Colorlight

iSet

User Manual

Revision History

No.	Version	Date	Author	Description
1	0.01	2022.04.08	Liang Shiyu	Initial version

Contents

Chapter 1 Introduction

Professional software for LED display settings and control

1.1 Overview

iSet is a professional, user-friendly software for end users. It features:

- Simple, fast mapping of sophisticated, large LED displays.
- Adjustment of the brightness, color and other screen parameters.
- Quick test and diagnostics of the LED displays.

1.2 Operating Environment

The system requirement is Windows 7 or above (a 64-bit version).

Chapter 2 Install and uninstall iSet

2.1 Install iSet

Double-click the iSet executable file, and select the **I accept Software agreement** checkbox. Click **Quick Installation**, then the installation starts automatically, as shown in Figure 2.1-1.

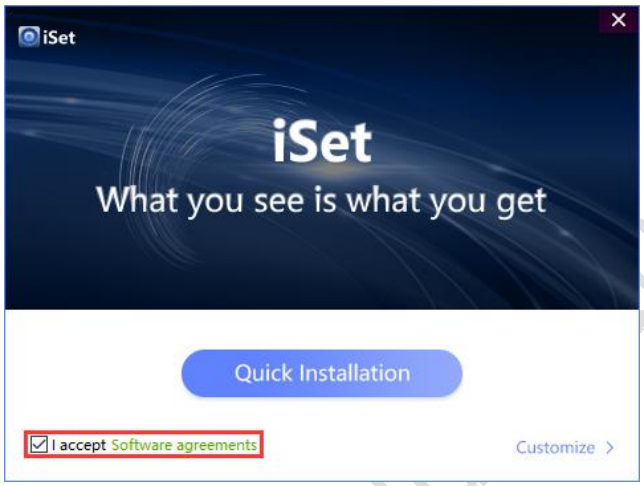


Fig 2.1-1 **Quick installation**

For custom installation, the default path is **C:\Program Files (x86)\iSet**. The **USB Driver** checkbox is selected by default and cannot be deselected, as shown in Figure 2.1-2.

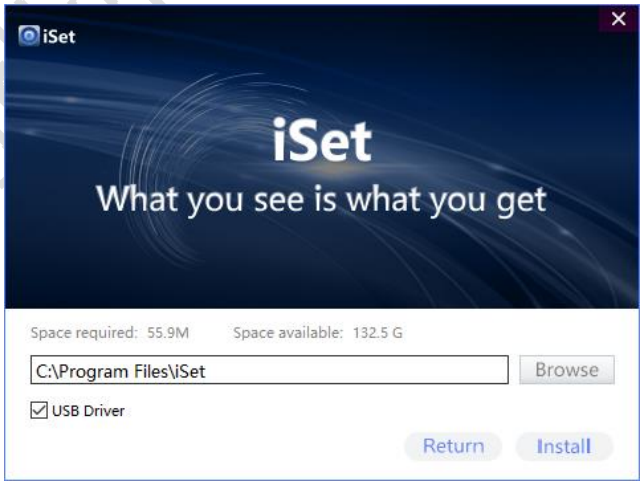


Fig 2.1-2 Custom installation

Click **Browse**, and specify an installation path, as shown in Figure 2.1-3.

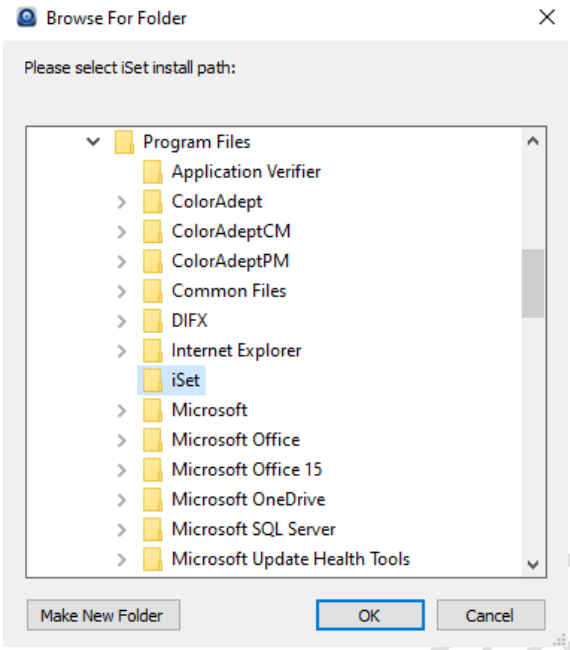


Fig 2.1-3 Specify an installation path

Click **OK**, and then the **Device Driver Installation Wizard** dialogue box appears, as shown in Figure 2.1-4.

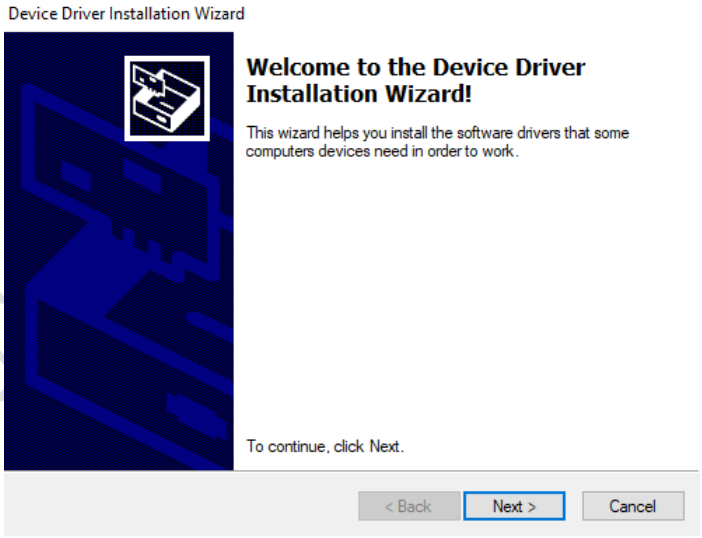


Fig 2.1-4 **Device Driver Installation Wizard**

Select **Next >** and **Install**. After setting up the driver, the installation is done, as shown in Figure 2.1-5.

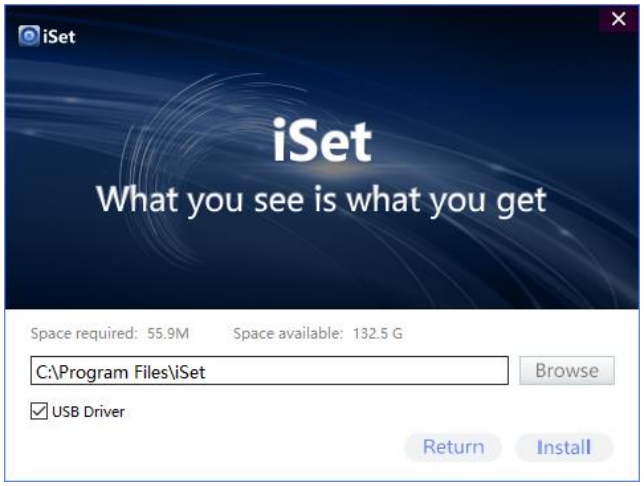


Fig 2.1-5 Complete installation

2.2 Uninstall iSet

Go to the installation directory, and double-click uninst to uninstall iSet. The **Store User Data** checkbox is selected by default. Select **Uninstall** to uninstall the software.

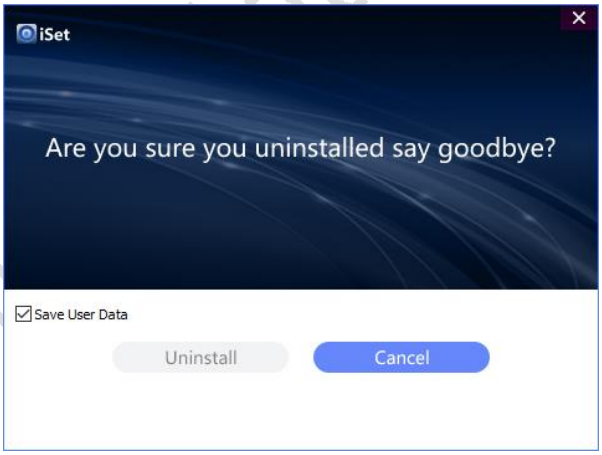


Fig 2.2-1 Uninstall iSet

Chapter 3 Quick Start

3.1 Project setup

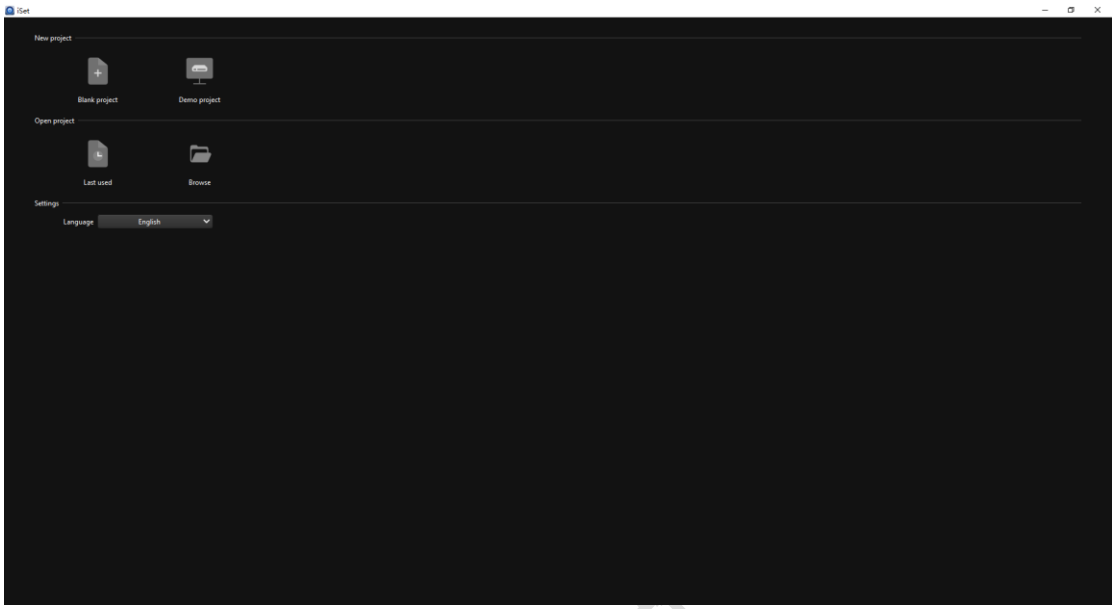


Fig 3.1-1 Project setup

Launch iSet. Set up a project by **New project** or **Open project**, and then access the main interface, which includes 3 tabs: **Device information**, **Layout**, and **Control**.

- **Device information**: Detect device information, including that of the processors and the receivers.
- **Layout**: Set topology, including that of the processors and the cabinets.
- **Control**: Configure the parameters for the processor screen.

3.2 Device Information

Under the **Device Information** tab, you can view the information of the processors and the connected receivers, as shown in Figure 3.2-1.

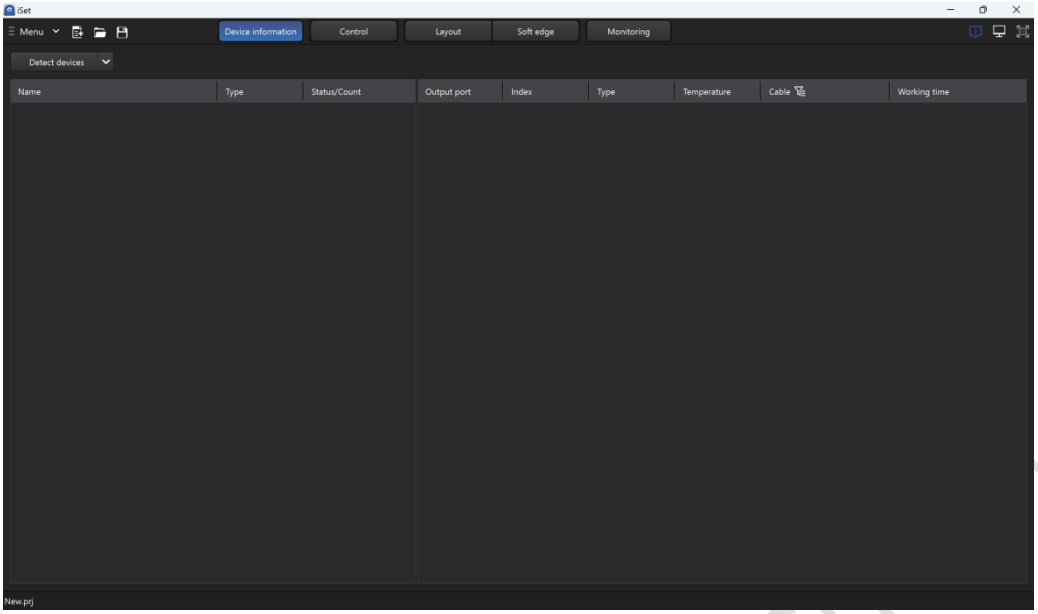


Fig 3.2-1 **Device information**

➢ Processor & Receiver Information

Click the **Detect Devices** option, and then the processor information area displays the information in **Name**, **Type**, and **Status/Count**. The receiver information area displays the information in **Output port**, **Index**, **Type**, **Temperature**, **Cable**, and **Working time**, as shown in Figure 3.2-2.

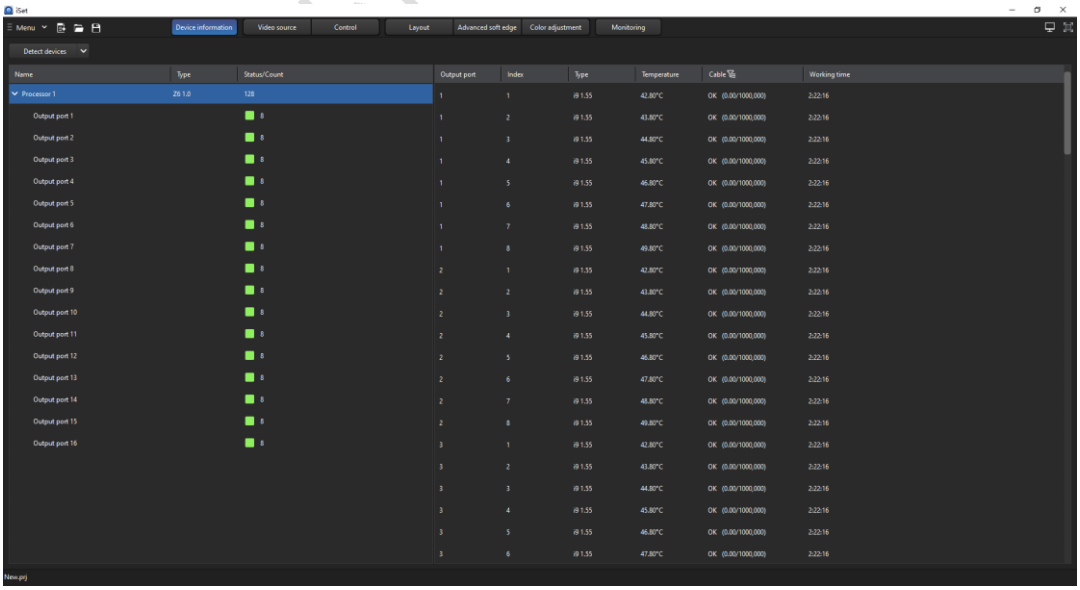


Fig 3.2-2 **Detect devices**

➢ **Show unqualified receivers only**

Click on the filter icon  next to the column heading **Cable**, and the icon turns to be  , indicating that the filter is successfully applied. The unqualified receivers will be sorted, and the message **Unqualified** is shown under **Cable**. Click on the icon again to remove the filter, and all receivers are listed.

➢ **Recount error packet**

◆ **Unqualified Ethernet cables**

Detect the receivers, and **Unqualified** is displayed under the **Cable** column if the network connection is unstable and results in an error rate exceeding 1/1,000,000.

◆ **Troubleshooting**

In the case of the unqualified Ethernet cables, you can unplug the cables and plug them back in, or use cables of higher quality.

◆ **Recount error packet**

After fixing the above issue, reset the receivers' error packet to zero and allow the receivers to recount. Right-click the negative space of the receiver information area. On the pop-up context menu, select **Recount error packet** to fit your needs.

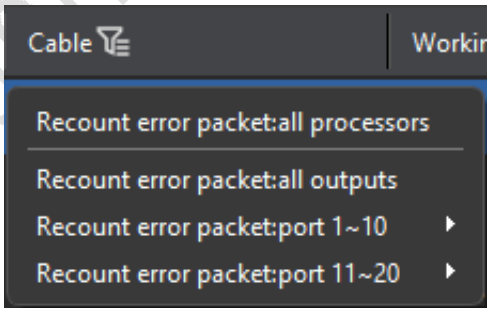


Fig 3.2-3 **Recount error packet**

3.3 Layout

Under the **Layout** tab, you can set topology of the processors and the cabinets.

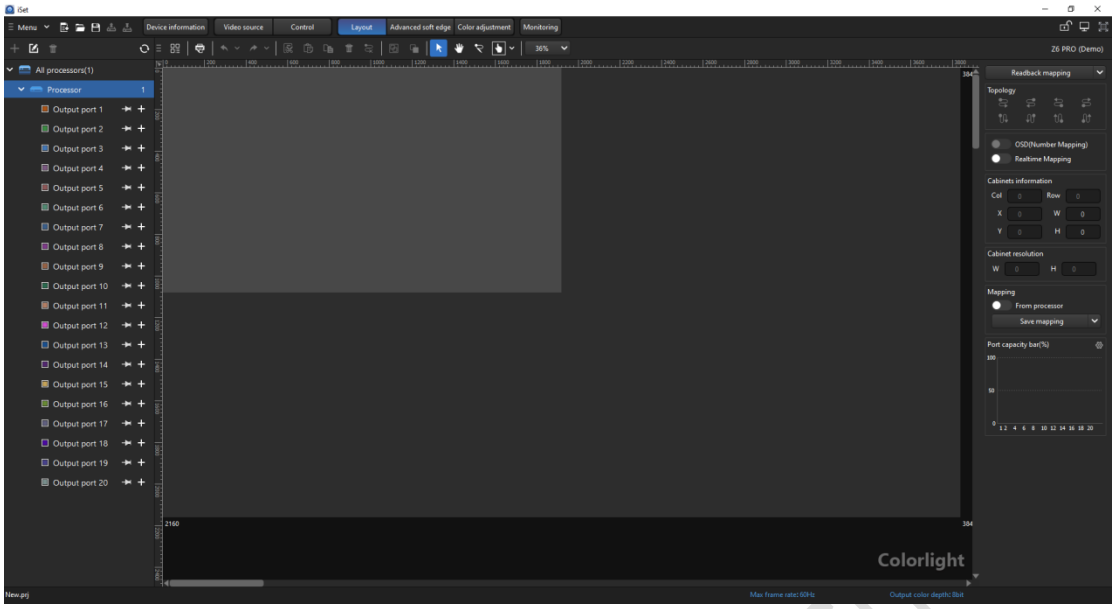


Fig 3.3-1 **Layout**

➢ **Add cabinets**

Under **Processor**, click the Add button ✚ next to **Output port**, and select cabinet type to add a cabinet on the canvas, as shown in Figure 3.3-2.

◆ **Select an Output port**

Among a list of the processors' output ports, select the ones that are connected to the receivers.

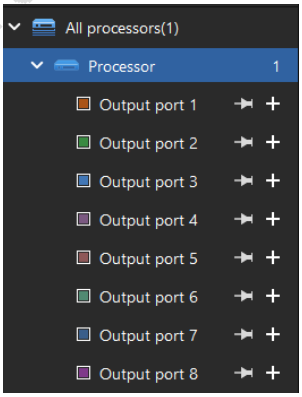


Fig 3.3-2 Select an output port

◆ **Select the cabinet type**

There're two cabinet types: preloaded and custom.

If your desired cabinet type has already been in **Type library**, add a

cabinet directly.

If not, you can create a cabinet type according to the actual size of the cabinets.

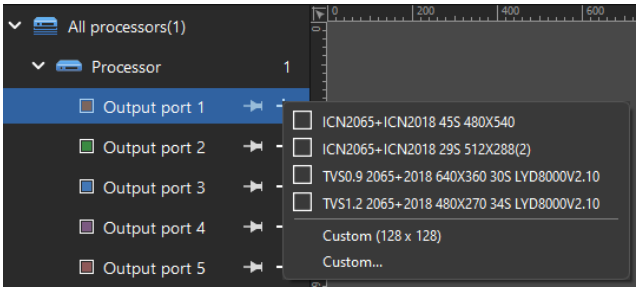


Fig 3.3-3 Select the cabinet type

◆ Add a cabinet

After selecting the cabinet type, drag any of the cabinet corners to add cabinets as required on the canvas.

Alternatively, if the cabinet mapping is stored in receivers, select **Readback mapping** to see the list of cabinets.

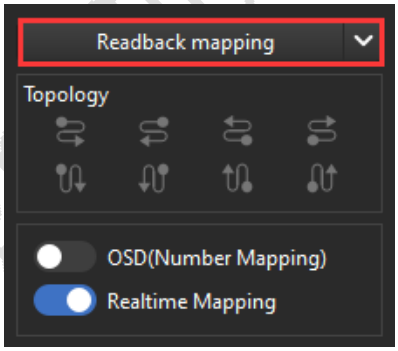


Figure 3.3-4 **Readback mapping**

➢ Set mapping

Add a cabinet, and the mapping begins automatically. If the mapping doesn’ t match the actual condition, you can reset the mapping with two options: **Topology**, and **Pen tool (Custom topology)**.

◆ Topology

Select the desired cabinets, 8 presets are available for quick topology.

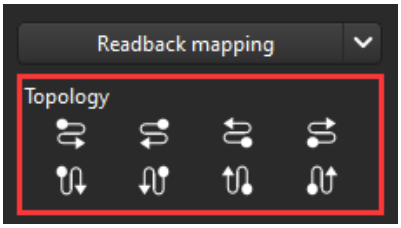


Fig 3.3-5 **Topology**

◆ **Pen tool (Custom topology)**

Click , and click the cabinets by order to set mapping.

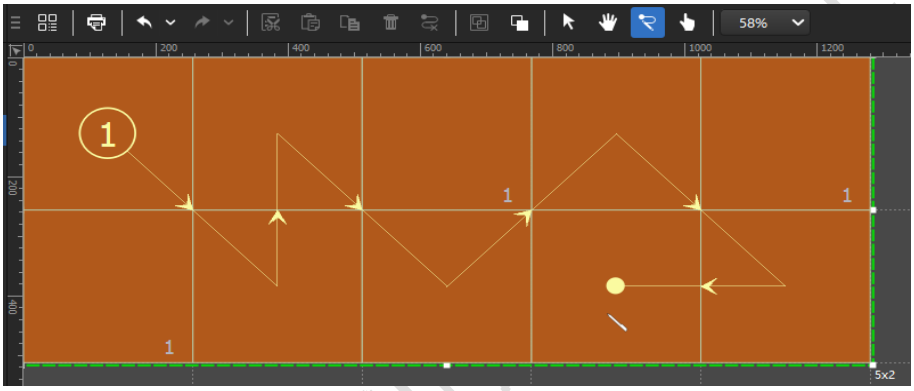


Fig 3.3-6 **Pen tool (Custom topology)**

◆ **Remove mapping**

To remove the mapping of the cabinets, do any of the followings:

- On the toolbar, click , and right-click the cabinets to remove the mapping.

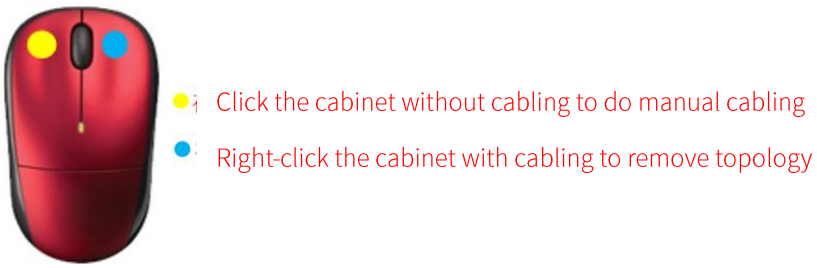


Fig 3.3-7 Remove the mapping

- Click from the toolbar to clear the mapping of the current

output port.

Fig 3.3-8 **Clear topology**

Two functions help set mapping: **Realtime Mapping** and **OSD (Number Mapping)**.

◆ Real-time mapping

Enable **Realtime Mapping**, and then changes made to the cabinets and their mapping can be seen through real-time display effect on the screen.

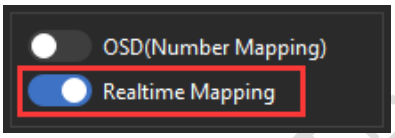


Fig 3.3-9 Enable **Realtime Mapping**

◆ OSD

Enable **OSD**, and the cabinets show the index according to the actual mapping order.

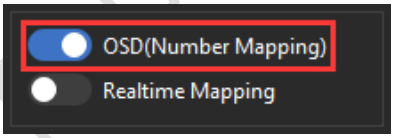


Fig 3.3-10 Enable **OSD**

◆ Save cabinet mapping

Click **Save mapping** or **Current processor and cabinets** from the **Save mapping** drop-down to save the mapping to the current processor and receivers.

When there’ re multiple processors, click **Current processor and cabinets** from the **Save mapping** drop-down to save all processors’ mapping to the processors and their receivers respectively.

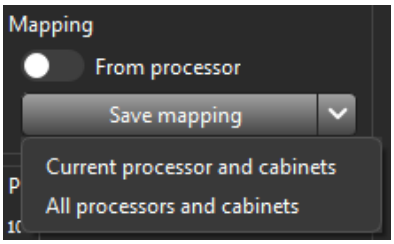


Fig 3.3-11 **Save mapping**

◆ Save & Open a project file

After setting the screen mapping, click to save the mapping as a project file.

Click to load a project file to iSet.

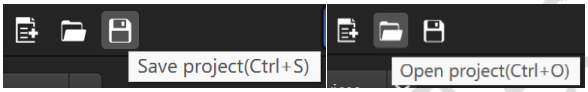


Fig 3.3-12 Save & open a project file

◆ Print

Configure and print the screen mapping as a reference for building an LED environment.

Click from the toolbar to access the print preview interface, where you can:

- Print cabinet mapping.
- Rename your processors
- Edit the designer, design date, auditor, and audit date.
- Print the rear view of the mapping for cabinet installation.

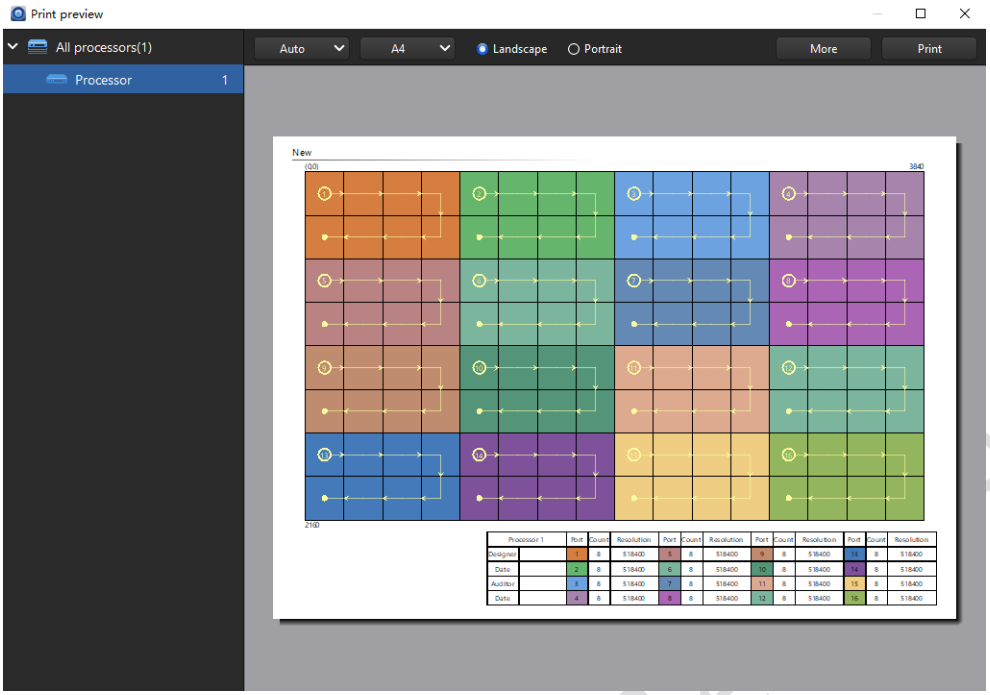


Fig 3.3-13 Print preview

3.4 Control

Under the **Control** tab, you can configure parameters for the processor screen, including **Brightness**, **Color adjustment**, **Test patterns**, **Picture adjustment**, and **Freeze & Blackout**, as shown in Figure 3.4-1.

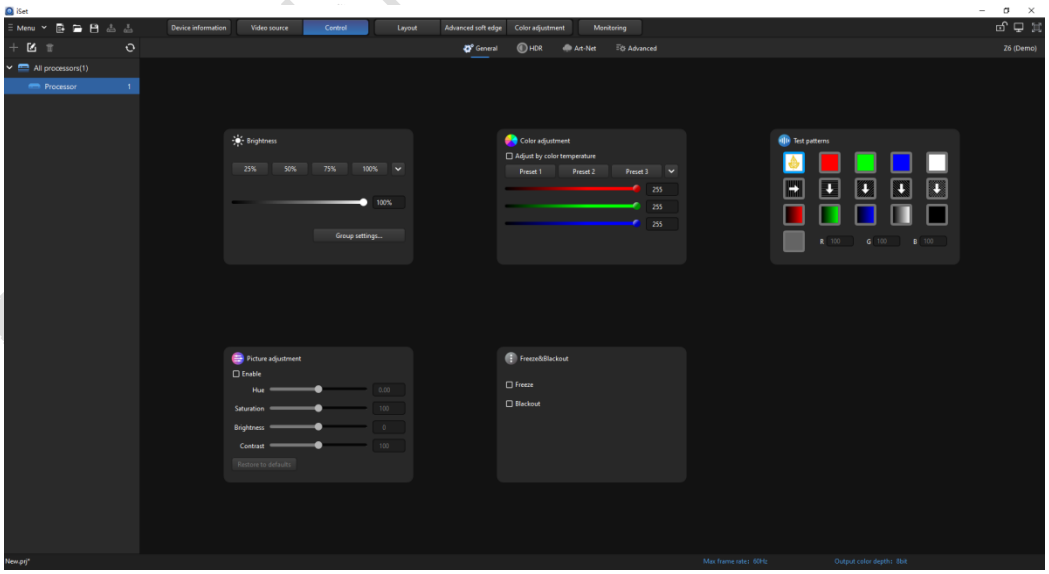


Fig 3.4-1 **Control**

- **Brightness**

To adjust the brightness, do one of the followings:

- Click the 4 preset buttons: 25%, 50%, 75%, and 100%.
- Use the slider or the spin button.
- Select the **Group settings…** option to adjust the brightness for output ports.

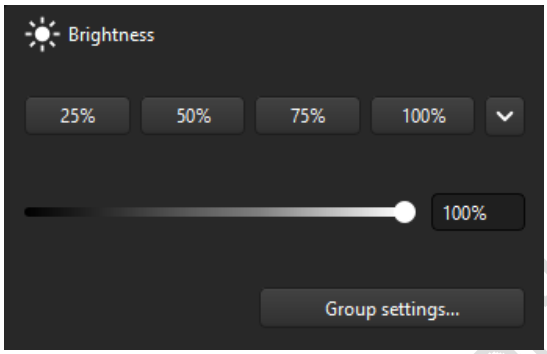


Fig 3.4-2 **Brightness**

➢ **Color adjustment**

To adjust the screen color, click the **Adjust by color temperature** checkbox in the **Color adjustment** panel. Drag the slider to adjust the color temperature, which ranges from 2000K to 10000K. Click the **Default** button to reset the color temperature to the default value (6500K).

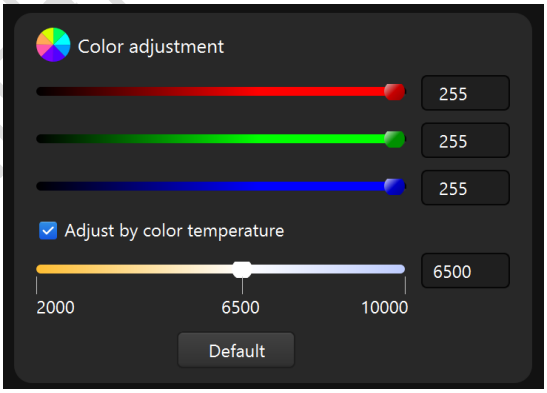


Fig 3.4-3 **Adjust by color temperature**

Alternatively, you can change the screen color by adjusting the brightness of RGB.

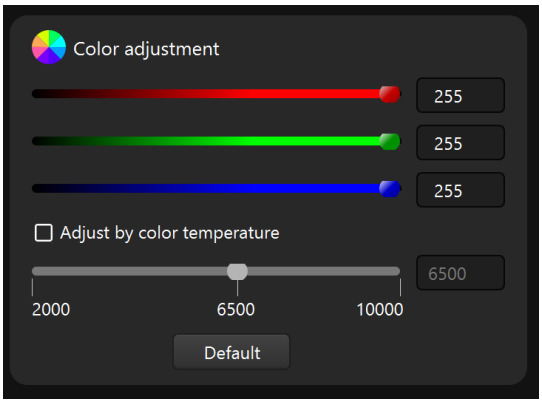


Fig 3.4-4 Adjust by RGB

- **Test patterns**

Set test patterns as desired. Click on a certain icon in the **Test patterns** panel, and the LED display shows the testing effect correspondingly. Run tests and diagnostics to view the display effect of the screen.

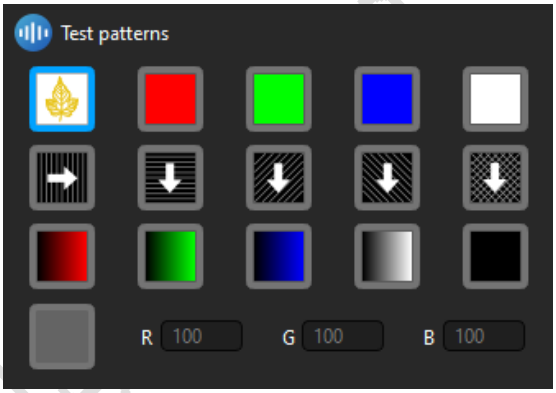


Fig 3.4-5 **Test patterns**

- **Freeze & Blackout**

Select the **Freeze** checkbox, the image on the LED display freezes.

Select the Blackout checkbox, the LED display goes black.

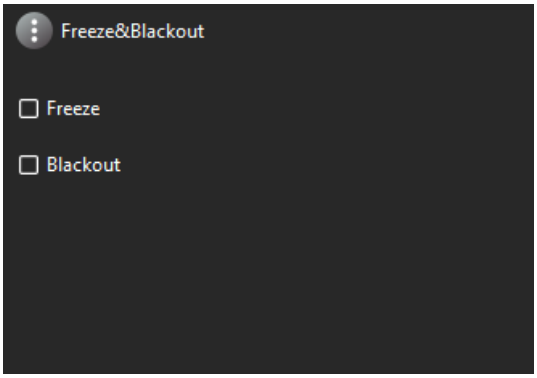


Fig 3.4-6 **Freeze & blackout**

Chapter 4 Get to Know iSet

4.1 Project Setup Interface

4.1.1 Step-by-Step Guide

Blank project

1. Select **Blank project** to set the new project’ s frame rate, color depth, and canvas size.

2. Select **OK** to create a new project.

Demo project

1. Select **Demo Project**. Select a demo processor from the **Processor type** drop-down in the **Demo project configuration** dialog box.

2. Click **OK** to create a new demo project.

Browse

1. Click **Browse** to specify a local project file.

2. Click **Open** to open the project.

4.1.2 Interface and Function Description

Launch iSet to access the project setup interface, as shown in Figure 4.1-1. What you can do:

- Create a new blank project or a demo project.
- Open the most recent project or open a project file that is stored locally.
- Switch between languages (English/Chinese).

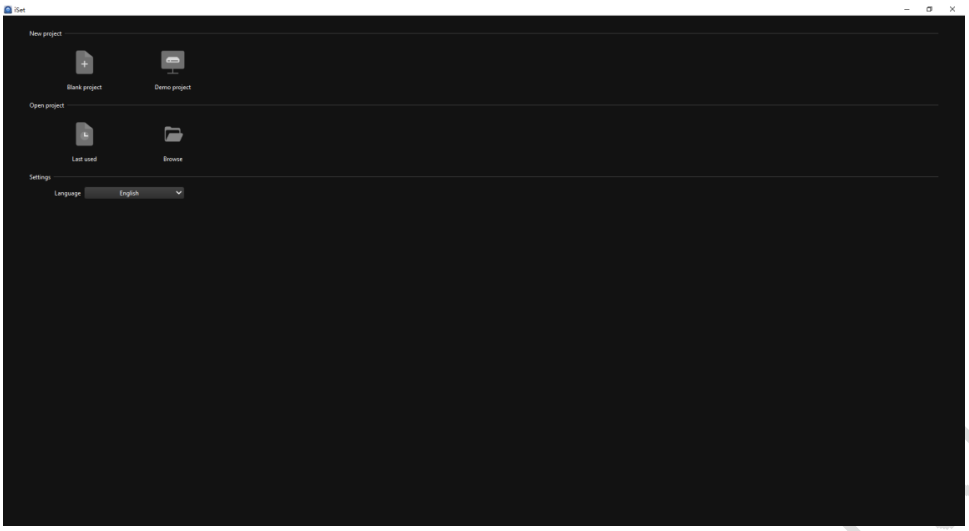


Fig 4.1-1 Project setup

Blank project: Select to set the canvas size, maximum frame rate, and output color depth of the new project.

Demo project: 6 processor types, including S6F, X16 PRO, Z4, Z6, Z6 PRO, and Z8, are provided to simulate the display effect.

Browse: Select to open a saved project.

Last used: Open the most recent project.

Language: Select English/Chinese from the **Language** drop-down.

4.2 Interface

The main interface is comprised of 4 elements: **Device information**, **Video source**, **Control**, and **Layout**. Processors of certain types cannot access the video source interface yet. On the **Menu**, enable **Advanced authorization** to enable or disable the advanced functions.

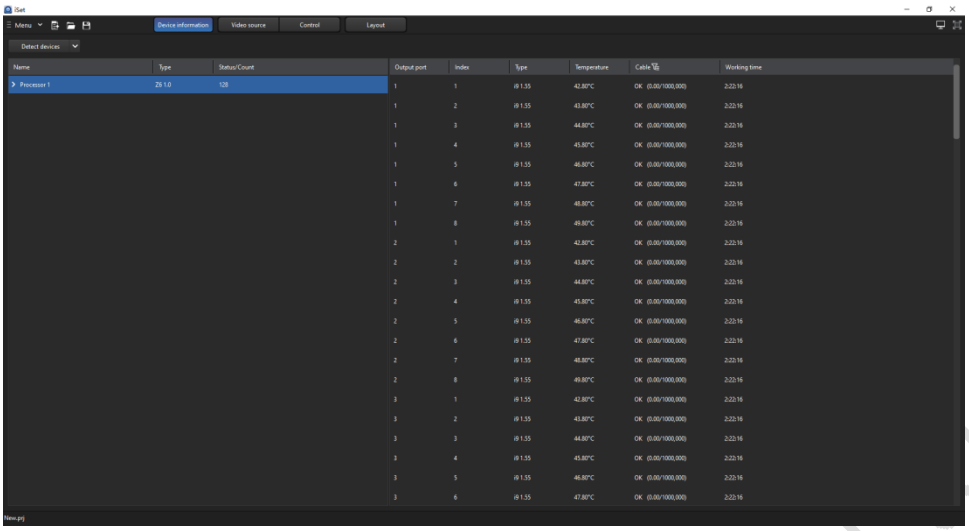


Figure 4.2-1 Main interface

4.3 Menu

Select **Menu** to view the drop-down menu, which includes **Project**, **Preferences…**, **Tools**, **Advanced authorization…**, **Hotkey table…**, **Release notes…**, and **About…**

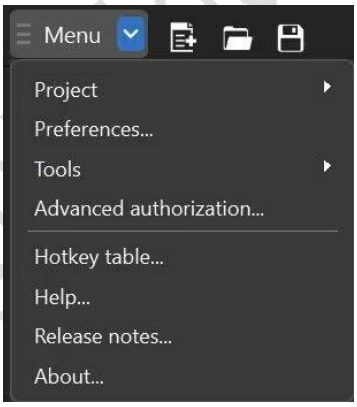


Fig 4.3-1 **Menu**

- **Project**

The **Project** drop-right menu includes **New project…**, **New demo…**, **Open project…**, **Save project…**, and **Save as project…**

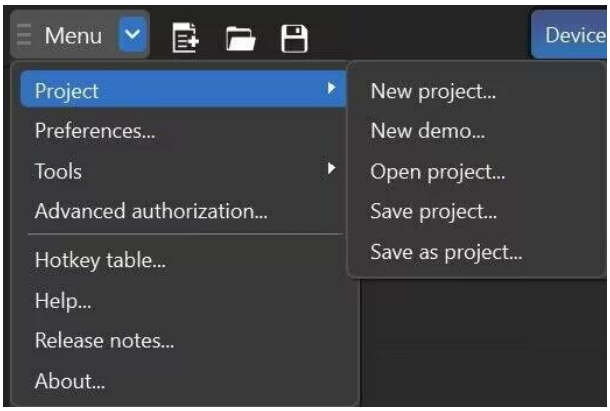


Fig 4.3-2 **Project**

➢ **Tools**

The **Tools** drop-right menu includes **Capacity calculator (Low latency disabled)** … and **Capacity calculator (Low latency enabled)** …

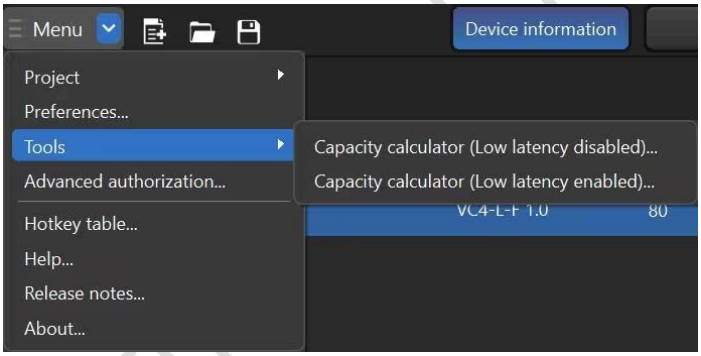


Fig 4.3-3 **Tools**

◆ **Capacity calculator (Low latency disabled)**

Select the drop-down arrow from **FPS**, **Color depth**, and **Output bandwidth** to calculate the bandwidth usage per output by cabinet or by output.

