Eos Family Console Programming

Level 3: Intermediate

Workbook

V3.0 Rev. A

www.etcconnect.com/education

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Purpose of the Class

The class is intended for people who are well versed in Eos Family terminology, already know the layout of the desk, and are experienced conventional and intelligent fixture programmers. This class is intended to build on your knowledge, and make you faster.

LEARNING OBJECTIVES:

After completing this class, users should be able to:

- Use, store, and recall advanced displays
- Use advanced patch functions, such as copying and moving show data, editing fixture profiles, and creating keywords
- Use advanced selection and manual control features
- Define and use Highlight, Lowlight, and custom RemDim
- Use the fan function on encoders, the command line, and for references
- Control multiple-intensity fixtures
- Apply and store filters
- Use manual playback functions like Make Null, Make Manual, Capture
- Use advanced palette and preset modifiers
- Use advanced cues, like Multipart, and multi-list
- Create and use Macros
- Utilize intermediate Magic Sheet skills

SYNTAX ANNOTATION

- **Bold**   Browser menus
- **[Brackets]**   Facepanel buttons
- **{Braces}**   Softkeys and direct selects
- **<Angle brackets>**   Optional keys
- **[Next] & [Last]**   Press & hold simultaneously
- **«Direct Select»**   Direct Select button press
- **⌈MS Object⌉**   Object on a Magic Sheet

- **Play Icon**   Link to video on ETC's YouTube Channel - ETCVideoLibrary

HELP

Press and hold **[Help]** and press any key to see:
- the name of the key
- a description of what the key enables you to do
- syntax examples for using the key (if applicable)

  As with hard keys, the "press and hold [Help]" action can be also used with softkeys and clickable buttons

THE MANUAL

The manual is available on the console, Tab #100.

Click on Add-a-Tab (the {+} sign) , select Manual

Hold [Tab] & press [100]

Please note that it is not available on Windows XP devices or on Macs but is available as a download from the web site.

▶ Merge Show File Data

Merging show files is how we bring data from another show file into our current show file.

MERGE COMPLETE TARGET LISTS

|	
From [Live}, [Go To Cue] [Out] [Enter]	start with a blank stage
[Displays], {Browser}, File > Merge, select a show, and press [Select]	opens main Merge screen

By default, all items are unselected. Selected items will turn gray. Incoming targets will overwrite existing targets if they share the same number.

ADVANCED MERGE

{Advanced} allows you to select specific ranges of the targets and place them where you want them in the current show file.

- **Start** - The first in a range (such as a range of groups).
- **End** - The last in a range of components.
- **Target** - The desired location of the components in the new show file (for ranges, this will be the location in the new show of the first component in the range. The others will follow in order).
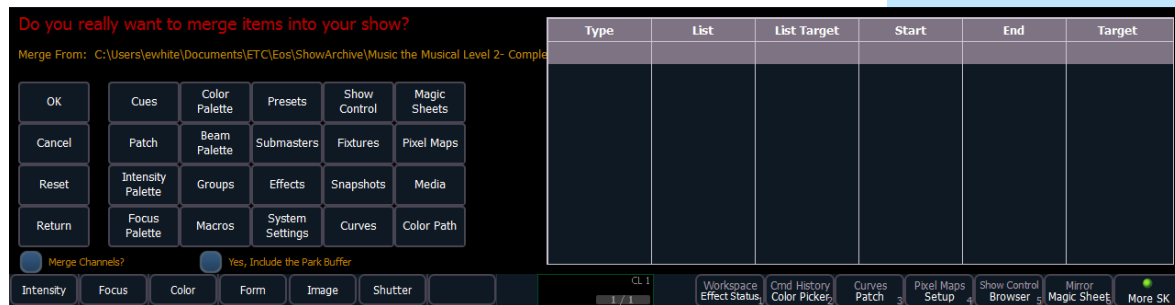
{Groups}	selects what you want to merge
{Start} [6]	selects the starting number of the range from the stored show
[Page▶] to the End column, [23]	sets the ending number of the range
{Target} [206]	sets starting location in current show
{Cues}	selects what you want to merge
{List} {3}	from Cue List 3 in the stored show
[Page▶] to {List Target} {103}	going into current show as Cue List 1
[Page▶] to {Start} [1]	selects the starting number of the range from the stored show
[Page▶]to the End column, [5]	sets the ending number of the range
{Groups} [91] [Page▶] [95] or {Groups} [91] [Thru] [95]	multiple ranges of the same targets
Don't hit {Ok}!!! {Cancel}	to go back to main Merge screen

{Return} goes back to the full target display of Merge

▶ PATCH A MULTI-CELL FIXTURE

Some fixtures have multiple segments, or cells, that can be individually controlled within a single fixture. For example, many linear LED fixtures have the ability to control different sections independently within the fixture, allowing us to assign a range of colors or intensities across one device. There are also some models of moving lights that have multiple moving parts within a single fixture. These types of fixtures can create dynamic effects and unique stage looks – but first we have to patch them as multi-cell fixtures.
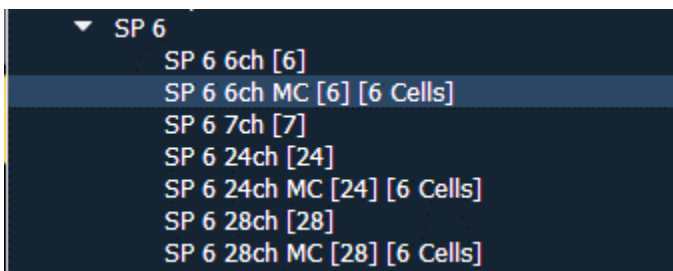
In Patch

[291] [Thru] [295] [Enter] {Type}	selects the channels
Find SGM SP 6 (6) in mode, select 6ch MC [6] [6 Cells]	assigns the fixtures to the channels – notice the parts (.1, .2…)


```
  ▼  SP 6
        SP 6 6ch [6]
        SP 6 6ch MC [6] [6 Cells]
        SP 6 7ch [7]
        SP 6 24ch [24]
        SP 6 24ch MC [24] [6 Cells]
        SP 6 28ch [28]
        SP 6 28ch MC [28] [6 Cells]
```

Notice two options same footprint, but second has MC 6 cells

[At] [4] [/] [411] [Enter]	assigns addresses to cells

Note addresses are assigned to cells, not to Master Cell. Sometimes Master and cells are labeled differently - pixels

[Live] and look at [291] [Enter]

CHANGING EXISTING TO MULTICELL

In Patch [Group] [22] {Unpatch} [Enter] DON"T HIT ENTER AGAIN	notice the message

Notice it will remove all non-intensity parameter show data – we don't want to do that!

[Clear]

{Type} Color Force II 72 RGBA x4 OFF MC [24] 6 cells	no need to change addresses
[Live] and look at [Group] [22] [Enter] or [301] [Enter]	

Patch Exercise - see Appendix 1

Go to Appendix 1 – Channel Hookup in the back of the book to verify the patch and add the additional channels (Ignore Notes/labels).
When done, do a Channel check and then save your show.

CHANNEL/ADDRESS CHECK

[Live] [111] [Full] {Chan Check} [Enter] then [Next] … [Next] …	quickly steps through all patched channels at 100%

UPDATE THE HOME PRESET

[Clear] [161] [Thru] [168] [Full] [Enter] Tip up on stage …	
[Select Last] {Focus} {Update} {Preset} [999] [Enter]	update Home Preset to include these channels on stage

SAVE AS

Please save the show file with a new name using Save As:

[Displays], {Browser}, File > Save As > and select Show File Archive	
Do you really want to save? [Select] or click {OK}.	
Press [Label] to clear "Show File…"	
Enter a new show name	Please do not overwrite the existing.
[Enter] on either console or keyboards.	

DON'T FORGET! QUICK SAVE

[Shift]&[Update]	quick save

▶ Patch Features

COPY CHANNELS IN PATCH

When you copy a channel in Patch, only the patch information is copied to the target channel(s) – type, labels, all attributes, interface, and database information.

Recall Snapshot 1	
In Patch, [101] [Copy To] [106] [Enter]	copies only the fixture type (no address) to new channel

To copy show data for a channel, use softkey modifiers. This will copy all show data for the copied channels including data in cues, submasters, palettes and presets, effects, and groups.

[101] [Copy To] [107] {Plus Show} [Enter]	copies the patch and all show data to new channel
[101] [Copy To] [108] {Only Show} [Enter]	copies only the show data to new channel, and doesn't copy any patch info
[Blind], [Format] to Spreadsheet, and be in Flexi-Active state	
[101] [Thru] [108]	can see levels are copied
[Shift]&[Format]	to hide non-intensity parameters
Back in Patch, [101] [Copy To] [109] {Only Text} [Enter]	copies only the database information

MOVE CHANNELS IN PATCH

When you move a channel in patch, you are essentially renaming it from one channel number to another. All show file information and patch information is moved to the target channel, as well as park information for the channel(s).

[106] [Copy To] [Copy To] [110] [Enter]	moves channel's show and patch information to new channel

NOTE: **Certain show information will not get copied or moved when executed through Patch. This includes channel numbers called in macros, and channel objects in Magic Sheets and Pixel Maps.**

NOTE: **When copying a channel, park information from the origin channel does not copy to the target channel(s). However, when moving a channel, the move will be made in Park as well.**

[Blind] [Focus Palette] [1] [Enter], in Table View	see that 107 is now in Focus Palette 1
[Group] [Group]	
Notice that Group 5, 23 and 99 have extra channels in them	
[Group] [5] [+] [Group] [23] [+] [Group] [99] [Enter] [-] [107] [Thru] [108] [Enter]	remove channels from these groups for future operations

▶ Database & Keywords

Each part of a channel can be assigned one note and up to ten keywords. These can be used to inform operators locally regarding attributes of the fixtures, working notes, or to assist with Query operations. Notes can accept paragraph-form text and are not utilized when using the [Query] function. Keywords can be defined in notation-style and can be searched with [Query].

In {Patch}, {Database}	navigates to the Database area of Patch

ADDING NOTES TO A CHANNEL OR PART

[1] {Notes} Hung sideways from catwalk [Enter]	selects channel 1 and adds the note
[152] [Thru] [154] [Part] [2] {Notes} rental units [Enter]	selects part 2 of channels and adds note

These notes are only visible in the About Channel display.

ADDING GEL NOTES

[1] [Thru] [10] {Gel} R33 [Enter]	adds text and a color swatch
[201] [Thru] [209] {Gel} L201 [Enter]	adds text and a color swatch

ADDING KEYWORDS TO CHANNELS OR PARTS

From a clear command line – [Shift]&[Clear]	
{Text1} [Label] Lamp [Enter]	changes Text1 to Lamp
{Text2} [Label] Position [Enter]	changes Text2 to Position
{Text3} [Label] System [Enter]	changes Text3 to System
[1] [Thru] [10] {Lamp}	selects channels and text field
{New Keyword} 575W [Enter]	adds the new keyword to the database and automatically fills in text field
[131] [Thru] [134] [+] [141] [Thru] [144] [+] [151] [Thru] [154] [+] [161] [Thru] [164] [+] [171] [Thru] [174] {Position}	selects channels and text field
{New Keyword} SL Booms [Enter]	adds the new keyword to the database and automatically fills in text field
[135] [Thru] [138] [+] [145] [Thru] [148] [+] [155] [Thru] [158] [+] [165] [Thru] [168] [+] [175] [Thru] [178] {Position}	selects channels and text field
{New Keyword} SR Booms [Enter]	adds the new keyword to the database and automatically fills in text field
[131] [Thru] [138] {System} {New Keyword} Head High [Enter]	
[171] [Thru] [178] {System} {New Keyword} Shins [Enter]	

KEYWORD BEST PRACTICES

- Keywords are helpful if they are concise and consistent. Having keywords such as "S4 19deg" is easy to understand, but having another keyword "S4-19" will make it difficult to use **[Query]** to find channels that you want. Re-use keywords that you have already established for similar fixtures.

