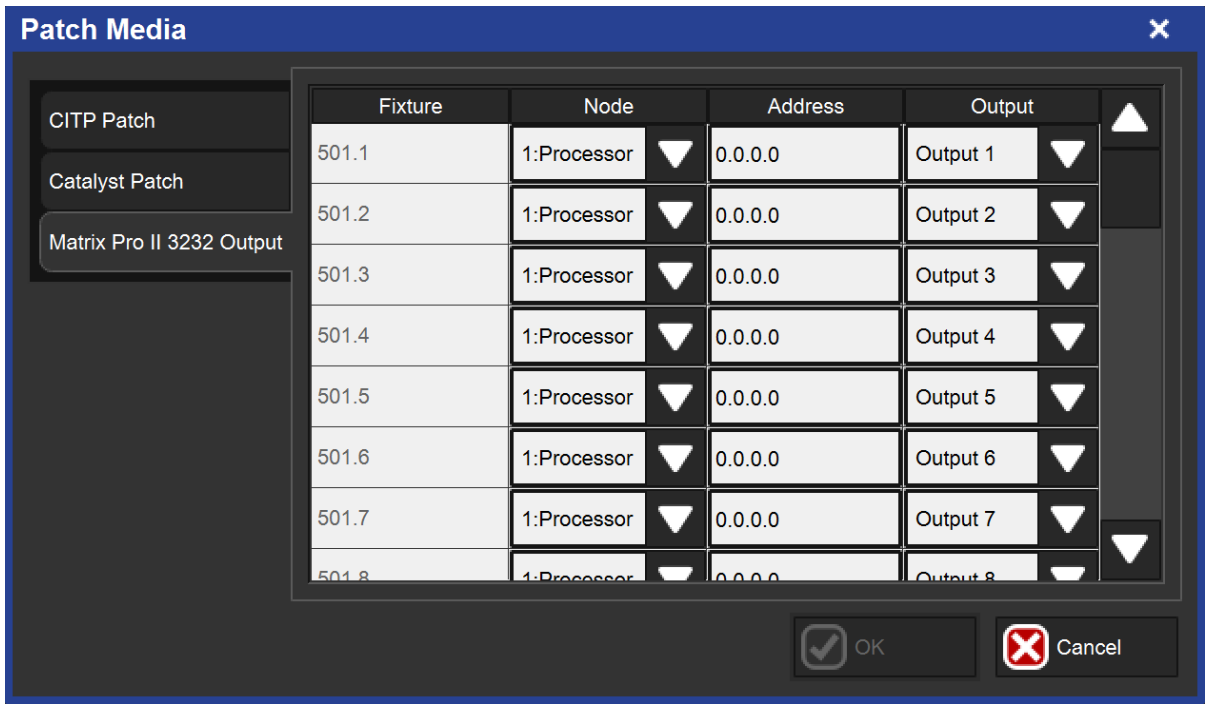
Each of these devices utilizes its own proprietary IP protocol for remote control, however, each device is patched and configured using the same Hog OS procedure described below.

To patch and configure a video protocol fixture:

1. **Setup** → **Patch** : this opens the Fixture window.
2. Press the **Patch Media** button located at the top of the fixture window.
3. Select the dedicated tab for the video switcher type to be patched. If a dedicated tab for the video switcher is not shown in the media patch window, then the video switcher fixture has not yet been scheduled in the show.
4. Fill in the appropriate data for each of the listed fixtures and press OK. See below for addition info:

- Node: the DMX Processor whose FixtureNet port is connected to the same network as the video switcher's network port
- Address: the IP address of the video switcher
- Output: the physical output on the video switcher that the fixture will control

The Patch Media Window



Caution: Hog PC supports the patching of video protocol devices but does not support their control via the local Ethernet adapter. Control of video protocol devices is supported on consoles and external DMX Processors only.

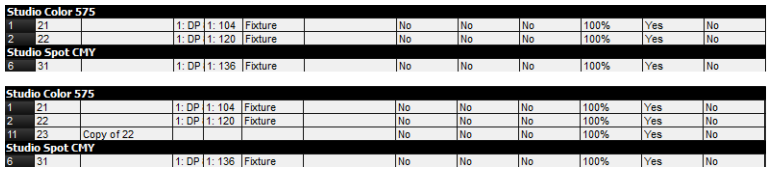
5.7 Replicating Fixtures

You can expand your show to accommodate a larger rig using the Replicate Fixture function. This will create copies of fixtures, including all their programming. To replicate fixtures:

1. **Setup** → **Patch** : open the Fixture window.
2. Select one or more fixtures in the Fixture window by clicking on its numbered button in the left hand column.
3. Press **Replicate Fixture**, located in the toolbar at the top of the Fixture window.

The new fixtures are an exact copy of the originals, and will be added to every palette, cue and scene that contains programming for the original fixture. New fixtures are given User Numbers that follow on sequentially from the original fixtures' numbers, but they are not patched or added to any groups. An asterisk will appear next to User Numbers that may now conflict with existing ones.

Fixture window, before and after replicating



Studio Color 575												
1	21		1: DP	1: 104	Fixture		No	No	No	100%	Yes	No
2	22		1: DP	1: 120	Fixture		No	No	No	100%	Yes	No
Studio Spot CMY												
6	31		1: DP	1: 136	Fixture		No	No	No	100%	Yes	No

Studio Color 575												
1	21		1: DP	1: 104	Fixture		No	No	No	100%	Yes	No
2	22		1: DP	1: 120	Fixture		No	No	No	100%	Yes	No
11	23	Copy of 22					No	No	No	100%	Yes	No
Studio Spot CMY												
6	31		1: DP	1: 136	Fixture		No	No	No	100%	Yes	No

5.8 Change Type

The Change Type feature in Hog OS provides a guided workflow for changing fixture types using a wizard interface. The change type wizard is designed to simplify complex fixture changes while preserving programming integrity wherever possible.

Hog OS v5.2.0 and greater allows fixture type changes between all fixture types:

- Standard type → Standard type
- Compound type → Compound type
- Compound type → Standard type
- Standard type → Compound type

How to perform a Change Type

1. Open the Fixture Window (**Setup** → **Patch**) or (**Fixture** → **Open**)
2. Select the fixtures you want to change. Selected fixtures must be of the same type.
3. Press the **Change Type** button.
4. Choose the new fixture type from the fixture scheduler then Press **OK**.
5. Follow the Change Type wizard steps shown on the screen to adjust how the parts and programming are handled as part of the change type process.

Understanding the Change Type Operation

- New fixtures are scheduled into the show using the source fixture's old user numbers.
- Source fixtures are renumbered or removed based on the option selected in the last step of the change type wizard.
- When compound fixtures are used—either as the source or the destination—the Change Type Wizard displays a part-matching step. This allows you to specify how each part should be cloned.
- The Change Type Wizard then presents the function, slot, and DMX matchers. In each step, the left column shows the programmed attributes from the source fixture, while the right column lists the corresponding available attributes on the destination fixture.
- Some attributes are automatically matched by Hog OS, while others may require manual matching. Matching every attribute is not mandatory—any attribute left unmatched will simply not be cloned to the destination fixture.

5.9 Removing a Fixture from the Show

To remove a fixture:

1. **Setup** → **Patch**: open the **Fixture** window.
2. **Fixture 1 Remove** : Select the fixture(s) you want to remove, and press **Remove**.
3. You will be asked to confirm. Select **OK**.

Important: If you remove a fixture, all of its associated programming in groups, palettes, cues and so on will be removed from the show. To disable a fixture while retaining its programming, unpatch it; see Unpatching Fixtures from DMX Channels.

5.10 Creating Palettes and Groups Automatically

Hog OS can create groups and palettes automatically, based on the fixtures in your show. This rapidly gives you a set of 'building blocks' to start programming with. To use the **Auto Palettes** function:

1. **Setup** → **Patch** : open the Fixture window.
2. Click on the **Auto Palettes** button (located in the toolbar at the top of the Fixture window) and select from the options in the **Auto Palettes** window.
3. Click on **Generate**.

You can choose to have the console automatically make:

- **Groups**: If the **Make Default Groups** button is depressed, the console will make groups for each fixture type. You can specify the repeat multiple for the groups to be created. For example, with a value of 3 Group 1 will contain fixtures 1, 4, 7, 10…, Group 2 fixtures 2, 5, 8, 11…, Group 3 fixtures 3, 6, 9, 12…. If the **Make Note Groups** button is depressed, the console will generate groups based on any notes that have been added to fixtures in the fixture window. A single fixture can have multiple notes (single notes are separated by commas in the notes field) and as a result will be included in multiple groups auto-generated by the "make note groups" feature.
- **Intensity Palettes**: If the **Make Intensity Palettes** button is depressed, the console will make intensity palettes.
- **Position Palettes:** If the **Make Position Palettes** button is depressed, the console will make position palettes.
- **Colour Palettes:** If the **Make Colour Palettes** button is depressed, the console will make colour palettes. If you press the adjacent Separate by Wheel button, the console will create separate colour palettes for each colour wheel in fixtures that have more than one. This ensures that you can use the palettes to program looks that use both wheels simultaneously, without the palettes conflicting with each other. Auto generated Colour palettes that make use of colour mixing information will automatically have their buttons colour coded with appropriate custom colour selections.
- **Beam Palettes:** If the **Make Beam Palettes** button is depressed, the console will make beam palettes. If you press the adjacent Separate by Wheel button, the console will create separate beam palettes for each beam effect wheel in fixtures that have more than one. This ensures that you can use the palettes to program looks that use both wheels simultaneously, without the palettes conflicting with each other.

The Auto Palettes window also allows you to choose the alignment spacing of the palette's directory window. The alignment spacing controls how many palettes are displayed across the directory window; for example 6 for a half screen window, 12 for a full screen window.

For more information on groups and palettes, see Groups and Palettes.

5.11 Configuring Fixtures

Each fixture has a variety of settings that control how Hog OS handles it. Settings that control how the fixture as a whole behaves are configured in the **Fixture** window, while settings that are specific to individual parameters are configured in the **Edit Fixtures** window.

5.11.1 Fixture Configuration

In addition to a fixture's patch information, the Fixture displays a number of important fixture attributes which are organized into separate columns. Some of these attributes are editable while others are read-only.

Note

Notes can be used to create a note(s) for a fixture, such as its location or intended use. Notes can also be used when auto-generating palettes to quickly create groups based on notes.

To add a note to a fixture:

1. **Open** + **Fixture**
2. Select the fixture's **Note** cell.
3. **Set [text of note] Enter** : Type in the note text.

> Tip: Fixture notes can be displayed in editors such as the Programmer, but this is turned off by default. To display notes, right click on any column header in the editor, and select **Note**.

Patch Note

Patch Notes can be used to attach a comment to a fixture regarding its patching.

To add a Patch Note:

1. **Open** + **Fixture**
2. Select the fixture's **Patch Note** cell.
3. **Set [text of note] Enter** : Type in the note text.

IP Address

The IP address column displays the fixture's IP address which is currently used for CITP and Video Patch records. The IP address column is read-only and is hashed out for fixtures that are not CITP capable or video patch capable.

Preview Package

When the "show details" button is enabled at the top of the Fixture window a column labeled **Preview Package** will appear. The preview package column allows the user to

view / modify the selected preview package for a fixture. This is useful when there is a need to switch a fixture between a cached CITP preview package, a customized preview package, and/or the default library preview package for that fixture type.

Icon

When the "show details" button is enabled at the top of the Fixture window a column labeled Icon will appear. The icon column allows the user to view / modify the icon assigned to the fixture. Icons are used to represent the fixture when it is added to plots. Some fixtures in the fixture library already have an icon pre-defined for their fixture type when scheduled but can be customized by the user once scheduled.

Size

When the "show details" button is enabled at the top of the Fixture window a column labeled **Size** will appear. The size column allows the user to view / modify the fixture's icon size. This is most useful when adding the fixture to plots.

Colour

When the "show details" button is enabled at the top of the Fixture window a column labeled Colour will appear. The colour column allows the user to view / modify the colour assigned to a fixture. Colour coding a fixture can help to make it easier to identify in the plot window.

Swap Axes

Depending on a fixture's orientation in the rig, you may want to swap its pan and tilt axes. For example, if units are rigged facing across the stage rather than facing up or down stage, then swapping the axes keeps the Trackball movement and the fixture movement the same. This also ensures that fixtures selected in groups all move in the same direction as the Trackball is moved.

Fixtures that are rigged in other positions, for example on the stage floor as opposed to hanging, then combinations of swap axes and pan invert and/or tilt invert may be required.

To swap axes:

1. **Open** + **Fixture**
2. Scroll to the desired fixture, and select its **SwpAxes** cell.
3. Press **Set**, and choose **Swap** to swap axes.

Pan Invert / Tilt Invert

Depending on a fixture's orientation in the rig, you may want to invert its pan and / or tilt moment. For example, if units are rigged on the stage floor as opposed to hanging, then a pan and / or tilt invert may be required.

To invert pan and / or tilt:

1. **Open** + **Fixture**
2. Scroll to the desired fixture, and select either its **Pan Invert** or **Tilt Invert** cell.
3. Press **Set**, and choose **Yes** to invert the axis.

Intensity % (proportional patch)

You can use intensity percentage (also know as proportional patching) to change the intensity value output by the console to a fixture, relative to the intensity value that has been programmed. All intensity values for the fixture are reduced in proportion, so that with a proportional patch of 80%, a programmed intensity of 100% would be output as an intensity of 80%, and one of 50% would be output as 40%. You can use this to limit the maximum intensity of a fixture so that it never goes above 80%, for example, by assigning the proportional patch to 80%. Please note that reductions to the output of a fixture caused by changes to the intensity % value are not reflected in the values shown in the output window. This is because reductions to the fixtures intensity output are calculated in DMX only and therefore can only be viewed in the DMX output window.

To assign a fixture's intensity % (proportional patch):

1. **Open** + **Fixture**
2. Select the **Intensity %** cell for the fixture required.
3. **Set**, **[percentage]**, **Enter** : enter a percentage.
4. To return the proportional patch to normal, assign the value to 100%.

You can assign a proportional patch value of above 100%. For example, if you patch at 200%, the intensity value that the console outputs will be twice that programmed. A programmed value of 25% will give 50% output, and 50% will give 100%. Programmed levels above 50% will not, regrettably, give fixture intensities above 100%.

Note that if you proportionally patch a fixture, its intensity will still be displayed on the console in the range 0 to 100%, even though the output value will be varying over the range defined by the proportional patch value.

Colour Calibration

When the "show details" button is enabled at the top of the fixture window a column labeled Col Cal will appear and shows whether the fixture has colour calibration data in the fixture library. You cannot edit this column, but it is useful to be able to check if the fixture is colour calibrated when working with the Colour Picker; see Working with Colour.

Cal Bypass

When a fixture's Cal Bypass option is toggled to "yes" then Hog OS will route virtual Red, Green, Blue function values directly to the fixture's physical red, green, and blue values without consideration for the fixture's native gamut.

When the Cal Bypass option is toggled to "no" for a fixture then Hog OS will use its internal color matcher system to calculate function values for all of the fixture's physical color mixing values based on the fixture's native calibration which may be generic or measured.

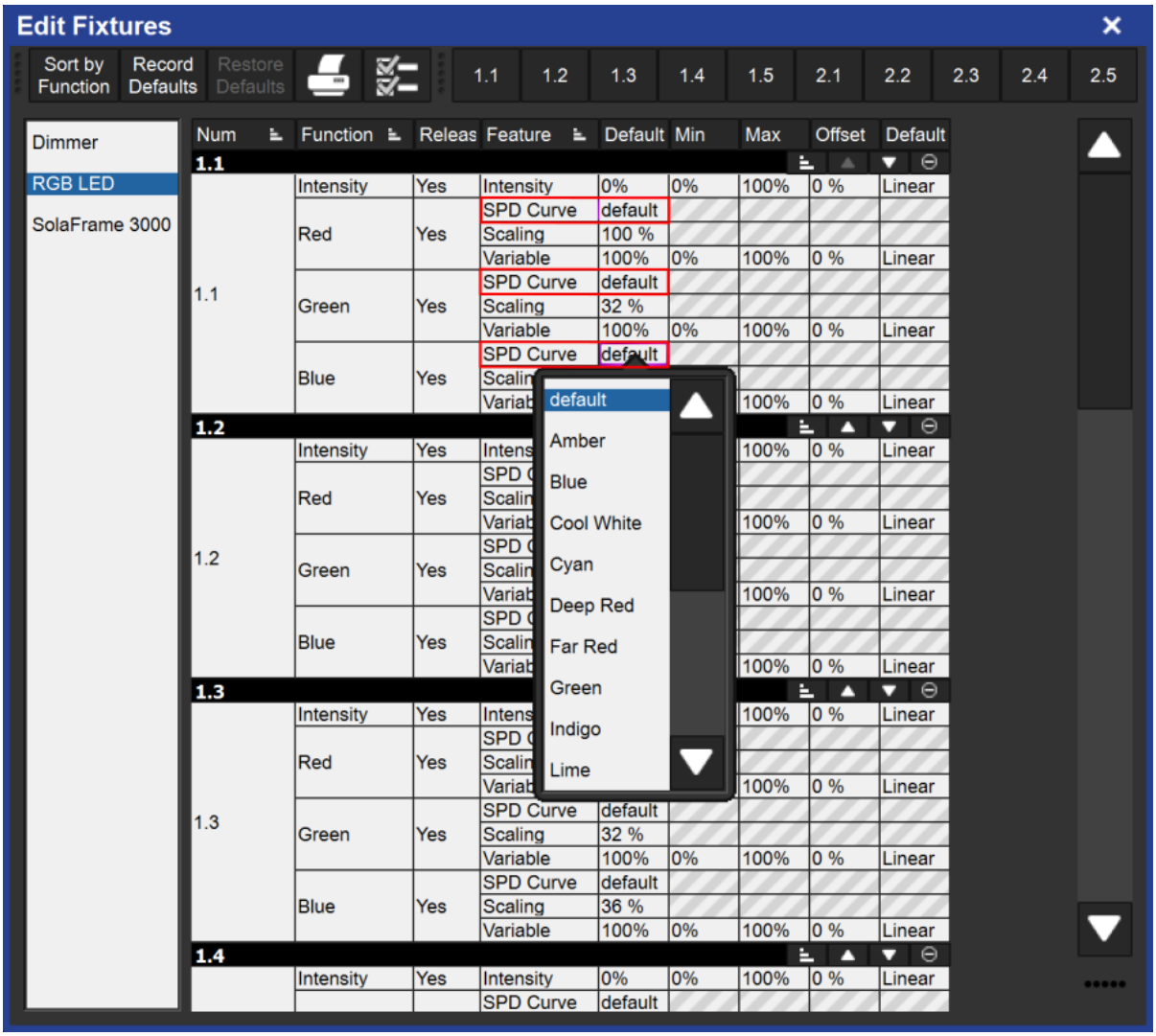
Cal Bypass cannot be enabled for fixtures with additional physical color mixing functions such as White or Amber additive color mixing functions.

Enabling Cal bypass is only recommended for fixtures that are set to a mode whereby the fixture is calculating its own physical function values based on incoming RGB or CMY values. For example, an ETC Source 4 LED Series 3 fixture set to RGB mode should be set to Cal bypass.

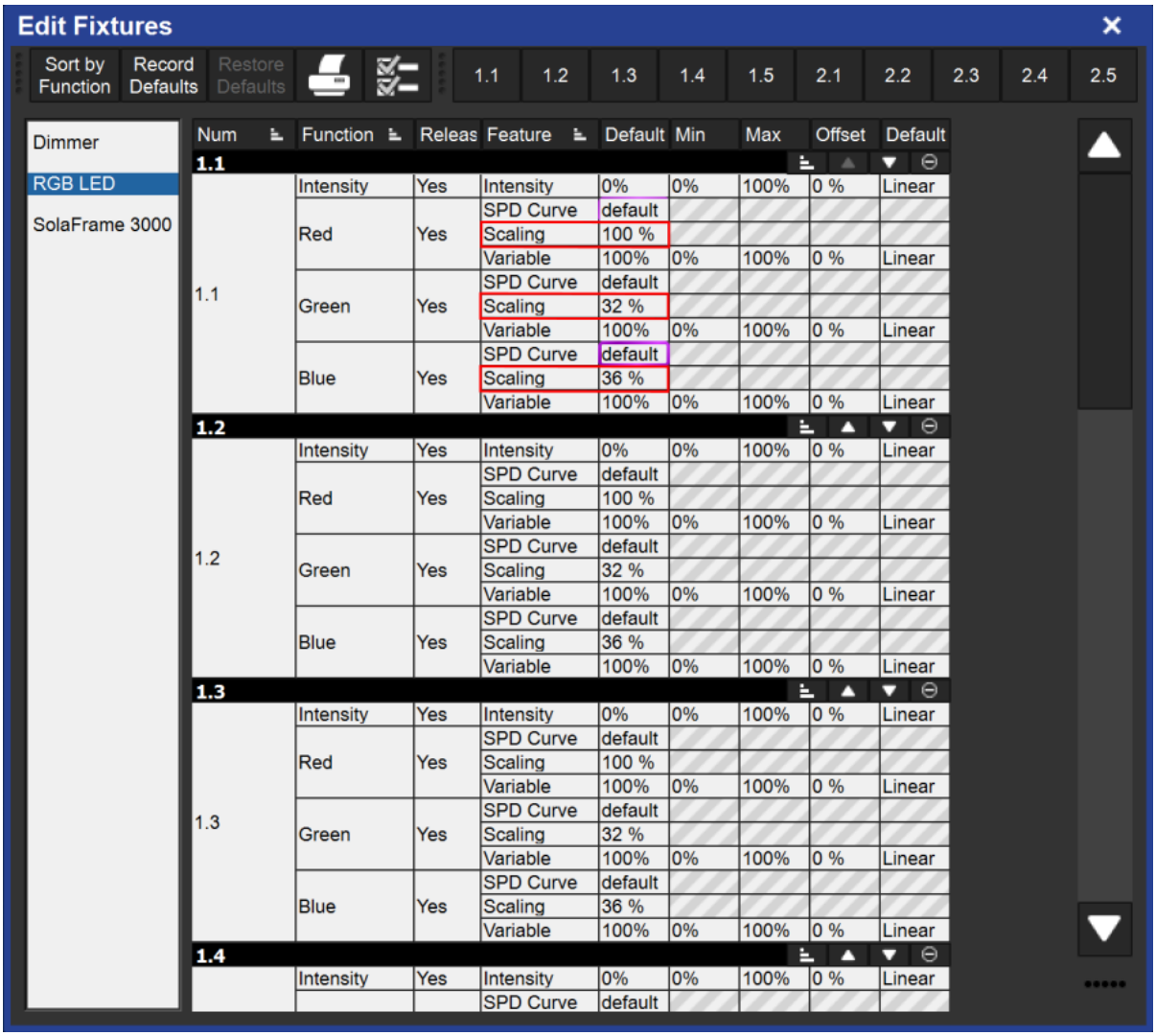
Modifying the SPD Curve and Scaling of Additive Color Functions

Additive Color Mixing functions have two features that can be adjusted in the edit fixtures window. These features impact how the console calculates physical color mixing values for the fixture when the virtual color mixing tools are used and vice-versa. Editing the default value of these features is only recommended when a fixture's color output does not match expected results.

The SPD Curve feature offers the ability to associate the function with a different spectral power distribution curve. The curves available include a series of generic curves with properties that generally match industry standard LEDs. The most common use case for changing the SPD Curve assigned to a function is to shift the LED's peak wavelength. Common examples include changing a blue SPD Curve to an indigo SPD Curve or changing a cool white SPD Curve to a neutral white SPD Curve.



The Scaling feature offers operators the ability to indicate the real-world brightness of an LED in relation to the SPD curve. When scaling is set to 100% the implication is that the LED on the fixture matches the brightness of the SPD. Setting the scaling to a value of 50% implies that the LED is 50% as bright as the SPD curve. Please note that scaling cannot be set above 100%. While it is possible to achieve decent results through manual adjustment of SPD scaling, it is recommended to use the ETC Relative Brightness Calculator spreadsheet in coordination with a calibrated spectrometer to determine the most appropriate scaling adjustments for color accuracy.



Num	Function	Releas	Feature	Default	Min	Max	Offset	Default
1.1								
1.1	Intensity	Yes	Intensity	0%	0%	100%	0 %	Linear
	Red	Yes	SPD Curve	default				
			Scaling	100 %				
			Variable	100%	0%	100%	0 %	Linear
	Green	Yes	SPD Curve	default				
			Scaling	32 %				
			Variable	100%	0%	100%	0 %	Linear
	Blue	Yes	SPD Curve	default				
			Scaling	36 %				
			Variable	100%	0%	100%	0 %	Linear
1.2								
1.2	Intensity	Yes	Intensity	0%	0%	100%	0 %	Linear
	Red	Yes	SPD Curve	default				
			Scaling	100 %				
			Variable	100%	0%	100%	0 %	Linear
	Green	Yes	SPD Curve	default				
			Scaling	32 %				
			Variable	100%	0%	100%	0 %	Linear
	Blue	Yes	SPD Curve	default				
			Scaling	36 %				
			Variable	100%	0%	100%	0 %	Linear
1.3								
1.3	Intensity	Yes	Intensity	0%	0%	100%	0 %	Linear
	Red	Yes	SPD Curve	default				
			Scaling	100 %				
			Variable	100%	0%	100%	0 %	Linear
	Green	Yes	SPD Curve	default				
			Scaling	32 %				
			Variable	100%	0%	100%	0 %	Linear
	Blue	Yes	SPD Curve	default				
			Scaling	36 %				
			Variable	100%	0%	100%	0 %	Linear
1.4								
	Intensity	Yes	Intensity	0%	0%	100%	0 %	Linear
			SPD Curve	default				

Adjusting SPD Curve and/or Scaling defaults does not alter the relationship between the real-world value range of an Additive Color mixing function and the DMX Channel value. For example, even if the Red function scaling default is 60%, the operator can still achieve the full DMX range for the fixture's Red emitter through use of the physical Red function.

Changes made to SPD Curve and Scaling defaults are applied on a per fixture, per function basis.

Parked

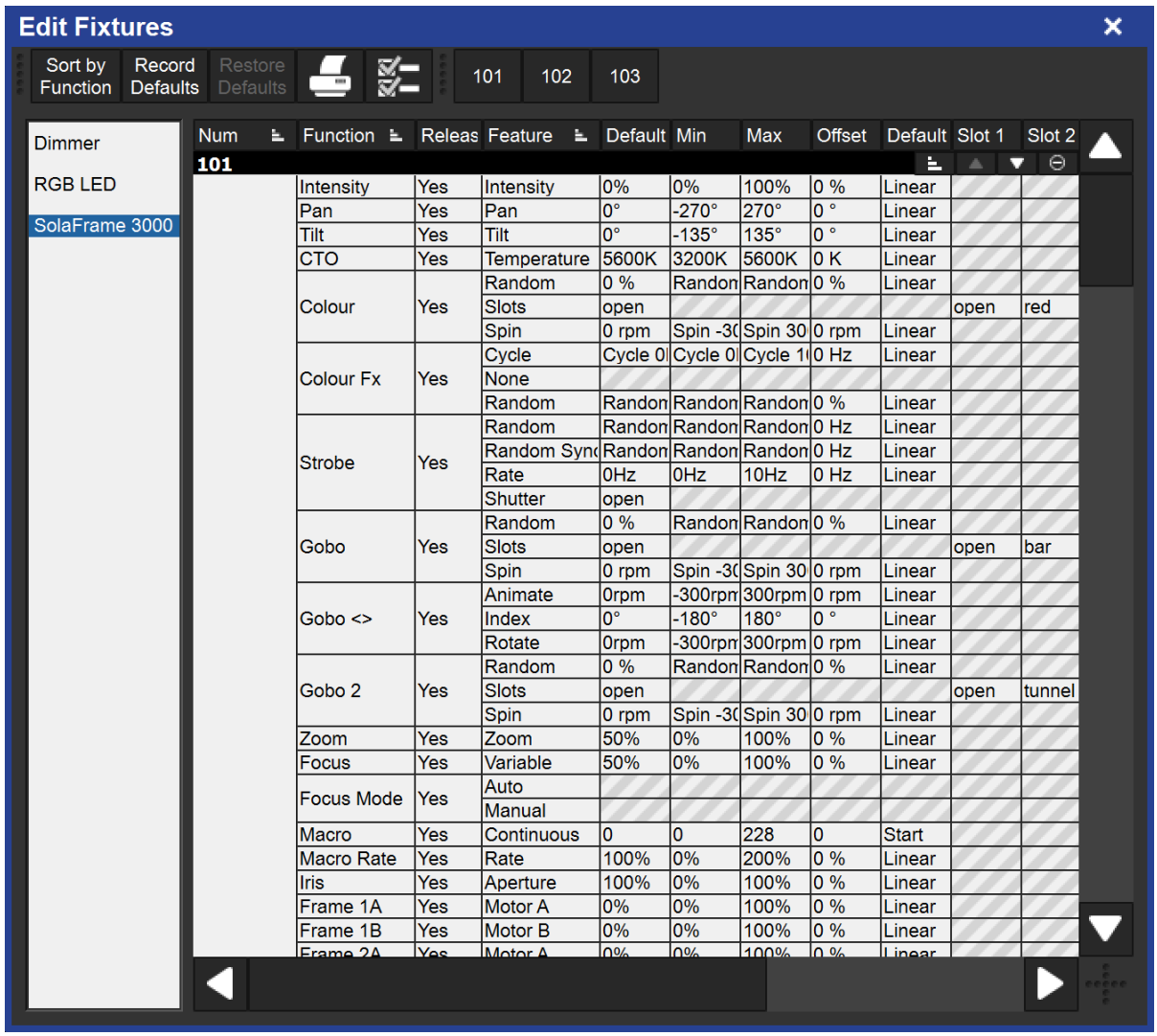
When the "show details" button is enabled at the top of the Fixture window a column labeled Parked will appear and shows whether the fixture has any of its parameters parked in output. You cannot edit this column, but it is useful to be able to check if the fixture is parked.

5.11.2 Parameter Configuration

You can configure settings that are specific to individual parameters in the Edit Fixtures window, as shown in the image below.

To open the edit fixtures window:

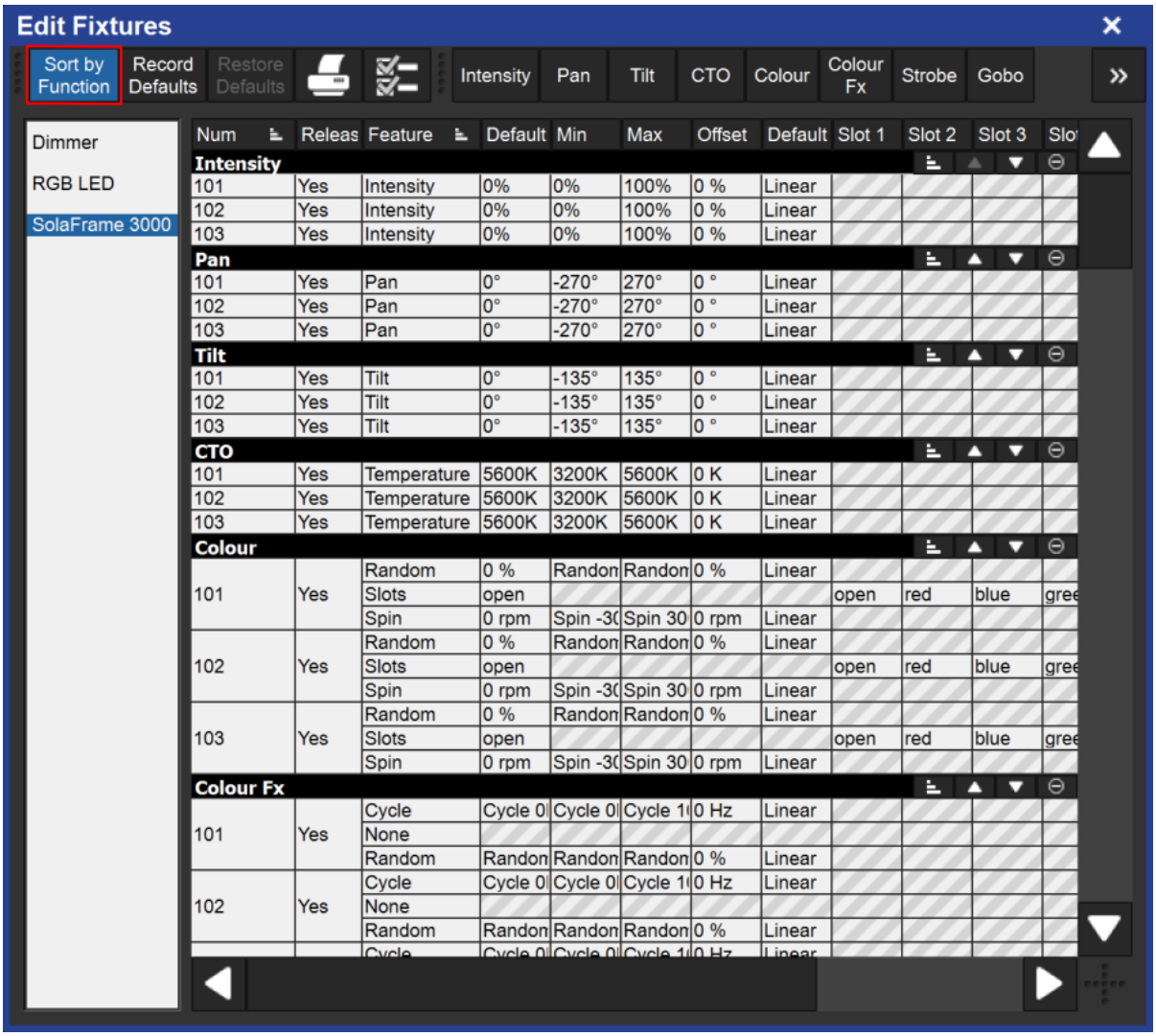
- **Setup → Patch → Edit Fixtures**



Num	Function	Releas	Feature	Default	Min	Max	Offset	Default	Slot 1	Slot 2
101										
	Intensity	Yes	Intensity	0%	0%	100%	0 %	Linear		
	Pan	Yes	Pan	0°	-270°	270°	0 °	Linear		
	Tilt	Yes	Tilt	0°	-135°	135°	0 °	Linear		
	CTO	Yes	Temperature	5600K	3200K	5600K	0 K	Linear		
	Colour	Yes	Random	0 %	Random	Random	0 %	Linear		
			Slots	open					open	red
			Spin	0 rpm	Spin -3(	Spin 30	0 rpm	Linear		
	Colour Fx	Yes	Cycle	Cycle 0I	Cycle 0I	Cycle 1(	0 Hz	Linear		
			None							
			Random	Random	Random	Random	0 %	Linear		
	Strobe	Yes	Random	Random	Random	Random	0 Hz	Linear		
			Random Sync	Random	Random	Random	0 Hz	Linear		
			Rate	0Hz	0Hz	10Hz	0 Hz	Linear		
			Shutter	open						
	Gobo	Yes	Random	0 %	Random	Random	0 %	Linear		
			Slots	open					open	bar
			Spin	0 rpm	Spin -3(	Spin 30	0 rpm	Linear		
	Gobo <>	Yes	Animate	0rpm	-300rpm	300rpm	0 rpm	Linear		
			Index	0°	-180°	180°	0 °	Linear		
			Rotate	0rpm	-300rpm	300rpm	0 rpm	Linear		
	Gobo 2	Yes	Random	0 %	Random	Random	0 %	Linear		
			Slots	open					open	tunnel
			Spin	0 rpm	Spin -3(	Spin 30	0 rpm	Linear		
	Zoom	Yes	Zoom	50%	0%	100%	0 %	Linear		
	Focus	Yes	Variable	50%	0%	100%	0 %	Linear		
	Focus Mode	Yes	Auto							
			Manual							
	Macro	Yes	Continuous	0	0	228	0	Start		
	Macro Rate	Yes	Rate	100%	0%	200%	0 %	Linear		
	Iris	Yes	Aperture	100%	0%	100%	0 %	Linear		
	Frame 1A	Yes	Motor A	0%	0%	100%	0 %	Linear		
	Frame 1B	Yes	Motor B	0%	0%	100%	0 %	Linear		
	Frame 2A	Yes	Motor A	0%	0%	100%	0 %	Linear		

You can select a fixture type from the list on the left hand side of the window. The main part of the window then shows the configurable settings for each fixture of that type. The numbered buttons in the Jump Toolbar at the top of the window take you quickly to a particular fixture of that type.

Pressing the **Sort by Function** button in the top left of the window changes the view, so that the main list groups each parameter together for all the fixtures of the type selected in the list. This is often the easiest way to work in the window, as you can easily click or press and then drag to select a range of cells to edit. For example, you could assign in one action the default value for the pan parameter of all the Studio Color 575 fixtures in the show.



Num	Releas	Feature	Default	Min	Max	Offset	Default	Slot 1	Slot 2	Slot 3	Slo
Intensity											
101	Yes	Intensity	0%	0%	100%	0 %	Linear				
102	Yes	Intensity	0%	0%	100%	0 %	Linear				
103	Yes	Intensity	0%	0%	100%	0 %	Linear				
Pan											
101	Yes	Pan	0°	-270°	270°	0 °	Linear				
102	Yes	Pan	0°	-270°	270°	0 °	Linear				
103	Yes	Pan	0°	-270°	270°	0 °	Linear				
Tilt											
101	Yes	Tilt	0°	-135°	135°	0 °	Linear				
102	Yes	Tilt	0°	-135°	135°	0 °	Linear				
103	Yes	Tilt	0°	-135°	135°	0 °	Linear				
CTO											
101	Yes	Temperature	5600K	3200K	5600K	0 K	Linear				
102	Yes	Temperature	5600K	3200K	5600K	0 K	Linear				
103	Yes	Temperature	5600K	3200K	5600K	0 K	Linear				
Colour											
101	Yes	Random	0 %	Randon	Randon	0 %	Linear				
		Slots	open					open	red	blue	gree
		Spin	0 rpm	Spin -3(	Spin 30	0 rpm	Linear				
102	Yes	Random	0 %	Randon	Randon	0 %	Linear				
		Slots	open					open	red	blue	gree
		Spin	0 rpm	Spin -3(	Spin 30	0 rpm	Linear				
103	Yes	Random	0 %	Randon	Randon	0 %	Linear				
		Slots	open					open	red	blue	gree
		Spin	0 rpm	Spin -3(	Spin 30	0 rpm	Linear				
Colour Fx											
101	Yes	Cycle	Cycle 0	Cycle 0	Cycle 1	0 Hz	Linear				
		None									
		Random	Randon	Randon	Randon	0 %	Linear				
102	Yes	Cycle	Cycle 0	Cycle 0	Cycle 1	0 Hz	Linear				
		None									
		Random	Randon	Randon	Randon	0 %	Linear				
		Cycle	Cycle 0	Cycle 0	Cycle 1	0 Hz	Linear				

Assigning Minimums and Maximums for Parameters

When fixtures are placed close to obstacles, such as trussing or set pieces, it may be important to limit movement to prevent accidental damage, especially when the fixture is out of view of the operator. However, other functions can also be limited, for example to implement a house or event policy on the use of strobe lighting.

Note that limits can only be assigned for continuous parameters, not slotted ones.

To assign limits:

1. **Setup** → **Patch** → **Edit Fixtures**
2. Select the **Minimum** cell of the parameter you wish to limit.
3. **Set**, **[new value]**, **Enter** : Enter a value as a real world unit. In the case of pan and tilt, it will be a plus or minus number of degrees from the fixture's default position.
4. Repeat to assign the **Maximum** value.

Modifying Fixture Function Defaults

The default value is the value that the parameter will take when no playbacks or editors are controlling it. Fixtures also go to their default setting when the console starts up. There are three different methods for modifying the default values:

To modify function defaults directly in the edit fixtures window:

1. **Setup** → **Patch** → **Edit Fixtures**
2. Select the **Default** cell of the desired parameter.
3. **Set**, **[new value]**
4. Input a value as a real world unit.
5. **Enter**

To modify function defaults using the programmer and record defaults button in edit fixtures:

1. Modify fixture parameters in the programmer to values that you desire as the default for that function on that fixture.
2. **Setup** → **Patch** → **Edit Fixtures**
3. Press the **Record Defaults** button at the top of the Edit Fixtures window.
4. Use the pop up dialogue to select which functions you want to modify the defaults for.
5. **Enter**

To modify function defaults from the command line:

1. Modify fixture parameters in the programmer to values that you desire as the default for that function on that fixture.
2. **Record** → **Fixture**
3. Use the pop up dialogue to select which functions you want to modify the defaults for.
4. **Enter**

Restoring Fixture Function Defaults

To restore the fixture function defaults of one or more fixtures to their fixture library values:

1. **Setup** → **Patch** → **Edit Fixtures**
2. Open the Programmer window
3. Select the fixtures that need to be restored
4. Press the **Restore Defaults** button at the top of the Edit Fixtures window

It is important to note that the **Restore Defaults** operation only works on currently selected fixtures.

If no fixtures are selected then the Restore Defaults button will be grayed out.

Assign a Parameter Offset

This setting allows you to offset the range of values over which a parameter varies. For instance if one fixture is hung at an angle to the bar, so that it has a different pan centre-point from all the others on that bar, then you could assign an offset so that the fixture appeared to line up from a programming and operating point of view.

To assign a parameter offset:

1. **Setup** → **Patch** → **Edit Fixtures**
2. Select the **Offset** cell of the desired parameter.
3. **Set**, **[new value]**, **Enter** : Enter a value as a real world unit.

Important: Applying an offset to a parameter after you have programmed values for it into your show will mean that those values will also be offset.

Naming Slots

Some fixture parameters are continuously variable, for example CMY colour mixing. On the other hand some parameters, for example gobo or colour wheels, work in discrete increments or ‘slots’.

The Fixture Library loaded into Hog OS defines the fixture's default slots, displayed on the **Slot Toolbar**, in palettes and the Programmer. When custom gobos or colours are used, you can customize the show file to display a suitable name for each gobo or colour slot, chosen from those in the fixture library.

To name a slot parameter:

1. **Setup** → **Patch** → **Edit Fixtures**
2. For the desired fixture, scroll right and select the **Slot** cell for the parameter required.
3. Press **Set**, select the desired slot name from the list, and press **Enter**.

Releasable Parameters

Fixture parameters move to their default values when they are released. You can prevent specific fixture parameters from returning to their default values, so that they hold their current value until they are assigned to a new programmed value.

To set a releasable parameter:

1. **Setup** → **Patch** → **Edit Fixtures** : open the Edit Fixtures window.
2. Click on the **Releasable** cell for the required fixture parameter.
3. Press the **Set** key to assign the fixture parameter to be releasable or not as required.

5.12 Auto Patch

Auto-patch is an easy way to quickly detect and patch fixtures that are connected and properly configured on the console's FixtureNet port. The following fixtures are currently supported by Hog OS for auto-patch:

- Arkaos MediaMaster (Software v5.0.3, 5.2.2, 5.3.1)
- High End Systems Axon HD (Software v1.0.3)
- High End Systems Axon HD Pro (Software v1.0.3)
- High End Systems DL.HD (Software v1.0.3)
- High End System MMS-100 (Software v1.0.3)

Caution: The IP address of the fixture/mediaserver must be set within subnetwork of the Hog console's FixtureNet port. Failing to do so will result in the fixture/mediaserver not being detected. If the fixture/mediaserver is set to obtain an IP address using DHCP and no DHCP server is present, users are advised to set the console's fixture net port to 169.254.1.1 with a netmask of 255.255.0.0 which will ensure auto-IP compatibility.

To auto-patch fixtures connected to the console's FixtureNet network:

1. Open the Fixture Window.
2. Click on the Auto-Patch button.
3. The console will begin searching for fixtures that are auto-patch compatible. Once the search is complete a list of auto-patchable fixtures will appear in the "select fixtures to auto-patch" window.
4. Select the fixtures you wish to auto-patch and press OK.
5. Hog OS will use the information supplied by the fixtures to:
    - Schedule the fixtures.
    - Patch the fixtures to the appropriate DMX channels using the lowest available universe.
    - Establish an Art-Net output mapping to the fixture in the Outputs tab of the processor node settings window.
6. If conflicts exist between the show's current patch and the fixture's settings, Hog OS will complete as much of the auto-patch as possible and display a warning message for any part of the process that did not succeed.

6. Selecting and Modifying Fixture Parameters

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6.1 Selecting Fixtures

There are three ways to select fixtures: using the command line with the numeric keypad, visually selecting and clicking on the fixture's number in the programmer, or by selecting groups from the groups directory.

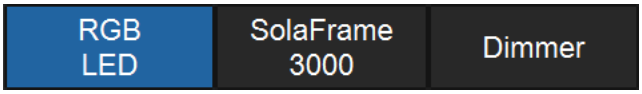
6.1.1 Selecting Single Fixtures

To select a single fixture visually in the programmer or other open editor, click on the fixture's number in the **Num** column of the spreadsheet.

To select a single fixture using the command line type the fixture's user number using the keypad and then press enter. For example, to select Studio Color number 1. If more than one fixture in the show file has the same user number then you must first specify the fixture type as demonstrated below.

For fixtures with dotted user numbers enter the whole number part of the user number to select all user numbers that match the whole number. If you want to select a specific dotted numbered fixture enter the entire user number including the whole number, the dot, and the part number. For complete details on selection syntax with dotted user numbers see Selecting fixtures with dotted user numbers.

Fixture, [RGB LED], 1 : when you press the **Fixture** key, types of available fixtures will appear at the bottom of the right hand touch screen, where you can select **RGB LED**:



Hog OS maintains the type of the last fixture selected. If, for example, Studio Colors are selected then all fixture numbers entered into the command line will refer to Studio Colors until a new fixture type is selected.

Tip: Repeated pressing of the **Fixture** key will cycle through the available fixture types.

Note that throughout this manual, the examples generally assume that you have assigned user numbers so that they are unique.

6.1.2 Selecting Multiple Fixtures

You can select more than one fixture using the +, - and Thru keys. For example:

- **1+5, Enter** : selects fixtures 1 and 5.
- **1 Thru 5, Enter** : selects fixtures 1 to 5.
- **1 Thru 5- 4** : selects fixtures 1 to 5, but not 4.
- **1 Thru 5+7** : selects 1 to 5 and also 7.
- **5 Thru Enter** : selects from fixture 5 of the current type through to the last fixture of the current type.
- **Thru Enter** : selects all fixtures of the current type.

Note that selections are cumulative, building the total selection, until the selection is used to perform an action on the selected fixtures. After that, subsequent selections start from nothing, unless you use **+** or **-** to add or subtract from the previous selection.

> Tip: To select all fixtures of a particular type, press the **Fixture** key then **Pig + [Fixture type]** from the toolbar at the bottom of the right-hand touch screen.

6.1.3 Selecting fixtures with dotted user numbers

Selecting fixtures with dotted user numbers can be done in a variety of ways. The tables listed in this section demonstrate all of the supported selection syntax mechanisms supported by the Hog OS for fixtures with dotted user numbers.

The following examples assume all of the fixtures on the right hand side of the table are scheduled in the show while the user numbers highlighted in blue are fixtures that have been selected as a result of the syntax entered on the left hand side of the table:

All Part Selections

start		end	result				
12			11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			single/all				
12	>	14	11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			range/all				
12	>		11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			start/all				
	>	14	11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			end/all				

Whole Portion Only Selections

start		end	result				
12 .			11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			single/master				
12	>	14 .	11	12	13	14	15
12 .	>	14	11.1	12.1	13.1	14.1	15.1
12 .	>	14 .	11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			range/master				
12	>	.	11	12	13	14	15
12 .	>		11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			start/master				
	>	14 .	11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			end/master				

Part Portion Selections

start		end	result				
12 . 2			11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			single/single				
12 . 2	>	14 . 2	11	12	13	14	15
12	>	14	11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			range/single				
12	>	. 2	11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			start/single				
	>	14 . 2	11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			end/single				

start		end	result				
12 . 2	>	. 4	11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			single/range				
12 . 2	>		11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			single/start				
12 .	>	. 3	11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			single/end				
12 . 2	>	14 . 4	11	12	13	14	15
			11.1	12.1	13.1	14.1	15.1
			11.2	12.2	13.2	14.2	15.2
			11.3	12.3	13.3	14.3	15.3
			11.4	12.4	13.4	14.4	15.4
			11.5	12.5	13.5	14.5	15.5
			range/range				

Part Portion Selections with .0

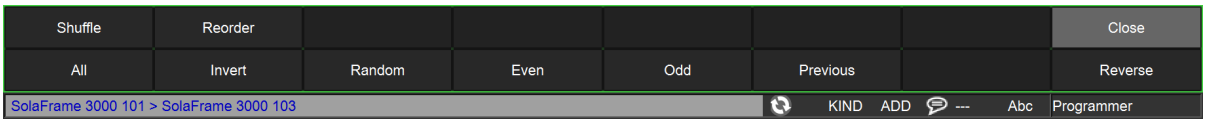
start		end	result
12 . 0			11 12 13 14 15 11.1 12.1 13.1 14.1 15.1 11.2 12.2 13.2 14.2 15.2 11.3 12.3 13.3 14.3 15.3 11.4 12.4 13.4 14.4 15.4 11.5 12.5 13.5 14.5 15.5 *single/cells*
12	>	14 . 0	11 12 13 14 15 11.1 12.1 13.1 14.1 15.1 11.2 12.2 13.2 14.2 15.2 11.3 12.3 13.3 14.3 15.3 11.4 12.4 13.4 14.4 15.4 11.5 12.5 13.5 14.5 15.5 *range/cells*
12 . 0	>	14	
12 . 0	>	14 . 0	
12	>	. 0	11 12 13 14 15 11.1 12.1 13.1 14.1 15.1 11.2 12.2 13.2 14.2 15.2 11.3 12.3 13.3 14.3 15.3 11.4 12.4 13.4 14.4 15.4 11.5 12.5 13.5 14.5 15.5 *start/cells*
12 . 0	>		
	>	14 . 0	11 12 13 14 15 11.1 12.1 13.1 14.1 15.1 11.2 12.2 13.2 14.2 15.2 11.3 12.3 13.3 14.3 15.3 11.4 12.4 13.4 14.4 15.4 11.5 12.5 13.5 14.5 15.5 *end/cells*

Tip: Open ended fixture selections stop when a break (gap) in the whole portion of the user numbers is detected. In addition, open ended selections made within a range of part number portions will stop if a break (gap) is discovered in the part number portion of the selection.

6.1.4 Select All

You can select all the fixtures in the Programmer by pressing the ALL key on the front panel of the console or by using the **All** button on the **Select Toolbar**. For example:

1. SolaFrame 3000's 101 to 103 are in the Programmer, but not selected.
2. **Main Toolbar** → **Select** : open the Select Toolbar
3. **All** : the selection is now SolaFrame 3000's 101 to 110.



6.1.5 Inverting the Selection

You can invert the current selection of fixtures so that the fixtures in the editor that were previously not selected become the new selection. For example:

1. SolaFrame 3000's 101 to 110 are in the Programmer.
2. **Fixture 102 + 104 + 106 + 108 + 110** : select SolaFrame's 102, 104, 106,108 and 110:

SolaFrame 3000	
101	50%
102	50%
103	50%
104	50%
105	50%
106	50%
107	50%
108	50%
109	50%
110	50%

3. **Main Toolbar** → **Select** : open the Select Toolbar
4. **Invert** : the selection is now SolaFrame's 101, 103, 105,107 and 109:

SolaFrame 3000	
101	50%
102	50%
103	50%
104	50%
105	50%
106	50%
107	50%
108	50%
109	50%
110	50%

6.1.6 Sub Selections

Sub selections can be made from within the current selection, using the **Next** and **Back** keys, and the **Odd**, **Even** and **Random** buttons on the Select Toolbar:

- **Main Toolbar → Select**

Random: The **Random** button selects a single fixture at random from the current active selection in the Programmer.

Even and Odd: The **Even** and **Odd** buttons on the Select Toolbar select the even and odd fixtures from the current selection, according to the Selection Order. Note that the selection order is not related to fixture user numbers, so the sub selection produced by Odd might contain even-numbered fixtures.

Pig + Even and Odd: To select even or odd fixtures from the current selection based upon fixture user numbers, use **Pig** + **Even** or **Pig** + **Odd**. For fixtures with dotted user numbers, only the whole number portion of the user number is considered when determining odd and even selections when pig is held down.

Next and Back: The **Next** and **Back** keys on the console select a single fixture (or fixture part) from within the current selection. Repeatedly pressing Next or Back steps forwards or backwards through the current selection, with the order determined by the Selection Order.

Group + Next and Back: Holding **Group** while pressing the **Next** and **Back** keys on the console selects the next / previous segment of fixtures as established by the segments and buddying parameters. For example if 16 fixtures are selected in segments of 4, and "next by segment" is turned on, then holding **Group** while pressing **Next** will select fixtures 1<4, then 5<8, and so on. If "next by segment" is turned off, then holding **Group** while pressing **Next** will select a fixture from each of the four segments.

Fixture + Next and Back: Holding **Fixture** while pressing the **Next** and **Back** keys on the console selects the next / previous whole number fixture (and any applicable fixture parts) within the current fixture selection.

Dot + Next and Back: Holding down the dot (period) key while pressing the **Next** and **Back** keys on the console selects the next / previous fixture part of the currently selected whole number fixture(s).

> Tip: When the Trackball is in position mode, the bottom left Trackball key also acts as a Next key. This can make it very fast to work through a selection of fixtures assigning their position.

6.1.7 Lateral Selections

Lateral selections can only be used for fixtures in the show that have dotted user numbers (1.1, 1.2, etc). Much like sub selections, lateral selections are based on the current selection. However, unlike sub-selections, lateral selections do not select fixtures within the current selection. Instead, lateral selections compare the whole number portions of the currently selected fixtures to other fixtures in the show to make a new selection. The table below shows six lateral selection syntaxes that can be used:

Syntax	Result
[.] [enter]	Selects fixtures in the show that have a whole number portion that matches the whole number portion of any fixtures in the current selection but will not select the fixture if it has a part number portion. This is primarily used to allow users to select the main or master portion of a compound fixture.
[.] [.] [enter]	Selects fixtures in the show that have a whole number portion that matches any whole number portion of any fixtures in the current selection.
[.] [#] [enter]	Selects fixtures in the show with user numbers that match the whole numbers portions of the current fixture selection and that contain the specified dotted part number.
[.] [#] [thru] [.] [#] [enter]	Selects fixtures in the show with user numbers that match the whole number portions of the current fixture selection and that fall within the specified part number range.
[.] [0] [enter]	Selects fixtures in the show with user numbers that match the whole number portions of the current fixture selection and that have a part number. If the fixture doesn't have a part number it won't be selected.
[thru] [.] [#]	Selects fixtures in the show with user numbers that match the whole number portions of the current fixture selection and that fall within the specified open ended part number range.

Tip: Lateral selections are not additive selections; they are new selections. This means that regardless of whether or not an edit has been made to the current selection, making a lateral selection will start a completely new selection unless [+] is used when making the lateral selection in which case the lateral selection will be added to the current selection.

6.1.8 Deselecting Fixtures

To deselect all selected fixtures, press the **Backspace** key when the command line is empty.

To deselect specific fixtures, use the **-** key:

- **- Fixture 1** : deselects Fixture 1.

Alternatively, you can deselect a fixture visually in the Programmer or editor window by clicking on its number in the **Num** column.

6.1.9 Re-selecting Fixtures

You can recall the last sub selection made before deselecting fixtures by pressing **Previous** on the Select Toolbar.

6.2 Selection Order

The order in which you select fixtures has significance when fanning and effects are applied to them. For example, applying a fan or effect after selecting fixtures 1-5 can appear different than if you selected fixtures 1 + 3 + 2 + 4 + 5. More details can be found in the respective sections. **Fanning** and **Effects**.

The selection order is relevant during programming, and is recorded as part of groups, but it is not recorded in palettes, cues or scenes.

> Tip: Because the console records the selection order as part of groups, you can select the group and use the **Next** and **Back** keys to sub-select each fixture in a particular order. By controlling the selection order when you record the group, you can then work through a series of fixtures in the order they are physically positioned in the rig, instead of in numerical order.

6.2.1 Reverse, Shuffle and Reorder

You can change the selection order of fixtures in predefined ways. The **Reverse**, **Shuffle**, and **Reorder** buttons are on the Select Toolbar and Fanning Toolbar:

- **Main Toolbar** → **Select** : open the Select Toolbar.

Reverse: reverses the selection sequence, so that the last is first and the first is last. For example, the fixture selection 1-5 becomes 5-1.

Shuffle: randomizes the selection order of the current selection. For example, the fixture selection 1-5 becomes 3 + 5 + 2 + 1 + 4.

Reorder: sorts the selection order to match the User Number order. For example, the fixture selection 3 + 5 + 2 + 1 + 4 becomes 1-5.

> Tip: The **Reverse**, **Shuffle**, and **Reorder** buttons can also be found on the Fanning Toolbar, which you can open by pressing and holding the **Fan** key. See **Fanning**.

6.3 Modifying Parameters

Once fixtures are selected within an editor, you can modify their parameters.

Hog consoles provide several ways to adjust the different parameter types:

- **Command Line:** Use for intensity and selecting palettes.
- **I-Wheel:** Use for intensity.
- **Trackball:** Use for position (pan and tilt). Use the top-right Trackball key to switch the Trackball between controlling the on-screen pointer and the position of selected fixtures.
- **Parameter Wheels:** Use for all fixture functions. To change the parameter type currently controlled by the parameter wheels, select one of the fixed kind keys on the front panel: **Intensity**, **Position**, **Colour**, **Beam**, **Effect**, and **Time** or one of the user kind keys on the front panel. For consoles that don't have a dedicated user kind keys on the front panel you may select user kinds using the kinds directory as long as the guard button for the kinds directory is turned off.

If the fixture has more parameters of a particular type than there are parameter wheels you can press the parameter type keys to page through the parameters.

- **Center Wheel**: Functions assigned to the center wheel in the user preferences can be adjusted using the inner wheel and outer jog shuttle controls of the center wheel. (Hog 4 Console Only)
- **Slot Toolbar**: The slot toolbar appears on Hog 4 Series Consoles and Hog PC in Classic or Nano mode. It is useful for adjusting parameters that have discrete 'slotted' function values such as gobos on a gobo wheel. The right side of the Slot Toolbar presents three permanent buttons: **Enable**, **Mode** and **Control**. These buttons provide access to toggles that can be used for control functions on the fixture such as homing fixture components and toggling fixture features.
- **Select Toolbar**: The select toolbar is available on all Hog OS consoles and is shown on the dashboard displays of the Tour Hog and Stage Hog consoles. Depending on the console platform the select toolbar may be located above or below the command line. The select toolbar has several buttons that can be used to manipulate fixture functions values in the active editor. These include **Touch**, **Suck**, **Out**, **Rem Dim**, **Knockout**, **Flip**. On console platforms where the slot toolbar is not present, an additional **EMC** button is available on the select toolbar to provide access to toggles that can be used for control functions on the fixture such as homing fixture components and toggling fixture features.
- **Spreadsheet**: You can directly edit a parameter's value in an editor's spreadsheet view. Click on the cell, press **Set**, type in a value and press **Enter**.
- **Colour Picker**: You can assign hue and saturation values for a fixture's colour using the Colour Picker. See The Colour Picker.
- **Gel Picker**: You can assign the colour of fixtures to match a colour filter from various manufacturers' ranges using the Gel Picker. See The Gel Picker.

6.3.1 Intensity

Fixture intensities can either be assigned from the keypad or using the **I-Wheel**, as well as the parameter wheels and by editing directly in the editor spreadsheet.

With the @ Key

To assign intensities using the **@** key and the numeric keypad:

- **Fixture 4 @ 70**, **Enter** : assigns Fixture 4 to 70%.
- **Fixture 4 @ 5**, **Enter** : assigns Fixture 4 to 50% (not 5%).
- **Fixture 4 @ 05**, **Enter** : assigns Fixture 4 to 5%.

To assign fixtures to full or zero:

- **Fixture 4 Full** : assigns Fixture 4 to full.
- **Fixture 4 Out** : assigns Fixture 4 to zero. The **Out** button is on the **Main Toolbar**.

The intensity of a fixture can be changed relative to its current level, for example:

- **Fixture 4 @ + 5, Enter** : increases the intensity of Fixture 4 by 50%.
- **Fixture 4 @ - 10, Enter** : reduces the intensity of Fixture 4 by 10%.

The intensity of a fixture can be scaled proportionally, for example:

- **Fixture 4 @ / 70**, **Enter** : scales the intensity of Fixture 4 to 70% of its original value.
- **Fixture 4 @ / 120**, **Enter** : scales the intensity of Fixture 4 to 120% of its original value.

With the i-Wheel;

On the Hog Console and on Hog PC only: Moving the **I-Wheel** changes the level of the selected fixtures. When selecting several fixtures and adjusting levels, the wheel will maintain relative differences between them, so that all intensities change by the same amount. For example, if fixture 1 is at 10%, 2 at 50% and the wheel is increased by 10%, then fixture 1 will move to 20% and 2 will move to 60%.

By holding the **Pig** key whilst using the wheel, intensities will be increased or decreased in proportion to their individual level. For example, if fixture 1 is at 10%, 2 at 50% and the wheel is increased by 10%, then fixture 1 will move to 11% and 2 will move to 55%.

On the Hog Consoles and Hog PC only: The **Nudge Up** and **Nudge Down** keys can be used to increase and decrease the intensity by a preset amount. The size of the increment is 10% by default, but you can change it in the **Programming** pane of the **User Preferences** window.

Using **Pig** + **Nudge Up** and **Pig** + **Nudge Down** will create a half nudge step. It will increase or decrease the intensity by half of the assigned amount. For instance if the nudge value is set to +10% a Pig + Nudge Up will produce +5%.

Remainder Dim

The **Rem Dim** button on the **Main Toolbar** sets the intensity of any unselected fixtures in the current editor to 0%. The **Rem Dim** button is disabled by default in new shows. To enable the **Rem Dim** button open the preferences window and turn off the "Disable Rem Dim Button" located under the programming tab.

6.3.2 Position

Multiple options exist for modifying the position parameters.

Using the Trackball

To switch the Trackball from controlling the cursor to controlling fixture position, press the top right selection key adjacent to the Trackball. When controlling fixture position the Trackball will glow blue, and can be used in two modes. To change mode press the top right Trackball selection key.

- **Position Mode**: In the default mode, the pan and tilt of the fixture follows the movement of the Trackball.
- **Ortho Mode:** Ortho mode helps the accurate positioning of fixtures by constraining pan while changing tilt, or vice versa.

The Status Bar at the right hand end of the Command Line Toolbar shows when the Trackball is in Position Mode with the legend 'POS', and when it is in Ortho Mode with the legend 'Ortho'.

You can assign the way that fixtures move in relation to the Trackball. See Swap Axes.

Tip: An external mouse will always control the graphical pointer, so you can keep the Trackball in position mode to save having to change modes as you program.

Using the Parameter Wheels

The pan and tilt parameters also appear on the parameter wheels after the **Position** key is depressed, and can be used as an alternative to the Trackball.

Flip

With some moving lights, there is more than one combination of pan and tilt that results in the beam hitting the same point on the stage. You may sometimes want to change the pan and tilt combination being used, for example to ensure that the fixture takes the most direct route during a position change.

The Flip function cycles the selected fixtures through the possible combinations in turn. To do this, select the fixture or fixtures and press **Flip** on the **Main Toolbar.**

Holding the **Pig** key down while pressing **Flip** cycles through the combinations the other way.

Tip: When the Trackball is in position mode, the top left Trackball key also acts as a Flip key, for quick access while positioning fixtures.

6.3.3 Continuous Parameters: Colour and Beam

Colour and beam parameters can be either discrete (known as ‘slotted’) or continuous. An example of a slotted parameter is the gobo and colour wheels in a moving light, which can be assigned to values such as Gobo 1 and Colour 3. Examples of continuous parameters are the colour mixing controls on some moving lights, irises, and variable-speed strobes; these can be assigned to a percentage or real-world value. It is sometimes useful to treat slotted parameters as continuous; for example, you might want to assign a gobo or colour wheel part way between two positions to achieve a particular effect. Hog OS allows you to treat such parameters as either slotted or continuous when assigning values to them.

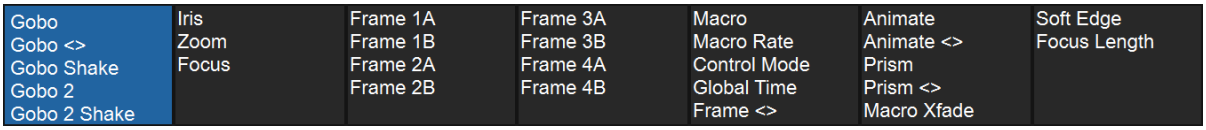
To control continuous colour and beam parameters:

1. Press the appropriate parameter type key : **Colour** or **Beam** or any user kind key that contains colour and beam functions. The **Wheels Toolbar** shows the available parameters and their current value.
2. If the selected fixture has more parameters of the selected type than there are wheels, the **Wheelsets Toolbar** will open. Page through the available parameters by pressing the parameter type key again, or select a button on the toolbar.
3. Adjust the parameter value using the parameter wheels.

The Wheels Toolbar for the Beam Parameters of a Studio Spot 575



The Wheelsets Toolbar for a Studio Spot 575

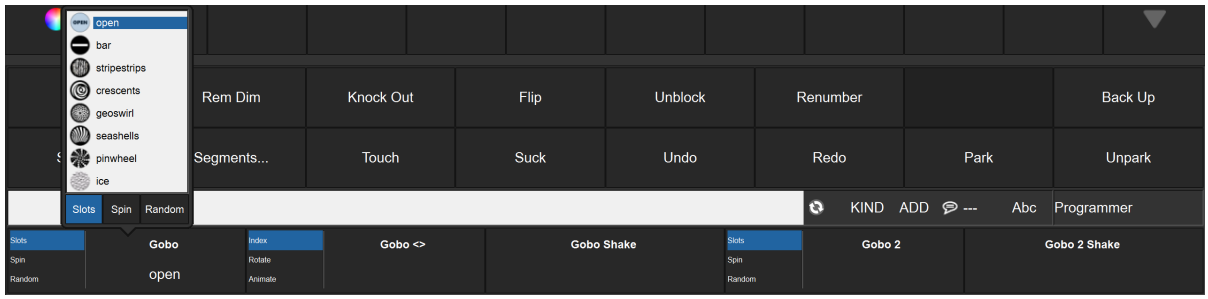


Some parameters that appear on the parameter wheels have more than one mode. These modes are shown as a list on the Wheels Toolbar, and you can select the modes by clicking on the wheel's button on the toolbar.

Direct Value Entry

For parameters appearing on the parameter wheels, you can hold **Set**, then press the associated button on the Wheels Toolbar to open a direct value entry dialog.

The Wheels Toolbar Direct Entry Dialog



Enter a value for the parameter in the direct value entry box and select any available modes. Press **Enter** to complete the direct value entry.

Snapping to a Single Value

When you have several fixtures selected, you can make all the values of a parameter the same as that of the first fixture:

- Press and hold the **/** key while turning the appropriate parameter wheel.

Jumping to Endstop Values

You can assign a parameter to its endstop values:

- Press and hold the **+** key and adjust the appropriate parameter wheel clockwise to assign the parameter to its maximum value, and anticlockwise to assign the parameter to its minimum value.

Inverting Parameter Values

Some parameters have values either side of zero; for example, gobo rotation speed. You can invert such parameters so that they have the same value but the other side of zero. In the case of gobo rotation, this reverses the direction whilst maintaining the current speed. To invert a parameter:

- Press and hold the **-** key and adjust the appropriate parameter wheel.

6.3.4 Slotted Parameters: Colour and Beam

To control slotted colour and beam parameters such as gobo and colour wheels:

1. Press the appropriate parameter type key : **Colour** or **Beam**. The **Slot Toolbar** shows the available parameters.
2. Click on the required parameter, and an additional toolbar will open showing the available slot positions.
3. Select a slot from the available slot positions.

The Slot Toolbar for a Sola Frame 3000



The Colour Slots Toolbar for a Solo Frame 3000, for Colour wheel 1.



6.3.5 Color Mixing

Fixtures with variable color mixing capabilities can be controlled using variety of tools in Hog OS including the Color Picker window, encoder wheels, and directly in editor spreadsheets.

Editing the color mixing parameters of a fixture is fundamentally the same as editing other parameters in Hog OS with the following exceptions:

- Color mixing functions in Hog OS cannot be separated. Whenever a physical or virtual color mixing function is ‘touched’ in an editor, all the other color mixing functions will also be ‘touched' even if the “separate parameters” option is turned off for the Colour Kind. This is also true for knockout. If a color mixing function is knocked out, then all color mixing functions are knocked out.

The Colour Picker

The Colour Picker window features a variety of different graphical color mixing controls that dynamically change based on the current fixture selection.

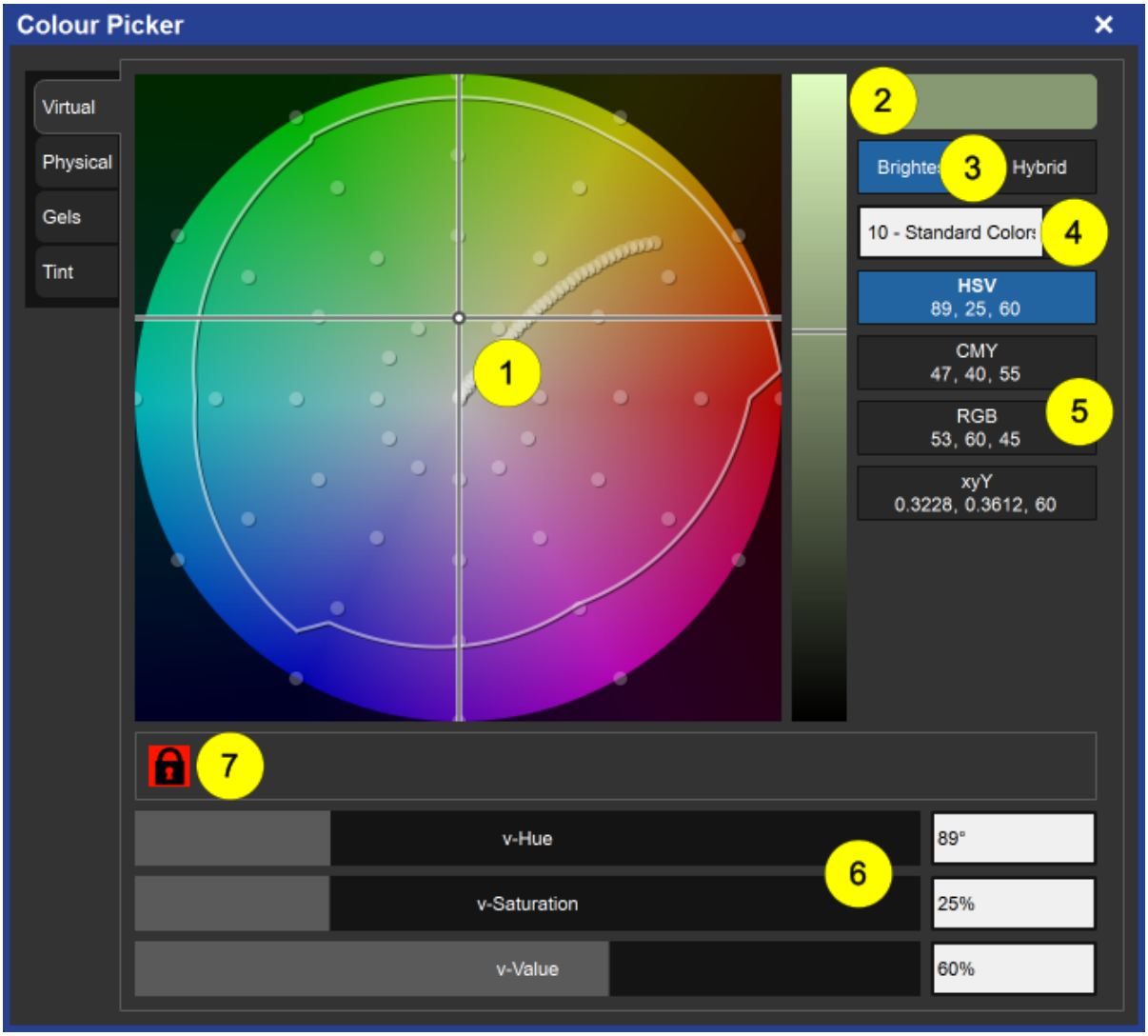
The Colour Picker Window can be opened using the following methods:

- Hold down the Open key and select Colour Picker
- Pig + Open + Colour
- Press the Colour Picker button at the top of the Colour Directory window.
- Press and hold on the touch screen in an empty area to bring up a menu window and press Colour Picker button in the menu window.

The Colour Picker window has four tabs (Virtual, Physical, Tint, and Gel) which allow the operator to quickly access different sets of color mixing tools.

Virtual Tab

The virtual tab contains a variety of sliders and graphical controls across different color spaces that allow operators to mix a desired color which Hog OS uses to generate a physical color function values for each fixture in the current selection based on each fixture's unique color mixing capabilities.



1. Color Space Graphic Control

   A graphical representation of the selected color space (see color space selector menu). When color mixing fixtures are selected a white outline will appear that represents the color gamut of the first fixture type in the current selection. A solid gamut line indicates the fixture type is calibrated whereas a dotted gamut line indicates the fixture type is not calibrated. White crosshairs indicate the currently selected color.

2. Preview cell

   Shows a preview of the expected color mixing system output of the first fixture in the current selection.

3. Brightest / Hybrid

   This option determines which physical metamer mix will be used to create the chosen virtual color. The brightest option results in metamer mixes that prioritize perceived brightness over color accuracy. The hybrid option prioritizes color accuracy while still trying to maintain brightness.

4. Gel Overlay Menu

   Shows different gel swatch books on the picker graphical control. Console will not snap to gels unless click or tapped on in the UI.

5. Color Space Selector Menu

   Tapping or clicking on the color space menu switches the graphical control, sliders, and direct entry boxes to the next color space in the list.

6. Function Sliders and Direct Entry Boxes

   The sliders control the various virtual color mixing parameters by click or touch and drag whereas the direct entry boxes allow for discrete entry of a specific value. Interactions with these controls include:

   - Single Click or Tap anywhere on slider = nudge positive or negative
   - Double Click or Tap anywhere on slider = jump to value
   - Click / Press and drag on slider = jump and move with cursor

7. Status tray

   The status tray shown below the graphical color mixing controls indicates which (if any) physical color mixing functions are locked. When physical color mixing functions are locked the effective gamut of one or more fixtures in the current selection is reduced. To manually lock and unlock physical color mixing functions use the lock buttons located in the physical tab of the Colour Picker.

Physical Tab

The Physical tab of the Colour Picker window displays the physical color mixing functions for all fixtures in the current fixture selection. The physical tab does NOT display supplemental color mixing functions such as CCT, CTO, or CTB as these functions only appear on the encoder wheels and in editor spreadsheets.



1. Physical Function Sliders

   Graphical UI elements that adjust parameter values of the represented physical function.

   - Single Click or Tap anywhere on slider = nudge positive or negative
   - Double Click or Tap anywhere on slider = jump to value
   - Click or Press and drag on slider = jump and move with cursor

2. Function Lock

   Locking a physical color mixing parameter prevents that parameter from being modified when using the virtual color mixing tools, adjusting tint, or applying gels.

3. Direct Entry Boxes

   Displays the current value of the physical function and allows for direct entry of the desired level.

4. Preview cell

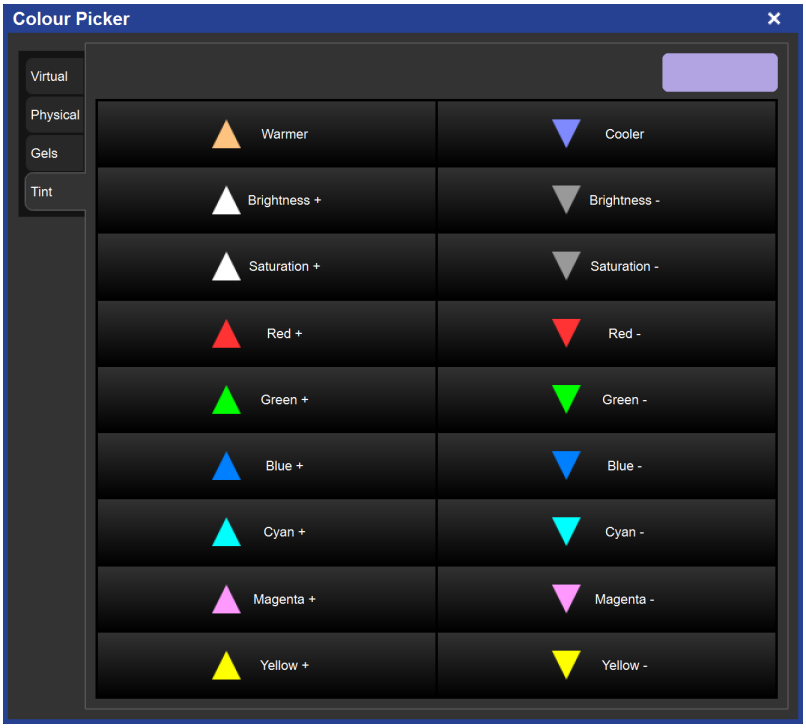
   Shows a preview of the expected color mixing system output of the first fixture in the current selection.

5. SPD Toggle

   Toggles the physical tab into a Spectral Power Diagram view.

Tint Tab

The tint tab contains a series of buttons that apply relative adjustments to the color mix of the current fixture selection. Press and release any button to apply a small adjustment. Press and hold any button to apply a continuous adjustment.



Gel Tab

The Gels tab can be used to apply variety of industry standard gels to the current fixture selection.

To use the gels tab:

1. Select one of the gel books in the vertical left-hand menu. Gels from the selected book are presented in color coded cells along with a number and name. Gel names and colors cannot be edited by the operator.
2. Select a gel from the gel book to apply it to all color mixing capable fixtures in the current selection.

It is important to note that selecting a Gel only copies color mixing values to the selected fixtures. No reference to the gel is created in programming.



1. **Brightest / Hybrid** - determines which metamer mix the console will use to achieve the selected gel color. The "Brightest" option yields the most luminous result whereas "Hybrid" sacrifices some brightness to achieve a more accurate color result.
2. **Sort Hue** - when enabled, the gels in the selected gel book will be displayed in hue order. When this option is not selected the gels in the selected gel book will be displayed in gel number order.
3. **Similar**- reduces the number of gels displayed in the selected gel book to only those that are visually similar to the currently mixed color of the first fixture in the current fixture selection.
4. **Gel Books** - gels are collected into different gel books which can be selected using the Gel Book buttons which are displayed along the left-hand side of the gels tab.
5. **Gels Grid** - the gel area shows all of the stored gels for the currently selected gel book. The gel area can be scrolled using cursor keys and/or two finger touchscreen gesture.

6.3.6 Fine Control

Holding the **Pig** key and moving the encoder wheel allows fine adjustment of the currently selected parameter, so that each turn of the wheel will change the parameter value by a smaller amount. This is useful for making exact adjustments to values.

6.3.7 Touching Parameters

When you start to record your programming as cues you will find that only the parameters that you have assigned values to are stored; these are known as 'Hard Values'. This is important because in cuelists values track through until they are changed, and this allows different playbacks to interact to create a single onstage look. For a complete explanation of tracking, see Tracking.

However you will sometimes want to ensure that a value is stored at its current value in a cue or palette. To do this you can Touch it:

- To touch all parameters of the current selection simply press the Touch key on the Main Toolbar.
- To touch only the parameters of a particular kind, press the appropriate parameter type key followed by **Touch**. For example: **Position Touch** : touches all position parameters of the selected fixtures.
- To touch a single parameter you can hold the **Touch** button while moving that parameter's wheel slightly. The current value will be touched without modification from the parameter wheel.

Untouched values appear in the editor with a white background. Once you have touched parameter values they are available for recording in the same way as any value that you have assigned. They are shown with a blue background, indicating that they have been modified:

Parameters before and after Touching

Num	Intensity	Colour Mix	Strobe	Position	
			Type	Pan	Tilt
SolaFrame 3000					
101	21%			50°	31°

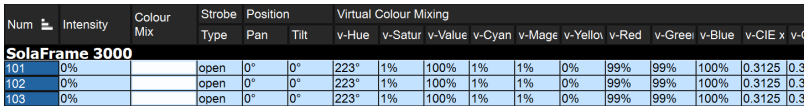
Num	Intensity	Colour Mix	Strobe	Position	
			Type	Pan	Tilt
SolaFrame 3000					
101	21%			67°	31°

Using Pig + Touch

You can bring parameter values into an editor without touching them using **Pig** + **Touch.** As the parameters haven't been touched, they won't be recorded as part of the contents of the editor. This can be useful if you want to have the parameter values in the editor in order to copy them to other fixtures.

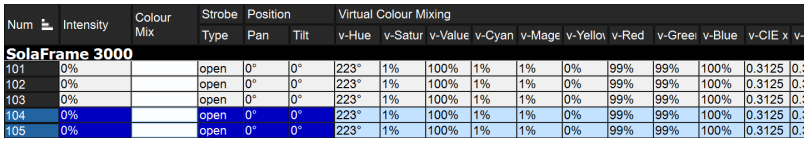
For example, to copy parameter values from a selection of fixtures that are on stage to another selection of fixtures in the current editor:

1. **101 Thru 103 Pig** + **Touch** : select the fixtures 101-103, and bring their onstage values into the editor without touching them:



Num	Intensity	Colour Mix	Strobe	Position		Virtual Colour Mixing										
			Type	Pan	Tilt	v-Hue	v-Satur	v-Value	v-Cyan	v-Mage	v-Yello	v-Red	v-Gree	v-Blue	v-CIE x	v-
SolaFrame 3000																
101	0%		open	0°	0°	223°	1%	100%	1%	1%	0%	99%	99%	100%	0.3125	0.3
102	0%		open	0°	0°	223°	1%	100%	1%	1%	0%	99%	99%	100%	0.3125	0.3
103	0%		open	0°	0°	223°	1%	100%	1%	1%	0%	99%	99%	100%	0.3125	0.3

2. **Copy 104 Thru 105**, **Enter** : copy the parameter values to fixtures 104-105:



Num	Intensity	Colour Mix	Strobe	Position		Virtual Colour Mixing										
			Type	Pan	Tilt	v-Hue	v-Satur	v-Value	v-Cyan	v-Mage	v-Yello	v-Red	v-Gree	v-Blue	v-CIE x	v-
SolaFrame 3000																
101	0%		open	0°	0°	223°	1%	100%	1%	1%	0%	99%	99%	100%	0.3125	0.3
102	0%		open	0°	0°	223°	1%	100%	1%	1%	0%	99%	99%	100%	0.3125	0.3
103	0%		open	0°	0°	223°	1%	100%	1%	1%	0%	99%	99%	100%	0.3125	0.3
104	0%		open	0°	0°	223°	1%	100%	1%	1%	0%	99%	99%	100%	0.3125	0.3
105	0%		open	0°	0°	223°	1%	100%	1%	1%	0%	99%	99%	100%	0.3125	0.3

3. **Record** : the contents of the editor is recorded with only fixtures 104-105, not 101-103.

If the above example had used Touch instead of Pig + Touch, then you would have to untouch or knockout 101-103 before recording.

> Tip: Values with a dark or light blue background in the Programmer or editor are recordable, while those with a white or gray background are not recordable.

6.3.8 Copying Parameter Settings

You can copy the parameter values of one fixture to another.

Important: If you copy parameter settings between fixtures of different types, only those parameters that the fixtures have in common will be copied.

Using the Command Line

To copy from the current selection:

- **Copy 8 Enter** : copies the parameters of the current selection to fixture 8.

To copy from specified fixtures:

- **Fixture 1 Thru 4 Copy 8 Thru 11**, **Enter** : copies the parameter settings of Fixtures 1-4 to 8-11.

To copy parameter values from the fixtures of one group to the fixtures of another group within an editor:

- **Group 1 Copy Fixture Group 2 Enter** : copies the parameter values of the fixtures in group 1 to the fixtures in group 2.

You can add parameter, location and destination masks to any copy command:

- **1 Thru 4 Intensity Copy List 3 Cue 1 Fixture 8 Thru 11**, **Enter** : copies the intensities of fixtures 1 to 4 in the current selection to fixtures 8 to 11 in cue 1 of cuelist 3.

You can use Copy to reverse the order of values. For example, if fixture 1 is at 10%, fixture 2 at 20%, and fixture 3 is at 30%:

- **1 Thru 3 Copy 3 Thru 1 Enter** : the fixtures will now be at 30%, 20% and 10% respectively.

Tip: When you press the **Copy** key, the words 'Copy to' appear on the command line. This is a useful reminder of the syntax of the copy command.

In the Programmer or Editor Window

You can copy fixture data by using the Copy and Paste commands: click the right-hand mouse or Trackball button on the desired cell(s) in the editor window and select **Copy** or **Paste** from the menu.

You can also use the Pig key to copy and paste selected cells:

- **Pig** + **Copy** : copy
- **Pig** + **Record** : paste

Copy Options

By default, when you copy parameter values from one fixture to another, the console will copy exactly the data from one fixture to another, including any palette references. You can optionally have the hard values from within the referenced palette copied to the destination instead of the palette references:

1. **Fixture 1** : select the fixture you want to copy.
2. **Copy**
3. Deselect the **Allow Refs** button on the copy toolbar.
4. **8** : select the fixture to copy to.
5. **Enter** : copies the parameters of Fixture 1 to Fixture 8, converting any palette references to hard values.

> Tip: You can copy a fixture to itself with Allow Refs deselected to convert palette references to hard values.

6.3.9 Restoring Default Values

You can reset parameter values to their default settings by using the **.** (point) key or **Pig** + **.** keys as a modifier. Default values for parameters can be set in the **Edit Fixtures** window.

When using the **.** key as a modifier, modes such as gobo rotate will be restored to default value but the current mode will remain (gobo rotate). When using the **Pig** + **.** keys as a modifier, modes such as gobo rotate will be restored to default value and default mode (index).

To restore the default value for a single parameter of the current selection:

- Press and hold the **.** key or **Pig** + **.** keys and turn the appropriate parameter wheel.

To restore the default values of a parameter kind for the current selection:

- Press and hold the **.** key or **Pig** + **.** keys and press the appropriate kind key.

To restore the default values for all parameters of the current selection:

- Press and hold the **.** key or **Pig** + **.** keys and press the **Fixture** key.

6.4 Fanning

Fanning allows you to assign a parameter across several fixtures, so that the parameter values are equally spaced. For example, if you have five fixtures all at 50% intensity, you can use fanning easily to assign intensities of 30, 40, 50, 60 and 70% across five fixtures. Note that in this example, the middle value of the five stays the same, and the end values change the most, while the other values change proportionally.

You can fan any values including parameters and timings. For example, you can use fanning with position: suppose that you have seven moving lights on an upstage position, all pointing downstage towards the audience. You could fan the Pan parameters so that the centre fixture still points downstage, and the others turn progressively out to stage left and right.

The fixture selection order is significant when fanning; see Selection Order. The value change when fanning is always relative to its current value; if there is no current value the parameter will fan from its default value.

> Tip: Choosing the initial, or 'base', value is important when fanning, as the parameter values cannot go below 0% or above 100%. Make sure that you leave enough of the value range for the value to fan into.

6.4.1 Using the Fan Key

To fan a parameter:

1. 1 Thru 5 @ 30, Enter : select the fixtures and assign the intensities to 30%:

SolaFrame 3000		
1	30%	
2	30%	
3	30%	
4	30%	
5	30%	

2. Press and hold the Fan key, whilst slowly moving the I-Wheel. The fixtures at either end of the range take the values 10% and 50%, with those in between evenly spread across the intervening range:

SolaFrame 3000		
1	10%	
2	33%	
3	55%	
4	77%	
5	100%	

6.4.2 In the Programmer Window

To fan a parameter:

1. Select a range of cells, for example the intensity cells of Studio Colors 1 to 5.
2. **Set 10 Thru 50**, **Enter** : The fixtures at either end of the range take the values 10% and 50%, with those in between evenly spread across the intervening range.

You can also fan backwards; continuing the above example:

- **Set 50 Thru 10** , **Enter** : Studio Color 1 has an intensity of 50% and Studio Color 5 an intensity of 10%.

You can also fan several columns at once, fanning both Pan and Tilt for example.

6.4.3 With the Command Line

To fan intensities from the command line:

1 Thru 5 @ 10 Thru 50, **Enter** : The fixtures at either end of the range take the values 10% and 50%, with those in between evenly spread across the intervening range.

You can also fan backwards:

1 Thru 5 @ 5 Thru 10, **Enter** : fixture 1 has an intensity of 50% and fixture 5 an intensity of 10%.

6.4.4 Fanning Options

By default, fanning adjusts parameter values proportionally from the center of the fixture selection. You can have fanning work in other ways:

Fan Normal: As described above, the middle fixture remains unchanged, while the first and last fixtures' values change the most, in opposite directions. For example:

Before fanning:	30	30	30	30	30
After fanning:	10	20	30	40	50

Fan From Start: The first fixture in the selection order remains unchanged, while the last one's value changes the most. For example:

Before fanning:	30	30	30	30	30
After fanning:	30	40	50	60	70

Fan From End: The last fixture in the selection order remains unchanged, while the first one's value changes the most. For example:

Before fanning:	30	30	30	30	30
After fanning:	70	60	50	40	30

Fan To Center: the middle fixture remains unchanged, while the first and last fixtures' values change the most, in the same direction. For example:

Before fanning:	30	30	30	30	30
After fanning:	50	40	30	40	50

You can set the fanning mode from the Fanning Toolbar as shown below.

- Press and hold the **Fan** key to display the Fanning Toolbar

All subsequent fans will follow the currently selected fanning mode, until the editor is cleared.

The fanning toolbar



6.4.5 Multi-part Fanning

With the command line, you can enter multi-part fanning:

1 Thru 9 @ 10 Thru 50 Thru 10 : The fixtures at either end of the range take the value of 10%, that in the middle 50%, and the others spread between:

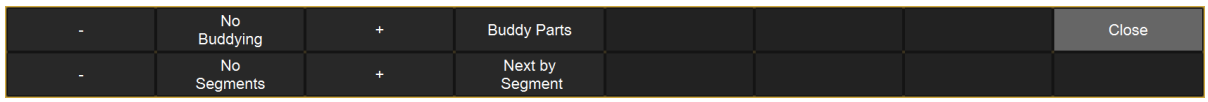
10	20	30	40	50	40	30	20	10

You can fan in as many parts as you want, separating values with the **Thru** key. Note that multi-part fanning only works with the command line, not when editing values in the spreadsheet.

6.4.6 Fanning with Segments and Buddying

Segmenting and buddying allows you to control the way that parameters are fanned to make complex patterns. The **Segments...** button on the main toolbar reflects the current segment / buddying settings of the console. To change segment and buddying settings press the **Segments...** button on the Main Toolbar. A Segments and Buddying toolbar will then appear. Press **Enter** or click on the toolbar **Close** button when you have made your selection.

The Segments Toolbar



The segments toolbar displays the current segment and buddying size and has buttons to increase and decrease the segment size and the buddying. There are also shortcuts for common segment sizes and options for nexting by segment and buddying parts.

Note that segments and buddying are only used during fanning; segment and buddying information is not recorded into cues and palettes; only the resulting parameter values are recorded.

- **Segmenting**: Segmenting a fixture selection is achieved by setting a segment size on the segments toolbar (represented as "segments of x"). Fanning is repeated for each segment. For example, segmenting twelve fixtures into "segments of three" will result in the fan pattern shown in the figure below:



Desk Channel	
101	10%
102	55%
103	100%
104	10%
105	55%
106	100%
107	10%
108	55%
109	100%
110	10%
111	55%
112	100%
113	10%
114	55%
115	100%
116	10%
117	55%
118	100%
119	10%
120	55%
121	100%
122	10%
123	55%
124	100%

- **Buddying**: The buddying number puts the fixtures into ‘gangs’ that all take the same value. For example, fanning a selection of twelve fixtures with a buddying value of three would result in fixtures 1 to 3 having the same parameter value, fixtures 4 to 6 having the same value, and so on:



Desk Channel	
101	10%
102	10%
103	10%
104	23%
105	23%
106	23%
107	36%
108	36%
109	36%
110	49%
111	49%
112	49%
113	62%
114	62%
115	62%
116	74%
117	74%
118	74%
119	87%
120	87%
121	87%
122	100%
123	100%
124	100%

- **Buddy Parts**: When buddy parts is enabled the individual parts of compound fixtures and aggregated fixtures are treated as one fixture when fanning values. For example, when fanning intensity across a group of a compound fixtures such as LED bars composed of multiple cells, the standard fanning behavior results in a fanning between each cell. Enabling the buddy parts option buddies the cells of the LED bars so that they are treated as single fixture which produces fanning between each fixture and not each cell.

Tip: By default the segment and buddying options are retained even after pressing the **Clear** key. To reset the segment and buddying options when Clear is pressed, enable the option in **Setup** → **Preferences** → **Programming**.

6.5 Removing Values

As well as assigning values for parameters, you will sometimes want to remove parameter values from editors. For example:

- You no longer want to use a particular fixture in a cue, scene or palette.
- You decide to have the colour of several fixtures controlled by a different cuelist on another playback. To do this, you need to remove colour parameter values, so that they don't take over control of the colour parameters under the LTP rule. See HTP and LTP.

Tip: If you want to clear the entire contents of an editor, use the Clear key.

6.5.1 Removing Entire Fixtures from an Editor

To remove selected fixtures from an editor (known as 'knocking out'), press the Knockout button on the Main Toolbar. For example:

- Fixture 1 Thru 5 Knockout : removes Fixtures 1 to 5 from the editor.
- Group 2 Knockout : removes all fixtures in Group 2 from the editor.

6.5.2 Removing Kinds from an Editor

You can remove specific parameter types from the selected fixtures in an editor using fixed kinds or user kinds keys:

- Colour, Knockout : Select the parameter type and press Knockout

6.5.3 Removing Individual Parameters from an Editor

You can remove individual parameters from the selected fixtures in an editor:

- Hold Knockout and move the relevant parameter wheel, or press the relevant button on the Slot Toolbar.
- Hold Backspace and move the relevant parameter wheel.
- Hold Backspace and press the relevant parameter type key; this gives single-handed operation.
- You can remove the values from the currently highlighted cells in the Programmer by pressing Pig + Backspace.

6.6 Separating Parameters

When recording a cue, scene or palette, Hog OS only records parameters that have been changed or touched since the last cue was recorded. See Tracking and Working with Tracking.

However, some individual parameters are actually treated as a single fixture attribute in editors. For example, when you modify the pan parameter, tilt is automatically touched in the editor at its current output value. In most cases this provides results that are intuitive and desirable but there are situations when separating the parameters is useful. For example, building chases or effects to change a single function's value is easier if the parameter is separated.

By default, Hog OS does not separate position kind or colour kind parameters.

To separate parameters in the Kinds Editor for fixed and user kinds:

1. Hold **Open** key and select the **Kinds**; button from the setup toolbar.
2. Toggle the "Separate Parameters" option.

It is important to note that even when separate parameters is enabled for the colour kind, all virtual and physical color mixing parameters remain unseparated.

Kind Editor showing the Separate Parameters Option



7. Groups

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7.1 Auto-Generating Groups

The quickest and easiest way to create groups is via the auto-palettes button in the fixture window. Several group options exist when auto-paletting including how many different group combinations for each fixture type you want to generate (maximum group repeat) and whether you would like to generate groups based on notes written in the patch window (make group notes).

When the "Make Note Groups" option is turned on a set of groups (in addition to the normally generated groups) will be created based on the fixture notes written in the notes column of the fixture window. For example, if you add a "downstage wash" note to Solaspots 1<5, then a auto-generating groups with the note option turned on will result in a "downstage wash" group being created that contains Solaspots 1<5. See Creating Palettes and Groups Automatically for more details on this feature.

7.2 Recording Groups

When recording a group, only the active fixture selection is recorded, not all the fixtures currently in the editor. To record a group:

1. Select the desired fixtures in the Programmer or editor.
2. **Record**, **Group** : the **Group Directory** window opens.
3. Select the destination location in the **Group Directory** window.
4. Alternatively, enter a number on the keypad and press **Enter**.
5. If the destination location is already used, you will be asked to choose an option: Insert, Merge and Replace.

When you record a group the selection order is also saved. This controls how fanning and effects are applied to the fixtures in the group, and is significant when using the **Next** and **Back** buttons; see Selection Order, Fanning and Effects.

> Tip: Hog OS can automatically generate a useful set of groups based on the fixtures in your show: see Creating Palettes and Groups Automatically.

7.3 Naming Groups

You can give a group a name that will be displayed in the **Group Directory** window:

Open + **Group** : opens the Group Directory window.

Select the group to be named.

Set [name] **Enter** : type in the name.

> Tip: You can name a group, cue, scene or palette immediately after recording it by pressing the **Set** key. The **Quickname** window will open, and you can enter the name and select **OK**.

7.4 Using Groups in Programming

You use groups in the same way that you would use fixture selections, for example:

- **Group** 1 , **Enter** : selects all the fixtures in Group 1.
- **Group** 1 **@** 50 , **Enter** : selects all the fixtures in Group 1 and sets their intensity to 50%.
- **Group** 1 + **Fixture** 3 **@** 50 , **Enter** : you can mix fixture and group selections.

One particularly useful syntax to use with groups is the **/** key:

- **Group** 1 **/ Group** 3 : selects only fixtures that are in both groups.

7.5 Editing Group Contents

To edit a group's contents, select the group within the Programmer or editor, make changes to the selection and re-record the group. Hog OS will ask you to choose from **Insert, Merge and Replace**. Select Replace to update the group with the new selection.

7.5.1 Removing Fixtures from Groups

You can remove the fixtures that are currently selected in the Programmer or editor from a previously recorded group. If you have a fixture selected in the Programmer or editor that is not in the group, that fixture is ignored.

For example, if you have a group containing fixtures 1-5, and you want to remove Fixture 2:

1. **Fixture 2**, **Enter** : select the fixture you want to remove.
2. **Record**, **Remove** : the Remove button is on the Record Options Toolbar at the bottom of the right-hand screen.
3. **Group 5**, **Enter** : removes Fixture 2 from Group 5.

7.6 Deleting Groups

To delete a group:

1. **Group 1 Delete** : deletes group 1.
2. Click **OK** to confirm the delete.

Or from the group directory:

1. Press and hold **Delete** whilst selecting the group to be deleted from directory.
2. Release the Delete key. A dialog will appear asking you to confirm the delete.
3. Click **OK**.

You can also delete several groups at once:

1. **Group 1 Thru 5 Delete** : deletes groups 1 through 5.
2. Click **OK** to confirm the delete.

Or from the group directory:

1. Press and hold **Delete** whilst selecting all the groups to be deleted from directory.
2. Release the Delete key. A dialog will appear asking you to confirm the delete.
3. Click **OK**.

> Tip:If you prefer not to be asked to confirm the delete action, select **Don't Ask Me Again** in the confirmation window. You can reenable the confirmation by going to **Setup** → **Preferences** → **Programming** and selecting **Confirm before deleting directory items**.

7.7 Copying and Moving Groups

To make a copy of a group:

- **Group 1 Copy Group 2 Enter** : copies the contents of Group 1 to Group 2.

Similarly, to move a group to a new location:

- **Group 1 Move Group 2 Enter** : moves Group 1 to Group 2.

If the destination group already exists, you will be asked to choose an option: **Insert, Merge and Replace.**

To copy parameter values from the fixtures of one group to the fixtures of another group within an editor:

- **Group 1 Copy Fixture Group 2 Enter** : copies the parameter values of the fixtures in group 1 to the fixtures in group 2.

Similarly with masking options:

- **Group 1 Intensity Copy Fixture Group 2 Enter** : copies the intensity values of the fixtures in group 1 to the fixtures in group 2.

7.8 Insert, Merge and Replace

When recording or copying a group, if the destination location already has a group recorded in it, you will be prompted with record options of Insert, Merge or Replace.

If you are moving a group, only the Insert option is available.

- **Insert**: creates a new destination group. The new group will be assigned a free location just before the one chosen, using a point number if necessary.
- **Merge**: Incorporates the new information into the destination group.
- **Replace**: Overwrites the group information in that destination.

Tip: If you know that you are about to record, copy or move a group to an existing destination, you can pre-select Insert, Merge or Replace from the Record Options Toolbar. This appears after you press the Record, Copy or Move keys.

8. Palettes

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8.1 Recording a Palette

There are five palette directories (intensity, position, colour, beam, effects) into which users can record preset values for easy recall during show programming. The Hog OS determines which function values are recorded into palettes based the kind masking specified at the time of recording. If the kind mask is empty (no kinds selected) at the time of recording then the palette directory's kind mask settings will determine which function values are recorded into the palette.

By default, Hog OS records the appropriate parameter values of all fixtures in the Programmer or editor, not just those of the selected fixtures. To only record from selected fixtures, see Recording Only Selected Fixtures.

To record, for example, a position palette:

1. In the Programmer or editor, assign the position parameters of the desired fixtures as you want them in the palette.
2. **Record Position**: the Position Directory opens.
3. **[Palette 2]** : choose a location in the directory.

Or, using the command line:

- **Record Position 2 Enter**

If you leave out the palette location:

- **Record Position**, **Enter**

the palette will be recorded in the next available location.

If the destination palette already exists, you will be asked to choose an option: Insert, Merge and Replace.

8.1.1 Naming a Palette

You can give a palette a name that will be displayed in the Palette Directory:

1. **Open** + **Position** : opens the Position Directory.
2. Check that the **Guard** button is selected, so that you don't accidentally activate a palette when pressing its button in the directory.
3. Select the palette to be named by pressing its button in the directory.
4. **Set [name] Enter** : type in the name.

> Tip: To name a palette immediately after recording it, pressing the Set key will open a **Quickname** window. Enter the palette name and select **OK**.

8.2 Using Palettes in Programming

In the Programmer or editor, you can apply a palette by selecting it from its directory window. The palette will be applied to the current fixture selection, as long as the palette contains parameter information for the selected fixtures. Doing so assigns the parameter value to be a reference to the palette. A palette that puts all Studio Colors in the rig to deep red will therefore apply this immediately to any Studio Colors that are in the current selection; see image below.

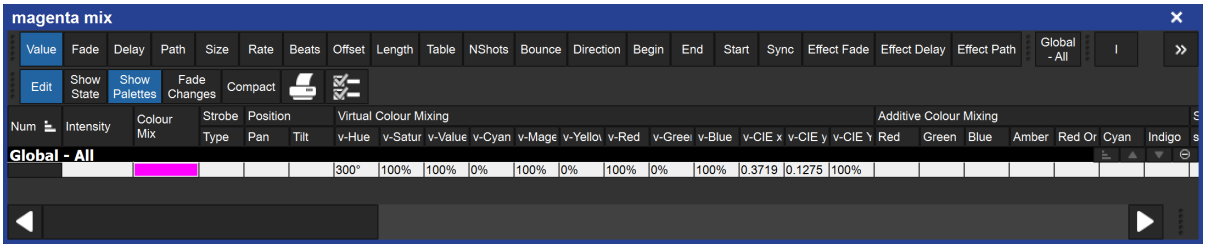
For example:

1. **Open** + **Colour** : open the **Colour Directory** window.
2. **3 Thru 5** : select the fixtures.
3. **[Colour 2]** : select the palette from the **Colour Directory** window.
4. Or, using the command line:
5. **3 Thru 5 Colour 2** Enter

Num	Intensity	Colour Mix	Strobe	Position		Virtual Colour Mixing					
			Type	Pan	Tilt	v-Hue	v-Satur	v-Value	v-Cyan	v-Mage	v-Yellov
SolaFrame 3000											
101						cyan mix					
102						cyan mix					
103						cyan mix					

8.3 Editing Palette Contents

You can change the parameter values that are applied when a palette is referenced during playback by editing the palette's contents in an editor window, see image below.



For example, to open Colour Palette 2 for editing:

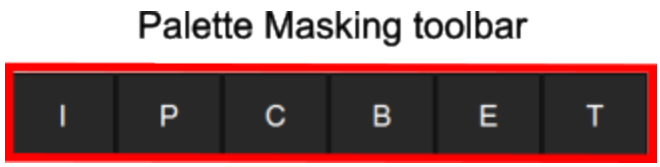
1. **Open** + **Colour** : opens the Colour Directory.
2. **Open** + **[Colour 2]** : opens the palette editor for Colour Palette 2.
3. Alternatively using the command line : **Colour 2** Open
4. Press the **Edit** button in the editor window to select this as your current editor.

Within the editor, you can assign fixture parameters and timing in the same way as in the Programmer; see **Individual Parameter Timings**. Press **Update** after editing to save the changes to the palette. For more information on working with editors, see **Editors**.

> Tip: When you open a palette for editing, you may only appear to see one fixture when you recorded several. This is due to the way palettes can be 'global', with a single set of parameter values that can be applied to any fixture; see Global, Per Fixture Type, and Per Fixture.

8.3.1 Updating Palettes with Different Parameter Types

Palettes contain one or more parameter types. If you edit a palette and add values for parameters of a type that was not previously in the palette, and then update the palette, these values will not be stored. If you want to change the parameter types that a palette contains, you need to select the type from the Palette Masking Toolbar:



For example, suppose that you wanted to add a gobo (a beam parameter) to the existing Colour Palette 2:

1. **Open** + **Colour** : opens the Colour Directory.
2. **Open** + **[Colour 2]** : opens the palette editor for Colour Palette 2.
3. Press the **Edit** button in the editor window to select this as your current editor.
4. Select the **B** (Beam) button on the Palette Masking Toolbar.
5. Edit the fixture parameter values to assign the required gobo.
6. Press **Update** to save the changes.

Tip: You can also use the Palette Masking Toolbar to quickly remove all values of a particular parameter type from a palette by deselecting the appropriate button before updating.

8.4 Deleting Palettes

Important: Deleting a palette will remove all references to the palette that have been recorded in cues, scenes and other palettes, and replace the references with numerical parameter values. Creating a new palette in the same location will not replace the references, which are removed once the palette is deleted.

To delete a palette using the command line:

1. **Colour 1 Delete** : deletes Colour Palette 1.
2. Click **OK** to confirm the delete.

Or, from the palette directory:

1. Press and hold **Delete** whilst selecting the palette to be deleted from directory.
2. Release the Delete key. A dialog will appear asking you to confirm the delete.
3. Click **OK**.

Tip: If you prefer not to be asked to confirm the delete action, select **Don't Ask Me Again** in the confirmation window. You can re-enable the confirmation by going to **Setup** → **Preferences** → **Programming** and selecting **Confirm before deleting directory items.**

8.5 Copying and Moving Palettes

To make a copy of a palette in a new location:

1. **Open** + **Colour** : open the Colour directory.
2. Make sure that the **Guard** button is pressed, so that you do not accidentally apply palettes when trying to select them.
3. Select the palette that you want to copy by pressing its button in the directory.
4. Press the **Copy** key.
5. Press the button of the location in the directory you want to copy the palette to.

Or, using the command line:

1. **Colour 2 Copy Colour 3 Enter** : copies the contents of Colour Palette 2 to Colour Palette 3.
2. **Group 5 Colour 2 Copy Colour 3 Enter** : copies fixtures that are in Colour Palette 2 and Group 5 into Colour Palette 3.

Similarly, to move a palette to a new location:

1. **Colour 2 Move Colour 3 Enter** : moves the contents of Colour Palette 2 to Colour Palette 3, leaving 2 empty.

