CARBONITE

Carbonite Black Solo
Operation Manual

v2.0

ROSS

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You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience
   - offer the best product quality and support
2. Make Cool Practical Technology
   - develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at *solutions@rossvideo.com*.

David Ross

CEO, Ross Video

dross@rossvideo.com

Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right.* (*You may rent helicopters if necessary.*)

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Patents

Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; US D752,530 S; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

Important Regulatory and Safety Notices to Service Personnel

Before using this product and any associated equipment, refer to the "**Important Safety Instructions**" listed in the front of your *Setup Manual* to avoid personnel injury and to prevent product damage.

Symbol Meanings

Warning: *This symbol with the word "Warning" within the equipment manual indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.*

CAUTION: *This symbol with the word "Caution" within the equipment manual indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.*

Notice: *This symbol with the word "Notice" within the equipment manual indicates a situation, which if not avoided, may result in major or minor equipment damage or a situation, which could place the equipment in a non-compliant operating state.*

Warning Hazardous Voltages: *This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product enclosure that may be of sufficient magnitude to constitute a risk of shock to persons.*

ESD Susceptibility: *This symbol is used to alert the user that an electrical or electronic device or assembly is susceptible to damage from an ESD event.*

Important Safety Instructions

	Caution: Use only approved power cable(s). If you have not been provided with a power cable for the equipment or for any AC-powered option intended for the equipment, purchase a power cable that is approved for use in your country. Any power cable used must meet or exceed the voltage and current rating indicated on the equipment's electrical ratings label.
	Caution: The equipment's power supply's AC appliance inlets are the means to disconnect the product from the AC Mains and must remain readily operable for this purpose. To avoid the risk of electrical shock and to completely disconnect the apparatus from the AC Mains, remove all power supply cords from the product's AC appliance inlets prior to servicing.
	Install this product accordance to the User/Installation Manual installation instructions.

	Warning: This product includes one or more " ETHERNET PORT " which allow this product to be connected to a LAN. Only connect to networks that remain inside the building. Do not connect to networks that go outside the building.
	Notice: Electrostatic discharge (ESD) events can harm electronic components within a product. Under certain conditions, ESD may build up on your body or an object and discharge into other object, such as your products. To prevent ESD damage, you should discharge static electricity from your body before you interact with any internal electronic components, contained within a product. You can protect against ESD and discharge static electricity from your body by touching a metal grounded object (such as an unpainted metal grounded surface before you interact with anything electronic. When connecting external equipment and interconnecting cables it is a good idea to ensure both yourself, the equipment and cables have been discharged before connecting it to the product. When unpacking a static-sensitive component from its shipping carton, do not remove the component from the antistatic packing material until you are ready to install the component. Just before unwrapping the antistatic package, be sure to discharge static electricity from your body. When transporting a sensitive component, first place it in an antistatic container or packaging. Handle all electrostatic sensitive components in a static-safe area. If possible, use antistatic floor pads and work bench pads.

EMC Notices — Statement of Compliance

This product has been determined to be compliant with the applicable standards, regulations, and directives for the countries where the product is marketed.

Compliance documentation, such as certification or Declaration of Compliance for the product is available upon request by contacting *techsupport@rossvideo.com*. Please include the product; model number identifiers and serial number and country that compliance information is needed in request.

United States of America — FCC Part 15

This equipment has been tested and found to comply with the limits for a class A Digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a Commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice: *Changes or modifications to this equipment not expressly approved by Ross Video Ltd. could void the user's authority to operate this equipment.*

Canada

This Class A device complies with Canadian ICES-003 rules.

Cet appareil numérique de la classe A est conforme a la norme NMB-003 du Canada.

European Union

This equipment is in compliance with the essential requirements and other relevant provisions established under regulation (EC) No 765/2008 and Decision No 768/2008/EC referred to as the " New Legislative Framework " .

Warning: *This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.*

Australia / New Zealand

This equipment is in compliance with the provisions established under the Radiocommunications Act 1992 and Radiocommunications Labelling (Electromagnetic Compatibility) Notice 2008.

Korea

This equipment is in compliance with the provisions established under the Radio Waves Act.

This device is a business-use (Class A) EMC-compliant device. The seller and user are advised to be aware of this fact. This device is intended for use in areas outside home.

International

This equipment has been tested under the requirements of CISPR 22:2008 or CISPR 32:2015 and found to comply with the limits for a Class A Digital device.

Notice: *This is a Class A product. In domestic environments, this product may cause radio interference, in which case the user may have to take adequate measures.*

General Handling Guidelines

- Careful handling, using proper ESD precautions, must be observed.
- Power down the system before PCB removal.

A Word About Static Discharge

Throughout the many procedures in this manual, please observe all static discharge precautions.

CAUTION: *Avoid handling the switcher circuit boards in high static environments such as carpeted areas, and when synthetic fiber clothing is worn. Touch the frame to dissipate static charge before removing boards from the frame, and exercise proper grounding precautions when working on circuit boards. Exercise proper grounding precautions when working on circuit boards.*

Warranty and Repair Policy

Ross Video Limited (Ross) warrants its switchers and related options, to be free from defects under normal use and service for a period of ONE YEAR from the date of shipment. Fader handle assemblies are warranted for the life of the product. If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be supplied free of charge while defective items undergo repair. Return packing, shipping, and special handling costs are the responsibility of the customer.

Software upgrades for switchers may occur from time to time, and are determined by Ross Video. The upgrades are posted on the Ross Video website, and are free of charge for the life of the switcher.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross Video's notification of change of ownership.

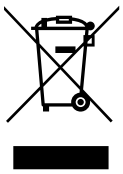
Environmental Information

Waste Electrical and Electronic Equipment Directive (WEEE Directive)

The equipment that you purchased required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.



If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performances of our products.

Use of Hazardous Substances in Electrical and Electronic Products (China RoHS)

Ross Video Limited has reviewed all components and processes for compliance to:

" Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products " also known as China RoHS.

The " Environmentally Friendly Use Period " (EFUP) and Hazardous Substance Tables have been established for all products. We are currently updating all of our Product Manuals.

The Hazardous substances tables are available on our website at: *http://www.rossvideo.com/about-ross/company-profile/green-practices/china-rohs.html*

电器电子产品中有害物质的使用

Ross Video Limited 按照以下的标准对所有组件和流程进行了审查:

" 电器电子产品有害物质限制使用管理办法 " 也被称为中国RoHS。

所有产品都具有 " 环保使用期限 " (EFUP) 和有害物质表。目前，我们正在 更新我们所有的产品手册。

有害物质表在我们的网站:
http://www.rossvideo.com/about-ross/company-profile/green-practices/china-rohs.html

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Technical Support

At Ross Video, we take pride in the quality of our products, but if a problem does occur, help is as close as the nearest telephone.

Our 24-Hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support are provided directly by Ross Video personnel. During business hours (eastern standard time), technical support personnel are available by telephone. Outside of normal business hours and on weekends, a direct emergency technical support phone line is available. If the technical support personnel who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. Our Technical support staff are available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

Supporting Documentation

Ross Video provides a wide variety of helpful documentation for the setup and support of your equipment. Most of this documentation can be found either on the Product Resources disk that came with your equipment, on the Ross Video website (*www.rossvideo.com*), or on the Ross Video Community site (*discussions.rossvideo.com/*)

- **Carbonite Online Help for DashBoard** — visit *help.rossvideo.com/carbonite*
- **Operation Manual (4840DR-110)** — operational instructions for Carbonite Black Solo
- **Setup Manual (4840DR-110)** — setup and configuration instructions for Carbonite Black Solo
- **Carbonite Black Solo QuickStart Poster (4840DR-200)** — setup information and specifications for the Carbonite Black Solo
- **Upgrade Notes (4840DR-500)** — upgrade instructions, new features, and known issues for a given software version

- **Software Licenses (4802DR-502)** — third-party software licences
- **Carbonite Multilingual Safety Information (4802DR-503)** — translated product safety information
- **Contro Panel Mounting (4840DR-300)** — desk and rack mounting instructions
- **SideBox Installation (4802DR-304)** — installation and mounting instruction for SideBox module
- **Auxiliary Control Panel Installation (4802DR-305)** — installation and mounting instruction for remote aux panel (CPS-AUX-053B)
- **GVG100 Supported Command (4802DR-401)** — connection and GVG100 commands supported by the switcher
- **RossTalk Commands (4802DR-403)** — supported commands using RossTalk protocol
- **Device Setup Sheets (4802DR-6xx)** — setup information for controlling external devices from the switcher
- **Robotic Camera Control (4802DR-131)** — overview of the operational interface when controlling a robotic camera from the switcher
- **Audio Mixer Control (4802DR-132)** — overview of the operational interface when controlling an audio mixer from the switcher
- **Video Server Control (4802DR-133)** — overview of the operational interface when controlling a video server from the switcher
- **Configuration Guide (4840DR-100)** — product description and marketing codes for switchers and options
- **CarboNET Installation (4805DR-100)** — installation instructions for the Carbonite PMC translator.

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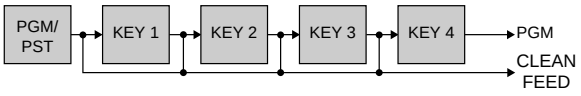
Features

Thank you for buying a Ross Video Carbonite Black Series Multi-Definition Live Production Switcher. The Carbonite Black series builds on the Ross Video reputation for designing switchers that fit the needs of any production environment.

Clean Feed Output

Clean feed is typically used for bilingual and live-to-tape productions. It provides a second Program output that is derived from a different location than the standard program output. A frequent application is the recording of shows for later airing without call-in phone numbers inserted.

The clean feed output can come from before or between the keyers.



Custom Controls

This feature brings the power of macros to the switcher operator. Button presses, menu selections, event commands, or even the switcher state can be recorded to a custom control with pauses or holds between the events. A simple button press can play these events back again. Step through complex show openings as easily as pressing Custom Control buttons 1, 2, then 3.

Device Control

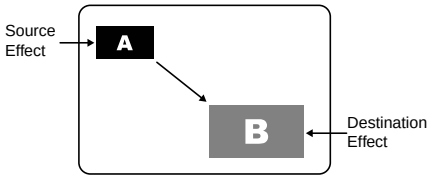
The switcher can control a number of external devices, such as video servers and robotic cameras. For a complete list of supported devices, and information on how to set up and control these devices, visit the Ross Video website (*rossvideo.com/production-switchers/carbonite/interface-list*).

DVE (Fly Key)

The advanced 2D DVE comes standard with each switcher, and can be used for performing over the shoulder, or picture in picture shots. This allows all key types to be zoomed, cropped, and repositioned horizontally and vertically to create the look you want, or you can use one of the useful pre-built 2D effects to perform 2D background transitions.

Effects Dissolve

The Effects Dissolve feature allows you to interpolate from one memory to another using a memory recall. The switcher will interpolate from the starting memory to the destination memory, creating a smooth, two key frame effect.



Only elements such as clip level and pattern position can be interpolated in the effects dissolve. Other elements, such as crosspoint selection, pattern, and next transition data are recalled first, and then the switcher will slew to the recalled memory.

An effects dissolve can be performed on as many elements and MEs as required, based on the memory that is being recalled.

General Purpose Interface (GPI)

The switcher is equipped with 24 GPI I/Os that can be assigned as either an input or output independently.

The GPI inputs allow the switcher to interface with peripheral equipment such as editors. Each GPI input can be used to perform simple editing and switcher functions such as fade to black or an auto transition.

LiveEDL

Edit Decision Lists (EDL) are files used by non-linear editing (NLE) suites to aid in post-production. Your switcher can capture EDL data in a file that you load into your NLE suite.

A Ross® GearLite TSC-9902 must be connected to the serial port of the switcher to provide timecode for the EDL.

For information on using the LiveEDL feature, visit the Ross Video Website (*rossvideo.com*).

Matte/Wash Generator

A matte generator and complex wash generator per ME, capable of multi-color washes comes

standard. Any one of the color generators can be assigned to MATTE, or wipe pattern edges. An additional simple color generator is available for an Aux Bus.

ME Effect System

The ME (Multi-level Effect) systems are standard. The number of MEs depends on the chosen switcher model.

Each ME provides 4 keyers supporting pattern mask, box mask, self-key, linear key, and an UltraChrome advanced chroma key for each ME and is available to each keyer.

Media-Store

Up to 4 independent channels of still/animations are available switcher-wide, allowing for thousands of full screen stills and logos that can be cached and used on the switcher.

Media-Store provides 8 GB of cache. The number of images cached increases considerably when smaller, non-full screen images like logos are loaded from USB.

MediaManager

The MediaManager allows you to easily manage stills and animations on the switcher in a graphics interface.

MediaWipe

A MediaWipe allows you to use an animation from the Media-Store to play over a background or key transition. When the transition starts, the switcher plays the selected animation over top of the background and keys that are being transitioned. A cut, dissolve, wipe, or DVE wipe is then performed layered under the animation to bring up the next shot when the animation ends.

MemoryAI Recall Mode

We take the guessing out of memory recalls by ensuring that a memory recall will not affect what is currently on-air. MemoryAI uses the content of the memory to configure the Next Transition area and Preview bus for the background and keyers so that the next transition takes the same sources on-air that were on-air in the memory.

For example, store a memory that has a key on-air with CAM1 and CAM2 selected on the background. When this memory is recalled normally, it pops the same key on-air with CAM1 and CAM2 on the background. When the memory is recalled with MemoryAI turned on, CAM1 is selected on the preset bus, and CAM2 is selected on a key that is not on-air. The transition area is then set up for a background transition to bring CAM2 onto the background, take any on-air keys off, and take a key on-air with CAM1.

Memory System

Storage for 100 complete switcher snapshots per ME, MiniME™, and MultiScreen comes standard with all switchers. All of these memories can be stored to a USB media drive, providing custom tailored memories for every operator and every show.

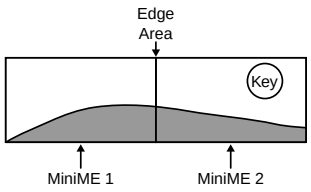
MiniME™

The MiniME™ is an additional ME that is provided with the switcher to perform basic dissolves and cuts. Each MiniME™ has 2 keyers, background, and preset buses. Unlike a full ME, the MiniME™ only supports dissolves and cuts, restricts key 1 to DVE keys only, and has no preview output. Key 2 on a MiniME™ is the same as an ME keyer. The MiniME™ shares all the same sources as the ME.

MultiScreen

The switcher comes standard with 1 integrated MultiScreen generator. The MultiScreen can break a scene into up to 2 outputs that can be sent to independent projectors or displays to make a unified picture.

Each screen in the MultiScreen output uses a MiniME™ to create the background and key of the output.



Note: *No edge blending is available.*

MultiViewer

The MultiViewer allows you to view up to 10 video sources, in 23 layouts, from a single output BNC. Any video source on the switcher, including ME Program, Preview, and Media-Store channels, can be routed to any box on the MultiViewer. All boxes on the MultiViewer output include mnemonic source names and red and green tallies.

The Carbonite Black Solo comes standard with 1 broadcast-quality integrated MultiViewer generator. Only one MultiViewer output is supported at a time from the switcher on output BNC 5, or HDMI OUT1.

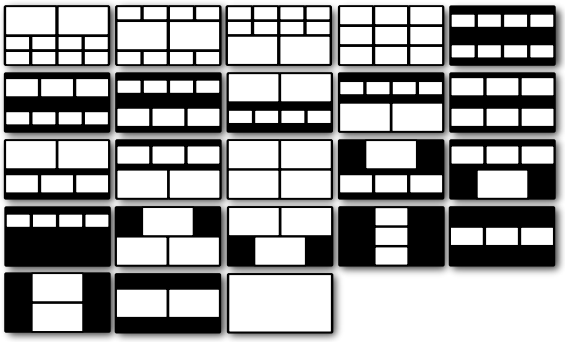


Figure 1: HD Layouts

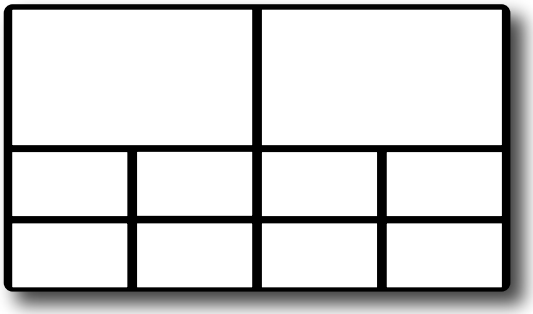


Figure 2: MultiViewer Grid

Pattern and Matte/Wash Generators

A single pattern generator dedicated to wipes comes standard, and is equipped with 10 classic wipes. Most wipes can be rotated, bordered, multiplied, aspectized, and repositioned.

Tally Outputs

The switcher has 16 assignable tally relays. Each tally can be assigned to any number of combinations of input and output or bus.

UltraChrome

The UltraChrome chroma keyers uses advanced video processing technology to provide exceptional blue spill reduction and clean edges, even with difficult source material. Glass, smoke, translucent materials, and natural shadows are handled superbly.

There is 1 floating Chroma Key.

Control Panel Overview

This chapter provides a basic introduction to the control panel, including an overview of the different areas on the control panel, using the menu system, as well as an introduction to the various ports, and video buses.

If you have the Carbonite Black 109 there is no integrated panel. The DashBoard control system provides an interface to the menu system that allows you to control the switcher without the use of a panel.

Control Panel Top

The Carbonite Black Solo and CB9 control panel are made up of a number of distinct areas that control different aspects of the switcher.

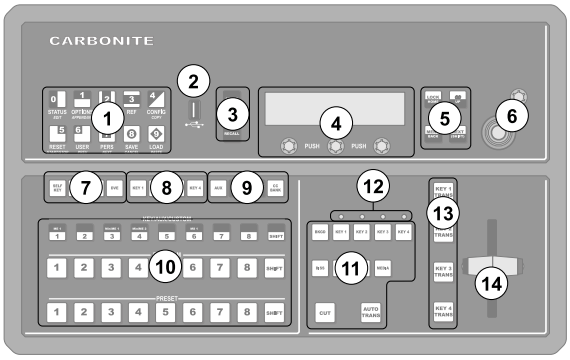


Figure 3: Carbonite Black Solo Panel Top

1. **Pattern/Menu Selection Buttons** — These buttons are used to select a pattern for a wipe transition, or to access switcher menus.
2. **USB** — The USB port on the control panel is used for upgrades and media files. It is not implemented for the CB9.
3. **Memory Store/Recall Buttons** — These buttons are used to store or recall memories.
4. **Main Display and Selection Knobs** — The three selection knobs are used to adjust and select various menu items or values. The knobs are rotated to choose a value, and pressed to make a selection. The main display shows the menu system of the switcher.
5. **Menu Navigation Buttons** — These buttons are used to access switcher menus, move back and forth between menus.
6. **Positioner** — The positioner is used to control some wipe, border, and wash parameters, as well as some external devices. Along with the 2D positioner is a knob used for additional input.
7. **Key Type Buttons** — These buttons are used to choose the type of key you want to use. Use these buttons with the key select buttons to select the keyer, and the type of key you want to use.
8. **Keyer Select Buttons** — By default these user select buttons are used to select which keyer the panel is assigned to. Each button can be assigned to a different selection.
9. **User Select Buttons** — These user select buttons are used to choose which keyer, aux bus, MiniME™, ME, or custom control bank the panel is assigned to.
10. **Video Source Buses** — These buses are broken into the Preset, Program, and Key/Aux/Custom Control buses. The Preset bus is the bottom row of source buttons and selects the video source that will be taken on-air with the next background transition. The Program bus is the middle row of source buttons and selects the video source that is currently on-air on the background. The Key/Aux/Custom Control bus is the top row of source buttons and selects the video source that is chosen on the selected keyer or aux bus, or the custom control that is chosen on the selected custom control bank.
11. **Transition Area** — These buttons are used to select which video source buses will be included in the next transition and what type of transition will be performed. The Cut and Auto Trans buttons are used to perform transitions.
12. **On-Air Lights** — These lights glow red to show which keyers are currently on-air.
13. **Keyer Transitions Buttons** — These buttons are used to perform auto transitions on keys directly, without having to include them as part of the next transition.
14. **Manual Transition Fader Bar** — The fader is used to manually control the rate of a transition. What is being transitioned, and the type of transition, are controlled from the Transition Area.

Control Panel Rear

The Carbonite Black Solo control panel has a number of ports and connectors that are used for power, signal input/output, and external communications.

Note: *The Carbonite Black 109 has the same ports as the Carbonite Black Solo.*

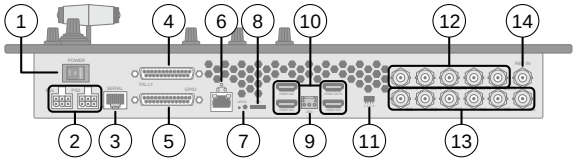


Figure 4: Carbonite Black Solo Panel Rear

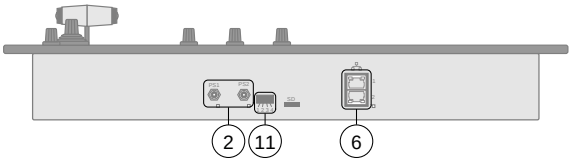


Figure 5: CB9 Panel Rear

1. **Power Switch** — turns the switcher on or off.
2. **Power Ports** — connect the primary and secondary power supplies to the switcher.
3. **Serial Port** — supports the RS-422 transmission standard for external device control.
4. **Tally Port** — provides 16 assignable tally pins.
5. **GPI Port** — provides 24 GPI pins that can be used as inputs or outputs.
6. **Ethernet Port** — supports standard ethernet for device control and connecting to DashBoard. Ethernet port 2 is not available on the CB9 at this time.
7. **Upgrade Switch** — used to force an upgrade of the switcher.
8. **microSD™ Card Slot** — used for forced upgrades from a backup software version on the microSD™ card.
9. **AES Port** — provides audio output for the Media-Store and MediaWipe channels.
10. **HDMI™ Ports** — provide 3 HDMI inputs and 1 HDMI output.
11. **DIP Switches** — used to set the switcher to the default IP address.
12. **Output BNCs** — provide 5 configurable SDI outputs.
13. **Input BNCs** — provide 6 configurable SDI inputs.
14. **Reference In** — supports house sync using selectable tri-level sync or analog black burst.

Menu System

The menu system is accessed either by pressing **MENU** and the Menu Selection button for the menu you want to access, or through an auto-follow for selected functions.

Menu Navigation

The menu system allows you to access all of the setup and configuration information for the switcher. In some cases, a menu can be accessed either by pressing the **MENU** button and navigating to the menu, or by double-pressing a button on the control panel.

1. Press **MENU**. The Pattern/Menu Selection buttons light up.
2. Press the Pattern/Menu button for the menu you want to navigate to. The first page of the menu is shown on the display.
3. Press **NEXT** to navigate to the next page of the current menu. If the **NEXT** button is not lit, there are no other pages to the current menu.

Tip: *If you want to return to the first page of a menu, press and hold **NEXT** and press **HOME**. You can also navigate up one level in a menu tree by pressing and holding **NEXT** and pressing **UP**.*

Auto-Follow Menus

The switcher navigates to auto-follow menus automatically when you select certain functions on the switcher. For example, when you select a key the key adjustment menu is shown on the display.

Auto-Follow functionality also applies to video source buttons that have external devices assigned to them. If you select a source button that an external device is assigned to, the peripheral control menu for that specific device is shown.

Switcher Basics

Before using your switcher, it is important to become familiar with how audio and video is handled by the switcher. Some important concepts includes video sources, video layering and re-entry, and preview.

Audio and Video Processing

Video and audio signals are processed and passed through the switcher in different ways, depending on how the switcher is being used or is set up. A better understanding of how the switcher is processing these signals help you to achieve the production you want.

Video Processing and Flow

Video is processed in a number of blocks in the switcher. After video comes into the switcher, the frame synchronizers / format converters are applied (depending on the frame you have). At this point any required color correction is also applied. After input the video signal is routed through the crosspoint. The crosspoint can route any input to any output for straight switching, or to the video processor and DVE and back for video manipulation. Just before the video signal is sent to the output, the processing of the ancillary data is performed.

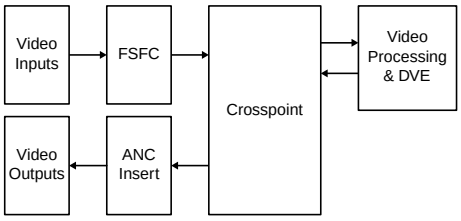


Figure 6: Video Flow Through the Switcher

Audio Processing and Flow

Unlike video, the switcher does not handle audio signals independently. An audio signal is embedded into the ancillary data of a video signal before is comes into the switcher. As the signal comes into the switcher and is manipulated, you must ensure not to perform an operation that will force the ancillary data to be stripped.