▶ Query

[Query] is used to find and select channels that meet conditional criteria and keywords. Query will always result in either a channel selection or an error (if no channels meet the criteria).

Back in Live, **[Go To Cue] [Out] [Enter]**	
[Record] [100] [Time] [2] [Block] [Assert] [Label] Blackout [Enter]	
[Group] [1] [At] [5] [Time] [7] [Enter]	set up some channels to use with Query
[Group] [2] [At] [75] [Enter] [Color Palette] [6] [Enter]	
[Group] [20] {Offset} {Mirror In} [At] [10] [Thru] [Full] [Enter]	
[Color Palette] [6] [Enter]	
[Group] [5] [At] [80] [Enter] [Focus Palette] [1] [Enter]	
[103] [Full] [Full]	
[Record] [101] [Time] [3] [Enter]	Records new look

BASIC QUERY

Be in Live Summary View, press [Displays] to open CIA	
[Query] [At] [75] [Enter]	selects all channels currently at 75%
[At] [50] [Enter] [At] [Full] [Enter] [Update] [Enter]	takes them to 50%, and then to Full

QUERY WITH KEYWORDS

[Query] {Text} {575W} [Enter]	keywords displayed in CIA - selects all channels with a 575w lamp
[Query] {Text} {SL Booms} [Enter]	
[Query] {Text} {SR Booms} {Fixture Type} {Scroller} [Enter]	selects all channels in the SR Booms that are scrollers
[Full] [Full]	turns them on
[Sneak] [Enter]	and sneaks them back out

Check out all the options for Query in the CIA: the parameter tiles, Default, Text and Fixture Types.

QUERY SOFTKEYS

{IS IN} & {ISN'T IN}

The specified channels or parameters that <u>are</u> or <u>are not</u> currently at a specific value:

[Query] {Is In} [Color Palette] [6] [Enter]	selects all channels currently in Color Palette 6
[Query] {Is In} [Focus Palette] [1] [At] [Full] [Enter]	selects one channel (103) in Focus Palette 1 with an intensity of Full
[1] [Thru] [50] [Query] {Isn't In} [Time] [7] [Enter]	selects channels in range that do not have a time of 7

QUERY AND FLEXI

[Live], [Format], and change the Flexi state to Selected

Remember a standard command line selection will return different values based on your Flexi State. Query ignores that Flexi state and returns any channel that meets the criteria of the query.

OTHER QUERY MODIFIERS

{MOVES ONLY}

Finds anything in the current cue that has a move instruction

[Query] [Cue] [5] {Moves only} [Enter]	looks for anything that has a move instruction in Cue 5

{UNPATCHED}

Finds channels that are not patched or do not have an address in Patch

[Query] {Unpatched} [Enter]	
[Query] {Unpatched} {Is In} [Cue] [1] [Thru] [Enter]	looks for anything that is stored in the selection but is unpatched

Query ends in one of two ways: 1) channel selection that meets the query or 2) an error message – no channels meet the query

[Query] [At] [40] [Enter]	will return an error
[Shift]&[Clear]	to remove error

OTHER QUERY MODIFIERS

- Can Be -
- Or
- Less Than (includes equal to)
- Mark (cue where the intensity is active)
- Marking (future cue)
- Up Moves
- Live Moves
- Block
- Assert
- Park
- Capture

- Can't Be -
- Moves Only
- Greater Than (includes equal to)
- Broken Mark
- Track
- Down Moves
- Dark Moves
- Autoblock
- Part
- Delay

QUERY BEST PRACTICES

- Query results are not altered by Flexi – it will select channels that are true even if they are not in the current flexi view.
- Query works great in Blind Spreadsheet.
- Save frequently used Queries as macros for quick dynamic channel selection.

▶ Macros

A Macro is an automated series of console actions. Macros are a way to automate repetitive, complex or hard-to-reach commands in the desk.

LEARN A MACRO

[Live] [Learn] [1] [Enter] places console in Learn mode	button flashes green, "Learning Macro 1" flashes above CIA command line
[Stop Effect] [Enter] then hit [Learn]	records 'Stop Effect' command as macro
[Group] [99] [Enter]	
[Learn] [2] [Enter] [Select Last] {Saturation} [At] [/] [90] [Enter] [Learn]	
[Learn] [3] [Enter] [Select Last] [Record] [Focus Palette] [Next] [Enter] [Learn]	records macro that records last selection of channels into a new focus palette

RECALL A MACRO

Recall Snapshot 2	to see the color picker and Direct Selects
[Group] [2] [Thru] [4] [Full] [Rem Dim] [Enter] [Color Palette] [1] [Enter]	will make color less saturated
[Macro] [2] [Enter]	macro makes the color less saturated
[Macro] [2] [Enter]	less saturated again

DESK SETTINGS IN MACROS

[Displays] {Setup} {System} {Remotes}	to be in right place to record macro
[Learn] [4] [Enter] {Allow Remotes} [Learn]	remember this is a toggle option

NOTE: In addition to calling a macro on the command line, macros can be called by a direct select, magic sheet button, a cue execute, a system command, or a connected show control system.

▶ MACRO EDITOR DISPLAY

The Macro editor display allows you to edit macros, and access softkeys that aren't available from all areas of the desk.

[Macro] [Macro]	opens macro editor
[1] [Label] Stop FX [Enter]	label the macros
[Next] [Label] Desaturate [Enter]	
[Next] [Label] Rec Next FP [Enter]	
[Next] [Label] RFR Enable [Enter]	
Select macro 4, press {Edit} or [Learn]	enters Edit mode for the macro
Using [Page ◀] and [Page ▶] to select "Clear_CmdLine"	
Use the softkey {Delete}	

[Page ▶] to ◆,   Find "Enable" in the "Common" section in the CIA

[Learn]

[4] [Copy To] [5] [Enter]

{Edit},   highlight "Enable", {Delete}, Add {Disable}

Don't forget {Done}!!   exits Edit mode for the macro.

[Label] RFR Disable [Enter]

NOTE: Cursor can be moved using page left and right keys. In Edit mode, only your page arrow keys, Escape, Select, and softkeys will not post to the Macro. All hard keys and CIA softkeys will post into the macro and play back each time the macro is called.

Macro	Label		Macro Contents
1	Stop FX		StopEffect ♦
2	Desaturate		Select_Last Saturation @ / 9 ♦
3	Rec Nex FP		Select_Last Record Focus_Palette Next ♦
4	RFR Enable		RFR Enable ♦
5	RFR Disable		RFR Disable ♦

▶ Custom Direct Selects

Custom direct selects allows you to select multiple targets to display in the same bank of direct selects.

[Snapshot] [2] [Enter]	**(Groups and Color Picker)**	recalls Snapshot 2
Press {Groups}, and choose {Custom} for the Direct Select bank		a bank of 10 x 5 appears

ASSIGNING TARGETS

- After selecting **{Custom}**, the direct selects display as being empty.
- Either tap on a direct select to open the configuration window, or use the command line.
- From the configuration window, select the target type, and the starting and ending target numbers for a range.

Touch a Direct Select button	
In the popup configuration window, select target type: Color Palette, start 1, and then Okay	drops in Color Palette 1
On the command line, [Color Palette] [2] [Thru] [7] [Enter] and double touch the next Direct Select	drops in the rest of the Color Palettes
[Group] [1] [Thru] [5] [Enter], double touch a Direct Select button	drops in the Groups
[Clear]	
[Intensity Palette] [1] [Enter], double touch a Direct Select button	drops in Intensity Palette 1

Note: **To assign a range of channels to the direct selects, you can also use the configuration window. From the command line, you can only assign one channel at a time.**

CLEARING CUSTOM DIRECT SELECTS

Use **[Escape]** to clear custom direct selects:

Hold down [Escape] and then press the first Group Direct Select	clears the first group direct select
Hold down [Escape] and then press (long) the next Group Direct Select in the range until a red X appears	
With [Escape] still held down, press the last direct select of the range.	clears a range of direct selects
[Focus Palette] [1] [Thru] [5] [Enter], put where Groups were	

In preparation for the next exercise:

Replace the Color Picker Tab with a Direct Select tab, and make them Groups	creates 2 frames of Direct Selects, one Custom and one Groups
[Record] [{Snapshot}] [3] [Enter] [Enter]	notice both Direct Selects and Custom DS are enabled to be stored by default.

CUSTOM DIRECT SELECTS ADDED TO SNAPSHOTS

A **{Custom DS}** button has been added to the Snapshots List. When **{Custom DS}** is enabled, a snapshot will recall the targets that each of the custom direct select buttons are mapped to, unless the snapshot does not have custom direct select button mapping.

When **{Visible Workspaces}** is enabled, **{Direct Selects}** and **{Custom DS}** are enabled by default.

▶ Multi-Cell Channels

WORKING WITH MULTI-CELL FIXTURES IN LIVE

[Live] if you are not already there	Be in Table View!
[Go To Cue] [Out] [Enter]	
Notice for these fixtures the cells are at Full by default	
[301] [Enter]	selects Master and cells
[301] [.] [Enter]	posts channel cells only on command line – Cells only selected
[301] [Shift] & [.] [Enter]	posts channel minus cells on command line – Master Cell only selected
[.] [0] selects just the Master cells - same as [Shift]&[.]	
[301] [Full] [Full]	full intensity in Master cells, lights on
[Out]	takes lights out
[301] [Thru] [312] [Full] [Enter]	lights on
[301] [Thru] [312] [.] [Full] [Thru] [10] [Enter]	fans intensity across individual cells, master still at full
[Select Last] [Full] [Full]	

USING OFFSET WITH MULTI-CELL CHANNELS

[Select Last] {Offset} [4] [Out]	notice channel selection
[Select Last], [Clear] to remove the 4, {Mirror Out} [Full] [Thru] [10] [Enter]	
[Clear] [Sneak] [Enter]	takes all light out

FLEXICHANNEL MODE

[301] [Thru] [312] [Enter], then hold [Flexi]	to see Cells off and Masters Off

- **Cells Off** – collapses the individual cells, can also use **[Flexi]&[.]**
- **Masters Off** – collapses the Master cell, leaving only the individual cells

[Format]	to go to summary view
Hold [Flexi], select {Cells off}	to see Cells off and Masters Off
Channels that have cell intensities that are differnet from the master are displayed with a '+'	
[Snapshot] [1] [Enter]	recalls Snapshot 1

