GRASS VALLEY TRAINING

KAYENNE®, KARRERA® & KARONA®

WITH

K-FRAME

SOFTWARE VERSION 11.0

OPERATIONS TRAINING MANUAL

MAY 2017

www.grassvalley.com

Table of Contents

About This Manual

This training manual is provided as a companion to an authorized Grass Valley Korona, Karrera and Kayenne with K-Frame/V-Frame Operations classroom training, delivered at either customer sites or at Grass Valley Training Center. It covers both basic and advanced operations of all features in K-Frame.

The Training Manual is designed with two purposes:

1. A reference during the customized training session
2. A post training reference document and on-the-job aid

Content and Organisation

The KAYENNE, KARRERA & KORONA with K-FRAME Operations Training Manual provides explanations and step-by-step instructions on how to perform the most common switcher operational tasks and workflows.

Content is arranged into 16 sections, each covering the concepts and skills required for successful switcher operation. The Grass Valley Trainer will reference the appropriate Section content during the training.

Each Section can be accessed independently of the others, depending on the custom course outline created by the Grass Valley Trainer

Icons Used in the Manual

	**Section Objectives**	List of the major tasks that an operator will be able to perform after completing the Section.
	**Concept Definition**	SWITCHER terms and concepts that are essential in understanding and being able to perfom tasks.
	**Process Explanation**	Explanation of SWITCHER Operational or back-end Processes that efffect the tasks explained.
	**Notes/ Tips**	Callouts on items to pay attention to or tips for success

Additional GV Switcher Reference Materials

For additional reference, the GV Switcher Documentation Library is available online at the link shown below. The Topic Library covers all aspects of the GV Vision Switchers
http://www.grassvalley.com/apps/doc_prodlist?super=broadcast&set=switchers&skin=gvcmsnew

Section 1 – System Architecture

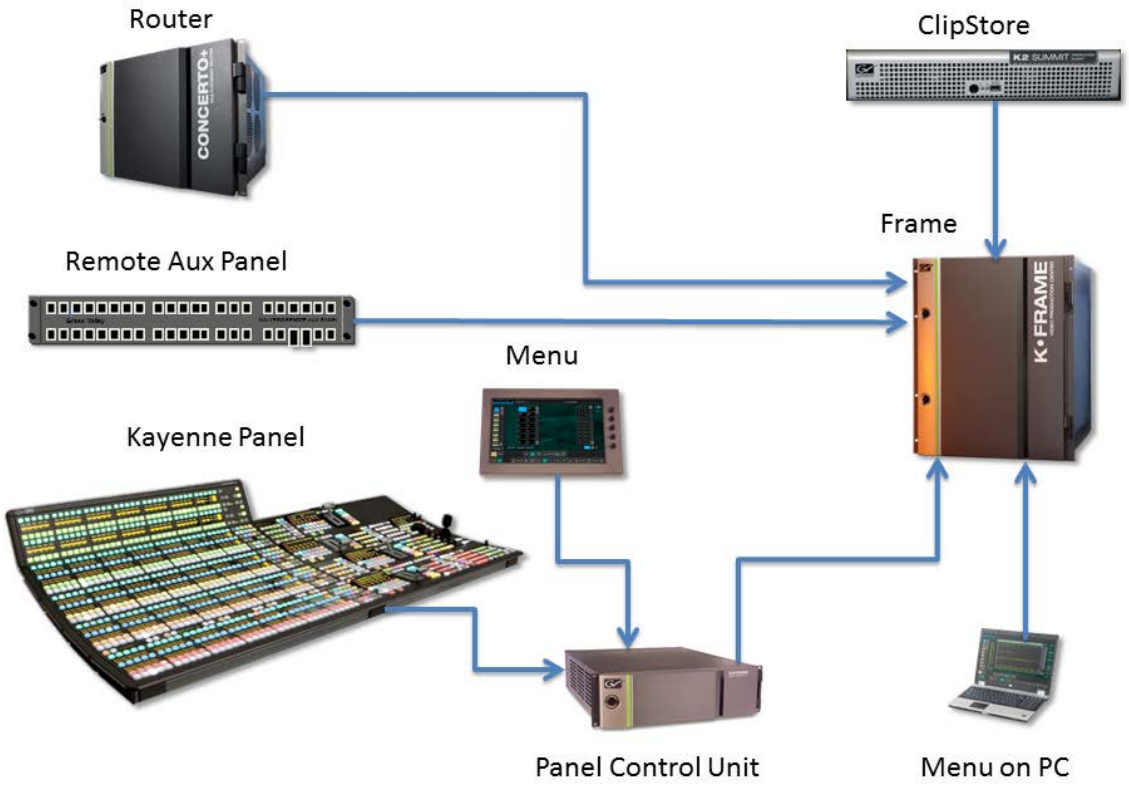
At the end of this section, you will be able to:

- ✓ Explain the differences and similarities between Kayenne, Karrera and Korona system architecture
- ✓ Define the feature capabilities of the K-Frame: Standard, Compact, S-Series and V-Series
- ✓ Describe standard and optional features
- ✓ Explain the difference between a single suite and dual suite setup

K-Frame Infrastructures

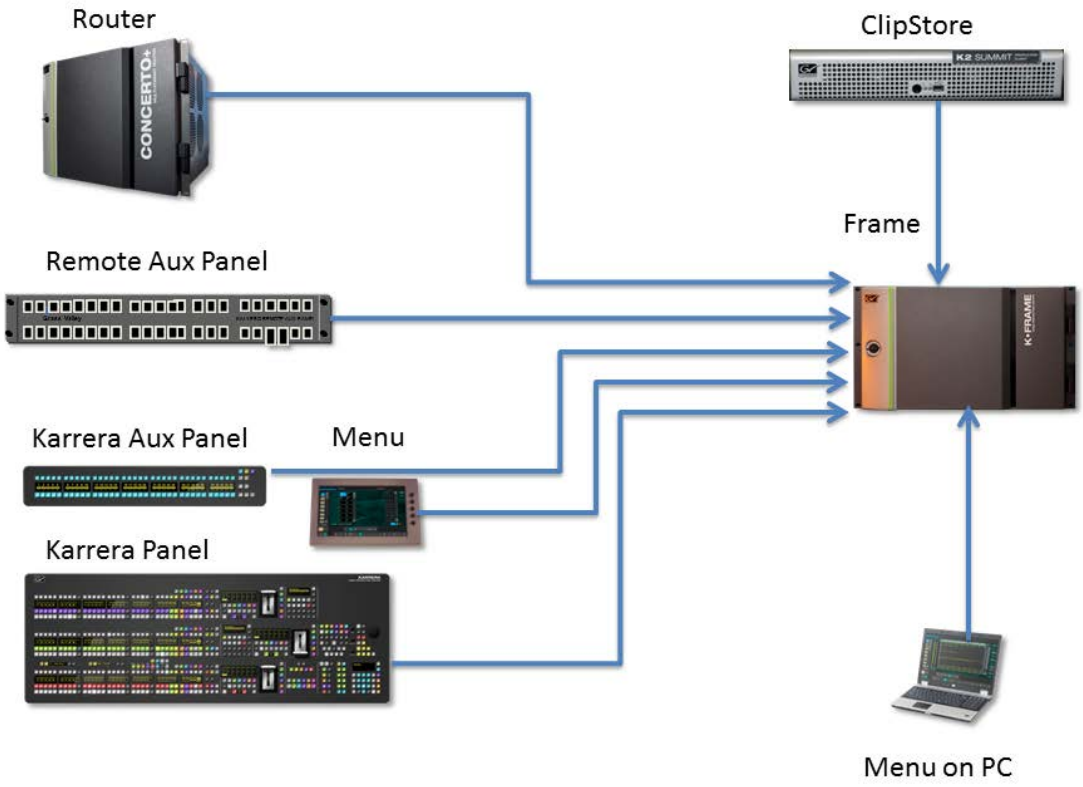
Kayenne K-frame LAN infrastructure.

A Kayenne system consists of K-frame, Kayenne modular panel, Panel Control Unit and touchscreen menu. Additional menu applications running on Windows PCs can be connected via LAN. The K-frame LAN will also support ClipStore, clip servers, router control connectivity, Ethernet tally control and remote Aux Bus control panels.



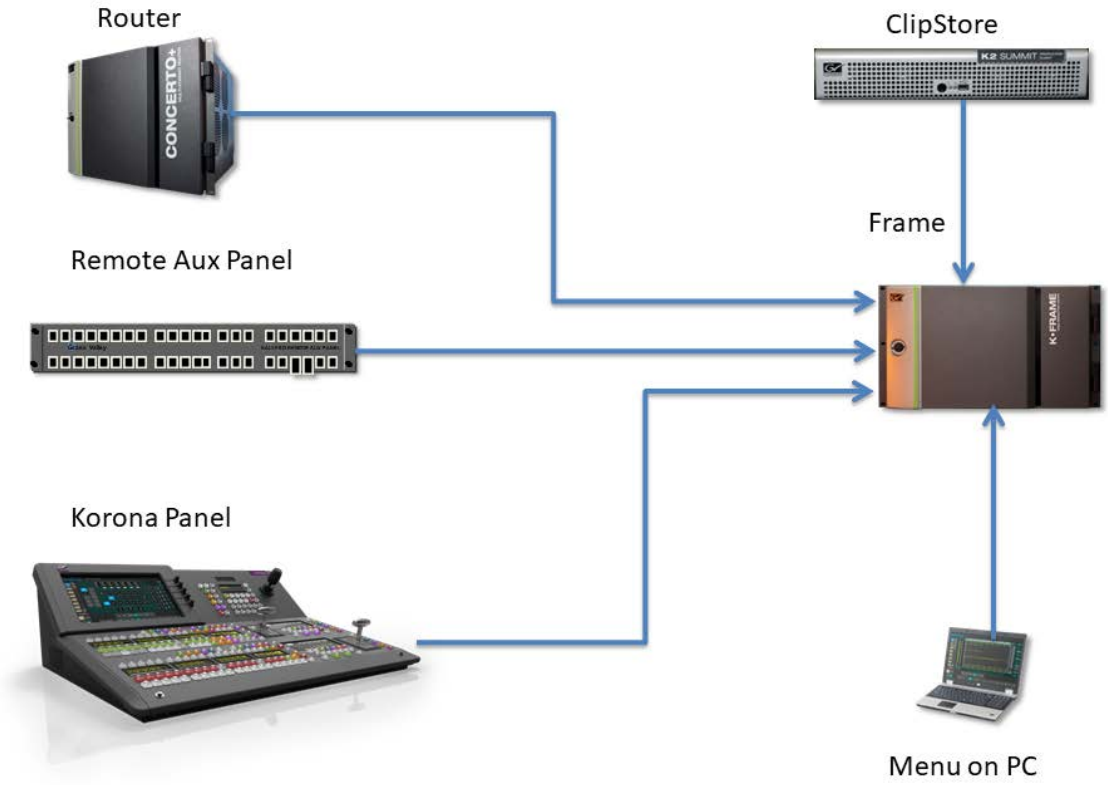
Karrera K-Frame LAN Infrastructure

Karrera system consists of K-frame, Karrera panel, Local Aux Bus control panel and touchscreen menu. Additional menu applications running on Windows PCs can be connected via LAN. The K-frame LAN will also support ClipStore, clip servers, router control connectivity, Ethernet tally control and remote Aux Bus control panels.



Korona K-Frame LAN Infrastructure

Korona system consists of K-frame, Korona panel with integrated touchscreen menu. Additional menu applications running on Windows PCs can be connected via LAN. The K-frame LAN will also support ClipStore, clip servers, router control connectivity, Ethernet tally control and remote Aux Bus control panels.

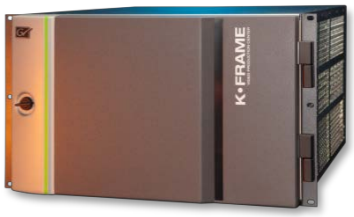


Standard K-Frame

- 13 Rack Units
- 1-9 Mixed Effects
- 32-160 Inputs
- 16-64 Outputs
- Up To 32 Smart I/O
- Each Smart I/O Card Provides 4 Inputs and 4 Outputs with 4 Up/Down/Cross Conversion Capabilities
- 8 GPI Inputs per ME Board
- 32 GPI/Tally Outputs per Board

Compact K-Frame

- 6 Rack Units
- 1-5 Mixed Effects
- 32-64 Inputs
- 16-32 Outputs
- Up to 16 Smart I/O
- Each Smart I/O Card Provides 4 Inputs and 4 Outputs with 4 Up/Down/Cross Conversion Capabilities
- 8 GPI Inputs per ME Board
- 32 GPI/Tally Outputs per Board



Panel Control Unit

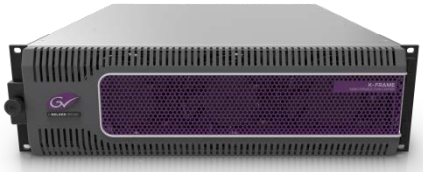
The Panel Control Unit is the hardware interface between the Kayenne modular panel and menu and the frame. The PCU supports up to 4 ME stripes and a local Aux Bus control panel.

K-Frame S-Series

- 6 Rack Unit Frame
- 1-6 Mixed Effects
- 32-80 Inputs
- 16-48 Inputs
- Up to 16 Smart I/O
- Each Smart I/O Card Provides 4 Inputs and 4 Outputs with 4 Up/Down/Cross Conversion Capabilities
- 4 Full Function Keyers per ME
- 10 Video/Key Channel ImageStore

K-Frame V-Series

- 3 Rack Unit Frame
- UP to 32 Inputs and 4 Media Port Inputs
- Up to 16 Outputs and 2 Media Port Outputs
- 4 Full function keyers per ME
- 8 Video/Key ImageStore Channels



Kayenne Control Panel

The Kayenne control panel is modular in design and can be configured as 1- 4 Mixed Effects stripes. Source select modules come with three different button counts, 15, 25 or 35. There are separate modules for Transition, Master EMEM, Local EMEM, Multi-function Module and the optional Device Control Module.

Karrera Control Panel

Karrera is a compact control panel for K-frame. The panel comes in three different configurations

- 2 - 2ME panel with 25 source buttons (Standard and Compact)
- A 3ME panel with 35 source buttons.

Karrera 2ME Compact Panel

Korona Control Panel

Korona is a compact control panel that comes in two different configurations. The 2ME panel has 20 source buttons and the 1 ME panel has 15 source buttons. Both with integrated touchscreen menu.

KSP Soft Panel

KSP is a single ME software application that runs on a Windows PC. The application can be operated using either touchscreen capabilities or keyboard shortcuts on a QWERTY style keyboard.

External Interfaces

50 pin D-Type Connector

- 8 GPI Inputs per ME Board
- 32 Output Relays (24 Tally/8 GPO) per Input Board

8 RS-422/485 Ports 9 pin D-Type

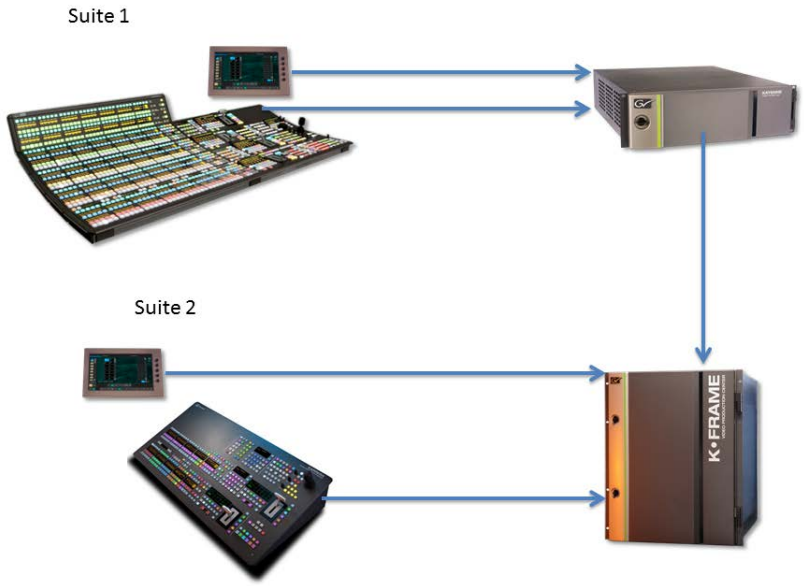
- Peripheral Buss
- Supported Machine Protocols (AMP, Odetics, VDCP, BVW)
- Editor: GVG 100 & 200 Protocols

6 Ethernet RJ-45 Connectors

- Supported Protocols (AMP Ethernet, VDCP Ethernet)
- Ethernet External Tally
- Router Control (Supported Grass Valley router control systems, and third-party routers that emulate Jupiter and Encore router control systems)

Dual Suites

K-frame is designed to operate two separate control rooms from a single frame. Each control surface has exclusive control over the frame resources acquired by that suite. A suite would have one control surface, menu. Resources that can be shared are mixed effects, Clipstore channels, ImageStore channels and memory, DPM channels, router inputs and controlled devices.



Section 2 – Menu Basics

At the end of this section you will be able to:

- ✓ Select and navigate the menu panel.
- ✓ Explain the difference between buttons that enable/disable a feature and buttons that select a state setting.
- ✓ Set values using pop: up keyboard for data entry.
- ✓ Explain the use of menu history and favourites.

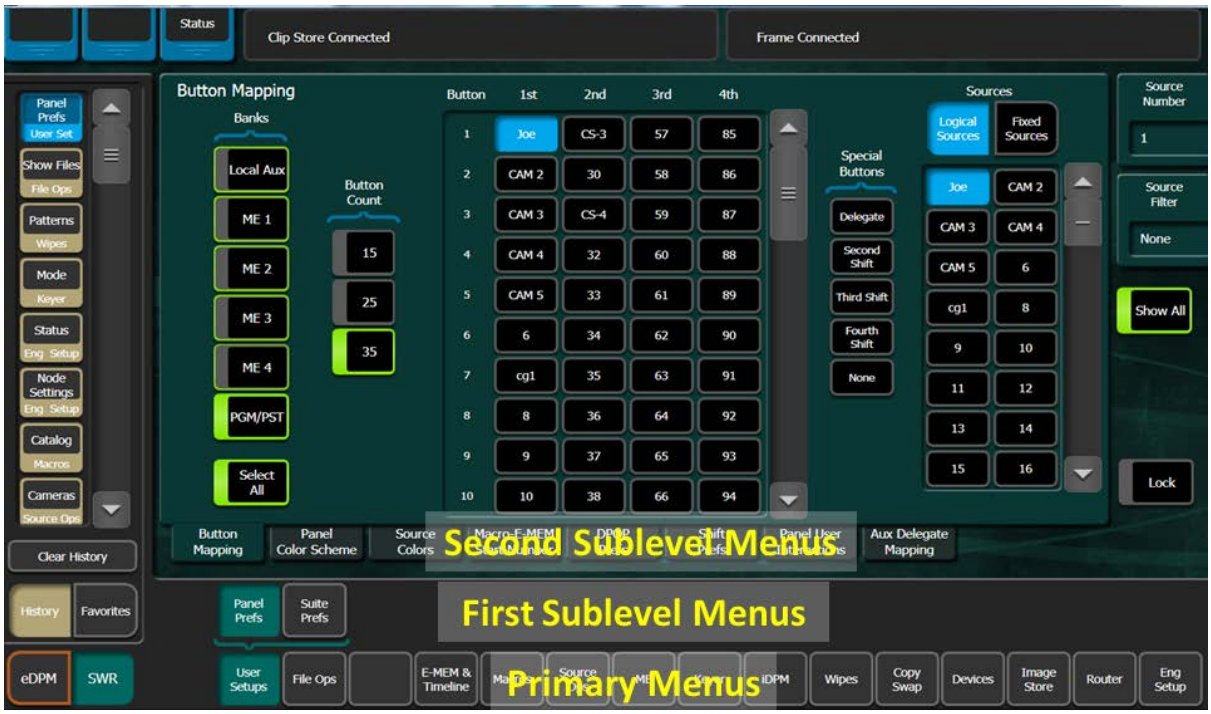
Menu Structure

The touchscreen menu houses the controls for configuration and operational set up. Multiple menus can be connected in either suite, each independent of the others.

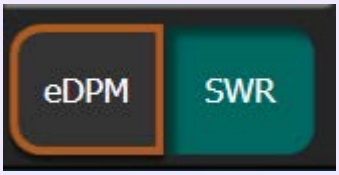
The menu system is designed with a set of primary menus each with one or two sub-menu levels. This design reduces the amount of information change on-screen when working within a specific set of controls.

Primary and Sub: menus

The primary menu is selected with the bottom row of buttons on the menu screen. When a primary menu is selected a row of sublevel menus will appear above the primary menu selections. If a given primary menu requires more than one sublevel of menus, a second sublevel will be tabs on panels above the primary and first sublevel selections.

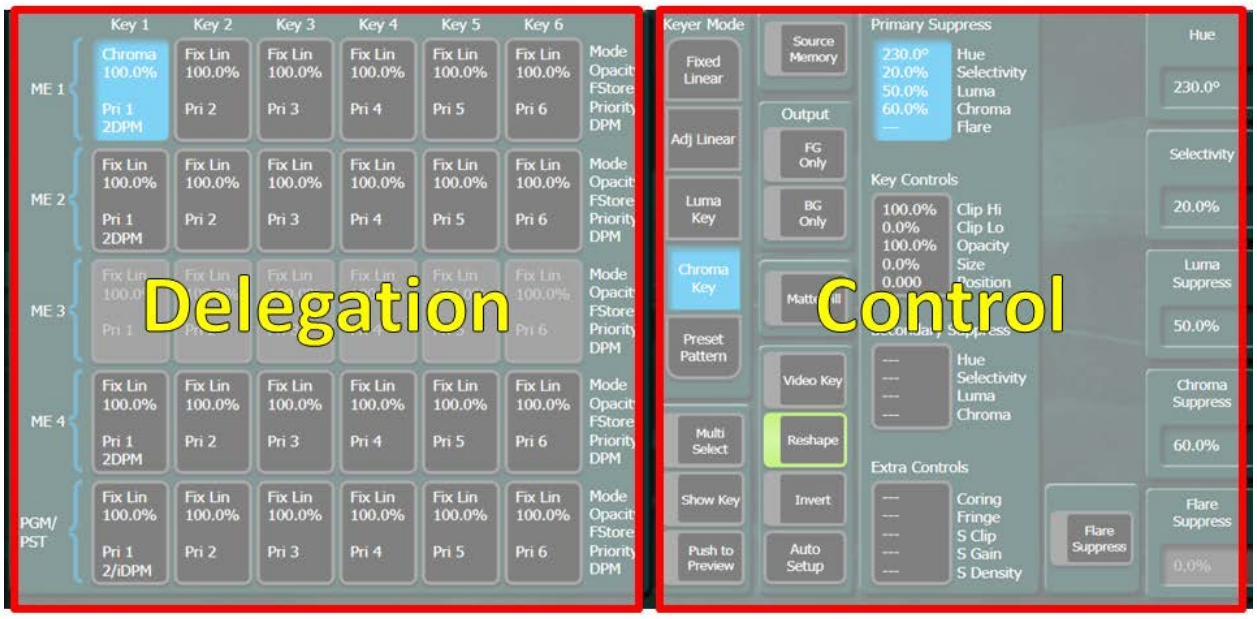


Because the eDPM has a similar operational menu structure as the switcher the menu can be selected between SWR (switcher) menus and eDPM menus.



Menu Layout and Elements

Operational menus have a delegation area where the specific item that is to be adjusted can be selected and a control area where adjustments and controls can be set.

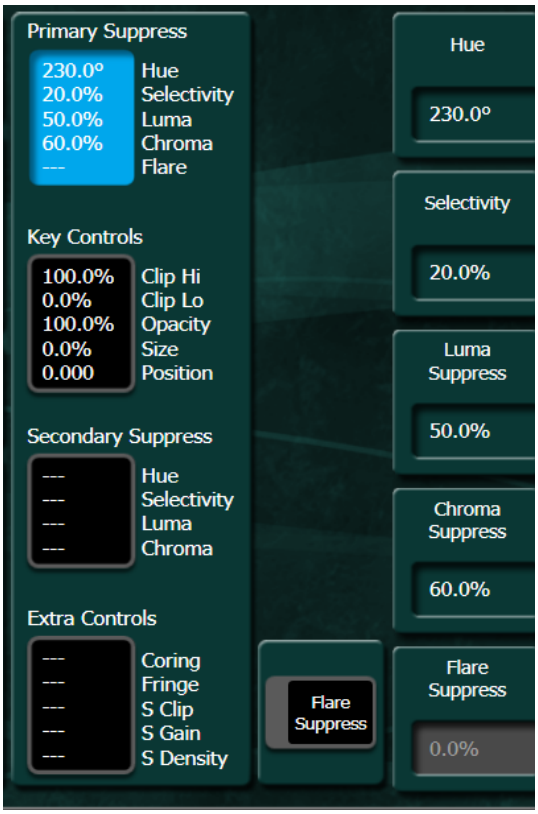


Selections within menu panels have specific functions.

If a group of selections within a given panel have an even outline around the edge they are to delegate a state or mode where only one items in the group can be selected at a time.

If any selection in grouping has a thicker left border it toggles between and on/off status of the selected item. If the border is a bright green the selection is in the on state.

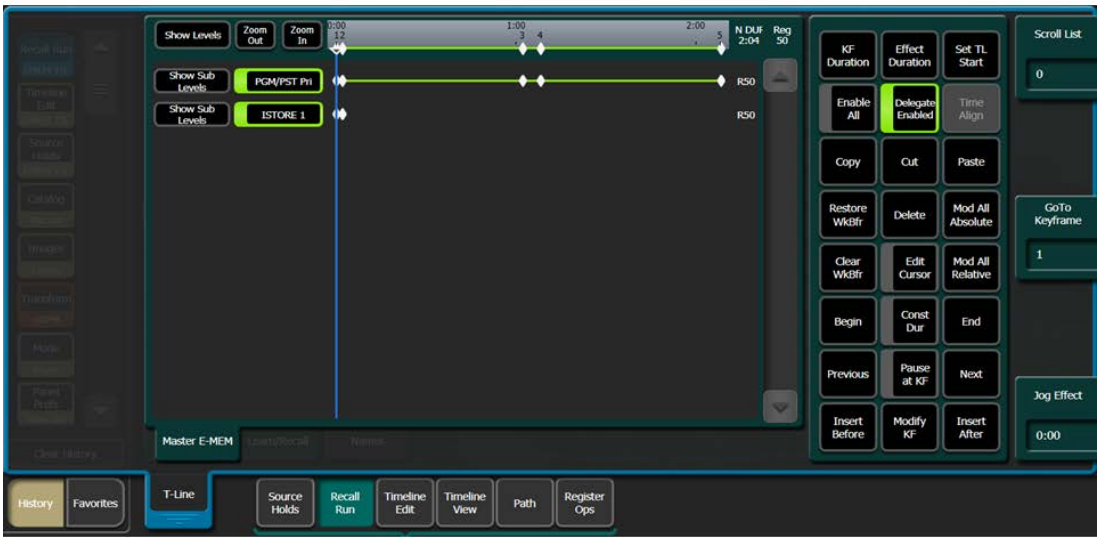
Data box selections with controls that have adjustable numeric values, selection will assign those controls to the adjustable soft knobs on the right edge of the menu panel.



If the data box next to a soft knob has a numeric value, selecting the current value will open a numeric keypad for value entry. If the value can use either alpha or numeric values a QWERTY keypad will open.

Pull-down Overlays

In the upper left of the menu screen are three pull-down menu selections. Based on the current menu the pull-downs will be other menus that you would commonly bounce back and forth to while working with items in the current menu. Selecting a pull-down will place an overlay of that menu over the currently selected menu. Clicking on the overlay tab will return it to the upper left location.



Menu History and Favorites

The panel on the far left edge of the menu screen can be toggled between History and selected Favourites.

- History-Displays menus used during operation with the most recent at the top.
- Favorites-Menus most commonly used can be programed to buttons in panel by navigating to the desired menu, selecting Learn and then choosing a button in the panel.

Section 3 – Configuration

At the end of this section, you will be able to:

- ✓ Properly configure a suite.
- ✓ Explain the elements within the engineering configuration that will allow for the best use of resources.
- ✓ Identify which options are available on any given system
- ✓ Properly configure a K-Frame system for the most efficient use in a given operational environment.

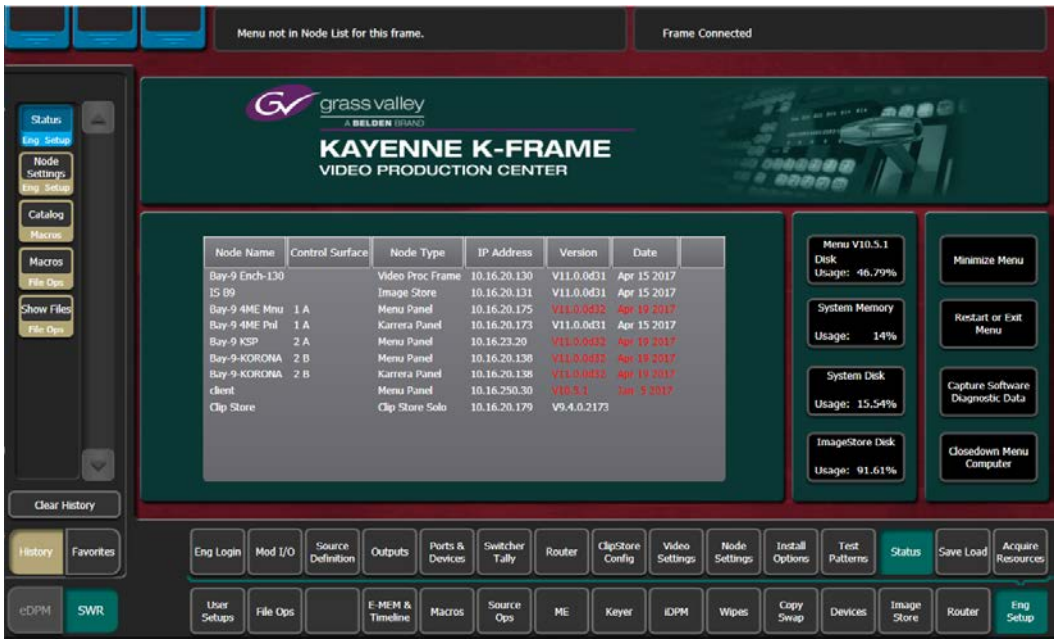
K-Frame configuration consists of two levels of setup. **Engineering Setup** is the base level of configuration that defines how elements of K-Frame (panel, frame and menu) and external hardware resources connected to the frame are implemented for use. **User Setup** allows the operator to configure the resources defined in Engineering Set Up for most efficient operational use.

Engineering Setup

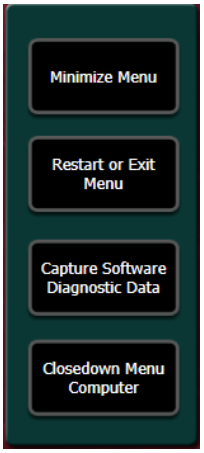
The Engineering Setup Menu (Eng Setup) is the initial point of configuration upon installation. Within Eng Setup, all connectivity to the frame is defined to permit full and proper operation. Engineering setups will vary from switcher to switcher based on the options, sources and devices connected to the frame.

Status Menu

The Status Menu gives an at-glance view of the K-Frame system. The center screen displays connected panels and menus on the K-Frame and the current software loaded on each. If a software version displays in red, it indicates that the software running on that component is not the same version as is running on the frame.



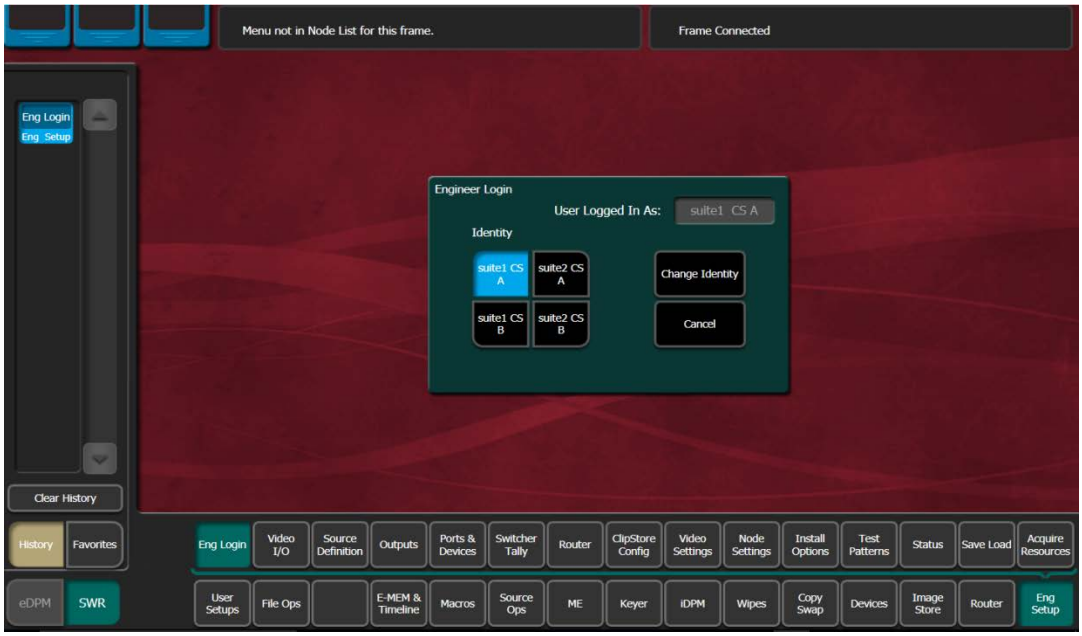
Also in the Status Menu are menu application controls.



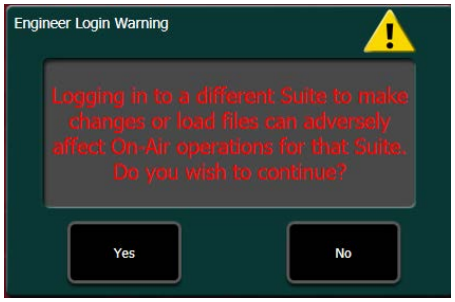
- Minimize Menu-Minimizes menu to toolbar
- Restart of Exit Menu-Closes or restarts menu application leaving Windows running.
- Capture Software Diagnostics Data-Saves system logs, configurations, EMEM's, macros into a zipped file for factory use in diagnosing system problems
- Closedown Menu Computer-Shutdown or restart Windows operating system

Engineering Login

In the Eng Login menu the operator can associate the menu panel with the suite in which they will be working. The box to the right of "User Logged In As" indicates which suite the menu is currently associated with. Selecting "Change Identity" enables the suite choices. There are two suites and each suite has two control surfaces (CS) labeled A and B. Each suite has exclusive access to the frame resources acquired by that suite, but control surface A and B in a single suite are sharing the resources acquired in that suite.



1. Select the "Change Identity" button to enable suite selections
2. After selecting the desired suite, a warning will open on screen

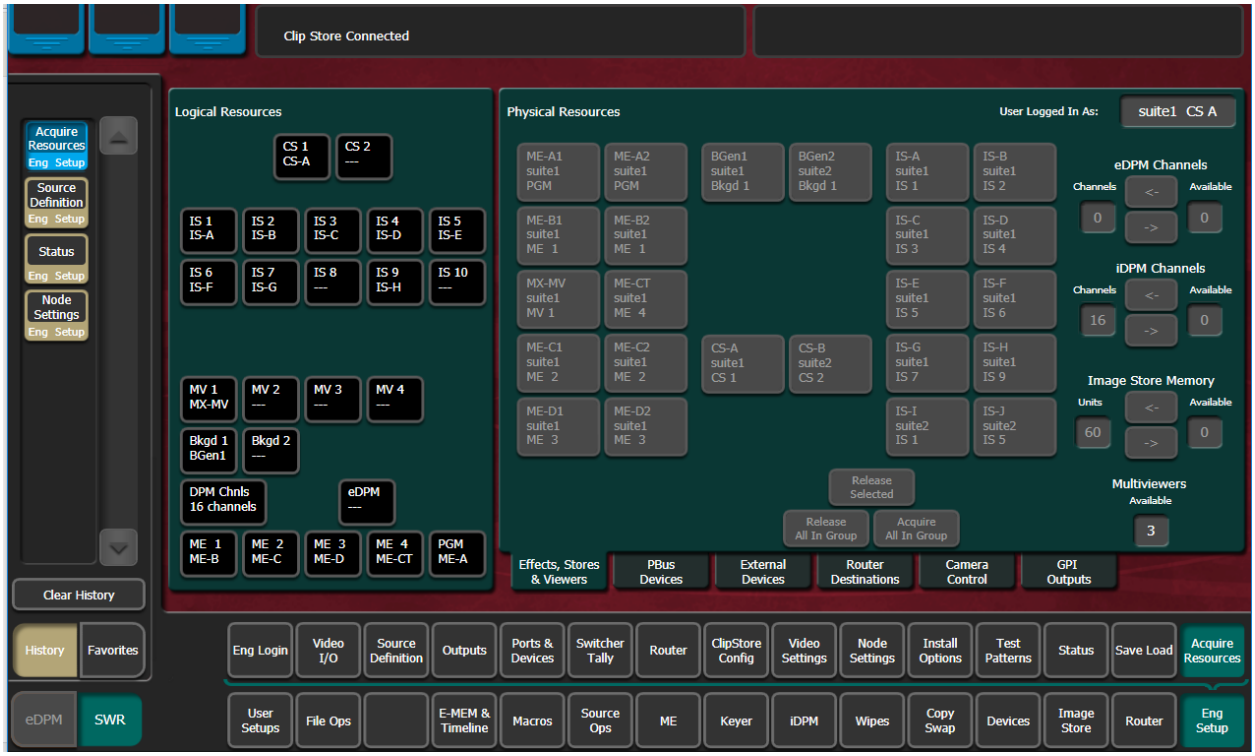


3. Selecting "Yes" will associate the menu with the suite you chose. Selecting "NO" will return you to the suite you were previously in.

Acquire Resource

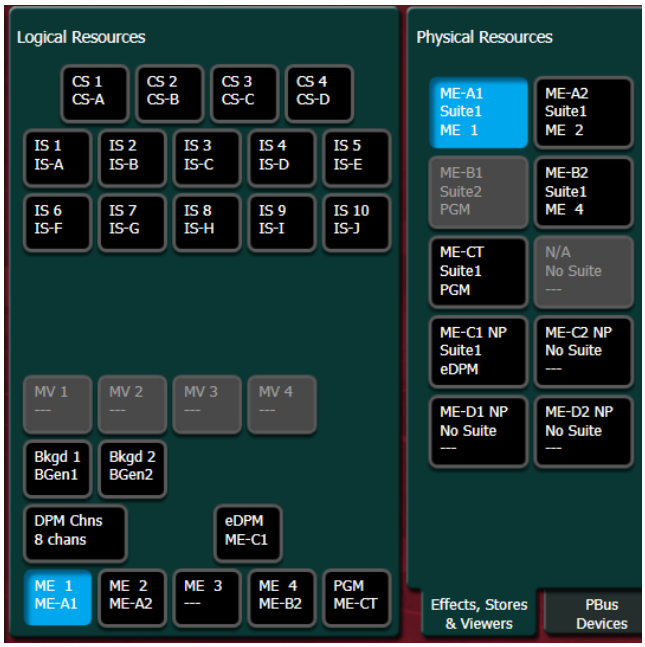
The Acquire Resources menu in Eng Setup allows an operator to assign available frame resources to the suite their menu is associated with. Resources acquired by the other suite are unavailable until those resources are released from the menu that is associated with that suite. Resources include Mixed Effects hardware assignment, ImageStore channels and memory allocation, ClipStore channels, DPM channels, Multi-viewers and Color Background generators. In addition connected external resources such as router outputs, clip servers/VTRs, PBus devices and GPI outputs can be assigned to each suite.

The menu is divided into “Logical Resources” and “Physical Resources.” “Logical Resources” are the resources that are assigned to your suite. “Physical Resources” are the pool of hardware resources available to select from for each suite. The menu will indicate if a resource is acquired by a particular suite or available for acquisition.



ME Assignments

Based on the frame model you have and hardware installed will determine the number of physical MEs available. One ME board in a full K-frame supports 2 logical MEs. In the S-series and V-series frames, one ME board supports 3 logical MEs. In addition the controller board (CPU) also has the ME CT (Full K-Frame only). The only functional difference between a full ME from an ME card and the ME CT is that iDPMs cannot be used on the keyers on the ME using the ME CT hardware.



Acquiring ME

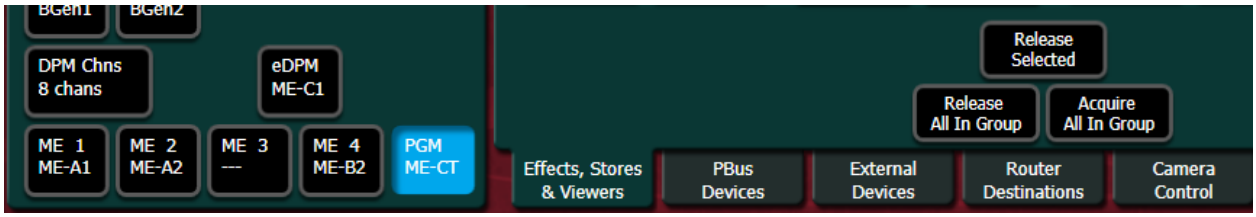
1. To assign ME hardware to a Logical ME, first select the desired ME under “Logical Resources.”
2. Then select the hardware under “Physical Resources” that you wish to assign to that ME.

If a physical resource is greyed out in the menu it is either assigned to another suite or the hardware is not installed or licensed..

All available ME hardware resources can be acquired at once by selecting “Acquire All In Group”

Releasing ME

To release ME hardware for another suite to acquire:



1. Select the ME you wish to release.
2. Select “Release Selected”

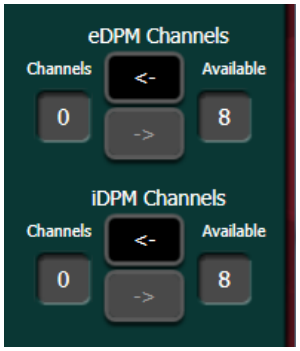
All MEs acquired in a suite can be released at the same time by selecting “Release All In Group”

Acquiring DPM Channels

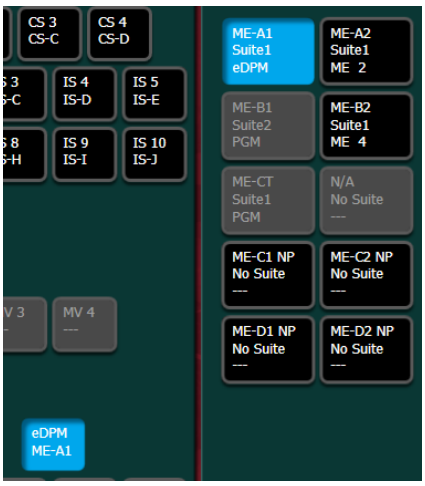
A Standard K-Frame with all 4 ME board can be licensed for a total of 16 DPMs (4 per ME board). These DPM channels can be used as iDPMs (assigned resource to a selected keyer) or eDPMs (selected channels combined as one source). If the DPM channels are to be used as eDPM channels an ME resource must also be acquired to the suite.

1. To acquire DPM channels for the suite, select the “DPM Chnls” box in “Logical Resources”

2. Available channels can then be acquired as either iDPM channels or eDPM channels.



3. If eDPM channels are going to be used in the suite, in “Logical Resources” select eDPM box and acquire ME hardware from “Physical Resources.”

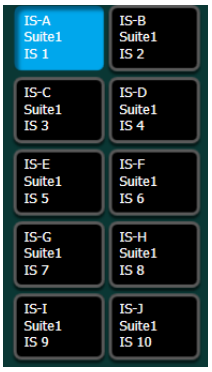


Acquiring ImageStore Resources

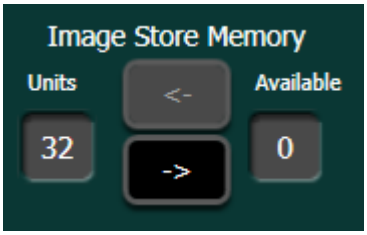
ImageStore has two components, physical video/key channels and RAM memory for cache storage of still and movie files. Since all ImageStore files are held in active memory, each suite must have memory allocated to use ImageStore.

1. To acquire ImageStore channels, select the logical channel in your suite.

2. From “Physical Resources” select the available channel for your logical ImageStore output.



3. Acquire memory from the available pool by selecting the (<-) arrow.

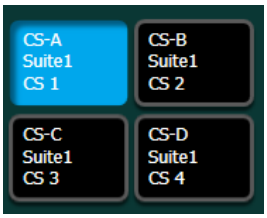


Acquiring ClipStore Channels

ClipStore is a server device that is integrated into K-Frame through physical connection and designated menu controls. ClipStore is either a 2 video/key channel device (K2 Solo) or a 4 video/key channel device (K2 Summit). Because the storage for ClipStore is RAID array hard drive storage, files stored on the RAID, as well as channels can be shared by both suites.

1. Select the logical channel for your suite.

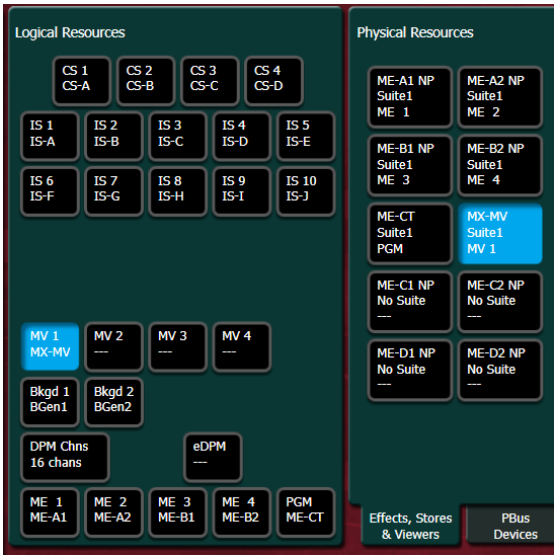
2. From the physical channels configured into the K-Frame, select an available channel.



Acquiring Multi-Viewers

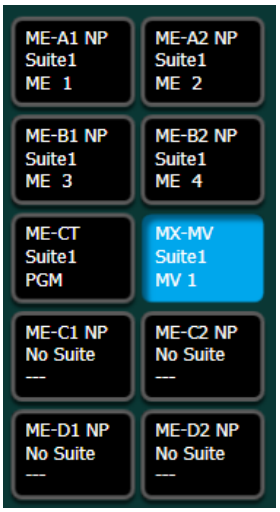
By using physical ME resources on standard K-frame or integrated Multi-viewer hardware on Controller board in S-series, or integrated on ME board in V-series, outputs on the K-Frame can be configured as a multi-viewer. The available resources allow for multi-viewers with 4 to 14 assignable on screen windows, that in turn can be assigned to frame outputs to feed external monitors.

As in the other acquisition menus, select the “Logical Resource” you want in the suite from the left panel in the Resource Acquisition menu. Then select the “Physical Resource” in the left panel to acquire the available resource for the Multi-Viewer.



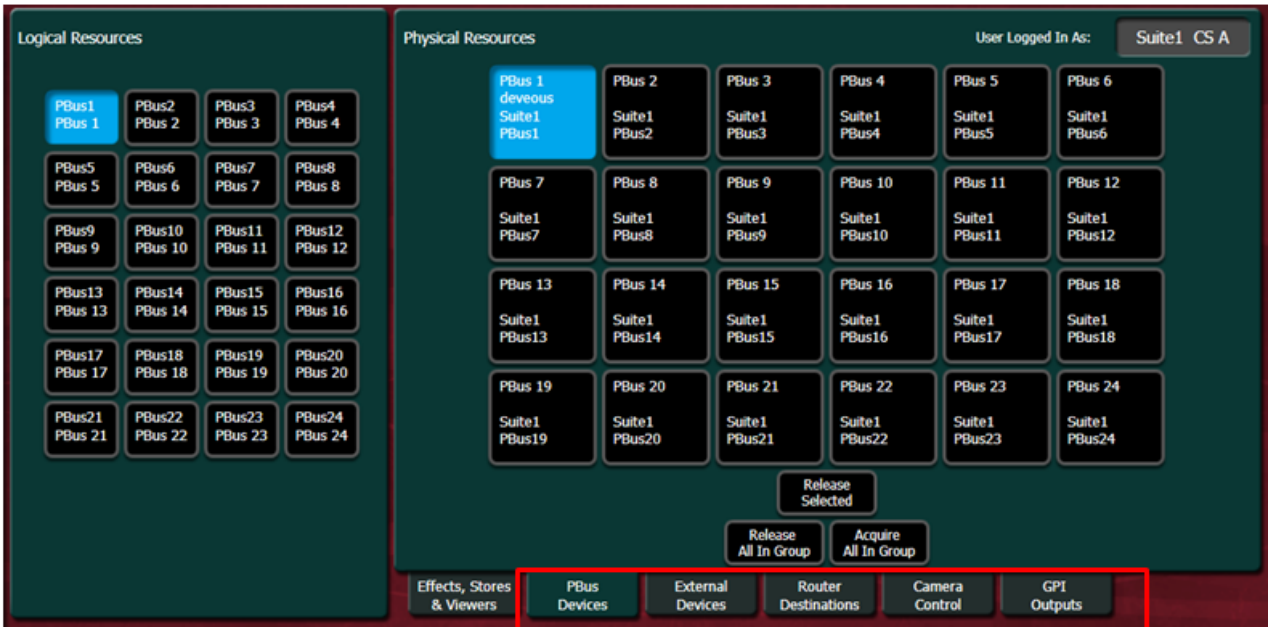
Each suite can have up to 4 Multi-Viewers.

Each Multi-Viewer in full K-frame requires an ME resource from the frame. These resources are the same resources that are used for Mixed Effects banks on your control panel or for eDPM. S-series and V-series frames have separate hardware for Multi-viewer.



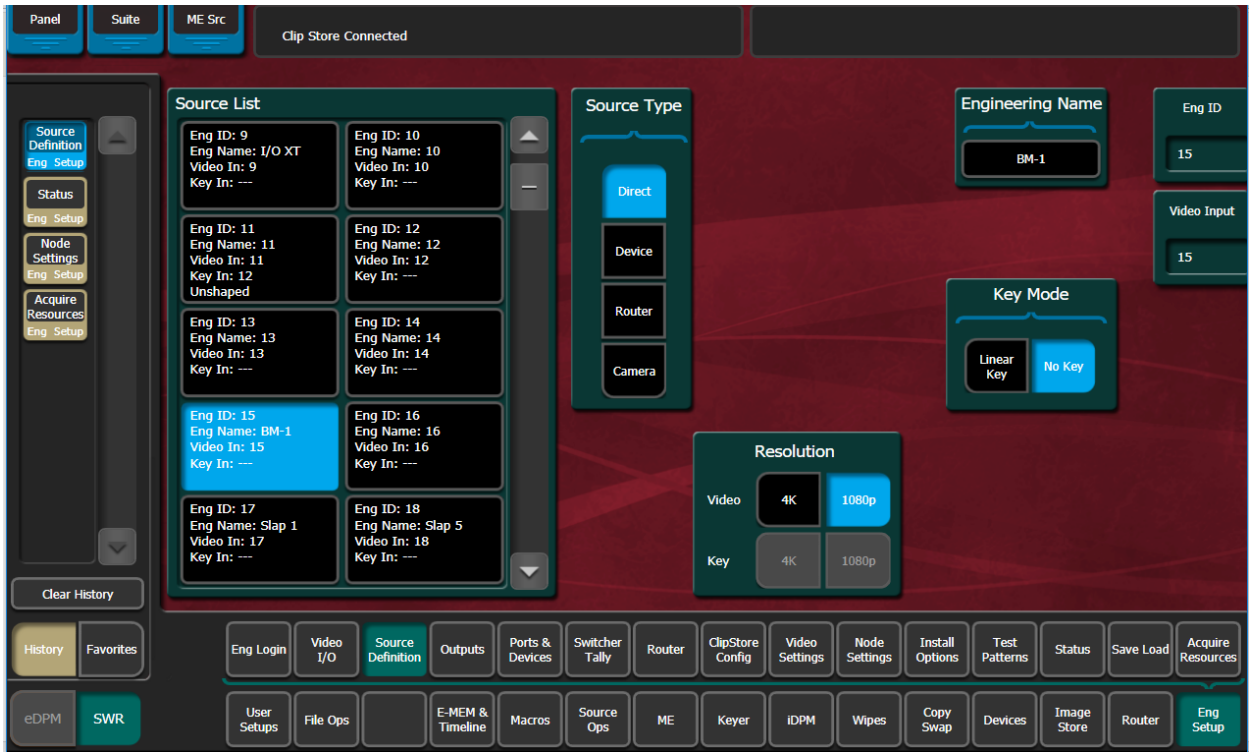
Acquiring External Resources

When the K-Frame is configured to control external resources such as PBus devices, clip servers and VTRs, house router, camera CCUs and outgoing GPI triggers, those resources can be divided up in the same manner as the frame hardware resources as discussed above. Using the same method, select the logical suite resource on the left of the menu and associating it with available physical resources on the right portion of the Acquire Resources menu.



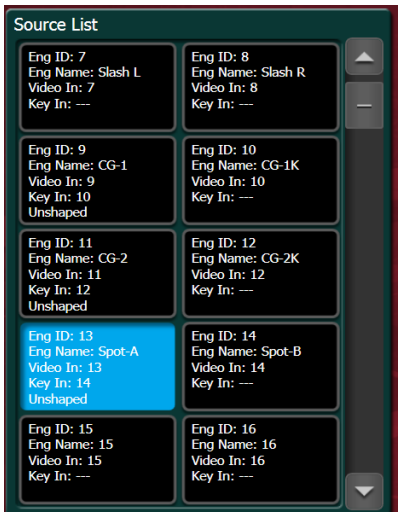
Source Definitions

In the source definition menu, each source is defined by the signals from that source connected to the frame. In addition to the video and or key signals coming into the frame, sources such as servers, routers and camera CCUs may also have a communication connection for additional control of that source from the panel or menu

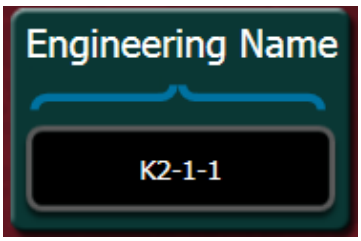


Start defining a source by first selecting one of the Eng ID boxes in the source list. For each Eng ID you can assign all components of each source.

In the “Source List” each box or Eng ID becomes the defined source that is assigned to the panel source buttons. Selecting an individual Eng ID give access to selecting all signals associated with the source being defined. From this menu the source can be given an engineering name and all relevant signal connections (Video, Key and Communication) are combined to create an operator assignable source.



Once an Eng ID is selected, start by giving the source an Engineering Name. Engineering names are typically the name the piece of equipment would have in the equipment rack. In operations a server channel may be called “Gold,” but to engineering it’s K2-1 Channel 1



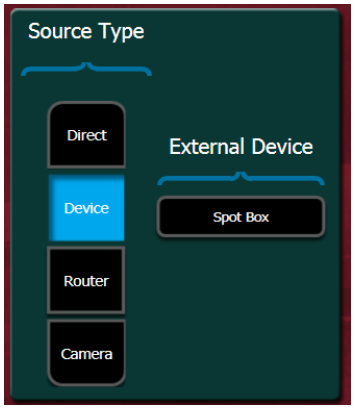
Set “Source Type.”

Direct-only video or video/key no communication

Device-Server or VTR connected via Serial or Ethernet

Router-Source connected directly from Router output to switcher input (define as router source only if communication between K-Frame and Router Controller is established)

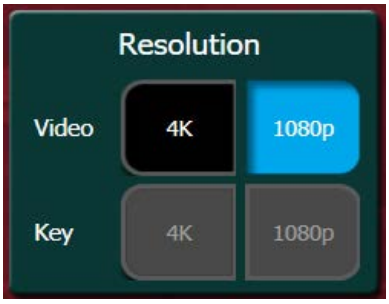
Camera-Ethernet communication between K-Frame and camera CCU is connected.



Assign the Video Input. In the “Video Input” dialogue box set the value of the BNC connector on the back of the frame where the signal from the device is connected. If the source does not have its own key signal, set “Key Mode” to No Key. If the source is defined as no key, the switcher will associate a full-screen white key signal.

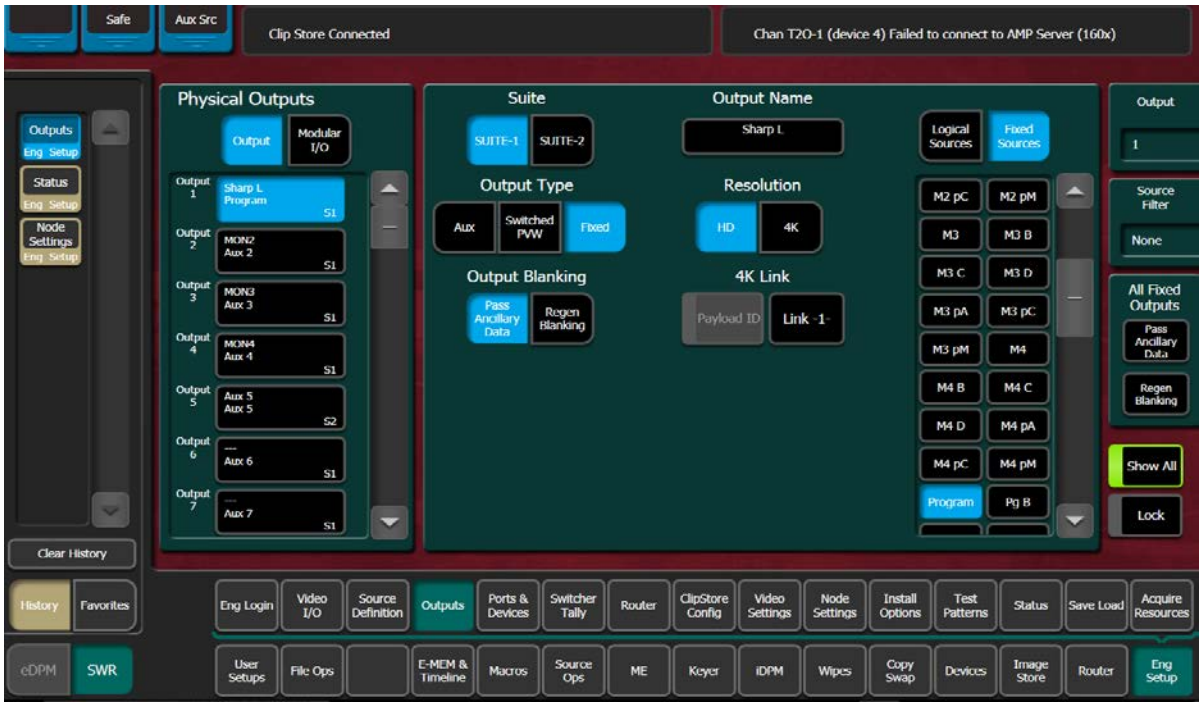
If a source does have a key signal connected to an input connector on the frame, set the “Key Mode” to Linear Key. This adds additional set up dialogue to the menu. Key Input is the BNC connector on the frame where the key signal is connected. Clip High is the maximum value of the matte signal for key (fully opaque portion of key) and Clip Low is the minimum value of the matte signal for key (fully transparent portion of key)

If you are operating in 1080p the menu will have a selection to determine if the source you are defining is standard 1080p or on of the four combined signals for 4K. If 4K is selected and a Video Input value is assigned, K-frame assumes the next 3 consecutive inputs are the remaining signals that make up the 4K signal.



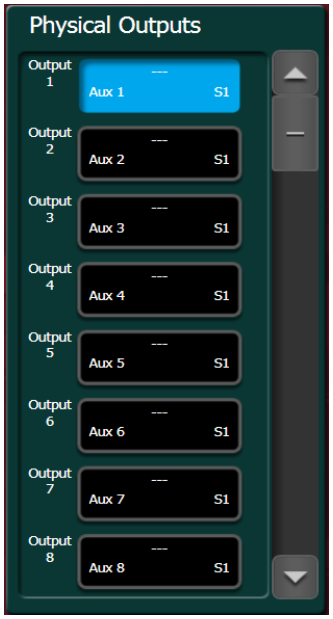
Outputs

The Outputs menu is where the signals from the frame are assigned to a physical output connection on the back of the frame. Frame signals are divided into three categories, Fixed, Switched PVW and Aux.



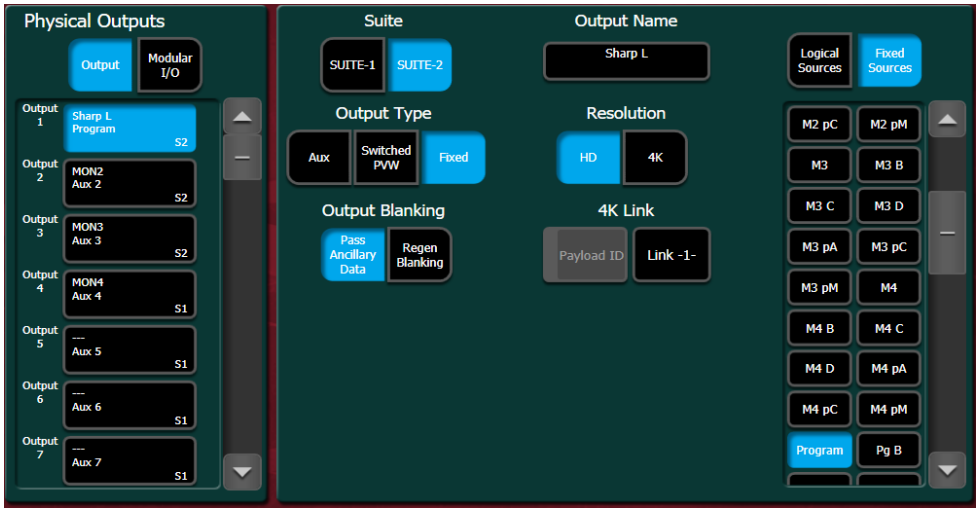
Physical Output

Physical Outputs refer to the BCN connectors on the back of the K-Frame. All outputs are definable from the Outputs menu and can be assigned any of the selectable signals from the outputs menu.



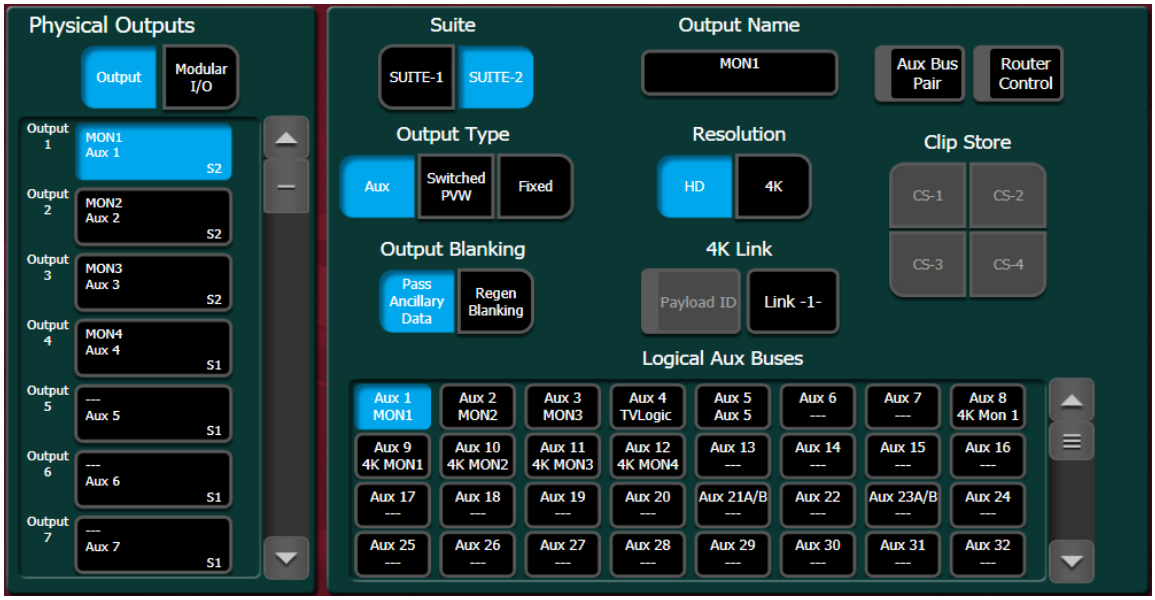
Fixed Sources

Fixed sources are divided into two different categories. Logical sources are those connected to the input side of the K-Frame and defined in Source Definitions. Fixed Sources are signals composited in the frame, these would include the Program and Preview of each ME, ImageStore, internal test signals, eDPM and Color background generators.



