KAIROS

Incredible Productivity

IT/IP Centric Live Video Processing Platform

Operating Guide

Panasonic

W1020XX1061 -DS-YI

ENGLISH

DVQP2366YA

Trademarks and registered trademarks

- AVCHD, AVCHD Progressive, and AVCHD Progressive logo are trademarks of Panasonic Corporation and Sony Corporation.
- The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.
- Microsoft® and Windows® are registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- NDI® is a registered trademark of NewTek, Inc.
- Other names of companies and products contained in this document may be trademarks or registered trademarks of their respective owners.

Copyright and license

- Distributing, copying, disassembling, reverse compiling, reverse engineering, and also exporting in violation of export laws of the software provided with this unit are expressly prohibited.

How to read this document

■ Illustrations and screen displays featured in this document

- This document's illustrations and screen displays may differ from how they actually appear.

■ Reference pages

- Reference pages in this document are indicated by (page 00).

Network security

As the KAIROS system intended to be used while connected to a network, the following security risks exist.

① Leakage or theft of information through the system
② Unauthorized operation of the system by persons with malicious intent
③ Interference with or stoppage of the system by persons with malicious intent

It is your responsibility to take precautions, such as those described below, to protect yourself against the above network security risks.
Panasonic does not accept any responsibility for damage of this type.

- Use the system in a network secured by a firewall, etc.
- Make sure that the system is not infected by computer viruses or other malicious programs (using a regularly updated antivirus program, anti-spyware program, etc.).
- Protect your network against unauthorized access by restricting users to those who log in with an authorized user name and password.
- After accessing the system as an administrator, be sure to close all web browsers.
- Change the administrator password periodically.
- To avoid passwords that can be guessed easily by third parties, set a password of at least 8 characters in length, including at least 3 different types of characters, such as upper case, lower case, numbers, and symbols.
- Restrict access to the system by authenticating the users, for example, to prevent setting information stored on the system from leaking over the network.
- Do not install the system in locations where the system, cables, and other parts can be easily damaged or destroyed by persons with malicious intent.
- Avoid connections that use public lines.
- The staff of our company and our affiliated companies will never ask for the password directly from the customer.

Note:

Notes on user authentication

- User authentication on the system can be performed via basic authentication. If basic authentication is used without the use of a dedicated authentication device, password leaks may occur.

Usage restrictions

- We recommend connecting the system, controller, and any computes to the same network segment. Events based on settings inherent to the network devices, for example, may occur in connections that include different segments, so be sure to perform checks prior to operation.

Table of Contents

1 Overview

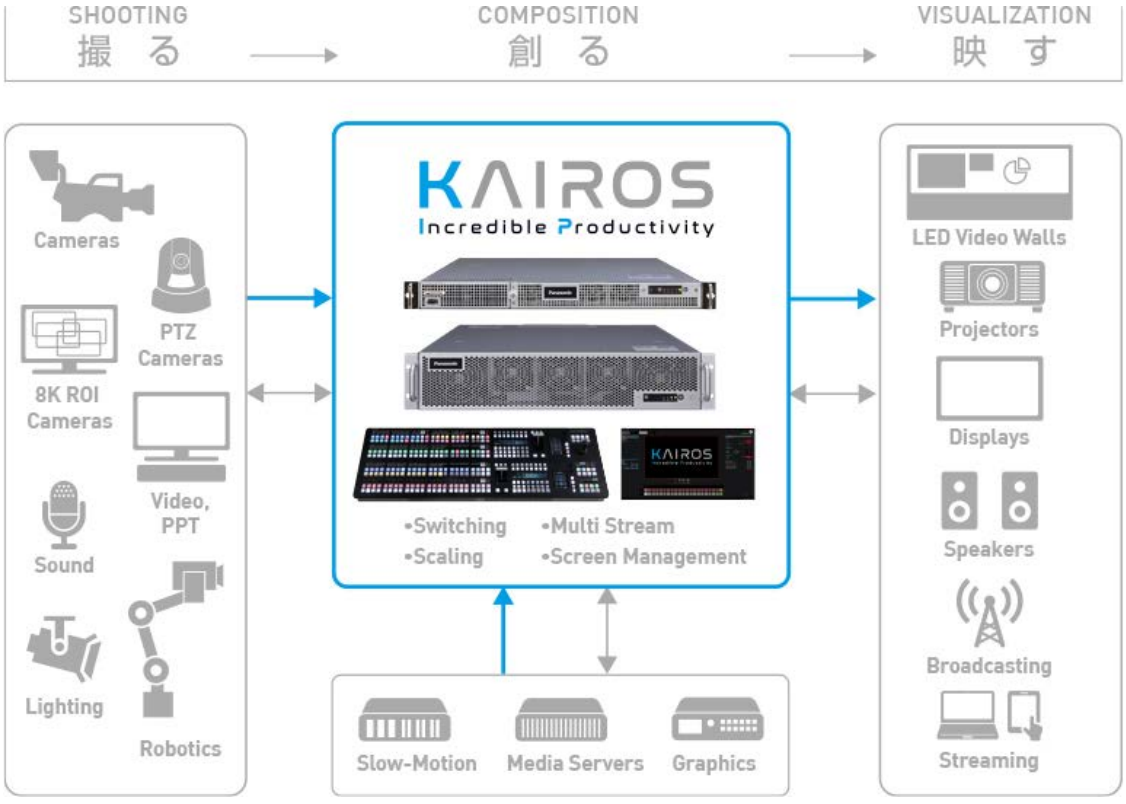
1.1 General

Today, live video production needs to adapt new technologies to create more sense of reality and new technologies for improving productivity of video production. These technical evolution and requirements are remarkably advancing; KAIROS will be the solution to meet these requirements.

“KAIROS”—the IT/IP platform is a live video production platform that is developed based on a new concept and innovative architecture. It incorporates proprietary, ground-breaking software to maximize the CPU and GPU capacities for video processing.
General-purpose IT equipment is deployed to run on CPU and GPU to take advantage of the most advanced IT technology. And the proprietary, innovative software technology has enabled unprecedented flexible live video processing with low latency executed on a GPU, while the open software architecture ensures excellent system flexibility and scalability.

A variety of video inputs and outputs are available with KAIROS to support not only baseband signals such as SDI but also new IP signals including ST 2110 and NDI® to realize remote live video production.
KAIROS uses the GPU for the video processing, thus allowing flexible video production using multiple layers with unrestricted number of MEs or keys and the “CANVAS” screen unhampered by resolution or format.
Because KAIROS is an IT-based open architecture platform, it enables functional enhancements and control linkage with external devices by adding application software. With the system integration capability, KAIROS improves work efficiency and ensures future expandability.
Achieving flexibility in all levels of production unlike any existing hardware-based systems, KAIROS breaks new ground for live video production.

** NDI® is a registered trademark of NewTek in the United States.*



1.2 Key Features

1.2.1 Transition

In a generic M/E architecture, each Mix/Effects Bus (BGD + a fixed number of Keys) has its own dedicated transition generator usually limited to one transition type at a time. KAIROS offers an advanced approach.

In KAIROS, there is no limitation on the number of transitions, types, and combinations of transition elements (BGD, Key/Layer) per Scene. A transition can be designed to affect multiple elements (usually layers), and each element can have multiple components. A wide variety of transition types can be applied to a single transition element simultaneously (e.g., mix and size), and each component of a transition has its own "Start" and "End" position called "Offset Transition," which can be adjusted separately per transition element (BGD, Key/Layer) and transition component (Mix, Wipe, DVE, etc.)

The so-called "Next Transition" bits—selecting multiple transitions at once (e.g.: Trans-BGD, Trans-Layer-1, Trans-Layer-4, Trans-Layer-5)—will automatically monitor the corresponding LAH-PVW (Look Ahead Preview), and the multi-selection made can be saved as individual setting(s) within the provided memory systems (Macro, Scene).

1.2.2 Scene

A Scene is the equivalent of a ME on generic switcher with unique enhancements regarding:

- Number of Layers defined per Scene
- Source Options defined per Layer and per Scene (see next page "1.3 Naming Convention")
- Unlimited Transitions and Transition-Combinations including combinable Transition-Types
- Cleanfeed adjustable per Scene and per Layer
- X/Y-Resolution adjustable per Scene
- Separate set of Macros per Scene
- Macro assigned to be executed when a Scene receives a tally
- Color-Theme per Scene
- Scenes can be treated like any other regular cross-point (e.g., Cameras, Video-Server, etc.)

1.2.3 Layer

A Layer is like a Keyer on a generic M/E-type switcher for the purpose of compositing. A Layer differs from a Keyer in that it can contain combinations of multiple Effects (attributes). A specific attribute can be repeatedly applied to the same layer with differing parameters. As an example, a single layer could have multiple chroma-keys applied with different key colors selected so as to fix a poorly lit chroma-key background. All Layers, including BGD-Layer and Aux-Buses, are capable of enabling Bus-Dissolve, whereby the dissolve-type –apart from Mix-Dissolve– can also select from Wipes, DVE's, and User Transitions such as various programable Replay-Wipes.

Every Layer has the ability to link cross-point controls to any other Layer within the Scene. Every Layer provides its own Color-Theme for the GUI. Layers can be grouped for more refined control. Each Layer can treat its selected source to automatically fit into the specified Scene-Resolution, be kept in original size and position, or be adjusted by the user. "Source Options" allows the user to specify the required sources and their designated position per individual Layer-Bus, which will be reflected in the GUI and on the Control Panel.

Any Layer can become like the BGD-Layer. The "Preset enable" function is selectable per Layer, which turns a single bus layer into an A/B bus layer, where the user can preset a source on the B bus to transition to. Layers, which have "Preset enable" active (such as Background-Layer where this function is enabled by default), can also mimic a behavior mainly used in Automation (Run-Down) application:

- "**Swap**" mode is the default and behaves like any generic A/B-Bus. So, when executing a Cut or Auto transition, the sources selected on the A-Bus and B-Bus will swap after the transition is completed.
- The "**Next**" mode works like "Swap," except that after the transition has been executed, the B-Bus source selection will auto advance to the next source in the bus as user-defined in "Source Options" in order to mimic an Automation system. If necessary, the auto-selected B-Bus cross-point can be manually overridden at any time. When reaching the last cross-point on B-Bus, the auto advance will stop and the B-bus will hold the same source selection.
- "**Loop**" mode works like **next** mode, but when reaching the last cross-point on B-Bus and executing a transition, the B-Bus next source selection will loop back to the beginning of the "Source Options" assigned to that bus.

1.3 Naming Convention

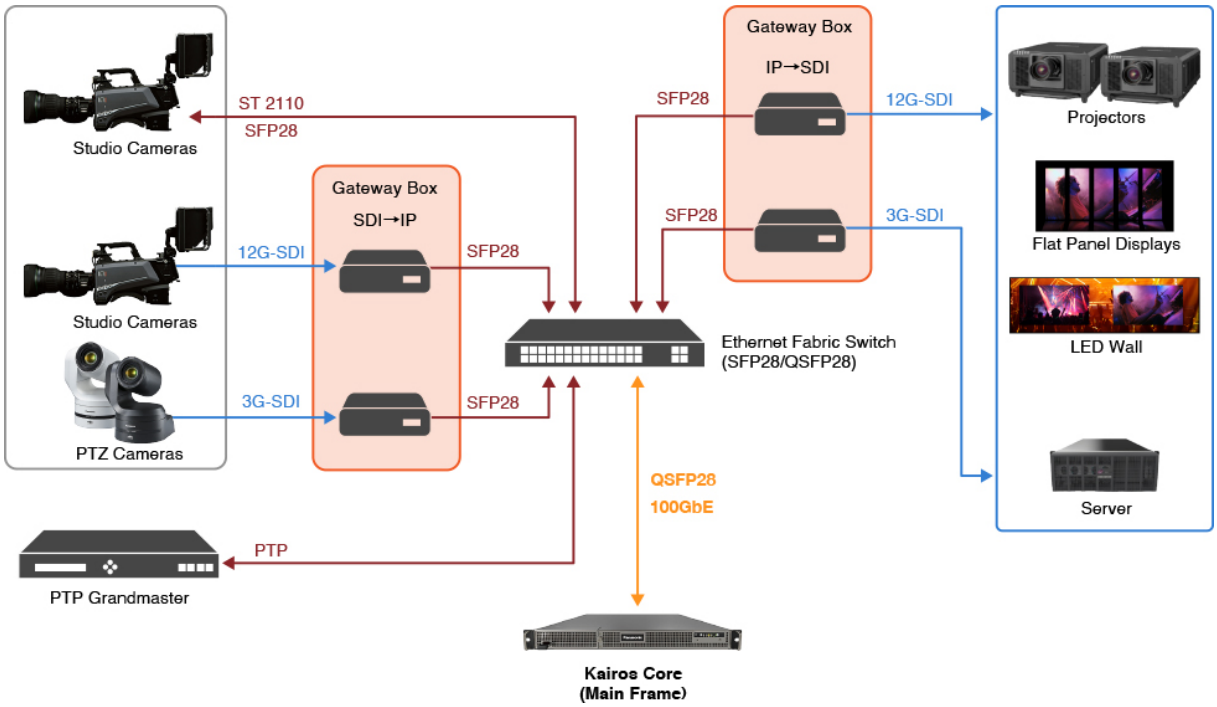
- Production = Stored file containing all production-related information including:
  - Input/output settings (except IP addresses and Type SDI, NDI, Stream, Format).
  - All Control Panel and GUI settings.
  - Multi-Viewer Layouts & Presets, Live View.
  - Effects, Color Correction.
  - Macros.
  - Ram Player, Clip Player, Stills.
- Environment = All engineering settings such as:
  - Input/Output (IP addresses and Type SDI, NDI, Stream, Format).
- Ram Player = Uncompressed file-based Clip Player.
- Clip Player = File-based “visually lossless” Clip Player.
- Stills = File-based Still Store.
- FX-Input = Inputs that can contain pre-processed attributes (DVE, Color Correction, pre-processed Key, etc.). Source for FX-Input can be derived from a Physical Input or any other internal Source like Ram Player, Clip Player, Stills, etc.
- AUX = Programmable Output section.
- Live View = Multi-Viewer Monitoring in GUI.
- Layer = A Layer is treated like a generic Keyer for the purpose of compositing, but a layer differs from a Keyer in that it can contain multiple combinations of attributes—even of the same type—such as Luminance- and Chroma-keys, Masks, Wipes, DVE’s, Color Corrections, etc. (see section 1.2.3 Layer).
- Source Options = Individual available Sources per Bus & Scene.
- Scene = see section 1.2.2 Scene.
- Clean-Feed = Every Layer within any Scene level, even when re-entered through multiple other M/E’s, has its individual (forwarded) attribute/flag declaring whether it is visible or not on any designated Output. Unlike a generic M/E architecture, it’s no longer an M/E by M/E setting, which was restricted by the number of available output cascades per M/E. KAIROS automatically selects the “correct” output cascade (A/B/C/D/…) in order to maintain the overall Clean-Feed rules.

1.4 System Integration

A typical system of KAIROS consists of the following components.

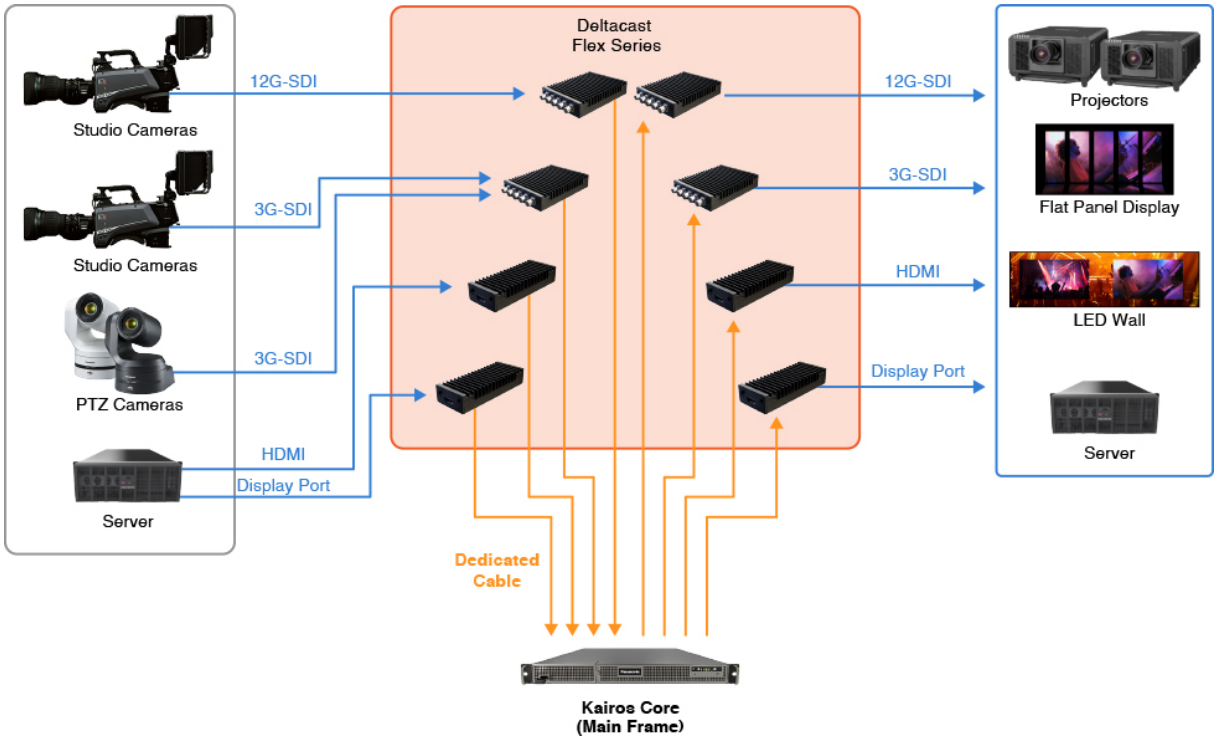
System Integration Example (IP-based):

This system is based on pure IP infrastructure with SDI/IP Gateway and Ethernet switch.



System Integration Example (SDI-based):

This system is based on SDI/HDMI/DP-only infrastructure with Deltacast Flex series.



Note: Install or remove Deltacast Flex modules with Kairos Core (Main Frame) turned off. If the modules are installed after booting, they may not be recognized.

IP-based and SDI-based components can also be used together in a KAIROS system.

1.5 Peripheral Devices

Peripheral devices using the following protocols can be connected directly through the Network:

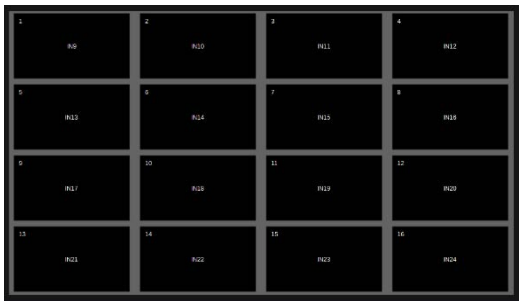
- AMP over LAN (Advanced Media Protocol)
- PTZ-Control (Panasonic)
- Tally over IP direct (Panasonic cameras)

1.6 How to get started

1. Once Kairos Core (Main Frame) is powered up, the Multi-viewer outputs can be seen from the display port terminals (MV1/MV2) on the rear.

MV1

MV2

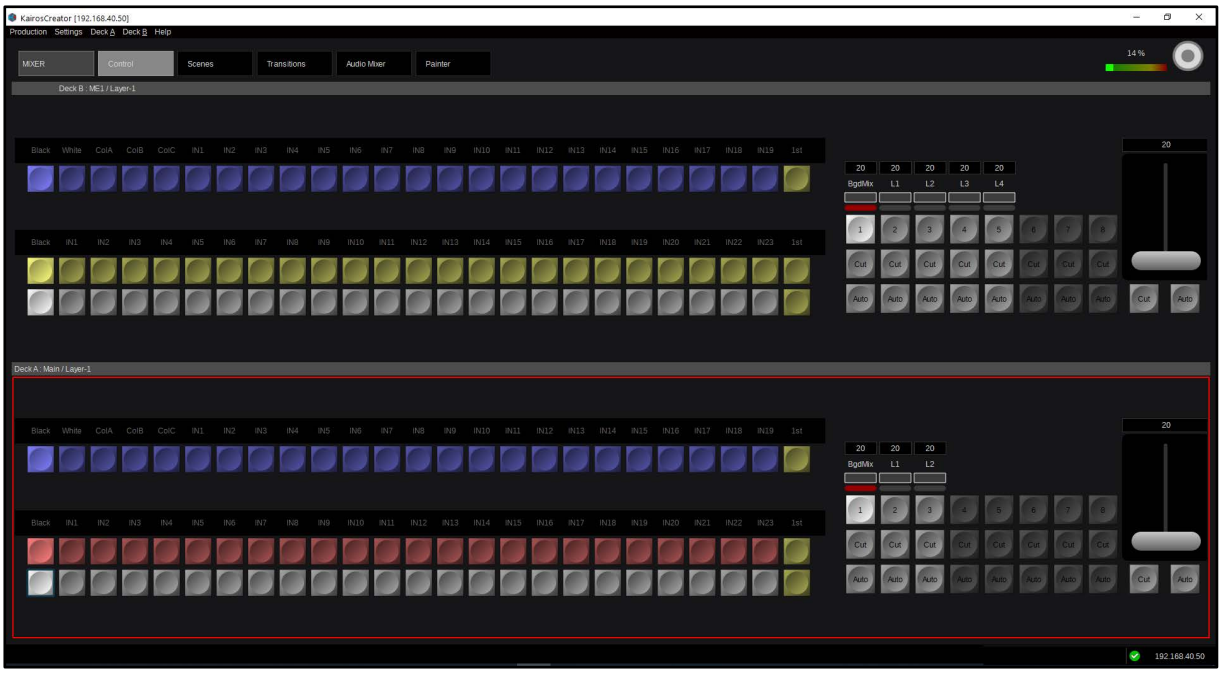


Note: Before turning on Kairos Core (Main Frame), it is necessary to connect the display port terminals and turn them on. If the display port terminals are connected after Kairos Core (Main Frame) is powered up, they may not be recognized.

2. Connect LAN1 of Kairos Core (Main Frame) and Kairos Creator (GUI PC) in the same network. Open the Kairos Creator and connect to the Kairos Core with appropriate IP address setting.

   Default IP address of Kairos Core LAN1: 192.168.10.10

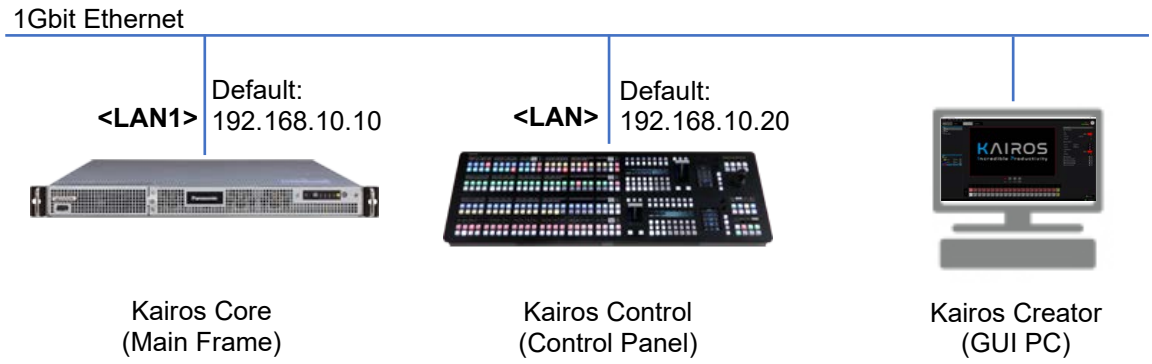
   The “MIXER” – “Control” menu is displayed on the Kairos Creator.



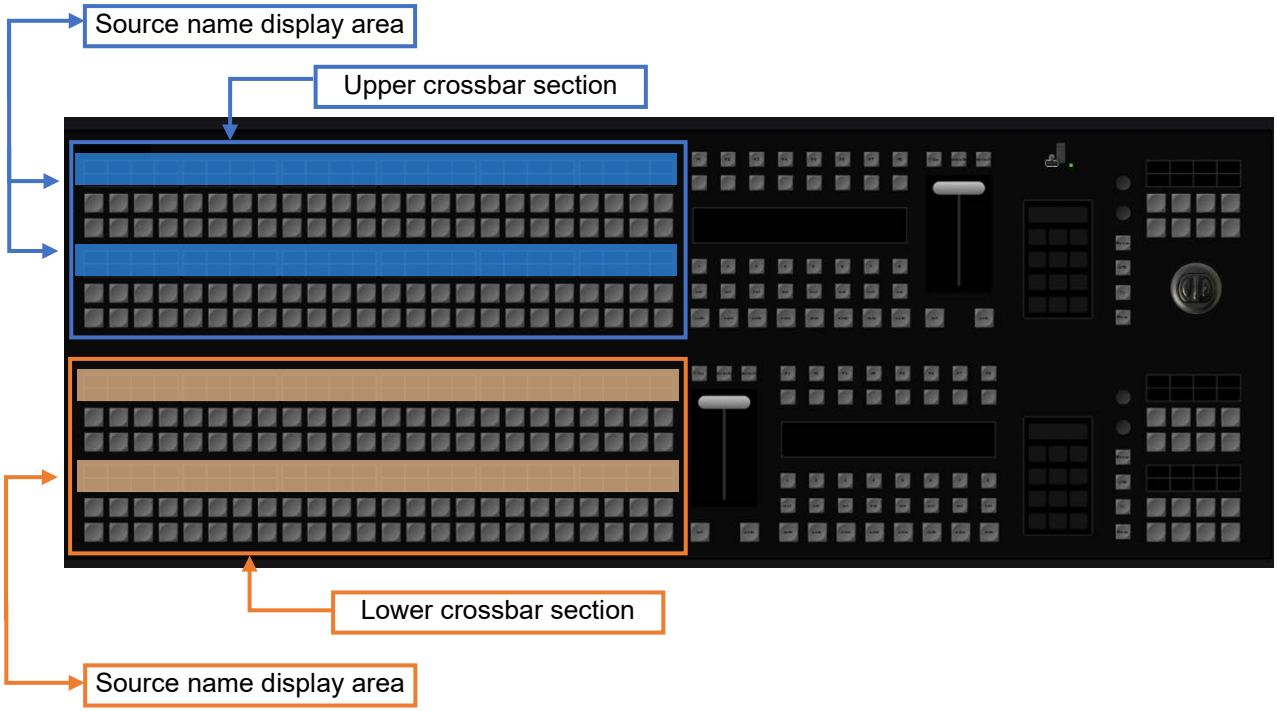
3. Connect Kairos Control (Control Panel) to the same network with appropriate IP address setting.

Default IP address of Kairos Control for its own: 192.168.10.20
Default IP address Kairos Control connecting to: 192.168.10.10

(Please see “4.6 Numeric Keypad Section “Menu”:” for setting up the IP address.)



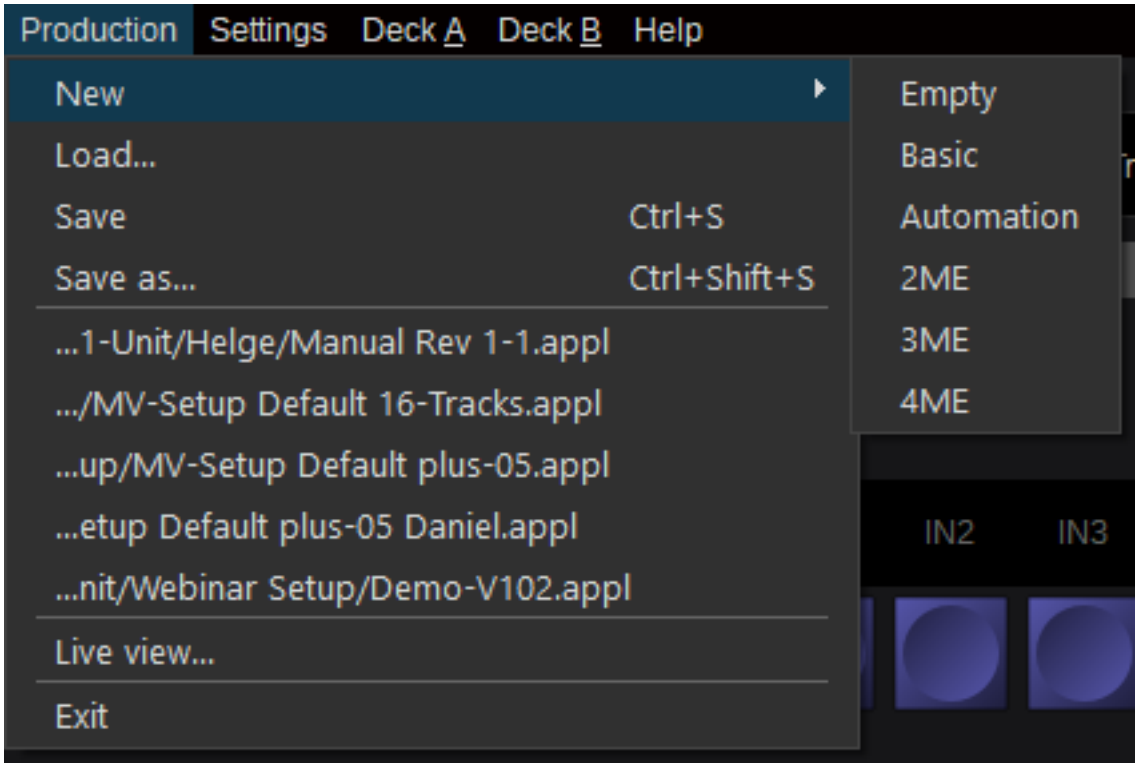
If the Kairos Control is properly connected to the Kairos Core, source names are displayed on the lower or/and upper crossbar section.



1.7 Load & Save Production Behavior

KAIROS remembers the last saved state of the system. When using the “Save” or “Save as…” dialog to save a Production file to an internal or external drive, the KAIROS Core will also save a local copy to the internal drive to load from after booting the system.

A factory “Default Production” can be re-established by selecting “New ›” from the “Production” drop-down menu located in the upper left corner of the Kairos Creator GUI. This will open the Production Template with all factory default settings. Click “Exit” to close the drop-down menu.



Picture 1.7.1

Default Production Templates are:

- **Empty**:
  - Only a Main Scene is created.
  - Scene “Templates” directory is empty.
  - MV1 contains Main-PGM & Main-PVW followed by IN01 - IN08 (style: “10-Split A”).
  - MV2 contains IN09 - IN24 (style: 16-Split).
  - Main consists of BGD + 2 Layers.
- **Basic**:
  - Main Scene with Scene examples (Templates) assigned to Bus cross-points.
  - Background Layer “PGM PST mode” is set to “Swap.” This can be adjusted in the GUI/Mixer/Scenes page Parameter View panel on the right side under “Layer Settings”/“Advanced.” Make sure that the Main scene Background layer is selected in the “Layers” panel on the left before changing “PGM PST mode.” (for details, see Page 7 in section “1.2.3 Layer”).
  - The example scenes 2Box, 4Box, OTS Left, OTS Right, Title, and Sidecar are derived from the “Templates” directory created by this “Basic” preset.
  - MV1 contains Main-PGM & Main-PVW followed by IN01 - IN08 (style: “10-Split A”).
  - MV2 contains IN09–IN24 (style: 16-Split).
  - Main consists of BGD + 2 Layers.

- **Automation**:
  - Scene Container is created for Main Scene with example Scenes from the “Templates” folder assigned to Bus cross-points.
  - Background Layer “PGM PST mode” is set to “Next+Loop.” This can be adjusted in the GUI/Mixer/Scenes page Parameter View panel on the right side under “Layer Settings”/“Advanced.” Note that the Main scene Background layer must be selected in the “Layers” panel on the left.
  - The example scenes 2Box, 4Box, OTS Left, OTS Right, Title, and Sidecar are derived from the “Templates” folder created by this “Automation” preset.
  - MV1 contains Main-PGM & Main-PVW followed by IN01 - IN08 (style: “10-Split A”).
  - MV2 contains IN09–IN24 (style: 16-Split).
  - Main consists of BGD + 2 Layers.
- **2M/E**:
  - Scenes are created for Main Scene, M/E1, and the “Templates” folder is empty.
  - MV1 contains Main-PGM & Main-PVW followed by IN01 - IN08 (style: “10-Split A”).
  - MV2 contains IN09–IN24 (style: 16-Split).
  - Main consists of BGD + 2 Layers.
  - M/E’s consist of BGD + 4 Layers.

- **3M/E**:
  - Scenes are created for Main Scene, M/E1, M/E2, and the “Templates” folder is empty.
  - MV1 contains Main-PGM & Main-PVW followed by IN01 - IN08 (style: “10-Split A”).
  - MV2 contains IN09 - IN24 (style: 16-Split).
  - Main consists of BGD + 2 Layers.
  - M/E’s consist of BGD + 4 Layers.

- **4M/E**:
  - Scenes are created for Main Scene, M/E1, M/E2, M/E3, and the “Templates” folder is empty.
  - MV1 contains Main-PGM & Main-PVW followed by IN01 - IN08 (style: “10-Split A”).
  - MV2 contains IN09 - IN24 (style: 16-Split).
  - Main consists of BGD + 2 Layers.
  - M/E’s consist of BGD + 4 Layers.

Note: The “Live view…” function can be used in order to open a new window, enabling monitoring (stream) of Multiviewer outputs and streams configured via the “Setup/Output Settings” for “RTP.” For more details, see section 3.3.5.1 Live View.

2 Software Installation & License

2.1 Software Installation:

Using Kairos devises requires membership registration to PASS.
PASS is a website that provides support for Panasonic professional video products owners.

Please visit the following site for more details about software download and installation.
https://panasonic.biz/sav/kairos_e/

2.2.1 Licenses Required for KAIROS:

Every connected Kairos Creator and every participating Kairos Core requires a valid License file in order to function properly within the system.

The Kairos Creator (GUI Software for PC) needs:

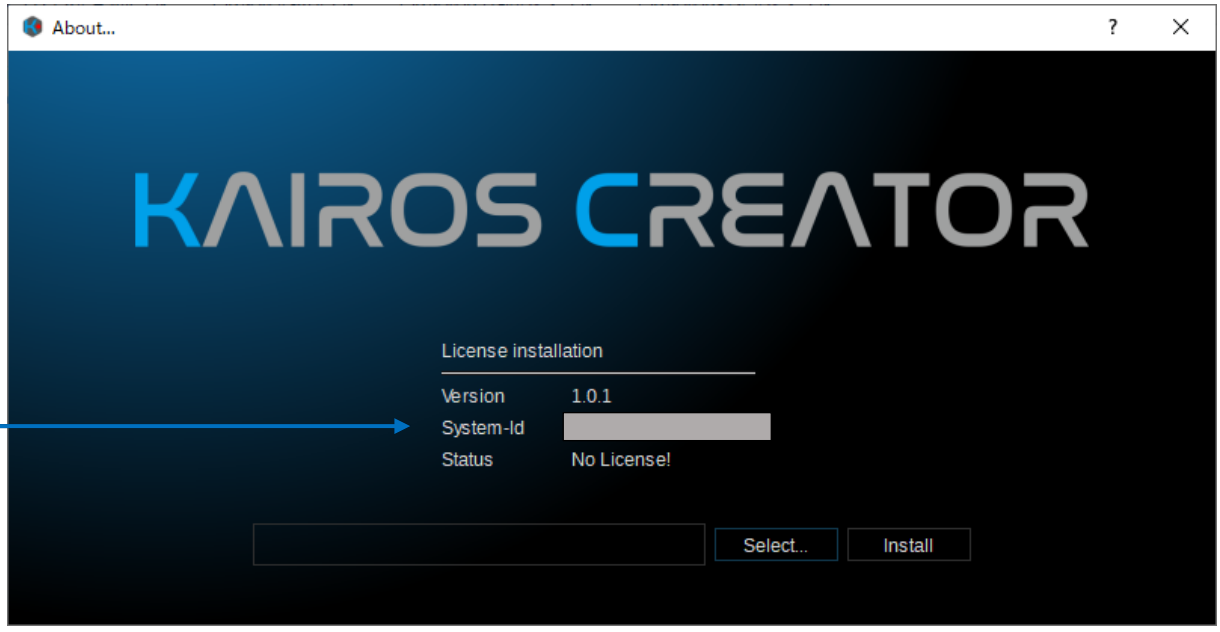
- AT-SFC10 (Software Key for Kairos Creator)

The licenses for Kairos Core (Main Frame) are divided into separate parts, which include several available License packages so far:

- AT-SF001 (4K Support)
- AT-SF002 (I/O expansion)
- AT-SF003 (Canvas Output)
- AT-SF005 (Audio Mixer)
- AT-SFE03 (NMOS)

The Kairos Control (Control Panel) does not need a license.

With no license, Kairos Creator displays below:

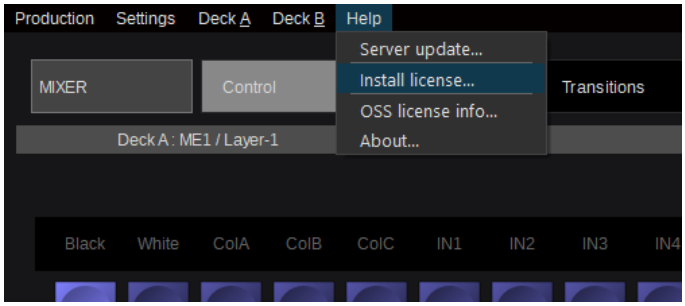


Picture 2.2.1

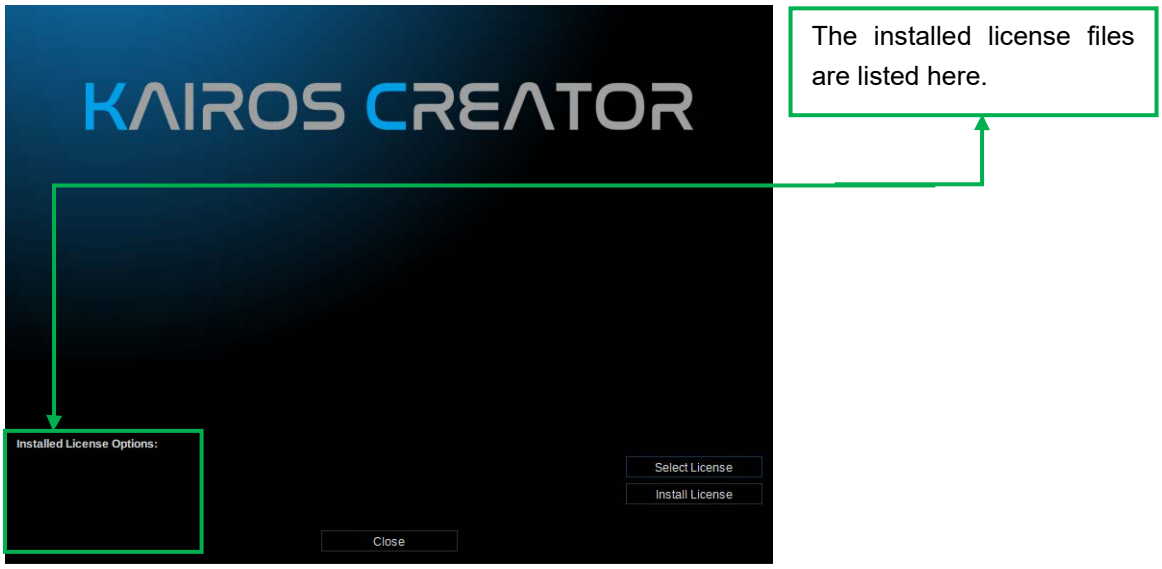
System ID is a specific ID for the PC.

2.2.2 Confirm Installed Licenses

Once the “Kairos Creator” App is running, the “Help” menu in the top left corner allows to select “Install License,” which is used for the connected Kairos Core.



Picture 2.2.2.1

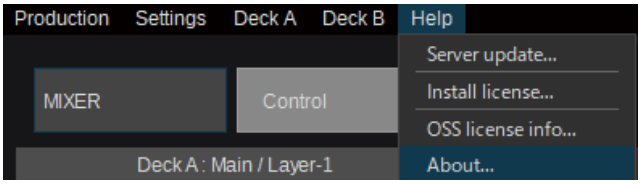


Picture 2.2.2.2

Please refer to the following site for license installation.
https://panasonic.biz/sav/kairos_e/

2.2.3 Confirm Software Version:

Once the “Kairos Creator” App is running, the “Help” menu in the top right corner allows to select “About….”



Picture 2.2.3.1

Picture 2.2.3.2

Software version of Kairos Creator.

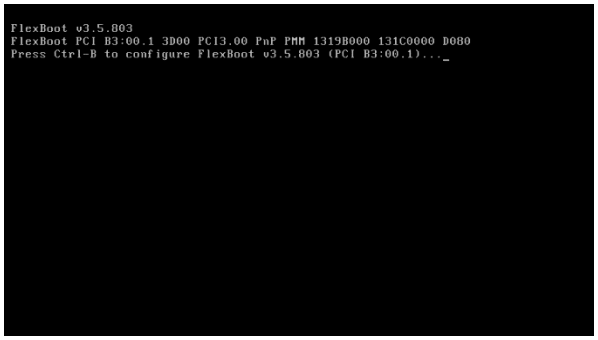
Software version of Kairos Core.

2.3 Emergency Procedure for Lost IP Settings:

In case the 1Gb network adaptor settings (in System Settings Menu) got lost and need to be reconfigured, here is the description how to proceed. Keep in mind, if those Network settings are lost or unknown, the actual displayed fields for IP address, Netmask & Gateway (Picture 2.3.1) would be empty, and as a result, the Kairos Creator can **NOT** connect anymore to KAIROS Core at all. Therefore, the Network configuration needs to be done directly on KAIROS Core.

Picture 2.3.1

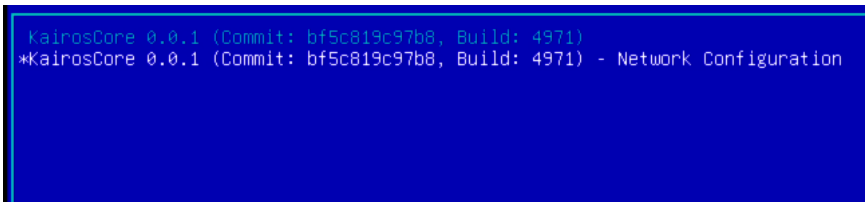
Before continuing, connect a Keyboard straight to the KAIROS Core and repower the system. There are Text and objects appearing on screen during boot, such as:



Picture 2.3.2

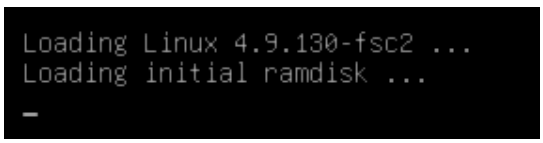
After a few minutes, a blue background screen is revealed with boot information (Picture 2.3.4). There is a time slot of approx. 2-3 seconds in order to hit the cursor "up-↑" or "down-↓"-button on the Keyboard in order to stop the time-out for the auto-boot sequence. Selecting "KairosCore….Network Configuration" will launch after confirmation of a subroutine to be able to access the 1Gb network adapter settings on KAIROS Core.

Note: All navigations from now on can be simply done using the arrow/cursor buttons (←↑↓→) on the connected Keyboard, and the selected item can either be confirmed or canceled using the "Return" or "Enter" key of the connected Keyboard.



Picture 2.3.4

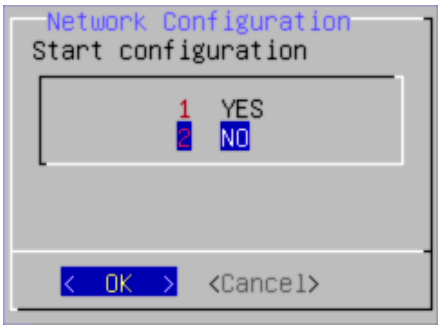
Use cursor up/down Keyboard buttons to select the 2nd listed item "Network Configuration." Press the "Return" or "Enter" key to confirm (Picture 2.3.4).



Picture 2.3.5

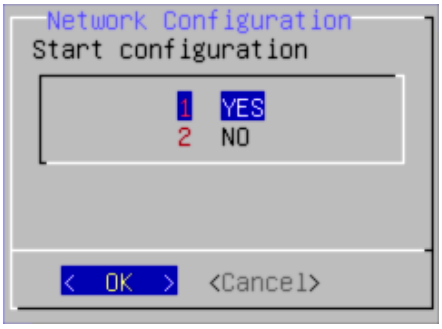
The next upcoming screen is only informing about the boot progress….

Finally, the main task appears:



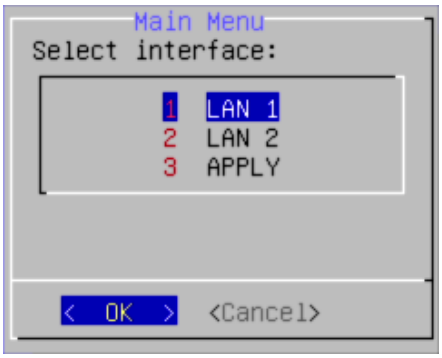
Picture 2.3.7

To change the upcoming selection “Yes/No,” use the Keyboard cursor buttons Up/Down. For selecting “Ok/Cancel,” the Keyboard cursor buttons “Left/Right” are used. The “Return or Enter” Keyboard buttons will confirm the selection.



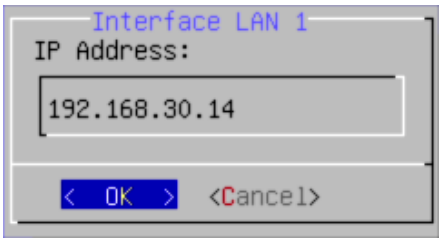
Picture 2.3.8

Continue with “Yes” and “OK” (Picture 2.3.8).



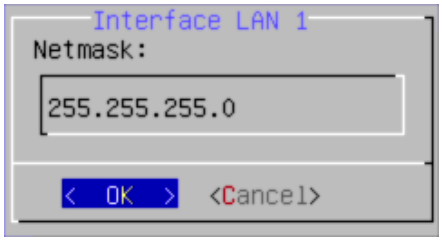
Picture 2.3.9

In this dialog, LAN adaptor 1 or 2 can be selected. After confirming the selected adaptor, the next upcoming box allows to enter an IP address using the connected Keyboard.



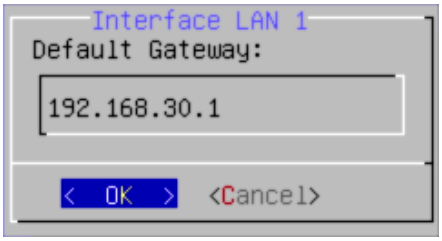
Picture 2.3.10

When finished, confirm “OK.”

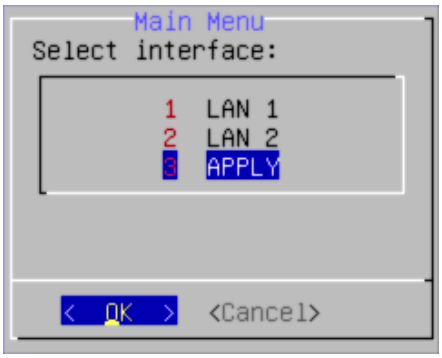


Picture 2.3.11

After entering the IP address and hitting “OK,” the next 2 dialogs will handle the according “Netmask” & “Default Gateway” settings.



Picture 2.3.12



Picture 2.3.13

After confirming “OK” for the Netmask and Gateway, the final screen is used to “Apply” the new settings. Use the Keyboard cursor buttons to select “Apply” and confirm with “OK.” This will use the new IP-settings and continue to boot KAIROS software. “Cancel” will ignore the changes and boot KAIROS with the network settings before this “Network Configuration” task was started.

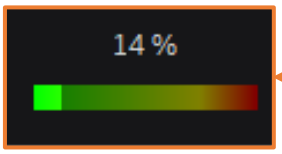
3 GUI Operations (Graphical User Interface)

3.1 Generic GUI Screen Areas

Picture 3.1.1

3.1.1 GPU-Metering

Picture 3.1.1.1

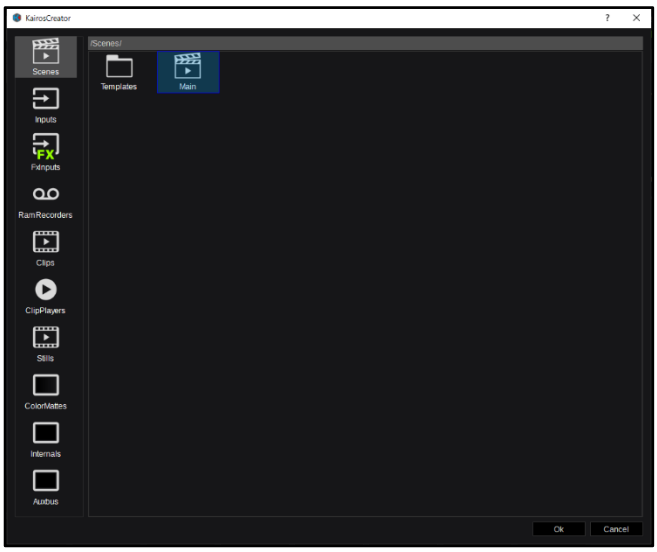


Depending on the amount of resources being used regarding numbers of Layers, Scenes, added attributes (e.g., ColCorr, DVE’s, ChromaKey, etc.), Outputs, and so on, there is a GPU-Meter, located in the top right corner of every GUI Menu page, next to the Macro-Record button. This monitors the actual workload of the processing system GPU per connected KAIROS Core. GPU-Meters should not exceed 100% workload.

Note: Apart from the Kairos Creator GUI, the GPU-Meter can also be added and monitored within the MV’s.

3.2 Repeating Menu Patterns

3.2.1 Source/Input Selection

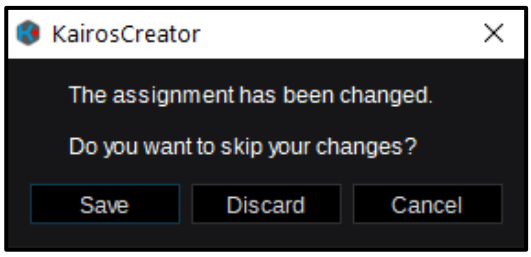


Picture 3.2.1.1

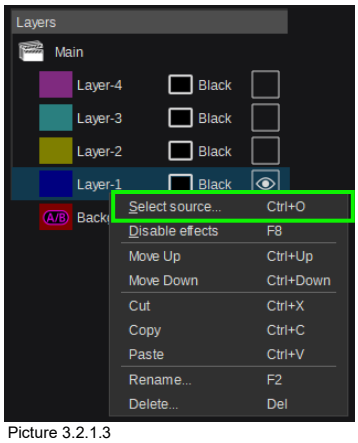
In the “Source/Input” dialog, all KAIROS sources (including inputs) are listed in groups and are available for designation as source selections for Buses, Multi-Viewer windows, etc. Clips and Stills are available after loading to RAM.
Single click on a source changes the cursor focus to the selected source, but the change will only happen after you click “OK” in lower right corner of the pop-up window to confirm the changes and close the window. Double-click on a source to set the focus and instantly change the source without closing the window. The “Cancel” button opens a new dialog (Picture 3.2.1.2) where the user can choose to “Save,” “Discard,” or “Cancel” the changes.

Note: Groups of sources can contain subdirectories!

Picture 3.2.1.2

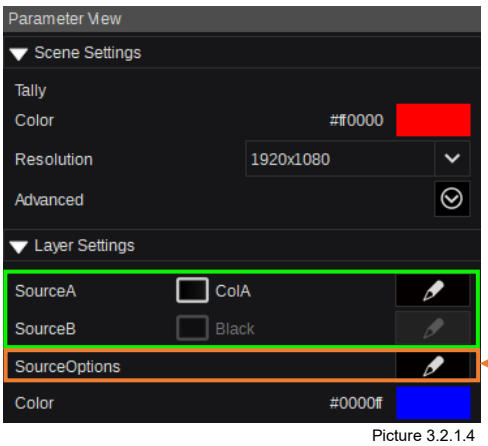


This dialog will only open if a Source selection changes. If no change is made to the Source before the “Cancel” button is clicked, the window will close immediately. Clicking the “Cancel” button after changing a source (Picture 3.2.1.1 on previous page) will open this dialog (Picture 3.2.1.2). Click “Save” to use the new source and close this dialog box as well as the “Source Select” window.
Pressing “Discard” will revert all source changes and close both this dialog box and the “Source Select” window. “Cancel” (in Picture 3.2.1.2) will close this dialog box without any changes and drop back to the “Source Select” window (Picture 3.2.1.1 on previous page).



Picture 3.2.1.3

The Source Select window (Picture 3.2.1.1) can be opened with a right mouse click on any layer in the “Layers” window and clicking on Select Source (Picture 3.2.1.3). It can also be opened by clicking on , the buttons in “Parameter View” of “Layer Settings.” The “Source Select” window will also open when selecting sources for Aux Buses and Multi-Viewer panes.

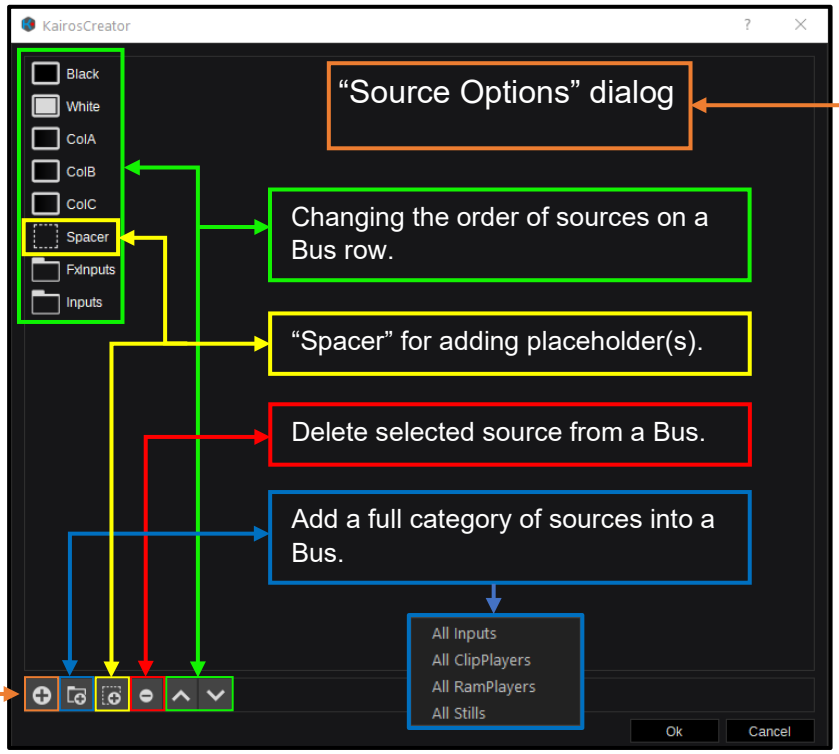


Picture 3.2.1.4

3.2.2 Source Options

Here, the operator can determine which individual sources are available per Bus.

Note: The available sources can be changed on a Scene-by-Scene and/or Bus-by-Bus basis!



Click the pencil symbol in “Source Options” (Picture 3.2.1.4 on previous page), in order to open this dialog (Picture 3.2.2.1).

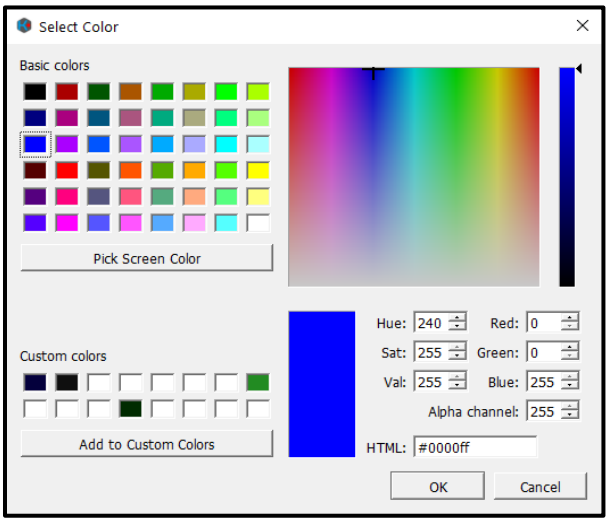
Picture 3.2.2.1

Open the “Select Source” window (described in section “3.2.1 Source/Input Selection” page 21) to add individual sources.

Note: The same “Source Option” dialog opens under the “Config” tab in “Aux” menu “3.3.8.1 Aux” page 77.

3.2.3 Color Adjustments

The “Select Color” dialog will open wherever color adjustments are required. Clicking a Color-Box in the “Parameter View” window, for example, allows you to set a specific color for every Background and Layer per Scene.



Picture 3.2.3.1

Color & Saturation can be adjusted in the Color pane together with the Luminance slider.

A Color can also be picked from the “Basic colors” section.

Decimal values can be entered for “Hue, Sat, Lum” or for individual “Red, Green, Blue.” Hexadecimal color values can be entered in the “HTML” box. Any change in one area updates the other areas simultaneously. The according box is present as well, only when “Alpha channel” is supported.

Use the “Pick Screen Color” function to pick a color from anywhere on the computer screen surface, including outside the GUI menu.

Up to 16 Presets can be saved in the “Custom Colors” section.

Hit “OK” to confirm selection or “Cancel” to abort.

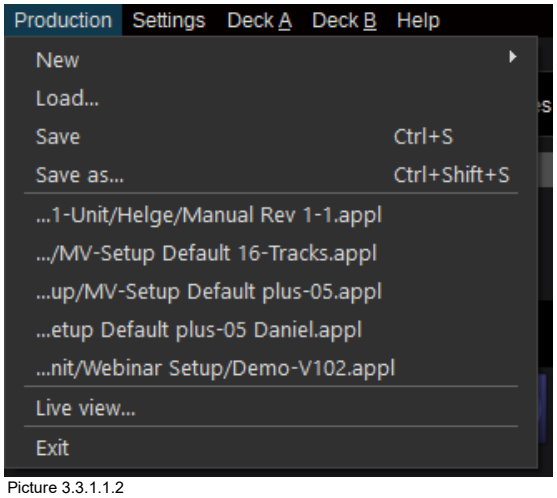
3.3 Menu Delegation & Navigation

3.3.1 Top-Level GUI Menu Bar “Kairos Creator”

3.3.1.1 Production

The Kairos Creator software can be launched using the icon, located on the Desktop or in the Windows Taskbar.

Picture 3.3.1.1.1



Picture 3.3.1.1.2

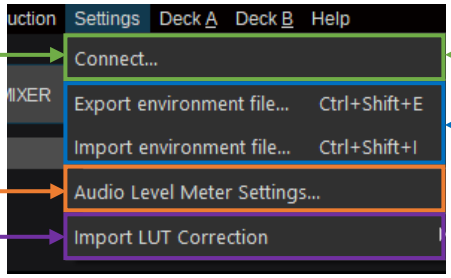
Click the “Production” tab in the upper left corner and a drop-down menu appears where Production-related tasks are handled including “New,” “Load…,” “Save,” & “Save As….” The five most recent Productions that were loaded are listed next. Choosing “Exit” will close the dialog.

For more detailed information regarding the individual items of the “Production” drop-down Menu, please refer to the individual sections in this Manual.

Note: The keyboard shortcuts (if available) listed to the right of some menu commands usually are the same as standard windows keyboard shortcuts for the same or similar functions.

3.3.1.2 Settings

The “Settings” tab of the menu bar contains several functions related to IP connection, import & export environment (engineering setup) files:

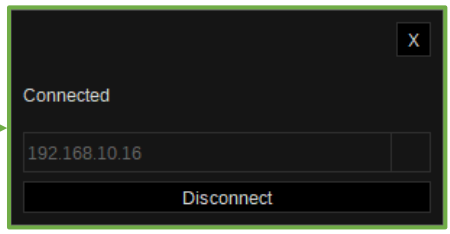


Connect – IP-address for Kairos Core connection.

Export environment file - Saves the current Setup file with a new file name and path (or keyboard shortcut Ctrl+Shift+E).

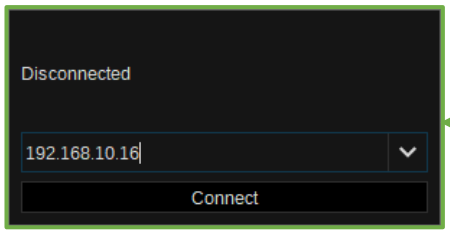
Import environment file - Opens a file browser to select & load a Setup file (or keyboard shortcut Ctrl+Shift+I).

Picture 3.3.1.2.1



Picture 3.3.1.2.2

While “Connected” to the Kairos Core, the actual displayed IP address is grayed out. When “Disconnected,” the IP address can be edited and confirmed with the “Connect” button.



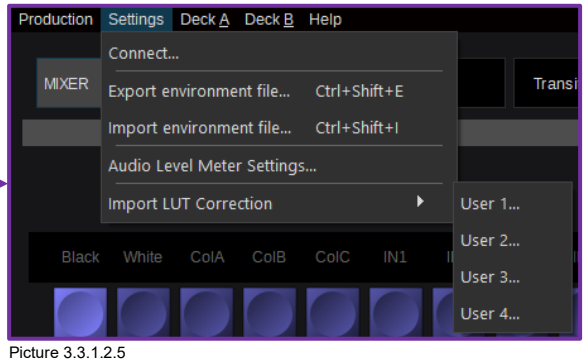
Picture 3.3.1.2.3

Picture 3.3.1.2.4

When selecting the “Audio Level Meter Settings…”, the audio bars for Multiviewers can be customized regarding the listed controls for:

Clip level [db]	= maximum display Level
Warning level [db]	= level for red bar indication
Caution level [db]	= level for yellow bar indication
Min level [db]	= minimum display Level
Peak hold	= hold peak audio level duration
Peak decay	= attack time to decay peak level
Fade type	= X-Fade or V-Fade mode
Fade time [ms]	= Audio dissolve duration

Note: Audio fades are executed on PGM Layer or Aux buses after the designated Video crosspoint has changed.

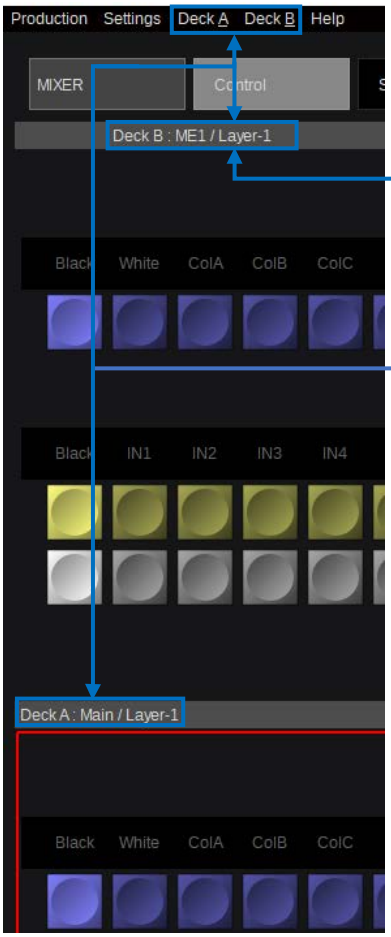


Picture 3.3.1.2.5

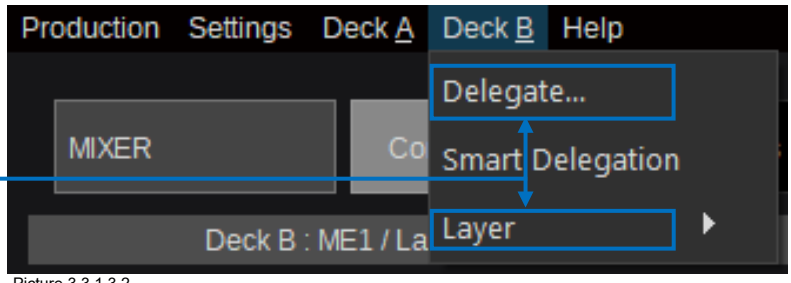
Selecting “Import LUT Correction” allows importing of 4 user defineable LUT’s (Look_Up_Tables) “User 1-User 4” to be used for Layer and Aux-Bus color corrections/management. A LUT needs to be in “*”.cube file format. These become available when using the “+ add effect” button in the lower right corner and selecting “LUTCorrection.” At the end of the “Index” list, User 1 – User 4 can be selected as filters for the LUT correction.