Multicell Channels in Groups

[Group] [Group]	to go into the Group List
[Group] [31] [Enter], [301] [Thru] [312] [Enter]	to create a group of the whole multicell fixtures
[Label] MC Whole [Enter]	
[Group] [32] [Enter], [301] [Thru] [312] [.] [Enter]	to create a group with the cells only of the selected multicell fixtures
[Label] MC Cells [Enter]	
[Group] [33] [Enter], [301] [.] [1] [Thru] [306] [.] [3] [Enter]	to create a group with the cells only of the selected multicell fixtures
[Label] Cyc Cells SL [Enter]	
[Group] [34] [Enter], [301] [Thru] [312] [Shift]&[.] [Enter]	to create a group with only master cells
[Label] MC Minus Cells [Enter]	
[Group] [35] [Enter], [301] [Thru] [312] [.] {Offset} {Mirror Out} [Enter]	using offset
[Label] Cyc Top Cells Mirror Out [Enter]	
[Group] [35] [Copy To] [36] [Enter]	creates a copy of the group
[Group] [36] [Enter], {Reverse} [Enter]	reverses the content of the group
[Label] Cyc Top Cells Mirror In [Enter]	
[Group] [41] [Enter]	
[301] [Thru] [312] [+] [351] [Thru] [362] [.] {Offset} {Mirror out} [Enter]	
[Live] [Group] [22] [Full] [Full]	
[Group] [41] [Color Palette] [2] [+] [7] [Enter]	that's not what we want!
Mirroring out entire selection, want them to mirror out in pairs	
[Group] [Group]	
[Group] [41] [Enter]	
[301] [Thru] [312] [+] [351] [Thru] [362] [.] {Offset} {Mirror out} {Chan per group} [2] {Interleave} [Enter] [Enter]	
[Live]	
[Group] [41] [Color Palette] [2] [+] [7] [Enter]	mirrors out in pairs across cyc
[Group] [Group]	
[Group] [41] [Label] Full Cyc Mirror Out [Enter]	
[Group] [41] [Copy To] [42] [Enter]	
{Reverse} [Enter]	
[Group] [42] [Label] Full Cyc Mirror In [Enter]	

▶ Manual Control

REMDIM

RemDim can be used to take all active channels that are not in a selection, and force them to a lower level.

ABSOLUTE REMDIM

Recall Snapshot 1 [Live] [Go To Cue] [Out] [Enter]	
[1] [Thru] [5] [Full] [Full]	turns on channels
[1] [At] [5] [RemDim] [Enter]	puts channel 1 at 50, and forces all other channels to 0
[5] [Thru] [2] [At] [1] [Thru] [3] [Enter]	sets channels at different levels
[10] [At] [5] [RemDim] [20] [Enter]	puts channel at 50, and any channels that are above 20 to 20, any values below 20 stay at their previous value
[RemDim]	toggles RemDim off – only works once, immediately after a RemDim command is completed (mini Undo)

PROPORTIONAL REMDIM

[1] [Thru] [10] [At] [50] [Enter]	puts channels at 50
[Group] [2] [At] [75] [RemDim] [/] [50] [Enter]	puts selected channels at 75, and puts all other channels at 50% of their previous level

▶ HIGHLIGHT & LOWLIGHT

Highlight mode allows you to put fixtures into a temporary, pre-defined state. You can use the desk's defaults for Highlight, or define your own Highlight, Lowlight, and Highlight RemDim behaviors.

USING HIGHLIGHT MODE

Highlight is very useful to isolate and adjust individual fixtures.

[Clear] [Sneak] [Enter]	
[High]/{Highlight} [Enter]	enters Highlight mode – look at command line
[Group] [5] [Enter], then [Next]	selects first channel in a group, turns others off and advances thru group
[Next]…[Next] and focus each light on crate on far stage right	notice yellow HL on each channel
[Select Last] [Record] [Focus Palette] [7] [Label] Crate [Enter]	records Focus Palette 7
[High]/{Highlight}	exits Highlight mode – no [Enter] required

HIGHLIGHT & LOWLIGHT PRESETS

[Clear] [Sneak] [Enter]	
[Group] [23] [Full] [Full]	selects all the moving lights
[Select Last] [-] {Focus} [Record] [Preset] [997] [Label] Highlight [Enter]	records just the color and beam parameters into Preset 997
[Select Last] [Enter], run cyan and magenta to full and yellow out to make them all dark blue, [At] [50] [Enter],	
[Select Last] [-] {Focus} [Record] [Preset] [998] [Label] Lowlight [Enter]	records just the color and beam parameters into Preset 998

DEFINE HIGHLIGHT, LOWLIGHT AND HIGHLIGHT REMDIM LEVELS

There are three levels that can be defined with presets or hard values.

[Displays] {Setup} {User} {Manual Control}	
{Highlight Preset} [997] [Enter]	defines Preset 997 as Highlight preset
{Lowlight Preset} [998] [Enter]	defines Preset 998 as Lowlight preset
{Highlight RemDim} [20] [Enter]	puts in a value for Highlight RemDim

> **NOTE:** **You can set Highlight RemDim as a hard percentage value (like the example above), a [/] value (percentage) or as a preset.**

USING HIGHLIGHT MODE

[Live] [Go To Cue] [101] [Enter]	go back to Live and into a cue
[High]/{Highlight} [Enter]	go into Highlight mode, levels drop to Highlight RemDim value (20)
[Group] [7] [Enter] … [Next],* [Next], [Next]	puts current channel within selection at Highlight level, puts remainder of channels within selection at Lowlight level, and puts all unselected channels at Highlight Rem Dim level

> **Note:** **101 is in Highlight Preset (HL), rest of Group 99 is using Lowlight Preset (LL), and all channels outside of the selection are manual (red) using the Highlight RemDim level.**

[Group] [5] [Enter] [Next], focus downstage center, [Next], [Next]…	focus all 5 fixtures downstage center
[Select Last] [Record] [Focus Palette] [11] [Label] Down Center [Enter]	selects the channels, putting them all in Highlight look and records all into focus palette, can then start on next position
[High]/{Highlight}	exits Highlight, restores look on stage
[Record] [102] [Enter]	

HIGHLIGHT & LOWLIGHT BEST PRACTICES

- Highlight is a great way to quickly build up focus palettes for a group of fixtures.
- Highlight can be helpful to see lights in a rig when there is ambient light you cannot control, like work lights, or while programming outdoors.
- With Highlight RemDim disabled, all channels not in the selected group remain at their previous values. So you'll have light on stage.

▶ Fan

It is possible to take a selection of channels, and quickly spread across them a range of mathmatical values – such as intensity

COMMAND LINE FAN

[Go To Cue] [Out] [Enter]	takes us to a clean stage
[1] [Thru] [5] [At] [10] [Thru] [Full] [Enter]	fans the intensities across the channel selection and defined intensity range
Be in Table View on the Live display	
[351] [Thru] [362] [Full] [Full]	puts Master cells at Full
[Select Last] [.] [At] [10] [Thru] [Full] [Enter]	channel selection matters, look at cells of each fixture, nice gradient
[Select Last] [Fan] {Mirror Out} [At] [10] [Thru] [Full] [Enter]	
[Select Last] [Fan] {Repeat} [4] [At] [10] [Thru] [Full] [Enter]	intensity repeats across 4 subgroups

FAN MODIFIERS

When **[{Fan}]** is pressed, the following fan styles softkeys appear:
– **{Center}** – The middle channel in the order is the start and remains unchanged; first and last channels change in different directions.
– **{Reverse}** – The selected channel order is reversed
– **{Mirror Out}** – The middle channel in the selected order is the starting channel; the first and last channels are the end channels.
– **{Random}** – The selected channels are put in a random order
– **{Repeat}** – The number of times a pattern is repeated within a selection **[31] [Thru] [42] [Fan] {Repeat} [3] [At] [50] [Thru] [70] [Enter]** – Fans the intensity values of 50 to 70 across channels 31 to 34, 35 to 38, and 39 to 42.
– **{Cluster}** –The channels are put into collections, which contain channels with all of the same value. **[31] [Thru] [42] [Fan] {Cluster} [4] [At] [50] [Thru] [70] [Enter]** - sets channels 31 to 34 at 50%, 35 to 38 at 60%, and 39 to 42 at 70%.

▶ FAN PARAMETERS

In Eos Family software, Fan is a mode. When enabled, any parameter that is moved will spread evenly across the selection based on the styles below.

Recall Snapshot 3	recalls the Direct Selects
«FOH Movers» (G5) [Full] [RemDim] [Enter] «Singer» (FP2)	
[Fan] [Enter]	enables Fan mode
Move the Pan encoder	first channel is anchor, and others fan relative to the first channel
Move the Cyan encoder	look at beams – White to Cyan across the fixtures, first channel unaffected
Run the Level Wheel up and down	same with intensity

Touch «Singer»	sets fixtures back to Focus Palette 2
[Fan] {Center} [Enter]	
Move the Pan encoder	center channel is anchor, and channels fan out from the middle
Move the Tilt encoder	same, channels fan up and down from the middle
Touch «Singer»	puts all fixtures back on Singer
«MC Masters Only» (G34) [Full] [Full]	brings up the cyc fixtures
«MC Cells» (G32) [Fan] {Mirror Out} [Enter]	
Roll Amber out and then Green out	watch how the fixtures respond now
[Fan] {Mirror Out} {Repeat} [3] [Enter]	repeats the fan in the selection
Roll out all of the Red and slowly dial in the Green	3 separate subgroups

FAN REFERENCES

It is possible to fan referenced data over a range of channels.

[Group] [20] [Color Palette] [1] [+] [6] [Enter]	creates a gradient fan between the two color palettes
[Group] [5] [Focus Palette] [1] [+] [3] [Enter]	fans the movers between guitars and drums, like a line between
[Select Last] [Sneak] [Enter]	
[Group] [20] [Color Palette] [1] [Thru] [7] [Enter]	fans all seven color palettes across the channels, and repeats
[Select Last] [Fan] {Mirror Out} {Cluster} [2] [Color Palette] [1] [Thru] [7] [Enter]	assigns a color palette to each subgroup of 2
[Record] [102] [.] [5] [Enter]	

FAN DISCRETE TIMING

Ranges can be used to fan discrete time and delays.

[Group] [2] [Full] [Full]	
[101] [+] [103] [Preset] [1] [Enter]	
[104] [+] [105] [At] [80] [Enter], «Drums» (FP3)	on drummer
[102] [At] [80] [Enter], «Guitar» (FP1)	on guitar
[Group] [22] «Dk Blue» (CP6)	Cyc in dk blue
[Clear]	
([101] [+] [103]) [+] [102] [+] ([104] [+] [105]) [Time] [2] [Thru] [12] [Enter]	[Shift}&[/] to create the ( )
Hold [Time] display key (or [About]&[Time] on other consoles)	to see channel timing
[Group] [41] [Delay] [0] [Thru] [6] [Enter]	
Hold [Time] display key again	only applied to cells
[Record] [103] [Enter]	
[Go To Cue] [102] [Enter] press [▶] (Go) and [▶] (Go)	watch cue 102.5 and then cue 103

Note: To view discrete timing, hold the Time Display button or [About]&[Time]. [About] [Time] [Time] latches the timing view.