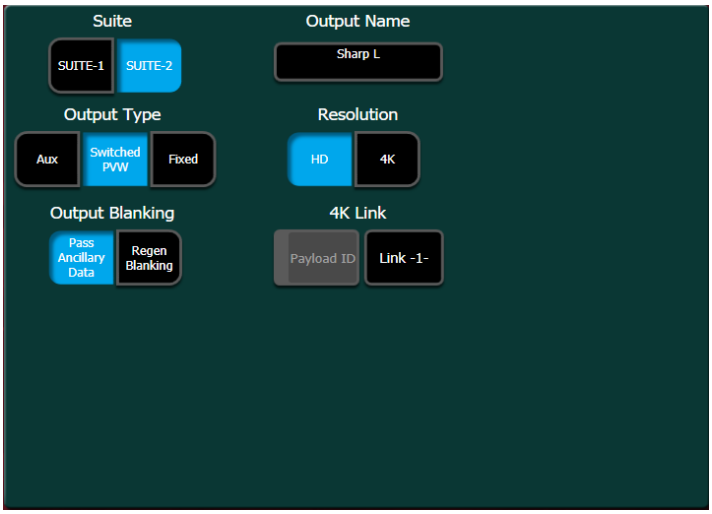
Aux Sources

K-Frame has 96 logical Aux busses that can be assigned to any of the Physical Outputs. An Aux bus is a switchable feed that is not part of a mixed effect. Aux busses would also include the switchable feeds to the input of the ClipStore.



Switched Preview

Switched Preview is a single source to an output that allows the operator to switch between each of the ME previews from a panel on the control surface.

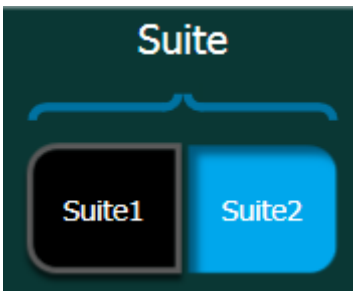


The switched Preview selector is located on the System Bar on a Kayenne panel.

Switched Preview is located above the keyer source select row of the bottom mixed effects bank on the Karrera panel.

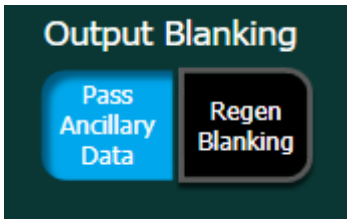
Suite Assignment

In a multi-suite configuration the two suites share the one set of resources in the frame. So, when working with two suites any physical output can be assigned to either suite.



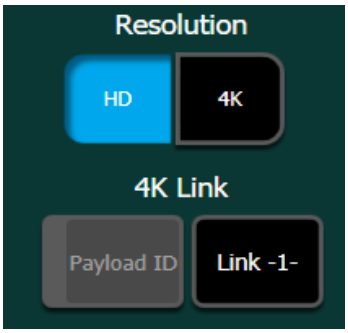
Output Blanking

Output Blanking is selectable between Pass Ancillary Data, which allow signals to pass through the system without any reprocessing of blanking. If Regen Blanking is selected then the signal leaving that output has blanking replaced by switcher blanking generator.



Outputs 4K Operations

When Video Settings are set to 1080p the Output menu displays a selector for HD or 4K. When running in 4K 2SI the Payload ID can be enabled and the Output can be selected to Links 1-4



Node Settings

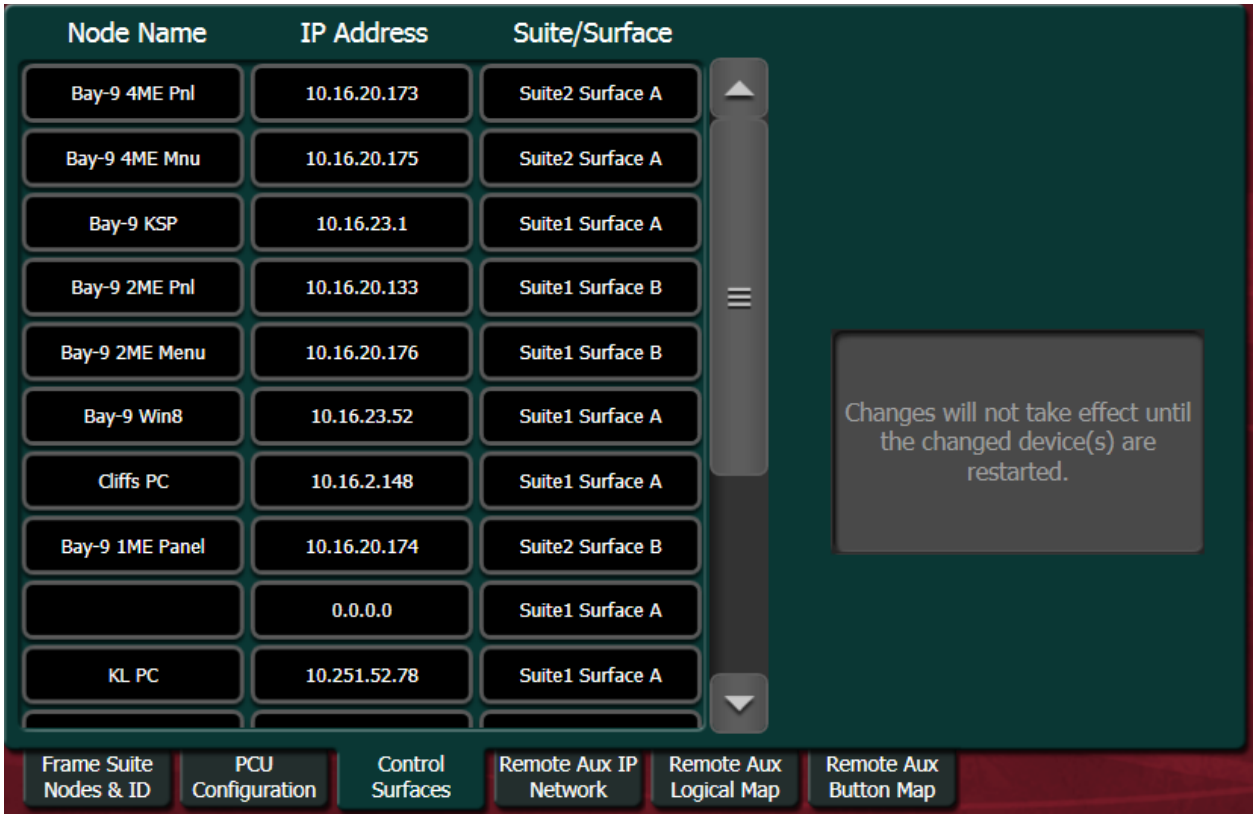
Node Settings menu is where the IP network for the K-Frame is configured. Because the frame, panels and menus have to communicate, they must be configured properly for this communication to occur.

Frame Suite Nodes & ID

In the Frame Suites Nodes & ID tab of the Node Settings sub-menu the frame and panel IP addresses are set. The frame IP address is necessary because the menu is a control surface for the frame. The panel IP address, for the panel in the suite the menu is logged into is necessary because the panel can communicate to the menu through the frame. Button presses on the panel can send a message to the menu panel to display the corresponding menu to the button pressed.

Control Surfaces

The Control Surfaces tab is where all panel and menus that are connected to the frame are listed. Because K-Frame can do multiple control rooms with one frame all panels connected to the frame must be listed for the system to operate. Also, multiple menus per suite can be connected to the frame at one time.

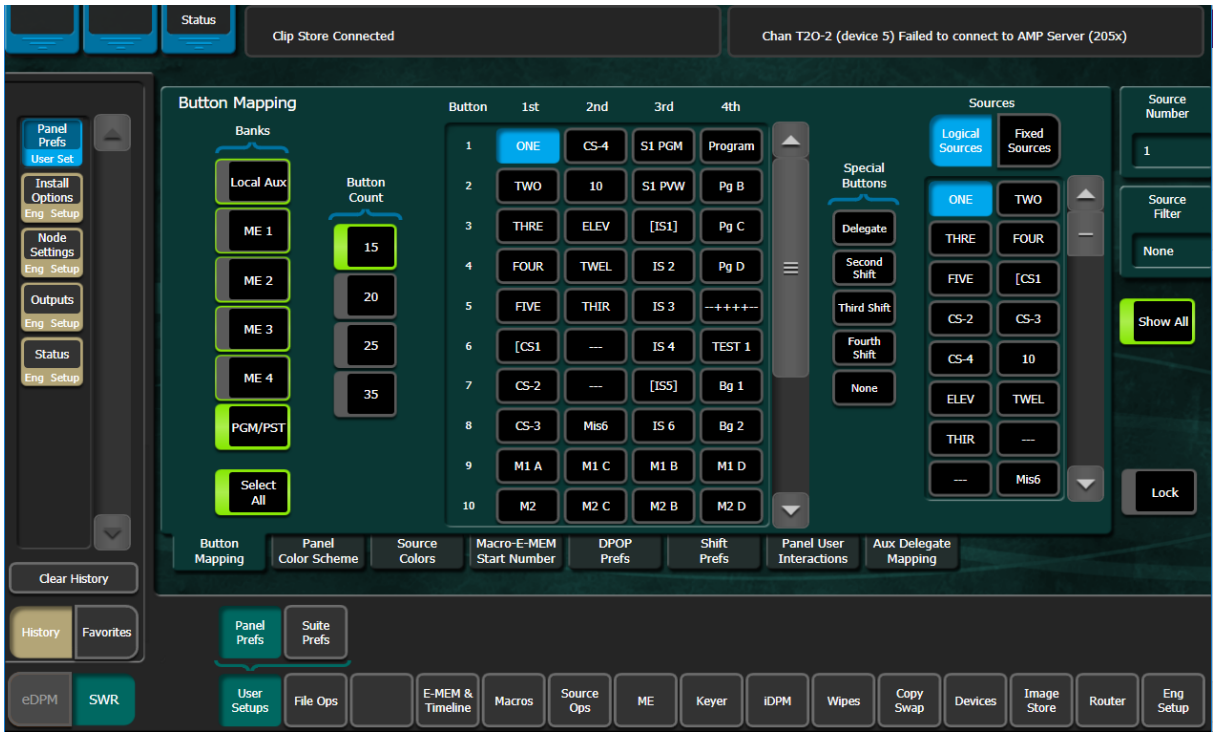


Install Options

K-Frame features are based on installed hardware and software licenses to enable various options. Even though a system may have 2 ME boards, which is enough to accommodate 4 mixed effects, it may only have licenses for 3 mixed effects to be functional. A system may also have licenses for 16 DPMs, but only have enough hardware installed for 12 DPMs. The Install Options shows all licenses enabled on a given system.

User Setup – Panel Preferences

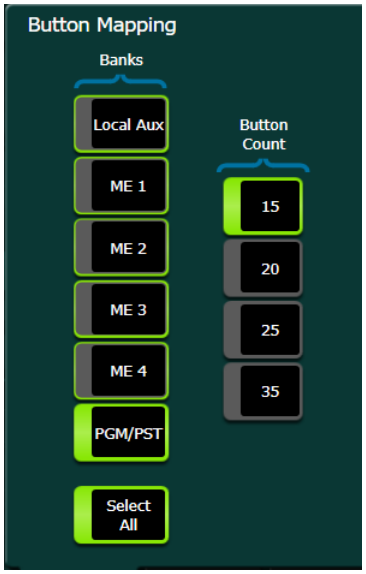
Operator configurations are set in User Setups. User Setups are divided into two sub-menus, Panel Prefs which are settings that configure the control surface and Suite Prefs which set frame based functions.



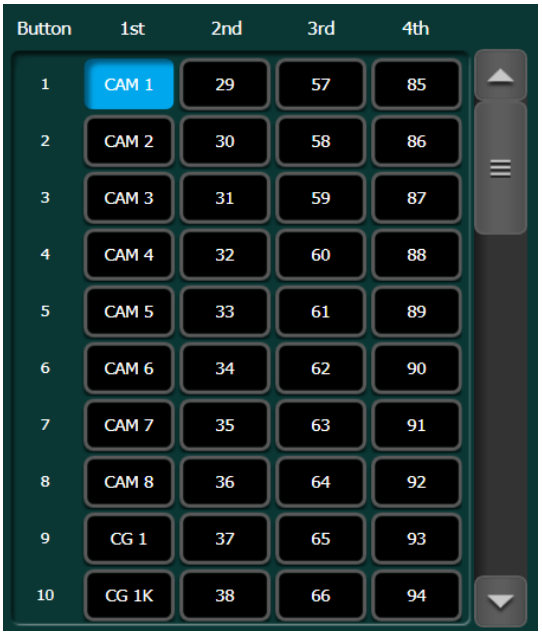
Button Mapping

From Button Mapping sources can be mapped to source select crosspoints on each ME and Local Aux panel.

The left panel of Button Mapping has selections for which banks to map. ME banks and the Local Aux can be mapped separately or as a group. There are also delegations for the number of buttons that are on the panels Source Select Module. Sources Select Modules come in four different button counts, 15, 20, 25 and 35.



The center panel of Button Mapping is representative of the buttons on the Source Select Module (columns) and each of the shift levels for a single button (rows).



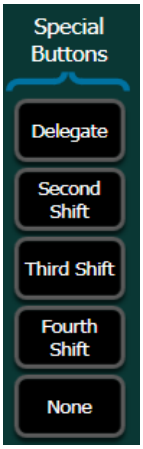
Mapping Buttons

1. From the panel to the right select the button position you choose to map a specific source.
2. In the sources panel on the right of the menu, select desired source (Logical Sources are sources defined in Eng Setup/Source Definitions.

The panel on the right of the menu is the map-able sources. Logical Sources are sources defined in Eng Setup/Source Definitions. Sources such as cameras, clip servers, graphics, etc.

Fixed Sources are produced inside the frame. These include the ME program and preview signals, ImageStore, internal test signal generators, color background generators and internal black.

Special Buttons are mapped to the panel to enable additional source selection functionality.

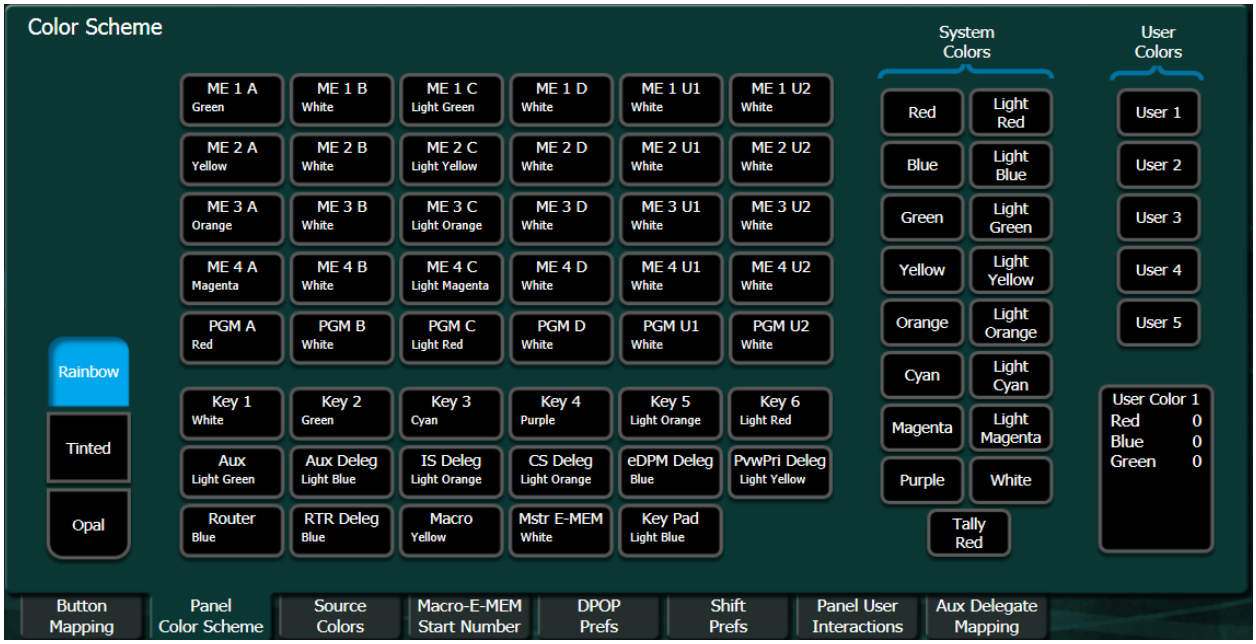


- Shift buttons are used to access sources mapped to the second, third or fourth level of a source button.
- Delegation is used to assign the primary delegation to a row of source selections (i.e., Key 1-6, A,B,C,D and U1 and U2). The delegation source mapped to a button also displays what the primary delegation of a source row is in the OLED.
- If None is mapped to a button the button won't initiate a switch if pressed.

Special Buttons Mapped to Source Buttons

Panel Color Scheme

Panel Color Scheme sets the default color of LED lights in the source buttons for ABCD background buttons and the Key 1-6 source buttons.



To assign desired colors:

1. From the table in the center of the menu select the desired source buss row. The top of the table are the background source buss rows my ME bank. The bottom portion of the table is the Key 1-6 source bus rows (these colors are global for all MEs).

2. Desired color can be selected from either preprogrammed colors from System Colors selections. Setting *the Tally Red selection will change the LED light color in the button of any source that is contributing to the on-air signal.*

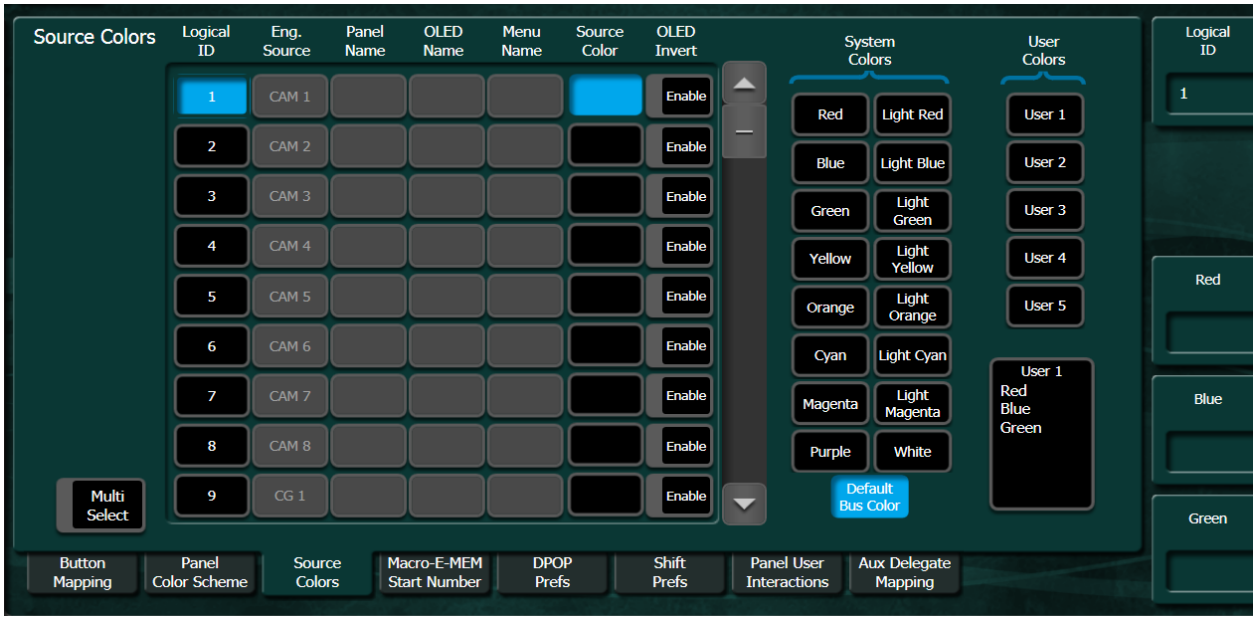
3. Or, user colors can be created by setting the RGB values of the three color LED lights in the source buttons. User color red, green and blue values range from 1-255.

There is also a global setting for overall panel colors.

- Rainbow-All source buttons in the source row display the assigned color for that source row.
- Tinted-All background source buttons are white. Key source buttons and ME reentry buttons display the assigned colors.
- Opal-All source buttons are white with the exception of the ME re-entry buttons, which display the assigned color.

Source Colors

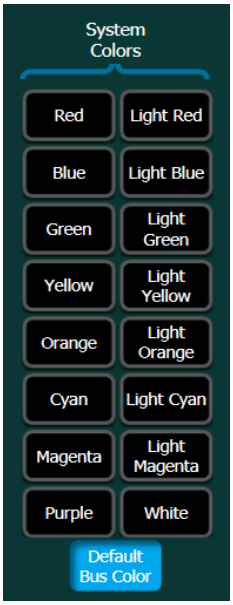
Source Color replaces the assigned panel color for selected sources. If a source color is assigned to a source that color will be displayed for that source on all buss rows.



To set a source color:

1. From the large table on the left of the menu select the Source Color box corresponding to the desired source.

2. Select one of the predefined colors from System Colors list. *Selecting Default Bus Color will return the source to the selected buss color set in Panel Color Scheme*

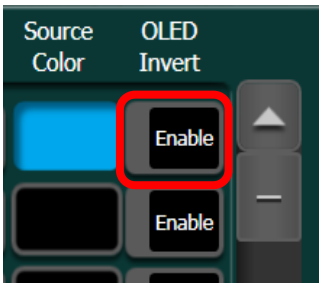


3. Or, set a color by selecting a User color and setting the red, green and blue values to the desired source color. Red, green and blue values can be set in a range of 1-255.

Source Color also allows for the name in the corresponding OLED source name display to invert.

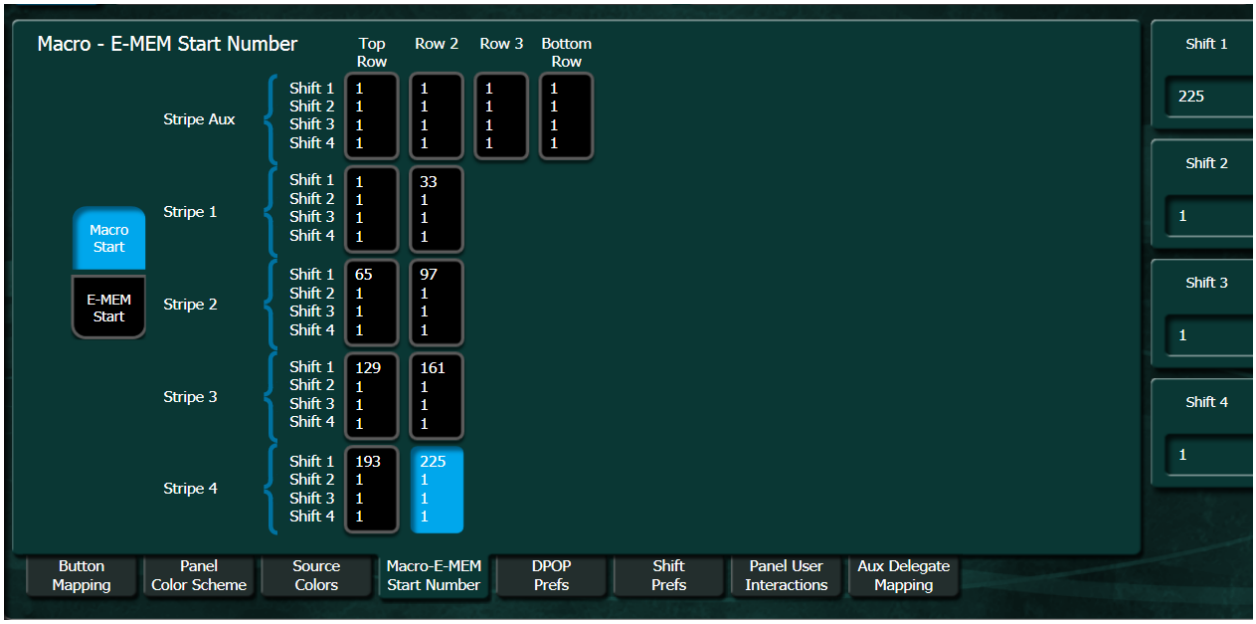
Enable button to the right of the Source Color sets the OLED to invert.

- Inverted-Background highlighted text dark.
- Disabled-Text highlighted and background dark.

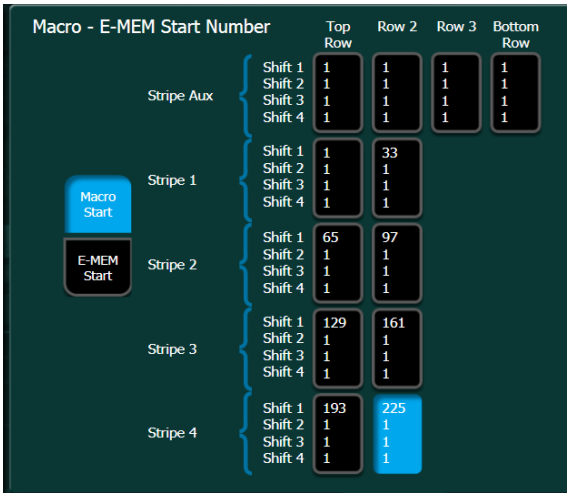


Macro-E-MEM Start Numbers

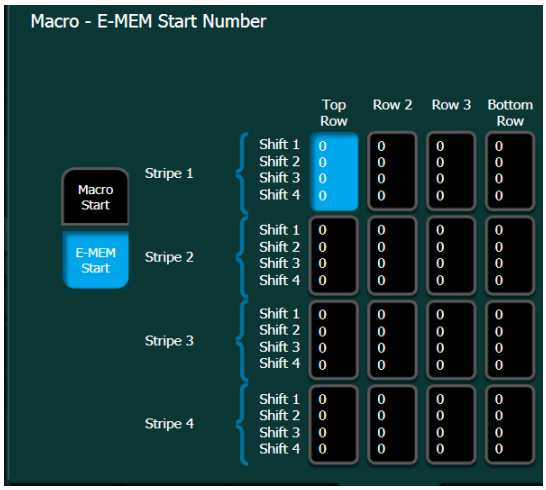
In addition to delegating source buttons on the Source Select rows to sources, they can be delegated to macro or EMEM register recall. In this menu a stripe is all rows of source buttons on a mixed effects bank. Stripes on any panel are numbered from 1 as the top ME grouping and counting upward as you down the panel for each additional ME grouping on that panel.



Macros are only delegated to the top two rows on each stripe (keyer source select rows). The number in each box indicates what macro will be on the first button of that row at each shift level. For each button after the first button, consecutively numbered macros will be assigned to those buttons.

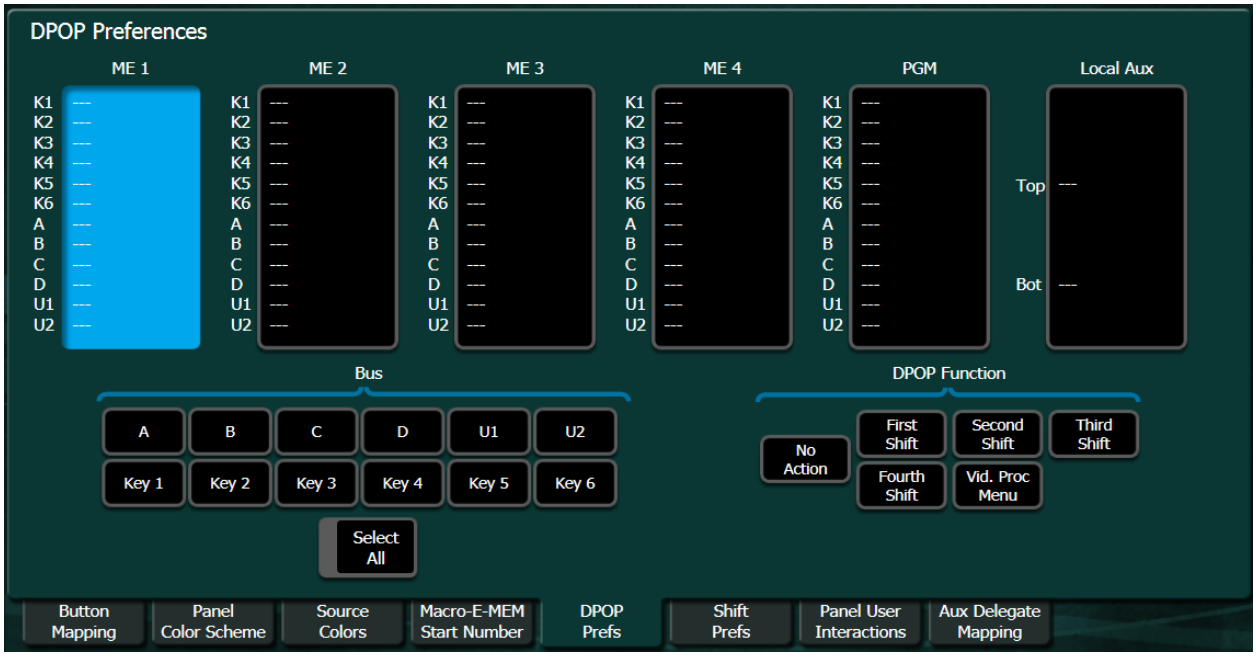


When delegated to EMEM register recall, all buss rows on a stripe will have a corresponding EMEM register number. Like in macros, the number in each box indicates what EMEM register will be assigned to the first button of that row at each shift level. For each button after the first button, consecutively numbered EMEM registers will be assigned to those buttons. *This mode only recalls the local EMEM register, not Master EMEM registers.*

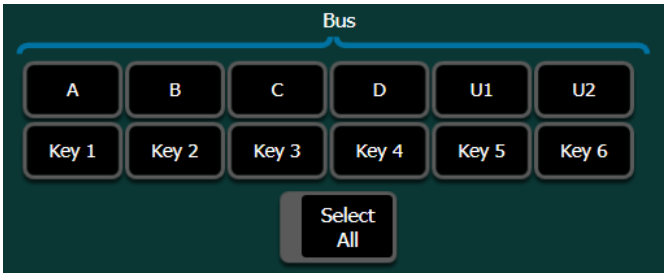


DPOP Prefs

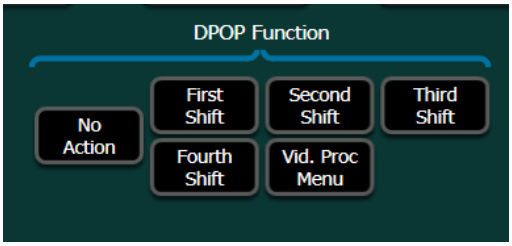
DPOP is a function that selects a source on a shifted level of the button pressed or sends a command from the control panel the menu to display a designated menu screen when a source button is pressed twice within a half second.



Set a source buss row to DPOP functionality by selecting the ME or MEs where you want the function to occur (see above highlighted in blue). Then select the buss row or rows from the Bus selection in the bottom left of the menu screen.

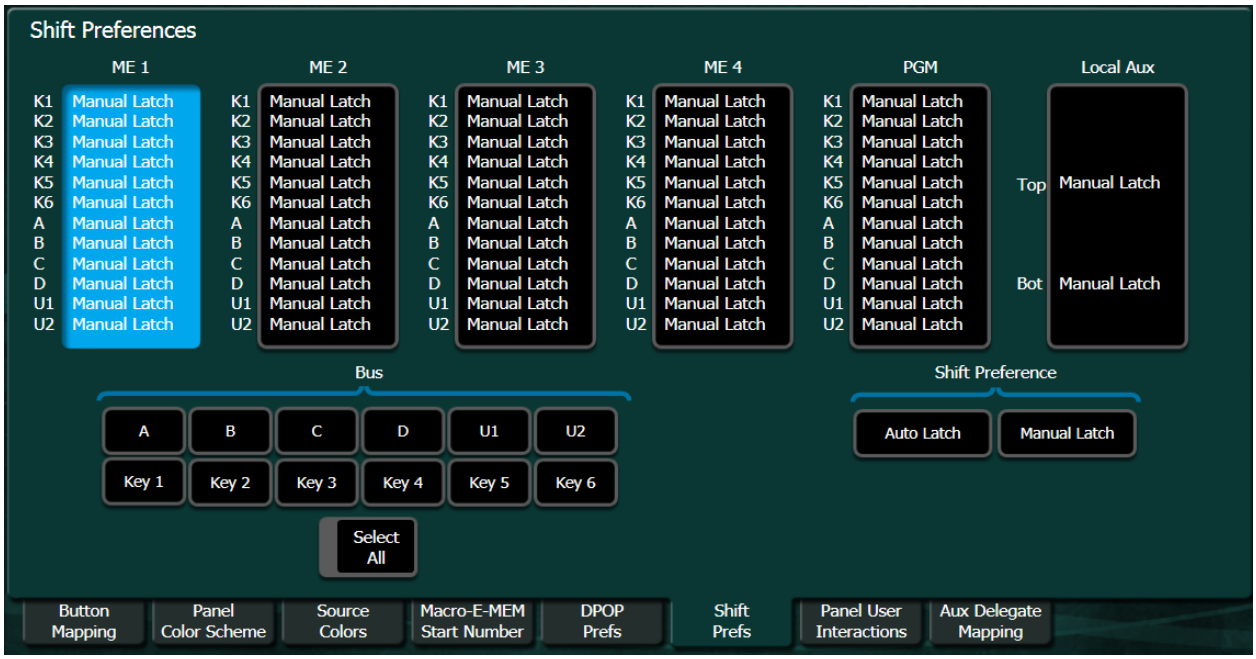


For the selected bus rows in the selected ME an action can be set from the DPOP Function grouping.



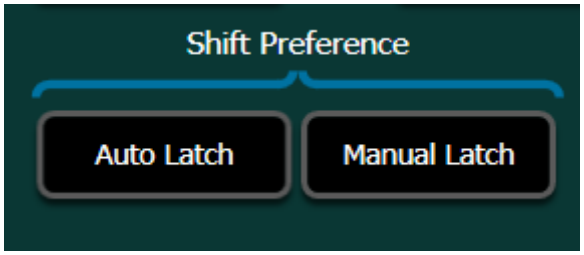
Shift Prefs

Shift Prefs sets the function of the shift buttons on an ME by ME and bus row by bus row basis. Shift preference can be set to either Manual Latch or Auto Latch.



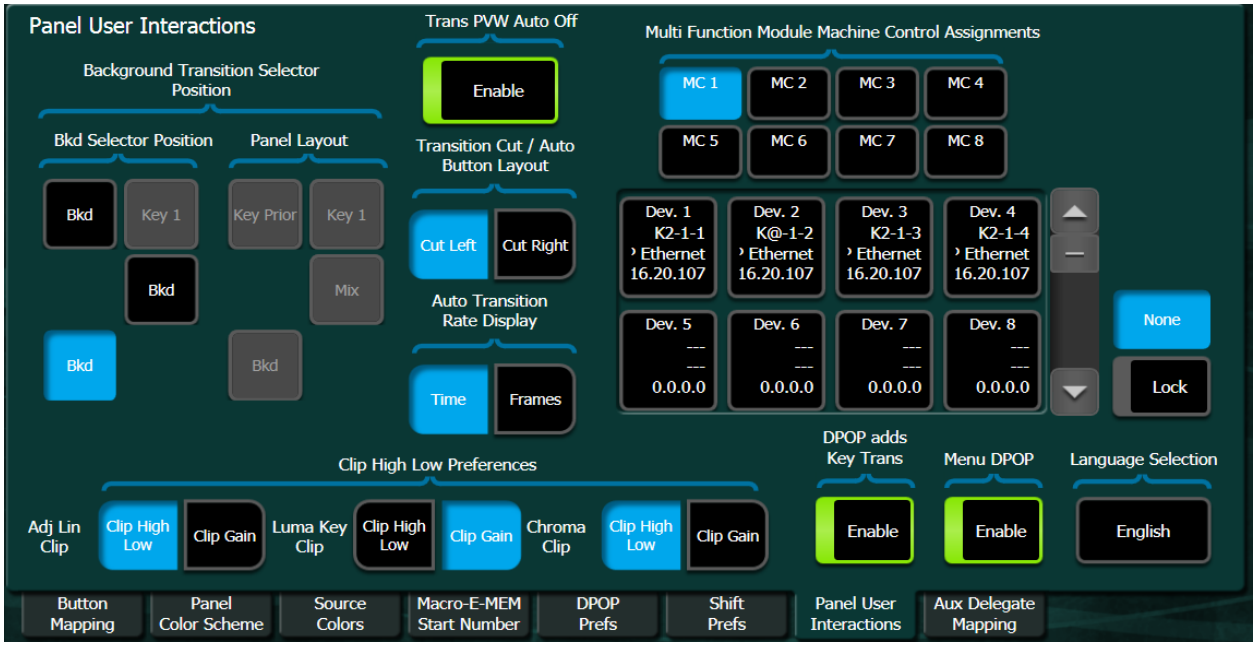
When ME and source rows are selected, shift preferences can be set to one of these two functions:

- Manual Latch-Shift button has to be pressed anytime a shifted source is to be selected.
- Auto Latch-Once a shifted source has been selected, that source row will remain delegated to that shift level of sources until the shift button is re-selected to release the shift delegation.



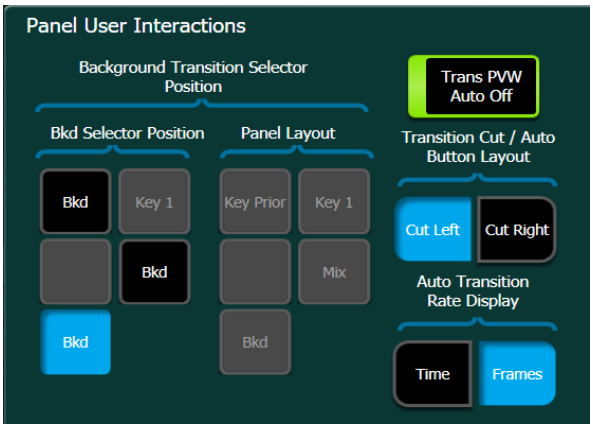
Panel User Interactions

From Panel User Interactions functions can be altered for transition panel, device and key control settings in the multi-function module on Kayenne and key transitions on Karrera. The menu will vary slightly between Kayenne and Karrera.



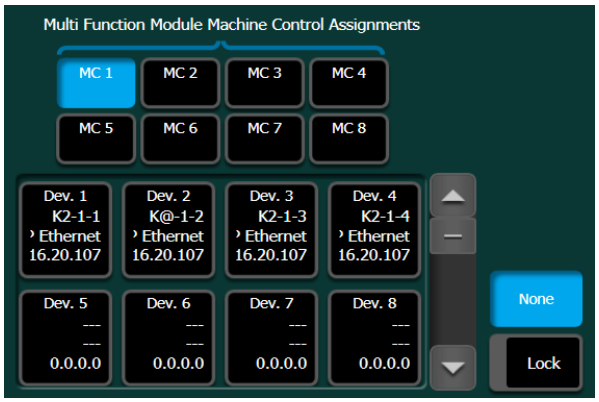
The following are changes that can be made to the transition panel:

- Bkgd Transition Position-Background transition selector can be repositioned. Panel layout will display where other selectors have been moved
- Trans PVW Auto Off-Enabled transition preview will shut off when transition is complete. Disabled the transition preview has to be shut off manually.
- Transition Cut/Auto Button Layout-Swaps Cut and Auto Trans buttons on the transition panel
- Auto Transition Rate Display-Auto Trans rate displays time (Sec: Frames) or frames only.



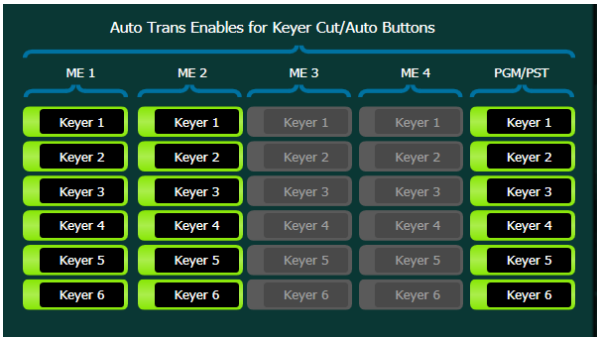
Multi-Function Module Machine Control Assignment (Kayenne Panel Only). Top group are the button assignments in the device control multi in the multi function module. Below are the defined devices on the system

- Select the button in top grouping.
- Select machine from the defined devices.

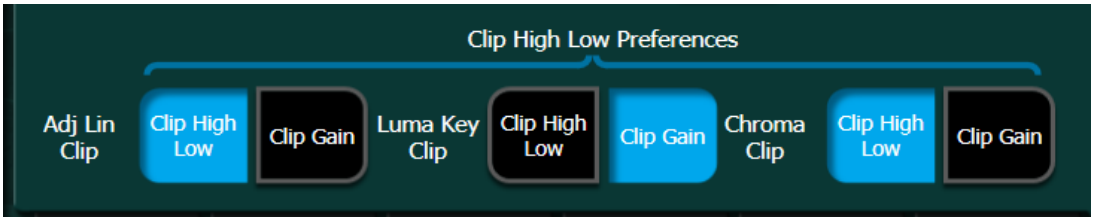


Auto Trans Enables for Keyers Cut/Auto Buttons replaces the above portion of this menu if using a Karrera panel.

- Buttons enabled key trans buttons on right of lever arm will perform a cut
- Button disabled key trans button on right of lever arm will perform a fade when pressed.



Clip High Low Preferences sets how key clip controls are set for each of the adjustable key modes, adjustable linear key, luminance key and chroma key. Clip High Low allows separate adjustment of high level and low level of gain. Clip Gain increases or decreases gain amount and clip moves set gain up and down in luminance levels.



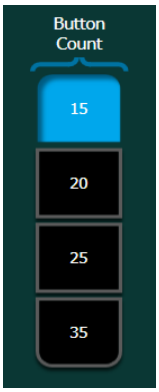
The miscellaneous group of buttons in the lower right of this menu set the following:

- **DPOP adds Key Trans** - when the background button on the transition panel is pressed twice within a half second, keys that are currently on-air will also be selected.
- **Menu DPOP-Enabled** - designated control surface buttons will change the displayed menu to the one relevant to the button pressed twice in a half second. Disabled, the menu will remain on selected menu.
- **Macro Attachable** - Enables the ability to attach macros to selected buttons on panel
- **Language Selection** - Text in menu can be set to display in English, German or Chinese.

Aux Bus Delegate Mapping

Aux Bus Delegation Mapping assigns specified aux busses to the delegation buttons on the Local Aux panel of either Kayenne or Karrera.

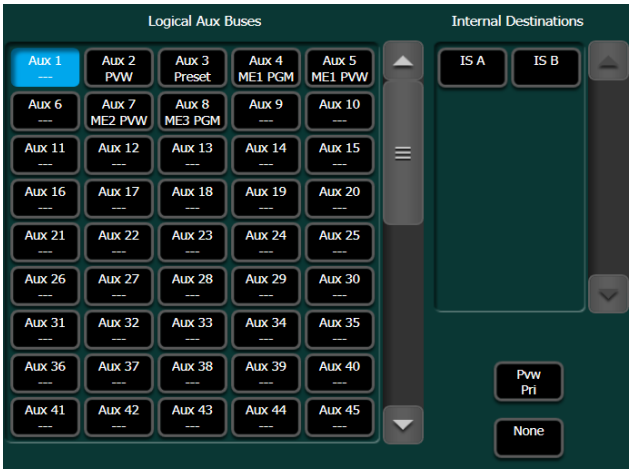
When assigning Aux Delegations to the Local Aux panel:



- Select the correct button count for the Source Select button count on your panel.

- Select the delegation button in the Button Delegation grouping.

- Select the Aux bus or ImageStore input that will be assigned to delegation button.



User Setups - Suite Preferences

Suite preferences are settings at the frame level that are applied to the resources allocated the suite. Suite preferences set in suite 1 don't affect the settings in suite 2 on the same frame.

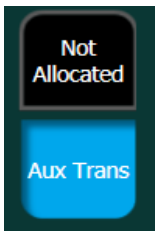
Resource Allocation

In Resource Allocation the transition functionality of either the primary or secondary partition of any ME can be assigned to use for transitions on aux busses.

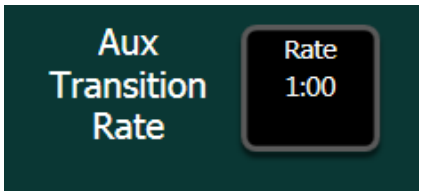
To enable aux bus transitions:

- Select either the primary or secondary partition of any mixed effect in your suite.

- Enable Aux Trans. *Selecting Not Allocated will release an allocated partition.*



- Set the transition rate for Aux Trans.



If either partition of an ME is allocated to Aux Trans the mixed effect is automatically set to Split mode. Allocating an ME partition to aux bus transition only enables the capability for transitions, it does not automatically put the aux busses in transition mode.

If partition resources are allocated for aux bus transitions, transitions can be performed if desired transition is selected (wipe or mix) on the local aux bus and a new source is selected.

Karrera

Kayenne

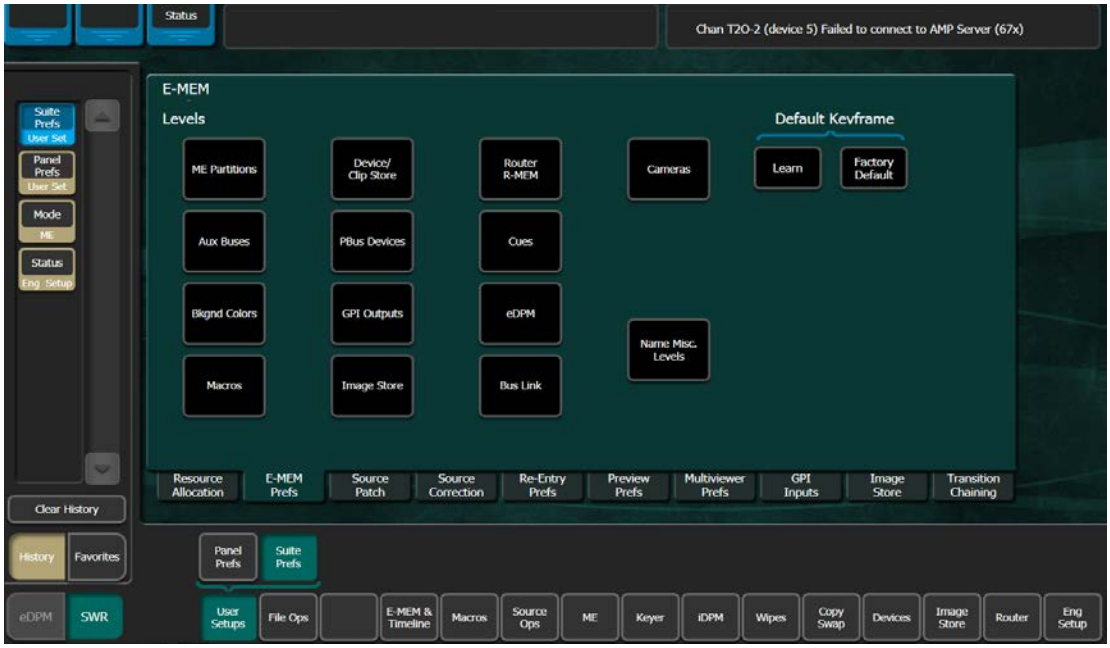
E-MEM Prefs and Default Key-frame

The Master E-MEM panel has several buttons to enable or disable the storage and recall of any element that can be affected by E-MEMs.

Karrera

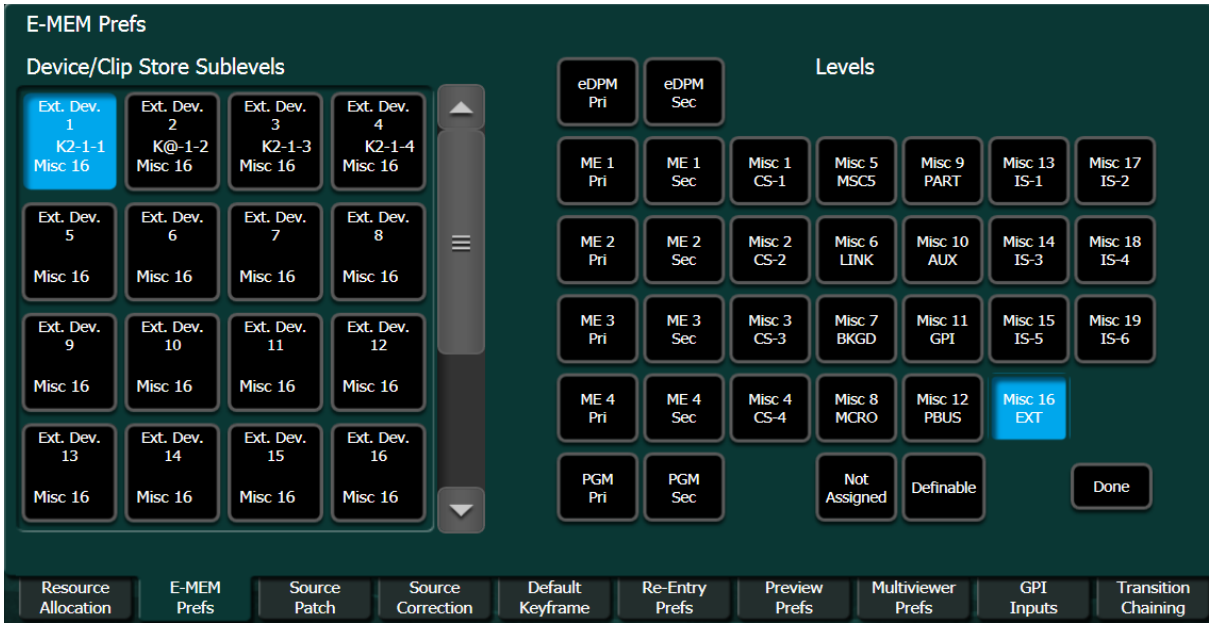
Kayenne

E-MEM Prefs assigns what elements or functions are assigned to these enable levels of Master E-MEM. The menu displays categories of functions or elements that can be controlled by Master E-MEM.

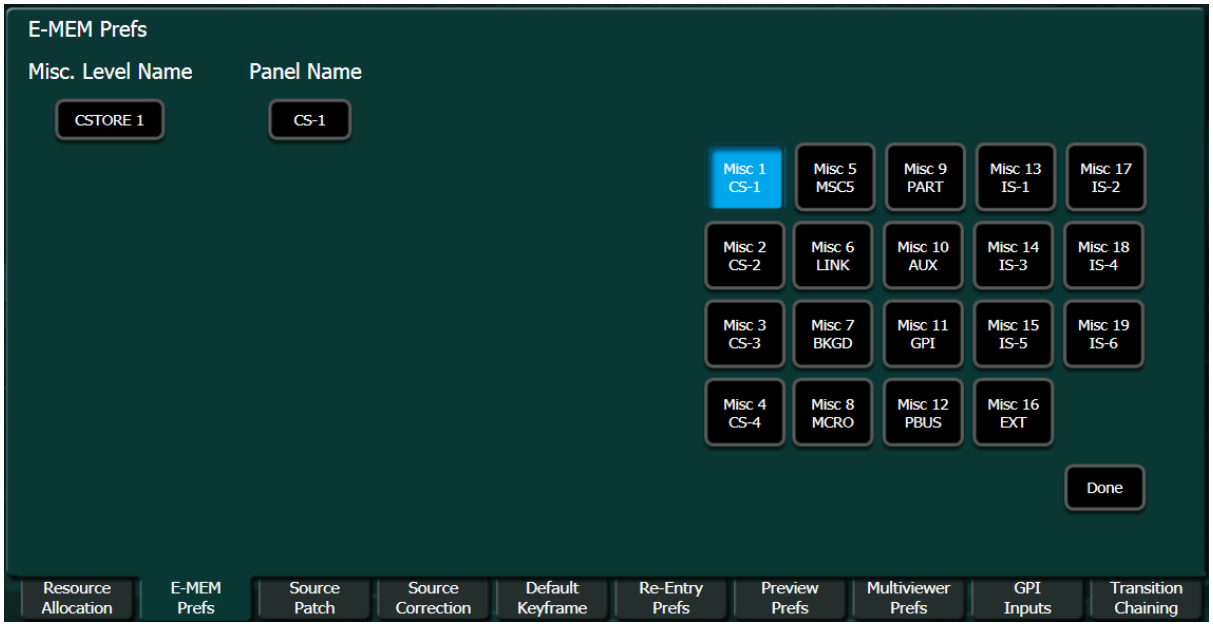


It is recommended that all level assignments be made prior to creating E-MEM effects. Changes made after an E-MEM is created may affect the way the E-MEM effect runs.

If a category is selected from the home level of the E-MEM prefs menu, the items that fall within that category are displayed along with the Master E-MEM enable buttons where items can be assigned. Select the enable button where the item is to be assigned and then the item you want assigned to that enable button.

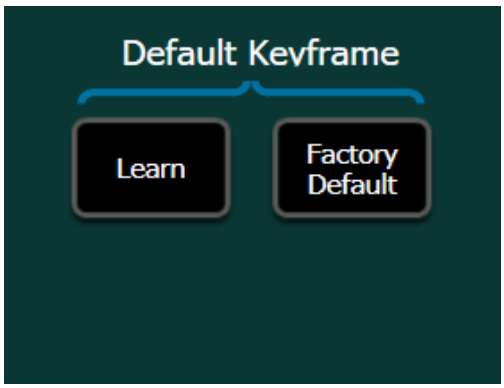


When E-MEM controlled elements have been assigned to a level, that level can be named to indicate what elements are assigned to that level. In Kayenne the names appear in the E-MEM Recall/Run menu and on the display above the button on the Master E-MEM panel. In Karrera the mane only appears in the E-MEM Recall/Run menu.



Default Key-frame

Default key-frame allow operators to configure a reset condition for all elements controlled by EMEM. At the ME level it would include setting transition type, auto trans rate, wipe settings, key settings and matte colors. For other elements such as external controlled devices setting on/off status of trigger commands.

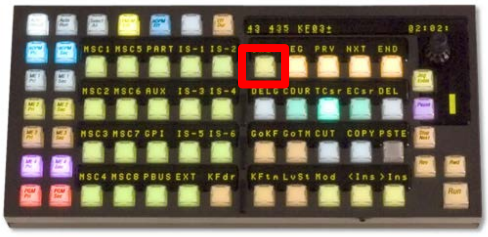


Learn-Once a user has set desired defaults the learn button will set those as the default state of the switcher.

Factory Default-Selecting this button will return the Default Key-frame values back to pre-defined factory levels.

Resetting to Default Key-frame

System elements can be reset to the default key-frame values by enabling the Master EMEM levels that you choose to reset and then pressing the Clear Work Buffer button on either the Master EMEM panel or selecting Clear Work Buffer in the Timeline Edit menu.



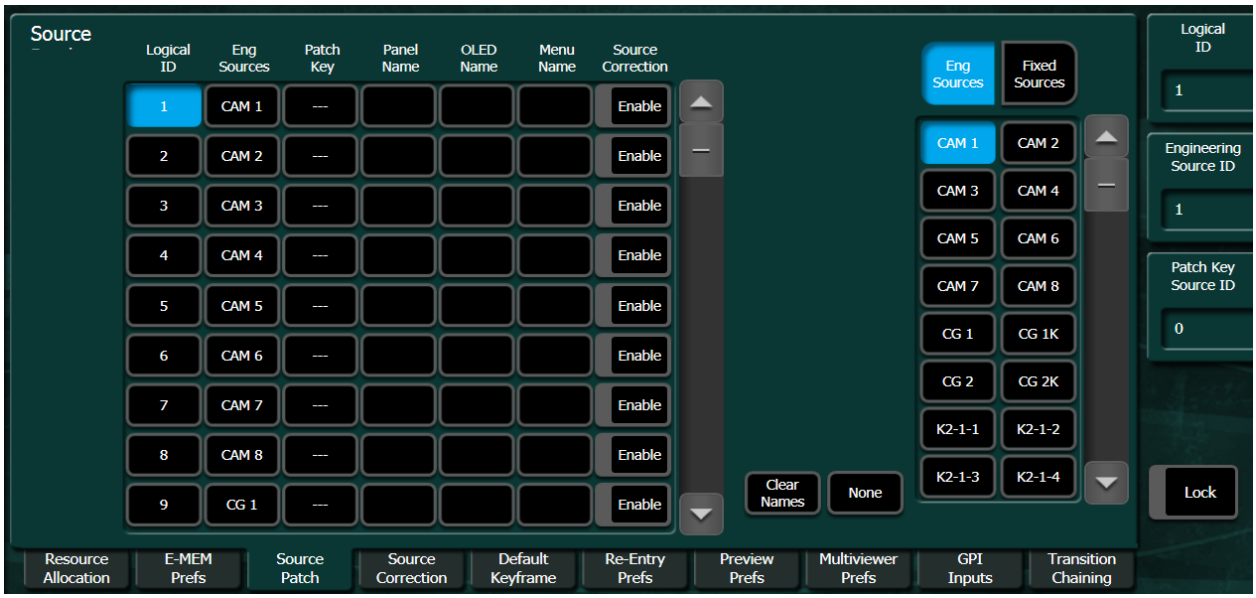
Kayenne

Karrera


KF Duration
Effect Duration
Set TL Start
Enable All
Delegate Enabled
Time Align
Copy
Cut
Paste
Restore WkBfr
Delete
Mod All Absolute
Clear WkBfr
Edit Cursor
Mod All Relative

Source Patch

Source Patch menu allows for patching sources into the proper logical ID to enable E-MEMs built on one system to be transferred to another. User names can be set in place of the engineering name. And, source correction can be enabled for YUV or optional RGB Color Correction of a source at the input level.



E-MEMs that recall source/devices are actually recalling the logical ID assigned in Eng Setup/Source Definition, E-MEMs created on one K-Frame system may not work in the same manner on another K-Frame system. As an example, if an E-MEM on system A is created to recall and play a clip from a clip server that is at logical ID13 and on system B the clip server is at logical ID16, system B's clip server needs to be patched into ID13 for the effect to work.

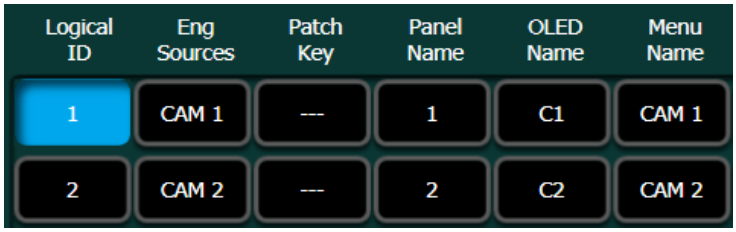
To patch a valid source into the proper logical ID location:

- Select the logical ID location on the left of the menu screen.

- Then select the source from the current system that is to be patched into the proper logical ID that the E-MEM recalls.

Source Patch Names

By default the engineering source name given in Eng Setup/Source Definition will be displayed in all source name fields on the panel and in the menu. Often the name given to the source by engineering is too many characters to be displayed on the transition panel and has to be given a shortened nickname to fit the limited 4 character display. Panel Name will be displayed in the transition panel display, OLED name appears in the display above or below the source button on the panel and Menu name will be displayed on source selections in the menu.

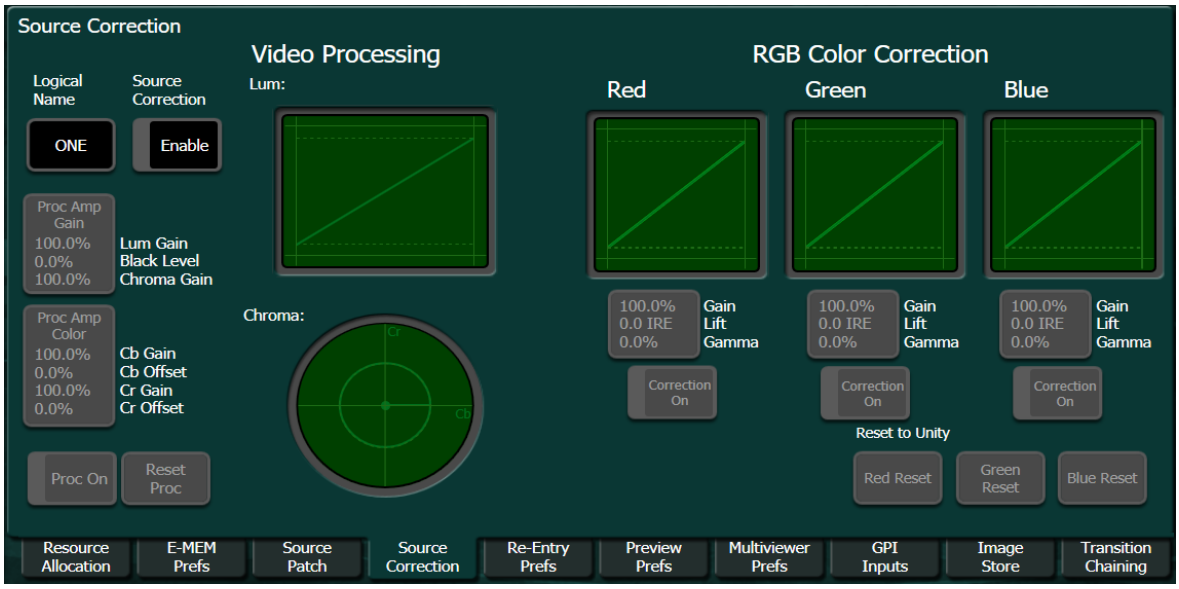


Also the name given in engineering is not the name a source is referred to in production. Source nicknames would be used in source patch in this case as well. If a nickname field is left blank as the Menu Name is in this example, the name in the field to the left will be used.

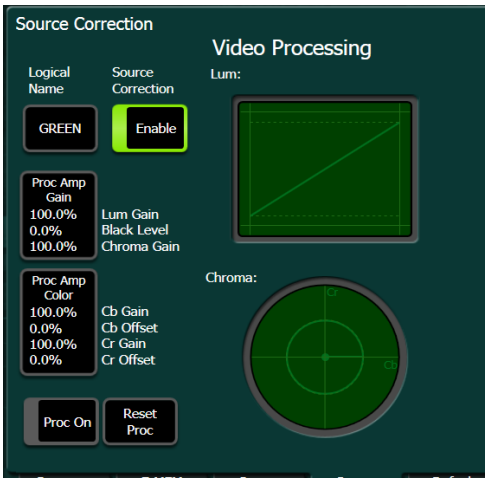
In the source patch menu there is also a button to enable either YUV or optional RGB color correction. This button just enables or disables the current correction settings.

Source Correction

K-Frame has controls the adjust YUV components of an incoming signal. Because it correct at the input, the correction is applied prior to any other processing in the frame. There is also an optional RGB input correction.