If the destination palette already exists, you will be asked to choose an option: **Insert, Merge and Replace.**

> Tip: References to palettes refer to the palette, not its location in the directory. If you move a palette from location 3 to location 4, references to the palette still refer to it in its new location, not to another palette you put in location 3.

8.6 Palette Recording Options

8.6.1 Global, Per Fixture Type, and Per Fixture

When you record a palette, parameter values can be recorded as global, per fixture type, or per fixture. The three kinds work in different ways when you apply the palette to fixtures during programming:

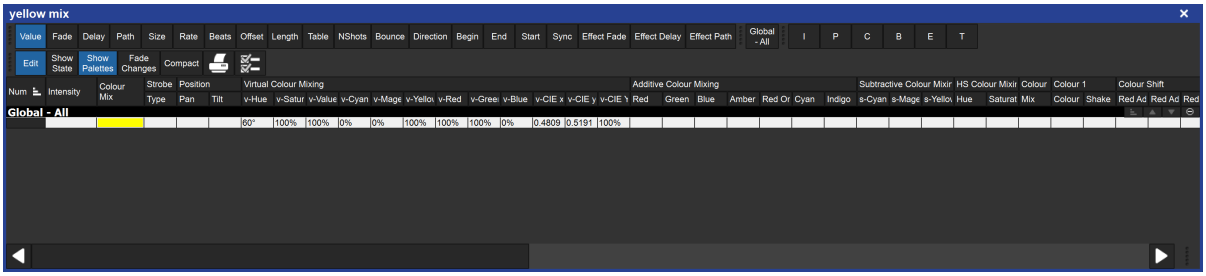
- **Global**: the palette's parameter values are applied to all selected fixtures that have that parameter. For example, a palette containing pan and tilt parameters under the global heading can be applied to any fixture that has pan and tilt parameters.
- **Per Fixture Type:** the palette's parameter values are applied to all fixtures of that type. For example, a palette containing parameter values for Studio Color 575s will only be applied to selected Studio Color 575s.
- **Per Fixture**: the palette's parameter values are applied only to those specific fixtures that are both in the palette and selected in the editor. For example, a palette containing parameter values for Studio Color 575 1 will only be applied to that fixture (and only then if it is selected).

By default, the following rules determine how the palette is recorded:

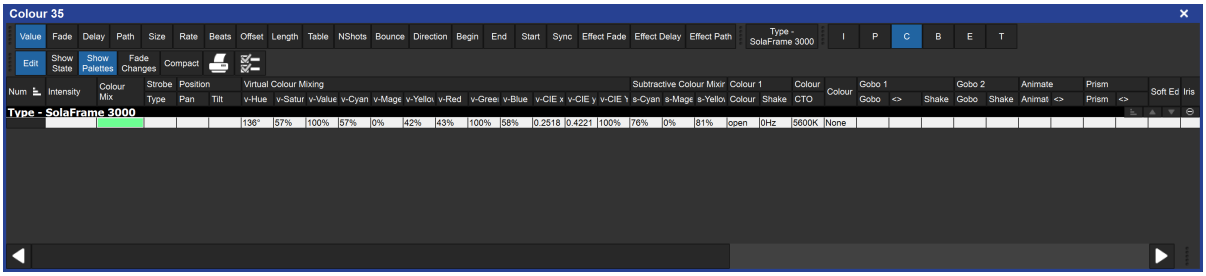
1. Position palettes are always recorded Per Fixture.
2. If all the fixtures to be recorded have exactly the same parameter values, then the palette is recorded as Global.
3. Otherwise the palette is recorded Per Fixture.

In the palette's editor, the parameter values in a Global palette will appear as **All Types**. Similarly, a palette with Per Fixture Type values will show them grouped by fixture type , Make sure that you have aggregation turned on; see Aggregation. If aggregation is turn off, the below images will look different.

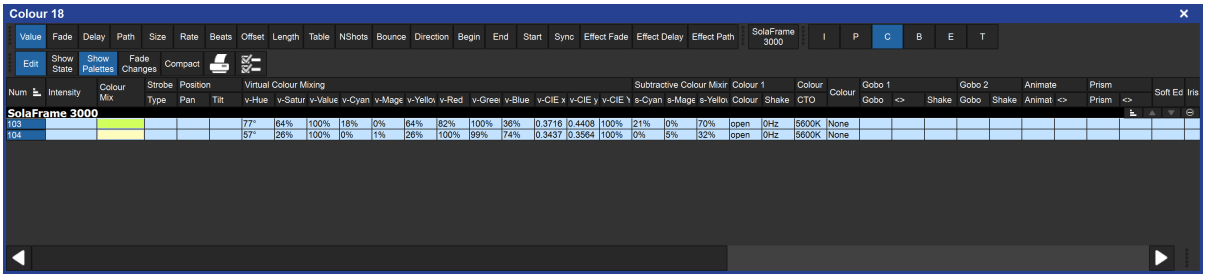
A Palette with Global Parameter Values



A Palette with Per Fixture Type Values



A Palette with Per Fixture Values



You can override the default settings using the Record Options Toolbar; for example to record a single fixture's parameter values as per fixture:

1. Assign the parameters of the fixture as required.
2. Press **Record**.
3. The **Record Options Toolbar** will appear on the bottom of the right-hand touch screen. Select **Per Fixture**.
4. Press the key to choose the palette type, for example **Colour**. The Palette Directory will open.
5. Select the palette location by pressing it in the **Palette Directory** window.

Similarly, to force a palette with one of each fixture type to be recorded as Per Fixture Type rather than the default Per Fixture, use the **Per Fixture Type** button on the Record Options Toolbar.

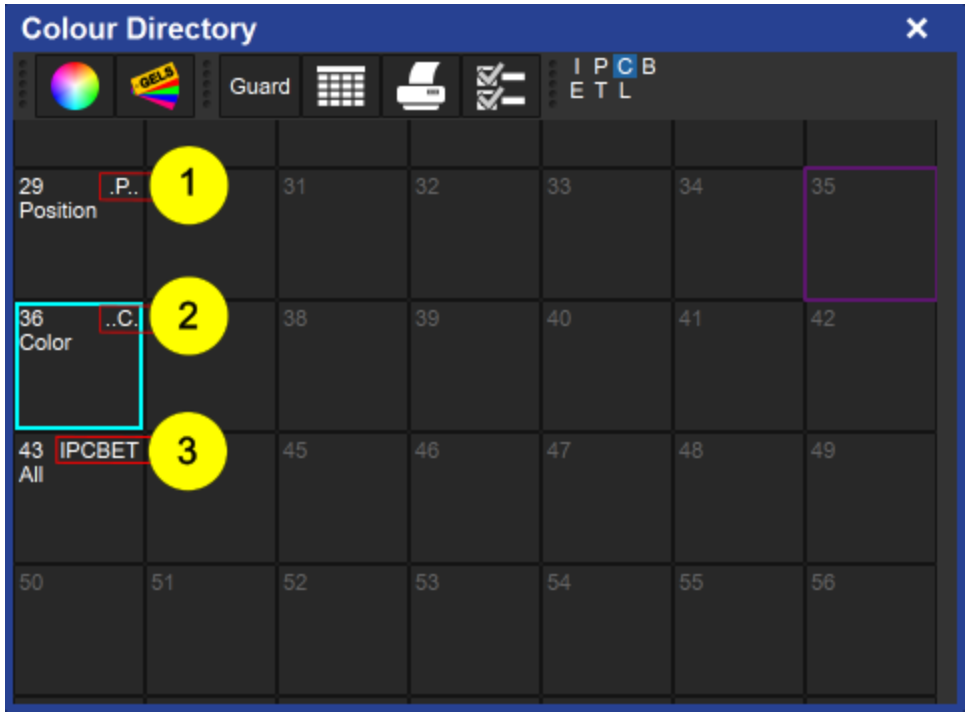
Forcing a palette to be Per Fixture Type can be useful if you want a palette that contains programming for more than one type of fixture, but that you can apply to any fixture of a type included in the palette. For example, you want to create a ‘red’ palette that can be applied to both Studio Colors and Studio Spots. If you select the first Studio Spot and make red then select the first Studio Color and make red (with different parameter values) and record this as palette, it will by default be by fixture and work only for those two fixtures.

However if you select Per Fixture Type when recording, then the palette will work for all Studio Spots and all Studio Colors, assigning them the same values as was used to create the palette.

8.6.2 Recording Palettes with Kind Masking

The Hog OS determines which function values are recorded into palettes based on the kind masking specified at the time of recording. If the kind mask is empty (no kinds are selected) then the directory's kind mask will determine which function values are recorded into the palette. In this section we will look at using kind masking as a method for filtering which function values are recorded into palettes.

The Palette Directory will display which fixed kinds are included in each palette, indicated by I for intensity, P for position, C for colour, B for beam, E for effect, T for time and L for control Below is an example of Palettes containing different parameter types.



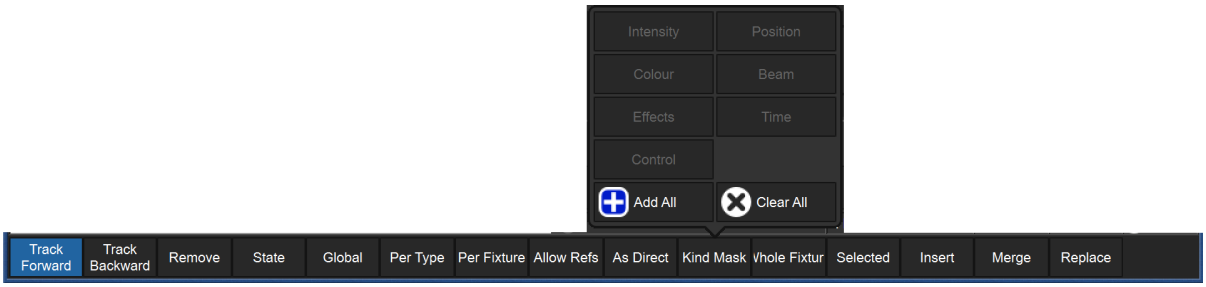
1. A Palette with Position parameter data
2. A Palette with Color parameter data
3. A Palette with All parameter data

Masking Using the Record Options Toolbar

To specify masking when recording a palette using the **Record Options Toolbar**:

1. Assign the parameters of the fixtures as required.
2. Press **Record**. The **Kind Mask** menu will automatically pop up above the record options toolbar and displays a grid of buttons containing all of the fixed kinds and user kinds included in your show. (If kind masking menu does not automatically appear then check the "Automatically show kind masking toolbar" option in Programming pane of the user preferences window)

3. Deselect which kinds you do not want to include in the palette by toggling off the buttons.
4. Press one of the fixed kind keys to choose a palette type destination, for example **Colour**. The Palette Directory will open.
5. Select a palette location in the directory by pressing on any button in the **Palette Directory** window.



The Record Options Toolbar

Masking Using the Command Line

When recording a palette using the command line, you can choose which fixed kinds and / or user kind functions you want to start off with in the mask by listing them on the command line before the **Record** command:

- **Colour Position Record Colour 3 Enter**: records the colour and position parameters of the Programmer or editor contents into Colour Palette 3.

Recording Only Selected Fixtures

By default, all fixtures currently in the Programmer or editor are recorded. To record only selected fixtures:

1. **Fixture 2** : select the fixture(s) you want to record in the palette.
2. **Record**
3. On the Record Options Toolbar press: **Selected**
4. **Position, Enter**: records only the position values for fixture 2 into the next available position palette, rather than values for all fixtures in the Programmer.

8.6.3 Palette Timing

To include timing when recording palettes ensure that the "Time" kind in the kind masking menu is selected after pressing record; see Masking Using the Record Options Toolbar.

You can also record palettes that contain only timing information (no function values) by only masking in "Time" when recording the palette. For example, to record a time only colour palette with a fade time of 6 seconds:

1. Assign any values to the fixture functions you want to create a timing palette for.
2. Assign a fade time to the fixture functions such as 6 seconds.
3. **Time Record Colour 2 Enter** : records only the timing information that was in the programmer into Colour Palette 2.

You can also edit timings in the palette's editor. See Editing Palette Contents.

8.6.4 Reference Palettes

When you record a cue using a palette, a reference to the palette is recorded instead of a numerical value for the parameters. Similarly, you can record palettes using other palettes, so that the new palette contains references rather than numerical values. A palette recorded in this way is known as a reference palette, and is marked in the palette directory window by this icon: 

Reference palettes are useful when you want to create palettes to use as simple 'building blocks' which you then make more complex building blocks from. For example, you might create a position palette that focuses some Studio Spot 575s onto the lead singer, and further position palettes that position other fixtures onto the remaining band members. You could then make an 'All Band' position palette with one fixture lighting each band member, in which each fixture references another palette, instead of having parameter values. If the drum riser was later moved, you could adjust the position palette that focused onto it, and the change would not only be updated in all scenes and cues programmed with that palette, but also all programming done with the 'All Band' palette.

By default, palettes are not recorded as reference palettes; any fixture parameters assigned using another palette is recorded as a numerical value. If you want to record a palette as a reference palette, select the **Allow Refs** record option:

1. Assign the parameters of the fixtures using other palettes as required.
2. Press **Record**.
3. The **Record Options Toolbar** will appear at the bottom of the right-hand touch screen. Press the **Allow Refs** button.
4. Press a key to choose the palette type, for example **Colour**. The Palette Directory will open.
5. Select the palette location by pressing it in the **Palette Directory** window.

8.6.5 Direct Palettes

Normally, when you use a palette to assign parameter values for recording in a cue or scene, a reference to the palette is inserted rather than numerical values. To insert numerical values instead of references, use direct palettes. Cues and scenes recorded using direct palettes will not update if the palette is later changed, because they contain ordinary parameter values rather than references to a palette.

You can use a palette as a direct palette on a one-off basis as you program, or you can assign it to always act as a direct palette; a direct palette is shown in the directory with this icon: 

To temporarily use an existing palette as a direct palette when calling it into the Programmer or editor:

- 1 @ Colour 1 : the @ key indicates that the palette should be used in direct mode.

To create a direct palette:

1. Assign the fixtures as required.
2. Record
3. As Direct
4. [Position 2], Enter : choose a location for the palette.

To convert an existing palette to a direct palette:

1. Open + Colour : open the appropriate Palette Directory.
2. Set the directory window to spreadsheet view by pressing this button: 
3. Select the Is Direct cell for the palette you want to change, and press Set to toggle the value to Yes.

Note that converting a palette to a direct palette will not alter any programming done previously using the palette; cues and scenes already recorded will still contain references to the palette. Only subsequent programming will be effected.

8.7 Insert, Merge and Replace

When recording or copying a palette, if the destination location already has a palette recorded in it, you will be prompted with record options of Insert, Merge or Replace.

If you are moving a palette, only the Insert option is available.

- **Insert**: creates a new destination palette. The new palette will be assigned a free location just before the one chosen, using a point number if necessary.
- **Merge**: incorporates the new information into the destination palette. If the same fixtures and parameters are in both palettes, the new values will replace the old.
- **Replace**: overwrites the palette information in that destination.

> Tip: If you know that you are about to record, copy or move a palette to an existing destination, you can pre-select Insert, Merge or Replace from the Record Options Toolbar. This appears after you press the Record, Copy or Move keys.

9. Directory Windows

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9.1 Types of Directories

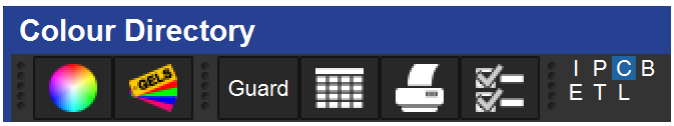
Directory windows are the windows that allow users to access recorded data such as palettes, cuelists, scenes, pages, effects, kinds, and groups using a grid of buttons. Directory windows and their contents can be displayed in a number of ways. The following sections in this chapter will cover the different options available for directory windows.

9.2 Palette Directory Masking (IPCBE)

The Palette Directories (IPCBE) mask settings determine which fixed function kinds are recorded into palettes for that directory if the command line kind mask is blank at the time of recording (no kinds selected). To change which kinds are included in the directory's mask open the configuration window for that directory, navigating to the mask tab, and enable or disable the individual function kinds in the menu.



A directory mask legend is shown at the top of each directory window and indicates which kinds will be recorded into palettes for that directory if the kind mask is blank at the time of recording.



9.3 Colour Coding

Each button within a directory window can be colour coded to help distinguish it from the other buttons in the directory. To colour code a directory button right click on the button in the directory window and choose from a preset palette of 12 colours, mix a custom colour, or choose to have the console auto-colour code the button based on the dominant mixed colour data recorded in the button (palette buttons only).



9.3.1 Colouring the entire button

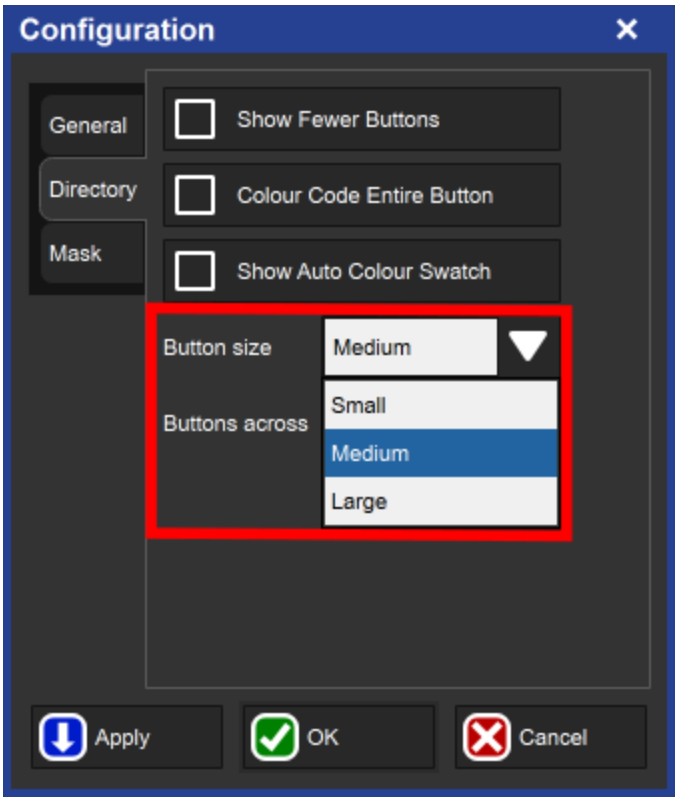
By default each directory window displays colour coding using an outline around the directory buttons. If you prefer that the console colour the entire background of the directory buttons click on the icon to open the window configuration menu and enable the "Colour Code Entire Button" option. The option to colour code the entire button is unique for each directory and is also stored when you record a directory window into a view.



9.4 Directory Options

9.4.1 Button Sizes

By default each directory window displays its buttons using a medium size. To change the displayed button sizes in any directory window open the window configuration menu by clicking on the icon located at the top of the directory window. Locate the drop down menu option called "button sizes". Here you will see the option to display the directory's buttons in three different sizes: small, medium, and large. Set the button size menu option to the desired setting and press OK. The button size option you select for each directory is unique to that directory and is also stored when you record a directory window into a view.



9.4.2 Show Fewer Buttons

By default directory windows display both active buttons (buttons that contain data) and inactive buttons (buttons with no data). In some cases you may wish to hide the inactive buttons in the directory. To hide the inactive buttons in a directory click on the icon to open the window configuration menu and enable the "show fewer buttons" option. The option to show fewer buttons is unique to each directory and is also stored when you record a directory window into a view.



9.4.3 Button Across

By default each directory window will display as many buttons across as can possibly fit into the dimensions of the directory window as it is sized on the screen. The buttons across option allows users to specify exactly many cells across the directory window should draw before starting a new row of buttons. This is handy for users who like to cycle directory windows through different sizes but would prefer the button layout remains the same. A horizontal scrollbar is displayed in cases where the “buttons across” value is greater than the number of buttons that the directory window can physically fit across the window due to its current size. For legacy Hog behavior use the “auto” option. To change the buttons across option for any directory window click on the icon to open the window configuration menu and adjust the buttons across value. The option to change the number of buttons across the directory window is unique to each directory and is also stored in views.



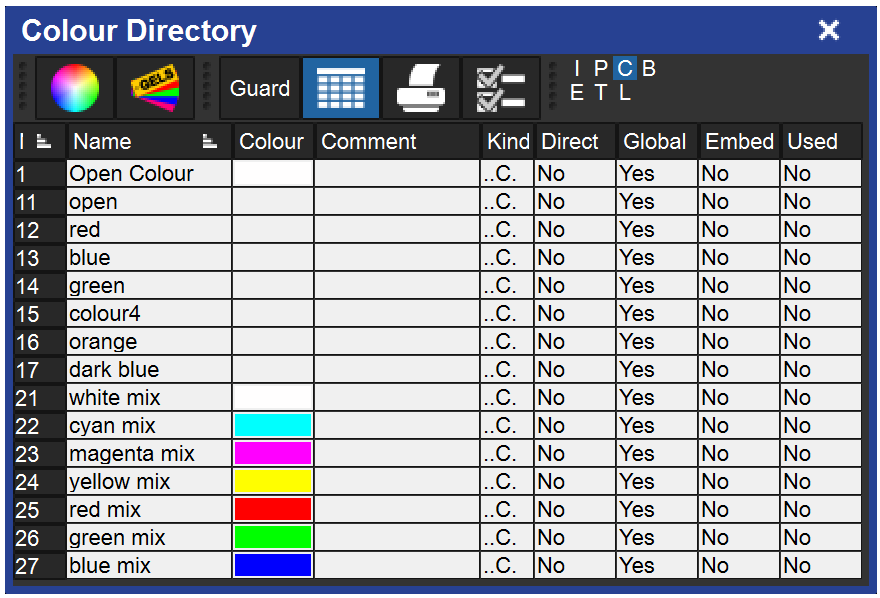
9.4.4 Show Auto Colour Swatch

The "show auto colour swatch" option is available only in palette directory windows and is only useful in cases where the user has programmed colour mixing values into a palette within that directory. When this option is turned on any buttons in the directory window that contain palettes with colour mixing data will display a small colour swatch in the middle of the button to indicate a dominant mixed colour is recorded in that palette. To enable the "auto colour swatch" option click on the icon and enable the "show auto colour swatch" option. The option to show the auto colour swatch is unique to each directory window and is also stored when you record a directory window into a view.


Configuration
General
Directory
Mask
Show Fewer Buttons
Colour Code Entire Button
Show Auto Colour Swatch
Button size
Medium
Buttons across
Auto
Apply
OK
Cancel

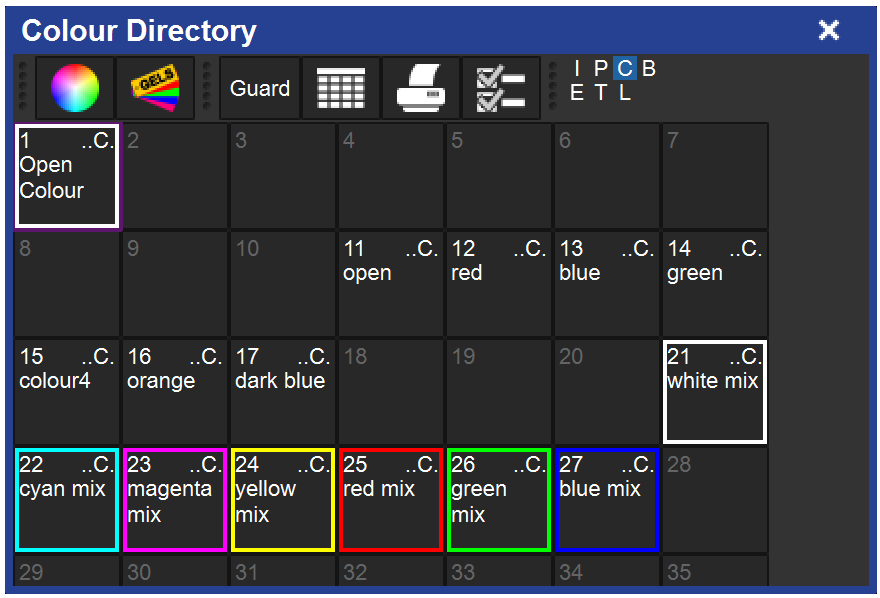
9.4.5 Spreadsheet View

By default directory windows are displayed as a grid of touch-sized buttons, however you can also view the contents of any directory as a spreadsheet by clicking on the ▦ button. When in list view the directory buttons can be selected and / or applied by pressing on it's number in the num. column. The option to display a directory in list view is unique to each directory and is also stored when you record a directory window into a view.



I	Name	Colour	Comment	Kind	Direct	Global	Embed	Used
1	Open Colour			..C.	No	Yes	No	No
11	open			..C.	No	Yes	No	No
12	red			..C.	No	Yes	No	No
13	blue			..C.	No	Yes	No	No
14	green			..C.	No	Yes	No	No
15	colour4			..C.	No	Yes	No	No
16	orange			..C.	No	Yes	No	No
17	dark blue			..C.	No	Yes	No	No
21	white mix			..C.	No	Yes	No	No
22	cyan mix			..C.	No	Yes	No	No
23	magenta mix			..C.	No	Yes	No	No
24	yellow mix			..C.	No	Yes	No	No
25	red mix			..C.	No	Yes	No	No
26	green mix			..C.	No	Yes	No	No
27	blue mix			..C.	No	Yes	No	No

Colour Directory shown in Spreadsheet view



Colour Directory shown in Button view

10. Media Picker

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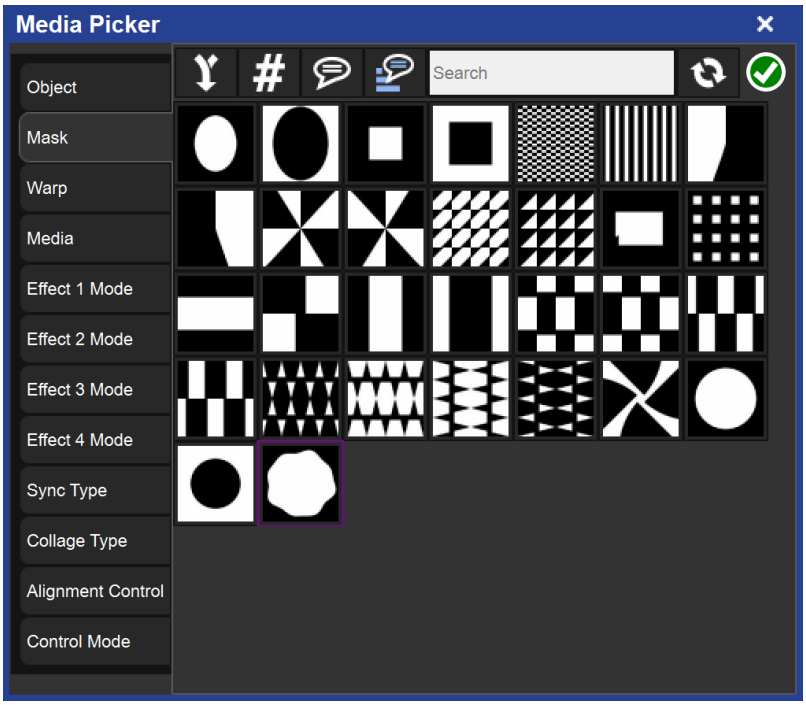
10.1 Media Picker Overview

The media picker is a tabbed, graphical window that allows users to view and select slotted function values for the current fixture selection using previews.

To open the media picker window hold the open key and press the “media picker” button on the main toolbar or press **Pig** + **Open** + **Beam** on the console front panel.

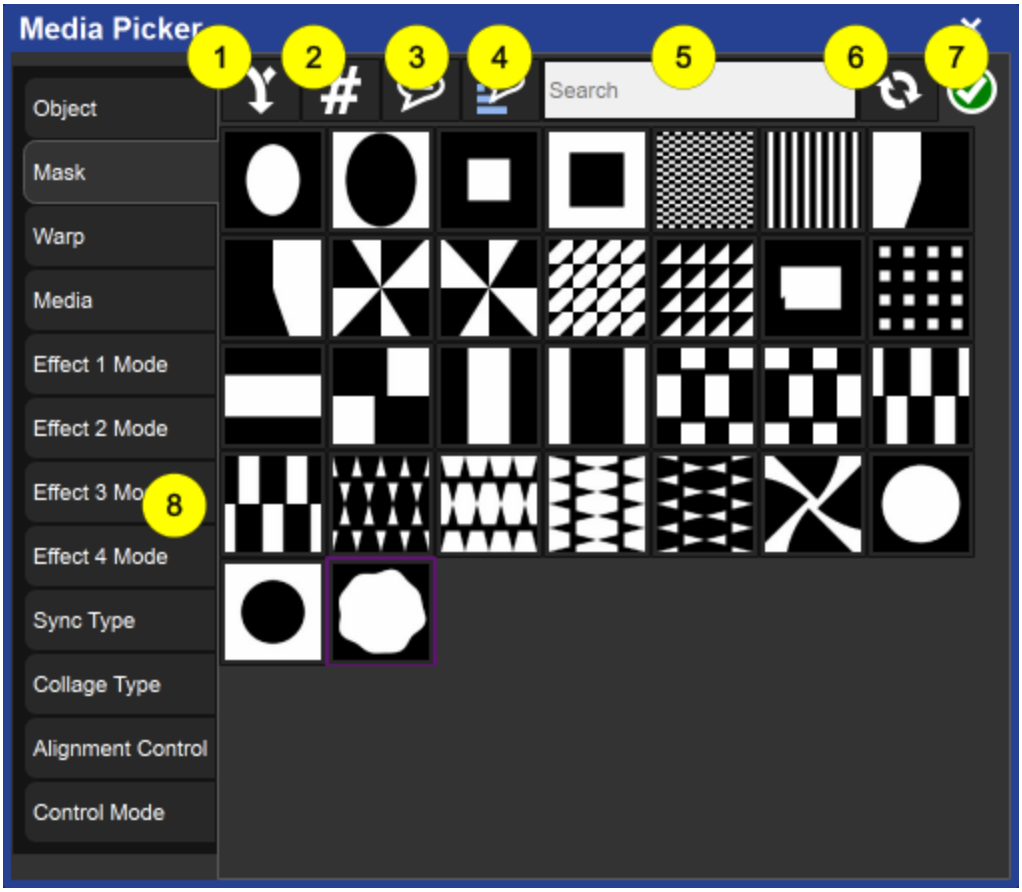
When a fixture selection is made the console will populate the media picker with previews as defined by the preview package assigned to that fixture. See section 10.6 for details on how preview packages are created and how to manage them.

In general, automated lighting fixtures will display previews for slotted functions such as strobe, gobo, colour, and prism, while digital media servers such as the DL.HD will display previews for media files, 3-D objects, and masks. Preview selections made in the media picker window are applied to the current active editor.



10.2 Media Picker Window Options

The media picker has several options for how previews are displayed in the window:



1. **Merged Different (default on)** : when this option is turned on the media picker window merges previews for content across the current fixture selection even if the preview images do not match. When in this mode a "page turn" icon will appear in the upper right corner for preview that is not the same across the entire fixture selection.
2. **Show/hide DMX value (default on)** : shows and hides the DMX value of the previews displayed in the media picker.
3. **Show/hide name** : shows and hides the preview names in the media picker.
4. **Reverse Display Order** : reversed the order in which the previews are displayed in the media picker.
5. **Search Filter** : input text to filter the contents of the media picker window.
6. **Preview Refresh Button** : click the refresh button to obtain the latest library defined media previews for the selected fixtures; most commonly used for refreshing media patched CITP fixtures.
7. **Package Status Icon** : icon indicating the health status of the preview package for the current fixture selection. Click on the icon for a detailed view of all running and completed preview package tasks.
8. **Function Tabs** : fixture functions such as gobo wheels, color wheels, media indexes, etc. are grouped into selectable tabs for easy navigation.

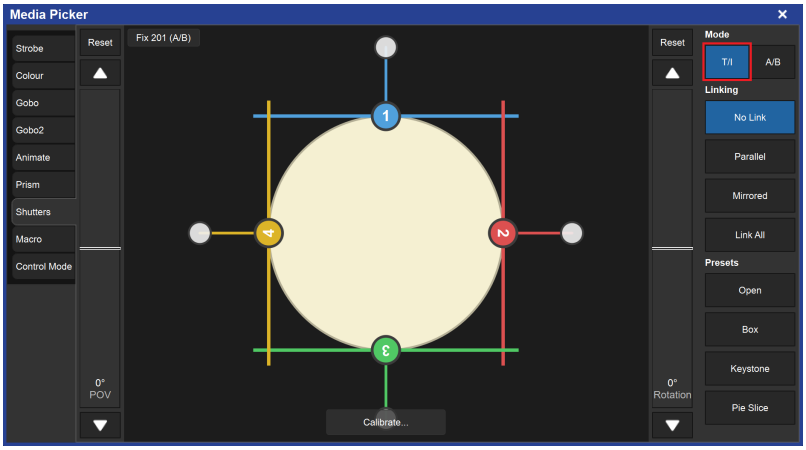
10.3 Media Shutter Controls

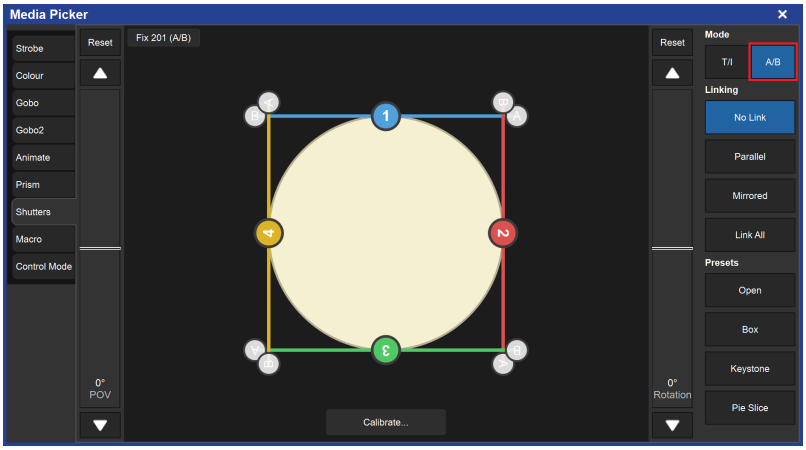
The Media Picker **Shutters** Tab can be used to program, visualize, and calibrate shutters on selected fixtures. This section explains how the advanced controls in this tab can be used to supplement traditional shutter adjustment methods such as encoder wheels and editor sheets.

10.3.1 Graphical Controls for Framing Shutters

The Media Picker's Shutter Controls tab uses a **circle** to represent the aperture of the fixture. Around this aperture there are 4 shutter blades that can be moved by touching and moving the **drag handles**. The location, appearance and behavior of these drag handles depend on the selected mode. Both modes can be used with any fixture, regardless of its DMX configuration.

Mode	Graphic Controls Representation of the Shutters
T/I	Numbered drag handle adjusts blade insertion (thrust) "I" drag handle adjusts blade angle (incline)
A/B	Numbered drag handle adjusts blade insertion. "A" and "B" drag handles adjusts blade angle.

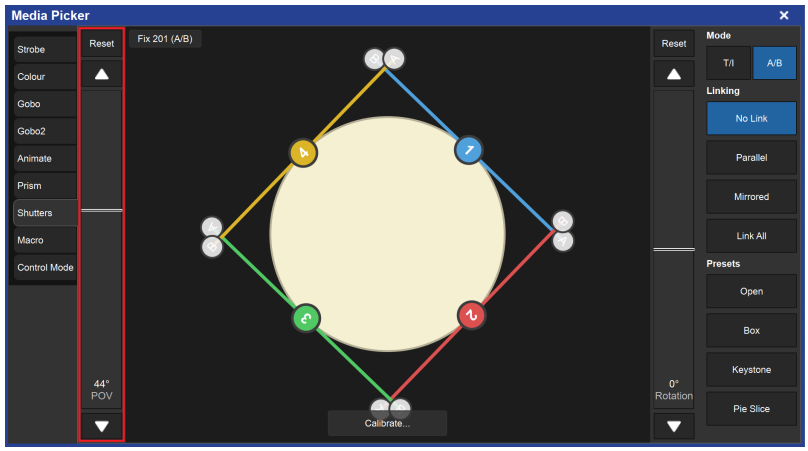




Note: Modifying the shutter positions through the graphical controls updates the encoder wheel values in real time, and adjustments to the encoder wheel immediately reflect in the graphical interface.

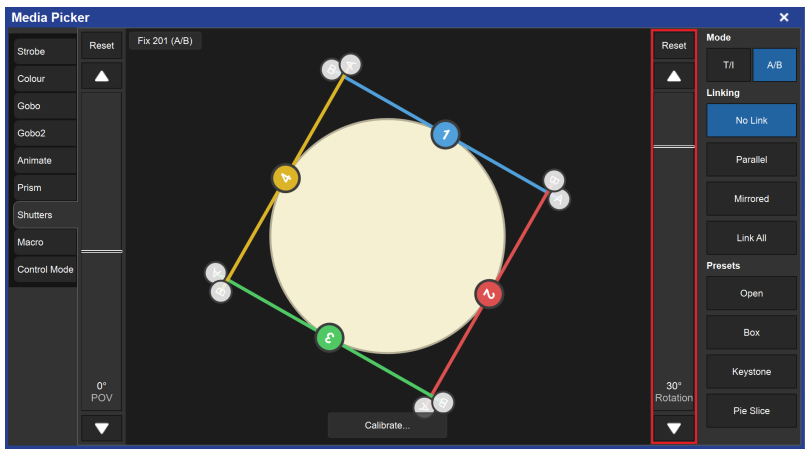
POV Slider

The **POV Slider** on the left edge of the graphical controls adjusts the viewing angle of the shutter system. It does not modify any programmed fixture values. Instead, it allows the operator to orient the graphical display to match the real-world perspective of the shutters as they project onto a surface. The **Reset** button for the POV slider resets the POV to 0 degrees.



Rotation Slider

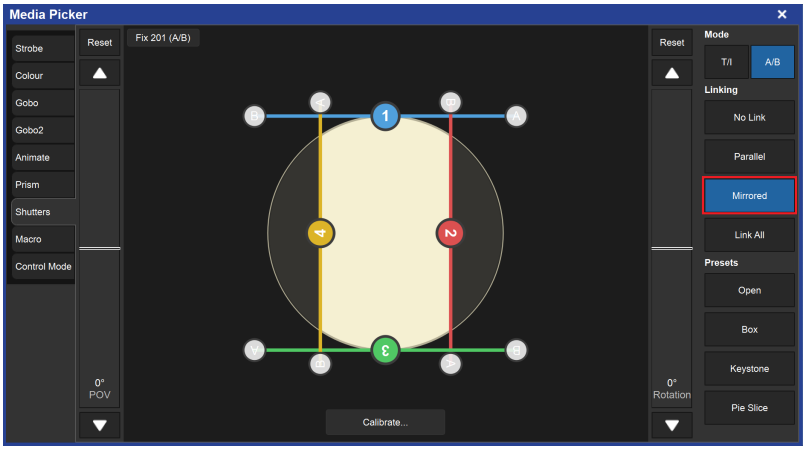
The **Rotation Slider** located on the right edge of the graphical controls area modifies the shutter rotation parameter on the selected fixtures. The **Reset** button for the Rotation slider sets a shutter rotation value of 0 degrees in the active editor.



Shutter Linking

Shutter linking enables grouped movement, allowing the operator to reposition several shutters simultaneously by manipulating just one drag handle.

Mode	Behavior
No Link	Each shutter moves independently
Parallel	Opposing shutters move in the same direction
Mirrored	Opposing shutters move in the opposite direction
Link All	All shutters move in/out together



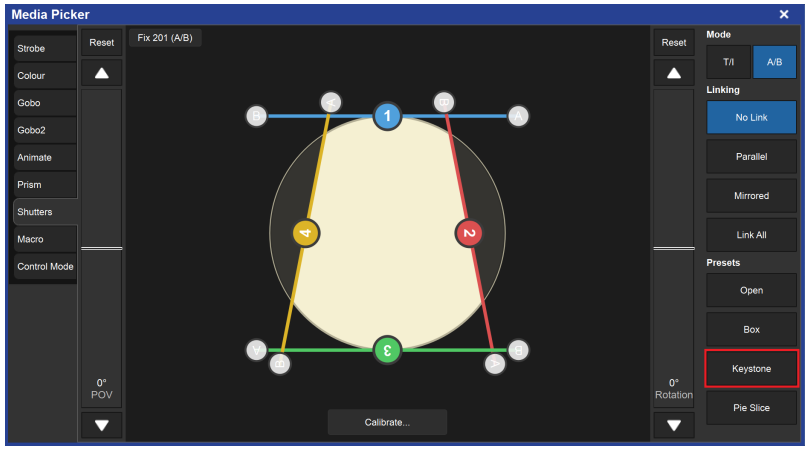
Mirrored, Shutter 2 and 4

TIP: Shutter linking applies exclusively to the graphical controls. Shutter adjustments made via encoder wheels and directly in editor sheets do not adhere to link mode selected in the graphical editor.

Shutter Presets

Shutter presets offer quick access to frequently used framing configurations. Choosing a preset adjusts all shutter positions but leaves shutter rotation unchanged. Repeated presses of a preset cycles through its available configuration options, detailed in the table below.

Button	First Press	Second Press	Third Press	Fourth Press
Open	All Shutters Open			
Box	Symmetrical Box	Diamond		
Keystone	Keystone Left	Keystone Down	Keystone Right	Keystone Up
Pie Slice	Pie Slice 1	Pie Slice 2	Pie Slice 3	Pie Slice 4

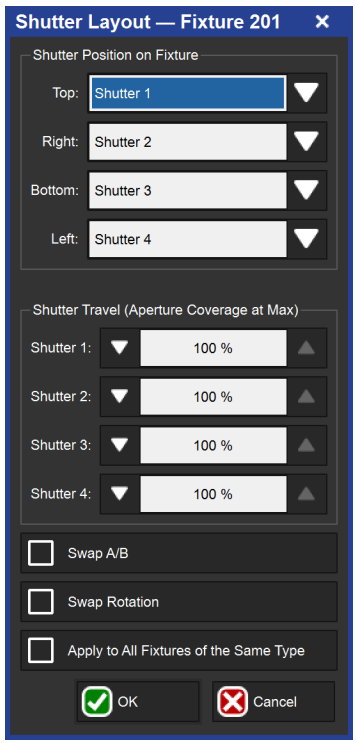


Keystone, 4th press

10.3.2 Shutter Calibration

To support normalized shutter behavior across all fixture types within a show, the **Shutters** tab of the Media Picker features a **Calibrate…** button which brings up a pop-up window with options that allow users to adjust the individual characteristics of the selected fixtures.

To calibrate one or more fixtures, press the **Calibrate…** button at the bottom of the Shutters tab of the Media Picker. A pop-up window will appear with the options listed below.



Shutter Position on Fixture

By default, every fixture is mapped to the graphical controls using the same generic layout. If the shutters on the fixture do match the shutters you are moving in the graphical interface, then use these settings to correct that.

Shutter Travel

By default, all fixtures are set to 100% travel but for many fixtures this isn't true. In many cases a fixture may only be able to mechanically move its shutters to partially cover the aperture. The shutter travel settings allow each shutter to be adjusted to its real-world range. To determine if this adjustment is necessary use the encoders to dial the shutter values to 100%, then check the shutters on the real fixture. Determine how far the shutters moved across the aperture of the fixture. This is the percentage you should use for the shutter travel settings. This will ensure the graphical controls match the physical reality of the fixture.

Swap A/B

Selecting this option inverts the graphical shutter controls of native A/B shutter systems to be reversed. Enable this option if the fixture's shutter incline behavior does not match the graphical interface.

Invert Rotation

Enabling this option inverts the relationship of the rotation slider in the graphic controls to the selected fixture's shutter rotation value. Enable this option if the fixture's shutter rotation behavior is moving the opposite direction of the graphical interface.

Apply to All Fixtures of the Same Type

By default, calibration adjustments made in the Shutter Layout are stored with the currently selected fixtures. Enabling this option additionally applies the calibration settings to all fixtures of the selected types.

10.3.3 Multi-Fixture Editing using Shutter Controls

Hog OS can program shutter parameters across mixed fixture types within a single selection even when their shutter systems, value ranges, or programmed values differ. It does this through a set of intelligent translation behaviors:

- **Proportional editing across dissimilar fixtures** – When multiple fixtures are selected, shutter adjustments are applied proportionally to each fixture's range. The graphical controls display only the first fixture in the selection, but all fixtures receive correctly scaled values.
- **Real-time translation of calibrated shutter positions** – If fixtures are calibrated so that, for example, "Shutter 2" represents the right edge, Hog OS automatically maps edits to the correct physical blade on each fixture. The result on stage is consistent, even if the underlying shutter numbering differs.

10.4 Media Picker - CITP Previews

By default the media picker displays previews for fixtures using a default preview package for that fixture type as supplied by the fixture library. However, the media picker can also display previews that have been downloaded and cached from connected CITP enabled fixtures. In this section we will review which CITP clients are supported by the Hog OS for previewing, how to configure the DMX Processor for CITP fixture discovery, how to associate fixtures to CITP media servers in the patch window, and finally how to use the patch window to refresh CITP media preview packages.

10.4.1 Supported CITP Media Server Clients

Hog OS supports the following CITP Media server clients:

- **Arkaos MediaMaster** (software versions 3.2.2, 4.2.1, 5.0.1, 5.2.2, 5.3.1)
- **Coolux Pandoras Box** (software version 4.7)
- **Green Hippo Hippotizer** (software versions 3.2.1, 3.2.2, 3.2.3, 3.2.4, 4.2, 4.3, 4.4, 4.5)
- **High End Systems Axon / Axon HD** (software version 2.1.2 or greater)
- **High End Systems DL.2** (software version 2.1.2 or greater)
- **High End Systems DL.3** (software version 2.1.2 or greater)
- **High End Systems DLV** (software version 2.1.1 or greater)
- **High End MMS-100** (software version 2.1.1 or greater)
- **PRG Mbox Studio & Mbox Mini** (software versions 3.6.1, 3.8, 3.9, 3.10, 4.3)
- **Disguise (d3 Technologies) Designer** (software version 14 and 14.1 with Video Modules v15, v16)

10.4.2 Configuring Processors for CITP Discovery

In order for the console to properly discover CITP enabled fixtures on the FixtureNet network, the FixtureNet adapter for the processor must be properly configured:

1. Open the node settings window for the processor that is connected via FixtureNet to the CITP enable fixtures
2. Select the FixtureNet tab of the node settings window
3. Ensure that the IP address and subnet settings are appropriate for the network environment in which the CITP discovered fixtures are connected. This is similar to configuring the FixtureNet adapter for Art-Net and sACN output. To better ensure connectivity it is recommended that the IP address assigned to the FixtureNet adapter be within in the same sub-network as the CITP fixtures it is reeving preview thumbnails from.

10.4.3 Patching fixtures to CITP discovered fixtures

Once a fixture is scheduled into the patch window and patched to a DMX output, the fixture can then be patched to a CITP fixture that has been discovered on the FixtureNet network of any active processor connected to the console. Follow these steps to patch a fixture to a CITP discovered fixture:

1. Open the patch window
2. Select the fixture(s) you wish to associate with a CITP fixture in the rig
3. Press the "patch media" button at the top of the patch window
4. Select the IP address of a discovered CITP fixture from the media patch window
5. Press OK. You will now see the IP address of the CITP fixture in the patch window listed for the fixtures you selected in step 2.
6. With the fixtures still selected press the "refresh media" button at the top of the patch window to fetch previews from the CITP fixture.

Caution: If the IP address of a discovered CITP fixture in the rig changes you will need to perform the "patch media" task again.

Tip: Selecting "None" from the list of CITP discovered fixtures in the media patch window will disassociate/unpatch the selected fixtures from CITP discovered fixtures and revert the fixture to using the default preview package supplied by the fixture library.

10.4.4 Refreshing CITP Previews

The content stored on CITP discovered fixtures may change during the programming of your show. For example, the video clip file used in the opening scene might have been changed on the media server. The console is not automatically made aware of these content changes and so it is necessary to request new previews from the fixture in order to update the cached preview package on the console. Follow these steps to update cached CITP previews on the console:

1. Select the fixture(s) you wish to refresh the media.
2. Open the fixture window or the media picker window.
3. Press the "refresh media" button at the top of the fixture window or press the refresh button at the top of the media picker window. A green and white animated refresh icon will appear at the top right of the media picker window to the right of the search field. The media refresh is finished when the status animation changes to a green check mark (this indicates a successful refresh) or yellow exclamation point (this indicates there was an issue refreshing the media previews for the selected fixtures; click on the yellow exclamation point for details).

10.4.5 Disabling CITP on Processors

By default CITP is enabled on all DMX Processors in new shows. To disable CITP on a processor:

1. Open the node settings window for the processor
2. Select the CITP tab of the node settings window
3. Deselect the enable button and hit apply

10.5 Media Picker - Catalyst Previews

In addition to CITP and fixture library defined preview packages, the Hog OS is also capable of displaying previews for content stored on Catalyst media servers. In this section we will review how to configure processors for downloading Catalyst previews, how to associate Catalyst fixtures to Catalyst media servers in the patch window, and how to use the patch window to refresh cache Catalyst preview packages on the console.

10.5.1 Configuring Processors for Catalyst Previews

In order for the console to properly fetch and display thumbnail previews for Catalyst media servers on a processor's FixtureNet network, the FixtureNet adapter for the processor must be properly configured:

1. Open the node settings window for the processor that is connected via FixtureNet to the Catalyst media servers
2. Select the FixtureNet tab of the node settings window
3. Ensure that the IP address and subnet settings are appropriate for the network environment in which the Catalyst media servers are connected. This is similar to configuring the FixtureNet network adapter for Art-Net and sACN output. To better ensure connectivity it is recommended that the IP address assigned to the FixtureNet adapter be within in the same sub-network as the Catalyst it is receiving preview thumbnails from.

10.5.2 Patching Catalyst fixtures to Catalyst Media Servers

Once a Catalyst fixture is scheduled in the patch window and patched to a DMX output, the Catalyst fixture can then be patched to a Catalyst media server that is connected to the FixtureNet network of any active processor connected to the console. Follow these steps to patch a Catalyst fixture to a Catalyst media server:

1. Open the patch window
2. Select the Catalyst fixture(s) you wish to associate with a Catalyst media server in the rig
3. Press the "patch media" button at the top of the patch window
4. Select the Catalyst tab in the media patch window
5. Enter the IP Address of the Catalyst media server
6. Press OK. You will now see the IP address of the Catalyst media server in the patch window listed for the Catalyst fixtures you selected in step 2. This will now associate the Catalyst fixtures in your show file with the Catalyst media servers in the rig as long as the Catalyst media server's IP remains the same.
7. With the fixtures still selected press the "refresh media" button at the top of the patch window to fetch previews from the Catalyst

Caution: If the IP address of a Catalyst Media server in the rig changes you will need to perform the "patch media" task again.

Tip: Entering an IP address of 0.0.0.0 in the Catalyst tab of the media patch window will disassociate / unpatch the selected fixtures from Catalyst media servers and revert the fixture to using the preview thumbnails in the fixture library.

10.5.3 Refreshing Catalyst Previews

Catalyst media server content may change during the programming of your show. For example, the video clip file used in the opening scene might have been changed on the Catalyst media server. The console is not automatically made aware of these content changes and so it is necessary to request new preview thumbnails from the Catalyst media server. Follow these steps to update the previews on the console:.

1. Open the patch window
2. Select the fixture(s) you wish to refresh the media
3. Press the "refresh media" button at the top of the patch window. A green and white animated refresh icon will appear at the top right of the media picker window to the right of the search field. The media refresh is finished when the icon disappears.

10.5.4 Disabling Catalyst Preview Fetching on Processors

By default Catalyst thumbnail preview fetching is enabled on all processors in new shows. To disable Catalyst thumbnail preview fetching on a processor:

1. Open the node settings window for the processor
2. Select the Catalyst tab of the node setting window
3. Deselect the enable button and hit apply

10.6 Adding Previews to Pre-v2.0 Show Files

Hog OS and Hog 3 OS show files built with fixture library v4.7 and older will not display library based preview thumbnails in the media picker until the fixtures in the show file are updated using the follow steps:

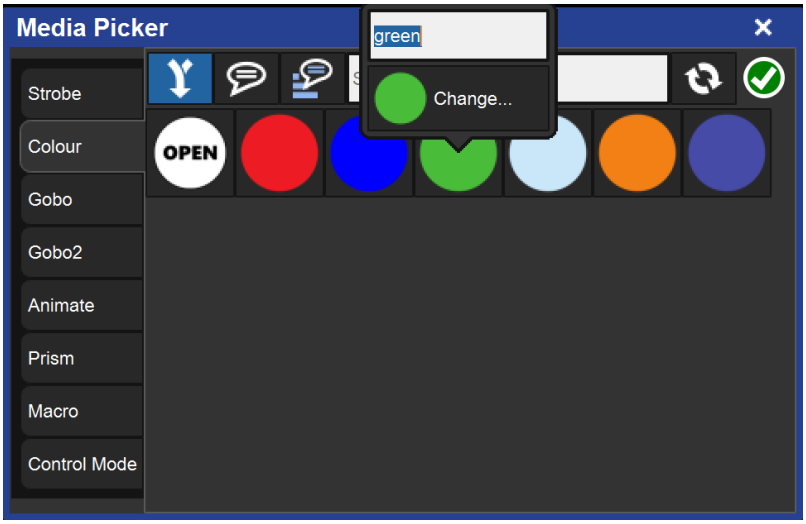
1. Open the patch window
2. Select the fixture(s) you wish to update with library based preview thumbnails
3. Press the "refresh media" button at the top of the patch window

10.7 Renaming and Customizing Preview Images

Users can define custom names and images for fixture previews using the media picker. For example, if a fixture in the rig has a custom gobo installed the user may want to change the library defined preview image to a custom image or change the library defined preview name to a custom name in order to better represent the custom gobo being used in the rig.

Customizing preview images and/or names in your show can be done using the follow steps:

1. Open the media picker window
2. Select the fixture(s) you want to customize
3. In the media picker window select the preview you wish to change
4. Hit the **[set]** key
5. Use the text field to rename the preview and/or click on the "Change..." button to browse for a custom image. Images can be imported from a USB flash drive or chosen from the thumbnail library folder on the console. (supported image formats: JPEG, PNG, GIF)
6. The custom preview name and image you chose will now appear anywhere that preview is presented in the show such as on the slot toolbar, in the media picker, and in direct entry menus.

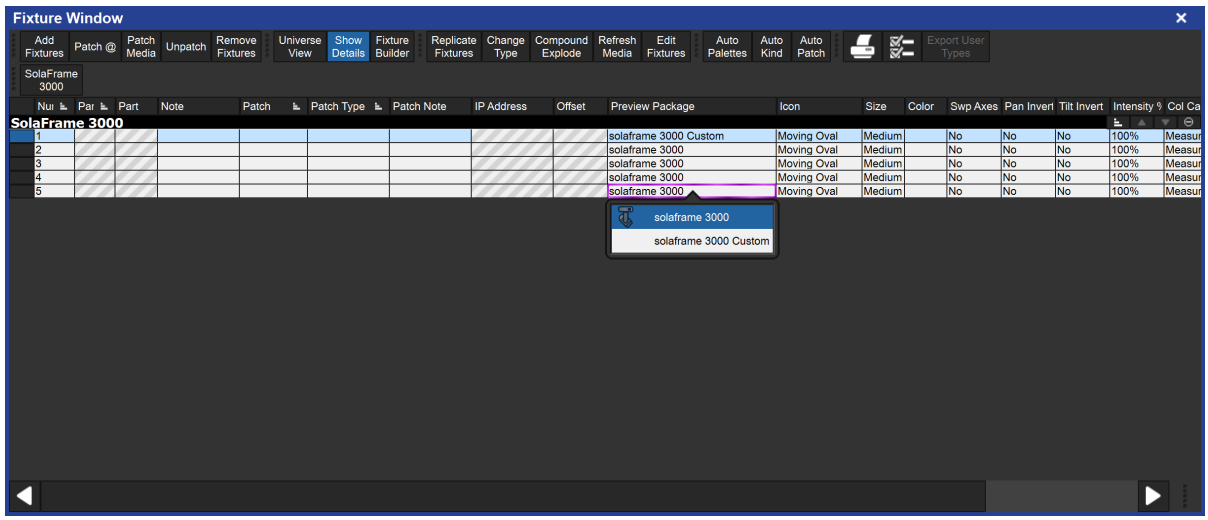


10.8 Managing Preview Packages

To **view** which preview package a fixture is using open the fixture window and locate the "preview package" column for that fixture. Listed in this column will be the name of the preview package currently being used by the fixture to display preview names and thumbnails on the slot toolbar, in the editors, and in the media picker.

To **change** which preview package a fixture is using double click on the preview package cell and select from the list of available packages in the menu.

- **Default Library Packages**: Are the packages defined by the fixture library. These packages contain previews based on manufacturer documentation and stock fixture configuration.
- **Custom Packages**: Are created when the user has modified the default library preview package for fixture or set of fixtures by adding custom images or names to the previews for that fixture. Once a custom package is created for one fixture, other fixtures of that same type can also be assigned to use this preview package using the fixture window.
- **Cached Packages**: Are created when a fixture's previews are downloaded via CITP. In this case a "cached" preview package for that fixture will be created. Like custom packages, cached packages can also be assigned to other fixtures of the same type using fixture window.



Tip: Custom preview packages and CITP cached preview packages can be associated with more than one fixture of the same type. For example, you can create a custom preview package for Solaspot fixture 1 and then use the fixture window to assigned Solaspot fixtures 2<10 to the same preview package enabling those fixtures to display the same custom previews. Likewise you can utilize a single CITP cached preview package by assigning it to multiple fixtures your show.

11. Cue and Cuelists

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11.1 Recording a Cue

To record a look created in the Programmer or editor as a cue within a cuelist, you need to specify a cuelist and cue number to record to. If the cuelist does not yet exist, Hog OS will create it automatically.

For example, to record Cue 4 into Cuelist 2:

- **Record List 2 Cue 4 Enter**

11.1.1 Recording to a Cuelist on a Master

You can choose a master rather than a cuelist when recording a cue. This will record the cue to the cuelist currently attached to the chosen master, or create a cuelist if it doesn't exist. For example:

1. Press the **Choose** key above Master number 10. The **Choose** key will light up to show that Master 10 is the chosen master.
2. **Record 1 Enter** : records Cue 1 in the cuelist attached to Master 10, creating it if necessary.

To record more cues:

- **Record 1.5 Enter** : inserts a new cue numbered 1.5 into the cuelist on the currently chosen master.
- **Record Enter** : appends the cue to the end of the cuelist attached to the currently chosen master.
- **Record Choose** : appends the cue to the end of the cuelist of the selected master. This allows the current master to remain chosen while recording cues onto other masters.

11.1.2 Programmer contents after Recording a Cue

When you record a cue, the values remain in the Programmer, but the background colour changes from blue to grey. This indicates that the parameter values in the Programmer are no longer touched, and so are available for recording to another cuelist, but not to the same cuelist. You can keep the values in the Programmer to act as the basis for the next cue on the same list, but because of tracking, only the changed parameter values will be recorded. For an overview of tracking, see Tracking.

11.1.3 Insert, Merge and Replace

When recording, copying or moving a cue, if the destination location already has a cue recorded in it, you will be prompted with record options of Insert, Merge or Replace:

- **Insert**: creates a new destination cue. The new cue will be assigned a free location lower than the one chosen, using a point number if necessary.
- **Merge**: Incorporates the new information into the destination cue. If the same fixtures and parameters are in both cues, the new values being merged will take priority.
- **Replace**: Overwrites the cue information in that destination.

If you are copying a cue, all three options are available. If you are moving a cue, only the Insert option is available.

> **Tip**: If you know that you are about to record, copy or move a cue to an existing destination, you can pre-select Insert, Merge or Replace from the Record Options Toolbar. This appears after you press the Record, Copy or Move keys.

11.1.4 Numbering Cues

If you leave out the cue number when recording cues, Hog OS will give the cue the next whole number in the list. If you specify a cue number, you can use numbers with up to five digits before the decimal and four digits after; for example: `11111.1111`. This can be useful to insert cues between previously recorded ones.

You can later renumber a complete cuelist; see Renumbering Cues within a Cuelist.

11.1.5 Naming Cues

You can give a cue a name that will be displayed in the **Cuelist** window and on the Playback Bar:

1. **Open** + **Choose** : opens the Cuelist window of the selected master.
2. Select the cue's name cell.
3. **Set** **[name]** **Enter** : type in the name.

> Tip: To name a cue immediately after recording it, press the **Set** key. This will open a **Quickname** window. Enter the cue name and select **OK**.

11.2 Recording Options

11.2.1 Recording Selected Fixtures Only

Normally, recording a cue records the total contents of the Programmer or editor, but you can choose to record only the currently selected fixtures. For example:

1. Select the fixtures that you want to record.
2. **Record**
3. Press **Selected** on the Record Options Toolbar.
4. **Choose** : records the selected fixtures as a new cue in the cuelist on the selected master.

11.2.2 Record, Remove Values from Cues

You can remove the contents of the Programmer or editor from a previously recorded cue. For example, you might have made changes to a cue, and you want the changes to track through subsequent cues (see Tracking for an explanation of tracking). To remove parameter values:

1. Ensure that the parameters that you want to remove are in the Programmer. The parameter values do not matter, only that the parameters have values.
2. **Record**, **Remove** : the Remove button is on the **Record Options Toolbar** at the bottom of the right-hand screen.
3. **Cue 5**, **Enter** : removes the selected parameter values from Cue 5.

To remove a whole fixture ensure that all parameters are selected. You can do this by selecting the fixture and pressing the **Touch** button on the Main Toolbar.

11.3 Deleting Cues

To delete a cue:

1. **Cue 1 Delete** : deletes Cue 1 in the currently chosen cuelist.
2. Click **OK** to confirm the delete.

Or:

1. **List 1 Cue 1 Delete** : deletes cue 1 in cuelist 1.
2. Click **OK** to confirm the delete.

> Tip: If you prefer not to be asked to confirm the delete action, select **Don't Ask Me Again** in the confirmation window. You can re-enable the confirmation by going to **Setup** → **Preferences** → **Programming** and selecting **Confirm before deleting directory items.**

You can delete a range of cues:

1. **List 1 Cue 1 Thru 4 Delete** : deletes Cues 1 to 4 in Cuelist 1.
2. Click **OK** to confirm the delete.

> Tip: To delete a cue 'cue only', so that changes caused by deleting the cue don't track through to later cues, see Deleting without Tracking Forward.

11.4 Copying and Moving Cues

11.4.1 Copying Cues

To make a copy of a cue in the same cuelist:

1. Make sure that the cuelist you want to work with is on the currently chosen master.
2. **Cue 1 Copy Cue 2 Enter** : copies the contents of Cue 1 to Cue 2.

To copy in a cuelist other than the chosen one, or to copy between cuelists, specify the cuelist with the List key. For example:

- **List 1 Cue 1 Copy List 2 Cue 2 Enter** : copies the contents of Cue 1 of Cuelist 1 to Cue 2 of Cuelist 2.

To copy a range of cues:

- **List 1 Cue 1 Thru 4 Copy List 2 Cue 2 Enter** : copies the contents of cues 1 to 4 of Cuelist 1 to Cuelist 2, starting at Cue 2.

If the destination cue(s) already exist, you will be asked to choose an option: Insert, Merge and Replace.

11.4.2 Moving Cues

To move a cue to a new location:

- **Cue 1 Move Cue 2 Enter** : moves the cue from 1 to Cue 2, effectively removing Cue 1.

If the destination cue(s) already exist, you will be asked to choose an option: Insert, Merge and Replace.

> Tip: Copying or moving cues affect hard values only; the cue you wish to copy/move may also contain tracked values that create the current onstage state. If you wish to copy this look rather than just changes made by the current cue, use Copy and Move with State; see Using State.

11.5 Renumbering Cues

If your cuelist has many point cues (1.2, 1.5, 2.5, etc.) or if cues have been deleted, you may wish to renumber the cues so that they are all whole numbers. You can renumber cuelists using the **Renumber** button; press **More** on the Main Toolbar:

- **Renumber**, **Choose** : renumber cues in the cuelist on the selected master, starting at 1 and increasing by 1.
- **List 1 Cue 3 Thru Renumber**, **Enter** : renumber all cues from Cue 3 upwards in Cuelist 1, starting at Cue 3 and increasing by 1.
- **List 1 Cue 3 Thru 10 Renumber**, **Enter** : renumber Cues 3 through 10 in Cuelist 1, starting at Cue 3, finishing at Cue 10, with other cue numbers equally spaced between.

Alternatively, you can specify the range of new numbers to be given:

- **List 1 Cue 3 Renumber 5**, **Enter** : renumber cue 3 as cue 5, in cuelist 1.
- **List 1 Cue 3 Thru 10 Renumber 20**, **Enter** : renumber cues 3 through 10, in cuelist 1, with new numbers starting at 20. The rest of the new numbers will have the same order and spacing as before.
- **List 1 Cue 3 Thru 10 Renumber 20 Thru 30**, **Enter** : renumber cues 3 through 10 in cuelist 1, starting at 20, finishing at 30, with other cue numbers equally spaced between.

Note that renumbering does not moves cues within the cuelist; if you try to renumber Cue 5 as Cue 3, you will get an error message. You should use Move for this purpose; see Copying and Moving Cues.

Important: Using **Renumber** will affect the number column and numeric entries in the Name column. Also, renumber will not rewrite macros or links that refer to renumbered cues; you will need to update these manually.

11.6 Editing Cue Contents

You can edit the contents of a cue in an editor window as seen below. To open the current cue of the chosen master:

- **Cue**, **Open**

Or:

- **Cue**, **Cue**

To open a specific cue in a specific cuelist, for example Cue 2 of Cuelist 1:

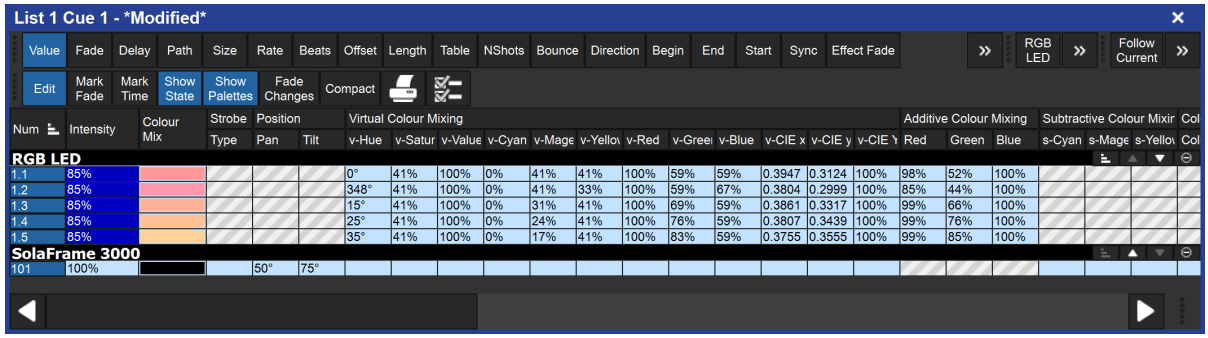
1. **Open** + **List** : opens the Cuelist Directory window.
2. **Open** + **[Cuelist 1]** : opens the Cuelist window for Cuelist 1.
3. **Open** + **[Cue 2]** : opens the Cue Editor for Cue 2.

Alternatively, using the command line:

- **List 1 Cue 2 Open**

You can also preview a cue using **View Cue** in the Cuelist window; however, you will need to press the **Edit** button in the Cue Editor window to select this as your current editor in order to make any changes.

If the cue to be edited is on stage, selecting **Edit** will enable blind mode until changes are updated, or **Edit** is deselected, see **Blind**. You can leave the mode otherwise by pressing the **Blind** key.



Within the editor, you can assign fixture parameters and timing in the same way as in the Programmer. See **Selecting Fixtures and Modifying Parameters.** Once you have made changes be sure to press the Update key to save them, the Cue Editor will then automatically close.

11.6.1 Viewing Different Cues in the Editor

In addition to the usual functions available in all editors, described in Editors, the Cue Editor window has controls that allow you to select which cue is displayed:

- **Next and Back**: The Next and Back buttons to allow you to easily step through the cues in the cuelist to view or edit them.
- **View Cue:** You can jump to another cue by typing its number in to the View Cue box and pressing the Enter key.
- **Follow Current**: If you select the **Follow Current** button, the Cue Editor window will always show the current cue as the cuelist is played back. If you use Next, Back or View Cue to view another cue, or if you edit the current cue, then Follow Current is disabled.
- **Follow Next**: This is similar to Follow Current, except that the next cue is displayed rather than the current one. When the last cue is played, the first cue in the cuelist is displayed.

Tip: As well as the buttons in the Cue Editor window, you can also step through the cues using the **Next** and **Back** keys while holding down the **Cue** key.

11.7 Working with Tracking

Hog OS uses tracking, which gives it some very powerful abilities. Tracking can also add extra complexity, but Hog OS has several functions that make working with tracking straightforward. For a detailed discussion about the fundamentals of tracking, see Tracking.

11.7.1 Tracking Values Backwards When Recording

You can use the Track Backwards feature when you record a cue to assign the parameter values to the last cue they appeared in, rather than the cue being recorded. For example, suppose that you have a series of cues with intensity values for three fixtures:

Fixture:	1	2	3
Cue 1	50	50	50
Cue 2	60	60	
Cue 3	70		

If you assign all three fixtures to 100% and record with merge into Cue 3 (see Insert, Merge and Replace for recording with merging), you would get these values:

Fixture:	1	2	3
Cue 1	50	50	50
Cue 2	60	60	
Cue 3	100	100	100

However, if you did the same thing with Track Backwards, you would get:

Fixture:	1	2	3
Cue 1	50	50	100
Cue 2	60	100	
Cue 3	100		

The value of 100% has been applied to the last cue that the intensity parameter had a value in.

If you Track Backwards a parameter that hasn't been given a value since the start of the cuelist, the value is added to the first cue in the cuelist.

To record a cue with Track Backwards, select the **Track Backward** button on the **Record Options Toolbar** that appears after you press the **Record** key:

1. **Fixture 1 Thru 3 @ 100 Enter**.
2. **Record Cue 3**
3. Select **Track Backwards** on the Record Options Toolbar.
4. **Enter**

> Tip: You can also Track Backwards when you update cues using Auto Update; see Auto Update.

11.7.2 Stopping Values from Tracking Forward

When you insert a new cue into a cuelist, or merge changes into an existing cue, the new values track forwards into later cues in the cuelist. For example, your cuelist has Cues 1 to 4, and Cue 1 has Fixture 1 programmed into it at 30%, so that it tracks through the subsequent cues.

Fixture:	1	2	3
Cue 1	30	50	100
Cue 2		100	60
Cue 3			50
Cue 4		40	

You now insert a Cue 2.5 with Fixture 1 at 100%. Because cues 3 and 4 do not change the intensity of Fixture 1, it will remain at 100% for the rest of the cuelist:

Fixture:	**1**	**2**	**3**
Cue 1	30	50	100
Cue 2		100	60
Cue 2.5	100		
Cue 3			50
Cue 4		40	

You may want to record the new cue so that parameter values in the new cue return to their original value in the next cue (so that the inserted cue does not change the original looks due to tracking):

Fixture:	1	2	3
Cue 1	30	50	100
Cue 2		100	60
Cue 2.5	100		
Cue 3	30		50
Cue 4		40	

Hog OS allows you to record a cue between other cues without destroying existing tracking values. To do this, record the inserted cue without tracking forwards by deselecting the **Track Forward** button on the **Record Options Toolbar** that appears after pressing the **Record** key. For example:

1. Press the **Record** key.
2. Deselect **Track Forward** on the **Record Options Toolbar**.
3. **Cue 2.5 Enter** : insert Cue 2.5 into the cuelist on the currently chosen master.

This is sometimes referred to as recording 'cue only' as the changes only affect the recorded cue and do not track into subsequent cues. Note that you can only turn tracking forwards off when you insert a new cue into a cuelist or when you merge values into a cue, not when adding new cues to the end of a cuelist.

Important: When recording or merging as 'cue only' any parameter values that did not previously exist in a cuelist, an 'Off' indication will be placed into the subsequent cue for these parameters. This Off indication will release the parameter value back to its previous state (as if it were not programmed in the list).

11.7.3 Deleting without Tracking Forward

When you delete a cue, this can have unexpected consequences on later cues in the cuelist if the deleted cue contained parameter values that tracked through to contribute to the state of the later cues. For example, you have the following cues:

Fixture:	1	2	3
Cue 1	30	50	100
Cue 2	100	80	60
Cue 3			50
Cue 4		40	

If you now delete Cue 2, Fixture 1 will track from Cue 1 through Cues 3 and 4 at 30%, rather than going to the expected 100% in Cues 3 and 4:

Fixture:	1	2	3
Cue 1	30	50	100
Cue 3			50
Cue 4		40	

You can prevent this happening by deleting the cue ‘cue only’ which adds any values that previously tracked through from the deleted cue into the next cue:

Fixture:	1	2	3
Cue 1	30	50	100
Cue 3	100	80	50
Cue 4		40	

To delete a cue without tracking the changes forwards:

1. **List 1 Cue 3** : select the cue to be deleted.
2. Press and hold the **Delete** key. The Record Options Toolbar will appear.
3. Deselect **Track Forward** from the Record Options Toolbar.
4. Release the **Delete** key.

11.7.4 Blocking Cues

Blocking cues prevent changes made earlier in the cuelist from tracking through to subsequent cues in the cuelist.

Using State

You can create blocking cues using the **State** button on the **Record Options Toolbar.** For example, suppose that you have the following cues:

Fixture:	1	2	3
Cue 1	30	50	100
Cue 2		100	60
Cue 3			50
Cue 4		40	

to turn Cue 4 into a blocking cue, you copy it to itself 'with state':

1. **Cue 4 Copy State Cue 4 Enter** : the State button is on the Record Options Toolbar that appears when you press Copy.
2. Select **Replace**.

The values are now:

Fixture:	1	2	3
Cue 1	30	50	100
Cue 2		100	60
Cue 3			50
Cue 4	30	40	50

Because of tracking, when you copy a cue to another location you only copy the hard values, so you do not create a new cue that actually represents the on-stage look that you would get by running the original cue.

To copy both hard and tracked values, you can use Copy and State:

- **List 1 Cue 5 Copy State List 2 Cue 1 Enter** : creates a new cue in Cuelist 2 that is the state of Cue 5 in Cuelist 1.

11.7.5 Unblocking

Unblocking removes redundant hard parameter values. A parameter value is redundant in a cue if it is the same as the value for that parameter in the previous cue in the same cuelist. For example:

Channel:	1	2	3	4
Cue 1	100	0	50	50
Cue 2	50		100	
Cue 3	50	100	100	50

In this cuelist, the values for channels 1, 3 and 4 are redundant in cue 3. After unblocking, the values in the cuelist would be:

Channel:	1	2	3	4
Cue 1	100	0	50	50
Cue 2	50		100	
Cue 3		100		

To unblock cues, use the **Unblock** button in the Main Toolbar:

- **Cue 3 Unblock**, **Enter** : unblock cue 3 on the currently chosen master.
- **List 1 Cue 3 Unblock**, **Enter** : unblock cue 3 of cuelist 1.
- **Cue 1 Thru 10 Colour Unblock**, **Enter** : unblock only colour parameters in cues 1 through 10 of the cuelist on the currently chosen master.
- **List 1 Cue 3 Group 10 Colour Unblock, Enter :** unblock only the colour parameters of fixtures in Group 3, in cue 3 of cuelist 1.

To unblock complete cuelists:

- **List 1 Unblock**, **Enter**

Or on a master:

- **Unblock Choose**

Tip: Unblocking obeys the linked parameter preferences assigned in **Setup** → **Preferences** → **Programming**. For example, if position parameters are not separated and Pan is blocking but Tilt is not, Pan will not be unblocked. For more on linked functions, see Separating Parameters

Important: Unblocking will remove parameter values from blocking cues, so any future changes to subsequent cues will be tracked through the whole cuelist.

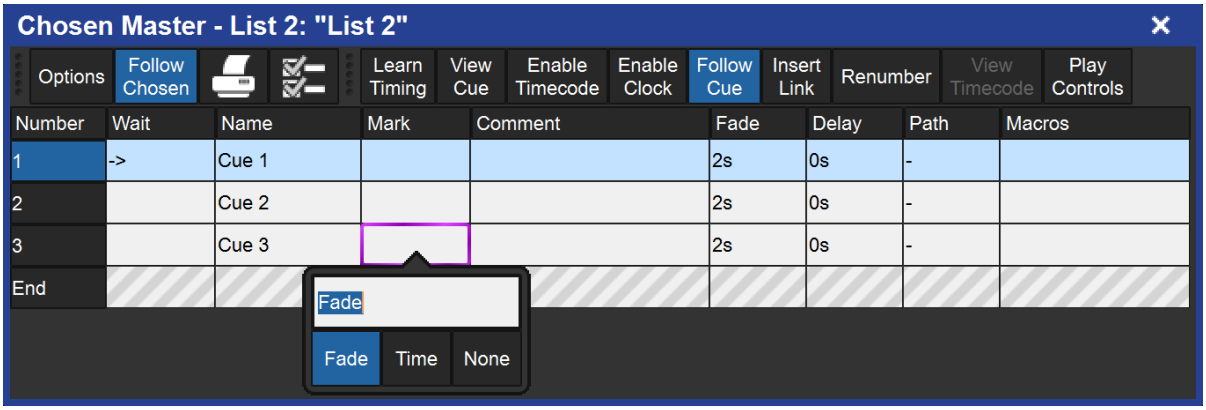
11.8 Mark Cues (Move in Black)

A Mark cue is a special designator for a cue that looks at the previous cue and any fixtures with an intensity of zero after completion of the cue. If a fixture meets these requirements, the mark cue allows the fixture(s) to 'preset' for the next cue by executing the cross-fade for all parameters except intensity. This allows the fixture(s) to 'move in black' as they change to their new parameter values. When the next cue is later executed, only the intensity parameter changes as all other parameters will already be at their new values due to the mark. The timing used to mark a cue is determined by the mark method you choose. See Fade Mark verses Time Marks for details on the different timing methods you can use when marking cues.

11.8.1 How to Mark to a Cue

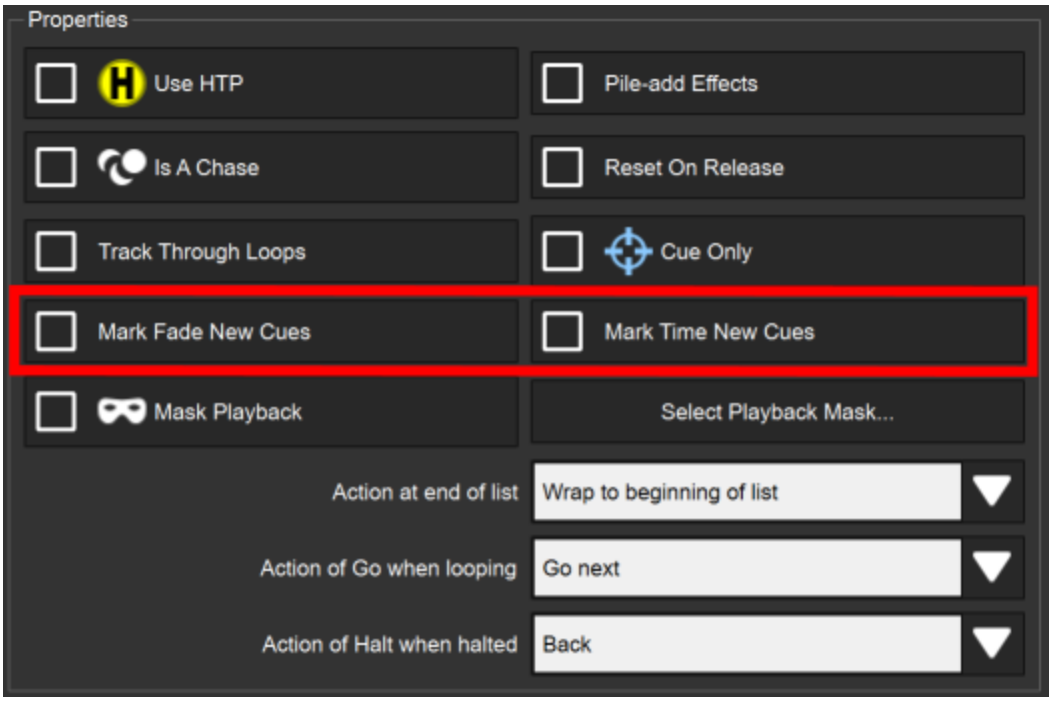
There are several methods to assign a cue to mark:

- Select the **Mark** cell of a cue, press **Set**, and then **Enter**. If you wish to "time mark" the cue, then first input a time using the keypad and then **Enter**. To remove the mark from a cue select the **Mark** cell of the cue, press **Set**, hit **Backspace**, and then **Enter**.

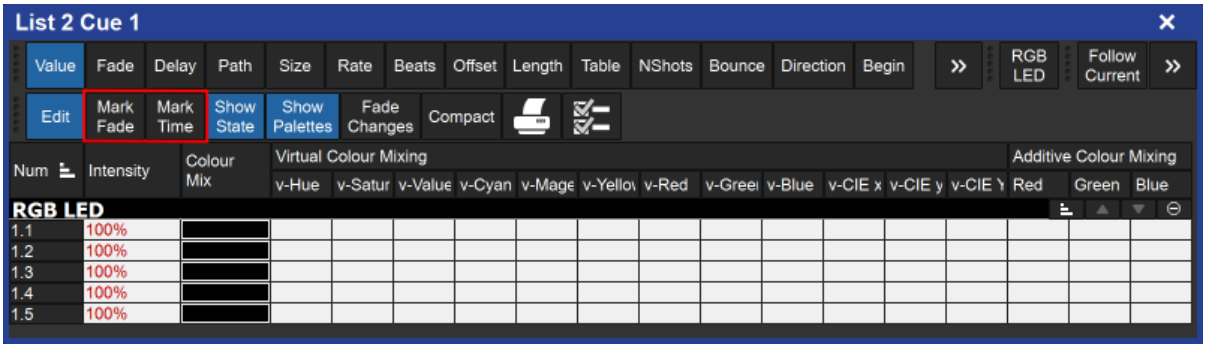


- Enable the **Mark Fade New Cues** or **Mark Time New Cues** option in the Cuelist Options window. All new cues will be created with the mark type. Note that when Mark

- Time New Cues is selected all newly recorded cues will get a 2s mark time by default.



- Toggle the **Mark Fade** or **Mark Time** button in a Cue Editor window of the cue you wish to mark.



11.8.2 Fade Mark verses Time Marks

Cues can be marked with either a *Fade Mark* or a *Time Mark*. While the basic principles of marking are the still the same, the timing in which the mark is executed varies between the two methods.

A *Fade Mark* uses the fade and delay times assigned in the marked cue to mark fixtures. Fade marking occurs on a fixture by fixture basis, so several fixtures could be marking at different times and rates depending upon their individual cue data in the marked cue.

In the fade mark example below, when cue 2 completes its 2 second fade to 0% intensity, cue 3 will automatically play all of its data except intensity in a 5 second fade. Then when cue 3 is played only the intensity will cross-fade at 5 seconds. The fixtures will have moved from center to left and changed from red to green automatically while in 'black'.

	Mark	Fade	Intensity	Position	Colour
Cue 1		2s	100%	Centre	Red
Cue 2		2s	0%	Centre	Red
Cue 3	Fade	5s	100%	Left	Green

A *Time Mark* uses the time you enter into the mark column to mark fixtures. Time marking occurs at a single uniform rate so all fixture parameters will mark at the same rate regardless of the data in the next cue.

In the time mark example below, when cue 2 completes its 2 second fade to 0% intensity, cue 3 will automatically play all of its data except intensity in a 0s second fade. Then when cue 3 is played only the intensity will cross-fade at 5 seconds. The fixtures will have moved from center to left and changed from red to green automatically while in 'black'.

	Mark	Fade	Intensity	Position	Colour
Cue 1		2s	100%	Centre	Red

	Mark	Fade	Intensity	Position	Colour
Cue 2		2s	0%	Centre	Red
Cue 3	0s	5s	100%	Left	Green

Tip: Marking occurs with the intensity parameter for standard fixtures as well as I Red, I Green, and I Blue parameters for RGB fixtures such as LEDs.

11.8.3 Marking the First Cue in a Cue List

If the first cue in a list is assigned to mark, it will only mark after the last cue in the list is played. By recording a blank cue prior to the first cue in the list, you can create a mark cue for the first look of a show. For example:

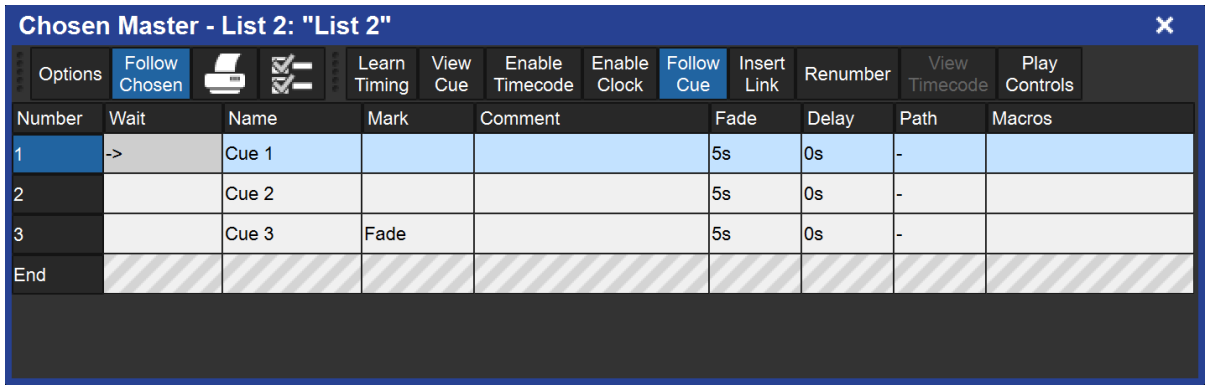
	Mark	Fade	Intensity	Position	Colour
Cue 0.5		-	-	-	-
Cue 1	Fade	0,2s	100%	Right	Blue
Cue 2		2s	50%	Left	-

When cue 0.5 plays it will mark cue 1 so that cue 1 will fade up intensities on stage after the fixtures are already in position and colour. Furthermore, since the intensity time of cue 1 is assigned to 2 seconds and the other parameters are assigned to zero, the mark cue will occur as quickly as possible.

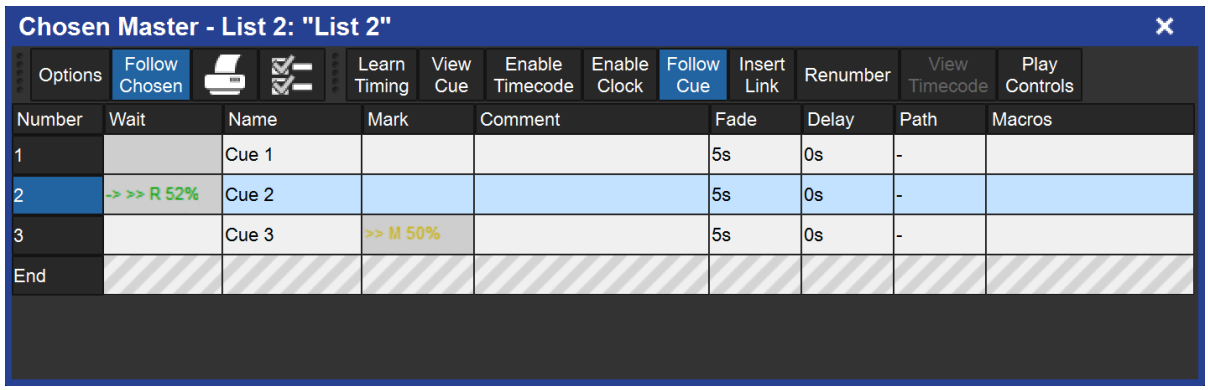
11.8.4 Cuelist Feedback for Mark Cues

The following figures show the different states of a marking cue.

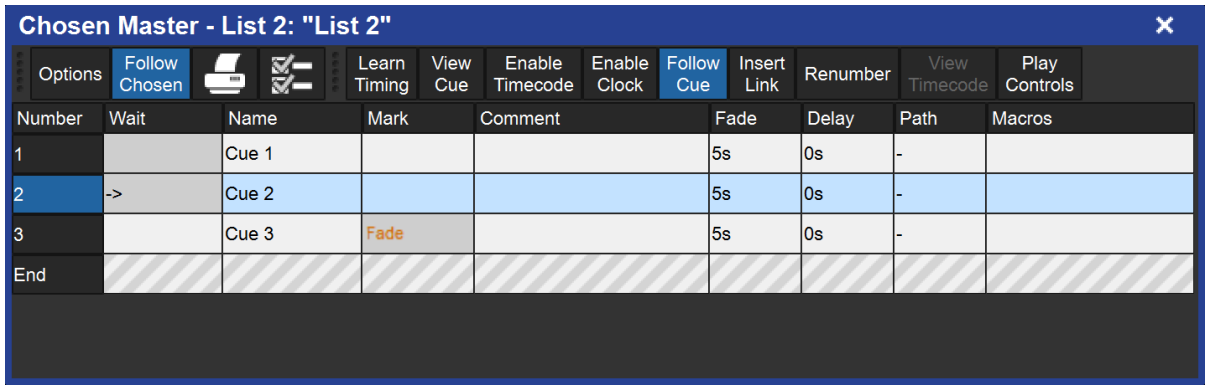
Cue 3 with a Fade Mark



Cue 3 Actively Fading into its Mark



Cue 3 Fully Marked



11.9 Understanding Cuelists

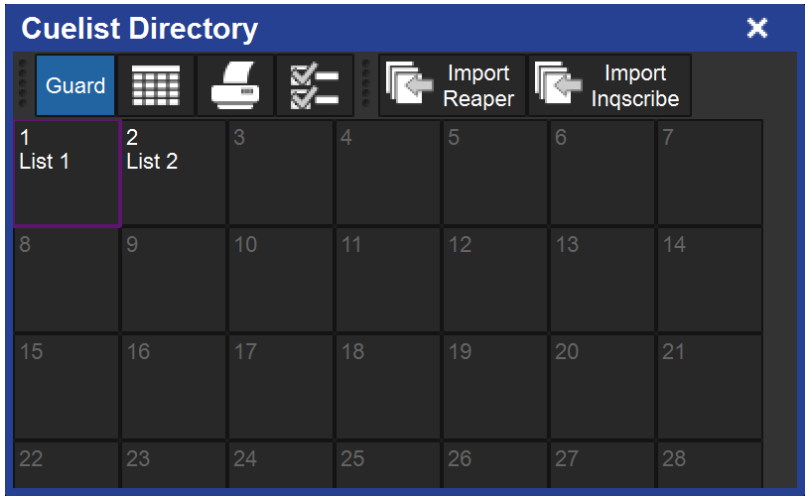
Cuelists are lists of cues, usually used to play back the cues in a defined order. A cue number is specific to each cuelist, not the entire console, so there can be a cue 1 for cuelists 1, 2 and 3. Cuelists are held in the **Cuelist Directory**and it is possible to copy or move cues between cuelists; see **Copying and Moving Cues**.

To open the Cuelist Directory:

- **Open**+ **List**

Alternatively:

- **List**, **List**



To open a cuelist

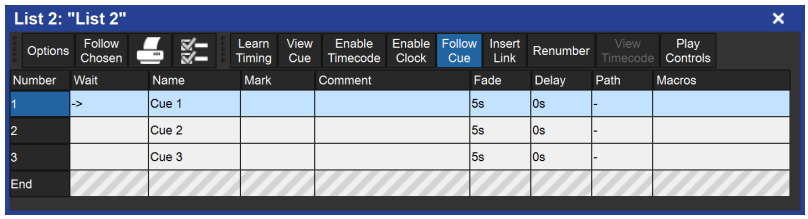
- **Open** + **[Cuelist 1]** : select a cuelist from the Cuelist Directory.

Or with the command line:

- **List 1 Open**

Or:

- **Open** + **Choose** : select the master with the cuelist.



Tip: Cuelist windows can be set to always show the same cuelist or to follow the currently chosen master: see **Cuelist Feedback.**

11.9.1 User Columns

Four "user" columns can be shown in the master window for lists and scenes. These "user" columns are hidden by default for new shows but can be displayed by right clicking on any column header and selecting the option to show these columns. User columns can be utilized for simple text entry notes.

11.10 Naming Cuelists

You can name cuelists:

1. **Open** + **List** : open the Cuelist Directory.
2. Check that the **Guard** button is selected, so that you don't accidentally activate a cuelist when pressing its button in the directory.
3. Select the cuelist.
4. **Set** **[name]** **Enter** : type in the name.

> Tip: You can rename a cuelist when it is attached to a master by pressing **Set** + **Choose**.

11.11 Deleting Cuelists

To delete a cuelist:

1. **List 1 Delete** : deletes cuelist 1.
2. Click **OK** to confirm the delete.

Or from the cuelist directory:

1. **Open** + **List** : open cuelist directory.
2. Check that the **Guard** button is selected, so that you don't accidentally activate a cuelist when pressing its button in the directory.
3. **Delete**, **[Cuelist 1]** : delete the cuelist. You will be asked to confirm the action.

Tip: If you prefer not to be asked to confirm the delete action, select **Don't Ask Me Again** in the confirmation window. You can re-enable the confirmation by going to **Setup** → **Preferences** → **Programming** and selecting **Confirm before deleting directory items.**

Tip: To detach a cuelist from its master rather than deleting it completely from the show file, hold **Delete** while pressing the master's **Choose** button. This removes the cuelist from the master but not from the cuelist directory.

11.12 Copying and Moving Cuelists

Cuelists can be copied and moved within the **Cuelist Directory**. To open the Cuelist Directory:

- **Open + List**

11.12.1 Copying Cuelists

To make a copy of a cuelist:

- **List 1 Copy List 2 Enter** : copies Cuelist 1 to Cuelist 2.

If the destination cuelist already exists, you will be asked to choose an option: **Insert, Merge and Replace.**

11.12.2 Moving Cuelists

To move a cuelist to a new location within the Cuelist Directory:

- **List 1 Move List 2 Enter** : moves Cuelist 1 to Cuelist 2.

If the destination cuelist already exists, you will be asked to choose an option: **Insert, Merge and Replace.**

11.12.3 Insert, Merge and Replace

When copying or moving a cuelist, if the destination location already has a cuelist in it, you will be prompted with record options of Insert, Merge or Replace:

- **Insert**: creates a new destination cuelist. The new cuelist will be assigned a free location just before the one chosen, using a point number if necessary.
- **Merge**: Incorporates the source information into the destination cuelist. If the cue numbers are in both cuelists, the new parameter values of the cues will replace the old.
- **Replace**: Overwrites the cuelist information in that destination.

If you are copying a cuelist, all three options are available. If you are moving a cuelist, only the Insert option is available.

Tip: If you know that you are about to copy or move a cuelist to an existing destination, you can pre-select Insert, Merge or Replace from the Record Options Toolbar. This appears after you press the Record, Copy or Move keys.

12. Scenes

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12.1 Recording Scenes

You can record scenes either directly to a physical master for immediate playback, or to the Scene Directory.

12.1.1 Recording to the Scene Directory

To record a scene:

1. Create the look for the scene in the Programmer or editor.
2. **Record**, **Scene** : the **Scene Directory** window opens.
3. Select the destination location in the **Scene Directory** window.
4. Alternatively, enter a number on the keypad and press **Enter**.

12.1.2 Recording to a Physical Master

You can record a scene directly to a physical master. Hog OS will automatically put it in the next available location in the Scene Directory:

1. Create the look for the scene in the Programmer or editor.
2. **Record, Scene**
3. Press the **Choose** key above the desired physical master.

12.1.3 Naming a Scene

You can give a scene a name that will be displayed in the **Scene Directory** window:

1. **Open** + **Scene** : open the **Scene Directory**.
2. Check that the **Guard** button is selected, so that you don't accidentally activate a scene when pressing its button in the directory.
3. Select the scene.
4. **Set [name] Enter** : type in the name.

> Tip: To name a scene immediately after recording it, pressing the **Set** key will open a **Quickname** window. Enter the scene name and select **OK**.

.

12.2 Deleting Scenes

To delete a scene:

1. **Scene 1 Delete**
2. Click **OK** to confirm the delete.

> Tip: If you prefer not to be asked to confirm the delete action, select **Don't Ask Me Again** in the confirmation window. You can re-enable the confirmation by going to **Setup** → **Preferences** → **Programming** and selecting **Confirm before deleting directory items**.

You can delete a range of scenes:

1. **Scene 1 Thru 4 Delete** : deletes scenes 1 to 4.
2. Click **OK** to confirm the delete.

> Tip: To detach a scene from its master rather than deleting it completely, hold **Delete** while pressing the master's **Choose** button. This removes the scene from the master but not from the scene directory.

12.3 Copying and Moving Scenes

To make a copy of a scene:

- **Scene 1 Copy Scene 2 Enter** : copies the contents of Scene 1 to Scene 2.

Similarly, to move a scene to a new location:

- **Scene 1 Move Scene 2 Enter** : moves Scene 1 to Scene 2, effectively deleting 1.

If the destination scene already exists, you will be asked to choose an option: **Insert, Merge and Replace.**

12.4 Editing Scene Contents

You can edit the contents of a scene in an editor window. For example, to open Scene 1 for editing:

1. **Open** + **Scene** : opens the Scene Directory.
2. **Open** + **[Scene 1]** : opens the scene editor for Scene 1.
3. Alternatively using the command line : **Scene 1 Open**
4. Press the **Edit** button in the editor window to select this as your current editor.

Within the editor, you can assign fixture parameters and timing in the same way as in the Programmer; see **Selecting Fixtures and Modifying Parameters**. For general information on working with editors, see **Editors**.

12.5 Scene Timing

Scene timing controls the fade-in and delay of a scene when it is run on a master.

You assign and edit scene timings in the same way as for cues; see **Fade, Delay, and Path**. You can assign scene timing in the Programmer before recording the scene, or later in the scene editor. You can also assign the fade time of a scene from the command line. For example, to give Scene 1 a fade time of 6 seconds:

- **Scene 1 Time 6 Enter**

You can also record fade times with a mask. For example:

- **Scene 1 Fixture 1 + 2 Colour Time 4 Enter** : sets the fade time for the colour parameter values of fixtures 1 and 2 in Scene 1.

12.6 Insert, Merge or Replace

When recording, copying or moving a scene, if the destination location already has a scene recorded in it, you will be prompted with record options of Insert, Merge or Replace:

- **Insert**: creates a new destination scene. The new scene will be assigned a free location just before the one chosen, using a point number if necessary.
- **Merge**: Incorporates the new information into the destination scene. If the same fixture parameters are in both scenes, the new values will replace the old.
- **Replace**: Overwrites the scene information in that destination.

If you are copying a scene, all three options are available. If you are moving a scene, only the Insert option is available.

> Tip: If you know that you are about to record, copy or move a scene to an existing destination, you can pre-select Insert, Merge or Replace from the Record Options Toolbar. This appears after you press the Record, Copy or Move keys.

12.7 Toggling Scenes in Playback

When the **Toggle** property for a scene is enabled, its playback behavior will change so that the scene releases when played if already active. Scenes set to toggle will also automatically appear under the **Toggles** tab of the playback dashboard and operate in the same manner.

To enable the **Toggle** property of a Scene:

1. Open the Scene Directory window.
2. Switch to **Sheet View**
3. Locate the **Toggle** column.
4. Click the desired scene's cell in that column.
5. Press **Set** to change the value to **Yes**

Toggle-like behavior for can also be achieved using the following method:

1. Open the options window for the scene and locate **Action at end of scene**.
2. Choose one of the following options that provides **toggle-like** functionality:
   - **Add Release End Cue**: The scene will release when played if it is already onstage. This option allows for the scene to be manually toggled on / off by pressing its cell in the scene directory when guard is turned off.
   - **Auto-Release at End**: The scene will automatically release after its cross-fade is complete. This option is useful for users who want to trigger a scene and have it automatically released on its own. To extend the period for which a scene is in playback before it is automatically released, record a dummy desk channel into the scene with a cross fade that is equal to the length of time you want the scene to be onstage before it releases.

13. Timing

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13.1 Timing Basics

With Hog OS you can assign individual cross-fade timings for each parameter of each fixture, giving you complete control of how each parameter changes during a cue. Because of this, there are no cue parts as found on some other consoles. Hog OS gives you easy ways to assign timings for the whole cue, for individual fixtures and by parameter type (intensity, position, colour, beam, and so on) as well as for each parameter.

You can control three aspects of timing in the Hog OS:

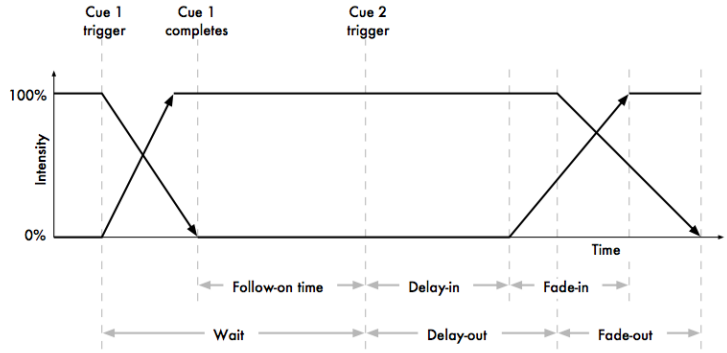
- The speed and manner in which the transition of parameter values happens when a cue / scene is played back. See **Fade, Delay, and Path**.
- The time a cue / scene waits before it is triggered. See **Cue Wait Timing.**
- The order in which cues in a cuelist are played back. See **Loops and Links**.

The different types of timing values are:

- **Fade time**: The time that it takes fixture parameters to change from their initial value to their value in the cue that is being played back. You can assign a single fade time for the cue, or have separate fade-in and fade-out times. The fade-in time is the fade time for parameters belonging to fixtures that are increasing in intensity, while the fade-out time is the fade time for parameters belonging to fixtures that are decreasing in intensity.
- **Delay time**: The time between the cue being triggered and parameter values starting to change. As with fade times, you can assign a single delay time, or have separate in delay and out delay times. The in delay time is the delay between the cue being triggered and parameters belonging to fixtures that are increasing in intensity starting to change, while the out delay time is the delay between the cue being triggered and parameters belonging to fixtures that are decreasing in intensity starting to change.
- **Path**: How parameter values change during the fade. The simplest path is a straight line, so that parameter values change smoothly and evenly throughout the fade, but you can use paths that make all of the change happen at the start of the fade, for example.

The different types of trigger values are:

- **Wait time:** The time from the previous cue being triggered to the current cue being triggered.
- **Follow-on time:** The time from the end of the previous cue to the current cue being triggered.
- **Timecode**: A specific timecode value when a cue is triggered; see Triggering Cues from MIDI Timecode.
- **Clock**: A real-world time and date value when a cue is triggered; see Clock Triggers.



Hog OS allows you to assign timings to each parameter of each fixture in a cue, scene or palette. Often, you will want to assign the same value to every fixture parameter; this is described in Fade, Delay, and Path. Assigning timings for individual parameters is described in Individual Parameter Timings.

13.2 Fade, Delay, and Path

You can assign fade time and delay times, as well as paths, to cues and scenes. Cues recorded without assigning any time information will be given the default time; this can be adjusted in the **Default Timing** pane of the **User Preferences** window.

13.2.1 Fade Time

To record a cue with a fade time other than the default:

1. Create the desired look for the cue in the Programmer.
2. **Fixture Enter** : select all the fixtures currently in the Programmer.
3. **Time 7 Enter** : assign a fade time of 7 seconds.
4. **Record Cue 1 Enter** : record the cue on the currently chosen master.

To assign times greater than 1 minute, enter the number of minutes followed by the number of seconds:

- **Time 140 Enter** : select a fade time of 1 minute 40 seconds.

To change the time of an already recorded cue:

1. **Cuelist** 1 : select the cuelist unless the desired cuelist or master is already the chosen master.
2. **Cue 2 Time 7 Enter** : assigns a fade time of 7 seconds.

Different Fade-in and Fade-out Times

You can assign different fade-in and fade-out times (known as a 'split time') using the / key. For example:

1. Create the desired look for the cue in the Programmer.
2. **Fixture Enter** : select all the fixtures currently in the Programmer.
3. **Time 7 / 10 Enter** : select a fade-in time of 7 seconds, and a fade-out time of 10 seconds.
4. **Record** : record the cue on the currently selected master.

Important: Hog OS's definition of fade-in and fade-out times is different to that used by some other consoles. Some consoles use fade-in and fade-out times for intensity parameters only and have a separate time for all other parameters; Hog OS has fade-in and fade-out times for each individual parameter. Also, with some consoles the fade-out time applies when the cue goes out, so that cue 2's fade-out time takes effect during the change from cue 2 to cue 3 rather than (as with Hog OS) cue 1 to cue 2.

Fade Time with Masks

You can record fade times with a mask. For example:

- **Cue 1 Fixture 1 + 2 colour Time 4 Enter** : sets the fade time for the colour parameter values of Fixtures 1 and 2 in Cue 1.

Tip: If you want to assign individual times for several fixtures or fixture parameters, you can edit them in the Cue Editor window by clicking on its **Fade** button; see Individual Parameter Timings.

13.2.2 Delay Time

You can create a delay between the cue being triggered and the fade times beginning to execute by assigning the Delay time:

1. **List 1 Open** : open the cuelist.
2. Select the cue's **Delay** cell and press **Set**.
3. **5**, **Enter** : enter the delay time. As with fade times you can assign separate delay times for the incoming and outgoing parts of the cue, for example **3/5**.

Alternatively, you can use the command line, pressing the **Time** key twice to assign the delay time:

Cue 2 Time Time 5 Enter

> Tip: Note that the Delay time should not be confused with the Wait time; see Cue Wait Timing.

13.2.3 Paths

Paths determine the way parameter values change during a cue. For example, with the simplest (linear) path, an intensity parameter travels from its start value to its end value at a steady rate of change for the duration of the cue. The paths available are shown below.

Path		Description
Default		Uses the default path from the fixture's library definition. This is generally Linear for continuous parameters and Start for slotted parameters.
Linear		Fades at a steady rate for the duration of the cue.
Start		Snap change at the beginning of the cue.
End		Snap change at the end of the cue.
Over		The parameters overshoot their destination and then return to it.
Under		The parameters move first in the opposite direction before going to their destination.
Damped		The parameters change more slowly at the start and end of the cue than in the middle.
Brake		The parameters change more slowly at the end of the cue.
Accelerate		The parameters change more slowly at the start of the cue.
Shake		The parameters follow a chaotic, sawtooth fade over the course of the cue.

To select a path for a cue:

1. **List 1 Open** : open the Cuelist window.
2. Select the cue's **Path** cell and press **Set**. The **Crossfade Paths** window will open.
3. Select the path type required for the incoming and outgoing parts of the cue.
4. Press **OK**

Tip: The shape of the paths described above applies when the cue is asserted. When it is released, the path is effectively reversed. For example, attributes with a ‘Start’ path will snap on the Go of a cue, but will snap at the very end of that cue being released (behaving like an ‘End’ path).

13.2.4 Assigning Cue Timings in the Cuelist Window

You can edit fade or delay times in the Cuelist window. Assigning fade or delay times here will assign the new value to all the parameters of all the fixtures in the cue.

1. **Open** + **Choose** : open the cuelist of the desired master.
2. Click in the cell for the fade or delay time of the desired cue, and press **Set**.
3. Type in a time value, and press **Enter**.

