Colorlight

ColorAdept V1.2

User Manual

Manual Changelog

No.	Version	Release date	Author	Description
1	V1.0	2023.7.3	Wang Wenxuan	Initial release

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1. Introduction

ColorAdept is a brand-new LED control software committed to creating the ultimate user experience. It supports three leading operating systems. Equipped with an aesthetic user interface and strong color processing capabilities, it is designed to bring an easy-to-use, intelligent, and efficient operation experience for users.

●Cabinet library

The cabinet library covers the common cabinet types, which is convenient for users to select quickly.

●Color processing

It is designed to provide three color processing tools Color magic, Curves, and 3D LUT, which is easy for users to adjust colors quickly and accurately to present rich creativity.

●Frame multiplexing & ShutterLock

The new virtual shooting methods achieve more creative concepts which present in a more realistic way.

●Multiple processors control

The parameters of multiple processors can be set simultaneously, which greatly improves the user's work efficiency.

2. Installation

2.1 Installation for Windows PC

Step 1 Download the Windows installation file from official website: https://www.lednets.com/Support/Software/index.html

Step 2 Open the downloaded file to enter the Setup wizard.

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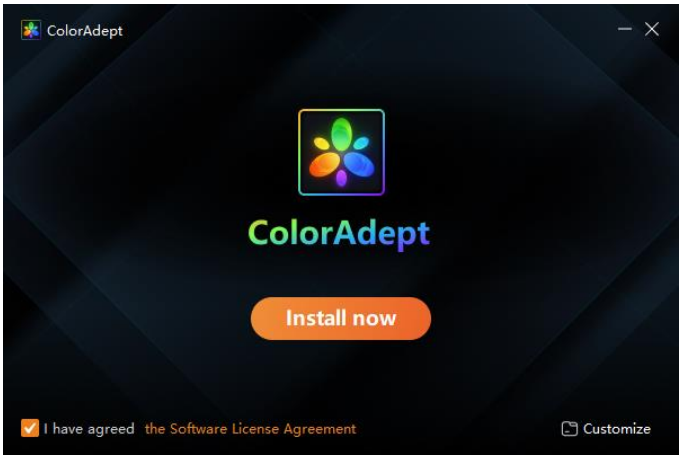

Figure 2.1-1 Install now

Step 3 Select Install now button or Customize button to continue.

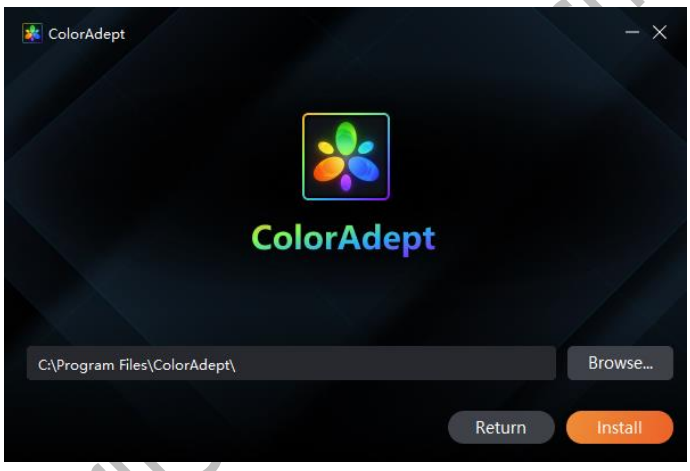

Figure 2.1-2 Install location

Step 4 When the software has finished installing, click the Start button to launch it directly.

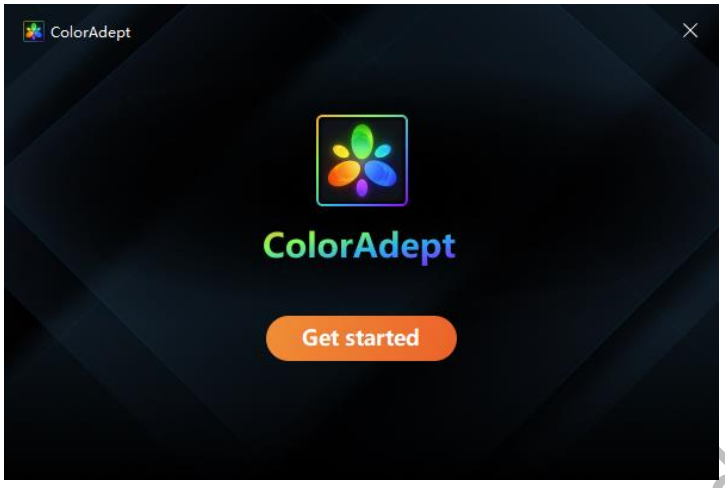

Figure 2.1-3 Finish

2.2 Installation for macOS

Step 1 Download the macOS installation file from official website: https://www.lednets.com/Support/Software/index.html

Step 2 Drag or copy the downloaded file into the application folder to complete installation.

3. Quick Start

3.1 Connecting Processors

Connect processors with a computer through the network cable or ethernet switch to the same network segment. The default IP address of this processor is 192.168.1.10.

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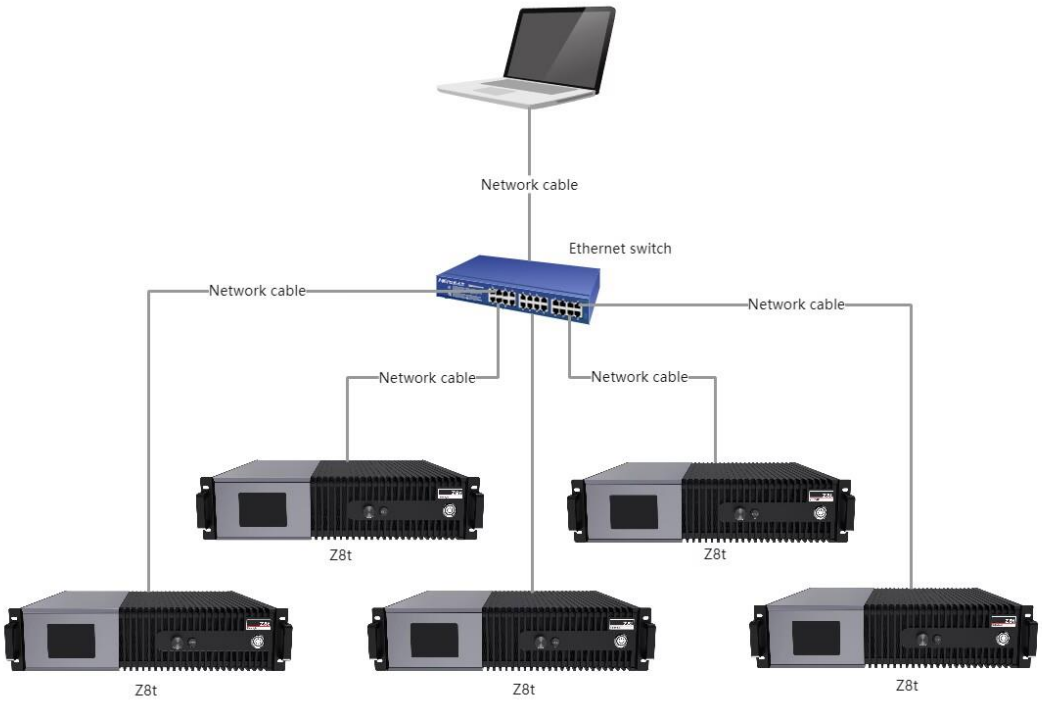

Figure 3.1-1 Multiple processor connection diagram

3.2 Cabinet Library Configuration

Step 1 Select an online processor in the Discovered tab of the processor list to enter the project management interface.

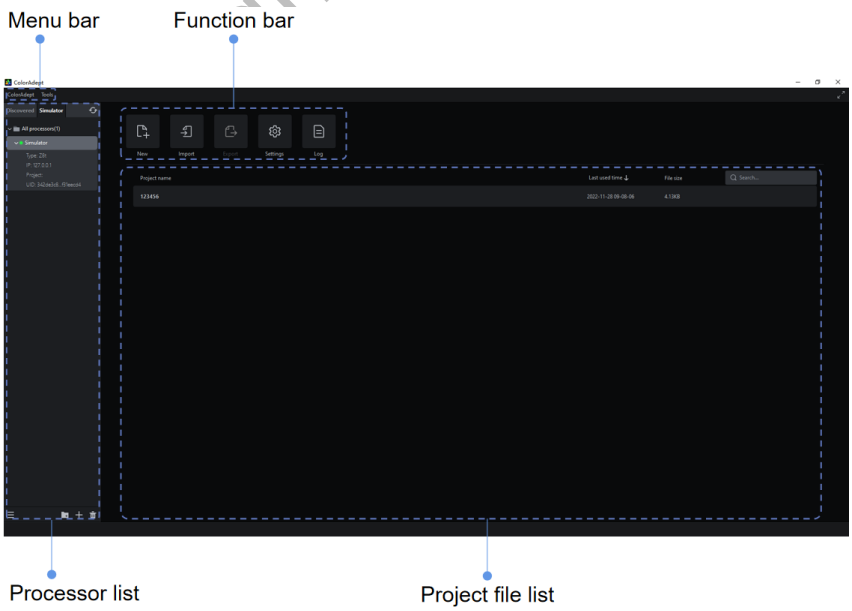

Figure 3.2-1 Project management

Step 2 Select Settings from the function bar to enter the settings interface.

Step 3 Open the Cabinet Library tab.

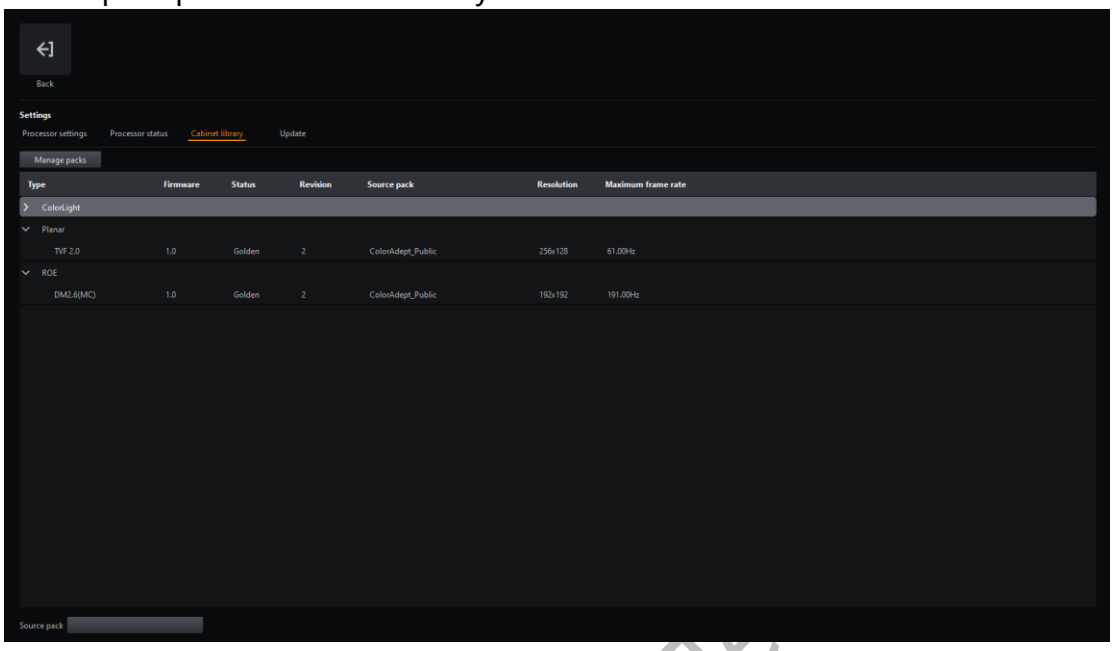

Figure 3.2-2 Cabinet library tab

Step 4 Click Manage Packs button to enter the cabinet packs interface.

Step 5 Check whether the cabinet packs meet the requirements. If you need to add a new pack, click to add it.

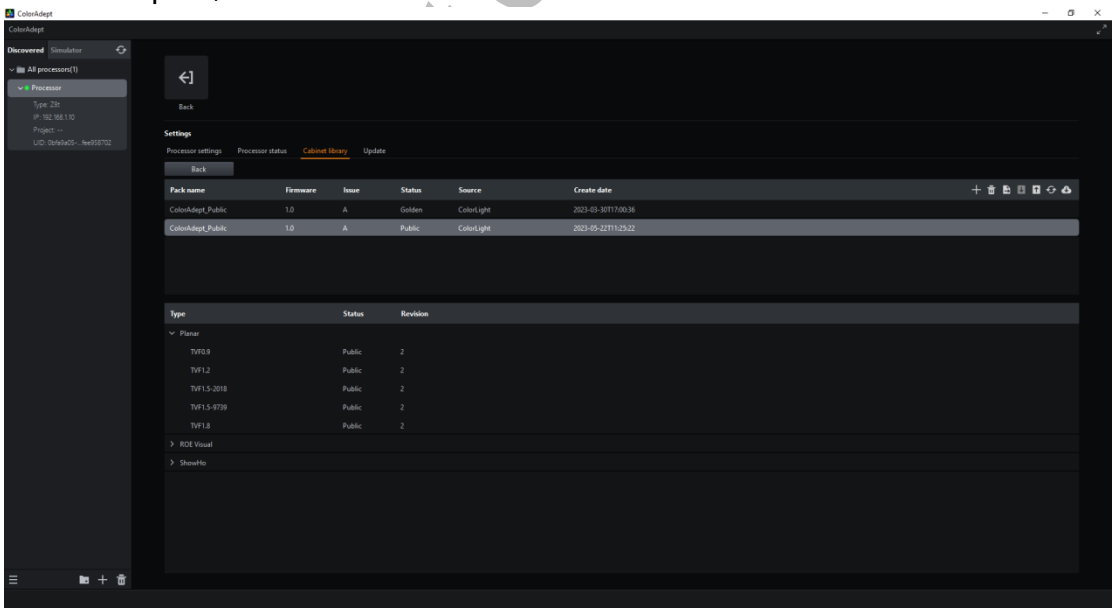

Figure 3.2-3 Cabinet packs

3.3 Create a New Project

Step 1 Select the online processor in the Discovered tab of processor list.

Step 2 Select New button in the function bar to enter the New Project interface.

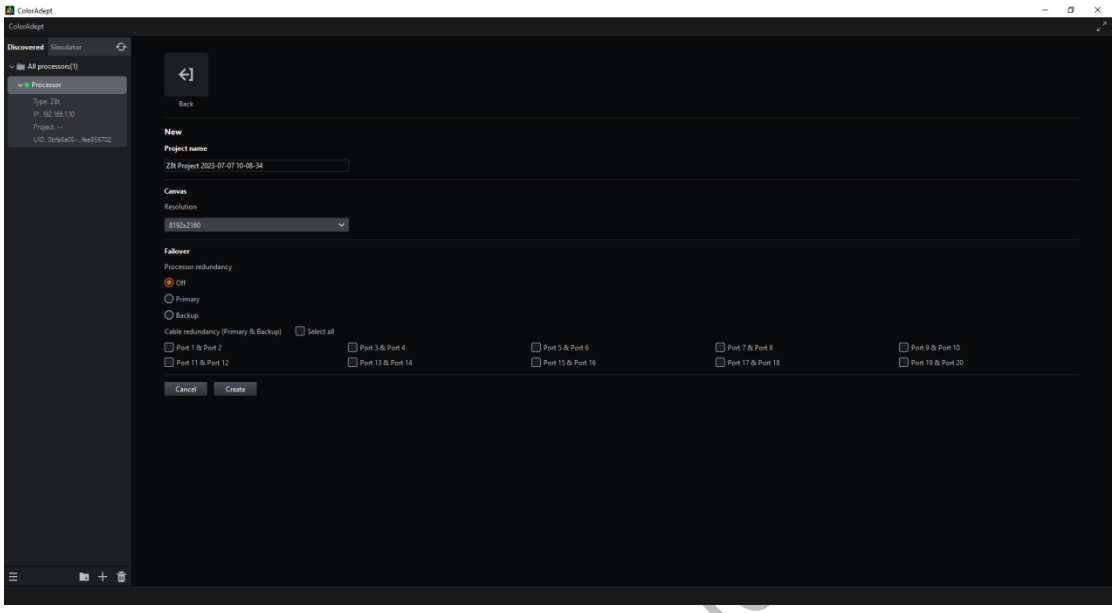

Figure 3.3-1 New project

Step 3 Set canvas size.

Step 4 Click Create button to create a new project and enter the main project interface.

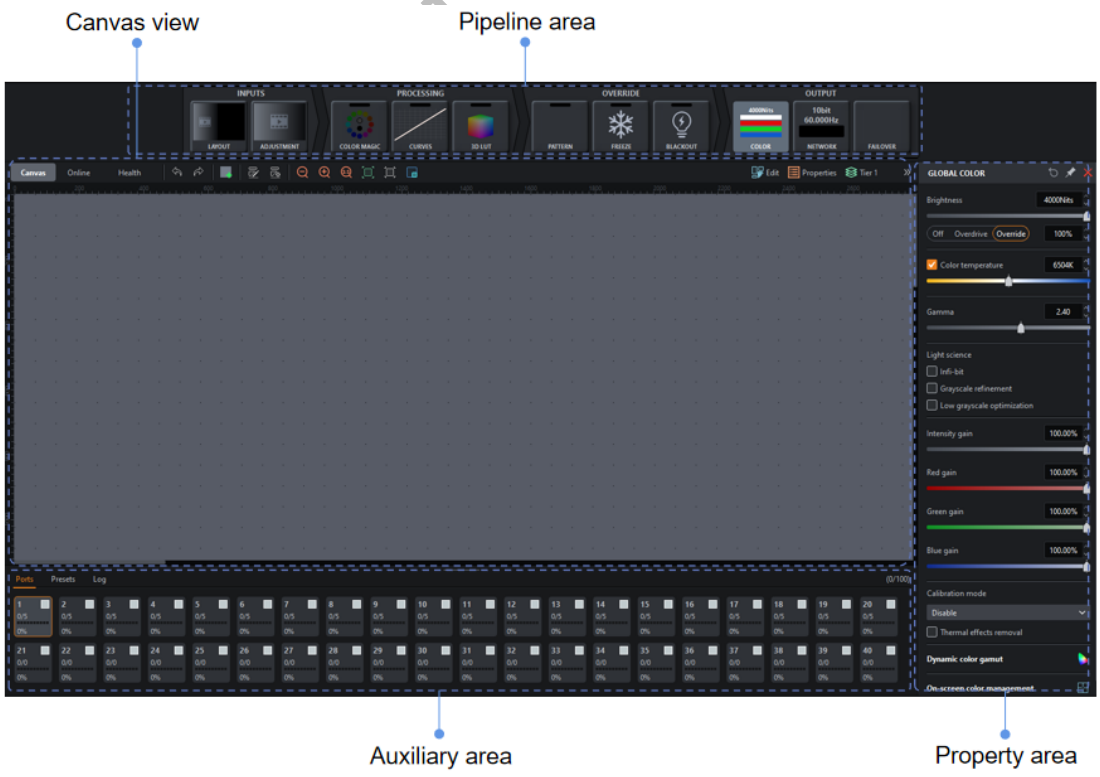

Figure 3.3-2 Main project

3.4 Add Inputs

Different processors have different number limitations of added inputs.

Step 1 Click Layout in the pipeline area;

Step 2 In the Layout properties area, click Custom in the inputs drop-down box or click to enter layout mode.

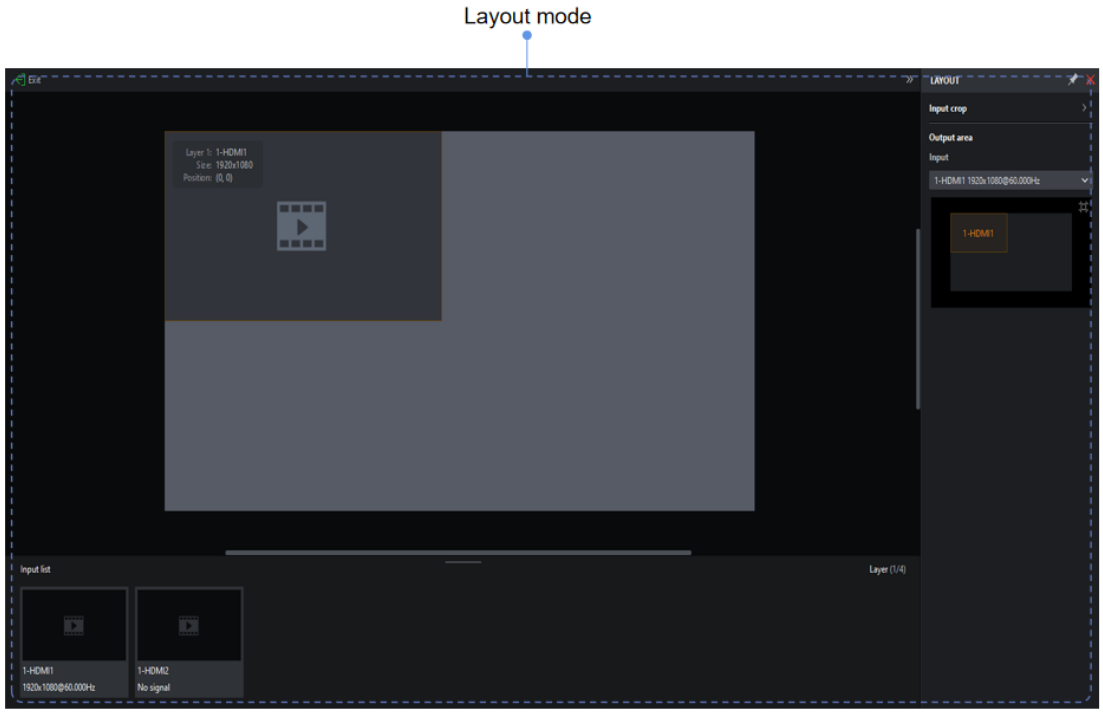

Figure 3.4-1 Layout mode

Step 3 Modify the position or size of input window in the main view of layout mode;

3.5 Add Cabinets

Step 1 Click the Add Cabinets button in the canvas view toolbar to enter adding cabinet mode.