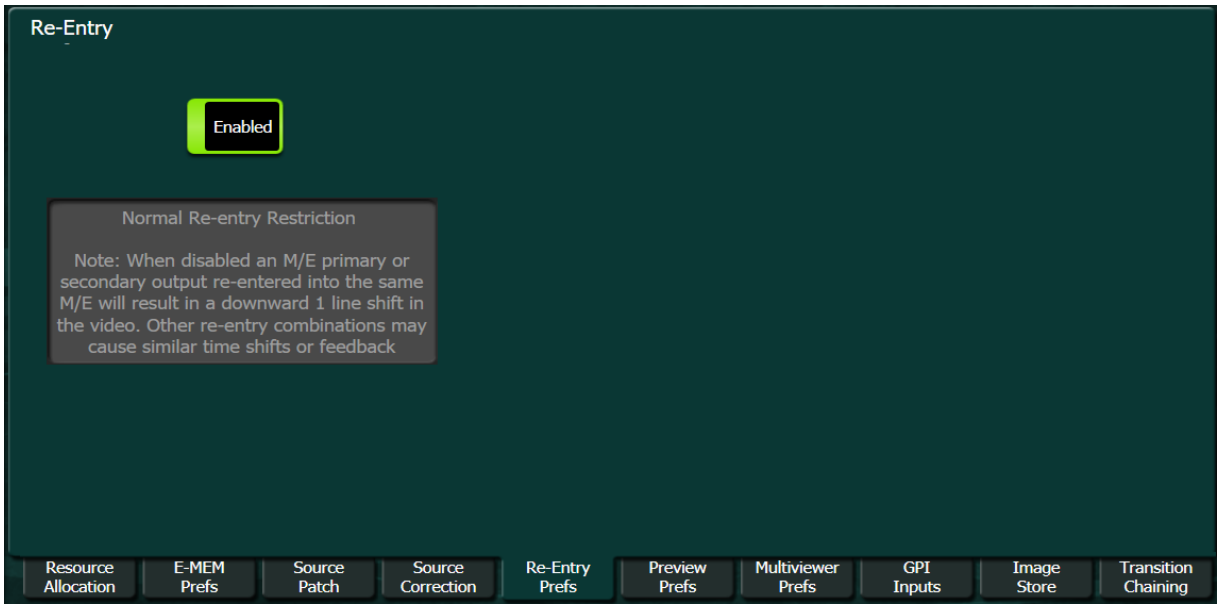
YUV video processor has settings for gain control of luminance, black levels and chroma levels. There are also controls for gain and offset of Cb and Cr components.



The optional RGB color corrector has control settings for gain, lift and gamma of the red, green and blue components.

Re-Entry Prefs

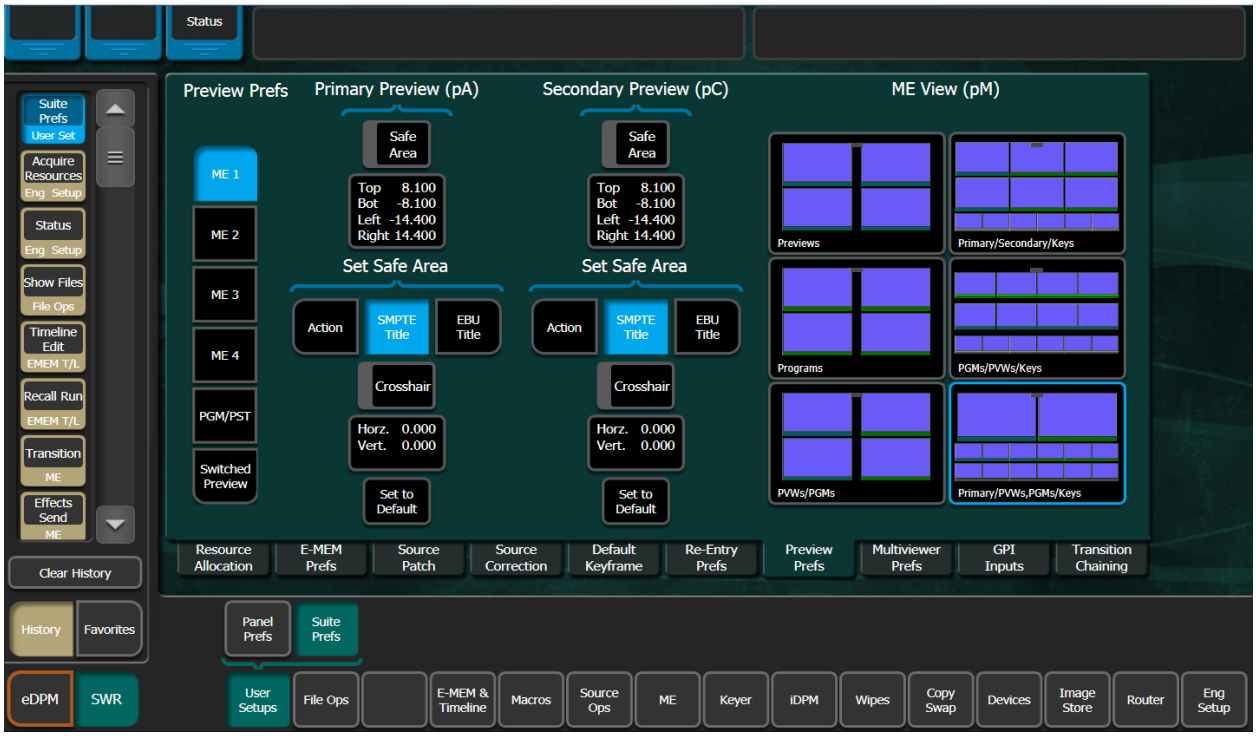
Re-entry is the ability to select one ME as a source on another ME. If ME 1 were a source on ME 2 selecting ME 2 as a source on ME 1 would create a feedback loop in the video signal. When Re-Entry prefs are enabled this feedback loop is prevented by disallowing any combinations of ME source selections that may cause this feedback.



One such feedback loop would be re-entering an ME back into itself. But in systems that have the Double-Take option where the ME can be split into a primary ME and a Secondary ME feeding the output of one partition of that ME into the other partition would not cause feedback. In this situation Re-Entry Prefs would be disabled to allow such a situation.

Preview Prefs

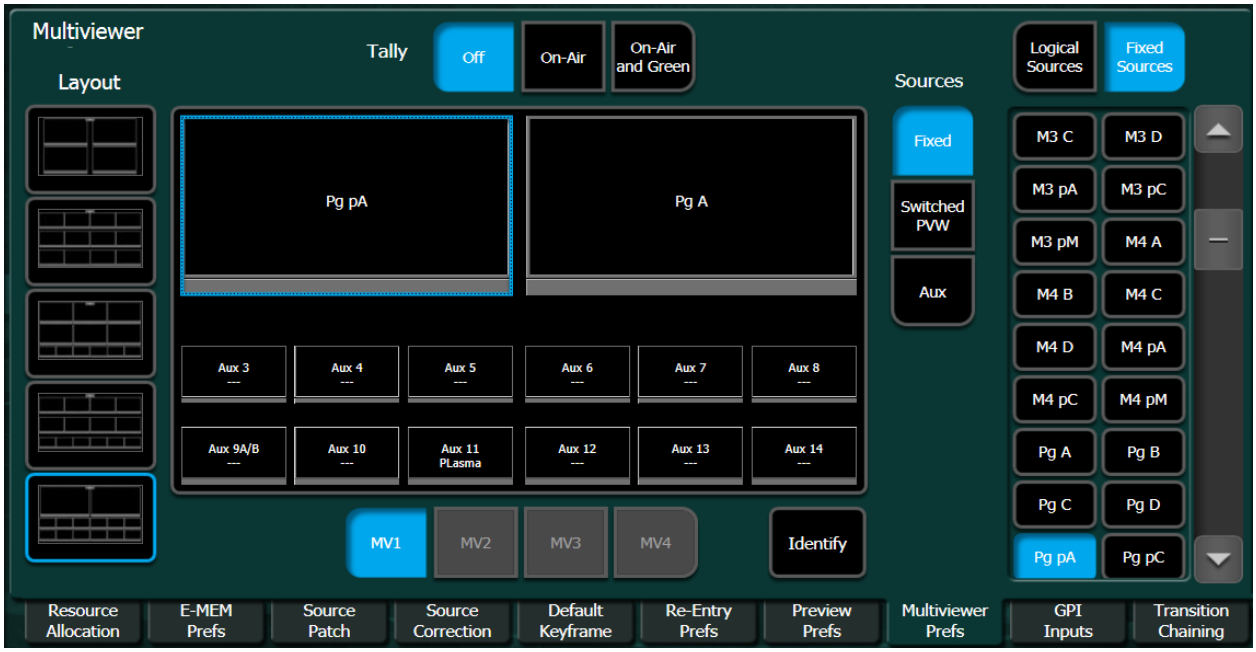
Preview Prefs has controls for enabling a safe title generator for each selected ME preview output. Safe title frames are adjustable from each side. In addition there are six different pre-programmed ME View outputs. ME view outputs are programed configurations the have a multi-panel display that show program, preview and keys in the multi-view monitors.



Multiviewer Prefs

K-Frame

Up to 4 multi-viewers can be set up for K-Frame. If the frame hardware is delegated to multi-viewer from the menu there are several selectable layouts. After the desired layout has been selected each panel in the multi-viewer can have any logical or fixed source assigned to the panel.



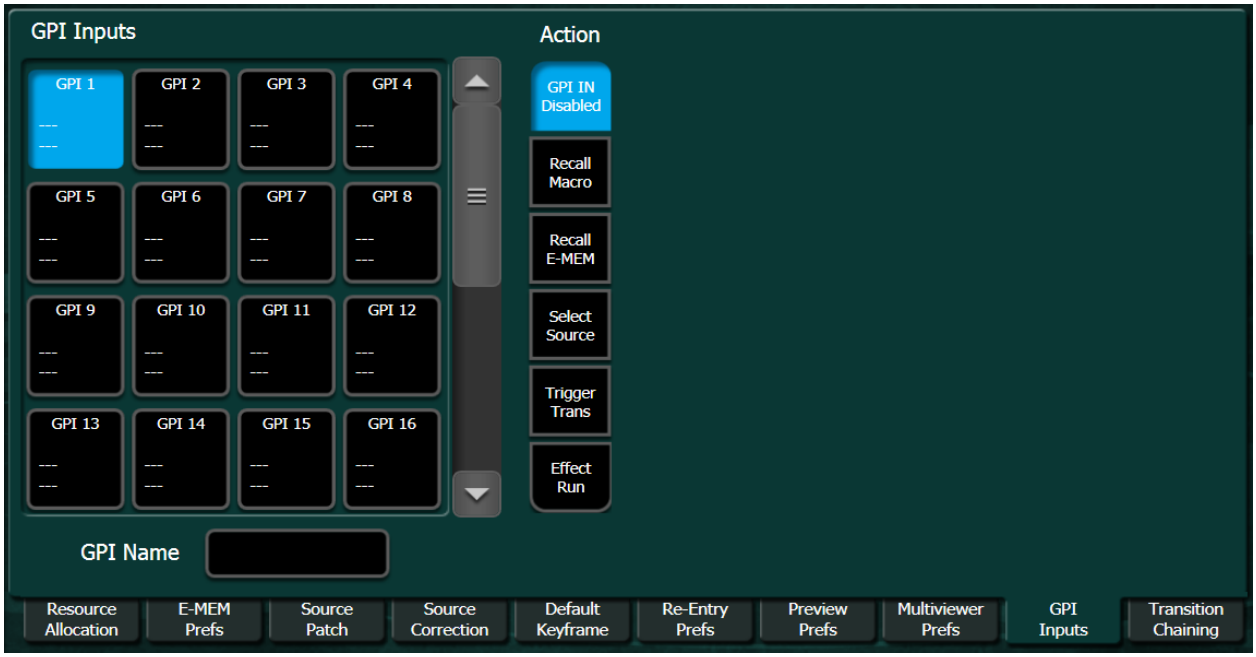
K-Frame S

There are 2 multi-viewers as standard in the K-Frame S and V Series, which do not require ME Hardware to be delegated. After the desired layout has been selected each panel in the multi-viewer can have any logical or fixed source assigned to the panel.

Logical sources are the sources defined in the Source Definitions menu in Eng Setup. Fixed sources are signals that are from the frame (i.e. Program, Preview, ImageStore Channels, internal Test generators etc.).

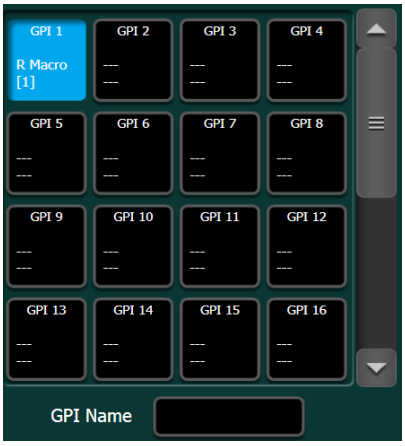
GPI Inputs

External relays can be connected to any of the 8 GPI Input through the 25 pin D-type connector on the back of each input module on the frame. Once connected, from the menu we can program the function to be triggered by the relay closure.



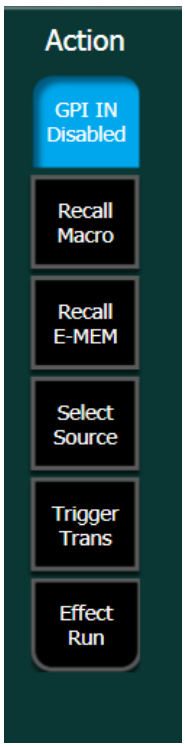
To program the desired action for each GPI Input trigger:

Select the GPI Input from the table on the left side of the menu.



Then select from the list of programmable actions.

- Recall Macro-Triggers selected macro
- Recall E-MEM-Recalls either designated local or master E-MEM register
- Select Source-Selects designated source on selected ME bus row.
- Trigger Trans-Triggers either a Cut or Auto Trans for any ME transition panel or key Cut or Mix buttons.
- Effect Runs-Runs the timeline effect of last recalled E-MEM register.

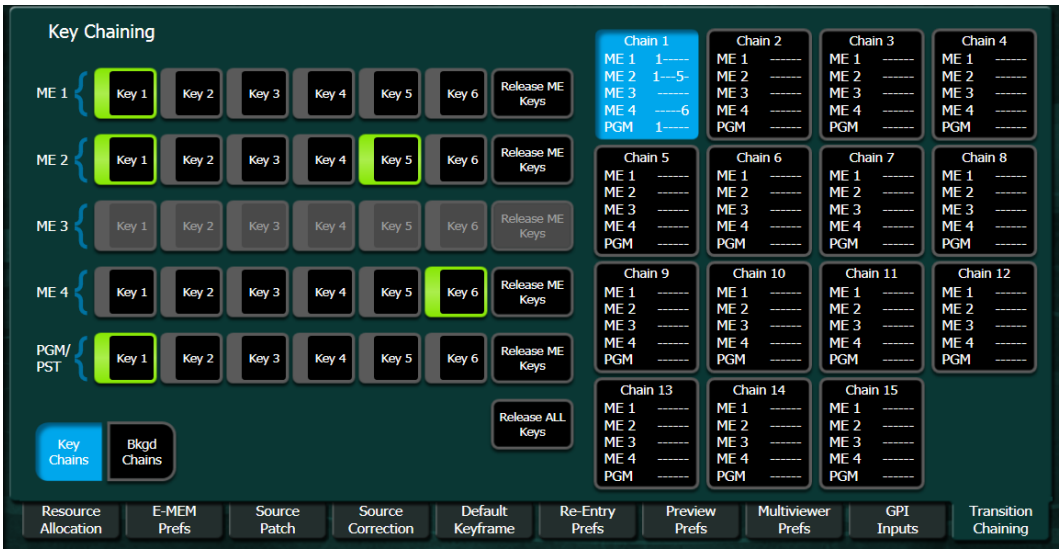


ImageStore Prefs

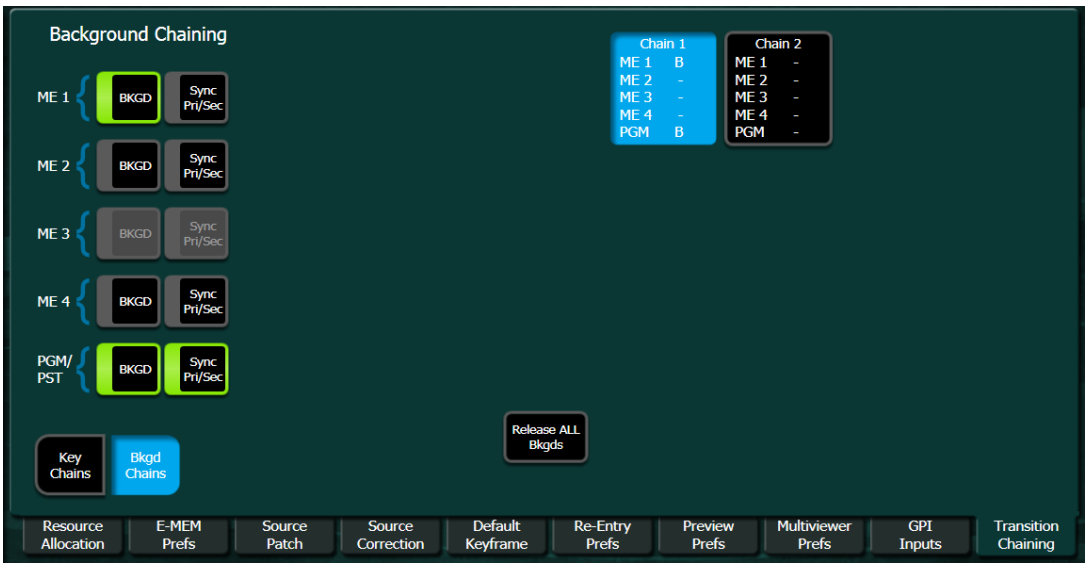
Movies in ImageStore support 16 tracks of embedded audio. When any channel of ImageStore is assigned to an output on the frame, the signal from that channel can be fed into a de-embedder and routed to audio monitoring equipment. This menu allows the operator to select any or all channels of ImageStore and enable any group of 4 tracks to be streamed with the video being output from that channel. Audio groups are: 1=1-3, 2=5-8, 3=9-12 and 4=13-16.

Transition Chaining

Transition chaining enables multiple key or background transitions to happen with the selection of a single transition button. For keys, up to 16 different chain relationships can be created where if one of the keys in the group is transitioned on or off, the other keys in the group will transition on or off to match the state of the key selected.

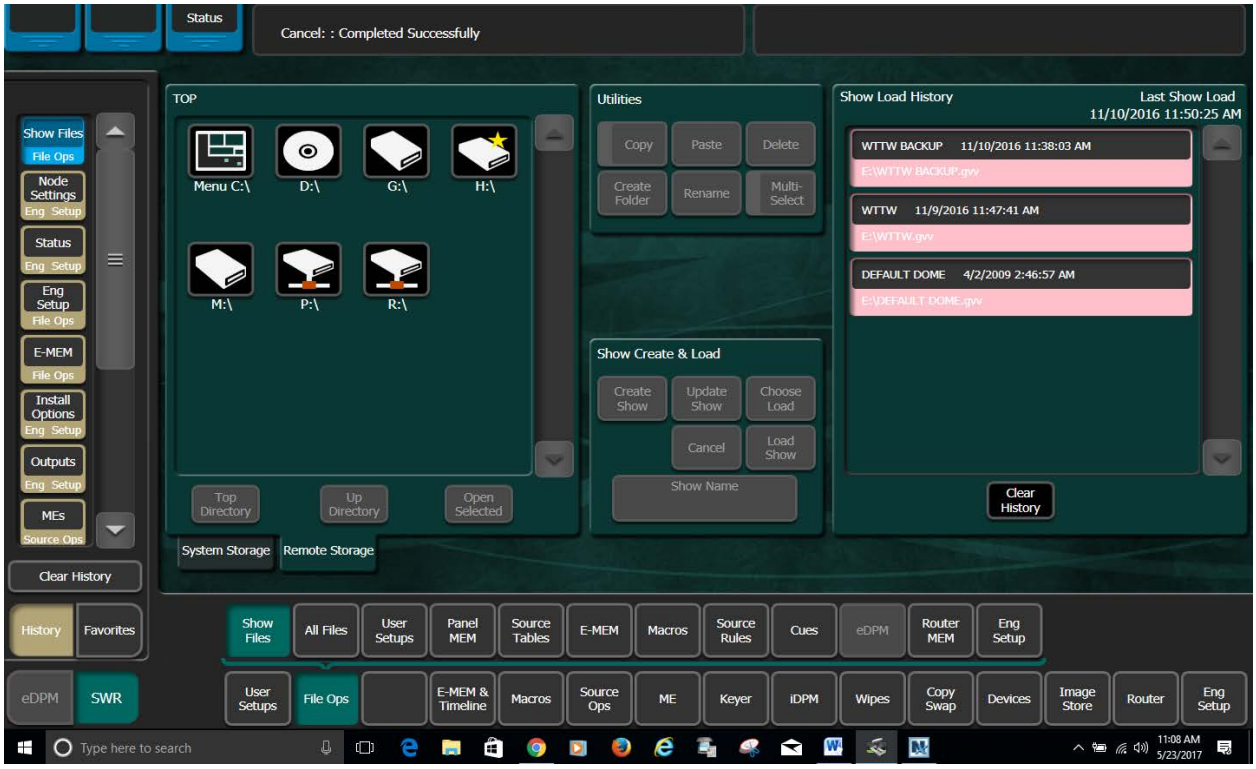


Background chaining allows for two separate groups to be defined. If one background is transitioned in a group, all other backgrounds in that group will also be transitioned.



File Operations

File operations allow the storage of configurations and effects to local or removable storage. This allows a user to restore previous elements or to transfer elements to other systems.



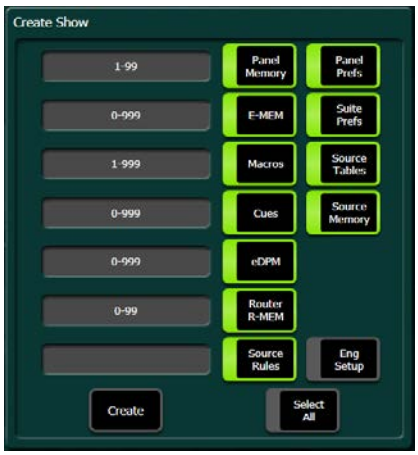
Storage locations can be selected from either System Storage (drive in switcher frame) or Remote Storage, which include menu hard drive, mapped network drives or external connected drives.

All elements can can be saved in a single Show file. Show files allow users to save all EMEM's, Macro's, etc., with the configurations that relate to those show elements. It recommended that the Engineering Setup be save seperatly for Show files that will be used on different systems.

Create Show

To save a Show file select Create Show and enter a show name.

On the right side of the menu all possible elements of the show will be enabled (with the exception of Eng Setup), with all possible file values enterd into the associated fileds.



Update Show

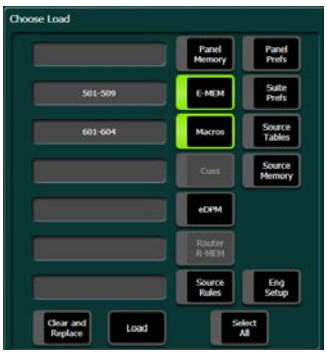
To add elements or resave changed configurations, use the Update Show selection.

When updating a show, select the show file in the storage area of the menu and on the right side of menu enable the portions of the show file you wish to update. In register based files such as EMEM and Macro's, enter the register numbers of the elements you wish to add to the show in the field next to the enable buttons.

Load and Choose Load

A selected show file can be loaded back into the system by using Load or Choose Load. The Load command will prompt you that it will clear all existing registers (EMEM, Macro, etc.) and replace with the contents of the selected show file. Choose Load allows you to select the elements you want to load into the system from the selected show without affecting current elements in system

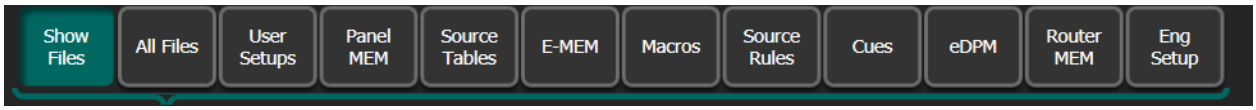
When using the Choose Load command you can select what you want to load into the system by enabling the specific items on the right. In the case of register based files (EMEM, Macro, etc.) and you can enter the register number in the corresponding fields.



if the “Clear and Replace” button is selected, the choose load command will erase all current registers before loading the files entered in the field next to the enabled buttons..

If you select a Show file in the storage area of the menu and select the Open Select button at the bottom, all files contained in the show will be displayed in the storage area of the menu.

From this level of a show file, individual elements can be selected and using the sub-menu that corresponds to file type selected additional functions can be performed.



In the example below, the Eng Setup element in the Show file is selected and the sub-menu Eng Setup is displayed. Access to levels of granularity for Eng Setup can be delegated and loaded from the file.

Section 4 – Basic Operations

The Basic Operations of all switchers is to select and transition between sources for air. In this section we will cover source selection and transitions use to add background and keyed sources to on: air signal:

At the completion of this section you will be able to:

- ✓ Delegate source selection for all background and keys
- ✓ Create a White Flash transition using User Trans
- ✓ Explain the functionality of the transition panel.
- ✓ Select and modify wipe transitions
- ✓ Properly set up keyed sources including Chromakey

Control Panels

The Grass Valley K-Frame can be paired with the Kayenne panel, the Karrera panel or the Korona panel. The larger Kayenne panel, has a modular design that can be configured from 1-4 mix banks stripes. The more compact Karrera panel has a 3 mix bank panel and 2 different 2 mix bank stripes panels (Standard and Compact). The Korona has a 2 mix bank panel and a single mix bank panel.

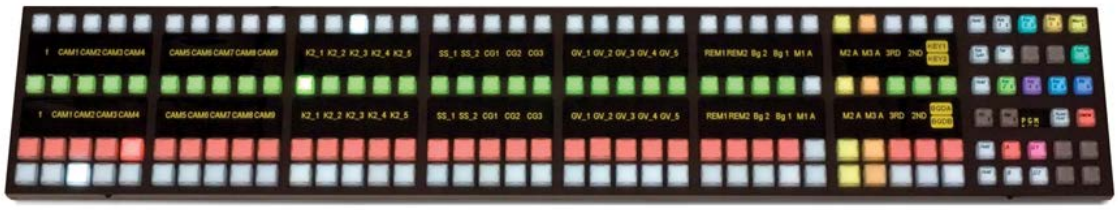
Kayenne

Karrera

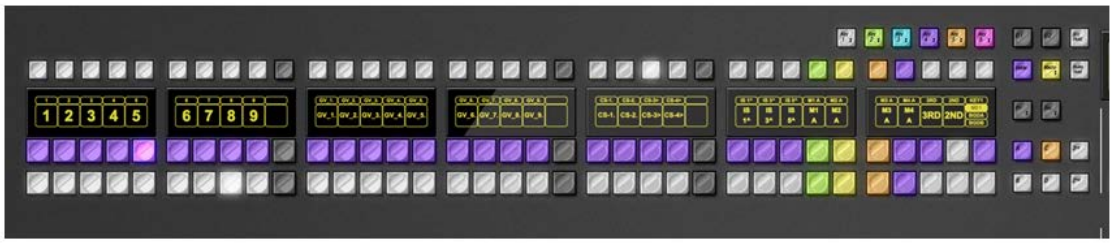
Korona

Source Selection

Each mixed effects bank stripe on a K-Frame panel has 4 background, 6 keyers and 2 utility busses. The source select portion of each panel is designed to accommodate selecting sources for any of the background, key or utility busses.



Kayenne



Karrera

Korona

Each source select row can be delegated to a number of different purposes. Rows can be delegated by pressing and holding one of the delegation buttons at the right end of the mix bank stripe. The corresponding source select row will be delegated to the selected delegation button until the delegation button is released. (All panels are designed to accommodate all K-frame types: Standard, Compact, S-series and V-series)

Delegations:

- Key 1-6
- ABCD Background Delegations
- U1 & U2 (Utility Busses)
- Macro (selecting toggles between macro and primary delegation)
- E-MEM (selecting toggles between E-MEM and primary delegation)
- Router Control (Kayenne Only)
- Aux Bus (bottom stripe only on Karrera)

Kayenne

Karrera

Korona

Each source select row will have a primary delegation. The primary delegation is what the row is delegated to if no delegation button is being pressed.

Kayenne

In User Setups/Panel Prefs/Button Mapping menu there is a special button "Delegate." If Delegate is mapped to a button on the panel, the OLED display associated with that button will indicate what source selection is currently delegated to that row of buttons. The primary delegation of any source row can be changed by:

- Press and hold the mapped "Delegate" button on the row to be changed.
- Select the desired source buss, Aux, Macro or EMEM delegation button to be delegated.

Karrera

Korona

If EMEM Recall is delegated to a bus, double pressing the Delegation button will toggle between LOCAL EMem and MASTER EMem recall (Karrera and Korona only)

Transition Panel

Each mix bank stripe on the panel has a transition panel to select transition type and what will change during the next transition.

Transition panels on the Kayenne, Karrera and Korona panels are designed to work in the same manner. Transition panel elements include:

- Key 1-6, Background and Key Priority - Next transition will change the current state of selected buttons. Multiple buttons can be selected at one time by pressing and holding all desired at the same time.
- Mix, Wipe, User-type of transition that will be performed when Auto is pressed or the lever arm is moved to opposite position. Only one transition type can be selected at a time.
- Cut - Instantaneous switch of items selected.
- Auto - auto transition is a transition to next using a pre-set duration.
- Lever Arm - Used for manual transition to next.
- Key Cut and Mix - Kayenne has a cut and mix button for each of the 6 keys. Karrera and Korona key transition buttons can be programmed for either a cut or mix. These buttons work independent of Lever Arm and Auto button.

Kayenne

Karrera

Korona

E-MEM Panels

All panel types have one Master E-MEM panel.

Kayenne has a local E-MEM panel on each stripe
Karrera has no local E-MEM panel for the bottom stripe
Korona doesn't have Local EMEM panels.

Local E-MEM Panels

Local E-MEM panels can be used to store and recall snapshot setup of current condition of the associated mix bank stripe. Local panels can also recall and run timeline registers created in Master E-MEM for the associated ME stripe. Local E-MEM panels can be delegated to:

- Panel Memory
- Stripe Assignment - Assigning logical mixed effects (i.e., PGM, ME1, ME2, etc.) to panel stripes (mix banks).
- Macro Shotbox
- Setting the duration of transition panel Auto and Key Mix transition rate.

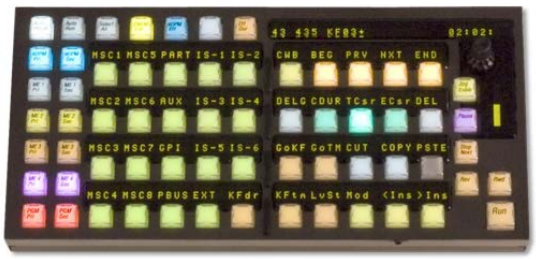
On the Kayenne panel the above items can be accessed by selecting the associated delegation button on the right edge of the panel. On Karrera the above can be accessed by pressing the Menu button and selecting the associated menu item.

Kayenne

Karrera

Master E-MEM panels can be used to save, recall and edit E-MEM registers that can affect multiple levels of the switcher and associated devices that are configured to be controlled by Master E-MEM levels.

Where local E-MEM panels can only store a snapshot register (single key-frame effect), Master E-MEM has an edit mode where each register can be edited to create timeline effects by adding and modifying key-frames on the register timeline.



Kayenne

Karrera

Korona

Kayenne: Multi-Function Module

Kayenne Multi-Function Module gives panel control for many of the systems adjustable settings. The home page of the Multi-Function Module has button selections for menus that will set the button, knob and joystick controls for the selected item.

Selecting home page buttons will set the panel controls for the following:

- Key-key mode and adjustable parameters.
- Mask-key force and inhibit mask source and parameter controls.
- Matte-matte generator selection and controls for brightness, saturation and hue.
- iDPM - iDPM channel selection and transform and effect parameter controls.
- eDPM - eDPM channel selection and transform and effect parameter controls.
- Wipe-Transitional and key wipe selection and parameter controls
- Dev-External Device transport controls (Play, Stop, Cue etc.).
- Copy - Copy parameters from ME, keys, wipes, mattes, etc.
- Swap - Copy parameters from ME, keys, wipes, mattes, etc.
- Source Select - Source selection for selected source bus row.

The parameters and controls on the Multi-Function Module are also duplicated in the touchscreen menu panel.

Karrera: Keyer Control Panel

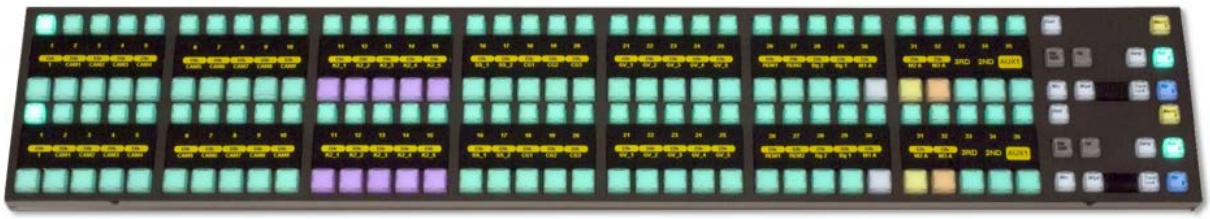
The Karrera Keyer Control Panel can be delegated to any of the six keyers on any mixed effects bank with button selections for key type, some key modifiers and knob controls for clip/gain, clip hi/clip low, size and softness of pattern key and key opacity. The joystick can be delegated to control size and position of iDPM, eDPM and 2dDPM, as well as wipe position.

Kayenne: Device Control Module (Optional)

The Device Control Module gives direct transport control for up to 32 VTR/Server devices. Direct transport control (play, stop, cue etc.) for devices the support AMP or VDCH over Ethernet and AMP, VDCP, Odetics and BVW over 9 pin D-type serial connection. The Device Control Module can also store up to 1,000 cue registers the save and recall mark-in and mark-out, play, loop, cue and load clip by recalling cue register from the panel or using E-MEM.

Local Aux Panel

Local Auxiliary Control Panels have multiple delegation buttons the can be mapped as source select input for Aux Busses, ImageStore input, ClipStore input and eDPM input. The Kayenne panel has two rows of assignable delegation buttons and two rows or source select buttons. The Karrera panel has a single row of delegations and a single row of source select buttons. The panels can also be delegated to router control and macro triggers. Each panel has enable buttons for mix and wipe transitions on Aux outputs if resources have been allocated (See Page 67).



Kayenne

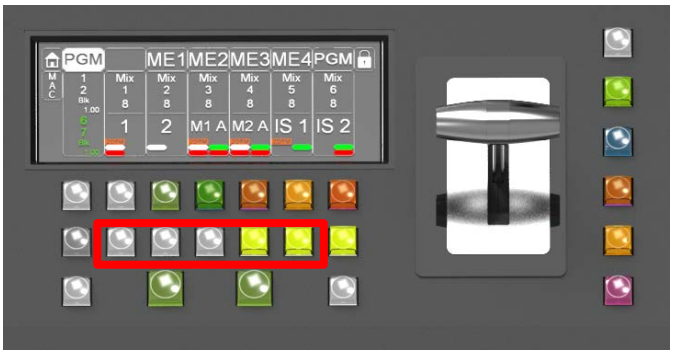
Karrera

Transitions

All mixed effects on a K-Frame system have the ability to transition background, keys and key priority using either a mix, wipe or user transition. On the Kayenne panel each mixed effects has 6 programmable user transitions and two wipe transitions per mixed effects. On the Karrera panel there are two wipe transitions and two user transitions.

Kayenne

Karrera



Korona

User Transition

User transitions can be defined in the ME/User Trans menu. Since the menu is designed to work with Kayenne, Karrera and Korona panels, there are a total of 6 programmable user transitions in the menu, but Karrera and Korona only have the capability of using 1 and 2.

When setting up User Transitions

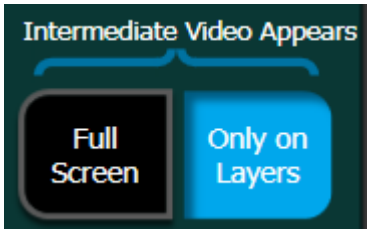
- Select the ME and the User Trans on that ME.

Select type of transition.

- Mix thru matte-transitions from sources on program of ME through the matte for wipe 1 border on the selected ME to the sources that are selected to change as part of the transition. (anything in preview that is different than what is currently on-air will be replaced with the matte mid transition)
- FAM-Full Additive Mix brings incoming sources up full before transitioning outgoing sources off.

When using the Mix thru Matte user transition it can be set to different modes.

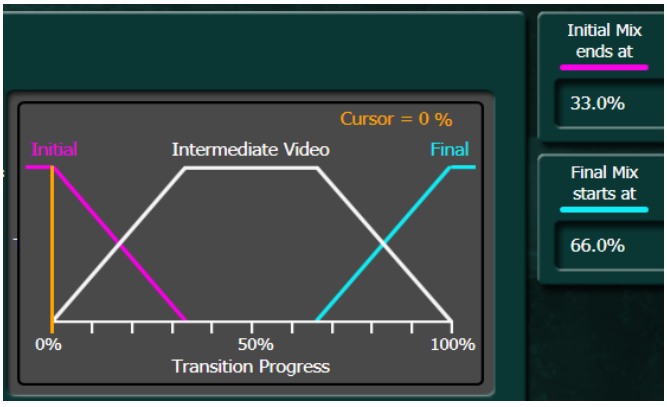
- Only on Layers-when transitioning a key on or off the matt will only appear in the key signal of the key source. Background will not be affected by transition.
- Full Screen-Matte will fill the entire screen during the transition, even if the only change is to add or remove a key source.



Set transition profile.

- Initial Mix Ends at-setting is where the mid-point of the transition is complete.
- Final Mix Starts at-setting is where the transition out of user trans effect begins.

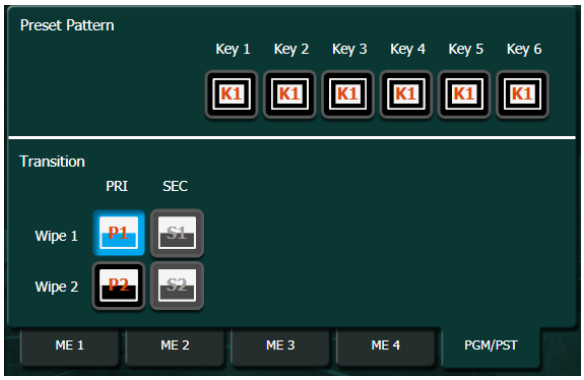
Period of time between Initial Mix End and Final Mix Start will hold transition in selected User Trans effect.



Wipes

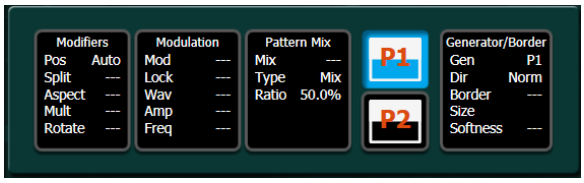
From the wipe menu there is access to all wipe settings for all wipe generators on all acquired mixed effects.

Each ME has two transitional wipes for primary and two for secondary partitions (on systems with Double-Take). There are also two wipe generators for each key. Keyer wipes are used for masks and pattern keys. Keyer wipes are not used for transition.

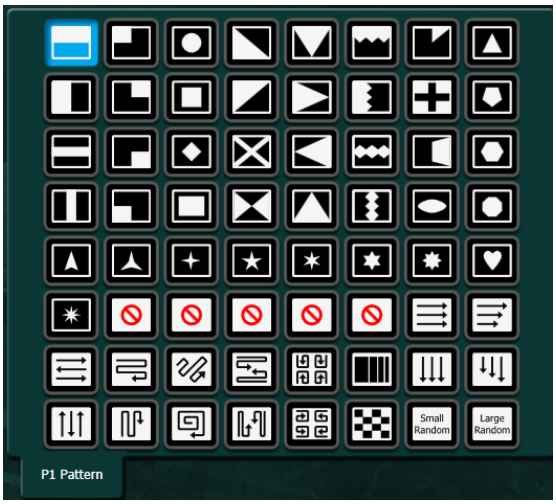


When setting up wipes from the menu, start by delegating the wipe that is to be adjusted. To delegate select the ME by selecting the correct tab at the bottom of this panel. Then within the panel select either the transition wipe or key wipe that is to be adjusted. In this panel PGM/PST wipe 1 is delegated to the controls.

The panel below wipe delegation is selection for each of the different sets of controls. Each box in this panel indicates which set of controls by the text title at the top of the box. Each box also indicates the current settings of the controls accessed by that box.

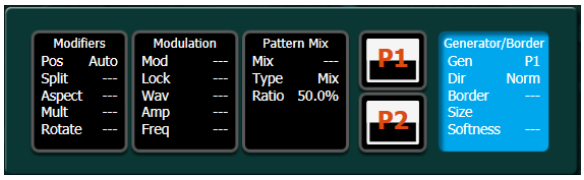


The controls selected above are wipe pattern select. On each ME the transitional wipe generators are labeled P1 and P2 for primary 1 & 2 and S1 and S2 for secondary 1 & 2. As indicated by the menu transition wipe 1 (the button on transition panel) has been assigned primary wipe 1 and the pattern select for P1 is displayed on the menu screen.

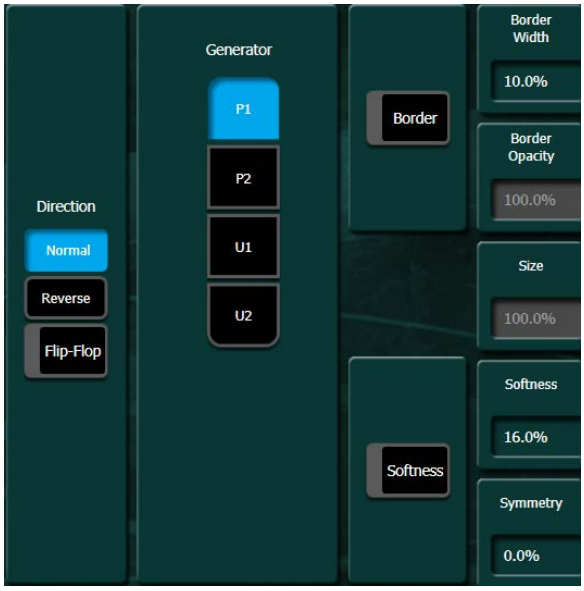


Generator/Border

Settings and controls:



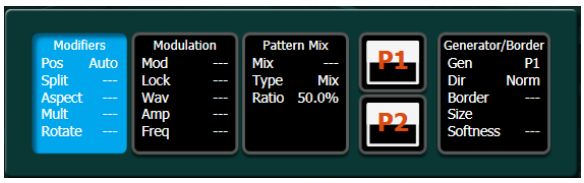
- Direction-based on pattern icon, normal direction is white to black. Reverse is black to white. Flip-Flop, toggles between normal and reverse.
- Generator - Assigning selected generator to delegated wipe. P1-P2 and S1-S2 are the internal wipe generators. Selecting U1 or U2 will create a wipe pattern based on the luminance levels of the video source selected on the U1 or U2.
- Border-Enables wipe border. Width can be set based on percentage of screen width.
- Softness-Enables softened edges of wipe. If softness is enabled both edges of border can be softened. Symmetry controls adjusts amount of softness on leading or trailing edge of wipe border.

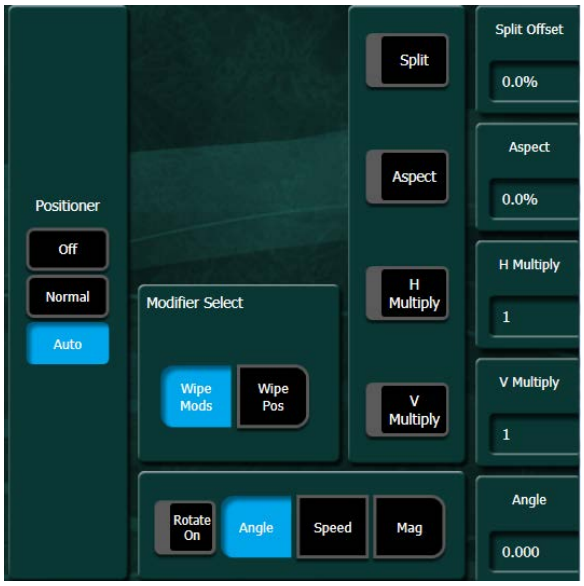


Modifiers

Settings and Controls:

- Positioner-Off, wipe will start at default position. Normal, wipe start can be repositioned (wipe will maintain reposition and may cut off at end). Auto, wipe start can be repositioned (wipe re-centers while transitioning).
- Modifier Select-toggles between modifier controls and wipe position controls.
- Split-Enables split, wipe goes both directions. Start position of split can be adjusted.
- Aspect-Wipe pattern can be stretched either horizontally or vertically.
- H/V Multiply-Wipe pattern can be duplicated up 50 times horizontally and vertically.
- Rotate-Rotate On enables or disables wipe rotation
  - Angle-Set rotation amount maintained throughout transition
  - Speed-Continuous rotation (spin) whether transitioning or not.
  - Mag-Controlled rotation, amount of rotation controlled throughout transition.

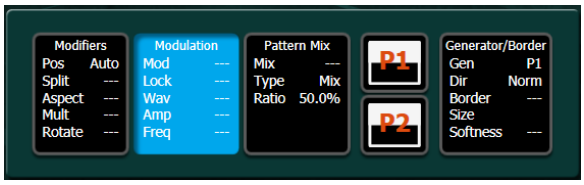


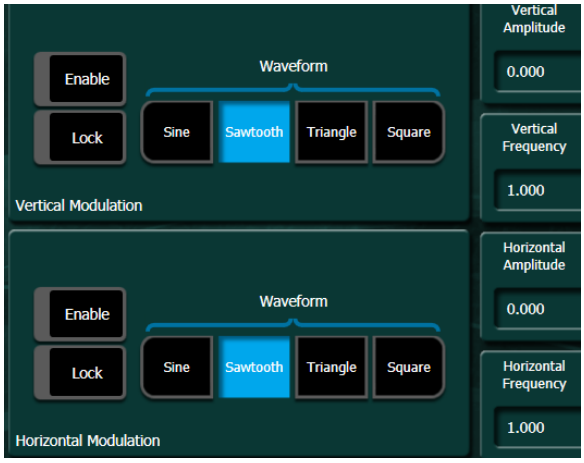


Modulation

Settings and controls:

- Enable-Enables or disables modulation on horizontal and vertical edges of wipe.
- Lock-Enabled modulation is static when transition stops. Disabled, pattern modulates when transition stops.
- Waveform-selections for different modulation shapes.
- Amplitude adjust-Controls height of modulation wave.
- Frequency adjust-Increase or decrease number of waves in modulation.

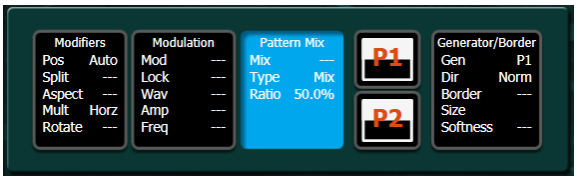


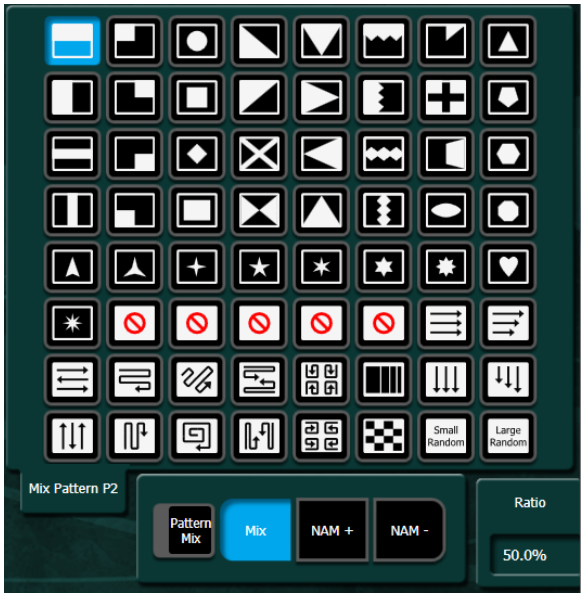


Pattern Mix

Settings and controls:

- **Mix Pattern P2** - The wipe generator selected for mix is P1, Mix Pattern P2 is selecting the pattern for the other pattern generator. The two patterns will be mixed with each other.
- **Pattern Mix** - Enables/disables pattern mix function.
  - **Mix** - Morphs the two patterns together to create a new shape
  - **NAM+**-Masks the one pattern with the other
  - **NAM**—adds the two patterns together without changing either pattern shapes.

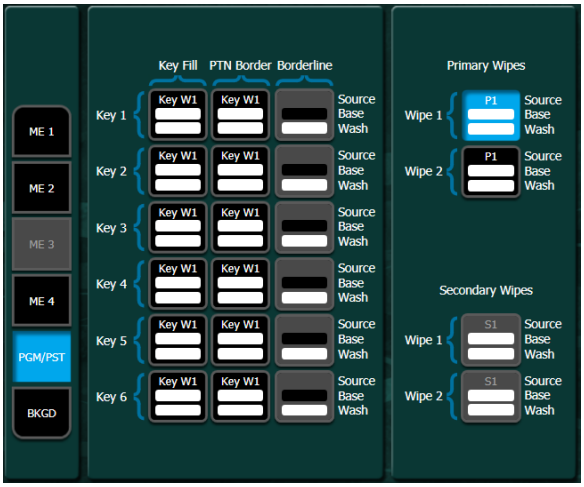




Mattes

Matte controls appear as a sub-menu in ME, Keyer and Wipe primary menus. The sub-menu contains all matte controls for all mattes available in K-Frame.

The delegation portion of the Matte menu is divided into three panels of selection. To delegate a matte generator:

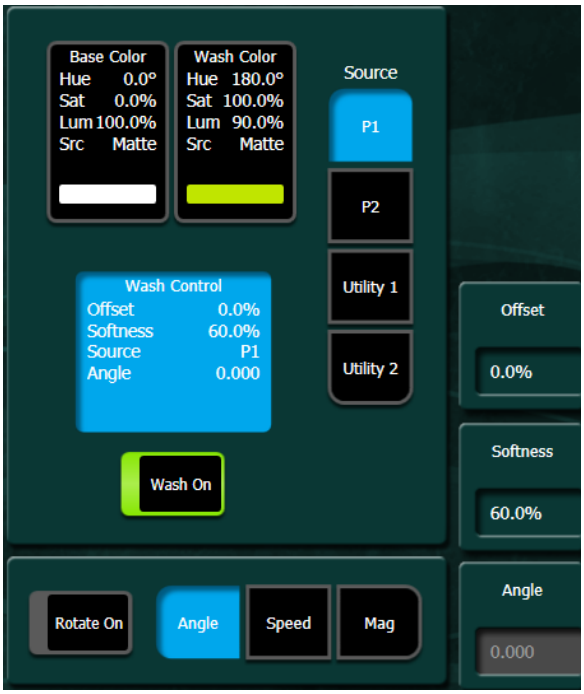


- Select the desired ME or BKGD for color background.
- If the matte is associated with a key (key fill, PTN Border or Borderline) select associated matte for the desired key.
- If the matte is a wipe border, make one of the selections beneath either Primary Wipes or Secondary Wipes.

All matte generators are capable of creating a wash between two separate colors (with the exception of borderline). If Wash On is disabled, only Base Color is used. If Wash On is enabled Base Color and Wash Color are blended together.

- Base Color/Wash Color-Hue controls what color the matte will be. Sat, controls the amount of color. Lum, controls the brightness of the matte (example: if Sat is 0 and Lum is 100, matte color will be white).
- Source-with both Base Color and Wash Color, if Matte is selected the color created by adjusting Hue, Sat and Lum will be displayed. If Utility 1 or Utility 2 are selected as the source, the video source selected on the selected Utility bus will replace the color generated by matte controls.

If Wash On is enabled, Wash Control is selected and a wipe is selected as the wash source the wash between the source selected in Base Color and Wash Color can be adjusted using:



- Source-A wash can be created using either a wipe pattern (P1 or P2) or the luminance of the video selected on Utility 1 or Utility 2.
- Offset-Positions the source wipe pattern within the matte area.
- Softness-Softens the edge of the wash source to smoothly blend the two colors.

If a Utility bus is selected as the wash source the controls are:

- Clip-At what level of brightness in the video source does the wash occur.
- Gain-The amount of softness at the edge of the wash.
- If a Utility bus is selected as the wash source Clip and Gain controls are enabled. Clip sets where the luminance is set to determine the where Base Color (bright area) and Wash Color (dark area) will be placed in video source. Gain sets the softness/blend between colors.

Wipe Border Matte Tip: Wipe border with video and dropshadow.

1. In wipe menu, enable border and set size to 10%
2. Enable softness and set symmetry to -100%
3. In matte menu select matte controls for selected wipe and enable Wash On.
4. Set wash softness to 0 and set the offset to desired position inside wipe border
5. Set Base Color source to Utility 1 and select desired video for wipe border
6. Set Wash Color source to Matte and adjust Lum to 0 and Sat to 0.

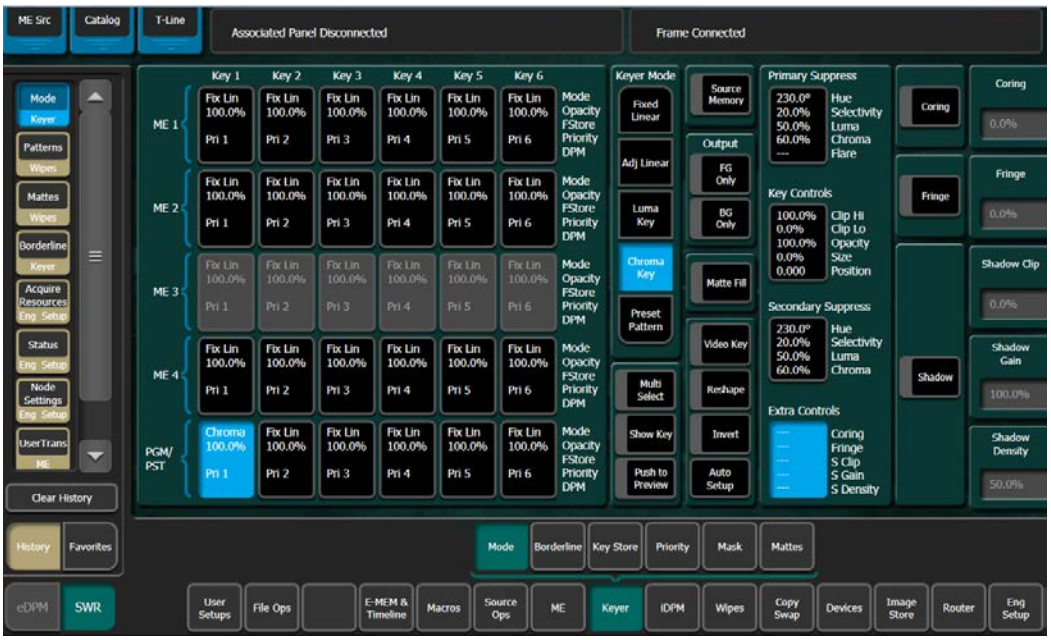
Transition Exercise

1. On ME1 program wipe 1 as a Star with video in the border. Wipe 2 uses Color Bars from Utility bus 2 as the wipe pattern. User trans 1 as a FAM
2. On PGM program wipe 1 as a soft diagonal wipe with white border. Wipe 2 as a pattern mix between diagonal wipe and venetian blind matrix wipe. User trans 1 as a white flash.
3. Set Auto Trans rate on all MEs to 10 frames.

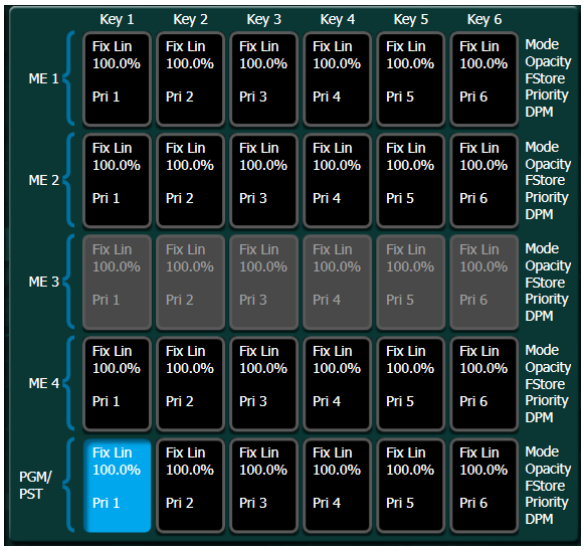
Key Controls

All 6 keyers on all MEs (4 Keyers on S-series and V-series frames) have the same functionality with the exception of the keys on an ME that is using ME CT (K-frame Standard and Compact frames only) as the frame hardware. ME CT hardware doesn't support iDPM assign to those keys and therefore also does not support Borderline. All other functions are the same.

The Keyer primary menu has sub-menu selections for Mode (key type), Borderline, Key Store, Priority, Mask and Matte.



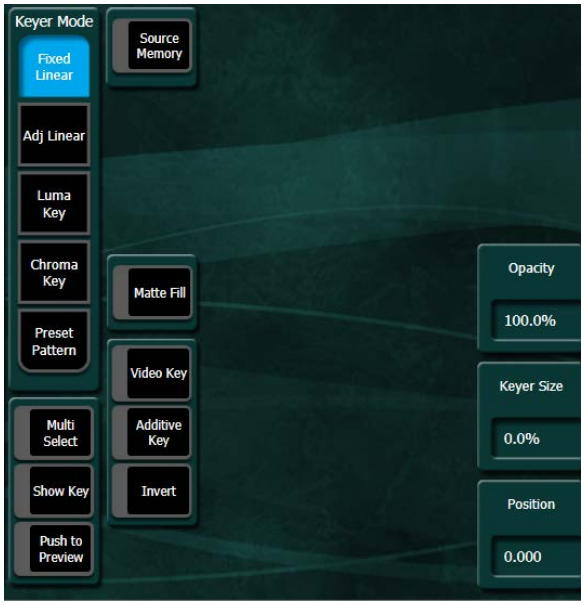
The left portion of the Keyer menu is delegation. The rows represent the MEs acquired in the suite (if a row is grayed out that ME is not acquired by the suite) and the columns are the six keys on each ME.



The controls that are displayed on the right portion of the menu are displaying the settings of the key selected and any changes made are adjustments to that selected key.

In the Mode sub-menu are the selections for the type of key that is being applied to the source on the key selected.

- Fixed Linear - Key is created by using the key input assigned to the selected source and filling the key with the video input assigned to the selected source. Fixed Linear assumes that the key signal matte values are correct and therefore the key doesn't require any adjustment to clip levels.

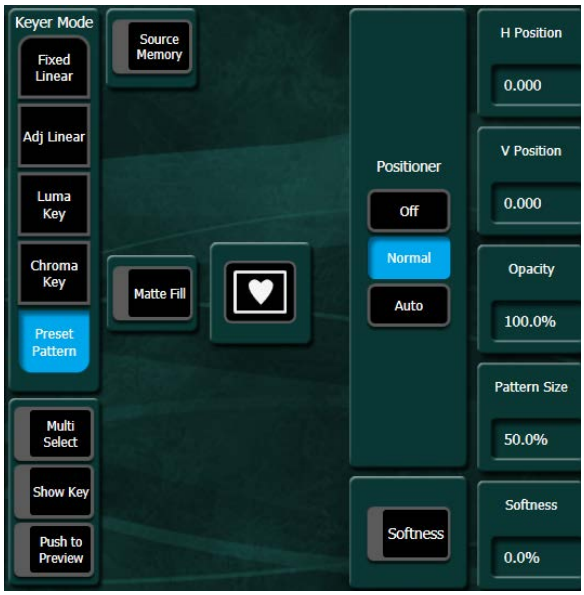


- Adjustable Linear - Key is created in the same manner as Fixed Linear but allows for clip adjustment to the key signal if key signal matte values are incorrect.

- Luminance - Key mode is used for sources with no key signal but the intent is to key out dark areas of the source and keep the lighter area as the key.

Note: the Video Key is enabled in Luminance Key. This setting eliminates any key source that is assigned to the source being keyed. Every source in K-Frame has a key signal even if in Source Definition No Key was selected. When No Key is selected the source is assigned a full screen white matte as the key signal. The purpose of this is for DPM channels, because DPMs have no key signal of their own and use the key signal of the source being fed from the keyer.

- Preset Pattern - Key is created by using the wipe pattern shape selected as the key signal and filling it with the source video selected on the key source selector. Controls for Preset Pattern key are a combination of key menu controls for size and position and wipe menu controls for pattern selection and wipe pattern modifiers.

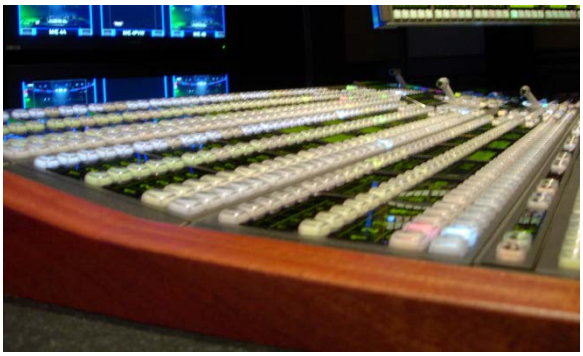


Chroma Key Controls

K-Frame is a matte style chroma key that process a source by selecting a specific color and creating a matte signal that is black in the source area of the selected color and white in the area of the source that isn't the selected color. When making a chroma key it is always best to work with a source that is properly lit and has plenty of color saturation in the background color being selected for chroma key.

Chroma Key Source

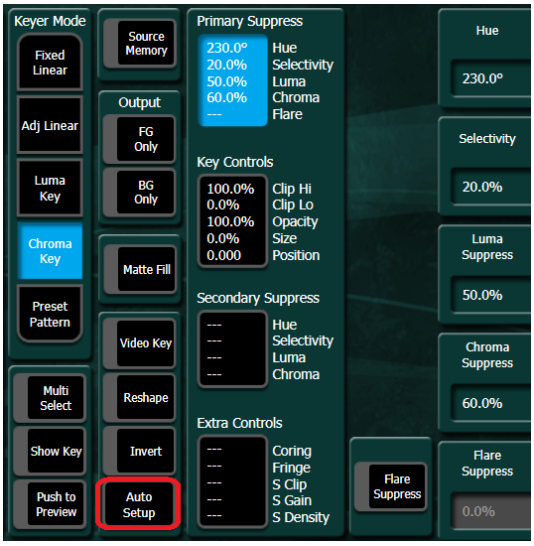
Chroma Key Matte



Background Source

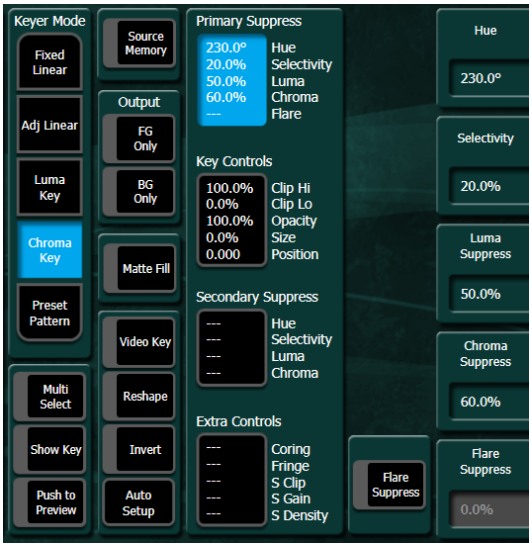
Final Chroma Key

The initial point of set up for Chroma Key is to use the Auto Setup accessible from either the menu or the keyer controls on the panel (menu only on Korona). When Auto Setup is initiated a cursor will appear in the preview output of the ME on which the chroma key is being done. Position the cursor over the color in the chroma key source that is to be eliminated.