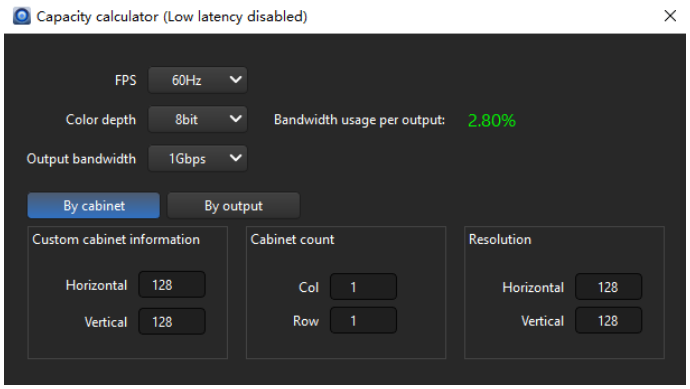


Fig 4.3-4 Capacity calculator (Low latency disabled)

◆ Capacity calculator (Low latency enabled)

You can select the drop-down arrow from **Output color depth** and **Output speed**, or customize **Video input** to calculate the maximum horizontal pixel count.

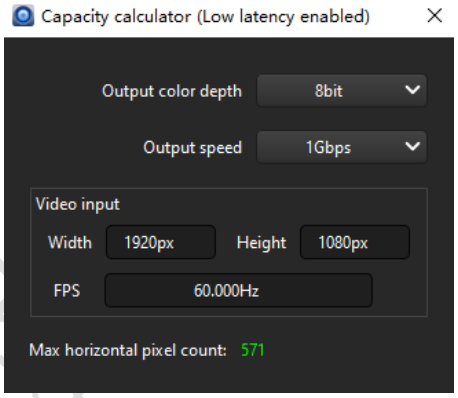


Fig 4.3-5 Capacity calculator (Low latency enabled)

➢ Preferences

When **Advanced authorization** is disabled, **Preferences** only includes **General settings** and **View options**.

When Advanced authorization is enabled, **Preferences** includes **General settings**, **View options**, and **Tab options**.

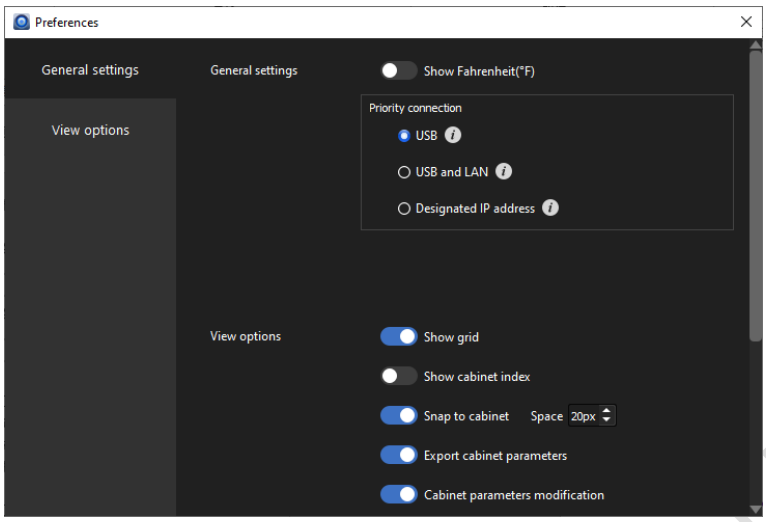


Fig 4.3-6 **Preferences**

- General settings

When **Show Fahrenheit (°F)** is enabled, the **Temperature** column in the **Device information** tab shows Fahrenheit temperature of the receivers rather than Celsius temperature (°C).

Output port	Index	Type	Temperature	Cable	Working time
1	1	i9 1.55	109°F	OK (0.00/1000,000)	2:22:16
1	2	i9 1.55	110°F	OK (0.00/1000,000)	2:22:16

Fig 4.3-7 **Show Fahrenheit (°F)**

Priority connection: Select **Priority connection** to control detection.

USB: The detection ends if devices connected by USB are found. Otherwise, detect devices connected by LAN.

USB and LAN: Detect devices connected by USB and LAN.

Designated IP address: Detect devices with designated IP address only.

Select the left-hand rounded button to view the pop-up reminder.

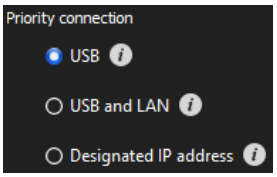


Fig 4.3-8 **Priority connection**

- View options

Show grid: When **Show grid** is enabled, the view area of **Layout** will be segmented by the size of the selected cabinet. If not, the view area will not be segmented.

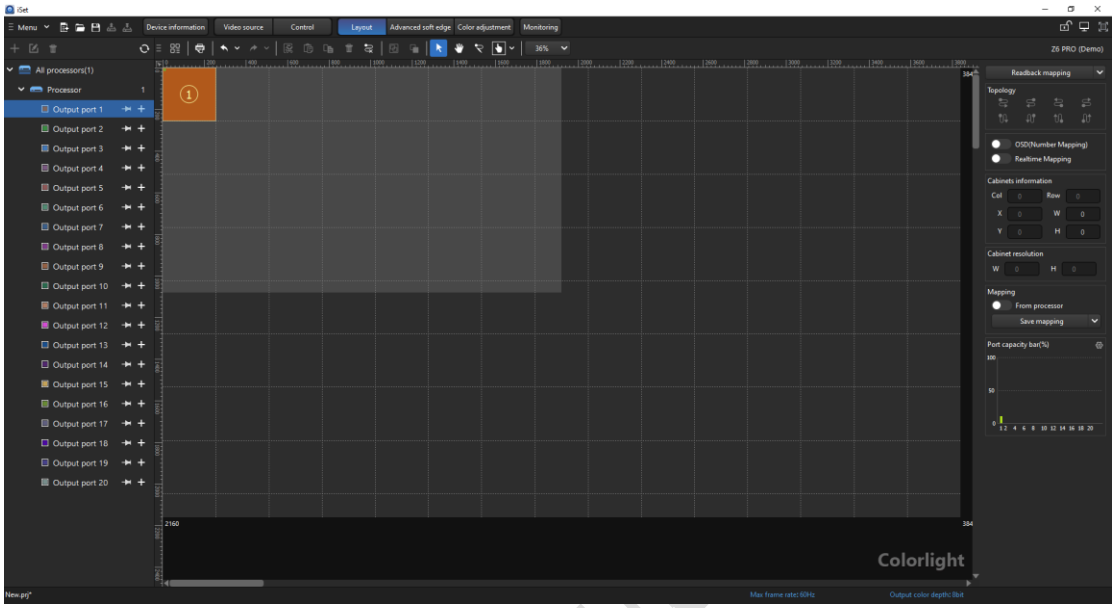


Fig 4.3-9 **Show grid** (Enabled)

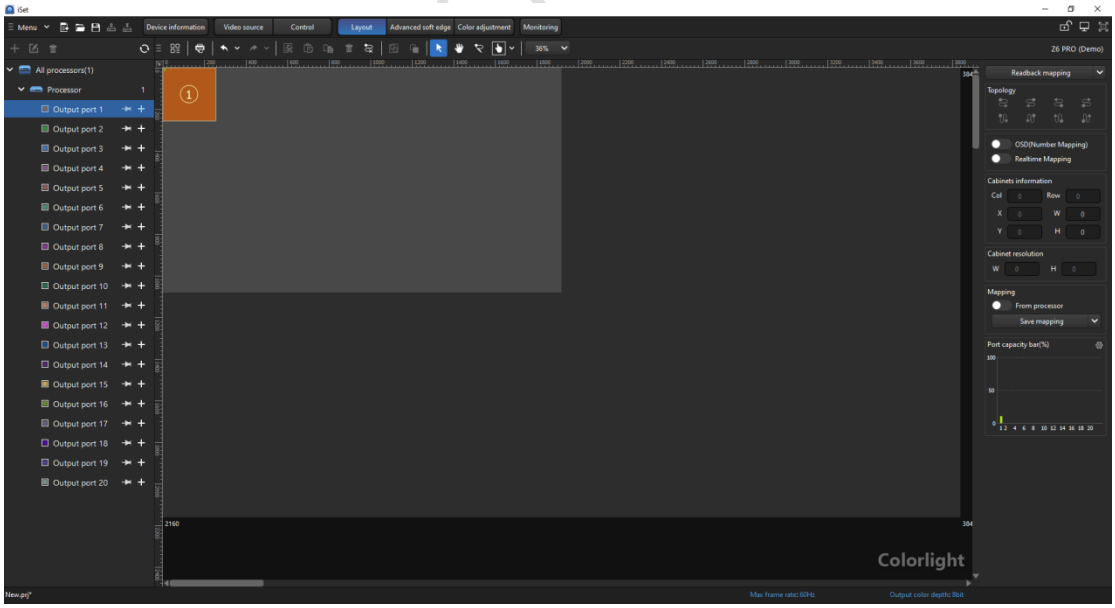


Fig 4.3-10 **Show grid** (Disabled)

Show cabinet index: When **Show cabinet index** is enabled, the cabinets are displayed in **Layout**. The index of the mapping order, except for the first and last ones, is displayed in the middle of the cabinets.

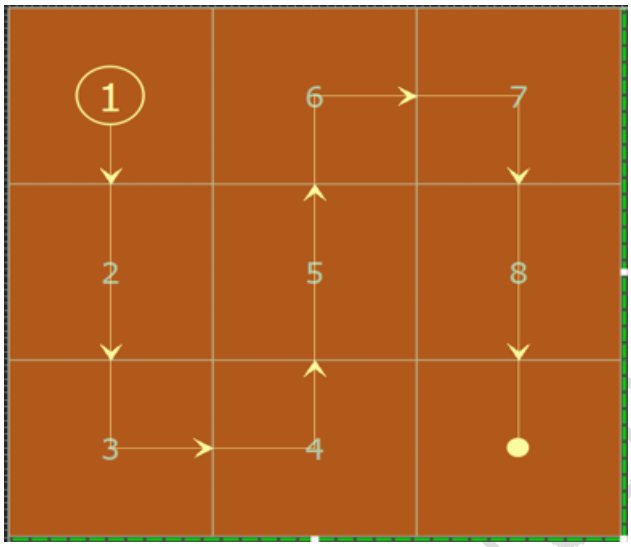


Fig 4.3-11 Cabinet index

Snap to cabinet: Enable **Snap to cabinet**, when the selected cabinet is close to other cabinets, it will be attached to other cabinets automatically. When the selected cabinet is close to the grid lines, the cabinet will be attached to the grid lines automatically.

Readback from connected cabinet: When **Export cabinet parameters** is enabled, select and right-click a cabinet, and go to **Cabinet parameters** > **Readback from connected cabinet...**

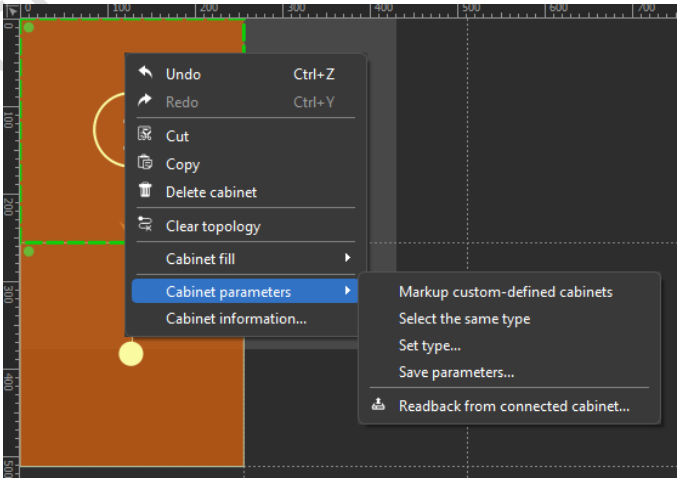


Fig 4.3-12 Readback cabinet parameters

Save parameters: When **Cabinet parameters modification** is enabled, select and right-click a cabinet in the **Layout** tab to view the context menu. The **Cabinet parameters** drop-right menu includes **Select the same type**, **Set type**, and **Save parameters**.

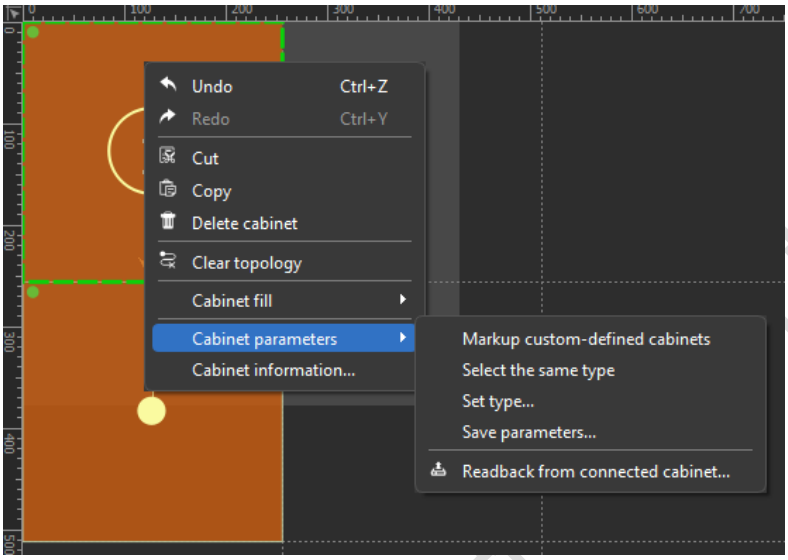


Fig 4.3-13 **Cabinet parameters modification**

- **Tab options**

Show Calibration: Enable **Show Calibration**, and the **Calibration** tab appears, allowing for related settings.

Show soft edge: Enable **Show soft edge**, and the **Soft edge** tab appears. When **Show soft edge** is enabled, **Show advanced soft edge** is disabled automatically.

Show advanced soft edge: Enable **Show advanced soft edge**, and the **Advanced soft edge** tab appears. When **Show advanced soft edge** is enabled, **Show soft edge** is disabled automatically.

Show color adjustment: Enable **Show color adjustment**, and the **Color adjustment** tab appears.

Show monitoring: Enable **Show monitoring**, and the **Monitoring** tab appears, under which you can monitor the processors and receivers.

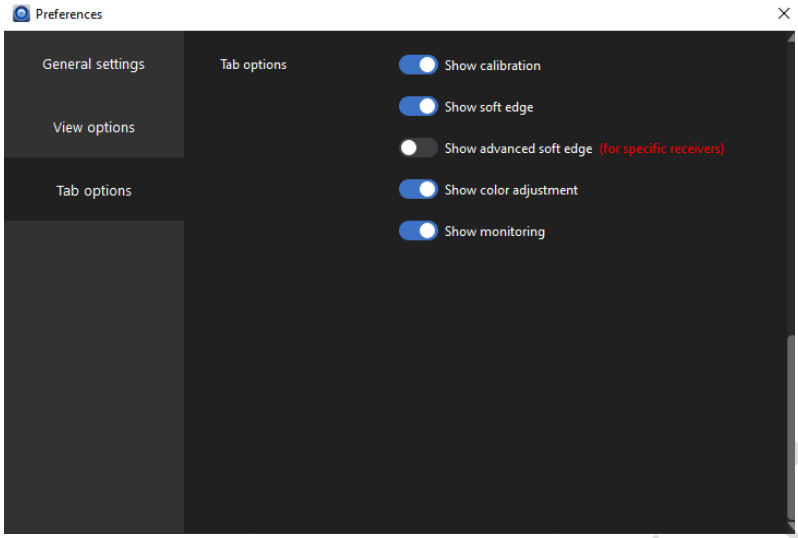


Fig 4.3-14 **Tab options**

- **Advanced authorization**

Select **Advanced authorization**, then an option is added in **Preferences**. The advanced functions include: **Show Calibration**, **Show soft edge**, **Show advanced soft edge**, **Show color adjustment**, and **Show monitoring**.

Select **Advanced authorization**, and a window is displayed prompting you to enter an administrator password, enter *168* in the **Password** box. Click **OK**, then a pop-up window appears displaying *Authorization successful*.

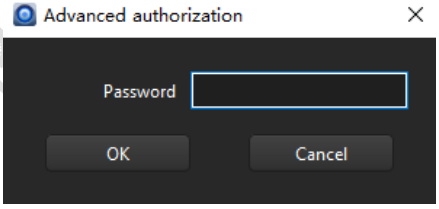


Fig 4.3-15 **Advanced authorization**

- **Hotkey table**

The **Hotkey table** panel displays the hotkeys for **Layout**, **Calibration**, and **Soft edge**.

You can customize the hotkeys for **Calibration** and **Soft edge**.

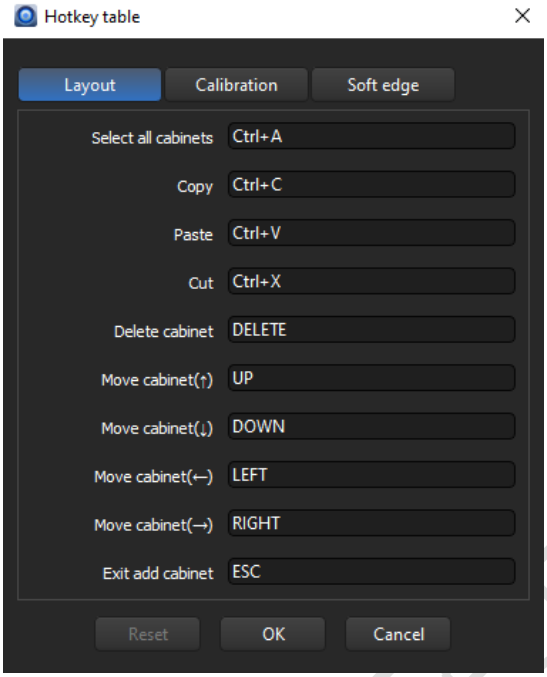


Fig 4.3-16 **Hotkey table**

- **Help**

Select **Help** to view English/Chinese User Manual.

- **Release notes**

Select **Release notes**, you will see the changelog from V3.1 to V6.0.

- **About**

Select **About**, the panel displays **Build number**, **Build time**, **Type Version**, **Third party license agreement**, the company name, and Colorlight website. Go to https://en.colorlightinside.com/ to visit our web page.

4.4 Device Information

Under the **Device Information** tab, you can view the information of the processors and receivers. The left-hand panel displays the processor information, and the right-hand panel displays the information of the connected receivers.

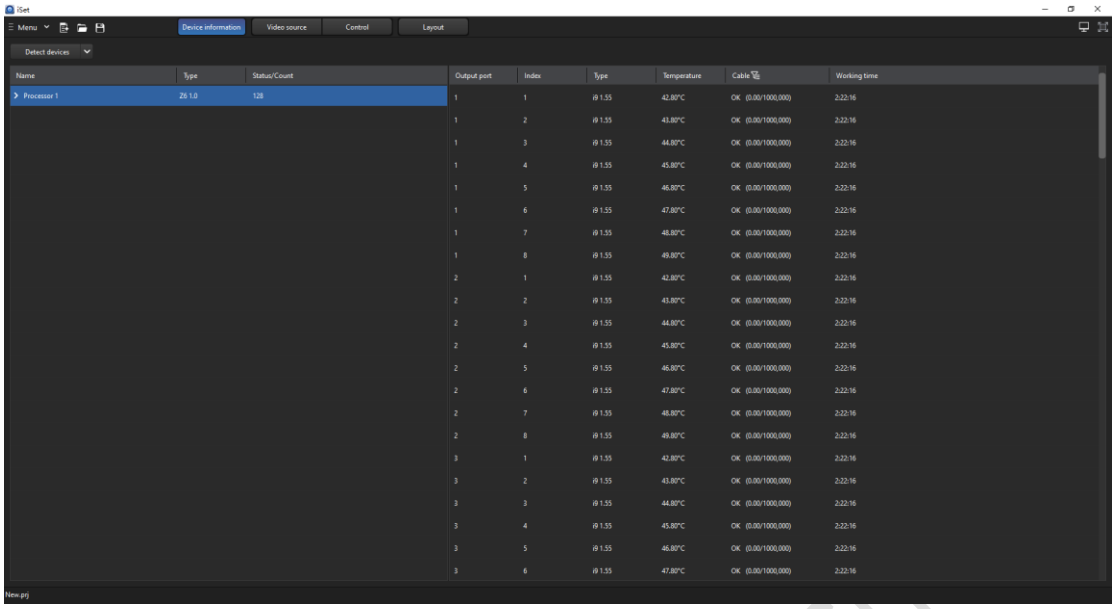


Fig 4.4-1 **Device Information**

4.4.1 Step-by-Step Guide

1. Go to **Menu>Preferences…>General settings**, and select the desired option (**USB**, **USB and Internet**, and **Designated IP address**) under **Priority connection**.

2. Select **Detect devices** to get the information of the connected processors and receivers.

4.4.2 Interface and Function Description

iSet supports 3 ways of mapping for hardware:

(1) USB device: PC connects the processor using the USB cables. The processors connect to each other via USB cascading.

(2) Internet-USB: PC connects the processor using the Ethernet cables. The processors connect to each other via USB cascading.

(3) Star network cascading: PC connects the switch using the Ethernet cables. Other processors connect the switch using the Ethernet cables.

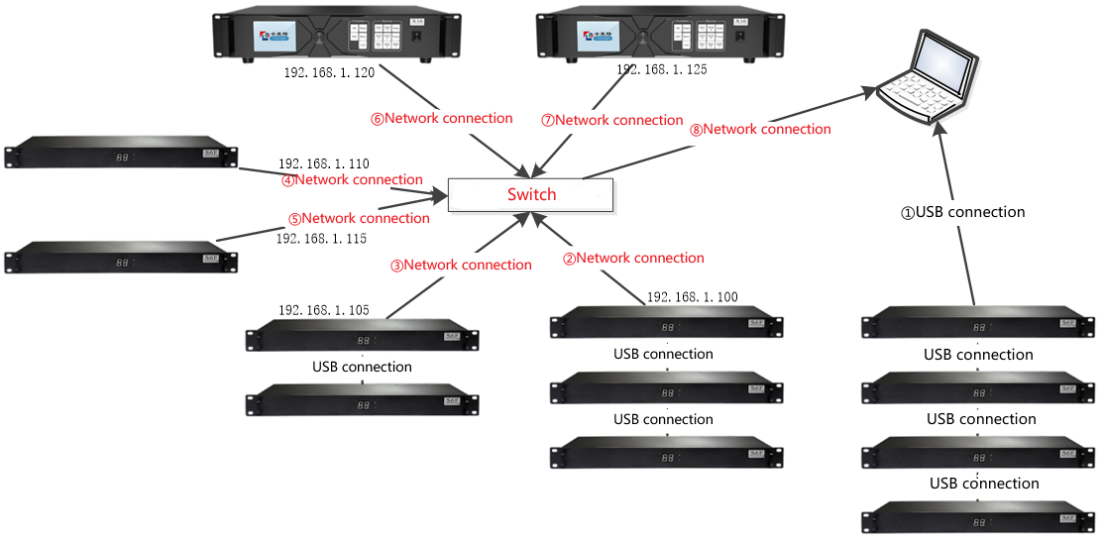


Fig 4.4-2 Device mapping

There are 11 sets of S6F and 2 sets of X16 in Figure 4.4-2. The mapping includes:

USB device: ①

Internet-USB: ②, ③

Star network cascading: ④, ⑤, ⑥, ⑦

Device set: The collection of devices of the same type using the same mapping (USB, LAN-USB, and star network mapping).

The mapping shown in Figure 4.4-2 is displayed as **Device set** in iSet: ① is displayed as **USB device**; ② is displayed as **Internet-USB: S6F (192.168.1.100)**; ③is displayed as **Internet-USB: S6F (192.168.1.105)**; ④⑤ are displayed as **Star network: S6F**; ⑥⑦are displayed as **Star network: X16**.

Star network cascading: Processors don’ t connect to each other using USB cables. They connect to the controller via control cables, switch, or router instead. iSet is in charge of processors with different IP addresses, with only one device linking to each IP address. If devices using USB cascading share the same IP address, then the mapping doesn’ t belong to star network cascading.

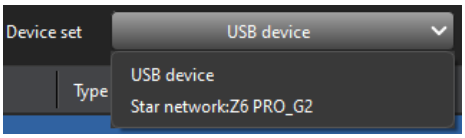


Fig 4.4-3 **Device set**

➢ Detect devices

Select **Detect devices**, and the information of the processors and receivers will be displayed in the information display area.

Click the drop-down arrow next to **Detect devices**. Two options (**All devices** and **Processors only**) are displayed. Select **All devices**, the information of the processors and receivers will be displayed in the information display area. Select **Processors only**, the information of processors is sorted in the information display area.

◆ Processor information list

Processor information list includes **Name**, **Type**, and **Status**. When the selected device set is connected using star network cascading, the **IP address** column is added to the list. When the processors cannot access the **Video source** tab, the **Input** column is added to the list.

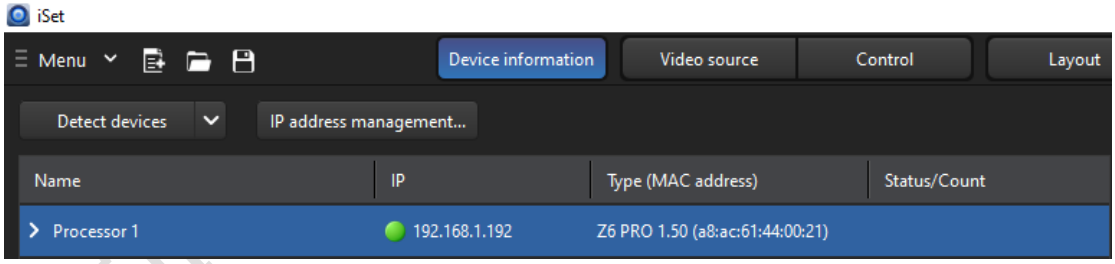


Fig 4.4-4 Processor information list.

Name: The default name is Processor.

IP: Show the processors' IP addresses.

Type: Show the processors' types.

Input: Show the processors' input signal. E.g., DVI 1920x1080@60Hz.

Status: Show the receivers connected to the processors. With receivers connected, show the receiver count. When no receivers are connected, see

Figure 4.4-4 to learn about the situation that could occur.

◆ **Receiver information list**

Receiver information list includes **Output port**, **Index**, **Type**, **Temperature**, **Cable**, and **Working time**.

Output port	Index	Type	Temperature	Cable	Working time
1	1	i9 1.55	42.80°C	OK (0.00/1000,000)	2:22:16
1	2	i9 1.55	43.80°C	OK (0.00/1000,000)	2:22:16

Fig 4.4-5 Receiver information list

Output port: Show the output ports of receivers by order.

Index: Show the index of receivers in **Output port**.

Type: Show the receiver types and programs.

Temperature: Show the cabinet temperature monitored by the receivers. If the receivers are not able to detect temperature, "—" will be displayed in **Temperature**.

Cable: Show the Ethernet cable status. **OK** is displayed when the Ethernet cable is in good condition. **Unqualified** is displayed when the error rate exceeds 1/1,000,000.

Working time: Show the working time with the power supply on. If the power supply is off, the working time recount when the power is turned on next time.

◆ **Show unqualified receivers only**

Click on the filter icon next to the column heading **Cable**, and the icon turns to be , indicating that the filter is successfully applied. The unqualified receivers will be sorted, and the message **Unqualified** is shown under **Cable**. Click on the icon again to remove the filter, and all receivers are listed.

◆ **Recount error packet**

Unqualified Ethernet Cables: Detect the receivers, **Unqualified** is displayed under the **Cable** column if the network connection is unstable and results in an error rate exceeding 1/1,000,000.

Troubleshooting: In the case of the unqualified Ethernet cables, you can unplug the cables and plug them back in, or use cables of higher quality.

Recount error packet: After fixing the above issue, reset the receivers' error packet to zero and allow the receivers to recount. Right-click the negative space of the receiver information area. On the pop-up context menu, select **Recount error packet** to fit your needs.

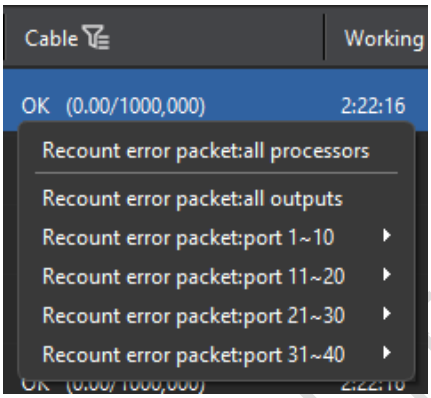


Fig 4.4-6 **Reset error packet**

4.5 Layout

Layout is comprised of 4 parts: toolbar, navigation tree, view area, and parameter configuration area. Layout allows for setting cabinet mapping and parameter configuration.

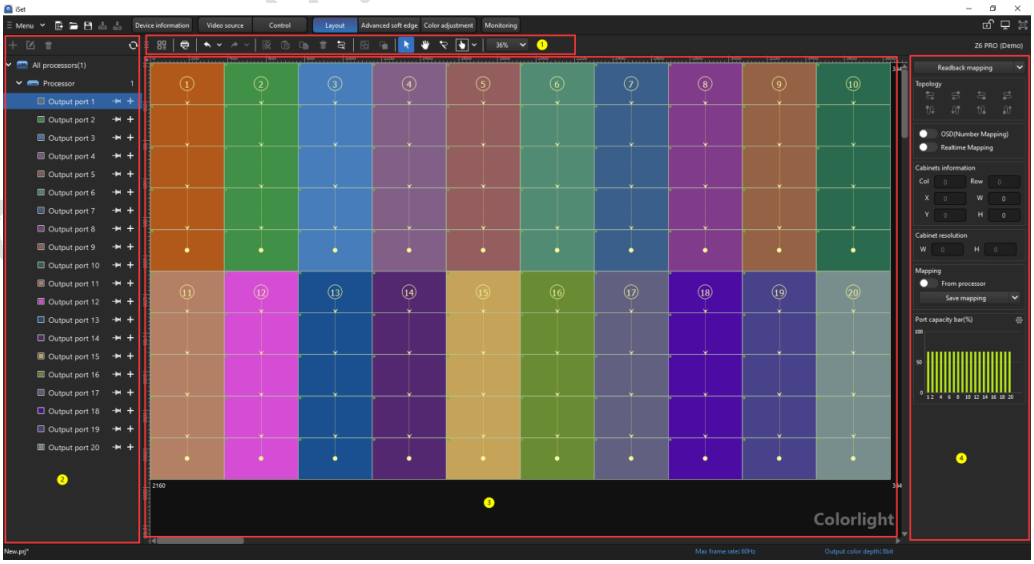


Fig 4.5-1 **Layout**

4.5.1 Step-by-Step Guide

1. Select **Readback mapping** to readback the cabinets connected to the current processor.

2. If the mapping is not correct, you can enable **OSD (Number Mapping)** to view the actual mapping.

3. To add cabinets, select the **Add** button ✚ next to **Output port** in the navigation tree or drag the white dots around cabinets on the canvas according to the actual mapping.

4. Set mapping using **Topology** or **Pen tool (Custom topology)** based on the actual mapping.

5. After properly setting the mapping, click **Save Mapping** to save the mapping to the processors and the receivers.

4.5.2 Interface and Function Description

➢ **Toolbar**

Toolbar is an important, simple tool to set cabinet mapping and organize your project files. See the figure below to learn more.

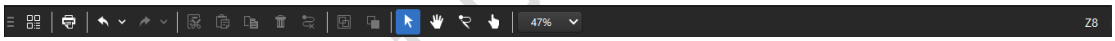


Fig 4.5-2 Toolbar

The toolbar includes **Type library**, **Print**, **Undo**, **Redo**, **Cut**, **Copy**, **Paste**, **Delete**, **Clear typology**, **Group**, **Ungroup**, **Normal**, **Hand tool**, **Pen tool**, **Highlight cabinet**, **Zoom**, and **Processor type**.

◆ **Type library**

Type library stores and displays the receiver types.

Select  to access the **Type library** window. The window is comprised of the menu bar on the top and the type display area at the bottom.

Toolbar

Toolbar includes **New type folder**, **Import as folder**, **Import cabinet type file**, **Create multi-receiver cabinet type**, **Rename**, **Delete**, and **Clear**

all.

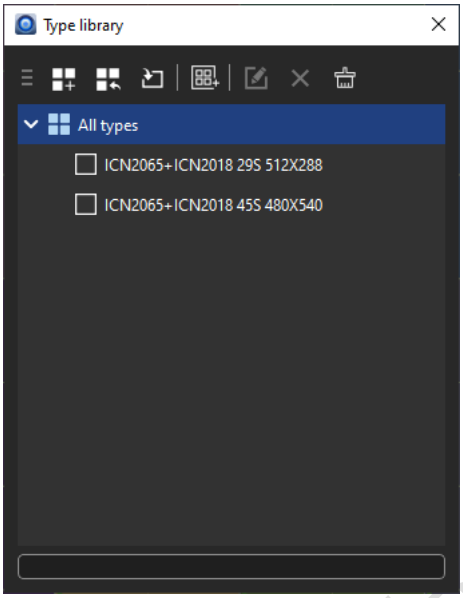


Fig 4.5-3 **Type library**

New type folder: Select on the toolbar or press **Ctrl+N** to create a type folder.

Import as folder: Select on the toolbar or press **Ctrl+I** to import a type folder.

Import cabinet type file: Select on the toolbar or press **Ctrl+A** to import a cabinet type.

Create multi-receiver cabinet type: Select on the toolbar to see the **Wizard 1/3** pop-up window, where you can modify the receiver information by selecting **Cabinet configuration** and **Receiver count** dropdown. Select **Next** and switch on the **Specify orientation** toggle. 8 presets are available under **Topology** for quick mapping. After that, select **Next** to edit **Type name**, **Weight**, **Power**, and **Working voltage**.

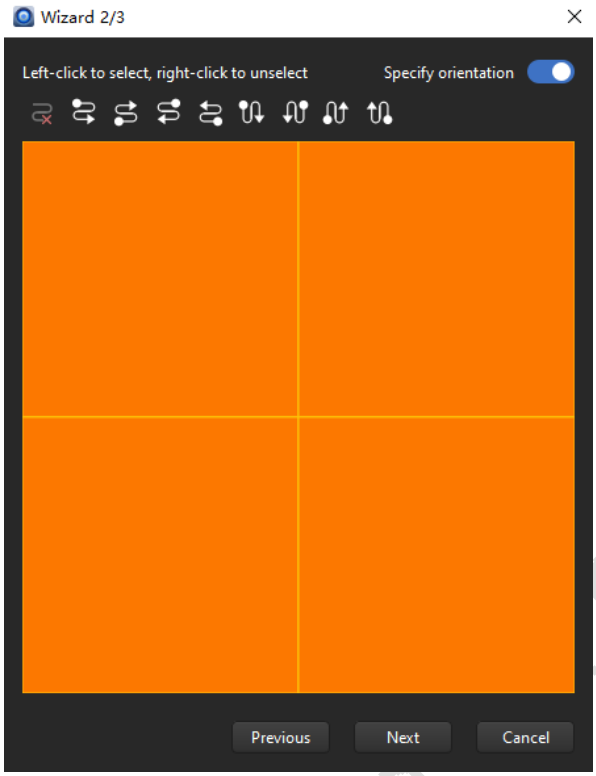


Figure 4.5-4 Create multi-receiver cabinet type **Wizard 2/3**

Rename: Select on the toolbar or press **F2** to rename the type folder or the cabinet parameter.

Delete: Select on the toolbar or press **Delete** to delete the selected folder.

Clear all: Save the parameters of the occupied cabinets and delete the parameters of the other cabinets.

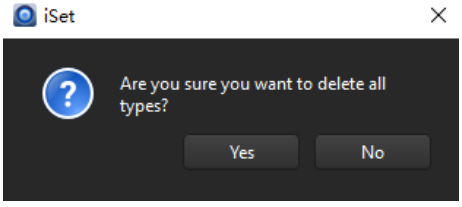


Fig 4.5-5 **Clear all**

Right-click the cabinet parameters or the type folder in **Type Library**. Select **Export** in the context menu to export the selected type as a type file and export the selected type folder as a folder.

The default cabinet types are uneditable.

◆ Print

After setting the cabinet mapping, you can print the processors' mapping or the layout of the processors. Select **Print** or press **Ctrl+P** to access the preview interface, where you can configure parameters or see what your print job will look like.

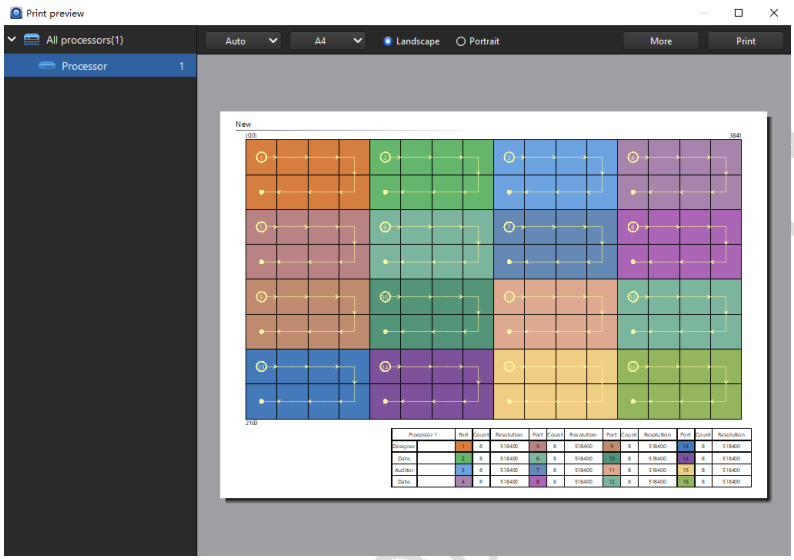


Fig 4.5-6 Print preview

The **Print preview** window includes:

Zoom: 7 options are available to adjust the scale ratio: Auto, 25%, 50%, 75%, 150%, 250%, and 500%. You can press Ctrl while using scroll wheel.

Paper size: Select A3 or A4 from the drop-down menu. When the paper size changes, the content automatically changes according to the paper width.

Landscape: Horizontal and vertical layout can be selected. After switching the layout, the direction of the view area and the cabinet information list remain unchanged and can only be zoomed.

More: The menu includes **Save as image…**, **Watermark settings…**, **Edit table header**, **Show canvas area**, **Stapling margin**, and **Rear view**.

Save as image…: Save the drawing as an image to the local PC. Supported formats include .bmp, .png, and .jpg. The default format is .bmp.

Watermark settings…: Customize the watermark as desired.

Edit table header: Edit in the **Processor**, **Designer**, **Date**, **Auditor**, and **Date** box.

Show canvas area: View the entire canvas with the current processor resolution when **Show canvas area** is enabled. Disable **Show canvas area** to display the cabinet area connected to the processor.

Stapling margin: When **Stapling margin** is enabled, the overall preview page is shifted slightly to the right, leaving space for binding.

Rear view: Print the rear view of the mapping for cabinet installation and mapping.

Print: Select the button to print. You can convert the file to .doc, .pdf, or other formats.

Click the 5 options (**Phantom Print to Evernote**, **OneNote**, **Microsoft Print to PDF**, **Foxit Phantom Printer**, and **Foxit PDF Reader Printer**) from the drop-down arrow based on the operating environment.

Information list: Display the information list based on the number of output ports in the bottom-right corner. The more the output ports are, the less the information is. The information list includes **Processor**, **Port**, **Count**, and **Resolution**. For processors with few output ports, the start position (**X**, **Y**), **W** (**Width**), and **H** (**Height**) are displayed in the information list.

◆ **Undo**

iSet automatically records the recent operations. When an error occurs, you can resolve it by **Undo** and **Redo**.

Select the drop-down arrow next to **Undo**, and select the desired option.

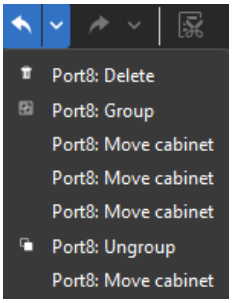


Fig 4.5-7 **Undo**

◆ Redo

Go back to the previous step.

◆ Copy

Select a cabinet and click **Copy** or press **Ctrl+C** to copy the parameters and the mapping of the selected cabinet.

◆ Paste

Paste the copied cabinet information to the output ports and the processors. If you copy cabinets connected to different output ports, the mapping is rearranged according to the order of the output ports when pasting.

◆ Delete cabinet

Delete the selected cabinets and their mapping.

◆ Clear topology

Select the cabinet connected to a single output port, and click Clear mapping to clear all mapping. Select Clear mapping without selecting the output port to clear the mapping of the current processor.

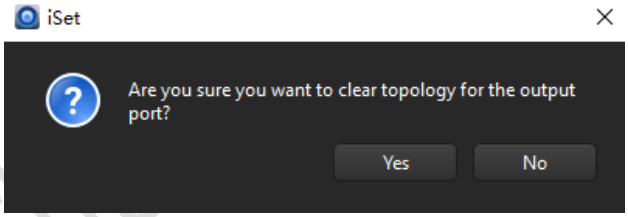


Fig 4.5-8 **Clear topology**

◆ Group

Multiple cabinets connected to the same output port can be combined into a group. The operation to the group will be applied to each cabinet in the group. Groups cannot be built without mapping.

◆ Ungroup

Select a cabinet group and ungroup it. After that, the first cabinet is selected by default.

Support ungrouping cabinet groups. When a cabinet group is comprised

of multiple cabinet groups, the cabinet group will be ungrouped into multiple groups rather than a single cabinet.

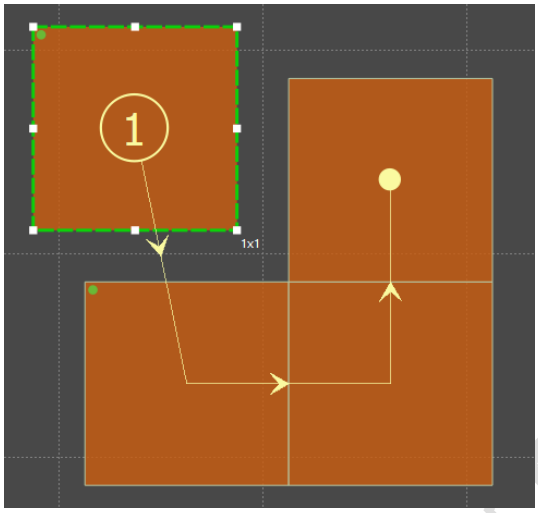


Fig 4.5-9 **Ungroup**

◆ **Normal**

By default, you can add, delete, move, or adjust the size of the cabinets in **Normal** mode.

◆ **Hand tool**

When you create a canvas of large size, you can move the canvas to view the display effect. Click the **Hand tool** button, then drag and move the canvas.

◆ **Pen tool (Custom topology)**

In this mode, select the cabinet to set mapping. You can click cabinets by order to customize topology. Alternatively, hold and drag the mouse to set topology quickly.

To cancel custom topology on the cabinet group, select and right-click the cabinet. Right-click the starting cabinet to clear all mapping.