Note: Importing a new LUT-file requires rebooting Kairos Core.

3.3.1.3 Deck A/Deck B

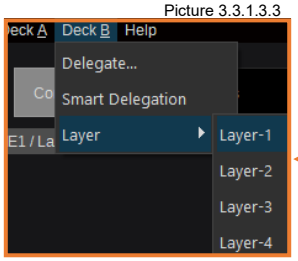


Picture 3.3.1.3.1

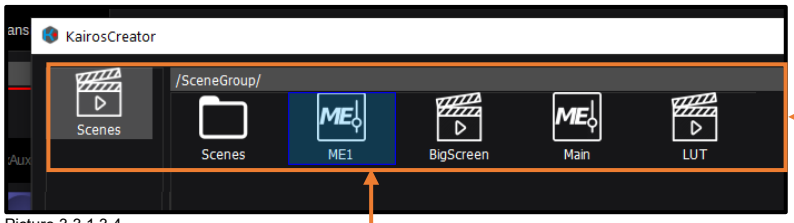


Picture 3.3.1.3.2

When the Mixer/Control page is active, the "Deck A" and "Deck B" tabs appear on the menu bar that contain tools to delegate resources to each control "Deck." Deck B is on top and Deck A is the bottom one. Use [ALT]+A and [ALT]+B to open these menus.



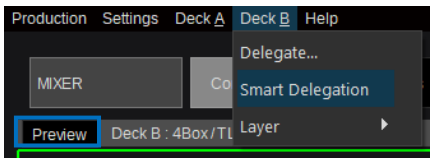
Picture 3.3.1.3.3



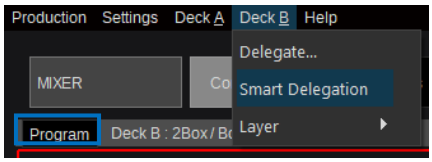
Picture 3.3.1.3.4

Click "Delegate…" to open a Selection window with all the Scene Directories and Scenes, which are available to be delegated to this Deck. Directories cannot be delegated, but Scenes within them can be selected.

Note: "Smart Delegation" is only available for the "Deck B" drop-down menu. This selects a special "Auto Delegation" mode for the GUI/Mixer/Control menu page. When "Smart Delegation" is enabled, the choices are Preview or Program. The selection will be used to "unfold" a selected Scene from Deck-A PVW or PGM bus to be delegated to Deck-B.



Picture 3.3.1.3.5



Picture 3.3.1.3.6

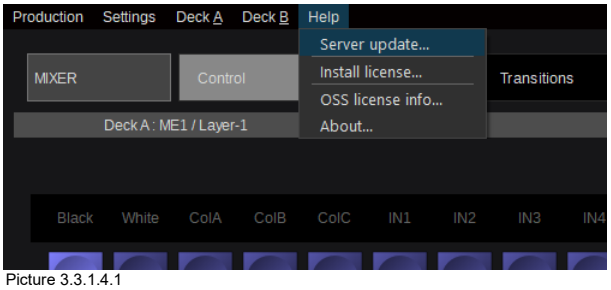
Picture 3.3.1.3.7

Picture 3.3.1.3.8

Picture 3.3.1.3.9

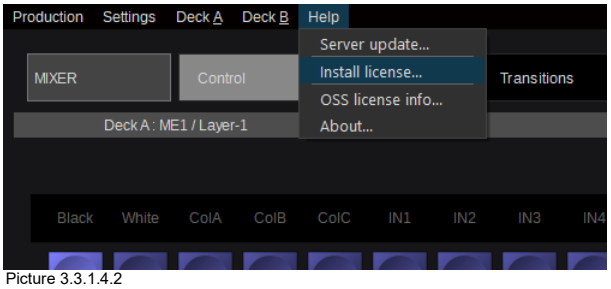
For more detailed information, refer to section 4.2.1 Smart Delegation in this manual.

3.3.1.4 Help



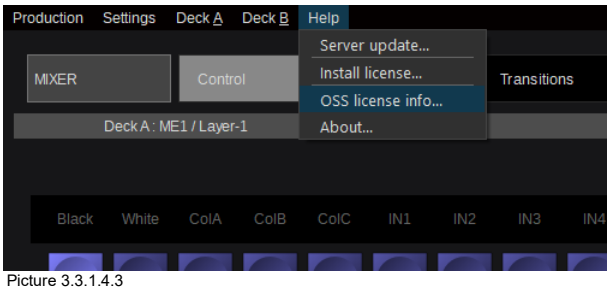
Picture 3.3.1.4.1

"Server update" within the "Help" drop-down menu offers the ability to update the Kairos Core software via Kairos Creator. For more details, please refer to section "2.1 Software Installation:": starting on page 15 in this manual.



Picture 3.3.1.4.2

The operations for "Install license" within the "Help" drop-down menu is described in section "2.2.1 Licenses Required for KAIROS:": starting on page 15 in this manual.



Picture 3.3.1.4.3

"OSS license info…" from the "Help" drop- down menu will open a list of "Open Source Software Information" used in "KAIROS" product. Use the slider on right hand screen to scroll through the document.

Select "About" from the "Help" drop-down menu:

Picture 3.3.1.4.4

Here, the "System-Id" information for the "KAIROS CREATOR" (PC) and the "Connected Server" (Kairos Core) are displayed, which are needed in order to create a valid License-Key for each device.

3.3.1.5 GUI Tab-Cycling/History

The Kairos Creator GUI menu system remembers the 10 most recent menu pages visited, allowing quick access or toggling between them. The keyboard shortcut is [CTRL]+[TAB]. Pressing [CTRL]+[TAB] once will toggle between the most recent menu page and the current one. Pressing [CTRL]+[TAB] keys opens a selection window in the center of the GUI showing the ten most recent menu pages after which holding the [CTRL] key and hitting the [TAB] key cycles through the list. When the [CTRL] key is released, the GUI will switch to the highlighted menu page and close the window.

Now, while keeping the “Ctrl” key pressed, use the keyboard “Tab” button in single steps in order to cycle through the displayed list. Releasing the “Ctrl” key will switch to the selected menu and also will close the menu selection window.

Picture 3.3.1.5.1

3.3.1.6 GUI Undo

Kairos Creator GUI also supports multi-level “Undo” (CTRL+Z) & “Redo” (CTRL+Y) functionalities.
Note: Undo is not supported for “Insert” and “Delete” operations!

3.3.2 Kairos Creator Menu System

The start screen of Kairos Creator shows the “Mixer” Main Tab. The structure of KairosCreator is a revolutionary new menu paradigm designed to be only one level deep. This allows the user to jump directly from their current menu page to any other menu page in a maximum of two menu tab clicks!

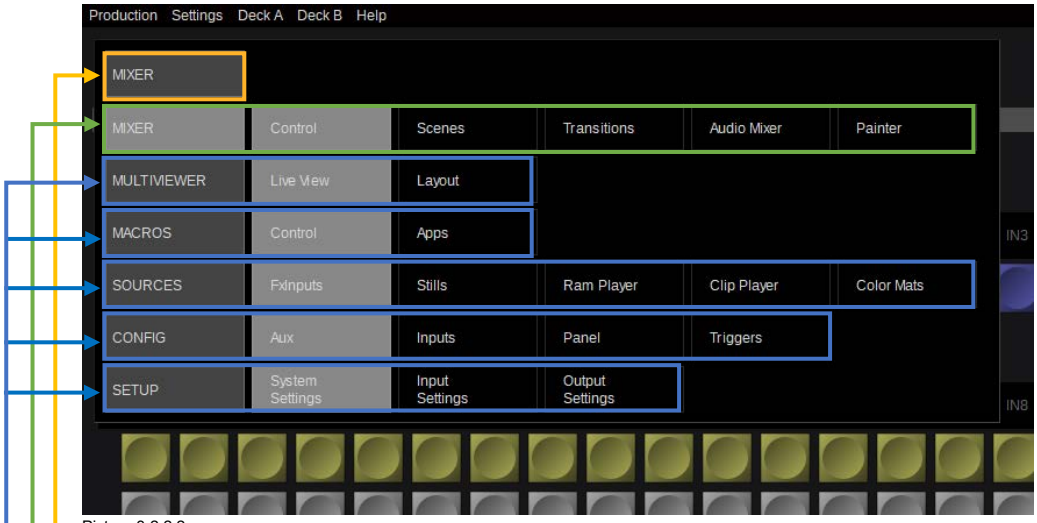
Kairos Creator always starts up on the “Control” sub-menu of the “Mixer” main tab. To the right of the “Mixer,” main tabs are the sub-menu selections for the “Mixer” category. The rest of the main tabs are listed in the left column below the Mixer main tab.

Picture 3.3.2.1

The current main tab and a row of sub-tabs are always displayed across the top of the page.

To change to another menu with **one click,** select any other sub-tab within the same main tab. This will open the desired menu page without opening the menu overlay window. In the above example (3.3.2.1), the current main tab is “Mixer,” the current sub-tab is “Control,” and the rest of the sub-tabs in this category (main tab) are “Scenes,” “Transitions,” and “Panel.”

To change to another menu in **two clicks,** first click the upper left Main Tab (“Mixer” in this example) and an overlay selection window will expand to show all of the menu tabs:



Picture 3.2.2.2

Main tab for current Menu page.

Current Main tab with current sub-selection in Light Gray.

All other Main tabs in dark gray, displaying their previous sub-selections in Light Gray.

- Second, click any other Menu tab in the overlay to jump to that Menu page to change and close the overlay window.
- Or click on any Main tab (left column) to go to the last selected item from that row and close the overlay window. The last selection in each row is indicated by the Light gray button.
- To close the overlay window without changing the Menu page, simply re-select the current page. In this example, you would click the Main Mixer tab, the Main column Mixer tab, or the Control sub-tab within the Mixer row to close the overlay window without changing the current Mixer/Control menu.

3.3.3 Mixer Tab Selection

3.3.3.1 Control

The Mixer Main Tab contains all the sub-tabs for setting up and controlling the Mixer part of your production. This is where you unleash most of your creativity!

Picture 3.3.3.1.1

The “Control” page gives you a touch screen software Control Panel (CP). All the buttons displayed on screen can be used and operated like a hardware control panel. The lever arm (Fader) movement can be controlled with a left mouse click or using the touch screen by pressing and holding while moving it.

In the upper right corner of every menu page is a “Record Macro” button. Left mouse-click on it or use the touch screen button to start recording a new Macro in the Main-Macro section.

Right mouse click here to add or subtract elements controlled by the “Next Transition” principle.

Objects selected for “Next Transition” also affect the LAH-PVW (Look ahead Preview) and are controlled via the Lever arm in addition to the “Cut” and “Auto” buttons below.

Look ahead Preview (LAH-PVW) is calculated from the component(s) including BGD and Layer(s) that are selected for “Next Transition.” These are usually operated with the Lever arm, the “Cut,” or “Auto” button below. The Preview functionality can be selected for individual Multiviewer tiles and Aux buses.

Beside the “Next Transition” selection method, each transition can still be executed individually, using the “Cut” and “Auto” buttons located directly below their respective transition components.

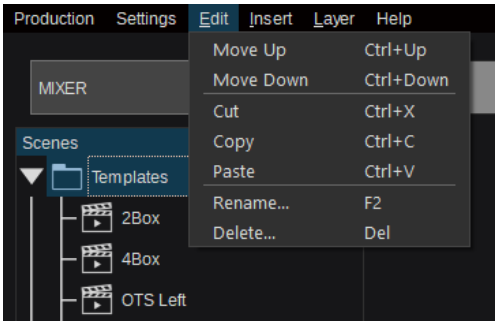
The LAH-PVW shows the expected result of the next transition on the Preview Output before execution:

- Preset Bus (B-Side of enabled A/B-Bus), also when enabled on Layer
- Layer is “Off” but enabled/selected for “Next Transition.”

3.3.3.2 Scenes

The “Scenes” tab activates three dedicated drop-down menus in the menu bar: Edit, Insert, and Layer.

Edit

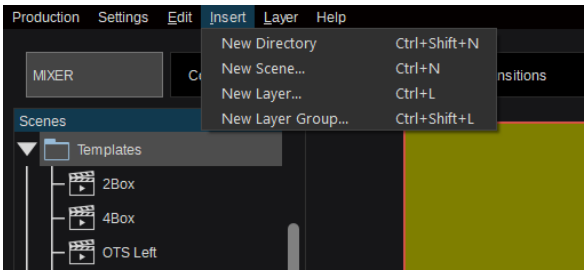


Picture 3.3.3.2.1

The Edit menu provides actions specific to modifying Layers and Scenes. An action selected from the “Edit” drop-down will be applied to the item that currently has cursor focus. This could be an item in either the “Scenes” or the “Layers” window.

The list of Edit functions with their keyboard shortcuts is displayed to the left in Picture 3.3.3.2.1.

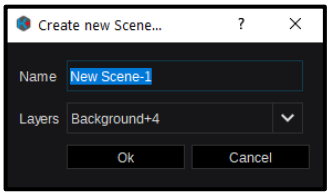
Insert



Picture 3.3.3.2.2

The “Insert” drop-down menu facilitates the addition of items to the scene tree. A newly created item will always be placed into the highlighted item unless it cannot be created there, in which case it will be placed at the end of the list at the same level as the currently selected item. The list of Edit functions with their keyboard shortcuts are displayed to the left in Picture 3.3.3.2.2.

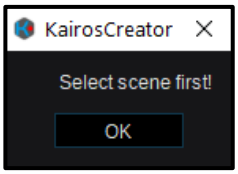
“New Directory” will open a dialog window to name the new directory. After typing in a name and confirming with the “OK” button, the newly created directory will appear inside the currently selected item, except if the current item is a scene. Because a scene cannot contain a directory, a new directory would be created at the end of the list at the same level of the tree.



Picture 3.3.3.2.3

“New Scene” will open a simple wizard allowing you to name the new scene and select the number of layers it should have. When closing the wizard with “OK,” the item will be dropped into the “Scenes” tree relative to the current cursor focus according to the abovementioned rules (Picture 3.3.3.2.2).

Note: Even though the drop-down selection for “Layers” in the wizard allows a maximum of 6 Layers + Background, once the scene has been created, Layers can be added and removed as needed.



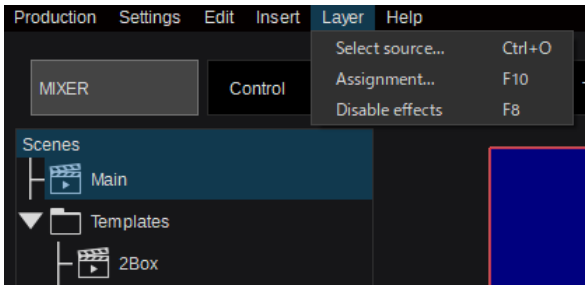
Picture 3.3.3.2.4

“New Layer Group” only works when a scene is selected in the scene tree. If a “Directory” is currently highlighted, selecting the “New Layer Group…” action from the “Insert” menu will open a Message Box telling you to “Select a scene first!” Click “OK” to acknowledge the error of your ways and close the box.

“New Layer” opens a dialog box for you to name the Layer. Click “OK” to close the dialog, and the new layer will be created on top of the list of layers in the currently selected scene.

“New Layer Group” creates an empty folder on top of the list of layers in the currently selected scene. Only layers can be placed into the folder, either by creating new layers inside it or by cut/copy/pasting them from elsewhere.

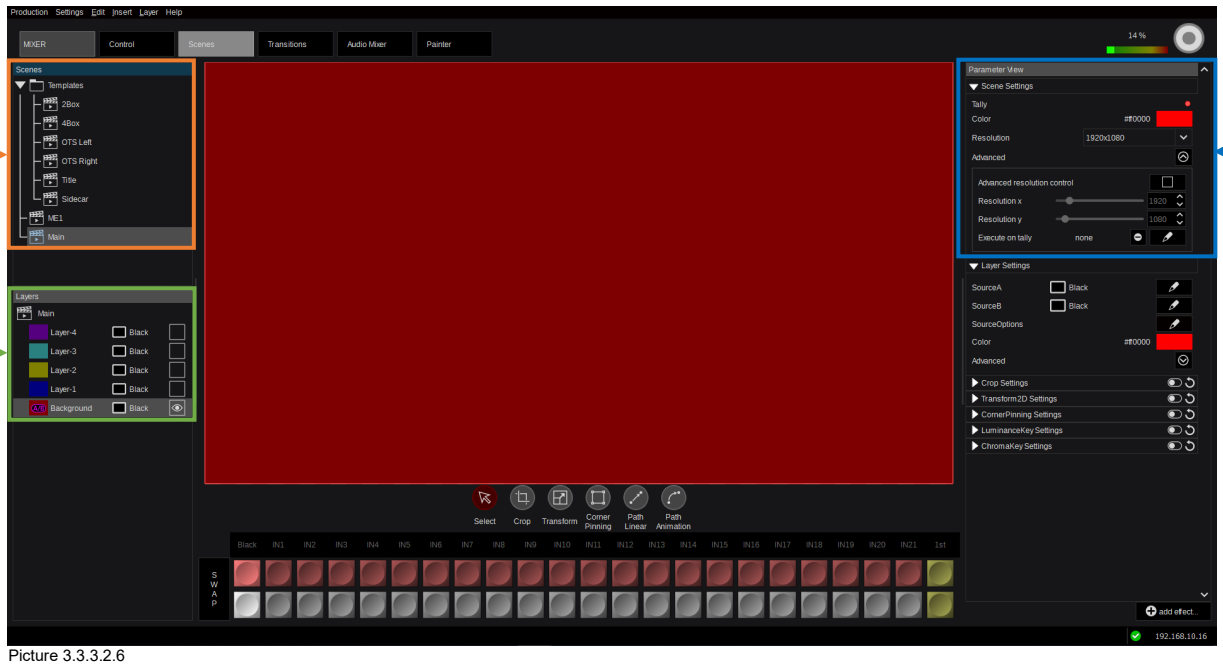
Layer



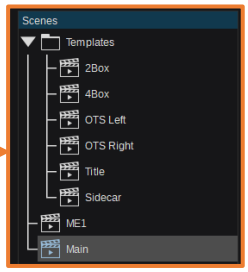
Picture 3.3.3.2.5

The following actions can be accessed from the “Layer” drop-down menu or directly from the listed keyboard shortcuts for selected Layer.

Select Source	[Ctrl+O] = Opens the “Inputs” selection (Picture 3.3.3.2.6 on next page).
Assignment	[F10] = Opens the “Source Options” dialog (Picture 3.2.1.4 on page 21).
Disable Effects	[F8] = Disables all effects on the selected Layer.

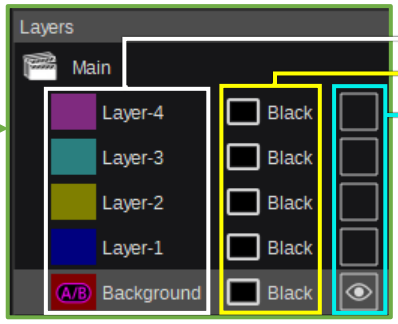


Picture 3.3.3.2.6



Picture 3.3.3.2.7

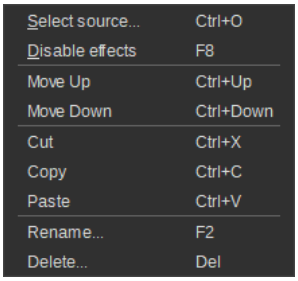
The “Scenes” panel, in the upper left, contains a hierarchical tree of the Scenes available in the current running production. The cursor focus in this example is on the Scene called “Main,” which in this case (derived from loading a Default Production) is being used as Main-Program output, showing “On-Air” tally in “Parameter View.” A right mouse-click on one of the items in the tree will open a context menu with options to change the order of the objects, access clipboard functionality, Rename or Delete the object.



Picture 3.3.3.2.8

The “Layers” panel displays the current status of Scene: “Main.”
Layer names & priority plus individual color per Bus.
Selected source per Bus.
On/Off state per Bus.

Cursor focus is on the Background A/B bus (gray background).



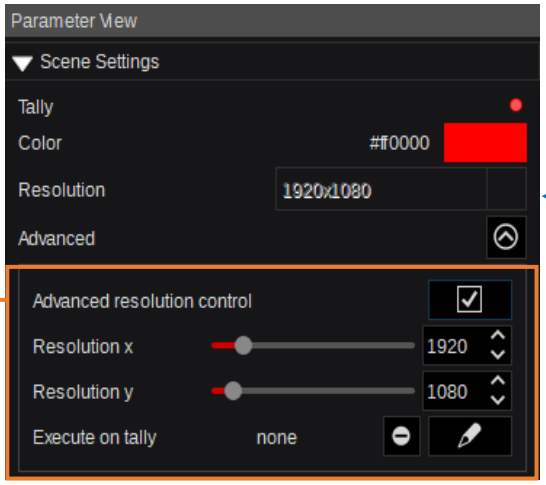
Picture 3.3.3.2.9

A right mouse-click on one of the layers will open a context menu with options to open the “Select Source” dialog, enable or disable layer effects, change the order of the objects, access clipboard functionality, Rename or Delete the object. The according keyboard shortcuts are listed to the right.

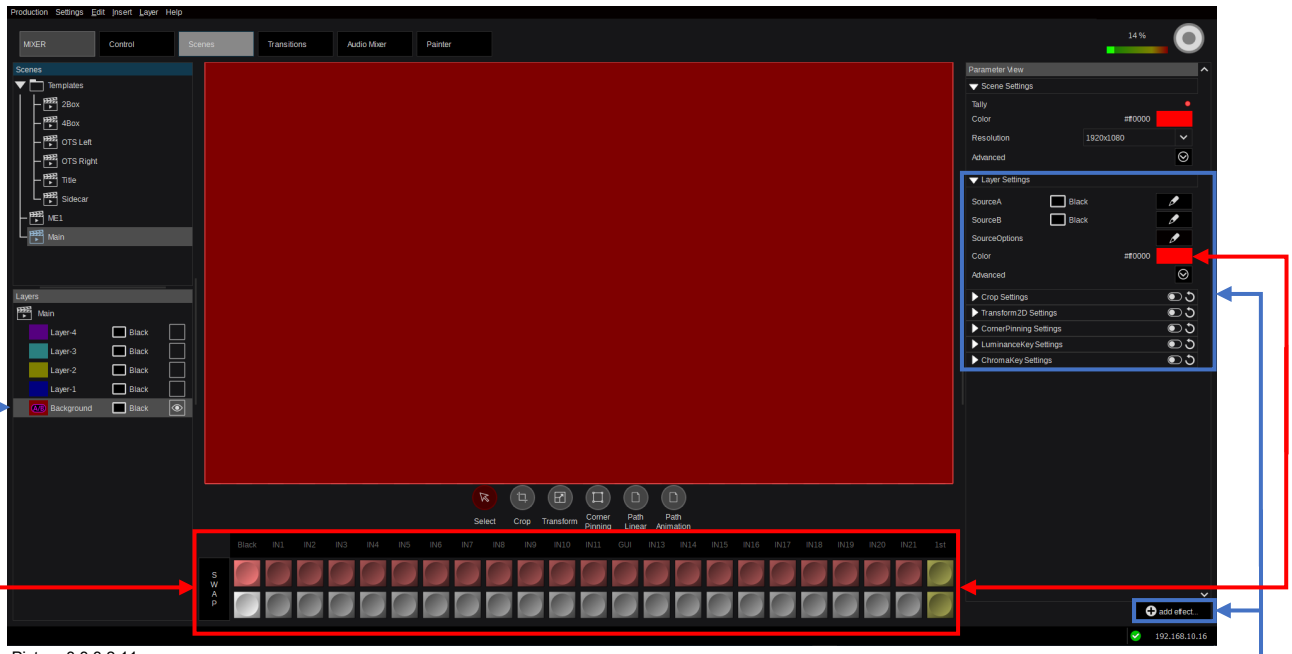
Due to the cursor selection in “Layers” window, the “Parameter View” window is only showing the relevant Scene settings. All settings here can be changed on a Scene-by-Scene basis. Resolution (1280×720; 1920×1080; 3840×2160), Scene Color and Tally indication. The Background Bus color is set to Red and is displayed in the “Layers” window at the bottom (Picture 3.3.3.2.8). Since “Background A/B” is selected in “Layers” window and the fact that there is no other Layer activated/visible (Picture 3.3.3.2.8), the working area (Picture 3.3.3.2.6 on top of this page) also shows a full red screen.

When option “AT-SF003 (Canvas)” is installed, the “Advanced resolution control” can be activated for independent X/Y-Resolution adjustments. Maximum resolution is at 8K (e.g. X=15360, y=2160).

The “Advanced” setting also allows to Auto-execute a selected Macro when this Scene gets the “On-Air” tally.



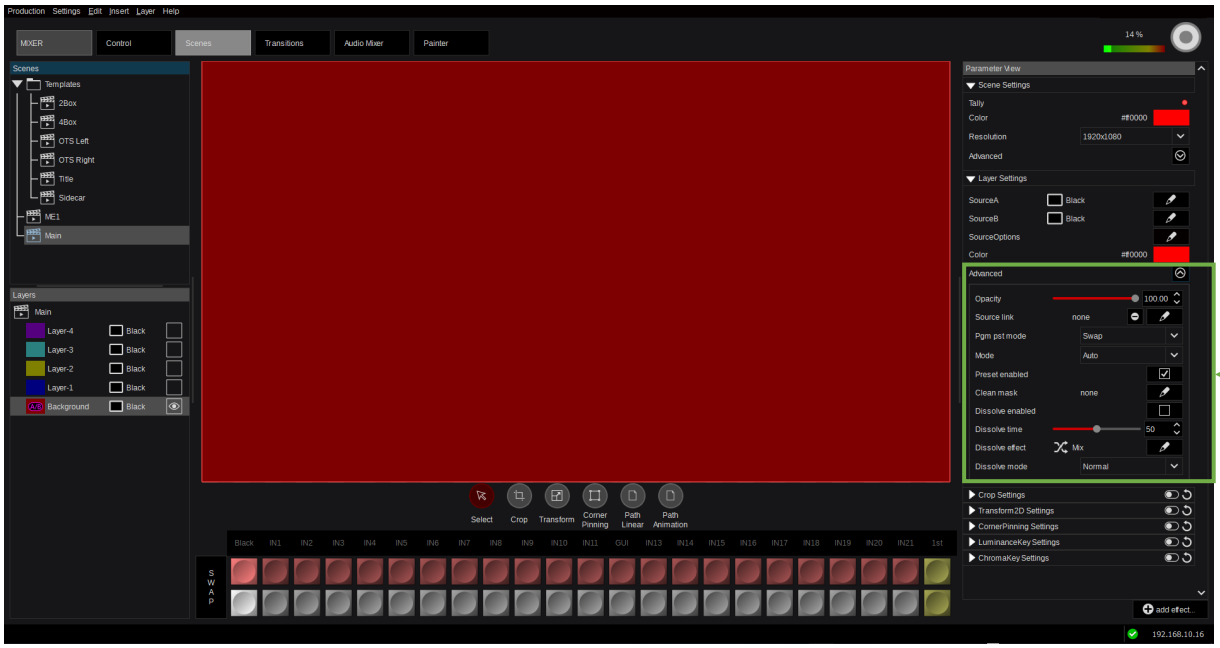
Picture 3.3.3.2.10



Picture 3.3.3.2.11

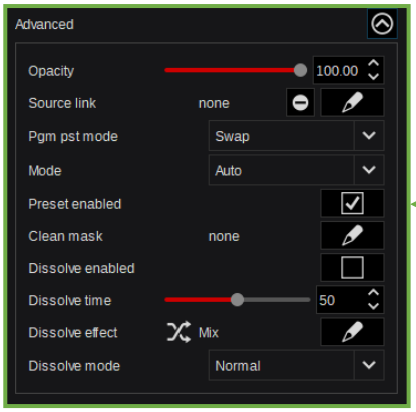
Since the “Layers” panel in this example has the cursor selection on “Background,” there are also additional controls available in “Layer Settings” under “Parameter View.” A default selection of effects is available per Layer, including Crop, Transform2D, CornerPinning, LuminanceKey & ChromaKey. Additional effects can be added using the add effect... button in the lower right corner (see page 34).

- Program/Preset bus rows indicated in Red according to the “Layer Settings”-Color.



Picture 3.3.3.2.12

The “Advanced Layer Settings” unfolded in the “Parameter View” panel present additional Layer controls for **Opacity**, **Source link**, **PGM/PST mode** (see bottom of Page 7, section “1.2.3 Layer” in this manual), **Mode** = Size default settings per Layer (related to the “Scene Settings” X/Y Resolution), **Preset Enabled** (or B-Bus), **Clean mask** (to enable/disable a Layer from a designated Output), **Dissolve enable** per Layer (also available for Aux-Buses/Outputs and described on Page 7 in this Manual section “1.2.3 Layer”), adjustment for **Dissolve time** (duration), selection for **Dissolve effect** type (Mix, Wipe, DVE, User), selection for **Dissolve mode** (Normal, Reverse, Cross).



Picture 3.3.3.2.13

Picture 3.3.3.2.14

Changing the cursor selection from “Background” to the activated “Layer-1” in the “Layers” panel changes the working area from Red (BGD-Color) to Blue (Layer-1 Color) in order to indicate the delegated controls.

The “Layer Settings” in the “Parameter View” panel are now showing “Layer-1” controls, also indicated by “Blue.”

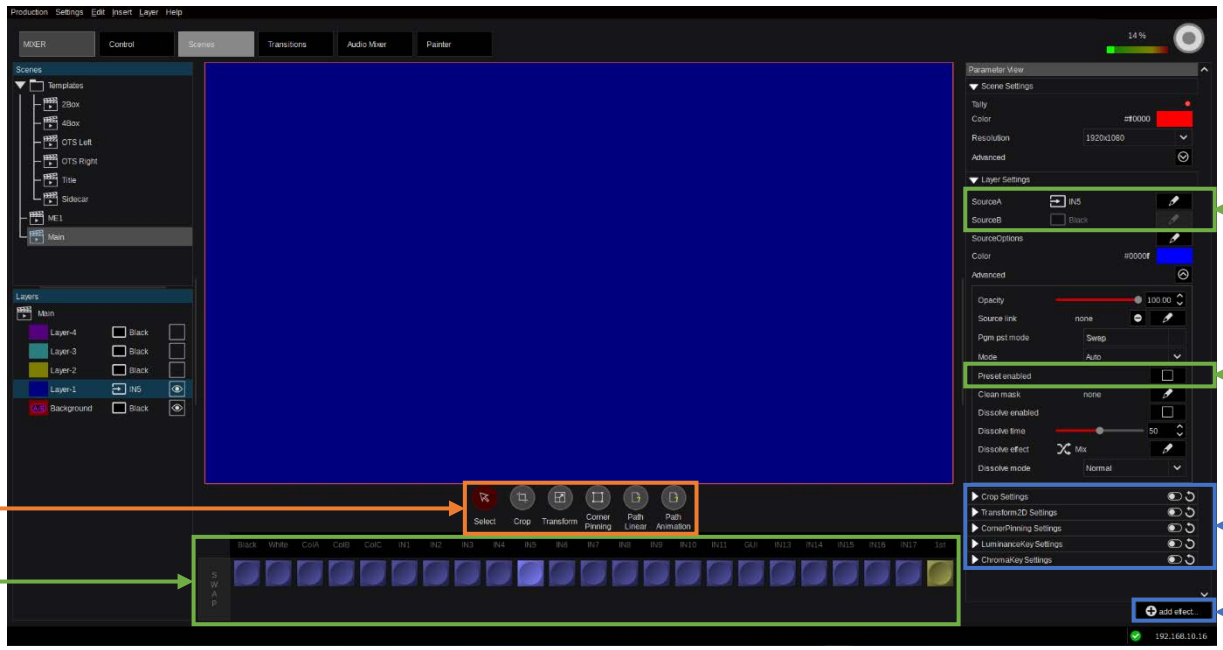
The source on Layer 1 has been changed from “Black” to an Input named “IN5.” This is shown in the 2nd column of the Layers panel and in the virtual crossbar below the working area, which changes the layout and color to match the parameters of the currently selected layer.

Notice that “Layer-1” is now visible as indicated by the “eye-ball” in the 3rd column of the “Layers” panel.

Picture 3.3.3.2.15

“Preset enable” adds A/B bus functionality to the source control for any layer. You can select a source on either bus by clicking the edit “pencil” , which will open the source selection dialog box. It also allows the user to execute any type of A/B-Transition (Mix, Wipe, DVE, User) directly on the Layer, a feature only available on BGD on other switchers.

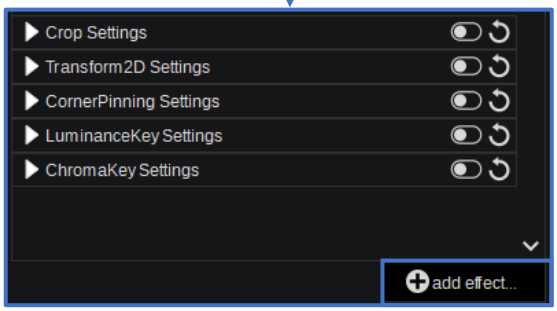
Or simply use the automatically added “Preset”-bus control, located at the bottom of the page.



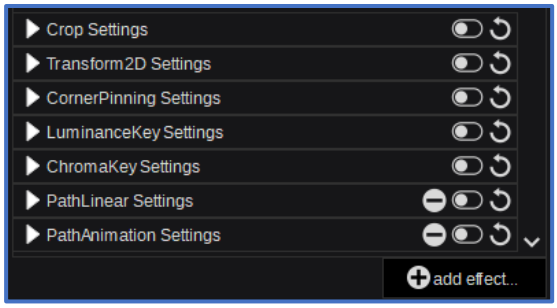
Picture 3.3.1.3.16

Turning off “Preset enable,” will deactivate the controls for “Source B” in the “Parameter View” panel and disable the “Preset”-bus control, located at the bottom of the page.

Note: Also, meanwhile created A/B transitions will be affected by turning off “Preset enable.”

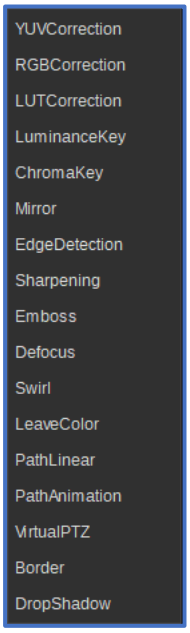


Picture 3.3.1.3.17

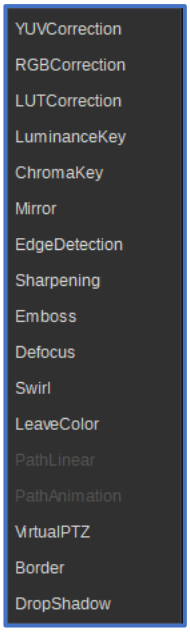


Picture 3.3.1.3.18

A list of default effects for instant use per Layer (picture 3.3.1.3.17). For more effects, use the button add effect... located in the lower right corner of the “Scenes” menu. Selecting more effects from the list (picture 3.3.1.3.19) will add them to the default effects list (picture 3.3.1.3.18). The new added effects will be disabled from the main selection list (picture 3.3.1.3.20).



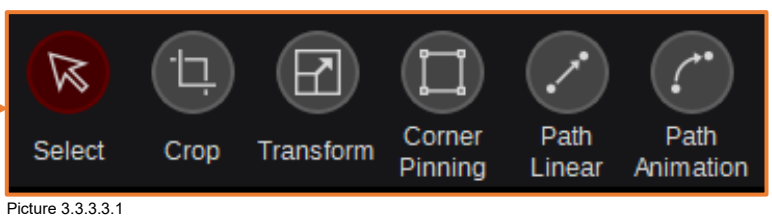
Picture 3.3.1.3.19



Picture 3.3.1.3.20

Note: ChromaKey and LuminanceKey effects can be added multiple times to the default effects list. In total, the ChromaKey and LuminanceKey effect can be used 4 times per Layer each.

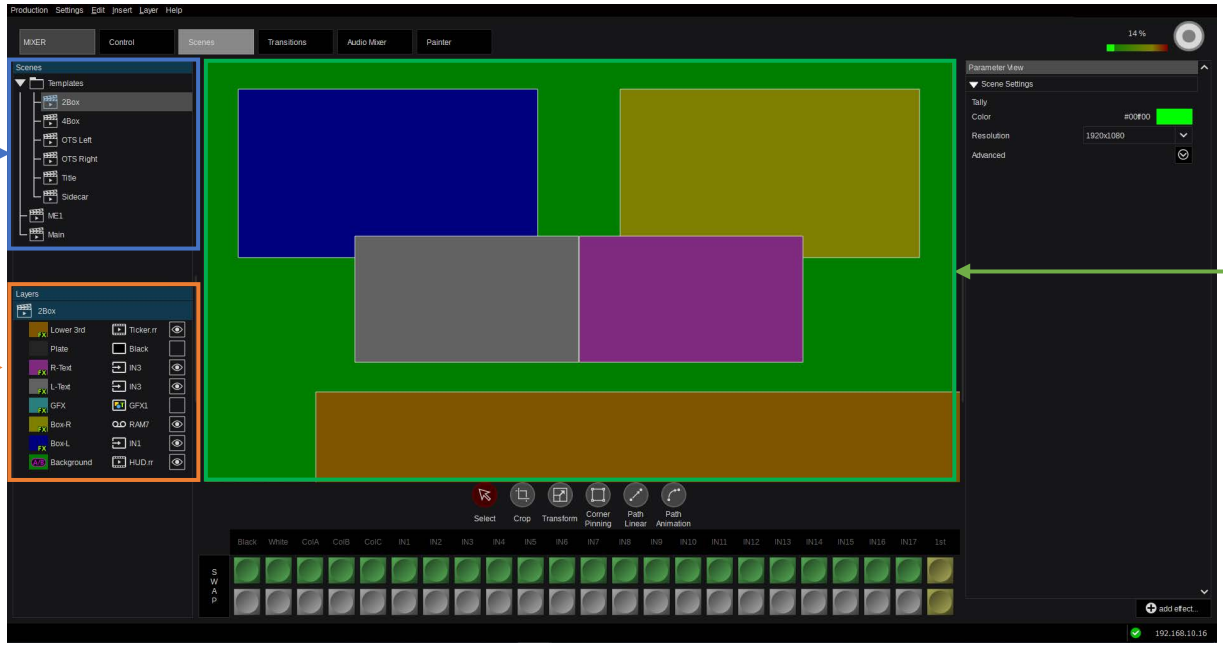
3.3.3.3 Tools in Working Area



Picture 3.3.3.3.1

Use the toolbox located under the working area for quick access to the “Select,” “Crop,” “Transform,” and “Corner Pinning” tools. Once selected, they can be controlled using the mouse and wheel controls in the working area. Additionally, all tools can also be enabled and modified in the “Parameter View” panel as described in the following examples. “Path Linear” and “Path Animation” can be used once selected (and enabled) via the button in the lower right corner add effect... .

3.3.3.3.1 “Select” tool

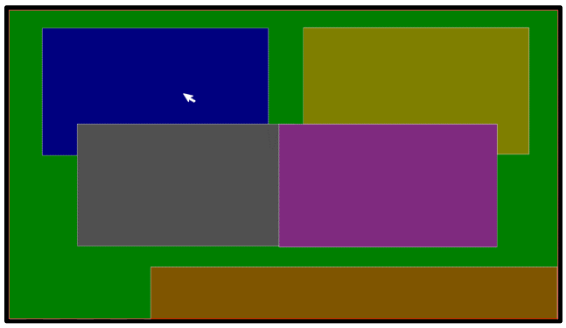


Picture 3.3.3.3.1.1

Selected Scene is “2Box.”

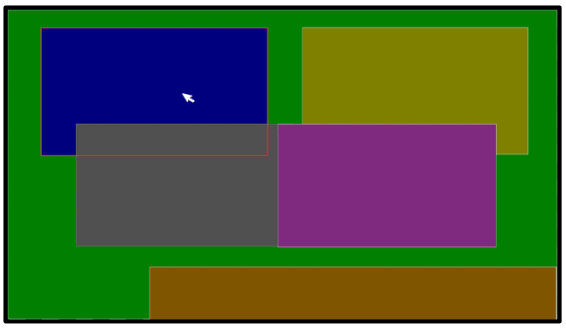
Working Area

The six active layers (including BGD) are displayed in the working area by their respective GUI colors. The two non-active “GFX” & “Plate” layers, as indicated by the missing “eyeballs” in the “Layers” panel, are not visible in the working area.



Picture 3.3.3.3.1.2

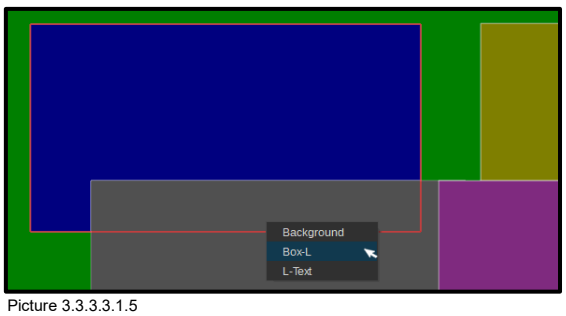
Left-click an object to select it, and it will be framed in a light red color. All the surrounding parameter panels will change to reflect the currently selected object.



Picture 3.3.3.3.1.3

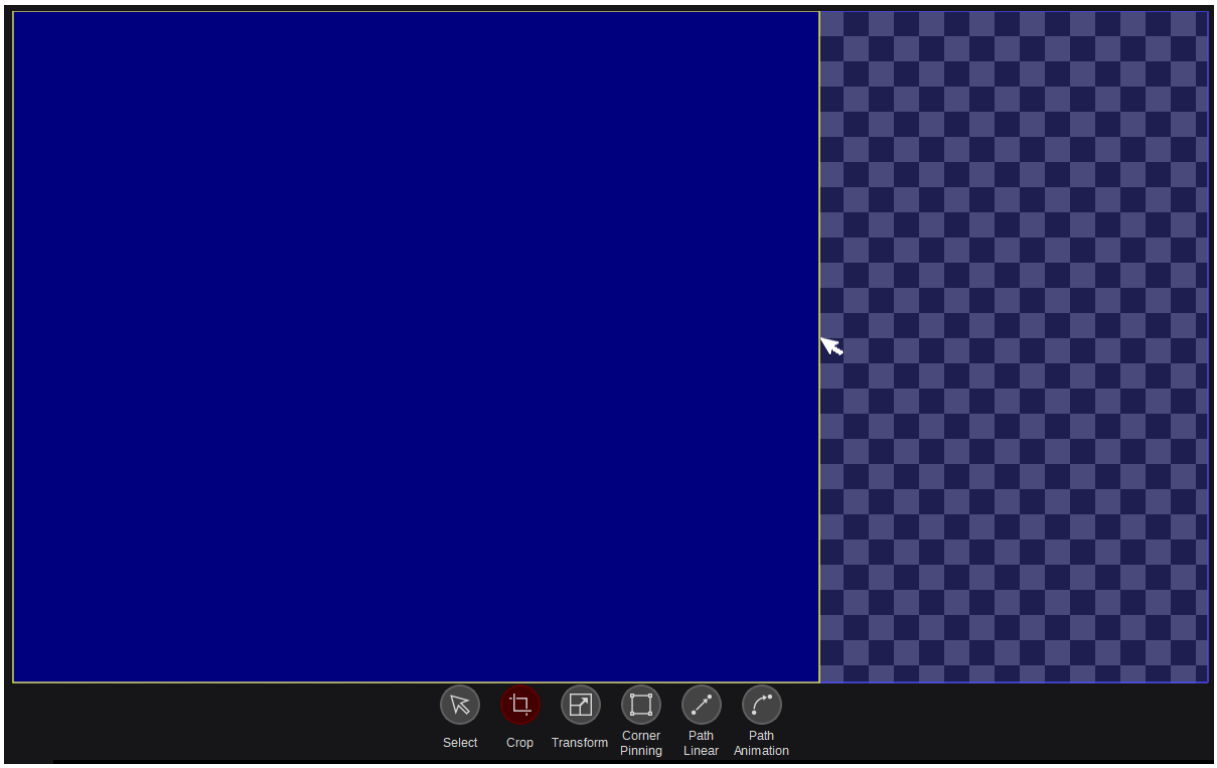
Where multiple layers overlap, a right mouse-click will open a context box allowing you to select the desired layer.

Picture 3.3.3.3.1.4



Picture 3.3.3.3.1.5

3.3.3.3.2 “Crop” tool



Picture 3.3.3.3.2.1

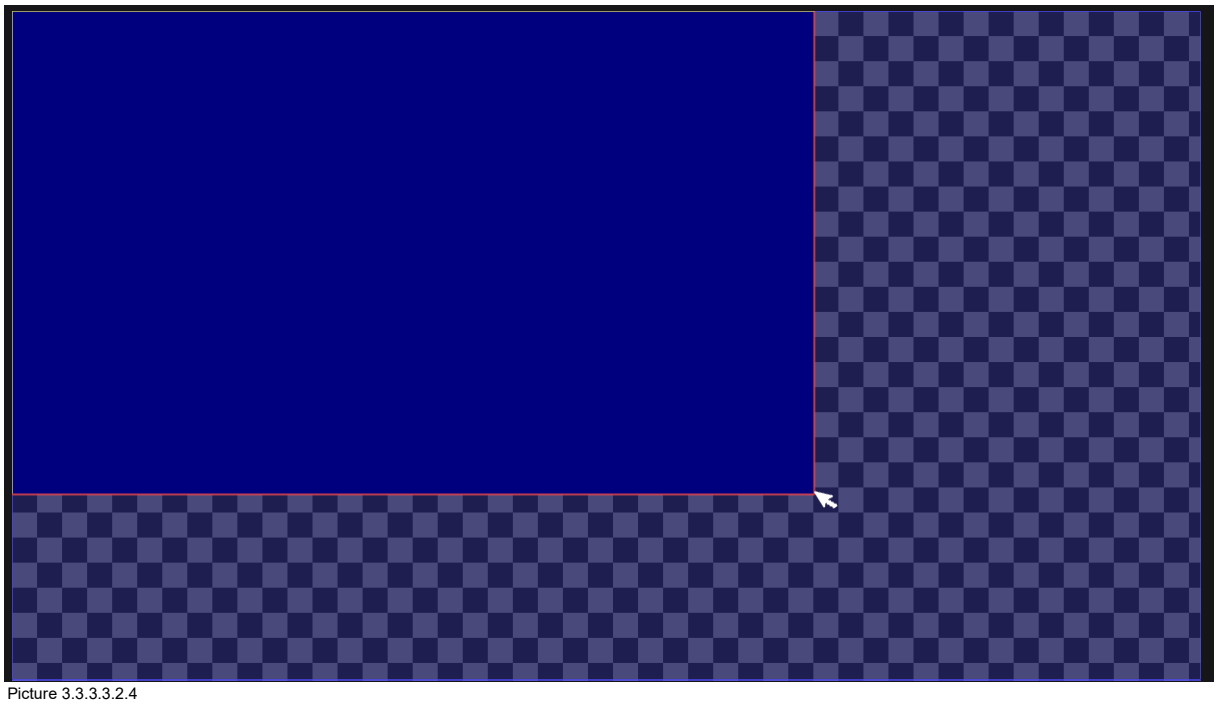
Select the “Crop” function in the toolbox to activate the Left, Right, Top, and Bottom crop edge controls. This will only work if the crop function has been enabled. See “Crop Enable” under “Layer Settings” described on page 38 in this Manual (Picture 3.3.3.3.2.6). When hovering the mouse over the crop edges, the focused edge can be grabbed with left mouse click and modified.

Picture 3.3.3.3.2.2

Positioning the cursor in a corner where 2 edges are connected will focus both adjacent edges (shown in red) and allow control of the corner cropping when the left mouse is clicked and held down.

Picture 3.3.3.3.2.3

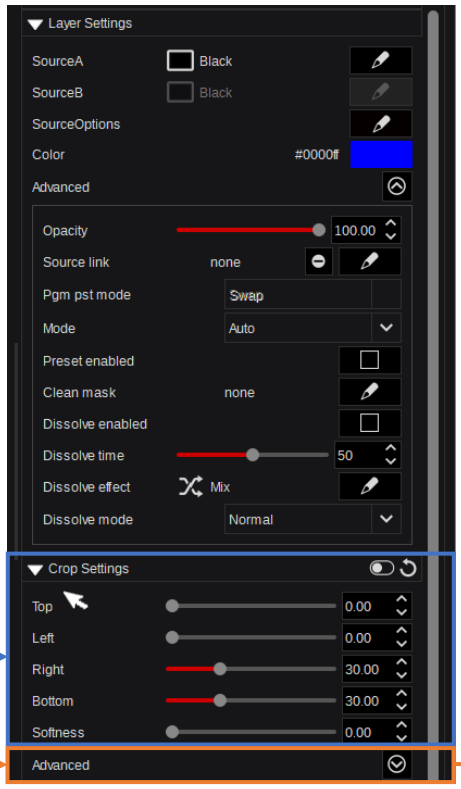
Positioning the cursor anywhere inside the crop-enabled image will activate focus on all edges as indicated in red. This allows click and drag repositioning of the entire crop frame.



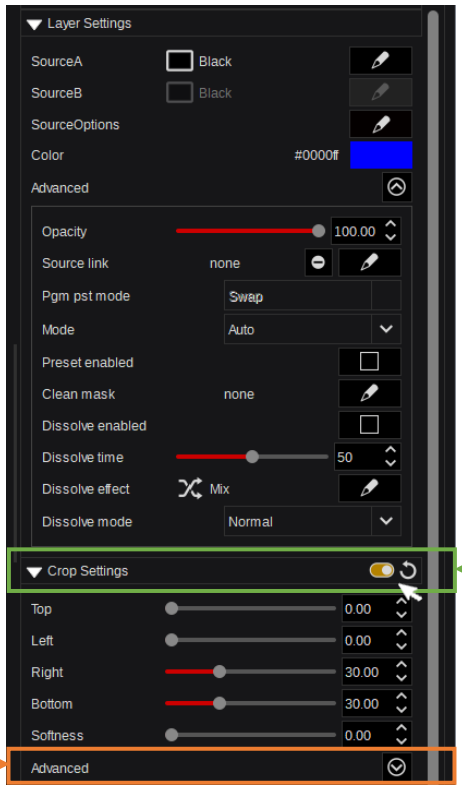
Picture 3.3.3.3.2.4

Now the image will crop when dragging the image—while keeping the left mouse button pressed—toward the screen edges.

Note: The crop automatically ends at the screen edges.



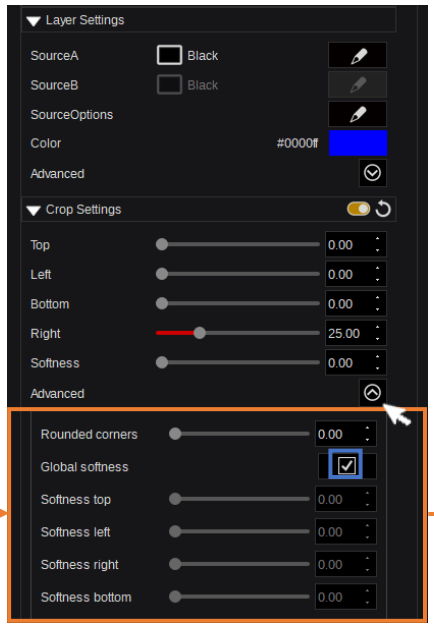
Picture 3.3.3.3.2.5



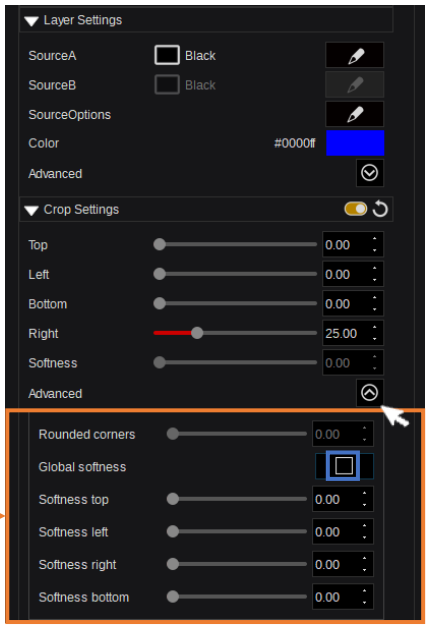
Picture 3.3.3.3.2.6

Expand the Crop settings in the “Parameter View” panel below “Layer Settings” to modify the values with the mouse (using slider or arrows) or entering numeric values.

If the “Enable” button for Crop is not active , changes will not be visible on any video output, but a Preview will be displayed in the GUI viewing pane. Next to the “Enable” button is a “Reset to Default” values button .



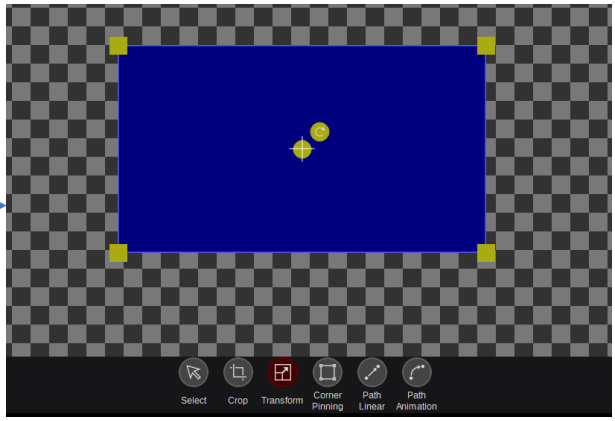
Picture 3.3.3.3.2.7



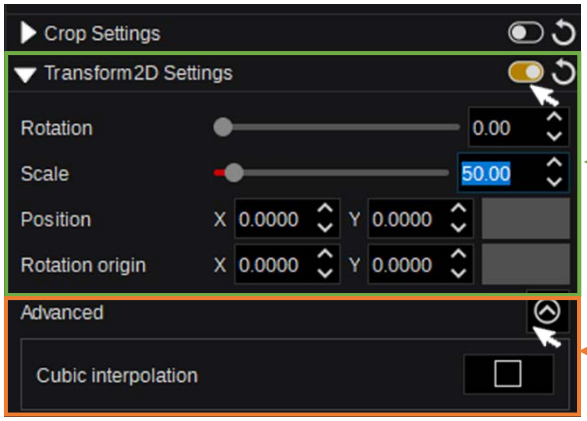
Picture 3.3.3.3.2.8

Unfold the “Advanced” controls ( ) within “Crop Settings” to expose the “Rounded Corners” and individual Crop Edge Softness controls. By default, Global softness is enabled for crop edges as indicated by the checked box ( ) next to “Global softness.” Untick the check box for “Global softness” ( ), to enable individual edge softness controls, which you can control with a mouse (using slider or arrows , or by entering numeric values. When “Global softness” is enabled, the controls for “Rounded corners” are also activated and can be applied to the Layer.

3.3.3.3.3 “Transform” tool



Picture 3.3.3.3.3.1



Picture 3.3.3.3.3.2

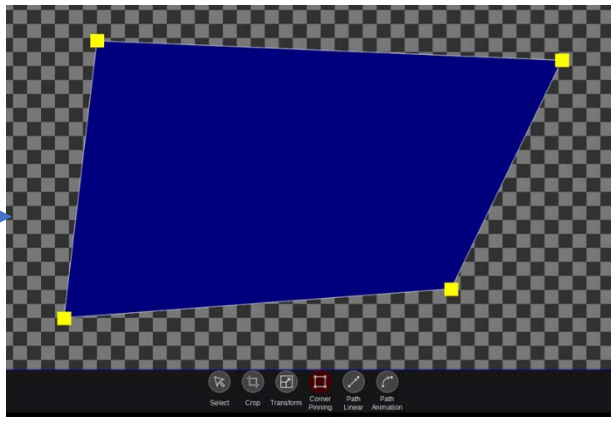
Select “Transform” tool underneath the working area to position and resize an image using the corresponding controls. Positioning the cursor in any cornered yellow box - with left mouse click and holding, 2D-Size of the image can be modified. Positioning the cursor straight inside the picture, with left mouse click and holding, allows positioning of the image in 2D space. The crosshair marked yellow circle is identifying the “Rotation origin” position (aka Rotation-“Axis”), which can be adjusted while left mouse clicking and holding it and dragging it over the GUI screen in the working area. The other yellow arrow marked circle can be used in the same style in order to adjust the “Z-Rotation” value within the GUI screen.

Apart from “Enable” or “Disable” and “Reset to Default,” the functions “Scale,” “Position” (X & Y or using the drag-pad right next to it) are also available when expanding the “Transform 2D Settings” within the “Parameter View” window, allowing to modify the values by mouse - using the slider or arrows - or by entering numeric values in the designated area right next to the slider controls. Rotation coordinates in “Parameter View” window are labeled “Rotation origin X/Y” (aka Rotation-“Axis”). Here, numeric values can be entered or modified using the drag-pad right next to it. Also, the “Rotation” value (Z-direction) can be modified using the slider or arrows - or entering numeric values in the designated area right next to the slider controls.

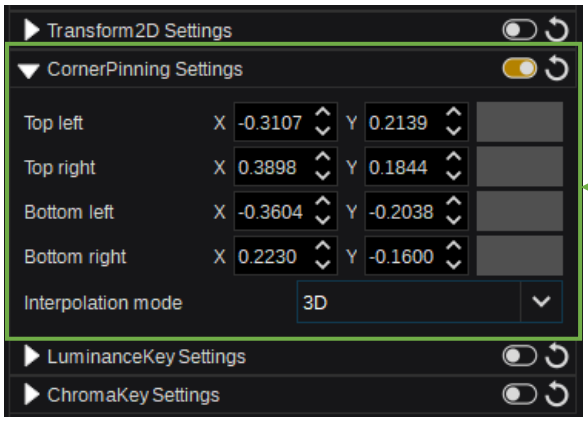
Unfolding the “Advanced” controls within “Transform2D Settings” allows access to the “Cubic interpolation” setting. This interpolation mode can be enabled using the check-box to the right ( ).

Note: When positioning a Layer, regardless of using the “working area” or the “drag-pad” controls, while holding down the keyboard “Ctrl”-key, only horizontal positioning is applied to the Layer object. When holding down the keyboard “Shift”-key instead, only vertical positioning is applied to the Layer object.

3.3.3.3.4 “Corner Pinning” tool



Picture 3.3.3.3.4.1



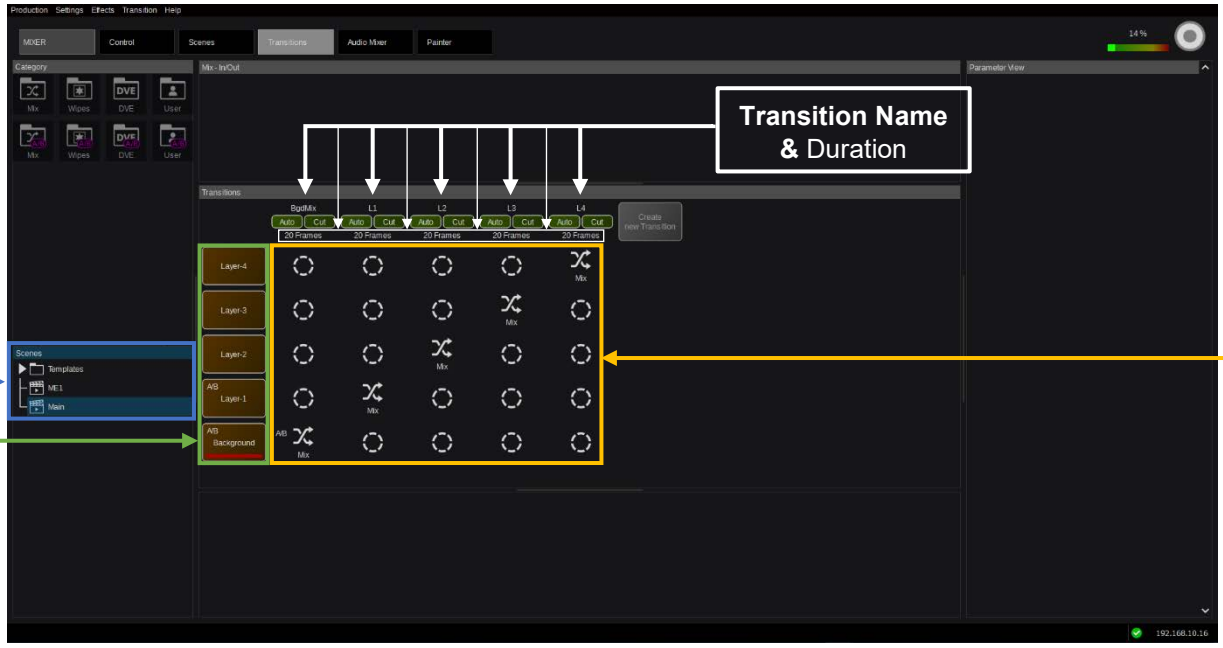
Picture 3.3.3.3.4.2

The “Corner Pinning” tool allows you to position every corner of an image individually by left mouse clicking on the corner and dragging it to the desired position within the viewing pane. Clicking the cursor inside the picture allows you to re-position the image, whether or not the corners are shifted.

In “Parameter View,” numeric values can be entered or modified using the drag-pads next to the value boxes for each individual corner (“Top left X/Y,” “Top right X/Y,” “Bottom left X/Y,” & “Bottom right X/Y”). Enable and Disable the effect with the switch and “Reset to Default” with the “rewind” button. Overall, the Corner Pinning “Interpolation Mode” can be changed between 2D and 3D.

Note: When positioning a Layer, regardless of "working area" or "drag pad" control use, while holding down the keyboard “Ctrl”-key, only horizontal positioning is applied to the Layer object. When holding down the keyboard “Shift”-key instead, only vertical positioning is applied to the Layer object.