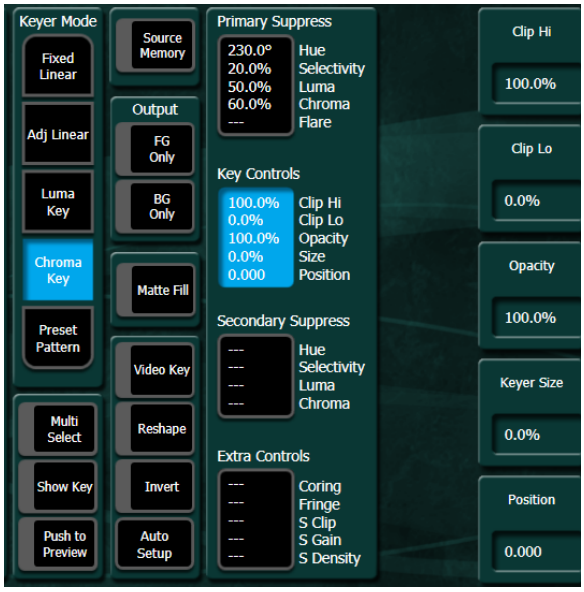
The Chroma Key matte is created by the values set in Primary Suppression:

- Hue - The color selected for chroma key
- Selectivity - Increases or decreases the range of color selected outward from hue setting
- Luma Suppression - suppress the level of brightness of the color selected for chroma key.
- Chroma Suppression - suppress the color saturation of color selected for chroma key. *Value should always be set to 100%*
- Flare Suppression - This control must be enabled and adjusted manually (not affected by auto setup). This control is used to compensate for the amount of the chroma key color background reflected off of the camera lens. Value is usually set between 1% and 3%.



Once the key matte is created by Primary Suppression controls, key controls allow for more refined adjustment of the key matte signal.

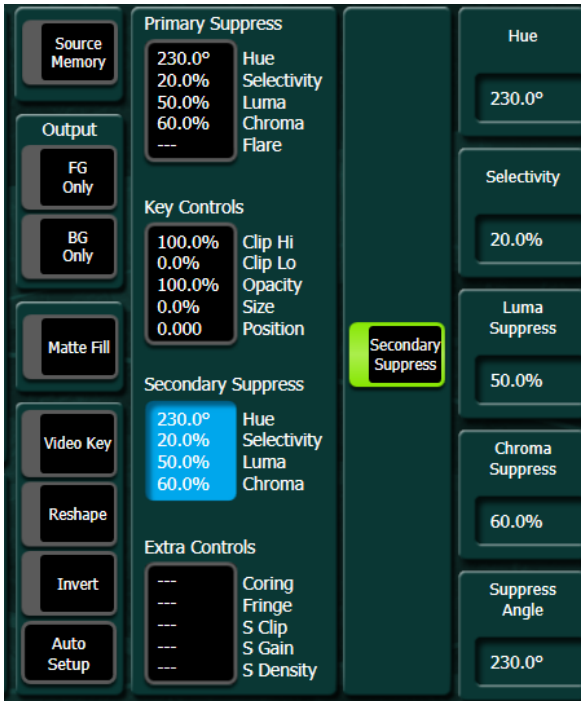
- Clip Hi-Increases or decreases the amount of white in key matte.
- Clip Lo-Increases or decreases the amount of black in key matte
- Opacity-adjusts the overall amount of opacity/transparency in the key.
- Size-Increases/decreases the size of key matte.
- Position-moves key matte right or left relative to key fill source.



Note: Size and Position controls only work if Reshape is enabled.

Secondary Suppression is used to suppress color from chroma key background reflected off chroma key subject.

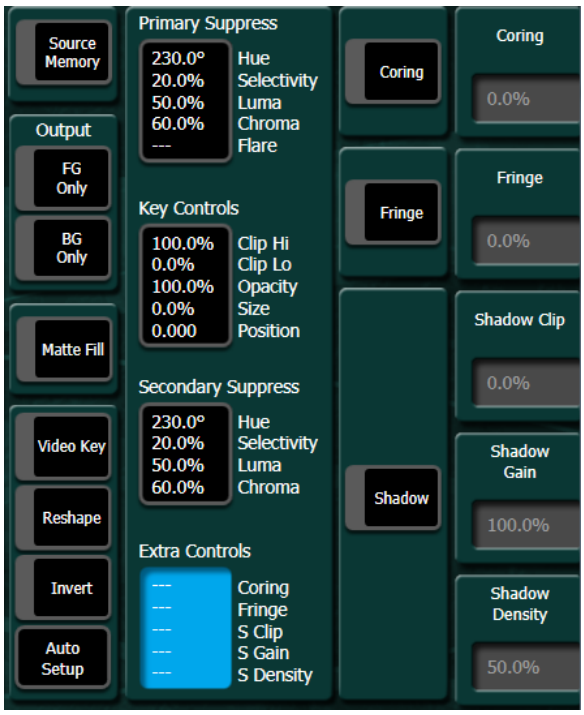
- Hue - The color selected for chroma key
- Selectivity - Increases or decreases the range of color selected outward from hue setting
- Luma Suppression - suppress the level of brightness of the color selected for chroma key.
- Chroma Suppression - suppresses the color saturation of color selected for chroma key.



Hint: Set luma and chroma suppression as low as possible. Adjust hue until the area where the reflected color to be suppressed is dark. Adjust selectivity to increase/decrease the area affected. Increase luma and chroma suppression until area looks correct.

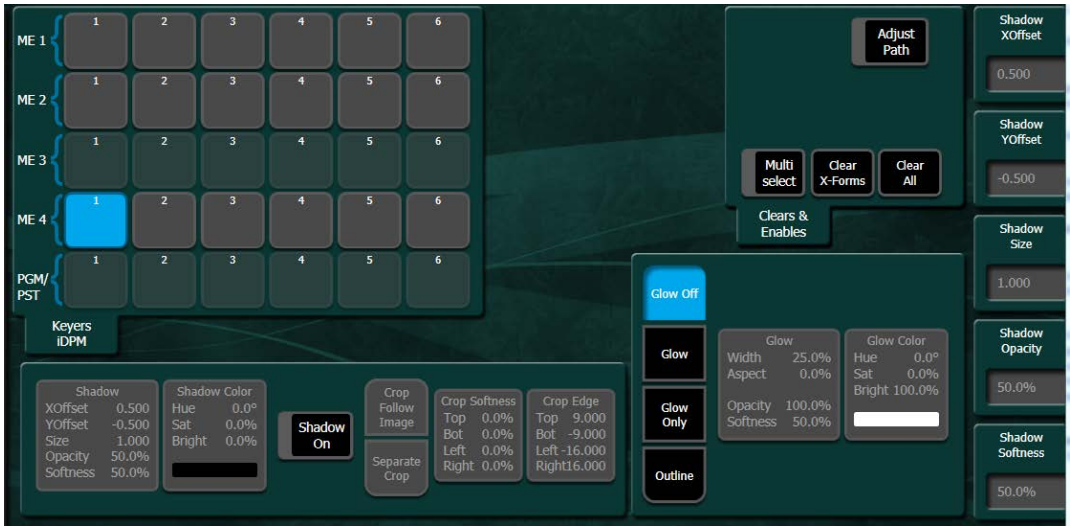
Extra controls offer adjustment to compensate for other artifacts present in chroma key source.

- Coring-Suppress brightness of mid to low range pixels in key matte.
- Fringe-compensates for background color effect on edge of chroma key subject.
- S Clip-Clip control for shadow cast by subject on chroma key background
- S Gain-Gain control for shadow cast by subject on chroma key background.
- S Density-Transparency control for shadow cast by subject on chroma key background.



Borderline

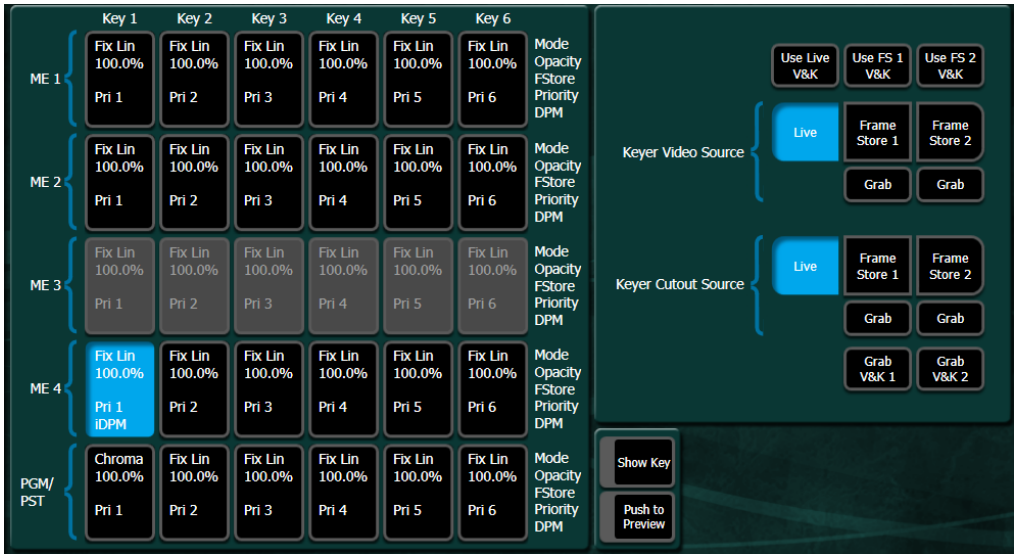
Borderline controls allow for the addition of a drop shadow and/or glow of the key signal to the keyed element. Borderline requires an iDPM channel be enabled on the keyer for the effect to work. Borderline is not available on an ME that is using ME CT hardware.



Keystore

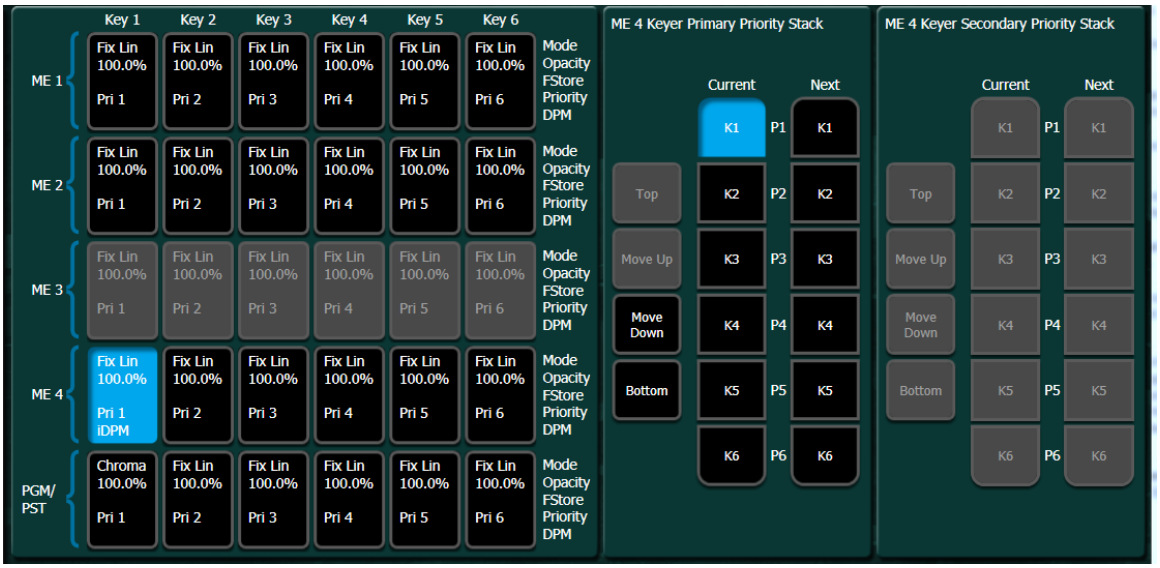
(Keystore is not available in S-series and V-series frames)

Two video/key elements can be stored with each keyer and used as additional key sources in place of the live source being fed from the source for the key. Images stored in keystore are in volatile memory and will be lost if there is a power loss or frame is reset.



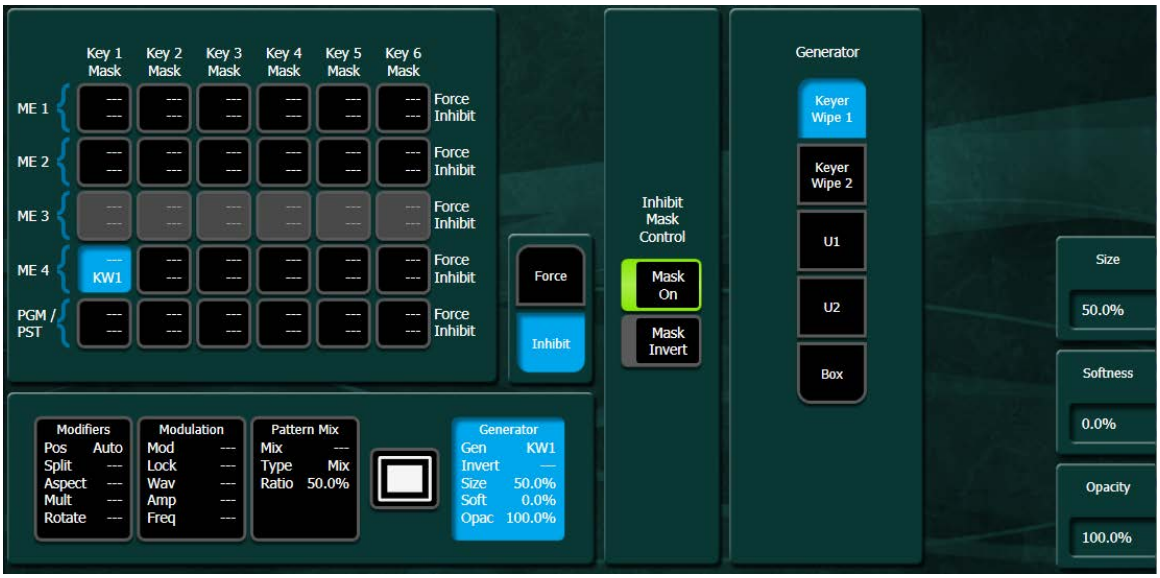
Key Priority

The priority of keyers can be set so that when layered the key at the top of the list is positioned in front of those lower in list. Current priority is priority of all keys if placed on air. Next priority is how keys will be layered if Key Priority transition is performed.



Mask

Two types of mask can be applied to selected keyer. Inhibit mask will cover up the portioned of the key that is being masked. Force mask adds the area within the mask as part of the keyed portion of the key source. Both types of mask can use keyer wipes, utility bus video or a box as the mask source.



Key Exercise

1. On all MEs assign CG as source on key 6 and set priority to top.

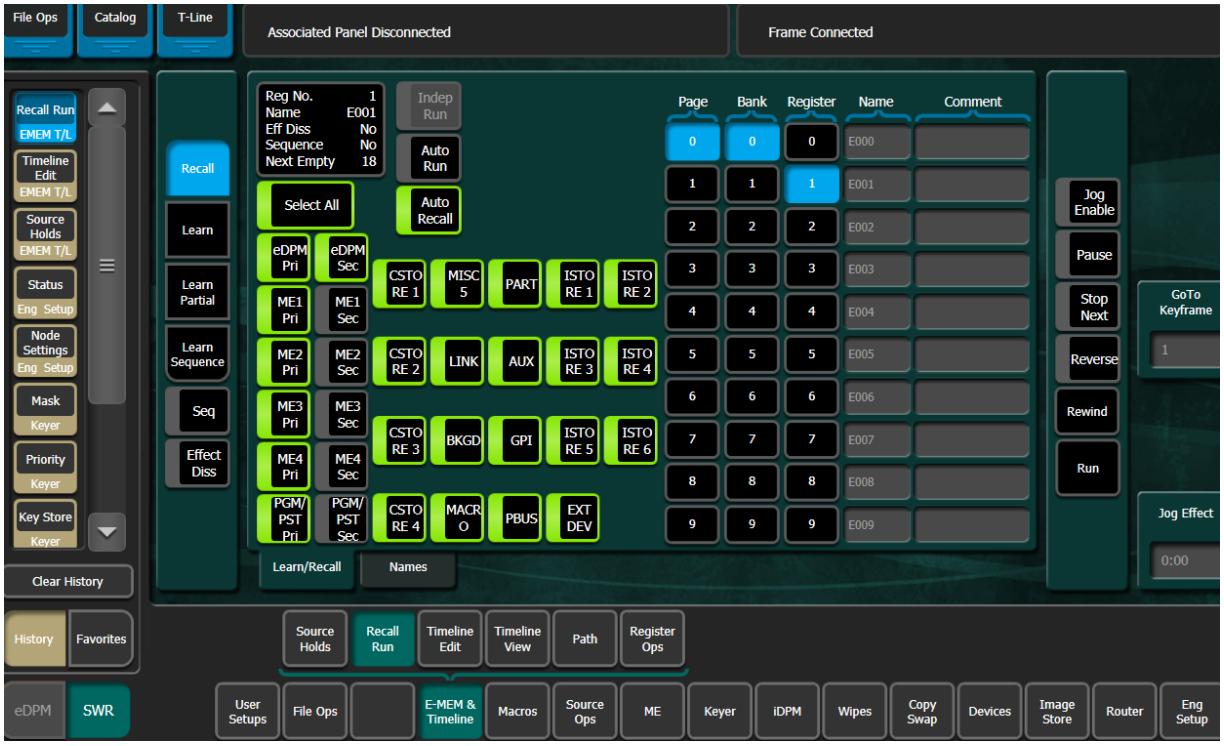
Section 5 – Basic Effects Memory (E-Mem)

E-MEMs are register based storage of complex switcher set ups, allowing for single button recall of stored settings. K-Frame has 1,000 E-MEM registers per MEs bank as well as multiple miscellaneous levels of control for show elements from external resources. E-MEM registers can be a simple set up recall (Snapshot) or can be a series of key-frames on a timeline for more complex effects that automate over time.

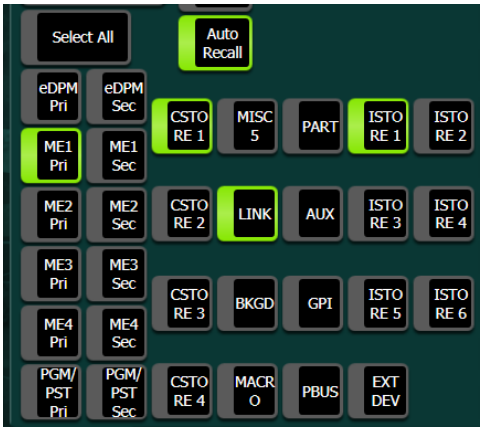
At the end of this section you will be able to:

- ✓ Be able to store and recall local and master E-MEM registers.
- ✓ Create and edit timeline E-MEM effects
- ✓ Set and change timeline paths.
- ✓ Copy, paste, clear and manage E-MEM registers.

E-MEM or effects memory is a way to save complicated set ups for recall with a single button. The E-MEM system can store and recall settings for primary and secondary levels of all MEs and eDPMs. In addition there are 19 programmable miscellaneous levels that can be configured to control items not specific to an ME like ImageStore, ClipStore, PBus, Device Control, etc. Each level has 1,000 registers where single setups (snapshots) or complex timeline events can be stored and recalled.



Before learning or recalling an E-MEM register in Master E-MEM or from the menu panel make sure the Auto Recall button is enabled. Auto Recall ensures that the levels of Master E-MEM that are enabled are also learned as part of that E-MEM register.



Saving and Recalling a Register

Once the switcher is set to the desired condition, an E-MEM register can be stored and recalled using either the menu or an E-MEM panel on the control surface.

Learning an EMem

E-MEM Register numbers have 3 digits
000-999

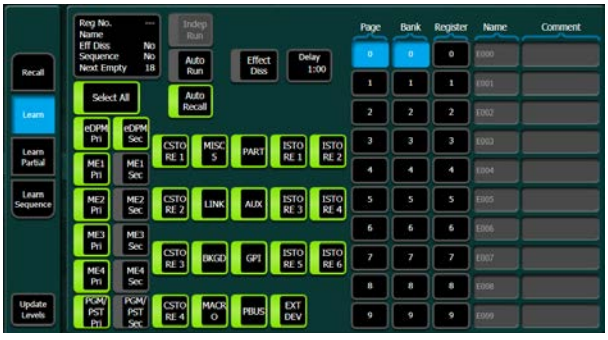
When learning an E-MEM register from an E-MEM panel :

- Press LRN (Learn) button in upper left corner of the numeric key pad.
- Press Page and 0-9 for the hundreds digit.
- Press BNK (Bank) and 0-9 for the tens digit.
- Press 0-9 for the singles digit.

If the desired register is 357, press page then 3, bank then 5 and finally 7.

When learning from the touchscreen menu panel:

- Select the Learn button on the left edge of the menu screen
- Then select the proper number in the Page, Bank and Register columns on the right side of the menu screen.

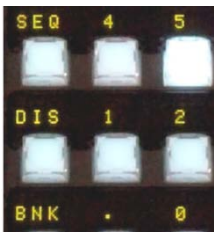


Page and Bank only need to be pressed if you want to change to a different group of 100 registers or a different group of 10 registers. If the E-MEM panel is already in the desired page and bank only 0-9 need to be selected to complete a learn.

You can also press LRN and (.) the period key and the effect will be learned into the next empty register.

E-MEM registers can also contain other commands:

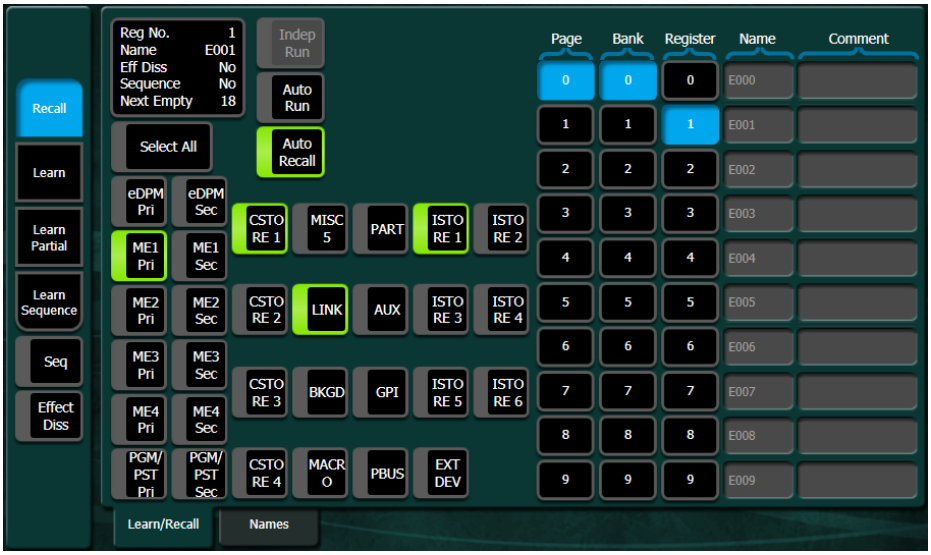
- **Effects Dissolve** - If a register has an effects dissolve, recalling the register will cause a smooth transition of any on screen parameter from its current value to the value on the first key-frame of the register recalled.
- **Sequence** - Multiple registers can be run as one using sequences. To learn a sequence press learns, then the sequence button and then each register in the order they are to be recalled. End a sequence learn by pressing the learn button again.



Recalling an E-Mem

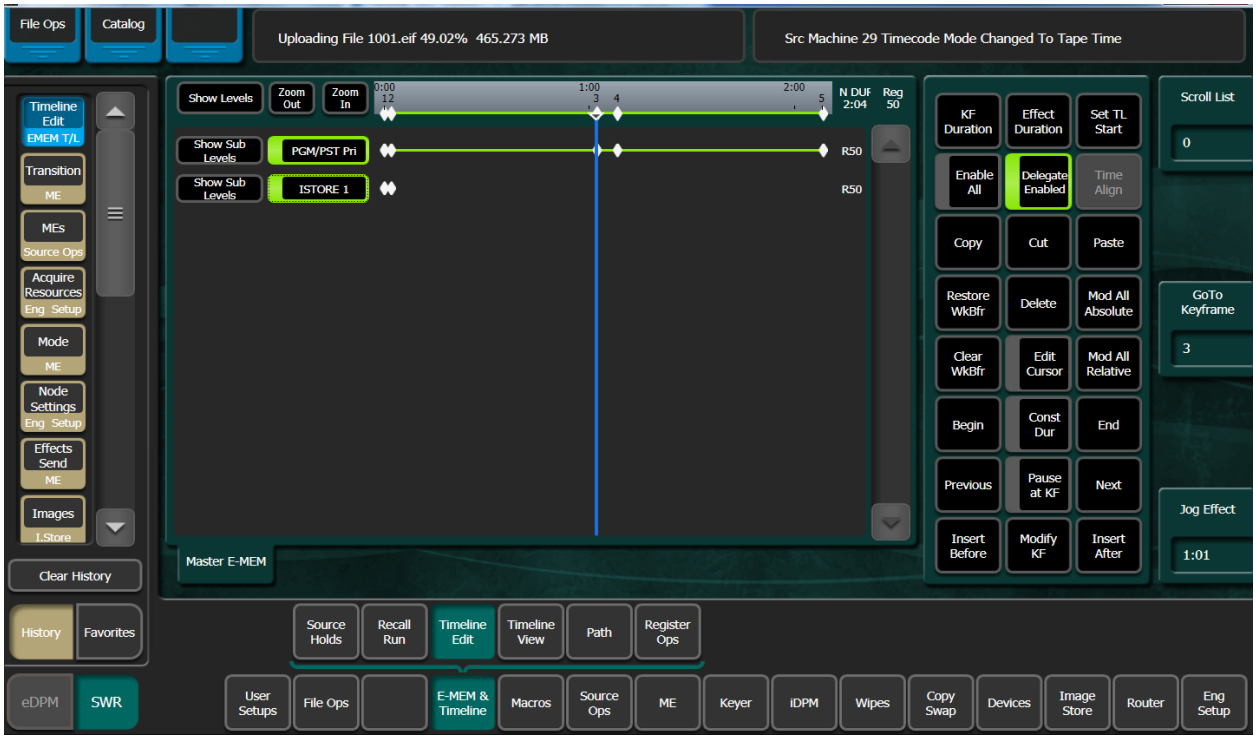
From an E-MEM panel a stored effect can be recalled with a single button press, if the panel is already on the desired page and bank. In the panel image below the display at the top indicates that the last register recalled was 435. Because the panel is already set to page 4 and bank 3, with a single button press registers 430-439 can be recalled by pressing just the button number corresponding to the last number of the three digits.

If recalling using the menu, verify that the Recall button on the right edge of the menu is selected, and then press the button or buttons for the desired register in the table to the right of the menu.



E-MEM Edit and Timeline

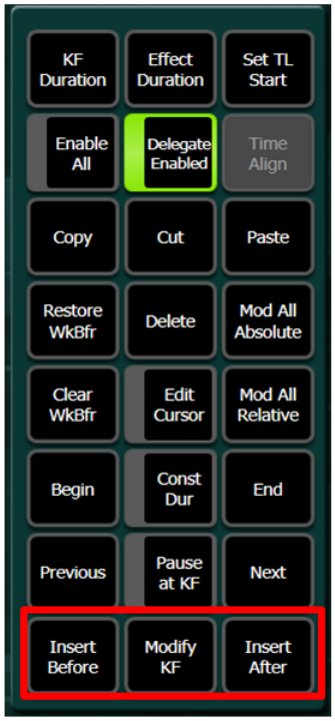
All E-MEM's learned at the Master E-MEM level can be edited to create timeline events. The purpose of a timeline is to trigger a series of events over time so that each event happens precisely when needed. E-MEM edit mode allows the creation of timelines as well as the ability to modify existing timelines.



From the E-MEM & Timeline primary menu select the Timeline Edit sub-menu. On the right side of this sub-menu are a series of buttons used to create and modify timelines in the Master E-MEM registers.

Key-frames can be added to an E-MEM register using any of the following buttons:

- Insert Before - Places a new key-frame in the effect prior to the keframe where the timeline cursor is currently positioned.
- Insert After - Places a new key-frame in the effect after to the keframe where the timeline cursor is currently positioned.



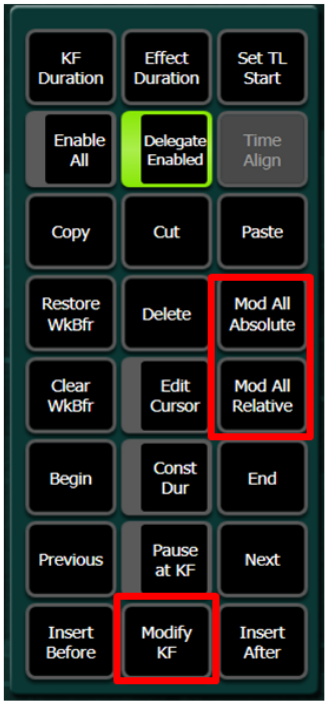
Using the Insert buttons will also add more time to the timeline. By default each new key-frame will add 1 second to the overall run-time of the effect.

- Modify KF - Modify key-frame will add a new key-frame to any timeline level that doesn't currently have a key-frame in the current position of the timeline cursor.

Using Modify KF to add a new key-frame does not add any additional time to the effect.

Existing key-frames can be updated with new values using the modify buttons. Place the timeline cursor on the key-frame to be updated, make the necessary changes and then use one of the following selections:

- Modify KF - Updates the key-frame at the timeline cursor position with the new values.
- Mod All Relative - Updates all key-frames by the difference between the old value and the new value.
- Mod All Absolute - Replaces the old value with the new value on all key-frames.

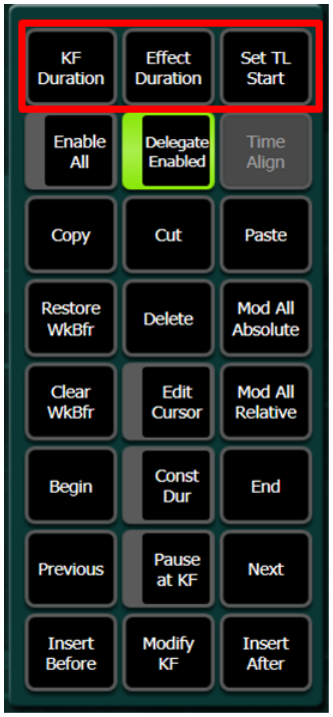


Timeline edit uses clipboard commands similar to word-processing software.

- Copy - Will place the K-Frame values from the work buffer into the clipboard based on the current position of the timeline cursor.
- Cut - Removes the key-frame and time associated with that key-frame at the current position of the timeline cursor and places it in the clipboard
- Paste - Inserts the contents of the clipboard at the current position of the timeline cursor. If the timeline cursor is placed on an existing key-frame the clipboard contents will be placed after the key-frame at the current position and will add more time to the effect. If the timeline cursor is not placed on an existing key-frame, a new key-frame will be created at the cursor location using the contents of the clipboard.
- Delete - Removes key-frame at timeline cursor position. Delete permanently removes key-frame.

With each new key-frame added to an effect the time of the effect increases by one second. Key-frames can be adjusted to the correct position in time with the following:

- KF Duration - Adjusts the time from the key-frame at the current timeline cursor position to the next key-frame. This requires a Modify KF to update key-frame timing.
- Effect Duration - Adjusts the overall run-time of an effect.
- Set TL Start - Offsets the start position of selected timeline levels.



There are additional groups of buttons in the E-MEM menu that are used during the editing process. The first group are used for resetting selected levels back to a user stored default (see Default Key-frame):

- Clear WrkBfr - Clear Work Buffer will reset all values for enabled levels of Master E-MEM back to those stored in default key-frame.
- Restore WrkBfr - Restore Work Buffer, resets back to previous condition prior to a Clear Work Buffer.

The group in the center of the E-MEM edit buttons are state settings that allow for conditional functionality if enabled:

- Edit Cursor - When enabled the timeline cursor can be placed on a key-frame where changes are made and the edit cursor is positioned over a different key-frame where the changes are to be placed.
- Const. Dur - When Constant Duration is enabled using Cut or Delete to remove a key-frame will take the key-frame out of the effect but leave the associated time of that key-frame in the effect.
- Pause at KF - If enabled when inserting a new key-frame or enabled on an existing key-frame, followed by a modify key-frame, the key-frame will have an indefinite Pause. If a pause is placed on a key-frame the effect will stop until the Run button is pressed.

Many of the E-MEM edit functions that are available in the menu are also available on the Master E-MEM panels on the control surface. When the edit enable button is selected on the Master E-MEM panel the numeric buttons become the E-MEM edit functions.

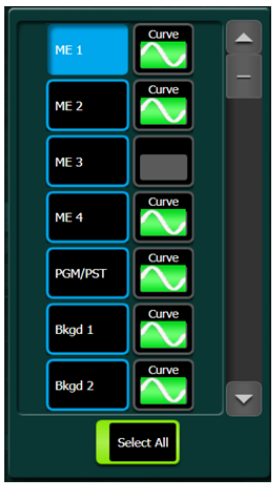
Keyenne

Karrera

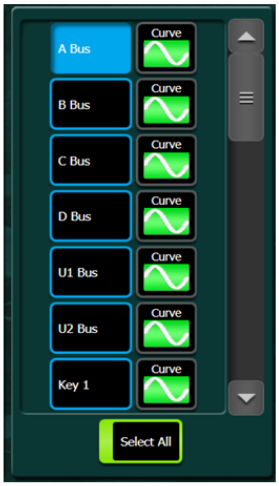
Korona

E-MEM Path Control

When values set on key-frames are adjustable using knobs, joystick or lever arm, such as size and position of a pattern key, those values do an incremental transition between key-frames. The motion of that transition is based on the path set. Path can be set by selecting all levels, all sub-levels on an ME or a selected function.



All Levels



All ME Sub-Levels

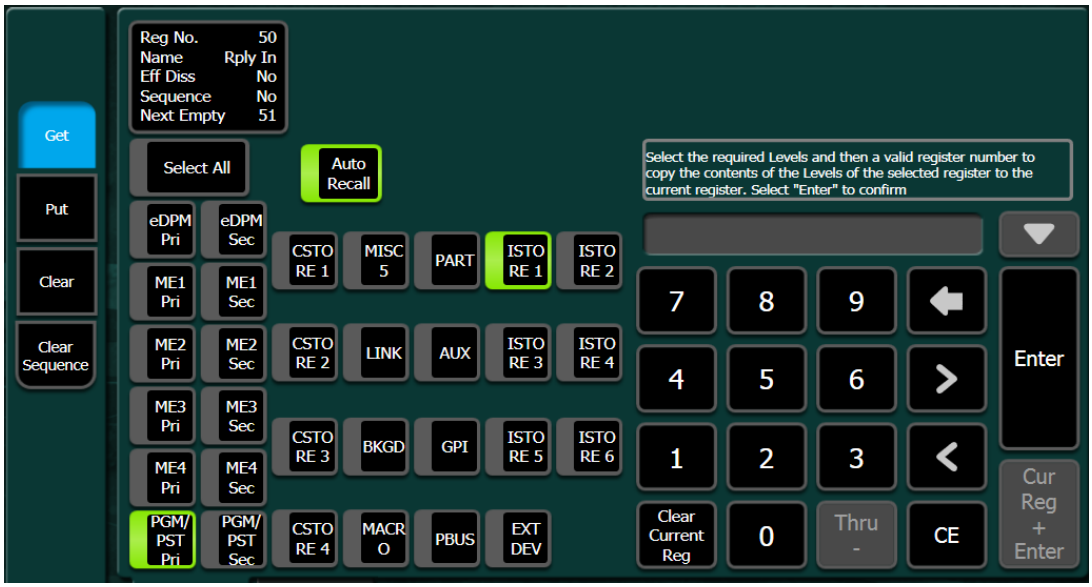
Selected Function

Paths are based on the following path types:

- Linear - Path is a straight line from key-frame to key-frame with no change in speed.
- S-Linear - Path is a straight line from key-frame to key-frame with acceleration when leaving a key-frame and deceleration when approaching a key-frame.
- Curve - Path curves from start to finish and accelerates at start and decelerates at end. Dynamics of a curve path can be adjusted using curve controls:
    - Tension - Amount of curve
    - Continuity - Direction of curve
    - Bias - Position of curve
- Hold - A hold can be applied to any key-frame regardless of path type. Hold stops interpolation from the key-frame where it's placed to the next key-frame.

E-MEM Register Operations

Register operations allow for copying from one register to another or clearing one or multiple registers.



The functions within Register Ops are:

- Get - Copies an effect from a specified register into the current register. (Levels you wish to copy must be enabled)
- Put - Copies the current register into a specified register
- Clear - Erases a single register, a group of registers or all registers. When selection a group of registers the numbers can be entered as from-through (15-35), this, next (37,60) or a combination (15-35,37,60). This would remove all registers between 15 and 35 as well as 37 and 60. (Enable all levels when performing this function to ensure all contents of registers are cleared)
- Clear Sequence - Removes sequence relationship from specified registers.

Section 6 – Mix Effects Banks

K-Frame ME banks have three modes of operation. This section covers the set up and uses of each mode. In addition the sub: menus in ME have controls for color correctors, transitions controls and acquisition of iDPM channels.

At the end of this section you will be able to:

- ✓ Set up each of the different ME operating modes and understand uses for each.
- ✓ Adjust video processor and set processor effects on ME buses.
- ✓ Operate transitions from touchscreen menu.
- ✓ Assign available DPM's to keys using effect send.

The ME menu has several sub-menus that give control over all things ME based. These sub-menus give access to setup, control and ME operations from the touchscreen menu.

Modes

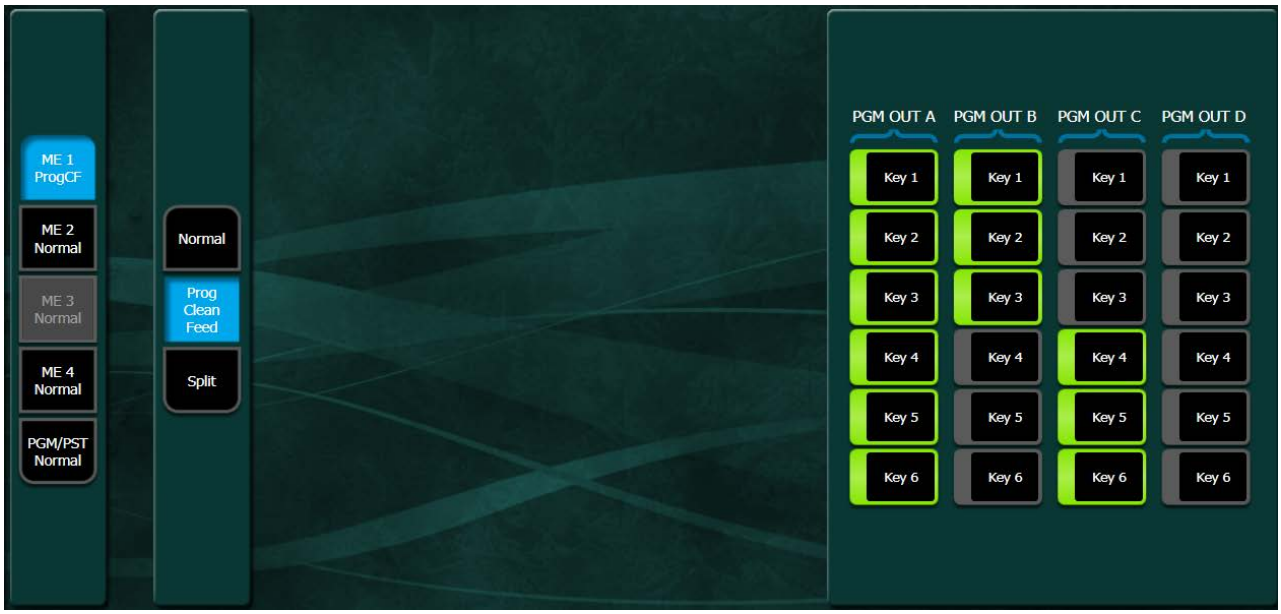
The first sub-menu is Modes. Each mixed effects bank in the suite has three different mode settings; Normal, Programmable Clean Feed and Split. Normal is available on all systems, but for Programmable Clean Feed the system needs to be licensed for "Flexi-key." For the Split mode the system needs to be licensed for "Double Take." Each ME has four program outputs (ABCD) and for each mode there is a set of configurations for each of the four outputs.

Normal

In Normal mode output A has the A/B background with keys 1-6 (Keys 1-4 on S and V-series frames). Outputs B, C and D are A/B background with no key (Clean).

Programmable Clean Feed

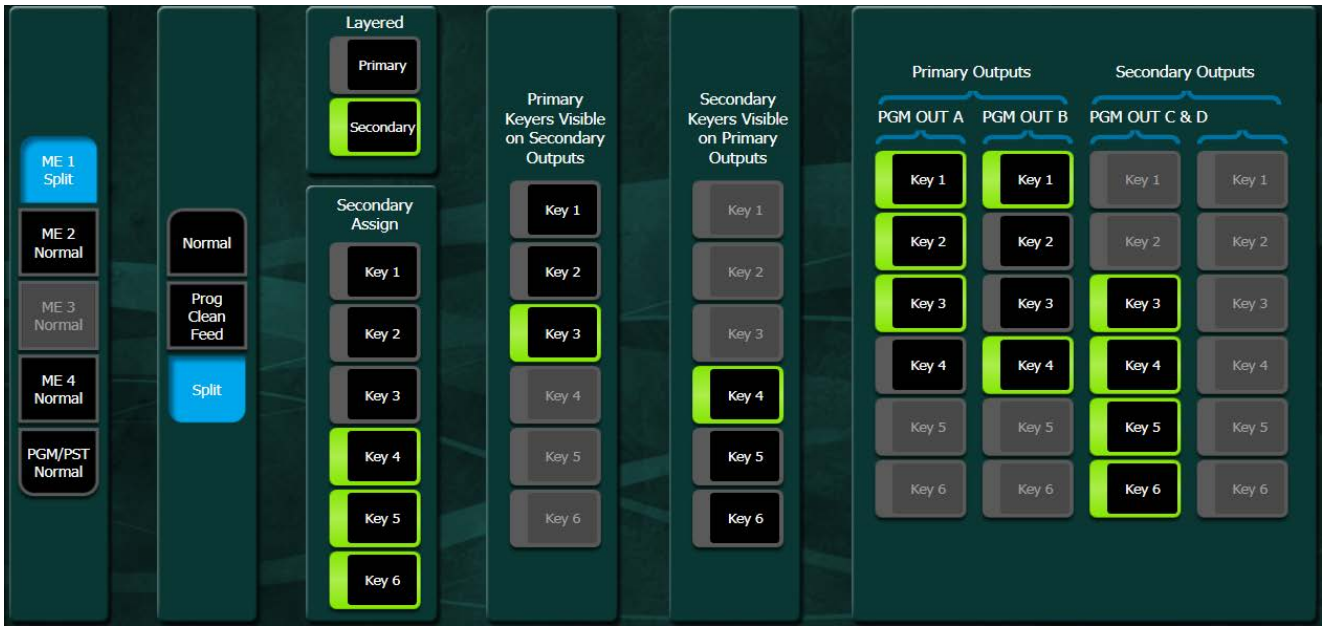
In Programmable Clean Feed mode the six keyers on each ME (4 keys on S and V-series frames) can be assigned as visible or not visible over the A/B background, based on the configuration of outputs A, B, C and D. In the following example, output A has all six keyers available over the A/B background mix. Output B only has keys 1-3. Output C has only keys 4-6. And, output D has no keys over A/B background mix.



Split

Split mode creates two separate ME banks using the available resources from a full ME Bank. This would allow for a Primary ME Bank from the specified ME to contribute to the live program output while the secondary supplies mixed effects, transitions and key layers feeding directly into an on-set monitor.

In the example below ME-1 is divided up so that keys 1-3 are assigned to appear on the Primary side of the ME over the A/B background mix. Keys 4-6 will show up on the secondary side of the ME over C/D background mix. Output A of ME-1 has keys 1-3 available over A/B background mix. Output B has key 1 over A/B background mix and key 4 is shared with both primary and secondary sides of ME-1. Because Secondary is in Layered mode, Output C has keys 4-6 (and key 3 shared) available over a void background, and Output D will show the key mattes of all keys set to the on-air status on output C.

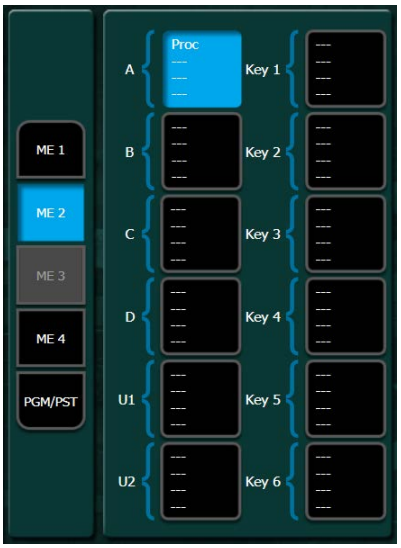


ME-Video Proc

The video processor sub-menu can be used to apply one of a series of different video processors at the output of individual source select busses on a given ME. Any or all of these processors can be applied to the video at the output of the select bus row, but because the processor is applied at the output of a bus row, all sources on that bus row will be affected by the processor settings.

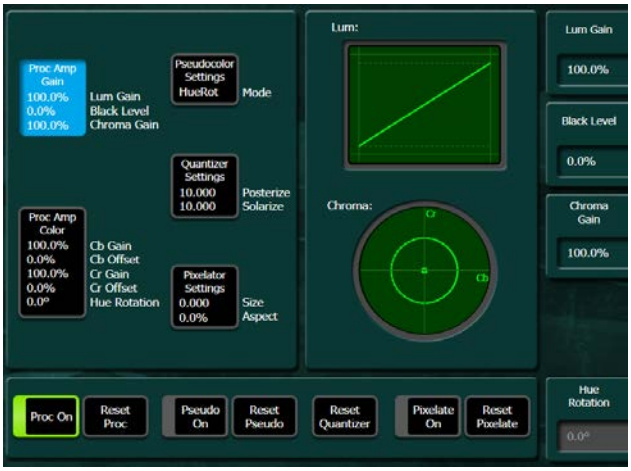
Start using the video processor by:

- Select ME
- Select source bus row



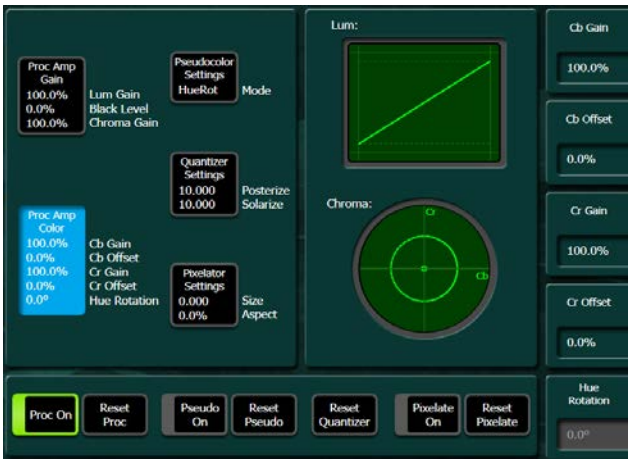
Video processor settings have two levels of control. Enable the video processor by selecting Proc On. The first group of settings is level controls.

- Lum Gain-Adjusts the level of brightness of the video.
- Black Level-Adjusts the contrast levels of the video
- Chroma Gain-Adjusts the amount of color saturation in the video.



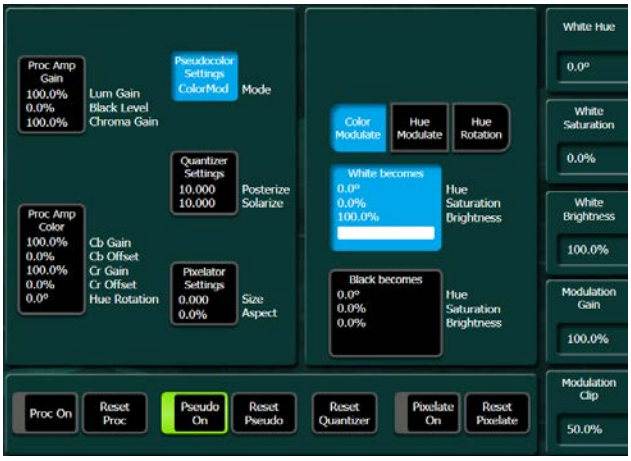
The next group of settings are:

- Cb Gain-Increase/decrease blue component
- Cb Offset-Shifts the blue component
- Cr Gain-Increase/decrease red component
- Cr Offset-Shifts the red component



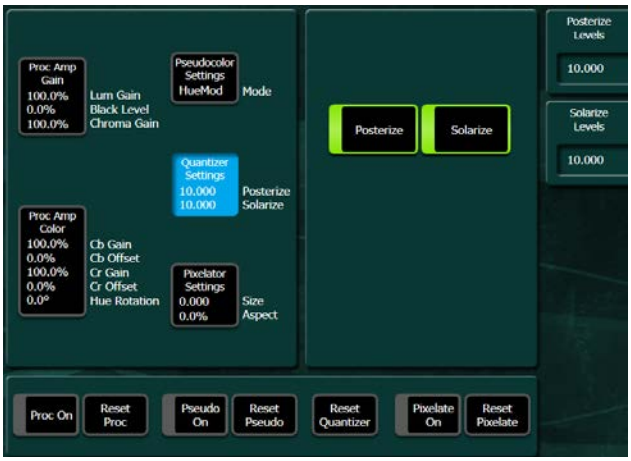
Pseudo Color has three different sets video processor controls:

- Color Modulate-sets video to monochrome and allows for a single color matte to replace the whites and/or blacks.
- Hue Modulate-places a color matte in whites and a color matte in blacks with control over amount of saturation and clip and gain controls to adjust where matte effect is applied.
- Hue Rotation-Shifts chroma hue of selected source.



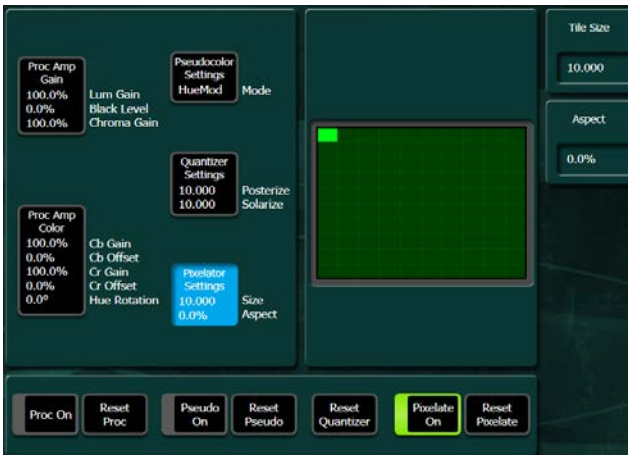
Video Quantizer:

- Posterize-As level is increased grey levels are reduced in selected source video.
- Solarize-As level is increased, lower color saturated portions of source video are set to monochrome.



Pixelator controls place a mosaic effect on selected video source:

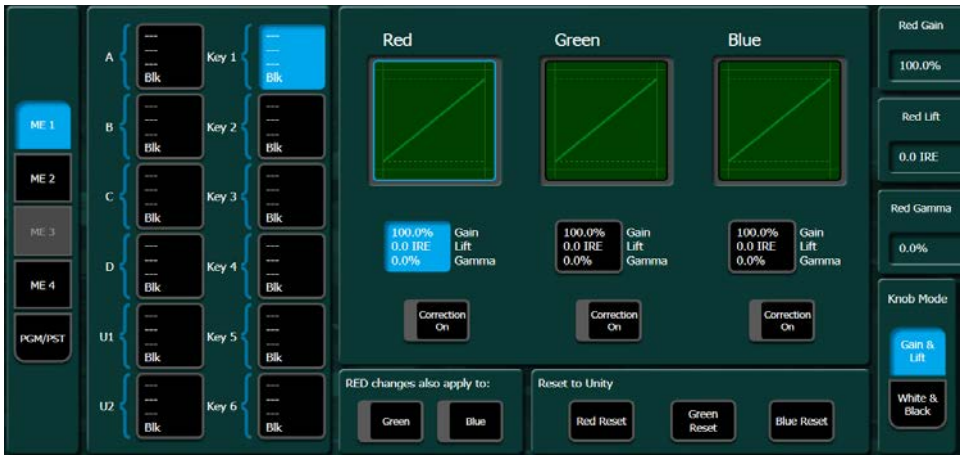
- Tile Size-Increases/Decreases mosaic tile size.
- Aspect-Stretches tiles either vertically or horizontally.



Because video processor adjustments are applied at the source bus level, all sources on that bus will be corrected.

RGB Color Corrector

K-Frame has an optional RGB Color Corrector on each source bus of the switcher. The RGB color corrector is true color correction with control of Gain, Lift and Gamma for each of the color components, as well as Gain and Gamma controls of white and black levels in each of the RGB components.



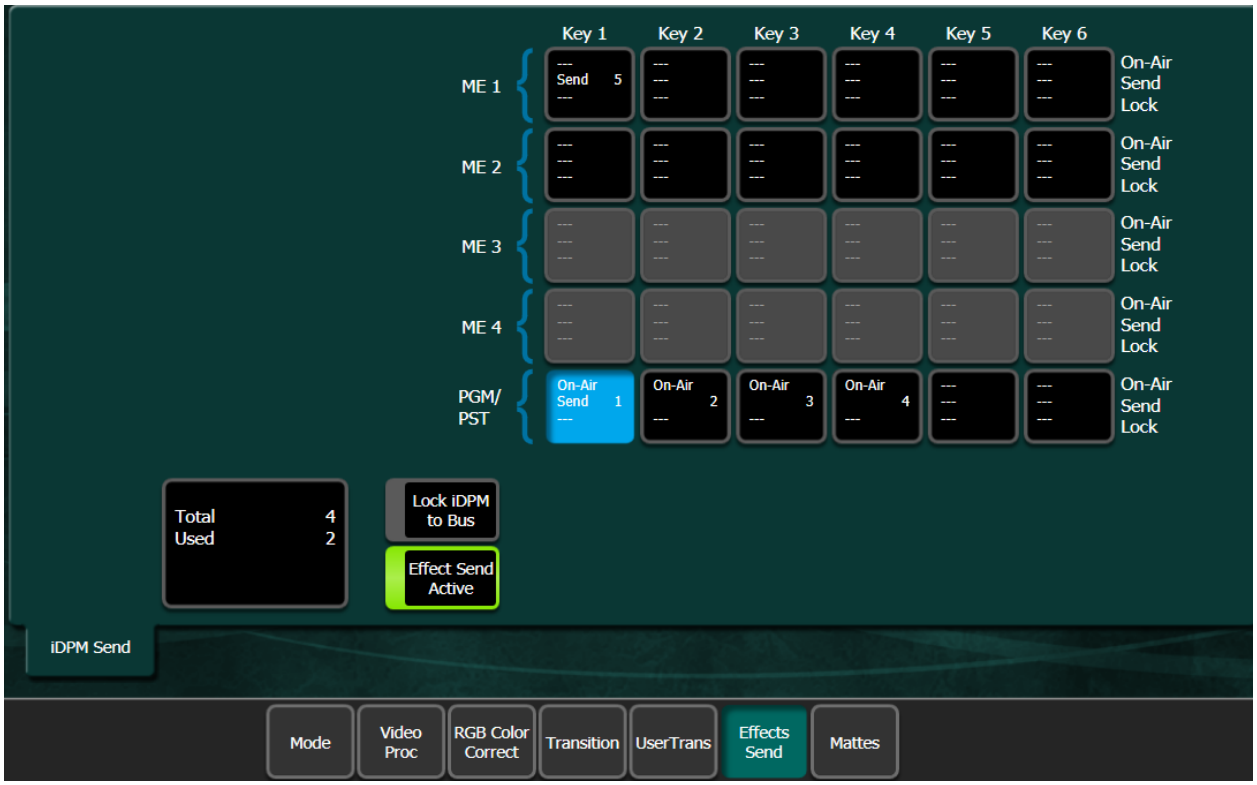
Because RGB color correction is applied at the source bus level all sources on that bus will be corrected. To correct a single source apply the correction at the input.

Transition

The transition sub-menu has the same set of controls that are found on the transition panel on the control surface, with the exception of the lever arm. Transition components (Bkg, key, etc.), type of transition (mix, wipe, user trans) and Cut and Auto buttons are all selectable in this menu. In addition a separate cut and mix button for each of the six keyers. The Auto Trans and Key Mix rates can be set from this menu as well.

Effects Send

Effects Send sub-menu provides control over assigning available iDPM channels to specified keyers by selecting the delegation box for the desired keyer and enabling Effect Send Active. The menu displays which keyers have assigned DPM channels with the word “Send” in the delegation box for that keyer. The delegation box will also display On-Air if the keyer is currently contributing to the Program signal out of the switcher.



Section 7 – DPM Basics (iDPM, eDPM, 2dDPM)

K-Frame has two types of DPMs, up to 16 3D DPMs that can be used as either iDPMs or eDPMs. 2dDPMs can also be licensed for K-Frame allowing up to 36 DPMs that have size and position capabilities.

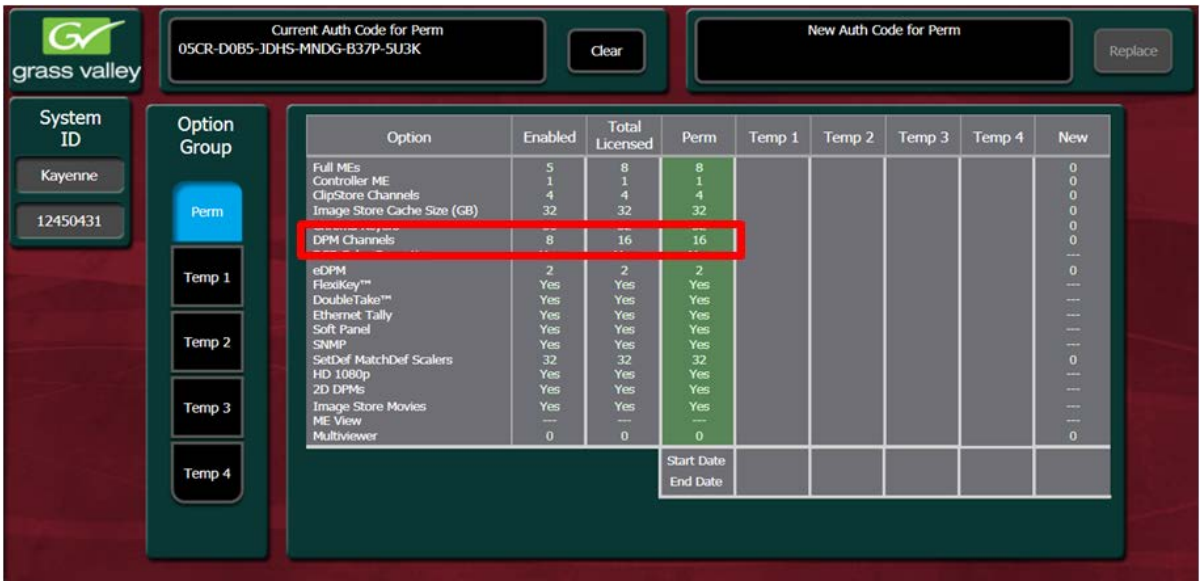
At the end of this section you will be able to:

- ✓ Define Hardware/Software requirements for DPM
- ✓ Assign Channels to MEs or eDPMs.
- ✓ Explain Math of DPM coordinates
- ✓ Transform controls

DPM Types

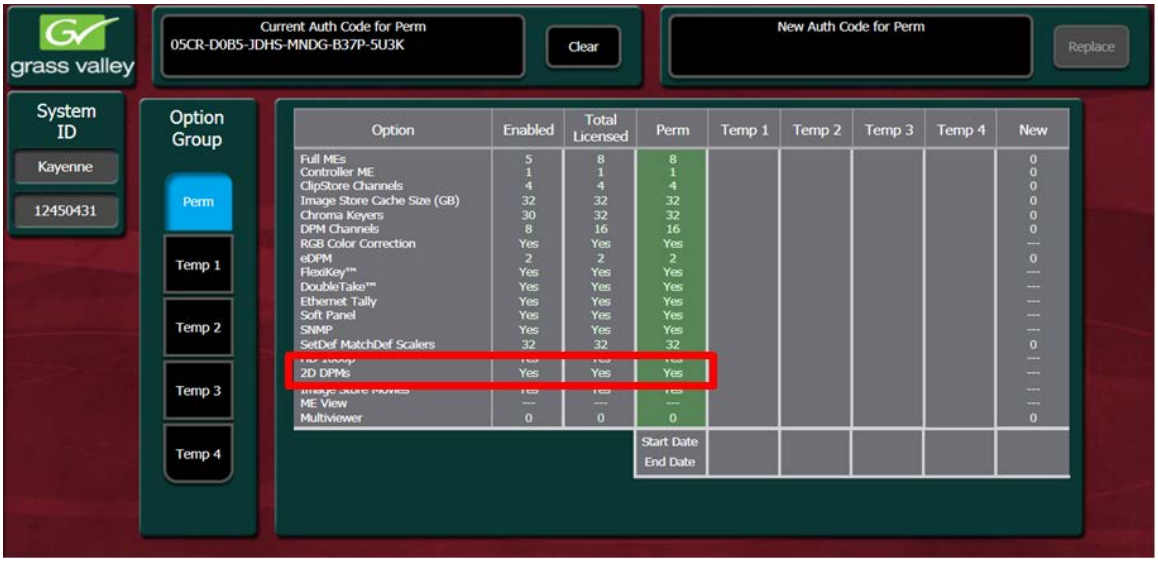
K-Frame has three variations of DPM (Digital Picture Manipulator). iDPMs are a resource that are acquired by a keyer so that the source being keyed can be manipulated in 3D space. 2dDPMs are also a resource on a keyer that allow for size and position of the keyed source in 2D space. An eDPM is a single source with up to six channels of DPM that can be used as either a background source or a keyed source (See Section 8 for a detailed discussion of eDPMs).

The total number of 3D DPMs (iDPM, eDPM) in any system is based both on hardware and software licenses. 3D DPM hardware is on the mixed effects boards. Each mixed effects board supports 4 channels, so a large K-Frame with 4 ME boards will support 16 channels of 3D DPM. The software licenses enable the channels that are able to be used on the system. The Install Options menu below indicates that this system is licensed for 16 channels but only 8 are enabled because there are only 2 ME boards in the frame.



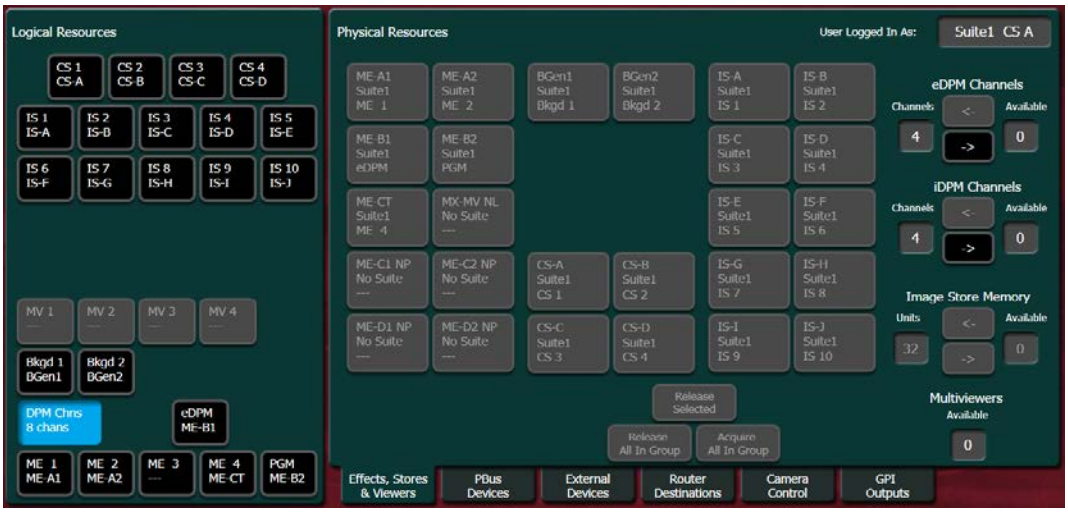
DPM Hardware and Licensing

2dDPMs are enabled by a software license. If the system is licensed for 2dDPM each keyer on all MEs will have the capability for 2dDPM use. eDPM also has 2dDPM capabilities, so a licensed system would allow for 6 2dDPM channels on eDPM even if no 3D DPM channels have been assigned to the eDPM.