◆ **Highlight cabinet**

◆ To highlight a cabinet, select **Highlight cabinet** and click a cabinet on the canvas. The edge of the highlighted cabinet will flicker on the LED display.

The receiver indicator behind the highlighted cabinet will flicker at a

high frequency. If there is an LCD, a cabinet will be highlighted by different colors.

Only a single cabinet can be highlighted. Click outside the cabinet area to remove the highlight. Alternatively, you can select the **Normal** button on the toolbar to remove the highlight.

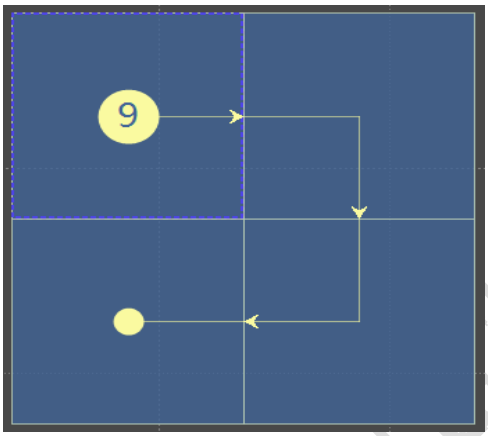


Fig 4.5-10 Highlight a cabinet

- **Zoom**

To adjust the scale ratio of the **Layout**, hover over the canvas, and press **Ctrl** while scrolling the mouse wheel to zoom the view area.

You can also select the drop-down arrow on the toolbar to adjust the scale ratio of the canvas.

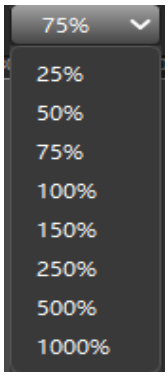


Fig 4.5-11 Zoom

- **Processor type**

  Display the current processor type.

➢ **Navigation tree**

The left panel displays the processors in the current project. When the processor is offline (not detected), the icon is gray. And when the processor is online, the icon is blue.

There's at least one processor in the navigation tree. You cannot delete processor when there's only one processor. You can create a processor group when you need to control multiple processors. iSet supports up to 255 processors. When the processor number reaches the maximum, you cannot add new processor.

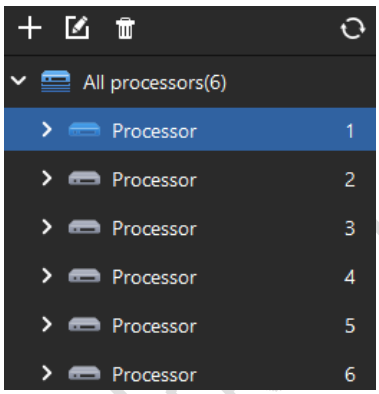


Fig 4.5-12 **All Processors**

◆ **Add**

Select  from the menu bar to see 4 options: **Add processor group**, **Add 1 processor**, **Add 2 processors**, and **Custom adds…** When you select an output port, the Add button  turns gray.

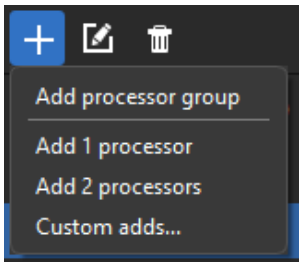


Fig 4.5-13 Add a processor

◆ **Delete**

Select  to delete a processor or a processor group.

Delete a processor

Select any of the processors. Select from the menu bar or press the **Delete** key.

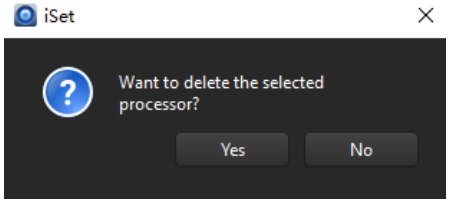


Fig 4.5-14 Delete a processor

Ungroup a processor group

Select any of the processor groups. Select from the menu bar or press the **Delete** key. After that, the processors in the group are still there.

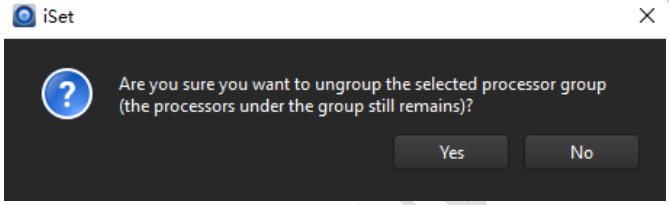


Fig 4.5-15 Delete a processor group

- **Rename**

To rename, select a processor or a processor group. Select from the menu bar or press the **F2** key. If you don't type anything in the text field, the default name is Processor.

- **Refresh**

Select from the menu bar to detect the processors and refresh the **Layout** interface.

- **Context menu**

Right-click different parts of the navigation tree to see different context menus. Select items from the menu to fit your needs.

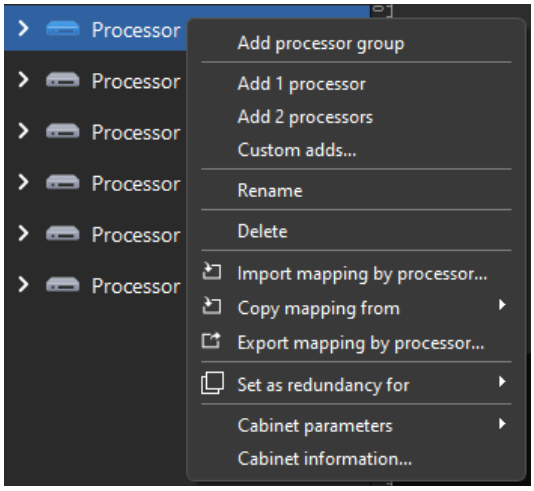


Fig 4.5-16 Context menu of the online processor

The context menu of the offline processor doesn't have the **Cabinet status LED** option compared to the context menu of the online processor.

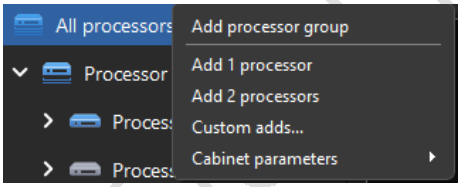


Fig 4.5-17 Context menu of all processors

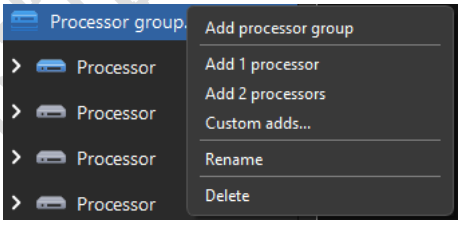


Fig 4.5-18 Context menu of the processor group

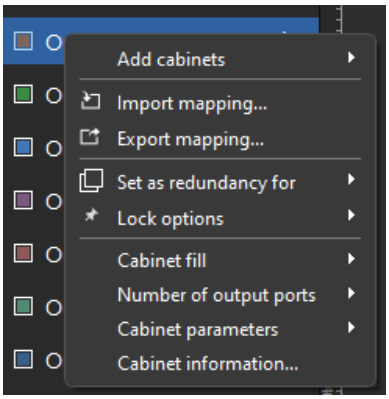


Fig 4.5-19 Context menu of the processor group

Import mapping by processor…: Import a local .sprj project file, and import its cabinet mapping into the **Processor control area map** of the selected processor.

Export mapping by processor…: Save the current processor information as a project file.

Copy mapping from: Select any of the processors except for the current processor to import its cabinet layout to the current processor.

Cabinet status LED

There’ re two Cabinet status LED: Connection status indicator and signal transmission indicator. The connection status indicator illuminates red light and the signal transmission indicator illuminates green light. In normal conditions, the red light is always on. The green light flickers when the LED indicator is on and the green light is off when the indicator is off.

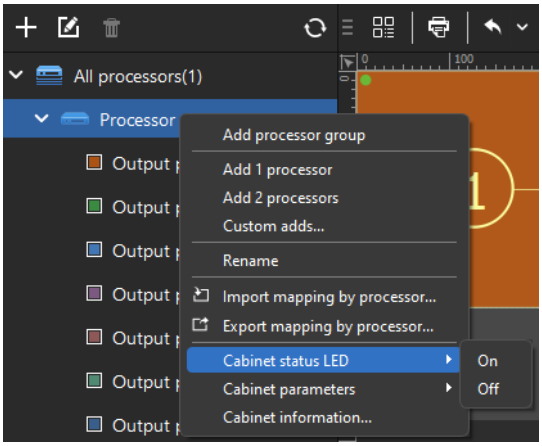


Fig 4.5-20 **LED status LED**

Processor backup

The processor can back up any other processors. After that, the processor icon turns out to be the backup icon. And the right-hand panel displays the backup information.

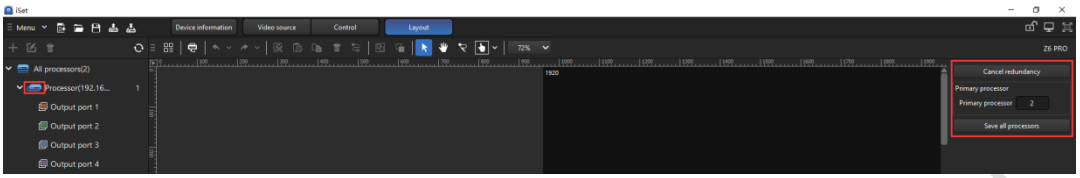


Fig 4.5-21 Processor backup

Cabinet information

Save basic parameters is enabled by default. If there's no such option in the context menu, you need to enable **Save basic parameters** in **Menu**.

Cabinet information… includes **Markup custom-defined cabinets** and **Save parameters…**

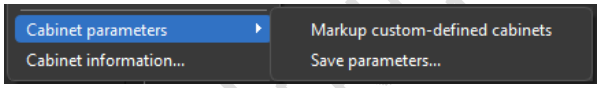


Fig 4.5-22 **Cabinet parameters**

Markup custom-defined cabinets: Gray out all custom cabinets.

Save parameters…: Select **Save parameters…** to save the cabinet parameters. The custom cabinets are not allowed to save parameters. When you click **Save parameters…** for a custom cabinet, you'll see a pop-up reminder.

Click **Save parameters…**to see the **Save parameters…** window, under which you can select the **Type** drop-down menu and set **Gamma** value.

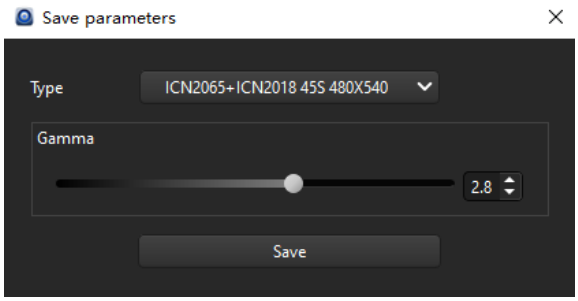


Fig 4.5-23 **Save parameters**

Cabinet information

Display cabinet information of the processors, including **Count**, **Cabinet type**, **Resolution**, **Size**, **Working voltage**, **Power consumption**, and **Weight**. If the cabinet doesn't have the above-mentioned information, "-" is displayed in the text field.

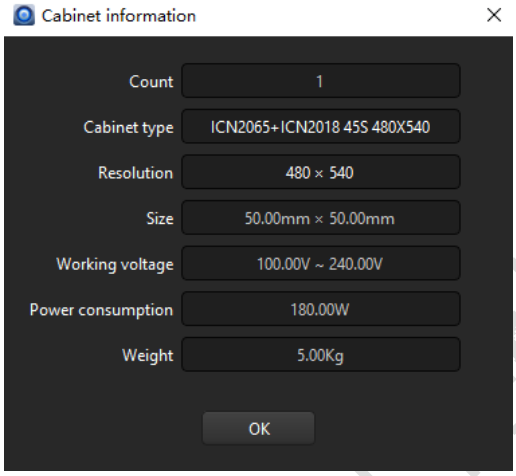


Fig 4.5-24 **Cabinet information**

- **Output port settings**

◆ **Output port display**

Select the drop-down arrow in front of the processor to view the port information.

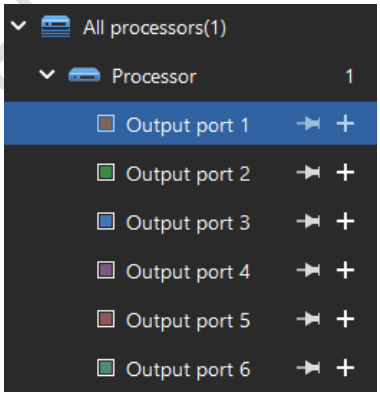


Fig 4.5-25 Output port information

◆ **Add a cabinet**

Select  next to **Output port** to add custom cabinet types and existing cabinet types from **Type library**. The maximum size for custom

cabinets is 1024 × 1024.

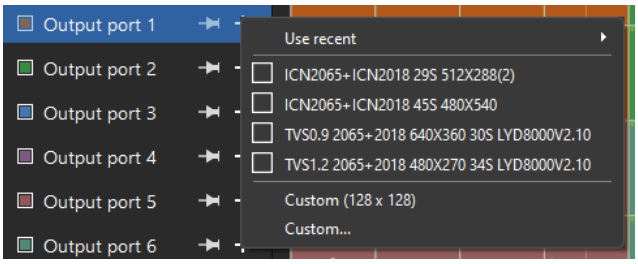


Fig 4.5-26 Add a cabinet

◆ **Lock/Unlock all cabinets connected to the output port**

Select the  icon to lock all cabinets connected to the output ports. As a result, you cannot move the cabinets.

What you’re not allowed to do on the right-side panel:

- Add a cabinet
- Readback from connected cabinet
- Change the row, column, and position of the cabinet.
- Select the icon again to unlock all cabinets.

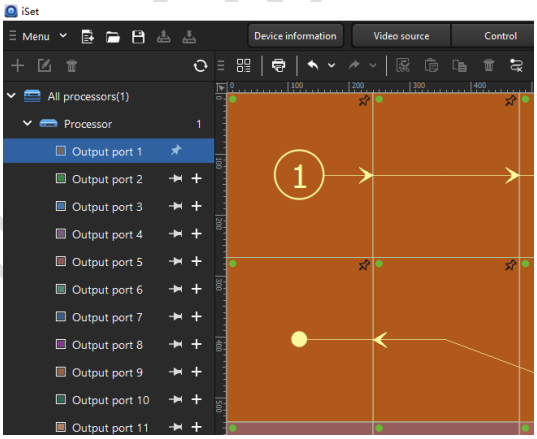


Fig 4.5-27 Lock cabinets connected to the output ports

◆ **Context menu of the output port**

Right-click the output port to view the context menu, which includes **Add cabinets**, **Import mapping…**, **Export mapping…**, **Set as redundancy for**, **Lock options**, **Cabinet fill**, **Cabinet parameters**, and **Cabinet information…**

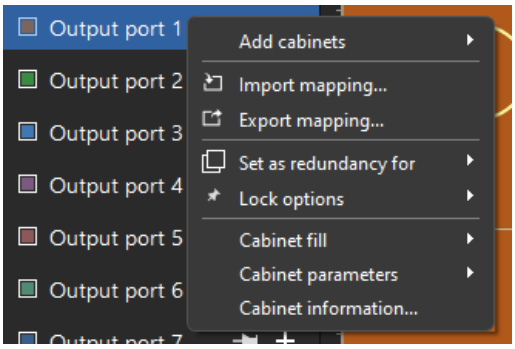


Fig 4.5-28 Context menu of the output port

Import mapping…: To import mapping to the current output port, right-click the output port. Select **Import mapping…** to see the **Import…** pop-up and import the file you want.

Export mapping…: Right-click the output port. Select **Export mapping…** to see the **Export…** pop-up and specify a path for saving. You can rename the export file or retain the default file name New. pprj.

Set as redundancy for: Select an output port. Select **Set as redundancy for** on the context menu and select the desired output port for redundancy.

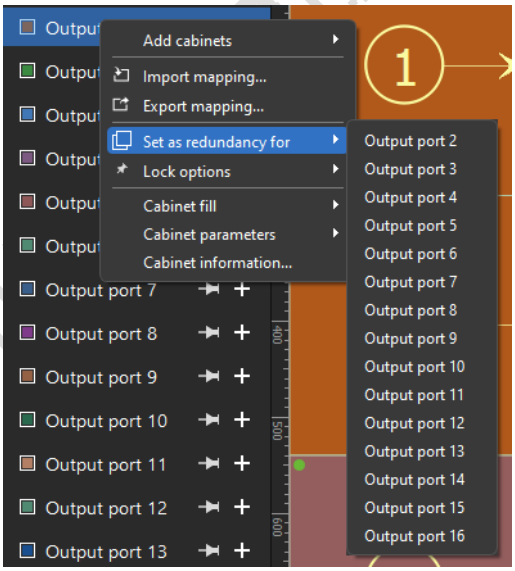


Fig 4.5-29 Set output port redundancy

After redundancy is done, the icon next to output port changes to an indicator of redundancy. The parameter configuration area right after the view area display the information about redundancy.

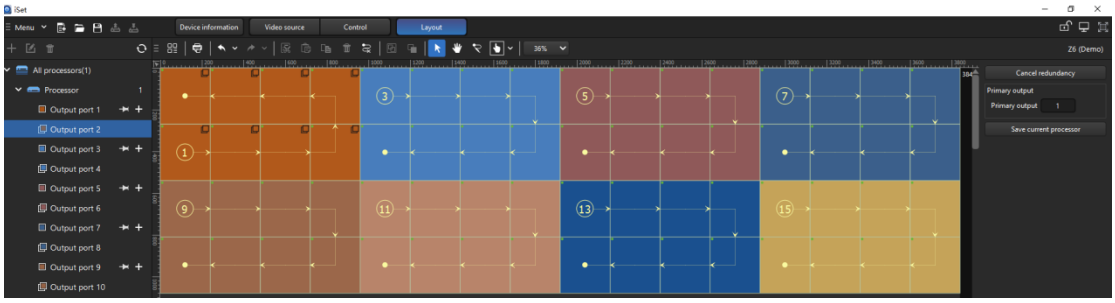


Fig 4.5-30 Output port redundancy

Lock options: Apart from selecting the icon right after **Output port**, you can also select **Lock options** on the output port context menu to lock cabinets. You can also lock or unlock the current output port or all processors.

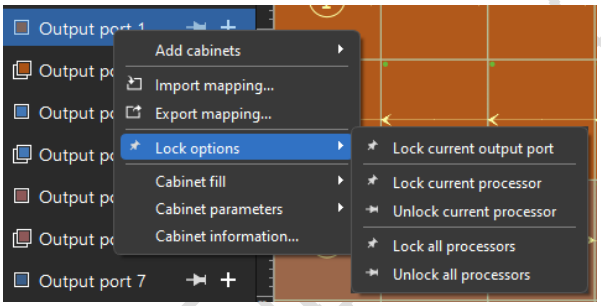


Fig 4.5-31 **Lock options**

Cabinet fill: The drop-right menu includes **Current output…** and **Set all outputs to default**.

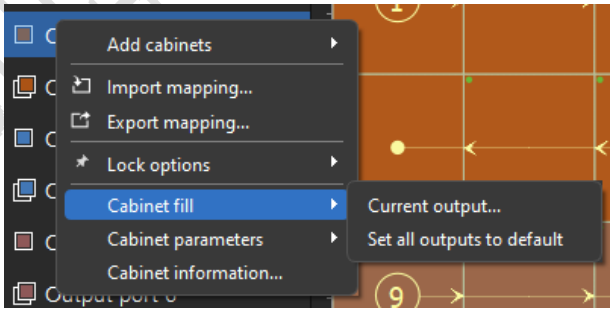


Fig 4.5-32 **Cabinet fill**

Current output port is comprised of two elements:

- **Color**: Select the default color box to customize the color of the current output port. Select **Default** to reset the color.
- **Transparency**: You can move the slider or use the spin button to adjust transparency. The default value is 20%.

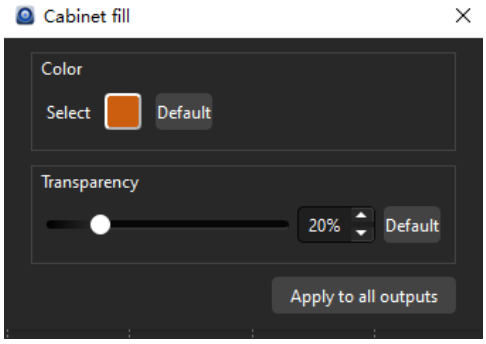


Fig 4.5-33 **Cabinet fill**

Select **Apply to all outputs** to apply the color and transparency to all output ports and cabinets.

Select **Set all outputs to default** on the context menu of **Output port** to reset the color and the transparency.

📖 Note:

For more information about cabinet parameters and cabinet information, see previous sections.

➢ Canvas

You can set the cabinet mapping connected to all Ethernet ports for a single processor on the canvas.

3 options are available in the context menu of the view area: **Frame rate and color depth settings…**, **Canvas size settings…**, and **Canvas fill settings**.

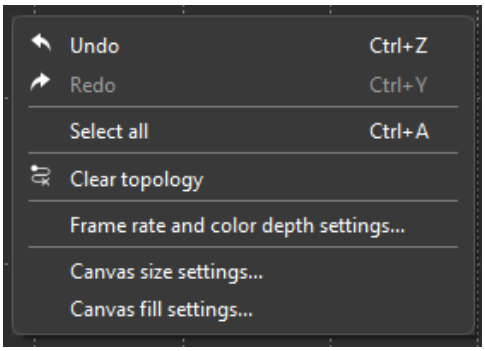


Fig 4.5-34 View area settings

Each processor has its canvas. Cabinets connected to different output ports have different colors. Cabinets beyond the canvas are in dark red.

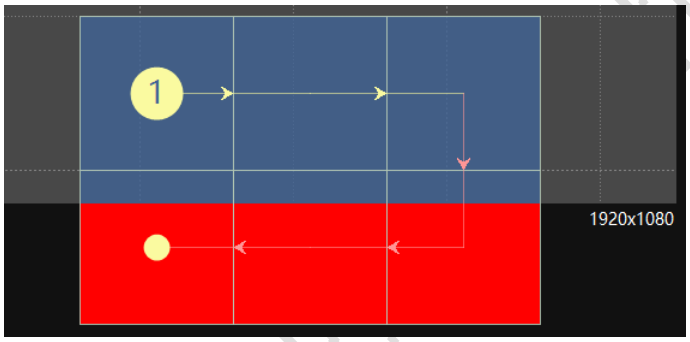


Fig 4.5-35 Cabinets beyond the canvas

The lower-right corner of the view area displays the **Max frame rate** and **Output color depth**.

Fig 4.5-36 **Max frame rate & Output color depth**

- **Cabinet operation**
  - **Select a cabinet**

To select a cabinet group, simply select any of the cabinets in the cabinet group.

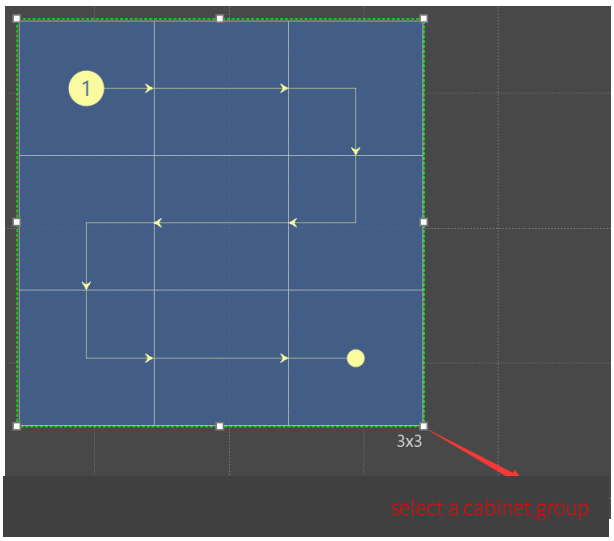


Fig 4.5-37 Select a cabinet group

Alternatively, you can double-click a cabinet in the cabinet group and hold **Ctrl** while selecting other cabinets to select multiple cabinets in the group at once.

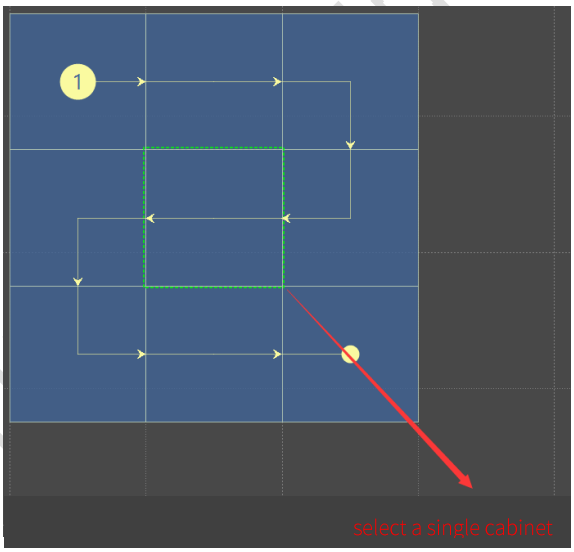


Fig 4.5-37 Selected a single cabinet

- **Move a cabinet**

Click and drag the cabinet to change its position.

Enable **Snap to cabinet**, and drag the cabinet. The cabinets will be attached to other cabinets or the ruler automatically. Disable **Snap to cabinet** in **Preferences** as you need.

Modify cabinet count

Select the desired cabinet to see the white dots around the cabinet. Hover over the white dots and drag the mouse to add or delete cabinets.

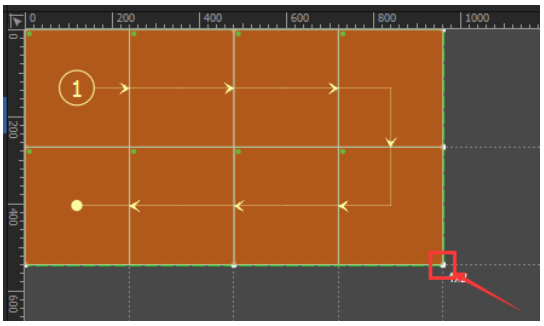


Fig 4.5-39 Add or delete cabinets

Context menu of cabinet

Right-click a cabinet to see the pop-up context menu, which includes **Undo**, **Redo**, **Ungroup**, **Select all**, **Cut**, **Copy**, **Delete cabinet**, **Clear topology**, **Cabinet fill**, **Cabinet parameters**, and **Cabinet information…**

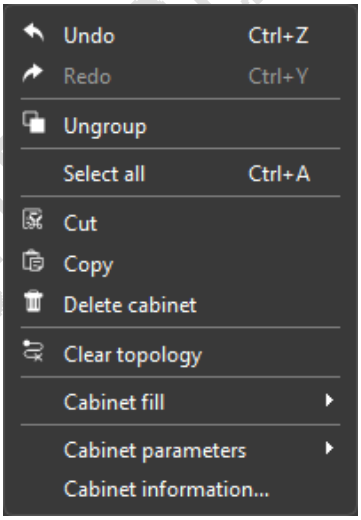


Fig 4.5-40 Cabinet context menu

Cabinet parameters

You can change and save the cabinet type. And you can readback the parameters of the selected cabinet. When you save cabinet parameters, specifying the cabinet type is a must. When you readback cabinet parameters, you must select a single cabinet.

Markup custom-defined cabinets: Gray out all custom cabinet colors.

Select the same type: Select all cabinets connected to the current output port that is of the same type as the selected cabinet.

Set type…: To change the cabinet type of the selected cabinet, select the desired cabinet type from the pop-up drop-down menu.

Save parameters: Save the cabinet parameters of the selected cabinet.

Export cabinet configuration < .rcvbp> file…: This option only appears when a single non-customized box is selected. You can export the current cabinet parameters and save them locally using this function.

Readback from connected cabinet…: This option is only available when a single non-customized box is selected. You can readback cabinet parameters and save them locally using this function.

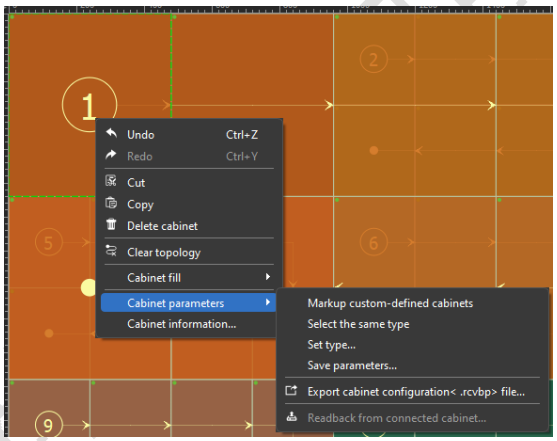


Fig 4.5-41 **Cabinet parameters**

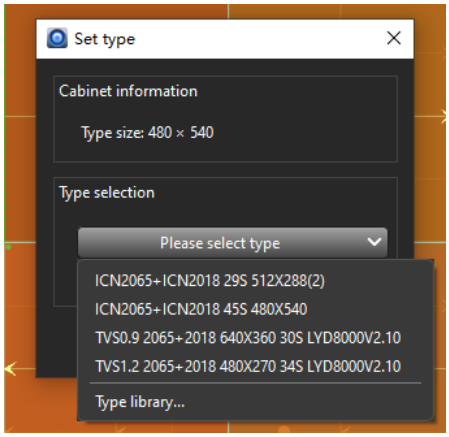


Fig 4.5-42 **Set type**

Right-click the blank area of the canvas to see the pop-up context menu, and some of the operations can be done using shortcut keys. Context menu includes **Undo**, **Redo**, **Select all**, **Frame rate and color depth settings**, **Canvas size settings…**, and **Canvas fill settings…**

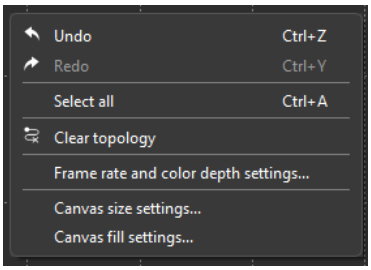


Fig 4.5-43 Canvas context menu

➢ **Right-hand panel**

When a single processor is selected, the right-hand panel displays **Readback mapping**, **Topology**, **Realtime Mapping**, **Cabinets information**, **Cabinet resolution**, **Mapping**, and **Port capacity bar**.

When all processors are selected, the parameters area includes **Processor status overview**, **Redundant processor view**, and **Processor control area map**.

◆ **Readback mapping**

Select **Readback mapping** to readback cabinet mapping. By default, the cabinets being read are those connected to the current processor. Select the drop-down arrow next to **Readback mapping**, and you can select **Current processor cabinets** and **All cabinets**. **All cabinets** is available when all cabinets are connected by multiple process cascading.

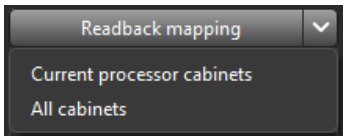


Fig 4.5-44 **Readback mapping**

◆ **Topology**

Apart from **Pen tool (Custom topology)**, 8 presets are available for quick topology.

Fig 4.5-45 **Topology**

◆ **OSD**: Enable **OSD**, the LED display shows the index according to the mapping order.

◆ **Realtime Mapping**: Enable **Realtime Mapping**, and the LED display shows the real-time display effect when the cabinets move or the mapping changes.

◆ **Cabinets information**: Display the cabinet position and size.

◆ **Cabinet resolution:** You can adjust the size of the custom cabinets only.

◆ **From processor**: Enable **From processor** to display the cabinet mapping of the processor.

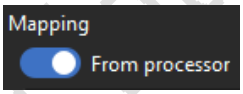


Fig 4.5-46 **Mapping From processor**

◆ **Save mapping**: To save the configured cabinet mapping, you can select **Current processor and cabinets**. When there’ re multiple processors, select **All processors and cabinets.**

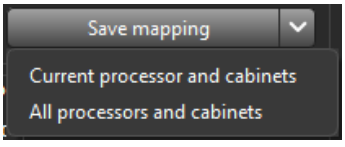


Fig 4.5-47 **Save mapping**

◆ **Port capacity**: Display the port capacity of all output ports. The intervals on the vertical axis are 0%, 50%, and 100%. Each output port supports up to 640,000 pixels with an output rate of 1Gbps. And each output port supports up to 3,250,000 pixels with an output rate of 5 Gbps. Green

bars represent that the bandwidth is within the maximum level. The bars are in red the other way around.

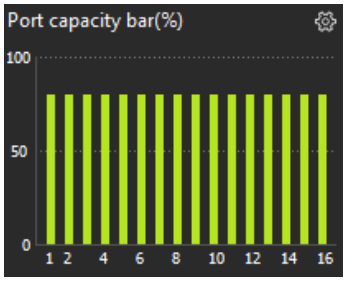


Fig 4.5-48 **Port capacity bar (%)**

- **Processor status overview**

The overview displays the **Total**, **Online**, and **Offline** (processors).

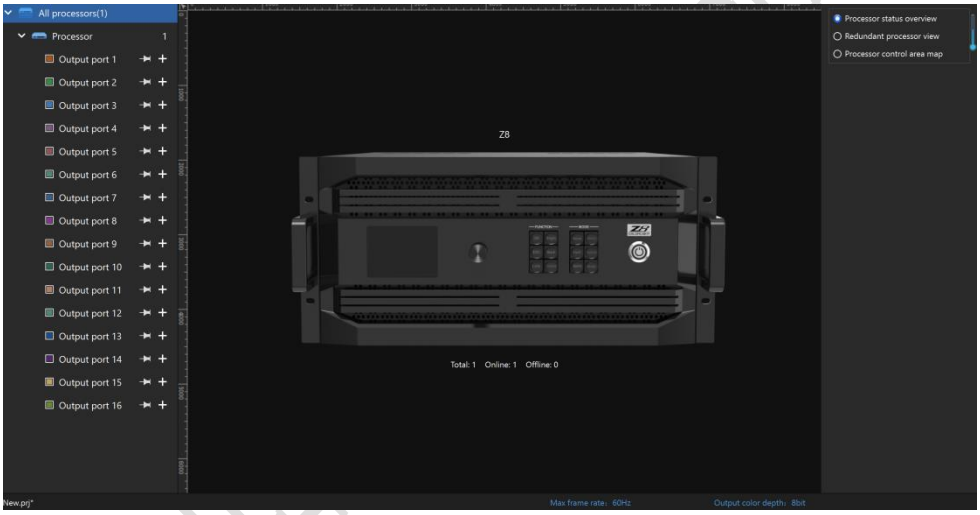


Fig 4.5-49 **Processor status overview**

- **Redundant processor view**

When there’s only one processor in the navigation tree, select **Redundant processor view**. The view displays the table recording the redundancy information of the output ports. You’re not allowed to modify the primary and redundancy ports.

Select the **Apply** check mark to apply the default redundancy.

Select the **Reset** button to reset redundancy.

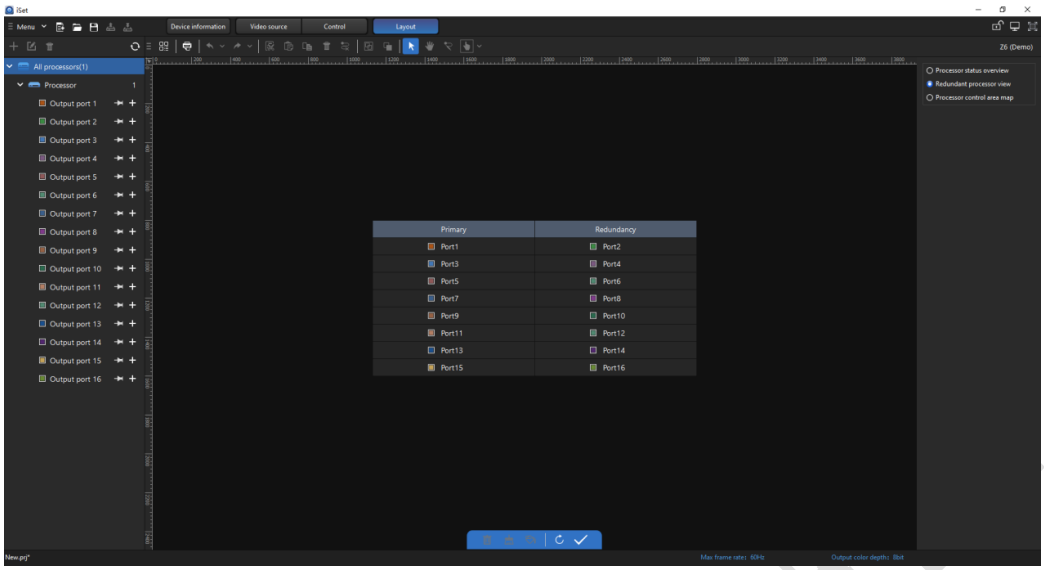


Fig 4.5-5 **Redundant processor view**

When there’re multiple processors in the navigation tree, select **Redundant processor view** to set redundancy among processors. To drag the processors under the navigation tree into the view table, select next to **Redundant processor view** to stop the interface from jumping to the processor interface. Select to unlock the view and switch to the **Processor status overview** or **Processor control area map**.

There’re 3 options on the toolbar: **Delete**, **Clear**, and **Auto match**.

Delete: Select a processor in the table and select **Delete** to delete the processor.

Clear: Select **Clear** to delete all processors in the table.

Auto match: Click **Auto match** to automatically fill the table with the processors under the navigation tree. When the number of processors is even, all processors will be automatically filled into the table. When the number of processors is odd, all processors except the last one will be automatically filled into the table.

You can drag the processors in the table to swap the primary processor and redundancy processor.

Select the apply check mark to set redundancy. The redundant processors’ icons change accordingly in the navigation tree.

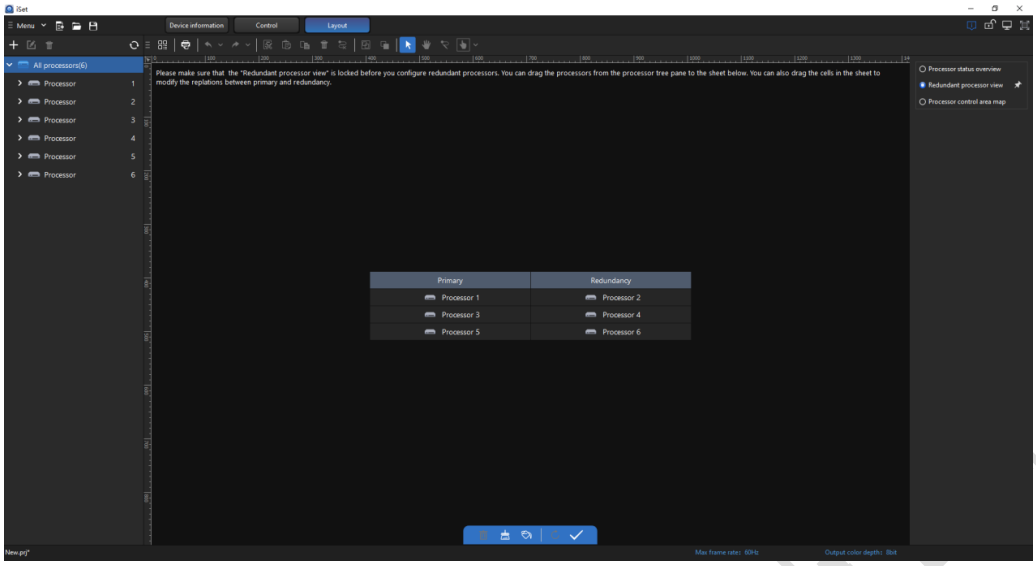


Fig 4.5-51 Redundancy for multiple processors

➢ **Processor control area map**

Click the rounded button in front of **Processor control area map** to display the layout of all processors in the view area. The background color of all processors in the view area is green. Only one processor can be selected at a time. When a processor is selected, the border of the processor area is wrapped with a white line and the background color becomes darker. When processors overlap, click the top processor in the overlap area to select the lower processors.

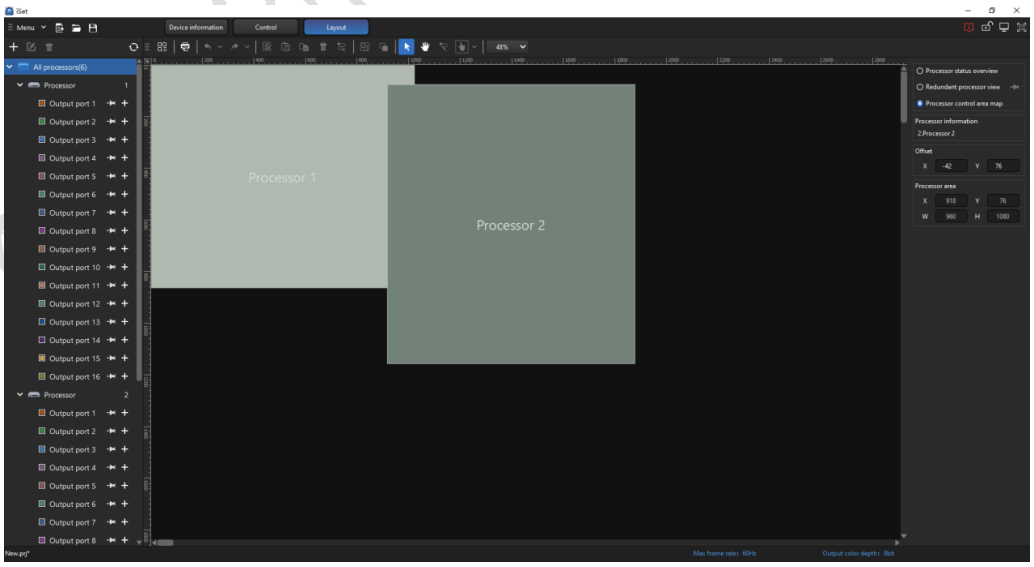


Fig 4.5-52 **Processor control area map**

To adjust the positioning of each processor in the view area, you can modify the offset value of the processor or drag it with the mouse. You can also view the processor area in the processor control area map.

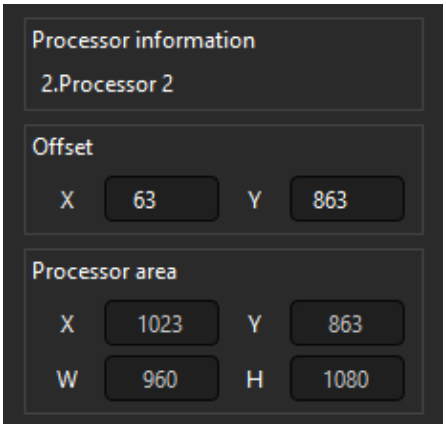


Fig 4.5-53 Processor information

4.6 Control

Control consists of **Tree control**, **General**, **HDR**, **Advanced color**, **Art-Net**, **3D**, and **Advanced**. It's designed for configuring parameters for the processor screen.

