

LED Controller

User Manual

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The symbols that may be found in this document are defined as follows.

Symbol	Description
	Provides additional information to emphasize or supplement important points of the main text.
	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

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Chapter 1 Introduction

1.1 Product Introduction

LED Tool Client is a powerful and user-friendly software application. By adding various display controlling devices (hereinafter referred to as devices) in the client, it enables convenient management of full-color LED displays (hereinafter referred to as displays or screens). The client supports multiple functions and is suitable for various scenarios such as meeting rooms, studios, stadiums, airports, train stations, banks, advertising, and home theaters.

You can add the following devices into the client:

- LED controllers
- Video wall controllers (all video wall controllers mentioned in this document must be equipped with at least an LED controller board)
- LED all-in-one displays
- LED poster displays

Note

To focus on the core operational workflow, this document will primarily revolve around LED controllers and video wall controllers. LED all-in-one displays and LED poster displays, as integrated devices, share a similar basic operational logic with LED controllers and can be referenced in the relevant sections.

1.2 Overall Configuration Process

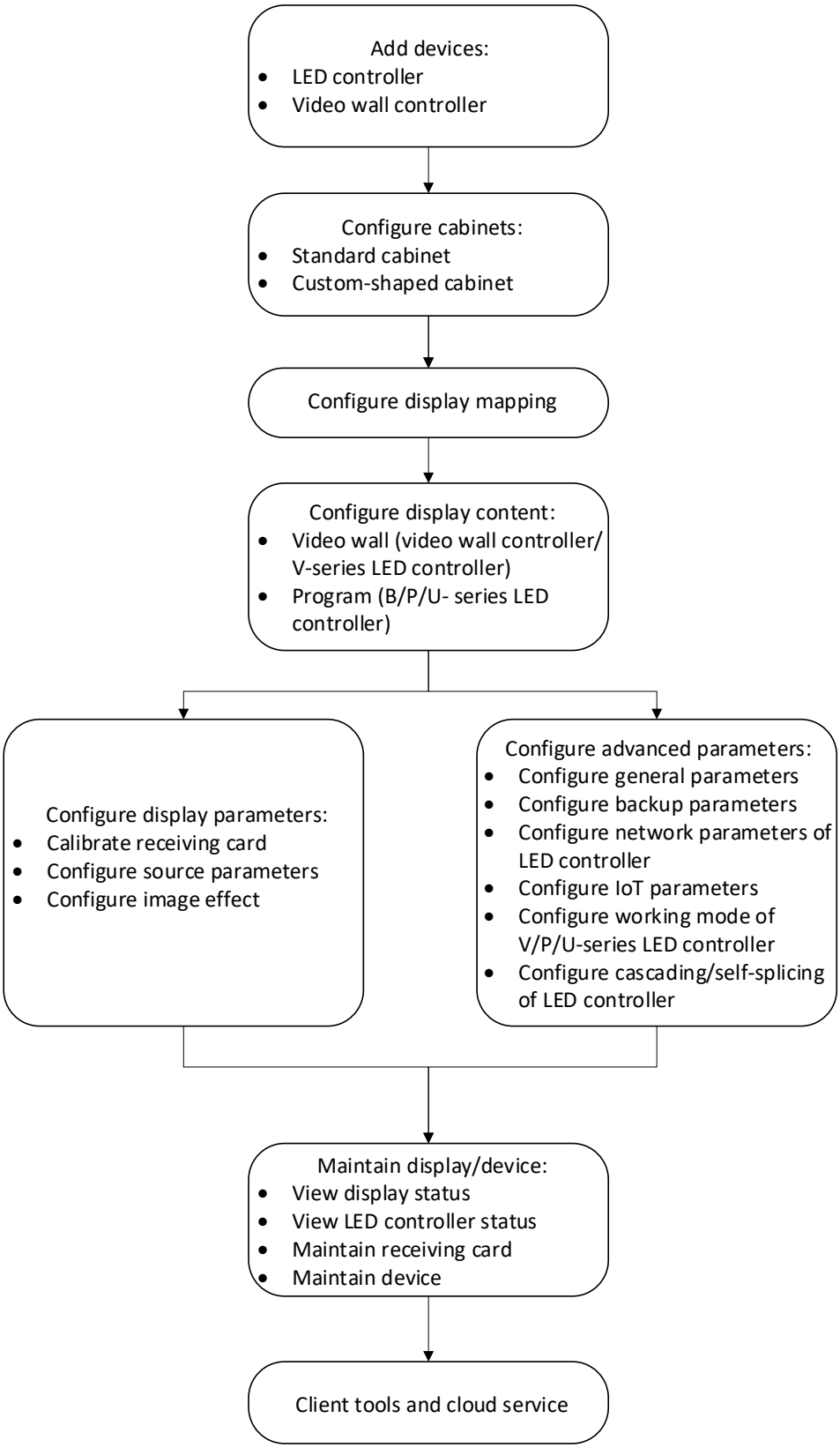

Figure 1-1 First-Time Configuration Process

Chapter 2 Device Basic Configuration

2.1 Device Specifications

LED all-in-one Display

DS-D4512CB108-2FQ, DS-D4515CB135-2FQ, DS-D4518CB162-2FQ

LED Poster Display

DS-D4512CH-1FQ, DS-D4515CH-1FQ, DS-D4518CH-1FQ, DS-D4525CH-1FQ, DS-D4512CH-1FQF, DS-D4515CH-1FQF, DS-D4518CH-1FQF

Video Wall Controller

DS-C60S, DS-C66S

LED Controller

LED controllers are categorized by their maximum supported output resolutions as follows:

Supported Output Resolution	Supported LED Controller Series
2K resolution	● DS-DT60C/V/B/P series ● DS-DT30C/V/B/P series ● DS-TC/V/B/U Series
4K resolution	● DS-DT60C/V/B/P series ● DS-TC/V/B/U series
Ultra 4K resolution	● DS-DT90C/V/P series ● DS-TV series

The compatible receiving card models for each LED controller series are as follows:

LED Controller Series	Compatible Receiving Card Models
DS-DT90/60/30/20 series	● DS-DR series AXS-type and HUB-type receiving cards ● DS-T series AXS-type and HUB-type receiving cards
DS-T series	● DS-DR series HUB-type receiving cards ● DS-T series HUB-type receiving cards

2.2 Add Devices

Function Description

Projects are divided into online projects and demo projects. For detailed definitions, see "**Function Description**".

Steps

Step 1 Select a project:

- Use a default project (a saved online project or demo project).
- Click **Create Project** to create an online project or demo project.

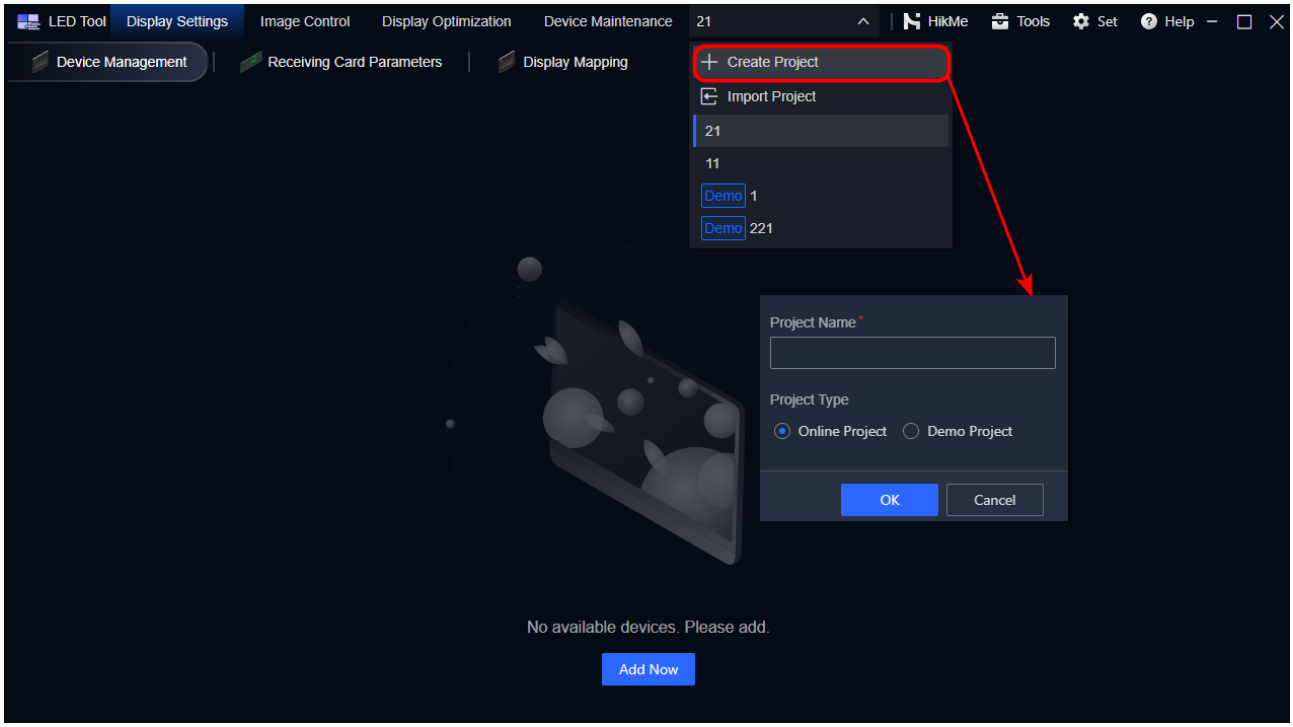

Figure 2-1 Select a Project

Step 2 After entering the project, the system displays the **Display Settings** > **Device Management** page by default. Click **Add Now** to open the **Add Device** window.

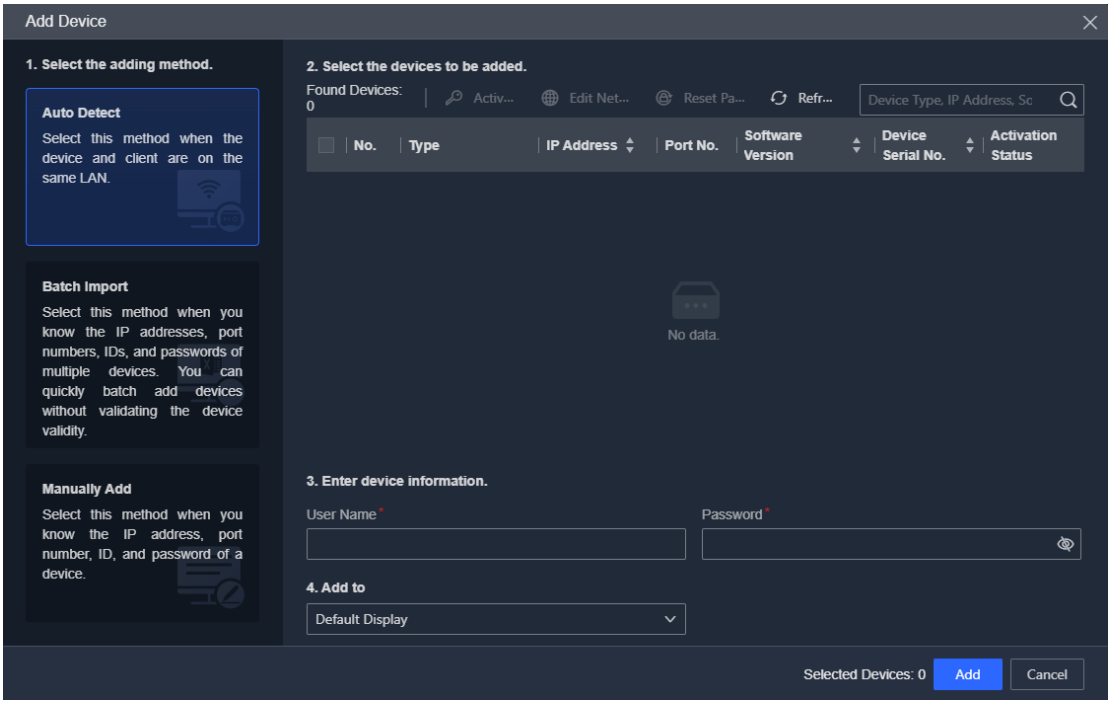

Figure 2-2 Open Add Device Window

Step 3 Select one of the following methods to add a device:

- 2.2.1 Add Online Devices
- 2.2.2 Batch Import Devices
- 2.2.3 Manually Add Single Device

Step 4 After adding a device, you can use the following entry points on the **Device Management** page to add more devices:

- Click **Add Device**.
- Click **Add New Device** within the target display.

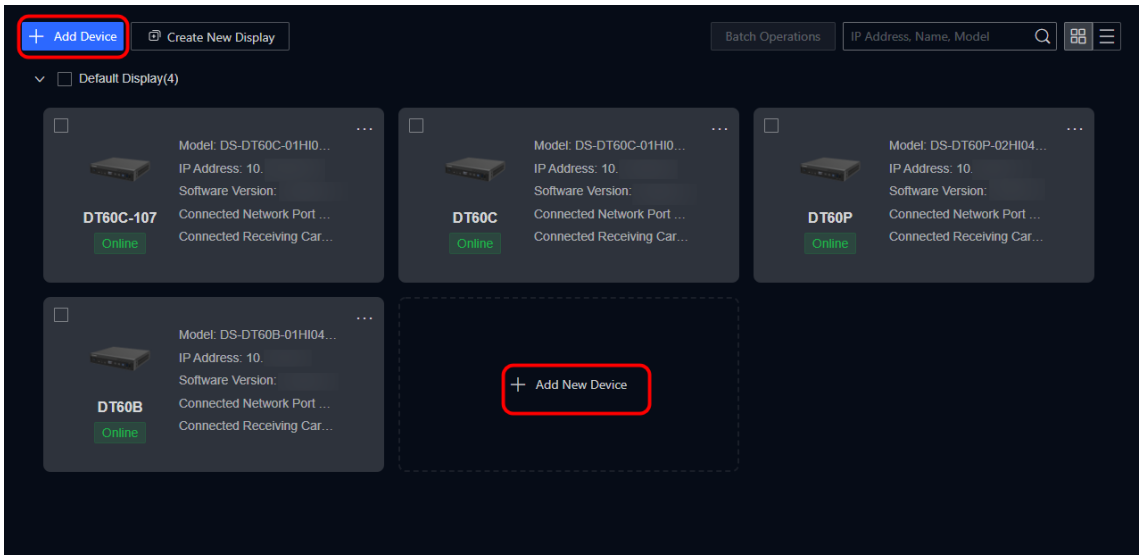

Figure 2-3 Add Device Entry

2.2.1 Add Online Devices

Step 1 Click **Auto Detect**.

Step 2 (Optional) You can perform the following operations as required:

- Reset the password of a device:

1) Select a device, and click **Reset Password**.
2) Click **Export** to export the password file.
3) Send the exported password file to the technical support to obtain a new password file.
4) Click **Import** to import the new password file.
5) Enter the new password and confirm password.
6) Click **OK**.

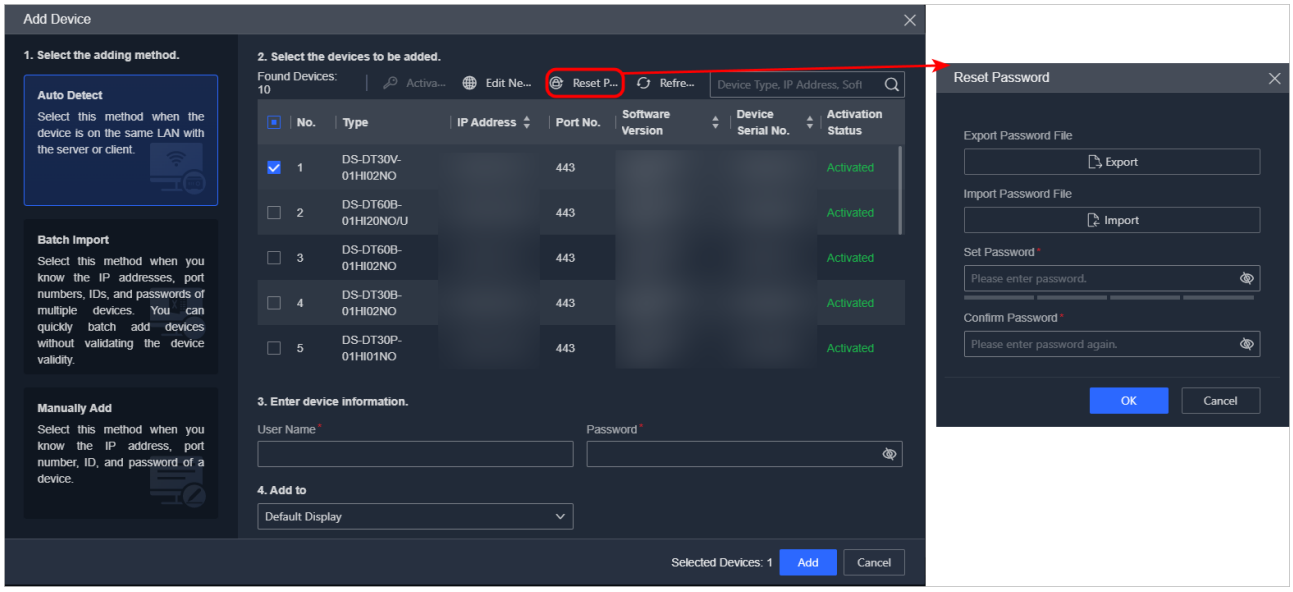

Figure 2-4 Reset Password

- Edit network parameters: Select a device and click **Edit Network Parameters**.

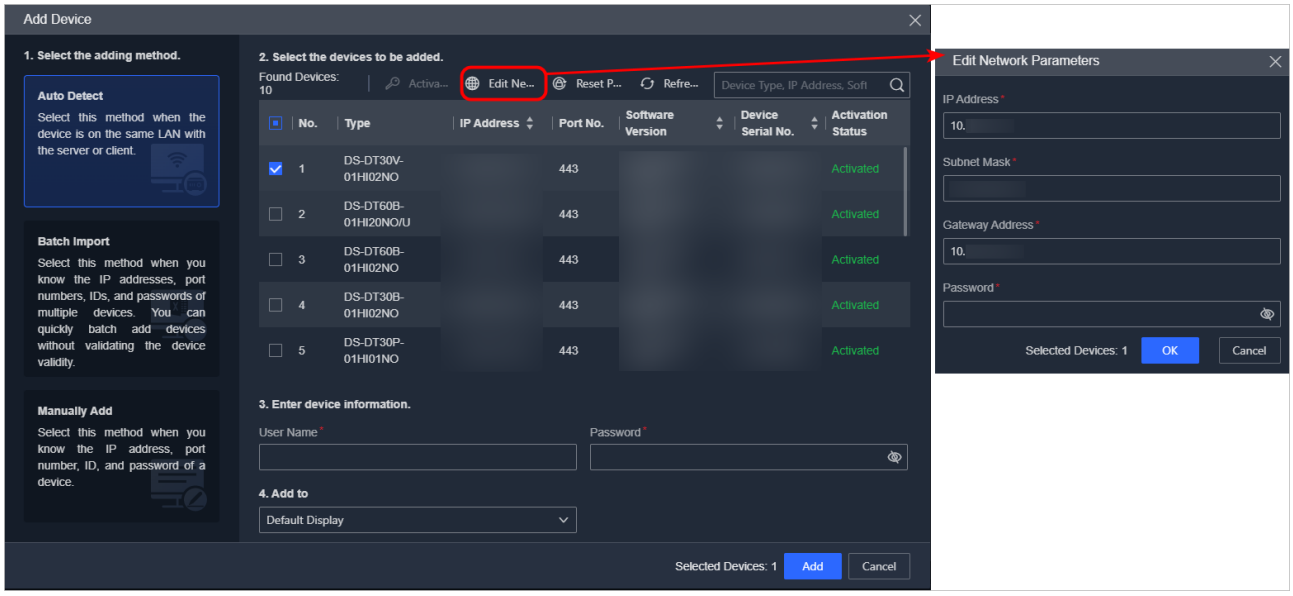

Figure 2-5 Edit Network Parameters

- Rescan for online devices: Click **Refresh**.

Step 3 Select the devices that use the same activation password, enter the user name and password, select the group, and then click **Add**.

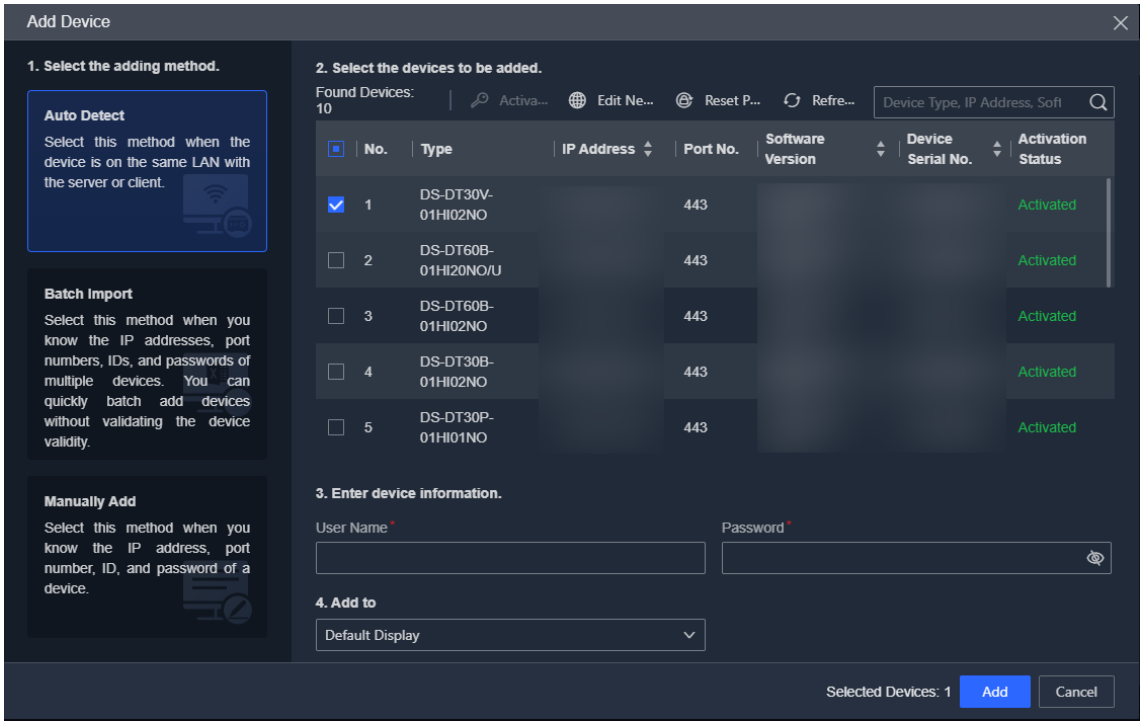

Figure 2-6 Add Online Devices

Note

If a device is not activated, select the device and click **Activate**.

2.2.2 Batch Import Devices

Step 1 Click **Batch Import**.

Step 2 Click **Download Template** and enter the device information in the template file.

Step 3 Click  to upload the file, select the display, and then click **Add**.

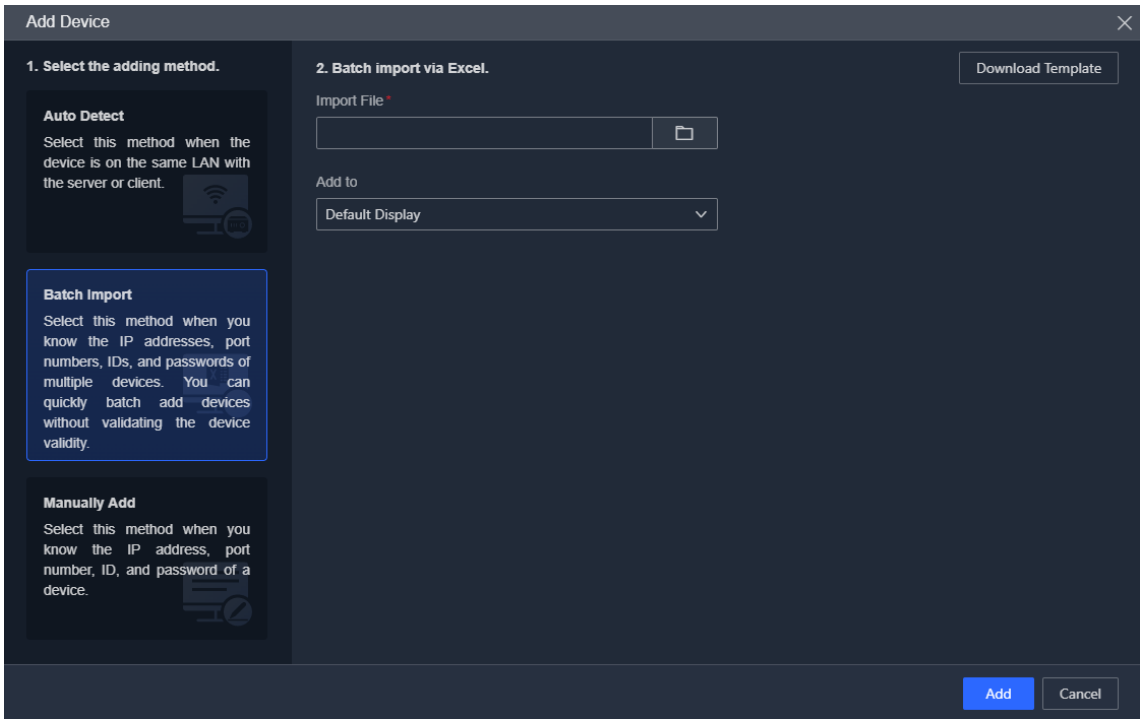

Figure 2-7 Batch Import Devices

2.2.3 Manually Add Single Device

Step 1 Click **Manually Add**.

Step 2 Enter the device information and click **Add**.

- Check **Sync Device Time** to synchronize the device time with the time of the client-installed computer.
- Enable **Add Offline** to add offline devices. To update the offline device status, click  next to **Devices**, click **Refresh** in the **Device Management** window, or restart the client.
- To add an LED controller, you need to select the target display.
- If you add a video wall controller, all LED controller boards in the video wall controller will automatically belong to the display of that video wall controller.

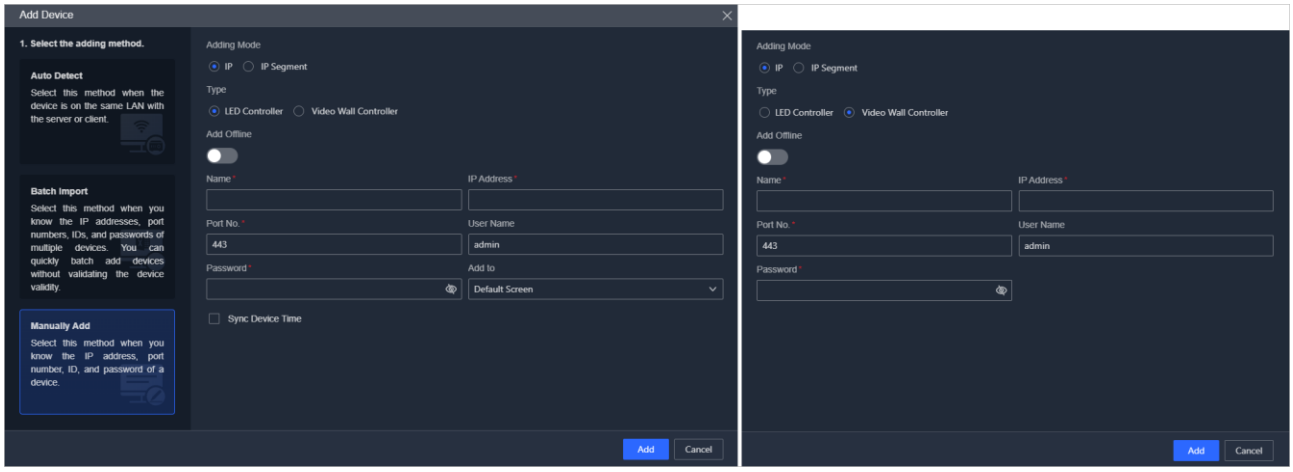

Figure 2-8 Manually Add Devices

Note

To add multiple devices, repeat the operation described above.

2.3 Manage Devices

2.3.1 View Devices & Displays

On the **Display Settings** > **Device Management** page, click  or  to switch the device display mode.

- Tab view: Displays devices by display in separate tabs.
  - For video wall controllers, the information shown for the main control boards and sub-boards differs.
  - Drag to reassign displays: Drag a device card to the target display to change the display to which the device belongs.
- List view: Displays devices in a list grouped by display. The information shown in list view differs from that in tab view.

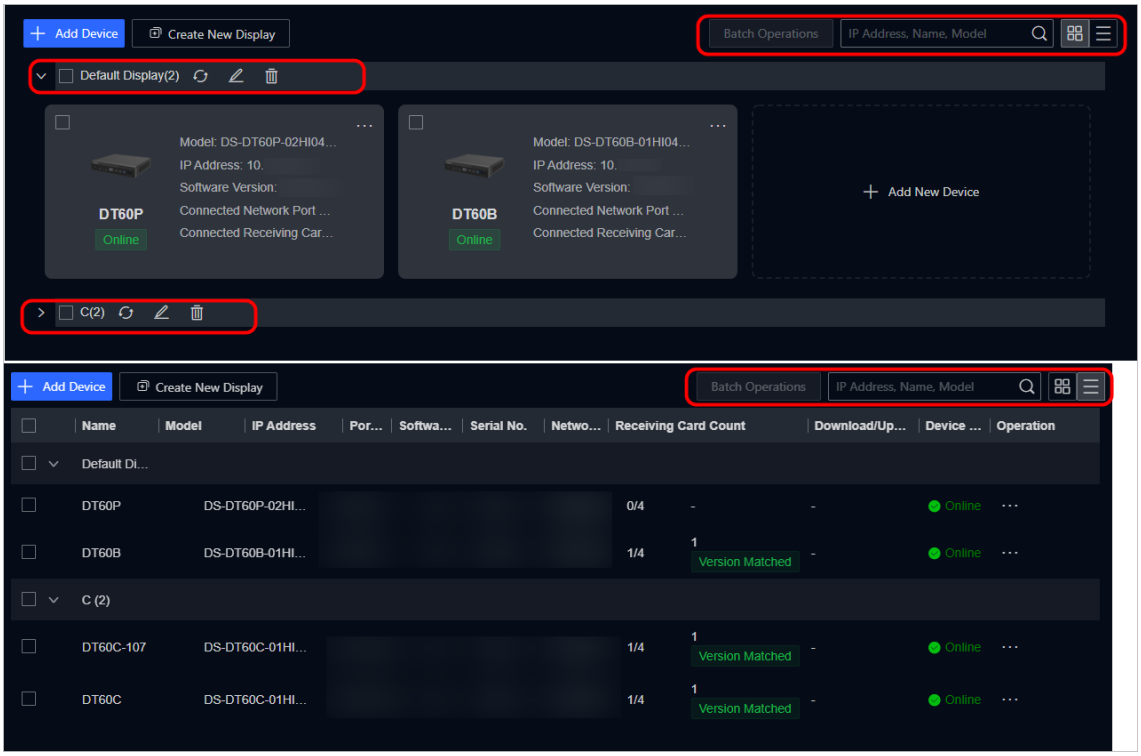

Figure 2-9 Device Management Page

- Create a new display: Click **Create New Display**, enter a display name, and select the devices to be added to the new display.

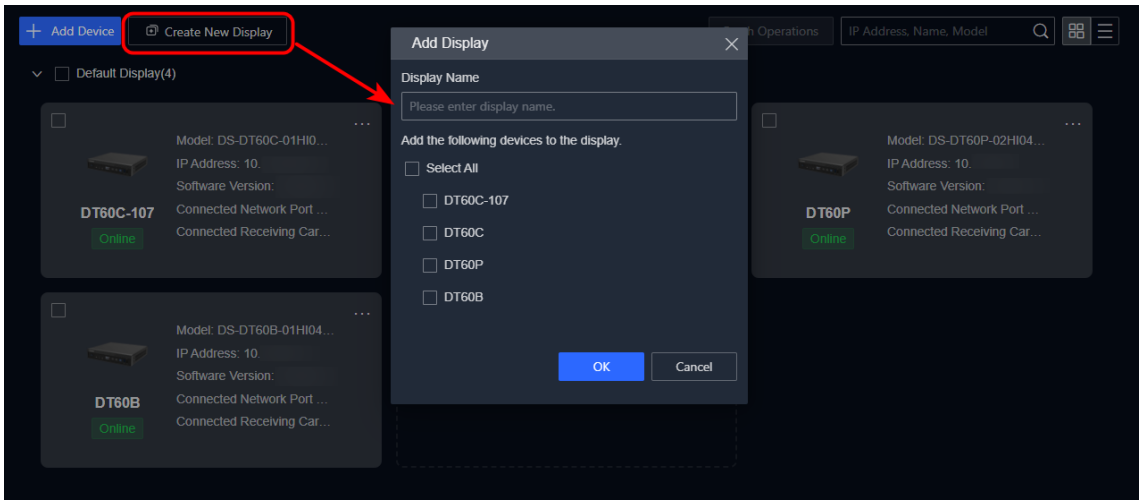

Figure 2-10 Creating New Display

- Edit a display: Hover the mouse over the display name to refresh, rename, or delete it. The default display only supports refresh.
- View device details: Click any device to show its detailed information panel at the bottom of the page:
  - Password-free login: Click the name in the upper-left corner of the information panel to log in to the device's web page without a password.
  - Copy information: In the **Basic Information** area, click any field to copy its value.

- View connection status: In the **Network Port** area, a green indicator means the network port is connected to a physical receiving card.
- Online detection: When the receiving card's network port indicator flashes normally but the card does not appear in the **Receiving Card Details** area, click **Online Detection** to search for and add the receiving card again.
- When the **Receiving Card Comparison** prompts a version mismatch, upgrade the device or receiving card. For details, see "2.3.3 Upgrade Devices".

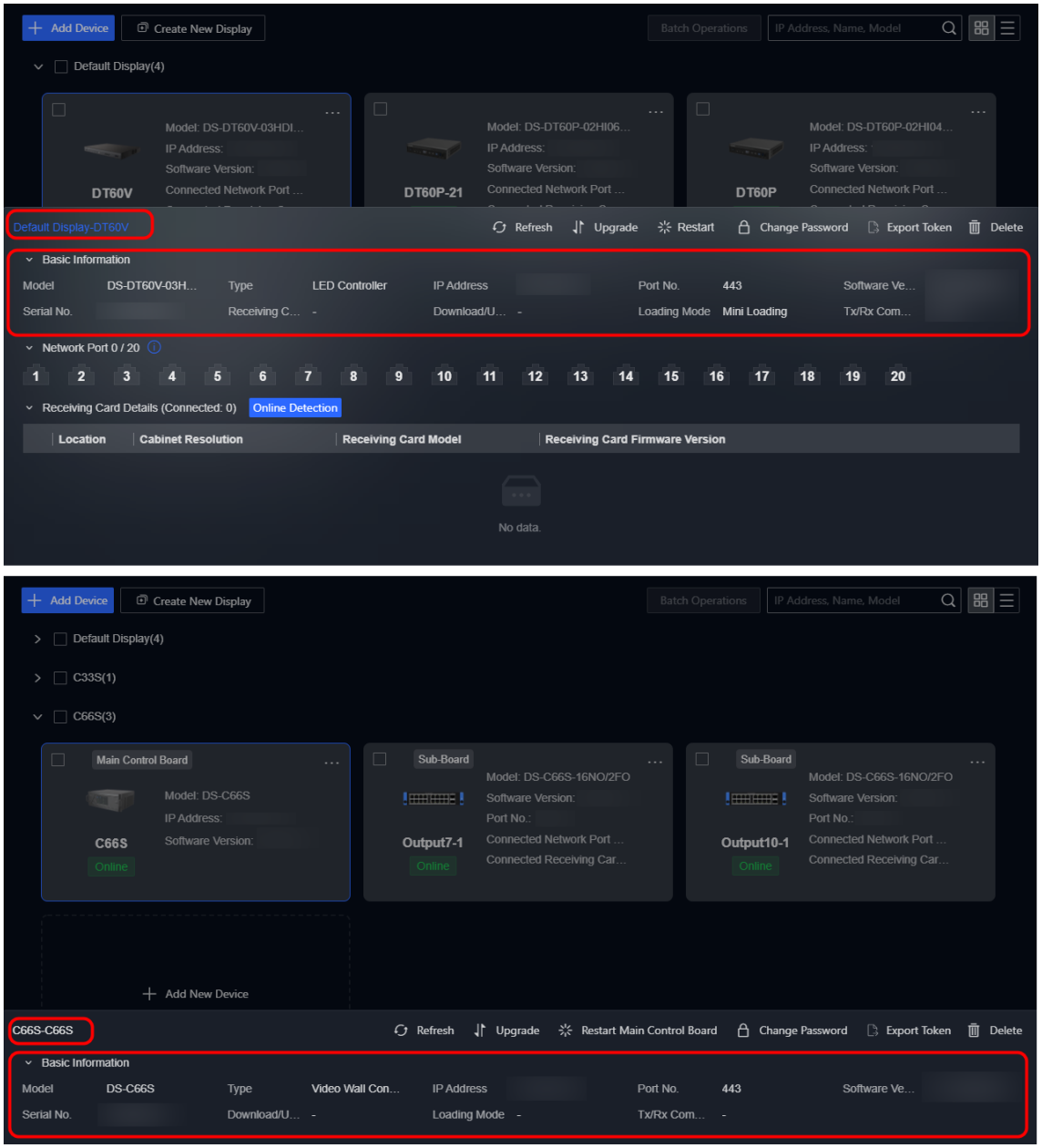

Figure 2-11 Device Details

2.3.2 General Device Operations

After selecting a device, you can perform the following general management operations.

- Click  of a target device. The supported operations vary by device type:
  - LED controller: Refresh, edit, upgrade, restart LED controller, restart receiving card, change password, export token, delete device.
  - Main control board of video wall controller: Refresh, edit, upgrade, restart main controller board, change password, export token, delete device.
  - Sub-board of video wall controller: Refresh, upgrade, restart receiving card.
- Export token: To register the device with HikMe, click **Export Token**. Only the DT90P, DT60B/P, DT30B/P, and DS-TB/U series LED controllers support token export.
- Edit device information: Click **Edit** to modify the device name, IP address, port, username, and password, and enable **Sync Device Time**. The sync device time function is supported only for LED controllers.
- Change password: Click **Change Password** to set a new password for the device.

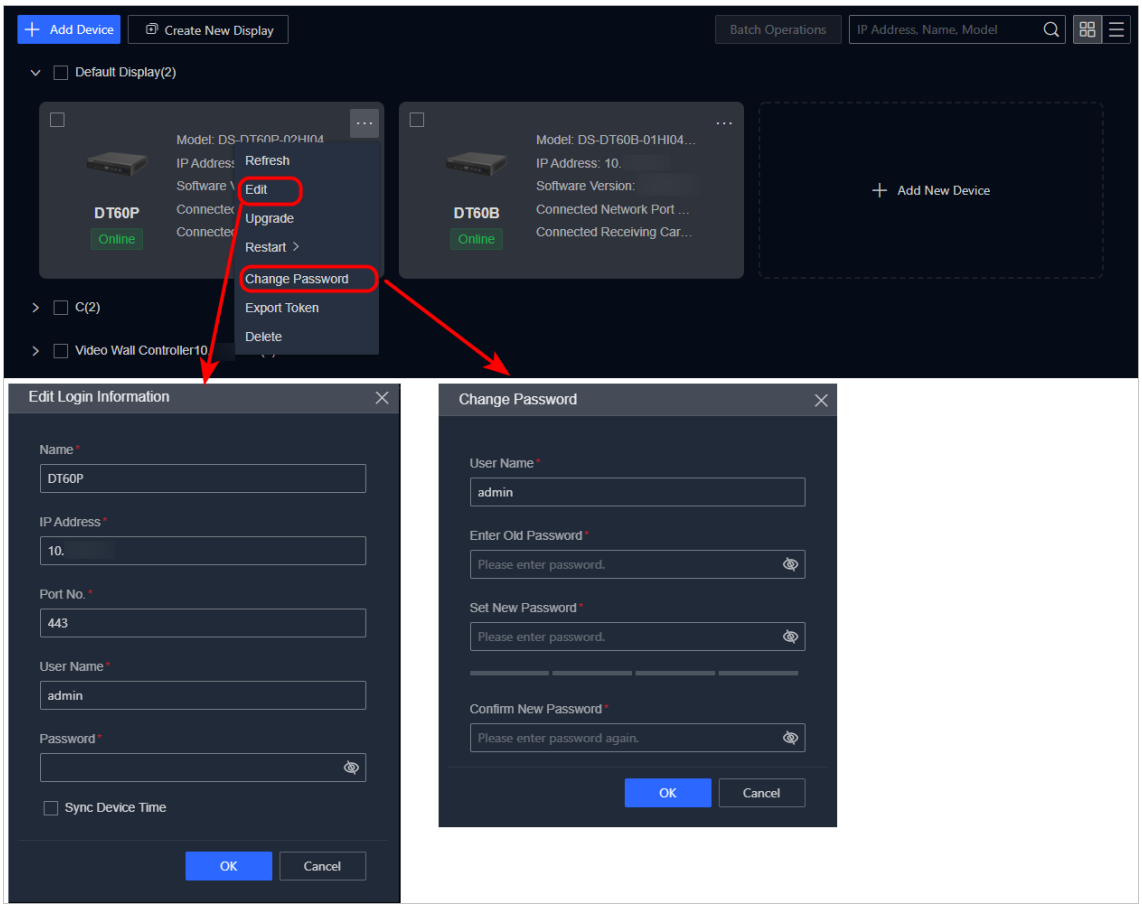

Figure 2-12 Edit/Change Password

- Batch operations: Select multiple devices or select a display, then click **Batch Operations**. You can refresh, upgrade, change password, export token, or delete the selected devices or displays.

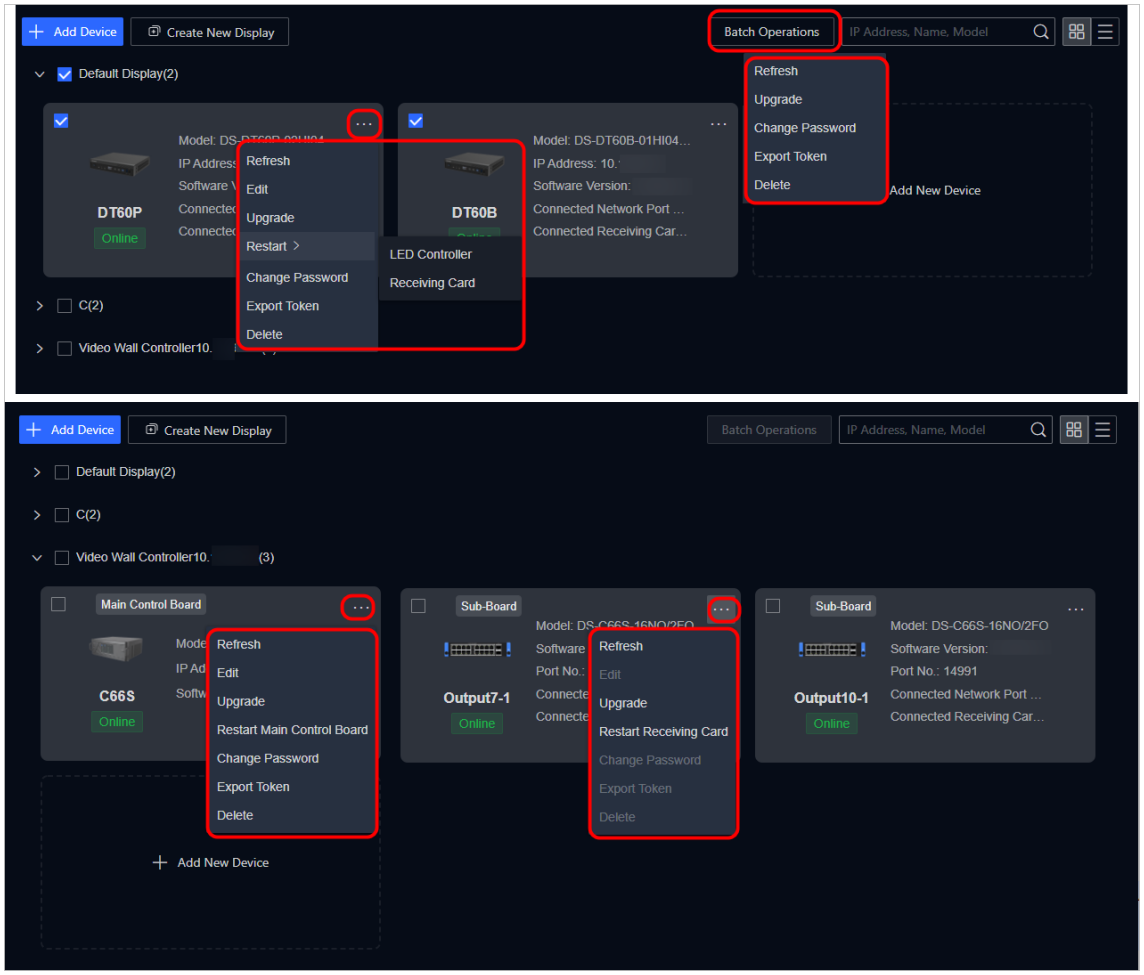

Figure 2-13 Device Operation Menu

2.3.3 Upgrade Devices

Different device types have different upgrade methods. Before upgrading, it is recommended to check whether the receiving card and LED controller versions are consistent.

- Check version consistency: In the list view or device details, you can check whether the receiving card and LED controller versions are consistent. If they are inconsistent, you need to upgrade the receiving card or LED controller.
- Upgrade LED controller: Supports upgrading the LED controller or receiving card separately.
  - Upgrade LED controller: For online upgrade, click **OK** directly. For offline upgrade, select a local upgrade file and click **OK**.
  - Upgrade receiving card: For online upgrade, select an online search method, enter the required information, and click **OK**. For offline upgrade, select a local upgrade file and click **OK**.

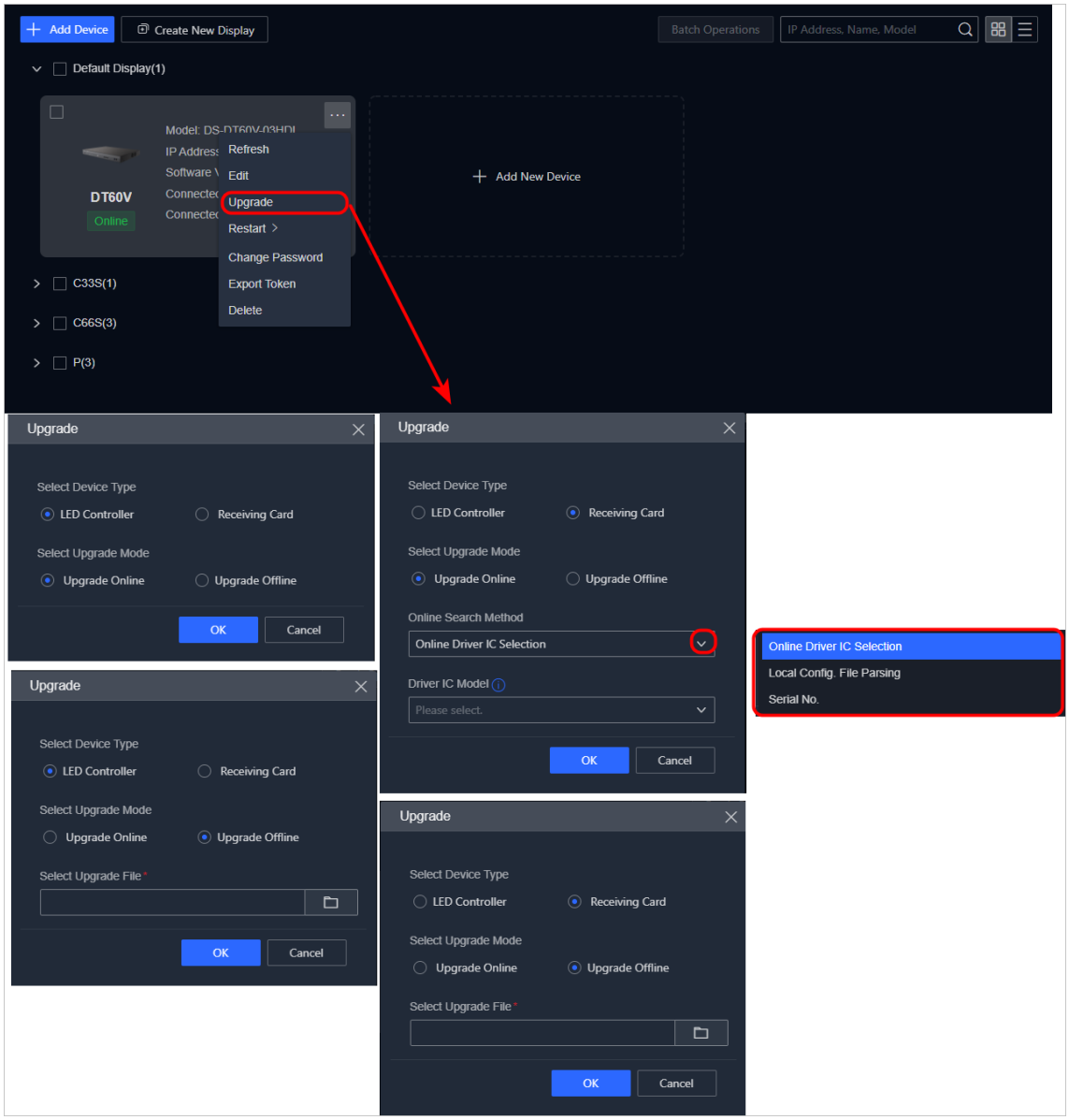

Figure 2-14 Upgrade LED Controller

- Upgrading video wall controller: The main control board supports full device upgrade, and the sub-board supports receiving card upgrade.
  - Upgrade main control board: Select a local upgrade file and click **OK**.
  - Upgrade receiving card: For online upgrade, select an online search method, enter the required information, and click **OK**. For offline upgrade, select a local upgrade file and click **OK**.

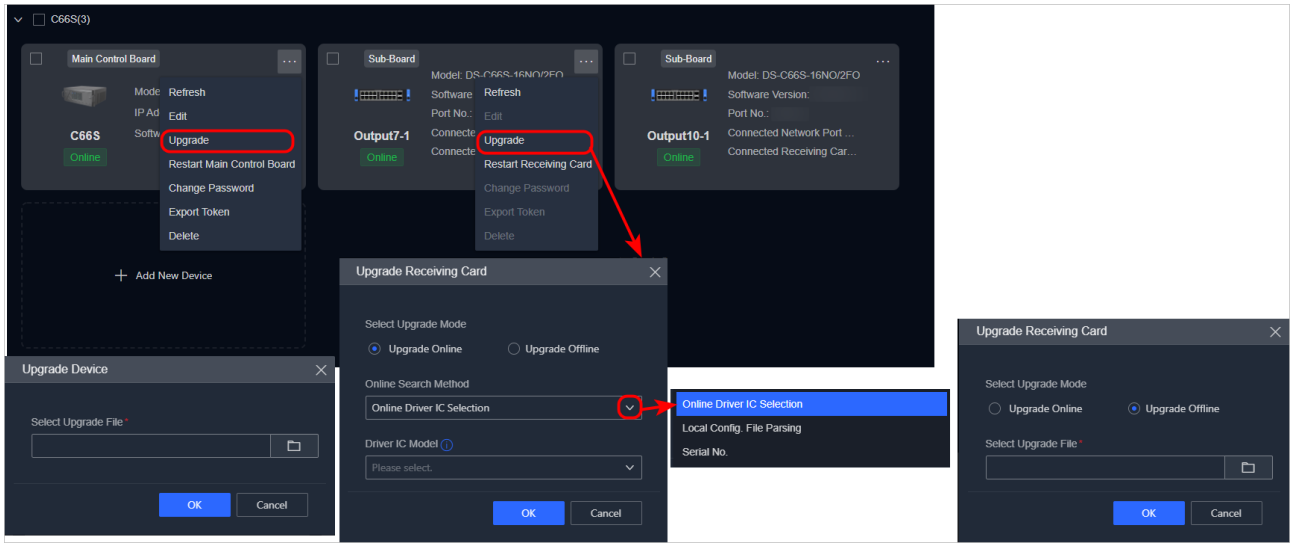

Figure 2-15 Upgrade Video Wall Controller

2.3.4 Switch Optical Port Mode

When a device is configured to optical port receive mode, you can click the target device on the **Device Management** page, click **Edit Mode**, and switch it to **Optical Port Transmit Mode**. For details on configuring optical port mode, see "2.5 (Optional) Configure Optical Port".

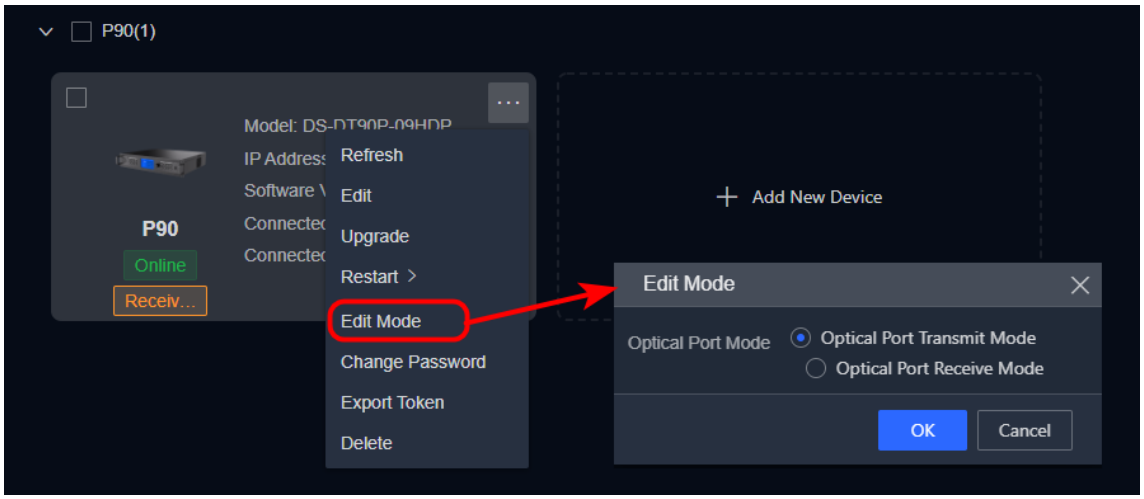

Figure 2-16 Switch Optical Port Mode

2.4 Configure Loading Mode

Applicable Devices

- LED controller: DT90C/V/P, 2K DT60C/V/B/P, 4K DT60C/B, some 4K DT60V/P, and ultra 4K DS-TV series.
- Video wall controller: all series.

Important

- Loading mode does not support batch configuration and must be set individually for each device.
- Before using standard loading mode, ensure that both the devices and receiving cards support this mode.
- 2K DT60 series and DT90 series devices will restart automatically after switching between standard and mini loading modes.

Steps

Navigate to **Device Maintenance > Settings > Loading Mode**, select the desired mode, and click **Save**:

- **Self-Adaption**: The system automatically switches between standard and mini loading modes based on actual load per network port. Supported devices default to this mode.
- **Standard Loading**: Use when single-port load exceeds 0.65 MP but does not exceed 2.925 MP. This mode enhances data transmission capacity.
- **Mini Loading**: Use when single-port load is up to 0.65 MP. Devices without self-adaption mode default to this option.

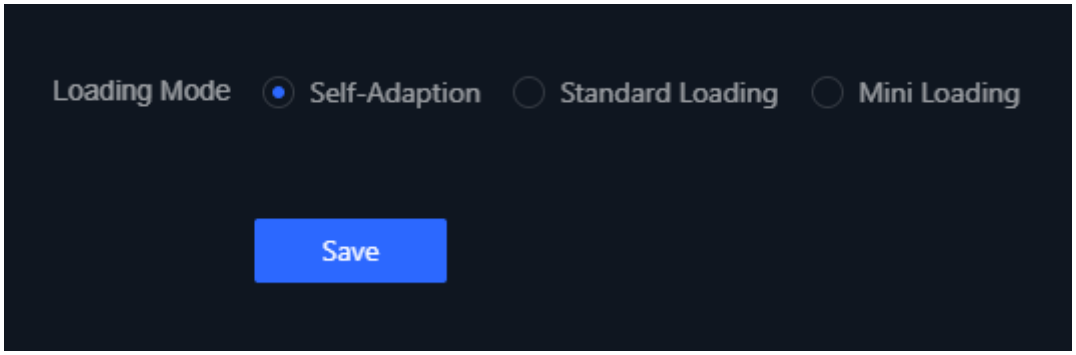

Figure 2-17 Configure Loading Mode

Table 2-1 Supported Loading Mode

Device Series		Self-Adaption Mode	Standard Loading Mode	Mini Loading Mode
DT60	2K C/V/B/P series		√ Supported only on DATA OUT ports 1 and 2. Total load ≤ 2.925 MP	√
	4K C/B series	√	√ Supported on any DATA OUT port. Total load ≤ 13 MP	√
	4K V/P series	√	√ Supported on any DATA OUT port. Total load	√

Device Series		Self-Adaption Mode	Standard Loading Mode	Mini Loading Mode
			≤ 13 MP	
DT90 all series			√ Supported only on DATA OUT ports 1 to 24. Total load ≤ 26 MP	√
Ultra 4K DS-TV series			√ Supported only on DATA OUT ports 1 to 24. Total load ≤ 26 MP	√
Video wall controller	All series	√	√	√

2.5 (Optional) Configure Optical Port

Applicable Devices

DT90C/V/P and ultra 4K DS-TV series LED controllers.

Description

To achieve long-distance control of a single or two LED displays, two DT90 series LED controllers can be connected via a fiber optic network (set as Transmitter and Receiver respectively). This setup requires an optical switch and configuration of the controllers' optical ports.

Important

- The two LED controllers used for optical port communication must be of the same series and same model.
- Controller roles are determined by both physical connections and configuration:
  - Transmitter: The LED controller directly connected to the computer for configuration. In dual-display scenarios, it can also drive a local display.
  - Receiver: The LED controller that receives signals solely via optical fibers to drive the remote display.

2.5.1 Single-Display Configuration

Step 1 Connect Ethernet cables:

1) Use one Ethernet cable to connect the computer to the LAN port of LED Controller A (Transmitter).

2) Based on the on-site layout and the loading capacity of each DATA OUT port, divide the cabinets into several series links, with each link corresponding to one DATA OUT port.
3) Use Ethernet cables to connect the DATA OUT ports of LED Controller B (receiver) to the network port of the first LED cabinet in each link. Subsequent cabinets within the same link are cascaded using Ethernet cables.

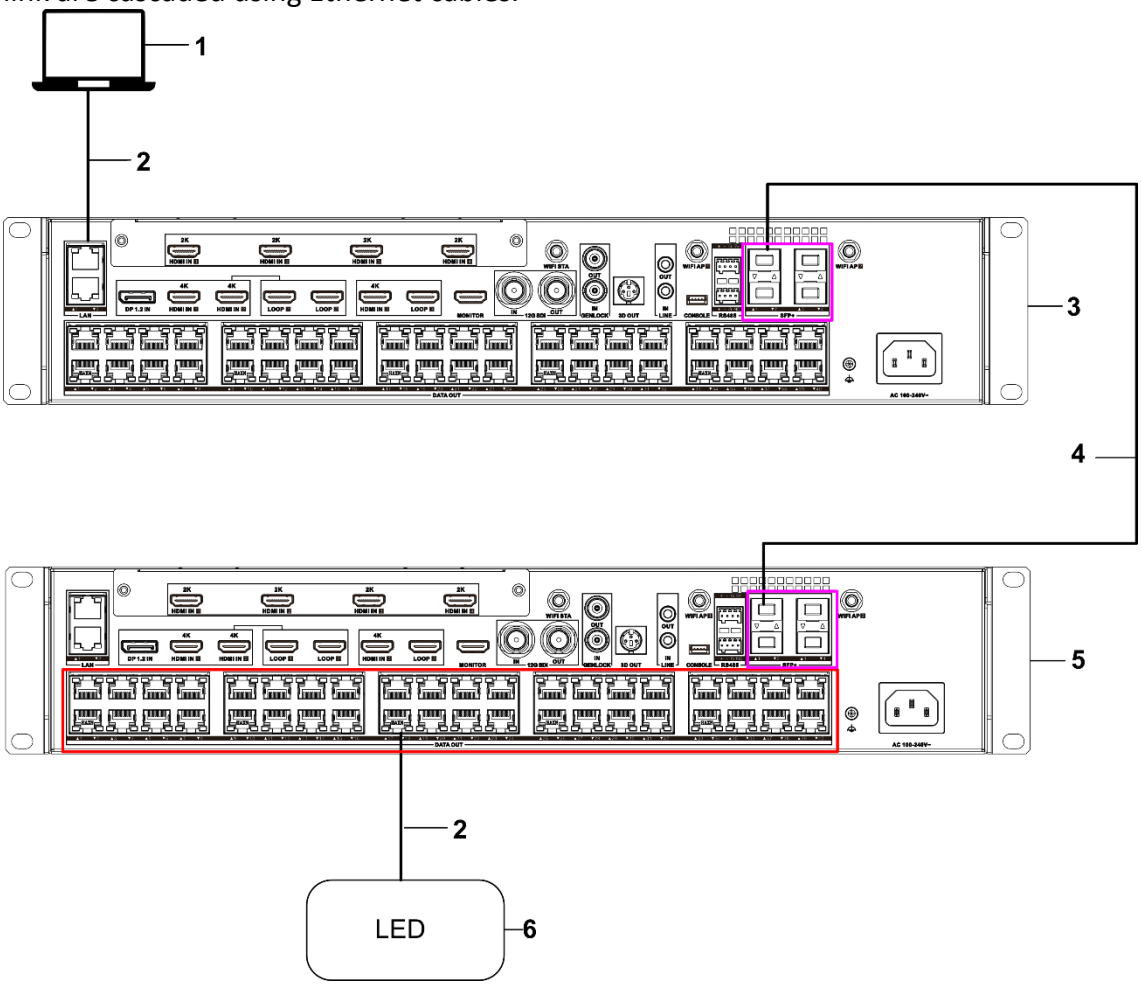

Figure 2-18 Single-Display Connection Topology

1. Computer	2. Ethernet cable
3. LED controller A (Transmitter)	4. Optical network (optical fibers and optical switch)
5. LED controller B (Receiver)	6. LED display

Step 2 Connect optical fibers:

1) Determine the required number of optical fibers based on the mapping between the LED display and the DATA OUT ports.
2) Insert the optical modules into the corresponding SFP+ ports of Device A and Device B (the port numbers on both sides must be identical).

3) Use optical fibers to connect the optical modules to the optical switch.

Table 2-2 SFP+ Port Mapping

SFP+ Port	DATA OUT Port Range		
	40-Port Device	24-Port Device	16-Port Device
SFP+ 1	1 to 10	1 to 8	1 to 8
SFP+ 2	11 to 20	9 to 16	9 to 16
SFP+ 3	21 to 30	17 to 24	
SFP+ 4	31 to 40		

Step 3 After adding both LED controllers in the computer, configure them as follows:

- LED controller A (Transmitter): Operates in **Optical Port Transmit Mode** by default. No action is required.
- LED controller B (Receiver): Navigate to **Device Maintenance** > **Settings** > **Optical Port Configuration**, and select **Optical Port Receive Mode**.

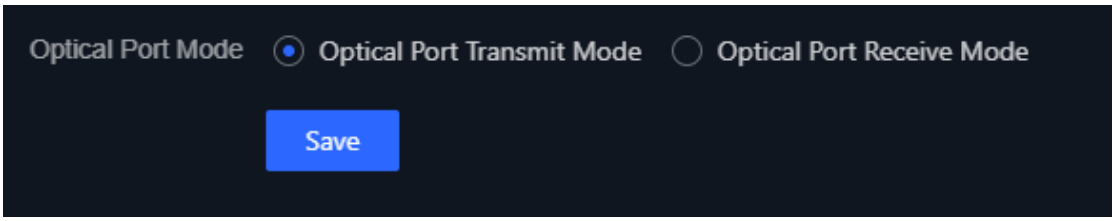

Figure 2-19 Configure Optical Port Mode

Note

After configuring the display mapping parameters, connect the video source to the transmitter controller (LED controller A in this example) to display video.

2.5.2 Dual-Display Configuration

Step 1 Connect Ethernet cables:

1) Use one Ethernet cable to connect the computer to the LAN port of LED Controller A (transmitter).
2) Based on the on-site layout and the loading capacity of each DATA OUT port on LED Controller A, divide the cabinets of LED Display 1 into several series links, with each link corresponding to one DATA OUT port.
3) Use Ethernet cables to connect the DATA OUT ports of LED Controller A to the network port of the first LED cabinet in each link. Subsequent cabinets within the same link are cascaded using Ethernet cables.

4) Based on the on-site layout and the loading capacity of each DATA OUT port on LED Controller B (receiver), divide the cabinets of LED Display 2 into several series links, with each link corresponding to one DATA OUT port.
5) Use Ethernet cables to connect the DATA OUT ports of LED Controller B to the network port of the first LED cabinet in each link. Subsequent cabinets within the same link are cascaded using Ethernet cables.

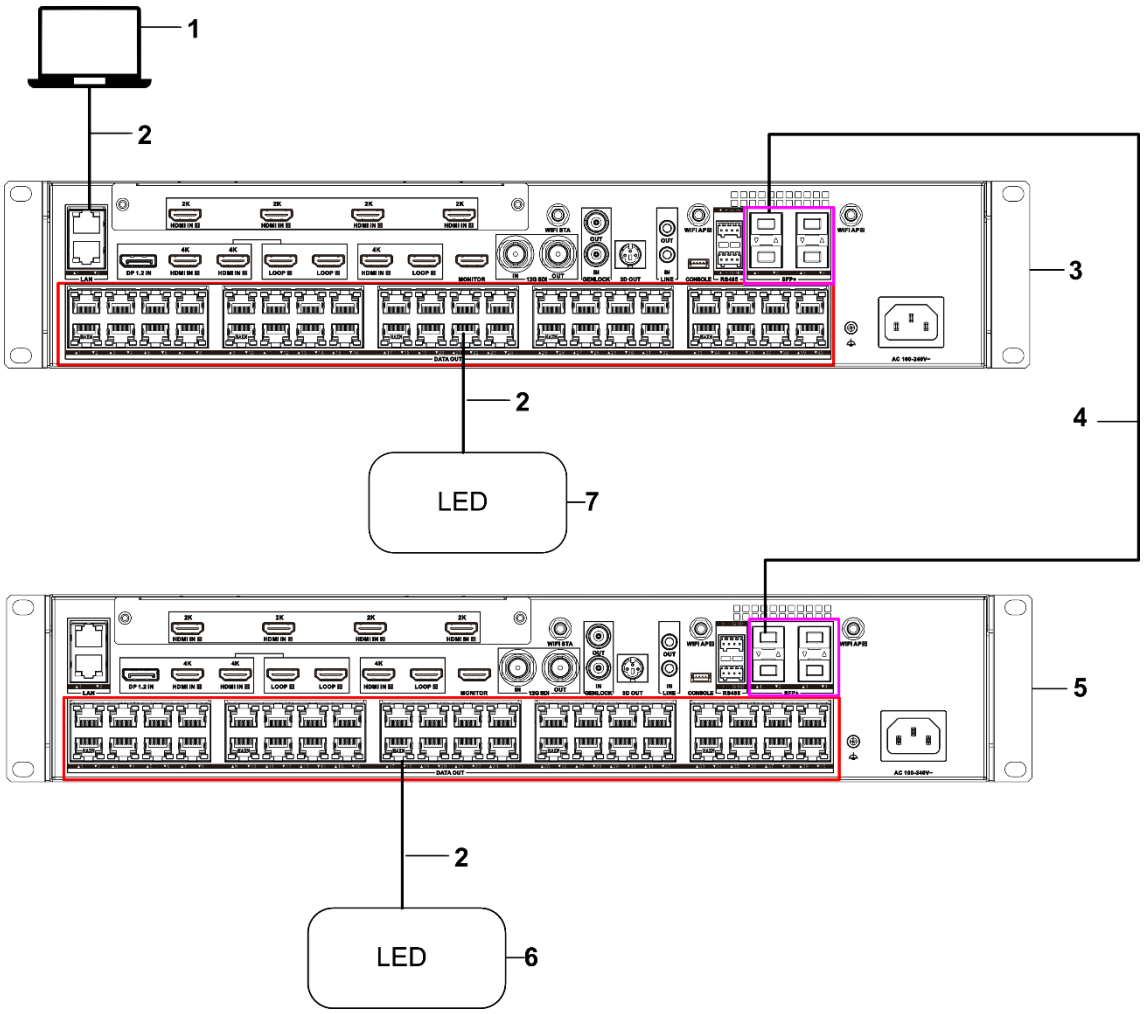

Figure 2-20 Dual-Display Connection Topology

1. Computer	2. Ethernet cable
3. LED controller A (Transmitter)	4. Optical network (optical fibers and optical switch)
5. LED controller B (Receiver)	6. LED display 2
7. LED display 1	

Step 2 Connect optical fibers:

1) Determine the required number of optical fibers based on the mapping between the LED display and the DATA OUT ports.
2) Insert the optical modules into the corresponding SFP+ ports of Device A and Device B (the port numbers on both sides must be identical).
3) Use optical fibers to connect the optical modules to the optical switch.

Table 2-3 SFP+ Port Mapping

SFP+ Port	DATA OUT Port Range		
	40-Port Device	24-Port Device	16-Port Device
SFP+ 1	1 to 10	1 to 8	1 to 8
SFP+ 2	11 to 20	9 to 16	9 to 16
SFP+ 3	21 to 30	17 to 24	
SFP+ 4	31 to 40		

Step 3 After adding both LED controllers in the computer, configure them as follows:

- LED controller A (Transmitter): Navigate to **Device Maintenance** > **Settings** > **Optical Port Configuration**, verify that **Optical Port Transmit Mode** is used, and select a readback mode as required.
  - To control the LED display 1, select **Local Display Readback**.
  - To control the LED display 2, select **Peer Display Readback**.
- LED controller B (Receiver): Navigate to Device **Maintenance** > **Settings** > **Optical Port Configuration**, and select **Optical Port Receive Mode**.

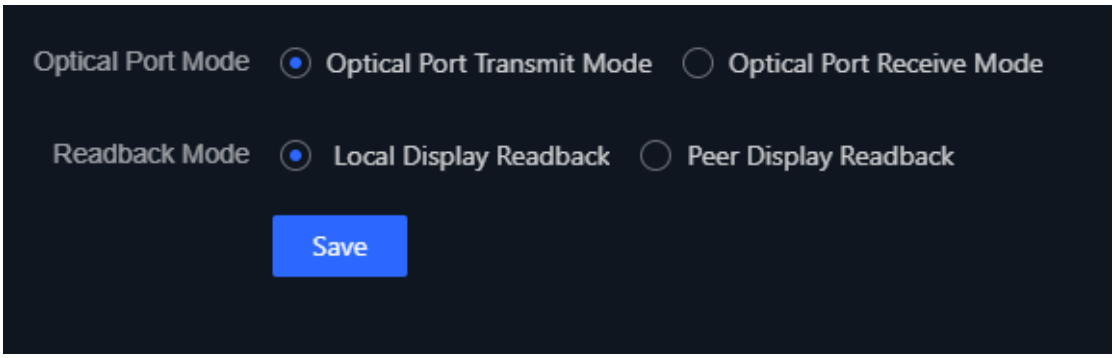

Figure 2-21 Configure Optical Port Mode

Note

After configuring the display mapping parameters, connect the video source to the transmitter controller (LED controller A in this example) to display video.

Chapter 3 Standard Cabinet Configuration

3.1 Standard Cabinet Configuration Procedure

Applicable Devices

All series of LED controllers and video wall controllers.

Function Description

Standard cabinets refer to standard rectangular matrix units composed of LED modules. On the **Receiving Card Configuration** page, you can configure parameters directly.

The client supports two types of projects:

- Online project: Supports online, direct connection, and offline modes. Online mode is the default mode.
- Demo project: Supports offline and direct connection modes. Offline mode is the default mode.

Standard cabinet configuration supports the following three modes:

- Online mode: The client has added devices and the devices are connected to receiving cards. In this mode, the client can automatically obtain receiving card information. After selecting an online receiving card, you can directly configure parameters and perform debugging, with the results taking effect in real time.
- Offline mode: The client has not added any devices, or the devices are offline. Since receiving card information cannot be obtained automatically, you need to manually select the receiving card model and create a configuration file in advance, which can then be imported into the actual device later.
- Direct connection mode: The receiving card is directly connected to the client computer via an Ethernet cable. You can directly configure the receiving card parameters and upgrade the receiving card program.

Important

The configuration process varies depending on the selected mode. The following section uses the general operation process as an example.

Steps

Step 1 Navigate to **Display Settings > Receiving Card Parameters**, and select a mode based on actual requirements:

- Online mode: Select a device.

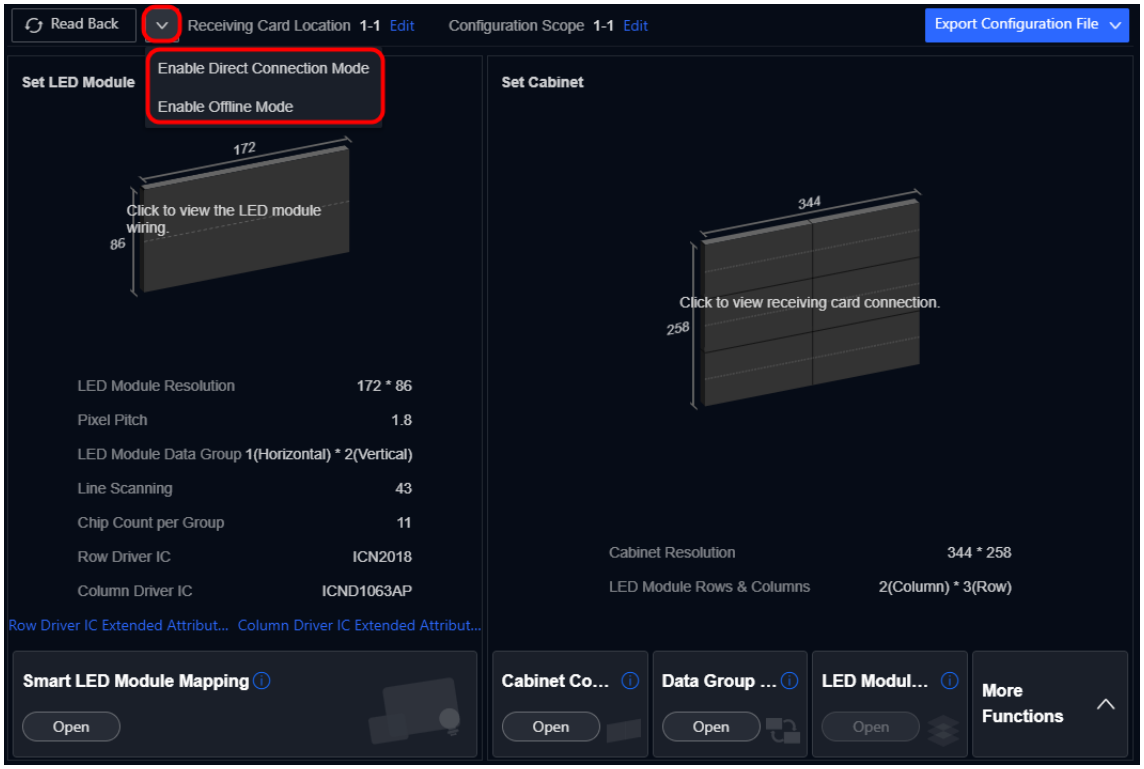

Figure 3-1 Receiving Card Parameters Page (Online Mode)

- Offline mode: Click  to enable offline mode and select the corresponding receiving card model.

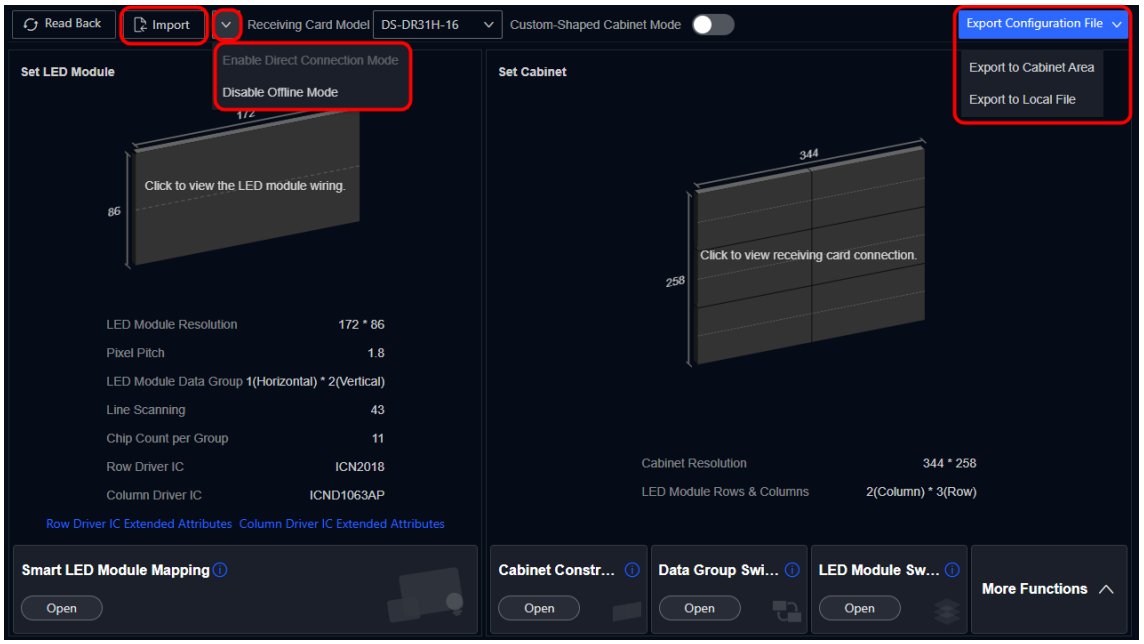

Figure 3-2 Receiving Card Parameters Page (Offline Mode)

- Direct connection mode: Click  to enable direct connection mode.

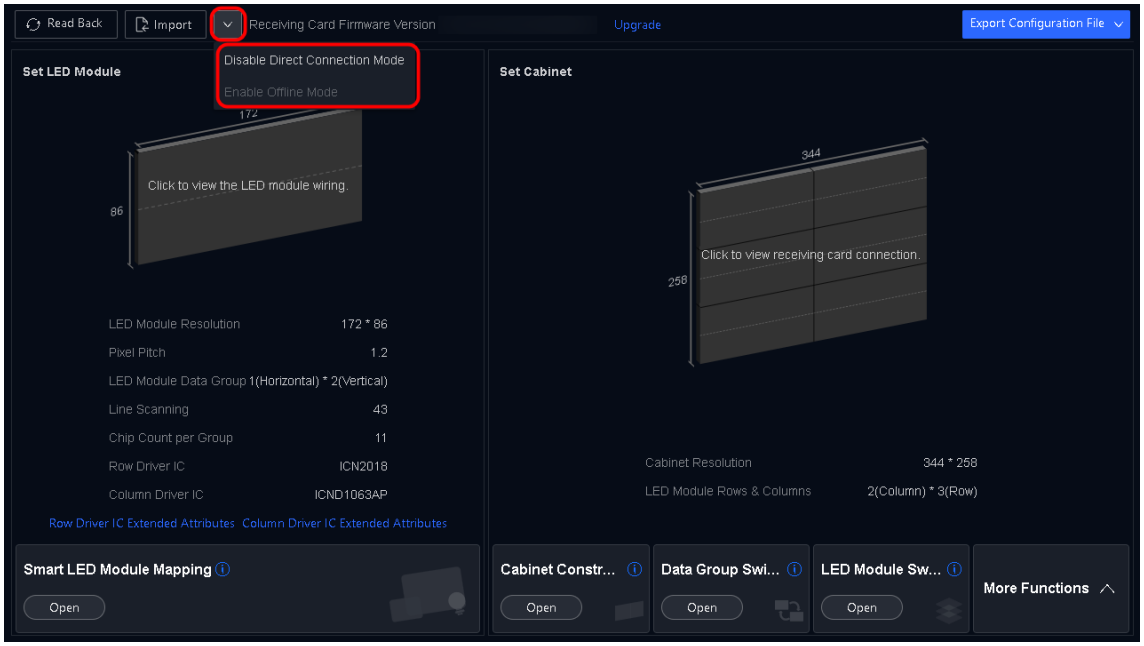

Figure 3-3 Receiving Card Parameters Page (Direct Connection Mode)

Note

In the direct connection mode, you can click **Upgrade** and select the receiving card version to directly upgrade the connected receiving card.

Step 2 (Optional, applicable to online mode) When one device controls multiple receiving cards, select a receiving card.

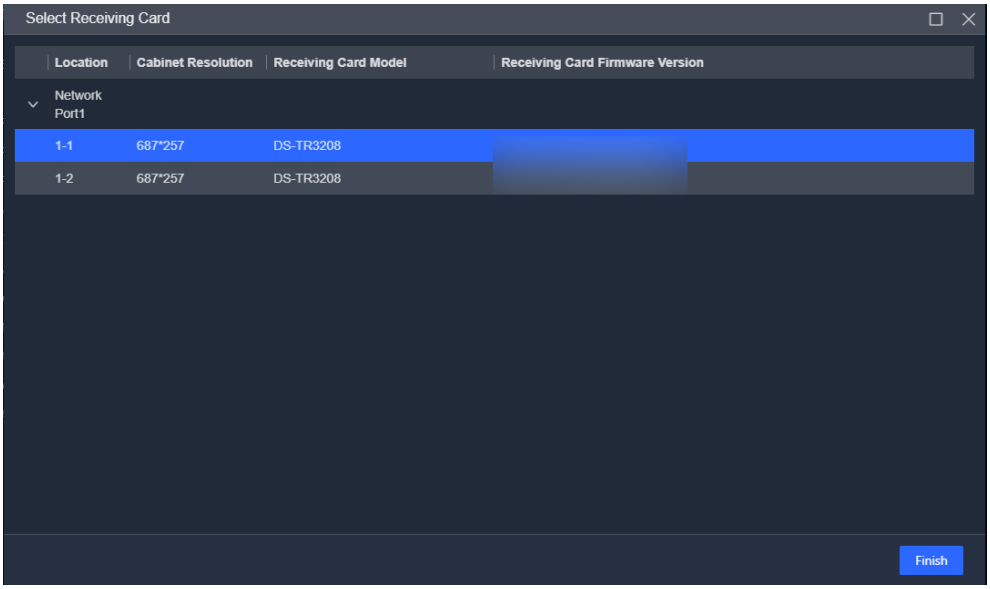

Figure 3-4 Select Receiving Card

Step 3 Obtain the LED module configuration file using either of the following methods:

- Create an LED module configuration file using the smart LED module mapping function:

1) Set up the smart LED module mapping environment. For details, see "3.2 Set Up Smart LED Module Mapping Environment".
2) Open the **Smart LED Module Mapping** window and create an LED module configuration file. For details, see "3.3.1 Configure Smart LED Module Mapping Parameters".

- Import an existing LED module configuration file (supported only in offline and direct connection modes): Click **Import** to import an existing LED module configuration file or cabinet configuration file, which can then be modified as needed.

Step 4 Check LED module illumination status and take corresponding actions:

- Unable to illuminate: Open the smart LED module mapping window and recreate the LED module configuration file.
- Abnormal RGB colors: Click to view the LED module wiring and set the corresponding color for each channel.
- Poor display effect: Adjust the extended attributes of row/column driver ICs. For details, see “3.3.2 Configure LED Module Extended Attributes”.
- Normal display effect: Proceed to the next steps.

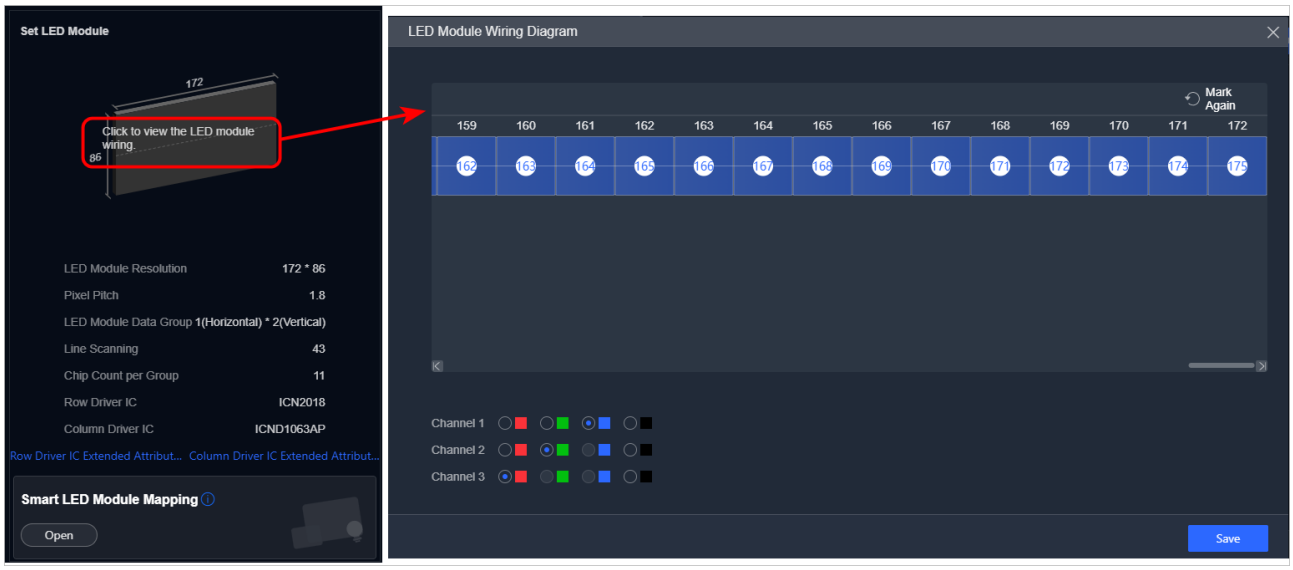

Figure 3-5 Adjust LED Module Wiring

Step 5 Configure the cabinet parameters:

- Cabinet construction: Rearrange the positions of LED modules within the cabinet or adjust the LED module scale. Supported by both AXS and HUB receiving cards. For details, see "3.4.1 Construct Cabinet".
- Data group switching: Rematch data groups with display areas so that content is displayed in the correct position. Supported by both AXS and HUB receiving cards. For details, see "3.4.2 Configure Data Group Parameters".
- LED module switching and cascading: Rearrange the positions and cascading relationships of multiple LED modules (HUB receiving cards only). For details, see "3.4.3 Configure Module and Cascading Parameters".

- Rotation: Rotate the image according to the actual installation direction of the cabinet. For details, see "3.4.4 Rotate Cabinets".