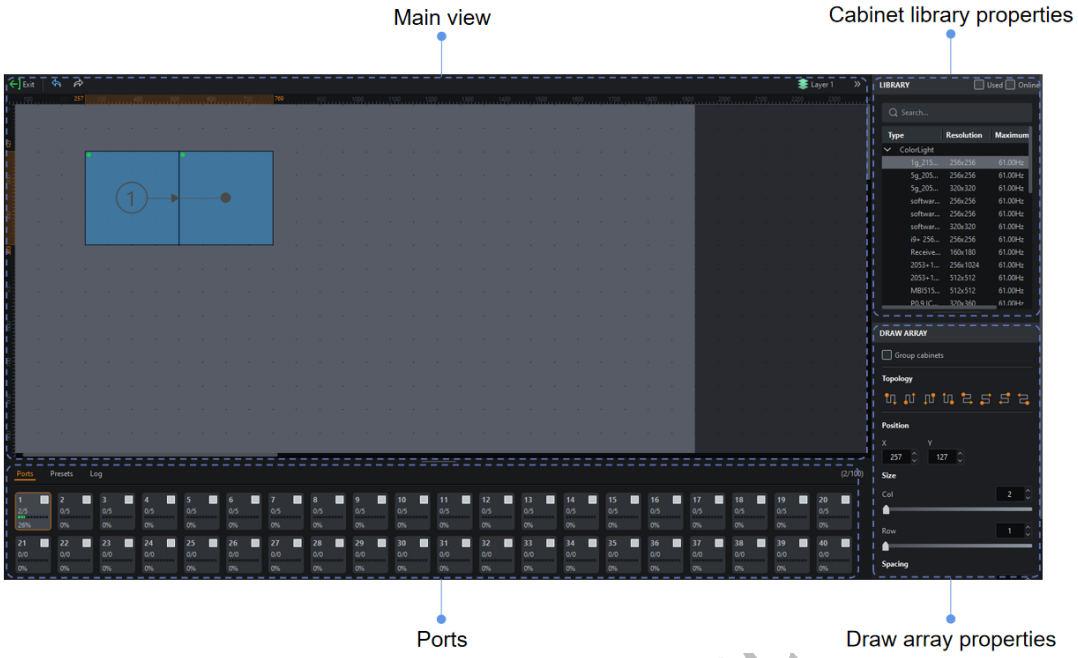

Figure 3.5-1 Adding cabinet mode

Step 2 Select the type of cabinet that is the same as the actual connected cabinets.

Step 3 Select the appropriate port under port tab.

Step 4 Click + drag to add cabinets in canvas area, the topology of the cabinet is defined by the direction of dragging.

Step 5 The topology of the newly added cabinets can be modified quickly in the Draw Array properties.

Figure 3.5-2 Topology

4. Processor List

The processor list is mainly applied to select the desired processor or processor group, which consists of Discovered and Simulator tabs.

You can browse the processor information, add, or delete processors, add, or delete processor groups, search for processors, import or export and other operations. The introduction of this chapter is taking the Discovered tab as an example.

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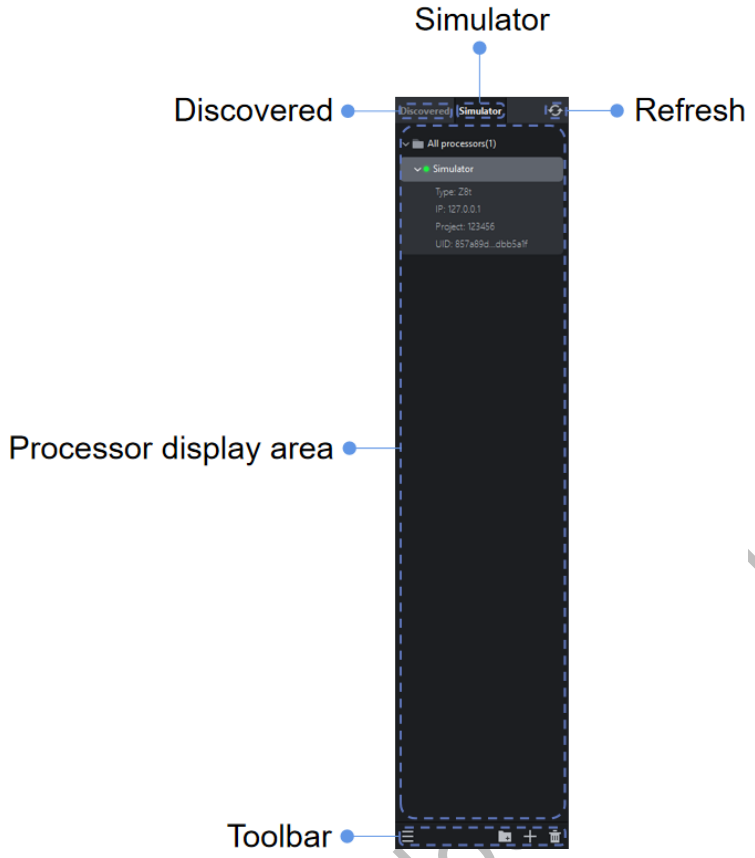

Figure 4.1-1 Processor list- Discovered tab

When you select two or more processors, the multiple processors control interface will be displayed.

Note:

When the group node is selected, all processors in the group are selected by default.

Refresh : Click this button to refresh the processor display.

4.1 Processor List

From top to bottom, it is displayed as all processors, groups, and processors.

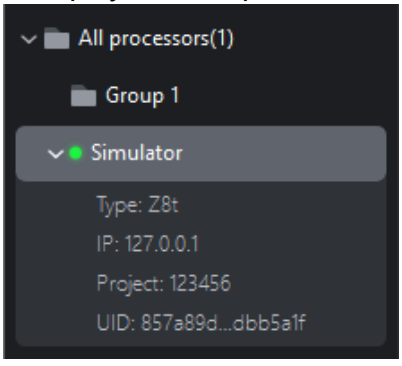

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Figure 4.1-2 Processor list

The node information:

Group: group name, processors.

Processor: Type, IP, Project, UID.

4.2 Toolbar

From left to right, there are the menu button, add group button, add processor button, and delete button, as shown in the following figure:

Figure 4.2-1 Toolbar

: Create a group in processor list, you can move the processor to the group which needs to adjust parameters uniformly.

: Click to add processors.

: Delete the selected processors/groups.

: Click the menu button to pop up the menu list as shown in the following figure.

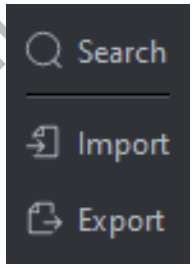

Figure 4.2-2 Menu list

Search: Search for processors under the current tab and support fuzzy search of the processor name, type, or IP.

Import: Import configuration file of processor list that was stored on your computer.

Export: Export the configuration of processor list to local disk (group and processor information).

4.3 Context Menu

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When you select a single or multiple processor(s), the following options are displayed.

Function	Description
Rename	Rename the processor
Group	Create a new group and move the processor(s) to the new group (for the processor(s) which is/are not in any groups)
Move to group	Move the processor(s) to the target group.
Remove from group	Remove the processor(s) from the group.
Delete	Delete the selected Cabinet.

When you select a single group, the following options are displayed.

Function	Description
Rename	Rename the group.
Ungroup	Remove the processor(s) from the group and delete the group.
Delete	When there is at least one processor in the group, selecting "Delete group and processor(s)" will delete the group and the processor in the group. And you can select "Delete group only" to remove the processor(s) from the group and delete the group. When there is no processor in the group, the group is directly deleted.

When you select multiple groups or select processor(s) and group(s), the following options are displayed.

Function	Description
Ungroup	Remove the processor(s) from the group and delete the groups.
Delete	Delete the selected groups and all processors in the groups.

5. Project Management

Project management is mainly applied to the creation, import, export, and switch of projects. The projects are stored in the memory inside the processor.

5.1 History Project

Firstly, select an online processor in the processor list and there is no project file opened.

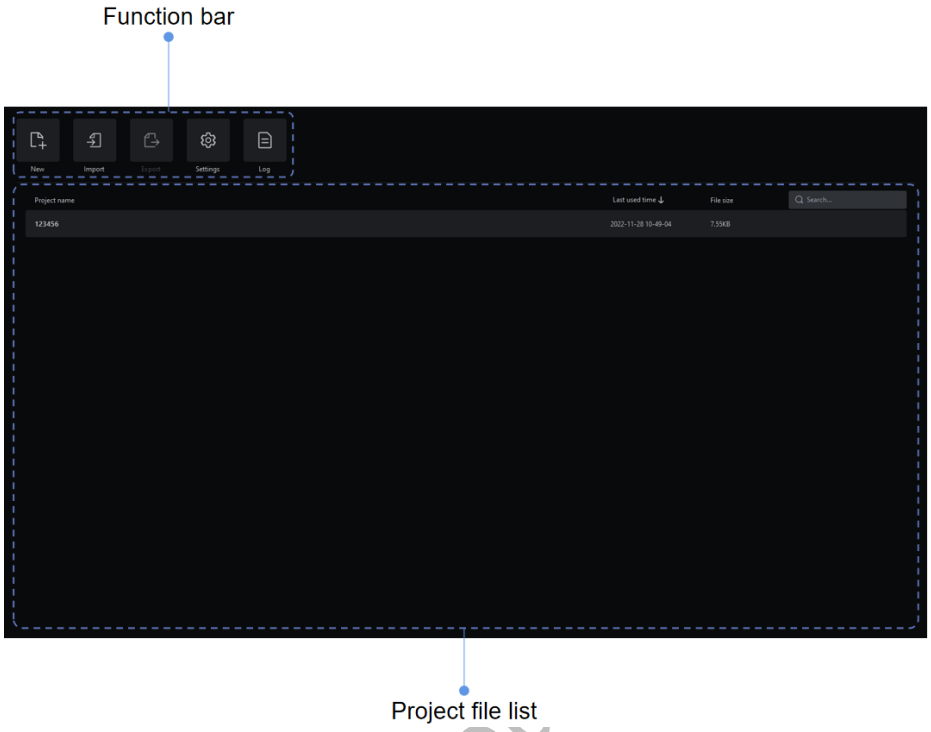

Figure 5.1-1 History project

Function bar

:Click to enter the new project interface.

:Click to open the file browse window and select a .capf file stored on your computer to import into the processor.

:It is available, only when one project file is selected. Click to open the file browse window and select the location to save the file to your computer.

:Click to enter the settings interface.

:Click to enter the log interface.

Project file list

Project Name: It displays project file name.

Last Used Time: It shows the last used time of the project file and clicking this heading toggles the project list in ascending/descending order.

File Size: the size of project file.

Search bar: You can fuzzily search the project name in the project file list.

When you hover the cursor over a project file, the following three buttons will appear.

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:Click to open the project file and then enter the main project interface.

:Click to rename the project file.

:Click to delete the project file.

5.1.1 Open Project

Three ways can be applied to open a project.

Method 1: Double-click the project file.

Method 2: Hover the cursor over a project file and click the Open button among the three buttons displayed.

Method 3: Right-click on a single project file and select Open in the context menu.

5.1.2 Rename Project

You can rename a project in two ways.

Method 1: Hover over a project file and click the Rename button among the three buttons displayed.

Method 2: Right-click a single project file and select Rename from the context menu.

5.1.3 Delete Project

There are two ways applicable to delete a project.

Method 1: Hover over a project file and click the delete button among the three buttons displayed.

Method 2: Right-click the project file, select Delete in the context menu and you can press Ctrl + click if you need to select more.

Method 3: Select a project file and delete it by pressing the Delete button and you can press Ctrl + click if you need to select more.

5.2 New Project

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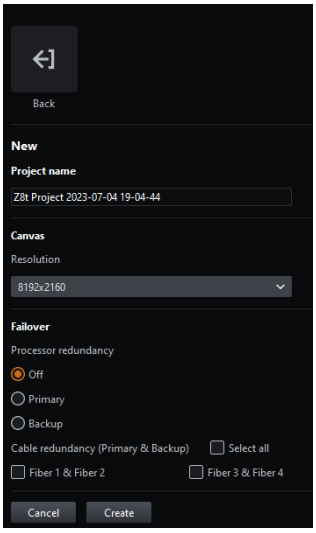

Figure 5.2-1 New project

Create a new project by clicking the New button on the function bar from the History Project interface. Follow these steps to enter main project interface.

Step 1: Enter a project name.

Step 2: Set a suitable canvas size.

Step 3: Select whether to turn on processor/cable redundancy.

Step 4: Click Create to enter the main interface of the project.

📖**Note**:

The project is automatically saved to the memory of the processor.

---

6. Settings

The settings interface allows you to set the processor parameters, view the processor status, manage the cabinet library, set health options, and update the processor program.

Click Settings from the function bar of the history project interface to enter the settings interface. If the project is already opened, you can also click Settings from the Tools menu in the toolbar.

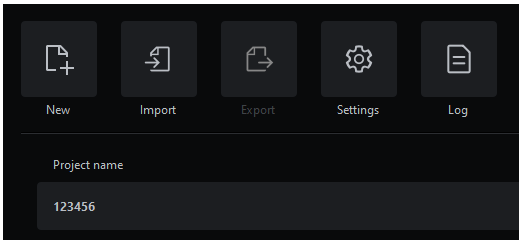

Figure 6.1-1 Settings

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6.1 Processor Settings

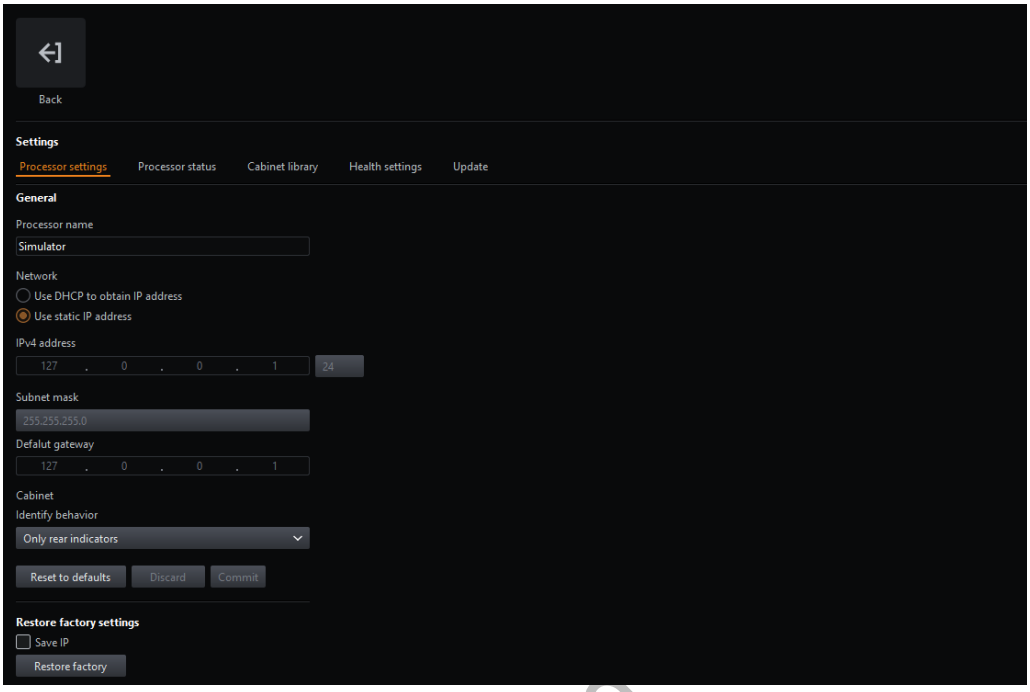

Figure 6.1-2 Processor settings

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General

Processor name: It can be customized.

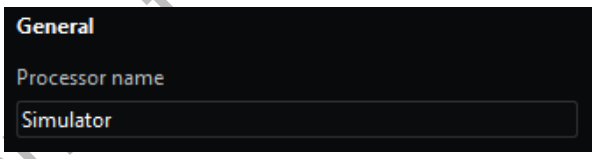

Figure 6.1-3 General

Network

The default IP address of the processor is 192.168.1.10 and the subnet mask is 255.255.255.0. The processor can use a static IP address or an IP address allocated from the DHCP server. For normal communication between the processor and computer, different IP addresses under the same subnet should be defined in each processor.

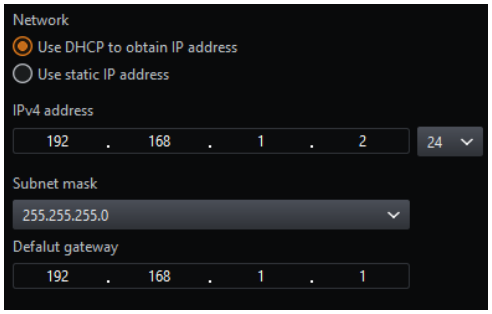

Figure 6.1-4 Network

Cabinet

Identify behavior allows you to choose the front identify & rear indicators or only rear indicators.

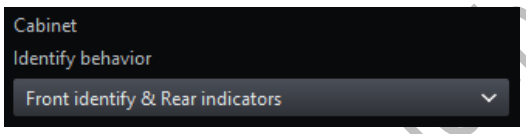

Figure 6.1-5 Cabinet

Restore Factory

Before the restore factory settings, you can choose whether to save IP address according to actual needs.

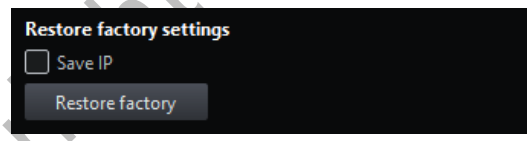

Figure 6.1-6 Factory reset

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Note:

Restore factory settings will delete all project files, user-imported cabinet packs, other assets imported to the processor, and reset the processor settings.

6.2 Processor Status

You can view the firmware version, hardware, network, temperature, and other information of the processor.

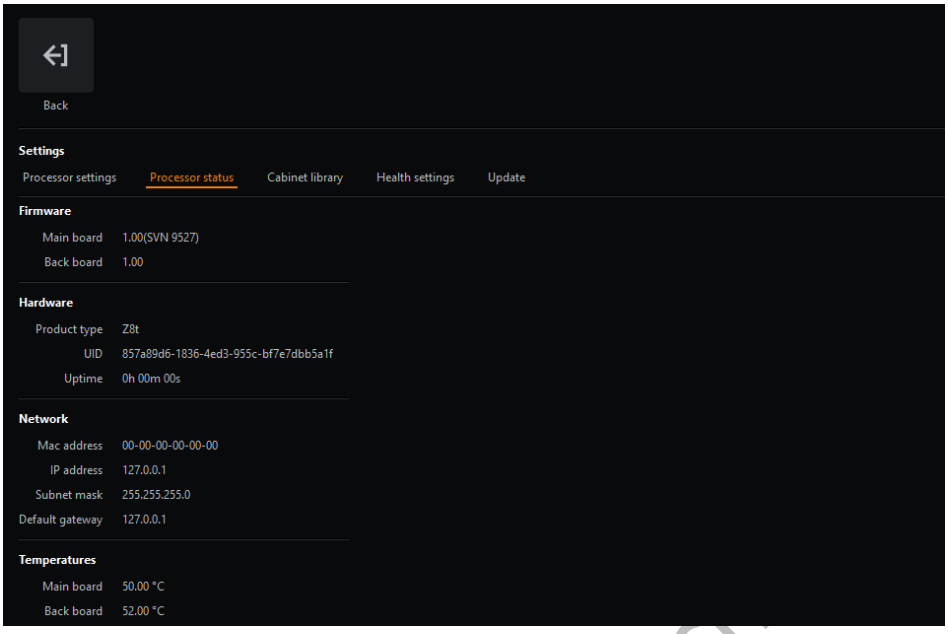

Figure 6.2-1 Processor status

6.3 Cabinet Library

For normal communication with cabinets and identifying the cabinet properties, you need to place the cabinet packs into the cabinet library.

Cabinet Pack: (.cbp) Compilation of the cabinet firmware. Public release will include all updated public cabinets to the date of release.

Cabinet Library: Group of cabinet packs installed in a processor.

📖**Note**:

All processor firmware releases contain the latest cabinet pack at the time of release.

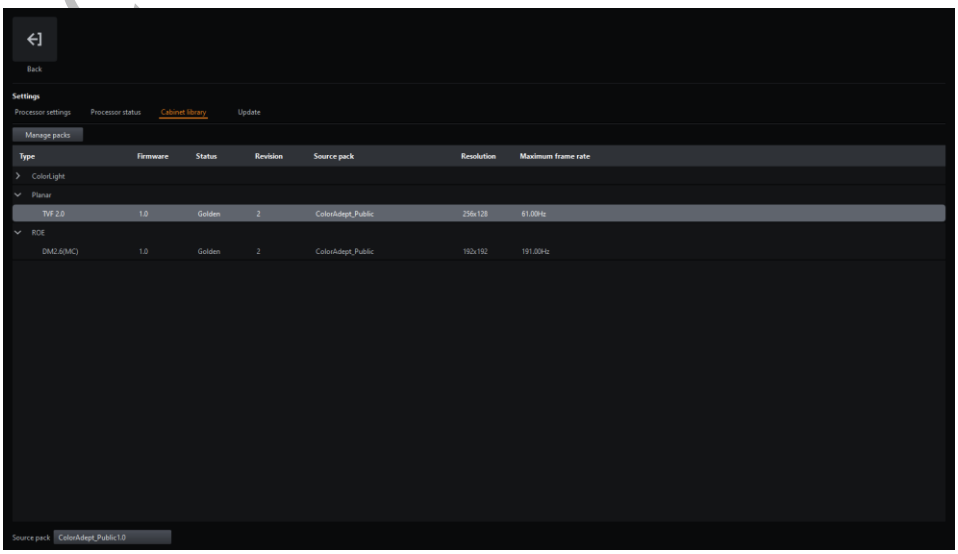

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Figure 6.3-1 Cabinet library list

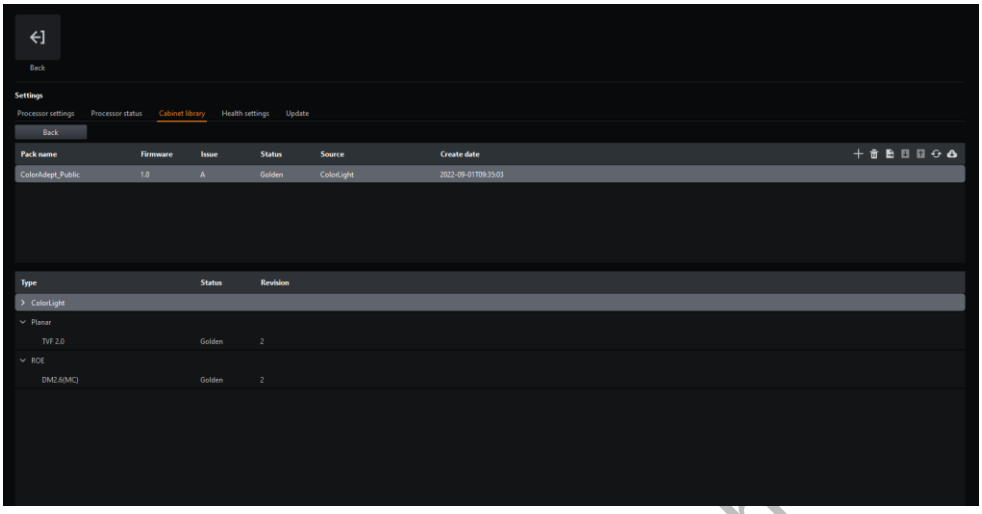

Figure 6.3-2 Cabinet pack management

Cabinet pack list

The listed packs are sorted by the create time with the highest priority at the top of the list. The priority can be changed by dragging the desired cabinet pack above another one which contains the same cabinet type.

Cabinet pack management

: Click to add the selected cabinet pack to the processor.

: Click to delete the selected cabinet pack.

: Click to export selected cabinet pack.

: Move the selected cabinet pack up to raise its priority.