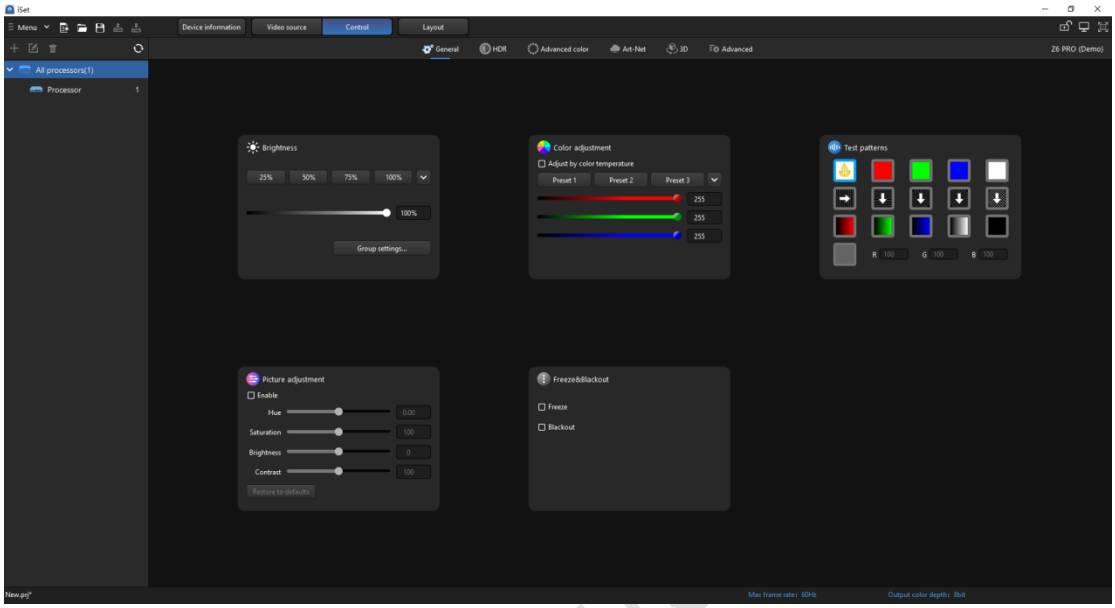


Fig 4.6-1 **Control**

4.6.1 Interface and Function Description

- **Navigation tree**

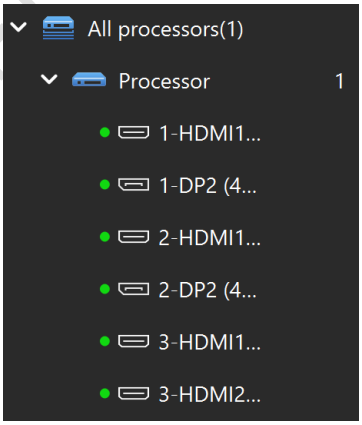


Fig 4.6-2 Navigation tree

Add: To learn how to add a processor or a processor group, see section 4.5.2.

Rename: To learn how to rename, see section 4.5.2.

Delete: To learn how to delete a processor or a processor group, see section 4.5.2.

Refresh: Click  to detect processors and refresh the interface.

Context menu: Right-click the negative space of the navigation tree to see different context menu. And click options from the context menu to fit your needs.

Right-click All processors: Right-click **All processors** to see the pop-up context menu, which includes **Add processor group**, **Add 1 processor**, **Add 2 processors**, and **Custom adds…**, **Import all processors parameters from file...**, **Export all processors parameters to file...**, and **Full screen reset to factory settings**.

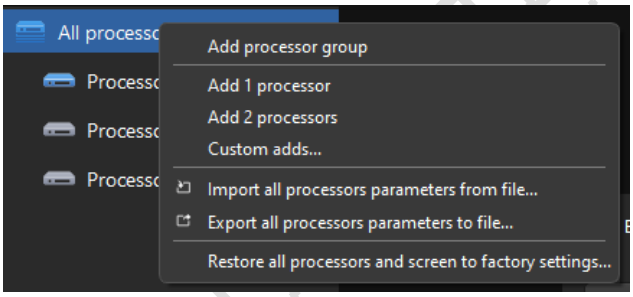


Fig 4.6-3 Context menu

Full screen reset to factory settings: You can select **Full screen reset to factory settings** to reset the connected processors to factory settings, or select **Reset and disable adjustment (Color adjustment)**. With **Advanced soft edge** on, you can select **Reset all seams (Advanced soft edge)** or **Reset seams around cabinets (Advanced soft edge)**.

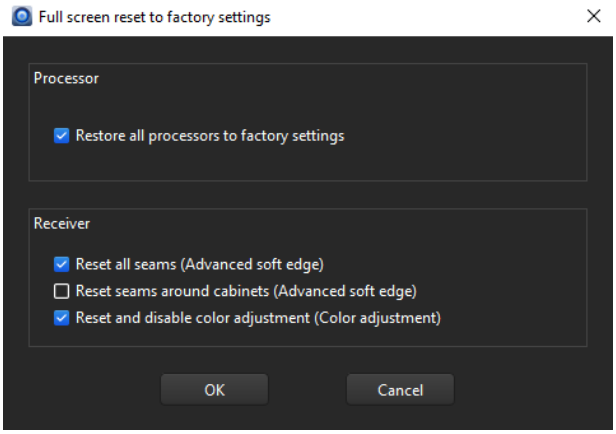


Fig 4.6-4 **Full screen reset to factory settings**

◆ **Right-click a processor**

Right-click a processor to see the pop-up context menu, which includes **Add processor group**, **Add 1 processor**, **Add 2 processors**, **Custom adds…**, **Rename**, **Delete**, **Import parameters from file…**, and **Export parameters from file**. If the selected processor supports 3D, you'll see the **Enable 3D** option from the context menu. Nevertheless, you cannot configure 3D parameters after enabling **3D**.

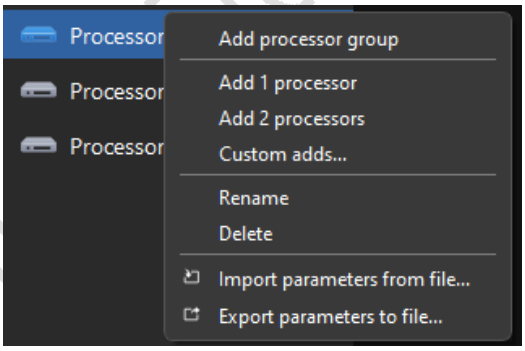


Fig 4.6-5 Right-click a single processor

➢ **General**

The parameters of different processor control interfaces are different. This section walks you through the functions of Z6PRO and Z8 as examples.

➢ **Parameter configuration**

◆ **Parameter configuration for all processors**

Select **All processors**, and the cabinets of all processors will change in

real time if you change the parameters.

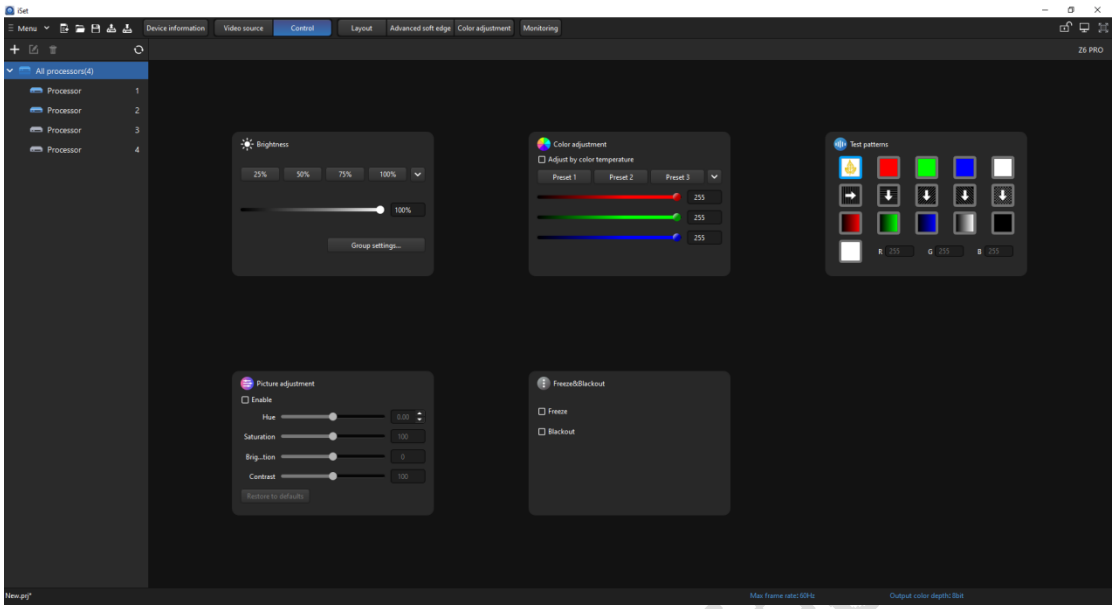


Fig 4.6-6 **All processors**

- **Configure parameters for the processor group**

After grouping the processors in the navigation tree, select a processor group. The cabinets connected to the processor in the group will change in real time when there’ re any changes in the parameters.

- **Configure parameters of the processor**

Select an offline processor. When the buttons in the **Control** tab are grayed out, you cannot do any operation.

Select an online processor. When you configure parameters, the cabinets connected to the processor in the group will change in real time.

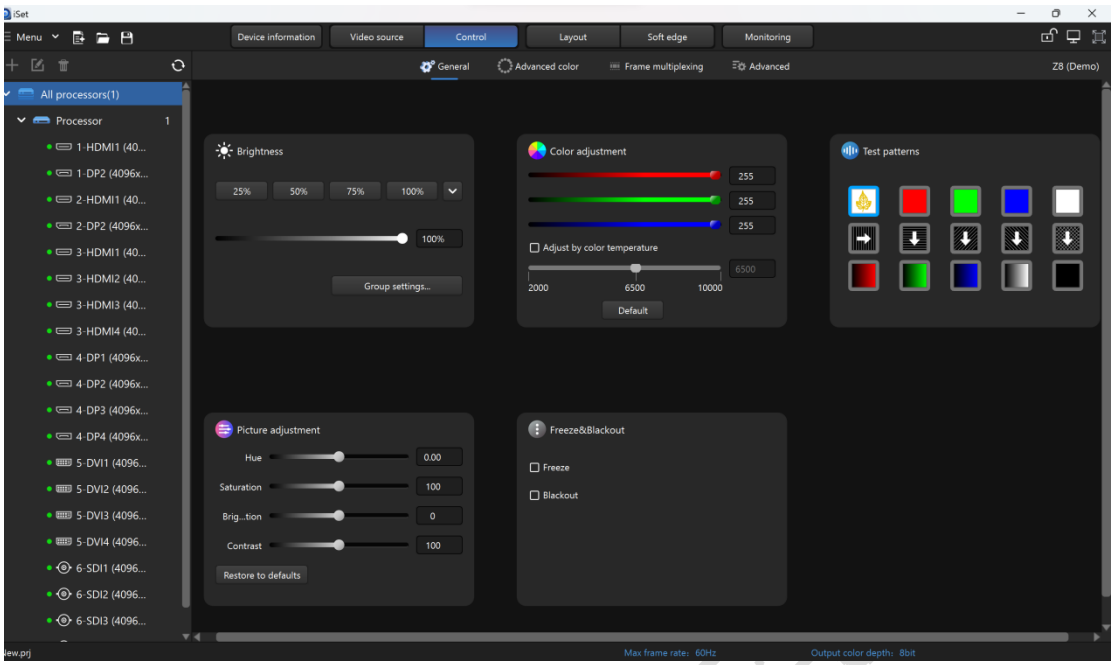


Fig 4.6-7 Parameter configuration area for a single processor

➢ Brightness

Support brightness adjustment of the processor. You can do quick setting using 4 presets or the slider. The 4 presets can be customized, ranging from 0% to 100%.

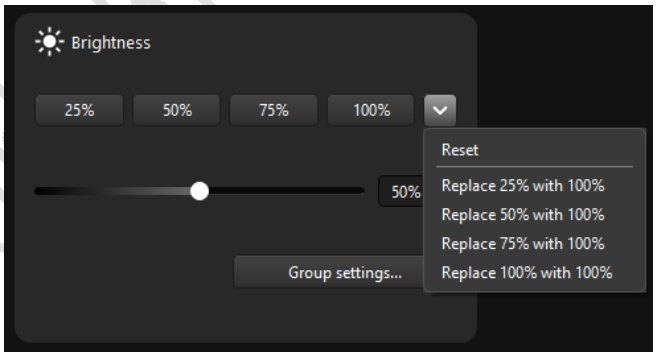


Fig 4.6-8 **Brightness**

You can adjust some types of the processors' Ethernet ports. After entering the interface, different number of groups will appear according to the type of the processor. Each group can be renamed and customized to set the output port, and an output port can only be assigned to one group. After setting the output ports, you can adjust the brightness of the outputs by

moving the right-side sliders and the spin buttons next to the text fields. The brightness represents the percentage of the overall brightness of the processor.

Figure 4.6-9 **Group settings**

- **Color adjustment**

To adjust the screen color, click the **Adjust by color temperature** checkbox in the **Color adjustment** panel, and drag the slider to custom the color temperature, which ranges from 2000K to 10000K. Click the **Default** button to reset the color temperature to its default value (6500K).

Alternatively, you can change the screen color by adjusting the brightness of RGB.

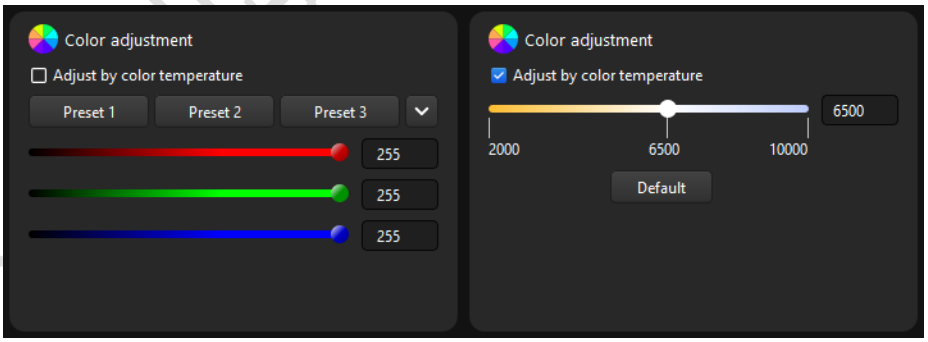


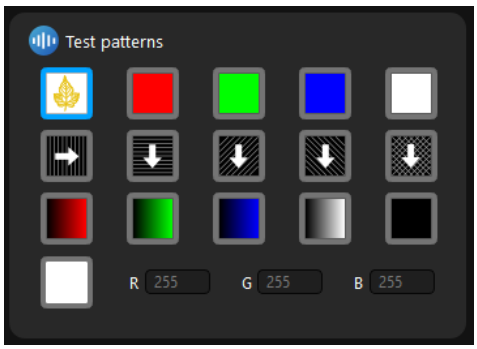
Fig 4.6-10 **Color adjustment**

- **Test patterns**

There are a total of 15 test patterns, the first of which is **Normal**.

You can set test patterns as desired. Click on a certain icon, the LED

display shows the test effect sent by the processor. Run tests and diagnostics using **Test patterns** to view the display effect.



4.6-11 **Test patterns**

- **Picture adjustment**

Adjust the **Hue**, **Saturation**, **Brightness**, and **Contrast**. Select the **Enable** checkbox to activate **Picture adjustment**. Select **Restore to defaults** to gray out the image.

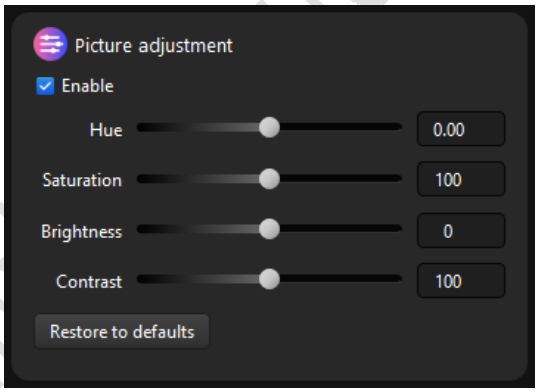


Fig 4.6-12 **Picture adjustment**

- **Freeze & Blackout**
  - **Freeze**

Select the **Freeze** checkbox, and the image on the LED display freezes. The red text **Freeze** appears in the lower right corner.

  - **Blackout**

Select the **Blackout** checkbox, and the LED display goes black. The red text **Blackout** appears in the lower right corner. When Freeze and Blackout

are enabled at the same time, only **Blackout** is displayed in the lower right corner.

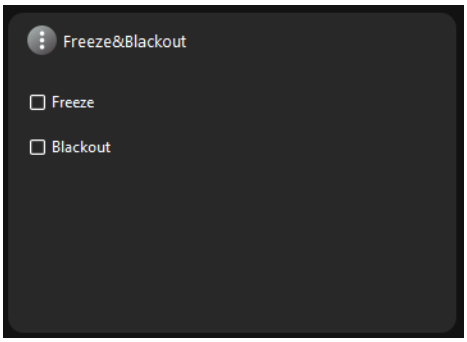


Fig 4.6-13 **Freeze & Blackout**

- **HDR**

High dynamic range (HDR) images provide more dynamic range and image details than normal images.

Fig 4.6-14 **HDR**

- **Advanced color**
  - **Precise color management**

You can modify the color, luminance, and output color space to fit your needs. Go to **Control>HDR**, and select the **HDR dynamic calibration** checkbox in the **HDR** panel. Do operation in the **Without calibration** tab in **Precise color**.

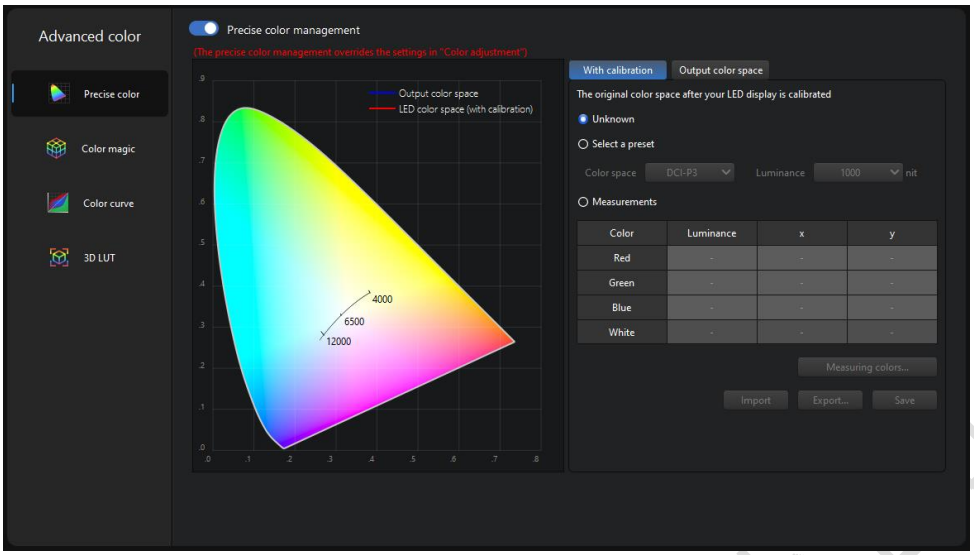


Fig 4.6-15 **Precise color management**

◆ Color magic

You can modify the parameters in **Color magic**.

Slot: Click the drop-down arrow. There are 3 options: 3-HDMI×4, 4-DP×4, and 6-SDI×4.

Signal: Each type of slot echoes 4 signals. Select a signal from the drop-down arrow after selecting a slot.

Export: Click **Export**. Specify a path for saving in the window. You can name the file and click **Save** to export a file.

Import: Click **Import**. Specify a local parameter file in the window and click **Open** to import a file.

Reset: Select **Reset** to reset all parameters. HSV, white, and black have separate reset buttons.

Click the toggle on the upper right corner to enable **Color magic**. The signal name is displayed next to the toggle.

Apply to all signals of the current processor: Select the **Apply to all signals of the current processor** checkbox to apply the configuration to the current processor slots.

Fig 4.6-16 **Color magic**

◆ Color curve

You can adjust color curve to fit your needs.

Like **Color Cube**, **Slot** and **Signals** are selected as required in **Color curve**. You can import, export, reset, and apply to all signals of the current processor.

- Drag the curve to modify parameters.
- Click  to link YRGB.

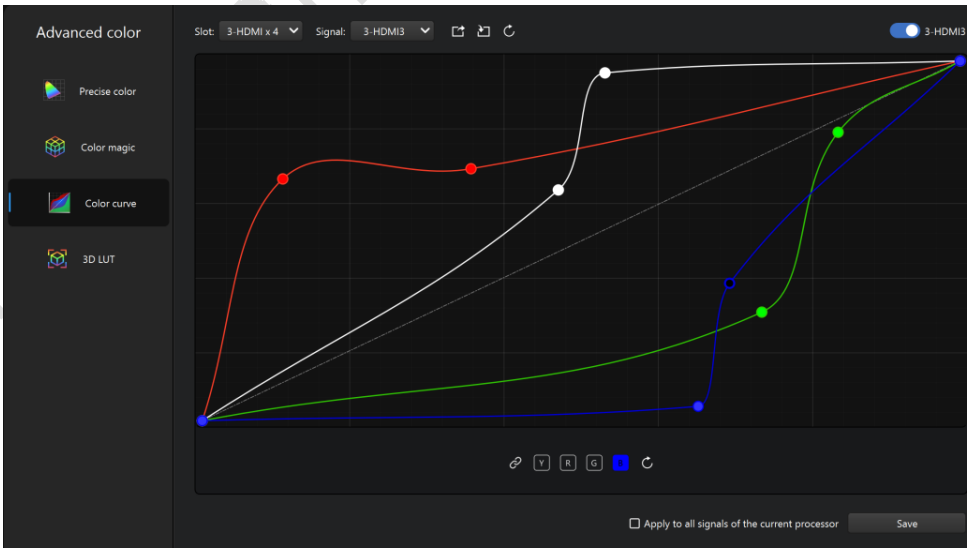


Figure 4.6-17 **Color curve**

◆ 3D LUT

To configure 3D Look-up Table (LUT):

1. Select an option from **Slot** and **Signal**.
2. Click **Browse…**, and an **Import cube file** window appears.
3. Specify the desired file, and click **Open** to enable **3D LUT**.
4. You can adjust parameters using the slider in the view area.

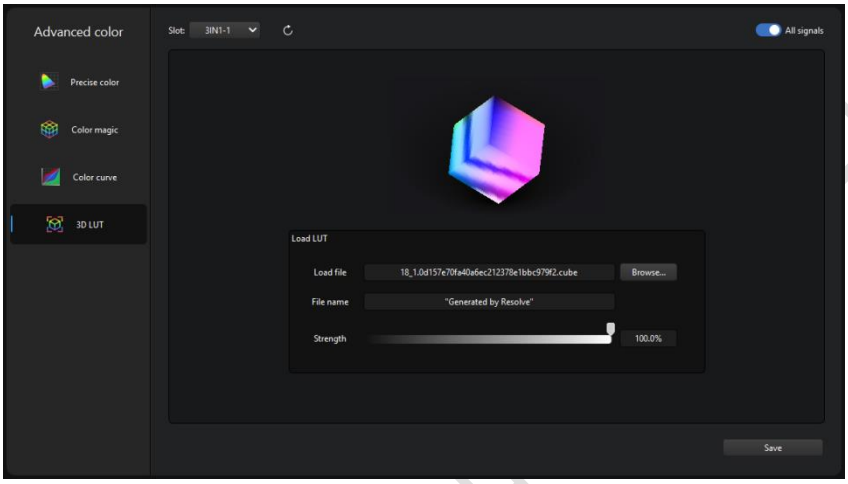


Figure 4.6-18 **3D LUT**

➢ Art-Net

You can set Art-Net with a management software.

Figure 4.6-19 **Art-Net**

➢ 3D

Enable **3D** to output true-to-life images. Nevertheless, the total output

area is half of the original one.

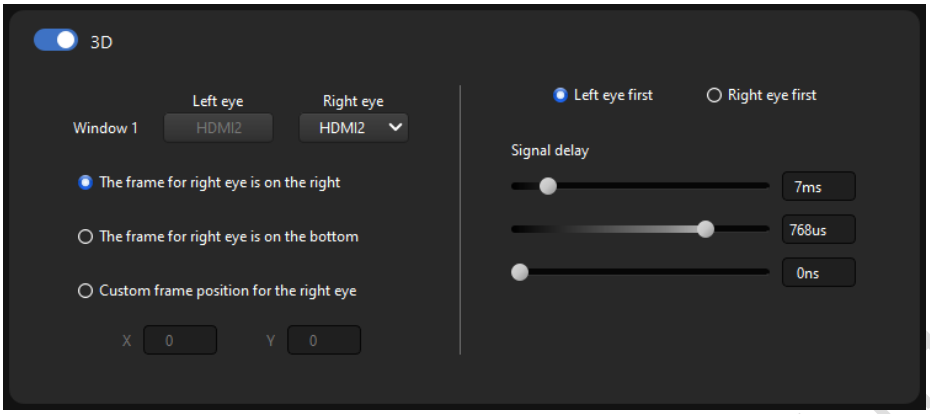


Figure 4.6-20 **3D**

- **Advanced**

Better gray: Select the **Better gray** checkbox to optimize the display effect of the LED screen under low brightness.

Low latency: Select the **Low latency** checkbox to cut the time it takes for the processors and receivers to execute commands.

IP settings…: Set the IP address of the processor.

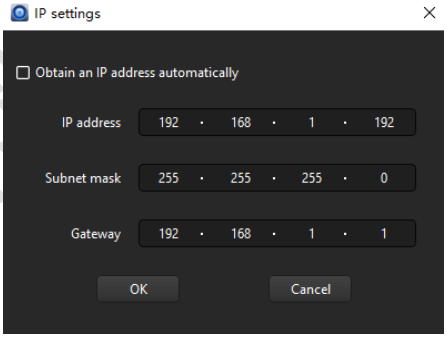


Figure 4.6-21 **IP settings**

VSync delay settings: Properly set the time to ensure the synchronization of the images.

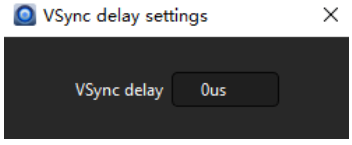


Figure 4.6-22 **VSync delay settings**

Frequency multiplication…: Support multiplication of the frame rate of the input signal. When the input signal is 30Hz, the output is 60Hz using 2x frequency, or 120Hz using 4x frequency.

Restore to factory settings: Restore the processor parameters to factory settings.

- **Frame multiplexing**

Integrate multiple screens into one and the frame rate will multiplex. When frequency multiplication is enabled, frame multiplexing is automatically disabled, and vice versa.

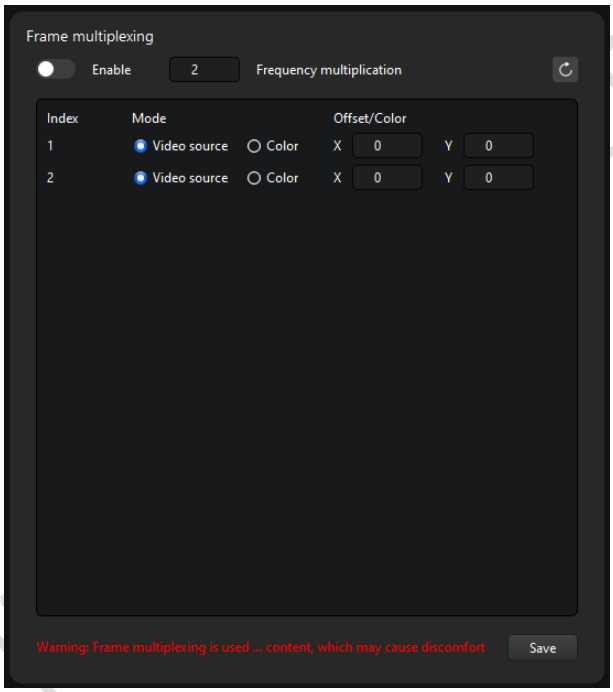


Figure 4.6-23 **Frame multiplexing**

4.7 Soft edge

On the **soft edge** tab, you can quickly correct the seams between modules with a combination of iSet, the processors, and the receivers.

4.7.1 Step-by-Step Guide

1. Click **Read mapping**.
2. Select **Change mode** under **Calibration mode**.
3. Click **Readback** or **Reset to** under **Calibration coefficient**.

4. Select **Seam** under **Display mode**.

5. Select the seam in the view area and click buttons under **Adjustment**.

6. Select **Save coefficient** to save the calibration coefficient.

4.7.2 Interface and Function Description

➢ **Toolbar**

The icons on the toolbar are: **Import**, **Export**, **Individual seam correction mode**, **Perimeter seam correction mode**, **Custom seam selection**, **Normal**, **Hand tool**, and **Zoom**.

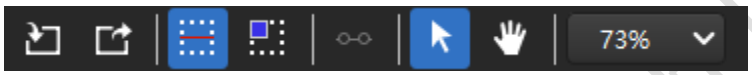


Figure 4.7-1 Toolbar

◆ **Import**

Support importing calibration coefficients. The supported formats are *.3fCoef, *.3wCoef, *.3BCoef, *.9BCoef, *.9fCoef, and *.ccCoef.

◆ **Export**

Select **Export** to export *.3fCoef and *.3wCoef calibration files locally. Support export through a single processor only.

➢ **Seam**

◆ **Individual seam correction mode**

Select **Individual seam correction mode**. Select seams between the cabinets or the seams between the modules when modules are displayed.

Perimeter seam correction mode: Hold **Ctrl** and select multiple seams in the same row or column. Alternatively, click the ruler to select the entire row or column of the seam.

Custom seam selection: Select a seam and click  on the toolbar. The selected seam has two rounds. Drag either of the rounds to select part of the seam.

◆ **Select a cabinet**

To select a cabinet, do any of the followings:

- Select a cabinet with the mouse;
- Drag to frame multiple cabinets;
- Hold **Ctrl** while framing multiple cabinets.

◆ **Custom seam selection**

Custom seam selection is available when you select a seam. After selecting a seam, do any of the followings:

- Click on the **Custom seam selection** button on the toolbar.
- Select **Custom seam selection** on the context menu.
- Press **Ctrl+S**.

Select any round on the seam. The round turns green. And drag the round to adjust the length of the seam.

Click anywhere except for the seam to cancel **Custom seam selection**.

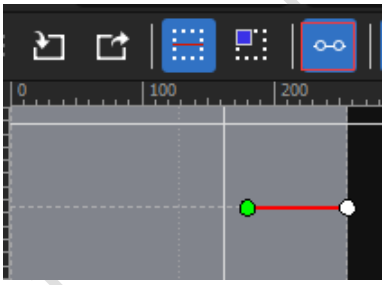


Figure 4.7-2 **Custom seam selection**

◆ **Hand tool**

Move the view area.

◆ **Zoom**

The view area can be zoomed to 25%, 50%, 75%, 100%, 150%, 250%, 500%, or 1000%.

➢ **Seam correction area**

◆ **View area**

You can correct the seam in the view area. The view border displays the ruler. The edges of the cabinet and the modules in the cabinets are wrapped in dotted lines. A crosshair display appears on the mouse cursor, which

allows you to locate the currently selected seam area.

Select the cabinet seam, and the selected seam turns red. You can correct the seams by the pop-up box with three sets of plus and minus buttons. Click on the left plus/minus button to make changes to the left side of the selected seam. Click on the center plus/minus button to adjust the selected seam as a whole. Click on the right plus/minus buttons have to make changes to the right side of the selected seam. The default base is 1.0.

Select a cabinet, the cabinet turns blue and its frame turns red.

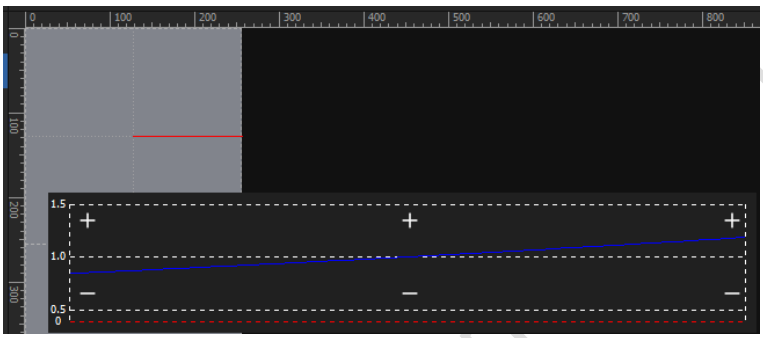


Fig 4.7-3 Seam correction area

- **Context menu**

The context menu of the seam area includes **Individual seam correction mode**, **Perimeter seam correction mode**, **Reset seams for selected cabinets**, **Reset all seams**, **Custom seam selection**, **Import…**, and **Export…**

Display different menu in different modes.

(1) In **Normal** mode, display **Import** and **Export** only.

(2) In **Seam** mode, select **Individual seam correction mode**. Select a seam, and the context menu displays **Individual seam correction mode**, **Perimeter seam correction mode**, **Reset seams for selected cabinets**, **Reset all seams**, **Custom seam selection**, **Import…**, and **Export…**

(3) In **Seam** mode, select **Perimeter seam correction mode**. Select a cabinet, and the context menu displays **Individual seam correction mode**, **Perimeter seam correction mode**, **Reset seams for selected cabinets**, **Reset all seams**, **Custom seam selection**, **Import…**, and **Export…**

➢ Right-side panel

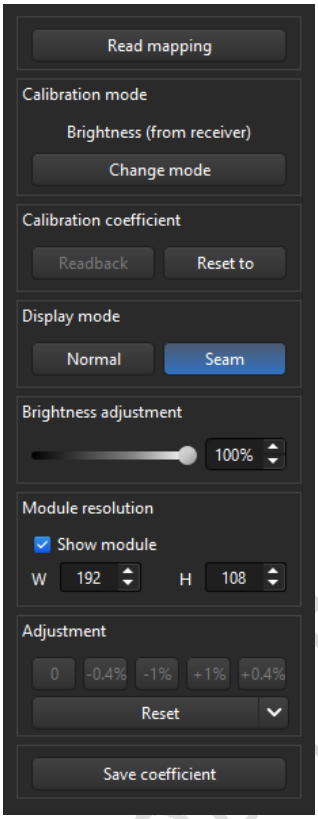


Fig 4.7-4 Right-side panel

◆ Readback mapping

Select **Readback mapping** to get the information of the current processor and the connected receivers.

◆ Calibration mode

Change mode

After enabling **Readback mapping**, select **Change mode**. There’ re 6 options: **Disable calibration**, **Enable brightness (from receiver)**, **Enable chroma (from receiver)**, **Enable brightness (from module)**, **Enable chroma (from module)**, and **No modifications to module calibration coefficients**.

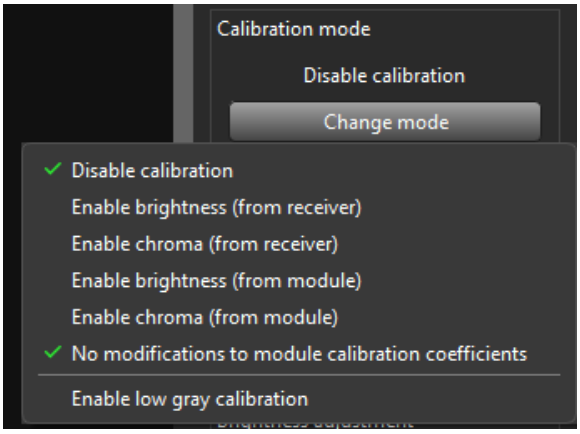


Fig 4.7-5 **Calibration mode**

Disable calibration: Select to disable calibration.

Enable brightness/chroma (from Receivers): The screen is displayed based on the calibration coefficients of the receivers, which store the calibration data. Select **Brightness Calibration** or **Chroma** to do calibration. If the current calibration interface does not match the calibration mode, change the calibration mode to continue.

Enable brightness/chroma (from Module): The screen is displayed according to the calibration coefficients of the modules, which store the calibration data. Select **Brightness Calibration** or **Chroma** to do calibration. If the current calibration interface does not match the calibration mode, change the calibration mode to continue.

No modifications to module calibration coefficients: After selecting **No modifications to module calibration coefficients** and **Enable brightness/chroma (from Module)**, save data to the receivers when you select **Save coefficient**, as shown in Figure 4.7-6.

When you select or deselect **No modifications to module calibration coefficients**, a pop-up window appears, as shown in Figure 4.7-7.

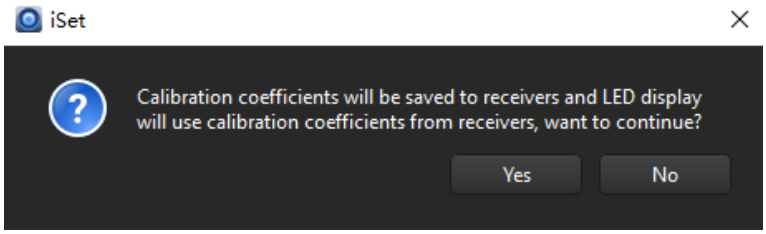


Fig 4.7-6 Calibration mode

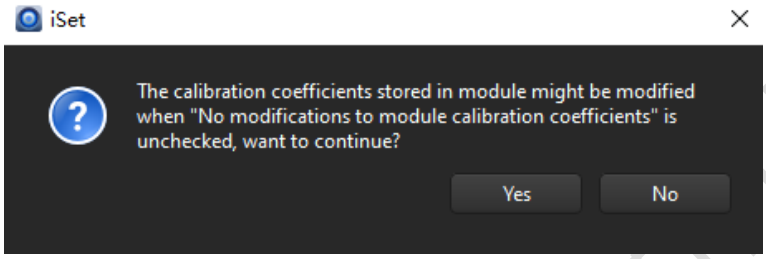


Fig 4.7-7 Calibration mode

◆ **Calibration coefficient**

Readback: Select **Readback** and **Readback from receivers** to readback the calibration coefficient from receivers. If there're smart modules, when you click **Readback**, the **Readback from module** option appears. Select **Readback from module** to readback the calibration coefficient of modules.

Reset to: Reset the calibration coefficient to 0.85, 0.80, 0.75, or 0.70. You can also customize the ratio.

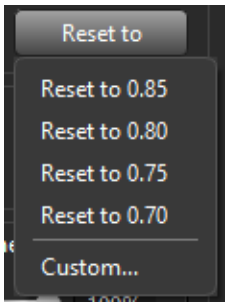


Fig 4.7-8 **Reset to**

◆ **Display mode**

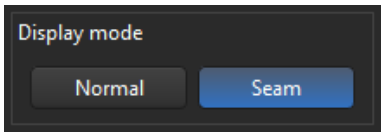


Fig 4.7-9 **Display mode**

Normal: Display content in **Normal** mode. Leave the **soft edge** tab or close iSet to switch from the **Seam** mode to the **Normal** mode.

Seam: In **Seam** mode, you can correct the soft edge. When **Seam** mode is enabled, the system automatically detects if calibration is enabled. If not, you'll see a pop-up window prompting you to enable calibration, which is the prerequisite for seam correction.

Blank screen is displayed in **Seam** mode. You can correct seams with **Module resolution**, **Adjustment**, **Save coefficient**, **Undo** and **Redo**, or **Seam**.

◆ **Brightness adjustment**

In **Seam** mode, you can adjust the brightness using the slider.

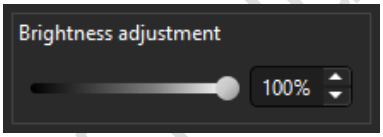


Fig 4.7-10 **Brightness adjustment**

◆ **Module resolution**

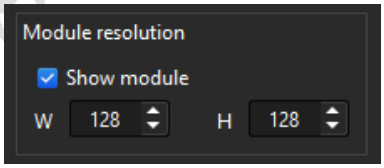


Fig 4.7-11 **Module resolution**

Select the **Show module** checkbox, and enter values in the **W** and **H** fields. Modules are drawn on the cabinet in the view, and the modules are divided by light gray dashed lines. The cabinet displays modules only if the width and height of the cabinet are both divisible by that of the module.

Select the **Show module** checkbox, the default size is 1/2 of the cabinet, ranging from 1 to 1024. You can change the cabinet size using the spin button

or the ↑ and ↓ keys.

◆ **Adjustment**

Adjust the seam using 6 options: **0**, **-0.4%**, **-1%**, **+1%**, **+0.4**, and **Reset**.

Select a seam and correct the soft edge using the above options. The display effect is shown in real time. Without selecting a seam, the options are grayed out.

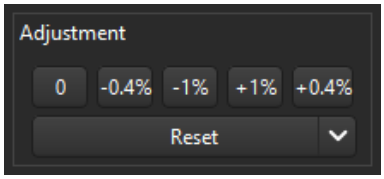


Fig 4.7-12 **Adjustment**

Select a cabinet, the options are grayed out. Select **Reset** to reset the cabinet calibration coefficient.

◆ **Reset**

Reset the calibration coefficient to the default value (1.0). Three options are available:

① **Reset selected seams**: This option is available after selecting seams.

② **Reset seams for selected cabinets**: This option is available after selecting cabinets.

③**Reset all seams**: Reset the coefficient of all cabinets connected to the current processor.

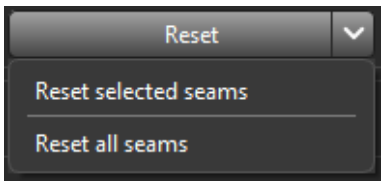


Fig 4.7-13 **Reset selected seams**

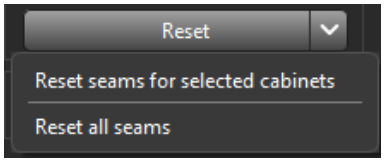


Fig 4.7-14 **Reset seams for selected cabinet**

◆ **Save coefficient**

Click Save coefficient to save the calibration coefficient to the cabinets.

4.8 Advanced Soft Edge

Just like **Soft edge**, the **Advanced soft edge** enables adjusting the display of the seams between modules/cabinets for a uniform brightness across the whole screen. It adopts a set of independent coefficients that can work with the calibration coefficients for better LED display.

4.8.1 Step-by-Step Guide

1. Click **Read mapping**.
2. Click **Change mode** under **Calibration mode** to select one mode or disable the calibration.
3. Select **Enable** under **Cabinet state**.
4. Select **Seam** to enable adjusting the display of the seams.
5. Select target seams or cabinets by clicking on the view area, and then adjust the display of the targets through the increment/decrement buttons under **Adjustment**.
6. Click **Save coefficient** to save coefficients after the adjustment.

4.8.2 Interface and Function Description

➢ **Toolbar**

From left to right, the options on the toolbar under **Advanced soft edge** include: **Import**, **Export**, **Individual seam correction mode**, **Perimeter seam correction mode**, **Custom seam selection**, **Normal**, **Hand tool**, and **Zoom**.

Fig 4.8-1 Toolbar

◆ **Import**

Only the .SeamCoef files can be imported. If the file imported is invalid, a reminding message will be shown. If the file is valid, you will be able to select processors or processor groups on a pop-up window to receive the imported coefficients.