Step 6 Verify cabinet parameters:

- Online and direct connection modes: Check whether the image on the LED display is normal.
- Offline mode: Click to view receiving card connections and verify that the cabinet parameter configuration is correct.



Figure 3-6 View Receiving Card Connections

Step 7 Click **Export Configuration File** to save the current cabinet configuration file to the cabinet area or computer.

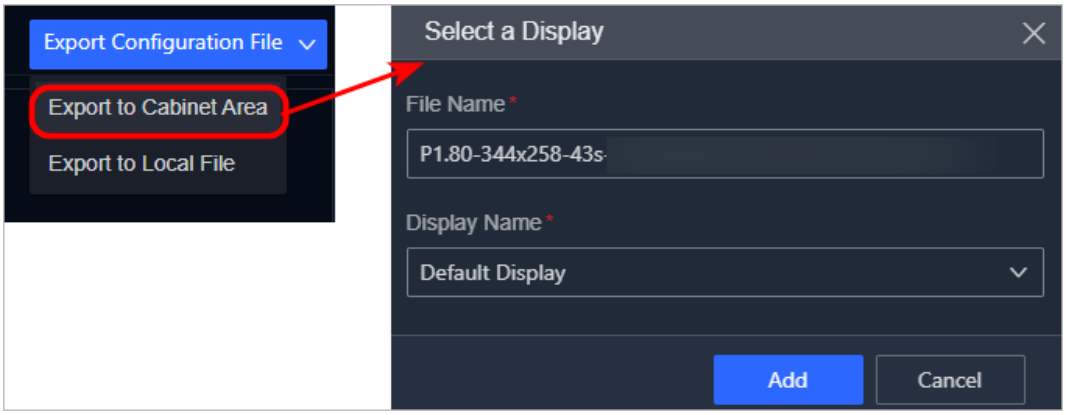

Figure 3-7 Export Configuration File

3.2 Set Up Smart LED Module Mapping Environment

3.2.1 Auto Setup

Step 1 Navigate to **Display Settings > Receiving Card Parameters**, open the smart LED module mapping window, and click **OK** in the pop-up window.

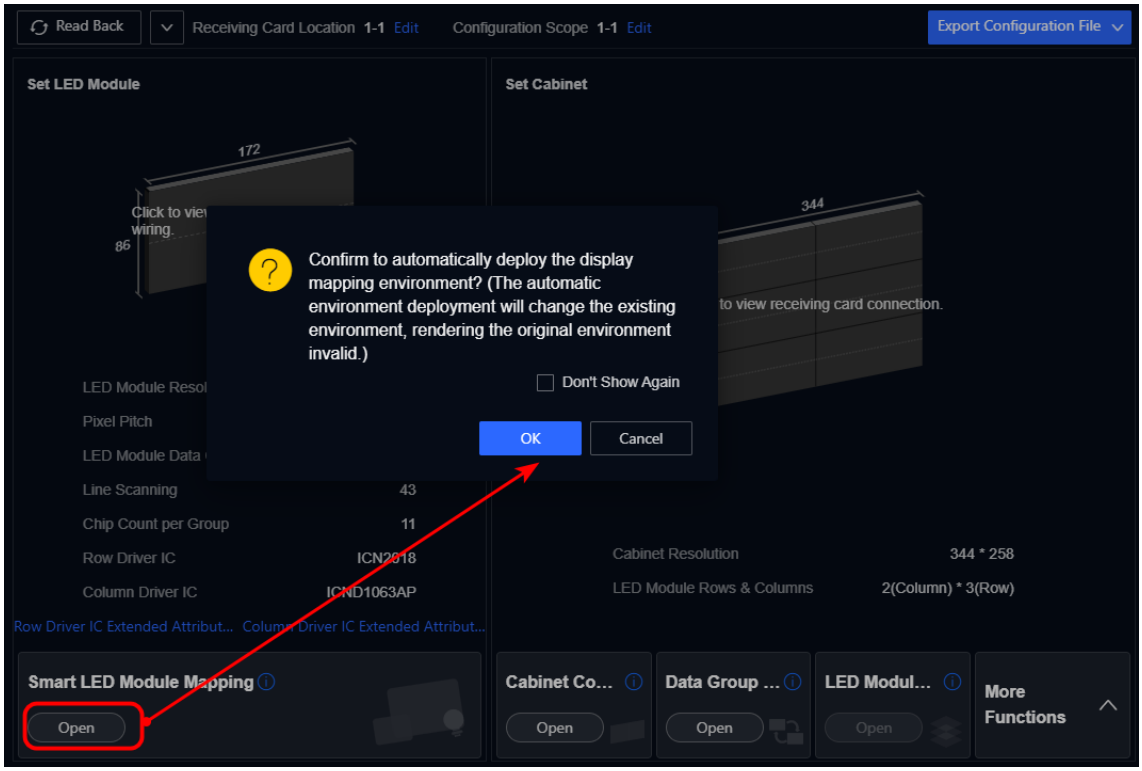

Figure 3-8 Auto Environment Setup

Step 2 Wait for the system to complete the automatic configuration. The interface will show all parameters to be configured and their statuses.

- If all configuration items are configured successfully: Click **Finish** directly.
- If some parameters are not configured successfully: Manually configure the unsuccessful parameters, and then click **Finish**.

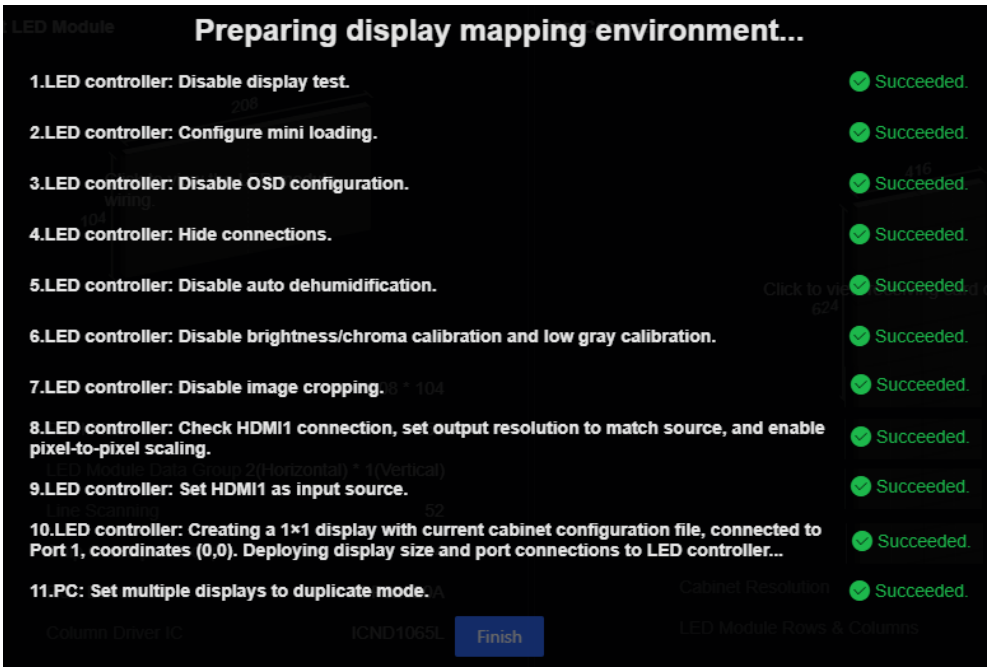

Figure 3-9 View Setup Progress

3.2.2 Manual Setup

Important

For ease of understanding, the demonstration in this section is based on the following typical minimal configuration:

- The device's management Ethernet port (LAN 1) is connected to a computer.
- The device's data output port (DATA OUT 1) is connected to a single receiving card.
- Only the minimum number of LED modules necessary for display mapping are connected to the receiving card.
- The device resolution matches the computer resolution (both are set to 1920 × 1080 in this section).

Configuration Process

The configuration steps vary depending on the device type. Please select the corresponding process based on your actual device:

Configuration Steps	Applicable Devices
Connect Devices	• All series LED controllers • Video wall controllers
Configure Display Mapping Parameters	
Configue Input and Output Parameters	• LED controllers: DT60, DT90, DS-T series (4/6/12/20 output ports) • Video wall controllers
Configure Computer	

Connect Devices

- Connect a device to the client-installed computer:
  - LED controller: Use an Ethernet cable to connect the LAN 1 port to the computer.
  - Video wall controller: Use an Ethernet cable to connect the main control board’s LAN port to the computer.
- Connect the device to a single receiving card:
  - LED controller: Use an Ethernet cable to connect the DATA OUT 1 port to the receiving card’s Ethernet port.
  - Video wall controller: Use an Ethernet cable to connect the LED controller board’s Ethernet port to the receiving card’s Ethernet port.
- Establish video signal connection:
  - LED controllers (DT60 and certain DS-T series): Use an HDMI cable to connect the HDMI 1 port to the computer.

- LED controllers (DT90 series and certain DS-T series): Use an HDMI cable to connect the HDMI 2.0-1 port to the computer.
- LED controllers (DT30 series and certain DS-T series): No HDMI connection is required.
- Video wall controllers: Use an HDMI cable to connect the HDMI 1port on the HDMI input board to the computer.

- Connect receiving cards to LED modules:
  - AXS receiving card: Fully tile all LED modules within a single cabinet.
  - HUB receiving card: Connect the LED module to the JH1 port.

Configure Display Mapping Parameters

Step 1 In the client, select the device and navigate to **Display Settings > Display Mapping**.

Step 2 Drag the default cabinet configuration file to the canvas.

Step 3 Connect network port 1 to the cabinet and click **Save**.

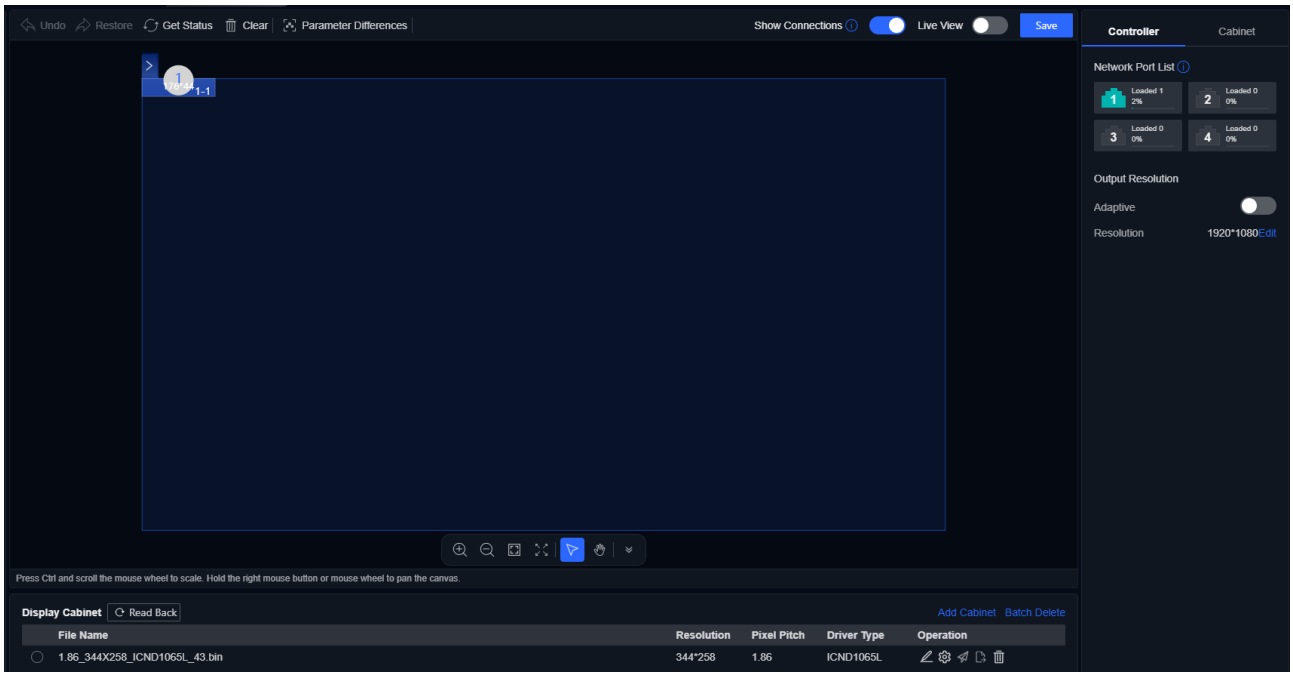

Figure 3-10 Configure Display Mapping for LED Controller

Configue Input and Output Parameters

Step 1 Ensure the device has been added in the client (refer to "2.2 Add Devices").

Step 2 Configure the signal source:

- C/B-series LED controllers: Navigate to **Image Control > Source Management**, set the EDID resolution of HDMI1 to 1920 × 1080, and the frame rate to 60 Hz.

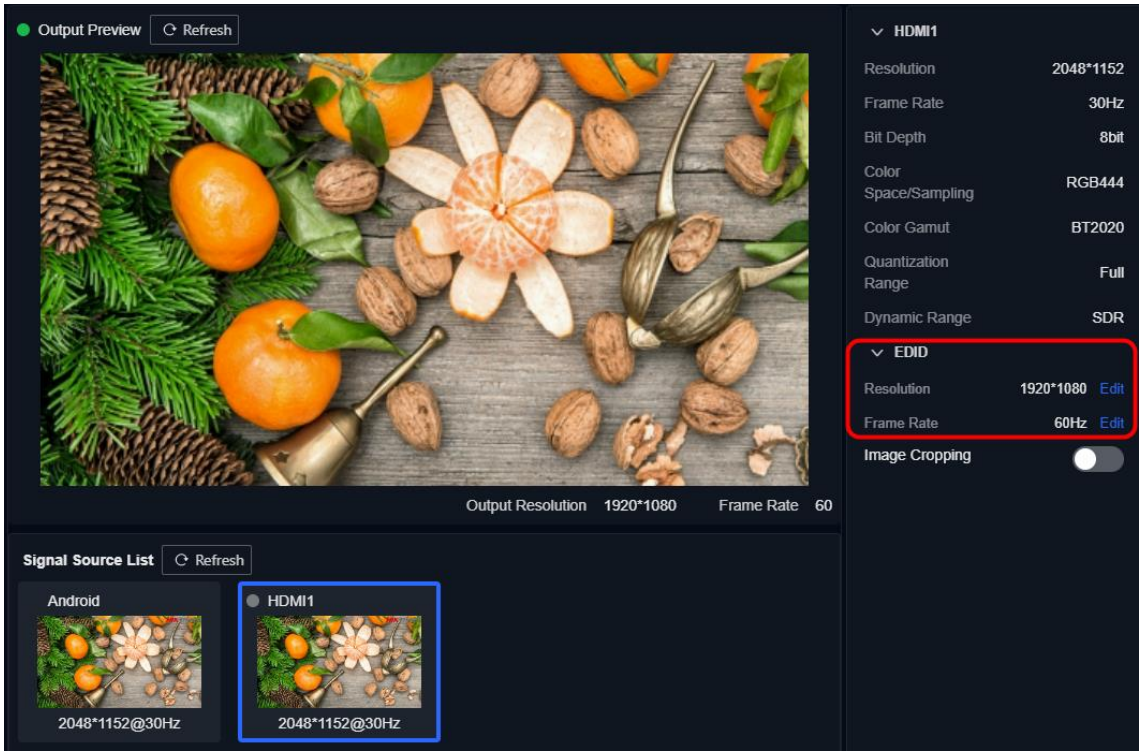

Figure 3-11 Configure Signal Source Parameters (DT60B)

- V/P/U-series LED controllers: Navigate to **Image Control > Content Control**, create an HDMI1 signal source window with the window size and resolution set to 1920 × 1080.

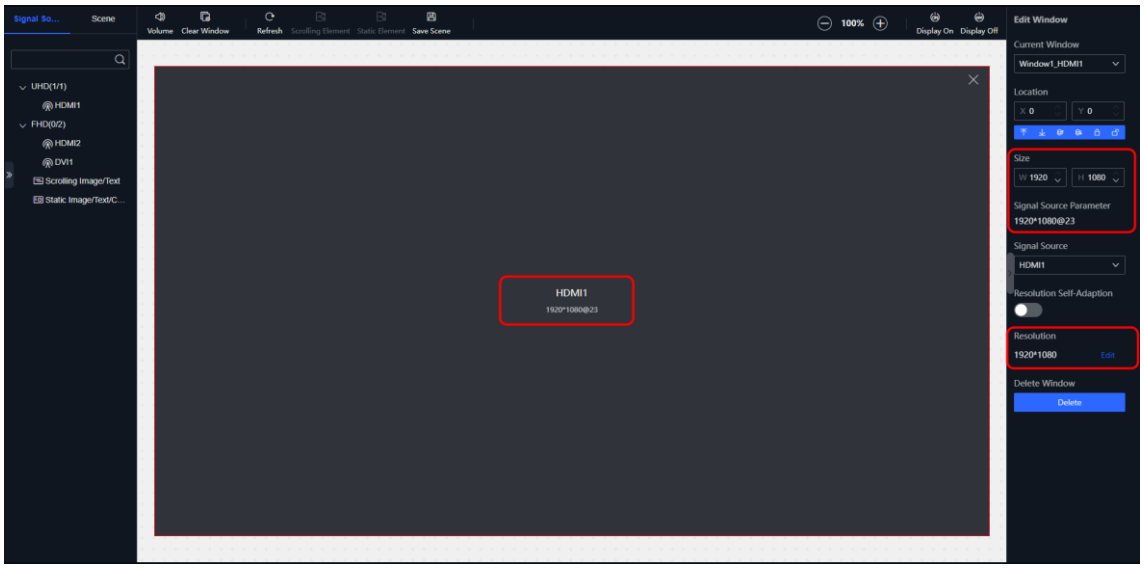

Figure 3-12 Configure Signal Source Parameters (DT60V)

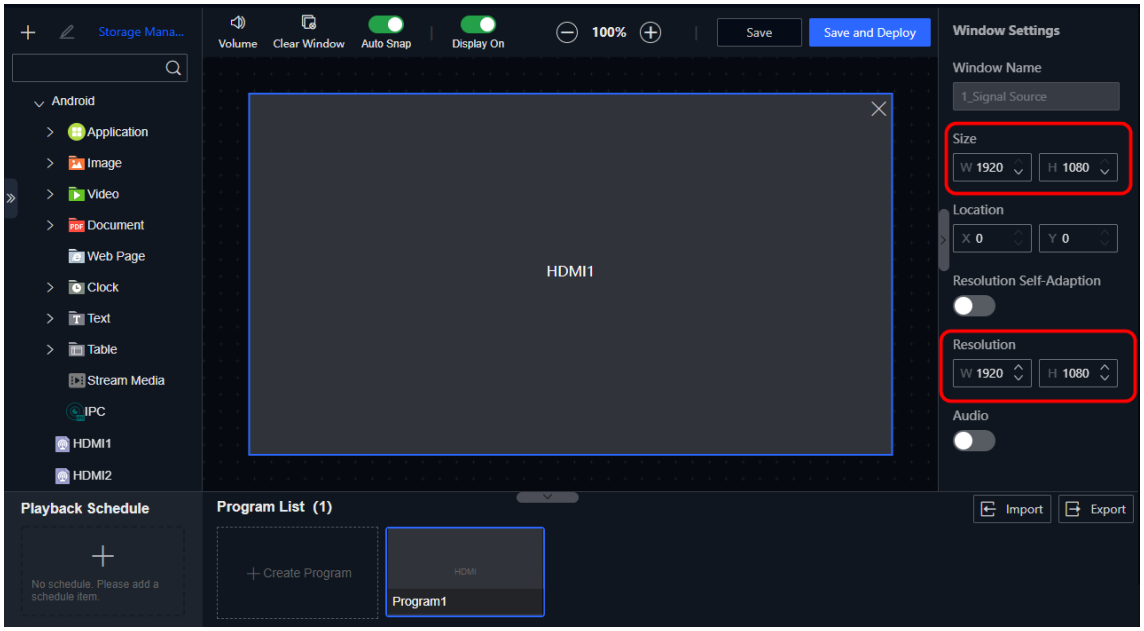

Figure 3-13 Configure Signal Source Parameters (DT60P Series)

- C66S video wall controllers: If a video wall in custom shape has already been configured on the web page, the client will automatically read the configuration. Otherwise, the client will automatically create an LED video wall and bind it to the LED controller boards.
- Other video wall controller models: Log in to the device web page, enter **Wall Configuration** page, create an LED video wall with a resolution of 1920 × 1080, and bind it to the LED controller boards.

Step 3 Configure output parameters:

- LED controllers: Navigate to **Image Control > Source Management**, select HDMI1 as the output source with a resolution of 1920 × 1080, and select **Pixel-to-Pixel Mode** as the scaling mode (certain devices do not require setting the output source and scaling mode).

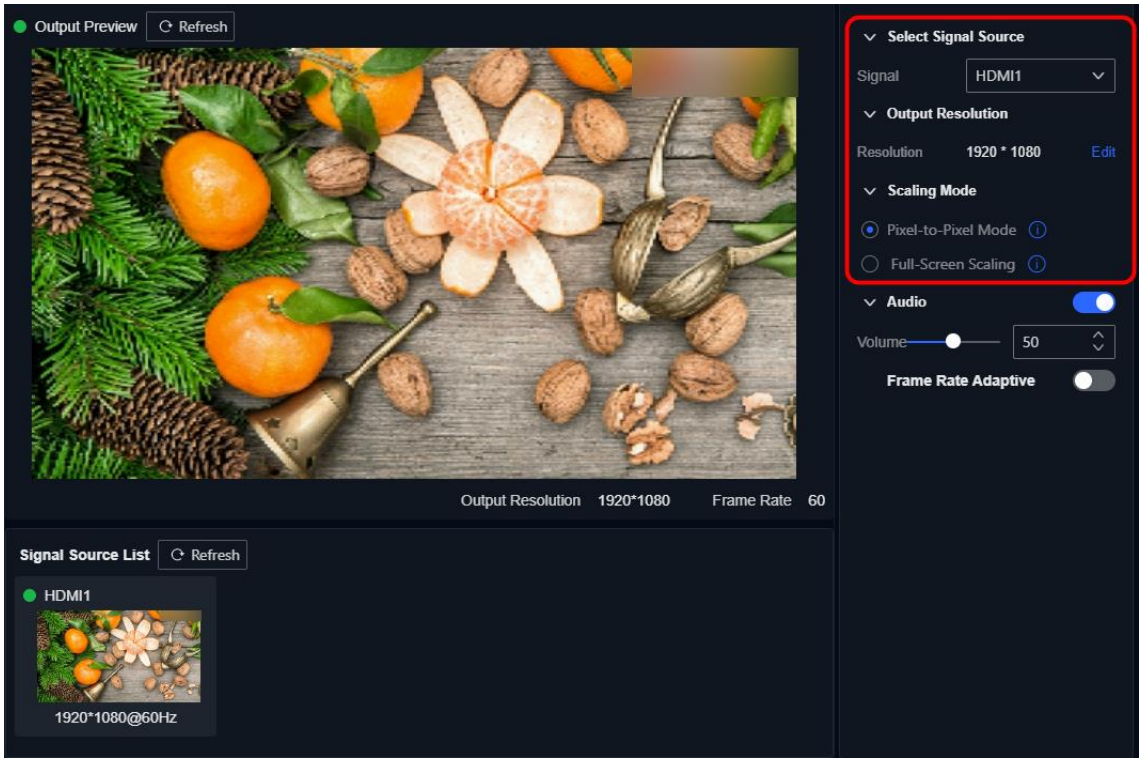

Figure 3-14 Configure Output Parameters of LED Controller

- Video wall controllers: Navigate to **Image Control> Source Management** to verify the output resolution and frame rate (image preview is not supported).

Configure Computer

Set the computer resolution to 1920 × 1080. For LED controllers, set multiple displays to duplicate mode (this requirement does not apply to video wall controllers).

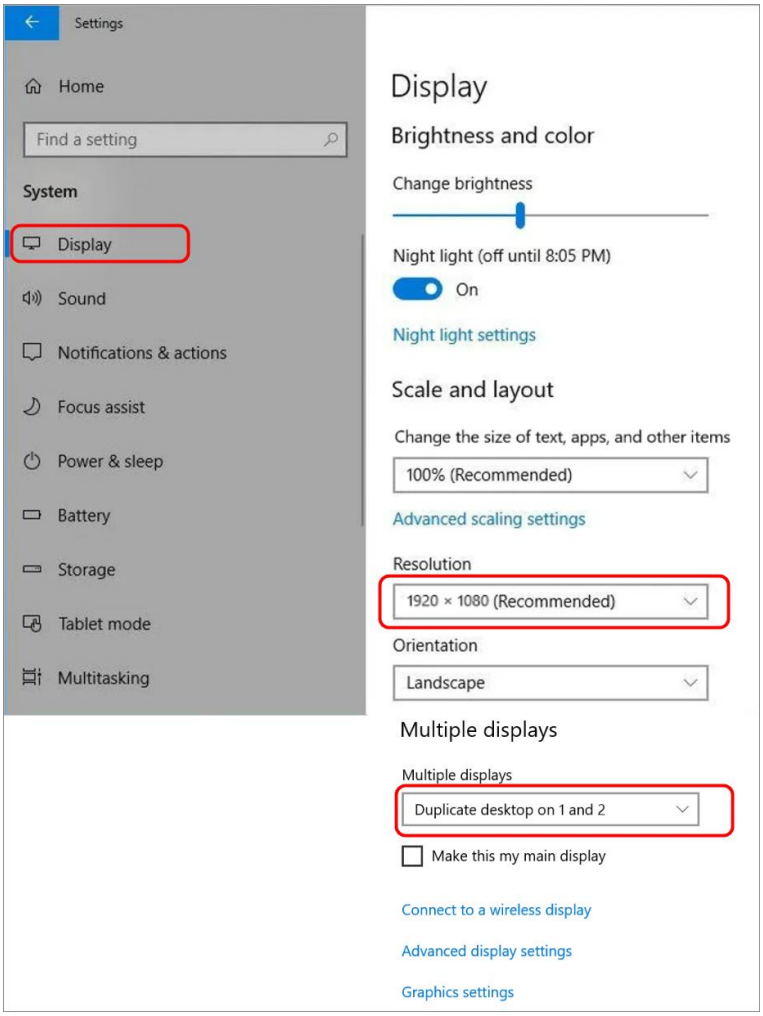

Figure 3-15 Configure Computer (Windows 10 System)

3.3 Configure LED Module Parameters

3.3.1 Configure Smart LED Module Mapping Parameters

Important

If you have any questions about the meaning of the parameters or how to fill them out, click next to the parameter to view detailed explanations and examples.

Steps

Step 1 On the **Display Settings > Receiving Card Parameters** page, open the smart LED module mapping window.

Step 2 Based on the information on the back of the LED module, fill in the column driver IC type, row driver IC type, LED module width, LED module height, row scan count, and LED module pixel pitch, then click **Next**.

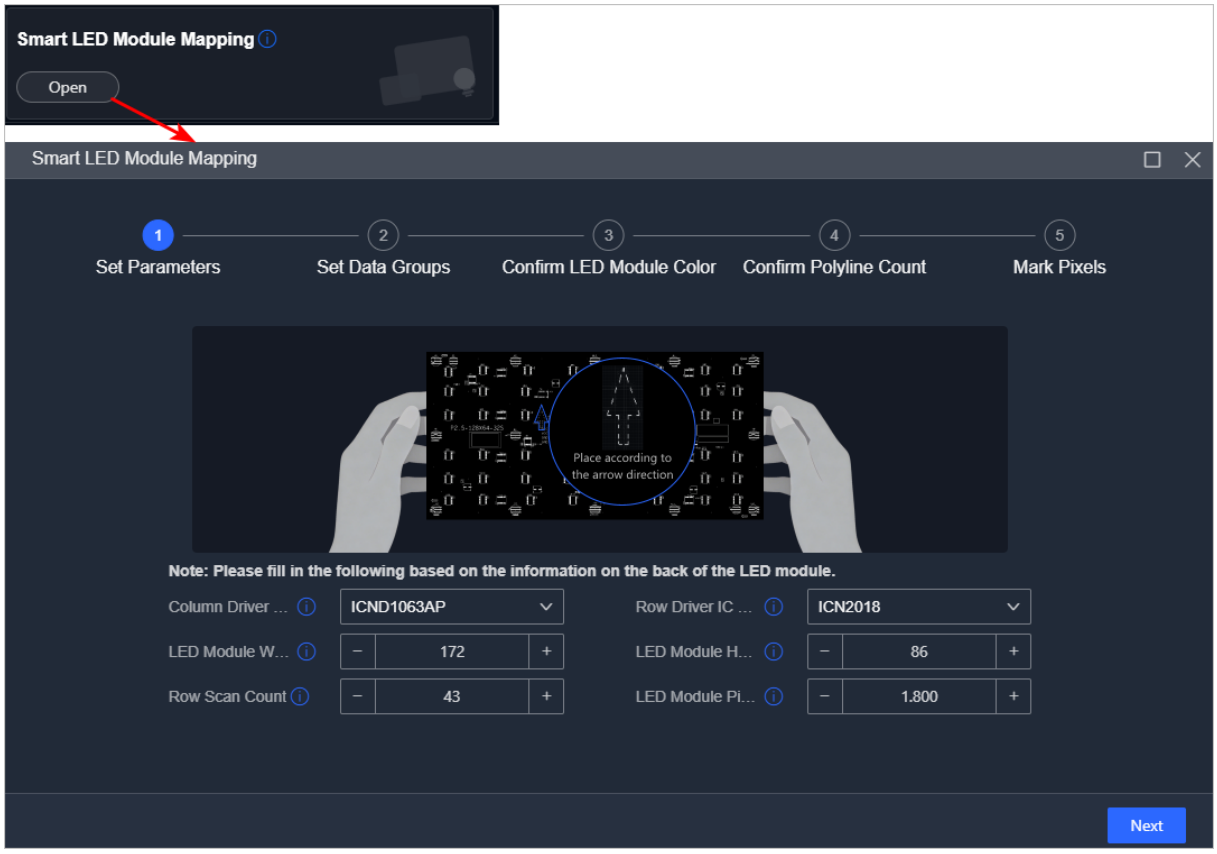

Figure 3-16 Set Parameters

Step 3 Based on the number of color blocks displayed on the front of the LED module, fill in the number of horizontal data groups, vertical data groups, and chips per group, and then click **Next**.

- If the data group sizes are inconsistent, check the corresponding option and select the position of the larger data group.

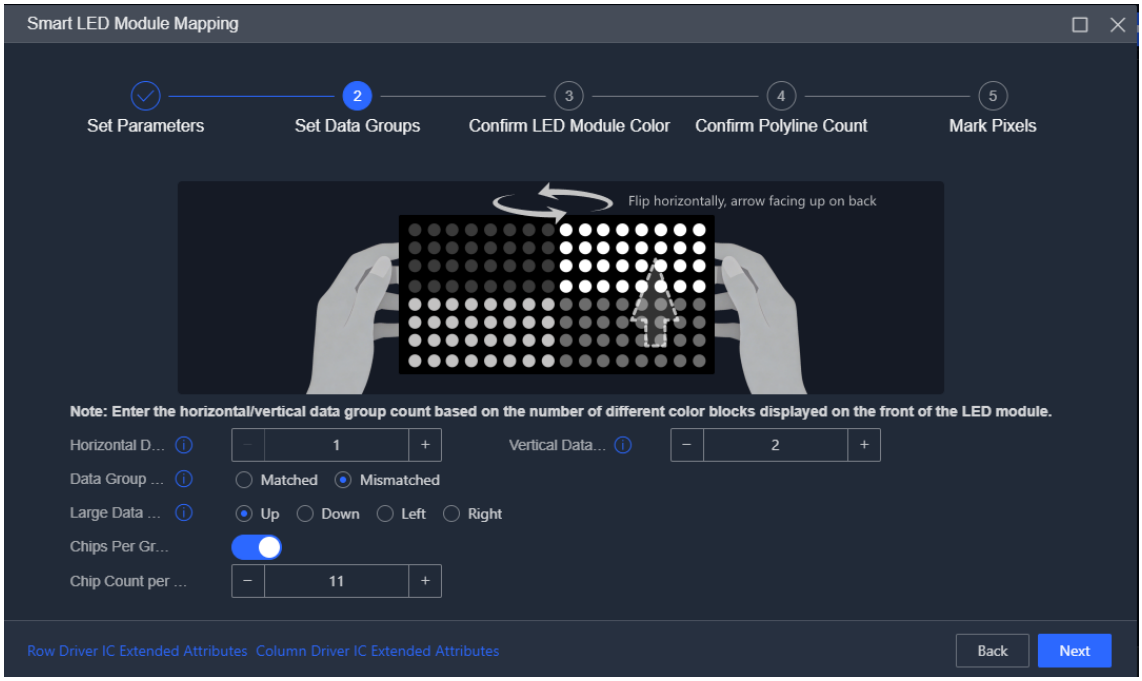

Figure 3-17 Configure Data Groups

- If any of the following situations occur, enable **Chips Per Group Settings** and set the number of ICs per group:
  - After the parameters are deployed and the module lights up, the lit blocks are incomplete.
  - The sizes of the data group lit blocks are uneven.
  - During mapping, the actual display of the module does not match the reserved position on the canvas.

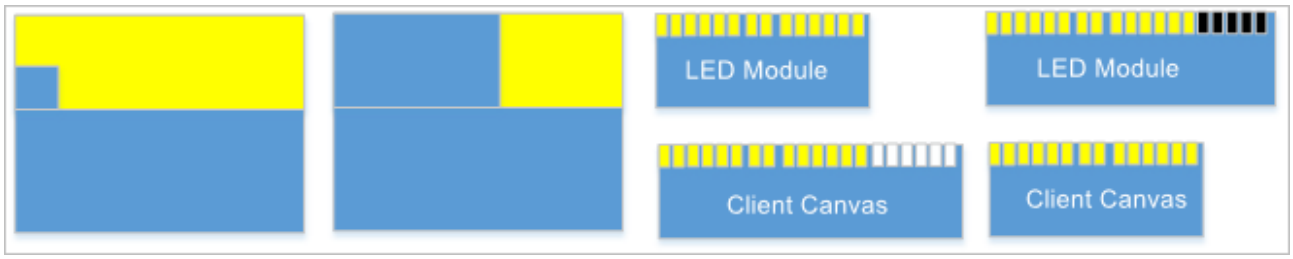

Figure 3-18 Enabling Chips Per Group Configuration

Step 4 Follow the test sequence, select the corresponding color based on the color displayed on the LED module, and click **Next**.

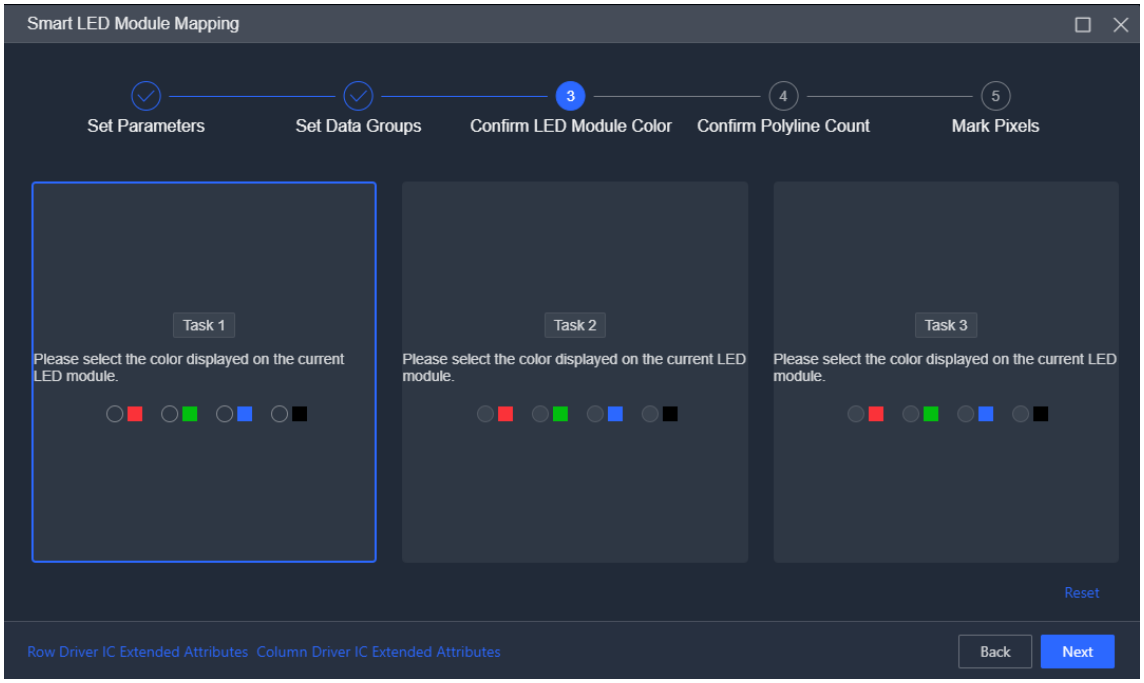

Figure 3-19 Adjust LED Module Color

Step 5 Based on the actual illuminated position and quantity of the LED module, select the corresponding polyline position and quantity, then click **Next**.

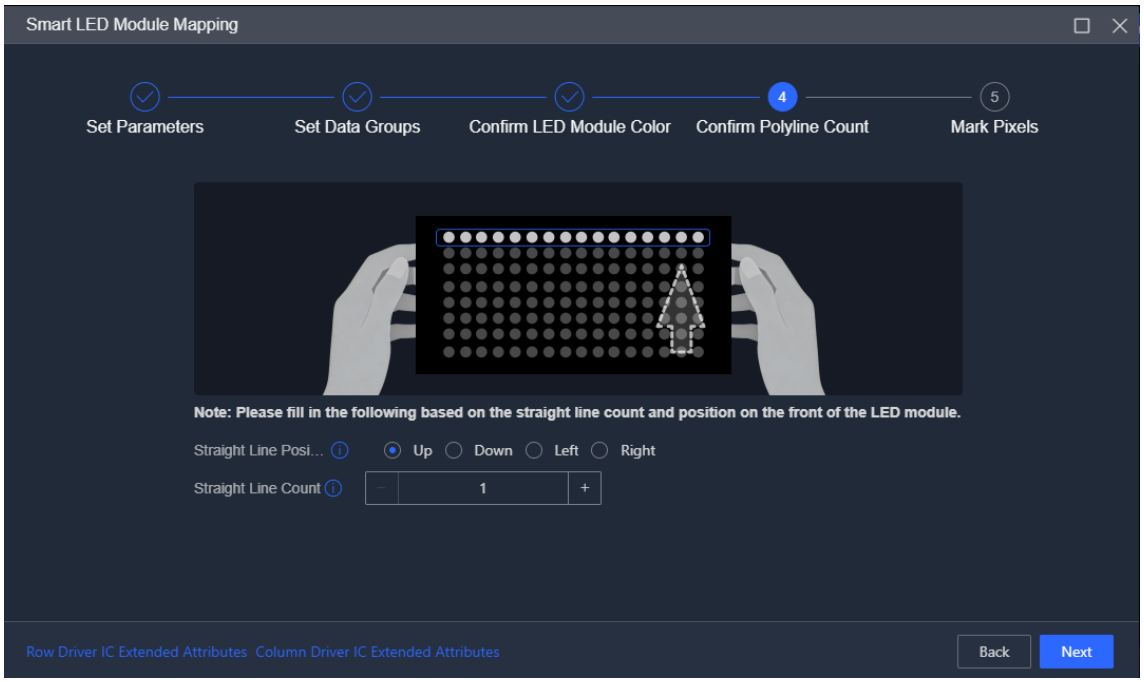

Figure 3-20 Confirm Polyline Count

Step 6 If the parameters indicate row extraction characteristics (the height/row scan ratio of a non-transposed module is a non-integer, or the width/row scan ratio of a transposed module is a non-integer), the system will pop up a prompt.

- If the parameters are correct, click **Yes**. The system will guide you to Step 8 and Step 9.

- If the parameters are incorrect, click **No** and return to check the parameters in the previous steps.

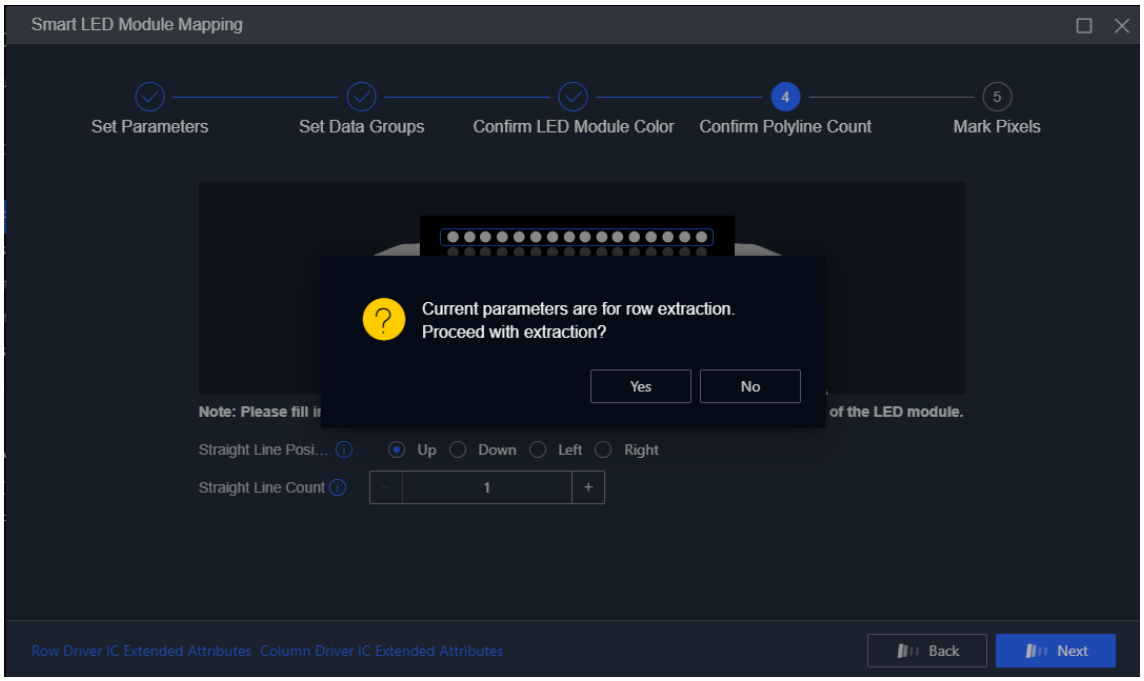

Figure 3-21 Row Extraction Prompt

Step 7 Mark the pixels based on the pixel flashing status of the LED module:

- Manual operation:
  - Flashing LED bead: Click the left mouse button or press the arrow keys to mark it as a normal pixel.
  - Non-flashing LED bead: Click the right mouse button or press the spacebar to mark it as an empty point. Before marking, confirm that the LED bead is not missing.
  - Quick positioning: Click , , , or on the scroll bar to quickly jump to the bottom, top, left, or right.
- Smart generation: After drawing the mapping pattern and setting the starting point, click **Smart Generate**, and the system will automatically complete the remaining mapping based on the existing pattern. Click to view an animated guide for smart generation.

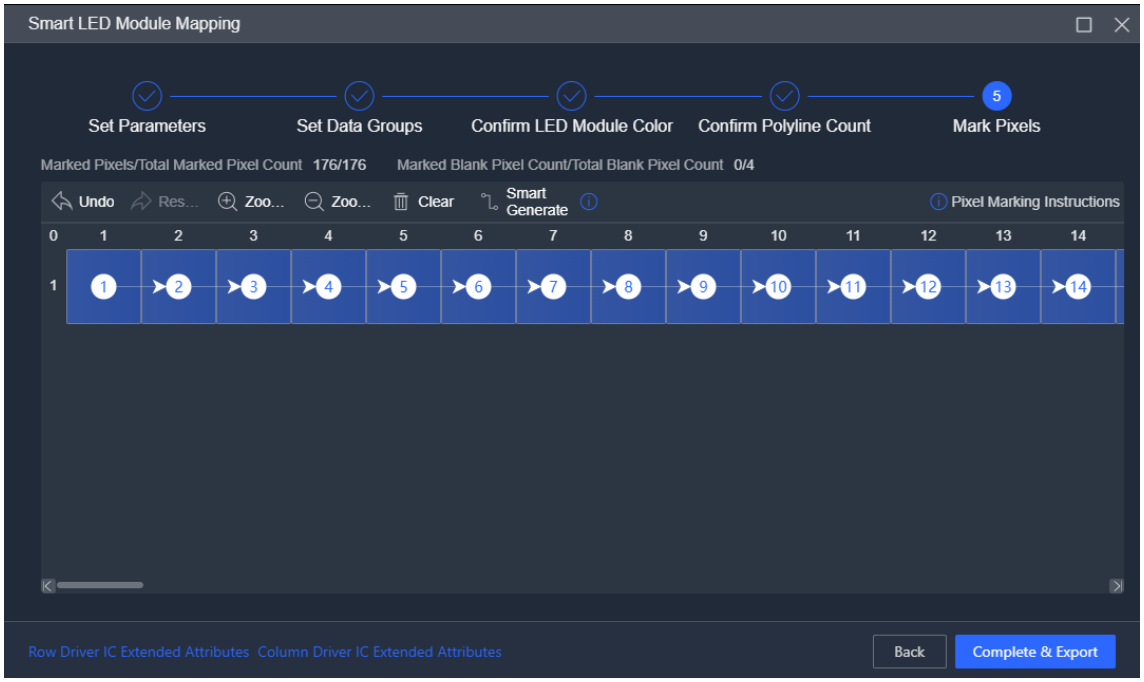

Figure 3-22 Mark Pixels

Step 8 (Optional, only for row extraction) After entering the **Switch Data Group** page, the signal source image will be displayed in the upper-left corner. Based on the actual flashing data group positions on the LED modules, click the corresponding data group positions on the canvas in the same order to ensure the virtual layout matches the physical layout.

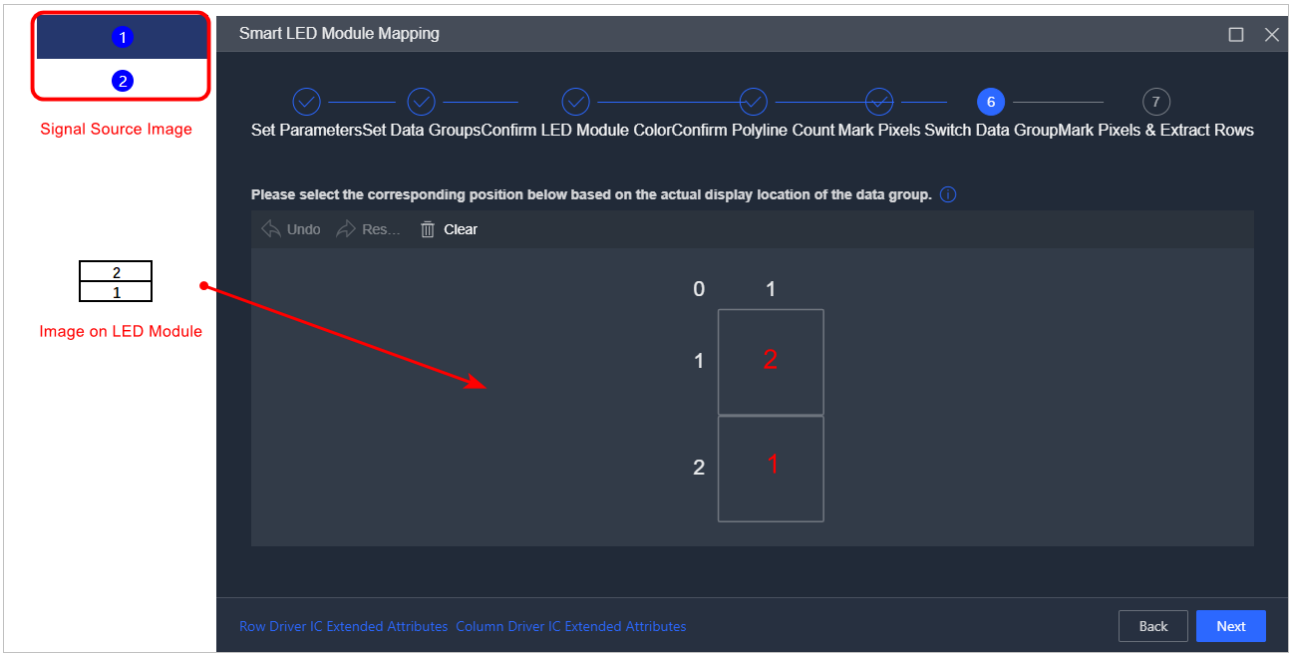

Figure 3-23 Switch Data Group

Step 9 (Optional, only for row extraction) Mark the pixels and extract rows based on the pixel flashing status of the LED module.

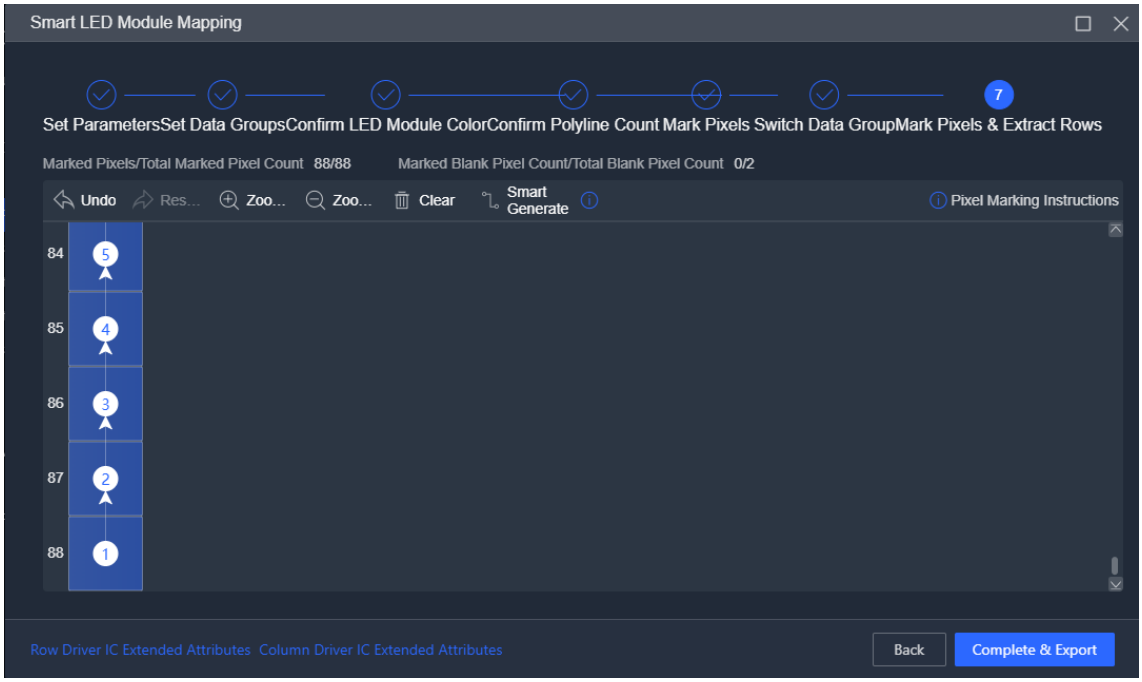

Figure 3-24 Mark Pixels and Extract Rows

Step 10 Click **Complete & Export** to export the LED module configuration file.

Note

The **Row Driver IC Extended Attributes** and **Column Driver IC Extend Attributes** buttons are located in the lower left corner of the **Smart LED Module Mapping** page. Click them to configure the LED module parameters as needed.

3.3.2 Configure LED Module Extended Attributes

If the LED module lights up but the display effect is unsatisfactory, configure the following parameters as required:

- Edit the row driver IC extended attributes:
  1) On the **Display Settings > Receiving Card Parameters** page, click **Row Driver IC Extended Attributes**.
  2) Click **Get** to obtain the current configuration.
  3) Enable **Shallow Enhancement** as required or change the shallow potential level.
  4) Click **Set**.
- Click **Column Driver IC Extended Attributes** to configure the following parameters:
  - Timing parameters: On the **Timing Parameters** page, click **Get** to load the current settings, modify parameters, and click **Save**.
  - Effect parameters in normal mode: On the **Effect Parameters** page, select the default parameters or click **Get** to load settings, modify parameters, and click **Save**.

- Effect parameters in advanced mode: On the **Effect Parameters** page, click **Advanced Mode**, click **Get Advanced Parameters**, double click a parameter to edit its value, and click **Save**.

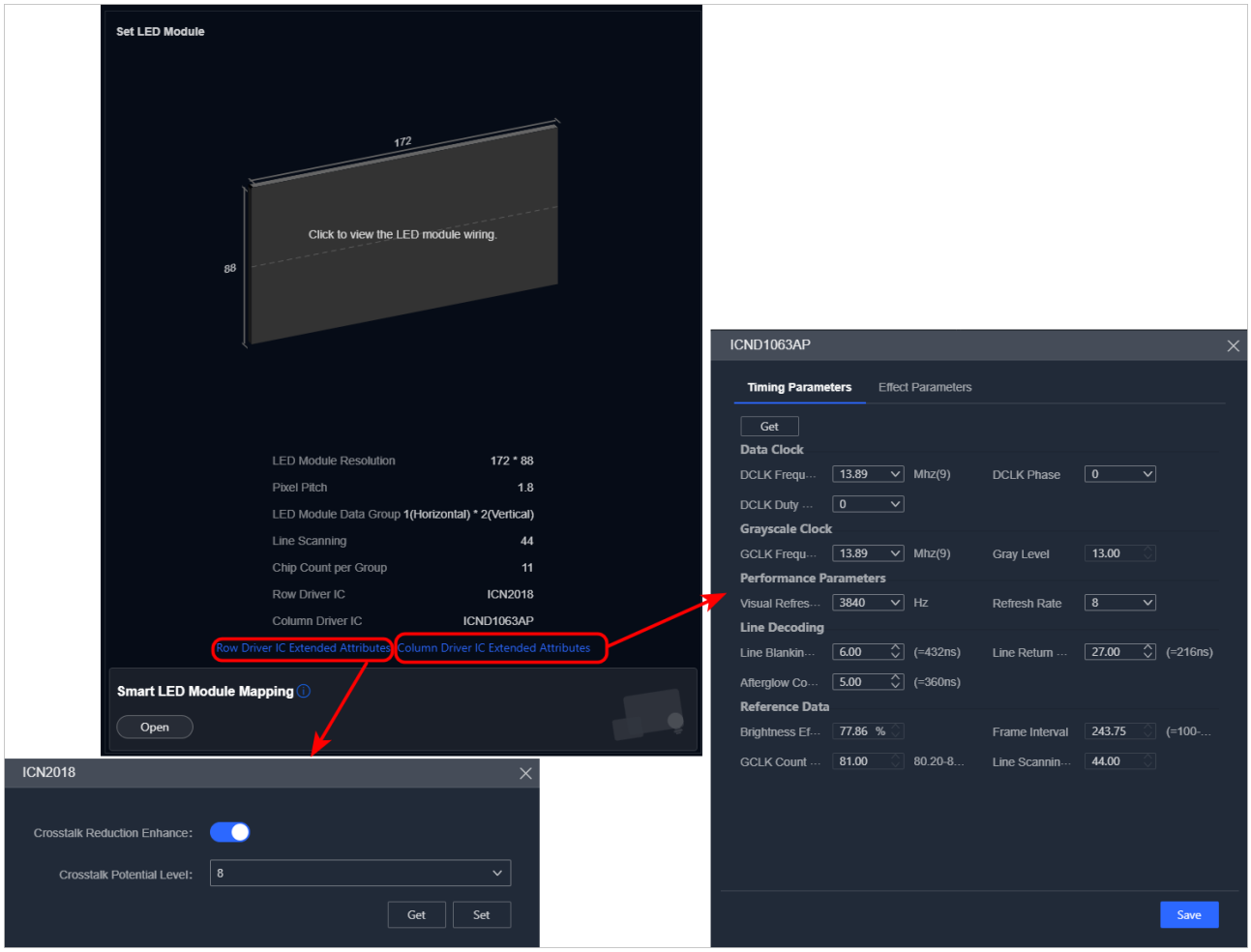

Figure 3-25 Configure LED Module Extended Attributes

Note

For vision chip modules, click **Column Driver IC Extended Attributes** to edit the related parameters.

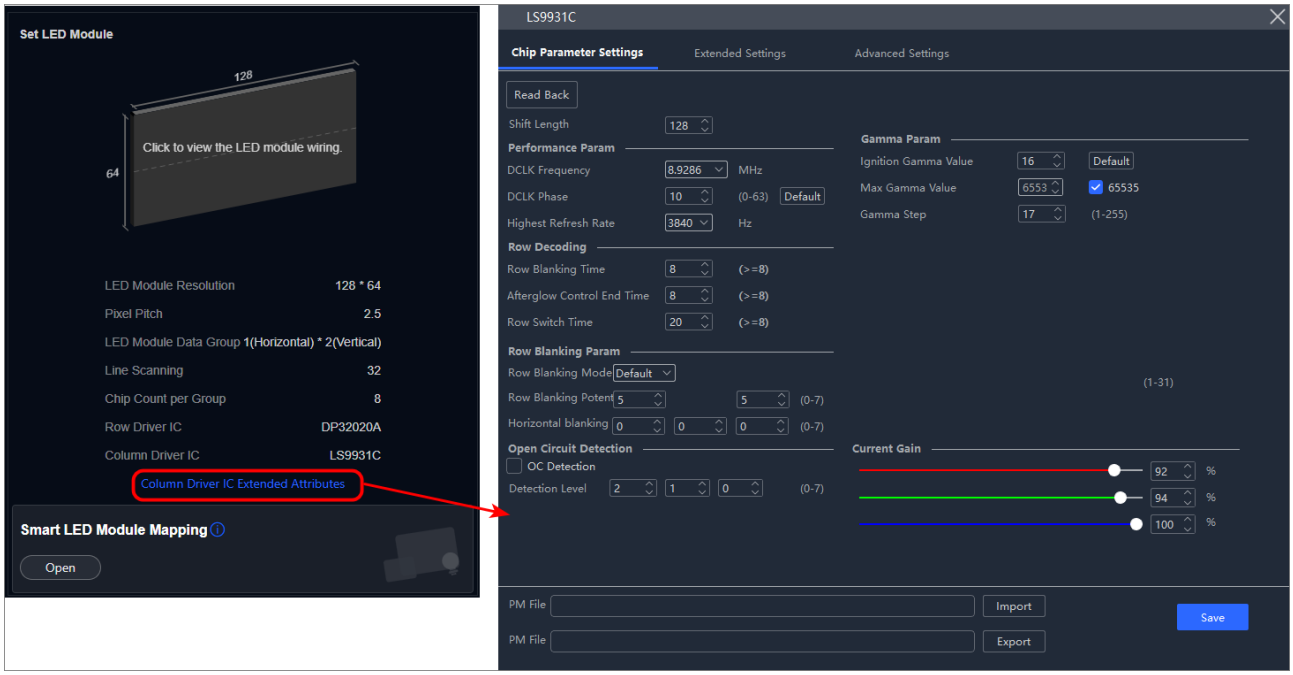

Figure 3-26 Configure Vision Chip Module

3.4 Configure Receiving Card Parameters

3.4.1 Construct Cabinet

Step 1 AXS receiving card: On the **Display Settings > Receiving Card Parameters** page, open the **Cabinet Construction** window.

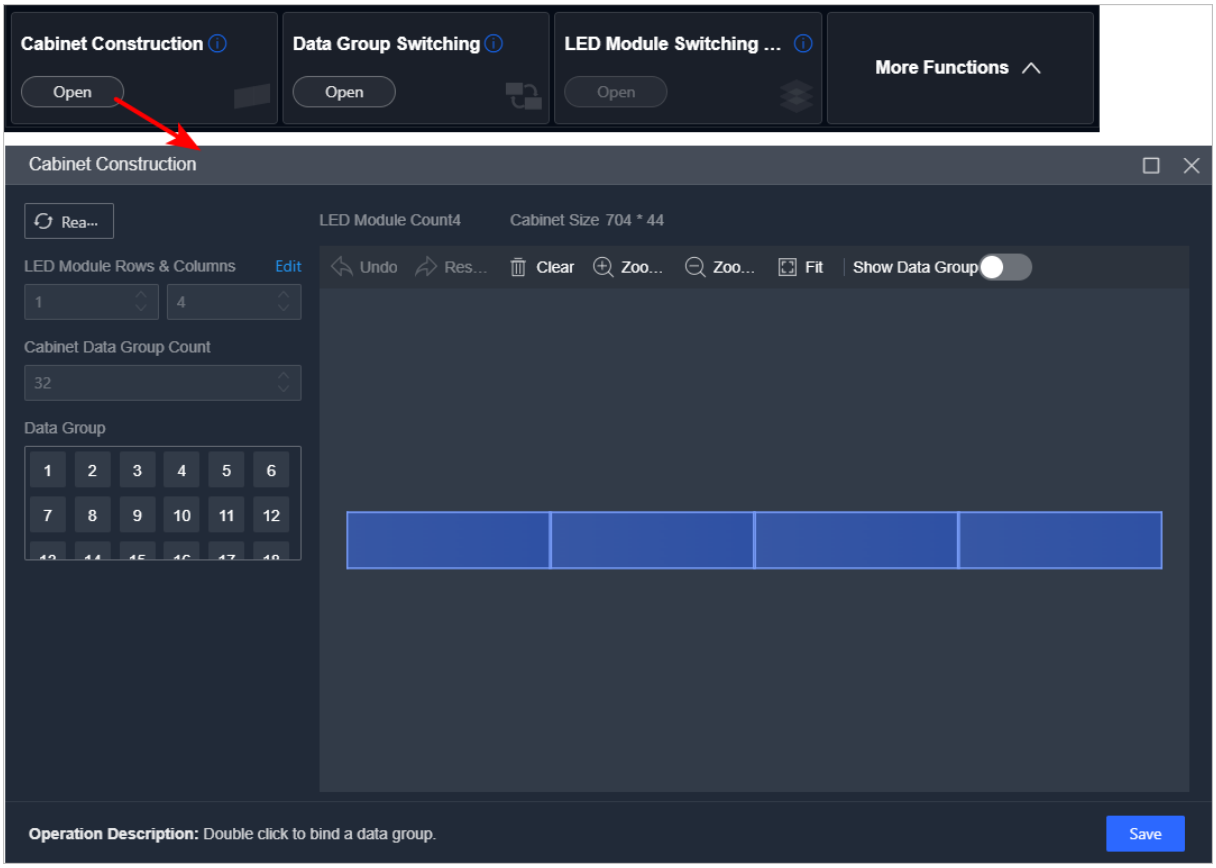

Figure 3-27 Cabinet Construction Page

Step 2 Click **Show Data Group**. The signal source image will appear in the upper-left corner, and the LED module row/column settings window will pop up. Set the number of rows and columns according to the actual number of LED modules.

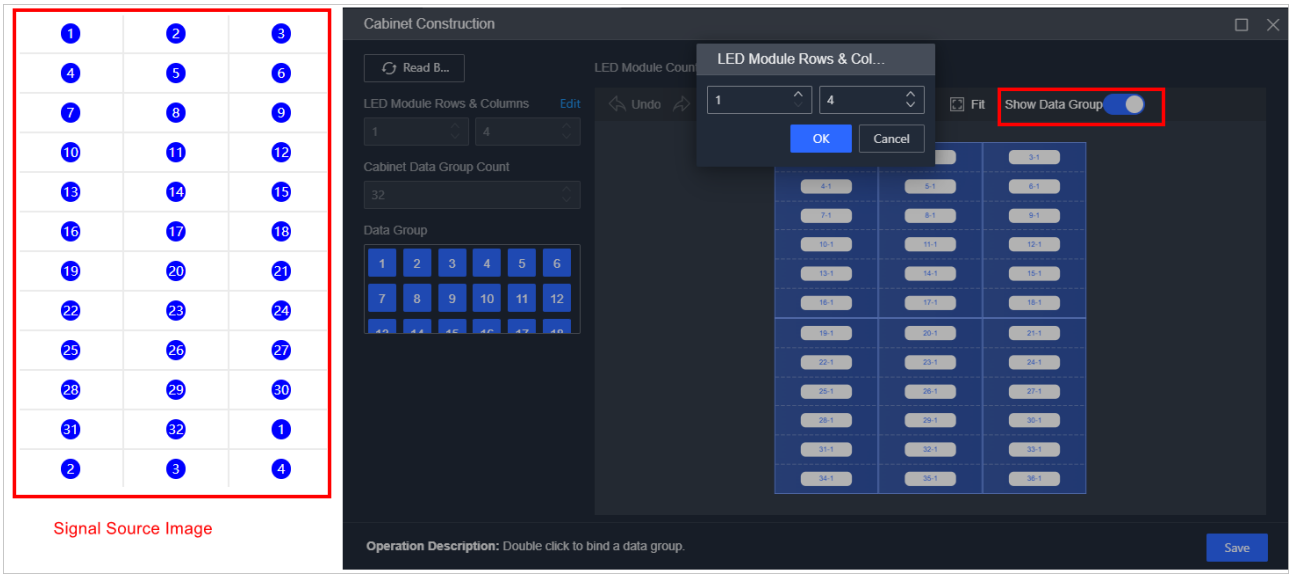

Figure 3-28 Show Data Group

Step 3 On this page, bind the LED modules to the data groups based on the actual data group positions displayed on the LED modules:

1) Select a data group in the data group area on the left.
2) Double-click the corresponding LED module position on the canvas on the right to complete the binding.
3) Repeat the operation until all LED module positions are bound to a data group.

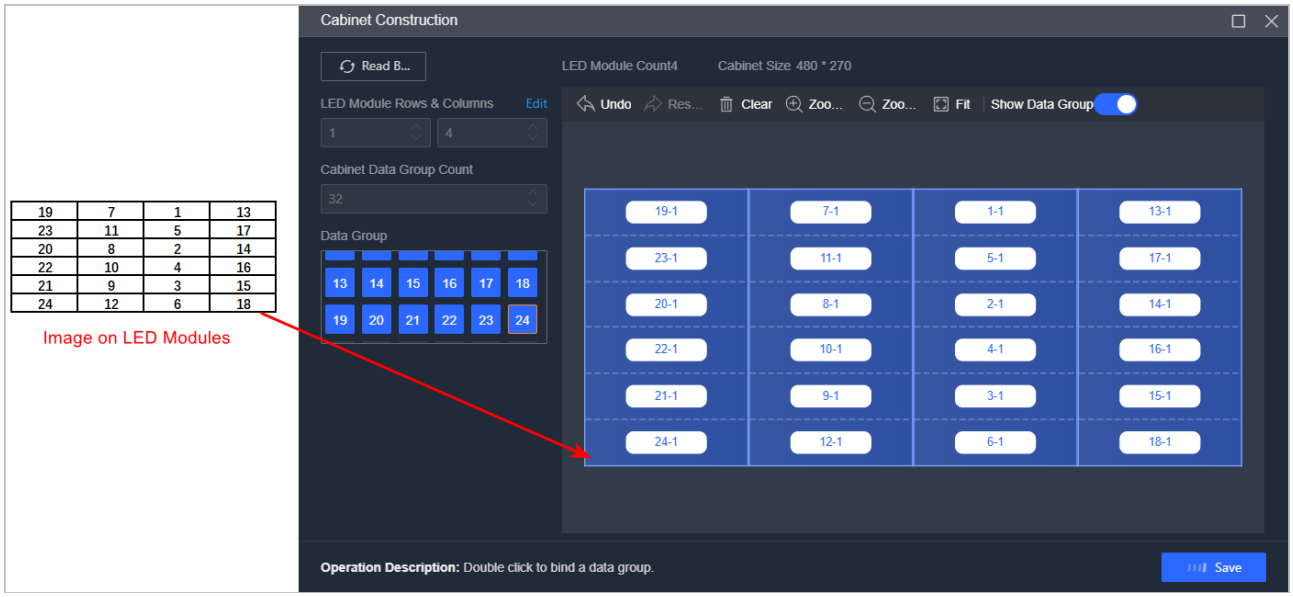

Figure 3-29 Bind Data Groups

Step 4 (Optional) Adjust the canvas:

- Click **Zoom In** or **Zoom Out** to adjust the canvas scale.
- Click **Fit** to make the LED modules adapt to the canvas size.
- Click **Undo** to cancel the binding between the data group and the LED module from the previous step.
- Click **Clear** to remove all binding relationships on the canvas.
- Click **Restore** to restore the binding between the data group and the LED module from the previous step.

Step 5 (Optional) Open LED module row extraction and add the data groups when:

- Non-transposed modules: Height/row scan ratio is non-integer.
- Transposed modules: Width/row scan ratio is non-integer.

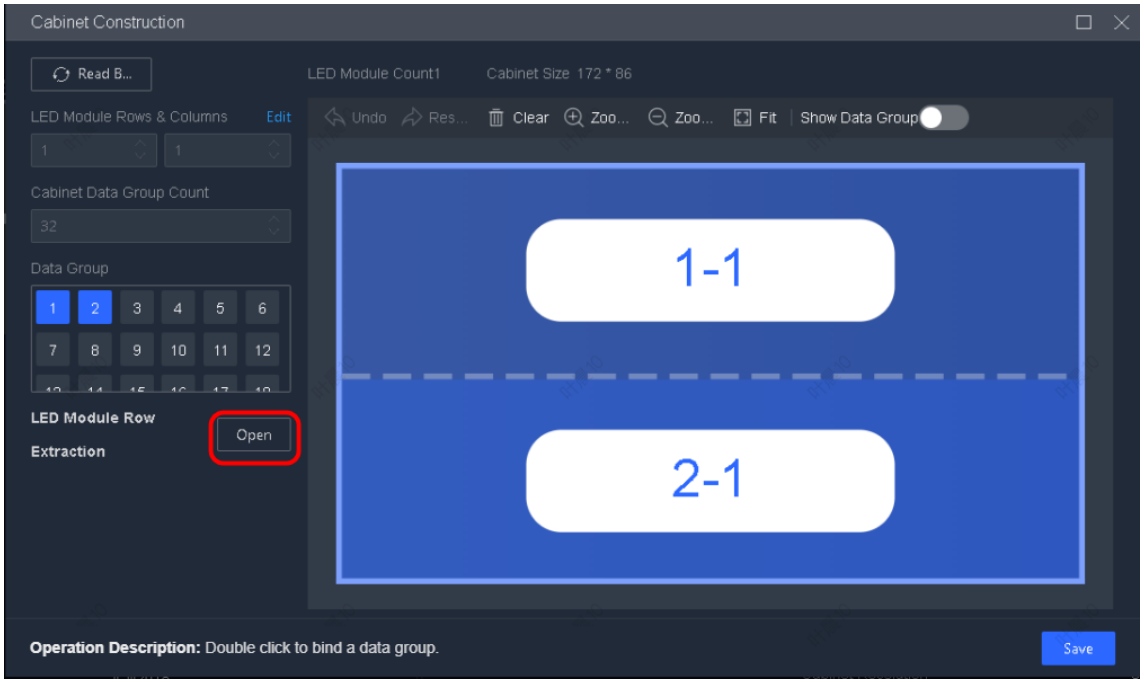

Figure 3-30 Row Extraction

Step 6 Click **Save**.

Step 7 (Optional) Click **Read Back** to refresh the parameters shown in this window.

3.4.2 Configure Data Group Parameters

Step 1 On the **Display Settings > Receiving Card Parameters** page, open the **Data Group Switching** window.

- HUB receiving card: The data group switching function must be configured.
- AXS receiving card: If data group image on the display is scrambled after the cabinet construction, configure the data group switching function.

Step 2 Click the data group positions on the canvas in the same order as they flash on the LED modules, ensuring that the virtual layout is fully consistent with the physical layout of the LED modules.

Note

After the data group switching function is enabled, the signal source image is displayed in the upper-left corner of the page, and the data groups on the LED modules flash in sequence. Click to view the animated demonstration of data group switching operations.

Step 3 Click **Save**.

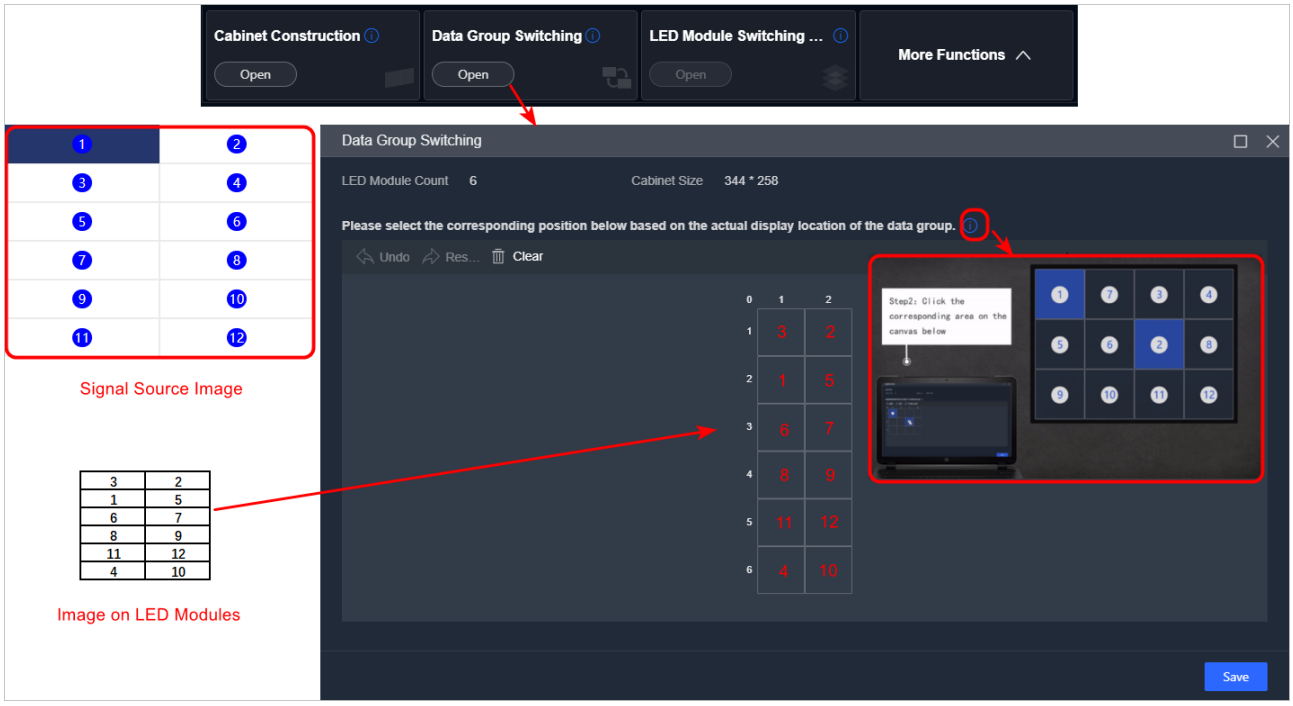

Figure 3-31 Configure Data Group Parameters

3.4.3 Configure Module and Cascading Parameters

Step 1 HUB receiving card: On the **Display Settings > Receiving Card Parameters** page, open the **LED Module Switching & Cascading** window.

Step 2 Based on the actual display layout, set the horizontal LED module count and vertical LED module count.

Step 3 Depending on the receiving card configuration mode, use the corresponding method to confirm the physical connection between the receiving card signal ports and the LED modules:

- Online mode: Click **Show JH Port**. The corresponding signal port number will be displayed on the physical LED modules. For a cascaded LED module group, only the first module in the group displays the signal port number.
- Offline mode/direct connection mode: The **Show JH Port** function is not available in this mode. Please directly check the physical connection between the LED modules and the receiving card signal ports.

Note

The physical silkscreen on the receiving card's signal port is labeled as "JH + number"(e.g., JH1). Only the number part is displayed on the client page and the LED module.

Step 4 Based on the physical connection confirmed in Step 3, bind each receiving card signal port to its corresponding LED modules in the page:

- To bind a single module: Click a signal port, and then double-click the corresponding single module on the canvas.
- To bind a cascaded module group:

1) Enable **Cascading Configuration Mode** and select the cascade direction.
2) Click a signal port, and then sequentially double-click all LED modules in the cascade group on the canvas, following the physical connection order.

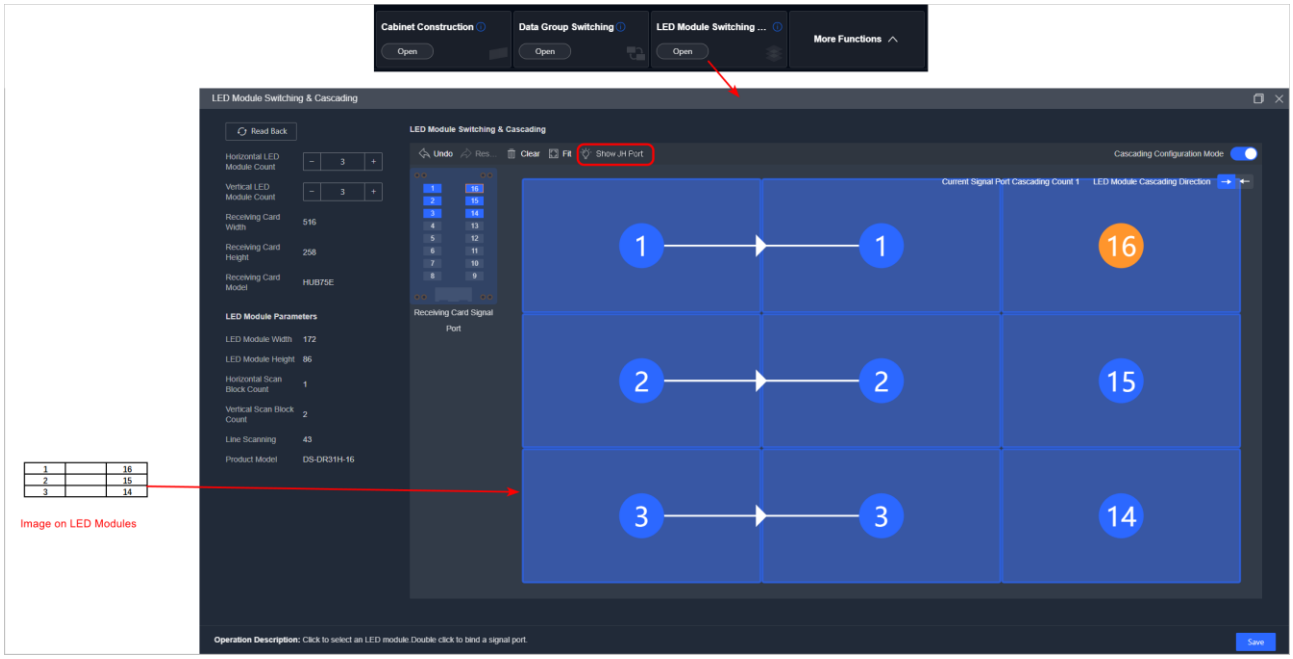

Figure 3-32 Configure Module and Cascading Parameters (Online Mode)

Step 5 (Optional) Use canvas tools to adjust the configuration. For details, see “3.4.1 Step 4”.

Step 6 Click **Save**.

Step 7 (Optional) Click **Read Back** to refresh the parameters shown in this window.

3.4.4 Rotate Cabinets

Step 1 On the **Display Settings > Receiving Card Parameters** page, open the **Rotation** window.

Step 2 According to the actual cabinet installation method, select a rotation angle and click **Apply**.

Step 3 (Optional) Select a fine-tuning method and click **Apply**.

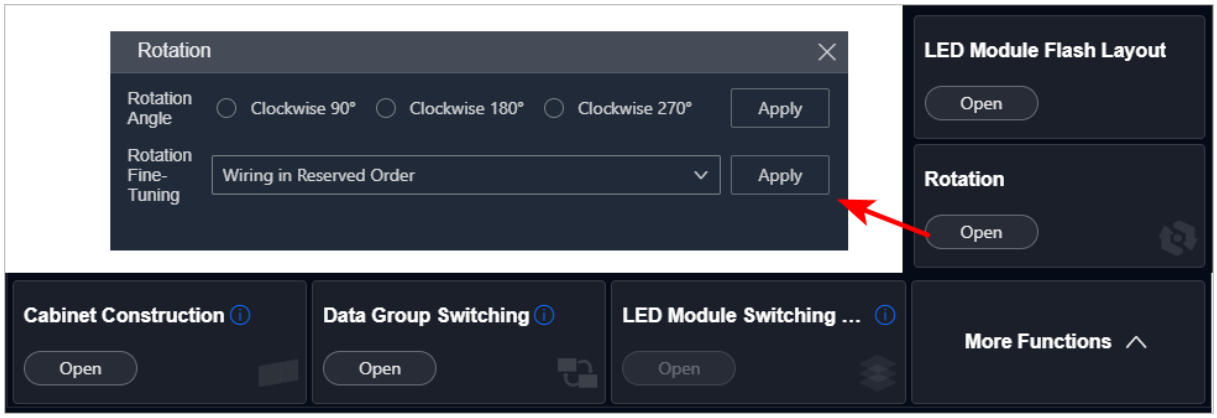

Figure 3-33 Rotate Cabinets

3.4.5 Configure LED Module Flash Wiring Sequence

With Flash Layout Diagram

Step 1 On the **Display Settings > Receiving Card Parameters** page, open the LED module Flash layout window.

Step 2 Check **Yes**.

Step 3 Enter the wiring sequence values in the corresponding areas according to the layout diagram.

Step 4 Click **Save**.

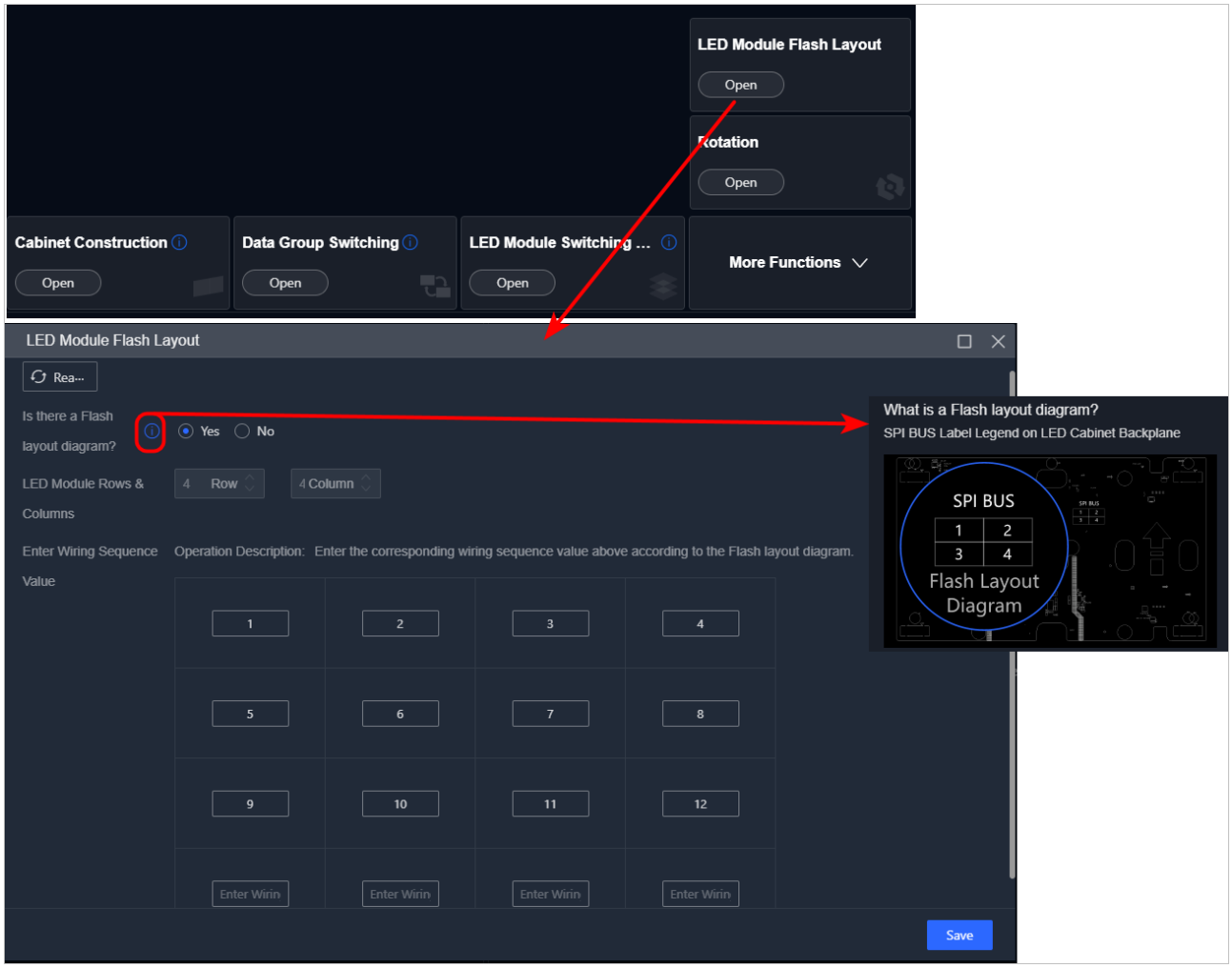

Figure 3-34 With Flash Layout Diagram

Without Flash Layout Diagram

Step 1 Remove all LED modules from the cabinet and prepare one LED module aside.

Step 2 On the **Display Settings > Receiving Card Parameters** page, open the LED module Flash layout window.

Step 3 Check **No**.

Step 4 Click **Start Detection**.

Step 5 According to the on-screen prompts, plug and unplug the prepared LED module in each area of the cabinet in sequence to determine the corresponding number for each area.

Step 6 After all area numbers have been detected, click **Save**.