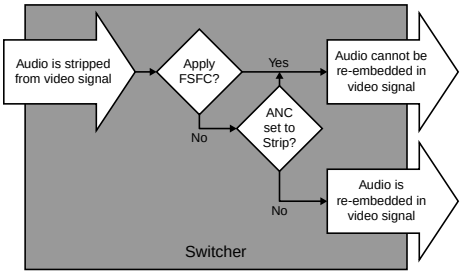


Figure 7: Audio Flow Through the Switcher

The following restrictions apply to ancillary data being included in the output:

- All ME program buses pass ancillary data.
- MultiViewer outputs do not include any ancillary data.
- MiniME™ and MultiScreen outputs do not include any ancillary data unless an ME with ancillary data is re-entered onto the background bus.
- ME Preview does not include ancillary data unless the background is not selected as part of the next transition.
- A MiniME™ or MultiScreen can include ancillary data if an ME is re-entered onto the background.
- Any format conversion on the input video signal.
- Setting ancillary data to be stripped.

When you are performing a transition, or keying, the embedded audio is carried in the ancillary data of the background video signal. The ancillary data from the background source is replaced with the ancillary data from the preset source, and the ancillary data for keyed sources is stripped.

Video Sources

The switcher has access to two basic types of video sources, external and internal. All video sources can be assigned to video source buttons. By pressing a video source button on a bus, the video source assigned to that button is selected on that bus.

- **External** — External video sources come from cameras, video servers, character generators, or other external devices into the switcher.
- **Internal** — Internal video sources come from internally generated video, such as Media-Store channels, matte color, and black.

To Select a Source on a Bus

To select a video source on a bus, you must identify the ME, MiniME™, or Aux and bus you want to assign a video source to, and then press the source button you want to select on that bus.

The user buttons on the control panel allow you to switch between any ME, MiniME™, Aux Bus, or MultiScreen.

*Tip: Source selection can also be made from the **Buses** tab on the Live Assist node in DashBoard. Key bus source selections can also be made using the **Key Source** button on the **Keyers** tab on the Live Assist node in DashBoard.*

1. Select the ME, MiniME™, Aux, MultiScreen, or keyer that you want to select a source on.

   Tip: The user select buttons can be assigned to select any bus on the switcher. If you change what the button is assigned to you should make sure to change the text on the button cap.

   - **Key** — press one of the **KEY *X*** buttons to select that keyer.
   - **ME** — press **ME**.
   - **MiniME™** — press and hold **MiniME/MS** and press the button on the key bus that corresponds to the MiniME™ you want to select. Source button **1** selects MiniME™ 1 and button **2** selects MiniME™ 2.

     *Tip: You can also press and hold **ME** and press the button on the key bus that corresponds to the MiniME™ you want to select. Source button **3** selects MiniME™ 1 and button **4** selects MiniME™ 2.*

   - **Aux** — press and hold **Aux** and press the button on the key bus that corresponds to the Aux you want to select.
   - **MultiScreen** — press and hold **MiniME/MS** and press the button on the key bus that corresponds to the MultiScreen you want to select. Source button **6** selects the MultiScreen.

   Tip: If you want to select the MultiScreen bus directly, you must re-assign one of the user buttons to MultiScreen.

2. Select the bus you want to select a source on.

   Note: The user select buttons can be assigned to specific keyers or aux buses or they can be configured so that you can press and hold a single button and use the key bus to select the keyer or aux bus.

   Note: Ensure that the source selected on the bus you want to enter onto the ME, MiniME™, Aux, chroma key, or keyer is valid for that destination. If the source is not valid, you will not be able to select the bus on the ME, MiniME™, Aux, chroma key, or keyer.

   - **Program Bus** — use the PROGRAM bus.
   - **Preset Bus** — use the PRESET bus.
   - **Key Bus** — press **KEY *X*** to assign the KEY/AUX/CUSTOM CONTROL bus to that keyer.
   - **Aux Bus** — use the KEY/AUX/CUSTOM CONTROL bus.

3. Select the source you want to use on the bus. Use the **Shift** button to access additional sources.

Video Layering

How video is layered in the output of the switcher depends on what keyers are on-air and how MiniME™ outputs are re-entered.

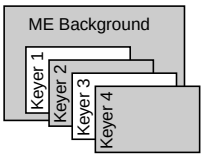


Figure 8: Video Layering

Tip: You can select a MiniME™ on an ME or different MiniME™ to re-enter it. Up to two MiniME™ re-entries, including an ME is allowed.

Re-Entry

Re-entry is the term used to describe the process of selecting a MiniME™ on an ME.

Keep the following in mind when working with re-entries:

- You cannot re-enter an ME, or the Clean Feed of an ME, into itself.

Re-Entry Timing

To maintain proper video timing through the switcher, each MiniME™ exists in a specific timing window relative to the ME. These windows restrict what can be re-entered into what.

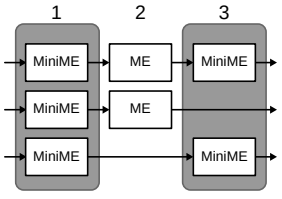


Figure 9: MiniME™ Timing Windows

FlexiClean Clean Feed

FlexiClean provides a second program output that is derived from a different location than

the standard program output. A frequent application is the recording of shows for later airing without call-in phone numbers inserted.

The clean feed output can come from before or between the keyers.

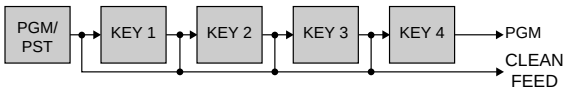


Figure 10: Clean Feed Modes

Video Preview

Video preview allows you to use an additional monitor to preview what the next shot is going to be. The preview for an ME shows what is selected for the next transition on that ME. This includes the keys and background video sources that will be on-air after the next transition.

MultiViewer

The MultiViewer allows you to view up to 10 video sources, in 23 layouts, from a single output BNC. Any video source on the switcher, including ME Program, Preview, and Media-Store channels, can be routed to any box on the MultiViewer. All boxes on the MultiViewer output include mnemonic source names and red and green tallies.

ME Copy

You can copy the entire contents of an ME or MiniME™ to another ME or MiniME™. The entire contents of the destination is replaced with the contents of the source.

When you copy an ME, the switcher tries to assign resources to the destination ME to match the source ME. If these resources are not available, the switcher may need to steal resources. If you are performing the copy from the control panel you will be asked to confirm the stealing of any required resources. From DashBoard you will not be asked and the required resources will be stolen.

Note: *You cannot perform an ME copy from the control panel.*

To Copy an ME Using DashBoard

1. Click **Navigation Menu** > **Live Assist** > **ME Copy**.
2. Click a **Source** button to select the source you want to copy.
3. Click a **Destination** button to select the destination that you want to copy to.
4. Click **Copy**.

DashBoard

The DashBoard control system allows remote access to multiple pieces of Ross Video equipment, including openGear® cards, Carbonite production switchers, BlackStorm video servers, and ACID UltraChromeHR cameras.

Download and install the latest version of DashBoard from *http://www.opengear.tv/*. Review the documentation that comes with DashBoard for information on installing and launching DashBoard.

Note: *Carbonite requires DashBoard v8.5.0, or higher.*

Tip: *For detailed instructions on using DashBoard with Carbonite, navigate to the online help at help.rossvideo.com/carbonite.*

Status

The Status node provides a read only overview of the state of a number of important switcher components and equipment.

The following items are available on the **Status** node:

- **Software Version** — the current version of the software running on the switcher
- **Serial Number** — the serial number of the frame
- **Engine Type** — the model of frame
- **Video Mode** — the video format that the switcher is operating in
- **Video Reference Source** — the source of video reference to the switcher
- **External Reference** — the video format of the external reference, if connected
- **Reference** — status of whether the switcher has locked to the reference format
- **Field Dominance** — the switching field
- **Ancillary Mode** — how ancillary data is handled (strip or pass)
- **Temperature** — status of the ambient temperature in the frame
- **CPU Temperature (C)** — the temperature of the frame CPU in degrees Celsius
- **FPGA Temperature (C)** — the temperature of the frame FPGA in degrees Celsius
- **RossTalk Server Port** — the network port that the switcher is listening on for RossTalk commands.
- **TSL UMD Server Port** — the network port that the switcher is listening on for TSL UMD commands.
- **Allocated DVEs** — where DVE channels are allocated in the switcher.

Configuration

The Configuration node provides a graphical interface to switcher settings such as Reference, Inputs, Outputs, and MultiViewer. You can switch between the different configurations by selecting the tabs at the bottom of the DashBoard window.

Live Assist

The Live Assist node provides a graphical interface to functions such as keying, transition, and memory settings of the switcher. You can switch between the different settings by selecting the tabs at the bottom of the DashBoard window.

PaneLINK

Live Assist can be set to either mirror actions on the switcher control panel, or only show actions on the currently selected ME and Keyer on the current tab. For example, with **PaneLINK** turned on, pressing **KEY 1 SEL**, **WIPE**, and then **SELF KEY** causes Live Assist to show the **Keyers** tab, the **Trans** tab, and then the **Keyers** tab again. With **PaneLINK** turned off, Live Assist does not switch between tabs.

The **PaneLINK** button is located at the bottom right corner of the Live Assist window.

Custom Controls

The Custom Control node provides a graphics interface for recording, editing, and running custom controls.

MediaManager

The MediaManager node allows you to connect to the MediaManager web interface from within DashBoard.

Tip: *You can either launch the MediaManager directly using the switcher IP address, or you can access it using the MediaManager node in DashBoard. If you are logging into MediaManager from DashBoard, you must have Microsoft® Internet Explorer® 10, or higher, installed.*

MediaManager
Navigation Menu

ViewControl

The ViewControl interface through DashBoard allows you to coordinate the control over the Carbonite switcher, XPression Live Graphics System, and the BlackStorm Playout Server all through a touchscreen interface. Through ViewControl you can select sources, perform transitions, and run custom controls.

Keep the following in mind when working with ViewControl

- ViewControl requires DashBoard 5.1, or later.
- Only the sources assigned to the MultiViewer boxes are available for direct selection. Custom controls can be used to select other sources.
- A running custom control, or a custom control that is paused or held, are not shown on the ViewControl interface.
- The control panel does not follow key and bus selections made on ViewControl.

ViewControl Overview

The ViewControl interface provides quick access to a number of custom control buttons as well as the transition functionality of the switcher.

Custom Control Buttons

The custom control buttons can be assigned to any custom control on the switcher and given unique names and icons. The button groups on the left (shown below) are organized into groups, or tabs.

Figure 11: Custom Control Buttons

Related information

Custom Control Button Setup on page 22

Bus Selection Buttons

The bus selection buttons allow you to select the different buses on different ME outputs of the switcher.

To select a source on a bus, press the bus selection button, and press the MultiViewer box for the source you want to select. For example, to select camera 1 on ME 2 Key 3, press **M2 K3** and then press the box for the camera 1 source.

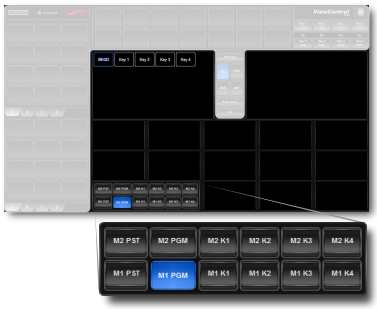


Figure 12: Bus Selection Buttons

Keyer Transition Buttons

The Keyer Transition buttons allow you to perform a cut or dissolve of the keys on the Program bus, without having to include them as part of the next transition. These buttons act the same as the Keyer Transition Buttons on the control panel.

Tip: *The Cut buttons turn red when a key is on-air.*

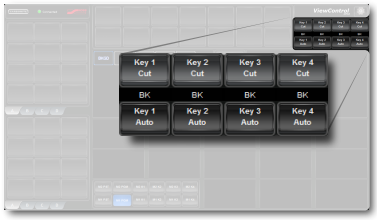


Figure 13: Keyer Transition Buttons

Transition Buttons

The transition buttons allow you to select what is included in the next transition, what type of transition is to be performed, and perform the transition. These buttons function similarly to the buttons in the Transition Area on the control panel.

Tip: *The Transition Buttons on ViewControl only control the transition area of ME 2. To control ME 1 you can create a custom control to perform the effect you want and assign it to one of the custom control buttons.*

Figure 14: Transition Buttons

Custom Control Button Setup

When you assign a custom control to a button, you can give that button a unique name and assign an icon to it. The images for the icons must be on a USB drive in the frame when you assign them. Once assigned the icons are stored in the frame and the USB can be removed. Each of the tabs can be named.

The configuration of the tabs and custom control assignment to buttons are stored with the switcher personality settings.

To Set up the Custom Control Buttons

If you want to assign icons to the custom control buttons, you must have the images you want to use for the icons stored on a USB drive installed in the frame. After the images have been assigned you can remove the USB drive.

1. Click the icon in the upper right corner of the window.

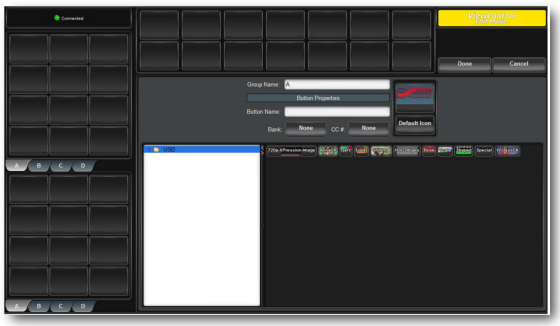


Figure 15: ViewControl Edit Button

2. Press the custom control button that you want to set up.
3. Enter a name for the button in the **Button Name** field.

> ***Tip:*** *You can change the name of a tab by selecting a button on the tab and then entering a new name in the* ***Group Name*** *field.*

4. Click the **Bank** button and select the number of the bank you want to select a custom control from.
5. Click the **CC *X*** button and select the number of the custom control you want to assign to the button.
6. Navigate the files on the USB drive and click the image you want to assign as the icon for the button.

> ***Tip:*** *Press* ***Default Icon*** *to switch back to the default icon.*

7. Set up additional custom control buttons as required.
8. Press **Done** when you are done setting up custom control buttons.

Transitions

Transitions are used to change the background video and take keys on and off-air. A transition can include any combinations of background and keyers for an ME. The background and each keyer can be transitioned independently and at the same time using the dedicated **KEY TRANS** buttons.

Performing Transitions

What you can include in the transition, and the type of transition you can perform, depend on the number of media resources you have, and if you are performing a background and keyer transition at the same time.

Keep the following in mind when performing transitions:

- If any of the sources going on-air have an assigned GPI output, the GPI output is triggered and the switcher then waits the configured pre-delay interval before performing the transition. If you perform a transition with the fader handle, the GPI output is triggered but the pre-delay interval is ignored.
- If any of the sources going on-air are assigned to a video server, you can have the video server play when the source is taken on-air by using the **RlClip** knob to select **On**.
- If any of the sources going on-air are assigned to a video server, the switcher waits for the configured pre-delay interval before performing the transition. If you perform a transition with the fader handle, the pre-delay interval is ignored.
- If the fader is moved during an auto transition, control of the transition is passed to the fader. You must complete the transition with the fader. This allows you to override any auto transition in progress with the fader.
- A key only transition can be performed by pressing the **KEY TRANS** button for the key you want to transition.
- You can pause an auto transition by pressing the **AUTO TRANS** button during the transition. Press the button again to continue the transition.
- On a MiniME™ , Background and key 2 only support Dissolve and Cut transitions.
- There is no preview output for a MiniME™.

Understanding the Transition Menu

When you select a transition type button, the menu system displays a number of options that allow you to adjust how a transition is performed or appears. The options that are available depend on the type of transition that is selected.

Table 1: Transition Menu Items

Menu Item	Description
Time	selects the amount of time (Transition Rate), in frames, that an auto transition takes
RlClip	selects whether GPI outputs assigned to input sources are triggered before a transition
DisTyp	selects whether the dissolve is a standard dissolve or a WhiteFlash transition.
Dirctn	selects the direction that the wipe is performed (forward or reverse), as well as turns the Flip-Flop feature on or off
Key *X*	selects the amount of time, in frames, that an auto transition dissolve for the keyer takes
Pattrn	selects the pattern for the wipe transition
X Pos	selects the horizontal position for the wipe pattern
Y Pos	selects the vertical position for the wipe pattern
Aspect	selects the aspect ratio for the wipe pattern
Border	turns the border feature on and selects the size of the border on the wipe pattern
Soft	selects the amount of softness that is applied to the wipe border
Load	selects the color for the wipe border from a pre-set list
BHue	adjusts the hue of the wipe border color
BSat	adjusts the saturation of the wipe border color
BLum	adjusts the luminance of the wipe border color
Rot	selects the rotation for the wipe pattern
HMult	multiplies the wipe pattern horizontally (1-32)
VMult	multiplies the wipe pattern vertically (1-32)
Browse	selects an animation for a media transition
Attrib	used with the **Value** knob to adjust parameters for the MediaWipe (*Media-Store Attributes* on page 50)
Func	selects how the **Attrib** adjustments are saved
Limit	turns the Transition Limit feature on or off
Effect	selects the pattern for the DVE transition

To Perform a Transition

All transitions, with the exception of cuts on the background or key bus, have the same basic setup. To perform a transition, you must select what sources you want to transition on what buses, and how you want the transition to appear.

1. Select the ME, MiniME™, or MultiScreen that you want to perform a transition on.
2. Select the video sources you want to take on-air on each bus.

   For a background transition you must select the source you want to transition to on the preset bus.

3. In the Transition Area, select the elements (**BKGD**, **KEY 1**, **KEY 2**, **KEY 3**, **KEY 4**) you want to include in the next transition. To select multiple keys and background, press and hold the first element, and select the additional elements.
4. Use the **Time** knob to set the length of the background transition.
5. Select the type of transition (**DISS** (Dissolve or WhiteFlash), **WIPE**, **DVE**, **MEDIA**) you want to perform.
6. Use the **RIClip** knob to select whether you want any video server clips assigned to a source being taken on-air to play with the transition (**On**), or not (**Off**).
7. Perform the transition.

   Tip: You can preview the transition on the preview output by pressing and holding the transition type button and perform the Auto Trans or Fader transition. You cannot preview the independent key-only transitions or a MiniME™ transition.

   - **Auto Transition** — press **AUTO TRANS**. The transition is performed at the set transition rate
   - **Cut** — press **CUT**
   - **Fader** — move the fader from one limit to the other. The rate at which you push the fader determines the rate of the transition.

   If a pre-delay has been set, the switcher will apply the pre-delay interval before performing the transition.

To Override the Pre-Delay Setting

During the pre-delay time, you can override the pre-delay count and cut the sources on-air immediately.

- While the switcher is waiting for the pre-delay countdown to complete, perform one of the following
  - Press the source button on the background bus that is going-on air. The pre-delay countdown and the transition are aborted and the source is cut to air on the background bus.
  - Initiate a transition with the fader handle. The pre-delay countdown is aborted and the transition proceeds as you move the fader handle.

To Abort a Transition During the Pre-Delay

During the pre-delay time, you can abort the transition completely.

- While the switcher is waiting for the pre-delay countdown to complete, perform one of the following
  - Press any source button on any bus other than the source button on the background bus that is going-on air.
  - Press the **BKGD** or **Key *X*** button in the next transition area.
  - Press the **CUT** or **AUTO TRANS** button.
  - If a key is included in the transition, press one of the dedicated key transition button.
  - Recall a memory. The pre-delay countdown and transition are aborted and the memory register is recalled.

Cut Transitions

A Cut is an instantaneous transition between video sources. Unlike all the other transition types, there are no intermediate steps between the video source that is on-air, and the video source you are transitioning to.

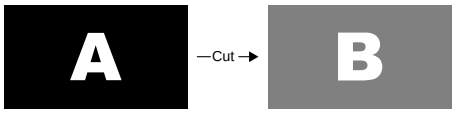


Figure 16: Example Cut Transition

A cut is performed either by selecting different sources on a background or key bus, or by pressing a **CUT** button.

Dissolve Transitions

A Dissolve is a gradual fade between video sources. For a Background transition, the video signal on the Background bus and the video signal on the Preset bus are mixed together until the Preset bus video signal completely replaces the Background bus video signal.

Figure 17: Example Dissolve Transition

To Set Up a Dissolve

A dissolve transition requires that you set a background and key transition rate for the auto transition. A fader transition does not use the transition rate.

1. Press **DISS**.

   Tip: *You can use the same procedure for a MiniME™ or MultiScreen.*

2. Use the **Time** knob to set the length of the background transition.
3. Use the **DisTyp** knob to select **Diss**.
4. Press **NEXT**.
5. Use the **Key *X*** knobs to select the length of the key transitions.

WhiteFlash

Perform a two-step transition where a dissolve to and from white, or other selected color, is performed in the middle of the transition. The video signal on the Background bus is transitioned to a color background of the selected WhiteFlash color. The color background is then transitioned to the preset bus. WhiteFlash consumes a pattern generator for the transition.

Each ME has a separate WhiteFlash generator.

To Set Up a WhiteFlash

A WhiteFlash transition is performed just like a normal dissolve except that you must set the color for the flash and the rates for the onset, hold, and fade. transition is performed just like a normal dissolve except that you must set the color for the flash and the rates for the onset, hold, and fade.

1. Press **DISS**.

   Tip: *You can use the same procedure for a MiniME™ or MultiScreen.*

2. Use the **Time** knob to set the length of the background transition.
3. Use the **DisTyp** knob to select **Flash**.
4. Press **NEXT**.
5. Use the **Key *X*** knobs to select the length of the key transitions.
6. Press **NEXT** > **NEXT** > **NEXT**.
7. Use the **Onset**, and **Offset** knobs to select the percentage of the transition that each phase of the WhiteFlash takes.
   - **Onset** — duration of the dissolve to the WhiteFlash color.
   - **Offset** — duration of the dissolve to the preset video source.
   - **Hold** — duration of the dissolve that the WhiteFlash color is held. This value is the residual of entire duration minus the onset and offset.
8. Press **NEXT**.
9. Select a default or custom color for the WhiteFlash.
   - **Default** — use the **Load** knob to select a preset color for the WhiteFlash.
   - **Custom** — press **NEXT** and use the **Hue**, **Sat**, and **Lum** knobs to select your own color.

Wipe Transitions

A Wipe is a gradual transition where one video signal is replaced with another according to a wipe pattern. In the example below, a line wipe is being used.

Figure 18: Wipe Transition

For Key transitions, the key is wiped on or off-air with the transition and the background remains untouched. The duration of a wipe transition depends on either the transition rate for the ME, or the rate at which the fader is moved.

To Set Up a Wipe

A wipe transition requires that you select a wipe pattern, set the direction and number/size of wipe pattern, as well as set a background and

key transition rate for the auto transition. A fader transition does not use the transition rate.

1. Press **WIPE**.
2. Use the **Time** knob to set the length of the background transition.
3. Use the **Dirctn** knob to select the direction that the wipe travels.
4. Press the **Dirctn** knob to select whether the wipe runs forward during the first transition and then reverse during the second (**FF**), or if it always goes in the same direction.
5. Press **NEXT**.
6. Use the **Pattrn** knob to select the wipe pattern you want to use. You can also select the pattern by pressing the pattern button directly.
7. Use the **X Pos** and **Y Pos** knobs to position the wipe pattern. You can also use the positioner.
8. Press **NEXT**.
9. Use the **Aspect** knob to adjust the aspect ratio of the wipe pattern.

   Not all patterns can be adjusted.
10. Use the **Border** and **Soft** knobs to apply a border to the wipe pattern.

    Refer to the section *To Apply a Border to a Pattern* on page 26 for information on borders.
11. Press **NEXT**. If a border is applied to the wipe, you must press **NEXT** multiple times to get to the next step.
12. Use the **Rot** knob to rotate the pattern.

    Not all patterns can be rotated.
13. Use the **HMult** knob to multiply the pattern horizontally.
14. Use the **VMult** knob to multiply the pattern vertically.

To Apply a Border to a Pattern

1. Press **WIPE** > **NEXT** > **NEXT**.
2. Use the **Border** knob to adjust the size of the border around the pattern.
3. Use the **Soft** knob to adjust the softness of the pattern border.
4. Press **NEXT**.
5. Select a default or custom color for the border.
   - **Default** — use the **Load** knob to select a preset color for the border.
   - **Custom** — press **NEXT** and use the **BHue**, **BSat**, and **BLum** knobs to select your own color.

DVE Transitions

A DVE transition is a gradual transition where one video signal is replaced with another according to a 2D DVE pattern.

Keep the following in mind when performing DVE transitions:

- You must include the background when performing a DVE transition on a Chroma Key, Self Key, or Auto-Select Key. If you do not include the background, a dissolve transition is performed.
- Performing a DVE transition on a DVE Key without including the background scales the transition effect to the size of the DVE Key. This transition does not consume an additional DVE resource.
- Performing a DVE transition on a DVE Key with the background included does not scale the transition effect. This transition consumes the second DVE resource.

To Set Up a DVE Transition

A DVE transition requires that you select the DVE pattern and duration for the transition.