When entering a time value, it should be in the form:

[hours] h [minutes] m [seconds] s / [hours] h [minutes] m [seconds] s

For example:

- **2s** : 2 seconds in and out times.
- **2s/5s** : 2 seconds in, 5 seconds out.
- **1m** : 1 minute in and out times.
- **1m10s** : 1 minute and 10 seconds in and out times.
- **1h10m30s/1h** : 1 hour, 10 minutes and 30 seconds in time, and 1 hour out time.

Use the **H**, **M** and **S** buttons that appear when editing a fade or delay time cell to enter the H, M and S text into the cell. Alternatively, you can use an external keyboard.

Note that if you enter **140** the time will be 1 minute 40 seconds, not 140 seconds (2 minutes 20 seconds).

To assign paths directly in the Cuelist window:

1. Click in the **Path** cell for the desired cue, and press **Set**.
2. Choose a path from the displayed list as shown below



3. The **In** path is applied when a fixture is increasing in intensity during the cross-fade, and the **Out** path when a fixture is decreasing in intensity.
4. Press **OK**.

The different types of paths are explained in **Paths.**

13.3 Individual Parameter Timing

When you record a cue, all of the fixture parameters in the cue are assigned the default fade, delay, and path values. Similarly, when you assign timings to a cue after recording, the timing value is applied to all fixture parameters in the cue. However, you can assign fade, delay, or path values to individual parameters in the Programmer, and these settings are then included when you record cues and scenes, and (optionally) palettes. You can also assign timings to parameters in the cue, scene and palette editors. Note that you can only assign timings for a parameter that has a value in the editor.

To display parameter fade times, delay times, or paths in an editor, select the **Fade**, **Delay**, or **Path** buttons from the top left of the editor window.

You can assign the individual timings of parameters using the parameter wheels, the command line or directly in editor windows. You can also assign timings to all parameters of a fixture using the parameter wheels or the command line.

Important: If you assign individual timings for parameters and subsequently assign an overall cue time, then the individual parameter timings will be replaced by the overall cue time

13.3.1 Assign Parameter Timings using Wheels

To assign fade and delay timings to all the parameters of a fixture:

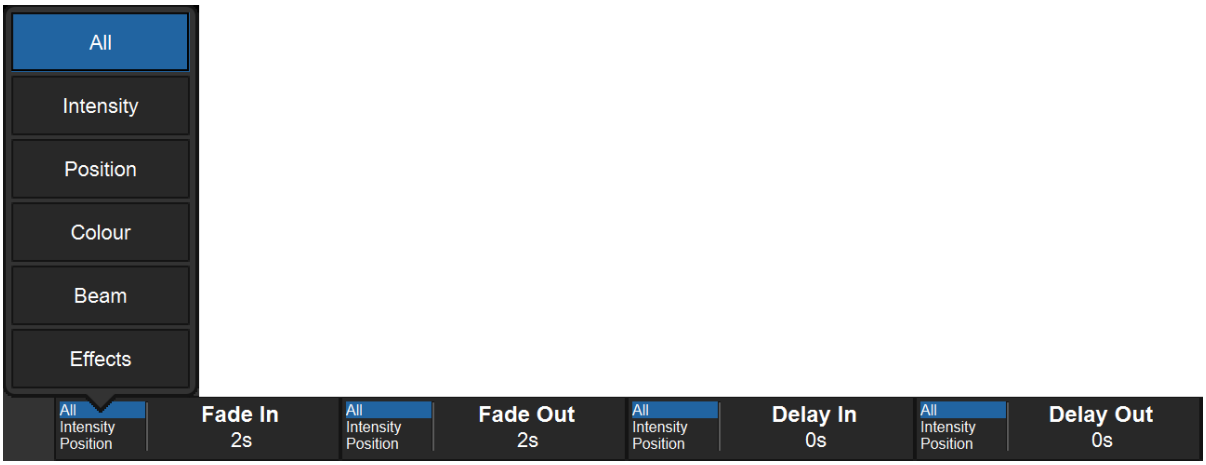
1. Select the fixtures that you want to assign timings to, making sure that they have been given parameter values.
2. Press the **Time** key.
3. The Wheels Toolbar will show the available timing types (Fade In, Fade Out, Delay In, and Delay Out) together with their current settings.
4. Use the parameter wheels to assign the desired Fade In, Fade Out, Delay In, and Delay Out.

Note that if you want to see the timings that you have assigned in the editor, you can select the Fade or Delay views using the buttons in the top left of the editor window. You don't have to be in these views to assign timings, however.



To assign fade and delay timings to specific parameter types:

1. Select the fixtures that you want to assign timings to, making sure that they have been given parameter values.
2. Press the **Time** key.
3. The Wheels Toolbar will show the available timing types.
4. Click on **Fade In**, **Fade Out**, **Delay In**, or **Delay Out** and select a parameter type.
5. Use the parameter wheels to assign the desired timing.



To assign a path to all the parameters of a fixture:

1. Select the fixtures that you want to assign a path to, making sure that they have been given parameter values.
2. Press the **Time** key.
3. The Slot Toolbar will show buttons for **All**, **In** and **Out**



4. Choose **In** to assign a path to be applied to the parameters when the fixture they belong to is increasing in intensity during the cross-fade. Choose **Out** to assign a path to be applied to parameters when the fixture they belong to is decreasing in intensity during the cross-fade. Choose **All** to assign a path to be applied to parameters of fixtures irrespective of whether their intensity is increasing or decreasing.

   The Paths Toolbar will open , as shown below.



5. Select the desired path from the Paths Toolbar. The different types of path are explained in **Paths**.

13.3.2 Assign Parameter Timings with the Command Line

To assign the fade time for all parameters of a fixture:

1. **Fixture 1** : select the fixtures you want to assign a time to, making sure that they have been given parameter values.
2. **Time 4**, **Enter** : assigns the fade time to 4 seconds.

To assign separate fade in and fade out times:

1. **Fixture 1** : select the fixtures you want to assign a time to, making sure that they have been given parameter values.
2. **Time 4 / 7**, Enter : assigns the Fade In time to 4 seconds and the Fade Out time to 7 seconds.

To assign a fade time for a particular parameter type:

1. **Fixture 1** : select the desired fixtures.
2. **Colour Time 4**, **Enter** : assigns the fade time of the colour parameters to 4 seconds.

To assign a delay time, press the **Time** key twice:

1. **Fixture 1** : select the desired fixtures.
2. **Time Time 2**, **Enter** : pressing Time twice assigns the delay time.

To assign a path, press the **Time** key three times:

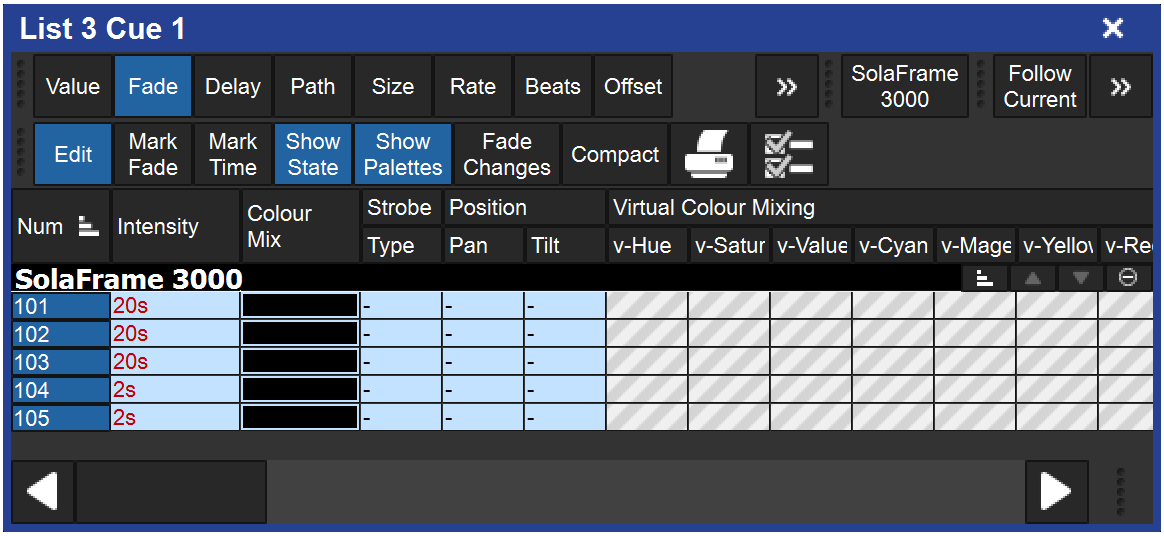
1. **Fixture 1** : select the desired fixtures.
2. **Time Time Time 2**, **Enter** : enter a number to represent the path.

Select the path by entering a number; the mapping is the same as the order they appear on the path toolbar, starting at zero for the default path.

13.3.3 Assign Parameter Timings in an Editor

To assign fade or delay times directly in the spreadsheet of an editor:

1. View the required timing type by pressing either the Fade or Delay button in the top left of the editor window.
2. Click in the cell for the desired parameter, or click and drag to select a range of cells.
3. Press Set.
4. Type in a time value, and press Enter.



When entering a time value, it should be in the form:

[hours] h [minutes] m [seconds] s / [hours] h [minutes] m [seconds] s

For example:

2s : 2 seconds in and out times.

2s/5s : 2 seconds in, 5 seconds out.

1m : 1 minute in and out times.

1m10s : 1 minute and 10 seconds in and out times.

1h10m30s/1h : 1 hour, 10 minutes and 30 seconds in time, and 1 hour out time.

Use the **H, M** and **S** buttons that appear when editing a fade or delay time cell to enter the H, M and S text into the cell. Alternatively, you can use an external keyboard.

Tip: If you enter **120**, this will be interpreted as 1 minute 20 seconds. To have the console interpret it as 120 seconds (i.e. 2 minutes), enter **120s**.

To assign paths directly in the spreadsheet of an editor:

1. Press the **Path** button in the top left of the editor window.
2. Click in the cell for the desired parameter, or click and drag to select a range of cells.
3. Press **Set**.
4. Choose a path from the displayed list shown below.
5. The **In** path is applied when the fixture is increasing in intensity during the cross-fade, and the **Out** path when the fixture is decreasing in intensity.
6. Press **OK**.

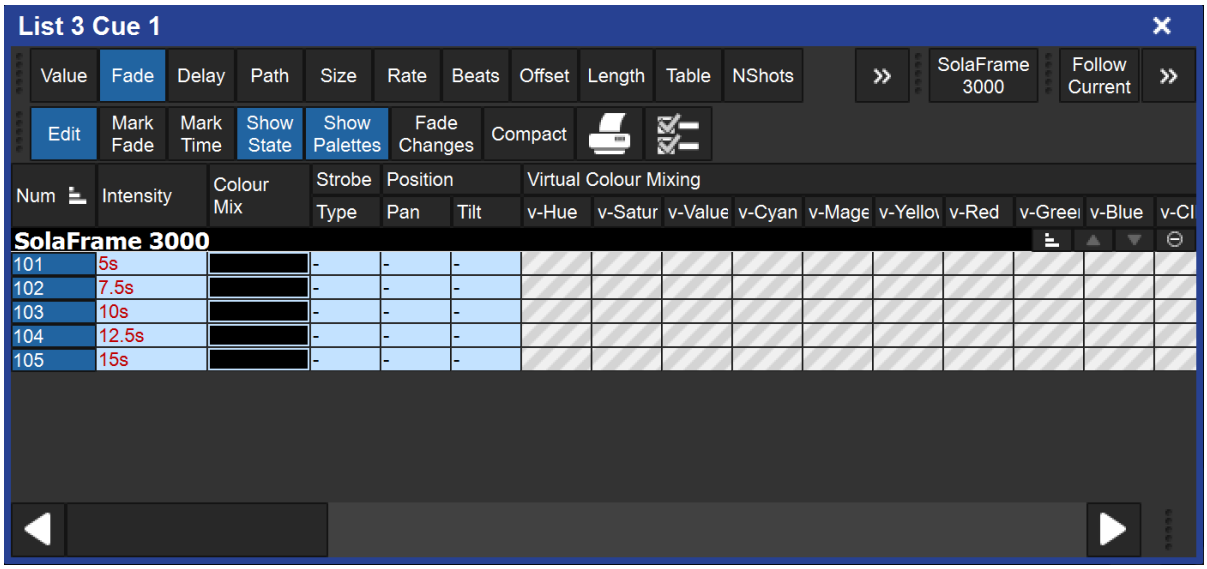


The different types of path are explained in **Paths**.

13.3.4 Fanned Timings

You can fan timings across multiple fixtures, just as you can fan colour or position. For example, to fan times across 10 fixtures:

- **Fixture 1 Thru 10 Time 5 Thru 14 Enter** : fans the fade times of Fixtures 1 through 10 between 5 and 14 seconds:



Similarly, you can fan delay times:

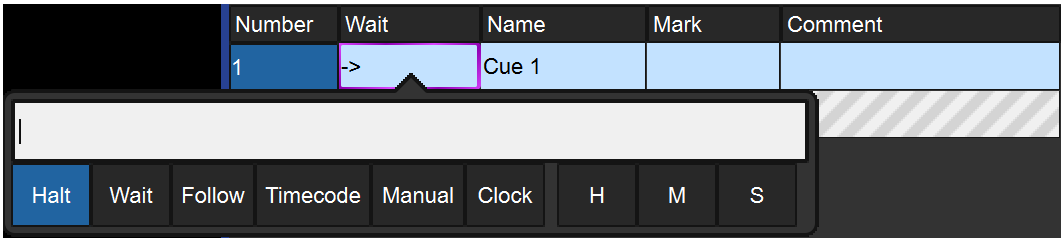
- **Fixture 1 Thru 5 Time Time 5 Thru 10 Enter** : fans the delay times of Fixtures 1 through 5 between 5 and 10 seconds.

For more on fanning, including fanning using the parameter wheels and in spreadsheet views, see Fanning.

13.4 Wait Timing

In addition to manually pressing **Go** to execute you can also automate the triggering of a cue by assigning a wait value for the cue. The wait value for a cue is assigned in the wait column of the cuelist window. To assign how long a cue timing:

1. **List 1 Open** : open the cuelist.
2. Select the **Wait** cell for the desired cue, and press **Set**.
3. The **Trigger Toolbar** will appear below the Wait cell. Select an option from this.



The Trigger Toolbar

A cue's wait column options are:

- **Halt**: Does not allow the cue to be triggered automatically unless a timecode value later in the list causes the cue to be jumped. In all other cases the **Go** key must be manually pressed to execute this cue. Halt is shown by an empty **Wait** cell and it is the default wait column value for newly created cues.
- **Wait**: Triggers the cue after the specified time has passed from the triggering of the previous cue (either automatically or by pressing **Go**). It should not be confused with the Delay, which is the time between the cue being triggered (after a Wait if there is one) and the fade starting. The Wait time schedules cues within the cuelist, whereas the Delay time schedules the fades of each parameter within the cue. A cue can contain multiple Delay times, but it can only have one Wait time. See **Timing Basics** for more information.

A wait is displayed as the time value in the Wait cell.

- **Follow**: Triggers the cue once the previous cue has completed all its fade and delay times. You can enter a time after pressing the Follow button, which determines the time between the previous cue completing and the follow cue being triggered. See **Timing Basics** for more information.

The follow is displayed in the Cuelist window as 'Follow + [time]'.

The follow time should not be confused with the wait time. The follow time controls the time between the end of one cue and the triggering of the next, while the wait time controls the time between the triggering of one cue and the triggering of the next.

- **Timecode**: Triggers the cue when the specified timecode value is received. See **MIDI Timecode**. The timecode value will be displayed in the wait cell.
- **Manual**: A manual cue can only be triggered by pressing the **Go** key. This means the cuelist will stop until the Go key is pressed, irrespective of any wait, follow or timecode triggers that later cues in the list may have.

Manual cues are useful because the word 'Manual' appears in the Cuelist window to remind the operator that they need to press the **Go** key. They are also useful to prevent times being recorded into the Wait column when using **Learn Timing**.

- **Clock**: Triggers the cue when the specified real-world time and date is reached on the Hog OS built in clock; see **Clock Triggers.**

13.4.1 Learn Timing

Learn Timing allows you to assign a cue's wait time value by manual executing the cues with the **Go** key when the learn timing option is selected for the cuelist. If a timecode clock assigned to that list is running when learn timing is enabled then the wait value recorded into the wait cell will be a timecode value.

To use Learn Timing with timecode:

1. **Open**, **Choose** : open the Cuelist window of the required cuelist.
2. **Options** → **Cuelist Options** : open the Cuelist pane of the Cuelist Options window.
3. Select **Enable Timecode**, and choose a timecode source. Close the Options window.
4. In the Cuelist window, click **View Timecode**. The Timecode Toolbar will open.
5. If your timecode source is not currently running, click **Simulate** on the Timecode Toolbar to have the console create a timecode source. Controls for the timecode will appear.
6. In the Cuelist window, select **Learn Timing**.
7. Start the timecode, and press the **Go** key when the timecode reaches the time that you want each cue to go. A timecode frame value will appear in the Wait cell for each cue.
8. When you have finished, deselect **Learn Timing**.

Now when you run the timecode, the cues will be triggered when the timecode reaches each cue's assigned frame. For more information on timecode, see MIDI Timecode.

To use Learn Timing without timecode:

1. **Open**, **Choose** : open the Cuelist window of the required cuelist.
2. Ensure that **Enable Timecode** is not selected.
3. Select **Learn Timing.**
4. Press the **Go** key to run the first cue, and again to run subsequent cues after the required time interval. A time value equivalent to the duration between Go presses will appear in the Wait cell for each cue.
5. When you have finished, deselect **Learn Timing**.

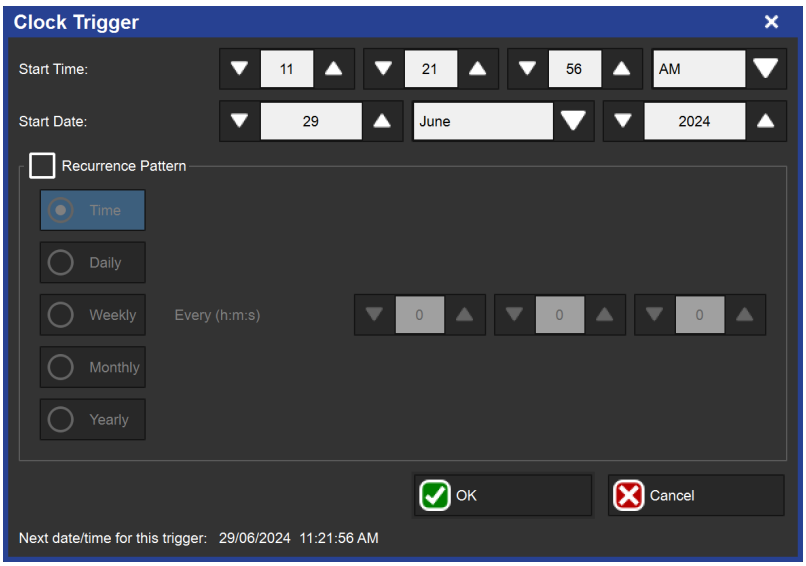
Now when you run the first cue, the subsequent cues will be triggered at the same intervals as when you ran them manually.

> Tip: Learn Timing will only set a trigger on a cue that is currently set to Halt - that is, it has an empty Wait cell. To remove existing wait times from cues, select the wait cell(s) and press **Set**. Select **Halt** from the toolbar.

13.4.2 Clock Triggers

To assign a cue to be triggered at a particular time and date using Hog OS's internal clock:

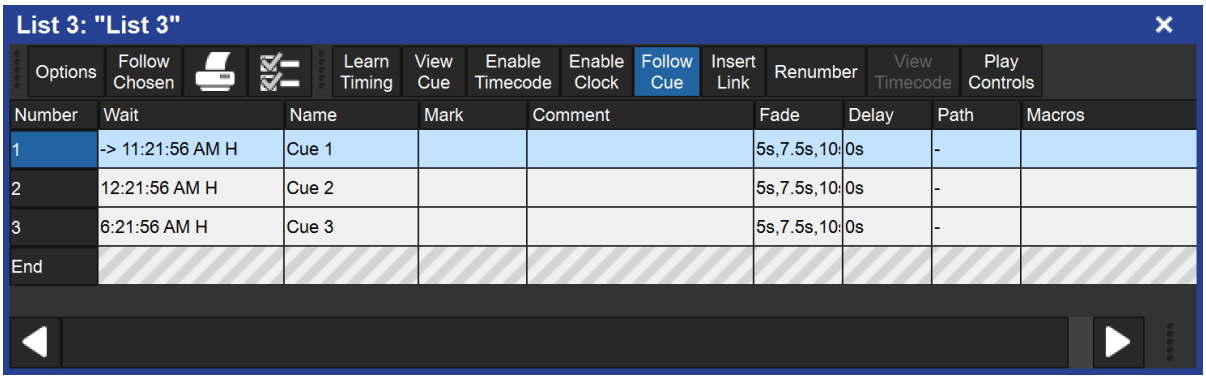
1. **List 1 Open** : open the cuelist.
2. Select the **Wait** cell for the desired cue, and press **Set**.
3. The **Trigger Toolbar** will appear below the Wait cell.
4. Select **Clock**; the **Clock Trigger** window will open:



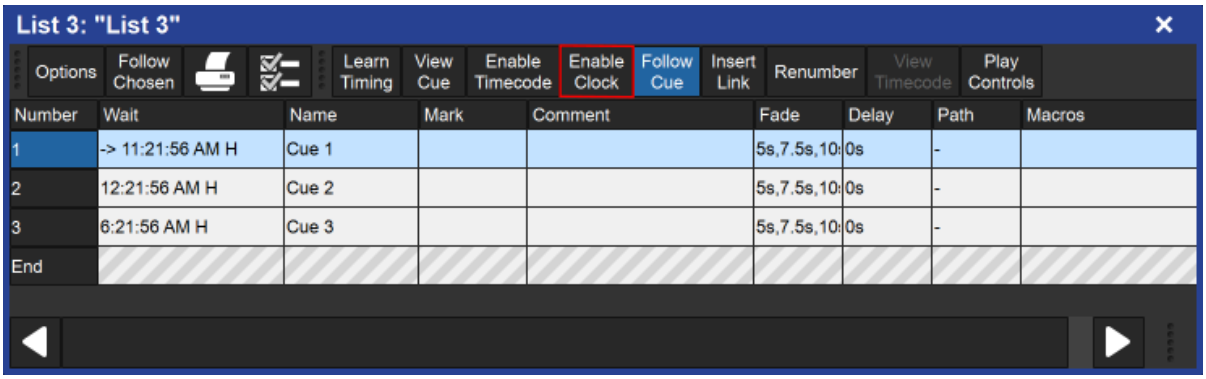
5. Adjust the **Start Time** and **Start Date** to assign a single shot trigger.
6. If you want the trigger to recur at regular intervals, check the **Recurrence Pattern** check box. Then click the frequency (Time, Daily, Weekly, Monthly, Yearly) with which you want the trigger to recur, and select options for the specified frequency.
7. Click **OK**.

Tip: The next valid trigger date and time is shown at the bottom of the **Clock Trigger** window.

Once you have set a clock trigger, the cuelist window will now indicate the trigger time and type in the cue's Wait column:



To enable or disable the clock functions on a cuelist, toggle the **Enable Clock** button in the cuelist window:



Tip: You can also enable or disable the clock functions for a cuelist in the Cuelist Cuelist Options window, or using macros; see Macros.

Clock Recurrence Patterns

Clock triggers can be programmed to trigger on a regularly scheduled interval such as every hour, day, or week based on the provided start time of the trigger and selected recurrence pattern. To set a recurrence pattern for a clock trigger check the **Recurrence Pattern** check box. Then select the frequency (Time, Daily, Weekly, Monthly, Yearly) for which the trigger should recur. A set of more complex options are then provided to further customize the recurrence pattern.

For daily triggers, a recurrence value of "every 0 days" nullifies the recurrence pattern and thus the clock trigger will only fire once on the start time specified.

For weekly triggers, a recurrence value of "every 0 weeks" indicates that the clock trigger will fire on the days specified but only for the upcoming week. For example, a weekly pattern value of "every 0 weeks" with the Monday and Tuesday options checked will fire the clock trigger on the upcoming Monday and Tuesday and then stop recurring.

The Clock Toolbar

The Clock Toolbar shows the time and date according to the Hog OS clock, and information about the next cue due to be triggered. To open the Clock Toolbar:

- **Open** + **Clock** : the Clock Toolbar will open on the left touchscreen:



1. Current Date
2. Current Time
3. Next Trigger Time
4. Next Trigger Cue
5. Next Trigger Cuelist

The Clock Toolbar will automatically update its fields according to the next valid trigger.

Tip: You can assign the format of the date and time in the **Appearance** pane of the **Preferences** window. The Clock Toolbar, Cuelist triggers and the Command Line Toolbar clock will display in the selected format.

13.5 Loops and Links

Normally cues in a cuelist will be replayed in numerical order, but you can use links to change this. Links can be used to jump to other points in the cuelist, or to create loops.

Unlike some consoles, Hog OS creates a link as a special type of cue, rather than an attribute of an ordinary cue. Because it is a separate item in the cuelist, you can move cues within the list without disturbing the link.

> Tip: When a cuelist gets to the end, it will link back to the first cue by default, so there is no need to put a link in.

13.5.1 Creating a Link

To create a link:

1. **Open** + **[Cuelist 1]** : open the cuelist window.
2. Play the cues in the list until the current cue (shown by **->** in the wait column) is the cue before where you want the link.
3. Click on the **Insert Link** button in the window. The link cue will be inserted after the current cue.
4. Select the **Fade** cell of the link.
5. **Set [cue number] Enter** : assign the cue number to be linked to.

You can delete link cues in the same way as any other type of cue. For example:

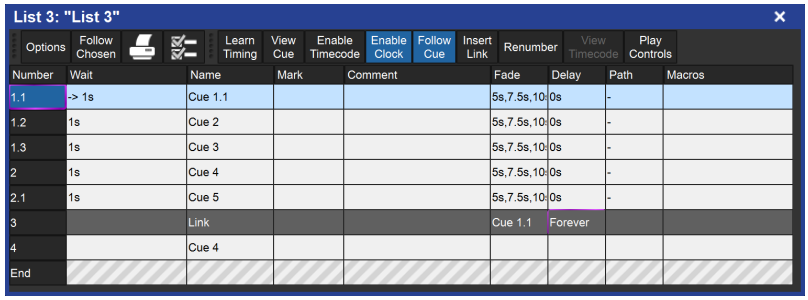
- **Cue 3.5 Delete**

13.5.2 Creating a Loop

To create a loop, you need to have two things:

- A link that points to a cue earlier in the cuelist.
- All the cues in the loop (between the linked-to cue and the link cue) must be assigned with wait or follow triggers; see Cue Wait Timing.

Hog OS will recognize this as a loop



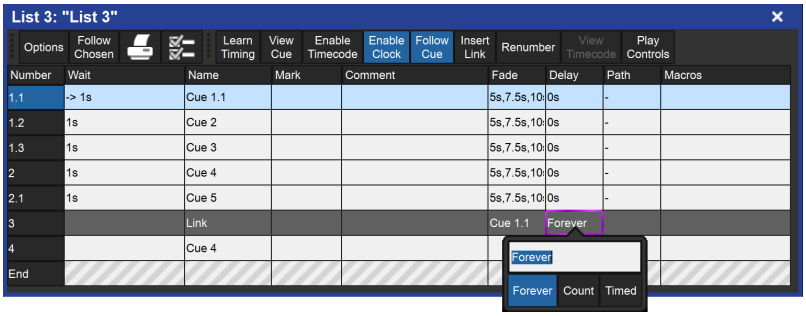
Exiting Loops

You can determine when the cuelist stops looping and continues with cues after the loop. The options are:

- **Forever**: the loop will run indefinitely until you press the **Go** key.
- **Count**: the cuelist will loop the assigned number of times. Assigning a count of zero will make the cuelist ignore the link.
- **Timed**: the cuelist will loop until the assigned time period has elapsed.

To assign the looping behaviour:

1. **Open** + **[Cuelist 1]** : open the cuelist window.
2. Select the link cue's **Delay** cell, and press **Set**.
3. Select an option from the Loops Toolbar:



4. If you have selected Count or Timed, enter a count or timed value.

You can also configure what happens when you press the Go key during a loop; see Action of go when Looping.

13.5.3 Tracking Through Loops

By default, Hog OS's feature ensures that, when you use links to change the order of cue playback, the cues appear on stage as if they had been played back in the order they appear in the cuelist.

Sometimes, however, you might want to track through links rather than maintain state. For example, you are creating a loop where the first time through you want the four fixtures to come on one at a time, and throughout the loop you want them to alternate colour between red and blue. To do this, you might plot:

Cue	Fixture 1		Fixture 2		Fixture 3		Fixture 4	
	Int.	Colour	Int.	Colour	Int.	Colour	Int.	Colour
1	50%	Red		Blue		Red		Blue
2	↓	Blue	50%	Red		Blue		Red
3	↓	Red	↓	Blue	50%	Red		Blue
4	↓	Blue	↓	Red	↓	Blue	50%	Red
5	Link to Cue 1							

The idea is that the intensity of the next fixture is brought to 50% in each cue, and that these values then track through for the duration of the loop (shown by the arrows). However, because of the Maintain State function, when the cuelist loops back to cue 1 Hog OS will make cue 1 look as it would have if you had run the cuelist in order. The result is that fixtures 2 to 4 will go out, just as they were the first time round the loop.

To stop this happening, you need to enable **Track Through Loops**, in the **Cuelist Options** window:

1. **Open List 1** : open the cuelist window.
2. Press **Options** and select the **Track Through Loops** tick box.

Note that Track Through Loops also applies when the cuelist automatically loops back to the start of the list after you play back the last cue in the list.

Important: The **Track Through Loops** option applies to the whole cuelist. Using it may have unintended consequences when playing back other cues in the cuelist out of sequence.

14. Effects

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14.1 Table Effects

Effects can be used to create a repeating change or 'movement' in the value of fixture parameters. Effects are recorded as part of cues, scenes and palettes.

Table effects are effects applied to fixture functions using wave tables that apply mathematical functions (such as sine or tangent) to values against time. Table effects have seven main attributes: table, size, rate, offset, length, bounce, direction, and sync. Each effect table also has its own timing parameters for fade, delay, and path.

There are three ways to apply table effects to a fixture selection:

- **Predefined Effect Palettes**: A range of pre-programmed effects can be found in the effects directory window that can be quickly applied and then tweaked if desired
- **The Effects Engine**: A special editor window where users can assign and edit the effects values for the current fixture selection.
- **Using the Programmer / Cue Editors:** You can assign and edit effects values for specific fixture in editors such as the programmer just as you do with other values.

14.1.1 Effect Tables

One of the main components of a table effect is the effect table itself, which applies a mathematical function (such as sine or tangent) to the parameter values. The available tables, and how the parameter value varies over time, are shown below.

Sine		Tangent		Step	
Sawtooth		Ramp		Inverse Ramp	
Mark On		Mark Off		Spiral	
Random 1 Low-weighted		Random 2 High-weighted		Random 3 Centre-weighted	

Note that the effects table varies the value of the parameter either side of its base level, represented by the dotted line in the diagrams. The three types of random table are weighted differently, biasing the random parameter values towards the low, high or middle part of the possible range.

Using Effect Tables

Listed below are examples of combinations of effects tables in use:

- **Circular Motion**: A Sine table is applied to pan and tilt, with tilt given an Offset of 90 degrees.
- **Square Motion**: A Sawtooth table is applied to pan and tilt, with tilt given an Offset of 90 degrees.
- **Can-Can Motion**: A Step table is applied to pan, a Sine table is applied to tilt.
- **Fly In Motion**: A Step table is applied to pan, a Ramp table is applied to tilt.
- **Blue Step Colour Effect**: A Mark On table is applied to cyan and magenta.
- **Iris Chase**: A Sawtooth table is applied to the iris.

Tip: You can create many of these useful combinations of tables using the predefined effects palettes; see Predefined Effect Palettes.

14.1.2 Table Effect Attributes

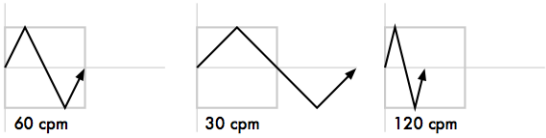
The appearance of the effect table through a combination of adjustments to its attributes: rate, beats, size, offset, begin, end, start, length, direction, bounce, and N-shot.

Rate

The effect rate controls the speed of the effect in cycles per minute assuming the master rate is set to 100% rate.

Adjusting an effect's rate will increase or decrease the number of cycles it completes per minute. When combining effects, you can use the rate attribute to build a specific look. For example, if you create an effect where a fixture performs a circular motion fading in on the first circuit, out on the second, then the effect on the intensity parameter would need to be half of the rate on the position parameters.

.The following diagram shows how the value of a parameter assigned to the sawtooth table changes over time, with different rate values:



Beats

The beats parameter of an effect represents how many beats it takes to complete the effect cycle. The beats parameter is only meaningful when programming effects into masters where effect tempo is used. A larger beat value results in fewer effect cycles at a given tempo whereas a smaller beat value results in more effect cycles at the same given tempo. An effect programmed with a beat value of 1 will playback at the exact same rate as established by the master's effect tempo. For more information on using effect tempo and effect tap tempo please refer to Adjusting Effect Tempo of a Master with Tap Tempo

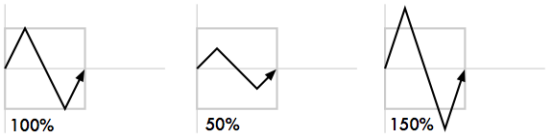
Size

The range over which the parameter value varies. This is described in terms appropriate for the parameter, for example degrees for position parameters, or slots for slotted colour parameters.

For example, applying a Sine wave with the default size of 5Hz to a base value strobe rate of 5Hz will vary it from 0Hz through to 10Hz. You can decrease this range by adjusting the size: 2Hz will give a range between 3Hz and 7Hz.

When combining effects, adjusting specific parameters' effect sizes will change the look of the effect. For example, a circle effect comprising of a sine table on the pan and tilt can be modified to look like an elipse by altering the size of either pan or tilt.

The following diagram shows how the value of a parameter assigned to the sawtooth table changes over time, with different size values:

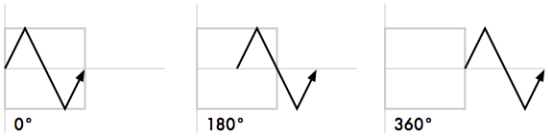


Offset

The offset sets the effect start and finish point for each effect, so they can be staggered. It is assigned in degrees.

For example, to create an intensity ripple across a range of fixtures, divide 360 degrees by the number of fixtures and offset each fixture by multiples of this amount. For example, with six fixtures offset at 0, 60, 120, 180, 240, 300 degrees. The easiest way to do this is to use fanning; see **Fanning**.

The following diagram shows how the value of a parameter assigned to the sawtooth table changes over time, with different offset values:

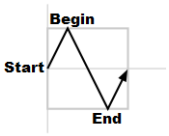


Begin, End, Start

The begin and end values of an effect represent the limits that the function value will hit as it passes through the effect table. The begin and end values can be edited directly in the effects editor window or in the programmer / cue editor. Be aware that editing the begin and end values of an effect result in an adjustment to the base value for that fixture function as well.

The start value of an effect is the real world value at which the function will start the effect. The start value of an effect is directly tied to the offset value of an effect.

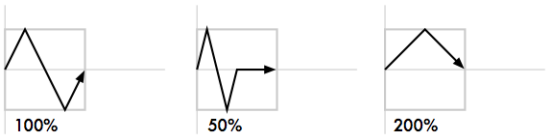
The following diagram shows the begin, end, and start points of a simple effect:



Length

The length is the proportion of the effect's period that it is active for. It is assigned as a percentage.

The following diagram shows how the value of a parameter assigned to the sawtooth table changes over time, with different length values:



N Shot

This is the number of times that the effect repeats before finishing. A dash (–) in the N Shot cell denotes that the effect will run indefinitely.

Bounce

When bounce is enabled for an effect the fixture function will run one direction through the effect cycle and then reverse direction to run through the cycle in the opposite direction and will continue to alternate the direction in which it runs through the cycle.

Direction

The direction of an effect determines whether the selected wave table will be applied to the function in a forward or reverse direction.

Sync

Allows users to synchronize the timing of effects across fixtures and/or across parameters within and throughout different playbacks. For example, using the global sync option for all effects in a show will ensure that the effects in the show will always look the same no matter how or when its cues / scenes are played back.

14.1.3 Building Table Effects in the Effects Engine

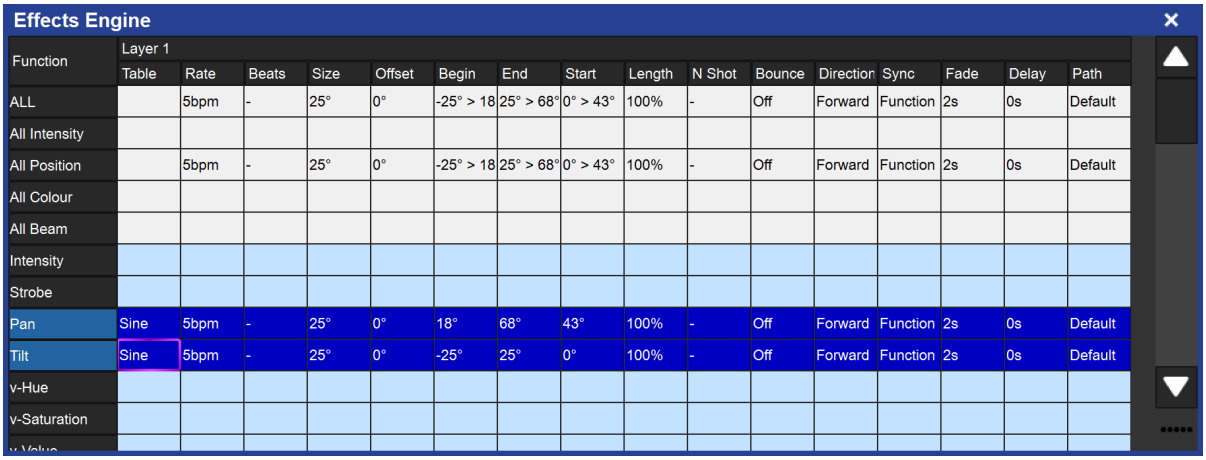
To apply an effect:

In the Programmer or editor, select the required fixtures and assign their base parameter values. These settings will be the 'underlying' state for the effect: for example, the center position of a fixture doing a circular movement effect. Equally, an intensity ripple between 0-100% will need a base value of 50% in order to use the full length of the effect.

Open + **Effect** : the **Effects Engine** and **Effect Directory** will open.

In the Effects Engine, select the **Table** cells for the fixture parameters that you want to apply the effect to.

Press **Set**, choose the effect table from the menu and press **Enter**.



Once the effect table is assigned, you can modify the effect attributes either by editing the values in the spreadsheet or using the parameter wheels when the **Effect** key is selected.

> Tip: You can quickly edit the attributes of all one parameter type (**All Intensity**, **All Position**, **All Colour**, **All Beam**) or for all parameters within the top five rows of the Effects Engine.

To edit the values in the spreadsheet:

1. Select the cells for the parameters that you want to edit, and press **Set**.
2. Type a new value, and press **Enter**.

Or, using the parameter wheels:

1. Press the **Effect** key.
2. Select the individual parameters that you want to edit in the left hand **Function** column of the Effects Engine window.
3. Adjust the **Size**, **Rate**, **Offset** and **Length** parameter wheels as required.

Note that the parameter wheels only control the current effects row, selected using the buttons in the **Function** column. There are buttons for all parameter types, for all intensity, all colour, all position, all beam, and for each individual parameter type.

> Tip: All effect attributes can be fanned using the **Fan** key and parameter wheels; remember to select the required parameter types in the Effects Engine **Function** column first. You can also enter a value of, say, **50 Thru 80** in a cell of the **Effects Engine** window. See Fanning.

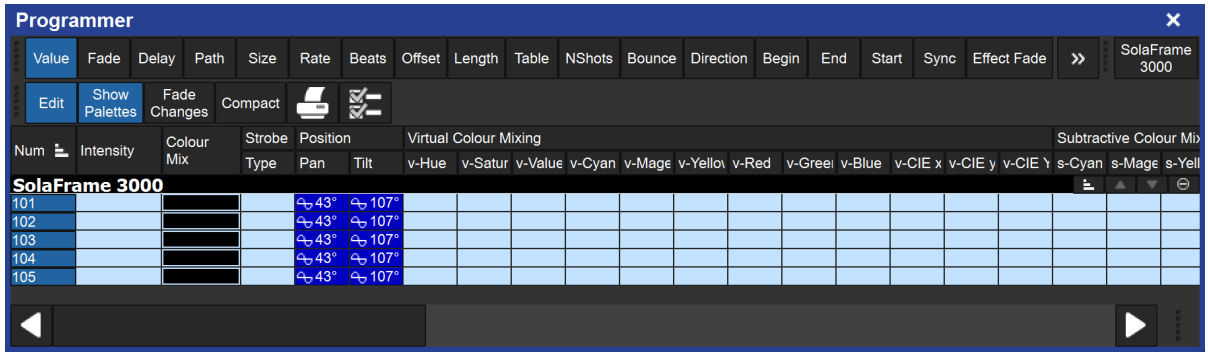
14.1.4 Building Table Effects in Editors

Effects can be assigned directly to specific fixtures and their attributes in any editor including the Programmer. This is helpful when you wish to make small changes without opening the Effects Engine. Effect types are assigned and edited in the **Table** view, whilst effect attributes can be adjusted in the **Size**, **Rate**, **Offset**, **Length**, **Table** and **N Shot** views. The views are selected by buttons at the top of the Programmer or editor window.

For example, to create an offset circle effect using fixtures in positions from the current onstage look:

1. **Main Toolbar** → **Programmer** : open the Programmer.
2. **1 Thru 5 Position Suck** : sucks position information from fixtures 1 through 5 that are currently live on stage.
3. **Table** : select the Table view in the Programmer; the pan and tilt column will read **[Off]**.
4. Select all pan and tilt cells of the selected fixtures by clicking and dragging.
5. **Set** → **Sine**, **Enter** : choose the Sine table from the drop-down menu and confirm by pressing Enter.
6. Select **Offset** : select the Offset view in the Programmer; the pan and tilt column will read **[0-Deg]**.
7. Select all pan and tilt cells of the selected fixtures by clicking and dragging.
8. **Set 1 Thru 288** Enter : offset pan and tilt equally across the fixtures.

Once you have applied an effect to a parameter, it will appear in the Value view of the Programmer or editor with the effects symbol next to the value:



Tip: When assigning effect parameters such as Offset, remember that values 0 and 360 Degrees are the same. Fanning a range of fixtures from 0 through to 360 degrees of offset will mean that the first and last fixtures will share the same offset value.

14.1.5 Effect Spread

Effect Spread is an offset control mechanism that appears on the encoder wheel of a Hog console when the effect kind is selected. The location depends on the physical layout of the specific console. The effect spread is a simple way to spread the effect offset evenly among the selected fixtures. For example, an effect spread of 100% evenly distributes the effect offset values for the currently selected fixtures from 0 to 360 degrees so that every fixture within the selection has a unique offset. The effect spread value is not stored in cues, scenes or palettes. Instead the effect spread is treated as a front-end tool to establish individual offsets among selected fixtures. The effect spread value is cleared following any changes to the individual fixture's offset values and / or any changes made to the fixture selection. Effect spread is not shown in editor windows or the effect engine as it is only a manipulation control of the offset values for effects. To achieve a negative effect spread hold the minus key while turning the effect spread encoder to the left. Switching between a negative effect spread and a positive effect spread reverses the perceived direction of the effect from fixture to fixture.

14.1.6 Building Table Effects using Palettes

Effects can also be built using two palettes and the correct command line syntax. This is helpful when you wish to make an effect that is bound by the values stored in two specific palettes. The syntax for building an effect between two palettes is Effect @ [Palette] thru [Palette]. When performing this syntax the console will construct a 5 BPM sine wave effect between the two palettes in the effect editor for the selected fixtures.

For example, to create an effect between position palette 1 and position palette 2:

1. Make a fixture selection (ensure the fixture selection consists of fixtures that have values stored in position palettes 1 and 2)
2. **Effect @ Position 1 thru Position 2 Enter**

Important: The palettes used to build table effects are not referenced in the effect. Therefore, once the effect is recorded, any references to the original palettes used to build the effect are lost. This applies to recording into a Scene, Cue or Palette.

14.1.7 Tracking Table Effects

By default, effects values track through to subsequent cues until a new value for the particular parameter is reached. You can turn effects on and off, set them to track through in the **Table** column of the **Effects Engine**, **Programmer** or editor.

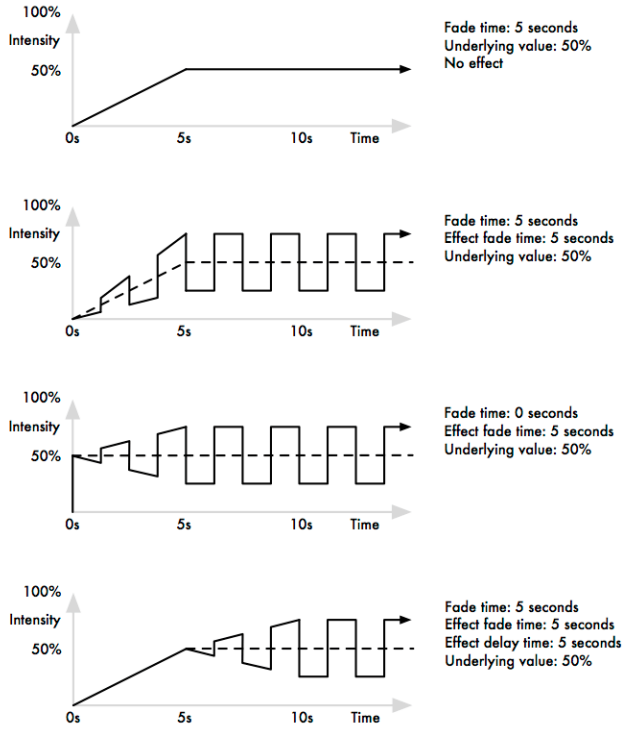
In the Programmer for example:

1. Select **Table** view.
2. Select the cell of the parameter for which you want to turn the effect off or allow to track through, and press **Set**.
3. Select **Off** or **Track** from the drop down menu.

14.1.8 Cue Timing and Table Effects

When you record a cue, scene or palette that includes effects values, each fixture parameter has its fade, delay, and path value in the usual way; see Individual Parameter Timings. These timings control how the fixture parameter changes from its starting value to its underlying value in the cue or scene, as the cue or scene is played back.

You can assign separate effects timings (fade, delay, and path) to control how the effects movement changes as the cue or scene is played back. The image below shows how different timing values control how a parameter with a step effect changes during playback of a cue.



You can assign effect fade times using the command line:

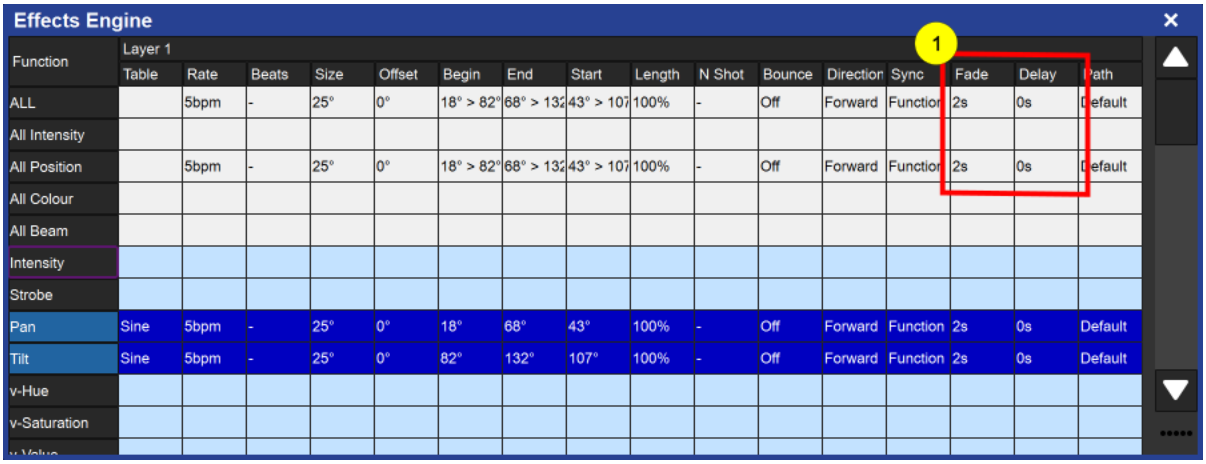
1. **Fixture 1** : select the fixtures you want to assign an effect time to, making sure that they have been given parameter values.
2. **Effect Time 4**, **Enter** : assigns the effect fade time to 4 seconds.

To assign a effect delay time:

1. **Fixture 1** : select the desired fixture(s).
2. **Effect Time Time 2**, **Enter** : pressing **Time** twice assigns the delay time.

You can also view and assign effect timing values in the Effects Engine window:

1. Fade and Delay Effect Timings



14.2 Effect Palettes

14.2.1 Predefined Effect Palettes

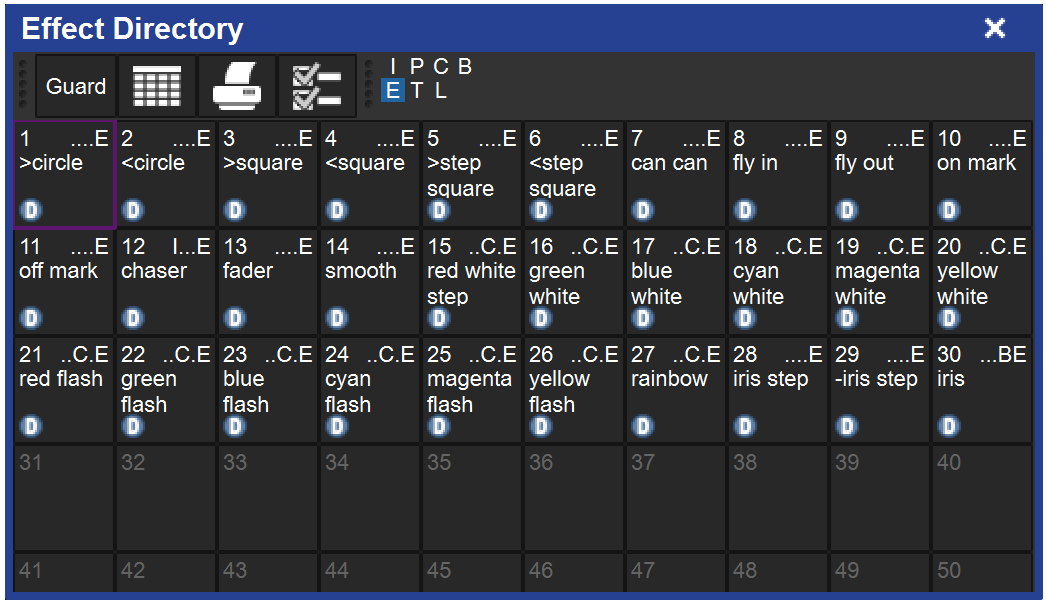
You can quickly apply effects to the current selection using predefined effects palettes that are available in the Effect Directory. Effects palettes for parameter functions not available in the current selection will be greyed out; for example the Iris Step palette is not available for a Studio Color 575 as they do not have an iris parameter.

To open the Effect Directory:

- **Open** + **Effect**

Or:

- **Effect**, **Effect**



To apply an effects palette:

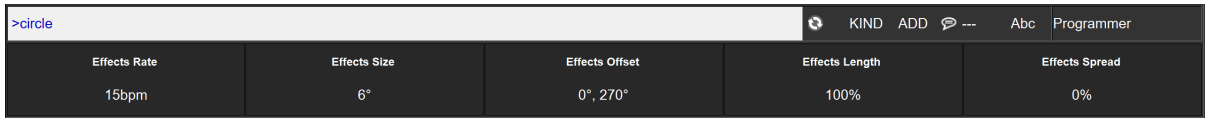
1 Thru 5 @ 50 Enter : select the required fixtures and assign an intensity value

Effect 13 Enter : assigns Effect Palette 13. Studio Colors 1 to 5 fade their intensity between 0 and 100%.

You can also select the effect palette by pressing or clicking on its button in the Effect Directory window.

14.2.2 Adjusting Predefined Effects

Once you have applied a predefined effects palette to the selected fixtures, you can alter the attributes of the effect using the parameter wheels. Typical attributes are Rate, Size, Offset and Length. For reference this is shown in the image below. Explanations of all the different attributes, see Table Effect Attributes page. The Wheels Toolbar shows the current parameter value being assigned by each wheel whenever the **Effect** key is selected.



14.2.3 Recording an Effect Palette

You can record any combination of effect parameter values into a palette:

1. In the Programmer or editor, select the fixtures, and assign the required effects. You can do this directly in an editor or using the Effects Engine.
2. **Record**, **Effect** : the **Effect Directory** window opens.
3. Select a location by pressing a button in the directory window.

This will only record parameters that have been touched in the Effect window, and does not include the parameters' underlying values. To include underlying intensity, position, colour, beam and time information use the mask function:

1. Select the fixtures, and assign the desired effect table.
2. **Record**, **Effect**
3. Select **Mask** from the **Record Options Toolbar**, and select the parameter types that you wish to record: **Use I** for intensity, **Use P** for position, **Use C** for colour, **Use B** for beam, and **Use T** for time values. For more on masking when recording palettes, see Recording Palettes with Kind Masking.
4. Select a location from the **Effect Directory** window.

Naming an Effect Palette

You can give an effect palette a name that will be displayed in the Effect Directory:

1. **Open** + **Effect** : opens the Effect Directory.
2. Check that the **Guard** button is selected, so that you don't accidentally activate a palette when pressing its button in the directory.
3. Select the palette to be named.
4. **Set [name] Enter** : type in the name.

> Tip: To name an effect palette immediately after recording it, pressing the **Set** key will open a **Quickname** window. Enter the palette name and select **OK**.

14.2.4 Using Effect Palettes in Programming

In the Programmer or editor, you can apply an effect by selecting it from the Effect Directory. The effect will be applied to the current fixture selection, providing that it contains parameter information for the selected fixtures. An iris step effect cannot therefore be applied to a fixture that has no iris function. By default, predefined effect palettes are direct; see Direct Palettes.

For example:

1. Open + Effect : open the Effect Directory window.
2. 1 Thru 5 : select the fixtures.
3. [Effect 1] : select the effect from the Effect Directory window.

Or, using the command line:

1. 1 Thru 5 Effect 1 Enter

14.2.5 Editing Effect Palettes

You can edit an effect palette by opening it in an editor window; you can then edit its contents in the same way as you edit values in any editor. See Building Table Effects in Editors.

To open an effect in an editor:

1. Open + Effect : open the Effect Directory.
2. Open + [Effect 1] : open the editor for [Effect 1].

You can select the editor view (Table, Size, Rate, Offset, Length, N Shot) you wish to edit in. Also ensure that the editor is active with its Edit button selected.

You can also open an effects palette with the command line. For example:

- Effect 1 Open

14.2.6 Deleting Effect Palettes

To delete an effect palette using the command line:

1. Effect 1 Delete : deletes Effect Palette 1.
2. Click OK to confirm the delete.

Or, from the Effect Directory:

1. Press and hold Delete whilst selecting the palette to be deleted from directory.
2. Release the Delete key. A dialog will appear asking you to confirm the delete.
3. Click OK.

Tip: If you prefer not to be asked to confirm the delete action, select Don't Ask Me Again in the confirmation window. You can re-enable the confirmation by going to Setup → Preferences → Programming and selecting Confirm before deleting directory items.

14.2.7 Copying and Moving Effect Palettes

To make a copy of an effect palette in a new location:

1. **Effect** 1 **Copy**; **Effect**; 2 **Enter** : copies the contents of Effect Palette 1 to Effect Palette 2.
2. **Effect**; 1 **Position**; 2 **Copy Effect** 2 **Enter** : copies fixtures that are in Effect Palette 1 and in Position 2 into Effect Palette 2.

Similarly, to move an effect palette to a new location:

1. **Effect**; 1 **Move Effect**; 2 **Enter** : moves the contents of Effect Palette 1 to Effect Palette 2, leaving 1 empty.

If the destination effect palette already exists, you will be asked to choose an option: **Insert, Merge and Replace**.

15. Kinds and Wheelsets

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15.2 Wheelsets 323

15.1 Kinds

Kinds are collections of fixture functions organized into wheelsets. The wheelsets determine how the fixture functions assigned to the kind will coordinate with the console's main encoder wheels when the kind is selected and a fixture selection is made. Kinds are stored in the kinds directory and exist in two different forms: fixed kinds and user kinds.

15.1.1 Fixed Kinds

Fixed kinds are automatically generated by the console and collectivity contain all of the fixture functions used in your show. Every function of every fixture scheduled in your show will exists in one of the seven fixed kinds: Intensity, Position, Colour, Beam, Effects, Time, or Control. The fixed kinds can be selected using dedicated front panel keys or by clicking on their respective buttons in the kinds directory. The kinds directory can be opened by holding **Open** and then selecting **Kinds** from the main toolbar at the bottom of the right hand screen.

1. Fixed Kinds



When a new fixture type is added to a show through the fixture scheduler its functions are automatically populated in the fixed kinds and organized onto wheelsets based on a default master wheelset template established by the Hog OS. Fixed kinds cannot be deleted or moved. This is why they are known as "fixed" kinds.

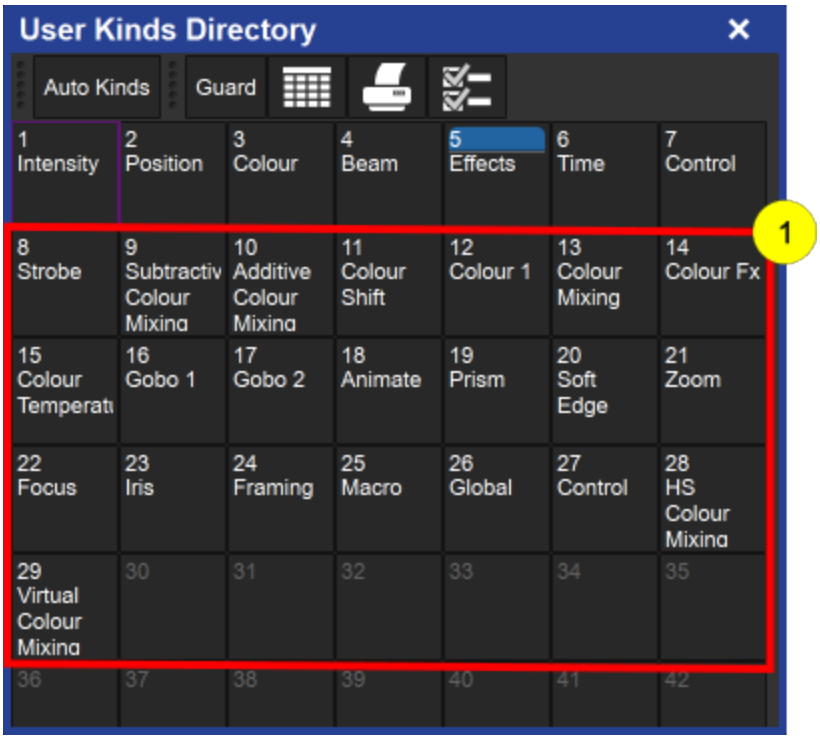
Functions that are marked with a lock icon on the wheelsets within a fixed kind cannot be deleted. This is because those functions are considered to be permanent residents of that fixed kind and are fundamental to the masking scheme of that fixed kind. However, you can add additional functions to a fixed kind if you wish. For example, you can add a colour mixing function such as Cyan to the fixed position kind if you desire. Be aware that any additional functions you add to a wheelset in a fixed kind will not function as part of that fixed kind's masking. The arrangement of the functions on the wheelsets within a fixed kind are completely customizable regardless of whether or not they are marked with a lock icon.

15.1.2 User Kinds

User kinds, unlike fixed kinds, are not automatically generated when adding fixtures to the show. User kinds are custom built by the user, allowing you to create smaller collections of fixture functions on fewer wheelsets.

User kinds are stored in the kinds directory and are also accessible using the 12 function keys on the front panel of the console (when the function keys are set to kind mode). To toggle the function keys between "Kind" mode and "Command" mode hold down **Pig** and press **Enter**. The mode of the function keys is displayed on the main toolbar. To open the kinds directory hold the **Open** key and press the "kinds" button on the main toolbar. Note: The user kind keys on the Road Hog 4 console do not have LCD displays. Once created, user kinds can be selected by pressing the coordinating function key on the front panel or by selecting the kind from the kinds directory when guard is turned off. If you create more than 12 user kinds the console will automatically change the last function key on the front panel to a next button. You can create as many user kinds as you want.

1. User Kinds



Tip: To quickly edit a user kind simply hold **Open** and press the user kind's button on the front panel.

Manually Creating User Kinds

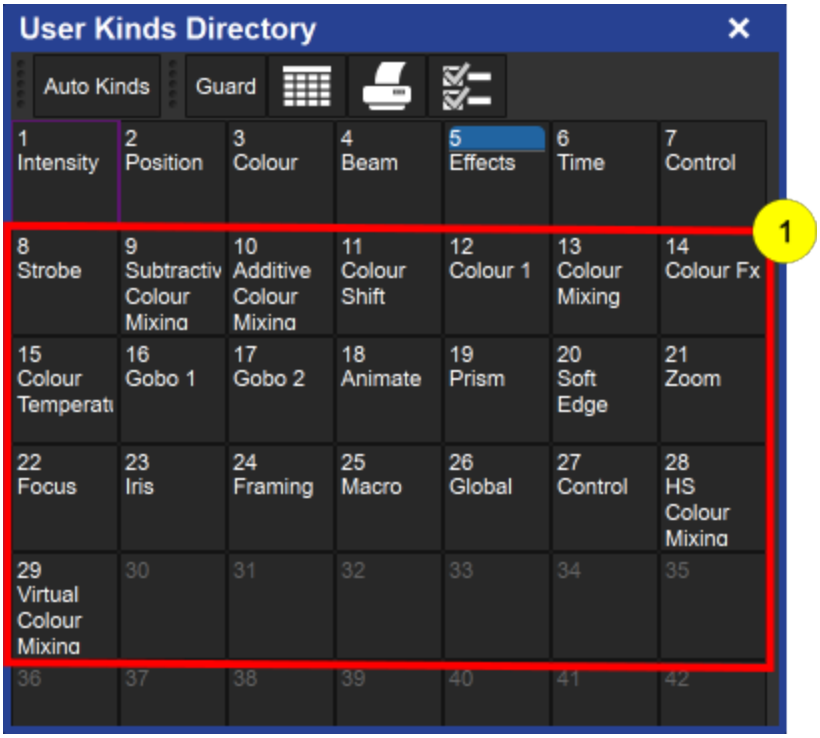
To manually create a new user kind:

1. **Open** + **Kinds** opens the Kinds Directory Window.
2. Press **Record** and then press any empty cell in the Kinds Directory window.

Auto-generating User Kinds

You can auto-generate user kinds for your show by pressing the auto-kind button a the top of the kinds directory or fixture schedule window. Auto-generated user kinds are based on pre-defined families of functions established by the Hog OS. For example, Cyan, Magenta, Yellow, Hue, and Saturation are all part of the colour mixing family as defined in the Hog OS library model, therefore a fixture that features these functions would automatically generate a user kind containing CMY and HS functions.

1. Auto-generated User Kinds



Deleting Users Kinds

To delete a user kind:

1. **Open** + **Kinds** opens the Kinds Directory Window.
2. Press and hold **Delete** and then press the cell of the kind you wish to delete in the Kinds Directory window.

Copying and Moving Users Kinds

To copy a user kind:

1. **Open** + **Kinds** opens the Kinds Directory Window.
2. Click on an existing user kind in the Kinds Directory, press the **Copy** key, and then click on any empty cell in the Kinds Directory window.

To move a user kind:

1. **Open** + **Kinds** opens the Kinds Directory Window.
2. Click on an existing User Kind in the Kinds Directory, press **Move** and then click on any empty cell in the Kinds Directory window.

15.2 Wheelsets

Wheelsets are the building blocks of both fixed kinds and user kinds. They specify how fixture funtions assigned within a kind are displayed on the console's main encoder wheels when a fixture selection is made.

Note: The center wheel located below the center touchscreen on the Hog 4 console's front panel is configured separately from the wheelsets established in the fixed or user kinds. For more information on the center wheel's function assignments: Center Wheel Preferences

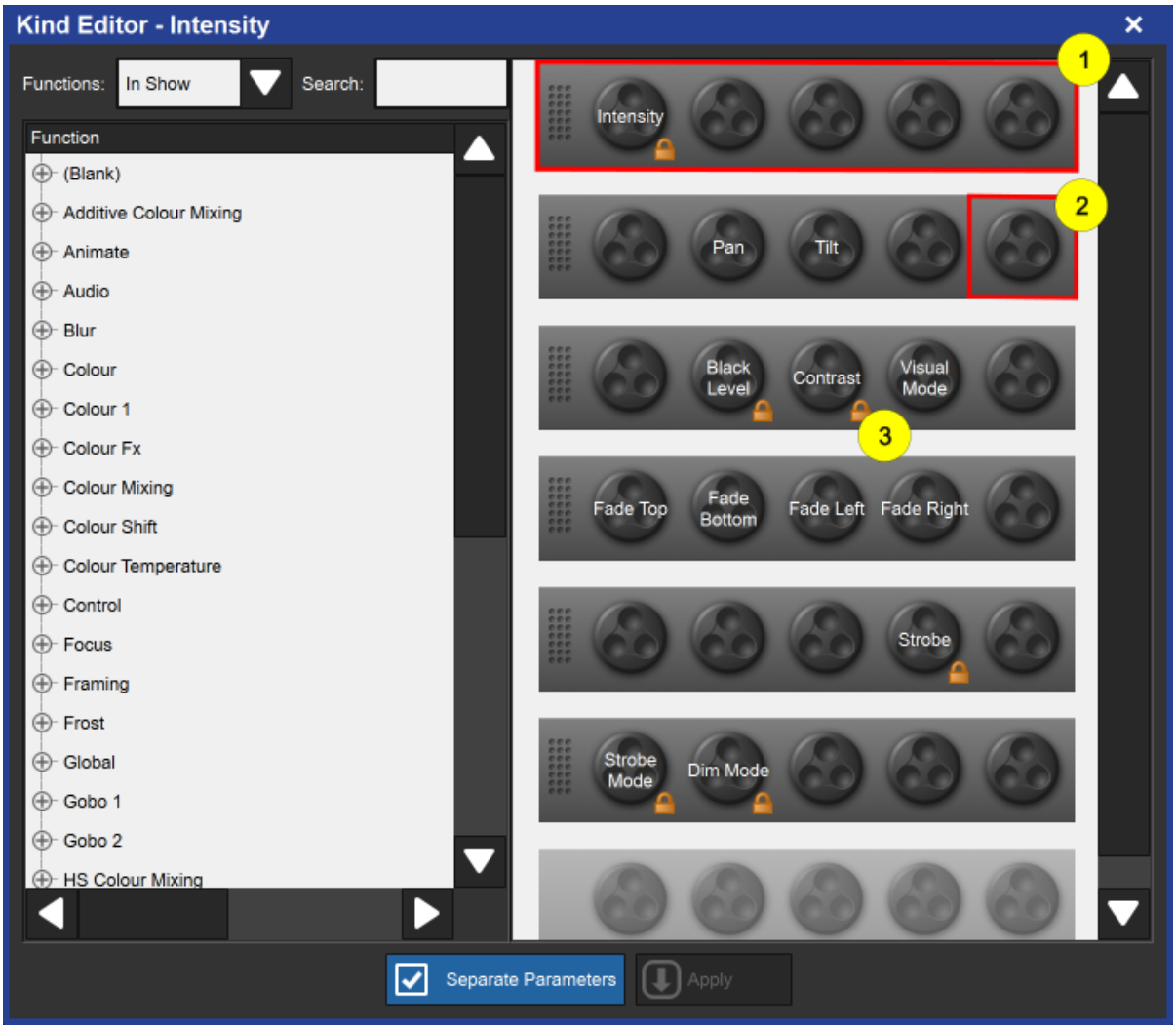
Every effort has been made by the developers of the Hog OS to provide you with a logical wheelset arrangement by default but sometimes a re-arrangement of the functions within a wheelset or a re-arrangement of the wheelsets themselves is neccessary. This section is intended to increase your understanding of how to manage the wheelsets in your show.

To access the wheelset for any particular fixed or user kind:

1. **Open** + **Kinds** opens the Kinds Directory Window.
2. Hold **Open** and click on any existing kind in the Kinds Directory

Within each kind editor are two main sections. On the left is a list of functions. On the right is a graphical interface showing sets of encoder wheels arranged in groups of five. Each one of these groups of encoder wheels is called a wheelset.

1. Wheelset
2. Function Socket
3. Indicates functions can't be removed from Kind



Wheels are holding places for fixture functions and coordinate with the encoders on the front panel. You will notice that several wheelsets can exist within a single kind editor.

To assign a function to a wheelset: Click and drag a function from the list of functions on the left hand side of the window to any wheel on one of the wheelsets.

To delete a function from a wheelset: Click on the function. It will highlight in blue. Press the backspace key on the front panel. The function will be deleted from the wheelset.

To add a wheelset: Click and drag a function listed in the left-hand column to an empty wheelset. Empty wheelsets are light grey in colour located in the right-hand column. This assignment to an empty wheelset creates a new wheelset ready for populating.

To delete an entire wheelset: Click anywhere on the wheelset's frame. The wheelset will highlight in blue. Press delete. The entire wheelset and its contained functions will be deleted.

To move a function on a wheelset: Click and drag the function you wish to move.

Tip: Functions marked with a lock icon and wheelsets containing functions marked with a lock icon cannot be deleted.

16. Advanced Programming

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16.1 Selecting from What is Onstage

You can select fixtures from what is on stage using the Live key. Fixtures are considered to be on stage if their intensities are non-zero. If you wish to select fixtures that are onstage but have intensity values at zero then you can use Pig + Live.

Below are some examples of how live can be used:

- **Live Enter** : selects all fixtures that are on stage with intensities above 0.
- **Pig** + **Live Enter** : selects all fixtures that are on stage regardless of intensity.

You can apply a mask to the selection. This allows you to select all fixtures that are onstage that are assigned to particular values or palettes. For example:

- **Live @ 50** : selects fixtures that are on stage at 50%.
- **Live @ 50 Thru 80** : selects fixtures that are on stage at 50% to 80%.
- **Live @ 0** : selects fixtures that are at 0%.

Using a palette as a mask:

- **Live [Blue]** : selects fixtures that are on stage that are at their 'Blue' palette settings.

You can use the Live and / keys together to select fixtures that are both live on stage and in a specified fixture selection:

- **Live 1 Thru 5** selects fixtures that are in the range 1 to 5 that are live on stage.
- **Live / Group** 1 selects fixtures that are in Group 1 that are live on stage.

Note that in all the above examples using the Live key only selects fixtures; it does not alter values in the Programmer or editor.

> Tip: Fixtures that do not have an intensity parameter such as a colour scroller are always considered live on stage and will be selected when using the **Live** key.

16.2 Bringing Parameter Values into the Programmer

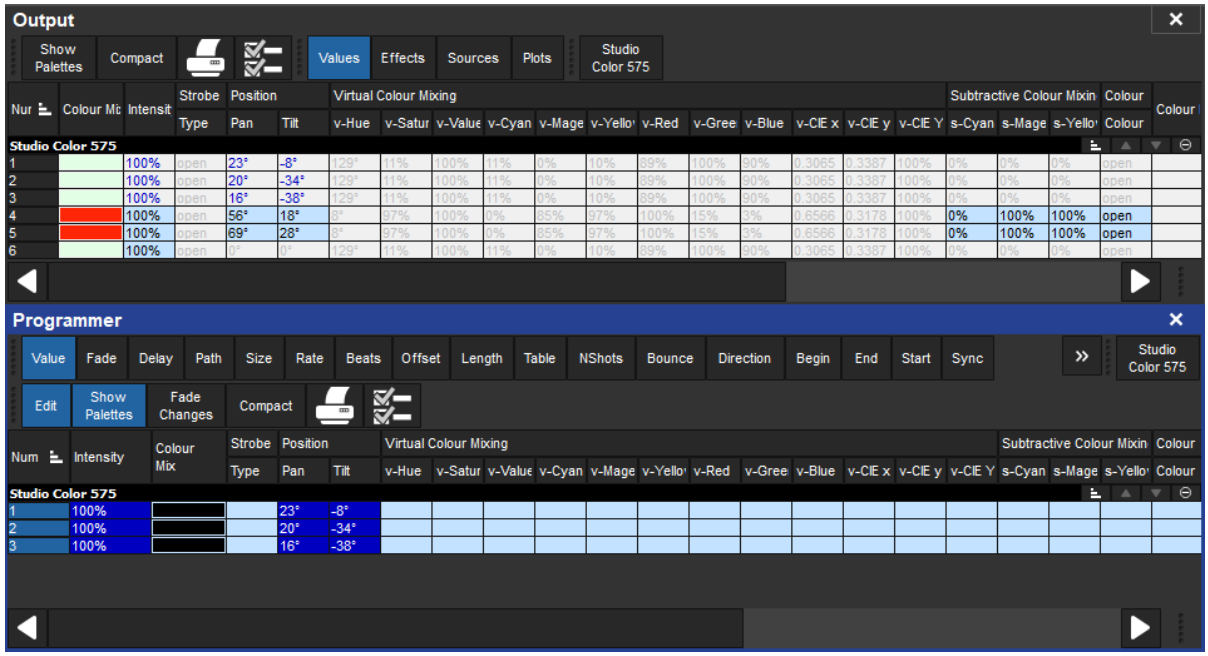
Sometimes you will end up with a look onstage or in a cue, scene or palette that you want to reuse in further programming. There are various ways in which you can bring those fixtures and parameter values into the Programmer or editor.

16.2.1 Suck

You can use **Suck** to assign fixture parameters to the values that they currently have 'on stage'. It doesn't assign parameters that are at their default value which helps to prevent redundant values which can cause problems by blocking values that should track through. The **Suck** button is located on the Main Toolbar.

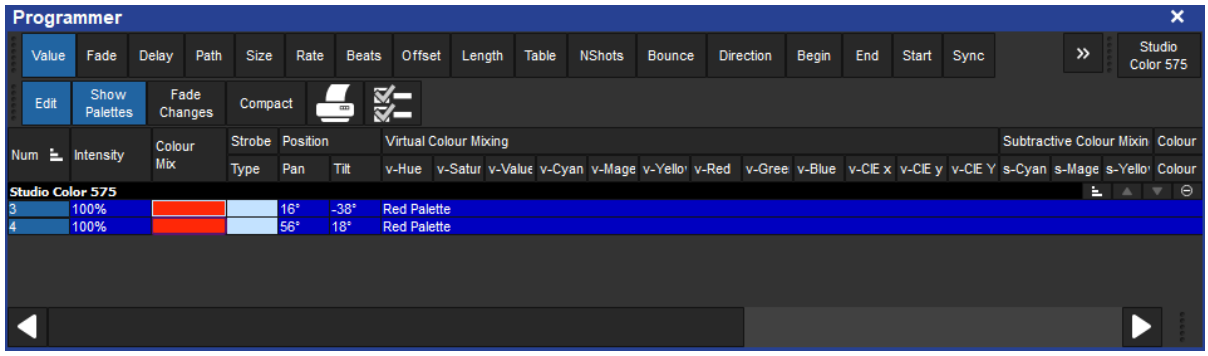
You need to have fixtures selected before using the **Suck** command. For example, if Group 3 contains Studio Color 575s 1 to 3:

- **Group 3 Suck** : assigns the fixtures in Group 3 to their current on stage values:



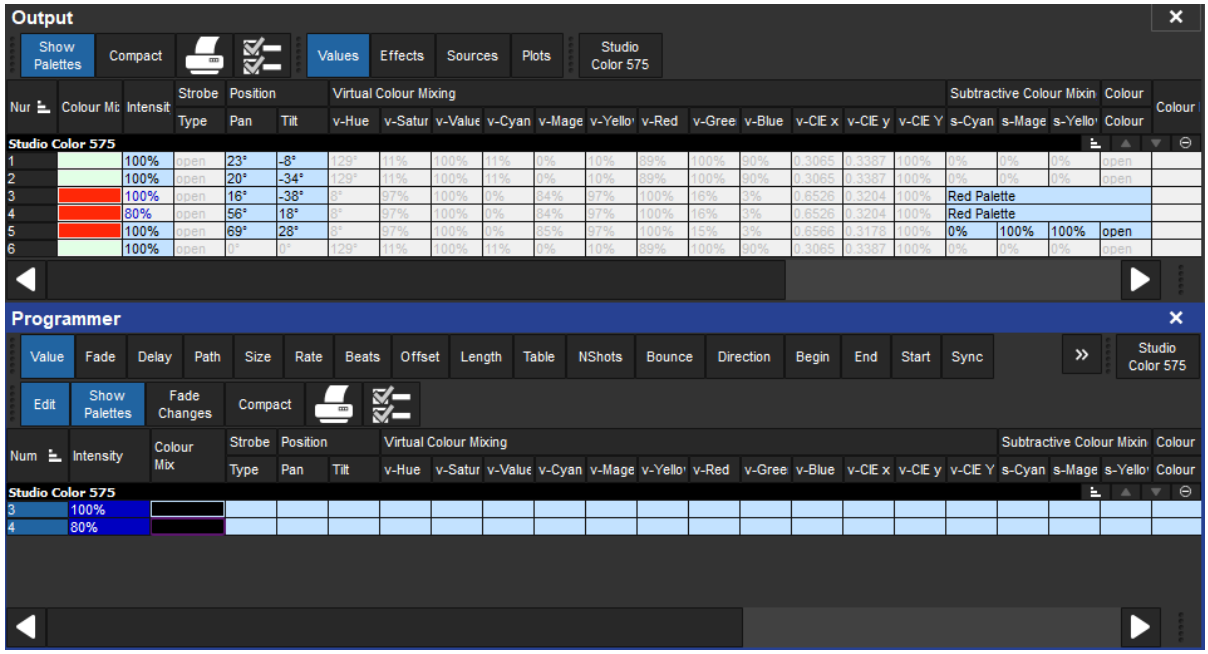
Similarly, you can apply this to palettes, scenes and cues, using the Live key to bring in fixtures and their parameter values that are on stage:

- **Live [Red Palette]**, **Suck** : fixtures on stage assigned to Red Palette are brought into the Programmer:



Or, you can use a mask to bring particular parameter type values from specific palettes that are on stage. For example, to bring the intensity values of **[Red Palette]** into the editor:

- **Live [Red Palette]**, **Intensity Suck** : the intensity values of fixtures on stage assigned to Red Palette are brought into the Programmer:

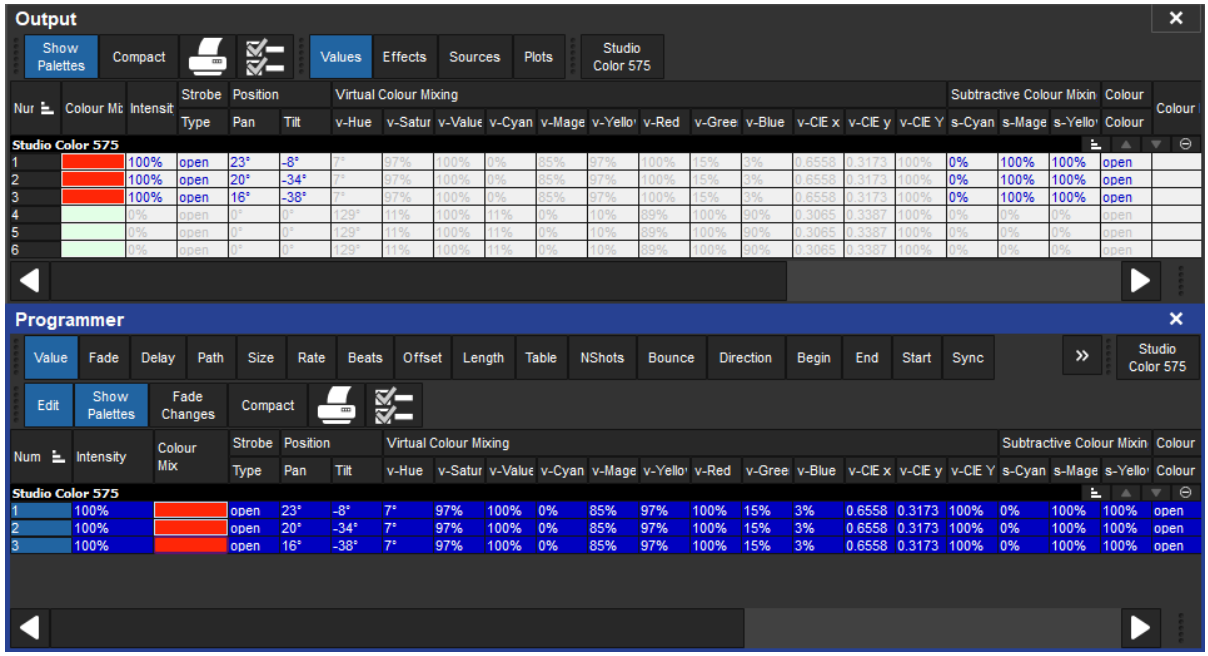


16.2.2 Using Live and Touch

Using **Live** and **Touch** together touches all parameters that belong to fixtures that are at non-zero intensity on stage, including parameters at their default values. This is similar to suck, except that it will bring *all* values into the Programmer or editor, including those that are at their default values. The **Touch** button is located on the Main Toolbar.

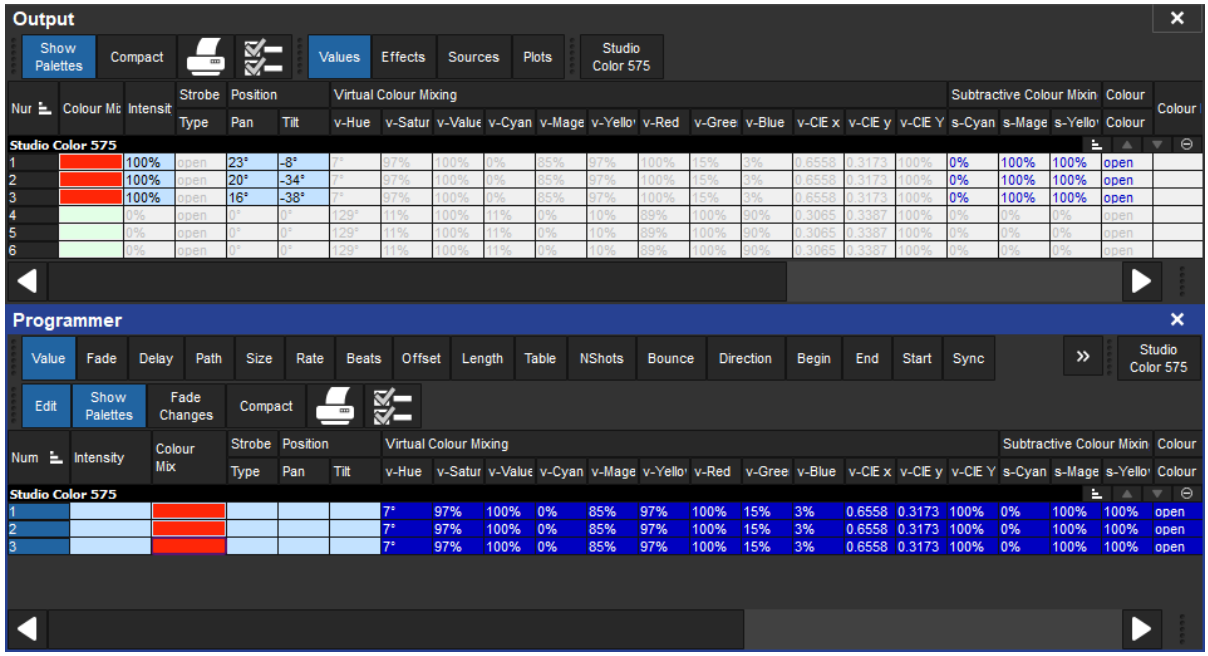
For example, if Studio Color 575s 1 to 3 are in the output with an intensity of 100%:

- **Live Touch** : brings all the parameters of Studio Color 575s 1 to 3 into the Programmer, not just the intensity values (as suck would):



You can select the parameter types to touch:

- **Live Colour Touch** : only the colour parameters are touched:



16.2.3 Using Copy to Bring Values into an Editor

You can bring parameter values from a palette, scene or cue into an editor such as the Programmer using **Copy**:

- **Cue 1 Copy**, **Enter** : copies the contents of Cue 1 of the currently chosen cuelist into the current editor.

You can chose which fixtures or parameter types are copied into the Programmer. For example:

- **Cue 1 Position Copy**, **Enter** : copies only the position values from Cue 1 into the current editor.

16.3 Highlight and Lowlight

Pressing the **Highlight** key temporarily adjusts the selected fixtures to 'open white', with intensity at full and all other parameters at their default settings. This function can be useful when you want to see the beam of a fixture on a lit stage, when assigning focus positions for example. Highlight only changes the parameter values in the output, not in the current cue or in the Programmer or editor, and highlight has the highest priority when the console determines a parameter's output value.

Highlight will remain active until you press the **Highlight** key again, and you can use the **Next** and **Back** keys to highlight in turn each fixture in the current selection.

You can release each parameter from highlight by adjusting its value in the Programmer or editor, letting you modify parameters whilst keeping the fixture beam as visible as possible. For example, suppose that you have a Studio Spot 575 subtly lighting a part of the stage setting with a dark blue breakup gobo, softened using the frost parameter and with the iris controlling the beam size. The piece of set that the Studio Spot is lighting has been moved, and you need to refocus it while keeping the rest of the lighting state on stage so that rehearsals can continue. To do this using Highlight:

1. Select the Studio Spot in the Programmer.
2. Press the **Highlight** key. The Studio Spot will retain its position on stage, but the intensity will go to full, the colour to white, the gobo and frost to open, and the iris to 100%, so that you can see the beam clearly on the lit stage.
3. Adjust the pan and tilt parameters to position the Studio Spot as required.
4. Adjust the iris parameter to give the correct beam size.
5. Press the **Highlight** key again to release the colour, gobo and frost parameters from Highlight, so that they return to their original programmed values. The values for pan, tilt and iris retain their new values in the Programmer.
6. Press **Update** and **OK** to record the changes in the appropriate cue; see Auto Update.

16.3.1 Customizing Highlight

By default, highlight brings intensity to full, with all colour and beam parameters at their default values. However, you can use a palette to assign the highlight values for each parameter of each fixture. This can be useful as the default highlight values for some parameters may not be what you want; for example, you may prefer to leave zoom, focus and iris settings unaltered by Highlight so that you can see the programmed beam size and edge quality.

To assign a pre-existing palette to be the highlight palette, right-click it in the palette directory and select it as the highlight palette. The highlight palette is shown by the H icon in the palette directory window.

> Tip: You can use masking when creating the highlight palette to ensure that all the required parameter types are included; see Recording Palettes with Kind Masking.

16.3.2 Lowlight

By default, the parameters of fixtures that are not selected when you use highlight remain at their current output values. You can customise the output values of these parameters during highlight by creating a lowlight palette. For example, you could create a lowlight palette that sets the intensity of all fixtures to 30%, to give the highlighted fixture greater contrast.

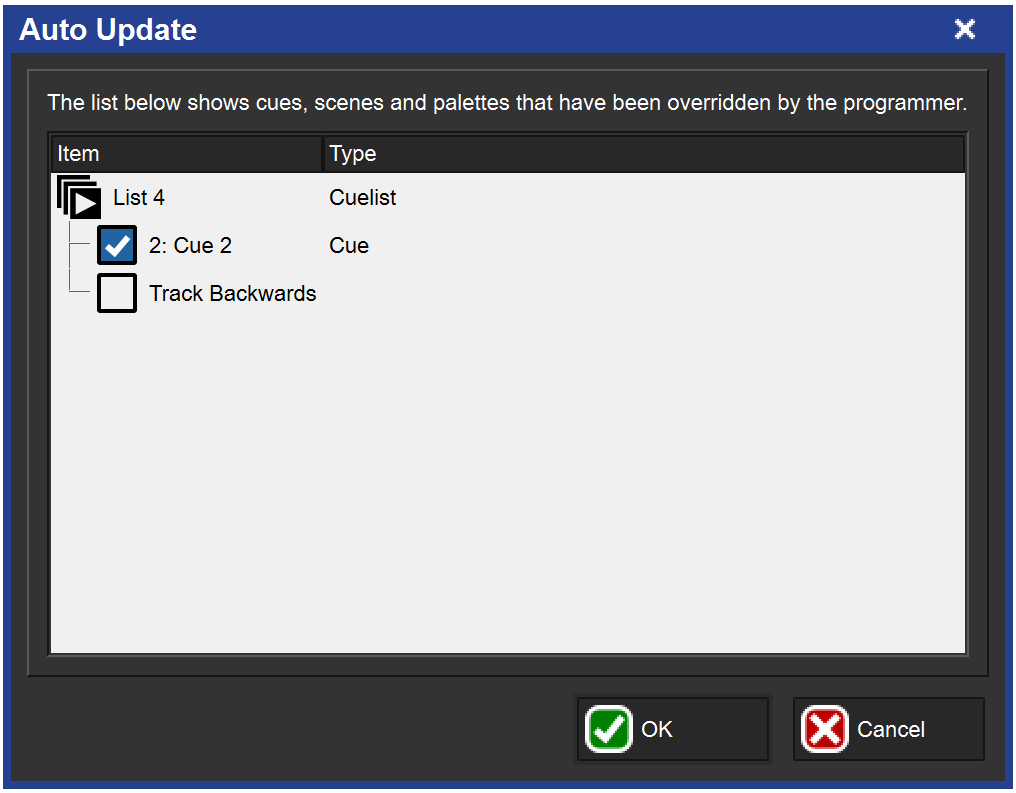
Note that lowlight only affects parameter values of the non-selected fixtures in the current editor. Parameter values being output by playbacks will not be affected.

To assign a pre-existing palette to be the lowlight palette, right-click it in the palette directory and select it as the lowlight palette. The lowlight palette is shown by the  icon in the palette directory window.

Tip: You can use masking when creating the lowlight palette to ensure that all the required parameter types are included; see Recording Palettes with Kind Masking.

16.4 Auto Update

When you are programming a complex show, the look on stage may be built up from cuelists and scenes on several masters. You can change the look by assigning fixture parameter values in the Programmer, but it is difficult to know which cue or scene is contributing which values to the total on stage. Hog OS's Auto Update feature automatically suggests the appropriate cues, palettes and scenes to merge the changes into, allowing you to choose how the updates are performed.



When you have finished editing in the Programmer you can merge the parameter values into the currently playing cues, palettes and scenes by pressing the **Update** key. The **Auto Update** window will open, showing which cuelists, cues, palettes and scenes are contributing to the look on stage so that you can choose which to update

For cuelists, you have several choices:

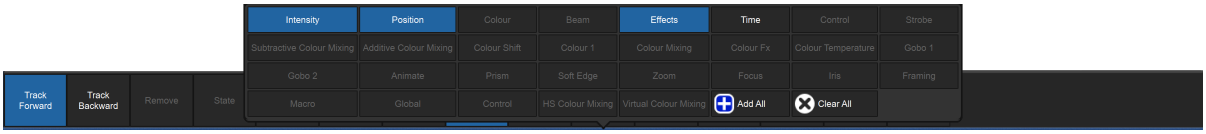
- Either update the current cue in the cuelist, or track the programming backwards so that the new values are merged into the last cue with a hard value for that parameter; see **Tracking Values Backwards When Recording**.
- If you have existing programming that refers to a palette, you can choose to update the palette instead of adding new parameter values to a cue. In this case, these updates will be performed first, and anything left in the Programmer after this will be used to update the selected cue or Track Backwards.

For scenes, you have the option to merge the programming into the scene, or into the palettes that are referred to in that scene.

Once you have chosen your options, press **OK** to perform the update. Note that the parameter values remain in the Programmer.

Tip: If there is no playback on stage when you press **Update**, the Auto Update window will not appear and the Update key press is ignored.

When you press the **Update** key, the Update Toolbar will also appear. This allows you to select which parameter types are updated, whether changes should track forwards, and whether references should be allowed when updating palettes. See **Recording Palettes with Kind Masking**, **Stopping Values from Tracking Forward** and **Reference Palettes**.



16.5 Editing Discreetly

It is often useful to make changes to parameter values discreetly, or without them appearing on stage at all; during a rehearsal or performance for example. To do this, use Hog OS's **Fade Changes** and **Blind** functions.

16.5.1 Fade Changes

If you select the **Fade Changes** button in an editor window, any changes you make will appear on stage over the current time settings for the changed parameters. For example, if you have intensity values in the Programmer with a fade time of ten seconds, and you select all of the fixtures and press **@ 0 Enter**, all of the lights would fade to 0 over 10 seconds. This is useful for making changes on the fly during a performance.

Parameters that don't have timing values in the Programmer will fade in the default time, which you can assign in the **Timing** pane of the **User Preferences** window:

- **Setup** → **Preferences** → **Timing**

Press the **Fade Changes** button again to revert to having parameter values appear in the output instantly.

To view and assign time values for parameters, see Individual Parameter Timings.

Tip: You can set a trackball key turn Fade Changes on and off; see Trackball Keys.

16.5.2 Blind

Blind mode allows you to continue programming and editing cues, groups, palettes and scenes without changing the onstage parameter values of fixtures. The **Blind** key is located above the Trackball; when in blind mode, the **Blind** key will illuminate.

Note that when you turn off blind mode all parameter values that you have changed in the Programmer or editor will instantly appear on stage.

To exit blind mode gracefully, hold down the **Pig** key while pressing **Blind**; parameters will fade to their new values in the assigned or default fade time. Alternatively, select **Fade Changes** in the editor you are using prior to turning blind on or off.

Tip: Using **Pig + Blind** on Hog OS is equivalent to using the Try Cue key on the Wholehog II.

16.6 Parking

Sometimes it is useful to lock certain parameter values of fixtures independently from programming, playback and the Grand Master. For example, you might want to lock a particular dimmer at a certain level as a working light, or point a fixture to provide light for maintenance whilst a rehearsal or programming is in progress. Park is also helpful for dealing with a fixture malfunction, locking its pan and tilt so that it doesn't make a noise as it tries to move during the show.

Parking holds a fixture's parameters on stage, but still allows you to edit the data in the Programmer or other editors.

To park fixture parameter values:

1. **Fixture 1 @ 50** : Select fixture(s) and assign the parameter(s) you wish to park.
2. **More** → **Park** : Select Park from the More options of the Main Toolbar.

To unpark fixtures, select the fixtures, set any value for the parked parameters, and hold the **Pig** key while pressing **Park**.

Both the park and unpark commands will accept a parameter mask on the command line, for example:

- **Position Park** : parks only position parameters of the selected fixtures.

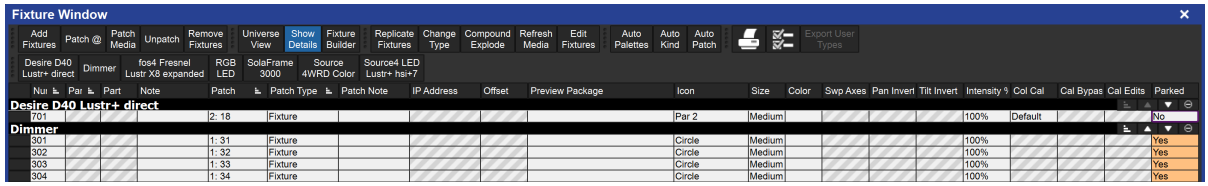
16.6.1 Viewing and Editing What is Parked

You can view which fixtures have parked parameters in the **Fixture** window and the **Output** window, and you can view and edit parked parameters in the **Parked Output** window. Parked parameters are also indicated in the Wheels Toolbar.

The Fixture Window

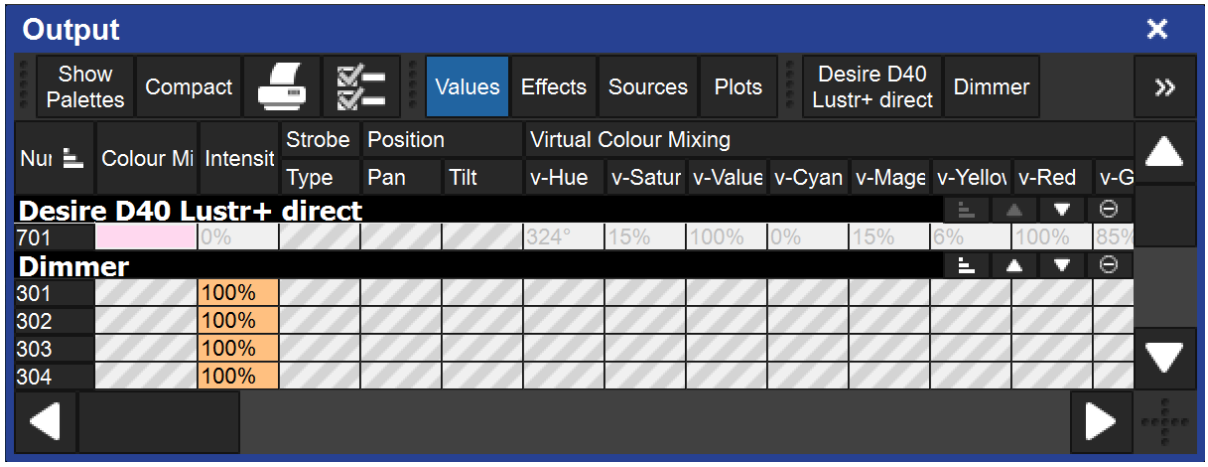
To view which fixtures have parked parameters in the **Fixture** window:

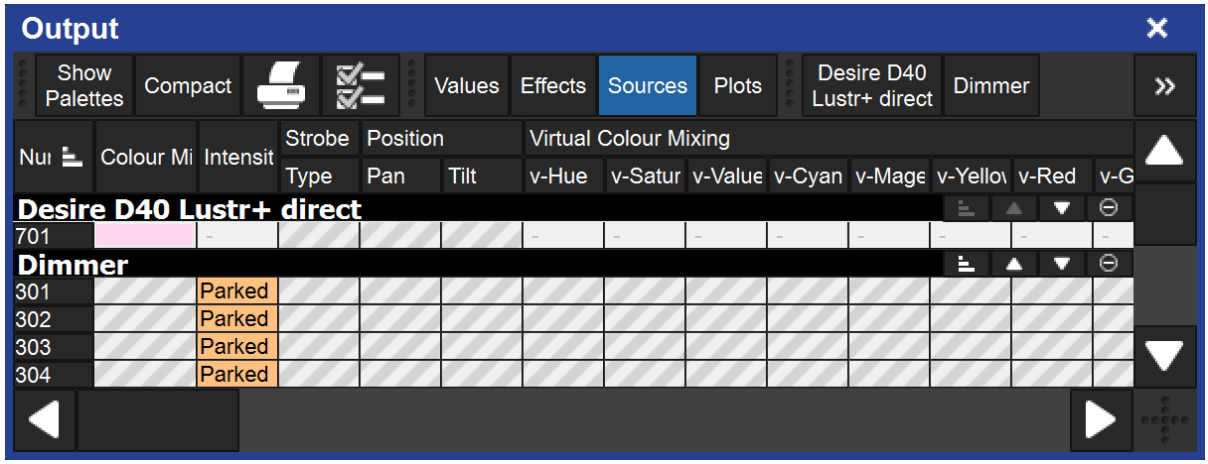
Open + **Fixture** : the Fixture window opens, note the 'Parked' column.



The Output Window

Parked parameters are shown in the Output window with black text on an orange background. When the Output window Source view is selected the word ‘Parked’ is displayed.



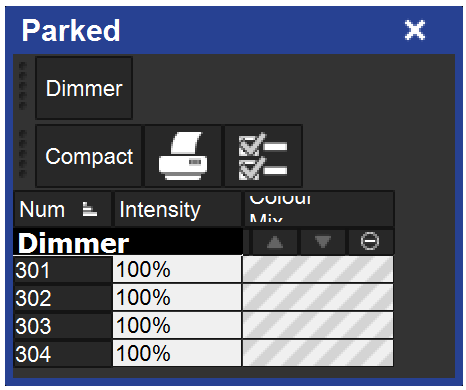


The Parked Output Window

You can view and modify the parked settings of fixtures in the **Parked Output** window. To open the **Parked Output** window:

- **Open** + **Parked** : the Parked button is on the toolbar that appears when you press the Open key.

Within this window you can edit parameter values in the same way as in any editor. You can knockout fixtures or parameter values to stop them being parked, or add or modify parameter values to park them.



The Wheels Toolbar

Parked parameters are shown in the Wheels Toolbar with an orange background or hatch pattern.

- **Solid orange outline**: all selected fixtures have the parameter on this wheel parked.
- **Diagonal line orange background**: some of the selected fixtures have the parameter on this wheel parked.

17. Playback

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17.1 Playback Masters

Playback masters are the mechanism Hog OS uses to link show objects such as lists, scenes, batches, and inhibitive submasters (groups) to physical controls. Hog OS provides 90 physical master's per page which can be accessed via playback bars or virtual wing windows. In the following sections you can learn more about how to assign show items to physical masters, change the controls of a physical master, and how to change which physical masters a playback bar and its associated hardware are controlling.

17.1.1 Attaching Cuelists, Scenes, and Batches to Physical Masters

Cuelists, Scenes, and batches are automatically attached to a master when you create them using the **Record**, **Choose** syntax; see Recording to a Cuelist on a Master. However, if the cuelist, scene, or batch was created using the directory window then follow these steps to attach it to a physcial master:

List 1 Move Choose : attaches Cuelist 1 onto the chosen master.

Scene 1 Move Choose : attaches Scene 1 onto the chosen master.

Tip: You can move a cuelist, scene, or batch to multple physical masters on a single page as well as across multiple pages. See Pages.

17.1.2 Moving and Copying between Physical Masters

Moving a cuelist between masters will detach it from its original master, and attach it to the new master. Copying a cuelist will leave the cuelist in its original location and attach a copy of the cuelist to the new location.

To move a list from one master to another:

1. Press and hold the **Move** key
2. Press and release **Choose** key of the master that you want to move the list from
3. Release the **Move** key
4. Press the **Choose** key of the master you want to move the list to

To copy a list from one master to another:

1. Press and hold the **Copy** key
2. Press and release **Choose** key of the master that you want to copy
3. Release the **Copy** key
4. Press the **Choose** key of the master you want to move the list to

On Tour Hog, Stage Hog, Flex Hog, and Gig Hog consoles, show items can be assigned and moved using a simplified syntax on the command line using the dedicated **Master** key.

- Assigning a lists to a physical master: **List # Move Master# Enter**
- Assigning scenes to Physical Masters: **Scene # Move Master # Enter**
- Moving an assignment from Physical Master to another: **Master # Move # Enter**
- Copying an assignment from Physical Master to another: **Master #Copy #Enter**

17.1.3 Detaching from a Physical Master

To detach a cuelist from a master:

Delete + **Choose** : detaches the cuelist from the chosen master.

Note that this will not delete the cuelist itself or remove it from the cuelist directory, only detach it from the master.

On Tour Hog, Stage Hog, Flex Hog, and Gig Hog consoles, show items can be removed from masters using a simplified syntax on the command line using the dedicated **Master** key:

- Removing an assignment from a Physical Master: **Master # Delete**
- Removing an assignment from a range of Physical Masters: **Master # Thru Master # Delete**

17.1.4 Configuring Physical Master Controls

Hog OS uses mappings called "control sets" to define which commands are executed when control messages are sent to the master. Each master has five configurable control sets (standard, intensity, playback rate, effect rate, effect size) and one configurable main control set. The following two sections will cover how to access and customize these control sets as well as how to use them in playback.

Editing the Control Sets of a Physical Master

To configure the control sets of a list, scene, or batch assigned to a physical master:

1. Hold the **Pig** key and then press the **Choose** key coordinating with physical master to which the lists, scene, or batch is assigned.
2. Locate the control set tabs on the left-hand side of the window (standard, intensity, playback rate, effect rate, effect size, main)

To configure the control sets for a list, scene, or batch not already assigned to a physical master:

1. Open the master window using the open syntax (example: **List 1 Open**)
2. Press the **Options** button at the top left of the master window.
3. Locate the control set tabs on the left-hand side of the window (standard, intensity, playback rate, effect rate, effect size, main)

Changing the Active Control Set for A Master

To change the active control set for a Master:

1. Hold the **Choose** key for the physical master
2. Select a different control set by pressing on the control set in the encoder wheel cell
3. The active control set will be outlined in blue.

17.1.5 Playback Commands

Below is a list of the commands that can be assigned to the controls within a physical master control set:

Commands assignable to all keys:	
Command	*Options and Notes*
None	Disables the control
Assert	Asserts the master. Deselect **Use default cuelist** time to enter your own assert time for the master, overriding the cuelist's assert time.
Release	Releases the master. Deselect **Use default cuelist time** to enter your own release time for the master, overriding the cuelist's release time.
Go	Go's the master. Deselect **Use default cuelist** time to enter your own fade time for the master, overriding the cuelist's time.
Halt	Halts the master, stopping any fades that are in progress. Select Use Fade Time to use the previous cue's fade time when going backwards instead of the cuelist's Back Time. Select **Trigger Cuelist Macro** to trigger the previous cue's macro when going backwards.
Back	Reverses the currently running crossfade. Deselect **Use default cuelist time** to enter your own back time for the master, overriding the cuelist's back time.
Restart	Goes to the first cue in the cuelist.
Goto cmdline	Enters the Goto command into the command line, so that you can enter a cue number and press Enter to go to that cue.
Goto	Enter a cue number to go to in the **Target Cue** cell. Deselect **Use default cuelist time** to enter your own fade time, overriding the cue's time.
Skip forward	Go instantly to the next cue.
Skip back	Go instantly to the previous cue.
Scale Playback Rate	Adjusts the playback rate of the master by applying a scaling value to the base playback rate of the master. • **Temporary**: When temporary is turned on scaling will be applied when button is pressed down and released when button is released. • **Action and Value**: When action = "multiply" then button press will multiply scaling value by the value specified; when action = "set" then button press will change rate scaling value to value specified.
Scale Effect Rate	Adjusts the effect rate of the master by applying a scaling value to the base effect rate of the master. • **Temporary**: When temporary is turned on scaling will be applied when button is pressed down and released when button is released. • **Action and Value**: When action = "multiply" then button press will multiply scaling value by the value specified; when action = "set" then button press will change rate scaling value to value specified.
Scale Effect Size	Adjusts the effect size of the master by applying a scaling value to the base effect size of the master. • **Temporary**: When temporary is turned on scaling will be applied when button is pressed down and released when when button is released. • **Action and Value**: When action = "multiply" then button press will multiply scaling value by the value specified; when action = "set" then button press will change rate scaling value to value specified.
Scale Fader Assignment	Adjusts scaling based on fader's control assignment. (i.e. if fader is assigned to

Commands assignable to all keys:	
	"Scale Playback Rate" then a button assigned to "Scale Fader Assignment" will scale the playback rate). • **Temporary**: When temporary is turned on scaling will be applied when button is pressed down and released when when button is released. • **Action and Value**: When action = "multiply" then button press will multiply scaling value by the value specified; when action = "set" then button press will change rate scaling value to value specified.