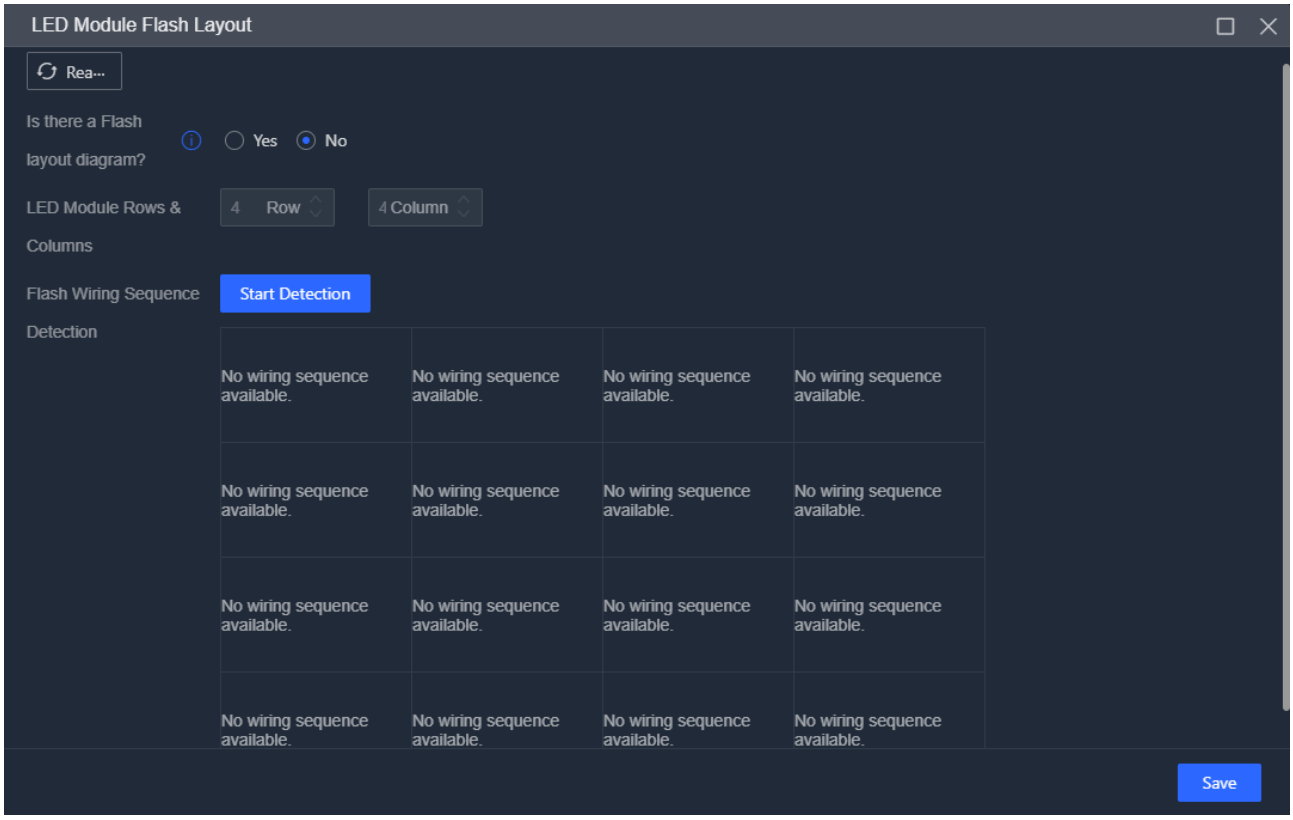

Figure 3-35 Without Flash Layout Diagram

3.5 Debug Receiving Card

Note

- This function is for qualified technicians only.
- Only the online mode supports receiving card DMA and monitoring.

On the **Display Settings > Receiving Card Parameters** page, press shortcut Alt+Q+W (case-insensitive) to access the **Receiving Card Debugging** page. Adjust the receiving card parameters or IC chip parameters as required.

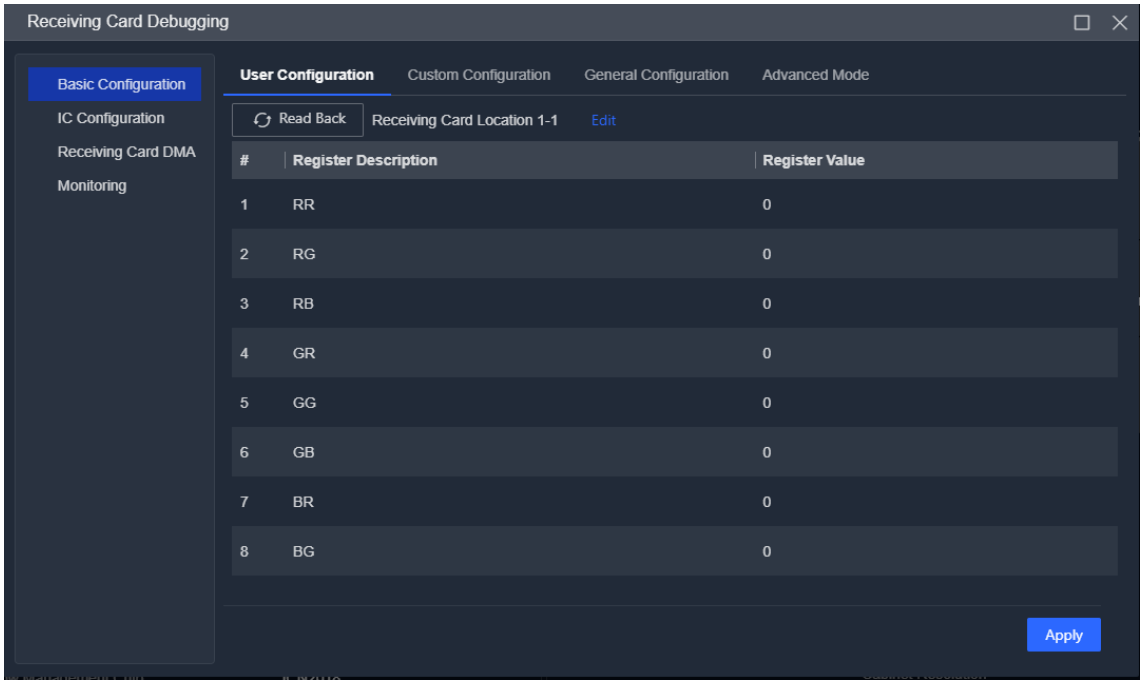

Figure 3-36 Debug Receiving Card

3.6 Apply Receiving Card Configuration

Function Description

This function allows batch synchronization of receiving card parameters to other receiving cards, improving configuration efficiency. Select the appropriate operation procedure based on your specific requirements.

Important

- This function is available only in online mode.
- The following parameters are excluded from synchronization and require separate configuration:
  - Smart LED module mapping parameters (see "3.3.1 Configure Smart LED Module Mapping Parameters").
  - Receiving card debugging parameters (see "3.5 Debug Receiving Card").

3.6.1 Sync Receiving Card Configuration

Use this function to copy parameters from one receiving card to other receiving cards.

Step 1 On the **Display Settings > Receiving Card Parameters** page, ensure that the parameters of the currently selected receiving card are fully configured.

Step 2 Click **Edit** next to **Configuration Scope** to set the target configuration scope.

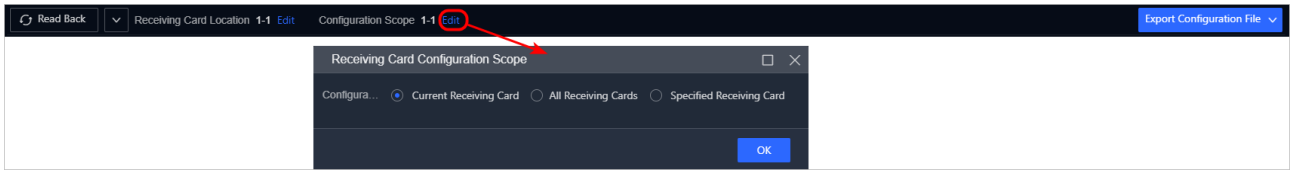

Figure 3-37 Edit Receiving Card Configuration Scope

- Select **All Receiving Cards** and then select the target LED controller.

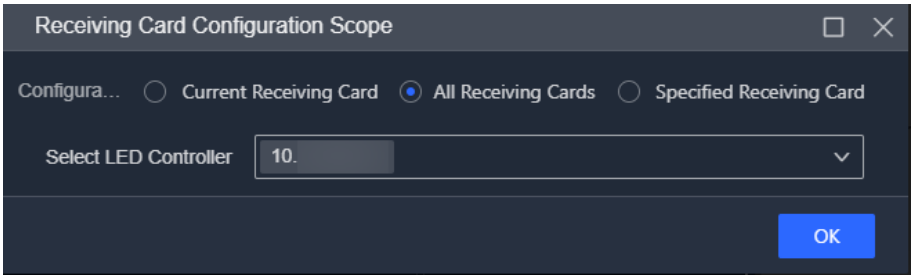

Figure 3-38 Select All Receiving Cards

- Select **Specified Receiving Card** and choose one of the following methods. The system will automatically select the current receiving card by default, and this selection cannot be canceled.
  - Select by topology: Select the specific receiving cards in the topology diagram. Make sure the display mapping parameters are complete in advance. For details, see "Chapter 5 Display Mapping".
  - Select by physical address: Check specific receiving cards in the list.

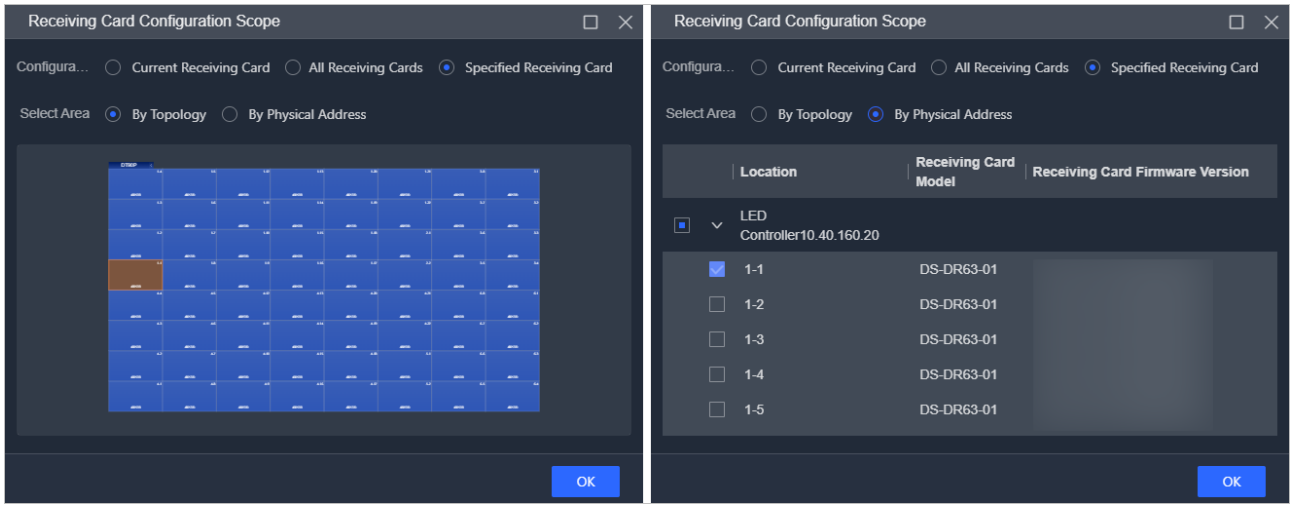

Figure 3-39 Select Specific Receiving Card

Step 3 Click **OK**.

3.6.2 Batch Configure Receiving Cards

Use this function to apply new parameters to multiple receiving cards.

Step 1 On the **Display Settings > Receiving Card Parameters** page, click **Edit** next to **Configuration Scope** to set the target configuration scope.

- Select **All Receiving Cards** and then select the target LED controller.
- Select **Specified Receiving Card** and then choose the area by topology or physical address.

Step 2 Click **OK**.

Step 3 Configure the receiving card parameter. For details, see “3.4 Configure Receiving Card Parameters”. These parameters will be uniformly applied to the receiving cards selected in Step 1.

Chapter 4 Custom-Shaped Cabinet Configuration

4.1 Custom-Shaped Cabinet Configuration Procedure

Applicable Devices

- DT90 series LED controllers: V1.1 and above
- DT60 series LED controllers: V6.3 and above
- DT30 series LED controllers: V1.1 and above
- DS-T series LED controllers:
  - 1/2 output ports: V1.1 and above
  - 4/6/12/20 output ports: V6.3 and above
  - 24/40 output ports: V1.1 and above

Before You Start

This feature is supported only when the LED modules within the cabinet use the same row driver IC type, column driver IC type, row scan count, and LED bead RGB sequence.

Function Description

Custom-shaped cabinets include the following two forms:

- Cabinets composed of LED modules with different parameters: The LED modules within the cabinet have the same row driver IC type, column driver IC type, row scan count, and LED bead RGB sequence, but differ in other parameters. For definitions of other parameters, see "3.3.1 Configure Smart LED Module Mapping Parameters".
- Cabinets with a non-matrix layout: The LED modules within the cabinet are identical but arranged in a non-matrix pattern (such as staggered, stepped, etc.).

This client supports both online and offline projects. Irregular cabinet configuration is only supported in online mode and offline mode. For specific definitions, see "**Function Description**".

Important

This feature is only supported by HUB receiving cards.

Steps

Step 1 Upgrade the receiving card firmware:

1) Navigate to the **Display Settings** > **Device Management**.
2) Click  of a target LED controller and click **Upgrade**.

3) Select **Receiving Card** and **Upgrade Offline**.
4) Import the receiving card firmware file obtained from technical support and click **OK**.

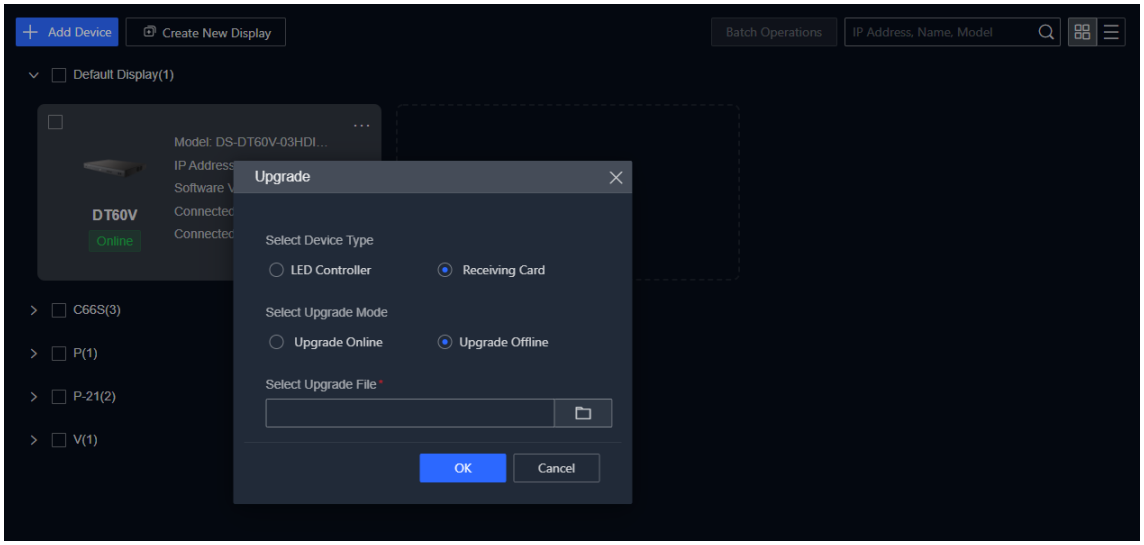

Figure 4-1 Upgrade Receiving Card

Step 2 Select the target LED controller and navigate to **Display Settings > Receiving Card Parameters**.

Step 3 (Optional, applicable to online mode) When one device controls multiple receiving cards, select a receiving card.

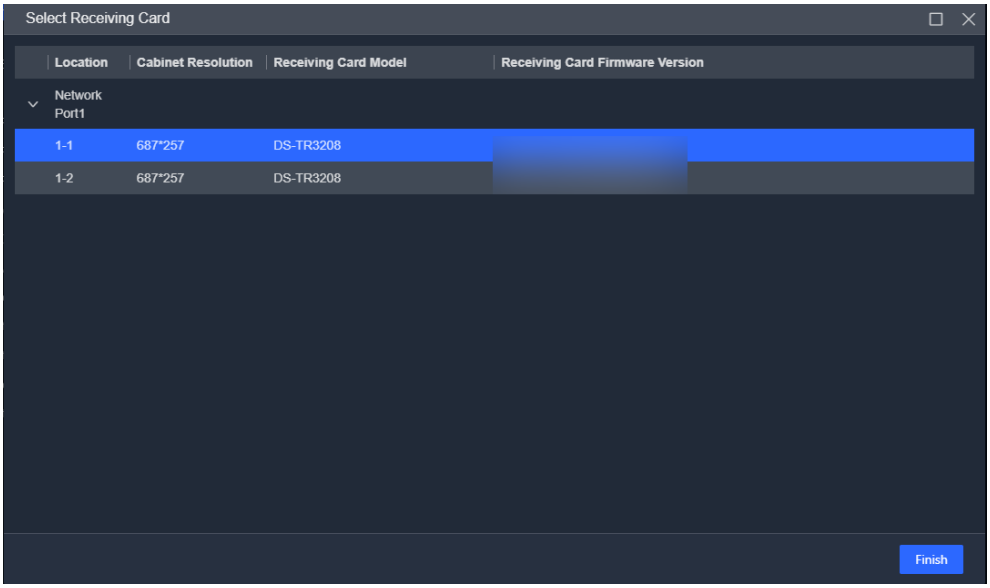

Figure 4-2 Select Receiving Card

Step 4 Enable the custom-shaped cabinet mode:

- Online mode: The system automatically detects custom-shaped cabinets and switches to the custom-shaped cabinet mode.

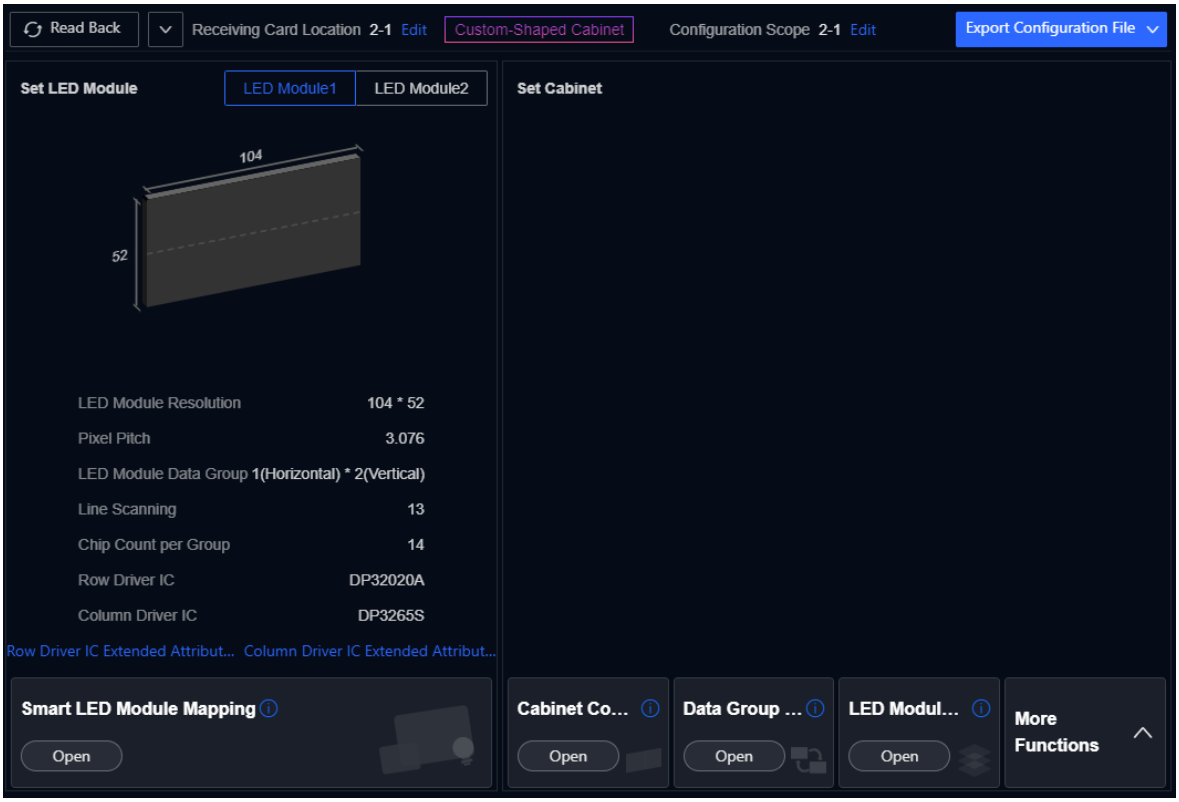

Figure 4-3 Custom-Shaped Cabinet Mode (Online Mode)

- Offline mode:

1) Click  to enable offline mode and select the corresponding receiving card model.
2) Manually enable **Custom-Shaped Cabinet** Mode.



Figure 4-4 Enable Custom-Shaped Cabinet Mode (Offline Mode)

Step 5 Obtain the LED module configuration file using either of the following methods:

- Create an LED module configuration file using the smart LED module mapping function:

1) Set up the smart LED module mapping environment. For details, see "3.2 Set Up Smart LED Module Mapping Environment".
2) Open the **Smart LED Module Mapping** window and create an LED module configuration file. For details, see "3.3.1 Configure Smart LED Module Mapping Parameters".

- Import an existing LED module configuration file (supported only in offline mode): Click **Import** to import an existing LED module configuration file or cabinet configuration file, which can then be modified as needed.

Step 6 Check LED module illumination status and take corresponding actions:

- Unable to illuminate: Open the smart LED module mapping window and recreate the LED module configuration file.
- Poor display effect: Adjust the extended attributes of row/column driver ICs. For details, see “3.3.2 Configure LED Module Extended Attributes”.
- Normal display effect: Proceed to the next steps.

Step 7 Configure the cabinet parameters:

- Cabinet construction: Rearrange the positions of LED modules within the cabinet or adjust the LED module scale. For details, see "4.3 Construct Cabinet".
- Data group switching: Rematch data groups with display areas so that content is displayed in the correct position. For details, see "3.4.2 Configure Data Group Parameters".
- LED module switching and cascading: Rearrange the positions and cascading relationships of multiple LED modules (HUB receiving cards only). For details, see "4.2 Configure Module and Cascading Parameters".

Step 8 Verify the cabinet parameters:

- For non-matrix cabinets: Check the cabinet arrangement shape displayed in the **Set Cabinet** area.
- Online mode: Confirm whether the image on the LED display is normal.
- Offline mode: Click to view receiving card connections and verify that the cabinet parameter configuration is correct.



Figure 4-5 Receiving Card Configuration Page

Step 9 Click **Export Configuration File** to save the cabinet configuration file to the cabinet area or computer.

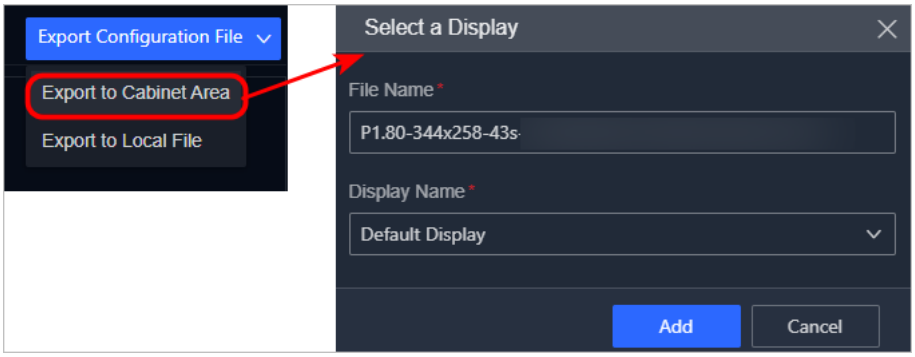

Figure 4-6 Export Configuration File

Step 10 View the custom-shaped cabinet shape on the **Display Mapping** page:

1) Export the custom-shaped cabinet configuration file from the **Receiving Card Configuration** page to the cabinet area.
2) On the **Display Mapping** page, drag this custom-shaped cabinet from the cabinet area onto the canvas to view its shape.
3) (Optional) Click **Live View** to check the display effect of the signal source on the custom-shaped cabinet.

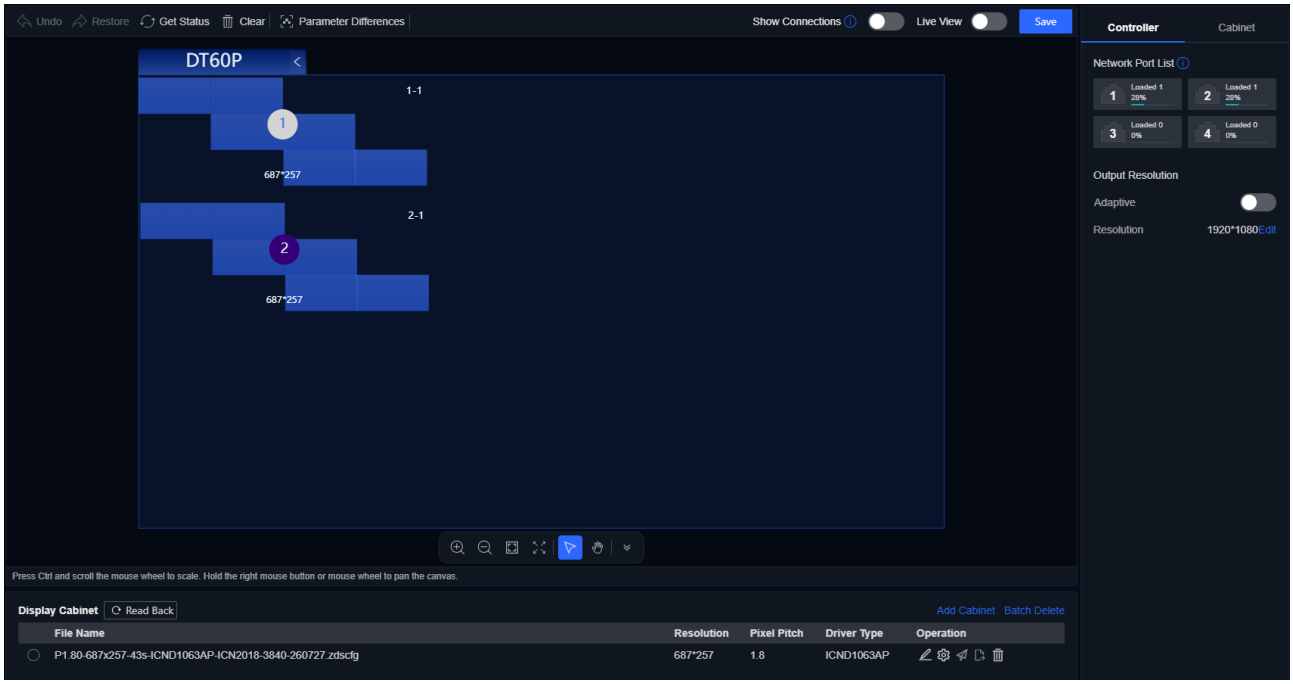

Figure 4-7 Display Mapping Page

4.2 Configure Module and Cascading Parameters

Step 1 On the **Display Settings > Receiving Card Parameters** page, open the **LED Module Switching & Cascading** window.

Step 2 Click **Clear** and **Clear LED Modules**.

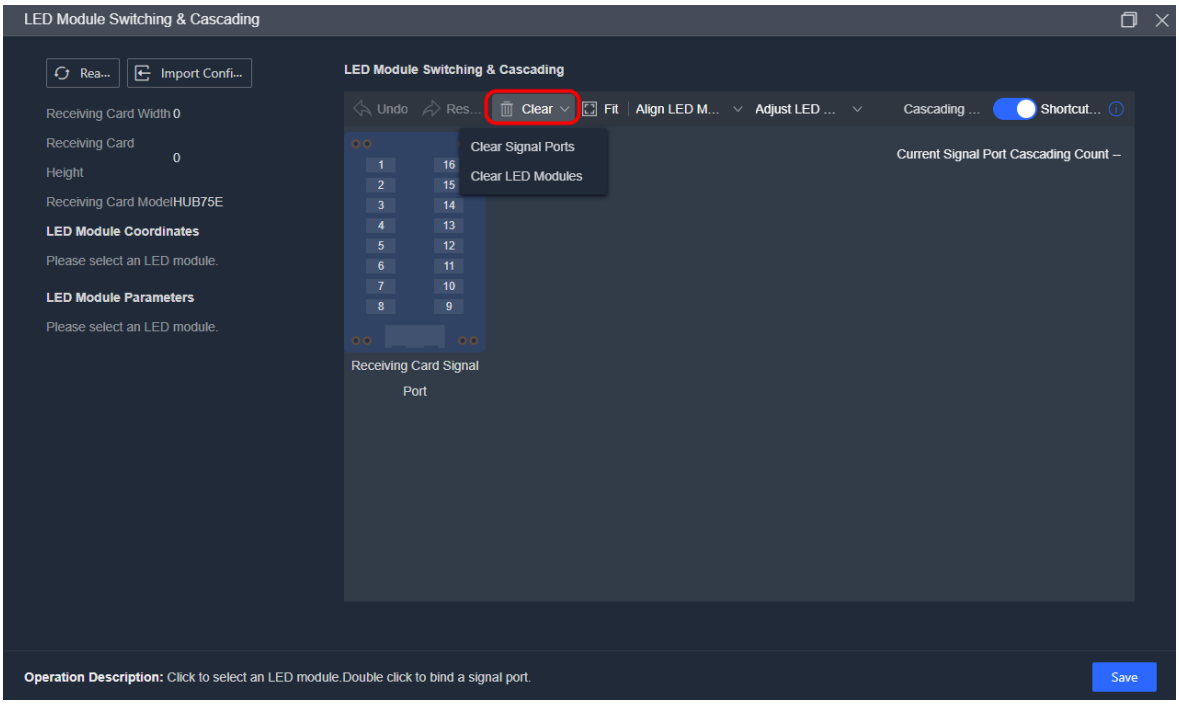

Figure 4-8 Clear LED Modules

Step 3 Import LED module configuration file:

1) Click **Import Configuration File** and select the saved LED module configuration file (see 4.1 Step 5) and click **Add**.
2) Confirm the LED module information.
3) Set the number of module rows and columns according to the actual quantity of this module type on the physical display, and then click **OK**.
4) (Optional) If the display contains multiple types of LED modules that share identical row driver ICs, column driver ICs, row scan values, and RGB parameters, repeat the steps above to import the configuration file for each module type.

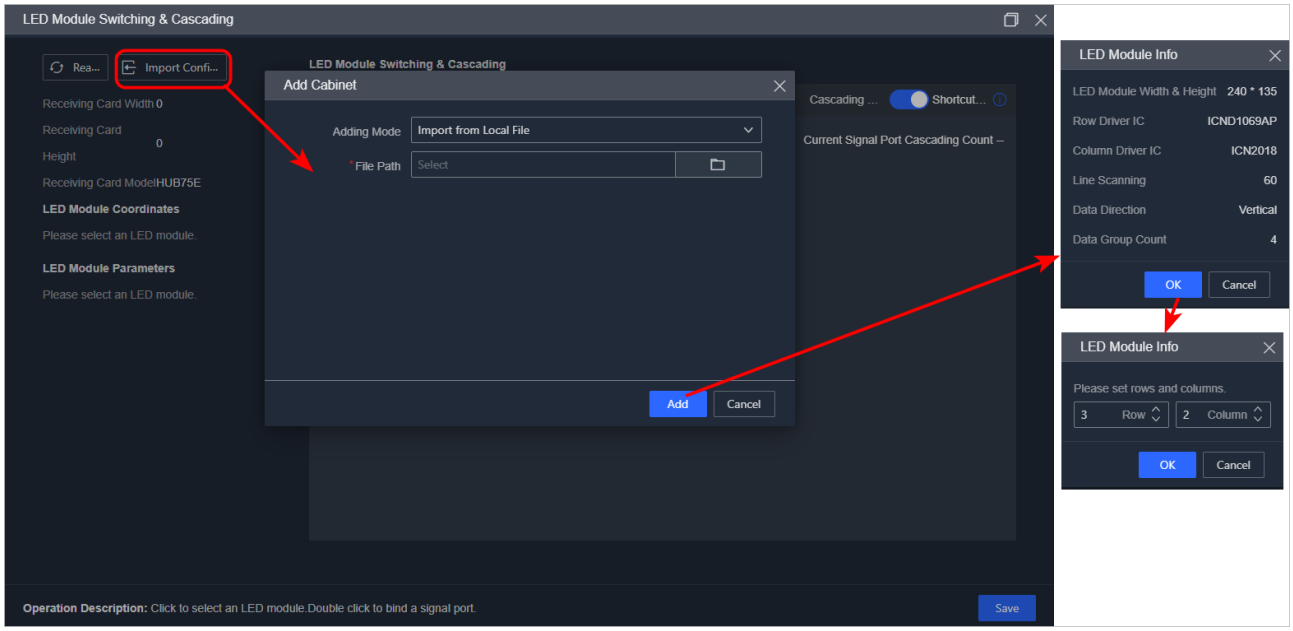

Figure 4-9 Import LED Module Configuration File

Step 4 Choose any of the following methods to adjust the layout on the canvas based on the actual arrangement of modules on the physical display:

- Drag modules to specific positions.
- Position modules by entering their coordinates.
- Select a cabinet and use the **Align LED Modules** and Adjust LED **Module Spacing** functions to adjust the module layout.

Note

The physical silkscreen on the receiving card's signal port is labeled as "JH + number"(e.g., JH1). Only the number part is displayed on the client page and the LED module.

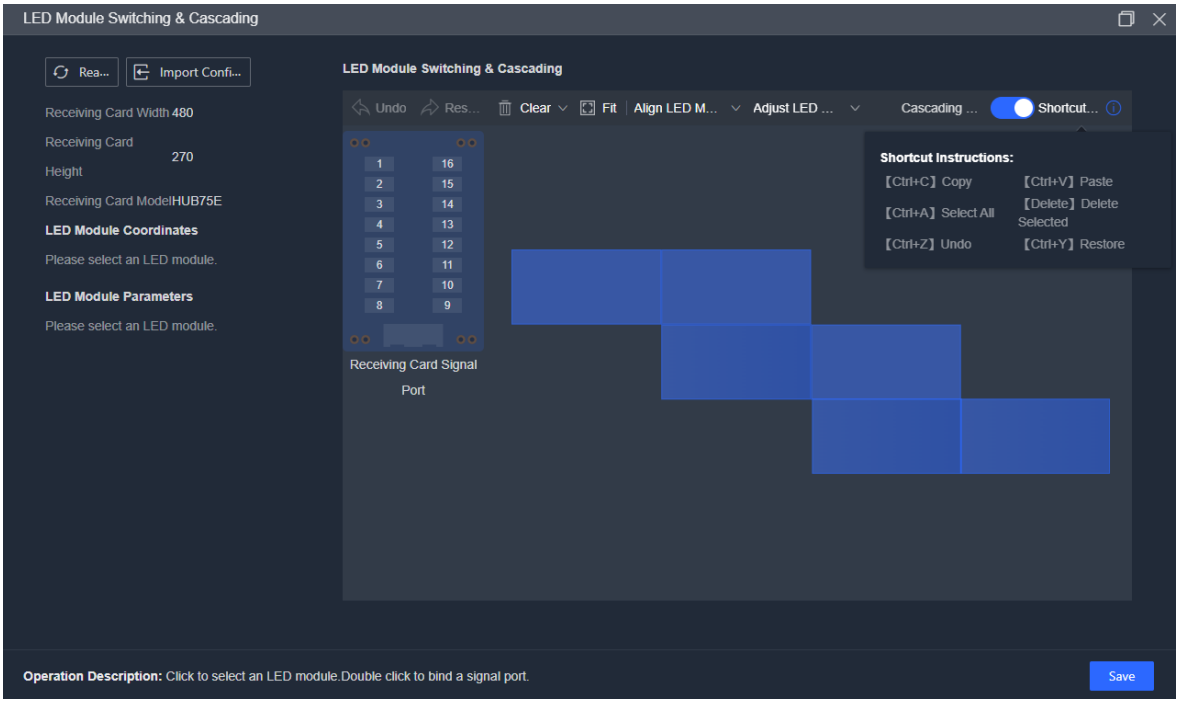

Figure 4-10 Adjust LED Module Layout

Step 5 Bind the corresponding modules to each receiving card signal port based on the physical connection:

- Bind a single module: Click a signal port, and then double-click the corresponding single module on the canvas.
- Bind a cascaded module group:

1) Enable **Cascading Configuration Mode**.
2) Click a signal port, and then double-click all modules in the cascaded group on the canvas in the order of the cascade chain.

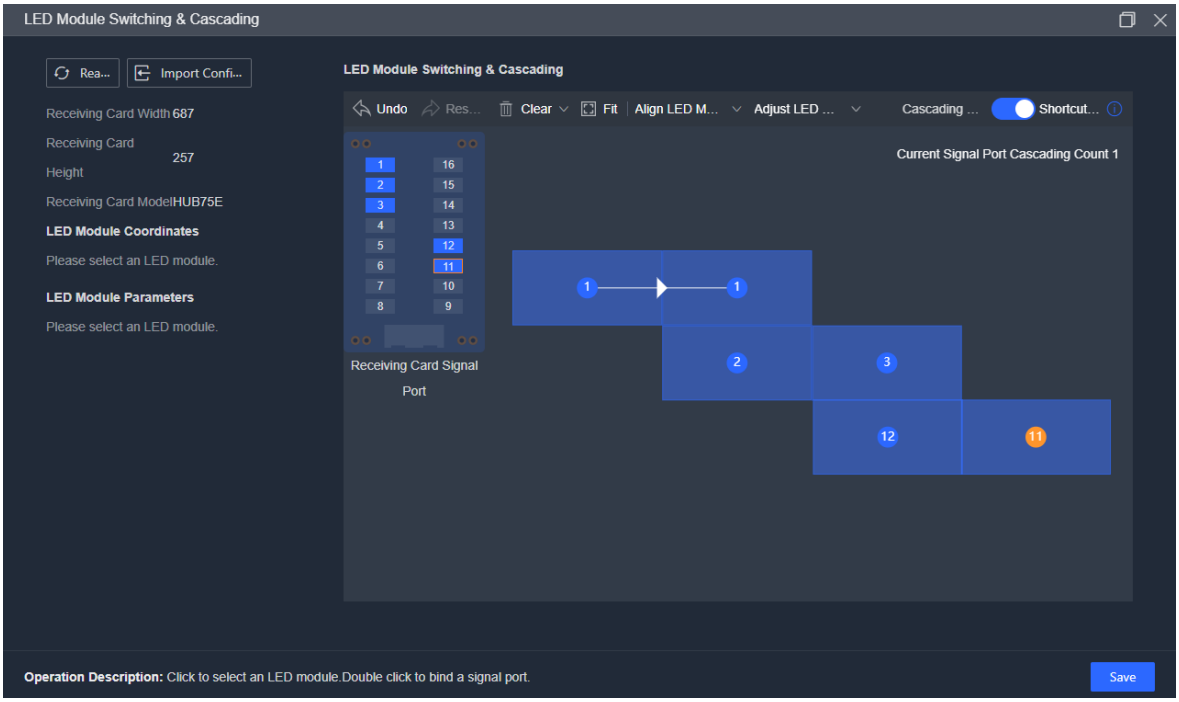

Figure 4-11 Bind Receiving Card Signal Port to LED Module

Step 6 (Optional) Use canvas tools to assist configuration:

- Click **Fit** to make the LED modules adapt to the canvas size.
- Click **Undo** to cancel the binding between the data group and the LED module from the previous step.
- Click **Clear** to remove all binding relationships on the canvas.
- Click **Restore** to restore the binding between the data group and the LED module from the previous step.
- Use shortcuts to adjust the canvas.

Step 7 Click **Save**.

Step 8 (Optional) Click **Read Back** to refresh the parameters shown in this window.

4.3 Construct Cabinet

Step 1 On the **Display Settings > Receiving Card Parameters** page, open the **Cabinet Construction** window.

Step 2 Click **Clear** and **Clear LED Modules**.

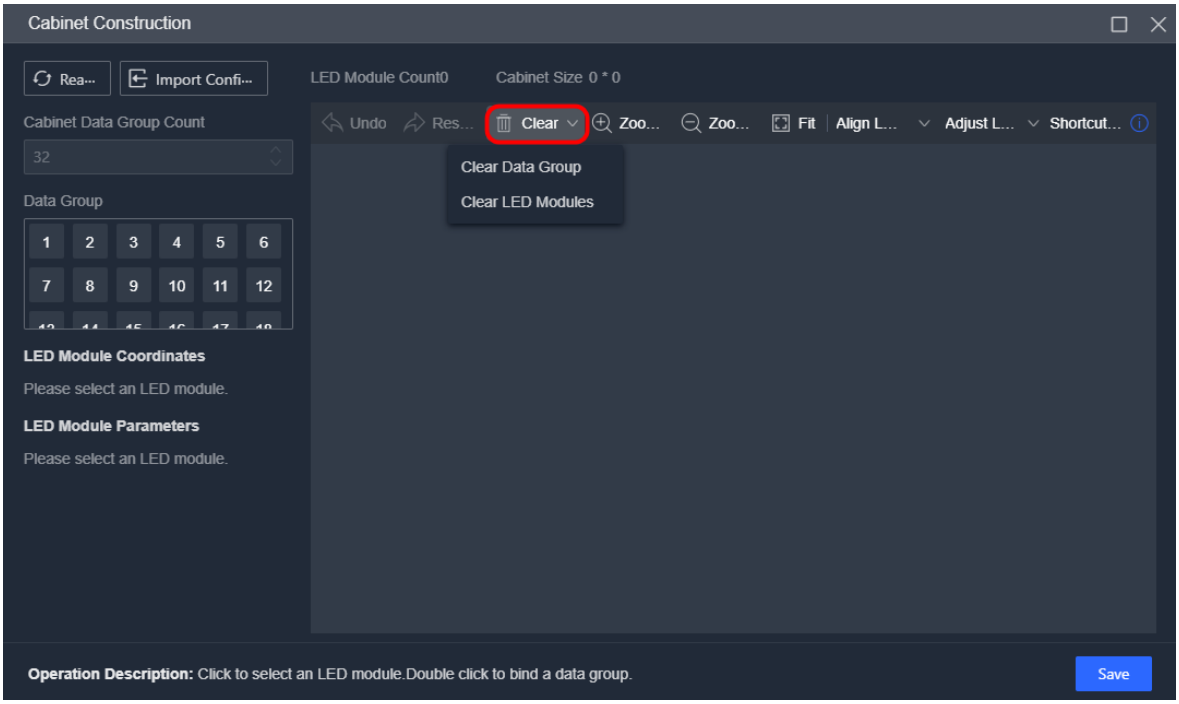

Figure 4-12 Clear LED Modules

Step 3 Import LED module configuration file. For configuration method, see “4.2 Step 3”.

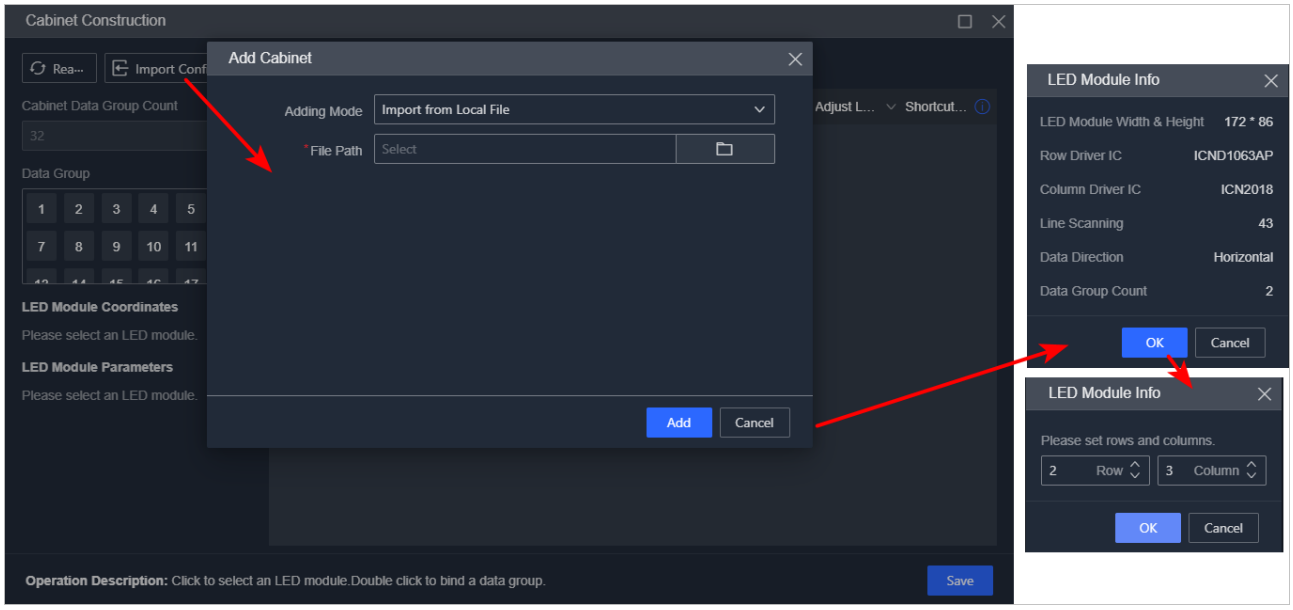

Figure 4-13 Import LED Module Configuration File

Step 4 Choose any of the following methods to adjust the layout on the canvas based on the actual arrangement of modules on the physical display:

- Drag modules to specific positions.
- Position modules by entering their coordinates.
- Select a cabinet and use the **Align LED Modules** and Adjust LED **Module Spacing** functions to adjust the module layout.

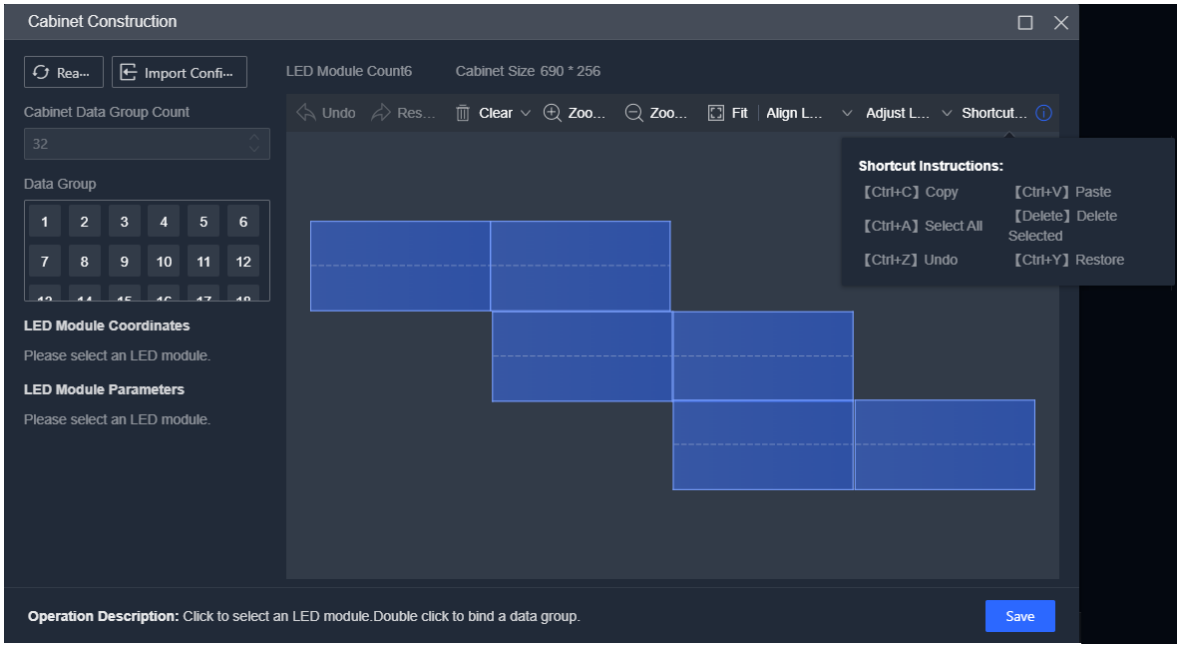

Figure 4-14 Adjust LED Module Layout

Step 5 Bind the LED modules to the data groups according to the physical connection between the modules and the receiving card ports (physically silkscreened as "JH + number"):

1) Select a data group in the left **Data Group** area.
2) Double-click the corresponding module position on the right canvas to complete the binding.
3) Repeat the operation until all module positions are bound to a data group.

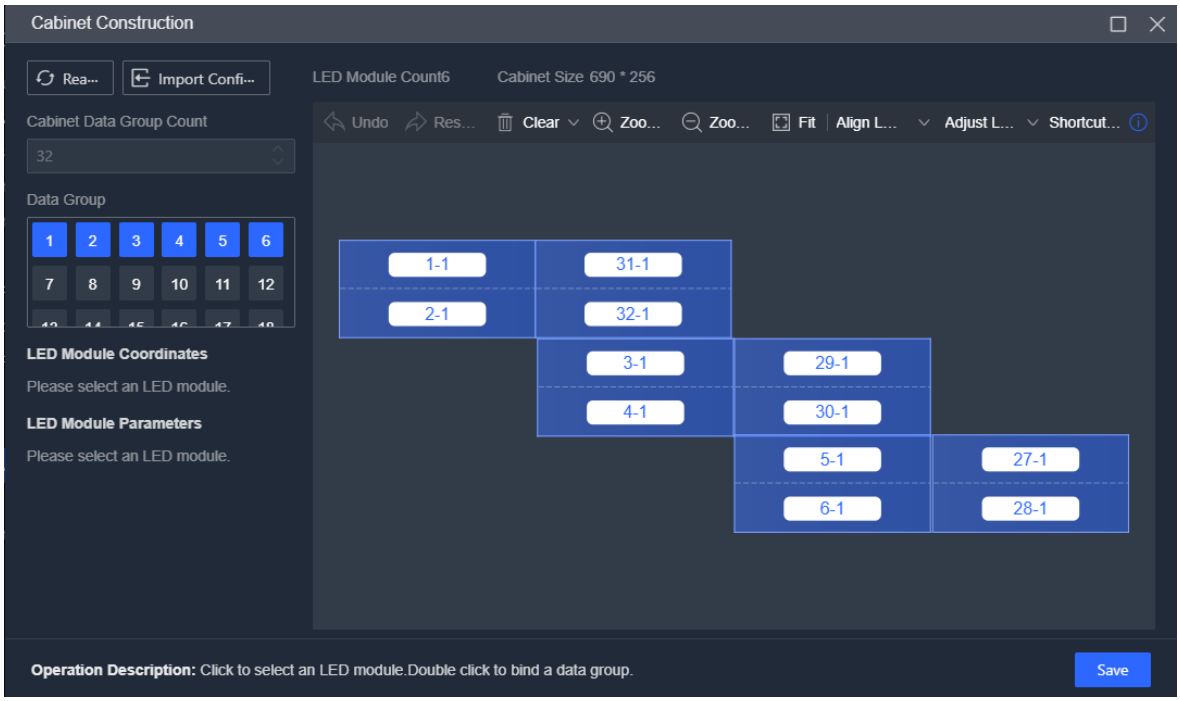

Figure 4-15 Bind Data Group to LED Module

Step 6 (Optional) Use canvas tools to assist configuration. For configuration method, see “4.2 Step 6”.

Step 7 Click **Save**.

Step 8 (Optional) Click **Read Back** to refresh the parameters shown in this window.

Chapter 5 Display Mapping

5.1 Overview

Applicable Devices

All series of LED controllers and video wall controllers.

Function Description

Depending on the usage scenario, display mapping is divided into the following two modes:

- Online project: Directly add online devices for configuration, supporting real-time display debugging and visual control. It is designed for on-site commissioning and batch deployment scenarios.
- Demo project: Provides a virtual debugging environment for display mapping, enabling the addition of virtual devices to preview the configuration process. Physical devices can be bound at any time to complete solution deployment. It is designed for solution demonstration and training purposes.

5.2 Preparations

5.2.1 Online Project Preparation

Step 1 Complete the hardware connections according to the actual device type:

- LED controller:

1) Use multiple network cables to connect the LED controller to the LED display.
2) Use a network cable or Wi-Fi to connect the LED controller to the computer with the client installed. (Only some LED controllers support Wi-Fi connection.)

- Video wall controller:

1) Use network cables to connect the LED controller board in the video wall controller to the LED display. (Only some video wall controllers support installing LED controller boards.)
2) Use a network cable to connect the video wall controller to the computer with the client installed.

Step 2 Select or create a project:

- Use a saved online project.
- Click **Create Project** to create an online project.

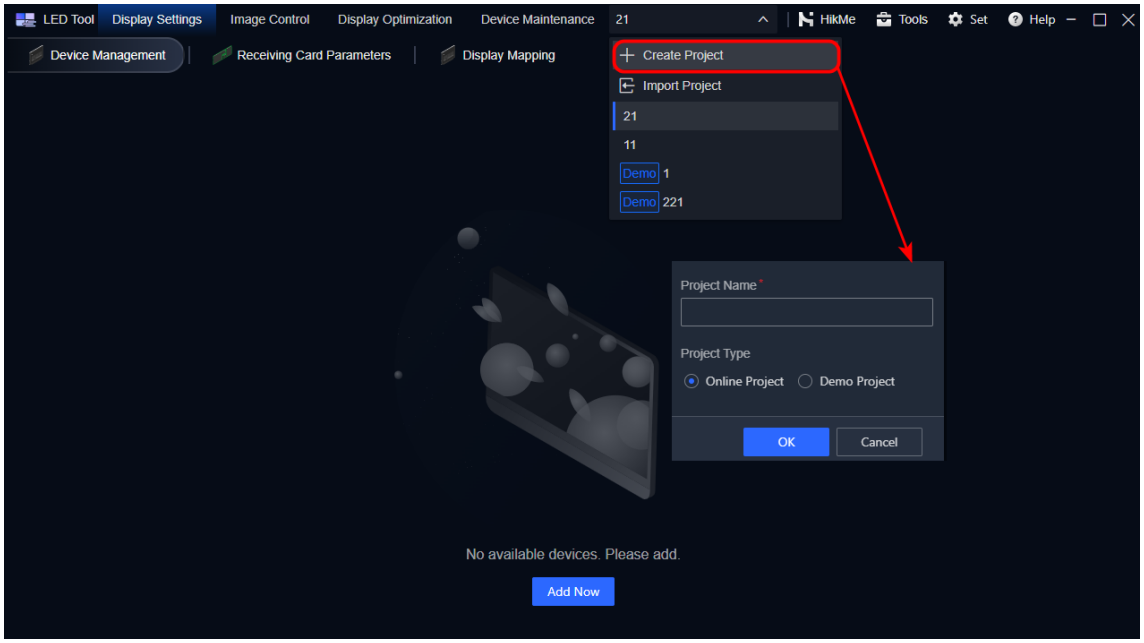

Figure 5-1 Select a Project

Step 3 After entering the project, the system displays the **Display Settings** > **Device Management** page by default. Click **Add Now** to open the **Add Device** window. For details, see “2.2 Add Devices”.

Step 4 Ensure that the device is online and that the software versions of the LED controller and receiving card are consistent. To view the software version or perform an upgrade, refer to "2.3 Manage Devices".

5.2.2 Demo Project Preparation

Step 1 Select or create a project:

- Use a saved online project.
- Click **Create Project** to create a demo project.

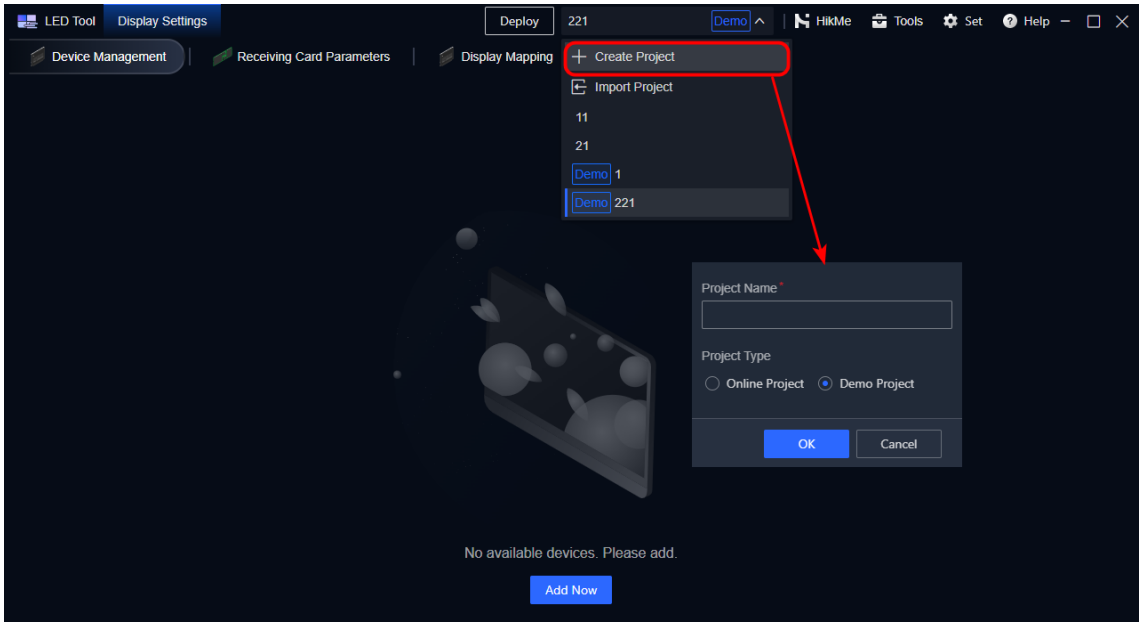

Figure 5-2 Create Demo Project

Step 2 After entering the project, the system displays the **Display Settings** > **Device Management** page by default. Click **Add Now** to add the virtual LED controller.

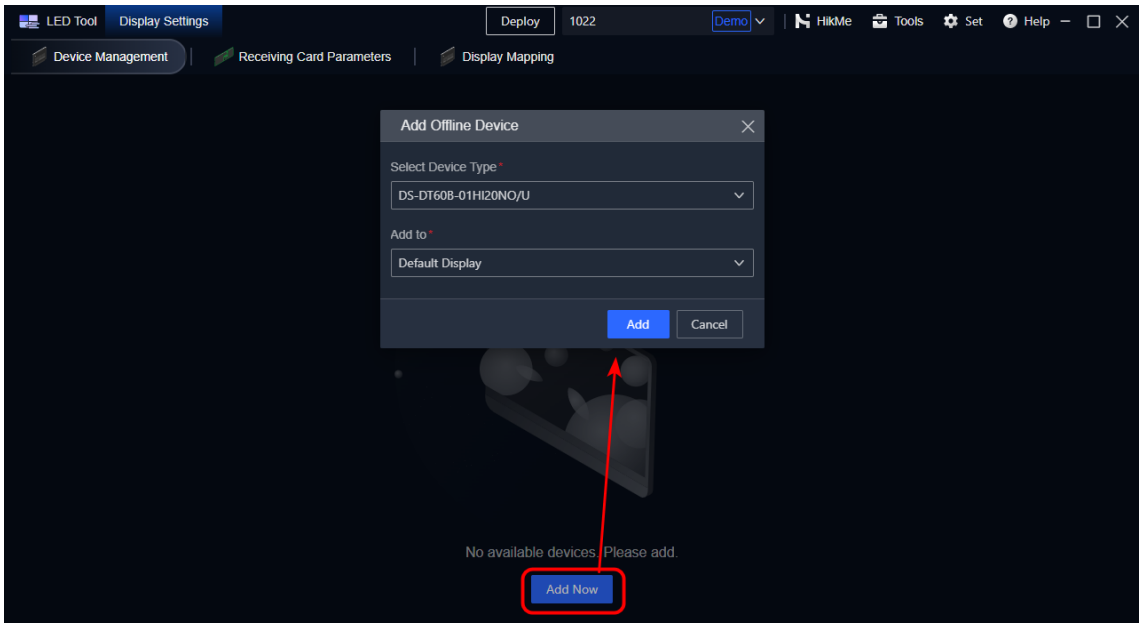

Figure 5-3 Add Virtual LED Controller

5.3 Manual Display Mapping

5.3.1 Select Device

Step 1 On the **Display Settings > Display Mapping** page, select a device:

- For an online project, select an online device.

- For a demo project, select the virtual LED controller.

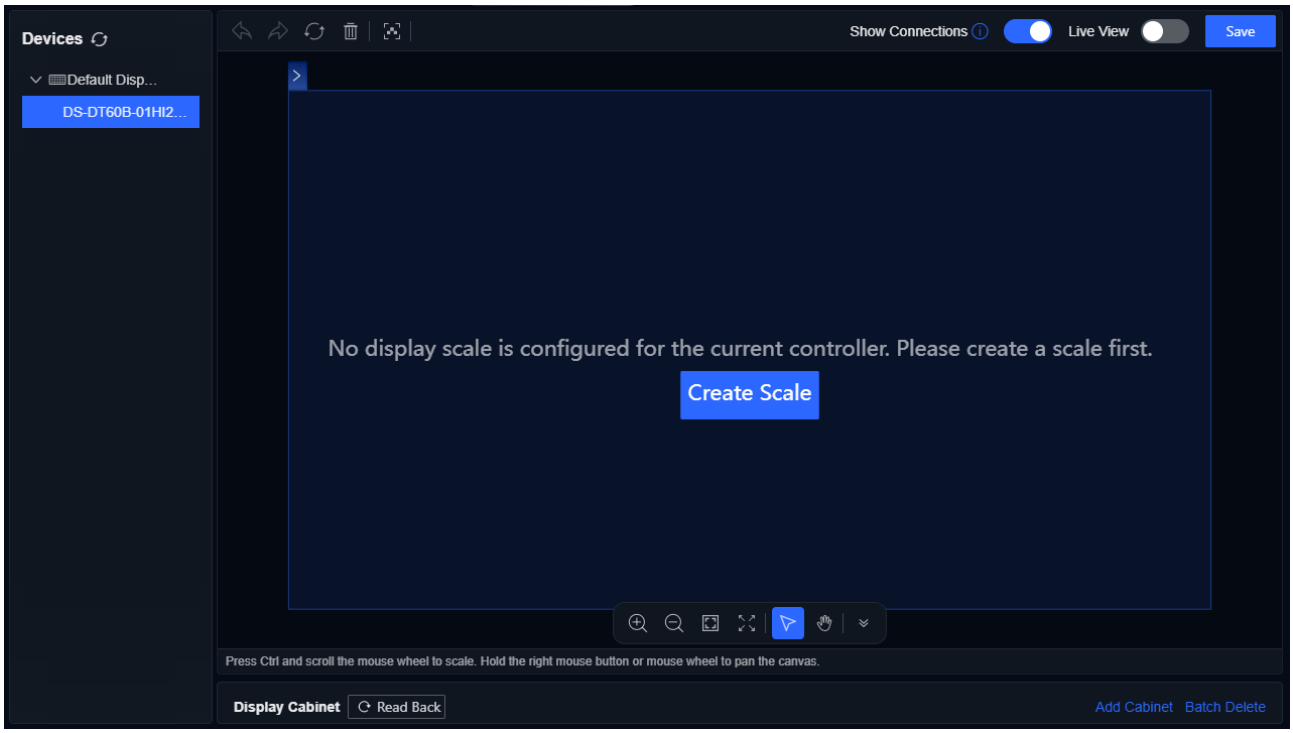

Figure 5-4 Display Mapping Page

Step 2 Check the area on the right to confirm the loading capacity of each network port on the device and the device's output resolution.

Step 3 (Optional) On the canvas, click  next to the device name to hide the device name or click  to show device name.

5.3.2 Add Cabinets

Click **Add Cabinet** and use either of the following methods to add the cabinet configuration file:

- Import from Local File
- Load from Cloud
- Load from Display Area

Import from Local File

Step 1 Select **Import from Local File**.

Step 2 Click  to select one or multiple configuration files. Ways to obtain local cabinet configuration files include:

- Search the cabinet configuration from the cloud. For details, see “10.1 Cloud File Search”.

- Create the cabinet configuration files and save them on the computer. For details, see “Chapter 3 Standard Cabinet Configuration” and “Chapter 4 Custom-Shaped Cabinet Configuration”.
- Contact the product supplier to obtain the cabinet configuration files.

Step 3 Click **Add**.

Load from Cloud

Step 1 Select **Load from Cloud**.

Step 2 Enter the LED module serial number or order number。

Step 3 Select a searched configuration file.

Step 4 Click **Add**.

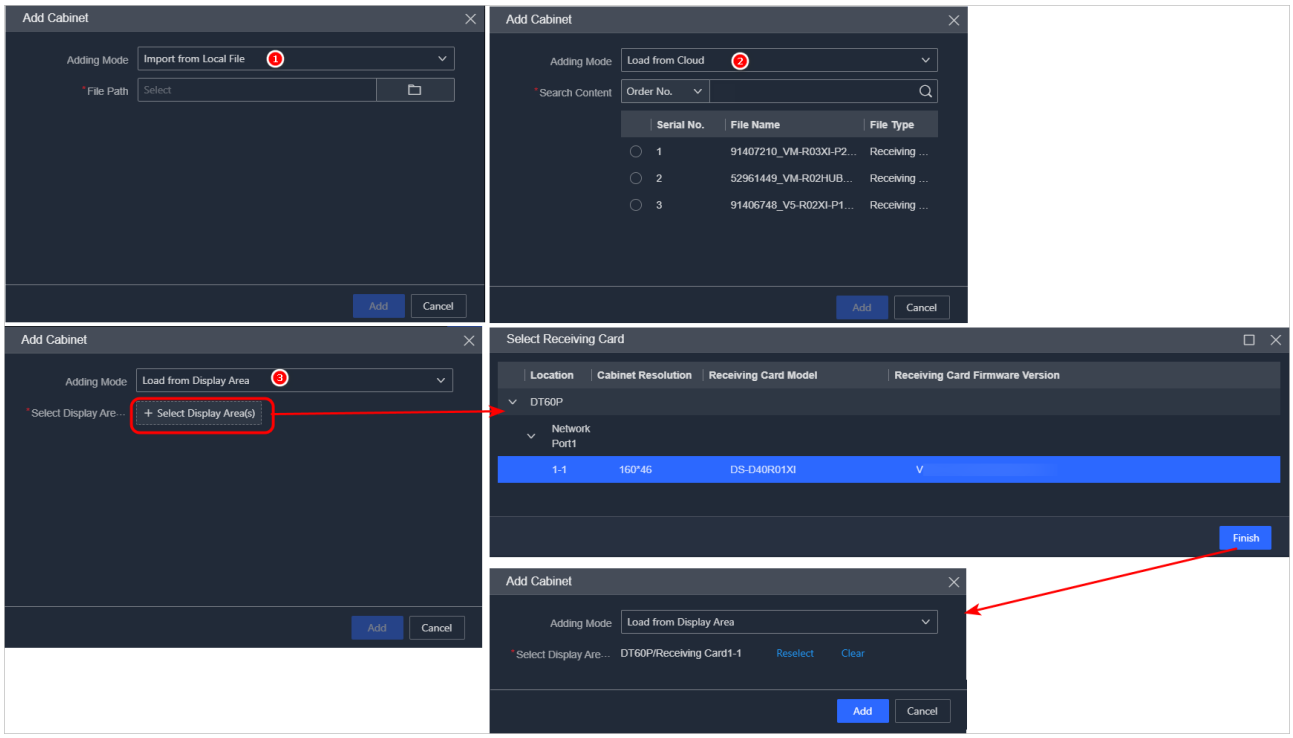

Figure 5-5 Add Cabinet Configuration File (Online Project)

Load from Display Area

Step 1 Select **Load from Display Area**.

Step 2 Click **Select Display Area(s)**.

Step 3 After selecting the target display area, click **Add**.

- Online project: Only some cabinets support this function. You need to select the network port on the device that is connected to the target receiving card.
- Demo project: When a historical display mapping configuration already exists in the virtual LED controller, you can use this function to reuse the existing configuration.

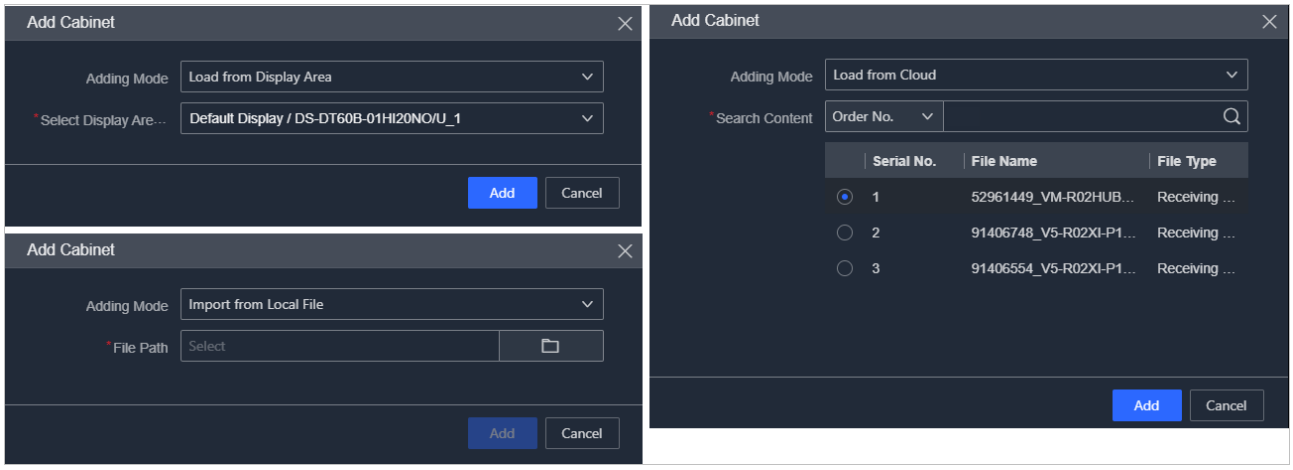

Figure 5-6 Add Cabinet Configuration File (Demo Project)

5.3.3 Edit Cabinet Configuration File

Step 1 If you find that the cabinet configuration file does not match the on-site display, click  to edit the cabinet configuration file.

Step 2 Based on the actual receiving card model, edit the product model.

Step 3 Edit the following parameters as required:

- LED module switching and cascading is supported only on certain HUB receiving cards. Open the LED module switching and cascading window to configure. For details, see “3.4.3 Configure Module and Cascading Parameters”.

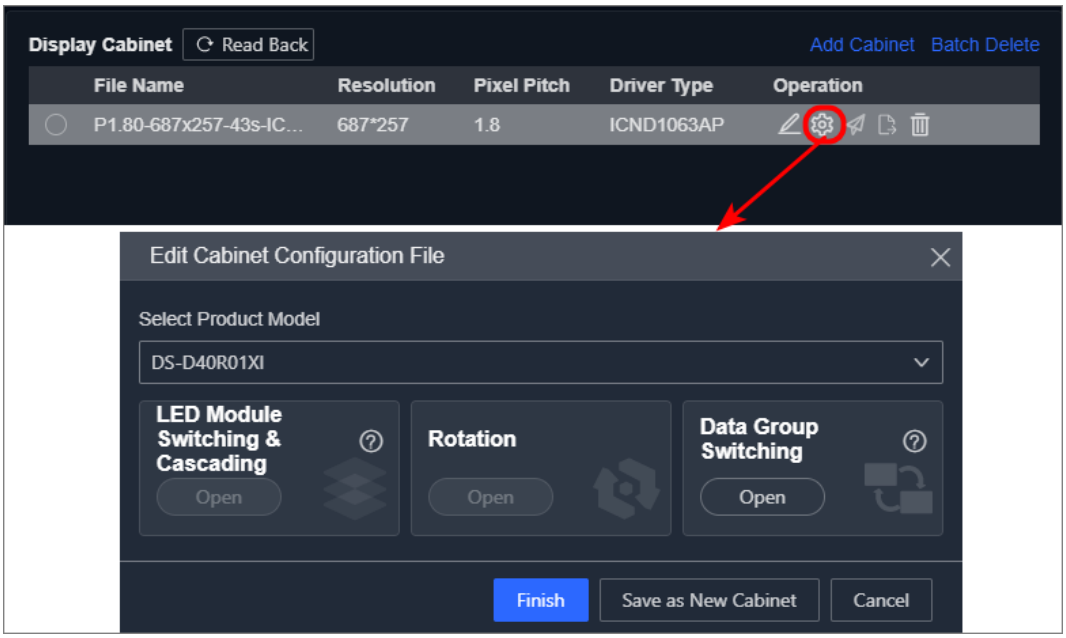

Figure 5-7 Edit Cabinet Configuration File

- Open the rotation window, select a rotation angle, and click **Apply**. To fine-tune the rotation, select a method, and click **Apply**.

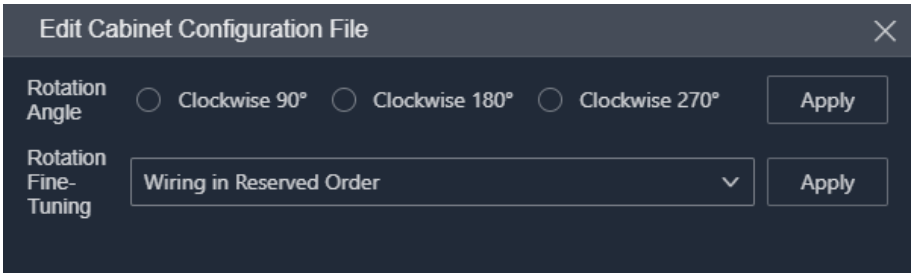

Figure 5-8 Rotate Cabinet

- Open the data group switching window to configure. For details, see “3.4.2 Configure Data Group Parameters”.

Step 4 Click **Finish** to save the edited parameters to the current cabinet configuration file.

- After you edit the cabinet configuration file, the cabinet configuration file on the canvas will also be updated synchronously. However, the edited cabinet configuration file will not be applied to the device.
- To apply the edited cabinet configuration file to the device, drag the edited file to the canvas, configure the cabinet scale and network port connection, and click **Save**.

Step 5 (Optional) Click **Save as New Cabinet** to save the edited parameters as a new cabinet configuration file.

5.3.4 Configure Cabinet Scale and Connections

After completing device selection (5.3.1 Select Device) and cabinet configuration file preparation (5.3.2 Add Cabinets, 5.3.3 Edit Cabinet Configuration File), configure the cabinet scale on the display mapping canvas and connect the cabinets to the device network ports.

Step 1 In the **Controller** window on the right side of the **Display Settings > Display Mapping** page, enable **Adaptive** or manually set the device's output resolution.

Step 2 Based on the actual physical layout of the display, arrange the cabinets on the canvas in any of the following ways to ensure that the cabinet scale on the canvas matches the actual cabinet scale:

- Add one by one: Suitable for custom-shaped displays or small-scale displays.

1) Select the cabinet configuration file.
2) Continuously left-click on the canvas. Each click adds one cabinet of the selected model.

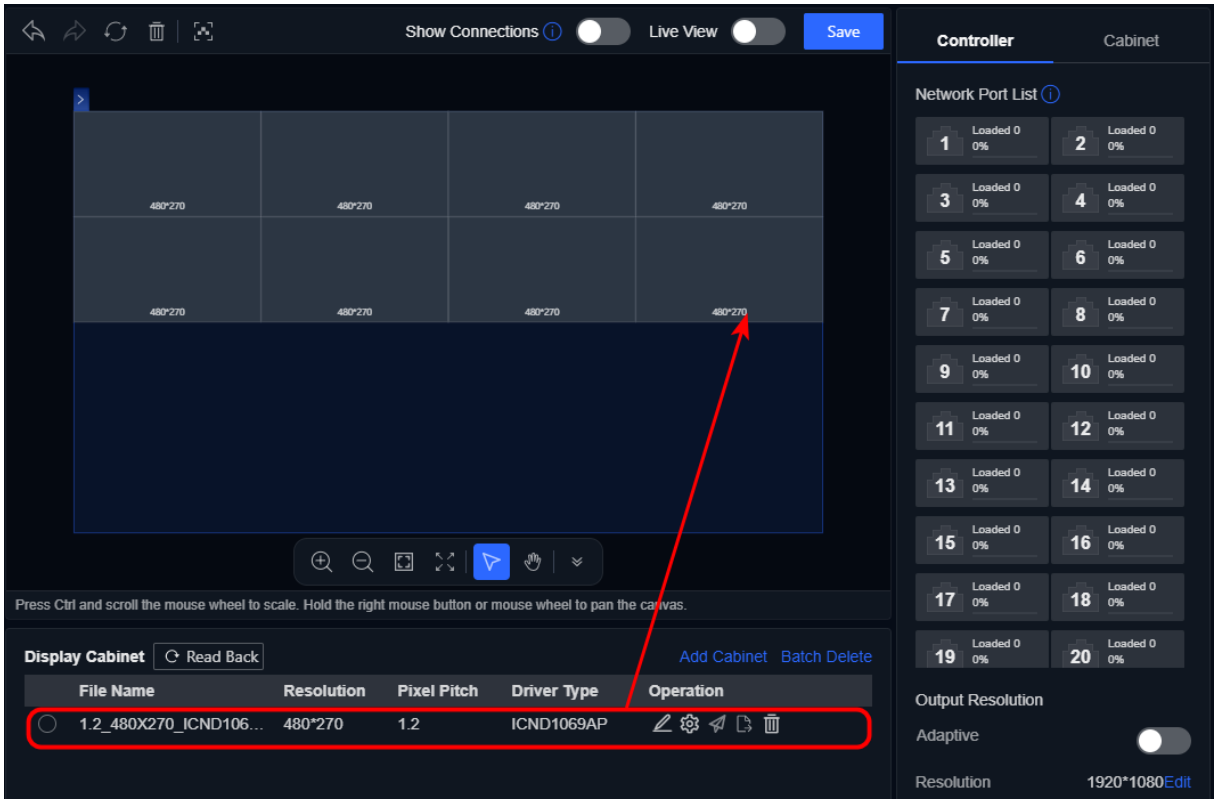

Figure 5-9 Drag Cabinet Configuration Files to Canvas (Online Project)

- Batch Create Scale: Suitable for regular large-scale displays.

1) Click **Create Scale** on the canvas.
2) In the pop-up window, select the added cabinet configuration file, set the number of rows and columns, and click **OK**.
   - If the required cabinet file is not available in the cabinet area, click **Add Cabinet**.
   - After creating the scale, the system automatically deploys the cabinet configuration file to the device and enables **Show Connections**.

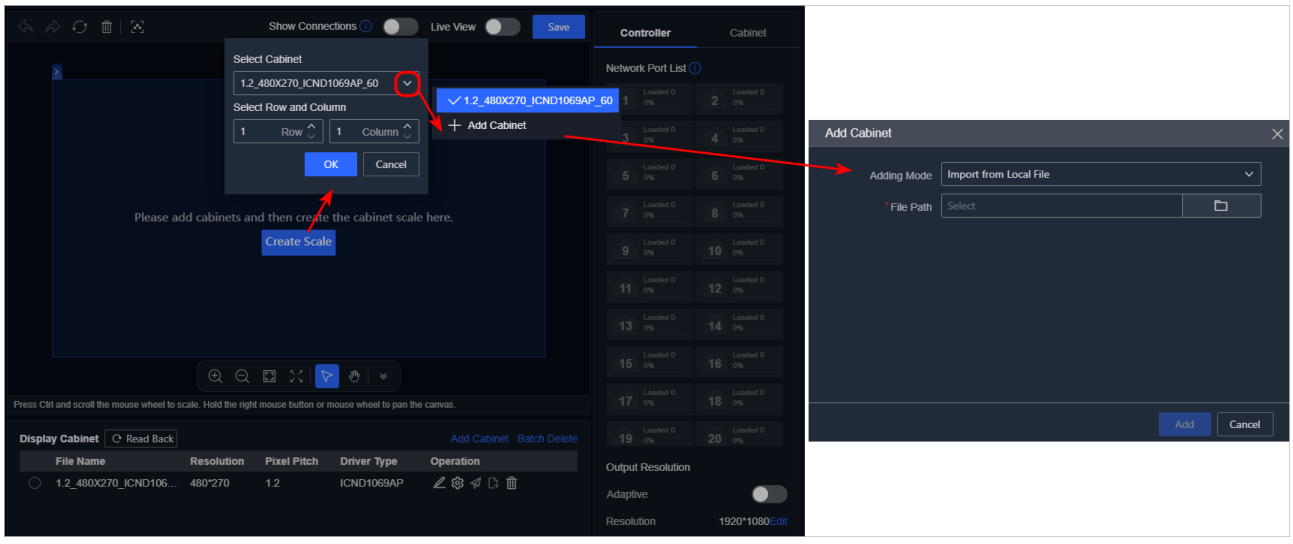

Figure 5-10 Create Display Scale (Online Project)

Step 3 In the **Controller** window, configure port connections according to the actual connections between the cabinets and network ports.

1) Select the starting network port.
2) Select the connection direction.
3) Select cabinets in the connection order. The following methods are supported:
   - Click to select: Click cabinets one by one in sequence.
   - Drag to select: Hold down the left mouse button and drag to select multiple cabinets.
   - Shift to select a range: Click the first cabinet, hold down the Shift key, and click the last cabinet to select all cabinets in between.
4) (Optional) To cancel the connection direction of a network port, click the connection icon of that network port.

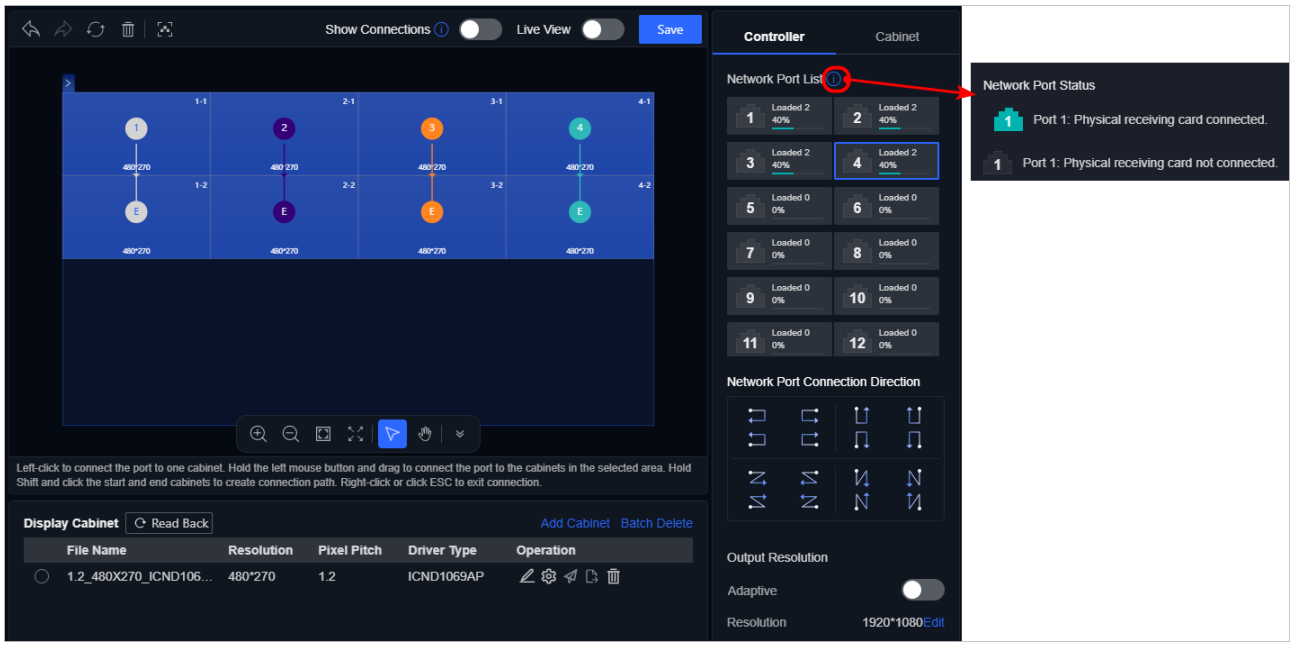

Figure 5-11 Set Display Mapping (Online Project)

Step 4 Click "Save" on the canvas and complete saving according to the project type and device type:

- Online project:
  - C66S video wall controllers: If you only want to save the display mapping configuration parameters, click **Save**, and then click **Save Mapping & Connections**. If you also need to splice multiple LED output boards into a video wall, continue by clicking **Save Splicing Position.**

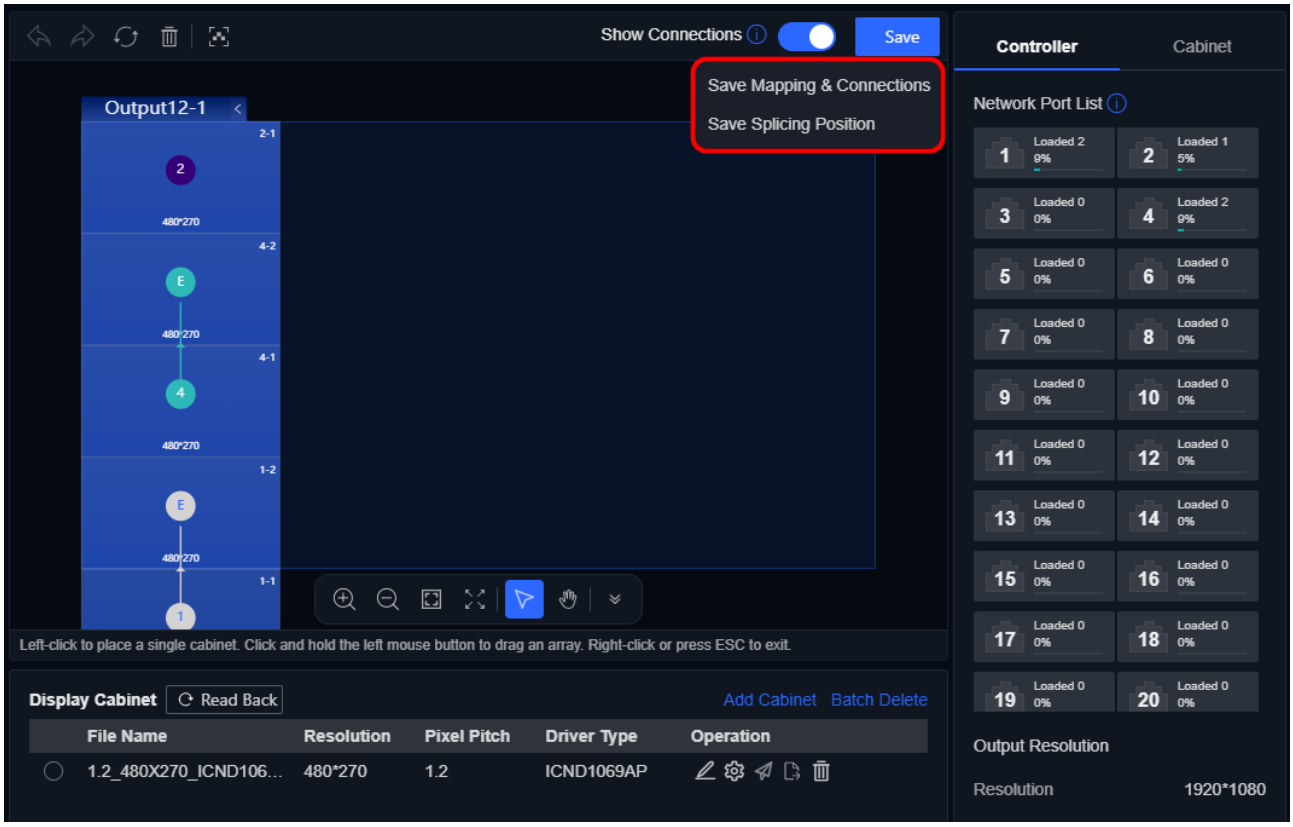

Figure 5-12 Save Splicing Position (Online Project)

– Other LED controllers and other video wall controllers: Click **Save** directly.

- Demo project: For a virtual LED controller, Click **Save** directly.