1. Press **DVE**.

   Tip: *You can use the same procedure for a MiniME™ or MultiScreen.*
2. Use the **Time** knob to set the length of the background transition.
3. Use the **Dirctn** knob to select the direction that the wipe travels.
4. Press the **Dirctn** knob to select whether the wipe runs forward during the first transition and then reverse during the second (**FF**), or if it always goes in the same direction.
5. Press **NEXT**.
6. Use the **Effect** knob to select the DVE pattern you want to use. You can also select most of the patterns by pressing, or double-pressing, the pattern button directly.
   - **PushL** — Push Left (**0**)
   - **PushR** — Push Right (double-press **0**)
   - **PushU** — Push Up (**1**)

- **PushD** — Push Down (double-press **1**)
- **SqzHor** — Squeeze Horizontally (**2**)
- **SqzVert** — Squeeze Vertically (**3**)
- **SqzCtr** — Squeeze to the Center (**7**)
- **PushUL** — Push to Upper-Left (**4**)
- **PushUR** — Push to Upper-Right (double-press **2**)
- **PushDL** — Push to Lower-Left (double-press **3**)
- **PushDR** — Push to Lower-Right (double-press **4**)
- **SqzUR** — Squeeze to Upper-Right (**5**)
- **SqzUL** — Squeeze to Upper-Left (**6**)
- **SqzDR** — Squeeze to Lower-Right (double-press **6**)
- **SqzDL** — Squeeze to Lower-Right (double-press **5**)
- **CirclL** — Circle Left (**8**)
- **CirclR** — Circle Right (double-press **8**)
- **FlyTru** — Fly Through (double-press **7**)
- **Strtch** — Stretch Horizontally to Black (**9**)
- **Tumble** — Tumble Down (double-press **9**)
- **1000lb** — Falls and then Bounces
- **SqzU** — Squeeze Up
- **SqzD** — Squeeze Down
- **SqzL** — Squeeze Left
- **SqzR** — Squeeze Right

MediaWipe Transitions

A MediaWipe allows you to use an animation to cover a transition. When the transition starts, the switcher plays the selected animation over top of the background and keys that are being transitioned. A MediaWipe can be used to cover a cut, dissolve, wipe, or DVE transition.

For a cut MediaWipe, the transition is performed when the cut point is reached. It is important to use a full-screen image in the animation at the cut point so that the cut is not visible on-air.

Keep the following in mind when performing MediaWipe:

- Although you can select a still image for a media transition, it is not recommended.
- Only Auto Transition should be used for Media transitions. Using the fader to perform the transition manually could result in jumps in the animation.
- The duration of the transition (Time) is set by the length of the animation and the play speed of the animation.
- The audio associated with a MediaWipe is only available on the AES outputs.
- You cannot perform a MediaWipe transition on a MiniME™ or MultiScreen.
- If the Media-Store channel being used for a MediaWipe is set as a MSFS, the transition is switched to a standard dissolve.

To Set Up a MediaWipe

A MediaWipe requires that you select the animation you want to use and then set up how you want to transition performed under the animation. This information is stored with the media item when you press save.

1. Press **MEDIA**.
2. Press the **Browse** knob and use the knob to navigate to the file you want to load. Press the knob to make a selection.
3. Press **NEXT**.
4. Use the **Attrib** and **Value** knobs to set wipe parameters.
   - **X-Pos** — position the wipe horizontally.
   - **Y-Pos** — position the wipe vertically.
   - **Shaped** — whether the MediaWipe alpha is shaped (**yes**) or unshaped (**no**).
   - **Media#** — the media id for the media item you want to use for the MediaWipe.
5. Press **Save Func** to save the changes.
6. Press **NEXT**.
7. Press **EditMT**.
8. In the pattern selection area, select the type of transition you want to use under the MediaWipe.
   - **Cut (0)** — Use the **Cut** knob to select the cut point for the transition.
   - **Dissolve (1)** — Use the **Start** knob to select the point where the dissolve starts and the **Rate** knob to select the duration of the transition.
   - **Wipe (2)** — Use the **Start** knob to select the point where the dissolve starts and the **Rate** knob to select the duration of the transition. Press **NEXT** and set up the remaining wipe parameters as normal. Wipe border is not supported.
   - **DVE (3)** — Use the **Start** knob to select the point where the dissolve starts and

the **Rate** knob to select the duration of the transition. Press **NEXT** and set up the remaining DVE wipe parameters as normal.

> ***Tip:*** *If you select a negative start point for the transition, the transition will start first and then the animation will play after the start point duration has passed.*

> ***Tip:*** *You can use the fader to move through the MediaWipe animation to the point where you want the transition to start and press* ***Start Trans (5)*** *and then move the fader to the point where you want the transition to end and press* ***End Trans (6)****.*

9. Use the fader to select a point in the animation that you want to use as a thumbnail for the MediaWipe and press **Thumb Frame (8)**.
10. Press **Save (9)** to save the new setting to the selected media item.

Transition Limits

The Transition Limit allows you to set the point in a transition where an auto transition stops. When active, the point in the transition where the auto transition will stop is indicated by a flashing segment on the transition progress bar next to the fader handle. The auto transition proceeds to this point and stops. The second auto transition starts from the transition limit point and goes back to where the first transition started.

> ***Tip:*** *If you turn Limit off when the transition has stopped at the transition limit point, the next transition starts from the transition limit point and goes forward to complete the transition, instead of going back to the start.*

To Set Up a Transition Limit

A transition limit is set using the fader of the ME that you want to set up the transition limit on. The transition limit is specific to the ME it is set on.

1. Set up the transition you want to perform.
2. Press **NEXT** until **Limit** is shown on the menu.

> ***Tip:*** *You can use the same procedure for a MiniME™ or MultiScreen.*

3. Move the fader to the position in the transition where you want to set the transition limit point.
4. Toggle the **Limit** knob (**On**) to set the transition limit point.

The transition limit is set and active for the ME you set it on. You can turn transition limit on and off by toggling the **Limit** knob while the fader is at either the top or bottom limit. If the fader is not on a limit when you toggle the transition limit on, a new transition limit will be set. Double-press the **Limit** knob to reset the transition limit point.

GPI Output Triggers

Each video source can have a GPI output assigned to it. This GPI can be used to trigger an external device, such as a video server, to play the cued clip when the video sources from the video server are taken on-air. This trigger can be set up to occur automatically any time the video source is transitioned on-air, or it can be triggered manually.

An automatic GPI output trigger can be overridden if required.

> ***Note:*** *The Next Button Secondary Function must be set to GPO to be able to trigger a GPI output manually using the NEXT button.*

Keep the following in mind when working with GPI output triggers:

- The **RlClip** knob must be set to **On** to trigger a GPI output with a transition.
- Edge triggered GPI outputs remain triggered for the configured duration.
- Level triggered GPI outputs toggle between high and low each time they are triggered.

To Manually Trigger a GPI Output

The GPI must already be set up as a output and the Next button functionality must be set to GPO before you can manually trigger it.

1. Press and hold the **NEXT** button.

   While holding the **Next** button, the pattern buttons light for each GPI output that is currently triggered.

2. Press the pattern button for the GPI output you want to trigger. The numbers on the pattern buttons correspond to the GPI.

To Override a GPI Output

The RlClip personality option must be set to User for you to override GPI output triggering.

1. Prepare the transition as required, but do not perform the transition.

2. Press the transition type button again to bring up the transition menus.
3. Use the **RIClip** knob to select whether the GPI output is triggered (**On**), or is not triggered (**Off**).

Patterns, Washes, and Mattes

Patterns, Washes, and Mattes are internally generated graphical elements that can be used for key or background fill, key shapes, and transition effects.

Patterns

Pattern generators are used for wipes, masks, and washes. Each pattern generator can create a single pattern output that can be adjusted to create a specific look.

Patterns can be applied to the following:

- **Wipes** — Press **WIPE**.
- **Masks** — Select the key you want apply the mask to and use the **Mask** knob to select **Pattern**.
- **Washes** — Select the matte generator (**BG**) on a background or key bus and use the **Wash** knob to select **On**.

Related information

Wipe Transitions on page 25

To Set Up a Pattern

When a pattern generator is assigned to a wipe, the pattern setting are displayed. Selecting the **WIPE** button returns to this menu. When a pattern generator is assigned the pattern settings are part of the setup menu.

1. Use the **Pattrn** knob to select the wipe pattern you want to use. You can also select the pattern by pressing the pattern button directly.
2. Use the **X Pos** knob to position the wipe pattern horizontally. You can also use the positioner.
3. Use the **Y Pos** knob to position the wipe pattern vertically. You can also use the positioner.
4. Press **NEXT**.
5. Use the **Aspect** knob to adjust the aspect ratio of the patten. Not all patterns can be adjusted.
6. Use the **Border** knob to apply a border to the wipe.

   Tip: *Use the **Soft** and **NEXT** > **Load** knobs to configure the border.*

7. Press **NEXT**. If a border is applied to the wipe or mask, you must press **NEXT** multiple times to get to the next step.
8. Use the **Rot** knob to adjust the aspect ratio of the patten. Not all patterns can be rotated.
9. Use the **HMult** knob to multiply the pattern horizontally.
10. Use the **VMult** knob to multiply the pattern vertically.

Washes

Washes are applied to matte generators selected on the background or key buses and allow you to apply a two-color effect based on a selected pattern.

Related information

Mattes on page 31
Patterns on page 30

To Set Up a Wash

A wash applies colors to a pattern selected for a matte. The first color is preset to the matte color, but both are selectable. Selecting the source button again returns to this menu. Refer to the sections on mattes and patterns for information on setting them up. You can load a preset color instead of creating the first custom color.

1. Use the **Hue 1** knob to adjust the hue of the first custom color.
2. Use the **Sat 1** knob to adjust the saturation of the first custom color.
3. Use the **Lum 1** knob to adjust the luminance of the first custom color.
4. Press **NEXT**.
5. Use the **Wash** knob to select **On**.
6. Press **NEXT**.
7. Use the **Size** knob to select the size of the wash pattern.
8. Press **NEXT** > **NEXT** > **NEXT** > **NEXT**.
9. Use the **Hue 2** knob to adjust the hue of the second custom color.
10. Use the **Sat 2** knob to adjust the saturation of the second custom color.
11. Use the **Lum 2** knob to adjust the luminance of the second custom color.

Mattes

Mattes are solid color signals that can be applied to backgrounds and keys, and borders. Color selection is done either by picking a preset color, or by adjusted hue, saturation, and luminance to create a custom color.

Mattes can be applied to the following:

- **Background** — Select the matte generator (**BG**) on a background or key bus. The full region of the background or key is filled with the selected color.
- **Border** — Assign a border to a **WIPE** transition or a key. The wipe border is filled with the selected color.

To Set Up a Matte Color

When a matte generator is assigned to a background or key, the matte setting are displayed. Selecting the source button again returns to this menu. When a matte generator is assigned to a key border or wipe border, the matte settings is part of the setup menu, and become active when **Border** is set to greater than 0.

1. Press **NEXT**.
2. Use the **Load** knob to select the preset color you want to use.
3. Press the **Load** knob to load the selected color.
   If you want to use the preset color, ignore the rest of this procedure.
4. Press **NEXT**.
5. Use the **Hue** knob to adjust the hue of your custom color.
6. Use the **Sat** knob to adjust the saturation of your custom color.
7. Use the **Lum** knob to adjust the luminance of your custom color.

Keying

Keying is the term used to describe when you insert (or electronically cut) portions of one scene into another, or place titles over background images. Keys are made up of two basic components, an alpha, that cuts the hole in the background video, and a fill, that fills the hole with different video.

Keys are layered onto the background video signal from the lowest numbered key to the highest.

Note: *DashBoard Live Assist will not notify you of error messages or if a confirmation is required. For example, if there are no available resources for the DVE Key, or Chroma Key, you are trying to create, the switcher will not create the key and no notification will be shown.*

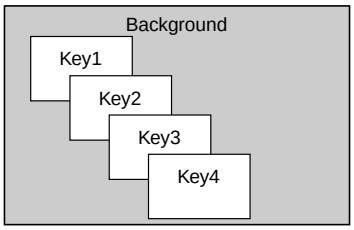


Figure 19: Key Priority

If you are using a MiniME™, key 1 only supports a DVE key type, and key 2 only supports the Self Key, Auto Select, and Chroma Key types. Key priority on a MiniME™ is the same as on an ME.

Understanding the Keying Menu

When you select a key type button (**SELF KEY**, **AUTO SELECT**, **CHR KEY**, or **DVE**), the menu system displays a number of options that allow you to adjust how a the key appears. The options that are available depend on the type of key that is selected.

The switcher supports Self, Auto Select, Chroma, and DVE keys in each ME.

Table 2: Keying Menu Items

Menu Item	Description
Clip	removes lower-saturated colors from the video image
Gain	adjusts the transition between video image, and the parts of the video image that are removed
Transp	adjusts the overall transparency of the key video
Linear	sets the clip, gain, and transparency values for self keys back to the default
Invert	reverses the polarity of the key alpha so that the holes in the background are cut by dark areas of the key alpha instead of bright areas
Mode	overrides the shaped setting for the key
Mask	selects the type of mask that is applied to the key (*Masks* on page 40)
M-Frce	turns the force mask feature on or off (*To Pattern Mask a Key* on page 40)
M-Inv	turns the invert mask feature on or off (*To Pattern Mask a Key* on page 40)
Size	adjusts the size of the mask or DVE key
Pattrn	selects the pattern for the pattern mask
X Pos	selects the horizontal position of the mask or DVE key
Y Pos	selects the vertical position of the mask or DVE key
Aspect	selects the aspect ratio for the mask pattern or DVE key
Border	turns the border feature on and selects the size of the border on the mask pattern or DVE key
Soft	selects the amount of softness that is applied to the mask or DVE key border
Load	selects the color for the border from a pre-set list
BHue	adjusts the hue of the border color
BSat	adjusts the saturation of the border color
BLum	adjusts the luminance of the border color
Rot	selects the rotation for the mask pattern
HMult	multiplies the mask pattern horizontally (1-32)
VMult	multiplies the mask pattern vertically (1-32)
HCrop	press to toggle between **HCrop**, **Left/R**, and **L/Rght** • **HCrop** — adjusts the horizontal cropping of the DVE key • **Left/R** — adjusts the cropping of the left side of the DVE key • **L/Rght** — adjusts the cropping of the right side of the DVE key
VCrop	adjusts the vertical cropping of the DVE key • **Top/B** — adjusts the cropping of the top of the DVE key • **T/Bttm** — adjusts the cropping of the bottom of the DVE key
Left/R	press to toggle between **Left/R** and **L/Rght** • **Left/R** — adjusts the cropping of the left side of the box mask • **L/Rght** — adjusts the cropping of the right side of the box mask

Menu Item	Description
Top/B	press to toggle between **Top/B** and **T/Bttm** • **Top/B** — adjusts the cropping of the top of the box mask • **T/Bttm** — adjusts the cropping of the bottom of the box mask

Self Keys

A Self Key is a key in which the luminance, or brightness, values of the key source are used as the alpha for the key.

To Set Up a Self Key

A self key is set up by selecting the keyer and video source you want to use, and adjusting the key parameters.

*Tip: You can return the clip and gain values to the default settings by pressing the **Make Linear** knob.*

1. Select the keyer that you want to set up a Self Key on. .

   Tip: You can use the same procedure for a MiniME™ or MultiScreen.

2. Select the video signal, on the key bus, that you want to use for the key.
3. Press **SELF KEY**.
4. Use the **Clip** knob to remove lower-saturated colors from the video image.
5. Use the **Gain** knob to adjust the transition between the video image and the parts of the video image that are removed.
6. Use the **Transp** knob to adjust the transparency of the key from opaque (**0%**) to fully transparent (**100%**).
7. Press **NEXT**.
8. Use the **Invert** knob to reverse the polarity of the key alpha (**On**) so that the holes in the background are cut by dark areas of the key alpha instead of bright areas.
9. Use the **Mode** knob to override the shaped setting for the key.
   - **Normal** — set to a linear keyer for an unshaped source.
   - **Addtve** — set to an additive keyer for a shaped source. The **Make Linear** function is disabled in this mode.
   - **Full** — set the alpha to fully opaque (white). The **Clip**, **Gain**, **Make Linear**, and **Key Invert** functions are disabled in this mode.

   *Note: The mode is reset to **Normal** when a different source is selected on the key bus, the alpha is changed, or a memory is recalled.*
10. Press **NEXT**.
11. Use the **Mask** knob to apply a mask to the key.

Auto Select Keys

An Auto Select key is a key in which two video signals are required to make the key. The alpha is used to cut the hole in the video and the fill is used to fill the hole. These signals often originate from external devices such as character generators, external still stores, or other graphics systems.

To Set Up an Auto Select Key

An auto select key is set up by selecting the keyer and video source you want to use, and adjusting the key parameters. The pairing of the video and alpha video signals is done when configuring video inputs. Refer to the Setup Manual that came with your switcher for information on setting up Auto Keys.

*Tip: You can return the clip and gain values to the default settings by pressing the **Make Linear** knob.*

1. Select the keyer that you want to set up an Auto Select on.

   Tip: You can use the same procedure for a MiniME™ or MultiScreen.

2. Select the video signal, on the key bus, that you want to use for the key.
3. Press **AUTO SELECT**.
4. Use the **Clip** knob to remove lower-saturated colors from the video image.
5. Use the **Gain** knob to adjust the transition between the video image and the parts of the video image that are removed.
6. Use the **Transp** knob to adjust the transparency of the key from opaque (**0%**) to fully transparent (**100%**).
7. Press **NEXT**.
8. Use the **Invert** knob to reverse the polarity of the key alpha (**On**) so that the holes in the background are cut by dark areas of the key alpha instead of bright areas.

9. Use the **Mode** knob to override the shaped setting for the key.
   - **Normal** — set to a linear keyer for an unshaped source.
   - **Addtve** — set to an additive keyer for a shaped source. The **Make Linear** function is disabled in this mode.
   - **Full** — set the alpha to fully opaque (white). The **Clip**, **Gain**, **Make Linear**, and **Key Invert** functions are disabled in this mode.

   Note: *The mode is reset to* ***Normal*** *when a different source is selected on the key bus or the alpha is changed.*
10. Press **NEXT**.
11. Use the **Mask** knob to apply a mask to the key.

The Auto Select key uses the pre-assigned Auto Key association to select the proper video and alpha. If you want to temporarily select a different video source for the alpha, press and hold the **AUTO SELECT** button and select the video source you want to use as the new fill.

UltraChrome Chroma Key

An UltraChrome Chroma Key is a key in which the hole is cut based on a color value, or hue, rather than a luminance value or alpha signal. The color is removed and replaced with background video from another source. The default color is blue.

Chroma Key adjustments are persistent and are not affected by a soft reset or switcher reboot. However, initializing the Chroma Key or performing a factory reset returns all adjustments to default values.

Chroma Key Modes

The UltraChrome Chroma Key operates in one of two modes, Basic or Advanced, depending on the complexity of the Chroma Key you are setting up.

- **Basic Mode** — In basic mode, UltraChrome provides a simple background/foreground chroma key with adjustment for background spill and edge softness.
- **Advanced Mode** — In advanced mode, UltraChrome provides advanced background shadow and translucency control, as well as control over background/foreground transition areas.

Although it is possible to switch back and forth between advanced and basic mode, the additional image correction of the advanced mode is only applied in the advanced mode. For example, if you use the basic mode to set up the Chroma Key and then switch to the advanced mode, the entire image may change as the image correctors provided by the advanced mode are applied at their default settings.

Chroma Key Basic Mode

The following chroma key parameters can be adjusted in Basic Mode:

- **Background Gain** — Allows you to modify the range of colors that are considered background and are masked out of the Chroma Key.
- **Edge Softness** — Allows you to adjust the amount of edge softening applied to the foreground. This helps blend the foreground into the new background.
- **Foreground Clip/Hue/Reject** — Allows you to modify the range of colors that are considered foreground and are not masked.
- **Spill Range** — Allows you to remove background color casts that may spill into the foreground image (green color cast on the foreground from a green-screen for example).

To Set Up a Chroma Key in Basic Mode

The UltraChrome chroma key tries to automatically adjust for the scene you are trying to chroma key. For the best results, initialize the key first, and then identify the areas where you need to adjust the key.

1. Select the keyer that you want to set up an Chroma Key on.

   Note: *You can use the same procedure for a MiniME™.*
2. Select the video signal, on the key bus, that you want to use for the key.
3. Press **CHR KEY**.
4. Use the **Mode** knob to select **Basic**.
5. Use the **Color** knob to select the color you want to key out.
6. Press the **Init** knob to initialize the chroma key.

   Every time the key is initialized, the switcher resets all the Chroma Key parameters to their default settings.

7. Press **NEXT**.
8. Use the **Type** knob to select **Additv** and the **Value** knob to turn additive keying on or off.
   - **Off** — Reduces the level of detail in the edges of the chroma key as well as the overall noise in the key image that can be the result of certain lighting conditions or high detail camera settings. This is the default setting.
   - **On** — Include the maximum detail in the edges of the chroma key.
9. Use the **Type** knob to select **Bkgd** and use the **Value** knob to adjust the background gain.
   - Increasing the gain value causes the background to appear more opaque. This results in less of the background color being removed.
   - Decreasing the gain value causes the background to appear more transparent. This results in more of the background color being removed.
10. Use the **Type** knob to select **Edge** and use the **Value** knob to add or remove edge softening of the foreground image and alpha channel.
   - Increasing the softness value increases the amount of softness applied to the foreground edges and alpha channel.
   - Decreasing the softness value decreases the amount of softness applied to the foreground edges and alpha channel.
11. Use the **Type** knob to select **Foregd**.
12. Use the **Cntrl** knob to select **Clip** and use the **Value** knob to adjust the foreground clipping.
   - Increasing the clip value removes lower-saturated colors from the foreground image.
   - Decreasing the clip value includes lower-saturated colors in the foreground image.
13. Use the **Cntrl** knob to select **Hue** and use the **Value** knob to select the central (base) color for the foreground.
   - Increasing the hue value moves counter-clockwise around the color wheel to select a base color.
   - Decreasing the hue value moves clockwise around the color wheel to select a base color.
14. Use the **Cntrl** knob to select **Reject** and use the **Value** knob to include or reject hues adjacent to the base color
   - Increasing the Reject value decreases the amount of adjacent hues that are included in the foreground.
   - Decreasing the Reject value increases the amount of adjacent hues that are included in the foreground.
15. Use the **Type** knob to select **Spill** and use the **Value** knob to remove any color cast onto the foreground.
   - Increasing the range value causes more of the foreground colors to be corrected for background color spill.
   - Decreasing the range value causes fewer of the foreground colors to be corrected for background color spill.
16. Press **NEXT**.
17. Use the **Mask** knob to apply a mask to the key.

Chroma Key Advanced Mode

An UltraChrome chroma key, in advanced mode, breaks the image into five elements which determine, or partially determine, which part of the image is keyed out, or removed.

- **Background** — Background elements are those pixels in the source video that are the same color as the one you chose to key out. Note that the Shadow and translucent areas (see below) are completely contained within the Background area.
- **Shadow** — Shadow elements are those pixels in the source video with colors that are within the Background range, but with lower luminance values, depending on the shadow range. You modify the Shadow range to cover darker areas of the background (e.g. where the foreground is casting a shadow on the background screen).
- **Translucency** — Translucent elements are those pixels in the source video that are in the Background range, but with higher luminance values than the Shadow range. You can control the upper-end of the Translucency range by setting a wider hue-range to constrain the area. You can also

control the transparency of the Translucent area.

- **Transition** — Transition elements are those pixels in the source video with colors that are not within any of the previous three ranges and are also not considered part of the Foreground area. These are typically the pixels near the edge of the foreground, where it blends into the background.
- **Foreground** — Foreground elements are those pixels that are not within the Background, Shadow, Translucency, or Transition ranges. This is the area with colors that will not be keyed out and will remain solid.
- **Spill Suppress** — Spill Suppression elements are those pixels in the Foreground that have a noticeable tint of the Background color. This typically occurs around the edge of the foreground subject as glow from the background blue-screen or green-screen "spills" onto them.
- **Edge Softness** — Edge Softness lets you apply varying degrees of softening to the Foreground edges to help it blend in with the underlying background image that it is being keyed over.
- **Luminance** — Luminance allows you to control the overall brightness of Shadow, Translucency, and Transition areas as well as partial reflections to more closely match the Foreground brightness.

To Set Up a Chroma Key in Advanced Mode

The UltraChrome chroma key tries to automatically adjust for the scene you are trying to chroma key. For the best results, initialize the key first, and then identify the areas where you need to adjust the key.

1. Select the keyer that you want to set up an Chroma Key on.

   Note: *You can use the same procedure for a MiniME™.*

2. Select the video signal, on the key bus, that you want to use for the key.
3. Press **CHR KEY**.
4. Use the **Mode** knob to select **Adv**.
5. Use the **Color** knob to select the color you want to key out.
6. Press the **Init** knob to initialize the chroma key.