: Move the selected cabinet pack down to lower its priority.

: Restore the factory settings of cabinet library.

: Download cabinet pack from Cloud.

Note:

If a cabinet type exists in multiple cabinet packs, by default the one in the highest priority packs is used.

6.4 Health Settings

Health settings allow you to select monitoring of video, network cable error rate, temperature, humidity, voltage, power supply, fan, and set up email notification.

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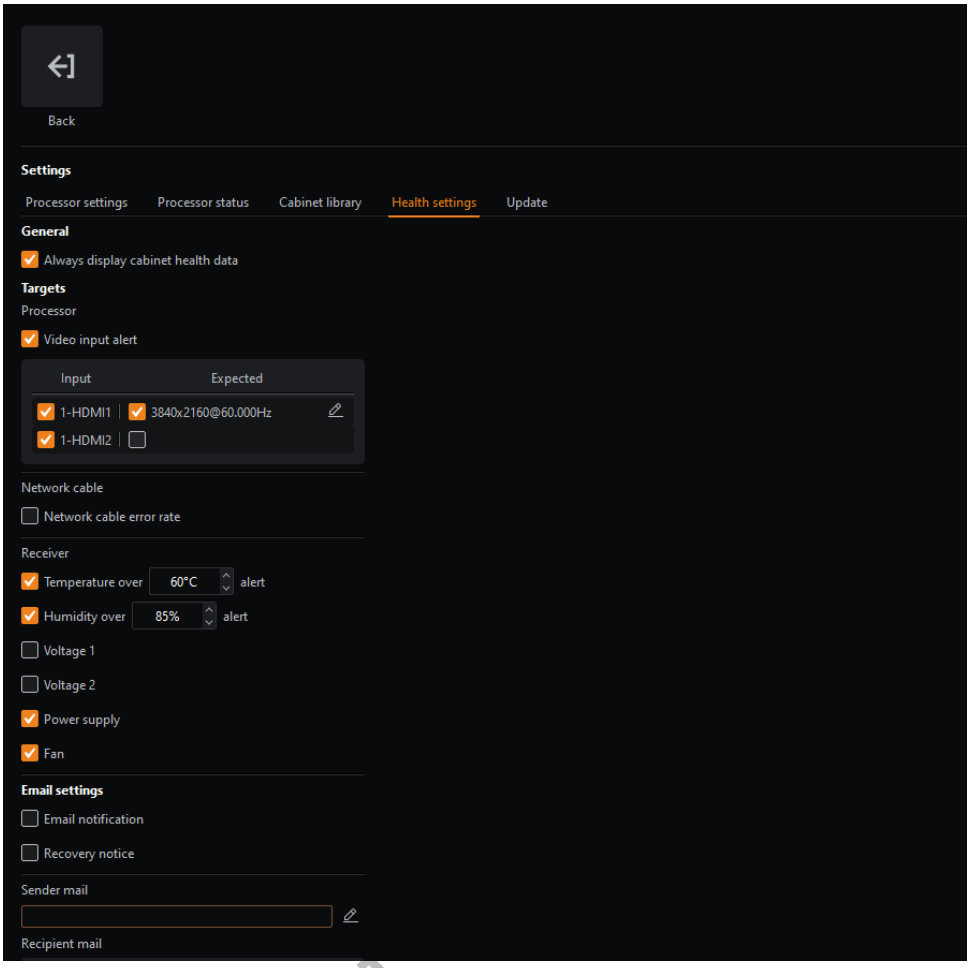

Figure 6.4-1 Health settings

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Always display cabinet health data

The health data can be displayed directly on the cabinets after ticking the checkbox.

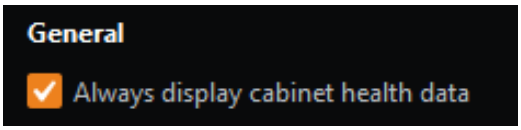

Figure 6.4-2 Always display cabinet health data

Video input alert

You can choose whether to turn on video input alert and set the monitoring of input sources, the expected resolution and frame rate.

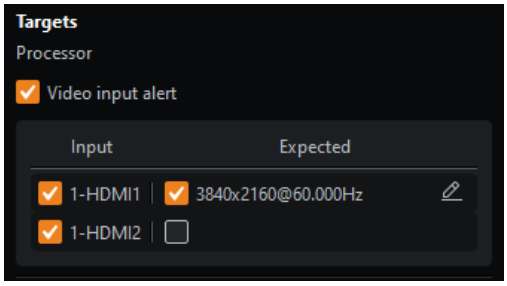

Figure 6.4-3 Video input alert

Network cable

It is allowed to choose whether to enable error rate monitoring for network cables.

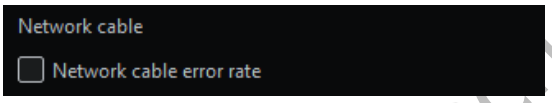

Figure 6.4-4 Network cable error rate

Receiver monitoring

It offers monitoring settings for temperature, humidity, voltage, power supply, fan, etc.

Figure 6.4-5 Receiver monitoring

Email settings

It is designed to choose whether to turn on email notifications and recovery notices.

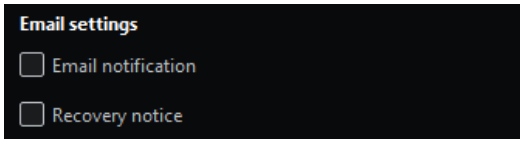

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Figure 6.4-6 Email settings

Please set the sender mail information and the recipient mail information.

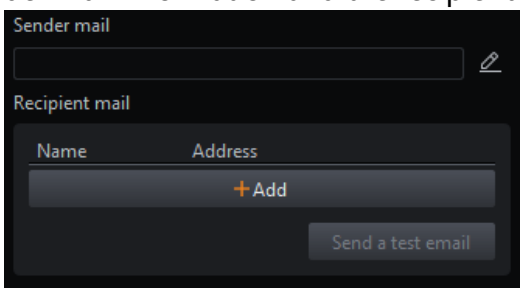

Figure 6.4-7 Mail information

6.5 Update

Upgrade the processor firmware program. After the update is completed, you need to power off and restart the processor.

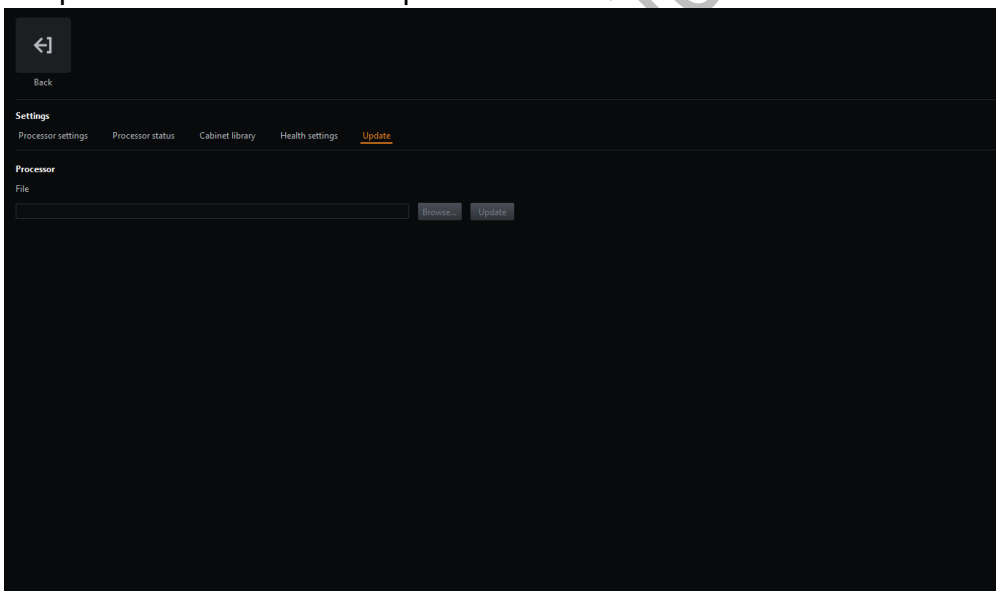

Figure 6.5-1 Update interface

●Click the Browse button to open the file browse window, then select the upgrade file to import.

●Click the Update button to upgrade the processor.

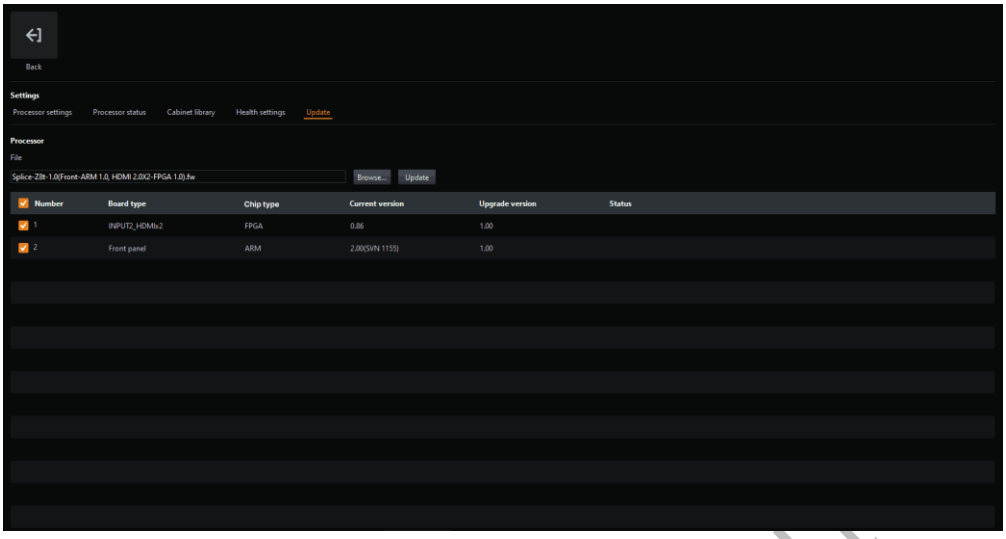

Figure 6.5-2 Update

Update list

This list appears only after you turn on advanced mode and import upgrade files. You can check the tick box of the boards which need to be upgraded.

7. Main Project Interface

Creating or opening a project takes you to the main project interface, which has three view modes of canvas view, online view and health view.

Figure 7.1-1 Main interface

7.1 Menu Bar

7.1.1 ColorAdept Menu

Selecting ColorAdept in the menu bar displays the following options.

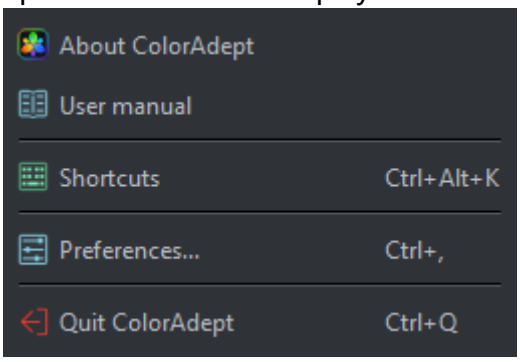

Figure 7.1-2 ColorAdept menu

About ColorAdept

After clicking ColorAdept, the information of the software is displayed, such as the build number, build time, license, copyright, etc.

Shortcuts (Ctrl + Alt + K)

Click to open the shortcut interface of the ColorAdept software.

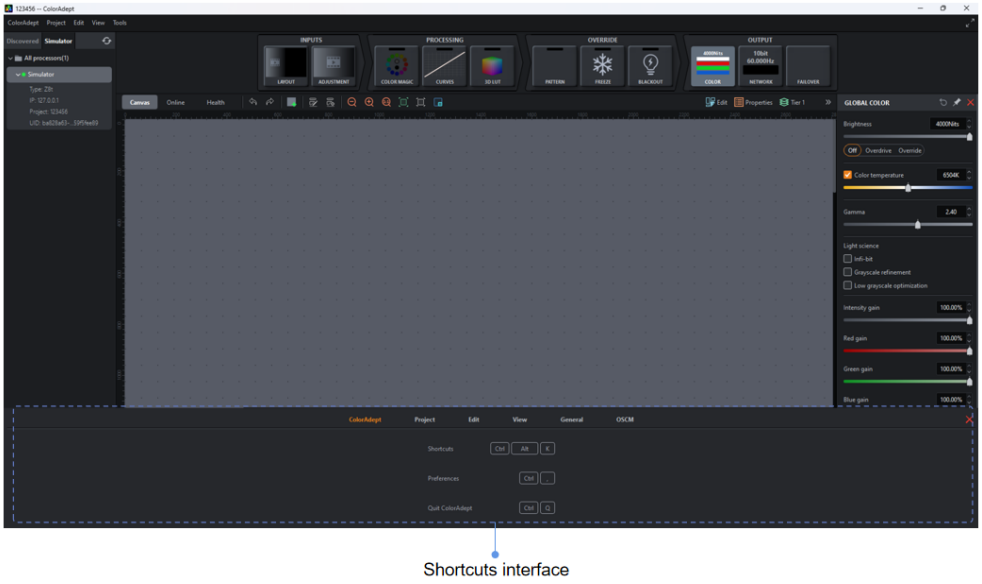

Figure 7.1-3 Shortcut interface

Shortcuts of ColorAdept tab are as follows:

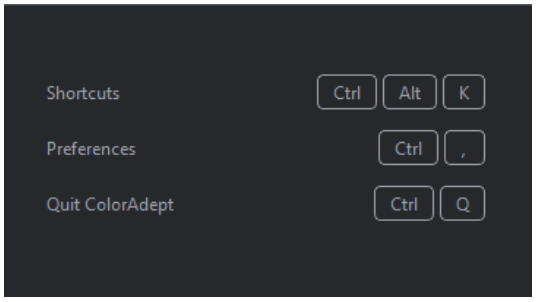

Figure 7.1-4 ColorAdept tab

Shortcut: Ctrl + Alt + K （macOS:⌘⌥ K)

Preferences: Ctrl + , （macOS:⌘,)

Quit ColorAdept: Ctrl + Q （macOS:⌘Q)

Shortcuts of project tab are as follows:

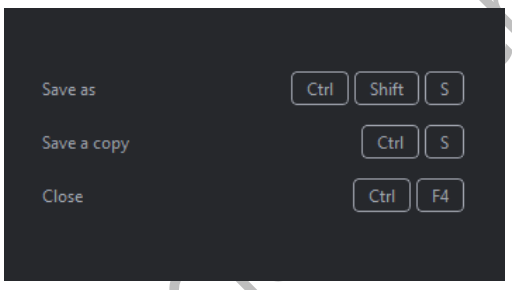

Figure 7.1-5 Project tab

Save as: Ctrl + Shift + S （macOS:⇧⌘S)

Save a copy: Ctrl + S （macOS:⌘S)

Close:Ctrl + W （macOS:⌘W)

Shortcuts of edit tab are as follows:

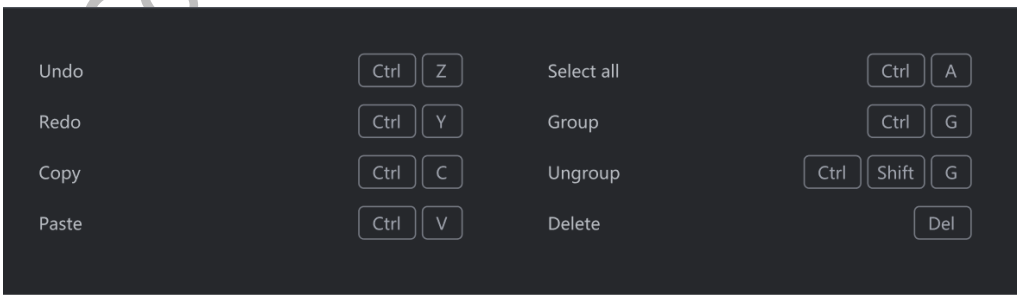

Figure 7.1-6 Edit tab

Undo: Ctrl + Z （⌘Z)

Redo: Ctrl + Y/ （⇧⌘Z)

Copy: Ctrl + C （⌘C)

Paste: Ctrl + V（⌘V)

Select all: Ctrl + A（⌘A)

Group: Ctrl + G（⌘G)

Ungroup: Ctrl + Shift + G（⇧⌘G)

Delete: Delete（Fn + Delete)

Shortcuts of view tab are as follows:

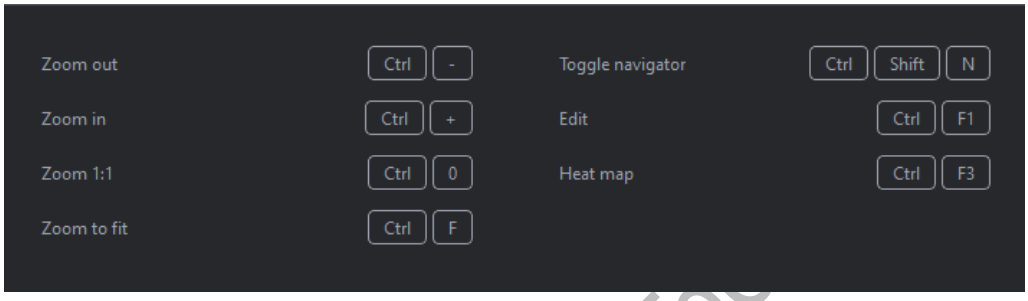

Figure 7.1-7 View tab

Zoom out: Ctrl + -（macOS:⌘-)

Zoom in: Ctrl + +（macOS:⌘+)

Zoom 1:1: Ctrl + 0（macOS:⌘0)

Zoom to fit: Ctrl + F（macOS:⌘F)

Toggle navigator: Ctrl + Shift + N（macOS:⇧⌘N)

Edit: Ctrl + F1（macOS:⌘F1)

Heat map: Ctrl + F3（macOS:⌘F3)

Shortcuts of general tab are as follows:

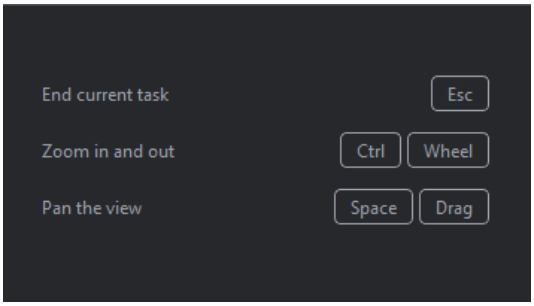

Figure 7.1-8 General tab

End current task: Esc

Zoom in and out: Ctrl + Wheel（macOS:⌘Wheel)

Pan the view: Space + Drag

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Shortcuts of OSCM-general tab are as follows:

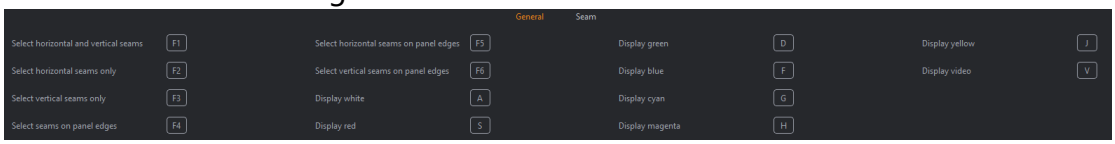

Figure 7.1-9 OSCM-general tab

Select horizontal and vertical seams: F1

Select horizontal seams only: F2

Select vertical seams only: F3

Select seams on panel edges: F4

Select horizontal seams on panel edges: F5

Select vertical seams on panel edges: F6

Display white: A

Display red: S

Display green: D

Display blue: F

Display cyan: G

Display magenta: H

Display yellow: J

Toggle to video input: V

Change display color forwards: Space

Change display color backwards: Ctrl + Space（macOS:⇧Space)

OSCM-seam:

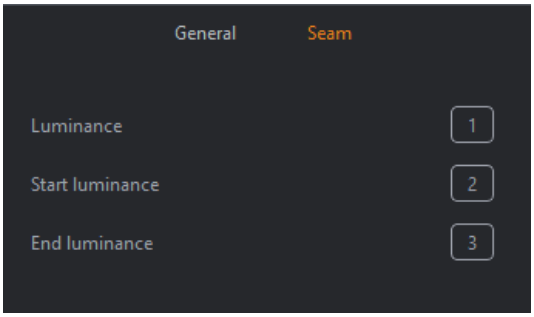

Figure 7.1-10 OSCM-seam tab

Luminance:1 + Left/Right arrow

Start luminance:2 + Left/Right arrow

End luminance:3 + Left/Right arrow

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Preferences（Ctrl + ,）

Click ColorAdept > Preferences to open the preferences interface.

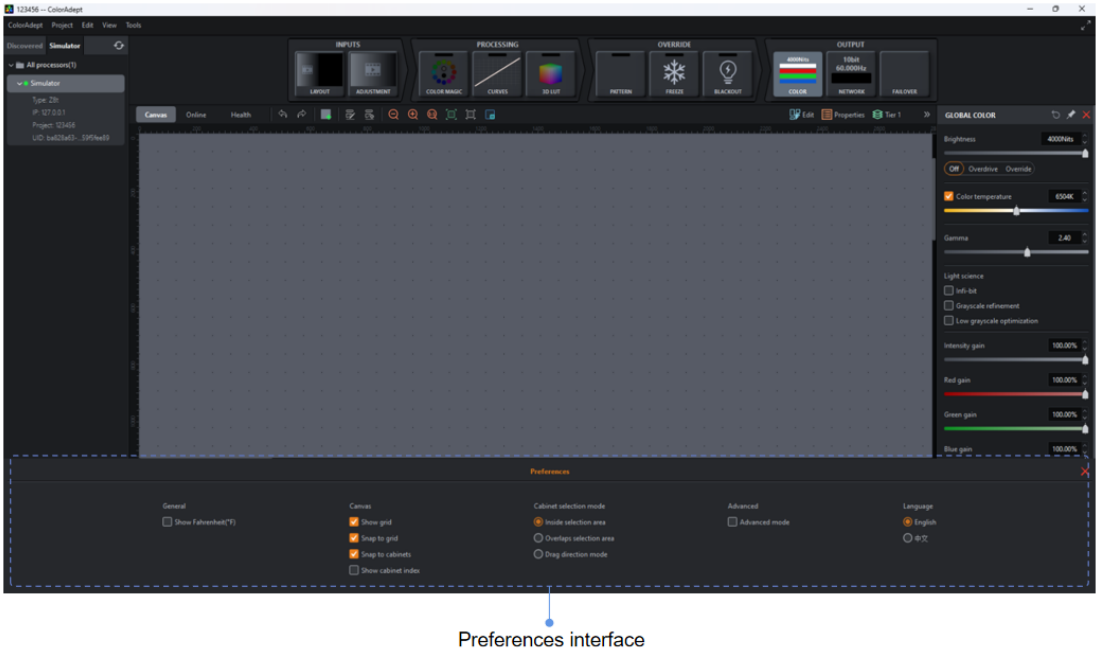

Figure 7.1-11 Preferences interface

●General

Ticking the box indicates that the temperature is displayed in Fahrenheit (°F). If it is not checked, the temperature is represented in degrees Celsius (°C).