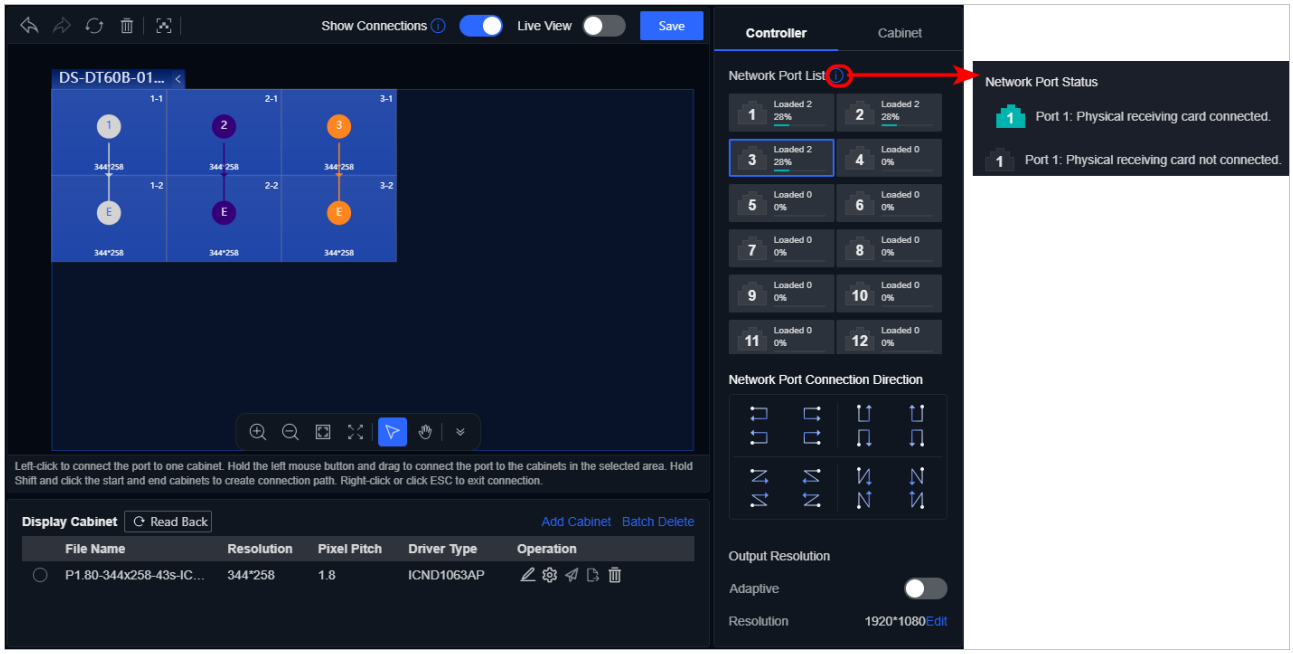

Figure 5-13 Set Display Mapping (Demo Project)

5.3.5 Deploy Cabinet Configuration (Demo Project Only)

For online projects, the display mapping configuration takes effect immediately after saving. For demo projects, if you want the display mapping configuration to take effect on online devices, you need to deploy the cabinet configuration.

Step 1 On the **Display Settings > Display Mapping** page, click **Deploy**.

Step 2 Click **Select Online Device**.

- Add online devices. For details, see “2.2.1 Add Online Devices”.
- Manually add devices. For details, see “2.2.3 Manually Add Single Device”.

Step 3 Click **Deploy** to deploy the display mapping configuration from the demo project to the selected online device.

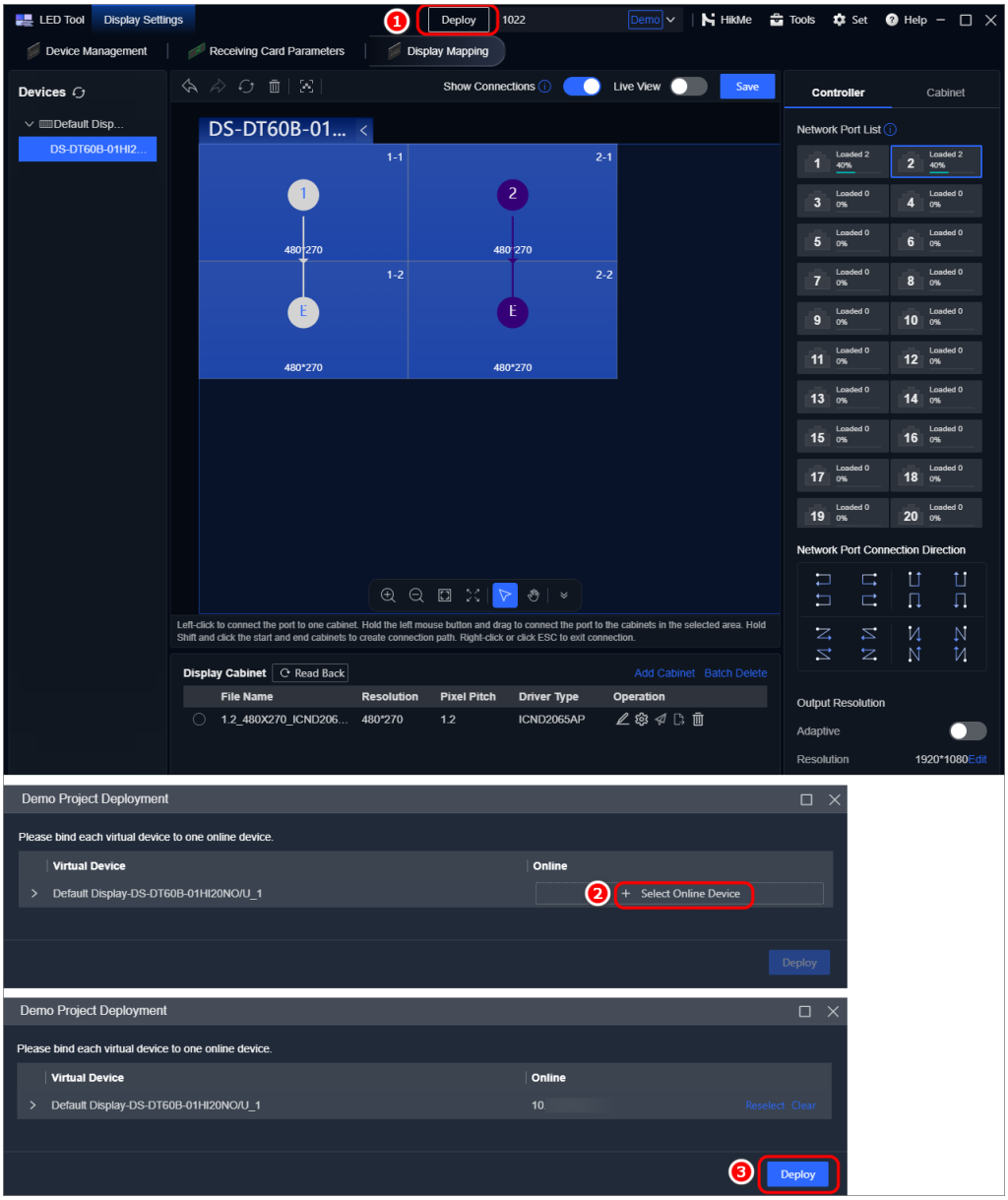

Figure 5-14 Deploy Display Mapping Configuration

5.4 Adjust Display Layout

5.4.1 Manage Cabinet Configuration File

After obtaining the cabinet configuration file, perform these management operations as needed:

- Rename: Click  to edit the file name.
- Deploy: Click  to deploy the cabinet configuration file to the device. If prompted about a driver IC and receiving card firmware mismatch, check the cabinet configuration file or upgrade the receiving card firmware.
- Export: Click  to export the cabinet configuration file to the computer.
- Delete:
  - Delete a single cabinet configuration file: Click  to move the file.
  - Batch delete cabinet configuration files: Click **Batch Delete**, select the files and click **Delete**.



Figure 5-15 Batch Delete Files

5.4.2 Adjust Cabinet Parameters and Canvas

- Basic functions:
  - Preview display: Click **Live View**. This function is supported only by LED controllers, not video wall controllers.
  - Adjust size: Drag the top border of the display cabinet area to resize.
  - View cabinet info: After configuring the correct display mapping, select a cabinet and click **Cabinet** on the right side of the **Display Mapping** page to check its coordinates and basic info.
  - Perform receiving card test: After configuring the correct display mapping, select a cabinet and click **Cabinet** on the right side of the **Display Mapping** page, enable

Receiving Card Self-Test, and choose a test pattern. This function is supported only on certain receiving cards.

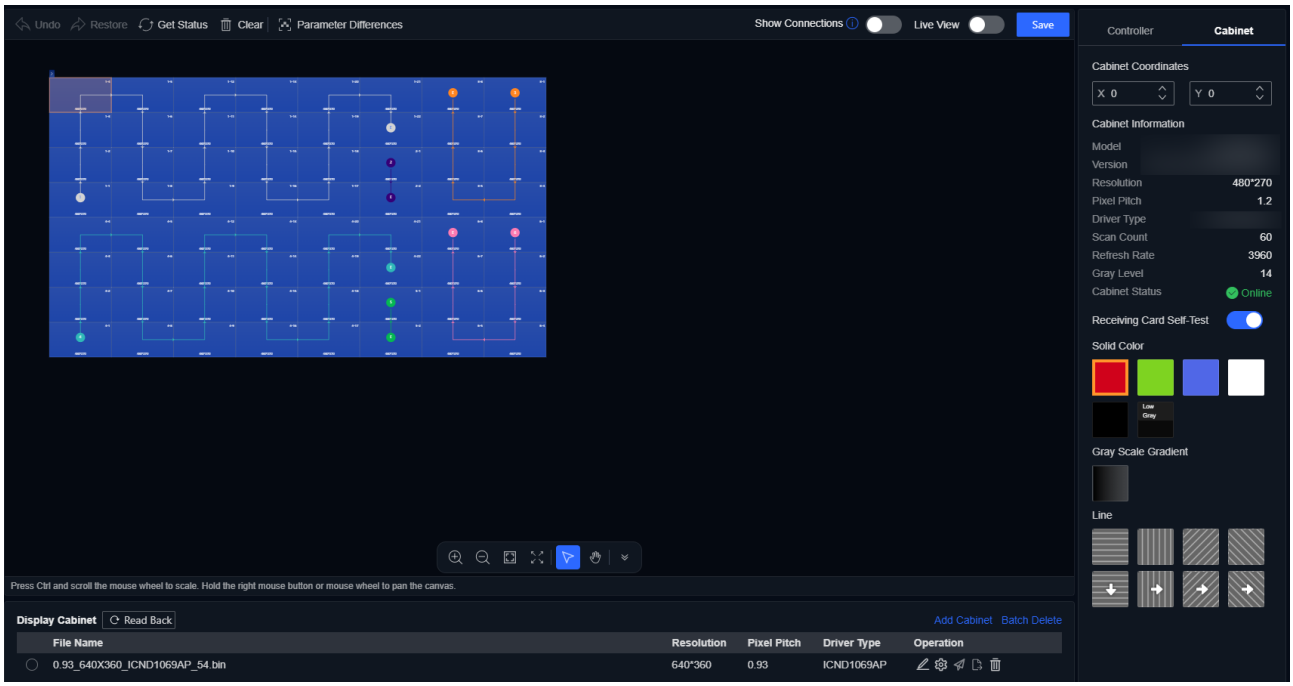

Figure 5-16 View Cabinet Information

- Manage a single cabinet:
  - Add cabinet: Right-click a cabinet, select **Expand**, set layout, and click **OK**.
  - Modify cabinet: Right-click a cabinet, select **Edit Cabinet**, and then choose another cabinet configuration file.
  - Delete port connections: Right-click a cabinet, and select **Delete Connection**.
  - Delete cabinet: Right-click a cabinet, and select **Delete Cabinet**.
- Manage multiple cabinets:
  - Clear port connections: Click **Clear**, select **Clear Network Port Connection**, select the network ports, and then click **OK**.
  - Clear all cabinets & connections: Click **Clear**, and then select **Clear Canvas**.
- Control the canvas via buttons:
  - Click **Read Back** to obtain the latest cabinet configuration.
  - Click **Get Status** to obtain the current display layout and port connections.
  - Click **Parameter Differences** to show different cabinet configuration files in distinct colors.
- Control the canvas via the canvas toolbar:
  - Click  to expand the canvas toolbar; click  to collapse it.

- Click , move the mouse to any position on the canvas, hold down the left button and drag to move the canvas.
- Click  and then select a cabinet to freely move its position.
- Click  to automatically fit the canvas to the current computer screen size.
- Click  to zoom in on the canvas.
- Click  to zoom out the canvas.
- Click  to enter full-screen mode for the canvas.

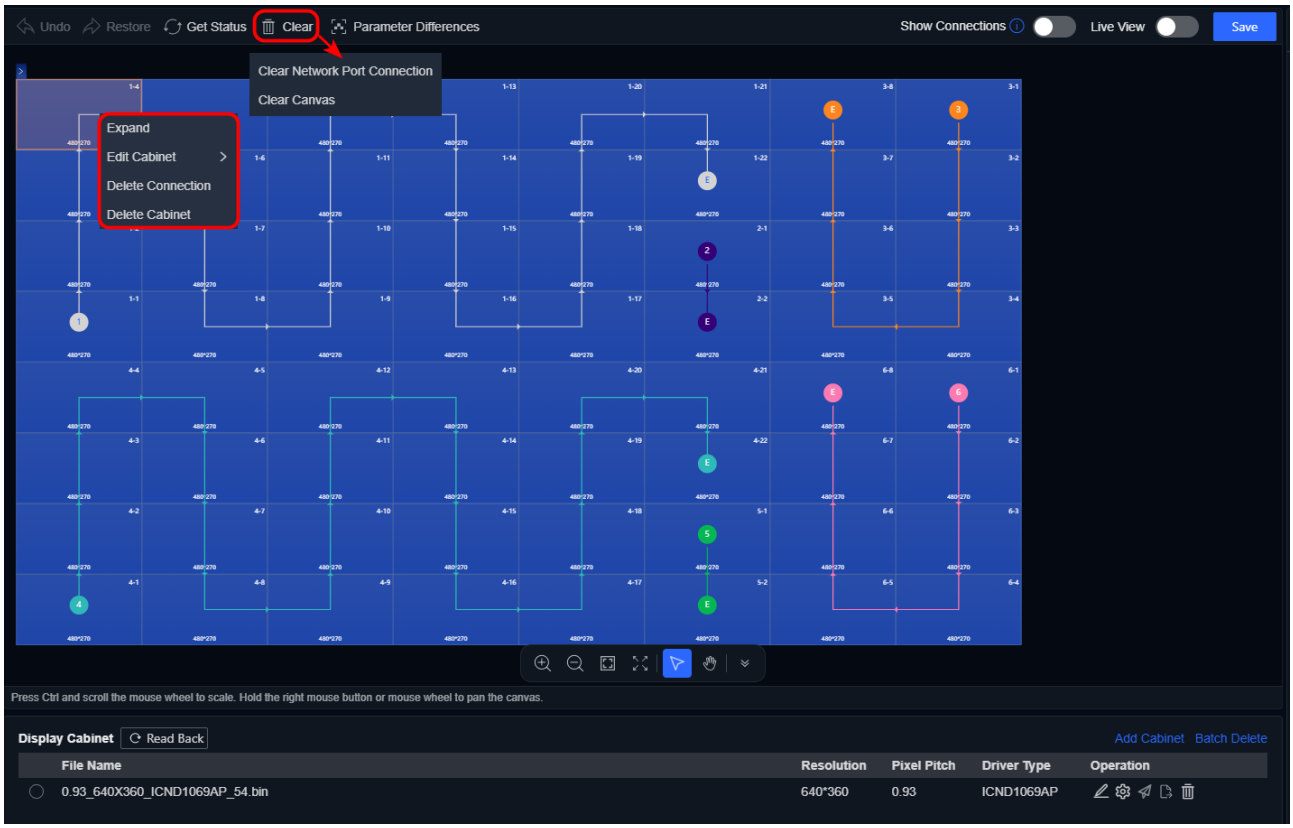

Figure 5-17 Configure Cabinet Parameters

5.4.3 Use Shortcuts

In addition to UI buttons and canvas toolbar, the system provides full shortcut support (see table below).

Table 5-1 Shortcuts

Function		Shortcuts
Delete operation	Delete cabinets and network port connections	Select the cabinets, and press **Delete**.

Function		Shortcuts
Canvas panning	Move the canvas horizontally	Hold **Shift** and move the mouse wheel up or down.
	Move the canvas vertically	Move the mouse wheel up and down.
	Drag the canvas	• Hold the mouse wheel and move the mouse. • Hold the right mouse button and move the mouse.
Zoom controls	Zoom in	• Hold **Ctrl** and press **+**. • Hold **Ctrl** and move the mouse wheel up.
	Zoom out	• Hold **Ctrl** and press **–**. • Hold **Ctrl** and move the mouse wheel down.
	Zoom to the selected cabinet(s)	Select one or multiple cabinets, and press **Ctrl** + **D**.
	Show the overall range of the current display	Press **Ctrl** + **F**.
	Reset zoom to 100% (1:1)	Press **Ctrl** + **0**.
Edit operations	Restore	Press **Ctrl** + **Y**.
	Undo	Press **Ctrl** + **Z**.
	Select all	Press **Ctrl** + **A**.
	Copy selected cabinets	Select cabinets with mouse, and press **Ctrl** + **C**.
	Paste copied cabinets	Press **Ctrl** + **V**.
Cancel actions	Cancel network port connection	Press **ESC**.
	Cancel cabinet adding	Press **ESC**.

5.5 Manage Projects

- Local project management: After hovering the mouse over the target project, you can edit the project name (), export the project file to the computer (), and delete the project ().
- Project migration: In the client on another computer, click **Import Project** to transfer device parameters and display mapping configuration parameters.
- Cloud sync (requires logging in to HikMe): Hover the mouse over the project and click to back up the project to the HikMe cloud.

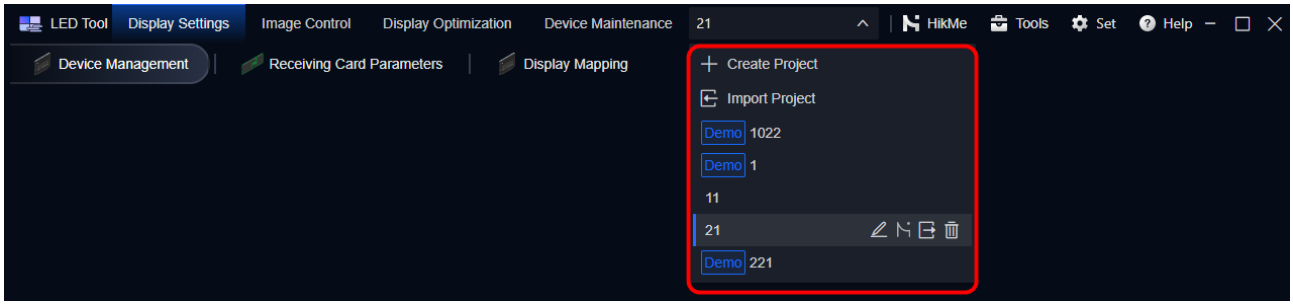

Figure 5-18 Manage Online Project

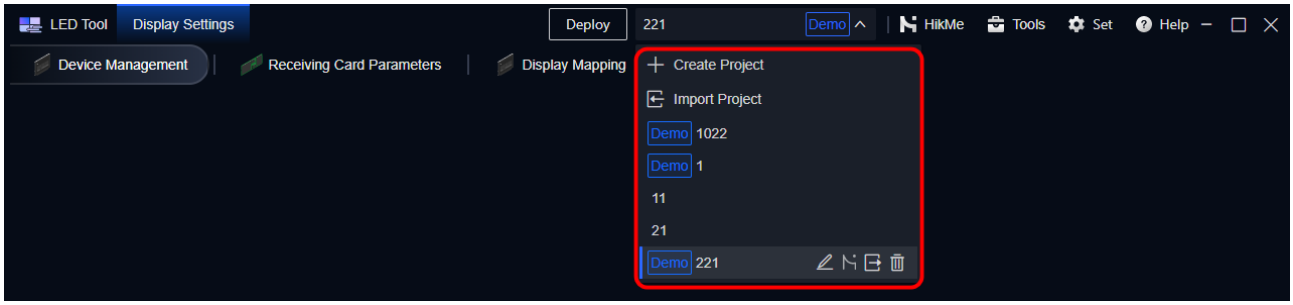

Figure 5-19 Manage Demo Project

Chapter 6 Display Content Configuration

6.1 Operate a V-Series Video Wall

Applicable Devices

DT90V, DT60V, and certain DS-TV series LED controllers.

Important

- Restrictions on signal sources on the video wall (DT90V and certain DS-TV series):
  - Loading capacity: UHD (Ultra High Definition) signal sources (HDMI2.0, SDI, DP) support one-to-three distribution, while FHD (Full High Definition) signal sources (HDMI1.3, DVI) supports one-to-four distribution.
  - Quantity limits: A maximum of 3 UHD signal windows and 4 FHD signal windows are allowed. Up to 2 channels of selected interface signal sources (DP, HDMI2.0-1, HDMI2.0-2) can be used.
- Restrictions on signal sources on the video wall (DT60V and certain DS-TV series):
  - Loading capacity: UHD signal sources only support one-to-one distribution, while FHD signal sources support one-to-three distribution.
  - Quantity limits: A maximum of 3 signal windows in total are allowed (up to 1 UHD signal window and up to 3 FHD signal windows).
- Restrictions on scrolling elements on the video wall: A maximum of 5 scrolling texts, 3 scrolling images, and 5 IoT scrolling elements are allowed.
- Restrictions on static elements on the video wall: A maximum of 5 static texts, 3 static images, 1 digital clock, 1 analog clock, and 5 IoT static elements.
- Image format restriction: Only JPG and JPEG images are supported in scrolling and static element areas.
- Please note that DT90V does not currently support IoT elements. This function will be supported in a future version.

Steps

Step 1 Select a V-series LED controller, and navigate to **Image Control > Content Control**.

Step 2 Select a video wall layout.

The following example uses a mixed layout of scrolling text/image + signal source + static image/text/clock. To edit the layout, click on a blank area outside the layout range to bring up the quick layout window.

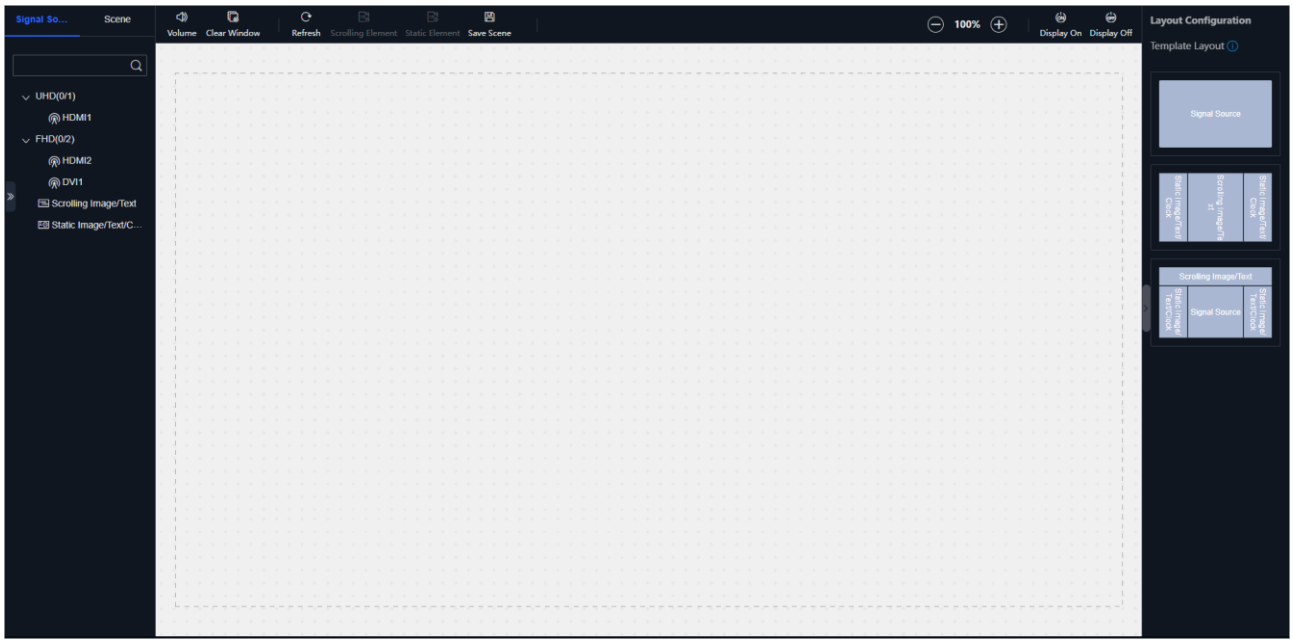

Figure 6-1 Select a Layout (DT60V Series)

Step 3 Configure the signal source:

1) From the signal source list on the left, drag the desired source to the signal source area on the right.
2) Select an added signal window and configure its parameters:
   - Position: Drag the window, or enter X and Y coordinates.
   - Layer & Lock: Click the corresponding icon to stick the window on top, stick the window at bottom, move up the window, move down the window, lock the window, and unlock the window.
   - Size: Drag the window edges, or enter W and H values.
   - Switch signal: Select a target source to quickly switch.
   - Resolution: Manually set the resolution, or enable **Resolution Self-Adaption**.
   - Remove source: Click **Delete** or  on the signal window.

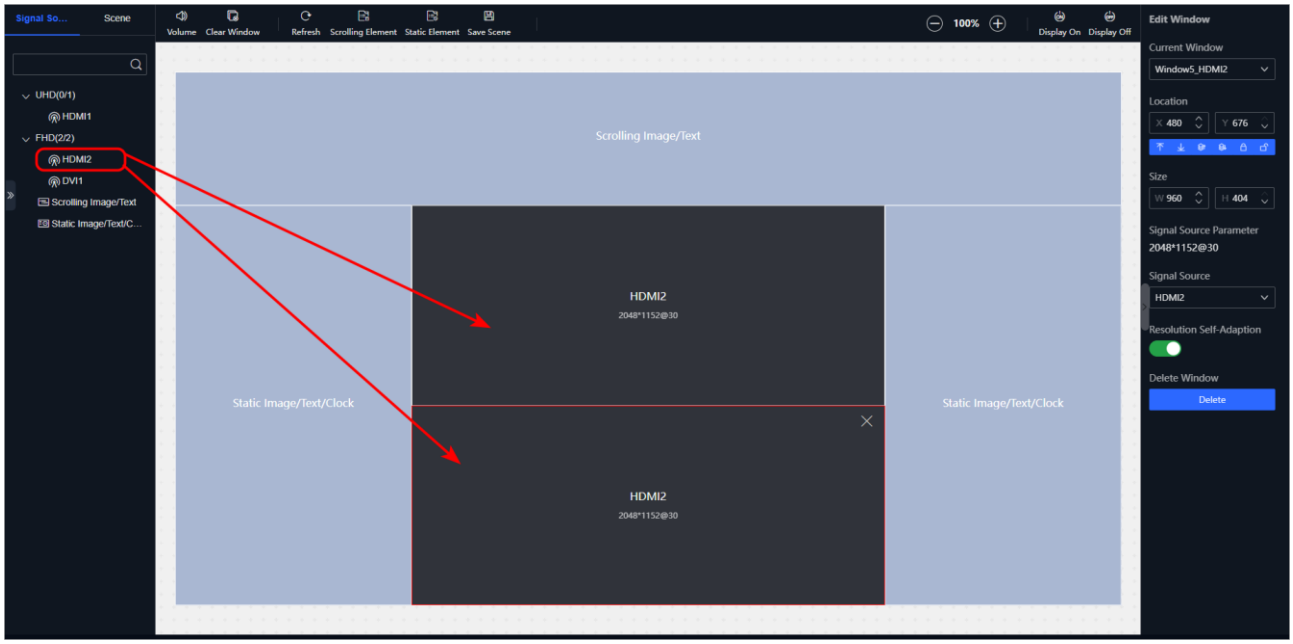

Figure 6-2 Configure Signal Source

Step 4 Configure the scrolling text/image window:

1) Click the scrolling window to set the window location, window size, scrolling speed and direction.
2) Click **Scrolling Element** and select **Text**, **Image** or **IoT**.
3) Use either of the following methods to add the scrolling elements to the scrolling window:
   - Click on the scrolling window where you want to add a scrolling element.
   - Drag a scrolling element to the scrolling window and then draw the desired area.

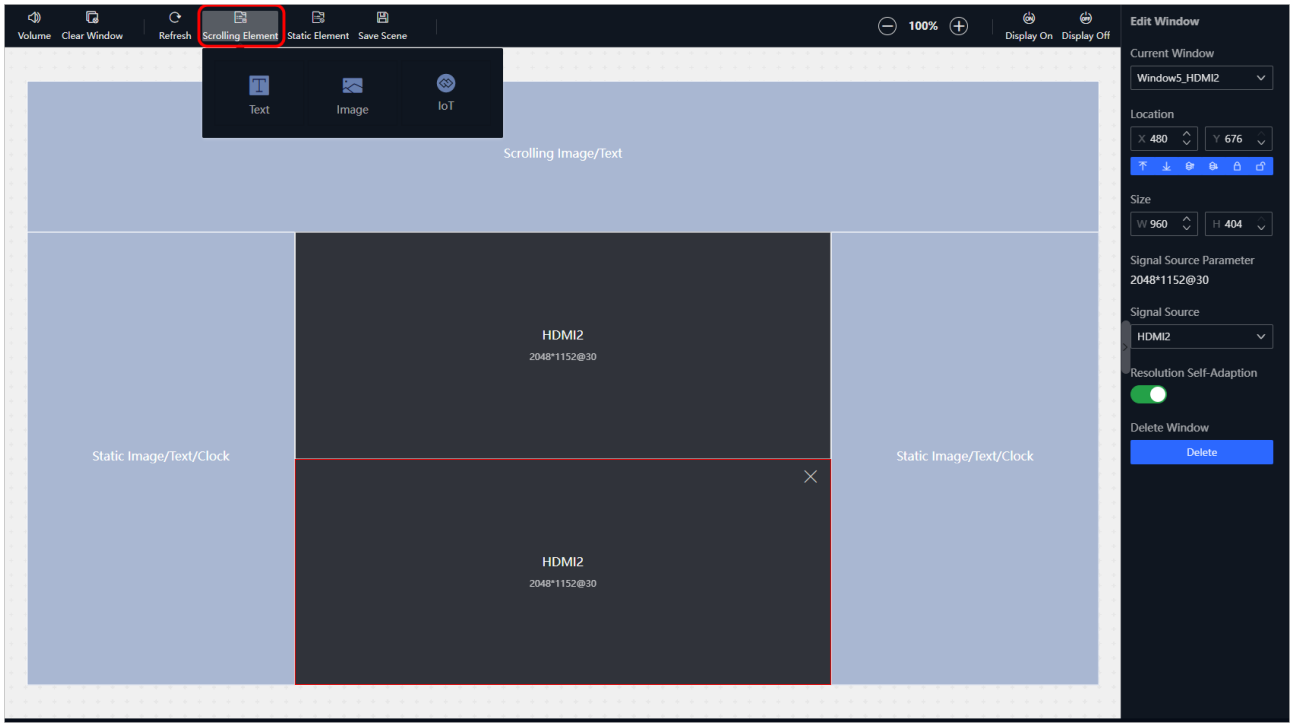

Figure 6-3 Select Scrolling Element Type

4) Edit the scrolling element.

- Text: Enter content, and adjust location, size, font, color, alignment, and background color.

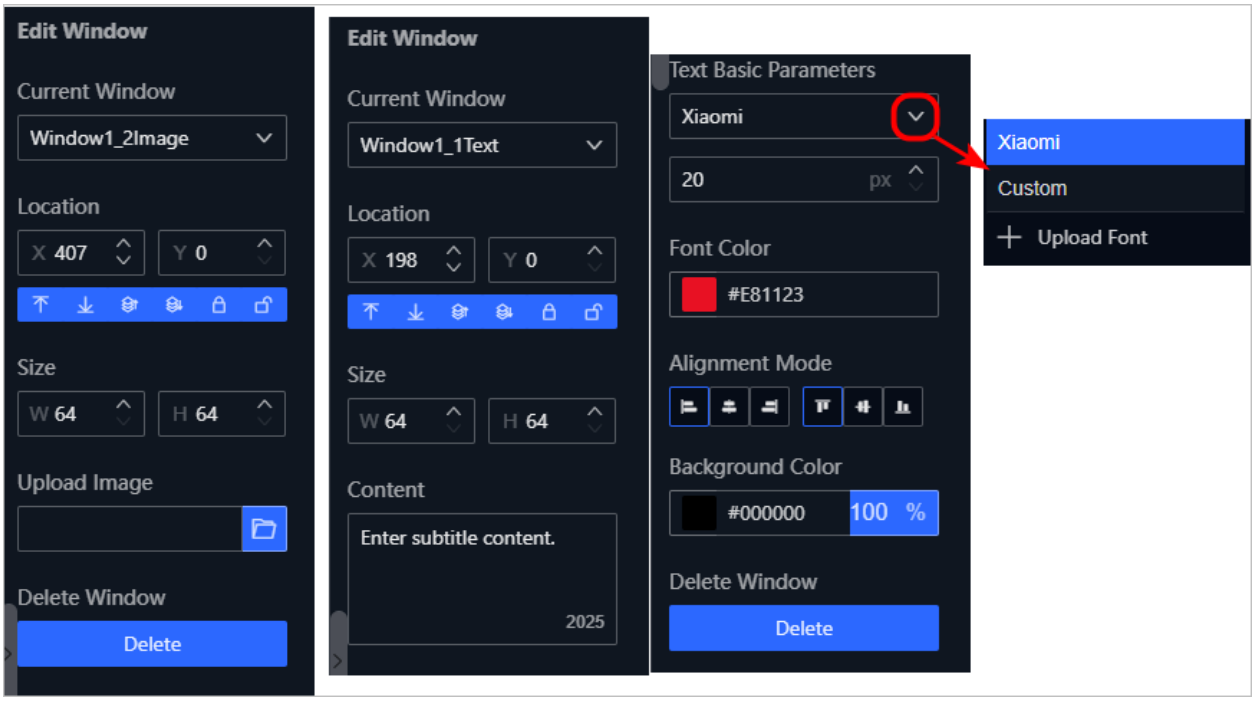

Figure 6-4 Edit Text or Image Subtitle

- IoT: Select a bound IoT action. Other editing options are the same as text.

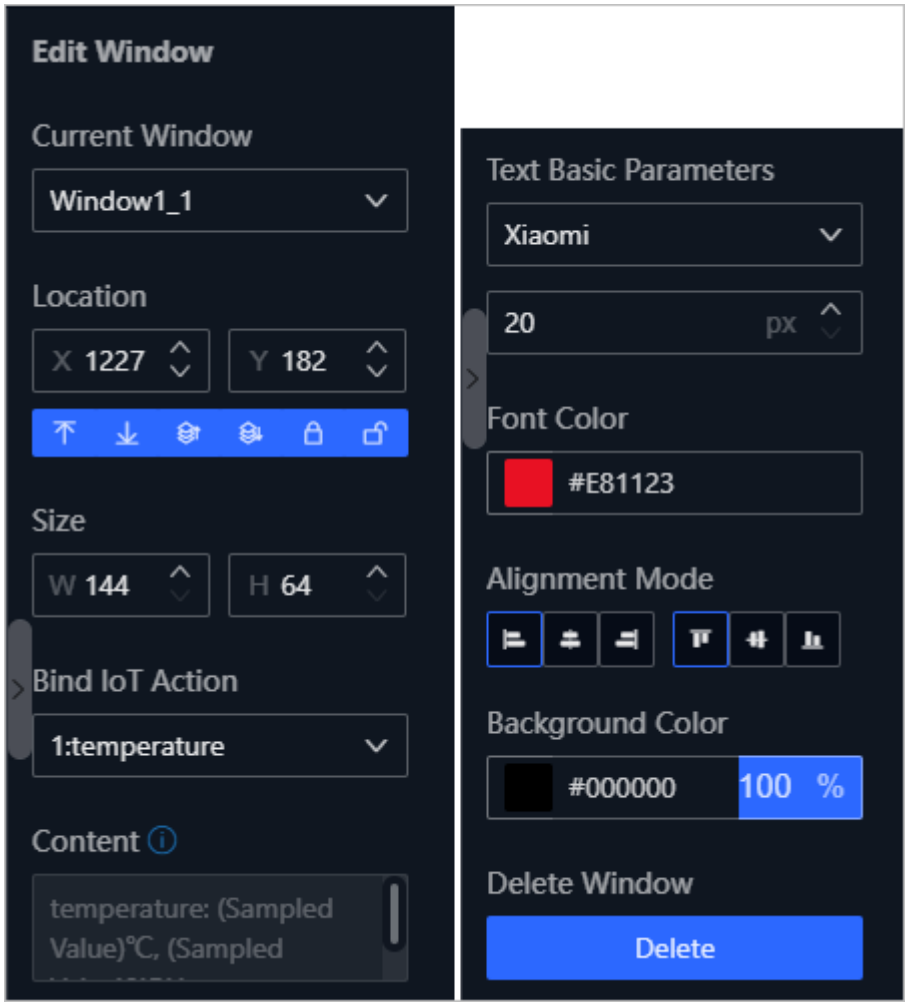

Figure 6-5 Edit IoT Element

Step 5 Configure the image/text/clock window:

1) Click **Static Element** and select **Text**, **Image**, **Digital Clock**, **Dial Clock**, or **IoT**.
2) Use either of the following methods to add the static element to the image/text/clock area:
   - Click on the static window where you want to add a static element.
   - Drag a static element to the static window and then draw the desired area.
3) Edit the static element.

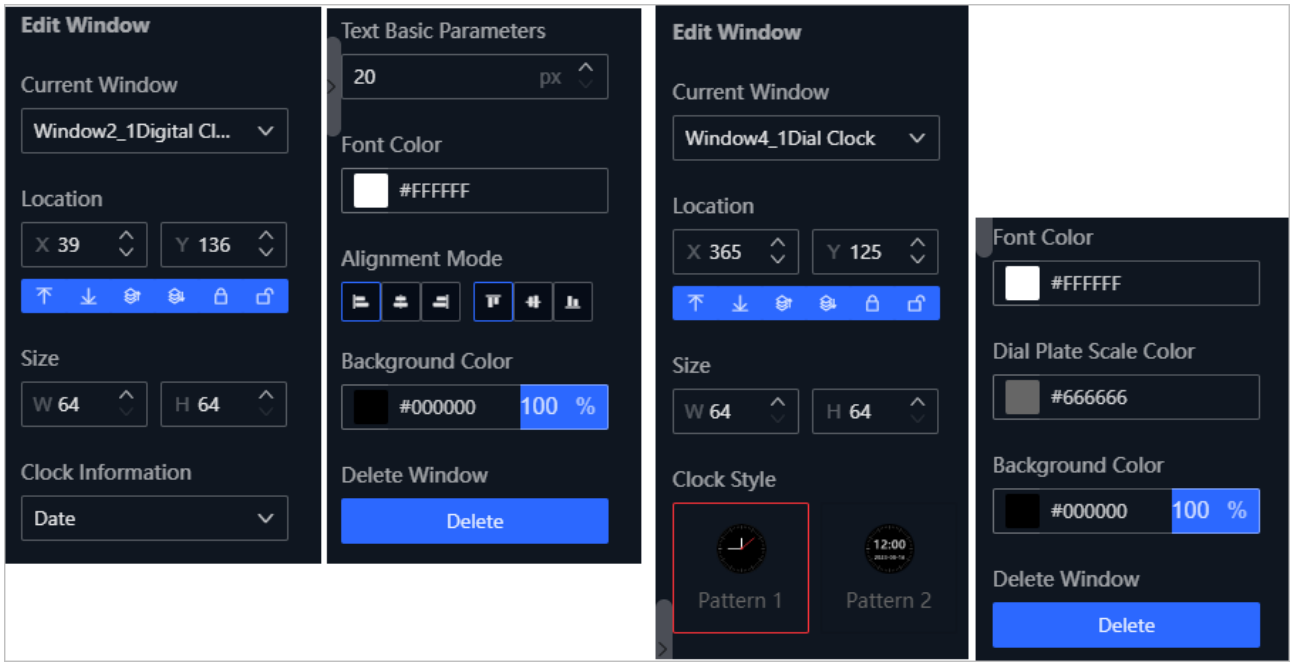

Figure 6-6 Edit Clock

Step 6 Select the audio source and adjust the volume.

- A single video wall supports audio output from only one signal source. Before enabling, make sure audio is enabled in **Image Control** > **Source Management** page. See “7.2.5 Output Parameters”.
- To output audio from an interface gating source, first drag the interface gating source onto the video wall.

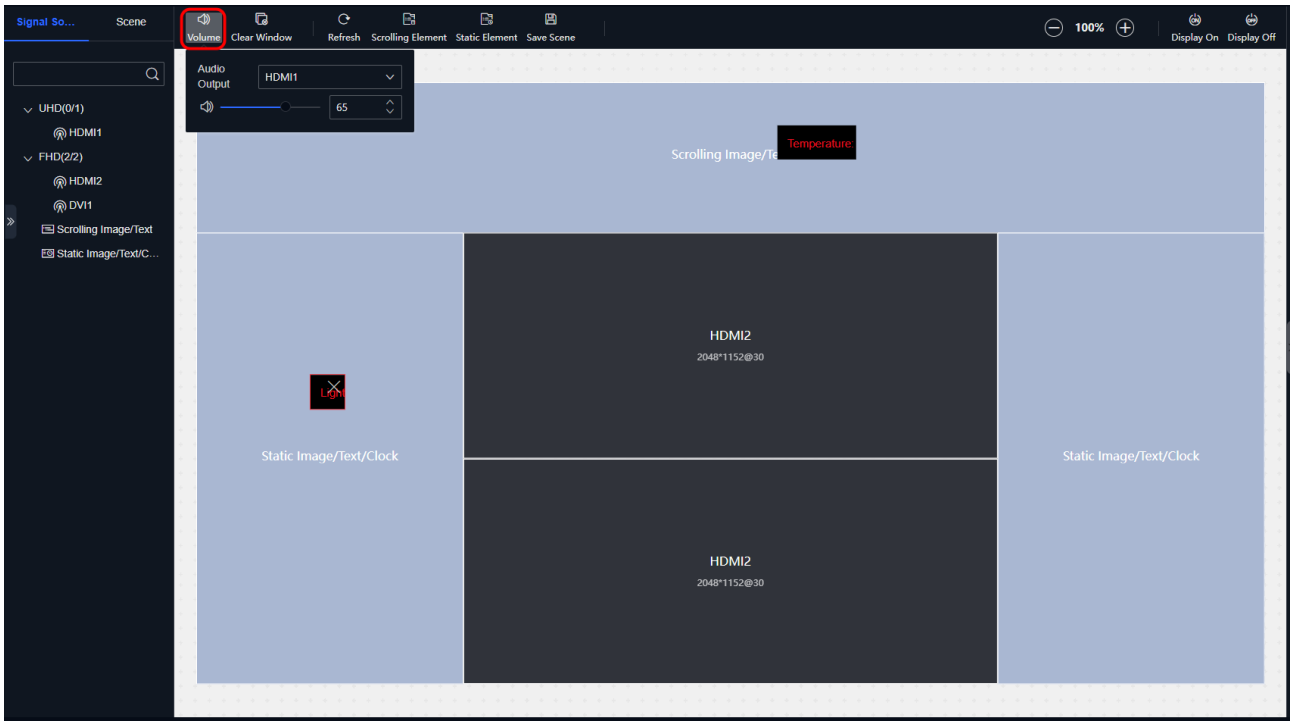

Figure 6-7 Configure Audio Output

Step 7 (Optional) You can perform the following operations as required:

- Click **Display On** or **Display Off** to control the display status.
- Click **Save Scene** to save the current video wall configuration as a new scene or overwrite the existing scene.

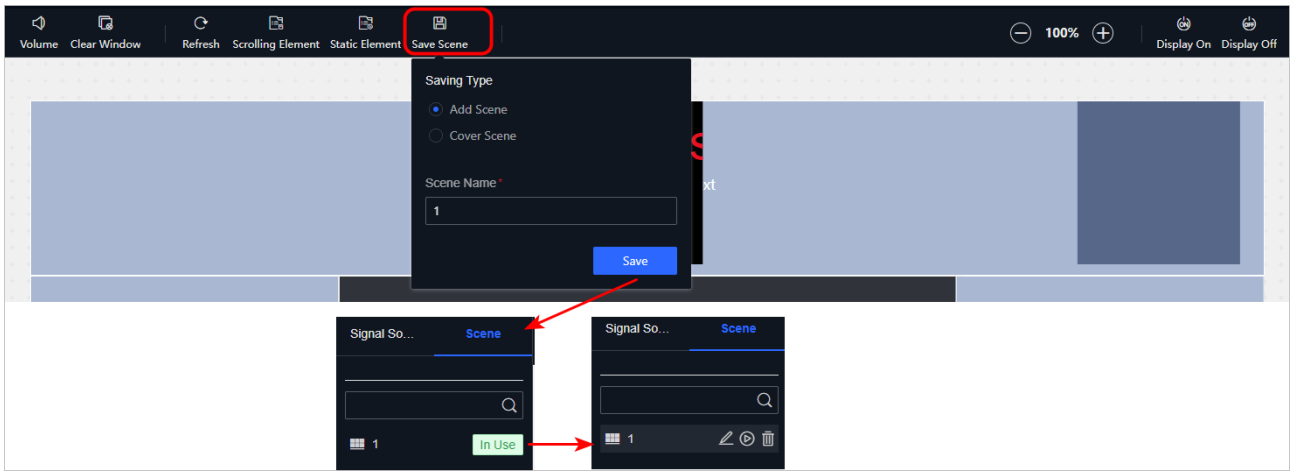

Figure 6-8 Save Scene

- Click **Scene**, click a scene and then click an icon to edit, recall or delete the scene.

6.2 Operate Video Wall of C66S Controller

6.2.1 Manage Signal Sources

Add a Network Source

Step 1 Select the adding mode:

- Add a network source via IP address: Navigate to **Image Control** > **Content Control**, click , and select **IP Address**.

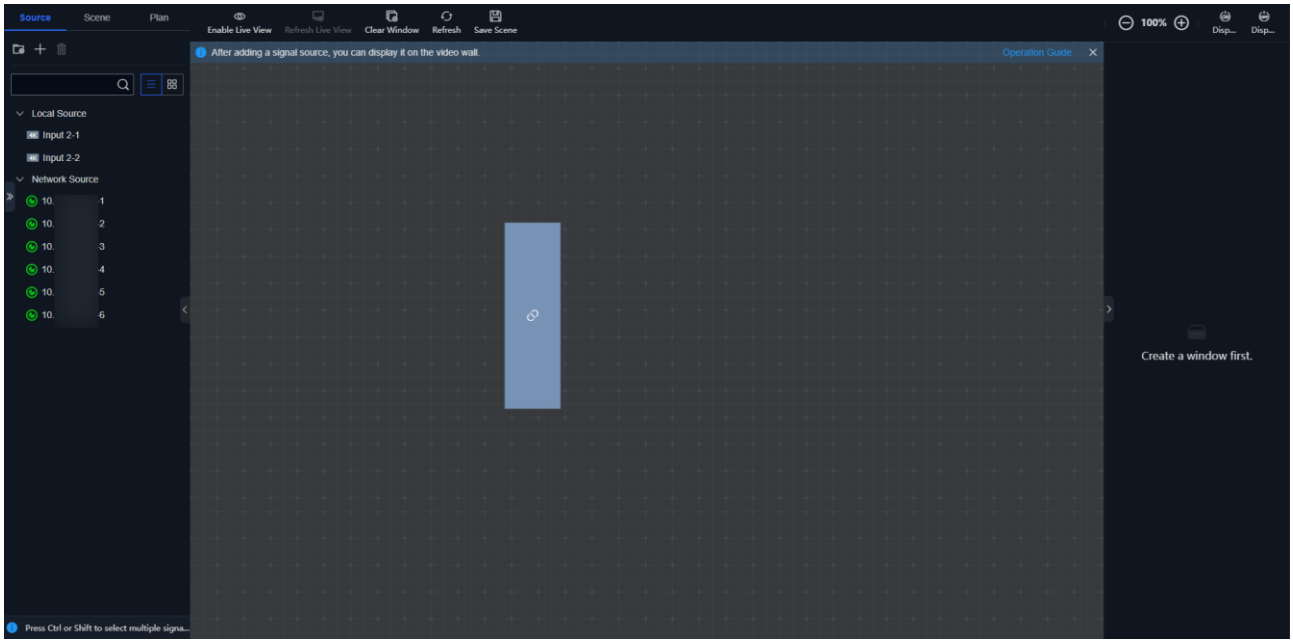

Figure 6-9 C66S Content Control Page

- Add a network source via URL: On the same page, click  and select **URL**.

Step 2 Fill in the network source information:

- IP address method:
  - Enter the signal source information and stream media information. Click **More** to set parameters like the transmission protocol and stream type.
  - Enable **Get Stream via Streaming Server** to have the streaming server forward real-time preview data, reducing network load.
  - If adding a multi-channel IPC or NVR device, the system will automatically recognize and add all channels.
- URL method: Enter the device name and the URL address.

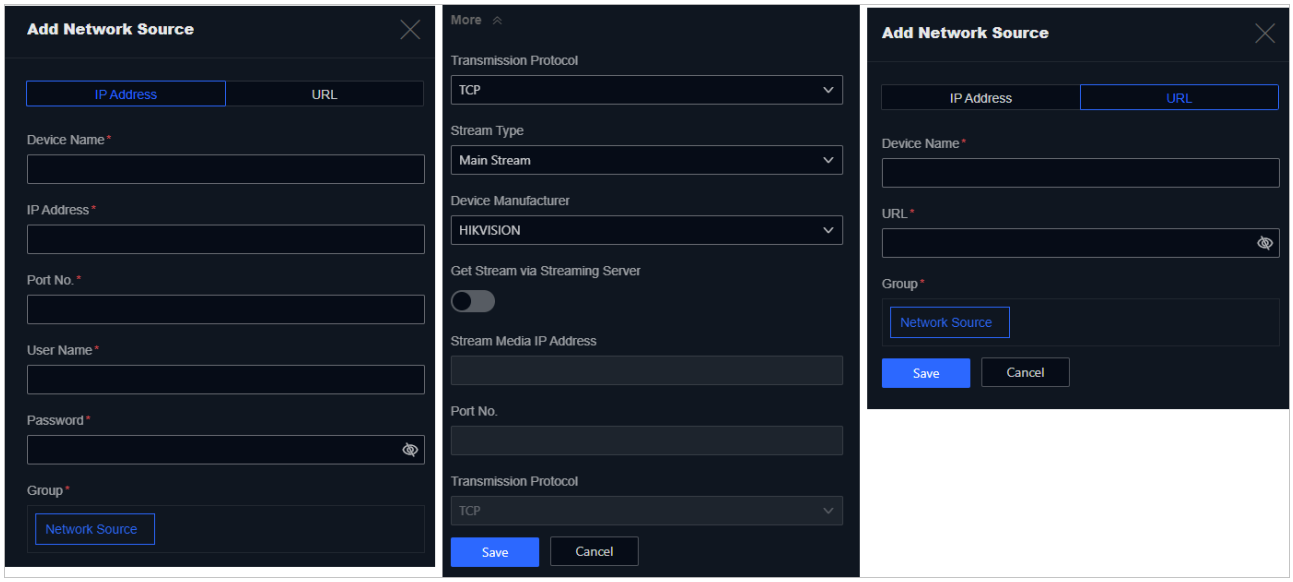

Figure 6-10 Add Network Source

Step 3 Click **Save**.

Step 4 (Optional) Manage the added signal sources:

- Edit a network source: Hover over a network signal source and then click  to edit its parameters.
- Batch delete network sources: To batch delete invalid network signal sources, you can select multiple network signal sources with the Ctrl or Shift key pressed and then click .

Create a Source Group

Step 1 Click .

Step 2 Enter the group name and add multiple signal sources to the created group.

You cannot add the network signal sources together with the local signal sources to the same signal source group.

Step 3 Click **OK**.

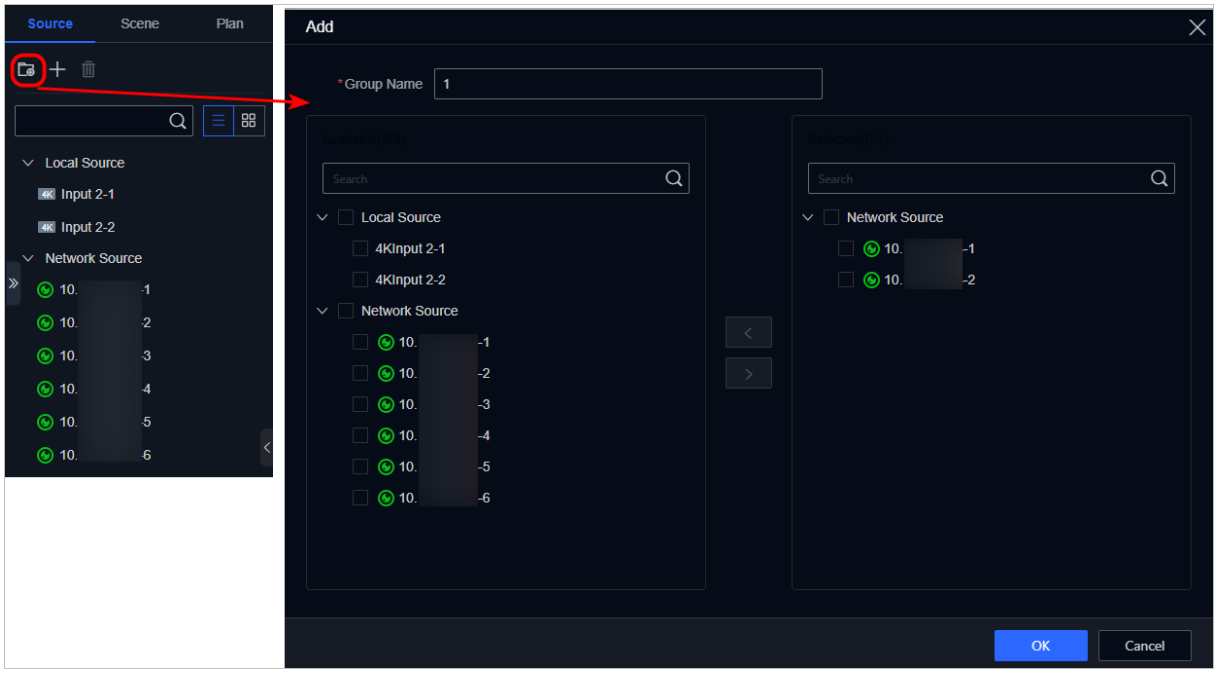

Figure 6-11 Create a Source Group

6.2.2 Bind Signal Sources to Video Wall

Before You Start

- The LED controller boards only support the video wall in custom shape mode. If the video wall in custom shape mode has been configured on the web page, the client will automatically read the configuration. If no video wall in custom shape mode is configured on the web page, the client will automatically create an LED video wall and bind it to the LED controller board.
- Ensure the LED video wall is configured with mapping parameters: After configuring the mapping parameters on the **Display Mapping** page, click **Save**, and then sequentially click **Save Mapping & Connections** and **Save Splicing Position**.

Important

- Ensure the signal source fully covers the output port area; otherwise, any part of the image beyond the output port will not be displayed.
- Before dragging a network signal source to the video wall, make sure that the decoding board is in the device.
- To create a new signal source group, see “Create a Source Group”.

Steps

Select the signal source type and drag it to the video wall:

- Single signal source: Drag directly to the output port.
- Local signal sources support one-to-many dragging (see "6.2.3 Local Source One-to-Many Limit" for details).

  - Network signal sources support repeated wall display. The specific number of repetitions depends on the decoding capability of the decoding board.

- Multiple network signal sources: Hold down the Ctrl/Shift key to select multiple sources and drag them.
- Multiple local signal sources: Hold down the Ctrl key to select multiple sources and drag them.
- Signal source group: Drag a default or newly created group to the output port.

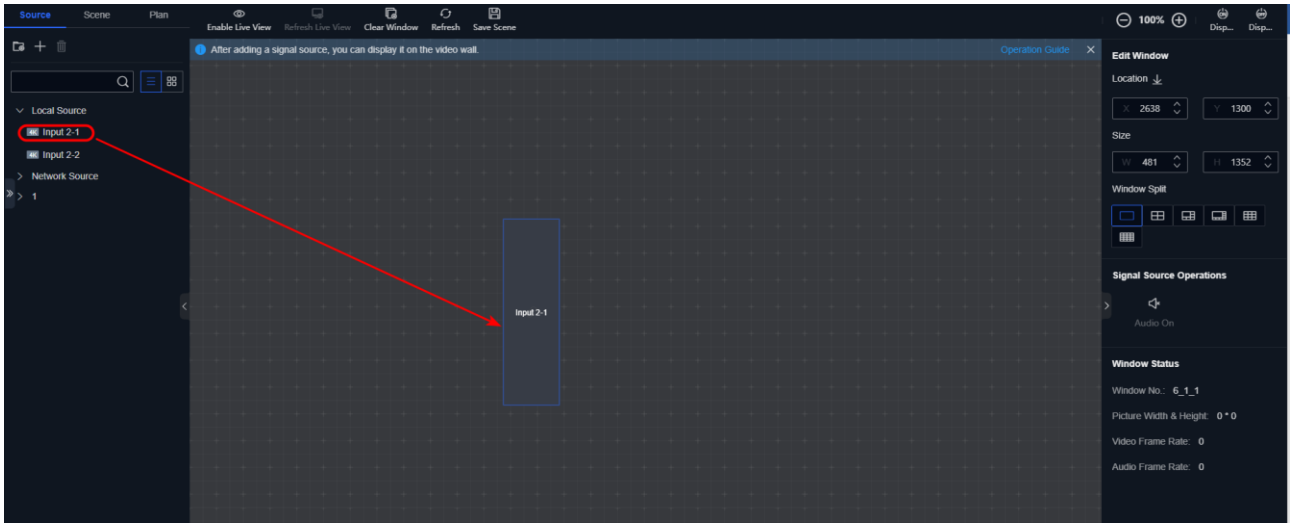

Figure 6-12 Bind Local Signal Source to Video Wall

6.2.3 Local Source One-to-Many Limit

The local source one-to-many function refers to displaying the image of a single signal source simultaneously on multiple positions of a video wall. The maximum number of channels that all signal sources on a single board can be displayed on the video wall is limited by the following factors:

- Input board type (HD, UHD, or SDI)
- Video wall mode (normal, custom shape, or meeting)
- Output bit depth (8-bit or 10-bit)

This maximum number of channels is a fixed total, which is the Maximum Number of Channels for Signal Sources listed in the table below. This limit refers to the total sum of channels that the input board can simultaneously display across all video walls; it does not increase with the number of video walls. Single video wall and multiple video wall scenarios share this total quota.

- The table takes each input board connected to 3 local signal sources as an example.
- In meeting mode, when an SDI input board is installed in slot 1 or 4 of the S6 chassis, or slot 1 or 2 of the S12 chassis, the maximum number of channels can be increased by 1 additional channel.

Input Board Type	Local Source Name	Maximum Number of Channels for Signal Sources	
		Normal/Custom Shape Mode	Meeting Mode
HD	Input 1-1 Input 1-2 Input 1-3	8-bit/10-bit: 8 channels	8-bit/10-bit: 8 channels on main screen + 4 channels on auxiliary displays

UHD	Input 2-1
	Input 2-2
	Input 2-3
		8-bit/10-bit: 3 channels	• 8-bit:
			  ◦ 3 channels on main screen + 1 channel on auxiliary displays
			  ◦ 1 channel on main screen + 2 channels on auxiliary displays
			• 10-bit: total 3 channels shared by main screen and auxiliary displays

SDI	Input 3-1
	Input 3-2
	Input 3-3
		• 8-bit: 4 channels
		• 10-bit: 2 channels
			• 8-bit:
			  ◦ Default total 5 channels (Main screen ≤ 4 channels, Auxiliary displays ≤ 4 channels)
			  ◦ Extended total 6 channels (Requires SDI board in slot 1 or 4 of S6, or slot 1 or 2 of S12)
			• 10-bit:
			  ◦ Default total 4 channels (Main screen ≤ 2 channels, Auxiliary displays ≤ 4 channels)
			  ◦ Extended total 5 channels (Requires SDI board in slot 1 or 4 of S6, or slot 1 or 2 of S12)

6.2.4 Edit Signal Source Window

Window Operations

- Move a window: Drag the window directly or enter X/Y values for precise positioning.
- Adjust window size: Drag the edges of the window or enter W/H values for precise adjustment.
- Set window split: Select a window split icon.
- Quick actions: Click  to set the window to the bottom, and click  in the upper-right corner of the signal source window to lock window.

- View window status.

Content Control

- Enable audio output: First set the audio output port on the **Video Wall Configuration** page of the device web page and then click **Audio On**.
- Operate network signal sources: Supports stopping decoding and setting decoding delay levels.
- Preview signal sources:
  - Single window preview: Click  in the upper-right corner of a single signal source window. Click  to cancel the preview.
  - Global preview: Click Enable Live view, Close Live View, or Refresh Live View at the top of the Video Wall Operation page.
  - Before previewing a network signal source, make sure that the decoding board is in the device.

Global Operations

- Control display:
  - Click **Display On** to wake all cabinets of the LED video wall from sleep mode.
  - Click **Display Off** to put all cabinets of the LED video wall into sleep mode.

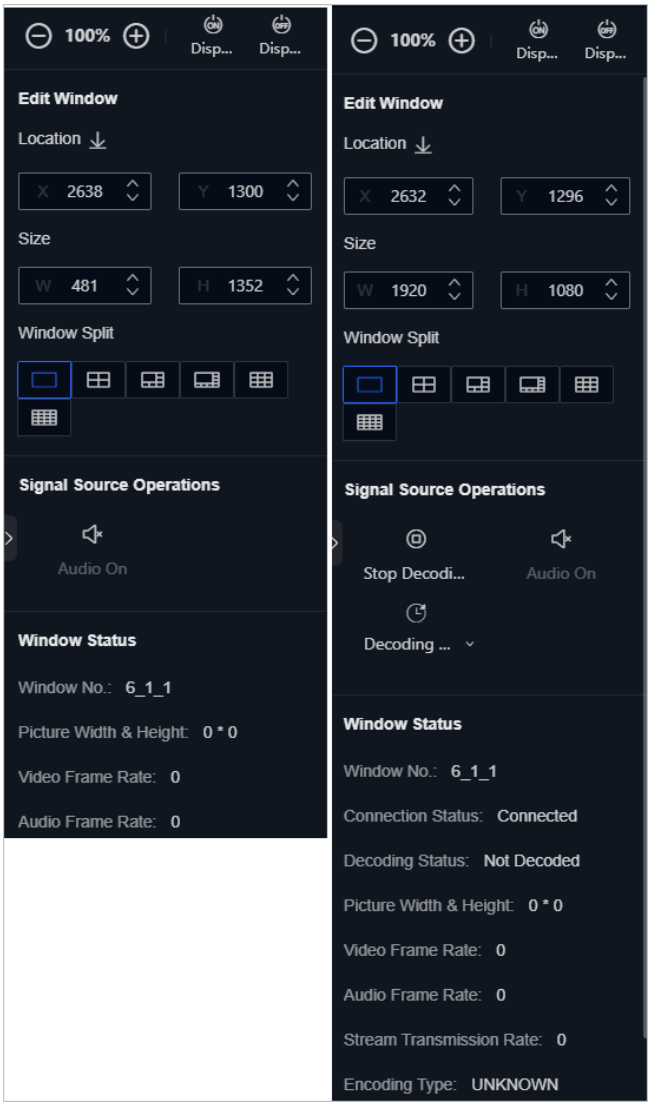

Figure 6-13 Edit Signal Source Window

- Click **Clear Window** to remove all associated signal sources from the current video wall.
- Click **Refresh** to refresh all associated signal sources on the current video wall.
- Network source group auto-switching:
  1) Ensure a network signal source group has been created. For details, see "Create a Source Group".
  2) Click  in the upper-right corner of the signal source window.
  3) Select the newly created network signal source group, set the interval, and click **Start Auto-Switch**.

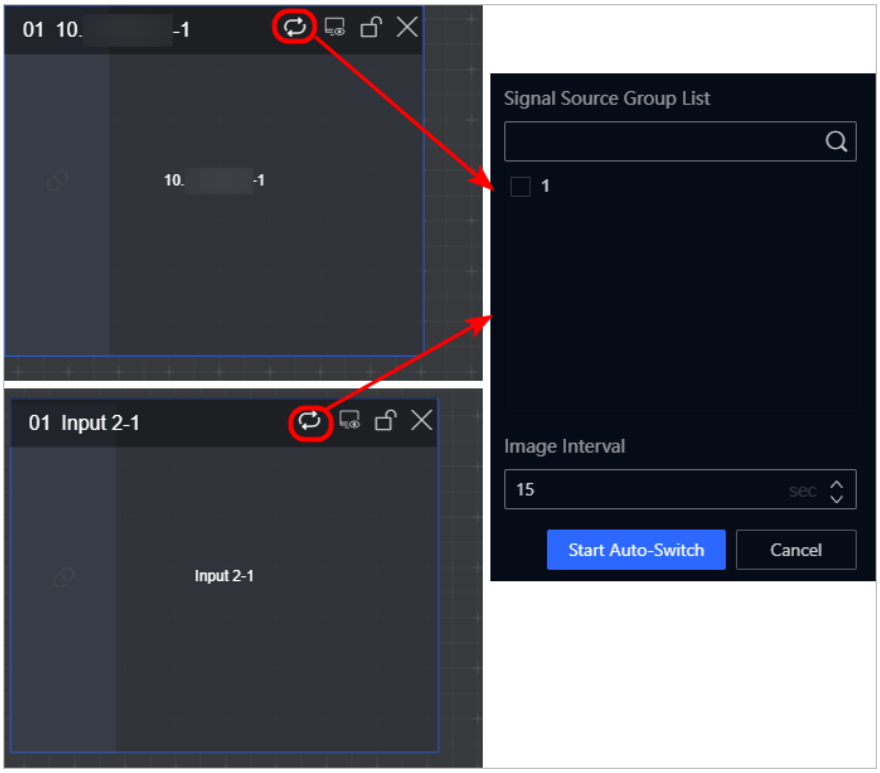

Figure 6-14 Set Source Group Auto-Switching

6.2.5 Manage Scenes & Plans

Manage Scenes

- Save scene: Click **Save Scene** to save the current video wall configuration as a new scene or overwrite the existing scene.

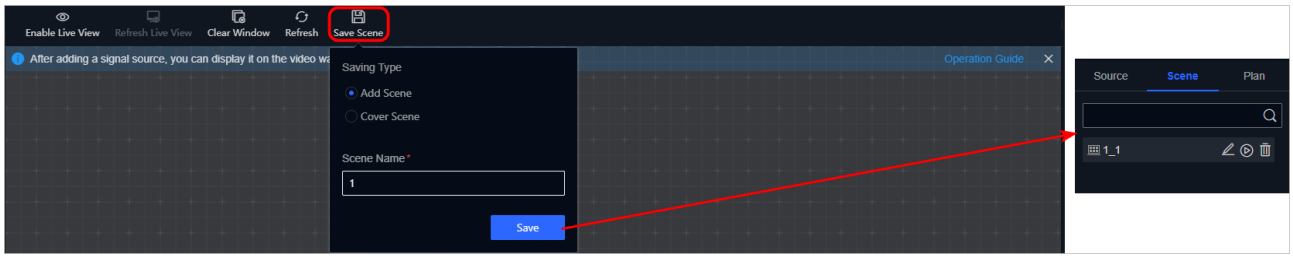

Figure 6-15 Manage a Scene

- Call/edit/delete scene: Click **Scene**, hover over a scene name and click the corresponding icon.

Manage Plans

You can add multiple scenes and set the scene schedule in a plan.

- Add a plan:
  1) Click **Plan**.
  2) Click  and set the plan name.
  3) Click **Add Task**, select the scene, and set the interval.

4) (Optional) Enable **Execute Plan Automatically** and set the schedule.
5) Click **Save**.

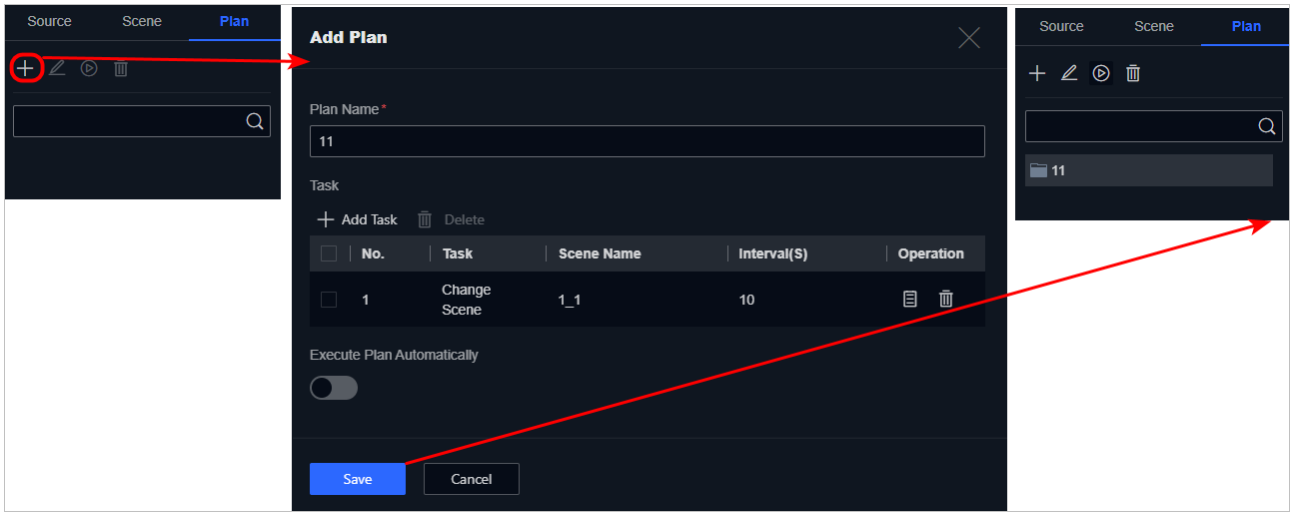

Figure 6-16 Manage a Plan

- Call/edit/delete plan: Click a plan and then click the corresponding icon.

6.3 Create Programs

6.3.1 Material Types & Limitations

Applicable Devices

DT90P, DT60B/P, DT30B/P, and DS-TB/U series LED controllers.

Function Description

A program refers to content played on the video wall according to preset template, materials, and schedule. Different device series support varying types of materials. This section uses the DT90P as an example for explanation.

Material Support

Supported material types for different device series are detailed in the table below.

Table 6-1 Comparison Table of Materials Supported by Devices

Material Type	B Device	P/U Device
Application	×	√
Signal source	×	√
Image	√	√
Video	√	√

Material Type	B Device	P/U Device
PDF file	√	√
Webpage	√	√
Clock	√	√
Text	√	√
Table	√	√
Stream media	√	√
Network camera (IPC)	√	√

Signal Sources Limitations

Device Series	Loading Capacity	Quantity Limit
DT90P	● UHD signal sources (HDMI2.0, SDI, DP): 1-to-3 distribution ● FHD signal sources (HDMI1.3, DVI): 1-to-4 distribution	● Max 3 UHD signal windows ● Max 4 FHD signal windows ● Max 2 selectable interface sources (DP, HDMI2.0-1, HDMI2.0-2, built-in Android)
● DT60P ● DS-TU (4/6/12/20 outputs)	● UHD signal sources: 1-to-1 distribution ● FHD signal sources: 1-to-3 distribution	● Max 3 signal windows total (UHD max 1, FHD max 3) ● Built-in Android source occupies 1 FHD capacity
● DT30P ● DS-TU (1/2 outputs)	FHD signal sources (HDMI1.4) : 1-to-1 distribution	Max 1 signal window total

Video Limitations

Device Series	Limit per Program
● DT90P ● DT60B/P ● DS-TB/U (4/6/12/20 outputs)	6 × 1080p@30 or 4 × 1080p@60
● DT30B/P ● DS-TB/U (1/2 outputs)	1 × 1080p@60

Other Material Limitations

Material Type	Limit per Program
Clock	Max 1
Table	Max 1
Webpage	Max 2
Text	Max 16 (including static, dynamic and IoT text)
PDF file	Max 16
Image	Max 32

Note

- After dragging in the WonderCast application, any non-signal-source material already present in the program window will be automatically cleared, and you will not be able to configure a background or music.
- Currently, only the WonderCast application is supported. After publishing a program containing this application, the display will show the application's home page. Please follow the on-screen instructions to complete the screen sharing operation.

6.3.2 Create Normal Program

Step 1 Select a P-series LED controller and navigate to **Image Control > Content Control**.

Step 2 In the popped-up program creation window, select **Normal**, set the program name and program resolution, and select a template.

- If you click **Restore to Display Size**, the actual size of the connected display will be used as the program resolution.
- If you want to customize the layout, select **Blank Page**.
- After creating a program, you can click **Edit** on the right side of the program attributes to edit the program type, name, resolution, or template.

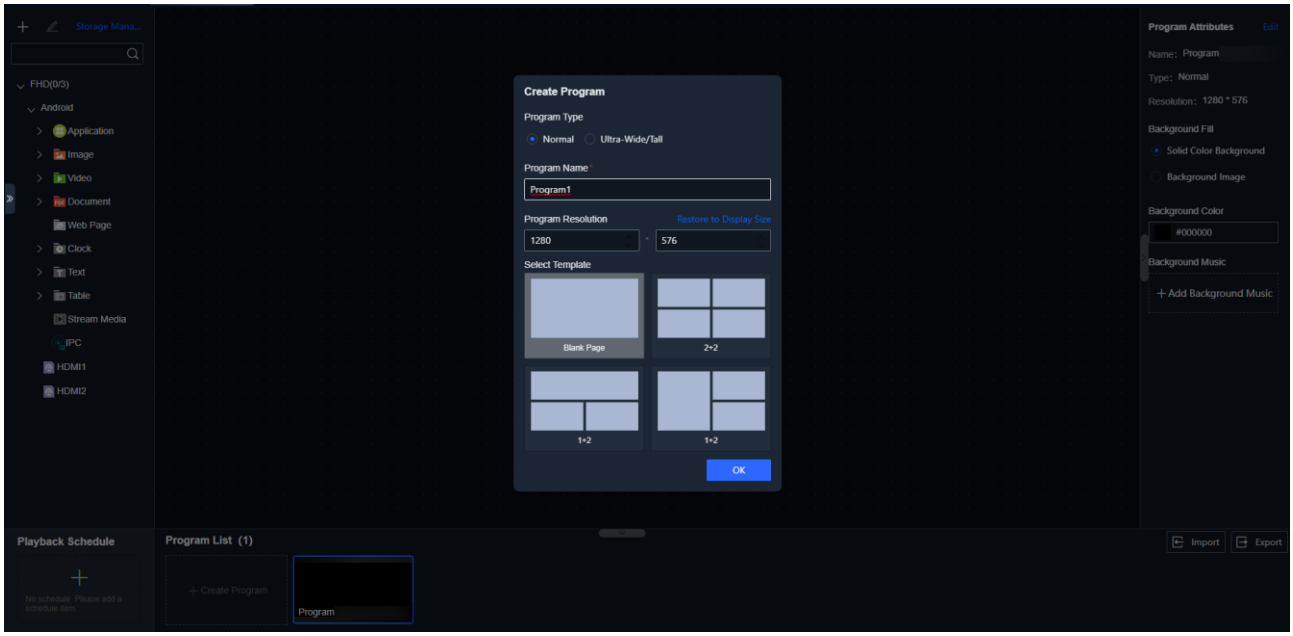

Figure 6-17 Create a Normal Program

Step 3 Click + to upload the locally saved materials or to add the material.

- Supported material types: application, signal source, image, video, document, webpage, clock, text, table, stream media, IPC, and music.
- Batch upload limit: When batch uploading images, videos, and documents, ensure the total size does not exceed the remaining system storage.
- Supported material formats are as follows:
  - Images: BMP, JPG, JPEG, PNG, GIF
  - Documents: PDF
  - Videos: ASF, AVI, MPG, 3GP, MOV, MKV, WMV, FLV, MP4, RM
  - Webpages: Prefixes http and https
  - Stream media: Prefix rtsp
  - Text: Only TTF format supported for font file uploads

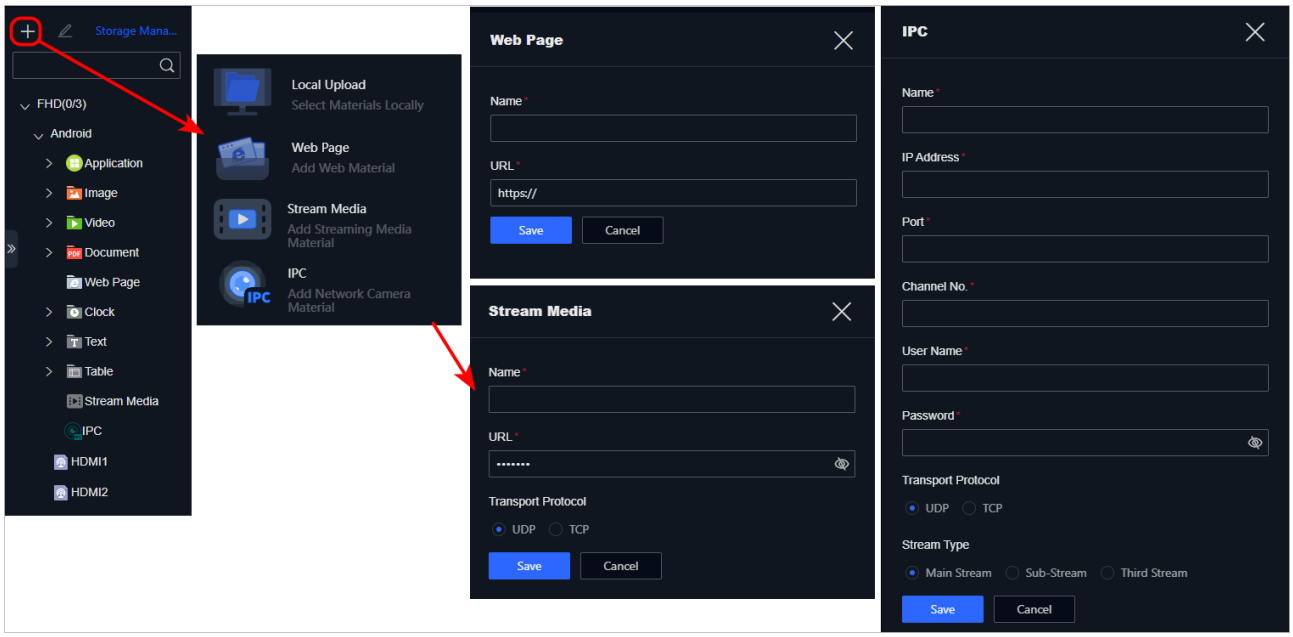

Figure 6-18 Add Materials for Normal Program

Step 4 (Optional) When internal storage is insufficient, you can use external storage to save locally uploaded images, videos, documents, and music.

1) Insert a FAT32-formatted USB drive into the device.
2) Use either of the following methods to access the **Storage Management** interface and click **Switch to External Storage**:
   - Navigate to **Device Maintenance** > **Settings** > **Storage Management**.
   - On the **Content Control** page, click **Storage Management**.

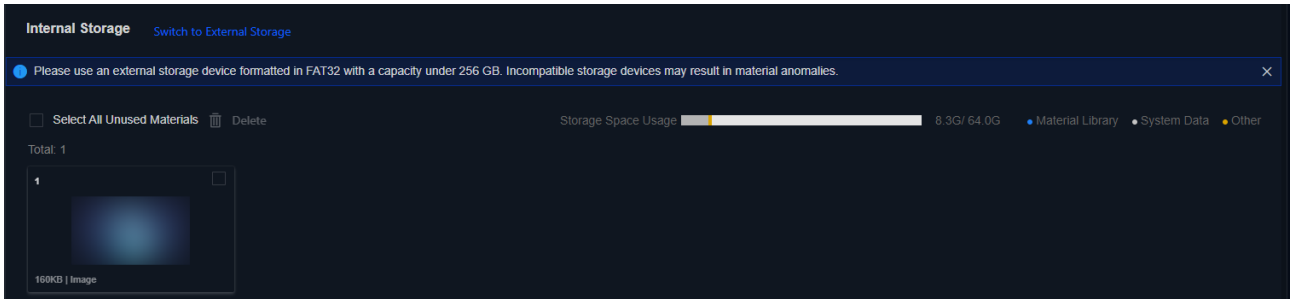

Figure 6-19 Switch to External Storage

3) On the **Content Control** page, click + to upload the locally saved images, videos, documents, and music. The uploaded files will be automatically stored to the USB drive.

Step 5 Click and hold the left mouse button to drag a material to the program window. Repeat this operation to bind multiple materials with the program window.

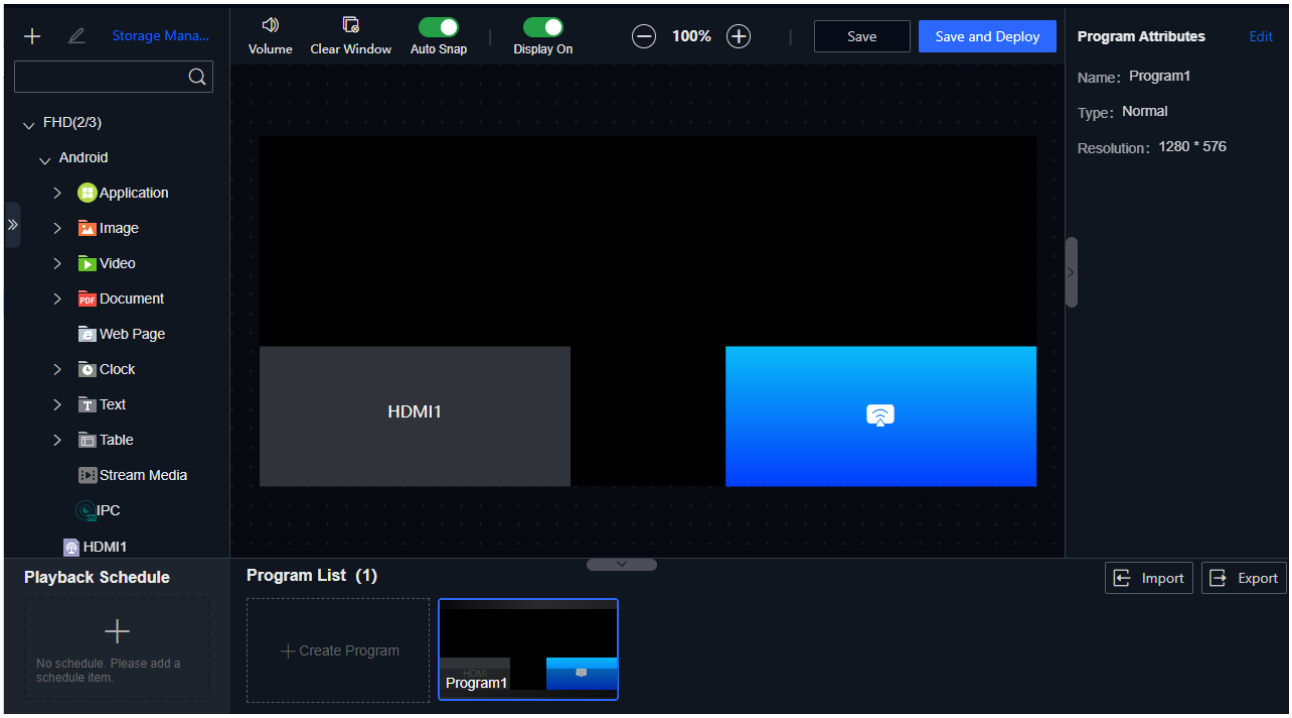

Figure 6-20 Bind Materials with Normal Program

Note

- To clear all bounded materials, click **Clear Window**.
- To edit the material name, select a material and click .
- By default, **Auto Snap** and **Display On** are enabled. It is recommended to keep the default settings.

Step 6 Click **Save and Deploy**.

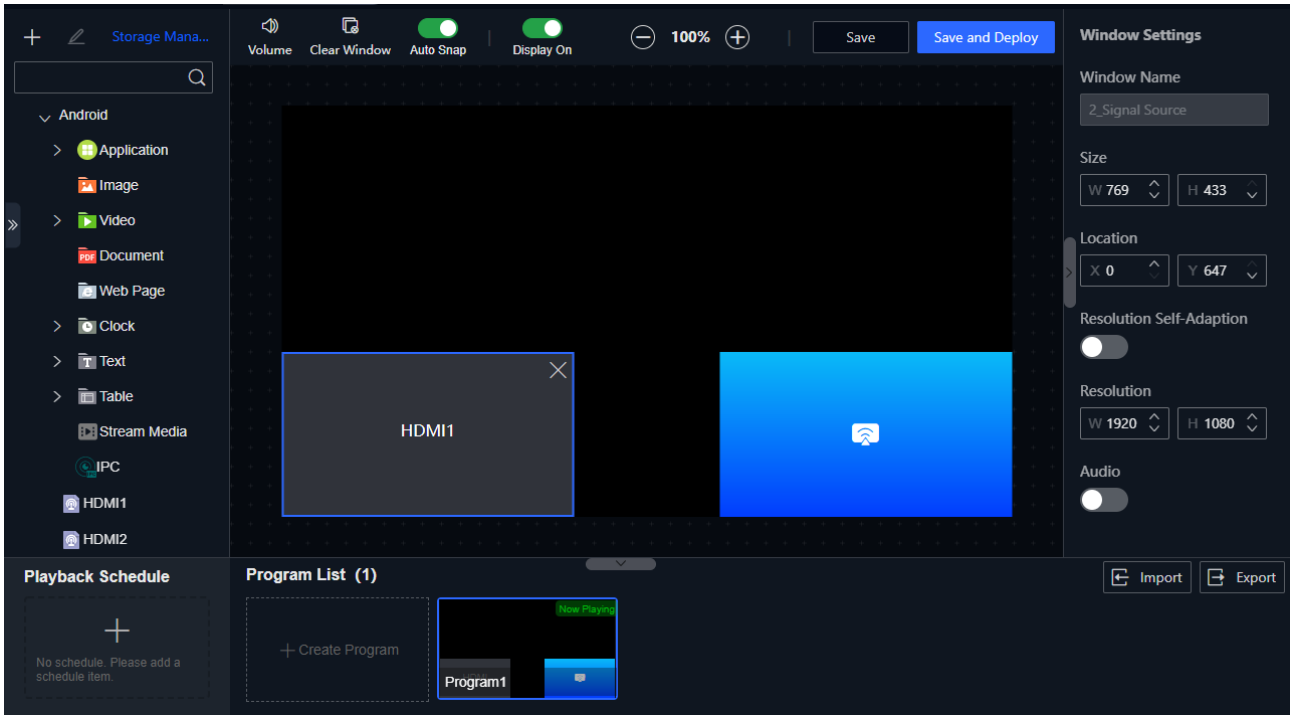

Figure 6-21 Deploy a Normal Program

6.3.3 Create Ultra-Wide/Tall Program

Applicable Scenario

When the width or height of an actual display exceeds 4096 pixels, it is recommended to create an ultra-wide/tall program.