   Every time the key is initialized, the switcher resets all the Chroma Key parameters to their default settings.

7. Press **NEXT**.
8. Use the **Type** knob to select **Additv** and the **Value** knob to turn additive keying on or off.
   - **Off** — Reduces the level of detail in the edges of the chroma key as well as the overall noise in the key image that can be the result of certain lighting conditions or high detail camera settings. This is the default setting.
   - **On** — Include the maximum detail in the edges of the chroma key.
9. Use the **Type** knob to select **Bkgd**.
10. Use the **Cntrl** knob to select **NegHue** and use the **Value** knob to adjust the range of hues that are included in the Background, expanding counter-clockwise around the color wheel.
11. Use the **Cntrl** knob to select **PosHue** and use the **Value** knob to adjust the range of hues that are included in the Background, expanding clockwise around the color wheel.
12. Use the **Cntrl** knob to select **Sat** and use the **Value** knob to adjust the saturation range of the background color.
    - Increasing the saturation range value includes a wider range of saturation values to be included in the background.
    - Decreasing the saturation range value includes a narrower range of saturation values to be included in the background.
13. Use the **Type** knob to select **Edge** and use the **Value** knob to add or remove edge softening of the foreground image and alpha channel.
    - Increasing the softness value increases the amount of softness applied to the foreground edges and alpha channel.
    - Decreasing the softness value decreases the amount of softness applied to the foreground edges and alpha channel.
14. Use the **Type** knob to select **Foregd**.
15. Use the **Cntrl** knob to select **Clip** and use the **Value** knob to adjust the foreground clipping.

- Increasing the clip value removes lower-saturated colors from the Foreground image.
- Decreasing the clip value includes lower-saturated colors in the Foreground image.

16. Use the **Cntrl** knob to select **Hue** and use the **Value** knob to select the central (base) color for the foreground.
    - Increasing the hue value moves counter-clockwise around the color wheel to select a base color.
    - Decreasing the hue value moves clockwise around the color wheel to select a base color.
17. Use the **Cntrl** knob to select **Reject** and use the **Value** knob to include or reject hues adjacent to the base color.
    - Increasing the reject value decreases the amount of adjacent hues that are included in the foreground.
    - Decreasing the reject value increases the amount of adjacent hues that are included in the foreground.
18. Use the **Type** knob to select **Lum**.
19. Use the **Cntrl** knob to select **BkLuma** and use the **Value** knob to change the overall brightness of Shadow, Translucent, and Transition areas.
    - Increasing the background suppress value increases the brightness of Background, Translucent, and Transition areas.
    - Decreasing the background suppress value decreases the brightness of Background, Translucent, and Transition areas.
20. Use the **Cntrl** knob to select **Refl** and use the **Value** knob to change the brightness of semi-transparent reflections (like reflections from glasses).
    - Increasing the reflections value increases the brightness of semi-transparent reflections.
    - Decreasing the reflections value decreases the brightness of semi-transparent reflections.
21. Use the **Type** knob to select **Shadow**.
22. Use the **Cntrl** knob to select **Gain** and use the **Value** knob to adjust the shadow appearance.
    - Increasing the gain value creates darker shadows.
    - Decreasing the gain value creates lighter shadows.
23. Use the **Cntrl** knob to select **Range** and use the **Value** knob to adjust the range of the shadow colors.
    - Increasing the range value widens the shadow area by including lower-luminance background colors. The increased range comes as a result of colors moving from the translucent area to the shadow area.
    - Decreasing the range value narrows the shadow area by excluding high-luminance colors. These excluded colors move back into the translucent area.
24. Use the **Type** knob to select **Spill**.
25. Use the **Cntrl** knob to select **Clip** and use the **Value** knob to adjust spill suppress clipping.
    - Increasing the clip value removes higher-saturated colors from spill suppress correction.
    - Decreasing the clip value includes higher-saturated colors in spill suppress correction. If your foreground image contains bright-colored areas that are suffering from background spill, decrease the clip value to have it corrected.
26. Use the **Cntrl** knob to select **Hue** and use the **Value** knob to select the central, or base, color for spill suppress correction. If the color spill does not appear to be the same color as the background, use this control to adjust which hue is considered to be "spilled" into the foreground.
    - Increasing the hue value moves counter-clockwise around the color wheel while selecting a base color.
    - Decreasing the hue value moves clockwise around the color wheel while selecting a base color.
27. Use the **Cntrl** knob to select **Reject** and use the **Value** knob to include or reject adjacent hues to the base.

- Increasing the reject value increases the amount of adjacent hues that are included in spill correction.
- Decreasing the reject value decreases the amount of adjacent hues that are included in spill correction.

28. Use the **Type** knob to select **Trans**.
29. Use the **Cntrl** knob to select **Gain** and use the **Value** knob to adjust the appearance of the Transition colors.
    - Increasing the gain value makes the transition area pixels more opaque.
    - Decreasing the gain value makes the transition area pixels more transparent.
30. Use the **Type** knob to select **Trnslc**.
31. Use the **Cntrl** knob to select **Gain** and use the **Value** knob to adjust the appearance of the translucent colors.
    - Increasing the gain value causes the translucent colors to appear more opaque.
    - Decreasing the gain value causes the translucent colors to appear more transparent.
32. Use the **Cntrl** knob to select **Range** and use the **Value** knob to adjust the range of the translucent colors.
    - Increasing the range value widens the translucent area by including more hues from the background range (the lower-end of the range is defined by the shadow range you just set).
    - Decreasing the range value narrows the translucent area by excluding hues.
33. Press **NEXT**.
34. Use the **Mask** knob to apply a mask to the key.

DVE Keys

The DVE key allows you to apply digital video effects, such as scale, crop, aspect ratio, position, and border to video image or another key type. When the DVE is applied to another key type, it is said to be flying (Fly Key).

*Tip: You can see where DVE channels are allocated from the **Status** page in DashBoard.*

Keep the following in mind when working with a Fly Key:

- The Fly Key feature consumes a single DVE channel for self keys and chroma keys, but two DVE channels for an auto select key.
- The Fly Key feature is not available when the switcher is in Standard mode.
- The Fly Key feature cannot be applied to a DVE key.
- The Key Invert feature is not available for a Fly Key.
- The self key Fly Key can be used with all MultiScreen layouts. The auto select key Fly Key can only be used with the Dual Vert or Dual Horiz MultiScreen layouts.
- A chroma key should be initialized and adjusted before the DVE (Fly Key) is applied to it.

To Set Up a DVE Key

The DVE resources for this key may not be available. Depending on how your switcher is configured, you may be asked to steal the resources from another element, or be prevented from using the resources.

1. Select the keyer that you want to set up a DVE key on.

   Tip: You can use the same procedure for a MiniME™ or MultiScreen.

2. Select the video signal, on the key bus, that you want to use for the key.
3. Press **DVE**.
4. Use the **X Pos**, **Y Pos**, and **Size** knobs to position and size the key. You can also use the positioner.
5. Press **NEXT**.
6. Use the **Aspect** knob to adjust the aspect ratio of the key.
7. Use the **Border** knob to apply a border to the key.

   Refer to the section *To Apply a Border to a DVE Key* on page 39 for information on borders.
8. Press **NEXT**.
9. Crop the key horizontally as follows:
   a) Use the **HCrop** knob to crop the key horizontally on both the left and right sides at the same time.
   b) Press **HCrop** and use the **Left/R** knob to crop the key horizontally on the left side only.

c) Press **Left/R** and use the **L/Rgt** knob to crop the key horizontally on the right side only.

10. Crop the key vertically as follows:
    a) Use the **VCrop** knob to crop the key vertically on both the top and bottom sides at the same time.
    b) Press **VCrop** and use the **Top/B** knob to crop the key vertically on the top side only.
    c) Press **Top/B** and use the **T/Bttm** knob to crop the key vertically on the bottom side only.
11. Press **NEXT**.
12. Use the **Freeze** knob to freeze the key. You can freeze the video and appearance of a key. When a key is frozen, the DVE attribute menus are disabled and you can not move the key or adjust DVE attributes.
13. Use the **Mask** knob to apply a mask to the key.

To Apply a DVE to a Key (Fly Key)

The DVE resources for this key may not be available. Depending on how your switcher is configured, you may be asked to steal the resources from another element, or be prevented from using the resources.

You should set up your key as you want it before applying the Fly Key.

1. Press and hold **SELF KEY**, **AUTO SELECT**, or **CHR KEY** for the key you want to apply the DVE to and press **DVE**.

   Tip: *Hold the **SELF KEY**, **AUTO SELECT**, or **CHR KEY** button again and press **DVE** to turn off the Fly Key.*

2. Press the **KEY *X* SEL** button for the key you are setting up.
3. Use the **X Pos**, **Y Pos**, and **Size** knobs to position and size the key. You can also use the positioner.
4. Press **NEXT**.
5. Use the **Aspect** knob to adjust the aspect ratio of the key.
6. Use the **Border** knob to apply a border to the key.

   Refer to the section *To Apply a Border to a DVE Key* on page 39 for information on borders.

7. Press **NEXT**. If a border is applied to the pattern, you must press **NEXT** multiple times to get to the next step.
8. Crop the key horizontally as follows:
    a) Use the **HCrop** knob to crop the key horizontally on both the left and right sides at the same time.
    b) Press **HCrop** and use the **Left/R** knob to crop the key horizontally on the left side only.
    c) Press **Left/R** and use the **L/Rgt** knob to crop the key horizontally on the right side only.
9. Crop the key vertically as follows:
    a) Use the **VCrop** knob to crop the key vertically on both the top and bottom sides at the same time.
    b) Press **VCrop** and use the **Top/B** knob to crop the key vertically on the top side only.
    c) Press **Top/B** and use the **T/Bttm** knob to crop the key vertically on the bottom side only.
10. Use the **Mask** knob to apply a mask to the key.

To Apply a Border to a DVE Key

1. Select the keyer that you want to set up a DVE key border on.

   Tip: *You can use the same procedure for a MiniME™ or MultiScreen.*

2. Select the video signal, on the key bus, that you want to use for the key.
3. Press **DVE**.
4. Use the **Border** knob to turn on the border and adjust the size of the border around the key.
5. Use the **Soft** knob to adjust the softness of the border.
6. Press **NEXT**.
7. Select a default or custom color for the border.
   - **Default** — use the **Load** knob to select a preset color for the border.
   - **Custom** — press **NEXT** and use the **BHue**, **BSat**, and **BLum** knobs to select your own color.

Masks

A Mask is a technique in which a pattern is combined with the key source to block out unwanted portions of the key source.

Two types of masks are available, Box masks and Pattern masks. All key types can be masked.

- **Box Mask** — uses a simple box shape to mask out a portion of the key
- **Pattern Mask** — uses a pattern from the pattern generator to mask out a portion of the key

To Pattern Mask a Key

Pattern masks can be adjusted for size, location, rotation, and multiplication.

1. Select the keyer that you want to set up a mask for.
2. Press **NEXT**. Depending on the key type and features set up for the key, you must press **NEXT** multiple times to get to the next step.
3. Use the **Mask** knob to select **Pattrn**.
4. Press **Edit Params**.
5. Use the **M-Frce** knob to force the area inside the mask region to the foreground (**On**).

   Force mask is not available for all key types.
6. Use the **M-Inv** knob to invert the masked area with the unmasked area (**On**).

   The portion of the key that was masked out is now visible, and the portion that was visible is masked.
7. Press **NEXT**.
8. Use the **Size** knob to adjust the size of the mask region. You can also twist the positioner.
9. Press **NEXT**.
10. Use the **Pattrn** knob to select the mask pattern you want to use. You can also select the pattern by pressing the pattern button directly.
11. Use the **X Pos** and **Y Pos** knobs to position the mask. You can also use the positioner.
12. Press **NEXT**.
13. Use the **Aspect** knob to adjust the aspect ratio of the mask.

    Not all patterns can be adjusted.
14. Use the **Border** and **Soft** knobs to apply a border to the mask.

    Refer to the section *To Apply a Border to a Pattern* on page 26 for information on borders.
15. Press **NEXT**. If a border is applied to the pattern, you must press **NEXT** multiple times to get to the next step.
16. Use the **Rot** knob to rotate the pattern.

    Not all patterns can be rotated.
17. Use the **HMult** knob to multiply the pattern horizontally.
18. Use the **VMult** knob to multiply the pattern vertically.

To Box Mask a Key

Box masks can be adjusted for size, location, rotation, and multiplication.

1. Select the keyer that you want to set up a mask for.
2. Press **NEXT**. Depending on the key type and features set up for the key, you must press **NEXT** multiple times to get to the next step.
3. Use the **Mask** knob to select **Box**.
4. Use the **M-Frce** knob to force the area inside the mask region to the foreground (**On**).

   Force mask is not available for all key types.
5. Use the **M-Inv** knob to invert the masked area with the unmasked area (**On**).

   The portion of the key that was masked out is now visible, and the portion that was visible is masked.
6. Press **NEXT**.
7. Use the **X Pos** and **Y Pos** knobs to position the mask. You can also use the positioner.
8. Use the **Size** knob to adjust the size of the mask region. You can also twist the positioner.
9. Press **NEXT**.
10. Adjust the position of the left and right sides of the box mask as follows:
    a) Use the **Left/R** knob to adjust the position of the left side of the box mask.
    b) Press the **Left/R** knob.
    c) Use the **L/Right** knob to adjust the position of the right side of the box mask.
11. Adjust the position of the top and bottom sides of the box mask as follows:

a) Use the **Top/B** knob to adjust the position of the top side of the box mask.
b) Press the **Top/B** knob.
c) Use the **T/Bttm** knob to adjust the position of the bottom side of the box mask.

Split Keys

A Split key allows you to assign a different alpha source for a key than the fill/alpha associations that are set up during configuration, or to use a separate alpha source for a Self key.

A split key can be applied to an **AUTO SELECT**, or **SELF KEY**.

To Set Up a Split Key

A split key works on an **Auto Select** or **Self Key** that has been set up and you want to apply a different alpha to.

1. Set up your key with the video source you want to use.
2. Press and hold the **Auto Select** or **Self Key**, depending on the key type you are splitting.
3. Press the source button on the key bus for the alpha source you want to use.

> ***Tip:*** *If the new alpha source is not assigned to a source button, press any other button on the key bus and use the* ***Alpha*** *knob to select a different alpha source.*

Memory Functions

A memory register is a snapshot of the current state of the switcher that can include one or multiple ME, MiniME™, or MultiScreen outputs. Up to 100 memory registers per ME, MiniME™, or MultiScreen can be stored and recalled on the switcher. Each of these memory registers can store as little as the information of one ME, or as much as the current state of the entire switcher, including all ME, MiniME™, MultiScreen outputs, Aux Buses, and DVE settings.

Memory Access Mode

Switcher memories can be accessed either through **Direct Access** or **Bank** mode.

- **Direct Access** — enter the bank and memory number to store or recall a memory
- **Bank** — enter the memory number to store or recall a memory (the bank is locked)

To Set the Memory Access Mode

The memory access mode applies to both memory storing and recalling.

1. Press **STORE**.
2. Use the **Mode** knob to select the memory access mode you want to use.

Storing Memories

When you store a memory, you are storing the complete state of that panel row. This includes the current state of all the areas on the ME, including keyer settings, transition rates, wipe and pattern selections, and source selections. In addition to the current state of the panel, the current settings for the various keyers, such as chroma key settings, and clip and gain settings, are also stored.

To Store a Memory

To store a memory, you must select which ME, MiniME™, or MultiScreen to store the memory for, and then use the mnemonic buttons to select the bank and register to store the memory in.

1. Press and hold **STORE** and select the source buttons on the key bus to select where you want to store the memory for.
   - **1** — ME
   - **3** — MiniME™ 1
   - **4** — MiniME™ 2
   - **6** — MultiScreen 1
2. Use the pattern buttons to select the bank and register. For example, press **4** and then **9** to select bank 4, register 9.

The memory has been stored to the selected memory register and the **RECALL** button is selected.

Related information

Memory Access Mode on page 42

Recalling Memories

When you recall a memory, the existing configuration of that ME is replaced with the settings stored in the memory.

Keep the following in mind when recalling memories:

- How a memory is recalled depends on the how the Memory Attributes are set.
- Recalling a memory that includes a new Media-Store image to be loaded from a USB drive may result in the currently loaded image to be displayed for a few frames while the new image is loaded.
- Recalling a memory that includes a source assigned to a camera also recalls the shot stored in the memory for that camera if the **CamRcl** memory attribute is set to **Recall**. There is no delay in the memory recall so camera movement may be visible while the shot is recalled.
- You can exit without recalling a memory register by pressing any button other than a Wipe Pattern, dedicated key transition, CUT, AUTO TRANS, or source button.
- You can override the video source stored in a memory by pressing and holding a source button and recalling the memory (Bus Hold). The held source button overrides the source that is recalled with the memory for that bus. The memory is not affected by a Bus Hold and will recall properly without the Bus Hold.
- Enabling Memory AI mode changes the way key elements are recalled. If a key is currently on-air, the element for that key is recalled in the next available off-air key. If there is no available off-air keys, the element is not recalled. All resource sharing is set to FLOAT mode so that key elements may be recalled to other keys than originally stored.

Related information

Memory Attributes on page 43

To Recall a Memory

To recall a memory, you must select which ME, MiniME™, or MultiScreen to recall the memory for, and then use the mnemonic buttons to select the bank and register to recall the memory from.

1. Press and hold **RECALL** and select the source buttons on the key bus to select what you want to recall the memory for.
   - **1** — ME
   - **3** — MiniME™ 1
   - **4** — MiniME™ 2
   - **6** — MultiScreen 1
2. Use the pattern buttons to select the bank and register you want to recall the memory from.

Related information

Memory Access Mode on page 42

Memory Recall Mode

The Memory Recall mode sets how a memory is recalled. This includes whether a memory is recalled on-air, or only on the program bus, or if effects such as Effects Dissolve or DVE Dissolve are used.

To Set Up the Recall Mode Memory Attribute

1. Press **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **Recall Mode**.
3. Use the **Value** knob to select the memory recall mode you want to use.
   - **Memory** — the memory recall mode (**PGM**, **MemAI**, or **EffDis**) stored with the memory is used
   - **PGM** — all elements are recalled as stored (default)
   - **MemAI** — current on-air elements are unchanged and the transition area is configured to take the on-air elements of the memory on-air with the next transition
   - **EffDis** — on-air elements listed below are transitioned to the elements stored in the memory
     - Matte colors (background, wash or borders)
     - Keyer settings like clip, gain, transparency
     - Mask position and size
     - Chroma key settings, except the background color
     - Pattern settings like size, position, aspect, border, softness, rotation
     - DVE settings like size, position, aspect, border, softness, cropping
     - Media-Store x/y position
     - Transition Progress

To Set the Effects Duration

Effects duration applies to Effects Dissolves, and sets the length of time that the switcher will use to transition from the on-air scene to the scene stored in the memory.

1. Press **RECALL** > **NEXT**.

   *Tip: If you want to store the effects dissolve rate in the memory, press **STORE** > **NEXT**.*
2. Use the **Attrib** knob to select **EffDur**.
3. Use the **Value** knob to select duration you want to use to transition from the current on-air scene to the one stored in the memory.
   - **Memory** — the duration stored in the memory is used
   - **1-999fr** — sets a specific duration in frames

Memory Attributes

Memory Attributes allow you to specify what elements are recalled with a memory, as well as adding effects to memory recalls. These elements include the background/preset buses, keyer bus, Aux bus, and Media-Store selections, as well as keyer on-air status, and transition selections.

In addition to setting which sources to recall with the memory, effects such as performing an auto transition after the memory recall or running a custom control after the memory recall, can also be included.

Memory attributes can be set both when the memory is stored, and when it is recalled. This allows you to store a set of attributes with a memory and then recall it as stored, or override the attributes stored in the memory and apply different ones when the memory is recalled. A

memory attribute does not need to be stored in the memory to be recalled.

> ***Tip:*** *It is recommended that if you are new to working with memories, use the memory store attributes to set how you want a memory to be recalled and set the recall attributes to be* ***Memory****.*

To Set the Program Bus Source Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **PGMBus**.
3. Use the **ME** knob to select the ME, MiniME™, or MultiScreen output that you want to set the attribute for.
4. Use the **Value** knob to select how the sources selected on the program bus are recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — sources are not recalled on the program bus
   - **Recall** — sources are recalled on the program bus (default)

To Set the Preset Bus Source Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **PSTBus**.
3. Use the **ME** knob to select the ME, MiniME™, or MultiScreen output that you want to set the attribute for.
4. Use the **Value** knob to select how the sources selected on the preset bus are recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — sources are not recalled on the preset bus
   - **Recall** — sources are recalled on the preset bus (default)

To Set the Transition Type Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **Trans**.
3. Use the **ME** knob to select the ME, MiniME™, or MultiScreen output that you want to set the attribute for.
4. Use the **Value** knob to select how the next transition type and parameters are recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — transition selections are not recalled
   - **Recall** — transition selections are recalled (default)

To Set the Next Transition Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **NextTr**.
3. Use the **ME** knob to select the ME, MiniME™, or MultiScreen output that you want to set the attribute for.
4. Use the **Value** knob to select how the next transition area is recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — next transition area settings are not recalled
   - **Recall** — next transition are settings are recalled (default)

To Set the Run Auto Trans Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **RnAuto**.
3. Use the **ME** knob to select the ME, MiniME™, or MultiScreen output that you want to set the attribute for.
4. Use the **Value** knob to select whether a transition is performed after the memory is recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRun** — a transition is not performed after the memory is recalled (default)
   - **Run** — a transition is performed after the memory is recalled

To Set the Shared Pattern Generator Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **SrdPat**.
3. Use the **ME** knob to select the ME output that you want to set the attribute for.
4. Use the **Value** knob to select whether the settings for the shared Key Mask/Wash pattern generator is recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — shared pattern generator settings are not recalled

- **Recall** — shared pattern generator settings are recalled (default)

To Set the Key Bus Sources Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **KeyBus**.
3. Use the **Key** knob to select the keyer you want to set the attribute for.
4. Use the **Value** knob to select whether sources selected on the selected key bus are recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — sources are not recalled on the key bus
   - **Recall** — sources are recalled on the key bus (default)

To Set the Key On-Air Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **KActiv**.
3. Use the **Key** knob to select the keyer you want to set the attribute for.
4. Use the **Value** knob to select whether the selected key is recalled on-air (active) or not.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — key is not recalled on-air
   - **Recall** — key is recalled on-air (default)

To Set the Key Type Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **KType**.
3. Use the **Key** knob to select the keyer you want to set the attribute for.
4. Use the **Value** knob to select whether the key type is recalled for the selected key.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — key type is not recalled
   - **Recall** — key type is recalled (default)

To Set the Key Mask Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **KMask**.
3. Use the **Key** knob to select the keyer you want to set the attribute for.
4. Use the **Value** knob to select whether mask settings for the selected key are recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — key mask settings are not recalled
   - **Recall** — key mask settings are recalled (default)

To Set the Media-Store Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **Media**.
3. Use the **Media** knob to select the Media-Store channel you want to set the attribute for.
4. Use the **Value** knob to select whether Media-Store image and settings for the selected channel are recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — Media-Store image and settings are not recalled (default)
   - **Recall** — Media-Store image and settings are recalled

To Set the Aux Bus Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **Aux**.
3. Use the **Aux** knob to select the aux bus you want to set the attribute for.
4. Use the **Value** knob to select how the sources selected on the aux bus are recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — sources are not recalled on the aux bus (default)
   - **Recall** — sources are recalled on the aux bus

To Set the Camera Shot Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **CamRcl**.
3. Use the **Value** knob to select whether camera shots are recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRcl** — camera shots are not recalled
   - **Recall** — camera shots are recalled (default)

To Set the Roll GPO Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **RllGPO**.
3. Use the **Value** knob to select whether GPI outputs attached to sources are triggered when recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRoll** — GPI outputs are not triggered
   - **Roll** — GPI outputs are trigged (default)

To Set the Roll VTR Attribute

1. Press **MENU** > **RECALL** > **NEXT**.
2. Use the **Attrib** knob to select **RllVTR**.
3. Use the **Value** knob to select whether a play command is triggered when a source that is assigned to a video server is recalled.
   - **Memory** — settings come from the memory being recalled
   - **NoRoll** — play command is not triggered
   - **Roll** — play command is triggered (default)

Clear Memories

You can clear all the memory registers on the switcher so that they are all empty. This deletes all the contents of the memories.

You cannot clear individual memory registers.

To Clear the Memory Registers

1. Press **MENU** > **RESET** > **NEXT** > **NEXT**.
2. Press the **Clear Mems** knob to clear the memory registers.

Switcher Sets

The switcher stores configuration and operation data in a number of registers that contain the individual entries for items such as memories or personality settings. These registers can be stored as a single archive file, or as a register set that contains all the individual register of that type; all memories for example. These files are stored into Sets on USB drive. Different Sets can be created for different shows or applications, allowing you to quickly locate and recall the switcher configurations.

The switcher stores information in the following registers:

- **Memory** — contains all the memories for ME, MiniME™, and MultiScreen.
- **Custom Control** — contains all the custom control banks and macros.
- **Personality** — contains all the user interface settings, such as transition rates, that are stored under the **PERS** menu. Some personality settings are specific to the control panel and can be stored independently if you are working with a MultiPanel system.
- **Installation** — contains all the external device setup, and software settings for the switcher.

To Store a Set

Switcher Sets can only be stored to a USB drive. The USB drive must be present before you try to store the Set. A total of 10 Sets of switcher setup information can be stored onto the same USB drive.

1. Insert a USB drive into the USB Port on the switcher. You must wait 5 seconds for the switcher to recognise the USB drive.
2. Press **MENU** > **SAVE**.
3. Press **MENU** > **SAVE**.
4. Use the **All** knob to select the set (**0-9**) you want to store the switcher registers to.
5. Press the knob to select the registers you want to store to the selected set. If an (*) is shown on the menu, that register already exist in the set and will be overwritten.
   - **All** — store all registers to the set.
   - **Mems** — store only the memory registers to the set.
   - **Cust** — store only the custom control registers to the set.
   - **Inst** — store only the installation registers to the set.
   - **Pers*X*** — store only the personality registers to the set. Use the **Pers** knob to select whether to include the personality setting for all panels (**PersA**) or only the current panel (**PersM/1/2**).
6. Press **Confrm**.

To Load a Set

Switcher Sets can only be loaded from a USB drive. The USB drive must be present before you try to load the settings.

1. Insert your USB drive into the USB Port on the switcher. You must wait 5 seconds for the switcher to recognise the USB drive.
2. Press **MENU** > **LOAD**.
3. Press **MENU** > **LOAD**.
4. Use the **All** knob to select the set (**0-9**) you want to load the switcher registers from.
5. Press the selected set. Only registers with an (*) shown on the menu exist in the set.
   - **All** — recall all registers from the set.
   - **Mems** — recall only the memory registers from the set.
   - **Cust** — recall only the custom control registers from the set.
   - **Inst** — recall only the installation registers from the set.
   - **Pers** — recall only the personality registers from the set. Use the **Pers** knob to select whether to include the personality setting for all panels (**PersA**) or only a specific panel (**PersM/1/2**).
6. Press **Confrm**.

Media-Store

Media-Store allows you to load stills, animations, or audio files from the USB drive and make them available across all MEs. Two channels of Media-Store with alpha, or four channels without alpha, are provided.

Keep the following in mind when working with the Media-Store:

- A still, animation, or audio can be loaded either by browsing the file system, or by entering the still number using the pattern buttons.
- You can clear a Media-Store channel by loading media number 000.
- If you are loading an Auto Key into a Media-Store channel, you must have another Media-Store channel associated with the current one to load the alpha into.
- An FTP connection using RossLinq can be created from an external device directly to a Media-Store channel on the switcher.

Working With Media-Store Animations

Media-Store animations are used for things animated backgrounds, branding "bugs", or media transitions. You can set up an animation to loop, play automatically when take on-air, play in reverse, or even play at different speeds.

You can play an animation manually by selecting the source button for the Media-Store channel with the animation you want to play, and pressing **Run**. The knob changed to **Stop** as the animation is playing.

Keep the following in mind when working with Media-Store animations:

- When you load an animation to an off-air Media-Store channel, or the animation goes off-air with a transition, the preview shows the cut point (**CutFr**) for that animation, and not the first frame of the video.
- You can manually cycle through frames by turning the **Run** knob while the animation is stopped.
- Double-pressing the **Run** knob stops playback and re-cues the animation to the first frame.
- You can shuttle forwards and backwards through the animation by turning the positioner clockwise or anti-clockwise when the animation is stopped. Shuttle speed is increased and decreased by turning the positioner more or less in each direction.
- You can run or stop an animation by pressing the button on the top of the positioner.

Related tasks

To Set Media-Store File Attributes on page 50

Working With Media-Store Audio

Audio can be added to the playout of a Media-Store channel either by loading the file directly, or by naming the audio file the same as the animation or still you want it to play out with. When you load the still or animation, the switcher will automatically load the audio file of the same name.

Keep the following in mind when working with Media-Store audio:

- Media-Store audio is only available on the AES output assigned to the Media-Store or MediaWipe channel.
- Audio files must be 20-bit or 24-bit wav files at a 48kHz sample rate.
- Audio files must be in the same folder and have the same name as the still or animation they are to be associated with.
- An audio file does not need to be of the same length as the animation it is associated with.
- A still with audio or audio only have the Auto Play and Looping attributes. These apply to the audio playout.
- The looping time of an animation with audio is the length of the animation.
- A Media-Store channel can be loaded with Audio only.

Loading Stills or Animations

Stills or animations can be loaded into Media-Store channels either from USB or the internal cache using the media number, or by browsing to the file.

Note: *The internal cache is used for sample images only and cannot be used to store user stills or animations.*

Media numbers are 4-digit numbers that are assigned to stills or animations and allow you to load stills or animations directly using the pattern buttons. Each media number is made up of three sections, the Place (0-1), the Bank (00-99), and the Item Number (0-9). The Place is either 0 for internal stills, or 1 for external.

Media-Store File Specifications

Media-Store images and animations can be TGA, PNG, or JPG file formats. For animations, the files must be numbered to indicate the order they go in, and the name and the number must be separated with an underscore. For audio, 20-bit or 24-bit wav files of the same name as the still or animation are used to associate audio with a still or animation.

- Anim_001.tga
- Anim_002.tga
- Anim_003.tga
- ...
- Anim_100.tga

Together, these files are treated as a single animation named Anim that is 100 frames long.

Note: *An animation must start with _001 as the end of the name of the first frame.*

Files names cannot contain symbols such as **! @ # & * ( ) / , ? ' "** and cannot start with an underscore (_).

To Load a Still or Animation

Stills or animations can be loaded from the USB drive, or from the internal cache. Only the default images that came with your switcher are available on the internal cache.

1. If you are loading a file from USB, insert your USB drive into the USB Port on the switcher. You must wait 5 seconds for the switcher to recognise the USB drive.

   If the files on your USB are new, it takes about 2 seconds per file for the switcher to generate the thumbnail for the MediaManager. Once all the thumbnails are generated, they are displayed in the MediaManager window.

2. Press the source button for the Media-Store channel that you want to load a still into. If the file has an alpha, the paired channel will load the alpha as well.
3. Press the **Browse** knob.
4. Use the left knob to navigate to the file you want to load. Press the knob to make a selection.
   - **<..>** — up one
   - **USB(1)** — the USB drive
   - **Internal(0)** — the internal cache
   - **<folder>** — a sub-folder of the name "folder"
   - **image** — a still of the name "image"
   - **image.tga .wav** — a still with an associated audio file (not in the database)
   - **image [V][A]** — a still with an associated audio file (in the database)
   - **animation [V10]** — a 10 frame animation of the name "animation" (in the database)
   - **animation.tga[10] .wav** — a 10 frame animation with an associated audio file (not in the database)
   - **animation [V10][A]** — a 10 frame animation with an associated audio file (in the database)

Tip: *If you want to associate an audio file with the still or animation but the **.wav** does not appear in the name, ensure that the audio file is named the same as the still or animation and in the same folder.*

A still or animation can be loaded using the Media Number for the still and the pattern buttons.

Related information

Working With Media-Store Animations on page 48

To Load Stills Using Media Numbers

How you load a still using the media number depends on whether the Place or Media are locked. If the Place is locked, you only have to enter the 3-digit Media number. If the Place and Media are locked, you only have to enter the last digit of the Media number.

Note: *Loading 000 clears the current Media-Store channel.*

1. Insert your USB drive into the USB Port on the switcher. You must wait 5 seconds for the switcher to recognise the USB drive. If you are loading a file from the internal cache, you do not need the USB drive.
2. Press the source button for the Media-Store channel that you want to load a still into. If the file has an alpha, the paired channel will load the alpha as well.
3. Using the pattern buttons, enter the media number for the still you want to load. For example, press **1051** to select the USB(1) drive, Media 051.
4. Press **Select**.

Related tasks

To Lock a Media Number Place and Bank on page 51

Media-Store Capture

Still images can be captured from any input BNC, as well as the program, preview, and clean feed from any ME.

To Capture a Still

1. Insert your USB drive into the USB Port on the switcher. You must wait 5 seconds for the switcher to recognise the USB drive.
2. Press the source button for the Media-Store channel that you want to capture a still into.
3. Press the **Capt** knob.
4. Press the **P/B** or **E/E** knob to select the mode you want the Media-Store in.
   - **E/E** — electronic-to-electronic, or record, mode allows you to record a still
   - **P/B** — playback mode allows you to review your still
5. Use the **P/B** or **E/E** knob to select the video source that you want to perform the capture of.
6. Press **NEXT**.
7. Use the **Alpha** knob to select whether you want to capture the alpha signal (**Yes**) or not (**No**). You must have an input BNC selected as the capture source to capture the alpha.
8. Press **NEXT**.
9. Use the **Capt** knob to select a number for the still you want to capture.
10. Press the **Capt** knob to perform the capture. The new media item is stored and the media number is increased by one.

Media-Store Attributes

Attributes are applied to the image or animation directly, regardless of the channels that the image or animation are loaded in. If you adjust the attributes of the still in one channel, these settings are applied to that image or animation in all other channels that the same image or animation is loaded into.

Understanding the Attributes Menu

When you select a still or animation, the menu system displays a number of attributes that allow you to adjust how a the image or animation appears. The options that are available depend on the type of Media-Store image or animation that is selected.

Table 3: Attributes Menu Items

Menu Item	Description
X Pos	selects the horizontal position of the image or animation
Y Pos	selects the vertical position of the image or animation
Shaped	selects shaped or unshaped for the alpha of the image or animation
Looping	selects whether the animation loops automatically or not
Reverse	selects whether the animation plays in reverse or not
AutoPly	selects whether the animation starts playing automatically when taken on-air or not
Speed	selects the speed that an animation plays at (0.1-10)
Media*X*	selects the media number that you want to use to recall the still or animation
CutFr	selects the point, in frames, from the start of the animation that the background transition occurs
GPO	selects the GPI output that you want to trigger by a media transition
GPOFr	selects the time, in frames, from the start of the media transition that the GPI output is triggered
Mute	selects whether the associated audio is turned on or off during playback

To Set Media-Store File Attributes

The attributes that you can set depend on whether the file you are setting them for is a still or animation.

1. Insert your USB drive into the USB Port on the switcher. You must wait 5 seconds for the switcher to recognise the USB drive. If you are loading a file from the internal cache, you do not need the USB drive.
2. Press the source button for the Media-Store channel that you want to load a still into. If the file has an alpha, the paired channel will load the alpha as well.
3. Press **NEXT**.

4. Use the **Attrib** knob to select the attribute you want to set, and the **Value** knob to select the value you want to assign to the attribute.
   - **X Pos** — selects the horizontal position of the image or animation
   - **Y Pos** — selects the vertical position of the image or animation
   - **Shaped** — selects shaped or unshaped for the alpha of the image or animation
   - **Looping** — selects whether the animation loops automatically or not
   - **Reverse** — selects whether the animation plays in reverse or not
   - **AutoPly** — selects whether the animation starts playing automatically when taken on-air or not
   - **Speed** — selects the speed that an animation plays at (0.1-10)
   - **Media*X*** — selects the media number that you want to use to recall the still or animation
   - **CutFr** — selects the point, in frames, from the start of the animation that the background transition occurs
   - **GPO** — selects the GPI output that you want to trigger by a media transition
   - **GPOFr** — selects the time, in frames, from the start of the media transition that the GPI output is triggered
   - **Mute** — selects whether the associated audio is turned on or off during playback
5. Use the **Func** knob to select how you want to save the attributes.
   - **Save** — saves the adjustments for the selected **Attrib** value only
   - **SavAll** — saves the adjustments for all **Attrib** values
   - **Revert** — undoes the adjustments for the selected **Attrib** value only
   - **RevAll** — undoes the adjustments for all **Attrib** values
6. Press the **Func** knob to make the selection.

To Lock a Media Number Place and Bank

Locking the Media Number Place and Bank means that you do not have to enter them when loading a still. Lock setting are specific to the channel they are set on.

1. Press the source button for the Media-Store channel that you want to set the Place and Bank lock settings for.
2. Press the **Browse** knob.
3. Press **NEXT**.
4. Use the **Place** knob to select USB or Internal.
5. Press the **Place** knob to toggle the lock on or off. Locked is shown with [] around the name.
6. Use the **Media** knob to select the bank you want to lock to.
7. Press the **Media** knob to toggle the lock on or off. Locked is shown with [] around the name.

Related tasks

To Load Stills Using Media Numbers on page 49

MediaManager

The MediaManager provides a graphical interface to the operation of the Media-Store from. The layout of the MediaManager window is stored in Perspectives. The last loaded Perspective is used when the browser is refreshed or opened.

From the Menu Bar at the top of the window you can manage Perspectives.

Tip: *You can either launch the MediaManager directly using the switcher IP address, or you can access it using the MediaManager node in DashBoard. If you are logging into MediaManager from DashBoard, you must have Microsoft® Internet Explorer® 10, or higher, installed.*

Using MediaManager

To use the MediaManager, you must have a computer connected to the same subnet as the switcher, the IP address of your switcher, and the Google Chrome™ browser installed on your computer. In the web browser, navigate to the IP address of the switcher, the MediaManager is displayed.

When you are communicating with the switcher, a moving status indicator is shown in the lower right corner of the browser window. If you lose communications with the switcher, refresh the browser window to reconnect. Refreshing the browser will reset your Perspectives.

Keep the following in mind when logging in and using the MediaManager:

- Ross Video recommends using Google Chrome™ v14.0 running on Microsoft®

Windows® 7 or Macintosh® OS X® Lion to connect to the MediaManager.

- Your browser must have Oracle® JavaScript® and cookies enabled.
- Ross Video recommends that you do not connect more than 5 MediaManager clients to a single switcher at the same time.

The MediaManager Window

The MediaManager window provides a graphical interface to the Media-Store. From this window, you can load stills or animations from the internal cache or USB into a Media-Store channel or edit the on-air properties. Media-Store channels have a red background when on-air and green when going on-air with the next transition.

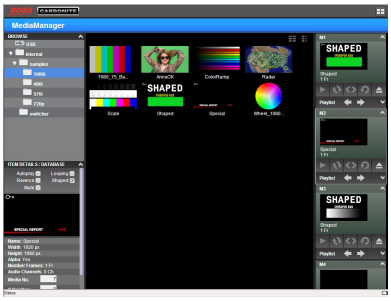


Figure 20: MediaManager Window

Tip: *The film-strip symbol (🎞) on a thumbnail indicates that the media item is an animation, the key symbol (🔑) indicates that the still or animation has an alpha, and the speaker symbol (🔊) indicates that the media item has audio associated with it.*

Stills and animations can be loaded into a channel by either selecting the channel and double-clicking on the file, or by dragging a file and dropping it onto the channel. When a channel or file is selected, the properties for the animation or still can be viewed in the **ITEM DETAILS** area.

Note: *If the files on your USB are new, it takes about 2 seconds per file for the switcher to generate the thumbnail for the MediaManager. Once all the thumbnails are generated, they are displayed in the MediaManager window.*

Animation Controls

The MediaManager interface allows you to manually control the play-out of an animation.

Figure 21: Media-Store Channel — Animation Controls

Table 4: Animation Controls

Icon	Name	Description
	Play	Play the animation loaded in the Media-Store channel.
	Looping	Turns **Looping** of the animation on or off.
	Reverse	Toggle the direction that the animation is played in.
	Recue	Loads the animation again.
	Eject	Eject the current still or animation from the Media-Store channel. This is the same as loading media number **000** on the panel.

Playlists

Playlists allow you to create a rundown of stills or animations that you want to load into a Media-Store channel. Using the left and right arrows, you can advance to the next or previous still or animation in the playlist.

Note: *Items on the playlist are not pre-cached. As you advance to the next item in the list, the switcher must load that still or animation. Depending on what you are loading, and if the item has been loaded before, this could take a few seconds.*

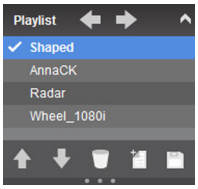


Figure 22: Playlist

Table 5: Playlist Controls

Icon	Name	Description
	Previous	Advance to the previous item in the playlist. The item in the playlist that is being shown on the Media-Store channel indicated with a check-mark. The playlist does not loop back to the top when it reaches the last item.

Icon	Name	Description
	Next	Advance to the next item in the playlist.
	Up and Down	Move the currently selected item up in the playlist.
	Up and Down	Move the currently selected item down in the playlist.
	Delete	Delete the selected item from the playlist. This does not delete the item, or clear the Media-Store channel.
	New Playlist	Clears the current playlist.
	Load or Save Playlist	Allows you to load, save, or delete a playlist on the switcher. If you delete a playlist that was loaded into a Media-Store channel, it does not clear that channel.
	Expand or Collapse	Expand or Collapse the playlist area for the Media-Store channel.

Clip Player

The clip player offers a single playout channel for compressed MPEG-4 AVC (ITU-T H.264) that can be assigned as a source on any bus in the switcher. Basic transport controls can be performed manually from the **Clip Player** page, using custom controls, or through AMP commands.

Note: *The clip player requires a frame sync (FSFC or MSFS) to properly time the clip video.*

Clip Specifications

The clip player supports clips in the ITU-T H.264 (MPEG-4 AVC) codec in specific HD video formats.

Codecs

- ITU-T H.264 (MPEG-4 AVC)
  - **Profile** — Baseline, Constrained Baseline, Main, or High
  - **Version** — 4.1 or lower

Clip and Video Formats

Only clip formats for 1280×720 are supported by the clip player. The clip frame rates that are supported by the clip player depend on the video format that the switcher is operating in.

Note: *Other clip and video format combinations may work in some applications, but playout quality cannot be guaranteed.*

Note: *Due to performance restrictions, clip playback is not recommended when the switcher is operating in 1080p 59.94Hz.*

Note: *The clip player does not support playing clips when the switcher is operating in a pSF video format.*

Table 6: Supported Switcher Video Formats and Clip Resolution and Frame Rates

Vid Format	1280×720 25FPS	1280×720 29.97FPS	1280×720 50FPS	1280×720 59.94FPS
1080p 59.94Hz				
1080p 50Hz	Y		Y	
1080p 29.97Hz		Y		
1080p 25Hz	Y		Y	
1080pSF 29.97Hz				
1080pSF 25Hz				
1080i 59.94Hz		Y		
1080i 50Hz	Y			
720p 59.94Hz				Y
720p 50Hz			Y	

Clip Names

The name can contain letters, numbers, spaces, dashes, underscores, and, periods, but should not contain symbols.

Tip: *A maximum of 255 clip names can be displayed.*

Audio

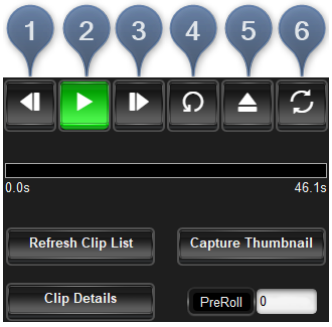
The clip player supports playout of the first two channels of embedded audio on either the AES or HDMI™ ports. Audio cannot be embedded in the video playout and must be 24-bit at 48kHz.

The clip player audio must be assigned to the AES or HDMI™ port for audio playout.

Clip Player Interface

The clip player interface (Click **Navigation Menu** > **Live Assist** > **Clip Player**) provides basic transport controls and clip management.

Tip: *Click **Reset Clip Player** to reset the clip player if it is in a non-responsive state.*



Transport Controls

1. **Step Back** — Step backwards by 1/10 second.
2. **Play/Pause** — Play the current clip forward at 1-times normal speed.

3. **Step Forward** — Step forward by 1/10 second.
4. **Re-cue** — Re-cue the current clip to the first frame.
5. **Eject** — Eject the current clip from the clip player channel. The thumbnail preview shows `no clip selected` and the output is black.
6. **Loop** — Toggle loop mode on where the clip starts playing again from the start after it reaches the end.

The progress bar below the transport control buttons shows the progress of the playout of the clip. The number at the left of the progress bar is clip timecode, and the number at the right is the time remaining. You can click on any point on the progress bar to jump to that point in the clip.

*Tip: Click **Capture Thumbnail** to use the current frame of the clip as the thumbnail for the clip in the clip player.*

Clip Control

Below the transport controls are a number of buttons for managing clip lists and setting the pre-roll time.

- **Refresh Clip List** — Refreshes the list of clips found on the USB. If you add a clip directly to the USB via FTP, you must refresh the list for the new clip(s) to appear in the list.
- **Capture Thumbnail** — Captures the current frame of the clip for use as a thumbnail of the clip. You can use the progress bar to jump to the frame you want to use.
- **Clip Details** — Displays a popup with details on the video and audio properties of the clip that is currently loaded.
- **AMP PreRoll** — Enter the pre-delay (pre-roll) interval (in frames) that the switcher waits after the clip player starts playing and before taking the input source on-air. Depending on the clip you are playing, you may have to increase this value to ensure that your clip is playing just as it is transitioned on-air. This value is used with the **Roll Clip** transition functionality.

Panel Control

When you select the clip player on a bus on the control panel, the menu follows and allows you to select and cue a clip.

1. Use the **Clips** knob to select the clip you want to load into the clip player.

   *Tip: Press the **Clips** knob to refresh the clip list and jump to the first clip in the list. This is useful when you add or delete a clip from the directory.*

2. Press the **Cue** knob to cue the selected clip.
3. Press the **Play** knob to play the cued clip.

Custom Control

The Video Server custom controls can be used to control the clip player. When you are creating the custom control, select the **ClipPlyr** video server as the target device.

To Load a Clip

Clips located in the video folder on the USB can be loaded into the clip player. Sub-folders are not supported at this time.

Clips must be located on the USB in the `/clips/video` folder. The switcher will create this folder if it does not already exist.

Important: Do not copy a clip to the USB while a clip is playing. Copying a clip to the USB while the Clip Player is playing a clip can cause the clip to stutter or stop.

*Note: You must apply a frame sync (FSFC or MSFS) (Click **Navigation Menu** > **Configuration** > **Reference**) to the clip player to lock the video to the switcher format.*

1. Click **Navigation Menu** > **Live Assist** > **Clip Player**.
2. Click on the clip you want to load.

   Note: The clips is loaded into the channel as soon as you click on it. If a clip is already playing it is ejected and the new clips is loaded.

   *Tip: If the clip you want to load does not appear in the list, click **Refresh Clip List**. The switcher re-scans the USB folder and updates the clip list.*

   Tip: You can use FTP to copy a clip to USB while it is still in the switcher. Refer to To Create an FTP Connection with Windows 7 for information on creating an FTP connection to the USB.

   The clip is loaded and queued into the clip player.
3. Click **Clip Details** to view general, video, and audio information on the currently loaded clip.

Custom Controls

Once programmed, a custom control (CC) can be played back by pressing a button. The custom control can be as simple as triggering an output GPI pulse, or as complex as recalling a specific memory register on an ME, performing a switcher transition, and selecting a group of keys.

You can record, edit, and run custom controls from the Custom Control node in DashBoard.

Custom Control Setup (Carbonite Black Solo Only)

The custom control interface on your switcher can be customized to automatically add delays between each custom control event as you are recording a custom.

To Set Custom Control Options

1. Press **EDIT** > **NEXT** > **NEXT**.
2. Use the **CCPaus** knob to set whether pauses are added automatically after each event.
   - **Manual** — pauses are not added automatically
   - **Record** — each command is automatically separated from the previous command by a pause equal to the real-time delay between the user entering commands

Recording Custom Controls

When you create a custom control, you record a series of button presses on the panel, as well as special functions, that are played back when you run the custom control.

Almost any action or setting can be stored in a custom control, with the following exceptions:

- Diagnostic Functions
- Confirmation Dialogs
- Panel-Specific Functions

To Record a Custom Control

A basic custom control records a series of button presses on the control panel.

1. Press **MENU** > **BANK CC** > **START/STOP**.
2. Use the **Bank** knob to select the bank that the custom control you want to record will be stored on.
3. Use the **CC** knob to select the custom control that you want to record to, or select the custom control on the bus directly. If the custom control already has a macro recorded, an ***** is shown next to the number.
4. Press **START/STOP** to start recording.
5. Insert the events you want to record. These can include source selections, key types, transitions, and menu selection, for example. Special functions can also be inserted.

   Each custom control can have a maximum of 998 events, plus the End event.
6. Press **START/STOP** to finish recording.

*Tip: Press **CANCEL** if you do not want to store your changes to the custom control.*

Special Functions

Special functions allow you to include events not associated with a button press into a custom control. A special function can be inserted into any existing custom control, or used when creating a new custom control.