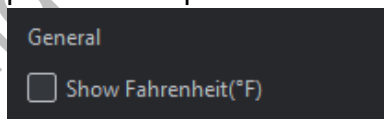

Figure 7.1-12 General

●Canvas

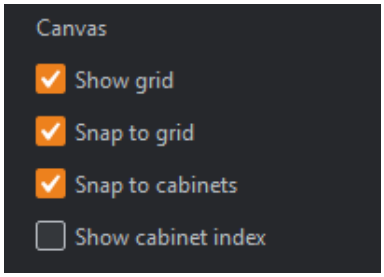

Figure 7.1-13 Canvas

■Show grid: Tick the box to show grid dots. It is allowed to set the grid spacing in the drop-down menu of canvas properties.

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■Snap to grid: Tick the box to pull the cabinets into perfect alignment with the grids.

■Snap to cabinets: Tick the box indicates even alignment between every cabinet, avoiding overlapping or small gaps.

■Show cabinet index: Tick to display the index of each cabinet.

●Cabinet Selection Mode

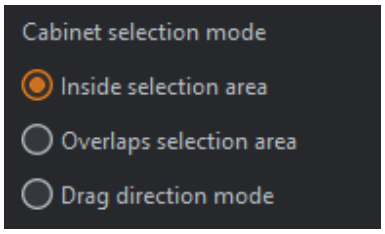

Figure 7.1-14 Cabinet selection mode

■Inside selection area: This option is selected by default. The selection box must completely enclose cabinets to select them.

■Overlaps selection areas: Click to select this option. A cabinet can be selected if any part of the cabinet is within the selection area.

■Drag direction mode: Click to select this option. Dragging from left to right selects cabinets that are completely within the selection box. Dragging from right to left to select cabinets at least partially inside the selection area.

●Advanced Mode

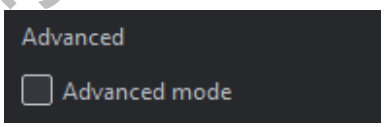

Figure 7.1-15 Advanced mode

Advanced mode: Disabled by default. Tick the box to display the upgrade list after importing the upgrade file, balance settings in the adjustment properties of HDMI, Ref In multiplier in network properties, in failover, it displays the function that VSync is not allowed to switch to other inputs or auto-generated frame rates and the behavior option of processor redundancy.

●Language

The interface language is allowed to be set as Chinese or English currently.

7.1.2 Project Menu

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Selecting Project in the menu bar, and the drop-down menu displays as follows.

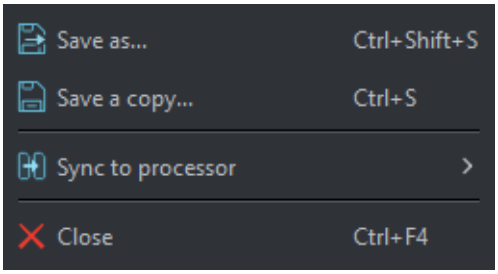

Figure 7.1-16 Project menu

●Save as: Save the project to processor and the currently opened project is displayed as the saved project.

●Save as a copy: Save the project to local disk.

●Sync to processor: Sync the project to another processor.

●Close: Close the current project and jumps to the project management interface of the current processor.

7.1.3 Edit Menu

Click Edit in the menu bar to open a context menu with a list of options as follows.

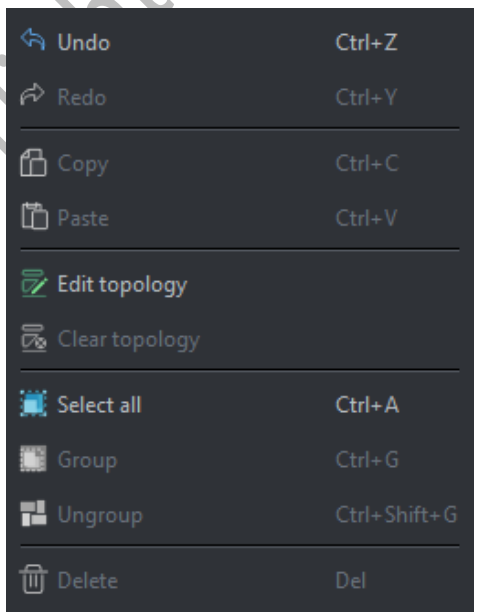

Figure 7.1-17 Edit menu

●Undo: Undo the last action performed.

●Redo: Redo the last action performed.

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●Copy: Copy the cabinets without the values in the cabinet override properties.

●Paste: Paste the cabinets.

●Edit topology: Modify topology connections between added cabinets.

●Clear topology: Clear the topology connections of the selected cabinets.

●Select all: Select all cabinets in the canvas.

●Group: Make a group with the selected cabinets.

●Ungroup: Break the selected groups.

●Delete: Delete the selected cabinets.

7.1.4 View Menu

Click View in the menu bar to open a context menu with a list of options as follows.

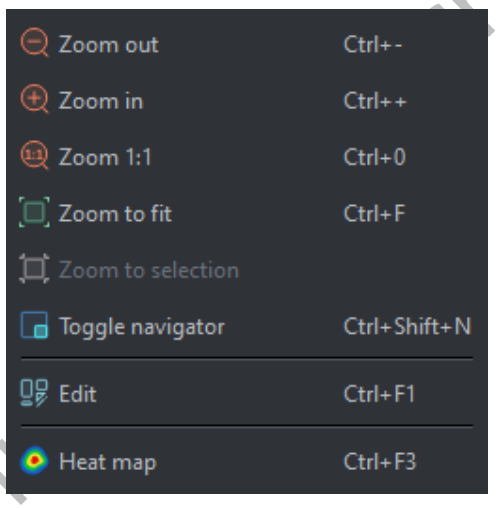

Figure 7.1-18 View menu

●Zoom out: Adjust the view of the canvas to show smaller.

●Zoom in: Adjust the view of the canvas to show larger.

●Zoom 1:1: Adjust the zoom to display canvas with a 1:1 resolution.

●Zoom to fit: Adjust the zoom and view position to display the full size of the canvas in the center of the screen.

●Zoom to selection: Adjust the zoom and view position to fit the selected cabinets in the center of the screen.

●Toggle navigator: Show or hide the Navigator window.

●Edit: Edit mode is the default mode of canvas, in which cabinets are displayed as viewed from the front.

●Heat map: Display cabinets on the canvas which is colored based on the

temperature reported by the internal sensors.

7.1.5 Tools Menu

Click Tools in the menu bar to open a context menu with a list of options as follows.

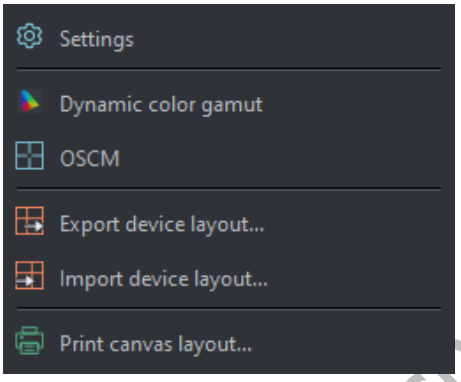

Figure 7.1-19 Tools menu

●Settings: Click to open the settings interface.

●Dynamic color gamut: Click to open Dynamic color gamut interface.

●OSCM: Click to enter on-screen color management interface.

●Export device layout: Export the cabinet layout of processor.

●Import device layout: Import the cabinet layout of processor.

●Print canvas layout: Click to open the print canvas layout interface. Print the current cabinet layout where you can customize watermark, table header and other settings.

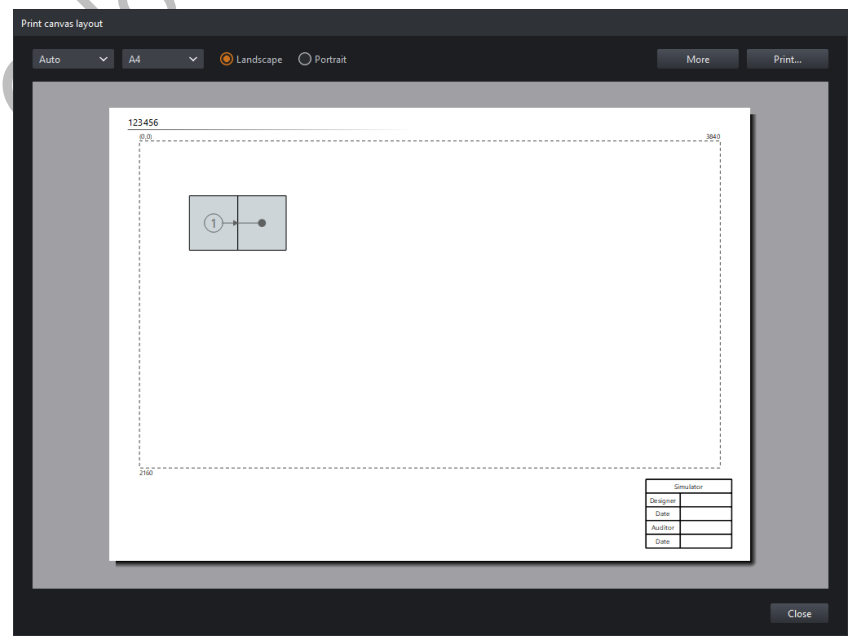

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Figure 7.1-20 Print interface

7.2 Pipeline

The pipeline represents the signal flow of color processing through the processor. Each pipeline tile possesses its corresponding properties. Pipeline tile properties can be viewed by clicking on a tile to prompt the property editor to appear.

Figure 7.2-1 Pipeline

The pipeline is composed of INPUTS、PROCESSING、OVERRIDE and OUTPUT.

- The INPUTS tab contains Layout and Adjustment tiles.
- The PROCESSING tab includes Color magic, Curves, and 3D LUT tiles.
- The OVERRIDE tab involves Pattern, Freeze and Blackout tiles.
- The OUTPUT tab is comprised of Color, Network and Failover tiles.

Enable tile functions by double-clicking the corresponding tiles included in the PROCESSING and OVERRIDE tabs.

Select multiple tiles by Ctrl + click, and the corresponding properties are displayed orderly in the property editor from top to bottom.

7.3 Property Area

The property area is located on the right side of the main project screen. The property area is displayed according to the user's different operations.

Figure 7.3-1 Property area

The property area can be shown/hidden by clicking the double-arrow button .

The property area displays the corresponding toolbar buttons according to the different properties.

- Enable :Click to enable current properties.
- Reset : Reset the values in the current property area to the default values.
- Pin :Pin and fix the current properties to property area.
- Close :Close current property area.

7.4 View Area

7.4.1 Canvas View

In canvas view, it gives access to tools for adding/deleting cabinets, editing/deleting cabinets topologies, setting canvas properties, setting tiers, grouping/ungrouping, and so on.

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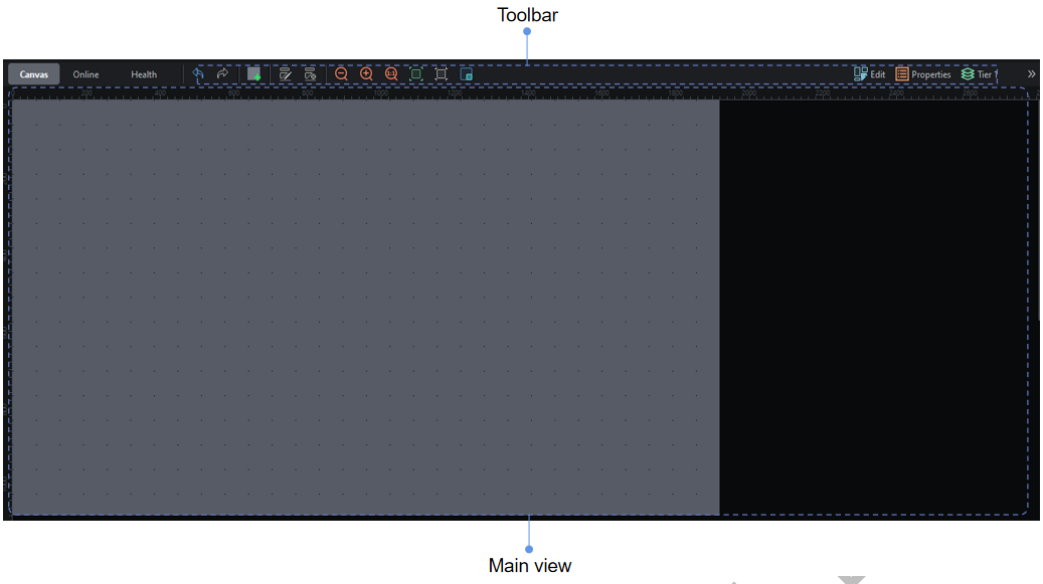

Figure 7.4-1 Canvas view

Canvas toolbar

●Undo: Click to undo the last action performed (a prompt of the action is displayed when hovering over the button).

●Redo: Click to redo the last action performed (a prompt of the action is displayed when hovering over the button).

●Add cabinets: Click to enter add cabinets mode.

●Edit topology: The cursor will turn into a pen after clicking this button.

■Left-click cabinets to add a topology for cabinets without a topology defined.

■Right-click a cabinet to clear the topology for the cabinet and cabinets after it.

■ Left-click and drag cabinets without a topology defined, then the topology will be applied according to the dragging order.

■To exit edit topology mode, right-click no-cabinet area.

●Clear topology: Delete topology of the selected cabinet.

●Zoom out: Adjust view of the canvas to appear smaller.

●Zoom in: Adjust view of the canvas to appear larger.

●Zoom 1:1: Adjust the zoom to show the canvas with a 1:1 resolution.

●Zoom to fit: Adjust the zoom and view position to display the full size of the canvas in the center of the screen.

●Zoom to selection: Adjust the zoom and view position to fit the selected

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cabinets in the center of the screen.

●Toggle navigator : Show or hide the navigator window.

Canvas Edit Mode

Click the Edit in the upper-right corner of the view area or select the corresponding option of the View menu from the menu bar to switch the canvas view mode.

●Edit mode: It is the default mode for canvas view, where the cabinets are displayed as viewed from the front.

Canvas properties

Open the canvas properties by clicking Properties in the canvas toolbar.

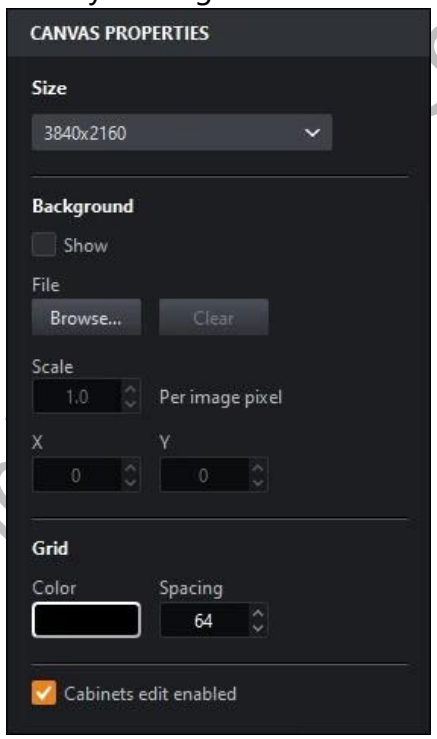

Figure 7.4-2 Canvas properties

●Canvas size: It is supported to be customized, but make sure the load is within the capacity limit.

●Background

■Support to hide or show background.

■Support importing image file types of JPG, PNG, GIF formats.

■Support the operation of the imported image for upper-left position adjustment, zooming and clearing.

●Grid: Support to modify the color and spacing of grid.

●Canvas edits enabled: You can set whether to allow modification of cabinet position in the canvas view.

Tiers

Tiers provide an easy way to manage cabinet overlapping by assigning cabinets to tiers with different z-order which indicates the tier order from top to bottom.

Open tier properties by clicking

in the canvas toolbar.

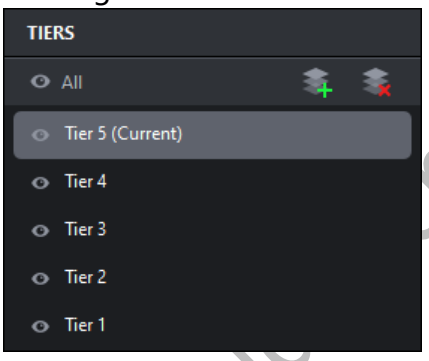

Figure 7.4-3 Tier properties

●Add: Add a top tier of Z-order.

●Delete: Delete the currently selected tier.

●Show/hide tiers: Toggle the show/hide status of tiers.

●Rename: Double-click a tier to rename it.

●Tier priority: Drag a tier up or down to adjust the Z-order of it.

Cabinet property

When you click on a cabinet that has not been grouped in the canvas view, the properties of the cabinet will be displayed in the properties area which includes the information as follows.

●Cabinet information: manufacturer, type, resolution, max frame rate and group name of the cabinet.

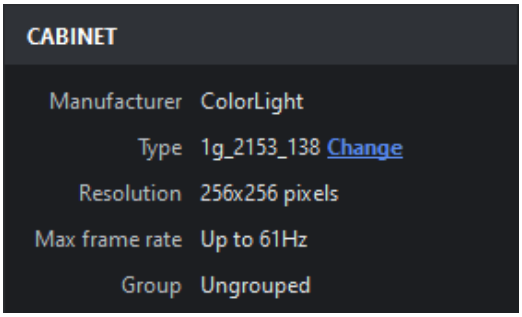

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Figure 7.4-4 Cabinet information

●Alignment: It provides 8 kinds of cabinet/group alignment, which are align left, align horizontal centers, align right, distribute vertical spacing, align top, align vertical centers, align bottom, and distribute horizontal spacing.

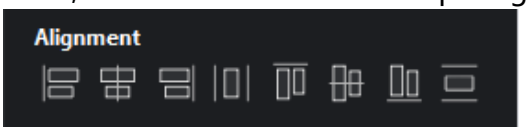

Figure 7.4-5 Alignment

●Topology: It provides 8 cabinet topologies to be quickly used.

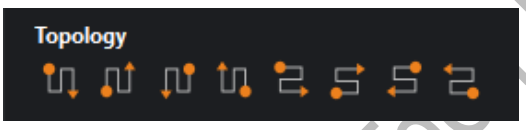

Figure 7.4-6 Topology

●Position: It displays the position of the cabinets which can be selected to lock or not.

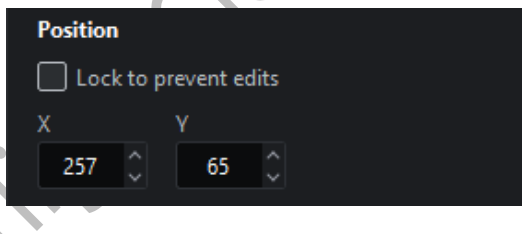

Figure 7.4-7 Position

Overrides properties (Cabinets)

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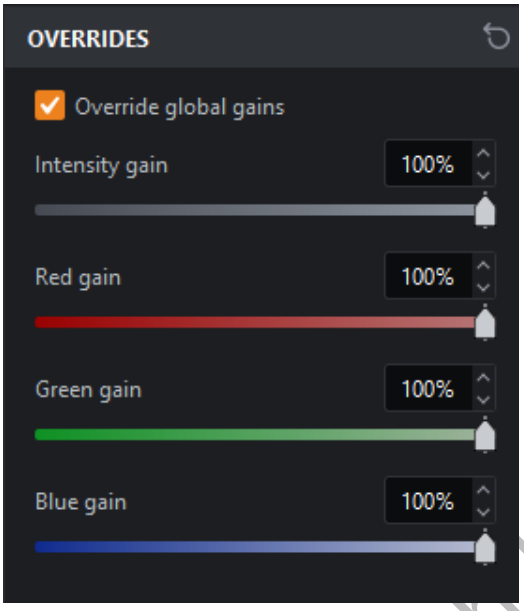

Figure 7.4-8 Overrides

●Override global gains: It means applying independent intensity gain and RGB gains for the selected cabinet, which is not affected by global gain.

Device properties

●Device information: It displays the S/N and firmware version of the cabinet.

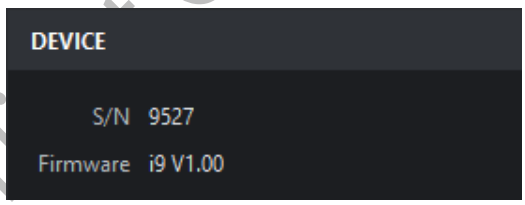

Figure 7.4-9 Device information

●Enable beacon: It activates the "beacon" test mode of the selected cabinets. When the beacon of panel is enabled, the status indicator on the back of the panel flashes faster.

Figure 7.4-10 Enable beacon

Group properties

When a cabinet group is selected in the canvas view, the cabinet group properties are displayed in the properties area.

●Name: It displays the name of the cabinet group and supports modification.

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●Color: It displays the color of the cabinet group. Clicking on it will open the color selection panel and the selected color will be used as the border color of the group.

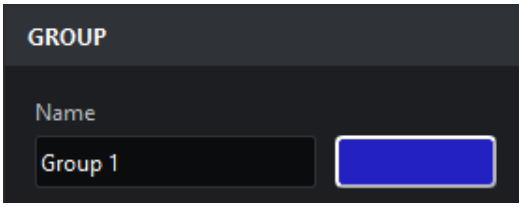

Figure 7.4-11 Cabinet group

●Alignment: It provides 8 kinds of cabinet/group alignment, which are align left, align horizontal centers, align right, distribute vertical spacing, align top, align vertical centers, align bottom, and distribute horizontal spacing.

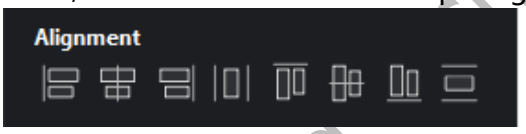

Figure 7.4-12 Alignment

●Topology: It provides 8 cabinet topologies to be quickly used.

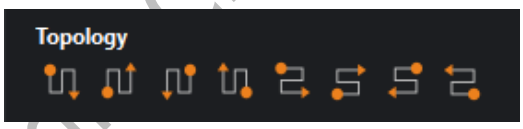

Figure 7.4-13 Topology

●Position: It displays the position of the cabinets which can be selected to lock or not.

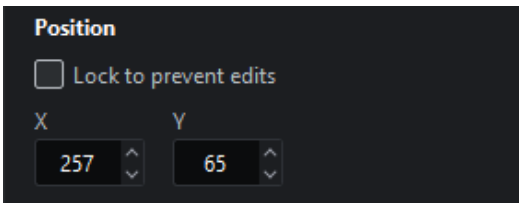

Figure 7.4-14 Position

Overrides properties (Cabinet groups)

●Override global color: It indicates that you can apply independent brightness and color temperature for the selected cabinet groups, regardless of global color.

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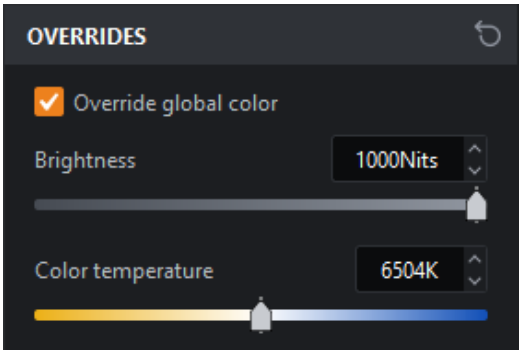

Figure 7.4-15 Override global color

●Override global gains: It means that independent intensity gains and RGB gains can be used for the selected cabinet groups, which are not affected by the global gain.