Load Capacity Limits

Device Series	Outputs	Max Program Resolution
2K DT60B/P	2/4/6	1920 × 1200
4K DT60P	12/20	1920 × 1200
4K DT60B	12/20	4094 × 2160
DT90	24/40	4094 × 2160
DT30B/P	1	650 × 1000
	2	1300 × 1000
DS-TB	1	650 × 1000
	2	1300 × 1000
	4/6	1920 × 1200
	12/20	4094 × 2160

Device Series	Outputs	Max Program Resolution
DS-TU	1	650 × 1000
	2	1300 × 1000
	4/6/12/20	1920 × 1200

Fold Limits

- Single fold length ≤ 4094 pixels.
- The system automatically sets fold count based on resolution (max 8 folds).
- Max 8 materials per fold.
- When a material spans multiple folds, the total materials allowed per fold decreases by 1.

Steps

Step 1 Select a P-series LED controller and navigate to **Image Control > Content Control**.

Step 2 In the popped-up program creation window, select **Ultra-Wide/Tall**, and set the program resolution based on the actual display resolution.

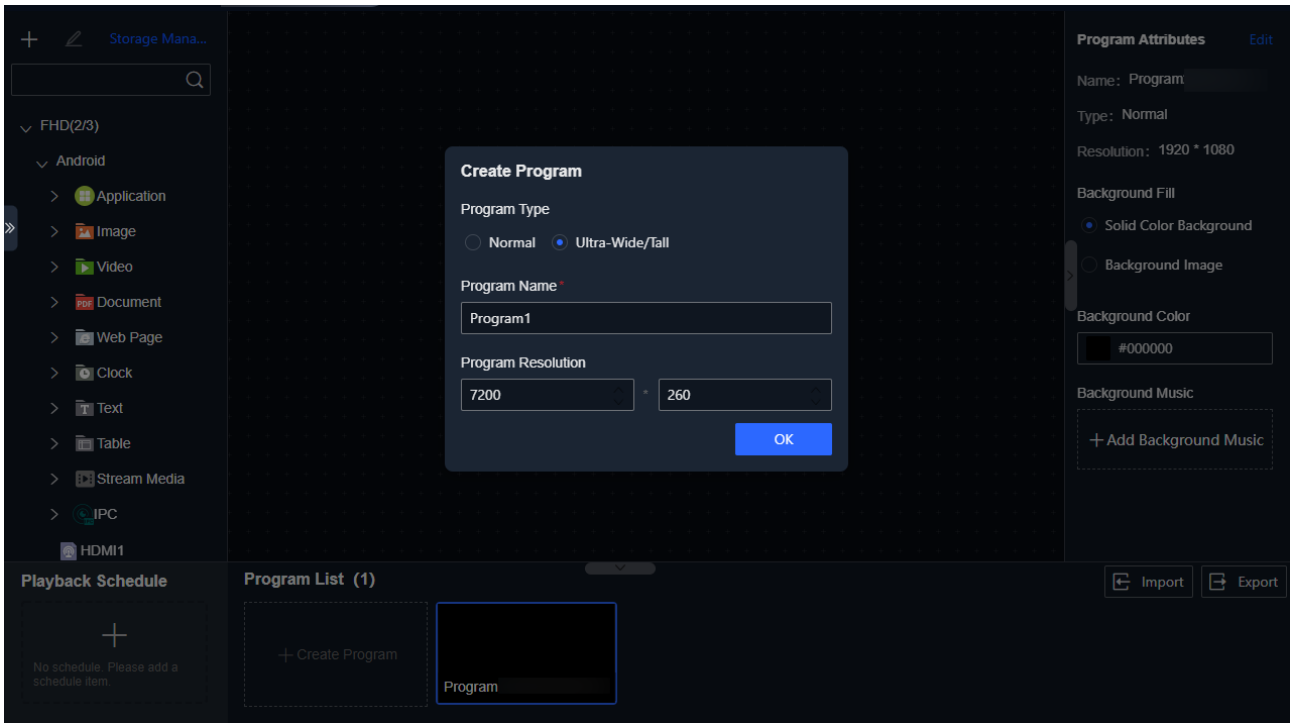

Figure 6-22 Create Ultra-Wide/Tall Program

Step 3 Click + to upload the locally saved images.

- An ultra-wide/tall program supports only image, text, clock, and music materials.
- Supported image formats include BMP, JPG, JPEG, PNG, and GIF.

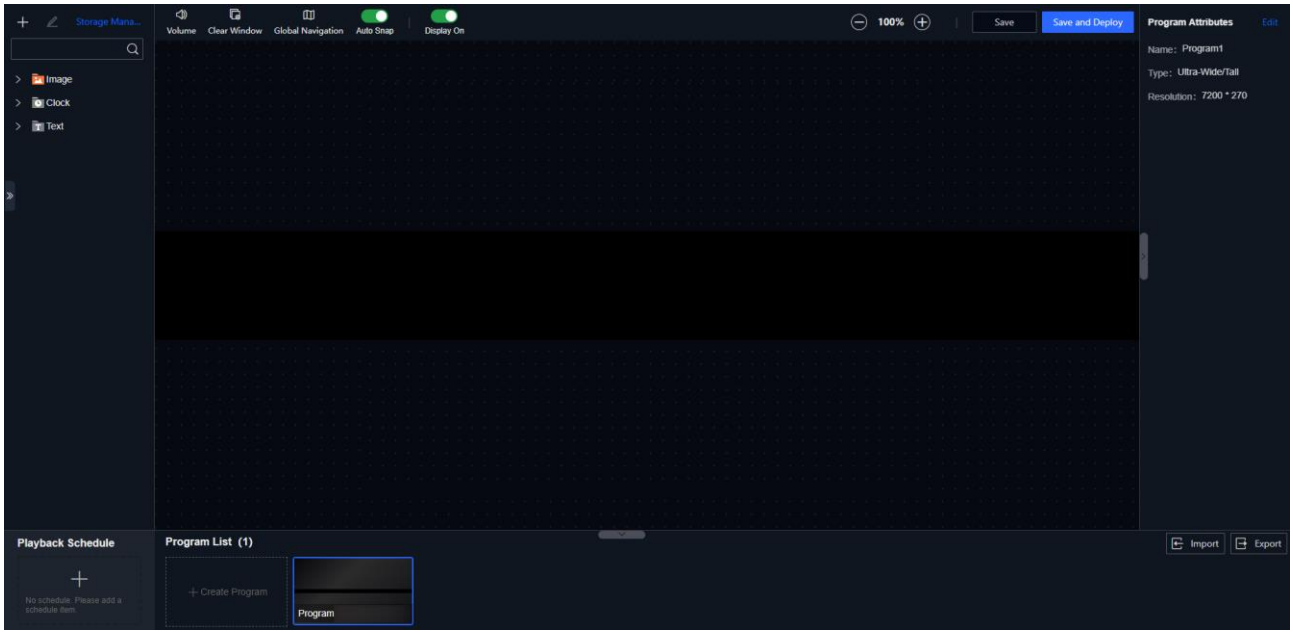

Figure 6-23 Add Materials for Ultra-Wide/Tall Program

Step 4 (Optional) When internal storage is insufficient, you can use external storage to save locally uploaded images and music.

1) Insert a FAT32-formatted USB drive into the device.
2) Use either of the following methods to access the **Storage Management** interface and click **Switch to External Storage**:
   - Navigate to **Device Maintenance** > **Settings** > **Storage Management**.
   - On the **Content Control** page, click **Storage Management**.

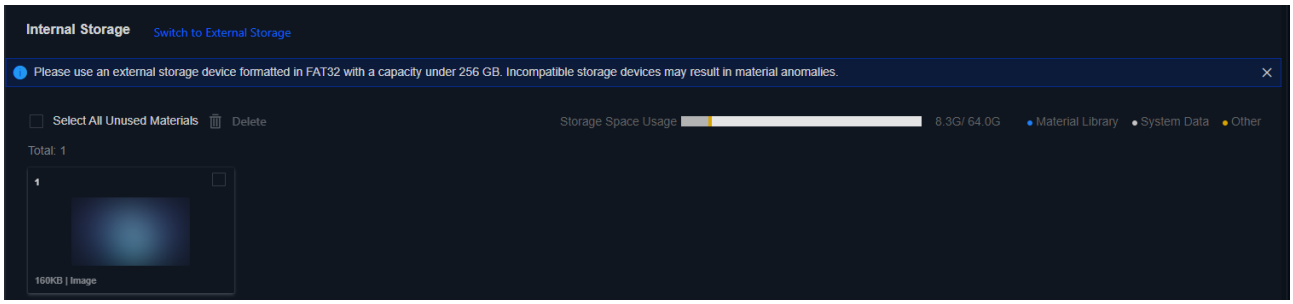

Figure 6-24 Switch to External Storage

3) On the **Content Control** page, click + to upload the locally saved images and music. The uploaded files will be automatically stored to the USB drive.

Step 5 Click and hold the left mouse button to drag a material to the program window. Repeat this operation to bind multiple materials with the program window.

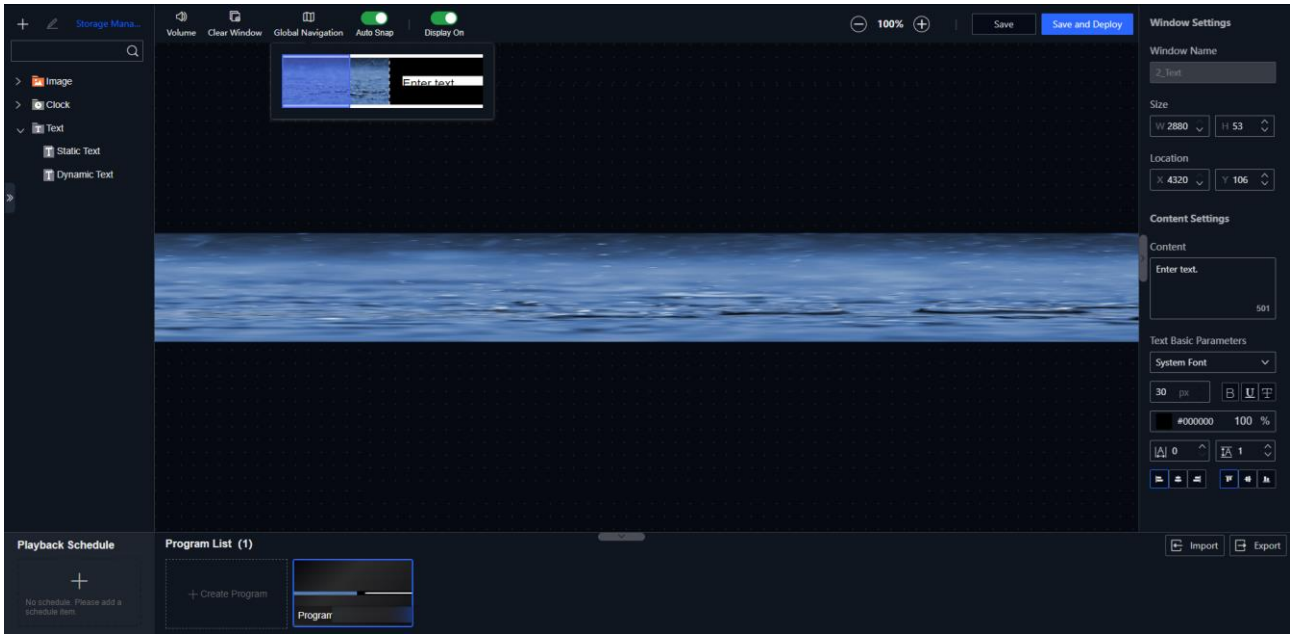

Figure 6-25 Bind Materials with Ultra-Wide/Tall Program

Note

- To clear all bounded materials, click **Clear Window**.
- To edit the material name, select a material and click .
- By default, **Auto Snap** and **Display On** are enabled. It is recommended to keep the default settings.
- For ultra-wide/tall program, you can click **Global Navigation** to view the materials bound with each fold.

Step 6 Click **Save and Deploy**.

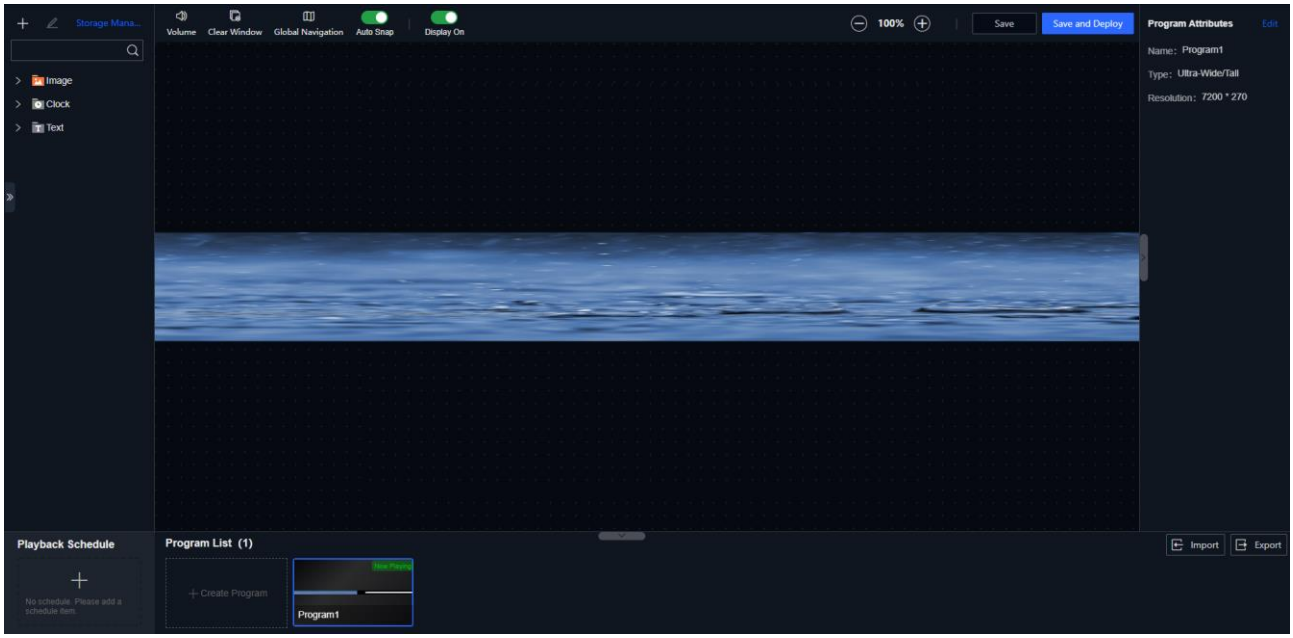

Figure 6-26 Deploy an Ultra-Wide/Tall Program

6.3.4 Schedule Multiple Programs

To play different programs at different times, create multiple programs and set the playback schedule. This method applies to both normal programs and ultra-wide/tall programs. The following uses normal programs as an example.

Step 1 Create the first program and save it. For details, see “6.3.2 Create Normal Program” or “6.3.3 Create Ultra-Wide/Tall Program”.

Step 2 Click **Create Program**, set the program parameters, and bind materials to the program window.

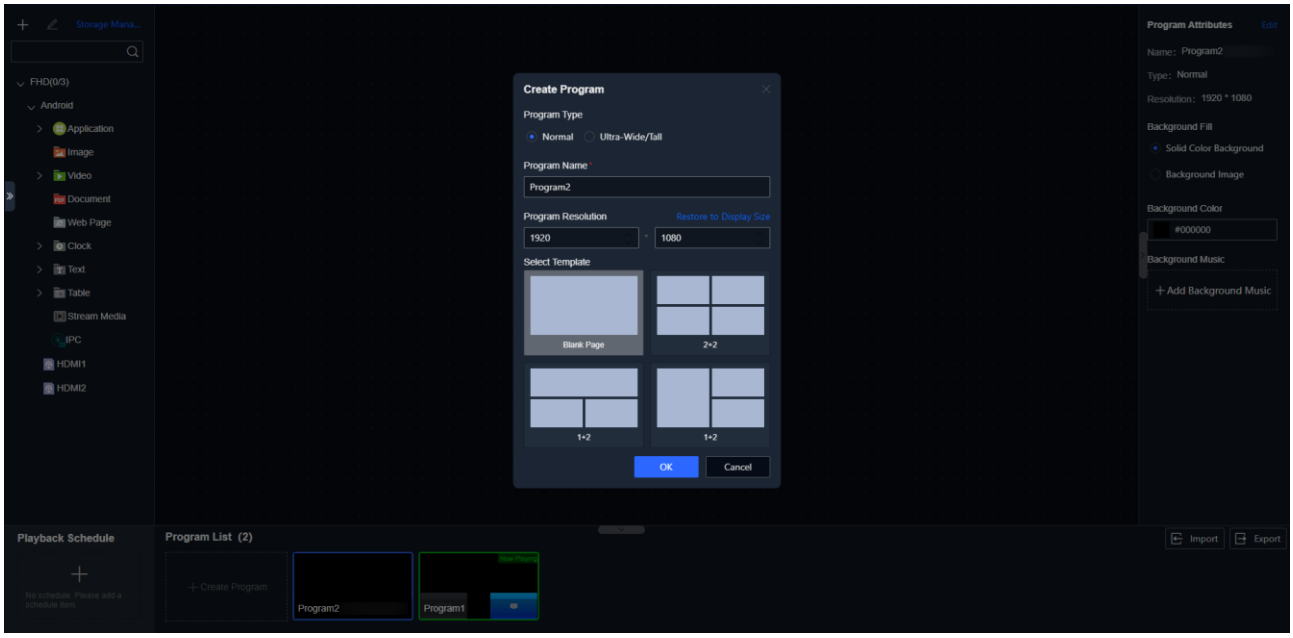

Figure 6-27 Create a New Normal Program

Step 3 Click + on the schedule area to create the schedule.

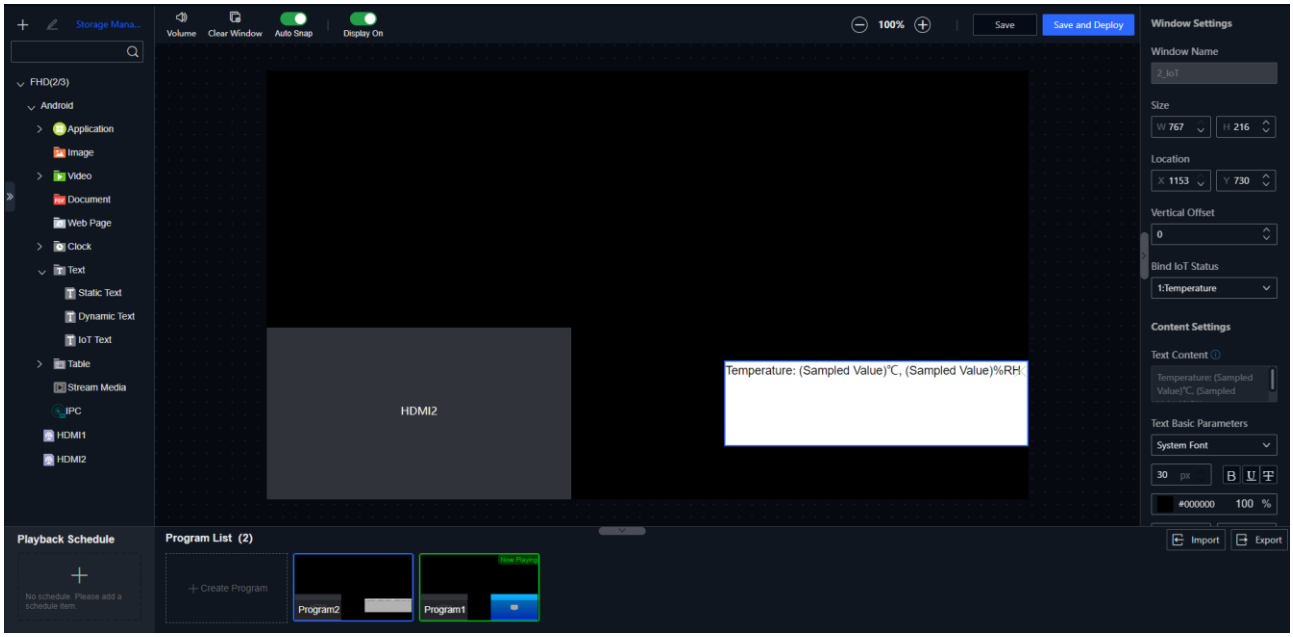

Figure 6-28 Create the Schedule

Step 4 Select a playback type and configure:

- Auto-switch playback: Drag programs to the playlist, and click **Save and Deploy**.
  - To clear the playlist, click **Clear**.
  - To save only the auto-switching schedule without deploying, click **Save**.

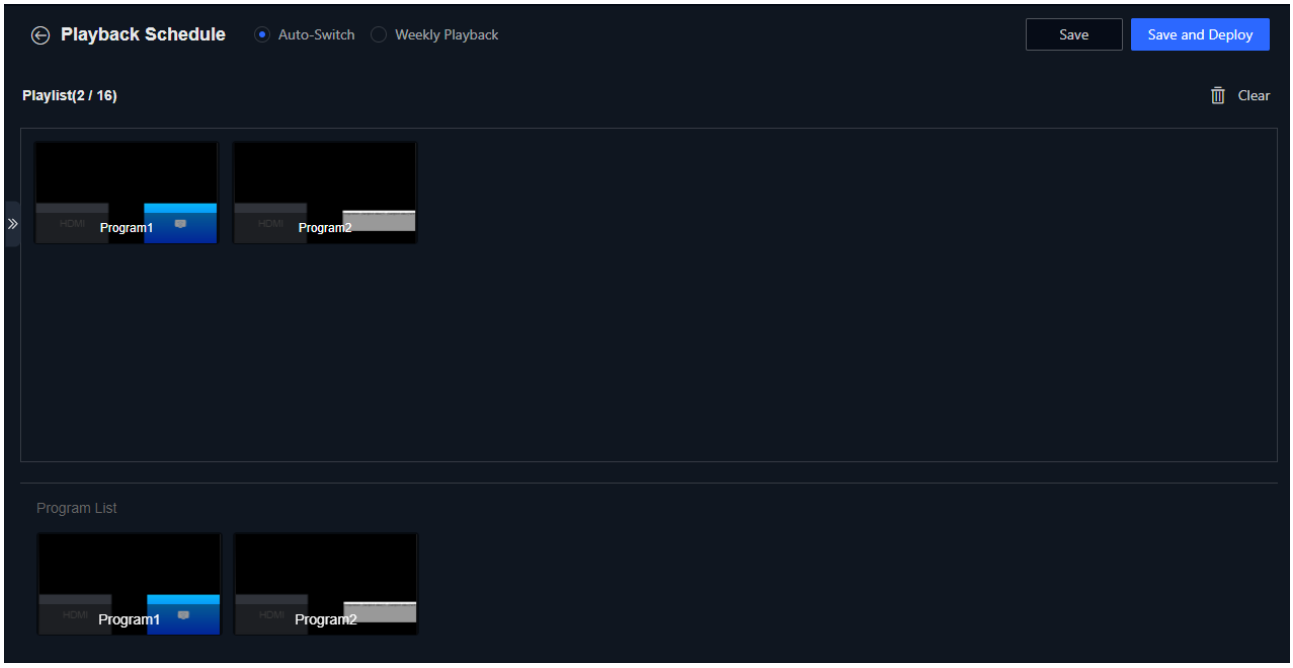

Figure 6-29 Set Auto-Switching Schedule

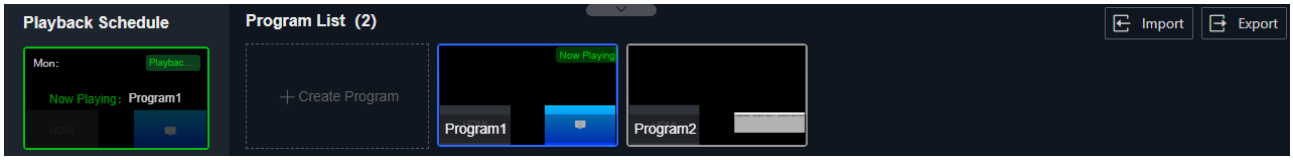

Figure 6-30 Auto Switch Normal Programs

- Weekly playback: Set the programs and duration on the schedule.

1) Select a start time, then hold and drag the left mouse button to the end time.
2) Select a program and click **OK**.

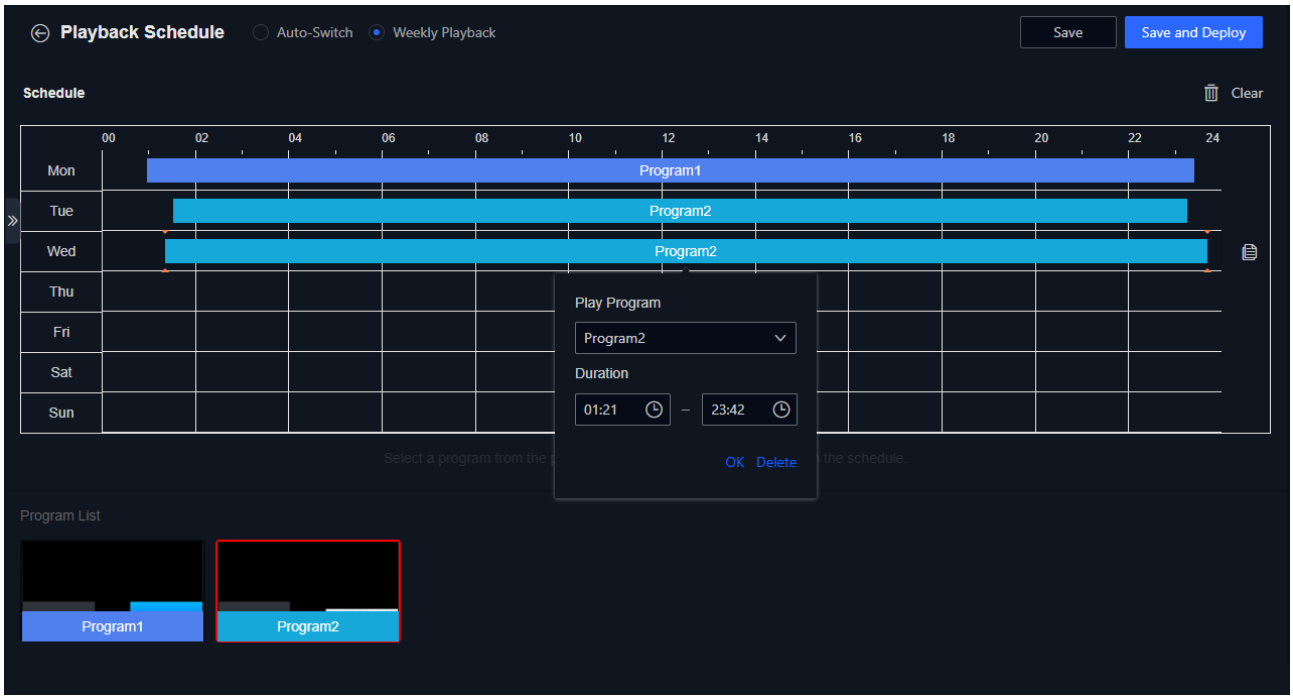

Figure 6-31 Configure the Schedule

3) Click **Save and Deploy**.
4) (Optional) You can perform the following operations as required:
   - Click **Delete** to delete the current schedule item.
   - Click  to copy the current schedule item settings to the selected weekdays and weekends.
   - Click **Clear** to clear all schedule items.
   - Click **Save** to save the schedule.

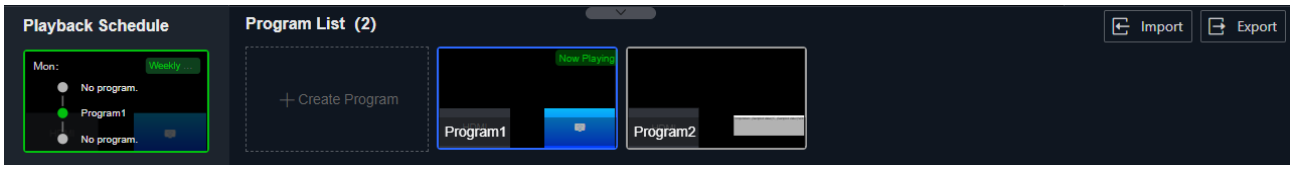

Figure 6-32 Weekly Playback of Normal Programs

Step 5 (Optional) If another program is currently playing, you can stop the schedule and deploy it at a suitable time later.

6.3.5 Set Program Parameters

On the **Content Control** page, you can configure the following parameters for normal programs or ultra-wide/tall programs:

- Click on a blank area outside the program range to add a background color, background image, or background music.
  - Background music supports MP3, WAV, and WMA formats.
  - Enable **Use Line In** to play audio input from the device's Line In port, which will automatically mute all other audio sources.

Note

Enabling Line In will automatically mute audio from all other signal sources.

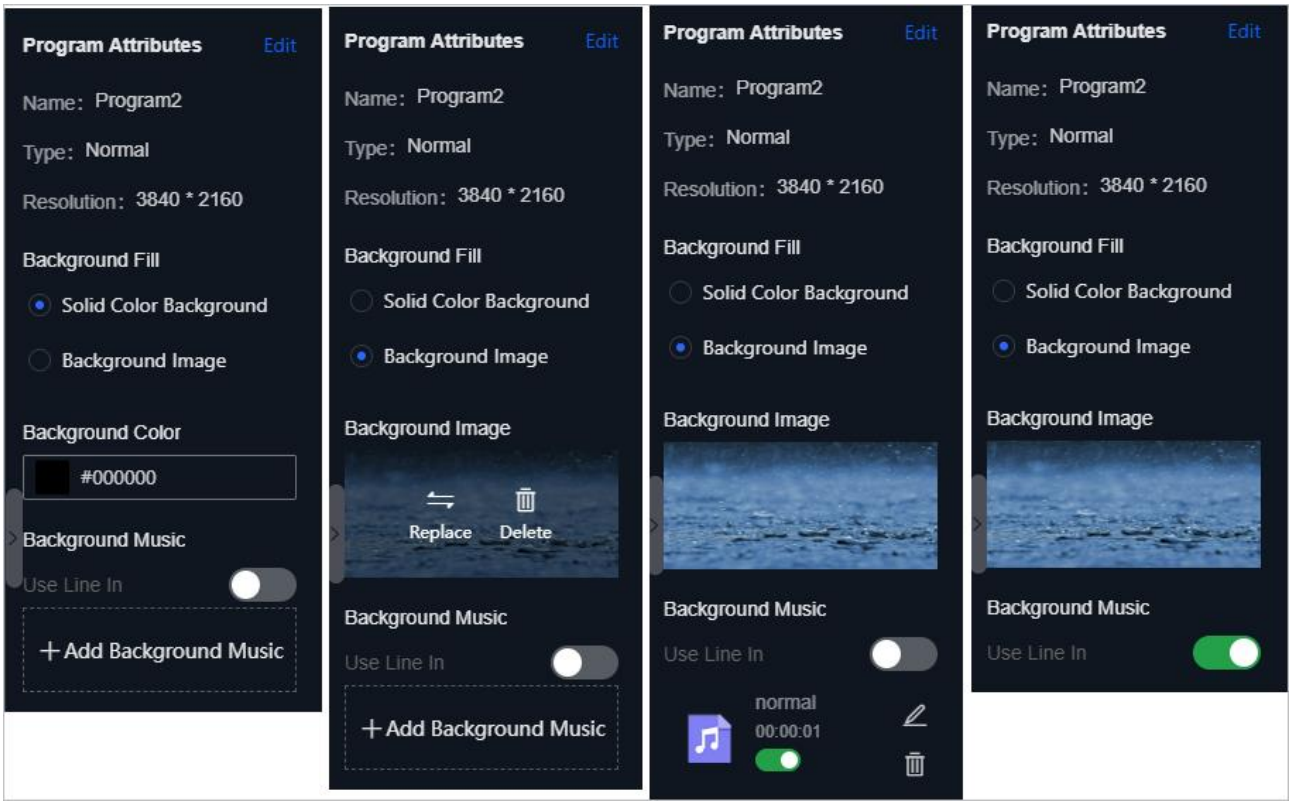

Figure 6-33 Add a Background

- Adjust the volume.
- Set the display status:
  - If you enable **Display On**, the display exits the sleep mode.
  - If you disable **Display On**, the display enters the sleep mode.
- Manage a program and schedule by hovering to reveal action icons:

- Deploy: Click  to deploy the program or schedule.
- Edit: Click  to edit the program or schedule.
- Export: Select a non-editable program, and click  to export the program, materials and schedule to the USB flash drive. During export, you can enable **Autoplay Program from USB Flash Drive**.
- Delete: Click  to delete the program.
- Stop: Click  to stop the program.

- Export/Import data:
  - Insert a USB flash drive into the device and click **Import** to import all programs, materials and the schedule in the USB flash drive to the device.
  - Insert a USB flash drive into the device and click **Export** to export all programs, materials and the schedule.

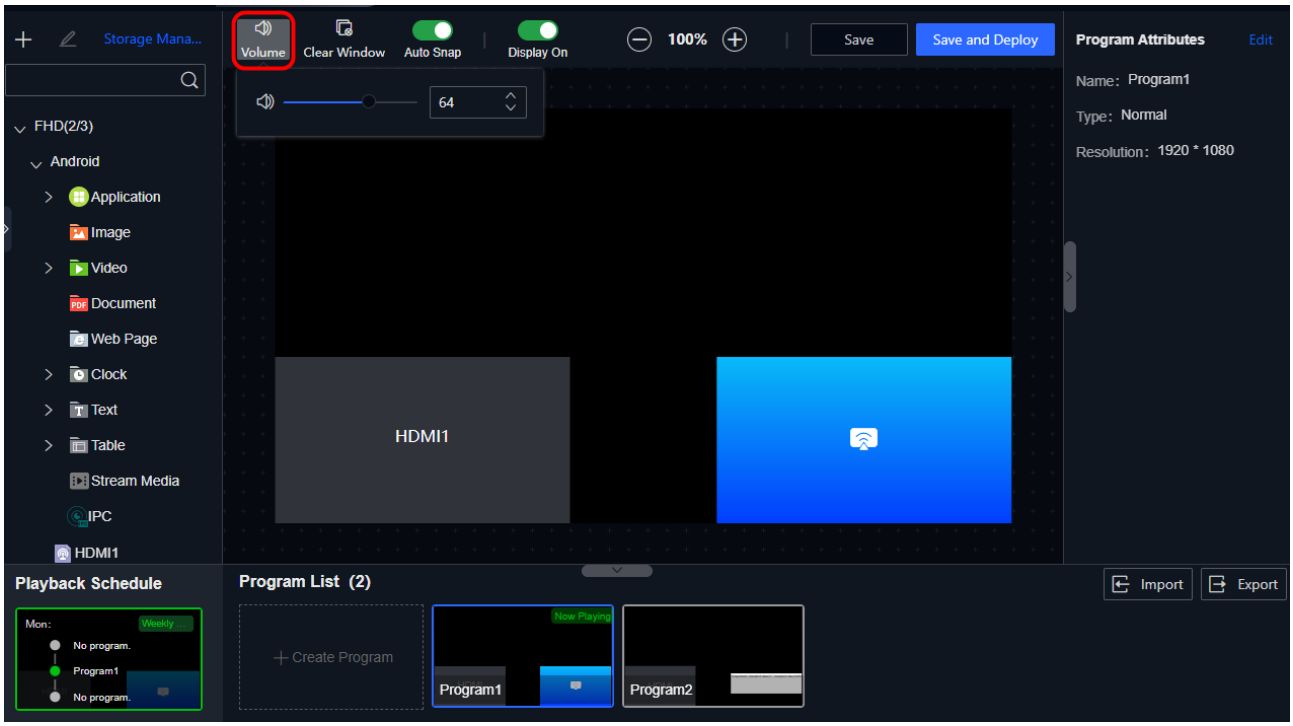

Figure 6-34 Manage Program

Note

- Only USB flash drives in FAT32 format are supported.
- Do not remove the USB drive until the system prompts that the import or export operation is complete, as this may cause data loss.

6.3.6 Manage Materials

Material Type

- Normal program: Support application, signal source, image, video, document, web page, clock, text, table, stream media, IPC, and music materials.
- Ultra-wide/tall program: Support image, text, clock, and music materials.

Common Material Operations

- Adjust the window position: Select the material window, and then drag with left mouse button or directly enter position coordinates.
- Adjust the window size: Drag window edges, enter width/height values, or double-click to fill the program sub-window (double-click again to restore original size).

Set Specific Material Parameters

After selecting the target material in the program window, you can configure its parameters.

- WonderCast material: Enable **Keep Projection Code Visible** as required.
- Signal source material:
  - Manually set the resolution or enable **Resolution Self-Adaption**.
  - Enable audio. Each program can output only one audio source.

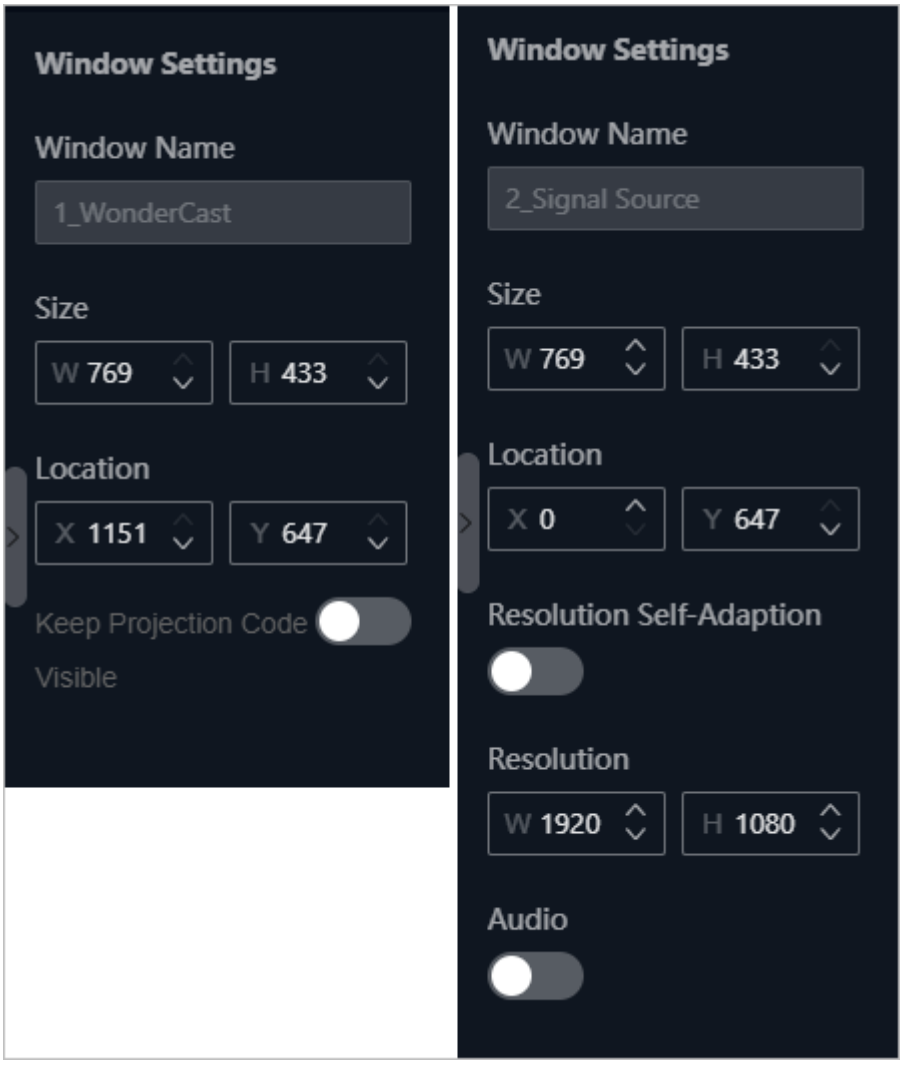

Figure 6-35 Configure Application/Signal Source Material

- Image and video materials:
  - Click **Add More Materials** to upload the locally saved images or videos, or to select the images or videos from the material library.
  - Click and hold ☰ to adjust the playing order of the image or video.
  - Set an interval for each image.
  - Adjust the corner radius of the image window.
  - Audio track rule: Only one material (video, streaming media, or IPC) is allowed to output audio per program. The first such material dragged into the window will have its audio track automatically enabled. To switch, select the target material and manually enable **Use Audio Tracks**.
- PDF file material: Set the page interval in the range of 10 to 120 seconds.

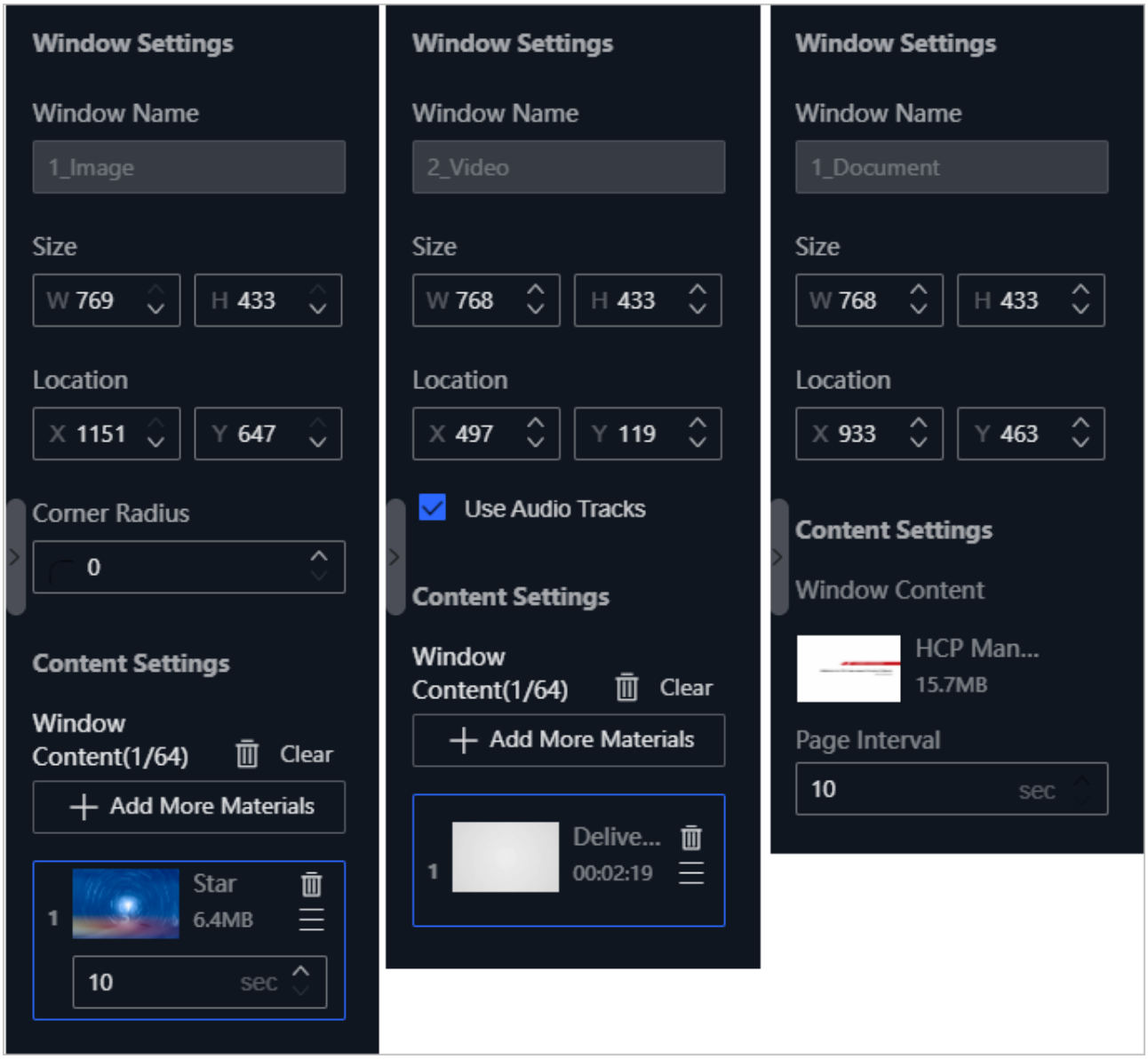

Figure 6-36 Configure Image/Video/PDF File Material

- Web page material: Set the webpage refresh interval.
- Stream media and IPC materials: Only one material (video, streaming media, or IPC) is allowed to output audio per program. The first such material dragged into the window will have its audio track automatically enabled. To switch, select the target material and manually enable **Use Audio Tracks**.

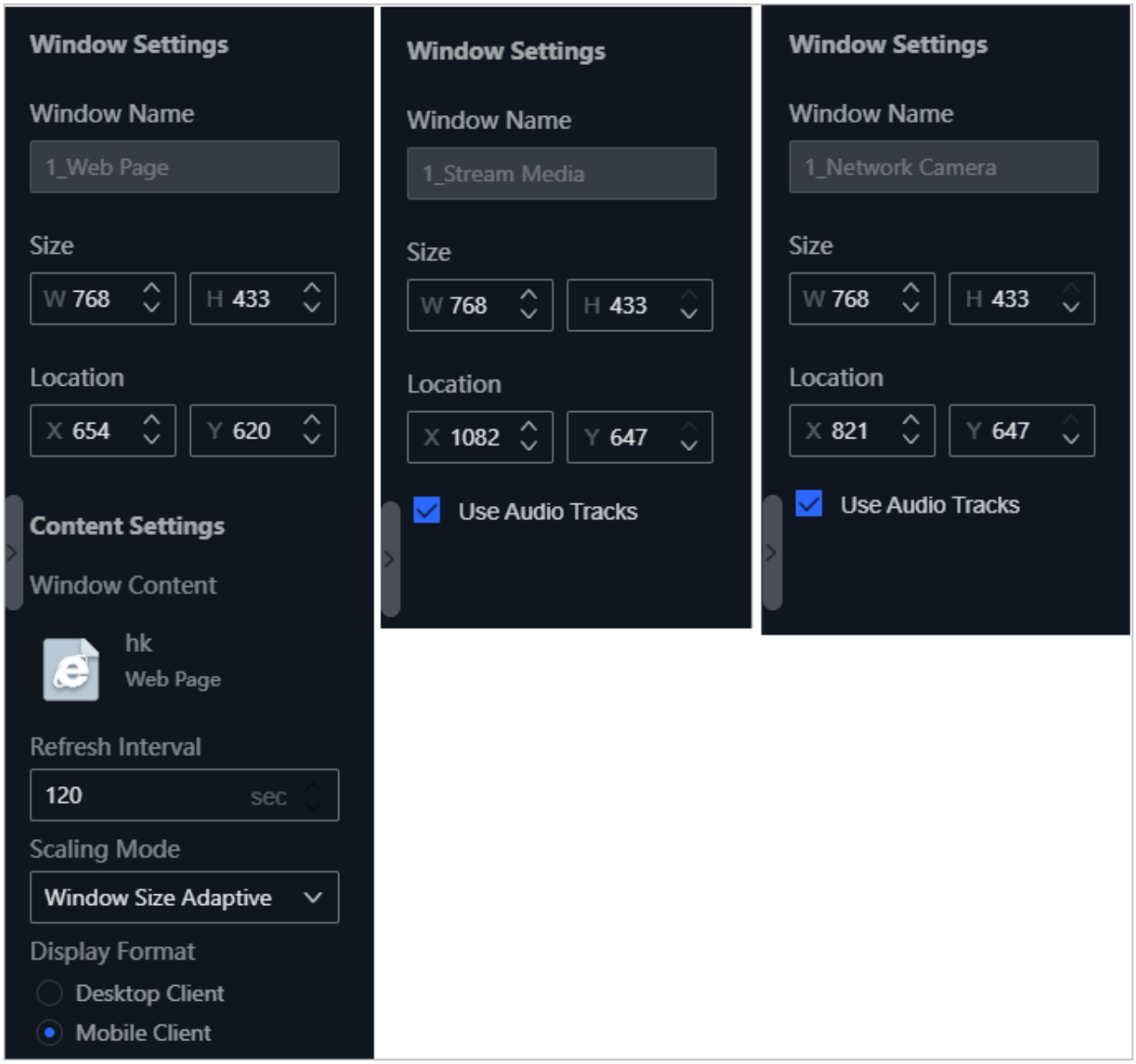

Figure 6-37 Configure Webpage/Stream Media/IPC Material

- Clock material:
  - Supports 7 types of clocks. One program allows only one clock.
  - Click to hide the clock template and time.
  - Edit the clock template, font size, and font color.

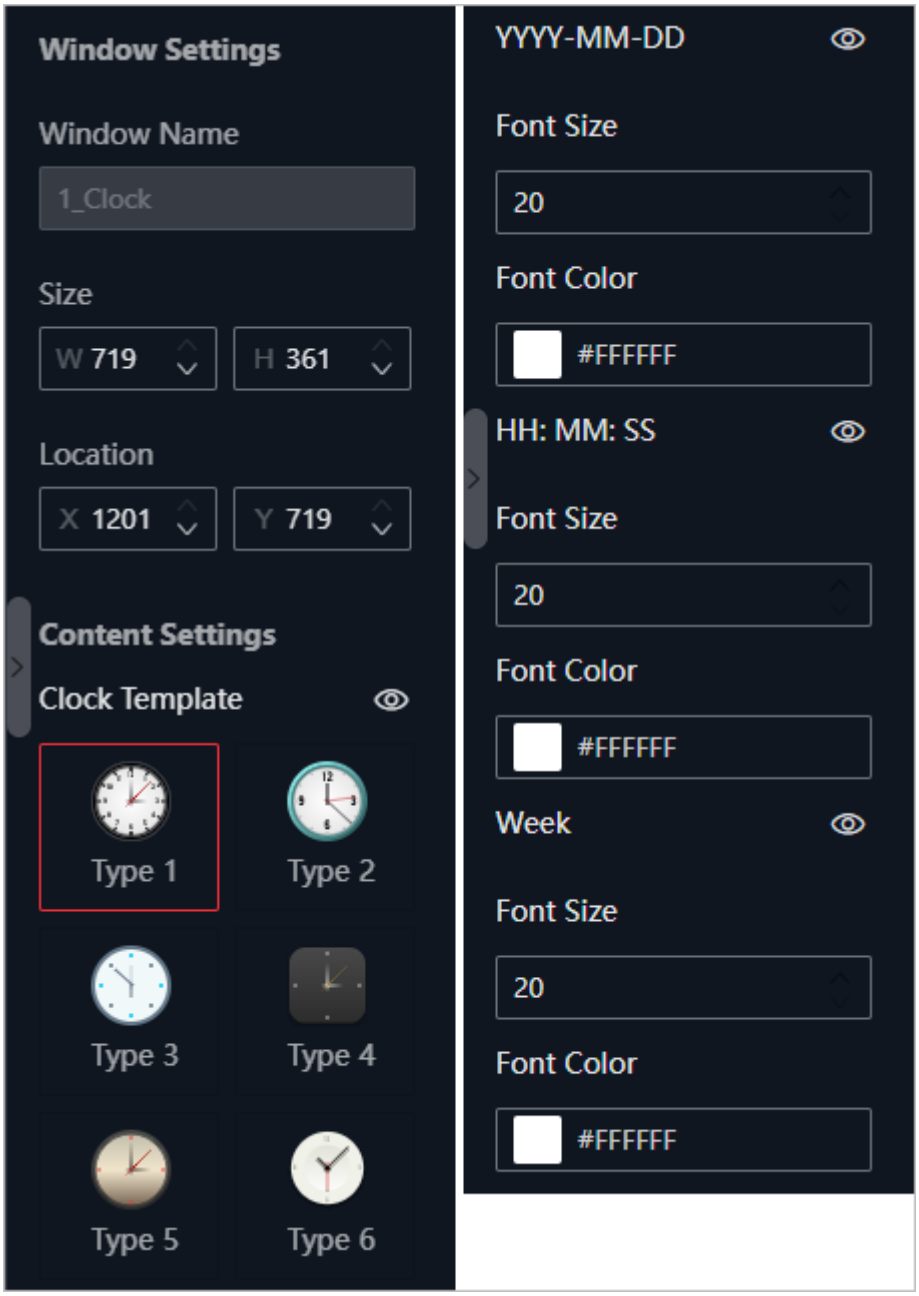

Figure 6-38 Configure Clock Material

- Text material:
  - Static text: Enter content, and configure text vertical offset, basic style, stroke, shadow, background, and border.
  - Dynamic text: In addition to static text settings, you can also set the scrolling direction and speed.
  - IoT text: In addition to static text settings, you can bind an IoT status. The text content cannot be modified. To make changes, go to the **IoT Configuration** page and modify the action properties.

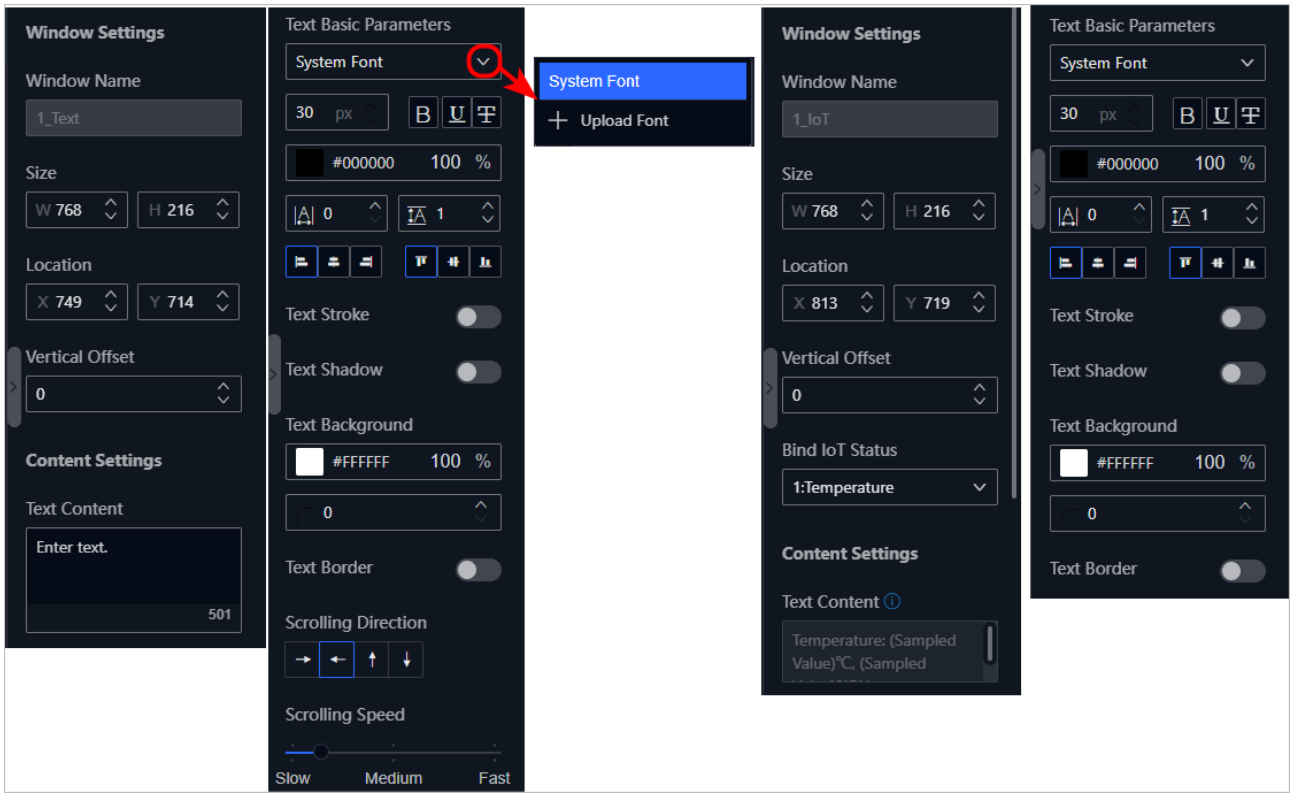

Figure 6-39 Configure Dynamic Text/IoT Text

- Table material: Click **Edit Table** to edit the table content and style in the pop-up window.

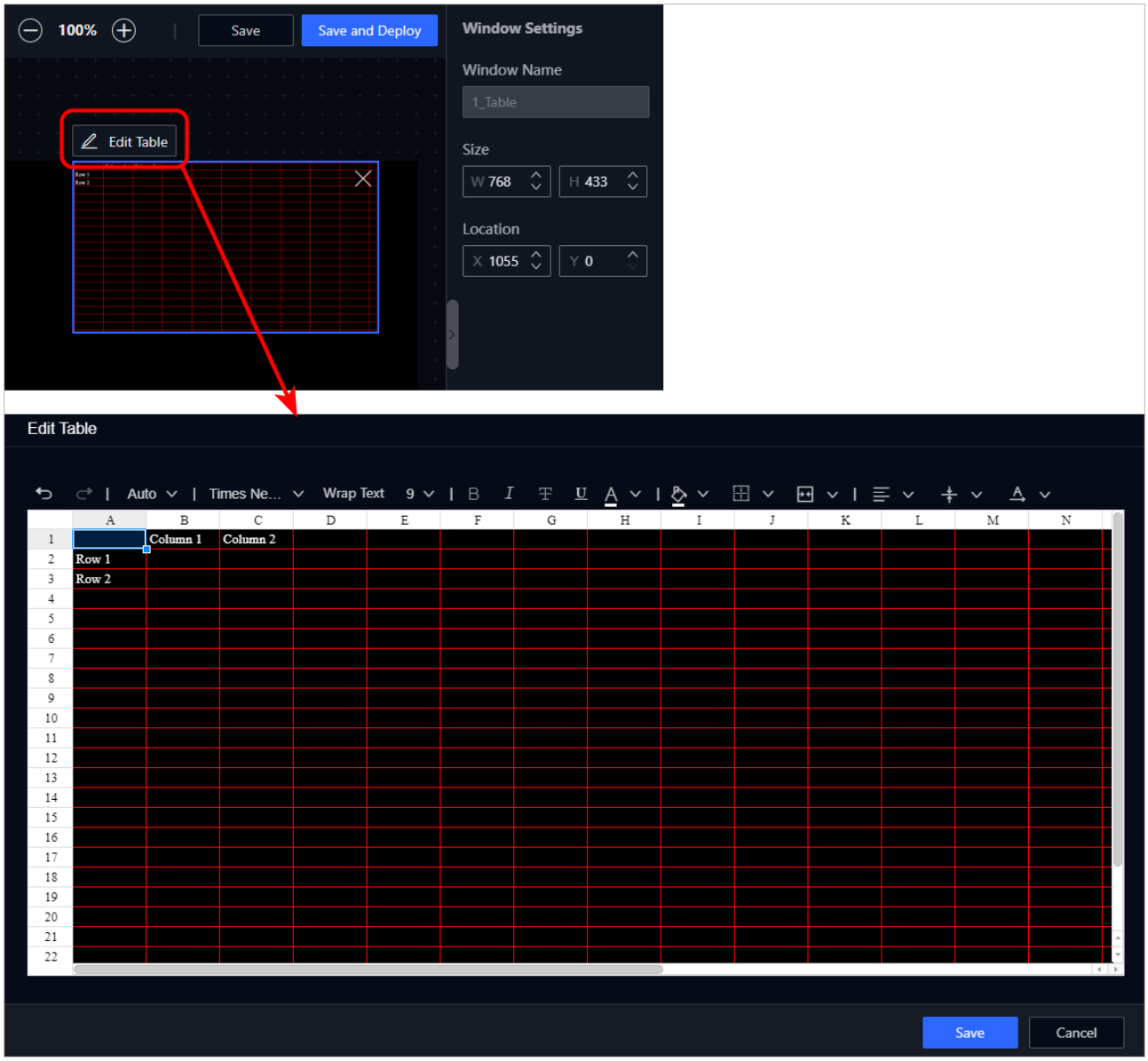

Figure 6-40 Manage Clock Material

Delete Materials

Step 1 Use either of the following methods to access the **Storage Management** interface.

- Navigate to **Device Maintenance** > **Settings** > **Storage Management**.
- On the **Content Control** page, click **Storage Management**.

Step 2 Check the materials to delete or select all unused materials.

Note

All materials are displayed on both the internal storage page and external storage page.

Step 3 Click **Delete**.

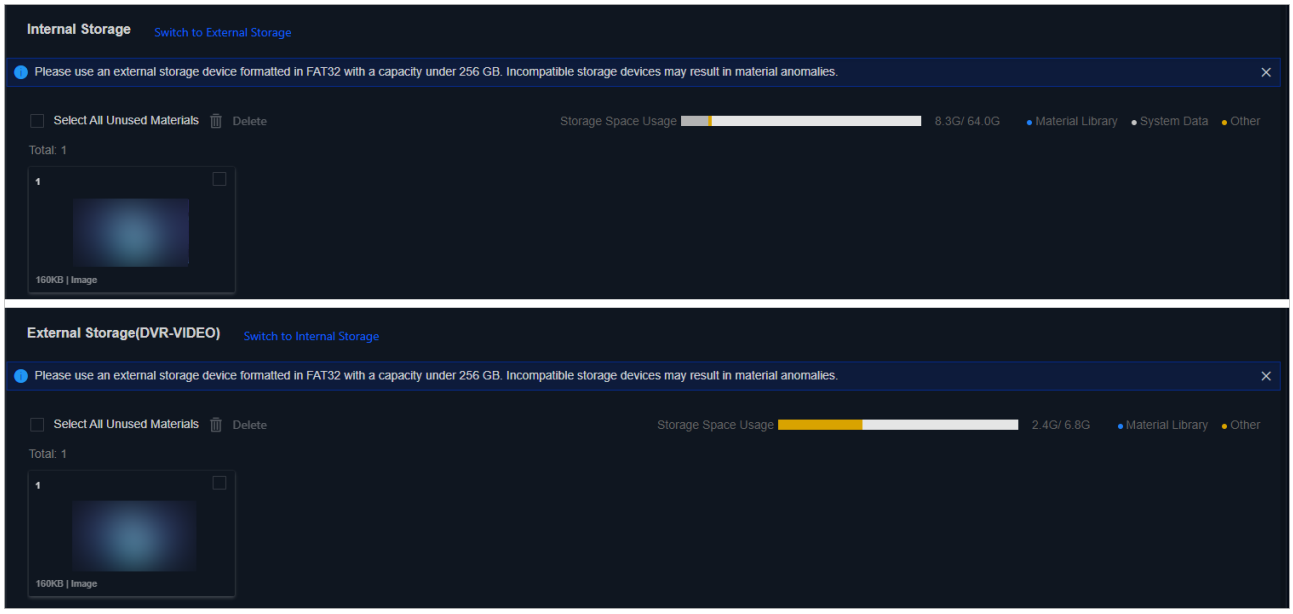

Figure 6-41 Storage Management Page

Chapter 7 Display Parameters Configuration

7.1 Configure Calibration Parameters

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device or display, and navigate to **Display Optimization > Calibration**.

Step 2 Enable brightness/chroma calibration.

Step 3 Drag the mouse to select the display or press Ctrl+A to select the display, and choose either of the following methods to load the calibration file:

- Load the calibration file from the LED module. For details, see "7.1.1 Load Calibration File from LED Modules".
- Load the calibration file from the cloud and import it online. For details, see "7.1.2 Load Calibration File Online".
- Load the calibration file from the cloud and import it offline. For details, see "7.1.3 Load Calibration File Offline".

Step 4 After the calibration file is loaded, if the display effect does not meet your requirements, perform the following steps:

1) In the **Test/Location** window, enable **Display Test**.
2) Select solid color, gray scale gradient, line, dots, or grid to check whether the display color is normal and whether dead pixels exist.

Note

If the existing solid color does not meet the requirements, click  to add a new color. You can edit and delete the newly added color.

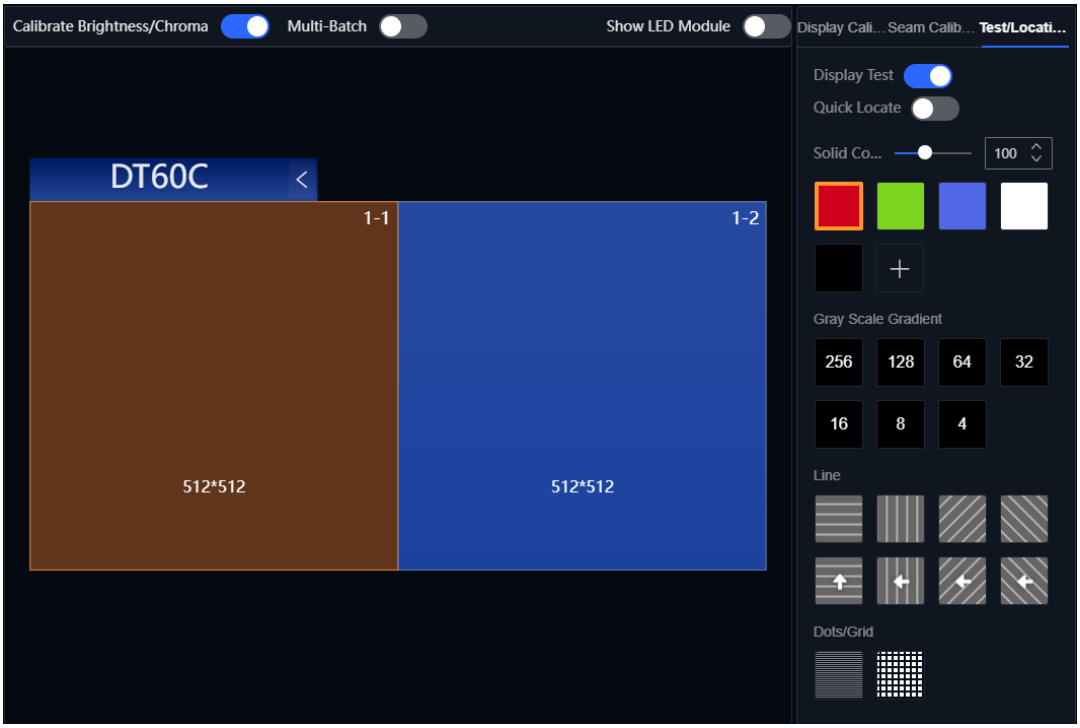

Figure 7-1 Test/Location Window

3) In the **Test/Location** window, enable Quick Locate.
4) Manually calibrate the display based on the abnormal type:
   - If the display color is abnormal, manually calibrate the display. See "7.1.4 Manually Calibrate Display".
   - If bright or dark seams exist, manually calibrate the seams. See "7.1.5 Manually Calibrate Seams".

Step 5 If the display effect still does not meet your requirements after performing the preceding steps, contact the equipment supplier for assistance:

1) Select the display, right-click and choose **Import/Export Calibration File**, and click **Export** to export the current calibration file.
2) Send the exported calibration file to the equipment supplier, who will modify it and send it back.
3) After receiving the modified calibration file, select the display, right-click and choose **Clear Calibration Data** to clear the current calibration data.
4) Right-click and choose **Import/Export Calibration File**, click **Import** and then **Live View** in turn, to load the modified calibration file from the local computer and check the effect.
5) If the display effect meets your requirements, right-click and choose **Import/Export Calibration File**, click **Import** and then **Save** in turn, to complete the final loading.

7.1.1 Load Calibration File from LED Modules

Important

Only some models of LED modules contain calibration files. If the selected LED module cannot store calibration data, this function is unavailable.

Steps

Step 1 Drag the mouse to select the display or press Ctrl+A to select the display, and load the LED module calibration file using either of the following methods:

- Click **Load Calibration File from LED Modules** in the **Display Calibration** window.
- Right-click and choose **Load Calibration File from LED Modules** from the right-click menu.

Step 2 Click **Live View** in the pop-up window to check the display effect.

Step 3 After verifying the effect, click **Save**.

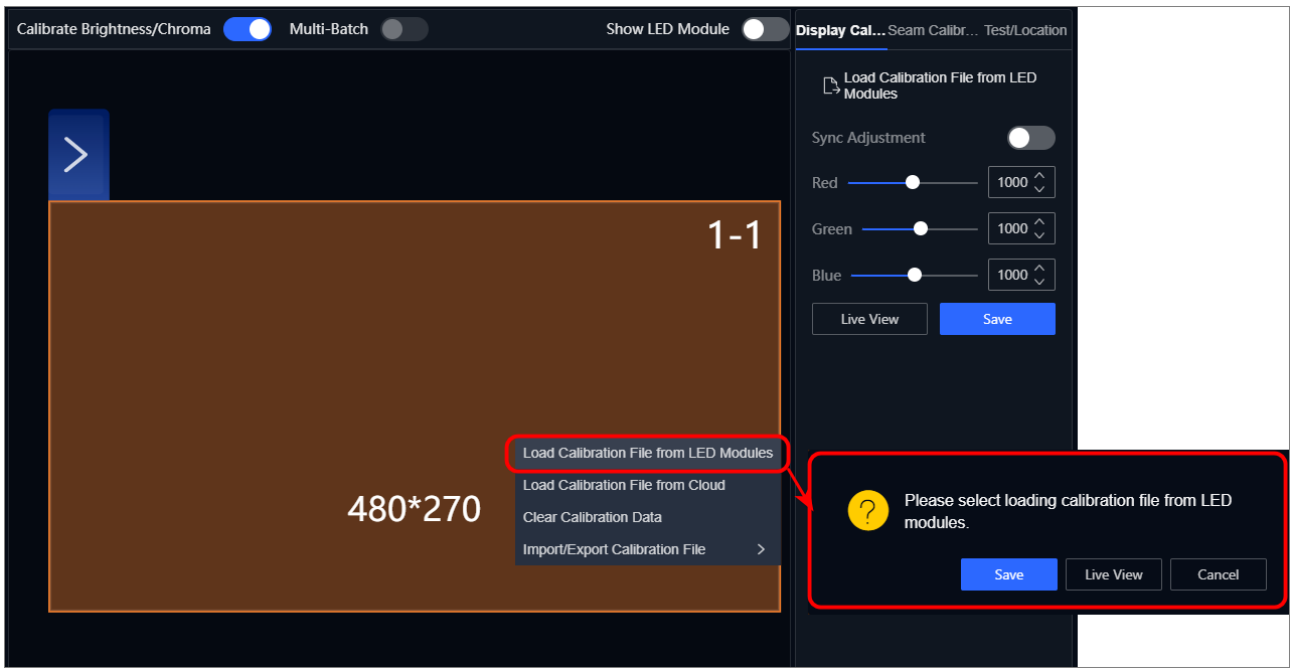

Figure 7-2 Load Calibration File from LED Modules

7.1.2 Load Calibration File Online

An internet connection is required when loading a calibration file online. Drag the mouse to select the display or press Ctrl+A to select the display, right-click and choose **Load Calibration File from Cloud**, and the system will automatically retrieve and import the calibration file from the cloud.

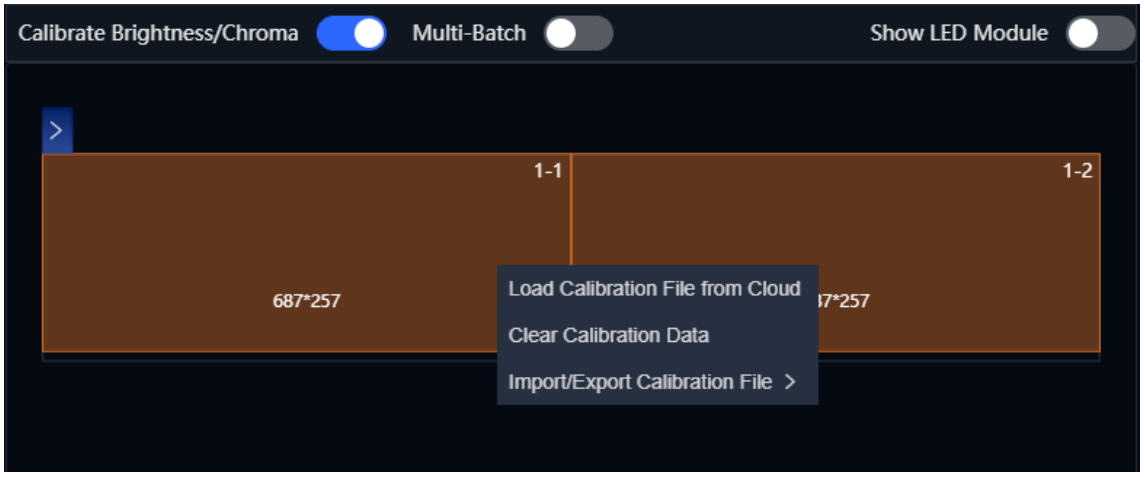

Figure 7-3 Load Calibration File from Cloud

7.1.3 Load Calibration File Offline

With this method, you need to first obtain the LED module serial numbers, retrieve and download the calibration file from the cloud with an internet connection, and then import the calibration file offline. This method is applicable to scenarios where the on-site network is unstable, or where the calibration file needs to be downloaded in advance for subsequent offline import.

Step 1 Enable **Show LED Module**.

Step 2 Drag the mouse to select all LED modules or press Ctrl+A to select all LED modules, right-click and choose **Export LED Module SN** to export the serial numbers to a file.

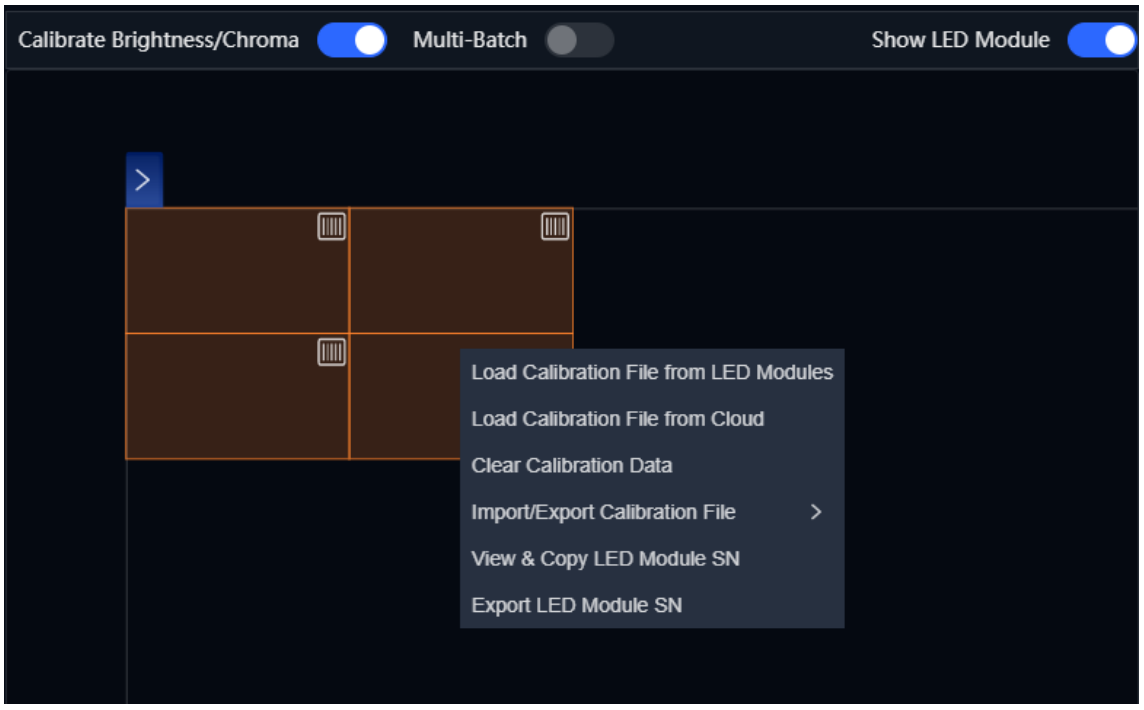

Figure 7-4 Export LED Module SN

Note

- Hover the mouse over an LED module to view its serial number.
- To copy an LED module serial number, right-click and choose **View & Copy LED Module SN**.

Step 3 Go to the **Tools** menu in the upper-right corner of the client, and open **Cloud File Search**.

Step 4 On the **LED Module Configuration File** page, select **Local LED Module SN File** as the search method, upload an SN file, and click **Search**.

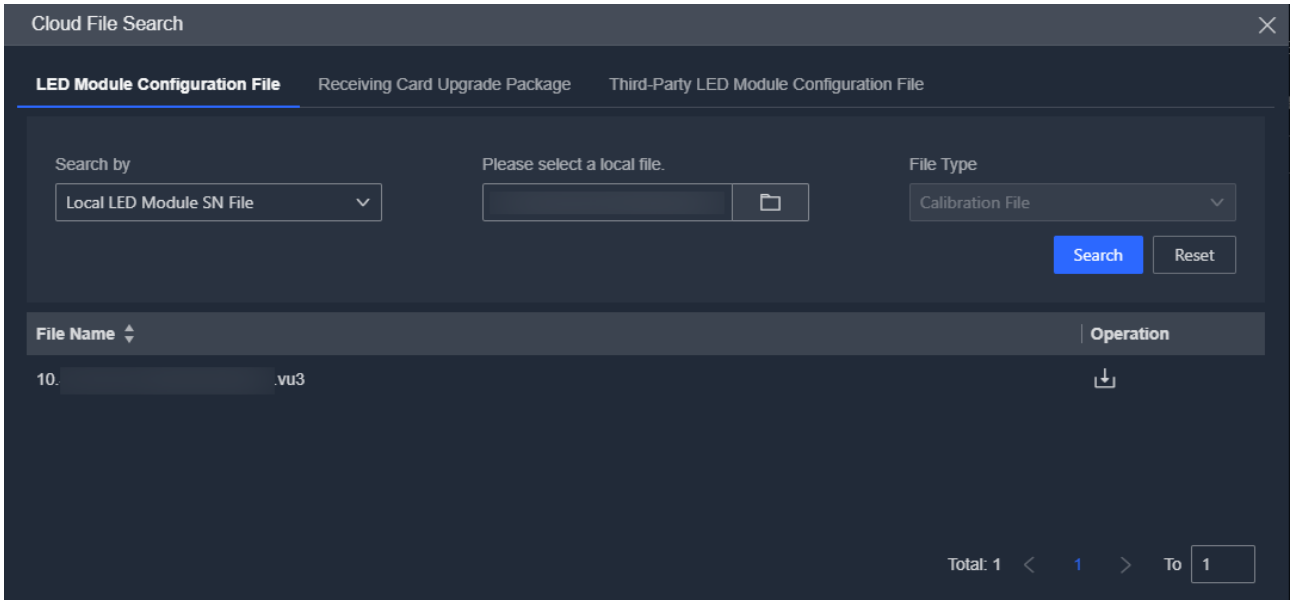

Figure 7-5 Use Local LED Module SN File

Step 5 In the retrieval results, download the calibration file to the local computer.

Step 6 Select the display, right-click and choose **Import/Export Calibration File**, click **Import** and then **Live View** in turn, to load the file from the local computer and check the loading effect.

Step 7 If the display effect meets your requirements, select the display, right-click and choose **Import/Export Calibration File**, click **Import** and then **Save** in turn, to complete the loading of the calibration file.

7.1.4 Manually Calibrate Display

Step 1 Select the cabinets or display where the display color is abnormal.

Step 2 In the **Display Calibration** window, adjust the RGB values in per mille in either of the following ways:

- Adjust the red, green, and blue values separately.
- Enable **Sync Adjustment** to adjust the red, green, and blue values simultaneously.

Step 3 Click **Live View** to verify the effect.

Step 4 After verifying the effect, click **Save**.

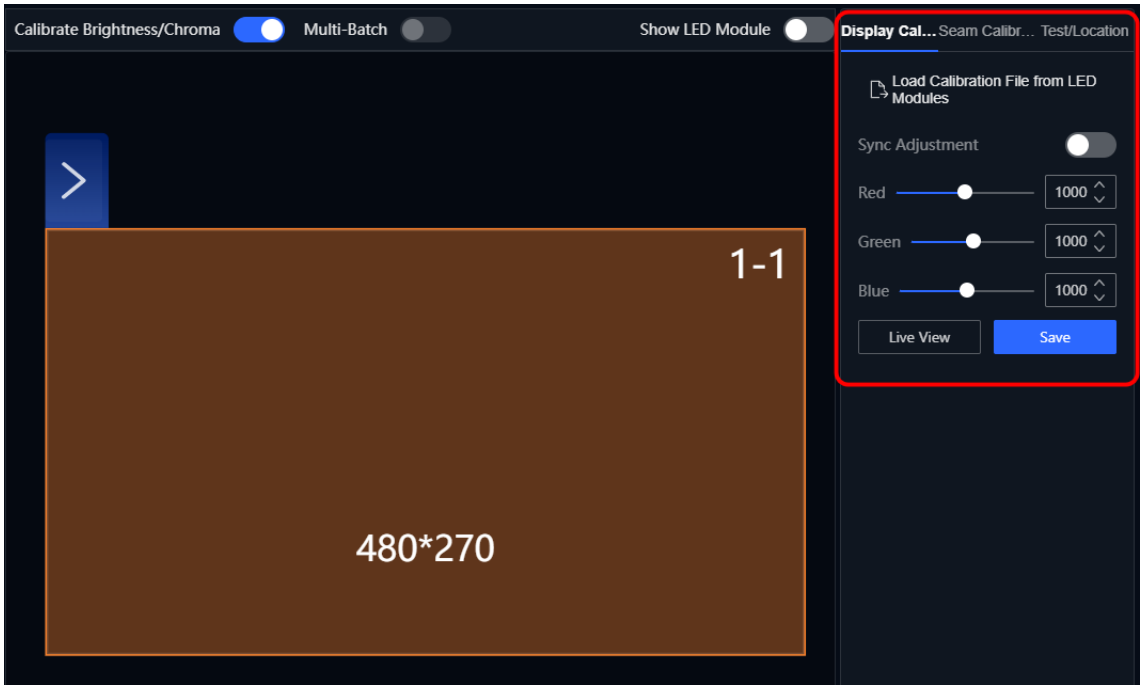

Figure 7-6 Manually Calibrate Display

7.1.5 Manually Calibrate Seams

Step 1 Enable **Show LED Module**.

Step 2 Click **Seam Calibration**.

Step 3 Select the cabinets or display where bright or dark seams exist, and set the calibration range (All, Vertical, or Horizontal) and seam width.

Step 4 Adjust the RGB values in per mille in either of the following ways:

- Adjust the red, green, and blue values separately.
- Enable **Sync Adjustment** to adjust the red, green, and blue values simultaneously.

Step 5 Click **Live View** to verify the effect.

Step 6 After verifying the effect, click **Save**.

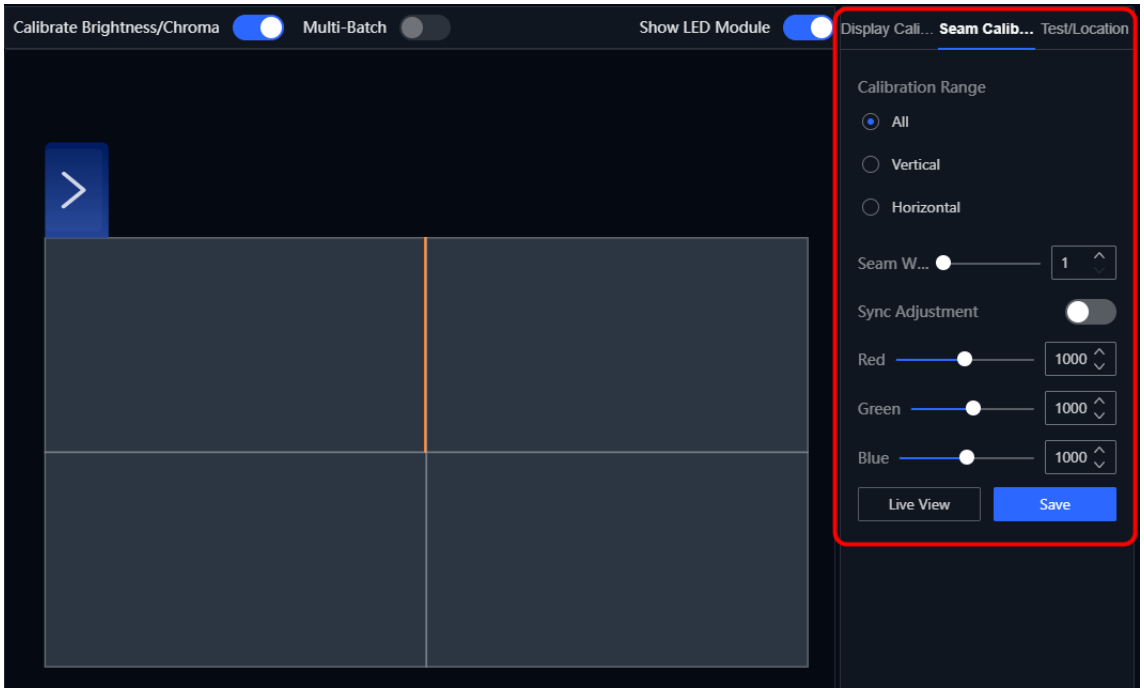

Figure 7-7 Manually Calibrate Seams

7.2 Configure Source Parameters

7.2.1 Signal Source Parameters

Applicable Devices

All series of LED controllers except for the DS-DT30B-01NO and DS-TC01. The DS-DT30B-01NO and DS-TC01 devices do not have an HDMI port and therefore do not support configuring source parameters.

Steps

Step 1 Select an LED controller, and navigate to **Image Control > Source Management**.

Step 2 Click a signal source to adjust the following parameters:

- All series of LED controllers support editing EDID parameters.
- Only 4K signal sources (HDMI2.0, SDI and DP) of the DT90 series LED controllers support HDR configuration. See “HDR Functionality”.
- Only DT60 and DT90 series LED controllers support image cropping. See “Input Image Crop”.
- Only DT90 series LED controllers with version 1.1 or above support overriding input source information. See “Input Source Override”.
- The C/B-series LED controllers only show the connected signal sources and V/P-series LED controllers show all signal sources.