Commands Assignable to Fader Control	
Command	*Options and Notes*
None	Disables the control
I Fader	The fader controls fixture intensities being output by the master. • **Go Off Zero**: The cuelist is triggered when the fader is moved from zero, as if you had pressed the Go key. • **Release At Zero**: The cuelist is released when the fader returns to zero; see Releasing Masters.
Manual crossfader	The fader controls the crossfading between cues manually: move the fader to the bottom to 'pick up' the next cue, then move it up to start the crossfade.
IPCB crossfader	The fader manually controls the crossfading of the intensity, position, colour, and beam parameters of the current cue. When the fader is at the top of its travel the current cue will be 100% crossfaded onto stage. When the fader is at the bottom of its travel the current cue will be completely released.
Scale Playback Rate	The fader adjusts the playback rate of the master by applying a scaling value to the base playback rate of the master. • **Upper Bound**: : Determines the amount of scaling applied to the master when the fader is at top of travel (Full). • **Lower Bound:** Determines the amount of scaling applied to the master when the fader is at bottom of travel (0).
Scale Effect Rate	The fader adjusts the effect rate of the master by applying a scaling value to the base effect rate of the master. • **Upper Bound**: Determines the amount of scaling applied to the master when the fader is at top of travel (Full). • **Lower Bound**: Determines the amount of scaling applied to the master when the fader is at bottom of travel (0).
Scale Effect Size	The fader adjusts the effect size of the by applying a scaling value to the base effect size of the master. • **Upper Bound**: Determines the amount of scaling applied to the master when the fader is at top of travel (Full). • **Lower Bound**: Determines the amount of scaling applied to the master when the fader is at bottom of travel (0).

Commands Assignable only to the Flash key		
Command	*Notes*	*Options*
None	Disables the control	
Flash intensity at	Brings the intensity to a specified level regardless of the assignment of the fader. To specifically flash the assignment of the fader please use "Flash Fader at".	**Level**: proportion of the programmed intensity that contents are flashed to. If programmed levels are 80% and the flash level is set to 50% the flashed output intensity will be 40%. **Go On Flash**: goes the master when the Flash key is pressed. **Release on Off**: releases the master when the Flash key is released. **Solo**: sends intensity output of all other physical and virtual masters to zero while the Flash key is held. **Latching**: action of the Flash key is maintained until it is pressed a second time. * Latching the flash key can also be accomplished even when the latch option is turned off by pressing the pig key while the flash key is held, then releasing the flash key, and then releasing the pig key.
Flash Fader at	Flashes fader assignment to level specified in the options. This is similar to "flash instensity at" except it flashes the command assigned to the fader and instead of flashing intensity.	
Flash Fader Full	Flashes the command assigned to the fader to its highest level.	
Flash Fader Zero	Flashes the command assigned to the fader to its lowest level.	
Flash Fader Opposite	Flashes the command assigned to the fader to either is highest or lowest level depending on the position of the fader. Its the fader level is at 50% or higher then flash level is 0%. If the fader level is below 50% then the flash level is 100%.	

17.1.6 Playback Bars and Physical Master Ranges

Each playback bar only provides access to 10 physical masters at once, however, any playback bar can be shifted to provide access to a different range of masters by using the master ranging tools located at the far left of the playback bar.

Playback bar 0 (often referred to as the main playback bar) can also be shifted to a different range of physical masters using these additional methods:

- Hold the **Master** key and press a number (**#**) on the console's numeric keypad.
- Hold the **Master** key and press the **+** or **-** key on the console's numeric keypad to increment / decrement the current master range.

Example: **Master 3** sets the physical master range for playback bar 0 to masters 31 thru 40.

Example: **Master +** increments the playback bar to the next set of 10.

TIP: Hog 4 series consoles do not have a dedicated Master key on the front panel. Use the center Choose key in place of the Master key to perform the commands described in this section.

Tour Hog and Stage Hog consoles also have a dedicated master range user interface on the playback dashboard which allows for direct selection of a master range for playback bar 0 (the main playback bar).

For information on how to assign wings to playback bars refer to Chapter 3, Adding Playback Wings

17.1.7 The Master Window

The Master Window displays the contents of a master with important details such as the timing, notes, and attached commands for its contents. For example, a list is comprised of cues with individual wait, fade, and delay timings and this is displayed clearly in the master window.

To open a master window, use any of the following methods:

- Double Press **Choose** on a physical master to open its Master Window.
- Hold the **Open** key and press **Choose** on a physical master to open its Master Window.
- Hold the **Open** key and press on a cell in the list, scene, or batch directory.
- Hold the **Open** key and press the **Master** key to open the master window for the chosen physical master.
- **Master**, #, **Open** to open the master window for a specific physical master on the current page.

How to add comments and user notes to cues in the Master Window

By default, only the comments column is show in the master window for lists. To show the additional user note columns in the master window right click on the column header and use the context menu to "Show All". There are four user note columns which can be edited by selecting the associated user note cell for a cue and pressing the set key to input text. User comments are also displayed on the playback dashboard for the chosen master when the "notes" tab on is selected.

How to color-code cues in the Master Window

By default, the color column is hidden in the master window for lists. To show the color column right click on the column header and use the context menu to "Show All". To edit the color coding of a cue, select the associated color cell for the cue and press the set key to pick a color.

17.2 Virtual Master Playback

You can run cuelists without assigning them to a physical master by using virtual masters. An almost unlimited number of virtual masters running different cuelists can be in operation at any one time.

You can operate virtual masters from directory windows or from the command line.

> Tip: You can press **List** + **Release** to release all running cuelists playing back as virtual masters.

17.2.1 Running Cuelists, Scenes, and Batches from the Directory Windows

You can run cuelists, scenes, and batches from their respective directory windows using the steps below:

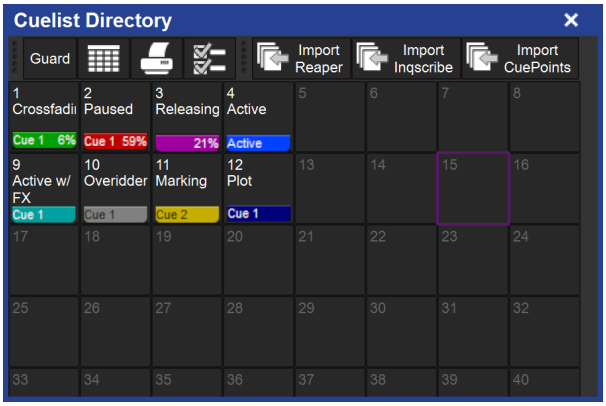
- Open the list, scene, or batch directory window.

For example to open the list directory window: **Open** + **List** or **List**, **List**

Make sure that the **Guard** button at the top of the directory window is deselected. Now pressing and releasing any button in the directory will play back that object as if Go had been pressed. In addition, holding your finger down on the directory button is the equivalent of holding that master's **Choose** key, which allows you to use the central playback controls to act upon that virtual master.

The buttons in the directory are coloured to show the cuelist status:

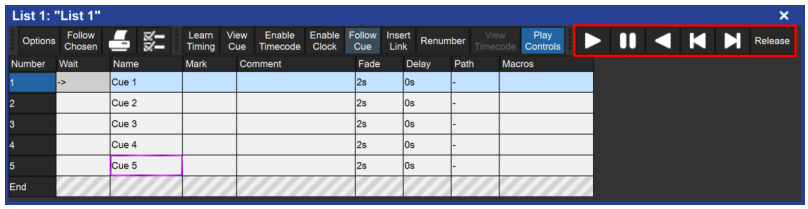
- **Green**: actively cross-fading
- **Red**: paused in the middle of a cross-fade.
- **Purple**: releasing.
- **Grey**: overridden / stomped on by another cuelist or scene
- **Blue**: active on stage and halted
- **Teal**: active on stage, halted, and running effects.
- **Orange**: actively marking values.
- **Dark Blue**: active onstage, halted, and controlling fixtures that are assigned to a plot.



17.2.2 Using the Play Controls Toolbar to Play a Cuelist, Scene, or Batch

To run a cuelist, scene, or batch from the master window:

1. Open the master window for the cuelist, scene, or batch.
2. For example: **[List 1]**, **Open**
3. Press the **Play Controls** button at the top of the master window. The on-screen playback controls will appear:



The controls are, from left to right, the **Go**, **Halt/Back**, **Skip Back**, **Skip Forward**, and **Release** buttons. These controls function independently from their front panel equivalents and always execute based on how they are labeled.

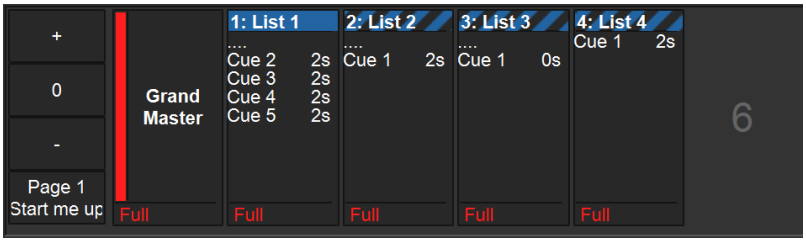
17.2.3 Running Virtual Masters from the Command Line

To run a virtual master from the command line type in the object's name, followed by its number, followed by enter. For example, to send a go command to cuelist 1 you would type **List 1**, **Enter** . So send a go command to scene 1 you would type **Scene 1**, **Enter** .

17.3 Choosing and Selecting Masters

At all times one of the physical masters of the console is chosen. When a master is chosen its choose LED will be illuminated, the title of the master will be shown on the playback bar with a blue background, and the master's name will be announced on the main toolbar. The chosen master can be controlled using the Play, Pause, Go Back, Skip Forward, and Skip Back keys in the main playback section of the console. The chosen master also directly receives commands from the command line such as record, goto, and delete when a destination is not otherwise specified. There can only be one chosen master at a time. To choose a master simply press the choose button associated with that master.

Masters can also be selected. Selected masters respond to rate wheel changes and the main playback controls but only the chosen master will receive commands from the command line. To select a master hold down the choose key of one master while pressing the choose keys of other masters. When selecting multiple masters the last choose key to be released will become the chosen master. When a master is selected it's choose LED will flash and the title of the master will be shown on the playback bar with a striped blue background.



17.4 Releasing Masters

Releasing a playback object such as scene or cuelist relinquishes its control of all fixture parameters programmed into that cuelist or scene.

To release a cuelist or scene that is assigned to a physical master:

1. Press the choose key for the physical master that you wish to release.
2. Press the **Release** key located in the main playback section of the console.

Or:

- **Release** + **Choose** : use the Choose key of the master with the cuelist you wish to release.

When a cuelist is released its current cue indicator will remain on the last cue played so that when the cuelist is played again it will playback the same cue as when it was released.

To have the cuelist return to the first cue in the list when it is released turn on the reset on release option. See Resetting Cuelists on Release.

> Tip: You can release all playbacks at once by pressing **Pig** + **Release**

If no other cuelists or scenes are active when you release a cuelist or scene, then releasing returns all fixture parameters to their default values. A fixture's default parameter values will be determined by the Fixture Library; you can change the default values in the Edit Fixtures window, see Assigning a Custom Default.

If you have other cuelists or scenes active, then control of fixture parameters may be transferred to one of them; see Latest Take Precedence (LTP).

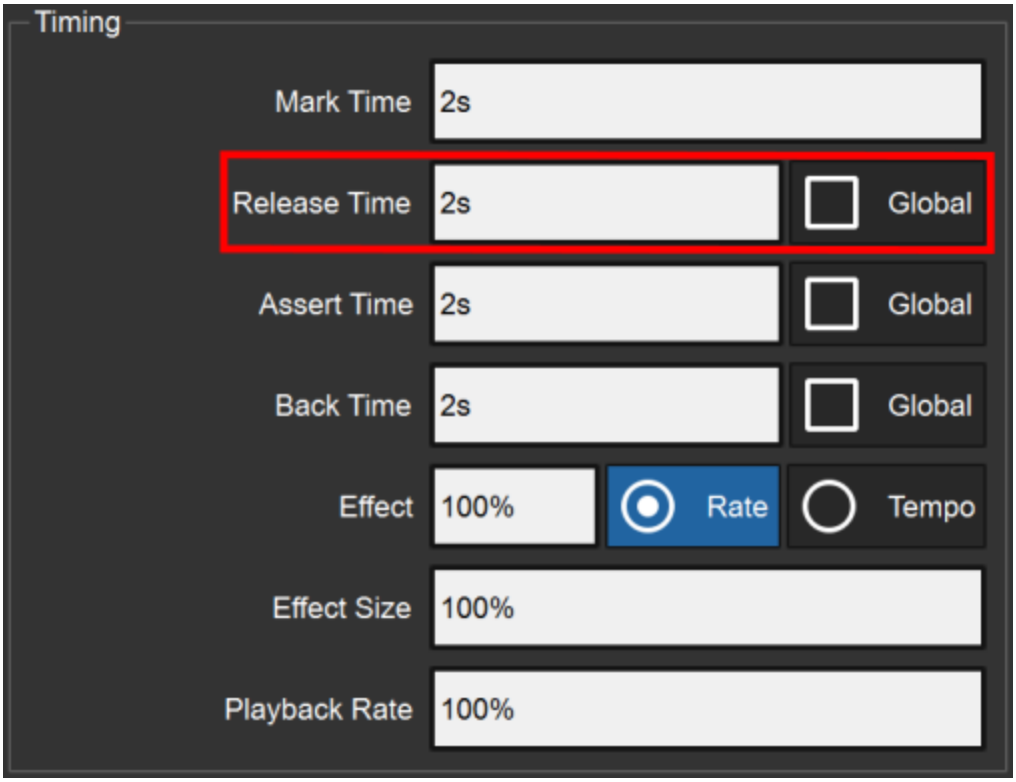
17.4.1 Release Time

When you release a cuelist and fixture parameters go to their default values, they do so over the release time, and this change may be visible if you have fixtures that are visibly live on stage (i.e. with intensities above zero). To assign the cuelist's release time:

1. **Open** + **Choose** : open the Cuelist window for the cuelist on the selected master.
2. **Options** → **Cuelist** : open the Options window and select the Cuelist pane.

   Alternatively, press **Pig** + **Choose** to open the Options window for the selected master.

3. Select the Release Time cell:



- **Set** **5**, **Enter** : assign the desired release time.

You can also set a default release time for all newly created cuelists in the Cuelist pane of the User Preferences window:

Setup → **Preferences** → **Cuelist**

> Tip: If you have assigned a release time to a cuelist, and you want to revert to the default release time, press the **Default** button adjacent to the **Release Time** cell.

17.4.2 Auto Release

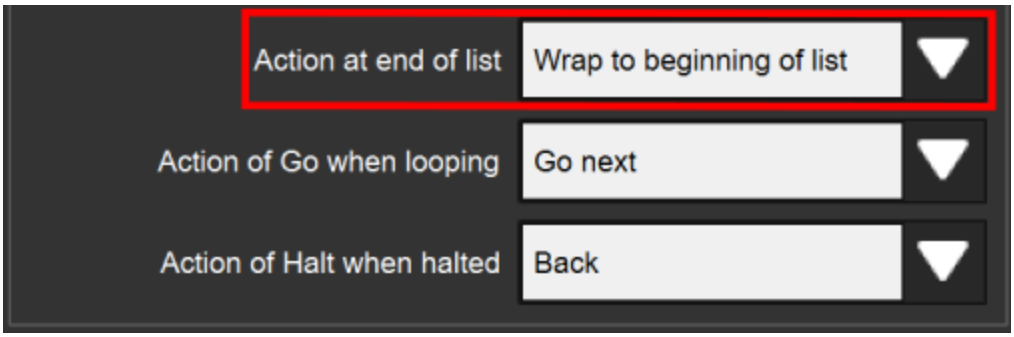
You can use auto release options to send fixture parameters to their default values at the end of a show, or to relinquish control of parameters for use by other cuelists when a cuelist is no-longer needed.

There are two Auto Release options for cuelists:

- **Auto-release at End**: Use this to automatically release the Cuelist at the completion of the fade and delay times of the last cue.
- **Add Release End Cue**: After the last cue has run another press of the **Go** key will release the cuelist rather than running the first cue again.

You can assign auto release options in the **Playback Options** window of each cuelist:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select the desired release option from the **Action at End of List** menu:



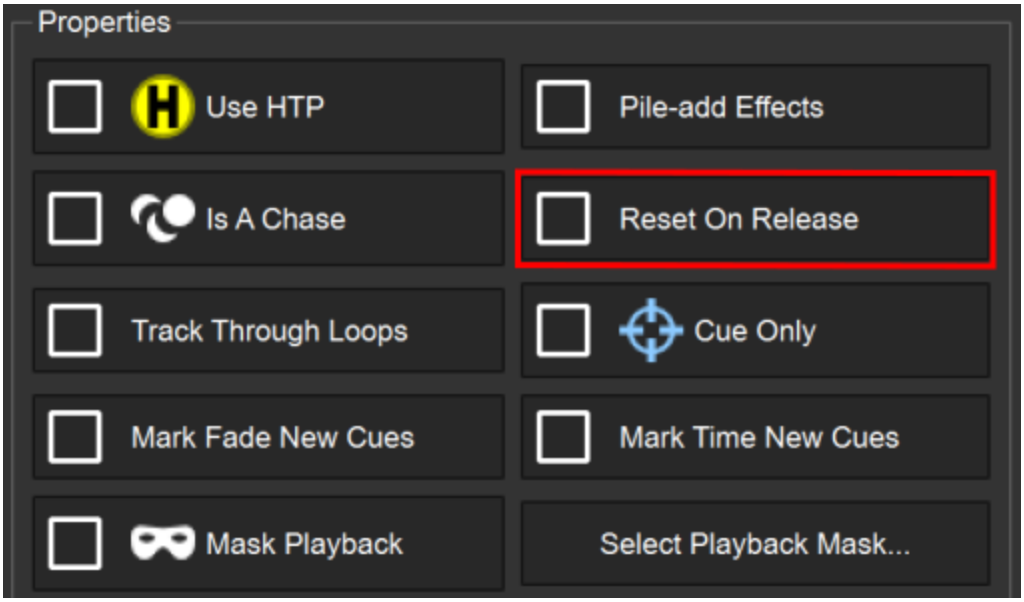
You can also assign the default Auto Release options for new cuelists in the **Action at End of List** menu in the **Cuelist** pane of the **User Preferences** window:

- **Setup** → **Preferences** → **Cuelist**

17.4.3 Resetting Cuelists on Release

You can assign a cuelist to reset when released so it will proceed from the first cue when **Go** is pressed again. You can assign Reset on Release in the **Playback Options** window of each cuelist:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select **Reset on Release**:



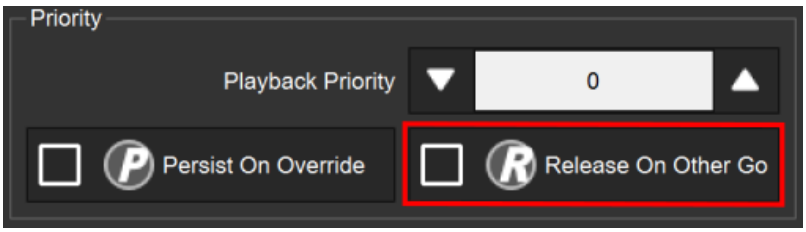
Alternatively, you can turn on Reset on Release for all new cuelists in the **Cuelist** pane of the **User Preferences** window:

Setup → **Preferences** → **Cuelist**

17.4.4 Releasing on Another Go

When running several cuelists or scenes in a show, you may want a cuelist or scene to release when another cuelist or scene is triggered. This effectively gives the cuelist or scene the lowest possible playback priority; for more on playback priority, see Changing a Cuelist's Priority. You can enabled the Release on Other Go option in the **Playback Options** window of each cuelist:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select **Release on Other Go:**



Alternatively, you can turn on Release on Other Go for all new cuelists in the **Cuelist** pane of the **User Preferences** window:

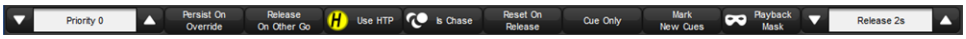
- **Setup** → **Preferences** → **Cuelist**

17.5 Master Playback Options

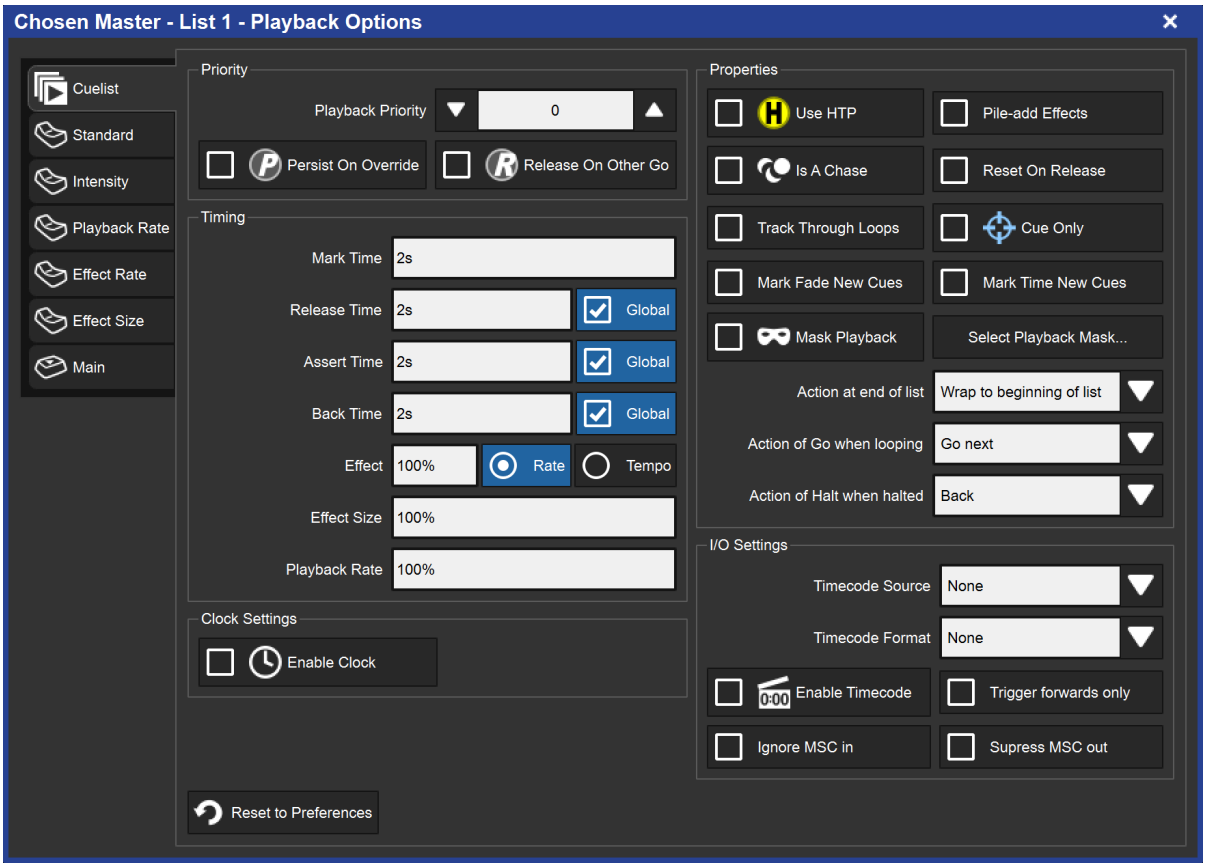
The priority, timing, and other various properties of a master that affect how it is played back are configured using the master's Playback Options window. This is the same for all master types (cuelist, scene, batch, group).

- **Open** + **Choose** : opens the Master window.
- **Options** : opens the Master's Playback Options window.

Alternatively, you can quickly access many of the master options from the options toolbar by holding down the **Choose** key of the master:



Tip: You can quickly open the playback options for a master by holding the **Pig** key and pressing the master's **Choose** key.



You can configure the default playback options for new cuelists, scenes, and batches in the User Preferences window:

Setup → **Preferences** , select the Cuelist, Scene, or Batch tab

You can also customize the function of each of the master controls and main controls; see Physical Master Playback.

Tip: You can revert all of the playback options of the Cuelist, Scene, or Batch tab by pressing the **Reset to Defaults** button in the bottom left corner of the window.

17.5.1 Master Timing and Rate Settings

You can assign several settings that control cuelist timing:

Timing Function	Default	Notes
Release Time	2s	The time over which parameter values go to their default values when the cuelist is released; see Releasing Masters. Using the **global** option will refer the cuelist to use the global release time established in the show manager window under the show settings tab.
Assert Time	2s	The time in which parameters go to their values determined by the cuelist when the cuelist is asserted; see Asserting One Cuelist Over the Others. Using the **global** option will refer the cuelist to use the global assert time established in the show manager window under the show settings tab.
Back Time	2s	The time in which the cuelist steps back to the previous cue when the **Pause** key is pressed twice (to first halt the cuelist and then send it back). Using the **global** option will refer the cuelist to use the global back time established in the show manager window under the show settings tab.
Playback Rate	100%	Default proportion rate of the cuelist. A rate of 50% will double all cue timings, a rate of 200% will halve all cue timings.
Cue Only	Off	Releases previous cue's tracking values as you advance the list to the next cue. Tracking values are released using the total fade time of the cue being played.

Tip: If you have assigned a release, assert or back time to a cuelist, and you want to revert to the default time, press the **Default** button adjacent to the appropriate cell.

17.5.2 Cuelist Wrapping

Wrapping decides what happens to a cuelist when it reaches the final cue. Configure the wrapping in the **Action at End** of List menu:

- **Wrap to beginning of list**: Pressing Go after the final cue is reached sends the cuelist to its first cue.
- **Add release end cue**: Pressing Go after the final cue is reached releases the list and sends it to its first cue.
- **Auto-release at end**: The cuelist is released as soon as the last cue in the cuelist has completed all its fade and delay times.
- **Don't allow wrapping**: The cuelist stays on the final cue until released or sent backwards.

17.5.3 Cue Only

Cue Only enables a cuelist to playback cue data one cue at a time (otherwise known as a non-tracking cuelist). For example: any cue data in cue 1 is released as you play cue 2 so that only data from cue 2 is onstage. The release time of the previous cue is determined by the longest fade time in the cue being played.

17.5.4 Action of go when Looping

When the cuelist is performing a continuous loop with the use of a link cue, you can configure the effect of pressing the Go key using the **Action of Go When Looping** menu:

Action	Notes
Exit loop immediately	Jumps the cuelist to the link cue at the end of the loop. Use a wait time on the cue after the link if you want to go to that cue automatically when exiting the loop.
Exit loop at end	Allows the loop to proceed to the last cue before jumping to the link cue at the end of the loop. Use a wait time on the cue after the link if you want to go to that cue automatically when exiting the loop.
Restart	Jumps immediately to the first cue in the loop.
Stop at next	Stops at the next cue in the loop.
Go Next	Advances the cuelist forward by a single cue when go is pressed.

For more information on loops, see **Loops and Links**.

17.5.5 Action of Halt when Halted

By default, pressing the **Pause** key when a cue is halted steps the cuelist back a cue in the assigned back time, see Master Timing and Rate Settings. You can change this action using the **Action of Halt When Halted** menu:

Action	Notes
None	The current cue remains halted.
Back	The cuelist crossfades into the previous cue using the back time assigned to the cuelist.
Resume	The current cue continues to fade.
Release	The cuelist is released, see Releasing Masters.
Toggle FX	Toggles effects between running at 0 BPM and the programmed rate

17.6 Latest Takes Precedence (LTP)

Because Hog consoles can simultaneously run ten cuelists on masters (and more if virtual masters and playback wings are used) the question arises as to which master actually has control over a particular fixture parameter. To decide which master takes precedence Hog OS applies the following rules:

- **For intensity parameters**: by default, intensity parameters are controlled on a Latest Takes Precedence (LTP) basis, therefore the value of an intensity parameter that appears in several cuelists will be output from the cuelist with the highest playback priority; see Changing a Cuelist's Priority.
- **For position, colour and beam parameters**: Hog OS always deals with position, colour and beam parameters on a Latest Takes Precedence (LTP) basis. If several masters have programming for the same parameter then the value from the most recently activated master will override the value from previously activated masters. Parameters that are only programmed into a single master will remain at that value. When you release the most recently activated master, control will be returned to the previously activated master. Alternatively you can assert a previously activated master's parameters so that they override the most recently activated master; see Asserting One Cuelist Over the Others. You can prevent an (LTP) parameter from being overridden by master actions or assertions by giving its cuelist a high playback priority; see Changing a Cuelist's Priority.

Tip: The Programmer, or the current editor with blind mode off, will always have priority over all masters and virtual masters.

17.6.1 Asserting One Cuelist Over the Others

When you have several cuelists active at the same time, control of fixture parameters programmed into one cuelist may be taken by another cuelist that also has programming for that fixture parameter. For example, if Cuelist 1 has programming for desk channels 1-3, and Cuelist 2 has programming for desk channels 3-6, then running a cue in Cuelist 2 will override the intensity parameter of desk channel 3.

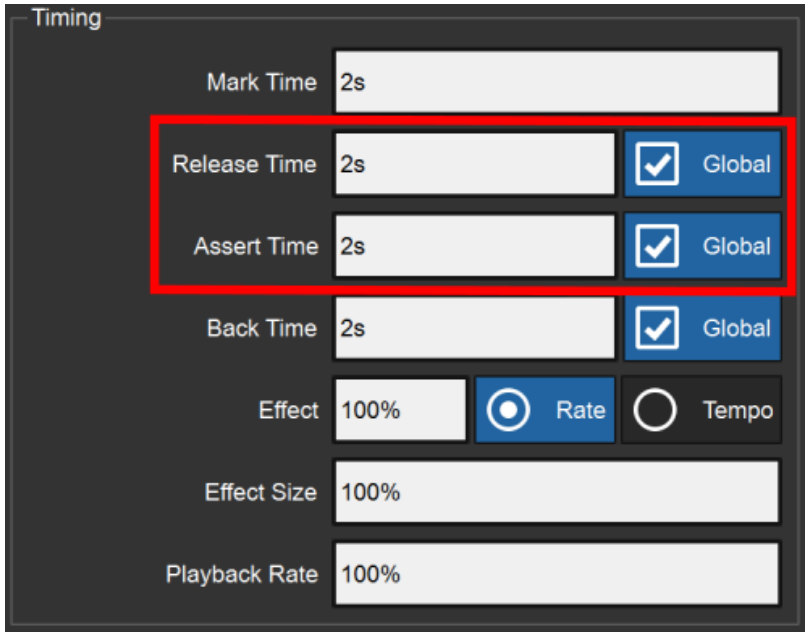
You may want to return control of desk channel 3 to Cuelist 1 without having to run a cue in Cuelist 1; this is known as asserting Cuelist 1. Asserting a cuelist forces all fixture parameters to their programmed value in the cuelist.

To assert parameters on the cuelist attached to Master 3, for example, press and hold the **Choose** key for Master 3, and press the **Assert** key.

The Assert Time

When you assert a cuelist, the parameters that have been asserted change to their new values over the assert time. The default is 2 seconds, but you can assign your preferred assert time for each cuelist:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select the **Assert Time** cell:



3. **Set 5**, **Enter** : change the assert time to 5 seconds.

Alternatively, you can assign the Assert Time for all new cuelists in the **Cuelist** pane of the **User Preferences** window:

- **Setup** → **Preferences** → **Cuelist**

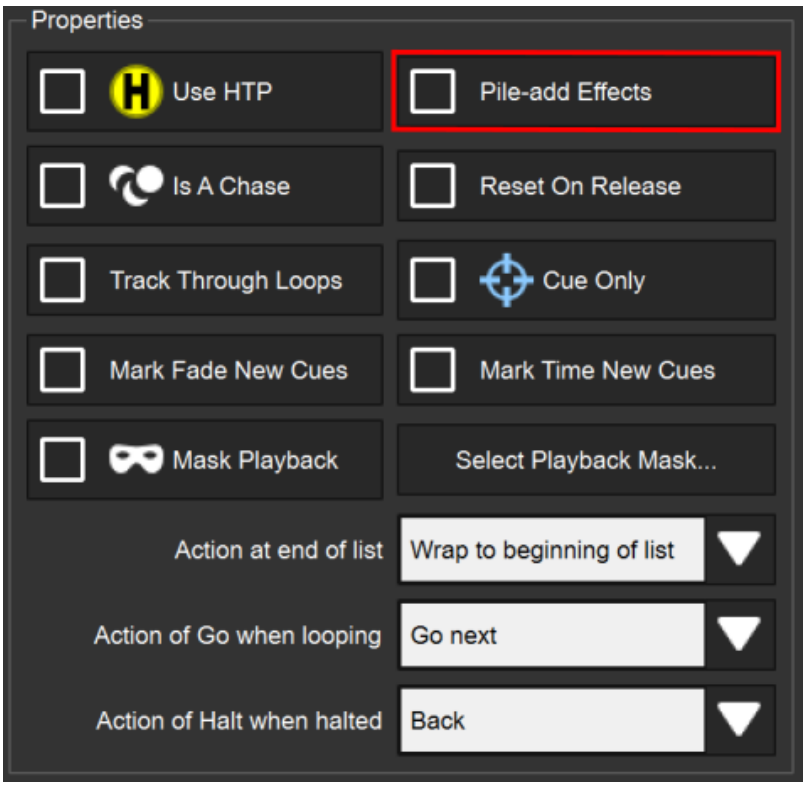
Tip: If you have assigned an assert time to a cuelist, and you want to revert to the default assert time, press the **Default** button adjacent to the **Assert Time** cell.

17.6.2 Multiple Cuelists with Effects

If a cuelist contains parameters that are running an effect, when another cuelist or scene changes the underlying values of those parameters the effect continues to run. Use Pile-Add FX to allow the second cuelist or scene to override the effect as well as the underlying values.

For example, to allow the cuelist on Master 10 override effects running on other masters:

1. **Open** + **Choose** : open the Cuelist window for Master 10.
2. **Options** : open the cuelist's Playback Options window.
3. Select the **Cuelist** pane and select **Pile-Add FX**:



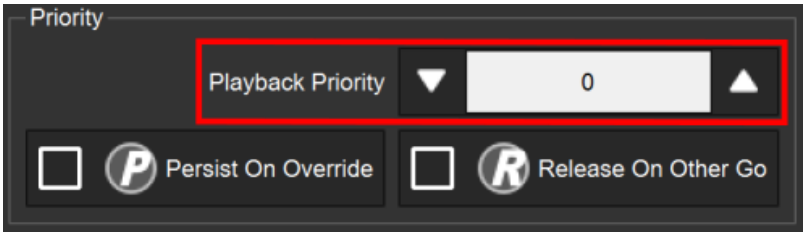
17.6.3 Changing a Cuelist's Priority

Under the LTP rule, the most recent action determines the value of a fixture parameter; see Latest Take Precedence (LTP). However, you can override this precedence by assigning cuelists different priorities, so that cuelists with a higher priority take precedence over those with a lower one. If their priority is equal, then the LTP rule is used to determine which cuelist will take precedence and determine the parameter's value.

A cuelist's default priority is 0, and you can assign the priority value in increments of 10. For example, if the priority of the cuelist attached to Master 5 is at default (0) and the priority of that on Master 4 is 50, then a Go triggered on Master 5 will not override common parameters currently active on Master 4. Conversely, you can apply a minus priority so if the cuelist on Master 3 has a priority of -50, common parameters on Master 5 will override those on Master 3.

To change a cuelist's priority:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select the **Playback Priority** cell:



3. **Set** **50**, **Enter** : change the priority to 50.

Alternatively, you can assign the Playback Priority for all new cuelists in the **Cuelist** pane of the **User Preferences** window:

- **Setup** → **Preferences** → **Cuelist**

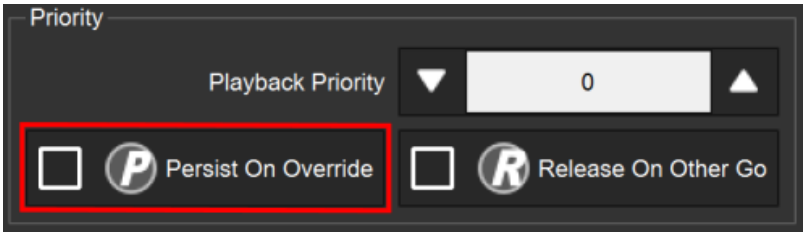
In the event that two or more cuelists share the same priority level, normal LTP rules are applied.

Persist on Override

Hog OS automatically releases cuelists when all of their parameter contents have been overridden by other cuelists. However, sometimes it is useful to return to a cuelists's look when overriding cuelists have been released; in this case you can use Persist on Override. When this option is activated, the overridden cuelist will not automatically release and will remain active when the overriding cuelist is later released.

To turn Persist on Override on for a cuelist:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select **Persist on Override**:



Alternatively, you can assign Persist on Override for all new cuelists in the **Cuelist** pane of the **User Preferences** window:

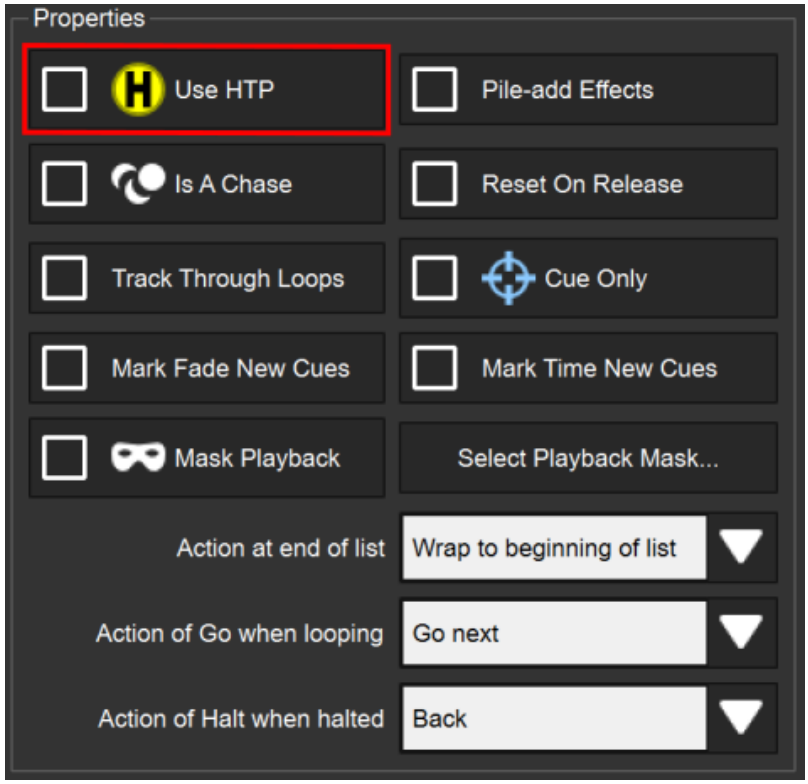
- **Setup** → **Preferences** → **Cuelist**

17.7 Highest Takes Precedence (HTP)

You can switch a cuelist's precedence from LTP to HTP, allowing intensity parameters that have programming to be output at their highest level rather than the most recently activated level. For example, you may have a series of intensity chases that you wish to fade in and out over a stage look without overriding the intensity information of the original look, or when touring with smoke machines you may wish to manually boost the level of smoke programmed into the main cuelist to combat changes in air conditioning or venue size at specific points in the show.

To assign a cuelist's precedence to HTP:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select **Use HTP**:



Alternatively, you can turn on Use HTP for all new cuelists in the **Cuelist** pane of the **User Preferences** window:

- **Setup** → **Preferences** → **Cuelist**

Important: If you have an HTP master with the fader up (i.e. intensities above zero), then using **Release** or **Pig** + **Release** has no effect on the intensity parameters. To release the intensities of HTP masters, bring the fader to zero. For more on releasing cuelists, see Releasing Masters.

17.8 Understanding Feedback

There are several ways in which you can tell the status of the console's output:

- The status of masters is shown by the playback control key LED's and the on-screen **Playback Bar**.
- You can use a master window to follow the progress of running cuelists.
- The total output of all fixtures' parameter values is shown in the Output window, and the total output of all fixture's intensities is shown in the Levels View window.

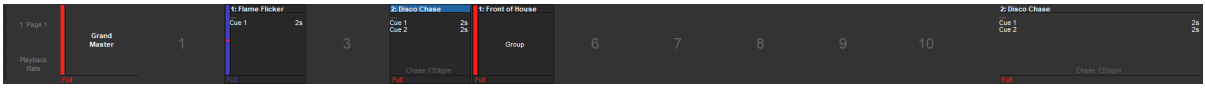
17.8.1 Control and Playback Toolbar Feedback

Playback Control LEDs

The LEDs of the playback controls give information about the cuelist's status:

- **Go key (Green)**: When solidly lit, indicates that a forward cross-fade is in progress. When flashing, indicates a forward crossfade has been paused.
- **Pause key (Red)**: When solidly lit, indicates that the master is active and controlling parameters. When flashing slowly, indicates that its control of parameters has been overridden by other playbacks. When flashing quickly, indicates the master is releasing.
- **PlayBackwards key (Green)**: When solidly lit, indicates an active cross-fade to the previous cue. When flashing, indicates that a crossfade to a previous cue has been paused.
- **Flash key (Red)**: When solidly lit, indicates that this playback is controlling intensity. When flashing, indicates that its control of intensity has been overridden by other playbacks.

The Playback Bar



Playback Bars are typically displayed at the bottom of the left touchscreen and give feedback for the objects assigned to each physical master. For each master, the Playback Bar displays the following information:

- If a master is empty, its master number is shown.
- The number and name of the cuelist, scene, group, or batch assign to the master. This is shown in blue if the master has been held over after a page change; see Options When Changing Page. The name and number will appear in lavender if the master is from a template page; see Template Page.
- For lists: the current cue and its overall time followed by the next few cues and their times. If you want to see more cues, click and drag the top of the Playback Bar upwards to make it larger. When a cue in a list is crossfading, it is displayed in green text and the time counts down. If the cuelist has been released, then .... is displayed, with the next cue shown below.
- For scenes: the scene and its overall time. When a scene is cross-fading, it is displayed in green text and the time counts down. If the scene has been released, then .... is displayed, with the scene name shown below.
- For groups: the text "Group" will be written in the master cell. Groups assigned to the playback bar are commonly referred to as Inhibitive Masters as they can inhibit the intensity of all fixtures in that group based on the master's fader level.

- For batches: individually numbered cells that represent the lists and scenes assigned to the batch will appear inside the batch's playback bar display. Lists are represented solely by a number whereas scenes are marked with an "s" before the number. The running state of each list and scenes is then indicated by the background colour of the cell.
- Each master's fader level. If the fader is below 100%, then a red bar appears indicating the level. It is possible for the position of the physical fader to be different to the master level of the cuelist, in which case the vertical bar will be blue; see Matching Levels When Changing Page.
- If the cuelist is a chase. If it is, then its rate in BPM is shown; see Using a Cuelist as a Chase.
- Options set for the cuelist will appear at the bottom of master on the playback bar. The symbols used are shown in the table below:

Symbol	Description
	The cuelist is working under the HTP rule.
	The cuelist is set to Persist on Override. See Changing a Cuelist's Priority.
	The cuelist is set to Release on Other Go. See Releasing on Another Go.
	The cuelist has a high priority. See Changing a Cuelist's Priority.
	The cuelist has a low priority. See Changing a Cuelist's Priority.
	The scene uses the master as an IPCB fader. Note that this applies to scenes only.
	The cuelist uses the master as a manual fader. See Manually Cross-fading Cuelists.
	The cuelist is set to Cue Only. See Cuelists and Tracking

Using the Playback Bar with Playback Wings

Multiple Playback Bars can be displayed using the Wings pane of the Control Panel or using the front panel shortcuts mentioned in Adding Playback Wings. Once a playback bar is displayed on the desktop it can be dragged to different locations on the display by clicking and dragging on the drag handle on the left hand side of the playback bar. The recommended location for a playback bar is at the bottom edge of the display as it helps to associate the playback bar with the physical controls of the wing that is located under the display.

You can also click and drag on the outside edges of the Playback Bar's master area to better align the playback bar's masters to the physical masters on the hardware.

For information on adding and setting up playback wings, see Adding Playback Wings.

17.8.2 Cuelist Feedback

The master window for a cuelist shows all of the cues in the cuelist as well as their running state.

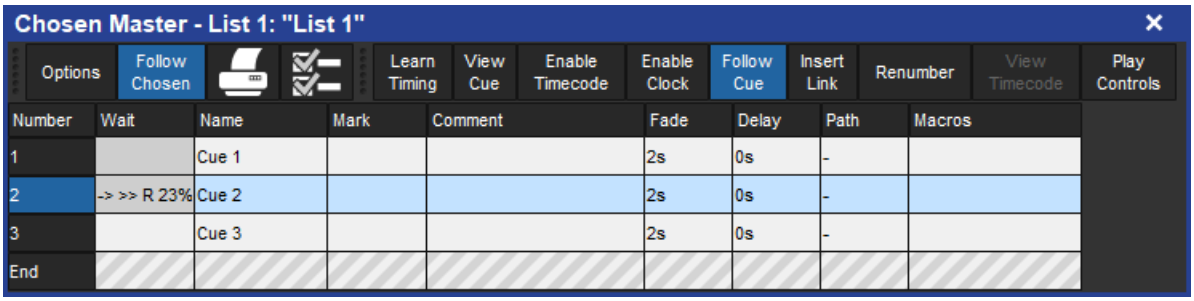
- **Open** + **Choose**

Or:

- Double click the Playback Bar above the required cuelist.

Or:

- **Open** + **[List 1]** : select the cuelist from the cuelist directory.



The current cue is indicated by an arrow in the wait column and a light blue background across the entire cue row. When a cue is triggered the arrow turns green and the letter R (for Running) is displayed; the cue's progress is indicated by the percentage completed in the same column. Pausing a cue will turn the arrow red and the letter H(Halted) is displayed.

Customizing Cuelist Feedback

There are several view options selected by buttons at the top of Cuelist window:

- **Play Controls**: displays alternative play controls at the top of the Cuelist window. These are useful for running virtual masters, see Using the Play Controls Toolbar to Play a Cuelist, Scene, or Batch.
- **View Cue**: opens the current cue (as denoted by an arrow in the wait column) in an editor.
- **Follow Cue**: selecting **Follow Cue** from the top of the Cuelist window will make the list of cues scroll to keep the current cue in view as the cues are played back.
- **Follow Chosen**: during playback, you may not want to have multiple Cuelist windows open. Select **Follow Chosen** from the top of any Cuelist window so Hog OS automatically displays the cuelist of the currently chosen master. If Follow Chosen is off, the same cuelist will always be shown in the window irrespective of the chosen master.
- **View Timecode**: turn the display of timecode information on or off.

17.8.3 The Output Window

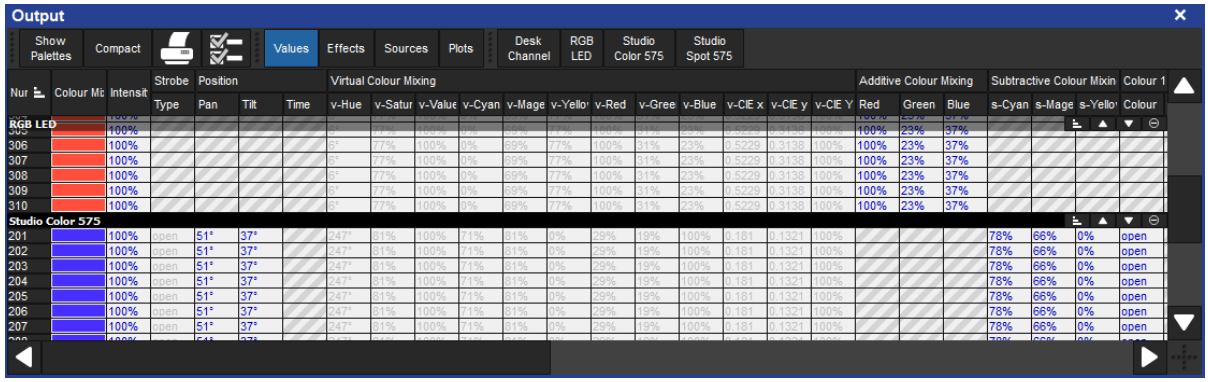
The Output window displays the output value of all parameters controlled by Hog OS from all cuelists, virtual cuelists, scenes, the Programmer and other editors, and parked parameters. It provides an accurate indication of the status of shared parameter values when multiple cuelists are running simultaneously.

To open the Output window:

- Press and hold the **Open** key, then select **Output** from the Main Toolbar.

Or:

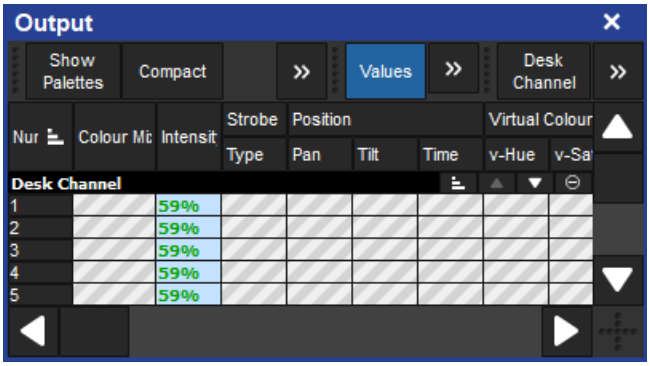
- Select **Output** from the View Toolbar at the top of the left hand touchscreen.



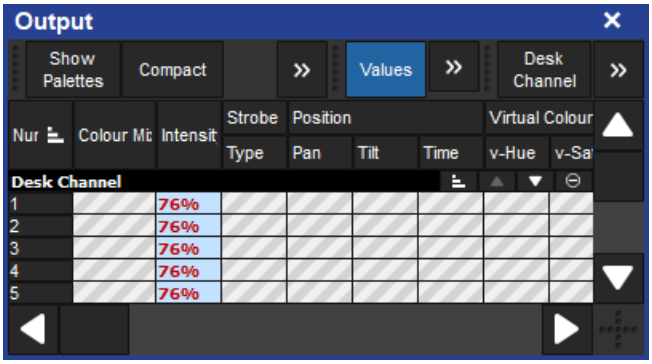
The Output window by default displays raw parameter values; you can configure it via buttons at the top of the window to display output information in the following ways:

- **Values**: displays the raw parameter values.
- **Effects**: displays the base value before the effect is applied, along with a percentage indication of the effect cycle.
- **Sources**: displays the source that currently has control of a parameter, for example, the Programmer or a cuelist and cue number.
- **Plots**: displays the name of the plot that has control of the parameter; if you want to see the real world value being calculated by the plot for the parameter then choose "value" instead of "plots"
- **Show Palettes**: as with sources, displays the palette that is supplying the parameter value.
- **Compact**: Compacts the display of information in the window; see Compact Mode.

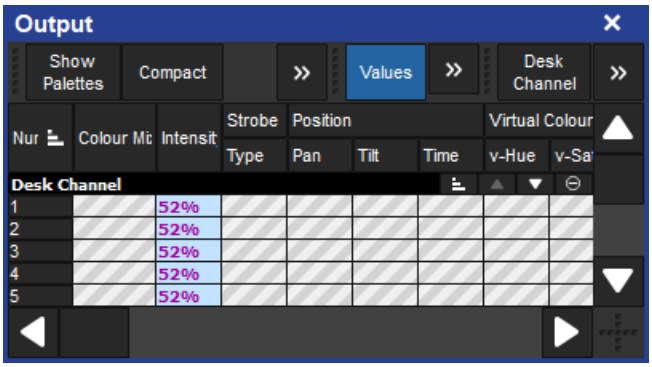
Cross-fading values will appear in the Output window in the following colours:



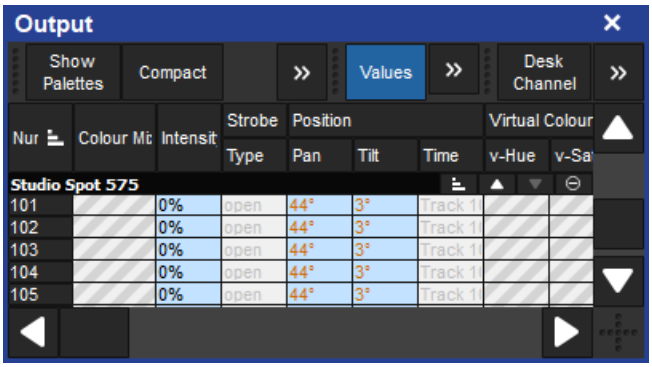
Green: values are in a **GO** state



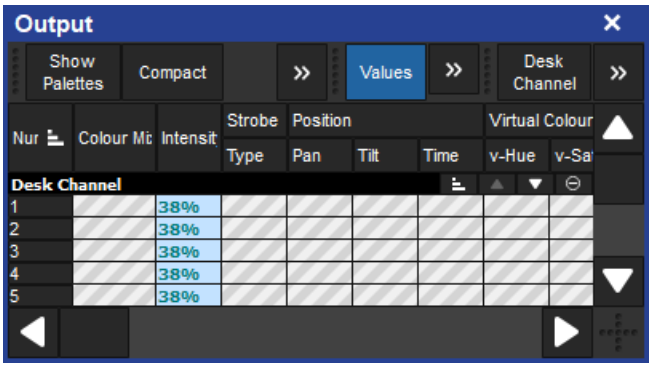
Red: values are in a **Pause** state



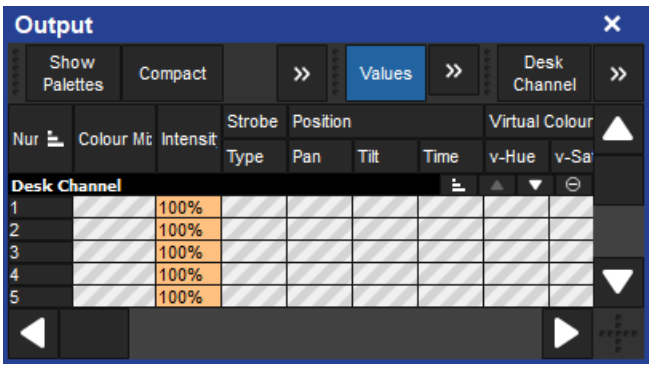
Purple: values are in a **Release** state



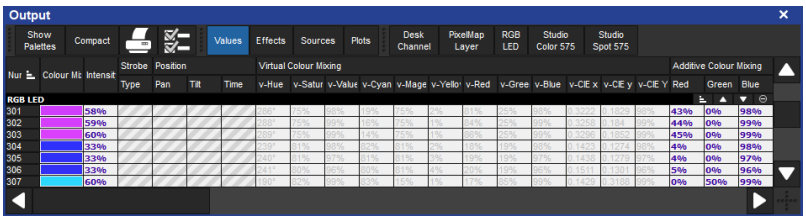
Orange: values are in a **Mark** state



Teal: are values from an **Effect**



Black text on orage: value are in a **Parked** state



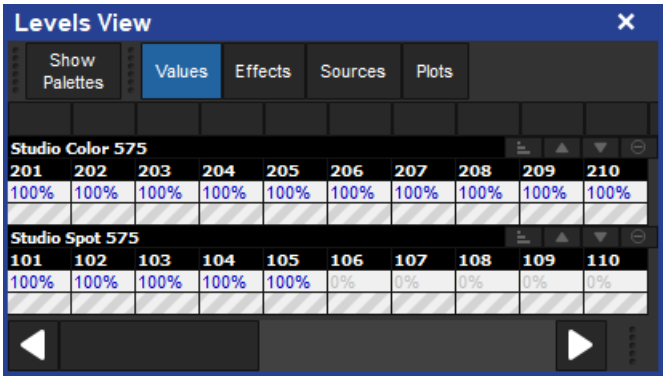
Bold Dark Blue: Values are from a **Plot**

17.8.4 The Levels View Window

The Levels View window displays the output value of all intensities controlled by Hog OS from all cuelists, virtual cuelists, scenes, the Programmer and other editors, and parked parameters. It provides an accurate indication of the status of shared intensity values when multiple cuelists are running simultaneously.

To open the Levels View window:

Press and hold the **Open** key, then select **Levels** from the Main Toolbar.



The Levels View window by default displays raw intensity values; you can configure it via buttons at the top of the window to display output information in the following ways:

- **Values**: displays the raw parameter values.
- **Source**: displays the source that currently has control of an intensity, for example, the Programmer or a cuelist and cue number.
- **Plots**: displays the name of the plot that has control of the parameter; if you want to see the real world value being calculated by the plot for the parameter then choose "value" instead of "plots"
- **Show Palettes**: as with source, displays the palette that is supplying the intensity value.

Values in the Levels View window will have the same colors applied as the output window, found here.

17.9 Advanced Playback

17.9.1 Adjusting the Playback and Effect Rates of a Master

The playback and effect rates of a master (cuelist, scene, chase) can be adjusted several different ways:

- **Changing the playback and effect rate fields in the cuelist / scene options window:** The simplest way to adjust the playback and effects rates of a master (cuelist, scene, chase) is to open the options window for that master and modify the playback and effect rate fields. Any modifications made to the playback and effect rate fields in the options window are stored and persisted for that cuelist/scene as the "base rate".
- **Holding choose and adjusting the main encoder wheels:** Press and hold the Choose key for a master and use the parameter wheels to adjust the playback and effects rates. Any modifications made to the playback and effect rates via the encoder wheels are stored and will persist for that cuelist/scene as the "base rate".
- **Using the Rate Wheel:** The wheel located on the left hand side of the console is known as the rate wheel. The rate wheel allows users to make temporary modifications to the base playback and effects rates for the chosen and selected masters. To toggle the rate wheel mode (playback, effect, none) press the rate key located below the rate wheel. The rate wheel's mode is displayed on the main playback bar (base rate + rate wheel modification). Moving the rate wheel in the upward direction will increase the selected rate while moving the wheel in the downward direction will decrease the selected rate. To clear the rate wheel's modifications for the active rate mode of the rate wheel press the restore key located above the rate thruster. You can also clear rate wheel modifications by holding choose for a master and pressing the encoder wheel button for the matching rate on the main encoder wheels. To permanently store the rate wheel's modifications for a cuelist/scene master hold the pig key and press the restore key. You can also permanently add the rate wheel's modifications into the base rate of a master by holding choose and turning the encoder wheel matching the rate on the main encoder wheel. Any rate thruster modifications that are not stored are be lost when the master is released.
- **Assigning the fader of the master to "Scale Playback Rate" or "Scale Effect Rate" in the cuelist / scene options window:** Assigning the physical fader control of a master to "Scale Playback Rate" or "Scale Effect Rate" allows users to utilize the physical fader of the master to scale (multiply & divide) the base playback rate (or base effect rate) of the master. The middle of the fader travel always equals 1x scaling (no scaling applied) while moving the fader up or down adjusts the associated rate by multiplying/dividing against the base playback/effect rate. The upper and lower boundary options of the scale options determine how much scaling is applied as the fader is moved.
- **Assigning the button controls of the master to "Scale Playback Rate" or "Scale Effect Rate" in the cuelist / scene options window":** Assigning any of the physical button controls of the master to "Scale Playback Rate" or "Scale Effect Rate" allows users to scale (multiply & divide) the base playback rate (or base effect rate) of the master with a single button press.

17.9.2 Adjusting the Effect Size of a Master

The effect size of a master (cuelist, scene, chase) can be adjusted several different ways:

- **Changing the effect size field in the cuelist/scene options window:** The simplest way to adjust the effect size for a master (cuelist, scene, chase) is to open the options window for that master and directly modify the effect size field. Any modifications made to effect size field in the options window are stored and persisted as the "base size".
- **Holding choose and adjusting the main encoder wheels:** Press and hold the Choose key for a master and then use the parameter wheels to adjust the effects size for the selected master. Any changes you make the base effect size for a master are stored and will persist as the "base size".
- **Assigning the physical fader of the master to "Scale Effect Size" in the cuelist / scene options window:** Assigning the physical fader control of a master to "Scale Effect Size" allows users to utilize the physical fader to scale (multiply & divide) the base effect size of the master. The middle of the fader travel always equals 1x scaling (no scaling applied) while moving the fader up or down will begin to adjust the size of the effects playing back on the master by multiplying/dividing the base effect size of the cuelist/scene. The upper and lower boundary options of the "Scale Effect Size" option determine how much scaling will be applied to the master's base effect size when the fader is moved.
- **Assigning the button controls of the master to "Scale Effect Size" the cuelist / scene options window:** Assigning any of the physical button controls of the master to "Scale Effect Size" allows users to scale (multiply & divide) the base effect size of the master with a single button press.

Tip: Pressing an encoder wheel cell on the touchscreen while holding choose for a master will Change the Control Set for that master.

17.9.3 Adjusting Effect Tempo of a Master with Tap Tempo

Effect Tap tempo is a mechanism that allows operators to set the cuelist/scene effect tempo by holding any choose key on the front panel of the console and tapping on the pause key of a master to set its effect tempo. As the tapping rate is captured, it is applied as the base effect tempo of the cuelist/scene.

Tap Tempo is most useful when the effects programmed into the master are recorded with effect rates that have beat equivalents.

Here are some common effect tap tempo examples:

- An effect programmed with a rate of 60 bpm (1 beat) will perfectly match the tapped tempo
- An effect programmed with a rate of 30 bpm (2 beats) will be 1/2 as fast as the tapped tempo
- An effect programmed with a rate of 120 bpm (1/2 beats) will be 2x as fast as the tapped tempo

For more information regarding the beats construct of an effect refer to Beats.

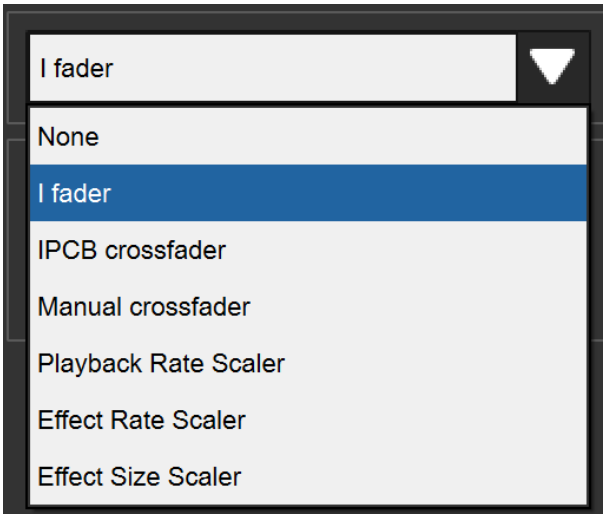
17.9.4 Manually Cross-fading Cuelists

You can assign any cuelist to be operated manually, allowing you to perform the cross-fades from one cue to the next manually using the fader. Once a cuelist's Manual Fade option is selected, the Master's fader will no longer control intensity but instead the cross-fade progress of all parameters from the current cue to the next; starting when moved from any end stop, finishing when the opposite end stop is reached.

If you select Manual Fader mode when the fader is at 50%, a manual fade cannot take place until the fader is moved to and then from an end stop, further moves from end stops will manually work through the cuelist sequentially.

To assign a cuelist's Manual Fade function:

1. **Open** + **Choose** → **Options** → **Master**
2. Select **Manual Crossfader** from the Fader menu:



3. Manual cross-fade mode will be indicated on the Playback Bar above the selected master by M

Tip: You can still run cues to time when manual fader mode is selected by pressing the master's **Go** key. Note that you have no individual fader control of intensity and accidentally moving a fader will start to run the next cue manually.

17.9.5 IPCB Faders

You can adjust the output values of any intensity, position, colour or beam parameter information in any cuelist by assigning its fader as a IPCB fader.

To assign a cuelist to use the IPCB fader function:

1. Open the **Programmer** from the Main Toolbar. In the Programmer select the fixtures and parameters that you wish to adjust with the fader, then assign a maximum level.
2. **Record 1 Enter** : record the cue to the chosen master.
3. **Pig** + **Choose** → **Playback Options** : open the options window for the cuelist's master.
4. In the **Master** pane, select **IPCB Crossfader** from the **Fader** drop down menu.

You can now adjust the value of the parameters contained in the IPCB fader cue by adjusting the master's fader level.

17.9.6 Using a Cuelist as a Chase

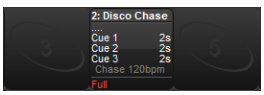
You can use a cuelist to make a chase. Any wait times are ignored, and each cue becomes a step in the chase where the rate is set in Beats Per Minute(BMP).

To use a cuelist as a chase:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select **Is a Chase**:



The Playback Bar displays **Chase** and the playback rate (which defaults to 120 bpm):

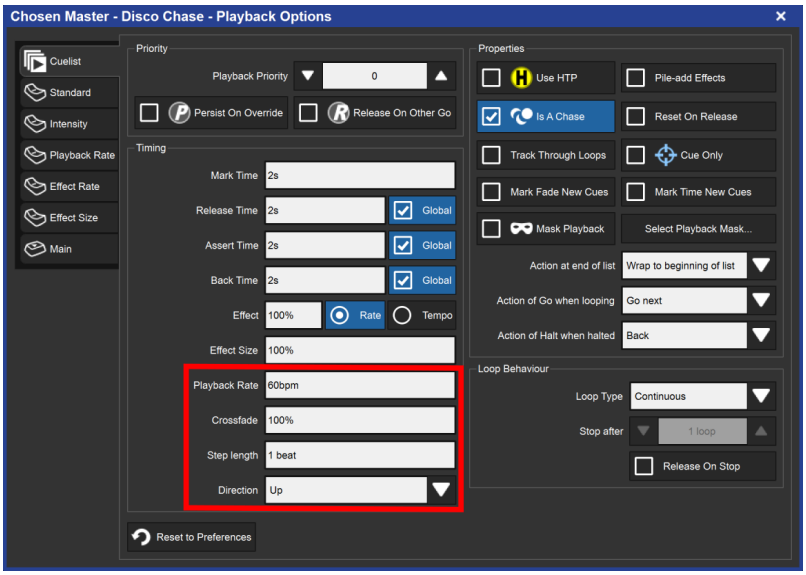


Each cue step is by default equivalent to a beat, so to set a chase that advances every second the rate needs to be 60 bpm. By holding down the master's **Choose** key you can modify the playback rate, effect rate, and effect size on the parameter wheels:

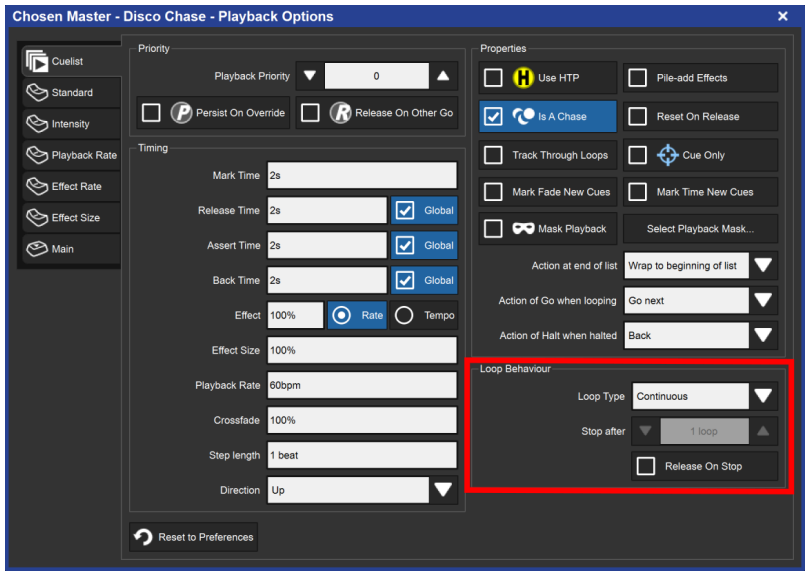
Playback Rate	Effect Rate	Effect Size
60bpm	100%	100%

When you select **Is a Chase** the **Cuelist** pane of the **Playback Options** window, the following chase options appear:

- **Playback Rate:** the speed of the chase defined in Beats Per Minute (bpm).
- **Crossfade:** the amount of each step that a cross-fade is active for, as a percentage.
- **Step Length:** by default each cue step is the equivalent to a beat. This is helpful when you enter a rate using Tap Sync, but then wish the chase to step at half or double speed. For more on Tap Sync, see Adjusting Chase Rate with Tap Sync.
- **Direction:** four directions are available: Up, stepping up through cue numbers; Down, stepping down through cue numbers; Random, stepping randomly through cue numbers; and Bounce, stepping up then down through cue numbers.



You can also configure the following loop types in the **Cuelist** pane of the **Playback Options** window:



- **Continuous**: the chase steps indefinitely until paused or released.
- **Stop On Last**: the chase stops at the last cue in the cuelist until released or triggered again with a Go.
- **Release On Last:** the cuelist chase is released when it reaches the final step.
- **Stop On First**: the chase completes one cycle and stops on the first cue until triggered again.

If any loop type other than continuous is chosen then you can assign the number of cycles the chase completes before the loop behavior is actioned. Selecting **Release on Stop** releases the chase cuelist either when it stops because of an actioned loop behavior or because of a manual stop using the **Pause** key.

> Tip: The Playback Options of a master can be quickly accessed by holding **Pig** and pressing the master's **Choose** key.

Adjusting Chase Rate with Tap Sync

A cuelist chase can be manually synced to a beat, such as a piece of music, using Tap Sync. Once synced Hog OS maintains the chase rate until a new one is assigned.

To adjust the rate of a chase using Tap Sync, hold down the **Choose** key of the master the chase is attached to, while pressing the master's Go key repeatedly to the required beat. Hog OS will learn the speed of the chase from you, in a minimum of two beats; after this, you can release the **Choose** key.

Note that you can only use Tap Sync with chases loaded onto physical masters, not virtual ones.

17.9.7 Cuelists and Tracking

You can define how a cuelist deals with tracking in the **Cuelist** pane of the **Playback Options** window.

Open + **Choose** → **Options** → **Cuelist**

The options are:

Option	Default	Notes
Cue Only	Off	Disables parameter tracking so that the playback state of the list is for the current cue only.
Track Through Loops	Off	Determines whether parameter values track from the end of a loop back to the beginning. See Tracking Through Loops for a full description.

17.9.8 Triggering Automatic Tasks When a Cue Runs

You can use Trigger Macros to perform a variety of tasks when a cue runs. Macros are simple text instructions placed in the cue's **Macro** cell:

1. **Open** + **Choose** : open the Cuelist window.
2. Select the **Macro** cell for the desired cue, and press **Set**.
3. Type in the Macro command, then press **Enter**.

For a full description of the available macro commands, see Macros.

Tip: You can display a list of available commands on the console by selecting the **Macro** cell in the Cuelist window and pressing the **Set** key.

Tip: You can enable trigger macros to occur when using the **Back** key to go backwards through a cuelist.

17.9.9 Playback Masking

You can mask which fixture function kinds that a cuelist or scene will playback by applying a playback mask to that cuelist or scene. Playback masking does not determine how data is recorded into a list or scene and does not change existing recorded data. Playback masking only determines which parts of the already recorded cue / scene data will be executed when that cuelist or scene is played. Follow these instructions to enable and configure playback masking for a cuelist or scene:

1. Pig + Choose : opens the options window.
2. Enable the Mask Playback button. A mask icon will now appear on the cuelist or scene in the directory window as well as on the playback bar.
3. Press the Select Playback Mask... button.
4. Select which fixture function kinds you want to enable for playback in that cuelist or scene. Kinds that are selected will play back. Kinds that are not selected will not playback.
5. Any changes made to a cuelist or scene's playback mask (including enabling / disabling the playback mask) will be reflected in output the next time that cuelist or scene is played or asserted.

17.10 Grand Master

The Grand Master inhibits the intensities of all fixtures on the console, including those within the Programmer. Parked intensities are NOT effected by the Grand Master level.

Hog 4-18, Hog 4, and Full Boar 4 feature a dedicated grand master fader on the far left side of the console whereas Road Hog 4, HedgeHog 4, and Hoglet 4 do not have a dedicated grand master fader and utilize the fader on master 1 as a grand master fader.

The Grand Master fader can be disabled under the misc tab of the user preferences window. Disabling the grand master fader only disables the physical fader's ability to change the grand master level. The grand master level can always be adjusted by holding down the grand master display on playback bar 0 and dialing the fifth main encoder wheel (fourth main encoder wheel on Road Hog 4, HedgeHog 4, and Hoglet 4).

17.10.1 GM Key

Since the Nano Hog 4, Road Hog 4, and HedgeHog 4 consoles do not have a dedicated Grand Master fader, master 1 is utilized as the grand master. However, it is still possible to assign a cuelist or scene to master 1 which will cover the grandmaster portion of the playback bar in which case master 1 and it's corresponding fader and buttons will no longer act as a control for the Grand Master but rather as a control for the cuelist or scene assigned to master 1. In this case the grandmaster can be accessed by holding down the GM key.

The GM key's red LED indicates the state of the Grand Master:

- **Off**: Grand Master level is at 100%
- **On**: Grand Master level is at 0%
- **Slow flashing**: Grand Master level is between 1% and 99%
- **Fast flashing**: DBO is engaged

When the GM key is used in conjunction with master 1 on the console, it is possible for the position of master 1's physical fader to be different from the Grand Master's actual level. If this happens, then when the GM key is held down the Grand Master's level will be shown using a blue bar and the level of master 1's physical fader shown as a small red line. To recapture the Grand Master's level with the physical fader, move the physical fader until it is at the same level as the blue bar; at this point the fader will take control of the Grand Master level in the normal way.

Holding the PIG key while pressing the GM key acts as a virtual DBO key. When DBO is engaged the red LED on the GM key will flash quickly, the playback bar will display DBO in blue text, all intensity output will go to 0% (with the exception of parked values), and the grand master's fader level will be ignored.

17.10.2 DBO Key

The DBO key is located above the Grand Master on the Hog 4 and Full Boar 4 consoles and can be used to toggle the show between dead blackout and using the grand master's level.

The DBO key's red LED indicates it's status:

- **Off**: DBO is not engaged and Grandmaster fader has control.
- **Fast Flashing**: DBO is engaged and all fixture intensities will be restricted to 0% with the exception of parked intensities. When the DBO key is disengaged its red LED will turn off and the Grandmaster fader will regain control.

To completely disable the DBO key open the preferences window (setup → preferences) and select the Misc tab. Deselect the "enable DBO" button and press apply.

Tip: Road Hog 4, HedgeHog 4, and Nano Hog 4 do not have a dedicated DBO key, however the DBO can still be engaged/disengaged by holding pig and pressing the GM key.

17.10.3 Flash key below the Grand Master

The **Flash** key below the Grand Master fader is a non-latching key that can be assigned in the user preferences window to send the grand master's level to zero, to full, or to whichever value is opposing the grandmaster's current fader position.

The flash key below the grandmaster indicates the state of the Grand Master using its red LED:

- **Off**: Grand Master is at 100%.
- **Fast Flashing**: Grand Master fader is below 100%

17.11 Group Masters

Group Masters (sometimes referred to as inhibitive sub-masters) can be used to inhibit the intensity of a group of fixtures throughout the entire system. There are two types of group masters:

- **Physical Group Masters**: created by assigning a group to a physical master.
- **Virtual Group Masters**: groups in the group directory (not attached to a physical master on the current page). The intensity level of a virtual group master is adjusted by holding down a group's cell in the group directory and dialing the fifth (or fourth) main encoder.

When a group master's level is inhibited it proportionally reduces the intensities of the fixtures within the group through the entire show (playback, editors, etc). For example, if fixtures 1<4 are in the programmer with intensities at 0%, 50%, 80% and 100%, then inhibiting a group that contains these fixtures will affect the intensity output as the fixtures as follows:

Fixture:	1	2	3	4
Group Master at 100%	0	50	80	100
Group Master at 50%	0	25	40	50
Master at 0%	0	0	0	0

Pressing the Flash key of an inhibitive master is the same as momentarily changing its fader level to 0%, taking all fixture intensities controlled by the inhibitive master to 0%. Intensity values are restored when you release the key.

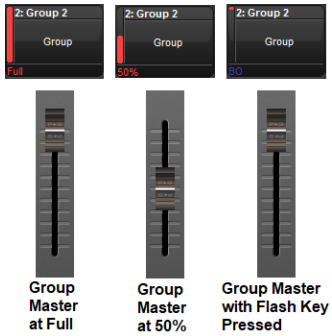
Here are some important things to note about group masters:

- The group directory indicates when a group master's intensity level has been inhibited by displaying the group master's level any time it is below 100%
- If a group master's level is actively affecting fixtures on stage then a red stripe will also appear on the group master's cell in the group directory.
- Group + Release resets all virtual group masters back to 100% (remember, virtual group masters are groups that are not attached to a master on the current page).
- When the group directory is displayed in list view a location column displays the page (p) and master (m) to which an inhibited group is attached.
- By default, group master intensity levels are persisted through page changes and remain in the background as virtual group masters. To disable this feature and force group masters back to 100% once they are no longer attached to a physical master on a page, then disable the **Leave Inhibitive Masters in Background** option located in the Misc section of the Preferences Window.
- The release time of a group master can be adjusted in the master options window of a physical group master or by holding down a virtual group master in the group directory and adjusting the group's release time on the main toolbar.

To create a physical group master using the command line:

1. Record a group containing the required fixtures. See Recording Groups.
2. **Group [group number] Move Choose**

The Playback Bar will show the group name above the chosen master. When the master level is less than 100%, the Playback Bar will also display a bar showing the level. When the Flash key is pressed, the Playback Bar will display BO; see image below.



17.12 Batches

A batch is a playback object that is used to send playback and fader messages to a collection of lists and scenes. Batches are stored in the batch directory (Pig + Open + List) and can be assigned to the playback bar like any other playback object.

17.12.1 Creating Batches

Batches are created by moving multiple lists and / or scenes to a master on the playback bar or to a batch cell in the batch directory window.

To create a batch on the playback bar:

- **List**, **#**, **+**, **#**, **Move**, **Choose**
- or
- **Scene**, **#**, **+**, **#**, **Move**, **Choose**

> Tip: To create a single item batch on the playback bar use the list / scene number twice in the move operation. For example: **List**, **1**, **+**, **1** **Move**, **Choose** creates a batch that only contains list 1. The start and end numbers can be the same; this allows the creation of a single item batch.

To create a batch in the batch directory:

- **List** or **Scene**, **#**, **+**, **#**, **Move**, then press an empty cell in the batch directory window (the batch directory window can be opened by pressing **Pig** + **Open** + **List**)

17.12.2 Modifying Batch Contents

To add a list or scene to an existing batch on the playback bar:

- **List** or **Scene**, **#**, **Move**, then press the choose key for an existing batch on the playback bar.

To add a list or scene to an existing batch in the batch directory:

- **List** or **Scene**, **#**, **Move**, then press an existing batch cell in the batch directory.

To remove a list or scene from an existing batch on the playback bar:

- **List** or **Scene**, **#**, **Move**, **Move**, then press the choose key for the batch you wish to remove the lists / scene from on the playback bar.

To remove a list or scene from an existing batch in the batch directory:

- **List** or **Scene**, **#**, **Move**, **Move**, then press an existing batch cell in the batch directory.

> Tip: When the move key is pressed twice the command line will change from “move to” to “remove from”.

17.12.3 Using Batches

When a batch's physical controls are manipulated, the commands mapped to those controls will be sent to all of the lists / scenes assigned to the batch. For example, if a batch is assigned to master 10 and its fader is assigned to Scale Playback, then moving the fader on the batch master will scale the playback of all the lists / scenes assigned to the batch regardless of the individual fader assignments for each list / scene.

17.12.4 Capturing

When dealing with simple batch commands such "go" and "release", batch execution is pretty easy to understand as all member of the batch will simply perform the command. However, when it comes to variable parameters such as intensity or playback scaling, it is possible that one or more of the lists / scenes assigned to the batch may differ from the batch's physical level. The default behavior of a batch is to not change the level of the list / scene until the batch's level has moved through (captured) the level of the assigned list / scene. In some cases it might be desirable to immediately capture the level all of the lists / scenes assigned to the batch without needing to move through their level. To accomplish this hold the PIG key while moving the fader of the batch.

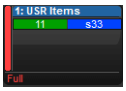
17.12.5 Batch Master LED Feedback

The led feedback for a batch assigned to a physical master is exactly the same as if any single list or scene was assigned to the master, however, the batch will account for the highest running state of all the lists / scenes assigned to it. For example, if 1 out of 4 of the lists assigned to a batch are cross-fading then the green play LED will illuminate on the batch. The play LED will not turn off until all lists within the batch are finished cross-fading.

17.12.6 Batch Master Playback Bar Feedback

When a batch is assigned to a physical master the batch's number and name are displayed at the top of the master. The lists and scenes assigned to the batch are displayed inside the master. Scenes are indicated by a lowercase "s" preceding the scene number. The state of each list / scene is indicated by the background colour of its cell.

In the figure shown below Batch 1 is displayed on the playback bar. List 11 and scene 33 are assigned to the batch as they are shown inside the master. Based on the background of each cell we can see that list 11 is running and scene 33 is onstage but not cross-fading.



Important: Lists and scenes are displayed inside batch masters according to the order in which they were added to the batch. This is also the order in which the lists and scenes are internally executed by batch. Latest takes precedence rules will apply. This means that if List 2 is assigned to a batch after List 1, and both are of equal priority, then List 2 will stomp any overlapping fixture parameters also being controlled by List 1. This order is determined by typing List 1 + List 2, note that List 2 is the second item encountered.

18. Pages

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18.1 How Pages are Used

Pages allow you to predefine layouts of cuelists, scenes and group masters, so that they can be loaded quickly on to the available playback masters.

For a concert, for example, cuelists can be organized in one page per song, so that before each performance it is possible to re-arrange the pages to reflect the current running order of the songs. One cuelist can be used several times within a page or on several pages, or it can be unique to a specific page. A template page can define certain masters to be the same on every page.

18.2 Creating a New Page

Selecting a page that currently does not exist will automatically create a blank page and load it onto the masters. Cuelists, scenes and group masters can then be assigned to the masters on the newly created page.

To create a new page:

1. **Open** + **Page** : opens the Page Directory.
2. Make sure that **Guard** is not selected in the Page Directory, otherwise you will not be able to create a new page using this method.
3. Press a button in the Page Directory where you want to create the new page. A new, blank page is created.
4. **Set [name] Enter** : name the page.
5. Or, using the command line:
6. **Page [number] Enter** : a new, blank page is created.
7. **Set [name] Enter** : name the page.

Caution: When you create a new, blank page, it is automatically loaded onto the physical playback masters. By default, any cuelists, scenes and group masters that were previously loaded will be released, and their contents will no longer be output from the console. You can change this behaviour; see Options When Changing Page.

18.3 Changing Pages

Changing the page loads a different set of cuelists, scenes and/or group masters onto the physical playback masters. You can do this in several ways:

- Press the **Next Page** key to go to the next page in the Page Directory. To go to the previous page hold Pig and press **Next Page**.
- Using the command line : **Page [number] Enter**.
- Select the desired page from the Page Directory window. Check that the Guard button in the directory window is not selected.
- Use a macro within a cuelist; see Macros.
- Set a trackball key to select the next page; see Trackball Keys.

The current page is shown in the status area at the right hand end of the Command Line Toolbar:



Tip: You can control which page loads next when you use Next Page to change pages by having the pages in the desired order in the Page Directory. See Copying and Moving Pages.

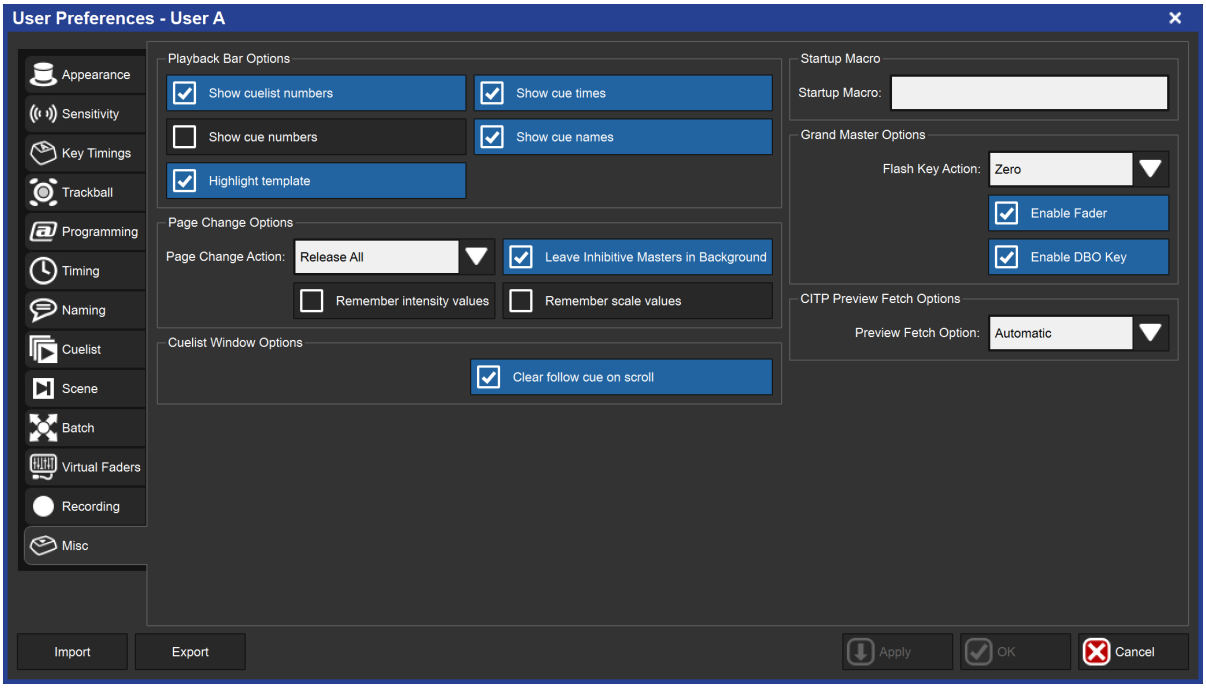
18.3.1 Options When Changing Page

The actions a console takes when the current playback page is changed can be found under the Misc tab of the User Preferences window. Listed below are descriptions of those options:

- **Release All**: cuelists, scenes, and batches attached to masters will be released when the page is changed.
- **Hold Over If Active**: active cuelists, scenes, and batches will remain active, continue to be displayed on the playback bar, and will be decorated with a pin icon. Held-over masters remain on the playback bar until you release them at which time they are replaced by the new contents of the master on the current page.
- **Leave In Background**: active cuelists, scenes, and batches will remain active in the background when the page is changed.
- **Remember intensity values**: When this option is enabled the master intensity value of cuelists, scenes, and batches are persisted through page changes and releases. When this option is disabled cuelists, scenes, and batches will individually revert their master intensity values to 100% when they are released.
- **Remember scale values**: When this option is enabled scaling adjustments made to the playback rate, effect rate, and effect size of cuelists and scenes are persisted through page changes and releases. When this option is disabled, scaling adjustments are individually extinguished when a cuelists, scene, or batch is released.
- **Leave Inhibitive Masters in Background**: When this option is enabled the intensity value of all group masters (both virtual and physical) will persist through page changes. When this option is disabled the intensity value of physical group masters will revert to 100% when a page change results in a group master no longer being present on a physical master.

The default preferences for new shows files are Release All and Leave Inhibitive Masters in Background on page changes. To change these settings in the **User Preferences** window:

Setup → **Preferences** → **Misc** : see image below



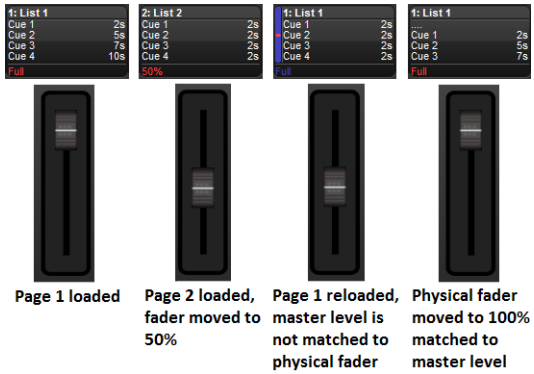
To manually hold over a cuelist, scene, or group assigned to a physical master when changing pages, hold the physical master's **Choose** key when changing the page.

To remove a held over master simply release it.

18.3.2 Matching Levels When Changing Page

When you change page using Leave In Background, it is possible for the actual position of the physical master faders to be different to the stored master level of the cuelist. For example, if you have the physical fader at 100% while on Page 1, then go to Page 2 and reduce the physical fader to 50%, and then go back to Page 1 the console must resolve the difference between the stored value of the master and the new physical position of the fader.

If this situation happens on a Hog 4, Hog 4-18, or Full Boar 4 console the built-in motorized faders will automatically adjust themselves to match the master's stored level. Console such as the Road Hog 4 and Nano Hog 4 that do not feature motorized faders or for connected wing hardware that does not feature motorized faders, the master level of the cuelist will be shown on the Playback Bar in blue, together with a red dot showing the physical fader position. This state is known as having the fader "unlocked". To "relock" (rematch) the levels, move the fader until it is at the same level as the blue bar; at this point the fader will take control of the cuelist master level in the normal way.



Page 1 loaded | **Page 2 loaded, fader moved to 50%** | **Page 1 reloaded, master level is not matched to physical fader** | **Physical fader moved to 100% matched to master level**

18.3.3 Restoring Activity When Changing Pages

You can trigger cues to go and assign masters to specific fader levels when changing page by using Restore Activity. To do this, you capture the desired activities as a macro, which is later executed when the page is loaded.

To capture page activity:

1. **Page** + **Open**: open the Page Directory.
2. Go to the desired page, and assign the page activity: you can playback cuelists and scenes, and set fader levels. For example, Master 1 Go, Master 4 at 50%, Master 8 at 25%.
3. Select **Capture Activity** from the Page Directory to store the activity as a macro for the page.

To directly edit a page's macro:

1. **Page** + **Open** : open the Page Directory.
2. Select to change to the spreadsheet
3. Select the **Macro** cell and press the Set key. Type in the macro you require, and press Enter.

For details of the macro syntax, see **Macros**.

> Tip: You can display a list of available macro commands on the console by selecting the **Macro** cell and pressing the **Set** key.

To clear the macro:

1. **Page** + **Open** : open the Page Directory.
2. Deselect to change to the button view.
3. Right click on the page and select Clear Activity Macros from the contextual menu.

Similarly, you can enable or disable Restore Activity without deleting the macro itself by right clicking on the page and selecting from the contextual menu. A icon will appear as a reminder that Restore Activity is on.

18.4 Modifying Pages

You can copy or move cuelists, scenes and group masters to a page, or remove them, as well as clearing the whole page. If you change which cuelists, scenes or group masters are assigned to the current page, then that assignment will automatically be recorded as part of the page. Changes made to cuelists, scenes and group masters (such as editing their contents) remain with that item, and not with the page.

18.4.1 Copying Lists, Scenes and Group Masters to a Page

Copying a cuelist to a page creates a new cuelist which is independent of the one it is a copy of. Any changes made to this new cuelist will not effect the original cuelist. To copy an existing cuelist to a page:

- **List** 2 **Copy Choose** : copies cuelist 2 to the selected master.

You can also copy a cuelist from one master to another:

1. **Choose** : press the Choose key of the master with the cuelist you want to copy.
2. **Copy**
3. **Choose** : press the Choose key of the master you want to copy the cuelist to.

You can copy scenes and group masters in the same way.

18.4.2 Moving Lists, Scenes and Group Masters to a Page

Moving a cuelist to a page does not create a new cuelist, so changes made to the cuelist will affect all other uses of that cuelist on other pages. To move an existing cuelist to a page:

1. **List** 2 **Move Choose** : moves cuelist 2 to the selected master.

You can also move a cuelist from one master to another:

1. **Choose** + **Move** : press the Choose key of the master with the cuelist you want to move.
2. **Choose** : press the Choose key of the master you want to move the cuelist to.

You can move scenes and group masters in the same way.

18.4.3 Removing Lists, Scenes and Group Masters from a Page

To remove a cuelist, scene or group master from a page:

- **Delete** + **Choose**

Note that this will only remove the item from the master; the item will not itself be deleted from the show.

18.4.4 Clearing Lists, Scenes and Group Masters from a Page

To clear all cuelists, scenes and group masters from the current page:

1. Open + Page : opens the Page Directory window.
2. Press Clear Current Page in the Page Directory.

Note that clearing the current page will remove items from the masters; the items themselves will not be deleted from the show.

Important: When you clear the current page, any cuelists, scenes and group masters that were previously loaded onto the physical masters will be released, and their contents will no longer be output from the console.

18.5 Copying and Moving Pages

You can copy and move pages:

1. Open + Page : open the Page Directory.
2. Make sure that the Guard button is selected, otherwise pressing a directory button will activate the page, rather than just selecting it.
3. [Page 1] Copy [Page 3] : copies Page 1 to Page 3.

Similarly, using the command line:

1. Page 2 Move Page 4 ,Enter : moves Page 2 to Page 4.

Tip: The order of the pages in the directory determines which page you get when changing pages using the Next Page key. You can copy and move your pages so that they appear in the correct order for your show. You can then go through the performance using Next Page rather than selecting from the directory.

18.6 Deleting Pages

To delete a page:

1. **Page 1 Delete**
2. Click **OK** to confirm the delete.

You can delete a range of pages:

1. **Page 1 Thru 4 Delete**
2. Click **OK** to confirm the delete.

Note that you cannot delete the current page. Deleting a page does not delete cuelists or scenes from the show.

> Tip: If you prefer not to be asked to confirm the delete action, select **Don't Ask Me Again** in the confirmation window. You can re-enable the confirmation by going to **Setup → Preferences → Programming** and selecting **Confirm before deleting directory items**.

18.7 Template Page

The template page specifies which cuelists will appear on specific masters for every page without physically having to load them onto the same masters on all pages. For example, you could have a primary cuelist containing the commonly used cues of the show, which you want available on the same master, regardless of which page you are on. When you move this cuelist to a master on the Template page, it will then appear on the same master of all pages. If a normal page and a template page have a cuelist on the same master, the normal page's cuelist will override the template page's cuelist.

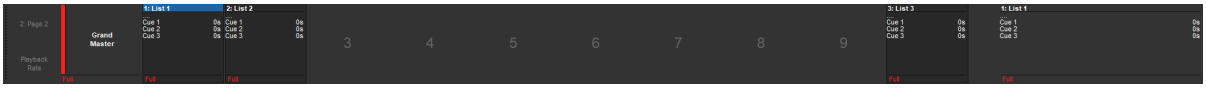
To make a page into the template page:

1. **Open** + **Page** : opens the Page Directory window.
2. Right-click on the page, and select **Set As Template Page** from the menu.

To turn off the template page, right-click on the template page and select **Clear Template Page** from the menu. There can only be one template page; assigning a new template page will restore the previous one to a normal page. The template page is shown by a T symbol in the directory window.

Since the template page typically does not relate to a specific portion of your production (a song for example), template pages are never loaded from the Next Page key. When cycling through pages with this key, the template page will be skipped. You can always directly load the template page using either the page directory or the command line.

Cuelists, scenes and group masters that appear on a master of a page because they originate from the template page are shown in blue on the Playback Bar. This is shown in the image below. This feature can be turned off in **Setup** → **Preferences** → **Misc** and deselect **Highlight Template.**



If the template page is the current page, the entire Playback Bar, including empty masters, are also shown in blue. This is shown in the image below.



19. Command Keys

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19.1 Command Key Overview

Command Keys are user-created single button executor that trigger existing show objects including palettes, groups, views, lists, scenes, and keystroke macros. Command keys are stored in the commands directory and are also accessible using the 12 function keys on the front panel of the console (when the function keys are set to command mode). To toggle the function keys between kind mode and command mode hold down **Pig** and press **Enter**. The mode of the function keys is displayed on the main toolbar (KIND / CMD). To open the command directory hold the **open** key and press the "Commands" button on the main toolbar.

19.2 Creating Command Keys

Command keys are created by using the "move" syntax of the console to assign existing show objects to empty cells in the commands directory or to blank function keys on the front panel (when the console's function keys are set to CMD mode). Please note that the original show objects are not actually being moved.

Here is an example of how to create a command key for cuelist 1:

1. **List 1**
2. **Move**
3. Press any empty cell in the command directory or press any empty function key on the front panel (if the console's function keys are set to command mode)

> Tip: When command keys are created they automatically inherit the name and colour-coding of the show object that they are linked to. Changing the name or colour-coding of a command key will change the name and colour-coding of the show object it is linked to and vice-versa.

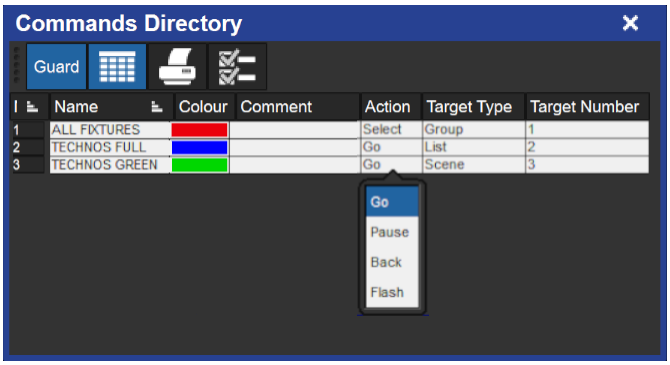
19.3 Copying, Moving and Deleting Command Keys

Command keys can be copied, moved, and deleted using both the commands directory and the function keys on the front panel (when the console's function keys are set to command mode).

- **To delete a command key**: Press and hold delete; then press a command key on the front panel or in the commands directory.
- **To move a command key**: Press and hold move; then press a command key on the front panel or in the commands directory; after you release the move key press any empty command key on the front panel or empty cell in the commands directory.
- **To copy a command key**: Press and hold copy; then press a command key on the front panel or in the commands directory. after you release the copy key press any empty command key on the front panel or empty cell in the commands directory.

19.4 Changing the Action of a Command Key

The action that occurs when a command key is pressed can be configured by viewing the commands directory in spreadsheet view and editing the "Action" cell.



Command directory in list view; selecting an action

Not all command keys have the same action options. The list of available actions for a Command Key depends on the capabilities of the show object that it is linked to:

For Command Keys linked to Groups, Pages, Views, Keystroke Macros & IPCBE Palettes: The only available action is "Select"

For Command Keys linked to Lists and Scenes: The available actions include "Go", "Pause", "Back", and "Flash". The default action is "Go".

Tip: Holding down the PIG key while pressing a command key linked to a lists or scene will release that list or scene.

19.5 Command Key Feedback

When a command key is executed the associated function key and LCD provide feedback to indicate the running state of the show object linked to the command key. The commands directory also provides feedback for the running state of the show objects linked to by the command keys.

Hog 4 Series Consoles

Command Key Assignment	Function Key LED Feedback	Function Key LCD Feedback
Group, Page, IPCBE Palette	Blue LED on = selected Blue LED off = not selected	Linked object name displayed Color-coded background matches show item color coding
List, Scene, Keystroke Macro	Blue LED on = onstage Blue LED off = not onstage Blue LED Fast flashing = executing, crossfading Blue LED Slow flashing = paused	Linked object name displayed on line one Current cue and / or step displayed on line two Color-coded background matches show item color coding
View	No LED feedback provided	Linked object name displayed on line one Current cue and / or step displayed on line two Color-coded background matches show item color coding

Tour Hog, Stage Hog, and Flex Hog Consoles (when use blue keys preference is enabled)

Command Key Assignment	Function Key LED Feedback	Function Key LCD Feedback
Group, Page, & IPCBE Palette	White LED = selected Blue LED = not selected	Linked object name displayed Color-coded background matches show item color coding Rectangle icon indicates the object is "selectable" Rectangle icon changes from white to blue when selected
List, Scene, & Keystroke Macro	White LED = onstage Blue LED = not onstage White LED Fast flashing = executing, crossfading White LED Slow flashing = paused	Linked object name displayed on line one Current cue and / or step displayed on line two Color-coded background matches show item color coding Icon indicates the object's command assignmentIcon color indicates state of playback
View	Blue LED = all states	Linked object name displayed on line one Current cue and/or step displayed on line two Color-coded background matches show item color coding Rectangle icon indicates the object is "selectable"

20. Plots

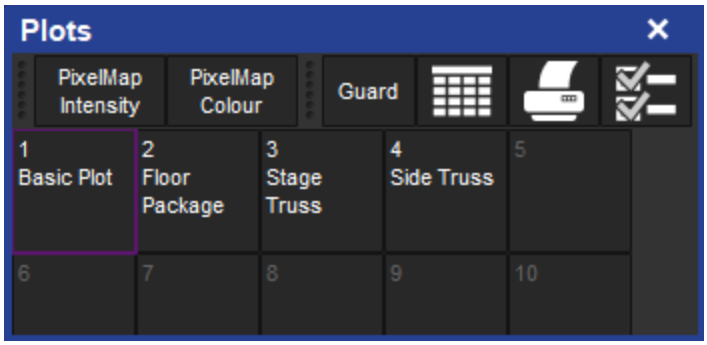
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20.1 Introduction to Plots

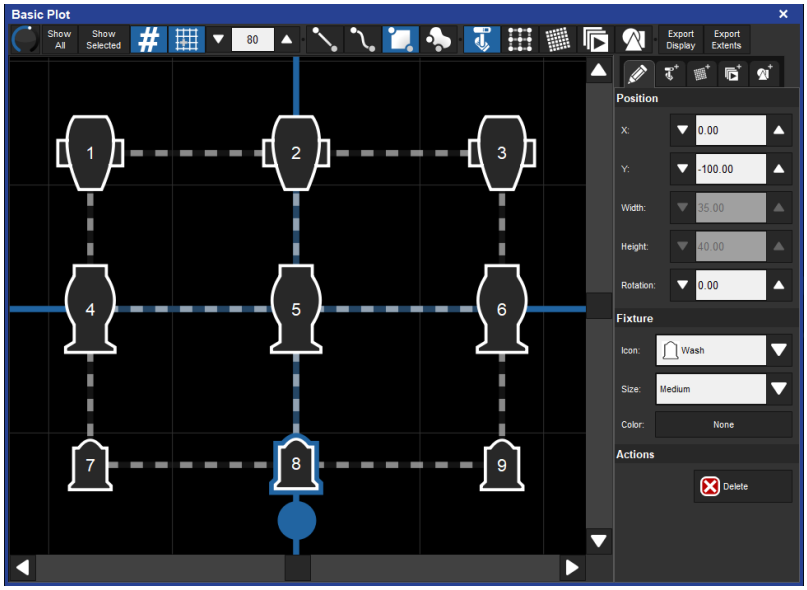
Plots are user created graphical layouts that contain programmable objects. Once built, plots can be used to select fixtures, gather fixture feedback, apply PixelMapping and palette values to fixtures, and execute show items such as cuelists and scenes.

Plots are stored in the plots directory. To open the plots directory window hold the **Open** key and press the **Plots** button on the main toolbar or press **Pig** + **Open** + **Fixture** on the console front panel.

The Plots Directory



To open a plot hold the **Open** key and press the coordinating plot button in the directory. You can also open a plot using the command line by pressing **Pig** + **Fixture** (this will put the word plot on the command line), specifying a plot number, and then Open. For example: **Pig** + **Fixture** ,**1**, **Open** will open plot 1.



20.2 Creating Plots

Plots can be created as entirely blank or pre-populated with fixtures.

To create a blank plot:

1. Ensure that no fixtures are currently selected.
2. **Record**
3. **Pig** + **Fixture** ("plot" should now appear on the command line after record)
4. Use the numeric keypad to enter the plot number you wish to create.
5. **Enter**
6. A new and entirely blank plot has now been created.

To create a plot pre-populated with fixtures:

1. Select the fixtures you want to have in your new plot.
2. **Record**
3. **Pig** + **Fixture** ("plot" should now appear on the command line after record)
4. Use the numeric keypad to enter the plot number you wish to create.
5. **Enter**
6. A new plot has now been created containing a box gang that contains all of the fixtures you selected in step 1.

NOTE: You can also use the plots directory to create a new plot by pressing on a blank directory button in the plots directory window after pressing record.

20.3 Editing Plots

Five types of objects can be added to a plot: fixtures, gangs, PixelMaps, show items and shapes. In this section we will review how to add, remove, and edit these different types of objects.

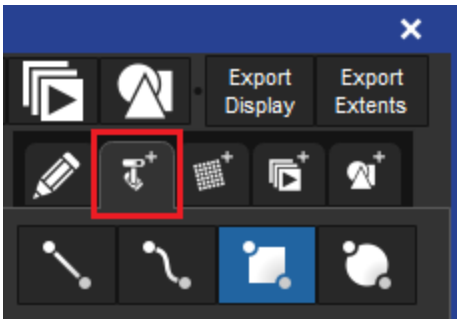
20.3.1 Fixtures

To **add** fixtures to a plot:

1. Open the plot (**Pig + Fixture, #, Open**)
2. Enable the fixture edit button at the top of the plot window.



3. Click the add fixtures tab of the properties pane located on the right side of the plot window.



4. If you are adding multiple fixtures then use the buttons listed under the add fixtures tab to choose a gang arrangement.
5. Make a fixture selection.
6. Touch (or left click) and drag across the plot window to add the fixtures.
7. The fixtures are now added to the plot using the selected gang type.

To **remove** fixtures from a plot:

1. Enable the fixture edit button at the top of the plot window.
2. Select the fixtures in the plot you wish to remove (fixture selection can either be done directly in the plot window or by using the command line or groups).
3. Press the **Delete** button in the properties pane located on the right side of the plot window.

To **edit** a fixture (change its properties):

1. Enable the fixture edit button at the top of the plot window.
2. Select the fixture(s) you wish to edit.
3. Use the properties pane located on the right side of the plot window to adjust the fixture's position and/or rotation, icon type/size, and colour-coding. You can also reposition a fixture by using the mouse or touchscreen to click and drag the fixture into position. Note: fixtures that are attached to gang must first be detached (dragged off the gang) in order to be custom positioned. Also be aware that changing the icon or colour-coding for a fixture in one plot will change the assigned icon and colour-coding for that fixture in all plots as this property is shared show-wide.

20.3.2 Gangs

Gangs are collections of fixtures arranged in geometrical shapes. Gangs can be re-sized, rotated, and also have several options for how the fixtures are ordered within the gang. In this section we will review how to edit and delete gangs.

To **remove** a gang:

1. Enable the gang edit button at the top of the plot window.



2. Select the gang you wish to delete.
3. Press the **Delete** button in the properties pane located on the right side of the plot window; the gang and all the fixtures attached to it will be deleted from the plot.

To **edit** a gang (change its properties):

1. Enable the gang edit button at the top of the plot window.
2. Select the gang you wish to edit.
3. Use the properties pane located on the right side of the plot window to adjust the gang's position, size, fixture layout, fixture ordering, etc...). You can also reposition the gang by using the mouse or touchscreen to click and drag the gang into position. Similarly, you can re-size and rotate the gang using the blue object handles that appear when the gang is selected (circle handle for gang rotation / square handle for gang sizing).

20.3.3 PixelMaps

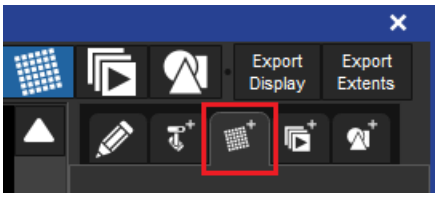
PixelMaps are rectangular plot objects which can be used to map the pixels of rich media content (photos and videos) onto lighting fixtures through a process known as PixelMapping. In this section we will discuss how to add / remove PixelMaps in plots. For more information, see the section on PixelMapping

To **add** a PixelMap:

1. Enable the PixelMap edit button at the top of the plot window



2. Click on the add PixelMap tab of the properties pane located on the right side of the plot window



3. Touch (or left click) and drag across the plot window to draw a pixel map

To **remove** a PixelMap:

1. Enable the gang edit button at the top of the plot window.
2. Select the gang you wish to delete.
3. Press the **Delete** button in the properties pane located on the right side of the plot window.