Figure 7.4-16 Override global gains

Context menu

●When you select one cabinet or multiple cabinets, the following options are displayed.

Function	Description
Copy	Copy the selected cabinets.
Paste	Paste the cabinets to the current position of cursor.
Group	Make a group of the selected cabinets.
Ungroup	Break the group of current cabinets.
Add to group	Add selected cabinets to the group.

Remove from group	Remove the selected cabinets from the group (hold the Shift key to select a cabinet within the group).
Select string	Select all cabinets connected to the same string as the one selected.
Delete topology	Delete topology of the selected cabinets.
Select cabinets with same type	Select all cabinets of the same type as the selected one.
Send to back	Send to the back of the z-axis of the selected tier.
Move to tier	Move the selected cabinets to a tier.
Change type...	Change the type of the selected cabinets.
Zoom to selection	Zoom and position the canvas so that the selected cabinets are in the center of the canvas view.
Delete	Delete the selected cabinets.

●When selecting a cabinet group, the following options will appear.

Function	Description
Copy	Copy the selected cabinet group.
Paste	Paste the cabinet/group to the current position of cursor.
Ungroup	Break the current cabinet group.
Select grouped cabinets	Select all cabinets in current cabinet group.
Delete topology	Delete topology of the selected cabinet group.
Send to back	Send to the back of the z-axis of the selected tier.
Move to tier	Move the selected cabinet group to a tier.
Zoom to selection	Zoom and position the canvas so that the selected cabinet group is in the center of the canvas view.

●When you click an area outside the cabinet/group in the canvas view, the following options are displayed.

Function	Description
Paste	Paste the cabinet/group to the current position of cursor.
Zoom to fit	Adjust zooming and position to show the full view in the center of the canvas.

Zoom to 1:1	Adjust the zoom to show the canvas with a 1 to 1 resolution of the display.
Toggle navigator	Show or hide the navigator window.
Show group name	Group names can be shown or hidden.
Group grid	Grid dots can be shown or hidden at convenience.
Snap to grid	Pull cabinets into perfect alignment with the grid. Is enabled by default, helping to align or space cabinets evenly on the canvas
Snap to cabinets	Pull cabinets into perfect alignment with other cabinets. Is enabled by default to align cabinets evenly on the canvas avoiding overlapping or small gaps.
Canvas edits enabled	Enable or disable modification of the cabinet position.

7.4.2 Online View

The online view allows you to view comprehensive information about the current processor, the status of all the output ports and the details of the connected cabinets.

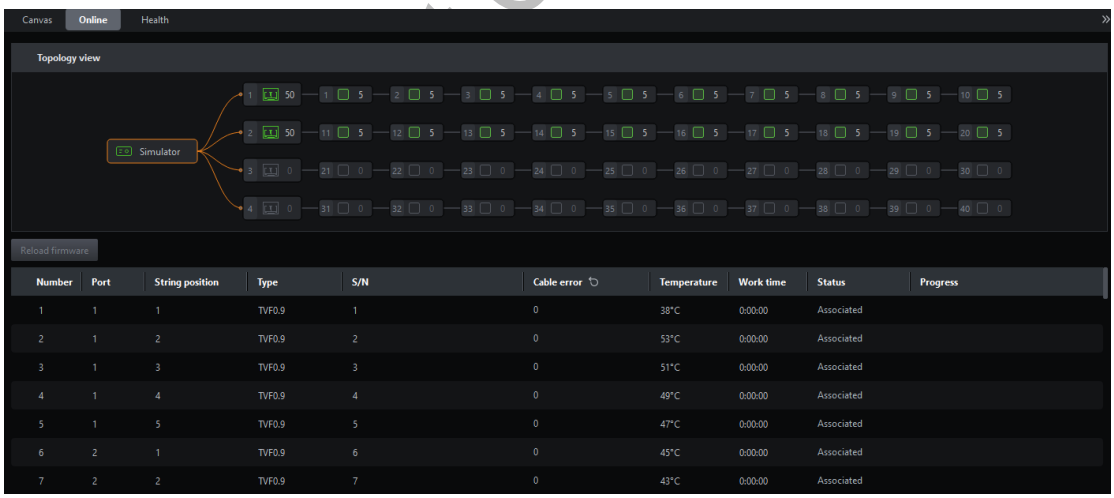

Figure 7.4-17 Online view

Output port list

●It indicates the connection status of output ports. Green (number of cabinets) means the port is connected and gray shows unconnected status.

Cabinet list

●Display the output port, string position, type, S/N, cable error, temperature, work time, status, and other information of the cabinets.

Click the "Reload Firmware" button to update the firmware of selected cabinets.

Note:

When Advanced mode is enabled, "Cable error" turns into "Errors/Total packets".

7.4.3 Health View

Health view provides the input status of the video and cabinet temperature, humidity, cable error, voltage, power supply, fan, etc. It also provides monitoring reports for users.

Figure 7.4-18 Health view

Video monitoring

●Click in the toolbar to enter the video monitoring interface.

●It is allowed to view the input source being monitored, the expected resolution and frame rate.

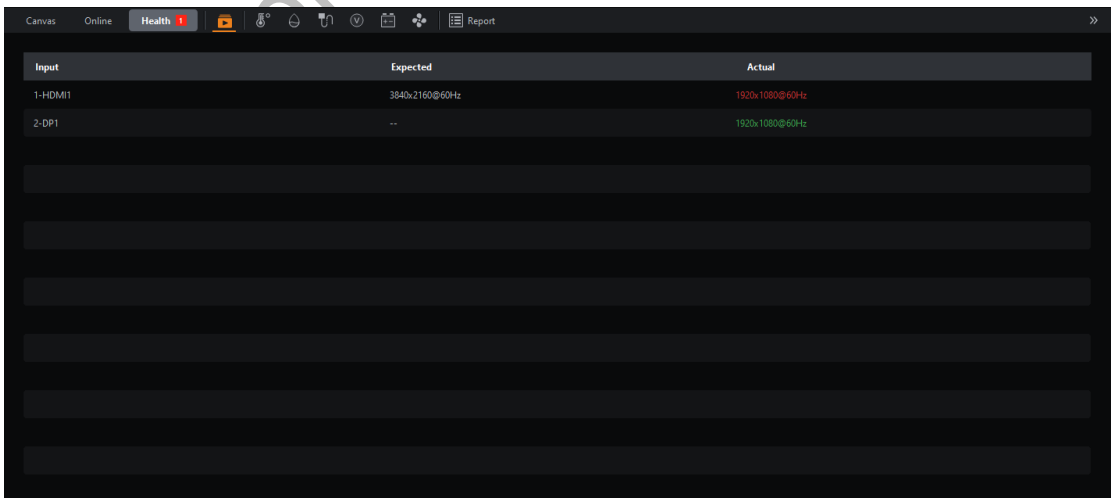

Figure 7.4-19 Health view - video monitoring

●If the expected resolution and frame rate are consistent with the actual one,

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the font is displayed in green, otherwise it is displayed in red.

Temperature monitoring

●Click in the toolbar to enter the temperature monitoring interface.

●The temperature of the online cabinets can be viewed.

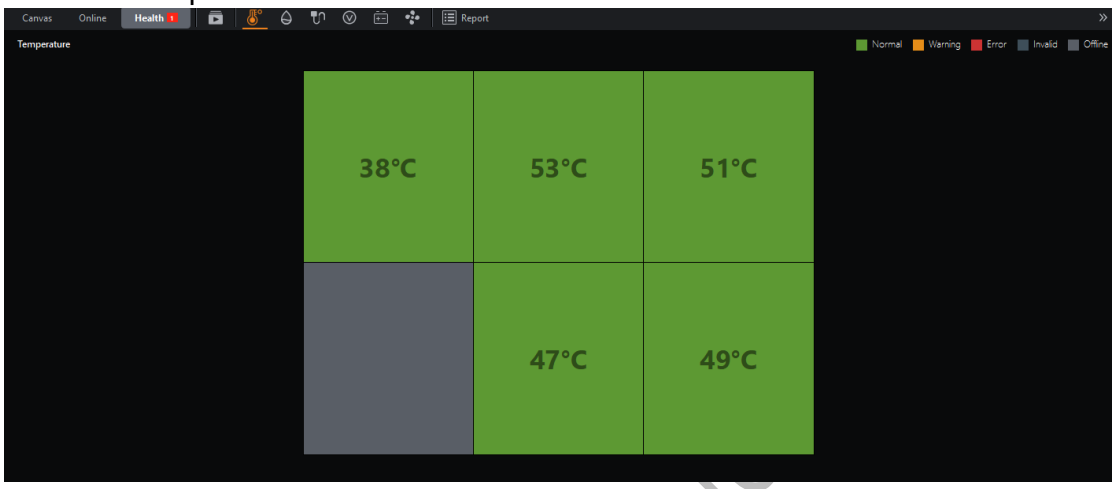

Figure 7.4-20 Health view - temperature monitoring

●The green cabinet indicates that the temperature is 95% lower than alarm value. Orange shows that it has reached 95% of the alarm temperature and red represents that the temperature alarm value has been reached. Dark gray means that the temperature sensor of receiver is invalid or has an incorrect value, and gray indicates an offline status of the cabinet.

Humidity monitoring

●Click in the toolbar to enter the humidity monitoring interface.

●You can view the humidity value of the online cabinets.

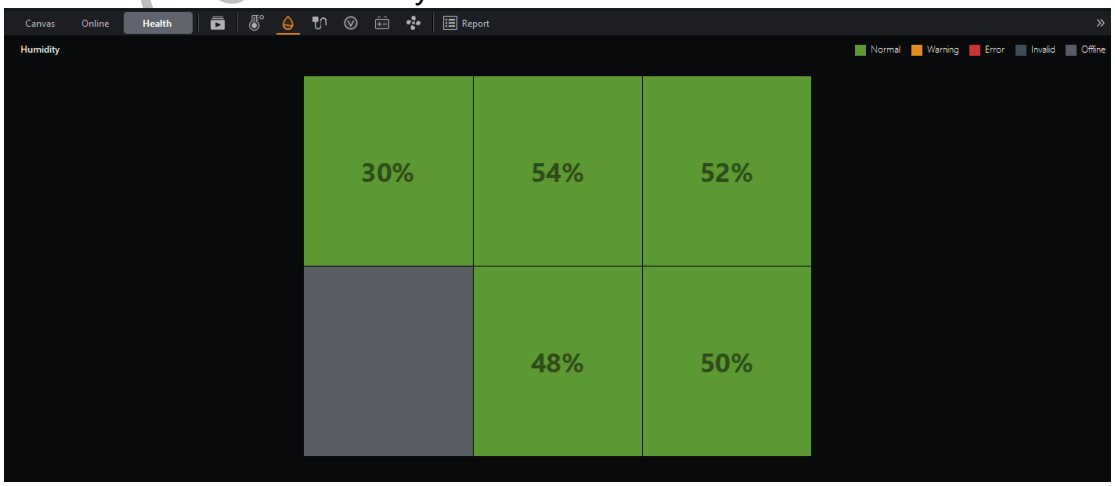

Figure 7.4-21 Health view – humidity monitoring

●The green cabinet indicates that the humidity is 95% lower than alarm value. Orange shows that it has reached 95% of the alarm humidity value and red represents that the humidity alarm value has been reached. Dark gray means that the humidity sensor of receiver is invalid or has an incorrect value, and gray indicates an offline status of the cabinet.

Cable error monitoring

●Click in the toolbar to enter the cable error monitoring interface.

●You can check the cable error rate of the online cabinets.

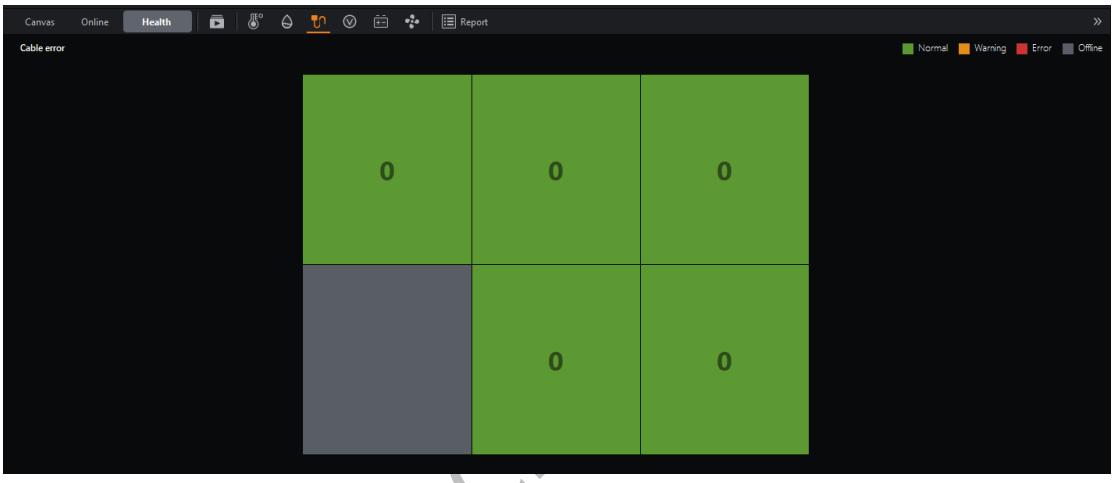

图 7.4-22 Health view – cable error monitoring

●The green cabinet indicates that the cable error rate is lower than 0.95/1,000,000. Orange shows that the cable error rate has reached 0.95/1,000,000 and red represents that the alarm value of 1/1,000,000 has been reached. Gray indicates an offline status of the cabinet.

Voltage monitoring

●Click in the toolbar to enter the voltage monitoring interface.

●You can view the voltage of the online cabinets.

Figure 7.4-23 Health view – voltage monitoring

●The green cabinet indicates that the actual voltage is 95% lower than alarm value. Orange shows that it has reached 95% of the maximum voltage, and red represents that the actual voltage has exceeded the alarm voltage value. Dark gray means that the voltage of receiver is invalid, and gray indicates an offline status of the cabinet.

Power monitoring

- Click in the toolbar to enter the power monitoring interface.
- You can check the power status of the online cabinets.

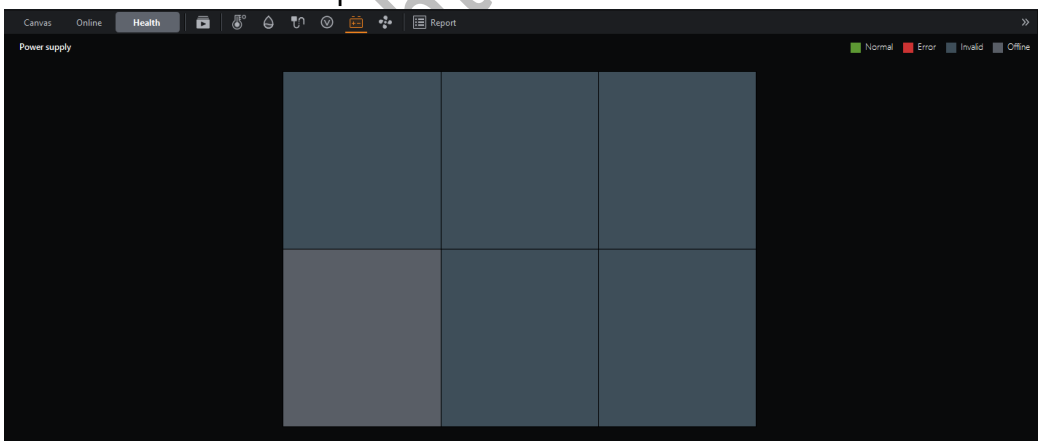

Figure 7.4-24 Health view – power monitoring

- The green cabinets indicate that the power supply is normal and red indicates abnormal. Dark gray means that the power supply monitoring is invalid, and gray represents an offline status of the cabinet.

Fan monitoring

●Click in the toolbar to enter the fan monitoring interface.

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●You can check the fan status of online cabinets.

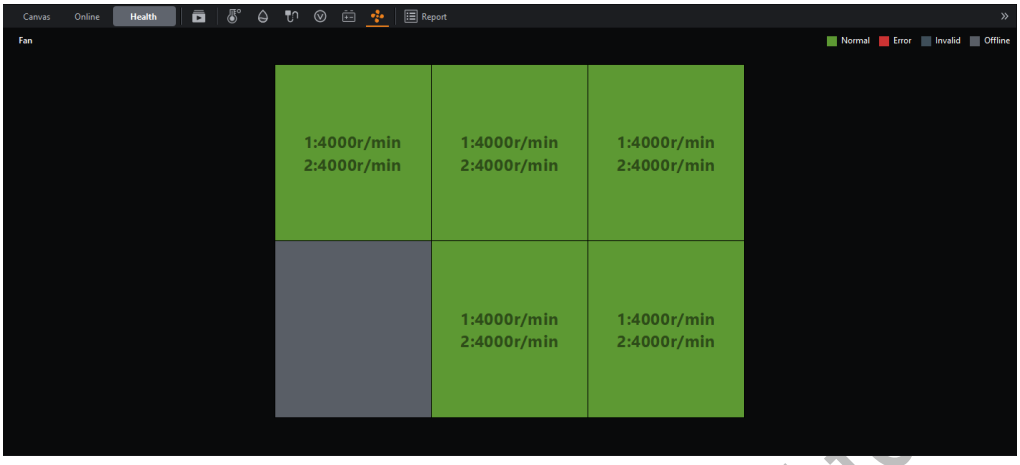

Figure 7.4-25 Health view – fan monitoring

●The green cabinet indicates that the fan works in a normal state and red shows an abnormal state. Dark gray means the fan monitoring is invalid and gray represents an offline status of the cabinet.

Monitoring report

●Click Report in the toolbar to enter the monitoring report interface.

●You can view the monitoring report of all abnormal conditions.

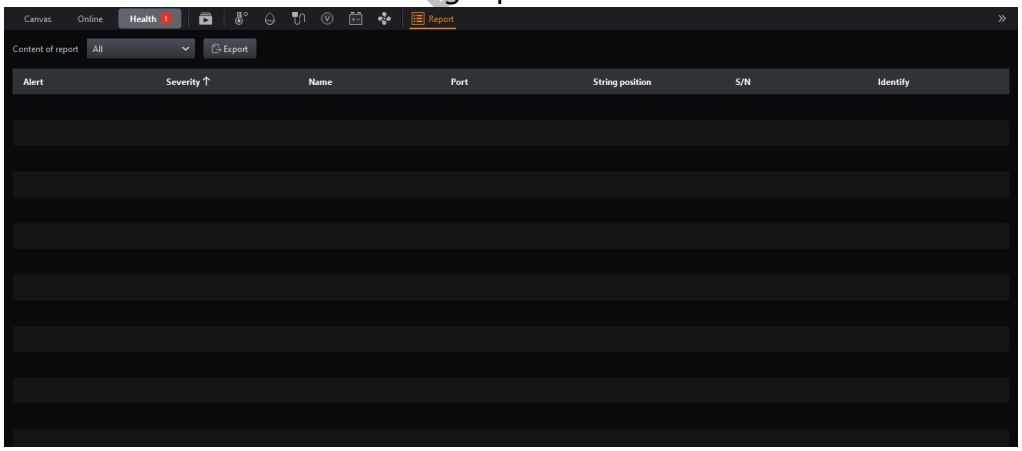

Figure 7.4-26 Health view – monitoring report

●Click All to filter the abnormal data by type.

●Click Export to export the currently displayed abnormal data in CSV file format.

7.5 Auxiliary Area

The auxiliary area is located at the bottom of the main project screen.

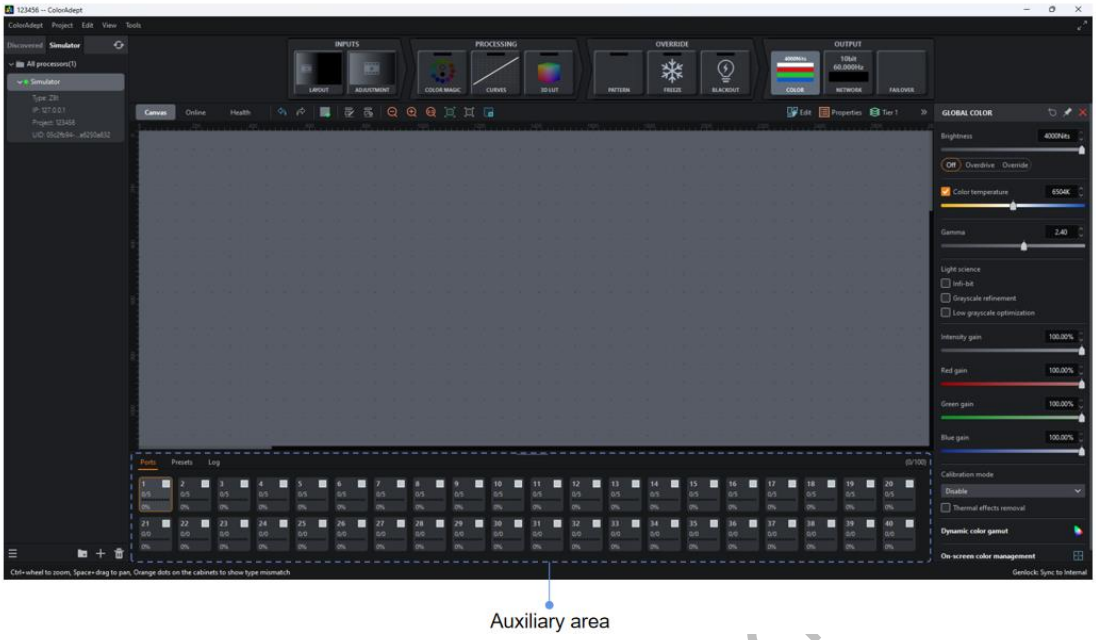

Figure 7.5-1 Auxiliary area

The auxiliary area contains three tabs of ports, presets, and logs.

7.5.1 Ports

The auxiliary area displays the ports tab by default. It is permitted to change the cabinet color of ports and view related information. In add cabinets mode, select a port first and then add a cabinet to the port.

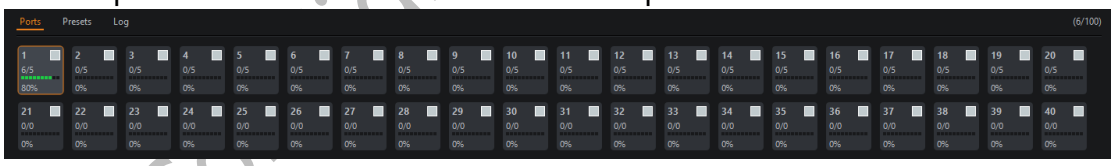

Figure 7.5-2 Auxiliary area - ports

●The upper right corner of the ports tab displays the total number of used cabinets in the canvas / the total number of detected cabinets.

●Each port is corresponding to a module and the information in the module is as follows.