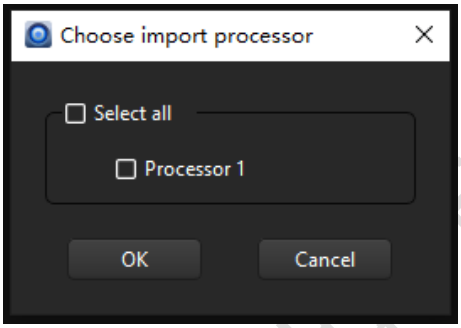


Fig 4.8-2 Select processor in **Choose import processor**

◆ **Export**

Click the **Export** button and then on the pop-up window **Choose export processor**, select a processor that you want to export coefficients from. Next, select a location to save the coefficient file. The name of the file can be changed.

◆ **Individual seam correction mode**

Single seam selection: Click on the view area to select a seam. By default, you will be able to select a seam between cabinets by one click. When **Show module** under **Module resolution** is selected, you will be able to select the seams between modules.

Multi-seam selection: Press and hold the **Ctrl** key and then click on the view area to select multiple seams. Note that only seams of the same row or column can be selected at a time. You can also select a whole line of the seams horizontally or vertically by clicking on relevant points on the ruler of the view area.

Custom seam selection: Select a seam and then click the **Custom seam selection** button. Next, you will see two dots appear at the two ends of the selected seam. Click on either one of the dots and move it to select any part of the seam for adjustment.

◆ **Perimeter seam correction mode**

Click the **Perimeter seam correction mode** button and then click on the view area to select a cabinet. Multi-cabinet selection can also be realized by clicking and dragging cursor in the view area; Or, by pressing the **Ctrl** key as you click target cabinets in the view area.

◆ **Custom seam selection**

When there is a seam selected, the **Custom seam selection** button on the toolbar will be clickable. Right-clicking on the view area will also present you the option for this function. Or, you may enable this function via the "**Ctrl+S**" shortcuts.

Once this function is enabled, two dots will be shown at the two ends of the selected seam. Clicking either of the dots will turn the selected dot into green and make it movable for segmenting the selected seam.

Clicking on places other than the two dots will disable the **Custom seam selection**.

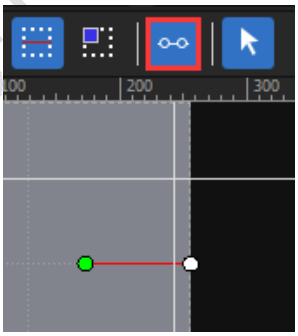


Fig 4.8-3 The button of **Custom seam selection**

◆ **Hand tool**

Click the **Hand tool** button and then you will be able to freely drag the image of cabinets for a desired view in the view area.

◆ **Zoom**

The display of cabinets on the view area can be zoomed in/out. The scale of zooming ranges from 25% to 1000%. Free zooming is achievable by scrolling the mouse wheel with the **Ctrl** key being pressed and held.

- **Advance soft edge view area**

  - **View area**

The view area is the places where seam correction is mainly performed. On the top and left border of the area are rulers. The cabinets and modules shown in the area are separated by dotted lines. Once the **Advance soft edge** is enabled, a cross-shaped guide lines will be shown in the view area, movable with the mouse for positioning the selected area.

A selected seam will be shown in red. When a seam is selected, an operating area will pop up nearby, in which there are three sets of +/-buttons on the left, central, and right side respectively (See Figure 4.8-4). On the middle of the operating area, there is a base line with a starting value (1.0), representing the default status of the seam. Clicking the +/- buttons on the left/right side will slope the base line correspondingly, indicating the adjustment primarily affects the left/right side of the seam. If you want to adjust the seam as a whole, click the central +/- buttons.

In the **Perimeter seam correction mode**, a selected cabinet will be shown in solid blue and its borders will be shown in red.

Fig 4.8-4 The operating area nearby a selected seam

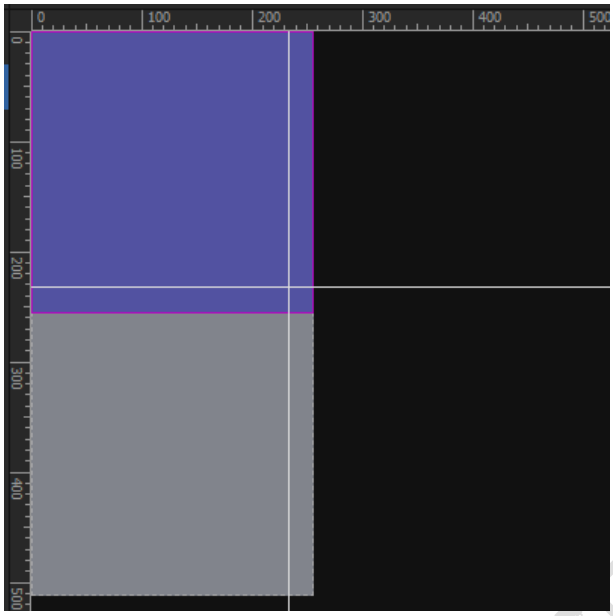


Fig 4.8-5 A selected cabinet on the view area

◆ Context menu

Options on the context menu of the view area under **Advanced soft edge** include:

Individual seam correction mode, **Perimeter seam correction mode**, **Reset seams for selected cabinets**, **Reset for seams surrounding selected cabinets**, **Reset all seams**, **Import...**, and **Export...**

In different modes, the options available on the menu are also different.

(1) In **Normal** display mode, the options available only include **Import...** and **Export...**, which perform the same functions as the **Import** and **Export** buttons on the toolbar.

(2) In **Seam** display mode, when the **Individual seam correction mode** is enabled and there is a seam selected, the options available will include: **Individual seam correction modem**, **Perimeter seam correction mode**, **Custom seam selection**, **Import...** and **Export...**

(3) In **Seam** display mode, when **Perimeter seam correction mode** is enabled and there is a cabinet selected, the options available will include: **Individual seam correction mode**, **Perimeter seam correction mode**, **Reset seams for selected cabinets**, **Reset for seams surrounding selected cabinets**, **Reset all seams**, **Import...**,

and **Export...**

➢ Right-side panel

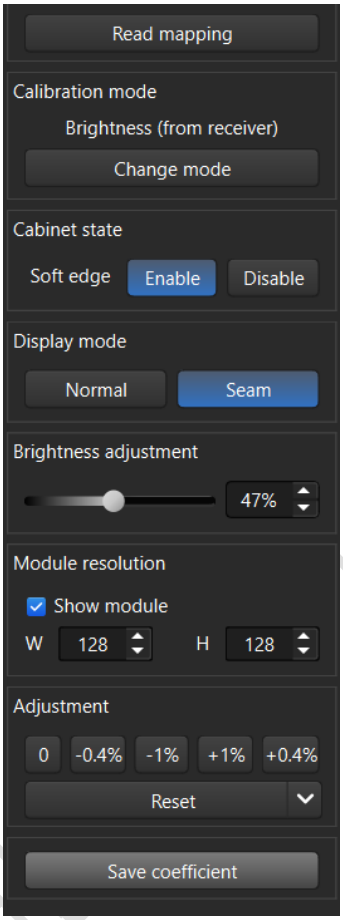


Fig 4.8-6 The panel for seam correction

◆ **Read mapping**

Click **Read mapping** to obtain parameter information of the selected processor and the receivers connected to it.

◆ **Calibration mode**

Show the calibration mode selected for current processor. The mode is adjustable by clicking the **Change mode** and selecting from the drop-down menu. Note that in **Advanced soft edge mode**, seam correction can be performed even when calibration is disabled.

◆ **Cabinet state**

Seam correction can be enabled or disabled by clicking corresponding

button. The effect of the seam correction can be seen from the LED screen only when the **Soft edge** is enabled.

◆ **Display mode**

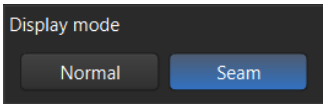


Fig 4.8-7 Options under the **Display mode**

Normal: The LED screen displays normally when the **Normal** display mode is selected. In this mode, seam correction cannot be performed. Note that leaving the **Advanced soft edge** tab or closing iSet will make the display automatically switch to **Normal** mode.

Seam: Seam correction can be performed when the **Seam** display mode is selected. In **Advanced soft edge** mode, an enabled calibration mode is not the prerequisite. The LED screen will display solid white once enabling the **Seam** mode. In this mode, the module size and coefficients can be adjusted, and options such as **Save coefficient**, **Reset**, **Individual seam correction mode**, and **Perimeter seam correction mode** are also available for seam correction.

◆ **Brightness adjustment**

In **Seam** display mode, brightness of the LED display is adjustable by moving the handle of the slider.

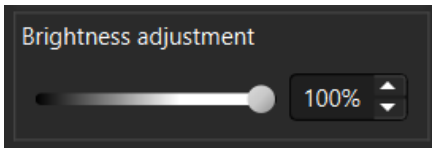


Fig 4.8-8 Adjust the LED display brightness

Module resolution

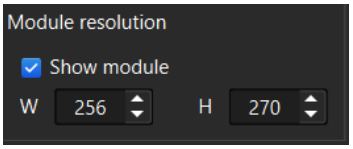


Fig 4.8-9 Adjust the module resolution

Select **Module resolution** and then enter the width and height of the module in the **W** and **H** input boxes respectively. Then modules of this size will be shown in the view area. Note that this setting will not be valid if the width and height of the cabinet is not divisible by that of the module.

By default, the size of the module is half that of the cabinet, with the width and height adjustable within the range of 1~1024. You can adjust the size by entering desired figures in the input boxes, or clicking the spin buttons, or simply by pressing the ↑ and ↓ keys.

◆ **Adjustment**

This area is for seam correction, containing 5 increment/decrement buttons (**0**, **-0.4%**, **-1%**, **+1%**, and **+0.4%**), and several options for **Reset**.

The 5 increment/decrement buttons are not available if there is no seam selected. When a seam is selected, you can click one of the 5 buttons to directly adjust the seam to the corresponding extend and the effect can be seen from the LED screen in real time.

When a cabinet is selected, the adjustment will take effect to the cabinet borders. The 5 buttons and the options for **Reset** are all clickable in this case.

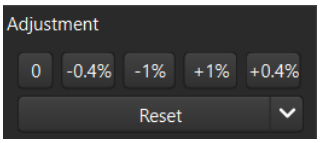


Fig 4.8-10 Buttons and options for seam correction

◆ **Reset**

Clicking **Reset** will reset the seam correction coefficients to the default value (1.0). There are several options for **Reset**:

①**Reset selected seams**: This option is available once a seam is selected. Selecting it enables resetting coefficients of the selected seam.

②**Reset seams for selected cabinets**: This option is available once a cabinet is selected. Selecting it enables resetting coefficients of the selected cabinet.

③**Reset for seams surrounding selected cabinets**: This option is available once a cabinet is selected. Selecting it enables resetting coefficients of the borders of the selected cabinet.

④**Reset all seams**: Selecting it enables resetting coefficients of all cabinets controlled by the processor.

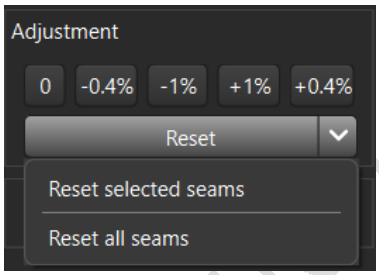


Fig 4.8-11 Options for resetting coefficients of the selected seam

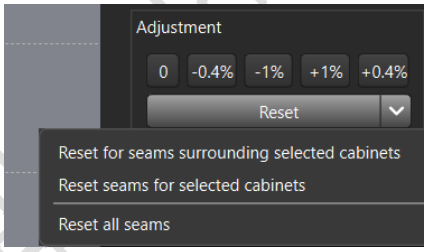


Fig 4.8-12 Options for resetting coefficients of the selected cabinet

◆ **Save coefficient**

The coefficients after adjustment under the **Advanced soft edge** can be saved to the cabinets by clicking the **Save coefficient** button.

4.9 Calibration

The aim of calibration is to ensure the uniform brightness and chroma of the LED screen for better display with the help of software, processor and receiver.

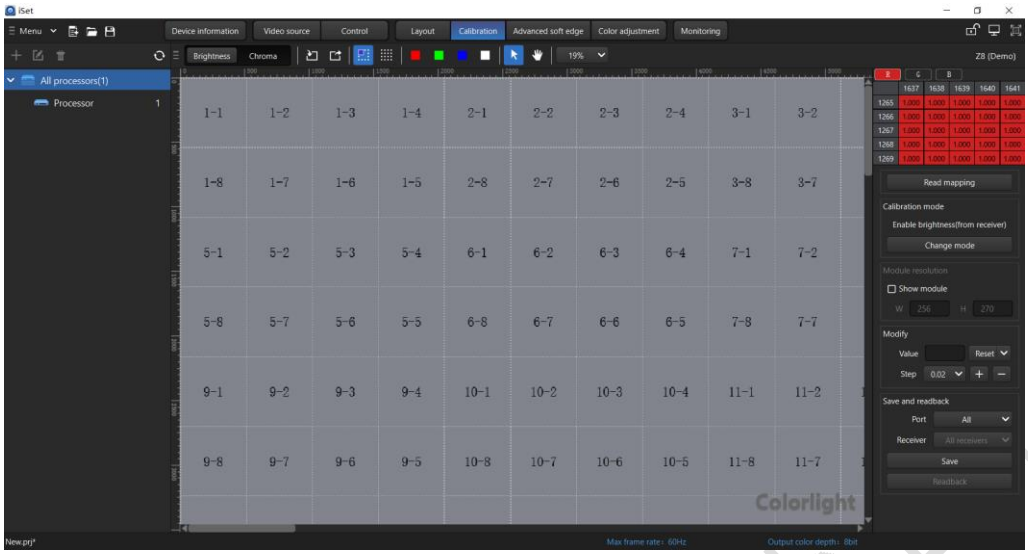


Fig 4.9-1 The interface of **Calibration**

4.9.1 Step-by-Step Guide

Edit by receiver

1. Click **Read mapping.**
2. Select a calibration mode under **Change mode**.
3. Select **Show module**, and modify the calibration coefficients based on modules, or modify based on cabinets with the **Show module** unselected.
4. Select target modules or cabinets and then modify the calibration coefficients by entering figure into the input box or by using the spin buttons.
5. After calibration, click **Save** to save the new coefficients to receivers.

Pixel edit mode

1. Click the **Pixel edit mode** button on the toolbar.
2. Click **Read mapping.**
3. Select a calibration mode under **Change mode**.
4. Select an area for calibration by clicking the **Area selection** button or by dragging the mouse on the view area. Then, modify the calibration

coefficients by entering a desired value in the input box or using the spin buttons under **Modify**.

5. Click **Save** to save the coefficients after calibration to receivers.

4.9.2 Interface and Function Description

➢ **Toolbar**

Edit by receiver is the default calibration mode. In this mode, buttons available from the toolbar are shown as Figure 4.9-1. From left to right, the buttons are: **Brightness, Chroma, Import, Export, Edit by receiver, Pixel edit mode, Red, Green, Blue, White, Normal, Hand tool**, and **Zoom**.

In **Pixel edit mode**, buttons available from the toolbar are shown as Figure 4.9-2. From left to right, the buttons are: **Brightness, Chroma, Import, Export, Edit by receiver, Pixel edit mode, Red, Green, Blue, White, Area selection, Copy**, and **Paste**.

Fig 4.9-2 Toolbar in **Edit by receiver** mode

Fig 4.9-3 Toolbar in **Pixel edit mode**

◆ **Brightness calibration**

Brightness calibration can help to achieve the uniform brightness across the LED screen by adjusting the brightness coefficients of the color red, green, and blue.

◆ **Chroma calibration**

Chroma calibration can help to achieve the uniform chroma across the LED screen by adjusting the 9 coefficients, namely, Rr, Rg, Rb, Gr, Gg, Gb, Br, Bg, and Bb. Note that the aim of performing chroma calibration is not for a correct chroma display, but for a uniform chroma across the LED screen. If a screen has to be calibrated for its chroma, the screen will exhibit color

deviation after chroma calibration in most cases.

◆ **Import**

There are 4 options available for importing calibration coefficients, namely, **Import**, **Specified area**, **Import by tile**, and **Per block**.

For the import in **Brightness** calibration mode, applicable coefficient files include the normal format (*.3fCoef, *.3BCoef, and *.3wCoef files), Radiant format (Radiant(.txt) file), and color space format (ccCoef(*.ccCoef) file).

For the import in **Chroma** calibration mode, supported coefficient formats include the normal format (*.9fCoef, *.9BCoef, and *.9wCoef files), Radiant format (Radiant(.txt) file), and color space format (ccCoef(*.ccCoef) file).

The coefficient files can only be imported to one processor. If there are multiple processors, select one processor to receive the imported calibration coefficient file first.

Import

Select **Import** to import calibration coefficients for all cabinets loaded by the selected processor.

Specified area

When **Specified area** is selected for import, a pop-up window will be shown asking you to select a start position by entering a coordinate (**X**, **Y**). The size of the physical screen will be shown on top of the window. The length of the imported X axis equals to the length of the screen X axis minus that of the start position X axis. The same applies to the Y axis.

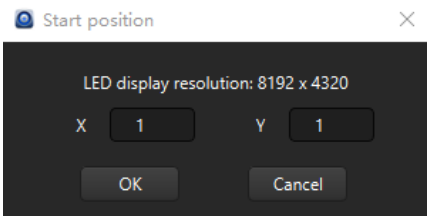


Fig 4.9-4 Edit the coordinate for the start position

Import by tile

Select **Import by tile** and then select the coefficient file you want to import. Applicable coefficient formats include the normal, Radiant, and color space formats.

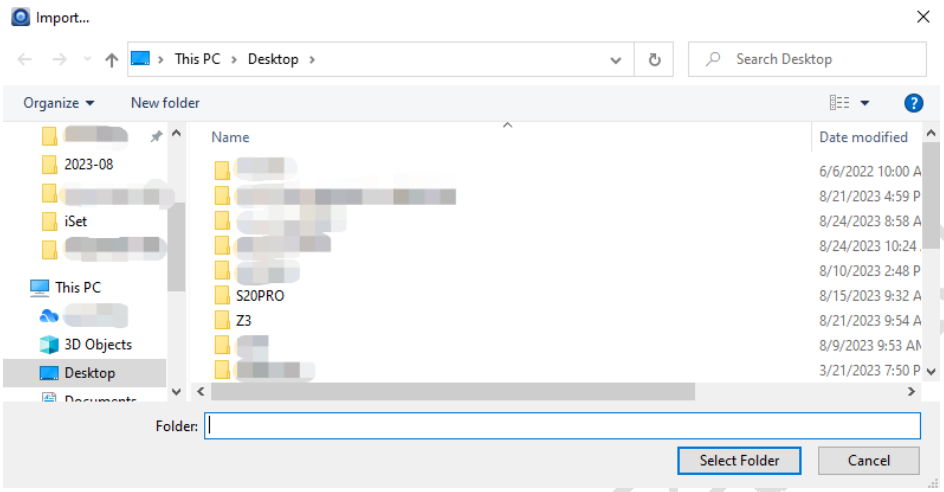


Fig 4.9-5 Select the coefficient file for **Import by tile**

Per block

Before selecting **Per block...** for importing, there must be data exported by block. Once you select the option, a pop-up window **Import by block** will be shown. See Figure 4.9-6.

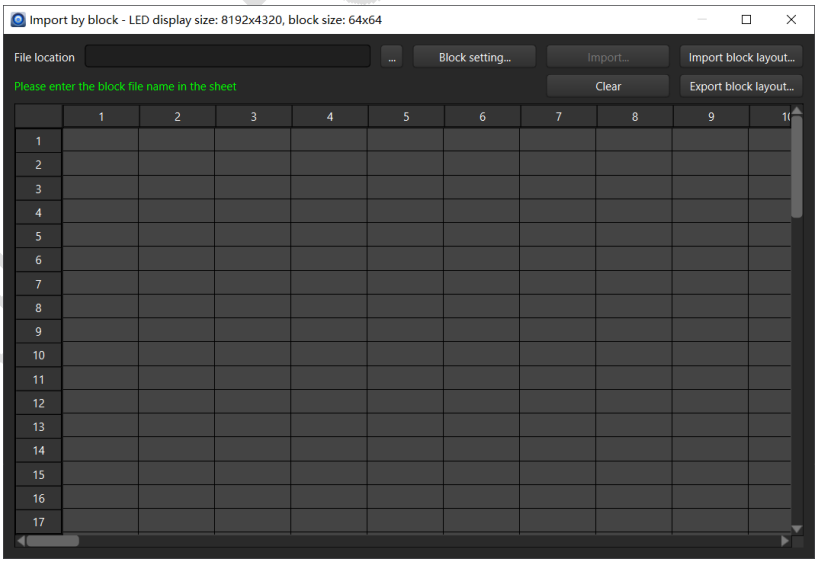


Fig 4.9-6 Pop-up window for **Import by block**

Click  to select a file folder that contains the calibration coefficients to be imported. Then, click **Block setting...** to complete the setting of block

size according to the existed calibration data exported by block. See Figure 4.9-7.

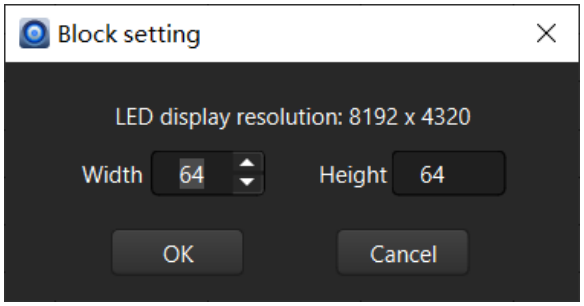


Fig 4.9-7 Pop-up window of **Block setting**

After **Block setting**, double-click the blocks to enter corresponding file name of the block (see Figure 4.9-8). The file name can be imported through the **Import block layout...** if there is any block layout exported before. Clicking the **Export block layout...** can save the setting to local PC.

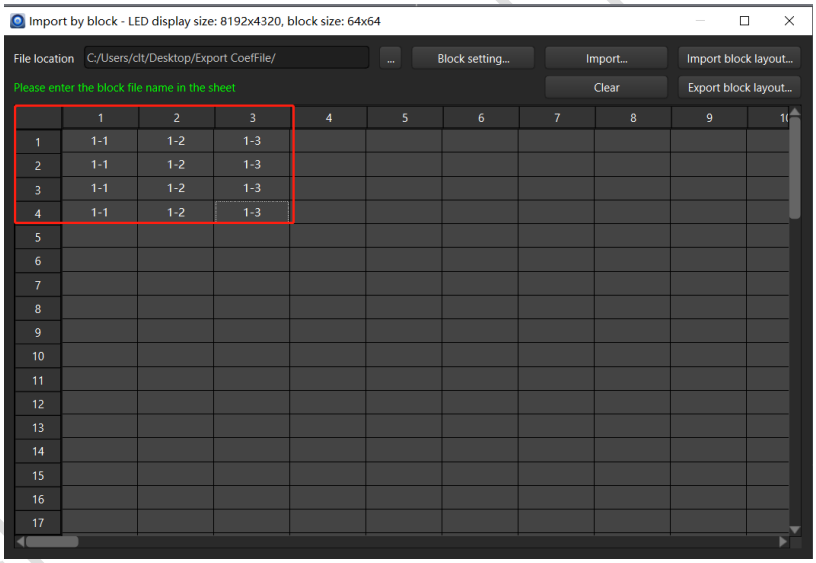


Fig 4.9-8 Enter block file name for **Import by block**

After completing the above settings, you may click Import... to import the coefficients.

- **Export**

There are 4 options available for exporting calibration coefficients, namely, **All pixels...**, **Specific area...**, **Export**, and **Per block...**

For the export in **Brightness** calibration mode, the coefficients will be

exported in formats of *.3fCoef, *.3BCoef, and *.3wCoef.

For the export in **Chroma** calibration mode, the coefficients will be exported in formats of *.9fCoef, *.9BCoef, and *.9wCoef.

The coefficients exported are from one processor. If there are multiple processors, select one processor before exporting.

All pixels...

This option enables exporting calibration coefficients of all cabinets loaded by the processor.

Specific area

When **Specific area** is selected for export, a pop-up window will be shown asking you to enter the coordinate (**X**, **Y**) and size (**Width** and **Height**) of the selected area. See Figure 4.9-9.

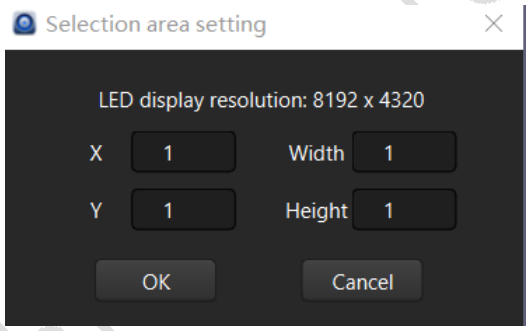


Fig 4.9-9 Pop-up window for **Selection area setting**

Export

This option enables exporting calibration coefficients of all cabinets loaded by the processor.

Per block...

The settings for export by block should be completed on a pop-up window. See Figure 4.9-10. Select a format for coefficients to be exported. Then click **Block setting...** to decide the size of the blocks. The file names will be generated automatically. See the area highlighted by the red rectangle in Figure 4.9-10.

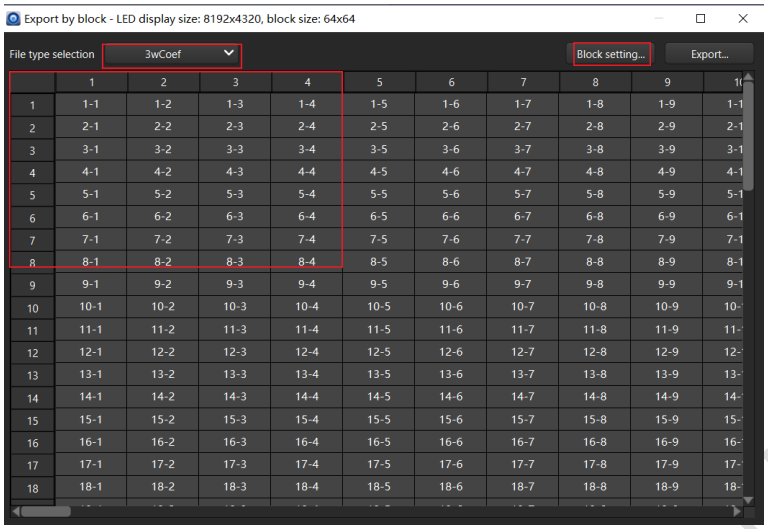


Fig 4.9-10 Pop-up window of **Export by block**

◆ **Edit by receiver**

Edit by receiver is the default calibration mode. In this mode, you can select cabinets or modules of a cabinet to adjust calibration coefficients and save the settings by cabinet.

◆ **Pixel edit mode**

When **Pixel edit mode** is selected, you can modify a minimum of one pixel and the calibration coefficients will be saved in pixel.

◆ **Red, Green, Blue, White**

You can select one of the 4 color buttons (See Figure 4.9-11) to make the LED screen display corresponding color on full screen.

Fig 4.9-11 Colors available on the toolbar

◆ **Hand tool**

This button is only available in **Edit by receiver** mode. Click the **Hand tool** button and then you will be able to drag the visible part of the view area in a desired direction.

◆ **Area selection**

This button is only available in **Pixel edit mode**. You can enter the

coordinate (**X, Y**) of the start position and the size (**Width** and **Height**) of a desired area on a pop-up window. See Figure 4.9-12.

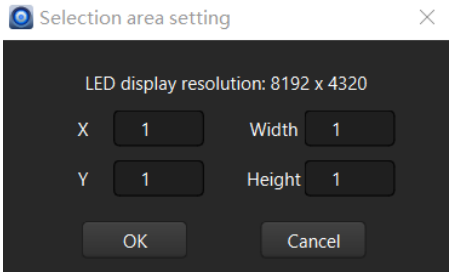


Fig 4.9-12 Pop-up window of **Selection area setting**

- **View area of Calibration**
  - **View area**

The view area is the main interface to perform calibration. By clicking the **Brightness** or **Chroma** button on the toolbar, you can have the corresponding view area for the two calibration modes. Both the two modes have two view areas for different edit modes: **Edit by receiver** and **Pixel edit mode**.

Brightness calibration

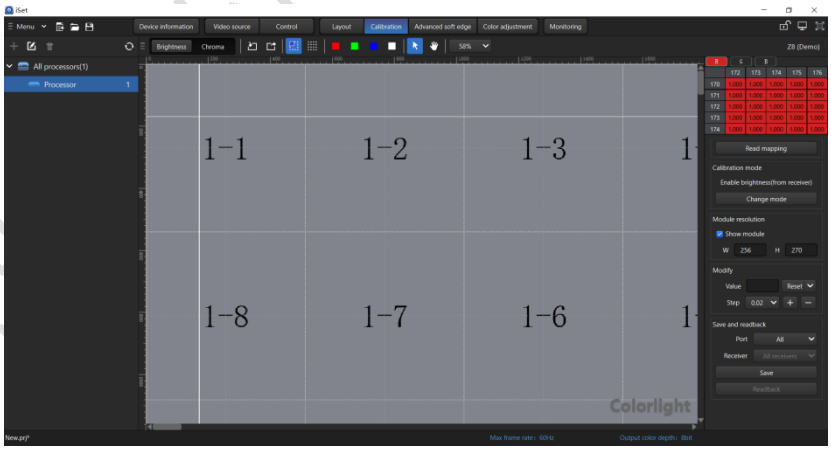


Fig 4.9-13 View area in **Edit by receiver** mode

On the top and left borders of the view area, there are rulers. The layout of the cabinets is shown in the area and cabinets are separated by dotted lines. A cross-shaped guide lines will also be shown in the view area,

movable with the mouse for positioning.

A cabinet in the area can be selected by clicking, and multi-selection can be realized by pressing **Ctrl** key as you click target cabinets. You can also select multiple cabinets at a time by dragging the mouse in the view area.

The context menu is only available after you select a cabinet. When you select only one cabinet, on the context menu you may find **Copy, Save to receiver, Readback from receiver, Import**, and **Export**. When you select multiple cabinets, available options from the context menu include: **Save to receiver** and **Readback from receiver**. When you select **Show module** under **Module resolution**, select one module and then the context menu provides 3 options: **Copy**, **Import by module**, and **Export by module**.

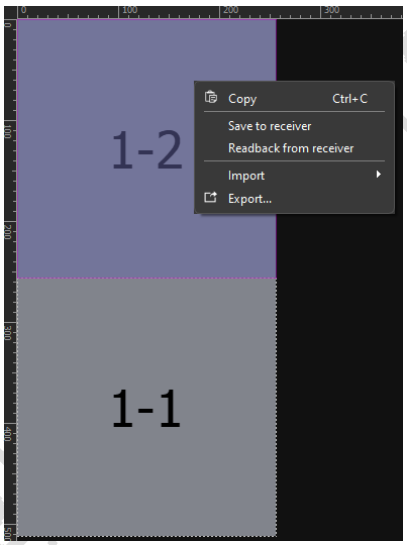


Fig 4.9-14 The context menu when only one cabinet is selected

On the top right corner of the interface, there are 3 buttons: R, G, and B, indicating the color red, green, and blue respectively. Clicking one of the buttons will show you calibration coefficients of corresponding color. Below the 3 buttons, there is a coefficient sheet. As you navigate the view area with your mouse, the sheet dynamically adjusts its content, continuously displaying the coordinates of the 5 points closest to the cursor.

You can switch to the **Pixel edit mode** via the corresponding button on the toolbar.

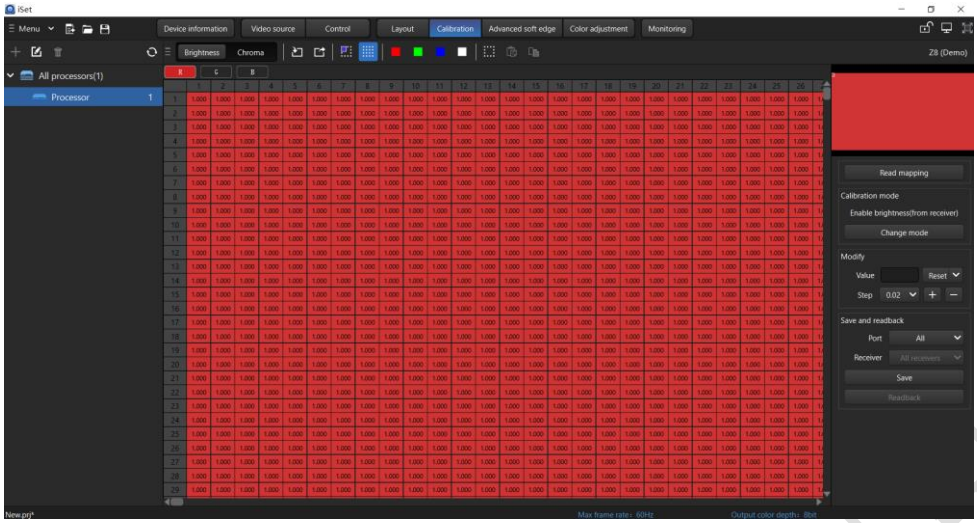


Fig 4.9-15 View area in **Pixel edit mode**

On the top left corner of the view area, 3 buttons (**R**, **G**, and **B**) are available for showing calibration coefficients of color red, green, and blue. The grids on the main area below represent all pixels of the LED screen, and a selected grid will have different background color. The blank block at the left corner of the area is a functional button that supports selecting all pixels on the area by one click. On the right and bottom side of the area are the scrollbars for positioning.

A pixel in the area can be selected by clicking. You can also select multiple pixels at a time by dragging the mouse in the view area.

The context menu is only available from the pixel you have selected. When you select pixels, on the context menu you can find the option of **Copy**. If you copy one or multiple pixels at a time, the next time on the context menu, the option of **Paste** will be available. If you want to paste pixels on the area, click **Paste** and then enter the coordinates (**X**, **Y**) of the start position on a pop-up window.

On the top right of current interface, there is a small window representing the physical screen and showing the currently editing color. On the window you can find a small white box. The box represents the part of the screen that is shown in the view area on the left side. If you have selected pixels in the view area, the color of the corresponding position on the small window will also change.

Chroma calibration

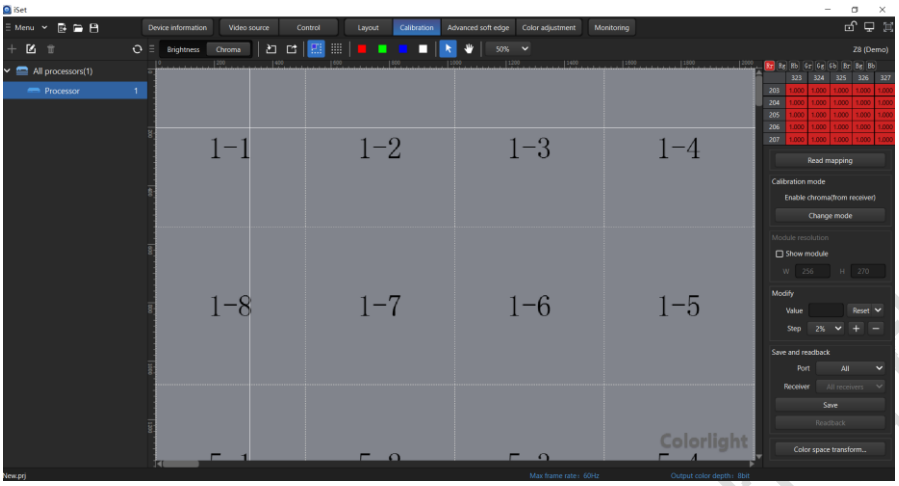


Fig 4.9-16 View area in **Edit by receiver mode**

Similar to the view area of **Calibration**, on the top right corner of the interface, there is an operating area for **Chroma** calibration, including 9 buttons (**Rr, Rg, Rb, Gr, Gg, Gb, Br, Bg**, and **Bb**) and one coordinate sheet. The operating principle is the same as that for **Brightness** calibration.

Compared with **Brightness** calibration, **Chroma** calibration offers one additional feature called **Color space transform...**

For the **Pixel edit mode** in **Chroma** calibration mode, the number of the buttons for calibrating coefficients on top of the view area increases from 3 in **Brightness** calibration mode to 9, with the same operating principle.

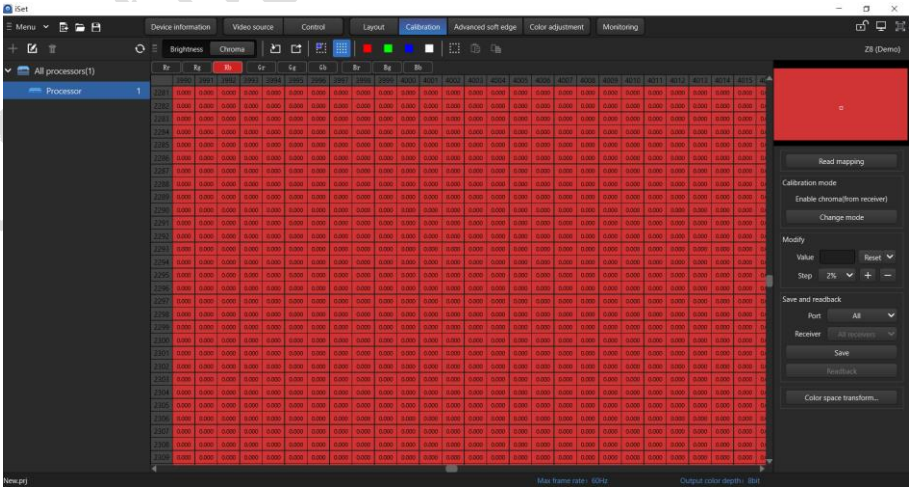


Fig 4.9-17 View area in **Pixel edit mode**

➢ Right-side panel

The right-side panel for calibration contains 6 segments: **Read mapping**, **Calibration mode**, **Module resolution**, **Modify**, **Save and readback**, and **Color space transform...** See Figure 4.9-18. Note that the segment **Module resolution** is only available in **Edit by receiver** mode, and segment **Color space transform...** is only available in **Chroma** calibration mode.

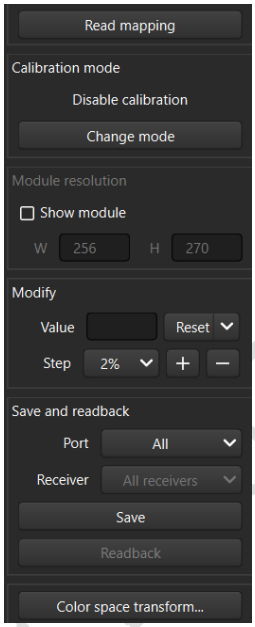


Fig 4.9-18 The panel for setting calibration coefficients

◆ Read mapping

Click **Read mapping** to obtain parameter information of the selected processor and the receivers connected to it.

◆ Calibration mode

With the parameter information obtained from clicking **Read mapping**, you will be able to view the calibration mode that is currently applied. The mode can be changed if necessary. There are 4 available options under **Change mode**: **Disable calibration**, **Enable brightness/chroma (from receiver)**, **Enable brightness/chroma (from module)**, and **Software simulation**.

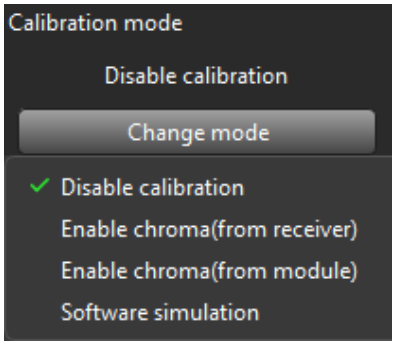


Fig 4.9-19 The 4 possible calibration modes

Disable calibration: The system is not performing calibration.

Enable brightness/chroma (from receiver): The LED screen displays based on the calibration coefficients saved within the receiver. In Brightness calibration mode, this option is shown as **Enable brightness (from receiver)** and can be changed to other options if the currently shown calibration mode is not consistent with the actual mode that the receiver is currently in. The same principle applies to Chroma mode.

Enable brightness/chroma (from module): The LED screen displays based on the calibration coefficients saved within the receiver. In Brightness calibration mode, this option is shown as **Enable brightness (from module)** and can be changed to other options if the currently shown calibration mode is not consistent with the mode that the modules are currently in. The same principle applies to Chroma mode.

Software simulation: The LED screen displays calibration effect in real time.

- **Show module**

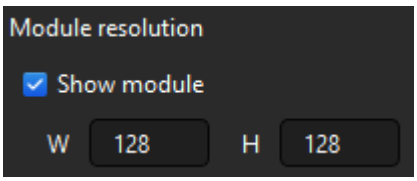


Fig 4.9-20 Enter size of the module into the input boxes

Select **Show module**, and then enter a module size into the input boxes **W** (width) and **H** (height). The cabinets on the view area will then show modules of the set size. Note that the width and height of the cabinet should

be divisible by that of the module, otherwise the modules cannot be shown within the cabinets in the view area.

By default, the size of the module is half that of the cabinet, with the width and height adjustable within the range of 1~1024. You can adjust the size by entering desired figures in the input boxes, or clicking the spin buttons, or simply by pressing the ↑ and ↓ keys.

When the cabinets have intelligent modules, the size of the module cannot be adjusted.

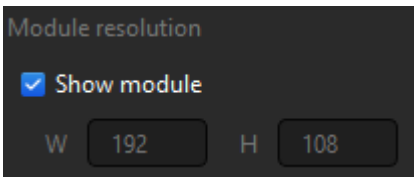


Fig 4.9-21 Module size nonadjustable for cabinets with intelligent modules

When the cabinets loaded by the current processor do not have modules, there will not be any modules shown on the view area even if the option has been selected. See the left side of Figure 4.9-22. When some of the cabinets loaded by the processor have modules while some don’ t, the display of the view area is shown as on the right side of Figure 4.9-22. In the view area, a green dot indicates the existence of module while a red dot indicates the absence of module.