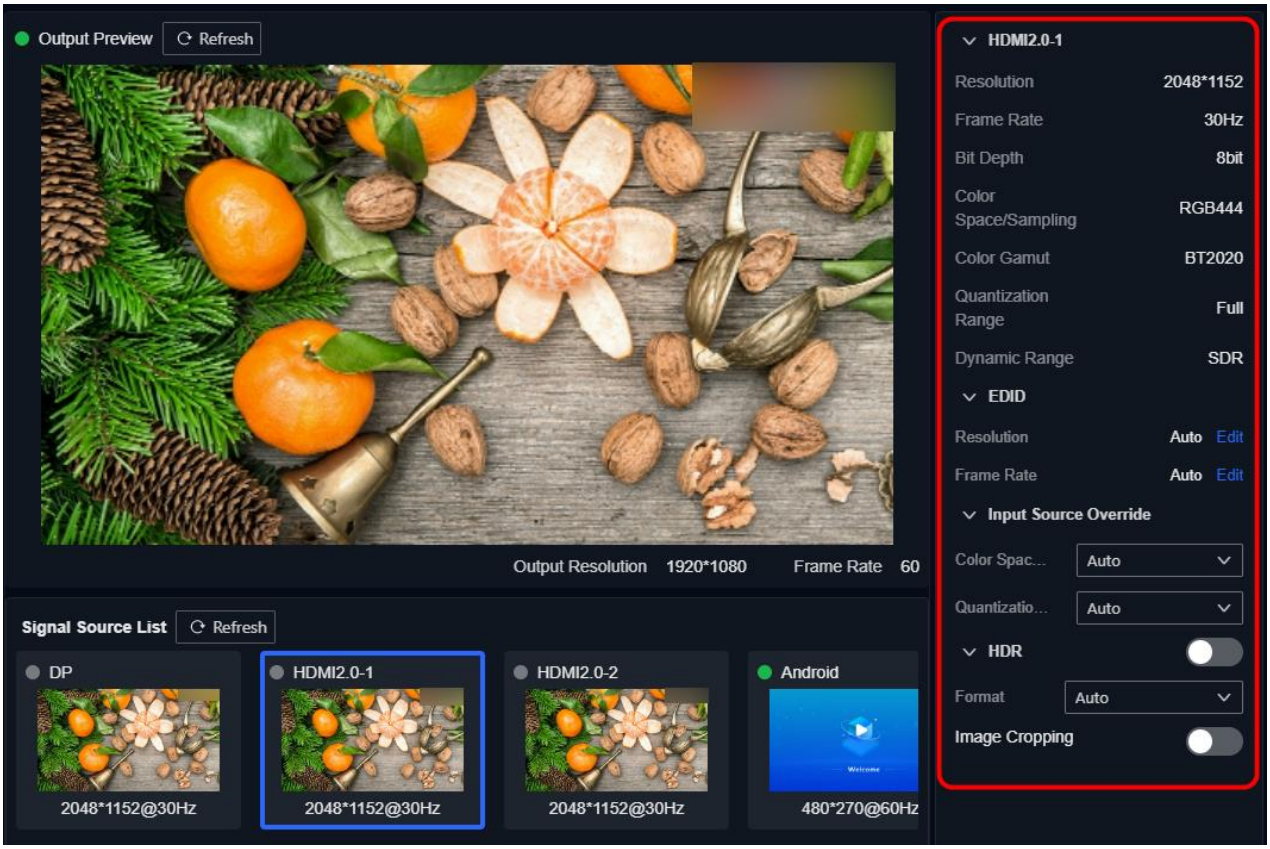

Figure 7-8 Configure Signal Source Parameters (DT90P Series)

7.2.2 HDR Functionality

Applicable Devices

4K sources (HDMI 2.0, SDI, and DP) of the DT90 series LED controllers.

Important

- After enabling HDR, ensure the display's receiving card supports HDR effects to view HDR content on the display.
- The device will only activate HDR processing when the signal source conditions, output bit depth, and HDR format meet the requirements listed in the table below. Otherwise, the device will output SDR content.

Table 7-1 HDR Processing Rules

Signal Source Conditions	Output Bit Depth Setting	HDR Format Selection	Output Effect
10-bit + HDR video	Auto/10-bit	Auto/HDR10	HDR10 output
10-bit + HDR video	Auto/10-bit	HLG	HLG mode output
10-bit + Non-HDR video	Auto/10-bit	Auto/HLG	HLG mode output
Non-10-bit + HDR video	10-bit	Auto/HLG	HLG mode output

Steps

Step 1 On the **Source Management** page, set the image bit depth to **Auto** or **10 Bit**.

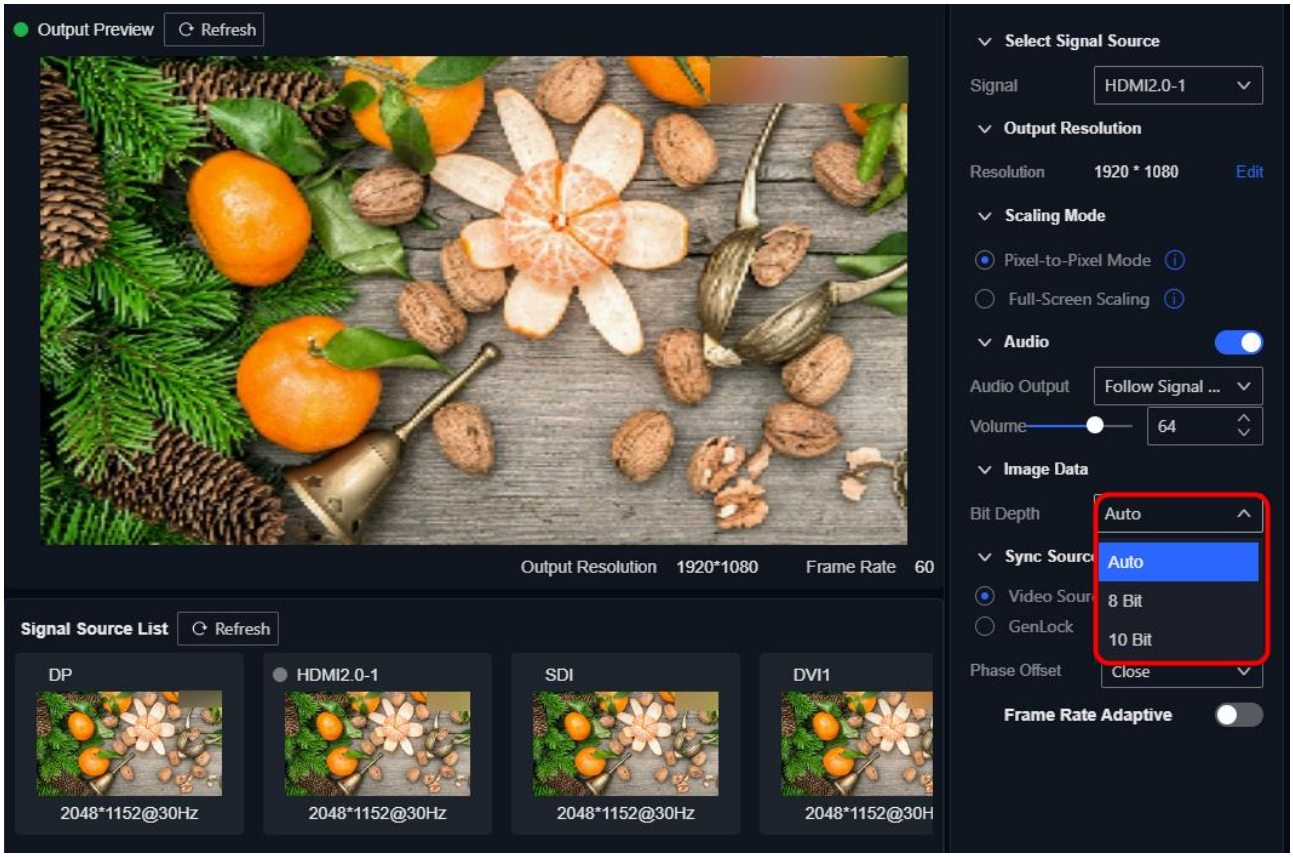

Figure 7-9 Configure Image Bit Depth

Step 2 On the **Source Management** page, select a 4K signal source, enable HDR, and select the format.

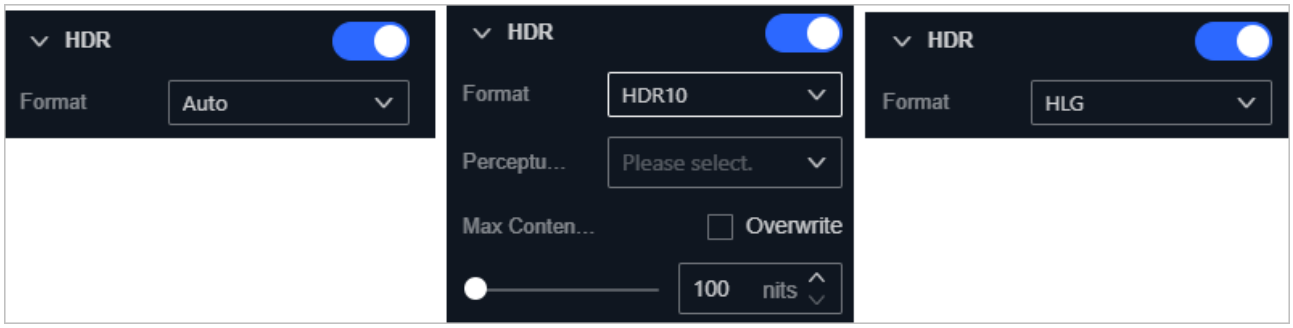

Figure 7-10 Configure HDR Functionality

7.2.3 Input Image Crop

Applicable Devices

DT60 and DT90 series LED controllers.

Steps

Step 1 Enable **Image Cropping**.

Step 2 Select a constraint ratio.

Step 3 Set the crop area:

- Free ratio mode: Drag the border directly in the input image preview to adjust its position and size, or enter the X (horizontal start point) and Y (vertical start point) coordinate values.
- Fixed ratio mode: Drag the border directly to adjust the position, or enter the X and Y coordinate values.

Step 4 Enter the width and height values for the crop area.

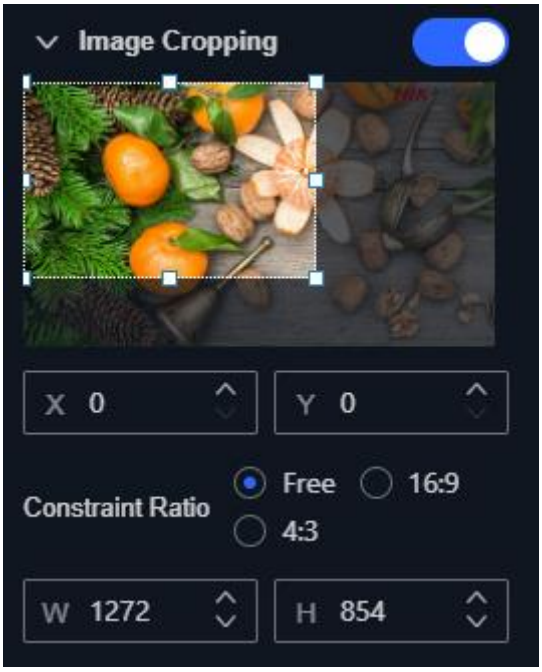

Figure 7-11 Crop Input Image

7.2.4 Input Source Override

Applicable Devices

DT90 series LED controllers with version 1.1 or above.

Function Description

This feature can be used to manually set input signal parameters to correct display abnormalities in the following scenarios:

- Color deviation occurs on the display.
- The LED controller incorrectly auto-detects the input source information, resulting in an overly dark/bright image or abnormal colors.

- A specific signal source device's signal format needs to be forcibly matched.

Steps

Select the color space/sampling and quantization range based on the type of signal source device:

Signal Source Device Type	Recommended Color Space/Sampling	Recommended Quantization Range	Description
Computers, graphics cards	RGB	Full Range	Suitable for direct connection to computer-based devices to ensure accurate colors and normal contrast.
Set-top boxes, cameras, video conferencing equipment	YUV422	Limited Range	Suitable for broadcasting and video devices to ensure signal compatibility and stable image output.
Professional imaging equipment (high-quality scenarios)	YUV444	Auto or Limited Range	Suitable for professional production environments requiring extreme color accuracy.
Uncertain or general scenarios	Auto (Recommended)	Auto (Recommended)	The LED controller auto-detects the settings, suitable for most situations.

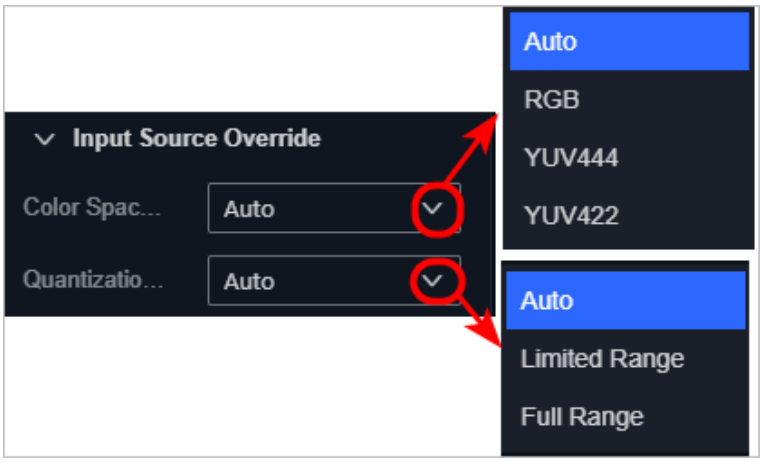

Figure 7-12 Overwrite Input Source

7.2.5 Output Parameters

Applicable Devices

- Devices that support configuring output parameters: All series of LED controllers.

- Devices that support viewing output resolution and frame rate: All series of video wall controllers.

Steps

Select an LED controller and navigate to **Image Control > Source Management** to set the output parameters. The output preview image auto-refreshes at 5 seconds.

- Select a signal source: Choose a specific source or AUTO mode (automatically switches to the latest connected source).
  - Only C/B-series LED controllers and V/P-series LED controllers in sync mode support this function.
  - Only 2K C-series devices do not support AUTO mode.
- Set USB storage playback: After enabling USB storage playback, the system will automatically loop through video and image files in the root directory of the USB drive.
  - Applicable devices: DT90P, DT60B/P, DT30V/B/P, and certain DS-TB/U series LED controllers.
  - Only FAT32-formatted USB drives are supported.

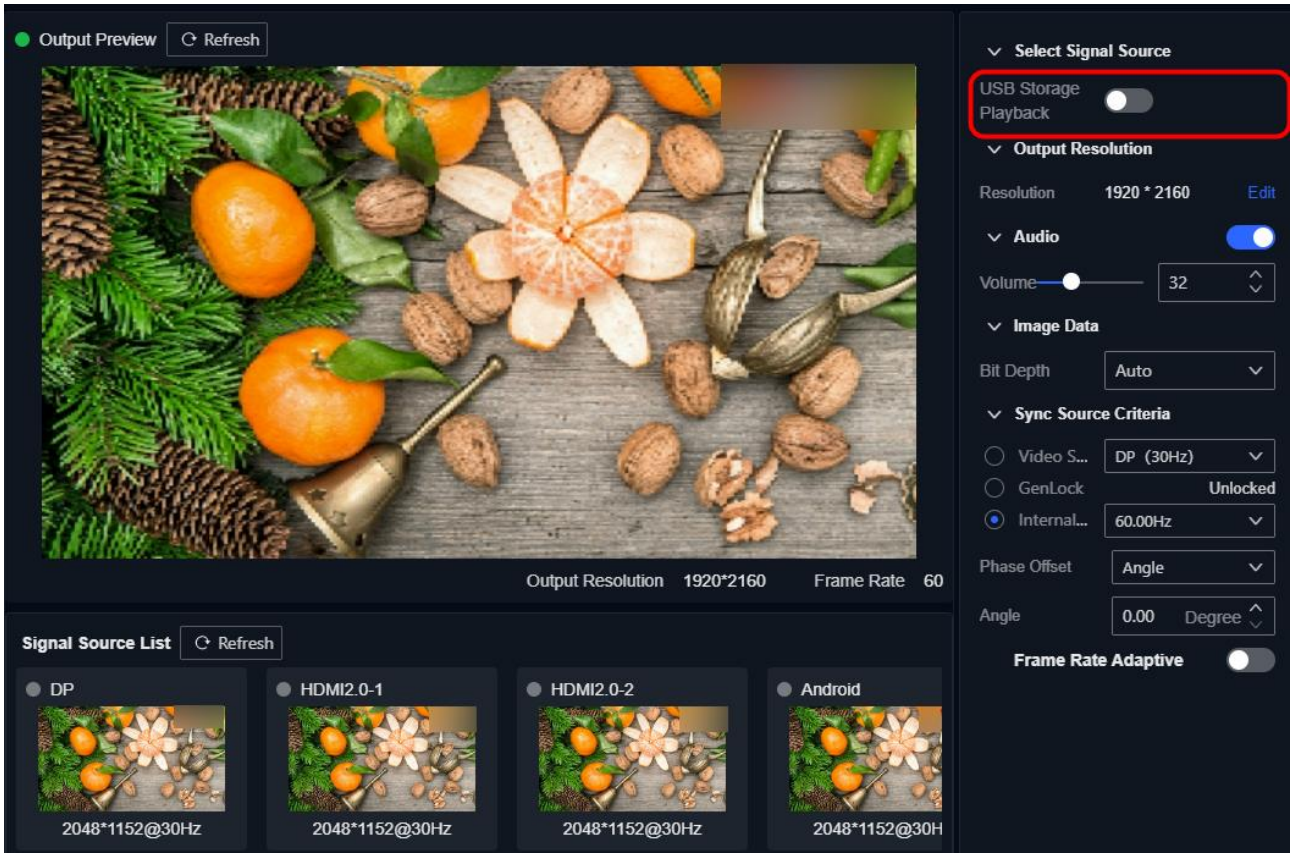

Figure 7-13 USB Storage Playback (DT90P Series)

- Set the resolution: Click **Edit** to manually adjust the output resolution.
- Select a scaling mode: Choose **Pixel-to-Pixel Mode** or **Full-Screen Scaling** as needed. Only C/B-series LED controllers and V/P-series LED controllers in sync mode support this function.

- Frame rate auto-adaption: Enable **Frame Rate Adaptive**.

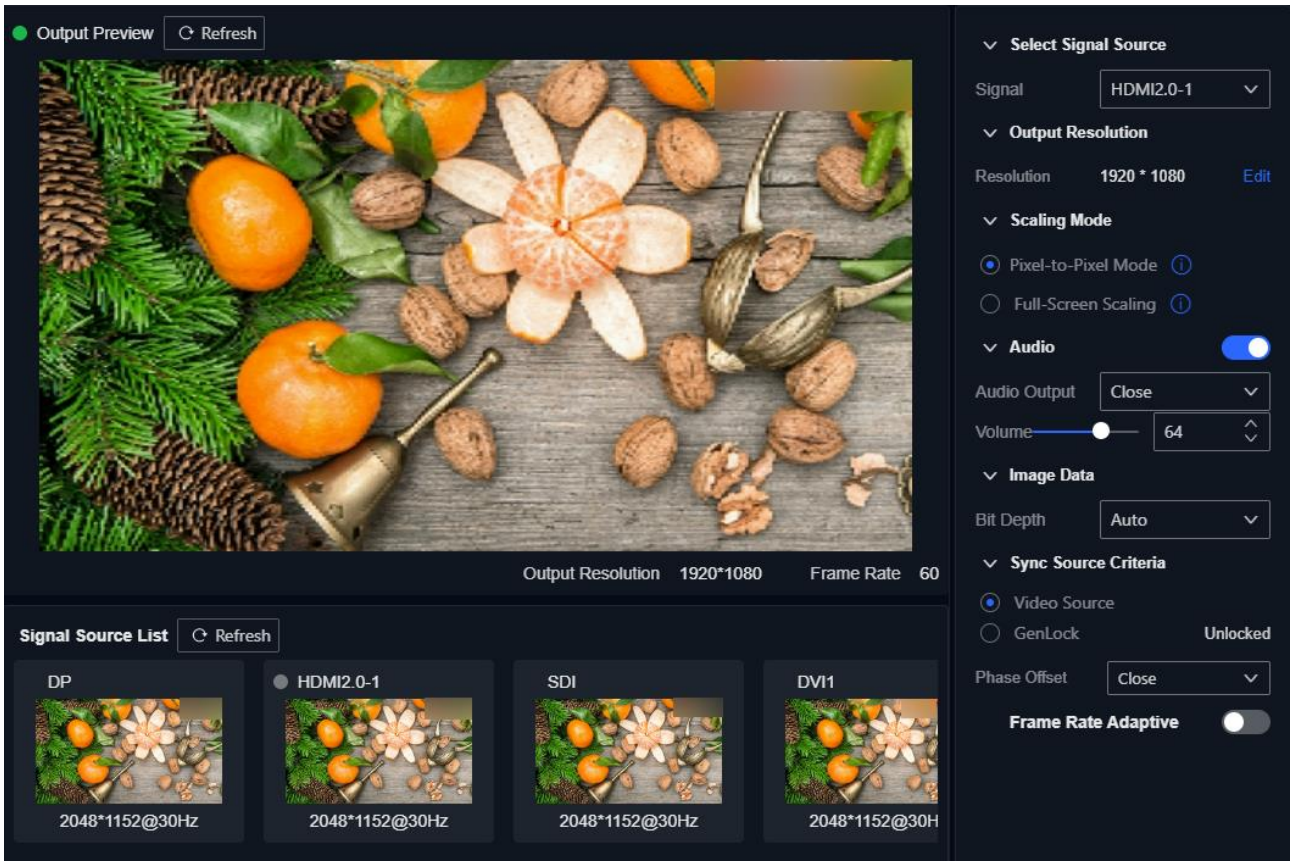

Figure 7-14 Source Management Page (DT90C Series)

- Adjust the audio:
  - All series LED controllers: Control volume or disable audio output.
  - V/P/U series LED controllers: Select an audio source to be output.



Figure 7-15 Configure Audio (DT90P Series)

- Set 3D LUT function: When the receiving card supports the 3D LUT function, you can import the 3D LUT file into the client and enable **3D LUT** to add color filter effects to the display.



Figure 7-16 Configure 3D LUT

- Set 3D display function: Before enabling **3D Display**, connect the device to a 3D sync signal transmitter first:
  - 4K C/B-series LED controllers: Connect to the 3D sync signal transmitter via a multi-function card.
  - DT90C/V/P series LED controllers: Connect directly to the 3D sync signal transmitter.

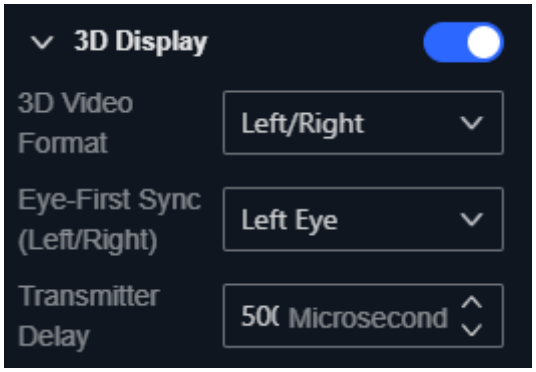

Figure 7-17 Configure 3D Display

7.2.6 Source Synchronization Function

Applicable Devices

DT90V/P series LED controllers.

Function Description

This function utilizes frame-level synchronization technology to resolve timing issues in multi-device collaboration scenarios, primarily applied in:

- Multi-screen splicing: Eliminates image tearing between LED cabinets.
- Heterogeneous input sources: Synchronizes signals from diverse video sources (e.g., cameras, computers).
- Professional production: Integrates with Genlock signals for studio-grade applications (e.g., broadcast studios).

Steps

Step 1 Select the synchronization reference source:

- **Internal**: Uses the LED controller's built-in 60 Hz clock. Choose this mode when a single LED controller drives one LED display. This mode can avoid microsecond-level timing deviations in multi-controller environments.
- **Video Source**: Synchronizes with the input signal's timing. Used for live broadcasts (concerts/conferences), multi-source switching systems, or non-standard timing devices (e.g., gaming consoles).
- **Genlock**: Locks to an external sync generator's pulse for nanosecond-level precision. Used for studio multi-screen systems (e.g., TV studios). Before selecting Genlock, connect the required devices as follows:

1) Connect the Genlock transmitter to the GENLOCK IN port of the first LED controller.
2) Connect the GENLOCK OUT of each controller to the GENLOCK IN of the next.
3) Repeat until all controllers are chained.

Step 2 Set the phase offset:

- **Off**: No adjustment (immediate synchronization by default).
- **Angle**: Enter degrees (1°≈ 0.28 ms @60 Hz) for fine delay calibration within a cycle.
- **Score**: Enter a percentage to quickly align devices with different frame rates.
- Absolute Value: Enter rows and pixels. The system calculates the delay for precise fixed-duration control.

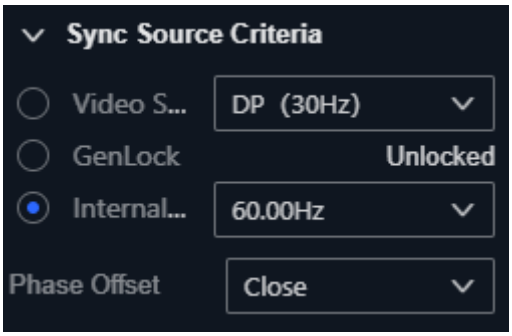

Figure 7-18 Sync Source Criteria

7.3 Configure Image Effect

7.3.1 Configure Display Effect

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device or display, and navigate to **Display Optimization > Display Effect**.

Step 2 Click **Display Test** to check the display color and dead pixels:

- Automatic detection: Enable **Auto Switch Test Pattern** to cycle through all test images (including solid colors, gray scale, lines, dots, and grid).
- Manual detection: Manually select a test image. The custom solid color can be added, modified or deleted.

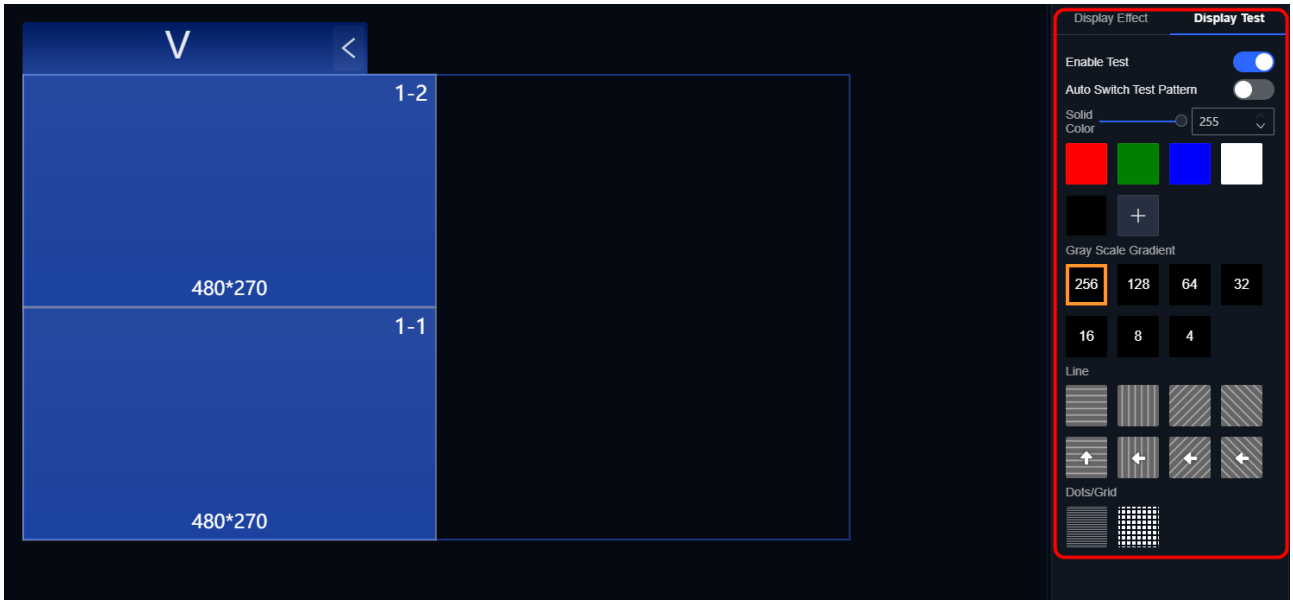

Figure 7-19 Test Display

Step 3 Adjust the basic parameters:

1) Select a preset mode.
2) Adjust the brightness value:
   - Manual adjustment: Drag the brightness slider or enter a value directly.
   - Automatic adjustment: After the device is connected to a light sensor, and the light sensor parameters are configured in the **IoT Configuration** page, auto mode is available. Click **Configuration** to enter the **Sensor Settings** page for auto-brightness configuration.
3) Set energy saving parameters:
   - Enable **Eye Protection Mode** to reduce brightness and power consumption.
   - Enable **Dynamic Energy Saving** and set the strength coefficient. Only certain receiving cards support this function.

Step 4 If the preset mode and basic parameters do not meet display requirements, configure the following advanced parameters:

- Enable thermal compensation when prolonged operation causes display abnormalities due to temperature rise (supported only by DT60/DT90 series LED controllers and certain receiving cards):

1) Import the thermal compensation file:
   - For a single device: Select the device, and click **Local Import** and **Import Thermal Compensation File**. The system will automatically enable thermal compensation.
   - For a display: Select the display and perform the same steps. If thermal compensation is not enabled automatically, enable it manually.
2) Adjust the compensation ratio based on the actual display effect.

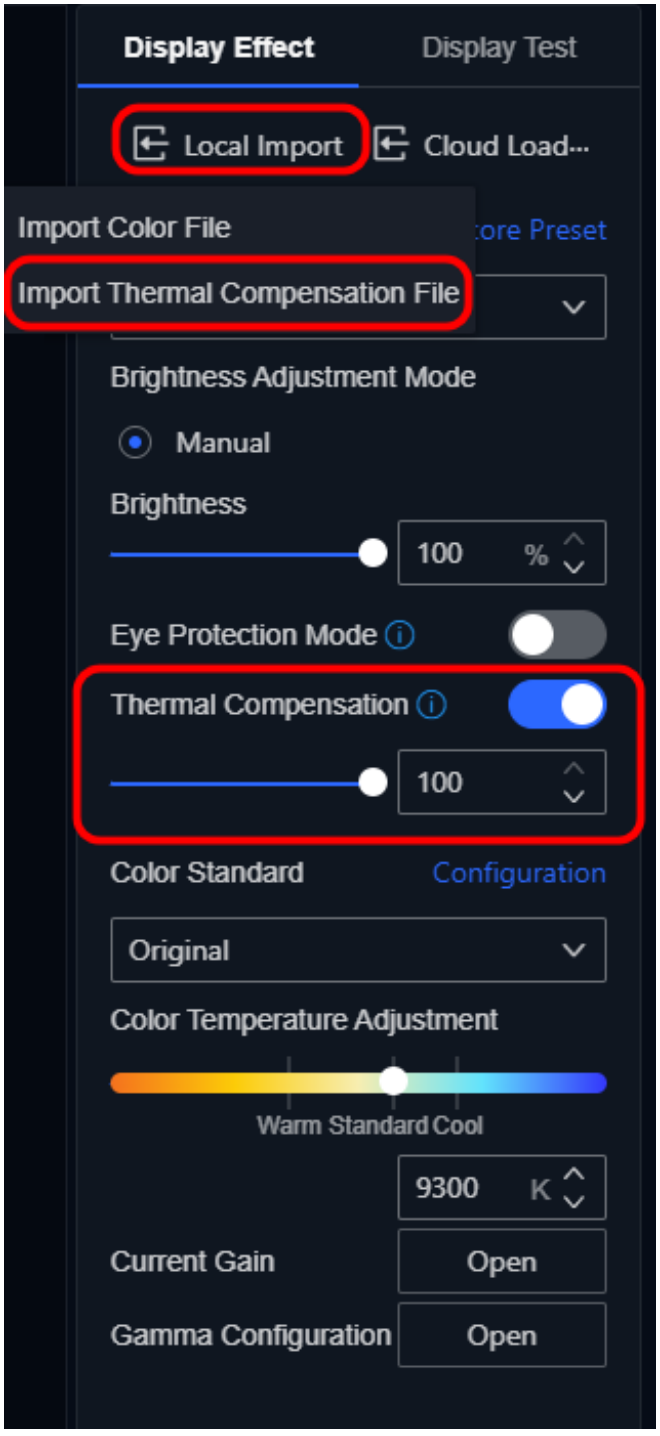

Figure 7-20 Configure Thermal Compensation

- Configure color gamut and color standard:

1) Select a color standard. If you want to select **Custom**, click **Configuration** and set the color standard.
   - Normal mode: Applicable to most LED controllers. Supports configuring target gamut standards and RGB values.



Figure 7-21 Select Color Standard (Normal Mode)

– Advanced mode: Supported only by DT30 series LED controllers with version V1.1 or above. To use this mode, first obtain the display original data using a colorimeter. It allows separate configuration of the RGB values and color temperature for both the original and target color gamuts, as well as the target gamut standard. Supports import and export of gamut parameter files.

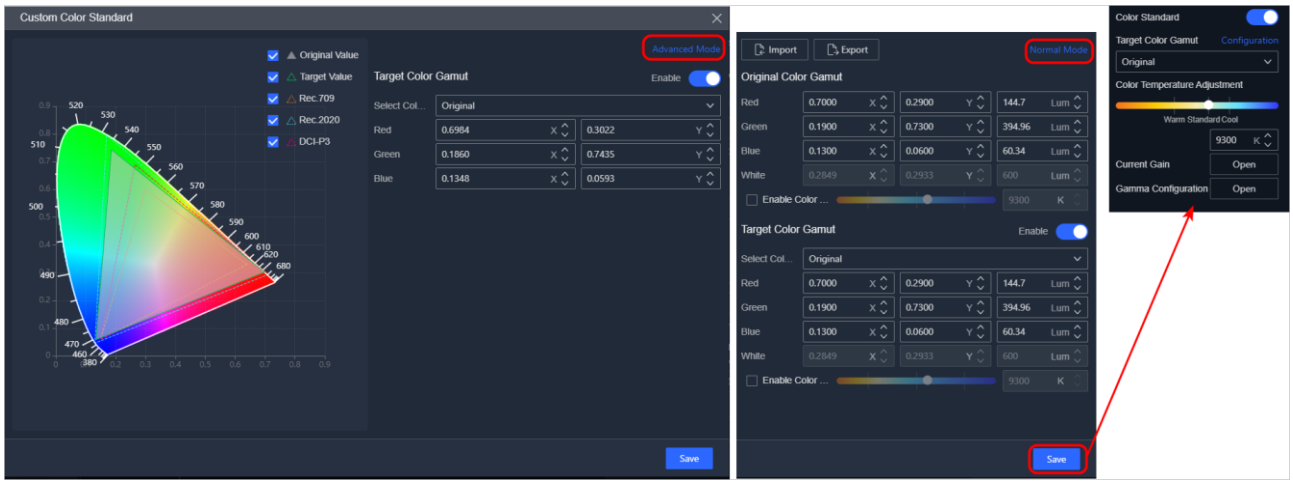

Figure 7-22 Select Color Standard (DT30 Series V1.1 Version)

2) Drag the color temperature slider directly on the **Display Effect** page.
3) Adjust the regional RGB values: Open **Current Gain**, select the areas, and adjust the RGB values.

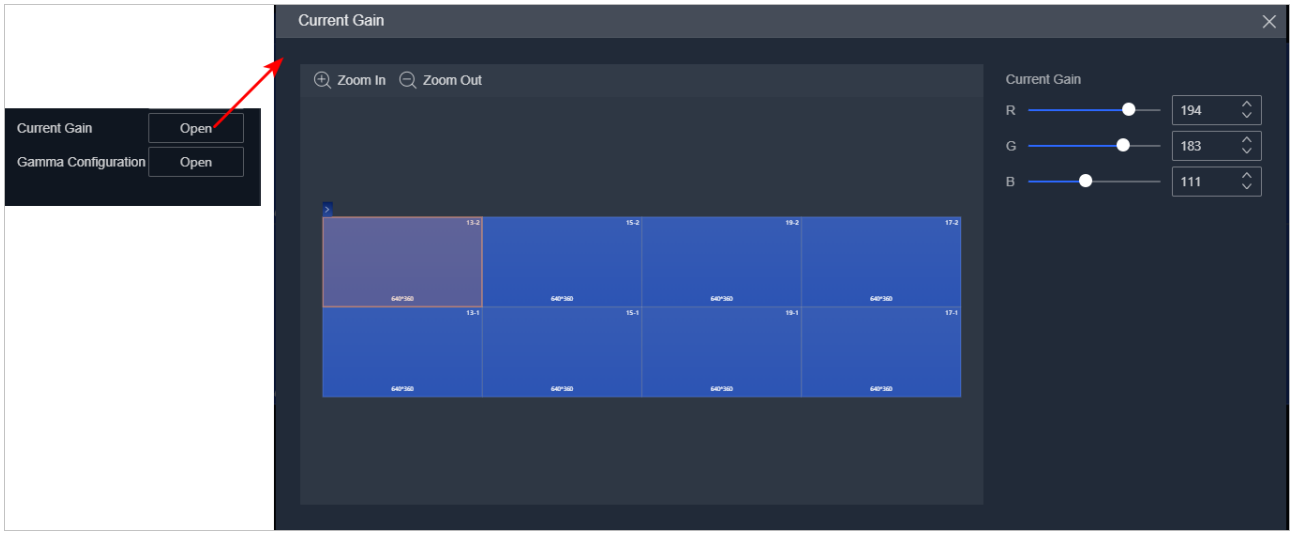

Figure 7-23 Current Gain Window

- Configure Gamma parameters:

1) Open **Gamma Configuration**.
2) Adjust contrast:
   - Adjust the Gamma coefficient: Lowering the coefficient can brighten dark details, while increasing it can enhance contrast.
   - Enable **Ultra-Low Gray Control** to improve contrast. Only some receiving cards support this feature.
3) Set the matching ambient brightness: When the ambient brightness is too high and causes low gray images to appear unclear, increase the ambient brightness appropriately.
4) Address the low-gray anomalies:
   - If low-gray flicker occurs or the quantization range is limited, adjust the initial brightness level. To adjust the quantization range, see “7.2.4 Input Source Override”.
   - If low gray is too dark, increase the initial brightness value.
   - If gray unevenness occurs, enable **Gray Scale Optimization**. If this function cannot be enabled, use the picture quality tool. For details, see “10.2.6 Use Picture Quality Tool”.

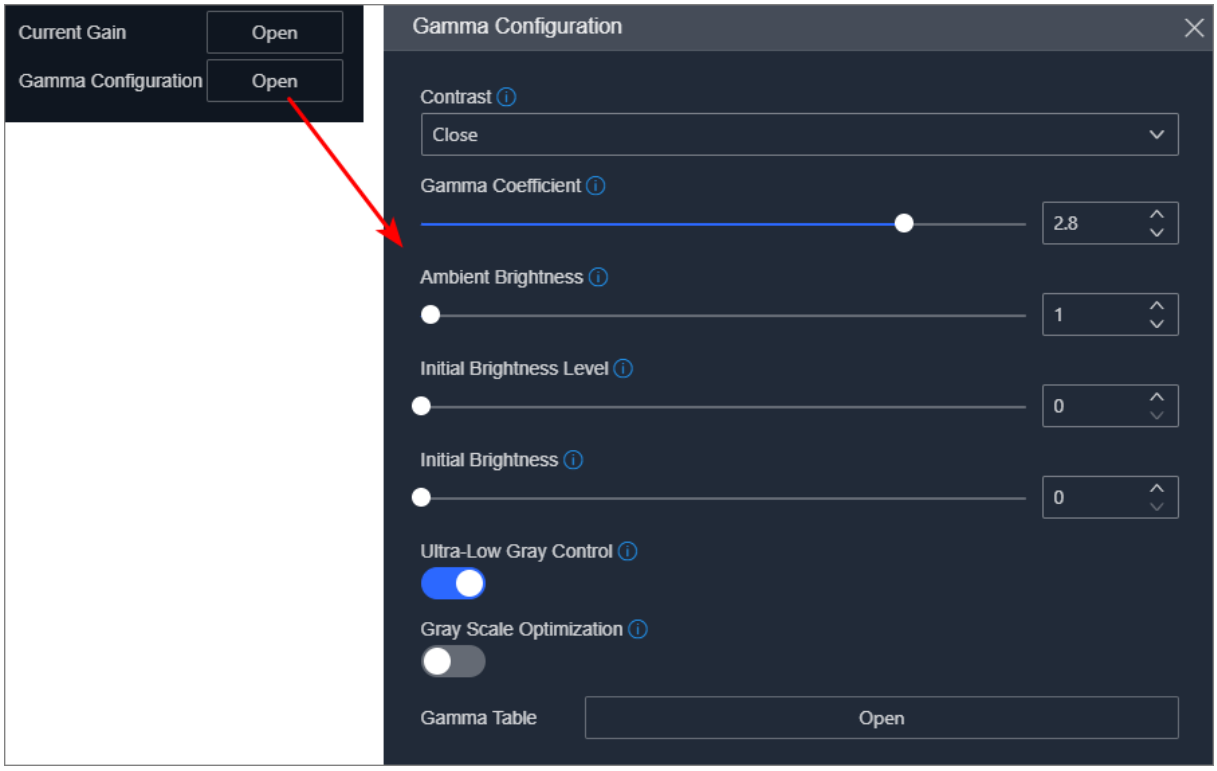

Figure 7-24 Gamma Configuration Window

Step 5 When a display is controlled by multiple devices, you can take the following steps to synchronize multi-device display effects:

1) Check consistency: Select devices one by one, open the **Gamma Table**, and verify if Gamma curves are consistent.
2) Export reference file: Select the device with the best effect and export its color file.

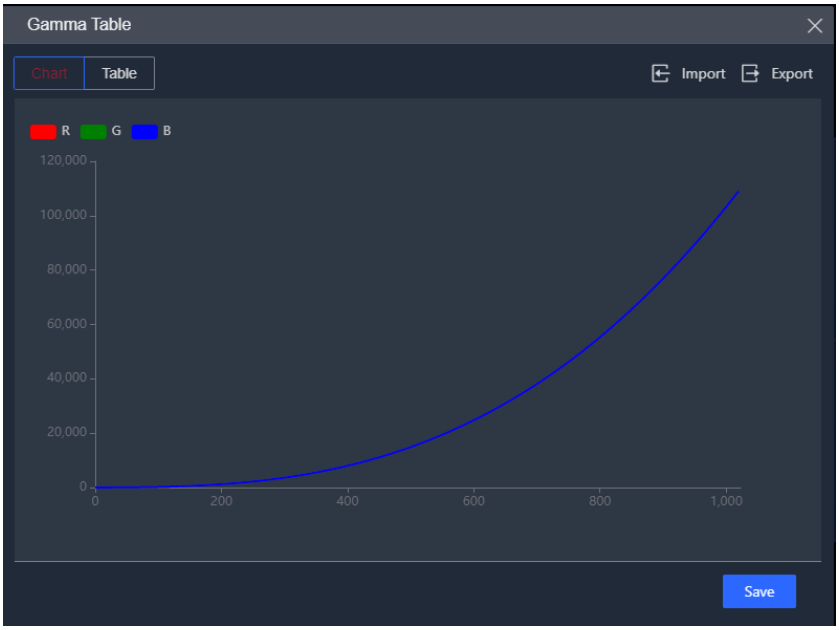

Figure 7-25 View Gamma Table

3) Batch apply: Select the display, open the **Gamma Table**, and click **Import** to apply the correct color file to all devices controlling the display.

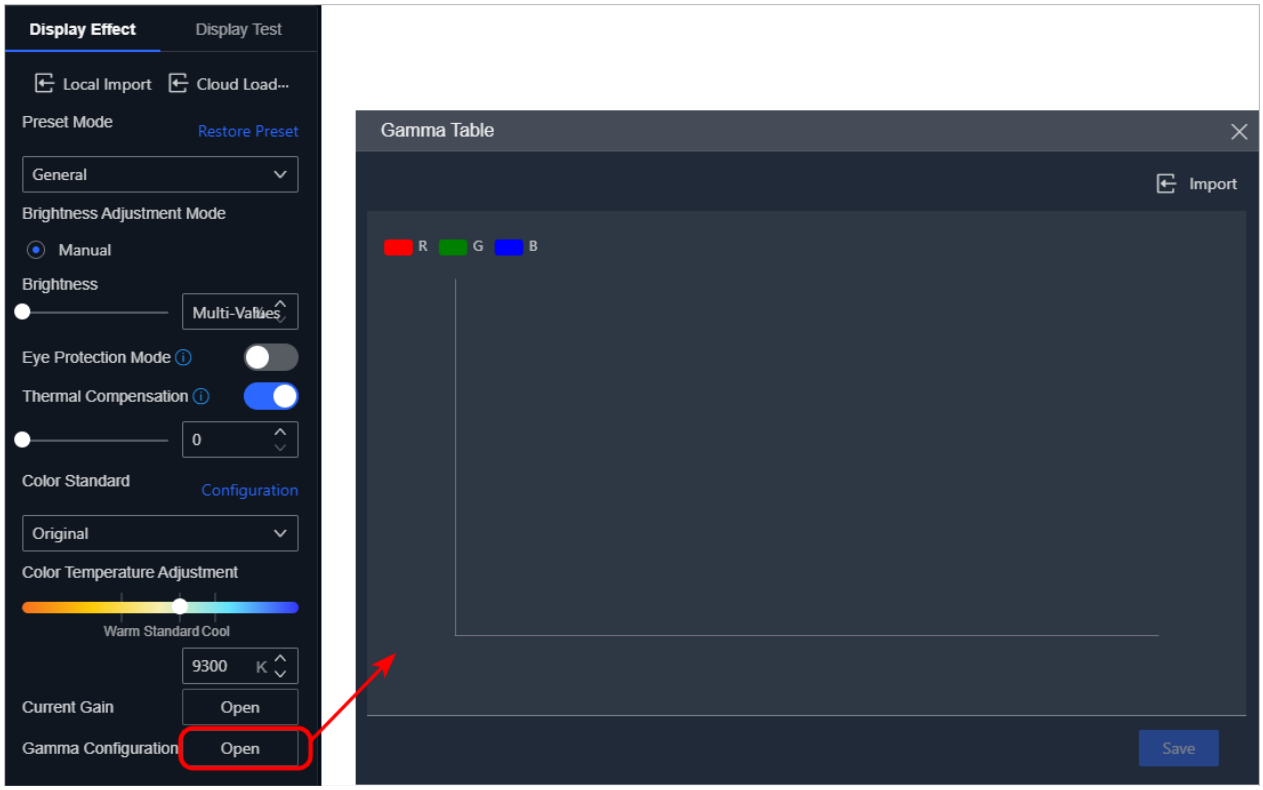

Figure 7-26 Sync Multi-Device Display Effects

Step 6 (Optional) You can perform the following operations as required:

- Click **Restore Preset** to restore the default parameters of the selected preset mode.
- When you cannot set the color standard or enable gray scale optimization, you can add a color file:
  - Click **Local Import** to import a locally saved color file, then click **Add**.
  - Click **Cloud Loading**, set the search content. Select a color file, and click **Add**.

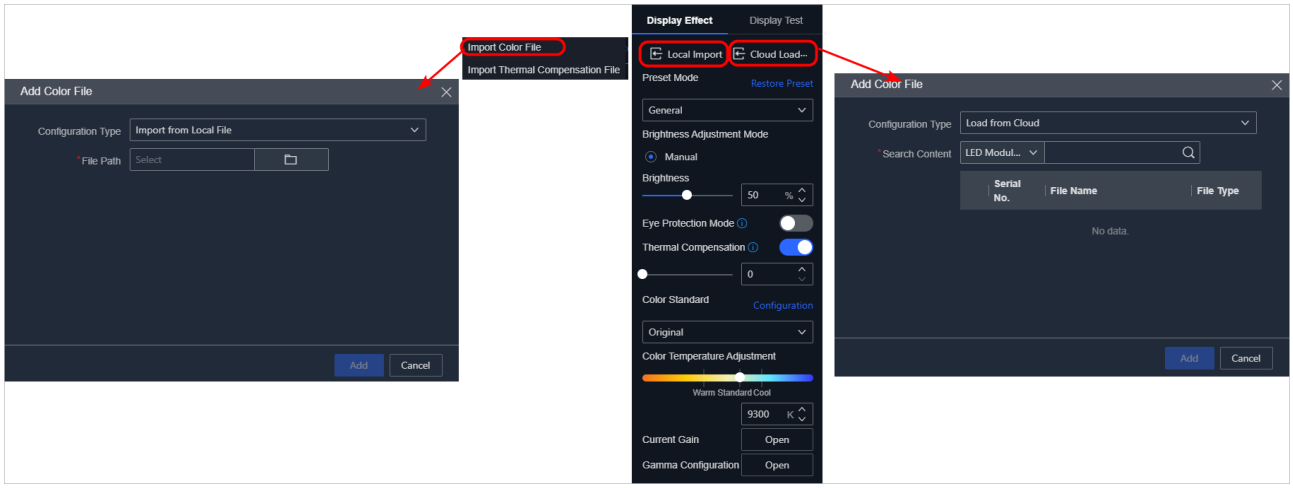

Figure 7-27 Add Color File

7.3.2 Configure Startup Image of LED Controller

Applicable Devices

All series LED controllers.

Steps

Step 1 Select an LED controller.

Step 2 Navigate to **Device Maintenance** > **Settings** > **Preference** > **Startup Image**.

Step 3 Select an image as the startup image, and click **Save**.

- **Current Image**: The current image will be used as the startup image.
- **Custom**: You can click  to upload an image to function as the startup image.

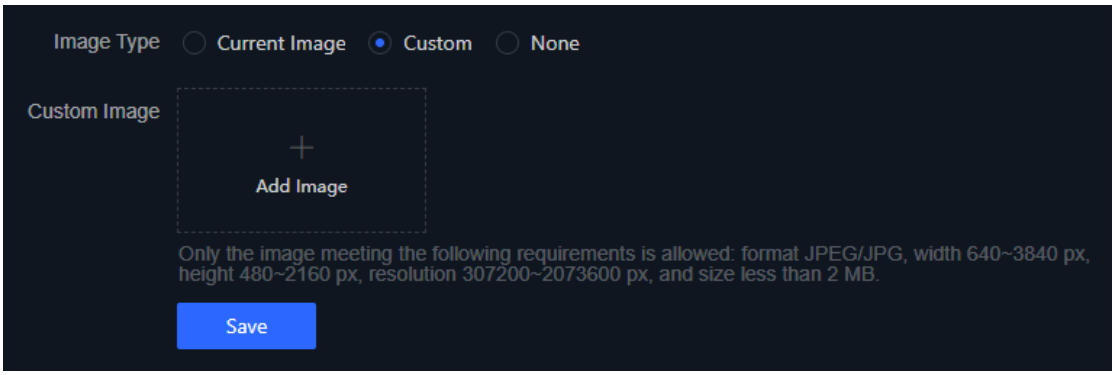

Figure 7-28 Configure Startup Image of LED Controller

7.3.3 Configure No-Signal Images

Applicable Devices

All series of LED controllers and video wall controllers.

Important

No-signal images vary with the device type. This chapter uses a C-series LED controller as an example.

Steps

Step 1 Select a device.

Step 2 Navigate to **Device Maintenance** > **Settings** > **Preference** > **No Signal Image**.

Step 3 Select the images to display when the signal interruption occurs, and click **Save**.

- **Last Frame**: The last frame image will be displayed when the signal interruption occurs.
- **Aging Mode**: The display enters random solid color mode and flashes regularly when the signal interruption occurs.

- **Custom Picture**: Click  to upload an image to display when the signal interruption occurs.

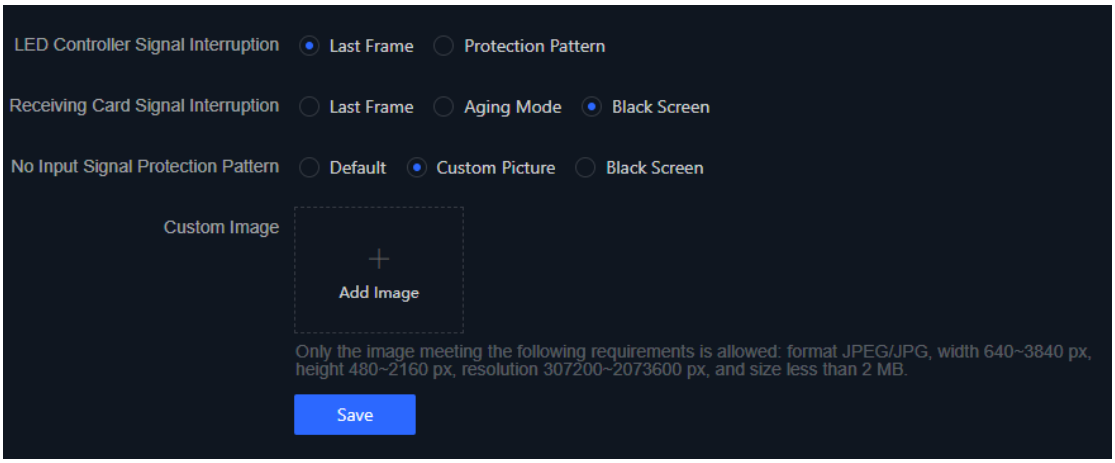

Figure 7-29 Configure No Signal Images of C-Series LED Controller

Chapter 8 Device Advanced Configuration

8.1 Configure General Parameters

8.1.1 Configure Time of LED Controller

Applicable Devices

All series LED controllers.

Steps

Step 1 Select an LED controller, and navigate to **Device Maintenance** > **Settings** > **System** > **System Information** > **Time Settings**.

Step 2 Select a time zone.

Step 3 Set the time parameters:

- The C/V-series LED controllers only support manual time configuration. You can set the time manually or click **Sync with Computer Time** to make the device time consistent with the computer time.
- The B/P/U-series LED controllers support NTP configuration and manual time configuration.
  - If you select **Manual Time Sync**, set the time manually or click **Sync with Computer Time** to make the device time consistent with the computer time.
  - If you select **NTP Sync**, enter the server address, NTP port, and interval.

Step 4 (Optional) For the C/V-series LED controllers, enable **DST** and set the related parameters.

Step 5 Click **Save**.

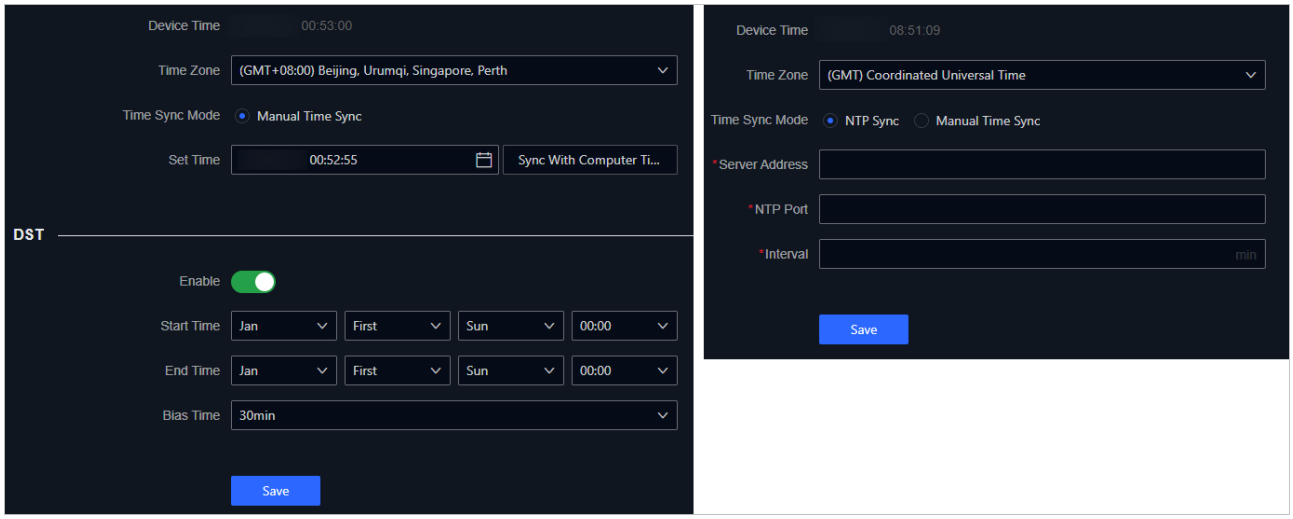

Figure 8-1 Configure Time (Left: C/V Series, Right: B/P/U Series)

8.1.2 Configure Serial Port Parameters

Applicable Devices

All series LED controllers.

Steps

For connection to central control or third-party devices, navigate to **Device Maintenance** > **Settings** > **System** > **Serial Port Configuration** to set parameters, ensuring identical settings on both connected devices.

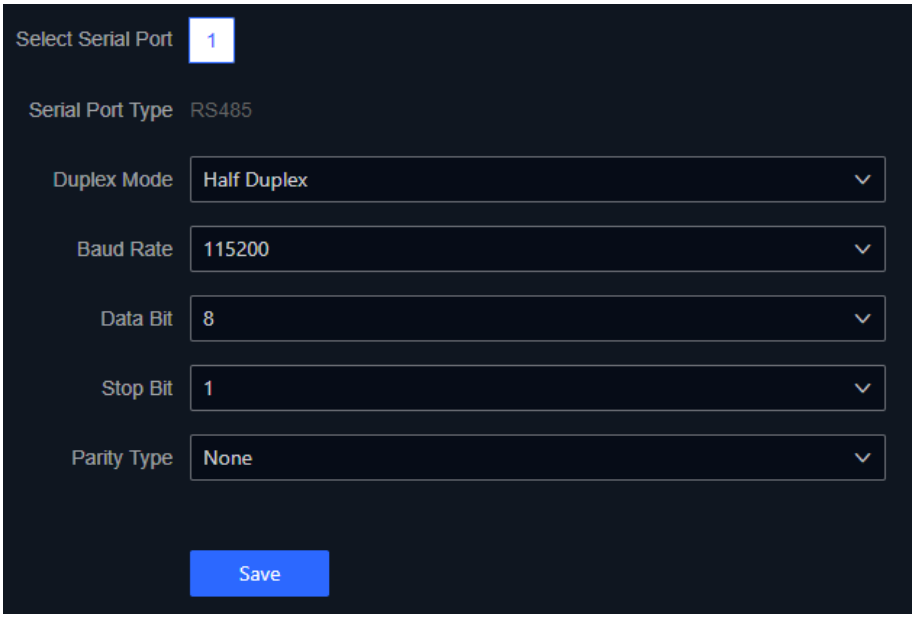

Figure 8-2 Configure Serial Port Parameters

8.1.3 Configure Font for V-Series LED Controller

Applicable Devices

DT90V, DT60V, and certain DS-TV series LED controllers.

Steps

Step 1 Select a V-series LED controller.

Step 2 Navigate to **Device Maintenance** > **Settings** > **Preference** > **Font Settings**.

Step 3 Click  to select a font file and click **Upload**.

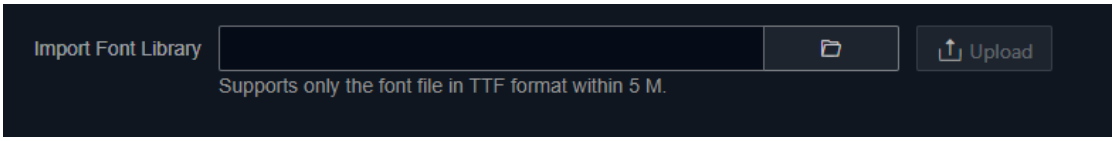

Figure 8-3 Configure Font

8.1.4 Configure Timed Parameters

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device.

Step 2 Navigate to **Device Maintenance** > **Settings** > **Schedule**.

Step 3 On the **Scheduled Display On/Off** page, enable the function and set the display on time and display off time.

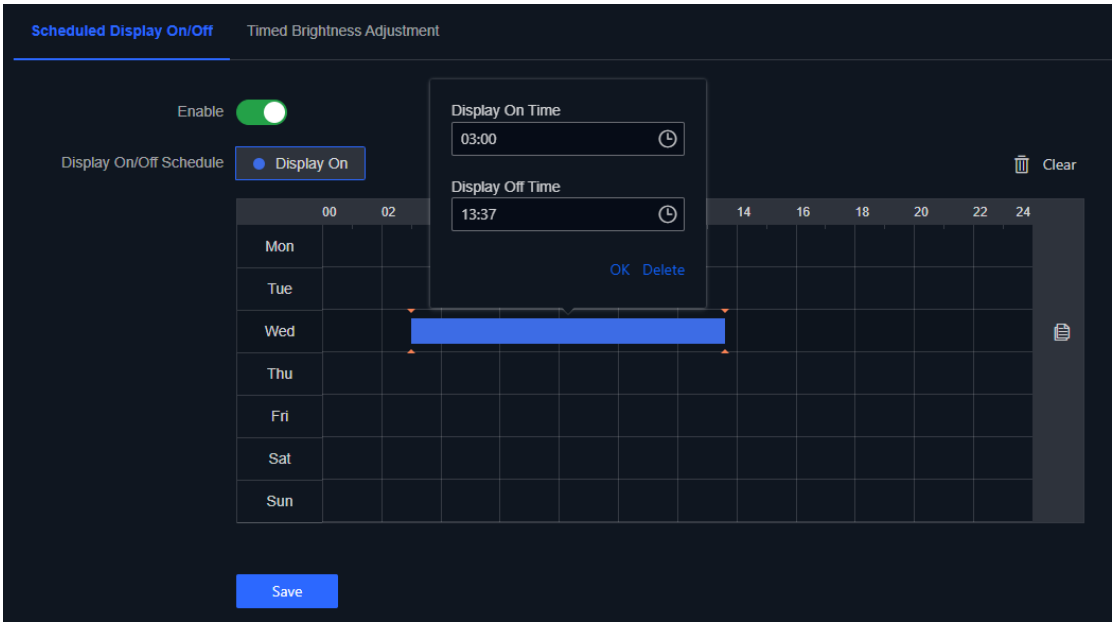

Figure 8-4 Configure Scheduled Display On/Off

Step 4 Click **Timed Brightness Adjustment**, enable the function, and set the target brightness value and duration.

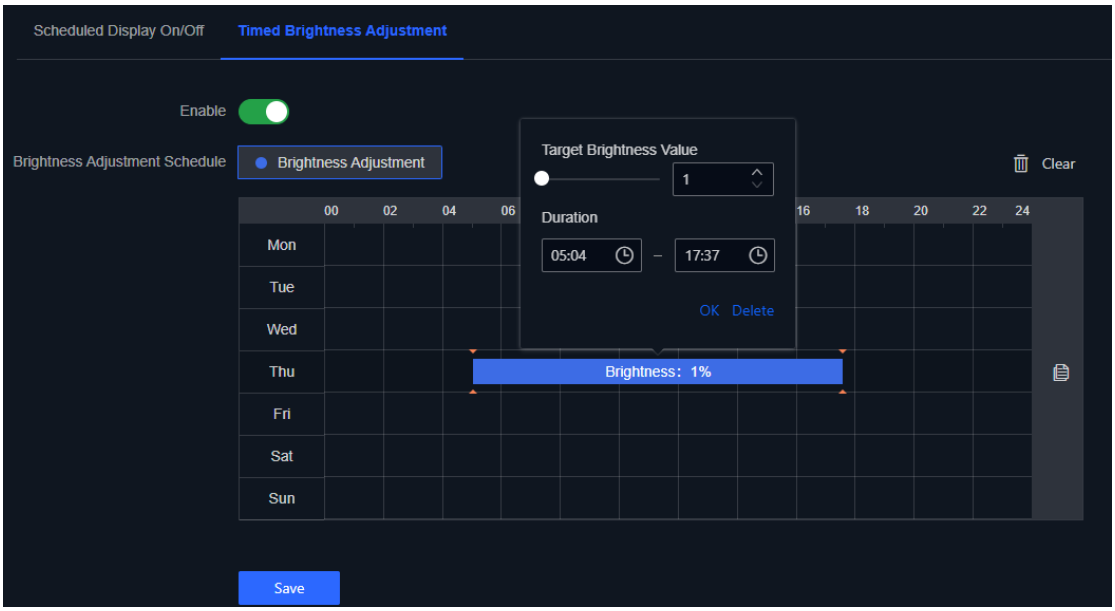

Figure 8-5 Configure Timed Brightness Adjustment

8.1.5 Configure OSD

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Go to **Device Maintenance** > **Settings** > **OSD Configuration** to customize OSD text color and OSD background color. OSD is enabled by default. You can disable OSD or restore the default OSD parameters as required.

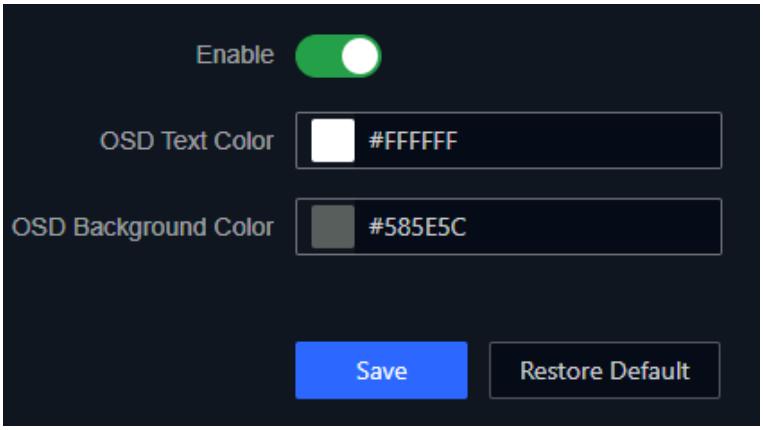

Figure 8-6 Configure OSD

8.2 Configure Backup Parameters

8.2.1 Configure Device Backup of LED Controller

Applicable Devices

DT90C/V, DT60C/V, and certain DS-TC/V series LED controllers.

Steps

Step 1 Select an LED controller.

Step 2 Navigate to **Device Maintenance > Backup** > **Device Backup**.

Step 3 Select a backup device.

Step 4 (Optional) You can perform the following operations as required:

- Select whether to enable **Forced Switch to Standby Card**. Only certain receiving cards support this function.
- When a cabinet contains multiple receiving cards, select a receiving card type.

Step 5 Click **Save**.

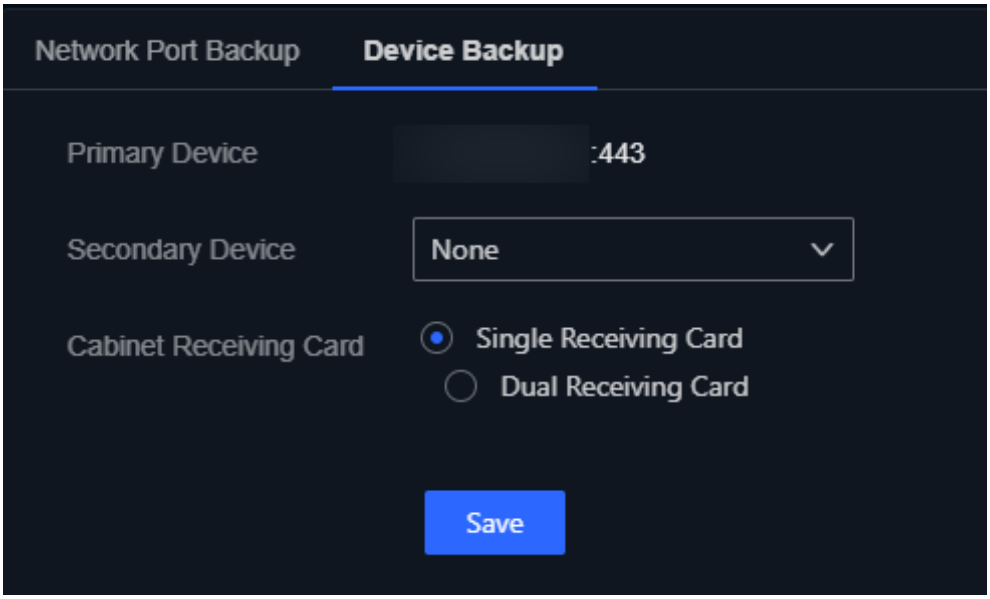

Figure 8-7 Configure Device Backup of LED Controller

8.2.2 Configure Network Port Backup

Applicable Devices

- DT90 and DT60 series: All models support network port backup.
- DT30 and DS-T series: Only dual-port models support network port backup.
- All series of video wall controllers.

Before You Start

The Ethernet ports on the rear panel of the device are grouped into several backup pairs in top-to-bottom columns. For example:

- DATA OUT 1 and DATA OUT 2 form one pair.
- DATA OUT 3 and DATA OUT 4 form one pair.
- DATA OUT 5 and DATA OUT 6 form one pair.

Before enabling the data port backup function, you must connect both ports within the same backup pair to the LED display. If the connections are incorrect (for example, connecting DATA OUT 1 and DATA OUT 3 to the display), the data port backup function cannot be enabled.

Steps

Step 1 Select a device.

Step 2 Navigate to **Device Maintenance > Backup** > **Network Port Backup**.

Step 3 Enable backup.

Step 4 (Optional) When a cabinet contains multiple receiving cards, select a receiving card type.

Step 5 Click **Save**.



Figure 8-8 Configure Network Port Backup

8.3 Configure Network Parameters of LED Controller

Only the LED controllers support the configuration of network parameters, while the video wall controllers do not support the configuration of network parameters through this client.

8.3.1 Configure Wired Network Address

Applicable Devices

All series LED controllers.

Steps

Step 1 Select a device.

Step 2 Navigate to **Device Maintenance** > **Settings** > **Network** > **Network Configuration** > **TCP/IP**.

Step 3 Enable **Static IP Address**.

Step 4 Set the static wired IP address according to the device's networking method:

- If the device is directly connected to the computer, set an unused IP address from the local network as the wired network address of the device. Ensure that the device can still connect to the local network and remain on the same subnet as the computer.
- If the device is connected to the local network via an Ethernet cable, the device will automatically obtain an IP address. You can set the automatically obtained IP address as the wired network address of the device, or set an unused IP address from the local network as the wired network address of the device. Ensure that the device and computer are on the same subnet.

Step 5 Click **Save**.

Step 6 Enter the configured wired IP address of the device in the browser of the computer to log in to the device web page.

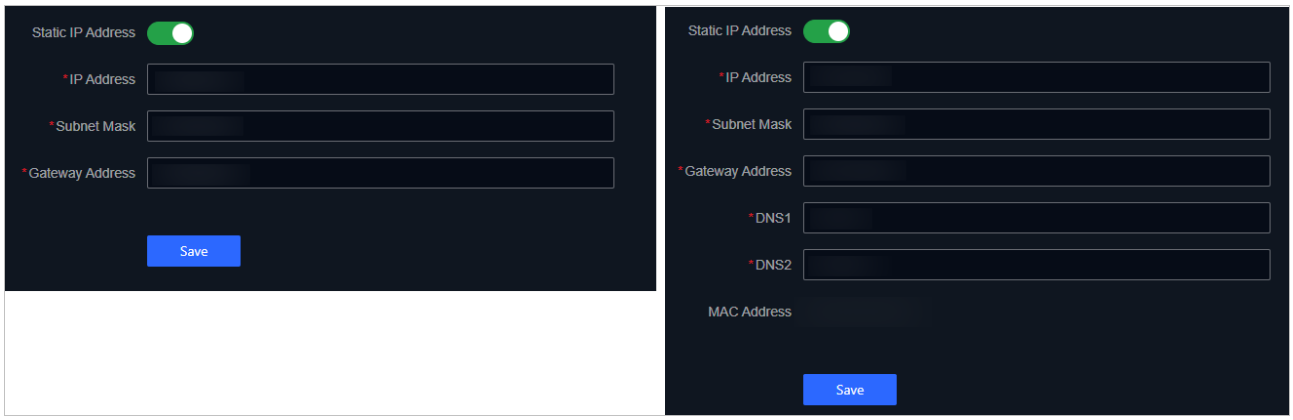

Figure 8-9 Configure Wired Network Address (Left: C/V Series, Right: B/P/U Series)

8.3.2 Configure Wireless Network Address

Applicable Devices

DT90P, DT60B/P, DT30B/P, and DS-TB/U series LED controllers.

Important

When activating and logging in to the device for the first time, a wired connection must be used. If the device is connected to both a wired and wireless network simultaneously, it will prioritize the wired network.

Steps

Step 1 Connect a Wi-Fi antenna to the WIFI STA port of the device.

Step 2 Select a B/P/U-series device.

Step 3 Navigate to **Device Maintenance** > **Settings** > **Network** > **Network Configuration** > **Wi-Fi** and enable Wi-Fi.

Step 4 Select an available Wi-Fi network and click **Connect**.

Step 5 Click **Network Status** to view the IP address automatically obtained by the device after the device connects to the wireless network.

Step 6 Enable **Static IP Address**.

Step 7 Set the static wireless IP address:

- Set the automatically obtained IP address as the wireless network address of the device.
- Set an unused IP address from the local network as the wireless network address of the device. Ensure that the device and computer are on the same subnet.

Step 8 Click **Save**.

Step 9 When the wired network is unavailable or the Ethernet cable is removed, enter the configured wireless IP address of the device in the browser of the computer to log in to the device web page.

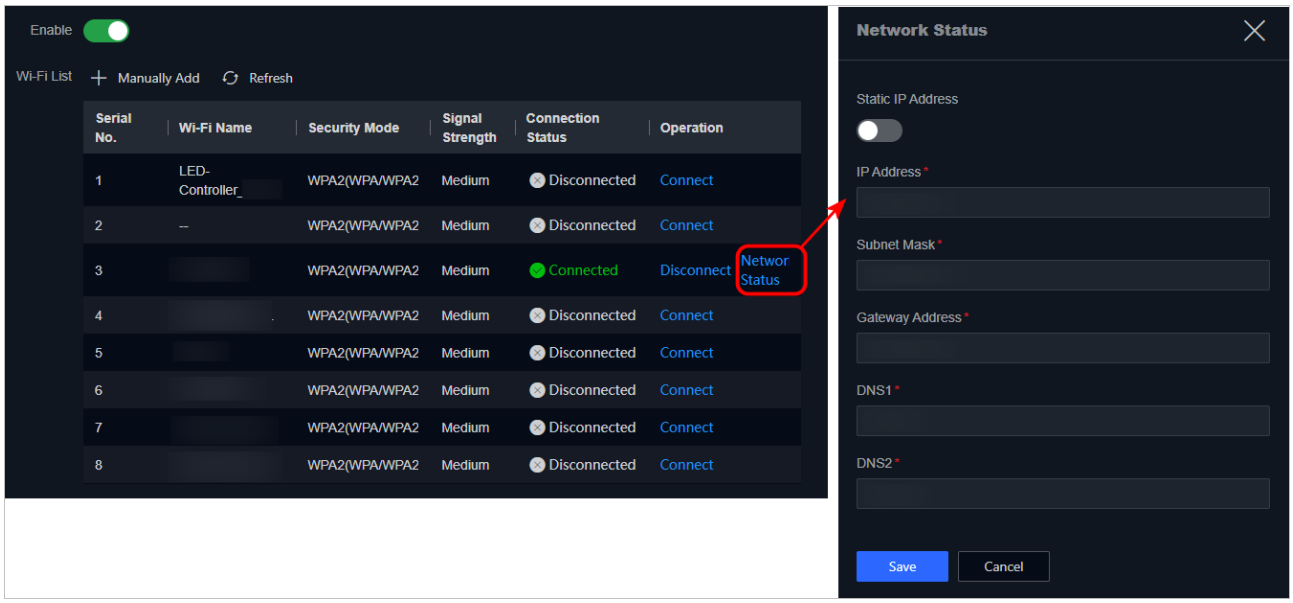

Figure 8-10 Configure Wireless Network Address

8.3.3 Configure Bluetooth

Applicable Devices

DT90P, DT60B/P, DT30B/P, and DS-TB/U series LED controllers.

Steps

Step 1 Connect a Wi-Fi antenna to the WIFI STA port of the device.

Step 2 Select a B/P/U-series device.

Step 3 Navigate to **Device Maintenance** > **Settings** > **Network** > **Network Configuration** > **Bluetooth** and enable Bluetooth.

Step 4 Use Bluetooth to connect the device to other devices:

- Select a Bluetooth device, click **Pair**. The Bluetooth device is paired after the pairing is successful.
- Select Bluetooth peripheral device, click **Pair**. The Bluetooth device is paired after the pairing is successful. Click **Connection** to connect the Bluetooth peripheral device to the device. The Bluetooth peripheral device is connected after the connection is successful.

Step 5 Click **Save**.

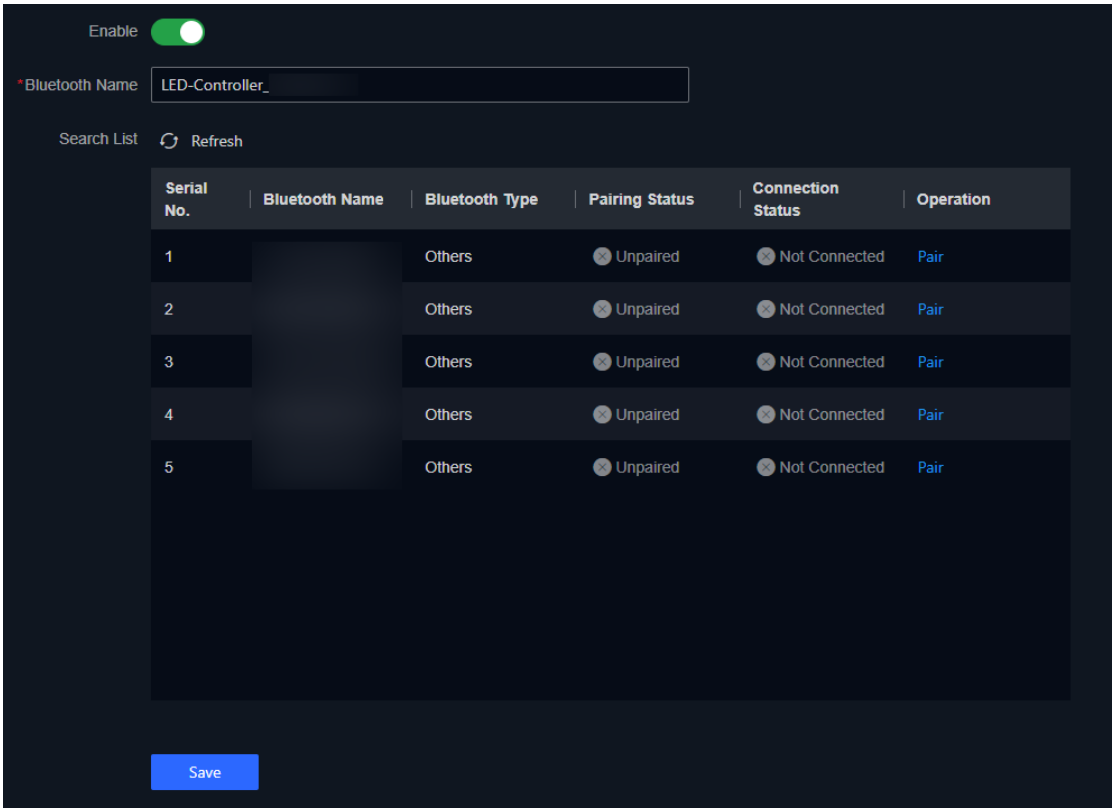

Figure 8-11 Enable Bluetooth

8.3.4 Configure Hot Spot

Applicable Devices

DT90P, DT60B/P, DT30B/P, and DS-TB/U series LED controllers.

Steps

Step 1 Connect a Wi-Fi antenna to the WIFI AP port.

Step 2 Select a B/P/U-series device.

Step 3 Navigate to **Device Maintenance** > **Settings** > **Network** > **Network Configuration** >**Hot Spot** and enable hot spot.

Step 4 (Optional) Configure hot spot parameters as required:

- After hot spot is enabled, the default name and password are used. You can edit the hot spot name and password.
- After hot spot is enabled, the network isolation function is turned on by default. To ensure the network security of the device, it is recommended to keep network isolation enabled.
- Edit the security, AP band, or AP channel.

Step 5 Click **Save**.

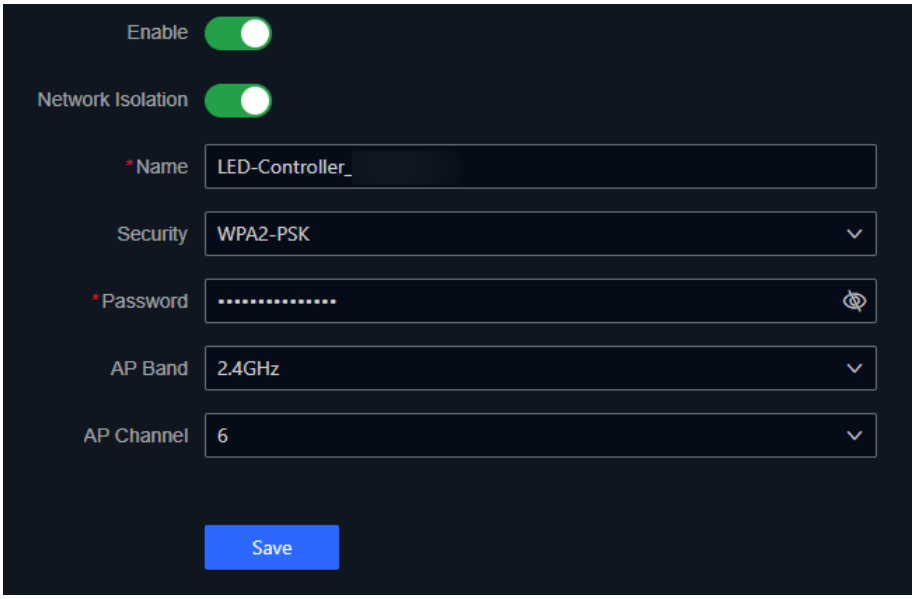

Figure 8-12 Configure Hot Spot

8.3.5 Configure OTAP Service

Applicable Devices

DT90P, DT60B/P, DT30B/P, and DS-TB/U series LED controllers.

Steps

Step 1 Navigate to **Device Maintenance** > **Settings** > **Network** > **Device Access** > **OTAP** and enable the OTAP service.

Step 2 Enter the target server address and port number, and customize the device ID and authentication code.

Step 3 Click **Save**.

Step 4 Add the device to the platform:

1) Log in to the corresponding platform and use the device's authentication code to complete the addition. Once successfully added, you can remotely configure the device, maintain settings, manage playback content, and monitor its status via the platform.
2) Handling the exception:
   - If the device goes offline abnormally due to server power failure or network issues, use the initially bound authentication code to re-add it.
   - A factory reset will clear the authentication code on the OTAP page. Be sure to record it in advance. If the authentication code is forgotten, contact the platform administrator and provide the device serial number to retrieve the original authentication code.

Step 5 (Optional) Click **Refresh** to update the registration status.

When the device has been successfully added to the platform, its status will be **Registered**.

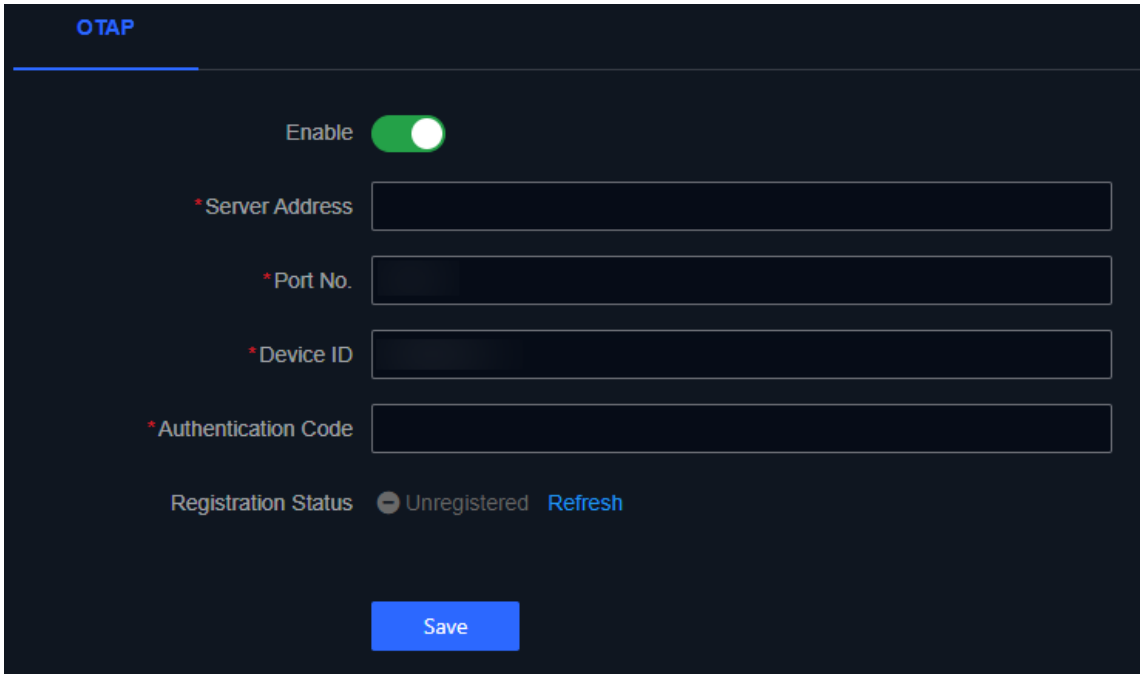

Figure 8-13 Configure OTAP Service

8.4 Configure IoT Parameters

8.4.1 View Multi-Function Card Information

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device.

Step 2 Navigate to **Device Maintenance** > **Settings** > **IoT Configuration** > **Multi-Function Card Info**.

Step 3 View the current version of the multi-function card.

Step 4 (Optional) Click **Upgrade**, upload an upgrade file and click **OK**.

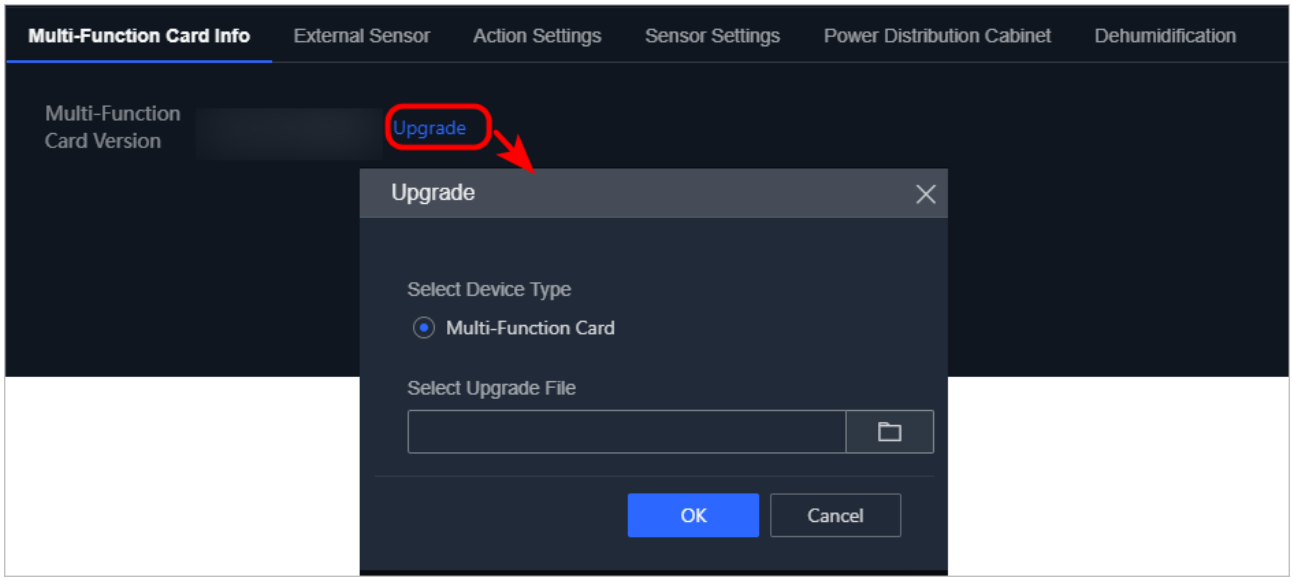

Figure 8-14 View Multi-Function Card Info

8.4.2 Configure External Sensors

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device.