Table 7: Special Functions

Function	Definition
Hold	Allows you to place a command in a custom control that will stop the custom control at the hold event. You must press the custom control button again, or use a GPI trigger, to continue the custom control.
Pause	Allows you to place a command in a custom control that will stop a custom control at the pause event. The length of the pause is set when the pause is inserted.
Loop	Allows you to have a custom control run continuously until stopped, or a Cancel/Cancel All custom control command is executed from another custom control.
GPO	Allows you to trigger a pre-selected GPI output using a custom control. The specific GPI output is set when the GPO command is inserted.
CutKey	Allows you create a custom control that will cut keys on or off. The specific key and whether the key is cut on or off is set when the key cut command is inserted.

Function	Definition
TrnKey	Allows you to create a custom control that will transition keys on or off. The specific key and whether the key is transitioned on or off is set when the key transition command is inserted.
IncKey	Allows you to create a custom control that will include a key with the next transition to take the key on-air, or off-air. The specific key and whether it should go on-air, or off-air is set when the include key command is inserted.
Resume	Allows you to resume a particular custom control that is at a hold. The specific custom control is set when the resume is inserted. If the target custom control is not at a hold event, the resume command will not start the target custom control.
Cancel	Allows you to stop a particular custom control. The specific custom control is set when the cancel is inserted.
CancelAll	Allows you to stop all running custom controls.
State	Allows you to embed the entire state of the switcher into a custom control. A state in a custom control behaves just like a memory.

To Insert a Special Event into a Custom Control

A special function can be inserted into any existing custom control, or used when creating a new custom control.

1. Start recording or editing your custom control where you want to insert the special event.
2. Press **INSERT**.
3. Use the **INSERT** knob to select the event you want to insert.

   You can also press and hold the **INSERT** button and press the source button on the custom control bus for the event you want to insert. The event names are shown on the mnemonics.

   - **Hold** — press the **Insert** knob to insert a hold event
   - **Pause** — use the **Secs** and **Frames** knobs to enter the length of the pause event
   - **Loop** — press the **Loop** knob to loop the custom control back to the beginning
   - **GPO** — use the **Pin** knob to select the GPI output
   - **CutKey** — use the **Key** knob to select the key, and the **State** knob to select whether you want the key cut on or off
   - **TrnKey** — use the **Key** knob to select the key, and the **State** knob to select whether you want the key transitioned on or off
   - **IncKey** — use the **Key** knob to select the key, and the **State** knob to select whether the key should be transitioned on-air or off-air with the next transition
   - **Resume** — use the **Bank** knob to select the custom control bank, and the **CC** knob to select which custom control to resume
   - **Cancel** — use the **Bank** knob to select the custom control bank, and the **CC** knob to select which custom control to cancel
   - **CancelAll** — press the **CancelAll** knob to insert a cancel all custom controls command
   - **State** — press the **Insert** knob to insert the state
4. Press the **Insert** knob to insert the event.
5. Press **START/STOP**.

Running a Custom Control

Once a custom control has been programmed, you can run that custom control by pressing the button that the custom control was recorded to.

Keep the following in mind when running custom controls:

- A custom control will continue to run until it reaches a hold event, is stopped by another custom control, you edit a custom control, or the custom control reaches the end.
- When a custom control is running, the button on the custom control bus is red.
- When a custom control is held (at a Hold event), the button on the custom control bus flashes white.
- You can run multiple custom controls at the same time. The number of running custom controls is shown on the display when in custom control mode.
- You can stop a running custom control by pressing the red custom control button on the custom control bank.
- You can stop all running custom controls by selecting a custom control with no events recorded to it.
- A maximum of 128 custom controls can be run at the same time.

To Run a Custom Control

Once a custom control has been recorded, you can run that custom control at any time.

1. Press **MENU**.
2. Press and hold the **CC BANK** button and select the bank you want to use by pressing the source button on the key bus. As you hold the **CC BANK** button the source button for the currently selected bank is lit.

   Tip: Any of the user select buttons can be assigned as a cc bank select button.

3. Select the custom control you want to run by pressing the source button on the custom control bus.
   The custom control starts to play immediately.

Editing a Custom Control

After you have recorded a custom control, you can go back and edit that custom control to add or remove events.

*Tip: Custom controls can also be edited from the **Custom Control** node in DashBoard.*

To Edit a Custom Control

When editing a custom control, you can delete and insert events at any point in the custom control, or append events to the end.

*Tip: When editing a custom control, press **RUN EVENT** to run the currently selected event. This can help you diagnose problems in a custom control.*

1. Press **MENU** > **BANK 1** > **EDIT**.
2. Use the **Bank** knob to select the bank that the custom control you want to record will be stored on, or select the bank button directly.
3. Use the **CC** knob to select the custom control that you want to edit, or select the custom control on the bus directly. The custom control will have an ***** next to the number.
4. Use the **Func** knob to select where and how you want to edit the custom control.
   - **Edit** — select the position in the custom control to edit events
   - **Append** — add events to the end of the custom control
5. Press the **Func** knob to start editing.

   *Tip: You can also start editing a custom control by pressing and holding **EDIT** and selecting the bank and custom that you want to edit to.*

   The display changes to show the name and duration of the custom control, and the currently selected event in the custom control.
6. Delete an event in a custom control as follows:
   a) Use the left knob to select the event you want to delete. You can also use the **PREV** and **NEXT** buttons.
   b) Press **DELETE**.
7. Insert an event into a custom control as follows:
   a) Use the left knob to select the event you want to insert an event before. You can also use the **PREV** and **NEXT** buttons.
   b) Press **INSERT**.
   c) Insert the events you want.
   d) Press **START/STOP** to finish recording.

To Edit a CC From DashBoard

When editing a custom control, you can delete and insert events at any point in the custom control, or append events to the end.

*Tip: When editing a custom control, press **Run Event** to run the currently selected event. This can help you diagnose problems in a custom control.*

1. Click **Navigation Menu** > **Custom Control** > **Editor (Beta)**.
2. Click **Bank *X*** to select the bank that the custom control you want to edit is on.
3. Click the custom control that you want to edit.
4. Click the event that you want to edit or insert an event before.

   Refer to *Custom Control Events* on page 59 for information on available events.
5. Edit the custom control or event.
   - **Append (Record)** — start inserting events to the end of the custom control
   - **Append** — insert the current event at the end of the custom control
   - **Copy** — copy the entire custom control
   - **Delete** — delete the entire custom control
   - **Delete Event** — delete the currently selected event

- **Edit Event** — edit the parameters of the currently selected event
- **Insert (Record)** — start insert events after the currently selected event
- **Insert** — insert the current event after the currently selected event
- **Record** — start recording a new custom control over the existing one
- **Run Event** — run the currently selected event

Custom Control Events

The Custom Control editor in DashBoard allows you to add or edit events in custom controls.

*Tip: The Video Server custom controls can be used to control the internal clip player. When you are creating the custom control, select the **ClipPlyr** video server as the target device.*

Event	Location	Description
Ancillary Data Mode	**Switcher Installation** > **Ancillary Mode**	Select how the switcher will strip or pass ancillary data. **1.** Click a **Value** button to select how the switcher treats ancillary data.
Audio Mixer Pan	**Devices** > **Audio Mixer**	Set the pan level for the selected channel on the selected device. **1.** Click **Audio Pan**. **2.** Click the **Audio Mixer** button and select the device you want to send the command to. **3.** Click the **Channel** button and select the channel you want to send the command to. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the new pan level in the **Pan Left/Right (%)** field.
Audio Mixer Volume	**Devices** > **Audio Mixer**	Set the level for the selected channel on the selected device. **1.** Click **Audio Volume**. **2.** Click the **Audio Mixer** button and select the device you want to send the command to. **3.** Click the **Channel** button and select the channel you want to send the command to. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the new audio level in the **Volume (%)** field.
Auto Trans	**Switcher** > **Transition** > **ME Trans Action**	Performs an auto transition on the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Auto Trans**.
Bus Source Select	**Switcher** > **Bus Source Select**	Select a source on the selected bus for the selected area. **1.** Click the **ME** button and select the area that you want to select a bus on. **2.** Click the **Bus/Keyer** button and select the bus that you want to select a source on. **3.** If you selected a key bus, click a **Bus** button to select whether you are selecting a source for the fill (**Video**) or the alpha (**Alpha**) of the key. **4.** Click the **Source** button and select the source that you want on the selected bus.
Cancel All CC	**Special** > **Cancel All**	Cancel all running custom controls.

Event	Location	Description
Cancel CC	**Special** > **Cancel CC**	Cancel a running custom control. **1.** Click the **Bank** button and select the custom control bank you want to cancel a custom control on. **2.** Click the **CC** button and select the custom control you want to cancel.
Chroma Key, Initialize	**Switcher** > **Keyer** > **Chroma Keyer Init**	Initialize a chroma key for the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on.
Chroma Key Color	**Switcher** > **Keyer** > **Chroma Keyer Color**	Select the color you want to key out for the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click **Color** and select the color you want to key out.
Chroma Key Mode	**Switcher** > **Keyer** > **Chroma Keyer Mode**	Select the mode for a chroma key for the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click a **Mode** button to select whether you want the chroma key to operate in basic mode (**Basic**), or advanced (**Advanced**).
Chroma Key Setup	**Switcher** > **Keyer** > **Chroma Keyer Param**	Select the various advanced chroma key settings for the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select the parameter you want to adjust. **4.** Click the **Value** button and select the new value you want to enter for the selected parameter.
Clean Feed	**Switcher Installation** > **ME** > **ME Clean Feed**	Select the clean feed location for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click a **Before Keyer** button to select whether you want the clean feed output to be taken before key 1 (**Keyer 1**), key 2 (**Keyer 2**), or key 3 (**Keyer 3**).
Color Framing	**Switcher Installation** > **Reference** > **Color Framing**	Select whether color framing for the reference outputs is synchronized. **1.** Click a **Framing** button to select whether color framing is synchronized (**Sync**) or not (**NoSync**).
Cut	**Switcher** > **Transition** > **ME Trans Action**	Performs a cut on the selected ME. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Cut**.

Event	Location	Description
DVE Freeze	**Switcher** > **Keyer** > **DVE Freeze**	Turn the DVE freeze feature on or off for the selected key for the selected ME, MiniME™, or MultiScreen. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Value** button and select whether to freeze the video and appearance of a key (**On**) or not (**Off**). When a key is frozen, the DVE attribute are disabled and you can not move the key.
DVE Key Aspect	**Switcher** > **Keyer** > **DVE Param**	Select the aspect ratio for the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Aspect**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter an aspect ratio in the **Value (%)** field.

Event	Location	Description
DVE Key Border Color (HSL)	**Switcher** > **Keyer** > **DVE Border Color (HSL)**	Select the custom color you want to apply to the border of the DVE key of the selected area. Each component of the HSL color must be inserted individually. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Component** button and select the HSL component you want to assign a value to. A value should be applied to all three components. **5.** Enter a value for the selected component in the **Value (%)** field.
DVE Key Border Color (Preset)	**Switcher** > **Keyer** > **DVE Border Color (Preset)**	Select the preset color you want to apply to the border of the DVE key of the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Color** button and select the preset color you want to apply to the border.

Event	Location	Description
DVE Key Border	**Switcher** > **Keyer** > **DVE Param**	Select the size of border for the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Border**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a size for the border in the **Value (%)** field.
DVE Key Crop (Bottom Edge)	**Switcher** > **Keyer** > **DVE Param**	Select the amount of cropping on the bottom edge of the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Bottom Edge**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the amount of cropping in the **Value (%)** field.

Event	Location	Description
DVE Key Crop (Dual Edge)	**Switcher** > **Keyer** > **DVE Crop Param**	Select the amount of cropping on both horizontal or vertical edges of the DVE key of the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Parameter** button and select the edges you want to crop. **5.** Enter the amount of Left or Top cropping you want to apply in the **Value %** field. **6.** Enter the amount of Right or Bottom cropping you want to apply in the **Other Value %** field.
DVE Key Crop (Left Edge)	**Switcher** > **Keyer** > **DVE Param**	Select the amount of cropping on the left edge of the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Left Edge**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the amount of cropping in the **Value (%)** field.

Event	Location	Description
DVE Key Crop (Right Edge)	**Switcher** > **Keyer** > **DVE Param**	Select the amount of cropping on the right edge of the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Right Edge**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the amount of cropping in the **Value (%)** field.
DVE Key Crop (Top Edge)	**Switcher** > **Keyer** > **DVE Param**	Select the amount of cropping on the top edge of the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Top Edge**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the amount of cropping in the **Value (%)** field.

Event	Location	Description
DVE Key Edge Softness	**Switcher** > **Keyer** > **DVE Param**	Select the amount of softness to apply to the edge of the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Softness**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter an amount of softness for the DVE key or border in the **Value (%)** field.
DVE Key Size	**Switcher** > **Keyer** > **DVE Param**	Select the size of the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Size**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new size in the **Value (%)** field.

Event	Location	Description
DVE Key X-Position	**Switcher** > **Keyer** > **DVE Param**	Select the x-axis position of the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **X-Pos**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new position in the **Value (%)** field.
DVE Key Y-Position	**Switcher** > **Keyer** > **DVE Param**	Select the y-axis position for the DVE key on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Y-Pos**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new position in the **Value (%)** field.
DVE Wipe, Reset	**Switcher** > **Transition** > **DVE Wipe Reset**	Reset the parameters or direction and flip-flop for the DVE wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click **Reset** to reset the DVE wipe parameters.

Event	Location	Description
DVE Wipe Direction (Flip-Flop)	**Switcher** > **Transition** > **DVE Wipe Direction**	Select whether the DVE wipe reverses direction for every second transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click **Flip-Flip**. **4.** Click **On** or **Off** to select whether Flip-Flop is on (**On**) or not (**Off**).
DVE Wipe Direction	**Switcher** > **Transition** > **DVE Wipe Direction**	Select the direction for the DVE wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click **Direction**. **4.** Click **Forward** or **Reverse** to select whether the DVE wipe moves in a forward (**Forward**) or reverse (**Reverse**) direction.
DVE Wipe Pattern	**Switcher** > **Transition** > **DVE Wipe Effect**	Select the pattern you want to use for a DVE wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Effect** button and select the pattern you want to use for the DVE wipe.

Event	Location	Description
EmbeddedTriggers — Enable	**Switcher Installation** > **Embedded Trigger** > **Enable**	Select whether EmbeddedTriggers is enabled or not for the selected output. **1.** Click the **Output** button and select the output BNC that you want to send EmbeddedTriggers commands on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click a **Value** button to select whether EmbeddedTriggers commands are inserted for the selected output (**On**) or not (**Off**).
EmbeddedTriggers — Insert Trigger	**Switcher Installation** > **Embedded Trigger** > **Trigger CC**	Select the custom control to insert into the EmbeddedTriggers message. **1.** Enter the custom control bank in the **Bank** field. **2.** Enter the custom control in the **CC** field.
EmbeddedTriggers — Set DID	**Switcher Installation** > **Embedded Trigger** > **Settings**	Select the data identifier word (DID) you want to use for the EmbeddedTriggers message. **1.** Click **DID** **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Enter the DID value you want to use in the **Value** field.

Event	Location	Description
EmbeddedTriggers — Set Line	**Switcher Installation** > **Embedded Trigger** > **Settings**	Select the line in the VANC that the EmbeddedTriggers message will be inserted on. **1.** Click **Line** **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Enter the line value you want to use in the **Value** field.
EmbeddedTriggers — Set Remote ID	**Switcher Installation** > **Embedded Trigger** > **Settings**	Select the remote ID you want to use to identify the switcher that the EmbeddedTriggers message is coming from. **1.** Click **Remote ID** **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Enter the remote ID value you want to use in the **Value** field.
EmbeddedTriggers — Set SDID	**Switcher Installation** > **Embedded Trigger** > **Settings**	Select the secondary data identifier word (SDID) you want to use for the EmbeddedTriggers message. **1.** Click **SDID** **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Enter the SDID value you want to use in the **Value** field.

Event	Location	Description
Fly Key (DVE)	**Switcher** > **Keyer** > **Keyer Fly**	Assign DVE resources (Fly) to the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Value** button and select whether DVE resources are assigned to the key (**On**) or not (**Off**).
GPI Output — Edge Trigger Setup	**Devices** > **GPO**	Set up the type of edge trigger for the GPI output. **1.** Click **GPO Edge Duration** **2.** Click the **GPO** button and select the GPI output that you want to configure. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter the duration of the edge trigger in the **Duration (fr)** field.
GPI Output — Level Trigger Setup	**Devices** > **GPO**	Set up the type of level trigger for the GPI output. **1.** Click **GPO Level Config** **2.** Click the **GPO** button and select the GPI output that you want to configure. **3.** Click a **Level** to select whether the level trigger uses a high (**High**) or low (**Low**) level trigger.
GPI Output — Mode	**Devices** > **GPO**	Select whether the level trigger GPI output act as a tally. **1.** Click **GPO Mode** **2.** Click the **GPO** button and select the GPI output that you want to configure. **3.** Click a **Mode** button to select whether the level trigger GPI output, when assigned to video source, acts as a roll clip (**Normal**) or as a tally (**Tally**) for the selected source.
GPI Output — Trigger	**Devices** > **GPO**	Trigger a GPI output. **1.** Click **GPO Trigger** **2.** Click the **GPO** button and select the GPI output that you want to trigger.
GPI Output — Trigger Type	**Devices** > **GPO**	Select the type of trigger for the GPI output. **1.** Click **GPO Trigger Configuration** **2.** Click the **GPO** button and select the GPI output that you want to configure. **3.** Click a **Trigger** to select whether the GPI output uses a level (**Level**) or edge (**Edge**) trigger.
Hold CC	**Special** > **Hold**	Insert a hold into the custom control.
Key, Make Linear	**Switcher** > **Keyer** > **Keyer Make Linear**	Make the selected key linear on the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to make linear.

Event	Location	Description
Key Active	**Switcher** > **Keyer** > **Keyer Active**	Transition a key (or include it in the next transition) on or off-air for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Parameter** button and select a cut (**Cut Key**) or auto transition (**Trans Key**) for the key, or have to key included in the next transition (**Include Key**). **5.** Click the **Value** button to select whether the key is transitioned on-air / included in the next transition to go on-air (**On**) or off-air / included in the next transition to go off-air (**Off**).
Key Copy	**Switcher** > **Keyer** > **Keyer Copy**	Copy the contents of one key to another key the same or a different area. **1.** Click the **Target ME** button and select where you want to copy the key to. **2.** Click the **Target Keyer** button for the key you want to copy to. **3.** Click the **Source ME** button and select where you want to copy the key from. **4.** Click the **Source Keyer** button for the key you want to copy from.

Event	Location	Description
Key Invert	**Switcher** > **Keyer** > **Keyer Invert**	Turn the key invert feature on or off for the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to reverse the polarity of the key alpha so that the holes in the background are cut by dark areas of the key alpha instead of bright areas. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click a **Value** button to turn key invert on (**On**) or off (**Off**).
Key Mode	**Switcher** > **Keyer** > **Keyer Mode**	Select the mode for the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click a **Mode** button to have the key set as shaped/unshaped from the key (**Normal**), as additive for a shaped source (**Additive**), or alpha to fully opaque/white (**Full**).
Key Only Transition	**Switcher** > **Keyer** > **Keyer Trans**	Perform a key only transition for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Action** button and select whether they key should perform a cut (**Cut**), or auto transition (**Auto Trans**).

Event	Location	Description
Key Reset	**Switcher** > **Keyer** > **Keyer Reset Params**	Reset the parameters for the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to reset the clip, gain, transparency, invert, and mask for.
Key Settings (Clip, Gain, Transparency)	**Switcher** > **Keyer** > **Keyer Settings**	Select clip, gain, and transparency settings for the selected key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a value for the clip, gain, or transparency for the key in the **Value** field.
Key Swap	**Switcher** > **Keyer** > **Keyer Swap**	Swap the contents of one key with another key the same or a different area. **1.** Click the **1st ME** button and select where the first key you want to swap is. **2.** Click the **1st Keyer** button for the first key you want to swap. **3.** Click the **2nd ME** button and select where the second key you want to swap is. **4.** Click the **2nd Keyer** button for the second key you want to swap.

Event	Location	Description
Key Trans Rate	**Switcher** > **Keyer** > **Keyer Trans Rate**	Set or reset the keyer transition rate of the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a new transition rate, in frames, for the key in the **Value (fr)** field.
Key Type	**Switcher** > **Keyer** > **Keyer Type**	Assign a key type for a key for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click a **Type** button to assign the key type to the selected key.
Layer Mode	**Switcher Installation** > **ME** > **ME Layer Mode**	Select whether external layer mode is active for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click a **Value** button to select whether external layer mode is on (**On**) or not (**Off**).
Loop CC	**Special** > **Loop**	Insert a loop into the custom control.

Event	Location	Description
Mask, Force	**Switcher** > **Keyer** > **Mask Force**	Apply a mask to the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Value** button and select whether to force the area inside the mask region to the foreground (**On**) or not (**Off**).
Mask, Invert	**Switcher** > **Keyer** > **Mask Invert**	Invert the mask of the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Value** button and select whether to invert the masked area with the unmasked area (**On**) or not (**Off**).

Event	Location	Description
Mask, Reset	**Switcher** > **Keyer** > **Mask Reset**	Reset the mask of the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Action** button and select the parameter you want to reset. • **Reset Type** — turn mask off. • **Reset Forced** — turn force off. • **Reset Inverted** — turn invert off. • **Reset X-Pos** — reset horizontal position. • **Reset Y-Pos** — reset vertical position. • **Reset Size** — reset size. • **Reset Ver Edges** — reset top and bottom edges. • **Reset Hor Edges** — reset left and right edges.
Mask (Box) — Bottom Edge Position Mask (Box) — Bottom Edge Position	**Switcher** > **Keyer** > **Box Mask Param**	Select the position for the bottom edge of the box mask on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Bottom Edge**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new position in the **Value (%)** field.

Event	Location	Description
Mask (Box) — Left Edge Position	**Switcher** > **Keyer** > **Box Mask Param**	Select the position for the left edge of the box mask on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Left Edge**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new position in the **Value (%)** field.
Mask (Box) — Right Edge Position	**Switcher** > **Keyer** > **Box Mask Param**	Select the position for the right edge of the box mask on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Right Edge**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new position in the **Value (%)** field.

Event	Location	Description
Mask (Box) — Size	**Switcher** > **Keyer** > **Box Mask Param**	Select the size of the box mask on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Size**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new size in the **Value (%)** field.
Mask (Box) — Top Edge Position	**Switcher** > **Keyer** > **Box Mask Param**	Select the position for the top edge of the box mask on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Top Edge**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new position in the **Value (%)** field.

Event	Location	Description
Mask (Box) — X-Position	**Switcher** > **Keyer** > **Box Mask Param**	Select the x-axis position of the box mask on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **X-Pos**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new position in the **Value (%)** field.
Mask (Box) — Y-Position	**Switcher** > **Keyer** > **Box Mask Param**	Select the y-axis position for the box mask on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click the **Parameter** button and select **Y-Pos**. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter a new position in the **Value (%)** field.

Event	Location	Description
Mask (Pattern) — Aspect Ratio	**Switcher** > **Keyer** > **Pattern Mask Param**	Select the aspect ratio for the pattern mask for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Aspect**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter an aspect ratio in the **Value (%)** field.
Mask (Pattern) — Border Size	**Switcher** > **Keyer** > **Pattern Mask Param**	Select the size of border for the pattern mask on the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Border Size**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a size for the border in the **Value (%)** field.

Event	Location	Description
Mask (Pattern) — Edge Softness	**Switcher** > **Keyer** > **Pattern Mask Param**	Select the amount of softness to apply to the edge of the mask for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Softness**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter an amount of softness for the pattern or border in the **Value (%)** field.
Mask (Pattern) — Horizontal Multiplication	**Switcher** > **Keyer** > **Pattern Mask Param**	Select the number of times you want to multiply the pattern mask horizontally for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Horizontal Mult**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter the number of times the pattern is multiplied in the **Value** field.
Mask (Pattern) — Pattern	**Switcher** > **Keyer** > **Pattern Mask Effect**	Select a pattern for the pattern mask for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Pattern** and select the pattern you want to use for the pattern generator.
Mask (Pattern) — Reset	**Switcher** > **Keyer** > **Pattern Mask Reset**	Reset the mask for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click **Reset Params**.
Mask (Pattern) — Rotation	**Switcher** > **Keyer** > **Pattern Mask Param**	Select the rotation for the pattern mask for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Rotation**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a rotation in the **Value (%)** field.
Mask (Pattern) — Size	**Switcher** > **Keyer** > **Pattern Mask Param**	Select the size of the pattern mask for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Size**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a new size in the **Value (%)** field.
Mask (Pattern) — Vertical Multiplication	**Switcher** > **Keyer** > **Pattern Mask Param**	Select the number of times you want to multiply the pattern mask vertically for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Vertical Mult**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter the number of times the pattern is multiplied in the **Value** field.

Event	Location	Description
Mask (Pattern) — X-Position	**Switcher** > **Keyer** > **Pattern Mask Param**	Select the x-axis position of the pattern mask for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **X-Pos**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a new position in the **Value (%)** field.
Mask (Pattern) — Y-Position	**Switcher** > **Keyer** > **Pattern Mask Param**	Select the y-axis position for the pattern mask for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Y-Pos**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a new position in the **Value (%)** field.
Mask	**Switcher** > **Keyer** > **Mask Type**	Apply a mask to the selected key for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Keyer** button for the key you want to perform the event on. **3.** Click a **Mask Type** button to apply a pattern mask (**Pattern**), box mask (**Box**, or turn the mask off (**Off**).
Matte Color, Reset	**Switcher** > **Matte** > **Matte Color Reset**	Reset the matte color for the selected ME or aux. **1.** Click the **ME/Matte** button for the ME or aux that you want to perform the event on. **2.** For an ME, click the **Matte** button and select **Matte**.

Event	Location	Description
Matte Color (HSL)	**Switcher** > **Matte** > **Matte Color (HSL)**	Select the custom matte color for the selected ME or aux. Each component of the HSL color must be inserted individually. **1.** Click the **ME/Matte** button for the ME or aux that you want to perform the event on. **2.** Click the **Matte** button and select **Matte**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Component** button and select the HSL component you want to assign a value to. A value should be applied to all three components. **5.** Enter a value for the selected component in the **Value (%)** field.
Matte Color (Preset)	**Switcher** > **Matte** > **Matte Color (Preset)**	Select a preset matte color for the selected ME or aux. **1.** Click the **ME/Matte** button for the ME or aux that you want to perform the event on. **2.** Click the **Matte** button and select **Matte**. **3.** Click the **Color** button and select the color you want to use.
ME Copy	**Switcher** > **ME Copy**	Copy the contents of one area to another. **1.** Click the **Target ME** button and select the location that you want to copy to. **2.** Click the **Source ME** button and select the location that you want to copy from.

Event	Location	Description
Media-Store — Auto Play	**Switcher** > **MediaStore** > **Attributes**	Select whether an animation plays automatically when taken on-air for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **Auto Play**. **4.** Click the **Value** button and select whether the animation plays automatically (**On**) or not (**Off**).
Media-Store — Capture Alpha	**Switcher** > **MediaStore** > **Capture Alpha**	Select whether to include the alpha with a capture on the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Enable** button and select whether the alpha is captured with the source (**On**) or not (**Off**).
Media-Store — Capture	**Switcher** > **MediaStore** > **Capture**	Capture a still to the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Enter the number you want to assign to the capture file in the **Capture File** field.

Event	Location	Description
Media-Store — Capture Mode	**Switcher** > **MediaStore** > **Capture Display**	Select the capture mode for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click a **Capture Display** button to select whether the capture is in electronic-to-electronic "E/E" (**End to End**) or playback "P/B" (**Playback**) mode.
Media-Store — Capture Source	**Switcher** > **MediaStore** > **Media Capture Source**	Select the video source you want to capture for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click **Source** and select the video source that you want to capture.
Media-Store — Clear Channel	**Switcher** > **MediaStore** > **Channel Action**	Clear the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click **Clear Channel**.

Event	Location	Description
Media-Store — Cut Frame	**Switcher** > **MediaStore** > **Attributes**	Select the point, in frames, from the start of the animation that the MediaWipe background cut occurs for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **Cut Frame**. **4.** Enter the frame in the animation that you want to cut to occur for the MediaWipe in the **Value** field.
Media-Store — Delete Capture	**Switcher** > **MediaStore** > **Delete Media Capture**	Delete a captured still. **1.** Enter the number of the capture file you want to delete in the **Capture File** field.
Media-Store Load	**Switcher** > **MediaStore** > **Load**	Load a media item into the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Location** button to select whether the media item you want to load is located on the internal storage (**Internal**) or on the USB (**USB**). **3.** Enter the number of the media item you want to load in the **Media Number** field.
Media-Store — Looping	**Switcher** > **MediaStore** > **Attributes**	Select whether an animation will loop at the end for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **Looping**. **4.** Click the **Value** button and select whether the animation loops at the end (**On**) or not (**Off**).
Media-Store — Move To Frame	**Switcher** > **MediaStore** > **Attributes**	Move to a specific frame in the media item for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **Move To Frame**. **4.** Enter the frame that you want to jump to in the media item in the **Value** field.

Event	Location	Description
Media-Store — Mute	**Switcher** > **MediaStore** > **Attributes**	Select whether the associated audio is turned on or off during playback for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **Mute**. **4.** Click the **Value** button and select whether the audio plays (**On**) or not (**Off**).
Media-Store — Play	**Switcher** > **MediaStore** > **Channel Action**	Start an animation playing for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click **Toggle Play**.
Media-Store — Play Speed	**Switcher** > **MediaStore** > **Playback Speed**	Select the speed for an animation to play at on the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **Playback Speed**. **4.** Enter the speed, faster or slower than 100%, that you want the animation to play at in the **Value (%)** field.
Media-Store — Reset Media	**Switcher** > **MediaStore** > **Channel Action**	Reset the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click **Reset Media**.
Media-Store — Reverse	**Switcher** > **MediaStore** > **Attributes**	Select whether an animation plays in reverse for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **Reverse**. **4.** Click the **Value** button and select whether the animation plays in reverse (**On**) or not (**Off**).
Media-Store — Rewind	**Switcher** > **MediaStore** > **Channel Action**	Rewind an animation to the first frame for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click **Move to Frame 1**.

Event	Location	Description
Media-Store — Shaped	**Switcher** > **MediaStore** > **Attributes**	Select whether the alpha of the media item should be shaped or ushaped for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **Shaped**. **4.** Click the **Value** button and select whether the alpha of the media item is shaped (**On**) or not (**Off**).
Media-Store — Trigger GPI Output	**Switcher** > **MediaStore** > **Attributes**	Select the GPI output that you want to trigger with a MediaWipe for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **GPO**. **4.** Enter the GPI output that you want to trigger with the MediaWipe in the **Value** field.

Event	Location	Description
Media-Store — Trigger GPI Output Delay	**Switcher** > **MediaStore** > **Attributes**	Select the time from the start of the MediaWipe that the GPI output is triggered for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **GPO Frame**. **4.** Enter the delay, in frames, for the GPI output to be triggered in the **Value (fr)** field.
Media-Store — X-Position	**Switcher** > **MediaStore** > **Attributes**	Select the x-axis position for the media item for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **X-Pos**. **4.** Enter a new position in the **Value** field.

Event	Location	Description
Media-Store — Y-Position	**Switcher** > **MediaStore** > **Attributes**	Select the y-axis position for the media item for the selected Media-Store channel. **1.** Click the **MediaStore Channel** button for the Media-Store channel you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Parameter** button and select **Y-Pos**. **4.** Enter a new position in the **Value** field.
MediaWipe — Channel	**Switcher** > **Transition** > **Media Wipe Channel**	Select which Media-Store channel will be used for the MediaWipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click **M1** or **M2** to assign that Media-Store channel to the MediaWipe.
MediaWipe Cut Point, Set	**Switcher** > **Transition** > **ME Trans Action**	Sets the cut point for a MediaWipe transition for the selected area. You must select the point in the transition that you want to place the cut before running this event. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Set Media Cut**.

Event	Location	Description
MediaWipe — Direction, Flip-Flop	**Switcher** > **Transition** > **Media Wipe Direction**	Select whether the MediaWipe reverses direction for every second transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click **Flip-Flip**. **4.** Click the **Value** button and select whether Flip-Flop is on (**On**) or not (**Off**).
MediaWipe — Direction	**Switcher** > **Transition** > **Media Wipe Direction**	Select the direction for the MediaWipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click **Direction**. **4.** Click the **Value** button and select whether the MediaWipe moves in a forward (**Forward**) or reverse (**Reverse**) direction.
MediaWipe — Layer	**Switcher** > **Transition** > **ME Media Trans Layer**	Select which Media-Store channel will be used for the MediaWipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Layer** button to select what the MediaWipe animation covers.

Event	Location	Description
MediaWipe Trans End Point, Set	**Switcher** > **Transition** > **ME Trans Action**	Sets the ending point for a MediaWipe transition for the selected area. Use the fader to move through the animation to the point you want to end the transition and run this CC to save that point. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Set Media Trans End**.
MediaWipe Trans Start Point, Set	**Switcher** > **Transition** > **ME Trans Action**	Sets the starting point for a MediaWipe transition for the selected area. Use the fader to move through the animation to the point you want to start the transition and run this CC to save that point. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Set Media Trans Start**.
MediaWipe Trans Thumbnail	**Switcher** > **Transition** > **ME Trans Action**	Sets the starting point for a MediaWipe transition for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Set Media Thumb**.
Memory Recall	**Switcher** > **Memory Recall**	Recall a memory for the selected area. **1.** Click the **Include** button and select all the locations that you want to perform the memory recall on. **2.** Click the **Bank** button and select the bank that you want to recall the memory on. **3.** Click the **Memory** button and select the memory that you want to recall.

Event	Location	Description
ME Trans Rate	**Switcher** > **Transition** > **ME Trans Parameter**	Set or reset the background transition rate of the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Parameter** button and select **ME Trans Rate**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a new transition rate, in frames, in the **Value (fr)** field.
ME Trans Type	**Switcher** > **Transition** > **ME Trans Type**	Select the transition type for a background transition of the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Type** button for the type of transition you want to use.
MultiScreen — Edge Blending	**Switcher Installation** > **MultiScreen** > **Edge Properties**	Select whether edge blending is applied to the edges of the overlapping edges for the selected MultiScreen. **1.** Click the **ME** button for the MultiScreen that you want to perform the event on. **2.** Click the **Parameter** button and select **Blending**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Edge** button and select the edge that you want to adjust. **5.** Click the **Value** button and select whether blending is applied edge (**On**) or not (**Off**).

Event	Location	Description
MultiScreen — Edge Distance	**Switcher Installation** > **MultiScreen** > **Edge Parameters**	Select the distance between screens for the selected MultiScreen. **1.** Click the **ME** button for the MultiScreen that you want to perform the event on. **2.** Click the **Parameter** button and select **Distance**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Edge** button and select the edge that you want to adjust. **5.** Enter the distance between the screens on the selected edge in the **Value (%)** field.
MultiScreen — Edge Gamma	**Switcher Installation** > **MultiScreen** > **Edge Parameters**	Select the amount of gamma correction applied to the overlapping edges for the selected MultiScreen. **1.** Click the **ME** button for the MultiScreen that you want to perform the event on. **2.** Click the **Parameter** button and select **Gamma**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Edge** button and select the edge that you want to adjust. **5.** Enter the amount of gamma correction in the **Value (%)** field.

Event	Location	Description
MultiScreen — Edge Smoothness	**Switcher Installation** > **MultiScreen** > **Edge Parameters**	Select the amount of smoothing applied to the overlapping edges for the selected MultiScreen. **1.** Click the **ME** button for the MultiScreen that you want to perform the event on. **2.** Click the **Parameter** button and select **Smoothness**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Edge** button and select the edge that you want to adjust. **5.** Enter the amount of smoothing in the **Value (%)** field.
MultiScreen — Layout	**Switcher Installation** > **MultiScreen** > **Layout**	Select a layout for the selected MultiScreen. **1.** Click the **ME** button for the MultiScreen that you want to perform the event on. **2.** Click the **Layout** button and select the layout you want to use.
MultiScreen — Offset	**Switcher Installation** > **MultiScreen** > **Offset**	Select the placement of the background scaling for the selected MultiScreen. **1.** Click the **ME** button for the MultiScreen that you want to perform the event on. **2.** Click the **Parameter** button and select **Offset**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter the amount of offset in the **Value (%)** field.

Event	Location	Description
MultiViewer Box — Aspect Ratio Markers	**MultiViewer** > **Box** > **MV Box Aspect Ratio**	Select whether aspect ratio markers are shown for the selected box on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Box** button and select the box that you want perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click a **Value** button and select whether aspect ratio markers are shown (**On**) or not (**Off**).
MultiViewer Box — Border	**MultiViewer** > **Box** > **MV Box Border Mode**	Select the type of border you want to apply to the selected box on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Box** button and select the box that you want perform the event on. **3.** Click a **Border Mode** button and select whether the border around the selected box is white (**White**), black (**Black**), or if there is no border (**Off**).

Event	Location	Description
MultiViewer Box — Green Tally (Preview)	**MultiViewer** > **Box** > **MV Box Preview Tally**	Select whether a green (preview) tally is shown for the selected box on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Box** button and select the box that you want perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click a **Value** button and select whether a green tally is shown on the selected box (**On**) or not (**Off**).
MultiViewer Box — Label	**MultiViewer** > **Box** > **MV Box Label**	Select whether the source label is on or off for the selected box on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Box** button and select the box that you want perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click a **Value** button and select whether the label on the selected box is on (**On**) or not (**Off**).

Event	Location	Description
MultiViewer Box — Label Mode	**MultiViewer** > **Box** > **MV Box Label Mode**	Select what source name is shown on the label for the selected box on the selected MultiViewer. This event only applies to the Carbonite eXtreme. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Box** button and select the box that you want perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click a **Label Mode** button and select whether the name comes from the switcher (**Switcher**), the router (**Router**), or both are shown (**Both**).
MultiViewer Box — Label Position	**MultiViewer** > **Box** > **MV Box Label Position**	Select the position of the source label for the selected box on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Box** button and select the box that you want perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click a **Value** button and select whether the label on the selected box is at the top (**Top**) or bottom (**Bottom**).

Event	Location	Description
MultiViewer Box — Label Transparency	**MultiViewer** > **MV Label Transp**	Select transparency for the background behind the source labels on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Enter the amount of transparency in the **Value (%)** field.
MultiViewer Box — MultiScreen Markers	**MultiViewer** > **Box** > **MV Box MultiScreen Marker**	Select whether the MultiScreen overlay is shown for the selected box on the selected MultiViewer. The overlay shows what portions of the image are cropped out to fit into the output of the MultiScreen. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Box** button and select the box that you want perform the event on. **3.** Click the **ME** button and select the MultiScreen you want to view. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Click a **Value** button and select whether the overlay is shown (**On**) or not (**Off**).

Event	Location	Description
MultiViewer Box — Red Tally (On-Air)	**MultiViewer** > **Box** > **MV Box On-Air Tally**	Select whether a red (on-air) tally is shown for the selected box on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Box** button and select the box that you want perform the event on. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click a **Value** button and select whether a red tally is shown on the selected box (**On**) or not (**Off**).
MultiViewer Box — Video Source	**MultiViewer** > **Box** > **MV Box Source**	Assign a source to one of the boxes on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Box** button and select the box that you want perform the event on. **3.** Click the **Value** button and select the source that you want to assign to the box.

Event	Location	Description
MultiViewer — Clip	**MultiViewer** > **MV Keyer Clip**	Select the amount of clipping to be applied to the overlay source on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Enter the amount of clipping to be applied in the **Value** field.
MultiViewer Clock — Background Color (Preset)	**MultiViewer** > **Clock** > **MV Clock (Preset Color)**	Select a preset color for the background of the clock on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click **Background**. **3.** Click the **Color** button and select the color you want to use.
MultiViewer Clock — Foreground Color (HSL)	**MultiViewer** > **Clock** > **MV Clock (HSL Color)**	Select the custom color for the lettering of the clock on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Clock Area** button and select **Foreground**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Component** button and select the HSL component you want to assign a value to. A value should be applied to all three components. **5.** Enter a value for the selected component in the **Value (%)** field.

Event	Location	Description
MultiViewer Clock — Foreground Color (Preset)	**MultiViewer** > **Clock** > **MV Clock (Preset Color)**	Select a preset color for the lettering of the clock on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click **Foreground**. **3.** Click the **Color** button and select the color you want to use.
MultiViewer Clock — Format	**MultiViewer** > **Clock** > **MV Clock Format**	Select the hour format for the clock on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click a **Value** button and select whether the clock shows 24-hour (**24-Hours**), 12-hour with am/pm (**12-Hour AM/PM**), or simple 12-hour (**12-Hour**) clock.
MultiViewer Clock — Mode	**MultiViewer** > **Clock** > **MV Clock Mode**	Select whether the clock shows timecode or system time on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click a **Clock Mode** button and select whether the clock shows timecode (**Timecode**), system time (**System**), or is off (**Off**).

Event	Location	Description
MultiViewer Clock — Size	**MultiViewer** > **Clock** > **MV Clock Param**	Select the size of the clock on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click **Clock Size**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter the size of the clock in the **Value (%)** field.
MultiViewer Clock — Timecode Frame Count	**MultiViewer** > **Clock** > **MV Clock Frame Count**	Select whether number of frames for a timecode are shown on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click a **Value** button and select whether the frame count is shown (**On**) or not (**Off**).
MultiViewer Clock — X-Position	**MultiViewer** > **Clock** > **MV Clock Param**	Select the horizontal position of the clock on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click **Clock X-Pos**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter the horizontal position of the clock in the **Value (%)** field.

Event	Location	Description
MultiViewer	**MultiViewer** > **Clock** > **MV Clock (HSL Color)**	Select the custom color for the background of the clock on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Clock Area** button and select **Background**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Component** button and select the HSL component you want to assign a value to. A value should be applied to all three components. **5.** Enter a value for the selected component in the **Value (%)** field.
MultiViewer — FSFC Label	**MultiViewer** > **MV FSFC Label**	Select whether FSFC is shown on the label on the selected MultiViewer when a source has an FSFC applies to it. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click a **Value** button to select whether FSFC is shown on the label (**On**) or not (**Off**).
MultiViewer — Layout	**MultiViewer** > **MV Layout**	Select a layout for the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click the **Layout** button and select the layout you want to use.

Event	Location	Description
MultiViewer — Outputs	**Switcher Installation** > **Output Mode**	Select which outputs the MultiViewer is available on. This feature is only available when the switcher is operating in a standard-definition or 3G video mode. **1.** Click an **Outputs** button to select which pair of output BNCs you want to assign to as MultiViewer outputs. **2.** Click a **Lock MultiViewers** button to assign the selected output BNCs as MultiViewer outputs (**On**) or not (**Off**).
MultiViewer — Tally Display	**MultiViewer** > **MV Tally Display**	Select how the tallies are shown on the selected MultiViewer. **1.** Click a **MultiViewer** button to select which MultiViewer you want that you want to perform the event on. **2.** Click a **Tally Display** button to select whether tallies are shown as a border around the box (**Box**), as boxes on either side of the label (**Label**), or as boxes on either side of the label but swapped (**Label Reverse**).
Output BNC Assignment	**Switcher Installation** > **Output Assignment**	Assign a source to the selected output BNC. **1.** Click the **Output** button and select the output BNC that you want to assign a source to. **2.** Click the **Source** button and select the source that you want to assign to the selected output BNC.
Pause CC	**Special** > **Hold**	Insert a pause into the custom control. **1.** Enter the length of the pause in the **Pause (fr)** field.

Event	Location	Description
PBus — Recall	**Devices** > **PBus**	Recall a register on the selected PBus device. **1.** Click **PBus Recall Register**. **2.** Click the **PBus** button and select the device you want to send the command to. **3.** Click the **Device** button and select the channel you want to send the command to. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter number of the register you want to recall in the **Register** field.
PBus — Trigger	**Devices** > **PBus**	Trigger a function on the selected PBus device. **1.** Click **PBus Trigger Function**. **2.** Click the **PBus** button and select the device you want to send the command to. **3.** Click the **Device** button and select the channel you want to send the command to. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the number of the function you want to trigger in the **Function** field.

Event	Location	Description
Personality — Auto Remove Key	**Switcher Personality** > **Auto Remove Key**	Have a key removed from the Next Transition area, so that it is not included in the next transition, after it has been transitioned off-air using the **KEY *X* CUT** or **KEY *X* AUTO** buttons. **1.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **2.** Click the **Value** button and select whether the personality option is on (**On**) or not (**Off**).
Personality — Auto Trans Second Press (Key)	**Switcher Personality** > **Key Auto Trans 2nd Press**	Select how the switcher reacts when the **KEY AUTO** button is pressed during a transition. **1.** Click the **Second Auto** button and select how the switcher reacts to pressing the button during a transition. • **Ignore** — the buttons are ignored during the transition • **Halt Forward** — halt the transition and move forward through the transition when pressed again • **Halt Reverse** — halt the transition and move backwards through the transition when pressed again • **Reverse** — reverse the transition immediately • **Cut** — cut the transition to the end

Event	Location	Description
Personality — Auto Trans Second Press (ME)	**Switcher Personality** > **ME Auto Trans 2nd Press**	Select how the switcher reacts when the **AUTO TRANS** button is pressed during a transition. **1.** Click the **Second Auto** button and select how the switcher reacts to pressing the button during a transition. • **Ignore** — the buttons are ignored during the transition • **Halt Forward** — halt the transition and move forward through the transition when pressed again • **Halt Reverse** — halt the transition and move backwards through the transition when pressed again • **Reverse** — reverse the transition immediately • **Cut** — cut the transition to the end
Personality — Next Trans Reset	**Switcher Personality** > **Auto Reset Trans**	Have the transition area reset to a default background dissolve after each transition. **1.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **2.** Click the **Value** button and select whether the personality option is on (**On**) or not (**Off**).
Personality — Roll Clip	**Switcher Personality** > **Roll Clip Force**	Select whether the Roll Clip functionality is always on. **1.** Click a **Value** button to select whether Roll Clip is always on (**Force**) or must be turned on manually (**User**).
Play CC	**Special** > **Play CC**	Play a custom control. **1.** Click the **Bank** button and select the custom control bank you want to play a custom control on. **2.** Click the **CC** button and select the custom control you want to play.

Event	Location	Description
Reference Source	**Switcher Installation** > **Reference** > **Video Reference**	Select the reference source for the switcher. **1.** Click a **Reference Source** button to select whether to use an internal (**Internal**) or external (**External**) reference source.
Reset	**Switcher** > **Transition** > **ME Trans Action**	Resets the transition area of the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Reset**.
Resume CC	**Special** > **Resume CC**	Resume a custom control at hold. **1.** Click the **Bank** button and select the custom control bank you want to resume a custom control on. **2.** Click the **CC** button and select the custom control you want to resume.
Robotic Camera — Halt All	**Devices** > **Camera**	Send the halt command to the selected camera. **1.** Click **Camera Halt All**. **2.** Click the **Camera** button and select the device you want to send the command to.
Robotic Camera — Recall Shot	**Devices** > **Camera**	Recall a shot on the selected camera at the rate/speed set in the shot. **1.** Click **Recall Shot**. **2.** Click the **Camera** button and select the device you want to send the command to. **3.** Click the **Channel** button and select the channel you want to send the command to. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the shot number you want to recall from in the **Shot** field.

Event	Location	Description
Robotic Camera — Recall Shot Fast	**Devices** > **Camera**	Recall a shot on the selected camera as quickly as possible. **1.** Click **Recall Shot (Fast)**. **2.** Click the **Camera** button and select the device you want to send the command to. **3.** Click the **Channel** button and select the channel you want to send the command to. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the shot number you want to recall from in the **Shot** field.
Robotic Camera — Store Shot	**Devices** > **Camera**	Store a shot on the selected camera. **1.** Click **Store Shot**. **2.** Click the **Camera** button and select the device you want to send the command to. **3.** Click the **Channel** button and select the channel you want to send the command to. **4.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **5.** Enter the shot number you want to store to in the **Shot** field.
Roll Clip	**Switcher** > **Transition** > **Roll Clip**	Turn the Roll Clip feature on or off for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Value** button and select whether roll clip is on (**On**) or not (**Off**).

Event	Location	Description
RossTalk CC	**Devices** > **RossTalk**	Send the simulated custom control to the selected device. **1.** Click **CC**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the bank of the custom control in the **Bank** field. **4.** Enter the number of the custom control in the **Custom** field.
RossTalk Clear	**Devices** > **RossTalk**	Send the Clear Framebuffer command for a framebuffer and layer to the selected device. **1.** Click **Clear Channel**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the framebuffer that you want to clear in the **Channel** field. **4.** Enter the layer that you want to clear in the **Layer** field.
RossTalk — Cue (item + framebuffer)	**Devices** > **RossTalk**	Send the Cue command for a specific item and framebuffer to the selected device. **1.** Click **Cue (2)**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the take item id of the item you want to cue in the **Take ID** field. **4.** Enter the framebuffer that you want to cue the item on in the **Channel** field.

Event	Location	Description
RossTalk — Cue (item + framebuffer + layer)	**Devices** > **RossTalk**	Send the Cue command for a specific item and location to the selected device. **1.** Click **Cue (3)**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the take item id of the item you want to cue in the **Take ID** field. **4.** Enter the framebuffer that you want to cue the item on in the **Channel** field. **5.** Enter the layer that you want to cue the item on in the **Layer** field.
RossTalk — Cue Current	**Devices** > **RossTalk**	Send the Cue command to the selected device. **1.** Click **Cue**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to.
RossTalk Custom Command	**Devices** > **RossTalk**	Send a manual RossTalk string to the selected device. **1.** Click **RossTalk CustomCmd**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the RossTalk string in the **Custom Cmd** field.
RossTalk — Focus	**Devices** > **RossTalk**	Send the Focus command for a specific item to the selected device. **1.** Click **Focus**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the take item id of the item you want to have focus in the **Take ID** field.

Event	Location	Description
RossTalk — GPI	**Devices** > **RossTalk**	Send the simulated GPI input to the selected device. **1.** Click **GPI**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the GPI you want to simulate triggering in the **GPI** field.
RossTalk — Next	**Devices** > **RossTalk**	Send the Next command to the selected device. **1.** Click **Take Next**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to.
RossTalk — Read	**Devices** > **RossTalk**	Send the Read command for a specific item and layer to the selected device. **1.** Click **Read**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the take item id of the item you want to read in the **Take ID** field. **4.** Enter the layer that you want to cue the item on in the **Layer** field.
RossTalk — Resume	**Devices** > **RossTalk**	Send the Resume command for a framebuffer and layer to the selected device. **1.** Click **Resume Channel**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the framebuffer that you want to resume in the **Channel** field. **4.** Enter the layer that you want to resume in the **Layer** field.

Event	Location	Description
RossTalk — Sequencer Down	**Devices** > **RossTalk**	Send the Sequencer Down command to the selected device. **1.** Click **Sequencer Down**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to.
RossTalk — Sequencer Up	**Devices** > **RossTalk**	Send the Sequencer Up command to the selected device. **1.** Click **Sequencer Up**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to.
RossTalk — Swap Current	**Devices** > **RossTalk**	Send the Swap command to the selected device. **1.** Click **Swap**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to.
RossTalk — Swap	**Devices** > **RossTalk**	Send the Swap command for a specific location to the selected device. **1.** Click **Swap (2)**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the framebuffer that you want to swap the items on in the **Channel** field. **4.** Enter the layer that you want to swap the items on in the **Layer** field.
RossTalk — Take Current	**Devices** > **RossTalk**	Send the Take command to the selected device. **1.** Click **Take**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to.
RossTalk — Take	**Devices** > **RossTalk**	Send the Take command for a specific item and location to the selected device. **1.** Click **Take (3)**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the take item id of the item you want to take in the **Take ID** field. **4.** Enter the framebuffer that you want to take the item on in the **Channel** field. **5.** Enter the layer that you want to take the item on in the **Layer** field.
RossTalk — Take Off	**Devices** > **RossTalk**	Send the Take Off command for a specific item to the selected device. **1.** Click **Take Offline**. **2.** Click the **RossTalk Device** button and select the device you want to send the RossTalk command to. **3.** Enter the take item id of the item you want to take in the **Take ID** field.
RState, Load	**Switcher** > **Load RState**	Load the custom reset settings for the selected area. **1.** Click the **Include** button and select all the locations that you want to recall the custom reset settings on.
Source Substitution, Delete	**Switcher Installation** > **Source Substitution** > **Delete Subst Table**	Delete an entry from the substitution table. **1.** Click the **Source** button and select the source that you want to delete the substitution(s) for. If more than one substitution entry exists for the selected source, all those entries will be deleted.

Event	Location	Description
Source Substitution	**Switcher Installation** > **Source Substitution** > **Source ME Sub**	Set a source substitution for the substitution table. **1.** Click the **Source** button and select the source that you want to set a substitution for. **2.** Click the **ME** button and select the MiniME™ that you want to assign a substitution source to. **3.** Click the **Subst** button and select the source you want to substitute for the selected source.
State, Insert	**Special** > **State**	Insert the current state of the switcher into the custom control. **1.** Click **State Attributes** and select the elements that you want to include in the state of the switcher when it is stored to the custom control.
Switching Field	**Switcher Installation** > **Field Switch**	Select the field that a video transition will be performed on. **1.** Click a **Switch Field** button to select whether video transitions are performed on field 1 only (**Field 1**), field 2 only(**Field 2**), or the current field (**Both**).
Trans Clear	**Switcher** > **Transition** > **ME Trans Action**	Configures the next transition area of the selected area to take all keys off-air with the next transition. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Trans Clear**.
Trans Elements	**Switcher** > **Transition** > **ME Trans Elements**	Select the elements to be included in the next transition of the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Elements** button and select background and/or the keys that you want to include in the next transition.
Trans Limit — On/Off	**Switcher** > **Transition** > **ME Trans Limit**	Turn the transition limit feature on or off for the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Click the **Value** button and select whether trans limit is on (**On**) or not (**Off**).
Trans Limit — Reset	**Switcher** > **Transition** > **ME Trans Action**	Resets the transition limit point of the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Reset Limit**.
Trans Limit — Set	**Switcher** > **Transition** > **ME Trans Action**	Sets the transition limit point of the selected area. You must select the point in the transition that you want to place the limit before running this event. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Action** button and select **Set Limit**.
Trans Limit — Value	**Switcher** > **Transition** > **ME Trans Limit Value**	Select the limit point for the trans limit of the selected area. **1.** Click the **ME** button and select the area that you want to perform the event on. **2.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **3.** Enter the point in the transition that you want to place the trans limit in the **Value (%)** field.

Event	Location	Description
Video Mode	**Switcher Installation** > **Reference** > **Video Format**	Select the video format that the switcher will operate in. **1.** Click the **Video Mode** button and select the video format for the switcher.
Video Server — Cue	**Devices** > **Video Server**	Send the Cue command and name of clip to cue to the selected device. **1.** Click **Cue**. **2.** Click the **Video Server** button and select the device you want to send the command to. **3.** Click a **Channel** button to select the channel you want to send the command to. **4.** Enter the identifier of the clip in the **Clip Name** field.
Video Server — Loop Off	**Devices** > **Video Server**	Send the Loop Off command to the selected device. **1.** Click **Loop Off**. **2.** Click the **Video Server** button and select the device you want to send the command to. **3.** Click a **Channel** button to select the channel you want to send the command to.
Video Server — Loop On	**Devices** > **Video Server**	Send the Loop On command to the selected device. **1.** Click **Loop On**. **2.** Click the **Video Server** button and select the device you want to send the command to. **3.** Click a **Channel** button to select the channel you want to send the command to.
Video Server — Play	**Devices** > **Video Server**	Send the Play command to the selected device. **1.** Click **Play**. **2.** Click the **Video Server** button and select the device you want to send the command to. **3.** Click a **Channel** button to select the channel you want to send the command to.
Video Server — Record	**Devices** > **Video Server**	Send the Record command to the selected device. **1.** Click **Record**. **2.** Click the **Video Server** button and select the device you want to send the command to. **3.** Click a **Channel** button to select the channel you want to send the command to.
Video Server — Stop	**Devices** > **Video Server**	Send the Stop command to the selected device. **1.** Click **Play**. **2.** Click the **Video Server** button and select the device you want to send the command to. **3.** Click a **Channel** button to select the channel you want to send the command to.
Wash Color (HSL)	**Switcher** > **Matte** > **Wash Color (HSL)**	Select the custom matte color for the selected ME or aux. Each component of the HSL color must be inserted individually. This is the second color of the wash, the first color is set from the matte color. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Matte** button and select **Wash**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Component** button and select the HSL component you want to assign a value to. A value should be applied to all three components. **5.** Enter a value for the selected component in the **Value (%)** field.

Event	Location	Description
Wash Color (Preset)	**Switcher** > **Matte** > **Wash Color (Preset)**	Select a preset wash color for the selected ME. This is the second color of the wash, the first color is set from the matte color. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Matte** button and select **Wash**. **3.** Click the **Color** button and select the color you want to use.
Wash Color Reset	**Switcher** > **Matte** > **Wash Color Reset**	Reset the matte color for the selected ME. This is the second color of the wash, the first color is set from the matte color. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Matte** button and select **Wash**.
Wash Generator — Disable	**Switcher** > **Matte** > **Wash Enabled Reset**	Disable the wash generator for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on.
Wash Generator — Enable	**Switcher** > **Matte** > **Wash Enabled**	Enable the wash generator for the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Wash** button and select whether the wash generator is enabled (**On**) or not (**Off**).

Event	Location	Description
Wipe Direction (Flip-Flop)	**Switcher** > **Transition** > **Wipe Direction**	Select whether the wipe reverses direction for every second transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Pattern** button and select **Wipe**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Parameter** button and select **Flip-Flip**. **5.** Click the **Value** button and select whether Flip-Flop is on (**On**) or off (**Off**).
Wipe Direction	**Switcher** > **Transition** > **Wipe Direction**	Select the direction for the wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Pattern** button and select **Wipe**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Parameter** button and select **Direction**. **5.** Click the **Value** button and select whether the wipe moves in a forward (**Forward**) or reverse (**Reverse**) direction.

Event	Location	Description
Wipe Pattern — Aspect Ratio	**Switcher** > **Transition** > **Wipe Param**	Select the aspect ratio for the wipe pattern you want to use for a wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Aspect**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter an aspect ratio in the **Value (%)** field.
Wipe Pattern — Border Color (HSL)	**Switcher** > **Transition** > **Wipe Border Color (HSL)**	Select the custom color you want to apply to the border of the pattern for the wipe transition of the selected ME. Each component of the HSL color must be inserted individually. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Matte** button and select **Wipe Border**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Click the **Component** button and select the HSL component you want to assign a value to. A value should be applied to all three components. **5.** Enter a value for the selected component in the **Value (%)** field.

Event	Location	Description
Wipe Pattern — Border Color (Preset)	**Switcher** > **Transition** > **Wipe Border Color (Preset)**	Select the preset color you want to apply to the border of the pattern for the wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Matte** button and select **Wipe Border**. **3.** Click the **Color** button and select the preset color you want to apply to the border.
Wipe Pattern — Border Size	**Switcher** > **Transition** > **Wipe Param**	Select the size of border for the wipe pattern you want to use for a wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Border Size**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a size for the border in the **Value (%)** field.
Wipe Pattern — Edge Softness	**Switcher** > **Transition** > **Wipe Param**	Select the amount of softness to apply to the edge of the pattern or border for the wipe pattern you want to use for a wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Softness**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter an amount of softness for the pattern or border in the **Value (%)** field.

Event	Location	Description
Wipe Pattern — Horizontal Multiplication	**Switcher** > **Transition** > **Wipe Param**	Select the number of times you want to multiply the wipe pattern horizontally for the wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Horizontal Mult**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter the number of times the pattern is multiplied in the **Value** field.
Wipe Pattern — Pattern	**Switcher** > **Transition** > **Wipe Effect**	Select the pattern you want to use for a wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Pattern** button and select the pattern you want to use for the wipe.
Wipe Pattern — Rotation	**Switcher** > **Transition** > **Wipe Param**	Select the rotation for the wipe pattern you want to use for a wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Rotation**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a rotation in the **Value (%)** field.

Event	Location	Description
Wipe Pattern — Size	**Switcher** > **Transition** > **Wipe Param**	Select the size for the wipe pattern you want to use for a wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Size**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a new size in the **Value (%)** field.
Wipe Pattern — Vertical Multiplication	**Switcher** > **Transition** > **Wipe Param**	Select the number of times you want to multiply the wipe pattern vertically for the wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Vertical Mult**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter the number of times the pattern is multiplied in the **Value** field.
Wipe Pattern — X-Position	**Switcher** > **Transition** > **Wipe Param**	Select the x-axis position for the wipe pattern you want to use for a wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **X-Pos**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a new position in the **Value (%)** field.

Event	Location	Description
Wipe Pattern — Y-Position	**Switcher** > **Transition** > **Wipe Param**	Select the y-axis position for the wipe pattern you want to use for a wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click the **Parameter** button and select **Y-Pos**. **3.** Click the **Change Type** button and select whether you want to set (**Absolute**) or reset (**Reset**) the parameter. Some selections will not be available when you reset the parameter. **4.** Enter a new position in the **Value (%)** field.
Wipe Reset	**Switcher** > **Transition** > **Wipe Reset**	Reset the parameters or direction and flip-flop for the wipe transition of the selected ME. **1.** Click the **ME** button for the ME that you want to perform the event on. **2.** Click **Reset Params** to reset the wipe parameters or **Reset Direction** to reset the wipe direction and flip-flop.

Naming Custom Controls

Each custom control can be given a unique name. This name is shown on the menus in DashBoard.

Note: *Refer to To Edit a CC From DashBoard on page 58 for information on naming a custom control from DashBoard.*

To Name a Custom Control

The procedure to name or rename a custom control is the same.

1. Press **MENU** > **BANK 1** > **EDIT**
2. Use the **Bank** knob to select the bank that the custom control you want to name is stored on, or select the bank button directly.
3. Use the **CC** knob to select the custom control that you want to name, or select the custom control on the bus directly.
4. Use the **Func** knob to select **Rename**.
5. Press the **Func** knob.
6. Select a name as follows:
   a) Use the **Pos** knob to select the character position to edit. A name can have up to 8 character.
   b) Use the **Char** knob to select a character for the current position.

Deleting Custom Controls

Any custom control on the switcher can be deleted to remove unused customs to free up space for new custom controls.

Note: *Refer to To Edit a CC From DashBoard on page 58 for information on deleting a custom control from DashBoard.*

To Delete a Custom Control

There is no undo for this delete function.

1. Press **MENU** > **BANK 1** > **DELETE**
2. Use the **Bank** knob to select the bank that the custom control you want to delete is stored on, or select the bank button directly.
3. Use the **CC** knob to select the custom control that you want to delete, or select the custom control on the bus directly.
4. Press the **Func** knob.
5. Press the **Confrm** knob to delete the custom control.

Copying and Pasting Custom Controls

The contents, or events, of a custom control can be copied from one custom control and pasted to another. Along with the events, the name and mnemonic settings are also copied.

Note: *Refer to To Edit a CC From DashBoard on page 58 for information on copying and pasting a custom control from DashBoard.*

To Copy and Paste a Custom Control

1. Press **MENU** > **BANK 1** > **Edit**.
2. Use the **Bank** knob to select the bank that the custom control you want to copy is on, or select the bank button directly.
3. Use the **CC** knob to select the custom control that you want to copy, or select the custom control on the bus directly. If the custom control has a macro recorded, an ***** is shown next to the number.
4. Press **Copy**.

5. Select the custom control that you want to paste into.
6. Press **Paste**.

Switcher Soft Reset

If required, the switcher can be reset to return it to a user-defined default setting, or the factory default state. A reset can be performed for the entire switcher, or individual components, such as keys.

Soft Reset

The software reset returns the switcher to the default state. Black is selected on all buses, all keys are cut off-air, and the transition rate is set back to default. This is useful if you need to return the switcher to a known state.

To Reset the Switcher Software

1. Press and hold **MENU**.
2. Press **RESET**.

Custom Reset Settings

You can customize many of the default switcher parameters and save them as a user-defined reset settings. These custom reset settings can then be recalled when you want to return the switcher to a previous state.

To Save a Custom Reset Setting

The Custom Reset Setting, or RState, saves how you want the switcher to be configured when it powers up, or when you recall the RState manually.

You can customize many of the default switcher parameters and save them as a user-defined custom reset.

*Tip: Custom reset settings can also be set from the **Memory** > **RState** tabs on the Live Assist node in DashBoard.*

1. Press **MENU** > **RESET** > **NEXT**.
2. Use the **Attrib** knob to select **Media**.
3. Use the **Media** knob to select **Media1**.
4. Use the **Value** knob to select whether the Media-Store channel is reset with a switcher reset or not.
   - **NoRst** — the Media-Store channel is not reset
   - **Reset** — the Media-Store channel is reset with a switcher reset
5. Repeat this for the remaining Media-Store channels.
6. Use the **Attrib** knob to select **Aux**.
7. Use the **Aux** knob to select **Aux 1**.
8. Use the **Value** knob to select whether the Aux bus is reset with a switcher reset or not.
   - **NoRst** — the Aux bus is not reset
   - **Reset** — the Aux bus is reset with a switcher reset
9. Repeat this for the remaining Aux buses.
10. Use the **Value** knob to select whether the Aux bus is reset with a switcher reset or not.
    - **NoRst** — the Aux bus is not reset
    - **Reset** — the Aux bus is reset with a switcher reset
11. Repeat this for the remaining Aux buses.
12. Use the **Attrib** knob to select **MiniME**.
13. Use the **MiniME** knob to select **MME 1**.
14. Use the **Value** knob to select whether the MiniME™ is reset with a switcher reset or not.
    - **NoRst** — the MiniME™ is not reset
    - **Reset** — the MiniME™ is reset with a switcher reset
15. Repeat this for the remaining MiniME™ outputs.
16. Use the **Attrib** knob to select **MltScr**.
17. Use the **MltScr** knob to select **MSC 1**.
18. Use the **Value** knob to select whether the MultiScreen is reset with a switcher reset or not.
    - **NoRst** — the MultiScreen is not reset
    - **Reset** — the MultiScreen is reset with a switcher reset
19. Press **NEXT** > **NEXT** > **NEXT**.
20. Press **RState Save** and **Confrm**.

To Load a Custom Reset Setting

The Custom Reset Setting, or RState, is recalled every time the switcher is powered on, or it can be recalled manually.

*Tip: Custom reset settings can also be set from the **Memory** > **RState** tabs on the Live Assist node in DashBoard.*

1. Press **MENU** > **RESET**.
2. Press **RState Load**.

   You can also press and hold **MENU** and press **Reset All**.

Factory Default Settings

You can restore the switcher to the factory default state. All installation and personality settings are reset.

To Factory Reset the Switcher

1. Press **MENU** > **RESET** > **NEXT** > **NEXT** > **Factry Reset**.
2. Press the **Confrm** knob to load the factory default settings.

Resetting Individual Components

You can reset only the component that you want, instead of the entire switcher. Individual keys, aux buses, dissolves, wipes, and menu items can be reset.

Table 8: Resetting Individual Components

To Reset	Buttons to Press	Result
Wipes	**WIPE** and **RESET**	all wipe parameters, including position, pattern, and border, are reset
Dissolves	**DISS** and **RESET**	all dissolve parameters are reset
ME	**STORE** and **RECALL**	the ME parameters, including source selections, are reset
Aux Buses	**AUX *X*** and **RESET**	Aux bus *X* parameters, including source selections, are reset (each Aux is reset individually) (*X* is the number of the aux bus)
Menu Items	double-press the knob for the value you want to reset	the value for that knob is reset

Glossary

Interlaced

An Interlaced video format starts at the top of the screen and draws all the odd number scan lines and then all the even number scan lines in sequence. This results in half the image being drawn in one pass and the other half of the image being drawn in the second. These two passes are called Fields, where the first pass is called Field 1 and the second pass is called Field 2. When both Field 1 and Field 2 have been drawn, resulting in a complete image, you have a single Frame.

Progressive

A Progressive scan video format draws each scan line in sequence, starting from the top of the screen and working to the bottom. Unlike Interlaced, with Progressive scan the entire image is drawn at one time, in a single pass. This means that there are no fields in a Progressive scan image.

Auto Key

A pairing of two video signals, a key video and a key alpha, to create a key. In the switcher, you associate the fill and alpha so that the switcher knows which alpha to use when the video is selected.

Auto Transition

An automatic transition in which the manual movement of the fader handle is simulated electronically. The transition starts when the **AUTO TRANS** button is pressed and takes place over a pre-selected time period, measured in frames.

Chroma Key

Chroma Key is a key in which the hole is cut based on a color value, or hue, rather than a luminance value or alpha signal. The color is removed and replaced with background video from another source.

Cut

An instantaneous switch from one video signal to another.

Dissolve

A transition from one video signal to another in which one signal is faded down, while the other is simultaneously faded up. The terms mix or cross-fade are often used interchangeably with dissolve.

Dynamic Host Configuration Protocol

An Ethernet protocol where a device, such as the switcher, is given an IP address by the network host. This eliminates the need to manually enter the network parameters and IP address.

Field

One half of a complete picture (or frame) interval containing all of the odd, or all of the even, lines in interlaced scanning. One scan of a TV screen is called a field; two fields are required to make a complete picture (which is a frame).

Force, Mask

An effect that forces the masked region to the foreground but is not bound by the key. For example, if you have a key and apply a mask to it. The masked area is bound by the edges of the key. When force is turned on, the masked area is filled with the video from the key (nothing appears masked) but you can move the mask outside of the key and the key video is still filling the masked region.

Frame

One complete picture consisting of two fields of interlaced scanning lines.

File Transfer Protocol

A network protocol that is used to transfer files from one host computer to another over a TCP-based network.

Gain

Gain represents the range of signal values present in a video signal from a lowest to a highest point (from black to white for example). Increasing gain expands this range, while decreasing gain compresses this range. Clipping occurs if applied gain changes cause output signal values to fall outside the allowable range. Generally, increasing the gain for a specific color component causes the video signal colors to become increasingly saturated with that color.

Similarly, decreasing the gain for a specific color component progressively removes that color component from the output video signal.

Gamma

Gamma corrections introduce non-linear corrections to a video signal. A gamma correction can be described as taking a point on the output versus input video signal line and pulling it perpendicularly away from the line. The result is a Bezier curve between the start, the new point, and the end point. Generally, increasing the gamma value adds more of the component to the video signal in the location of the gamma offset point. Decreasing the gamma value reduces the amount of the component in the video signal in the location of the gamma offset point. Moving the gamma offset point allows you to select which part of the input video signal receives the gamma correction. For example, if you increase the red gamma correction to the part of the video signal that has no red component you will add red to those areas while having little effect on areas that already contain a significant amount of red. This allows you to add a red tint to the image while minimizing the amount of red-clipping that occurs.

General Purpose Interface

A simple high/low signal that is used to trigger an action either on an external device or on the switcher. A GPI can be an input or an output to the switcher.

High Definition

A high definition (720p, 1080i, or 1080p/3G) video signal.

Hue

The characteristic of a color signal that determines whether the color is red, yellow, green, blue, purple, etc. (the three characteristics of a TV color signal are chrominance, luminance, and hue). White, black, and gray are not considered hues.

Hue Rotation

Hue rotate affects the color of the entire video signal by rotating the input video hues. This produces an output video signal with colors that are shifted from their original hues. By rotating colors around the wheel, hue values will shift. For example, a clockwise rotation where yellows become orange, reds become magenta, blues become green. The more rotation applied, the further around the wheel colors are shifted.

Key

An effect produced by cutting a hole in the background video, then filling the hole with video or matte from another source. Key source video cuts the hole, key fill video fills the hole. The video signal used for cut and fill can come from the same, or separate, sources.

Key Alpha

The video signal which cuts a hole in the background video to make a key effect possible. Also called Key Video or Source. In practice, this signal controls when a video mixer circuit will switch from background to key fill video.

Key Invert

An effect that reverses the polarity of the key source so that the holes in the background are cut by dark areas of the key source instead of bright areas.

Key Mask

A keying technique in which a shape is combined with the key source to block out unwanted portions of the key source.

Key Video

A video input which is timed to fill the hole provided by the key source video. An example of key video is the video output of a character generator.

Linear Key

Linear keys make it possible to fully specify the transparency of a key from opaque, through transparent, to fully off. The transparency is specified by the key alpha that is associated with the key video. A keyer capable of a linear key converts the key signal voltage directly to the transparency effect on the screen.

Mnemonics

A green, orange, or yellow display used to show the names of a source above or below the source button or used as a custom command or pattern button.

Offsets

Offsets shift the video signal by a set amount. Depending on the offset applied, different parts or all of the video signal may be affected. Clipping occurs if applied offsets cause output signal values to fall outside the allowable range.

Pre-Delay

A pre-delay is a delay that is inserted into a transition between the triggering of a GPI output and performing the transition. The length of the pre-delay is usually the length of time your video server requires to start playing a clip or your character generator required to load a page.

RossTalk

An ethernet based protocol that allows the control over Ross devices using plain english commands.

Standard-Definition

A standard definition (480i or 576i) video signal.

Self Key

A key effect in which the same video signal serves as both the key signal and key fill.

Shaped Key

An additive key where the Key Alpha cuts a hole based on the monochrome value of the alpha. Shades of gray are translated into either white or black, giving the key a hard edge. Shaped Key alphas are sometimes used with Character Generators to cut very precise holes for the fill.

Split Key

A Split key allows you to assign a different alpha source for a key than the fill/alpha associations that are set up during configuration or to use a separate alpha source for a Self key.

Tally

An indicator which illuminates when the associated button, or control, is selected or is on-air.

Unshaped Key

A multiplicative key where the Key Alpha cuts a hole based on the gradient values of the alpha. Shades of gray are translated into transparency levels, giving the key a soft edge. Unshaped Key alphas can also be considered true linear alphas. Key alphas are set to unshaped by default.

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