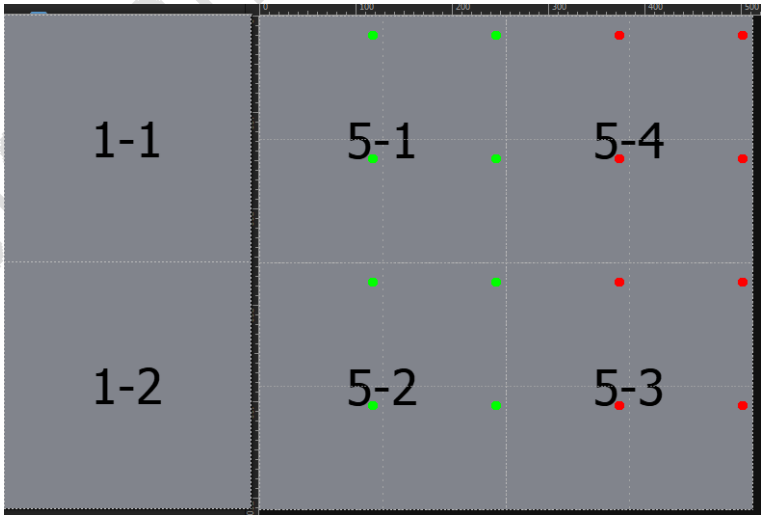


Fig 4.9-22 The view area when **Show module** is selected

- **Modify**

The calibration coefficients of the selected cabinets or pixels can be modified. The maximum value of the coefficient is 1 and the minimum is 0. You can enter a desired value into the **Value** input box, which supports up to 3 decimal places. Or, you can adjust the value through the **Step** spin button below, which provides the following increments: **0.02**, **0.01**, **0.005**, **5%**, **2%**, **1%**, **1/63**, and **1/255**. You can also reset all coefficients through the **Reset** button, which includes 6 options: **Reset to 1.00**, **Reset to 0.85**, **Reset to 0.80**, **Reset to 0.75**, **Reset to 0.70**, and **Custom...**

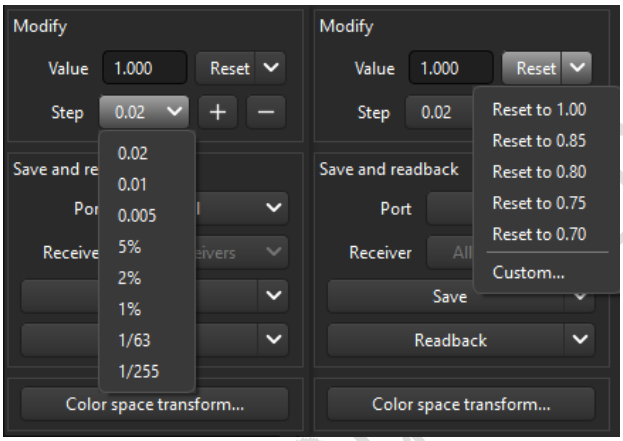


Fig 4.9-23 Modify the calibration coefficients

◆ **Save and readback**

iSet supports saving and reading back calibration coefficients. By default, all network ports and receivers are selected for coefficient saving and readback, and you can click the **Port** and/or **Receiver** menus to select a specific port and/or receiver for the operation.

◆ **Color space transform**

You can modify the color space value for a more accurate color display.

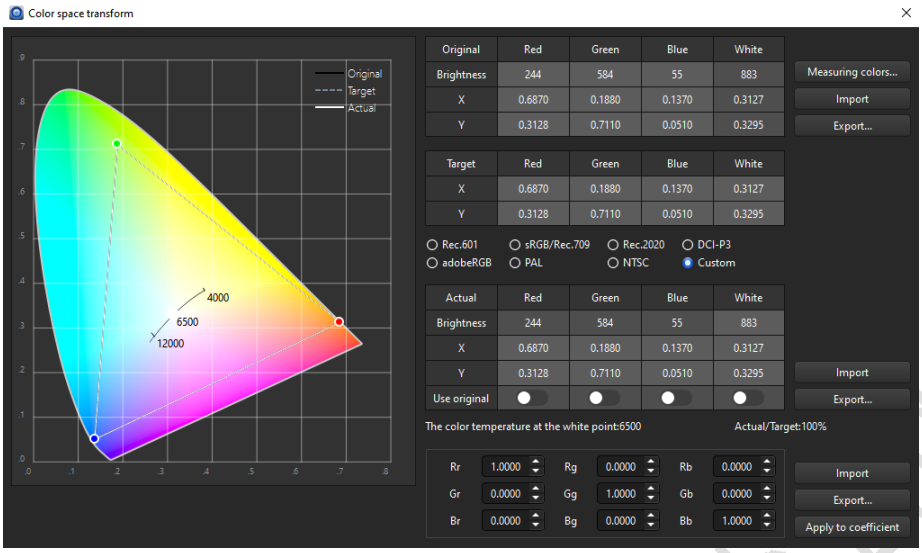


Fig 4.9-24 Interface of **Color space transform**

4.10 Color Adjustment

Color adjustment is performed for a desired color display on the LED screen. This tab is composed of 3 areas: toolbar, view area, and parameter setup area.

4.10.1 Step-by-Step Guide

Original color space unknown

1. Click **Read mapping**.
2. Select a cabinet in the view area and then switch on the **Enable adjustment** toggle button.
3. Click **Visual adjustment...** to carry out simple color adjustment.
4. If the color display after adjustment is not what you expect for, click **Reset** for another try.

Original color space measured

1. Click **Read mapping**.
2. Select a cabinet in the view area and then switch on the **Enable adjustment** toggle button.
3. Click **Original color space...** to finish setting the original color space, and then select to perform **Visual adjustment...**, **Advanced**

adjustment..., **Color matching across batches...**, or **Select the same batch** if necessary.

4. If the color display after adjustment is not what you expect for, click **Reset** for another try.

4.10.2 Interface and Function Description

➢ **Principle of color adjustment**

1. Actual color gamut = Original color gamut × Color matrix
2. You can first set a target color gamut and then modify the 9 chrominance components of the color matrix to achieve the target gamut.

Fig 4.10-1 Color matrix

➢ **Toolbar**

There are 3 buttons/options on the toolbar: **Normal**, **Hand tool**, and **Zoom**.

Fig 4.10-2 Toolbar

➢ **View area**

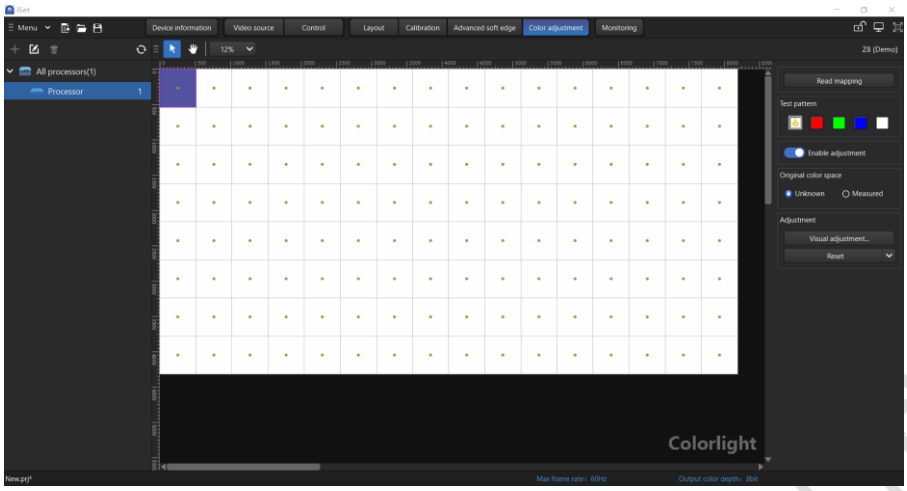


Fig 4.10-3 View area

◆ **View area display**

The view area displays all cabinets and indicates whether the cabinets support color adjustment and whether there are cabinets from multiple batches supporting color adjustment.

Click **Read mapping** to obtain parameter information of the screen. Then, in the middle of a cabinet shown in the view area, there will be an icon indicating whether the cabinet supports color adjustment. There are 3 possible icons:

: The cabinet does not support color adjustment.

: The cabinet supports color adjustment but the adjustment has not been enabled.

: The cabinet supports color adjustment and the adjustment has been enabled.

You can select cabinets that support color adjustment. Once selected, the cabinets will be colored in the view area. If there are cabinets of multiple batches supporting color adjustment, they will be colored differently by batches for distinction.

➢ **Right-side panel**

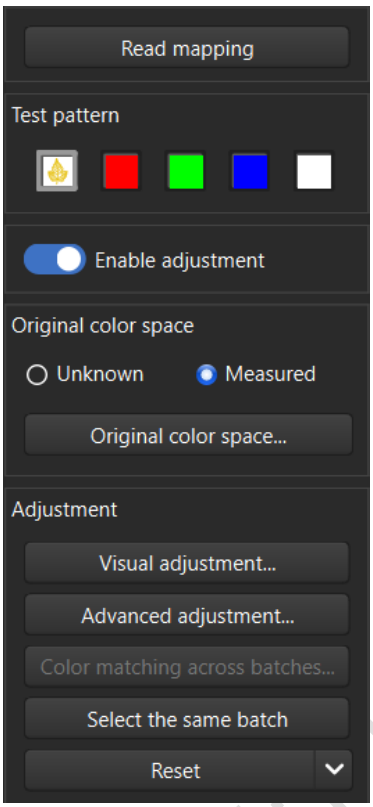


Fig 4.10-4 The panel for color adjustment

◆ **Read mapping**

Click **Read mapping** to obtain parameter information of the selected processor and the receivers connected to it. The view area will also display cabinets based on the information obtained.

◆ **Test pattern**

There are 5 patterns available for testing LED display: **Normal**, **Red**, **Green**, **Blue**, and **White**.

◆ **Enable adjustment**

Select a cabinet and switch on the **Enable adjustment** toggle button. You can only apply color adjustment to the cabinets with the toggle switched on.

◆ **Unknown**

When **Unknown** is selected, only **Visual adjustment...** and **Reset** are available for adjusting the selected cabinets.

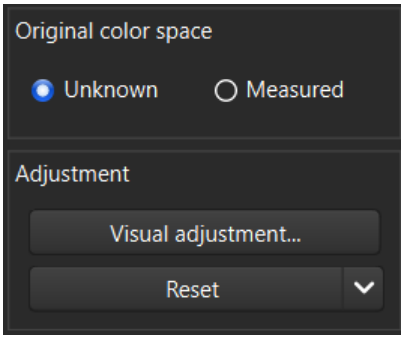


Fig 4.10-5 Original color space unknown

◆ **Measured**

When **Measured** is selected, available options for adjusting the selected cabinets include: **Visual adjustment...**, **Advanced adjustment...**, **Color matching across batches...**, **Select the same batch...**, and **Reset**.

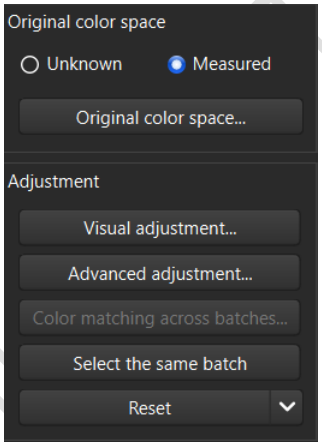


Fig 4.10-6 Original color space measured

◆ **Original color space...**

Click **Original color space...** to set up the original color and brightness.

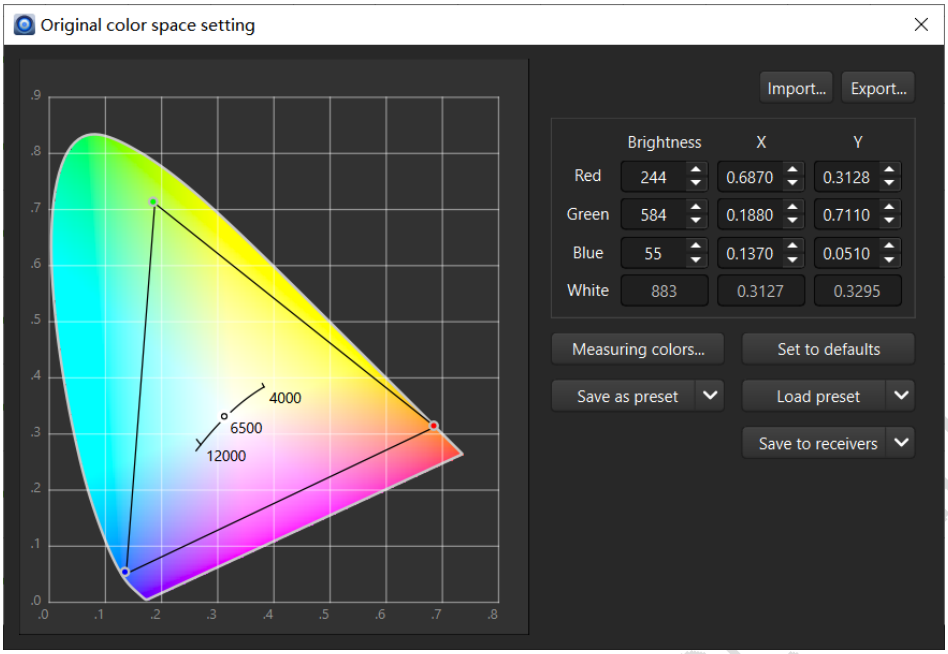


Fig 4.10-7 The pop-up window of **Original color space setting**

If you have already known or measured the original color and brightness of the cabinet, you can enter relevant values into corresponding boxes on the pop-up window to determine the color display of red, green, and blue, as well as the coordinates and brightness of these 3 colors.

You can measure the values via a color meter:

- Complete the configuration of the color meter and put the head of it against the LED screen;
- Click **Measuring colors...**;
- Wait for the measurement results being automatically shown on corresponding boxes of the window. (Note that the values of color white are calculated automatically based on the values of color red, green, and blue.)

For easy settings, iSet provides a set of default values. You can click **Set to defaults** to adopt the default color space. In addition, iSet also supports import and export, allowing the values measured to be saved and reused.

You can save up to 4 sets of complete values as the preset color spaces by clicking on **Save as preset**. And you can apply any one of the preset color spaces by selecting from **Load preset**.

Once all the values are defined, you can click **Save to receivers** to complete the settings of the original color space.

◆ **Visual adjustment**

Select a cabinet and then click **Visual adjustment...** Depending on the settings of the original color space, there are 2 different interfaces of **Visual adjustment**.

When the original color space is unknown, the interface of **Visual adjustment** is composed of test pattern selection area and parameter adjustment area.

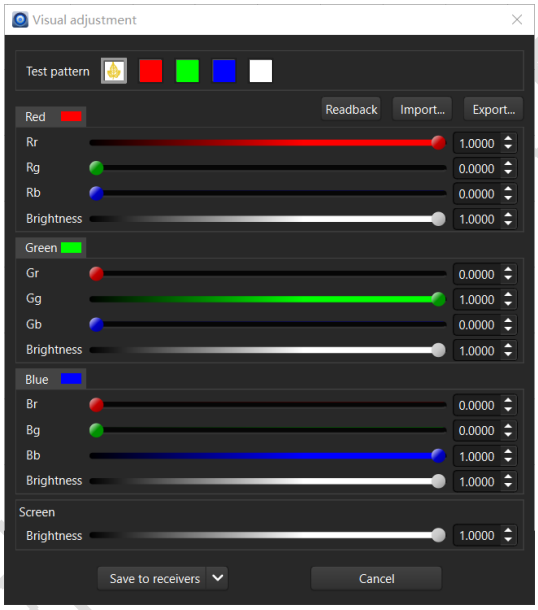


Fig 4.10-8 **Visual adjustment** interface when original color space is unknown

The **Test pattern** for LED display include: **Normal**, **White**, **Red**, **Green**, and **Blue**. Selecting any of the 5 patterns will let the LED screen display corresponding pattern.

The 9 adjustable parameters include: **Rr, Rg**, and **Rb** for color red; **Gr, Gg,** and **Gb** for color green; and **Br, Bg**, and **Bb** for color blue. By default, the values of **Rr, Gg**, and **Bb** are all 1, and that of the rest are 0. To adjust the value, you can slide the handle behind corresponding parameters or click the spin buttons. The LED display will change with the adjustment in real time. After you finish the adjustment, click **Save to receivers** to save the new parameters.

When the original color space is measured, the interface of **Visual adjustment** is composed of color space image, test pattern selection area, and parameter adjustment area.

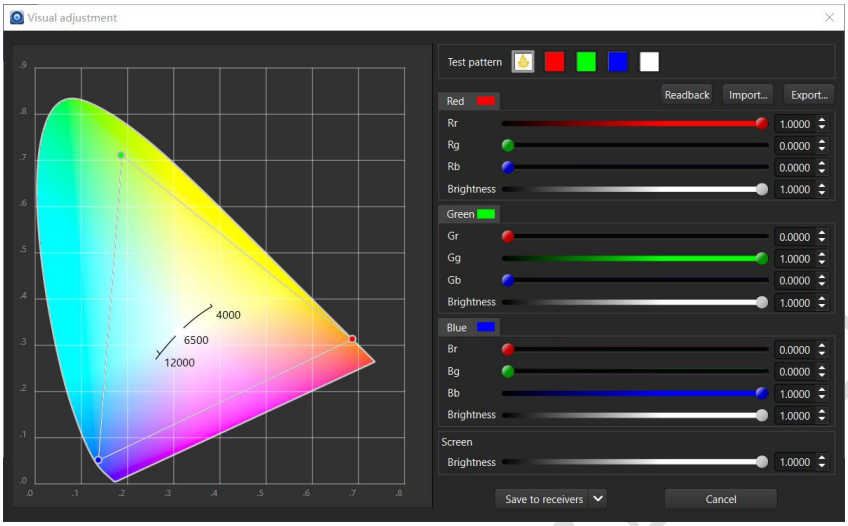


Fig 4.10-9 **Visual adjustment** interface when original color space is measured

The color space image on the left side displays the original color space of the cabinet (see the triangle contained in the space image). Operations for the other two areas of the interface are the same as described above.

◆ **Advanced adjustment**

There are 5 areas composing the interface of the **Advanced adjustment**, namely: color space image, original color space, target color space, actual color space, and color matrix. The original color space is not adjustable.

The target color space can be changed by entering desired coordinates or selecting a preset space. There are 8 presets available: **Rec.601**, **sRGB/Rec.709**, **Rec.2020**, **DCI-P3**, **adobeRGB**, **PAL**, and **NTSC**. Select one of the presets and you can have a corresponding triangle formed by gray dotted lines shown on the left side and the values shown on the target color space area on the right side.

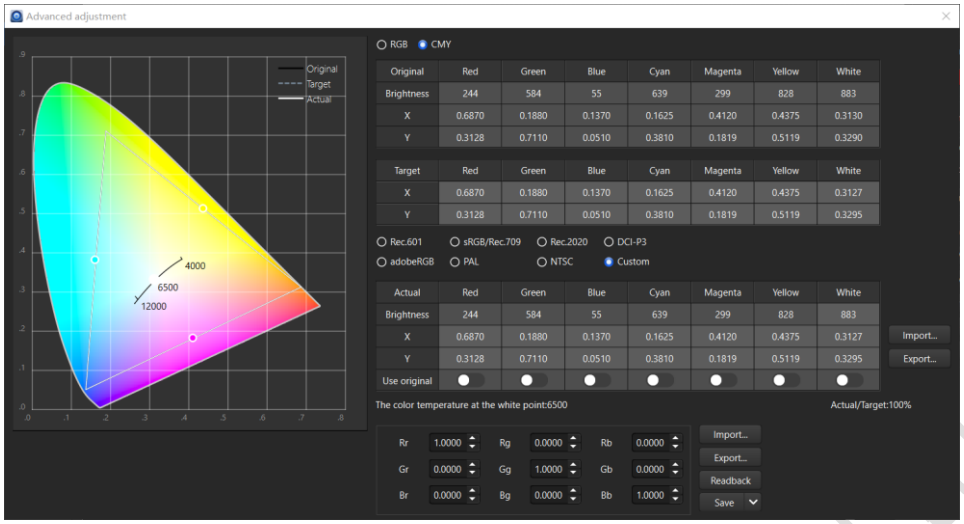


Fig 4.10-10 Adjust the target color space

There are 3 ways applicable for actual color space adjustment:

a. Drag the 3 vertices of the triangle representing the actual color space (the one formed by white lines) on the color space image.

b. Enter coordinates in the input boxes of the actual color space.

c. Adjust the target color space.

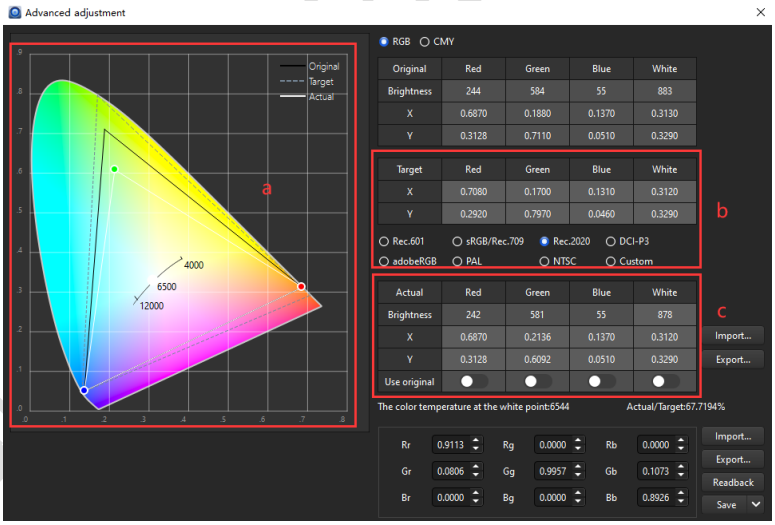


Fig 4.10-11 Adjust the actual color space

Both import and export are supported for the settings of the actual color space. You can also switch on the **Use original** toggles to apply the values of the original color space to the actual one.

Once the actual color space has been set, a color matrix will be automatically calculated and shown at the bottom of the interface. Click

Save to save the values to receivers, or click **Import...**, **Export...**, or **Readback** to carry out corresponding operations to the matrix.

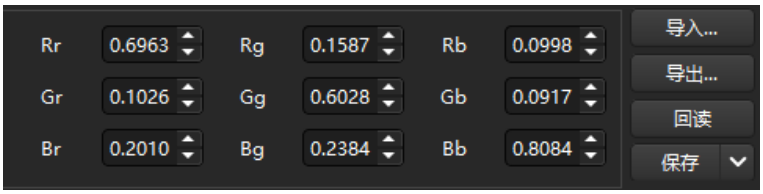


Fig 4.10-12 Color matrix

◆ **Color matching across batches...**

The aim of **Color matching across batches** is to ensure uniform brightness and color display across the whole screen.

Click **Color matching across batches...** to access the **Multi-batch adjustment** window where you can view the triangle generated based on the original color space of cabinets from different batches. Click **Auto merge** to gain a common target color space or drag the three vertices of the triangle in the color space image to set the target manually (see the triangle marked with A, B, and C in Figure 4.10-13). Click **Save to receivers** to save the target.

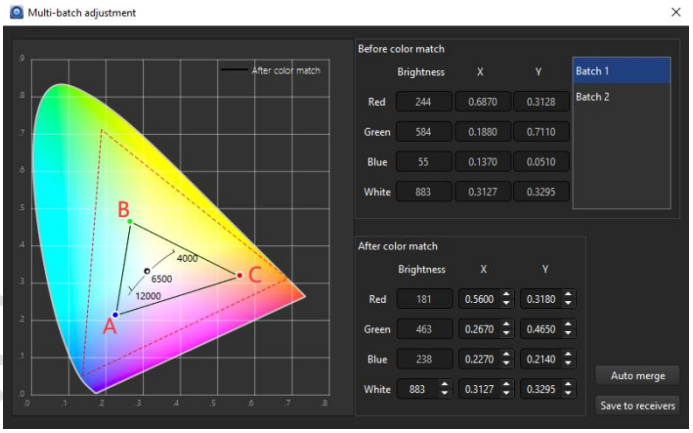


Fig 4.10-13 Set the target color space

◆ **Select the same batch**

The cabinets of the same batch refer to the cabinets sharing the same original color and brightness. Select one cabinet from the view area, and if there are cabinets from the same batch of the selected one, clicking the **Select the same batch** button will make all cabinets of the same batch be selected for adjustment.

◆ Reset

If you click the **Reset** button, all parameters set under **Visual adjustment...**, **Advanced adjustment...**, and **Color matching across batches...** will be set to default, and the LED display will also turn to the state before the adjustment.

4.11 Monitoring

The **Monitoring** tab is composed of 4 areas: toolbar, navigation tree, right panel, and view area. Through this function, you can view the state of the sending and receiving devices connected to the processor in real time so as to ensure that all of them are running as expected. When this function is enabled, you will be informed for any errors or failures of the devices to ensure a prompt and proper response.

4.11.1 Step-by-Step Guide

Processor monitoring

1. Click the **Video input monitoring** button in the right panel.
2. Click **Settings...** in the interface shown after the previous step.
3. On the pop-up window **Video input monitoring settings**, select a processor first, and then switch on the toggles under **Toggle** and **Input format** in the row of the input signal that you want to monitor.
4. Click the icon under **Expected** in the row of the selected input signal to edit the expected format that you want to monitor.
5. Click **Apply** or **Apply to all processors**.
6. Click **OK**.
7. Click the **Start monitoring** icon on the toolbar.

Receiver monitoring

1. Click the **Monitoring settings** icon on the toolbar.
2. Switch on toggles of the items that you want to monitor.
3. Click the **Start monitoring** icon on the toolbar.

4.11.2 Interface and Function Description

➢ Toolbar

From left to right, the icons on the toolbar respectively stands for: **Monitoring settings**, **Start monitoring**, **Stop monitoring**, **Log**, **Normal**, **Hand tool**, **Adaptive window**, and **Zoom**.

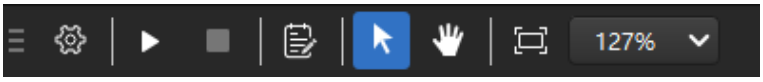


Fig 4.11-1 Toolbar

◆ Monitoring settings

Click the first icon on the toolbar to enter the **Monitoring settings** window. There are 4 major items for settings, including: **General settings**, **Processor settings**, **Receiver settings**, and **Email settings**.

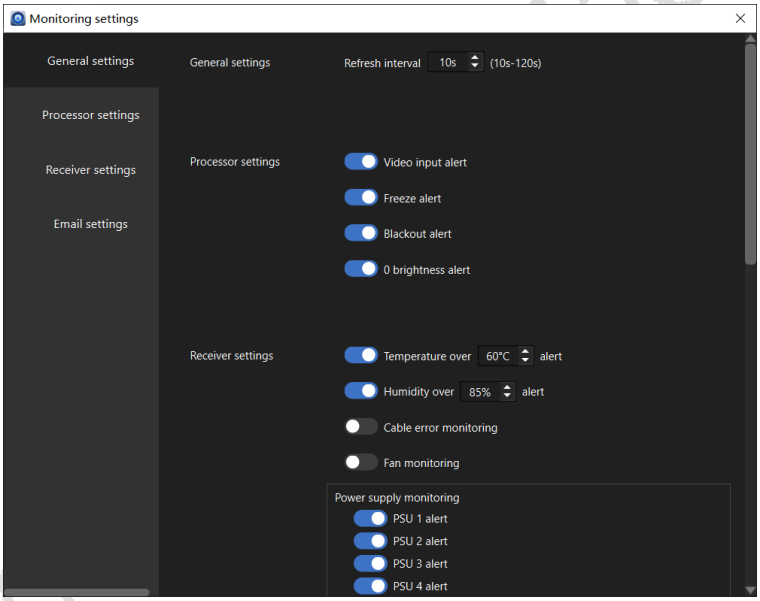


Fig 4.11-2 Monitoring settings

General settings

You can determine the interval for updating the monitoring results within the range of 10s to 120s.

Processor settings

You can choose situations for which you want the system send an alert by switching on/off relevant toggles. Available options include: **Video input alert**, **Freeze alert**, **Blackout alert**, and **0 brightness alert**.

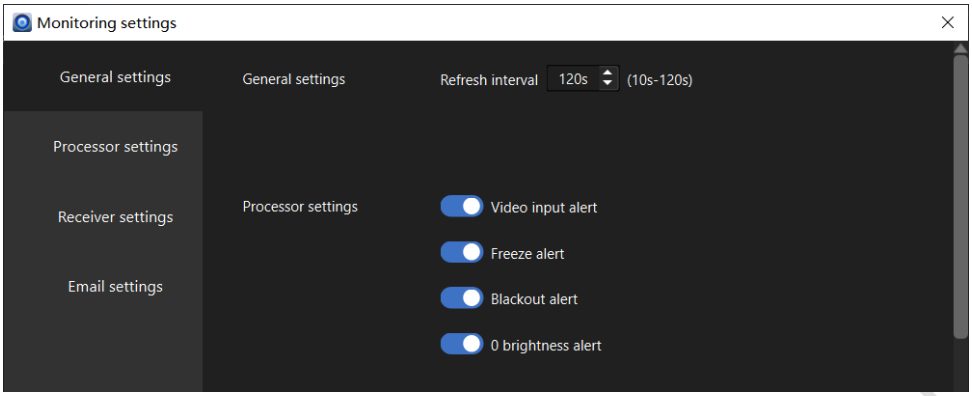


Fig 4.11-3 Processor settings

Receiver settings

You can monitor the temperature, humidity, cable error, fan, power supply, and voltage of the receivers. And for temperature, humidity, and voltage monitoring, you can set a value or range to trigger alerts.

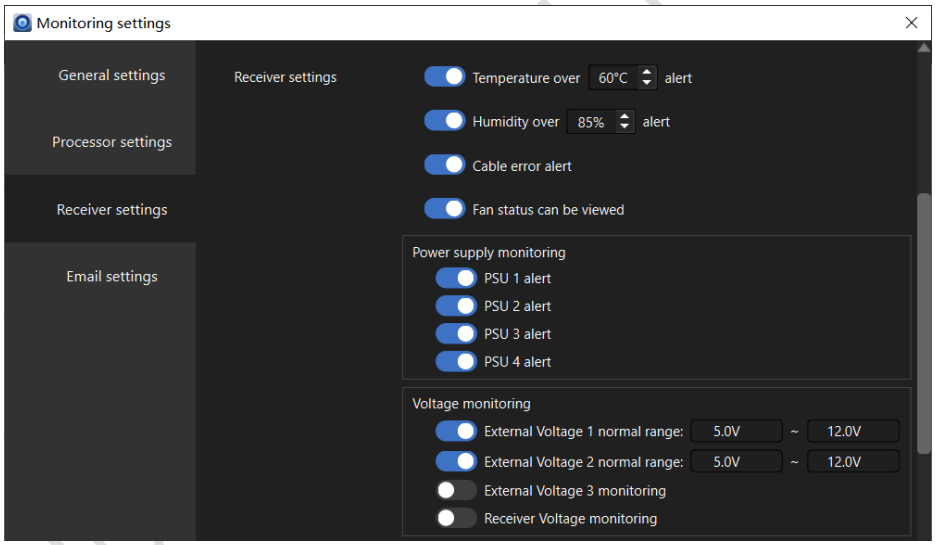


Fig 4.11-4 Receiver settings

Email settings

You can send the monitoring results to a specific email box. Switch on **Email notification** toggle and decide for how many alerts should the system send an email notification once. You can also choose to receive a notice for system recovery by switching on the **Recovery notice** toggle.

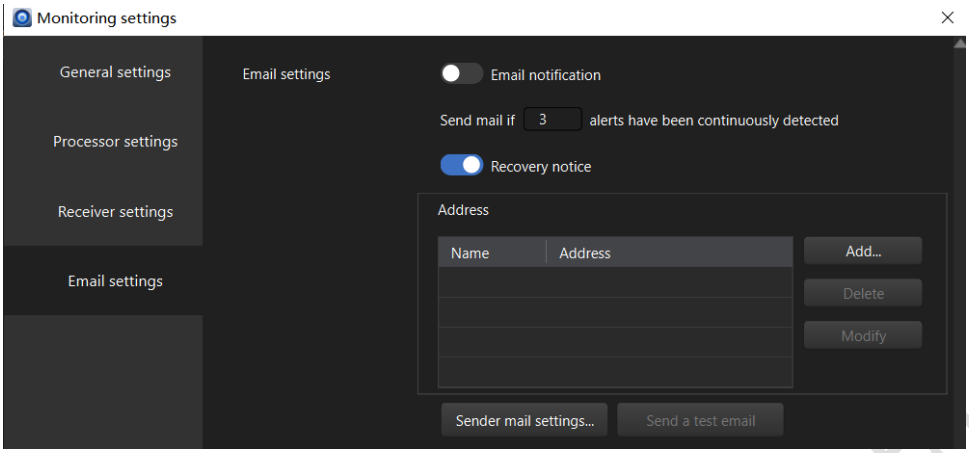


Fig 4.11-5 Email settings

◆ **Start monitoring**

Click the **Start monitoring** button to enable monitoring.

◆ **Stop monitoring**

Click the **Stop monitoring** button to stop current monitoring.

◆ **Hand tool**

When the content displayed in the view area exceeds the display window in size, you can click the **Hand tool** button to drag the area freely for a desired view.

◆ **Log**

The monitoring behaviors, including detailed description and the date of the alarming events, will be recorded in the log. You can read records of a specific date by clicking the **Log** button and select the date. On the **Log** window, dates that have been grayed out cannot be selected.

◆ **Adaptive window**

This option allows you to have the most optimal view in the view area according to the size of the cabinets.

➢ **Navigation tree**

The navigation tree is the area where you can add, delete, rename, or select a processor. You can select one or all processors to monitor. When the processor is not detected, the corresponding processor icon will be grayed

out and when it is connected, the icon will be highlighted.

When **Monitoring** is enabled, you can view the status of the process from the navigation tree. The icon of an abnormal processor will be colored in red.

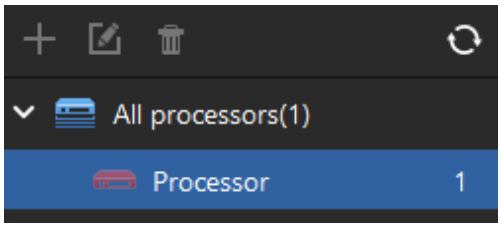


Fig 4.11-6 Navigation tree with an abnormal processor

Right panel (Monitoring options)

The right panel is further divided into two areas: **Processor** and **Receiver**. The **Video input monitoring** icon can be found under **Processor**, enabling monitoring the input signal and input formats. As for **Receiver** monitoring, items that can be monitored include receiver temperature, humidity, power supply, and voltage.

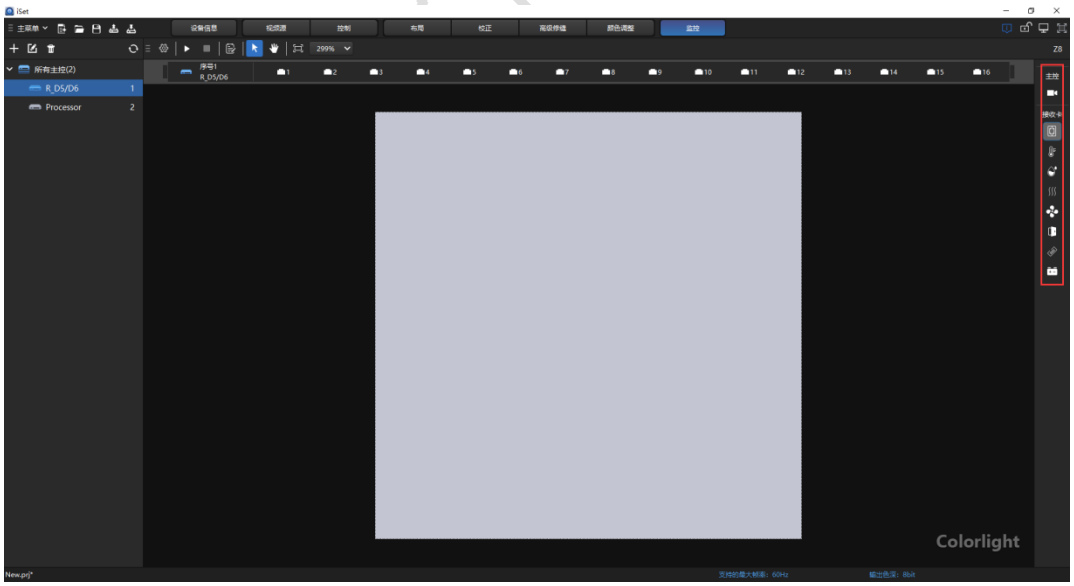


Fig 4.11-7 Right panel for monitoring options

Video input monitoring

The option of **Video input monitoring** is available once the **Video input alert** toggle in **Monitoring settings** is switched on.

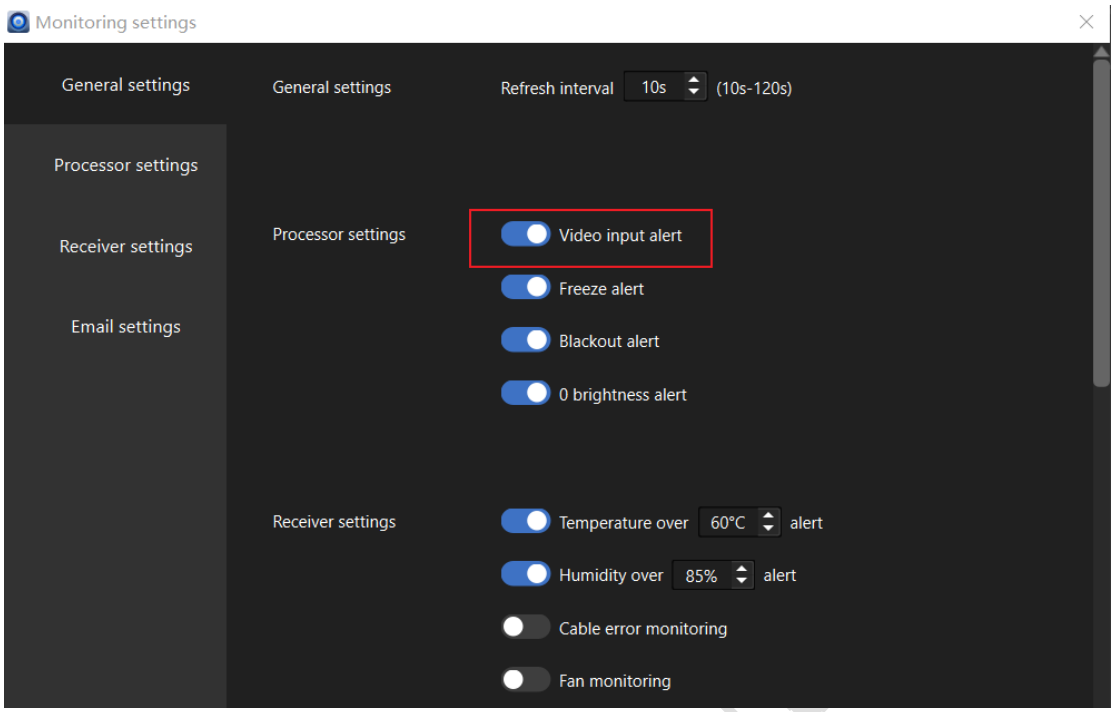


Fig 4.11-8 Video input alert

If any input signal anomaly occurs during monitoring, the icon of the **Video input monitoring** will be blinking red.

Receiver monitoring

Items for receiver monitoring can be selected from the **Receiver settings** in the **Monitoring settings** window, including receiver temperature, humidity, cable error, fan, power supply, and voltage. Each monitoring item has corresponding icon, which will be shown on the right panel once enabled. There are 4 available options for **Power supply monitoring** (**PSU 1 alert**, **PSU 2 alert**, **PSU 3 alert**, and **PSU 4 alert**) and 4 for **Voltage monitoring** (**External Voltage 1 monitoring**, **External Voltage 2 monitoring**, **External voltage 3 monitoring**, and **Receiver Voltage monitoring**). Likewise, the corresponding icons of them will also be shown on the panel once selected.

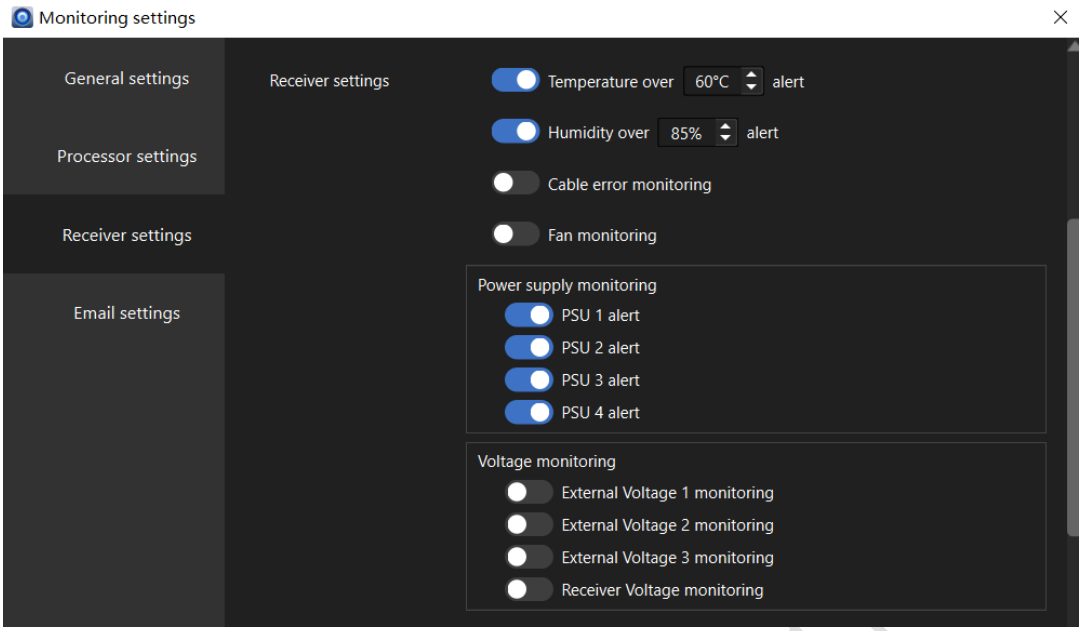


Fig 4.11-9 Receiver monitoring settings

When **Monitoring** is enabled, the icons of corresponding monitoring items will be blinking red once relevant anomaly occurs.

➢ **View area**

In the view area, you can check the status of all or one specific processors.

◆ **All processors status**

Click **All processors** in the left panel to view all connected processors in the view area. When **Monitoring** is enabled, you can view the status of all processors. If there is any anomaly, the icon of corresponding processor and anomaly items will be turned into red.

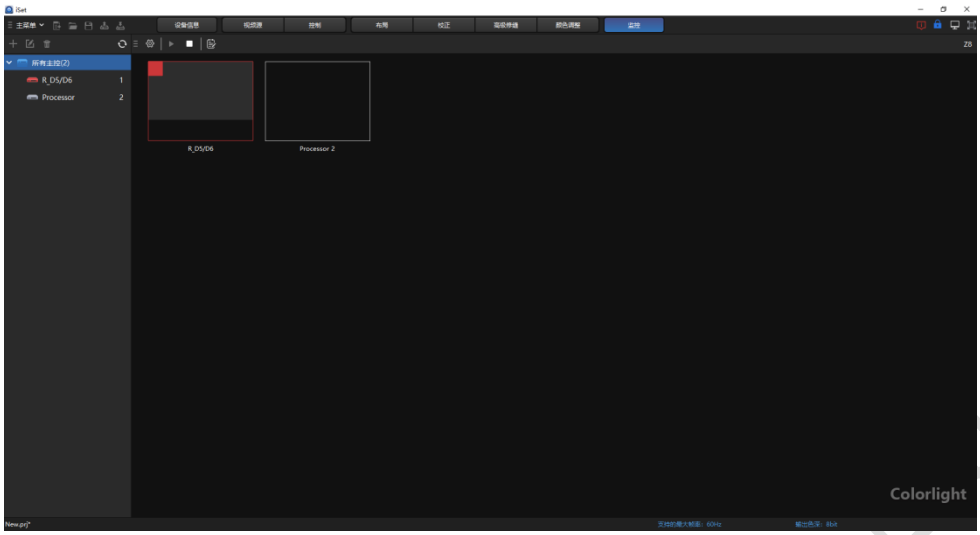


Fig 4.11-10 Status of all processors

◆ **Selected processor status**

Click one processor in the left panel and you can view the status of it in the view area. When you select **Video input monitoring**, the view area will display the status of the selected processor. Similarly, when you select any one of the receiver monitoring items in the right panel, you can view corresponding status of the selected processor in the view area.