▶ BUILD PALETTES USING HIGHLIGHT, FAN, AND MACROS
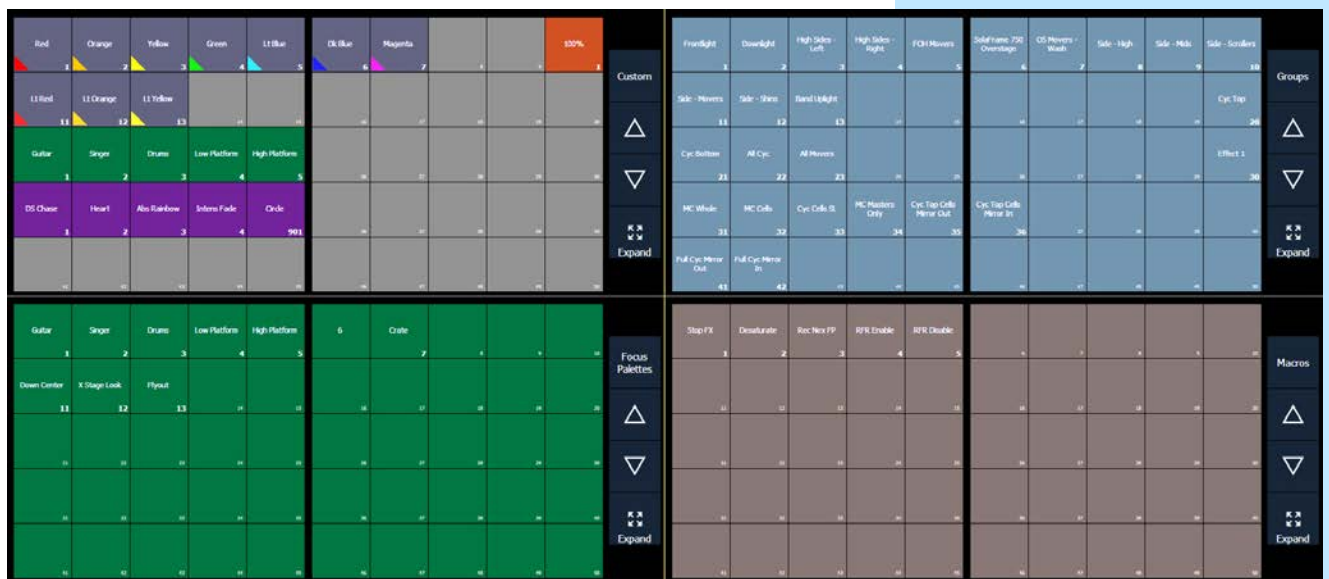
RECORDING COLOR PALETTES WITH MACROS

Recall Snapshot 3	**[Go To Cue] [Out] [Enter]**	
[Group] [99] [Full] [Full]	**Touch «Red» (CP1)**	builds new Color Palette with macros and Direct Selects
[Macro] [2] [Enter]		use the desaturate macro
[Record] [Color Palette] [11] [Label] Lt Red [Enter]		stores new Color Palette
Double tap the blank custom direct select under «Red»		adds it to the Direct Selects
Touch «Orange» (CP2)	**[Macro] [2] [Enter]**	use the desaturate macro
[Record] [Color Palette] [12] [Label] Lt Orange [Enter]		stores new Color Palette
Double tap the blank custom direct select under «Orange»		adds it to the Direct Selects
Touch «Yellow» (CP3)	**[Macro] [2] [Enter]**	use the desaturate macro
[Record] [Color Palette] [13] [Label] Lt Yellow [Enter]		stores new Color Palette
Double tap the blank custom direct select under «Yellow»		adds it to the Direct Selects
Collapse CIA		
Change each frame to have 2 banks: bottom left - Focus Palettes and bottom right - Macros		
[Record] [Snapshot] [4] [Enter]		

Snapshot Four should look something like this:

Recording Focus Palettes with Macros

[Clear] [Sneak] [Enter]	
Touch «OS Movers» «100%», [Form] {Zoom} [19] [Enter]	
Tilt fixtures up until at the SL & SR edges of stage, in line with the proscenium	builds new Focus Palette

«Rec Next FP» [Label] X Stage Look [Enter]	stores new Focus Palette
[Select Last] [Enter] and tilt fixtures up until they are in the grid	
«Rec Next FP» [Label] Flyout [Enter]	stores new Focus Palette

Recording Palettes with Highlight & Fan

|	
[High]/{Highlight} [Enter]	toggle Highlight mode on
[Select Last] {Offset} {Chan Per Group} [2] {Pan} [Fan] {Center} [Enter]	notice that only Pan is fanned – they tilt together
Tilt all fixtures back down, so they are all on center line	
[Next]	
[Next] Pan/tilt these fixtures downstage on top of the first pair	
[Next] Pan/tilt these fixtures downstage on top of the first pair	
[Next] Pan/tilt these fixtures downstage on top of the first pair	
[Select Last] [Update] «Down Center» (FP11)	updates Focus Palette
[High]/{Highlight}	to exit Highlight mode

Reference Data Explanation

REFERENCED DATA

Another feature that moving light desks gave us has to do with the oft-times repetitive nature of working with automated lighting. It quickly became apparent that the act of setting lights manually to the down stage left sofa each time you wanted them there or putting them in the closest approximation of R80 repeatedly was time consuming and, well… boring. Enter referenced data, typically called palettes. These smaller record targets are building blocks upon which cues can be built. Palettes are constructed from "absolute data" – the term that we use for lights that have values provided from encoders and/ or a keypad (channel 5 at 50, cyan at 35, magenta at 20 and yellow at 0 are examples of absolute data).

Palettes can contain intensity, focus, color or beam parameters, depending on the palette type. Palettes can only contain their type of parameter data. This automatic selective storing by category makes it faster to set them up. Most desks support "all palettes", which allow you to put any data into one of these referenced building blocks. Typically, you focus any lights you might want on the down stage left sofa on that sofa and store them in focus palette 'n'. Then, when you later need one of your lights on the sofa, you just select it and recall focus palette n. When the director later moves the sofa three feet to the left at the last dress rehearsal, you are left with one focus palette to update instead of 300 individual cues. The modification to this focus palette then propagates through all the cues in which it was used.

ABSOLUTE   STORED

MANUAL   REFERENCED
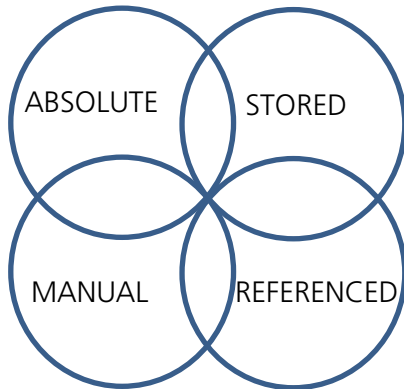
A bit of data theory – a piece of data is always in two states, each with two options. First, a piece of data is either manual or it is stored. To convert something from manual to stored, you simply record it. There are tools to make data manual as well.

Second, data is either absolute or referenced. Absolute data are hard numbers that don't point to any other location in the show file. But palettes and presets are referenced data, meaning the data is stored in a "bucket," not directly in the cue. The cue looks into the bucket every time it is called and replays that data. This means that if a reference is used in multiple places in a show, it can easily be changed globally. Let's say there is a couch that is in several scenes and you make a focus palette for the couch and store it in several cues. When the director decides to move the couch, you can update the focus palette, thus changing all the cues in which it is stored, so you don't have to go into every cue and change it one by one.

▶ Data Manipulation Tools

Data is always either Manual or Stored, and it is always either Absolute or Referenced. To convert from Manual to Stored, simply Record. Absolute data is numeric or hard data. Referenced data such as palettes and presets are combinations of parameter settings that get used over and over. The desk offers different tools to collect and handle these different data types, and to convert data between them.

CHANGE ABSOLUTE TO REFERENCE

[Live] **Recall Snapshot 2**	
[Go To Cue] [28] [Enter]	
[Group] [21] [Full] [Full], in Color Picker, Standard Colors, choose Blue	cyc channels have manual (red) data
[Group] [22] [Record] [Color Palette] [21] [Label] Split Cyc [Enter]	all channels are manual & referenced
[Blind], [Format] to be in table view	
[Color Palette] [21] [Enter]	all cyc channels have data stored

CHANGE REFERENCE TO ABSOLUTE (MAKE ABSOLUTE)

[Live], be in table view, looking at channel 101	current Focus values have references
[101] [+] [104] {Focus} {Make Absolute} [Enter]	breaks the references, leaving manual
[Select Manual] [-] [101] [Record] [Preset] [11] [Enter]	selects all channels with manual data
[Blind] [Preset] [11] [Enter] **[104] [Enter]**	stored all the data for 104 as well cyc channels that were manual as well

> Select Manual command includes the entire channel, even if only some parameters have manual values.

▶ CHANGE MANUAL TO STORED

[Live] **[Update] [Enter]** **(still in cue 28)**	converts all manual values to stored values
Look at [301] [Enter]	data is stored and referenced (PR11)
Look at [101] [Enter]	Focus data is stored and absolute

MAKE MANUAL & RECORD ONLY

[103] [Full] [Full] **{Beam} [Home] [Enter]**	adds manual values
[Focus Palette] [3] [Enter]	Intensity and Focus values are manual
[104] [+] [105] {Focus} {Make Man} [Enter]	converts stored values to manual values (red)
[Clear] command line	
[Record Only] [Preset] [12] [Enter]	stores only manual data to selected target
[Blind] [Preset] [12] [Enter]	only things that were manual (red) were stored

> Record Only is not a selection tool; it is a store manual values tool. Therefore, only the manual data was stored into this Preset.

▶ Update

Update is a 'save changes' tool. It only pertains to values that are red or modified – values that have been changed. Update saves manual changes back to targets such as cues, palettes, presets and submasters.

[Live] [Go To Cue] [35] [Enter]	
[104] [Enter]	note that the focus information is stored in a reference (drums)
Pan/tilt fixture up to the figure SL on staircase	data is now manual and absolute – notice the red 'R's
[Update] look at where it's updating, default style on right	(straight to cue as absolute data)
[Enter]	no longer a reference
[105] [Preset] [1] [Enter]	
[101] [Enter], make a slight adjustment to the focus on the drums	
[Update] {All} [Enter]	look at where the values are updating – targets and cues *

Note: Remember that updating a palette or preset will change it everywhere it is used in the show.