To **edit** a PixelMap (change its properties):

Enable the PixelMap edit button at the top of the plot window.

1. Select the PixelMap you wish to edit.
2. Use the properties pane located on the right side of the plot window to adjust the PixelMap's position, size, rotation, and layer assignments). You can also reposition the PixelMMap by using the mouse or touchscreen to click and drag the PixelMap into position. Similarly, you can resize and rotate the PixelMap using the blue object handles that appear when the PixelMap is

20.3.4 Show Items

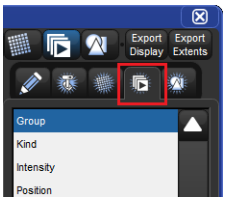
Show items such as lists, scenes, and views can be added plots and are displayed similar to how they are shown in their native directory window. Once a show item is added to a plot it can be executed in the plot by pressing on it. If the pig key is held when a show item is pressed in the plot window then the show item will not execute but rather token its name onto the command line allowing for even more complex operations (similar to guard in the directory window).

To **add** a show item to a plot:

1. Enable the show item edit button at the top of the plot window



2. Click on the add show item tab of the properties pane located on the right side of the plot window.



3. Use the dropdown menus to pick the show item you wish to add to the plot.
4. Touch (or left click) and drag across the plot window to draw the show item into the plot.

To **remove** a show item from the plot window:

1. Enable the show item edit button at the top of the plot window.
2. Select the show item you wish to delete.
3. Press the **Delete** button in the properties pane located on the right side of the plot window.

To **edit** a show item (change its properties):

1. Enable the show item edit button at the top of the plot window.
2. Select the show item you wish to edit.
3. Use the properties pane located on the right side of the plot window to adjust the show item's position, size, rotation, and the actual show item it is linked to.

20.3.5 Shapes

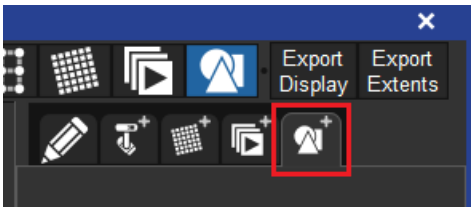
Shapes are simple plot objects that have various fill and outline options and can also display text. The supported image formats for filling shapes include JPG, PNG, BMP, and TIFF. In this section we will discuss how to add / remove and edit shapes in plots.

To **add** a shape to a plot:

1. Enable the shape edit button at the top of the plot window.



2. Click on the add shape tab of the properties pane located on the right side of the plot window.



3. Touch (or left click) and drag across the plot window to draw a default rectangle shape.
4. Once the default rectangle shape is added to the plot it can be changed to any shape using the properties pane located to the righ of the plot window.

To **remove** a shape:

1. Enable the shape edit button at the top of the plot window.
2. Select the shape you wish to delete.
3. Press the **Delete** button in the properties pane located on the right side of the plot window.

To **edit** a shape (change its properties):

1. Enable the shape edit button at the top of the plot window.
2. Select the shape you wish to edit.
3. Use the properties pane located on the right side of the plot window to adjust the shape's position, size, rotation, fill colour, border colour (this also affects the label colour), label, image assignment, etc. You can also re-size and rotate the shape using the blue object handles that appear when the shape is selected (circle handle for rotation / square handle for resizing from center / _| handle for resizing from the top left corner).

Assigning a fill image to a Shape:

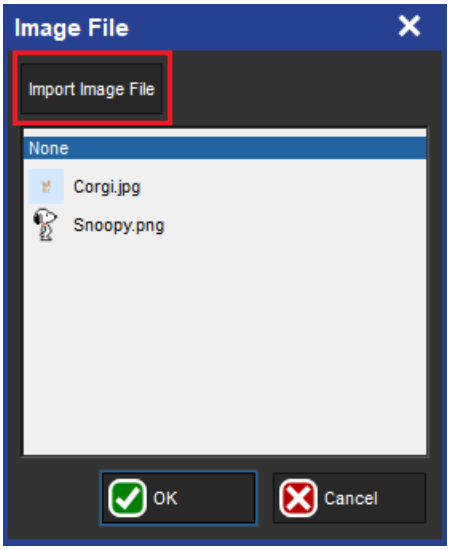
To assign a fill image to a shape:

1. Enable the shape edit button at the top of the plot window.
2. Select a shape to edit.
3. Press the "select" button in the properties pane for the "image" attribute.
4. An Image File dialogue box will appear. Select an image from the list of images and press OK. If images are not listed in the Image File dialog box, then proceed to Importing Images from a USB Flash Drive for details on how to import images into the show.

Importing Images from a USB Flash Drive

To import an image file from a USB Flash drive into the image file list:

1. Use a personal computer to copy the image file you wish to import to an external USB flash drive.
2. Insert the USB flash drive into the console.
3. Click on the "Import Image File" button at the top of the Image File dialogue box.



4. Browse to the external USB flash drive and select an image to import. Press OK to confirm.
5. The image has now been imported and is available for assignment to image rectangles for all plots in the show unless the image is manually deleted using the right click menu in the Image File dialogue box.

20.3.6 Tips for editing multiple plot objects

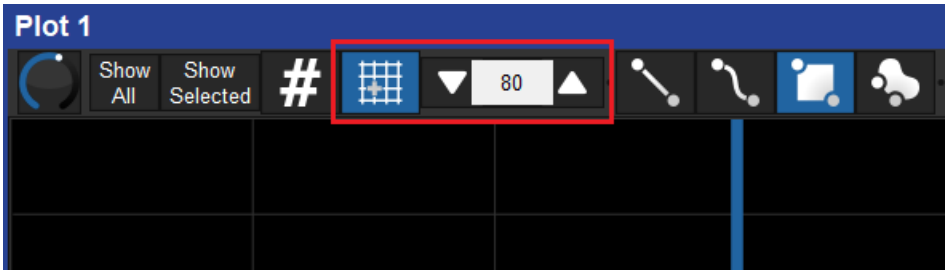
This section will cover some handy shortcuts and tips for editing multiple plot objects at once. These tips can help you to build complex plots more quickly and symmetrically.

To **equalize** the properties of multiple plot objects:

1. First select a plot object that has a property value that you want to apply to other objects in the plot (for example, you may want to align objects to have the same X position as one of the objects already in the plot)
2. Now select the plot objects you wish to adjust to match the first plot object you selected
3. Hold the / key on the front panel of the console
4. Press the up or down scroll button for the property you want to equalize all the selected objects to (for example, if you want all the selected plot objects to align horizontally then press the up or down arrow button for the X position property while holding the / key)

20.3.7 Aligning Plot Objects using the Background Grid

To view the grid in a plot window toggle on the “grid” button. The horizontal and vertical center lines are thicker and colored blue to assist with window orientation. To adjust the grid size change the numeric value in the scroll box located directly to the right of the grid button. When the alignment grid is enabled the center of plot objects will snap to the vertices of the plot grid when they are moved via click-n-drag. To override the snap-to-grid feature hold the Pig key when moving objects in the plot window. The position of objects does not change when the grid is toggled on/off or resized. The snap-to-grid feature only affects an object when the object is being moved.



20.4 Using Plots

Plots can be used to accomplish a variety of important programming tasks. In this section we will review how to make simple and complex fixture selections using the plot window, how to navigate the plot window, and how to use the plot window to quickly view feedback for fixtures.

20.4.1 Fixture Selection

Fixture selections made in plots are sent to the current active editor and can be used in conjunction with command line and group directory fixture selections as well. In this section we review the selection tools available in the plot window and the plot window fixture selection syntax.

There are three selection tool buttons at the top of the plot window. These tools can be used for selecting fixtures when programming looks and also for selecting fixtures, gangs, and PixelMaps when editing plots:

	**Path Selection Tool:** Selects fixtures by drawing a line through the fixtures you wish to select. Based on the order in which fixtures are touched by the line as you draw it.
	**Rectangle Selection Tool:** Selects fixtures by drawing a rectangle around the fixtures you wish to select. Any fixture that is entirely inside the rectangle will be selected. If a fixture is only partially inside the rectangle it will not be selected. Fixtures inside the selection rectangle are selected in the order in which they are touched.
	**Lasso Encompassing Selection Tool:** Selects fixtures by drawing a free form circle around the fixtures you wish to select. Any fixture that is entirely inside the lasso will be selected. If a fixture is only partially inside the lasso it will not be selected. Fixtures inside the selection lasso are selected in order in which they are touched.
	**Line Selection Tool:** Selects fixtures by drawing a line through the fixtures you wish to select. Based on the order in which fixtures are touched by the line as you draw it.

Plot window fixture selections follow many of the same rules as the selections made using the command line. The syntax for selecting fixtures in plots is as follows:

- Fixture selections made in a plot are added to the current fixture selection until an edit is made. Once an edit is made, such as adjusting pan / tilt, then a new fixture selection is started.
- Holding the **+** key while selecting fixtures in a plot adds those fixtures to the current fixture selection.
- Holding the **-** key while selecting fixtures in a plot removes those fixtures from the current fixture selection.
- Tapping on an a fixture that is already selected will deselect the fixture.

20.4.2 Navigation (zoom/scroll)

Plots are 2-dimensional layouts that can be zoomed and scrolled to ensure good visibility and easy selection.

There are four main ways to **zoom** in and out of the plot window:

1. Use the zoom tool at the top left hand corner of the plot window.
2. Hold **Open** and turn the third encoder wheel on the front panel.

3. Hold **Open** and turn the trackball ring.
4. Use two fingers to pinch and zoom in the plot area

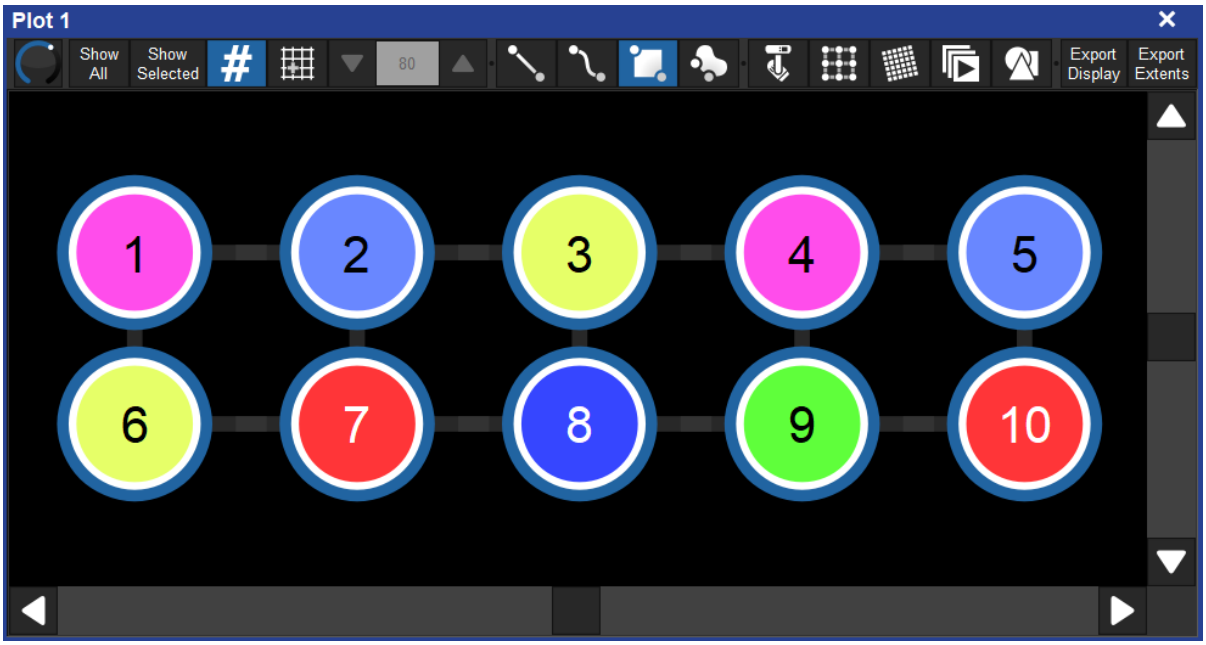
There are four main ways to **scroll** the plot window horizontally and vertically:

1. Use the scroll bars in plot window.
2. Hold **Open** and turn the first and second main encoder wheels on the front panel.
3. Hold **Open** and move the trackball up/down/left/right.
4. Drag two fingers left/right and up/down in the plot area

20.4.3 Feedback

The plot window provides feedback for the fixtures in the plot in terms of intensity and mixed colour (CMY, HS, RGB) where as show item objects display feedback similar to how they are represented in the item's native directory window.

Note: Slotted colours, gobos, and other media are not yet supported in the plot feedback system.



20.4.4 Show/Hide Fixture Numbers

The user numbers displayed inside of fixtures in a plot window can be shown / hidden by toggling the # button at the top of plot window. The show/hide number setting is stored per plot window and is persisted in views.



20.4.5 Executing Show Items in Plots

Show items (such as lists and scenes) in a plot can be executed simply by pressing on them item in the plot window (make sure the edit button for "show items" is turned off at the top of the plot window). Holding the pig key and pressing a show item will not execute the show item but rather token its name onto the command line allowing for even more complex operations.

20.4.6 Exporting Plots

There are two buttons at the top of a plot window that allow you to export the plot:

- **Export Display:** generates an image file (.PNG) of the current plot view (similar to print screen).
- **Export Extents:** generates a vector graphics file (.SVG) file of the entire plot.



20.5 Pixel Mapping

One of the more complex objects that can be added to a plot is a PixelMap. A PixelMap allows the fixtures inside of it to dynamically change their parameter values based on the PixelMap Layer content being sent to the PixelMap. This process is called PixelMapping. Section 20.2.3 covers how to add and remove PixelMaps in a plot. In this section we will discuss how to add and assign PixelMap Layers to PixelMaps, how to program fixtures to use PixelMap values, and how to manage PixelMap Layer content.

20.5.1 PixelMap Layers

PixelMaps are responsible for mapping media content onto lighting fixtures, but, they do not supply the media content themselves. The content comes from programmable fixtures known as PixelMap layers, which are added to the show using the fixture window. Once added to the show PixelMap layers are then assigned to PixelMaps.

To add a PixelMap layer fixture to the show:

1. Open the patch window.
2. Click on the fixture schedule button.
3. Look under the "Hog" manufacturer for a fixture called "PixelMap Layer"
4. Use the count column to specify how many PixelMap layer fixtures you want to add to the show.
5. Click OK on the fixture schedule window.

To assign a PixelMap Layer fixture to a PixelMap:

1. Open the plot containing the PixelMaps to which you wish to assign PixelMap layers.
2. Enable the PixelMap edit button at the top of the plot window.
3. Select a PixelMap in the plot.
4. Locate the "Pixel Map" section of the properties tray located on the right hand side of the plot window.
5. Under the text label "Layer fixture patch" you will see all of the PixelMap layers scheduled in the show.
6. Select the layers to assign them to the pixel map.

Important: Regardless of the user numbers you assigned to the PixelMap layers, they are layered onto PixelMaps using the order in which you select them in step 6. Layer order is important when working with multiple layers as Z position is not adjustable: High numbered layers will always appear on top of low numbered layers.

20.5.2 Programming lighting fixtures to use PixelMaps

PixelMaps are applied to fixtures very similar to how IPCB palettes are applied to fixtures.

To assign a fixture's parameters to a PixelMap:

1. Make a fixture selection
2. Open the plots directory (**Pig** + **Open** + **Fixture**)
3. At the top of the plots directory choose which fixture parameters you wish to pixelmap:
   - Intensity - fixture's intensity function value is mapped to the pixel's value (brightness)
   - Colour - fixture's physical color function values are mapped to the pixel's Hue, Saturation, and Value
4. Select a plot from the plot directory (be sure to choose a plot in which the currently selected fixtures are plotted inside a PixelMap)
5. The parameter values of the current fixture selection are now assigned to the plot in the editor. This means that those fixture values will now be determined by the content being passed into the PixelMaps in that plot.
6. Now select and program the PixelMap layers assigned to the PixelMaps in the referenced plot.

Important: PixelMapping both Colour and Intensity functions on a fixture that is color mix capable will result in a double dimming effect. PixelMapping intensity is only recommended for situations where the fixtures do not have a color mixing system or when PixelMapping Intensity is preferred over PixelMapping color.

Caution: Deleting a plot automatically removes any references to that plot in all existing cues and palettes.

20.5.3 Programming PixelMap Layers

PixelMap Layers are used to send media content to PixelMaps which are then output to the mapped lighting fixtures. In the previous section we discussed how to program lighting fixtures to listen to PixelMaps. In this section we will discuss how to program the PixelMap layers to output content to the PixelMaps they are assigned to.

To program a PixelMap Layer:

Select a PixelMap Layer by entering its user number in the command line and pressing **Enter**.

Adjust the intensity parameter to the desired level.

Choose a media folder and media file using the encoder wheels or the Media Picker window (**Pig** + **Open** + **Beam** opens the media picker window).

The PixelMap layer will now output the selected content to the PixelMaps it is assigned to.

Use the other programmable parameters of the PixelMap Layer fixture such as scaling, position, rotation, effects, and play speed to create dynamic and interesting pixelmapping output.

20.5.4 PixelMap Layer Effects

Pixelmap layers in Hog OS function similarly to layers in Photoshop, where each layer stacks on top of the previous to create a composite visual output. However, unlike traditional graphics editors, Hog OS uses inverted layer numbering—meaning lower-numbered layers appear on top of higher-numbered ones. The topmost visible layer will dominate the pixelmap unless blending or transparency is enabled through programming adjustments made to the Pixelmap Layer's Effect Mode and Effect Modifier Parameters found under Color Kind.

Effect Type	Modifier 1	Modifier 2	Modifier 3
Transparent Black	Grayscale Select	Transparency Level	Tolerance
Transparent White	Grayscale Select	Transparency Level	Tolerance
Transparent Colour	Hue Select	Saturation Select	Tolerance
Tiling	X Axis	Y Axis	Z Axis

These controls allow underlying layers to show through, enabling dynamic visual compositions using transparency effects such as Transparent Black, Transparent White, Transparent Colour, and Tiling, which are available when using Revision 3 or greater of the PixelMap Layer fixture type.

Pixel Map Layer Effects Example

Pixelmap layering can feel abstract until you see it in action. Below is a step-by-step example of how to create a multi-layer pixelmap.

1. Go to Fixture Schedule.
2. Add 2 pixelmap layers to your fixture:
    - Layer 1: for the static background
    - Layer 2: for the animated content

1. Navigate to the desired plot where you want to apply the pixelmap.
2. Assign Layers to Pixelmap
3. Select the pixelmap in your plot.
4. Assign both layers to this pixelmap:
    - Layer 1 → Static color (e.g., solid blue)
    - Layer 2 → Bouncing content (Folder 2 File 7)
5. Configure Layer Content
6. In the Pixelmap Editor or Media Picker:
    - For Layer 1, choose a static color or image.
    - For Layer 2, browse to Folder 2 File 7 and assign it.

1. Ensure Layer 2 has a higher priority or is set to blend over Layer 1.
2. You can adjust opacity, blend mode, or layer order depending on your software.
3. Run the plot and preview the output
4. Tweak timing, transitions, or effects as needed.

20.5.5 Managing PixelMap Layer Content

A PixelMap layer is a programmable fixture that supplies media content to PixelMaps. When a PixelMap layer fixture is added to a show a small collection of stock media content is also added to the show's PixelMap Content Package. The PixelMap Content Package is shared by all PixelMap layers in the show and is organized using a folder and file structure similar to how many standalone media servers store content.

Adding custom content to the PixelMap Content Package is easy. In this section we will review how to import media into the PixelMap Content Package, how to assign DMX values to the folders and files in the PixelMap Content Package, which file types are supported for import, and how to choose and optimize content to ensure smooth playback and effective visual representation.

Importing Custom Media to the PixelMap Content Package

The PixelMap Content Package supports up to 255 folders which can contain up to 255 media files each. All custom media added to the PixelMap Content Package is stored in the show file and is included in show file backups.

To add custom media content to the PixelMap Content Package:

1. Put the custom content you wish to import into the show onto a USB Flash Drive.
2. Insert the USB Flash Drive into one of the console's USB ports.
3. Open the shows window on the console (Press **Setup** key on front panel and select **Shows** from the main toolbar).
4. Select the PixelMap Content tab of the shows window. On the left hand side of the window you will see a normal file browser where you can access files and folders on both the internal hard drive as well as on external drives such as USB flash drives. On the right hand side of the window is a browser that allows you to see the contents of the PixelMap Content Package. (Note: If the PixelMap Content tab doesn't show up in the shows window then you have not yet scheduled a PixelMap layer in your show and will need to do so first).
5. Create a new folder in the PixelMap Content Package by clicking on the new folder icon at the top of the window or by right clicking in the browser and selecting "new folder".
6. Give the folder a DMX address assignment by right clicking on the folder and selecting "renumber". Enter a numeric value and confirm by pressing **Enter**.
7. Use the browser on the left hand side of the window to locate media stored on the external USB flash drive that you inserted into the console in step 2.
8. Drag and drop the media files you wish to import from the USB flash drive into the folder you created in step 6. Hold pig to select multiple files. You can also drag entire folders of content from the USB Flash Drive to the PixelMap Content Package as long as the folder you are importing does not contain sub-folders.
9. All files imported into the PixelMap Content Packages are automatically assigned a DMX address. To manually change the DMX address assignment of a file in the PixelMap Content Package right click on the file and select "renumber". Enter a numeric value and confirm by pressing **Enter**.

Tip: If you wish to control auto-assigned DMX addresses during file import, simply prefix the names of the folders and files you are importing with a three digit number that coincides with the desired DMX address value. For example, if you import a file named "023 BigBird.png" it will automatically be assigned a DMX address value of 23.

Caution: Any folders or files in the PixelMap Content Package that do not have a DMX address assignment will still show up in the media picker window but will not be selectable for output.

File Types Supported for PixelMap Content Package Import

The following file types have successfully been tested and are supported for import into the PixelMap Content Package:

Image Formats

- JPEG
- PNG
- TIFF
- BMP
- GIF (only first frame of animated GIFs will be imported)

Video Formats

- H.264
- MPEG-4 Part 2
- MPEG-2
- Cinepack
- Windows Media Video

Choosing and Optimizing PixelMapping Content

When media content is imported into the PixelMap Content Package it is automatically optimized for playback in the PixelMap layer, however certain measures should be taken when choosing and preparing content for import to ensure a more reliable import, smoother playback, and effective mapping. Here are some basic tips for choosing and preparing content for import:

Images:

- Even though high resolution content can be imported most of the resolution is thrown away during import. For faster import conversion it is best to use lower resolution image files.
- Remove black pixels from images in favor of transparency and save image as PNG; this will give you more flexibility when using multiple layers in a single PixelMap.
- Avoid images that feature complex objects such as faces, logos, or text unless you are using a very dense grid of target fixtures in your PixelMap.

Movies:

- Trim videos to 60 seconds or shorter in length (longer videos will get cut off at 60 seconds).
- Choose videos that loop seamlessly.
- Choose video files with frame rates of 30 fps or less and that have a high number of key frames.
- Even though most HD (1080p and 720p) video content can be directly imported to the PixelMap Content Package most of the resolution is thrown away during import. For faster conversion during import it is best to use lower resolution video files such as 352×240 (Video CD) or 720×480(DVD).
- Avoid using video files that feature complex objects such as faces, logos, or text unless you are using a very dense grid of target pixel fixtures to display this content.

21. MIDI

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21.1 MIDI Show Control

MIDI Show Control (MSC) is supported on all consoles in the Hog family including Hog PC and can be used to send & receive basic playback control messages to and from third party show control devices. This section will cover how to connect and configure MSC devices on the console.

21.1.1 Mapping and Enabling MSC Devices

To map and enable a MSC device for Input/Output:

1. Connect the output end of a third party MSC device to the "MIDI In" port on the back of the console and/or the input end of a third party MSC device to the "MIDI Out" port of the console. If you are using an external USB MIDI device such as a USB keyboard or an external USB MIDI Widget to send/receive MSC then connect the external USB MIDI device to one of the USB ports on the console. Please note that only generic "USB MIDI Class" devices are supported. Any USB MIDI devices that require proprietary drivers may work with Hog PC as long as the specific driver is installed on the Windows machine but these types of USB devices that require specific drivers will not work with Hog OS consoles.
2. Open the Network window. [**Setup** → **Network**]
3. Select a console from the list of devices in the network window and then press the **Settings** button.
4. Select the **MIDI Configuration** tab of the Console Settings Window.
5. Map a MIDI device to one of the eight indexes by pressing the blue plus button located to the far right of the index, then select a MIDI device from the device drop down menu and press Apply. (On Hog 4, Hog 4-18, and Full Boar 4 consoles the built-in MIDI device will be listed as "**LTCMIDI**.")
6. Press the config button located to the right of the device mapping.
7. In the MIDI Options window enable the **MSC In** and/or **MSC Out** options then click **OK.** Please note that MIDI device index mappings are stored on the console while MIDI Options are stored in the show file.

21.1.2 Using MIDI Show Control

Hog OS recognizes and sends the following MSC commands:

Hog OS Command	MSC Command	MSC Data
Go	0x1 GO	cue number, cuelist number
Halt	0x2 STOP	cuelist number
Resume	0x3 RESUME	cuelist number
Skip Forward	0x4 TIMED_GO	time=0, cue number, cuelist number
Skip Back	0x4 TIMED_GO	time=0, cue number, cuelist number
Release	0xb GO_OFF	cuelist number
Change Page	0x1d OPEN_CUE_PATH	page number

MIDI show control is enabled by default for all cuelists and scenes. You can assign a cuelist or scene to ignore incoming MIDI Show Control commands:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select **Ignore MSC In.**

Similarly you can prevent the MIDI Show Control commands for a cuelist being sent out from the console:

1. **Open** + **Choose** → **Options** → **Cuelist**
2. Select **Suppress MSC Out.**

Tip: MSC doesn't distinguish between cues and scenes as Hog OS does, so there are no MSC commands to control scenes. To work round this, you can send an MSC command with a CUE_PATH value of 5. Hog OS will treat the cue number as a scene number instead.

21.2 MIDI Note and CC Input

MIDI Notes and MIDI Control Change Messages (CC) are part of the MIDI standard that can be used to control console features such as front panel keys, faders, screen soft keys, and comment macros.

21.2.1 Enabling MIDI Note and Controller Message

To enable MIDI note and controller message input for the console:

1. Connect the output end of a third party MIDI device to the "MIDI In" port on the back of the console. If you are using an external USB MIDI device such as a USB keyboard or an external USB MIDI Widget to receive MIDI then connect the external USB MIDI device to one of the USB ports on your console. Please note that only generic "USB MIDI Class" devices are supported. Any USB MIDI devices that require proprietary drivers may work with Hog PC as long as the specific driver is installed on the Windows machine but these types of USB devices that require specific drivers will not work with Hog OS consoles.
2. Open the Network window. [**Setup** → **Network**]
3. Select a console from the list of devices in the network window and then press the **Settings** button.
4. Select the **MIDI Configuration** tab of the Console Settings Window.
5. Map a MIDI device to one of the listed indexes by pressing the blue plus button located to the far right of the index, then select a MIDI device from the device drop down menu and press Apply. (On Hog 4, Hog 4-18, and Full Boar 4 consoles the built-in MIDI device will be listed as "**LTCMIDI**".)
6. Press the  config button located to the right of the device mapping to open the MIDI Options window.
7. In the MIDI Options window enable the **Notes In** option. This enables both MIDI Note and Controller Change message input.
8. Use the Map drop down menu to assign a MIDI Map to the index. If no MIDI Maps are available then use the MIDI Map Editor described in **MIDI Map Editor** to create a MIDI Map. Click **OK**.

> Tip: MIDI device index mappings are stored on the console while MIDI Options are stored in the show file.

21.2.2 MIDI Map Editor

The MIDI Map Editor Window allows operators to create custom mappings of MIDI Note and Controller input messages to Hog OS functions such as keystrokes, faders, encoders, and comment macros.

To open the MIDI Map Editor Window press the **Setup** key on the front panel, then press the **MIDI** button on the setup toolbar, and press the **MIDI Map Editor** button from the menu.

Each entry in the MIDI Map table represents a MIDI input signal and a resulting Hog activity. For example MIDI Note 1 on channel 1 could be assigned to trigger a GM1 comment macro. Please refer to the sections below for details on how to create, rename, edit, and delete MIDI maps as well as information regarding how the different modes utilized for MIDI Controller messages.

Creating MIDI Maps

To create a new MIDI Map:

1. Open the MIDI Map Editor Window (press the Setup key on the front panel, then press the MIDI button on the setup toolbar, and then press the Map Editor button from the menu.)
2. Use the current map drop down menu to select the "New Map..." option.

Renaming MIDI Maps

To rename a MIDI Map:

1. Open the MIDI Map Editor Window (press the Setup key on the front panel, then press the MIDI button on the setup toolbar, and then press the Map Editor button from the menu.)
2. Use the current map drop down menu to select the MIDI map you wish to rename.
3. Press the rename button located to the right of the current map drop down menu.

Type in the desired name of the MIDI Map and press **OK** to confirm.

Deleting MIDI Maps

To delete a new MIDI Map:

1. Open the MIDI Map Editor Window (press the Setup key on the front panel, then press the MIDI button on the setup toolbar, and then press the MIDI Macros button from the menu.)
2. Use the current map drop down menu to select the MIDI map you wish to delete
3. Press the delete button located to the right of the current map drop down menu

Press **OK** to confirm.

Editing MIDI Maps using Learn Mode

Learn Mode provides a quick and easy method for buidling a MIDI Map by simply wiggling physical controls on a MIDI Device and then pressing/moving a Hog OS physical feature such as a front panel key, encoder, or fader.

To activate Learn Mode in the MIDI Map Editor simply enable the Learn button at the top of the window.

When Learn Mode is activated all front panel events are captured into the Hog Function field for the currently selected row. Please note that fader movements still affect output when Learn Mode is activated. To help you to identify that this is occuring the command line background will turn grey and flash “!!! MIDI Map Learn mode Enabled !!!” in red text while Learn mode is turned on.

In practice here is how Learn mode works:

1. Operator sends a MIDI message to console which automatically selects or creates a MIDI entry in the table.
2. Operator presses a Hog front panel key (wiggles a Hog Encoder or moves a Hog Fader).
3. The MIDI mapping table assign the Hog action to the selected table row.

Here are some other important things to know about Learn mode:

- Physical Hog front panel key presses assign the Hog OS Function of the current row to the physical Hog front panel key. Multiple front panel key presses replace the action with the current physical Pig key.
- Even without a MIDI device present, operators can manually select a row or create a new one, then press a physical Hog front panel key to associate it with the new entry.
- Users can exit Learn mode without a touch screen by using a mouse / trackball

Editing MIDI Maps Manually

Editing MIDI Maps manually is a straight forward process.

To **add** a new entry to the map simply press the "**add**" button at the top of the mapping table and use the pop up wizard to create the desired type and range of MIDI table entries.

To **remove** one or more entries from the map simply click and drag to highlight the entries in the table and then press the **remove** button.

To **edit** existing entries in the mapping table simply double click on the attribute.

Picking the right Mode for MIDI Controller Messages

Since control messages are sent is a variety of ways based on the MIDI device, the following modes can be assigned to a MIDI Controller entry. These modes cannot be automatically detected by Hog OS, therefore 7-bit Relative Mode is used by default for all controller type entries in the mapping table until the operator assigns the entry to the most appropriate mode.

- 7-bit Relative
- 7-bit Absolute
- 7-bit Binary
- 14-bit Relative
- 14-bit Absolute
- 14-bit Binary

Features of **Relative** Mode:

- When mapped to a Hog wheel the first value change of a controller will be ignored as we cannot determine delta until two values are provided
- Repeated value of 0 is treated as a negative delta
- Repeated value of 127 is treated as a positive delta
- This mode is recommended for mapping MIDI knobs to Hog wheels and encoders
- If the MIDI device does not repeat controller values of 0 and 127 then relative mode will not work properly
- If the MIDI device does not output a full range of control values (0 thru 127) then relative mode will not work properly.

Features of **Absolute** Mode:

- Maps the MIDI value directly to the value of the Hog function with some scaling
- This mode is recommended when mapping MIDI faders to Hog faders or when mapping MIDI knobs to Hog faders

Features of **Binary** Mode:

- Maps MIDI controller value of 127 to a key press and a value of 0 to a key up.
- This mode is recommended when mapping MIDI controllers to Pig keys

7-bit vs 14-bit:

14-bit messages are two standard 7-bit MIDI CC messages combined to form a single 14 MIDI CC data point and are always sent as a pair as Course byte , Fine byte. Hog OS cannot detect this based on input from the MIDI controller and therefore you will have to manually configure mappings for 14-bit vs 7-bit based on your knowledge of the MIDI controller product you are using.

Assigning MIDI Maps to Devices

MIDI hardware devices and MIDI Maps are associated with MIDI Indexes, therefore they have a relationship to one another through the index.

To assign an existing MIDI Map to an index via the network window:

- Open the **Console Settings** window for the Node / Index you wish to configure
- Select the **MIDI Configuration tab**
- Click on the config button for the index your wish to assign a map to.
- In the MIDI Configuration window use the drop down menu to assign a MIDI Map to the MIDI index. Click **OK** to confirm.

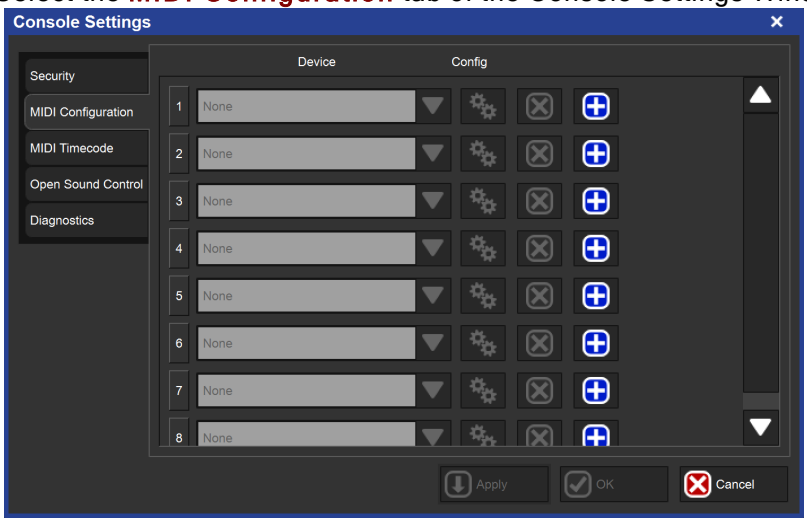
To assign a MIDI Map to an index via the MIDI Map Editor window:

- Open the **MIDI Map Editor** window and select a MIDI Map in the current map menu
- Press the **Assign to Device** button at the bottom of the MIDI Map Editor Window.
- Click on one or more of the devices listed in the pop up menu to assign the current map to the index associated with the device.

21.3 MIDI Note and CC Output

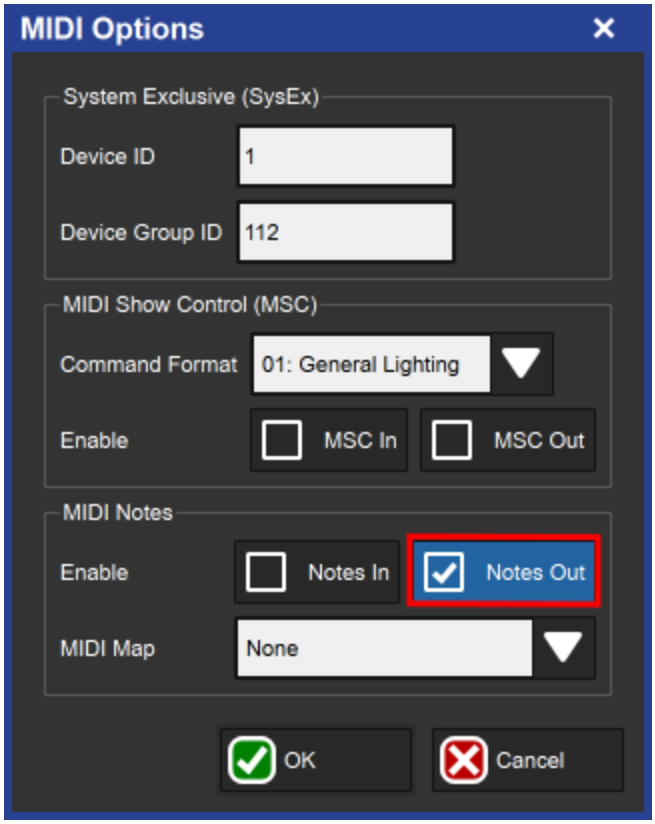
To configure the console for MIDI Note and Control Change message output:

1. Connect the input end of a third party MIDI device to the "MIDI Out" port on the back of the console. If you are using an external USB MIDI device such as a USB MIDI Widget then connect the external USB MIDI device to one of the USB ports on your console. Please note that only generic "USB MIDI Class" devices are supported. Any USB MIDI devices that require proprietary drivers may work with Hog PC as long as the specific driver is installed on the Windows machine but these types of USB devices that require specific drivers will not work with Hog OS consoles.
2. Open the Network window. [**Setup** → **Network**]
3. Select a console from the list of devices in the network window and then press the **Settings** button.
4. Select the **MIDI Configuration** tab of the Console Settings Window.



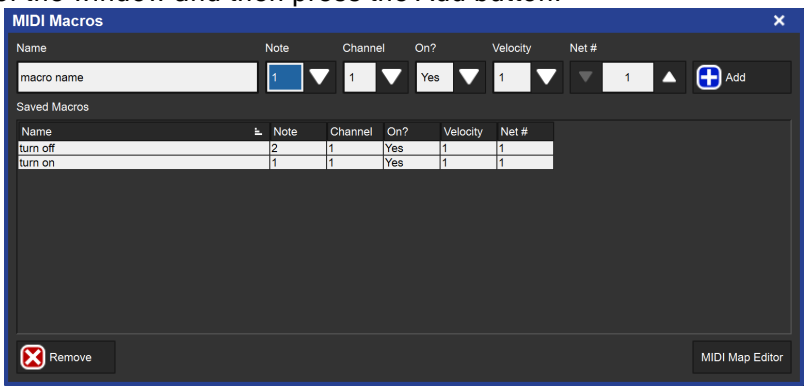
5. Map a MIDI device to one of the listed indexes by pressing the blue plus button located to the far right of the index, then select a MIDI device from the device drop down menu and press Apply. (On Hog 4, Hog 4-18, and Full Boar 4 consoles the built-in MIDI device will be listed as "LTCMIDI".)
6. Press the  config button located to the right of the device mapping to open the MIDI Options window.

7. In the MIDI Options window enable the **Notes Out** option and then click **OK**. Please note that MIDI device index mappings are stored on the console while MIDI Options are stored in the show file.

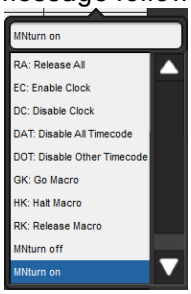


To send a MIDI note from the console:

1. Open the MIDI note window by holding the Open key on the front panel and select the MIDI Notes button from the open toolbar; this button will be on page 2 of the open toolbar for Hedge Hog 4 and Road Hog 4 consoles).
2. Create a new entry in the MIDI note window by filling out the fields located at the top of the window and then press the Add button.



3. Select the comment macro field for any cue, scene, or page and press the Set key on the front panel.
4. Select the MIDI note entry you created in Step 2 from the drop down menu and press Enter. The comment macro will be prefixed with "MN" which indicates its a MIDI note message followed by the name of the message.



5. When the cue / scene / page is executed the referenced MIDI note message will be sent from all attached MIDI devices with Notes Out enabled.

22. Open Sound Control

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22.4 OSC Input Mappings 438
22.5 OSC Output Mappings 444
22.6 OSC Network Considerations 445

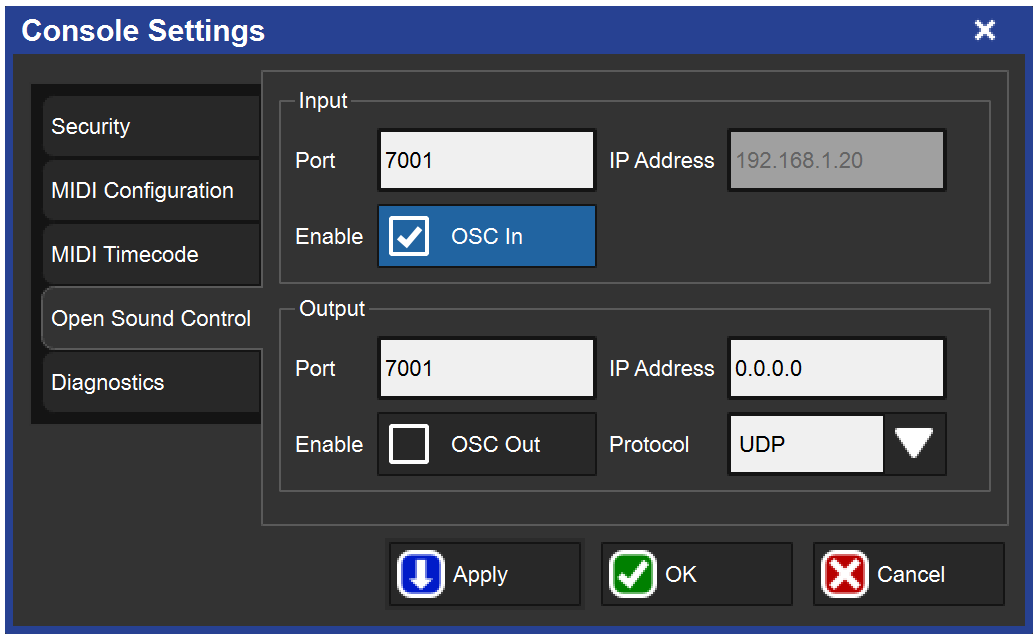
22.1 Introduction to OSC

Open Sound Control (OSC) is a network based communication protocol that can be used to send a variety of control messages between OSC enabled devices. OSC input is supported on every console in the Hog family including Hog PC. When configured properly OSC will enable you to use controllers such as a synthesizers, electronic music instruments, production audio software, and mobile phone apps such as Touch OSC to control the basic functions of the Hog OS.

22.2 Configuring OSC Input

To bring OSC messages into the console:

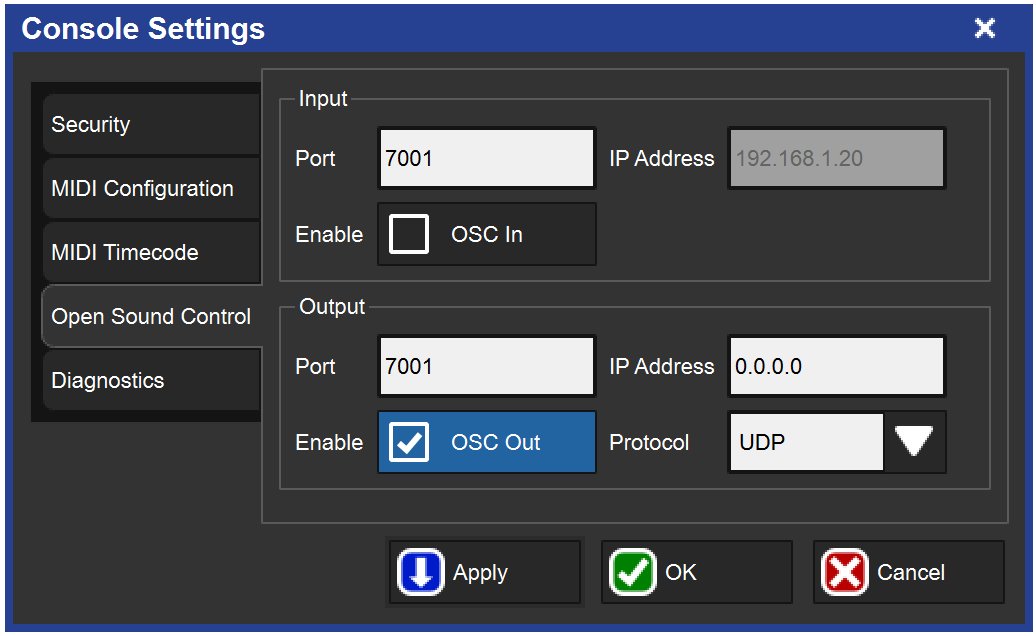
1. Connect your OSC controller to a physical network port that is attached to the same local area network as the console's HogNet port.
2. **Setup** → **Network**: opens the network window
3. Right click on the console number and select **Settings**: opens the **Settings** window
4. In the Open Sound Control pane, enable **OSC In** and assign the input port to match the output port of your OSC output device. For your convenience the console's IP address is also listed to the right of the port number to assist in configuring the output of your other OSC devices.



22.3 Configuring OSC Output

To send OSC messages from the Console:

1. Connect your OSC controller to a physical network port that is attached to the same local area network as the console's HogNet port.
2. **Setup** → **Network**: opens the network window
3. Right click on the console number and select **Settings**: opens the **Settings** window
4. In the Open Sound Control pane, enable **OSC Out** and assign the output port to match the input port of your OSC output device. You must specify the IP address you wish to output to as well as which protocol you wish to use for OSC output.



22.4 OSC Input Mappings

22.4.1 OSC Playback Mappings

Hog OS uses the OSC paths for receiving playback messages as shown in the table below. Please note the number in the path dictates the object type (list, scene, macro) while the argument dictates the object number. The example column displays the argument in ***bold italics***. Hog can process arguments sent as a float or integer.

Lists (0)	OSC Command Path	Argument	Example (List *1*5, Cue 2)
Go a list	/ hog / playback / go / 0	***list #***	/ hog / playback / go / 0 ***15***
Goto a cue in a list	/ hog / playback / go / 0	***list #.cue #***	/ hog / playback / go / 0 ***15.2***
Halt a list	/ hog / playback / halt / 0	***list #***	/ hog / playback / halt / 0 ***15***
Resume a halted list	/ hog / playback / resume / 0	***list #***	/ hog / playback / resume / 0 ***15***
Release a list	/ hog / playback / release / 0	***list #***	/ hog / playback / release / 0 ***15***

Scenes (1)	OSC Command Path	Argument	Example (Scene *1*56)
Go a scene	/ hog / playback / go / 1	***scene #***	/ hog / playback / go / 1 ***156***
Halt a scene	/ hog / playback / halt / 1	***scene #***	/ hog / playback / halt / 1***156***
Resume a halted scene	/ hog / playback / resume / 1	***scene #***	/ hog / playback / resume / 1 ***156***
Release a scene	/ hog / playback / release / 1	***scene #***	/ hog / playback / release / 1***156***

Macros (2)	OSC Command Path	Argument	Example (Macro *1*8)
Go a macro	/ hog / playback / go / 2	***macro #***	/ hog / playback / go / 2 ***18***
Halt a macro	/ hog / playback / halt / 2	***macro #***	/ hog / playback / halt / 2 ***18***
Release a macro	/ hog / playback / release / 2	***macro #***	/ hog / playback / release / 2 ***18***

22.4.2 OSC Button Mappings

Hog OS uses the OSC paths displayed in the table below for receiving front panel key commands. Please note the # in the OSC command path need to reference a valid number. The example column displays the argument in ***bold italics***. Hog can process arguments sent as a float or integer.

Masters	OSC Command Path	Argument	Example (Master 9)
Choose	/ hog / hardware / choose / master #	***0*** = up, ***1*** = down	/ hog / hardware / choose / 9 ***1***
Go	/ hog / hardware / go / master #	***0*** = up, ***1*** = down	/ hog / hardware / go / 9 ***1***
Pause	/ hog / hardware / pause / master #	***0*** = up, ***1*** = down	/ hog / hardware / pause/ 9 ***1***
Back	/ hog / hardware / goback / master #	***0*** = up, ***1*** = down	/ hog / hardware / goback / 9 ***1***
Flash	/ hog / hardware / flash / master #	***0*** = up, ***1*** = down	/ hog / hardware / flash / 9 ***1***

Playback	OSC Command Path	Argument	Example (key press down)
Main Go	/ hog / hardware / maingo	*0* = up, *1* = down	/ hog / hardware / maingo *1*
Main Halt	/ hog / hardware / mainhalt	*0* = up, *1* = down	/ hog / hardware / mainhalt *1*
Main Back	/ hog / hardware / mainback	*0* = up, *1* = down	/ hog / hardware / mainback *1*
Center Choose	/ hog / hardware / mainchoose	*0* = up, *1* = down	/ hog / hardware / mainchoose *1*
Skip Forward	/ hog / hardware / skipfwd	*0* = up, *1* = down	/ hog / hardware / skipfwd *1*
Skip Back	/ hog / hardware / skipback	*0* = up, *1* = down	/ hog / hardware / skipback *1*
Restart	/ hog / hardware / restart	*0* = up, *1* = down	/ hog / hardware / restart *1*
Assert	/ hog / hardware / assert	*0* = up, *1* = down	/ hog / hardware / assert *1*
Release	/ hog / hardware / release	*0* = up, *1* = down	/ hog / hardware / release *1*
GM	/ hog / hardware / gm	*0* = up, *1* = down	/ hog / hardware / gm *1*
DBO	/ hog / hardware / dbo	*0* = up, *1* = down	/ hog / hardware / dbo *1*
Next Page	/ hog / hardware / nextpage	*0* = up, *1* = down	/ hog / hardware / nextpage *1*
Back Page	/ hog / hardware / backpage	*0* = up, *1* = down	/ hog / hardware / backpage *1*
Main Go	/ hog / hardware / maingo	*0* = up, *1* = down	/ hog / hardware / maingo *1*
Main Halt	/ hog / hardware / mainhalt	*0* = up, *1* = down	/ hog / hardware / mainhalt *1*

Programmer	OSC Command Path	Argument	Example (key press down)
Pig	/ hog / hardware / pig	*0* = up, *1* = down	/ hog / hardware / pig *1*
Period	/ hog / hardware / period	*0* = up, *1* = down	/ hog / hardware / period *1*
Arrow Up	/ hog / hardware / up	*0* = up, *1* = down	/ hog / hardware / up *1*
Arrow Down	/ hog / hardware / down	*0* = up, *1* = down	/ hog / hardware / down *1*
Arrow Left	/ hog / hardware / left	*0* = up, *1* = down	/ hog / hardware / left *1*
Arrow Right	/ hog / hardware / right	*0* = up, *1* = down	/ hog / hardware / right *1*
@	/ hog / hardware / at	*0* = up, *1* = down	/ hog / hardware / at *1*
Minus	/ hog / hardware / minus	*0* = up, *1* = down	/ hog / hardware / minus *1*
Plus	/ hog / hardware / plus	*0* = up, *1* = down	/ hog / hardware / plus *1*
Slash	/ hog / hardware / slash	*0* = up, *1* = down	/ hog / hardware / slash *1*
Backspace	/ hog / hardware / backspace	*0* = up, *1* = down	/ hog / hardware / backspace *1*
Thru	/ hog / hardware / thru	*0* = up, *1* = down	/ hog / hardware / thru *1*
Function keys	/ hog / hardware / h#	*0* = up, *1* = down	/ hog / hardware / h9 *1*
U Keys	/ hog / hardware / u#	*0* = up, *1* = down	/ hog / hardware / u2 *1*
Intensity	/ hog / hardware / intensity	*0* = up, *1* = down	/ hog / hardware / intensity *1*
Position	/ hog / hardware / position	*0* = up, *1* = down	/ hog / hardware / position *1*
Colour	/ hog / hardware / colour	*0* = up, *1* = down	/ hog / hardware / colour *1*
Beam	/ hog / hardware / beam	*0* = up, *1* = down	/ hog / hardware / beam *1*
Effect	/ hog / hardware / effect	*0* = up, *1* = down	/ hog / hardware / effect *1*
Time	/ hog / hardware / time	*0* = up, *1* = down	/ hog / hardware / time *1*
Group	/ hog / hardware / group	*0* = up, *1* = down	/ hog / hardware / group *1*
Fixture	/ hog / hardware / fixture	*0* = up, *1* = down	/ hog / hardware / fixture *1*
Live	/ hog / hardware / live	*0* = up, *1* = down	/ hog / hardware / live *1*
Scene	/ hog / hardware / scene	*0* = up, *1* = down	/ hog / hardware / scene *1*
Cue	/ hog / hardware / cue	*0* = up, *1* = down	/ hog / hardware / cue *1*
Plot	/ hog / hardware / plot	*0* = up, *1* = down	/ hog / hardware / plot *1*
Batch	/ hog / hardware / batch	*0* = up, *1* = down	/ hog / hardware / batch *1*
Master	/ hog / hardware / master	*0* = up, *1* = down	/ hog / hardware / master *1*
Macro	/ hog / hardware / macro	*0* = up, *1* = down	/ hog / hardware / macro *1*
List	/ hog / hardware / list	*0* = up, *1* = down	/ hog / hardware / list *1*
Page	/ hog / hardware / page	*0* = up, *1* = down	/ hog / hardware / page *1*
Delete	/ hog / hardware / delete	*0* = up, *1* = down	/ hog / hardware / delete *1*
Move	/ hog / hardware / move	*0* = up, *1* = down	/ hog / hardware / move *1*
Copy	/ hog / hardware / copy	*0* = up, *1* = down	/ hog / hardware / copy *1*
Update	/ hog / hardware / update	*0* = up, *1* = down	/ hog / hardware / update *1*

Programmer	OSC Command Path	Argument	Example (key press down)
Merge	/ hog / hardware / merge	*0* = up, *1* = down	/ hog / hardware / merge *1*
Record	/ hog / hardware / record	*0* = up, *1* = down	/ hog / hardware / record *1*
Setup	/ hog / hardware / setup	*0* = up, *1* = down	/ hog / hardware / setup *1*
Goto	/ hog / hardware / goto	*0* = up, *1* = down	/ hog / hardware / goto *1*
Set	/ hog / hardware / set	*0* = up, *1* = down	/ hog / hardware / set *1*
Fan	/ hog / hardware / fan	*0* = up, *1* = down	/ hog / hardware / fan *1*
Open	/ hog / hardware / open	*0* = up, *1* = down	/ hog / hardware / open *1*
Next	/ hog / hardware / next	*0* = up, *1* = down	/ hog / hardware / next *1*
Back	/ hog / hardware / back	*0* = up, *1* = down	/ hog / hardware / back *1*
All	/ hog / hardware / all	*0* = up, *1* = down	/ hog / hardware / all *1*
Clear	/ hog / hardware / clear	*0* = up, *1* = down	/ hog / hardware / clear *1*
Blind	/ hog / hardware / blind	*0* = up, *1* = down	/ hog / hardware / blind *1*
Highlight	/ hog / hardware / highlight	*0* = up, *1* = down	/ hog / hardware / highlight *1*
Func	/ hog / hardware / func	*0* = up, *1* = down	/ hog / hardware / func *1*

Number Pad	OSC Command Path	Argument	Example (key press down)
0	/ hog / hardware / zero	*0* = up, *1* = down	/ hog / hardware / zero *1*
1	/ hog / hardware / one	*0* = up, *1* = down	/ hog / hardware / one *1*
2	/ hog / hardware / two	*0* = up, *1* = down	/ hog / hardware / two *1*
3	/ hog / hardware / three	*0* = up, *1* = down	/ hog / hardware / three *1*
4	/ hog / hardware / four	*0* = up, *1* = down	/ hog / hardware / four *1*
5	/ hog / hardware / five	*0* = up, *1* = down	/ hog / hardware / five *1*
6	/ hog / hardware / six	*0* = up, *1* = down	/ hog / hardware / six *1*
7	/ hog / hardware / seven	*0* = up, *1* = down	/ hog / hardware / seven *1*
8	/ hog / hardware / eight	*0* = up, *1* = down	/ hog / hardware / eight *1*
9	/ hog / hardware / nine	*0* = up, *1* = down	/ hog / hardware / nine *1*

22.4.3 OSC Wheel Mappings

Hog OS uses the OSC paths listed in the table below for receiving encoder wheel commands. Please note the # in the OSC command path need to reference a valid number. The example column displays the argument in ***bold italics***. Hog can process arguments sent as a float or integer.

Wheel Buttons	OSC Command Path	Argument	Examples
Encoder Button	/ hog / hardware / ewheelbutton / #	***0*** = up, ***1*** = down	/ hog / hardware / ewheelbutton / 1 ***1***
i-Wheel Up	/ hog / hardware / iwheelup	***0*** = up, ***1*** = down	/ hog / hardware / iwheelup ***1***
iWheel Down	/ hog / hardware / iwheeldown	***0*** = up, ***1*** = down	/ hog / hardware / iwheeldown ***1***
POS Mode	/ hog / hardware / posmode	***0*** = off, ***1*** = on	/ hog / hardware / posmode ***1***

Wheels	OSC Command Path	Argument	Examples
Trackball	/ hog / hardware / trackball	**x,y**values	/ hog / hardware / trackball ***10,10***
Encoder Wheels	/ hog / hardware / encoderwheel / #	***-20 < 20***	/ hog / hardware / encoderwheel / 1 ***-20***
Rate Wheel	/ hog / hardware / ratewheel	***-20 < 20***	/ hog / hardware / ratewheel **-20**
Intensity Wheel	/ hog / hardware / iwheel	***-20 < 20***	/ hog / hardware / iwheel ***-20***

22.4.4 OSC Fader Mappings

Hog OS uses the OSC paths listed in the table below for receiving fader commands. Please note the # in the OSC command path need to reference a valid number. The example column displays the argument in ***bold italics***. Hog can process arguments sent as a float or integer.

Wheels	OSC Command Path	Argument	Examples
GM Fader	/ hog / hardware / fader / 0	0 < 255	/ hog / hardware / fader / 0 ***255***
Faders 1 thru 90	/ hog / hardware / fader / #	0 < 255	/ hog / hardware / fader / 3 ***255***

22.4.5 OSC System Command Mappings

Hog OS supports input of the following system commands.

Hog Command	OSC Command Path with Argument
Output a refresh of all the button led statuses	/ hog / command consoleledrefresh
Output a refresh of all the fader level statuses	/ hog / command consolefaderrefresh
Output a refresh of all supported statuses	/ hog / command refreshall

22.5 OSC Output Mappings

22.5.1 OSC Playback Mappings

Hog OS does not output playback activity via OSC. This functionality is not supported nor configurable.

22.5.2 OSC Status Mappings

Hog OS outputs the following **status** messages to OSC controllers:

Hog OS	OSC Command Path	Example
Front Panel LED Status (legacy)	/ hog / status / led / buttonname	hog / status / led / clear
Front Panel LED Backlight Color	/ hog / status / led / buttonnamecolour	/ hog / status / led / clearcolor
The Command Line	/ hog / status / commandline	hog / status / commandline
Encoder Wheel Labels	/ hog / status / encoderwheel# / label	hog / status / encoderwheel3 / label
Encoder Wheel Values	/ hog / status / encoderwheel# / value	hog / status / encoderwheel3 / value
Function Key Labels (Line 1)	/ hog / status / h# / line1	/ hog / status / h1 / line1
Function Key Labels (Line 2)	/ hog / status / h# / line2	/ hog / status / h1 / line2
Most Recent Chat Message	/ hog / status / chatline1	/ hog / status / chatline1
Second Most Recent Chat Message	/ hog / status / chatline2	/ hog / status / chatline2
Third Most Recent Chat Message	/ hog / status / chatline3	/ hog / status / chatline3

22.6 OSC Network Considerations

22.6.1 OSC Over Wired Ethernet.

High End Systems strong urges that OSC messaging should be carried out over a wired network link. We cannot guarantee the performance of wireless OSC messaging systems due technical factors inherent to UDP protocol that is used to transmit OSC data.

22.6.2 OSC Over WiFi

Sending and receiving OSC over WIFI is possible, through the use of 3rd party wireless routers, however, High End Systems does not recommend using OSC over WiFi for critical show tasks for several reasons:

- **Reliability** : Some mobile OSC software applications such as TouchOSC only support UDP communications which do not include error-checking, and allow for out-of-order packet communication. This means that Hog OS cannot verify that OSC messages sent by the console will be received properly. This out-of-order receipt of information can cause severe performance issues.
- **Interference**: Wireless routing equipment encounter a wide range of potential interference on multiple radio frequencies. In cases where OSC over WiFi must be used, proper precautions must be taken to ensure minimal channel overlap, maximize quality of service (QoS) through various means and use networking equipment that support the latest connection protocols that minimize radio spectrum congestion.
- **Multi-Cast Routing Challenges**: The HogNet network (in which the OSC messages are integrated) utilizes multi-cast network traffic for communication between consoles and DPs which can present a significant challenge to wireless router CPUs. It is best to avoid low cost / low spec routers that may be overwhelmed with this type of traffic.

If a WiFi based OSC setup is required, it should be well-tested before being trusted for a live show environment. In all cases, wired connections are preferred.

23. Timecode

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23.1 Supported Timecode Input Devices

Hog OS supports a variety of timecode devices that are either built into the console or connected directly to the console via USB.

The table below lists the timecode devices compatible with Hog OS and where they are configured within the software.

Built-In Timecode Devices	Where to Configure
Hog 4 / Hog 4-18 Internal SMPTE	Processor Node Settings
Hog 4 / Hog 4-18 Internal MIDI	Console Node Settings
Full Boar 4 Internal SMPTE	Processor Node Settings
Full Boar 4 Internal MIDI	Console Node Settings
Tour Hog Internal SMPTE or MIDI	Console Node Settings
Stage Hog Internal SMPTE or MIDI	Console Node Settings
Flex Hog Internal SMPTE or MIDI	Console Node Settings
Gig Hog Internal SMPTE or MIDI	Console Node Settings

External Timecode Devices	Where to Configure
ETC Response MIDI Gateway (USB)	Console Node Settings
ETC Response SMPTE Gateway (USB)	Console Node Settings
Hog 3 Series USB LTC Widget	Processor Node Settings
Hog 4 Series Combo LTC/MIDI Widget	MIDI: Console Node Settings SMPTE: Processor Node Settings
Any Third Party “USB MIDI Class” Device	Console Node Settings

Tip: The network interfaces of the ETC Response MIDI Gateway and ETC Response SMPTE Gateway are not currently supported by Hog OS. However, in multi-console or multi-processor setups any connected and configured timecode device is available to all consoles connected to the show session.

Caution: In order for a third-party USB MIDI device to work with Hog it must be "USB MIDI Class” compliant. Third Party devices that require proprietary drivers will not work with Hog consoles.

23.2 Configuring Timecode Input Devices

Follow these steps to configure timecode devices that are built in or attached to the local console.

1. Open the Network window. **Setup** → **Network**
2. Select the local console or processor node from the list of devices in the network window and then press the **Settings** button. (Refer to the **supported device** table for help in determining whether the device should be configured in the console node or the processor node.)
3. Select the **Timecode** tab of the **Settings** Window.
4. Map the timecode device to one of the eight indexes by pressing the **blue plus** button located to the far right of the index
5. Select a device from the device drop down menu and press **Apply**.

23.3 How to View Incoming Timecode

To view incoming timecode for all timecode devices in the network, hold the **Open** key and select **Timecode** from the main toolbar. If the console is a Tour Hog, Stage Hog, or Flex Hog, then you can also open the timecode window by pressing on the clock display in the System Toolbar and pressing the Timecode button.

To view incoming timecode for a specific timecode device, navigate to the **Timecode** tab of the node settings window where the device is configured and enable the **View Timecode Toolbar** button on the appropriate device mapping.

The Timecode Toolbar displays the incoming timecode type, format, value, and frame regeneration. Frame Regeneration occurs when the console does not receive a clean timecode signal and must make up for the missing frames in order to prevent missed cues. You can set how many frames of timecode are generated by the console before timecode is lost in the timecode settings window by clicking on the movie slate icon in the timecode toolbar.

To diagnose issues with Timecode, click the **Metrics** button located in either the Timecode window or the Timecode toolbar. This opens the Metrics Menu, which displays key statistics about the incoming timecode stream.

Metric	Description
Frame Count	Number of frame updates since the last reset
Frame Rate	Number of frames received per second
Min Interval	Shortest time between successive decoded frames (in milliseconds)
Max Interval	Longest time between successive decoded frames (in milliseconds)
Avg Interval	Average time between successive decoded frames (in milliseconds)
Min Latency	Shortest delay between when a frame should occur and when it's received (ms)
Max Latency	Longest delay between when a frame should occur and when it's received (ms)
Avg Latency	Average delay between when a frame should occur and when it's received (ms)

Diagnostic Tips

- **Frame Rate** should remain stable and match the source timecode while running (29.97, 24, 25, 30 fps)
- **Frame Count** should increment smoothly without stuttering, stopping, or jumping
- For 30 fps timecode, the expected **avg interval** should be approximately 33.3ms. Larger values indicate increased jitter or decoding delay.
- An **avg latency** of < 15ms is considered acceptable in most real-time applications. Values above 15ms are concerning.
- High **Max Interval** or **Max Latency** values are not always problematic – they may reflect intentional pauses or stops in the timecode stream by the operator.

If any of the metrics above show irregularities, consider the following steps to improve timecode input integrity:

- Check cable connections and signal quality.
- Ensure the timecode source is functioning correctly.
- Verify that the receiving device is configured to match the source format.
- Hog PC: Minimize system load or background processes that may interfere with decoding

23.4 Assigning and Enabling a Timecode Source for a List

Once a timecode device is configured in a show, it can be assigned as the timecode source for one or more lists.

To assign the timecode source for list 1 follow this procedure:

1. **List** 1 **Open**
2. Press the **Options** button located at the top left of the master window to open the **Playback Options** window for the list.
3. Select the **Cuelist** tab of the **Playback Options** window.
4. Use the **Timecode Source** drop down menu to choose a timecode device as the timecode source.
5. Press the **Enable Timecode** button to active timecode input from the assigned source to the list.

Tip: The Enable Timecode button at the top of a cuelist's master window allows for quick enabling and disabling of timecode input for that specific cuelist.

23.5 Modifying the Timecode Frame Rate for a List

The timecode frame rate of a list can be set to 24, 25, or 30 FPS. The default value for new lists is 30 FPS. The frame rate is an important list setting as it alters how the console parses edits made to the timecode values for cues. For example, entering a timecode value of 00/00/12.28 when the timecode frame rate is set to 25 FPS will result in a stored timecode value of 00/00/12.24 since there are only 25 frames per second under the 25 FPS setting.

To modify the timecode source for list 1 follow this procedure:

1. **List** 1 **Open**
2. Press the **Options** button at the top left of the list window.
3. Select the **Cuelist** tab of the **Playback Options** window
4. Use the **Timecode Frame Rate** drop down menu to choose a frame rate.

Caution: Changing the timecode frame rate of a list will alter all of the timecode values for cues in the list so that they conform to the new frame rate.

23.6 Assigning Timecode Values to Cues

To manually add/edit a timecode value for a cue in list 1:

1. **Open List** 1
2. Select the **Wait Cell** for the desired cue and press the **Set** key.
3. Enter a timecode value in hours, minutes, seconds and frames, in the form **hh:mm:ss.ff**
4. Press **Enter** to confirm the new value.

To automatically stamp Timecode values in the Wait Column as the List is Played:

1. Enable the **Learn Timing** option at the top of the list window.
2. Toggle on the **Enable Timecode** button, also at the top of the list window.
3. Start the timecode.
4. Play through the cues in the list according to the desired timing.

As each cue completes its crossfade, a timecode stamp will automatically be added to the Wait Column for that cue.

To manually edit the timecode values for a range of cues in list 1:

1. **Open List** 1
2. Click and drag across the **Wait** Cell column to select the desired range of cues.
3. Press the **Set** key.
4. Edit the timecode value of the first cell in the selected range and press **Enter**.

The timecode value in the first cell will update to the newly entered value. All subsequent timecode values in the selected range will adjust automatically, based on the difference (delta) between the original and new values of the first cell.

If you have a series of cues in List 1, each triggered one second after the previous, increasing the timecode value for the first cue by 12 frames will result in all subsequent cue values also increasing by 12 frames–maintaining the one-second separation. Hog OS makes this adjustment process simple:

1. **Open List** 1
2. Click and drag to select the **Wait** Cells for the range of cues to be edited.
3. Press **Set**.
4. Update the timecode value for the first cell and press **Enter**.
5. All selected timecode values will shift consistently by the same amount of time added or subtracted from the first cell.

23.7 Timecode Options

By default, a timecoded list will synchronize its timecode source as the clock moves forwards and backwards. To prevent a list going to an earlier cue when the timecode source goes to an earlier clock value enable the **Trigger Forwards Only** option.

To configure this option for list 1

1. **List 1 Open**
2. Press the **Options** button at the top left of the list window.
3. Select **Trigger Forwards Only**.

23.8 Simulating Timecode

To temporarily simulate timecode on the console, press the **Simulate** button on the **Timecode Toolbar** or on the corresponding timecode device in the Timecode Window. When simulate is enabled the external timecode input for that source will be ignored. To start the simulated timecode clock, press the **Play** button next to the simulate button.

> Tip: The jump toolbar allows you to navigate the simulated timecode value to six preset jump points. To customize these points, simply click "TIMECODE" on the far-left side of the toolbar. This will open a dropdown menu containing fields where you can adjust the simulated jump points to your preference.

24. Macros

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24.1 Intro to Macros

There are two types of macros you can use to automate tasks on the console. *Comment Macros* are placed in the macro field of cuelist and other objects to trigger activity on the console. *Keystroke Macros* allow a sequence of screen and button presses to be recorded for later playback.

24.2 Comment Macros

Comment Macros are simple, short-hand, system level commands that can be executed when show is launched, a page is loaded, or a cue or scene is played. Please refer to tables below for a comprehensive list of comment macro commands.

Controlling Masters			
Comment Macro	*Syntax*	*Example*	*Notes*
Go Master	GM[master]/[cue]	GM1/3	Use '*' for the current chosen master. If you omit the cue number, the next cue will Go.
Go Master	GM[range]	GM2>7	Go next cue on a range of masters.
Halt Master	HM[master or range]	HM1,3:HM2>7	
Assert Master	AM[master or range]	AM1:AM2>7	
Release Master	RM[master or range]	RM1:RM2>7	
Release All	RA	RA	Equivalent to Pig + Release.
Release Others	RO	RO	Releases all masters except the one with the macro.
Fade Master	FM[master]/[level] [timing]	FM2/50t2	Fades master 2 to 50% in 2 seconds. To fade in 0s omit the timing portion of the macro.
Fade Grand Master	FGM[level] [timing]	FGM10t3	Fades the grand master to 10% in 3 seconds. To fade the grand master in 0s omit the timing portion of the macro.
Choose Master	CM[master]	CM1	

Controlling Cuelists			
Comment Macro	*Syntax*	*Example*	*Notes*
Go Cuelist	GL[list]/[cue]	GL1.5, GL2/5	If you omit the cue number, the next cue will Go.
Halt Cuelist	HL[list]	HL1,6	
Assert Cuelist	AL[list]	AL10	
Release Cuelist	RL[list]	RL4,7,9	

Controlling Batches			
Comment Macro	*Syntax*	*Example*	*Notes*
Go Batch	GB[batch]	GB12	
Halt Batch	HB[batch]	HB1	
Assert Batch	AB[batch]	AB10	
Release Batch	RB[batch]	RB4	

Controlling Scenes			
Comment Macro	*Syntax*	*Example*	*Notes*
Go Scene	GS[scene]	GS12	
Halt Scene	HS[scene]	HS4	
Assert Scene	AS[scene]	AS1	
Release Scene	RS[scene]	RS6,20	

Controlling Pages, Playback Bars, and Views			
Comment Macro	*Syntax*	*Example*	*Notes*
Change Page	CP[page]	CP3	
Next Page	CP+	CP+	Goes to the next page in the Page Directory, skipping the template page and blank pages.
Back Page	CP-	CP-	Goes to the previous page in the Page Directory, skipping the template page and blank pages.
Recall View	RV[view]	RV2	
Dock Playback Bar	DPB#	DPB2	Docks the specified playback bar to its docking assignment.
Increment MR	MR+	MR+	Increment the Master Range by one
Decrement MR	MR-	MR-	Decrement the Master Range by one
Set MR	MR [specified]	MR3	Set the Master Range to a specific value

Controlling Timecode			
Comment Macro	*Syntax*	*Example*	*Notes*
Enable Timecode	ET[cuelist]	ET2	Enables timecode for the selected cuelist.
Disable Timecode	DT[cuelist]	DT2	
Open Timecode Toolbar	OT[node type][net num]/ [index num]	OTd1/1 OTh1/1	DMX Processor node type:d Console node type: h

Enabling / Disabling Clock Triggers			
Comment Macro	*Syntax*	*Example*	*Notes*
Enable Clock	EC[cuelist]	EC2	Enables clock triggers for Cuelist 2
Disable Clock	DC[cuelist]	DC2	Disables clock triggers for Cuelist 2

Sending MIDI strings		
Comment Macro	*Syntax*	*Example*
MIDI String	**MS[node type][node number]/[MIDI message]**	**MSh1/90 47 3F**
Midi strings can be used to send System Exclusive Midi Messages or Midi Note Messages but must be written using hex values (seeDecimal to Hex Conversion Chart). Listed below is a break down of how a midi string comment macro would be formatted for sending a midi note: MSh1 - indicates midi string will be sent from Hog Console with net number 1 [forward slash] 9 - indicates note on (8 indicates note off) 0 - midi channel number (0 in hex = 0 in decimal) [SPACE] 47 - midi note number (47 in hex = 71 in decimal) [SPACE] 3F - velocity (3F in hex = 63 in decimal) A simpler method for sending midi notes via comment macros is explained in the "sending midi notes" section below.		

Sending MIDI Notes		
Comment Macro	*Syntax*	*Example*
MIDI Note	**MN[reference to entry]**	**MNGoLaser**
In order to utilize midi note comment macros the user must first create entries in the "Midi Notes" window which can be opened by holding the Open key on the front panel and selecting the "Midi Notes" button on the open toolbar. Once a midi note message entry has been created in the Midi Note Window it will appear in the comment macro drop down menu for cues, scenes, and pages. If the details of a midi note entry are changed in the midi note window then any cues and scenes, or pages referencing that entry will also be updated.		

Enable and Disable MIDI Note and Controller Message Input / Output		
Comment Macro	*Syntax*	*Example*
Enable Notes In	**ENI[node type][net number]/[index]**	**ENIh1/1**
Disable Notes In	**DNI[node type][net number]/[index]**	**DNIh1/1**
Enable Notes Out	**ENO[node type][net number]/[index]**	**ENOh1/1**
Disable Notes Out	**DNO[node type][net number]/[index]**	**DNOh1/1**

Controlling Network Devices			
Comment Macro	*Syntax*	*Example*	*Notes*
Reset Node	**[node type] [net number]**	**RNH3**	Resets the selected network device. For the device type, use the following letter codes: H for Wholehog, D for processor .

Controlling Keystroke Macros			
Macro	*Syntax*	*Example*	*Notes*
GK	GK[macro number]	GK2	Runs Macro 2
HK	HK[macro number]	HK2	Pauses Macro 2
RK	RK[macro number]	RK2	Stops Macro 2

Tip: You can display and select from a list of available macro commands on the console by selecting the **Macro** cell and pressing the **Set** key.

24.2.1 Entering Comment Macro Commands

To enter a comment macro command into a macro cell:

1. Select the macro cell, and press **Set**.
2. Select a command from the drop down menu.
3. Enter the specific information for the macro, such as the master number.
4. Press **Enter** to finish or select another macro and repeat. If you add a further macro command, the ':' will be entered automatically.

Alternatively:

1. Select the macro cell, and press **Set**.
2. Enter the macro command manually using the keyboard.
3. Press **Enter** to finish.

Note that if you enter an invalid command, then the cell will revert to being empty when you press **Enter**.

24.2.2 Additional Comment Macro Syntax

For some comment macro commands such as fading masters you can specify the execution timing of the macro by adding a "t" followed by a numerical value in seconds:

FM10/1t10

Also within a comment macro command, you can specify multiple targets separated with commas:

RS6,20

or a range with a right angle-bracket:

HM2>7

You can have multiple comment macros executed by one cue by separating them with colons:

HM1,3:HM2>7

You can also send commands to a specified network device, using **H** (Hog) to refer to a console, **D** to refer to a DMX Processor, and **IOP** to refer to an MIDI/Timecode Processor. For example:

GM1H2 : will Go master 1 on console number 2.

RND3 : will reset DMX Processor number 3.

24.2.3 Disabling Comment Macros during playback

Comment Macros can be disabled per list and per scene using the following methods:

- Toggle on the **Disable Macros** button at the top of the master window.
- Hold the **Pig** key when pressing the **Go** or **Go Backwards** key on a master.
- Hold the **Pig** key when pressing the main **Go** or **Go Backwards** key for the chosen master.

For batches, holding the **Pig** key while sending Go commands to the batch members executes those individual show items without triggering their comment macros.

The state of the **Disable Macros** button persists for each list and scene across page changes and show loads and is applied to all consoles that are part of the show session.

24.3 Keystroke Macros

Keystroke Macros are a series of keystrokes, screen events, and encoder movements that are recorded into an object similar to a cuelist. When the Keystroke Macro is executed, the recorded key presses and actions are regenerated. Keystroke Macros can be executed manually or triggered by Comment Macros.

24.3.1 Recording Keystroke Macros

Key presses, screen events, and encoder movements can be recorded interactively and are always recorded into Keystroke Macros in the Macro directory. To begin recording key presses:

1. **Record** , **Macro:** the Macro Directory opens.
2. **[Macro 2]:** choose a location in the directory

Or, using the commend line, press:

- **Record** , **Macro** , **2** , **Enter**

If you leave out the Macro location:

- **Record** , **Macro** , **Enter**

The Keystroke Macro will be recorded in the next available location. If the destination Macro already exists, a pop-up will offer options: **Insert** , **Merge** , **Replace.**

When the Keystroke Macro begins recording, the Macro key LED will flash red and the keystroke macro status icon on the status toolbar will turn red to signify that recording has commenced.

All subsequent button presses, screen events, and encoder movements will be recorded into the specified Keystroke Macro. The time interval between the previous and current button press will also be recorded. Only one macro can be recorded at a time; the console will not allow you to record another macro while one is being recorded.

To stop the recording of a Keystroke Macro:

Pig + **Macro** key.

The **Macro** key LED will stop flashing and the keystroke macro icon on the status toolbar will turn grey.

24.3.2 Naming Keystroke Macros

You can give a Macro a name that will be displayed in the Macro Directory window:

1. **Open** + **Macro** : open the Macro Directory
2. Check that the **Guard** button is selected, so that you don't accidentally active a Macro when pressing its button in the directory.
3. Select the Macro.
4. **Set**, **[Name], Enter**: type in the name

> Tip: To name a Macro immediately after recording it, press the **Set** key to open a Quickname window. Enter the Macro name and press **OK** to select.

24.3.3 Keystroke Macro Playback

Every time a Keystroke Macro is recorded, it will automatically recall the state of the windows at the time of the recording. This assures that when a macro is run that the windows are set up in the correct places for touch screen presses. At the time of macro playback, the current onscreen windows will be replaced with that of the macro.

If the macro does not contain any specific touch screen presses, you can delete the Recall View step from the macro list. See Comment Macros for editing information.

Caution: While macros provide users with increased functionality, they can also cause severe problems if misused, even causing the console to lock up.

During macro playback, manual functions may become unavailable or interfere with the macro playback. For instance, if you enter information on the command line as the macro is doing the same, the resulting command line structure may become invalid.

Macros have no intelligence; avoid recoding sequences that access items that are likely to be moved or deleted. For example, consider the macro sequence where a cuelist is opened and some edit operations are then performed on this cuelist. The cuelist is then deleted from the cuelist directory, and the macro replayed. No cuelist window will open since the cuelist no longer exists, so all the subsequent edit operations will occur on whatever window was below it, possible altering the contents of unintended items.

When opening a window it will appear in the position in which it was last used. This means that unless the window is open when the macro is recorded, there is no guarantee that it will open in the right place with the macro is replayed. For example, consider recording a macro with a blank set of screens. The group window is opened and a couple of buttons are touched, then recording is stopped. Move the group window to the other touch screen and close it. When the macro is replayed, the group window will get opened on the other touch screen, but all the touch screen presses will still be on the original (blank) touch screen.

It is also possible to speed up a macro so that it runs faster than the console can keep up with. This problem tends to manifest itself as key presses being missed out when replaying the macro. Increasing the amount of time in the Wait column of the macro will solve this problem. The size of the wait required varies depending upon the number of things the desk is trying to do at once, and the complexity of the task initiated by the preceding key presses.

To stop the playback of a running macro:

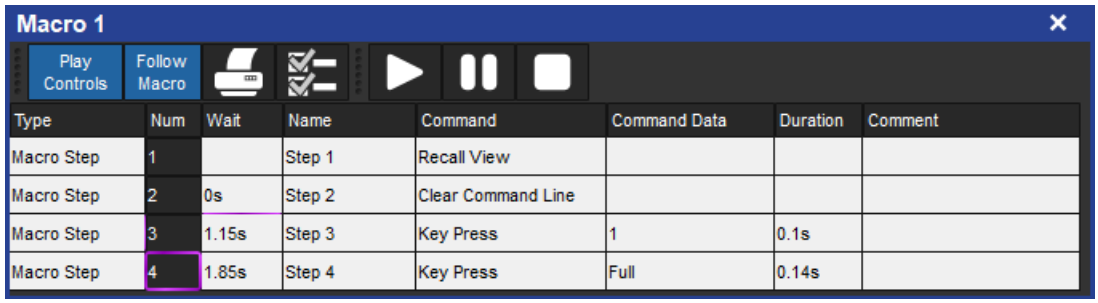
1. Macro + Release

Running a Keystroke Macro from the Macro Directory Window

1. Open the keystroke Macros directory window: Open + Macro -or- Macro, Macro
2. Make sure that the Guard button in the Macro Directory window is deselected.
3. Press a Macro button in the directory to play it. During Macro playback, the Macro LED will illuminate green and the keystroke macro icon on the status toolbar will turn green to signify that a keystroke macro is in playback. The Macro button in the directory will also provide feedback to show the Macro's running status.

Running a Keystroke Macro from the Macro Window

1. **Open** + **Macro**: open the Macro Directory Window.
2. Check that the **Guard** button is depressed.
3. **Open** + **[Macro 4]**: open the required Macro.
4. Press the **Play Controls** button in the Macro window. The on-screen playback controls will appear:



Type	Num	Wait	Name	Command	Command Data	Duration	Comment
Macro Step	1		Step 1	Recall View			
Macro Step	2	0s	Step 2	Clear Command Line			
Macro Step	3	1.15s	Step 3	Key Press	1	0.1s	
Macro Step	4	1.85s	Step 4	Key Press	Full	0.14s	

The controls are, from left to right, the **Go**,**Pause**, and **Stop** buttons.

During Macro playback, the Macro LED will illuminate green and the keystroke macro icon on the status toolbar will turn green. If the keystroke macro is paused, the **Macro** key LED will flash green.

Running Keystroke Macros from the Command Line

To run a Keystroke Macro from the command line:

- **Macro 1**, Enter: sends a start command to Macro 1.

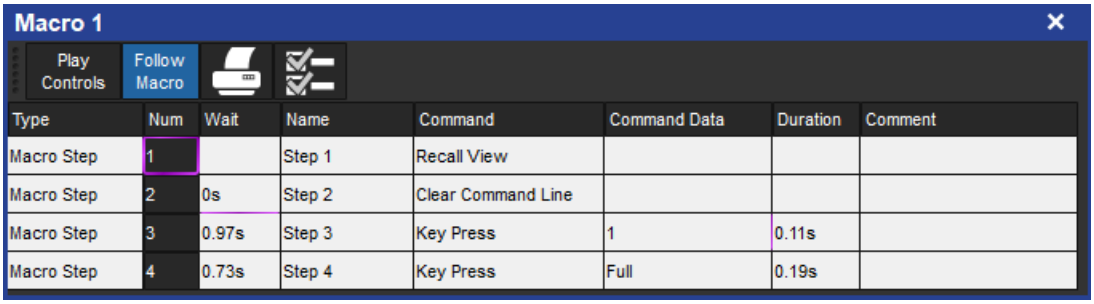
During keystroke macro playback, the Macro LED will illuminate green and the keystroke macro icon on the status toolbar will turn green.

Tip: Keystroke Macros can also be triggered within cuelists or scenes by using a Comment Macro. See Comment Macros for more information.

24.3.4 Editing Keystroke Macros

You can edit the contents of a Macro in an editor window. For example, to open Macro 1 for editing:

1. **Open** + **Macro:** opens the Macro Directory.
2. **Open** + **[Macro 1]:** opens the Macro editor for Macro 1.
3. Alternatively, using the command line: **Open Macro 1**



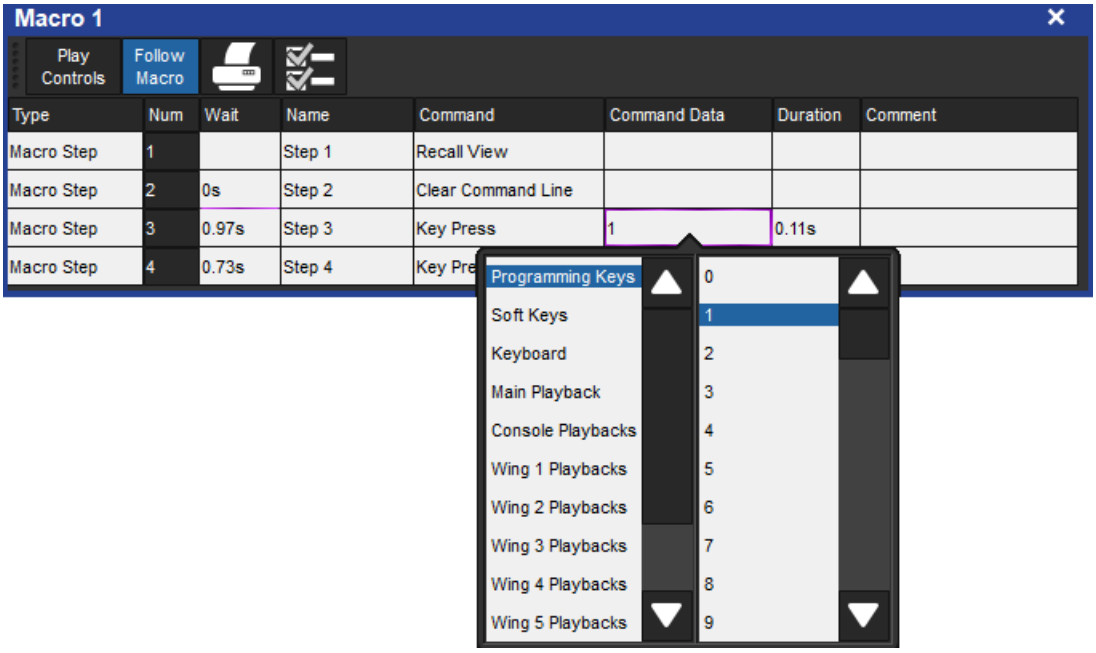
Type	Num	Wait	Name	Command	Command Data	Duration	Comment
Macro Step	1		Step 1	Recall View			
Macro Step	2	0s	Step 2	Clear Command Line			
Macro Step	3	0.97s	Step 3	Key Press	1	0.11s	
Macro Step	4	0.73s	Step 4	Key Press	Full	0.19s	

The Keystroke Macro window has six columns that define each step of the macro.

- **Wait**: The Wait time is the time between the triggering of the previous step and the next step to be triggered.
- **Name**: The name of the step.
- **Command**: Type of command used in this step.
- **Command Data:** The data that is applied to the selected command. The type of command selected will determine the type of available command data.
- **Duration**: The amount of time for the command data to be applied. This information is useful for encoder movements and flash key presses.
- **Comment**: A notes field.

Each of the above fields can be edited by selecting the appropriate cell and pressing **Set**. Command and Command Data fields will display available selections.

Command Data Selection



Deleting Keystroke Macro Steps

To delete a macro step:

1. Press and hold **Delete** whilst selecting the macro step to be deleted from the Macro window.
2. Release the **Delete** key. A dialog will appear asking you to confirm the delete.
3. Click **OK**.

24.3.5 Deleting Keystroke Macros

To delete a keystroke macro:

1. **Macro [1] Delete**: deletes Macro 1.
2. Click **OK**.

Or, from the macro directory:

1. Press and hold **Delete** whilst selecting the macro to be deleted from the Macro Directory window.
2. Click **OK**.

> Tip: For advanced Macro control, you may wish to delete either of the first two default steps of a macro. The first step is a recall view and the second step clears the command line.

> Tip: If you prefer not to be asked to confirm the delete action, select Don't Ask Me Again in the confirmation window. You can re-enable the confirmation by going to Macro → Preferences → Programming and selecting Confirm before deleting directory items.

24.3.6 Copying and Moving Keystroke Macros

To make a copy of a macro in a new location:

1. **Open** + **Macro**: open the Macro Directory.
2. Check that the **Guard** button is depressed so you do not accidentally apply macros when trying to select them.
3. Select the macro that you want to copy by pressing its button in the directory.
4. Press and hold the **Copy** key.
5. Press the button of the location in the directory you want to copy the macro to.

Or, using the command line:

- **Macro 2 Copy Macro 3 Enter:** copies the contents of Macro 2 to Macro 3.
- Similarly, to move a macro to a new location:
- **Macro 2 Move Macro 3 Enter:** moves the contents of Macro 2 to Macro 3 leaving 2 empty. If the destination macro already exists, you will be asked to choose an option: Insert, Merge or Replace.

Insert, Add Steps, and Replace

When recording or copying a macro, if the destination location already has a macro recorded in it, you will be prompted with record options of Insert, Add Steps, or Replace. If you are moving a macro, only the Insert option is available.

Insert: creates a new destination for the macro. The new macro will be assigned a free location just before the one chosen, using a point number if necessary.

Add Steps: adds the macro steps from the source macro into the destination macro. All new information is appended to the end of the current macro steps.

Replace: overwrites the macro information in that destination.

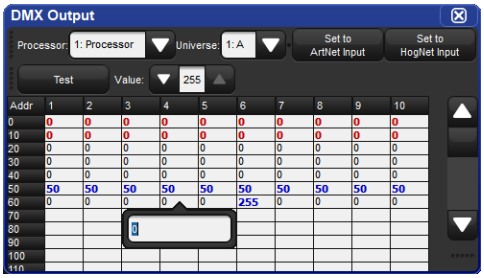
Tip: If you know that you are about to record, copy or move a macro to an existing destination, you can pre-select Insert, Merge or Replace from the Record Options Toolbar. This appears after you press the Record, Copy or Move keys.

25. Direct Control of DMX Channels

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25.3 Setting DMX Channels to External Art-Net Source 471
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25.5 DMX Test 472

25.1 The DMX Output Window

By default the DMX channel values output by a processor are controlled by patched fixture data as programmed in the Hog show file. However, you may wish to override these values with manually entered DMX values or with Art-Net values streaming into the console from a remote third party Art-Net source such as another console. Both of these tasks can be accomplished in the DMX output window by following the instructions outlined in this chapter.



25.2 Manually Specifying DMX Channel Values

To manually set a DMX channel or group of channels to a specific value:

1. Open the DMX Output window (press **Setup** on the front panel and select the **DMX** button on the main toolbar.)
2. Use the drop down menus at the top of the DMX Output window to select a processor and universe.
3. Double click on the desired DMX channel cell in the spreadsheet (or highlight a group of DMX channel cells and press set)
4. Enter a valid DMX value (0 thru 255)
5. Press **Enter** to confirm (the value will now be displayed in blue)

25.3 Setting DMX Channels to External Art-Net Source

Hog OS supports routing Art-Net Input from external sources on the Fixture Net network to DMX Processor Outputs. Hog OS does not support DMX In for console control or signal routing.

To set a DMX channel or group of DMX channels to values based on a remote Art-Net source:

1. Open the DMX Output window (press the **Setup** key on the front panel and select the **DMX** button on the main toolbar.)
2. Use the drop down menus at the top of the DMX Output window to select a processor and universe.
3. Select the desired DMX channel cell in the spreadsheet (or highlight a group of DMX channel cells)
4. Press the **Set to Art-Net Input** button in the top (the value will now be displayed in red)
5. Open the **Network Window**
6. Select the corresponding processor and press the **Settings** button.
7. Select the **Input** tab of the Processor Settings Window.
8. Press the **Add Mapping** button.
9. Use the scroll boxes to select a range of universe for which you want to configure Art-Net Input. Press **OK**.
10. It is important to note that a universe can only have one Art-Net Input mapping per processor.
11. Modify the port value (incoming Art-Net Sub/Uni) for each mapping as needed.
12. Press **Apply** or **OK**.
13. The processor will now route the incoming Art-Net stream to the universe and output to the channels set to Art-Net input in the DMX window.

Caution: Do not configure a processor's Art-Net input and output settings for a given universe to the same Art-Net subnet/universe.

25.4 Reverting DMX Channels to HogNet Control

To set a DMX channel or group of DMX channels back to values generated by Hog programming:

1. Select the desired DMX channel cell in the DMX output window's spreadsheet (or highlight a group of DMX channel cells)
2. Press the **Set to HogNet Input** button at the top of the window (the value will now be displayed in black)

> Tip: All DMX channel value changes made in the DMX output window are stored with the show file and are persisted through log off / on as well as through show backups.

25.5 DMX Test

DMX Test allows users to temporarily set a DMX channel or group of DMX channels to a custom "value" as set in the scroll box at the top of the window when the coordinating cells are selected in the DMX output window:

1. Toggle on the **Test** button at the top of the DMX output window.
2. Select any DMX channel cell or group of DMX channel cells in the DMX output window spreadsheet.

> Tip: The DMX test feature can be used to perform a traditional "dimmer check" by toggling on the **Test** button in the DMX output window, selecting a DMX channel cell in the spreadsheet, and using the cursor left and right keys to go through the DMX channels for that universe.

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26. Reporting

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26.3 Using Report Results to Edit Programming 475

26.1 Creating, Running, and Managing Report Queries

The reporting tool of the Hog OS enables users to quickly search for specific programming in the current show file by creating custom queries that search for specific show data. For example, you may want to identify which fixtures in the show are referencing position palette 12 in list 43. This data can quickly be found by running a report that queries for this data.

Reports are generated by running a report query which identifies which data you want the console to search for. This section will cover how to build, save, delete, and run report queries.

Follow these instructions of for **building** a new query:

1. Hold the **Open** key and press the **Report** button on the main toolbar to open a new reporting window.
2. Choose an option from the drop down menu for “Find programming that matches”:

   - When set to **All of the following** the console will only return data that matches all the query statements.

   - When set to **Any of the following** the console will return data that matches any of the query statements.

3. At least one query statement is required in the query pane of the report window in order for the console to successfully run the report. To add or subtract query statements use the **+** and **X** buttons to the right of each query statement.
4. Once you are finished editing the query press the **Run** button.
5. The console will now run the query against the data in the show file and post the results of the query in the bottom half of the reporting window.

Follow these instruction to **save** a query:

1. Create a query in the query section of the report window.
2. Press the **Save Query...** button.
3. Name the query in the save query dialogue box.
4. Press **OK**
5. The saved query will be listed in the query drop down menu at the top left of the report window. To recall a saved query simply select the query from the drop down menu.

Follow these instruction to **delete** a query:

1. Select a saved query from the "queries" drop down menu at the top left of the report window.
2. Press the **Delete Query...** button

Tip: If you have a show file that contains reporting queries that you find particularly useful and that you wish to use in other show files then you can use the show merge utility to merge those report queries into other show files.

26.2 Organizing and Saving Report Results

By default the results of a report are aggregated and sorted by container (list/scene) and then further sorted by location, fixture, and function/value. However, you can custom sort, sub-sort, and sub-aggregate the results as you wish. To master sort and master aggregate the report results right click on any one of the column headers and select **Sort**. You can add other column headers into your master sort & aggregation by right clicking on a column header and selecting **Sub-Aggregate**. For example, you can sort and aggregate the reporting results by container and then sub-aggregate by location so that each aggregate header encapsulates data reported for each cue in a list (e.g. List 1 - Cue 1).

Once a report is run and the data is organized to your liking you can export the results as a CSV file or a PDF document by pressing the corresponding button in the report window. A file browser will pop up allowing you to select a storage location for the saved report.

26.3 Using Report Results to Edit Programming

Clicking on any “location” cell in the report results will open that location inside of an editor. This allows users to view the data in the original editor, make changes, and update the look if necessary.

> Tip: Function values cannot be edited directly in the report results sheet. You must first click on the location cell to open the data in an editor.

27. Fixture Library

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27.3 Request Fixture Types from High End Systems 480

27.1 Introduction

A fixture library is a dedicated file installed into the libraries folder on the console that contains DMX mappings called "fixture types" which provide Hog OS with a model for controlling a fixture's programmable parameters. When new fixtures are introduced to the market new fixture types must be created to enable control of those fixtures in the Hog OS. To ensure that Hog programmers have control over the latest fixtures, a Full Fixture Library is automatically installed with each Hog OS Software release. In addition, full library updates and individual fixture type libraries (based on user requests) are made available on the High End Systems website between console software releases. This section will cover how to download and install fixture libraries from the High End Systems website and how to submit a request to High End for fixture types not yet available online.

27.2 Download and Install Fixture Libraries

In most cases the best way to ensure you have the latest Hog OS fixture library on your console is to ensure you are running the latest version of Hog OS. However, sometimes High End will release full library updates as well as smaller single fixture libraries on the High End System website between software releases in order to ensure users have the most up-to-date information as possible. This section will cover how to install these full libraries onto a Hog series console.

To download and install a fixture library onto console:

1. Visit the ETC Fixture Library Hub online (https://fixture-library-hub.etcconnect.com/)
2. Use to site download the latest full Hog fixture library or to search for and download libraries for specific products.
3. Copy the downloaded fixture library to a USB flash drive.
4. Insert the USB flash drive into the console.
5. Navigate to the Hog OS start screen and click on the **File Browser** button.
6. Use the file browser window to drag and drop the fixture library file from the USB flash drive into the libraries directory on the console.
7. The fixture library is now installed on the console.

To schedule fixtures from the installed fixture libraries installed on a console:

1. Open the Fixture Window.
2. Click on the **Add Fixtures** button.
3. Click on the **Select Library** button at the bottom of the fixture schedule window.
4. Choose the installed fixture library you want to schedule fixtures from and press **OK**.
5. Use the fixture schedule window to schedule fixtures from the fixture library you selected in step 4.

27.3 Request Fixture Types from High End Systems

If a fixture profile you require cannot be found in the Fixture Library installed on your console, follow these instructions:

1. Visit the ETC Fixture Library Hub: (https://fixture-library-hub.etcconnect.com/)
2. Use the browse page to search for the profile you require
3. If the profile cannot be found on the Hub then use the request page to submit a new profile request.

ETC recommends that you log in before submitting your request so that you can track your requests on the the Fixture Library Hub. You can still submit a request without logging in but the request form will require additional information such as your name and email address. This is so that we can communicate the status of your request and deliver the profile to you.

Important Note about Requesting Fixture Profiles for Life Threatening Devices:
ETC policy is that we do not create / provide fixture definitions for our controls products (entertainment / architectural) for devices that would be classified as pyrotechnics or could be dangerous to show personnel / audience members (where best practices require life-safety overrides such as Emergency Stops, for example).

This also includes Class 4 laser products and Rigging Devices such as winches.

While the boundary of what might be considered dangerous may be fuzzy, ETC will always err on the side of safety in these cases.
There is nothing that stops a user from creating their own profile or using one of our external triggering methods to interface with pyrotechnics / special effects or similar devices. ETC will not provide pre-built profiles for items that could be considered as such.

28. Fixture Builder

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28.1 Introduction

Hog OS Fixture Builder is an integrated tool that allows users to create custom fixture profiles for lighting fixtures that may not have pre-existing profiles in the current fixture library.

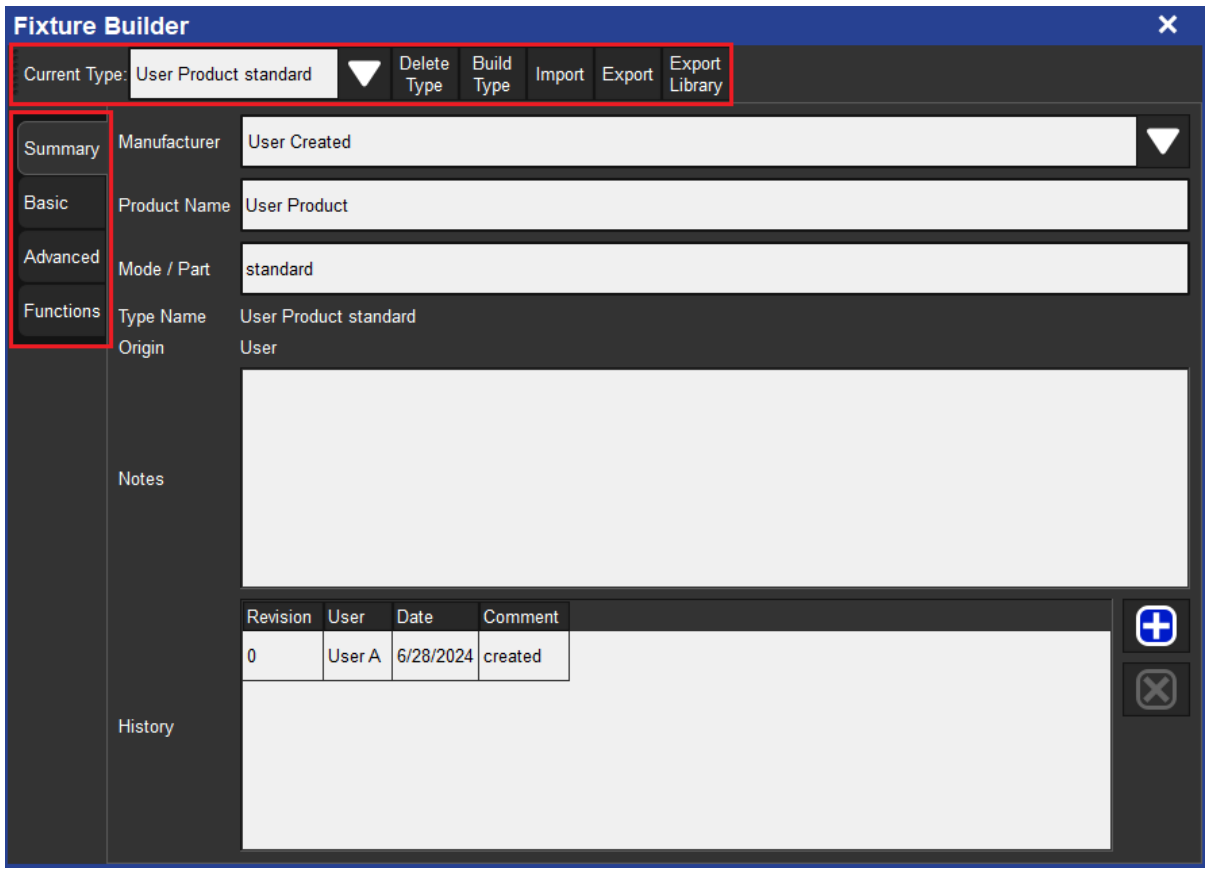
This tool is a valuable feature for lighting professionals because it enables them to control a wide range of fixtures, including newer or less common ones, into their lighting designs.

In this section a general overview of Fixture Builder, the typical work flow of building a fixture and the creation or modification of a previously defined type.

28.2 Fixture Builder User Interface

28.2.1 Fixture Builder Window

The fixture builder window is comprised of two main components:

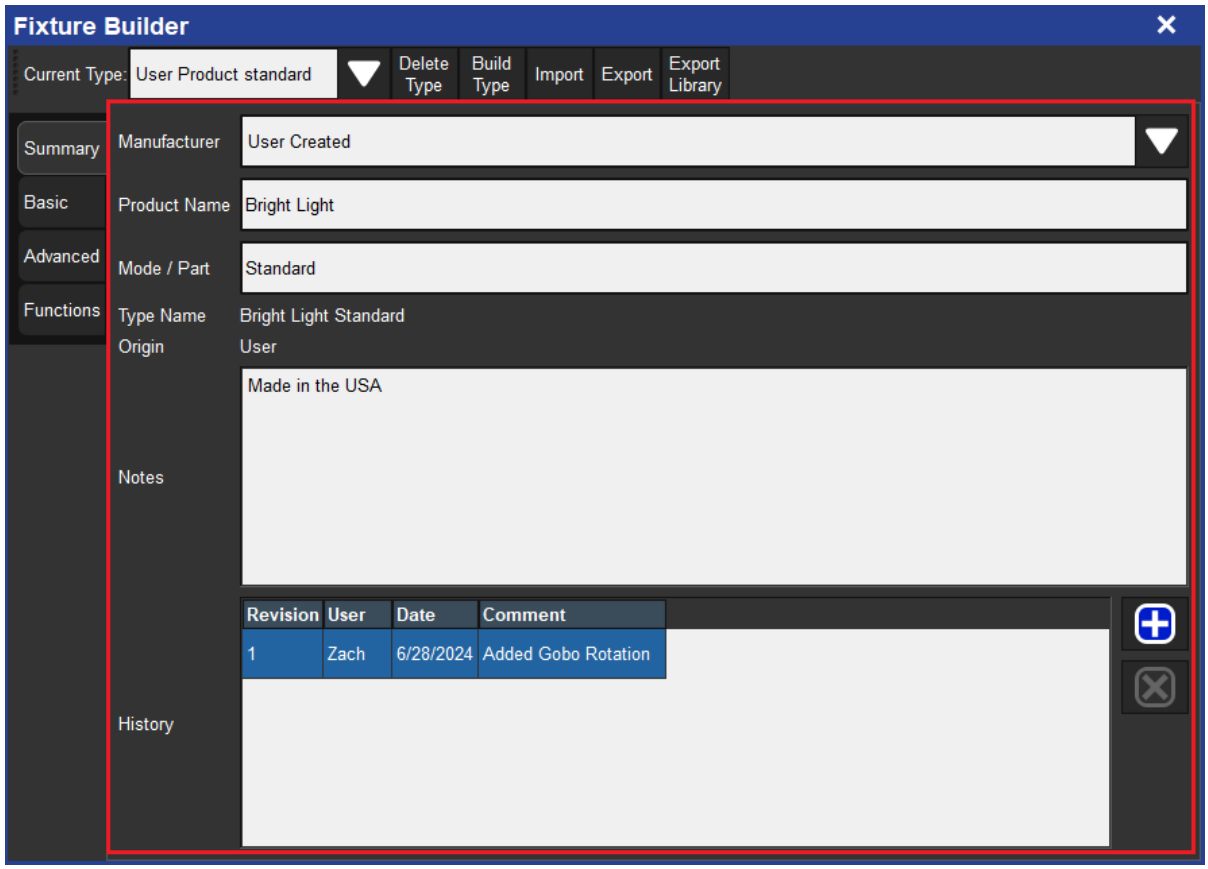


1. A set of buttons and menus along the top of the window
    - Current Type Selector - select an existing fixture type for editing or create a fixture type from scratch
    - Delete Type - deletes the currently selected type from the show file
    - Build Type - builds the currently selected type into the show database so that it can be scheduled and patched into the current show
    - Import- opens a file browser to allow for the import of an XML file that was previously exported from fixture builder
    - Export - exports the currently selected type to an XML file so that it can be edited offline or imported into another show file
    - Export Library - allows the operator to select one or more types in the fixture builder to be built into a fixture library

2. A tabbed editor space that is broken into three tabs which allow for different aspects of the currently selected type to edited:
    - Summary - general information about the profile including the manufacturer, product name, and more.
    - Basic - a simplified dmx channel view of the fixture that provides easy to use templates for editing the fixtures's dmx profile
    - Advanced - a fully comprehensive dmx channel editor that provides several tools to build complex fixture functionality
    - Function - an overview of the functions defined in the dmx profile that allows for the default feature and function value to be edited

28.2.2 Fixture Builder Summary Tab

The Summary tab of the fixture builder is where the core information about the fixture profile can be modified.