Assigning Channels to Suite

The first step is to verify the number of channels acquired by the suite and if they are assigned to iDPM, eDPM or both. Eng Setup/Acquire Resources will show the number of channels in a suite and where they are assigned. From this menu you can move them between iDPM and eDPM or release them for use in the other suite. The menu below indicates that 8 channels are acquired by this suite, 4 are assigned to iDPM and 4 are assigned to eDPM.

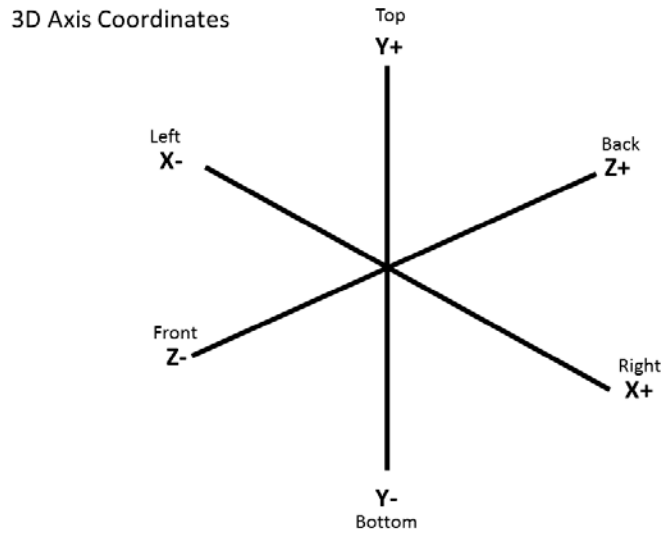


The Maths

All position coordinates for DPM channels are based on the screen ratio of the output format of the K-Frame. If the output is a 4X3 standard definition signal the coordinates are based on that 4X3 ratio. If the output is either a 16X9 standard definition or high definition the coordinates are based on that 16X9 screen ratio. All coordinates are calculated from the center of the screen outward, with the center being "0". All motion on the "X" axis is left and right, on the "Y" axis is up and down and on the "Z" axis is forward and backward.

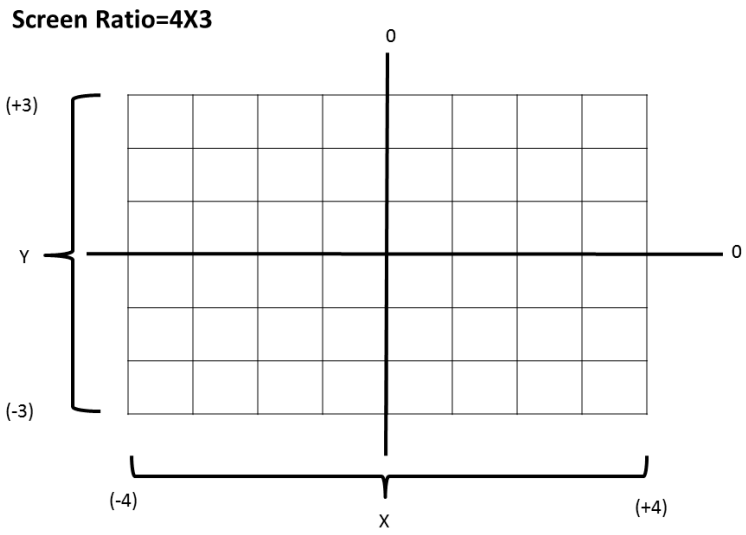
Axis Directions:

- X-Negative values go left, positive values go right
- Y-Negative values go down, positive values go up
- Z-Negative values go forward in screen and positive value go back in screen



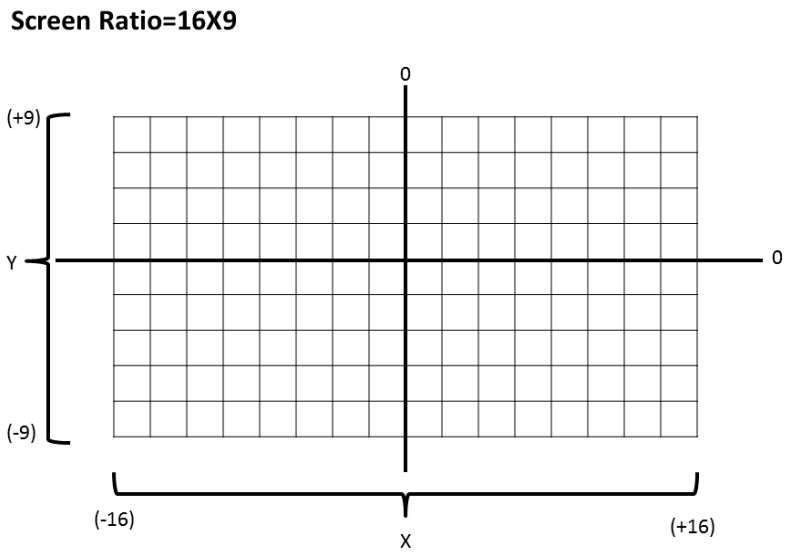
4X3 Screen values:

- Right-X=-4
- Left-X=+4
- Top-Y=+3
- Bottom-Y=-3



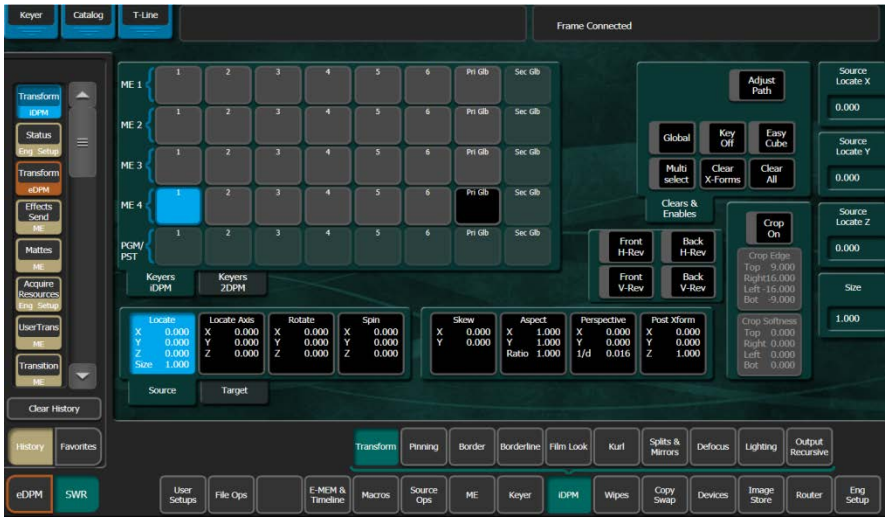
16X9 Screen Values:

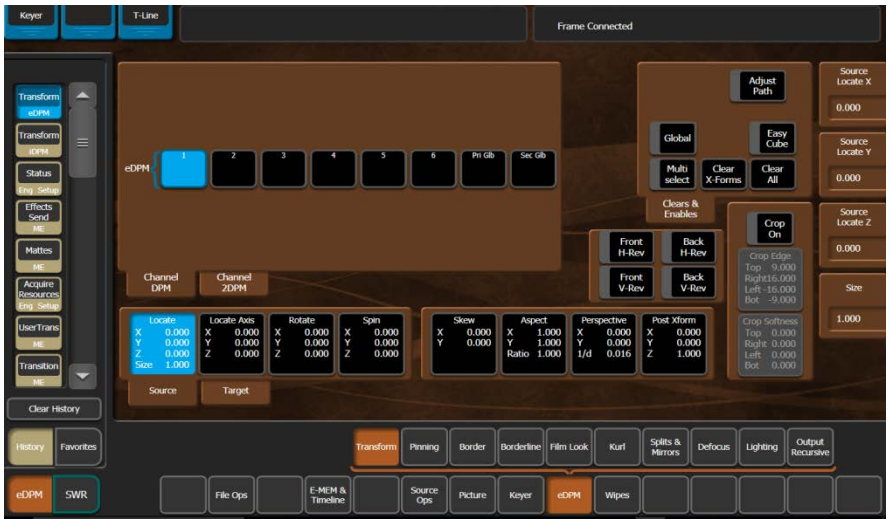
- Right-X=-16
- Left-X=+16
- Top-Y=+9
- Bottom-Y=-9



Transforms

Size, Position and crop controls for all DPMs are found in their respective Transform menus. For iDPMs and 2dDPM's, the controls are in the switcher menus under iDPM/Transform. For eDPM the controls are in the eDPM menus under eDPM/Transform.





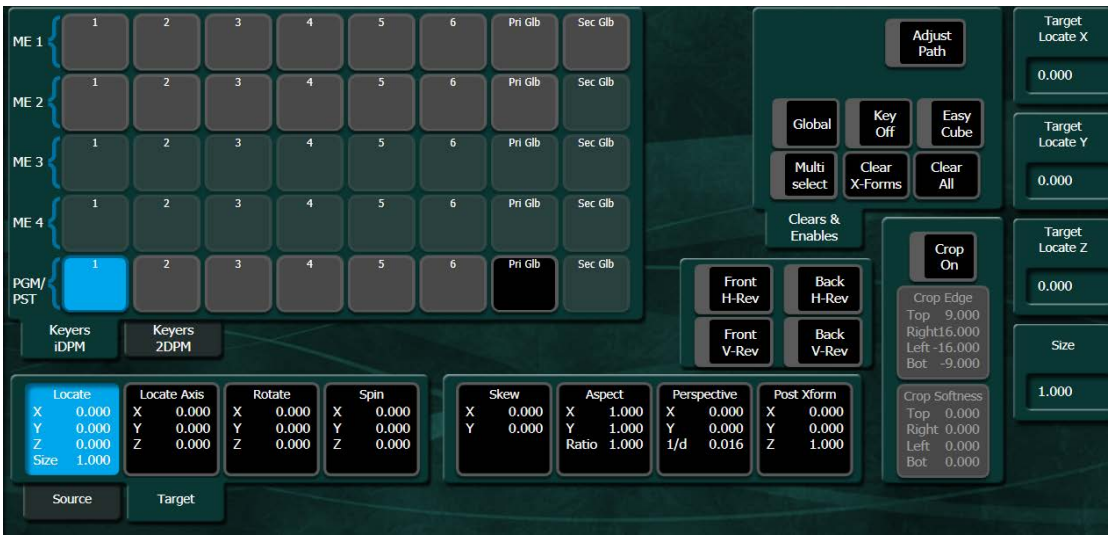
Available channels can be assigned where needed by a double left mouse click (or double-tap with finger) on the source delegation box of the desired channel or keyer, in the upper left quadrant of this menu. For iDPM channels you can also assign channels by going to the ME/Effects Send menu, selecting the desired keyer and enabling the "Effect Send Active" button.

On Kayenne panel iDPM, eDPM and 2dDPM channels can be enabled in the Multi-function module. On Karrera panels, iDPM, eDPM and 2dDPM channels can be enabled from the keyer control panel.

3D Transforms

Locate

The Locate transform controls the position and size of the selected channels in 3D space. X, Y and Z values in Locate are the channels position in 3D space. The size value is the channel size. If X=0, Y=0 and Z=0 and size=1 the selected channel would be full screen center. If the value of X was changed to -16 and the value of Y was changed to 9, the center of the channel would be positioned in the upper left corner of the screen.



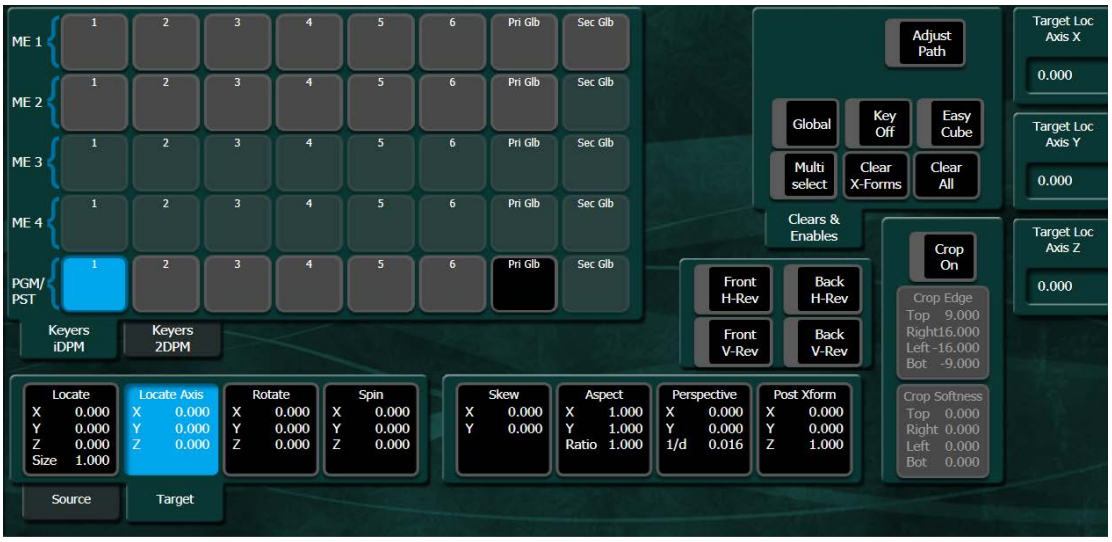
Size

The size value is based on 1=full size. If the value of size is increased or decreased the, the source is not transformed in 3D space, but only made larger or smaller.

Note: When using the Joystick on Kayenne and Karrera, the Locate 3D button controls the X, Y and Z parameters of Locate. The Size Locate button controls X, Y and Size. On Korona the Joystick will control the selected item in the iDPM menu. Where there are more than 3 parameters, the ones highlighted in blue will be affected. To toggle the blue highlighted items in the menu, press the softknob associated with the parameter you wish to control with the joystick.

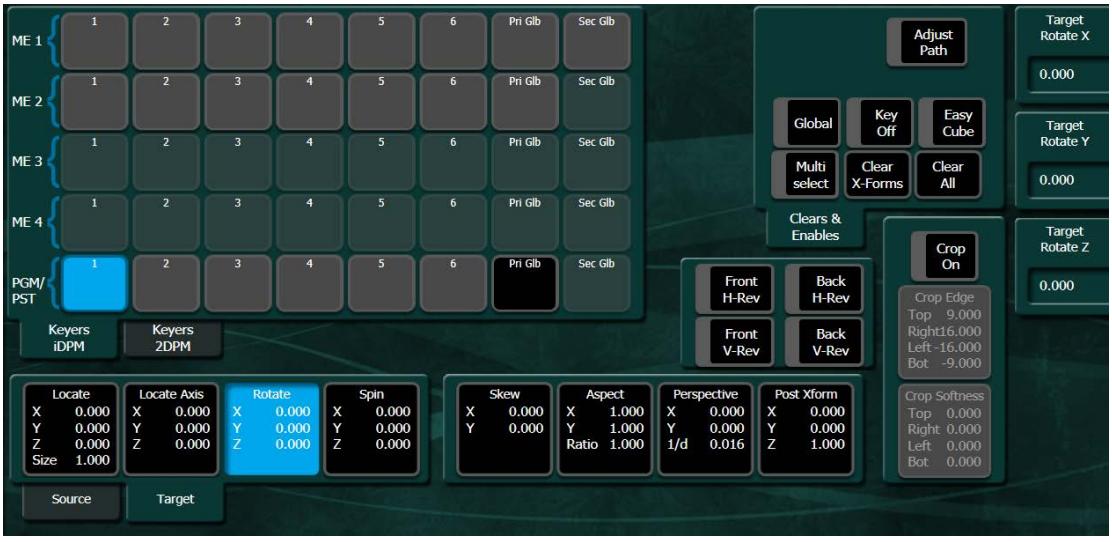
Locate Axis

Locate Axis is positioning of the center of rotation for the selected channel. If the locate axis values are X=0, Y=0 and Z=0, the channel will rotate around its center. If the value of X was changed to -16 and the value of Y was changed to -9, the channel would rotate from the lower left corner.



Rotate

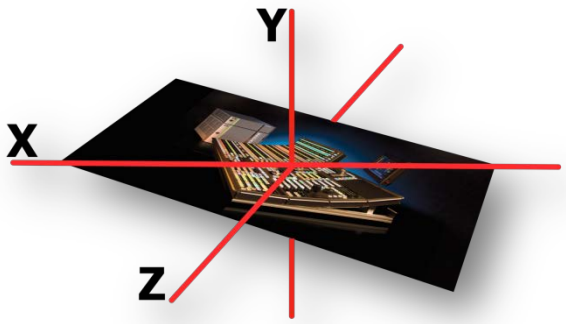
The Rotate transform are limited as to how much rotation you can place on the selected channel. When adjusting X, Y and Z values in Rotate, the values are limited to +/-.5. If a channels X value were to be adjusted for clockwise rotation starting from the value of 0, as the control passed .5 the value would then change to -.4999. Rotate is normally used when a channel has to be positioned facing a direction other than forward.



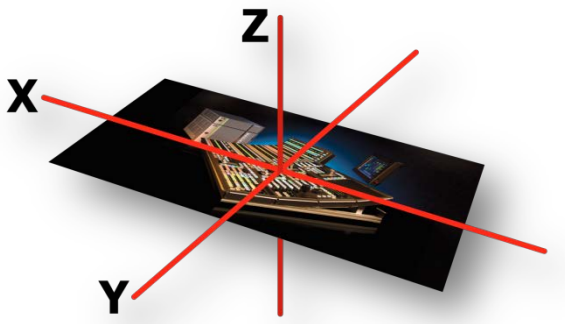
Spin

Spin also rotates the selected channel, but the values for spin are not limited like they are in Rotate. On any axis if the value goes from 0 to 1 the selected channel has rotated 360° clockwise. If the values go from 0 to -1 the channel has rotated 360° counter-clockwise. Spin is used when the selected channel has to do multiple rotations in the same direction during the course of an effect.

Source & Target



TARGET



SOURCE

Target-Target axes are fixed X, Y, Z and the movement in Target relates to the direction you manipulate the joystick when moving the

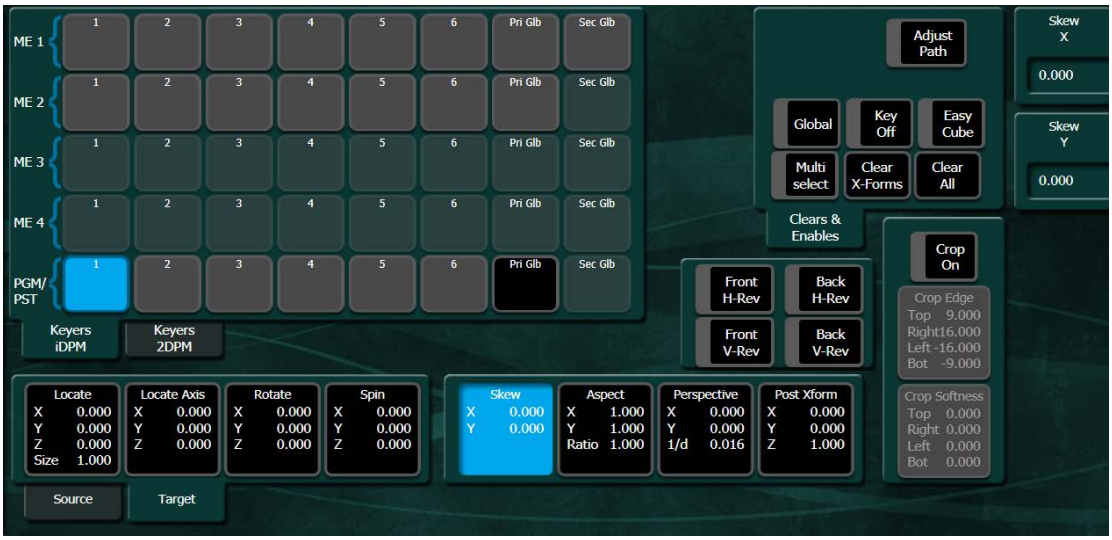
Source-Source axes are the X, Y, Z of the DPM channel itself. As the DPM channel is manipulated the X, Y, Z axes are

position of the DPM channel manipulated with the channel.

2D and Picture Frame Transforms

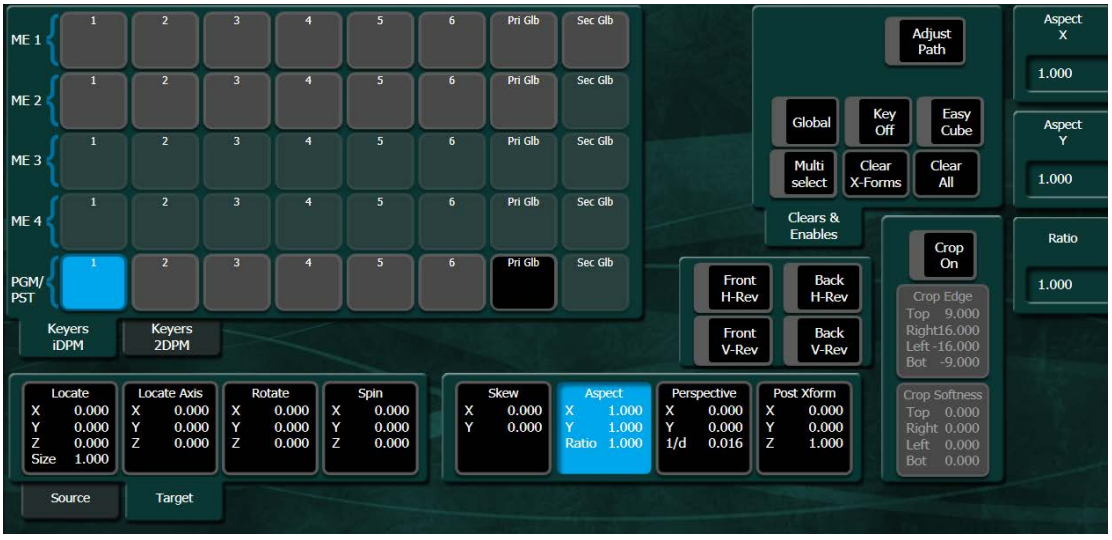
Skew

Skew is a transform that changes the selected channels frame from being squared to having parallel sides at an angle. If skew is adjusted using X, the left and right sides will be set at an angle. If skew is adjusted using Y, the top and bottom will be set at an angle.



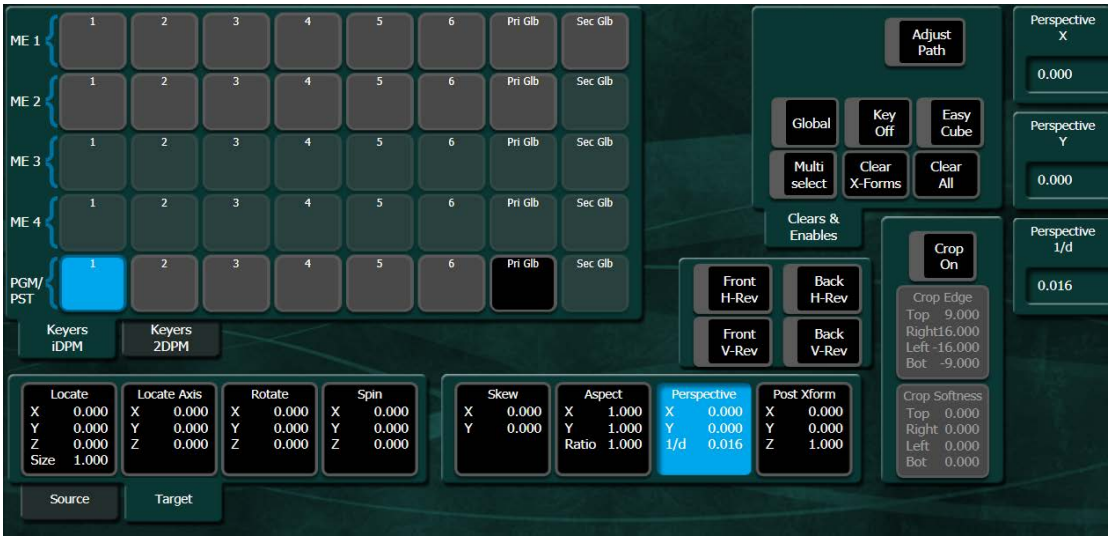
Aspect

Aspect transform stretches or compress the selected channel horizontally and vertically. If the X and Y controls are adjusted to change the channel from its default aspect, Ratio will control the overall size of the channels adjusted aspect.



Perspective

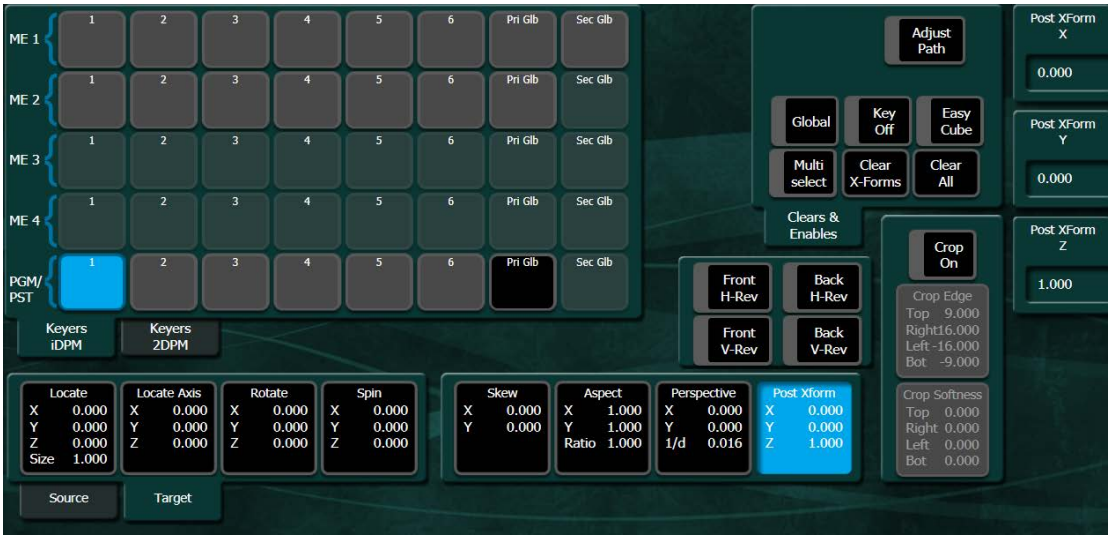
The Perspective transform adjusts the position of the “Vanishing Point” on the horizon. The 1/d control positions the vanishing point closer or farther away. X will position left or right and Y will position up and down.



Simulated Image manipulated with Perspective

Post Xform

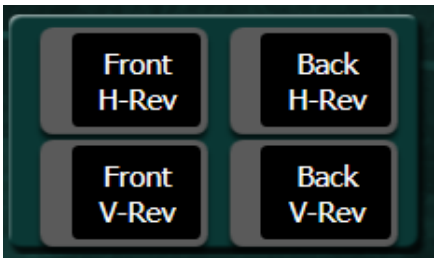
The Post Transform controls only manipulate the selected channel in 2D space. X and Y controls will position the channel and Size increases or decreases the size of the selected channel. No 3D perspective values are applied when moved in Post Xform.



Other Transform Controls

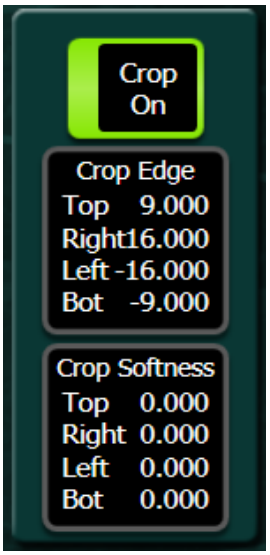
Horizontal and Vertical Reverse:

- Front H-Rev - Reverses the video on the front side of the iDPM channel left to right.
- Back H-Rev - Reverses the video on the back side of the iDPM channel left to right.
- Front V-Rev - Reverses the video on the front side of the iDPM channel top to bottom.
- Back V-Rev - Reverses the video on the back side of the iDPM channel top to bottom.



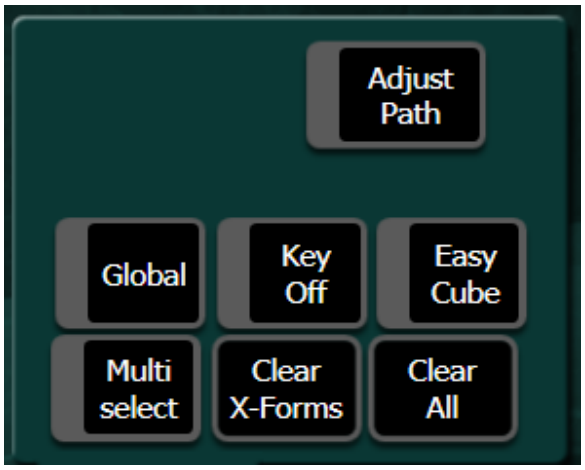
Crops:

- Crop On - Enables crop function
- Crop Edge - Controls for adjusting the edge of the iDPM channel inward.
- Crop Softness - Controls for adjusting the softness of the edge of the iDPM channel.



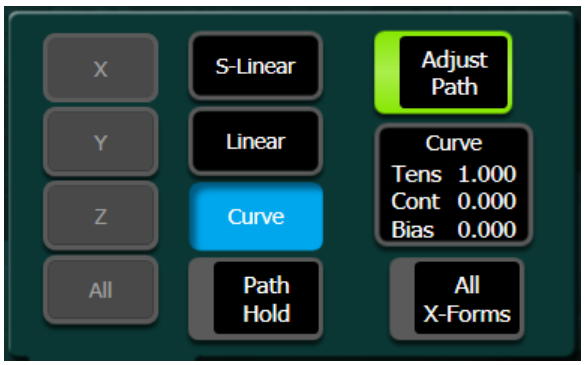
Clears & Enables:

- Global - Enables selected channels to be manipulated by the Global channel.
- Key Off - Defeats the source key signal and substitutes with a full raster key signal.
- Easy Cube - Enables easy cube functionality for all selected channels
- Multi Select - Enables the ability to select more than one iDPM channel at a time.
- Clear X-Form - Resets all parameters in the Transform menu back to default with the exception of crop.
- Clear All - Resets all parameters for all functions in iDPMs.



Path Controls:

- Adjust Path - When selected menu inset changes from Clears & Enables controls to path controls.
- S-Linear - Sets path for selected channel and selected transform to S-linear path (See Page 134)
- Linear - Sets path for selected channel and selected transform to linear path (See Page 134)
- Curve - Sets path for selected channel and selected transform to Curve path (See Page 126)
- Path Hold - Sets hold on select key-frames on iDPM timeline.
- All X-Forms - When enabled setting a path type will be applied to all transform paths, not just the one selected in menu.
- Curve (controls) - When selected sets the data entry boxes next to menu knobs to tension, continuity and bias data entry. (see E-MEM path controls)



Steps for Creating Cube or Slab

Cube

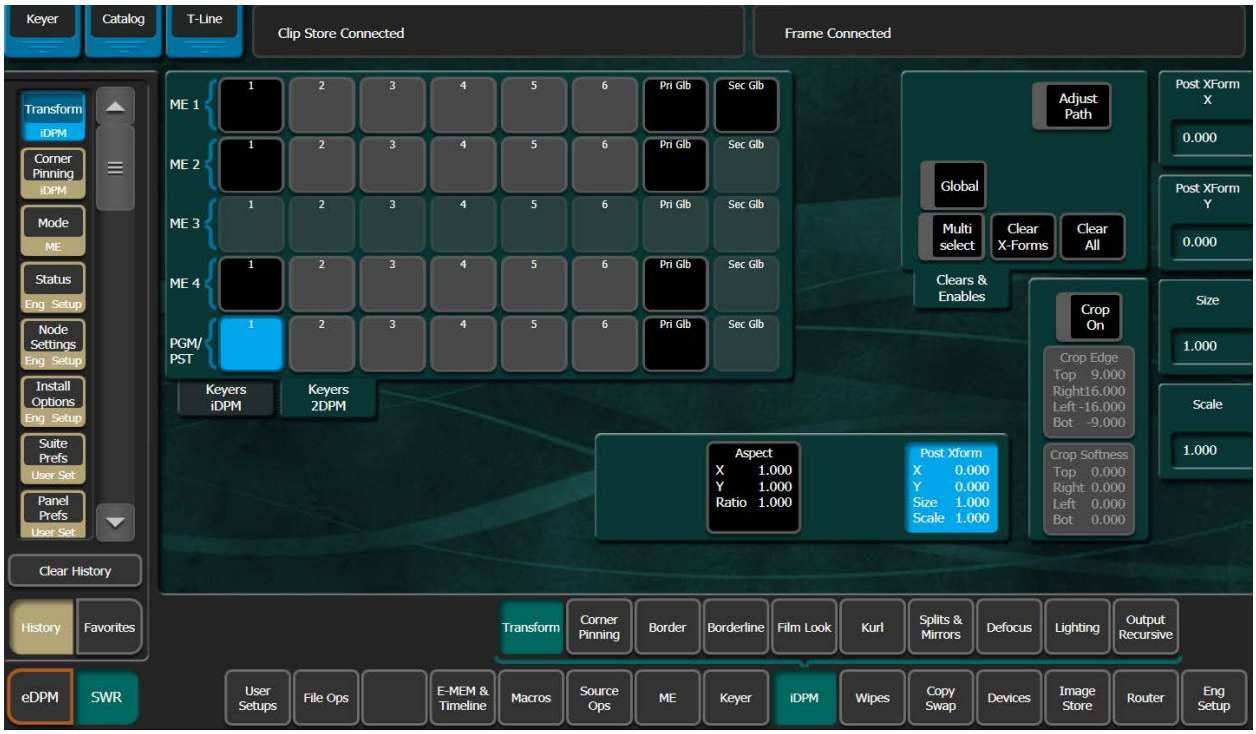
1. Set Transform to Source Axis Control
2. Assign iDPM to keys 1-3 on a single ME
3. Select all 3 channels and enable global, easy cube and crop
4. Crop all 3 channels left to -9 and right to 9
5. Rotate key 2 on X -.25
6. Rotate key 3 on Y -.25
7. Locate keys 1-3 on Z -9
8. With Global channel position Cube to start location.

Slab

1. Set Transform to Source Axis Control
2. Assign iDPM to keys 1-3
3. Select all 3 channels and enable global, easy cube and crop
4. Crop key 2 left side to -1.5, crop right side to 1.5 and rotate on X -.25
5. Crop key 3 top side to 1.5, crop bottom side to -1.5 and rotate on Y -.25
6. Locate key 1 on Z -1.5
7. Locate key 2 on Z -16
8. Locate key 3 on Z -9
9. With Global channel locate Slab to start position

2dDPM

If licensed, each keyer has a 2dDPM channel. 2dDPMs are limited to only movement in 2 dimensional space. A 2dDPM can be enabled on a keyer by either double left mouse click on menu delegation box of desired keyer, or by the 2dDPM enable button on the key control panel on the control surface. The tools for manipulating a 2dDPM are the Aspect controls and Post Transform controls that are discussed previously in this section (Page 155). 2dDPMs also have crop control, path control and can be enabled for use in a Global channel.



Post Xform in 2dDPM differs from iDPM in that it has both a Size and Scale control

Size - Resizes channel toward its own center

Scale - Resizes channel toward screen center

User Tip: A single keyer can have both a 2dDPM and an iDPM at the same time. The combination of both can be used when positioning off camera clocks in live sports broadcasts. When both are in use the 2dDPM is upstream of the iDPM. Use the iDPM to set the on-screen position of the clock and the 2dDPM to size and position the clock camera inside the iDPM.

DPM Exercises:

1. Using only math (no joystick), fly a single DPM channel from off screen left to off screen right.
2. Rotate a single channel from on-screen full to off screen from the lower left corner
3. Using two channels in default position, slide the top channel off screen and in behind the second channel. Then slide the second channel off screen and in behind the first. Must be done in 4 key-frames.

Section 8 – eDPM Basics

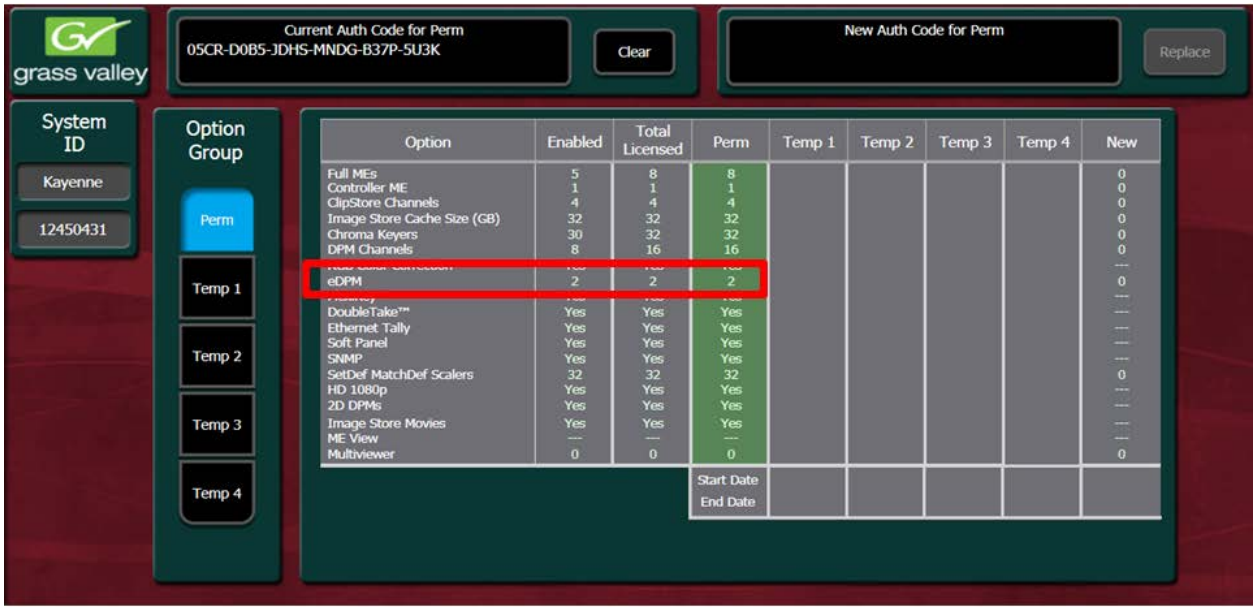
An **eDPM** differs from an **iDPM** in that it is a source on the switcher rather than added functionality on a keyer. Source manipulation works identical in both but eDPM has set up functions much the same as ME set up.

At the end of this section, you will be able to:

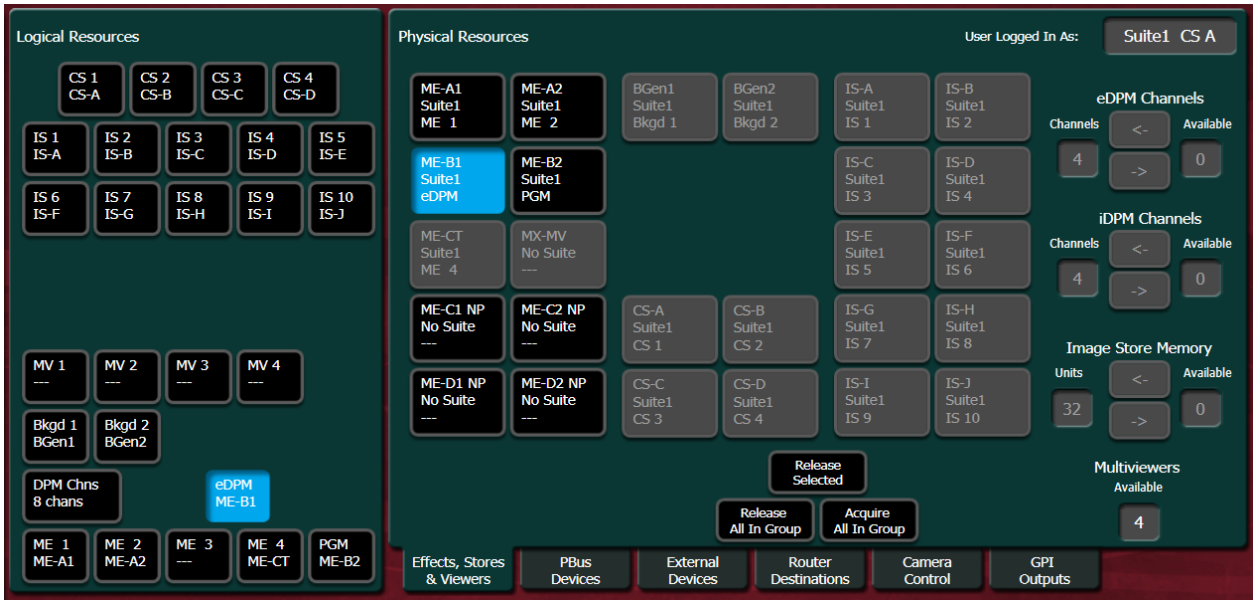
- ✓ Configure eDPM for the suite.
- ✓ Set up eDPM outputs and select input sources.
- ✓ Use eDPM wipes for source masks or pattern keys
- ✓ Set up key modes for input sources
- ✓ Create eDPM timelines

Acquiring eDPM Resources

In order to use eDPM in K-Frame, the system must have the software license to use available hardware.



If the system is licensed, to use eDPM in a suite there must be ME hardware available for suite acquisition. Select eDPM in the Acquire Resources menu and choose an available ME board from Physical Resources.

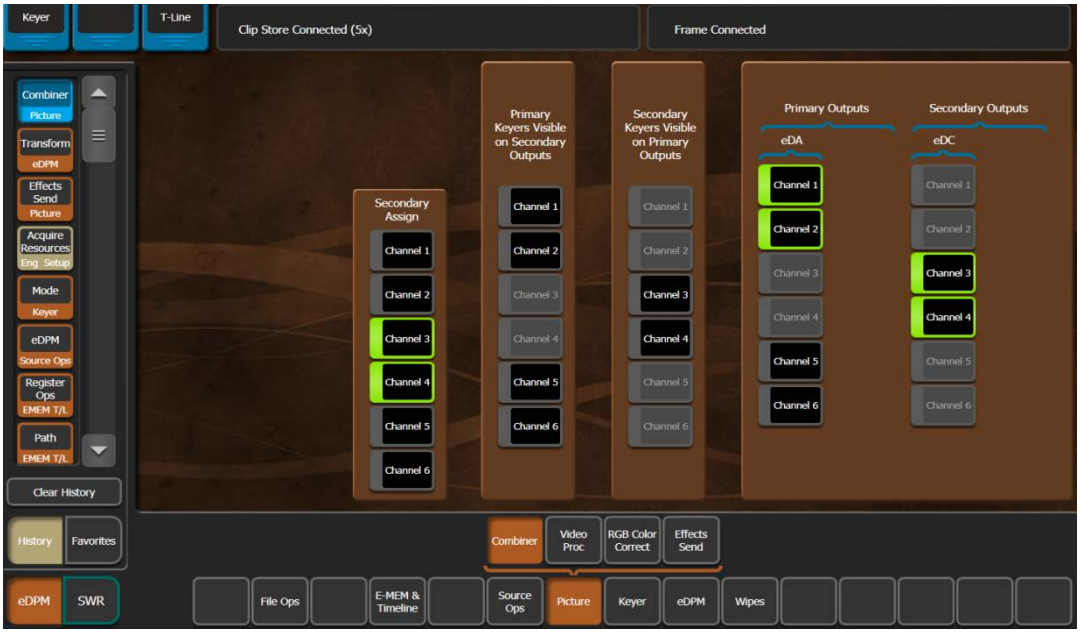


In addition to having ME hardware for eDPM, there must also be DPM channels available in the suite. All available channels in a suite can be assigned to either iDPM or eDPM, or shared between both.

Any or all available channels can be assigned where needed by selecting the left pointing arrow. Each mouse click of the arrow will assign another available channel.

Assigning eDPM Channels to Outputs

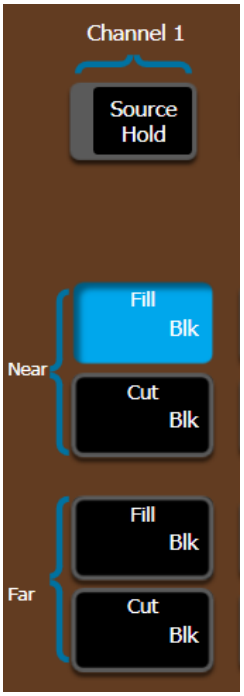
Because eDPM uses ME hardware it has similar program output capabilities as the mixed effects. Just as in Split mode on an ME, eDPM resources can be divided between two different discrete outputs or all assigned to one or the other output. From the eDPM/Picture/Combiner menu available channels can be assigned to either the Primary Output (eDA) or the Secondary Output (eDC). Also, channels assigned to either output can be made visible on the other output.



Selecting Source Inputs for eDPM

Source input to eDPM can be selected either from Source Ops menu or using input selectors mapped to the local Aux Bus panel. Any logical or fixed source can be fed to the input of an eDPM channel from the menu or any source mapped to a source bus row on the local aux panel.

When a source is selected for the input to a channel of eDPM both the video (fill) and key (cut) are input to the channel. Because DPM channels don't have their own key signal, the one being fed from the source is used.



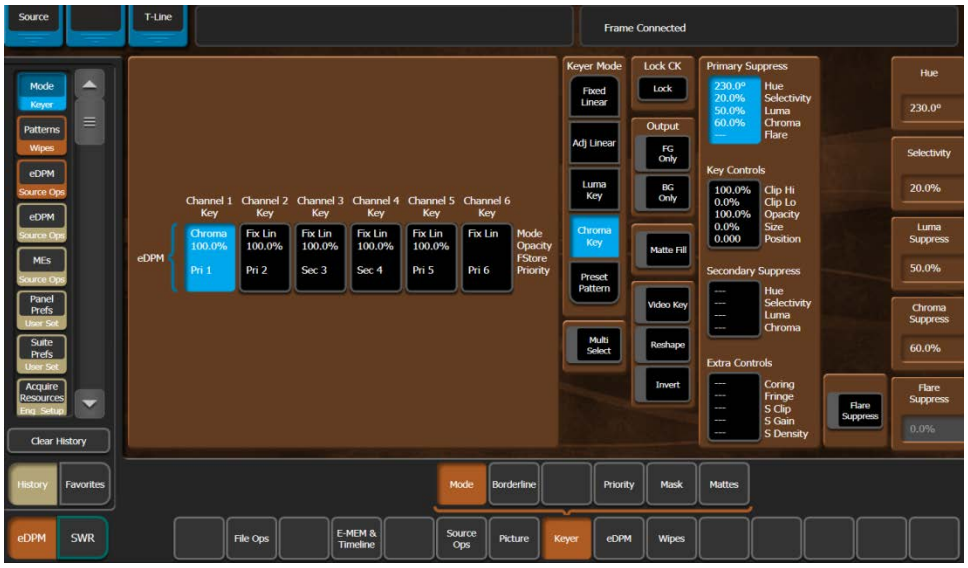
Each channel has a source input for near and far. These inputs are used when an effect is created with a 180° rotation and different sources are needed for each side of the channel. Because there is only one input per channel, DPM channels control the input source selection and switch between the near and far sources at the 90° point when neither side is visible.

- Near-Source that appears in channel
- Far-Source switched to during rotation (far source becomes near source at the switch)

eDPM Keyer

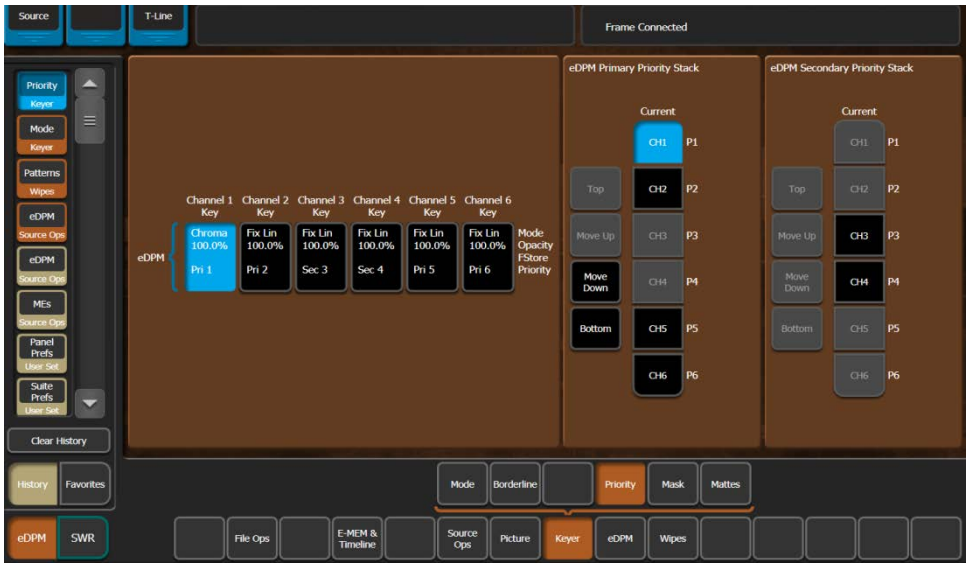
Keyer/Mode

Each source input to a channel can be processed as a key just as it would on an ME. Most often the source will be processed as a Fixed Linear key, using the defined key signal from that source. Any source can also be processed as a luminance, chroma or pattern key as well.



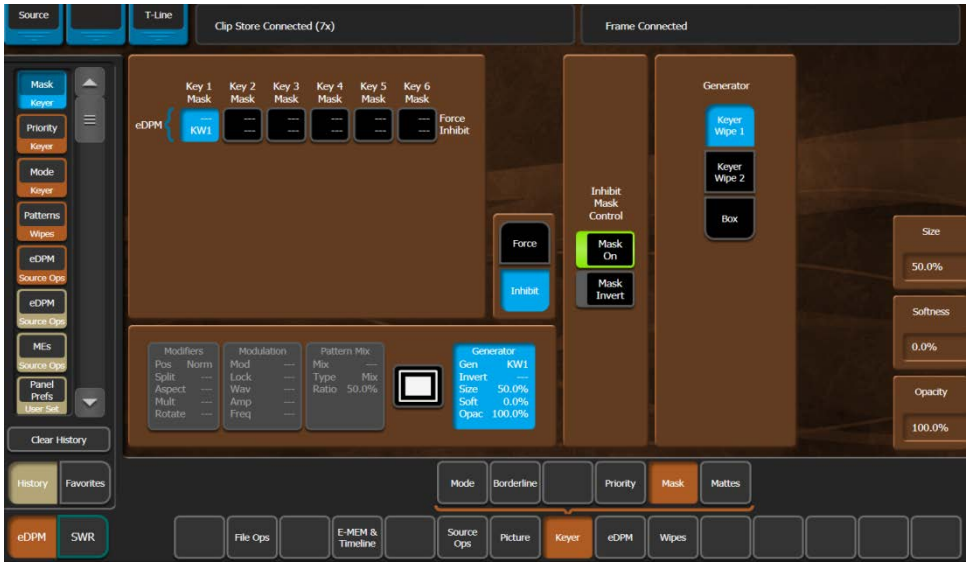
Keyer/Priority

eDPM channel priority is much the same as key priority on an ME. The channel with the high priority will appear in front of other channels. Priority can be set by selecting a channel and using move up, move down, top or bottom placing the channel in the desired position of priority.



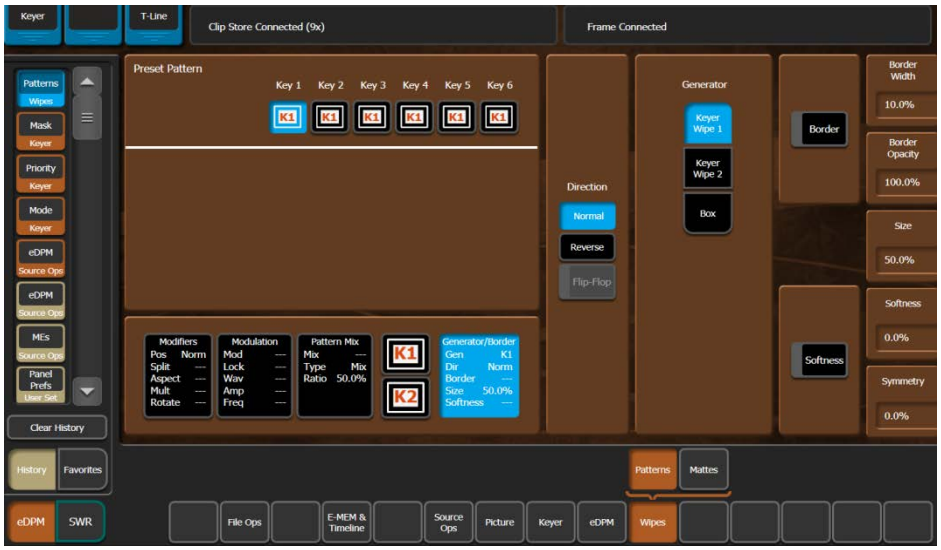
Keyer/Mask

eDPM key mask works in the same manner as an ME key mask. The source being fed into an eDPM channel can have either an inhibit or force mask, or both. Masks can use either of the key wipe generators per channel or a box generator.



eDPM Wipe

Each channel of eDPM has two key wipe generators. The wipe generators can be used for Preset Pattern key of the input source. Or, the can be used as a key mask of the source being input to the channel. eDPM wipes have all the same controls as the ME wipe generators.



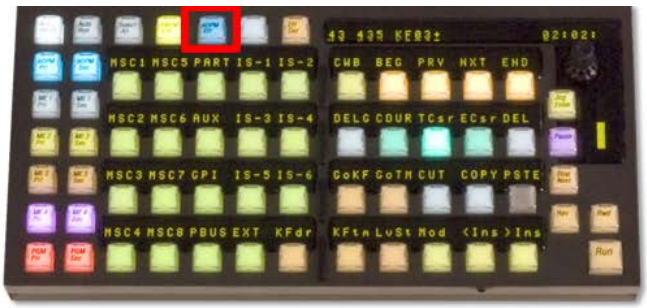
eDPM Effects Registers

Recall Run

eDPMs have their own separate 1,000 effects registers. These registers can be recalled and run by E-MEMs or separately. Using E-MEM will recall the proper eDPM effect register and select the proper source position to present the effect. eDPM effects registers can be learned by using the Recall Run menu.

Or by delegating the Master E-MEM panel to eDPM and learning into an effect register the same as an E-MEM would be learned.

Karrera

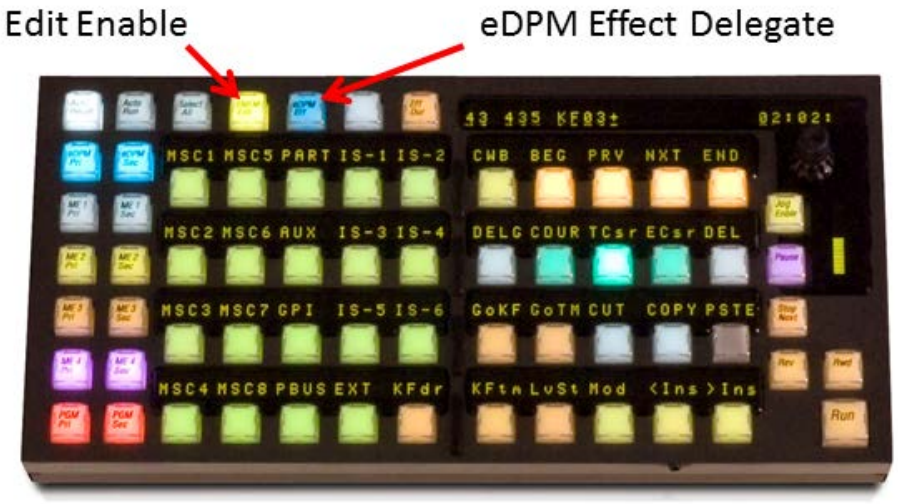


Kayenne

Timeline Edit

In order to create motion with eDPM effects timelines must be created using key-frames. Timelines can be created using the eDPM/E-MEM & Timeline/Timeline Edit menu or the Master E-MEM panel delegated to eDPM and set in edit enable mode. The timeline edit menu in eDPM menus mirrors the same menu in E-MEM and all functionality is identical.

The edit buttons on the Master E-MEM panel work for eDPM if panel is delegated.



Register Ops

eDPM effects registers can be managed using the eDPM/E-MEM & Timeline/Register Ops menu. Effects can be copied from one register to another using Get and Put, much the same as E-MEM. Effect registers can also be cleared using the same methods as E-MEM register ops.

Section 9 - Devices

K-Frame supports several protocols for control of DDR/VTR devices. Using either serial or Ethernet connection, up to 32 devices can be connected and controlled using panel, menu, E-MEM or Macros.

At the end of this section, you will be able to:

- ✓ Define the difference between control using GPI, PBus and direct protocol control.
- ✓ Explain how to control a device using manual control from the panel or menu and using E-MEM and Macro to integrate the control of devices in complex effects.
- ✓ Create and playback playlists from attached DDR devices.

What is a Device?

Devices are normally hardware that has the ability to playback a video clip. Devices would include VTR or servers that can store and play video files. But a device could also include a graphic device that playback an animation using either a GPI connection to the K-Frame or a serial interface or Ethernet connection.

The three types of control from K-Frame to a device are:

- GPI-A simple momentary relay closure from the switcher wired to device to trigger a single specific command.
- PBus-A serial communication protocol that sends programmable trigger commands to an intermediate piece of hardware (i.e., Lance or DNF machine controller), which translates the trigger command to a machine control command.
- External Device-Direct serial or Ethernet connection using AMP, VDCP, Odetics or BVW machine control protocol. This type of communication is bi-directional, K-Frame has full level transport control (i.e., Play, Cue, FF, Rew, etc.) and the device can return information such as timecode and clip files and directory stored on the device.

Manual Control of Devices

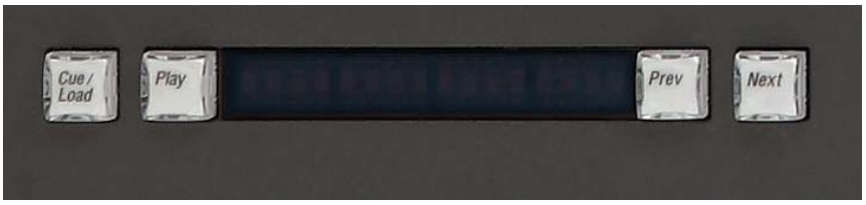
Any source connected to K-Frame as an External device can be controlled manually either from the control surface or from the touchscreen menu.

Panel Control

Both the Kayenne and Karrera control panels have simple machine control commands such as Play, Cue/Load and clip selection from the panel system bar.

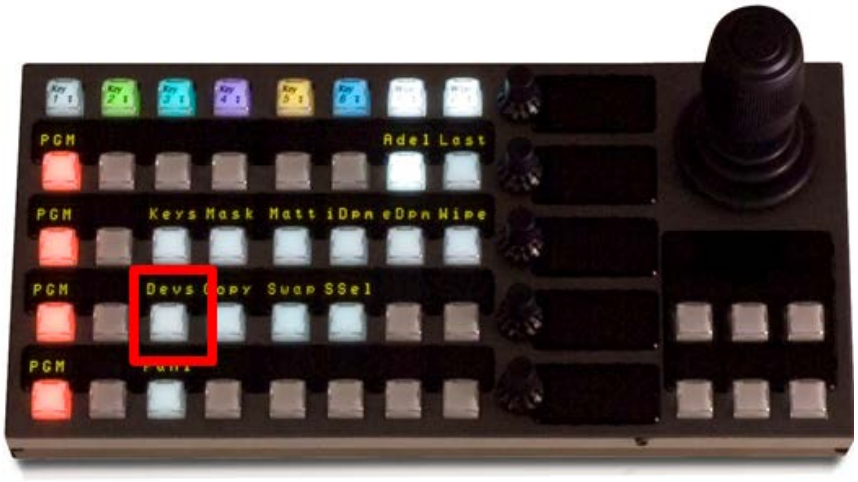
Kayenne has 5 programmable machine control panels on the system bar and one that follows source selection of sources programmed as having device control. The first five can be programmed to a specific device by pressing and holding both the Prev and Next buttons on the panel and selecting which device is to be controlled. The sixth panel can be programmed as to which source bus it follows by pressing and holding the PREV and NEXT buttons on the panel and selecting a device source on the bus row that is to be followed.

Karrera has two machine control panels on the system bar of the standard 2 and 3 ME panels and one on the compact 2 ME panel. The first panel can be programmed to control a specific device by pressing and holding the PREV and NEXT buttons and selecting the device to control on the preset bus of the bottom stripe. The second can be programmed to follow device source selection on a specified source bus row by pressing and holding the PREV and NEXT buttons and selecting the source bus row it will follow.



Keyenne Multi-Function Module

The Multi-Function module has a menu selection for DEVS, or device.

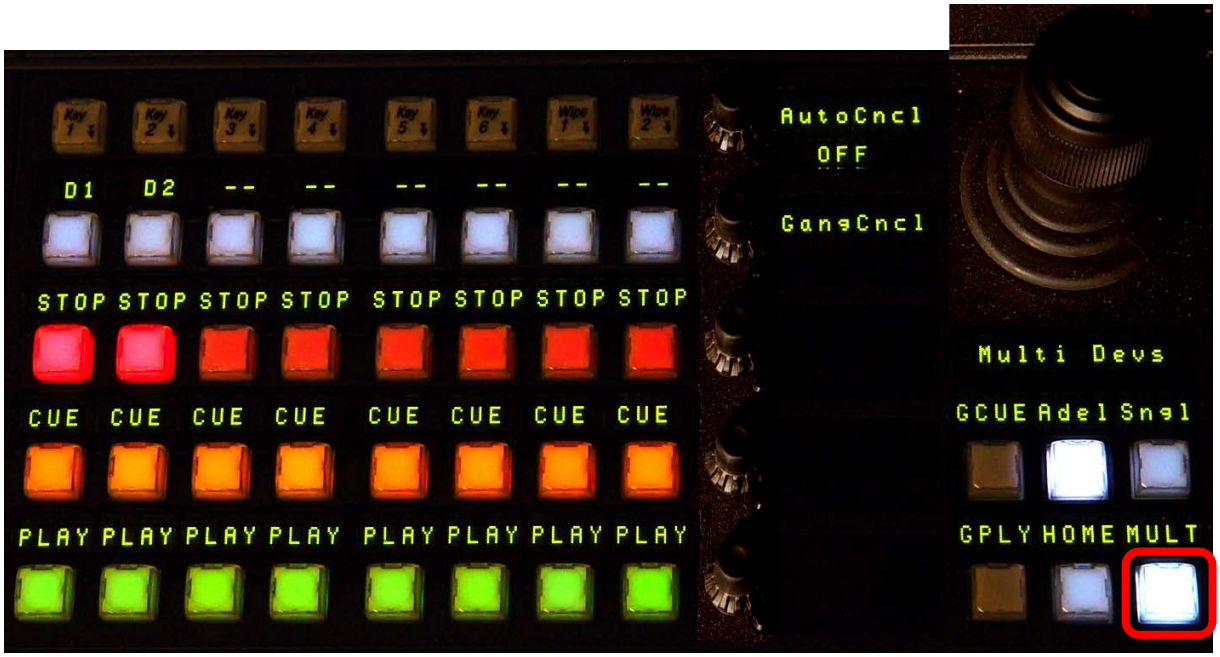


Single Mode

In single mode the MFM can be delegated to a selected device giving full transport control with buttons for Play, Jog, FF, Rewind, Cue, etc. The joystick can also be moved left and right for shuttle and up and down for variable speed control.

Multi-Mode

In Multi-Mode the eight columns of buttons can each be assigned a specific device with button control for Play, Cue and Stop.