To change defaults of update display

Go into Setup > User > Record Defaults	
Change {Update Mode} to All	
Disable {Break Nested} Disable {Update Last Ref}	
[Live], [Update] to see the changes [Clear]	Update style and modifiers changed to new defaults

▶ Update Modifiers

Update Last Ref

[103] [Focus Palette] [4], pan/tilt to make slight adjustments	manual and absolute – notice red 'R's
[Update]	look at where the values are updating – FP2 (Singer) what is stored in cue 35
{Last Ref}	changes to FP4 (Low Platform), the most recently used manual reference
[Enter]	new FP4 (Low Platform) stored in cue

Update Break Nested

[105] [Enter], iris down to headshot, pan/tilt up to head	Iris and Pan/Tilt have red 'R's
[{Snapshot}] [1] [Enter] [Update] Do not hit Enter! [Clear]	Notice 105 is updating into Preset 1 and FP2 – change FP for rest of show?
[Blind] [Preset] [1] [Enter] [Format] [105] [Enter]	look at focus (stored as referenced data) and iris (stored as absolute data)
[Live] [Update] {Break Nested} [Enter]	look at where it's updating (preset 1 only, not the FP)
[Blind] [Preset] [1] [Enter] [105] [Enter]	notice Absolute data for iris and pan/tile

Singer FP did not get updated. The Pan/Tilt data from channel 105 was stored in Preset 1 as absolute data, not referenced data

UPDATE REF ONLY

|	
[Live]	
[102] [Enter] pan/tilt up to the guitar player	see absolute data
[101] [Enter] make slight adjustment to pan/tilt on drums	see referenced red 'R's
[Update]	look at where the values are updating
{Ref Only}	now only 101 is updating into the focus palette 3, 102 is not being stored into the cue
[Enter]	
[Go To Cue] [Enter]	101 doesn't move (it is in same FP, which we updated), 102 moves back to where it was since we never updated it

All   **Make Absolute**   **Ref Only**   **All - Break nested**
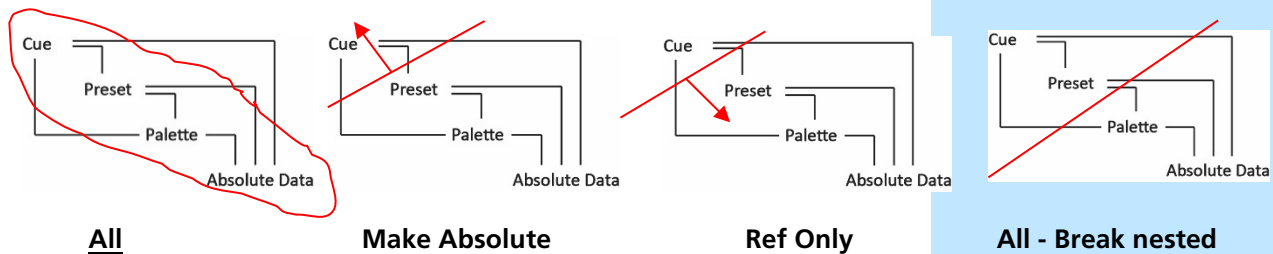
▶ UPDATE TRACE

Trace allows changes to be tracked backwards through the track in the cue list to where the level was first changed and forward in the cue list until it sees a new move instruction. It will update into a block, but not past it.

[Go To Cue] [36] [Enter] **Recall Snapshot 4**	
[Live], [Format] in to Summary View	cyc fixtures in a tracked value of 50
[Blind], [Format] to Spreadsheet , look at [301]	see the move instruction in cue 33
[Live]	
«All Cyc» (G22) [At] [/] [5] [Enter]	takes intensities down by half
[Update] [Trace] [Enter]	now tracked values at 25
[Blind] – Spreadsheet, look at [301]	move instruction was updated in Cue 34

TRACE TRACE

Still in [Blind], «Side Mids» (G9), look at [141]	notice fixtures aren't on
[141] [At] [Full] [Trace] [Enter]	only tracks forward since it was at 00
[Undo] [Enter]	
[Live]	
«Side Mids» (G9) [Full] [Full], then «Green» (CP4)	
[Update] [Trace] [Trace] [Enter]	forces fixtures on from previous move instruction and makes change to color
[Blind] Look at [141]	notice it changed back to cue 32, also forward into the Block but not beyond it

TRACE CUE ONLY

Using [Q Only/Track] as a modifier allows changes to be tracked backwards through the track in the cue list to where the level was first changed and then creates a move instruction in the next cue to stop the track going forward. This is basically a backwards Trace only.

In Blind, [141] [At] [5] [Trace] [Q Only/Track] [Enter]	creates two move instructions

▶ Navigation and Editing in Blind

NAVIGATION

Navigation in Blind works similarly to other areas of the desk. You have access to Format, Flexi, and paging tools, as well as Data and Time Display options. **[Blind]** is a hard key.

When in Blind, the screen background turns gray, the word "Blind" is in front of the command line and in the top left corner of each display.

VIEWING OTHER TARGETS IN BLIND

When you enter the Blind display, you always enter into Cue Blind. Blind is also used to view and edit other target data.

Recall Snapshot 1	
[Blind], [Format] to Table view	defaults to the cue that is current in Live
[Color Palette] [2] [Enter]	displays the data stored in color palette 2 - able to edit this data
Flexi to Active Channels	shows only active channels in current target
[Color Palette] [Color Palette]	opens the color palette list, 1 will be automatically selected
[Color Palette] [5] [Enter]　　{Edit}	from a target list, Edit drops you into the blind view of that target
[Next], [Last]	scroll through targets including parts
[Cue] [1] [Enter]　　　　[Next]……..[Last]	switches to looking at cue targets
[Live]	notice still in Cue 36
[Displays], Setup > User > Displays	to change the behavior
Enable {Preserve Blind Cue}	
[Live],　[Go To Cue] [36] [Enter],　[Blind], [Cue] [7] [Enter]	
[Live], still in 36,　[Blind] returns to Cue 7	
Go back into Setup and disable {Preserve Blind Cue}	

If this is something that you may use often, this would be a great macro.

NON-INTENSITY PARAMETERS IN SPREADSHEET

In [Blind], [Format] to Spreadsheet view	by default, all parameters are shown
[Shift]&[Format]	hides all non-intensity parameters
[101] [Enter]	
Press & Hold [Data]/[Params], [Color]	shows all color information columns for all channels
Press & Hold [Data]/[Params], deselect {Color}	back to seeing only intensities

NOTE:　By default, encoders are disabled in Blind. To enable use of the encoders, press any of the Encoder Page navigation buttons.

▶ EDITING DATA IN BLIND

Data that is changed in Blind is automatically stored, without the need for a Record or Update command. This makes it extremely fast, but be sure to use caution. Undo if necessary.

AT ENTER – PALETTES, PRESETS, AND SUBS

[At] [Enter] behind a channel or parameter selection will remove the data that is stored in a target

[Format] to Table View, [Flexi] to Active	
[Clear] [Color Palette] [1] [Enter]	displays only the channels with data stored in Color Palette 1
[101] [Thru] [128] [Enter]	shows all color parameters are stored in this palette
[Select Last] [-] {Cyan} {Magenta} {Yellow} [At] [Enter]	grabs all parameters except Cyan, Magenta, and Yellow, and removes the data from those parameters
Scrolling up and down	shows none of other color parameters affected except 101 - 128

Keep in mind the difference between no data and a zero value.

AT ENTER – CUES

[At] [Enter] in a cue removes the data stored, but unlike other targets, there are tracking implications when removing data.

[Format] to Spreadsheet View	
[Cue] [12] [Enter]	displays all the cues in spreadsheet, with cue 12 selected
[31] [Thru] [33] [At] Look at the values	shows move instruction to go to Full
[Enter]	removes the move instructions for these channels, and allows the previous values to track forward
[Undo] [Enter]	puts the values back
[6] [At] [Cue Only] [Enter]	removes the move instruction and adds a move instruction in the next cue

NOTE: **[At] [Enter] in Live will give you that channel or parameter's value from the previous cue, in a manual state. Updating the cue will result in a tracked value from the previous cue – the same as removing the move instruction in blind.**

▶ RANGE EDITING IN BLIND

You can edit over a range of cues, including overwriting cues with move instructions. Just like any edit, there are tracking implications when changing data.

Still in Blind Spreadsheet, [Cue] [21] [Thru] [25] [Enter]	selects a range of cues
[3] [At] [75] [Enter], may need to scroll to see how far it tracks	puts a move instruction in the first cue, tracks that value through the range, and continues the track until the next move instruction outside of the range
[Undo] [Enter]	puts the data back
[3] [At] [75] [Cue Only] [Enter]	puts a move instruction in the first cue, tracks that value through the range, but stops the track at the end of the range and adds a move instruction in the first cue of the range

REPLACE WITH

You can find values across ranges of cues and replace them with new values.

[Cue] [1] [Thru] [15] [Enter]	selects the cue range
[1] [Thru] [10] [At] [35] {Replace With} [50] [Enter]	finds all values that are 35, and replaces them with values of 50

> NOTE: Replace With works with palettes and presets as well. You can also command line filter to specific parameters for more control.

MOVING CUES

Just like any edit, there are tracking implications when moving cues.

In Flexi - Patched, look at Ch. 51 thru 82	
[Cue] [13] [Copy To] [Copy To] [0] [.] [5] [Enter] [Enter]	look at channel 51– move instructions tracked into cues 1 and 2
[Undo] [Enter]	puts the data back
[Cue] [13] [Copy To] [Copy To] [0] [.] [5] [Cue Only] [Enter] [Enter]	look at channel 51 – a simple move instruction in 0.5., another in cue 1
[Undo] [Enter]	

> NOTE: You can move ranges of cues, with the same tracking or cue only behavior as moving a single cue.

BLIND BEST PRACTICES

- If a cue on stage is edited in Blind (either through cue changes or referenced data changes), the cue must be reloaded on stage. Sub edits in Blind are immediately changed in Live.

Additional Display Functions

▶ ## FLEXI VIEW CHANNELS

It is possible to make a custom Flexi view based on a channel selection.

[Live], Recall Snapshot 3	
Hold [Shift], Touch «FOH Movers» (G5) and «OS Movers» (G7)	puts groups on command line unterminated
Press & Hold [Flexi] {View Chans}	completes the command line, makes the channel selection a Flexi State
[Flexi] [Flexi], [Flexi]…	cycle thru Flexi state and see new View Channels

NOTE: This will remain the View Channels state until you change the selection. To replace the channels in View Channels Flexi, simply do the same process again.

▶ ## PREVIEW

{Preview} displays the intensity values for another cue under the current values in the Live Summary tab. Preview is not available in Table View.

- **{Previous}** - previews the last cue run from the selected cue list.
- **{Pending}** - previews the pending cue from the selected cue list.
- **{Preview} [Next]** - previews the cue higher than the one currently selected (or pending if no cue selected).
- **{Preview} [Last]** - previews the cue lower than the one currently selected (or previous if no cue selected).
- **{Preview} <Cue> [5]** - will preview cue 5.
- **{Preview} [Enter]** - takes you out of preview mode

Format to Summary and Flexi All	
[Go To Cue] [2] [Enter]	
{Preview} {Pending} [Enter]	previews whatever cue is pending
[Next], [Next], [Last],	to look at future cues
{Preview} [10] [Enter]	previews cue 10
An indicator of which Preview mode you are in is displayed in the upper left hand corner of the Live Summary display.	
[10] [At] [75] [Enter]	can do other work and Preview stays
[Clear] {Preview} [Enter]	turns Preview off

▶ TAB DISPLAY BEHAVIOR

Display tools in Eos follow tab focus. There are two types of display tabs:
- **Display tabs** – various displays available on the console
- **Control tabs** – virtual control options

TAB FOCUS

Recall Snapshot 3	
Left hand screen - 2 Display tabs – Live Summary is in focus, PSD is grayed-out, not in focus	
Right hand screen - 2 Control tabs – both Direct Select tabs are purple	

Control tabs don't take focus when being interacted with.

Touch or click on the PSD tab – notice the gold frame	displays tools such as paging are tied to that display.
Touch or click on a Direct Select tab – notice it doesn't pull focus	
Double hit or click on the tab name	to pull focus to that controls tab
Touch or Click on the Add-a-Tab (+)	Displays tabs on left and Controls tabs on right

OTHER WAYS TO PULL FOCUS

Press [Tab] … [Tab] … [Tab]	to change focus from open display to the next open display
Hold [Tab] & press [#] of specific display,	to select/highlight a specific display by number

SHIFT LIVE

If you have multiple Live /Blind Tabs open, you can pull focus through all the Live/Blind displays using [Shift]&[Live]

Add another Live Tab	
Hold [Shift] and press [Live], [Live], [Live]…	toggles just Live and Blind displays,

MAGIC SHEET DISPLAY BEHAVIOR

Magic sheets can be either a Display tab or a Control tab. We allow you to make the selection.