3.3.3.4 Transitions

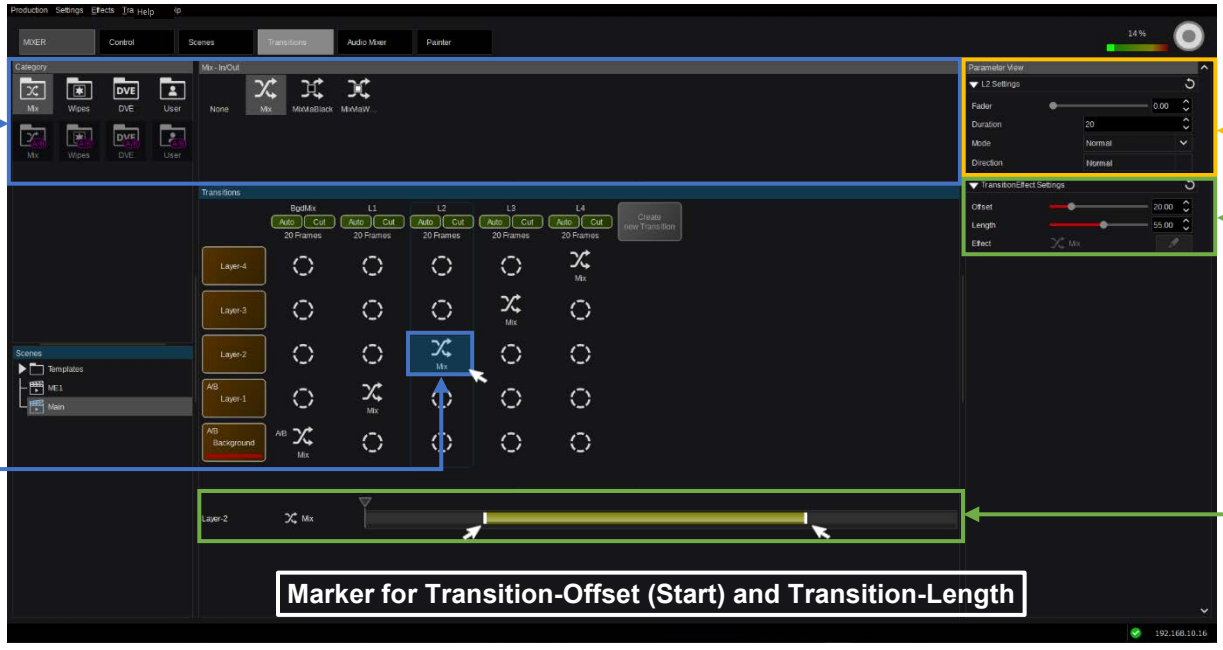


Picture 3.3.4.1.1

Selected Scene in main folder “Scenes”. Scene “Main” selected.

Layers & default names contained in Scene “Main” indicating ON/OFF (Red) and A/B-Bus availability.

Transition components selected per Transition.



Picture 3.3.4.1.2

When a Transition component is selected, a list of the Transition categories available to that component is displayed in the “Category” panel. A specific transition can then be selected from the items published in the effects panel to the right of the categories panel. In this case, only “In/Out Effects” are available and the “Mix” effect –out of the “Mix In/Out category”– is selected.

Also, a “Parameter View” will show all available modifications for the selected transition type, such as: manual slider for “Fader” control, Transition “Duration,” the “Mode” for Normal-Reverse run direction, indicating the current “Direction” of the transition.

In the “Transition Effect Settings,” the “Offset” (Start position) and “Length” (Duration) for selected Transition can be modified. The “Effect” window shows the selected Transition type.

Picture 3.3.4.1.3

In this example, the selected Transition Component (Layer-1) has the “Preset enabled” (indicated with “A/B” symbol. This results in 2 separate sections of Transition-Types, visualized in the categories “In/Out Effects” & “A/B Effects” area (see Page 33 Picture 3.3.3.2.15, section “3.3.3.2 Scenes” in this manual)

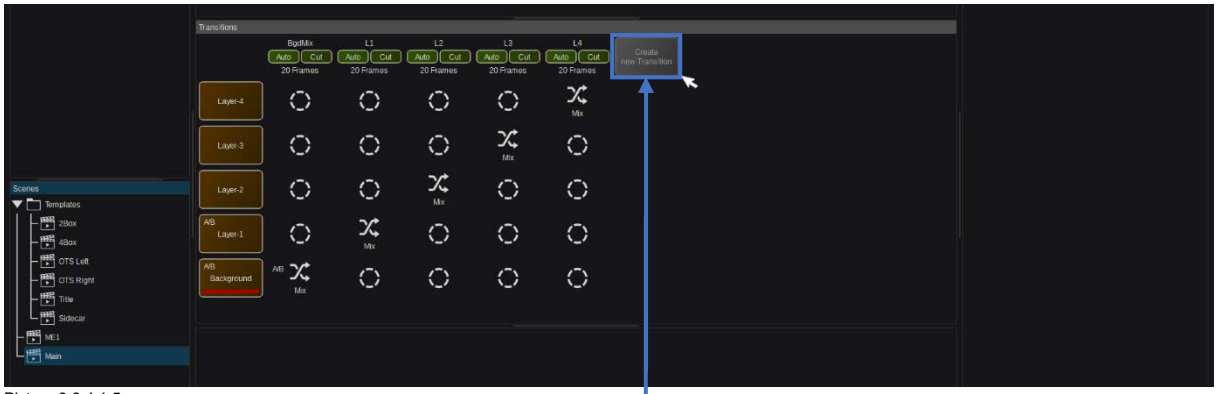
“A/B-Effects” showing a mix effect inside the Layer containing, for example, a PiP (“Picture in Picture”) or OTS (“Over The Shoulder” box).

In addition to having “A/B-Bus” enabled on Layer-1, a separate “In/Out Effect” can be selected to bring the layer in and out. Combinations (e.g., “In/Out” & “A>B”) are possible as well.

Available Transition Types are:

Picture 3.3.4.1.4

Note: This grouping of selections has been graphically composited and is not available as an actual GUI menu. However, all Transition types are available as “In/Out Effects” & “A/B Effects.” The selected “Category” for “User” at the bottom of “Picture 3.3.4.1.4” is User-definable. So, more effects can be created and added to the list or unwanted effects can be removed.



Picture 3.3.4.1.5

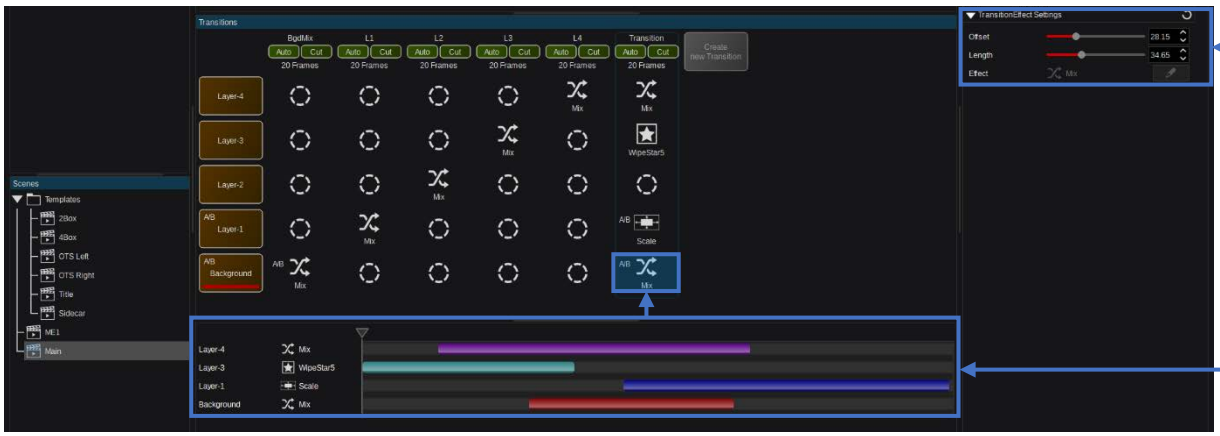
Click this button in order to create a new Transition.

Picture 3.3.4.1.6

“Transition” created (default name = Transition / Duration = 20 Frames), no Layer component enabled.

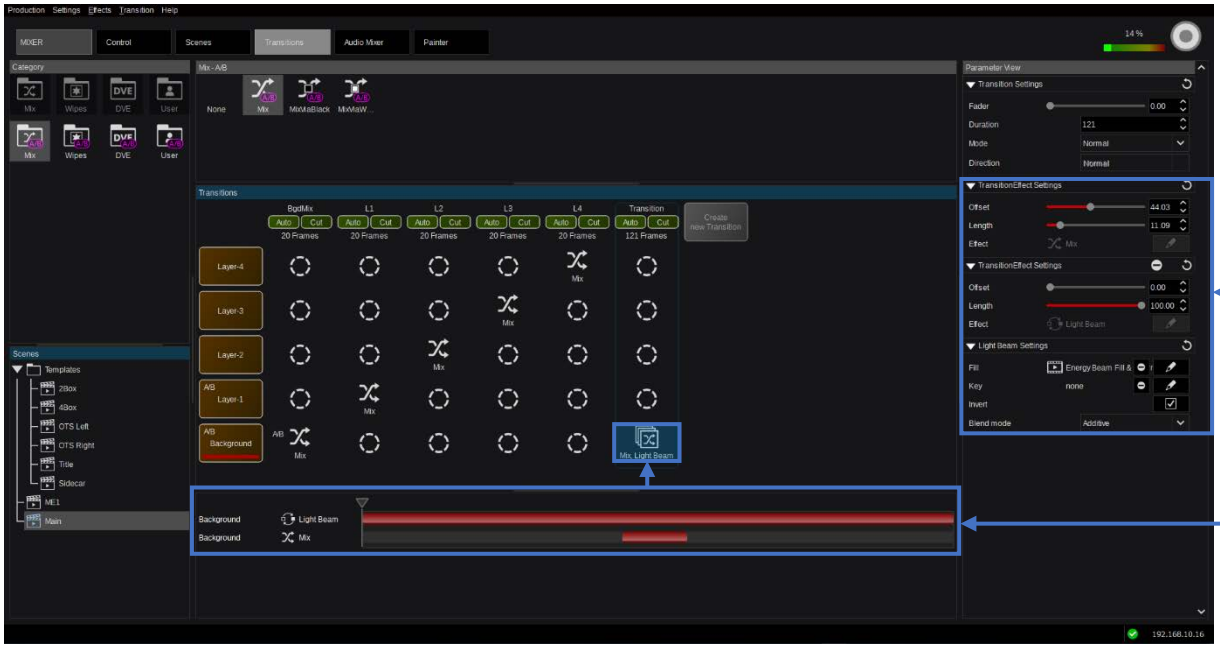
Picture 3.3.4.1.7

Various Transition-Types applied to Layer components. Layer-2 is not participating in this Transition.



Picture 3.3.4.1.8

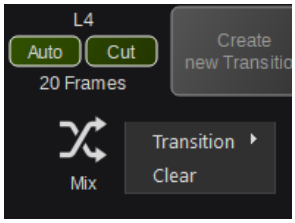
For overall trimming, use the graphic slider controls and/or the “TransitionEffect Settings” underneath “Parameter View” to adjust individual selected Transitions/Layers.



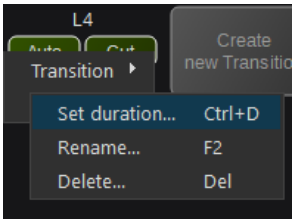
Picture 3.3.4.1.9

Double-click a transition type in order to assign it to a selected Transition & Layer. Additional transition types can be assigned by “drag & drop” to an already existing transition location. Use graphic slider controls and/or the listed “TransitionEffect Settings” underneath “Parameter View” for adjustments.

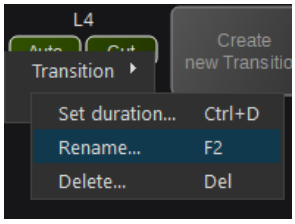
Left-click on a transition component to select a transition type. Right-click in a transition column to open a context menu which will allow you to “Clear” the transition type (or hit the keyboard-space-bar), or by selecting “Transition” to set the transition duration (“Ctrl+D”), rename it (F2), or delete it (Del). With any transition component selected, you can left-click the Transition item in the menu bar of Kairos Creator to set the duration of the transition or use the keyboard shortcut “Ctrl+D.”



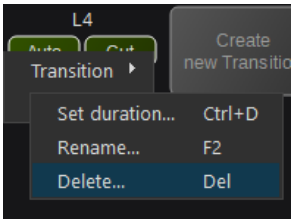
Picture 3.3.4.1.10



Picture 3.3.4.1.11

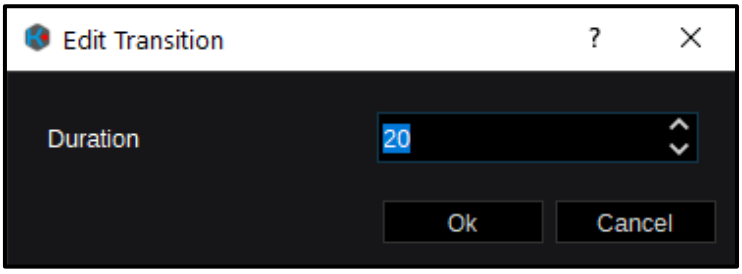


Picture 3.3.4.1.12



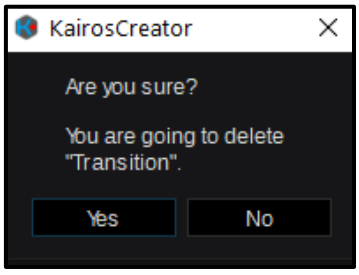
Picture 3.3.4.1.13

“Set duration” opens this pop-up window. Numeric entry and/or slider control to adjust. Confirm “OK.” “Cancel” will abort the dialog without changes.



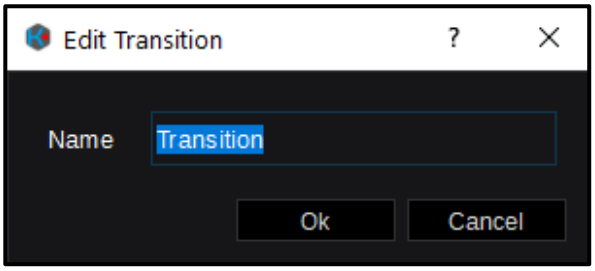
Picture 3.3.4.1.14

“Delete” will ask to confirm the action with “Yes” or “No” to cancel.



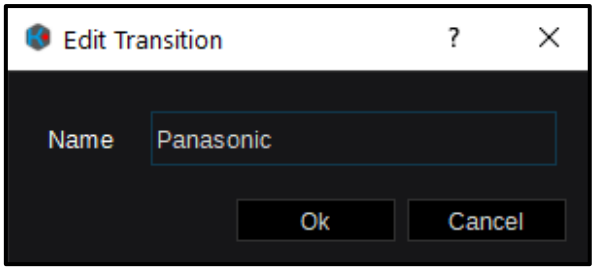
Picture 3.3.4.1.15

“Rename” (or “F2”) opens the pop-up with the actual name.

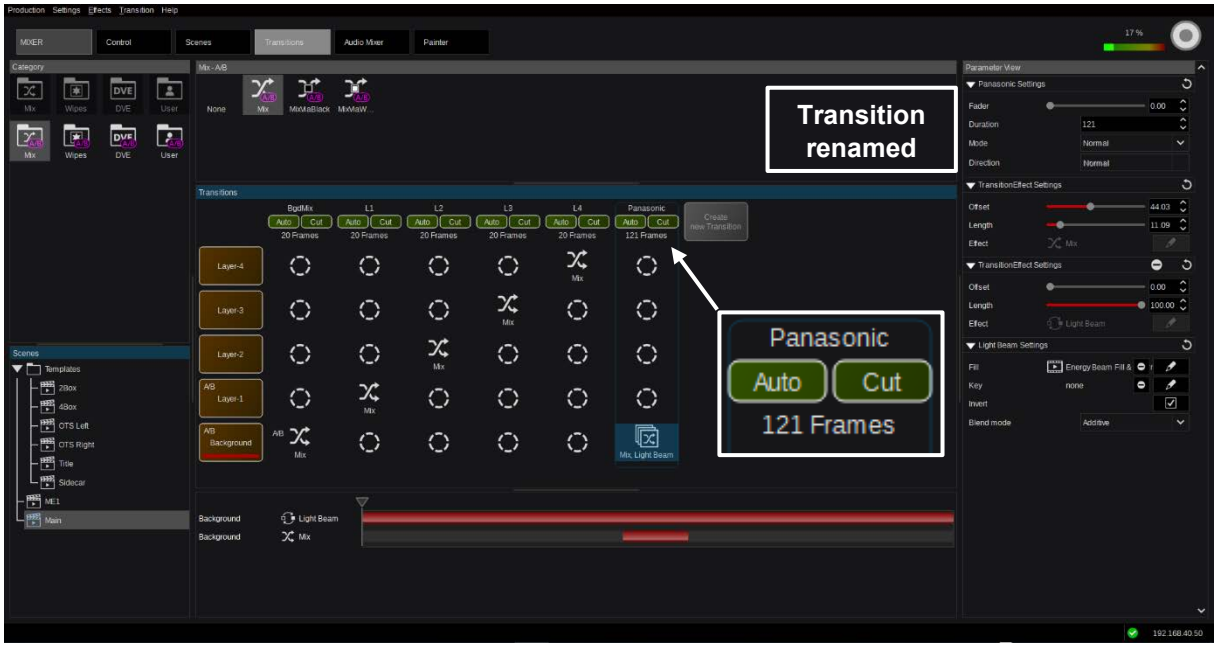


Picture 3.3.4.1.16

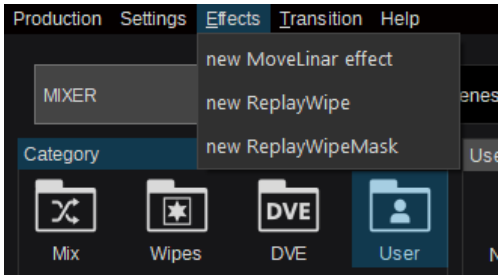
Enter a new name, confirm “OK,” and abort with “Cancel.”



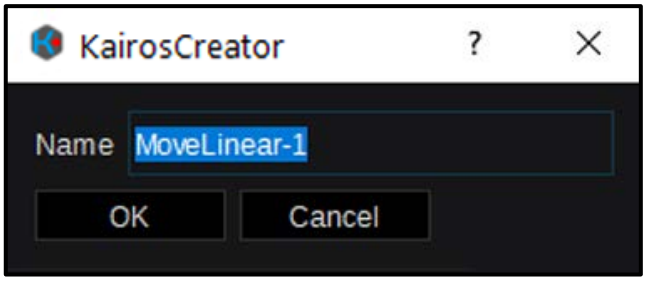
Picture 3.3.4.1.17



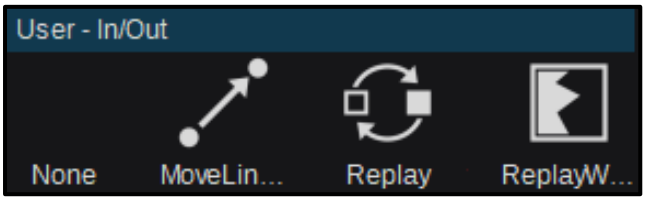
Picture 3.3.4.1.18



Picture 3.3.4.1.19

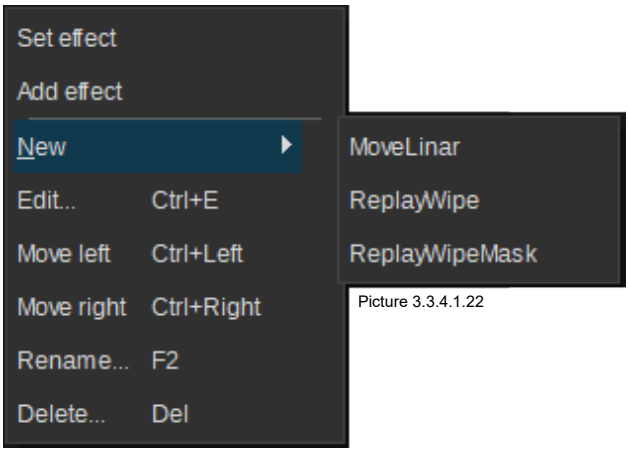


Picture 3.3.4.1.20



Picture 3.3.4.1.21

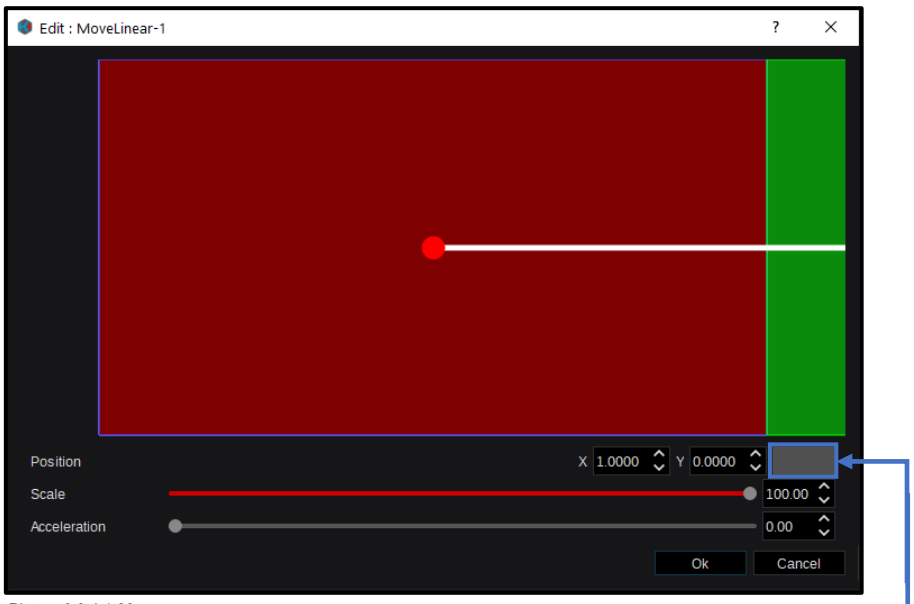
Open the “Effects” pull-down menu in the upper left corner of the Kairos Creator or right-click “Category User-In/Out or User-A/B” in order to create a “new MoveLinear effect,” “new ReplayWipe,” or “new ReplayWipeMask.” A renaming dialog box opens to start with, offering a default name of the selected item, which, of course, can be customized. Press “OK” to confirm or “Cancel” to abort the dialog. The according icon will appear in the designated “Category - User” area (Picture 3.3.4.1.21).



Picture 3.3.4.1.22

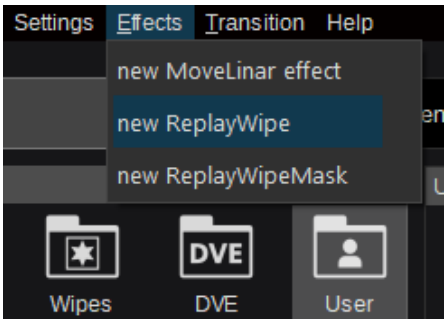
Right-click an icon in the User area to access various functions for specific modifications (Picture 3.3.4.1.22). Use “Set effect” in order to apply an effect for a selected Transition. For multiple Transition types used in a single Transition, select “Add effect,” or drag and drop the selected effect towards the desired Transition position. Change a User-Transition position Left or Right, also by using the listed keyboard shortcuts. “Rename” or the keyboard shortcut “F2” opens the rename dialog. Delete or the “Del” keyboard shortcut will delete the selected User-Transition.

Entering the “Edit” dialog, a 2D end position (shown in green) can be adjusted using numeric entries, the drag-pad, or left-click & hold mouse operation for X/Y positioning. Use the slider “Scale” to control 2D-Size (from 0.00 to 100.00). The “Acceleration”-slider will control the level between Linear (min. 0.00) and Smooth (max. 100.00) interpolation for the new designated “MoveLinear-1” User-Transition.



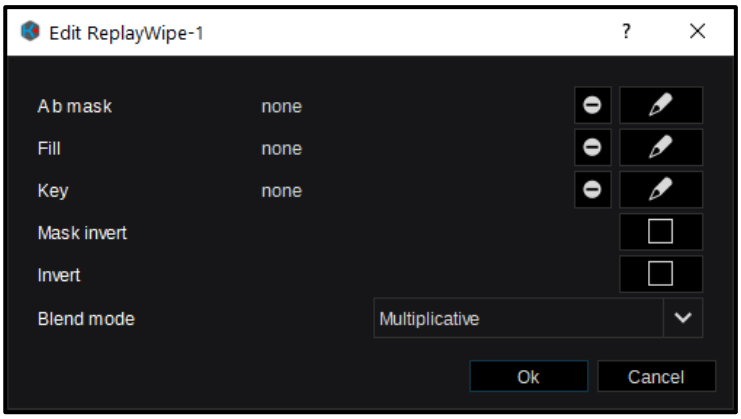
Picture 3.3.4.1.23

The default effect postion will force a “Linear” interpolated Layer-Transition to the amount of 1 image width in the right direction.



Picture 3.3.4.1.24

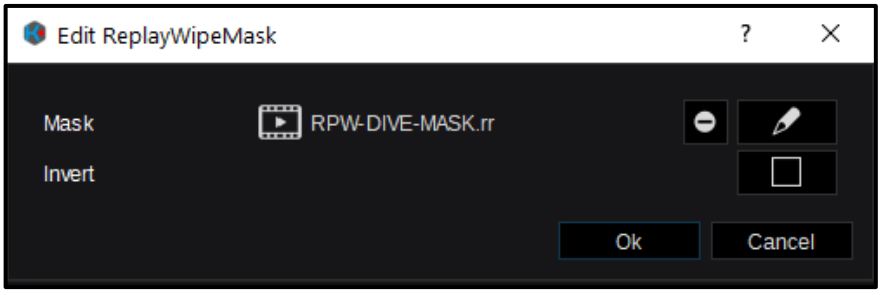
Select “new ReplayWipe” from the “Effects” drop down Menu.



Picture 3.3.4.1.25

Editing the new “ReplayWipe-1” opens the dialog box where desired Clips for Fill, Key, and A b mask sources can be selected by clicking the symbol to open the menu for Clip selection. If a Video Clip contains an alpha channel (key signal), which is supported by KAIROS, it will not be necessary to select an “Overlay key” source unless you wish to override it. To perform an A-B transition that matches the Overlay, an animated mask signal can be associated with the “ReplayWipe” by selecting it as the source for “A b mask.” Both the Key signal and the Mask signal can be individually inverted by ticking their respective “invert” check-boxes ☐ <-> ☑. In order to delete a selected Source, use the ⊖ box. Also the “Blend mode” can be adjusted by selecting “Multiplicative” or “Additive” from the drop down menu.

A “new ReplayWipeMask” selection from the “Effects” drop down Menu allows to treat an animated RAM-Clip as a Wipe signal. The Luminance level for the Mask signal can be inverted using the “invert” check-box ☐ <–> ☑.

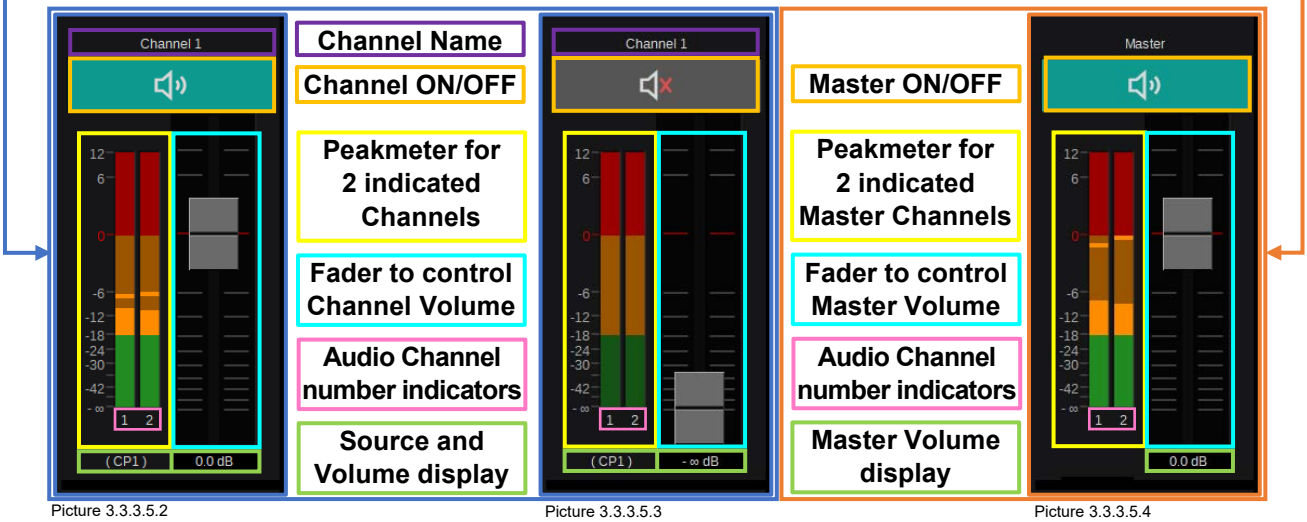


Picture 3.3.4.1.26

3.3.3.5 Audio Mixer

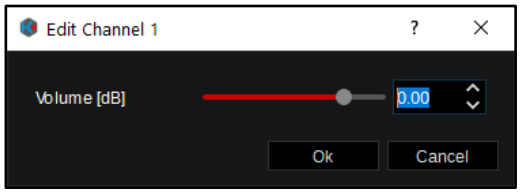
The “Audio Mixer” tab allows to mix, adjust, and control up to 16 assignable Video sources, each with their 16 Audio Channels. In order to use the option “Audio Mixer,” the license “-AT-SF005 (audio_mixer)” needs to be installed.

Picture 3.3.3.5.1



Picture 3.3.3.5.2 Picture 3.3.3.5.3 Picture 3.3.3.5.4

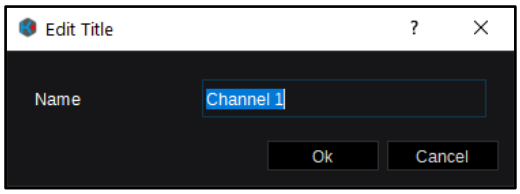
Double-clicking the left mouse on any of the Audio-Mixer Channel displays, except the Fader segment (surrounded with cyan color border), the Channel Volume display (green border right), and the Audio Channel number indicators underneath the Peakmeter bars (magenta border), will open the Source selection dialog described in section “3.2.1 Source/Input Selection” on page 21 in this manual.



Picture 3.3.3.5.5

Clicking the left mouse on the Channel Volume display (green border right) will open the “Volume” adjust dialog for the selected Channel/Master (picture 3.3.3.5.5) where Volume settings can be modified using the slider or arrows - or enter numeric values in the designated area right next to the slider controls. Clicking the left mouse under or above the Fader (surrounded with cyan color border) will also control the volume in single steps in the up or down direction.

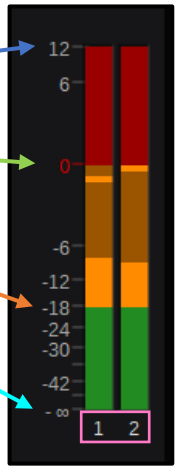
Double-clicking the left mouse on any of the Audio-Mixer Channel “Name” displays (surrounded with a purple color border - see picture 3.3.3.5.2 & 3.3.3.5.3) will open the “Rename” dialog (picture 3.3.3.5.6), allowing modification of the Audio-Channel default names.



Picture 3.3.3.5.6

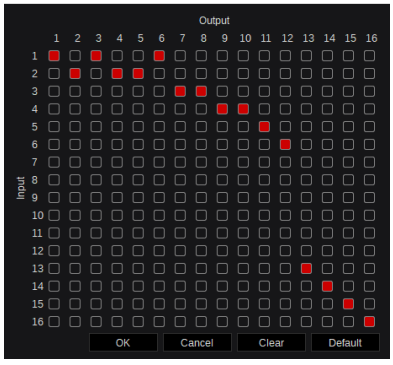
According to the “Audio Level Settings” described in section “3.3.1.2 Settings” on page 24 in this manual (see picture 3.3.1.2.4), here is a list of the effect controls, visualized in the Multiviewer outputs as well as in the “Audio Mixer” GUI:

Picture 3.3.3.5.7

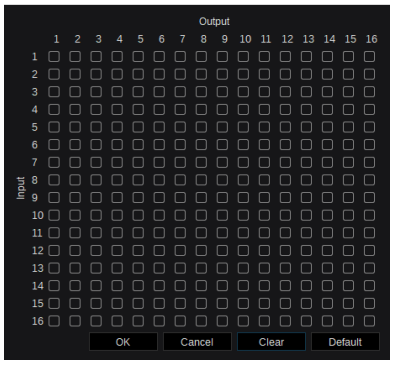


Picture 3.3.3.5.8

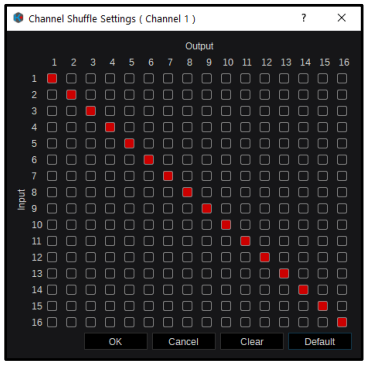
Double-clicking the left mouse on the Audio Channel number indicators underneath the Peakmeter bars (magenta border, picture 3.3.3.5.8) will open the “Channel Shuffle” dialog (picture 3.3.3.5.8), allowing modification of the Audio-Channel configuration. This allows to route/patch any of the 16 source Audio-Channels (Input) into any destination (Output) of the 16 Audio-Channels. “Channel Shuffle” also allows to swap, mute, duplicate, etc. Audio Channels (see example picture 3.3.3.5.9). Picture 3.3.3.5.10 shows “Clear” and picture 3.3.3.5.11 shows the “Default” table.



Picture 3.3.3.5.9

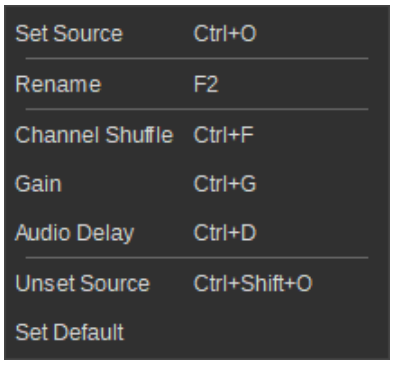


Picture 3.3.3.5.10



Picture 3.3.3.5.11

Picture 3.3.3.5.12

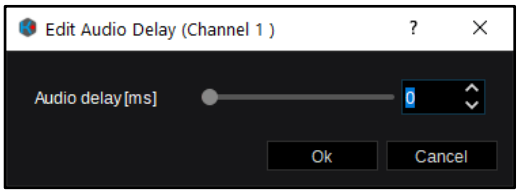


The right mouse-click context menu (picture 3.3.3.5.12) in any of the Channels or Master section provides 4 more individual settings in addition to the controls that have already been explained. Apart from that, the context menu also shows all individual supported keyboard shortcuts:

Set Source	[Ctrl+O]	= Opens the “Inputs” selection
Rename	[F2]	= Opens the “Rename” dialog box
Channel Shuffle	[Ctrl+F]	= Opens the “Channel Shuffle” menu
Gain	[Ctrl+G]	= Opens the “Gain” control menu
Audio Delay	[Ctrl+D]	= Opens the “Audio Delay” dialog box
Unset Source	[Ctrl+Shift+G]	= Will set “None” as Channel source
	Set Default	= Set “Default” for selected Channel

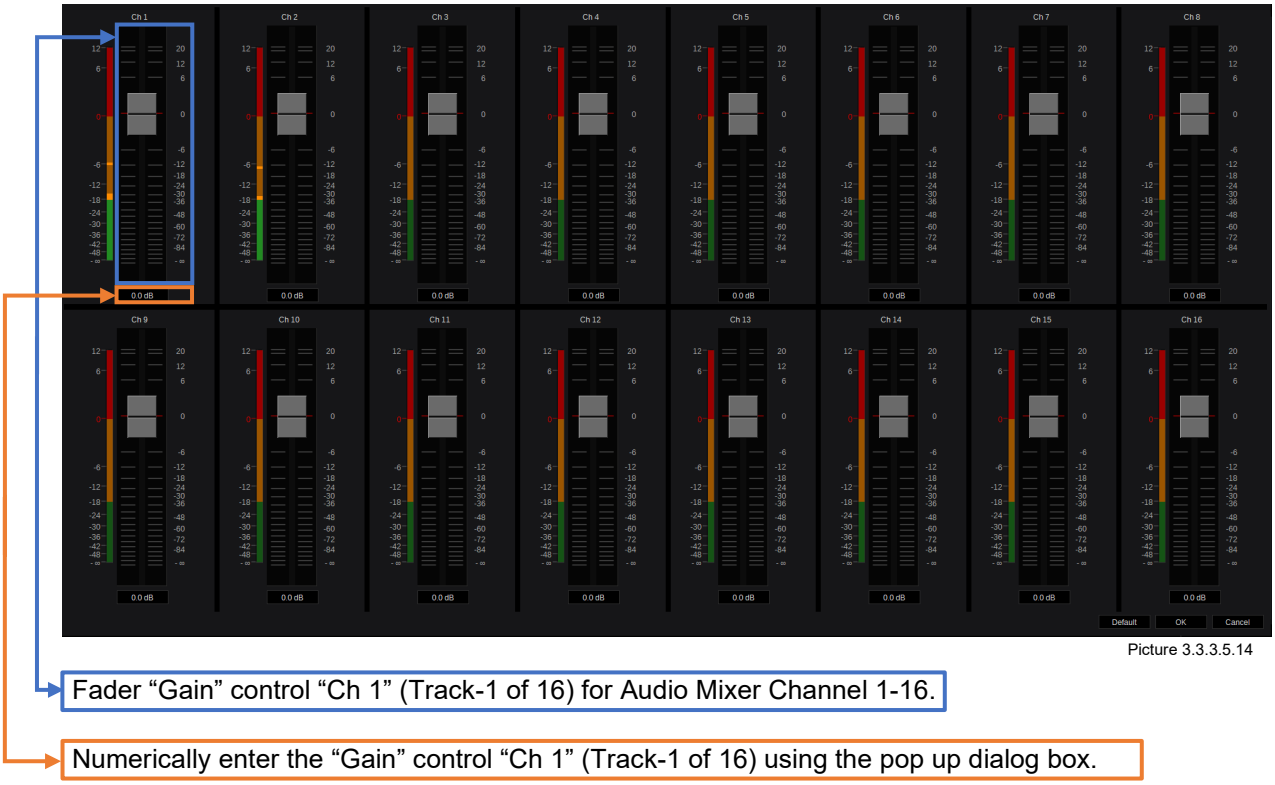
including “Channel Shuffle” (see picture 3.3.3.5.11), “Gain” settings, “Audio Delay” times back to “0,” and set the Channel & Master Fader/Volumes back to “Silence” (- ∞ dB).

Selecting “Audio Delay” from the right mouse-click context menu (picture 3.3.3.5.12) or the corresponding keyboard shortcut [Ctrl+D], the “Edit Audio Delay” dialog box opens for the selected Audio Channel where an Audio delay can be adjusted in milliseconds between 0 - 2000 [ms]. For modifications, use the slider or arrows - or by entering numeric values in the designated area right next to the slider controls.



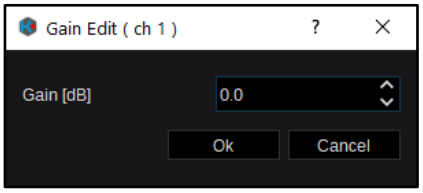
Picture 3.3.3.5.13

When selecting “Gain” from the right mouse-click context menu (picture 3.3.3.5.12) or the corresponding keyboard shortcut [Ctrl+G], the “Gain Settings” will open for the selected Audio Channel (picture 3.3.3.5.14), allowing to individually adjust the 16 available Audio tracks per Audio Mixer-Channel. The associated Fader or the “Volume” box underneath the Fader can be used for adjustments. Use “Ok” to confirm changes. Pressing “Default” will set all 16 Tracks for the selected Audio Mixer Channel back to “0.0dB” Gain (linear). “Cancel” will open the selection to either “Save,” “Discard,” or “Cancel” the former changes to the Gain settings. Here is an example for “Ch 1” (Track-1 of 16).



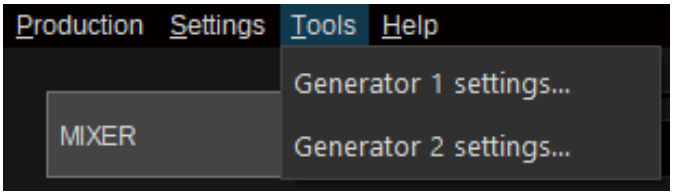
Picture 3.3.3.5.14

A left mouse click on any of the “Gain” control windows will open the “Gain Edit (ch #)” dialog (picture 3.3.3.5.15). To change the default value (0.0 dB), use the arrows ▲▼ - or enter a numeric value in the designated area. Use “Ok” to confirm changes. “Cancel” will open the selection to either “Save,” “Discard,” or “Cancel” the former changes to this Gain setting.



Picture 3.3.3.5.15

When selecting “Unset Source” from the right mouse-click context menu (picture 3.3.3.5.12) or the corresponding keyboard shortcut [Ctrl+Shift+O], the Video source for the selected Audio Mixer Channel will be cleared and set to “None”.

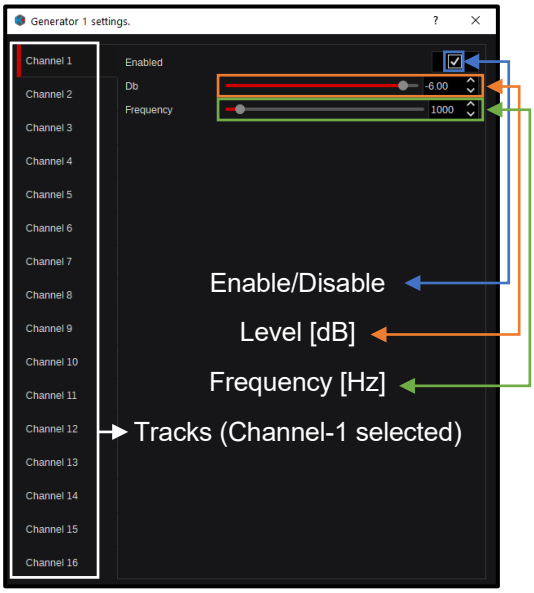


Picture 3.3.3.5.16

Selecting the “Tools” drop-down menu in the top left corner of the Kairos Creator menu enables “Generator 1 & 2 settings…” access. Open “Generator 1 or 2 settings…” in order to setup Track 1-16 per Generator 1-2 regarding:

“Enable/Disable” (On/Off per Track/Channel)
“Level [dB]” (range is -100,00 – 0,00)
“Frequency [Hz]” (range is 0 – 20000)

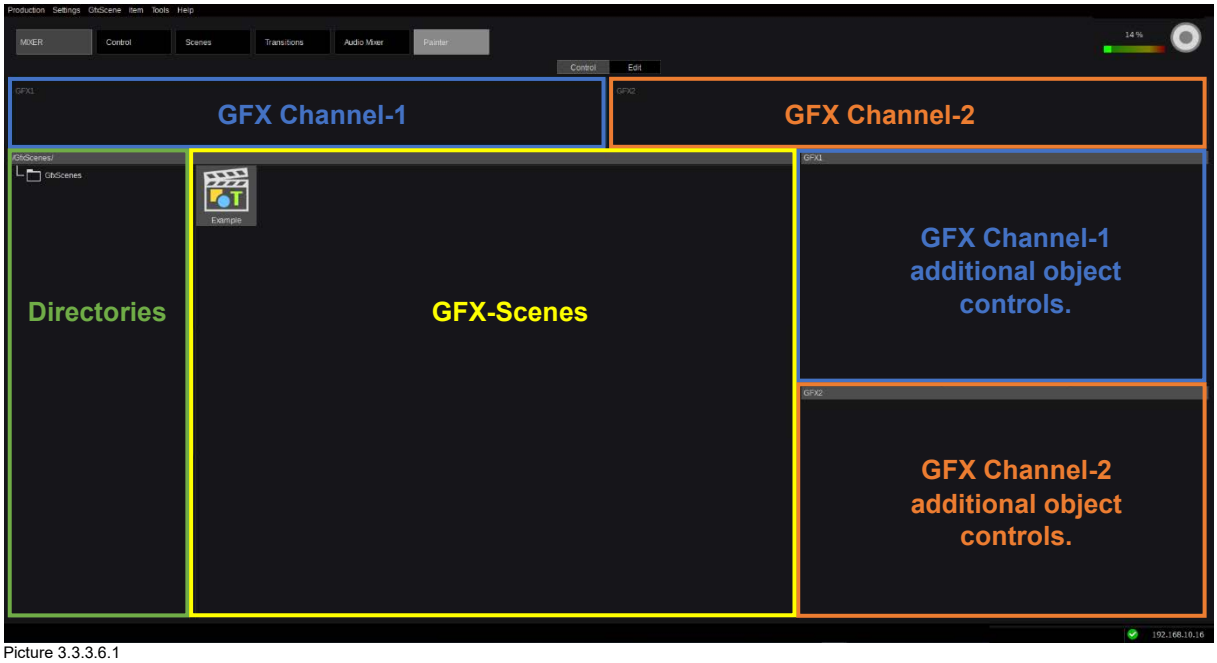
All adjustments are made per Generator and Track.



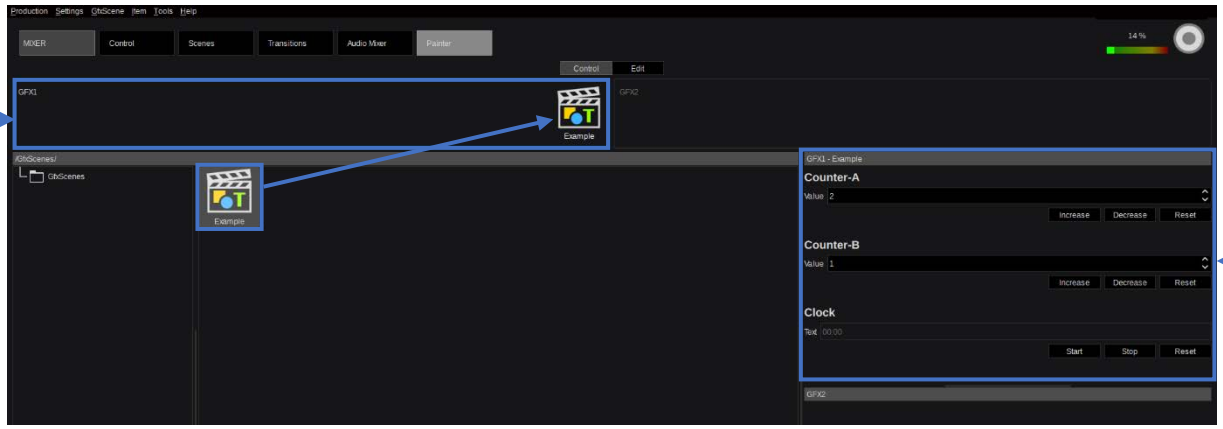
Picture 3.3.3.5.17

3.3.3.6 Painter

The “Painter” within Kairos is a Dual-Channel Graphics tool, which allows use of various elements such as Text objects, Clocks, Counters, Geometric Shapes, import of Stills and Fonts, and so on. This gives the user the ability to create, for example, Lower 3rd graphics, Scoreboards, various Charts, Game clocks, etc. to be used as a source identified in the “Source” dialogs inside the “Gfx” group as GFX1 & GFX2.



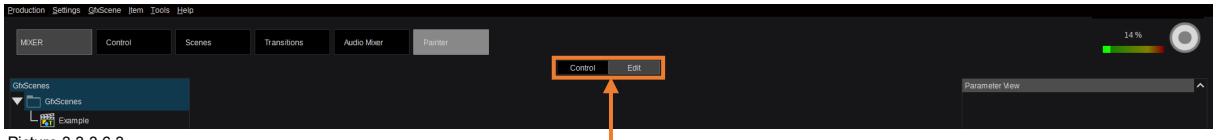
Picture 3.3.3.6.1



Picture 3.3.3.6.2

Clicking the left mouse and dragging the Gfx-Scene “Example” on Channel GFX1 and dropping it inside will populate various object controls in the designated GUI area for “Counter A/B” and for “Clock” controls.

The “Control” page in the “Painter” menu dialog is mainly used to load “Gfx-Scenes” into the individual GFX1/2 channels. Depending on the Gfx-Scene, additional “Controls,” as in the loaded “Example” Gfx-Scene, are published into the designated area of the loaded channel.

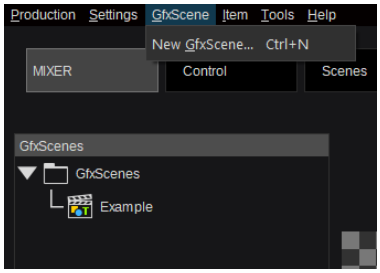


Picture 3.3.3.6.3

Applying changes inside the “Painter” menu from “Control” to “Edit” dialog will give access to edit, add, delete, and modify for Gfx-Scene objects.

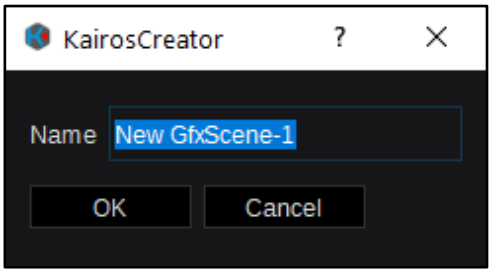
Picture 3.3.3.6.4

Note: The drop-down menus in the upper left corner are equally the same regardless of the “Control” or “Edit” dialog selection. However, the main use will typically take place when in “Edit” mode.

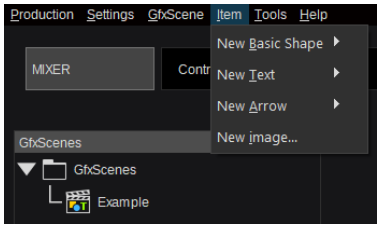


Picture 3.3.3.6.5

The "GfxScene" drop-down menu enables "New GfxScene..." insertion/creation. Also, the keyboard shortcut "Ctrl+N" can be used. Once creating a new one, GfxScene will launch the renaming dialog, which will prompt as a default name "New GfxScene-1."

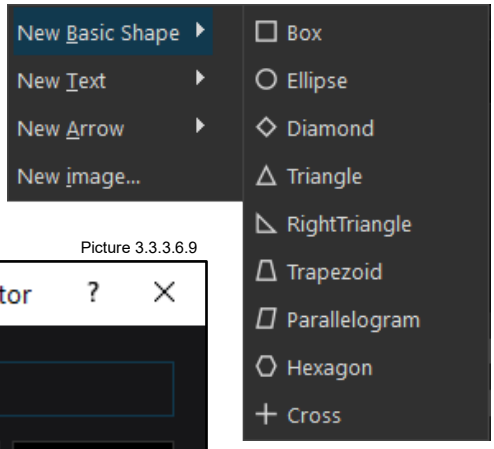


Picture 3.3.3.6.6



Picture 3.3.3.6.7

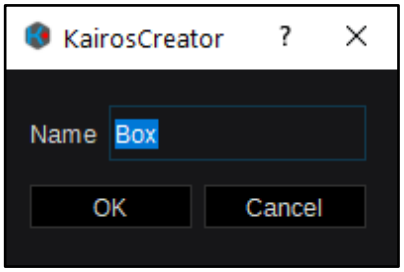
There are 4 selections available when using the "Item" drop-down menu. From here, items are selected in order to populate a GfxScene. Starting with "New Basic Shape."

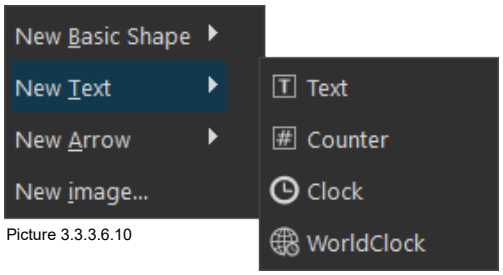


Picture 3.3.3.6.8

The "New Basic Shape" selection contains various geometric forms such as Box, Ellipse, Diamond, Triangle, Right Triangle, Trapezoid, Parallelogram, Hexagon, and Cross. A symbol next to the name indicates the shape as well. Selecting one of the shapes launches the naming dialog first with the default name of the selected shape.

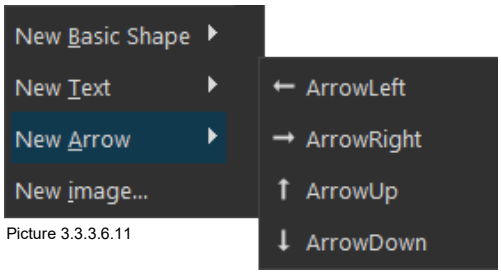
Picture 3.3.3.6.9





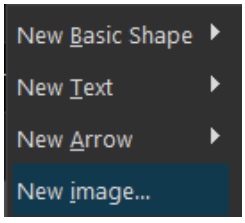
Picture 3.3.3.6.10

The "New Text" selection offers the object types Text, Counter, Clock, and World Clock. A symbol next to the Text object name indicates the object type as well. Also, when selecting one of the Text objects, the naming dialog launches first with the default name of the selected object. The "Text" object is used to represent all sorts of text. The "Counter" object is typically used for scores and "Clock" for Game-clocks/Timer. The "World Clock" object is used as a regular digital style real time clock.



Picture 3.3.3.6.11

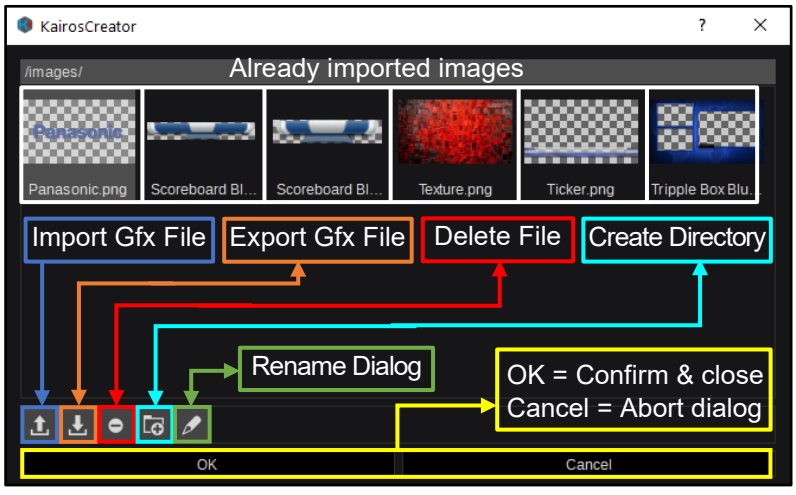
The "New Arrow" selection provides the 4 arrow types Arrow Left, Arrow Right, Arrow Up, and Arrow Down. A symbol next to the Arrow name indicates the direction as well. Selecting one of the Arrow types launches the naming dialog first with the default name of the selected Arrow.



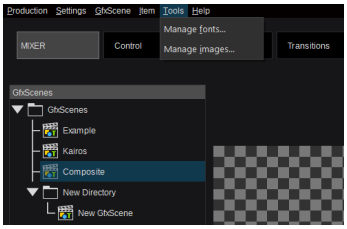
Picture 3.3.3.6.12

Selecting "New Image" opens a new dialog box which allows, apart from inserting Gfx-Files (supporting PNG with Alpha & JPG) into a GfxScene, to manage images which are directly accessible within the "Painter."

Picture 3.3.3.6.13



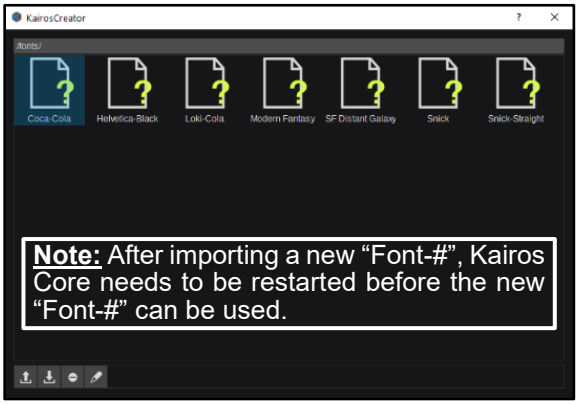
Selecting an image and confirming with “OK” will insert the selected image into the actual GfxScene. Images including an Alpha channel (“*”.png files) have a checkerboard background in their thumbnail (see picture 3.3.3.6.13 on the last page). The “Import” button can be used to upload image to the Painter image-database, and the “Export” button can be used to download image from the Painter image-database. The “Delete” button can be used to either delete an image or a former created directory. The create “New Directory” function will create a folder typically used for organization purposes. The “Rename” dialog can be used to affect an image file or a directory name.



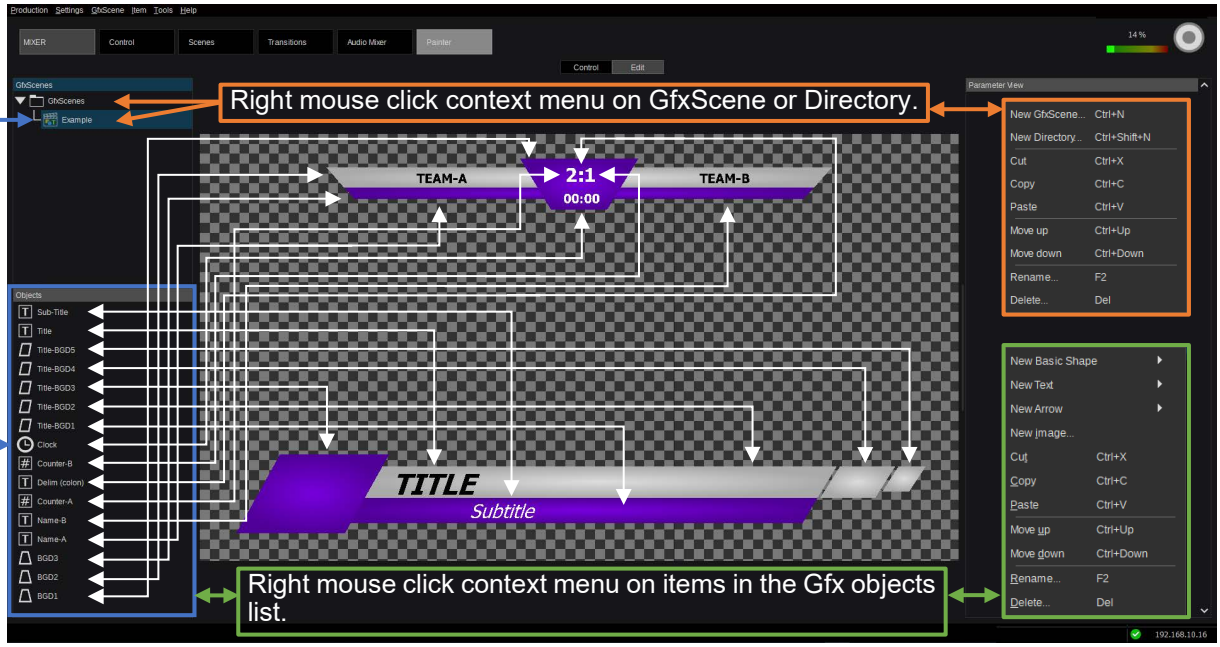
Picture 3.3.3.6.14

The “Tools” drop-down menu gives access to the “Manage fonts…” library. Here, fonts (with type “*”.ttf or “*”.otf”) can be imported or exported, or deleted and renamed.

“Manage Images” gives equal access to manage images within “Painter,” except for “inserting” an image into GfxScene. Apart from that, the dialog is identical to the former described “Item / New Image” (please see picture 3.3.3.6.12 & 3.3.3.6.13 on the last page.



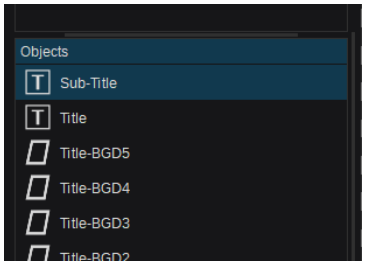
Picture 3.3.3.6.15



Picture 3.3.3.6.16

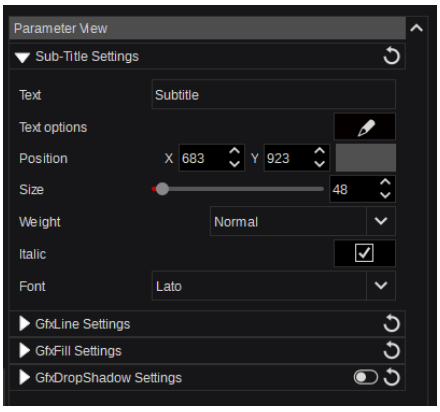
When selecting a Gfx-Scene (Cursor focus) within the “Painter -Edit” dialog, all belonging objects are listed in the designated “Objects” area.

For this Gfx-Scene named “Example” (which is part of the “New Production” wizard, explained in section “1.7 Load & Save Production Behavior” starting on page 13 in this manual), every listed object is associated with a graphical element in the working area.

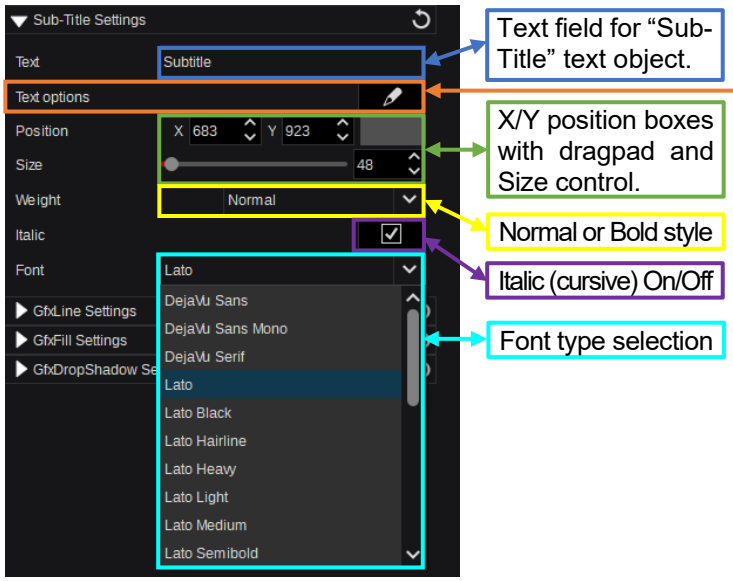


Picture 3.3.3.6.17

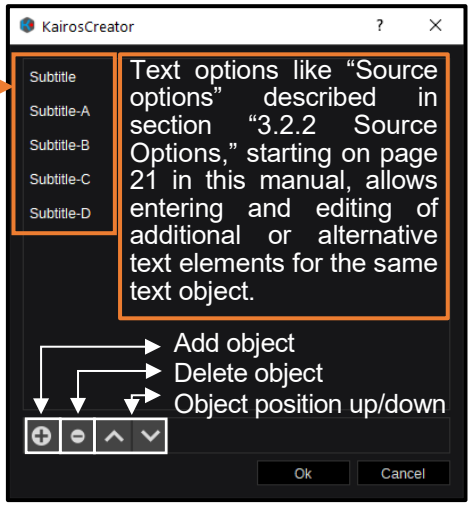
When selecting the object called “Sub-Title” (cursor focus), the “Parameter View” GUI section shows all object relevant modifications regarding Object Text Settings (picture 3.3.3.6.18), GfxLine Settings, GfxFill Settings, and GfxDropShadow Settings.



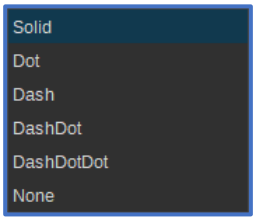
Picture 3.3.3.6.18



Picture 3.3.3.6.19

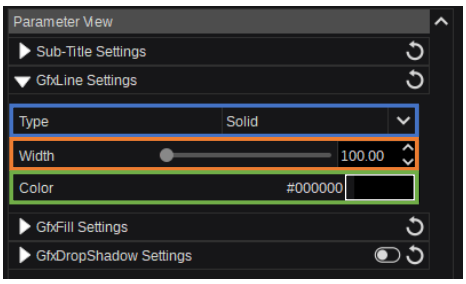


Picture 3.3.3.6.20



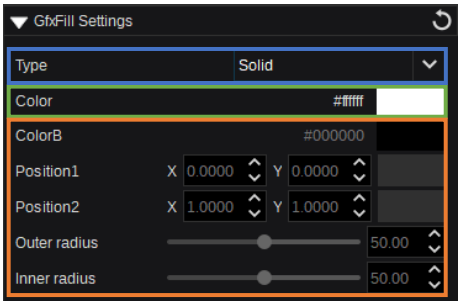
Picture 3.3.3.6.21

Within “GfxLine Settings,” the border style settings can be adjusted from Type (picture 3.3.3.6.21 & 3.3.3.6.22) in the drop-down menu. Control “Width” using the slider or arrows, or by entering numeric values in the designated area right next to the slider controls.