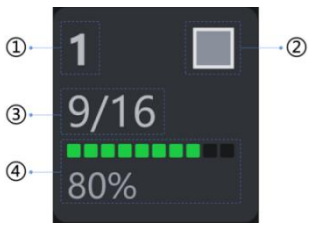

Figure 7.5-3 Port info

■Port index.

■Port cabinet color (support customization).

■Total number of cabinets used in the canvas / Total number of detected cabinets.

■Percentage of port load occupied.

●In Add cabinet mode, you can click the port to add the cabinet to the corresponding port.

Context menu

Function	Description
Port color settings	Open the color picker and select the desired color to apply to the current port.
Reset current port color	Reset the cabinet color of the current port to default color.
Apply color to all ports	Apply the cabinet color of the current port to all ports.
Reset all port colors	Reset the cabinet color of all ports to default color.

7.5.2 Presets

Processor parameters can be saved as presets which is convenient to use later.

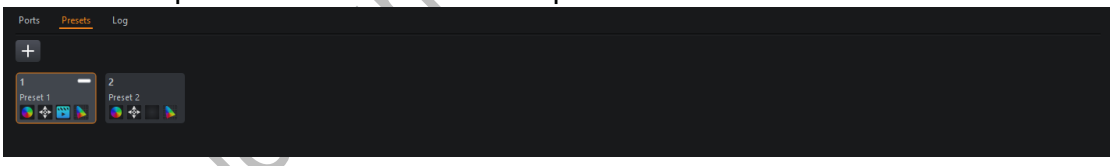

Figure 7.5-4 Auxiliary area - presets

●Record button : Click to enter add presets mode.

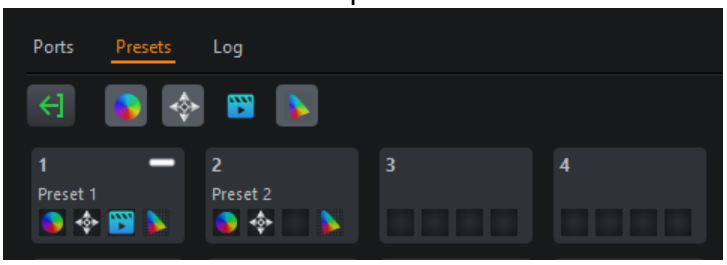

Figure 7.5-5 Add preset mode

■The record button turns into an exit button .

■Four icons are displayed next to the exit button, which are color ,

position , video , and dynamic color gamut . Select the corresponding icon for the desired preset function, then click the preset tile below to save the preset and exit add presets mode automatically.

■Click the exit button or press ESC to exit add presets mode.

Preset icon

●Preset color : Record the current parameters of Color Magic, Curves, 3D LUT strength value, global color, cabinet/cabinet group color (i.e. override properties).

●Preset position : Record the position of all cabinets in current canvas view.

●Preset video : Record the input sources selected in the current output area (including the properties, position, viewport area, zoom mode of viewport, zooming and aspect ratio of each input source).

●Preset dynamic color gamut : Record the properties of the current dynamic color gamut.

Preset tile

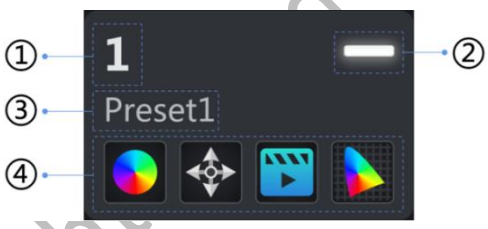

Figure 7.5-6 Preset tile

■Preset index.

■The status of the preset which displays as a white indicator when enabled.

■Preset name and support customization.

■Preset recorded parameters. If parameters have been recorded, it will display an icon in the corresponding position. The first box represents the preset color; the second represents preset position; the third represents preset video; and the fourth represents preset dynamic color gamut.

7.5.3 Log

Click Log in the auxiliary area to be taken to the Log tab.

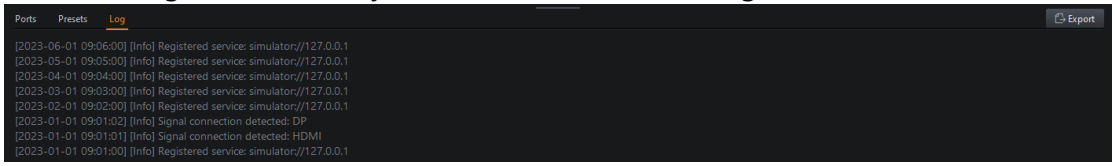

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Figure 7.5-7 Auxiliary area-log

●You can view and export operational records and errors that occur in the current processor.

8. Inputs

The inputs in the pipeline area consist of layout and adjustments tiles.

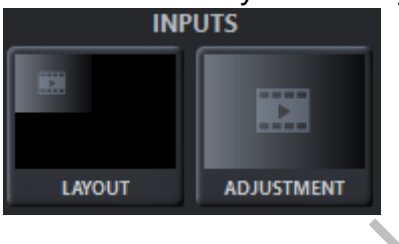

Figure 8.1-1 Inputs

8.1 Layout

8.1.1 Pipeline Tile

Without any sub-boards, the layout tile appears as follows.

Figure 8.1-2 Pipeline tile

If there is a sub-board inserted,

●When an input exists in the output area of the layout properties, the layout tile is displayed as follows.

Figure 8.1-3 Pipeline tile

●When no input exists in the output area of the layout properties, the layout tile is shown as follows.

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Figure 8.1-4 Pipeline tile

8.1.2 Properties

●Currently supported sub-board types:

■SDIx2;

■HDMIx2;

■DPx2;

■ST2110;

■3IN1;

The maximum number of inputs supported is determined by specific processor.

Cropping

Cropping feature is used to crop the input sources.

●Cropping checkbox: When disabled, it displays the original size and position of the source.

●Dimensions: It is applied to adjust the size and position of cropping area.

●Zoom mode: It is used after the inputs are cropped. It is defaulted as stretch mode, you can choose 1:1 mode, fit mode, and fill mode.

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Figure 8.1-5 Viewport

●A white dotted box indicates the cropping area.

Figure 8.1-6 Cropping area

Zoom mode

●1:1 mode: The cropped video is at the same size as the original cropped image and the top left vertex of the image is aligned with the input source window.

Figure 8.1-7 1:1 mode

●Fit Mode: Zoom the cropped video to fit the input source window while maintaining the aspect ratio.

Figure 8.1-8 Fit mode

●Fill Mode: Zoom the cropped video to fill the input source window while maintaining the aspect ratio.

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Figure 8.1-9 Fill mode

●Stretch mode: Stretch the cropped video to fill the input source window and match the width and height of the window.

Figure 8.1-10 Stretch mode

Output area

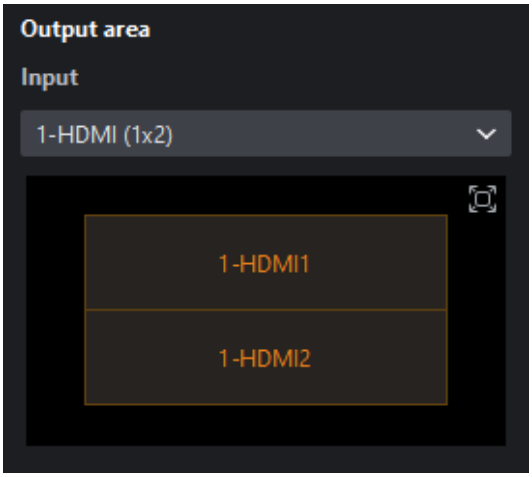

Figure 8.1-11 Output area

There are two ways to set layout mode of input sources.

●Select a quick option in the drop-down box, such as HDMI (1x2).

●Select Custom in the drop-down box or click on in input source window.

Layout window

●The position and size of the inputs can be modified.

Layer

- Layer No.: It displays the sequence number of layers.
- Lock/Unlock: Locks/unlock the layer.
- Drop-down list for input sources: Quickly select the input source.
- Zoom size can be set from left, top, width, height.
- Aspect ratio: Set the aspect ratio mode of zooming with free, 4:3, 16:9 selectable.

Layout mode

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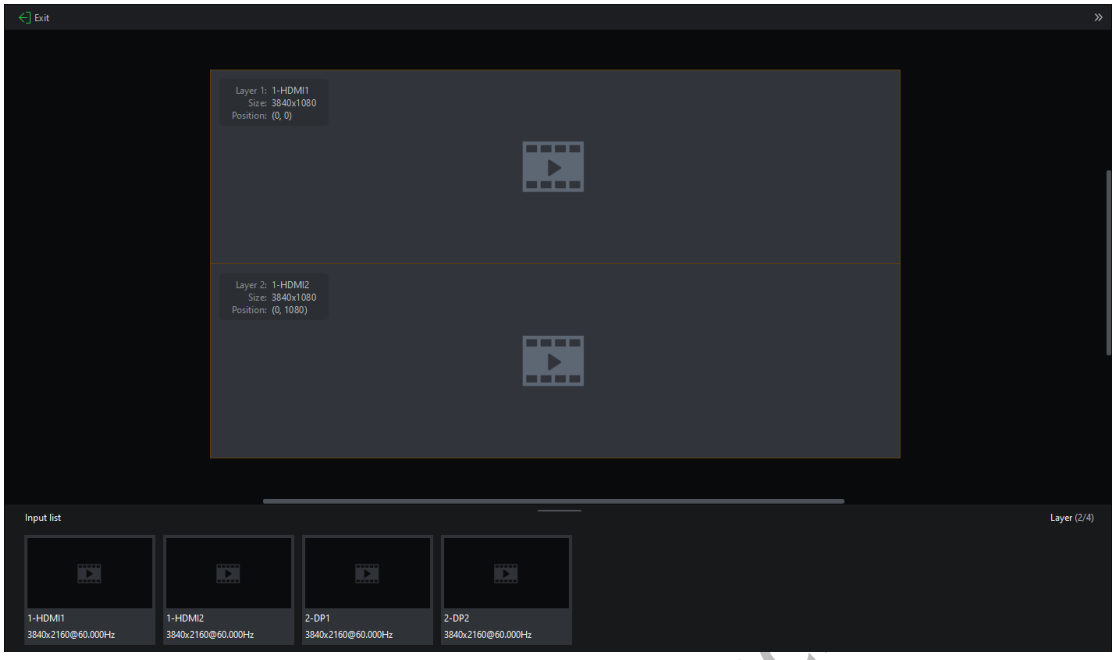

Figure 8.1-12 Layout mode

●Click Exit to exit layout mode.

●Main view

■The canvas area is displayed in the center of the main screen.

■The input source window displays as the monitoring screen.

■Support zooming and moving of the main screen.

●When you right-click an input on the main screen, the following menu options are displayed.

Function	Description
Bring to front	Move the window to top layer.
Send to back	Move the window to bottom layer.
Lock /Unlock position	Toggles the lock/unlock state of the window.
Delete	Remove window from the main screen.

●Auxiliary area

Auxiliary area displays the available input sources, which can be dragged into the main screen above.

8.2 Adjustment

8.2.1 Pipeline Tile

●When there is no input source in the output area of the layout properties, the adjustment tile is displayed as follows.

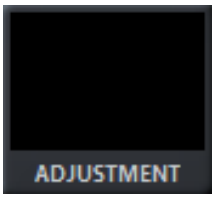

Figure 8.2-1 Pipeline tile

●When there is at least one input source in the output area of the layout properties, the adjustment tile appears as follows:

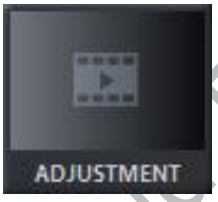

Figure 8.2-2 Pipeline tile

8.2.2 Properties

Global adjustments

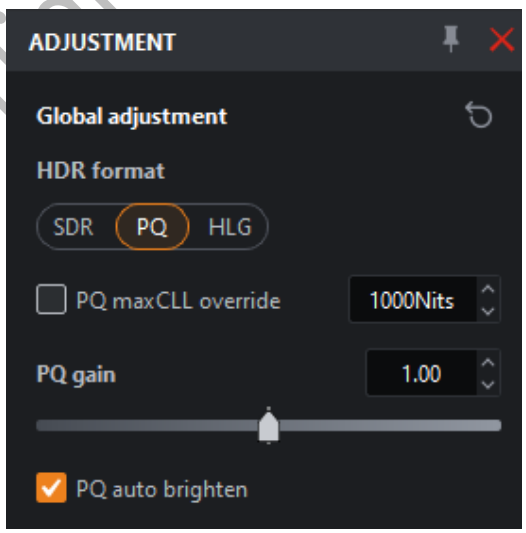

Figure 8.2-3 Global adjustments

●HDR format: It supports SDR, PQ or HLG.

●PQ maxCLL override: Allows the maxCLL value to be specified by the user

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(when ticked) for incoming PQ content.

●PQ gain: A multiplier adjustment to all brightness levels of the incoming PQ content.

●PQ auto brighten: Automatically adjusts the brightness of incoming PQ content to match the brightness capabilities of the LED panels being used.

●HDR dynamic calibration: It compensates for the loss of brightness before and after calibration.

Color space

Figure 8.2-4 Color space

●Dynamic color gamut button: Click this button to enter the dynamic color gamut interface.

●Drop-down box of Color space is used to set color space parameters of the input, which is only displayed after dynamic color gamut is enabled.

●Input InfoFrames override color space when present: It indicates that the system is forced to use the color gamut specified by the metadata sent through the information frame, which is only displayed after dynamic color gamut is enabled.

Input adjustments

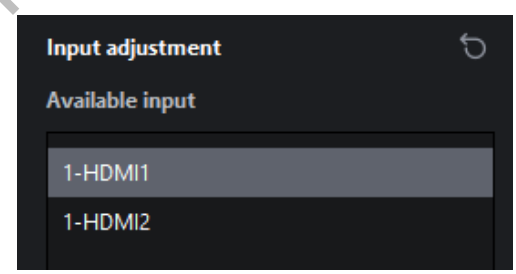

Figure 8.2-5 Input adjustments

●Input selection list: Displays adjustable input sources.

The following is a display of the corresponding properties of the selected input source.

SDI

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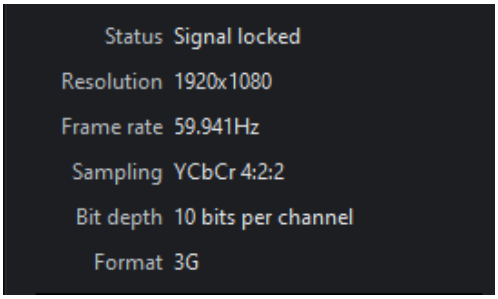

Figure 8.2-6 SDI

Basic information

●Status: The status (includes no signal and signal locked) of the input source signal.

●Resolution: The resolution of input.

●Frame rate: The frame rate of input.

●Sampling: Chroma subsampling compression of incoming source.

●Bit depth: The bit depth of the incoming content.

●Format: SDI input format.

Low latency

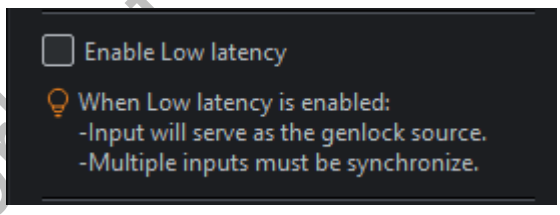

Figure 8.2-7 Low latency

●Low latency: It reduces the delay time from the input video source, processor to the LED display. When low latency is enabled, the input video source is preferred to select as the genlock source (when there are multiple input video sources, they should be synchronized).

The following control items can be adjusted by slider or manual entry.

●Black Level: This control affects the base level brightness of darkest content of the input. Modifying this value will affect the signal gradually, but it is the most pronounced at the lower end of the video signal nearest black.

●Contrast: It controls the difference in brightness between the darkest content

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and brightest content.

●Hue: Adjusts the spectrum of the incoming video feed.

●Saturation: Adjusts the depth of the color.

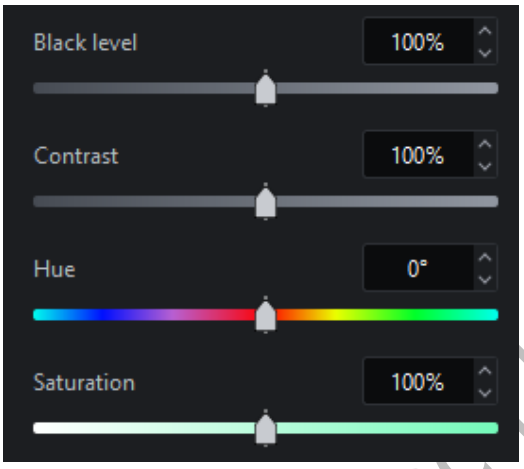

Figure 8.2-8 Color control

●Red Highlight: It is for adjusting the contrast of red (white level).

●Green Highlight: It is for adjusting the contrast of green (white level).

●Blue Highlight: It is for adjusting the contrast of red or blue (white level).

●Red Shadow: Setting the black level of red for the selected input.

●Green Shadow: Setting the black level of green for the selected input.

●Blue Shadow: Setting the black level of blue for the selected input.

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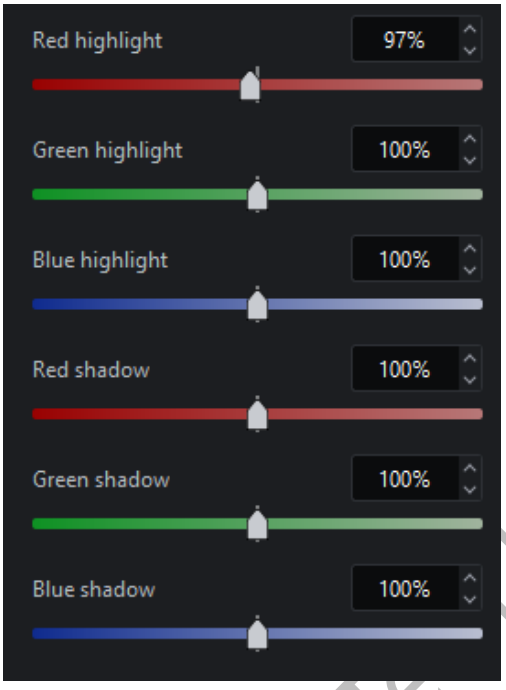

Figure 8.2-9 Color control

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Note:

The RGB highlight and shadow sliders are equivalent to the settings of RGB white level and black level respectively.

HDMI/DP

Basic information

●Status: The status (includes no signal and signal locked) of the input source signal.

●Resolution: The resolution of input.

●Frame rate: The frame rate of input.

●Sampling: Chroma subsampling compression of incoming source.

●Bit depth: The bit depth of the incoming content.

●HDR status: It shows HDR format, color space, and Max CLL. HDMI/DP is displayed as no signal when there is no signal input source. (The following information is supported to be expanded/collapsed which is collapsed by default.)

Format: It is used to author the incoming content, which can be SDR or PQ or HLG.

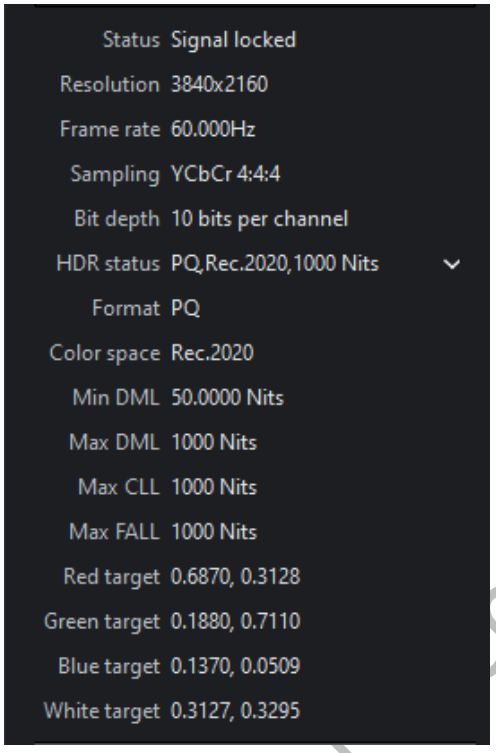

Figure 8.2-10 HDMI/DP

The following information is displayed as unspecified when there is no HDMI/DP signal.

●Color space: It is the color space used for incoming HDR content.

●Minimum Display Mastering Luminance: The minimum display panel luminance for which the HDR content has been authored.

●Maximum Display Mastering Luminance: The maximum display panel luminance for which the HDR content has been authored.

●Maximum Content Luminance Level: For incoming HDR content, it displays the maximum luminance level that any single pixel is expected to achieve.

●Maximum Frame Average Luminance Level: It displays the maximum average luminance level of any single frame for incoming HDR content.

●Red Target: The red point target coordinates to which the incoming HDR content that has been authored.

●Green Target: The green point target coordinates to which the incoming HDR content that has been authored.

●Blue Target: The blue point target coordinates to which the incoming HDR

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content that has been authored.

●White Target: The white point target coordinates to which the incoming HDR content that has been authored.

ST2110

Basic Information

●Status: It displays the input status, including no signal and SFP1/SFP2 signal locked;

● RJ45: It shows the connection status of RJ45, including unconnected and connected;

●Network protocol version: It provides network protocol versions of IPv4 and IPv6;

●SFP1: It displays the video stream and audio stream contained in the incoming SFP1;

●Video stream IP: It displays the IP address and port number of the video stream in SFP1;

●SFP2: It displays the video stream and audio stream contained in incoming SFP2;

● Video stream IP: It represents the IP address and port number of the video stream in SFP2;

●PTP status: It shows the status of the server, including online and offline status;

● Synchronization status: It shows the frame synchronization status between different ST2110 sub-boards (cross-processor available), which includes synchronized and unsynchronized status;

● Resolution: Resolution of the incoming source signal;

● Frame rate: Frame rate of the content being received from the source;

● Sampling: Chroma subsampling compression of the incoming content;

● Bit depth: Bit depth of the incoming content;

● HDR status: This always shows the HDR format, color space and Max CLL. It displays as no signal when ST2110 signal is lost or unconnected (You can choose

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to hide/show the information below, which is hidden by default).

● Format: The HDR format is used to author incoming content. Can be SDR, PQ or HLG.

The information below is displayed as unspecified if there is no signal in ST2110 port.

●Color space: Color space used for the incoming HDR content.

● Min Display Mastering Luminance: The minimum display panel luminance for which the HDR content has been authored.

●Maximum Display Control Brightness: The maximum display panel luminance for which the HDR content has been authored.

● Maximum Content Light Level: The maximum light level that any single pixel is expected to achieve for the incoming HDR content.

● Maximum Frame Average Light Level: The maximum average light level for any single frame of incoming HDR content.

●Red Target: Red target coordinates to which the HDR content that has been authored.

●Green Target: Green target coordinates to which the HDR content that has been authored.

●Blue target: Blue target coordinates to which the HDR content that has been authored.

●White target: White target coordinates to which the HDR content that has been authored.