Hide the CIA	for better visibility
Open the Magic Sheet display, select the one you have been working on	to open Magic Sheet 1
Open the Magic Sheet editor	
In Settings (the Gear tab in Objects Library), select Display Behavior	Normal, Channel or Control options
Default is Normal	follows the rules of a Displays Tab
Change to a Control tab and close the Editor [Live]	Magic Sheet tab is now purple, double-hit the tab name to bring focus to it
Open the Editor, and select Channel Display and close the Editor	
Hold [Shift] and press [Live], [Live], [Live]…	now in the rotation when using [Shift] & [Live] with other Live and Blind tabs

▶ Referenced Marks

REFERENCED MARKS

A Mark automates the process of presetting moving lights to their required state in a cue, prior to fading intensity up (Also referred to as move while dark/move before bright). All move info about a marked cue is stored in the reference or source cue.

CREATE A REFERENCED MARK

AutoMark always uses the cue before the light turns on to mark the fixture. Not a lot of flexibility. So….

Recall Snapshot 1	
[Displays], {Setup}, {System}, {Cue Settings}, and disable Automark	notice lots of 'R's in the flags column of the PSD
[Blind] [Cue] [104] [Thru] [Thru] [110] [Enter] [Enter]	creates cues
[Time] [1] [Enter]	changes timing
[Live] [Go To Cue] [110] [Enter]	
[Group] [7] [Full] [Full] [Home] [Enter]	
[Focus Palette] [11], {Zoom} [19], [Color Palette] [5] [Enter]	
[Update] [Enter]	updates cue 110 , notice the L in the Moves column of the PSD
[Group] [7] [Mark] [106] [Enter] [Update] [Enter]	notice the red m's - Focus, color & beam times moved to Q106, Q110 now has R (reference), Q106 has an M (Mark)
[Go To Cue] [105] [Enter]	
[▶] (Go) on 106, play cues through 110	channels take their marks in cue 106, track through cue 107, come up in position in cue 110

SEE WHERE A MARK IS HAPPENING

Hold [About]&[Mark]	to see where a mark is happening

CHANGE A MARK

[Group] [7] [Mark] [104] [Enter]	marks these channels in cue 104
[Update] [Enter]	need to update the red 'M's

'M' indicates cue has current channels that are marking. A small 'm' indicates the cue still has a Mark flag even though nothing is marked on that cue, identifying it as having once been a marked cue. May want to use it again.

To quickly mark fixtures to a predesignated mark cue, simply select the channels and type [Mark] [Enter]. It will find the Mark flag that is the closest the list and then mark in that cue.

REMOVE A MARK

[Cue] [106] [Mark] [Enter]	removes the m

BROKEN MARK

[Go To Cue] [106] [Enter],	breaks the mark
[Group] [7] [Full] [Full], [Focus Palette] [12] [Color Palette] [1] [Enter]	channels unable to mark now in cue 104 (m) and in cue 109 notice the x
[Update] [Q only] [Enter]	
[▶] (Go) on 107, [▶] (Go) on 108, [▶] (Go) on 109	channels do their best to mark for cue 110
[▶] (Go) on 110	Lights come up in cue 110
[Group] [7] [Mark] [107] [Enter] [Update] [Enter]	gets the marks back in cue 107 notice the M in the PSD
[Go To Cue] [104] [Enter]	
[▶] (Go) on 105, [▶] (Go) on 106	notice the Live moves
[Group] [7] [Mark] [Enter] [Update] [Enter]	finds the nearest mark flag
[▶] (Go) on 107, [▶] (Go) on 108, [▶] (Go) on 109, [▶] (Go) on 110	watch for live and dark moves

TIMING ON MARKS

By default, Marks use the time of the cue in which they move. To change the mark time to a different time, use a discrete time on the parameters that mark in the reference cue (R).

All attributes of the mark are stored in the Reference cue!

In Cue 110, [Group 7] [-] {Intensity} [Time] [5] [Enter]	notice red 't's, also m's
[Update] [Enter]	notice discrete time + , duration is 6 s in PSD
[Go To Cue] [106] [Enter], [▶] (Go) into 107	1 sec to fade out, 5 seconds to mark
Run the cues, watch the fades	

MARK TIME

Mark Time is a setup option which allows you to set the time that mark instructions will use.

[Displays], {Setup}, {System}, {Cue Settings}, {Mark Time} [5] [Enter]	all marks will use this time instead of their cue time

When **{Mark Time}** is disabled, which is the default, mark instructions use cue timing unless overridden with discrete timing.
When you enter a Mark Time in Setup, all NPs that mark (either through referenced marking or Auto-Mark) use this time. The only way to override setup mark time is to use discrete timing.

REMOVE A MARK

[Live]	
[121] [+] [122] [Mark] [Enter] [Update] [Enter]	removes a mark on a specific channel

▶ Effects Editing

EFFECT STATUS DISPLAY

Recall Snapshot 4

[Effect] [1] [Thru] [4] [+] [901], double tap a blank Custom DS

[Shift] & [Clear]   [Record] [{Snapshot}] [4] [Enter] [Enter]

[Go To Cue] [Out] [Enter]

[Group] [30] [Enter]… Touch «DS Chase» (FX1)

From a clear command line, [Effect]   to open Effect Status Display in CIA

This display shows you any currently running effects, the channels on that effect, the source (man, cue or sub) as well as attributes of the effect such as Rate and Size, which defaults at 100..

This display gives you the ability to edit just this instance of the effect, on a cue-by-cue basis.
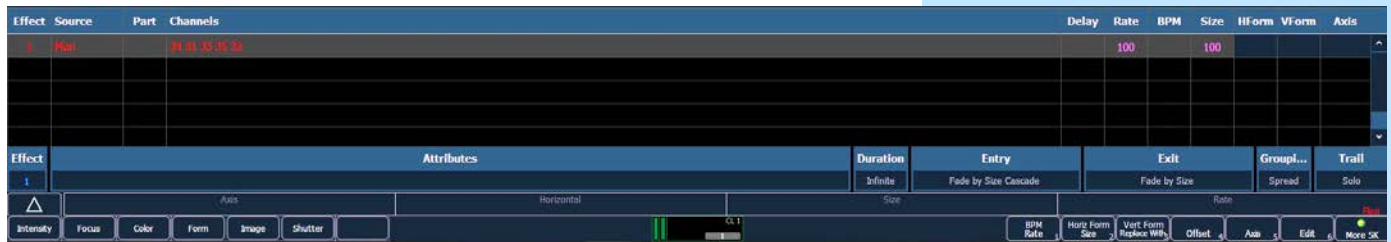
ENCODERS AND SOFTKEYS

You can modify an effect by clicking on the properties displayed on the bottom of the display – Attributes, Entry, Exit, Grouping, Trail.

You can also use the encoders to adjust the effects

- **Axis** – Default is 0° and can be modified by +/- 180°.
- **Shape** – Vertical or Horizontal as defined by the {Mode} button) – Default is 100%, and can be modified from 0%-2000%.
- **Size** – modifies scale. Default is 100%, range from 0%-2000%.
- **Rate** – modifies cycle time. Default is 100%, range of 0%-2000%.

The softkeys also give you access to Rate, Size, Axis, and more.

{Rate} [300], {Rate} [50]   enter a rate numerically

[Stop Effect] [Enter] or «Stop FX»

GLOBAL CHANGE TO AN ABSOLUTE EFFECT

[Group] [30] [Enter]… «Intens Fade» (FX4)	
[Effect] [Effect]	to see actions in effect
[Live] [Select Last] [At] [25] [Enter]	changes second action to an absolute value, background value doesn't matter Background state is now 25
[Effect] [Effect],	
Change Action 2 from background to [50] [Enter]	intensity values are going between 50 and 100, level is an absolute value, background value doesn't matter

> Note: **Be careful about globally changing effects as the changes will populate anywhere the effects are used.**

EDIT A RELATIVE EFFECT

[Live], Touch «FOH Movers» (G5), «100%» (IP1), «Singer» (FP2)	
«Circle» (FX901)	
Pan fixtures to stage right, stage left, then back to center	run relative to their location on stage
Go to a new Workspace,	workspace 2 icon in upper left corner of monitor
Add-a-Tab (the {+} sign), open the Effect Status Tab (6)	under Controls, bottom line
[Effect] [901] [Enter] if not already selected	
[Effect] {Size} [50] [Enter]	
Use size encoder to make the effect size larger,	
[Clear] [Update] [110] [Enter]	larger circle size is stored in cue 110
[Go To Cue] [110] [Enter]	

EFFECT CHANNELS DISPLAY

In the Effect Channels Display, you can override certain effect properties per channel at the cue level.

Back to Workspace 1	
«OS movers» (G7) in «Flyout» (FP13)	
[Group] [30] [Color] [Home] [Enter]	
Switch back to Workspace 2	

Changes made here are stored in cue, won't effect the base effect

Add-a-Tab (the {+} sign) and open Effect Channels tab (8)	
[31] [+] [35] {Rate} [500] [Enter]	
[102] [+] [104] {Size} [50] [Enter]	can also use encoders to change size
[101] [+] [103] [+] [105] {Horiz Form} [0] [Enter]	sweep left and right
[Record] [111] [Time] [2] [Enter]	
[Go To Cue] [37.2] [Enter], Back to Workspace 1	
Touch «OS Movers» (G7), «100%» (IP1),and [Home] [Enter]	
Touch «X Stage Look» (FP12), «Heart» (FX2)	
[Clear] [Effect]	opens effect Status display
{Grouping} [4] [Enter]	
Switch back to Workspace 2 with the Effect Chan Display tab or use [Shift]&[Effect]	Workspace 2
[121] [+] [122] {Rate} [250] [Enter]	
[125] [Thru] [128] {Size} [50] [Enter]	
[Update] [Enter]	

Note: **All the values have been recorded into the cue and will track forward till they receive another move instruction**

BPM – BEATS PER MINUTE

We can assign Beats per Minute to an effect within the base effect or on a cue-by-cue basis. Beats per minute (BPM) can be set up for step-based and absolute effects. For step-based effects, BPM affects the step times and for absolute effects, this affects the time/dwell.

Go to Workspace 1	
[Go To Cue] [37.3] [Enter]	
Touch «All Cycs» (G22), «Abs Rainbow» (FX3)	runs rainbow effect on cyc channels
[Clear] [Effect]	opens Effect Status Display
Change Grouping to 2	makes effect less granular

DIRECTLY SETTING BPM

Done in Blind, changes applied immediately to all instances of this effect.

[Effect] [Effect] [Effect] [3] should be on command line	make sure you are in Effect 3
Softkey {BPM} [200] [Enter]	sets the BPM of the effect to 200

Notice BPM is posted in the Effect Editor to the far right of the Effect number. Also notice changes to Step times and Cycle time.

{Cycle Time} [7] [Enter]	removes the BPM

LEARNING BPM

Done in Live, changes will need to be recorded.

[Live]	jump back into Live
[Effect] [3] [Learn] [Time]	opens the Effect Status Displays

Notice "Effect 3 Learn Time Sample BPM" on the command line.

[Enter] [Enter] [Enter]	averages the timing or tap rate of the last three hits of Enter
[Learn]	stops the Learn mode or averaging

Notice the red BPM to the far right of the Effect number.