Picture 3.3.3.6.22

Note: For all “Color” type operations within the “Painter” GUI, please refer to section “3.2.3 Color Adjustments” on page 22 in this manual.

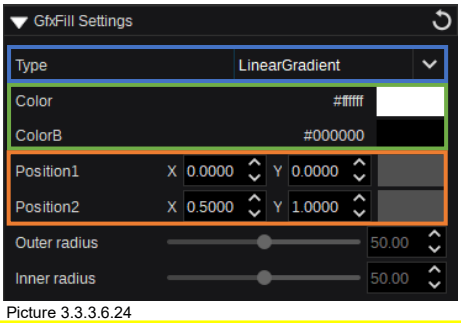


Picture 3.3.3.6.23

When in “GfxFill Settings,” the method “Solid” is selected, a single color will be use to fill the selected object whether it’s a Text based or a geometric object.

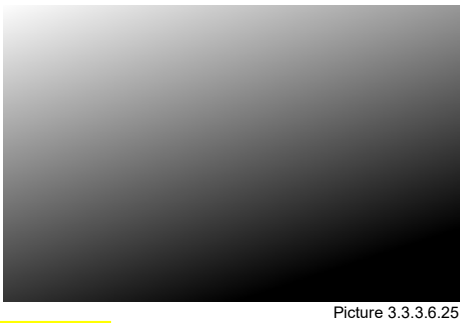
In this case, all other controls (controls surrounded with an Orange border) in “GfxFill Settings” are disabled.

The next examples will use a full screen box-object to illustrate the controls. Therefore, “Color” will remain on “White” and “ColorB” will use “Black.”

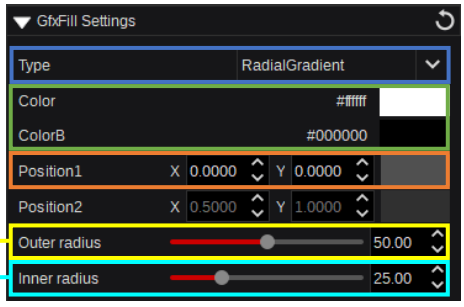


Picture 3.3.3.6.24

Fill type is now a “LinearGradient” using 2 colors.
“Position1” = Start position
“Position2” = End position
Operate positions using numeric entries, arrows, or dragpad controls.

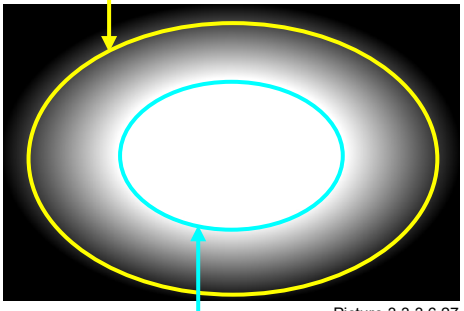


Picture 3.3.3.6.25

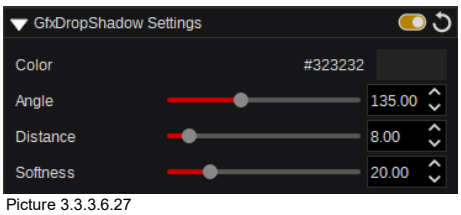


Picture 3.3.3.6.26

Fill type is now a “RadialGradient” using 2 colors.
“Position1” = Center position
“Position2” = not used
“Outer radius” = Size/Soft
“Inner radius” = Size/Soft
Use slider, numeric entries, or arrows for controls.



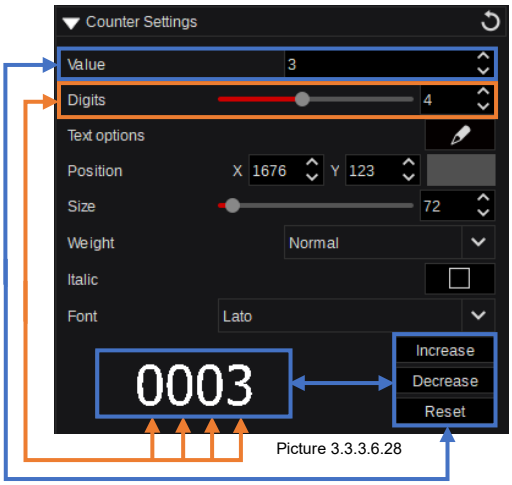
Picture 3.3.3.6.27



Picture 3.3.3.6.27

Within “GfxDropShadow Settings,” the appearance of an enabled Shadow can be adjusted. Apart from the Shadow-Color (with Alpha-channel adjustment for transparency, see section “3.2.3 Color Adjustments” on page 22 in this manual), Angle, Distance, and Softness controls are available. For adjustment, use the sliders, the numeric entries, or up/down arrow controls.

Inserting a “Counter” object allows use of some unique controls for this object type:



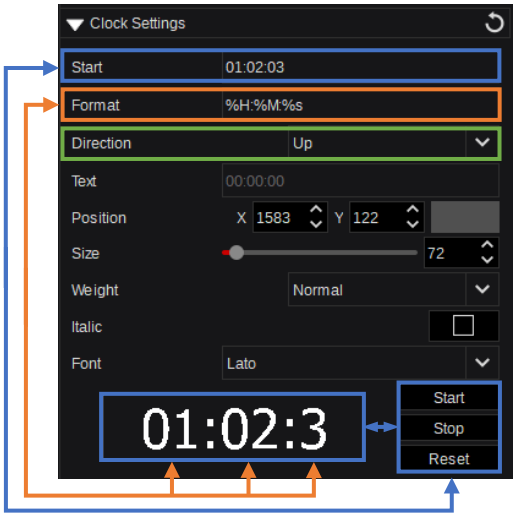
Picture 3.3.3.6.28

Using the up/down arrows to adjust the Counter/Score. Also, the commands “Increase (+1),” “Decrease (-1),” or “Reset (=0) can be used in “Edit”-dialog for adjustments. Negative results can be accomplished as well. Use “Increase,” “Decrease,” and “Reset (back to 0)” buttons in order to control the “Counter” while in “Edit” mode.

The value for “Digits” describes how many (1–8) numbers/figures are used to display the Counter/Score.

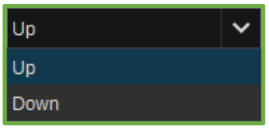
The “Clock” object type provides various modifications for appearance and run-directions:

Picture 3.3.3.6.29



The field “Start” is used to define the Clock-time to start with. However, since the default “Direction” is set to count in the “Up” direction, the “Start” field can also contain a time e.g. 30:00 minutes and “no hour,” and start to count in the “Down” direction (see picture 3.3.3.6.30 underneath). Use “Start,” “Stop,” and “Reset” buttons to control the “Clock” while in “Edit” mode.

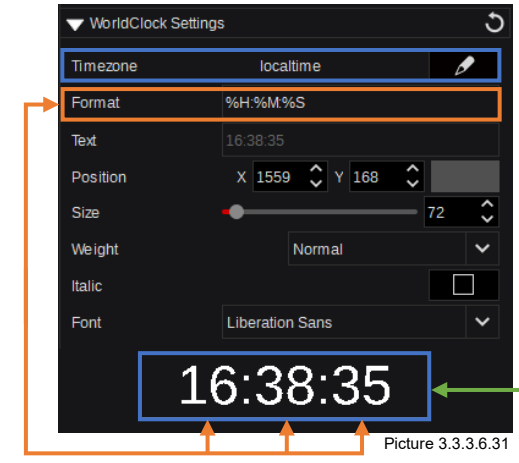
Use “Format” to describe the appearance of the “Clock”:
%H = display Hours, %h = display Hour – no leading “0”
%M = display Minutes, %m = display Minutes – no leading “0”
%S = display Seconds, %s = display Seconds – no leading “0”



Picture 3.3.3.6.30

In the “Direction” drop-down menu, the run-direction can be adjusted in order to count “Up” or “Down.”

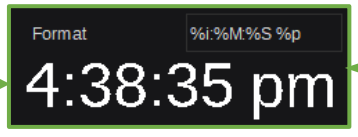
The “WorldClock” object type can be modified to match various display-styles:



Picture 3.3.3.6.31

Click the “ ” symbol in the “Timezone” field in order to select and apply regional clock settings to be used to display.

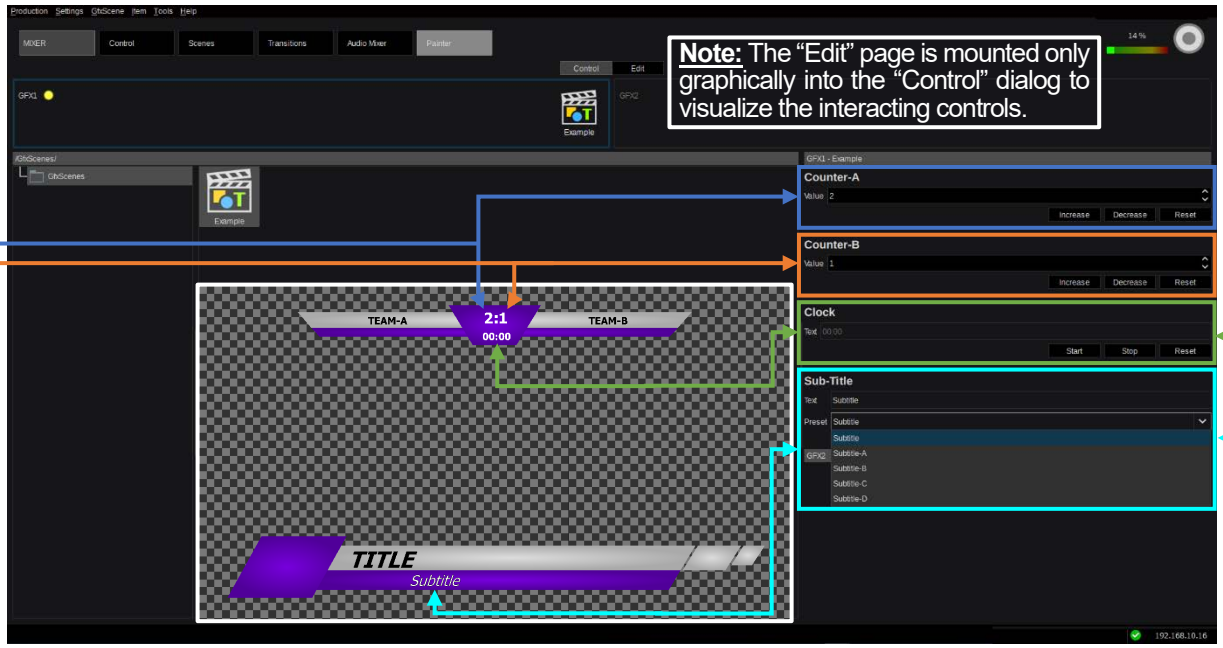
Use “Format” to describe the appearance of the “Clock”:
%H = display Hours, %h = display Hour – no leading “0”
%M = display Minutes, %m = display Minutes – no leading “0”
%S = display Seconds, %s = display Seconds – no leading “0”
%H or %h = used for 24h mode
%I or %i = used for 12h mode (replace “H” or “h” with “I” or “i”)
%p = to add the “am” or “pm” flag to the displayed time



This example shows the same time, but is formatted in 12-hour mode (no leading “0”) and displays the am/pm flag.

Note: For a better visualization the “Counter” & “Clocks” were composited into the displayed GUI images (picture 3.3.3.6.28 / 3.3.3.6.29 / 3.3.3.6.31).

Use the “GfxScene” named “Example” again in order to show various controls which are accessible even when not in “Edit” mode. “Example” contains Text-objects with “Text options,” “Counters” and a “Clock.” All of those elements within “Painter” can be modified when in “Control” mode also, using the designated Gfx-Channel object control area (see picture 3.3.3.6.1 on page 50 in this manual).



Picture 3.3.3.6.32

“Counter-A” controls the “TEAM-A” score side using the buttons “Increase, Decrease, & Reset=0.”

“Counter-B” controls the “TEAM-B” score side using the buttons “Increase, Decrease, & Reset=0.”

The “Clock” controls are “Start, Stop, & Reset” to the initial preset time entered in “Edit” mode for “Clock”

The “Sub-Title” control allows selecting from the former added alternative text objects list entered in “text options” while in “Edit” mode on the “Sub-Title” text object (see picture 3.3.3.6.20 on page 53).

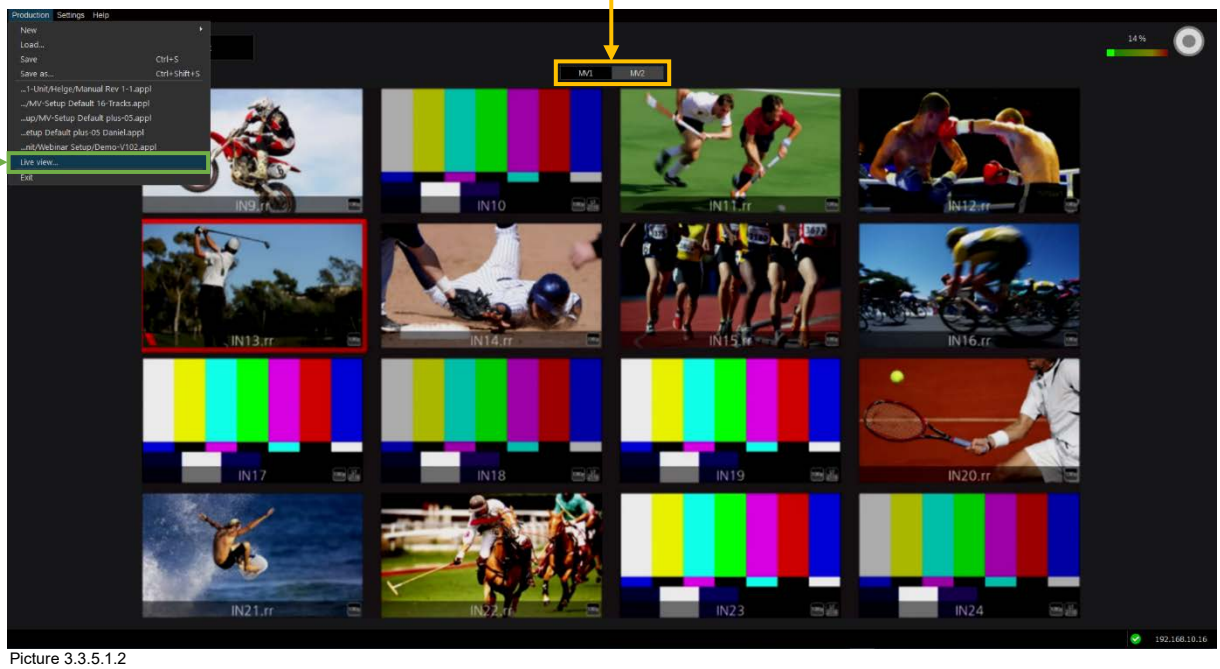
3.3.5 Multi-Viewer Tab Selection

3.3.5.1 Live View

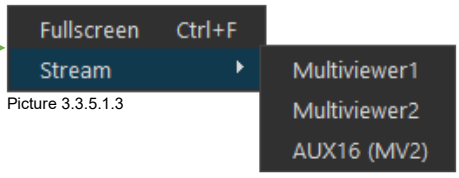
Picture 3.3.5.1.1

Selecting the Multi-Viewer output to be monitored in real time in Kairos Creator GUI - Live View tab.

The Multi-Viewer “Live View” tab allows the user to monitor the Multi-Viewer outputs (MV1 or MV2) in a connected Kairos Creator GUI, once enabled in “System Settings” (described on page 84 in this manual).



Picture 3.3.5.1.2

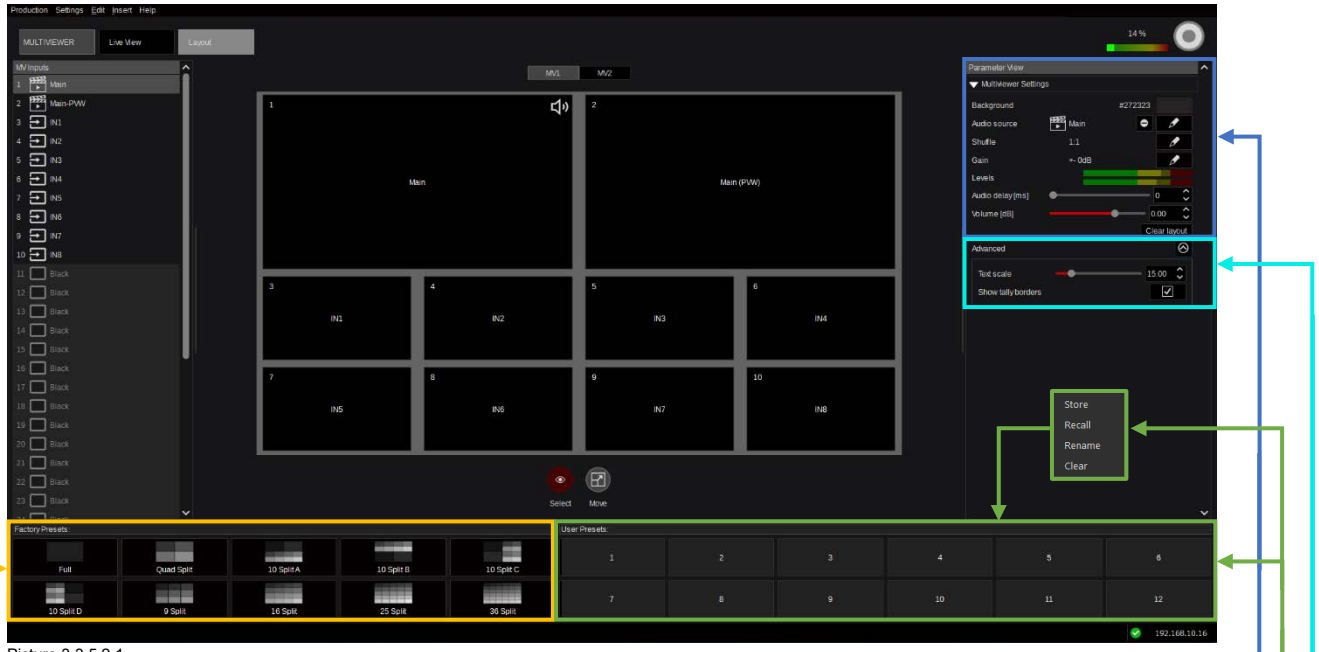


Picture 3.3.5.1.3

Clicking on the “Production” menu in the upper left corner of Kairos Creator and select “Live view…” from the drop-down menu, allows to open a new “Viewer” pane, where the right mouse-click context menu within the new window allows to select from the listed streams provided by Kairos-Core (Multiviewer outputs and configured RTP streams). Multiple “Stream” windows can be launched in parallel. With the selection “Fullscreen” or the keyboard shortcut “Ctrl+F” the new window size can be toggled accordingly.

3.3.5.2 Layout

Multi-Viewer layouts can be customized in the “Layout” section. This page has a list view of the PiP sources in the MV Inputs panel on the left, the layout editor in the center, and the usual “Parameter View” panel on the right. Across the bottom are two layout Preset selector panels: “Factory Presets” and “User Presets,” which function as explained below.



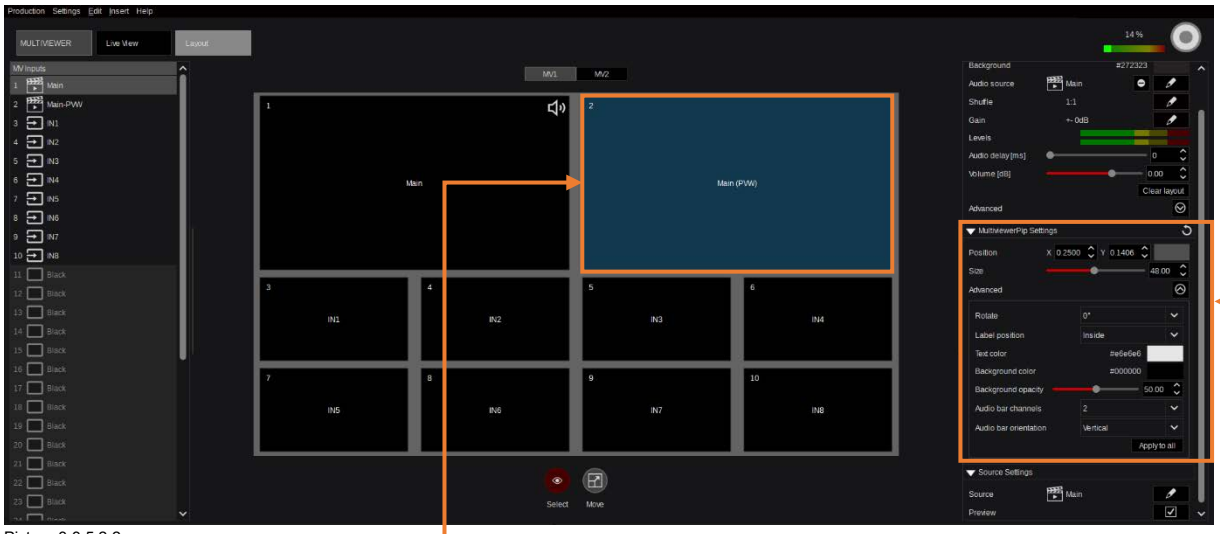
Picture 3.3.5.2.1

Use left mouse click to apply a Factory Preset to the selected Multi-Viewer canvas as a starting point.

Up to 12 “User Presets” can be saved here. Right mouse click functions on a Preset position are “Store, Recall, Rename, Clear.”

Changing the Multi-Viewer Background Color, selecting an “Audio source” per MV for DP-Port/HDMI Kairos-Core output, re-arranging the default “1:1” Audio-Output Channel-Assignment when selecting “Shuffle,” setting-up “Audio-Gain” & “Audio-Volume,” modifying “Audio-Delay” (0-2000ms), and a “Clear layout” function can be operated/adjusted in this GUI section per Multi-Viewer. Also, Audio Levels are visualized for the selected Audio source.

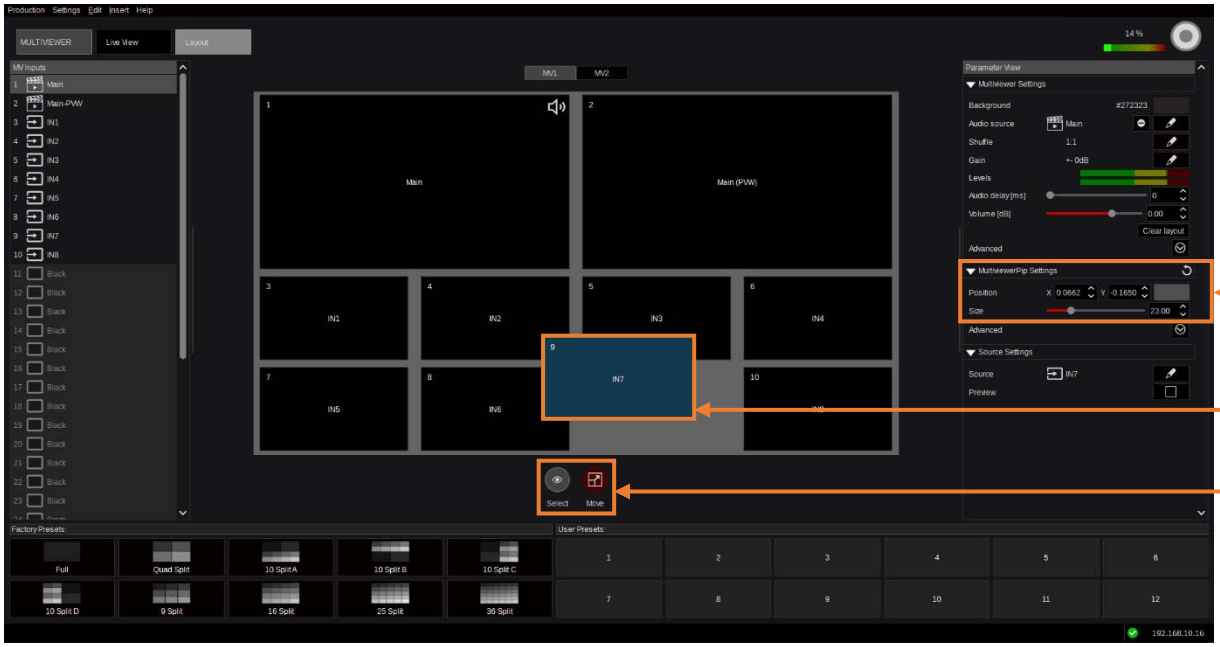
When unfolding the “Advanced” settings, controls for “Text scale” (Size) and enable or disable for “Show tally borders” can be operated/adjusted per Multi-Viewer.



Picture 3.3.5.2.2

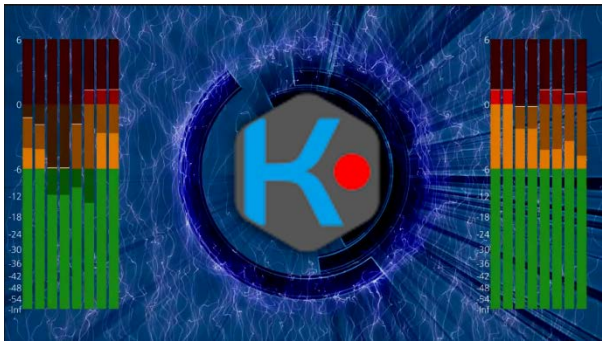
When selecting a tile (tile 2 in this case), the controls for “Position” & “Size” - and when opening “Source Settings,” the “Source”-selection and “Preview”- On/Off becomes available. The “Preview” functionality follows the “Look Ahead Preview” principle LAH-PVW (see page 29 picture 3.3.3.1.1 in this document for details). The “Advanced” settings allow access to control “Rotate (0º, 90º, 180º, 270º),” for “Portrait” or “Landscape” orientation, “Label position,” “Text color,” “Background color,” “Background opacity,” “Audio bar channels,” and “Audio bar orientation.” These are independent settings per tile. Advanced settings for a single tile can be copied to all other tiles for the selected Multiviewer using the “Apply to all” function.

Select the “Move” tool to use mouse controls directly on the layout grid. Left mouse click & hold, and move for positioning. Use the mouse wheel in order to change the size.

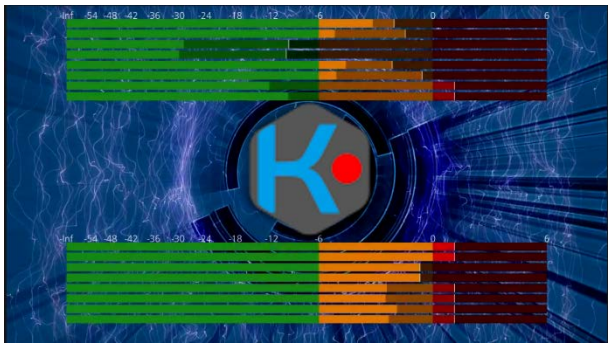


Picture 3.3.5.2.3

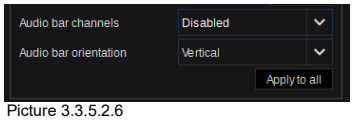
Changes to “Position/Size” settings are reflected in the “MultiviewerPiP Settings” column in the “Parameter View” panel. The drag-pad next to X/Y Position and “Size” controls can be used as well.



Picture 3.3.5.2.4

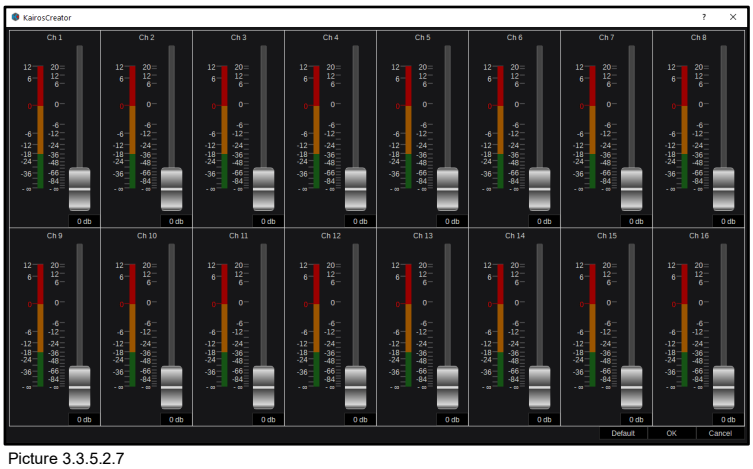


Picture 3.3.5.2.5

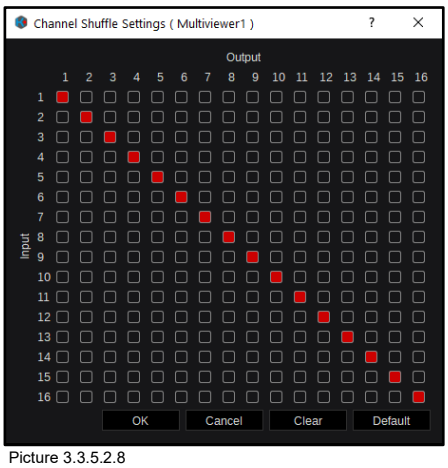


Picture 3.3.5.2.6

The “Default” setting for monitored Audio-Channels in an MV-tile is “Disabled.” Kairos allows to select 1-16 Tracks per MV-tile. Tracks 1-8 are displayed to the Left or in the Top area of the tile. Tracks 9-16 are displayed to the Right or in the Bottom area. Left & Right areas are used when “Audio bar orientation” is set to “Vertical.” Top and Bottom areas are used when set to “Horizontal.” Advanced tile settings can be copied to all other tiles for the selected Multiviewer using the “Apply to all” function.

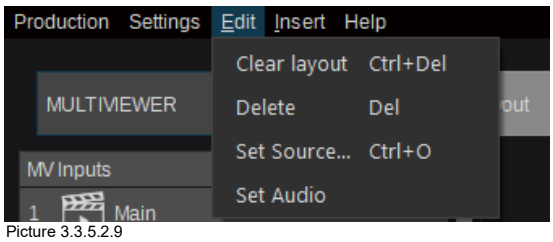


Picture 3.3.5.2.7



Picture 3.3.5.2.8

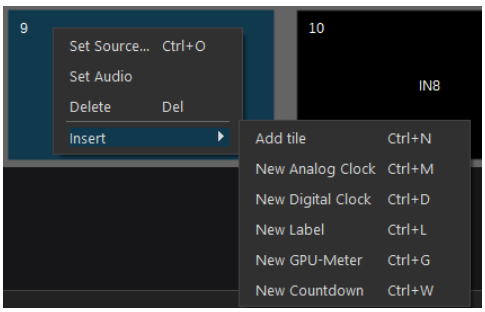
Gain adjustments for Tracks 1-16 and the “Shuffle” matrix per selected Video source, and for “Audio Mixer”.



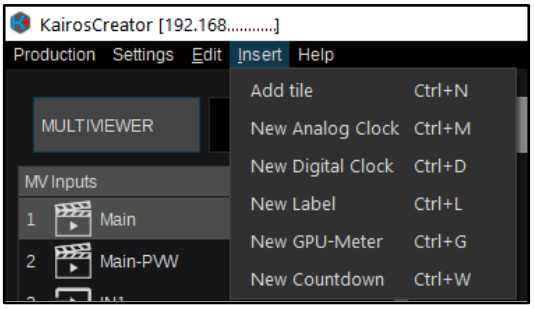
Picture 3.3.5.2.9

Opening the “Edit” drop-down menu in the upper left corner exposes a “Clear layout” operation, which will be executed without any further confirmation. The keyboard shortcut “Ctrl+Del” does the same thing. Also, a cursor-focused tile can be deleted or the “Set Source…” (Video) and “Set Audio” dialog can be launched.

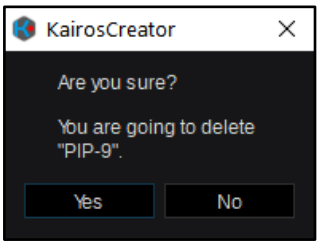
Right-click a PiP (tile 9 in this case) to access the context menu for that PiP. The “Delete”, “Insert”, “Set Source”, “Set Audio” operation can be launched.



Picture 3.3.5.2.10

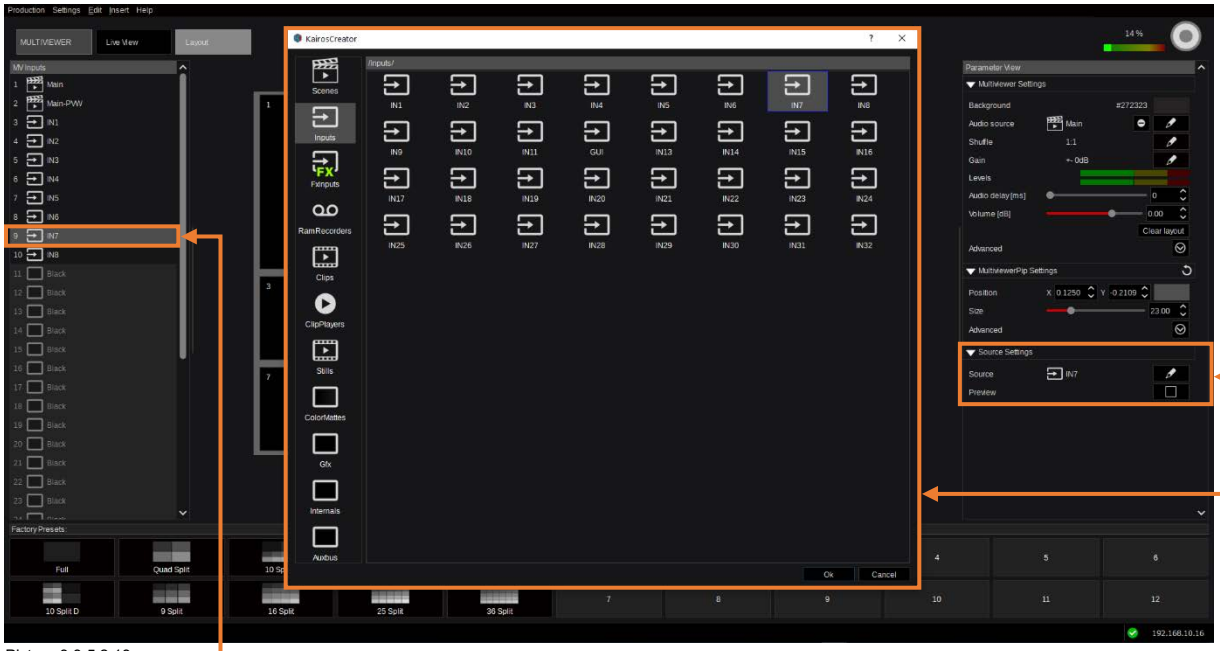


Picture 3.3.5.2.11



Picture 3.3.5.2.12

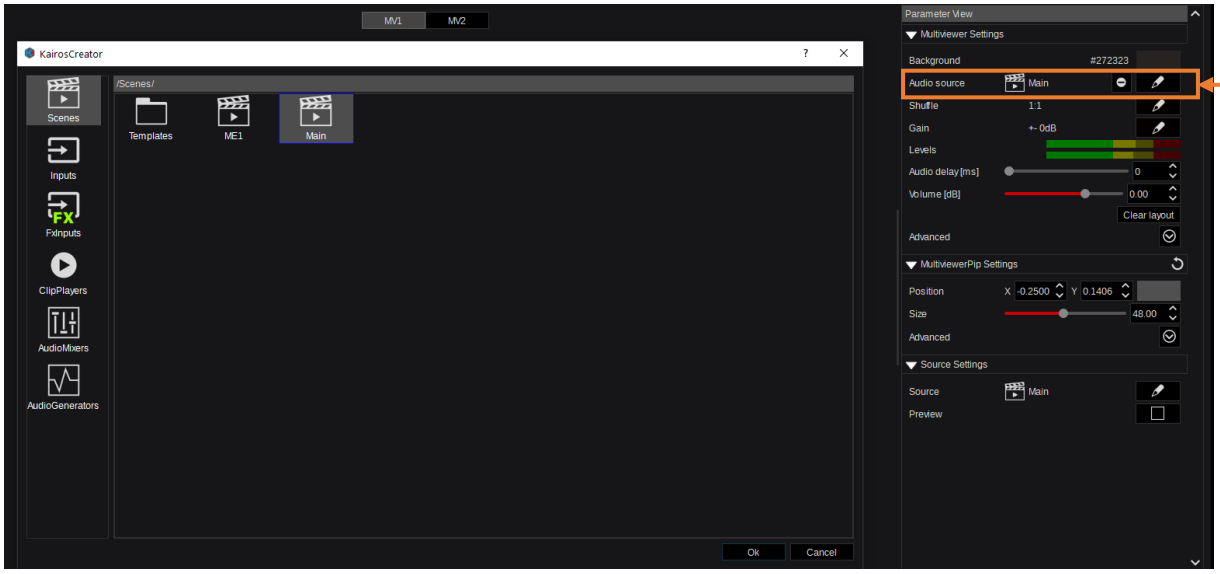
The “Insert” function provides the opportunity to add/insert a “New Window” (Tile) Ctrl+N, “New Analog Clock” Ctrl+M, “New Digital Clock” Ctrl+D, “New Label” (Text) Ctrl+L, “New GPU-Meter” Ctrl+G, and a “New Countdown” Ctrl+W. The individual keyboard shortcuts listed next to the items can also be used.



Picture 3.3.5.2.13

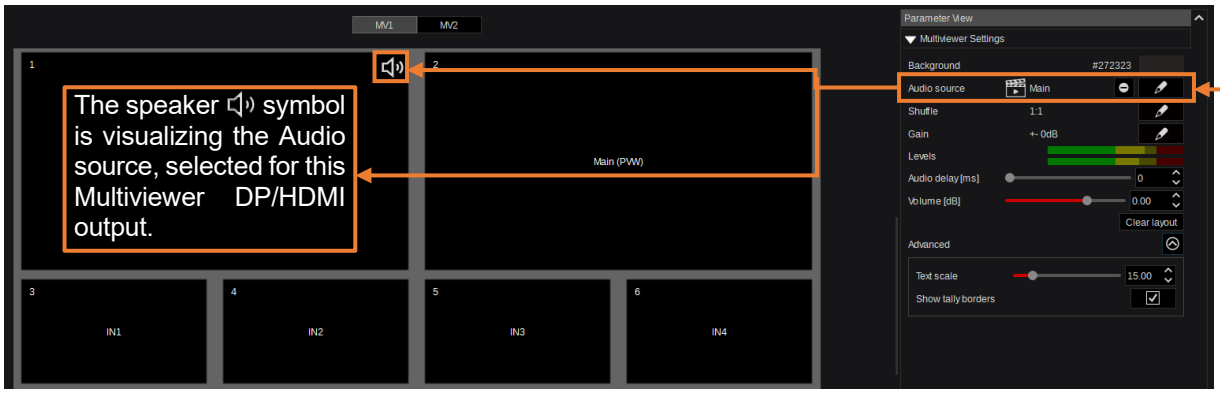
Click the “ ” symbol in “Source Settings” at the bottom of the “Parameter View” panel next to the “Input” icon (IN7 in this example) to open the “Inputs” overlay window for selection, listing all available sources. A double left mouse-click on a destination in the “MV Inputs” panel, a right mouse click on one of the items listed in the “MV Inputs” panel, or a double left mouse-click directly on a Multi-Viewer tile will open the “Set Source” selection overlay window.

In the overlay, a single click on a source will only change the cursor focus, while a double-click will set the focus and change the source immediately. Select “OK” in lower right corner of the selection window to confirm the changes and close the window. “Cancel” terminates the dialog. For more details regarding source selection, please refer to section “3.2.1 Source/Input Selection” on page 21 in this manual.



Picture 3.3.5.2.14

In order to set an “Audio source” for a Kairos Core Multiviewer Output (DP/HDMI), click the “ ” symbol in “Multiviewer Settings” at the top of the “Parameter View” panel next to the “Audio source” icon (scene “Main” is selected in this example) to open the overlay window for this selection, listing all available “Audio sources.” The selection contains all existing “Scenes,” “Inputs,” “FxInputs,” “ClipPlayers,” a configurable “AudioMixer,” and “Audio Generators.”

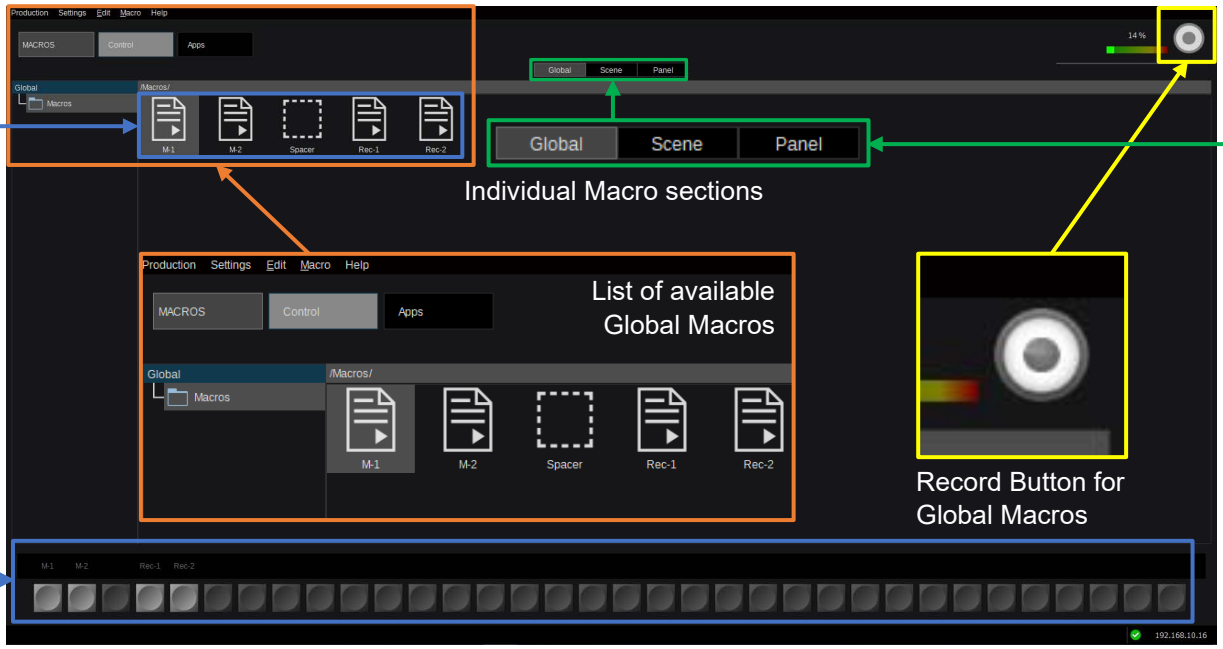


Picture 3.3.5.2.15

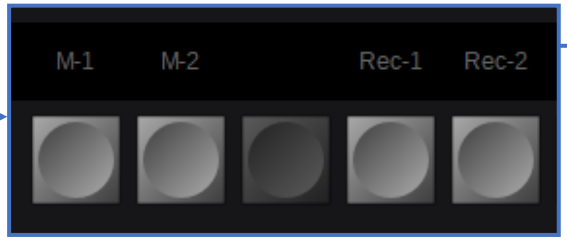
Note: For more details regarding Audio controls in general, such as “Shuffle, Gain & Audio Delay, Audio Generators, etc.” please refer to section “3.3.3.5 Audio Mixer” in this manual, starting on page 47.

3.3.6 Macro Tab Selection

3.3.6.1 Control

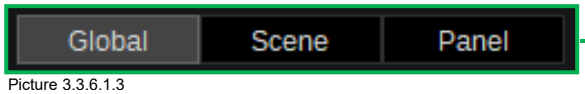


Picture 3.3.6.1.1



GUI Macro Bus row with name display for the selected individual Macro group including "Spacer" (picture 3.3.6.1.2).

Picture 3.3.6.1.2



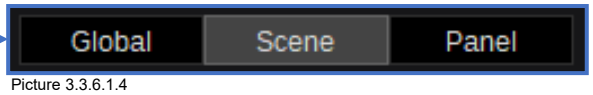
Individual programable Macro sections for Global, Scene, and Panel Macros (picture 3.3.6.1.3).

Picture 3.3.6.1.3

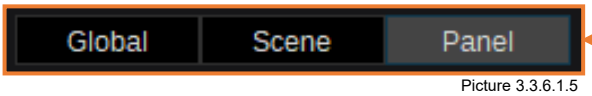
Note: "Global Macros" can be recorded and recalled at any time and are not assigned to a specific Scene (Picture 3.3.6.1.1). Global Macros operations allow to create user-defined subdirectories and are operated via Kairos Creator GUI only. Global Macros can be copied from/to any other Macro section, such as Scene Macros & Panel Macros.

"Scene Macros" are unlike "Global Macros," which belong to their individual "Scene," visible when selecting the "Scene" Macro section (Picture 3.3.6.1.2 & 3.3.6.1.3).

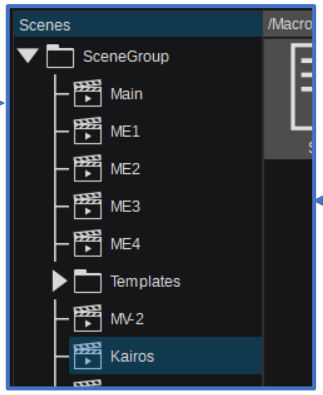
"Panel Macros" instead belong to their individual Profile (1-8) and can also be operated on their designated Control Panel with selected/activated "Profile." See also section 4.6.1 Macros on page 118.



Picture 3.3.6.1.4

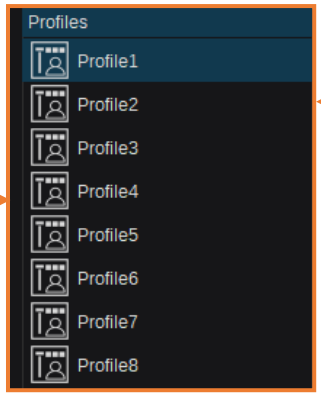


Picture 3.3.6.1.5



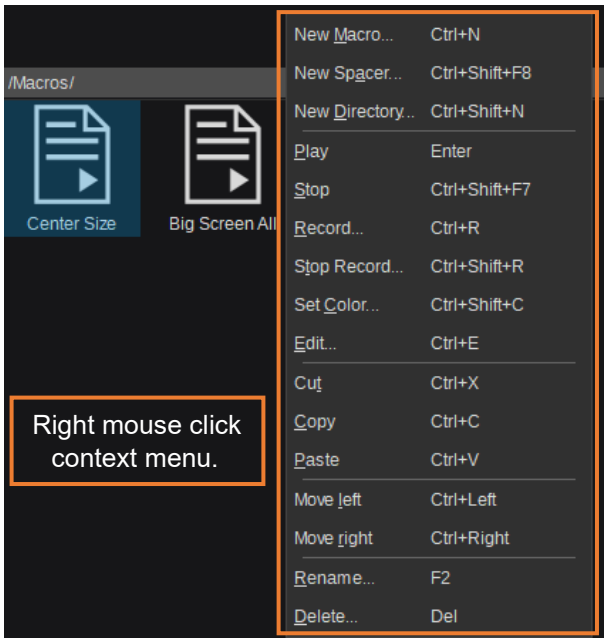
Selecting "Scene" for the individual Macro section will browse the actual Production, displaying all available Scenes, including Scene subdirectories (i.e., "Templates").

When "Panel" gets selected in Kairos Creator GUI as individual Macro section, all Profiles (1-8) are listed, showing their containing Macros when cursor focus on.

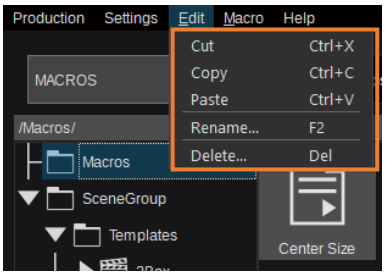


Picture 3.3.6.1.6

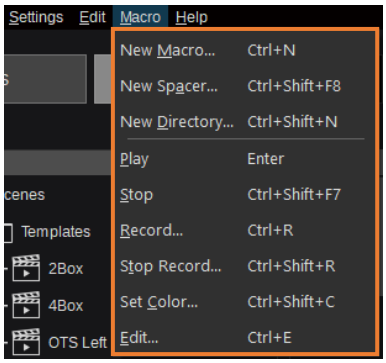
Picture 3.3.6.1.7



Picture 3.3.6.1.8



Picture 3.3.6.1.9

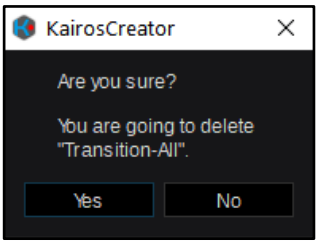


Picture 3.3.6.1.10

Use the “Edit” and “Macro” menus in the menu bar to access Edit and Macro management functions. Right mouse click on the macro icon to open a Macro context menu with all the relevant operations.

Note: The Macro context menu actually combines the “Macro” and “Edit” menu functions in one place. All actions are related to the cursor-focused object. If no object has cursor focus, the context menu is shorter. Also, more than one Macro can “Record.”

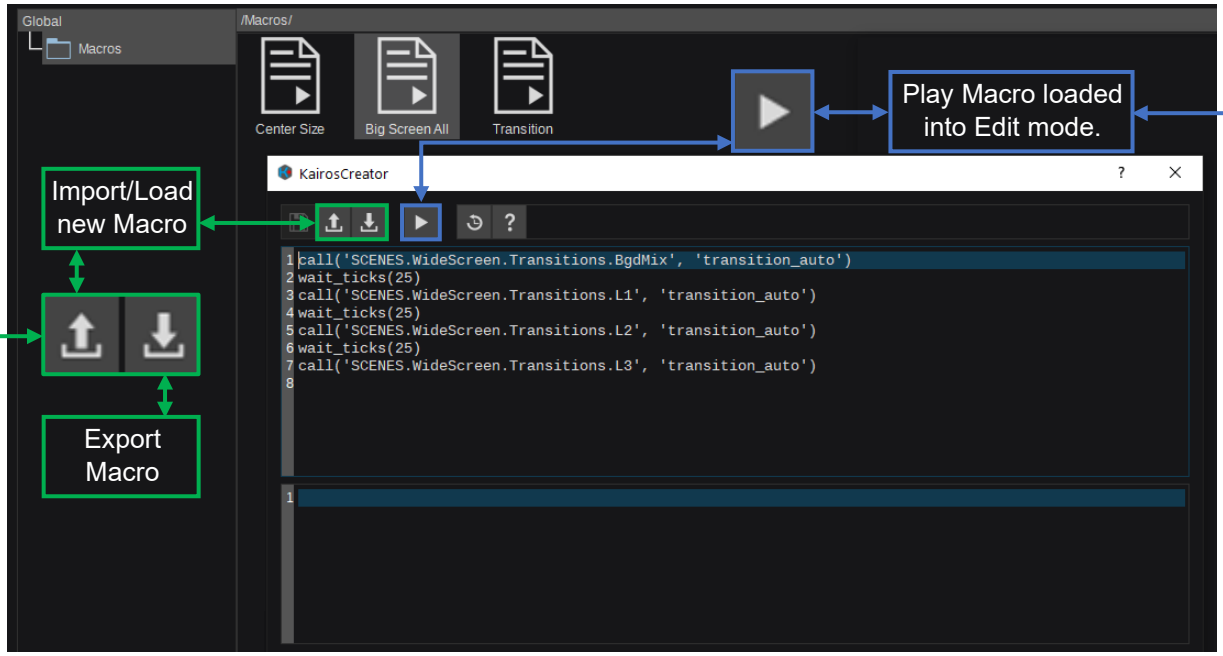
New Macro (Ctrl+N):	Will create a new, empty Macro in the preselected Macro destination. Default name “M-#,” indicating “M” for “Menu”-created Macro and “#” for numbering.
New Spacer (Ctrl+Shift+F8):	Inserting a moveable “Placeholder/Spacer.”
New Directory: (Ctrl+Shift+N)	Creates “New Directory” inside the selected directory. **AVAILABLE FOR “GLOBAL” MACRO SELECTION ONLY!**
Play (Enter):	Start playing the selected Macro using the keyboard “Enter” key.
Stop (Ctrl+Shift+F7):	Stop selected Macro.
Record (Ctrl+R):	Will start recording a Macro which is in cursor focus. Default name “Rec-#,” indicating “Rec” for “Record”-created Macros and “#” for numbering.
Stop Record (Ctrl+Shift+R):	Stops recording Macro, which is in cursor focus.
Set Color (Ctrl+Shift+C):	Enables specification of a Color per Macro using the color adjustment dialog. (see section “3.2.3 Color Adjustments” on page 22 in this manual)
Edit (Ctrl+E):	Opens up the “Edit” dialog window (see details on the next page).
Cut (Ctrl+X):	Is cutting out an object into the Clipboard.
Copy (Ctrl+C):	Copies a cursor-focused object into the Clipboard.
Paste (Ctrl+V):	Pastes the Clipboard content into the cursor-focused destination.
Move left (Ctrl+Left):	Moving a cursor-focused Macro to left direction.
Move right (Ctrl+Right):	Moving a cursor-focused Macro to right direction.
Rename (F2):	Rename the cursor-focused object.
Delete “Del”:	Will delete the cursor focused object after confirmation with “Yes” in the next panel of this task. “No” will cancel the dialog and action.



Picture 3.3.6.1.11

3.3.6.2 Macro Edit

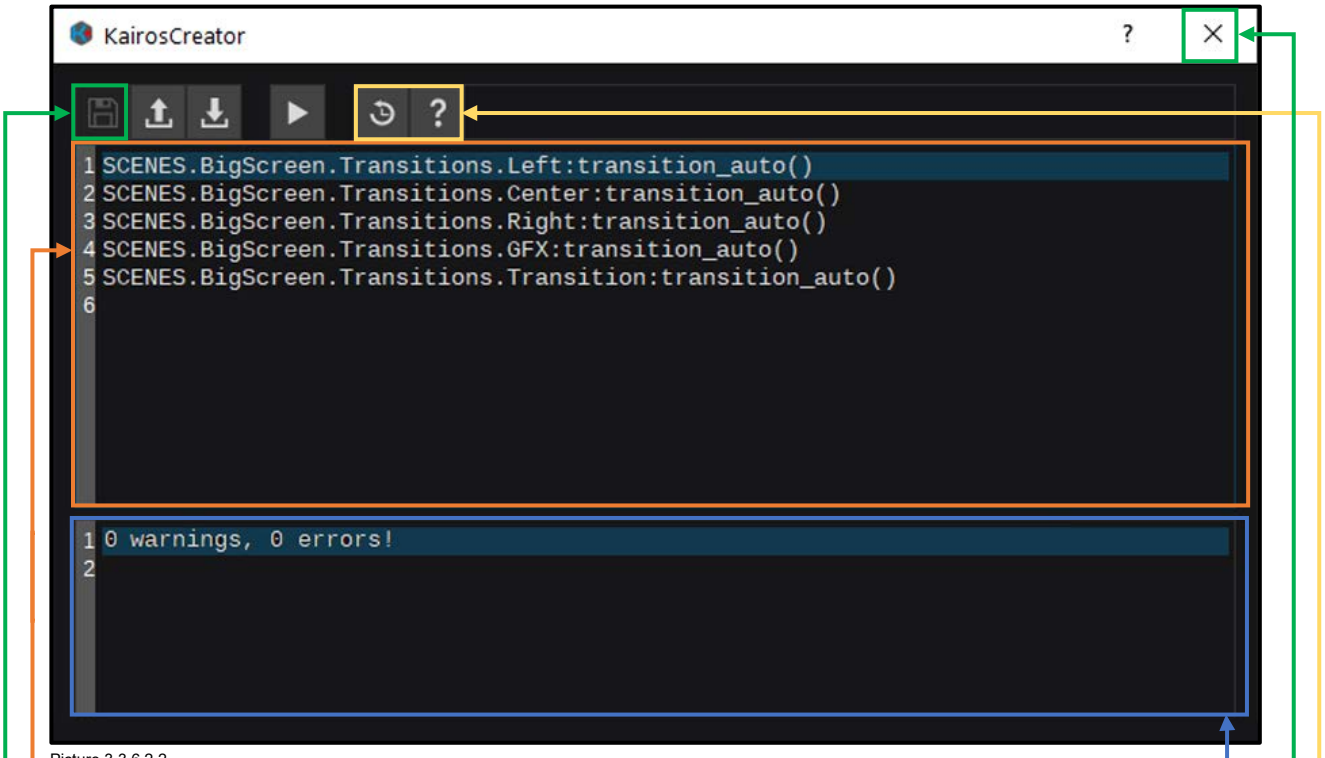
Right mouse click a Macro and select from the context menu “Edit” (Picture 3.3.6.1.8) will open according “Edit” dialog. The keyboard shortcut “Ctrl+E” on a cursor-focused Macro does the same thing.



Picture 3.3.6.2.1

The Macro can be played back while in Edit mode, for example, for testing purposes.

Launching the Import/Load or Export function will open a browser to navigate for file location or destination.



Picture 3.3.6.2.2

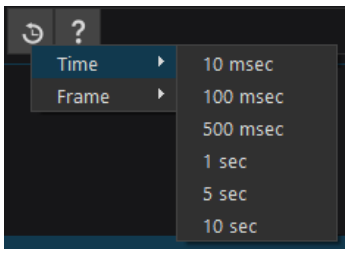
An editable list of commands (Kairos events) executed by the Macro.

Monitor box for any kind of errors during Macro-editing, such as logical, spelling, syntax, etc.

Save changes and not closing edit dialog.

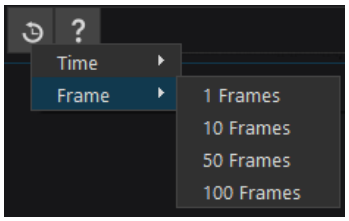
Close edit dialog without changes.

“Insert Wait” editable pauses in frames or seconds & open Macro Edit Help .



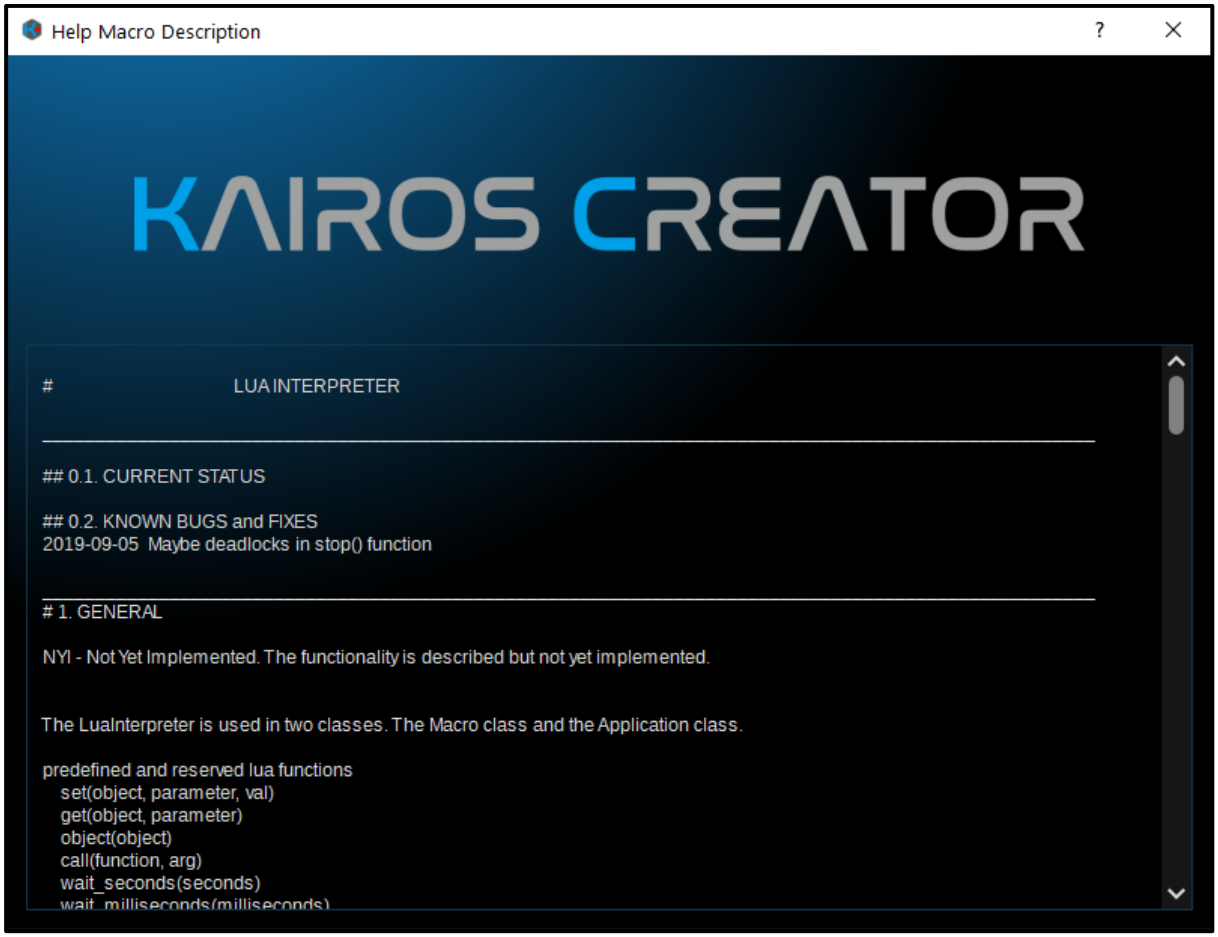
Picture 3.3.6.2.3

Opening Macro “Edit” dialog and clicking on the “Insert Wait” button located in the headline reveals the sub-selection for “Time” with selectable presets in Microseconds (msec) and Seconds (sec). Once a pause (Wait state) gets inserted into a Macro, the numbers can be changed within the editor by simply overwriting and saving them.



Picture 3.3.6.2.4

The sub-selection “Frame” offers selectable presets in Frames. Again, once a pause (Wait state) gets inserted into a Macro, the numbers can be changed within the editor by simply overwriting and saving them.

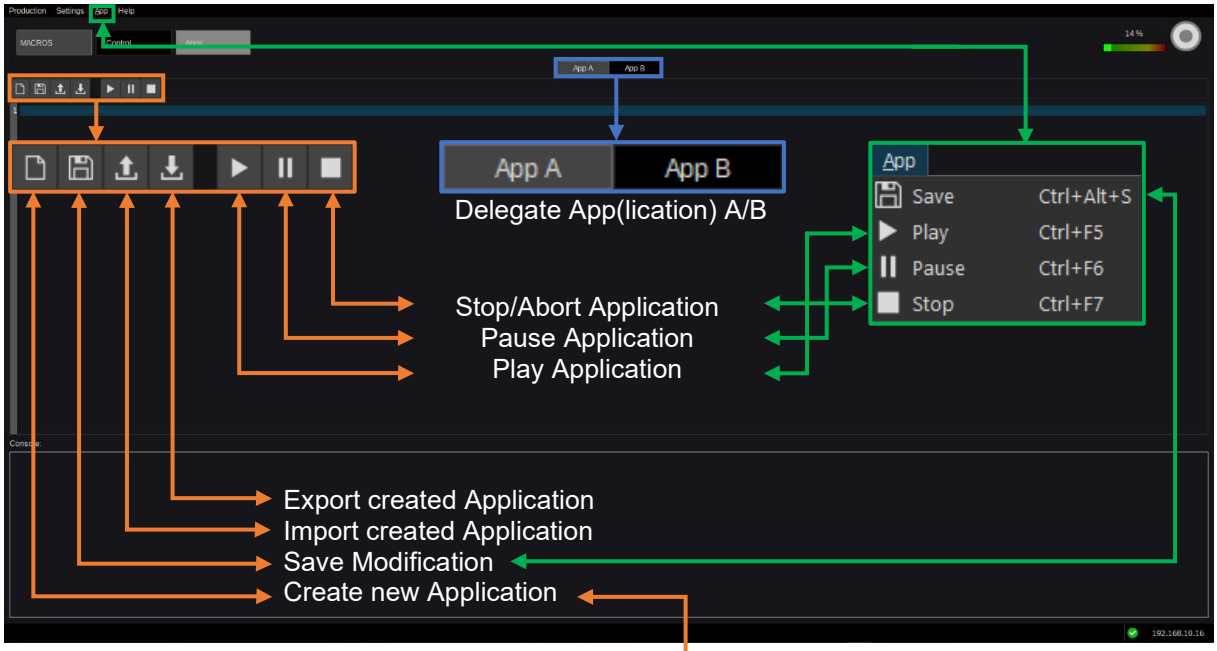


Picture 3.3.6.2.4

When in Macro Edit dialog, the “Help” ? button located in the headline next to the “Insert Wait” button opens the “Help Macro Description.” This “Help” window provides detailed information regarding the level of “LUA” interpreter implementation the Macro editor is based on. Using the slider on the right side in order to navigate through this document.