Video input monitoring

When **Video input monitoring** is enabled, the icon of it will be shown in the right panel. For a connected processor in this case, you can click the **Video input monitoring** button and then select the **Settings...** button in the view area to enter into the **Video input monitoring settings** window. Note that you must stop monitoring first to make the **Settings...** button available.

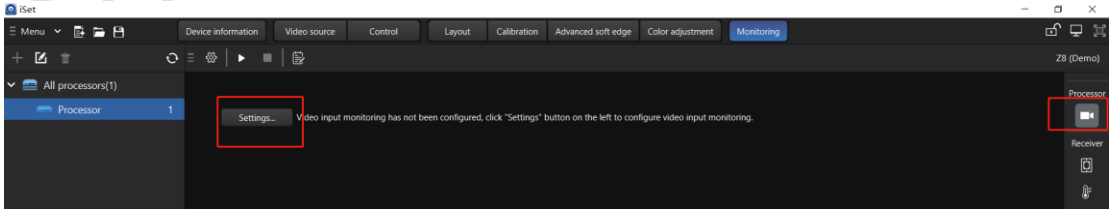


Fig 4.11-11 Video input monitoring

You can select specific signals for signal resolution monitoring.

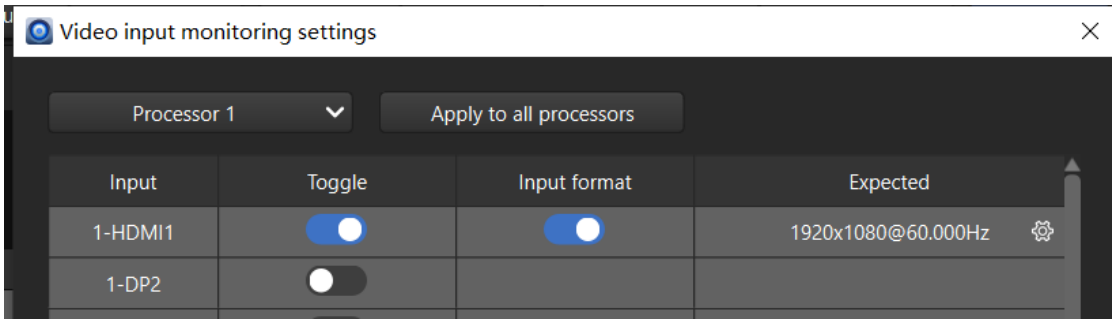


Fig 4.11-12 Video input monitoring settings

When you start monitoring, the inconsistency between the actual signal resolution and the expected resolution will result in an alert and a sheet under **Settings...** will show the actual resolution. When the selected input signal is not received, a reminding message will also be shown and the icon of **Video input monitoring** will be blinking red to remind you the anomaly.

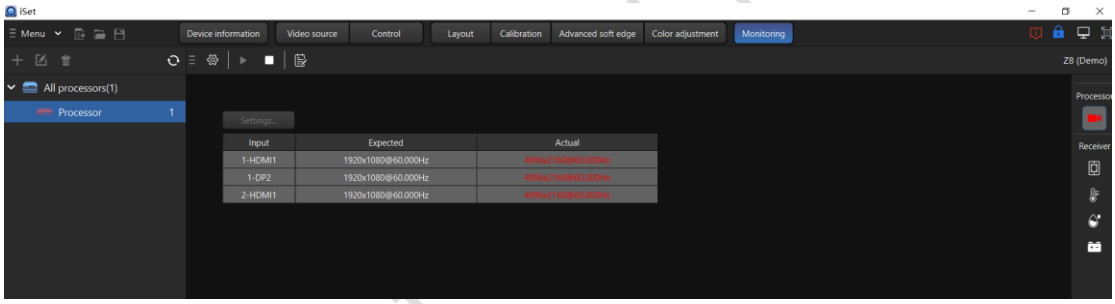


Fig 4.11-13 Video input monitoring status

Receiver monitoring

Select a processor then click the **View all alarm information** button under the **Receiver** in the right panel. The selected processor and the receivers it connects to will then be shown in the view area, under the toolbar.

You can view the mapping and corresponding output ports of the cabinets as you move cursor in the view area.

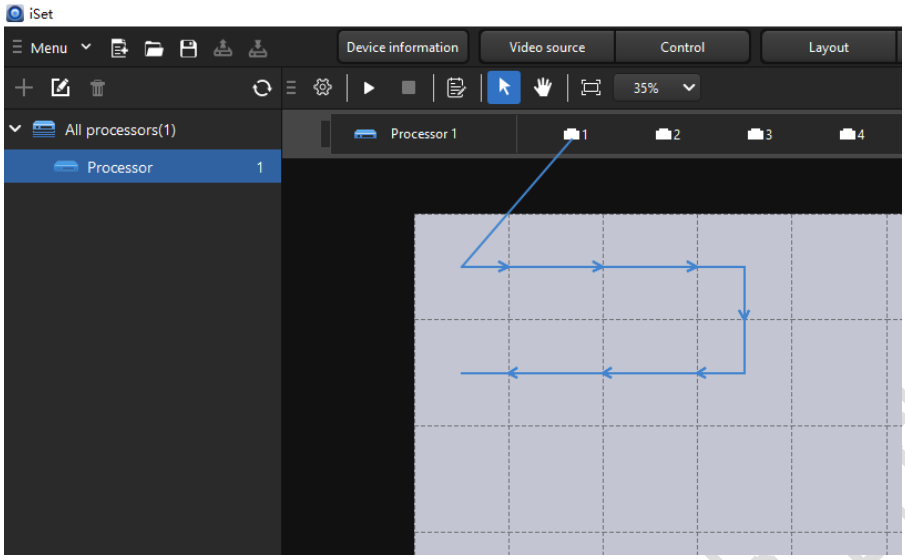


Fig 4.11-14 View area for receiver monitoring

If any anomaly occurs during monitoring, the corresponding cabinet and its output port will be colored red. You can view relevant reminding message by putting cursor on the red cabinet or output port. When you select **View all alarm information**, the reminding message will include all anomaly information. Meanwhile, icons of the corresponding anomaly items will also be blinking red.

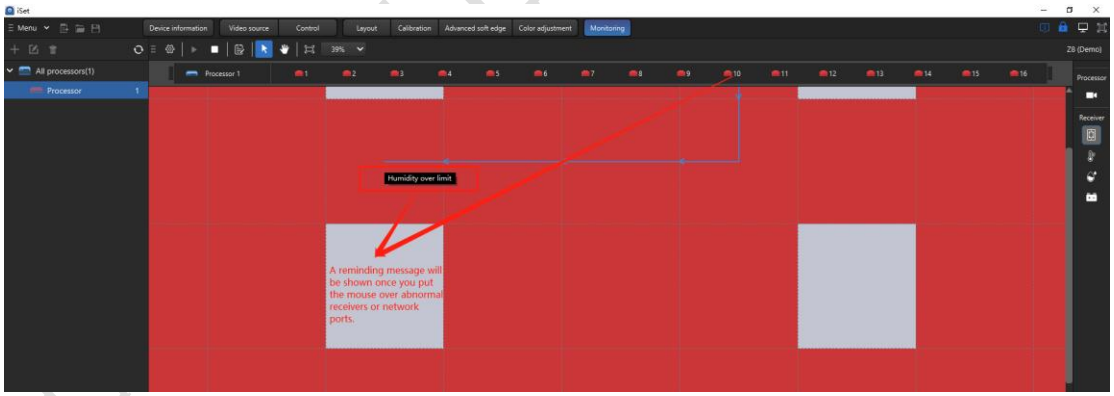


Fig 4.11-15 Reminding message for receiver anomaly

(1) Temperature monitoring

When monitoring the temperature, the view area shows the temperature monitoring results of the receivers connected to the selected processor. When anomaly occurs, the abnormal receiver and corresponding output port will be colored red, and the corresponding icon in the right panel

will be blinking red. Relevant reminding message will then be shown once you put the cursor on the red receiver or output port.

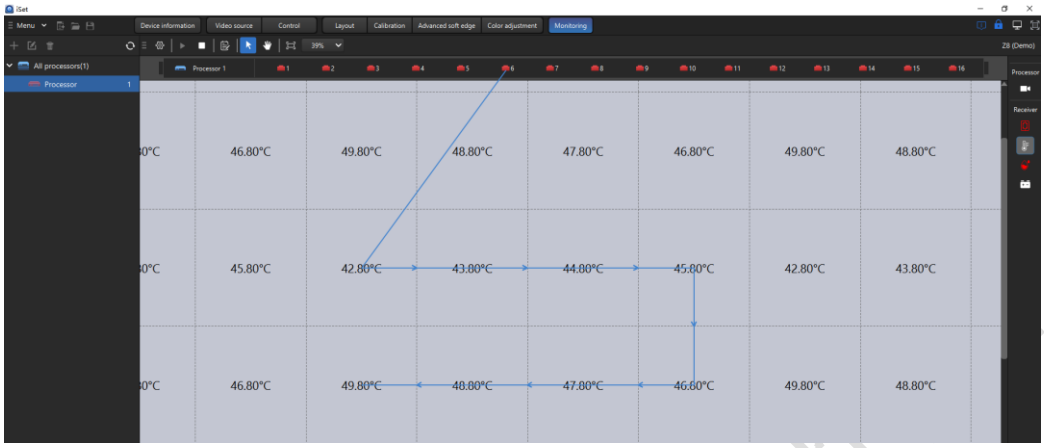


Fig 4.11-16 Temperature monitoring

(2) Humidity monitoring

When monitoring the humidity, the view area shows the humidity monitoring results of the receivers connected to the selected processor. When anomaly occurs, the abnormal receiver and corresponding output port will be colored red, and the corresponding icon in the right panel will be blinking red. Relevant reminding message will then be shown once you put the cursor on the red receiver or output port.

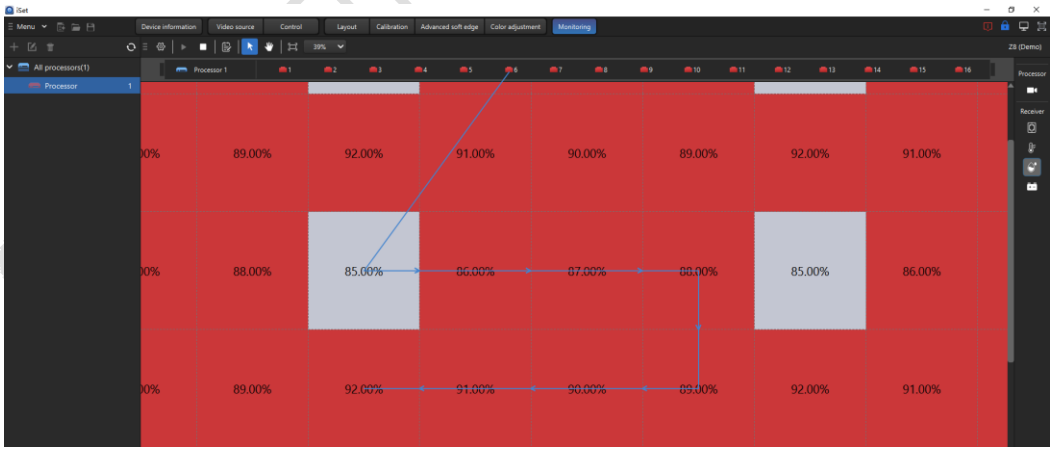


Fig 4.11-17 Humidity monitoring

(3) Power supply monitoring

When monitoring the power supply, the view area shows the power

supply monitoring results of the receivers connected to the selected processor. All power supply units of the receivers can be monitored. If any anomaly occurs during monitoring, the abnormal receiver and the corresponding output ports will be colored red and the corresponding icon in the right panel will be blinking red. Relevant reminding message will then be shown once you put the cursor on the red receiver or output port.

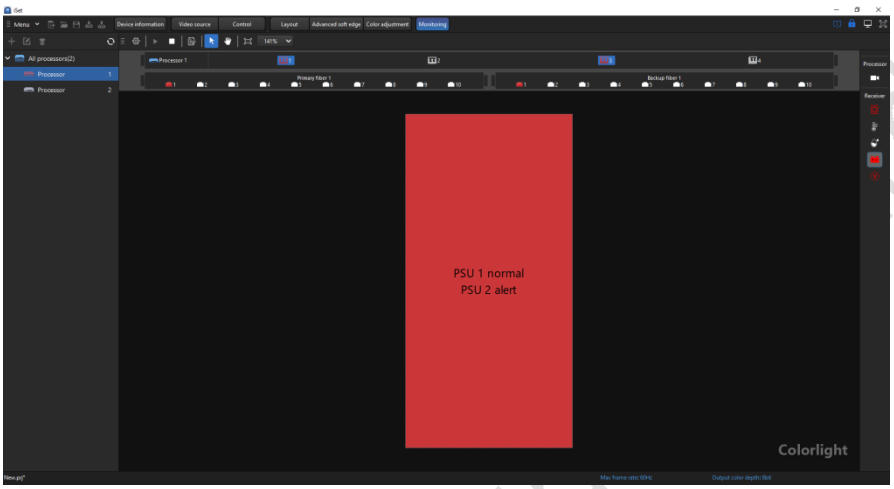


Fig 4.11-18 Power supply monitoring

(4) Voltage monitoring

When monitoring the voltage, the view area shows the voltage monitoring results of the receivers connected to the selected processor. All voltage of the receivers can be monitored. If any anomaly occurs during monitoring, the abnormal receiver and the corresponding output ports will be colored red and the corresponding icon in the right panel will be blinking red. Relevant reminding message will then be shown once you put the cursor on the red receiver or output port.

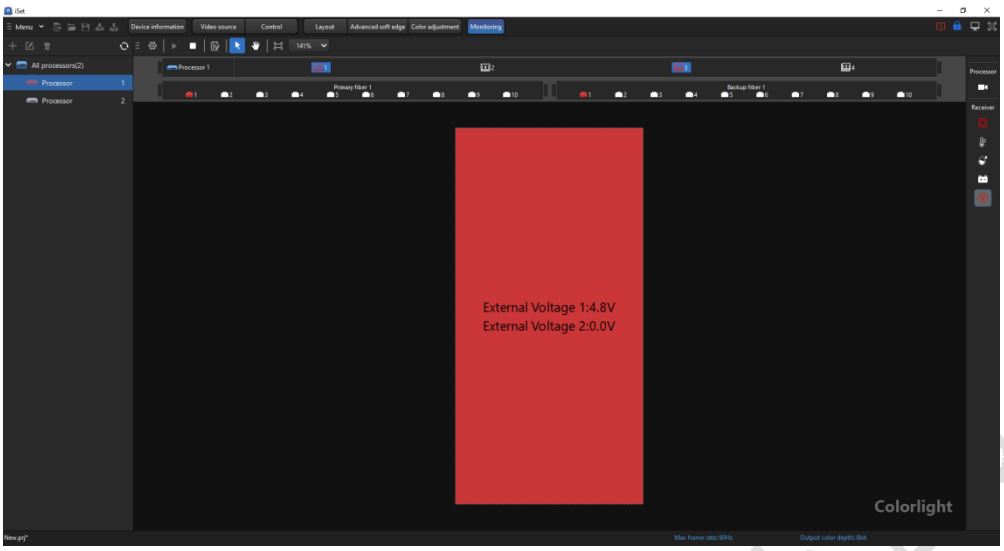


Fig 4.11-19 Voltage monitoring

➢ **Loop redundancy**

The **Monitoring** supports loop redundancy. Take the processor Z8 as an example:

◆ **Between processors**

When two processors are cascaded, set the second processor as the redundancy device of the first one. A special icon for redundancy device will be shown ahead of the redundancy processor in the left panel. You can switch to the primary processor. But the display of the view area will not change with the switch between primary and redundancy processor: The primary processor and output ports of it will be shown on top of the view area while the redundancy ones will be shown at the bottom, and output ports of the redundancy device will also have special icons to distinguish them from the primary output ports.

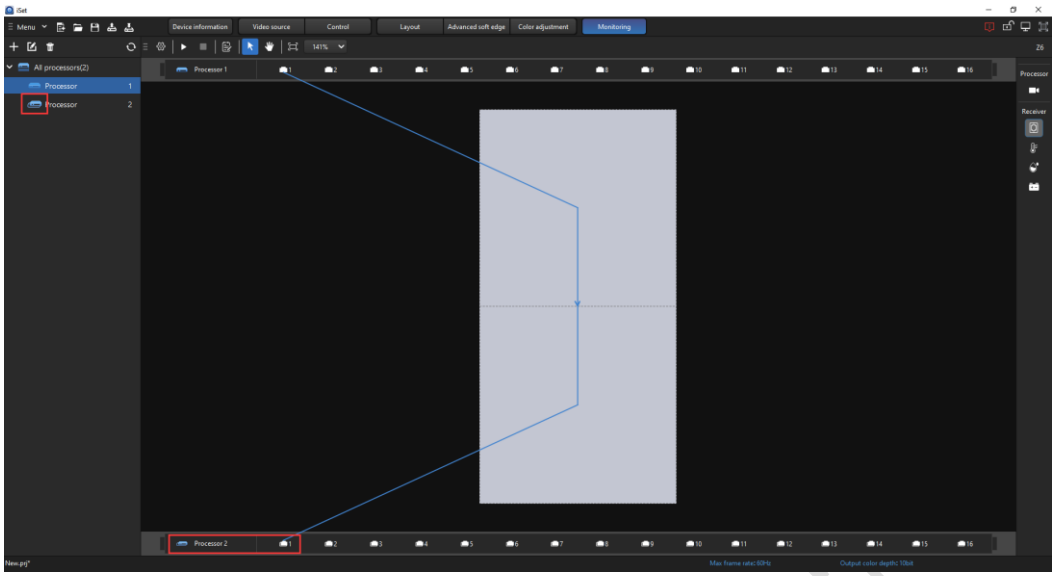


Fig 4.11-20 View area with two processors

Put the cursor on the receiver and then you can see a loop formed by the output ports of the primary and redundancy processor, and the receivers.

If any anomaly occurs during monitoring, the corresponding cabinets will be colored red. If the anomaly occurs in the loop, the output ports of the primary and redundancy processor will both be colored red. If the anomaly occurs in receivers, only the primary output port, the abnormal cabinet and the primary processor in the navigation tree will be colored red. If it is anomaly occurring during video input monitoring, the icon of primary processor in the view area will also be colored red. Similarly, reminding message will be shown once you put the cursor on the red output port and processor.

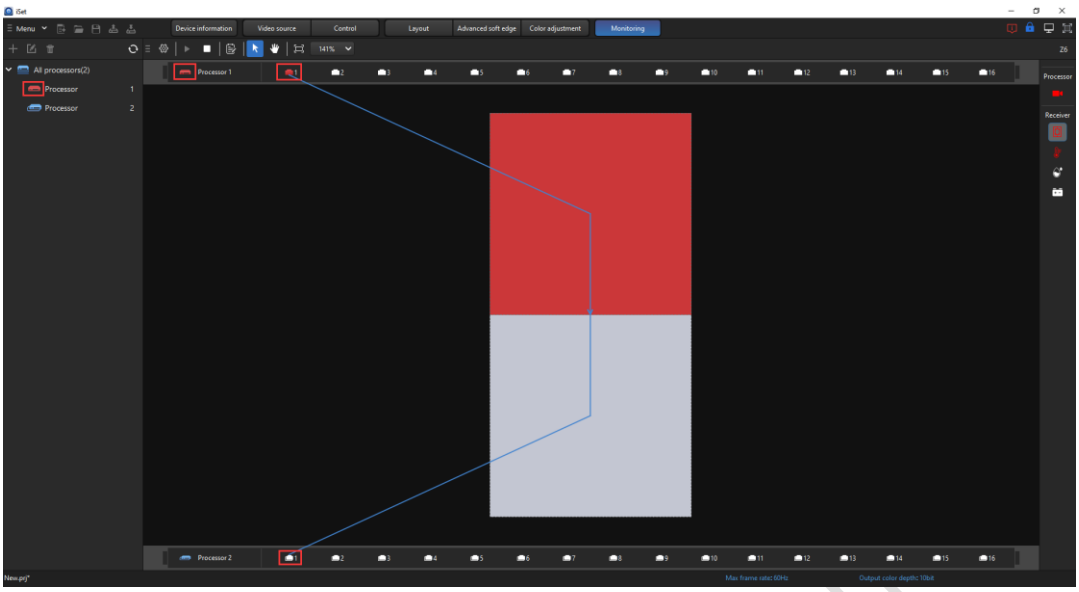


Fig 4.11-21 Receiver monitoring status in loop redundancy

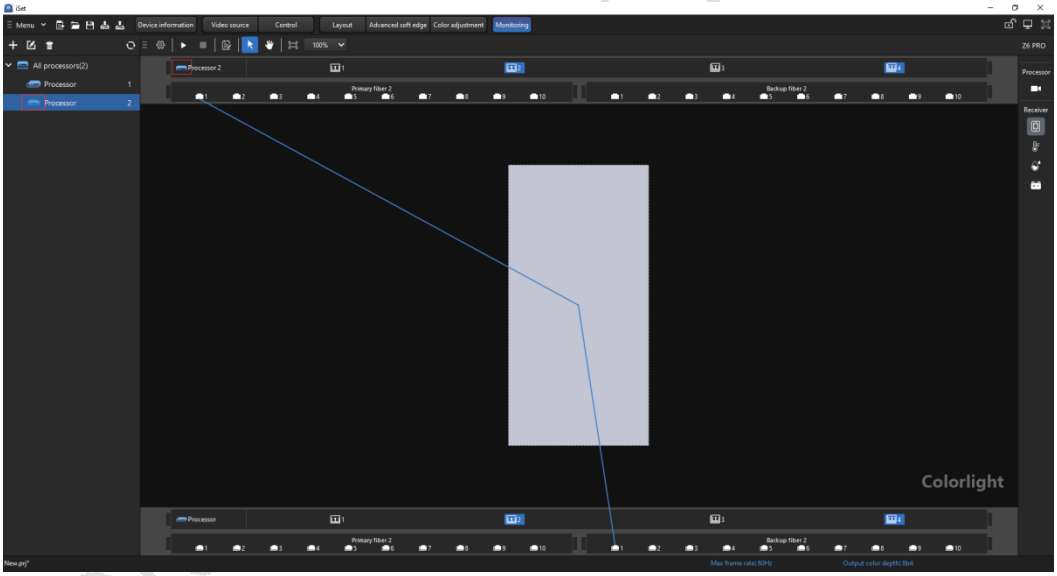


Fig 4.11-22 Video input monitoring status in loop redundancy

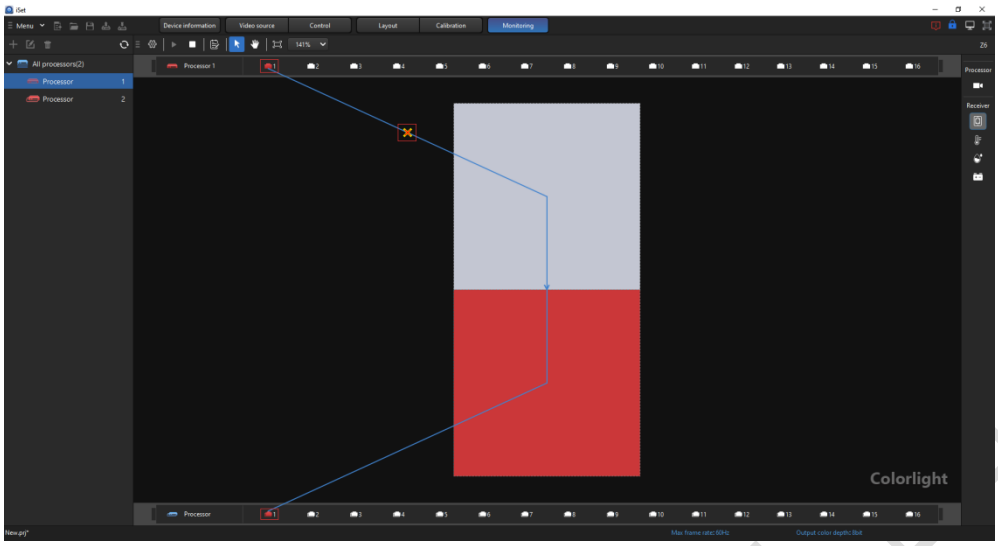


Fig 4.11-23 Monitoring status in loop redundancy

If the primary or redundancy processor disconnects from the receivers, you will be informed by an error symbol on corresponding connection line in the view area once you put the cursor on the receivers or the output ports and relevant reminding message will also be shown.

◆ **Between output ports of one processor**

Connect network port1 and network port2. Then set network port2 as the redundancy port of the network port1 and the network port2 will have the redundancy icon in the view area. Next, a loop will be shown once you put the cursor on the receivers or the 2 network ports.

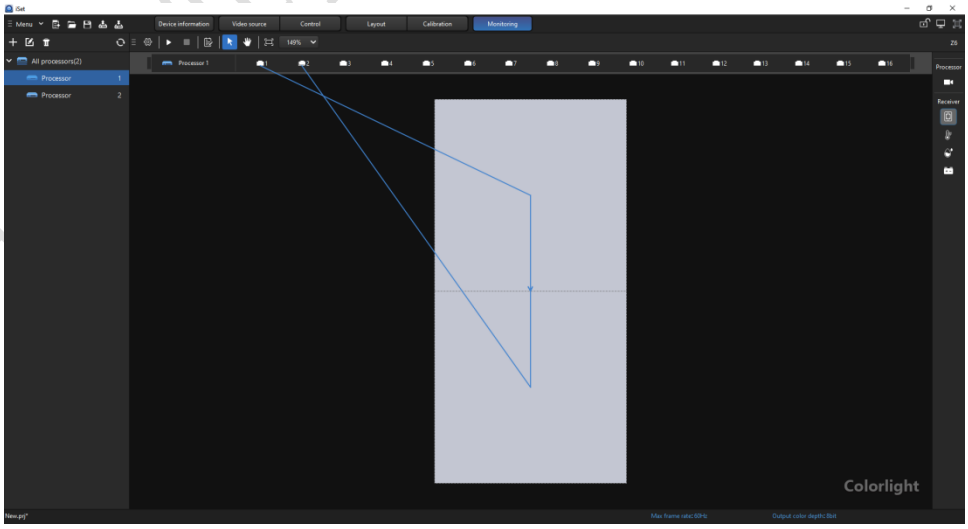


Fig 4.11-24 Loop redundancy within one processor

During monitoring, if any anomaly occurs, the abnormal receivers and the primary and redundancy output ports will be colored red. You can see relevant reminding message once you put the cursor on the 2 red ports.

If the primary or redundancy ports disconnects from the cabinets during monitoring, there will be an error symbol shown on the connection line between the ports and the cabinets in the view area. And you can see relevant reminding message in the view area too.

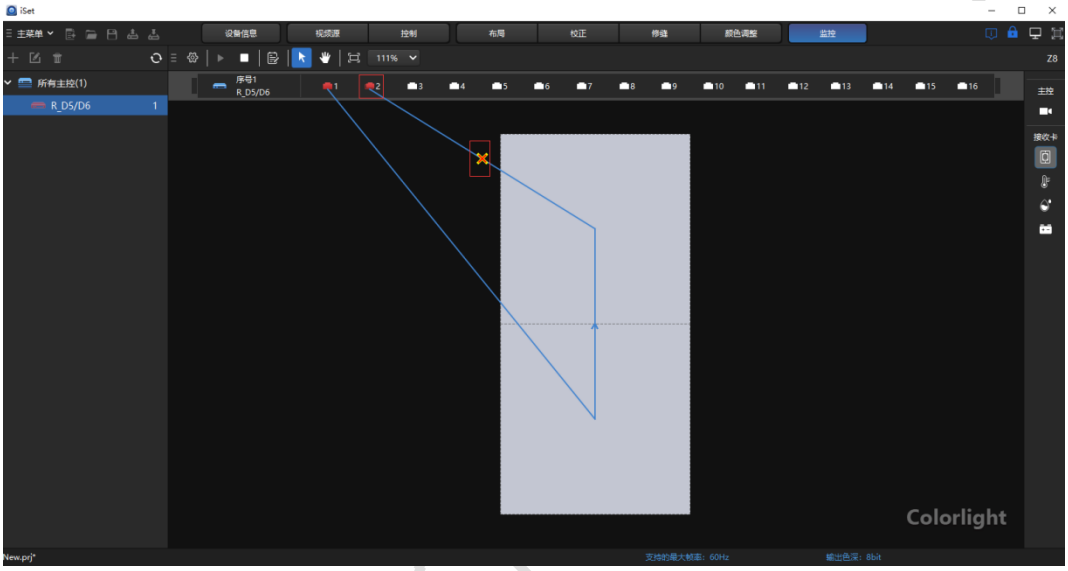


Fig 4.11-25 Monitoring status when redundancy port disconnects

4.12 Video Source

It depends on the processor whether video source settings can be performed in iSet. The **Video source** settings interface consists of 4 areas: toolbar, navigation tree, view area, and right panel.

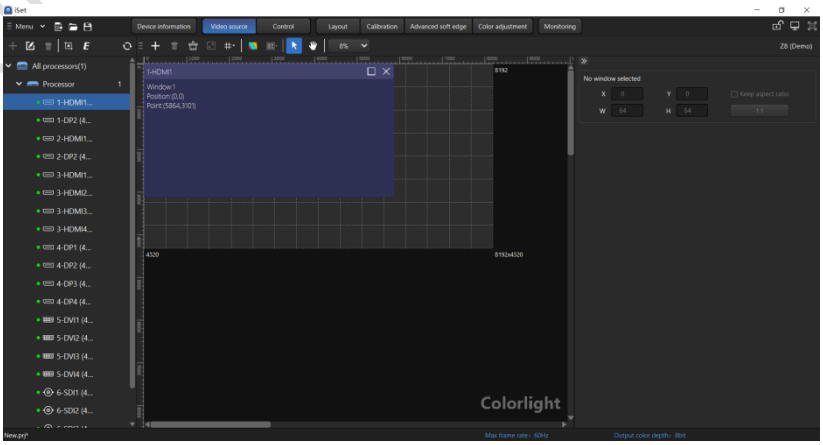


Fig 4.12-1 Video source settings interface

4.12.1 Step-by-Step Guide

1. Select a processor from the navigation tree on the left side of the interface.
2. Click the downward arrow on the processor.
3. Click and hold the input signal on the drop-down list and drag the signal to the canvas in the view area.
4. Or, click the **Add window** button on the toolbar to add an input signal to the canvas.

4.12.2 Interface and Function Description

➢ **Toolbar**

From left to right, options available in the toolbar include: **Add window**, **Delete**, **Delete all windows**, **Set window size**, **Guides**, **Picture adjustment**, **Preset**, **Normal**, **Hand tool**, and **Zoom**.

Fig 4.12-2 Toolbar

◆ **Add window**

Click the **Add window** button , and then select one input signal from all available signals of the current processor to add to the canvas.

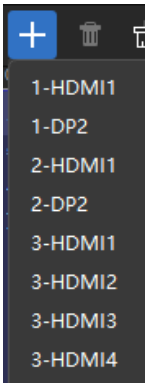


Fig 4.12-3 Add input signal

◆ **Delete**

Select a signal window from the canvas first, then click the **Delete**

button to delete the window from the canvas.

◆ **Delete all windows**

Click the **Delete all windows** button to remove all signal windows from the canvas.

◆ **Set window size**

Click the **Set window size** button to determine the start position and size of the signal window. You can also select **Keep aspect ratio** or **1:1** display to finish the size settings quickly.

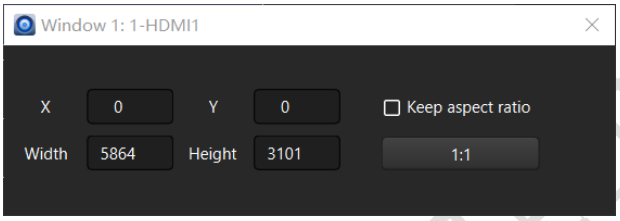


Fig 4.12-4 Window size settings

◆ **Guides**

You can add guides on the canvas for partition.

Click the **Guides** button and select relevant options from the drop-down menu to add or delete guides. The options are only available after you select **Show guides**.

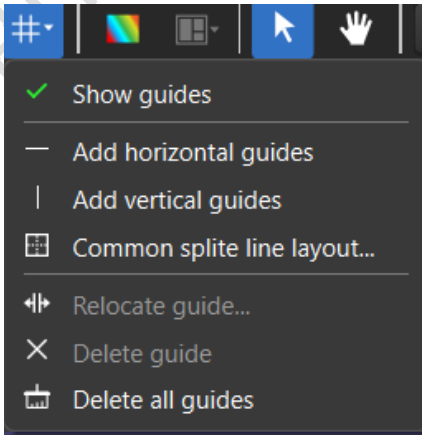


Fig 4.12-5 Guides

Once the canvas has been partitioned, the signal windows added afterward will automatically adapt to the size of the partition areas according to the guides.

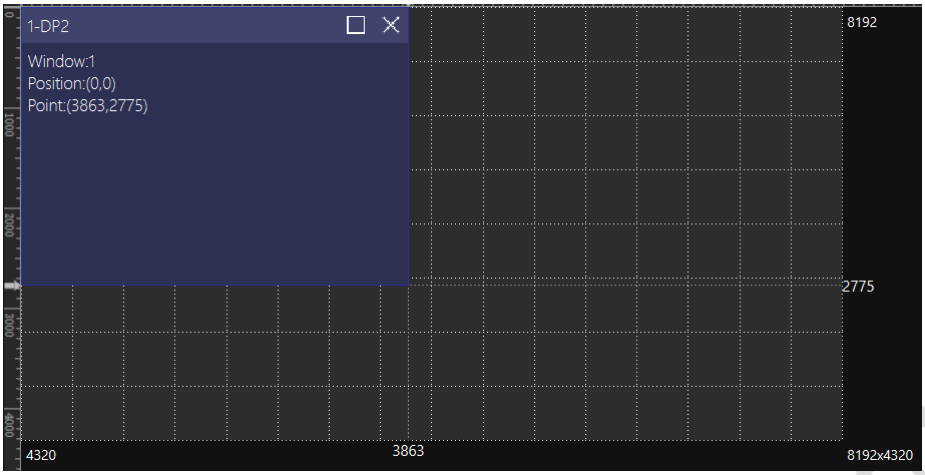


Fig 4.12-6 Canvas after adding guides

◆ Picture adjustment

Click the **Picture adjustment** button to adjust the **Hue, Saturation, Brightness compensation**, and **Contrast** of the picture on a pop-up window. You can drag the handles of the sliders or use the spin buttons to adjust corresponding items.

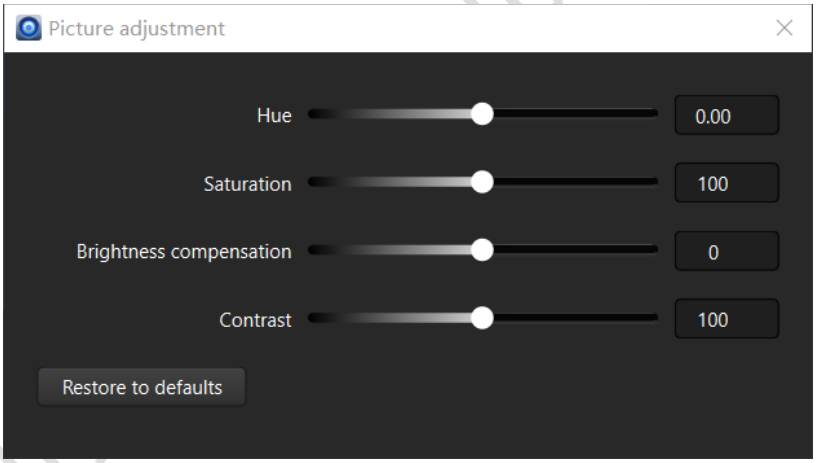


Fig 4.12-7 Picture adjustment

◆ Preset

You can save the interface settings to the processor as a preset. One processor supports saving 16 presets. A preset contains several settings, including 3D settings, layout, video input source, picture size, signal cropping, picture adjustment, and PIP transparency.

Click **All processors** to enter into the preset loading interface. At the bottom of the interface, each preset will be added a serial number (1-16,

from left to right, top to bottom). A preset can be loaded to the current processor by switching off the **Load presets together** toggle button and select a desired preset. When there are multiple processors cascading, the processors can have their own preset list. In this case, if you want to make all processors apply the preset with the same serial number in their own preset list (e.g., the second preset in the preset list), you can realize this goal in the interface of one processor by switching on the **Load presets together** toggle and selecting the preset with the desired serial number.

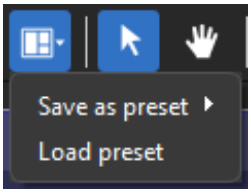


Fig 4.12-8 Preset

Save as preset

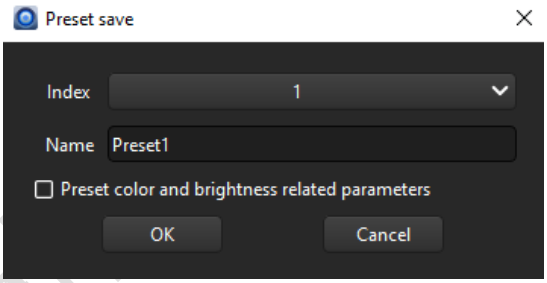


Fig 4.12-9 Save parameter settings as preset

Load preset to a single processor

There are two ways to load preset to a single processor:

(1) Select one processor, click **Load preset** in the **Preset** drop-down menu, and then select a desired preset on the pop-up window **Load preset**.

(2) Select **All processors**, then select the processor to which you want to load the preset in the view area. Once selected, the processor will be marked with a yellow frame. Next, you can select a preset to load to the selected processor.

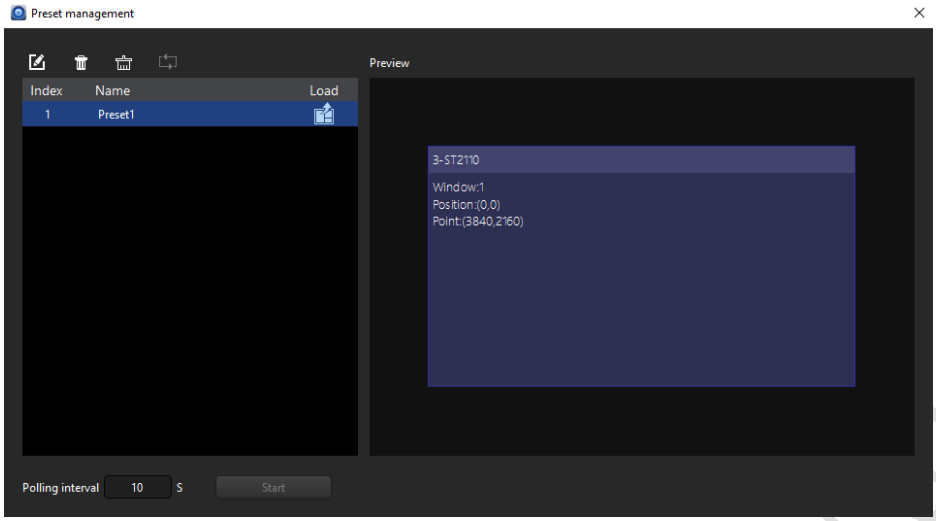


Fig 4.12-10 Load preset from the preset list

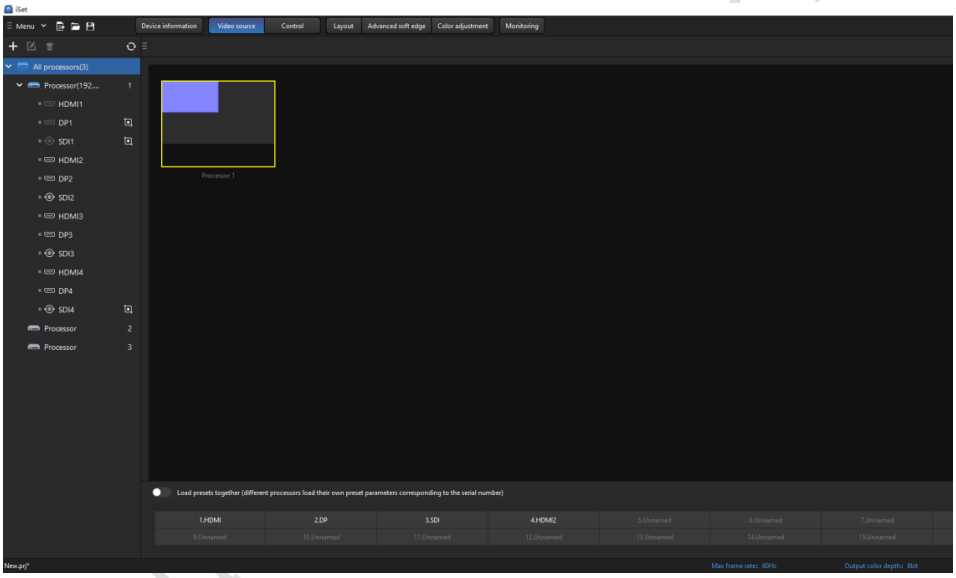


Fig 4.12-11 Load preset in the preset loading interface

Load presets to multiple processors

Select **All processors** and then switch on the **Load presets together** toggle button. Next, select a desired preset to load to all processors.

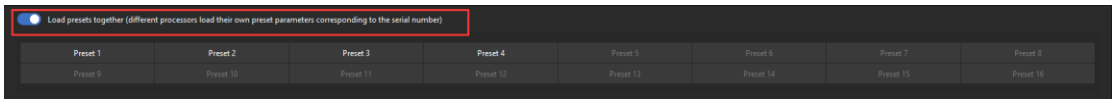


Fig 4.12-12 Load presets to multiple processors

◆ **Normal**

In **Normal** mode (the default mode), you can add, delete or move the signal window, and adjust the size of the window.

◆ **Zoom**

The display of signal windows on the view area can be zoomed in/out. Free zooming is achievable by scrolling the mouse wheel with the **Ctrl** key being pressed and held. You can also select a zooming scale from the drop-down menu of **Zoom**.

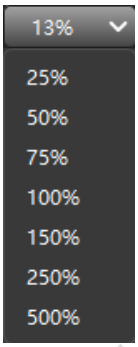


Fig 4.12-13 Zooming scale

➢ **Navigation tree**

The navigation tree is the area where you can perform operations to the processors, including add, delete, or rename a processor, select parameters of all processors to import or export, and import or export processor parameters. In addition, you can also perform **Signal crop** and **Signal EDID settings** in this area.