[Update] [Enter]	updates effect in cue with the modified BPM (3* in effects column on PSD)

▶ Intermediate Magic Sheets

OPEN THE MAGIC SHEET TAB

Recall Snapshot 1

Use Add-a-Tab (the {+} sign) and select the magic wand (Tab 3)

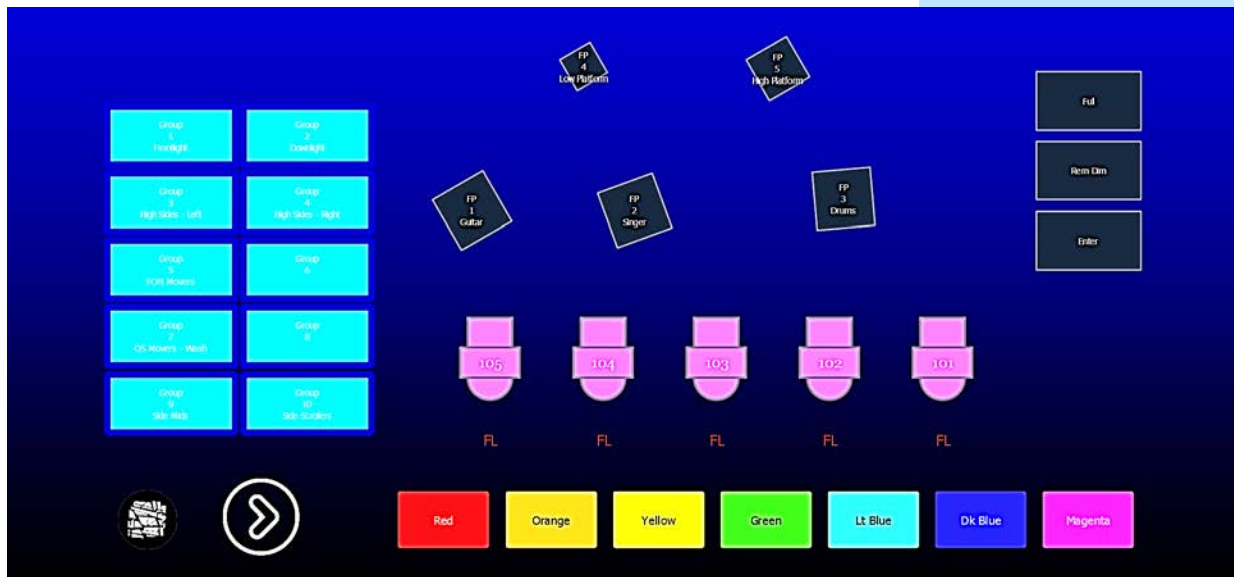**Select Magic Sheet 1 that we build previously**

OR

[Displays] {Magic Sheet} [1] [Enter]   opens Magic Sheet 1

After Level 2, the Magic Sheet should look something like this:

ADDITIONAL OBJECTS

Open the magic Sheet Editor	
Use your mouse wheel	to zoom out a bit
Drop in a fader on the right.	
Assign it to 1/3 (Frontlight Inhib) page #/fader #	
Change color to red	to mimic an inhibitive submaster
Add CL - command line in top left, stretch across top of screen	follow main user or any other user, have command line in full screen mode
Add clock in top right	helpful in full screen mode
Grab the Group objects and move them to the left a bit	include gobo and arrow images as well
Select the Quick Layout tool	notice the + on the cursor
Select a fixture, Source 4, drop in 4 fixtures and hit Done.	prevents you from adding more
Don't forget to go back to normal cursor!	
Select the third fixture down, in the properties, check the scroller box	adds scroller to fixtures, shows color
Select all fixtures, change target to groups, rotate them horizontally	
Use Alignment tools – align them center and distribute vertically	remember to look at the gold arrows!
Grab just the bottom fixture, drag it up a bit, then select all four, and distribut vertically again	realigns between two farthest objects
Select all 4 fixtures, change field 1 to be label, nothing in fields 2 and 3	
Using Quick Number tool/hand, assign groups 8, 9, 10, 12. **Click on bottom fixture twice to "skip" 11. Don't forget to hit Done!**	
Add stick of truss, drop it in, rotate it, stretch a bit, and place on fixtures.	
Turn line color to white, fill color to none (transparent)	can see things through it
Ordering Tools: Send truss to bottom	fixtures are visually on top of the truss
Drop in a stop sign (octagon) object, stretch it, make it red	
Assign it be Macro 1, first field is Label,	the Stop Effect macro
Drop in a rectangle, stretch it. Color it orange,	
Assign to Effect 901, change field 1 to label	the circle effect
Copy/paste the effect, make sure it's effect 4. Display label.	
Change color to lavender.	
Drop in an Intensity Palette object, place center, add Field 3 Label	

COMMAND OBJECTS

Type a function and trigger it directly from the Magic Sheet.

Add a triangle object, make it slightly bigger	
Make the target a command	
Click in Command box, type in "clear sneak enter" – no enter	
Oh, and make it green	
Go ahead and close the Editor and play with the Magic Sheet	

▶ MAGIC SHEET VIEWS

DISPLAY TOOLS

Right click or tap on the Magic Sheet tab	to see configuration settings

You can also click on the Gear tab for the same options.
- **< ■ Add View >** – for each magic sheet, multiple views may be created, then < and > allow for scrolling through the views.
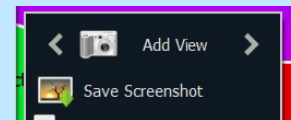
Press or click on ■Add View	records Magic Sheet 1 View 1
Zoom in and adjust so just Groups are visible	zooms in to show only selected item
[Record] {Displays} {Magic Sheet} [1] [/] [2] [Enter]	
Now use the < > to go back and forth between views	

BUILD A SECOND MAGIC SHEET TO "CHANGE PAGES"

Open config – MS browser, add a new magic sheet	
Already in Editor	
Drop in a few objects	nothing specific
Use browser to go between	
or, on the command line, {Magic Sheet} [1] [Enter]	
Open the Editor	
Select the arrow object, make its target Magic Sheet 2	
Clear the fields	
Close the editor and hit the arrow – MS 2	
Open Editor, select an object, make it Magic Sheet 1 View 1	

Don't forget Magic Sheet List to see all magic sheets and views
If you call a Magic Sheet without a view, it will zoom to all and takes the
Magic Sheet and fills the space that you have.

▶ POPUP MAGIC SHEET

The Popup gives you a temporary magic sheet window. The window that pops up is 800 x 450 pixels

Touch or click on the Magic Sheet Popup (camera) on the top of the screen	see the Magic Sheet browser
Magic Sheet browser, open a new Magic sheet	
Open the Editor	
Drop in a square – target =none, make the fill be nothing	
At the very bottom of properties, make the size w: 800, h: 450	gives a border to constrain the MS
Drop in a square – make it Macro 4, change field 1 to label	
Close the editor	shows macro is called RFR enable
Open the Editor again, make it green	as it enables
Control C, Control V to copy the object, make it Macro 5, make it red	this one disables
Also drop in a fader, make it fit in the border, make it the Fader 1/3, make it red	same fader as in the other Magic Sheet
Touch or click on the Magic Sheet Popup (camera) on the top of the screen	
Touch or click on Magic Sheet 3, the Utilities that we just created	
Anywhere you go, always have access to that Popup Magic Sheet	

The first time you open the Magic Sheet Popup, it gives you the Magic Sheet browser, and you can select whichever Magic Sheet you want to be your popup.

TO CHANGE THE POPUP TARGET

[Displays], {Setup}, {User}, {Displays}, {Popup MS}	currently set as Magic Sheet 3 from the last
{Popup Nav Lock}	locks navigation of your Magic Sheet
[Live]	

▶ USE A MAGIC SHEET TO WRITE CUES

Collapse the CIA, and open a new tab, Magic Sheet #1	
[Go To Cue] [Shift]&[Home] [Enter]	to go to the last cue in the show file (111)
Hit ⌈Stop Effect⌉ object on the magic sheet	to stop the current effects running
Grab ⌈Mid High⌉ boom fixtures, then ⌈Full⌉⌈Rem Dim⌉⌈Enter⌉	turn select channels on and rest off
Put them in ⌈Magenta⌉	change color of selected channels
Grab ⌈Scroller⌉ fixtures, ⌈100%⌉, use color encoder to select Frame 6	turn scrollers on and put in color
[Group] [22] [Full] [Enter] and put them in ⌈Orange⌉	turn cyc on and put in color
Grab ⌈105⌉ and ⌈104⌉, left two FOH Movers, ⌈100%⌉, ⌈Guitar⌉	focus channels on guitar player
Grab ⌈102⌉ and ⌈101⌉, right two FOH Movers, ⌈100%⌉, ⌈Drums⌉	focus channels on drum player
Grab ⌈105⌉ ⌈104⌉ ⌈102⌉ ⌈101⌉, and put them in ⌈Lt. Blue⌉	change all four to a new color
[Record] [Next] [Time] [3] [Enter]	records next cue (112)
[Group] [22] [Enter] and put them in ⌈Dk. Blue⌉	change color of cyc lights
Grab ⌈Overstage Movers⌉ [Focus Palette] [13] [Enter]	effect is still running but new position
⌈Intensity Fade⌉	adds intensity fade effect to same fixtures
Grab ⌈Side Mids⌉ boom fixtures, [Out]	
[Record] [113] [Time] [3] [Enter]	records next cue (113)
Grab ⌈Overstage Movers⌉ (G7) [Out] [Enter] and ⌈Stop Effect⌉	turn channels off and stops effect
Grab ⌈105⌉ ⌈104⌉ ⌈102⌉ ⌈101⌉, {Beam} [Home] [Enter], ⌈Singer⌉	removes beam attributes, refocuses
[Record] [Next] [Time] [2] [Enter]	records next cue (114)

Depending on the style and experience of the programmer, Magic Sheets can be a great way to expediate their programming process.

▶ COMMAND LINE SEARCH

Having troubles finding the correct target number? Here's a quick way to search target labels.

Grab ⌈105⌉⌈104⌉⌈102⌉⌈101⌉	select the channels
[Focus Palette]	type in the target type
[Shift]&[About]	opens a search bar in the CIA
Start typing `crate',	field narrows down by letter
then [Enter],	puts target on the command line, unterminated, so can continue to program
[Enter]	to terminate command line
⌈Yellow⌉	
[Record] [115] [Enter]	(115)
[Group] [Shift]&[About] type `side'	shows all groups that contain `side' in the label
Double click on menu option: `Group 10: Side Scrollers', [Out]	
[Group] [22] [Color Palette] [Shift]&[About], type `split', [Enter] [Enter]	changes cyc to split color palette
[At] [50] [Enter]	Intensity at 50 %
[Record] [Next] [Enter]	(116)

[Shift]&[About] will work with any record target, including groups, pallettes, presets and cues.

PSD FLAGS

Flags can be applied to cues to change specific behaviors. Flags can be set for "Mark - M", "Block - B", "Assert - A", "Preheat - P", "AllFade - AF" and "Moves - MV."