Step 2 Navigate to **Device Maintenance** > **Settings** > **IoT Configuration** > **External Sensor**, and select the sensor type and quantity for each channel, and click **Save**.

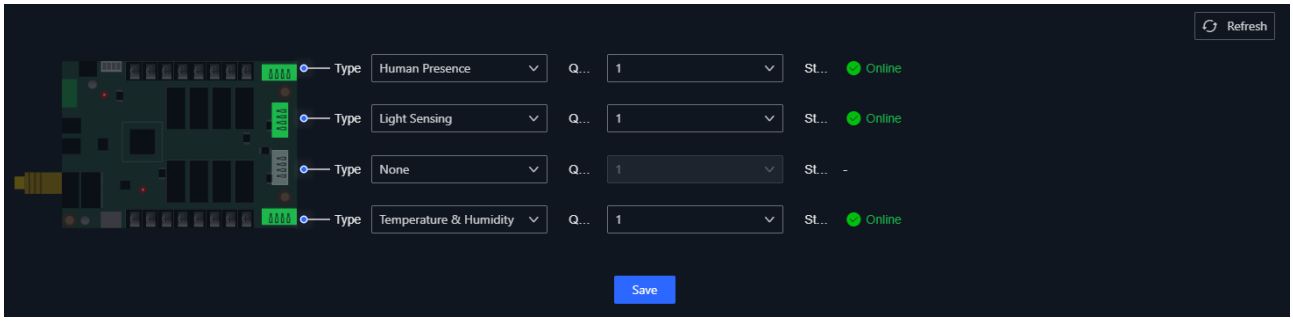

Figure 8-15 Configure External Sensors

Step 3 Navigate to **Device Maintenance** > **Settings** > **IoT Configuration** > **Sensor Settings**, monitor the following items, set the threshold, and click **Save**.

- When thresholds are exceeded, alarm messages and real-time values will display on the display and client.
- Certain receiving cards support detecting cabinet voltage and temperature.

- When the LED controller/LED controller board connects to a multi-function card with a temperature/humidity sensor, ambient temperature/humidity can be monitored:

1) Select temperature/humidity sensor for the corresponding channel and set the quantity.
2) Enable **Ambient Temperature Detection** and **Ambient Humidity Detection**, and set the thresholds.

- When the LED controller/LED controller board connects to a multi-function card with a human presence sensor, auto sleep can be configured:

1) Select human presence sensor for the channel and set the quantity.
2) Enable **Auto Sleep**.
3) Set the time after which brightness decreases, the OSD prompts and the device sleeps.

- When the LED controller/LED controller board connects to a multi-function card with a light sensor, auto brightness can be configured:

1) Select human presence sensor for the channel and set the quantity.
2) Enable **Auto-Brightness**.
3) Select the adjustment mode (linear or step), and add a brightness policy list.

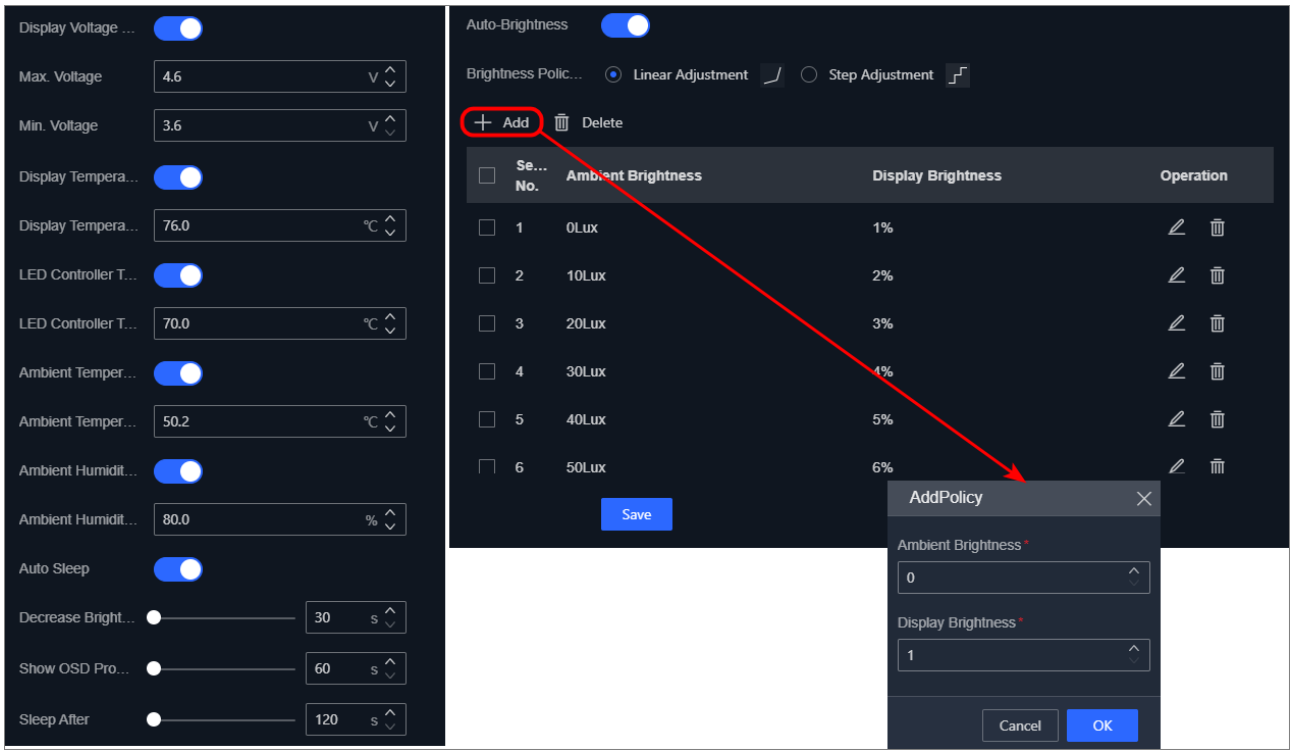

Figure 8-16 Set Alarm Thresholds

8.4.3 Configure Sensor Actions

Applicable Devices

- Currently supported: DT60B/P series LED controllers (V6.3 and later).
- Upcoming supported: DT90P, DT30B/P, and DS-TB/U series LED controllers.

Important

- Physical connection safety:
  - Wiring verification: Sensor wiring sequences and color definitions may vary by manufacturer. Always refer to the specific sensor's manual before making connections. Do not rely solely on matching colors.
  - Connection check: Before powering on, use a multimeter to perform continuity and short-circuit tests to confirm the power and signal lines are correctly connected, preventing equipment damage.
- Sensor compatibility requirements:
  - Sensors not supplied by our company must support the standard Modbus RTU protocol.
  - Sensors connected via the central control RS-485 port must support the standard Modbus RTU protocol.
- Configuration limits:
  - A single LED controller can add up to 30 actions.
  - Sensors supplied by our company: Only one action can be created per sensor channel.
- Configuration synchronization: IoT parameters can be configured in both the LED Tool client and the LED controller web interface. Modifications made on one side will automatically sync with the other. If a sensor type for a channel is set to **None** in the LED Tool client, the corresponding action on the web interface will be automatically deleted.

Configure Sensors (via Multi-Function Card)

Step 1 Use a Gigabit Ethernet cable (2) to connect the DATA OUT port of the LED controller (1) to the Ethernet port of the multi-function card (3).

Step 2 Insert the sensor cable terminal block (5) into the sensor interface (4) of the multi-function card, ensuring exact pin-to-pin matching:

- GND: Connect to the sensor’s GND terminal.
- 5V: Connect to the sensor’s 5V terminal.
- B (Signal line B): Connect to the sensor’s B terminal.
- A (Signal line A): Connect to the sensor’s A terminal.

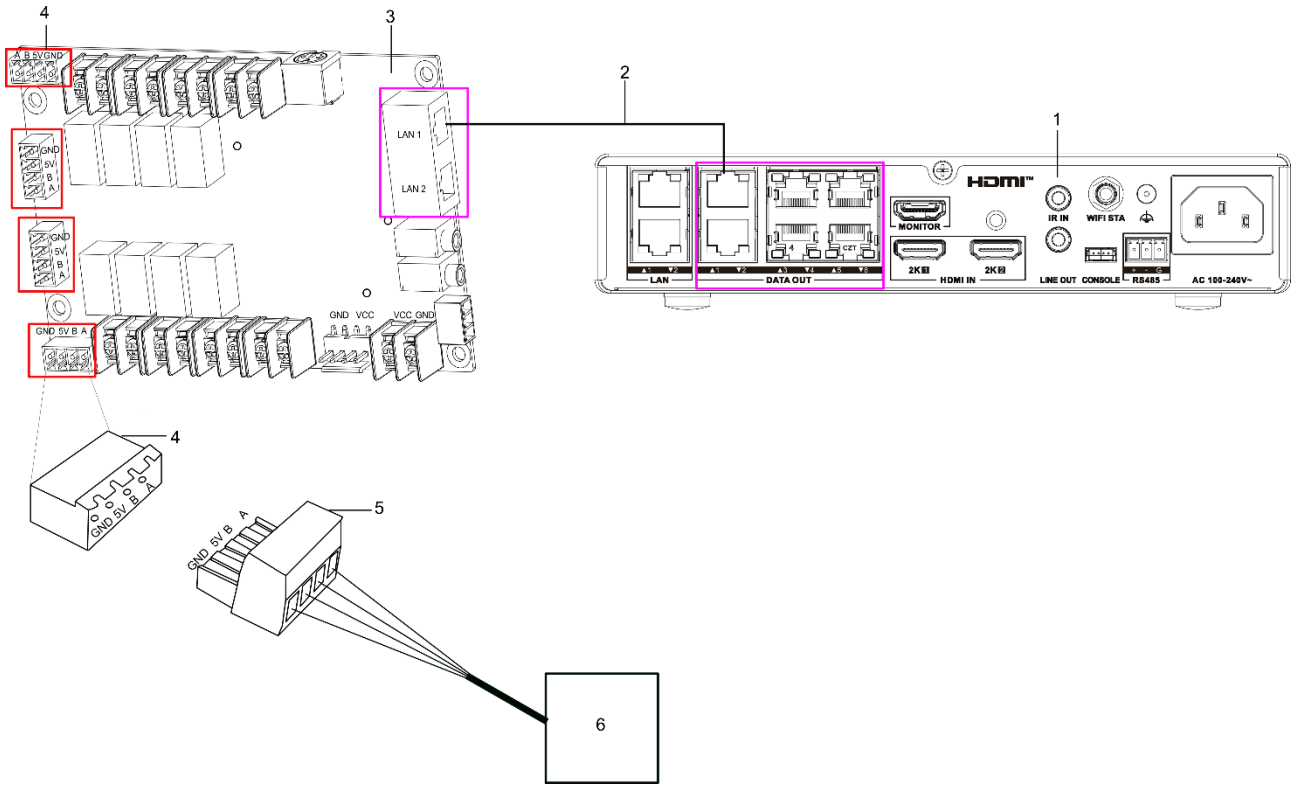

Figure 8-17 Connect a Sensor via the Multi-Function Card

1. LED controller	2. Gigabit Ethernet cable
3. Multi-function card	4. Sensor interface (male connector)
5. Sensor cable terminal block (female connector)	6. Sensor

Step 3 After confirming all cable connections are correct, use appropriate power cables to supply power to the LED controller, multi-function card, and sensor (6).

Step 4 Navigate to **Configuration** > **IoT Configuration**, click **Add** to add an action.

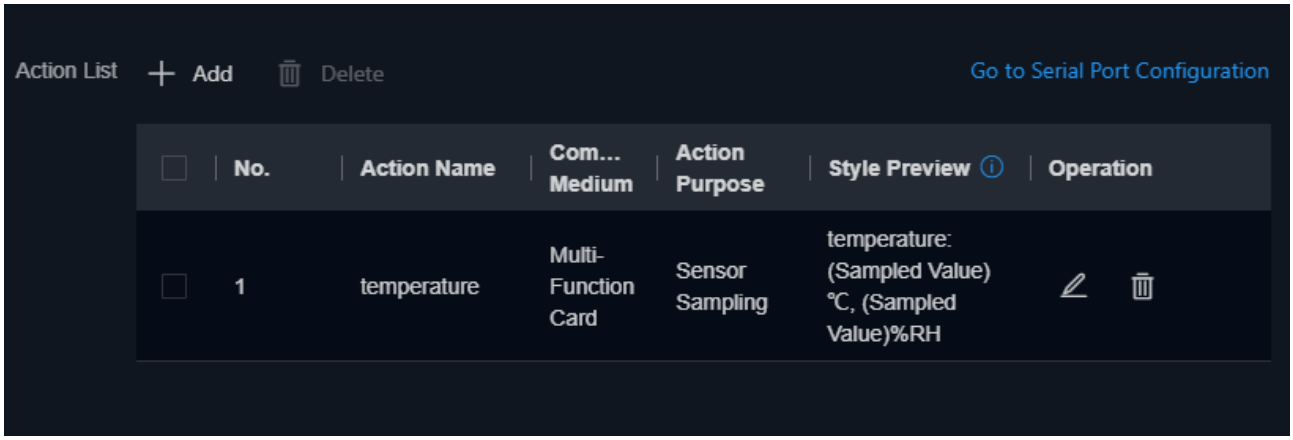

Figure 8-18 Add an Action

Step 5 Configure sensor parameters:

1) Set basic parameters: Enter an action name, select the multi-function card as the communication medium, and specify the channel number to which the sensor is connected.

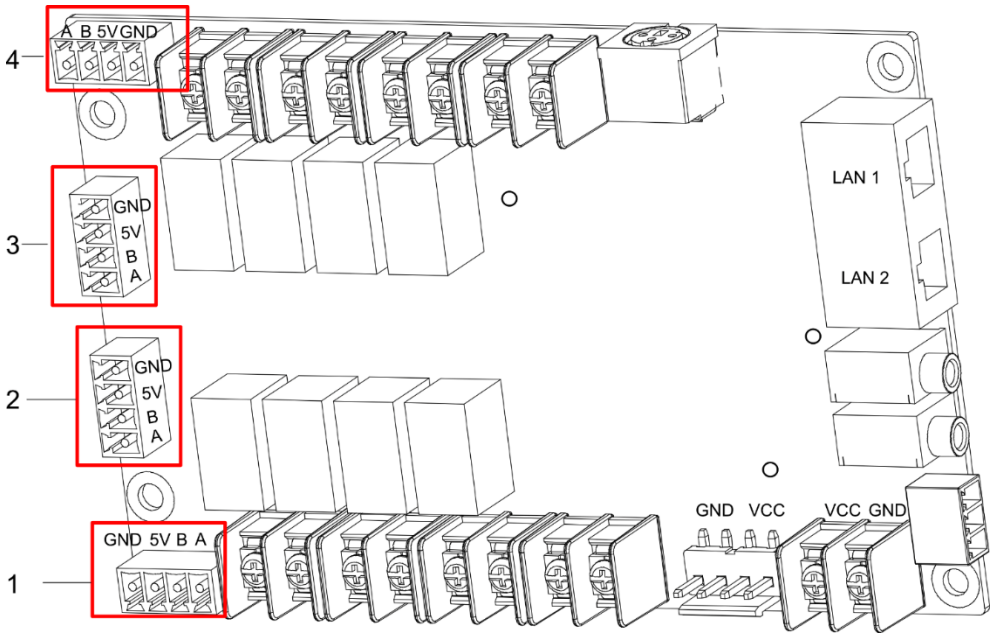

Figure 8-19 Multi-Function Card Channel Number

2) Complete the configuration based on the sensor type:

- Our company's sensors (temperature & humidity, light, human presence): Select the corresponding sensor type, set the sensor quantity, and click **Submit**.
- Other sensors not supplied by our company: Enable **Modbus Mode**, configure the Modbus parameters and multi-function card serial port parameters to match the sensor's specifications as per its manual, and click **Submit**.

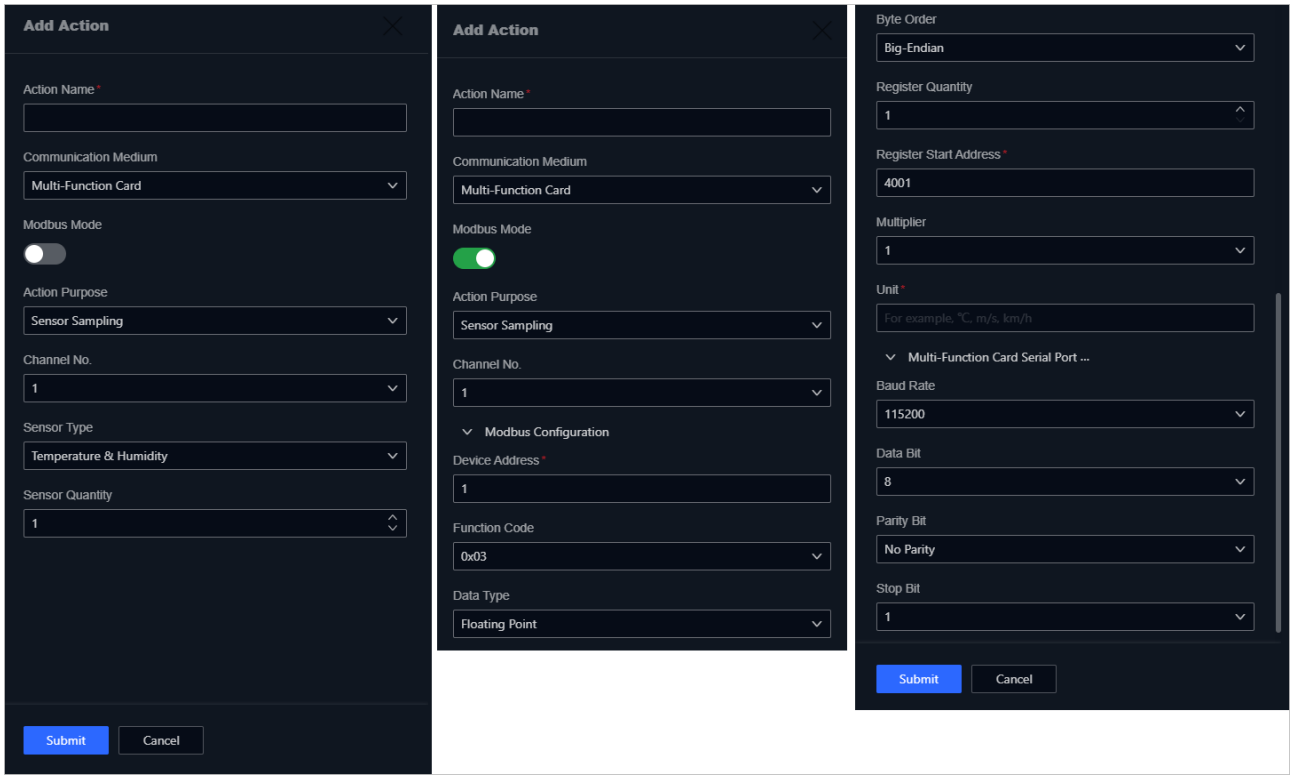

Figure 8-20 Add a Multi-Function Card Action

Step 6 Once an action is added, you can delete or edit it as needed.

Configure Sensors (via Central Control RS-485 Port)

Step 1 Use an RS-485 cable to connect the central control RS-485 port of the LED controller (1) to the RS-485 interface of the sensor (3), ensuring exact pin-to-pin matching:

- Positive terminal (+): Connect to the sensor's positive terminal.
- Negative terminal (-): Connect to the sensor's negative terminal.
- G and NC terminals: Leave disconnected. Do not connect.

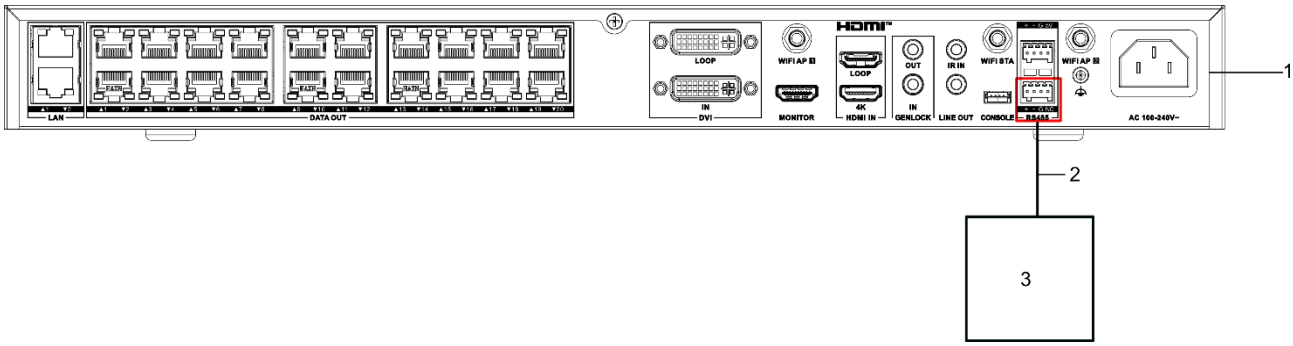

Figure 8-21 Connect a Sensor via the Central Control RS-485 Port

1. LED controller	2. RS-485 cable	3. Sensor

Step 2 After confirming all cable connections are correct, use appropriate power cables to supply power to the LED controller and sensor.

Step 3 Configure central control serial port parameters: Set the baud rate, data bit, and stop bit to match the sensor's specifications as per its manual. You can access the serial port configuration page through either of the following ways:

- Navigate to **Configuration** > **System** > **Serial Port Configuration**.
- Navigate to **Configuration** > **IoT Configuration** and click **Go to Serial Port Configuration**.

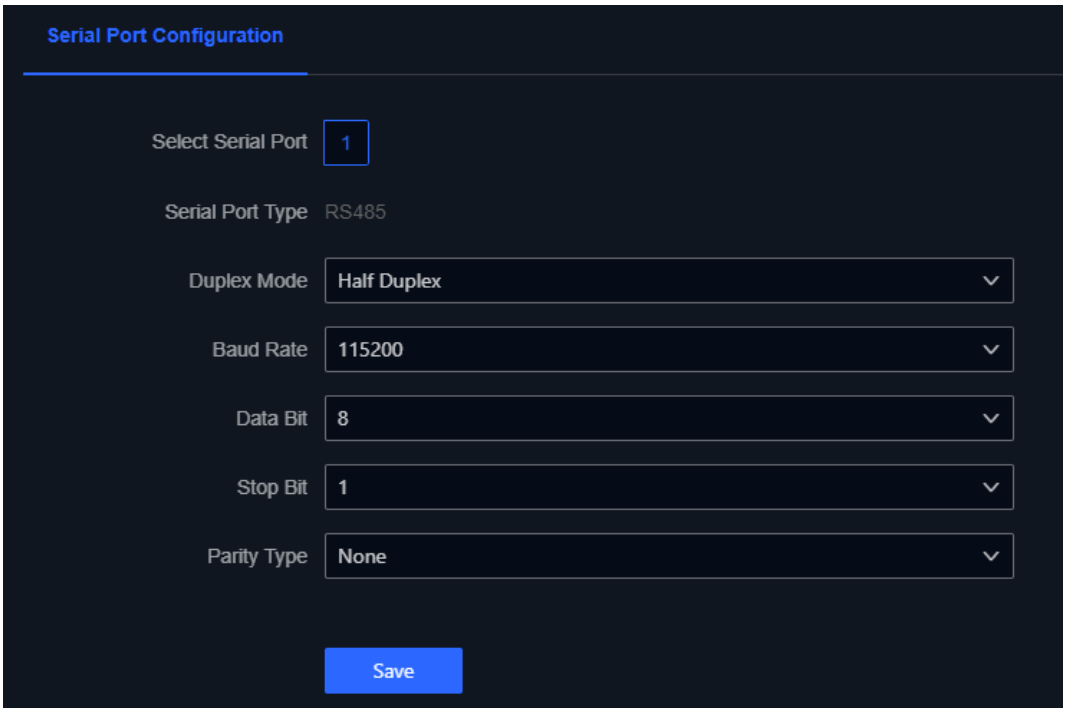

Figure 8-22 Configure Serial Port Parameters

Step 4 Navigate to **Configuration** > **IoT Configuration**, click **Add** to add an action.

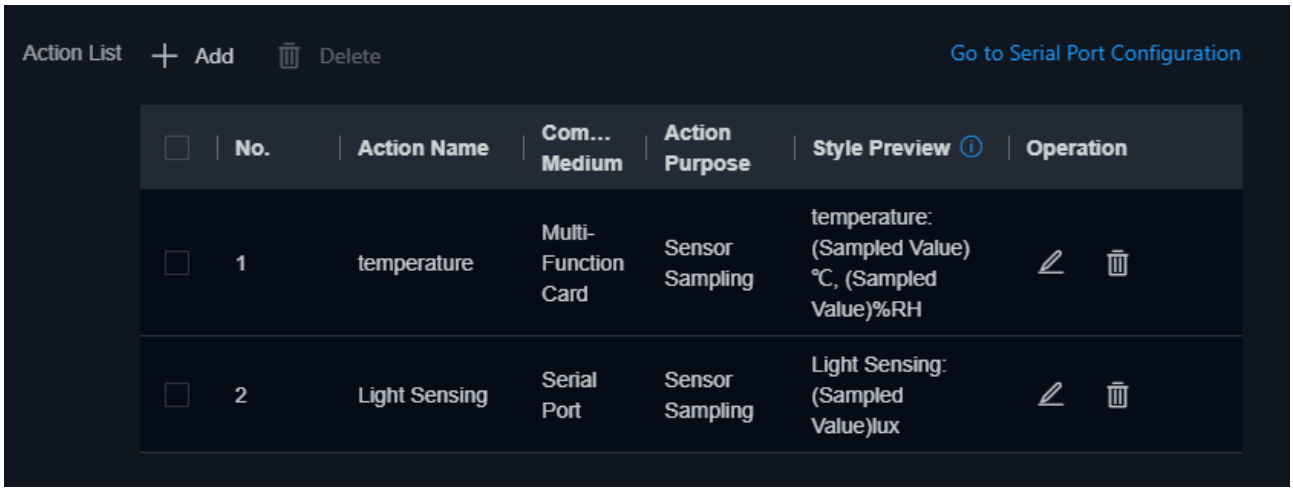

Figure 8-23 Add an Action

Step 5 Set up the action: Enter an action name, select the central control serial port as the communication medium, fill in the remaining Modbus parameters (such as device address) according to the sensor's manual, and click **Submit**.

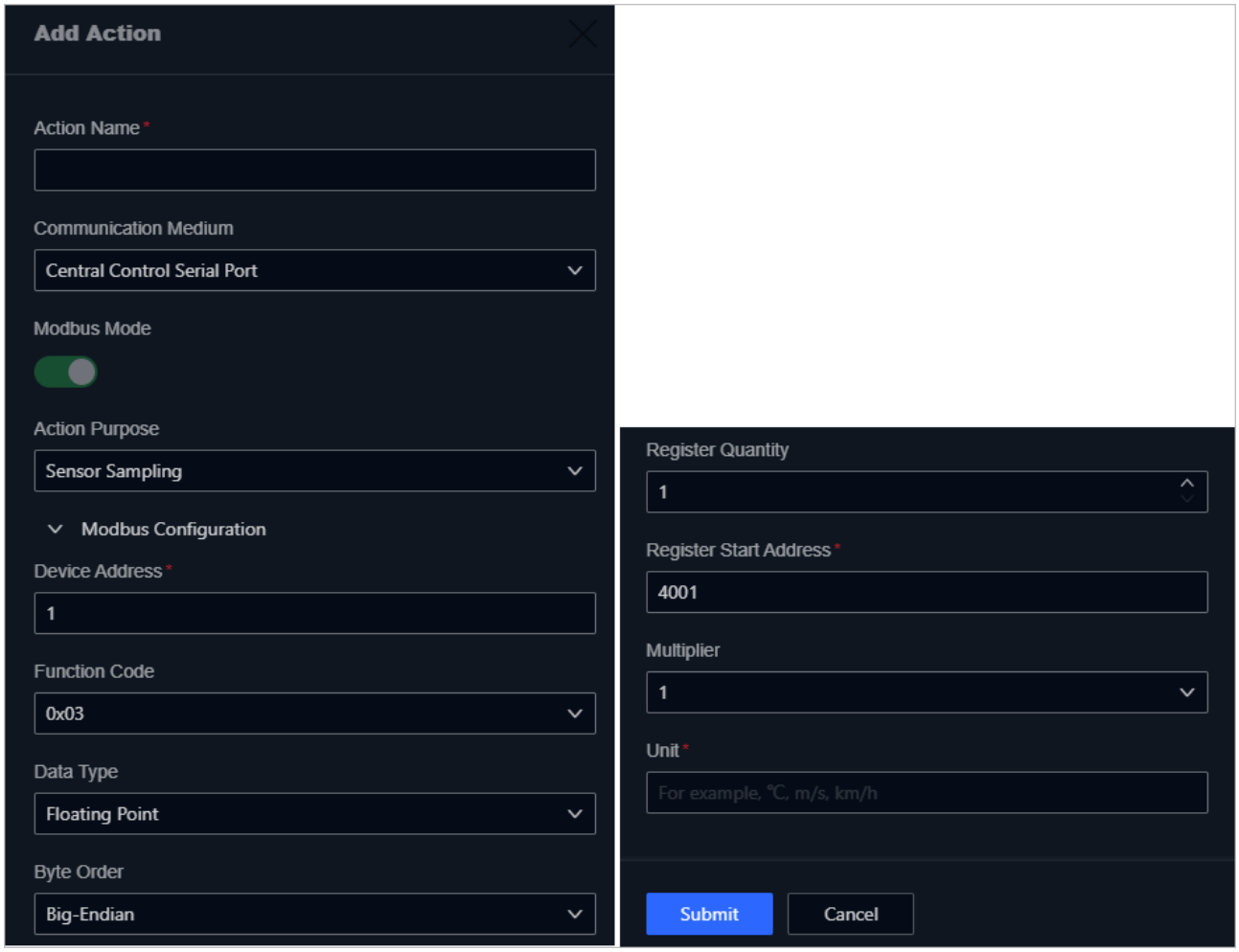

Figure 8-24 Add a Central Control Serial Port Action

Step 6 Once an action is added, you can delete or edit it as needed.

8.4.4 Control Power Distribution Cabinet

Control Power Distribution Cabinet via Multi-Function Card

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device.

Step 2 Navigate to **Device Maintenance** > **Settings** > **IoT Configuration** > **Power Distribution Cabinet**.

Step 3 When the LED controller/LED controller board connects to a power distribution cabinet via a multi-function card, select **Dry Contact** as the linking method.

Step 4 Choose either method to control the cabinet's power state:

- Immediate on/off control:

1) Turn on/off the corresponding channel to power the power distribution cabinet on/off.
2) (Optional) When one multi-function card connects to multiple power distribution cabinets, assign device names for identification.
3) Click **Save**.

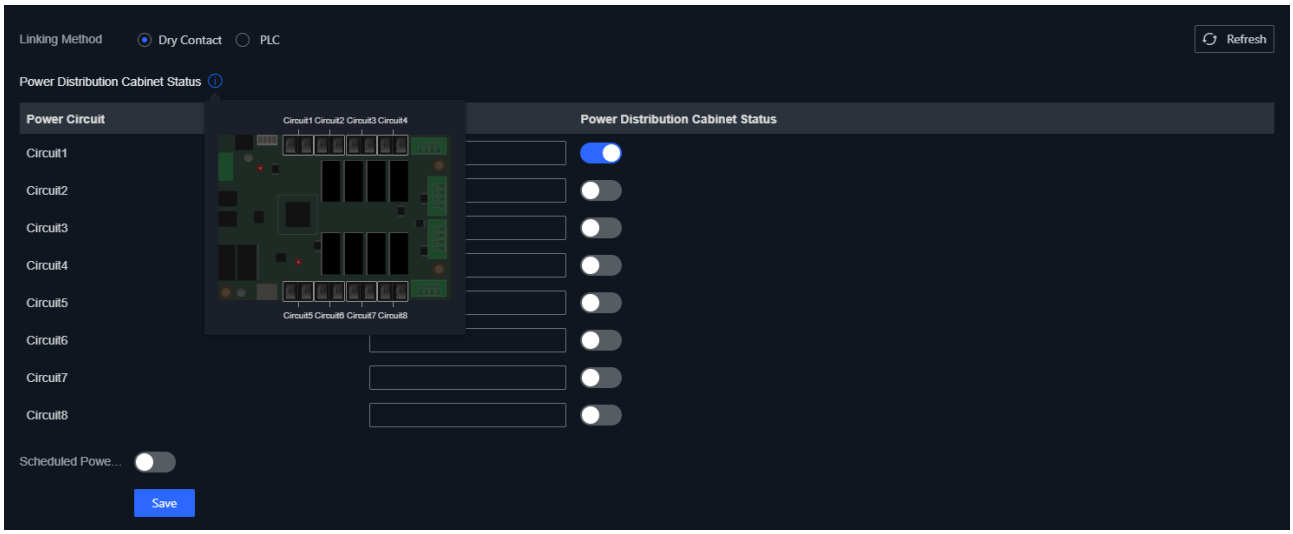

Figure 8-25 Immediate On/Off Settings

- Scheduled on/off control:

1) Click **Add**, set the schedule, and click **OK**.
2) Enable **Scheduled Power On/Off**.
3) Click **Save**.

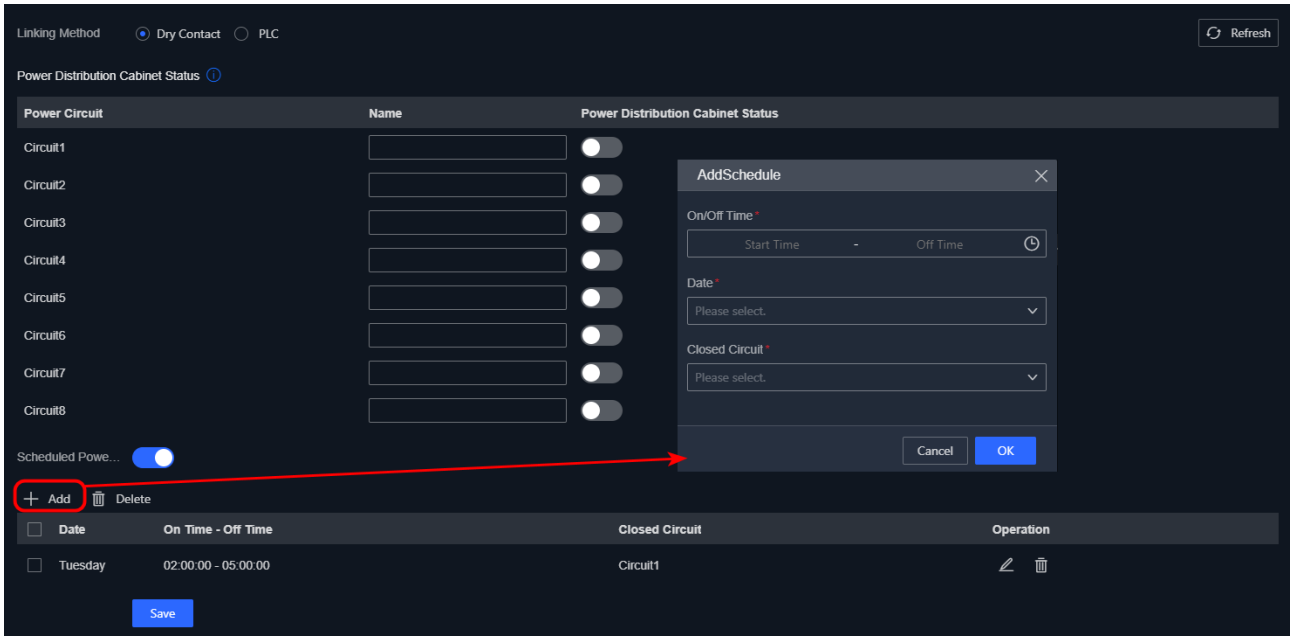

Figure 8-26 Scheduled On/Off Settings

Control Power Distribution Cabinet via Network

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device.

Step 2 Navigate to **Device Maintenance** > **Settings** > **IoT Configuration** > **Power Distribution Cabinet**.

Step 3 For network control, select **PLC** as the linking method.

Step 4 Click  to edit the IP address and port number of the power distribution cabinet.

Step 5 (Optional) To control more power distribution cabinets, click **Add**, and enter the IP address and port number.

Step 6 Click **Save**.

Step 7 Power on the power distribution cabinet.

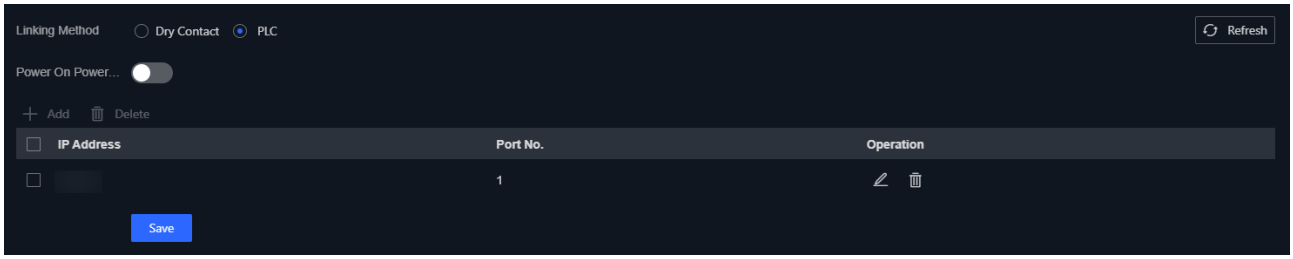

Figure 8-27 Control Power Distribution Cabinet via Network

8.4.5 Configure Auto Dehumidification

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device.

Step 2 Navigate to **Device Maintenance** > **Settings** > **IoT Configuration** >**Dehumidification**.

Step 3 Enable **Auto Dehumidification** and set the dehumidification parameters.

Step 4 Select the region according to the actual humidity condition of the device location. If you select **Custom**, set the time step, brightness step and duration.

- **Time Step**: The time interval between two consecutive brightness adjustments by the LED controller during a single dehumidification process. If the brightness is adjusted every 5 minutes, the time step is 5 minutes.
- **Brightness Step**: The minimum change in brightness for each adjustment by the LED controller during a single dehumidification process. If the brightness increases by 1 each time, the brightness step is 1.
- **Duration**: The total time of a single dehumidification process.
- **Usage**: The usage rate of the device.

Step 5 Click **Save** or **Save & Start**.

Step 6 (Optional) To stop the ongoing dehumidification process, click **Stop Current Dehumidification Process**.

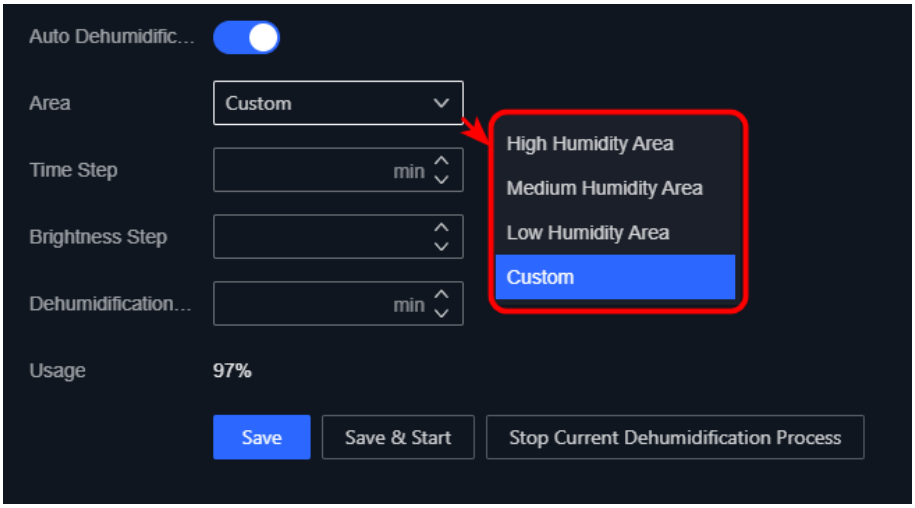

Figure 8-28 Configure Auto Dehumidification

8.5 Configure LED Controller Working Mode

Applicable Devices

DT60V/P and certain DS-TV/U series LED controllers.

Steps

Step 1 Select a V/P-series LED controller.

Only DT90 series LED controllers do not support working mode configuration.

Step 2 Navigate to **Device Maintenance** > **Settings** > **Working Mode**, and select a working mode.

- By default, the V/P/U-series LED controllers use video processing mode.
- When a V-series LED controller needs to work as a C-series LED controller, select **Sync Mode**.
- When a P/U-series LED controller needs to work as a B-series LED controller, select **Sync Mode**.

Step 3 Click **Save**. The device will restart to make the selected working mode effective.

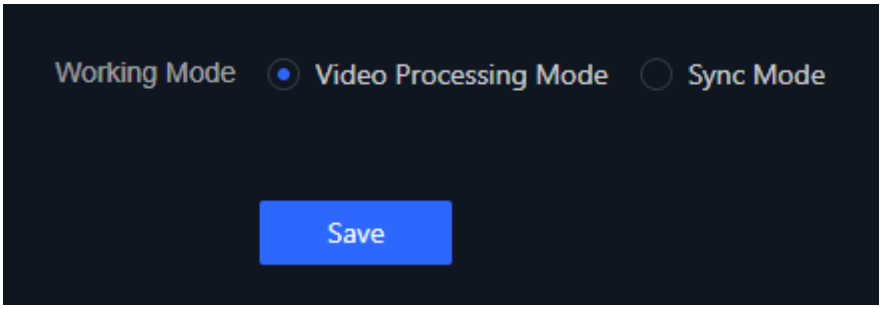

Figure 8-29 Configure Working Mode

8.6 Configure LED Controller Cascading/Self-Splicing

Applicable Devices

- Cascading support: DT60C/V, DT90C/V, and certain DS-TC/V series LED controllers.
- Self-splicing support:
  - LED controller-based: 4K DT60V/P and certain 4K DS-TV/U series LED controllers.
  - Video wall controller-based: 4K DT60C and certain 4K DS-TC series LED controllers.

Important

- A maximum of 16 LED controllers can be cascaded.
- When using a video wall controller with C-series LED controllers, disable the self-splicing function on the C-series LED controllers.

Steps

Step 1 Select an LED controller.

Step 2 Navigate to **Device Maintenance** > **Settings** > **Cascading & Self-Splicing**.

Step 3 Enable display cascading when multiple C/V-series LED controllers are cascaded. With display cascading enabled, you can view the cascading status of each device.

Step 4 Configure self-splicing:

- When multiple V/P-series LED controllers use themselves for video wall splicing, configure self-splicing as follows:

1) Navigate to **Display Settings > Display Mapping** and position V/P-series LED controllers on the canvas.
2) Enable display self-splicing. With display self-splicing enabled, you can view the self-splicing status of each device.

- When multiple C-series LED controllers connect to a video wall controller, and the video wall controller is used for video wall splicing, disable display self-splicing on the C-series LED controller.

Step 5 To show the IP addresses and serial numbers of LED controllers on the display, enable **Show Device ID**.

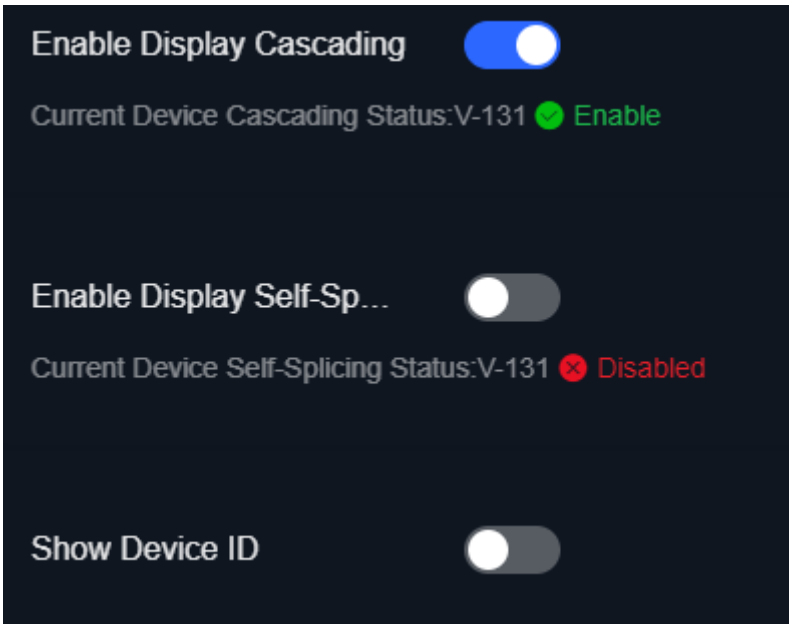

Figure 8-30 Configure Cascading/Self-Splicing Parameters

Chapter 9 Display/Device Maintenance

9.1 View Display Status

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device or display.

Step 2 Navigate to **Device Maintenance** > **Display Maintenance**.

Step 3 Check if the display status is normal:

- Enable **Live View** at the top of the page to preview the image on the display.
- Enable **Show Connections** at the top of the page, and then the display will show the configured connections between the LED controller network ports and cabinets.
- Hover over a device to view the receiving card details. To view the receiving card debug information, click **Debug Info** and click **Read Back** or **Export** as required.

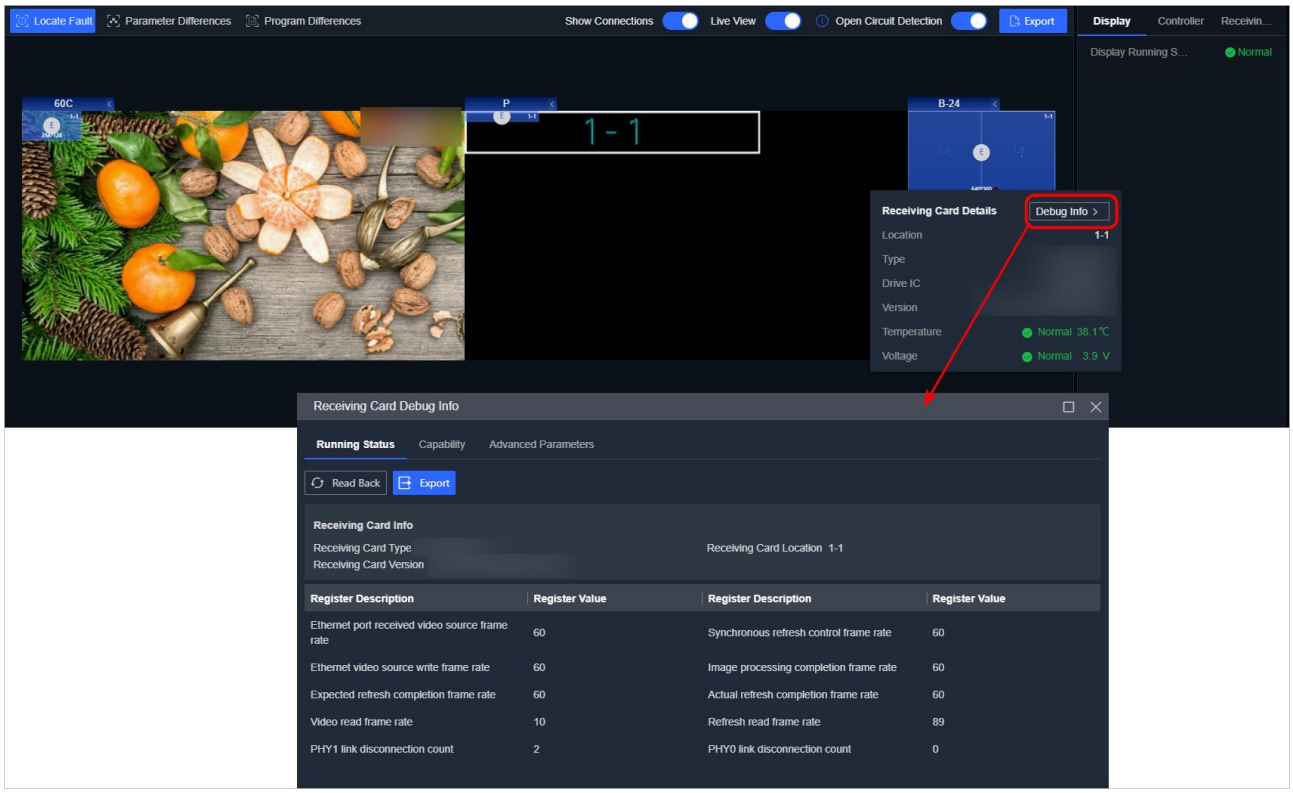

Figure 9-1 View Receiving Card Details

- Click **Local Fault** at the top of the page. The offline cabinets will be shown in red.

- Click **Parameter Differences** at the top of the page. If the receiving card configuration files of the cabinets are inconsistent, these cabinets will be shown in different colors.
- Click **Program Differences** at the top of the page. If the receiving card program versions of the cabinets are inconsistent, these cabinets will be shown in different colors.
- Click the **Display** window on the right side of the page to view the display running status. If the display runs abnormally, it will show the faulty devices and abnormal type.

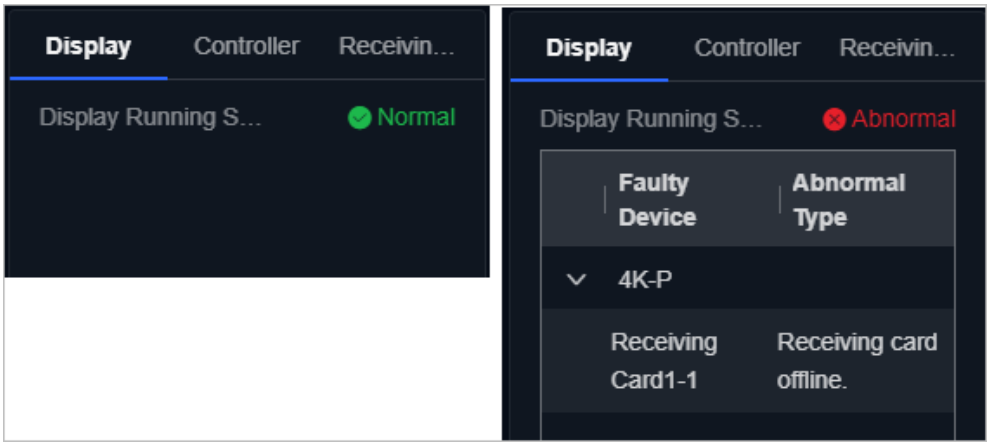

Figure 9-2 View Display Running Status

Step 4 (Optional) You can perform the following operations as required:

- Enable **Open Circuit Detection** to repair the cross phenomenon caused by damaged lamp beads. Before repairing the damaged lamp beads, disable open circuit detection.
- Select the cabinets and click **Export** to export the receiving card configuration file, receiving card program file, thermal compensation file, color file, or debug information file.



Figure 9-3 Export Receiving Card File

9.2 View LED Controller Status

Applicable Devices

All series LED controllers.

Steps

- Navigate to **Device Maintenance** > **Display Maintenance**, and select an LED controller. Click the **Controller** window on the right side of the page to view the basic information of the LED controllers. To copy the parameters, you can click **Copy Parameters**.

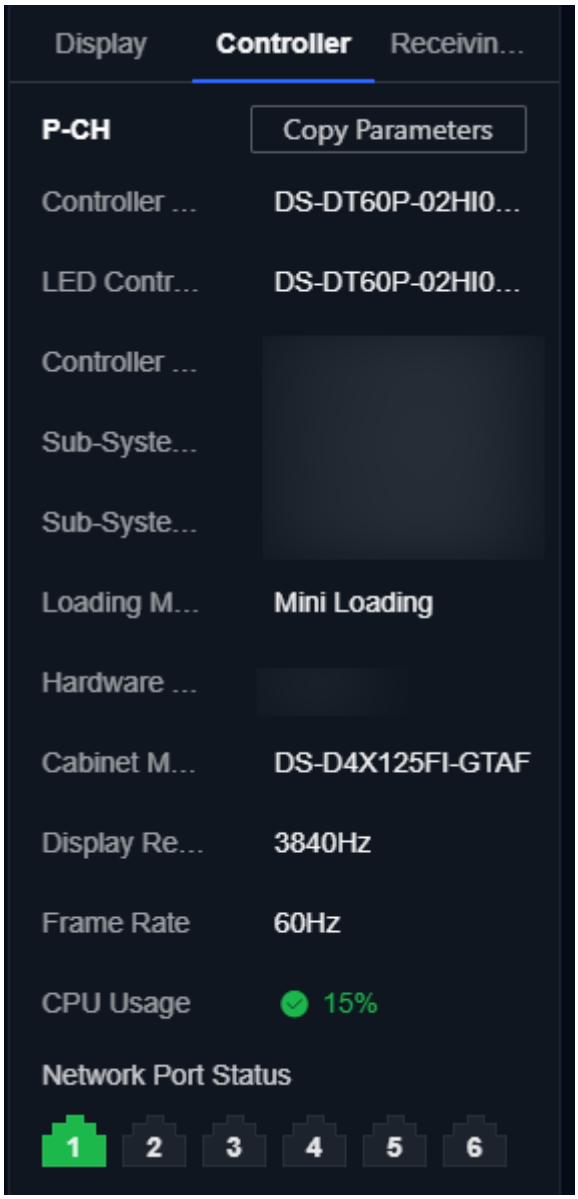

Figure 9-4 View LED Controller Information (Device Maintenance Page)

- Select an LED controller, and navigate to **Device Maintenance** > **Settings** > **System** > **System Information** > **Basic Info** to view its basic information.

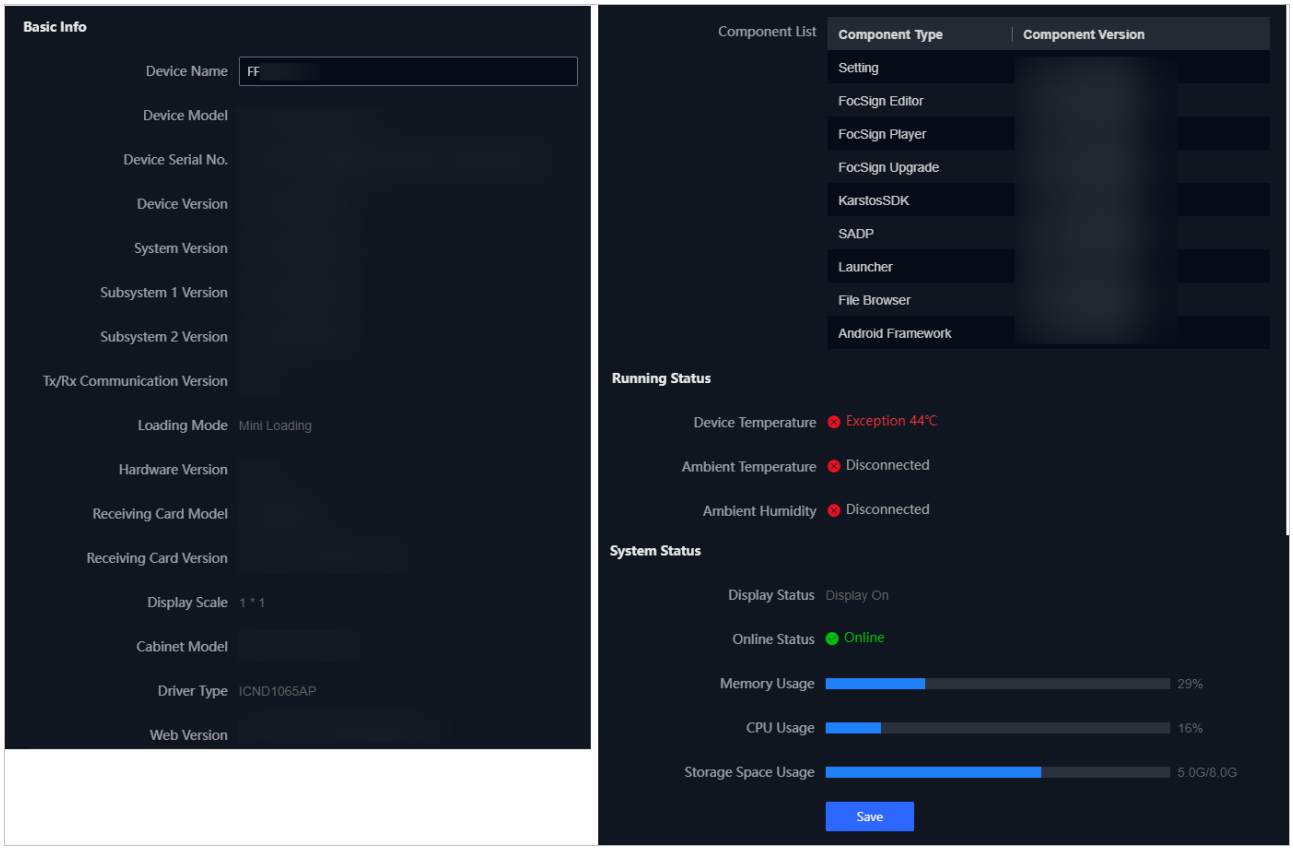

Figure 9-5 View LED Controller Information (Basic Info Page)

9.3 Maintain Receiving Card

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Select a device or display, and navigate to **Device Maintenance** > **Display Maintenance**.

Step 2 In the **Receiving Card** window, you can perform the following operations as required:

- If a receiving card is replaced after display mapping configuration, use the quick card change function to make the program and parameters of the newly installed receiving card consistent with other receiving cards. See "9.3.1 Configure Quick Card Change".
- Upgrade the selected receiving card, see "9.3.2 Upgrade Receiving Card".
- Check for color accuracy and dead pixels on the display, see “9.3.3 Test Receiving Card Condition”.
- If the display flickers or there is poor contact between the receiving card and LED controller, check the bit error rate. See "9.3.4 Detect Bit Error Rate (BER)".

9.3.1 Configure Quick Card Change

Function Description

This function is used to quickly copy parameters for newly installed or replaced receiving cards. Both manual and auto modes are supported. Please choose the appropriate mode based on your requirements.

Important

- A correctly configured receiving card must be available as a reference.
- To use the automatic card replacement function, ensure that only one type of receiving card configuration file exists within a single LED controller area.

Steps

- Manual mode:
  1) Install the receiving cards and ensure that they are correctly connected to the LED controller.
  2) Open **Quick Card Change** in the **Receiving Card** window.
  3) Right-click on a correctly configured receiving card and click **Copy**.
  4) Right-click on the newly installed receiving cards and click **Paste**.
  5) Click **OK**.

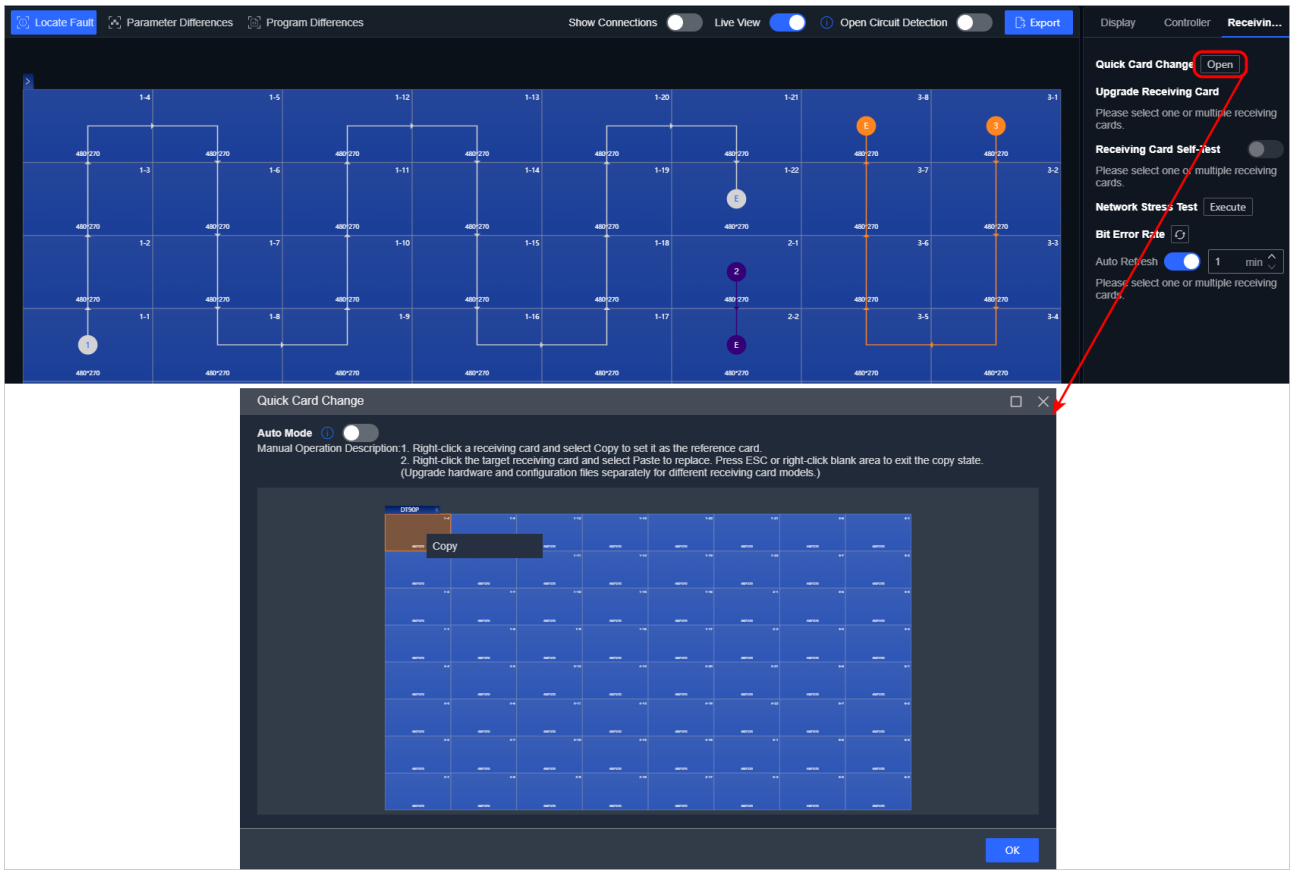

Figure 9-6 Manual Mode (DT90 Series)

- Auto mode:
  1) Open **Quick Card Change** in the **Receiving Card** window.
  2) Enable **Auto Mode** and click **OK**.
  3) Install the receiving cards. The system will then automatically copy the configuration from the currently active receiving card to new receiving cards.

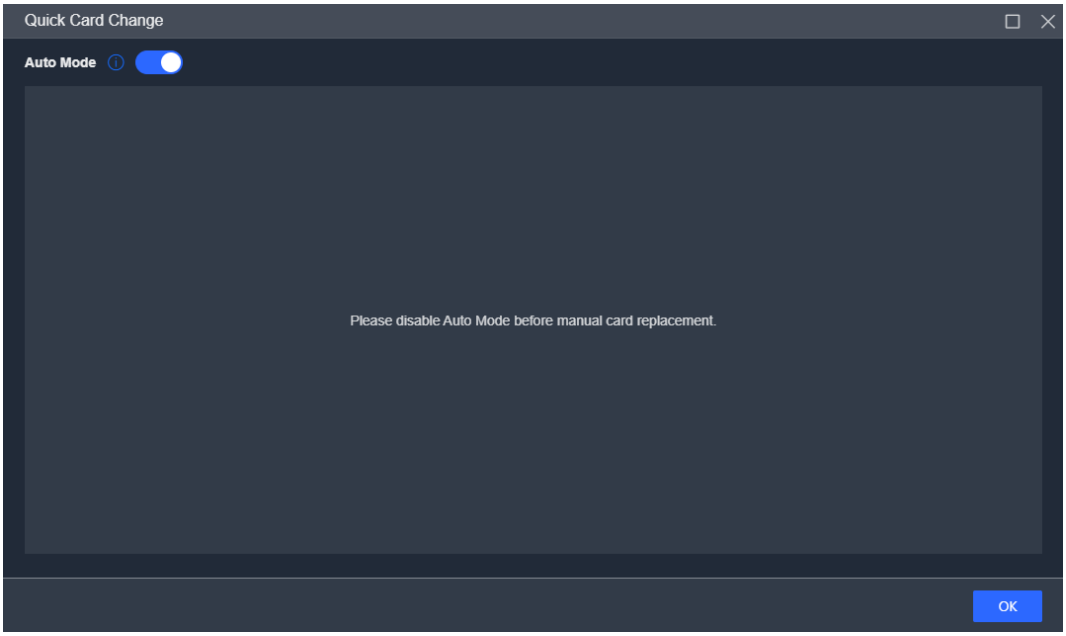

Figure 9-7 Auto Mode (DT90 Series)

9.3.2 Upgrade Receiving Card

Step 1 Select a single or multiple receiving cards.

Step 2 In the **Receiving Card** window, click  to upload the receiving card upgrade file.

Step 3 Click **Upgrade**.

9.3.3 Test Receiving Card Condition

Only certain receiving cards support receiving card self-test.

Step 1 Select a single or multiple receiving cards.

Step 2 In the **Receiving Card** window, enable **Receiving Card Self-Test**.

Step 3 Select a pure color, gray scale, or line to check whether the display color is normal or whether the dead pixels exist.



Figure 9-8 Test Receiving Card Condition

9.3.4 Detect Bit Error Rate (BER)

Only certain receiving cards support BER detection.

When the display exhibits abnormal flickering or unstable connections between the receiving card and LED controller, check the bit error rate in the **Receiving Card** window. The **Receiving Card** window displays accumulated BER values based on the configured auto-refresh interval.

- Edit the auto refresh interval as required.
- Click **Clear** to reset BER value.
- Click **Network Stress Test** to measure BER value for each network port. After the test, the BER value for each network port will be displayed and the test results will be included in the accumulated BER values in the **Receiving Card** window.
- Disable Auto Refresh during high-load scenarios if necessary.

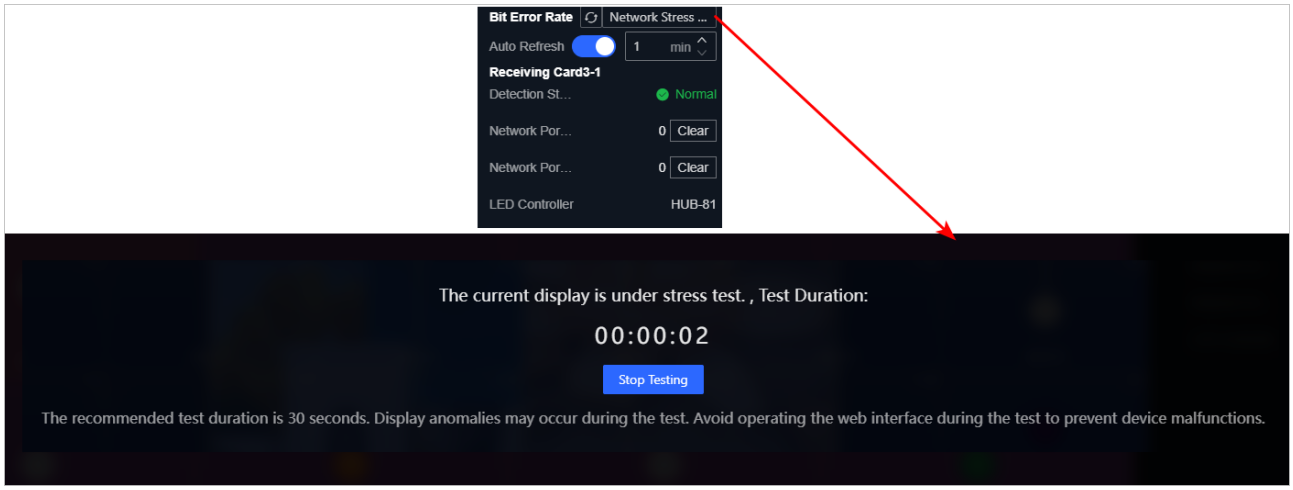

Figure 9-9 View BER Values

9.4 Maintain Device

Applicable Devices

All series of LED controllers and video wall controllers.

9.4.1 Restart

Step 1 Select a device and navigate to **Device Maintenance** > **Maintenance and Security** > **Restart**.

Step 2 You can restart the following devices:

- An LED controller supports restarting both the LED controller itself and the connected receiving cards.
- A video wall controller only supports restarting the receiving cards that are connected to the LED controller boards in the video wall controller.

9.4.2 Backup and Reset

Step 1 Select a device and navigate to **Device Maintenance** > **Maintenance and Security** > **Backup and Reset**.

Step 2 Export the configuration file of the LED controller or receiving card.

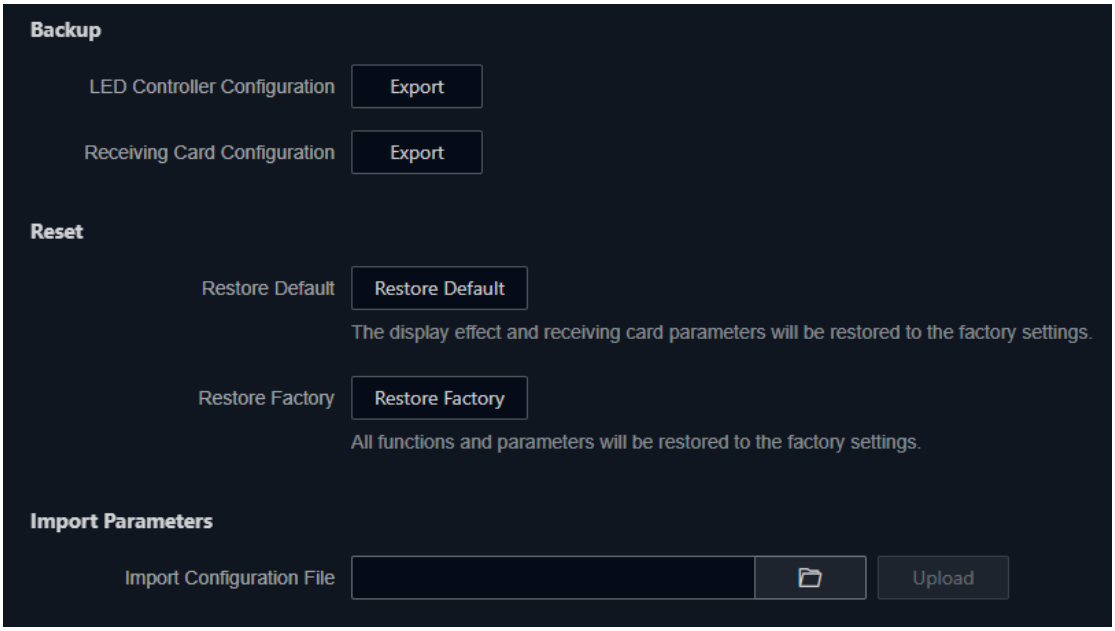

Figure 9-10 Backup and Reset Device

Step 3 Reset the device:

- Click **Restore Default** to restore the display effect and receiving card parameters to the factory settings. Please use this function with caution.
- Click **Restore Factory** to restore all functions and parameters to the factory settings. Please use this function with caution.

Step 4 Import configuration file: click  to select a locally saved configuration file and click **Upload**.

9.4.3 Log Management

Step 1 Select a device and navigate to **Device Maintenance** > **Maintenance and Security** > **Log**.

Step 2 Set the search condition and click **Search**.

Step 3 You can view the searched logs in the list below. You can click **Export** to export the logs.

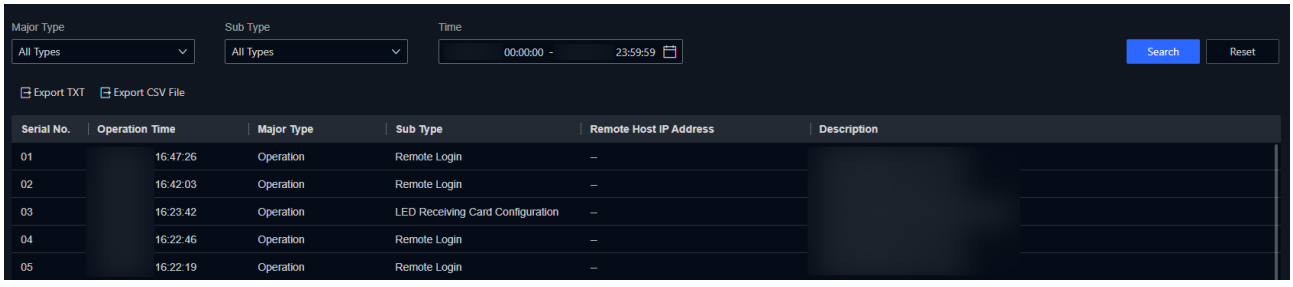

Figure 9-11 Search Logs

9.4.4 Device Debugging

Step 1 Select a device and navigate to **Device Maintenance** > **Maintenance and Security** > **Device Debugging**.

Step 2 Dual power monitoring: If the device is equipped with dual power supplies, enable this function. When a power supply fails, the client will show a relevant alert under **Device Maintenance** > **Display Maintenance**.

Step 3 (Applicable to C/V-series LED controllers and LED controller boards) SSH (Secure Shell) service: Enable or disable SSH as needed. If remote login is not required, it is recommended to disable SSH to ensure network security.

Step 4 (Applicable to B/P/U-series LED controllers) Android maintenance:

- Enable **Log Records** to record the maintenance logs of the Android system.
- Click **Export** to export the ZIP file of the Android system maintenance logs.
- Enable **ADB Debugging**, and then use the Android Debug Bridge (ADB) tool and the device activation password to maintain the device Android system.

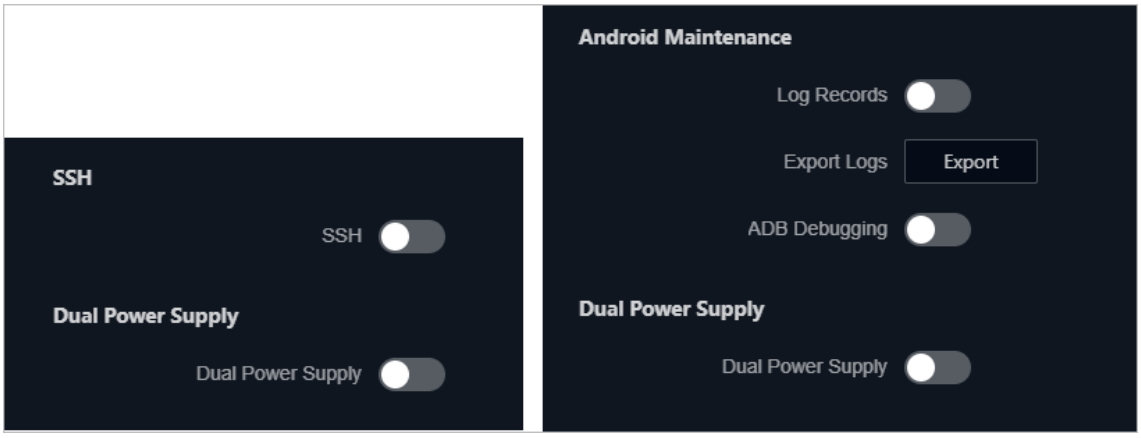

Figure 9-12 Device Debugging Page (Left: DT60C, Right: DT60P)

9.4.5 Permission Management

Step 1 Select a device and navigate to **Device Maintenance** > **Maintenance and Security** > **Permission Management**.

Step 2 Enable **Display-Off**.

Step 3 Select a display-off method.

Step 4 Set the display-on code. When the display is turned off, you can navigate to the **Permission Management** page and enter the display-on code to turn on the display.

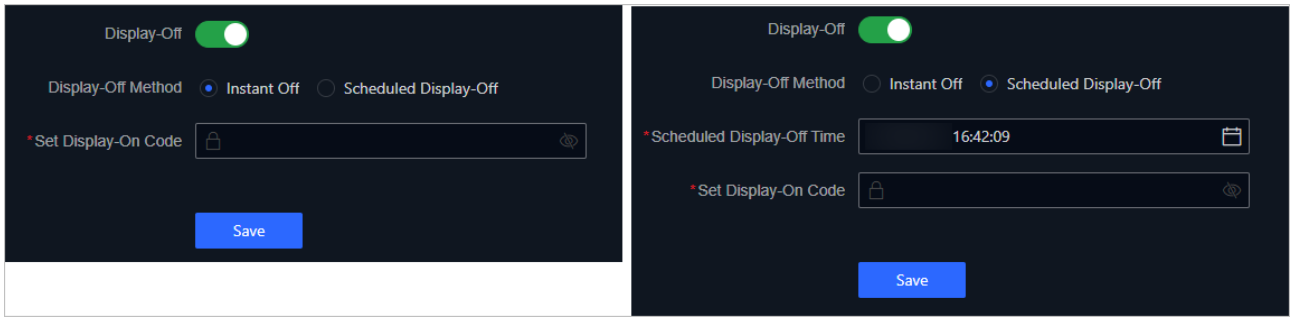

Figure 9-13 Permission Management Page

Chapter 10 Client Tools & Cloud Service

10.1 Cloud File Search

Applicable Devices

All series LED controllers and video wall controllers.

Function Description

When the computer with the client installed has access to the public internet, the client supports downloading receiving card configuration files, calibration files, and receiving card upgrade packages from the cloud.

Steps

Step 1 Click **Tools** in the upper right corner of the client, and click **Cloud File Search**.

Step 2 Enter the search criteria and click **Search**.

- To search for receiving card configuration files or calibration files, see "10.1.1 Search for LED Module Configuration Files".
- To search for receiving card upgrade packages, see "10.1.2 Search for Receiving Card Upgrade Packages".
- To search for receiving card configuration files for third-party LED module, see "10.1.3 Search for Third-Party LED Module Configuration Files".

Step 3 Click  to download files locally for offline configuration.

10.1.1 Search for LED Module Configuration Files

On the **LED module Configuration File** page, select either of the following methods:

- Online search: Enter the LED module serial number, LED module order number, cabinet serial number, or file name, and click **Search**. You can use this method to search for both receiving card configuration files and calibration files.

Note

The file name supports up to 6 keywords, with each keyword containing at least 3 characters. Keywords should be separated by spaces and are case-sensitive.

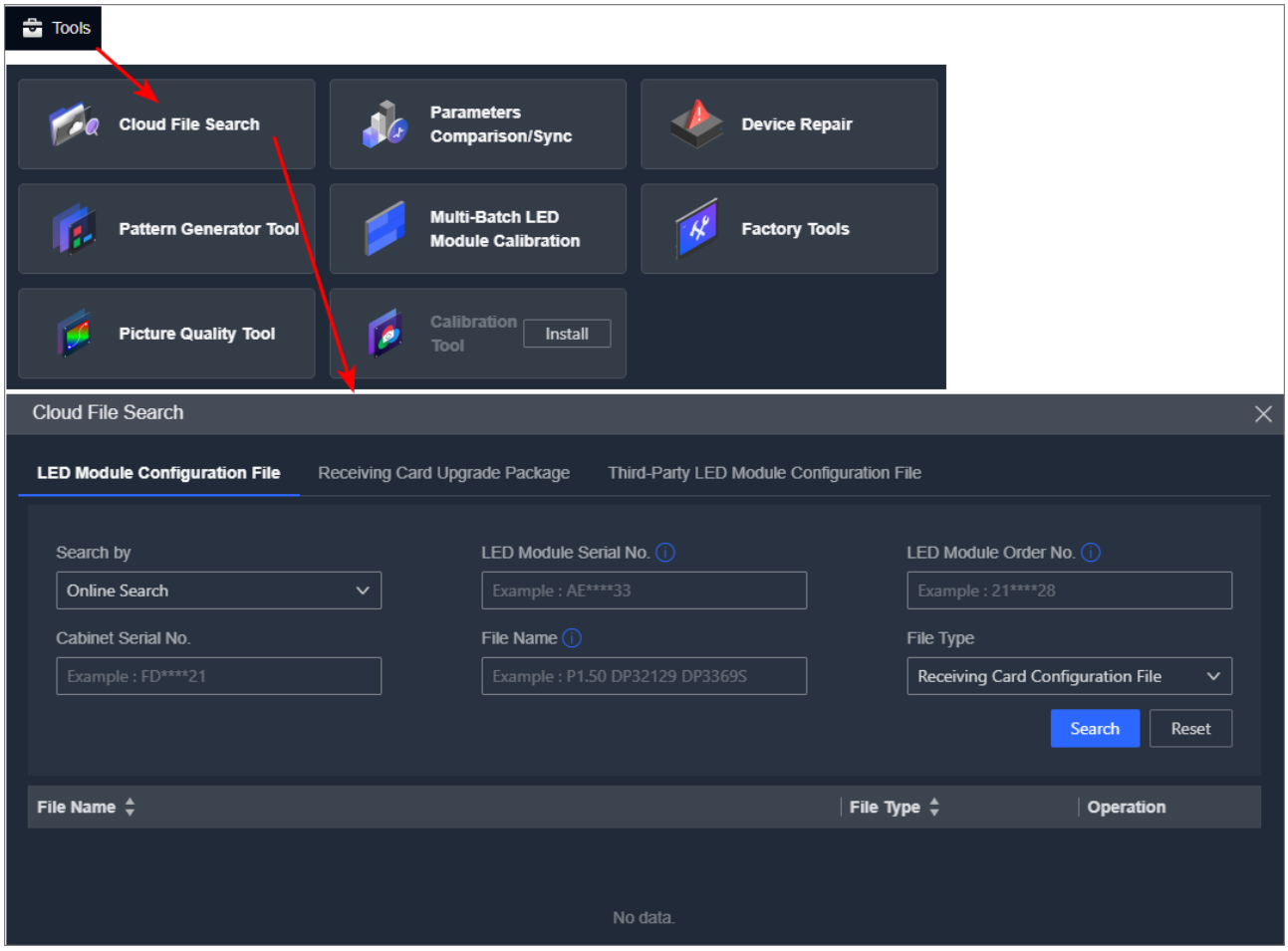

Figure 10-1 Search LED Module Configuration File Online

- Use local LED module SN file: Select an SN file and click **Search**. You can use this method to search for calibration files only.

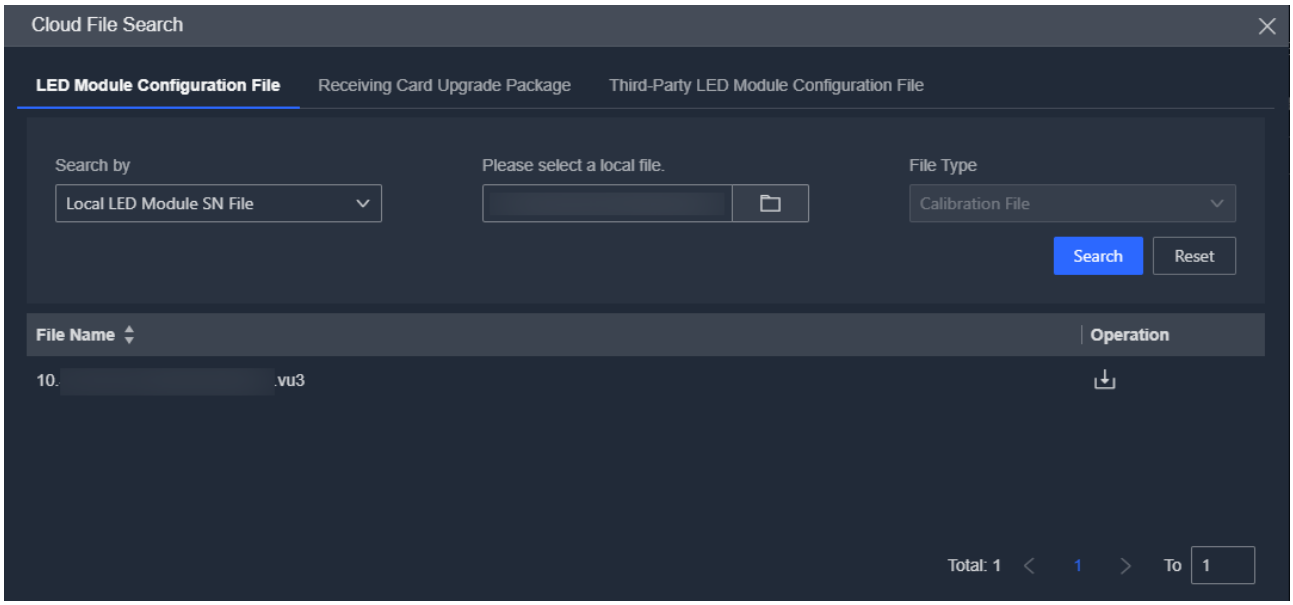

Figure 10-2 Use Local LED Module SN File

10.1.2 Search for Receiving Card Upgrade Packages

On the **Receiving Card Upgrade Package** page, enter either of the following criteria:

- If you know the drive model and receiving card model, select **Drive IC Online Selection**. Select a drive model and receiving card model, and click **Search**.

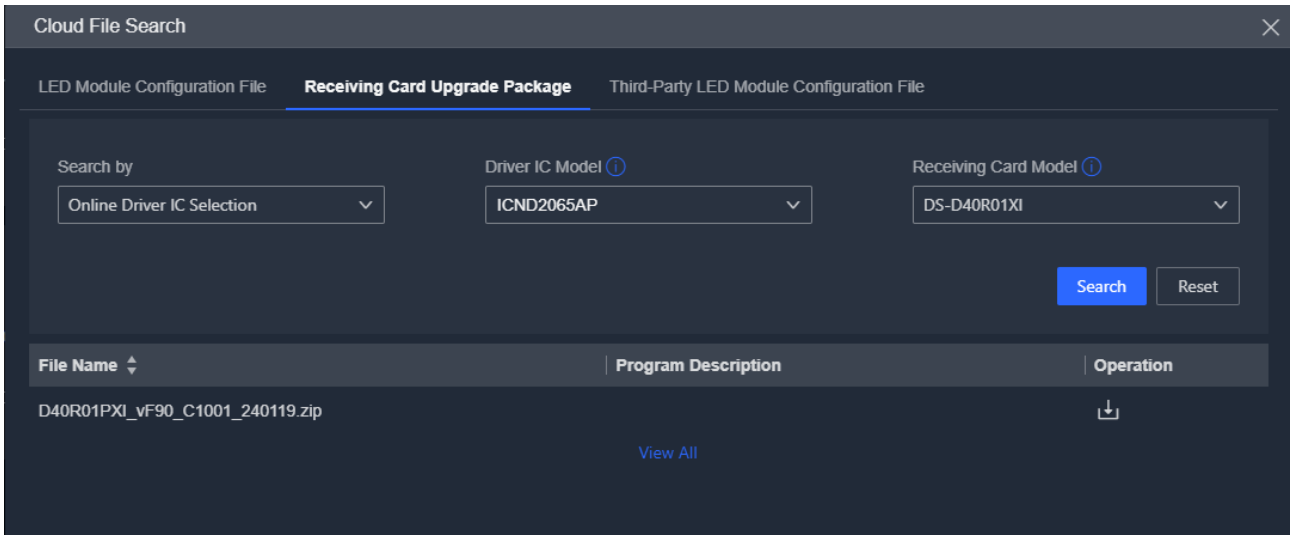

Figure 10-3 Select Drive Model

- If you have the configuration file saved locally and know the receiving card model, select **Local Config. File Parsing**. Click  to upload a local configuration file, select a receiving card model, and then click **Search**.