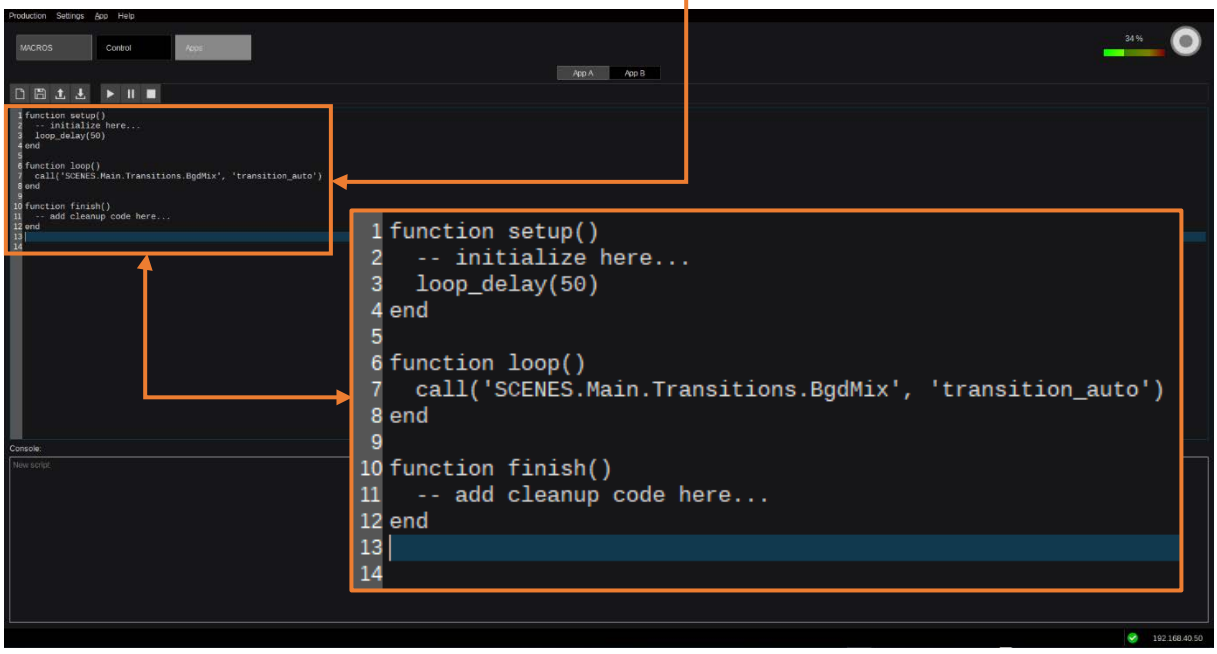
3.3.6.3 Apps

Apps are based on the scripting language LUA. Here, 2 independent scripts can be executed and run in parallel. When saving a production while LUA scripts are running, they will be automatically stored within the production file. By default, this menu page appears empty.



Picture 3.3.6.3.1

Pressing the “Create new” button will load a LUA example into the workspace for practicing purposes.



Picture 3.3.6.3.1

This example will work with all Productions containing a “Scene” in top-level directory named “Main” and a “Transition” called “BgdMix.” Productions created with the built-in wizard, when selecting “Production > New >” (in upper left corner of the GUI), will always provide these 2 elements. For more details regarding the available Production types within the wizard, see section “1.7 Load & Save Production Behavior” on page 13 in this manual.

See next page for more details regarding the LUA script implementation.

Following functions are available additionally to the regular LUA syntax:

Basic functions:

- setup: function is called before the first loop call after running an App.
- stop: executed when the App fails or App has been terminated (after the last loop call).
- loop: function that is executed in a specified cycle when the App is running.

Model access functions:

<object_path> | <object_id>

- set(, ,)
- get(,)
- call(, ,)
- call(,)
- parent( )
- first_child( )
- next_sibling( )
- object( ) # get the ObjectID from a path
- object_type( )
- path( ) # get the path from an ObjectID
- parameters( ) (optional)
- functions( ) (optional)

Note: An Application also provides an AutoStart parameter. If set to 1 (true), the application will be started after production load.

3.3.7 Source Tab Selection

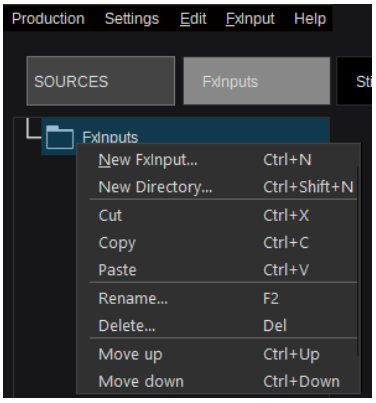
3.3.7.1 FX-Inputs

As previously described in Chapter 1.3 Naming Convention, FX-Inputs can be pre-processed, containing effects such as DVE's, Color Correction, pre-processed Key among others. A source for an FX-Input can be derived from a Physical Input or any internal Source like a Ram Player, Clip Player, Stills, etc.

FX-Inputs can be used to create multiple versions of a source with differing upstream attributes like, for example, an "Overlay" effect (e.g., CG-insert "Coach Cam") or having various color-corrected versions of the same source in parallel. There are numerous use cases for FX-Inputs and many different ways to create them.

To begin, select "FX-Inputs" under the "SOURCES" tab. The default Production has an empty container in the upper left section of the "FX-Inputs" tree labeled "FX-Inputs."

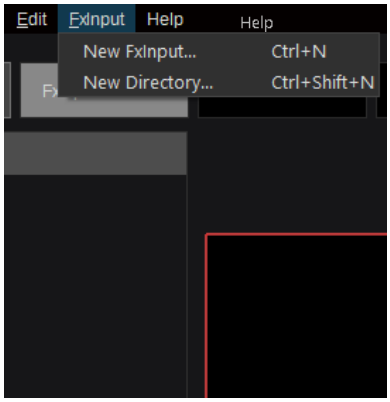
Picture 3.3.7.1.1



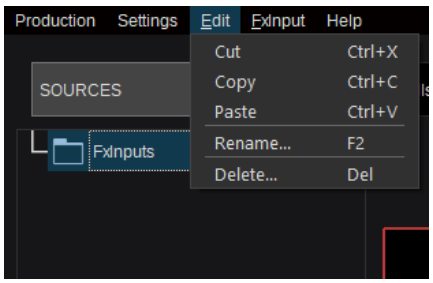
Picture 3.3.7.1.2

To create a new FxInput, right-click on the container icon into which you wish to add an item and select "New FxInput…" from the pop-up menu. Selecting "New Directory…" will create a new directory inside the current one. You can also use the "FxInput" drop-down menu (available with "Alt+F"), or the keyboard shortcuts:

"Ctrl+N" for "New FxInput"
"Ctrl+Shift+N" for "New Directory"



Picture 3.3.7.1.3

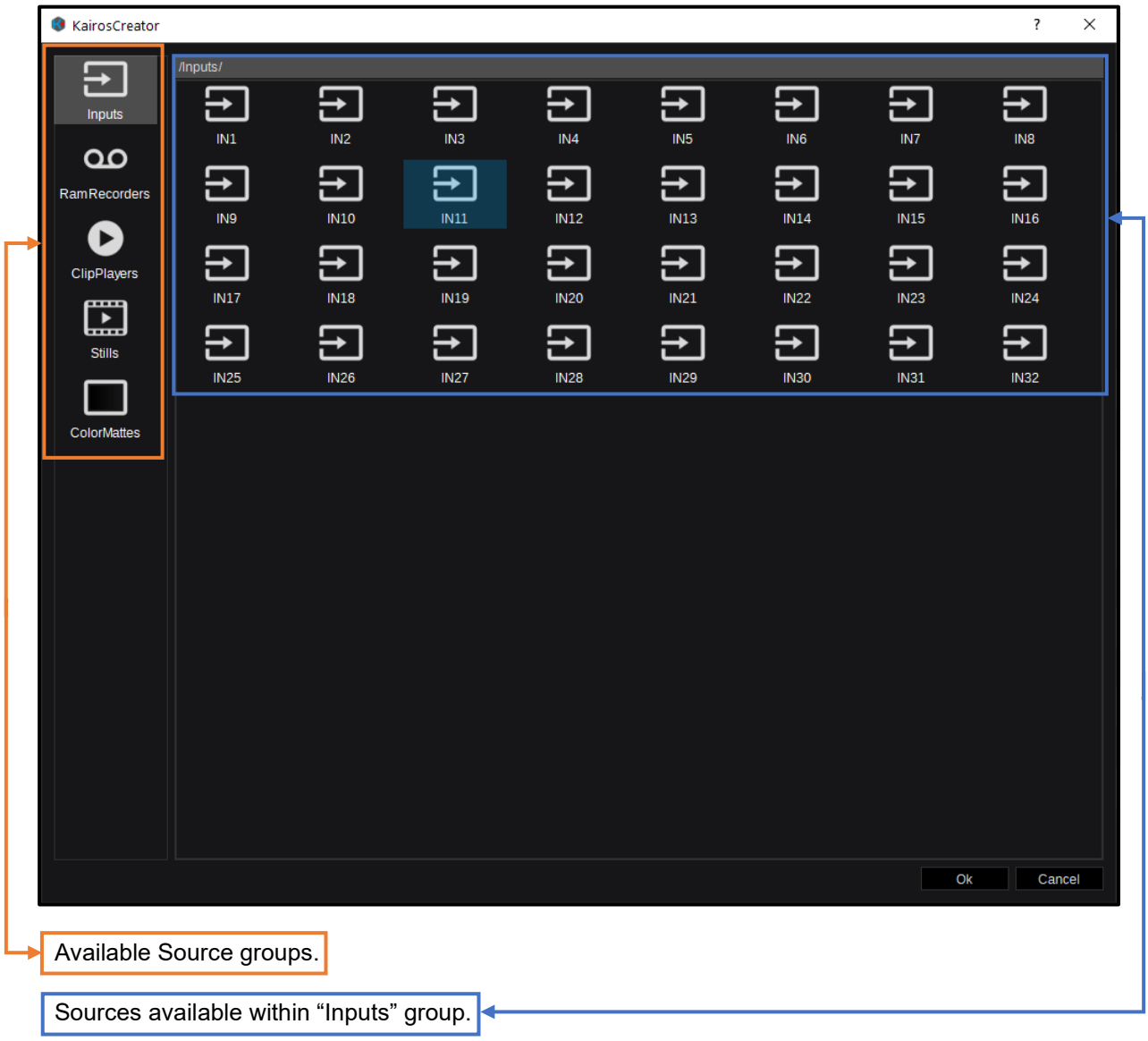


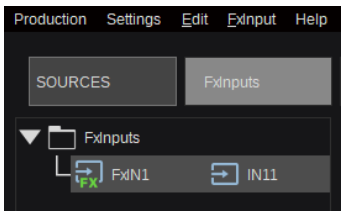
Picture 3.3.7.1.4

Click the "Edit" drop-down menu (picture 3.3.7.1.4) in the menu bar to gain access to the "Cut, Copy, Paste, Rename, and Delete" functions. As in most Windows applications, additional keyboard shortcuts from the "Edit" dialog are:

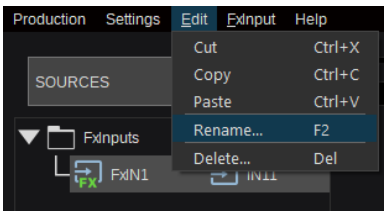
"Ctrl+X" = "Cut"
"Ctrl+C" = "Copy"
"Ctrl+V" = "Paste"
"F2"= "Rename"
"Del" = "Delete"

Creating a “New FX-Input” as described on the previous page in Pictures 3.3.7.1.2 & 3.3.7.1.3 or using the keyboard shortcut “Ctrl+N” will open a pop-up window for further selection (see section “3.2.1 Source/Input Selection”).

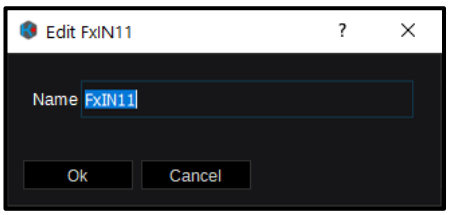




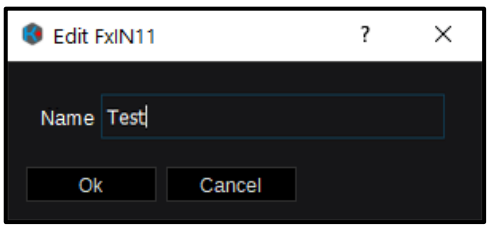
Picture 3.3.7.1.6



Picture 3.3.7.1.7

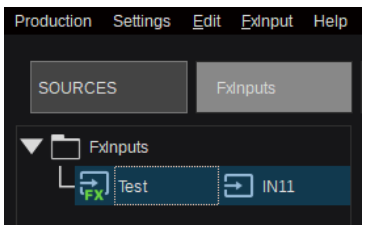


Picture 3.3.7.1.8



Picture 3.3.7.1.9

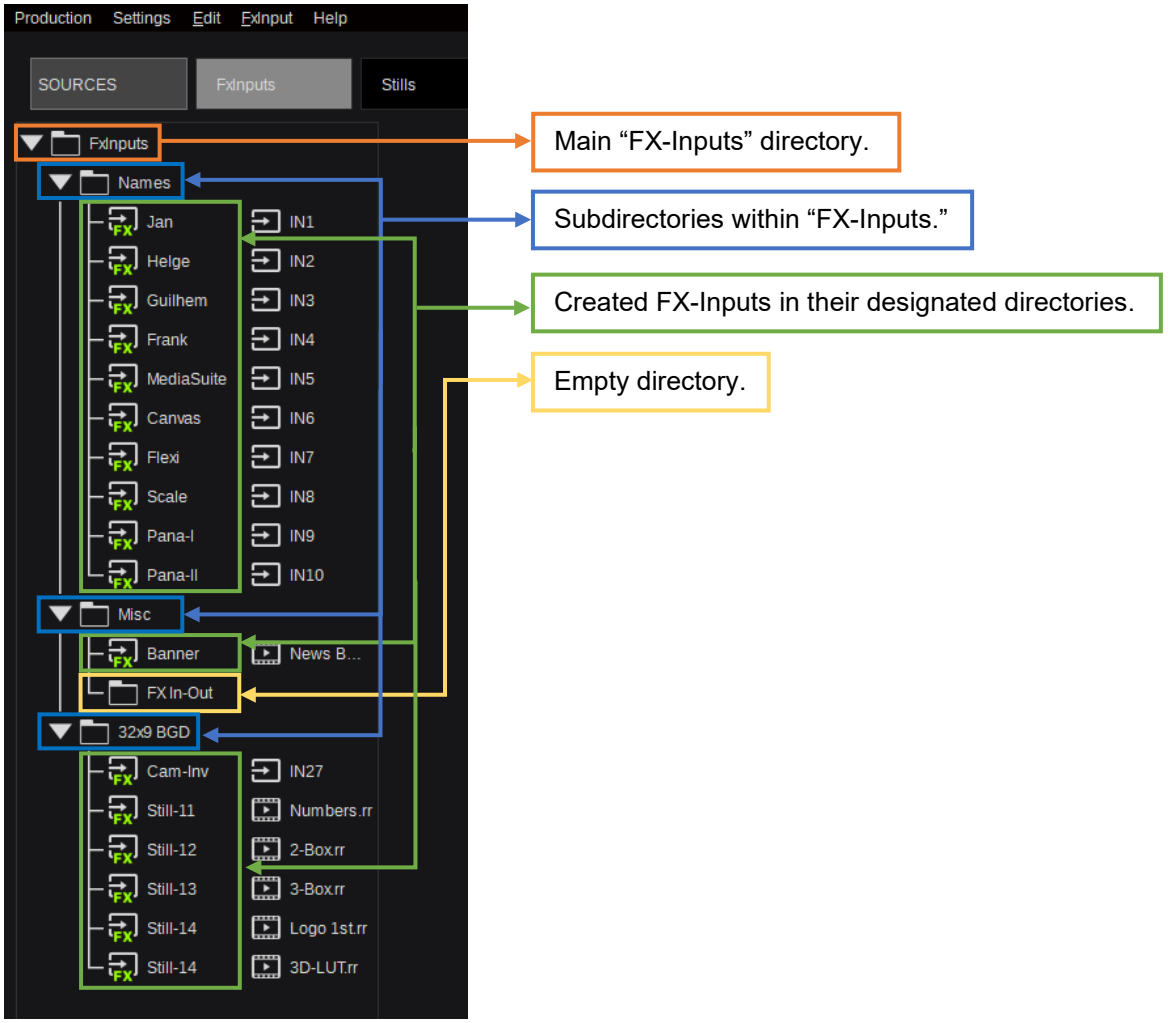
Rename with the “F2" keyboard shortcut or the pop-up/drop-down dialog as shown in the picture. Click “OK” to confirm and “Cancel” to abort without changing the name.



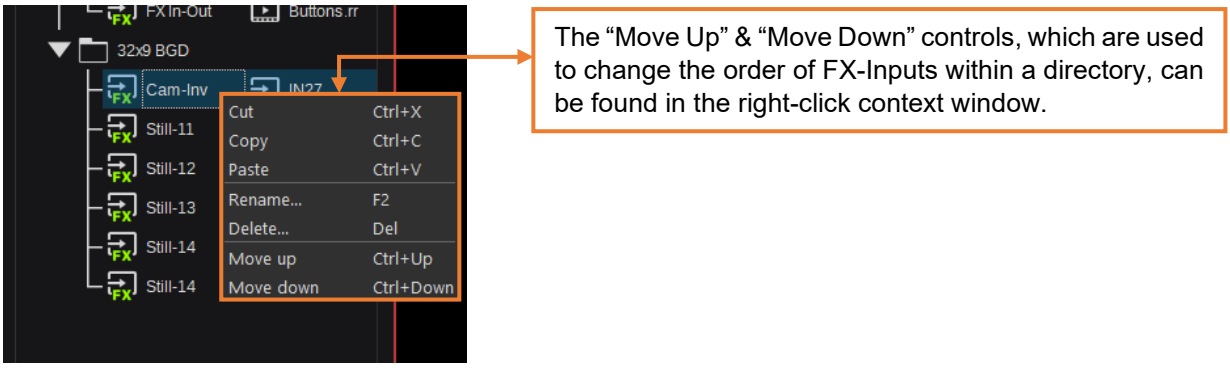
Picture 3.3.7.1.10

Note: For more detailed information, look at section “3.2.1 Source/Input Selection” starting on Page 21.

Here is an example with multiple directories of FX-Inputs:



Picture 3.3.7.1.11

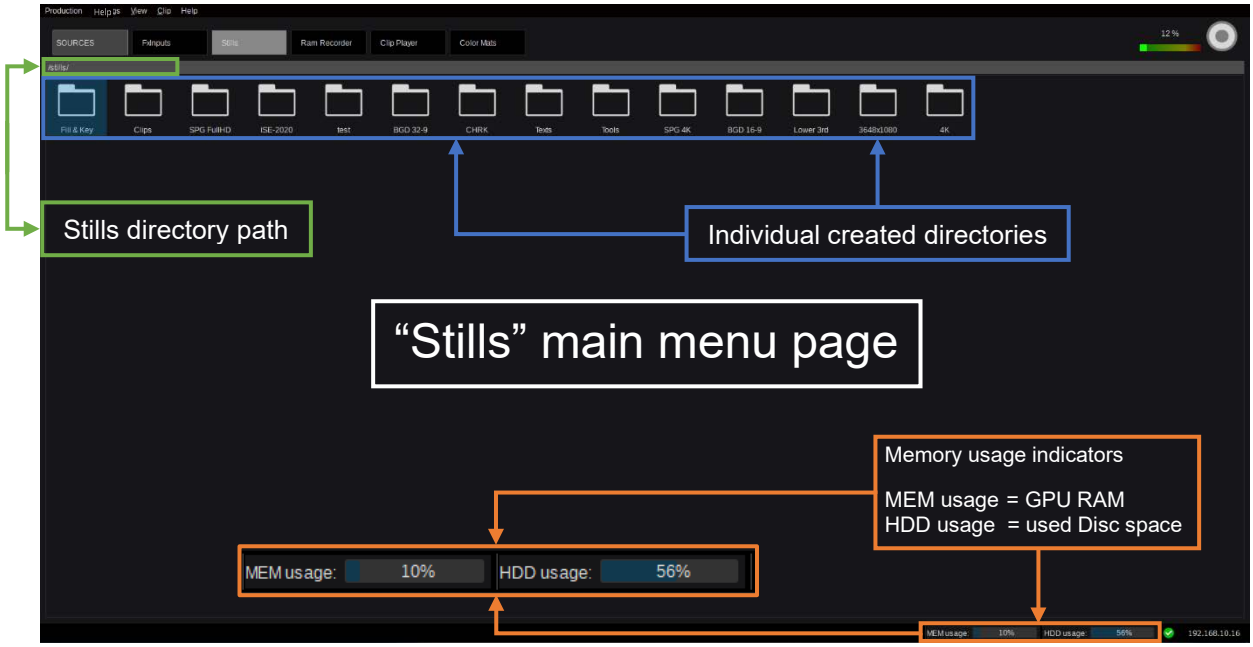


Picture 3.3.7.1.12

Note: In order to apply any modifications/effects to an FX-Input, use the same controls as previously described in section “3.3.3.2 Scenes” starting on Page 29 of this manual.

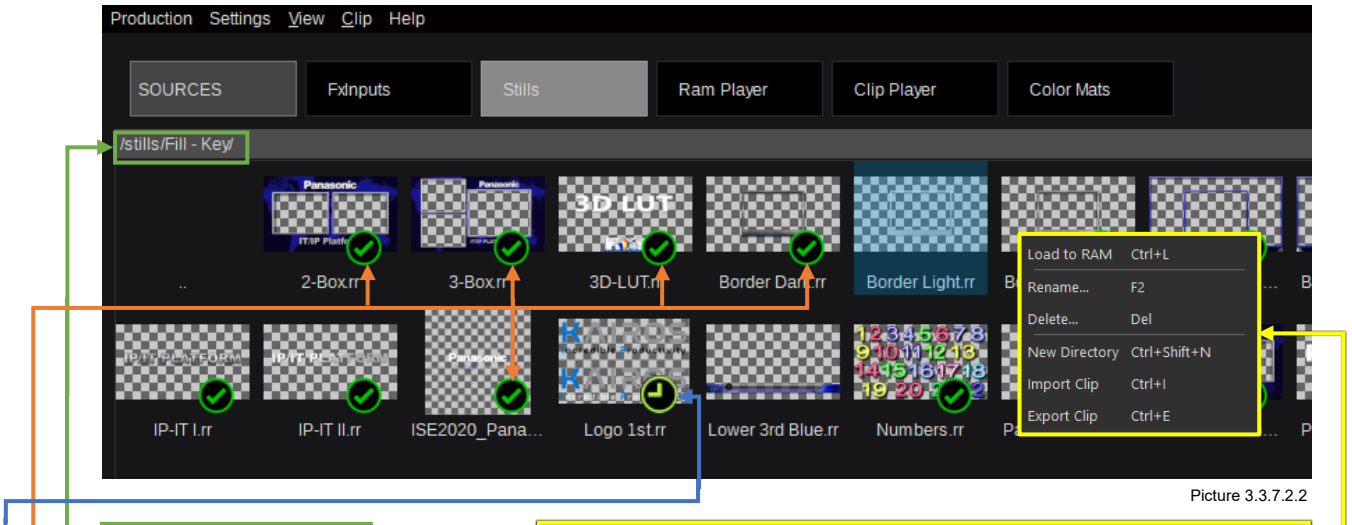
3.3.7.2 Stills

Note: Kairos Standard version supports a maximum of 4K-resolution only.



Picture 3.3.7.2.1

Opening the first folder where cursor focus is on "Fill & Key" by left mouse double-click on it. A thumbnail preview is generated per "Still" regardless if a Still is loaded into RAM or not. When a Still contains an Alpha-Channel (Key-Signal), the designated thumbnail is indicating a "Checkerboard" background.



Picture 3.3.7.2.2

Stills directory path

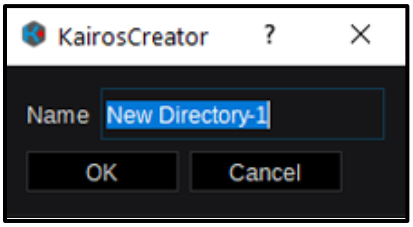
Stills loaded to RAM

Still loading to RAM in progress

Right mouse-click context menu, allowing selected Still to "Load to RAM." When selecting a Still, which is already loaded to RAM, the very first entry in the context menu will change to "Unload from RAM". Select a Still in order to "Rename" or "Delete" it. To create a new folder, use "New Directory," which will open a new pop-up window (Picture 3.3.7.2.3), asking for a new directory. Additional keyboard shortcuts are:

"Ctrl+L" = "Load to RAM"	"Ctrl+Shift+N" = "New Directory"
"F2" = "Rename"	"Ctrl+I" = "Import Clip"
"Del" = "Delete"	"Ctrl+E" = "Export Clip"

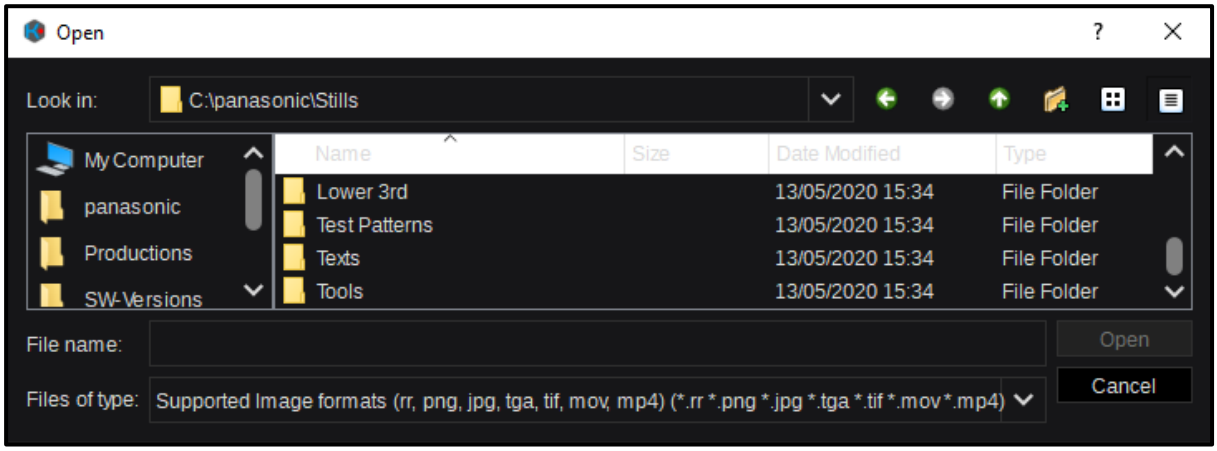
New Directory:



Picture 3.3.7.2.3

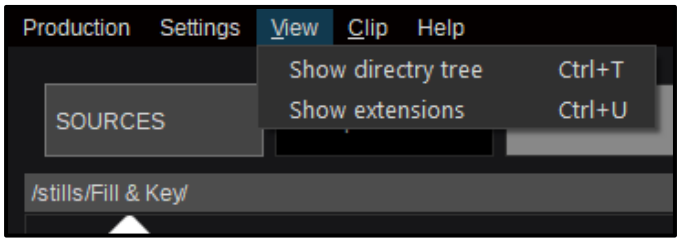
Note: Stills that are not loaded into RAM will not be visible in any of the "Source/Input" selection menus.

The “Export” or “Import” of a Still will open a file directory browser within the GUI to get the desired file location. When exporting a Still, the format will be the internal “*.rr” file format. When importing an image, the “rr”, “png”, “jpg”, “tga” and “tif” file formats are supported.

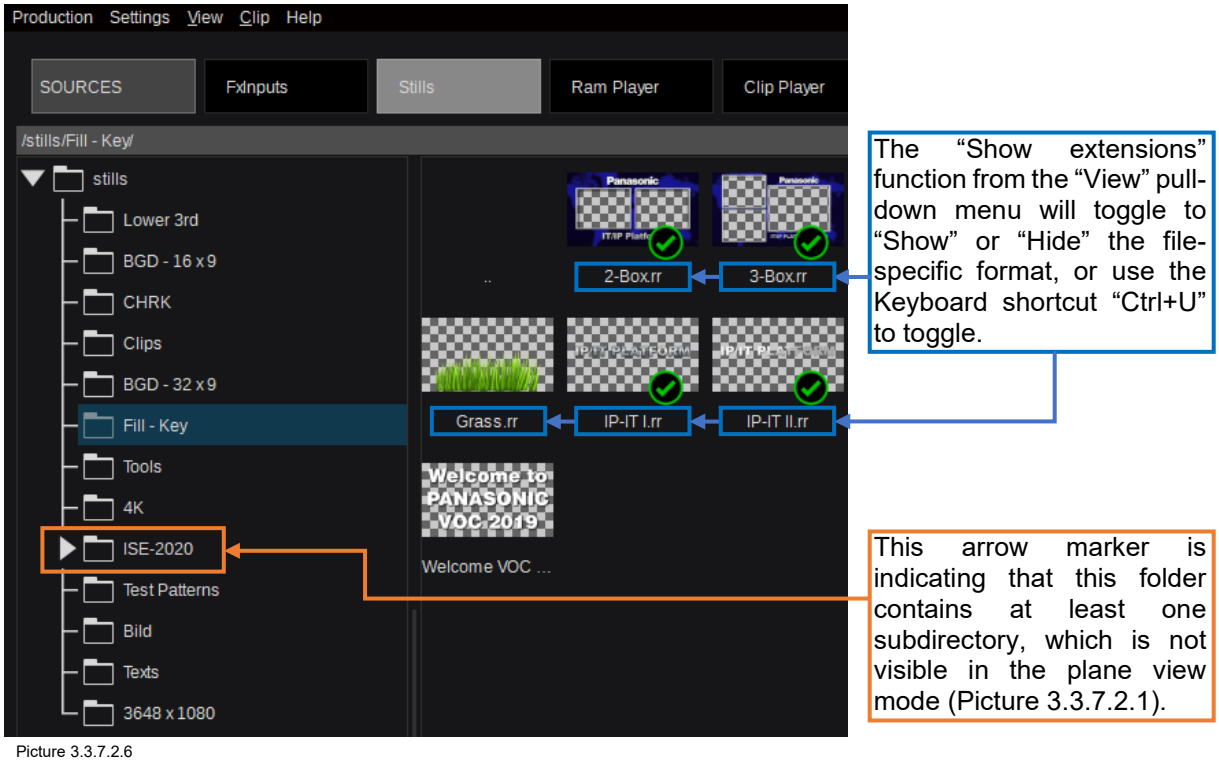


Picture 3.3.7.2.4

Use “show directory tree” from the “View” pull-down menu in the menu bar or the Keyboard shortcut “Ctrl+T” to show or hide the directory tree on the left of the Stills page (Picture 3.3.7.2.6 on page 71).



Picture 3.3.7.2.5



The “Show extensions” function from the “View” pull-down menu will toggle to “Show” or “Hide” the file-specific format, or use the Keyboard shortcut “Ctrl+U” to toggle.

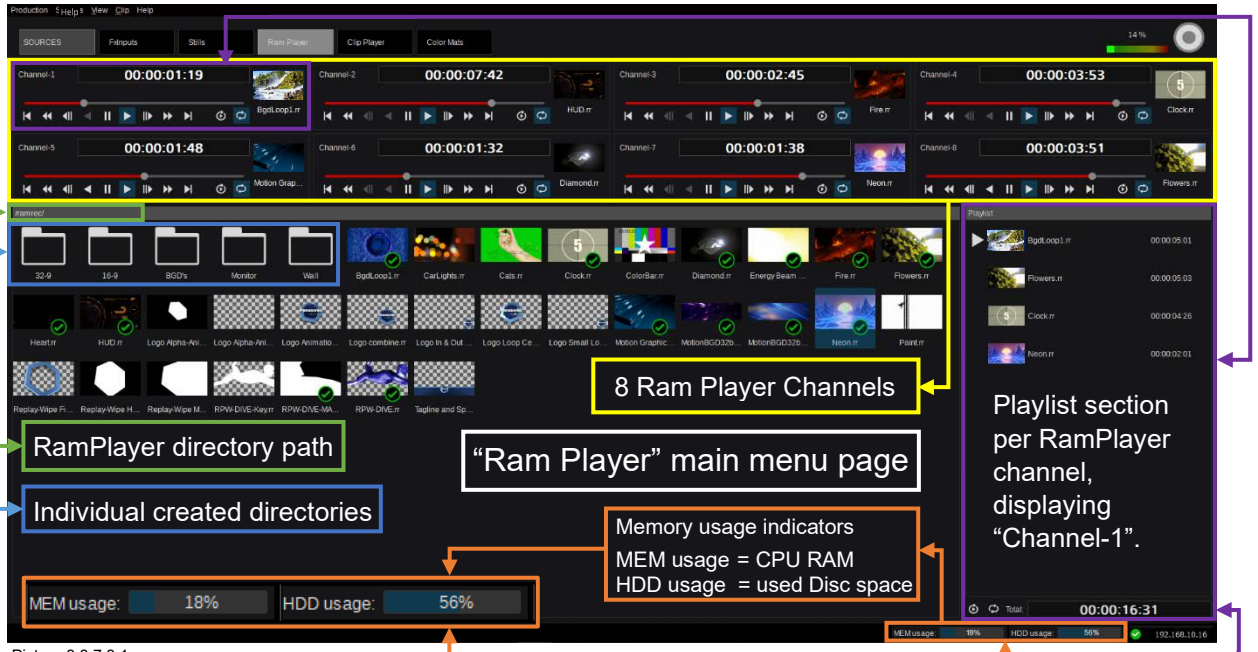
This arrow marker is indicating that this folder contains at least one subdirectory, which is not visible in the plane view mode (Picture 3.3.7.2.1).

Picture 3.3.7.2.6

Note: When “Stills” contain an Alpha-Channel (Key-Signal), the designated thumbnails display a “Checkerboard” background.

3.3.7.3 Ram Player

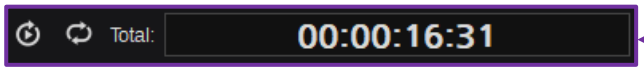
Note: Kairos Standard version supports a maximum of 2K-resolution only.



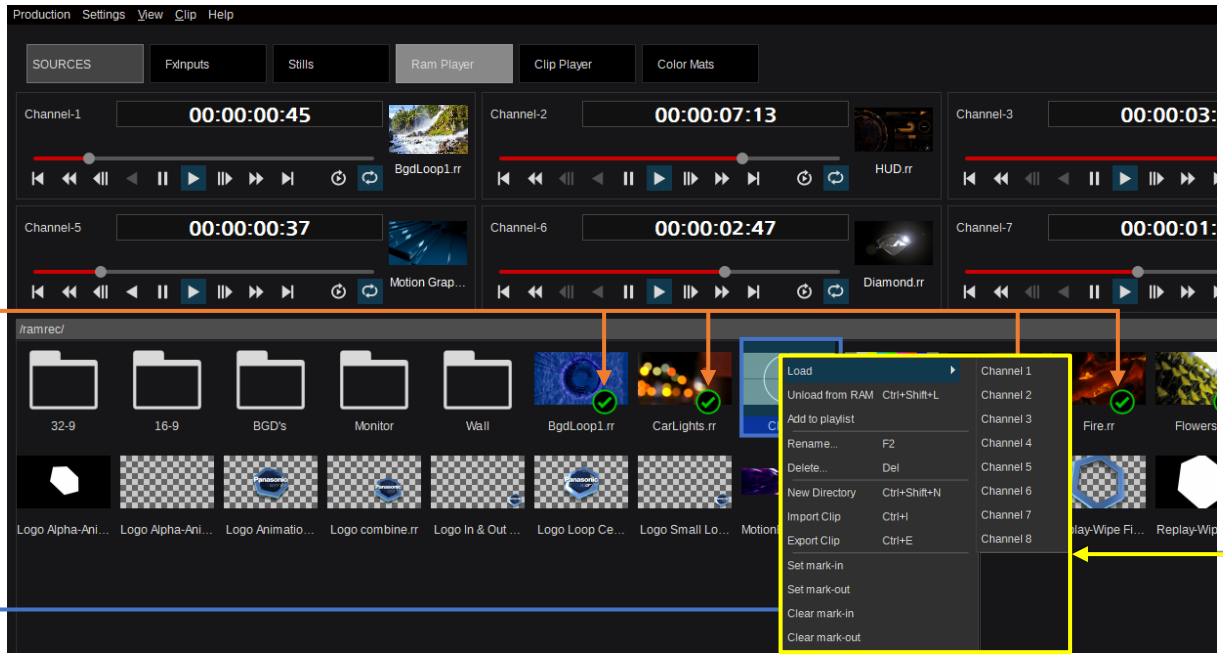
Picture 3.3.7.3.1

= Autoplay next item in Cliplist On/Off

= Loop Cliplist On/Off



Playmodes and total length of elements in Cliplist



Picture 3.3.7.3.2

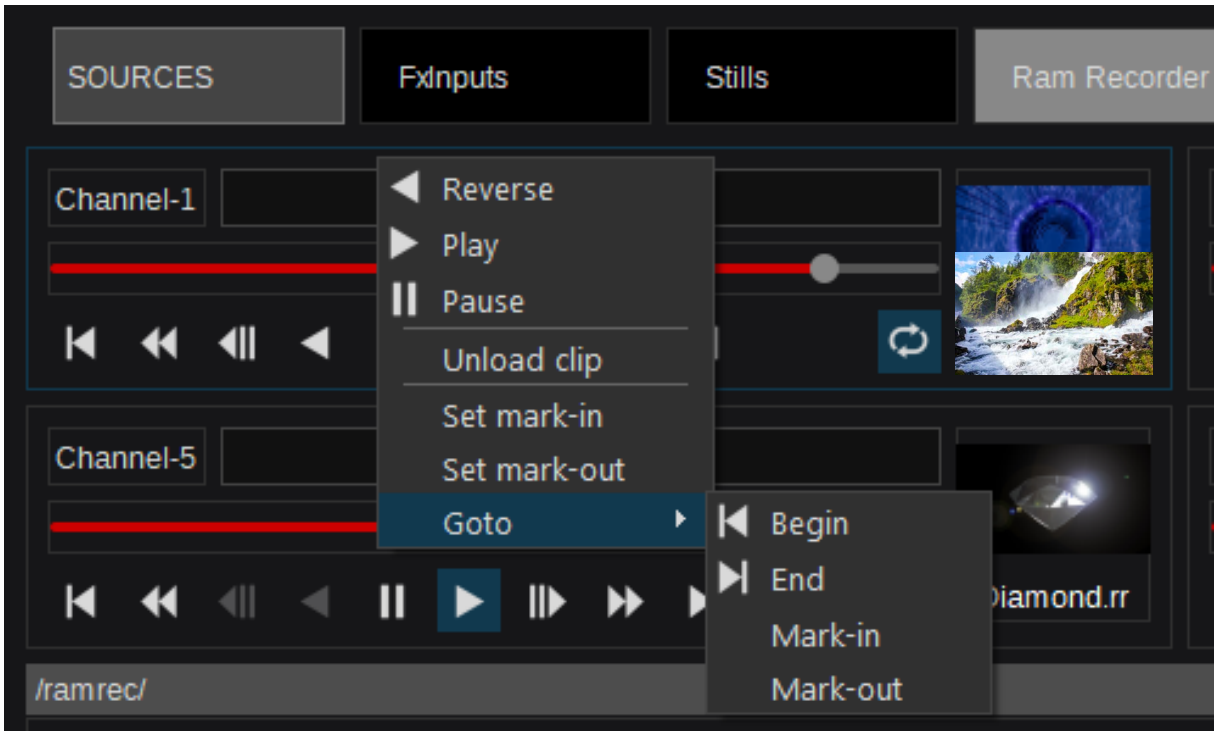
Clips loaded to RAM

Clip loading to RAM in progress with according progress-bar

Right mouse-click the context menu, allowing a selected Clip to "Load to RAM," or select and hold with a left mouse-click and drag it into the designated Channel area. When selecting a Clip which is already loaded to RAM, the context menu will change to "Unload from RAM." A Clip already loaded into RAM can be directed to one of the 8 playout Channels using "Load" and picking Channel 1-8 from the list. Select a Clip in order to "Rename" or "Delete" it. To create a new folder, use "New Directory" as already explained in the "3.3.7.2 Stills" section on page 70 in this manual. A new Clip can be imported ("Import Clip") or an existing Clip exported ("Export Clip"). The functions "Set mark-in/-out" & "Clear mark-in/-out" will be explained on the next page. Additional keyboard shortcuts are:

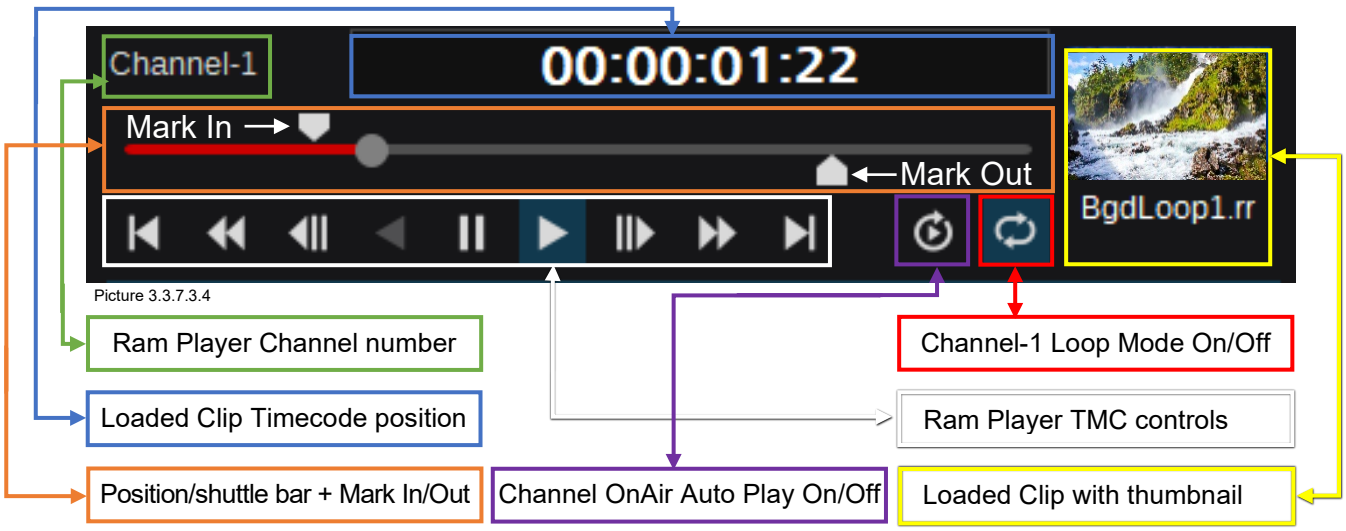
"Ctrl+L" = "Unload from RAM" "F2" = "Rename" "Del" = "Delete"
"Ctrl+Shift+N" = "New Directory" "Ctrl+I" = "Import Clip" "Ctrl+E" = "Export Clip"

Note: The thumbnails of the displayed Clips represent the center frame of the Clip. When a Clip contains an Alpha-Channel, the designated thumbnail is indicating a “Checkerboard” background. Thumbnails are generated per “Clip” whether a Clip is loaded into Ram or not.



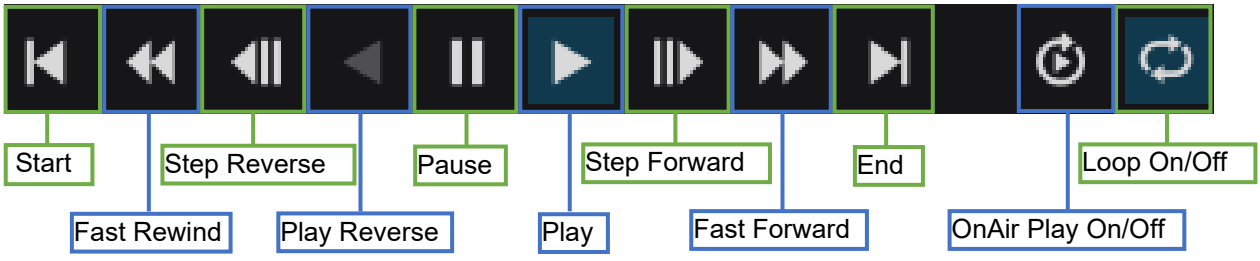
Picture 3.3.7.3.3

“Set mark-in,” “Set mark-out,” “Clear mark-in,” & “Clear mark-out” are Clip-specific functions available in the Clip-context menu (Picture 3.3.7.3.2) as well as in the Channel-context menu (Picture 3.3.7.3.3) and are saved as Metadata per Clip. The “Set mark-in” & “Set mark-out” functions can be used in order to trim a Clip regarding Start-time (TC) and/or End-time (TC).
The “Goto” function can address specific Clip position as listed “Begin,” “End,” “Mark-in (TC),” & “Mark-out (TC).” The Channel-context menu additionally provides TMCs (Tape Motion Controls) for “Play,” “Reverse Play,” & “Stop.”



Picture 3.3.7.3.4

Ram Player TMCs:

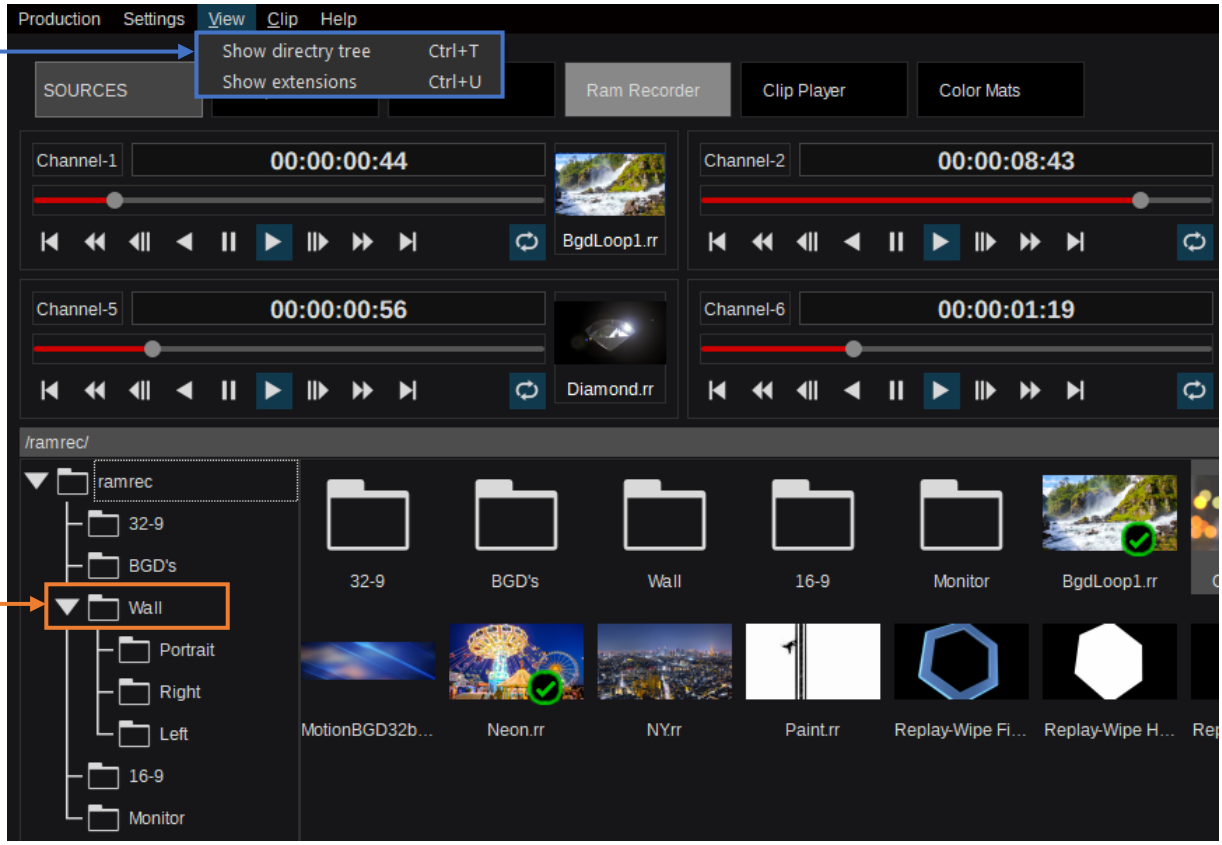


Picture 3.3.7.3.5

Loading a single Clip into a Ram Channel represents a Cliplist which contains only 1 Clip. Dragging and dropping various Clips into the Cliplist area of a particular Ram Channel will grow the list accordingly. When selecting (Cursor focus) a Clip in the Cliplist area, use “Del” on the keyboard in order to remove it from the list or use the keyboard shortcut “Ctrl+arrow up/down” to change the order of the Clip within the list. Apart from these controls, the right mouse-click menu also allows to “Clear” the whole Cliplist per selected Channel (see picture 3.3.7.4.2 in section “3.3.7.4 Clip Player” page 75 in this manual).

Note: When using the “Set mark-in / Set mark-out” function in order to restrict the active playout length of a loaded Ram-Clip, regardless of whether the Loop mode is turned On or Off, keep in mind that the “Mark-In” timecode belongs to the clip and the “Mark-Out” timecode – similar to editing systems – does NOT.

Like in chapter “3.3.7.2 Stills” (Picture 3.3.7.2.4), selecting “show directory tree” from the “View” pull-down menu in the menu bar (here Picture 3.3.7.3.5), or using the Keyboard shortcut “Ctrl+T,” show or hide the directory tree on the left of the Clip Browser. Compare below with Picture 3.3.7.2.6 (from page 71 in this manual).

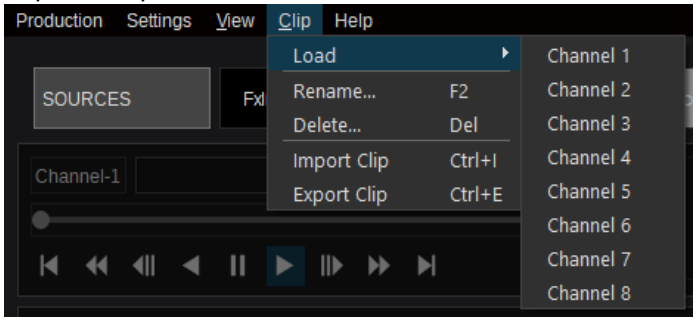


Picture 3.3.7.3.6

The arrow marker at the “Wall” directory is indicating that this folder contains at least one more subdirectory (3 in this case), which is not visible in the plane view mode (Picture 3.3.7.3.2).

The “Show extensions” function from the “View” pull-down menu will toggle to “Show” or “Hide” the file-specific format, or use the Keyboard shortcut “Ctrl+U” to toggle.

The “Export” or “Import” of a Clip will open a file browser within the GUI to get the desired file location. When exporting a Clip, the format will be the internal “*.rr” file format. When importing a Clip, the supported file formats are image sequences from “png”, “jpg”, “tga”, “tif” and clips originated from “mov”, “mp4” or exported “rr” files.



Picture 3.3.7.3.7

The “Clip” pull-down menu allows to direct a selected clip straight into one of the 8 available Ram Player Channels, using the “Load” item and picking a Channel 1-8 from the list. Select a Clip first in order to “Rename” or “Delete” it. To create a new folder, use “New Directory” as already explained on page 72 in “Right mouse-click the context menu” (Picture 3.3.7.3.2). New Clips can be imported (“Import Clip”) and existing Clips can be exported (“Export Clip”).

Note: Clips that are not loaded into RAM will not be visible in any of the “Source/Input” selection menus.

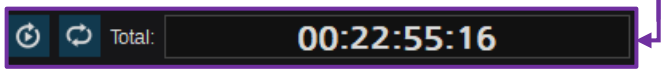
3.3.7.4 Clip Player

Note: Kairos Standard version supports a maximum of 2K-resolution only.

Picture 3.3.7.4.1

= Autoplay next item in Cliplist On/Off

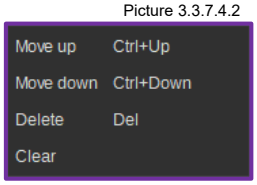
= Loop Cliplist On/Off



Playmodes and total length of elements in Cliplist

Right mouse-click context menu for selected Clip in Playlist.

Picture 3.3.7.4.2



= Move selected item Playlist item in the "Up" direction.

= Move selected item Playlist item in the "Down" direction.

= Delete selected item from Playlist.

= Clear entire Playlist for selected Channel.

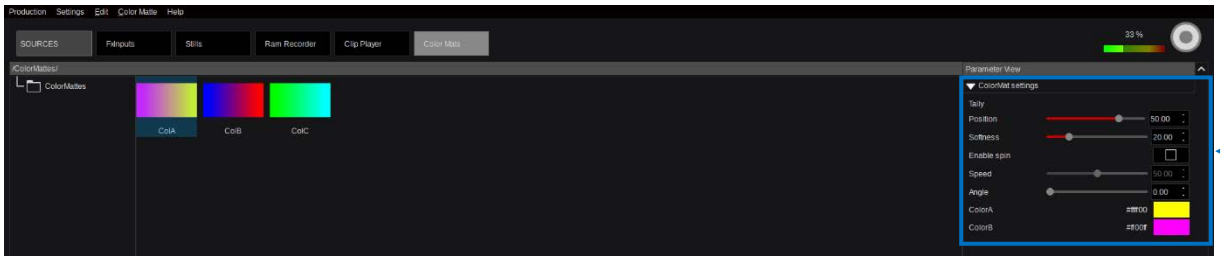
Timecodes in the "Clip Player" menu are typically displayed in "White." When there are less than 10 seconds left, the display changes into the "Yellow" color (Attention). When below 5 seconds, the TC will turn "Red" (Warning). The "View" function in the "Clip Player" menu, as for the "Stills" & "Ram Player" menus, can be delegated/toggled between a "Plane" or "Tree" view. Picture 3.3.7.4.1 above shows the "Directory Tree" view.

As already described in section "3.3.7.3 Ram Player," the keyboard shortcut "Ctrl+T" toggles between the 2 styles or by using the "View" pull-down menu in the upper left corner of the Kairos Creator menu. The "Show extensions" function from the "View" pull-down menu will toggle to "Show" or "Hide" the file-specific format, or use the keyboard shortcut "Ctrl+U" to toggle (see picture 3.3.7.3.6 on page 74).

All TMCs (except Play Reverse), Playmodes, and Channel handlings are identical to the former described Ram Player controls (see section "3.3.7.3 Ram Player"). Unlike the Stills and Ram Player Clips which have to be loaded into the RAM memory first, the Clip Players perform a "live" decompressed playback from the internal server disk. No additional operation in terms of conversion is required.

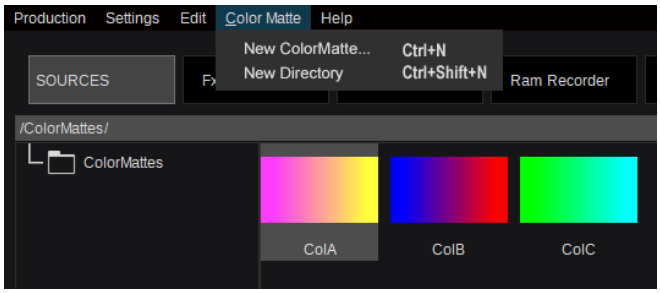
Note: Like in "Ram Player" menu, the thumbnails of the displayed Clips are representing the center frame of the Clip.

3.3.7.5 Color Mattes



Picture 3.3.7.5.1

These three colors are available by default in the Color Mattes tab. In order to create a new Color Matte, use the “Color Matte” drop-down menu in the upper left corner.



Picture 3.3.7.5.2

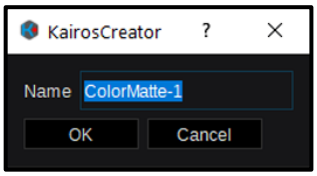
Selecting “New ColorMatte” for a new Color, or “New Directory,” to create one or several sub-folders.

Also, these keyboard shortcuts can be used:

“Ctrl+N” = “New ColorMatte”

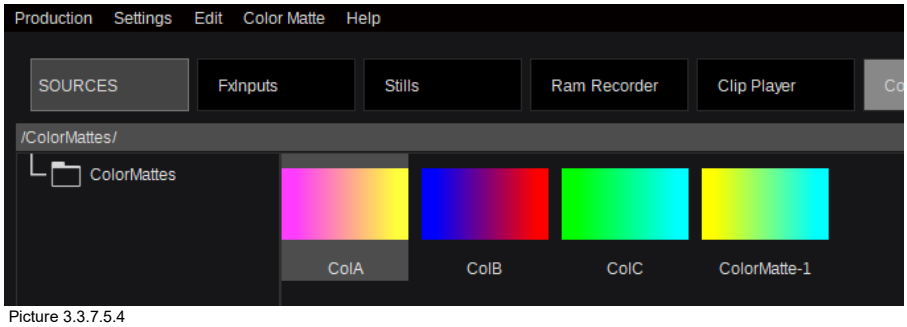
“Ctrl+Shift+N” = “New Directory”

When selecting “New ColorMatte”:

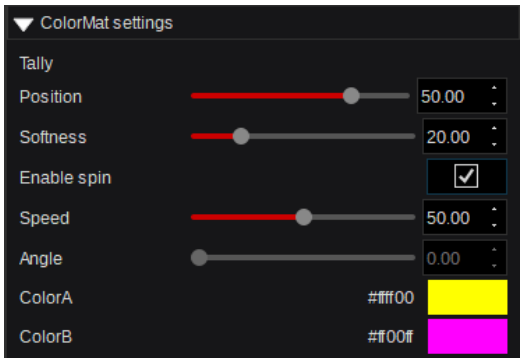


Picture 3.3.7.5.3

A pop-up window appears to enter a name for the “ColorMatte-1.” After entering the name and confirming with “OK,” the new Matte will be added to the list. “Cancel” will abort the dialog.



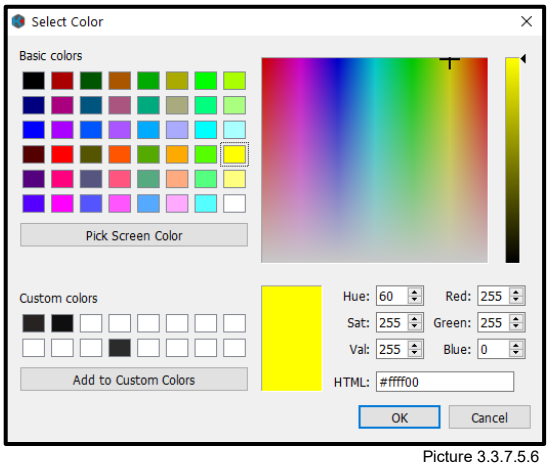
Picture 3.3.7.5.4



Picture 3.3.7.5.5

The “ColorMat Settings” items are:

Tally: On/Off (Color) when visible on designated output.
Position: relative “Wash” position related to the “Angle” settings.
Softness: Wash-softness between “ColorA” & “ColorB.”
Enable Spin: Activates the “Speed” control and disables “Angle.”

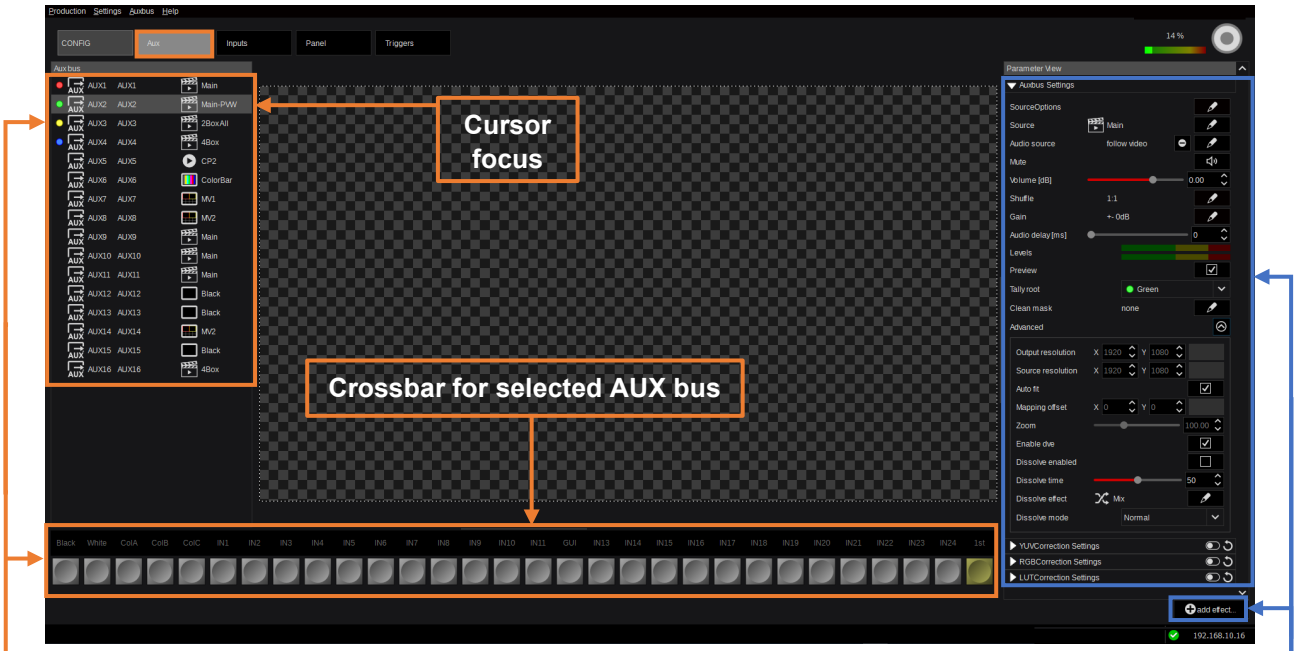


Picture 3.3.7.5.6

ColorA/B: Pick color pattern to adjust/select color tone. For more details regarding Color controls, please refer to section “3.2.3 Color Adjustments” on page 22.

3.3.8. Config Tab Selection

3.3.8.1 Aux

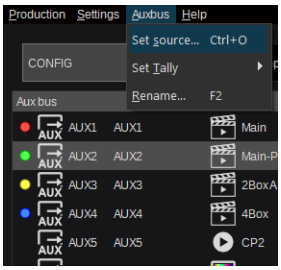


Picture 3.3.8.1.1

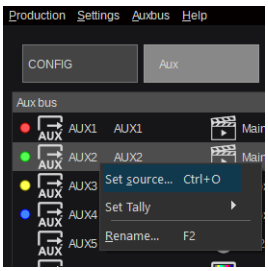
Aux-2 in cursor focus, indicating “Green”-Tally . Crossbar can be used for instant “Source-selection.”

Parameter selection per Aux-Bus under “Parameter View” in “Auxbus Settings” and “add effect...”

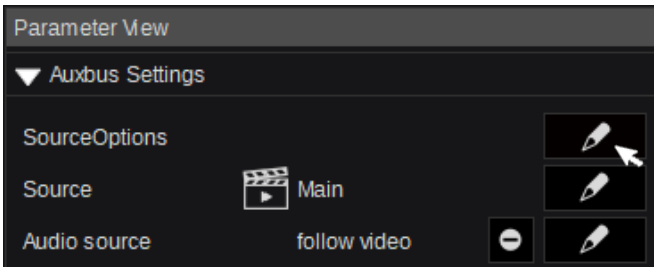
There are 5 methods to change a source for an Aux-Bus:



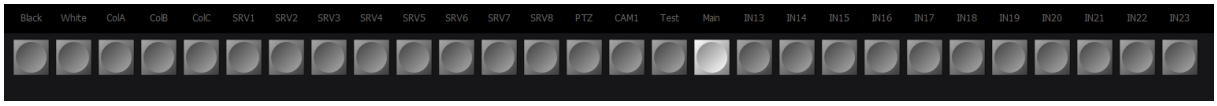
Picture 3.3.8.1.2



Picture 3.3.8.1.3



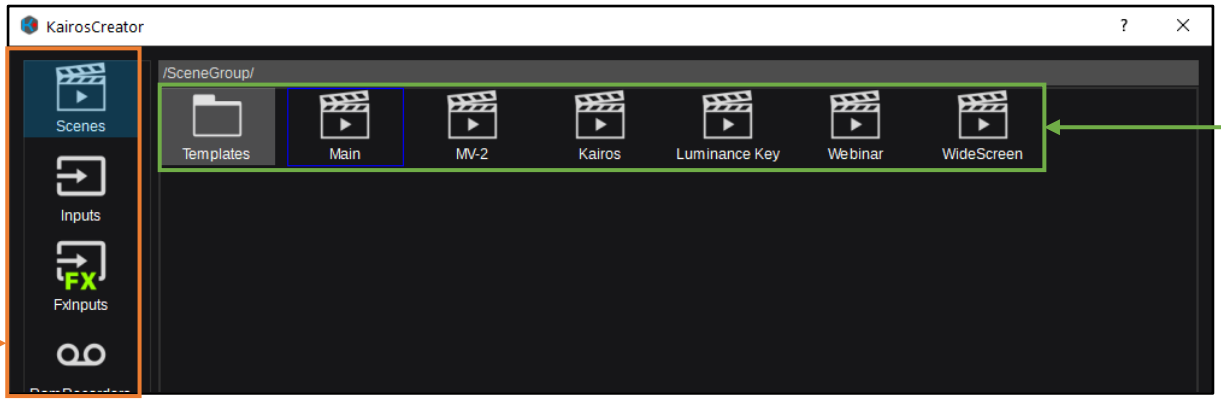
Picture 3.3.8.1.4



Picture 3.3.8.1.5

1. The Aux-Bus drop-down menu in the Kairos Creator menu bar (Picture 3.3.8.1.2),
2. Right-click the selected Aux-bus for a pop-up menu (Picture 3.3.8.1.3),
3. Click the “Set…”-source button in the “Parameter View” GUI section (Picture 3.3.8.1.4),
4. Click the graphic “Crossbar” section at the bottom of the GUI menu (Picture 3.3.8.1.1),
5. Use the “Ctrl+O” keyboard shortcut.

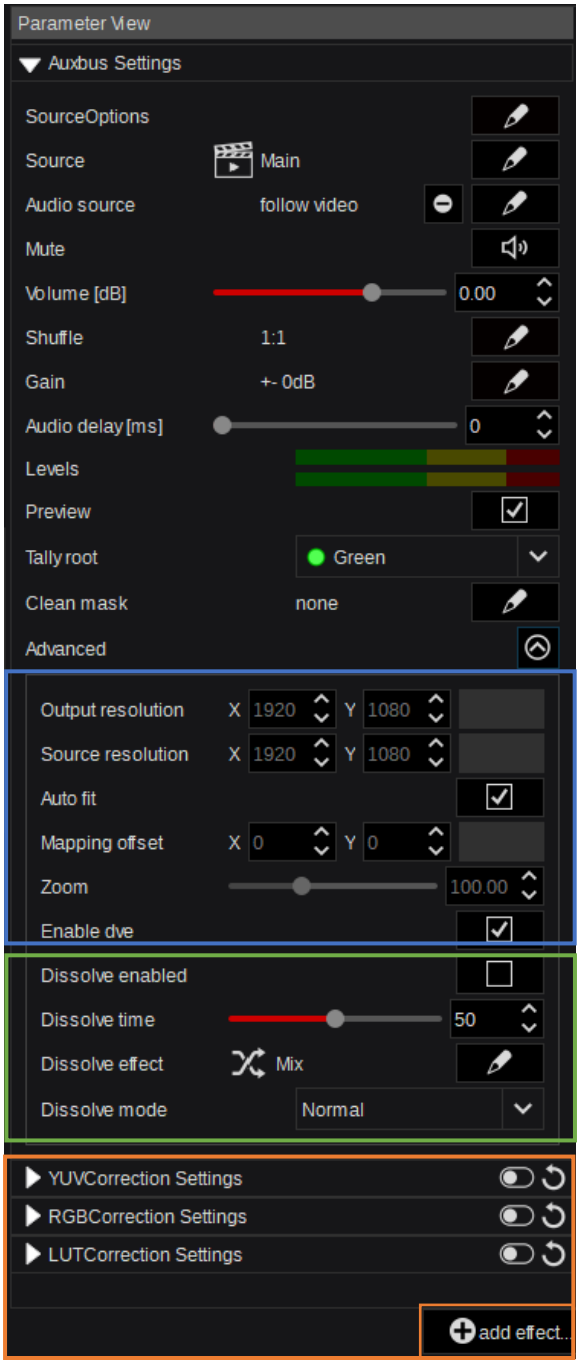
The Input selection dialog will come up next, except when using method 4 (graphic crossbar selection) as already described in section “3.2.1 Source/Input Selection” starting on Page 21.



Picture 3.3.8.1.6

List of existing Input groups. Cursor focus on “Scenes” group.

Available sources in “Scenes” group. Actual selection for Aux-2 = “Main” (surrounded with blue border).

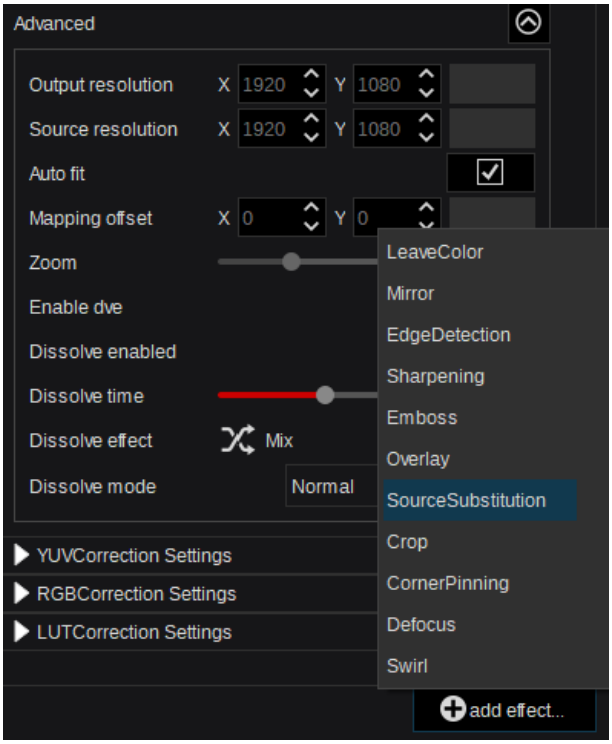


Picture 3.3.8.1.7

For more details see individual sections.

Define selectable Sources per Auxbus (page 21).
Select Source dialog for designated bus (page 21).
Select “Audio source” for designated bus (page 57).
Audio On/Off (“Mute”) for selected Auxbus.
“Volume” control per Auxbus.
Open Channel “Shuffle” dialog (page 48).
“Gain” control for selected Auxbus (page 49).
Adjust “Audio Delay” per Auxbus (page 48).
Audio Metering for designated bus.
“Preview” On/Off per Auxbus LAH-PVW (page 29).
Define Tally signalization.
Enable/Disable single or various “Clean Mask”-Bits (1-8) per Auxbus. The “Clear” function will disable all selections at once. See the next page for details.
“Output resolution” displays the defined “Output Settings” for a selected Auxbus. “Source resolution” identifies the selected Scene resolution settings. “Auto fit” On/Off controls whether or not a selected Auxbus source is auto-scaled in order to fit the specified “Output resolution.” When “Auto fit” is turned Off, the “Mapping offset” & “Zoom” controls are activated to allow positioning and sizing of the selected source within the output canvas. “Enable dve” deactivated will disable all DVE style effects from the selected Auxbus in order to maintain minimum latency.
“Dissolve enabled” (time, effect, & mode) behaves as already described for “Advanced” settings on page 32 in this document (Picture 3.3.3.2.13).
A list of default effects for instant use and additional effects when selecting “⊕ add effect.” See the next page for details.

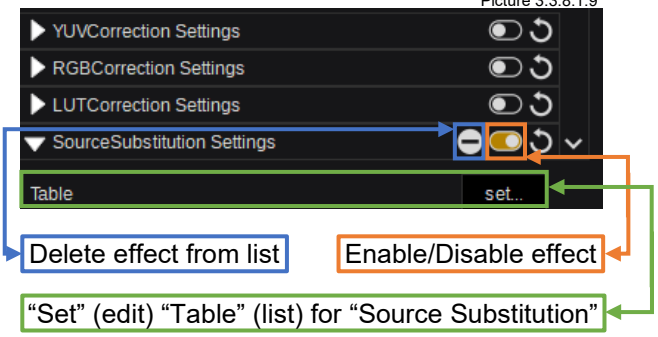
“Source Substitution” is typically used in order to replace a single source or even multiple sources from a designated Auxbus (output). The function can be used, for example, to replace a “Helicopter” shot with a regular wide-angle camera shot. It can also substitute a channel of character generator using an international language instead of the local national language. There are various ways to utilize “Source Substitution” also to avoid visual feedbacks when, for example, the “On-Air” camera is shooting the “Video-wall” where “Main-PGM” is the selected source.



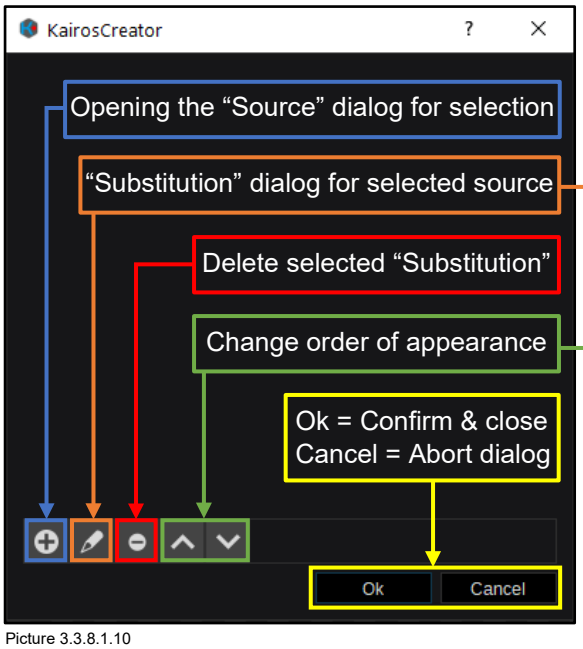
Picture 3.3.8.1.8

When pressing the “add effect” button in the lower right corner of the Aux menu, a pop-up window appears (as in the Layer- or FxInputs menu), enabling selection of additional effects and adding them to the default effects list. Apart from “Source Substitution,” various other effects are available.
Selecting “Source Substitution” will add the effect to the list:

Picture 3.3.8.1.9

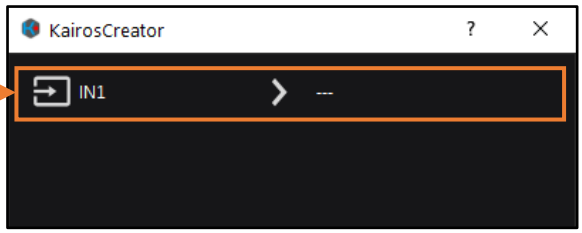


Setting up a list for “Source Substitution” when clicking on the “set…” button right next to “Table” which will open a new dialog box.



Picture 3.3.8.1.10

Picture 3.3.8.1.11



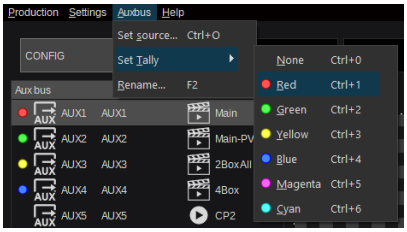
In this example, “IN1” was selected to be substituted by “CP1” and “IN2” will be substituted by “CP2.”
However, all sources such as Inputs, Scenes, RamPlayers, Stills, Gfx, FxInputs, etc. are selectable for substitution.

Picture 3.3.8.1.12

Note: Once “Source Substitution” is enabled, Kairos will replace the selected crosspoints “on the fly” according to the substitution “Table,” regardless of which Layer might appear, and also which effect is used to make them visible.

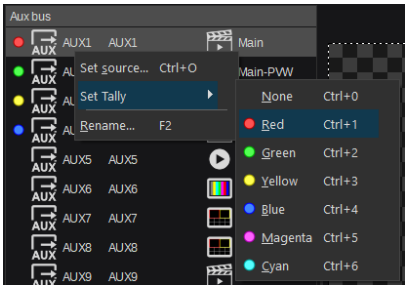
3.3.8.1.1 Tally

There are 3 methods to assign Tally signaling for Aux-Buses/Outputs:



Picture 3.3.8.1.1.1

1.) “Auxbus” drop down menu.



Picture 3.3.8.1.1.2

2.) Right mouse-click context menu.

Picture 3.3.8.1.1.3

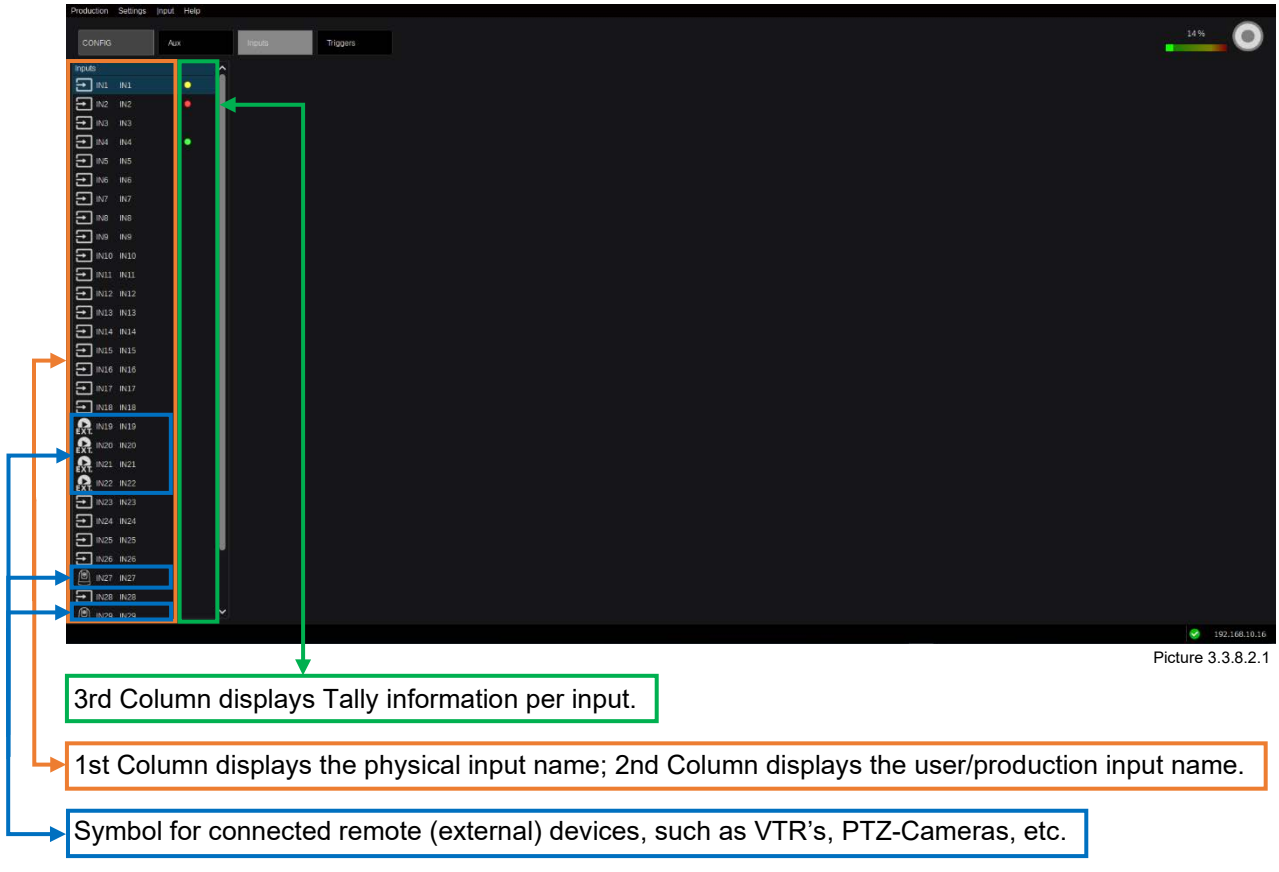
3.) “Tally root” in “Auxbus Settings.”

KAIROS offers 6 independent Tally systems (color referencing):

Red	= default “On-Air,”	or “Ctrl+1”
Green	= default “Preview,”	or “Ctrl+2”
Yellow	= default “not used,”	or “Ctrl+3”
Blue	= default “not used,”	or “Ctrl+4”
Magenta	= default “not used,”	or “Ctrl+5”
Cyan	= default “not used,”	or “Ctrl+6”
None	= no Tally,	or “Ctrl+0”

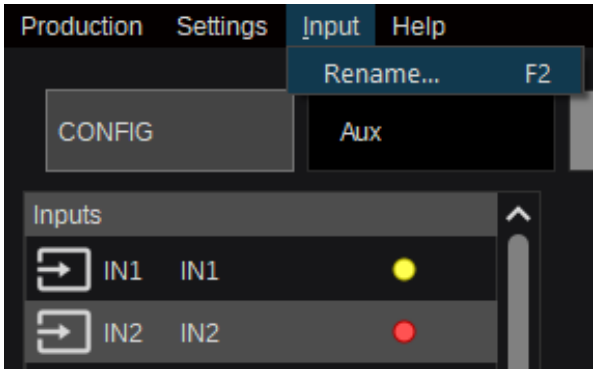
Tally can be modified for each individual Aux-Bus using the Aux-Bus drop-down menu in the menu bar, the right mouse click menu at the selected Aux-bus, the “Tally root” button in the “Parameter View” panel or Keyboard shortcuts.

3.3.8.2 Inputs

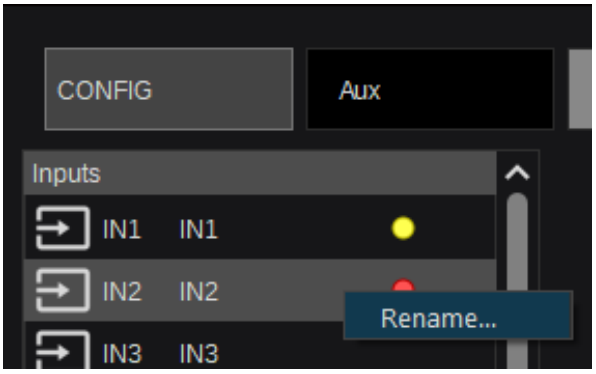


Picture 3.3.8.2.1

There are 3 ways to “Rename” Inputs:



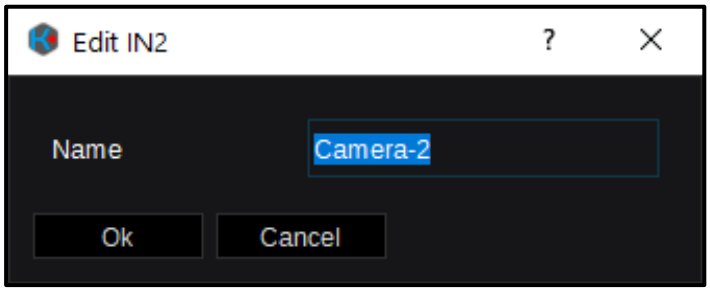
Picture 3.3.8.2.2



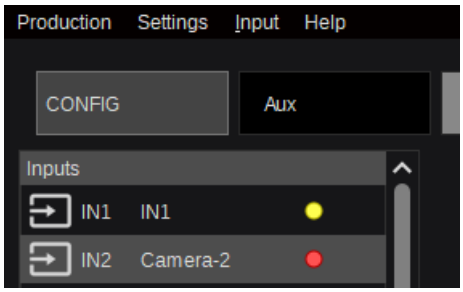
Picture 3.3.8.2.3

1. The “Input” drop-down menu in the Kairos Creator menu bar can be used,
2. the right mouse click menu at the selected “Input,” or
3. the Keyboard shortcut “F2” on focused item.

All dialogs would be continued as follows:

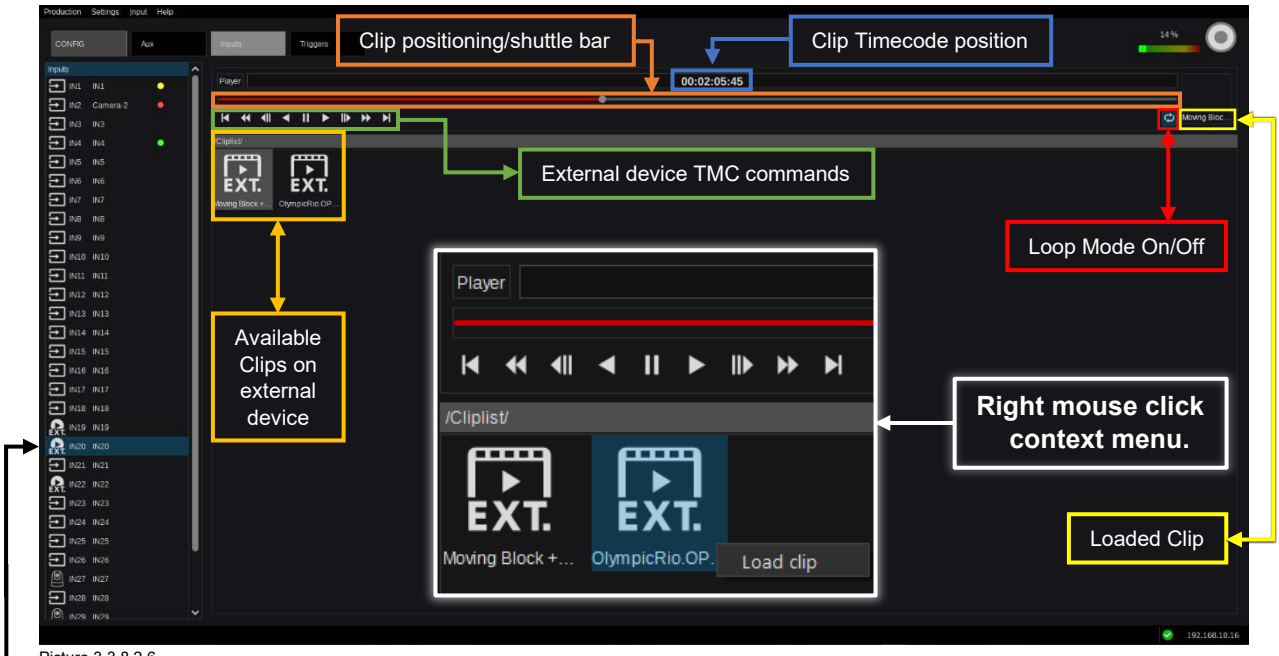


Picture 3.3.8.2.4



Picture 3.3.8.2.5

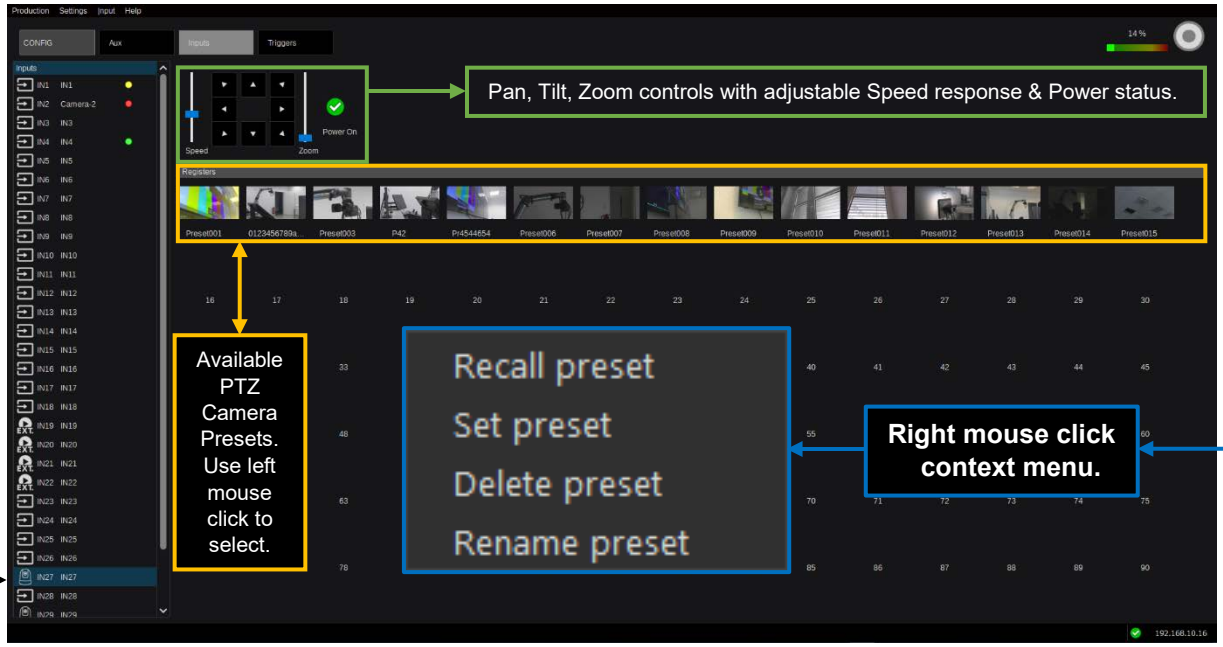
Selecting an Input where a VTR is connected will enable additional controls:



Picture 3.3.8.2.6

Selected device type is VTR EXT.

Selecting an Input with a PTZ-Camera connected will enable these additional controls:

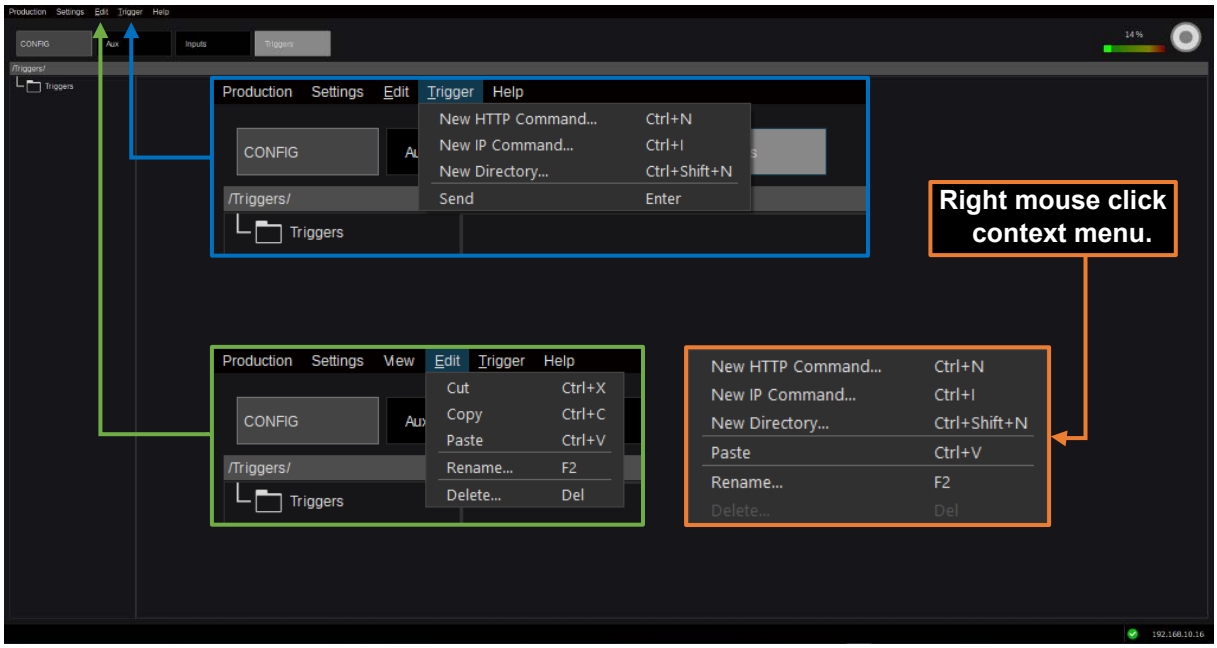


Picture 3.3.8.2.7

Selected device type is PTZ  .

The right mouse click context menu allows for selected item to “Recall preset,” “Set preset” (store preset), “Delete preset,” or “Rename preset.”

3.3.8.3 Triggers

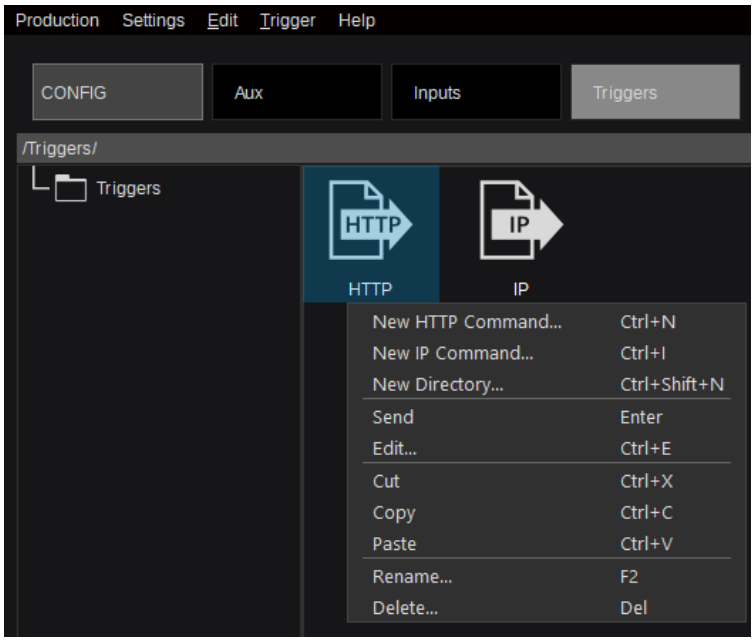


Picture 3.3.8.3.1

The “Triggers” selection within the “Config”-tab allows to create commands (Http or IP) in order to address specific functionality on connected network devices, for example, Robotics, Intercom, etc.

Creating a “New Directory…” is also available in order to help organize individual categories of commands and/or controlled devices (e.g., groups of Robots, PTZ’s, Video Servers, etc.).

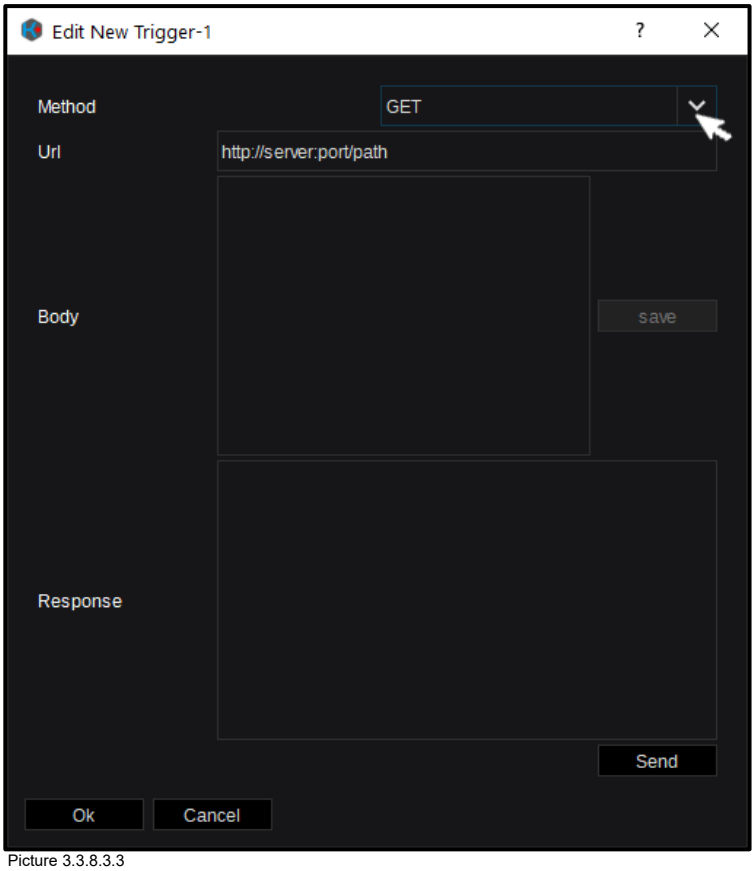
Note: Functions in the “Edit” drop-down menu or right mouse click context menu are disabled when there’s no existing object (e.g., “Directory,” IP-Command, or HTTP-Command) which could be affected.



Picture 3.3.8.3.2

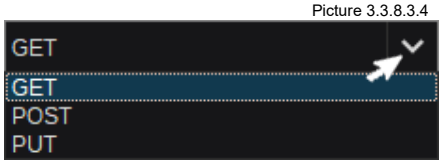
Once Triggers have been created (Http and/or IP), the right mouse click context menu changes (Picture 3.3.8.3.2), with additional actions. The existing “Paste” function from the “Edit” drop-down menu is now joined by “Cut” & “Copy.” The “Send” function for the selected command can be used for testing or execution. Additionally, the trigger can be sent by simply using the “Return” key on a connected keyboard while the designated command is selected.

Entering the “Edit” dialog from the right mouse click context menu on a HTTP-command:

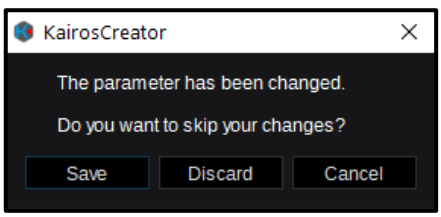


Picture 3.3.8.3.3

Picture 3.3.8.3.4

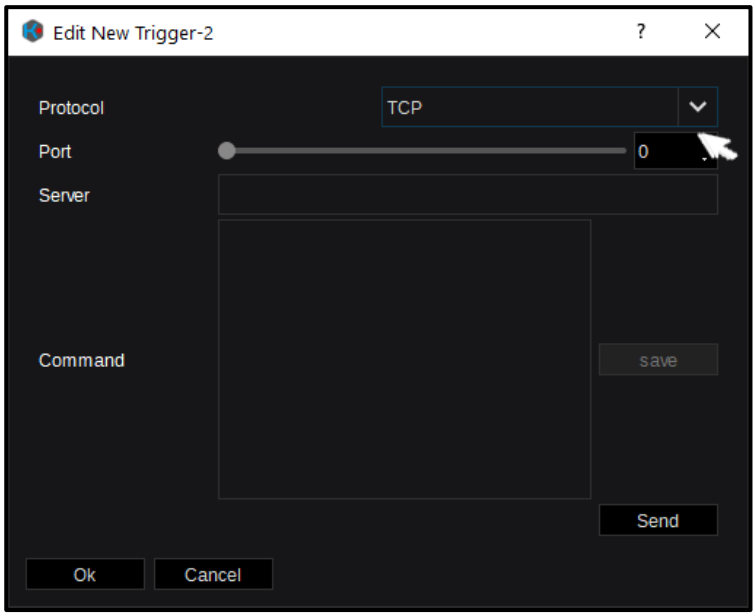


There are 3 different request methods available to select from: “GET, POST, PUT.” After editing the entries (Url, Body) relevant to the selected method, the dialog can be confirmed and closed with “OK.” Changes in the “Body” field must be confirmed by “save” before use. The “Send” button allows to send the entered command (probably for testing) before closing the dialog. Selecting “Cancel” brings up a pop-up window containing the selections for “Save,” “Discard,” & “Cancel” the action.



Picture 3.3.8.3.5

Entering the “Edit” dialog from the right mouse click context menu on an IP-command:



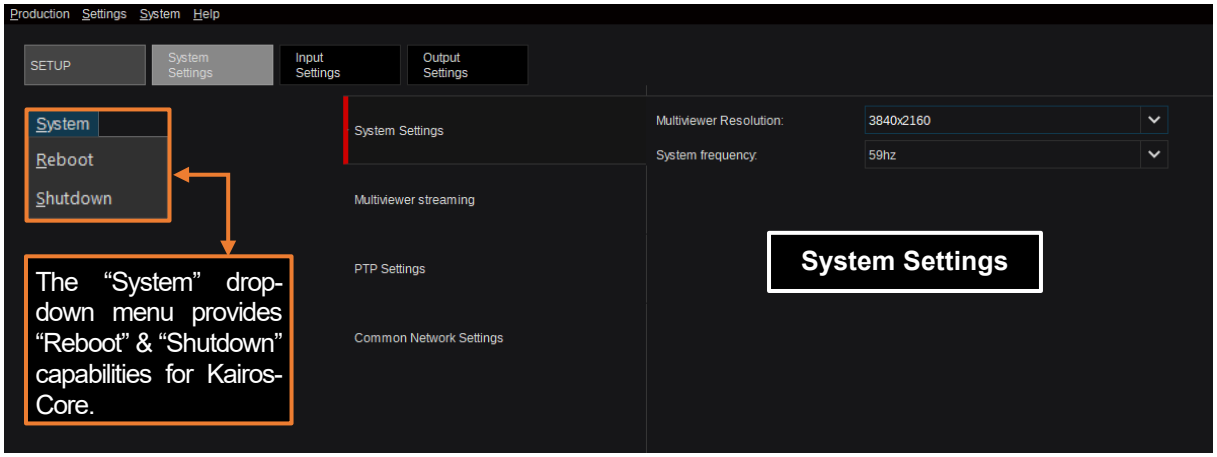
Picture 3.3.8.3.3

Picture 3.3.8.3.4

There are 2 different “Protocol”-types to select from: “TCP & UDP.” After editing the necessary entries (Port, Server, & Command), the dialog can be confirmed and closed with “OK.” Changes in the “Command” field need to be confirmed by “save” before use. Again, the “Send” button allows you to send the entered command (probably for testing) before closing the dialog. Selecting “Cancel” brings up a pop-up window containing the selections for “Save,” “Discard,” & “Cancel” the action, as described on previous page (page 83, Picture 3.3.8.3.5).

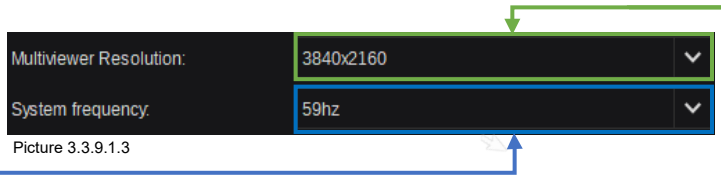
3.3.9 Setup Tab Selection

3.3.9.1 System Settings

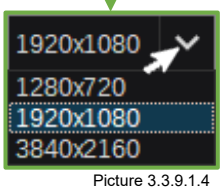


Picture 3.3.9.1.1

Picture 3.3.9.1.2



Picture 3.3.9.1.3

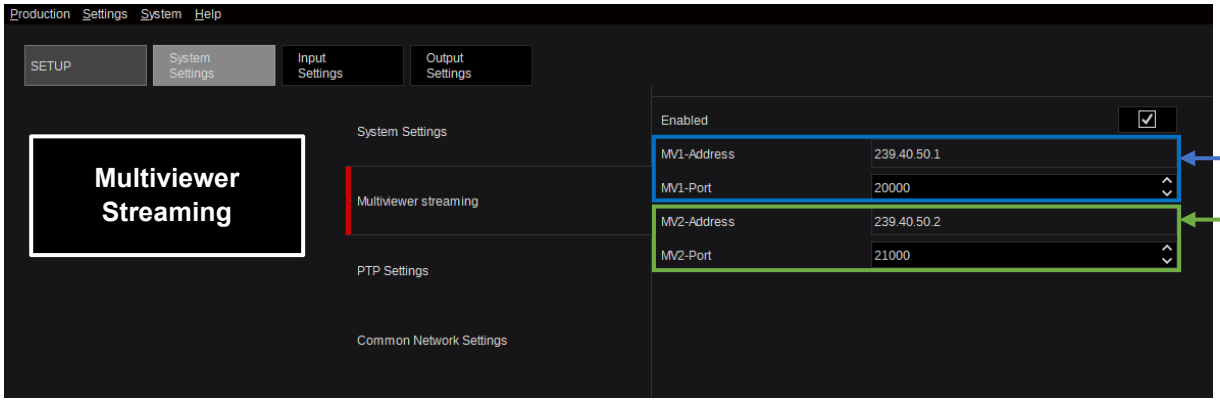


Picture 3.3.9.1.4

Multiviewer Resolutions can be adjusted separately from the AUX-Outputs.

The “System Frequency” determines the overall processed system framerate, applied to all Video-Outputs, including connected Multiviewer. However, every Output provides individual selectable framerates.

Note: This “System Frequency” is independent from the PTP synchronization and Video-Inputs.



Picture 3.3.9.1.5

"Multiviewer streaming" in general can be enabled or disabled for the streams available in the GUI "Live View" tab using the designated check box ☑ (Picture 3.3.9.1.5). See also section "3.3.5.1 Live View" on page 56 in this manual.

"MV1-Address" and "MV1-Port" address the stream for Multiviewer-1 output.

"MV2-Address" and "MV2-Port" address the stream for Multiviewer-2 output.

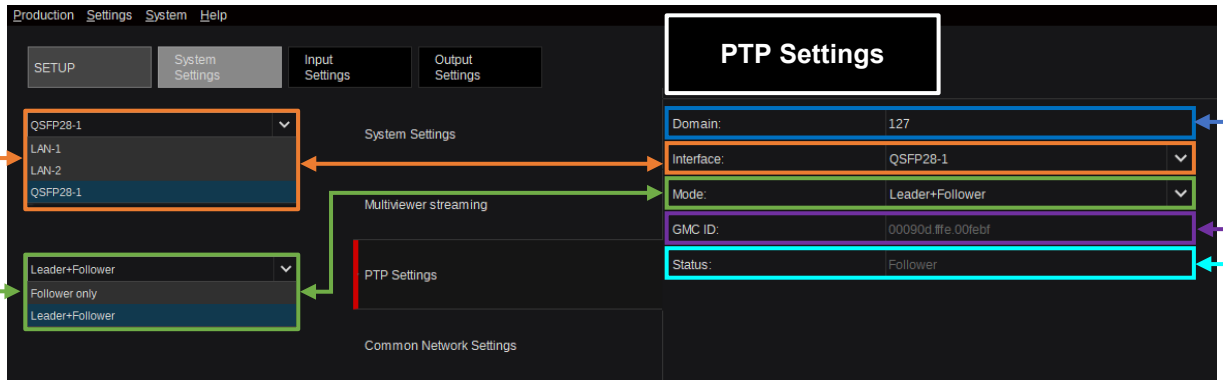
Note:

- Please make a difference of 2 or more digits between MV1-Port and MV2-Port (e.g., 50000 and 50002).
- Changing a setting here requires restarting Kairos Creator in order to monitor "Live View."
- It takes approximately 30 seconds until streaming video can be seen after Kairos Creator boots.
- If "Live View" is not displayed, please check the Windows Firewall setting of the PC and make sure inbound rules for Kairos Creator are enabled.

When "Multiviewer streaming" is set up and enabled (Picture 3.3.9.1.5) the actual Kairos Core IP address (LAN1 from Picture 3.3.9.1.7) can be used in, for example, "VLC media Player" when selecting "Media," going to "Open Network Stream," and entering into the "Network"-tab:

http://192.168.40.50:1234/multiviewers/0/sdp for Multiviewer-1
http://192.168.40.50:1234/multiviewers/1/sdp for Multiviewer-2

Note: Multiple instances of "VLC media Player" can run in parallel on the same Kairos Creator GUI (or on any other computer within the network) in order to monitor MV-1 & MV-2 simultaneously.



Picture 3.3.9.1.5

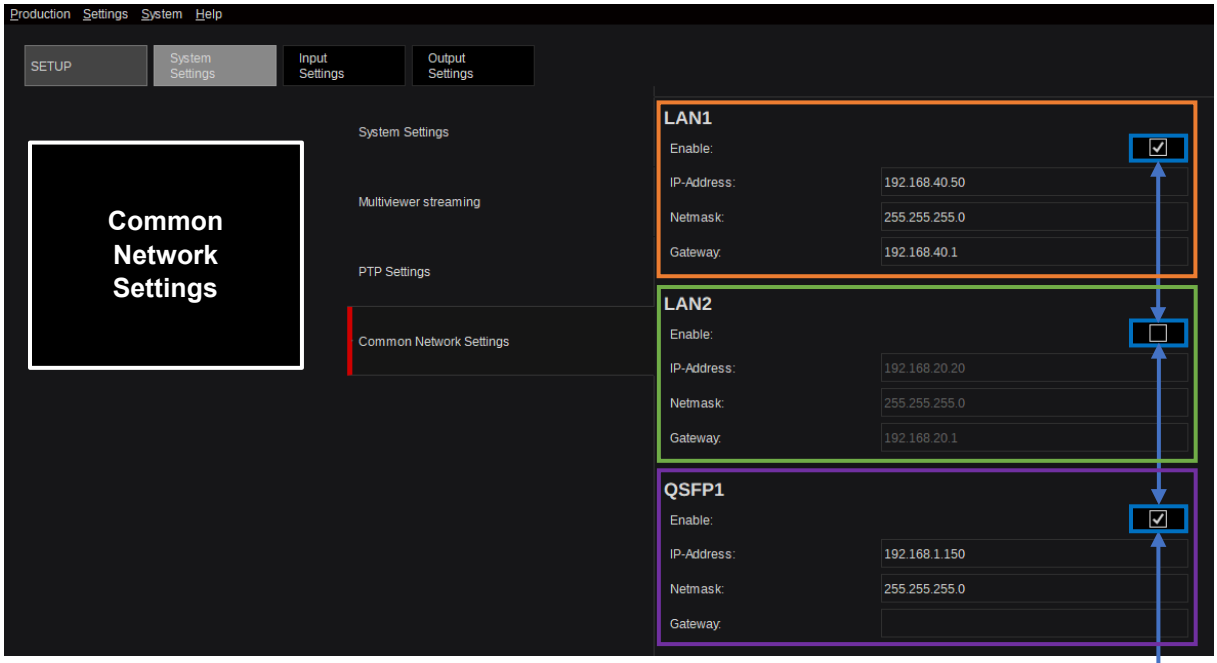
The "Domain" settings define the appropriate PTP-Network.

"Interface" determines where the physical PTP connection to the KAIROS-Core is derived from ("QSFP28-1" in this case). The selection also contains "LAN-1" and "LAN-2" Gb-LAN connectors.

PTP synchronization can be forced to be always in a "Follower" position (such as a Camera or Server video source). When in "Leader + Follower" mode, various devices will negotiate over "BMCA"-protocol (Best-Master-Clock-Algorithm) which device will take the "Leader" position in the PTP-Network.

"GMC ID" defines the "EUI-64" clock identifier of the grandmaster clock (including manufacturer and model). EUI-64 = 64-Bit Extended Unique Identifier.

"Status" shows the actual Kairos PTP-behavior regarding "Leader + Follower" or "Follower" only mode.



Enables or disables the individual Network-Adaptors using the designated check box ☑.

“LAN1”: Onboard wired network adapter 1 (1 Gb-Lan) – Enabled

“LAN2”: Onboard wired network adapter 2 (1 Gb-Lan) – Disabled

“QSFP1”: High-speed Network interface 1 (100 Gb-Lan) – Enabled

For all needed Network adaptors or interfaces, the IP address, Netmask, and Gateway (if necessary) need to be entered in order to function properly.

Note:

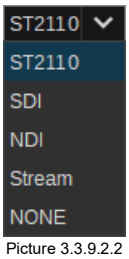
- Network adapter settings are not part of “export/import environment file” operations in the Kairos Creator “Settings” drop-down menu! See section “3.3.1.2 Settings” on page 24 in this manual for details.
- The QSFP28-2 function is not supported yet.

3.3.9.2 Input Settings

Picture 3.3.9.2.1

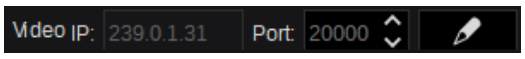
The “Input Settings” GUI menu shows a list of all 32 inputs, each capable of a 3G signal bandwidth, and the “” symbol indicating that at least 1 audio group (ST2110-30) is enabled for this input. When “Delay” is activated, the indicator appears next to the designated “More” button.

Note: 32 Inputs are accessible only when license AT-SF002 (I/O expansion) is installed. By default, there are 24 Inputs available.

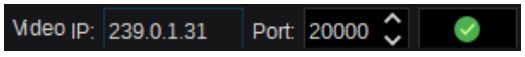


Picture 3.3.9.2.2

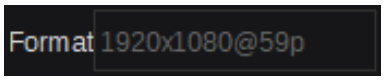
Each input format is selectable in between ST2110, SDI, NDI, and Stream (Picture 3.3.9.2.2). For “ST2110” input selection, the corresponding high-speed IP address and “Port” information are required (Picture 3.3.9.2.3 & 3.3.9.2.4) when not handled via NMOS protocol. The format per input is auto-sensed and displayed (Picture 3.3.9.2.5).



Picture 3.3.9.2.3



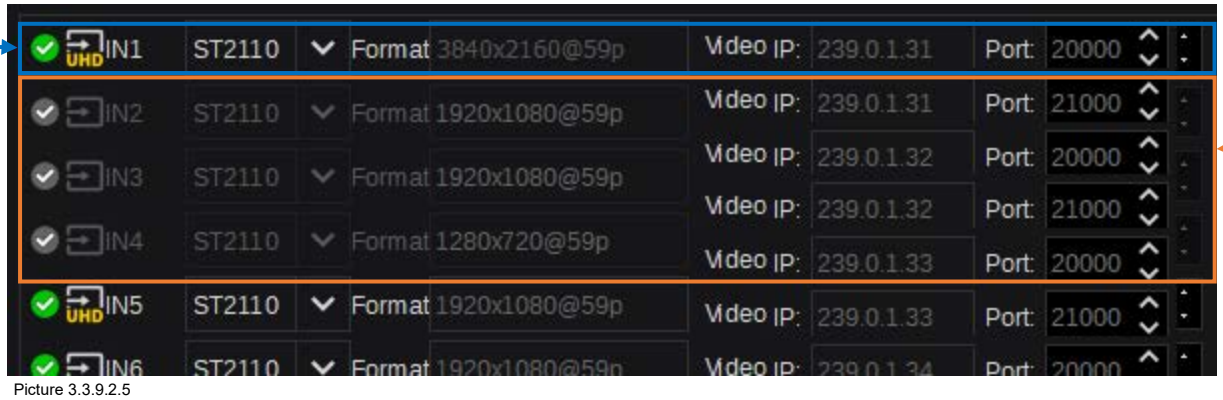
Picture 3.3.9.2.4



Picture 3.3.9.2.5

Click the “” symbol in order to activate “Video IP” and “Port” settings for adjustments. When finished, press the keyboard “Return” or “Enter” key, or click on the green symbol to confirm and close.

Only the first input out of a group of 4 can select 4K (indicated with the yellow UHD symbol), in which case all other inputs in that group will be disabled.



Picture 3.3.9.2.5

Auto-sensing format UHD “3840 × 2160@59p” for “IN1” in Group 1-4 will disable Inputs 2-4.

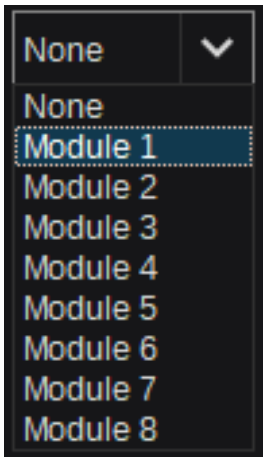
“IN02, IN03, IN04” are disabled because of “IN01” UHD format.

Note: The selection for “UHD” is only displayed when the license “AT-SF001” (4K Support) is installed.

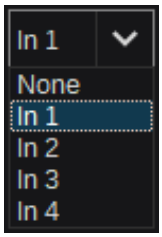
4K NDI and 4K Streams are not supported.
Apart from ST2110 IP inputs (Picture 3.3.9.2.2), up to 8 modules (Deltacast) – 4 Inputs each – can be connected for SDI input signals.

Picture 3.3.9.2.5

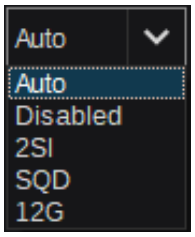
(Deltacast is also providing modules for HDMI & DP In/Out)



Picture 3.3.9.2.6



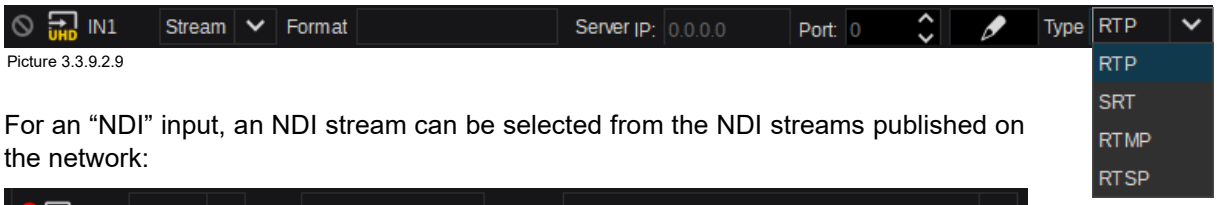
Picture 3.3.9.2.7



Picture 3.3.9.2.8

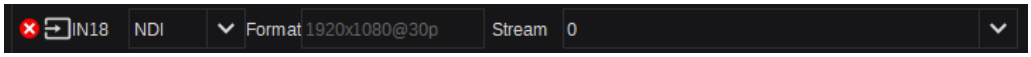
When selecting “SDI” as input format (Picture 3.3.9.2.5), the next selection defines the module number 1-8 (Picture 3.3.9.2.6). Each module provides 4 inputs to select from “In 1-4” (Picture 3.3.9.2.7). Finally, Kairos Core can auto-sense the connected input format, or you can choose directly between 12G (Single Link), 2SI (2 Sample Interleave), SQD (Square Division). You can also “Disable” the selected input (Picture 3.3.9.2.8).

For a Stream input selection, the Stream type (RTP, SRT, RTMP, & RTSP) and the entries for IP and Port number are required in a first step:



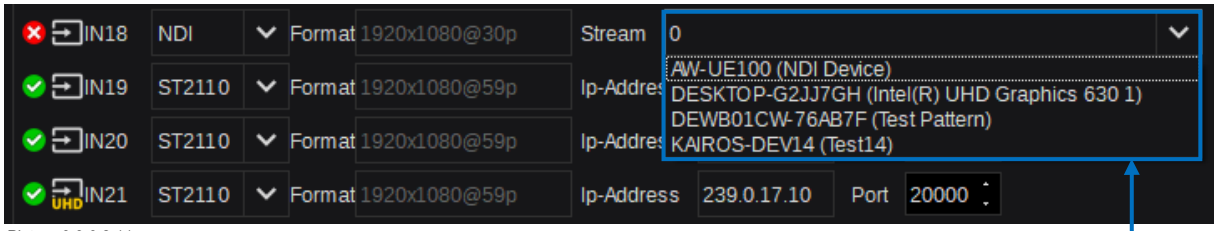
Picture 3.3.9.2.9

For an “NDI” input, an NDI stream can be selected from the NDI streams published on the network:



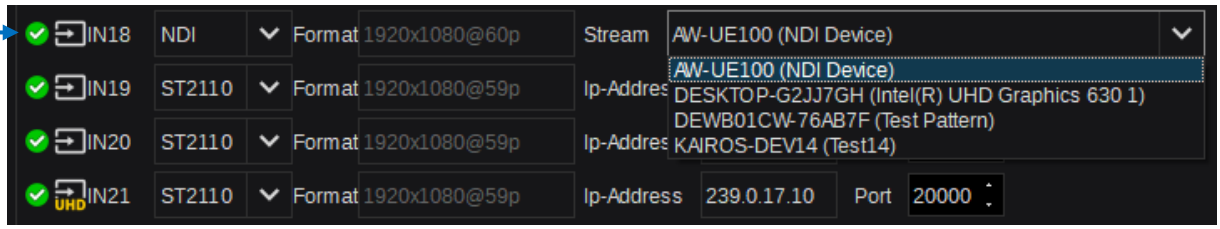
Picture 3.3.9.2.10

Default NDI stream selection is “None.”



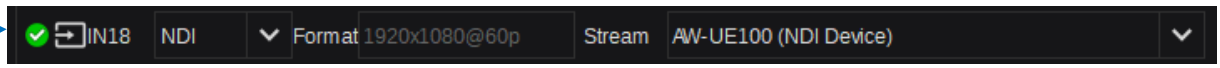
Picture 3.3.9.2.11

Selecting the drop-down menu on the far right shows the available NDI network streams.



Picture 3.3.9.2.12

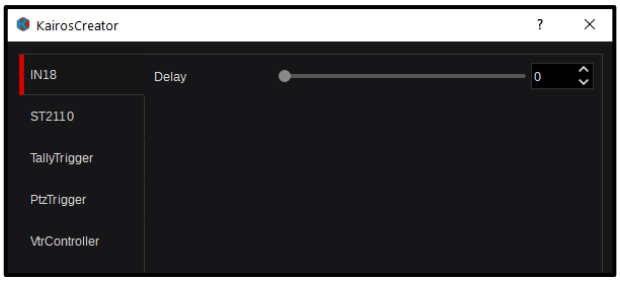
After selecting an available network stream and fetching the signal, the source indicator turns green.



Picture 3.3.9.2.13

The “More…” button to the right of each input opens a pop-up window with advanced input setup options (Picture 3.3.9.2.14).

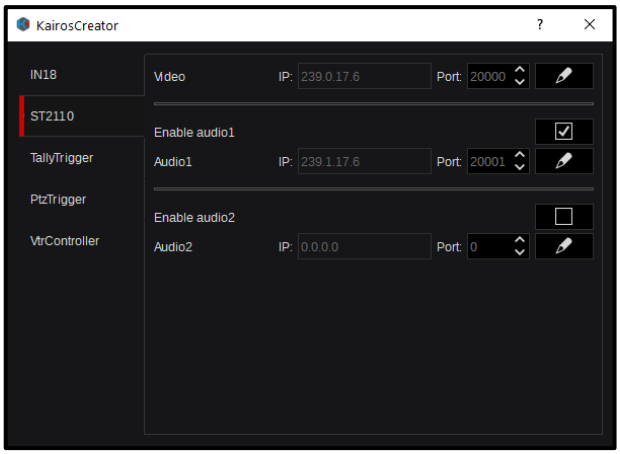
Picture 3.3.9.2.14



Picture 3.3.9.2.15

“Input-Tab”:

The Input-Tab allows addition of an artificial delay to the source signal for ST2110 & SDI. Default is “0” (no additional delay) and the maximum is 12 frames.



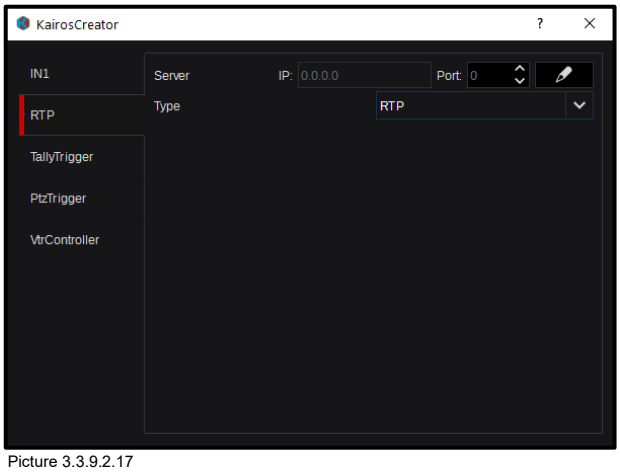
Picture 3.3.9.2.16

“ST2110-Tab”:

The ST2110-Tab provides all required Video & Audio settings regarding the ST2110 Standard. Click the “ ” symbol (which will turn into a green check mark) in order to activate the “Video and/or Audio IP” and “Port” settings for adjustments. When finished, press the keyboard “Return” or “Enter” key, or click on the green symbol to confirm and close.

Enabling or disabling the individual Audio Group-1, and/or Audio Group-2 using the designated check box ☑.

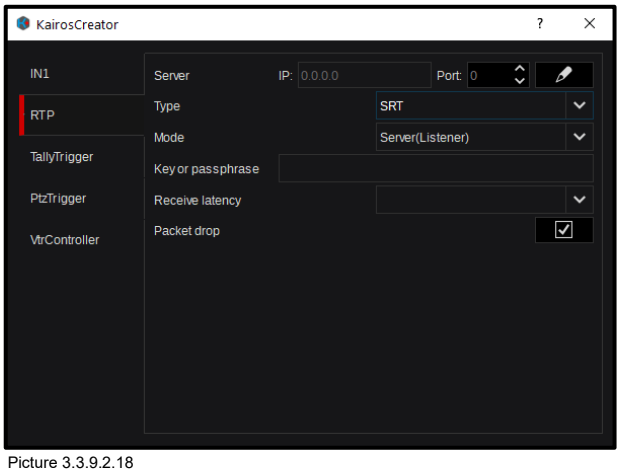
Note: When the Input type is set to “SDI,” the “ST2110” tab will disappear from the “More” selection. However, when the Input type is set to “Stream” instead, the former “ST2110” tab will be replaced with the “RTP” tab.



Picture 3.3.9.2.17

“RTP-Tab” (RTP):

Click the “ ” symbol (which will turn into a green check mark) in order to set up the “IP” and “Port” settings. When finished, press the keyboard “Return” or “Enter” key, or click on the green symbol to confirm and close.



Picture 3.3.9.2.18

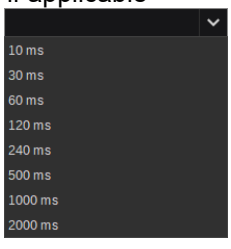
“RTP-Tab” (SRT):

When Stream type is set to “SRT,” various protocol specific adjustments need to be addressed.

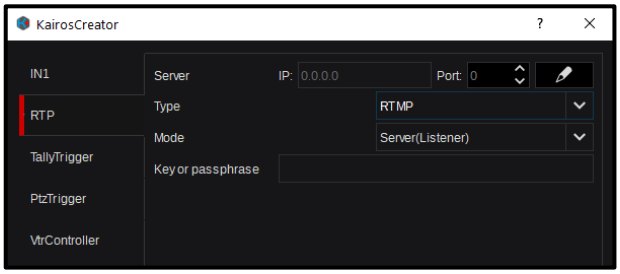
Mode = Server (Listener) or Client (Caller)

Enter a Key or passphrase = if applicable

Receive latency drop down menu for selection



Enable or disable the “Packet drop” selection using the designated check box ☑.

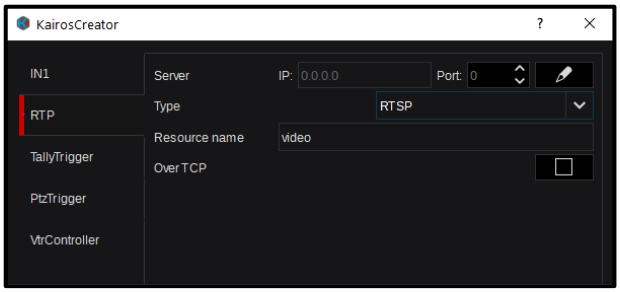


Picture 3.3.9.2.19

"RTP-Tab" (RTMP):

Mode = Server (Listener) or Client (Caller)

Enter a Key or passphrase = if applicable

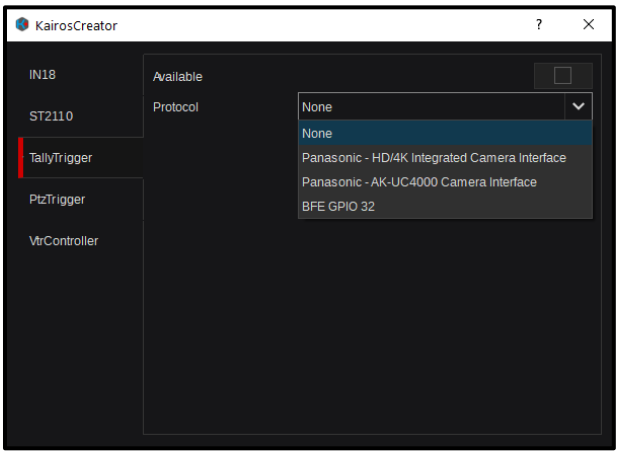


Picture 3.3.9.2.20

"RTP-Tab" (RTSP):

Enter "Resource name" = if applicable

Activate or deactivate the "Over TCP" selection using the designated check box ☑.

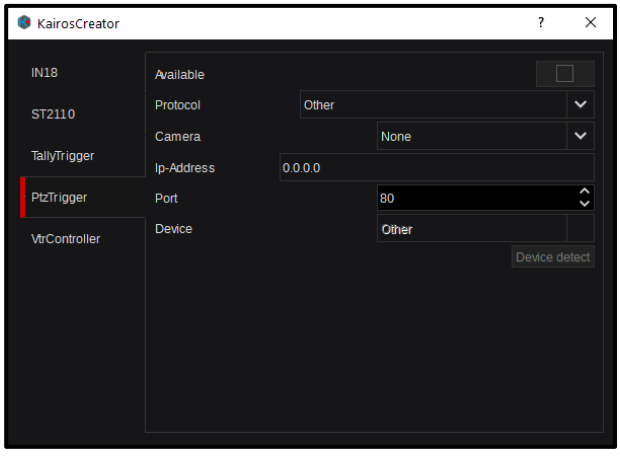


Picture 3.3.9.2.21

"TallyTrigger-Tab":

In the TallyTrigger-Tab, an external Tally device such as BFE-GPIO Box or a Panasonic Camera interface can be set up. The following settings are available depending on the device type:

- IP address of the Tally device.
- Port number of the Tally device.
- Tally Channel (Red, Green, Yellow, Blue, Magenta, Cyan)
- Device type supported by selected protocol.
- Selected AUX-Bus (for Camera Return feed, if applicable).
- Auto-detect device (when supported).



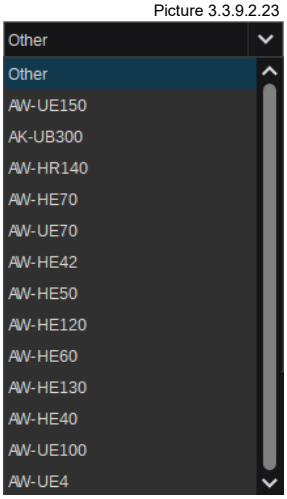
Picture 3.3.9.2.22

"PtzTrigger-Tab":

The "PtzTrigger" Tab addresses a wide variety of Panasonic Camera remote controls including Tally over IP.

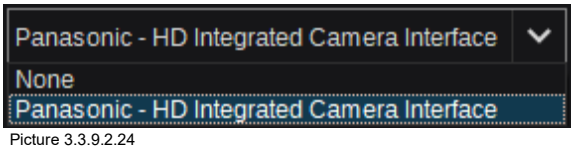
The "Camera" menu contains all Panasonic Cameras available in KAIROS network (Picture 3.3.9.2.18).

Picture 3.3.9.2.23

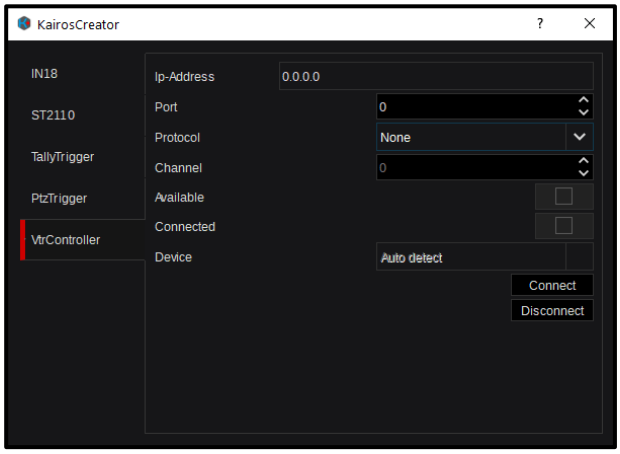


If necessary, all controls can be set manually by selecting from the currently supported devices in the corresponding drop-down menu. The "Auto detect" button in the main "PtzTrigger" Tab helps to explore and update the network camera device list. As soon as all necessary settings are completed, the "Available" check-box (first entry on top of the PtzTrigger-Tab) will be ticked ☑.

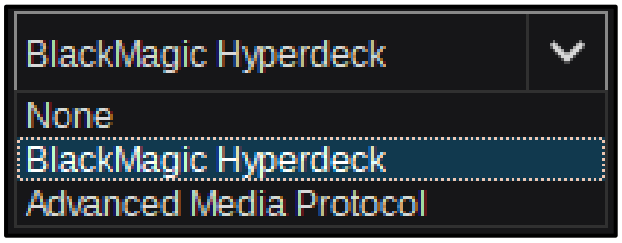
Simply select the model, for example, "AW-UE150," KAIROS will complete all the settings automatically (Pictures 3.3.9.2.18 & 3.3.9.2.19), including the IP address and the designated Port number.



Picture 3.3.9.2.24



Picture 3.3.9.2.25

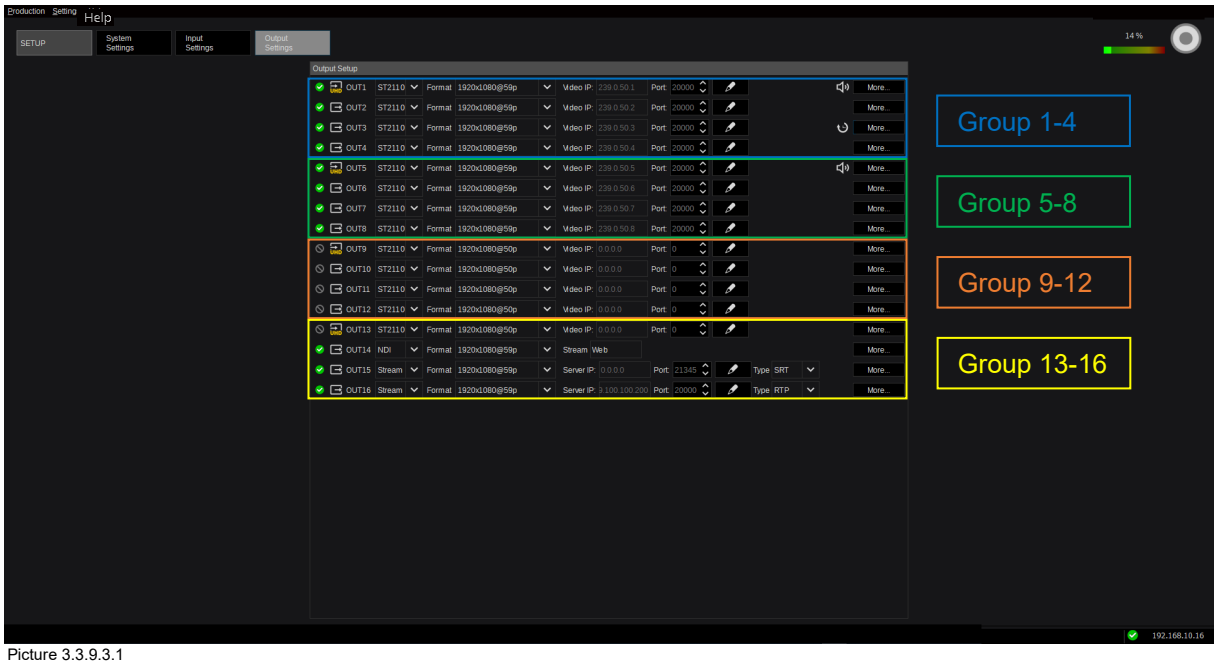


Picture 3.3.9.2.26

“VtrController-Tab”:

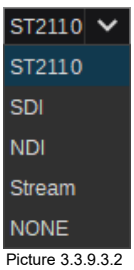
In the “VtrController” Tab, enter the individual IP address and Port number for a supported device and then select “Protocol” type for the device. A dedicated driver for BlackMagic devices, as well as AMP over LAN protocol (Advanced Media Protocol), is available (Picture 3.3.9.2.26). If the connected device supports a multi-channel infrastructure, it might be necessary to specify the channel number to “talk” to. When the settings are completed, hit the “Connect” button to establish communication. The “Available” and “Connected” check-boxes should indicate ☑.

3.3.9.3 Output Settings



Picture 3.3.9.3.1

The “🔊” symbol indicates that at least 1 audio group (ST2110-30) is enabled for this output. When “Delay” is activated, the indicator appears next to the designated “More” button.



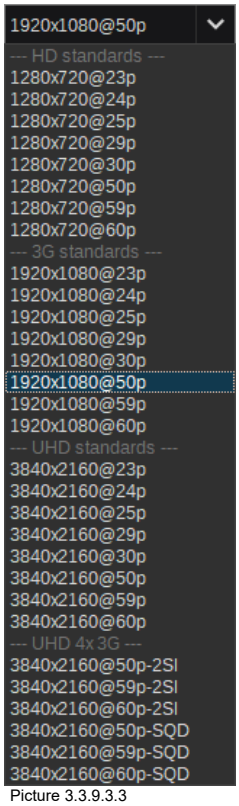
Picture 3.3.9.3.2

Similar to the “Input Settings,” the “Output Settings” GUI menu shows a list of all 16 outputs, each capable of a 3G signal bandwidth. The output types are selectable between ST2110, SDI, NDI, and Stream (Picture 3.3.9.3.2).

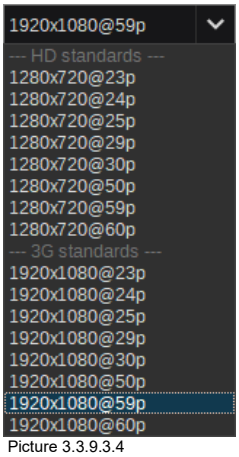
Note: 16 Outputs are accessible only when license AT-SF002 (I/O expansion) is installed. By default, there are 12 Outputs available.

Out of a group of 4, only the first output can select 4K (indicated with the yellow UHD symbol). In this case, all other outputs in that group will be disabled (see the list of available formats in Picture 3.3.9.3.3).

Outputs 2-4 cannot select a 4K signal. Therefore, there are 2 individual drop-down menus provided to select the desired/available format (see Picture 3.3.9.3.4).



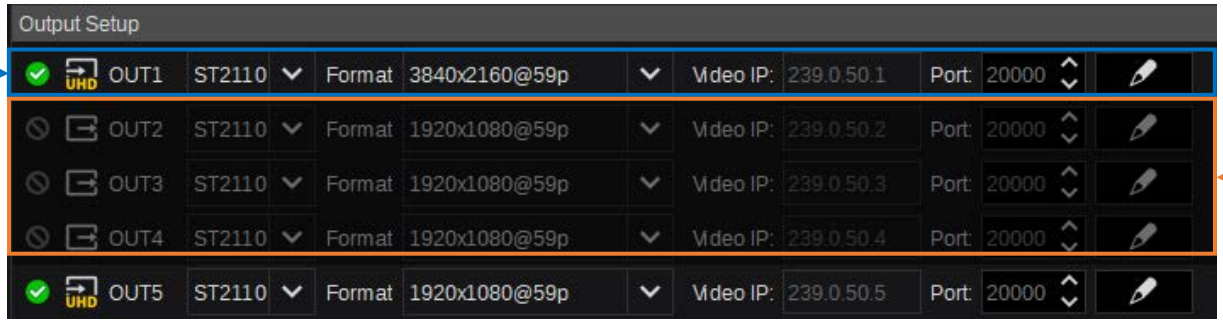
Picture 3.3.9.3.3



Picture 3.3.9.3.4

Note: So far, interlace formats are only supported for Inputs

When Output-1 in Group 1-4 is set to any of the provided 4K formats, for example, “3840 × 2160@59p,” Outputs 2-4 will be disabled (Picture 3.3.9.3.5).

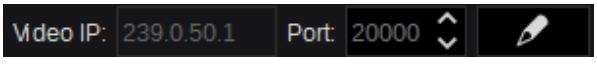


Picture 3.3.9.3.5

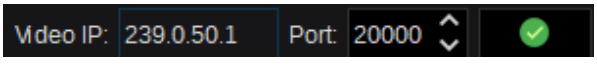
Output-1 format selected “3840 × 2160@59p” for 4K.

“OUT2, OUT3, OUT4” are disabled because “OUT1” is set to 4K format “3840 × 2160@59p,”

As described in “3.3.9.2 Input Settings” for IP signals, when an Output is set to IP-Type, the corresponding “IP-Address” and “Port” number also need to be specified (Picture 3.3.9.3.6).



Picture 3.3.9.3.6

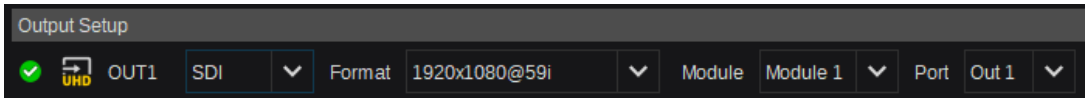


Picture 3.3.9.3.7

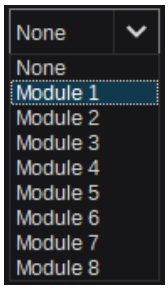
Click the “ ” symbol in order to activate “Video IP” and “Port” settings for adjustments. When finished, press the keyboard “Return” or “Enter” key, or click on the green symbol to confirm and close.

Picture 3.3.9.3.8

When configuring an Output-Type to “SDI,” the settings are almost the same like in section “3.3.9.2 Input Settings.” Start with selecting Output-Type first.

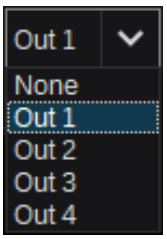


Picture 3.3.9.3.9



Picture 3.3.9.3.10

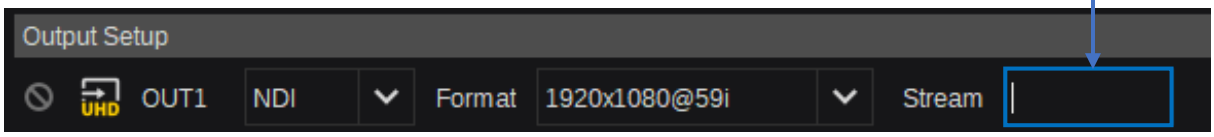
Select an Output Module 1-8, only available when Deltacast Modules are installed (Picture 3.3.9.3.10).



Picture 3.3.9.3.11

Define Output connector Out 1-4 (Picture 3.3.9.3.11).

When an NDI Output is created, a valid “Stream name” has to be entered in order to be identifiable throughout the NDI-Network (Picture 3.3.9.3.11). In addition, the Video-Format needs to be specified.

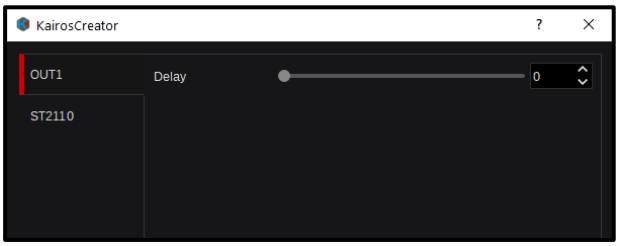


Picture 3.3.9.3.12

Apart from individually specifying the Video-Format, NDI Output-Type settings are the same as previously described in section “3.3.9.2 Input Settings.”

The “More…” button to the right of each output opens a pop-up window with advanced output setup options (Picture 3.3.9.2.14).

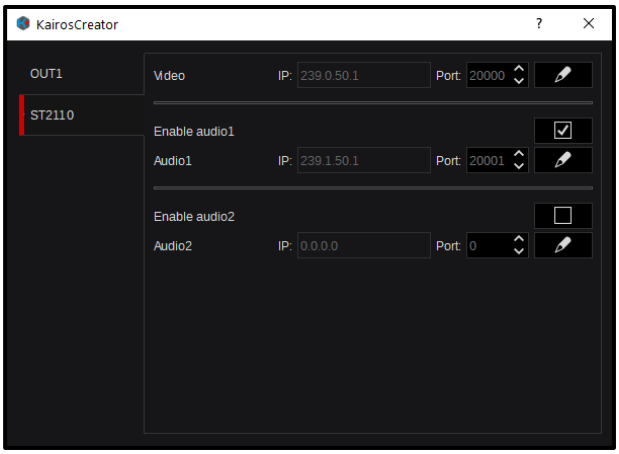
Picture 3.3.9.3.13



Picture 3.3.9.3.14

“Output-Tab”:

The Output-Tab allows adding of an artificial delay to the output signal for ST2110 & SDI. Default is “0” (no additional delay) and the maximum is 12 frames.



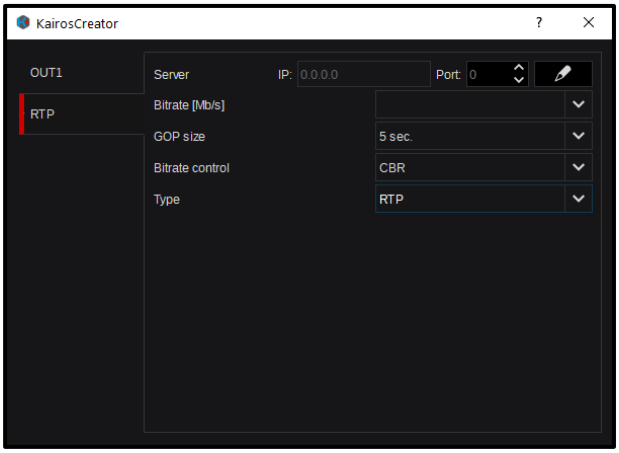
Picture 3.3.9.3.15

“ST2110-Tab”:

The ST2110-Tab provides all required Video & Audio settings regarding the ST2110 Standard. Click the “ ” symbol (which will turn into a green check mark) in order to activate the “Video and/or Audio IP” and “Port” settings for adjustments. When finished, press the keyboard “Return” or “Enter” key, or click on the green symbol to confirm and close.

Enable or disable the individual Audio Group-1 and/or Audio Group-2 using the designated ☑.

Note: When the Output type is set to “SDI,” the “ST2110” tab will disappear from the “More” selection. However, when the Output type is set to “Stream” instead, the former “ST2110” tab will be replaced with the “RTP” tab.



Picture 3.3.9.3.16

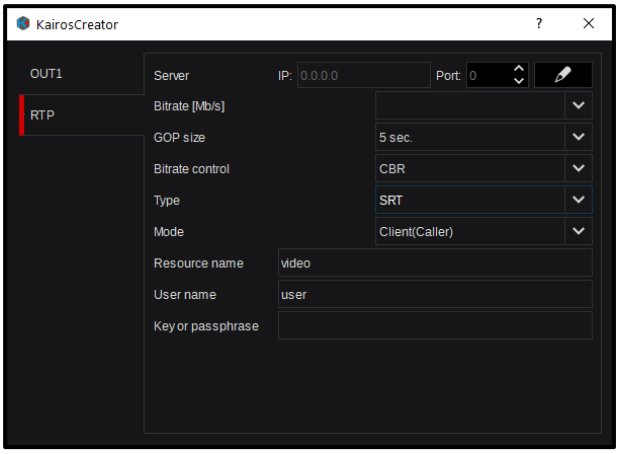
"RTP-Tab" (RTP):

Click the "✎" symbol (which will turn into a green ✔ check mark) in order to set up the "IP" and "Port" settings. When finished, press the keyboard "Return" or "Enter" key, or click on the green ✔ symbol to confirm and close.

GOP size = adjustable between 1, 2, 3, 4, & 5 sec.

Bitrate control = CBR (Constant Bitrate) or VBR (Variable Bitrate)

Overall Stream type = RTP, SRT, or RTMP



Picture 3.3.9.3.17

"RTP-Tab" (SRT):

Stream type "SRT" requires various protocol specific adjustments:

GOP size = adjustable between 1, 2, 3, 4, & 5 sec.

Bitrate control = CBR (Constant Bitrate) or VBR (Variable Bitrate)

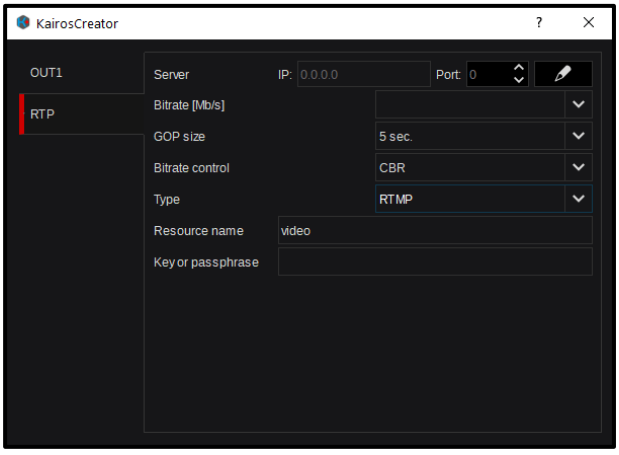
Overall Stream type = RTP, SRT, or RTMP

Mode = Client (Caller) or Server (Listener)

Enter "Resource name" = if applicable

Enter "User name" = if applicable

Enter "Key or passphrase" = if applicable



Picture 3.3.9.3.18

"RTP-Tab" (RTMP):

When Stream type "RTMP" is selected, various protocol specific adjustments also need to be accomplished:

GOP size = adjustable between 1, 2, 3, 4, & 5 sec.

Bitrate control = CBR (Constant Bitrate) or VBR (Variable Bitrate)

Overall Stream type = RTP, SRT, or RTMP

Enter "Resource name" = if applicable

Enter "Key or passphrase" = if applicable

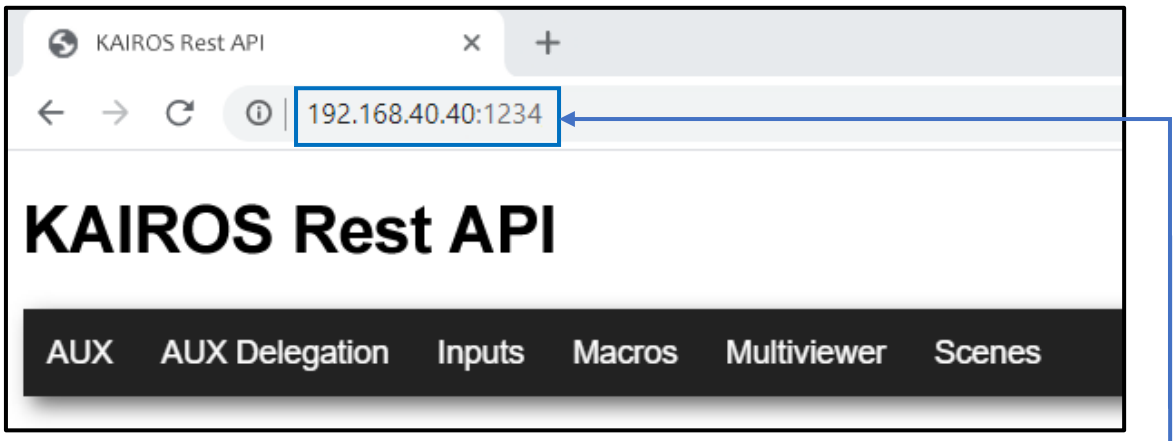
Note: The general availability of UHD Inputs/Outputs as well as the total number of Inputs/Outputs is reflecting the various types of installed Kairos options/licenses:

AT-SF001 for 4K Support (default is 3G max)
AT-SF002 for I/O expansion to 32 Inputs (default is 24×3G max) and 16 Outputs (default is 12×3G max).
4K NDI and 4K Stream are not supported.

3.4 KAIROS Rest API

3.4.1 Rest API Overview

In order to access and control KAIROS via a generic Web-browser, such as Chrome, Edge, etc., the implemented Rest API can be used. Typical browser shortcuts can be used as well (e.g., F5=refresh, F11=Fullscreen, etc.). For details, check the corresponding browser command information.

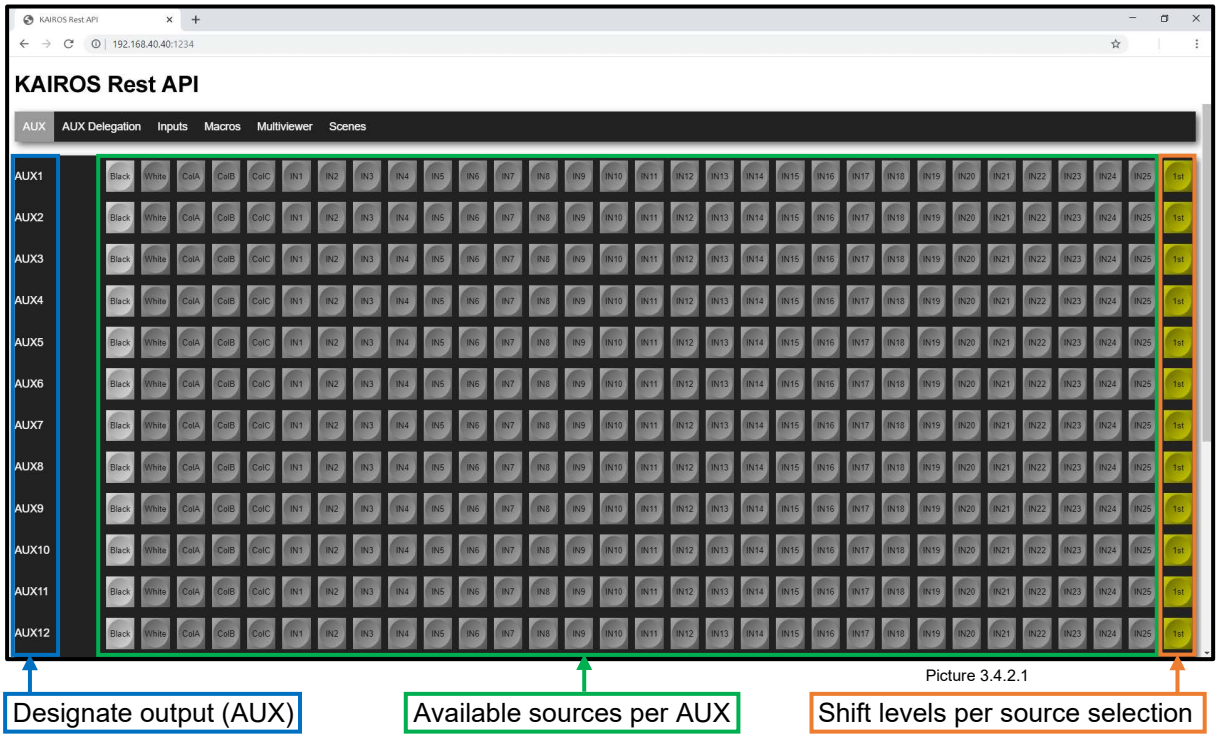


Picture 3.4.1.1

Type in the IP-address and Port-number (in this case, “192.168.40.40” for the IP-address and adding the Port-number “:1234”) and start browsing. For the upcoming dialog, the “User” (Kairos) and “Password” need to be entered. For the “Password,” the connected Server-System-Id is required. For details, see section “3.3.1.4 Help” in this manual.

3.4.2 AUX-All

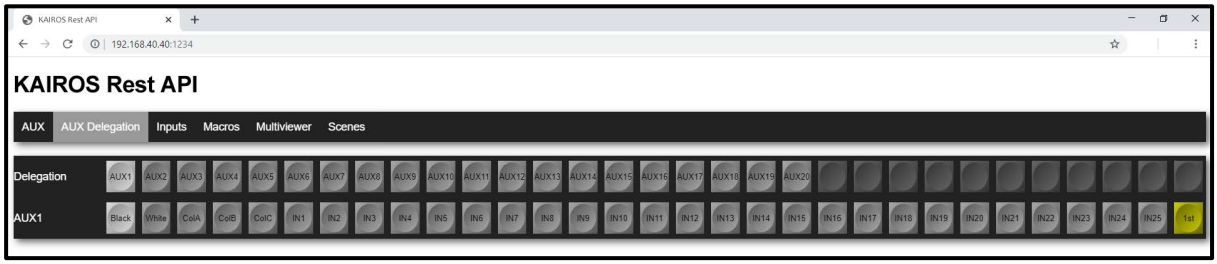
When selecting (mouse-click) the item “AUX” (Picture 3.4.1.1 above), the browser is showing all available Aux buses. Scroll up and down to navigate. Select any cross-point on any designated output (Aux). When there are more sources than source buttons available (see section 3.2.2 Source Options page 21), automatically a “Shift”-level is (or multiple “Shift”-levels are) applied to the far-right side of the source selection buttons.



Picture 3.4.2.1

3.4.3 AUX-Delegation

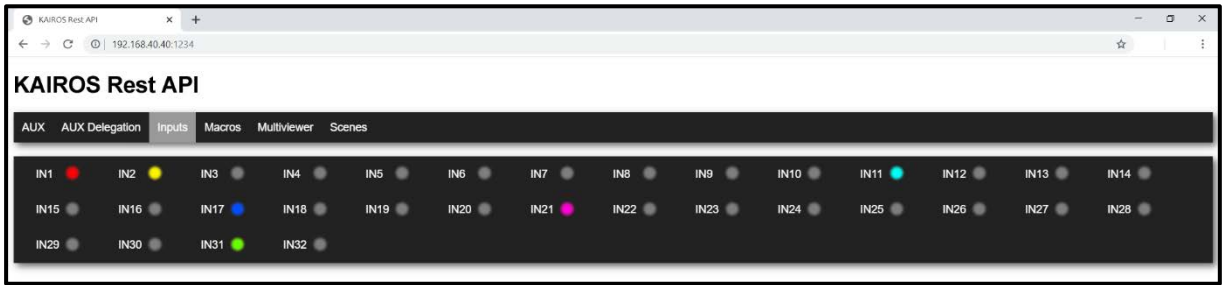
The “AUX Delegation” selection is providing the controls for AUX-buses in a X/Y style so that the upper Bus is used to select a specific AUX-bus and the lower bus is providing the individual available source. Again, when there are more sources (see section 3.2.2 Source Options page 21) than source buttons available, automatically a “Shift”-level is (or multiple “Shift”-levels are) applied to the far-right side of the source selection buttons.



Picture 3.4.3.1

3.4.4 Inputs (Tally Indication)

Selecting the tab “Inputs” will show a list of all available external inputs with their designated “Tally” signalization. In this example, Red-Tally (On-Air/PGM-1) for Input-1, Yellow-Tally (Preview/Preset) for Input-2, Cyan-Tally (PGM-2) for Input-11, Blue-Tally (PGM-3) for Input-17, Magenta-Tally (PGM-4) for Input-21 and Green-Tally (PGM-5) for Input-31.



Picture 3.4.4.1

3.4.5 Macros

The “Macro” tab contains all recorded “Global”-Macros for instant recall.

Picture 3.4.5.1

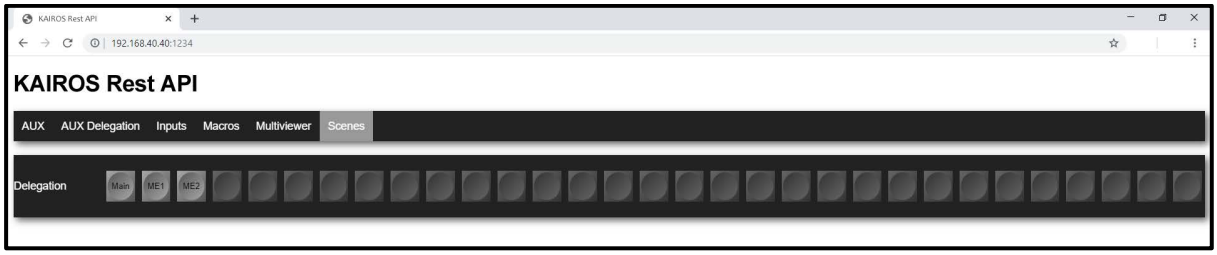
3.4.6 Multiviewer

When selecting the “Multiviewer” tab, a list of all Factory Presets and all User-defined Presets are displayed and can be directly applied to Multiviewer 1 and/or 2.

Picture 3.4.6.1

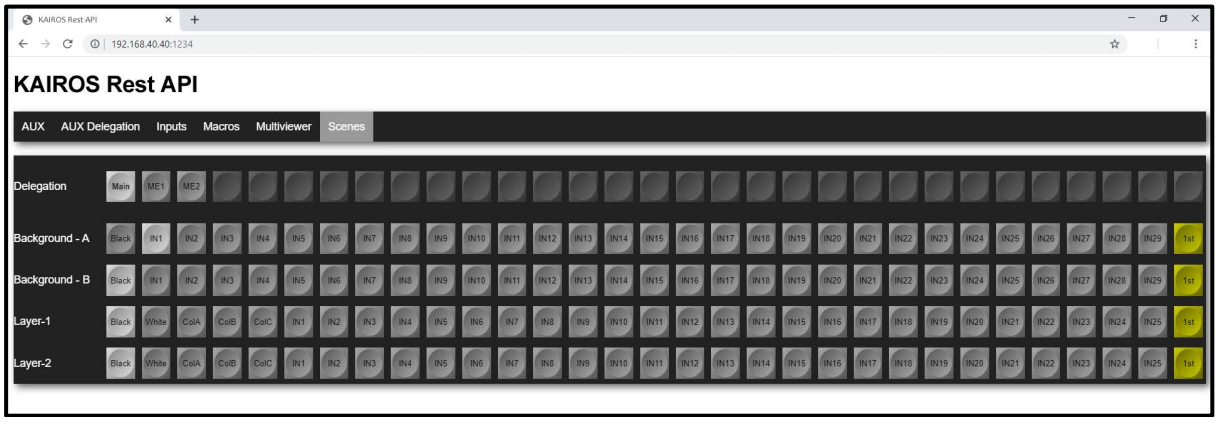
3.4.7 Scenes

The last tab called “Scenes” provides full cross-point control per Bus/Layer on delegated Scene. There is no Scene selected when entering this tab (Picture 3.4.7.1).



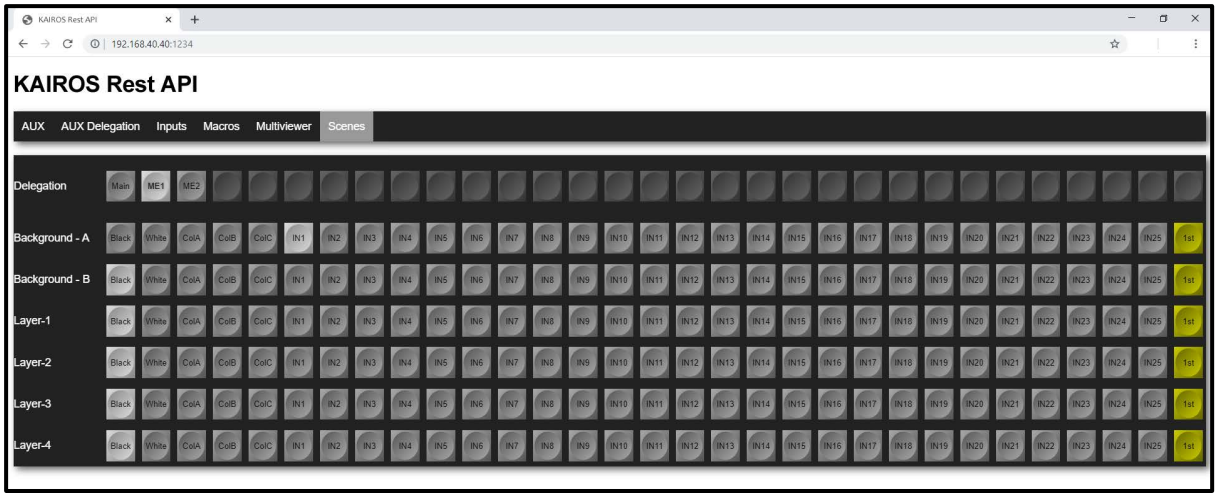
Picture 3.4.7.1

Scene “Main” delegated (Picture 3.4.7.2). Background A & B + 2 Layers.



Picture 3.4.7.2

Scene “ME1” delegated (Picture 3.4.7.3). Background A & B + 4 Layers.

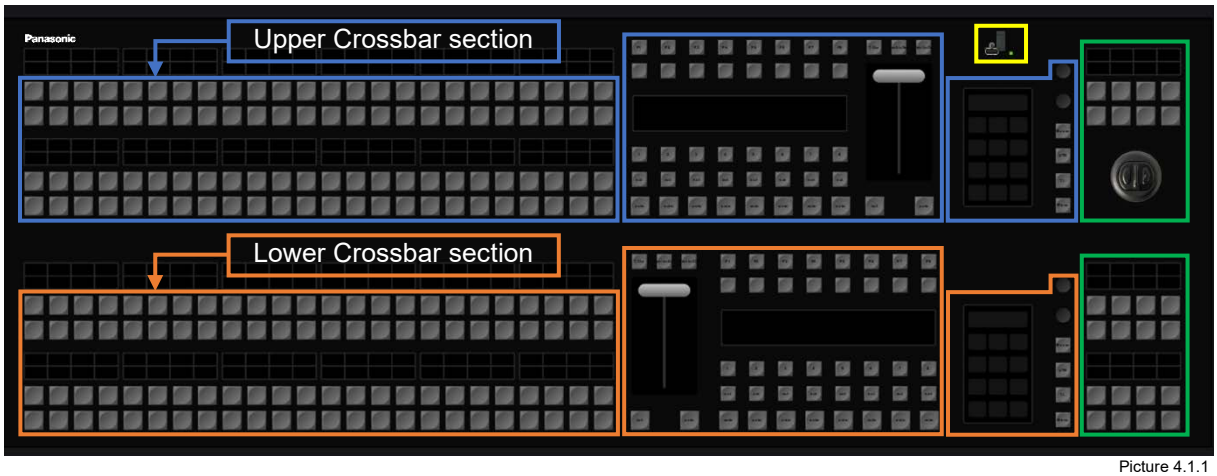


Picture 3.4.7.3

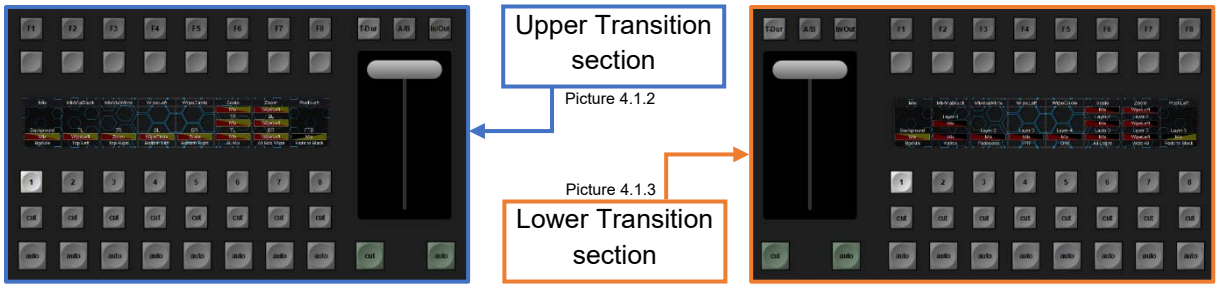
Note: Also in “Scenes” tab—once a Scene is delegated—when there are more sources than source buttons available (see section 3.2.2 Source Options, page 21), automatically a “Shift”-level is (or multiple “Shift”-levels are) applied to the far-right side of the source selection buttons.

4 Control Panel

4.1 General Panel Overview



Picture 4.1.1



Picture 4.1.4

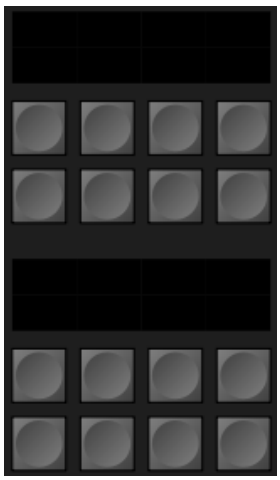
The 2 multi-purpose delegable numeric keypads can be used in the upper as well as in the lower Control Panel section in order to control various elements within Kairos. At the upper numeric keypad section, there is a USB 2.0 connector located, and an additional connector can be found on the Control Panel backplane. The sections can be delegated using according buttons, labeled:

"MACRO" = Control Panel Macros (individual per connected Control Panel).
"VTR" = Tape Motion Commands (TMC) for Clip Player, Ram Player.
"TL" = Timeline (TL) controls (not yet implemented).
"MENU" = "Connection" settings and various "Setup" items regarding IP-Address, Netmask, Gateway, Fader & Joystick calibration, Brightness, Profiles (Panel), Reboot & Restart.

Note: USB functions are not supported yet.

Picture 4.1.5

The Joystick section in the upper right corner of the Kairos Control Panel can be used for PTZ-Camera Control, Layer & FxInputs-Transformations & generic positioning controls. This section will be typically auto-delegated to the individual requested functionality and/or device.

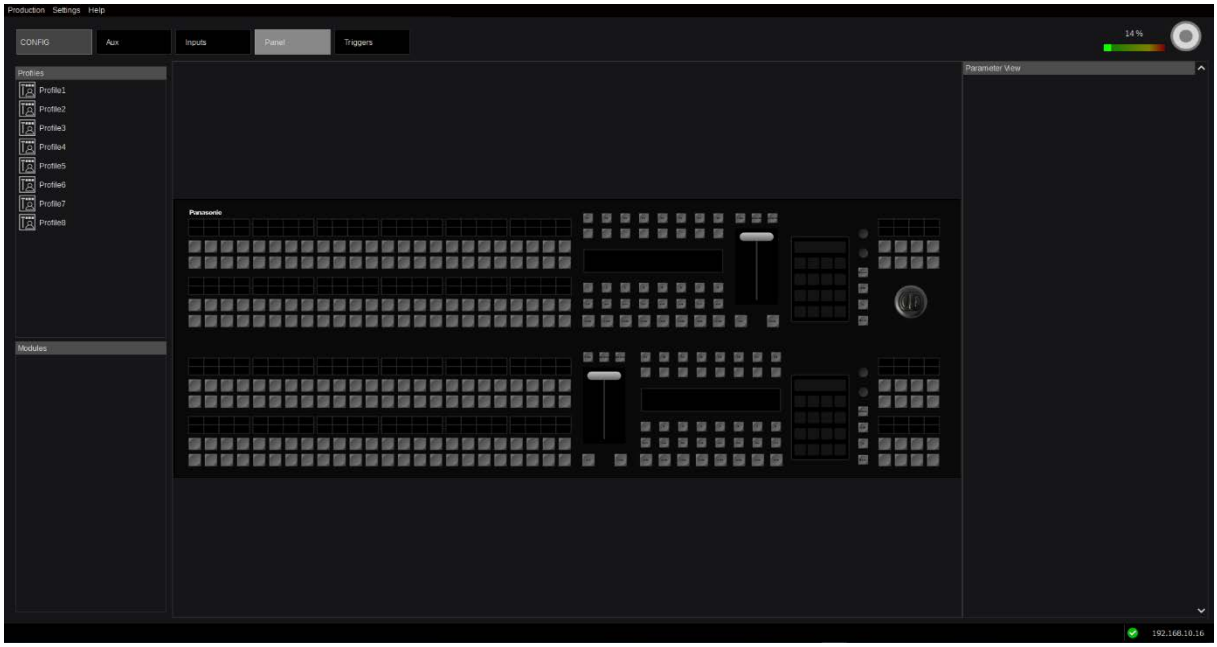


Picture 4.1.6

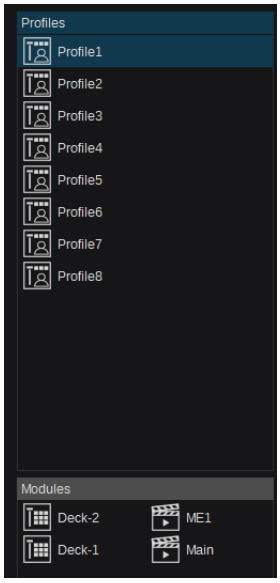
The programmable section in the lower right corner of the Kairos Control Panel can be used for various controls, such as delegating controls toward the above located Joystick, that is, FX-Inputs, PTZ-Presets, Layers, etc.

The default layout is working in upstream direction toward the Joystick section, in order to delegate the appropriate controls.

4.2 Kairos Creator GUI Panel Tab

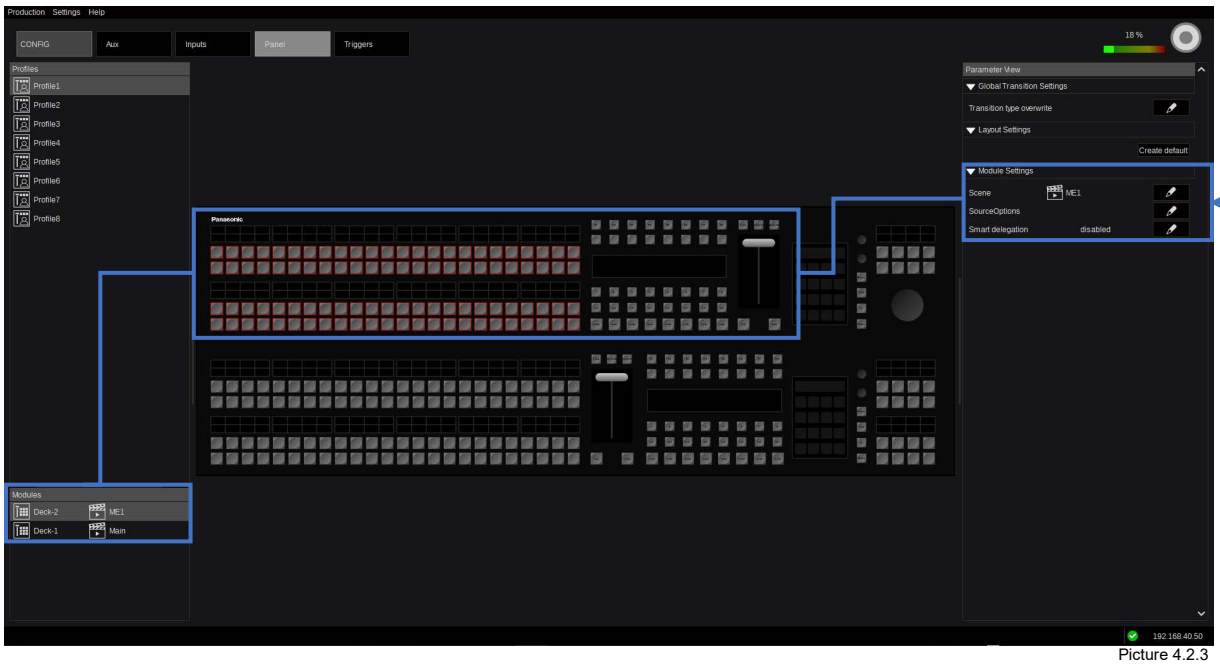


Picture 4.2.1



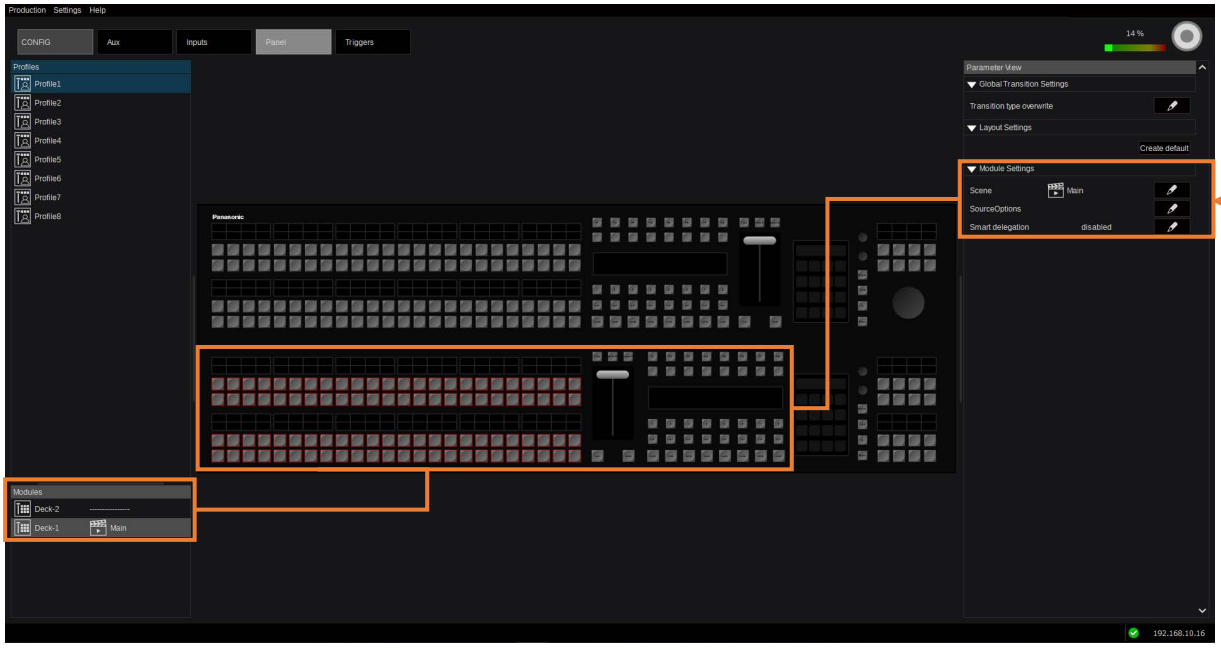
Picture 4.2.2

Entering the Kairos Creator GUI Mixer > Panel tab is showing a Control Panel overview with unselected Panel “Profile” (Picture 4.2.1 above). Selecting Profile1, for example, is showing the default “Deck-1” & “Deck-2” assignment. In this case, the upper Control Panel M/E (Deck-1) is delegated to control the Scene called “ME1,” and the lower Control Panel M/E (Deck-2) is delegated to control the Scene called “Main” (Picture 4.2.2 on the left).



Picture 4.2.3

Selecting “Deck-2” with ME1 assigned to, is highlighting the designated Scene controls and allows to set up the individual “Module Settings” (Picture 4.2.3).



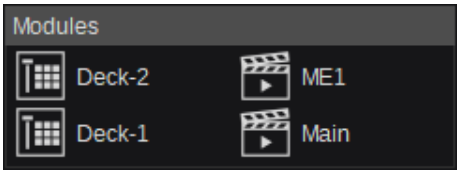
Picture 4.2.4

Selecting “Deck-1” with Main assigned, will highlight the corresponding button section and enables access to the available “Module Settings” (Picture 4.2.4). In this example for “Profile 1.”

Picture 4.2.5

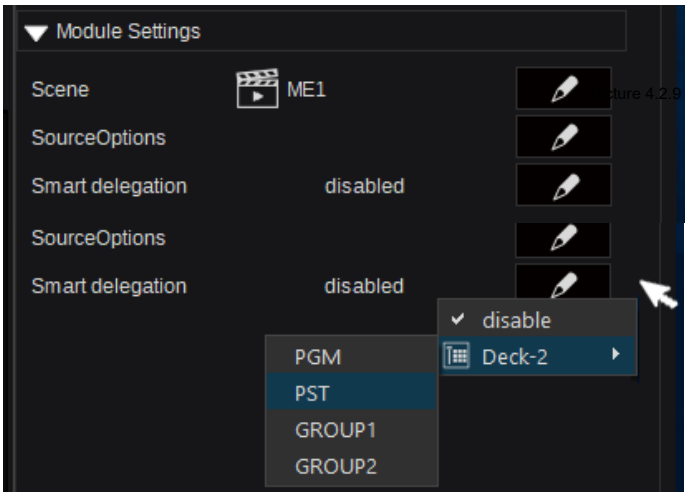
Using the right mouse-click context menu on either “Deck-1” or “Deck-2”(left) and select “Set Delegation”, or click on the “ ” symbol next to “Scene” in “Module Settings” (right), will open the “Source selection” window in order to delegate a static Scene per Deck-1 and/or -2 (Picture 4.2.5).

4.2.1 Smart Delegation

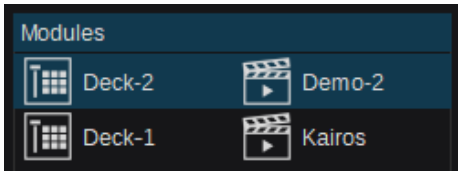


Picture 4.2.1.1

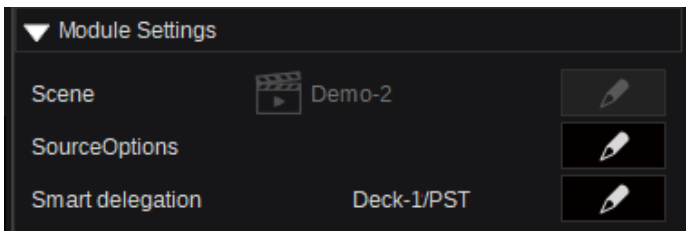
As long as “Smart Delegation” is “disabled,” the Modules “Deck-1 & -2” (Picture 4.2.1.1) will show the delegated Scenes. The “Module Settings” in the “Parameter View” is also reflecting this (Picture 4.2.1.2). Clicking the “Pen” symbol next to “Smart delegation” opens the available selections for the corresponding Control Panel M/E (PGM, PST, GROUP1, & GROUP2). Selection is “PST” from the lower M/E (Deck-1).



Picture 4.2.1.2



Picture 4.2.1.3

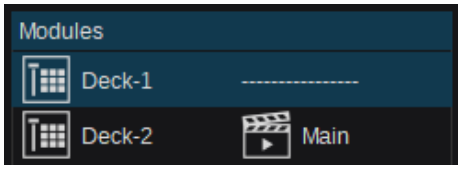


Picture 4.2.1.4

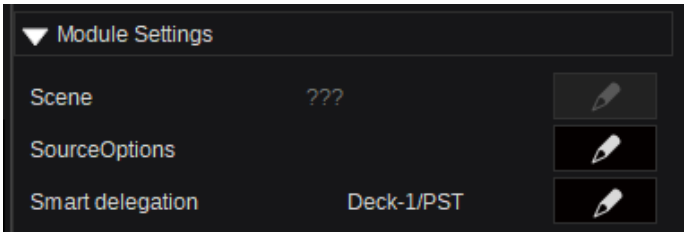
After enabling and defining “Smart Delegation” for Deck-2 with PST-Bus from Deck-1, the menu will update accordingly (Pictures 4.2.1.3–4.2.1.5).

Picture 4.2.1.5

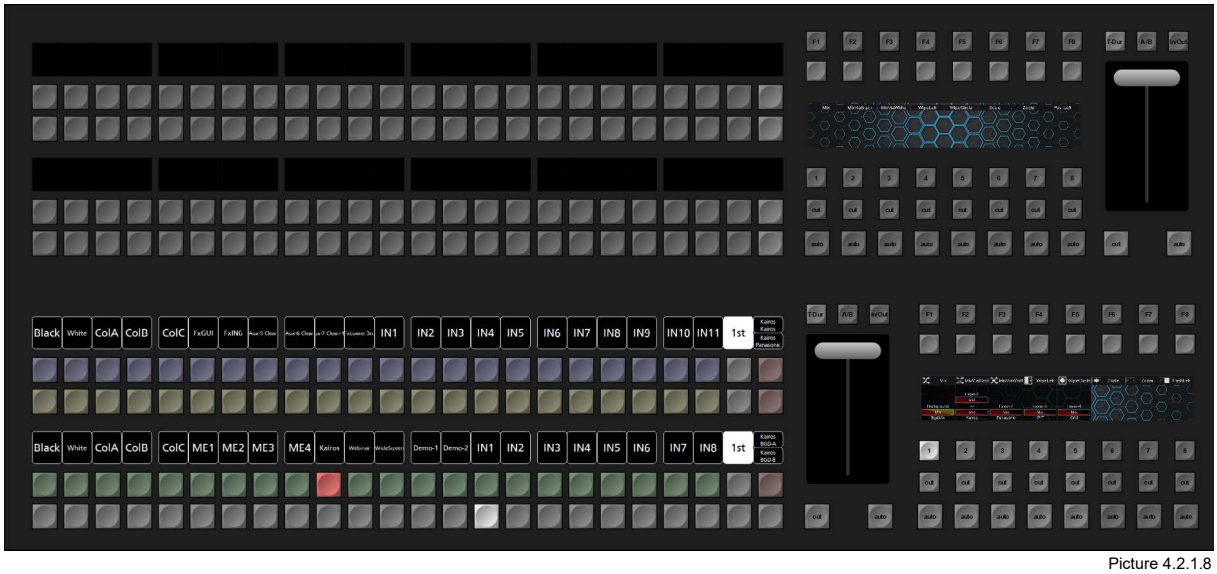
Note: When “Smart Delegation” mode is enabled and the selected cross-point on the defined/preferred Bus selection (PGM, PST, GROUP1, or GROUP2) is **not** a Scene (M/E#), such as a direct Input, RamPlayer channel, Stills etc., the corresponding M/E (Deck-1 or Deck-2) will appear blanked/undefined in the Control Panel as well as in Kairos Creator GUI (Pictures 4.2.1.6–4.2.1.8).



Picture 4.2.1.6



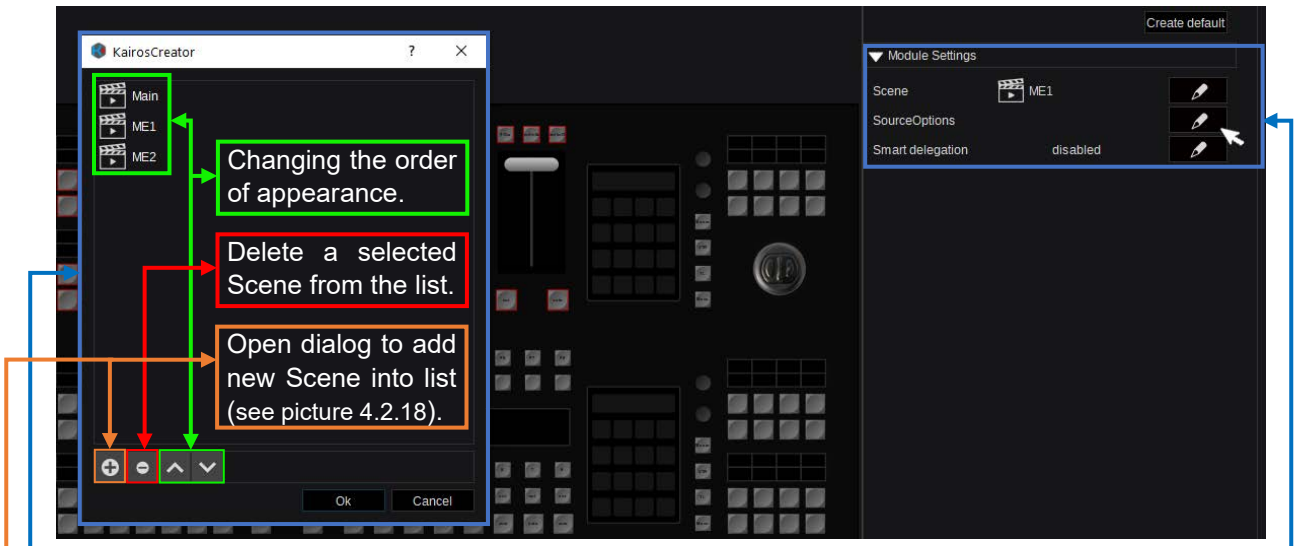
Picture 4.2.1.7



Picture 4.2.1.8

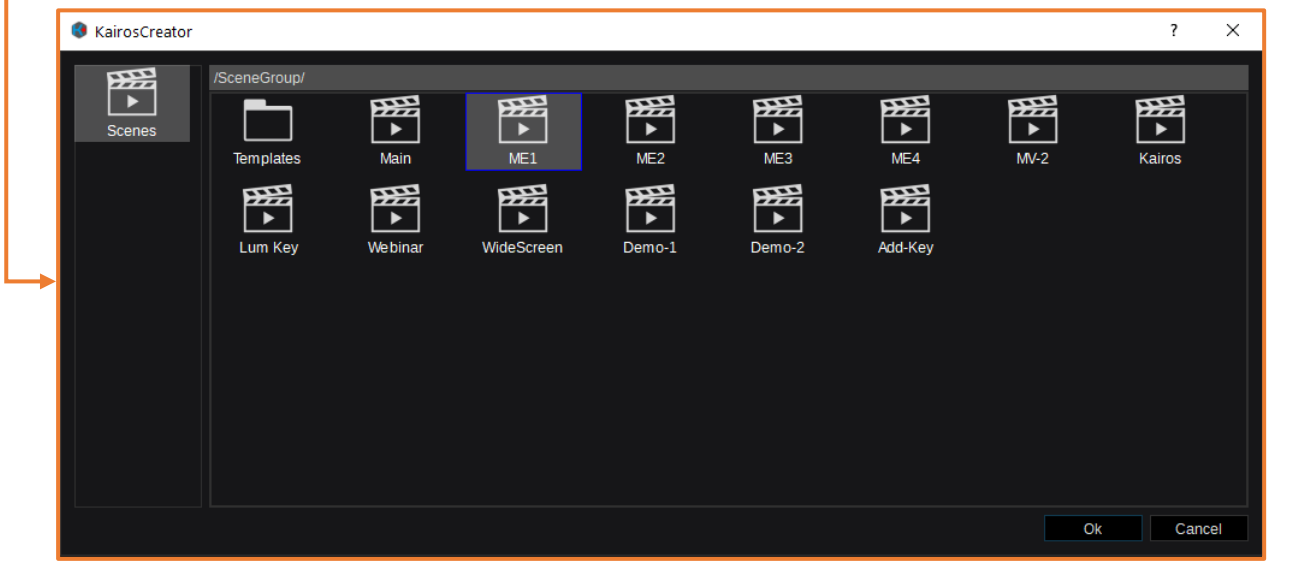
When multiple Scenes (M/E’s) need to be selectable for instant delegation, the function “Source Options” within “Module Settings” in Parameter View is used for that.

Similar to the already described functionality in section “3.2.2 Source Options,” starting on page 21 in this manual, the “Source Options” operations for Scene delegations are almost equally identical.



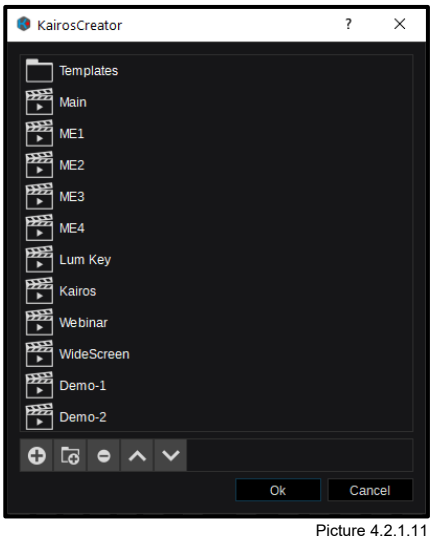
Picture 4.2.1.9

Left mouse-clicking on the pen "✎" symbol next to "Source Options" will open the dialog to organize the Scene delegation operations regarding adding, deleting, and order of appearance.



Picture 4.2.1.10

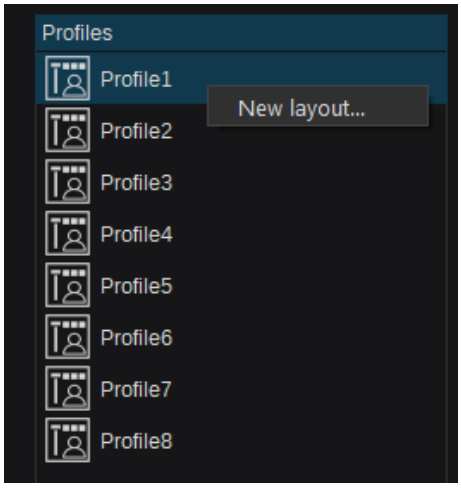
When finished organizing the "Source Options" list for Scene delegations, the selection could look like this:



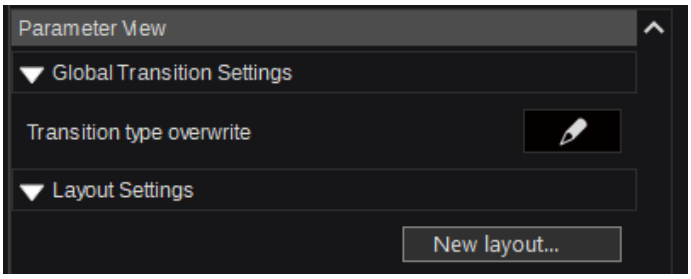
Picture 4.2.1.11

Note: The content of Scene Directories within the "Source Options" list will be automatically unpacked when displayed on the Control Panel. In this case, the "Templates" folder (see Picture 4.2.1.11) is containing the Scenes: 2Box, 4Box, OTS Left, OTS Right, Title, and Sidecar.

4.3 “New Layout” Wizard

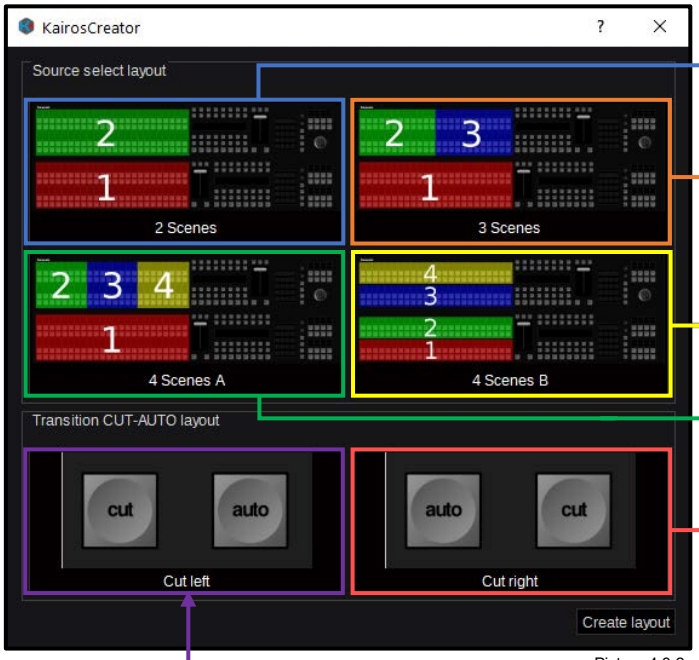


Picture 4.3.2



Picture 4.3.1

To create a “New Layout,” use the right mouse-click context menu on one of the Profiles 1-8 and confirm “New Layout….” Or use the “New Layout…” button in “Parameter View” section underneath “Layout Settings.” After selecting “New Layout…,” the Layout Wizard dialog will open for selection:



Picture 4.3.2

2-Scene layout with 1 = Main & 2 = ME1. At the bottom, the preferred location of the main “Cut” & “Auto” transition button can be selected.

3-Scene layout with upper CP-ME divided into 2 halves. 1 = Main, 2 = ME1 & 3 = ME2. Preferred “Cut” & “Auto” location—like described above.

4-Scene layout. Every A/B bus pair refers to a single Scene. 1 = Main, 2 = ME1, 3 = ME2, & 4 = ME3. Preferred “Cut” & “Auto” position—like described above.

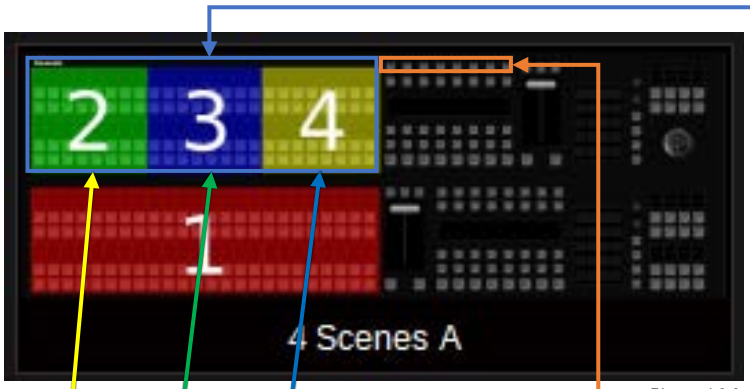
4-Scene layout with upper CP-ME divided into 3 parts. 1 = Main, 2 = ME1, 3 = ME2, & 4 = ME3. Preferred “Cut” & “Auto” location—like described above.

When selecting “Cut left,” the “Cut” transition function is defaulting to the left button beneath both lever/fader arms (upper & lower deck). Therefore, the “Auto” transition function will be located to the right button position.

When selecting “Cut right,” the “Cut” transition function is defaulting to the right button beneath both lever/fader arms (upper & lower deck). Therefore, the “Auto” transition function will be located to the left button position.

Note: Keep in mind that changing the “Cut” & “Auto” button position also requires to change physically (for accuracy reasons) the hardware Control Panel button labels according to the Wizard selection.

Note: The described layout settings are using the names “Main,” “ME1,” “ME2,” & “ME3” only as placeholders for any given Scene names. For that reason, the order and location of the delegated Scenes is obsolete compared to a generic M/E# type of a video switcher. Also, the colors used for identification/separation are selected randomly and are not representing the Scene (M/E#) colors used within a user-defined production.



Picture 4.3.3

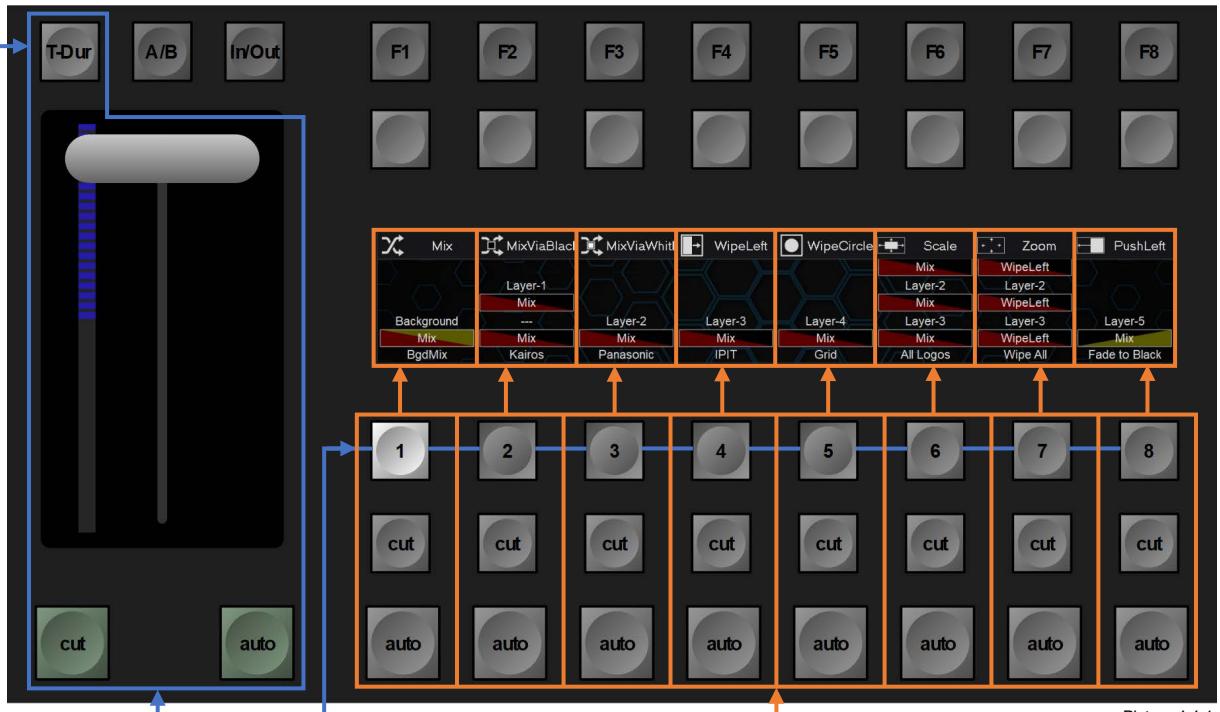
In case more than one Scene (M/E#) is delegated to the upper Deck, the function keys F1–F8 are representing additional delegation functionality for the according Transition section (Picture 4.3.4).

Picture 4.3.4

F1, F2, & F3 are representing the Scene (M/E#) mapped into the upper Deck. Selecting any of the F1, F2, or F3 keys manually will force the delegated Scene to be reflected and controlled by the upper Transition section. The “F8” button is representing an “Auto Delegation Mode.” When the “F8” button is lit, the “Auto Delegation Mode” is enabled, and any “cross-point action” within the mapped Scenes (M/E#’s) will auto-delegate and highlight the according F1, F2, or F3 key together with the belonging Transition section.

Note: This functionality can also be combined with “Smart Delegation” described in section 4.2.1 Smart Delegation on page 101 when using the example “3 Scenes” or “4 Scenes A” (Picture 4.3.2 on previous page).

4.4 Transition Section



Picture 4.4.1

There is a dedicated pair of “Cut” & “Auto” buttons per Transition, each with their individual applicable “Transition Duration” rate. When press & hold one of the buttons labeled “1-8” right above the “Cut” & “Auto” pairs of buttons, the lower numeric keypad will be auto-delegated in order to enter a transition duration rate in frames, or to cancel the dialog.

Fader- (Lever-) arm with “Cut” & “Auto” function buttons in default position underneath (“Cut” = Left, “Auto” = Right).

Transition delegation buttons 1–8, in order to define the next Transition executed with Fader, “Cut” or “Auto.” Multiple selections for next Transition elements are also applicable by pressing multiple delegation buttons at once or press & hold a delegation and add or subtract other delegations.

“T-Dur” button in order to apply Transition duration rate for the “Auto” transition (Main) button beneath Fader- (Lever-) arm.

Picture 4.4.2

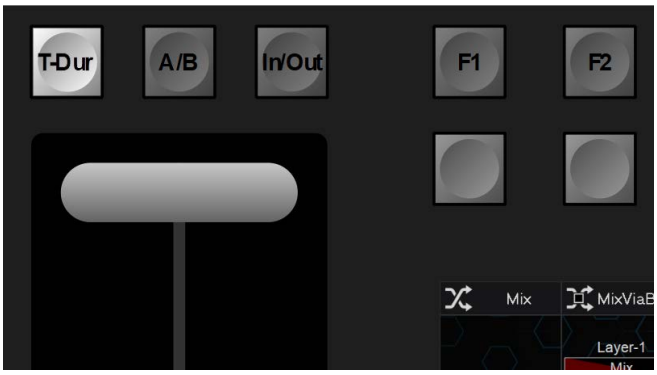
Picture 4.4.3

Right above the Transition display, a row of buttons is located, which are used to temporarily overwrite a user-defined Transition displayed in the bottom row (Picture 4.4.2).Together with the enabled buttons “A/B” or “In/Out,” one of the above-listed Transitions can be used instead and need to be executed with the main “Auto” transition button or the designated Lever/Fader arm. However, pressing one of the dedicated “Auto” buttons (Picture 4.4.1) will always execute the transition originally programmed.

Note: Selecting multiple “Next Transition” buttons 1–8 will also affect the LAH-Scene Preview output, displayed on Multiviewer or Aux-Output. LAH = Look Ahead Preview.

Picture 4.4.4

Picture 4.4.6



Picture 4.4.5

When pressing the “T-Dur” button next to one of the Lever/Fader arm locations in order to enter a Transition Duration rate (in Frames), the “Numeric Keypad” section of the lower Control Panel Deck-1 will be delegated. Or use the lower Digipot next to the Numeric Keypad of Deck-1 to enter value.

= Confirm & close dialog

= Backspace for entry corrections

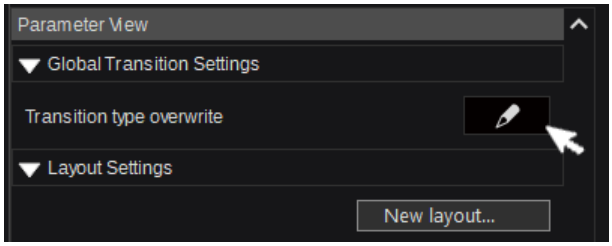
= 1. press confirmation; 2. press closing dialog

Picture 4.4.7

Press & hold one of the “Next Transition” selection buttons (1–8) in Transition section of Deck-1 or Deck-2, in order to enter a Transition Duration rate (in Frames), and the “Numeric Keypad” section of the lower Control Panel Deck-1 will be delegated. Or use the lower Digipot next to the Numeric Keypad of Deck-1 to enter value.
The Displays are showing the actual Layer-Name with actual Transition Duration rate.

Note: When start modifying a Transition Duration frame rate, the displayed OK button turns into an Apply button to confirm the new entered frame rate, (allowing multiple duration changes and try-outs), before closing the dialog with the final OK, or cancel dialog.

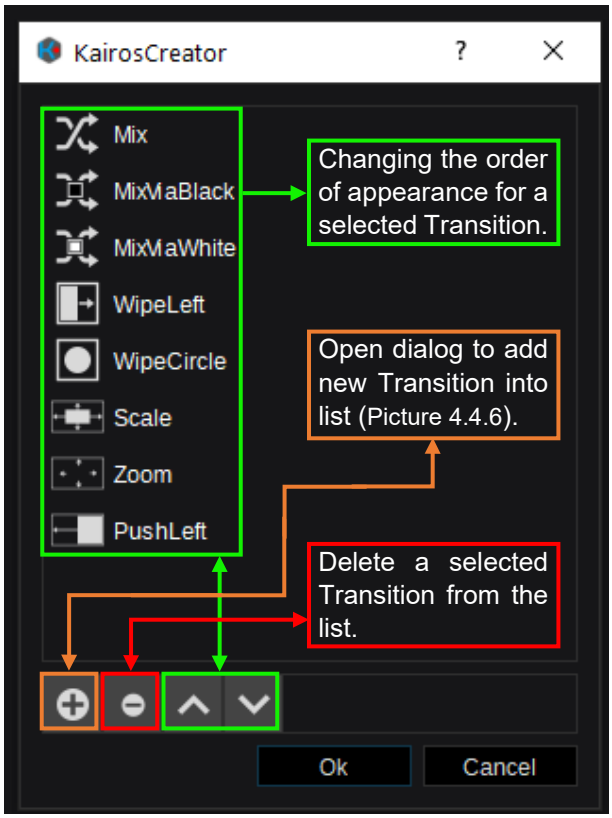
See more details regarding the numeric keypad in section “4.6 Numeric Keypad Section “Menu”:” starting on page 112.



Picture 4.4.8

In order to modify/edit the available Transition types (Picture 4.4.2) used for temporary overwrite by default, left mouse-click the function “Transition type overwrite” on a selected “Profile” & “Deck” in Kairos Creator GUI in Mixer > Panel tab menu, located top right under “Parameter View.”

When opening the “Transition type overwrite” dialog, a default of 8 different Transition types is listed. The list can contain more entries, but only the first 8 will be displayed in according Transition display. Please see Picture 4.4.9 for more operational instructions.

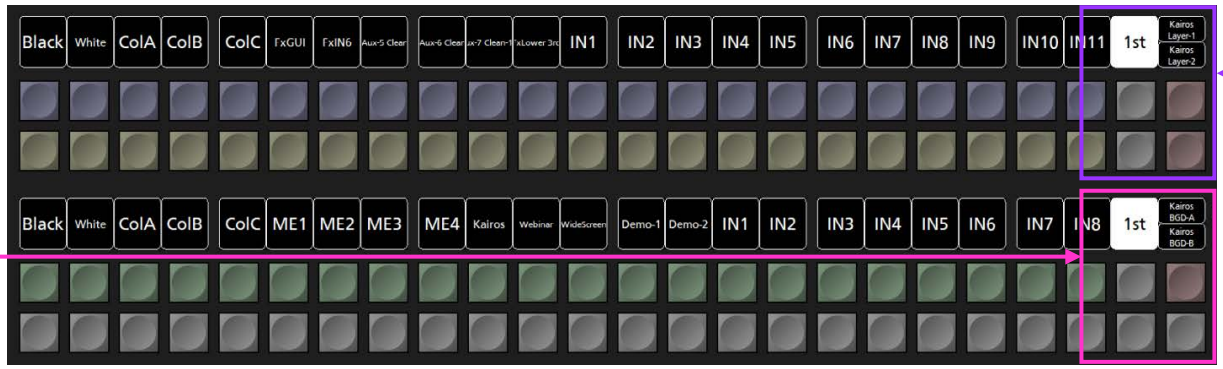


Picture 4.4.9

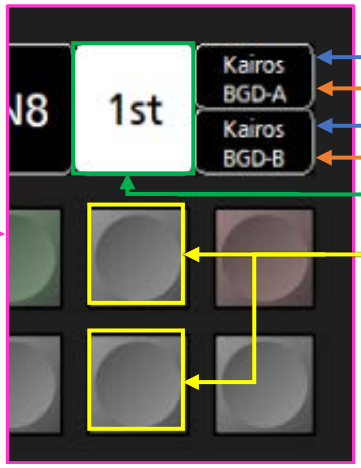
Picture 4.4.10

Note: This selection of all available transitions has been graphically composited and is not available as an actual GUI menu. However, all Transition types are available for “In/Out Effects” as well as “A/B Effects.” The selected “Category” for “User” at the bottom of “Picture 4.4.10” is User-definable and can be renamed. So, more effects can be created and added to the list or unwanted effects can be removed.

4.5 Control Panel Crossbar Section:



Picture 4.2.20



Picture 4.2.21

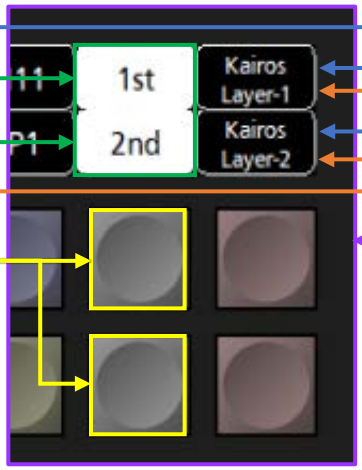
Name of delegated Scene

Delegated Scene Layer

Shift buttons per Layer

Shift level display

Note: Kairos will automatically create as many “Shift”-levels as required in order to represent all assigned cross-points.



Picture 4.2.22

Press & hold “Delegation” button in top row:

Picture 4.2.23

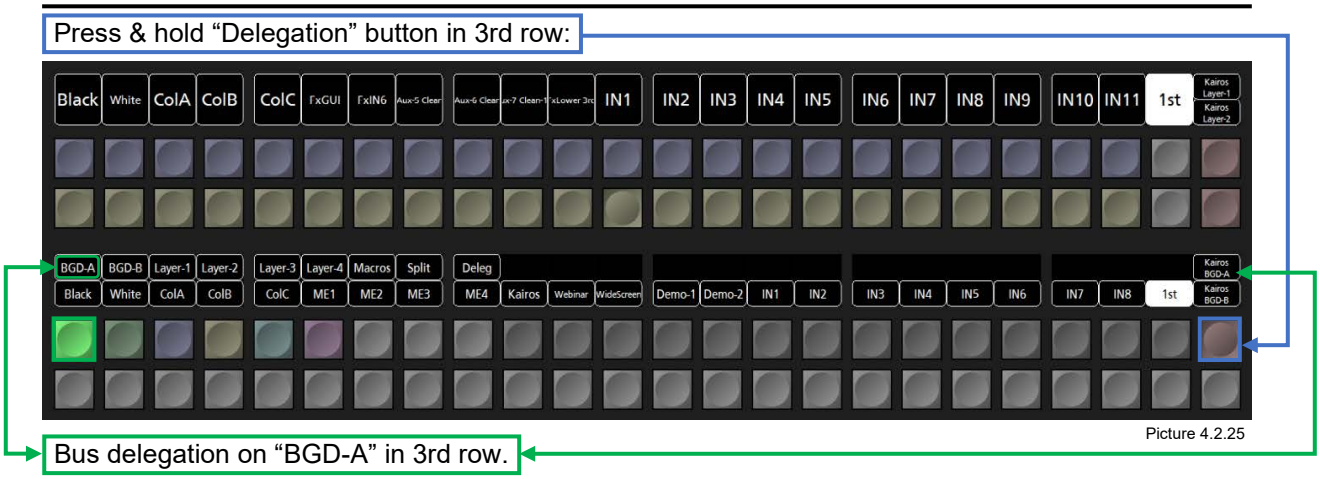
Available Layers and Buses in Scene “Kairos.”

Bus delegation on “Layer-1” in top row.

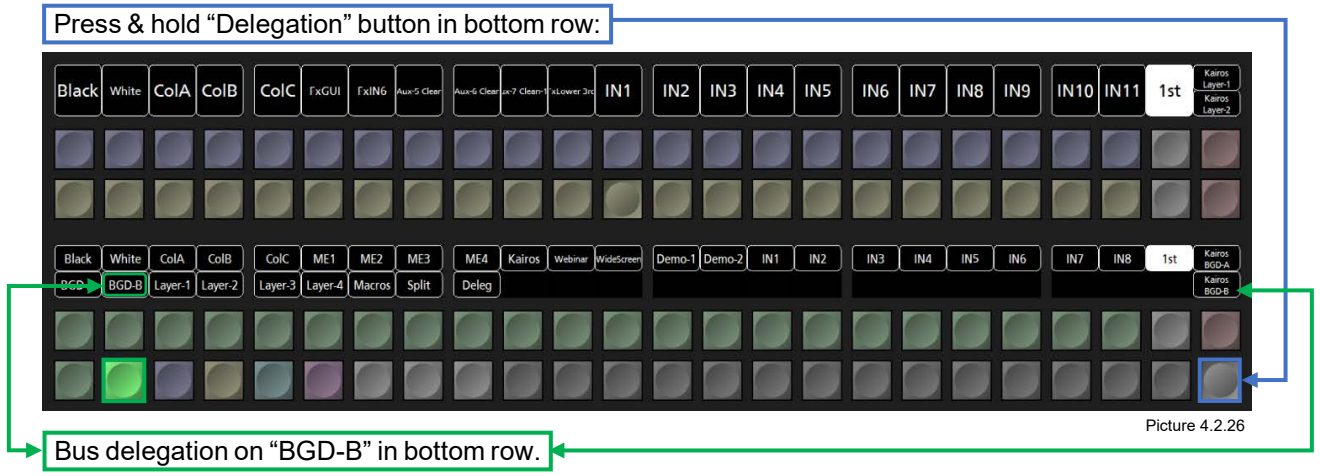
Press & hold “Delegation” button in 2nd row:

Picture 4.2.24

Bus delegation on “Layer-2” in 2nd row.

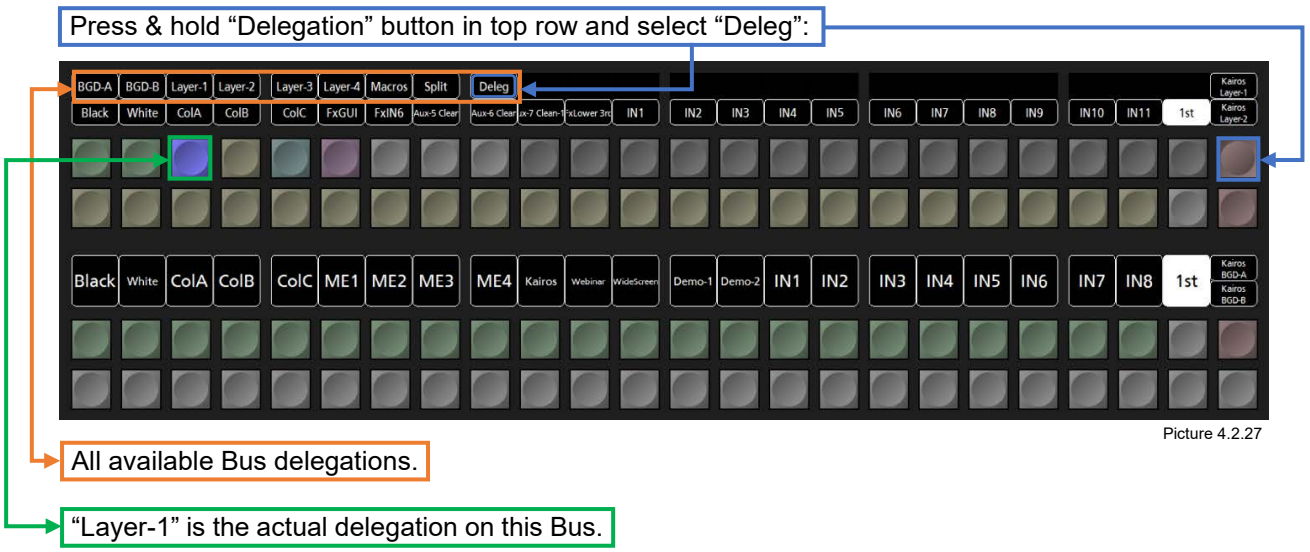


Picture 4.2.25



Picture 4.2.26

Note: After press & hold any of the “Delegation” buttons, Kairos Control Panel allows to change the actual delegation of the selected Bus to any other listed Layer, such as “BGD-A,” “BGD-B,” “Layer-1,” “Layer-2,” etc. (default Layer names) or designated Scene- “Macros.”



Picture 4.2.27

Note: After selecting Deleg all button press & hold actions can be released.

After selecting “Deleg” (see last page Picture 4.2.27):

Picture 4.2.28

All Scenes in listed order created in “Source Options” (see 3.2.2 Source Options).

“Kairos” is the actual delegated Scene for this Deck.

Note: The content of Scene Directories within the “Source Options” list will be automatically unpacked when displayed on the Control Panel. In this case, the “Templates” folder (see Picture 4.2.1.11) is containing the Scenes: 2Box, 4Box, OTS Left, OTS Right, Title, and Sidecar.

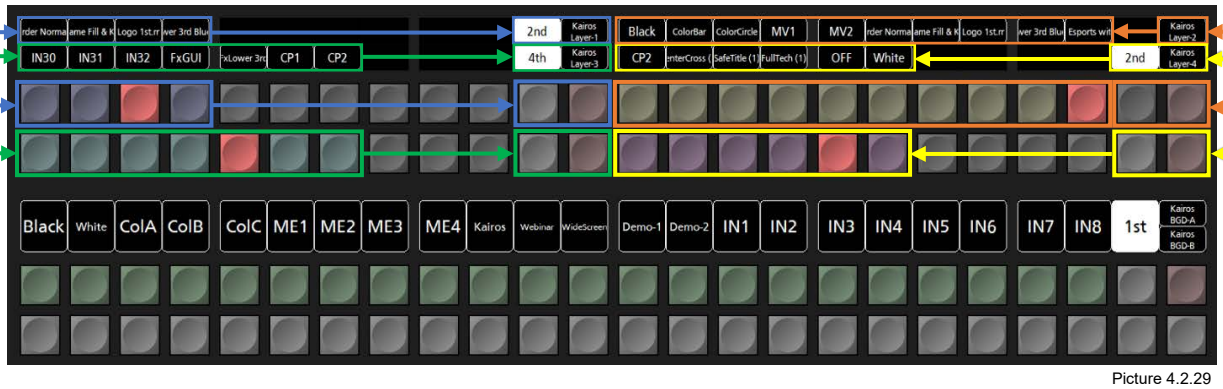
Press & hold “Delegation” button in top row and select “Split”:

Picture 4.2.27

All available delegations.

“Layer-1” is the actual delegation for this Bus.

Note: “Split” operation allows to separate every Bus individually into 2 halves. So instead of controlling only one single Layer per Bus, 2 delegations per Bus are applicable.



Picture 4.2.29

Source displays	Shift	Delegation
Cross-points buttons	Shift	Delegation

Status upper left “Split” segment:

Scene = Kairos, Layer-1 delegated, 2nd Shift level, selected source = “Logo 1st.rr”

Source displays	Shift	Delegation
Cross-points buttons	Shift	Delegation

Status upper right “Split” segment:

Scene = Kairos, Layer-2 delegated, Unshifted, selected source = “Esports with Alpha”

Status lower left “Split” segment:

Scene = Kairos, Layer-3 delegated, 4th Shift level, selected source = “FxLower 3rd”

Status lower right “Split” segment:

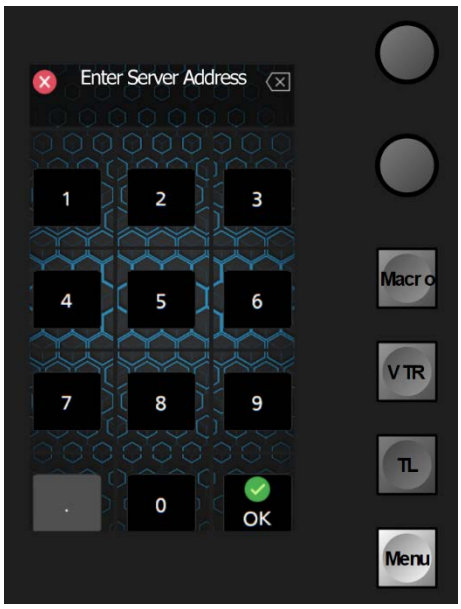
Scene = Kairos, Layer-4 delegated, 2nd Shift level, selected source = “Off”

4.6 Numeric Keypad Section “Menu”:

Picture 4.6.1

After powering up the Kairos Core and Control Panel, an IP-address needs to be entered in order to establish a network connection in between.
The delegation of the “Numeric Keypad” sections in upper and lower Deck are set to “Menu” delegation.
Once a connection is established, the system will remember the IP-address and auto-connect after reboot.
To establish an initial connection, press the “Connect” button in the upper or lower “Numeric Keypad” sections.

Note: Only the lower “Numeric Keypad” (Deck-1) will show the connected Kairos Core server address permanently in the main “Menu” dialog (Picture 4.6.1).



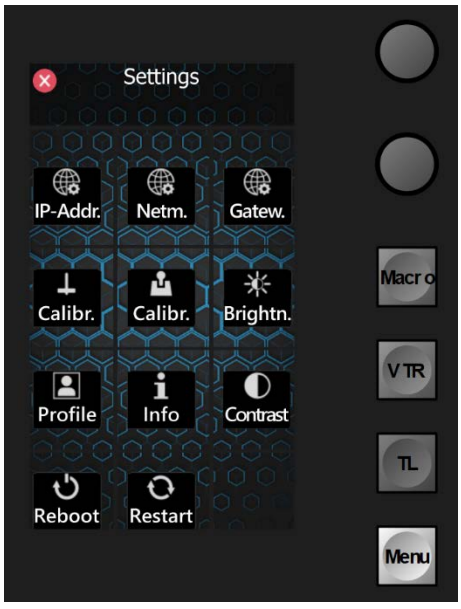
Picture 4.6.2

After pressing the “Connect” button in main “Menu” dialog of upper or lower Decks “Numeric Keypad” section (Picture 4.6.1), the upcoming dialog allows to enter an IP-address for a Kairos Core server in order to connect with the Control Panel (Picture 4.6.2).

Use the “Backspace” button as needed.

Use the “Cancel” button to abort the dialog.

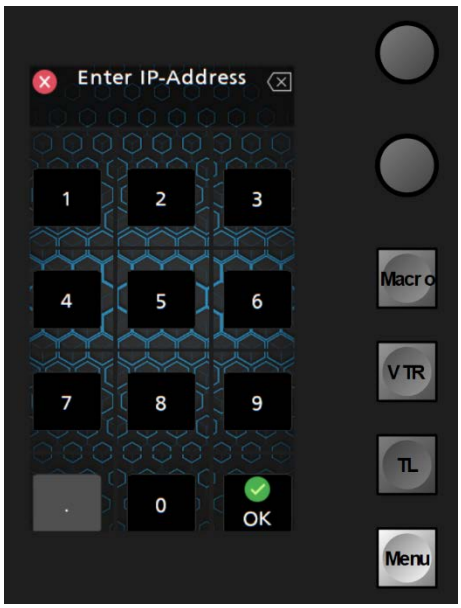
Use the button to confirm and close the entry.



Picture 4.6.3

Pressing the “Setup” button in main “Menu” dialog of upper or lower Decks “Numeric Keypad” section (Picture 4.6.1), all relevant local “Settings” for this Control Panel can be monitored, accessed, and/or modified (Picture 4.6.3).

IP-Addr. = IP-Address setting for Control Panel
Netm. = Netmask setting for Control Panel
Gatew. = Gateway address setting for Control Panel
Calibr. = Fader Calibration dialog
Calibr. = Joystick Calibration dialog
Brightn. = Brightness adjustment (button backlight intensity)
Profile = Profile selection Control Panel 1–8
Info = Information Software Version (Read only)
Reboot = Reboot Control Panel
Restart = Restart Control Panel Application Software



Picture 4.6.4

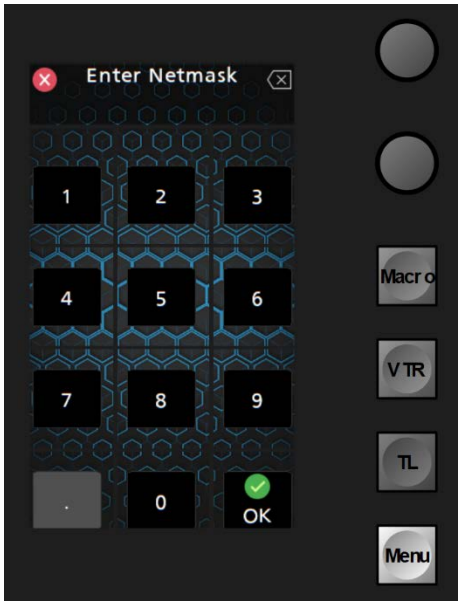
= IP-Address setting for Control Panel

Allows to set the Control Panel IP-Address.

Use the “Backspace” button as needed.

Use the “Cancel” button to abort the dialog.

Use the button to confirm and close the entry.



Picture 4.6.5

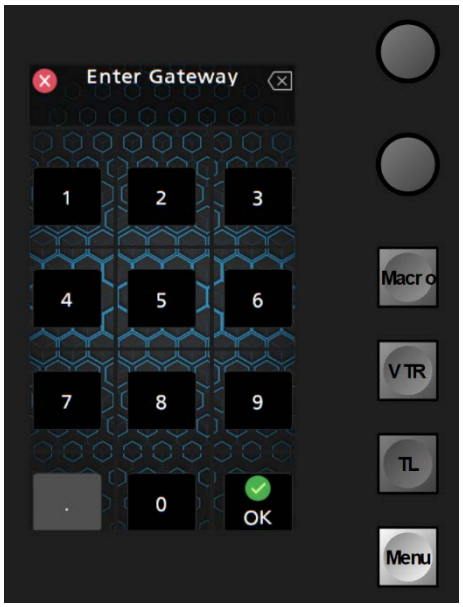
= Netmask setting for Control Panel

Allows to set the Control Panel Netmask.

Use the “Backspace” button as needed.

Use the “Cancel” button to abort the dialog.

Use the button to confirm and close the entry.



Picture 4.6.6

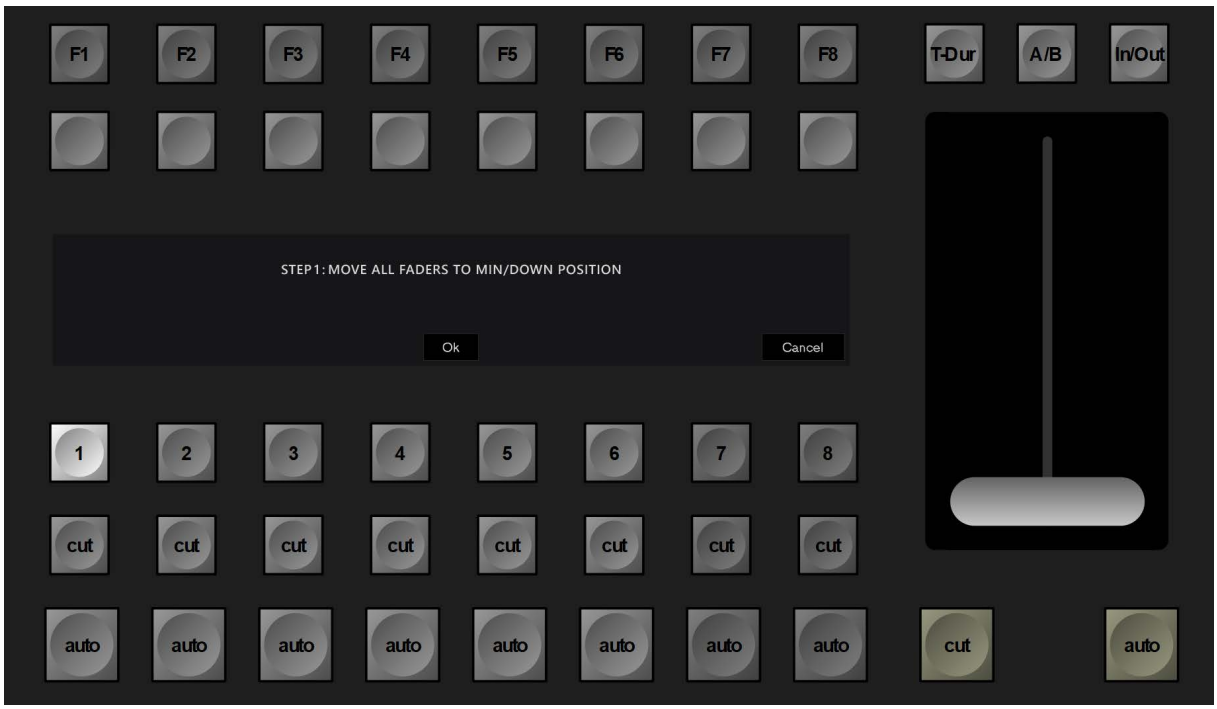
= Gateway address setting for Control Panel

Allows to set the Control Panel Gateway address.

Use the “Backspace” button as needed.

Use the “Cancel” button to abort the dialog.

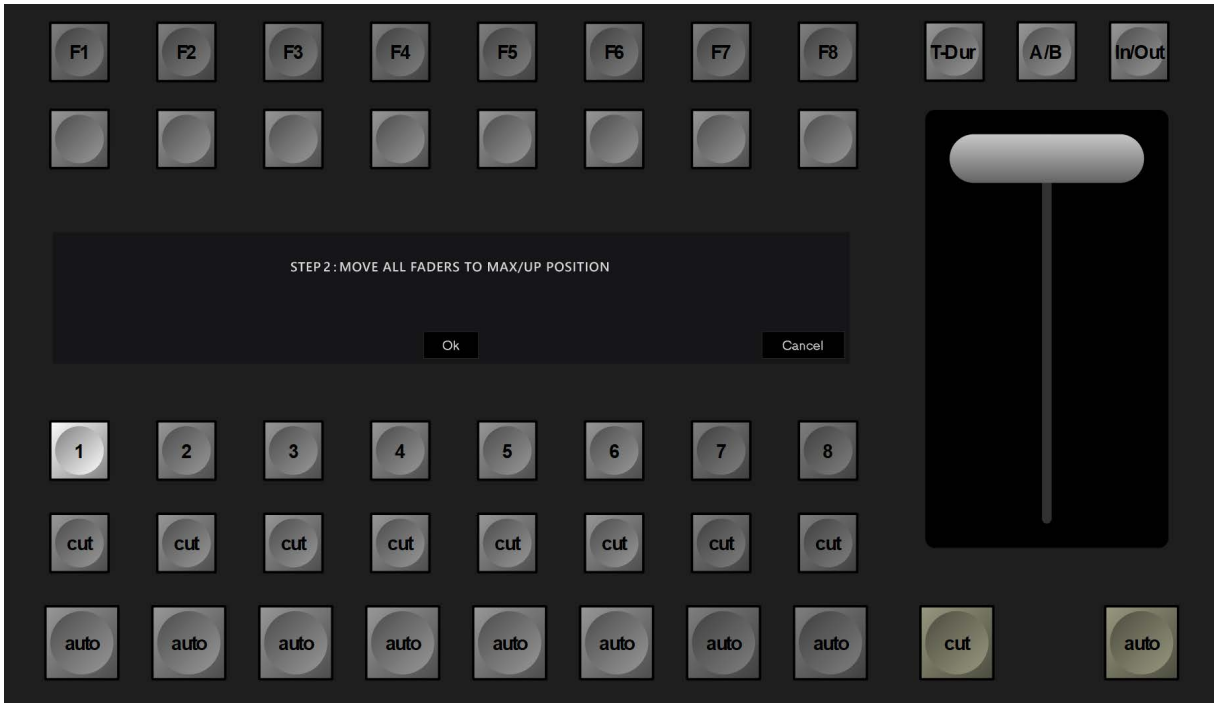
Use the button to confirm and close the entry.



Picture 4.6.7

Calibr. = Fader Calibration dialog

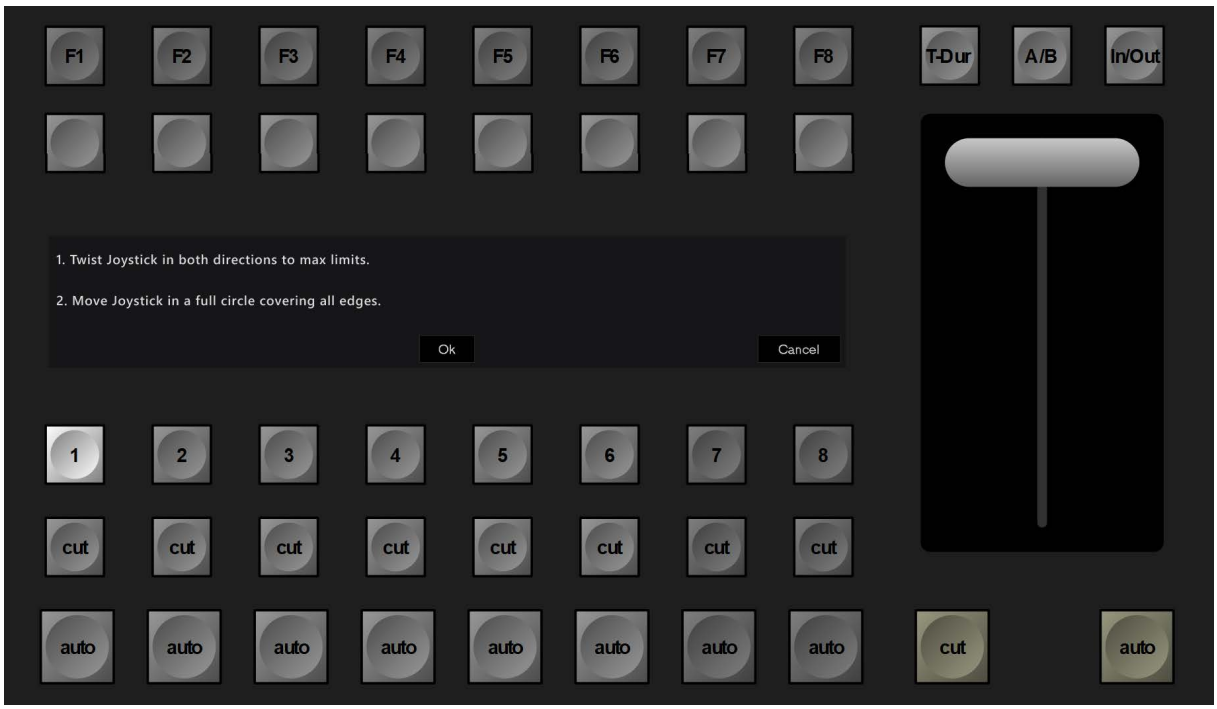
Follow instructions displayed in upper Transition section.
“STEP 1: MOVE ALL FADERS TO MIN/DOWN POSITION”
Press “OK” to continue or “Cancel” to abort.



Picture 4.6.8

Calibr. = Fader Calibration dialog

Follow instructions displayed in upper Transition section.
“STEP 2: MOVE ALL FADERS TO MAX/UP POSITION”
Press “OK” to confirm and finish or “Cancel” to abort.



Picture 4.6.9

Calibr. = Joystick Calibration dialog

Follow instructions displayed in upper Transition section.

“1. Rotate Z axis in Clockwise and Counterclockwise direction to Max Limits.”

“2. Rotate Joystick Clockwise and Counterclockwise in a full circle 2–3 times to be sure.”

Press “OK” to confirm or “Cancel” to abort.

Picture 4.6.10

Brightn. = Brightness control

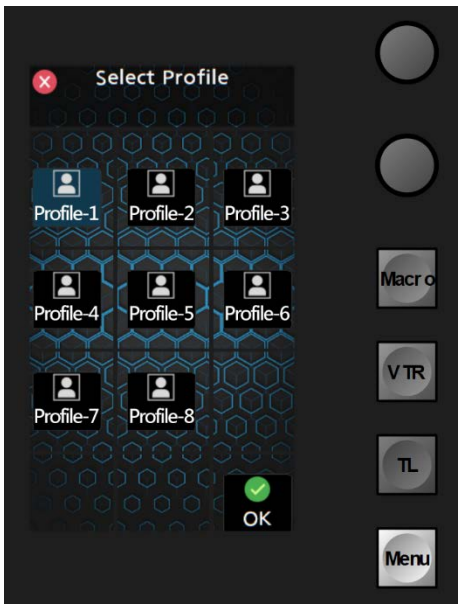
Brightness adjustment (button backlight intensity)

Use Numeric Keypad or lower Digipot to enter the value.

Use the “Backspace” button as needed.

Use the “Cancel” button to abort the dialog.

Use the OK button to confirm and close the entry.



Picture 4.6.11

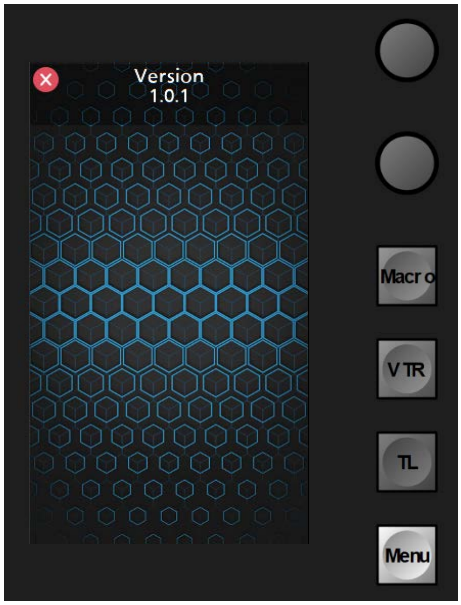
Profile = Profile selection Control Panel 1–8

Use button 1–8 in order to recall the designated Panel Profile (see section 4.3 “New Layout” wizard).

Use the “Cancel” button to abort the dialog.

Use the OK button to confirm and close the entry.

Note: If Profile setting is changed in the Kairos Creator, please reselect Profile-# on the Control Panel.



Picture 4.6.12

Info = Info regarding Software Version

Information regarding installed software version. This is a read-only information.

Use the “Cancel” button to abort the dialog.

Contrast = High/Low LED button Contrast

Use the buttons “High,” “Mid,” or “Low” in order to select the preferred contrast setting.

When selecting “Sapphire” mode, the Kairos Control Panel will disable all button colors, except “Tally On-Air” indication, and turns selection buttons into “Sapphire” (blue) color tone.

Use the “Cancel” button to abort the dialog.

Use the OK button to confirm and close the entry.

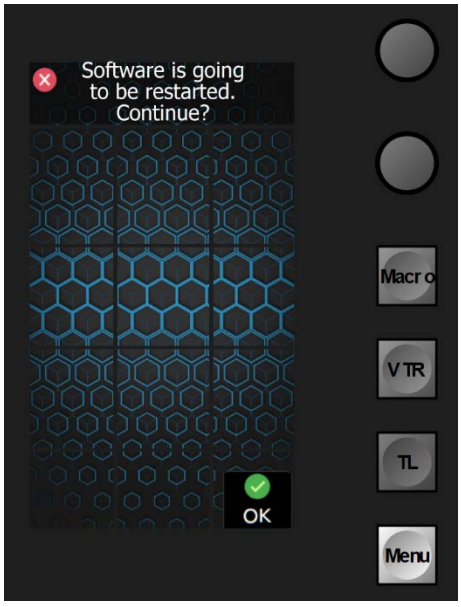
Picture 4.6.13

Reboot = Reboot Control Panel

Note: This will cause a full reboot of the Control Panel, including Operating System and Application Software, similar to a power cycle.

Use the “Cancel” button to abort the dialog.

Use the OK button to confirm and close the entry.



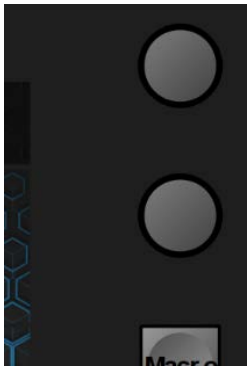
Picture 4.6.14

Restart = Restart Control Panel

Note: This will cause a restart of the Control Panel Application Software only.

Use the “Cancel” button to abort the dialog.

Use the OK button to confirm and close the entry.



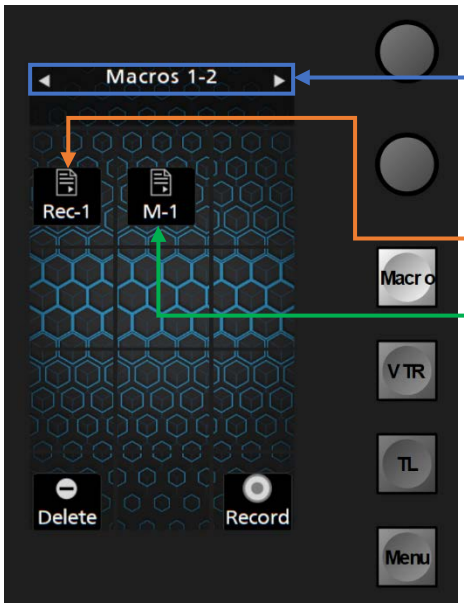
Picture 4.6.15

The 2 Digipots located above the Numeric Keypad delegation buttons can be used for mainly 2 things:

- the lower Digipot—in the upper as well as in the lower Deck—can adjust Transition Duration times, once delegated by according function. When delegated by one of the Main “T-DUR” buttons located right above the Fader arms, the upper Digipot does not provide any functionality (yet!).

- the upper Digipot—in the upper as well as in the lower Deck—once delegated by according “Next Transition” delegation 1–8, can adjust Transition attributes such as “Norm, Reverse, or Norm/Reverse” run directions for DVE or Wipe transitions, if assigned for designated “Next Transition” delegation.

4.6.1 Macros



Picture 4.6.1.1

When Numeric Keypad section is delegated to “Macro,” various operations can be executed such as Recall, Record, Insert Pause, select Bank, and Delete.

Note: Panel-Macros belong to their Panel-Profile (1–8).

Previous Bank | Macros 1-2 (Bank1-2 Macros) | Next Bank

Rec-1 = Macro recorded via Control Panel “Record” function.

M-1 = Macro recorded via Kairos Creator GUI Menu.

Record = Record new Control Panel Macro.

Delete = Delete Control Panel Macro.

Picture 4.6.1.2

When pressing the “Record” button, the Numeric Keypad display turns into an “Insert Delay” keypad with multiple different default selections in numbered in Frames:
1, 3, 5, 10, 30, 50, 100, 300, & 500.

Note: The listed delay times can also be pressed multiple times to result in a specific time.
So, for example, the requested “Delay” time is 46 Frames:
Press 30 + 10 + 3 + 3 = 46, or any other comparable/reasonable combination.

Press “Record” again to stop recording.

Picture 4.6.1.3

Once recording is stopped, the display shows the Macro recall page with an added new “Panel Macro.”

Rec-2 = Added new “Panel Macro” with default name.

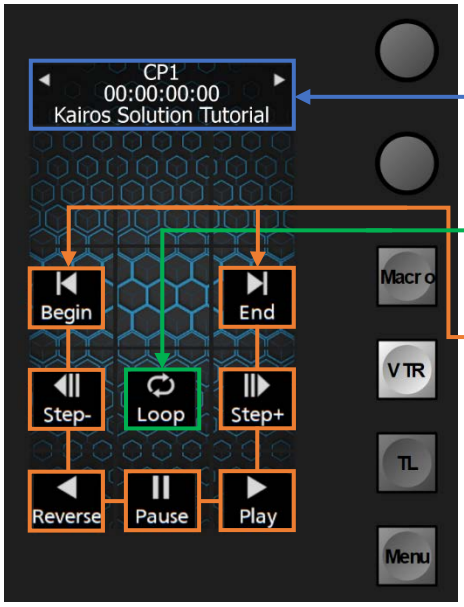
Note: Kairos Creator GUI can be used for renaming Macros and sort the list of appearance. Also Cut, Copy, and Paste functionality is supported by Kairos Creator GUI across all available Macro locations & destinations.

Picture 4.6.1.4

To “Delete” a Control Panel Macro, press and hold the “Delete” button in the lower left corner of the numeric Keypad section (when delegated to “Macro”) and click on the Macro, which needs to be deleted. This is executed instantly with no further safety request.

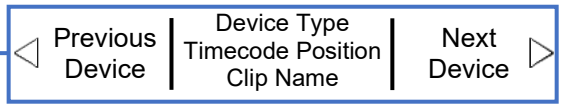
Note: Press and hold the “Delete” button allows multiple Macros to be selected in a row, which will be instantly removed after selection.

4.6.2 VTR



Picture 4.6.2.1

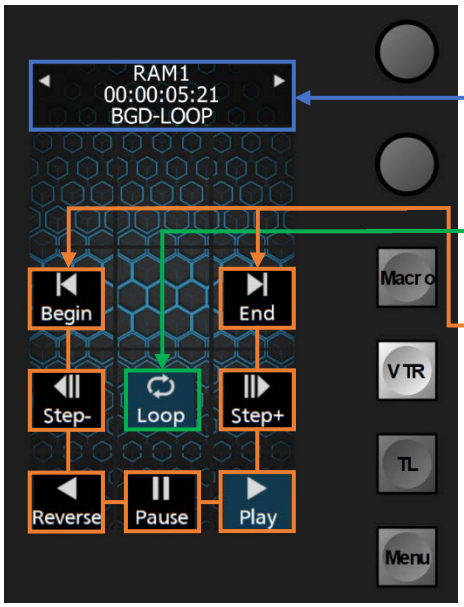
When Numeric Keypad section is delegated to “VTR,” all internal and external VTR/Server type of devices can be controlled. Using the arrows “Left” & “Right” to cycle through all available device list.



Selected device is Clip Player Channel-1.

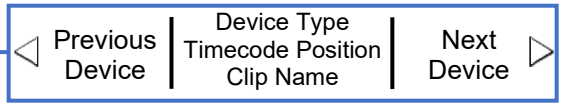
TMC = Tape Motion Commands (Stopped after Clip load)

Loop = Loop Mode On/Off (Off)



Picture 4.6.2.2

When Numeric Keypad section is delegated to “VTR,” all internal and external VTR/Server type of devices can be controlled. Using the arrows “Left” & “Right” to cycle through all available device list.



Selected device is Ram Player Channel-1.

TMC = Tape Motion Commands (Play with Loop On)

Loop = Loop Mode On/Off (On)

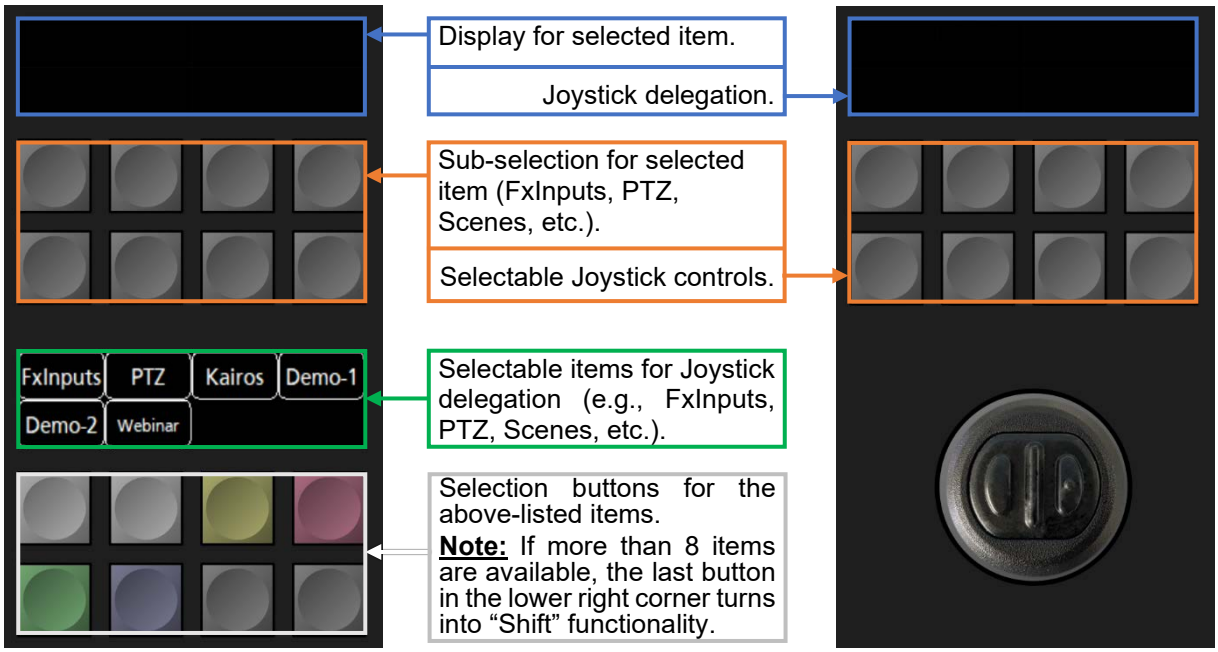
4.6.3 TL

Not implemented yet.

4.7 Joystick Delegation:

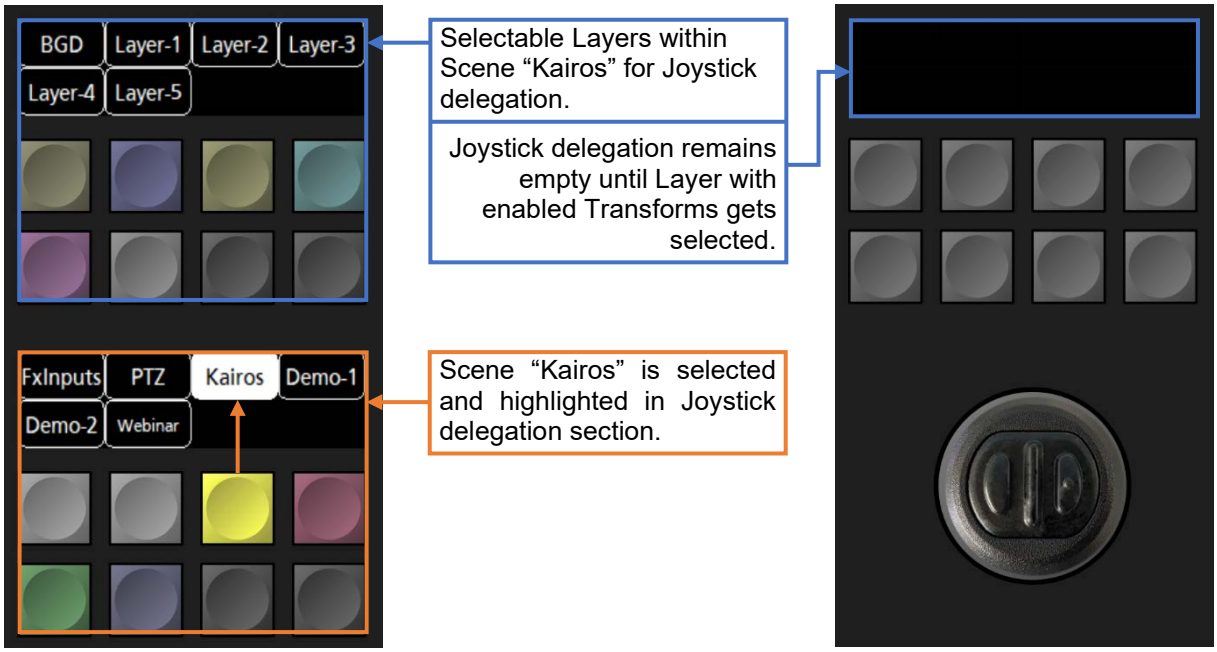
The programmable section in the lower right corner of the Kairos Control Panel can be used for various controls, such as delegating controls toward the above-located Joystick, that is, FX-Inputs, PTZ-Presets, Scenes (M/E#'s), Layers, etc.

The default layout is working in upstream direction toward the Joystick section, in order to delegate the appropriate controls.



Picture 4.7.1

Picture 4.7.2



Picture 4.7.3

Picture 4.7.4

"Layer-1" in Scene "Kairos" is selected and highlighted in Joystick delegation section.

Joystick delegation shows available Transforms for "Layer-1" (Crop & Trans2D).

Scene "Kairos" is selected and highlighted in Joystick delegation section.

Picture 4.7.5

Picture 4.7.6

"Layer-1" in Scene "Kairos" is selected and highlighted in Joystick delegation section.

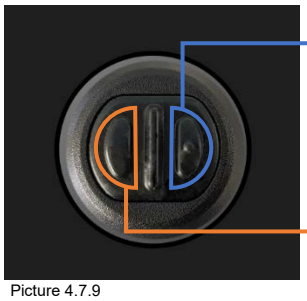
Delegation enabled for "Layer-1"—"Trans2D" Joystick controls.

Scene "Kairos" is selected and highlighted in Joystick delegation section.

Picture 4.7.7

Picture 4.7.8

Note: Kairos will remember the last delegated Joystick control per selected Layer. To disable Joystick control, deselect the Transform control (Crop, Trans2D, etc.), the selected Layer or the entire main selection for "FxInputs," "PTZ," "Scene," etc.



The right Joystick button acts like an acceleration button for all Joystick control axis and assigned function, such as Transform2D, Crop, etc.

No function implemented yet on the left Joystick button.

Picture 4.7.9

Panasonic Corporation
Web Site: https://www.panasonic.com