M - Mark (Auto Mark Disabled)		
	m	A cue that has been set as a Mark cue but has nothing marking in it.
	M	A cue that has been set as a Mark cue, and has channels marking in it.
	R	A Reference cue, which stores move instructions for channels that are being marked in a previous Mark cue.
	+	A cue that is both a Mark cue (with or without marking channels) AND a Reference cue.
	x	A broken Mark. Always appears in the cue directly before a Reference. A Mark gets broken when the channels become Active between their Mark cue and their Reference cue. When a Mark is broken, the software will use Auto Mark behavior to try to get the parameters marked in the cue immediately preceding the Reference cue.
M - Mark (Auto Mark Enabled)		
	M	A cue that the software is using for an Auto Mark, and has channels marking in it. The 'M' always appears in the cue directly before the Reference (which is not indicated when Auto Mark is enabled).
	D	A cue where Auto Marks have been disabled, allowing live moves.
B - Block		
	B	Cue-Level Block
	b	Discrete channel/parameter Blocks are present
	b̲	Auto-Blocks are present
	I	Intensity Block
A - Assert		
	A	Cue-Level Assert
	a	Discrete channel/parameter Asserts are present
P - Preheat		
	P	A cue that is set for Preheating. The cue before it will use each channel's preheat value from patch.
AF - All Fade		
	*	Plays the cue in an All Fade mode, which sends any intensities that are not owned by the cue to zero.
MV - Moves		
	D	A cue with Dark Moves. There are channels that have an intensity of zero and non-intensity moves stored in this cue. This is where you might want to delete unnecessary moves.
	L	A cue with Live Moves. There are channels that have an intensity of zero stored in the previous cue, and an intensity above zero and non-intensity moves stored in this cue. This is where you might want to Mark channels to a previous cue.
	+	A cue where both Dark Moves and Live Moves are present.
R - Release		
	R	Like Make Null, but releases data to a background state or out. Tracks through until removed or a move instruction happens.

Appendix 1 – Channel Hookup

Grayed out channels should have been patch in Level 1 & 2

Chan	Univ / Address		Manufacturer	Fixture	Mode	Label
1	1	1	Generic	Dimmer		Frontlight - A
2	1	2	Generic	Dimmer		Frontlight - B
3	1	3	Generic	Dimmer		Frontlight - C
4	1	4	Generic	Dimmer		Frontlight - D
5	1	5	Generic	Dimmer		Frontlight - E
6	1	33	Generic	Dimmer		Frontlight - A
7	1	31	Generic	Dimmer		Frontlight - B
8	1	32	Generic	Dimmer		Frontlight - C
9	1	35	Generic	Dimmer		Frontlight - D
10	1	34	Generic	Dimmer		Frontlight - E
31	1	301	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - A
32	1	310	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - B
33	1	319	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - C
34	1	328	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - D
35	1	337	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - E
36	1	346	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - F
37	1	355	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - G
38	1	364	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - H
39	1	373	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - I (eye)
40	1	382	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - J
41	1	391	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - K
42	1	400	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - L (ell)
43	1	409	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - M
44	1	418	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - N
45	1	427	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - O (oh)
46	1	436	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - P
47	1	445	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - Q
48	1	454	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight – R
49	1	463	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight – S
50	1	472	ETC Fixtures	ETC D60 Lustr+	Direct Str [9]	Downlight - T
51	2	1	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 1 → Left
52	2	7	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 1 → Mid
53	2	13	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 1 → Right
54	2	19	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 2 → Left
55	2	25	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 2 → Mid
56	2	31	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 2 → Right
57	2	37	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 3 → Left
58	2	43	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 3 → Mid
59	2	49	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 3 → Right
60	2	55	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 4 → Left
61	2	61	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 4 → Mid
62	2	67	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 4 → Right

+ End of range +

Chan	Univ / Address		Manufacturer	Fixture	Mode	Label
71	2	73	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 1 ← Right
72	2	79	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 1 ← Mid
73	2	85	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 1 ← Left
74	2	91	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 2 ← Right
75	2	97	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 2 ← Mid
76	2	103	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 2 ← Left
77	2	109	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 3 ← Right
78	2	115	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 3 ← Mid
79	2	121	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 3 ← Left
80	2	127	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 4 ← Right
81	2	133	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 4 ← Mid
82	2	139	ETC Fixtures	ColorSource SPOT	Direct [6]	Hi Side Tx - Ln 4 ← Left
101	2	201*	High End Systems	SolaFrame Theatre	SolaFrame Theatre [47]	FOH Mover - Spot
102	2	251	High End Systems	SolaFrame Theatre	SolaFrame Theatre [47]	FOH Mover - Spot
103	2	301	High End Systems	SolaFrame Theatre	SolaFrame Theatre [47]	FOH Mover - Spot
104	2	351	High End Systems	SolaFrame Theatre	SolaFrame Theatre [47]	FOH Mover - Spot
105	2	401	High End Systems	SolaFrame Theatre	SolaFrame Theatre [47]	FOH Mover - Spot
		* Think Offset!				
111	3	1	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Overstage Mover - Spot
112	3	48	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Overstage Mover – Spot
113	3	95	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Overstage Mover – Spot
114	3	142	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Overstage Mover – Spot
115	3	189	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Overstage Mover – Spot
116	3	236	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Overstage Mover – Spot
117	3	283	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Overstage Mover – Spot
118	3	330	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Overstage Mover - Spot
121	4	1	High End Systems	SolaWash 2000	SolaWash 2000 [36]	Overstage Mover - Wash
122	4	37	High End Systems	SolaWash 2000	SolaWash 2000 [36]	Overstage Mover - Wash
123	4	73	High End Systems	SolaWash 2000	SolaWash 2000 [36]	Overstage Mover - Wash
124	4	109	High End Systems	SolaWash 2000	SolaWash 2000 [36]	Overstage Mover - Wash
125	4	145	High End Systems	SolaWash 2000	SolaWash 2000 [36]	Overstage Mover - Wash
126	4	181	High End Systems	SolaWash 2000	SolaWash 2000 [36]	Overstage Mover - Wash
127	4	217	High End Systems	SolaWash 2000	SolaWash 2000 [36]	Overstage Mover - Wash
128	4	253	High End Systems	SolaWash 2000	SolaWash 2000 [36]	Overstage Mover - Wash
131	5	1	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - High
132	5	10	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - High
133	5	19	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - High
134	5	28	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - High
135	5	37	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - High
136	5	46	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - High
137	5	55	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - High
138	5	64	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - High

+ End of range +

Chan	Univ / Address		Manufacturer	Fixture	Mode	Label
141	5	73	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Mid
142	5	82	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Mid
143	5	91	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Mid
144	5	100	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Mid
145	5	109	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Mid
146	5	118	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Mid
147	5	127	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Mid
148	5	136	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Mid
151	1	281	Generic	Dimmer	--	Side - Scroller
151 P2	1	291	Generic	Scroller	--	Side - Scroller
152	1	282	Generic	Dimmer	--	Side - Scroller
152 P2	1	292	Generic	Scroller	--	Side - Scroller
153	1	283	Generic	Dimmer	--	Side - Scroller
153 P2	1	293	Generic	Scroller	--	Side - Scroller
154	1	284	Generic	Dimmer	--	Side - Scroller
154 P2	1	294	Generic	Scroller	--	Side - Scroller
155	1	285	Generic	Dimmer	--	Side - Scroller
155 P2	1	295	Generic	Scroller	--	Side - Scroller
156	1	286	Generic	Dimmer	--	Side - Scroller
156 P2	1	296	Generic	Scroller	--	Side - Scroller
157	1	287	Generic	Dimmer	--	Side - Scroller
157 P2	1	297	Generic	Scroller	--	Side - Scroller
158	1	288	Generic	Dimmer	--	Side - Scroller
158 P2	1	298	Generic	Scroller	--	Side - Scroller
161	5	301*	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Side Mover - Spot
162	5	351	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Side Mover - Spot
163	5	401	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Side Mover - Spot
164	5	451	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Side Mover - Spot
165	6	1**	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Side Mover - Spot
166	6	51	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Side Mover - Spot
167	6	101	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Side Mover - Spot
168	6	151	High End Systems	SolaFrame 750	SolaFrame 750 [47]	Side Mover - Spot
		* Think offset! Note Universe Wrapping				
171	5	163	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Shin
172	5	172	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Shin
173	5	181	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Shin
174	5	190	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Shin
175	5	199	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Shin
176	5	208	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Shin
177	5	217	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Shin
178	5	226	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Side - Shin

+ *End of range* +

Chan	Univ / Address		Manufacturer	Fixture	Mode	Label
181	3	381	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Front Wash
182	3	390	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Front Wash
183	3	399	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Front Wash
184	3	408	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Front Wash
185	3	417	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Front Wash
201	1	191	Generic	Foot Light [1]	--	Talent Uplight
202	1	192	Generic	Foot Light [1]	--	Talent Uplight
203	1	193	Generic	Foot Light [1]	--	Talent Uplight
204	1	194	Generic	Foot Light [1]	--	Talent Uplight
205	1	195	Generic	Foot Light [1]	--	Talent Uplight
206	1	196	Generic	Foot Light [1]	--	Talent Uplight
207	1	197	Generic	Foot Light [1]	--	Talent Uplight
208	1	198	Generic	Foot Light [1]	--	Talent Uplight
209	1	199	Generic	Foot Light [1]	--	Talent Uplight
251	3	431	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Architectural Highlight
252	3	440	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Architectural Highlight
253	3	449	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Architectural Highlight
254	3	458	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Architectural Highlight
255	3	467	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Architectural Highlight
256	3	476	ETC Fixtures	S4 LED S2 Lustr	Direct Str [9]	Architectural Highlight
261	4	351	Generic	LED IRGBA	8B [5]	Scenic Highlight
262	4	356	Generic	LED IRGBA	8B [5]	Scenic Highlight
263	4	361	Generic	LED IRGBA	8B [5]	Scenic Highlight
264	4	366	Generic	LED IRGBA	8B [5]	Scenic Highlight
265	4	371	Generic	LED IRGBA	8B [5]	Scenic Highlight
266	4	376	Generic	LED IRGBA	8B [5]	Scenic Highlight
267	4	381	Generic	LED IRGBA	8B [5]	Scenic Highlight
268	4	386	Generic	LED IRGBA	8B [5]	Scenic Highlight
269	4	391	Generic	LED IRGBA	8B [5]	Scenic Highlight
270	4	396	Generic	LED IRGBA	8B [5]	Scenic Highlight
271	4	401	Generic	LED IRGBA	8B [5]	Scenic Highlight
272	4	406	Generic	LED IRGBA	8B [5]	Scenic Highlight

+ End of range +

MULTICELL PATCH

Done on page 6 of this workbook

Chan	Univ / Add		Manufacturer	Fixture	Mode	Label
291	4	411	SGM	SP 6	6 ch MC [6] [6 cells]	
292	4	417	SGM	SP 6	6 ch MC [6] [6 cells]	
293	4	423	SGM	SP 6	6 ch MC [6] [6 cells]	
294	4	429	SGM	SP 6	6 ch MC [6] [6 cells]	
295	4	435	SGM	SP 6	6 ch MC [6] [6 cells]	
301	8	1	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
302	8	25	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
303	8	49	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
304	8	73	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
305	8	97	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
306	8	121	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
307	8	145	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
308	8	169	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
309	8	193	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
310	8	217	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
311	8	241	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
312	8	265	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Top
351	9	1	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
352	9	25	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
353	9	49	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
354	9	73	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
355	9	97	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
356	9	121	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
357	9	145	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
358	9	169	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
359	9	193	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
360	9	217	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
361	9	241	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom
362	9	265	Chroma Q	Color Force II 72	RGBA x4 Off MC [24] [6 cells]	Cyc Bottom