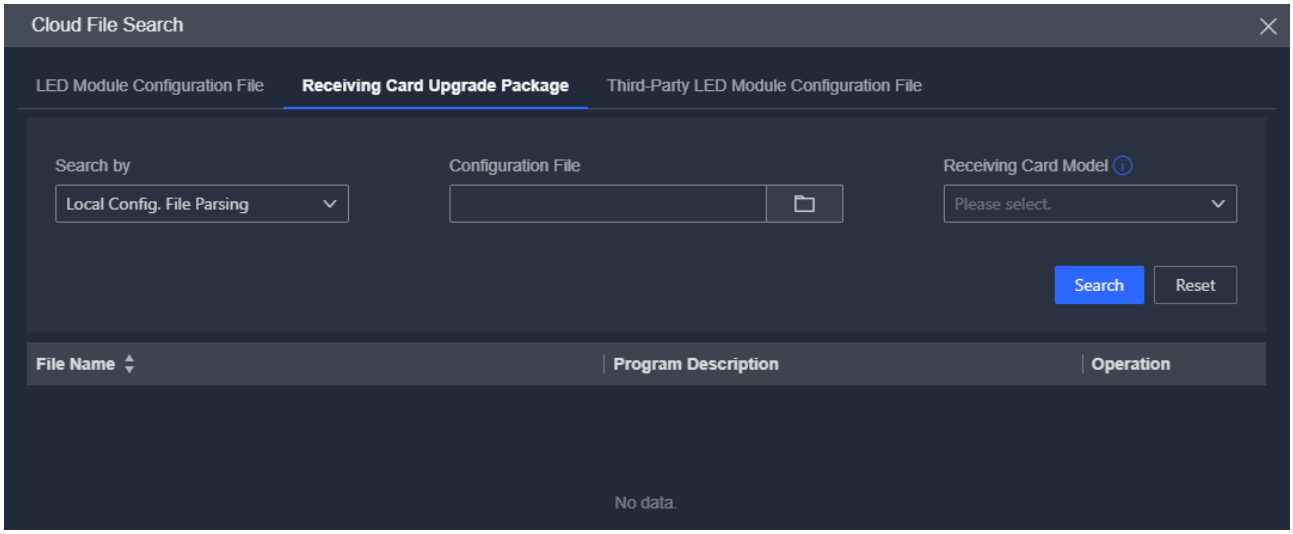

Figure 10-4 Parse Local Configuration File

- If you know the LED module serial number and receiving card model, select **Serial No**. Enter the LED module serial number, select a receiving card model, and click **Search**.

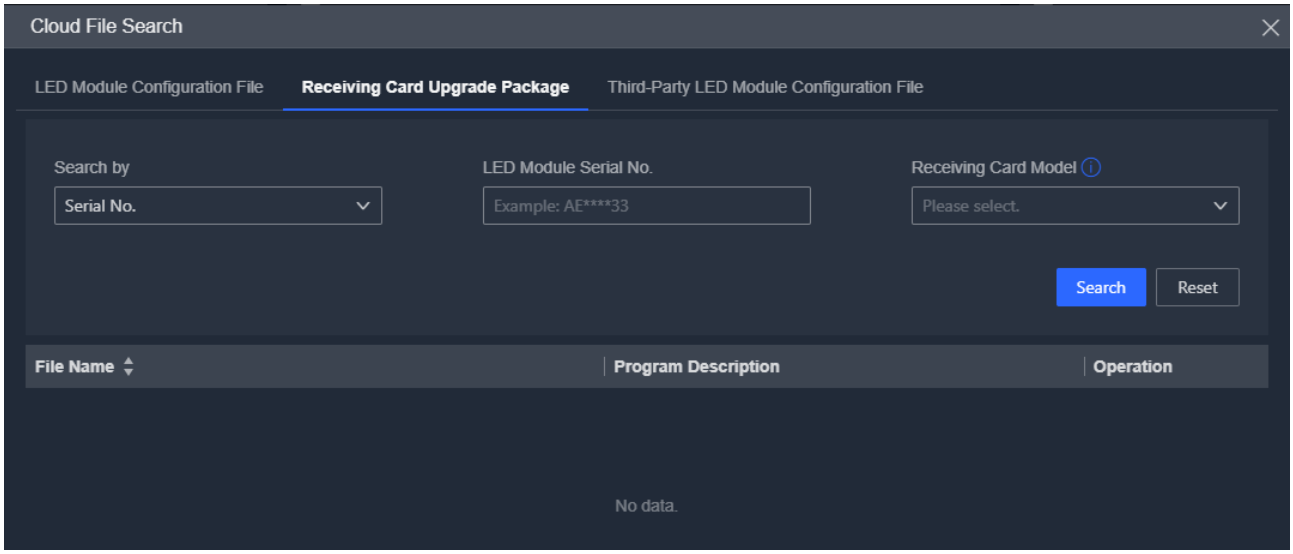

Figure 10-5 Enter Serial Number

10.1.3 Search for Third-Party LED Module Configuration Files

Step 1 On the **Third-Party LED Module Configuration File** page, select the manufacturer, LED module type, and pixel pitch.

Step 2 Enter the file name. The file name supports up to 6 space-separated keywords. Each keyword must contain at least 3 case-sensitive characters

Step 3 Click **Search**.

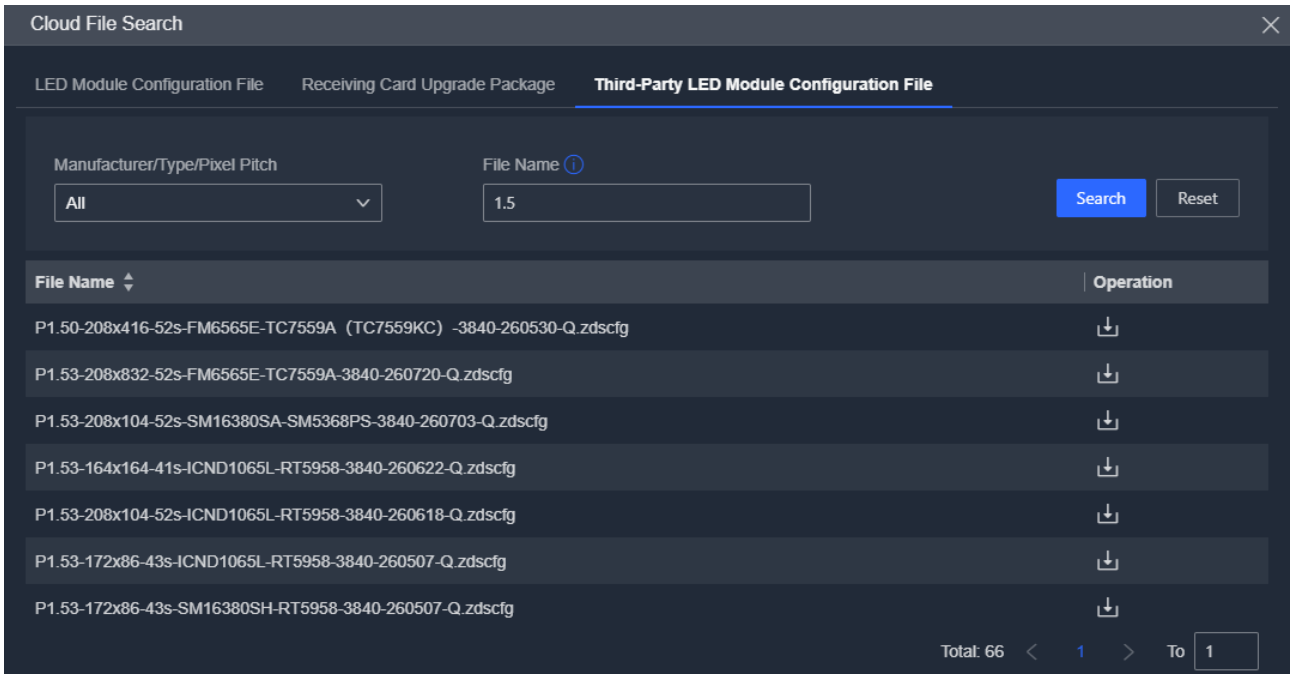

Figure 10-6 Search for Third-Party LED Module Configuration Files

10.2 Tools

10.2.1 Compare/Sync Parameters

Compare Parameters

Applicable Devices

All series of LED controllers and video wall controllers.

Important

Only online projects support parameter comparison and synchronization.

Steps

Step 1 Click **Tools** in the upper right corner of the client, and click **Parameters Comparison/Sync**.

Step 2 Select multiple target devices and choose the parameters to be compared.

Synchronize Parameters

Applicable Devices

All series of LED controllers and video wall controllers.

Function Description

Synchronization scope includes:

- Brightness parameters: ambient brightness, brightness, initial brightness, eye protection mode, dynamic energy saving
- Gray parameters: ultra-low gray control, gray scale optimization, initial gray level
- Color parameters: contrast, gamma coefficient, color standard, calibration, preset mode, color temperature adjustment, 3D LUT switch, 3D LUT ID

Important

Only online projects support parameter comparison and synchronization.

Steps

Step 1 Click **Tools** in the upper right corner of the client, and click **Parameters Comparison/Sync**.

Step 2 Click **Sync**, and select one device as the standard device.

Step 3 Check the other devices that require parameter synchronization, and then click **OK**.

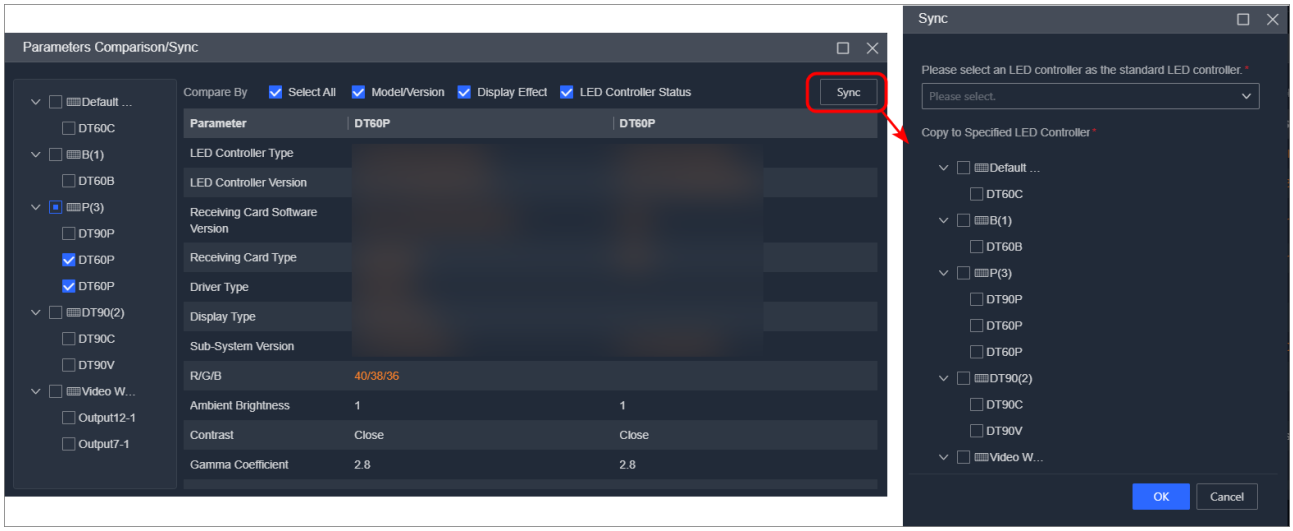

Figure 10-7 Compare/Sync Parameters

10.2.2 Repair LED Controller

Applicable Devices

All series of LED controllers.

Function Description

If you cannot start an LED controller, contact the product supplier to obtain the upgrade file, and use the device repair function to upgrade the LED controller.

Important

Only online projects support LED controller repair.

Steps

Step 1 Click **Tools** in the upper right corner of the client, and click **Device Repair**.

Step 2 Select the target LED controller and click **Repair by Upgrade File**.

Step 3 Enter the following fixed verification information in the pop-up window:

- Username: admin
- Password: hik12345
- Port: 8000

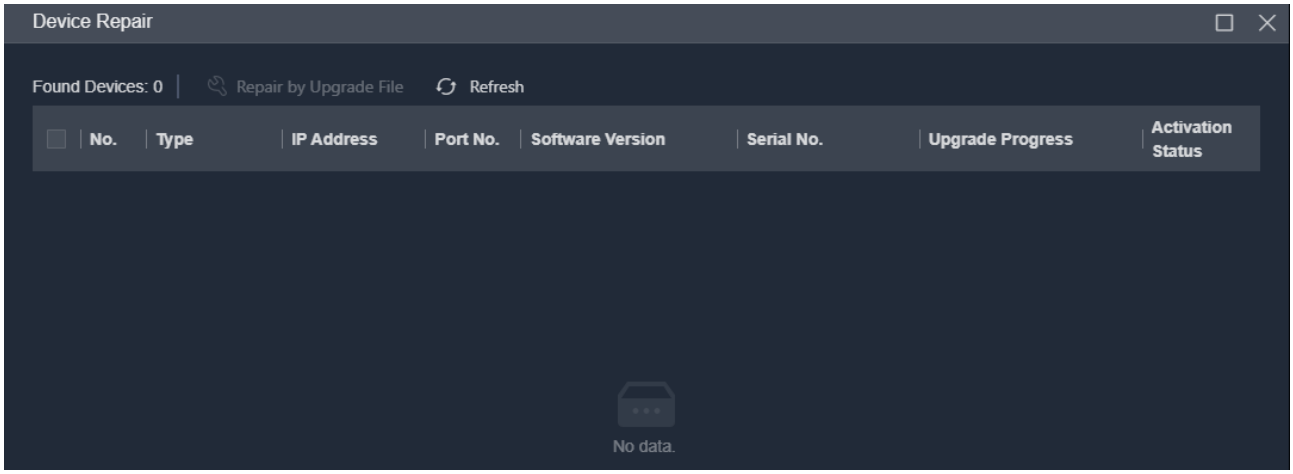

Figure 10-8 Repair LED Controller

10.2.3 Test Display Effect

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Click **Tools** in the upper right corner of the client, and click **Pattern Generator Tool**.

Step 2 Set the image area:

- Set the number of image creation windows: Click **Add** in the upper-left corner to add a new window and click corresponding to a window to remove it.
- Set window position: Manually adjust the X and Y values, click the icon in the **Quick Settings** area, or drag the window to the target position.
- Set window size: Manually adjust the W and H values, drag the window edges to resize, double-click the window to maximize/restore it, or click in the **Quick Settings** area to maximize the current window.
- Manage window status: Click **Hide**, **Show**, **Lock**, **Unlock**, **Pinned to Top**, or **Pinned to Bottom**.
- Overlay information: Enable **Overlay Information** and check the content to be overlaid.
- Reset window: Click **Reset** to restore the current window's position and size to default values.

Step 3 Set the test image:

- Solid color: Used to detect color uniformity, dead pixels, and dark spots.
- Gray gradient: Evaluates the display's gamma correction and color transition smoothness through gray gradients.
- Grid line: Used to detect geometric distortion, alignment of display splicing, and quickly locate abnormal pixels (such as dead pixels) via intersecting lines.

- Checkerboard: Used to detect pixel mapping accuracy, alignment of display splicing boundaries, and signal coupling issues (such as edge blurring/ghosting).
- Circle: Detects geometric distortion (such as warping, stretching, or compression) using concentric circle patterns, while also assessing color uniformity and edge focus.
- Test pattern: Evaluates dynamic display performance (such as refresh rate and motion blur) using controllable dynamic patterns.
- Location: Used to verify whether the data group order is correct.
- Text: Tests font rendering clarity, pixel support for text, and text display consistency on spliced displays.
- Video/image: Used for video aging tests or to verify display effects.
- Aging: Conducts aging tests on LED beads through prolonged playback and aging tests on the cabinet power supply via black-and-white screen flickering to induce current pulses.

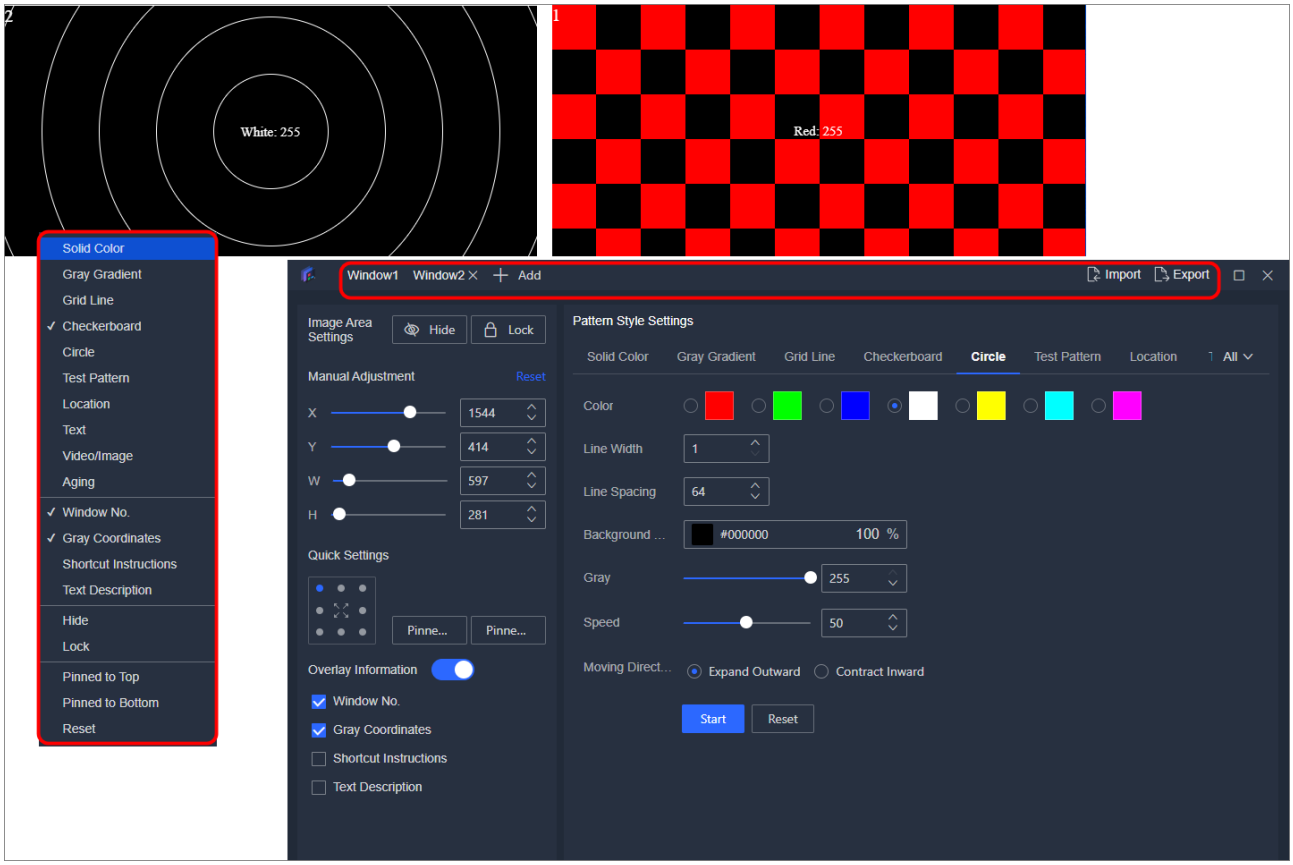

Figure 10-9 Pattern Generator Tool

Note

Right-clicking on the test image opens the shortcut menu for the pattern generator tool.

Step 4 (Optional) To save common test configurations or migrate settings between different devices, click **Import** or **Export** to batch manage all window data of the current tool (including window layouts, test pattern settings, etc.).

10.2.4 Calibrate Multi-Batch LED Modules

Applicable Devices

- Currently supported: DT60B/P series LED controllers (V6.3 and later).
- Upcoming supported: DT90P, DT30B/P, and DS-TB/U series LED controllers.

Function Description

When different batches of LED modules are used on the same display, resulting in uneven brightness or color differences, this function allows you to perform brightness or chromaticity calibration for each batch of LED modules to reduce the color difference between them.

The following two calibration methods are supported:

- Using a colorimeter to capture calibration data automatically. Only CA410 and CS150 colorimeters are supported.
- Directly adjust LED module parameters. Applicable to the following scenarios:
  - A colorimeter cannot be arranged on-site.
  - After colorimeter calibration, differences in multi-batch LED module parameters still exist and require further fine-tuning.

Important

- Only HUB receiving cards support this function.
- When using a colorimeter, the client will provide voice prompts. Ensure the computer volume is not muted.

Use Colorimeter

Step 1 Clear multi-batch historical data:

1) On the **Display Optimization > Calibration** page, enable **Multi-Batch** in the upper-left corner.
2) Select multiple LED modules, right-click, and choose **Clear Multi-Batch Data**.

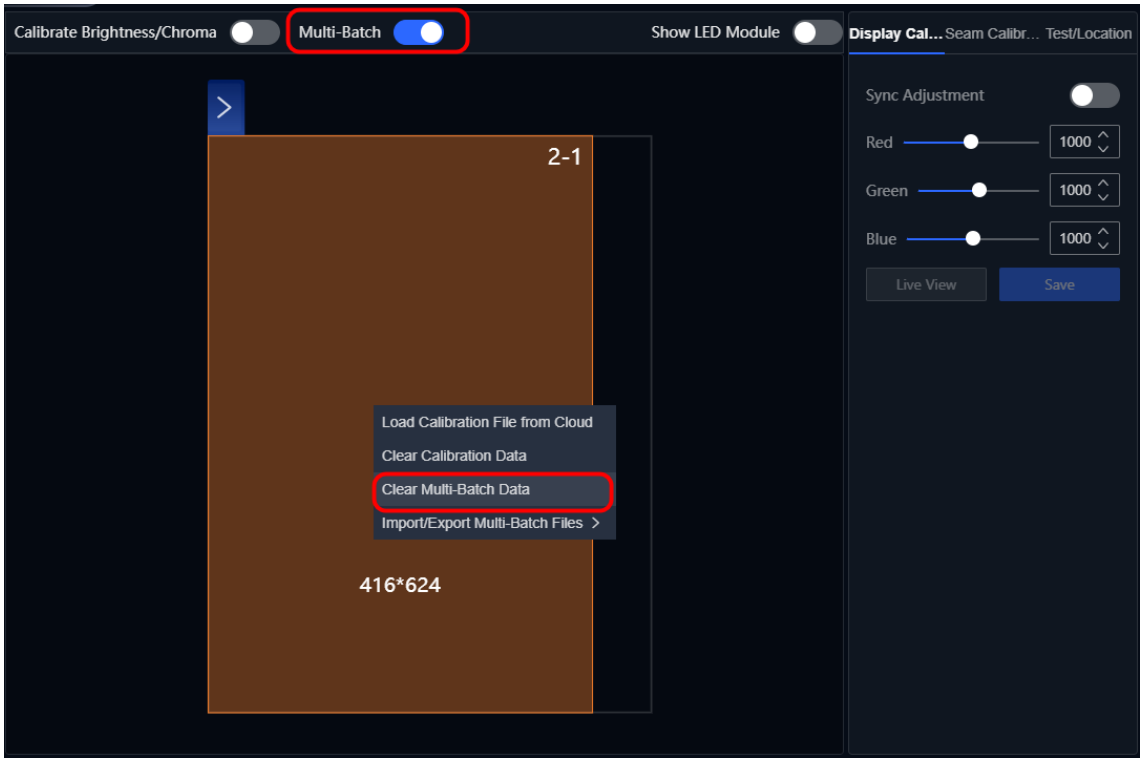

Figure 10-10 Clear Multi-Batch Data

Step 2 Click **Tools** in the upper-right corner of the client, then click **Multi-Batch LED Module Calibration**. A prompt window will appear. After confirming that the clearing operation in Step 1 has been completed, click **Continue**.

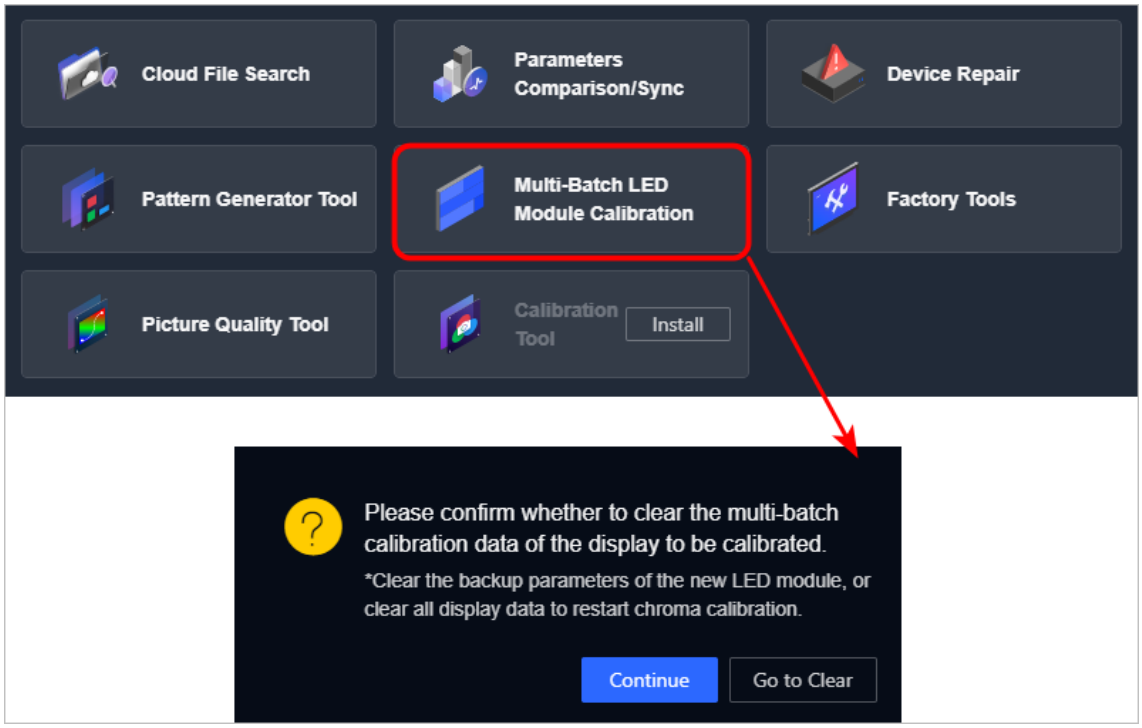

Figure 10-11 Multi-Batch LED Module Calibration Tool

Step 3 Select the calibration mode:

- Connect the colorimeter to the computer running the client via a USB port.
- Wait until the colorimeter status changes to **Connected**, select the corresponding calibration mode: **Brightness Calibration** or **Chroma Calibration**, and click **Next**.

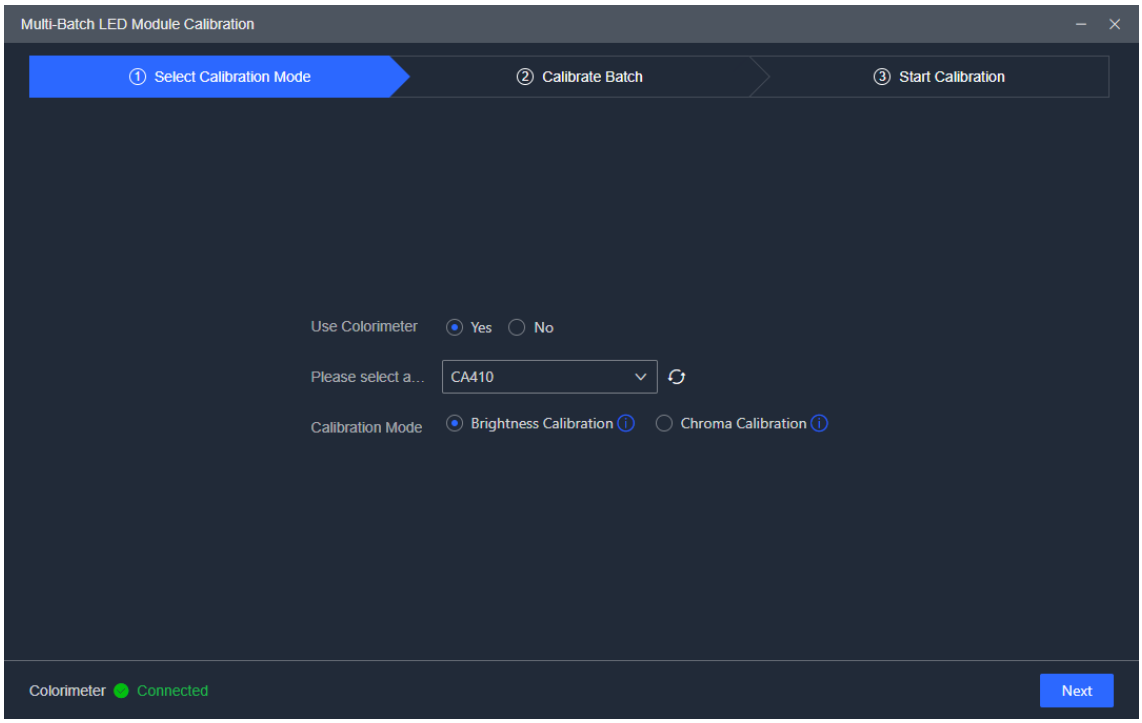

Figure 10-12 Select Calibration Mode

Step 4 Define batches:

1) Click **Add Batch**, set the batch name, select the display and cabinet areas, and click **OK**.

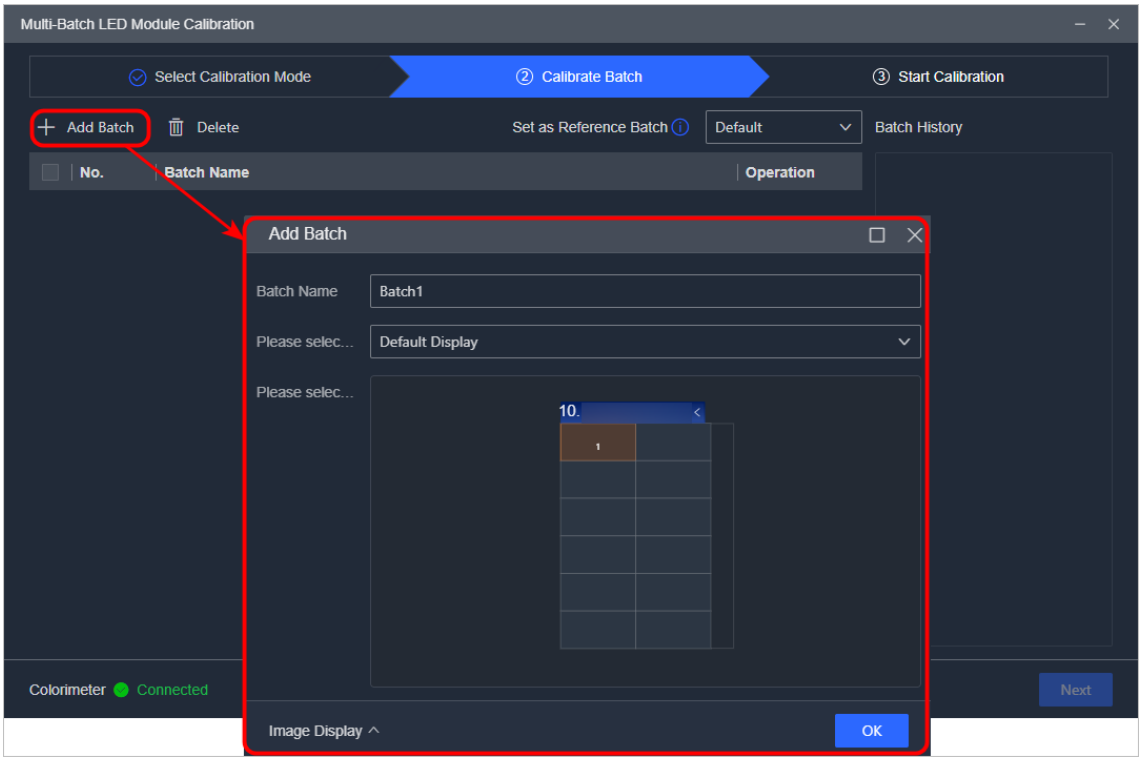

Figure 10-13 Add Batch

2) After adding the batches, it is recommended to use the default reference batch. Click **Next**.

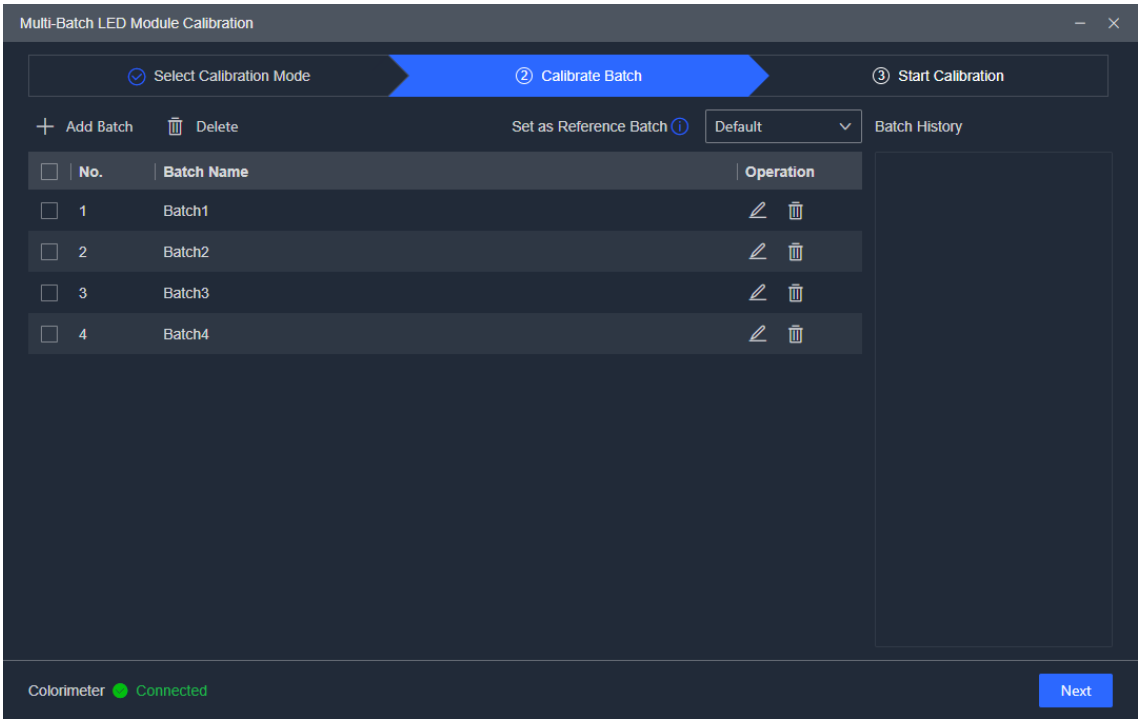

Figure 10-14 Calibrate Batches

Step 5 Collect LED module data:

1) According to the pop-up prompt, aim the colorimeter at the bright display area.
2) Click **Continue** to start capturing data for this batch.
3) Follow the prompts to complete data capture for all batches sequentially. The system will automatically proceed to the **Start Calibration** page.

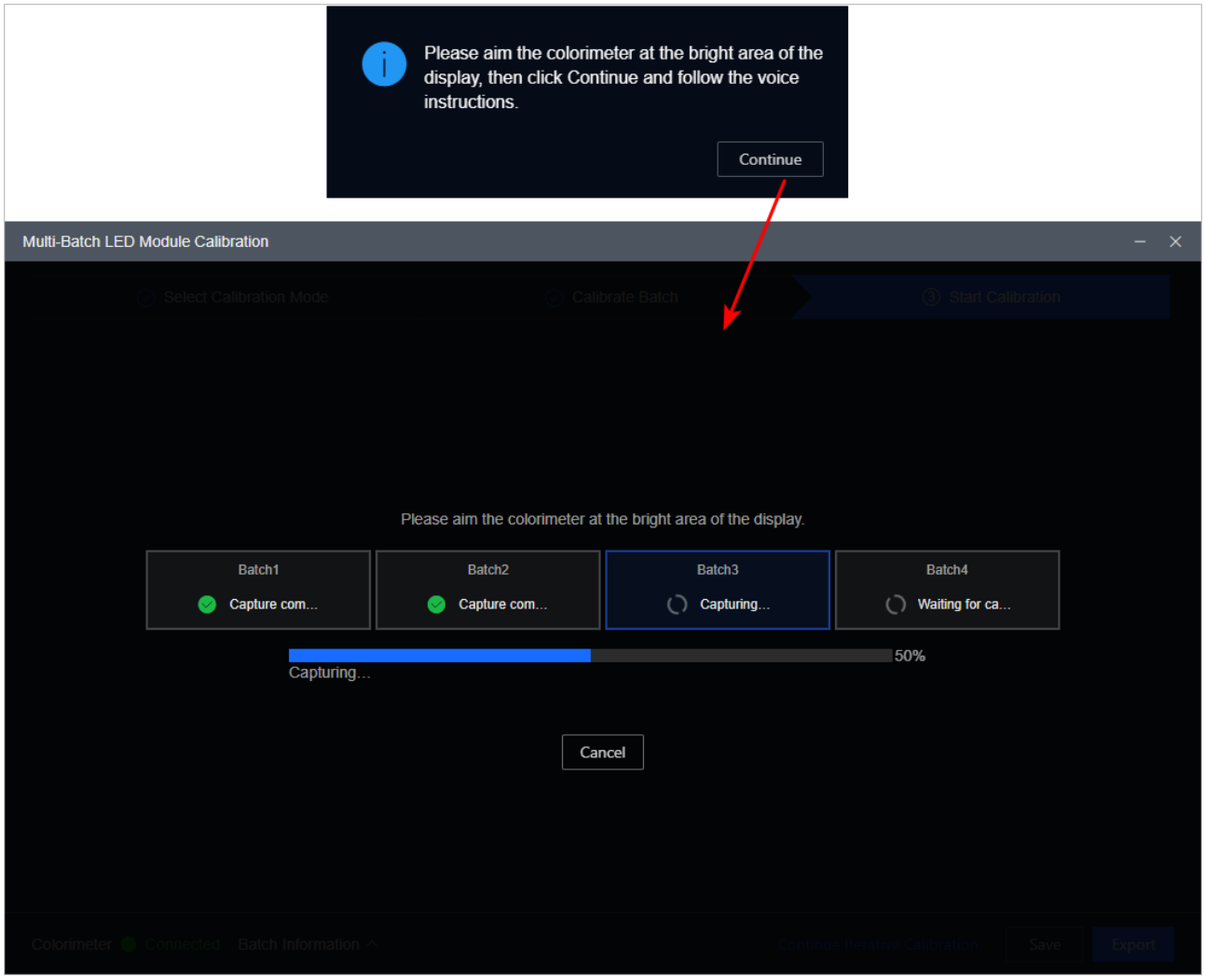

Figure 10-15 Capture Data

Step 6 After entering the **Start Calibration** page, a prompt window will appear, informing you of the subsequent operations. Click **OK** to close the pop-up window, then evaluate the calibration effect:

- If the effect is satisfactory, click **Save**.
- If the effect is unsatisfactory, click **Continue Iterative Calibration**, repeat the capture and calibration process until a satisfactory effect is achieved or the iteration limit is reached, then click **Save**.

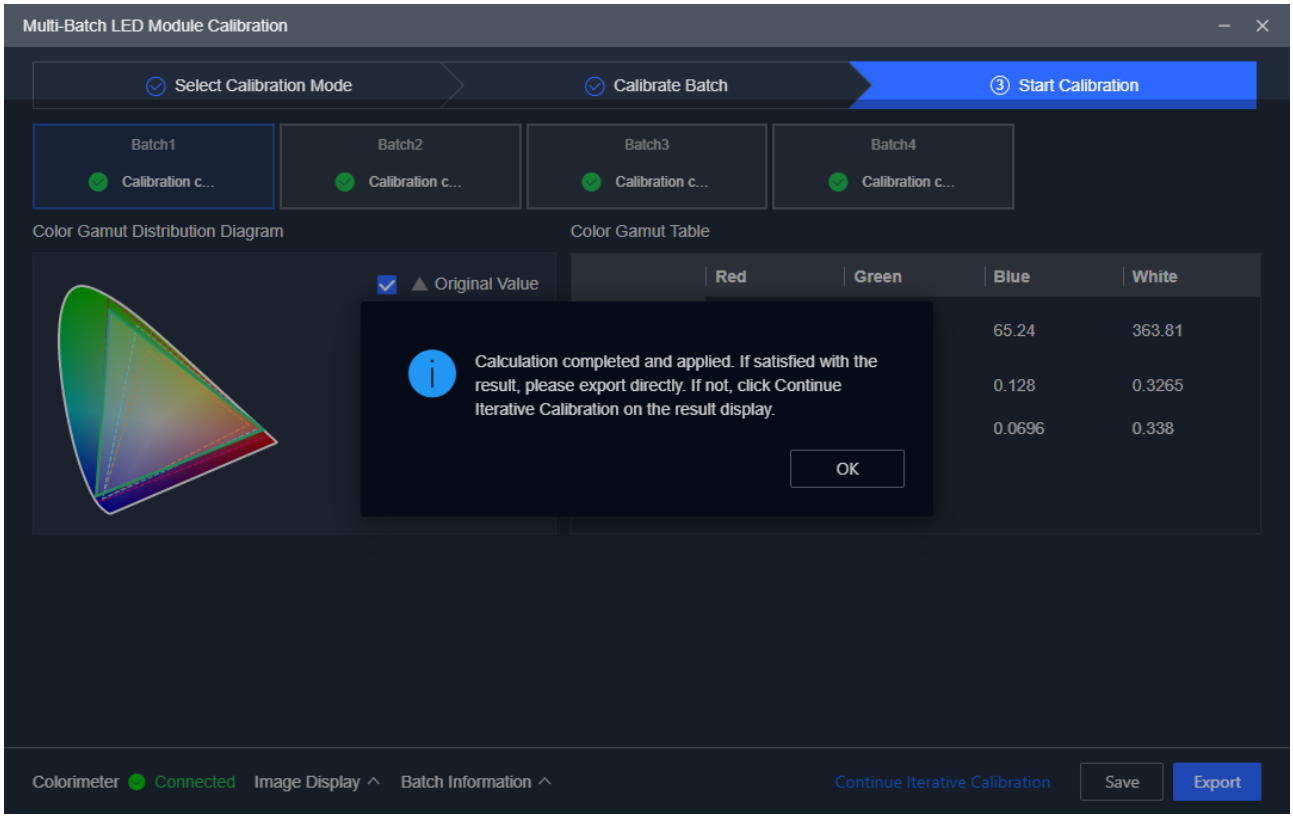

Figure 10-16 Evaluate Calibration Effect

Step 7 (Optional) Export multi-batch calibration data for use on other devices:

1) On the **Start Calibration** page, click **Export** to save the multi-batch calibration file locally.
2) Select another target device and go to the **Display Optimization > Calibration** page.
3) Select one or more panels, right-click, and choose **Import/Export Multi-Batch Files**.
4) Import the multi-batch calibration file.

Step 8 (Optional) If differences in multi-batch LED module parameters still exist after colorimeter calibration, manual adjustment can be performed. For details, refer to "Manual Adjustment". In this case, there is no need to clear the multi-batch historical data again; simply start directly from Step 2 of the manual adjustment process.

Manual Adjustment

Step 1 Clear multi-batch historical data:

1) On the **Display Optimization > Calibration** page, enable **Multi-Batch** in the upper-left corner.
2) Select multiple LED modules, right-click, and choose **Clear Multi-Batch Data**.

Step 2 Click **Tools** in the upper-right corner of the client, then click **Multi-Batch LED Module Calibration**. A prompt window will appear. After confirming that the clearing operation in Step 1 has been completed, click **Continue**.

Step 3 The system will automatically open the **Multi-Batch LED Module Calibration** Window. Select the calibration mode:

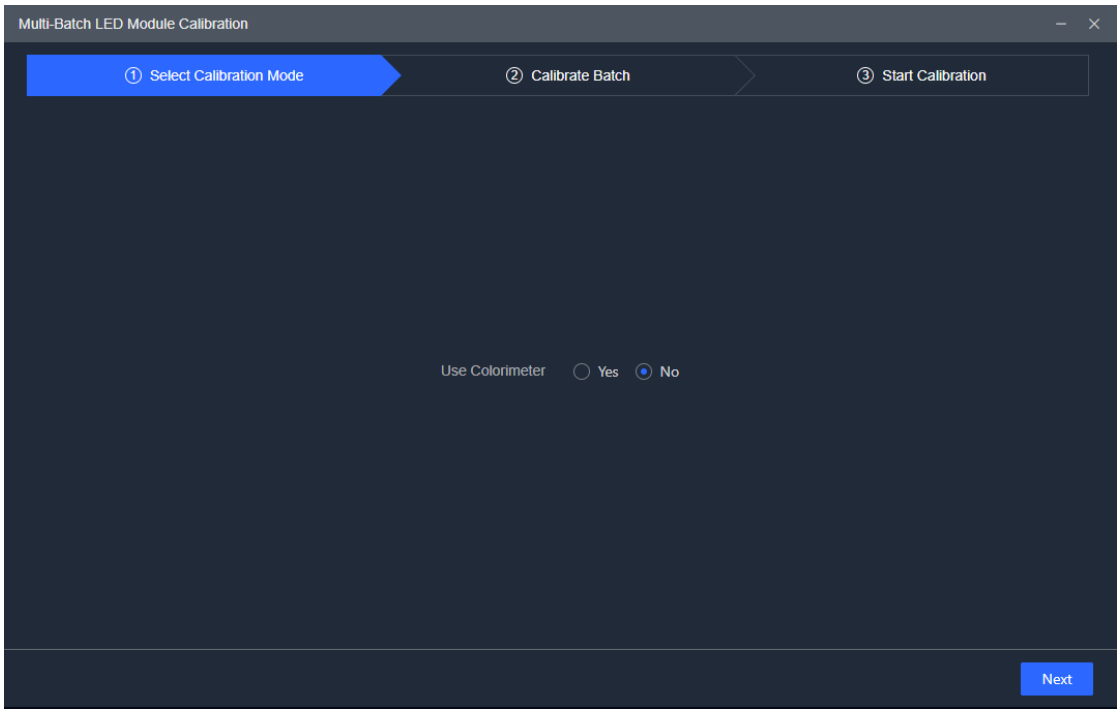

Figure 10-17 Without Colorimeter

Step 4 Define batches:

1) Click **Add Batch**, set the batch name, select the display and cabinet areas, and click **OK**.

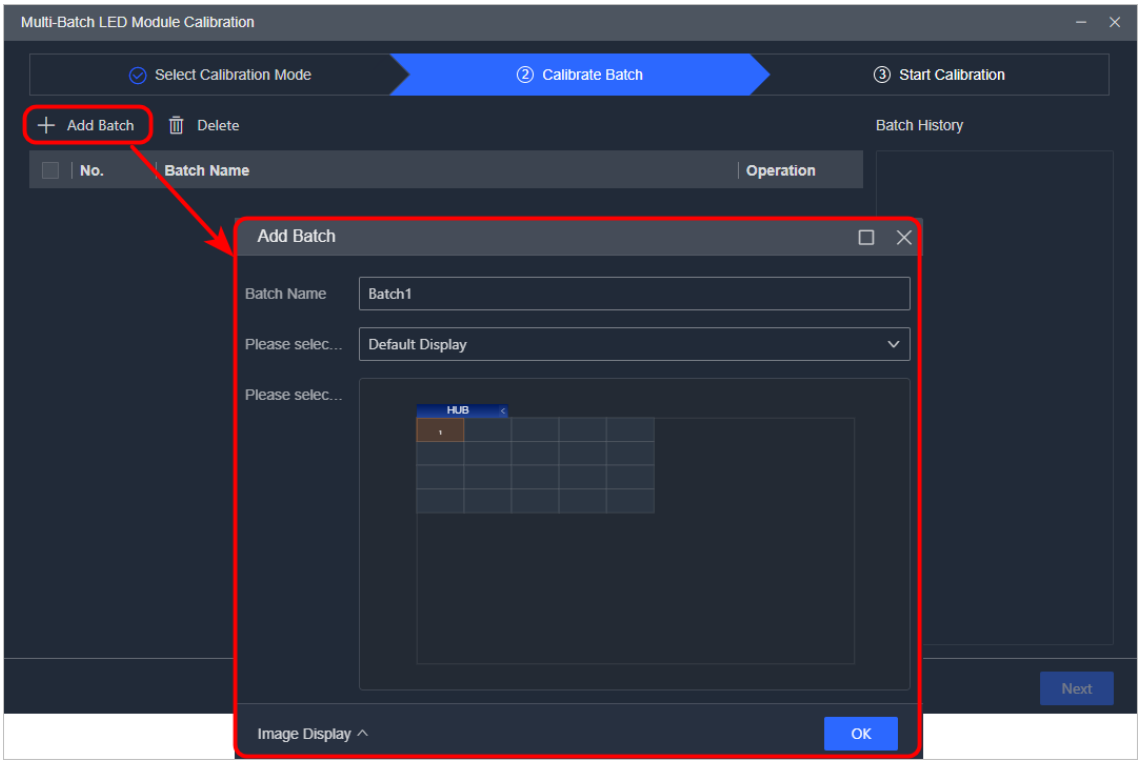

Figure 10-18 Add Batch

2) After adding the batches, it is recommended to use the default reference batch. Click **Next**.

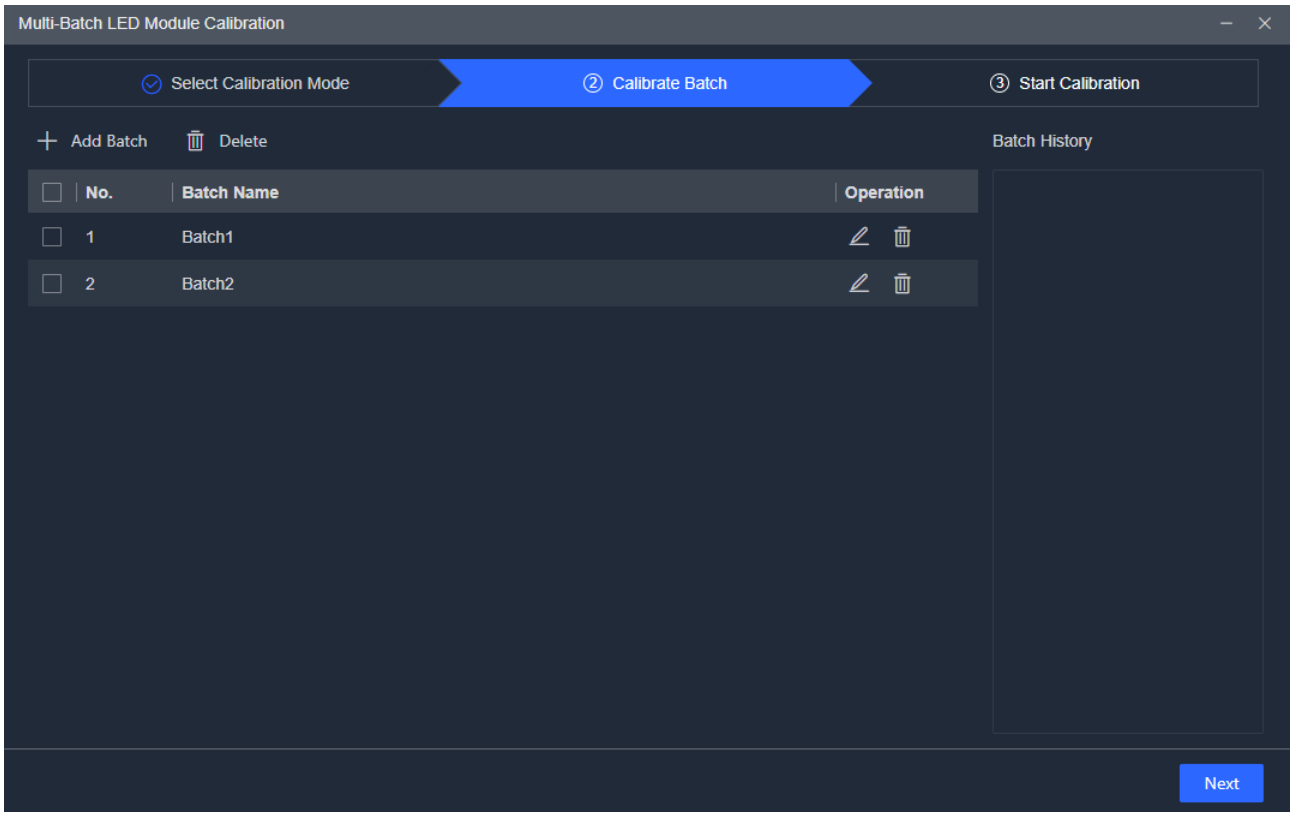

Figure 10-19 Calibrate Batches

Step 5 Adjust parameters:

1) On the **Start Calibration** page, select a batch.
2) Select the RGB or HSV adjustment mode.
3) Adjust the values for WRGB; the parameters will be deployed to the device in real time.
4) (Optional) Click **Restore Default** to restore the current batch's LED modules to default parameters.

Step 6 After adjustment is complete, click **Save**.

Step 7 (Optional) Export multi-batch calibration data for use on other devices:

1) On the **Start Calibration** page, click **Export** to save the multi-batch calibration file locally.
2) Select another target device and go to the **Display Optimization > Calibration** page.
3) Select one or more panels, right-click, and choose **Import/Export Multi-Batch Files**.
4) Import the multi-batch calibration file.

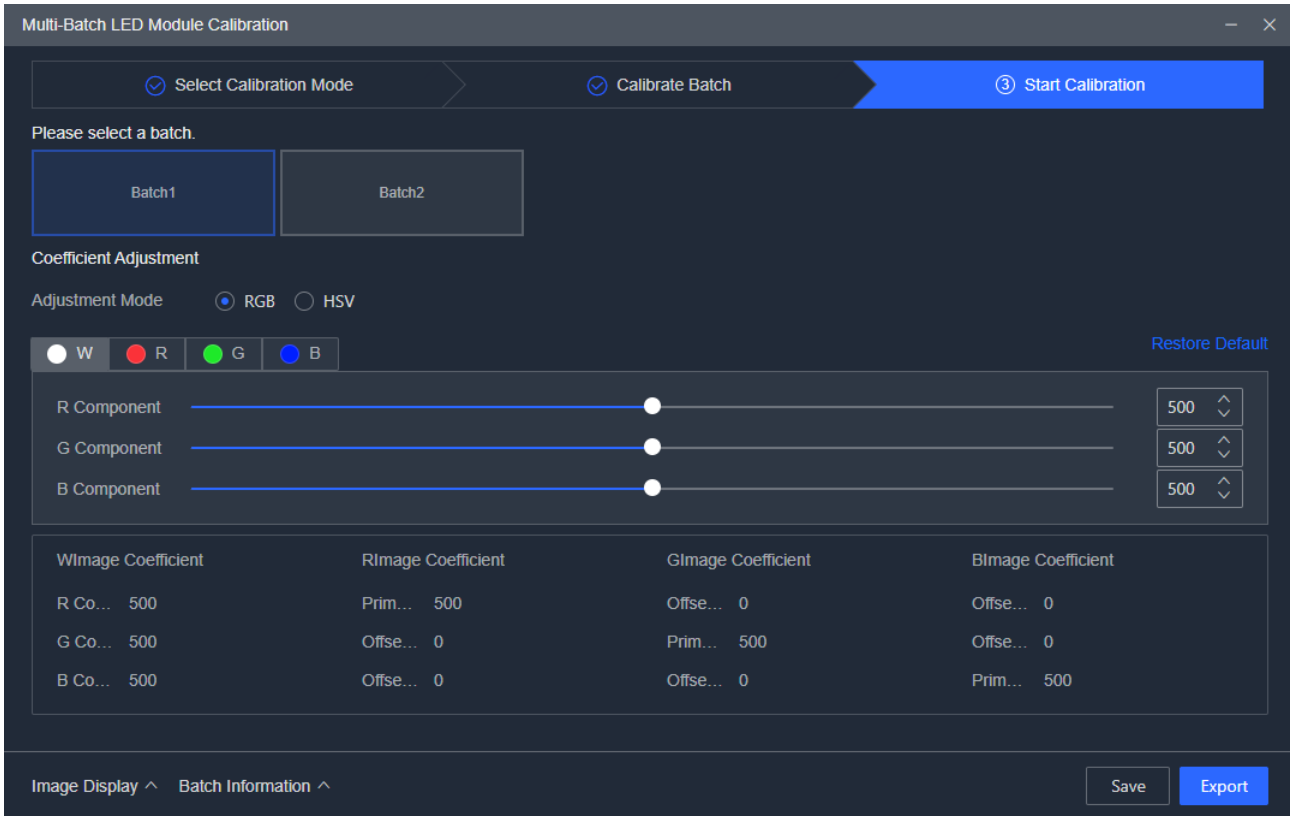

Figure 10-20 Manual Calibration

10.2.5 Use Factory Tools

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Enable factory mode in **System Settings** window.

Step 2 The **Factory Tools** option will appear in the **Tools** menu in the upper-right corner of the client.

Step 3 Click **Factory Tools**.

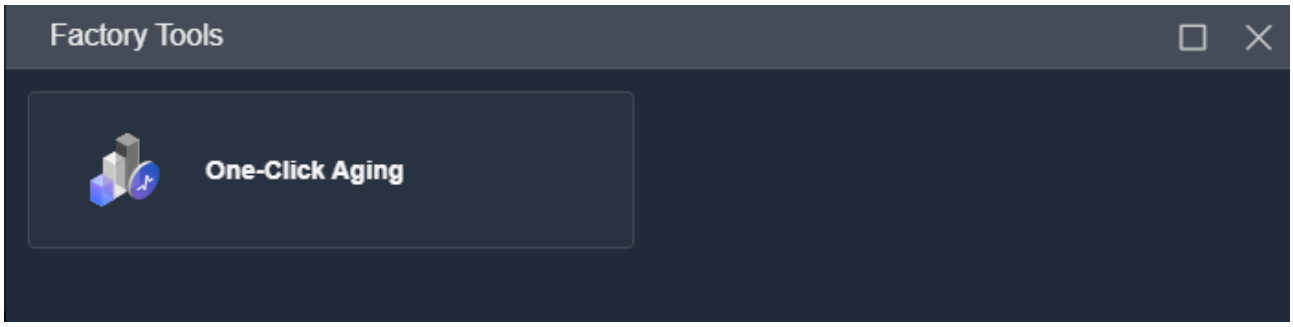

Figure 10-21 Factory Tools

Step 4 Configure the one-click aging function:

1) Click **One-Click Aging** and select the target LED controller.
2) Enable the one-click aging function, and the display controlled by this LED controller will switch to the aging test page.

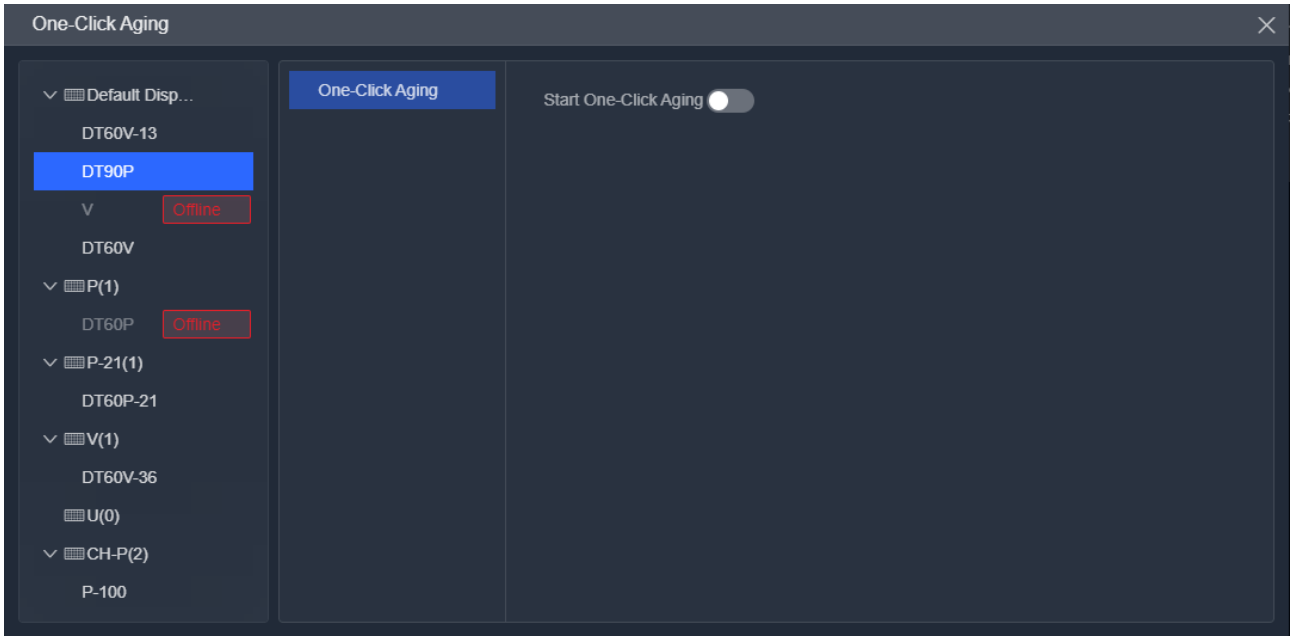

Figure 10-22 One-Click Aging Tool

10.2.6 Use Picture Quality Tool

Applicable Devices

- Currently supported: DT60B/P series LED controllers (V6.3 and later).
- Upcoming supported: DT90P, DT30B/P, and DS-TB/U series LED controllers.

Function Description

In scenarios requiring high picture quality, the **Picture Quality** Tool adjusts the overall color to be more accurate and gray transitions to be smoother, enhancing the overall picture quality.

Before You Start

- A CA410 or CS150 colorimeter is ready.
- The target device has been added to the client. For details, refer to "2.2 Add Devices".

Steps

Step 1 Click **Tools** in the upper-right corner of the client, then click **Picture Quality Tool**.

Step 2 Connect the colorimeter to the client computer via a USB port.

Step 3 Select the target LED controller.

Step 4 Wait until the colorimeter status changes to **Connected**, then select the target device in the **Picture Quality Tool** window.

Step 5 Based on the display issues to be resolved, select the indicators to be collected:

- **Color Gamut**: Adjusts the colors, enabling the display to switch between multiple color gamut modes such as BT.709, DCI-P3, and BT.2020, meeting the color requirements of different scenarios.
- **Gray**: Adjusts the gray transitions to make them smoother, improving issues such as low gray jumping and color cast.

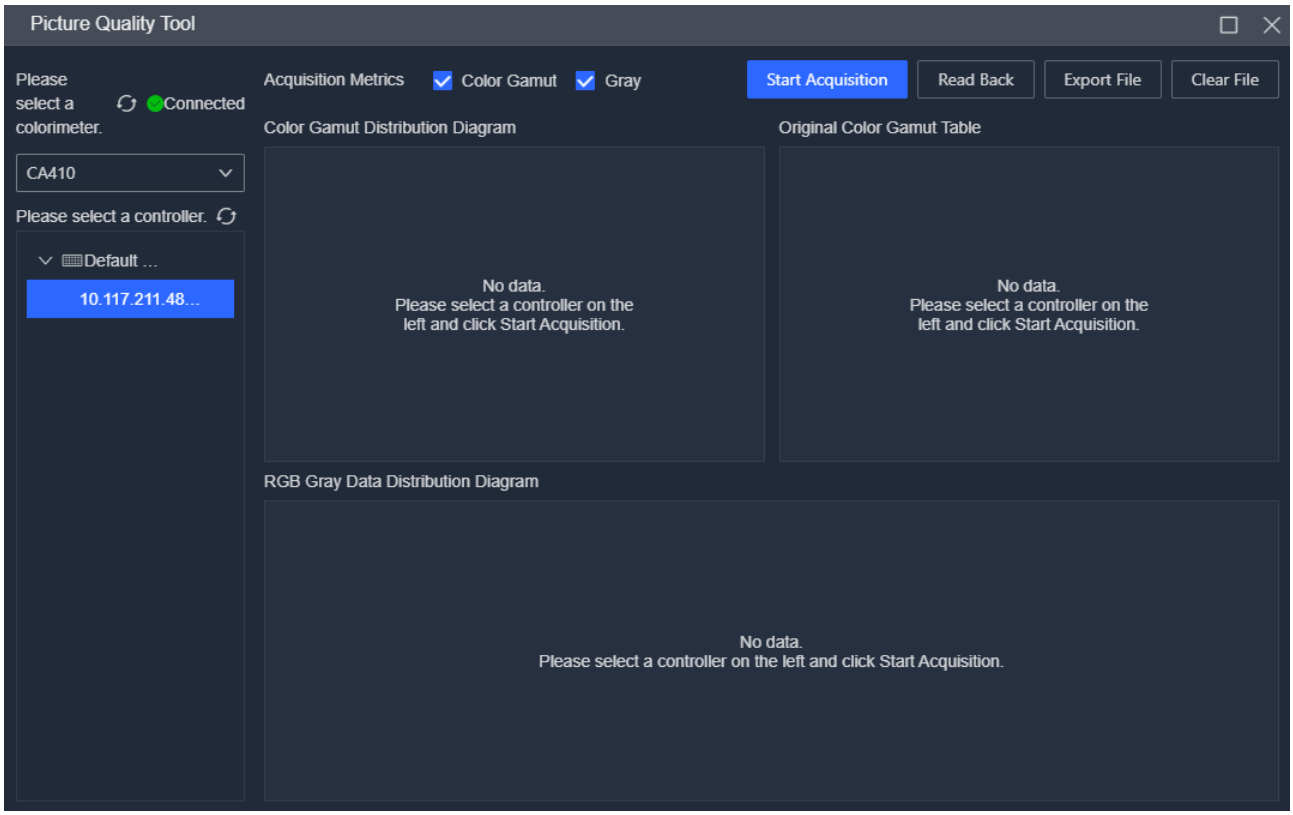

Figure 10-23 Picture Quality Tool Window

Step 6 Aim the colorimeter at the display to be measured and click **Start Acquisition**. The system will automatically collect data and, upon completion, deliver the generated color file to the target device.

Step 7 Operation operations:

- Click **Export File** to export the generated color file for use on other devices.

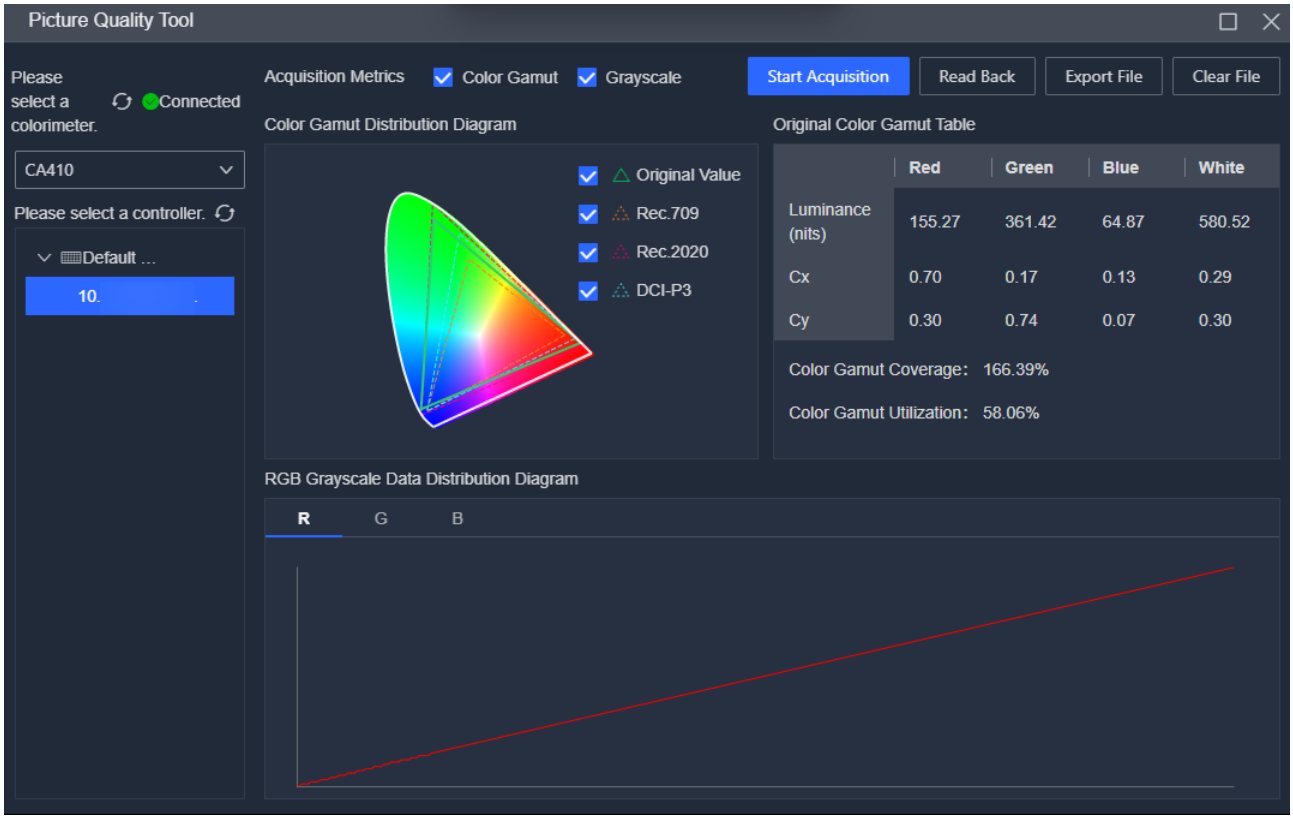

Figure 10-24 Export File

- Click **Clear** to clear abnormal data captured by the colorimeter. Data cannot be recovered after clearing, so use this function with caution.
- Click **Read Back** to refresh the data captured by the colorimeter.

10.2.7 Use Calibration Tool

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Click **Tools** in the upper right corner of the client, and click **Install** to install the calibration tool.

Step 2 After installation, the calibration tool will start automatically. Please refer to the built-in user manual (click **Help** to view) for specific calibration operations.

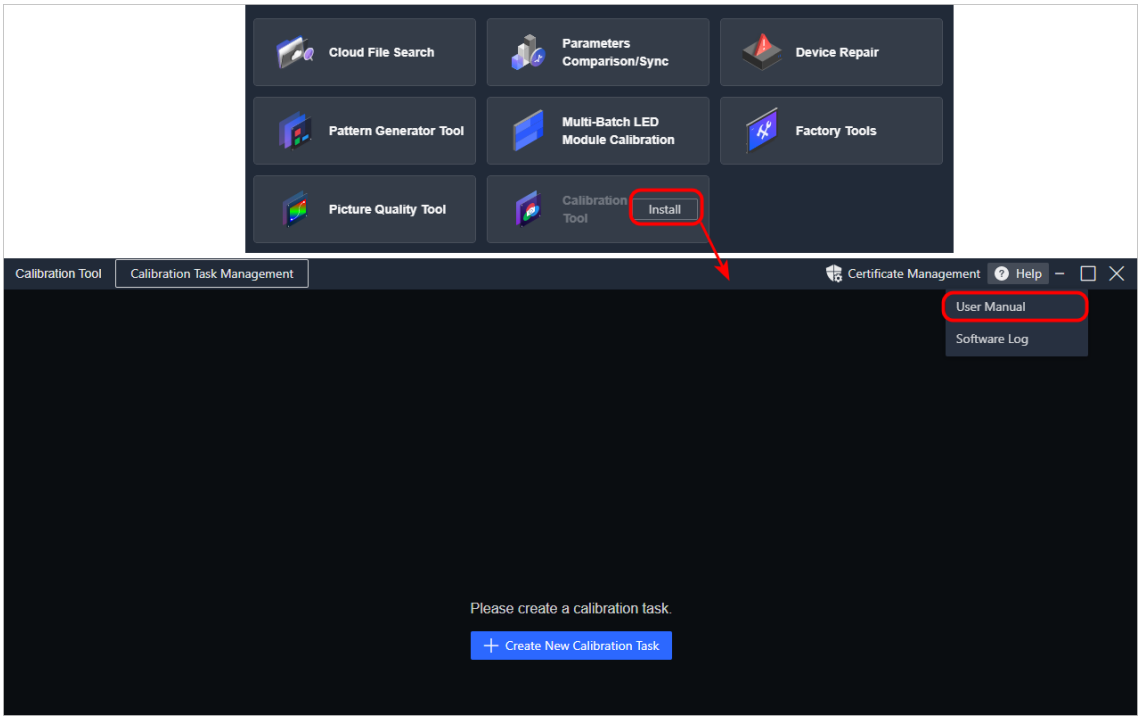

Figure 10-25 Use Calibration Tool

10.3 Use HikMe

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

Step 1 Click **HikMe** in the upper-right corner of the client, enter your user name and password, and then click **Log In**.

- If you haven't registered a HikMe account, click the link to jump to HikMe and register on the web page.
- After a successful login, the session remains active until you manually click **Log Out** or close the LED Tool client.
- Once logged in, project files, configuration files, and their folders managed on the HikMe web page will be automatically synchronized to the HikMe window within the LED Tool client.

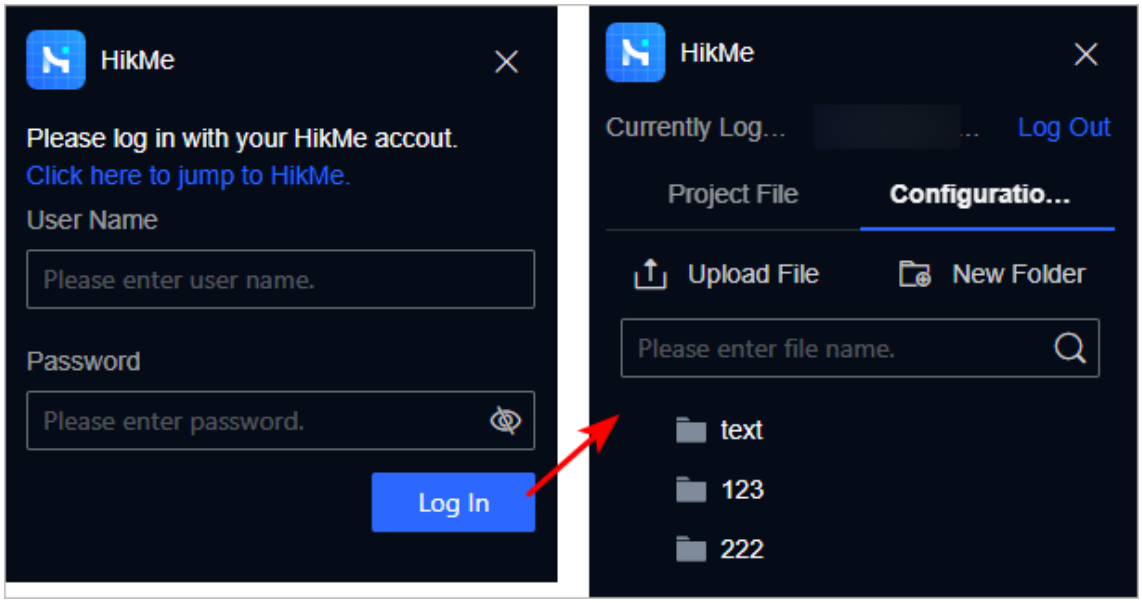

Figure 10-26 HikMe Login

Step 2 After logging into HikMe, you can perform the following operations:

- Back up a project: Hover over the target project (online or demo), click to back up the project to the HikMe cloud.
- Manage project files on the **Project File** tab:
  - Click **Upload File** to upload locally stored project files to HikMe.
  - Click **New Folder** to create folders for organizing project files.
- Manage receiving card configuration files on the **Configuration File** tab:
  - Click **Upload File** to upload locally stored configuration files to HikMe.
  - Click **New Folder** to categorize and manage configuration files.
- For a folder: You can rename it ( ), uploading files to it ( ), or deleting it ( ).
- For a file: You can rename it ( ), importing it to the client ( ), downloading it to your local device ( ), or deleting it ( ).

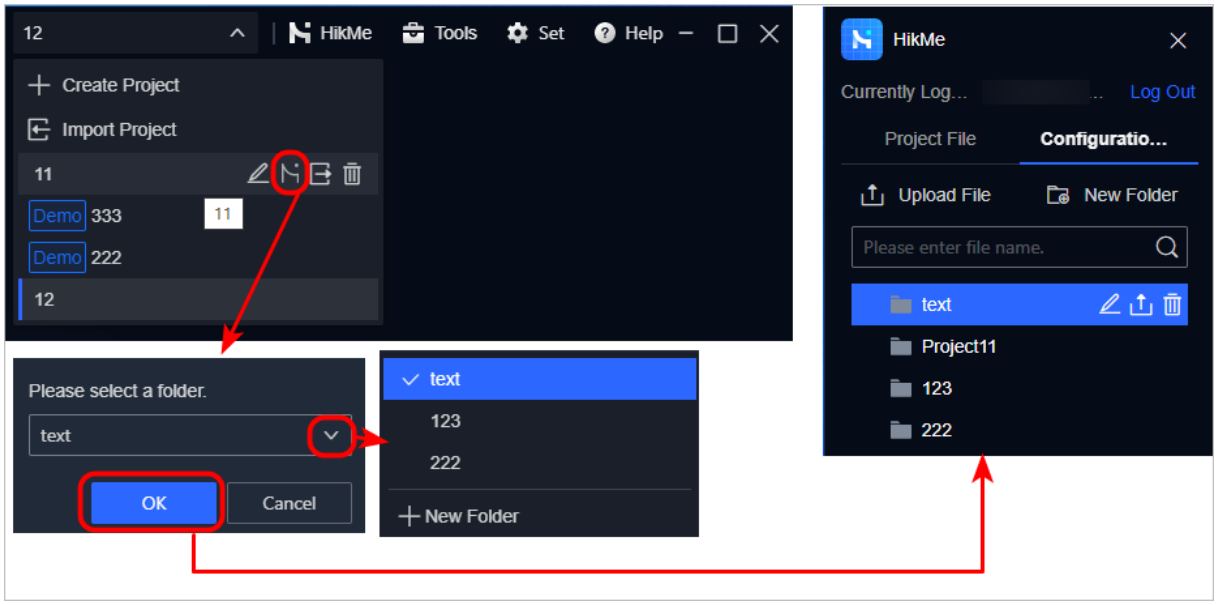

Figure 10-27 Manage HikMe Files

10.4 Set the Client

Applicable Devices

All series of LED controllers and video wall controllers.

Steps

You can perform the following operations by using the menu in the upper-right corner of the client:

- Set system parameters: Click **Set** > **System Settings** to configure the online upgrade download path, software log save path, system language, UI theme, and client scaling.
- Control the reminder status of display mapping setup auto deployment: In the **System Settings** window, you can enable or disable this reminder. When disabled, this prompt will no longer appear on the **Receiving Card Configuration** page.

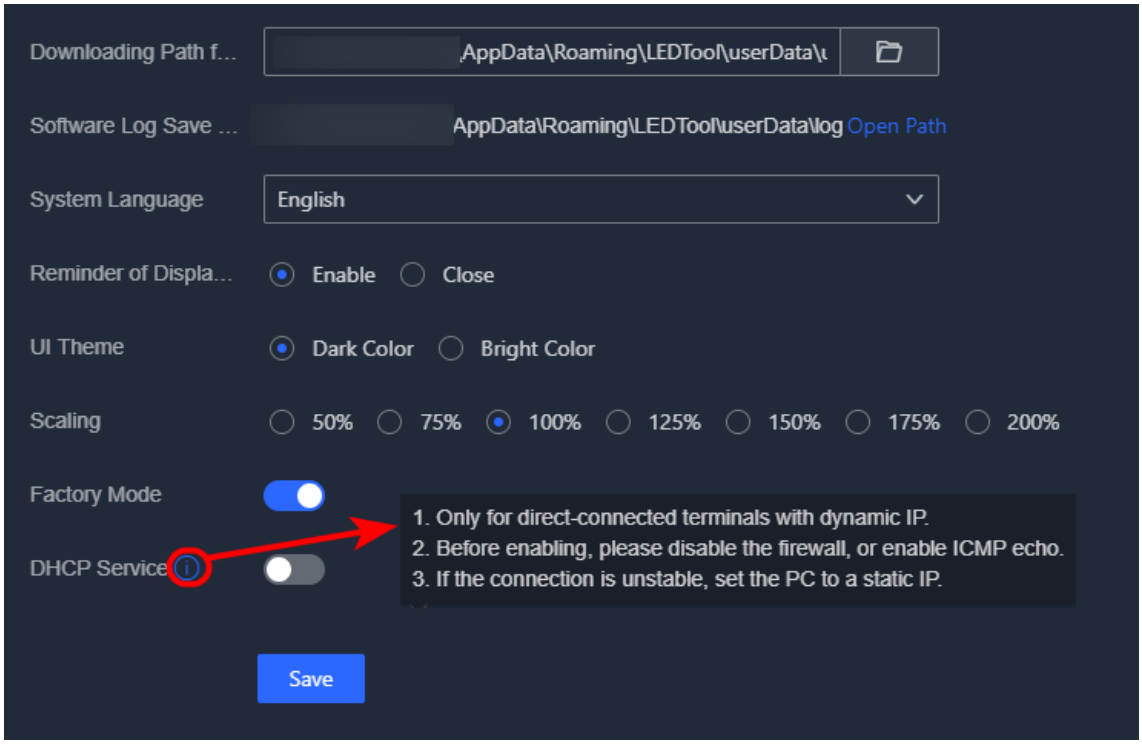

Figure 10-28 System Settings Window

- Enable DHCP service: This function is only for direct connected terminals with dynamic IP address. Before enabling DHCP service, disable the firewall or enable ICMP echo. If the connection is unstable, set the PC to static IP address.
- Upgrade chip library: Click **Set** > **Component Management** > **Chip Library** to view the chip library version. If you cannot find the required chip for the LED module, you can click **Local Import** or **Online Upgrade** to upgrade the chip library. After the chip library is upgraded, the client will restart automatically.

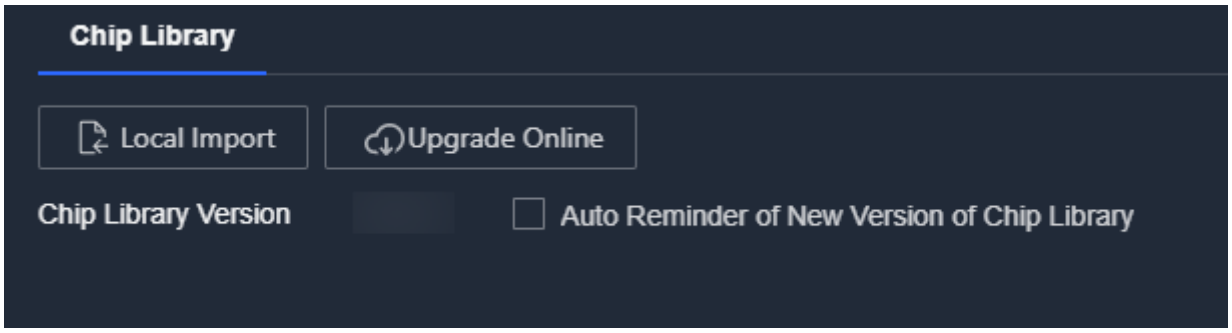

Figure 10-29 View Chip Library

- Upgrade calibration tool: Click **Set** > **Component Management** > **Calibration Tool** to view the installation status and current version of the tool. To update it, upload a locally saved new installation package and click **Install**.

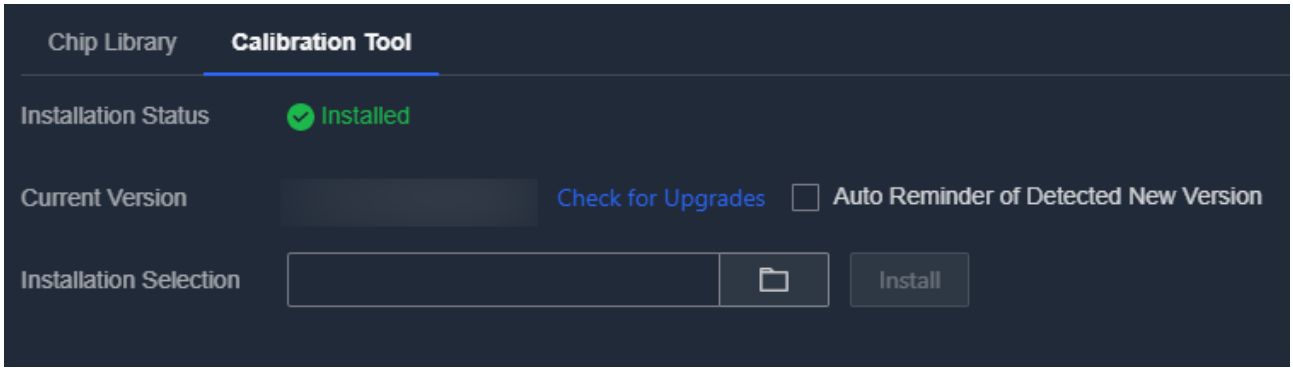

Figure 10-30 View & Upgrade Calibration Tool

- Manage client version: Click **Help** > **About** to view the current software version and set the auto reminder of detected new version.

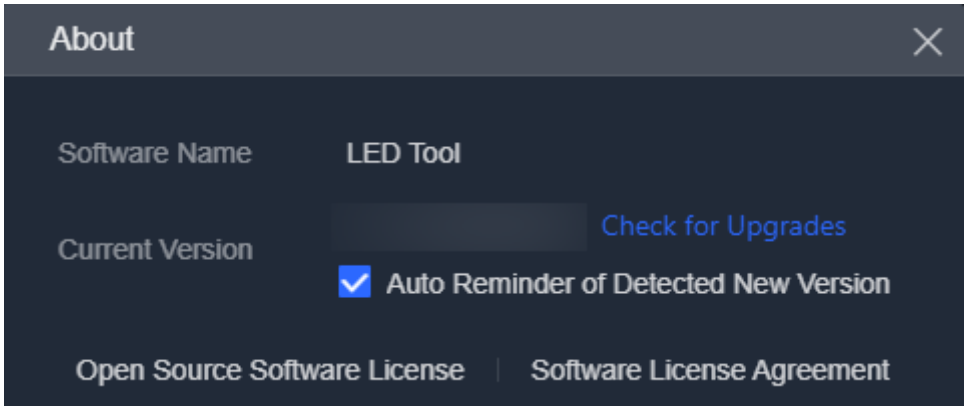

Figure 10-31 View Software Version

- View user manual: Click **Set** in the upper right corner of the client, and click **Help** > **User Manual** to view the client user manual.



UD48708B