Menu Device Controls

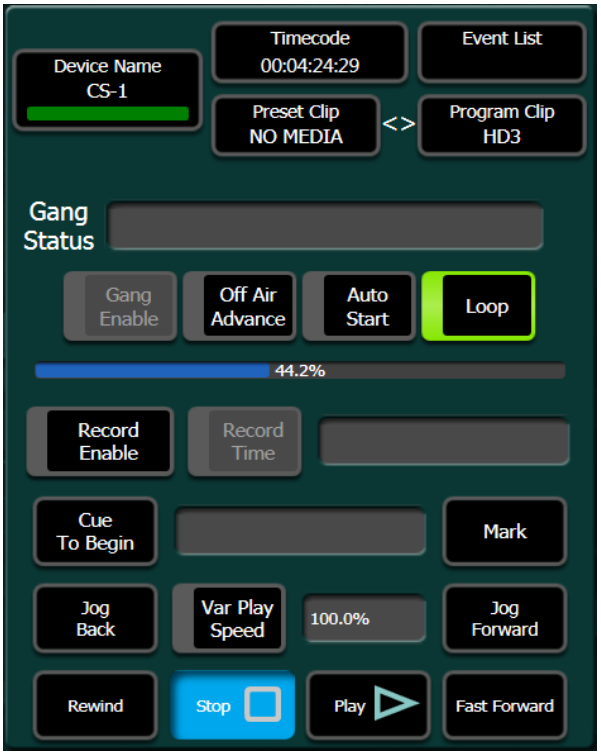
The menu provides several different ways to control devices. From the menu devices can be controlled manually or can be programmed into macros or E-MEMs.

Manual Control

The Devices/Control menu provides one large programmable panel and four small programmable panels.

These controls are available from the large panel:

- Device Name-Select from program devices.
- Transport Controls-Play, Stop, Fast Forward, Rewind, Jog back, Jog forward, Cue (either to begin or a set mark), Var Speed Play.
- Loop-Play from start to end, recue to start and play again.
- Auto Start-Device goes into play when source is contributing to the on-air signal.
- Off Air Advance-If device has a programmed playlist, when current clip goes off-air, next clip is loaded.
- Program Clip-Clip currently loaded in device.
- Record Enable-Enables record function on device.
- Gang Enable-Enables preset gang relationship with other devices.

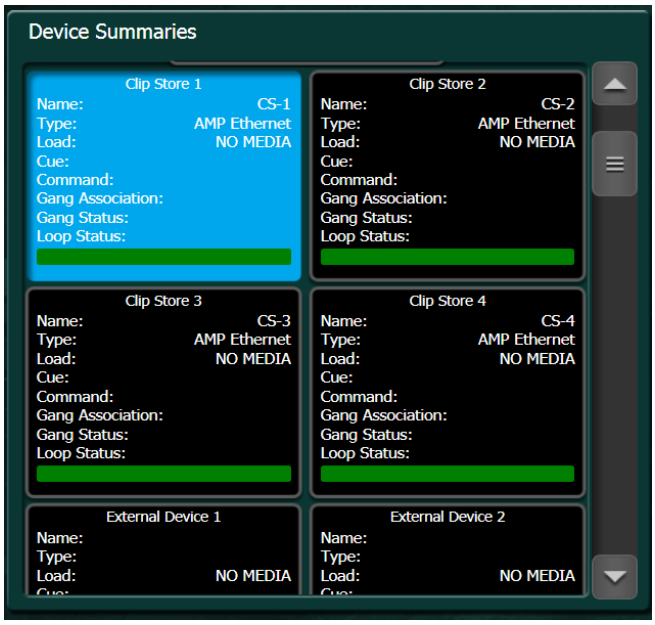


The mini-panel has a subset of these controls. Selecting the Swap button on the mini-panel will swap devices between the two panels.

Timeline Events

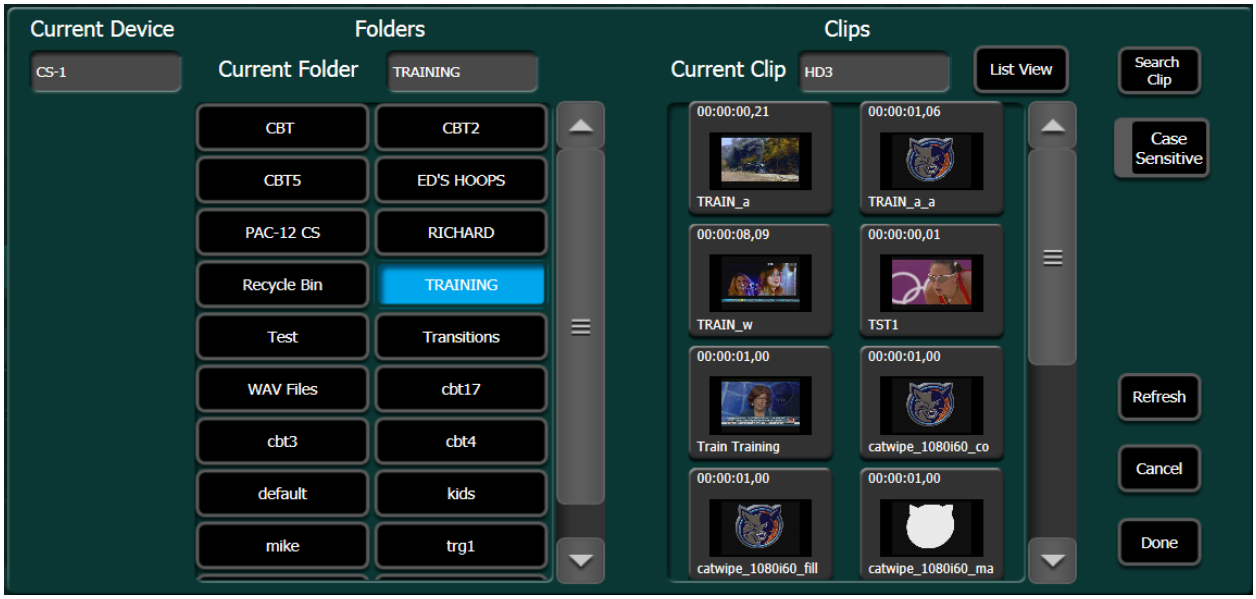
Timeline events menu is used to set triggers for E-MEM control of external devices. If a trigger flag is enabled when a key-frame is added to an E-MEM timeline that command will be sent to the device when the timeline reaches that key-frame. To use timeline event commands in an E-MEM:

From the Device Summaries panel, select the device to be triggered with E-MEMs.



If the device is a server (file based clip player), set a trigger to load a clip from the device and select the box to the right of the Load enable to choose the clip to be loaded.

When you select the box next to the load triggers, the clip select dialogue will open on the menu screen. From this dialogue you can select from different clip directories on the left and clips in the selected directory on the right.



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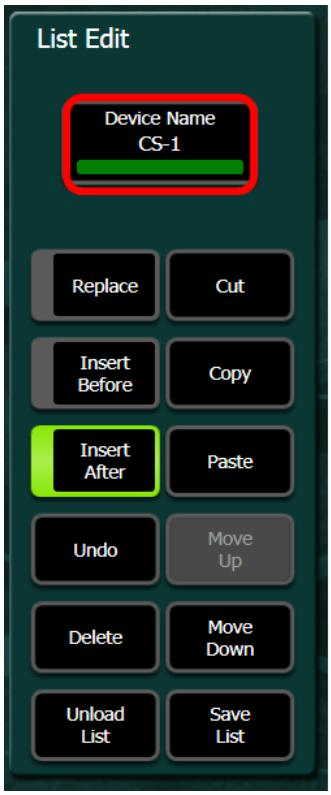
To activate any of the trigger commands, enable the corresponding trigger enable button prior to inserting the key-frame in the E-MEM timeline.

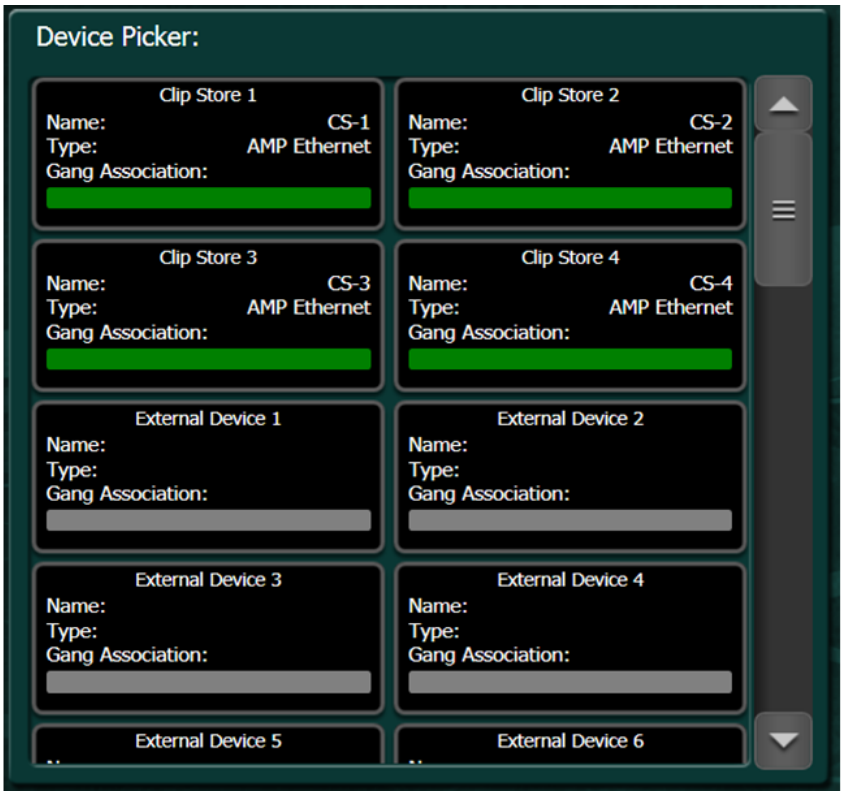
- For cue-the timecode of the desired cue point can be entered in the box to the right of the cue trigger
- To set up a gang relationship between two or more devices, select gang enable and click in the box to the right. A selection window will open allowing the selection of devices in the gang relationship.
- The box to right of the Play trigger allow for variable speed entry. 100%=normal play speed.

Event List

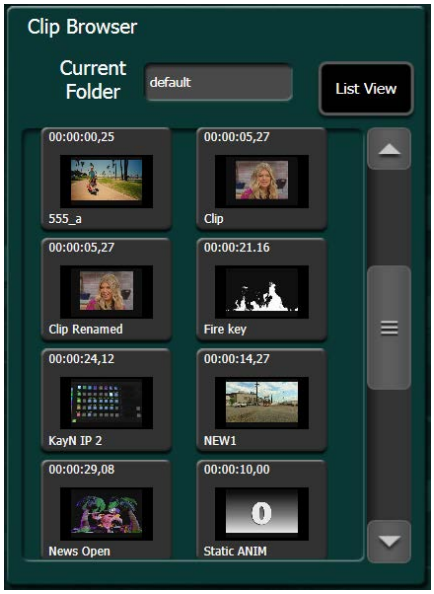
On server devices, a playlist can be created from stored clips. Playlists can be edited, saved and reloaded when needed.

To create an event list select the Device Name window in the List Edit panel. A Device Picker window will open with available devices. Select the desired device from device picker.





When a device is selected the clip browser will display clips in the directory indicated in the Current Folder box. If the device has multiple directories, selecting the current folder box opens a folders window where different directories can be selected.



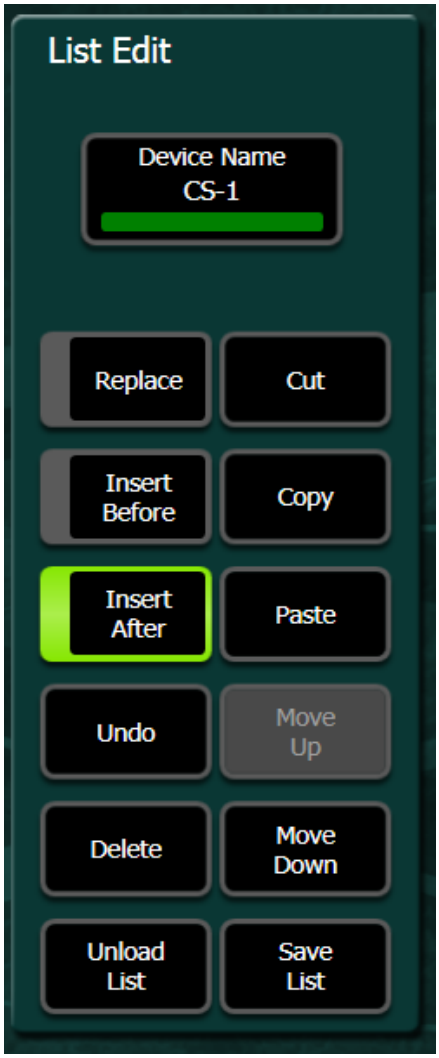
Event lists can be created from more than one directory on the same device. But, lists can't be created from more than one device.

Lists can be created, edited and saved using the List Edit panel. If creating a new list or adding to an existing list the following commands are used:

- Insert - This button only appears when there are no clips in the list. If enabled, selecting a clip from the Clip Browser will add that clip as the first clip in the list.
- Insert After - Selecting a clip from the browser will insert the selected clip after the highlighted clip in the list.
- Replace - Selecting a clip in the browser will replace the highlighted clip in the list.

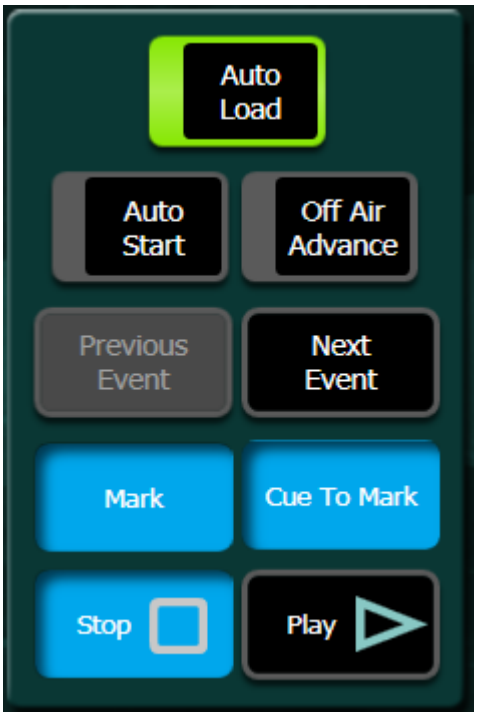
Once a list is created it can be edited using the following List Edit commands:

- Cut - Removes clip selected in list and places it in a clipboard.
- Copy - Places clip selected in list in the clipboard.
- Paste - Places the clip in the clipboard above the clip selected in the list.
- Move Up - Moves clip selected in list up in list.
- Move Down - Moves clip selected in list down in list.
- Undo - Will undo the last change made to list. (Undo only saves last change to list)
- Delete - Permanently removes selected clip from list.
- Unload List - Clears existing list. If list is not saved a dialogue box will open asking to save list.
- Save List - Opens dialogue box where the location of save list can be selected.



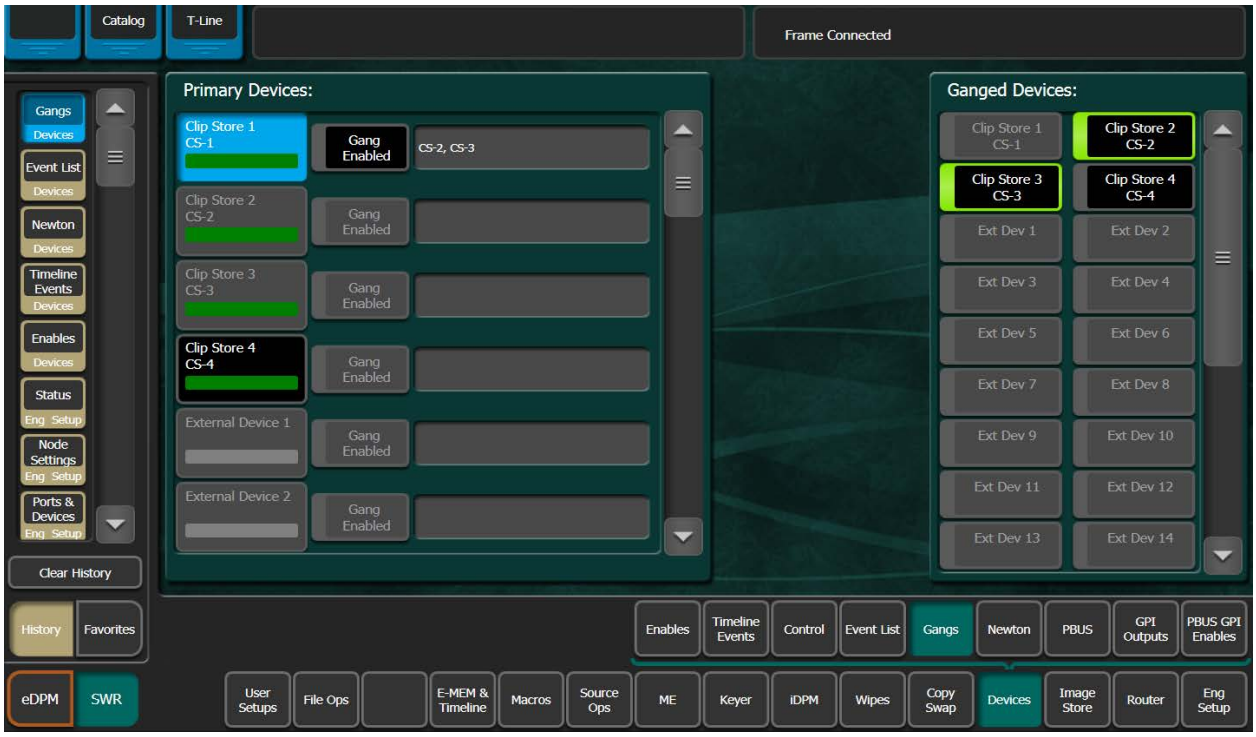
The following are playback commands for the currently loaded playlist:

- Auto Load - Selecting a clip in the playlist will load that clip in the playout channel of server.
- Auto Start - When enabled the currently loaded clip will play when placed on-air.
- Off Air Advance - When on-air clip is taken off-air the next clip in the list will be loaded into playout channel.
- Previous Event - Selecting will reload the clip in the list prior to the one currently loaded.
- Next Event - Selecting will unload current clip and load the next clip in the list.
- Mark - Allows for marking a start point in a clip other than the first frame of clip.
- Cue to Mark - Will cue current clip to mark point. (if there is no mark on current clip button will read “Cue To Begin”)
- Stop - Stops currently playing clip.
- Play - Plays clip currently loaded in playout channel.



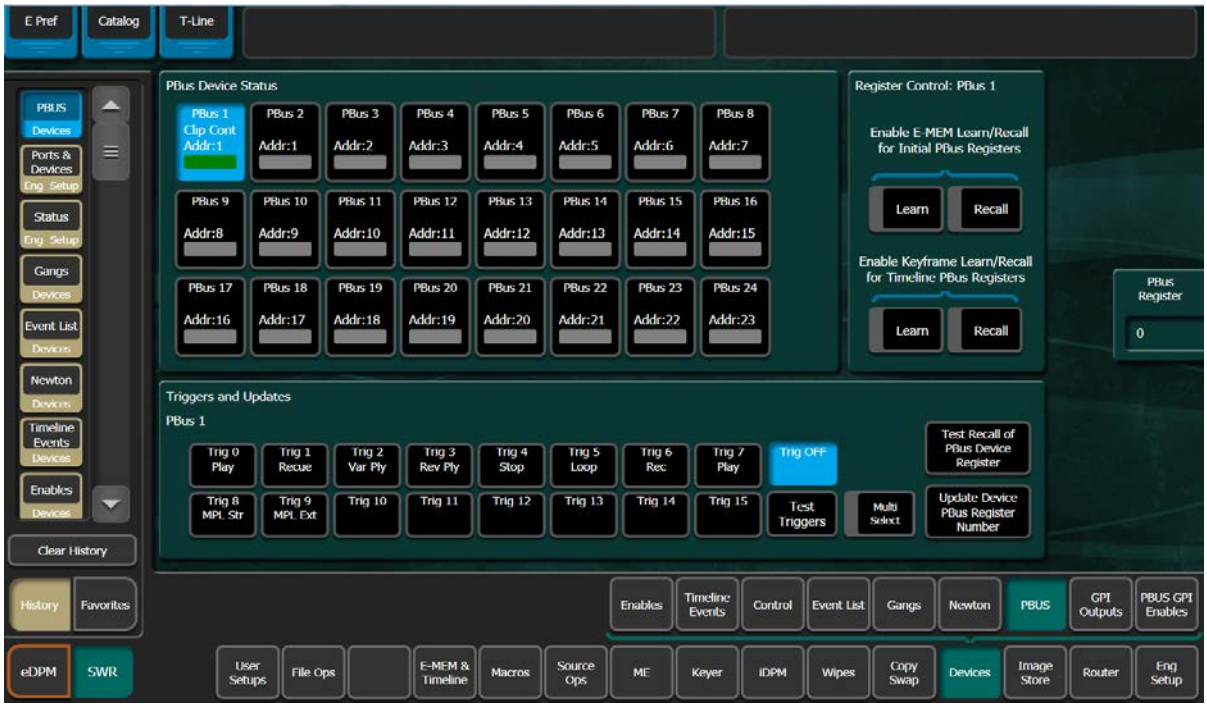
Gangs

Gang relationships between two or more devices can be created so that all devices in the gang relationship react to transport commands at the same time. A gang can be created by selecting a device in the Primary Devices window and then selecting the devices from the Ganged Devices window that are to be in the gang relationship.



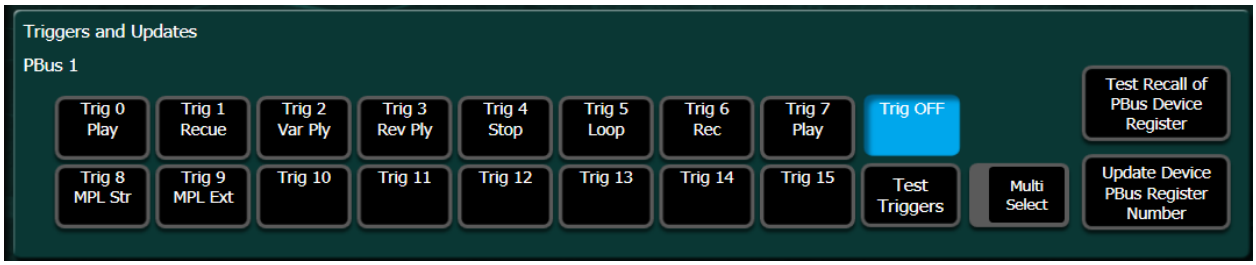
PBus

PBus protocol is normally used to send recall and trigger commands to VTR/Server control devices (i.e., Lance, DNF). Because these devices can store their own register that would contain the start and end of a clip or load a specific clip and can remotely control the connected VTR/Server attached, the switcher commands to the controller are recalling a specified register or a trigger command for the controller.



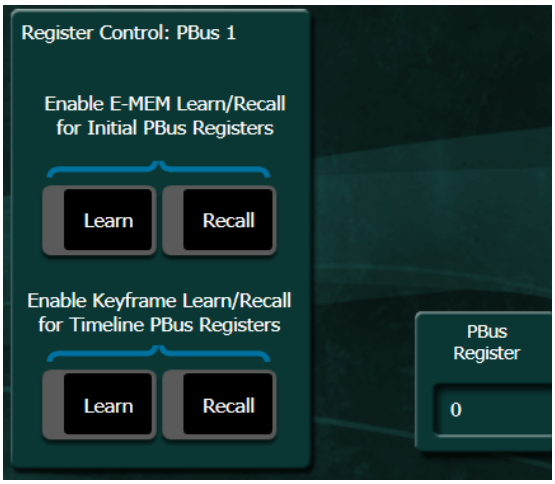
The upper left portion of the menu is delegation for selecting which PBus device is to be controlled by either E-MEM or Macro commands. The green bar in the delegation box indicates that a device has been programmed. From the Eng Setup menu the device can also be named to indicate which device has been programmed for that position.

When one of the PBus devices is selected in the delegation area a set of labeled triggers for that device is displayed below the delegation area. There can be as many as 16 different trigger per device and the triggers can be labeled in Eng Setup to indicate the associated command for that particular device. Triggers can be enabled prior to inserting a key-frame in E-MEM to send that trigger command to the device when the timeline is run. A trigger can also be manually fired by selecting the trigger and pressing the Test Trigger button.



Registers stored on the selected PBus device can be saved or recalled by E-MEM in one of two ways:

- **Enable E-MEM Learn/Recall for Initial PBus Registers** - The Learn button enabled will learn the current device information (Mark-in, Mark-out, loaded clip etc.) into the same register number on the device as the E-MEM register number being learned at the switcher. Recall will load the device register with the same number as the E-MEM recalled. (only one PBus register can be recalled per E-MEM)
- **Enable Key-frame Learn/Recall for Timeline PBus Register** - The Learn button enabled will learn the PBus device information (Mark-in, Mark-out, loaded clip etc.) into the device register number indicated in the PBus Register window on the right edge of the screen. Recall enabled when inserting key-frames into an E-MEM timeline will trigger a register recall of the register indicated in the PBus Register box on the right edge of the screen.

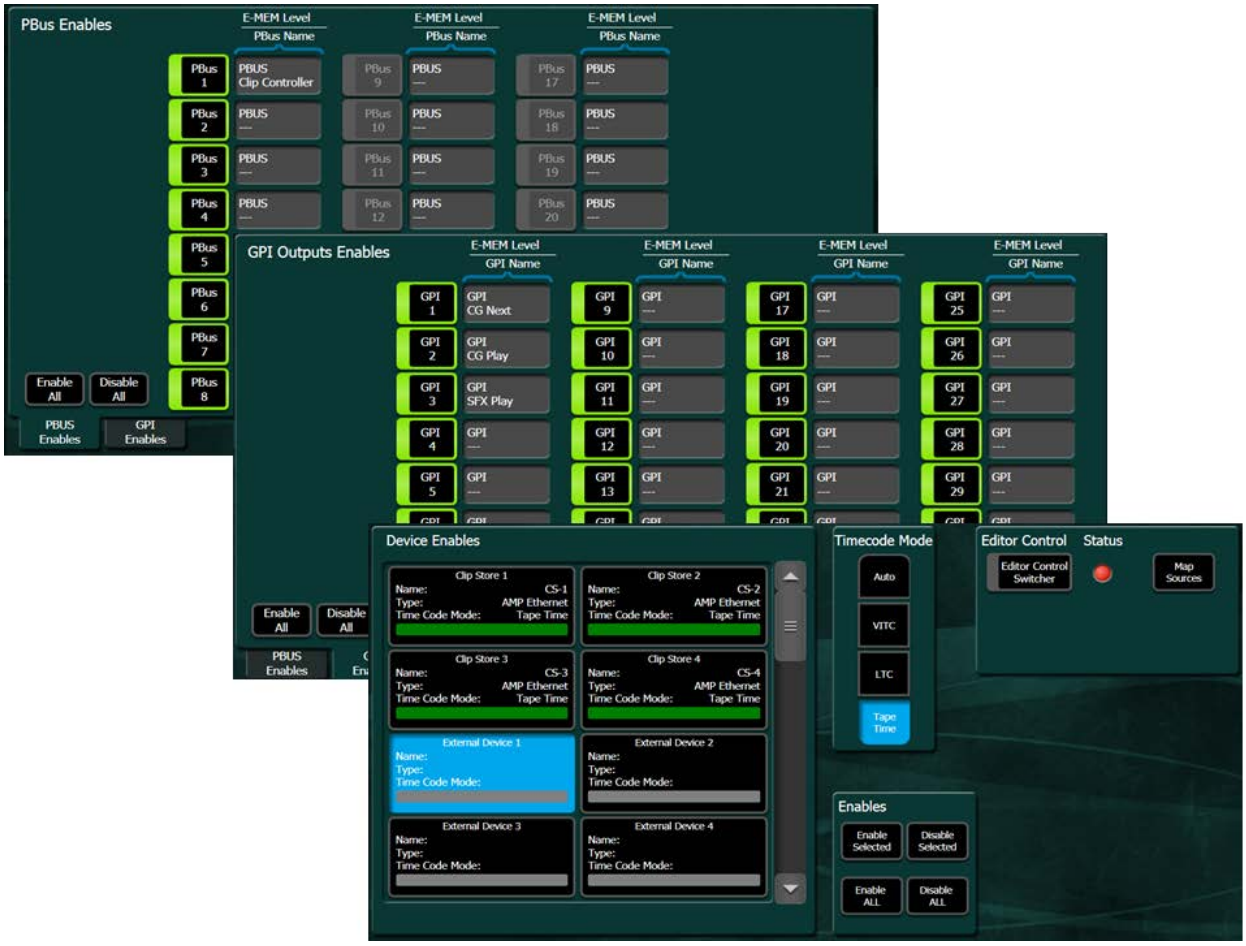


GPI Outputs

GPI output triggers are a momentary relay closure that is wired to an external piece of hardware that initiates a single specific command on that device. Each GPI trigger can be labeled in Eng Setup to indicate what the GPI triggers. A GPI can be triggered with E-MEM by setting the enable button and inserting a key-frame into the E-MEM timeline. A GPI can also be triggered manually by selecting the Test button next to the GPI.

Enables

Using external control such as GPI, PBus and External devices requires the connection between the switcher and device is enabled. If the enabled status of any of these devices is off, communication between the switcher and the device is broken.



Section 10 – Image Store

The ImageStore has 10 video/key channels (8 in V Series) capable of playing back both stills and movie animations stored in cache memory. Channels and RAM memory can be divided up between suites.

At the end of this section, you will be able to:

- ✓ Acquire ImageStore resources for a suite.
- ✓ Capture a still from a live input source.
- ✓ Record movie clips from a live source.
- ✓ Control ImageStore using E-MEMs
- ✓ Edit movie clips
- ✓ Import stills and movies from graphic files.
- ✓ Save cache content to internal and external storage.
- ✓ Set up back and restore of cache content.

Overview

ImageStore is internal cache memory storage based Still store and movie clip playback system. In K-frame Standard, Compact and S-series, ImageStore has 10 video/key outputs with internal memory of up to 64 GB in K-frame Standard and Compact frames, 32GB in S-series and V-series . V-series frame has 8 Video/key channels.

Below is a table of frame count and clip duration based on memory size.

16 GB

Line Rate	Frequency	Total Frames	Total Time
525i	30Hz	12011	00:06:40:10
720p	60Hz	4587	00:01:16:27
1080i	30Hz	2027	00:01:07:17
1080p	60Hz	2027	00:00:33:47
625i	25Hz	10219	00:06:48:18
720p	50Hz	4587	00:01:31:37
1080i	25Hz	2027	00:01:21:02
1080p	50Hz	2027	00:00:40:27

32 GB

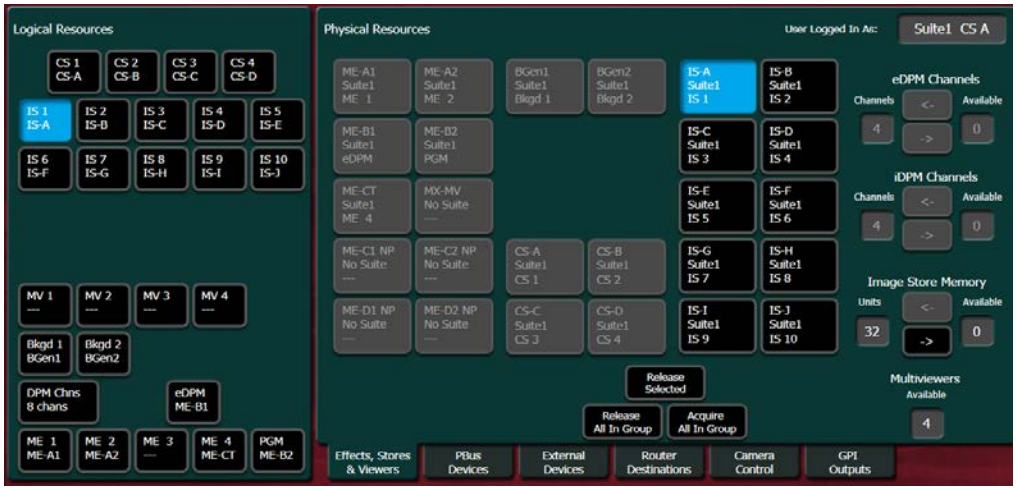
Line Rate	Frequency	Total Frames	Total Time
525i	30Hz	24027	00:13:20:27
720p	60Hz	9179	00:02:32:59
1080i	30Hz	4059	00:02:15:09
1080p	60Hz	4059	00:01:07:39
625i	25Hz	20443	00:13:37:18
720p	50Hz	9179	00:03:03:06
1080i	25Hz	4059	00:02:42:09
1080p	50Hz	4059	00:01:21:09

64 GB

Line Rate	Frequency	Total Frames	Total Time
525i	30Hz	48059	00:26:43:17
720p	60Hz	18363	00:05:06:01
1080i	30Hz	8123	00:04:30:23
1080p	60Hz	8123	00:02:15:11
625i	25Hz	40831	00:27:15:16
720p	50Hz	18363	00:06:07:06
1080i	25Hz	8123	00:05:24:22
1080p	50Hz	8123	00:02:42:11

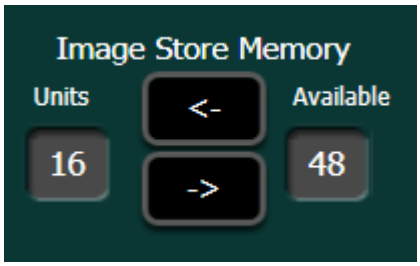
Acquiring ImageStore Resources

The frame resources for ImageStore are 10 Video/Key channels labeled IS-A through IS-J and 32 GB of memory. When acquiring resources for a suite select the logical channel resource IS 1 through IS 10 and then select one of the physical resources. (V-series frame has 8 Video/Key channels.)



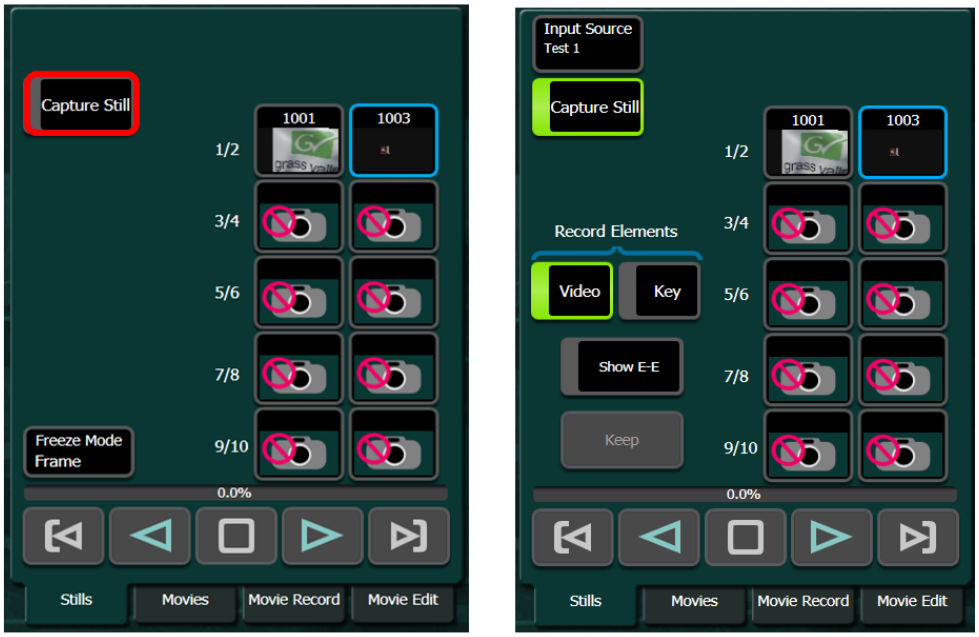
ImageStore Ram Allocation

ImageStore files are held in volatile Ram Memory. K-frame Standard and Compact frames can have up to 64GB of memory installed and licensed. S-series and V-series frames can have up to 32GB installed and licensed. This memory can be allocated between suites as needed.

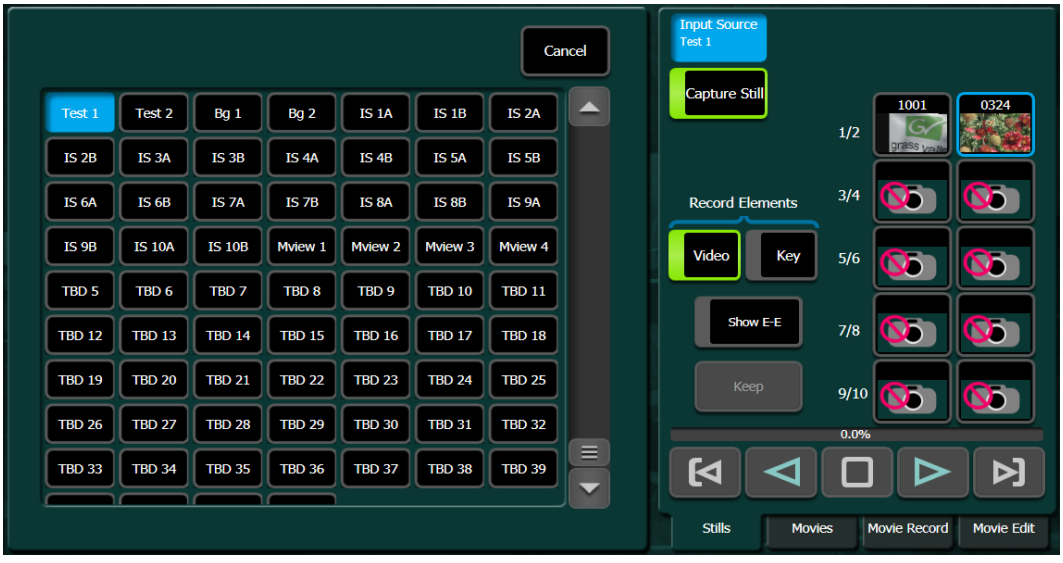


Capture Stills

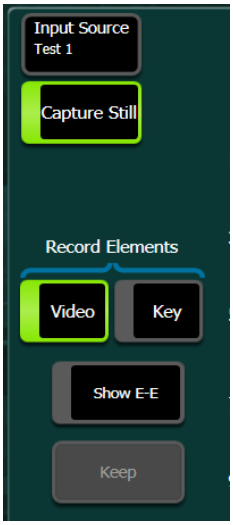
When working in the Stills tab the ImageStore toggles between playback and capture mode. If the Capture Stills button is unselected the ImageStore is in playback mode a channel can be selected on the right side of the menu and selecting an image in the cache on the left of the menu will load that image into the selected channel. When the Capture Still button is selected still images can then be captured using the frame buffer of the selected channel.



When capturing stills for ImageStore an input source must first be selected. In the right menu panel is a box labeled Input Source. This box will display the currently selected source but selecting the box will bring up a source select table in the cache window to the left.

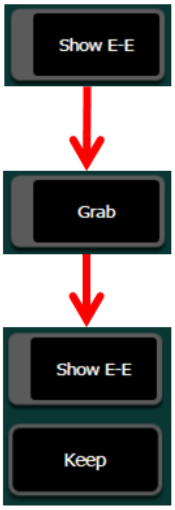


When capturing still images into the ImageStore if Video only is selected only the video input will be captured and the still will be coupled with a full raster matte as the key signal.



If both Video and Key are selected the captured still will be coupled to the Video and Key for the source as defined in Eng Setup/Source Definition.

Once the record elements are set the capture process starts with selecting the Show E-E button. This will put the selected ImageStore channel in a video pass-through mode. Monitoring the output of that channel will show the incoming source.

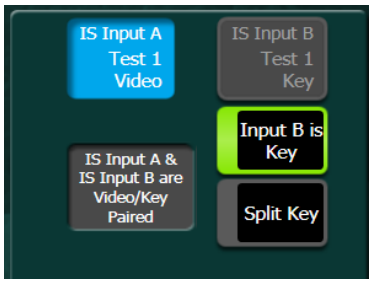


The Show E-E button will have changed to Grab. The label on the button changes to indicate what the next action will be. Once the Grab button is pressed the incoming source is frozen in the buffer, but not yet saved in cache.

The Keep button below the Show E-E/Grab button is now active to indicate that an image is held in the buffer. Selecting Keep will add that image to cache. If the image in the buffer is not wanted the process can be repeated to capture the proper image.

Selecting Split Key will allow a different source other than the defined key for the source in A to be routed into the key input of ImageStore.

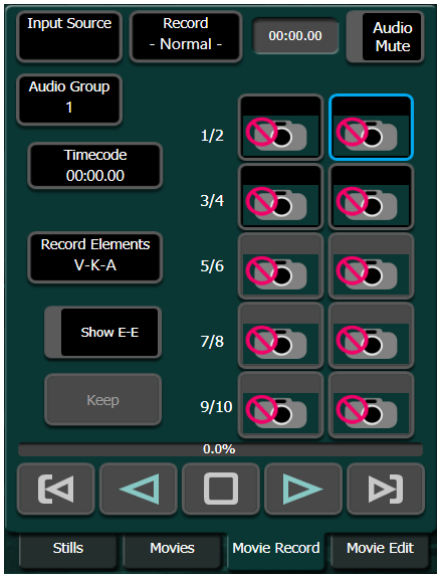
In the Source Ops menu there is an additional input settings. IS input A is normally Video and input B is normally Key. If Input B is Key is deselected the video for the source being routed into the B input will be used as the key signal for the source routed into A.



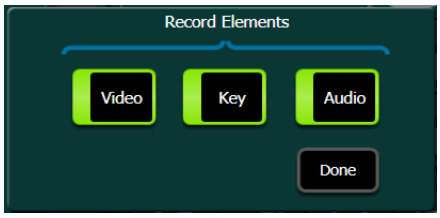
Recording Movies

With the Movie license, ImageStore can cache and playback movies as well as stills. Movie playback and Movie Record have separate tabs in the Image store menu, as opposed to stills where record and playback share the same tab.

The Movie Record works in a similar manner as the Still Capture controls. Selecting the Input Source box will present the source select table.



Show E-E toggles to Record when selected. If button label indicates Record a second press will start the record. A third press will stop the record and return the button to Show E-E.



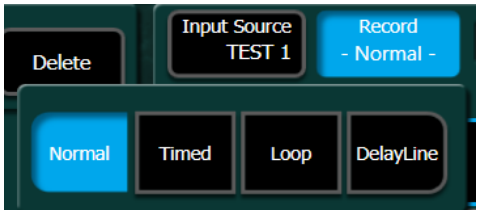
Under Record Elements there are element enable buttons for Video, Key and Audio

.

Record Modes

There are 4 selectable record modes for Movie records in ImageStore.

Normal - Pressing the record button will start recording the incoming source until the record button is selected a second time which will stop the record



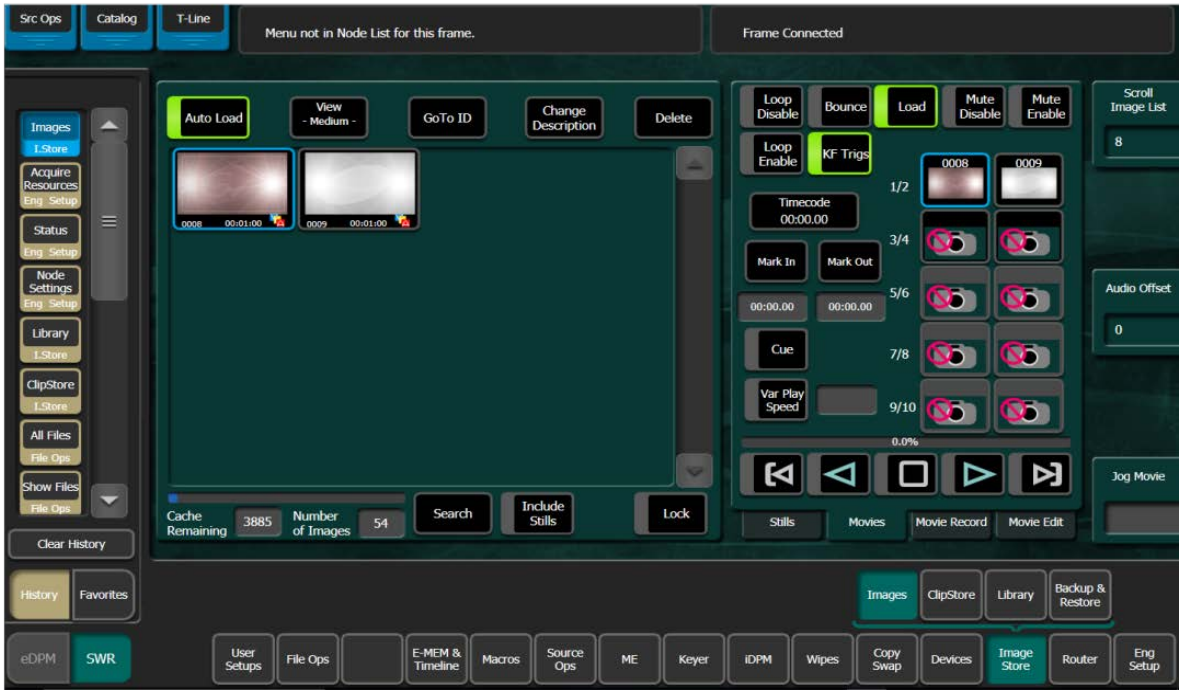
Timed - Allows a record duration to be set. Record will be stopped after duration has been recorded.

Loop - When record duration is set a continuous record can be performed. The resulting clip will be the length of the duration set, back timed from the point the record was stopped.

Delay Line-With the record duration set, after record start the clip playback will be delayed for the set duration. Once the duration is met, the clip will start playing back from selected channel.

Using E-MEM to Control Movies

The Movies tab in ImageStore is for playback of movie clips. In standard mode (KF Trigs off) the Play Forward and Reverse, Stop and Go to Begin and Go to End buttons are used to playback the movie loaded in the select channel. When the KF Trigs button is enabled these commands become trigger commands for E-MEM control. When selected as below, the play button enabled will become a command that is triggered by an E-MEM key-frame if inserted to timeline. KF Trigs also has command triggers for Load, Loop, Cue, Stop and Variable Speed playback.

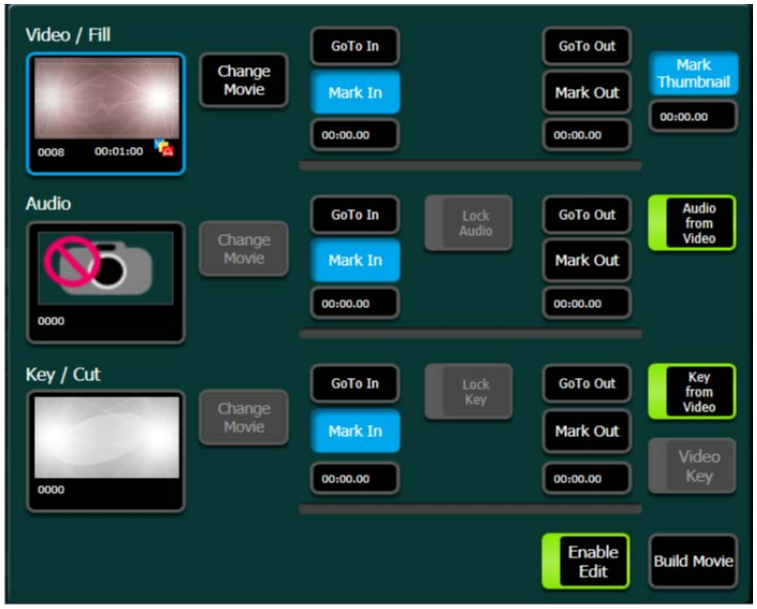


Movie Edit

Movies in cache can be edited for length or combined to create a new clip. Selecting the Movie Edit tab changes the menu to the edit mode.

Build Edit allows you to combine separate Video, Audio and Key files to create a single clip.

First, select the Enable Edit button to initiate the edit process. If either the audio or key (or both) tracks are separate from the video source, you must disable the “audio from video” and “key from Video” buttons to indicate these elements will be coming from separate movies currently stored in cache.



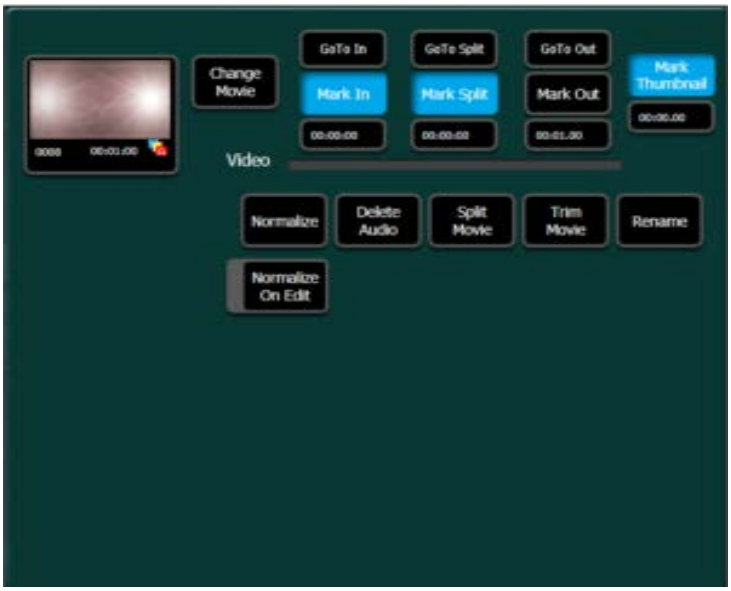
Then each track requires they be loaded into their own channel to perform the edit. Select the track (video/audio/key) and then select one of the available channels to load that track. Then next to each, select the “Change Movie” button to select the movie you want to use for that track. If it is necessary mark the in and out of each track to determine the sync points for each, do so.

If the clip loaded in the key channel is to use the video portion of the loaded clip for the key signal, enable the Video Key button to indicate the key signal is actually the video portion of the loaded clip.

Finally, select the Build Movie button to complete the edit.

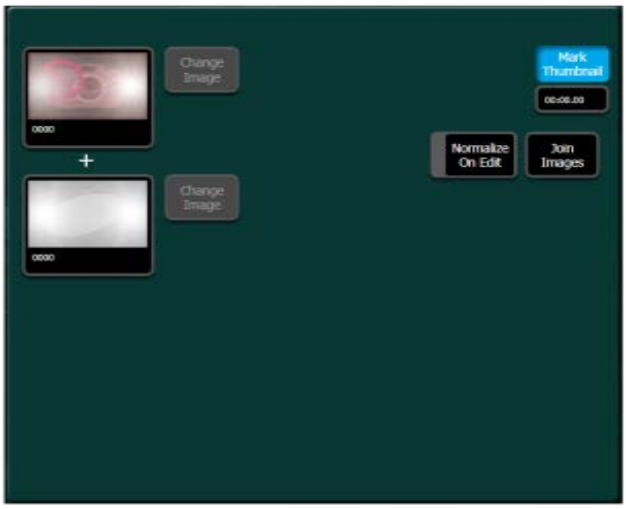
In Cut edit mode selected movies can be trimmed for length or split to make two separate clips. To load the movie to be edited select Change Movie. This will open the cache window to allow for clip selection. To shorten a clip by removing frames from the beginning or end, set a Mark in at the frames where the clip begins and a Mark Out after the last frame of the desired clip. Once marked selecting Trim Movie will remove the unwanted frames.

A loaded movie can be split to make two separate movies. Set the timecode value in Mark Split at the point where the movie is to be divided. Once set select Split Movie.



From the Cut edit screen the clip can also be renamed and a frame of the movie can be selected for the Thumbnail displayed in the file.

In Join mode two selected movies can be joined to create one clip. Select the top movie box and select the Change Image button. Select the movie from cache for the first portion of the new movie. Then select the bottom box and click on the Change Image button to the right of the box. Select the movie from cache that will be the second portion of the new clip. Once both movies are loaded click on the Join Images button.



Library

In the ImageStore Library menu files from cache can be stored to selected drive or loaded back to cache from a storage drive. From the library menu graphic files can also be loaded into cache and be converted to the .eif format in the process. For still graphics ImageStore supports (.tiff, .tga, .png, .jpeg, .bmp) and for movie files (.avi, .mov, .mp4, .png sequences, .tga sequences, as well as files from Kalypso and Kayak formats) are supported. Imported files must have 4 digit file name ranging from 0001-8999. Files with alpha names cannot be loaded and must be renamed.

In the library menu file action is from left to right. In the left pane select the files that are to be moved and in the right pane select the location for those files. In the center pane enter the image file number or numbers and select the action (Copy, Swap, Move, Delete). Once the settings are correct select the Execute button.

When copying a graphic sequence from a storage drive to cache the Image operations panel will display a button labeled Sequence. This button needs to be enabled in order to convert the .tga sequence to an .eif movie.

When copying supported graphic files from disk to ImageStore cache a dialogue window will open to confirm that files are to be converted to .eif (imagestore format). If the sequence button has been enabled in Image Operations the dialogue will indicate that the files will be converted to a clip. If copying multiple single frame files the dialogue will ask for confirmation of one clip at a time or all frames to be transferred.

Supported Graphic Files

The following graphic file formats are supported for ImageStore. Files must be saved with a file name that is a four digit number between 0001-8999. When these graphic files are copied into the ImageStore cache the files will be converted to the native format for ImageStore .EIF.

Image Store Still File Formats Supported

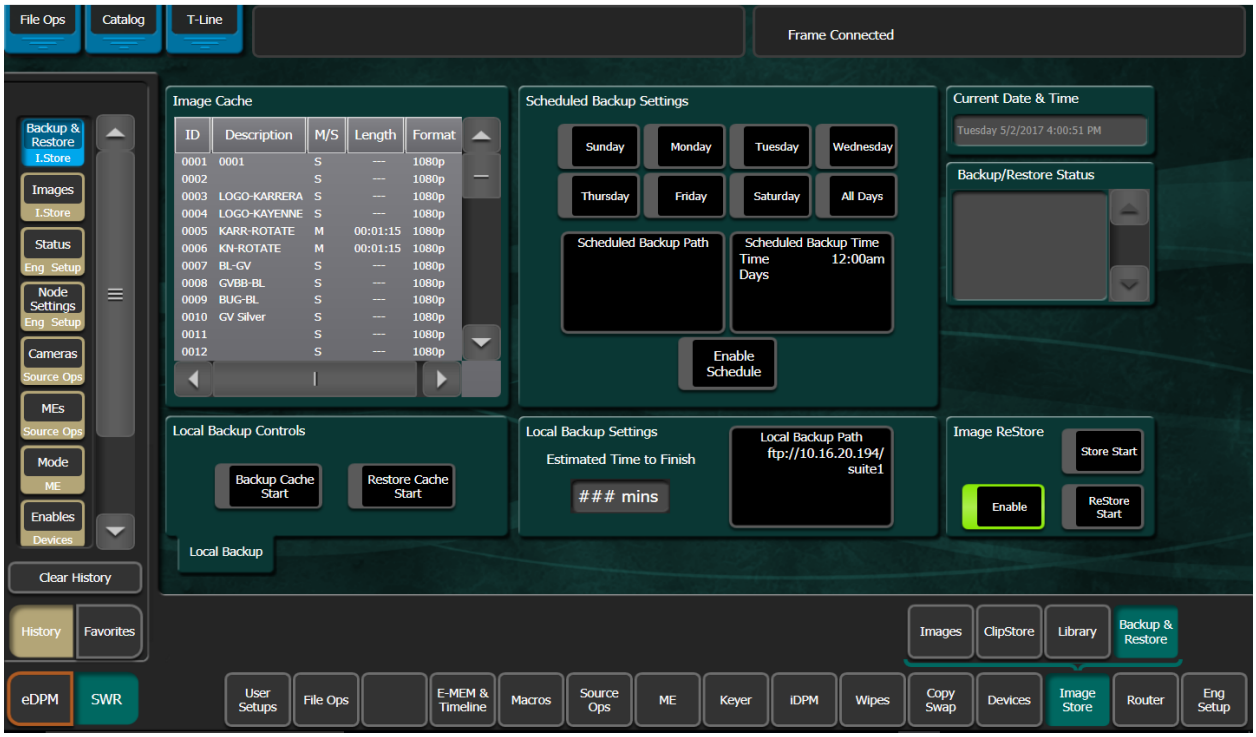
- GIF
- JPEG
- TIFF
- BMP
- PNG
- TGA

Image Store Movie File Formats Supported

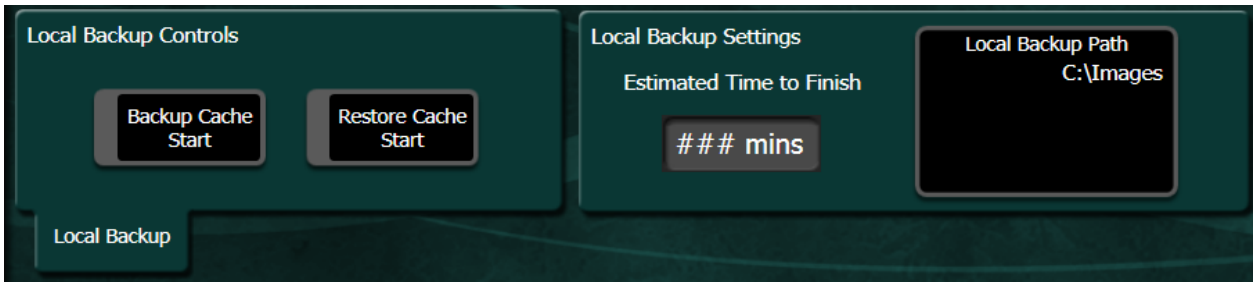
- AVI
- MOV
- Mp4
- KayakHD (xtendd)
- Kalypso (gvi, gva)
- PNG sequences (load a series of still images and create a single ID movie from them)
- TGA (Targa) sequences (create as above)

Backup & Restore

Because active files used in ImageStore are held in volatile cache memory, loss of power or frame reset will clear the contents of cache. Files can be backed up to a designated location either manually or on a scheduled day and time.



A manual backup can be initiated at any time by designating the backup location in the Local Backup Settings panel and then selecting the Backup Cache Start button in the Local Backup Controls panel. These backed up files can be restored at any time by selecting the Restore Cache Start button in the Local Backup Controls.



Note: For fastest recovery of cache it is recommended that backup be stored to ImageStore drive. Because files are stored to a local drive they don't have to go through ftp process to be reloaded into cache.

There is a separate panel for Scheduled Backup Settings. In this panel the location where files are to be stored and dates and times for the backup can be set.

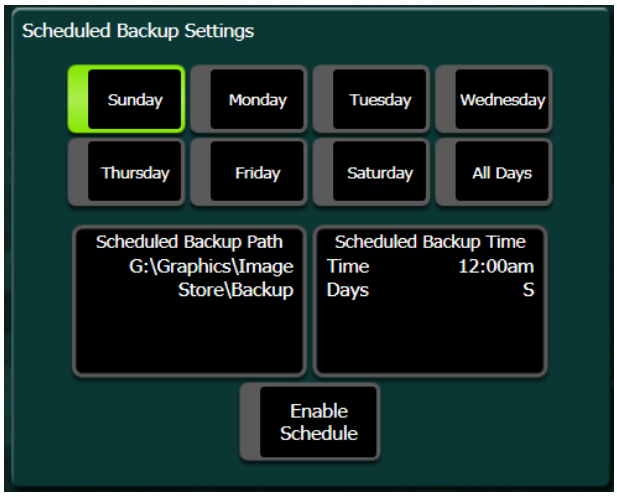


Image ReStore - allows for current cache files to be stored so that on frame re-boot files will automatically restored to cache.

Store Start - Selects file locations and save all files currently in cache to that location.

ReStore Start - When enabled, files saved when Store Start was performed will automatically be restored to cache upon frame reset.

ImageStore Exercise:

Section 11 - ClipStore

The ClipStore option uses either a K2 Summit or K2 Solo as its hardware. These servers are equipped with RAID 3 storage drives and have either 4 Video/Key channels (Summit) or 2 Video/Key channels (Solo). ClipStore is totally integrated into K-Frame menu and can be controlled like any other external device.

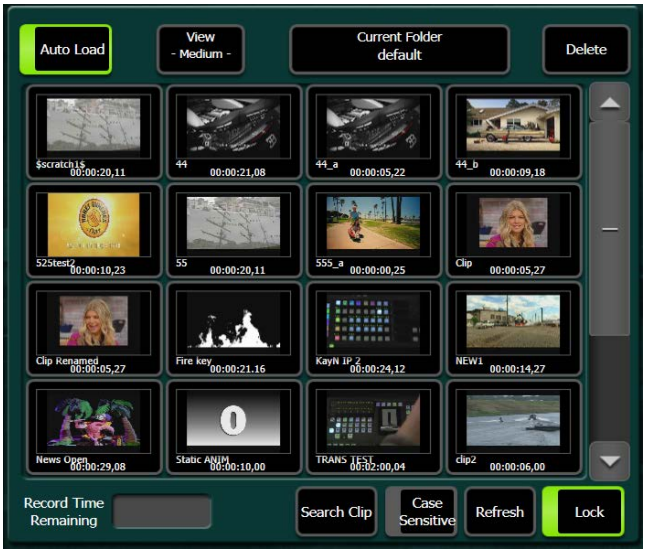
At the end of this section, you will be able to:

- ✓ Record live sources to ClipStore.
- ✓ Edit recorded clips.
- ✓ Integrate ClipStore into E-MEM and Macros.
- ✓ Import files into ClipStore
- ✓ Save ClipStore files for use in other K-Frame ClipStores.

ClipStore uses either a 4 channel K2-Summit or a 2 channel K2-Solo as the hardware. ClipStore is a Raid 3 storage server that can hold up to 10 hours of media on the hard drive arrays. Each channel is configured with a video/key output. The interface of ClipStore is in the ImageStore menu and has controls for clip playback, clip record and clip edit.

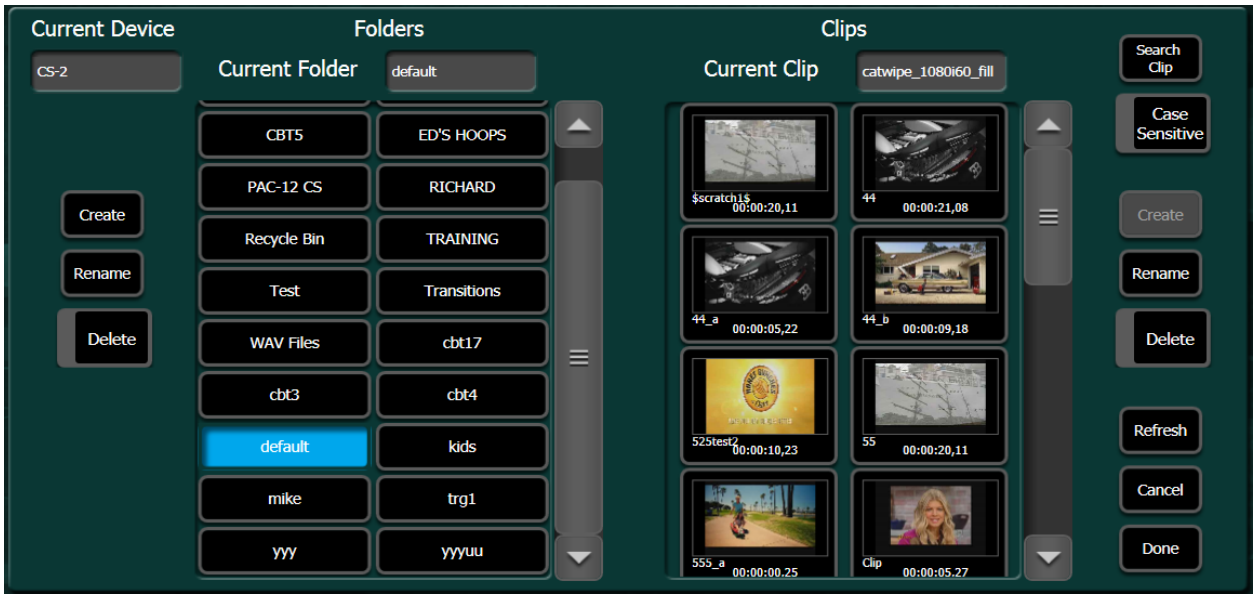
Playback

The left panel of the ClipStore clips menu displays the clips in the currently selected directory. Selected clips displayed in this panel will be loaded into the delegated channel if the Auto Load button is enabled.