EDID

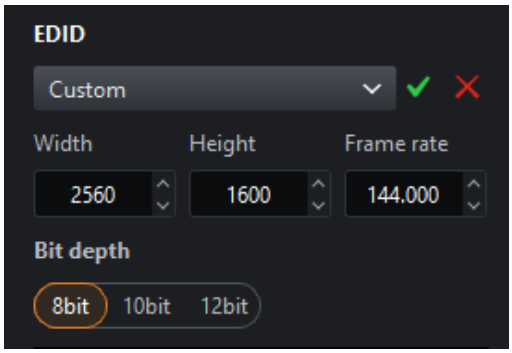

Figure 8.2-11 EDID

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●Resolution and frame rate of EDID can be customized.

●Bit depth: Support 8bit, 10bit and 12bit.

Low latency

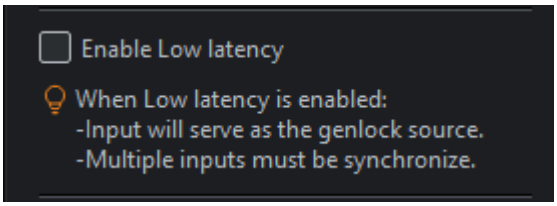

Figure 8.2-12 Low latency

●Low latency: It reduces the delay time from the input video source, processor to the LED display. When low latency is enabled, the input video source is preferred to select as the genlock source (when there are multiple input video sources, they should be synchronized).

Color format

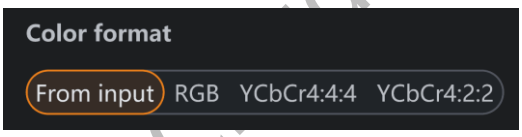

Figure 8.2-13 Color format

●Color format: Support selection from input, RGB, YCbCr4:4:4 or YCbCr4:2:2.

Quantization range

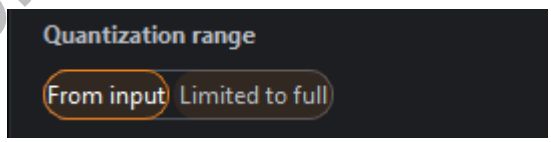

Figure 8.2-14 Quantization range

●The quantization range setting supports selection from input and limited to full.

●The following control items can be adjusted by slider or manual entry.

●Black Level: This control affects the base level brightness of darkest content of the input. Modifying this value will affect the signal gradually, but it is the most pronounced at the lower end of the video signal nearest black.

●Contrast: It controls the difference in brightness between the darkest content

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and brightest content.

●Hue: Adjusts the spectrum of the incoming video feed.

●Saturation: Adjusts the depth of the color.

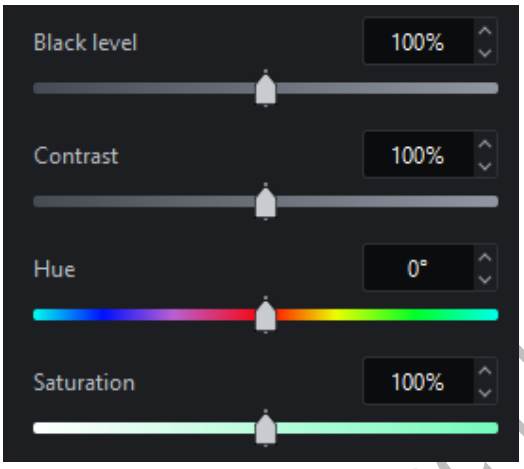

Figure 8.2-15 Color control

●Red Highlight: It is for adjusting the contrast of red (white level).

●Green Highlight: It is for adjusting the contrast of green (white level).

●Blue Highlight: It is for adjusting the contrast of red or blue (white level).

●Red Shadow: Setting the black level of red for the selected input.

●Green Shadow: Setting the black level of green for the selected input.

●Blue Shadow: Setting the black level of blue for the selected input.

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Figure 8.2-16 Color control

Balance settings (HDMI only): This setting is displayed only when advanced mode is turned on.

Figure 8.2-17 Balance settings

9. Color Processing

The color processing section in the pipeline consists of Color Magic, Curves, and 3D LUT.

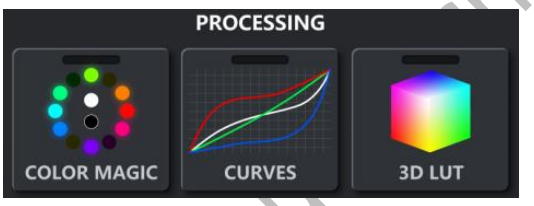

Figure 9.1-1 Color processing tiles

9.1 Color Magic

Color magic allows you to manipulate single or multiple predefined colors without affecting other colors.

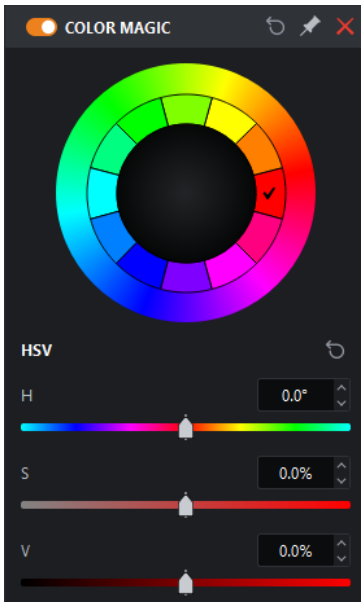

Figure 9.1-2 Color magic

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The inner ring is divided into 12 colors and red is selected by default. When the cursor is placed on a certain color, the color is convex to indicate it is clickable. When you clicked, the color is displayed concave to show that the color has been selected. After selecting a color, the H, S, and V values of the color can be set.

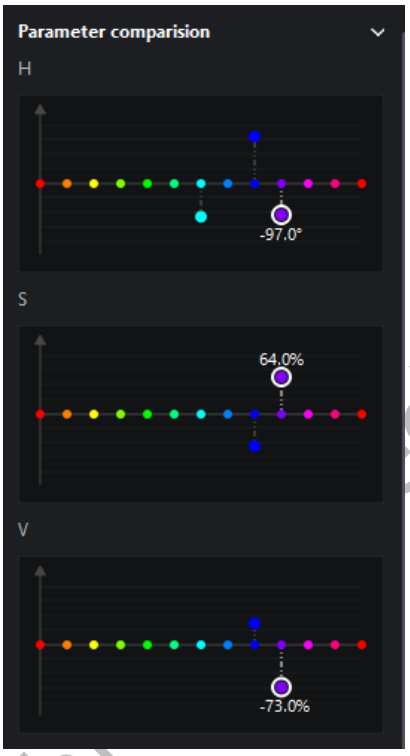

Figure 9.1-3 HSV

Expand the parameter comparison charts to check the offset of each color component more intuitively corresponding to H, S, and V.

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Figure 9.1-4 HSV offset

Black and white are adjusted via RGB gains.

9.2 Color Curves

Color curves permit to control the video level of each color channel by creating custom transmission curves.

Figure 9.2-1 Color curves

Color curves are employed to provide brightness, red, green, blue channel

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curves. After selecting the curve of the desired channel on the bottom of the graph, you can select any point on the curve and drag it to the desired position.

9.3 3D LUT

3D LUT is an efficient way to map colors and allowed for advanced color correction. It is commonly used in film production, from on-set camera adjustments to color grading in post-production.

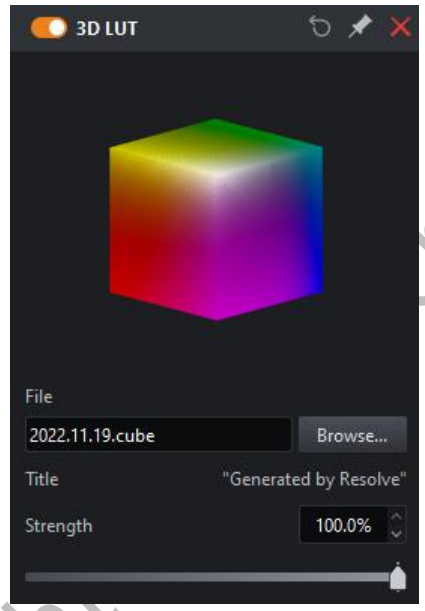

Figure 9.3-1 3D LUT

Only one 3D LUT file can be loaded into the project once.

3D LUT strength is controlled by the strength slider. The strength of 0% is equivalent to the effect before enabling the 3D LUT and a 100% intensity is equivalent to the effect after enabling the 3D LUT.

Strength values can be stored in presets, but it is not supported to store 3D LUT files in presets.

10. Override

The override section in the pipeline area contains three parts of test patterns, freeze and blackout.

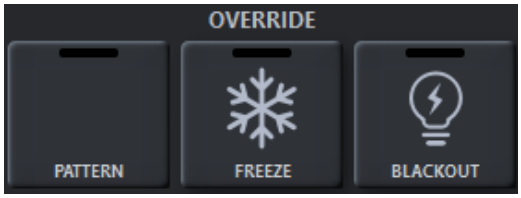

Figure 10.1-1 Override pipeline tiles

10.1 Test Patterns

To activate test patterns:

●Double-click on the Pattern pipeline tile.

●Click the enable button on the property editor title bar.

●Click the desired test pattern.

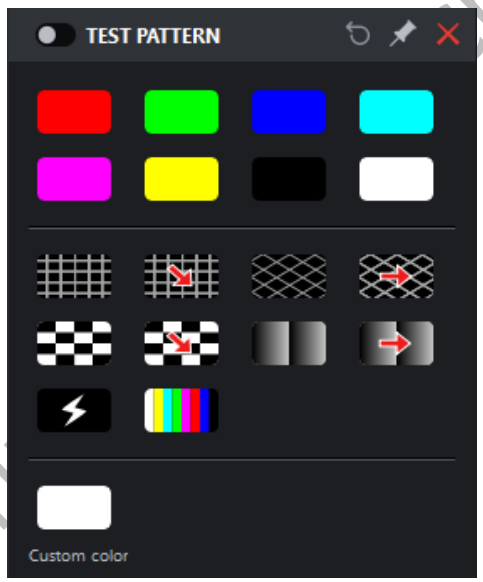

Figure 10.1-2 Test patterns

●Speed: This function is applicable when you select four test patterns of scrolling grid, scrolling 45° grid, scrolling checkerboard, and scrolling gradient. Speed can be adjusted by dragging the slider or clicking spin button, and the value range is 1~100.

●Spacing: This function is available when you select four test patterns of grid, scrolling grid, 45° grid, scrolling 45° grid. It can be adjusted by dragging the slider or clicking spin button, and the value range is 8~1000.

●Gradient stretch: It' s usable when you select test patterns of gradient, scrolling gradient. It can be adjusted by dragging the slider or clicking spin button,

and the value range is 1~32.

Figure 10.1-3 Test patterns adjustment

Custom color test pattern allows on-screen color display improvement by adjusting RGB values only.

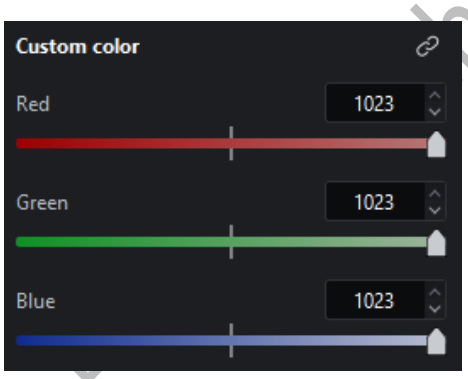

Figure 10.1-4 Custom color

10.2 Freeze

Enable Freeze to pause the incoming video signal and hold the final frame indefinitely until the freeze is disabled.

Figure 10.2-1 Freeze

10.3 Blackout

Enable Blackout to make all screens display black and disable the blackout function to resume live video.

Figure 10.3-1 Blackout

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11. Output

11.1 Global Color

●Brightness: Brightness slider allows adjustment for light output on the cabinets. Since all cabinet types are calibrated while writing the configuration file, the brightness slider is expressed in Nits. This means that arrays with different cabinets can be quickly set to the same output level. If you use more than one cabinet type with different maximum brightness values, the brightness slider defaults to the brightest value that can be reached by all cabinets in the project.

■ Overdrive: Once overdrive has been enabled the slider will allow the brightness of the panels to be pushed to the brightness limit of the LEDs within the panels.

■ Overwrite: Overwrite the maximum brightness value of the cabinet to prevent the cabinet brightness overload.

●Color temperature: It is employed to modify the color of the LED display. It allows users to adjust the white balance of attached cabinets in a range of 2000~11000K. By default, the value is 6504K.

●Gamma: Gamma adjustment is a way to adjust brightness of mid-tone in the image without affecting very dark or very bright areas of the image. A higher value results in lower brightness overall. The adjustment range of Gamma value in the processor is 0.2~4.0 and is set by default to 2.4.

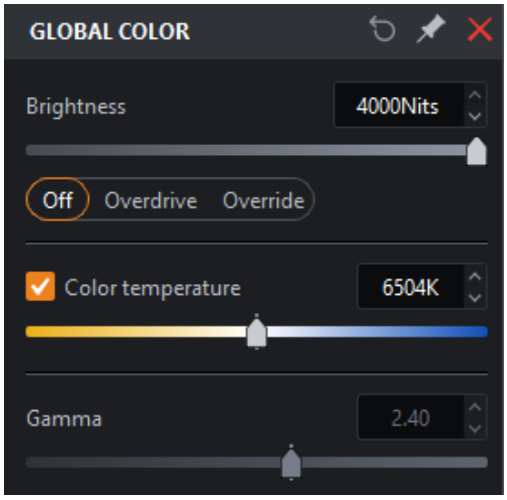

Figure 11.1-1 Global color

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●Infi-bit: It is used to improve the low grayscale transition, so that more grayscale and low gray information can be displayed on the screen.

●Grayscale refinement: It is applied to eliminate the grayscale jump of the screen display, making the grayscale transition smoother.

●Low grayscale optimization: This function is used to optimize the low grayscale display effect to make the screen display more delicate.

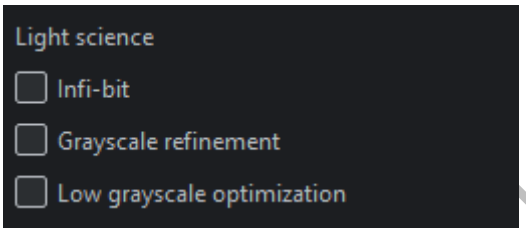

Figure 11.1-2 Light science

●Intensity gain: It allows users to modify the brightness of input source. The intensity output of all cabinets will change in a linear way. When the intensity output is adjusted to 50%, the cabinets will look half as bright to the naked eye as they did at 100%. The precise light output of the screen is determined by this value in conjunction with the value of the brightness slider.

●RGB gain: It modifies the level of each primary color in the cabinet output. Their default value is 100%. Adjusting all 3 RGB gains to 50% has the same effect on brightness as lowering the intensity gain to 50%.

Figure 11.1-3 Intensity and RGB gains

●Calibration mode: Both brightness calibration and chroma calibration are available.

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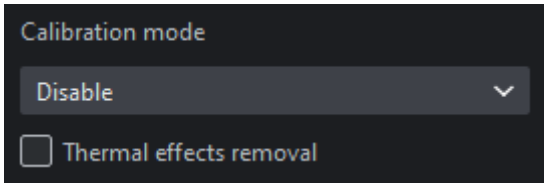

Figure 11.1-4 Calibration

●Thermal Effects Removal: Tick to remove thermal effects.

Panel temperature: The temperature can be from a sensor or customized.

●Dynamic color gamut: Click the thumbnail to be taken to the dynamic color gamut interface.

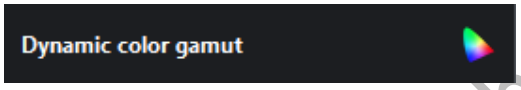

Figure 11.1-5 Dynamic color gamut

●On-screen color management: Click the thumbnail to enter OSCM mode.

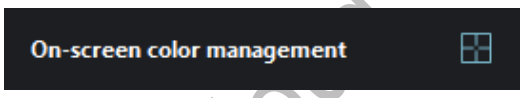

Figure 11.1-6 On-screen color management

11.2 Network

●Network bit depth: By default, the network bit depth is 10bit, which can be changed to 8bit or 12bit. Lowering the network bit depth allows more panels to be connected to the processor.

●Additional video delay: It allows the output refresh to be delayed up to 3 frames, which allows the processor to match the latency present in other display systems.

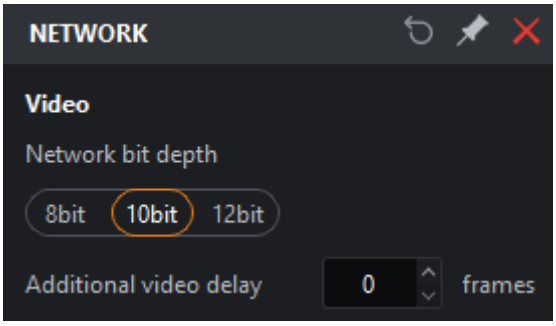

Figure 11.2-1 Network

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Genlock

●Internal: It allows users to customize output frame rate of the processor, which is ranged from 23.5~251Hz. The processor will automatically compensate sources where the source frame rate and the internal refresh rates are different.

●Lock input source: The processor can lock its refresh rate to the input source and it will automatically compensate for sources whose frame rate does not match the refresh rate of the selected source.

●External Genlock source: An external Genlock source refers to an externally generated synchronization signal. The processor will automatically compensate for sources that do not match the external reference refresh rate.

●Multiplier: The frame rate of the external Genlock source multiplied by the customized multiplication factor acts as the frame rate of Genlock source. It is displayed only after enabling advanced mode and it is disabled by default. The factor can be set to 2~10.

●Phase Offset: The phase offset permits fine control of LED screen timing to rectify visual artifacts displayed on the panel relative to the selected genlock source.

■Angle: This specifies the desired delay as an angle relative to a full circle. For example, an angle of 180° corresponds to 1/120th of a second with a 60Hz genlock source.

■Fraction: This is specified as a proportion of the genlock source' frame period. For example, with a 60Hz genlock source, a fraction of 50% corresponds to 1/120th of a second.

The output frame rate of the Genlock signal can be calculated by angle or fraction settings. These delays can be specified as positive or negative values. Using a negative value, adjust the sync point by adding latency of the input video signal. For example, a phase offset of -10% delays incoming video frames by 10% of the frame period.

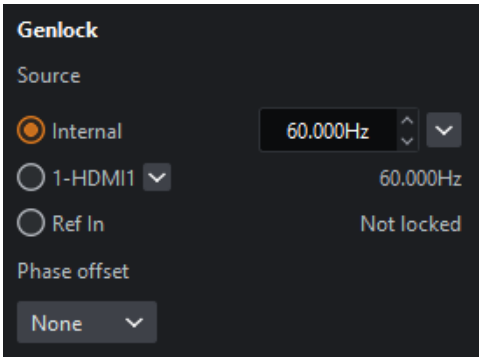

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Figure 11.2-2 Genlock source

Frame rate multiplication: It multiplies the incoming genlock signal.

● Off: Disable multiplication.

●Automatic: If the frame rate of genlock signal ≤ 24.61Hz, it will be multiplied by 3 times. Similarly, > 24.61Hz and ≤ 49Hz for 2 times. Except for > 49Hz, which is not multiplied.

●Specify: The default value is 2 and the value ranges from 2 to 10.

●Frame multiplexing: It allows users to interleave different areas of input video raster, solid colors, or image into the output of the LED panel display. At its most simple frame multiplexing permits the output frame rate to be doubled so that a black frame can be inserted directly into each frame of the actual content, which is a useful technique to reduce motion blur.

■ Multiplier: The default value is 2 and the value ranges from 2 to 10.

■ Enabling frame multiplexing will enable each (up to x10) output frame to be configured to display either video content or solid colors.

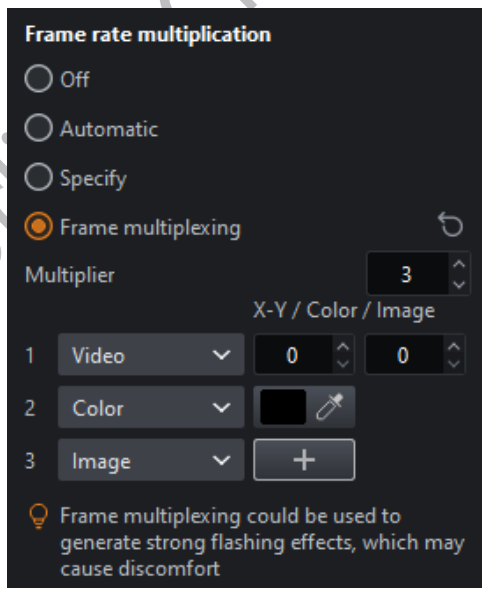

Figure 11.2-3 Frame rate multiplication

●3D: Single 3D or Dual 3D modes are available.

● Single 3D: Set the input source, source format, eye priority and signal delay to simulate the actual viewing effect by human eyes.

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■Picture: Your left eye corresponds to the input source layer and right eye selects the input source according to the actual situation.

■Source format: The source format should be set when the left eye and the right eye use the same input source. Set the format as left/right or top/bottom according to the video source.

■Eye priority: Set the correspondence between video display and opened lens.

■Signal delay: The delay of transmitted 3D signal compared with the processor VSync.

📖**Note:**

Support single 3D of multiple inputs. After enabled, the total band load is reduced by half.

- Dual 3D: You are able to watch different 3D videos from the same screen using different 3D glasses.

■Glasses: The left eye of Glasses 1 corresponds to the input source layer, and the input source of right eye can be selected according to the actual situation. The input source of the left and right eyes of Glasses 2 are selected according to the actual situation.

■Eye priority: Set the correspondence between video display and opened lens by drag and drop.

📖**Note:**

Source format and signal delay features are the same as single 3D. There is only one input layer for dual 3D. When dual 3D is enabled, the total bandwidth will be reduced by three quarters.

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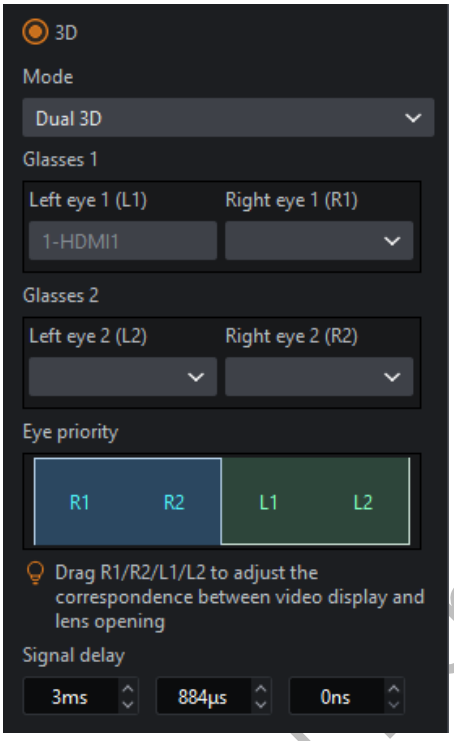

Figure 11.2-4 Frame rate multiplication

ShutterLock

This feature enables the processor to tune the LED panel refresh rate for optimal performance to the camera. This helps prevent unsightly artifacts such as scanning multiplexed lines and poor exposure, as the camera is not open long enough to capture the complete PWM cycle of the LED panel.

●Speed: Manually set shutter speed (1/x) or exposure time.

●Angle: Shutter angle and camera frame rate entry (used to calculate the resulting exposure time).

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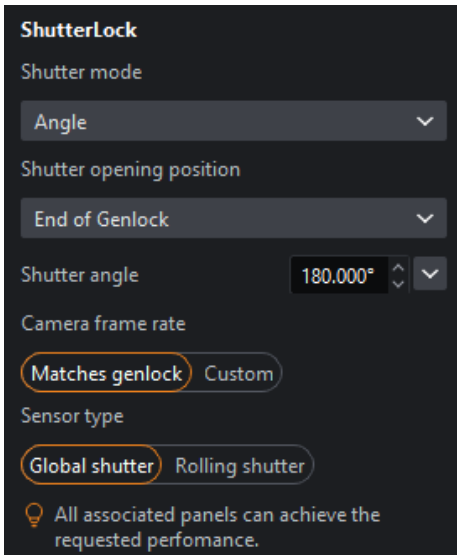

Figure 11.2-5 ShutterLock

System load

●System load displays the load capacity of processor. The greater the system load, the further the green bar fills. If an output is overloaded, the green bar will turn red.

Figure 11.2-6 System load

11.3 Failover

Processor redundancy

Role (selecting primary/backup means processor redundancy is enabled)

●Off: Processor redundancy is not enabled by default.

●Primary: Indicates that the current processor is the primary processor.

●Backup: Indicates that the current processor is used as a backup.

VSync is not allowed to switch to other inputs or auto-generated frame rates(only shown when advanced mode is enabled). Unticked by default. When ticked and an unlocked input is selected as Genlock, it is not allowed to switch to other inputs or auto-generated frame rates.

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Behavior (only displayed when advanced mode is enabled)

●Always prefer primary if available: The backup processor takes control if the output of primary processor fails. The primary processor will automatically switch back to take control when the failed output becomes available again.

●Primary only

■ If the current processor is the primary, all port outputs of the primary processor will be enabled. Even if the port failure of primary processor occurs, it will not be switched to the backup processor.

■ If the current processor is the backup, all port outputs of the processor will be disabled.

■ Select this option to detect whether the current processor has a failed port.

●Backup only

■ If the current processor is the primary, all port outputs of the processor will be disabled.

■ If the current processor is the backup, all port outputs of the backup processor will be enabled. Even if the port failure of backup processor occurs, it will not be switched to the primary processor.

■ Select this option to detect whether the current processor has a failed port.

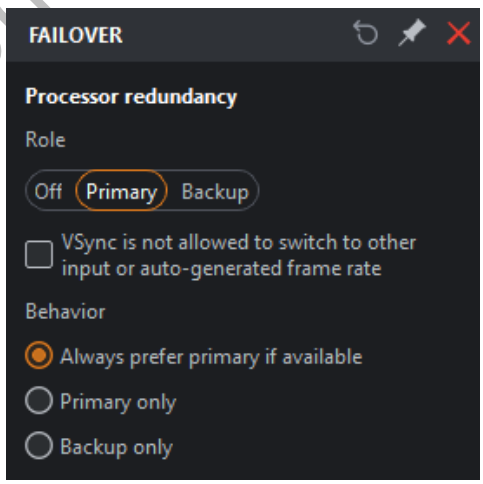

Figure 11.3-1 Processor redundancy

Cable redundancy

It is displayed only when the processor redundancy is turned off and at least

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one option is checked to turn on the cable redundancy. Both fiber port and network port redundancy are available.

●Output ports of the processor are listed according to the actual condition and these options followed the principle of "even number ports serve as the backup of odd number ports ".

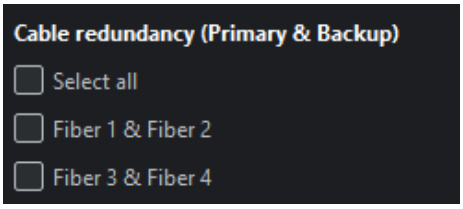

Figure 11.3-2 Cable redundancy

12. Dynamic Color Gamut

Dynamic color gamut can be applied to match the actual color gamut and target color gamut of display to achieve the ideal display effect.

3 ways to enter dynamic color gamut interface:

●Dynamic color gamut button in the Adjustment property area.

●Dynamic color gamut button at the bottom of the global color property area.

●Dynamic color gamut option in the Tools menu list.

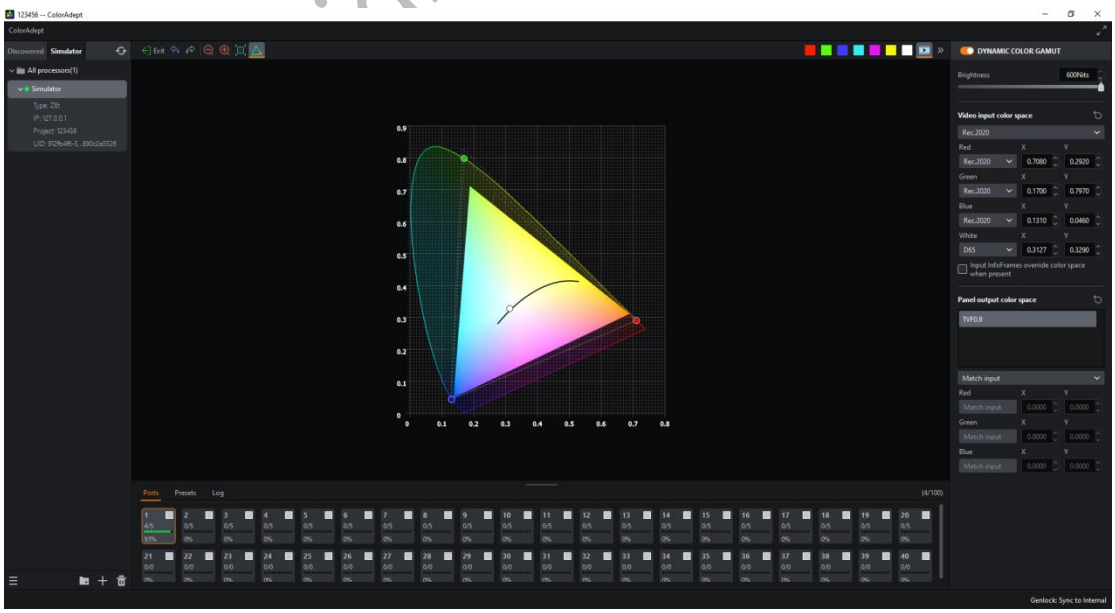

Figure 12.1-1 Dynamic color gamut interface

Dynamic color gamut toolbar

●Exit Exit: Exit the dynamic color gamut interface and return to the main project interface.

●Undo: Same as the undo button in canvas toolbar.

●Redo: Same as the redo button in canvas toolbar.

●Zoom out: Adjust the horsehoe diagram to appear smaller.

●Zoom in: Adjust the horsehoe diagram to appear larger.

●Zoom to fit: Zoom to display the full size of the horsehoe diagram in the center of the screen.

●Standard color gamut: The standard color gamut which is displayed as the corresponding dotted triangle is shown in the horsehoe diagram by default.

When the following color button is clicked, the screen will display the test pattern of that color. Clicking the display video button will disable the test pattern.

●White, red, green, blue, cyan, magenta, yellow, video.

Horsehoe diagram

●Video Input color gamut (input source color gamut): It consists of three small dots (not linked); if there are multiple input sources, the same specified color gamut is used.

●Panel output color gamut (target color gamut): It is comprised of three small squares (not linked).

●Display color gamut: It' s defined according to the actually selected cabinet, as the rainbow area shown below.

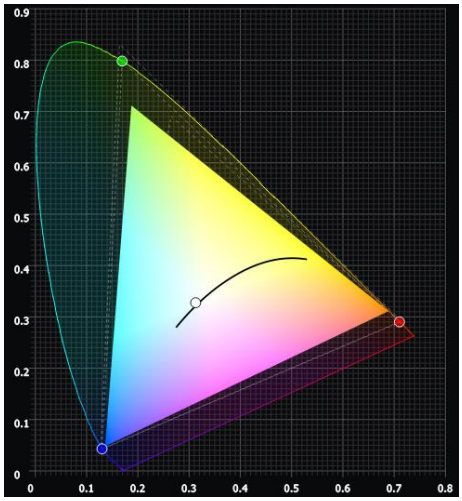

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Figure 12.1-2 Horsehoe diagram

Property

●Dynamic color gamut switch: When disabled, the original color gamut of the input source is applied directly as the output color gamut.

●Brightness: Same as the brightness in the global color property.

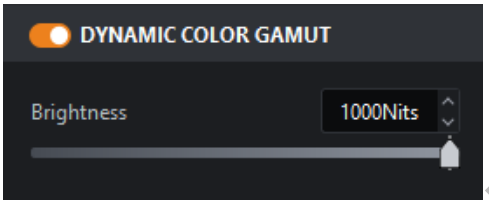

Figure 12.1-3 Dynamic color gamut

Video input color space

●It is allowed to quickly switch to the Rec.2020/DCI-P3/Rec.709 color gamut by selecting the drop-down box. The color gamut can be customized by modifying the coordinate values of RGBW.

●Input InfoFrames override color space when present: It indicates that the system is forced to use the gamut specified by metadata sent through the information frame.

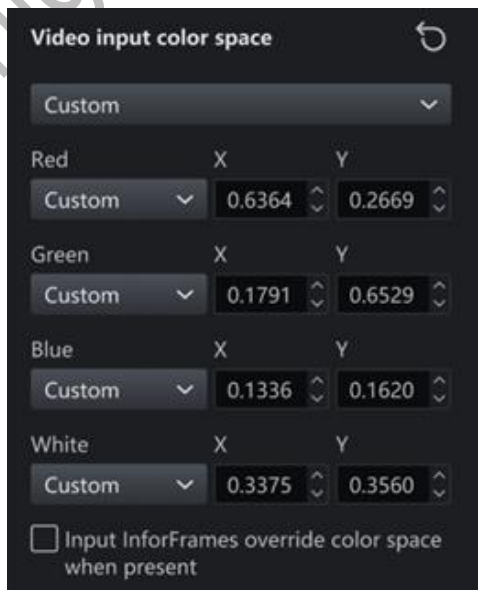

Figure 12.1-4 Video input color space

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Panel output color space

●When you select a cabinet type from the cabinet type list, the color gamut of panel output (consisting of three small squares) is displayed in the color gamut horseshoe chart.

●Select drop-down box options:

■ Match input: Use the same color gamut of video input.

■ Achievable: Use the achievable color gamut for the selected cabinet type.

■ Custom: allow users to define a customized color gamut.

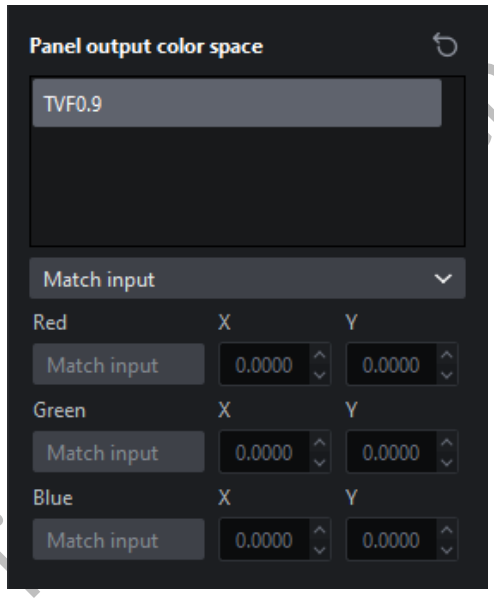

Figure 12.1-5 Panel output color space

The video input color gamut and panel output color gamut can be edited in the following three ways.

●When hovering the cursor over the settings box, modify the target value by scrolling the mouse wheel.

●Modify target values via keyboard input.

●Modify the input/output target values by dragging the dots/squares in the color gamut horseshoe diagram.

13. OSCM

OSCM is an abbreviation for On-Screen Color Management. In OSCM mode,

the brightness of the module or cabinet seams can be adjusted to be consistent with the rest of the LED screen.

OSCM mode can be accessed in the following two ways.

●Click on-screen color management thumbnail located at the bottom of the global color property area.

●Select on-screen color management options in the Tools drop-down menu.

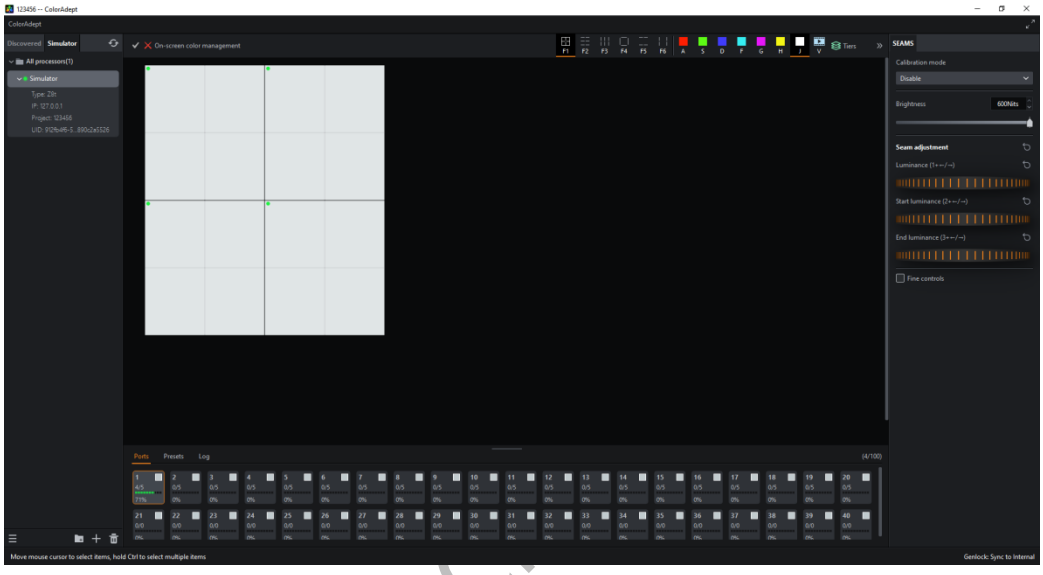

Figure 13.1-1 OSCM

●If the video output is currently in use, putting the processor into OSCM mode will disable the video output.

●The OSCM window displays the cabinets as they are positioned on the canvas.

OSCM Toolbar

●Confirm button: After adjusting the seams, click this button to save the modifications in OSCM mode and return to the main project interface.

●Cancel button: After adjusting the seams, clicking this button will cancel the modification in OSCM mode and return to the main project interface.

Seam Types

●Select horizontal and vertical seams: Seams of all modules can be selected.

●Select horizontal seams only: Horizontal seams of modules can be selected only.

●Select vertical seams only: Vertical seams of modules can be selected only.

●Select seams on panel edges: All seams of the panel can be selected.

●Select horizontal seams on panel edges: Horizontal seams of the panel can be selected only.

●Select vertical seams on panel edges: Vertical seams of the panel can be selected only.

📖Note:

Multiple seams can be selected using Ctrl + click or click + drag the left mouse button to create a selection box around the seams.

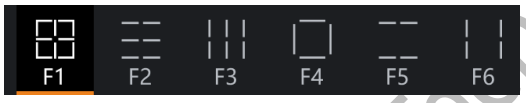

Figure 13.1-2 Seam types

Color

●In OSCM mode, the processor will output a solid color on all connected cabinets. White is displayed by default, and red, green, blue, cyan, magenta, and yellow are also supported.

Layer

●You can switch to show or hide the corresponding tier of the display, making it easier to select seams in the cabinet or module.

Figure 13.1-3 Color

Property

●Calibration mode: Both brightness calibration and chroma calibration are available.

●Brightness: It is the same as the brightness in the global color properties.

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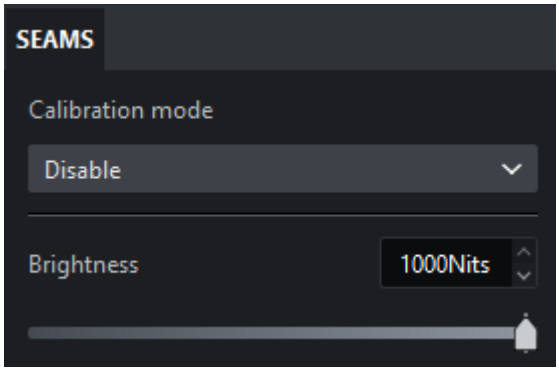

Figure 13.1-4 Property

Seams adjustment

●Brightness: Adjust the overall brightness of the selected seams.

●Start luminance: Adjust the brightness of left part of horizontal seams or the top of the vertical seams.

●End luminance: Adjust the brightness of the right part of the selected horizontal seams or the bottom of the vertical seams.

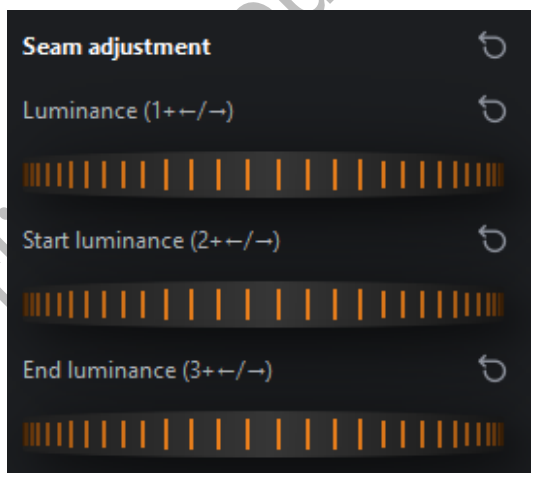

Figure 13.1-5 Seam adjustment

●Fine control: Enabling fine controls gives users the finest amount of control.

Figure 13.1-6 Fine control

After selecting the seams, you can adjust the brightness value in the following ways.

●Press and hold the shortcut key and use either the +/- keys or right/left arrows

on the keyboard to increase/decrease the luminance.

●Click + drag the wheel to the left/right to increase/decrease the luminance.

●Hover the cursor over the wheel and use the mouse wheel to scroll up/down to increase/decrease the luminance.

14. Multiple Processors Control

The multiple processors control interface allows freeze, blackout, some parameters controlling and preset switching functions for multiple processors at the same time.

How to enter the multiple processors control interface:

●Click on a group with processor included in the processor list.

●Multi-select processors/groups in the processor list via Ctrl/Shift.

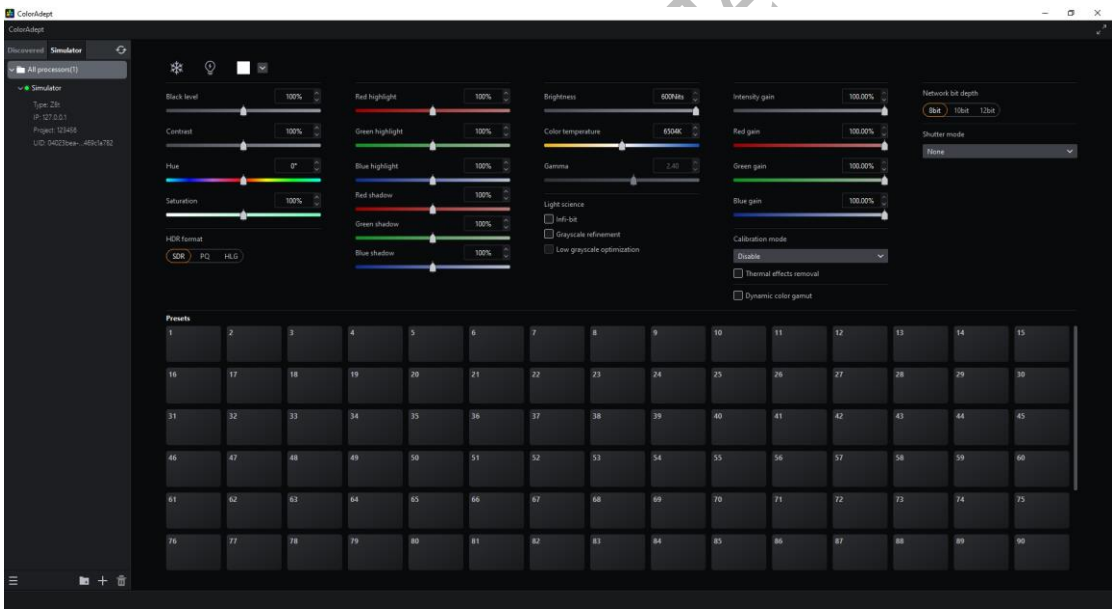

Figure 14.1-1 Multiple processors control interface

●Every time you enter the multiple processors control interface, all parameters in the interface are the values from the opened project of the first processor in the processor list. If there are no opened projects in the selected processors, all parameters in the interface are displayed as default values and grayed out.

●When you change the parameters, only the processor parameters of the opened project are modified accordingly.

15. Status Bar

The status bar is located at the bottom of the software interface.

Figure 15.1-1 Status bar

●On the left, there is a prompt for important operations. For example, when the cursor is placed in the main view under add cabinets mode, it will display as "Click to add cabinet, click + drag to add an array, Escape to finish".

●In the middle of the status bar, it shows the prompt of success/failure of operations.

●The right part of status bar exists the prompt of genlock source.

16. Notification Center

When there is only one notification, it is displayed in the upper right corner of the software by default and can be dragged around.

The notification center is used to view notifications for all processors or the current processor.

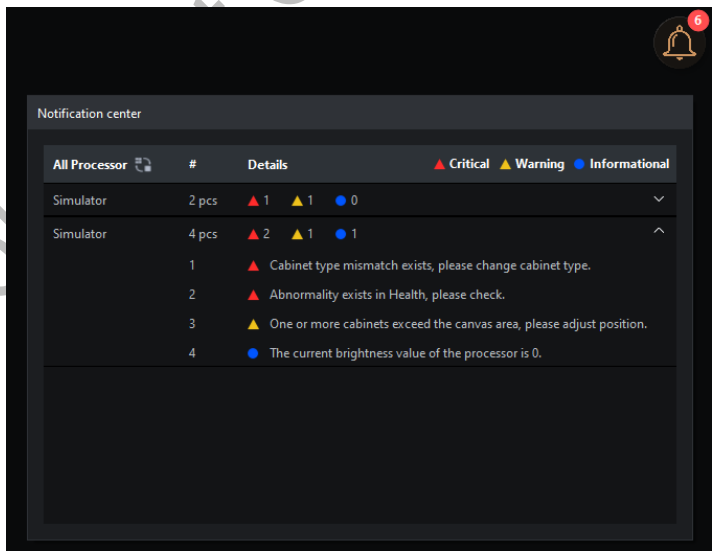

Figure 16.1-1 Notification center

●All processors/Current processor: It displays the name of the processor to which the notifications belong.

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●Switching button: Switch to display the notifications between all processors or current processor.

●#: This always shows the number of current notifications and sequence number.

●Details: The detailed information of the notifications.

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