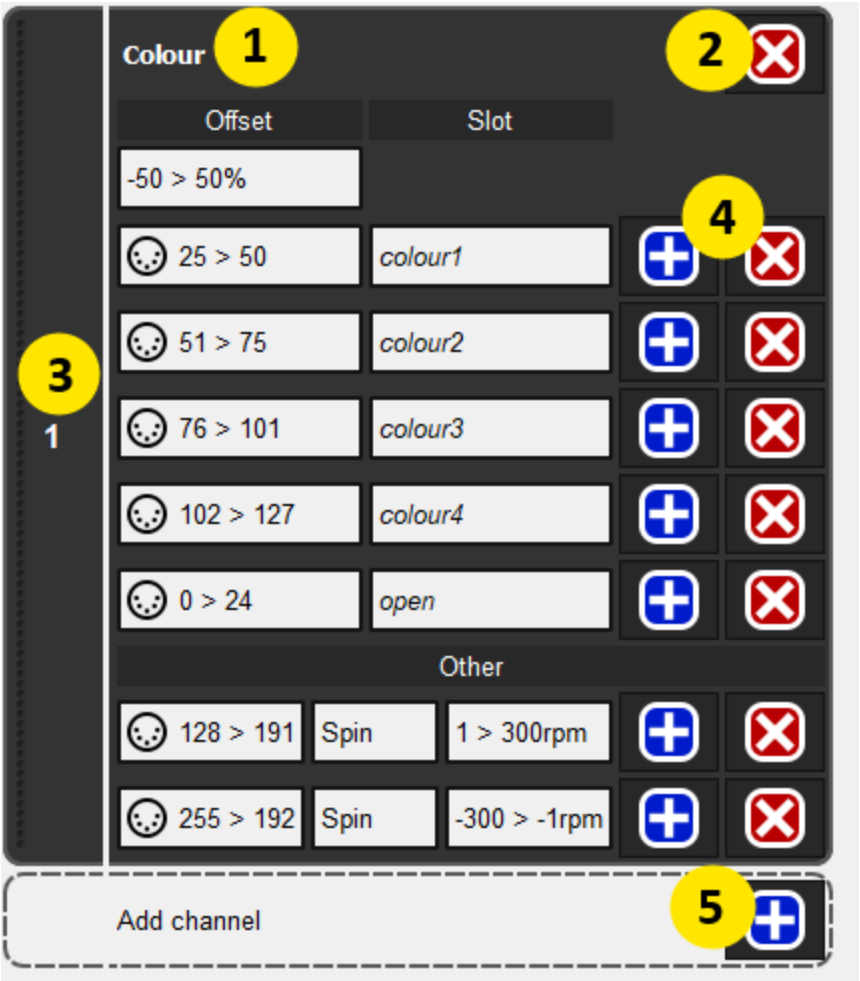
The editable fixture attributes in the summary tab include:

- Manufacturer (the maker of the fixture)
- Product Name (the product name as show on the fixture or its marketing material)
- Mode / Part (the mode of the product for which this fixture profile will control)

- Type Name (how the fixture will appear in the fixture scheduler, command line, editors, etc.)
- Origin (who made the fixture profile; most likely your name)
- Notes (any notes that indicate the supported firmware versions or unique characteristics of the configuration being built)
- History (allows the profile maker to add a revision number to the profile along with a summary what changed in the revision)

28.2.3 Fixture Builder Basic Tab

The **Basic** tab of the fixture builder provides a simplified user interface for adding and modifying the basic DMX attributes of a fixture type. The first thing you will notice about the basic view are the large grey boxes labeled on the left with a number. These blocks represent the DMX channels of the fixture and are called DMX channel blocks. The diagram below shows the anatomy of a DMX channel block.



1	Describes which function(s) are controlled by this channel.
2	Removes the function definition and leaves the DMX channel block as "unused".
3	DMX channel number.
4	Adds / Removes individual entries for the DMX channel.
5	Adds a new DMX channel block to the fixture profile.

To **add** a new DMX channel block click on the **Blue Plus** symbol located in the **Add Channel** box.

To **remove** a DMX channel block click on the upper most **Red X** button located in the DMX channel box.

To **move** a DMX channel block up or down, click and drag the DMX channel block.

To **add/remove** DMX entry use the **Blue Plus** and **Red X** buttons within each DMX channel block.

Template Menu

When adding new DMX channel blocks to a fixture, the console will display a menu of template items that can be used as a starting point for defining each DMX channel block. In some cases a template may describe multiple DMX channel blocks depending the fixture attribute. For example, 16-bit intensity is a 2 channel function that occupies two DMX channel blocks.

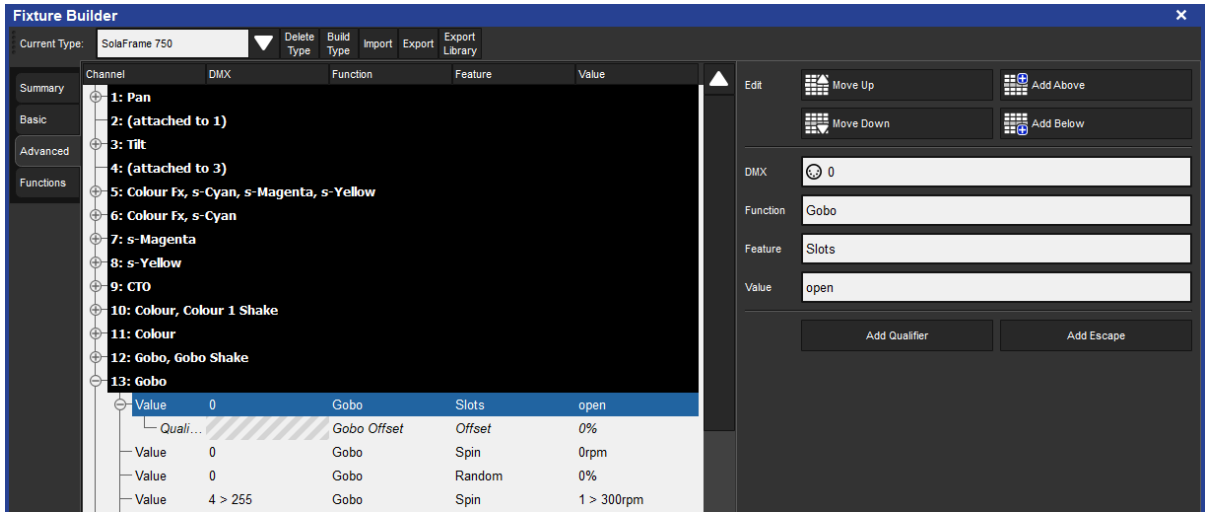


28.2.4 Fixture Builder Advanced Tab

The **Advanced** tab of the fixture builder provides a detailed and fully comprehensive view of a fixture type's DMX channel structure and allows for advanced editing of each DMX channel. Unlike the basic view, the advanced view give users access to every fixture function and feature supported by Hog OS and allows for more complex relationships between fixture functions to be established through qualifiers (see **Fixture Builder Terminology** for details on qualifiers).

The advanced view organizes the fixture type's DMX channel information into a collapsible tree structure. The black aggregation bars with white text represent the DMX channels. Nested within each channel are DMX entries (function / feature definitions) that make up the channel. To the right of the tree view is the edit pane which provides a contextual interface with menus and buttons that update based on the selected row in the tree view.

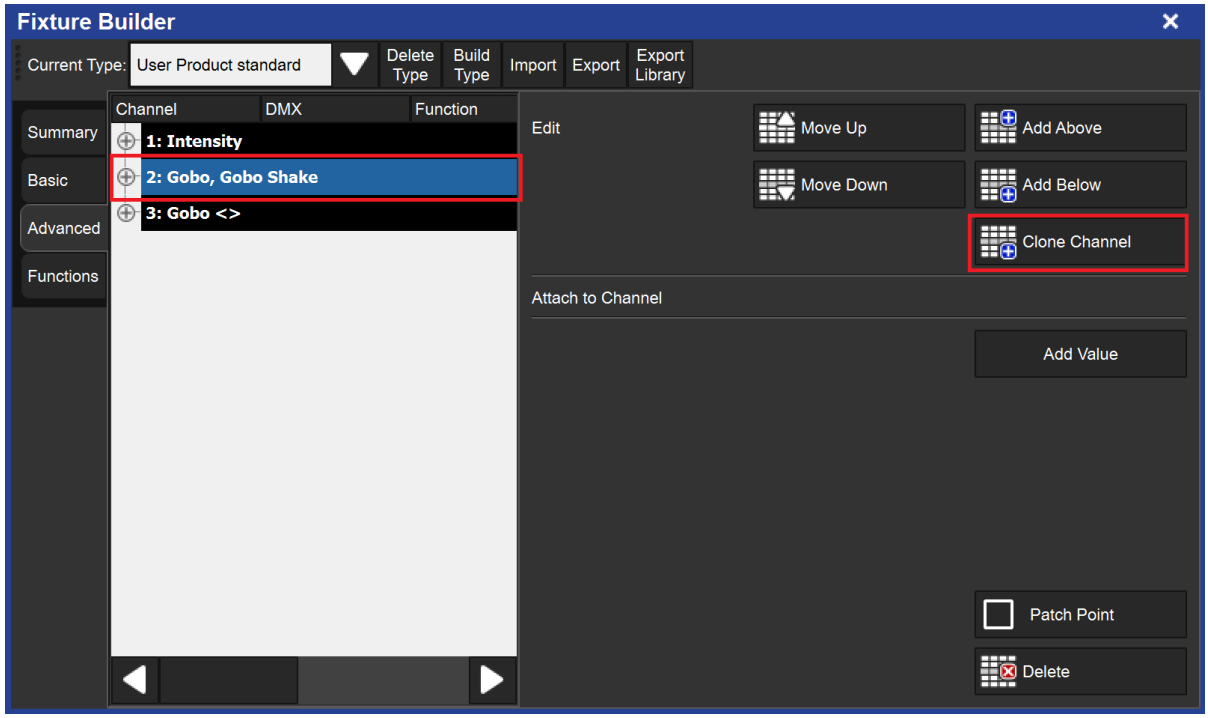
Advanced Diagram



- To **add** a new DMX channel, select a pre-existing DMX channel aggregation header (white text / black background) and then press the **Add Above** or **Add Below** button in the edit pane.
- To **remove** a DMX channel, select the DMX channel's aggregation header (white text / black background) and then press the **Delete** button at the bottom of the edit pane.
- To **move** a DMX channel up or down, select the DMX channel's aggregation header (white text / black background) and then press the **Move Up** or **Move Down** button in edit pane.
- To **add / remove / move** a DMX entry select the DMX entry row in the tree and then use the coordinating buttons in the edit pane.

28.2.5 Fixture Builder Advanced - Clone

To clone a DMX channel, select the DMX channel's aggregation header (white text / black background) and press the **Clone** button in the edit pane. Please note that DMX channel cloning is only available when the function defined in the channel can be iterated on. For example: Gobo clones to Gobo 2. Cloneable functions include: Animate, Animate Offset, Colour, Colour Offset, Focus, Frost, Gobo, Gobo Offset, Gobo Rotate, Gobo Shake, Iris, Macro, Macro Rate, Pan, Prism, Prism Offset, Strobe, Tilt, Zoom



28.2.6 Fixture Builder Functions Tab

The **Functions** tab of the fixture builder contains a summary of all of the function / feature pairings used in the fixture type and allows for customization. For more information, please see Fixture Builder Terminology section

28.3 Fixture Builder Workflow

In some cases a fixture type may not be available in the full fixture library and is needed in a shorter time frame then can be delivered through a fixture request on the High End Systems website. Or it may be the case that the fixture you need to control is custom made or a slight variation of a popular fixture already in the fixture library. In these cases the fixture builder included in Hog OS is a great way to build, export, and share fixture types. This section will cover how to create, build, and export fixture types in Hog OS using the fixture builder utility included in Hog OS v3.9.0 and greater.

Libraries can be built from a blank canvas or can be copied from existing fixtures within the library (when using V4 libraries).

28.3.1 Creating a Fixture Type from Scratch

To create a fixture type from scratch:

1. Open the fixture window (**Open** + **Fixture**)
2. Click on the **Fixture Builder** button located at the top of the fixture window.
3. In the fixture builder window select the **New Type...** option from the current type drop down menu.
4. A new blank fixture type will be created and a set of tabs will populate along the left hand side of the window (**Summary**, **Basic**, **Advanced**, **Functions**).
5. Use the **Summary** tab of the fixture builder to specify the fixture type's manufacturer, name, revision, author, and any notes you wish to add.
6. The fixture type's core DMX channel information, defaults, and options can now be created / edited using the **Basic**, **Advanced**, and **Functions** tabs.

> Tip: The best place to start is with the **Basic** tab, which is described in more detail in Fixture Builder Basic View

28.3.2 Creating a Fixture Type from an Existing Type

In some cases you may need to create a fixture type that is loosely based on an established fixture type that is already available in the full fixture library. In this case it is recommended that you create a fixture type using data from an existing type using these steps:

1. Open the fixture window (**Open** + **Fixture**)
2. Click on the **Fixture Builder** button located at the top of the **Fixture Window**.
3. In the fixture builder window select the **Copy Type...** option from the current type drop down menu.
4. A window will pop up allowing you to choose an existing type from the Hog OS fixture library currently being reference by the fixture scheduler.
5. Choose a fixture type from the list, then press the **OK** button.
6. Use the **Summary** tab to make any desired adjustments to the fixture manufacturer, type name, revision, author, or notes. It is recommended to at least modify the fixture name to help differentiate it from the fixture it was copied from.
7. The fixture type can now be edited using the **Basic**, **Advanced**, and **Functions** tabs in the fixture builder.

28.3.3 Building a Fixture Type

To build a fixture type in the fixture builder:

1. Select the fixture type you wish to build in the fixture builder's current type drop down menu.
2. Press the **Build Type** button at the top of the fixture builder window.
3. The fixture type is now copied into current show file and can be scheduled using the fixture scheduler. If you wish to export the fixture type to a library for use in another show then please refer to Exporting Fixture Types to a Library.

28.3.4 Exporting Fixture Types to a Library

Exporting a fixture type from the fixture builder into a new or existing library file is a simple process that allows you to stuff multiple custom fixture types into a single, portable, and sharable fixture library file.

To export a fixture type to a fixture library:

1. Open fixture builder and use the current type drop down menu to select the fixture type you wish to export.
2. Press the **Export** button at the top of the fixture builder window.
3. When the file browser pops up you can do one of two things:

   (1) Type in a new unique name to create a wholly new fixture library that will contain just the single type you are exporting. Then press **Enter**.

   (2) Select an existing fixture library already installed in the libraries directory on the console. This will add the fixture type to that library. Then press **Enter**.

4. The fixture type will now be exported into the new (or pre-existing) fixture library. If you wish to archive the fixture library for use on other console proceed to the next step.
5. Insert a USB flash drive into one of the USB ports on the console.
6. Open the shows window (**Setup** → **Shows**) and select the file browser tab.
7. In the file browser, navigate to the library folder on the console's hard drive. Here you will find the fixture libraries installed on the console. Click and drag the desired fixture library from the library folder to the USB flash drive.
8. The console will prompt you to name the library archive. Give the archive a suitable name and press **OK**.
9. The fixture library is now archived on the USB flash drive an can be installed on any Hog OS console running Hog OS v3.9.0 or greater using the steps outlined in **Download and Install Fixture Libraries.**

28.3.5 Importing Fixture Types from XML

Fixture builder can import fixture types from XML files that are properly formatted and validated against the Hog fixture library XSD which is available online at http://schema.hogfour.com/fixture.xsd

To import an XML file containing fixture types into fixture builder:

1. Press the **Import** XML button at the top of the fixture builder window.
2. Select the XML file you wish to import using the file browser and then press **OK**.
3. All of the fixture types describe in the XML file are now copied into fixture builder.

28.4 Fixture Builder Terminology and Concepts

Modeling of a DMX chart to control a fixture can range from simple to daunting. Understanding the core concepts that Hog OS uses to control fixtures is key to creating and controlling a fixture. In this section, terminology and core concepts will be addressed.

28.4.1 Fixture Builder Terminology

A variety of terminology used in the fixture builder is described in this section.

Default Feature

Some functions only have one feature while others have several. When more than one feature is used for a function, use the default feature column in the functions tab to establish the fixture's default feature for that function.

Default Value

The Default Value column in the functions tab allows you to customize the default value for each function / feature pairing. The default value is used by Hog OS to determine which real world value to revert to when the fixture is released. To edit a default value double-click on the cell containing the value, input the desired value, and press Enter.

DMX: represents the DMX value or range of DMX values that will output from the console when the specified real world values are programmed by the console operator. For example, a DMX channel entry with a DMX value of 0<255, a function of intensity, a feature of variable, and a real world value of 0<100% will result in a DMX output of 0 when the fixture's intensity is at 0%, a DMX output of 255 when the fixture's intensity is at 100%, and a variably scaled DMX value when the intensity is between 0% and 100%.

Function: represents the hardware component of a fixture that Hog OS is attempting to control. In many cases the DMX protocol documents provided by a fixture manufacturer will list functions that are not available in fixture builder. In these cases a loose translation into an established Hog OS function is required.

Feature: a sub-component of functions that further describes how the function operates in the fixture. Some functions may have multiple features. For example, Strobe is a function with multiple features including Rate, Random, and Random Sync. Function / feature pairings are the basic building blocks of a fixture type's DMX profile. Much like fixture functions, most manufacturers do not describe fixture features exactly the same as the Hog OS fixture builder and a loose translation will be required.

Value: (short for real-world value) represents the programmable real world value or range of values for a given function. For example, slotted colour wheels are defined using real-world values such as "Orange" and "Congo" whereas a variable functions such as Intensity are described using real world values such as 0% and 100%. Fixture builder's pop-up menu system will suggest the most common real world value ranges but you should always attempt to input the real world values ranges that most accurately match the fixture's DMX channel documents.

> Tip: Each function / feature combination used in a fixture type must be defined on all DMX channels where that function is used. For example, if strobe / rate is used on DMX channel 9 and strobe / random is used in DMX channel 10, then strobe / rate must also be defined on DMX channel 10 and strobe / random must also be defined on DMX channel 9.

Unused: if a DMX channel is unused Hog OS will output a constant DMX value of 0 for the corresponding DMX channel when the fixture is patched.

Qualifiers: used to specify any conditions that must be met in order for a function / feature to output a specific value or range of values. Multiple qualifiers can be added to a single function / feature entry within a DMX channel. One example is a slotted colour wheel with offsets. In this case the main function / feature pairing is ColourOffset / Offset which is defined with DMX value range (such as 0<10) and a real world value range (such as -50% > 50%) and is qualified by ColourSlot / Index with a specific real world value (such as red). In most cases a DMX value is not required for qualifiers. Qualifiers can only be added / removed / edited in fixture builder's advanced view.

None: can be used as a DMX value to indicate that no changes will occur to the DMX output for a DMX channel regardless of whether the specified real world value conditions have been met.

ANY: can be used as a function, feature, or real world value.

- When ANY is used as a function the console will output the DMX value specified in the DMX channel entry regardless of any other conditions. Therefore, using ANY as a function for a DMX channel entry results in that DMX channel outputting a constant DMX value. The constant option in fixture builder's basic view is the same as setting the function to ANY.
- When ANY is used as a feature the console will output the DMX value specified in the DMX channel entry regardless of which feature is active in the programmer/playback. This similar to assigning ANY to a function but allows for the function to specified on the DMX channel. This is not very common.
- When ANY is used as a real world value the console will output the DMX value specified in the DMX channel entry if the specified feature is active in playback/programmer.

Tip: Fixture builder automatically creates coordinating cyan, magenta, yellow, hue, and saturation functions when I-Red, I-Green, and I-Blue constructs are described in a fixture's DMX channel description and have DMX value range of 0 thru 255 and a real world value range of 0% thru 100 %.

28.4.2 Fixture Builder Concepts

A variety of concepts used in the fixture builder is described in this section.

Virtual Intensity

If the DMX protocol document for a fixture does not specify a dedicated intensity attribute but does specify additive color mixing attributes, then fixture builder will automatically generate an intensity function when the fixture is built. This **Virtual Intensity** function allows the operator to attenuate the fixture's overall output by scaling the DMX channels for the color mixing attributes.

Example: A fixture with 3 DMX channels (Red, Green, Blue) does not have a dedicated DMX channel for intensity. In this case fixture builder will add an intensity function when the profile is built.

Virtual Color

If the DMX protocol has physical color mixing functions, then fixture builder will automatically generate a set of virtual color mixing functions that represent a variety of different color spaces that allow for simplified and intuitive control. These **Virtual Color** functions will appear on the encoder wheels and in editors when the fixture is built and scheduled into a show but do not need to be defined when making the fixture in fixture builder.

The virtual color mixing functions are:

- v-Hue
- v-Saturation
- v-Value
- v-Cyan
- v-Magenta
- v-Yellow
- v-Red
- v-Green
- v-Blue
- v-CIE x
- v-CIE y
- v- CIE Y

16-bit and Attached Channels

A 16-bit DMX channel refers to grouping two 8-bit DMX channels to gain an expanded range of values that can be controlled. Generally, this allows for 65,536 different values to be accessed. Hog4 uses this concept to allow a single fixture function to access far more values than a single 8-bit channel would allow when the fixture allows for 16-bit control.

Typically, these extended-range channels adjust parameters such as pan, tilt, or other attributes requiring finer precision. Combining channels can allow for fine-grained control of functions, resulting in smoother transitions and more accurate adjustments.

When two 8-bit DMX channels are combined or, in Hog4 terminology, **Attached**, this effectively creates a single 16-bit space where values can be transmitted. In some documentation, the terms "high bit" and "low bit" refer to the two parts into which the 16 bits are split. Additionally, it is important to point out that when modeling a fixture, the primary channel is responsible for the "high bit," and the secondary or attached channel is responsible for the "low bit. "

In an 8-bit control channel, you have eight binary digits or bits. The least significant bit (LSB) is the rightmost bit, and the most significant bit (MSB) is the leftmost bit. When you tie two 8-bit channels together to create a 16-bit channel, you can think of it as combining the high bits from one channel with the low bits from the other channel.

Note: It is not yet possible in Hog4 to attach more than two channels together, resulting in a 24-bit or larger channel, the current limit is 2 channels, with 16-bits of control space.

Example:

Suppose you have two 8-bit DMX channels: Primary Channel 1 and Attached Channel 2. Channel 1 represents the high bits, and Channel 2 represents the low bits. Each channel can have a numeric value ranging from 0 to 255, as defined by the 8 bits.

To calculate the final 16-bit numeric value, you combine the high and low bits as follows:

16-bit value = (Channel 1 value < < 8) + Channel 2 value

Here, "<< "represents a left shift operation, where the bits in Channel 1 are shifted eight positions to the left, effectively filling the higher bits of the 16-bit value. The Channel 2 value is then added to the result, filling in the lower bits of the 16-bit value.

Example:

Channel 1 has a numeric value of 128 (binary: 10000000) and Channel 2 has a numeric value of 64 (binary: 01000000), the resulting 16-bit value would be:

16-bit value = (128 << 8) + 64 = 32768 + 64 = 32832

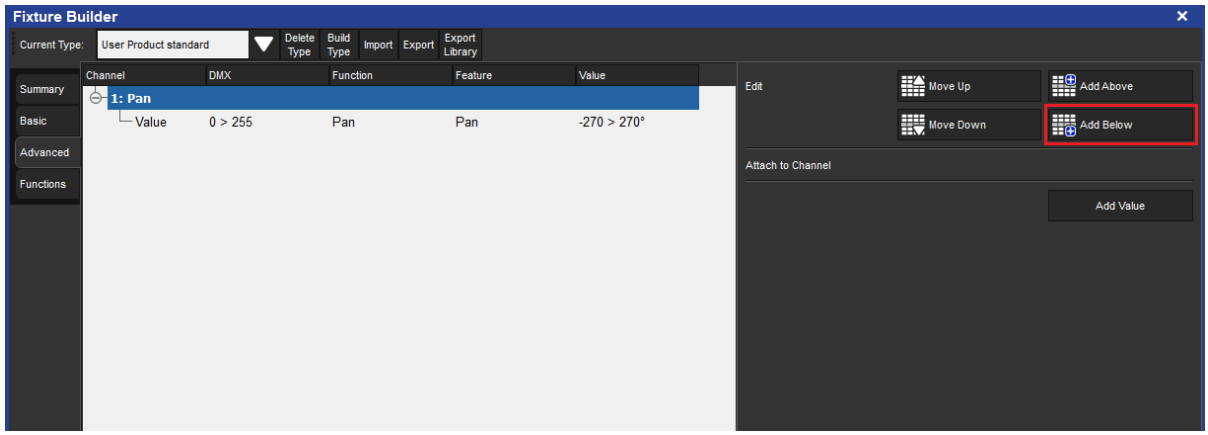
In this example, the high bit (Primary Channel 1) contributes to the higher part of the 16-bit value, while the low bit (Attached Channel 2) contributes to the lower part.

By connecting two 8-bit DMX control channels and understanding the concept of high and low bit, you can effectively extend the control range much higher than a single channel range.

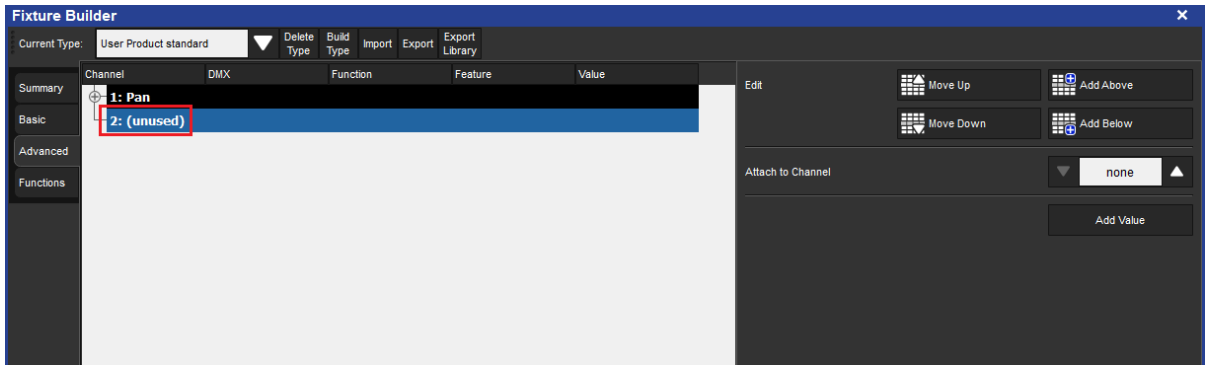
The Hog4 software handles the vast majority of this complexity in the background. Only the step required by the user is appropriately attaching the secondary channel when using Fixture Builder, the primary and secondary channel will be found on the fixture protocol documentation.

Using Advanced View in Fixture Builder to Attach a Channel:

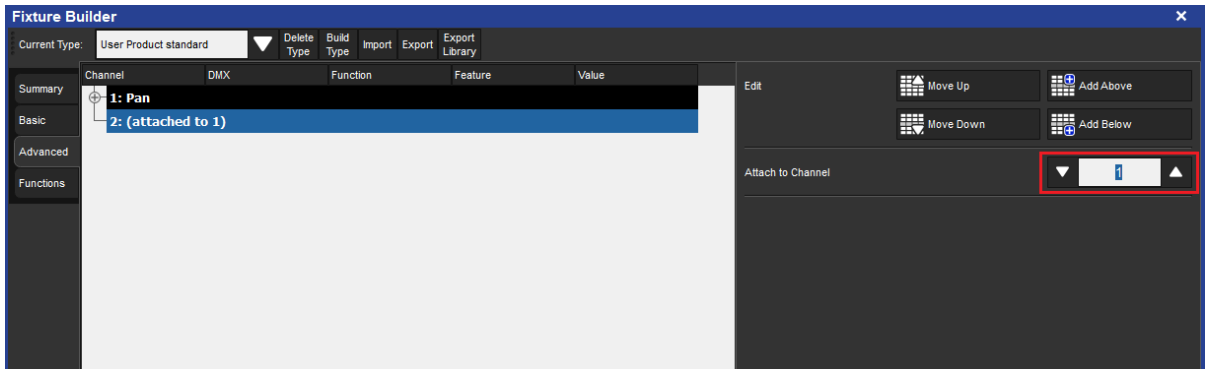
Press the **Add Below** button to add an entry into the table.



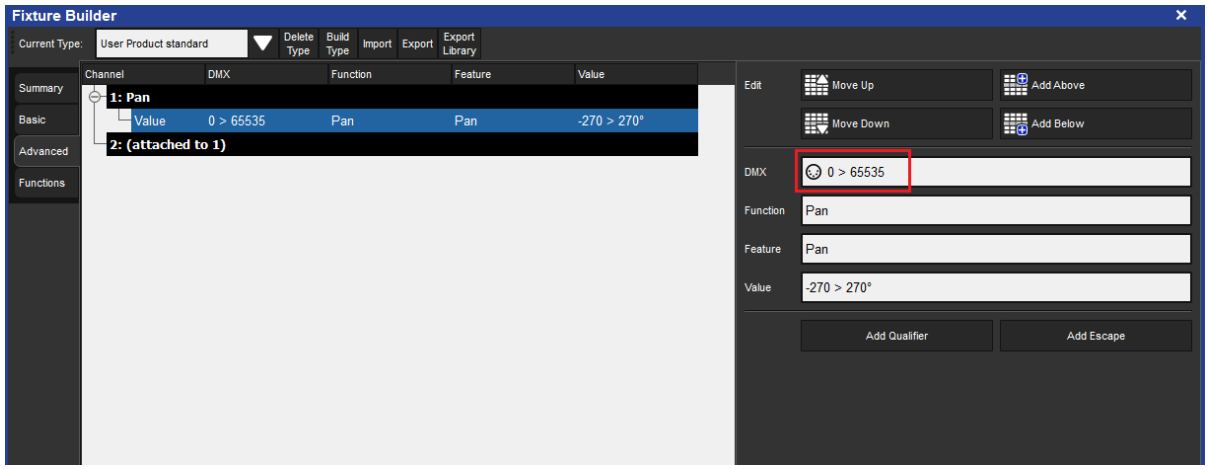
A new channel is added to the type, and marked as unused.



Using the **Attach to Channel** box, attach the unused channel to the existing channel



Check the DMX value range has been extended.



As seen in the table, the Pan feature uses DMX channels 1 and 2 with a possible range of 0-65535

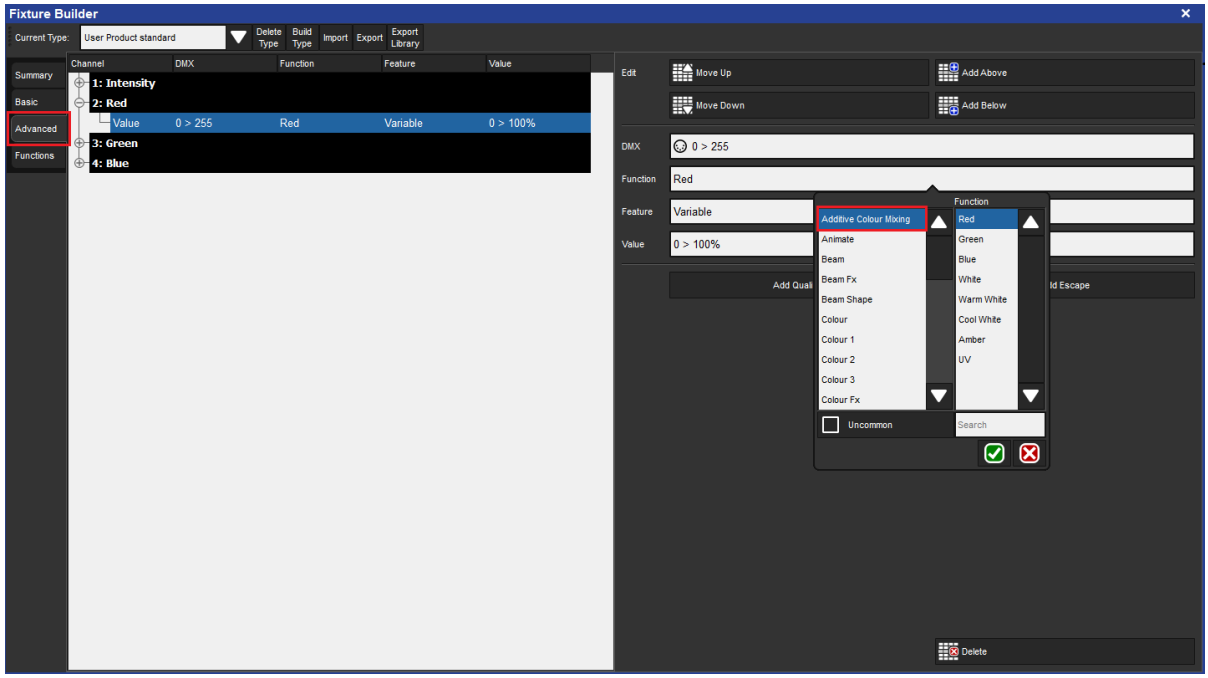
Note: The two attached channels do not need to be adjacent, the attached can be specified to any other currently in the type.

Understanding the Choice of Colour Mixing Functions

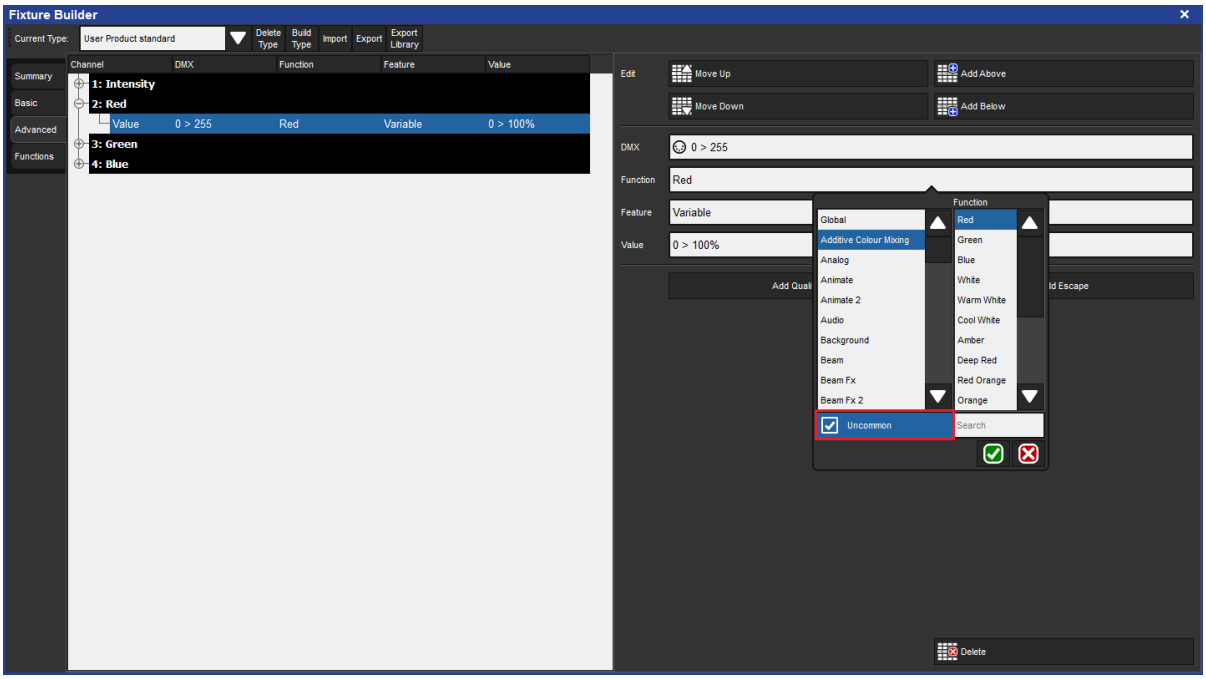
Hog OS allows for the abstract representation of lighting fixture colour mixing mechanisms to be used. These color mixing mechanisms are generally grouped in two specific function families, Additive Colour Mixing or Subtractive Colour Mixing. Fixture builder has these function families available to use when modeling the control of the fixture. In general the names of these functions are related to the physical mechanisms of the light fixture to produce the perceived color. When considering a more technical understanding, the physical function influence the output on the spectral power distribution graph.

Additive Colour Functions

In the **Advanced Tab**, select the **Additive Colour Mixing** function family to see the drop down of all the common additive functions.

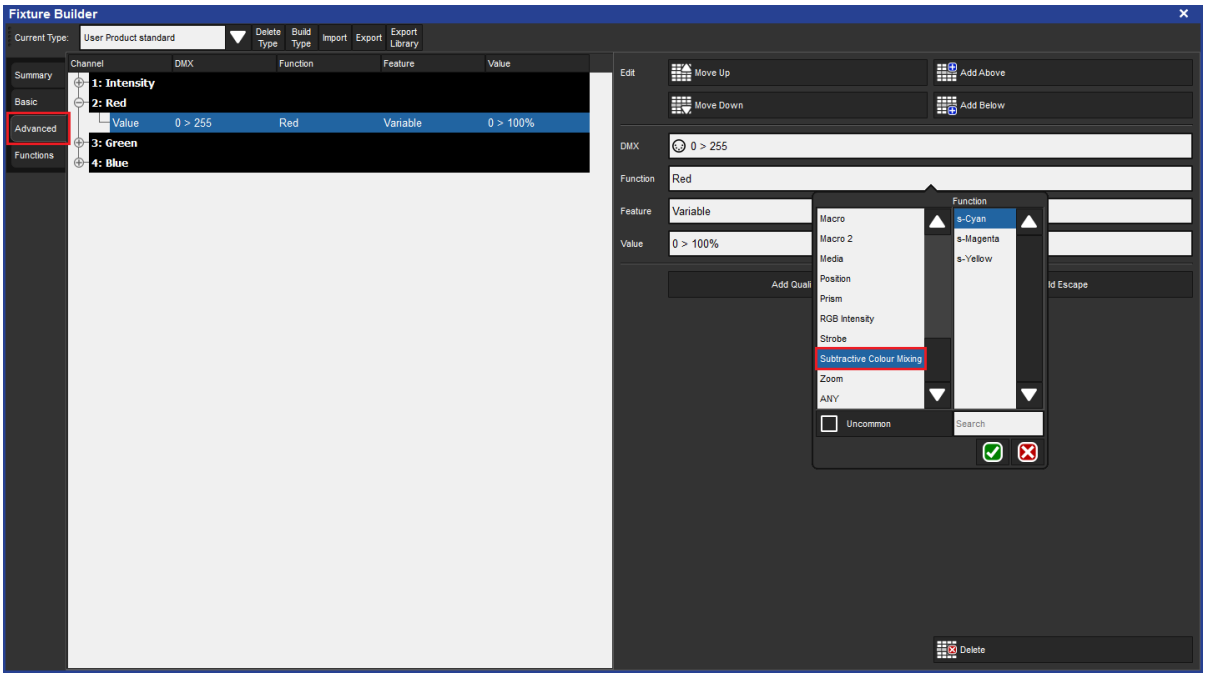


Enabling the **Uncommon** option in the function menu shows additional additive color mixing functions that are less commonly used in fixtures.



Subtractive Color Functions.

In the **Advanced Tab**, select the **Subtractive Colour Mixing** function family to see the drop down of all the common subtractive functions.



Matching DMX Protocol Documentation

When the DMX Protocol document for a fixture specifies a Color Mixing Function that is not available in Hog OS it is recommended to choose a function that provides the closest match to the perceived color.

For example, if Sapphire is specified as a color mixing function in the DMX protocol, the fixture builder does not provide a clear choice of function. In this case Blue, Deep Blue, or Indigo might be the best choice depending on how the Sapphire attribute looks in practice.

It is also important to recognize that the color mixing functions available in the Hog fixture builder are generic and do not take into account real world fixture performance. However, it is possible to make adjustments to a fixture once it is scheduled into a show file as described in Modifying the SPD Curve and Scaling of Additive Color Functions

28.5 Fixture Builder Compound Fixtures

Compound Fixtures (sometimes referred to a multi-part fixtures) can also be built within the fixture builder. The work flow begins by first creating or importing standard fixture types into the fixture builder and then using those types to establish a new compound fixture.

Before getting started there are a few important things to note about Fixture Builder's capabilities in regard to Compound fixtures:

- Fixture Types in Fixture Builder that are part of a compound fixture cannot be deleted
- Compounds fixtures and their part types MUST have the same manufacturer and product name

28.5.1 To create a compound fixture type from scratch

1. Open the fixture window by pressing: **Open** + **Fixture**
2. Click on the **Fixture Builder** button located at the top of the fixture window.
3. In the fixture builder, use same procedures as explained in the **Fixture Builder Workflow Section**to create the standard fixture types that you intend to you as the parts for the compound type you are creating.
4. Once all of the standard types have been built successfully you may move onto the next step.
5. In the fixture builder window select the **New Compound Type...** option from the current type drop down menu.
6. A new blank fixture type will be created and a set of tabs will populate along the left hand side of the window (Summary, Parts).
7. Use the **Summary tab** of the fixture builder to specify the fixture type's manufacturer, name, revision, author, and any notes you wish to add.
8. Use the **Parts tab** to specify which standard types will make up the individual parts of the compound fixture and what those part number values will be. Please note that in order to assign a standard type as a part it must already exist in the fixture builder.
9. To add a new part press the **Add Part** area at the bottom of the list.
10. To remove a part entirely press the **X** button to the right of the part listing.
11. To change the order of the parts click and drag on the 3 dots to the left of the part you want to move.
12. Once all of the parts have been assigned the user can:
    - Press the **Build Type** button - builds the type into the current show database (OR)
    - Press the **Export** button - creates an XML document that describing the compound fixture and its part types. (OR)
    - Press the **Export Library** Button - exports all of the fixture types in the Fixture builder to a portable standalone Fixture Library

28.5.2 To modify a compound fixture type from library

1. Open the fixture window by pressing: **Open** + **Fixture**
2. Click on the **Fixture Builder** button located at the top of the fixture window.
3. In the fixture builder window select the **Copy Type...** option from the current type drop down menu.
4. If the user chooses a compound fixture from the library browser:
   - All standard fixture types referenced in the compound type will be copied into the fixture builder.
   - The compound type definition will be copied into the fixture builder.
5. Editing the compound type and the standard type parts now uses the same tools and procedures as creating from scratch.

28.5.3 To import a compound fixture type from XML

1. Open the fixture window by pressing: **Open** + **Fixture**
2. Click on the **Fixture Builder** button located at the top of the fixture window.
3. In the fixture builder window press the **Import** button.
4. If the user chooses an XML document that contains compound fixtures:
   - All standard fixture types referenced in the compound type will be copied into the fixture builder.
   - The compound type definition(s) will be copied into the fixture builder.
5. Editing the compound type and the standard type parts now uses the same tools and procedures as creating from scratch.

28.6 Fixture Builder Tutorial - UNO

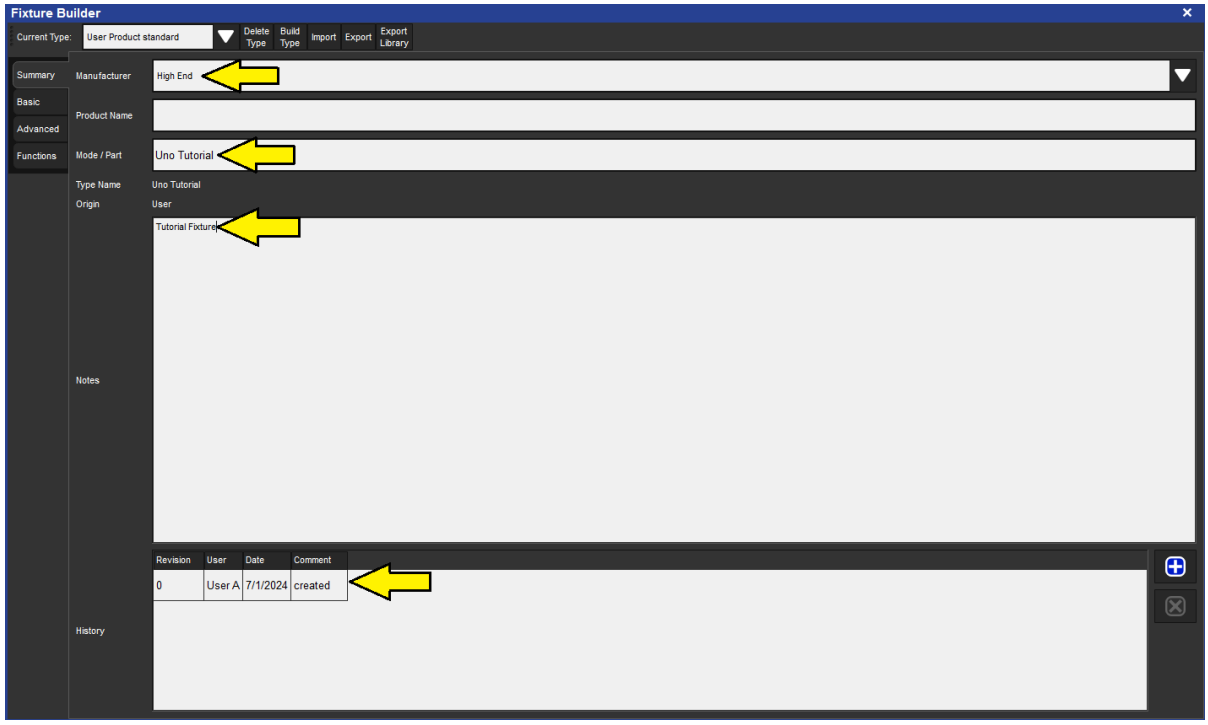
28.6.1 Fixture Builder Tutorial

The following fixture builder tutorial provides step-by-step instructions for creating, building, and exporting a fixture type that is capable of controlling the essential functions of the High End Systems Uno fixture. Please refer to the DMX chart shown in the figure below as part of the tutorial.

UNO DMX Chart:

Dmx Channel	Construct	Description	Low Decimal	High Decimal	Low Value	High Value	Default Decimal
1	Pan	Pan Course	0	255	-270°	270°	127
2	Pan	Pan Fine	0	255			255
3	Tilt	Tilt Course	0	255	-132.5°	132.5°	127
4	Tilt	Tilt Fine	0	255			255
5	Mix Color Function	RGB	0	15	-	-	0
		RBG	16	30	-	-	
		BRG	31	45	-	-	
		BGR	46	60	-	-	
		GRB	61	75	-	-	
		GBR	76	90	-	-	
		CMY	91	105	-	-	
		CYCLE	106	120	-	-	
		RANDOM	121	135	-	-	
6	LED RED	Red LED Intensity	0	255	0%	100%	0
7	LED GREEN	Green LED Intensity	0	255	0%	100%	0
8	LED BLUE	Blue LED Intensity	0	255	0%	100%	0
9	LED WHITE	White LED Intensity	0	255	0%	100%	0
10	Shutter Mode	Normal Strobe Mode	0	31	-	-	0
		Random Strobe Mode	32	63	-	-	
		Sync Random Strobe Mode	64	95	-	-	
11	Shutter	Closed	0	23	-	-	255
		Strobe Rate (slow -> fast)	24	229	0Hz	10Hz	
		Open	230	255	-	-	
12	Dimming	Dim Coarse	0	255	0%	100%	0
13	Dimming	Dim Fine	0	255	0%	100%	0
14	mSpeed	Disabled	0	3	-	-	0
		Long -> Short	4	255	252 sec	0.15 sec	
15	Control	Safe Mode (normal operation)	0	15	-	-	0
		Pan & Tilt Speed Off	16	31	-	-	
		Display Off	32	47	-	-	
		Display On	48	63	-	-	
		Home All	64	79	-	-	
		Shutdown	80	95	-	-	

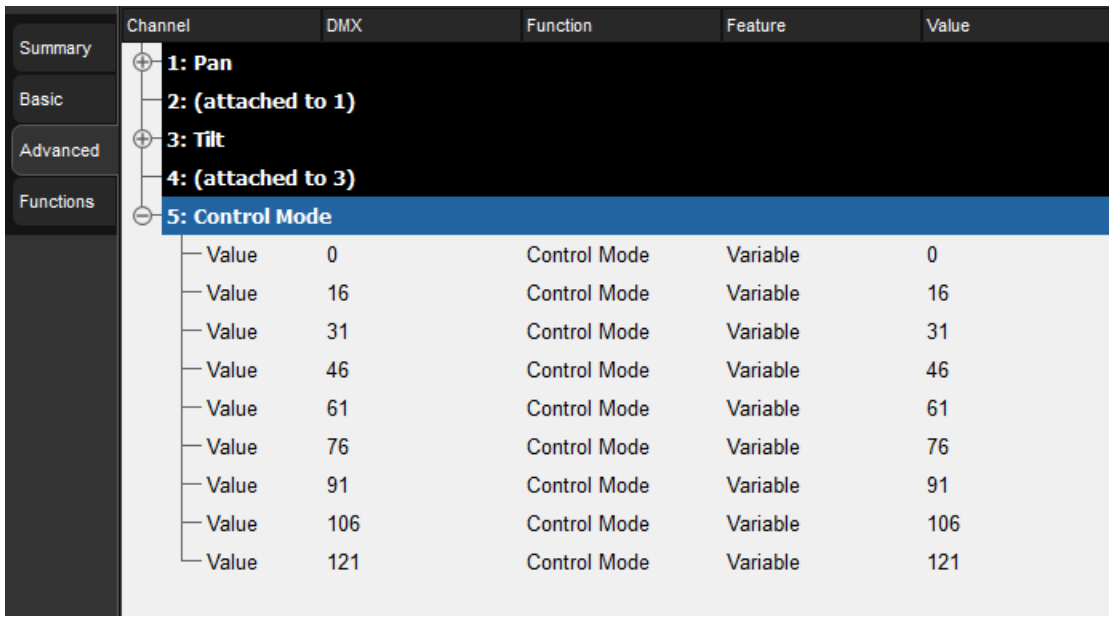
1. Open the fixture window (**Open** + **Fixture**) and click on the **Fixture Builder** button located at the top of the fixture window.
2. In the fixture builder window, use the **Current Type** drop down menu to select **Create New...**
3. Select the **Summary** tab in the fixture builder window and fill in the fixture information as shown in the figure below:



Fixture Builder Summary Tab

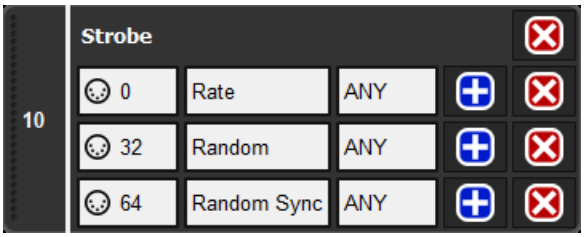
4. Fill in the fixture summary, as noted in the image above.
5. Select the **Basic** tab in the fixture builder window.
6. Click on the **Red X** located to the far right of the DMX block for channel 1 to remove intensity. Click **OK** to confirm the remove.
7. Click on the **Blue Plus** button for channel 1. A template menu containing common fixture components will appear. Refer back to the Uno DMX chart and look at channels 1 through 4. The first thing you'll notice is that channels 1 thru 4 control the Pan and Tilt constructs of the fixture. You'll also notice that pan and tilt each occupy two DMX channels (one for coarse control and one for fine control of each parameter). This is known as 16-bit Pan and 16-bit Tilt. Press the **16 bit** button listed next to Pan & Tilt in the template menu for channel 1. Notice how fixture builder automatically fills in channels 1 thru 4. Channels 1 and 3 are labeled as Pan and Tilt while channels 2 and 4 are attached to channels 1 and 3. This is how 16-bit channels are represented in fixture builder.
8. Next we need to defined the real world values for pan and tilt. Refer to the DMX chart. As you can see no adjustments need to be made to Pan as the Uno's values happen to match the template's pre-filled values. However, you will need to type in new real world values for Tilt (**-132.5 > 132.5**).
9. Now let's move on to defining DMX channel 5. Once again, refer to the DMX chart for the Uno. In this case we will use **Control Mode**. Since basic view doesn't have a **Control Mode** option in the template menu we need to switch to advanced view. Click on the **Advanced** tab in the fixture builder.

10. In the advanced view you will see a tree view of all of the DMX channels that we've specified in the fixture so far. Now we are going to add and define DMX channel 5. Click on the **black header for channel 4** and then press the **Add Below** button located in the edit menu on the right. This will add channel 5 to the channel tree.
11. Now we will add a series of DMX entries for channel 5. To add the first DMX entry press the **Add Value** button. Refer to the Uno's DMX chart. The DMX value of the first entry on DMX channel 5 is 0. Click on the DMX cell, input a DMX value of **0** and confirm by pressing the **Green Check Mark** button. Next we will select **Control Mode** as the function, **Variable** as the feature, and 0 as the real world value.
12. Continue adding DMX entries to channel 5 using the **Add Below** button and fill in the appropriate values until channel 5 looks like the figure shown below.



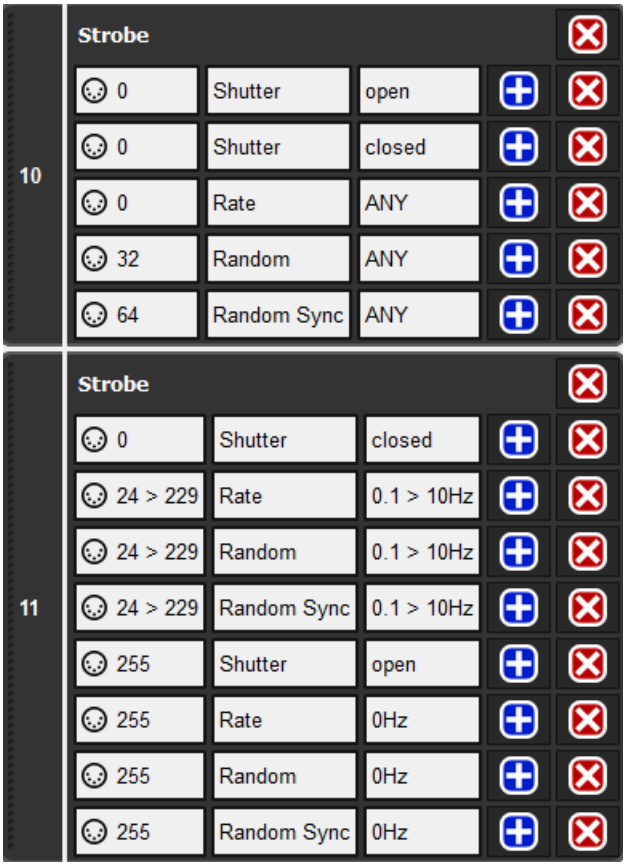
Fixture Builder Tutorial, Uno Channel 5

13. Now let's go back to basic view and add a definition for DMX channel 6. Click on the **Basic** tab.
14. Click on the **Blue Plus** button in the **Add channel** rectangle to begin defining channel 6. Once again we need to refer to the DMX chart. Here we see that channels 6 thru 10 control the I Red, I Green, I Blue, and I White functions of the fixture. Let's quickly assign channels 6 thru 9 to these functions by choosing the RGBW component from the basic view's template menu. The fixture builder will automatically fill in the function definitions for channels 6 thru 9.
15. Now we move on to DMX channel 10. As you can see in the DMX chart, channel 10 is a shutter (strobe) channel. Press the **Blue Plus** button in the **Add channel** rectangle, then press the **Simple** button in the Strobe section of the template menu. This will auto-populate channel 10 with a few strobe function / feature combinations. Since these entries don't match the DMX profile of the Uno, we will need to edit them.
16. Refer back to the DMX chart. The Uno has three different strobe modes defined in channel 10. Each of these modes (or features) needs to be added to channel 10 in the fixture builder. Since these entries only establish the strobe modes (features) and do not specify a real world value, each entry should have a real world value of ANY.
17. Once you are finished, channel 10 should look like the figure below.



Fixture Builder Tutorial, Uno Channel 10

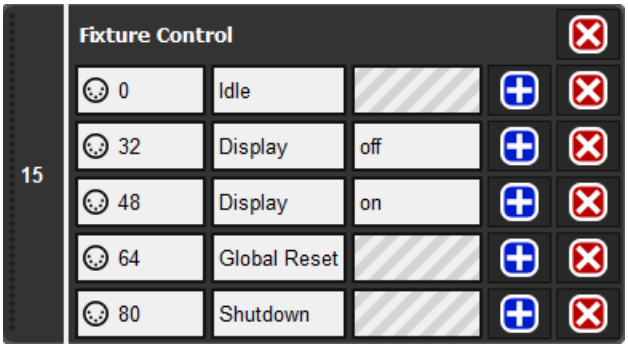
18. Now click on the **Blue Plus** button in the **Add channel** rectangle to add channel 11 to the fixture. Refer to the DMX chart. As you will see channel 11 also controls the strobe function of the fixture but more specifically controls the rate of each strobe mode. Channel 11 also has a shutter open and shutter closed value. We are going to use the **Complex** strobe option from the template menu in basic view to establish a starting point for editing channel 11. Use the graphical interface in basic view to make DMX channels 10 and 11 to look like the figure below.



Fixture Builder Tutorial, Uno Channels 10/11

19. You might be questioning why we added a strobe / shutter definition to DMX channel 11 and channel 10. The reason is that Hog OS must initialize every function / feature pair for all channels that refer to a specific function.

20. By now you should be getting the hang of adding and removing DMX channels and DMX entries. Let's move forward with adding and defining channel 12 using the 16-bit intensity component from the template menu. The reason we are using the 16-bit intensity component is because the fixture's intensity parameter is split into two DMX channels. Much like 16-bit Pan and 16-bit Tilt, the first DMX channel in the intensity's definition is for coarse control while the second DMX channel is for fine control.
21. Now we are ready to define channel 14 of our fixture which is mSpeed. Controlling the fixture's mSpeed value is optional, since Hog OS has it's own programmable timing for every function and feature. Therefore, channel 14 should be assigned to a "Constant" DMX value of 0 to ignore the motion control function in the light. Select **Constant** in the template menu and set the DMX value to **0**. This will ensure the fixture's mSpeed is always set to 0 seconds. Certain use cases may prefer to use the internal motion control function of the fixture, where this value would be variable and not constant.
22. Finally we've reach channel 15. Look at the DMX chart. Channel 15 is a control channel. Click on the **Blue Plus** button in the **Add channel** rectangle to add channel 15.
23. Select **Fixture Control** from the template menu. Use the fixture builder basic view to edit the DMX entries for channel 15 so that they match the DMX protocol.



Fixture Builder Tutorial, Uno Channel 15

24. Congratulations! You have now finished defining all of the DMX channels of the Uno tutorial fixture.
25. Select the **Functions** tab of the fixture builder. The functions tab lists all of the fixture's functions and features in an easy to read spreadsheet. The default values and virtual intensity assignments can also be edited using the functions view.
26. The Uno has dedicated 16-bit intensity functions assigned to DMX channels 12 and 13.
27. The Default Value needs to be changed for the Strobe's Shutter Feature. Click on Closed in the Default Value column and set it to open and Press the Green Check Mark. The rest of default features and default real world values don't need to be altered since the rest of the Uno's DMX profile matches the pre-populated default values provided by the console. However, it might be good idea to experiment with changing the defaults as a part of your learning experience with this tutorial.
28. The next step is to the build the fixture type so that it can be scheduled and patched in the current show file. Press the **Build Type** button located at the top of the fixture builder window. If fixture builder finds any errors a dialogue box will pop up and the build process will fail until you correct the errors.
29. When the fixture build succeeds a prompt will appear alerting you that the build was successful.

30. Open the fixture window and click on the **Add Fixtures** button. Use the fixture schedule dialogue to search for the fixture type you created. It should show up as "Uno Tutorial" and be listed under the High End manufacturer. An icon indicating the fixture was built in the fixture builder will also be displayed next to the fixture name. Schedule and patch the fixture to the appropriate DMX output and begin testing the fixture profile with a real fixture if available. The DMX window is another way to verify the DMX output is working as expected when controlling the fixture.
31. Once you have tested the tutorial fixture you can export it to a fixture library so that it can be used across consoles and with different show files. To export the fixture type to a fixture library select the fixture in the fixture builder using the current type drop down menu and press the **Export** button at the top of the fixture builder window. When the file browser pops up, select a name for the library and press **OK**. This will export the fixture type into a new fixture library which will be located in the library folder of the console.
32. To copy the fixture library to a USB flash drive go to the open the shows window (**Setup** → **Shows**) and select the File Browser tab. Drag the fixture library from the libraries folder on the console to the USB drive. You will be prompted to name the library archive. Give the library archive a name and press **OK**. The fixture library is now written on the USB flash drive. The library archive can be installed on any console running Hog OS v3.9.0 or greater using the steps outlined in the **Download and Install Fixture Libraries** section of this help manual.

28.7 Fixture Builder Tutorial - ColorSource Par Direct Mode

28.7.1 Fixture Builder Tutorial

This tutorial will show the use of fixture builder to create a fixture library for the ColorSource Par Direct Mode. This fixture is available in the fixture library, but is a great example for the usage of the fixture builder.

ColorSource Par DMX Chart:

DMX Control Channels

DMX Channel	5ch (5 channel)	d ir (Direct)	1ch (1 Channel)	r9b (RGB)
1	Intensity	Intensity	ntensity	Red
2	Red	Red		Green
3	Green	Green		Blue
4	Blue	Blue/Indigo*		
5	Strobe**	Lime		
6		Strobe**		

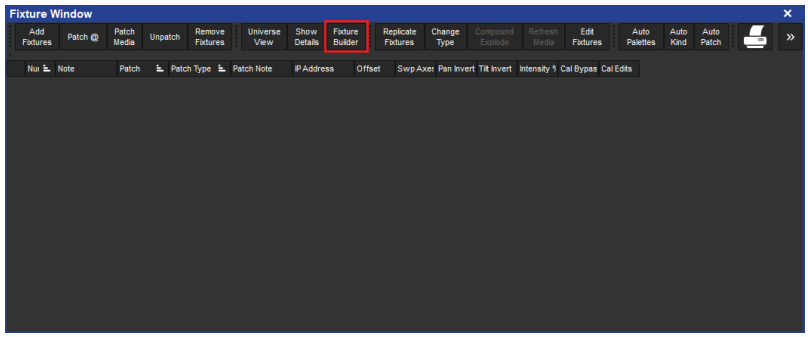
*Original ColorSource PAR fixture uses blue in channel 4; Deep Blue fixture uses indigo in channel 4.

**Use DMX values of 0 or 255 for no strobe. Use values of 1–254 to increase the strobe rate from 1 per second up to 33 per second.

Open Fixture Builder:

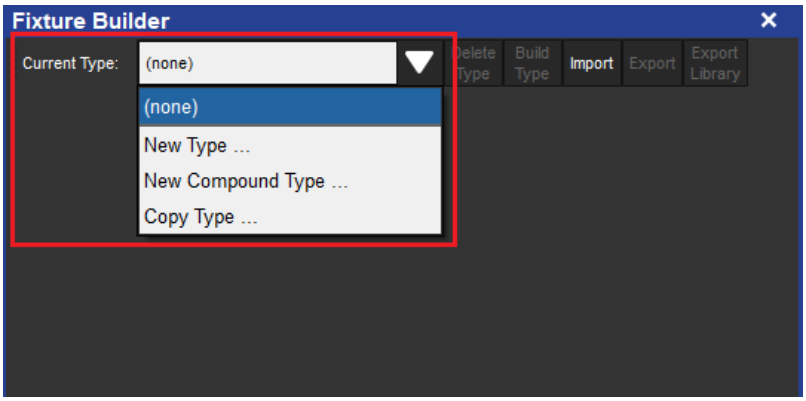
To access the Fixture builder, Open the Fixture Window by using the shortcut (**Open** + **Fixture**)

Access **Fixture Builder** by pressing the button located at the top of the fixture window.



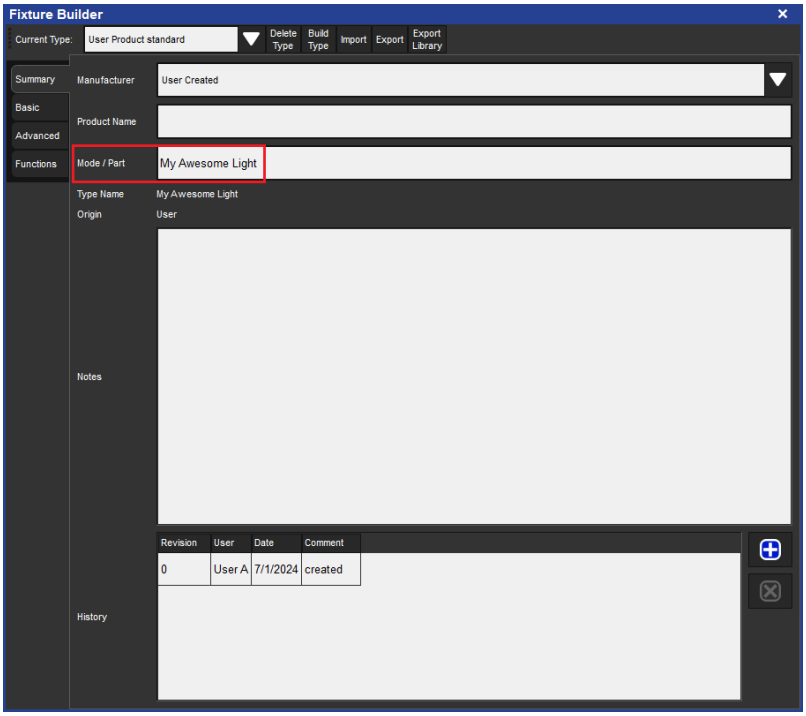
Fixture Builder, New Type

Select "**New Type…**" from the **Current Type** drop down menu.



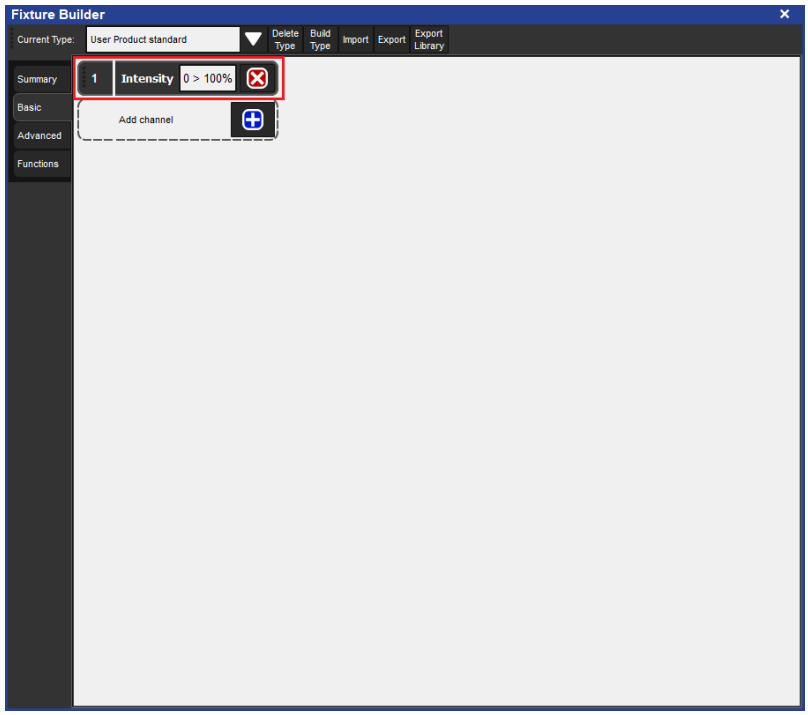
Fixture Builder, Type Name and Summary:

Use the **Type Name** field located in the **Summary** tab to name the fixture. The **Type Name** indicates how the fixture will be displayed in the fixture scheduler when adding fixtures to the show as well as on the command line when the fixture is being programmed. In our example, the Type Name is “My Awesome Light”



Fixture Builder, Color Source Par Channel 1:

Select the **Basic Tab**, Note that the Intensity template has already been applied to DMX channel 1.

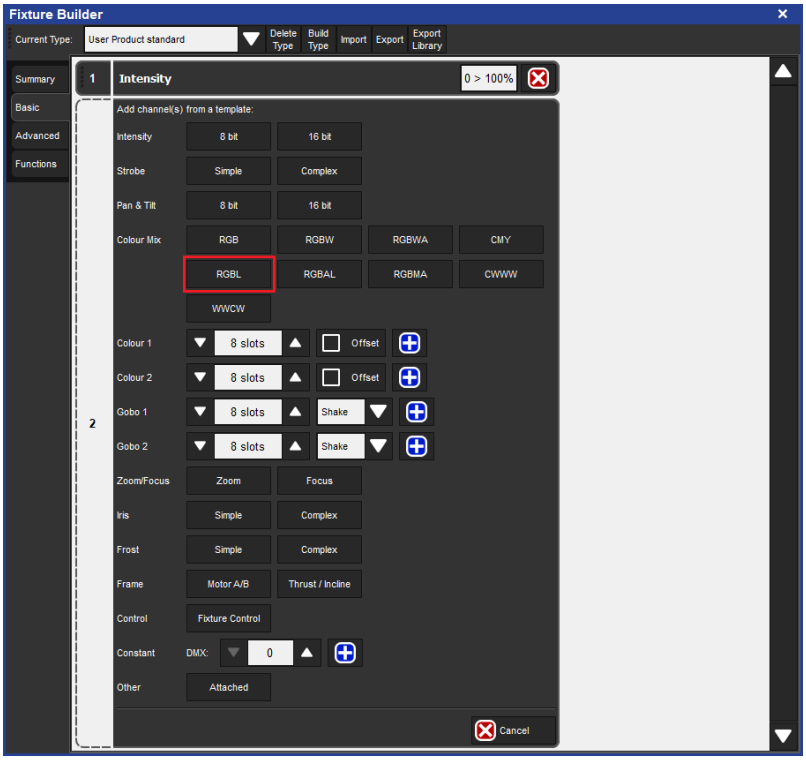


Fixture Builder, Color Source Par Channel 2-5:

Press the Blue " + " to add a template for DMX channel 2.

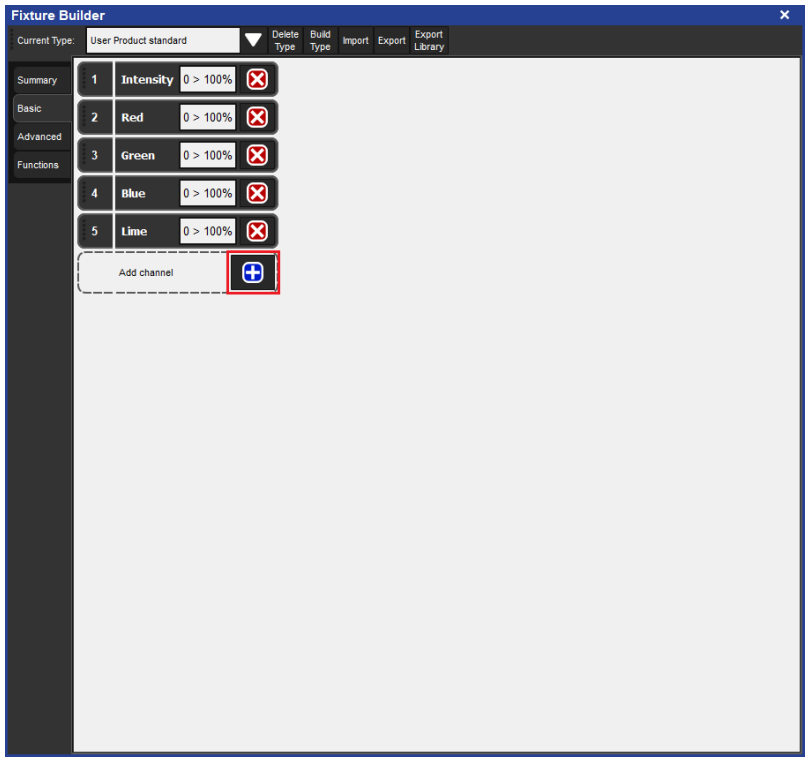


Use the template menu to select the RGBL Colour Mix template. This will apply Red, Green, Blue, and Lime functions to channels 2,3,4, and 5 respectively.

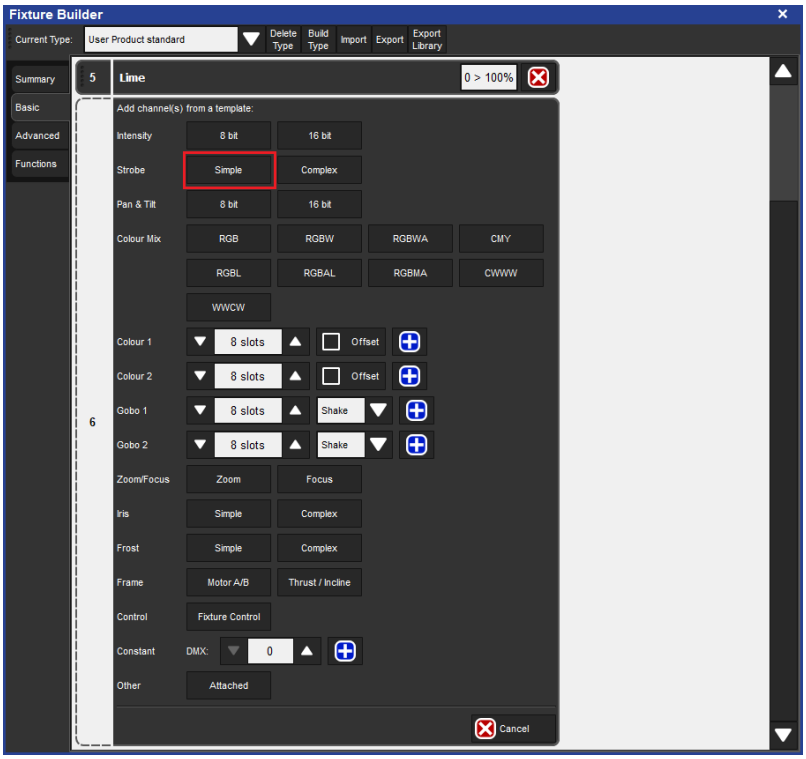


Fixture Builder, Color Source Par Channel 6:

Press the Blue “ + " to add a template for DMX channel 6.

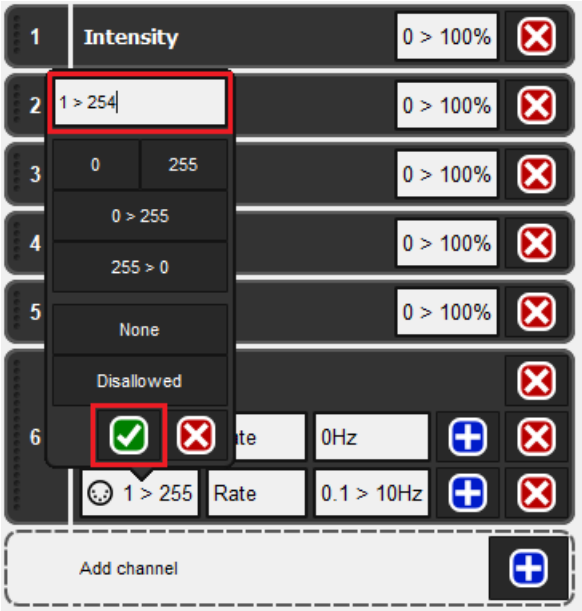


Use the template menu to select the **Simple** Strobe template. A Strobe function will be applied to DMX channel 6.

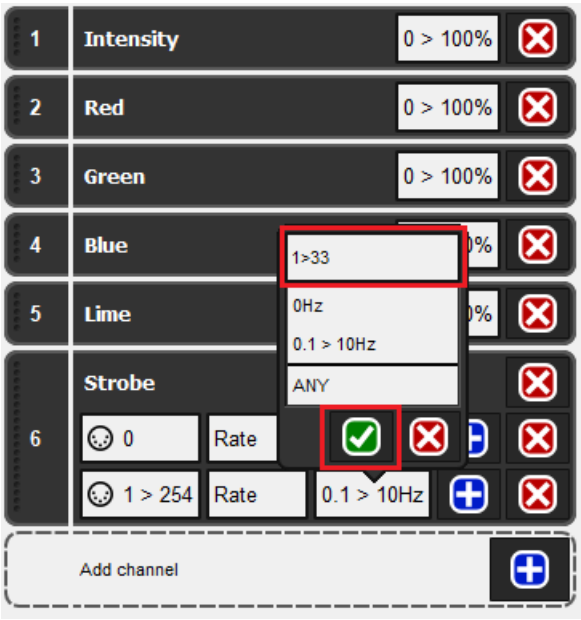


The DMX protocol document for the ColorSource Par specifies that a DMX value of 0 <254 is represents a real world value range of 0<33Hz. Therefore, the template require an minor adjustment to match the specification.

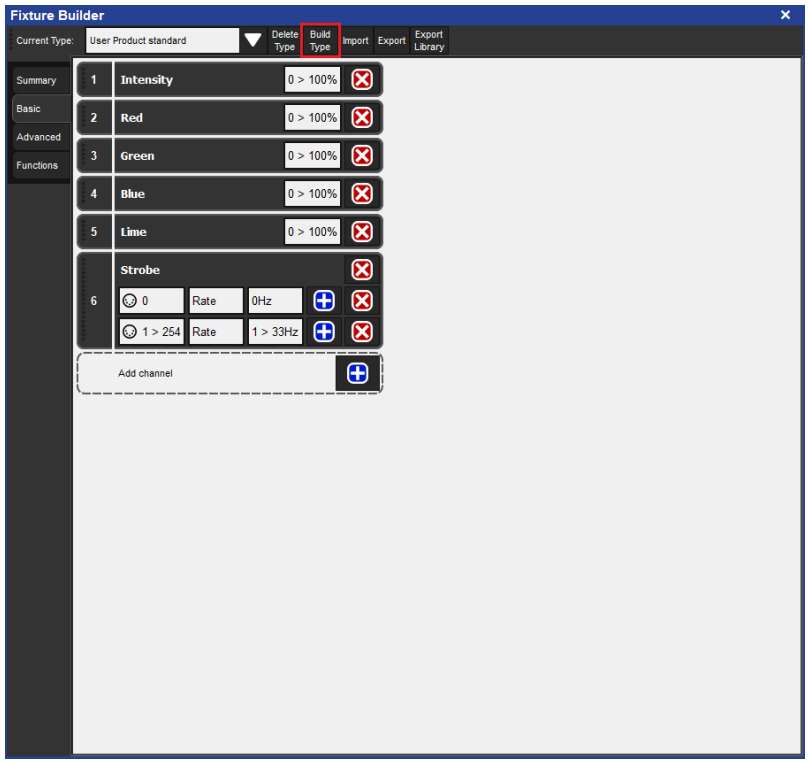
Edit the DMX range by clicking the cell, and replacing the contents with 1>254, press the **Green Check** to accept.



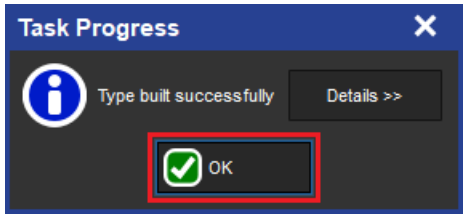
Edit the strobe rate range by clicking the cell and replace the contents with 1>33Hz, , press the Green Check to accept.



Now that the fixture type has been fully modeled, it needs to be built for use in the show by pressing the **Build Type** Button at the top of the fixture builder window.



A Task Progress dialogue will appear once the build is complete. Press the **OK** button to dismiss the dialogue. Use the Fixture Window to schedule and patched the fixture.



28.8 Fixture Builder Tutorial - Moving Head

28.8.1 Fixture Builder Tutorial

In this tutorial, we will build a fictitious moving head fixture using the advanced view of the fixture builder.

The DMX chart listed below represents all of the technical information we need to build this type.

DMX Chart:

Function	Min. Value	Max. Value	DMX Range	DMX Ch.	Default
Pan	-270°	+270°	0 - 65535	1 - 2	32768
Tilt	-90°	+90°	0 - 65535	3 - 4	32768
Intensity	0%	100%	0 - 65535	5 - 6	0
Red	0	255	0 - 255	7	255
Green	0	255	0 - 255	8	255
Blue	0	255	0 - 255	9	255
Strobe	0.1	10 Hz	0 - 255	10	0
Gobo 1 (Open)	N/A	N/A	0 - 31	11	0
Gobo 2	N/A	N/A	32 - 63	11	
Gobo 3	N/A	N/A	64 - 95	11	
Gobo 4	N/A	N/A	96 - 127	11	
Gobo 5	N/A	N/A	128 - 159	11	
Gobo 6	N/A	N/A	160 - 191	11	
Gobo 7	N/A	N/A	192 - 223	11	
Gobo 8	N/A	N/A	224 - 255	11	
Gobo Rotate - Static	0	-180 > 180	0 - 127	12	
Gobo Rotate Continuous	-300	300	128 - 255	12	191
Control Channel (Idle)	N/A	N/A	0 - 81	13	0
Control Channel (Global Reset)	N/A	N/A	82	13	
Control Channel (Motion System Reset)	N/A	N/A	86	13	
Control Channel (Light Engine Off)	N/A	N/A	100	13	
Control Channel (Reserved)	N/A	N/A	150 -255	13	

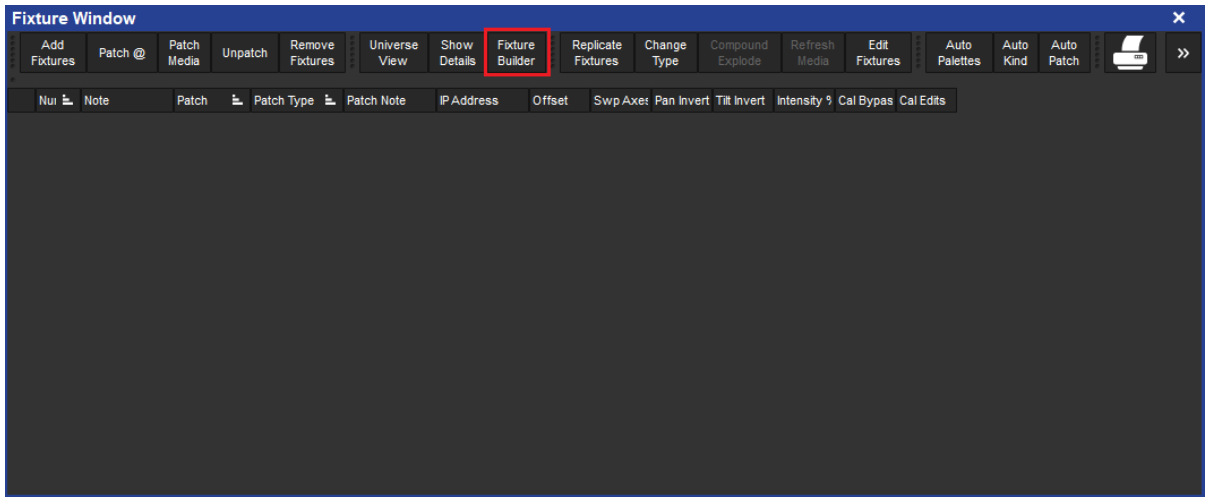
Properly modeling the fixture capabilities listed in the DMX protocol is an important part of the fixture builder process. Before continuing with the tutorial please review the DMX chart explanations listed below.

1. Pan: Pan refers to the horizontal rotational movement of the lighting fixture, if the fixture is sitting on a table. The parameter range for pan is usually specified in degrees and can vary depending on the specific fixture. Common ranges include:
    - Minimum pan angle: Physical limit is -270 degrees from center.
    - Maximum pan angle: Physical limit is +270 degrees from center.
    - Pan is a 16 bit channel, with home in the middle of the range.
2. Tilt: Tilt refers to the vertical movement of the lighting fixture, if the fixture is sitting on a table. Similar to pan, the parameter range for tilt is typically specified in degrees and can vary. Here are the common ranges:
    - Minimum tilt angle: Physical limit is -90 degrees from center.
    - Maximum tilt angle: Physical limit is +90 degrees from center.
    - Tilt is a 16 bit channel, with home in the middle of the range.
3. Intensity: Intensity refers to the brightness or output level of the lighting fixture. Common ranges include:
    - Minimum intensity: Specified as a percentage, no output.
    - Maximum intensity: Specified as a percentage, full output.
    - Intensity is an 16 bit channel, with 0 inferring no output from the light.
4. Color: Color refers to the color output of the lighting fixture. The parameter range for color is represented using color the RGB (Red, Green, Blue) color system, as this is what is physically built in the light fixture.
    - Red color channel: Representing the intensity of the red emitter in the light.
    - Green color channel: Representing the intensity of the green emitter in the light.
    - Blue color channel: Representing the intensity of the blue red emitter in the light.
    - If RGB are set to 0, there will be no light output, If RGB are set to 255, the 3 emitters will be set to full intensity.
5. Strobe: Strobe refers to the digital function of the light engine to create a strobe light effect.
6. Gobo: Gobo refers to physical filters in the optic path. Gobo 1 is ‘Open’ noting no filter in the light path. Gobo 2 thru 8 are additional filters in the light path.
7. Gobo Rotate: This function gives the ability to turn a gobo to a set rotation or continuously for artistic effect.
8. Control: The control function is used to control aspect of the light remotely, such as motion system reset or entering an idle mode for example.

Open Fixture Builder:

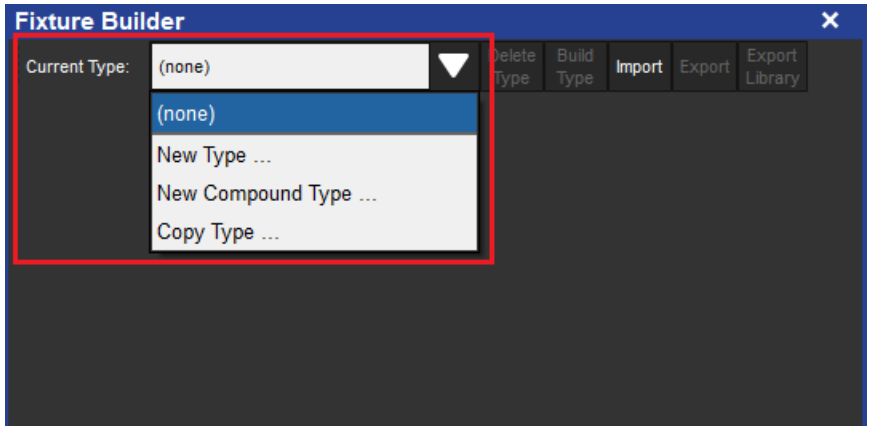
To access the Fixture builder, Open the Fixture Window by using the shortcut (**Open** + **Fixture**)

Access **Fixture Builder** by pressing the button located at the top of the fixture window.



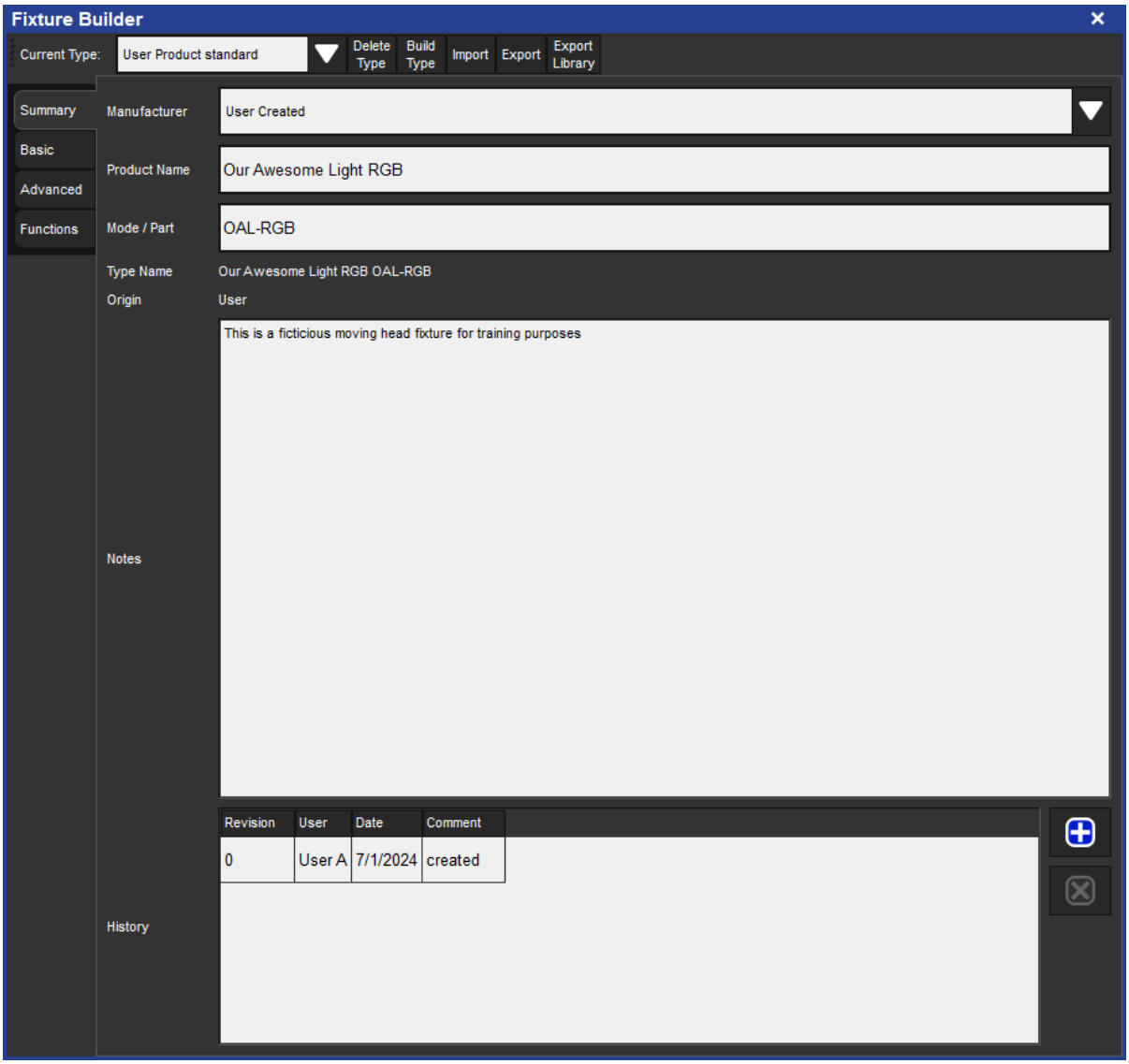
Fixture Builder, New Type

Select **New Type…** from the **Current Type** drop down menu.



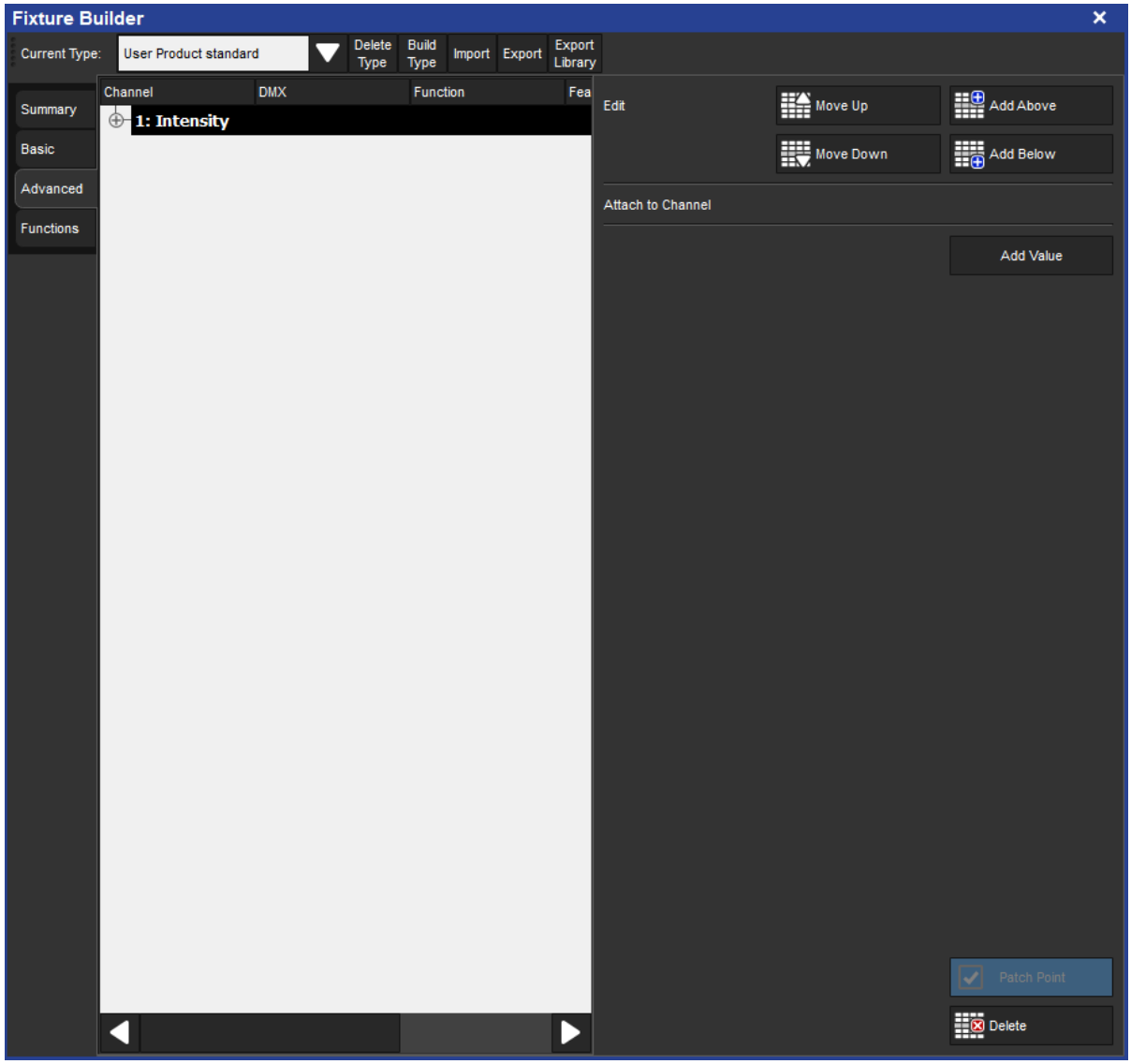
Fixture Builder, Type Name and Summary:

Use the fields located in the **Summary** tab to establish the **Product Name**, **Mode**, **Type Name**, and any notes you wish to add. The most important data you will enter in this step is the **Type Name** which indicates how the fixture will be displayed in the fixture scheduler when adding fixtures to the show as well as on the command line when the fixture is being programmed.



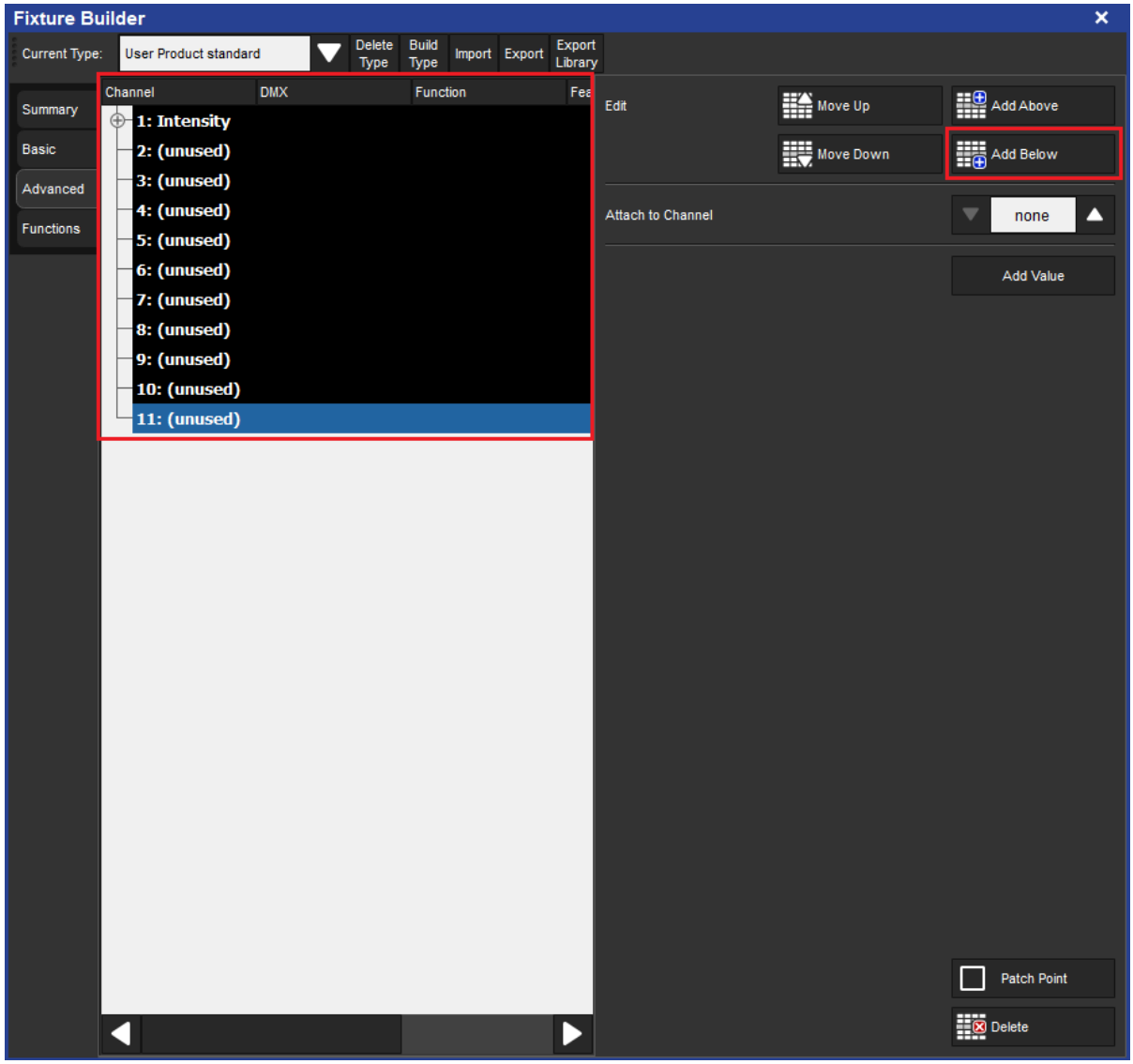
Fixture Builder, Advance Mode Tab:

Selected the **Advanced** tab. DMX channel 1 is automatically assigned to an Intensity function and is selected by default.



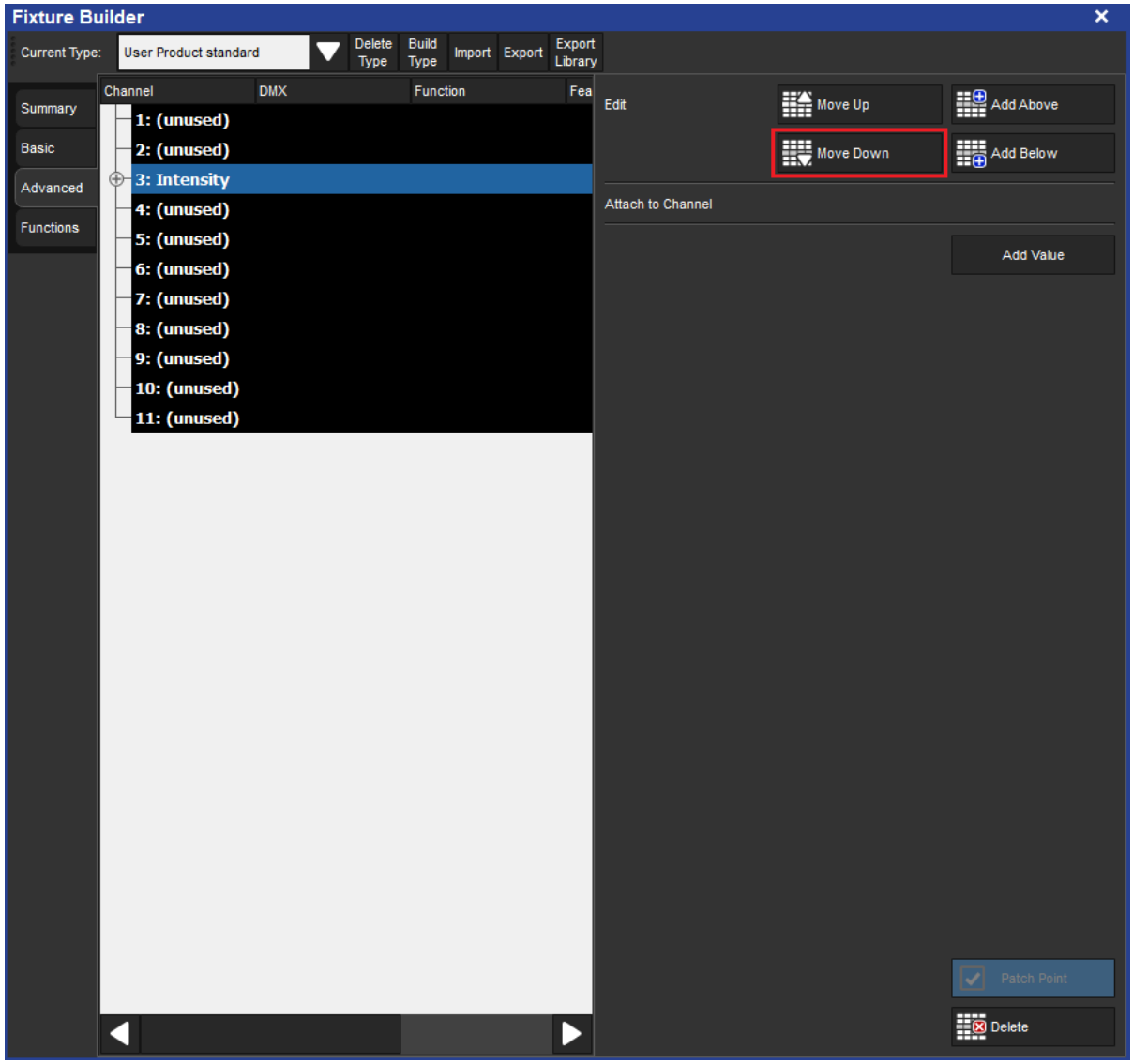
Fixture Builder, Add Unused Channels:

Use **Add Below** to create 11 unused channels.



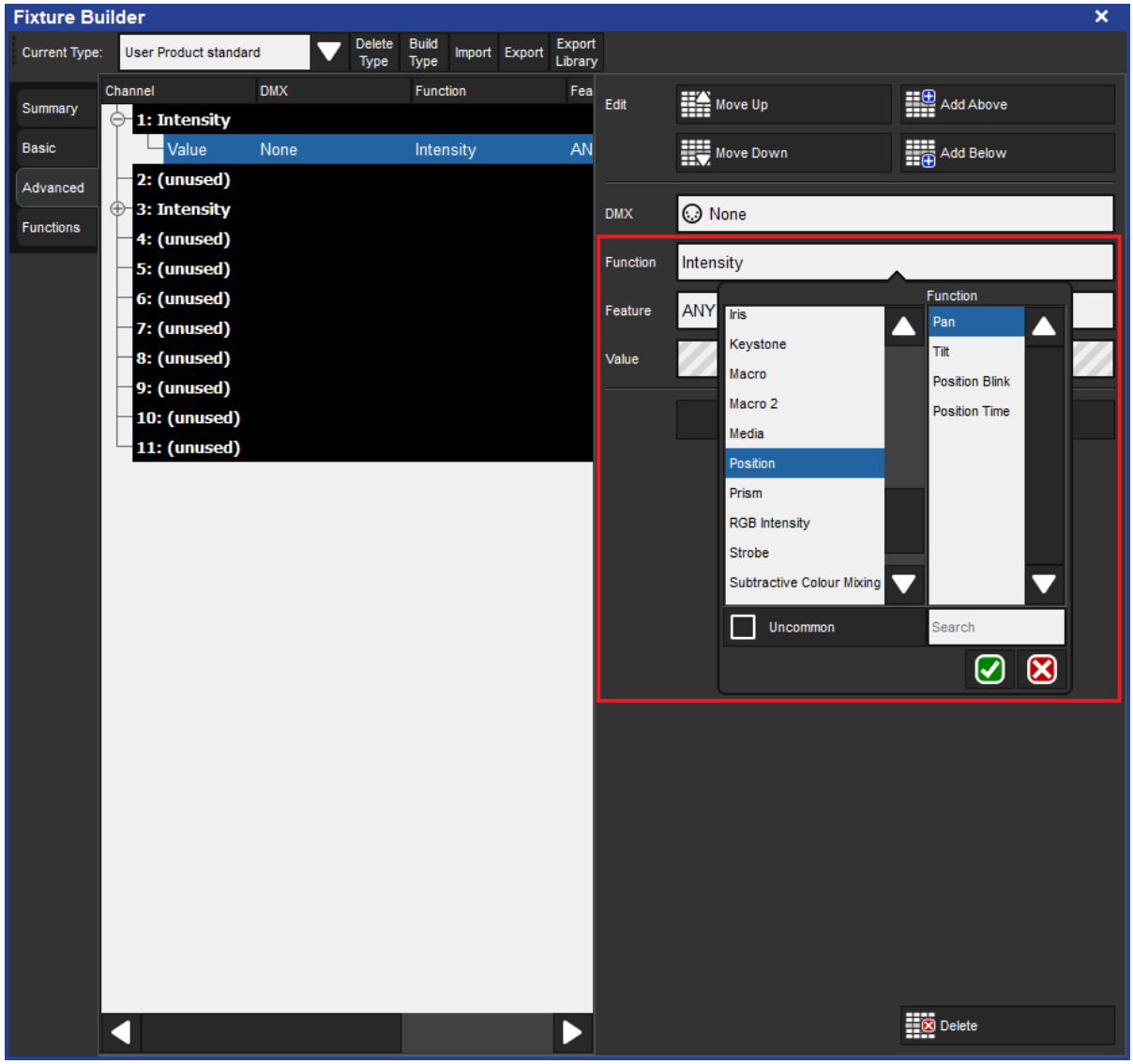
Fixture Builder, Move Intensity:

Use the **Move Down** button located in the edit pane of the fixture builder to move the Intensity Function assignment down to DMX Channel 3, this is to create space for the next two channels.



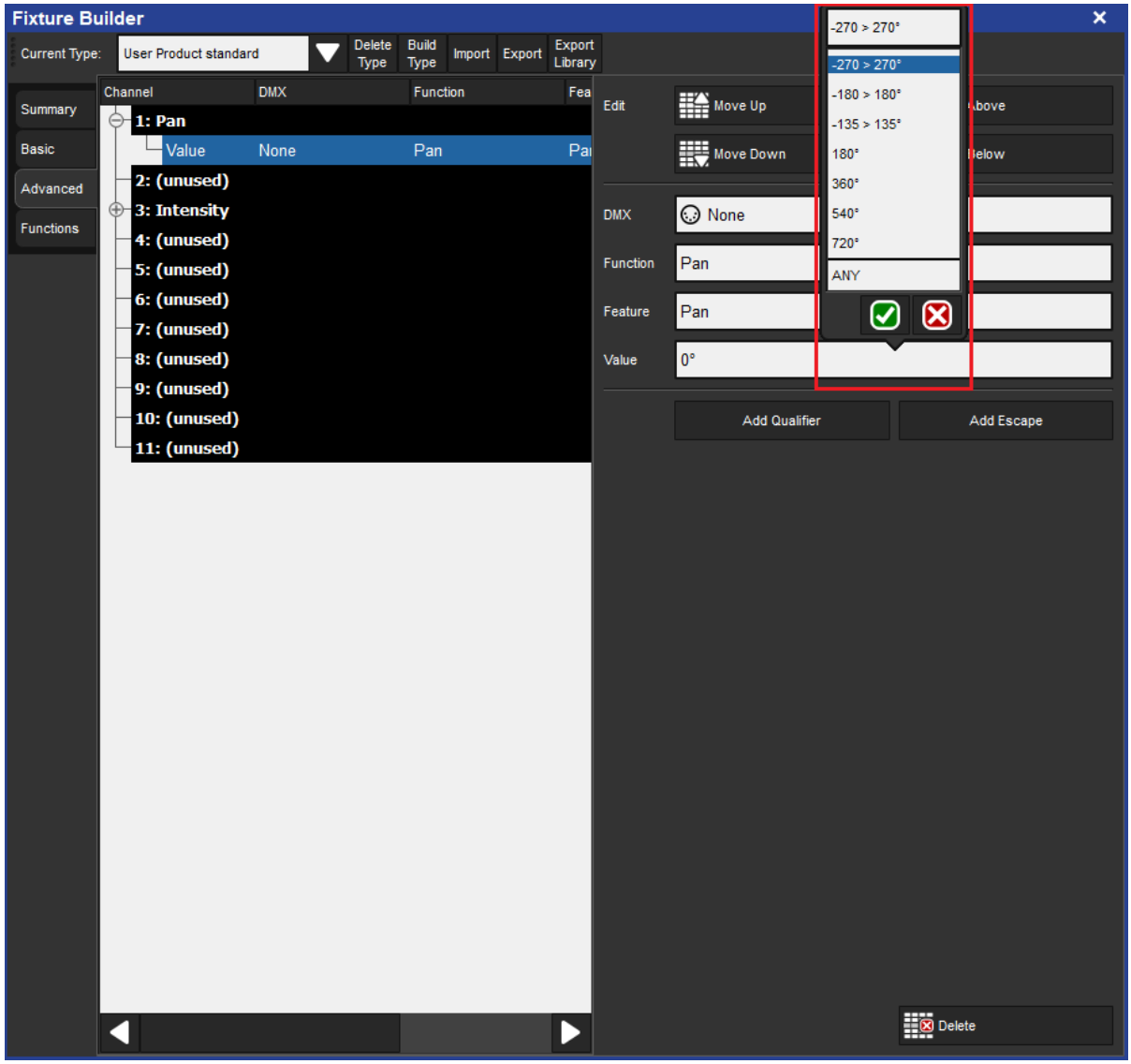
Fixture Builder, Position - Pan:

Click on DMX channel 1 to select it and then press the **Add Value** button. Use the function drop down menu to select the function family of **Position** then assign the **Pan** function to the channel.



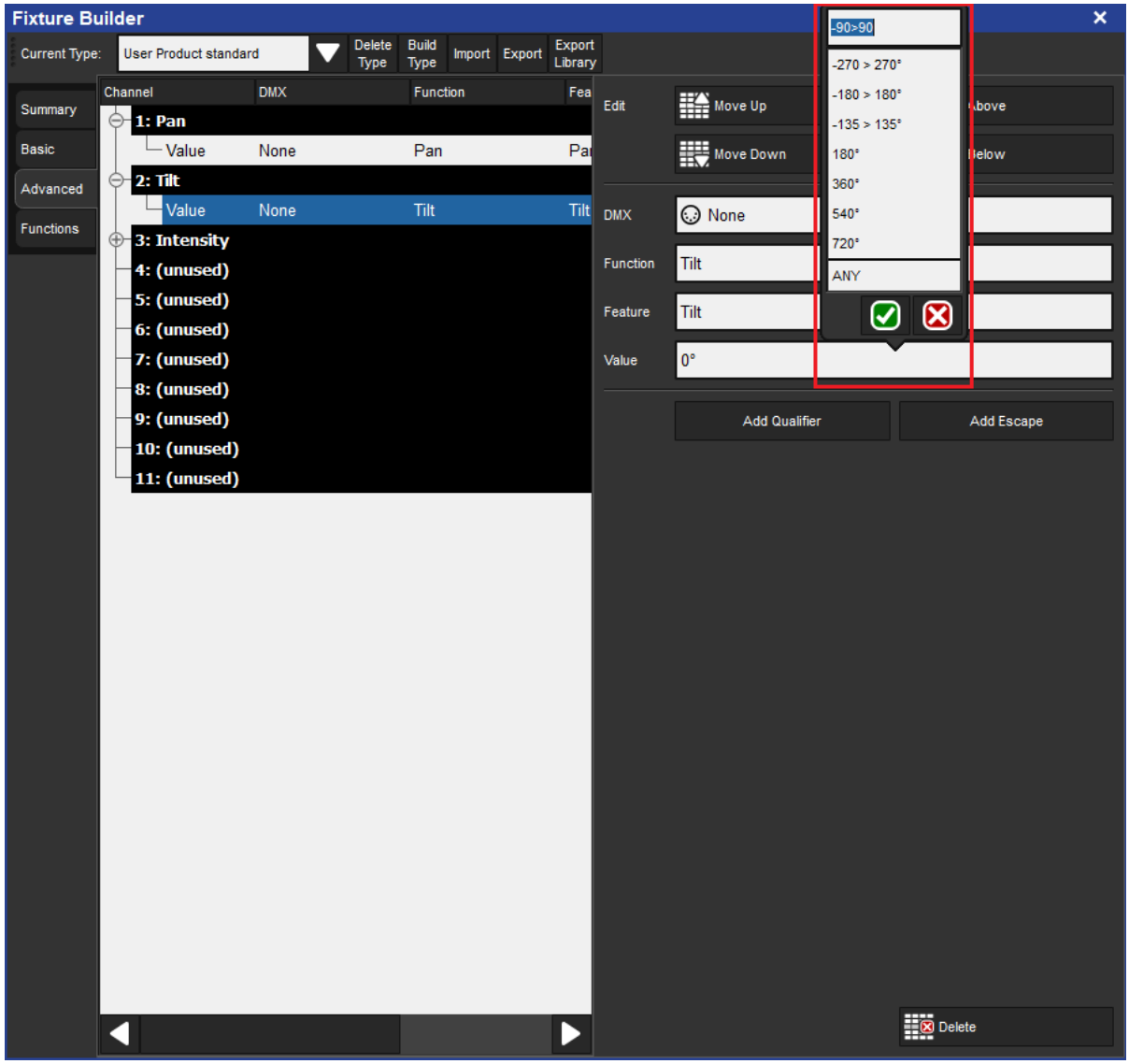
Fixture Builder, Modify Pan Range:

Ensure that the value range assigned to the Pan function is **-270 > 270** as indicated in the DMX protocol document. Press the **Green Check** to accept the value.



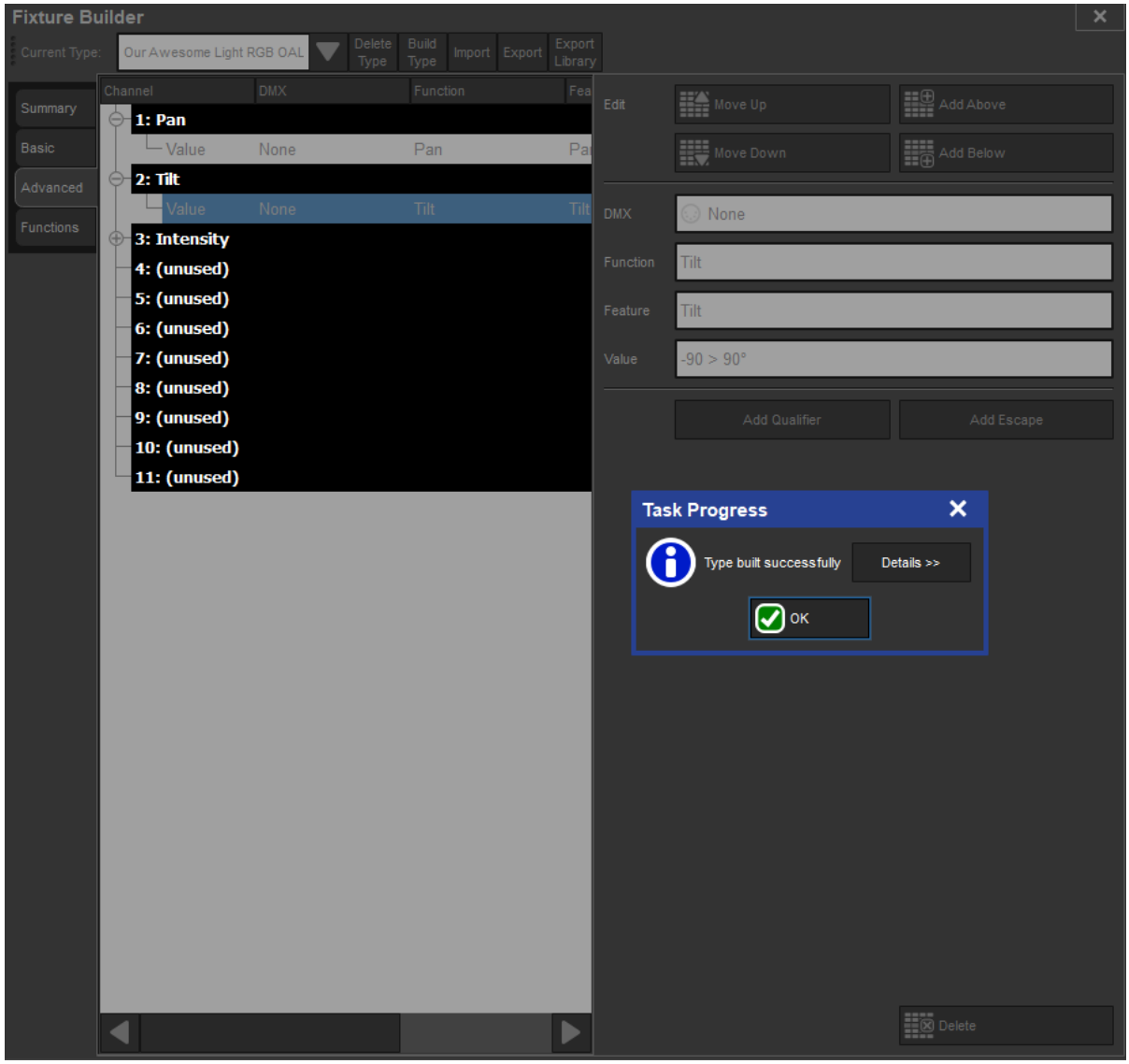
Fixture Builder, Position - Tilt, Tilt Range:

Now select DMX channel 2 and repeat the process but select Tilt as the function and -90 < 90 as the value range as indicated in the DMX chart.



Fixture Builder, Build:

Press the **Build Type** button at the top of the Fixture Builder window to test building the type, while the tasks to completely model the fixture are not complete, incrementally creating allows errors to be easily found.

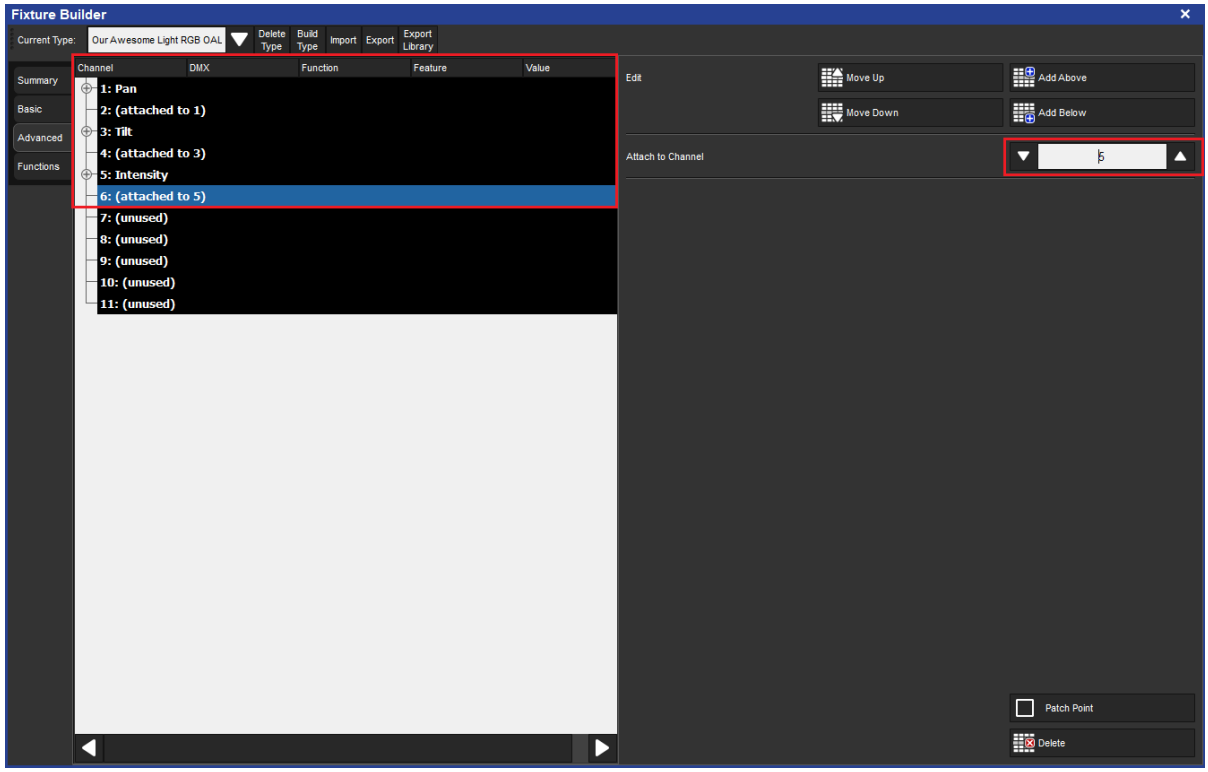


Fixture Builder, Attach Channel:

As indicated in the DMX chart, channels 1 and 2 are associated with the pan function, channels 3 and 4 are associated with the tilt function, and channels 5 and 6 are associated with the intensity function. This indicates 16-bit control of these functions. The Hog OS fixture builder models 16-bit functions by attaching DMX channels to one another.

In this step you will attach channel 2 to 1. Select an unused channel, and **Move Up** to modify its position in the chart. Use **Attach to Channel** and modify their value accordingly.

Repeat for channels 4 and 6 by changing positions and attached channel values.

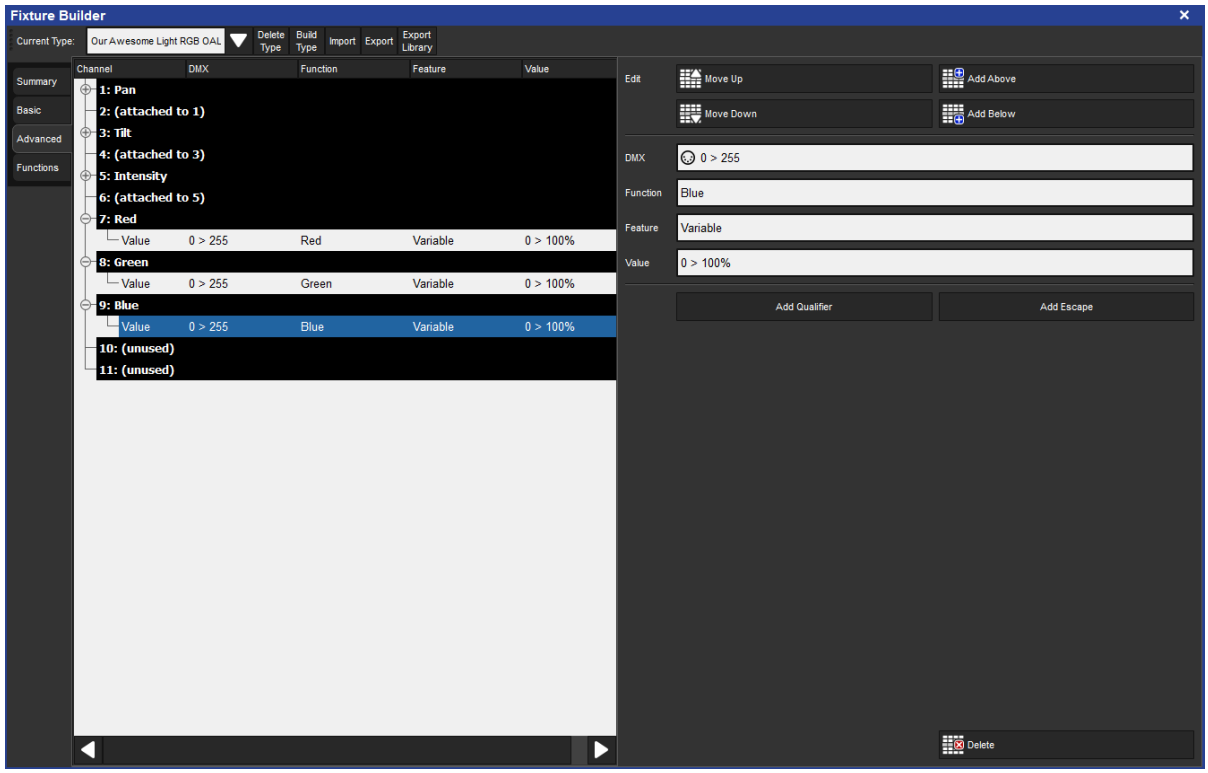


Fixture Builder, Color Functions:

Add color functions to channels 7, 8, and 9 as indicated in the protocol document by selecting the appropriate DMX channel row and pressing the **Add Value** button located in the right hand edit pane.

The **Red**, **Green**, and **Blue** functions are listed under the **Additive Colour Mixing** group.

Once the functions are assigned change the value of each function to **0 > 100%**.

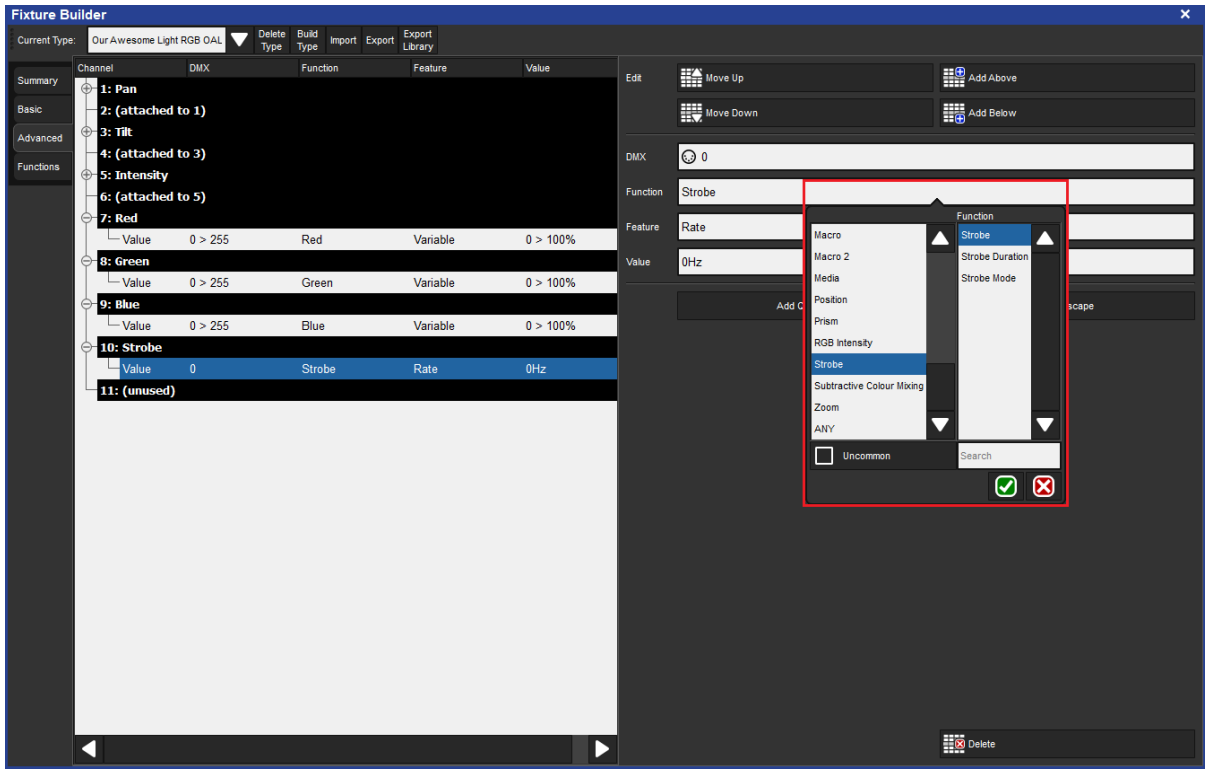


Fixture Builder, Strobe Functions:

Add the **Strobe** function to channel 10 as indicated in the protocol document by selecting the appropriate DMX channel row and pressing the **Add Value** button located in the right hand edit pane. In this case you will add two rows under channel 10.

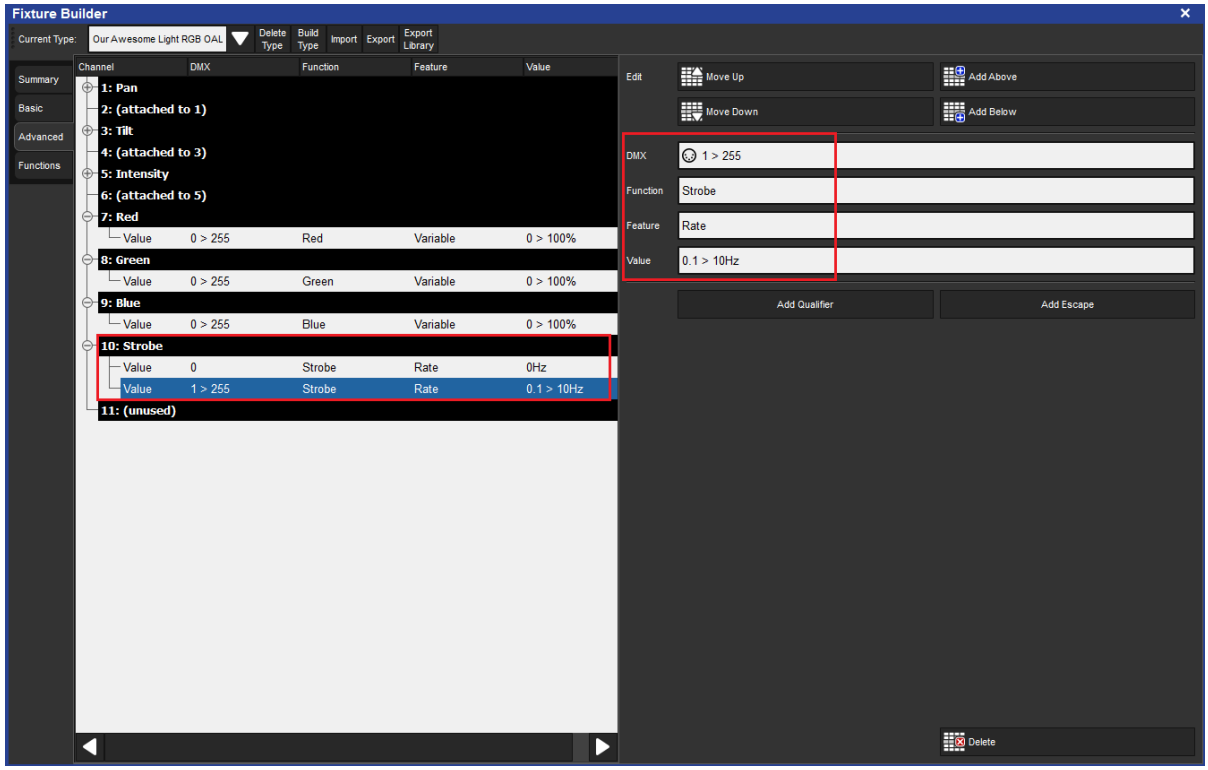
In the first row assign a Strobe function with a value of **0 Hz** and a DMX value of **0**.

In the second row assign a value range of **0.1 > 10 Hz** and a dmx value of **1 >255**.



In the first row assign a Strobe function with a value of **0 Hz** and a DMX value of **0**.

In the second row assign a value range of **0.1 > 10 Hz** and a dmx value of **1 >255**.

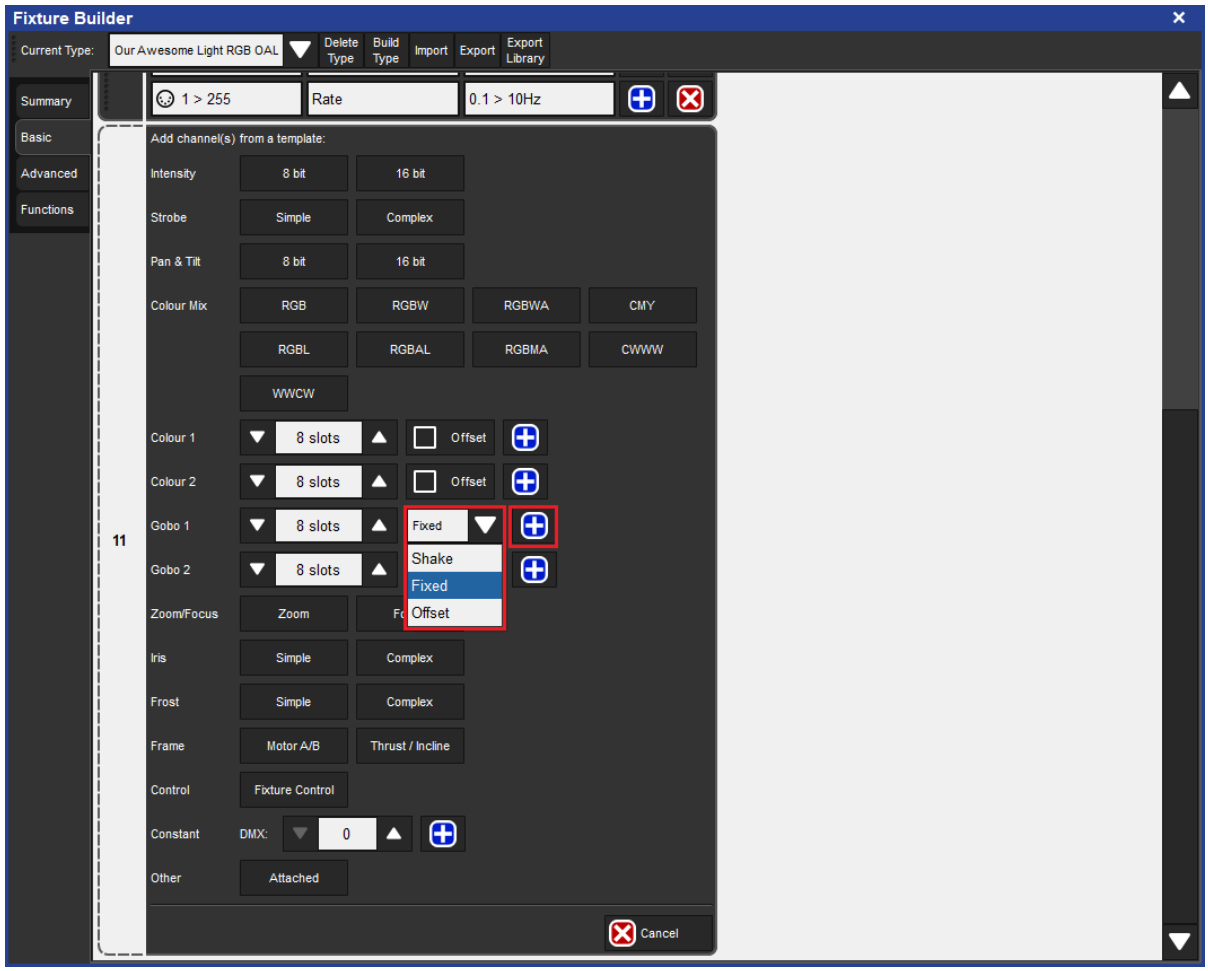


Fixture Builder, Gobo Function:

Add the gobo function to channel 11 as indicated in the protocol document. This is more easily accomplished by switching to the **Basic** tab. Press the Blue **+** to open the template selector.

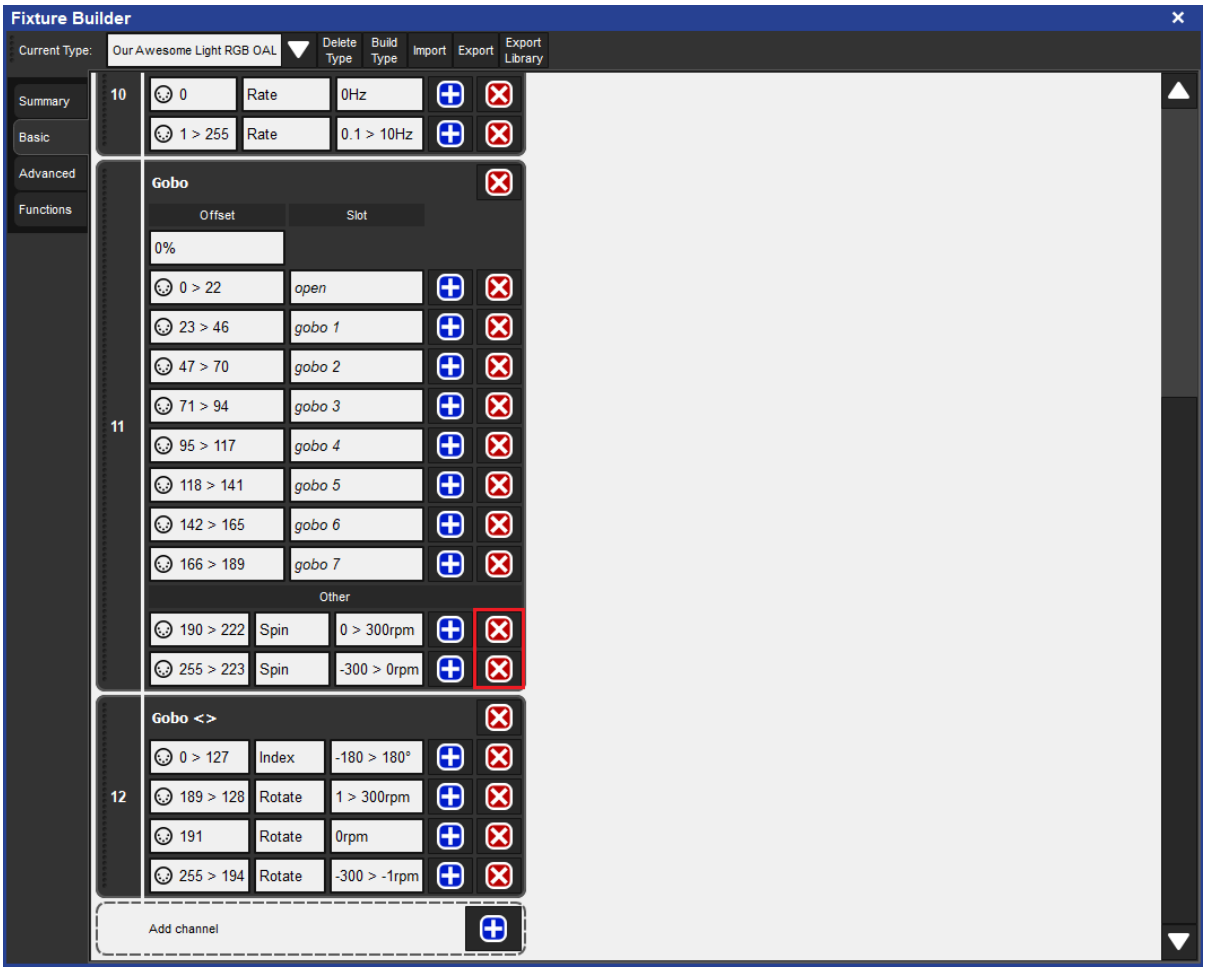


Choose **Fixed** from the **Gobo 1** template from the selection box. Press the Blue **+** to add to the fixture type.



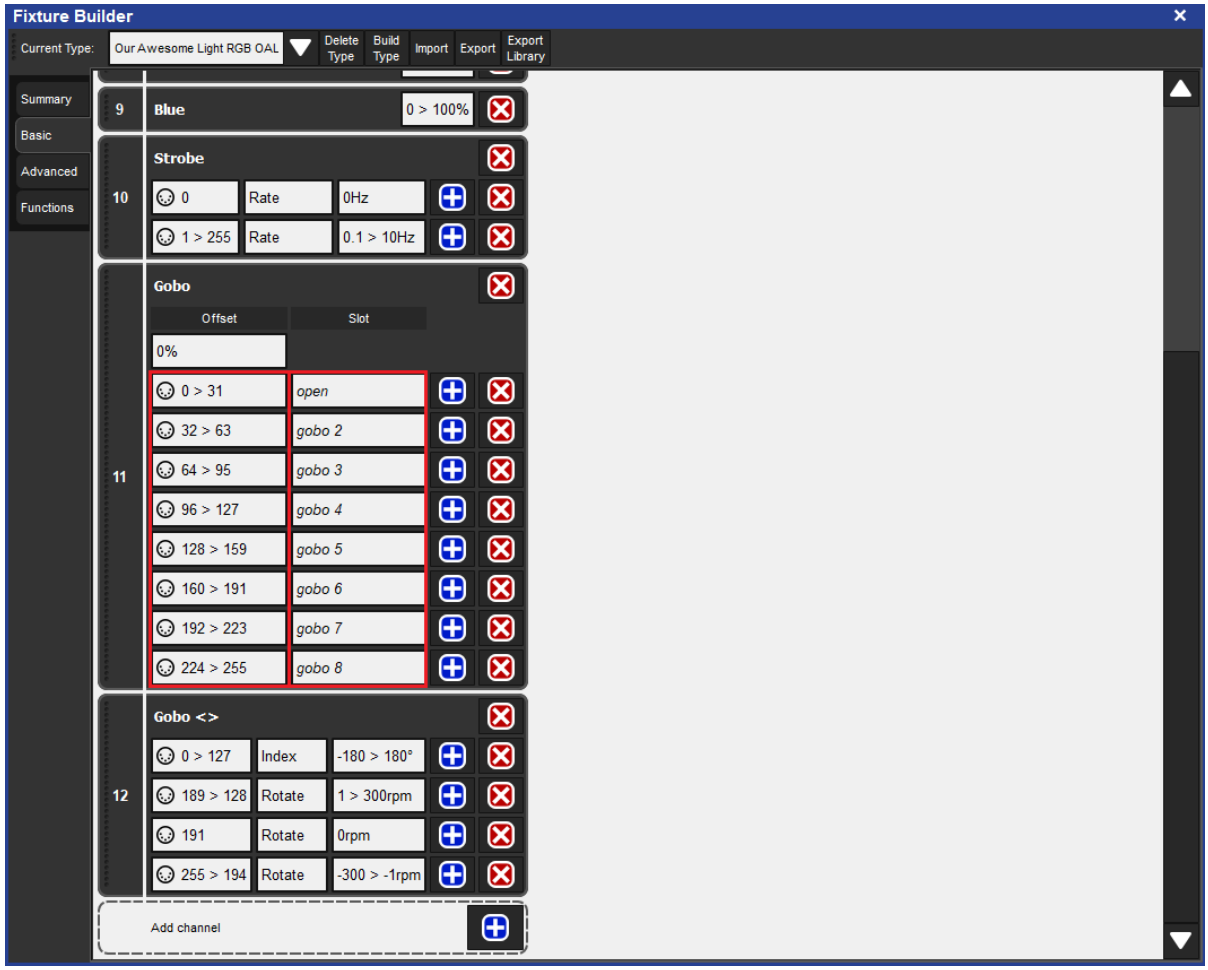
Fixture Builder, Gobo Channels:

You will notice that Gobo rotate and Gobo spin functionality is automatically added when the Gobo template is applied. Since Gobo wheel spin is not supported in the fixture protocol document you will need to delete the Spin function rows by pressing the **Red X**, and confirming in the dialog box for both extra entries.



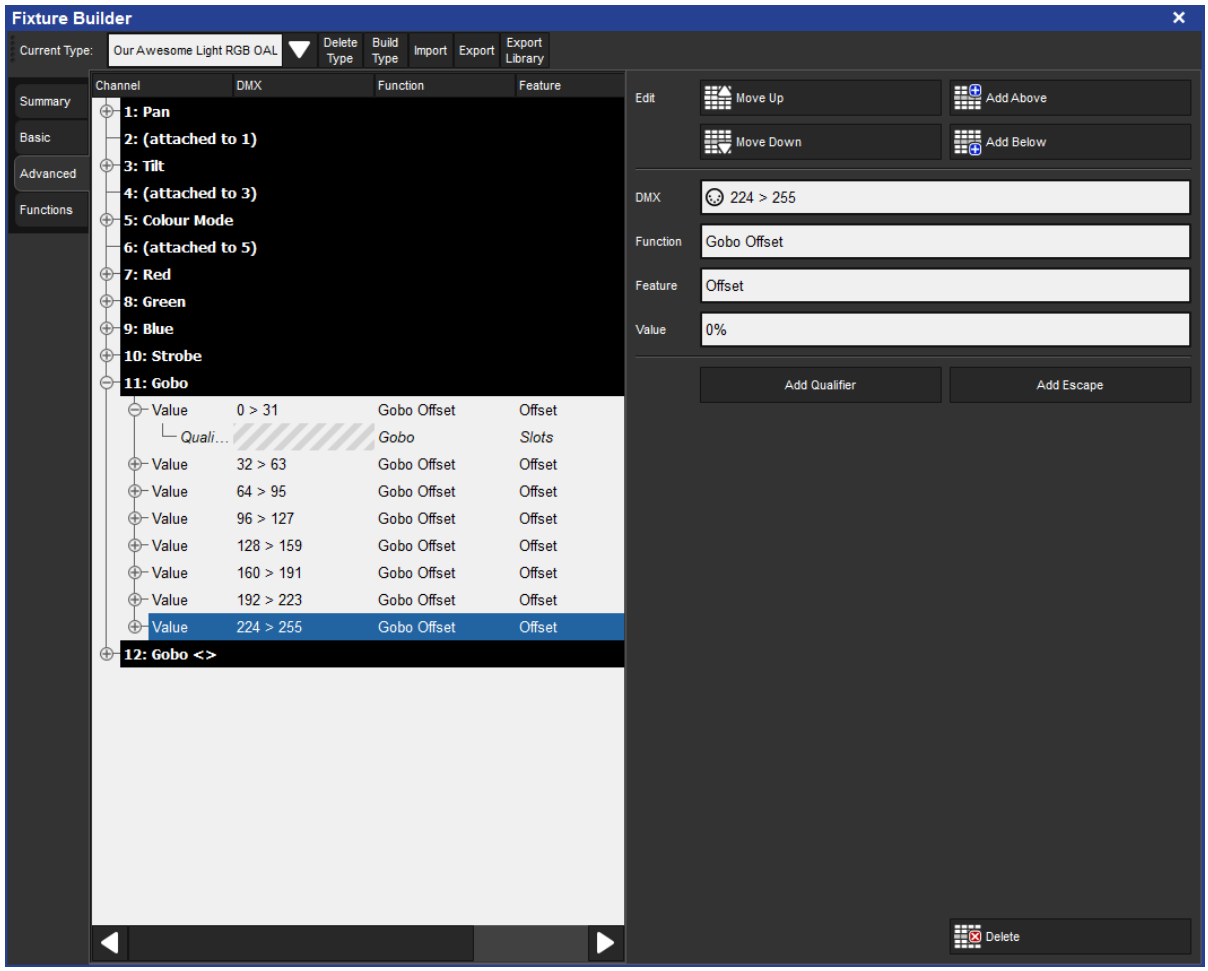
Fixture Builder, Gobo DMX Ranges:

Update the DMX ranges and the gobo slot number according to the DMX protocol document. Note, it is helpful to change the DMX ranges starting at the bottom of the list and work up, overlapping names and ranges can only be handled in advanced view.



Fixture Builder, Gobo Rotate:

Once again select the **Advanced** tab. Expand DMX channel 11 and notice the Gobo template utilized Gobo Offsets with DMX value ranges for each Gobo definition with the Gobo slot qualifying each gobo Offset range. This matches the model established by the DMX protocol document for the fixture we are creating but be aware that not all slotted functions in fixtures are implemented with offsets.

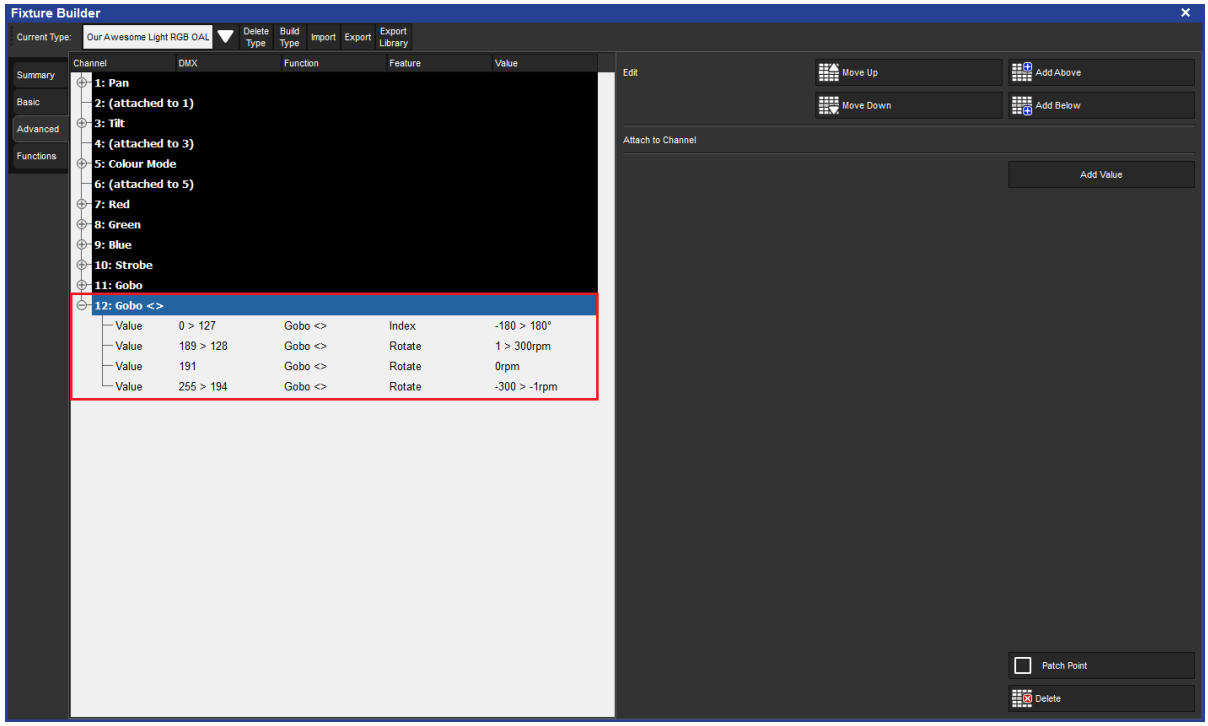


Fixture Builder, Gobo Rotate Details:

Expand channel 12 to inspect its assignments.

The first value entry for channel 12 is a function of Gobo <> with a feature of Index. Looking at the real world values and DMX range we can see this assignment matches our DMX protocol document.

The remaining value entries for channel 12 describe a function of Gobo <> with a feature of Rotate. A detail to note, it is not always obvious to set the default value for a function, in this case, the value of 191 will have the Gobo Rotate feature set to 0 RPM, which will not be visible.



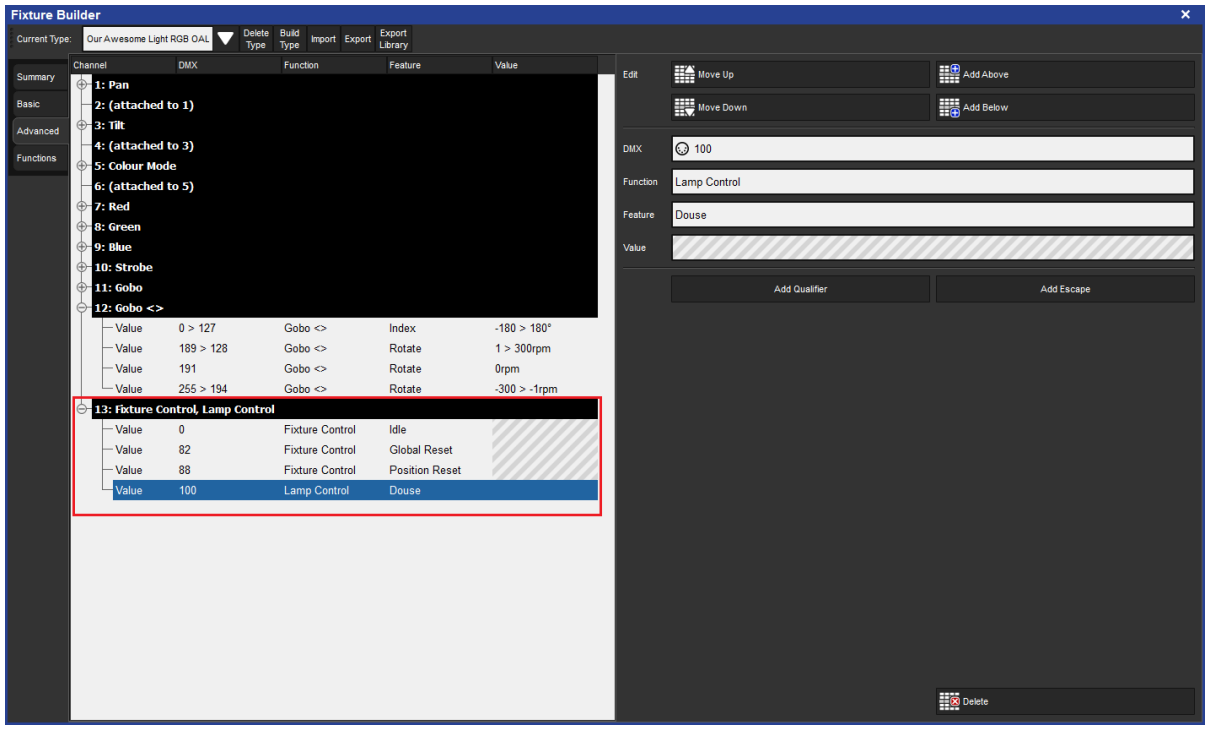
Fixture Builder, Fixture Control:

Select DMX channel 12 and press the **Add Below** button to add a new channel.

For channel 13 you will use the **Add Value** button to add four entries.

- The first entry will be for the **Fixture Control**, which is selectable in the **Control** function family. The feature of **Idle** is added automatically. Change the DMX value to **0**.
- The second entry will be for the **Fixture Control**, which is selectable in the **Control** function family. The feature of **Global Reset** needs to be selected, and the DMX value of **82** needs to be assigned.
- The third entry will be for the **Fixture Control**, which is selectable in the **Control** function family. The feature of **Position Reset** needs to be selected, and the DMX value of **88** needs to be assigned.
- The fourth entry will be for the **Lamp Control**, which is selectable in the **Control** function family. The feature **Douse** needs to be selected, and the DMX value of **100** needs to be assigned.

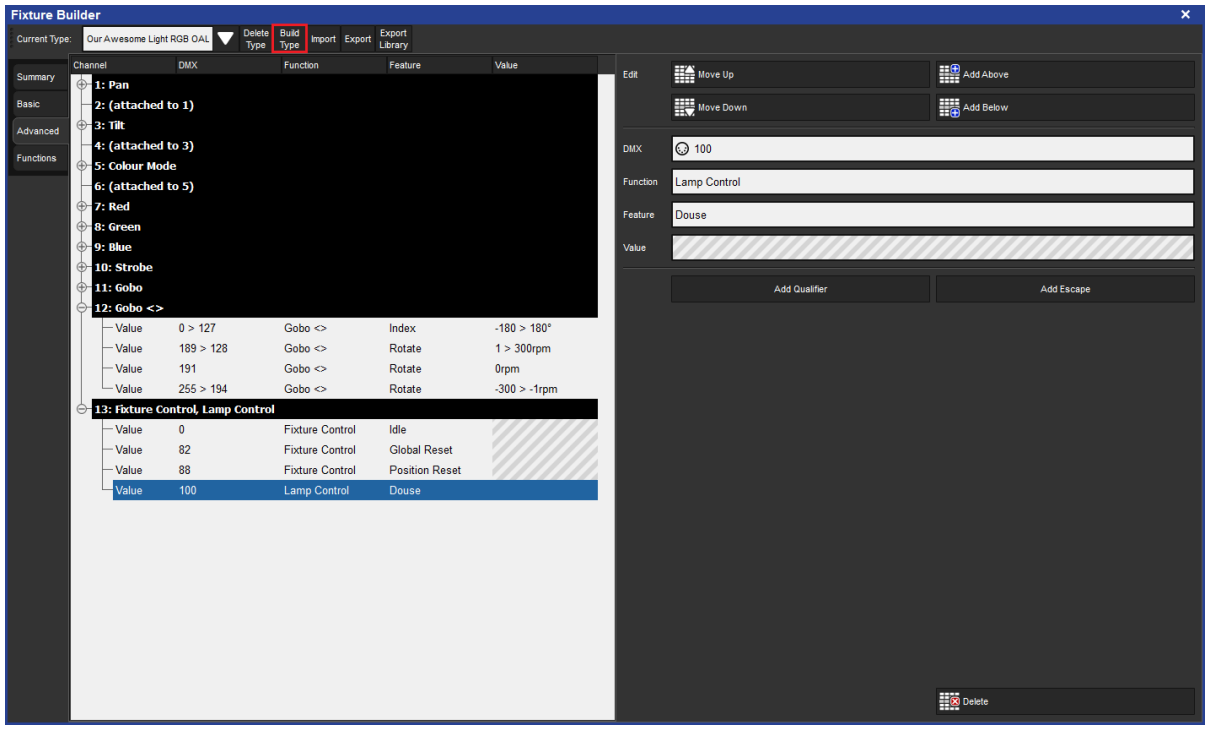
Since all of these function and feature pairing describe specific DMX output values, or unary, there is no applicable range of real world values to specify in these cases.



Fixture Builder, Build and Export:

You have now completely finished modeling the fixture in the fixture builder. Press the **Build Type** button at the top of the Fixture Builder Window to complete the modeling process and to make the Fixture Type available for scheduling in the current show.

- To export the Fixture Type to an XML document, press the **Export** button.
- To include the Fixture Type as part of a portable fixture library press the **Export Library** button and follow the onscreen instructions.



28.9 Fixture Builder Tutorial - Compound LED Bar

28.9.1 Fixture Builder Tutorial

In this tutorial, we will build a fictitious Compound LED Bar that is comprised of a three independently controllable RGB cells.

The DMX chart listed below represents all of the technical information we need to build this type.

Channel	Function	Value Range	DMX Range
1	Master Intensity	0% - 100%	0 - 255
2	Cell 1 Red	0% - 100%	0 - 255
3	Cell 1 Green	0% - 100%	0 - 255
4	Cell 1 Blue	0% - 100%	0 - 255
5	Cell 1 White	0% - 100%	0 - 255
6	Cell 2 Red	0% - 100%	0 - 255
7	Cell 2 Green	0% - 100%	0 - 255
8	Cell 2 Blue	0% - 100%	0 - 255
9	Cell 2 White	0% - 100%	0 - 255
10	Cell 3 Red	0% - 100%	0 - 255
11	Cell 3 Green	0% - 100%	0 - 255
12	Cell 3 Blue	0% - 100%	0 - 255
13	Cell 3 White	0% - 100%	0 - 255

Tutorial Procedure

1. In the fixture builder window select the **New Type...** option from the current type drop down menu.
2. Use the **Summary tab** to change the type to the following:
   - Manufacturer = Generic
   - Product = LED Bar
   - Part/Type Name = Master
3. Press the **Build Type** button at the top of the fixture builder window.
4. Once again, select the **New Type...** option from the current type drop down menu.
5. Select the **Basic** tab.
6. Press the **X** button on Channel 1 to delete the Intensity mapping.
7. Press the **+** button on Channel 1.
8. Press the **RGBW** button in the channel template menu.
9. Use the **Summary tab** to change the type to the following:
   - Manufacturer = Generic
   - Product = LED Bar
   - Part/Type Name = Cell
10. Press the **Build Type** button at the top of the fixture builder window.
11. Select the **New Compound Type...** option from the current type drop down menu.

12. Use the **Summary tab** of the fixture builder to specify the following:
    - Manufacturer = Generic
    - Product = LED Bar
    - Part/Type Name = Standard
13. Now use the **Parts tab** to add parts as shown below:
    - Part 0 - LED Bar Master
    - Part 1 - LED Bar Cell
    - Part 2 - LED Bar Cell
    - Part 3 - LED Bar Cell
14. Once all of the parts have been assigned press the **Build Type** button.
15. Open the fixture scheduler and check to make sure the Compound fixture is available and can be scheduled, patched, and selected.

29. Visualizer Connectivity

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29.2 Installing the Hog Connectivity Driver 547
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29.1 Connectivity Overview

Hog OS supports connectivity to visualizers through a number of protocols. These protocols include, Art-Net, sACN, DMX, and a CITP stream. The physical ports used may be via the an Ethernet port or a 5-pin XLR DMX port depending on needs of the visualizer computer.

This section describes how to configure both the visualizer PC and Console to enable Hog Visualizer Connectivity.

Visualizer applications that support CITP Hog Visualizer streaming:

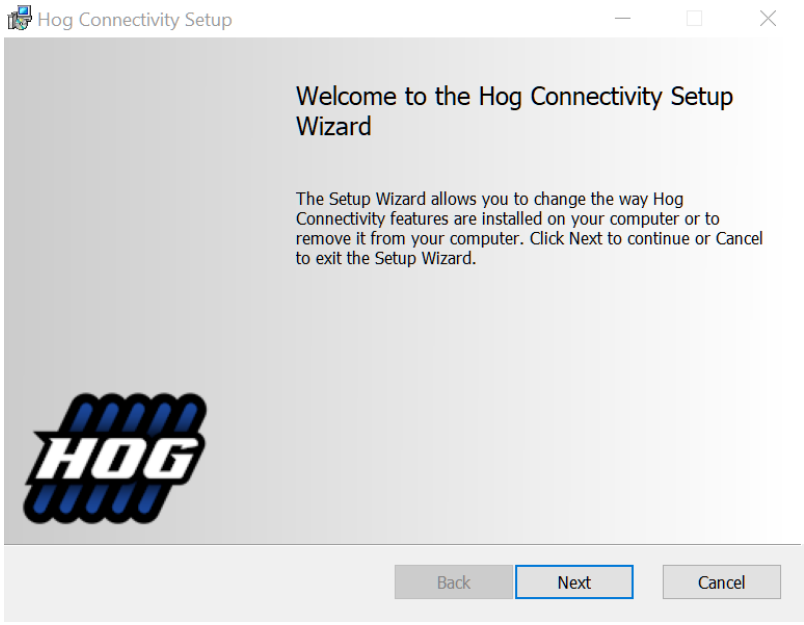
For visualizer product information, software licensing, and instructions on visualizer operation, please contact the visualizer manufacturer directly.

29.2 Installing the Hog Connectivity Driver

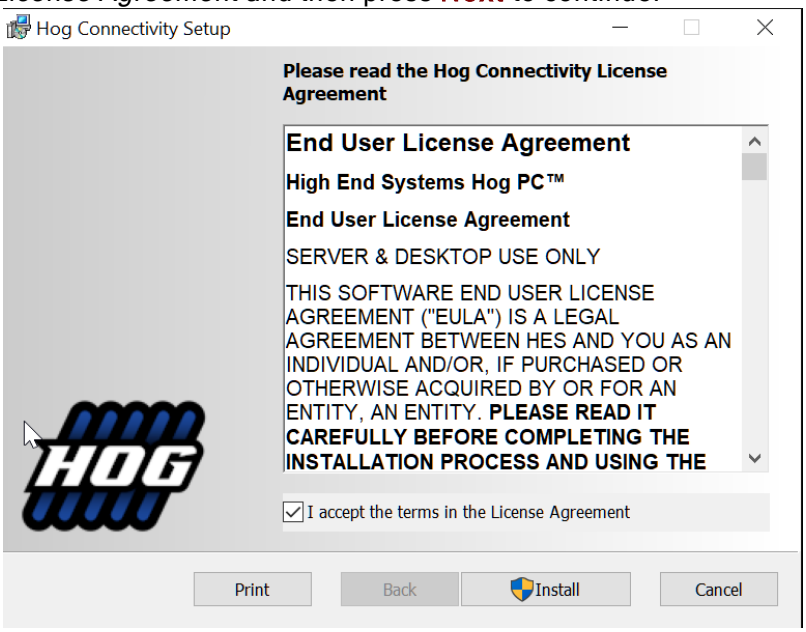
The current Hog OS Connectivity installation application can be downloaded from the ETC website. The connectivity driver is also automatically installed with Hog PC. Installation of the Hog Connectivity Driver is NOT required if running the Capture v2019 (or newer) application or a Capture v2019 (or newer) presentation file since CITP is supported for Hog visualizer streaming.

To install the connectivity application using the dedicated installer:

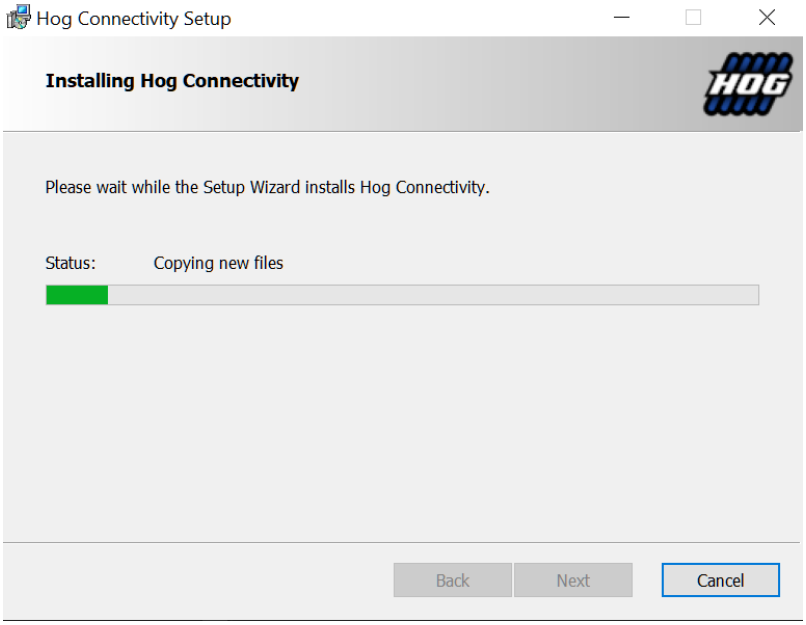
1. Double click the Hog_Connectivity_x.x.x.xxx.msi file to launch the install wizard.
2. The Hog Connect installer will check your operating system and windows installer versions, and then display the welcome screen. Press **Next** to begin the installation process.



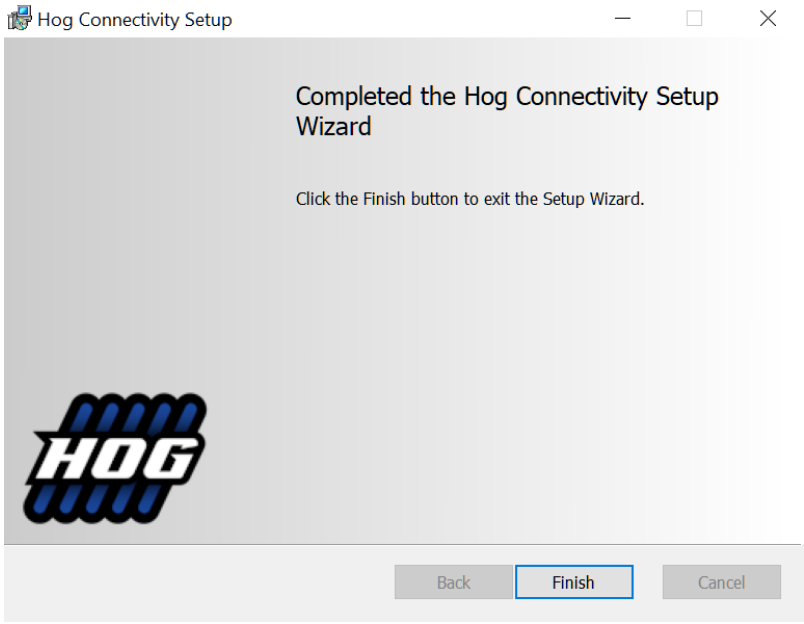
3. The wizard displays an End User License Agreement. Select *I accept the terms in the License Agreement* and then press **Next** to continue.



4. A *Ready to Install* screen will appear with instructions on beginning or canceling the installation. Press **Install** to begin installing a progress bar will be displayed.

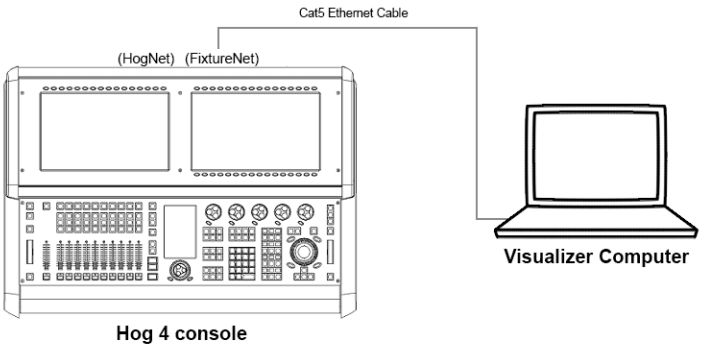


5. The installation only takes a few seconds. When the installation is complete, press **Finish** to exit the installer.



29.3 Physically Connecting the Console

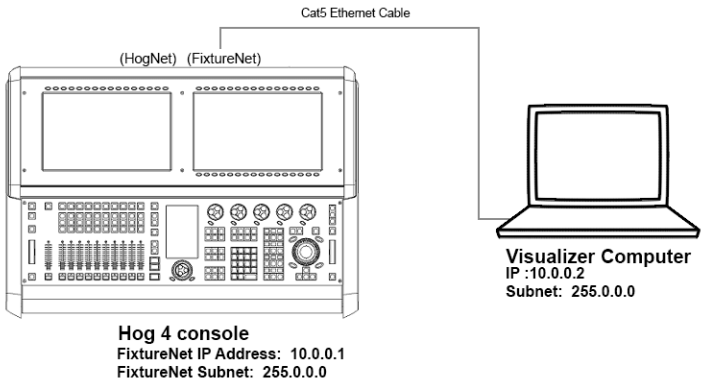
Connect the console's FixtureNet port to a Ethernet port on the visualizer PC using a standard Ethernet cable. Switches and routers can also be used inline to connect the console to the visualizer PC as needed by the network setup.



29.4 Configuring the Visualizer PC

29.4.1 Network Settings on the Visualizer PC

1. Navigate to the network and sharing center of your Visualizer PC by right clicking on the network icon on the windows desktop and select properties. If the network icon is not shown on your desktop then do a search for "network and sharing center" on your PC and click on the appropriate search result to open the network and sharing center window.
2. Click on "change adapters settings" located in the left hand pane of the network and sharing center window.
3. Ensure that the network adapter associated with the Ethernet port you connected the Cat5 cable to is enabled and assigned an IP address that is within the same sub-network as the console's FixtureNet port. This can be accomplished by assigning the network adapter a static IP address or by using a DHCP router in the network and assigning the network adapter to "obtain an IP address automatically". A typical static IP address configuration is shown in the image below

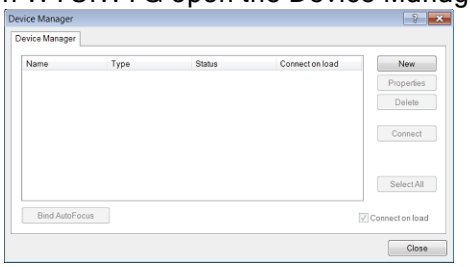


Tip: In some cases it may be necessary to also right click and disable the other network adapters including Bluetooth and wireless network adapters to ensure the visualizer application is sending data to the appropriate network adapter.

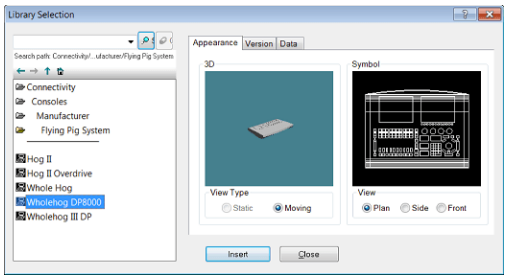
29.4.2 WYSIWYG Configuration

To configure WYSIWYG:

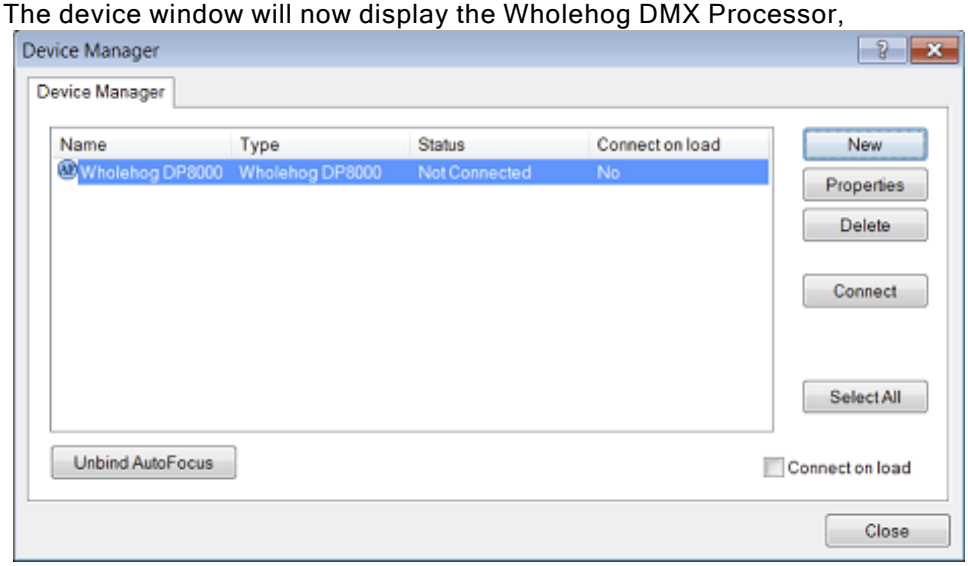
1. In WYSIWYG open the Device Manager: **Live** → **Device Manager**



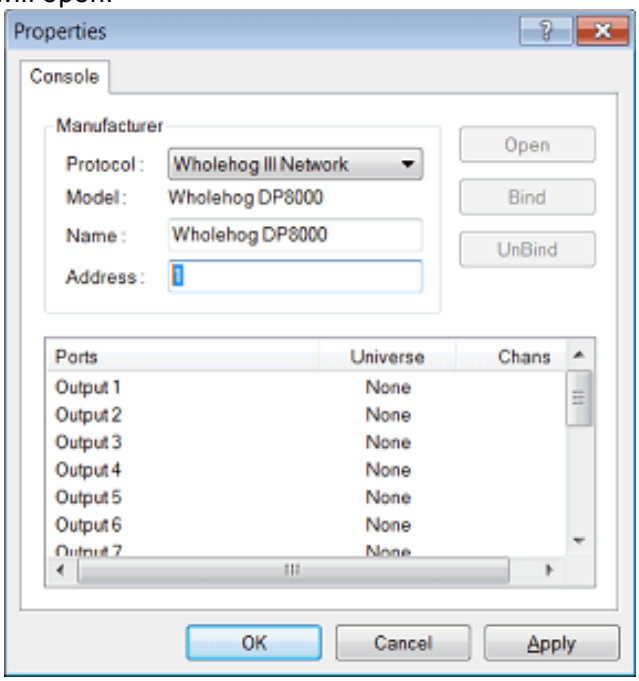
2. Click on **New** to add an additional device. Select Wholehog DMX Processor as the new device:



3. The device window will now display the Wholehog DMX Processor,

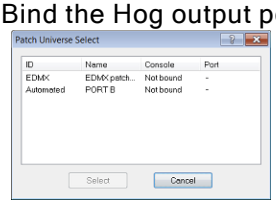


4. Double click on this device or select it and press **Properties**. The Properties window will open:

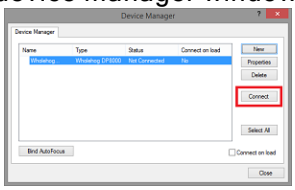


5. In the **Address** field enter a value of 1,2,3, or 4. If you enter a value of 1 then the output ports listed below will act as Hog visualizer outputs 1>16. If you enter an address value of 2, then the output ports displayed below will be interpreted as Hog visualizer outputs 17-32 although they are labeled output ports 1<16. Click **OK** to close this window.

6. Bind the Hog output ports to the universes in your WYSIWYG show.

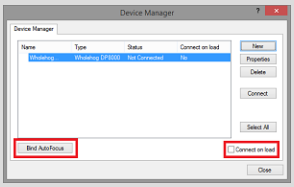


7. Once the universes are bound to the DMX Processor, press the connect button in the device manager window.



8. The DMX Processor will now show a "connected" status which indicates that WYSIWYG is now ready to receive a visualizer data stream from a console. Please note that the "connected" status does not mean WYSIWYG is receiving a visualizer stream from a console. Proceed to Physically Connecting the Console to the Visualizer for instructions on how to configure the console to send a visualizer data stream into WYSIWYG.

Tip: Select the "connect on load" option in the device manager window of WYSIWYG to avoid having to manually press the connect button each time you load that particular WYSIWYG project file. Also, click on the "Bind AutoFocus" option in WYSIWYG's device manager to enable the Autofocus feature described in Autofocus



29.4.3 WYSIWYG Console Edition Configuration

When using some versions of Console Edition (CE) WYSIWYG to connect directly to a Hog system, only one universe of visualization is possible at a time. If your version of CE is limited to one universe, you will need to specify which universe is active within the WYSIWYG file:

With the WYSIWYG file open, go to the Live Module and select **Edit → Universes.**

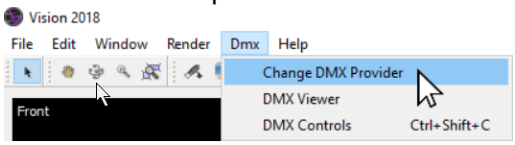
1. The Visualization Universe Selection window will open. This window will display all the currently configured universes within your drawing. Use this window to select the universe you wish to visualize from the console.
2. Configuring WYSIWYG CE - the Visualization Universe



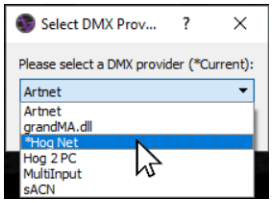
29.4.4 Vectorworks Vision Configuration

Set the DMX provider in Vectorworks Vision to the Hog connectivity driver using the following steps:

1. Click the "Dmx" option at the top of the Vision Window and select the "Change DMX Provider" menu option.



2. In the "Select DMX Provider" pop up menu select "Hog Net" and click OK.



29.4.5 Capture Configuration

Capture 2018 older:

- Installation of the Hog Connectivity Driver on the visualizer computer is required.
- On the console select the "Hog Connectivity" protocol and "Capture" manufacturer in the visualizer node settings
- In Capture set the project console link and universe bindings to "Auto" or "Hog 3/4" when available.

Capture 2019 and newer:

- Hog Connectivity and CITP protocols are both supported by Capture
- Hog OS v5 and greater use the CITP connection protocol
- The CITP visualizer streaming protocol is compatible with Hog OS consoles and both the Windows and Mac versions of Capture as well as Presentation files generated by Capture v2019 and greater.
- In Capture set the project console link to "Auto" and also set the universe bindings to "Auto".

29.5 Configuring the Console

29.5.1 Enabling the Visualizer Stream on the Console

Navigate to the start screen of Hog OS and click on the **Control Panel** button.

Select the **Startup** tab.

Enable the "**Run Visualizer Stream**" button and click **OK.**

29.5.2 Configuring a Show for Visualizer Connectivity

1. Load a new or existing show file on your console.
2. Open the network window (**Setup**→ **Network**).
3. Click on the visualizer node listed in the network window.
4. Click on the **Settings** button located at the top of the network window. This will open the visualizer settings window.
5. Enter the IP address of the visualizer PC into the IP address field.

   If a visualizer is already running on the network you can use the "detected visualizers" drop down menu to auto-populate the IP address and visualizer protocol and manufacturer fields.

   In you are using WYSIWYG, all steps listed in **WYSIWYG Configuration** must be completed in order for WYSIWYG to be listed as detected visualizer.

6. Select the appropriate visualizer protocol and manufacturer using the drop down menus. Use of the CITP protocol for visualizer streaming to Capture requires Capture Version 2019.0.13 or greater.
7. Click **OK** to apply the changes. The Hog console will now stream all of the universes directly to visualizer using the FixtureNet port on the back of the console.

29.6 Autofocus

Visualizers can send information back to your Hog console to allow lights to be automatically positioned to a particular location on stage, rather than individually positioning the fixtures using the console's controls. This feature is called Autofocus and works when using the Hog Connectivity protocol for visualizer streaming.

When Autofocus is properly enabled and configured, selecting and deselecting fixtures as well as assigning intensity, iris, pan, tilt, and CMY colour mixing values to fixtures in the visualizer application results in those same selections and values appearing in the active editor or programmer on the Hog console.

Please refer to the users manual for each respective visualizer application for further details on how to enable and configure visualizer files to utilize the Autofocus feature.

29.7 Visualizer Troubleshooting

Question The visualizer node is showing as "idle" or "offline" in the network window.

Answer: Ensure that the **Run Visualizer Stream** option is turned on in the **Settings** window of the Hog OS start screen.

Question: The visualizer node is not appearing in the network window.

Answer: Ensure that the **Run Visualizer Stream** option is turned on in the **Settings** window of the Hog OS start screen.

Question: WYSIWYG isn't showing up in the "detected visualizers" drop down menu of the visualizer node settings window.

Answer: Go to WYSIWYG and open the device manager window. Ensure all listed DMX Processors show a status of "connected". If the listed DMX Processors show a status of "connected" and the console still isn't auto-detecting WYSIWYG in the visualizer node settings window, then proceed with manually entering the IP address of the WYSIWYG computer and select WYSIWYG from the visualizer manufacturer. Auto-detection may not be supported by your network's configuration.

Question: The visualizer node is running but there appears to be a noticeable delay in responsiveness in the visualizer.

Answer: If you are using the Hog Connectivity protocol then turn off all Art-Net output from the console's internal DMX Processor. A lack of responsiveness can also be due to an underpowered graphic card installed on the visualizer machine.

Question:The visualizer node is running but I am getting garbled fixture output in the visualizer.

Answer: Ensure that the correct visualizer manufacturer and protocol is selected in the visualizer node settings window on the console. Then check that the universe patch settings for each DMX Processor and universe are set appropriately in the visualizer node settings window on the console. If using the CITP visualizer streaming protocol with Capture ensure that capture 2019.0.13 or newer is installed.

Question: The visualizer node is running but I am getting absolutely no output data in the visualizer.

Answer: Ensure that the visualizer IP address and manufacturer settings are correct in the visualizer node settings window on the console.

For WYSIWYG, ensure the DMX Processors listed in the device manager show a status of "connected".

Question: I've tried everything and the settings all look correct in the console and in the visualizer application but it still isn't working.

Answer: Ensure that the visualizer's IP address and console's IP address are set within the same subnetwork. If you are unsure what this means then try using the IP address settings, please refer to the **Network settings section**. If you continue to have trouble contact Technical Services for further assistance.

30. Updating Software

30.1 Console Software Update 560
30.2 Console Software Full Install 561
30.3 Create a USB Flash Drive for Full Install of Hog OS v3.9.0 and Higher 562
30.4 Create a USB Flash Drive for Full Install of Hog OS v3.8.0 and Lower 563
30.5 Upgrading HedgeHog 4 Consoles (2015 and later) 564
30.6 Updating Version 2 Internal DMX Widget Firmware on HPU 567
30.7 Updating Front Panel firmware 569

30.1 Console Software Update

Hog console software can be updated in two ways:

1. Application Software Package (FPSPkg Upgrade)
2. Applying a drive image. (.ISO file)

The application software update is referred to as a fpspkg upgrade.

This section covers the software only method. See **Full software upgrade** for the drive image method.

Hog PC is upgraded using an separate windows installer package. For details on installing / upgrading Hog PC see **Hog PC**.

Caution: Updating console software removes all manually installed fixture libraries from the console.

Caution: The software package should only be obtained from the High End website.

To update software on a Hog Series Console:

1. Download the latest Software update installer from the High End website (once downloaded the file name will be Hog4_X-X-X-X.fpspkg where the Xs represented the software version number). Be sure to also check the release notes for the specific software version as special install instructions may also apply.
2. Copy the software update installer file to a USB Flash drive.
3. Insert the USB Flash drive containing the software update file into any USB slot on the console.
4. Press the **Software Update** button located at the bottom of the start window.
5. Browse to the USB flash drive and select the appropriate sofware update file, and press **OK**.
6. Hog OS will continue with the software upgrade without further interaction. Upgrades typically take less than 25 seconds to complete unless otherwise noted in the release notes. When the upgrade completes, all dialogue boxes will close and the start screen will reappear. Check the splash screen to ensure the console is running the upgraded software version.

30.2 Console Software Full Install

Occasionally the entire contents of the hard drive will need to be replaced, this is referred to as a "full install." As the name implies, performing a full install with completely erase the contents of the hard drive. The Hog OS core operating system will be replaced and any saved show files will be lost. The requirement for a full install will be clearly stated in the release notes and the fpspkg file will not be available. In some cases a full install may be advised by support staff to get to a known starting point or to restore console functionality.

Important: Ensure that all show data is backed up. A Full Install erases all data on the console's hard drive.

To perform a full install:

1. Ensure that all show data is backed up onto an external media device. See Backing Up Your Show.
2. Power OFF the console.
3. Download the latest Full Install file from the High End Systems website.
4. Create a Full Install USB flash drive.

   Refer to Create a USB Flash Drive for full install of Hog OS v3.9.0 for instructions.

5. Insert the Full Install USB flash drive into one of the USB ports on the console. Do not use the USB ports located in the front drawer of Hog 4-18.
6. Connect an external USB keyboard to the console. If the console has a built-in keyboard it can be used.
7. Power ON the console.
8. Wait for the “System Installation” screen to appear.
9. To begin the installation process press **Enter** on the external USB keyboard.

   -Or- use the touchscreen or trackball to click the **Continue** button.

   -Or- use the **Enter** key on the console's front panel if the **Blind** key is flashing.

10. The installation will now take several minutes to complete.
11. When the installation procedure is complete a "console installation complete" message will appear.
12. Remove the Full Install USB flash drive from the console.
13. Press the **Enter** key on the external USB keyboard.

    -Or- use the touchscreen or trackball to click the **Continue** button.

    -Or- use the **Enter** key on the console's front panel if the **Blind** key is flashing.

14. The console will now reboot and the newly installed software will now run.

30.3 Create a USB Flash Drive for Full Install of Hog OS v3.9.0 and Higher

The following procedure demonstrates how to create a Full Install USB flash drive for use with all Hog OS Consoles.

This procedure is NOT compatible for full installs of Hog OS v3.8.0 and lower. For full installs of Hog OS v3.8.0 and older please refer to Create a USB Flash Drive for full install of Hog OS v3.8.0 and lower.

1. Download and install the Etcher application to your Windows PC or Macintosh Computer. (http://www.etcher.io/)
2. Insert a 2GB or larger USB flash drive into one of your computer's USB ports and make sure it is the only external USB drive connected to your computer.
3. Launch the Etcher Application.
4. Click the "select image" button in the Etcher application.
5. Use the file browser pop-up to select the full restore file that you downloaded from the High End Systems website.
6. Click the FLASH button in the Etcher application.
7. When Etcher has finished flashing the USB flash drive a “Flash Complete” message will appear.
8. Remove the USB flash drive from the computer. Don’t worry if the USB flash drive led is flashing.
9. Proceed with step four of the full install procedure: Console Software Full Install.

30.4 Create a USB Flash Drive for Full Install of Hog OS v3.8.0 and Lower

The following procedure demonstrates how to use a Windows Computer to create a Full Install USB flash drive for use with Hog OS Consoles, using an ISO version of 3.80 and below.

This procedure is NOT compatible for full installs of Hog OS v3.9.0 and higher.

For full installs of Hog OS v3.9.0 and higher please refer to Create a USB Flash Drive for full install of Hog OS v3.9.0 and higher.

1. Download and install Linux Live's "USB Stick Maker" to your Windows PC. (http://www.linuxliveusb.com/)
2. Insert a 2GB or larger USB flash drive into one of your Windows computer's USB ports.
3. Launch the Linux Live USB Creator application.
4. In step 1 of Linux Live select the USB flash drive that you plugged into the computer.
5. In step 2 of Linux Live click on the ISO/IMG/ZIP button.
6. Use the browser that pops up to select the full restore file you downloaded from the HES website.
7. Skip step 3 of Linux Live.
8. In step 4 of Linux Live enable the following options:
    - Hide created files on key
    - Format the key in Fat32
9. Click on the lightning bolt in step 5 of Linux Live.
10. A notification will pop up warning you that your USB flash drive contents will be erased. Click OK.
11. When Linux Live is finished it will alert you.
12. Remove the USB flash drive from the computer.
13. Proceed with step four of the full install procedure: Console Software Full Install.

30.5 Upgrading HedgeHog 4 Consoles (2015 and later)

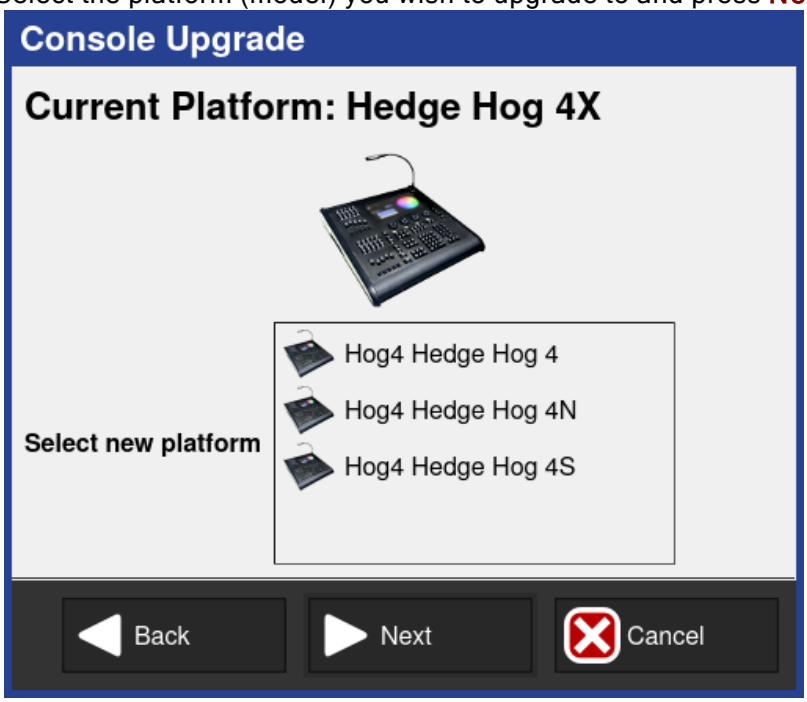
All HedgeHog 4 consoles manufactured in January 2015 or later that have the motherboard back plane exposed on the rear of the console are built using the exact same internal and external hardware. Therefore, the platform (or model) of the desk is not determined by the physical components of the desk but rather by an encrypted software certificate installed on the console. This allows any HedgeHog 4 console manufactured in January 2015 or later that has its motherboard back plane exposed on the rear of the console to be upgraded / downgraded to any one of the platforms listed in the table below without the need for new hardware or physical changes to the desk.

Platform	HogNet	External Monitor	Fixture Net	DMX
HedgeHog 4	NO	YES	4 universes	4 universes
HedgeHog 4S	NO	YES	4 universes	4 universes
HedgeHog 4N	YES	YES	4 universes	4 universes
HedgeHog 4X	YES	YES	6 universes	6 universes

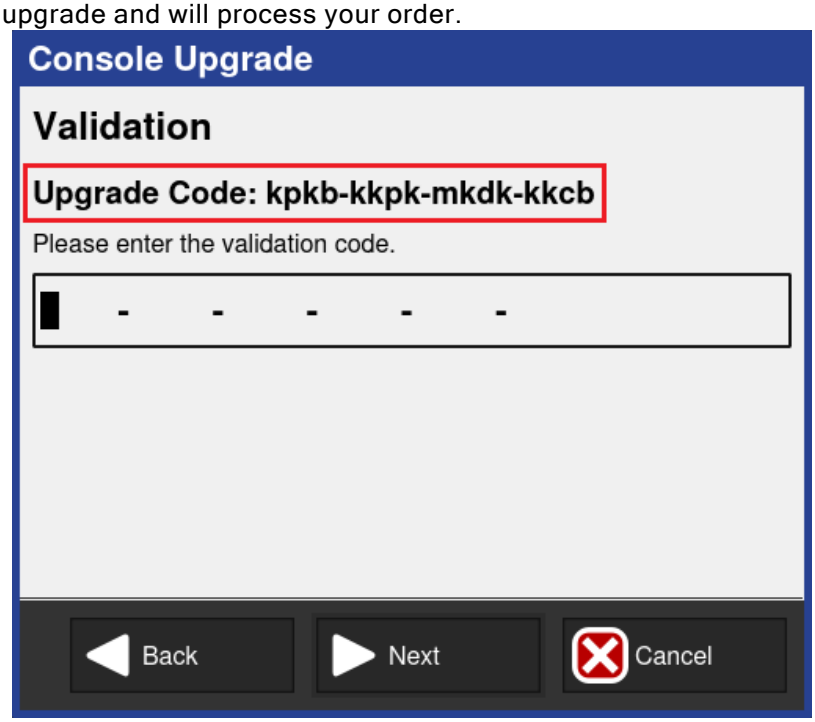
To change the platform (model) of a HedgeHog 4 console manufactured in January 2015 or later:

1. Power on the HedgeHog 4 console. Press the **Control Panel** button on the start screen to open the control panel.
2. Navigate to the diagnostics tab of the control panel window. Press the **Console Upgrade** button.
3. The console upgrade utility wizard will now appear. Press **Next** to begin.

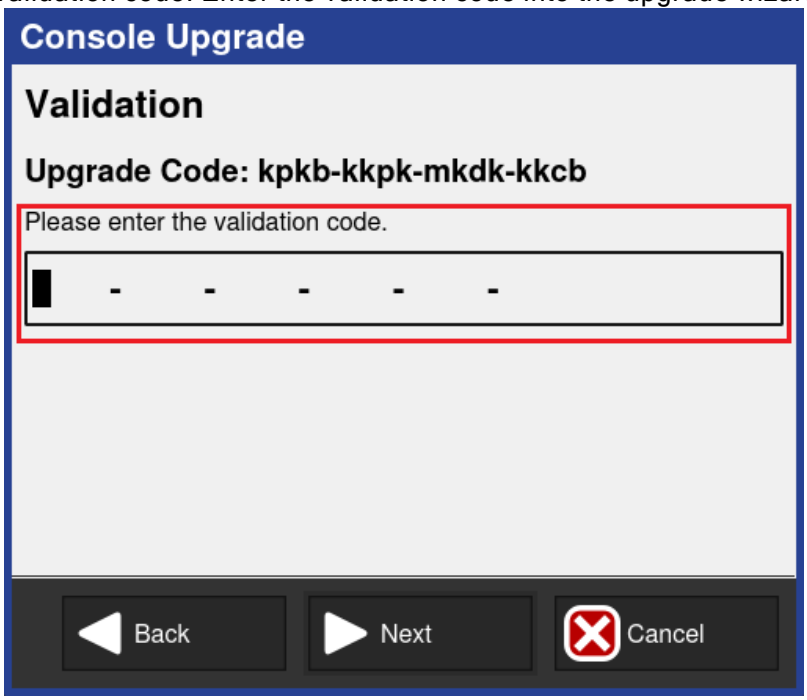
4. Select the platform (model) you wish to upgrade to and press **Next**.



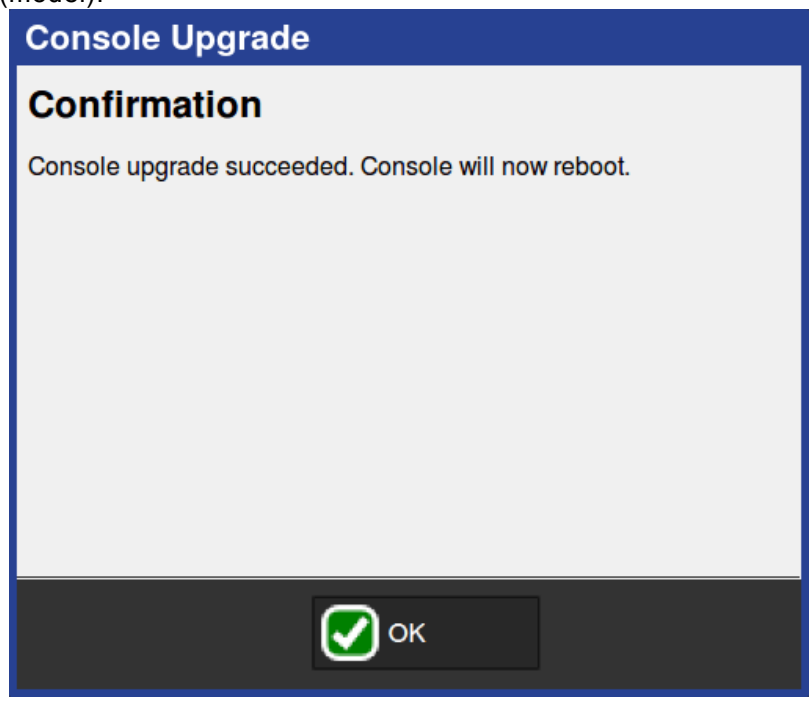
5. Contact a High End Systems Sales representative and provide them with the upgrade code shown on the screen as well as which console platform (model) you are upgrading from and which console model you are wanting to upgrade to. The High End Systems sales representative will provide you with the current pricing for the upgrade and will process your order.



6. Once your HedgeHog 4 upgrade order is complete, High End Systems will send you a validation code. Enter the validation code into the upgrade wizard and press **Next**.



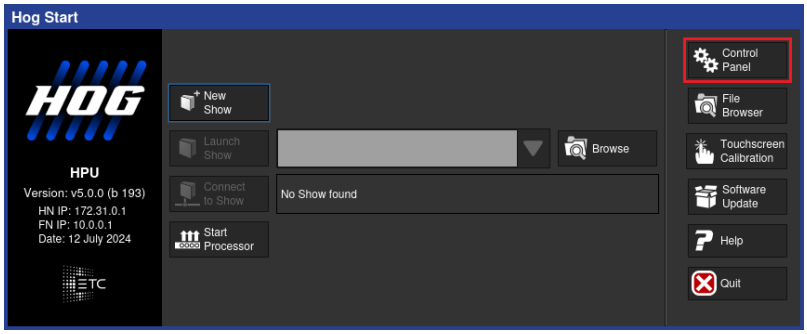
7. Press the **Finish**. The console will now reboot and operate as the new platform (model).



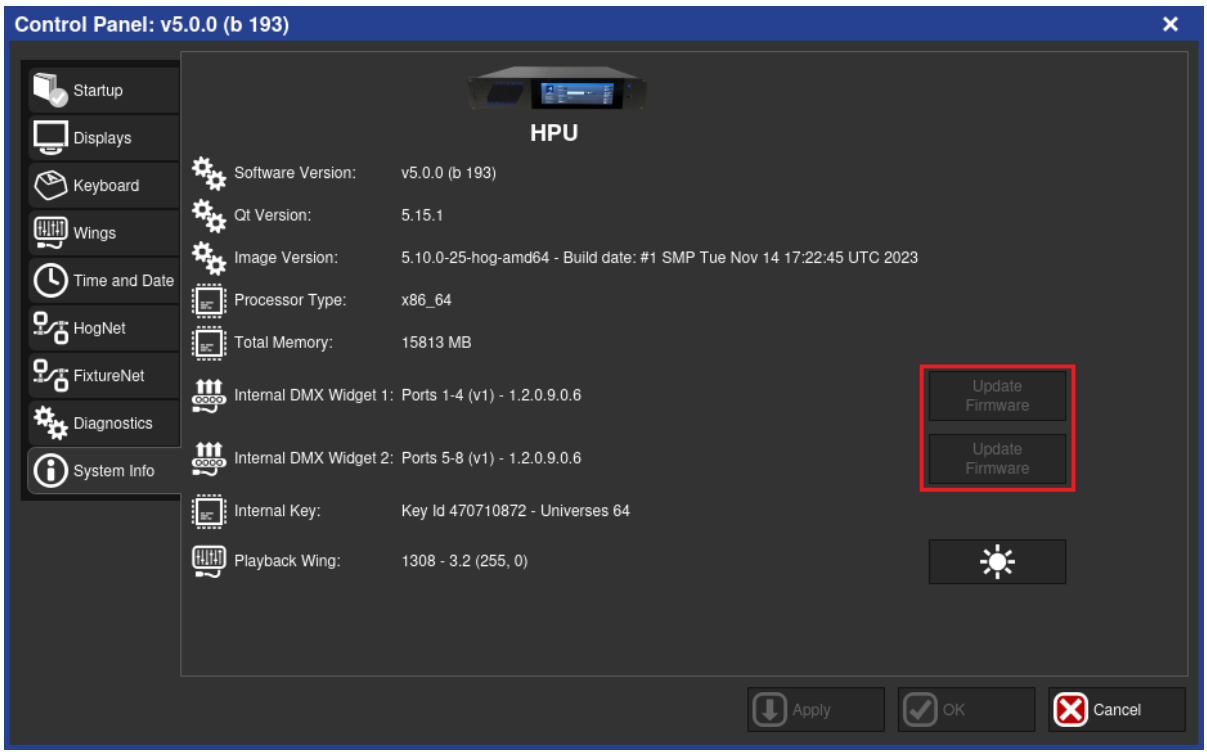
30.6 Updating Version 2 Internal DMX Widget Firmware on HPU

HPUs with serial number greater than (720240244) are built with Version 2 Internal DMX Widgets. Firmware on the Version 2 Internal DMX Widgets can be updated via the Control Panel when using Hog OS v3.19.0 or greater. This update procedure should only be performed when stated in software release notes or when directed by ETC Technical Services.

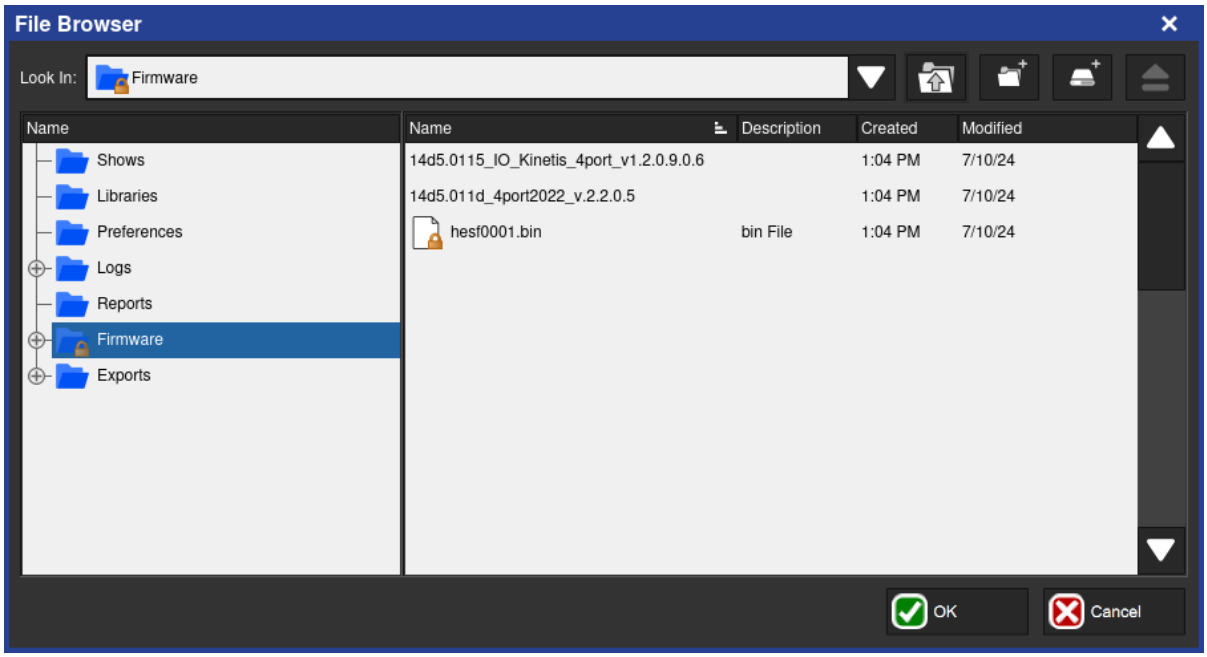
1. Connect the HPU to a reliable power source. Losing power while updating may render the Internal DMX Widget inoperable.
2. Boot the HPU.
3. Press the **Control Panel** button on the Hog Start screen when it appears.



4. Select the **System Info** tab in the Control Panel window.
5. Press the **Update Firmware** button shown to the right of the Internal DMX Widget you want to update.

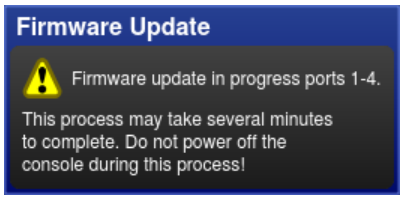


6. Use the File Browser to select the appropriate firmware file and press OK. Note: Firmware files associated with the installed version of Hog OS are located in the Firmware folder but can also be chosen from an external USB flash drive.

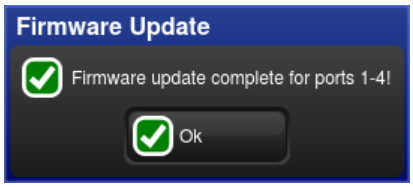


7. The firmware update procedure will now begin and may take several minutes.

Do not remove power during the firmware update process. Doing so may render the Internal DMX Widget inoperable.



8. When the firmware update is complete a confirmation dialogue will be shown. Press OK.



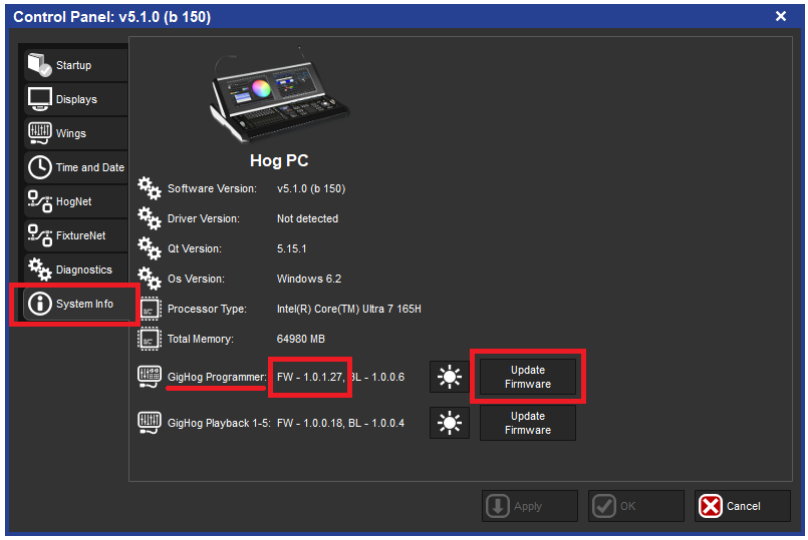
9. The Internal DMX Widget will now report the newly loaded firmware version in the System Info tab of the Control Panel. If the original firmware version is displayed then a soft failure of the procedure can be assumed, and the procedure should be attempted again.

30.7 Updating Front Panel firmware

The following front-panel firmware update procedure applies to Tour Hog, Stage Hog, Flex Hog, and Gig Hog consoles. Keep in mind that the playback and programmer sections of each front panel run on separate, independent firmware. You should perform this update only when it is specifically required by the Hog OS release notes or when advised by ETC Technical Support.

Firmware Update Procedure

1. Download the appropriate firmware file from the Hog Family Documentation page on the ETC website. The file will have an .s19 extension.
2. Copy the firmware file to a USB flash drive.
3. Boot the console to the start screen (or launch Hog PC and connect the Gig Hog via USB).
4. On the start screen, press **Control Panel** to open the Control Panel window.
5. Navigate to the **System Info** tab.
6. Verify the current firmware version. This is shown as the number following FW.
7. Press **Update Firmware** next to the corresponding front-panel section.
8. Use the file browser to select the firmware update file from the USB flash drive.
9. Allow the update to run. The update dialog will close automatically, and the panel will reset, indicated by an LED rainbow sequence.
10. Power-cycle the console or wing, then return to the System Info tab to confirm that the firmware version matches the expected update.
11. If needed, you may downgrade to an earlier firmware version by repeating this procedure with the desired file. You can also restore the factory-installed firmware using the process described in the **Firmware Reset Procedure** of the Hog OS Help Manual.



31. Hog PC

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31.1 Software Installation

Listed in the table below are the minimum and recommended computer specifications for Hog PC:

Requirement	Minimum	Recommended
Operating System	Windows 11	Windows 11 (64-bit)with latest updates
Processor	x64 or ARM-642 cores @ 1.7 GHz	x64 or ARM-644 cores @ 3.6 GHz
Memory (RAM)	8 GB	16 GB
Free Disk Space	5 GB	10 GB

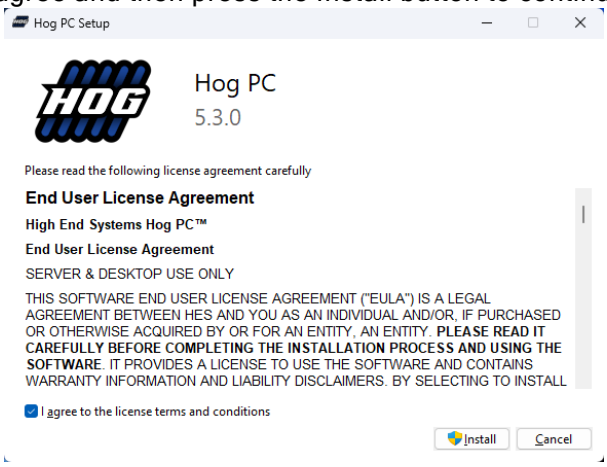
Note: Legacy Hog 3 and Hog 4 series wings and widgets are not compatible with computers that have ARM processors.

Since Hog OS makes use of multiple processes communicating via TCP / IP sockets, some Windows computer configurations may prevent the Hog PC processes from communicating with each other. Windows firewall, Windows Defender, and aftermarket software security products may block TCP / IP communications needed to run Hog PC or some of its services. Please ensure that exceptions for the individual Hog PC processes are enabled.

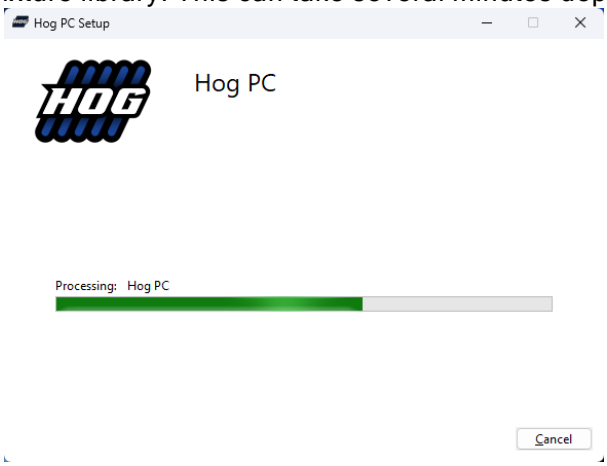
Not meeting the system requirements, a lack of an enabled network connection, or multiple active network connections, and / or firewall settings can all result in Hog PC communication failures. These communication failures typically cause the Splash Screen to repeatedly display ‘Scanning port 6600’ in its status window or other system errors when launching Hog PC.

To install Hog PC:

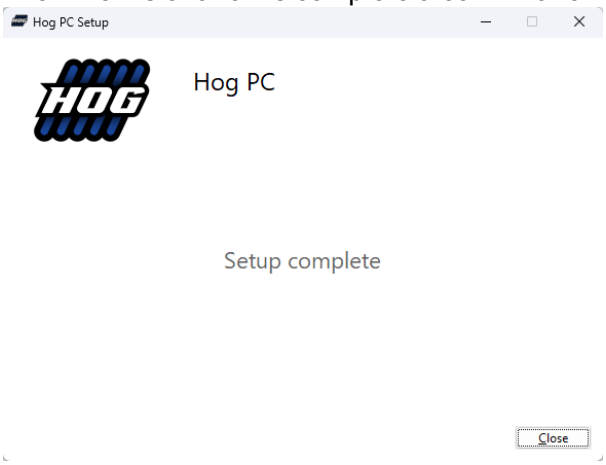
1. Download the latest Hog PC .exe installer from etcconnect.com
2. Once downloaded, double click on the Hog PC .exe installer file to launch the install wizard.
3. The installer will present the Hog PC End User License Agreement. Please review this document if you have not done so previously and then click the check box to agree and then press the Install button to continue.



4. The installer will now proceed to copy several files onto the computer including a full fixture library. This can take several minutes depending on the computer's hardware.



5. When the installation is complete a confirmation screen will appear.



Note: If software for the ETCnomad key was not detected during install then an additional option to install ETCnomad Key software will appear on the confirmation screen. ETC recommends checking this option if presented, and then click Finish. If that option was selected, please wait approximately 1 minute after clicking Finish before starting Hog PC or restarting the computer.

Data Directory Locations

The Hog PC application and the files it generates are installed at these locations by default.

Data	Directory Path
HogPC Application	C:\Program Files\ETC\HogPC
Shows,Logs	c:\username\documents\ETC\HogPC
Fixture Library	C:\ProgramData\ETC\HogPC\fixtureLibrary
Persistent Data	C:\Users\username\AppData\Roaming\ETC
Connectivity	C:\Program Files\ETC\Hog Connectivity

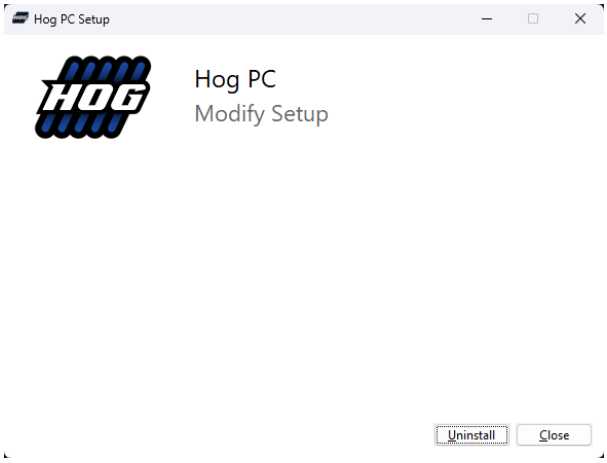
31.2 Software Removal

To remove the Hog PC application from your computer:

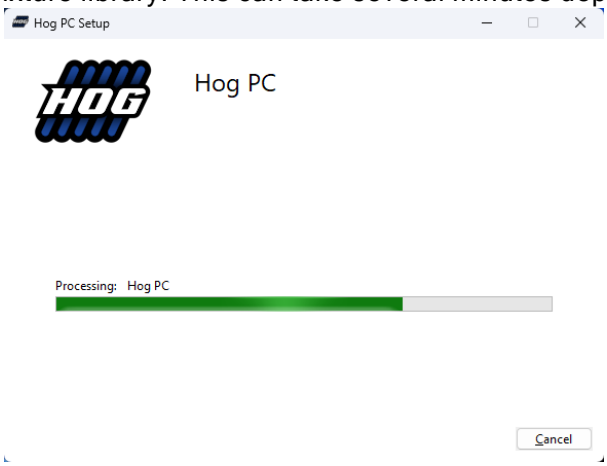
1. Launch "Apps and Features" in Windows.
2. Click on Hog PC in the list of installed programs.
3. Click Uninstall.

To uninstall Hog PC using the installer exe:

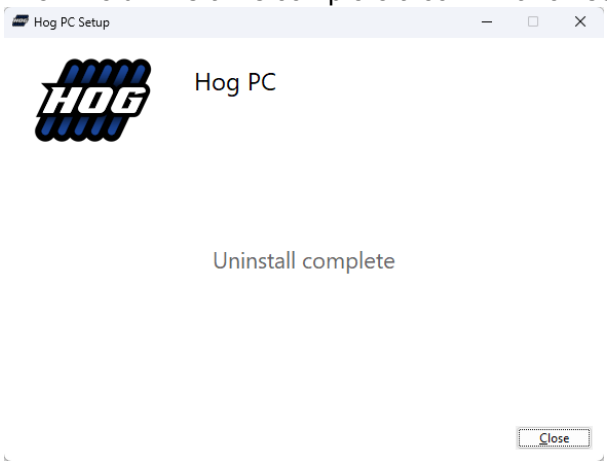
1. Double click on the Hog PC .exe installer file to launch the un-install wizard.
2. Press the Un-Install button to continue.



3. The installer will now proceed to remove several files from the computer including the fixture library. This can take several minutes depending on the computer's hardware.



4. When the un-install is complete a confirmation screen will appear.



31.3 Operation

31.3.1 Using the Hog PC Interface

Launching Hog PC

When Hog PC is launched the Hog Start window will be displayed. The Hog Start window provides options for launching a new show, launching an existing show, connecting to a show on the network, as well as running the application as a DMX processor. Pressing the **Quit** button will exit the Hog PC application entirely.

Before launching a show there is one essential configuration option the operator should be aware of which is the Hog PC mode. To set the mode click the **Control Panel** button on the start window to open the control panel to the **Startup** tab.

The selected mode will affect the operation of Hog PC as follows:

Mode	Enc. Wheels	Playback Bar Masters	Parent Windows	Toolbars / Layout	Ideal For
Gig Mode	5	5	1	System Toolbar (top or bottom) Design Toolbar (bottom) GM on master 1	Use with Gig Hog Wing Use with 13" displays
Tour Mode	5	10	1	System Toolbar (top or bottom) Design Toolbar (bottom) GM on master 1	Mimicking Tour Hog Mimicking Stage Hog Mimicking Flex Hog Use with 15" or bigger displays
Classic Mode	5	10	2	Views Toolbar (top left) Window Control Toolbar (top right) Programmer Toolbar (bottom right) Separate Playback Bars (bottom left) Dedicated GM	Mimicking Hog 4 Series
Nano Mode	4	10	1	Combined Views / Window Toolbar Separate Playback Bars (bottom) Programmer Toolbar (bottom) GM on master 1	Use with Nano Hog 4 and Hoglet 4

All modes support the following features:

- Show / Hide dedicated Playback Bars 1 thru 8
- Option to enable 2 additional "External" Windows (displays tab of control panel)
- Right Click option to display any of the Virtual Front Panels
- Standard Hog OS capabilities, outputs, and connectivity

The Front Panel Interface

The front panel of Hog PC looks and behaves very similarly to the front panel of a Hog console. An image of the virtual front panel in Tour Mode is shown below. You can click on buttons to simulate pressing keys on the console. You can also click and drag to alter the various encoders or faders. In addition, when you right click on the trackball, it will illuminate blue allowing you to then left click and drag on the trackball to adjust the pan and tilt of the selected fixtures.

To hold down a single key and make another selection, simply press and hold **Shift** on your computer keyboard when you click the key. As long as you are holding shift, this key (and subsequent keys) will remain held down. You can then click on another key, button, cell, or encoder to access further functions.



Right Click Menu

When right clicking in most portions of the Hog PC application, the following options are displayed:

Right Click Menu	Description
Full panel (Legacy)	Displays a virtual front panel that mimics the complete surface of the Hog 4 Console.
Playback panel (Legacy)	Displays a virtual front panel that mimics the programmer surface of the Hog 4 Console.
Programmer panel (Legacy)	Displays a virtual front panel that mimics the programmer surface of the Hog 4 Console.
Nano panel (Legacy)	Displays a virtual front panel that mimics the complete surface of the NanoHog 4.
Full panel	Displays a virtual front panel that mimics the complete surface of the Tour Hog console.
Playback panel	Displays a virtual front panel that mimics the playback surface of the Tour Hog console.
Programmer panel	Displays a virtual front panel that mimics the programmer surface of the Tour Hog console.
Playback Dashboard	Displays a window that mimics the playback dashboard of the Tour Hog console.
Programmer Dashboard	Displays a window that mimics the programmer dashboard of the Tour Hog console.
No Panel	A virtual front panel will not be displayed.
Lock Front Panel Position	Prevents re-sizing or re-positioning of virtual front panels.
Panel Always On Top	Keeps virtual front panels on top of other all other windows.
Default Positions	Restores all Hog PC screens will to their default size and position.
Show All	Restores all Hog PC screens to their most recent size and position.
Minimize	Minimizes the currently selected Hog PC window.
Minimize All	Minimized all Hog PC screens and windows.
Maximize	Maximized the currently selected Hog PC window.

Right Click Menu	Description
Log Off & Clean Up	Logs off from the current show session, performs maintenance on show file, then returns user to the start screen.
Log Off	Logs off from the current show session and returns user to the start screen.
Quit	Exits the application completely.

Displaying Additional Parent Window in Hog PC

Hog PC can be configured to display two additional parent windows if needed. To enable additional parent windows:

1. **Setup** → **Control Panel** → **Displays**: open the Displays pane of the Control Panel; see image below.
2. Set the resolutions for External Monitor 1 and External Monitor 2 (which correspond to the two external displays on the Hog 4 console).
3. Select **OK**.

Note that the control panel settings are system specific, so the number of screens will be retained regardless of the show file that is launched.

The Displays pane of the Control Panel



32. Cheatsheets

32.1 QWERTY Keyboard Shortcuts 584
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32.4 Decimal to Hex Conversion Chart 593

32.1 QWERTY Keyboard Shortcuts

32.1.1 QWERTY Keyboard Shortcuts

Many functions of Hog OS's can be executed using a standard QWERTY keyboard. To enable keyboard shortcuts press the Pause / Break key or Control + Q on the keyboard until MAP is shown as the keyboard mode on the Command Line Toolbar. Hog OS disables the keyboard shortcuts (MAP mode) when text entry is expected (for example, after pressing **Set** or double clicking in a cell). When a text entry session is completed, MAP mode is automatically re-enabled if it was previously enabled.

When keyboard shortcuts are disabled, only the shortcut mapped to the **Set** key remains functional to allow quick labeling from the external keyboard.

Keyboard Status in the Command Line Toolbar



When keyboard shortcuts are disabled, only the shortcut mapped to the **Set** key remains functional to allow quick labeling from the external keyboard.

The following table contains a list of Hog OS functions and their respective US keyboard mappings

Function	Keystroke		Function	Keystroke
Toggle Shortcuts	CTRL Q		Main Go	] or Space
Pig	CTRL or F14		Main Pause	[
Open	ESC or O		Main Back	L
Set	INSERT or i		Skip Fwd	K
Intensity	F11		Skip Back	J
Position	F2		Goto	G
Colour	F3		Release	Z
Beam	F4		Pig + Release	ALT Z or F14 + Z
Effects	F7		Assert	A
Macro	F5		Tap Tempo (effects)	ALT + [
Group	F1		Tap Sync (chases)	ALT +]
Fixture	F12		Next Page	: or ;
Scene	F9		@	' or @
Cue	F10		Full	~ or #
List	F8		Thru	*, > or X
Page	F6		Minus (-)	- or _
Record	R		Plus (+)	= or +
Merge	E		slash (/)	/ or ?
Move	M		Point (.)	. or >
Copy	P		Choose Master 1-10	ALT 1 - 0
Delete	D or Delete		GO Master 1-10	TAB 1 - 0
Update	U		Pause Master 1-10	Backspace 1-0
Live	V		Undo	CTRL Z
Time	T		Redo	CTRL Y
Setup	S		Visual Cut	CTRL X
Fan	F		Visual Copy	CTRL C
Highlight	H		Visual Paste	CTRL V
Blind	B		Visual Select Range	CTRL Cursors
Clear	C		Backspace	Backspace
Next	N		Enter	Enter
Back	Y		GM	\
All	ALT N		Center Choose	ALT -
			Bottom Right toolbar	TAB F1-12
			Top Right toolbar	ALT F1-12

32.2 Hog OS Key Combinations

Several of the functions of the Hog OS can be accessed through use of the front panel key combinations and onscreen button combinations found in the tables below.

Programming & Patching	
Pig + Blind	Fades Changes when blinding and un-blinding
Pig + Clear	Undo
Pig + Flip	Sends fixture selection through possible flip positions in reverse order
Pig + Park	Un-parks selected fixtures, rather than parking them
Pig + Touch	Touches specified parameters and fixtures but as record ineligible
Pig + Parameter wheels	Allows fine adjustment of the wheel's value
Pig + Record	inverts the current kind masking scheme for that record operation
Pig + Merge	inverts the current kind masking scheme for that merge operation
Pig + Fixture	Tokens the word "plot" on the command line
++ encoder wheel	Sets wheel to maximum value when encoder turned clockwise Sets wheel to minimum value when encoder turned counter-clockwise
-+ encoder wheel	Inverts wheel between positive and negative values when available (ex: gobo rotation)
BKSP + encoder wheel	knocks out the coordinating parameter value for selected fixtures in the current active editor
.+ encoder wheel	Sets wheel to default value
Pig +.+ encoder wheel	Sets wheel to default value and mode
.+ kind button	Sets all parameters of that kind to their default values
Open + Fixture	Opens the fixture window.
Pig + @	When patching with View by Processor enabled, un-patches the selected fixtures
Pig + I-Wheel	Increases / decreases intensities in proportion to their individual level.

Window Control	
Pig + Open + Colour	Opens the Colour Picker window
Pig + Open + Beam	Opens the Media Picker window
Pig + Open + Fixture	Opens the Plots directory
Pig + Open + List or Scene Directory Item	Directory Item opens option window for the list or scene items that is pressed.
Open + BKSP	Closes active window
Open + Thru	Cycles through open windows (change focus)
Open + Full	Maximizes active window
Open + @	Moves active window to next screen
Open + /	Copies and splits active window
Open++	Sizes active window clockwise
Open+-	Sizes active window counter-clockwise
Open+.	Closes All Open Windows
Pig + Size (on Window Control Toolbar)	Cycles through the possible window sizes in the reverse order
Open + (1-9)	Opens view 1-9
Open + (0)	Opens view 10
Pig + Next (on the View Toolbar)	Changes view toolbar to previous page of views, rather than next page of views
Open + First encoder wheel	Vertical Window Scroll (up / down)
Open + Second encoder wheel	Horizontal Window Scroll (left / right)
Open + Third encoder wheel	Zoom (plot window only)

Spreadsheets	
Pig + Set	Acts as a right mouse click
Pig + Arrow keys	Allows for selection of multiple cell items in spreadsheets
Pig + BKSP	Removes values from the currently highlighted cells in the Programmer or editor
Pig + Copy	Copies the contents of the currently selected cells
Pig + Move	Pastes into the currently selected cells

Directories	
Pig + Set	Acts as a right mouse click
Pig + Arrow keys	Extends directory item selection
Pig + Button in a directory	Overrides directory Guard button

File Browser	
Pig + Set	Acts as a right mouse click
Pig + Click on file	Allows for selection of multiple files (Pig key is acting like control key)

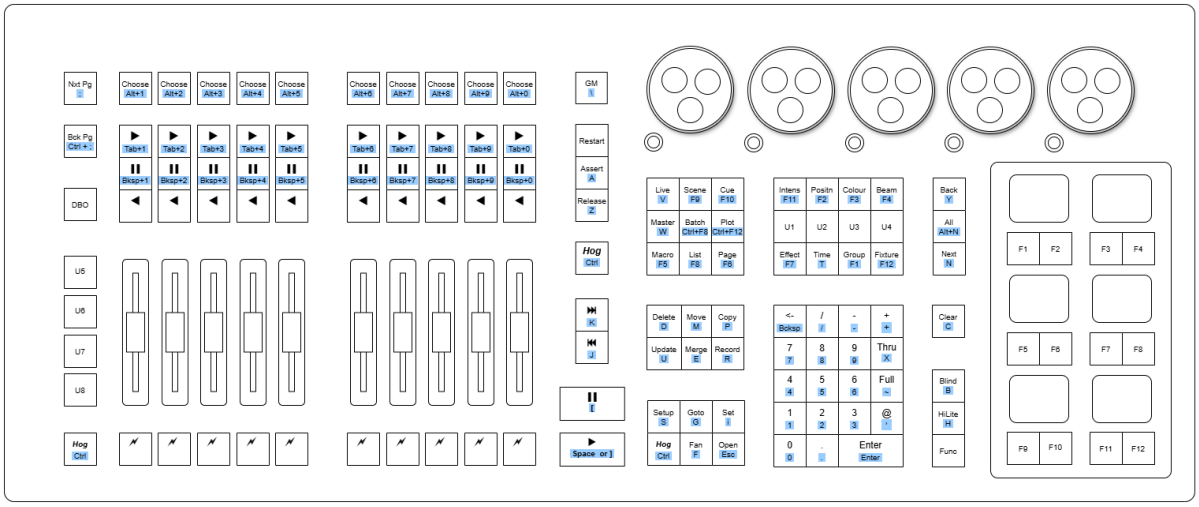
Playback	
Pig + Release	Releases all active cuelists and scenes
List + Release	Releases any active cuelists NOT attached to masters on the current page
Scene + Release	Releases any active scenes NOT attached to masters on the current page
Page + Release	Releases all physical playbacks on the current page
Holding Choose	Displays the master's playback rate, effect rate, effect size, and intensity on main encoder wheels

Console / Debug	
Pig + Open + Backspace	Opens the Launched Processes window
Pig + Open + 1	Opens the Log Viewer window
Pig + Open + 5	Opens the debug toolbar
Pig + Open + Delete	Restarts the console if held for 5 seconds.
	*On Hog 4-18 holding this key combination for 5 seconds shuts down the console,
	then the keys must be released and held again for 5 seconds to boot the console.

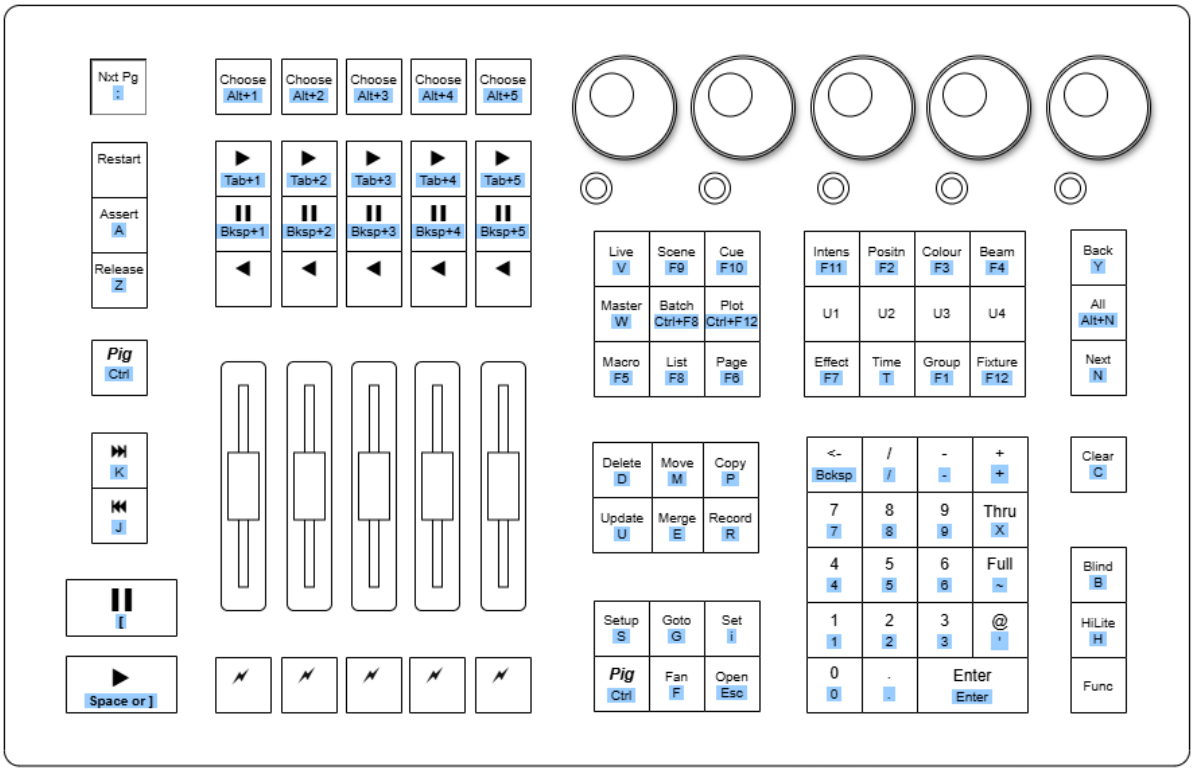
Misc	
Pig + **Enter**	Toggles the function keys between Kind Key and Command Key mode
Pig + **Setup**	Toggles the work light on and off
Pig + **Undo**	Redo
Pig + on-screen keyboard active	Acts as a shift key, to type upper case characters
Setup + first encoder wheel button	Calibrate touchscreens; quit calibration by pressing enter key
Setup + encoder wheel	Adjusts brightness of LCD back lights, front panel LEDs, desk lights, and work light
Pig + .	Toggles slot toolbar and encoder wheel toolbar on / off
Pig + 0, 1, 2, 3, etc.	Toggles playback bars on / off

32.3 Front Panel Diagrams

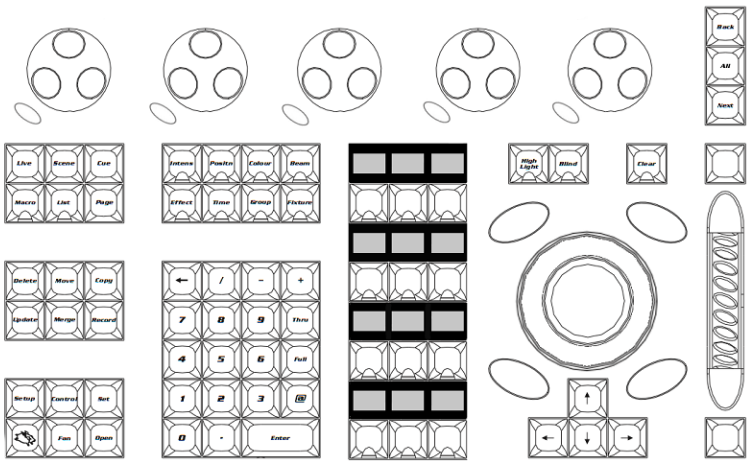
32.3.1 Front Panel of Tour Hog, Stage Hog, Flex Hog



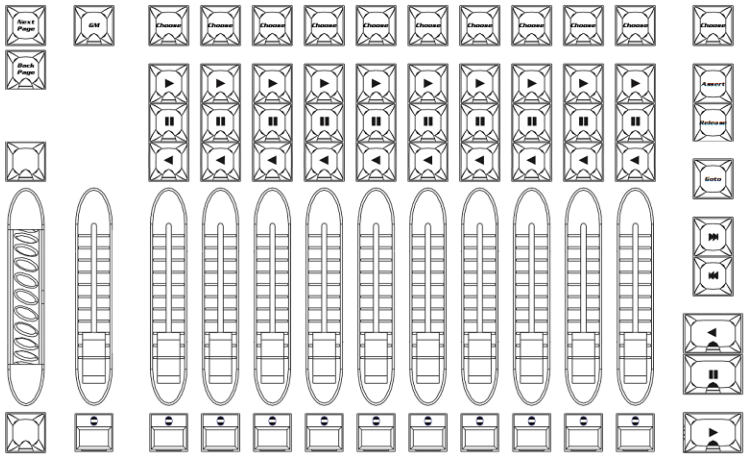
32.3.2 Front Panel of Gig Hog



32.3.3 Programmer section of the Hog 4 and Hog 4-18 front panel



32.3.4 Playback section of the Hog 4 front panel



32.4 Decimal to Hex Conversion Chart

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
0	**0**	16	**10**	32	**20**	48	**30**	64	**40**	80	**50**	96	**60**	112	**70**
1	**1**	17	**11**	33	**21**	49	**31**	65	**41**	81	**51**	97	**61**	113	**71**
2	**2**	18	**12**	34	**22**	50	**32**	66	**42**	82	**52**	98	**62**	114	**72**
3	**3**	19	**13**	35	**23**	51	**33**	67	**43**	83	**53**	99	**63**	115	**73**
4	**4**	20	**14**	36	**24**	52	**34**	68	**44**	84	**54**	100	**64**	116	**74**
5	**5**	21	**15**	37	**25**	53	**35**	69	**45**	85	**55**	101	**65**	117	**75**
6	**6**	22	**16**	38	**26**	54	**36**	70	**46**	86	**56**	102	**66**	118	**76**
7	**7**	23	**17**	39	**27**	55	**37**	71	**47**	87	**57**	103	**67**	119	**77**
8	**8**	24	**18**	40	**28**	56	**38**	72	**48**	88	**58**	104	**68**	120	**78**
9	**9**	25	**19**	41	**29**	57	**39**	73	**49**	89	**59**	105	**69**	121	**79**
10	**A**	26	**1A**	42	**2A**	58	**3A**	74	**4A**	90	**5A**	106	**6A**	122	**7A**
11	**B**	27	**1B**	43	**2B**	59	**3B**	75	**4B**	91	**5B**	107	**6B**	123	**7B**
12	**C**	28	**1C**	44	**2C**	60	**3C**	76	**4C**	92	**5C**	108	**6C**	124	**7C**
13	**D**	29	**1D**	45	**2D**	61	**3D**	77	**4D**	93	**5D**	109	**6D**	125	**7D**
14	**E**	30	**1E**	46	**2E**	62	**3E**	78	**4E**	94	**5E**	110	**6E**	126	**7E**
15	**F**	31	**1F**	47	**2F**	63	**3F**	79	**4F**	95	**5F**	111	**6F**	127	**7F**

33. Troubleshooting

33.1 Console Won't Startup 596
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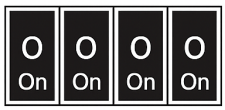
33.1 Console Won't Startup

If a software update has failed the console can get into a state where it either fails to start properly, or it goes immediately to the shutdown screen. A full re-install will be necessary; see Console Software Full Install.

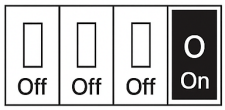
33.2 No DMX Output from Console's built-in DMX Outputs

1. Open the control panel (**Setup** → **Control Panel**) and select the **System Info** tab.
2. Ensure the serial number of the internal DMX Widget in question is being reported.
3. If the DMX widget serial is listed then skip step 4. If the internal DMX widget is listed as "not found" then proceed to step 4.
4. Access the inside of the console and check the following:
   - Is the DMX widget's power input connected? (connection only exists on 4-port DMX widgets)
   - Is the DMX widget's USB input connected?
   - Do the LEDs on the DMX widget come on when the console is powered on? (if no, then widget has a power issue)
   - Are the DIP switches on the DMX widget set appropriately according to the chart below?
5. Open the network window (**Setup** → **Network**) and make sure the internal processor is reporting "Outputs Active". If the internal processor is reported as "offline" then log off the show, click on the **Control Panel** button in the start window and select the **Startup** tab. Ensure that **Run Processor** is turned on and set to the appropriate net number. Log back onto the show and check output again. If console is still not outputting DMX then proceed to step 3 and continue troubleshooting.
6. Double check the patch window and ensure that fixtures are patched to the correct universes and that those universes have the proper processor assignments. This sounds like a simple thing to check but in some cases, output is failing only due to a bad patch. If the console is still not outputting DMX then proceed to step 4.
7. Open the network window (**Setup** → **Network**) and click on the processor to which the fixtures are patched. Click on the **Settings** button. In the settings window navigate to the **Output** tab. Ensure that the console's built-in DMX widget outputs are listed in the output map and that they do not show any error icons.
8. If you have performed all the troubleshooting steps in this section and the problem continues to persist then please contact Technical Services for further assistance.

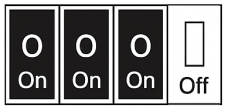
Internal Generic
(PID 011)



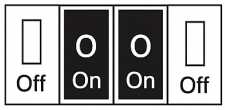
Internal 1-4
(PID 740)



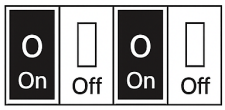
Internal 5-8
(PID 741)



External 1-4
(PID 742)



External 5-8
(PID 743)



33.3 No Art-Net Output from Console's FixtureNet Port

1. Double check the patch window and ensure that your fixtures are patched to the correct universe. Then open the node settings window and check that proper Art-Net mappings exists for that universe and that no error icons are displayed. This sounds like a simple thing to check but in some cases output is failing only due to a bad patch. If you are still not seeing Art-Net output from the console proceed to step 2.
2. Open the network window (**Setup** → **Network**) and make sure the internal processor is reporting **Status** column shows "Running". If the processor is being reported as "offline" then log off the show and click on the **Settings** button in the start window. Ensure that **Run Processor** is turned on and set to the appropriate net number. Log back onto the show and check output again. If console is still not outputting Art-Net the proceed to step 3 and continue troubleshooting.
3. Open the network window (**Setup** → **Network**) and click on the Processor to which the fixtures are assigned. Click on the **Settings**button. In the processor settings window navigate to the **FixtureNet** tab. Ensure that the FixtureNet IP Address and Subnet Mask are set appropriately for the network.

Note: If you make any changes to the FixtureNet IP Address or Subnet, you must log off and log back onto the show for those new IP address settings to take effect.

4. Connect a windows computer to the network and run a software application tool such as DMX Workshop. These kinds of software applications allow you to see Art-Net streams on the network and can be used to further help in detecting where the problems might be occurring.
5. If a you have performed all the troubleshooting steps in this section and the problem continues to persist then please contact Technical Services for further assistance.

33.4 The Console Appears to Have Crashed or Frozen

Hog OS runs as a series of separate ‘processes’ that can start and stop individually. Often, when the console appears to have crashed or frozen, it is only one process that is causing the problem, while the rest of the processes are still running normally. In particular, an editor or the desktop may crash, while playback continues normally. Before restarting the entire console, therefore, you should see if the problem can be cured by restarting the individual process:

1. **Pig** + **Open** + **Backspace** : open the Launched Processes window.
2. Kill processes that are not responding by right clicking on them and selecting **Kill**.
3. Restart the process by right clicking and selecting **Restart**. An exception is the Editor process which will disappear when killed; you can restart it by re-opening the **Programmer** or an editor window.

33.5 Playback Controls Don't Behave as Expected

Check that the playback controls haven't been mapped to different functions to their normal ones. See Configuring Physical Master Playback Controls.

33.6 Front Panel Firmware Reset

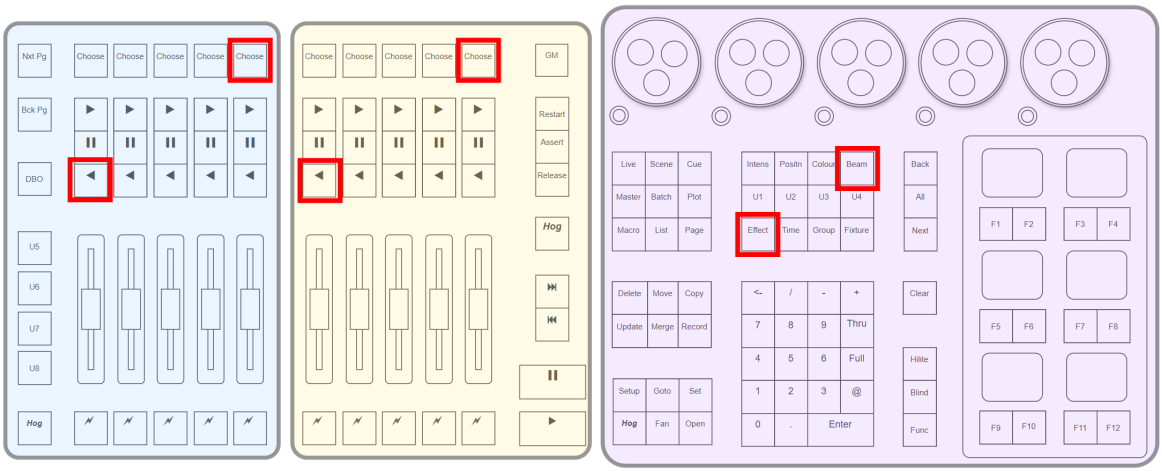
The firmware reset procedure described below might be necessary if one or more of following symptoms are occurring on Tour Hog, Stage Hog, Flex Hog, or Gig Hog.

- A section of the front panel does not light up its LED backlights when console is powered on.
- A section of the front panel is not listed in the control panel under the system info tab.
- A section of the front panel is not responding properly following a manual firmware upgrade.

Factory Reset Procedure

Follow the instructions below to reset the various front panel sections of the Tour Hog, Stage Hog, Flex Hog, and Gig Hog to their original factory firmware version.

1. Turn off the console
2. Study the diagram below. Each highlighted section of the front panel has its own firmware that can be reset to the factory default. Only reset one section of the front panel at a time to avoid potential issues.
3. Press and hold the keys outlined with a red rectangle for the section you wish to reset.
4. Power on the console.
5. Release the keys after 8 seconds (or until you see the other front panel sections light up)
6. When the reset is complete the panel section will return to normal operation and appear in the system info tab of the control panel with the factory installed version of firmware.



33.7 ETCnomad Key Not Recognized by Hog PC

If the ETCnomad license key is not detected, the required drivers may not have been installed correctly or may be missing from Windows. You can manually reinstall the ETCnomad license key drivers by following these steps:

1. Press **Windows Key** + **R** on the keyboard to open the **Run** dialog box.
2. In the Run field input: **C:\Program Files (x86)\ETC\HogPC\haspdinst.exe -i**
3. Press **Enter**.
4. A small installer window will appear and run the driver installation.
5. When the installation is complete, a confirmation dialog will appear.
6. Click **OK** to close the installer.

After completing these steps, the ETCnomad license key should function normally.

33.8 The Front Panel Reboots Unexpectedly

Possible Cause: Strong radio waves that originate from a personal radio, common in live event productions, while in close proximity to a console front panel can cause interference to the front panel electronics. Always keep communication radios at least eight inches from the console surface.

In the event of a radio transmitting within close proximity of the console, the front panel electronics may become unresponsive. The firmware will force a reboot of the front panel causing a temporary loss of control of the keys and hardware for approximately 20 seconds. During this time the desk lights may dim as well. After 20 seconds the front panel will reboot and normal functionality will be restored. If the problems persist, move the radio transmitting device further from the console and check for other environmental radio interference factors.

33.9 How to Report Problems to Support

When reporting apparent problems with the console it is important you provide clear and detailed information. This will ensure issues can be addressed.

Please follow these guidelines.

Please report issues to:

- hesservice@etcconnect.com
- 24/7 phone support: +1-512-836-2242
- Forums: forums.highend.com

33.9.1 Reporting Problems with the Console

Please include the following information in your bug report:

1. The piece of hardware that exhibited the problem, including the version number of the software being used.
2. The actions taken that induce the problem in the first place, including whether the problem is repeatable using the same actions.
3. The symptoms of the problem.
4. The network configuration of system.

- The type and number of Hog console systems in use
- How many DMX Processors and MIDI/Timecode Processors.
- What sort of routers/hubs are being used.
- Other PC's or applications (such as Art-Net, ETCNet, Web Servers, and so on) that are sharing the same network.

Once a problem has been reported it will often be necessary for the Technical Services team to clarify some of the details and obtain additional information. Typically this ends up with a request for a copy of the show, so a backup of the show should be transferred to a PC where it can be mailed to support.

> Tip: The version number of the software installed on your console can be found on the **System Info** pane of the **Control Panel** window.

33.9.2 Reporting Problems with Hog PC

In the event of a failure with Hog PC, it is important to provide as much information as possible. Different computer configurations, other applications, and additional hardware may all have unexpected results. When reporting errors, please provide the following information:

- Name
- Date
- Hog PC software version and build number
- Operating system
- Computer specifications
- Number of displays
- Connected USB devices
- Networked devices
- Other running applications
- Detailed description of the problem including instructions to reproduce (if possible) and the exact syntax used
- List of any errors reported by the software

If Hog PC crashes or fails, it will output a .dmp file in the application directory, for example ‘C:\Program Files\Flying Pig Systems\Hog4PC’ (if you accepted the default location when you installed Hog PC). Please send this .dmp file along with your bug report to support@highend.com.

33.9.3 Reporting Problems or Requesting improvements with the User Manual

Please include the following information:

1. The nature of the problem / improvement.
   - Missing information.
   - Incorrect information.
   - Unclear or ambiguous information.
2. The section number where the problem is.
3. The version number of the manual. In printed and PDF editions, you can find this on the title page at the start of the manual. The on-line help within the console shows the version on the main contents page; you can go to this page by clicking ‘home’ at the bottom of any page.

33.9.4 About Software Version Numbering

The software version number is made up of four parts: Major version number, Minor version number, Current release number, and the Build number.

For example:

v99.88.77 b555 :

- "99" is the major number
- "88" is the minor version number
- "77" is the current release
- "b555" is the build number

33.10 Technical Services Contact Information

If you are having difficulties and your problem is not addressed by this document, try the ETC support website at support.etcconnect.com or the High End Systems product website at etcconnect.com/Products/Live-Events/. If none of these resources are sufficient, contact ETC Technical Services directly at one of the offices identified below. Emergency service is available from all offices outside of normal business hours.

ETC, Inc.

Americas

Technical Services Department
3031 Pleasant View Road
Middleton, WI 53562
800-775-4382 (USA, toll-free)
+1-608 831-4116
service@etcconnect.com

ETC GmbH

Germany, Austria, Switzerland, Eastern Europe, and Russia

Technical Services Department
Ohmstrasse 3
83607 Holzkirchen, Germany
+49 (80 24) 47 00-0
techserv-germany@etcconnect.com

ETC Austin

High End Systems Products

Technical Services Department
2105 Gracy Farms Lane
Austin, TX 78758 USA
800-890-8989 (USA, toll-free)
+1-512 836-2242
hesservice@etcconnect.com

ETC France

France

Zone Urbaparc -
Bâtiment E
6 Boulevard de la Libération
Saint-Denis, 93200
+33 1 4243 3535
techservfrance@etcconnect.com

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Europe, Middle East, and Africa

Technical Services Department
26-28 Victoria Industrial Estate
Victoria Road,
London W3 6UU England
+44 (0)20 8896 1000
techservltd@etcconnect.com

ETC Asia

Asia

Technical Services Department
Room 1801, 18/F
Tower 1, Phase 1 Enterprise Square
9 Sheung Yuet Road
Kowloon Bay, Kowloon, Hong Kong
+852 2799 1220
techserv-asia@etcconnect.com

34. Service

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34.2 Replacing the Faders 607
34.3 Cleaning the Faders 608
34.4 How to Add Rear Rack Ears to HPU 609
34.5 Replacing the Trackball 610

34.1 Replacing the Screens

Caution: Always shut down and disconnect the mains power before removing the front panel.

Damaged screens are easily replaced:

1. With the LCD box in the horizontal (flat) position undo the six screws surrounding the screen using a 3mm allen key.
2. Carefully remove the front metal work and Soft Key strips (soft key strips are on Hog 4 Console Only).
3. With the LCD box in the vertical (upright) position undo the eight screws on the back panel of the screen assembly using a 3mm allen key. Remove the back panel metal work. (This entire step for Hog 4 Console Only)
4. With the back panel removed carefully remove the eight screws on the back of the LCD assembly using a 3mm allen key. Make sure you have somebody hold the screens from the front of the console while you do this. (This entire step is for Hog 4 Console Only)
5. Lift the screens from the console and unplug the cables from behind.
6. Replace with a new screen assembly by performing previous steps in reverse.

34.2 Replacing the Faders

This section covers how to replace the faders on Hog 4-18, Hog 4, Full Boar 4, Playback Wing 4, Road Hog 4, and Nano Hog 4.

NOTE: Faders cannot be replaced on the HedgeHog 4 console as they are soldered to the mainboard.

Caution: Always shut down and disconnect the mains power before removing the front panel.

34.2.1 Replacing faders on Hog 4-18, Hog 4, Full Boar 4, and Playback Wing 4

1. Pull off the fader handles for the fader that you wish to replace.
2. Undo the four front panel screws with a 3mm allen key (plus the two thumb screws in the armrest on the Hog 4 console) , and carefully lift off the front panel from the edge closest to you.
3. Gently unplug the fader's cable lead from the main board.
4. Unscrew the fader's two front panel screws from the top side of the front panel using a 2mm allen key and remove the fader.
5. Fit the new fader in place ensuring that it sits completely flat against the PCB.
6. Connect the new fader's cable led to the main board.
7. To re-assemble follow dissemble steps in reverse order.

34.2.2 Replacing faders on Road Hog 4 and Nano Hog 4

1. Remove each of the 10 fader handles from the front panel of the console.
2. Loosen the setscrews inside each of the four encoder wheels using a 5/64” allen key and gently remove each of the four encoder wheels.
3. Remove the four front panel screws with a 3mm allen key (if on a Nano Hog 4, also remove the additional two screws on the back of the front panel), and carefully lift off the front panel from the edge closest to you.
4. Remove the 16 hex-head crosshead screws from the backside of the front panel (if on a Nano Hog 4, 15 hex-head crosshead screws) using either a P2 crosshead screwdriver or a (6.5 mm) nut driver.
5. Remove the 4 small crosshead screws with a P1 crosshead screwdriver.
6. Identity which fader you wish to remove and gently unplug it's cable lead from the main board.
7. Press the black plastic clips on the fader from the backside of the main board.
8. Remove desired fader.
9. Replace fader and re-assemble the console by following the dissemble steps in reverse order.

34.3 Cleaning the Faders

Faders are often unnecessarily discarded when all they need is a cleaning. This section will cover how to clean the faders on all of the consoles in the Hog family.

34.3.1 Cleaning faders on Hog 4-18, Hog 4, Full Boar 4, and Playback Wing 4

1. Remove the dirty fader, See: Replacing Faders
2. Wipe the tracks with a dry, clean tissue. Do *not* use solvents.
3. Replace the cleaned fader. See: Replacing Faders

34.3.2 Cleaning faders on Road Hog 4 and Nano Hog 4

1. Remove each of the 10 fader handles from the console.
2. Loosen the setscrews inside each of the four encoder wheels using a 5/64” allen key and gently remove each of the four encoder wheels.
3. Remove the four front panel screws with a 3mm allen key (if on a Nano Hog 4 4, also remove the additional two screws on the back of the front panel), and carefully lift off the front panel from the edge closest to you.
4. Remove the 16 hex-head crosshead screws on the backside of the front panel (if on a Nano Hog 4, 15 hex-head crosshead screws) with either a P2 crosshead screwdriver or a (6.5mm) nut driver.
5. Remove the 4 small crosshead head screws with a P1 crosshead screwdriver.
6. Wipe the tracks with a dry, clean tissue. Do *not* use solvents.
7. Re-assemble the console by following the disassembly steps in reverse order.

34.3.3 Cleaning faders on HedgeHog 4

1. Remove each of the 10 fader handles from the console.
2. Remove the 10 front panel screws with a 3mm allen key and carefully lift off the front panel from the edge closest to you.
3. Unplug the ribbon cable that connects the left main board to the right mainboard.
4. Remove the 12 hex-head crosshead screws on the backside of the left mainboard with either a P2 crosshead screwdriver or a (6.5mm) nut driver.
5. Wipe the tracks with a dry, clean tissue. Do *not* use solvents.
6. Re-assemble the console by following the disassembly steps in reverse order.

34.4 How to Add Rear Rack Ears to HPU

The following instructions describe how to assemble and attach the rear rack mounting assembly kit (sold separately) to the HPU:

1. Attach the rail adapters to the rear chasis brackets using the 10-32 x .5 screws from the kit. Note: the rack adapters have 4 screw holes to account for different rack depths but only two screws are required for secure assembly.
2. Attach the rear chassis brackets to the rear of the HPU using two 6-32 x .25 screws per bracket.
3. Use the remaining 10-32 x .5 screws to secure the HPU to the rear rails to a 19" rack enclosure.

34.5 Replacing the Trackball

Caution: Always shut down and disconnect the mains power before removing the front panel.

To replace the Trackball on a Hog 4-18, Hog 4 or Full Boar 4 console:

1. Undo the four front panel screws with a 3mm allen key (plus the two thumb screws in the armrest on the Hog 4 console) , and carefully lift up the front panel from the edge closest to you and insert into service slot.
2. Look underneath the front panel and locate the cable connection that connects the Trackball to the PCB. Unplug this connection.
3. Unscrew the 3 allen screws that hold the Trackball to the front panel (use a 3mm allen key). You should now be able to remove the trackball from the console.
4. Replace with a new trackball assembly and reassemble your console by performing this procedure in reverse.

35. Safety Information

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35.1 Safety Warnings

For Continued Protection Against Fire

Only connect this equipment to a branch circuit having a maximum overload protection of 20A.

For Continued Protection Against Electric Shock

If this equipment was received without a line cord plug, attach the appropriate line cord plug according to the following code:

- Brown - live
- Blue - neutral
- Green/Yellow - earth

As the colors of the cores in the mains lead of this equipment may not correspond with the colored markings identifying the terminals in your plug, proceed as follows:

- the core which is colored green and yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol , ⏚ or colored green or green and yellow.
- the core which is colored blue must be connected to the terminal which is marked with the letter N or colored black.
- the core which is colored brown must be connected to the terminal which is marked with the letter L or colored red.

Class I equipment. This equipment must be earthed.

Equipment suitable for dry locations only. Do not expose this equipment to rain or moisture.

Disconnect power before servicing.

Refer servicing to qualified personnel; no user serviceable parts inside.

For current and complete compliance information, view the product datasheets at etcconnect.com.

35.2 Informations Importantes Sur La Sécurité

Pour Une Protection Permanente Contre Les Incendies

Cet appareil comporte une protection de 20 A contre les surcharges électrique.

Pour Une Protection Permanente Contre Les Chocs Électriques

Si cet équipement est livré sans prise sur le câble d'alimentation, veuillez connecter la prise de courant selon le code suivant:

- marron - phase
- bleu - neutre
- vert/jaune - terre

Débrancher le courant avant d'effectuer des réparations.

Cet équipement doit être uniquement utilisé dans des endroits secs. Ne pas l'exposer à la pluie ou l'humidité.

À l'intérieur de l'équipement il n'y a pas de pièces remplaçables par l'utilisateur. Confiez l'entretien à un personnel qualifié.

Equipement de Classe I. Cet équipement doit être mis à la terre.

35.3 Wichtige Hinweise Für Ihre Sicherheit

Zum Schutz Vor Brandgefahr

Dieses Gerät darf nur an eine Zweigleitung mit einem Überlastungsschutz von höchstens 20A angeschlossen werden.

Zum Schutz Gegen Gefährliche Körperströme

Wenn dieses Gerät ohne einen Netzkabelstecker erhalten wurde, ist der entsprechende Netzkabelstecker entsprechend dem folgenden Code anzubringen:

- Braun - Unter Spannung stehend
- Blau - Neutral
- Grün/Gelb - Erde

Da die Farben der Leitungen im Hauptanschluss möglicherweise nicht mit den farbigen Markierungen die die Anschlussklemmen identifizieren übereinstimmen, fahren sie wie folgt fort:

- Die Grün und Gelb gefärbte Leitung muss im Stecker mit der mit dem Buchstaben E oder dem Erde Symbol markierten ⏚, oder der Grün und Gelb gefärbten Anschlussklemme verbunden werden.
- Die blau gefärbte Leitung muss mit der mit dem Buchstaben N oder der Schwarz gefärbten Anschlussklemme verbunden werden.
- Die Braun gefärbte Leitgun muss mit der mit dem Buchstaben L markierten oder rot gefärbten Anschlussklemme verbunden werden.

Dieses Gerät gehört zur Klasse I. Dieses Gerät muß geerdet werden.

Diese Geräte sind nur zum Einbau in trockenen Lagen bestimmt und müssen vor Regen und Feuchtigkeit geschützt werden.

Vor Wartungsarbeiten stets den Netzstecker ziehen.

Servicearbeiten sollten nur von Fachpersonal ausgeführt werden. Das Gerät enthält keine wartungsbedürftigen Teile.

35.4 Información Importante De Seguridad

Para Protección Continua Contra Incendios

Este equipo debe conectarse a un circuito que tenga una protección máxima contra las sobrecargas de 20A.

Para La Protección Continua Contra Electrocuciones

Si se recibió este equipo sin el enchufe de alimentacion, monte usted el enchufe correcto según el clave siguente:

- moreno - vivo
- azul - neutral
- verde/amarillo - tierra

Desconecte el suministro de energía antes de prestar servicio de reparación.

Este equipo se adecua a lugares secos solamente. no lo exponga a la lluvia o humedad.

Derive el servicio de reparación de este equipo al personal calificado. El interior no contiene repuestos que puedan ser reparados por el usuario.

Equipo de Clase I. Este equipo debe conectarse a la tierra.

35.5 Importanti Informazioni Di Sicurezza

Per Prevenire Incendi

Questa apparecchiatura e' da collegarsi ad un circuito con una protezzione da sovraccarico massima di 20 amperes.

Per Prevenire Le Scosse Elettriche

Se questa apparecchiatura è stata consegnata senza una spina del cavo di alimentazione, collegare la spina appropriata del cavo di alimentazione in base ai seguenti codici:

- marrone - sotto tensione
- blu - neutro
- verde/giallo - terra

Disinnestare la corrente prima di eseguire qualsiasi riparazione.

Questa apparecchiatura e' da usarsi in ambienti secchi. Non e' da essere esposta ne alla pioggia ne all' umidita'.

Per qualsiasi riparazione rivolgersi al personale specializzato. L' utente non deve riparare nessuna parte dentro l' unita'.

Aparecchio di Classe I. Questa apparecchiatura deve essere messa a terra.

35.6 Vigtig Sikkerhedsinformation

Advarsel: Beskyttelse mod elektrisk chock.

VIGTIGT! LEDEREN MED GUL/GROEN ISOLATION MAA KUN TILSLUTTES KLEMME MAERKET ⏚ ELLER.

35.7 安全に関する情報

警告: 火災からの継続的な保護の為に

この装置には分岐回線への接続の為の最大 20 A の過負荷防止機構を持っています。

警告: 感電に対する継続的な保護の為に

プラグの付いていない状態でこの装置を受け取った場合は、以下のコード表にしたがって、適切にプラグを取り付けて下さい。:

- Brown(茶色) - Live(ライブ)
- Blue(青) - Neutral(ニュートラル)
- Green/Yellow(緑/黄色) - Earth(アース)

ここで説明されている各部品に関する色があなたの持っているプラグの端末の色と対応していない場合があります。以下にしたがって接続して下さい。:

- Green/Yellow(緑/黄色) のケーブルを、プラグの端末に E もしくは アースのシンボル ⏚ Earth Symbol の表記のある物に接続するか、Green/Yellow(緑/黄色) の物に接続して下さい。
- Blue(青) のケーブルを、プラグの端末に N が表記された物もしくは 黒に塗られた物に接続して下さい。
- Brown(茶色) のケーブルを、プラグの端末に L が表記された物もしくは 赤に塗られた物に接続して下さい。

この装置は Class I 機器です。この為この装置はアースしなければなりません。

この装置は乾燥した状態でのみ使用出来ます。この装置を雨又は湿気にさらさないで下さい。

修理点検を行う場合は事前に電源を切り離して下さい。

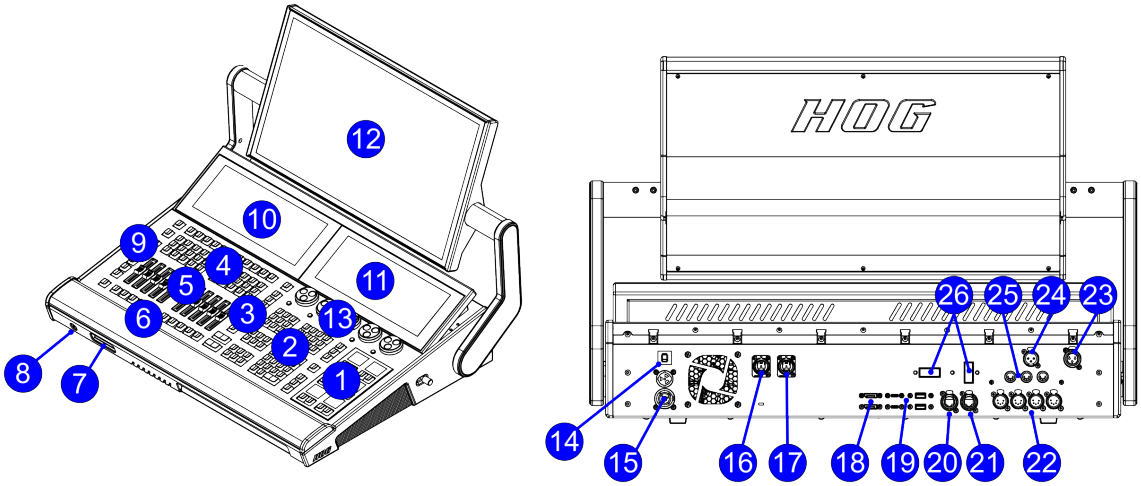
整備点検の項目 は資格を持った技師の為の物です。; ユーザーによって修理点検を行えるパーツは存在していません。

36. Technical Specifications

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36.1 Tour Hog

36.1.1 Tour Hog Layout



Item:	Description
1:	Function Keys
2:	Programmer Keys
3:	Main playback controls
4:	Master playback controls
5:	Motorized Faders
6:	Flash Keys
7:	USB Inputs (1x Type A) (1x Type C)
8:	Power Button
9:	U Keys 5 thru 8 and Next / Back Page keys
10:	Playback Dashboard Display
11:	Programmer Dashboard Display
12:	Main Display
13:	Attribute encoders
14:	Circuit Breaker
15:	PowerCon True1 Power In / Thru
16:	OpticalCon Fiber Optic Networking Port 3
17:	OpticalCon Fiber Optic Networking Port 4
18:	Display Port 1, Display Port 2
19:	USB Inputs (2x Type A) (2x Type C)
20:	Neutrik Ethercon - (1) FixtureNet
21:	Neutrik Ethercon - (2) HogNet

Item:	Description
22:	DMX Outputs (4 universes)
23:	Desk Light (12v)
24:	SMPTE Timecode Input
25:	MIDI IN/THRU/OUT
26:	Wi-Fi / Bluetooth Antenna

36.1.2 Tour Hog Capacities

Output Parameters:	32,768 parameters (64 universes)
Show Item Limits:	32,768 Fixtures 1,000 Lists 10,000 Cues 10,000 Scenes 10,000 Groups 10,000 Palettes 10,000 Effects 10,000 Batches 10,000 Macros 1,000 Pages 90 Masters (per page)
External Wings:	Tour Wing via USB-C Up to four Series 4 Wings via USB-A
External Displays:	One 4K Display / Touchscreen on Display Port 1 Two 1080p Displays / Touchscreens on Display Ports 1 and 2

36.1.3 Input and Output Connections

Mains in:	powerCON TRUE1; 100-240 VAC, 5A, 50-60 Hz
Mains out:	powerCON TRUE1 Pass Thru
MIDI:	Input, Output, and Thru
SMPTE:	3-pin XLR Linear Timecode Input
Display Connections:	2 x Display Port
Ethernet:	2x Neutrik etherCON (1 Gigabit)
Fiber Optic:	2x Neutrik opticalCON (10 Gigabit)
USB:	2x USB type C (rear), 2x USB type A (rear), 1x USB type C (front), 1x USB type A (front)
DMX out:	4x Neutrik 5 pin female XLR Galvanized Isolated
Keyboard:	Built-in Miniature QWERTY keyboard

36.1.4 Desklight

Refer to the table below for detailed pinout specifications, supported third party desk lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

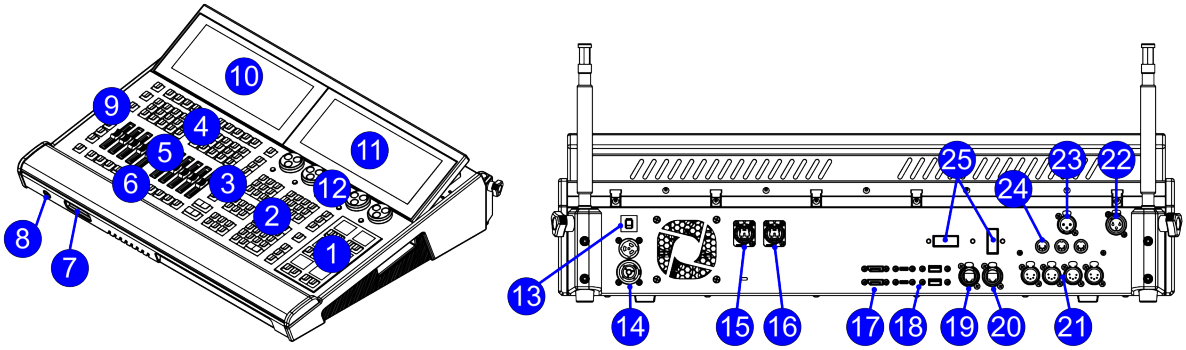
Console	Pin Out	Supported Desklights
Tour Hog	**Pin 1:** Chassis Ground (jumped to ground lug) **Pin 2:** 0V DC **Pin 3:** +12V DC (LED supply)	Littlelight 12XR-LED Littlelight 18XR-LED (ETC PN: M7183) Littlelight 24XR-LED Third party lights configured to match the standard pin-out

36.1.5 Power, Weight and Dimensions

Power:	750W Max
Weight:	65 lbs (29 kg)
Dimensions (Main Display Folded):	30.77” (781.5mm) wide 21.59” (548.4mm) deep 9.12” (231.5mm) high
Dimensions (Main Display Open):	30.77” (781.5mm) wide 21.59” (548.4mm) deep 20.71” (526.0mm) high

36.2 Stage Hog

36.2.1 Stage Hog Layout



Item:	Description
1:	Function Keys
2:	Programmer Keys
3:	Main playback controls
4:	Master playback controls
5:	Motorized Faders
6:	Flash Keys
7:	USB Inputs (1x Type A) (1x Type C)
8:	Power Button
9:	U Keys 5 thru 8 and Next/Back Page keys
10:	Playback Dashboard Display
11:	Programmer Dashboard Display
12:	Attribute encoders
13:	Circuit Breaker
14:	PowerCon True1 Power In / Thru
15:	OpticalCon Fiber Optic Networking Port 3
16:	OpticalCon Fiber Optic Networking Port 4
17:	Display Port 1, Display Port 2
18:	USB Inputs (2x Type A) (2x Type C)
19:	Neutrik Ethercon - (1) FixtureNet
20:	Neutrik Ethercon - (2) HogNet
21:	DMX Outputs (4 universes)
22:	Desk Light (12v)
23:	SMPTE Timecode Input

Item:	Description
24:	MIDI IN/THRU/OUT
25:	WI-FI / Bluetooth Antenna

36.2.2 Stage Hog Capacities

Output Parameters:	32,768 parameters (64 universes)
Show Item Limits:	32,768 Fixtures 1,000 Lists 10,000 Cues 10,000 Scenes 10,000 Groups 10,000 Palettes 10,000 Effects 10,000 Batches 10,000 Macros 1,000 Pages 90 Masters (per page)
External Wings:	Tour Wing via USB-C Up to four Series 4 Wings via USB-A
External Displays:	One 4K Display / Touchscreen on Display Port 1 Two 1080p Displays / Touchscreens on Display Ports 1 and 2

36.2.3 Input and Output Connections

Mains in:	powerCON TRUE1; 100-240 VAC, 5A, 50-60 Hz
Mains out:	powerCON TRUE1 Pass Thru
MIDI:	Input, Output, and Thru
SMPTE:	3-pin XLR Linear Timecode Input
Display Connections:	2 x Display Port
Ethernet:	2x Neutrik etherCON (1 Gigabit)
Fiber Optic:	2x Neutrik opticalCON (10 Gigabit)
USB:	2x USB type C (rear), 2x USB type A (rear), 1x USB type C (front), 1x USB type A (front)
DMX out:	4x Neutrik 5 pin female XLR Galvanized Isolated
Keyboard:	Built-in Miniature QWERTY keyboard

36.2.4 Desklight

Refer to the table below for detailed pinout specifications, supported third party lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Stage Hog	**Pin 1:** Chassis Ground (jumped to ground lug) **Pin 2:** 0V DC **Pin 3:** +12V DC (LED supply)	Littlelight 12XR-LED Littlelight 18XR-LED (ETC PN: M7183) Littlelight 24XR-LED Third party lights configured to match the standard pin-out

36.2.5 Power, Weight and Dimensions

Power:	500W Max
Weight:	50 lbs (22 kg)
Dimensions (Main Display Folded)	29” (736.7mm) wide 21.59” (548.4mm) deep 9.12” (231.5mm) high
Dimensions (Main Display Open)	29” (736.7mm) wide 22.8” (579.2mm) deep 12.16” (308.9mm) high

36.2.6 Accessory Mount Receiver

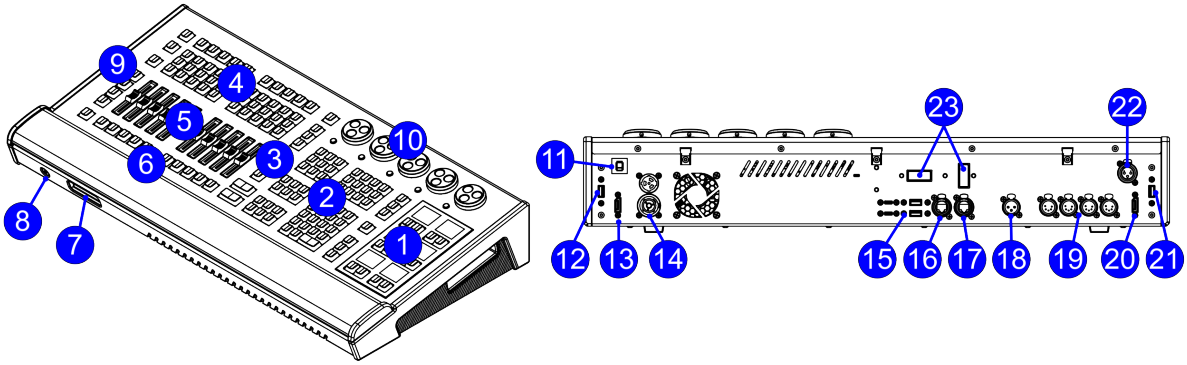
Socket:	5/8" (~16mm)
Compatibility:	Baby Arm Standard

36.2.7 Accessory Mount Posts

Length:	5" (~130mm)
Pin Size:	Baby Arm Standard
Top Hole:	1/4"-20 Threaded
Bottom Hole:	3/8"-16 Threaded

36.3 Flex Hog

36.3.1 Flex Hog Layout



Item:	Description
1:	Function Keys
2:	Programmer keys
3:	Main playback controls
4:	Master playback controls
5:	Motorized faders
6:	Flash keys
7:	USB Inputs (1x Type A) (1x Type C)
8:	Power Button
9:	U Keys 5 thru 8 and Next / Back Page keys
10:	Attribute encoders
11:	Circuit Breaker
12:	USB Type A
13:	Display Port 1
14:	PowerCon True1 Power In / Thru
15:	USB Inputs (2x Type A) (2x Type C)
16:	Neutrik Ethercon - (2) FixtureNet
17:	Neutrik Ethercon - (1) HogNet
18:	SMPTE Timecode Input
19:	DMX Outputs (4 universes)
20:	Display Port 2
21:	USB Type A
22:	Desk Light (12v)
23:	WI-FI / Bluetooth Antenna

36.3.2 Flex Hog Capacities

Output Parameters:	32,768 parameters (64 universes)
Show Item Limits:	32,768 Fixtures 1,000 Lists 10,000 Cues 10,000 Scenes 10,000 Groups 10,000 Palettes 10,000 Effects 10,000 Batches 10,000 Macros 1,000 Pages 90 Masters (per page)
External Wings:	Tour Wing via USB-C Up to four Series 4 Wings via USB-A
External Displays:	One 4K Display / Touchscreen on Display Port 1 Two 1080p Displays / Touchscreens on Display Ports 1 and 2

36.3.3 Input and Output Connections

Mains in:	powerCON TRUE1; 100-240 VAC, 5A, 50-60 Hz
Mains out:	powerCON TRUE1 Pass Thru
SMPTE:	3-pin XLR Linear Timecode Input
Display Connections:	2 x Display Port
Ethernet:	2x Neutrik etherCON (1 Gigabit)
USB:	2x USB type C (rear), 4x USB type A (rear), 1x USB type C (front), 1x USB type A (front)
DMX out:	4x Neutrik 5 pin female XLR Galvanized Isolated

36.3.4 Desklight

Refer to the table below for detailed pinout specifications, supported third party desk lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

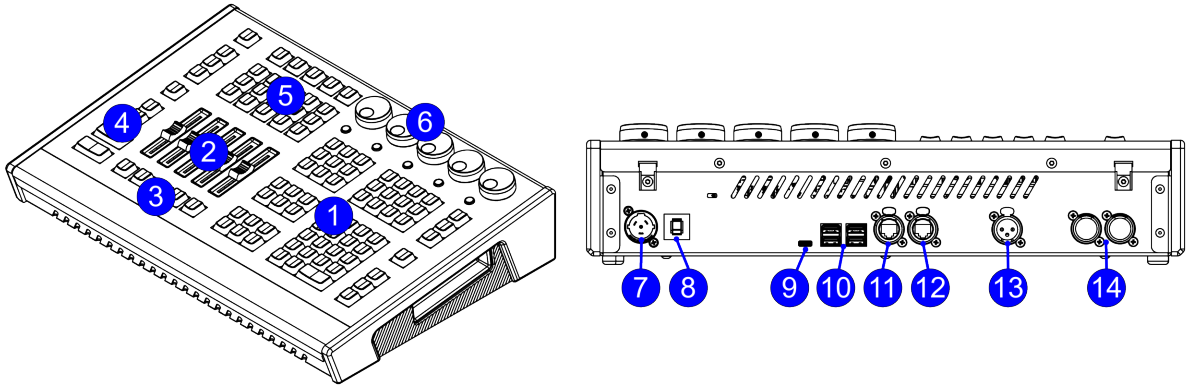
Console	Pin Out	Supported Desklights
Flex Hog	**Pin 1:** Chassis Ground (jumped to ground lug) **Pin 2:** 0V DC **Pin 3:** +12V DC (LED supply)	Littlelight 12XR-LED Littlelight 18XR-LED (ETC PN: M7183) Littlelight 24XR-LED Third party lights configured to match the standard pin-out

36.3.5 Power, Weight and Dimensions

Power:	500W Max
Weight:	40 lbs (18 kg)
Dimensions	29” (736.7mm) wide 14.92” (378.9mm) deep 4.75” (120.7mm) hig

36.4 Gig Hog

36.4.1 Gig Hog Layout



Item:	Description
1:	Programmer keys
2:	Motorized faders
3:	Flash keys
4:	Main playback controls
5:	Master playback controls
6:	Attribute encoders
7:	PowerCon True1 Power Inlet
8:	Circuit Breaker
9:	USB-C (with 100w Power Delivery)
10:	USB Type A (4 inputs)
11:	Neutrik Ethercon - (2) FixtureNet
12:	Neutrik Ethercon - (1) HogNet
13:	SMPTE Timecode Input
14:	DMX Outputs (2 universes)

36.4.2 Gig Hog Capacities

Output Parameters:	Depends on Host Computer
Show Item Limits:	Depends on Host Computer
External Displays:	Depends on Host Computer

36.4.3 Input and Output Connections

Mains in:	powerCON TRUE1; 100-240 VAC, 3A, 50-60 Hz
SMPTE:	3-pin XLR Linear Timecode Input
Ethernet:	2x Neutrik etherCON (1 Gigabit)
USB In:	1x USB type C with 100w Power Delivery (rear)
USB Out:	4x USB type A (rear)
DMX out:	2x Neutrik 5 pin female XLR Galvanized Isolated

36.4.4 Power, Weight and Dimensions

Power:	300W Max
Weight:	14 lbs (6.35 kg)
Dimensions:	17.72” (450mm) wide 12.61” (320.4mm) deep 3.68” (93.6mm) high

36.5 Tour Wing

36.5.1 Input and Output Connections

Mains in:	powerCON TRUE1; 100-240 VAC, 3A, 50-60 Hz
USB In:	1x USB type C with 100w Power Delivery (rear)
USB Out:	4x USB type A (rear)
DMX out:	2x Neutrik 5 pin female XLR Galvanized Isolated

36.5.2 Power, Weight and Dimensions

Power:	300W Max
Weight:	20 lbs (9 kg)
Dimensions:	15.22” (386.7mm) wide 21.44” (544.5mm) deep 7.94” (201.6mm) high

36.6 Hog 4

36.6.1 Input and Output Connections

Mains in:	V-Lock style locking IEC 320 connector (5A/250V rated cable supplied) 100-240 VAC, 3.2-2A, 50-60 Hz 1 x 5x20mm 5A T fuse
MIDI Connections:	MIDI - Input, Output, and Thru Ports
LTC In:	3-pin XLR Linear Timecode Input
Display Connections:	3 x DVI-I single link female connectors
Ethernet:	2 x Neutrik Ethercon; Gigabit Ethernet port
USB:	Universal Serial Bus 2.0 ports (6 rear, 1 inside front utility tray, 1 inside armrest)
DMX out:	8 x Neutrik 5 pin female XLR Galvanized Isolated
Keyboard:	Built-in Miniature QWERTY keyboard

36.6.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party desk lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Hog 4	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** +12V DC (Blue LED supply)	Hog 3 Series Custom - blue/white supported Hog 4 Series Custom - blue/white supported Third party lights configured to match the custom pin-out

36.6.3 Power, Weight and Dimensions

Power:	300W
Weight:	75 lbs (34 kg)
Dimensions with Screen Down:	40.5” (1028.7mm) wide 28.49” (723.7mm) deep 6.49” (164.8mm) high
Dimensions with Screen Up:	40.5” (1028.7mm) wide 28.49” (723.7mm) deep 16.43” (417.4mm) high

36.7 Hog 4-18

36.7.1 Input and Output Connections

Mains in:	V-Lock style locking IEC 320 connector (5A/250V rated cable supplied) 100-240 VAC, 3.2-2A, 50-60 Hz 1 x 5x20mm 5A T fuse
MIDI Connections:	MIDI - Input, Output, and Thru Ports
LTC In:	3-pin XLR Linear Timecode Input
Display Connections:	3 x Display Port female connectors
Ethernet:	2 x Neutrik Ethercon; Gigabit Ethernet port
USB:	Universal Serial Bus 2.0 ports (6 rear, 2 inside front utility tray)
DMX out:	8 x Neutrik 5 pin female XLR Galvanized Isolated
Keyboard:	Built-in Miniature QWERTY keyboard
Mounting:	2 x 5/8" spigot receivers

36.7.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party desk lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Hog 4-18	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** +12V DC (Blue LED supply)	Hog 3 Series Custom - blue/white supported Hog 4 Series Custom - blue/white supported Third party lights configured to match the custom pin-out

36.7.3 Power, Weight and Dimensions

Power:	120W Max
Weight:	92 lbs (42 kg)
Dimensions with Screen Down:	39.1” (994mm) wide 29.4” (746mm) deep 6.7” (169mm) high
Dimensions with Screen Up:	39.1” (994mm) wide 29.4” (746mm) deep 16.9” (430mm) high

36.7.4 Mounting Accessories to Hog 4-18

The Hog 4-18 console features two 5/8" spigot receivers; one on the left arm and one right arm of the console. These mounting receivers can be used to attached accessories arms for mounting monitors, laptops, tablets, and other devices to the console.

36.8 Full Boar 4

36.8.1 Input and Output Connections

Mains in:	IEC 320 connector (5A/250V rated cable supplied) 100-240V, 50/60Hz, 5A maximum
MIDI Connections:	MIDI - Input, Output, and Thru Ports
LTC In:	3-pin XLR Linear Timecode Input
Display Connections:	2 x 24 pin DVI-D single link female connectors
Ethernet:	2 x Neutrik Ethercon; Gigabit Ethernet port
USB:	Universal Serial Bus 2.0 ports (4 rear) Universal Serial Bus 3.0 ports (1 top)
DMX out:	4 x Neutrik 5 pin female XLR
Keyboard:	Not included (Generic Class USB keyboards Supported)

36.8.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party desk lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Full Boar 4	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** +12V DC (Blue LED supply)	Hog 3 Series Custom - blue/white supported Hog 4 Series Custom - blue/white supported Third party lights configured to match the custom pin-out

36.8.3 Power, Weight and Dimensions

Power:	500W
Weight:	45 lbs (20.41 kg)
Dimensions:	35.49” (901 mm) wide 22.65” (575 mm) deep 9.62” (244 mm) high

36.9 HPU

36.9.1 Input and Output Connections

Mains in:	V-Lock style locking IEC 320 connector (5A / 250V rated cable supplied) 100-240 VAC, 5A, 50-60 Hz - 1 x 5x20 mm 5A Tfuse
Display Connections:	2x Display Port Female
Ethernet:	2x Gigabit Ethernet port
USB:	1x front 2.0 port 4 x rear 3.0 ports 2x USB Type-C
DMX out:	8 x Neutrik 5 pin female XLR Galvanized Isolated

36.9.2 Power, Weight and Dimensions

Power:	500w Max
Weight:	15 lbs (6.8 kg)
Dimensions:	19" (482.6mm) wide 14" (356.6mm) deep 3.5" (89.1mm) high

36.9.3 HPU Trigger Ports

The trigger ports on the rear of the HPU are removable, field replaceable headers. They are written below for reference.

ETC Part number: **J30215-F**

Manufacturer Part number: **PHOENIX CONTACT 1844633**

Attribute	Value
Mtg Type	Through Hole
Category	Terminal Block
Family	Header
Sub-Family	
Series	Phoenix DMC
Part Number	J30214-F
Description	TBLK 16M HDR .1 RA DR PHX
Pin Count	16
Sex	M
Pitch	0.100 (2.54mm)
Orientation	Right Angle
Row Count	2
Shielded	n/a
Gauge	n/a
Attribute	Value
Mtg Type	Non-PCB, BOM only
Category	Terminal Block
Family	Plug
Sub-Family	Spring Cage, Tension Clamp
Series	Phoenix DMC
Part Number	J30215-F
Description	TBLK 16F PLUG CLAMP .1 DR 26-20GA PHX
Pin Count	16
Sex	F
Pitch	0.100 (2.54mm)
Orientation	
Row Count	2
Shielded	
Gauge	26-20GA

36.10 HPU+

36.10.1 Input and Output Connections

Mains in:	powerCON TRUE1; 100-240 VAC, 5A, 50-60 Hz
SMPTE:	3-pin XLR Linear Timecode Input
Display Connections:	2 x Display Port
Ethernet:	2x Neutrik etherCON (1 Gigabit)
Fiber Optic:	2x Neutrik opticalCON (10 Gigabit)
USB:	2x USB type C (rear), 2x USB type A (rear), 1x USB type C (front), 2x USB type A (front)
DMX out:	4x Neutrik 5 pin female XLR Galvanized Isolated

36.10.2 HPU+ Capacities

Output Parameters:	32,768 parameters (64 universes)
Show Item Limits:	32,768 Fixtures 1,000 Lists 10,000 Cues 10,000 Scenes 10,000 Groups 10,000 Palettes 10,000 Effects 10,000 Batches 10,000 Macros 1,000 Pages 90 Masters (per page)
External Wings:	Tour Wing via USB-C Up to four Series 4 Wings via USB-A
External Displays:	One 4K Display / Touchscreen on Display Port 1 Two 1080p Displays / Touchscreens on Display Ports 1 and 2

36.10.3 Power, Weight and Dimensions

Power:	100W Max
Weight:	15 lbs (6.8 kg)
Dimensions (with handles):	Depth: 18.31" (465.18mm) Width: 17.14" (435.43mm) Height: 3.72" (94.38mm)
Dimensions (handles removed):	Depth: 17.31" (439.78mm) Width: 17.14" (435.43mm) Height: 3.72" (94.38mm)

36.11 Road Hog 4

36.11.1 Input and Output Connections

Mains in:	IEC 320 connector (5A/250V rated cable supplied) 100-240V, 50/60Hz, 5A maximum
Display Connections:	1 x DVI-D / 1 x VGA (only 1 can be used at a time)
Ethernet:	2 x Gigabit base-TX Ethernet port
USB:	3 x Universal Serial Bus 2.0 ports (2 rear, 1 front) 2 x Universal Serial Bus 3.0 ports (2 rear)
DMX out:	4 x Neutrik 5 pin female XLR
Keyboard:	Not included (Generic Class USB keyboards Supported)

36.11.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party desk lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Road Hog 4	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** +12V DC (Blue LED supply)	Hog 3 Series Custom - blue/white supported Hog 4 Series Custom - blue/white supported Third party lights configured to match the custom pin-out

36.11.3 Power, Weight and Dimensions

Power:	500W
Weight:	38.6 lbs (17.5 kg)
Dimensions:	26.7” (678 mm) wide 27.61” (701 mm) deep 8.10” (205 mm) high

36.12 Road Hog 4-21

36.12.1 Input and Output Connections

Mains in:	IEC 320 connector (5A/250V rated cable supplied) 100-240V, 50/60Hz, 5A maximum
Display Connections:	2 x Display Port
Ethernet:	2 x Gigabit base-TX Ethernet port
USB:	4 x Universal Serial Bus 2.0 ports (rear) 4 x Universal Serial Bus 3.0 ports (rear) 1 x Universal Serial Bus 3.0 (front)
DMX out:	4 x Neutrik 5 pin female XLR
Keyboard:	Not included (Generic Class USB keyboards Supported)

36.12.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Road Hog 4-21	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** +12V DC (Blue LED supply)	Hog 3 Series Custom - blue/white LED supported Hog 4 Series Custom - blue/white LED supported Third party lights configured to match the custom pin-out

36.12.3 Power, Weight and Dimensions

Power:	500W
Weight:	38.6 lbs (17.5 kg)
Dimensions:	26.7” (678 mm) wide 27.61” (701 mm) deep 8.10” (205 mm) high

36.13 HedgeHog 4

36.13.1 Input and Output Connections

Mains in:	IEC 320 connector (5A/250V rated cable supplied) 100-240V, 50/60Hz, 2.5 A maximum
Ethernet:	1 x Gigabit base-TX Ethernet port
USB:	2 x Universal Serial Bus 2.0 ports (rear)
DMX out:	2 x Neutrik 5 pin female XLR
Keyboard:	Not included (Generic Class USB keyboards Supported)

36.13.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Hedgehog 4	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** not connected	Hog 3 Series Custom - only white LED supported Hog 4 Series Custom - only white LED supported Third party lights configured to match the custom pin-out

36.13.3 Power, Weight and Dimensions

Power:	250W
Weight:	17 lbs (7.7 kg)
Dimensions:	20.74” (526 mm) wide 21.83” (554 mm) deep 3.97" (100 mm) high

36.14 HedgeHog 4N

36.14.1 Input and Output Connections

Mains in:	IEC 320 connector (5A/250V rated cable supplied) 100-240V, 50/60Hz, 2.5 A maximum
Ethernet:	2 x Gigabit base-TX Ethernet port
USB:	2 x Universal Serial Bus 2.0 ports (rear)
DMX out:	2 x Neutrik 5 pin female XLR
Keyboard:	Not included (Generic Class USB keyboards Supported)

36.14.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Hedgehog 4	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** not connected	Hog 3 Series Custom - only white LED supported Hog 4 Series Custom - only white LED supported Third party lights configured to match the custom pin-out

36.14.3 Power, Weight and Dimensions

Power:	250W
Weight:	17 lbs (7.7 kg)
Dimensions:	20.74” (526 mm) wide 21.83” (554 mm) deep 3.97" (100 mm) high

36.15 HedgeHog 4N, 4S, 4X (Jan 2015 and later)

36.15.1 Input and Output Connections

Mains in:	IEC 320 connector (5A/250V rated cable supplied) 100-240V, 50/60Hz, 2.5 A maximum
Display Connections:	1 x DVI-D / 1 x VGA (only 1 can be used at a time)
Ethernet:	2 x Gigabit base-TX Ethernet port
USB:	2 x Universal Serial Bus 2.0 ports (2 rear) 2 x Universal Serial Bus 3.0 ports (2 rear)
DMX out:	2 x Neutrik 5 pin female XLR
Keyboard:	Not included (Generic Class USB keyboards Supported)

36.15.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Hedgehog 4	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** not connected	Hog 3 Series Custom - only white LED supported Hog 4 Series Custom - only white LED supported Third party lights configured to match the custom pin-out

36.15.3 Power, Weight and Dimensions

Power:	250W
Weight:	17 lbs (17.5 kg)
Dimensions:	20.74” (526.8mm) wide 21.83” (554.37mm) deep 3.97" (100.78mm) high

36.16 HedgeHog 4X (2020 Model)

36.16.1 Input and Output Connections

Mains in:	IEC 320 connector (5A/250V rated cable supplied) 100-240V, 50/60Hz, 2.5 A maximum
Display Connections:	2 x Display Port
Ethernet:	2 x Gigabit base-TX Ethernet port
USB:	4 x Universal Serial Bus 2.0 ports (rear) 4 x Universal Serial Bus 3.0 ports (rear)
DMX out:	2 x Neutrik 5 pin female XLR
Keyboard:	Not included (Generic Class USB keyboards Supported)

36.16.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
Hedgehog 4	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** not connected	Hog 3 Series Custom - only white LED supported Hog 4 Series Custom - only white LED supported Third party lights configured to match the custom pin-out

36.16.3 Power, Weight and Dimensions

Power:	250W
Weight:	17 lbs (17.5 kg)
Dimensions:	20.74” (526.8mm) wide 21.83” (554.37mm) deep 3.97" (100.78mm) high

36.17 Nano Hog 4

36.17.1 Input and Output Connections

Mains in:	External DC Power Supply (5.5A/12V) 100-240V, 50/60Hz, 1.5A maximum
USB:	Type B USB Input Socket Universal Serial Bus 2.0 ports (2 rear)
DMX out:	4 x 5-pin XLR DMX Outputs (when DMX output kit is installed)

36.17.2 Desklight

Refer to the table below for detailed pinout specifications, supported third party desk lights, and available features.

Important: Hog 3 and Hog 4 series custom desklights are not compatible with Tour Hog, Stage Hog, or Flex Hog consoles unless manually re-pinned.

Console	Pin Out	Supported Desklights
NanoHog 4	**Pin 1:** Ground **Pin 2:** +12V DC (White LED supply) **Pin 3:** +12V DC (Blue LED supply)	Hog 3 Series Custom - blue/white LED supported Hog 4 Series Custom - blue/white LED supported Third party lights configured to match the custom pin-out

36.17.3 Power, Weight and Dimensions

Power:	5W
Weight:	18.1 lbs (8.21 kg)
Dimensions:	26.7” (678 mm) wide 13.76” (349 mm) deep 3.54” (89 mm) high

36.18 Playback Wing 4

36.18.1 Input and Output Connections

Mains in:	Built-in Power Supply with IEC 320 connector 100-240V, 50/60Hz, 1.5A maximum
Display Connections:	DVI-D connector
USB:	Type B USB input socket USB-A 2.0 High Speed (x2)

36.18.2 Power, Weight and Dimensions

Power:	75W
Weight:	27.6 lbs (12.51 kg)
Dimensions:	20.14” (511 mm) wide 24.02” (610 mm) deep 9.62” (244 mm) high

36.18.3 Performance

Display:	15.6" Diagonal active matrix TFT LCD
Native resolution:	1366 x 768
Input frequency:	31.5 - 80 kHz (H), 56-75 Hz (V)
Contrast ratio:	500:1 (typical)
Viewing angle:	160 x 160 degrees (typical)
Response:	80 ms (typical)
Brightness:	300 cd/m2 (typical)

36.19 Master Wing 4

36.19.1 Input and Output Connections

Mains in:	Built-in Power Supply with IEC 320 connector 100-240V, 50/60Hz, 1.5A maximum
Display Connections:	DVI-D connector
USB:	Type B USB input socket USB-A 2.0 High Speed (x2)

36.19.2 Power, Weight and Dimensions

Power:	75W
Weight:	27.2 lbs (12.51 kg)
Dimensions:	20.14” (511 mm) wide 24.02” (610 mm) deep 9.62” (244 mm) high

36.19.3 Performance

Display:	15.6" Diagonal active matrix TFT LCD
Native resolution:	1366 x 768
Input frequency:	31.5 - 80 kHz (H), 56-75 Hz (V)
Contrast ratio:	500:1 (typical)
Viewing angle:	160 x 160 degrees (typical)
Response:	80 ms (typical)
Brightness:	300 cd/m2 (typical)

36.20 Hog PC

36.20.1 Minimum System Requirements

Processor:	1.8 GHz Dual Core CPU or faster
Supported Operating Systems:	Windows 10 (32-bit or 64-bit) Windows 11
Memory:	2GB
Hard Disk Space:	5 GB of free disk space
Screen Resolution:	1024x768 or higher-resolution monitor

37. Legal Information

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Please read all instructions prior to assembling, mounting, and operating this equipment.

There are no internal user serviceable parts, this includes batteries and fuses.

Only use the supplied power cord. Attach the power cord to the marked port on the rear of the device with the label of "AC Power". Certain consoles have a power switch as primary means of turning power off internally. In all cases, remove power cord for full electrical safety when required.

"Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75."

"Peut être installé dans des salles de matériel de traitement de l'information conformément à l'article 645 du National Electrical Code et à la NFPA 75"

Important: Informations De Sécurité

Les instructions se rapportant à la protection permanente contre les incendies, l'électrocution et aux blessures corporelles

se trouvent dans Informations Importantes Sur La Sécurité (p.430).

Veuillez lire toutes les instructions avant d'assembler, de monter ou d'utiliser cet équipement.

Wichtige Sicherheitshinweise

Sicherheitsanleitungen zum Schutz gegen Feuer, elektrischen Schlag und Verletzung von Personen finden Sie in Wichtige

Hinweise Für Ihre Sicherheit (p.430).

Vor der Montage, dem Zusammenbau und der Inbetriebnahme dieses Geräts alle Anleitungen sorgfältig durchlesen.

Informazioni Importanti Di Sicurezza

Le istruzioni sulla protezione da incendi, folgorazione e infortuni sono contenute nell Sezione 34.5, «Importanti Informazioni

Di Sicurezza».

Si prega di leggere tutte le istruzioni prima di assemblare, montare e azionare l'apparecchiatura.

Informacion Importante De Seguridad

En el Información Importante De Seguridad (p.431) se encuentran instrucciones sobre protección continua contra incendios,

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Lea, por favor, todas las instrucciones antes del ensamblaje, montaje y operación de este equipo.

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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 instructions, may cause harmful interference to radio communications. Any modifications or changes to this product not expressly approved by Electronic Theatre Controls, Inc. could void the user's authority to operate the product. 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 their own expense.

ESD Sensitivity

During and after electrostatic discharge (ESD) testing in accordance with IEC 61000-4-2, the Tour Hog console may experience temporary loss of function or performance. Normal operation can be restored through user intervention, such as power cycling or rebooting the unit. No permanent damage or unsafe behavior is expected, as the Tour Hog is engineered to meet essential performance requirements following recovery.

38. Glossary

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10 Base-T

An older flavour of Ethernet that is slower (10 MBits per second) than the 100 Base-T used by Hog components. If connected to other equipment that only supports this flavour, then Hog components will automatically detect this, and run their Ethernet connections at this slower speed. See Also: 100 Base-T.

100 Base-T

A flavour of Ethernet that supports data rates of up to 100 MBits per second. All Hog components support this flavour of Ethernet, and comply with all relevant standards, so networking equipment designed for 100Base-T should be compatible with the Hog. See Also: 10 Base-T.

A

Abstraction Layer

Hog 4 OS separates (‘abstracts’) the user from the details of how fixtures work. For example, most values are expressed in real world values such as degrees of rotation, rather than DMX values.

Aggregate Fixtures

When two or more fixtures are assigned dotted user numbers with the same whole number portion (1.1, 1.2, 1.3, etc...)

B

Blocking Cue

A blocking cue prevents changes made to earlier cues from tracking through to later cues. See Also: Tracking.

Buddying

During fanning, buddying keeps fixtures in ‘gangs’ that all take the same parameter value. See Also: Fanning.

Button

An on-screen control operated by clicking with the mouse or trackball or touching the screen. In this manual the work "key" is reserved for hardware buttons on the console's front panel.

Cal Bypass

A per fixture option that routes virtual Red, Green, Blue function values to the physical red, green, and blue values of the fixture. This option is located in the Fixture Window and can be enabled for fixture types with basic RGB or CMY color mixing functions. See Also: Virtual Red, Virtual Green, Virtual Blue

Cell

A single rectangle in a spreadsheet, containing a value. See Also: Spreadsheet.

Chase

A series of cues, that run automatically, connected with link and delay attributes.

Chromaticity Diagram

A horseshoe shaped graph of the CIE XY color space that represents the range of human perceivable colors without regards to luminance.

CITP

Controller Interface Transfer Protocol (CITP): A protocol used by the Hog 4 OS to supply the media picker with thumbnail previews of content on connected Media Servers. See Also: Media Picker.

Color Space - HSV

Hue, Saturation, Value (HSV): Is a representation of the RGB Color space using three components. HSV is visualized in Hog control software by a circular graphic in which Hue is spread across the circumference of the circle. The lowest Saturation values being closest to the center and the highest saturation values being closest to the perimeter. The Value component is accessed via an external slider control which raises/lowers the value of all colors in the graphic.

Color Space - RGB

The Red, Green, Blue color space is an additive method of defining human perception of color. The modern use of this additive color space is used in electronics systems to communicate color digitally. It originated from the CIE 1931 RGB specification.

Color Space xyY

The xyY color space is a way of visualizing human perception of color that is based on the 1930 CIE RGB color specification. The three components of

this model roughly refer to the three kinds of cone cells found in a human eye.

Command Keys

User-created single button executers that trigger existing show objects.

Command Line

A method of entering information into the Programmer, using the numerical keypad and the @ key. See Also: Programmer.

Compound Fixture

A single fixture entity that is comprised of one or more fixture parts (sometimes of varying fixture types).

Control Set

A collection of physical master key mappings. There are five editable control sets: Standard, Intensity, Playback Rate, Effect Rate, and Effect Size

Conversion Curve

A curve that defines the relationship between the plotted parameter value and the DMX value sent to the dimmer or fixture. Conversion curves are like dimmer curves or profiles on other consoles, and should not be confused with paths. Conversion curves are properties of the fixture, while the path is a property of a cue. See Also: Path.

Crossfade

A transition between two cues, one replacing the other.

Cue

A look on stage, achieved through the manipulation of fixture parameters recorded as part of a cue list. A cue requires a trigger, either manual or automatic, and has attributes such as fade, wait and delay times. See Also: Scene, Fade Time, Wait Time, Delay Time.

Cuelist

A group of cues that run in a specific order consecutively, or even simultaneously. These may be automatically linked to form a chase, or manually triggered. A cuelist is run from a master.

D

DBO

Dead Black Out (DBO): Pressing the DBO key on the console will set all intensity output to 0% regardless of the position of the grand master fader.

Default Value

A parameter value which has not been adjusted by the user. This value is assigned by the fixture's Library, and may not always be zero. For example, the default value of Shutter Open/Strobe Off may be Open. See Also: Touched Value, Tracking.

Delay Time

The time the console waits before starting a cue's crossfade. See Also: Wait Time, Crossfade, Path.

Desk Channel

Single conventional lights that only have intensity control via a dimmer are defined as desk channels by Hog 4 OS. By contrast, automated lights are referred to as fixtures.

DHCP

Dynamic Host Configuration Protocol (DHCP): Is a way for a computer to ask a master computer on a network to assign it an IP address when it connects. Many existing networks are configured this way, and Hog 4 OS supports this system. You should talk to the administrator of the network you want to connect to find out more. See Also: ethernet, IP address.

Dimmer Curve

See Conversion Curve.

Directory

A window which displays palettes, scenes or groups. See Also: Palette.

DMX

Short for DMX512, DMX is the communications protocol most commonly used to connect lighting consoles to fixtures and dimmers.

DMX Address

A number between 1 and 512 that identifies a controllable parameter of a fixture. Each fixture or group of dimmers has a ‘start address’, the first of the range of DMX addresses that it uses.

DMX Processor

A network device that distributes DMX output. There may be many DMX Processors within a lighting control network. Common DMX Processors are rack mounted devices. See Also: Node.

DMX Universe

A single DMX output with 512 channels is known as one DMX universe. A Hog network may support many universes each with fixture addresses

between 1 and 512. See Also: DMX Processor.

Dotted User Number

A user number for a fixture that contains a whole number and a part number. Example: Desk Channel 1.23

E

Editor

A window for editing the contents of cues, scenes, groups or palettes. See Also: Programmer.

Effect Base

A Base Value, when used in context of the effects engine, is the value used by the effects engine for a waveform to act upon. It is meant to explicitly indicate the look-up value for use in the effects engine. See Also: Baseless Effect.

Effect Baseless

A Baseless Effect, when used in context of the effects engine, is meant to indicate that the effects engine is inheriting its value from a tracked value or from the fixture defaults. It is the opposite of the Base value effect. See Also: Base Effect

Effect Link

Link is an effect table value that permits a physical color mixing function to connect to a virtual color mixing function. These connected functions are linked when this setting is applied and allows an output value to be calculated.

Effect Off

Off is an effect table valve that informs the effects engine to not calculate an effect for the associated fixture function. This value is automatically assigned when a function is touched. See Also: Track Effect, Tracking

Effect Track

Track is an effect table value that informs the fade engine to allow effect parameters to continue through cues. See Also: Effect Off, Tracking

Effects Engine

The Hog 4 OS effects engine provides the opportunity to create movement sequences. The engine contains library shapes, whilst allowing for custom effects to be created.

Encoder Wheel

See Parameter Wheel.

Ethernet

A defined way of connecting computer equipment together. It comes in a variety of flavours. See Also: 10 Base-T, 100 Base-T, IP address.

F

Fade Time

Time in which fixtures crossfade between the parameter levels of two cues - one incoming, one outgoing. See Also: Split Fade, In Time, Out Time.

Fanning

A way of quickly assigning fixture parameters to an evenly spaced range of values. For example, you could use fanning to assign the intensity of 10 fixtures to 10%, 20% ... 90%, 100% in a single operation. See Also: Buddying.

Fixed Kind

Fixed kinds are the default collections of functions that collectivity contain all of the fixture functions used in your show. There are 7 fixed kinds: Intensity, Position, Colour, Beam, Effects, Time, and Control. The fixed kinds are represented by dedicated front panel buttons and onscreen menus. See Also: Kinds.

Fixture Library

A separate data file installed into the libraries folder on the console that contains DMX mappings called "fixture types" which provide Hog 4 OS with a model for controlling a fixture's programmable parameters. See Also: Abstraction Layer.

Function

See Parameter.

G

Gamut

The range of colours that a fixture is capable of producing. Each fixture type has its own gamut. See - SPD, Spectral Curve

Gobo

Image placed within the optical system of the fixture, projected onto lit object. Also known as a pattern.

Graphical User Interface

A way of displaying information, and allowing the user to work with it, in a visual form. Most personal computers use a GUI with windows, buttons and a pointer. See Also: Command Keys.

Group

Pre-recorded fixture selections, complete with selection order information stored in the group directory. Groups allow the quick selection of multiple fixtures, and, like ordinary fixture selections, can be combined and manipulated in a variety of ways.

GUI

See Also: graphical user interface. See Also: Graphical User Interface.

H

Hard Value

The output of a master running a cuelist is a mix of hard and soft parameter values. Hard values are those that are in the current cue, while soft values are those that have tracked through from previous cues. See Also: Tracking.

HID Mode

A special mode for the console front panel that allows it to be used as a keyboard during a full software install. Pig + Fan+ Up Cursor Key puts the front panel into HID Mode. Pig + Fan+ Down Cursor Key takes the front panel out of HID Mode and puts it back into Hog mode.

HTP

Highest Takes Precedence (HTP): In this system of operation, the highest value assigned for a parameter is the one that applies. A fixture can be in cues on two masters, and the highest level of the two will be the one seen. HTP is only relevant to intensity parameters where the idea of ‘highest’ has meaning. See Also: LTP.

Hue

The colour (pigment) element of colour notation. See Also: Saturation.

I

I-Wheel

The I-Wheel on the right hand side of the console is used to control fixture intensity.

In Time

The time of the fade up of the incoming cue during a crossfade. All fixtures that are increasing in intensity will come up over this time. See Also: Split Fade, Path, Fade Time.

Inhibitive Submaster

A master that sets a maximum level on a group of fixtures. If the master is at 80%, then the fixtures will never come above 80% in the console's output.

IP Address

On an Ethernet network, each Hog component has an address, called an IP address, used to identify it. You can usually use the default addresses, but if you are connecting to an existing network you may need to specify a different address, according to how your network is configured. See Also: Ethernet.

K

Key

A physical button on the console's front panel. The manual reserves the word "button" for buttons that appear on screen.

Kinds

Kinds are collections of fixture functions organized into wheelsets. Kinds are stored in the kinds directory and exist in two different forms: fixed kinds and user kinds. See Also: Fixed Kind, User Kind.

Knockout

Knocking out is the process of removing fixtures from the Programmer window, so that they will not be recorded into cues.

L

LTP

Latest Takes Precedence (LTP): In this system of operation, the most recent instruction to assign the value of a parameter is the one that applies. A cue run on one master can take control of fixtures set by a cue in another master. See Also: HTP.

M

Maintain State

The Hog 4 OS's Maintain State feature eliminates the common problem with tracking, where playing back cues out of order results in incorrect

lighting states on stage. See Also: Tracking.

Mask

A method of selecting information that is specific to a palette, fixture, cue, scene or group, when recording, making selections, editing, programming, or playing back cues/scenes. For example the fixed function kinds can be used to mask which function kinds (intensity, position, colour and beam) get record into a cue or palette.

Master

Master is a generic term that can be used to refer to any cuelist, scene, or chase in the show. When a cuelist, scene, or chase is assigned to one of the choose keys on the console it is know as a "physical master"; otherwise it is referred to as a "virtual master". See Also: Cuelist.

Master Wing

A Hog accessory that increases the number of physical masters available on the console by 30. See Also: Master.

Media Picker

A graphic user interface window that displays selectable thumbnail previews of slotted content for the current fixture selection. See Also: CITP.

MIDI

Musical Instrument Digital Interface (MIDI): Allows communication of musical notes, programs and timing data between electronic instruments and other devices such as lighting consoles. See Also: Timecode.

Midi Show Control

Subset of MIDI used in the entertainment industry for integrated control of lighting, sound and stage automation.

Mix Brightest

A setting applied in the programmer or an editor that prefers to solve the preview color while keeping the perceived brightness constant.

Mix Spectral

A setting applied in the programmer or an editor that preferers to determine the preview color while favoring a matching chromaticity level. Perceived intensity may not be constant with this setting.

Modifier

A key that is used in conjunction with other keys or buttons, to change the effect that it has. For example, the Pig key. See Also: Pig Key.

Multicast

A network protocol or language that computers use to talk to each other over Ethernet. Hog 4 OS uses this standard protocol, which means that it can safely be connected to other networks of computers and will not interfere with them. For show-critical situations you should run Hog system on its own independent network. See Also: Ethernet.

N

Net Number

The number that identifies the console when it is operating as part of a network.

Node

Network nodes are items of equipment connected to the network. Consoles, DMX Processors and Hog 4 PC systems are all nodes. See Also: DMX Processor.

O

On Stage

The output of the console; more specifically, the fixtures that have non-zero intensities.

Open Sound Control (OSC)

A protocol for communication among computers, sound synthesizers, and other multimedia devices that is optimized for modern networking technology.

Out Time

The time of the fade of the outgoing cue during a crossfade. All fixtures that are decreasing in intensity will go down over this time. See Also: Split Fade, Path, Fade Time.

P

Page

A preset arrangement of cuelists residing on the masters. Pages can be changed allowing masters to be used by many cuelists.

Palette

A stored parameter setting, such as position, for one or more fixtures. Fixtures of different make or type may share the same palette. See Also: Directory.

Parameter

A controllable property of the light produced by a fixture. For example a fresnel has one attribute: intensity. Moving fixtures have pan and tilt parameters and perhaps colour, beam shape, and so on.

Parameter Wheel

A wheel that facilitates the control of fixture parameters. Parameter Wheels are fixture sensitive: once loaded from the fixture library, parameters are allocated logically to the wheels.

Patch

The assignment of DMX addresses to fixtures. See Also: DMX.

Patch Point

The set of information that defines where a fixture is patched, including DMX address, DMX universe, and DMX Processor. Some fixtures have multiple patch points. See Also: DMX, DMX address, DMX Processor.

Path

A way of defining the way that a parameter changes during a fade. You could assign a path that makes the fixture parameter snap to its final value at the start of the fade, for example. Paths should not be confused with conversion curves; paths are the properties of a cue, while a conversion curves is the property of a fixture. See Also: Fade Time, Conversion Curve.

Pig Key

The Pig key is a modifier key, and may be used in conjunction with other keys to alter their function.

Pile On

A system where new objects are added to previous ones, rather than replacing them. Hog 4 OS can be assigned to pile on desktop views, so that new windows are opened but ones from the previous view are not closed.

Pixelmap

Rectangular plot objects which can be used to map the pixels of rich media content (photos and videos) onto lighting fixtures through a process known as PixelMapping.

Pixelmap Layer

A programmable fixture that is used to send media content to a PixelMap.

Playback Wing

A Hog accessory that increases the number of physical masters available by 10. See Also: Master.

Plot

A user created graphical layout that contain programable objects such as fixtures and PixelMaps. Plots can be used to select fixtures, gather fixture feedback, and apply PixelMapping values to fixtures.

Point Cue

A cue who's number contains a decimal point. Point cues are initially given whole numbers, but a point cue can be inserted between two whole number cues. For example, cue 2.5 is a point cue between cues 2 and 3.

Port Number

On a computer network, the port number defines a particular type of network traffic. In the case of a Hog network, each show running on the network has its own port number, so that a console can identify and connect to a particular show.

Preview Color

The preview color is the result of the color mixing system. It is the spectral curve that the operator is requesting the fixture create and is established through an operator’s manipulation of the color mixing controls. See Also: Virtual Color

Programmer

A window where cue and scene data is created or edited. The Programmer takes priority over all commands sent to a fixture elsewhere in the console.

R

Rate

The adjusted speed at which a recorded cuelists, scenes, chases, and effects are played. For recorded chases rate is represented in beats per minute. For recorded cues, scenes, scenes, and effects rate is represnted in percentage. For example, a 2s cue will playback in 4s when the cuelist it is part of has a rate of 50%.

Rate Wheel

The wheel on the left hand side of the Hog 4 console and Hog 4 PC used for adjusting playback and effect rates.

Remainder Dim

Used after selecting a fixture or group of fixtures, setting all remaining fixtures to a zero intensity level.

Saturation

The amount of pigment in colour notation. See Also: Hue.

Scene

A single cue stored in the scene directory that has full timing features but does not belong to a cuelist. Scenes can be used to store a single look that may be called back for use in later programming, or to play back many simple looks directly from physical or virtual masters. See Also: Cue, Cuelist.

Selection Order

The order in which the user selects fixtures into the Programmer or editor. Hog 4 OS remembers this and can apply fanning, or effects according to a fixture's place in the sequence. The sequence is recorded as part of groups and palettes. See Also: Group, Palette.

Show Server

The Hog console that ‘owns’ a show. Other consoles may join the show, but the original console that created the show will remain the show server.

Slot

A discrete step in a parameter's range, such as the position of a gobo wheel.

SMPTE

Short for SMPTE timecode, A form of data communication that can be used to synchronize the operation of various controllers, for example synchronizing lighting to video playback.

Soft Key

The Soft Keys are the row of keys above and below the touchscreens. They mimic the function of toolbars docked along the edge of the screens. See Also: Toolbar.

Soft Parameter Value

See Also: Tracked Value.

SPD Graph

The SPD graph in the Color Picker Window shows the spectral distribution of the first fixture in current selection. Each physical color mixing component of the fixture is represented by a color coded line that indicates how the component effects the light output of the fixture. See Also: Spectral Power Distribution

Spectral Curve

The spectral curve is a visualization of a light source based on its output across all wavelengths, See Also: SPD

Spectral Power Distribution (SPD)

Spectral Power Distribution or SPD, is a graph of the wave energy at a specific wavelength. The SPD graphic helps visualize the components of a light source, which heavily influences the perceived color of an object.

Split Fade

A crossfade where the incoming and outgoing cues have different times, causing an imbalanced or dipped fade profile. See Also: Crossfade, In Time, Out Time.

Spreadsheet

A way of displaying values in a grid. Hog 4 OS editor windows use a spreadsheet to display parameter values.

Stage Value

The real world behavior of a fixture, or other equipment with respect to commands being sent from the control system. For example, a dimmer that is being sent a control signal to output at 50% would be described as having a stage value of 50% intensity.

Suck

A console function that will put any values that are "on stage" (in playback from a master) for the selected fixtures into your current active editor.

Switch

When you want to connect more than two Hog components together, then you need a special piece of equipment to allow them to interconnect called an Ethernet Hub or Ethernet Switch. See Also: Ethernet.

T

TCP/IP

Transmission Control Protocol (TCP) / Internet Protocol (IP): Commonly referred to as TCP/IP, is the network protocols that computers use to talk to each other over Ethernet. Hog 4 OS uses these standard protocols, which means that it can safely be connected to other networks of computers and will not interfere with them. For show-critical situations you should run the Hog system on its own independent network. See Also: Ethernet.

Timecode

A method of synchronising the console with other playback sources, such as music, video or film. Hog 4 OS supports MIDI, Linear Timecode and Video Timecode. See Also: MIDI, SMPTE.

Timing

Cues have several values that control timing: fade, wait, delay and path. See Also: Fade Time, Wait Time, Delay Time, Path.

Toolbar

A long, thin window with a series of buttons, that generally sits along the top or bottom edge of the screens. When in this position, a toolbar is said to be ‘docked’. See Also: Soft Key.

Touch Screens

The two LCD screens on the console, which display and allow the user to select information from them.

Touched Value

A parameter value that has been assigned or edited by the user. Values which are not touched will remain at their default value. See Also: Default Value, Tracking.

Tracked Value

The output of a master running a cuelist is a mix of hard and tracked parameter values. Hard values are those that are in the current cue, while tracked values are those that have tracked through from previous cues. See Also: Tracking.

Tracking

A method of dealing with cuelists that does not record information in a cue unless it is a change from the previous cue. This allows multiple cuelists to be running at the same time without them interfering with each other. See Also: Hard Value, Tracked Value, Touched Value, Default Value.

U

UDP

User Datagram Protocol (UDP): A network protocol that computers use to talk to each other over Ethernet. Hog 4 OS uses this standard protocol, which means that it can safely be connected to other networks of computers and will not interfere with them. For show-critical situations you should run the Hog system on its own independent network. See Also: Ethernet.

USB

Universal Serial Bus (USB): A means of connecting computer peripherals such as keyboards and mice. Hog consoles also use USB to connect expansion wings. See Also: Playback Wing.

User Kind

User kinds are customized kinds built by the user, allowing you to create smaller collections of fixture functions on fewer wheelsets. See Also: Kinds.

V

v-Blue

A virtual color mixing control parameter, short for Virtual Blue. This parameter is used in the the RGB color space. See Also: Color Space - RGB

v-CIE-x

A virtual color mixing control parameter; short for Virtual CIE x. This is one of the three functions used to establish a color in the xyY color space. See Also: Color Space - xyY

v-CIE-y

A virtual color mixing control parameter; short for Virtual CIE y. This is one of the three functions used to establish a color in the xyY color space. See Also: Color Space - xyY

v-CIE-Y

A virtual color mixing control parameter; short for Virtual CIE Y. This is one of the three functions used to establish a color in the xyY color space and is commonly associated with the perceived brightness of the color. See Also: Color Space - xyY

v-Green

A virtual color mixing control parameter, short for Virtual Green. This parameter is used in the the RGB color space. See Also: Color Space - RGB

v-Hue

A virtual color mixing control parameter, short for Virtual Hue. This parameter is used in the the HSV color space. See Also: Color Space - HSV

v-Red

A virtual color mixing control parameter, short for Virtual Red. This parameter is used in the the RGB color space. See Also: Color Space - RGB

v-Saturation

A virtual color mixing control parameter, short for Virtual Saturation. This parameter is used in the the HSV color space. See Also: Color Space - HSV

v-Value

A virtual color mixing control parameter, short for Virtual Value. This parameter is used in the the HSV color space. See Also: Color Space - HSV

View

An user-defined arrangement of windows that can be accessed with a single button press from the View Toolbar.

Virtual Color

A set of color mix parameters that are not related to a connected to a physical fixture. Parameter values established by the operator are used to create the preview color using color space tools. The conversion to actual physical components of the output device happens at the output stage. See Also: Color Space - HSV, Color Space - RGB, Color Space - xyY

Virtual Master

A playback object (cuelist, scene, batch, or group) that is not attached to a physical master on current page but can still be executed by other means such as the command line or directory window. See Also: Cuelist, Master.

Virtual User Number

When more than one dotted user number fixtures share a common whole number, that whole number is considered to be a virtual user number for those fixtures if no other fixtures in the show are assigned to just that pure whole number.

Visualizer

A real-time computer rendering package, that allows the Programmer to create their lighting virtually before getting to the venue.

W

Wait Time

The time between the previous cue being triggered and the current one being run automatically. Not to be confused with the delay time. See Also: Delay Time.

Wheelset

The building blocks of both fixed kinds and user kinds that specify how fixture functions assigned within a kind are displayed on the console's main encoder wheels when a fixture selection is made. See Also: Kinds.

White Point

A definition of white light used by Hog 4 OS's colour calibration system to match the colour of fixtures with different lamp types, such as tungsten and arc.

Widget

A device that allows the connection of accessories to the console or PC via USB. Such accessories may range from input control panels to DMX outputs. See Also: USB.

Z

Zoom

Allows the size of beam/ image to be adjusted whilst maintaining its focus.

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6111M1200-5.3.0 Rev A Released 2026-Oct