Because ClipStore can have several different directories/folder for storing clips, to change the clips displayed in the left panel, select the box labeled Current Folder and a menu

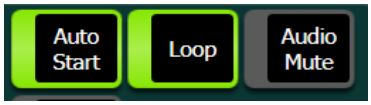
screen will open showing all available folders on the Clipstore as well as the clips in the currently selected folder. To change folders select the desired folder and click on done.



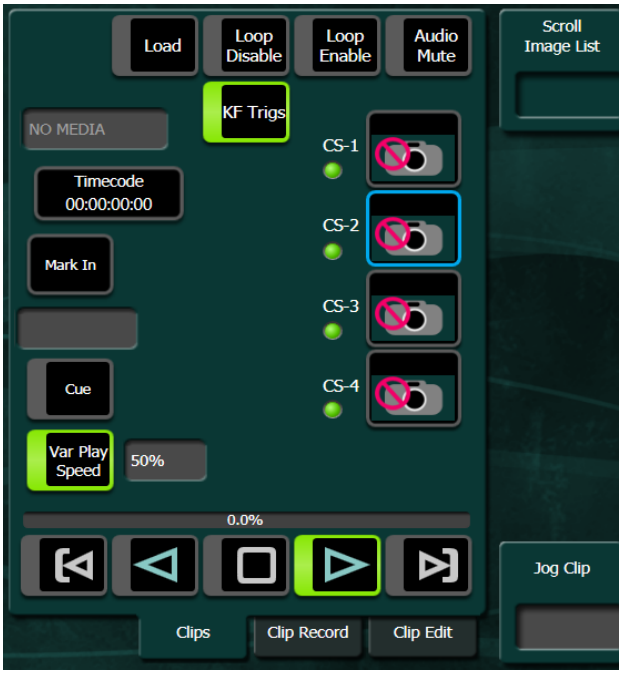
The panel on the right of the clips menu screen is for playback control of clips. If the KF Trigs button is deselected selecting the on-screen buttons will initiate the action for the clip loaded in the channel selected.

At the bottom of the screen are cue to begin of clip, play reverse, stop, play forward and cue to end of clip.

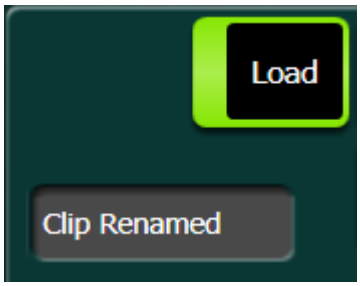
Other buttons in the menu such as **Auto Start, Loop, Audio Mute and Var Play Speed** are enable buttons. If selected the button will highlight in green to show that function is enabled.



If the KF Trigs button is enabled then the playback buttons become enable buttons for E-MEM control of clip playback. In the example to the right, the next key-frame inserted into an E-MEM timeline will trigger a variable speed playback of 50% for the clip loaded in ClipStore channel 2.



If E-MEM is being used to load a specific clip into the selected channel, the load button would be enabled and the clip name to be loaded will appear in the box below.

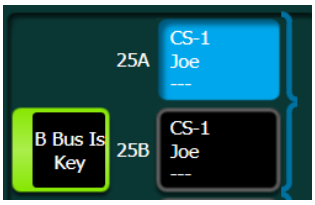


Record

In the Clip Record tab a selected channel can be set into record mode by selecting the Record Enable button. A window will open asking the clip to be named.

Prior to recording selections can be made to record video only or both video and key from the incoming source. Enabling Record Time allows a duration for the record to be set and the ClipStore channel will stop recording at the end of that duration.

If K-Frame has been configured to use outputs from the frame to feed sources to inputs of ClipStore, in the Source Ops/ImageStore menu incoming feeds can be selected. These input selectors can also be mapped to the local aux panel.



Edit

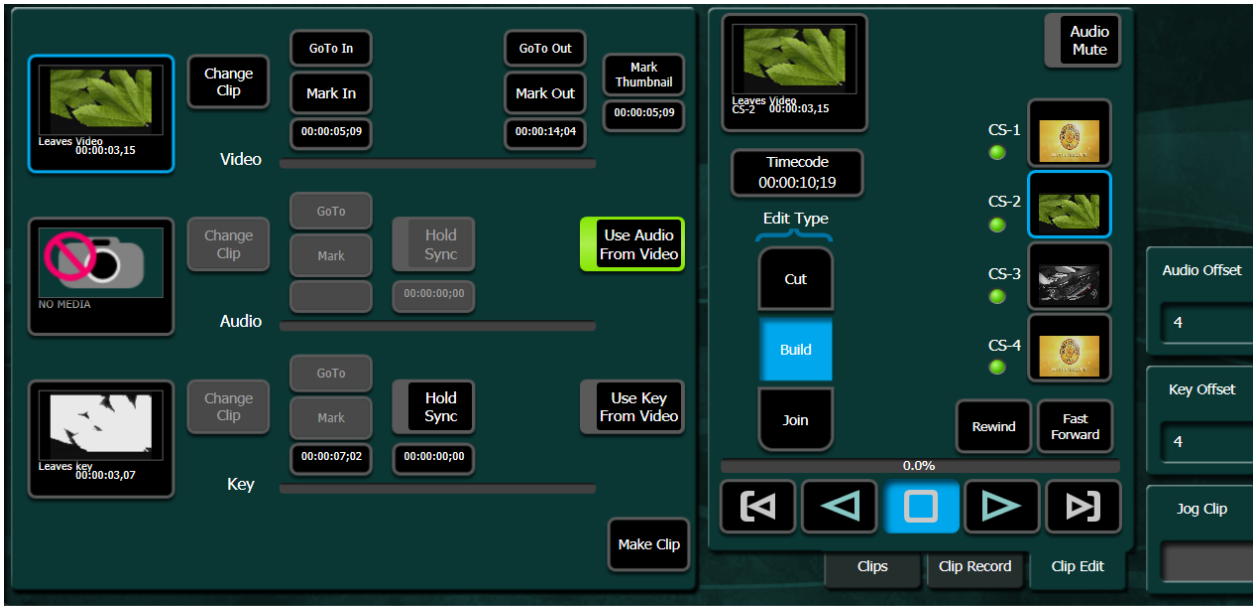
The ClipStore menu tab allows for three modes of clip edit.

Cut

The cut mode allow for either trimming off unwanted frames at the beginning or end of a clip or splitting a clip into two separate clips. To trim unwanted frames off the beginning and end set a Mark-in on the first frame of video wanted on the clip. Set a Mark-out on the frame after the last frame you want on the clip. Selecting Make Subclip will leave the original clip and make a new clip with the new beginning and end. Selecting Trim Clip will permanently remove the unwanted frames before the Mark-in and after the Mark-out. If a selected position on the clip is marked with a Mark Split, then the clip will be separated into two clips at the point it is marked.

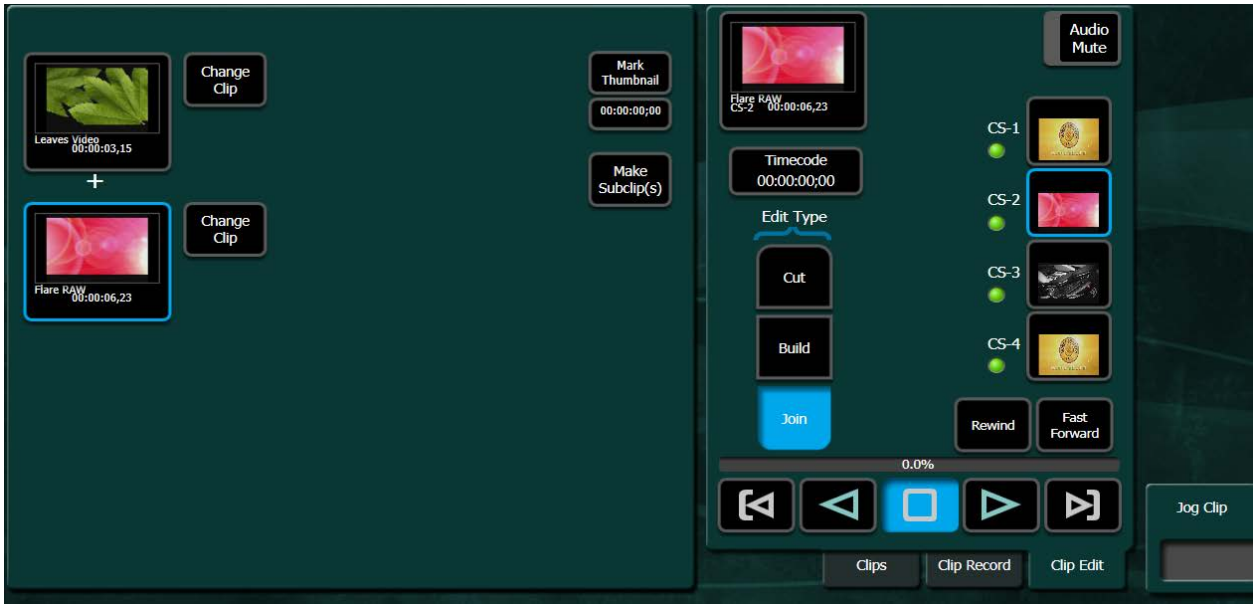
Build

Build edit mode allows for combining files to make one clip. If a keyable animation were recorded in with the video fill and the key matte as two separate clip files they can be combined together in Build mode. Load the video fill clip in the video window by selecting the video box and clicking on Change clip. Then set the beginning and end of the video fill by setting a Mark-in and the end by setting a Mark-out. Load the key matte clip by selecting the change clip next to the Key box. For the key matte only the beginning needs to be marked. When all has been marked correctly select Make Clip in the lower right corner. This will combine both files to make a new video/key clip.



Join

Join edit mode allows for two separate clips to be combined to playback as one extended clip. Load the first clip in the top box and the second clip in the bottom box. Select Make Subclip(s).



Importing Graphic Clip Files

Clip files can be transferred into ClipStore using the Library menu in ImageStore. On the left panel of the menu select from the storage location and on the right panel select the To ClipStore tab and the directory in ClipStore where you want the new file to be located. Then select the Copy then Paste buttons to make the file transfer.

Files that are not ClipStore native format will be converted if supported by K2. MXF, AVI and MOV files with the following elemental formats can be converted on import.

	Supported Formats	Notes
Video	DVCPRO25	
	DVCPRO50	
	DVCPROHD	Super SloMo requires software version 7.1x or higher
	DVCAM	
	MPEG-2	Includes all MPEG2 formats (IMX, XDCAM etc.) that can be stored on a K2 System
	AVC Intra	
	H.264	Playable on K2 Summit 3G system only. Can transfer to systems with K2 software 8.x and higher
	Avid DNxHD	Playable on K2 Summit 3G system only. Can transfer to systems with K2 software 8.x and higher
Audio	48kHz	
	16 bit, 24 bit	
	PCM, Dolby E, AC3	

Section 12 – Source Ops.

Source Ops menu allows for source selection from the menu, much the same way you select sources from the control panel. In addition to being able to select sources on any ME or Aux bus, **Source Ops** has sub-menus to define **Bus Links** and source substitution tables. As well as setting up **Source Rules**.

At the end of this section, you will be able to:

- ✓ Select sources for any ME bus or Aux bus from the menu.
- ✓ Create bus links and define source substitution tables for linked buses.
- ✓ Define Source Rules that couple key on/off status with defined sources.

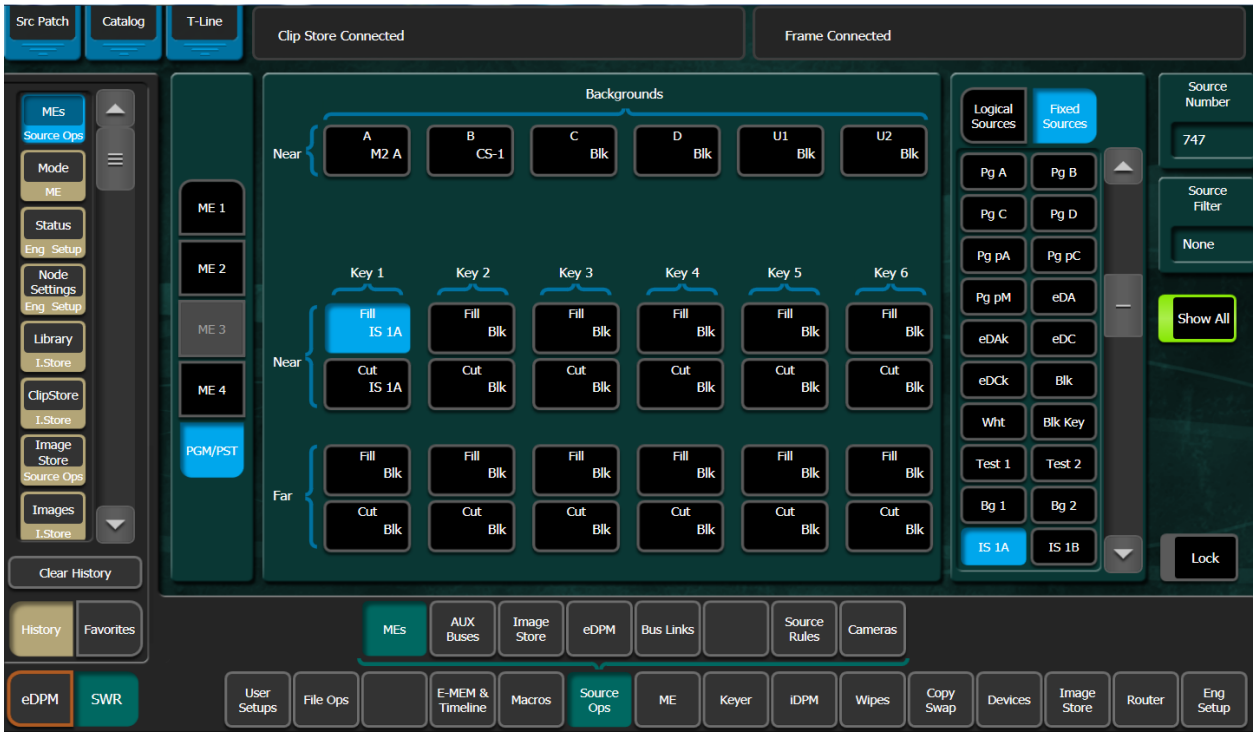
MEs

MEs sub-menu has all the tools necessary to select any source (defined or fixed) in K-Frame to any key or background bus. From the MEs sub-menu even sources that are not mapped to buttons on the control surface can be selected to any bus row.

Selecting any ME on the left side of the menu displays

- the background busses A, B, C, D, U1 and U2.
- Key bus selections for the fill video source and the cut (key matte) source. Keyers also have selections for near side and far side.

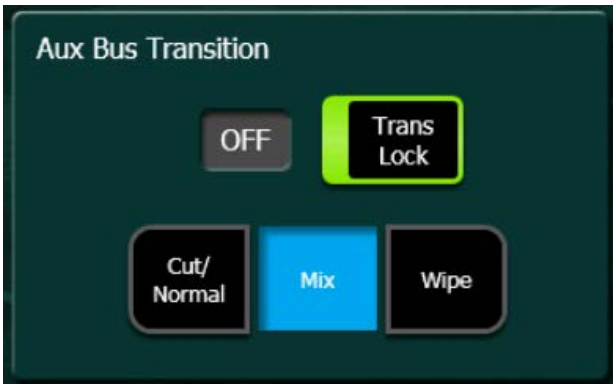
Near Side and Far Side are source inputs for iDPM. Because there is only a single source input to a channel of iDPM (the key bus), a keyer can be programmed so the source selected switches when the DPM channel rotates to the edge where no side is visible. The source selected on the **Far** side will be switched to the **Near** side to become the input source when the other side becomes visible.



Aux Busses

K-Frame has 96 logical Aux Busses that can be accessible from the Source Ops Aux Busses menu. Any of the logical AUX busses can be selected and from the Logical Sources or Fixed Sources tables have any source selected for those outputs.

If an ME transition partition has been allocated in the User Setup menu, Aux Bus transitions can be set up from the Aux Bus menu. From the Aux Bus Transition panel in the menu Mix or Wipe transitions can be enabled for the selected Aux Bus. If a transition is selected the next source change on the selected Aux Bus will be placed to that output using the selected transition.

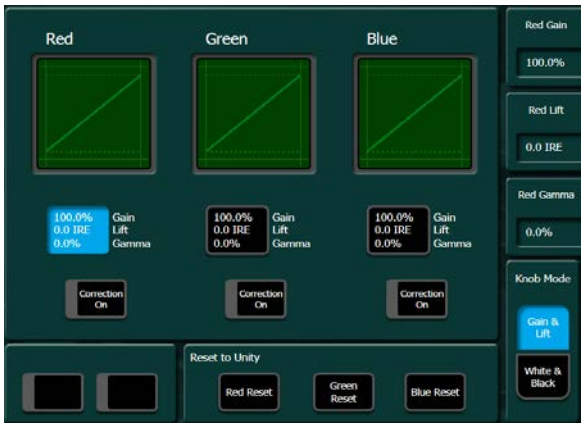


Enabled transitions will automatically disable at the end of the transition if the Trans Lock button is not enabled. If the Trans Lock button is enabled the transition will remain selected until operator disables or another transition is selected.

Output Source Correction

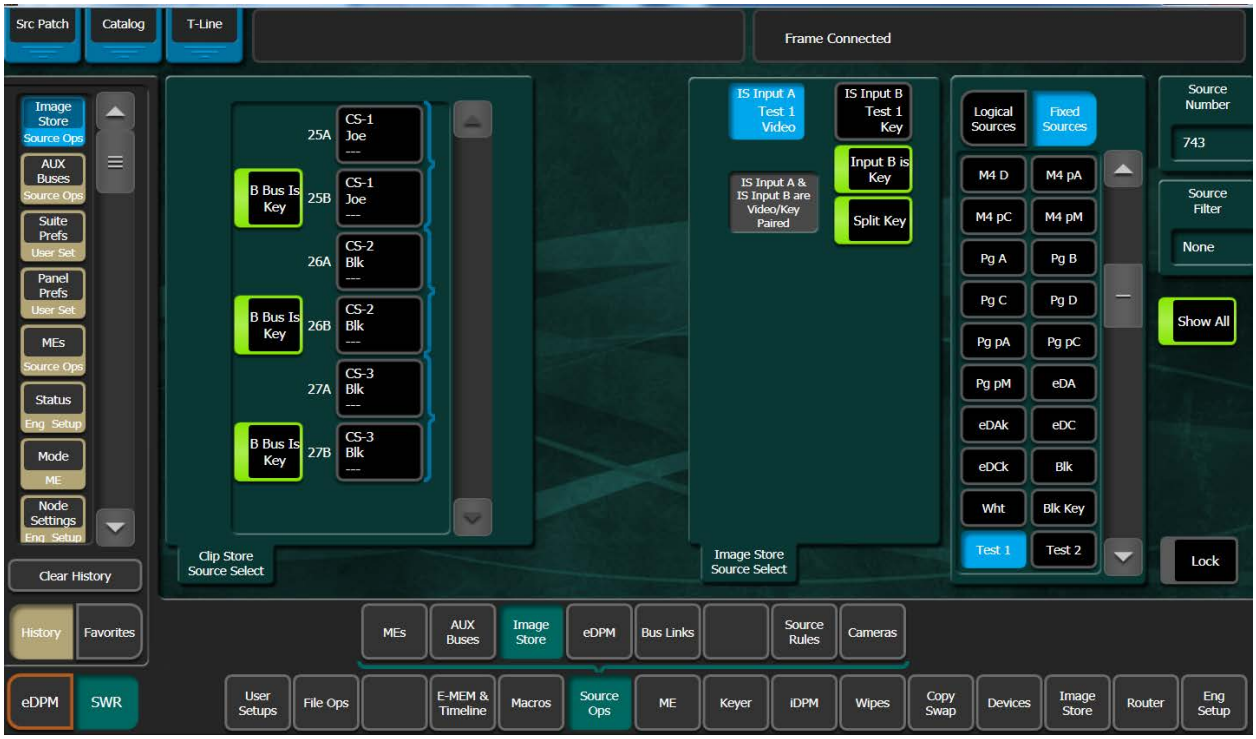
Under the Aux Bus selection is a tab for YUV Correction. For the selected Aux Bus there are controls for Luminance Gain, Black Level and Chroma Gain. These adjustments are on the output of the Aux and all selected sources would be corrected.

There is also an optional RGB Color Corrector. The RGB corrector has Gain, Lift and Gamma controls for all components.

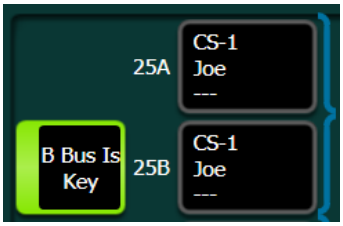


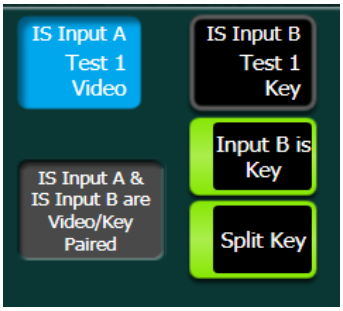
ImageStore Input

The Source Ops ImageStore sub-menu gives a more advanced level of input control than the selectors in the ImageStore menu. Because each channel of the ImageStore and ClipStore have both a video input and a key input the menu in Source Ops allows for independent selection of these source inputs.



The input settings for both ClipStore and ImageStore are set to the B input as key, in the menu the button B Bus Is Key is normally enabled. This automatically routes the defined key signal for the selected source into the B input. On the ImageStore inputs if the Split Key button is enabled the Key signal can be selected separately from the video source. If the input B is Key is disabled the video from the source fed into the B input will be used as the key signal.

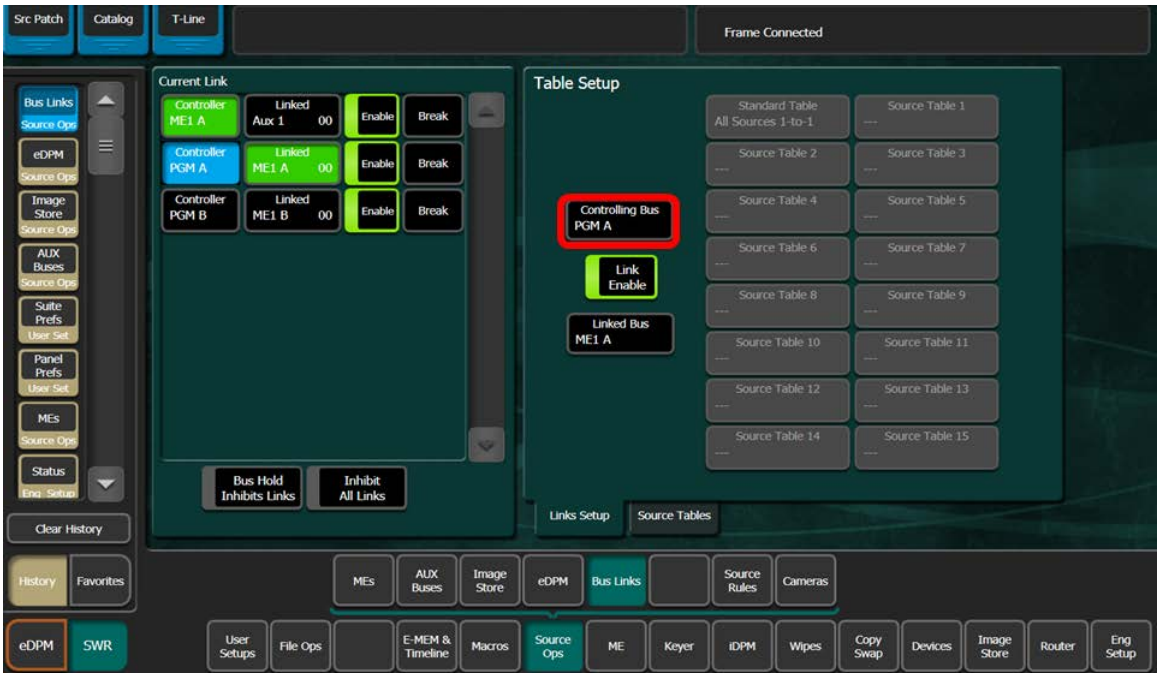




Bus Links

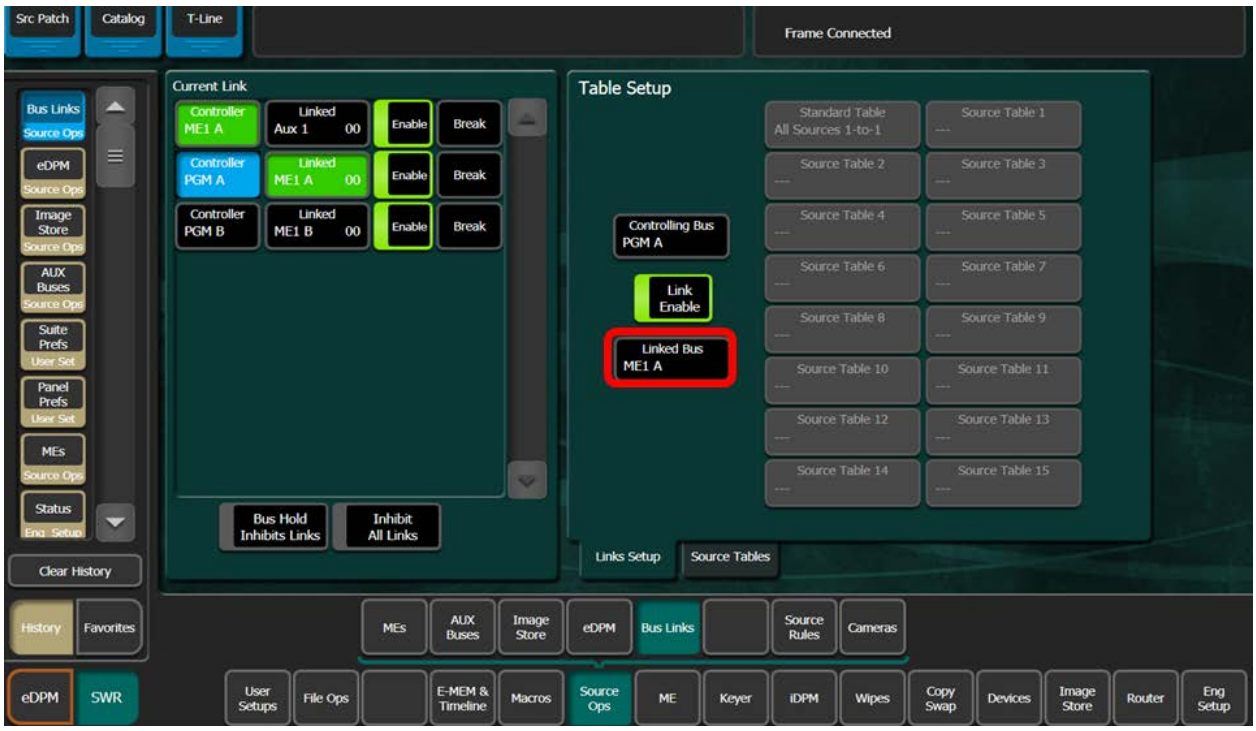
In Bus Links a relationship between source select bus rows can be set up where switching sources on one bus row (controlling bus) will also switch sources on other bus rows (linked busses). The linked busses can be set to select the same source as the controlling bus or different source by programming a source substitution table.

To set up a link relationship, first select the controlling bus.



From the table select a controlling bus from one of the ME source select bus rows, aux busses or eDPM source input rows.

Then select a linked bus.



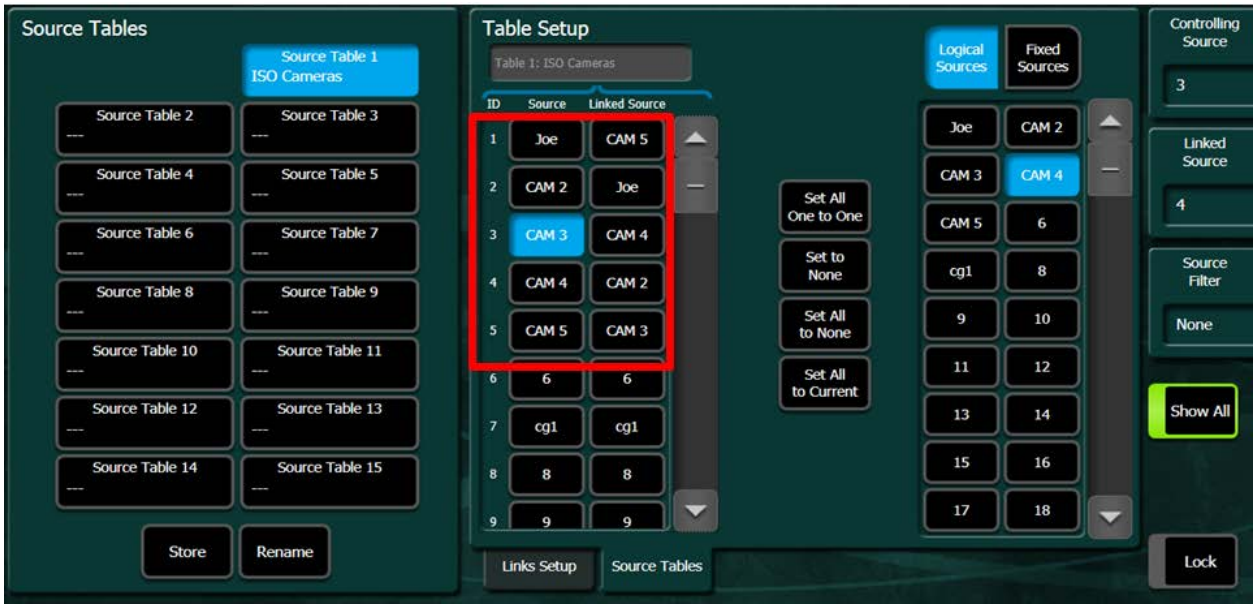
Link relationship can be set so one bus controls another or several others. There can also be cascading relationships where one controlling bus is linked to another bus that has been set as the controlling bus in another relationship, as the busses highlighted in green in the example to the right.

The enable buttons on each link relationship can be turned off to temporarily disable the link. The break button associated with each link will permanently delete the link relationship.

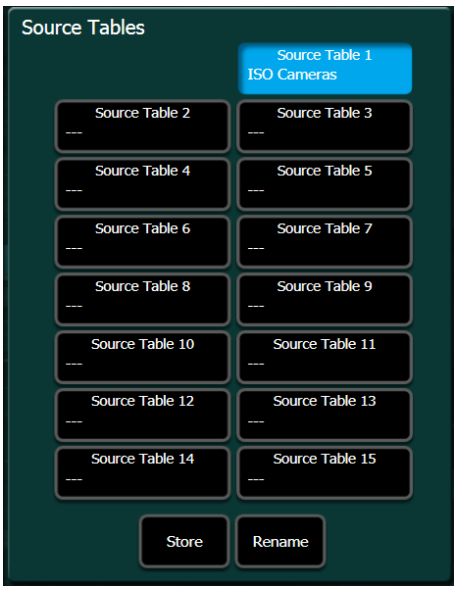
At the bottom of the Current Link panel are two buttons that enable overrides for links. Enabling the Bus Hold Inhibits Links button activates the use of the Hold button at the end of each bus row in habiting bus links associated with that row when enabled. Enabling the Inhibit All Links disables all links when activated.

Source Tables

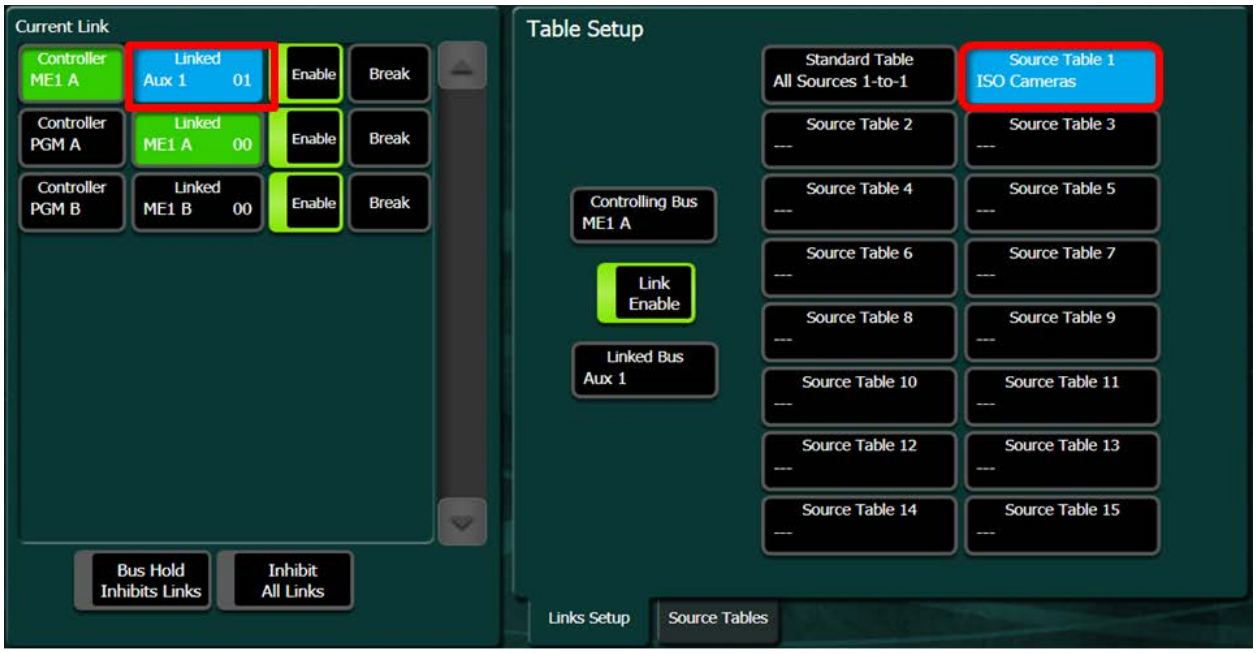
Source tables are created to substitute the source selected not the controlling bus with a different source on the linked bus. In the example below the sources in the left column in the Table Setup panel are the sources selected on the controlling bus. The column on the right is the sources that will be substituted on the linked bus. Substitutions can be created by first selecting the source in the table setup under the column labeled Source. Then selecting an alternate source from either the logical source table or the fixed source table, the substitution is created.



Multiple Source Tables can be created and associated with linked busses.



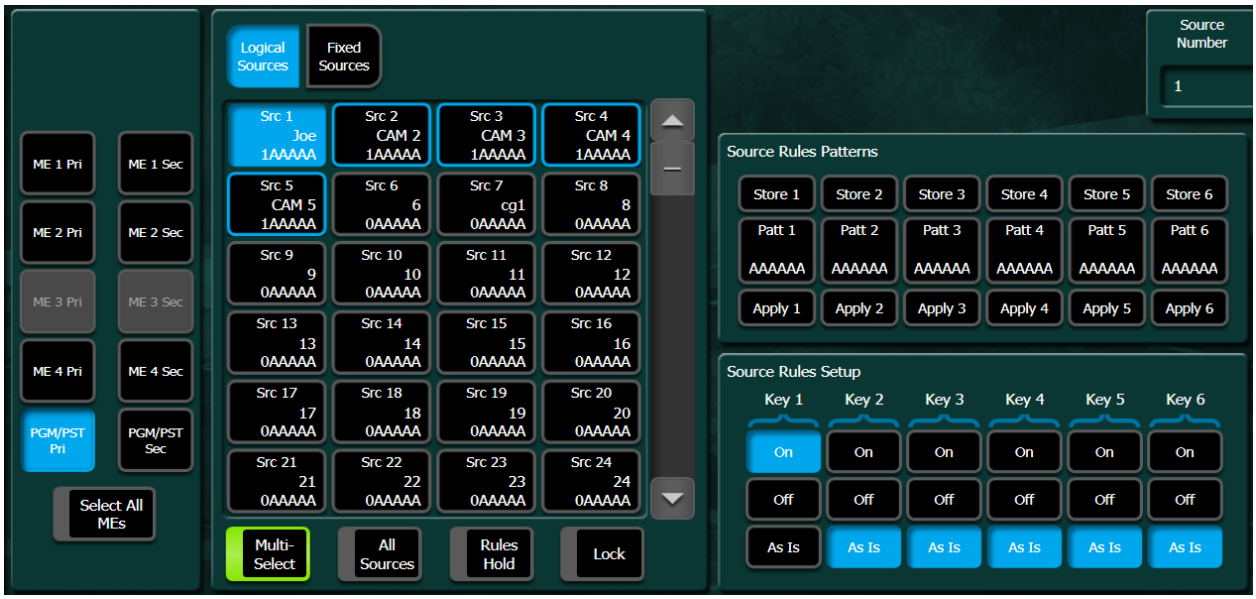
Once a table is created it can then be associated with the linked bus for substitutions. From the Link Setup tab, select the linked bus then select the source table.



Source Rules

Source rules are applied to background sources so that a specified key will either come on or go off when that source is put to air. As an example, in a news environment when any of the camera sources are selected for air the stations time and temperature bug will be keyed over the cameras. In this case a rule would be applied to each of the camera sources to set the status of a specified keyer to be on with those sources.

In the example below, on PGM if any of the cameras are on-air key 1 status should be on. Keys 2-6 are to be left as is.



Section 13 - Macros

Macros are a series of button presses recorded into a single button location. Buttons on the panel and in the menu can be included in a macro. K-Frame has a total of 999 macros.

At the end of this section, you will be able to:

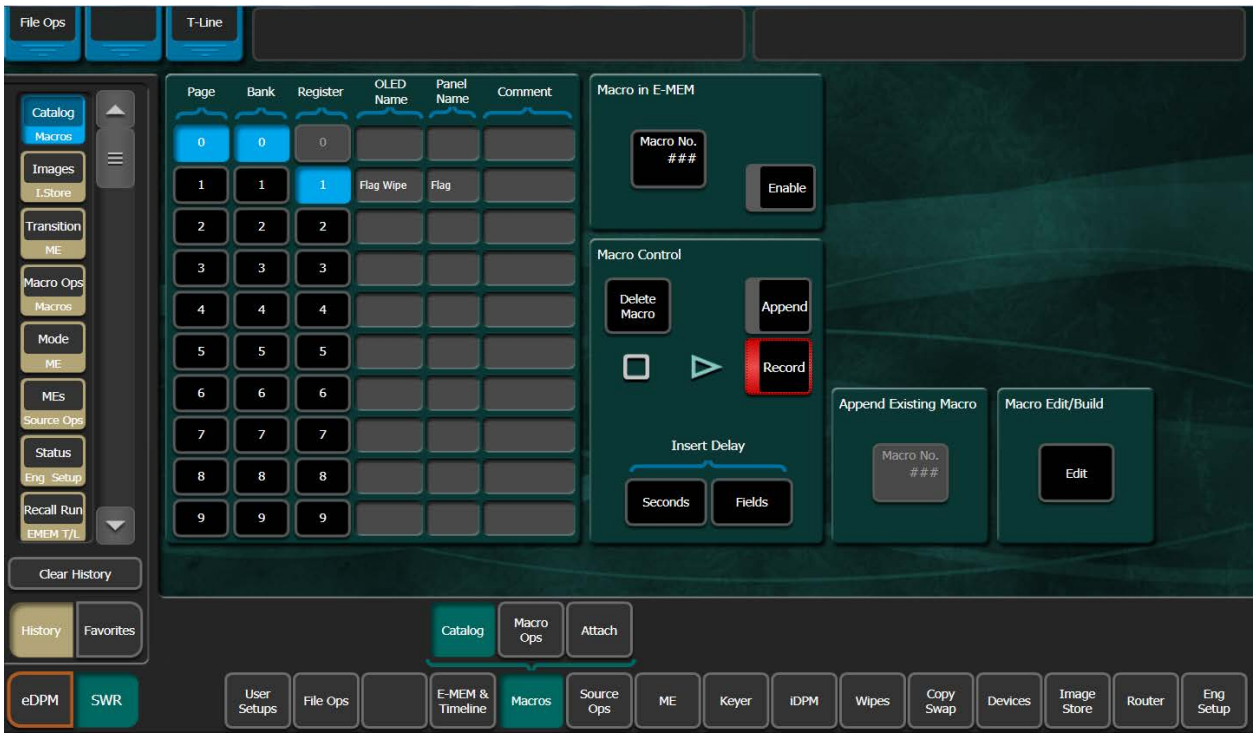
- ✓ Explain where to use a macro instead of an E-MEM and how to incorporate macros into E-MEMs.
- ✓ Record a macro.
- ✓ Edit an existing macro.
- ✓ Assign and use Attached macros.

Overview

Macros are the process of recording and recalling panel and menu button presses to a single button or register. Macros can be recorded and replayed from either the menu or the control panel. There are a total of 999 macros, numbered from 001-999.

Record Macro

To record a macro from the menu, select Macro/Catalog and then the register by Page, Bank and Register number. Once selected, pressing the record button in the menu will start the record process. Buttons pressed on the panel and in the menu while recording will be recorded into the macro until the record is stopped.



To record a macro from the panel, delegate any MEs key source select row to macro. Then from the macro record/edit buttons on the control panel press record and select one of the source buttons on the delegated key source select row.

Kayenne

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Macros playback recorded button presses in a macro all at one time. Therefore if it is necessary to have recorded buttons recalled in a particular order delays must be recorded between the button presses to insure the one before the delay is pressed before the one after the delay. Delays can be inserted from either the panel or menu while recording. In the menu the delay can be set in seconds and/or frames. From the panel delays are selectable from the key source buttons set either to display the delays in increments of 1/10 of a second or in fields.

Macros do not record any adjustments made with the knobs, lever arm or joystick.

Macro Example

Steps for creating a Macro wipe effect using an animated transition graphic in ImageStore.

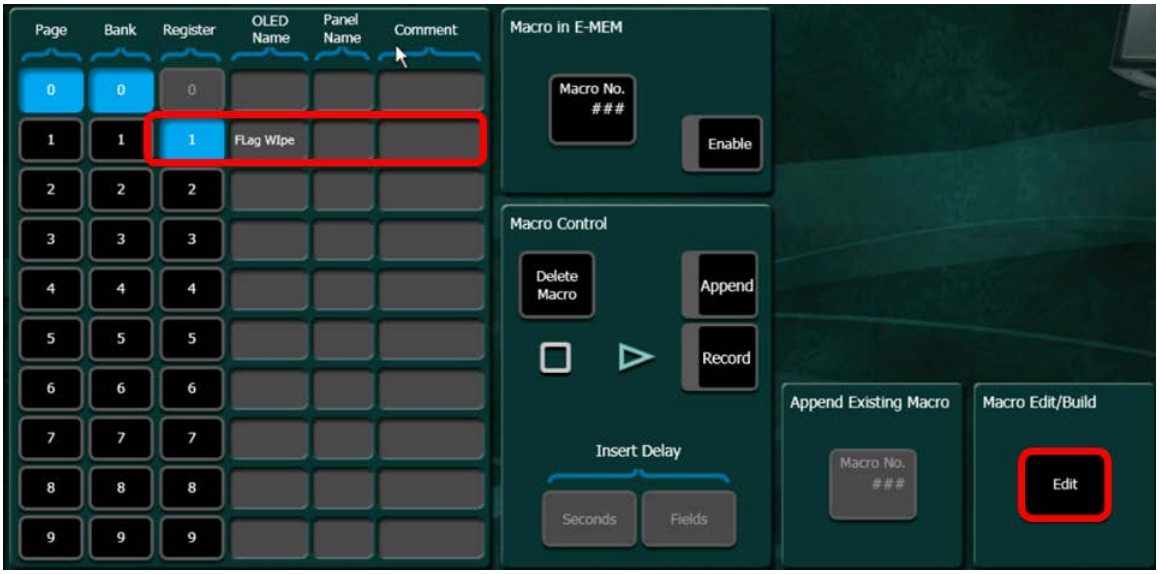
- In ImageStore menu select playout channel and then graphic to load
- On key source select on PGM ME select the ImageStore channel as key source
- Insert a delay of .01 sec.
- In ImageStore menu select play button for animation
- On PGM press the key cut button to set key to on
- Insert delay for duration until animation is full screen
- Press Cut button on PGM transition panel
- Insert delay for the remaining duration of the animation
- Press key cut button on PGM to set key to off

Macros will playback the buttons pressed in the record process whether the switcher is in the proper state on not. Certain issues would cause this macro to not work correctly due to changes in the state of the switcher in the time between recording and playback. The button presses above select the source for the key and turns it on and off but nothing set the key type. If the key were to be changed to chromakey or pattern key the effect would work incorrectly.

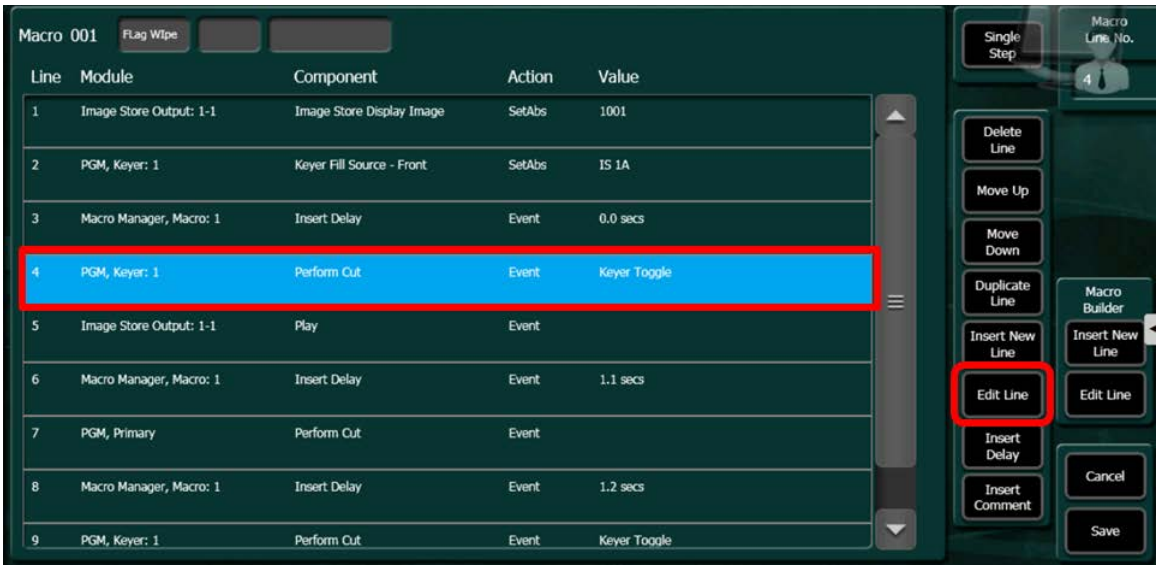
When working with macros it helps to record as many button presses that set the state of the switcher as you would press buttons for actions. Unlike E-MEMs that store the state in addition to triggering actions, macros only repeat the buttons pressed during the record process.

Editing Macros

Once a macro has been recorded any necessary changes can be made by using the macro editor. From the Macro/Catalog menu select the macro to be edited and then select the edit button.

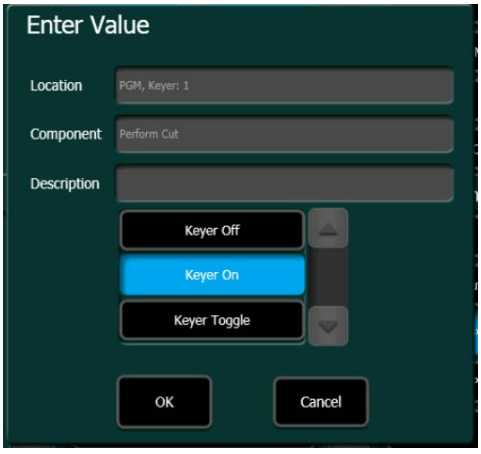


The edit screen will open with a list view of each of the commands recorded. The macro below is similar to the one in the example on the previous page. One of the issues in the macro below is that the Key Cut key stroke is a toggle. This means that if the macro is in the on state when the macro is run the first key cut will turn the key off and the second will turn the key on. This command can be changed by selecting the line to edit and then selecting the Edit Line button on the right.

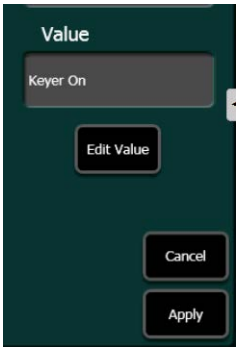


A window will open showing the components of the line selected. In basic terms, what part of the switcher (Tiers) the command path (group, location, component) within that part of the switcher and value of the command. In this example the value was Perform Cut/Keyer Toggle.

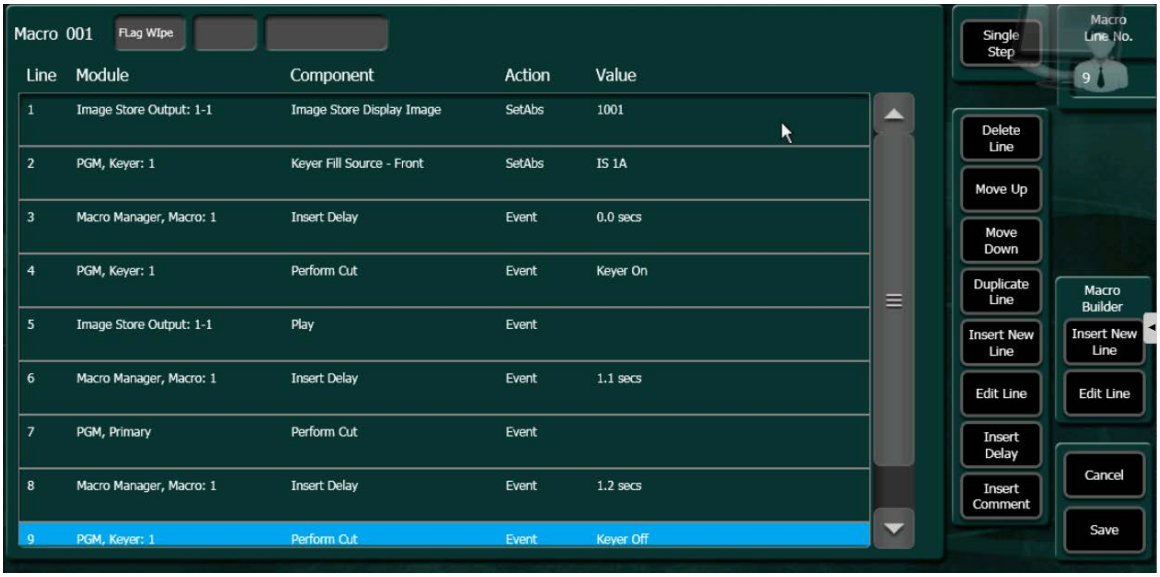
To change from Keyer Toggle to keyer on the window beneath the Value is selected and the value is changed to Keyer On. Then press OK.



Once the value is correct press the apply button to accept the changes.



When all corrections have been made the macro press the save button to send the changed macro back to the switcher replacing the old version. If the choice is to return to the original version press the cancel button.

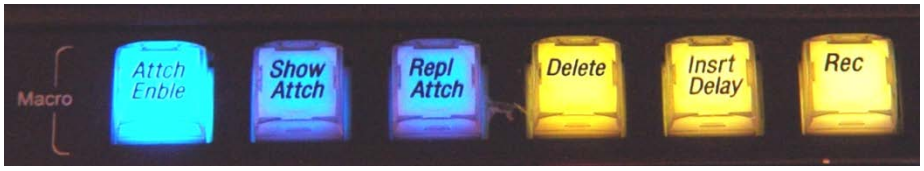


Attached Macros

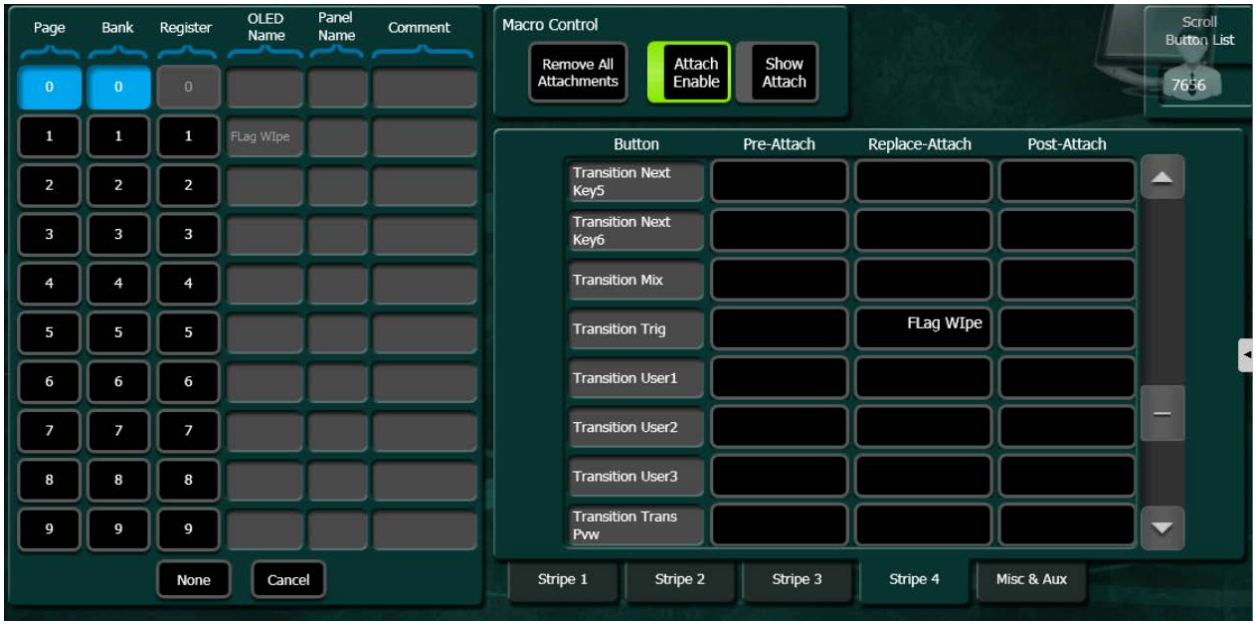
Macros are recorded and recalled from key source select buttons on delegated bus rows. But macros can also be triggered from other buttons on the panel. These are called macro attachments.

Macros can be attached to most buttons on the panel as either a pre-attach, post-attach or replace-attach. If a macro is pre-attached to a button the buttons original function still works, but pressing the button triggers the macro and then performs whatever function the button is relegated for. If a macro is post-attached, pressing the button performs whatever normal function is designed to do then runs the macro. A replace-attach, replaces the buttons normal function with a macro.

Attachments can be made either from the panel or the menu. From the panel, enable attach, then by pressing and holding the desired macro button then the button where it is to be attached, a pre-attach will be placed on that button. If the button where a macro is to be attached is pressed and held then the macro pressed a post-attach will be placed on the button. If the Repl Attch button is pressed and both a macro and button are selected at the same time the attached macro will replace the button function.



When using the menu to attach macros, select Macro/Attach menu. The menu has all macro registers displayed in the panel on the left. In the panel on the right is a table of all buttons on the panel to which macros can be attached. The tabs on the bottom of the right panel labeled Stripe 1-4 are each of the MEs on the control panel. All panel stripes start with the ME at the top of the panel as stripe 1. Select the correct stripe and find the button where the attachment is to be made. Each button has a box to select for pre, post and replace attachments. Select the proper attachment type and then select the macro to be attached.



If the Macro/Attach menu is open on the menu panel, pressing the button on the control panel that you wish to attach a macro to, will automatically find and highlight the button in the button list.

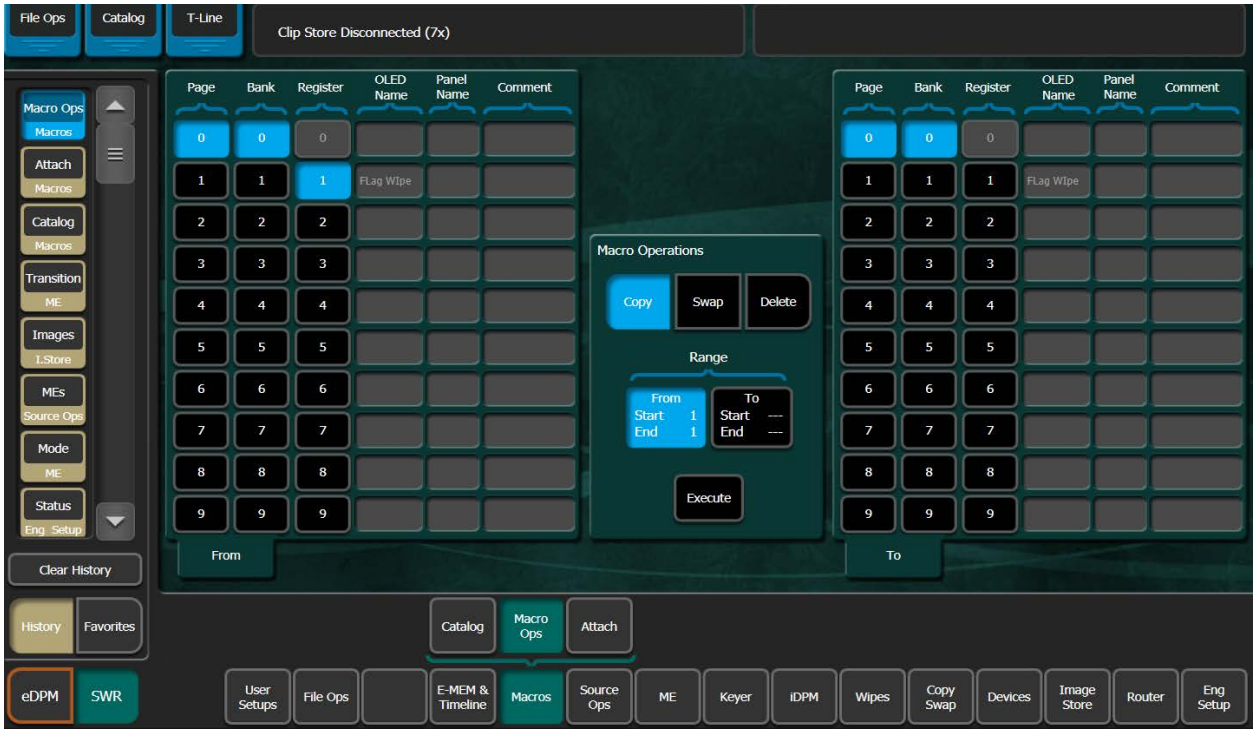
To remove attached macros using the menu, select the button attachment on the right and select the **None** button at the bottom left. There is a quick button in the menu to remove all attachments, at the top center select Remove All Attachments.

To remove attachments using the control panel:

- Pre-Attach - Press and hold the macro Delete button then press and hold the attached button.
- Post-Attach - Press and hold the attached button then press and hold the macro delete button.
- Replace-Attach - Enable the Replace Attach button in the macro edit area then press and hold the delete and the attached button.

Macro Ops

The Macro Ops menu provides the tools necessary to copy, swap and delete macros. From the menu select the Macro Operation, set a range for from and to then select the Execute button.



Section 14 – Copy Swap

The Copy Swap menu provides the tools necessary to copy or swap settings from one component of the switcher to like components elsewhere on the switcher. This allows for time saved by not having to recreate complex set ups. If it is set up in one location it simply has to be copied to another.

In the **Copy/Swap** menu, values from MEs, Wipes, Mattes, Keyers, Macros and Timelines can be copied between like items or swapped with another. These functions are also available on the Multi: Function module on the Kayenne panel.

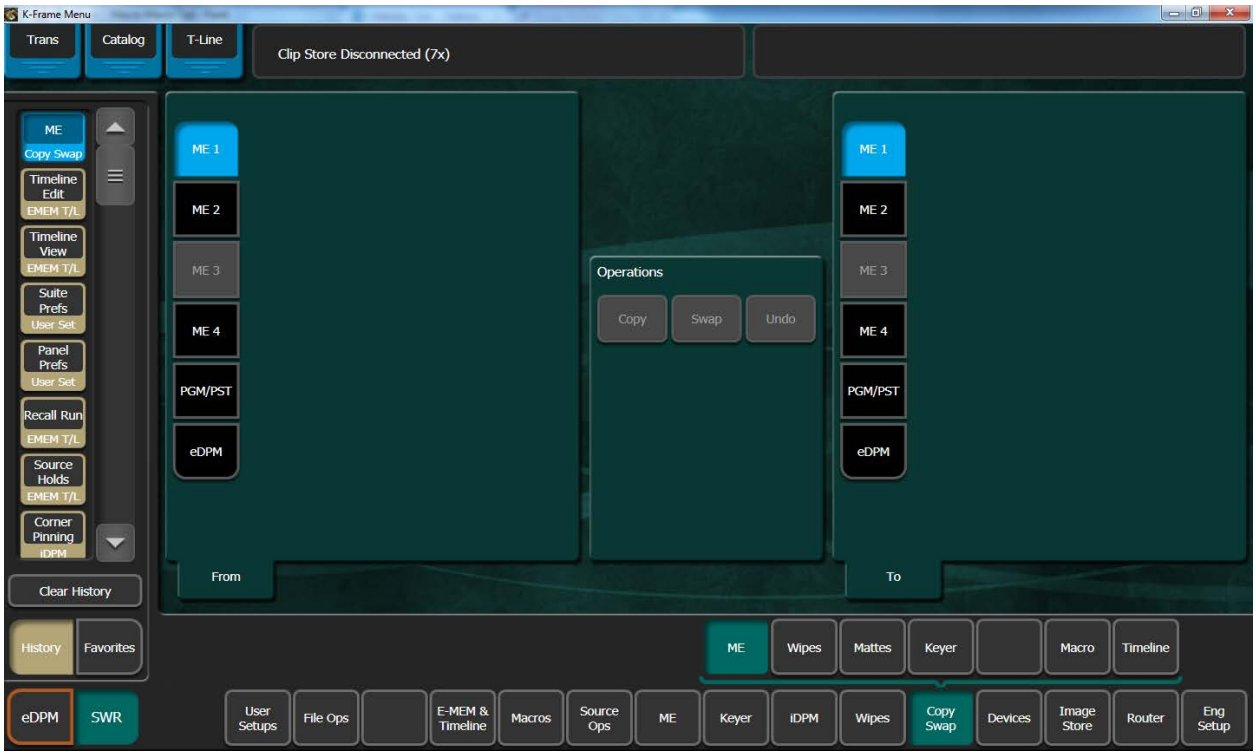
At the end of this section, you will be able to:

- ✓ Copy a complex setting from one MEs to another
- ✓ Copy a Chromakey set up on one source to any other source on any other keyer.
- ✓ Copy an individual timeline from one E-MEM register into another.

In the Copy/Swap menu values from MEs, Wipes, Mattes, Keyers, Macros and Timelines can be copied between like items or swapped one with another. These functions are also available on the Multi-Function module on the Kayenne panel.