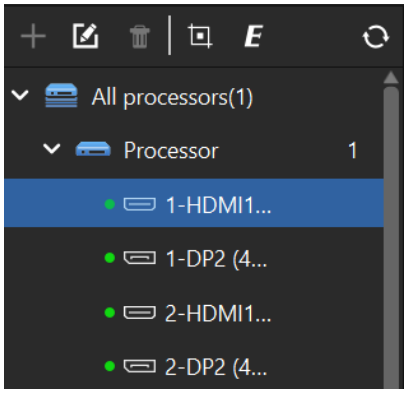


Fig 4.12-14 Navigation tree

Context menu of processor

- Syn signal...

Video input: The detailed setting of **Video input** can be modified. You can select an input signal from the **Detailed setting** drop-down menu to synchronize the LED display with the frame rate of the selected signal.

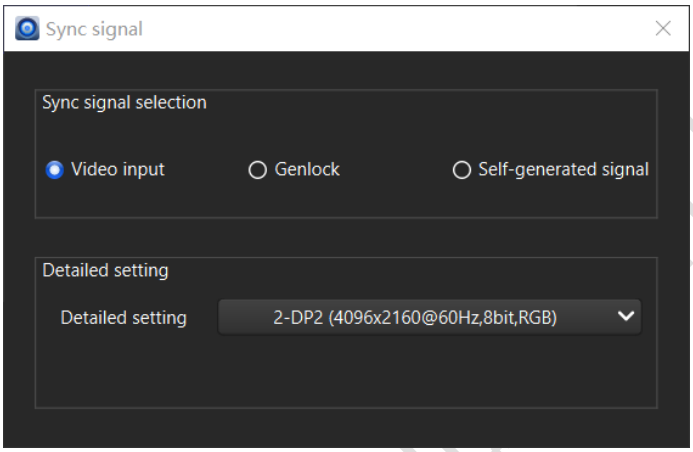


Fig 4.12-15 Sync signal by video input

Genlock: This option requires an external signal input device.

Self-generated signal: You can select a frame rate from the **Set frame rate** drop-down menu. Or, you can select **Custom** from the drop-down, and then enter a desired frame rate. The processor will output image signal at the set frame rate.

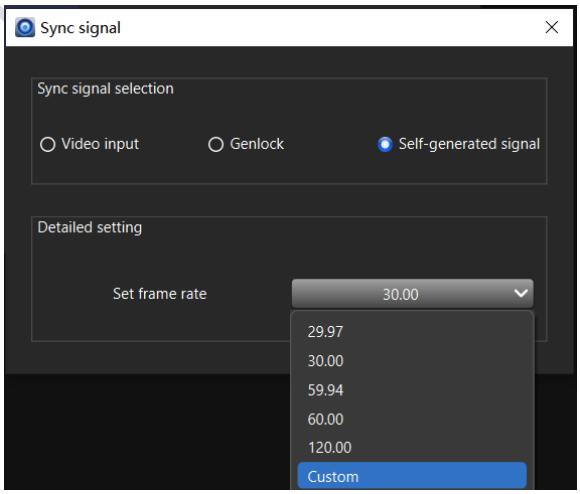


Fig 4.12-16 Settings for self-generated signal

Context menu of input signal

◆ Crop...

Right-click a target signal and then select **Crop...** In the view area on the left side of the pop-up window, you can see the signal image. A background color of blue in the view area indicates the normal connection of input signal, while the color gray indicates no connection. The size of the colored image represents the actual size of the input signal. In the pop-up window, switch on the **Crop** toggle button and you will see a yellow dotted box representing the crop area in the image. The four sides of the dotted box can be dragged to adjust the size of cropping. If you want to zoom in/out the image, put the cursor on the view area, and then press **Ctrl** as you scroll the mouse wheel.

On the right side of the pop-up window, you can adjust the start position and size of the crop area by entering a desired coordinates (X, Y) and size (W, H).

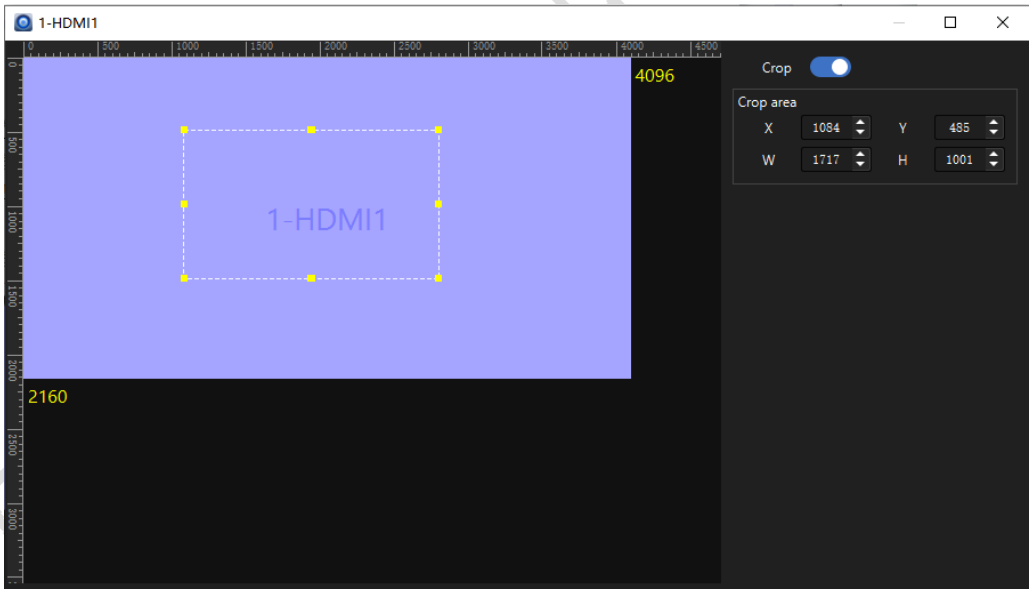


Fig 4.12-17 Signal Crop

◆ EDID...

To access the **EDID** settings window, right-click a target signal and select **EDID...**, or, click the button on top of the navigation tree. Then, you can select a preset EDID from the **Signal format list**, or click the button

above the list to create a new EDID format. See Figure 4.12-18. On the right side of the window, you can view the EDID parameters of the current signal. Depending on the models of processor, you might encounter some limitations when creating a new EDID format.

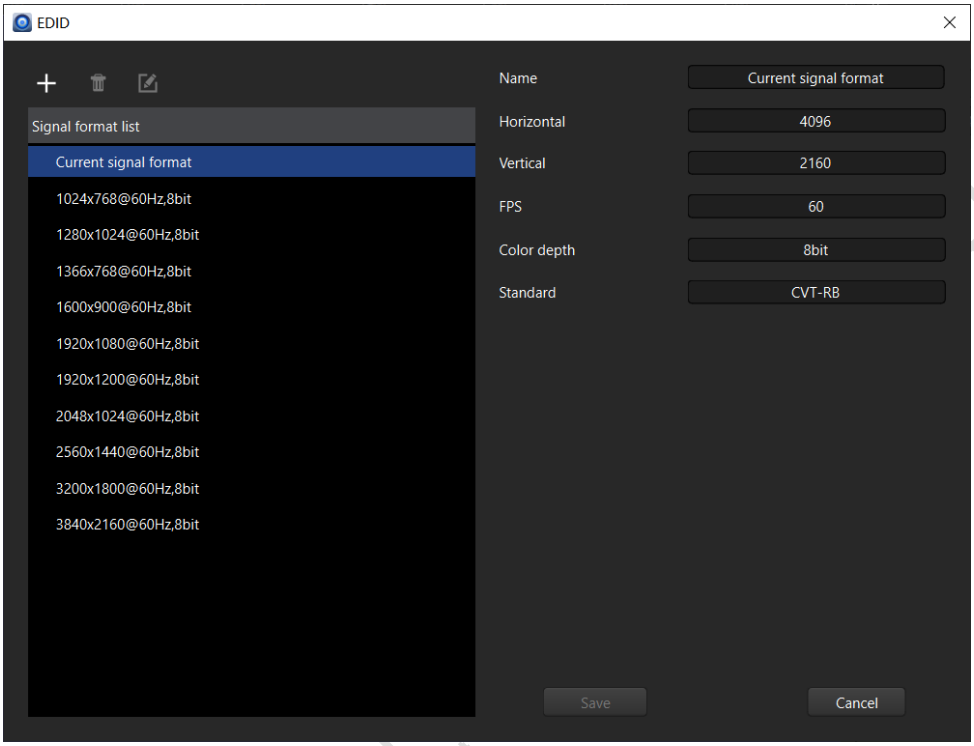


Fig 4.12-18 EDID settings

Once you click the button, the **Add signal type** window will pop up. You can enter a name or click **Generate** to name the format. Besides, you can also define the size (**Width** and **Height**), frame rate (**FPS**), **Color depth** and **Standard** of the EDID in corresponding fields.

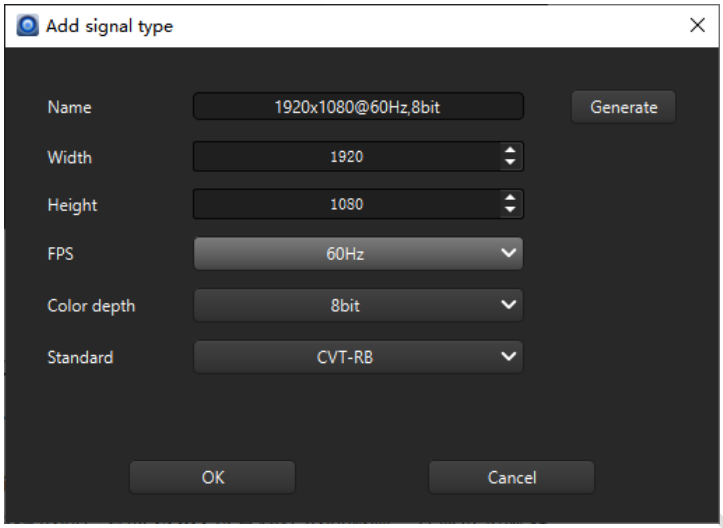


Fig 4.12-19 Add a new EDID format

Once you select **Custom** from the **Standard** drop-down menu, you will be able to modify the horizontal and vertical parameters of EDID, including parameters: **Front porch**, **Sync width**, **Sync polarity**, and **Back porch**.

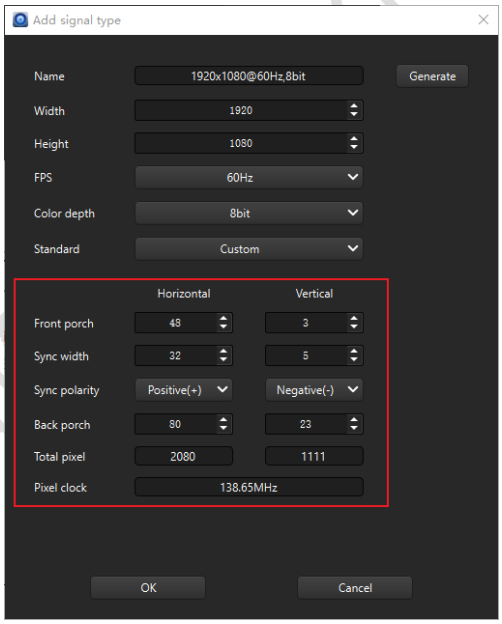


Fig 4.12-20 Custom settings of the **Standard**

- **View area**

The view area in the **Video source** tab shows the layout and size of the current signal output. You can adjust the position and size of signal through the mouse. In the view area, you can press **Ctrl** as you scroll the mouse wheel or directly select a zooming scale from the toolbar to zoom in/out the view

area display.

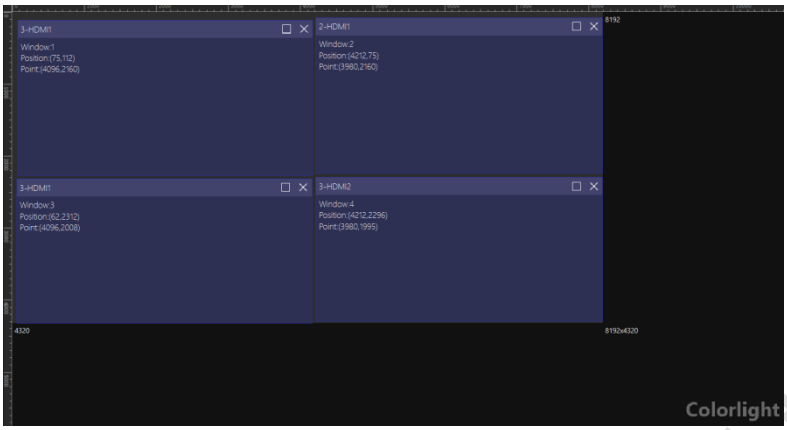


Fig 4.12-21 View area in the **Video source** tab

The signal window has a context menu. Available options of the menu include: **Bring to front**, **Send to back**, **Zoom in**, **Zoom out**, **Maximize**, **Locked position**, **Set as**, and **Set window size...** In the view area, right click on the places without signal window to gain a context menu containing **Frame rate and color depth settings...**, **Canvas size settings...**, and **Canvas fill settings...**

In the view area, each signal window has a window number based on the order the signal is added to the area to indicate its position (the smaller the number is, the closer the window is to the bottom).

- **Bring to front**

When there are multiple signal windows in the view area and the selected one is not the last one added to the area (the window number is not the largest), you can select **Bring to front** to top the window for display. Correspondingly, the number of this window will be updated to the largest and other window numbers will also change accordingly based on their new position.

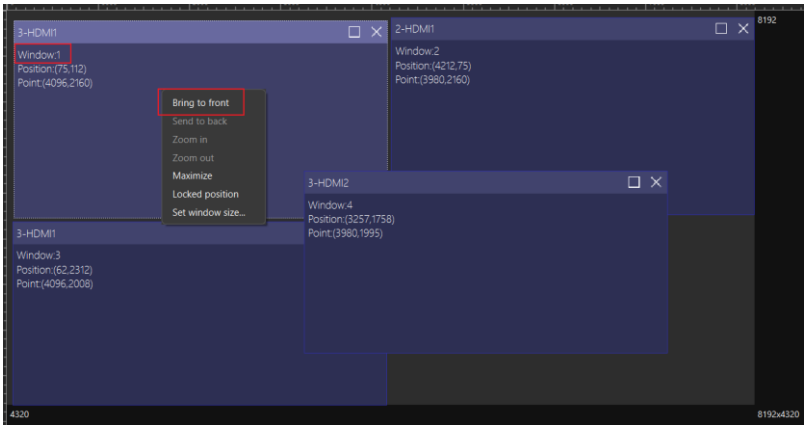


Fig 4.12-22 Bring a signal window to front

◆ **Send to back**

Similarly, when there are multiple signal windows and the selected one is not the first one added to the area (the window number is not the smallest), you can select **Send to back** to bring the window to the bottom for display. Correspondingly, the number of this window will be updated to the smallest and other window numbers will also change accordingly based on their new position.

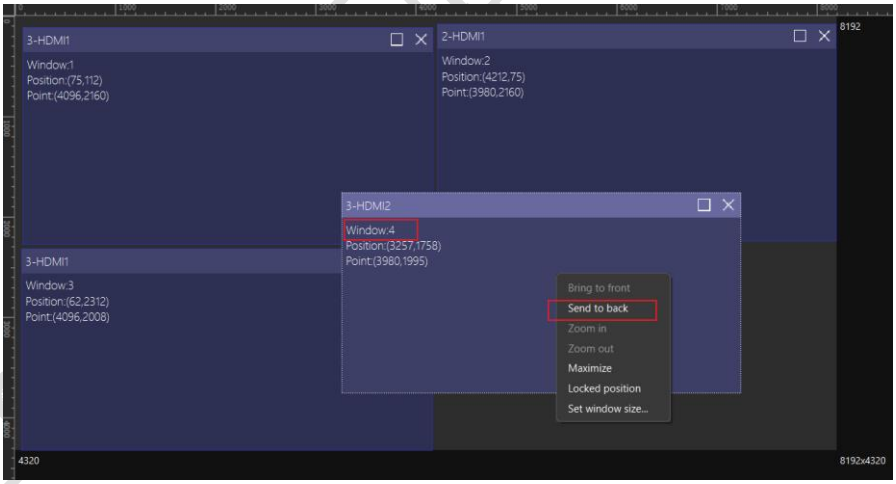


Fig 4.12-23 Send a signal window to back

◆ **Zoom in**

To make the **Zoom in/out** available from the window’ s context menu, you should first select **Show guides** from the toolbar to divide the canvas into several partition areas. When a window does not fill the partition area it currently locates at, you can right-click the window and select **Zoom in** to

make the window fill the partition area. See Figure 4.12-24.

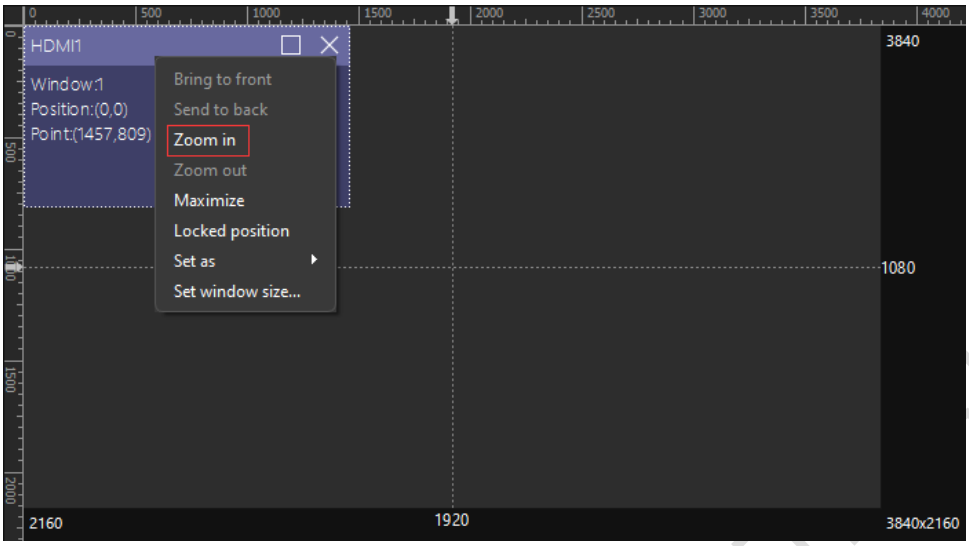


Fig 4.12-24 Zoom in a signal window

◆ **Zoom out**

A window can be zoomed out only after being zoomed in. Selecting **Zoom out** will make the window restore to its original size.

◆ **Maximize**

Select **Maximize** from the context menu of a selected window, and the window will be zoomed in to fill the canvas. Other windows with a smaller window number will then be covered.

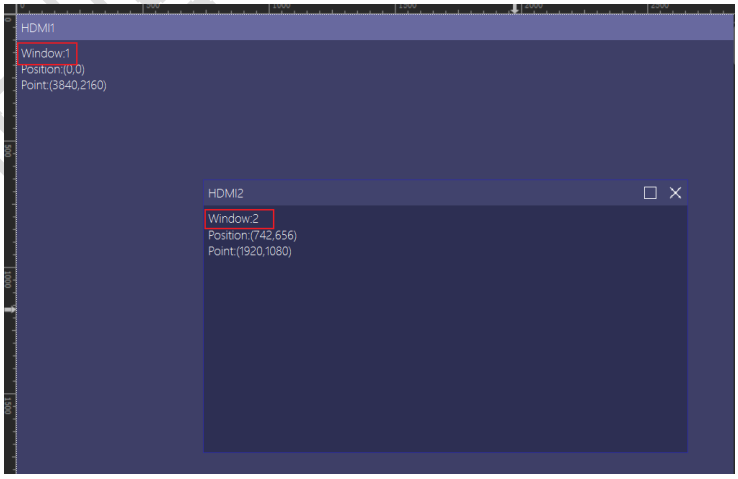


Fig 4.12-25 Window displayed at full screen

◆ **Locked position**

You can select **Locked position** to pin the selected window so that it cannot be moved or zoomed in/out. Switching signal can still be performed. Once a window is locked, a pin button will appear on the top right corner of the window.

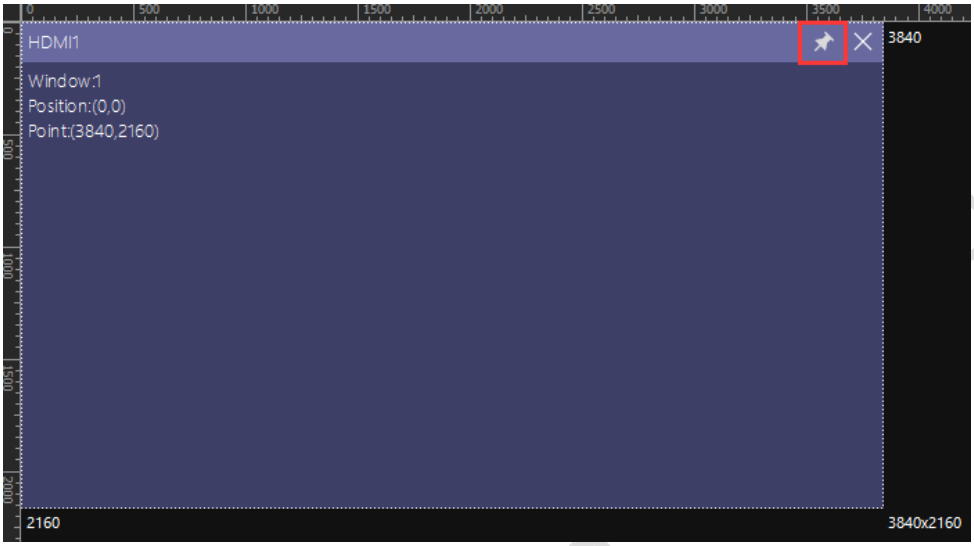


Fig 4.12-26 Lock a window on the canvas

◆ Set as

You can select **Set as** to switch to one of the other available signals.

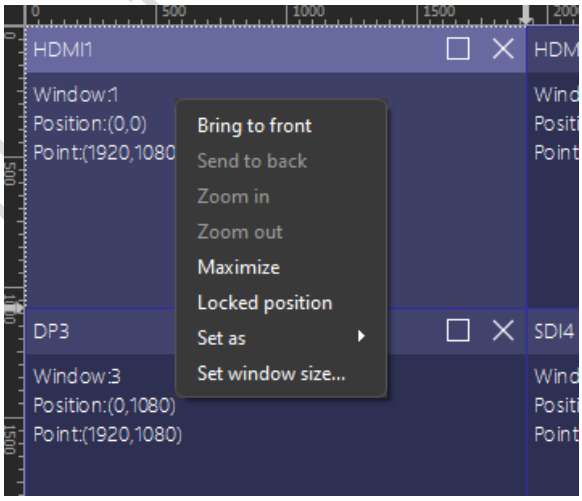


Fig 4.12-27 Switch signal

◆ Set window size

Please refer to the description of **Set window size** from toolbar in this

section above.

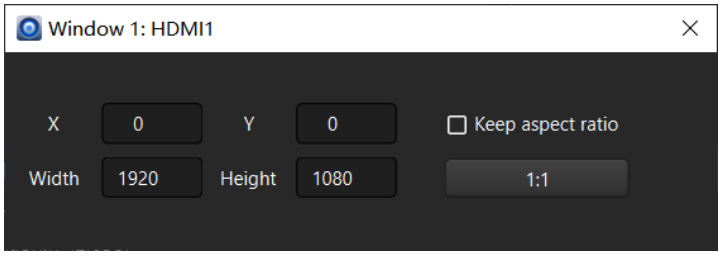


Fig 4.12-28 Set signal window size

➢ **Right panel for video source of Z8**

The right panel shows the position and size parameters of a selected input signal (if any), which are adjustable. You can also preset the output layout and adjust the output. Such area for parameter configuration differs depending on the processor models.

Fig 4.12-29 Parameter configuration area

◆ **Shrink/Expand**

Click the arrow » / « to hide or show the right panel.

◆ **Position and size of the output**

You can adjust the output of a selected signal in the right panel. Options in the panel might differ depending on the processor model. Select a window in the view area, then enter a desired coordinates (**X**, **Y**) and size (**W** & **H**) in corresponding input boxes. You can also select **Keep aspect ratio** or click the **1:1** button for quick settings.

Fig 4.12-30 Set up the position and size of the output

➢ Presets in Z6 PRO

You can save the interface settings to the processor as a preset. One processor supports saving 16 presets. A preset contains settings including 3D settings, layout, video input source, picture size, signal cropping, picture adjustment, and PIP transparency.

Click **All processors** to enter into the preset loading interface. At the bottom of the interface, each preset will be added a serial number (1-16, from left to right, top to bottom). A preset can be loaded on the current processor by switching off the **Load presets together** toggle button and select a desired preset. When there are multiple processors cascading, each processor can have their own preset list. In this case, if you want to make all processors apply presets of a specific serial number of their own preset list (e.g., the second preset on the preset list), you can realize this goal in the interface of one processor by switching on the **Load presets together** toggle and selecting the preset with the desired serial number.

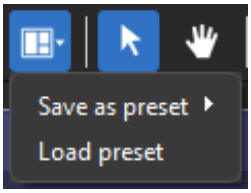


Fig 4.12-31 Preset

Save as preset

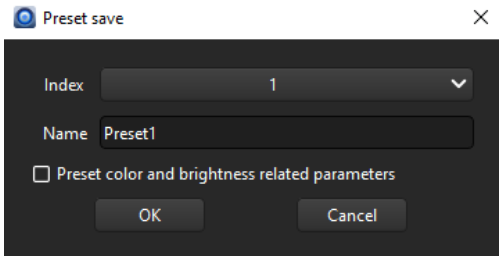


Fig 4.12-32 Save parameters as preset

Load preset to a single processor

There are two ways to load preset to a single processor:

(1) Select one processor, click **Load preset** in the **Preset** drop-down menu, and then select a preset you want to apply on the pop-up window **Load preset**.

(2) Select **All processors**, then select the processor you want to load the preset to in the view area. Once selected, the processor will be marked with a yellow frame. Next, you can select a preset to apply to the selected processor.

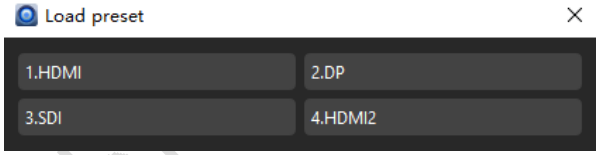


Fig 4.12-33 Load preset from the preset list

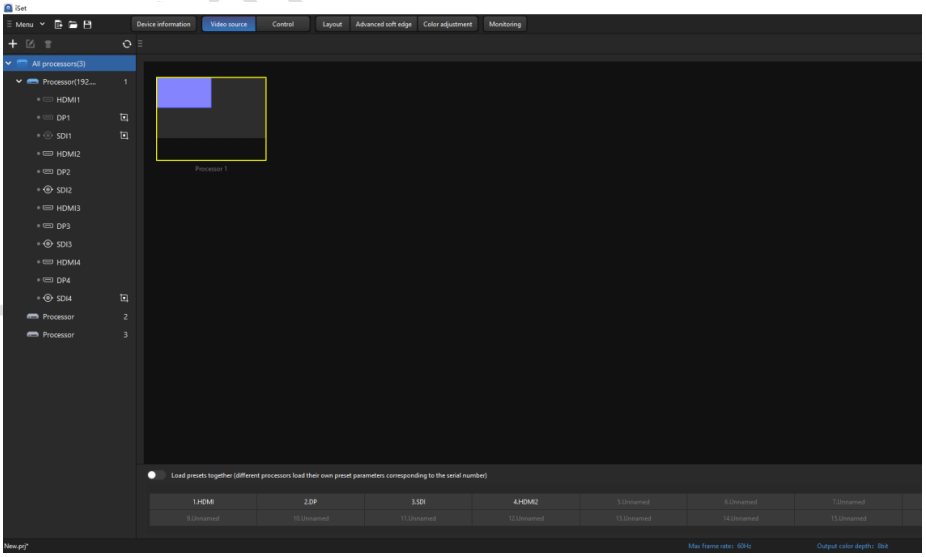


Fig 4.12-34 Load preset in the preset loading interface

Load presets to multiple processors

Select **All processors** and then switch on the **Load presets together** toggle button. Next, select a desired preset to apply to all processors.

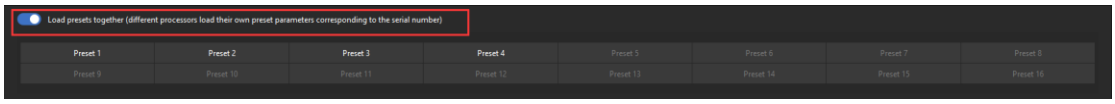


Fig 4.12-35 Load presets to multiple processors

➢ **Right panel for video source of Z6 PRO**

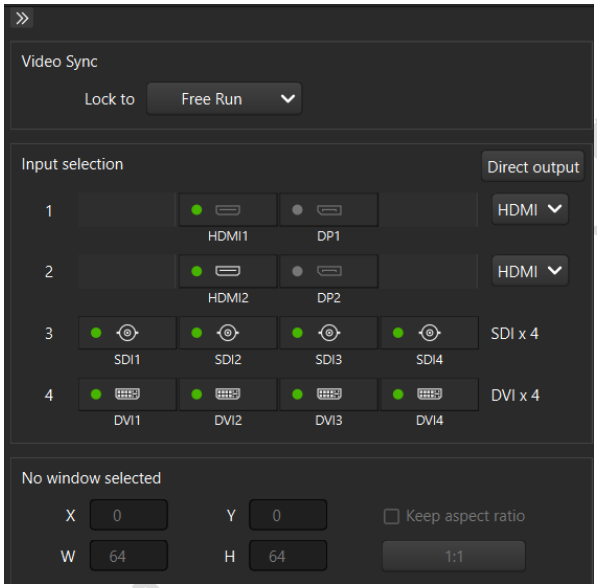


Fig 4.12-36 Right panel for video source of Z6 PRO

◆ **Video Sync**

When the processor supports signal synchronization, the right panel in the **Video source** tab will have options for this function available. The interface might be different depending on the processor model. Before performing this function, you must ensure there is signal input.

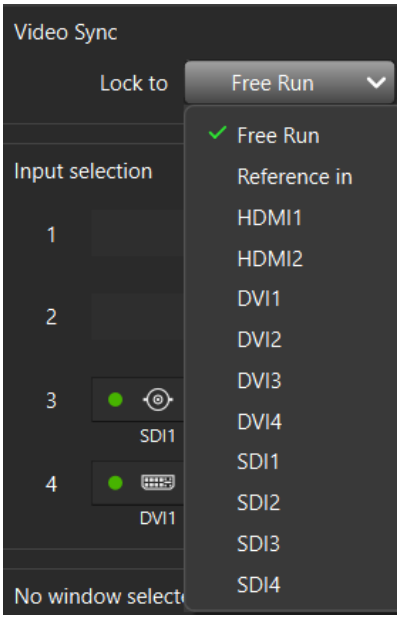


Fig 4.12-37 Sync signal selection

◆ **Direct output**

You can enable the low-latency channel by one-click on the **Direct output** button. This will disable operations such as multiple windows and cropping.

◆ **Input selection**

The **Input selection** area shows available main boards and sub-boards. You can drag signals directly to the view area, which is the same as the operation of adding window from the toolbar. When DP signal and HDMI signal are both available from the slot, there will be a button available next to the signals for signal switching.

Fig 4.12-38 Input selection

◆ **Position and size of the output**

You can adjust the output of a selected signal in the right panel. Options in the panel might differ depending on the processor model. Select a window in the view area, then enter a desired coordinates (**X**, **Y**) and size (**W** & **H**) in corresponding input boxes. You can also select **Keep aspect ratio** or click the **1:1** button for quick settings.

Fig 4.12-39 Set up the position and size of the output

4.13 Project Configuration

➢ **New project**

You can first click the **New project** button or use the shortcuts (**Ctrl** + **N**) for the pop-up window **Project configuration**. Then in the window, you can enter relevant parameters to create a new project. The project will be named as "New.prj" by default. If the current project has not been saved, you will be reminded by a pop-up message. A project contains the data including the processor count, cabinet count, cabinet position, mapping, basic parameters, etc.

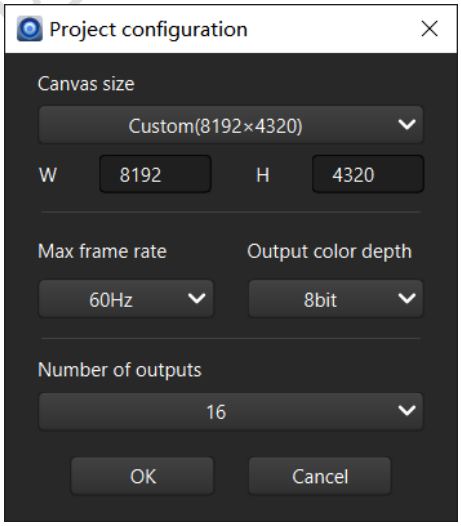


Fig 4.13-1 Create a new project

➢ Open project

Click **Open project** or use the shortcuts (**Ctrl** + **O**) to import a local project file to iSet. If the current project have not been saved, you will be reminded by a pop-up message.

➢ Save project

Click **Save project** or use the shortcuts (**Ctrl** + **S**) to export current project parameters as a local project file. The file extension of the exported file is ".prj", and the file will be named as "New.prj" by default.

➢ Read project from processor

Click **Read project from processor** button and then a pop-up message will be shown reminding you the operation has succeeded. If you add a new cabinet in the **Layout** tab and then click **Read project from processor** button, a pop-up message will be shown reminding you that the current project has not been saved.

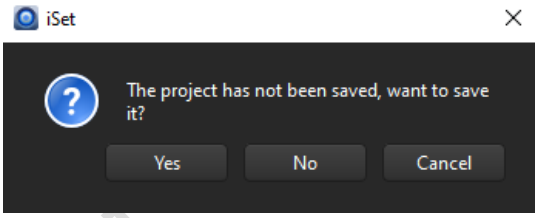


Fig 4.13-2 Reminding message for saving the current project

➢ Save project to processor

Click **Save project to processor** button and if there are projects saved in the current processor (e.g.: Processor1), a pop-up message will be shown asking "Want to override the project file saved in the processor1?" If there is no projects saved in the current processor, a message will be shown telling you the operation has succeeded.

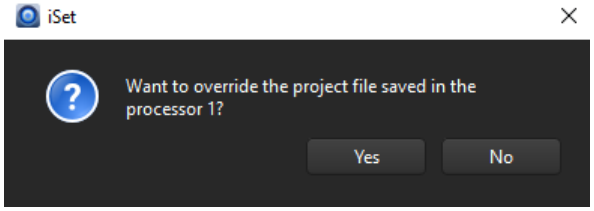


Fig 4.13-3 Save project to the processor

4.14 Read Only

The **Read only** mode can be applied to the tabs of **Video source, Layout, Control, Calibration, Soft edge, Advanced soft edge, Color adjustment**, and **Monitoring**.

The application of this mode in the above tabs is independent from one another.

You can apply this mode by clicking the **Read only** button at the top right corner of each tab. In this mode, you can only view the information shown on the tab and cannot modify any items. Once this mode is enabled, it will remain valid for every time you open iSet until you disable it.

FIig 4.14-1 Read only mode

4.15 Bubble Message

A bubble message will be shown when any of the following event occurs: No connection to processor, blackout display, free display, 0 brightness, incorrect frame rate settings, zoomed output, and anomaly monitored. You can read the message by putting the mouse on the bubble.

- **No connection to processor**

When the processor is not connected, a bubble message will be shown at the top right corner of the interface.

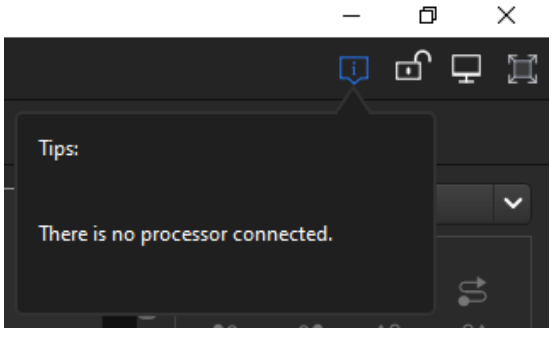


Fig 4.15-1 Message for no connection to processor

- **Blackout**

When you blackout the LED display, a bubble message will be shown at the top right corner of the interface. And in the message box, there will be a button **Disable blackout** available.

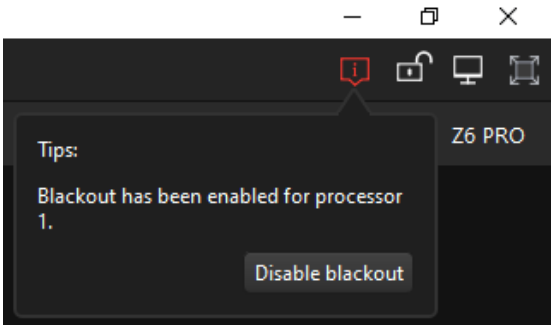


Fig 4.15-2 Message when Blackout is enabled

- **Freeze**

When **Freeze** is enabled, a bubble message will be shown at the top right corner of the interface. And in the message box, there will be a button **Unfreeze** available for restoring normal display.

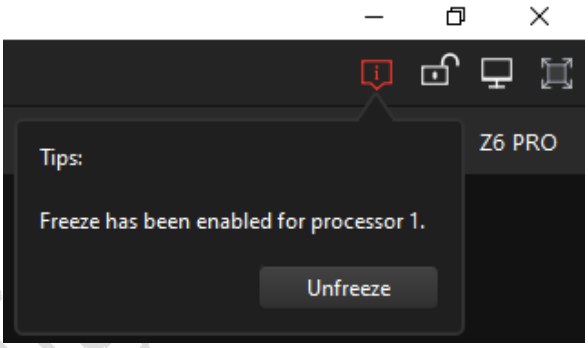


Fig 4.15-3 Message when Freeze is enabled

- **0 brightness**

When the brightness is set to 0 in the tabs of **Control**, **Soft edge**, and **Advanced soft edge**, a bubble message will be shown at the top right corner of the interface.

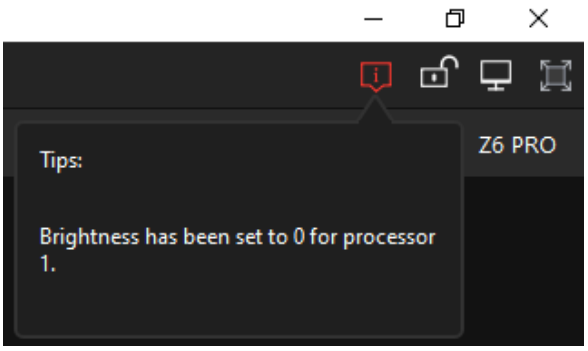


Fig 4.15-4 Message when brightness is set 0

◆ **Incorrect frame rate settings**

When the maximum frame rate set in the **Project configuration** window is smaller than that of the processor, a bubble message will be shown at the top right corner of the interface.

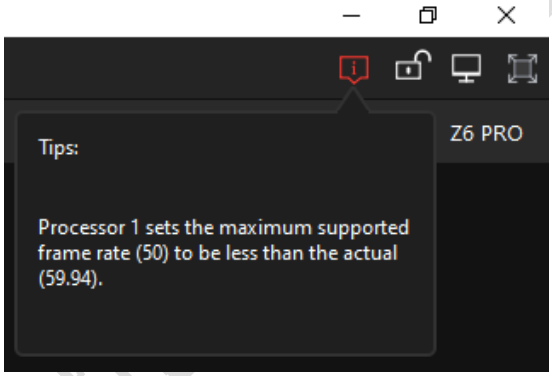


Fig 4.15-5 Message when frame rate is set incorrectly

◆ **Blackout enabled in test mode**

When you select **Black** as a test pattern, a bubble message will be shown at the top right corner of the interface. And in the message box, there will be a button **Set to normal** available for normal display.

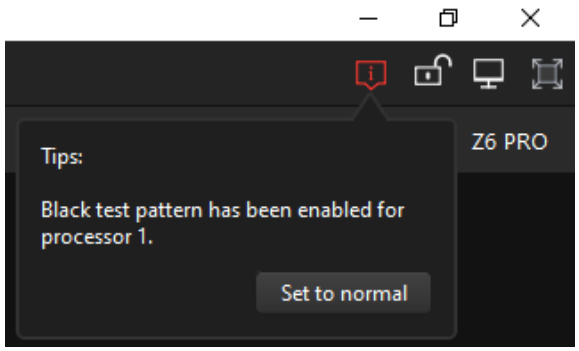


Fig 4.15-6 Message when **Black** is selected as the test pattern

◆ **Soft edge enabled with a zoomed output signal**

If you enable **Soft edge** when the output signal has been zoomed in/out, a bubble message will be shown at the top right corner of the interface, reminding "Scaler in use, it may affect the seam correction process in soft edge."

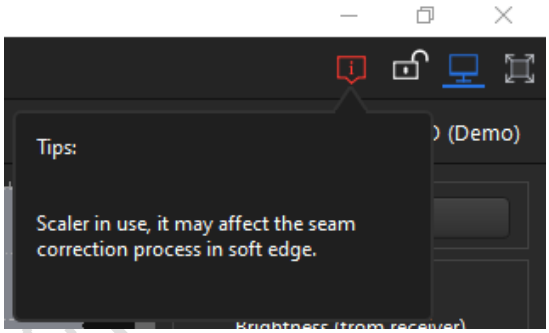


Fig 4.15-7 Message when you enable Soft edge with a zoomed output signal

◆ **Anomaly detected**

When there is any anomaly detected, a bubble message will be shown at the top right corner of the interface. You can click the **Go to monitoring** button in the message box to access the **Monitoring** tab.

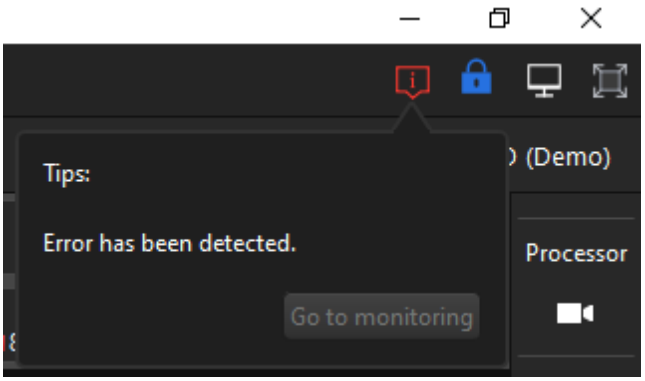


Fig 4.15-8 Message when anomaly is detected

Statement

This guide is for reference only and does not constitute any form of commitment. Please refer to the actual products (including but not limited to color, size, screen display, etc.).

Service Phone

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