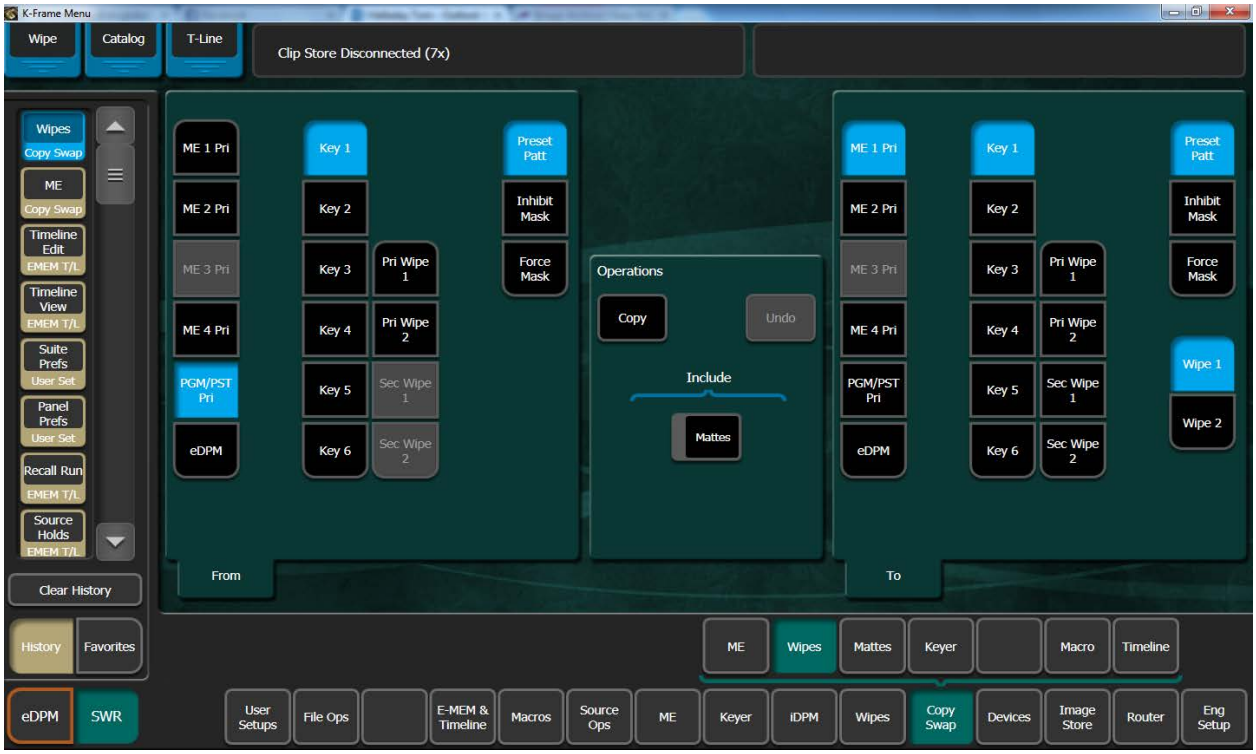
ME Copy

All settings from an ME such as sources, transition setup, keyer and iDPM settings and even current state of a transition can be copied from one ME to another. Or two ME setups can be swapped with each other. Select the ME to be copied in the panel labeled From and the target ME in the panel on the right labeled To.



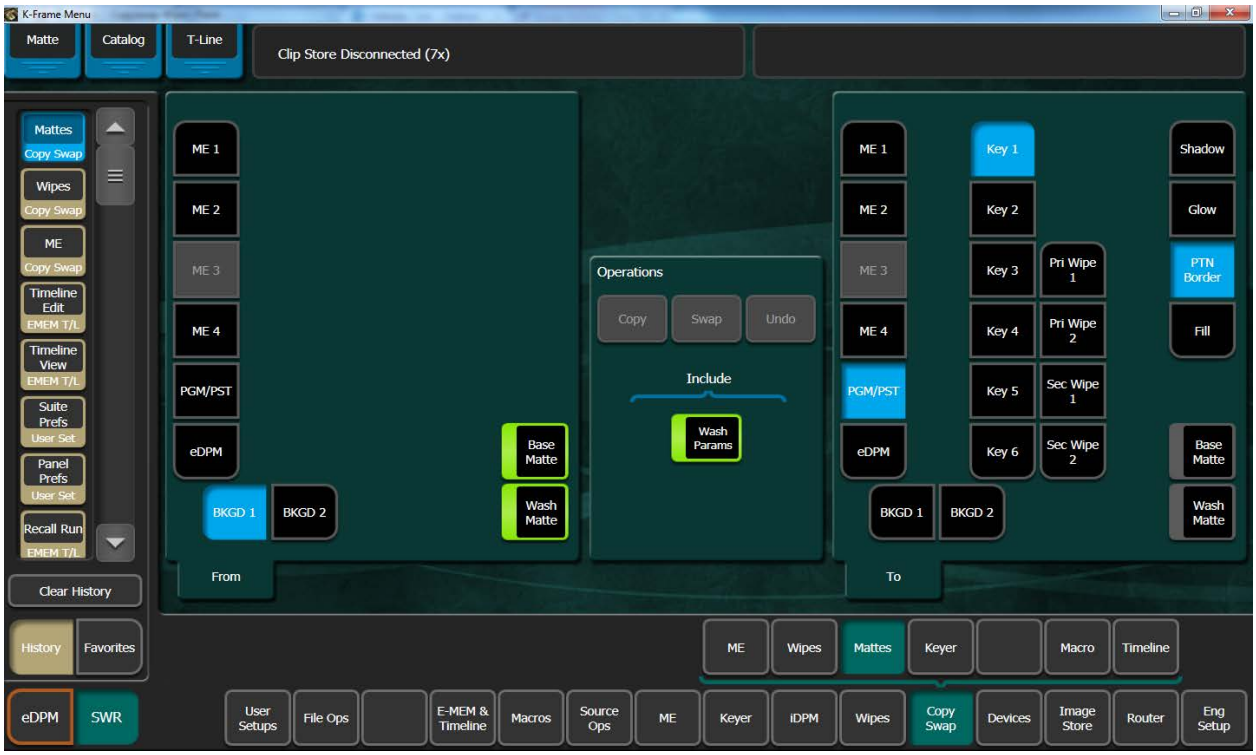
Wipe Copy

In the wipe copy menu any wipe generator either transitional or keyer can be copied from one wipe generator to another. If copying a transitional wipe to a key wipe the key wipe generator will be changed to the same transitional wipe generator (i.e., P1 or P2) for the key.



Matte Copy

Any matte color from either the base matte or wash matte from any matte generator can be copied or swapped with another, including wash parameters.



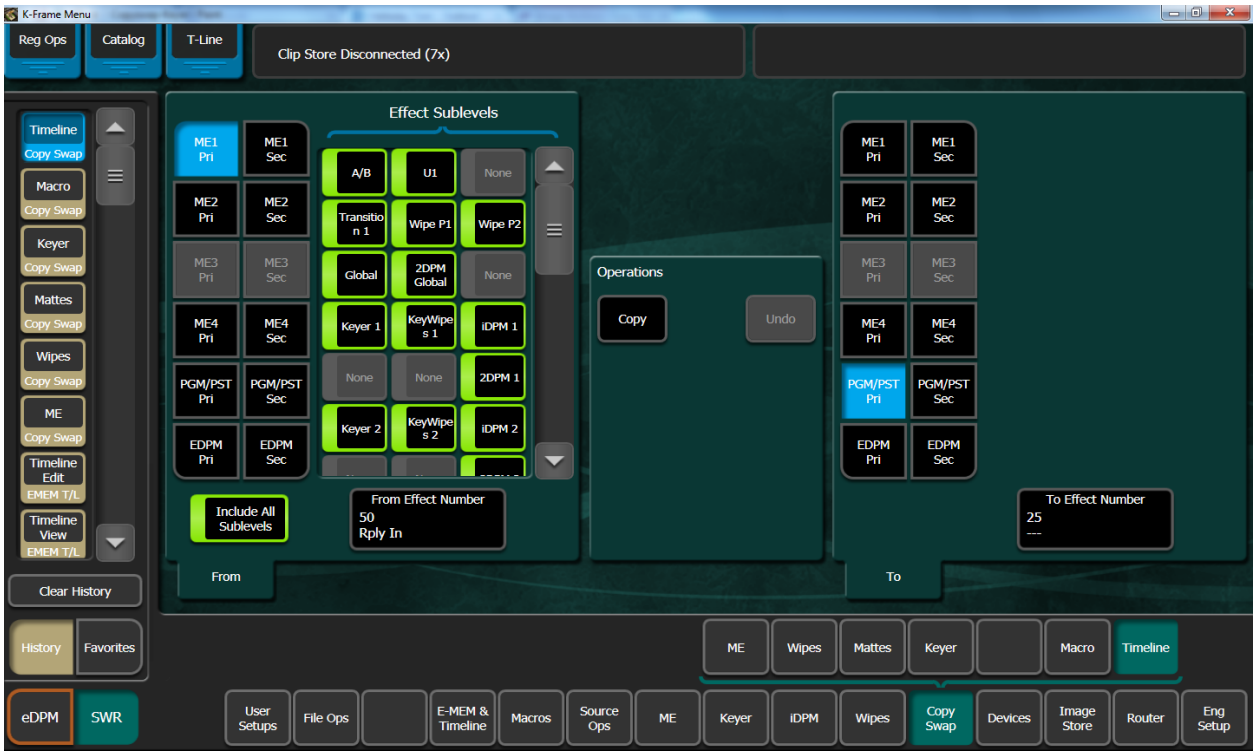
Keyer Copy

Copying one set of keyer parameters to another can be limited by available resources.

- Copying a key from a full ME that has an iDPM on the key to another ME that is using the ME CT hardware will not copy the iDPM parameters.
- Copying a chromakey from one key to another there must be a chromakey available. If all licensed chromakeys are in use the parameters can't be copied.

Timeline Copy

A timeline from any ME level of any Master E-MEM register can be copied to another Master E-MEM register for another ME level.



Section 15 – Advanced DPMs

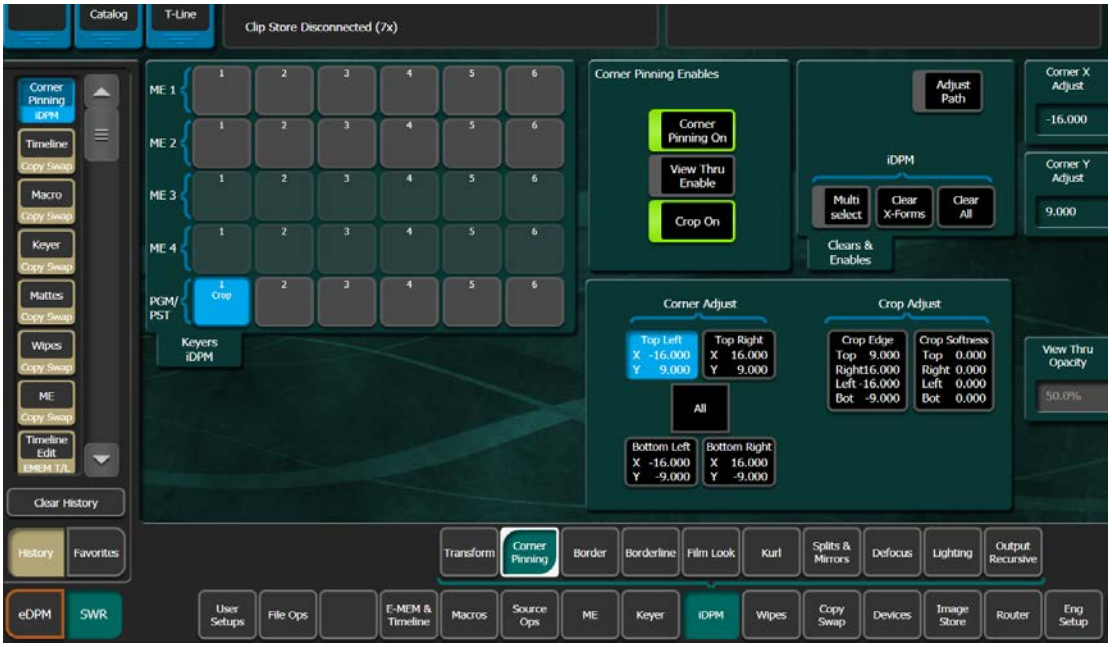
In Section 7, we discussed the basic use of DPM's for manipulating a video source on screen. The 3D DPM channels allow for much more with effects controls for Kurl, Lighting and Output Recursive. Advanced level effects can give a unique look to any live production.

At the end of this section, you will be able to:

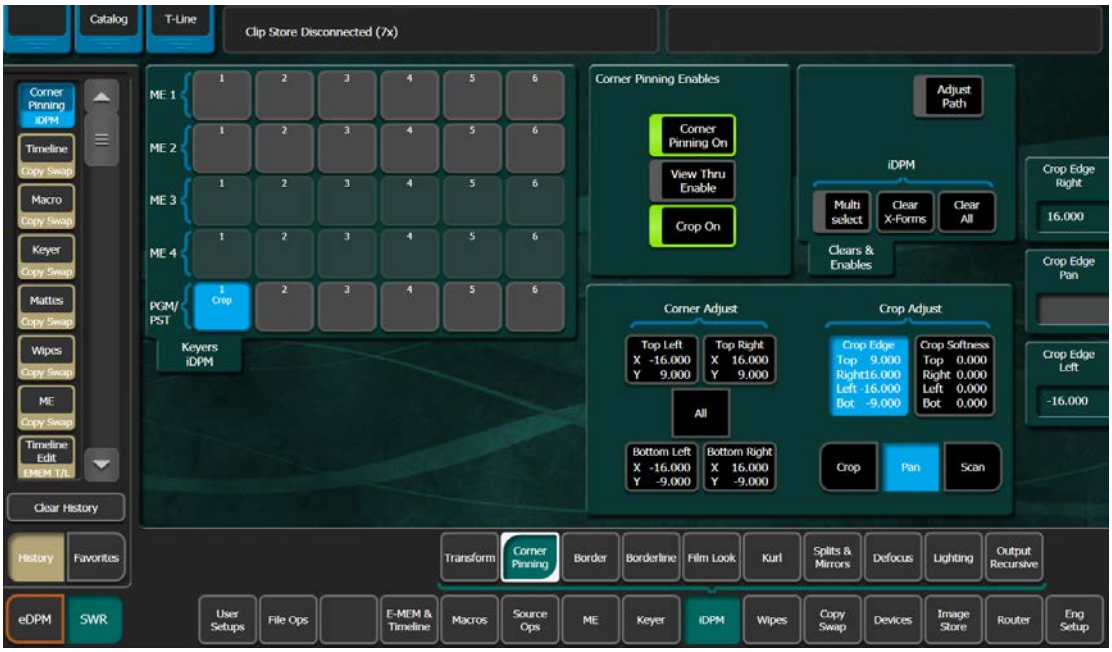
- ✓ Use Corner Pinning to create a zoom or pan of source inside a DPM channel.
- ✓ Use a DPM channel to create a film look strobe.
- ✓ Use Page Turn or other Kurl effects to create a transitional element.
- ✓ Combine Defocus and Output Recursive to create a rack focus transition.

Corner Pinning

Corner Pinning allows for manipulation of any corner of a DPM channel in two dimensional space. With corner pinning enabled adjustments for any of the four corners can be selected and moved both on the X and Y plane. (Function on 2dDPM is Edge Pinning. Allows manipulation of each edge separately).

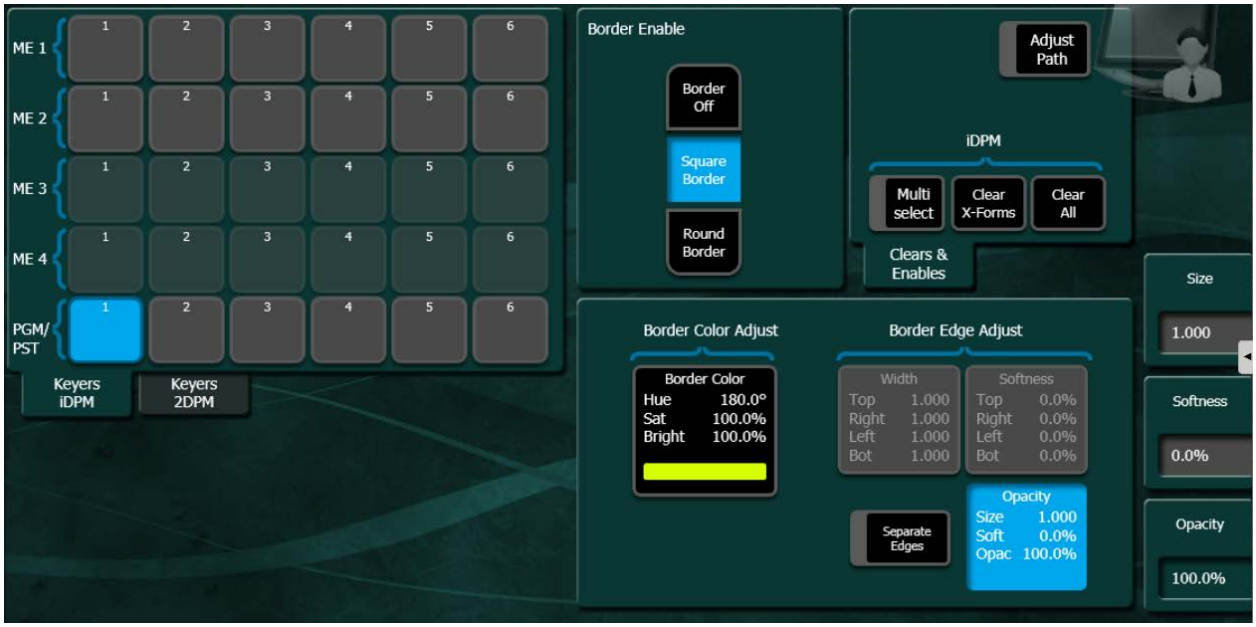


Crop adjustments in corner pinning enlarging the image inside the DPM channel using the default edges of the DPM channel to crop the video. By enlarging the image inside the DPM channel the Pan and Scan controls allow for keyframing to create a pan or tilt motion of the video in the channel.



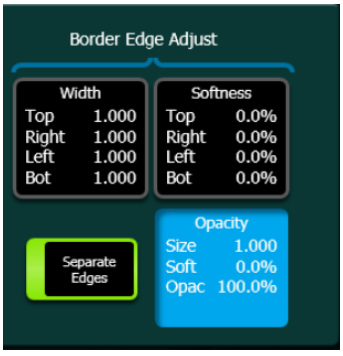
Border

Border control allows for a single matte border to be applied to the outside edge of the DPM channel. Because the border is on the outside edge of the channel, when the channel is full screen the border will be off screen. (Borders can also be applied to 2dDPM's. Operates same as iDPM).

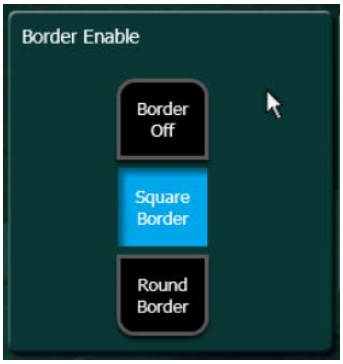


The border is filled with a single color matte with controls for hue, saturations and brightness.

There are also control over border width, softness and opacity. If Separate Edges is enabled size and softness controls are for independent sides.

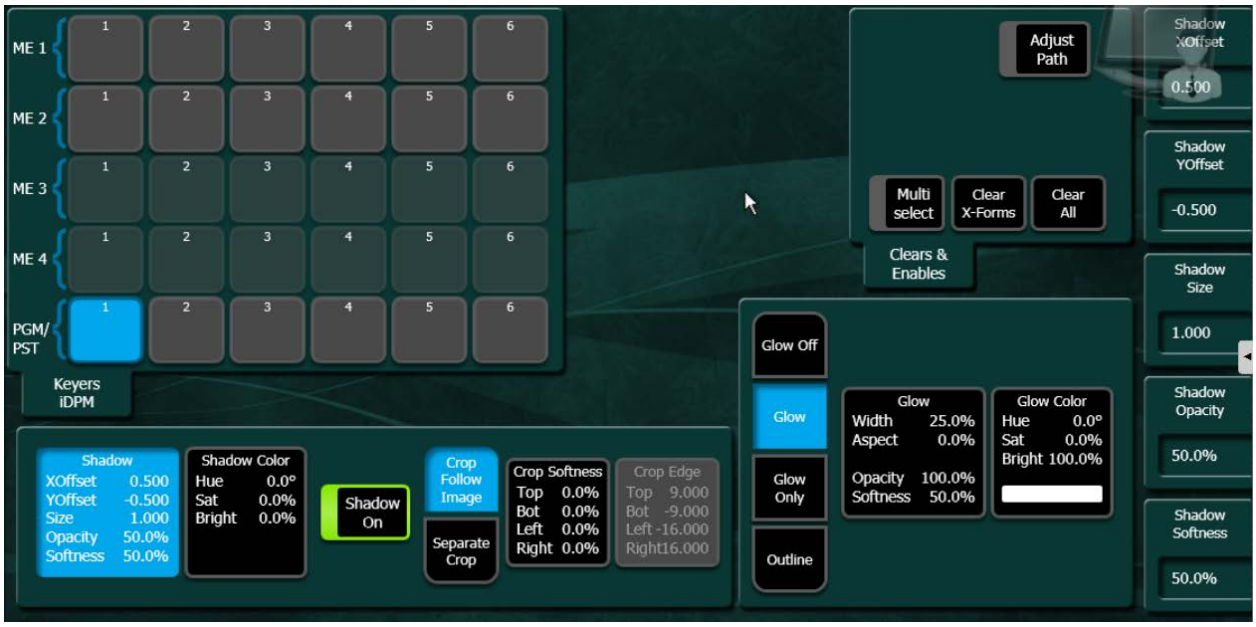


If softness has been applied to the border edge squared or rounded corners can be selected. If no softness is applied to the edge corners will only be squared.



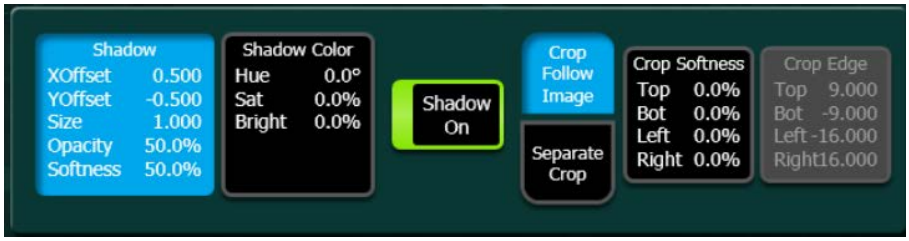
Borderline

Borderline is an edge applied to the outside of the source key signal. If the key signal of the source fed into the DPM channel reaches all the way to the edge of the channel softness and glow values are cropped off Shadow and Glow at the area where the source reaches the edge.



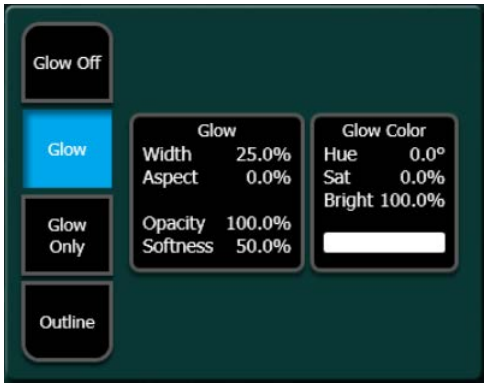
Shadow

Shadow controls have adjustment for X and Y position and shadow size. There are also controls for shadow softness and opacity. The shadow is matte filled and matte controls include hue, saturation and brightness.



Glow

Glow controls include size and softness and matte controls for hue, saturation and brightness

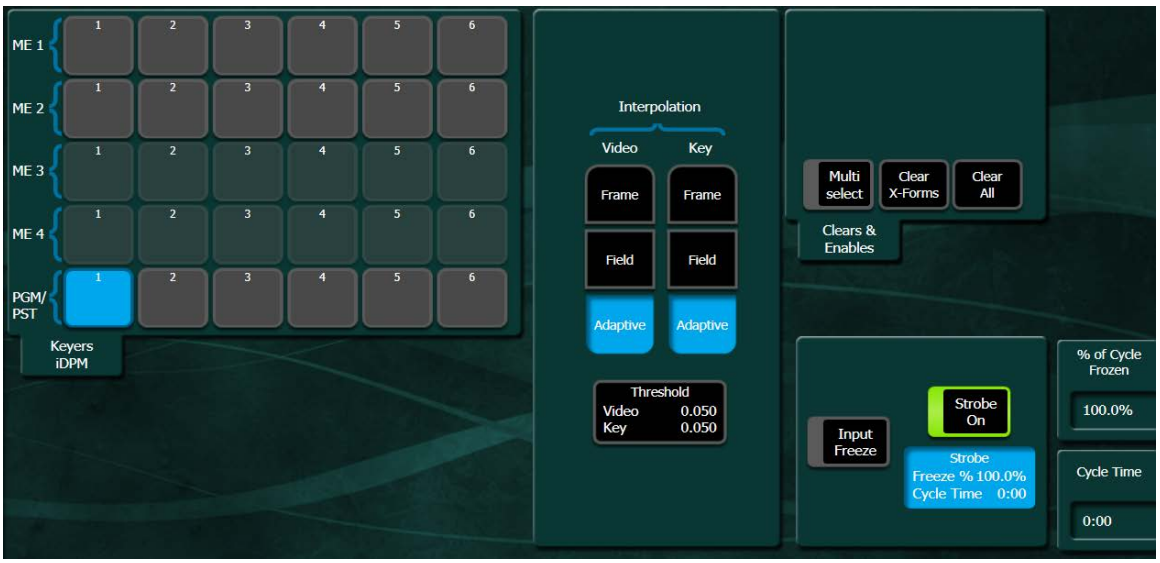


There are three glow modes:

- Glow-border edge around source key signal.
- Glow-glow without source.
- Outline-glow edge no source.

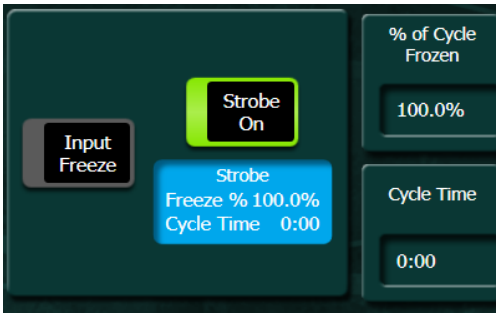
Film Look

Film Look can be used to do a hard freeze of the input video source or setup a strobed freeze.



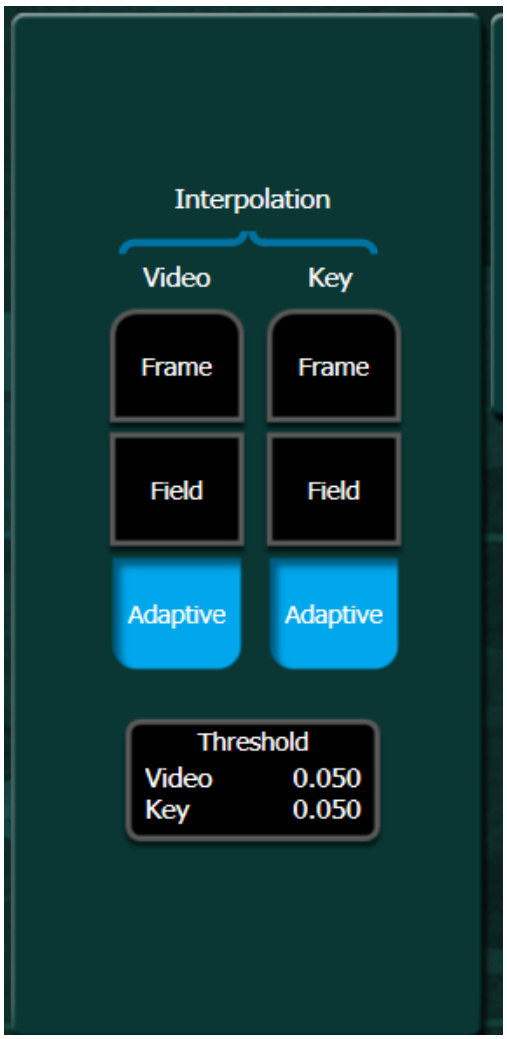
The freeze controls include:

- Input freeze-Hard freeze of input video source.
- Strobe On-enables strobe function. Strobe settings include Cycle Time (how often video freeze updates) and % of Cycle Frozen (the percentage of frozen and live frames during freeze cycle).



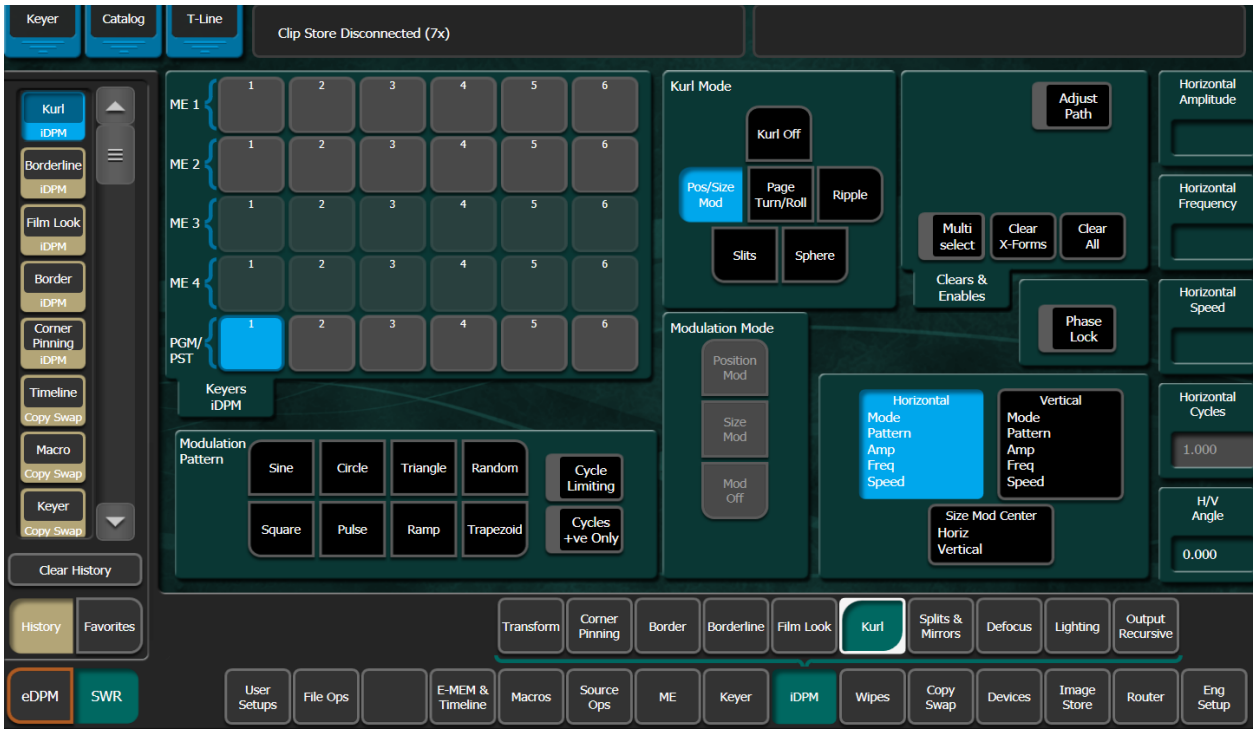
Interpolation is the filter setting for frozen video source:

- Frame-Freeze of both fields
- Field-Freeze of one field, duplicated into other field.
- Adaptive-Frame freeze with filtering of pixels where there is a significant difference between field one and two.



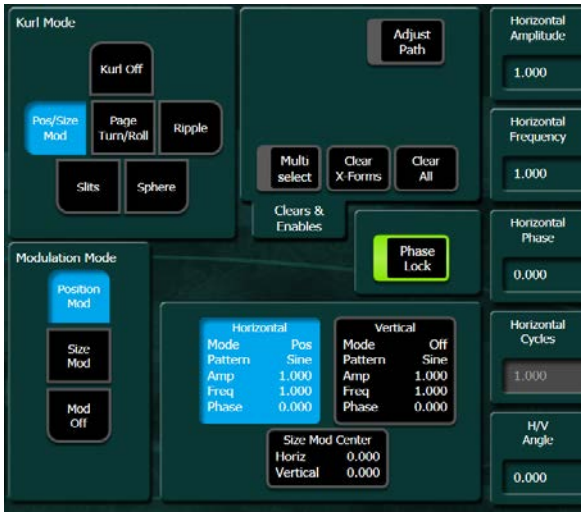
Kurl

Kurl effects give the appearance of bending or modulating the video source in the DPM channel. Only one of the five Kurl effects can be applied to a channel at a time.



Position Modulation - creates the appearance of a waving flag.

Size Modulation - appears the video is wrapped around a corner.

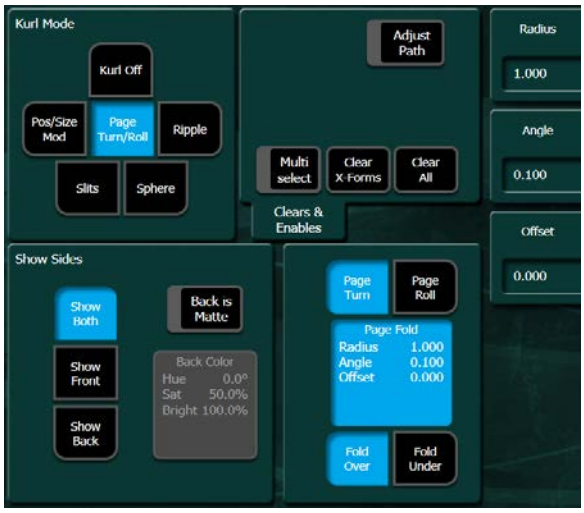


The controls for modulation are:

- Amplitude-Height of wave.
- Frequency-Number of waves in modulation.
- Phase-Position of waves. Phase Lock Off causes continuous modulation.
- H/V Angle-Rotates modulation

Page Turn - Curls the edge of the video to appear as page.

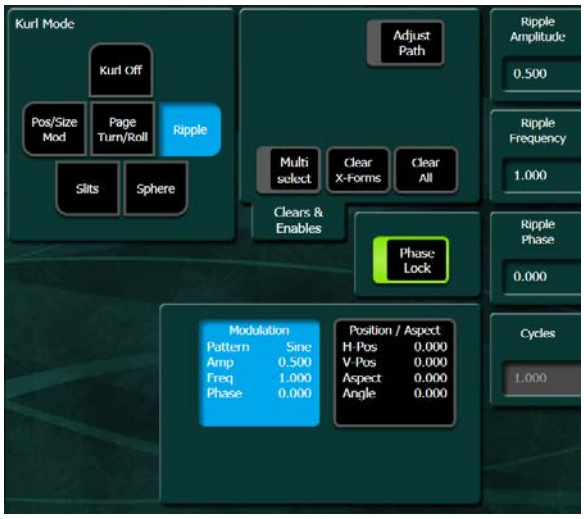
Page Roll - Appears as the video is being rolled into a tube.



Controls for Page Turn/Roll are:

- Radius-Tightness of curl.
- Angle-Direction of curl.
- Offset-Controls position of curl.

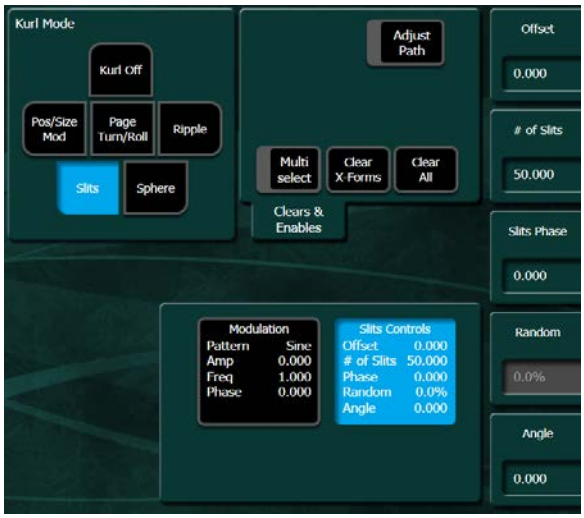
Ripple - creates a modulation wave from a center point out.



Ripple controls are:

- Amplitude-Height of modulation.
- Frequency-Number of modulations.
- Phase-Position of modulation. Phase Lock Off, continuous outward motion of modulation.

Slits - shreds the video into strips. Slit controls are:



- Offset-Position of slits on screen.
- # of Slits-Width of shreds.
- Phase-Position of shreds in video.
- Random-Varies widths of shreds.
- Angle-Rotates shreds.

Sphere - appears to wrap input video source around a ball.

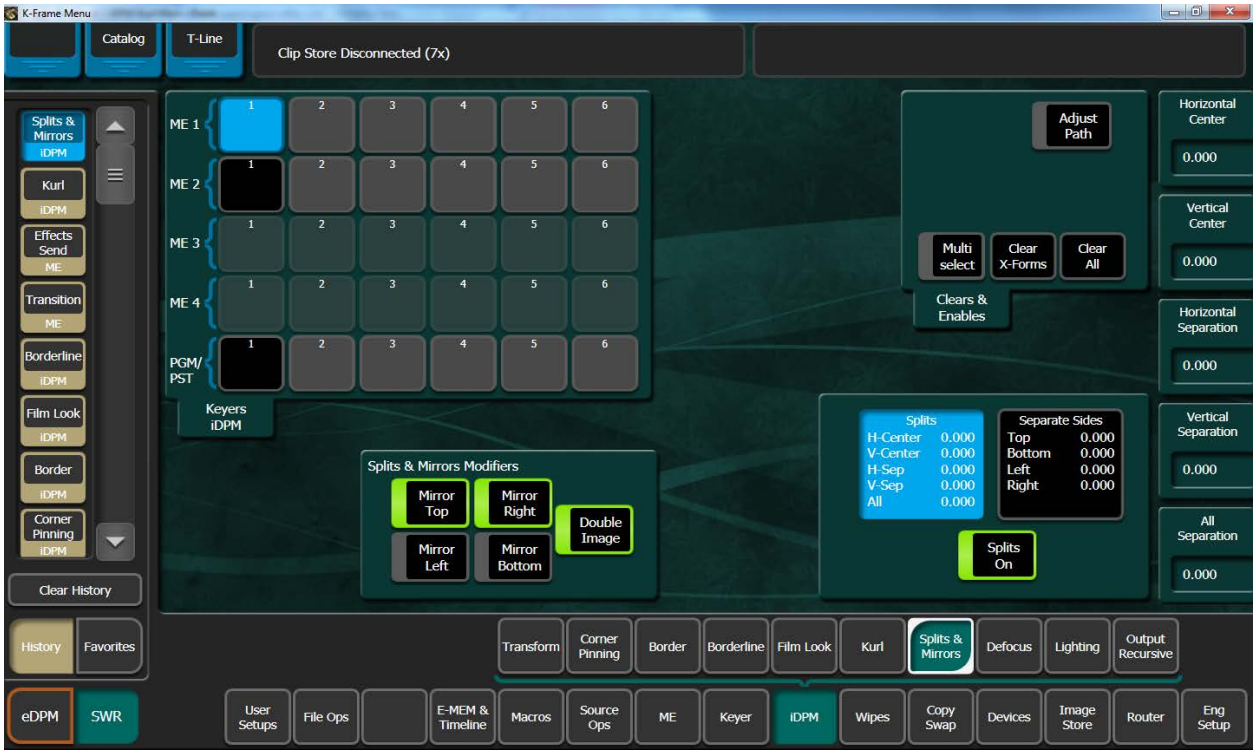
Sphere controls are:

- Size-Ball size
- Aspect-Stretches ball horizontally or vertically.

Modulations effects have selection for different waveforms. These selections change the shape of the wave.

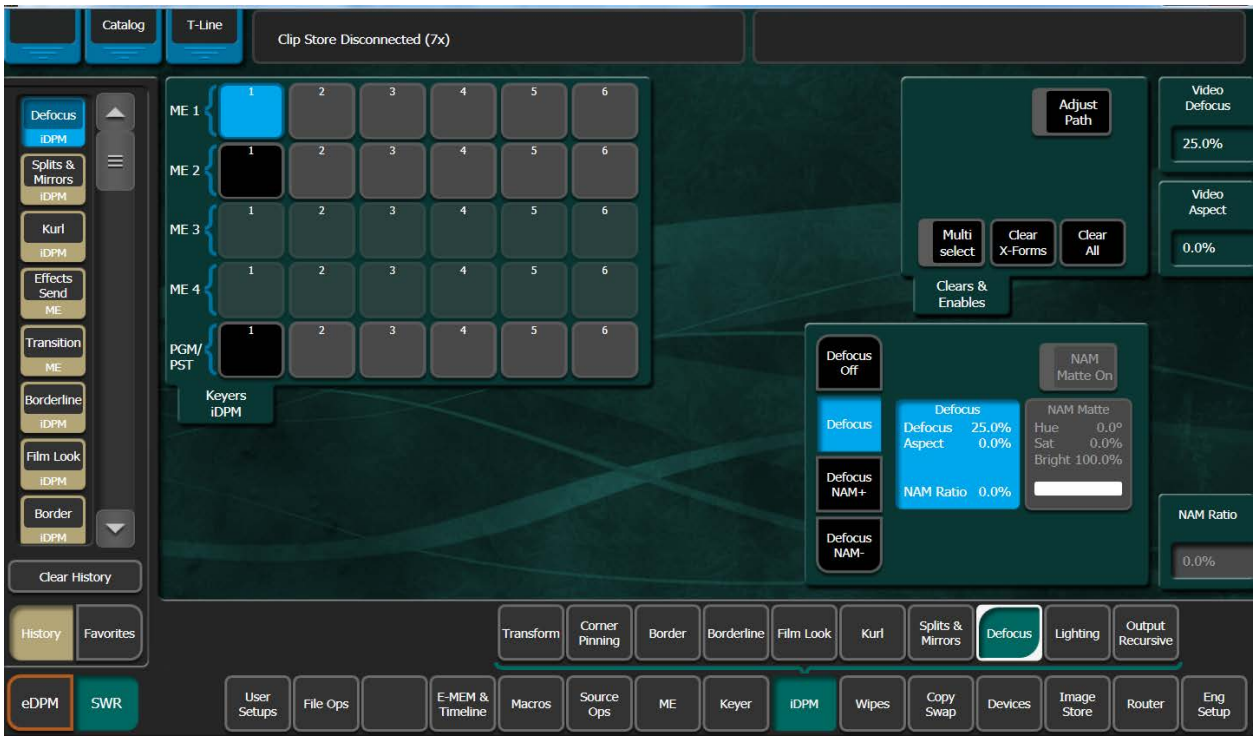
Splits & Mirrors

Splits and Mirrors separate the incoming video source into four quadrants. The splits can be positioned horizontally or vertically as can the split position. The mirror function puts a mirrored copy of the video in the opposing side. Mirroring two of the opposing sides and enabling the Double Image button will create a Kaleidoscope appearance.



Defocus

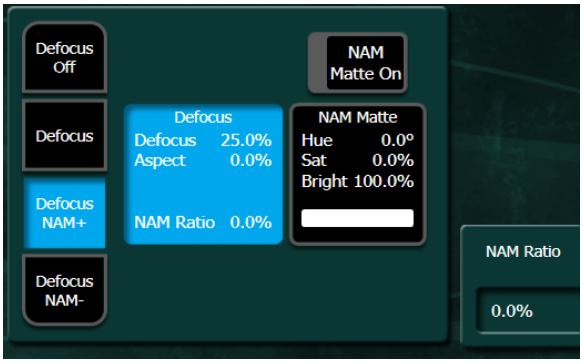
Defocus blurs the incoming video. Controls can adjust the amount of blur (Video Defocus) and aspect the blur to go just vertically or horizontally.



Defocus has three different modes:

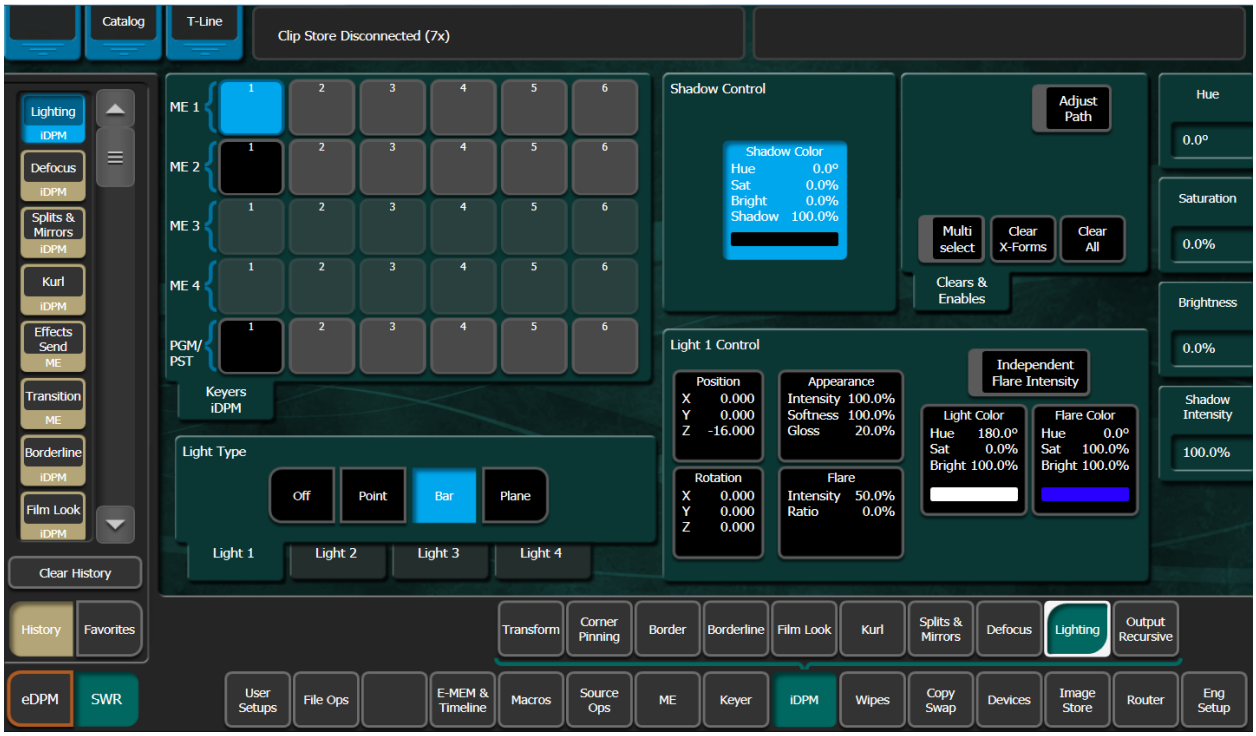
- Defocus - Blurs all video.
- Defocus NAM+ - Blurs the highlights.
- Defocus NAM - Blurs the blacks.

When using NAM defocus the blurred area of video can be replaced with a matte.



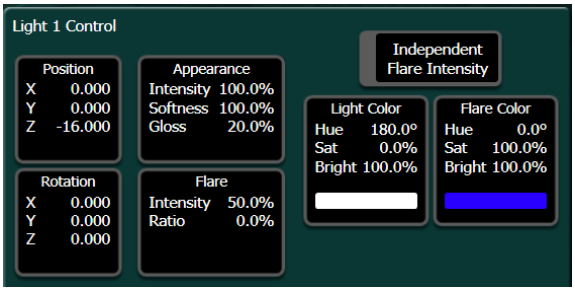
Lighting

Each channel of DPM has four keyframable light sources. Each light can be set to either a point, bar or plane light. Light color can be set with matte controls. Lights also have a shadow element for areas outside of the lighted area.



Light controls include positioning on X, Y and Z axis.

Light intensity, edge softness and the reflective value of the surface (Gloss) can be controlled in Appearance contols.

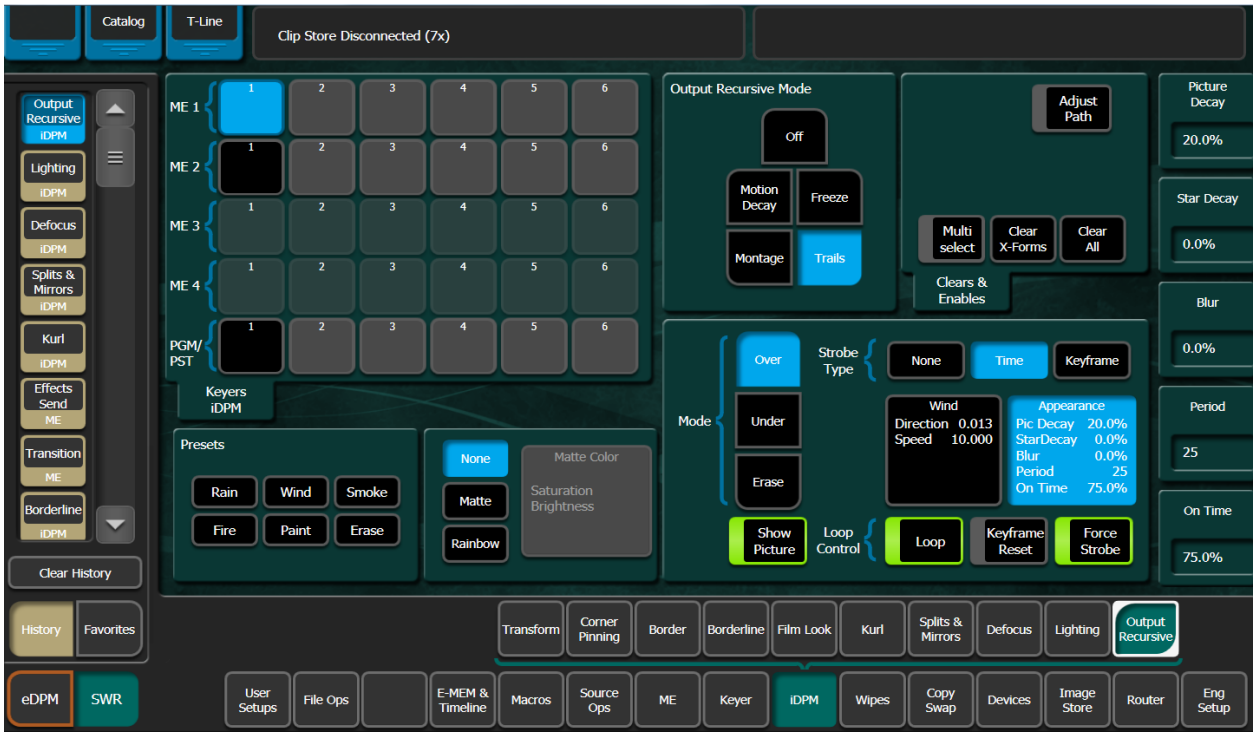


Each light has a dual color matte. Light color is the inside of the light and flare color is the outside edge color.

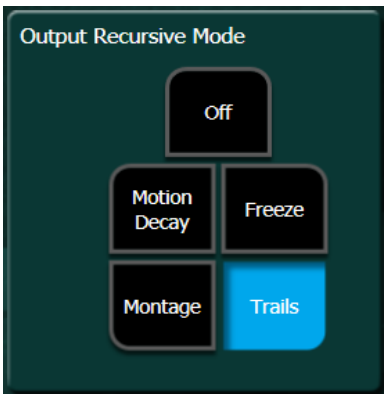
Each light can also have a shadow effect in areas that fall away from the lighted area. The shadow is also a matte and the amount of shadow can be controlled.

Output Recursive

Output Recursive uses a memory buffer to retain incoming video over a period of time set by a decay rate. The slower the decay the longer the memory retains older frames of video.



There are four recursive modes:

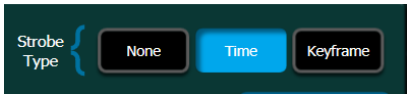


- Motion Decay -Memory retains video inside channel which can be set to decay over time. Effects makes video appear to decay in areas of motion.
- Freeze - Strobe freezes video at a timed rate and frozen frames decay over time.
- Montage - Freezes video frames to

the background at a timed rate. Frozen frames can be set to decay over time.

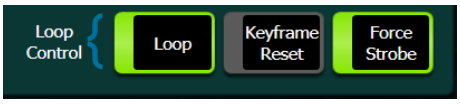
- Trails - Edge video can be set to move on the X and Y planes away from channel.

In freeze, montage and trails, effect can be applied over time or each time the effect reaches a key-frame when run.

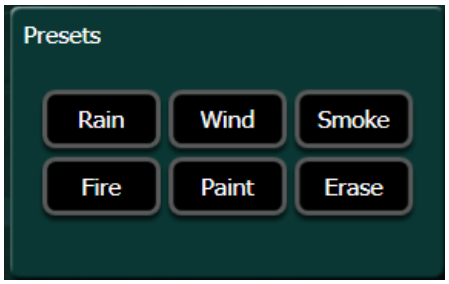


Other controls include:

- Loop - Enables/Disables recursive effect.
- Keyframe Reset - Clears any retained image from memory on selected key-frames.
- Force Strobe - Effect is applied whether channel is static or in motion.



Presets - Selectable buttons that set recursive values to create defined effect look.



Advanced DPM Exercises:

Section 16 – Advanced EMEMs

K- Frames E-MEM timeline structure is designed so that each of the component parts of an ME has its own independent timeline. This section discusses the use of independent timelines and partial key-frames to create more advanced level effects that allow for only the portions of the ME desired to be stored with the effect. In addition we'll discuss the use of Definable elements to increase the flexibility of E-MEM.

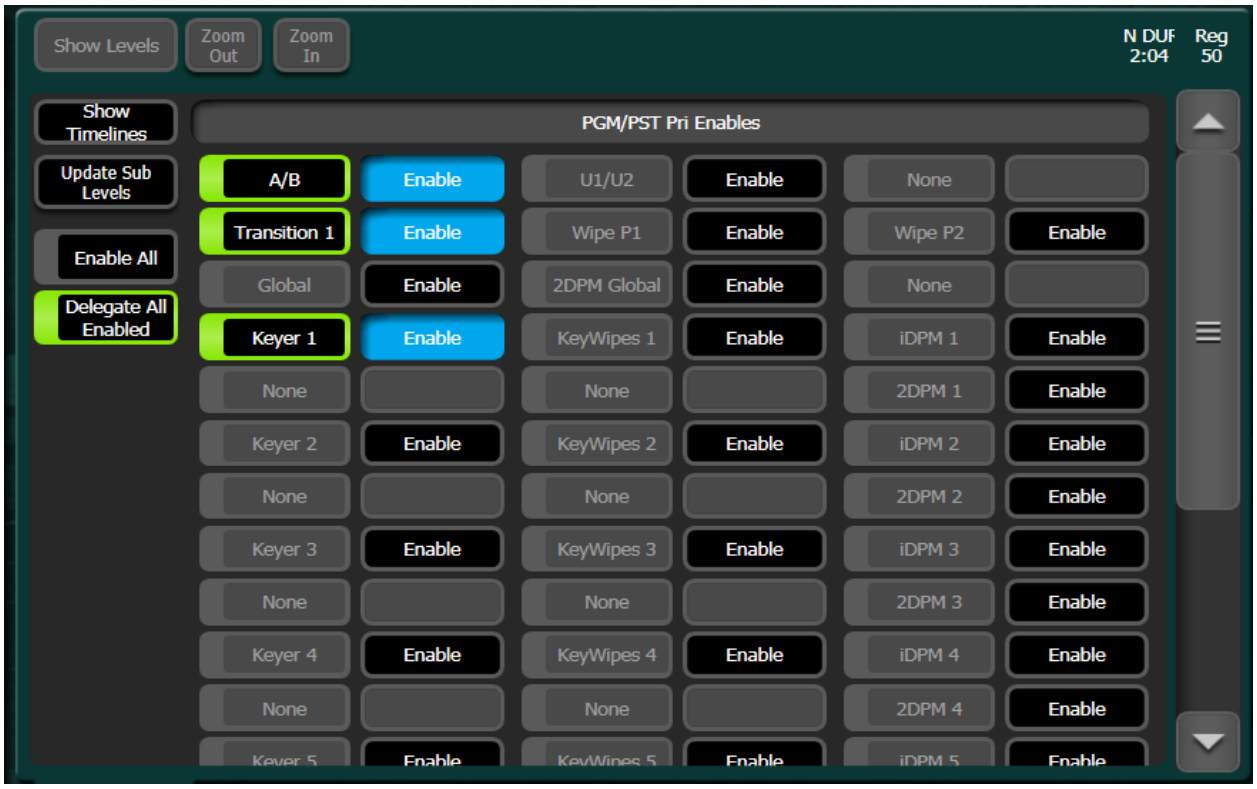
At the end of this section, you will be able to:

- ✓ Create an E-MEM that only includes keys you want controlled by the timeline. Leaving the others free to be transitioned on as desired.
- ✓ Build an E-MEM that can be run from a local E-MEM panel, but includes elements that are not part of that ME. (i.e. ImageStore, ClipStore, Pbus)

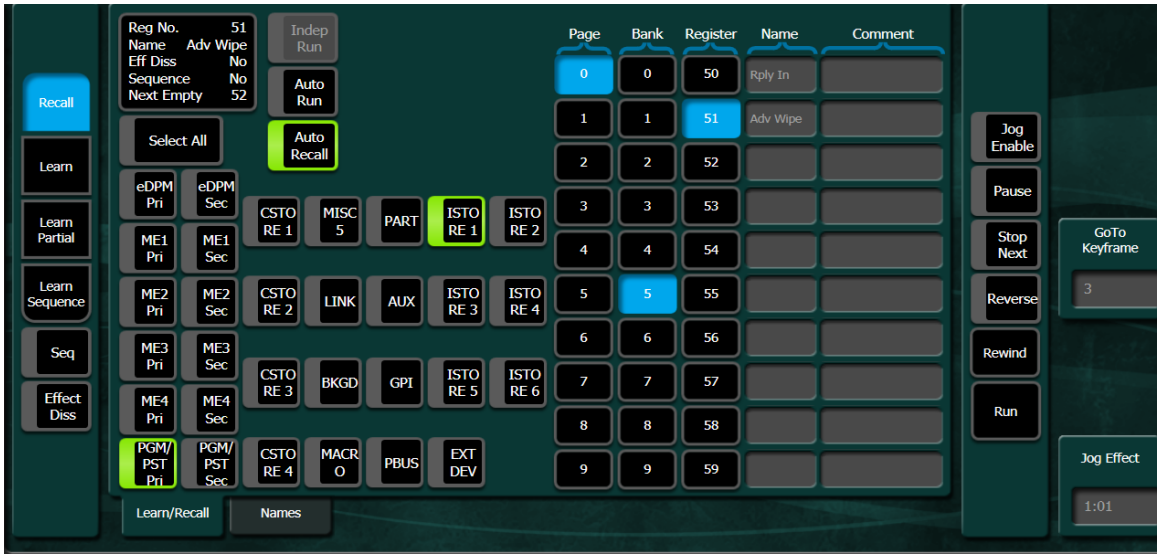
E-MEM Sub Levels

Each ME level of a Master E-MEM can be broken down into sub-levels of the MEs component parts. By creating E-MEMs that only save and recall necessary parts of an ME, un-saved parts are free for manual control as E-MEMs are recalled and timelines are run.

Below is the sub-level display of PGM ME. In the sub-level menu of Timeline Edit any sub-level with the highlighted blue enable box will be part of the E-MEM. The highlighted bright green button next to the enable is a delegate. Delegates can be turned on and off as E-MEMs are edited to enable/disable the edit function of that sub-level.



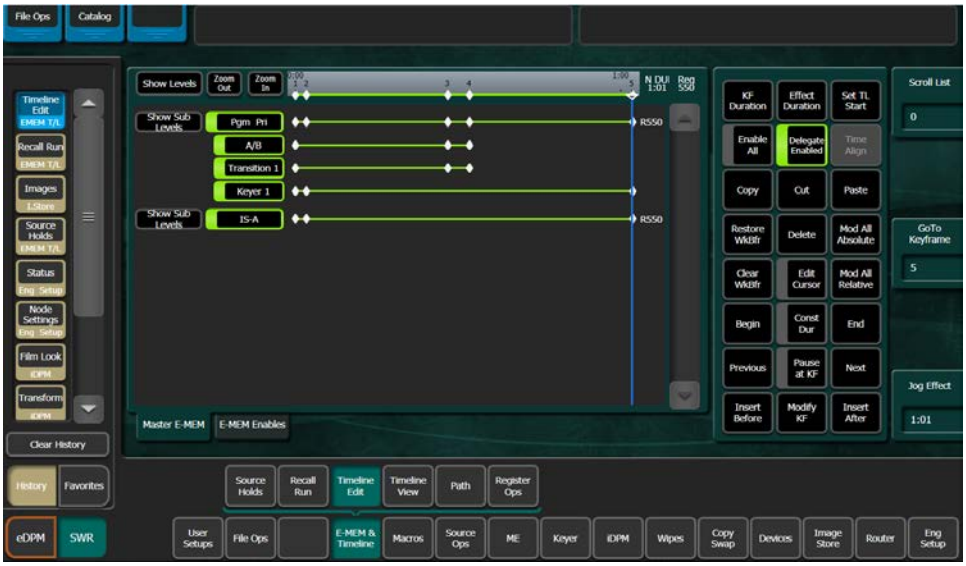
If any sub-levels are disabled while saving an E-MEM register, the effect must be learned either from the Recall/run menu by selecting Learn Partial or from the Master E-MEM panel by **pressing and holding** the Learn button while selecting the E-MEM register. From the menu select the Learn Partial button rather than the Learn.



If any sub-levels are disabled in any EMEM level, the learn button on the EMEM panel will turn BLUE as an indication that you need to hold down the Learn button to preserve these settings when learning the EMEM

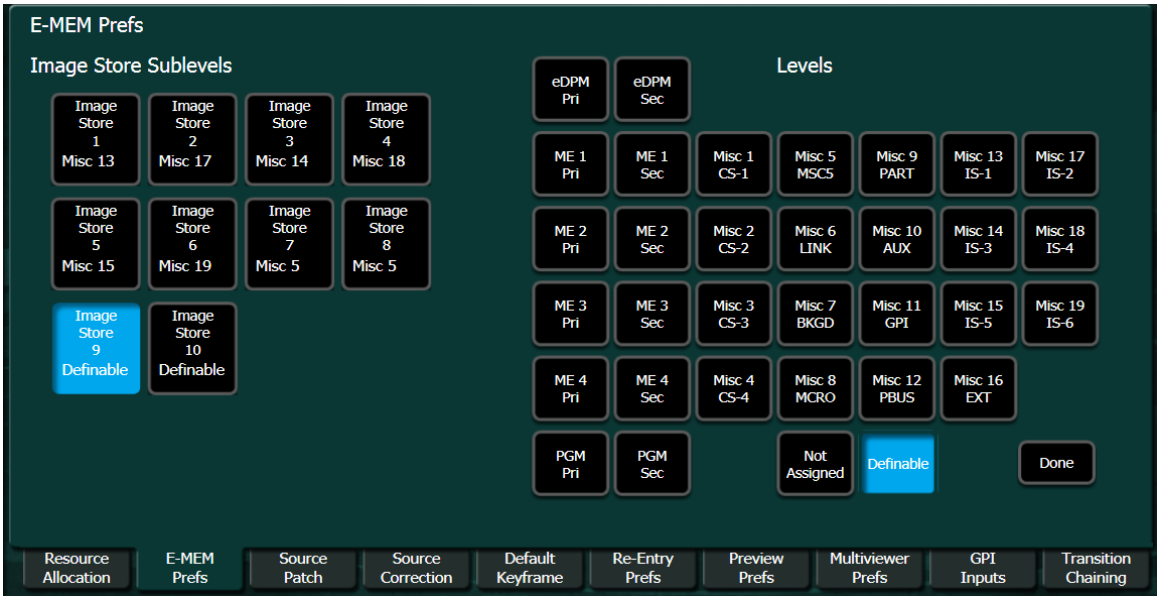
Partial Key-framing

In the timeline edit menu double clicking on the top level of an ME timeline will reveal the enabled sub-levels for that register. As the timeline is being edited the sub-levels can be delegated and undelegated, if delegate is on edit functions will affect the delegated levels. If undelegated edit functions will not be applied to that level.



Definable Elements

In the User Setup/Suite Prefs/E-MEM Prefs, elements can be set as definable. In the example below ImageStore channels 9 and 10 have been set as definable.



Definable levels can be linked to any Master E-MEM ME level on an effect by effect basis. Definable elements will appear in the sub-level delegations for an ME. If the definable

levels are enabled when the E-MEM is learned the definable elements will be triggered by that ME level for that register.

Advanced E-MEM Exercises: