Video Wall Controller

User Manual

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Preface

Applicable Models

This manual is applicable to the DS-C66S series video wall controller.

Default Parameters

Type	Default Parameter
Device	• Login user name: admin • IP address: 192.0.0.64
SSH connection	

Caution

To improve system security, it is highly recommended to change password regularly. In order to protect your privacy and corporate data and avoid network security issues, it is recommended to set strong password that meets security requirements.

Symbol Conventions

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

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

Safety Instructions

Caution

In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region.

Note

- Provide a surge suppressor at the inlet opening of the device under special conditions such as the mountain top, iron tower, and forest.
- + identifies the positive terminals of the device which is used with, or generates direct current, and - identifies the negative terminals of the device which is used with, or generates direct current.
- The serial port of the device is used for debugging only.
- The interface varies with the models. Please refer to the product datasheet for details.

TABLE OF CONTENTS

Chapter 1 Introduction

1.1 Overview

The video wall controller (hereinafter referred as the device) is the core control device of the screen splicing control system. As a new-generation FPGA-based pure hardware image processing device, it adopts the structure of main control board and service boards to provide the following advantages:

- Supports the video input and video output via various ports.
- Supports the network encoding and real-time preview of signal sources.
- Supports the decoding and output of various network signal sources.
- Supports the high-definition (HD) video splicing and fusion.
- Supports the window splicing, roaming window, and other operations.
- Supports the management on users, network, operation, alarm and logs.

1.2 First-Time Configuration Process

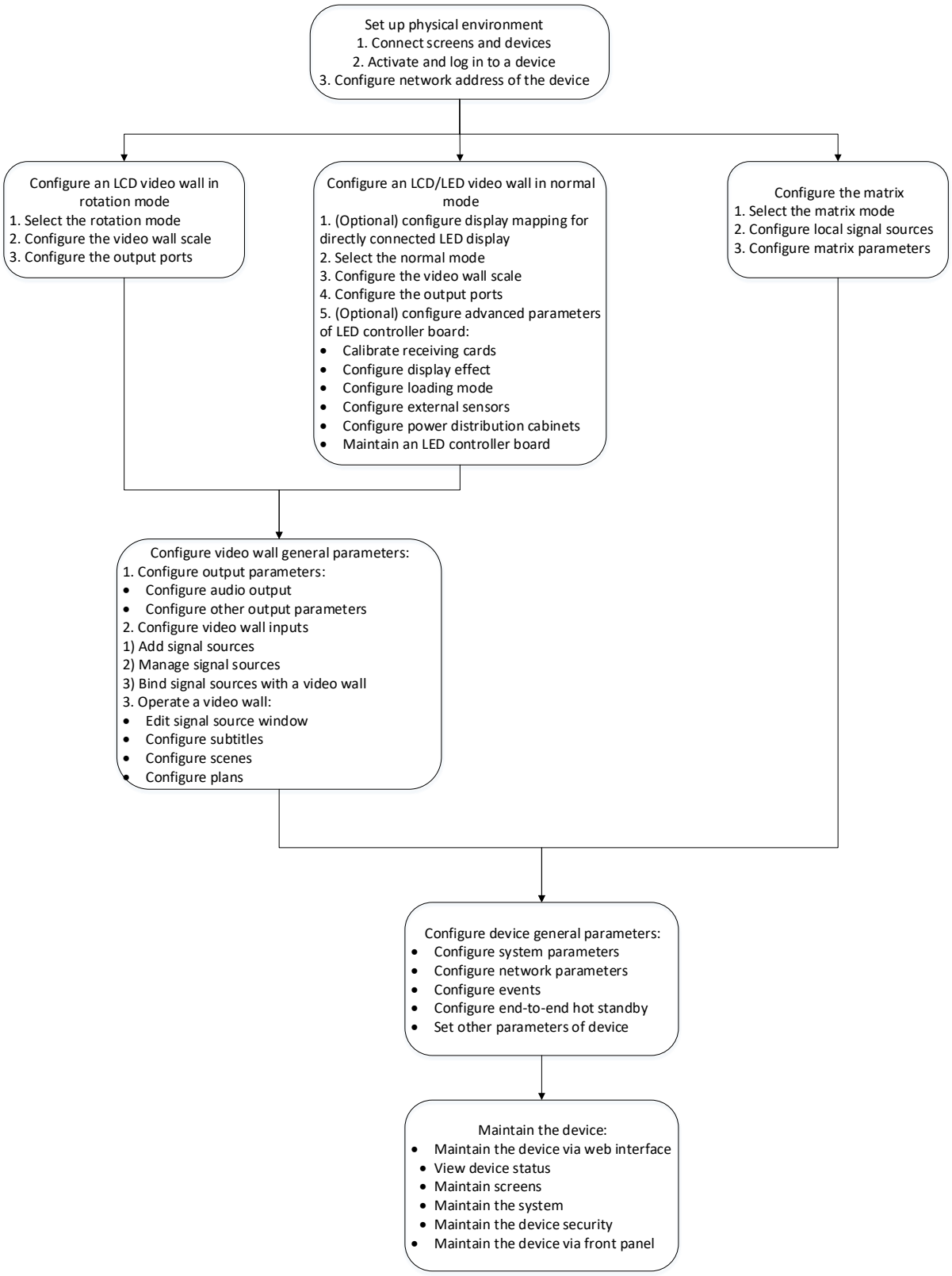

Figure 1-1 First-Time Configuration Process

Chapter 2 Prerequisite Configuration

2.1 Connect Screens and Devices

Single-Device Connection

- Connect a single LCD screen to the device: Use a video cable to connect an output port of the device output board to an LCD screen.
- Connect a single LED display to the device: An LED display consists of multiple LED cabinets and can be connected in either of the following ways:
  - Use multiple network cables to connect an external LED controller to multiple LED cabinets, and then use a video cable to connect an output port of the device output board to the external LED controller.
  - Use multiple network cables to connect the multiple network ports of an electrical LED controller board to multiple LED cabinets.

Note

The figure below is for illustration only.

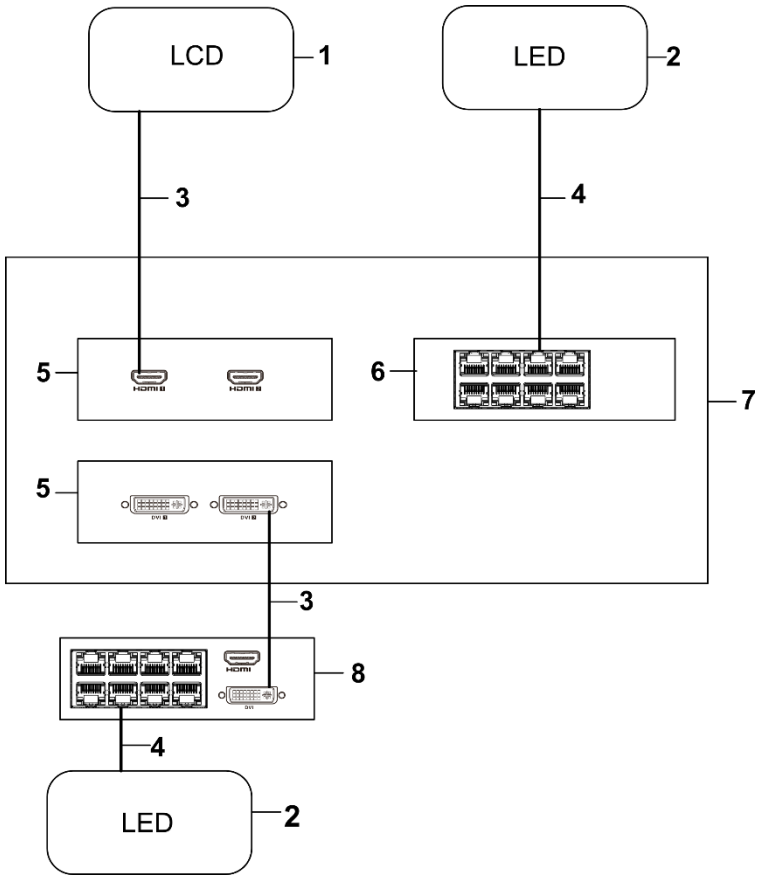

Figure 2-1 Single-Device Connection

1. LCD screen	2. LED display	3. HDMI/DVI video cable
4. Network cable	5. Output board	6. Electrical LED controller board
7. Device	8. External LED controller	

Dual-Device Connection

Step 1 Connect the indoor device and screens.

- Connect a single LCD screen to the device: Use a video cable to connect an output port of the device output board to an LCD screen.
- Connect a single LED display to the device: An LED display consists of multiple LED cabinets and can be connected in either of the following ways:
  - Use multiple network cables to connect an external LED controller to multiple LED cabinets, and then use a video cable to connect an output port of the device output board to the external LED controller.
  - Use multiple network cables to connect the multiple network ports of an electrical LED controller board to multiple LED cabinets.

Step 2 Connect the indoor device and outdoor device for long distance transmission: Use the optical fibers to connect the optical ports of the optical LED controller board in the outdoor device to the optical ports of the optical LED controller board in the indoor device.

Note

- You cannot install the input boards or decoding boards in the outdoor device.
- The optical port and electrical port on the optical port LED controller board are mutually exclusive options and cannot be used simultaneously.

Note

The figure below is for illustration only.

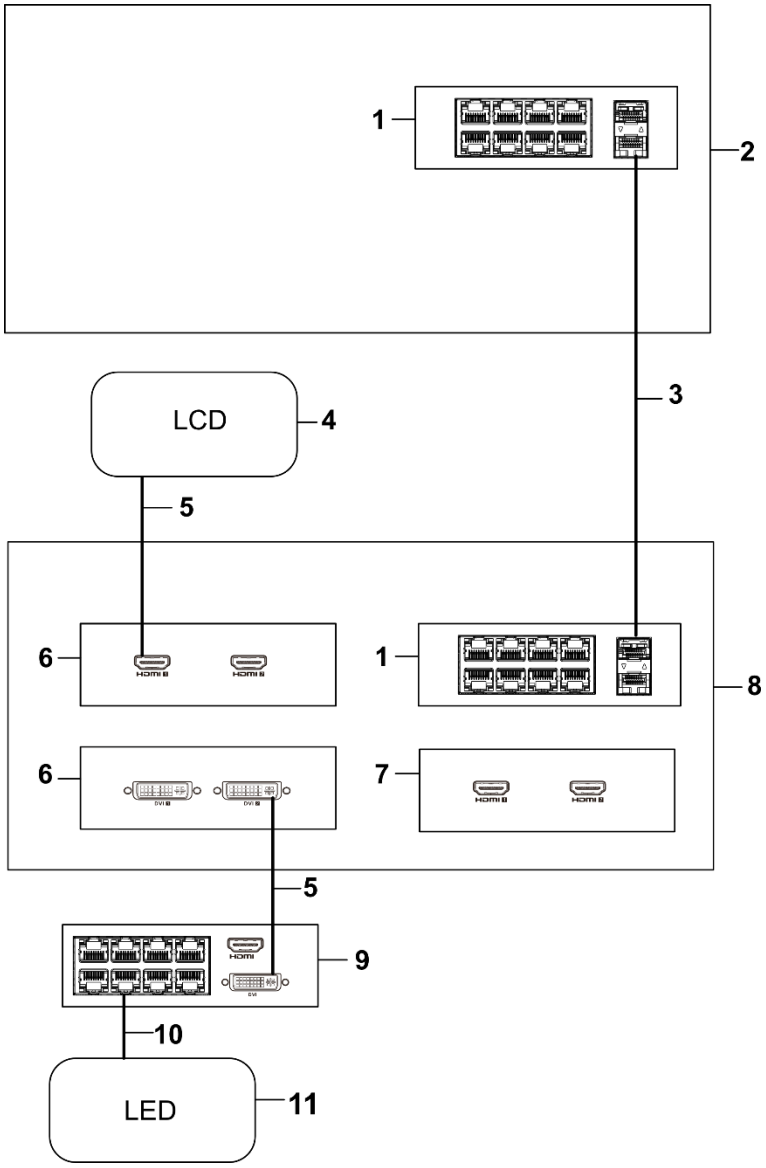

Figure 2-2 Dual-Device Connection

1. Optical LED controller board	2. Outdoor device	3. Optical fiber
4. LCD screen	5. HDMI/DVI video cable	6. Output board
7. Input board	8. Indoor device	9. External LED controller
10. Network cable	11. LED screen	

2.2 Activate and Log In to Device

You should activate the device before using the device for the first time. You can use the SADP client or the device web page to activate the device. When activating the device, obey the following requirements to set the password:

- To improve system security, it is highly recommended to change password regularly. In order to protect your privacy and corporate data, and avoid network security issues, it is recommended to set strong password that meets security requirements.
- Password should contain 8 to 16 characters and at least 2 of the following types: digits, lowercase letters, uppercase letters, and special characters.
- Password cannot contain user name, 123, admin (case insensitive), 4 or more continuously ascending or descending digits, or 4 or more consecutive repeated characters.

Use SADP Client and Web Page

Step 1 Connect the device and computer to the same LAN. Make sure the device and computer in the same network segment.

Step 2 Download and install the SADP client on the computer.

Step 3 Open the SADP client.

Step 4 Select the device that is not activated, enter the activation password and confirm it, and click **Activate**.

If the device cannot be found, you can restart the SADP client.

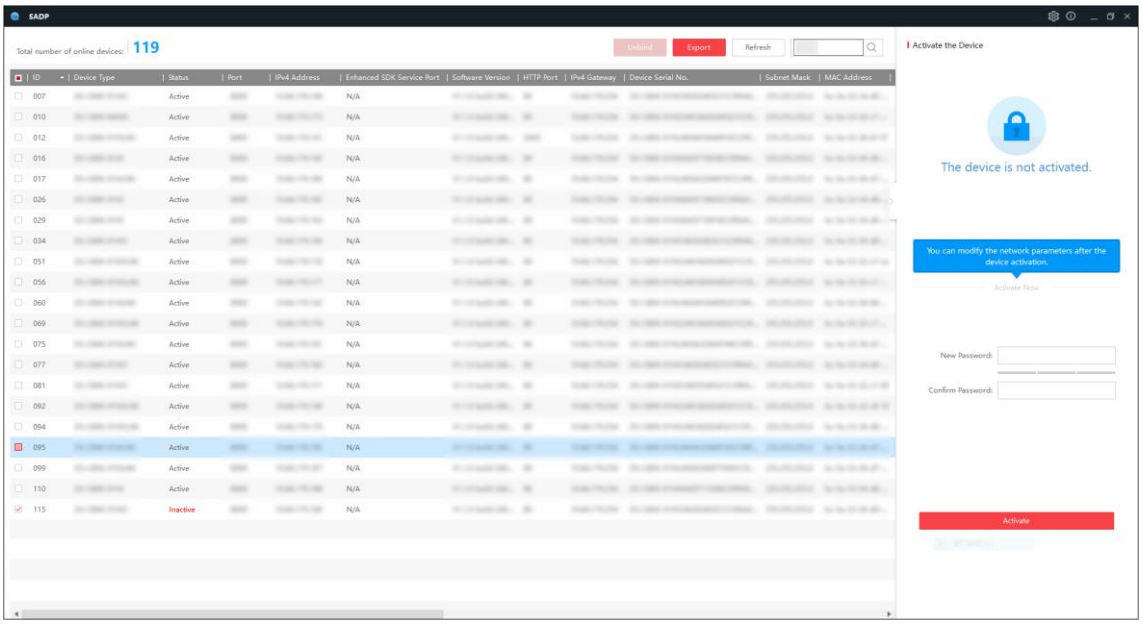

Figure 2-3 Activate the Device via SADP Client

Step 5 View the device IP address in the SADP client and enter the device IP address in the computer browser.

Step 6 Enter the user name and the set activation password, and then click **Log In**.

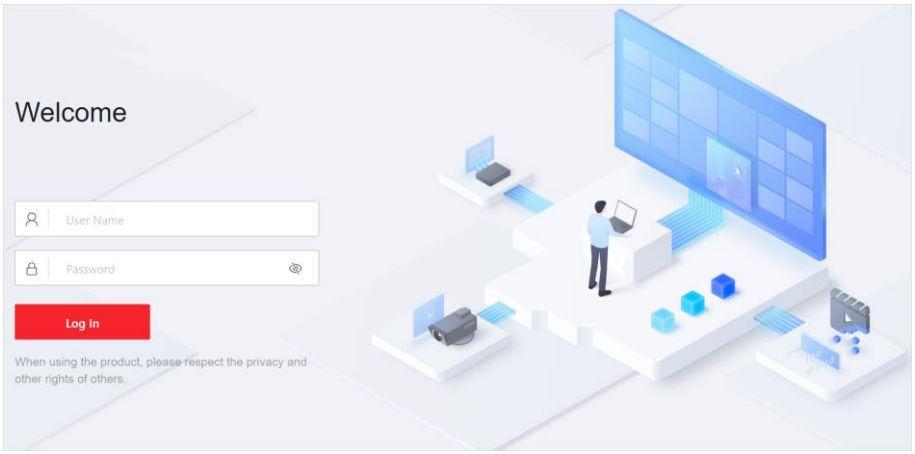

Figure 2-4 Login Page

Step 7 (Optional) To edit the password, you can click the username in the upper right corner of the web page and then click **Change Password**.

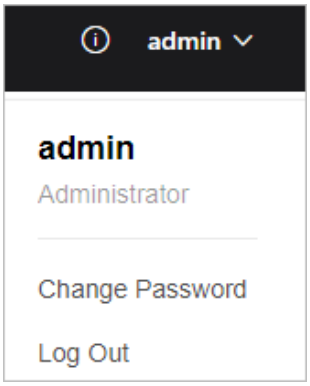

Figure 2-5 Change Password

Use Web Page

Step 1 Use a network cable to connect a computer to the device.

Step 2 Set the computer IP address to any IP address in the range of 192.0.0.2 to 192.0.0.253 (excluding 192.0.0.64) and set the computer gateway address to 192.0.0.1.

By default, the device IP address is 192.0.0.64 and the gateway address is 192.0.0.1.

Step 3 Enter 192.0.0.64 in the computer browser to enter the device activation page.

Step 4 Set the activation password, and then click **Activate**.

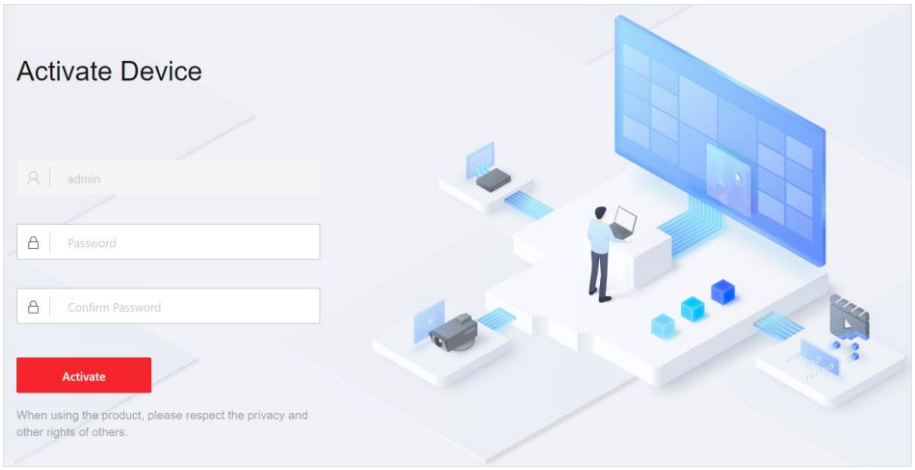

Figure 2-6 Activate the Device via Browser

Step 5 Enter the user name and the set activation password on the login page, and then click **Log In**.

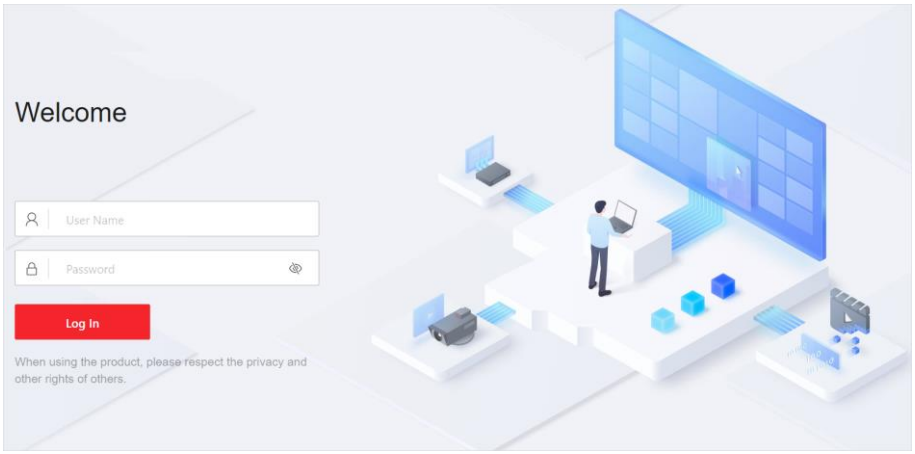

Figure 2-7 Login Page

Step 6 (Optional) To edit the password, you can click the username in the upper right corner of the web page and then click **Change Password**.

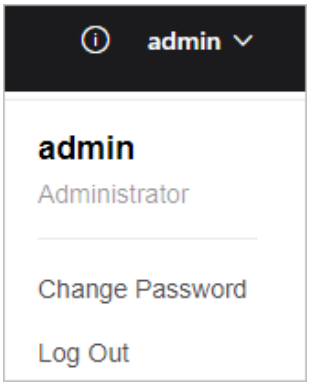

Figure 2-8 Change Password

2.3 Configure the Network Address of Device

Step 1 Navigate to **Configuration** → **Network** → **Network Configuration** → **TCP/IP**.

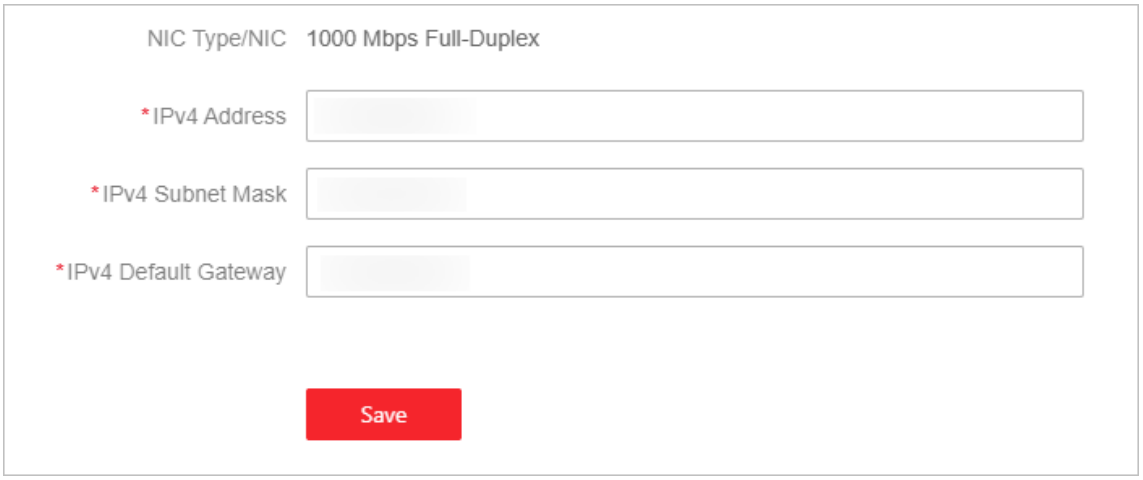

Figure 2-9 Configure the Device IPv4 Address

Step 2 Set the IPv4 address, IPv4 subnet mask, and IPv4 gateway for the device.

Make sure the device and the computer are in the same segment after the device connects to the on-site network.

Step 3 Click **Save**.

Step 4 (Optional) Remove the network cable that connects the device and computer, and use the network cable to connect the device to the on-site network.

Step 5 Enter the configured device IP address in the web browser of the computer to log in to the web page of the device.

Chapter 3 Direct-Connect LED Display Mapping Configuration

You must configure display mapping before configuring a video wall:

- Connect each LCD screen to the power supply. Generally, the LCD screen will light up once powered on. If it doesn't light up, connect the LCD screen to the power supply and press the power button on the LCD screen.
- Connect each LED display to the power supply and take the following measures to configure display mapping:
  - If the LED display is directly connected to an LED controller board in the device, you can use the web interface of the device or LED Tool client to configure display mapping.

Note

Display mapping can be configured via device's web interface or LED Tool client. Web interface will require reconfiguration if mapping was previously configured through LED Tool client.

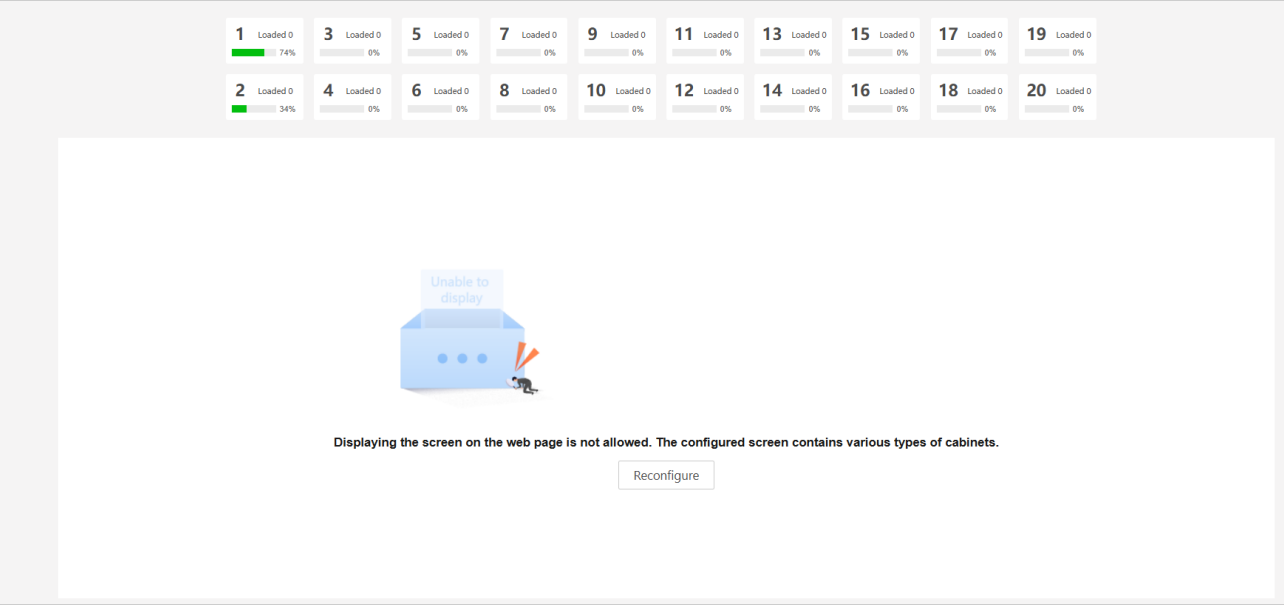

Figure 3-1 Reconfiguration Prompt on Screen Lightening Configuration Page

- If the LED display is connected to the device through an external LED controller, you can configure display mapping via the web interface of the LED controller or LED Tool client.

3.1 Electrical LED Controller Board

When the LED display is directly connected to an electrical LED controller board, configure display mapping as follows.

Step 1 Use either of the following methods to enter the display mapping page:

- Navigate to **Display Mapping**.
- Navigate to **Video Wall Configuration**, and click of the output port of an LED controller board to navigate to the **Display Mapping** page.

Note

One LED controller board provides only 1 output port. To edit the output port name, click .

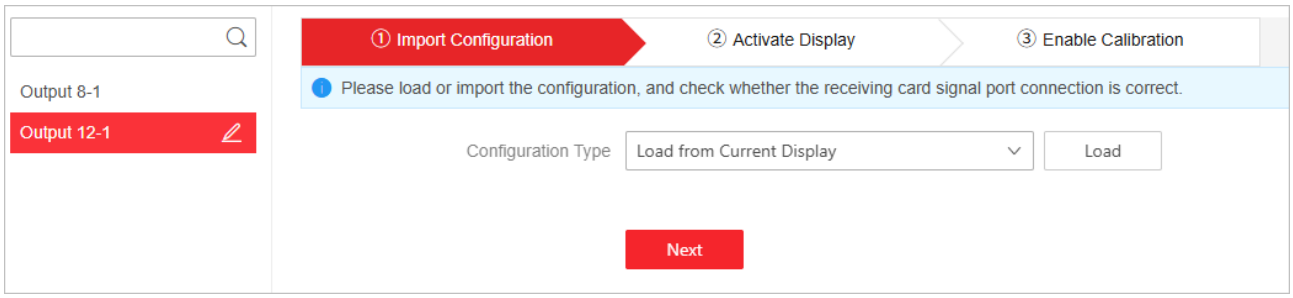

Figure 3-2 Display Mapping Page

Step 2 On the **Import Configuration** page, select one of the following methods to import the cabinet parameters.

- Select **Load from Current Display** and then click **Load**.
- Select **Load from File**, click to import a file, and click **Load**.
- Select **Load from Cloud**, enter the serial number, and click **Search**. Select a configuration file and then click **Load**.

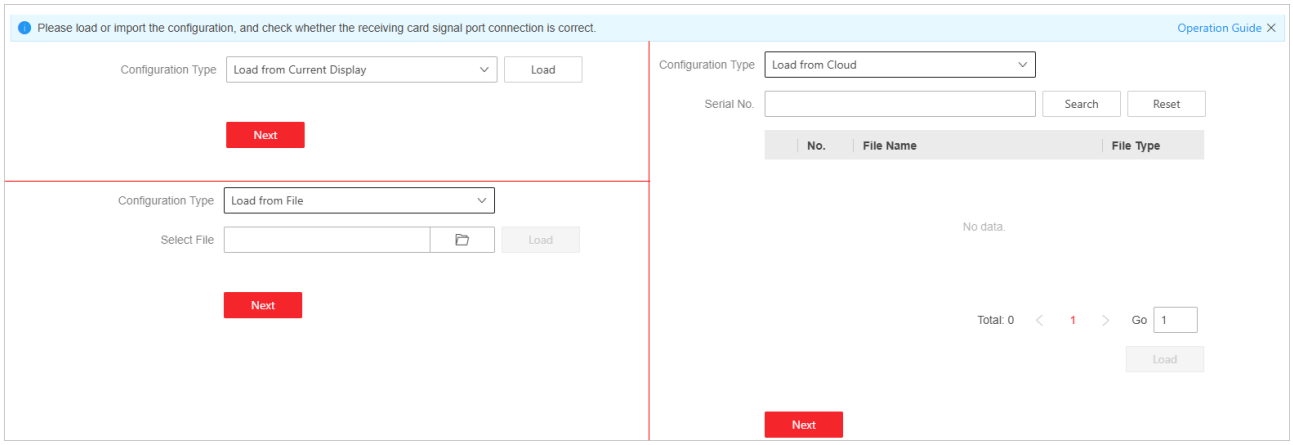

Figure 3-3 Import Cabinet Parameters

Step 3 Click **Next** to enter the **Activate Display** page.

Step 4 Enable **Show Connections**.

Step 5 Click **Edit** to set the display size, and click **OK**.

Step 6 According to the connection number shown on the cabinets, configure the connection between device network ports and cabinets.

1) Select a network port of the device. Each network port can connect to a maximum of 252 cabinets.
2) Take either of the following methods to connect the device network ports to cabinets:
   - Click on the cabinets in sequence to complete the connection according to the operation order. The connection may span across different network ports of the LED controller board.
   - Click on a cabinet as the starting point of the connection, press and hold to determine the connection range, select the connection shape in the pop-up window, and then click **OK** to complete the connection.

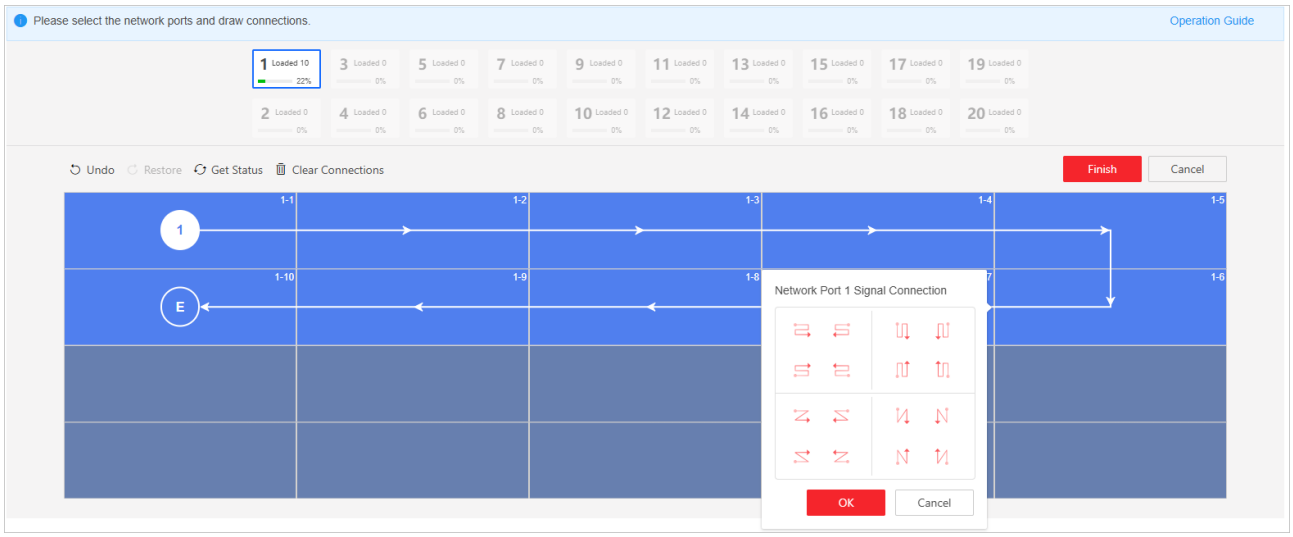

Figure 3-4 Connection Shape

3) (Optional) You can perform the following operations as required:
   - Click **Undo** to undo the previous operation.
   - Click **Restore** to restore the previous operation.
   - Click **Clear Connections** and select **Clear Current Sending Port Connection** to clear the signal connection of the selected network port.
   - Click **Clear Connections** and select **Clear All Sending Port Connection** to clear the signal connection of all network ports.
   - Click **Get Status** to refresh the receiving card online status.
4) Click **Finish**.
5) Use the same method to configure signal connection for other network ports.

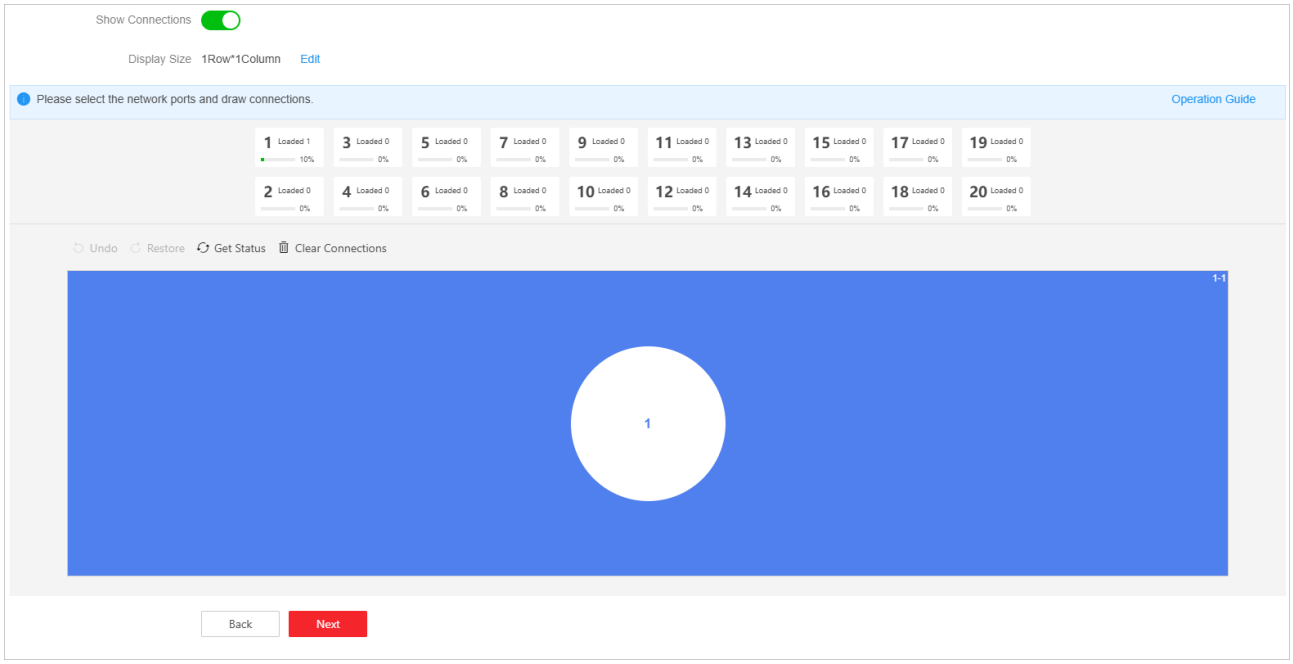

Figure 3-5 Configure Signal Cable Connection

Step 7 Complete display mapping:

- For the HUB receiving cards, you have completed the display mapping configuration.
- For the AXS receiving cards, click **Next**. On the **Enable Calibration** page, enable calibration.

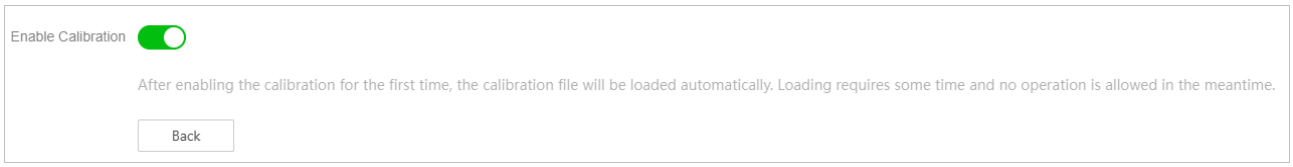

Figure 3-6 Firstly Calibrate AXS Receiving Cards

3.2 Optical LED Controller Board

When the LED display is directly connected to an optical LED controller board, configure display mapping as follows.

Step 1 Use either of the following methods to enter the display mapping page:

- Navigate to **Display Mapping**.
- Navigate to **Video Wall Configuration**, and click of the output port of an LED controller board to navigate to the **Display Mapping** page.

Note

One LED controller board provides only 1 output port. To edit the output port name, click .

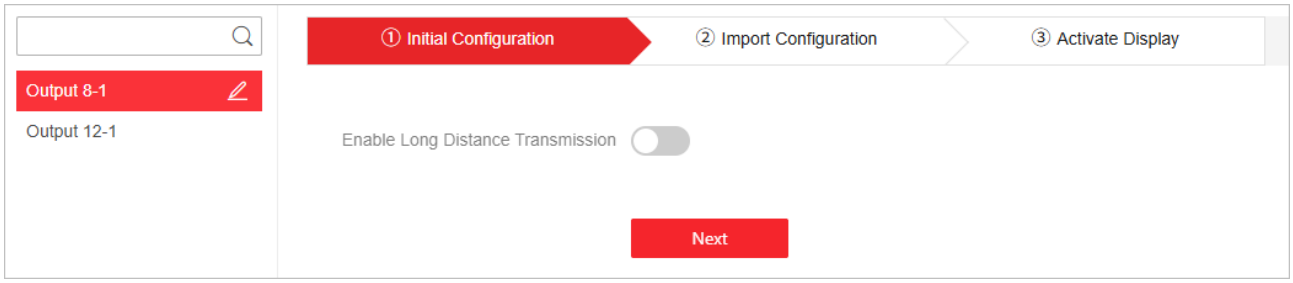

Figure 3-7 Display Mapping Page

Step 2 On the **Initial Configuration** page, enable long distance transmission and click **Next**.

1) On the web page of the indoor device, enable long distance transmission and complete display mapping configuration.
2) On the web page of the outdoor device, enable long distance transmission.

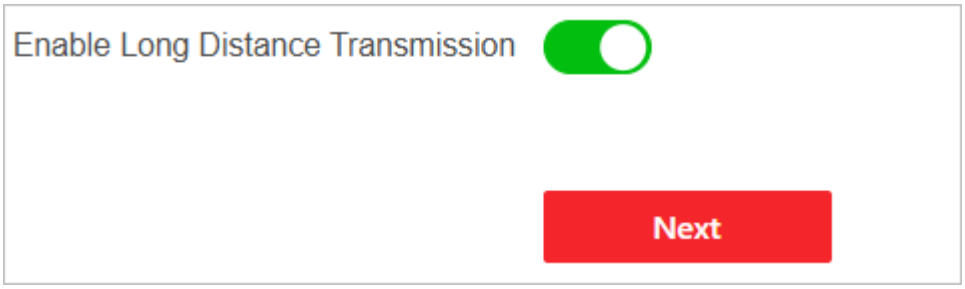

Figure 3-8 Enable Long Distance Transmission

Step 3 On the **Import Configuration** page, select one of the following methods to import the cabinet parameters.

- Select **Load from Current Display** and then click **Load**.
- Select **Load from File**, click to import a file, and click **Load**.
- Select **Load from Cloud**, enter the serial number, and click **Search**. Select a configuration file and then click **Load**.

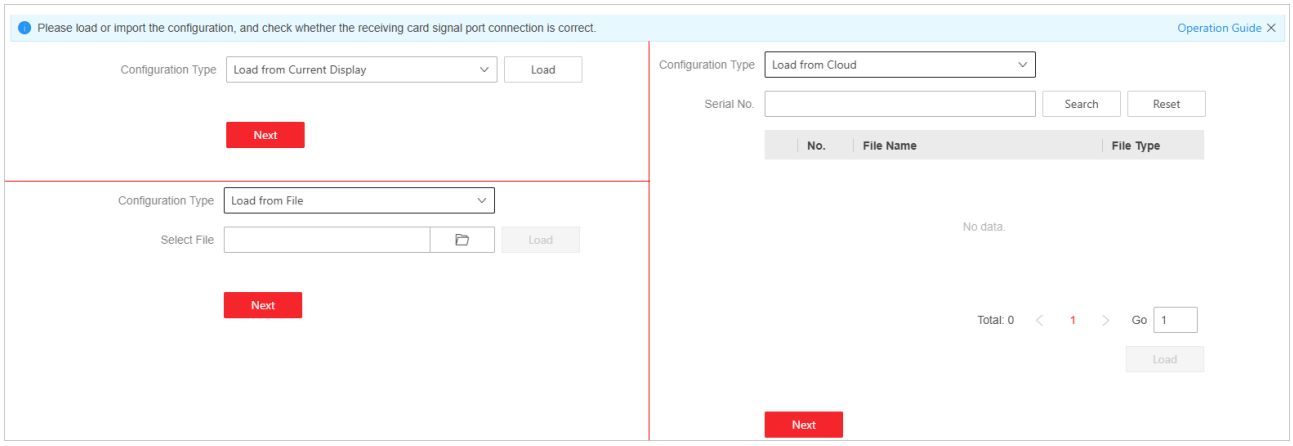

Figure 3-9 Import Cabinet Parameters

Step 4 Click **Next** to enter the **Activate Display** page.

Step 5 Enable **Show Connections**.

Step 6 Click **Edit** to set the display size, and click **OK**.

Step 7 According to the connection number shown on the cabinets, configure the connection between device network ports and cabinets.

1) Select a network port of the device. Each network port can connect to a maximum of 252 cabinets.
2) Take either of the following methods to connect the device network ports to cabinets:
   - Click on the cabinets in sequence to complete the connection according to the operation order. The connection may span across different network ports of the LED controller board.
   - Click on a cabinet as the starting point of the connection, press and hold to determine the connection range, select the connection shape in the pop-up window, and then click **OK** to complete the connection.

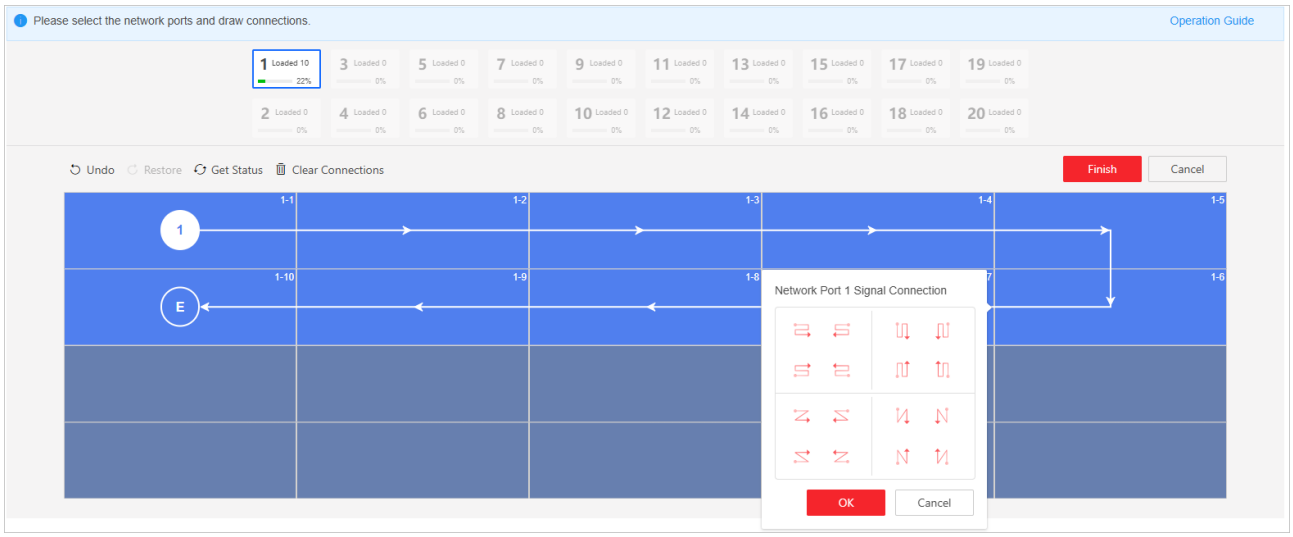

Figure 3-10 Connection Shape

3) (Optional) You can perform the following operations as required:
   - Click **Undo** to undo the previous operation.
   - Click **Restore** to restore the previous operation.
   - Click **Clear Connections** and select **Clear Current Sending Port Connection** to clear the signal connection of the selected network port.
   - Click **Clear Connections** and select **Clear All Sending Port Connection** to clear the signal connection of all network ports.
   - Click **Get Status** to refresh the receiving card online status.
4) Click **Finish**.
5) Use the same method to configure signal connection for other network ports.

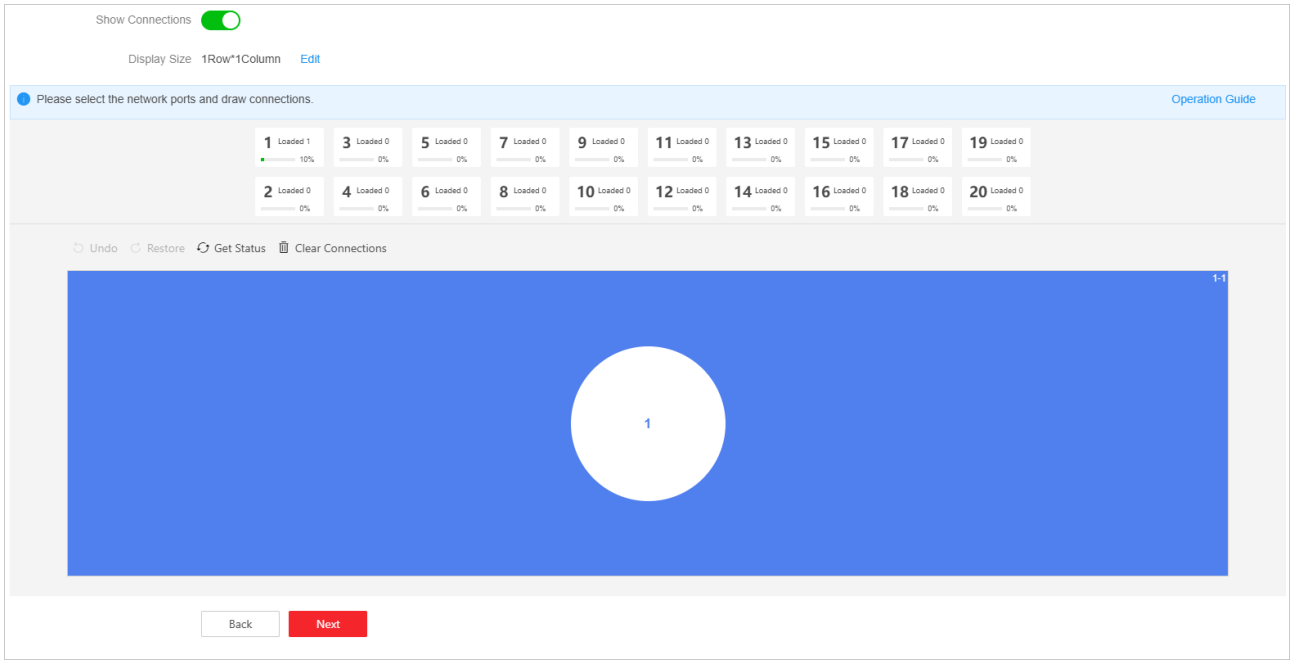

Figure 3-11 Configure Signal Cable Connection

Step 8 Complete display mapping:

- For the HUB receiving cards, you have completed the display mapping configuration.
- For the AXS receiving cards, click **Next**. On the **Enable Calibration** page, enable calibration.

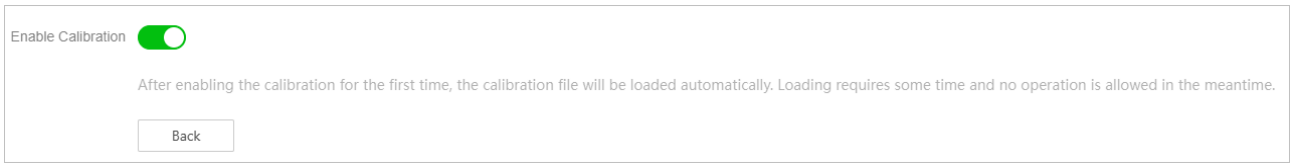

Figure 3-12 Firstly Calibrate AXS Receiving Cards

Chapter 4 Video Wall Configuration

4.1 Configure an LCD/LED Video Wall in Normal Mode

4.1.1 Select Normal Mode

Navigate to **Configuration** → **Other Settings** → **Device Mode Switching** and confirm that the device is currently in normal mode. If switching from another mode to normal mode, the device will automatically restart.

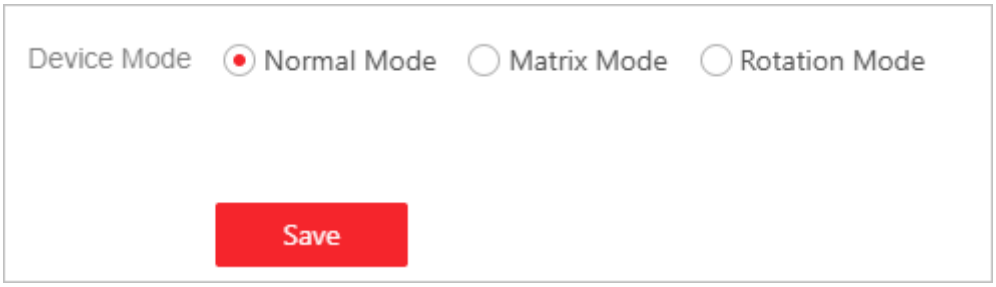

Figure 4-1 Select Normal Mode

4.1.2 Configure the Video Wall Scale

Step 1 Navigate to **Video Wall Configuration** and click **Configure**.

- Click to edit the video wall name.
- Click to delete the video wall.
- Click **New** to add a new video wall. The device supports up to 8 video walls.

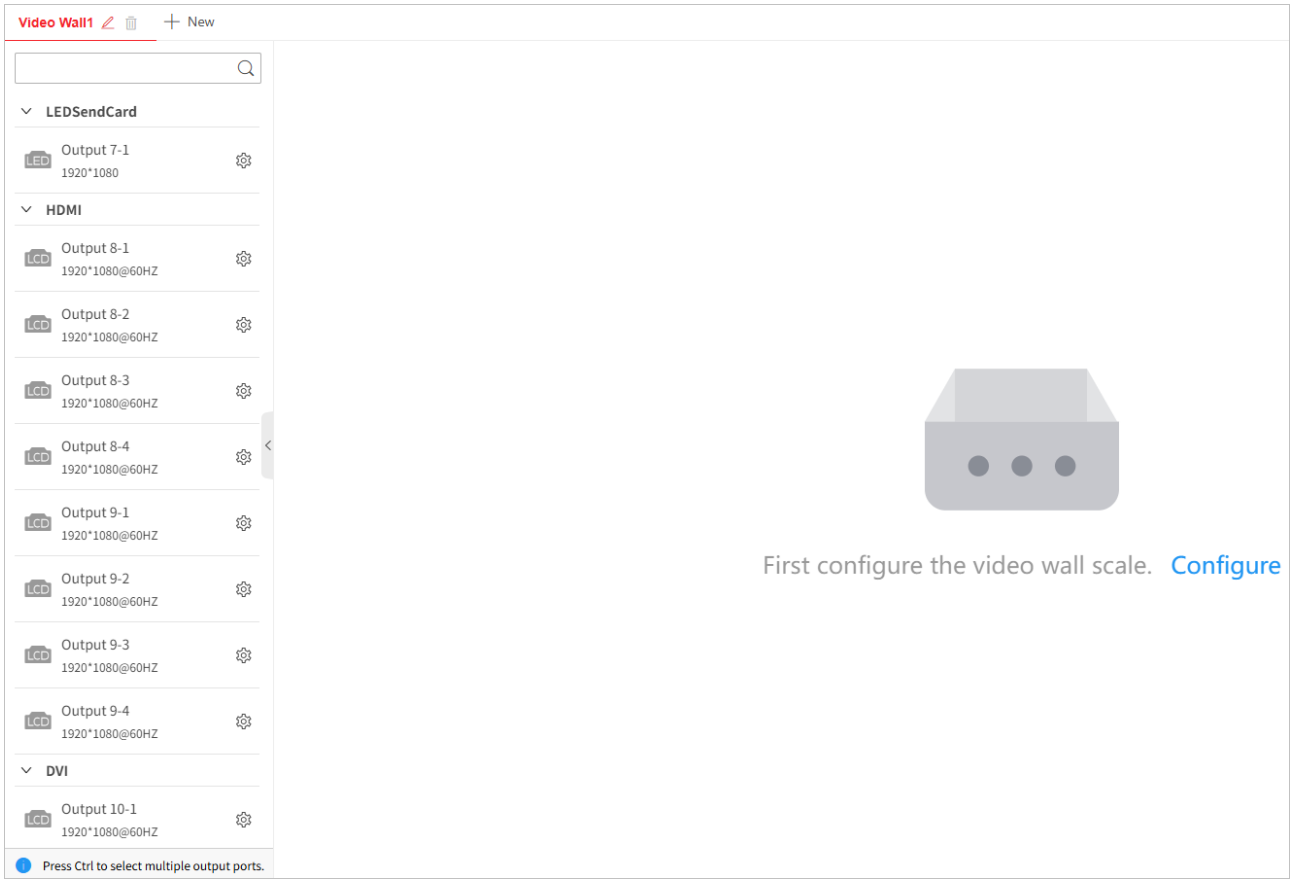

Figure 4-2 Video Wall Configuration Page (Normal Mode)

Step 2 Set the video wall name.

Step 3 Select a configuration mode and enter the corresponding video wall parameters.

- Normal mode: Suitable for standard rectangular video walls. Enter parameters as detailed in “Video Wall Parameters (Normal Mode)”.
- Custom Shape mode: Suitable for irregularly shaped video walls. Enter parameters as detailed in “Video Wall Parameters (Custom Shaped Mode)”.
- Meeting mode: Suitable for rectangular video walls with multiple associated auxiliary screens. Enter parameters as detailed in “Video Wall Parameters (Meeting Mode)”.

Step 4 (Optional) After setting the video wall scale, you can click **Edit Video Wall Scale** to change the video wall scale.

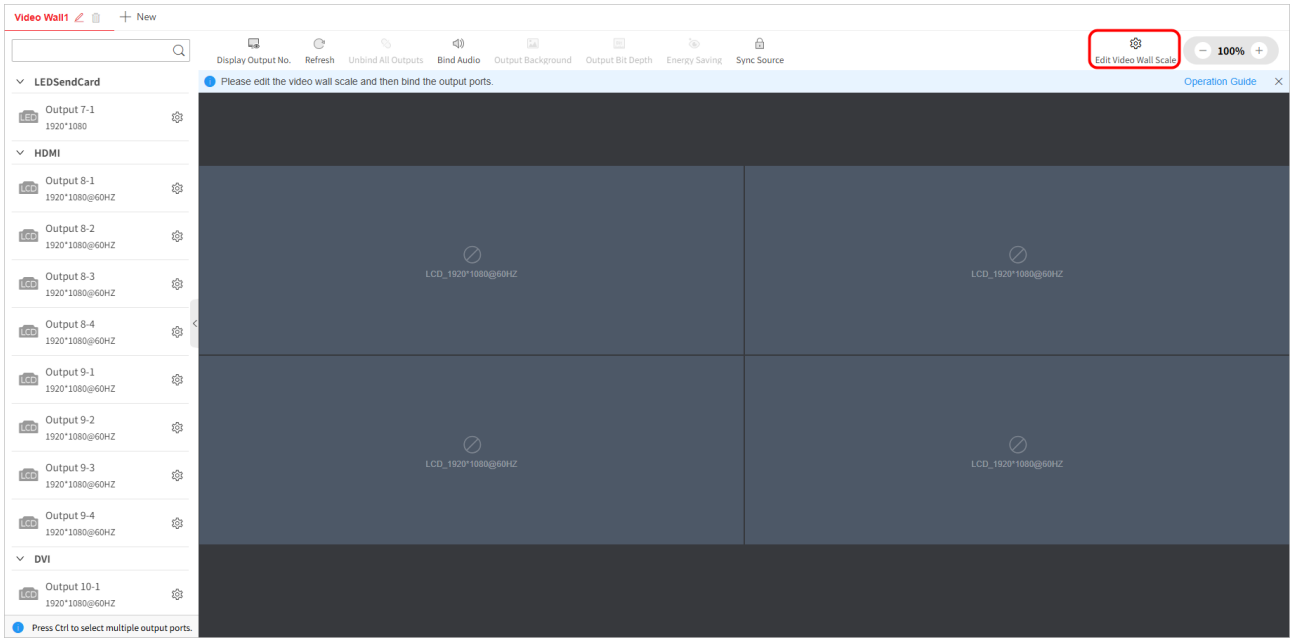

Figure 4-3 Edit the Video Wall Scale

Video Wall Parameters (Normal Mode)

Step 1 Select the video wall type: LCD or LED.

Step 2 Set the number of rows and columns:

- Directly enter the number of rows and columns.
- Drag to select a range with the mouse movement, and then click the left mouse button to confirm the selection.
- To edit the number of rows and columns, directly enter the new values.
- To edit the number of rows and columns, click **Clear**, drag to select a new range with the mouse movement, and click the left mouse button to confirm.

Step 3 Select the output resolution, and.

- For an LCD video wall, select a standard resolution. All LCD screens in the current video wall will use the selected resolution.
- For an LED video wall, select a standard resolution or customize the row height and column width.
  - When selecting a standard resolution, ensure the set row height and column width do not exceed the standard resolution. After setting, all rows will have the same height and all columns the same width.
  - When selecting **Custom**, click  to copy parameters to the same row or column.

Step 4 Click **Save**.

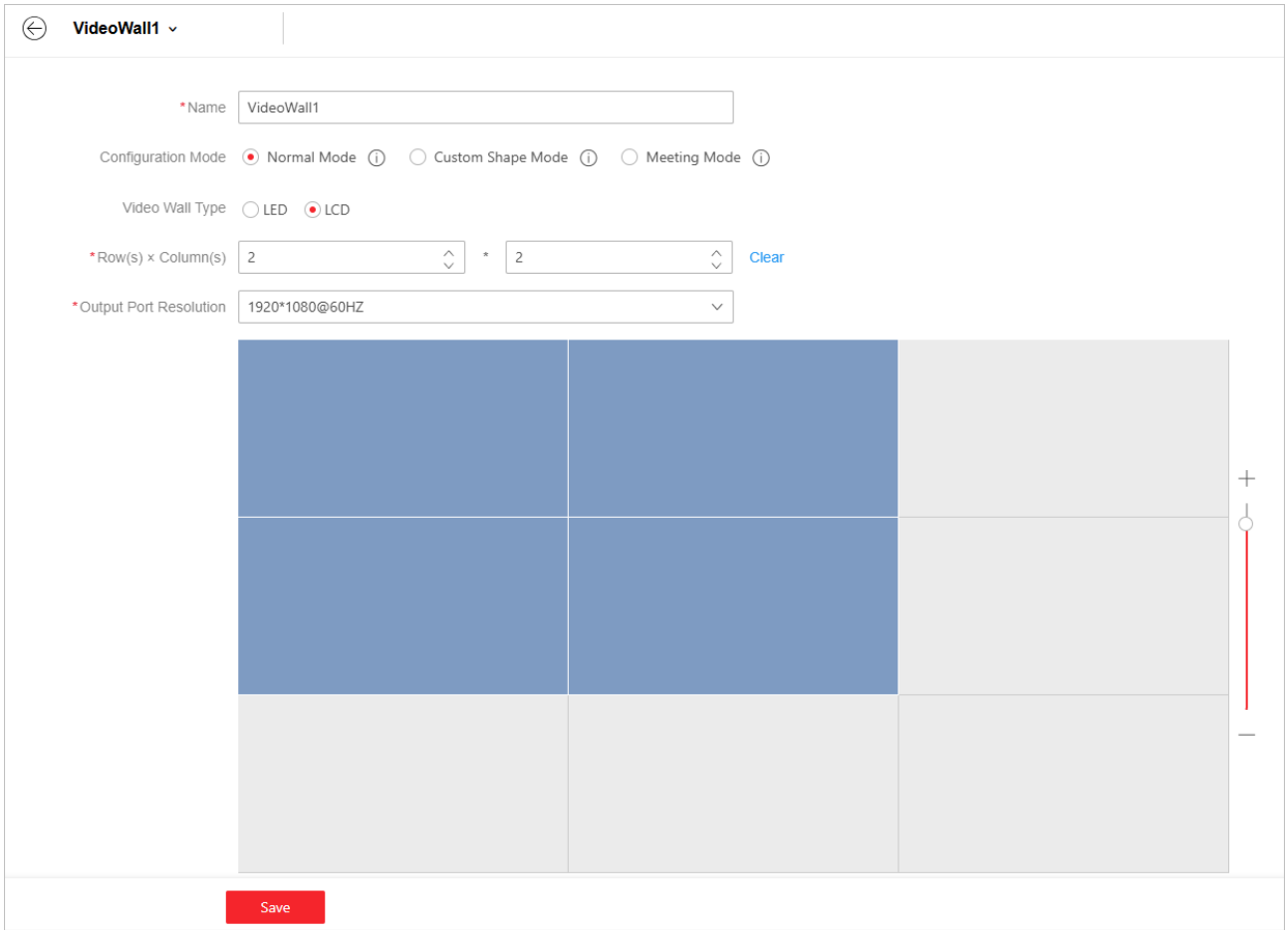

Figure 4-4 Create Video Wall in Normal Mode

Video Wall Parameters (Custom Shaped Mode)

- If you create an LED video wall, directly click **Save**.
- If you create an LCD video wall, select an output port resolution and then click **Save**.

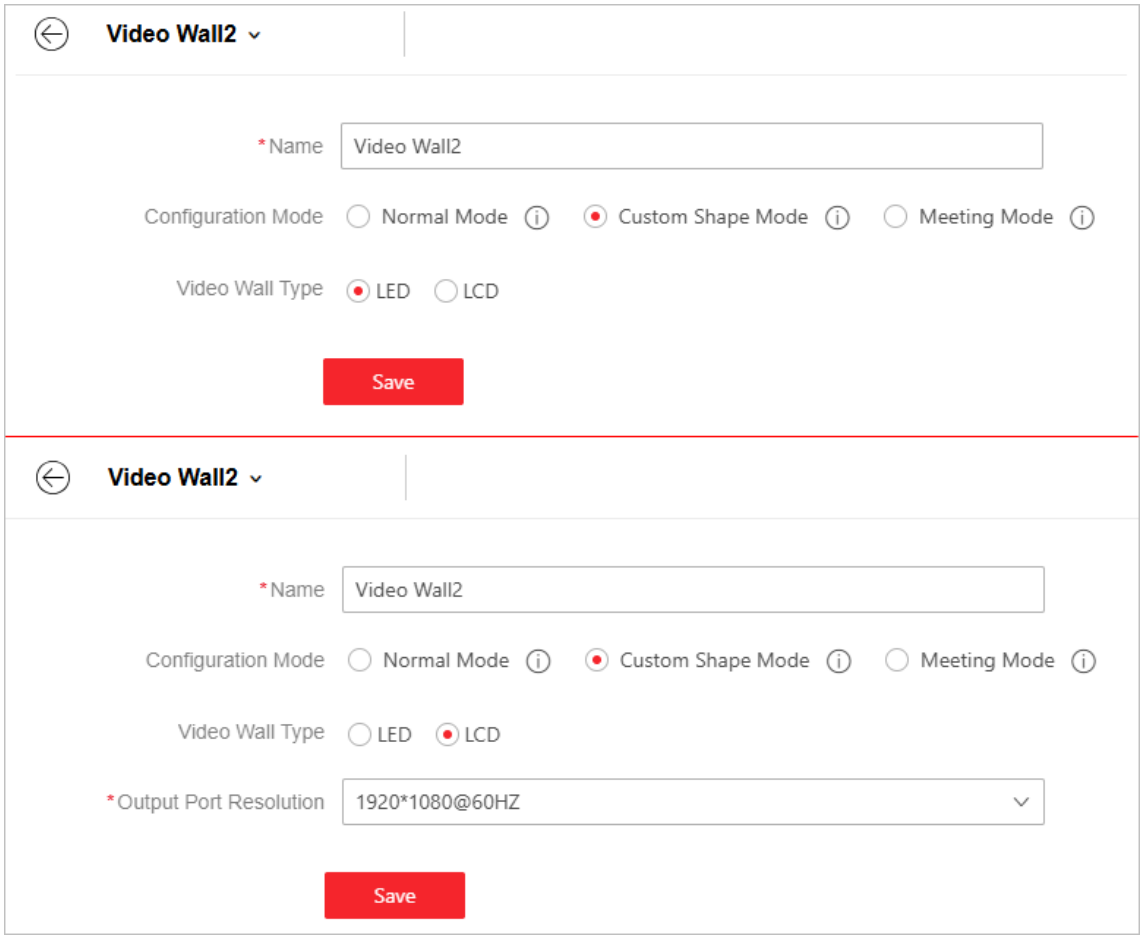

Figure 4-5 Create Video Wall in Custom Shape Mode

Video Wall Parameters (Meeting Mode)

Step 1 Select the primary display type: LCD or LED.

Step 2 Set the number of rows and columns:

- Directly enter the number of rows and columns.
- Drag to select a range with the mouse movement, and then click the left mouse button to confirm the selection.
- To edit the number of rows and columns, directly enter the new values.
- To edit the number of rows and columns, click **Clear**, drag to select a new range with the mouse movement, and click the left mouse button to confirm.

Step 3 Select the output resolution, and.

- For an LCD video wall, select a standard resolution. All LCD screens in the current video wall will use the selected resolution.
- For an LED video wall, select a standard resolution or customize the row height and column width.

– When selecting a standard resolution, ensure the set row height and column width do not exceed the standard resolution. After setting, all rows will have the same height and all columns the same width.

– When selecting **Custom**, click  to copy parameters to the same row or column.

Step 4 Set the auxiliary display quantity, auxiliary display type and output port resolution.

Step 5 Click **Save**.

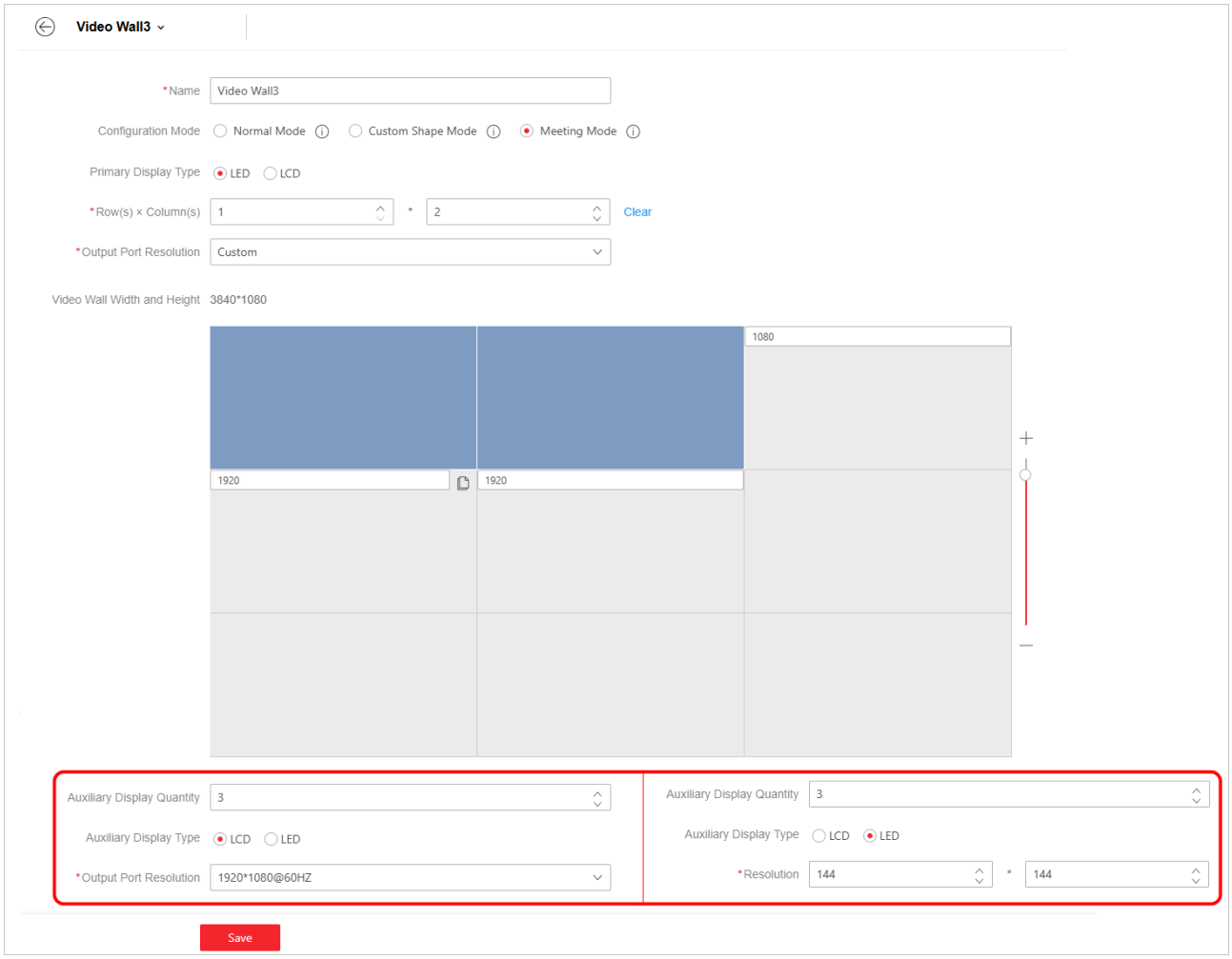

Figure 4-6 Create Video Wall (Meeting Mode)

4.1.3 Configure the Output Ports

Edit the Output Port Parameters

- Output board: On the **Video Wall Configuration** page, click  of an output port of an output board to configure the following items:
  - Customize the name.
  - Edit the output mode of an HDMI output port: By default, the HDMI mode is used. For better compatibility, you can change it to DVI mode.

- Copy the current HDMI output configuration to other output ports: Click **Copy To** and then select the output ports.

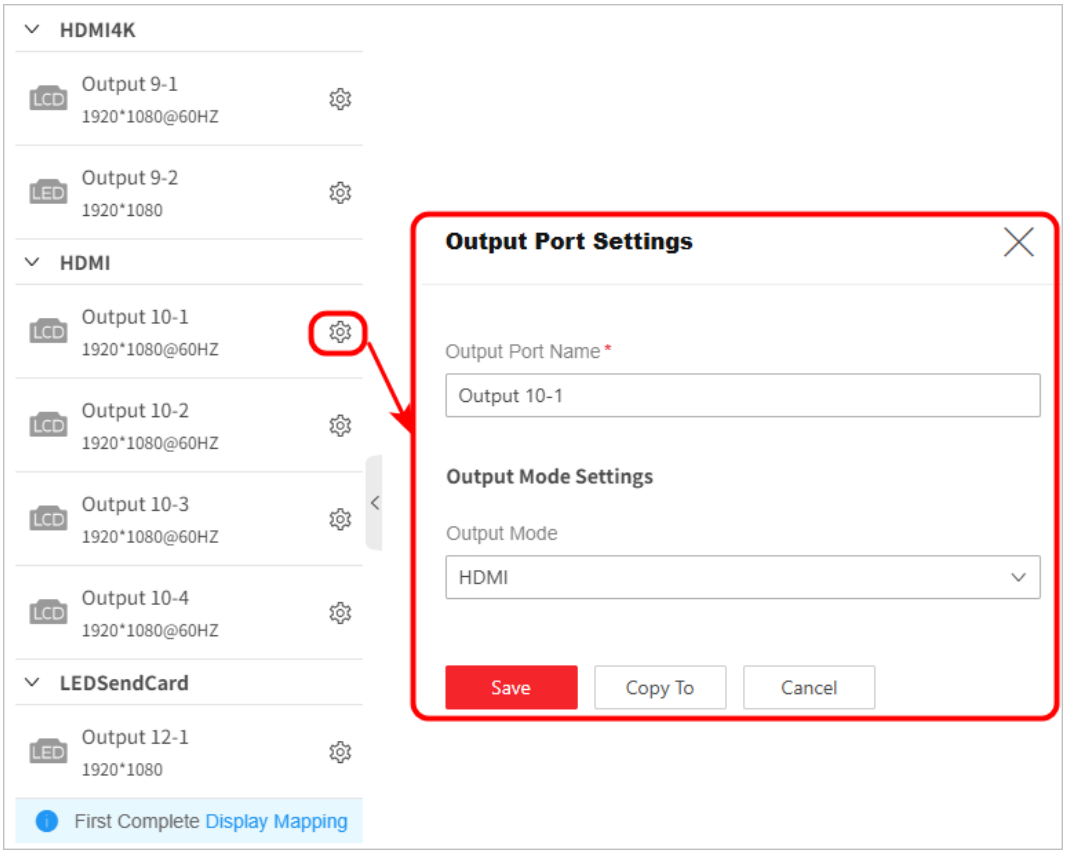

Figure 4-7 Configure HDMI Output Port

- LED controller board: Configure display mapping as detailed in “Chapter 3 Direct-Connect LED Display Mapping Configuration”.

Bind Output Ports with Video Wall

Step 1 On the **Video Wall Configuration** page, click **Display Output No**.

This function is not available for the LED controller board.

Step 2 According to the output number shown on the actual screens, drag the corresponding output ports to the screens of the video wall.

- Batch binding: Hold **Ctrl** to select multiple output ports and drag them to the video wall.
- Cancel single binding: Click  in the upper right corner of target screen.
- Batch unbinding: Click **Unlink All Outputs**.

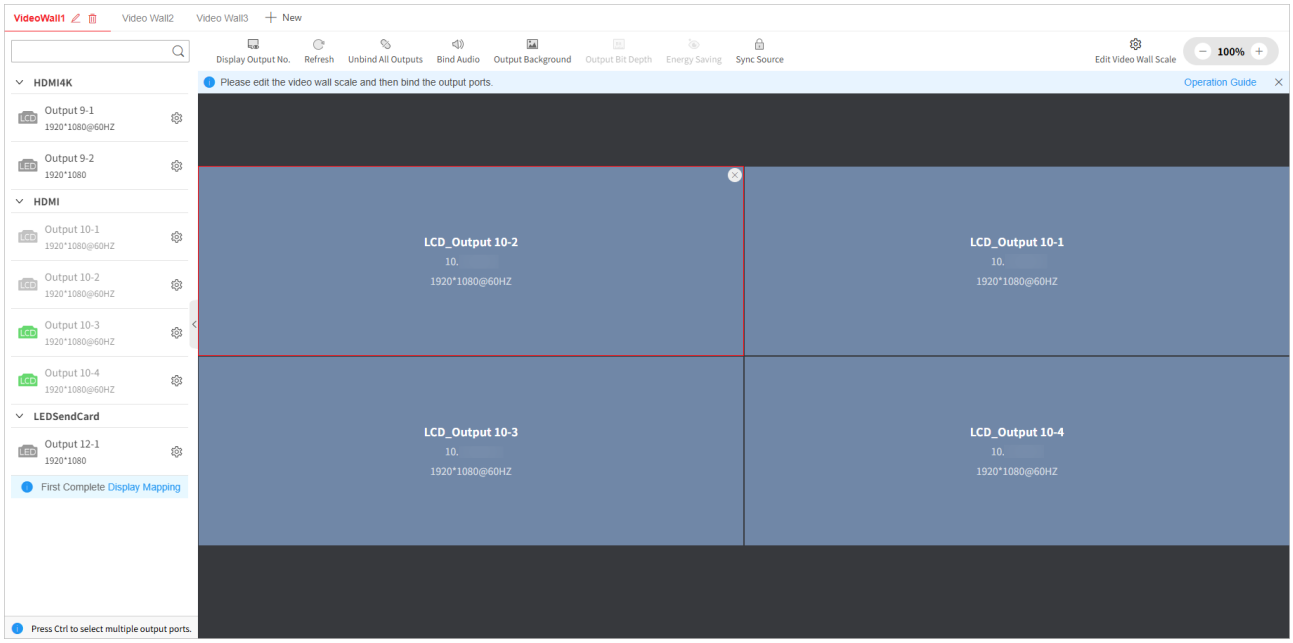

Figure 4-8 Bind Output Ports with Video Wall in Normal Mode

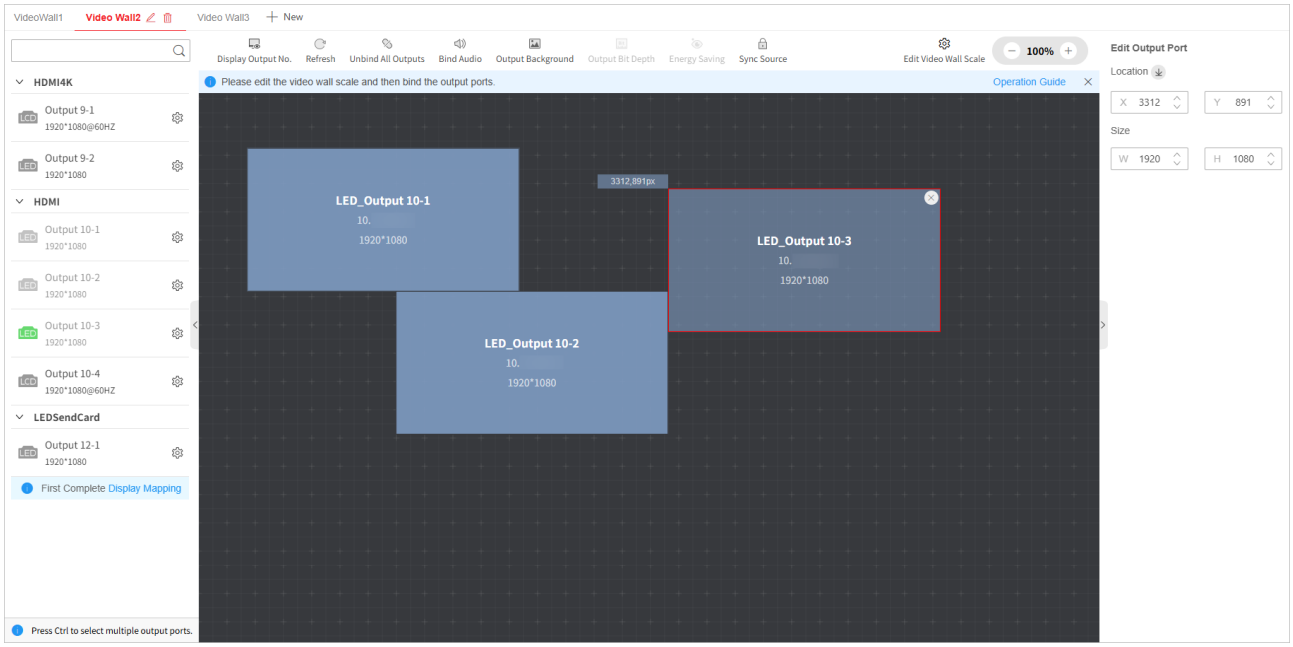

Figure 4-9 Bind Output Ports with Video Wall in Custom Shape Mode

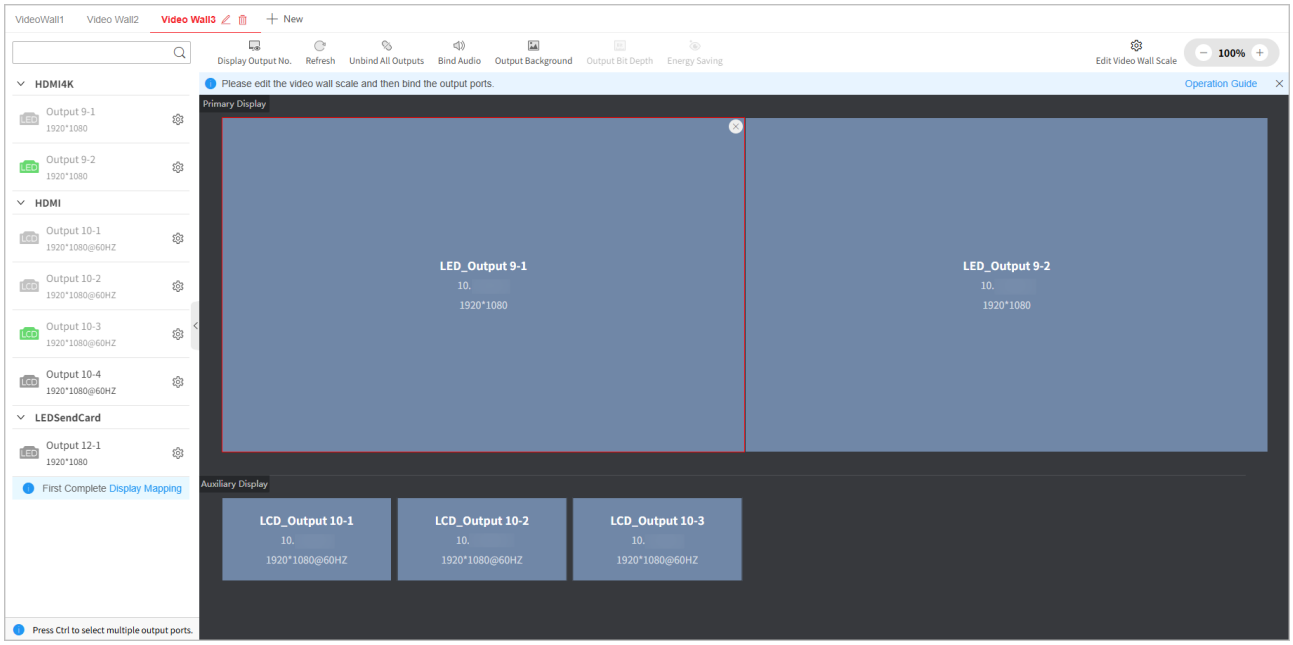

Figure 4-10 Bind Output Ports with Video Wall in Meeting Mode

Step 3 (Optional) When all screens support control linkage function, follow these steps to automatically bind output ports with the video wall.

1) Make sure all screens are enabled with the control linkage function.
2) Use the remote control to set the position information for all screens.
3) Click **Edit Wall Scale** and select **Auto Configure**.

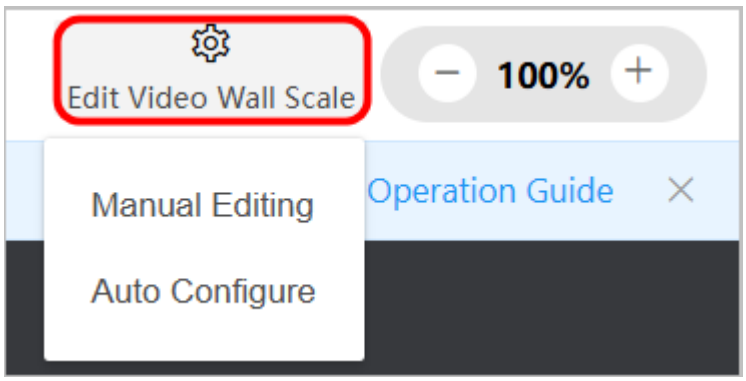

Figure 4-11 Auto Bind Output Ports

4.2 Configure an LCD Video Wall in Rotation Mode

4.2.1 Select Rotation Mode

Navigate to **Configuration** → **Other Settings** → **Device Mode Switching**, select the rotation mode, and click **Save**.

Note

After switching to the rotation mode, the device will automatically restart. In rotation mode, the number of output ports in custom shape mode will be halved.

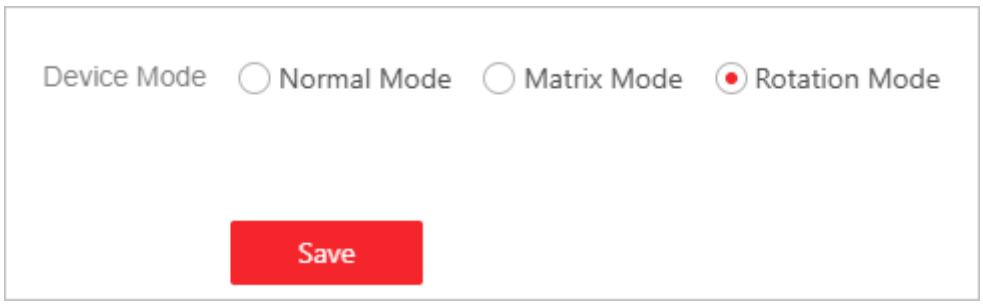

Figure 4-12 Select Rotation Mode

4.2.2 Configure the Video Wall Scale

Step 1 Navigate to **Video Wall Configuration** and click **Configure**.

- Click  to edit the video wall name.
- Click  to delete the video wall.
- Click **New** to add a new video wall. The device supports up to 8 video walls.

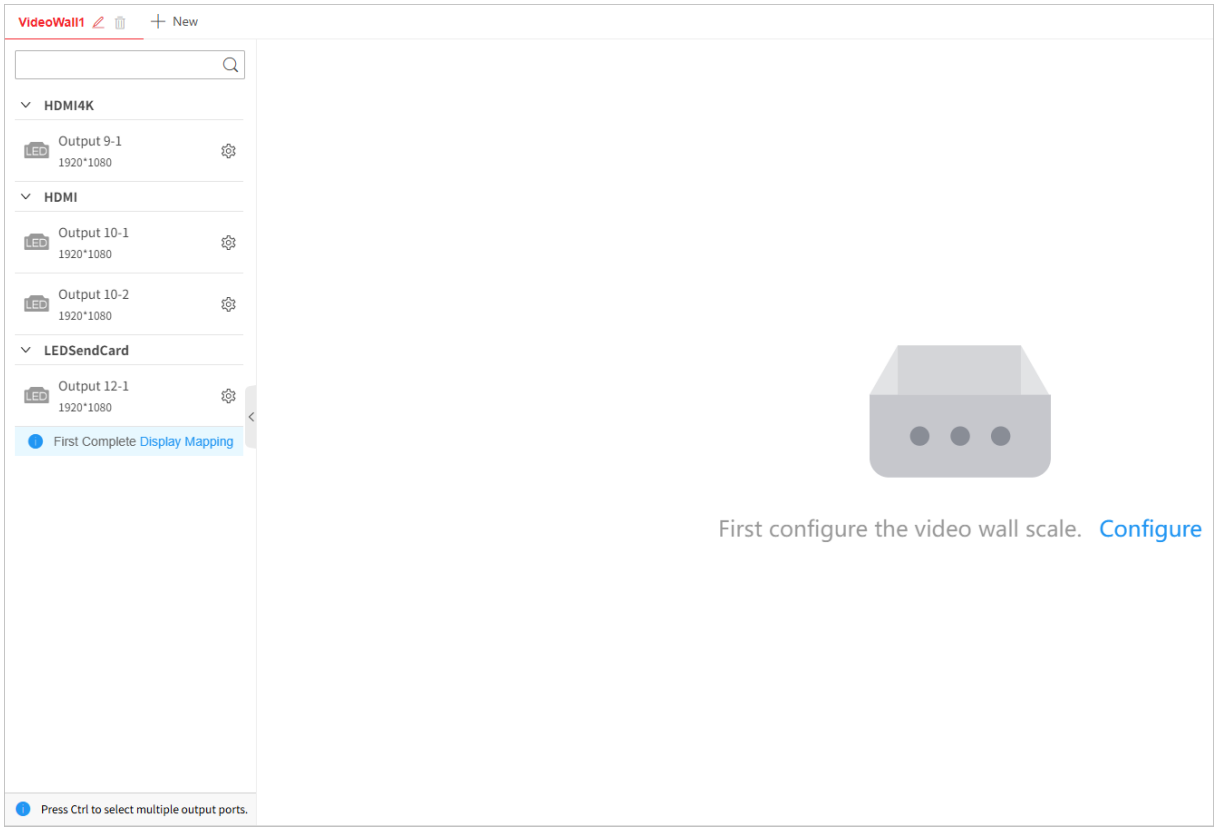

Figure 4-13 Video Wall Configuration Page (Rotation Mode)

Step 2 Set the video wall name, select the output port resolution, and click **Save**.

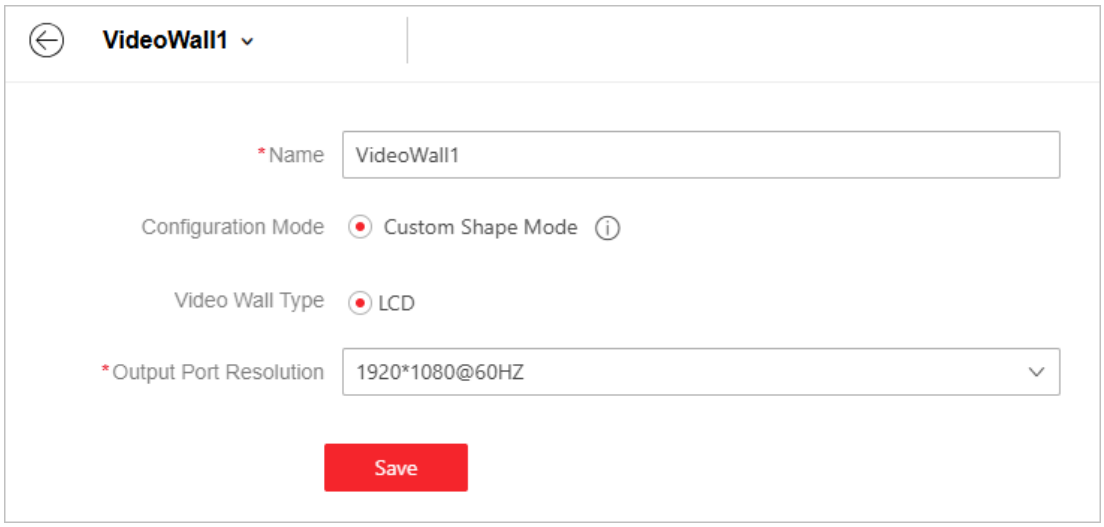

Figure 4-14 Set an LCD Video Wall (Rotation Mode)

Step 3 (Optional) To edit the output port resolution, you can click **Edit Video Wall Scale**.

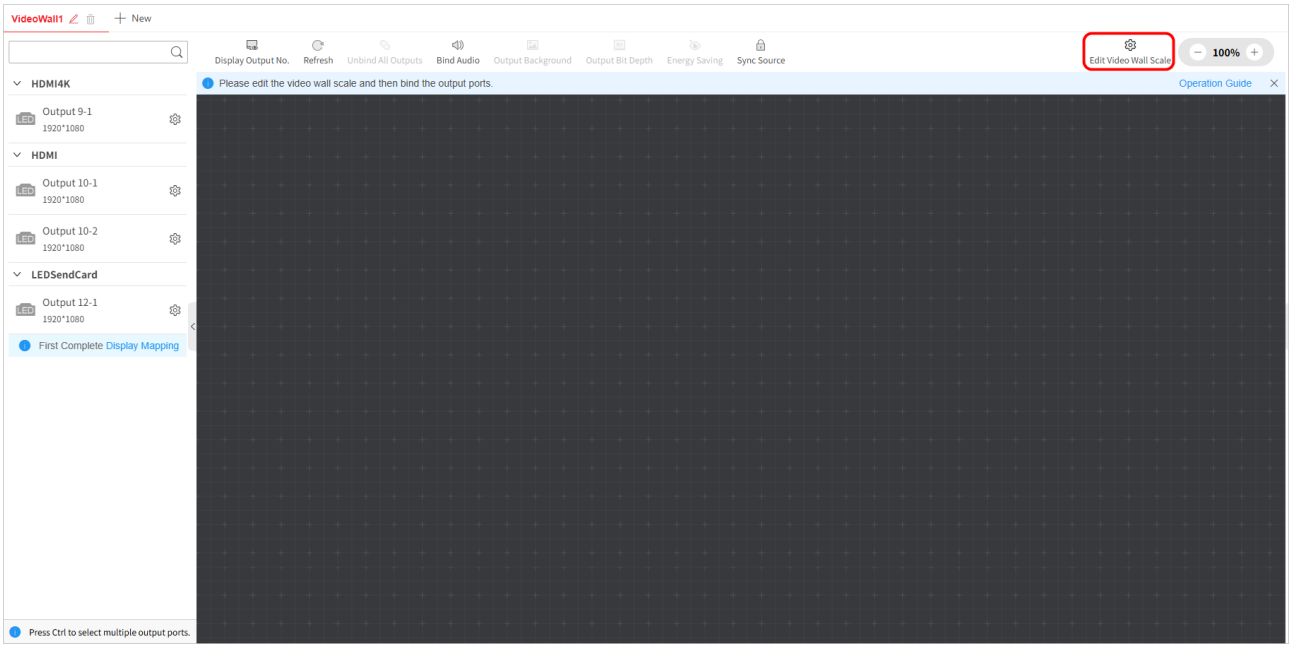

Figure 4-15 Edit the Video Wall Scale

4.2.3 Configure the Output Ports

Step 1 Navigate to **Video Wall Configuration**, and click ⚙ of an output port of an output board to configure the following items

- Customize the name.
- Edit the output mode of an HDMI output port: By default, the HDMI mode is used. For better compatibility, you can change it to DVI mode.

- Copy the current HDMI output configuration to other output ports: Click **Copy To** and then select the output ports.

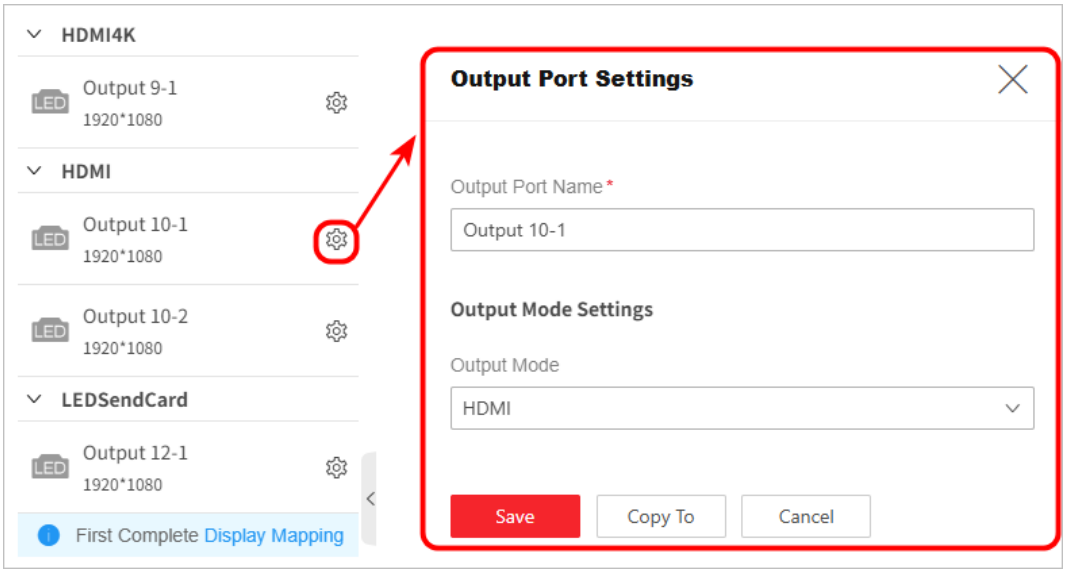

Figure 4-16 Configure HDMI Output Port

Step 2 Click **Display Output No**.

Step 3 According to the output number shown on the actual screens, drag the corresponding output ports to the screens of the video wall, and set the rotation angle.

- Batch binding: Hold **Ctrl** to select multiple output ports and drag them to the video wall.
- Cancel single binding: Click  in the upper right corner of target screen.
- Batch unbinding: Click **Unlink All Outputs**.

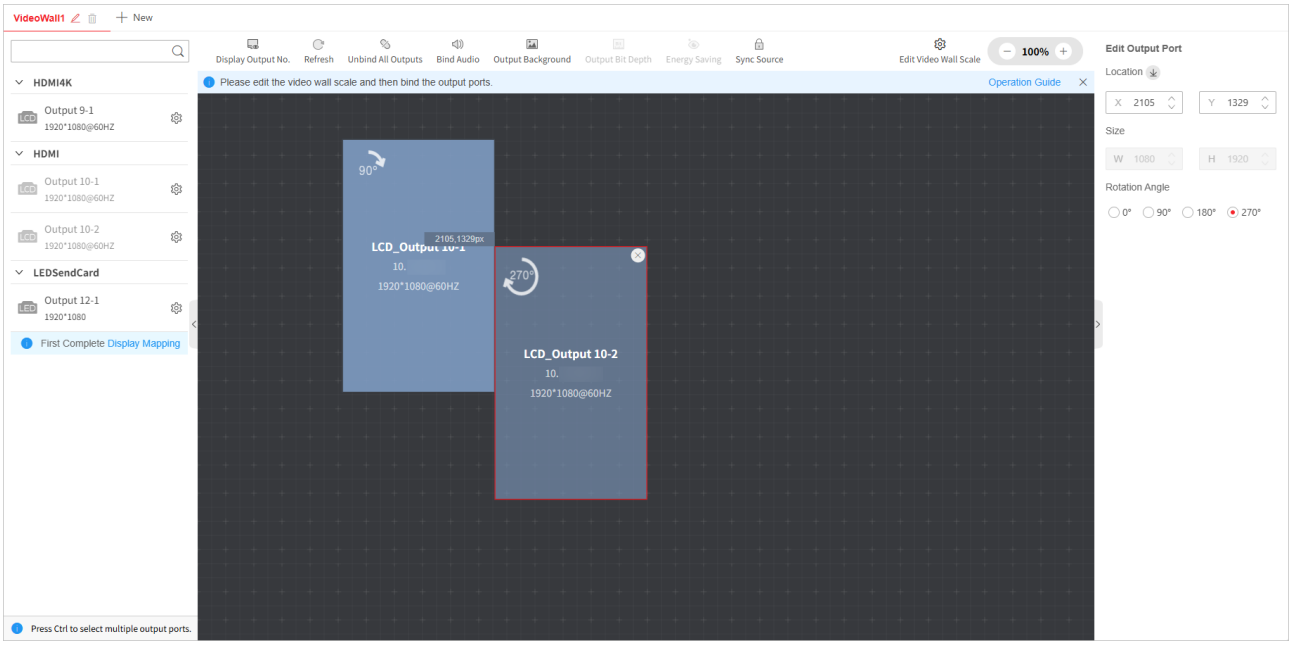

Figure 4-17 Bind Output Ports with Video Wall in Rotation Mode

4.3 Configure Audio Output

Configure Audio Matrix

If you need to configure multiple audio outputs for a video wall, configure the audio matrix.

Step 1 Navigate to **Configuration** → **Audio Matrix.**

Step 2 Double click to link the audio input channel and audio output channel.

Double click again or click to unlink.

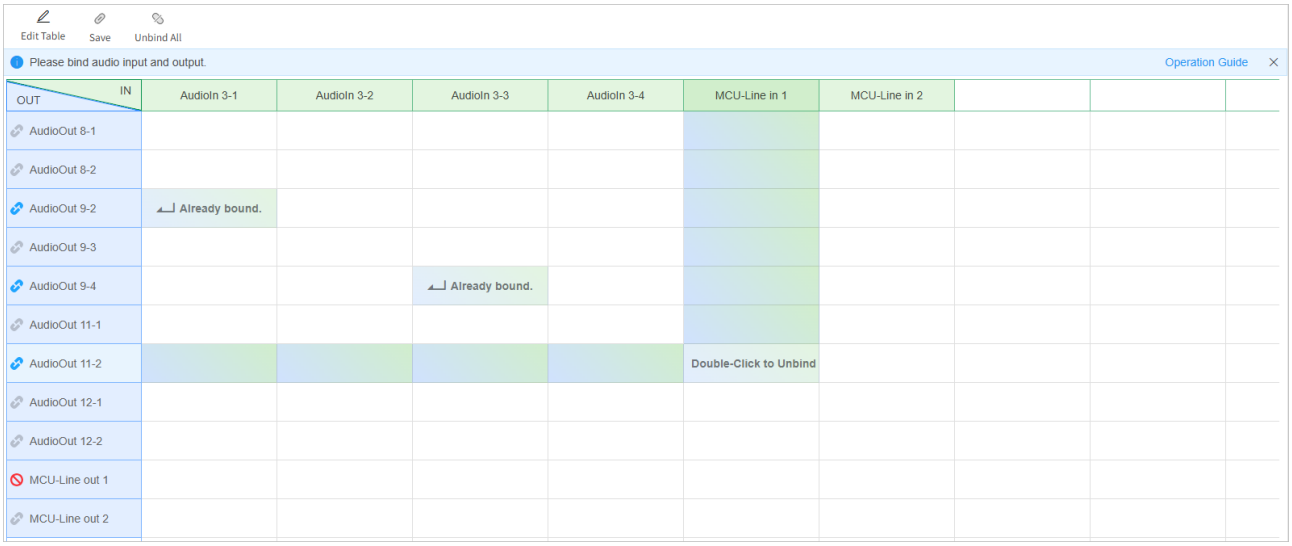

Figure 4-18 Configure Audio Matrix

Step 3 (Optional) You can perform the following operations as required:

- Double click the name of an audio channel to edit its name.
- Click **Edit Table** to customize the audio channel name and configure the displaying of the audio channel in the table.

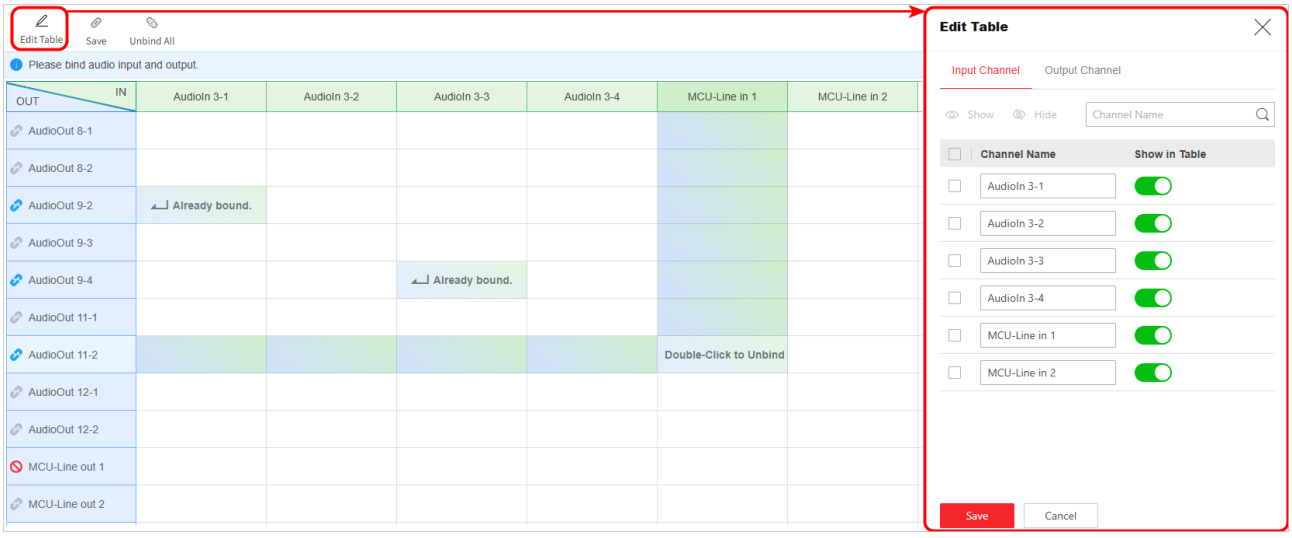

Figure 4-19 Edit Audio Channel Table

- Click **Unbind All** to remove all configured audio associations.

Step 4 Click **Save**.

Configure an Audio Output

On the **Video Wall Configuration** page, click **Bind Audio**. Click at the upper right corner of an audio output to set it as the audio output of the video wall.

- After setting the audio output of a video wall, you need to enable audio output on the **Video Wall Operation** page.
- One video wall can be bound with only one audio output.

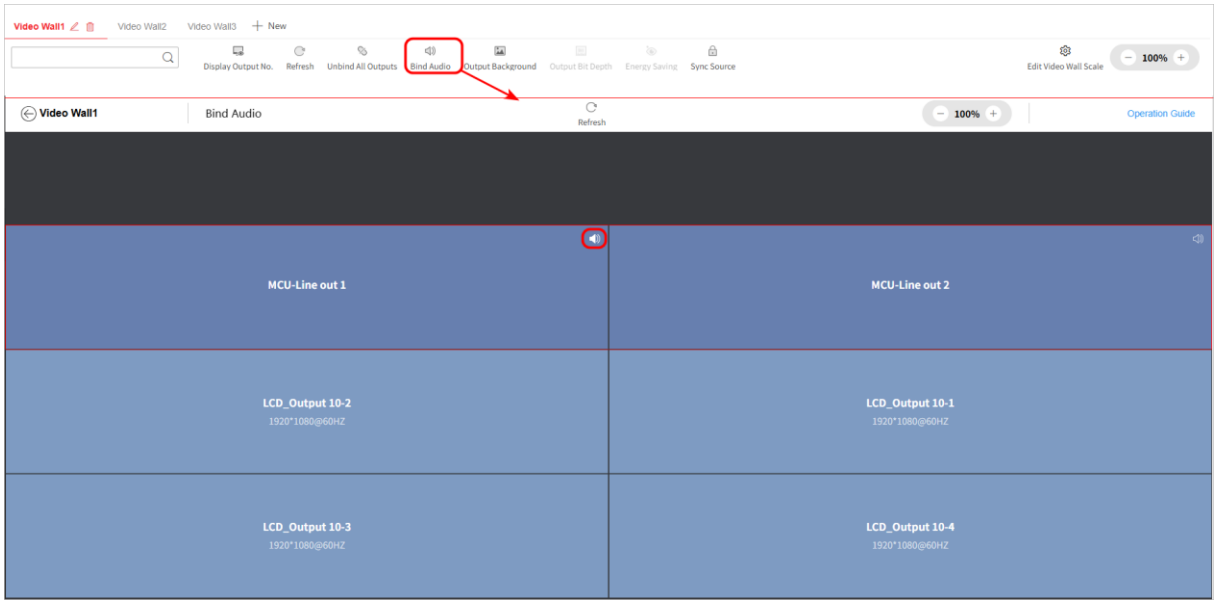

Figure 4-20 Set Output Audio

4.4 Configure Other Output Parameters

General Parameters

- Unbind all output ports currently bound with the video wall: Click **Unlink All Outputs** at the top of the **Video Wall Configuration** page.
- Refresh information for all output ports of the current video wall: Click **Refresh** at the top of the **Video Wall Configuration** page.

Output Background

The device uses the default background. To change the background, click **Output Background** at the top of the **Video Wall Configuration** page.

- When a video wall is bound to an output board, you can select a solid color or import an image as the background.
- When a video wall is bound to an LED controller board, you can only select a solid color as the background.

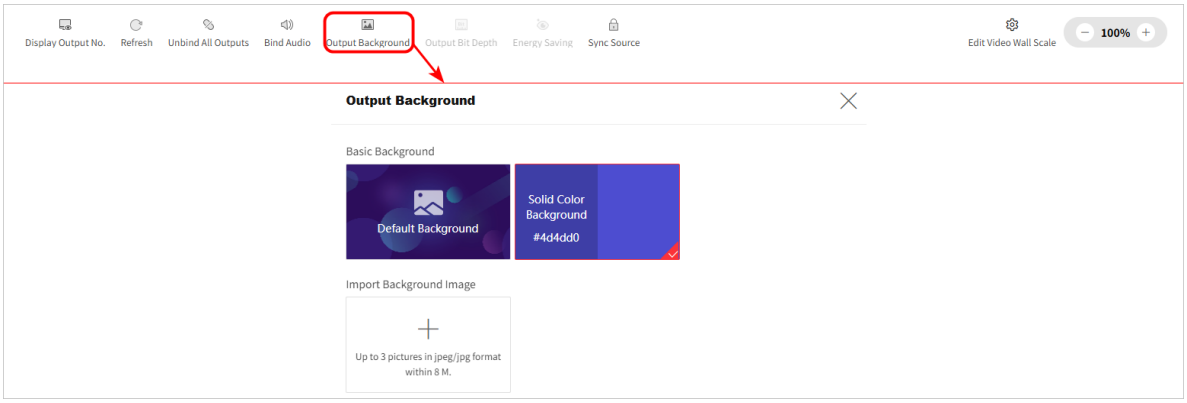

Figure 4-21 Edit Output Background

Energy Saving Function

Only the LED controller board supports the energy saving function.

Step 1 Bind the output port of an LED controller board to the video wall.

Step 2 Click **Energy Saving** at the top of the **Video Wall Configuration** page.

Step 3 Enable energy saving, set the strength coefficient, and click **Save**.

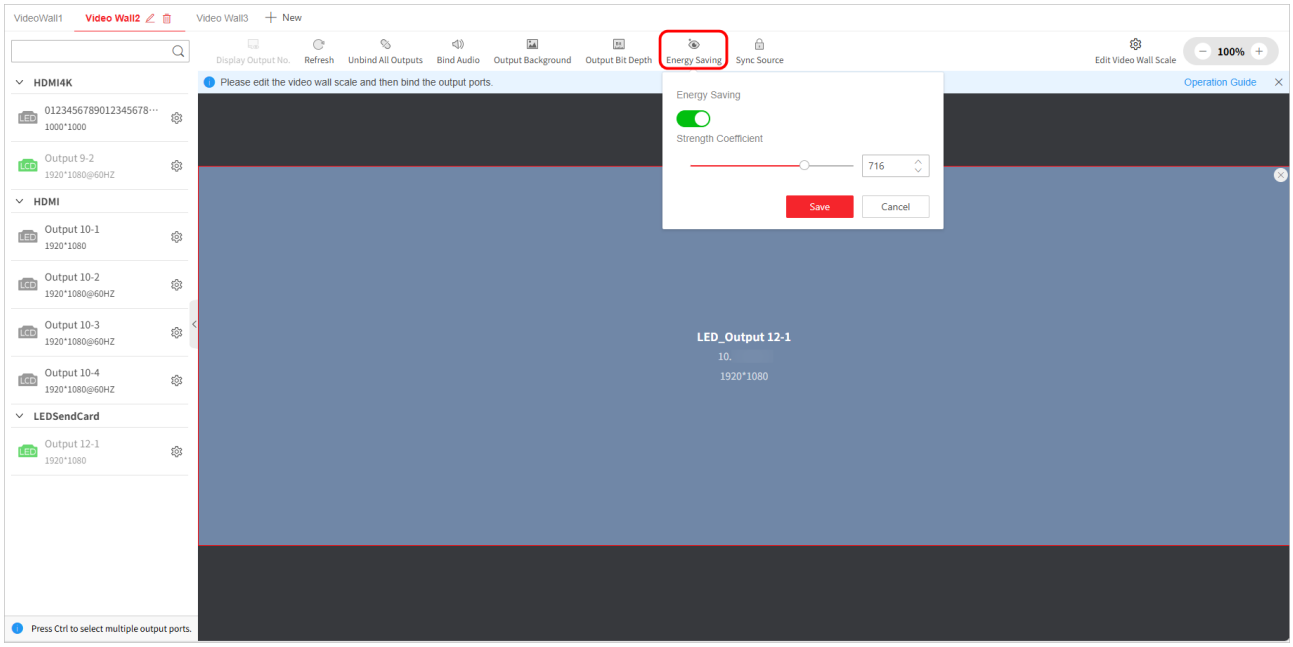

Figure 4-22 Set Energy Saving

Source Synchronization Function

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).

Note

Only the video walls in normal and custom shape modes support the source synchronization function.

Step 1 Select the synchronization reference source:

- **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 port of the first device.
2) Connect the GENLOCK port of the previous device to the GENLOCK port of the next device.
3) Repeat until all devices are chained.

Step 2 Set the phase offset:

- **Off:** No adjustment (immediate synchronization by default).
- **Absolute Value:** Enter the pixel. The system calculates the delay for precise fixed-duration control.

Step 3 Click **Save**.

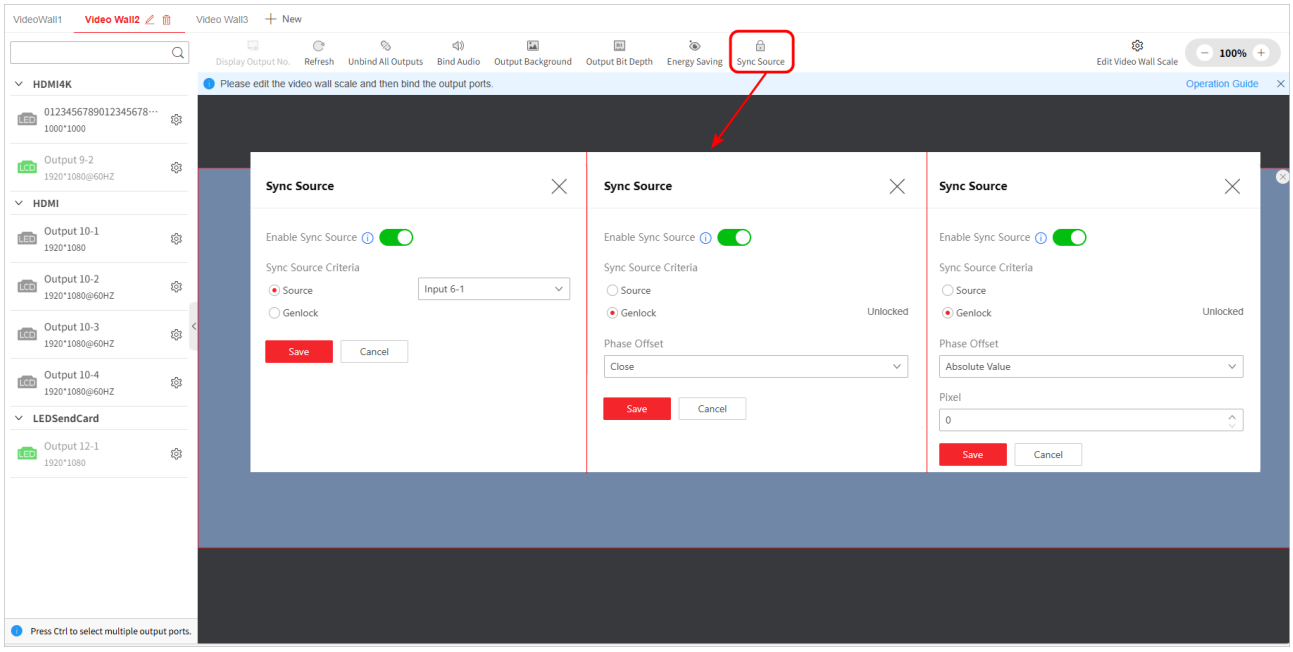

Figure 4-23 Set Source Synchronization

Output Bit Depth

Only the LED controller board supports the output bit depth function.

Step 1 Bind the output port of an LED controller board to the video wall.

Step 2 Click **Output Bit Depth** at the top of the **Video Wall Configuration** page.

Step 3 Select the output bit depth and click **Save**.

- 8-bit is used by default, and the device outputs SDR images.
- To output HDR images, select 10-bit and complete the HDR configuration in the **Video Wall Operation** page (see "Edit a Local Source" for details).

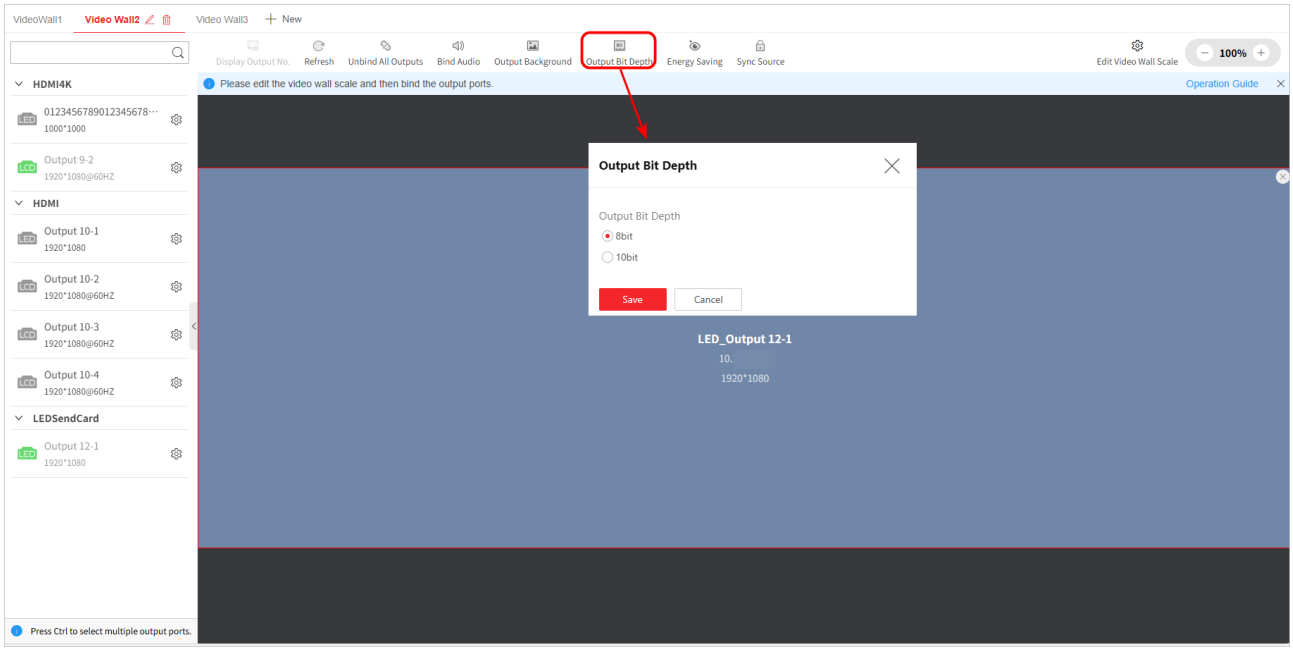

Figure 4-24 Set Output Bit Depth

4.5 Configure Video Wall Inputs

4.5.1 Add Network Signal Sources

Add a Network Source via IP Address

Step 1 Navigate to **Video Wall Operation** → **Source**, click , and select **IP Address**.

Step 2 Enter the signal source information and stream media information.

- Click **More** to select the transmission protocol, stream type, encrypted stream, device manufacturer, and streaming media information.

  After enabling **Get Stream via Streaming Server**, you can perform live view data forwarding through the streaming server to reduce network stress.

- If you add an NVR or IPC that has multiple channels, all channels of the NVR or IPC will be automatically added to the device.

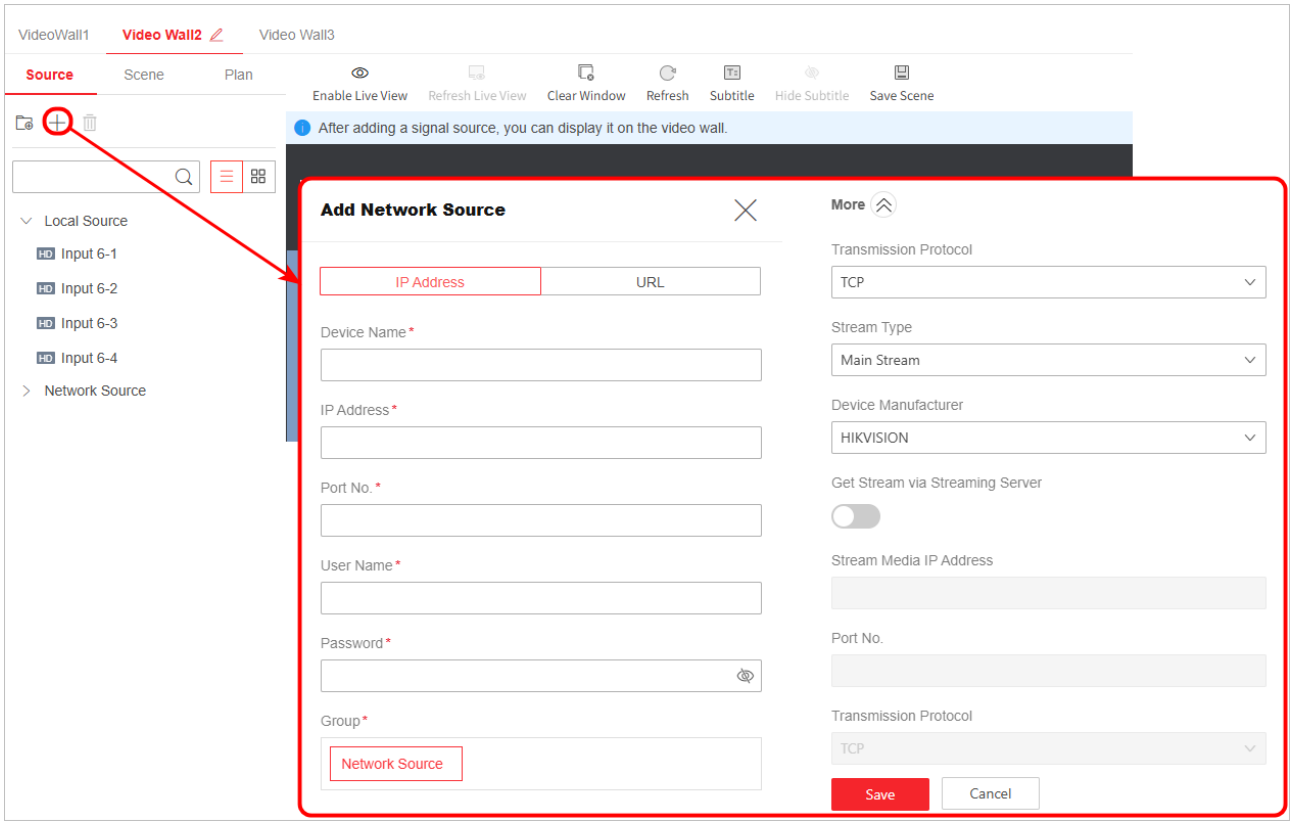

Figure 4-25 Add a Network Source via IP Address

Step 3 Click **Save**.

Add a Network Source via URL Address

Step 1 Navigate to **Video Wall Operation** → **Source**, click , and select **URL**.

Step 2 Enter the device name and the URL address.

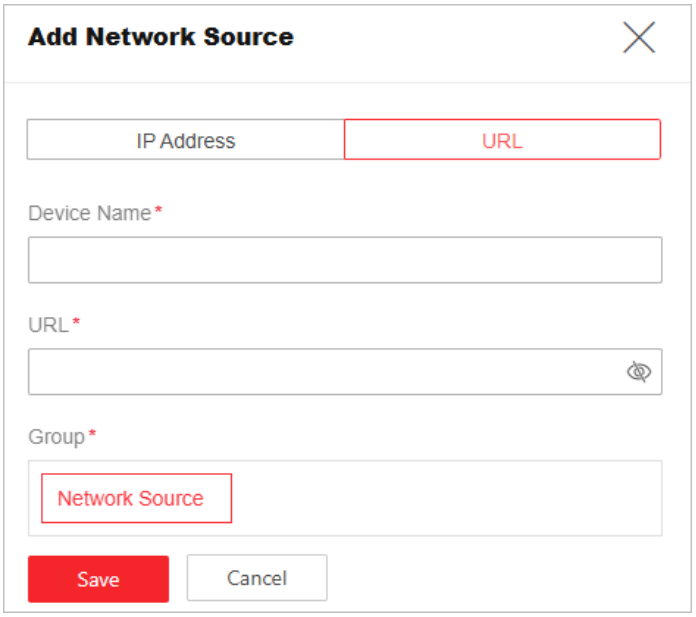

Figure 4-26 Add a Network Source via URL Address

Step 3 Click **Save**.

4.5.2 Manage Signal Sources

Edit a Local Source

On the **Video Wall Operation** page, hover over a local signal source and then click to edit its parameters.

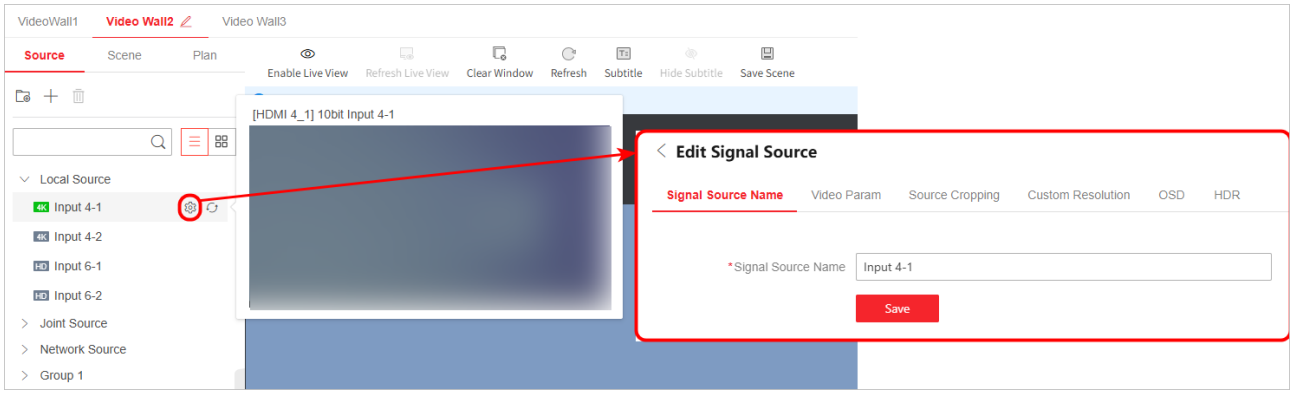

Figure 4-27 Edit a Local Source

- Edit the signal source name.
- Click **Video Param**, select a color mode, and adjust the brightness.

  If you select custom color mode, the video parameters will restore to the default settings after you click **Restore Default** on the **Backup and Reset** page.

Figure 4-28 Set Video Parameters

- Click **Source Cropping**, and set the cropping value at top, bottom, left, and right edges.

  The clipping value ranges from 0 to 200. The clipping value at the top and bottom edges should be a multiple of 2, and the clipping value at the left and right edges should be a multiple of 4.

Figure 4-29 Crop a Signal Source

- If the resolution of a signal source does not match the resolution of the screen, you can customize the signal source resolution.
  1) Click **Custom Resolution**.
  2) Enable custom resolution and set the refresh rate and resolution. The width should be a multiple of 4 and the height should be a multiple of 2.
  3) (Optional) Click **Copy To** to copy the resolution configuration of the current signal source to other signal sources.
  4) Click **Save**.

Figure 4-30 Customize Resolution

- Click **OSD**, and then you can add multiple OSDs (On-Screen Displays) to the input signal image.
  - Overlay the character 1 to the input signal image. Set the content, font size, and font color, and adjust the character position. You can enter the position values or directly drag the character to adjust the position.
  - Overlay the character 2 to the input signal image. Set the content, font size, and font color, and adjust the character position. You can enter the position values or directly drag the character to adjust the position.
  - Click **Copy To** to copy the OSD configuration of the current signal source to other signal sources.

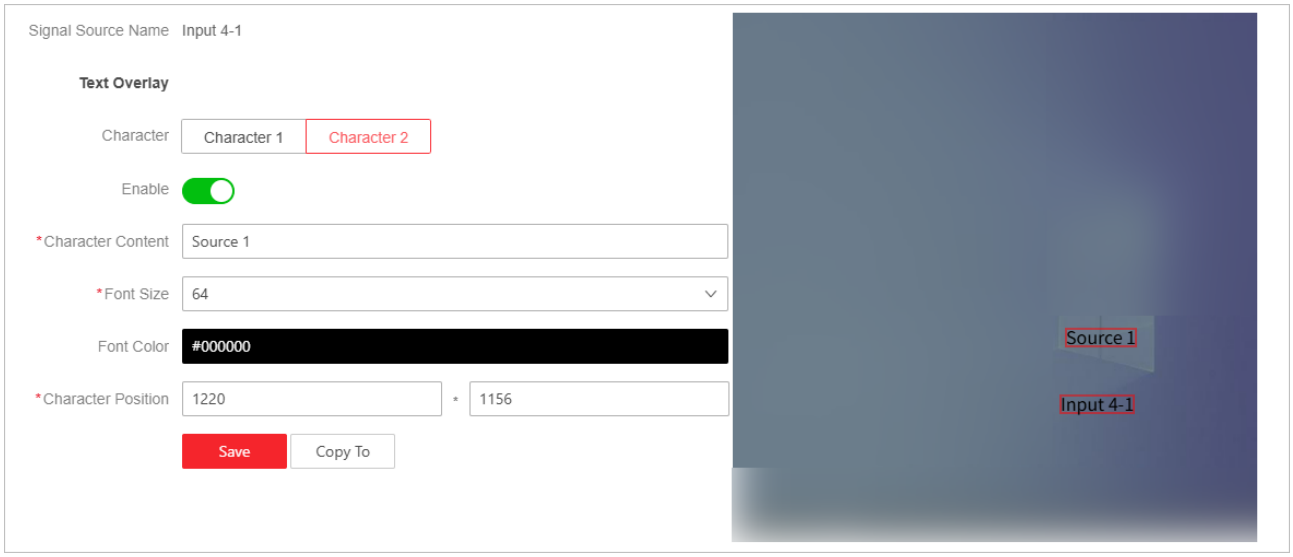

Figure 4-31 Add OSDs

- Click **HDR** to enable the function and select the HDR format.
  - Only 4K signal sources support the HDR function.
  - To use the HDR function, you must first select 10-bit output bit depth on the **Video Wall Configuration** page (see "Output Bit Depth" for details).
  - After configuring the HDR function, to see the HDR effect on the display screen, ensure that the receiving card of the display supports the HDR effect.

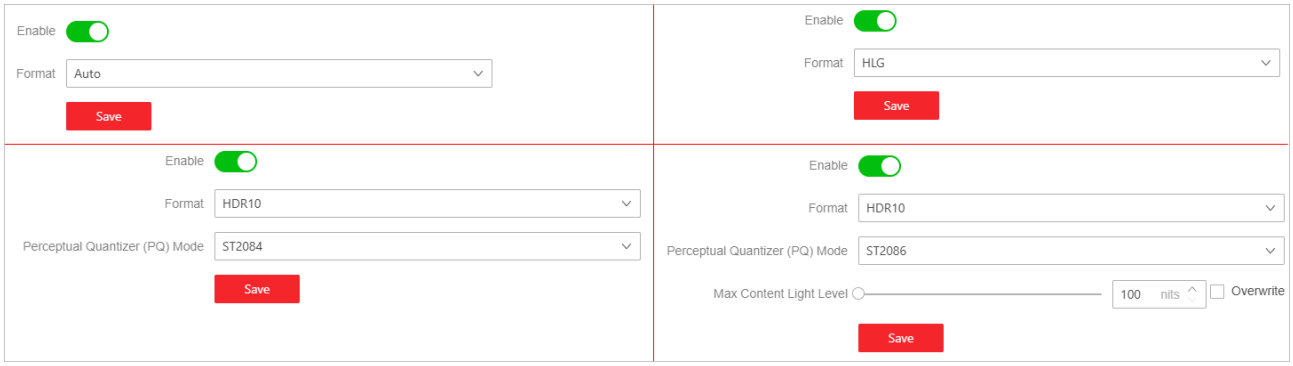

Figure 4-32 Set HDR Function

Create a Source Group

Step 1 On the **Video Wall Operation** page, click .

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

Note

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

Step 3 Click **OK**.

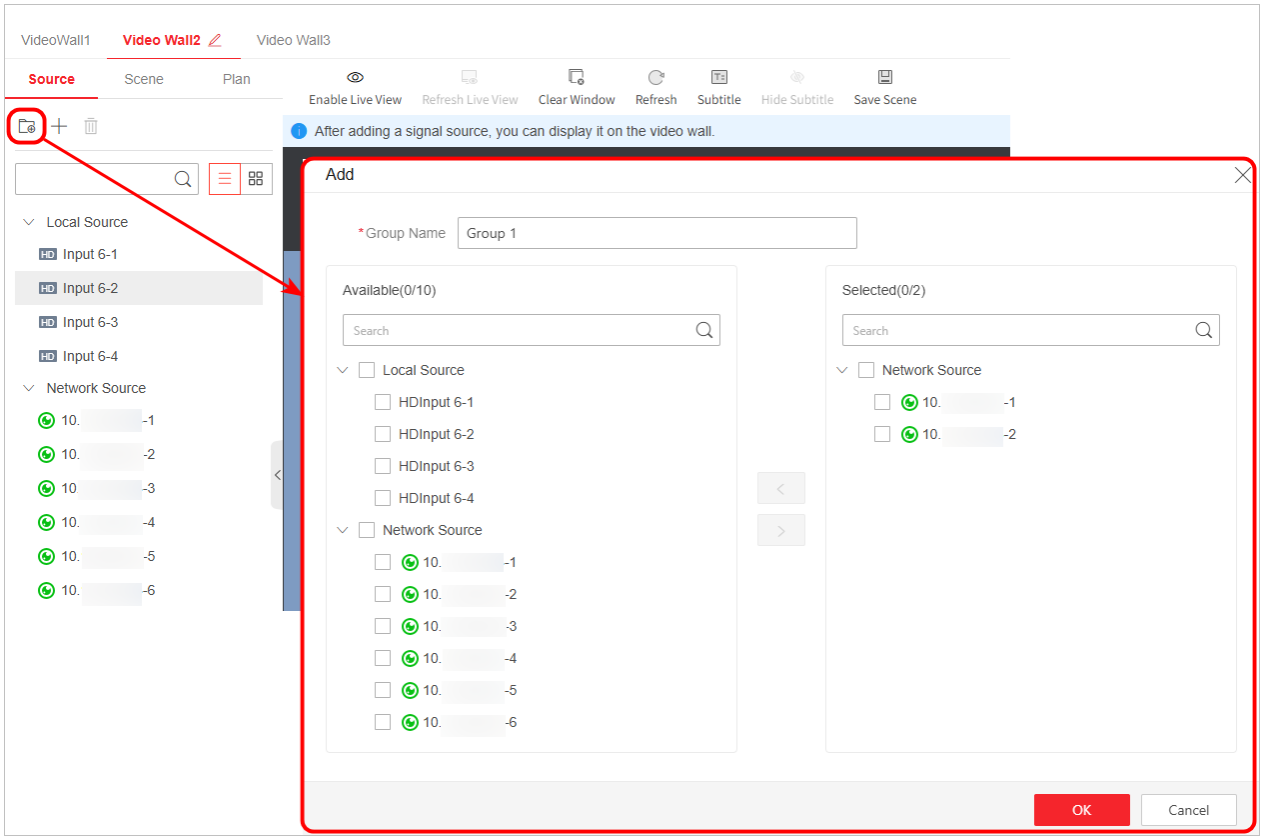

Figure 4-33 Create a Source Group

Splice Signal Source

This function allows you to splice multiple signal source images into one signal source image. After the signal source splicing, the spliced signal sources will disappear from the signal source list.

Note

- Only UHD signal sources (such as 4K HDMI input channels or 4K DP input channels) support splicing.
- All spliced signal sources should use the same resolution and frame rate to avoid affecting the display effect.
- The joint signal source will be displayed in one signal source window on the video wall.
- When the joint signal source window is floating or zooming on the video wall, the spliced signal source windows also float and zoom on the video wall.

Step 1 Navigate to **Configuration** → **Signal Source Splicing**, click +.

Step 2 Customize the joint signal source name and splicing scale.

Step 3 Drag the signal source in the signal source list to the splicing window.

Note

The signal sources that are dragged to the splicing window will be spliced to one-way signal source.

Step 4 (Optional) Click **Cancel All Bindings** to cancel the previous signal source splicing and splice the signal sources again.

Step 5 Click **Save**.

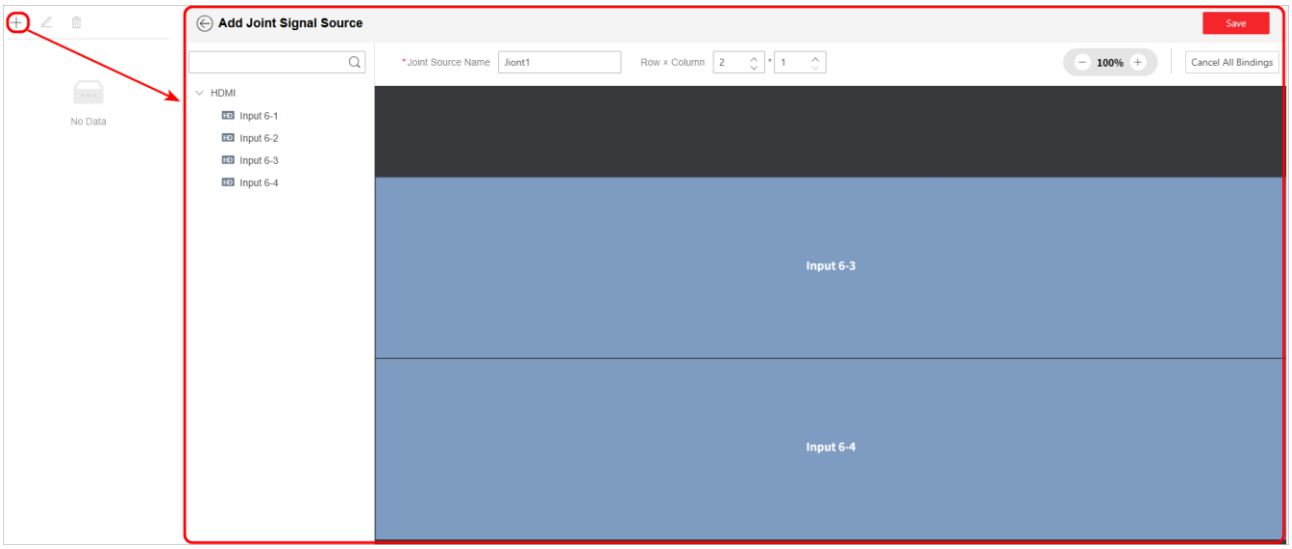

Figure 4-34 Add a Joint Signal Source

Edit a Network Source

Navigate to **Video Wall Operation**, hover over a network signal source and then click to edit its parameters.

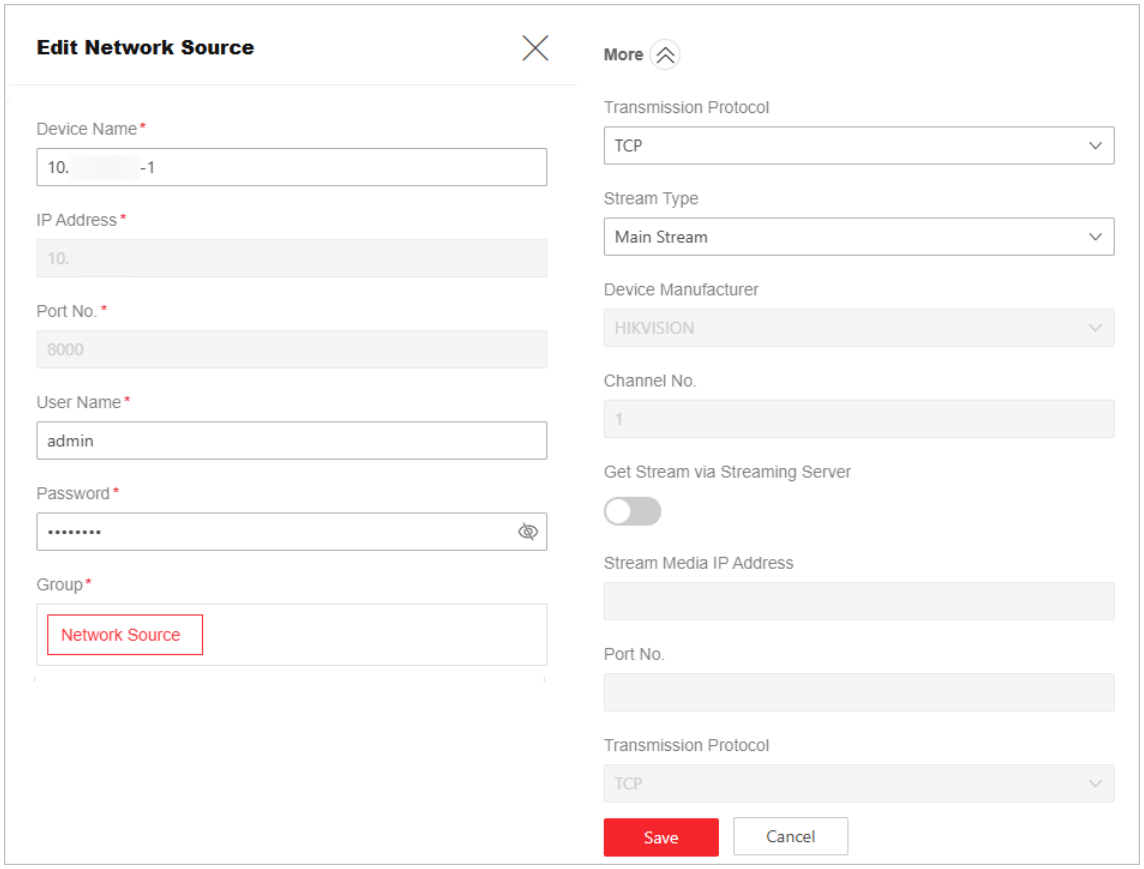

Figure 4-35 Edit a Network Source

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 .

4.5.3 Bind Signal Sources with a Video Wall

Bind a Video Wall in Normal Mode

Navigate to **Video Wall Operation** and then select a video wall in normal mode. Take either of the following methods to bind signal sources with the video wall:

- Bind a single signal source: Select a signal source and drag it to the video wall.
  - For LCD video walls: The signal source window will occupy a single screen by default.
  - For LED video walls: The signal source window will cover the entire video wall by default.

Note

- Local signal sources support one-to-many association. For details, see "4.5.4 Limitations of One-to-Many Association for Local Sources".
- Before dragging a network signal source to the video wall, make sure that the decoding board is in the device.
- Network signal sources support repeated wall display. The specific number of repetitions depends on the decoding capability of the decoding board.

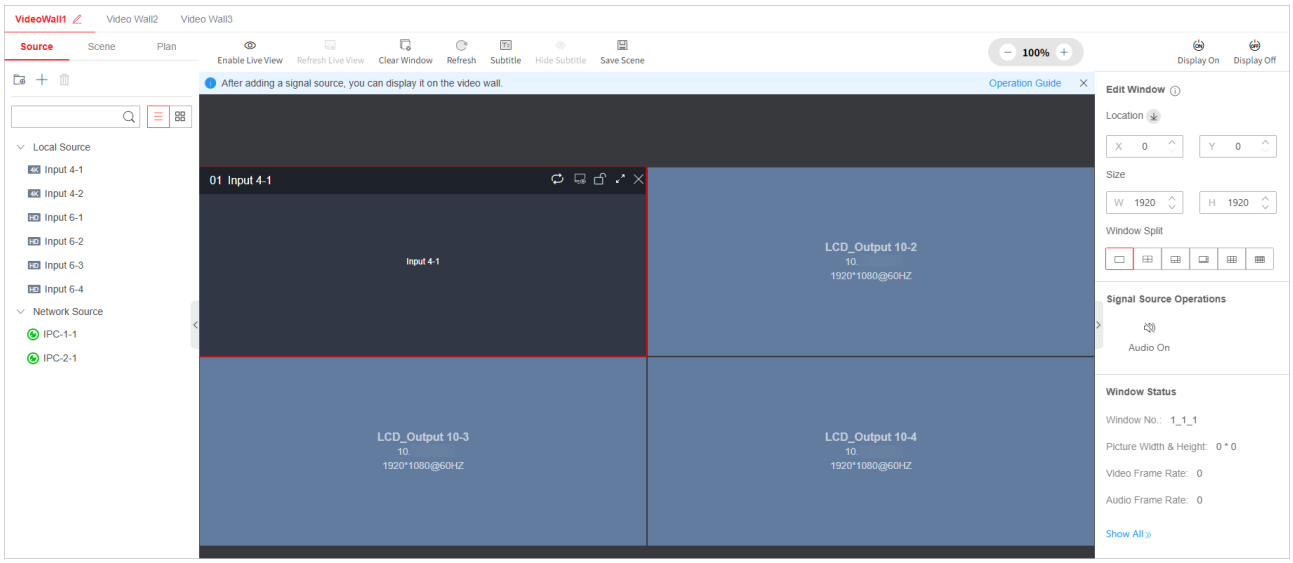

Figure 4-36 Bind a Single Source to Video Wall in Normal Mode

- Bind an entire signal source group: Drag a default or newly created signal source group to the video wall. To create a new signal source group, see “Create a Source Group”.
- Bind some signals sources in a group:
  - Network signal sources: Hold down the Ctrl or Shift key to select multiple sources and drag them.
  - Local signal sources: Hold down the Ctrl key to select multiple sources and drag them.

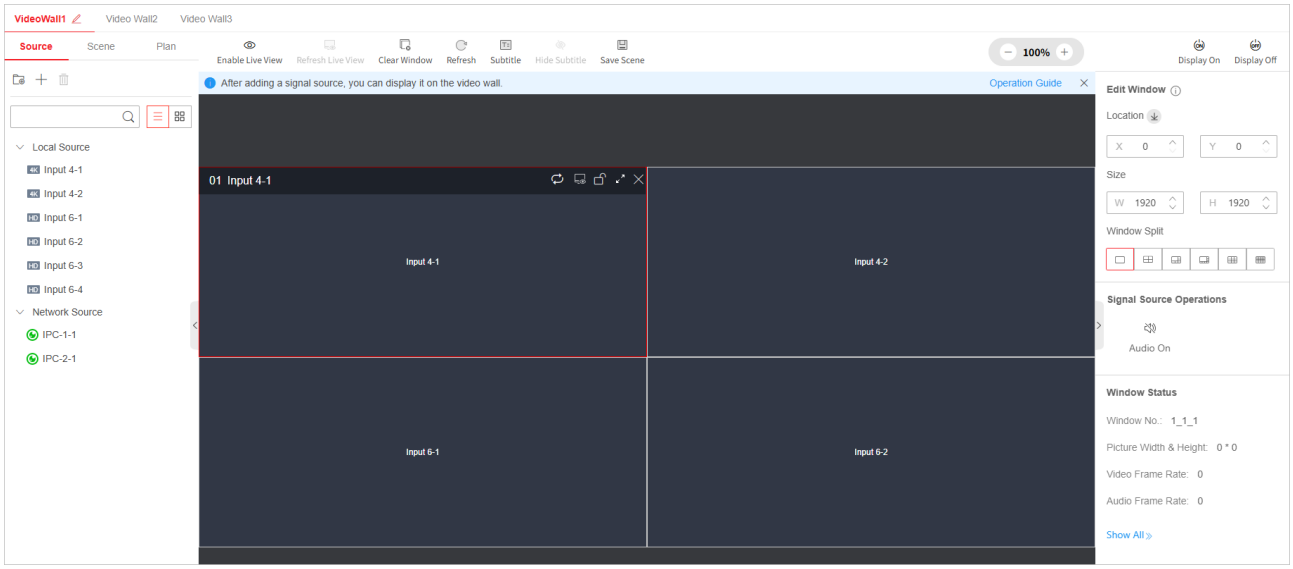

Figure 4-37 Bind Signal Sources to Video Wall in Normal Mode

Bind a Video Wall in Custom Shape Mode

Step 1 Navigate to **Video Wall Operation** and then select a video wall in custom shape mode.

Step 2 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 "4.5.4 Limitations of One-to-Many Association for Local Sources" 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.

Note

- 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”.

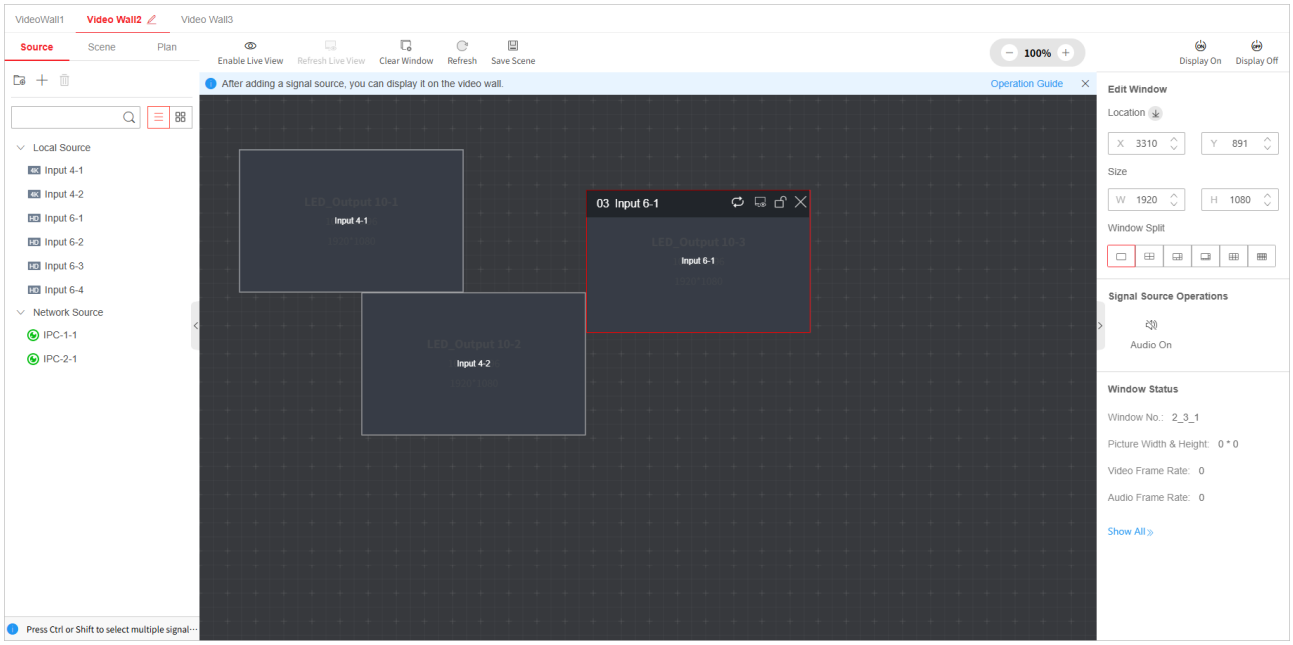

Figure 4-38 Bind Signal Sources to Video Wall in Custom Shape Mode

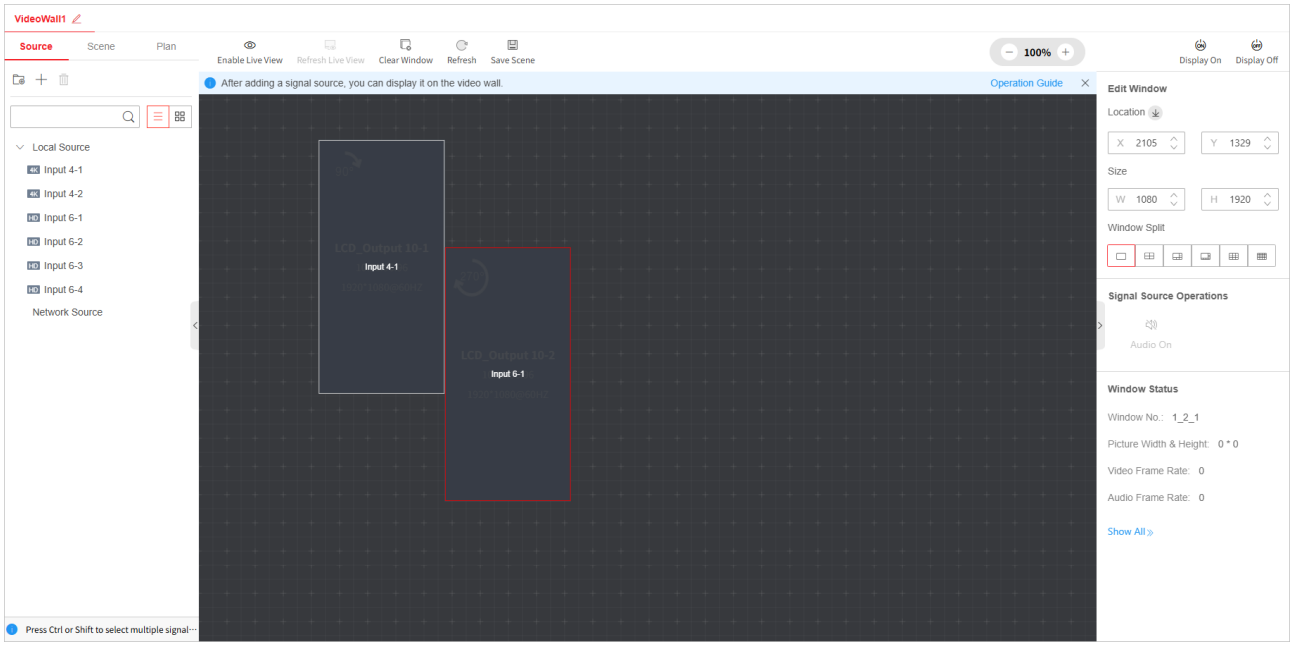

Figure 4-39 Bind Signal Sources to Video Wall in Rotation Mode

Bind a Video Wall in Meeting Mode

A video wall in meeting mode only supports local signal sources.

Step 1 Navigate to **Video Wall Operation** and then select a video wall in meeting mode.

Step 2 Bind signal sources to the primary display:

- Bind a single local signal source: Drag a single local signal source to the primary display. The local signal source will be displayed in full screen.
- Bind multiple local signal sources:

1) Drag a single local signal source to the primary display. The local signal source will be displayed in full screen.
2) Click a window split icon.
3) Perform one of the following operations to bind multiple local signal sources with the primary display:
   - Repeatedly drag the same or different local signal sources to the primary display. Local signal sources support one-to-many association. For details, see "4.5.4 Limitations of One-to-Many Association for Local Sources".
   - Hold down the Ctrl key to select multiple local signal sources and drag them to the primary display.

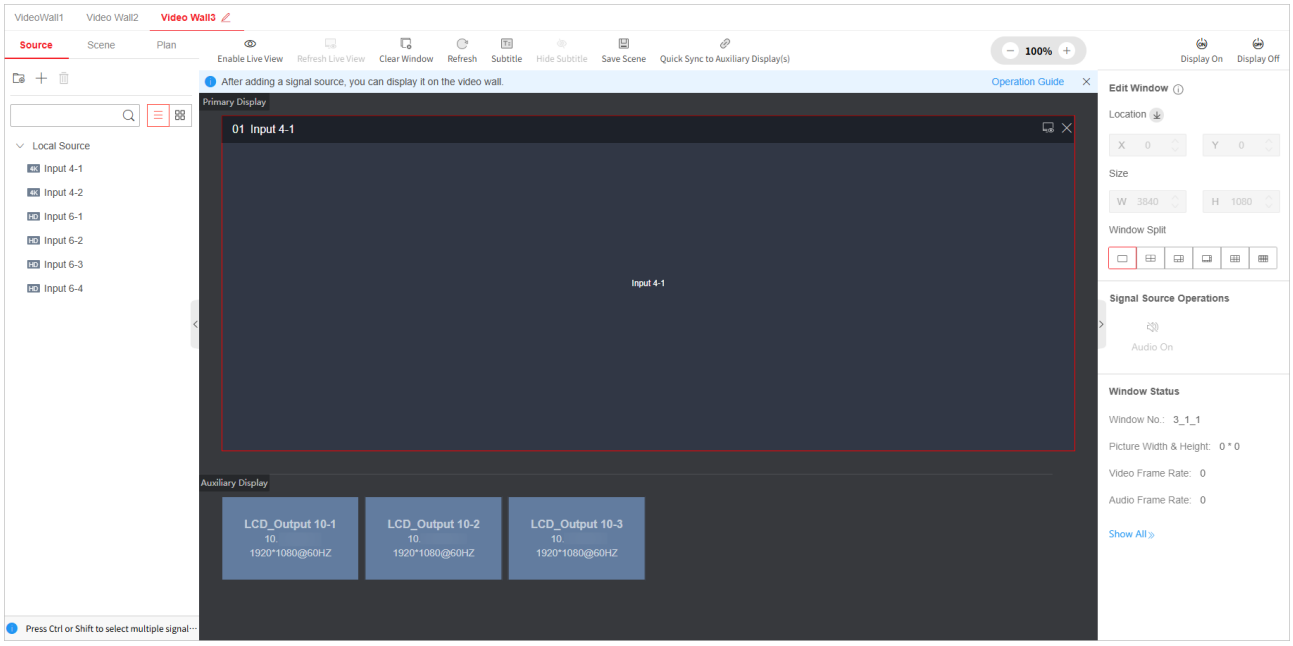

Figure 4-40 Bind Signal Sources to Primary Display

Step 3 Bind signal sources to auxiliary displays:

- Drag a single local signal source to each auxiliary display.
- Click **Quick Sync to Auxiliary Display(s)** to synchronize the signal sources from the primary display to all auxiliary displays.

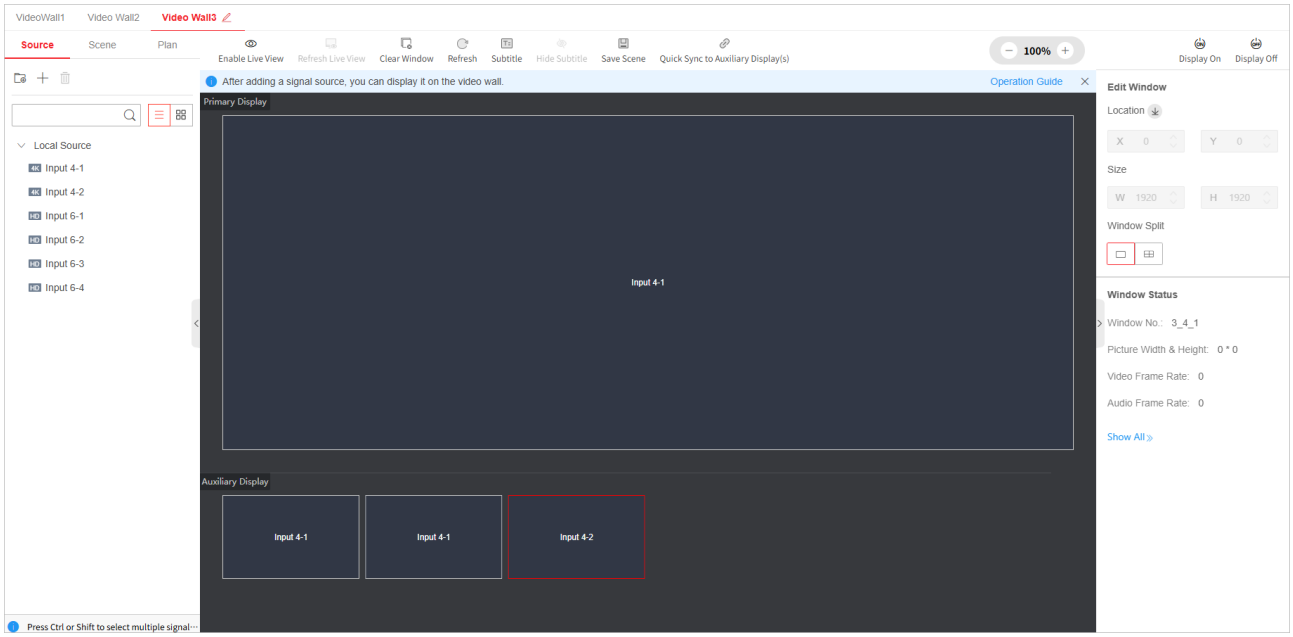

Figure 4-41 Bind Signal Sources to Auxiliary Displays

4.5.4 Limitations of One-to-Many Association for Local Sources

Normal/Custom Shape Mode

- The maximum number of signal sources that can be displayed on a single video wall is shown in the table below.

Table 4-1 Maximum Number of Signal Sources on a Video Wall

Input Board Type	Maximum Number (8-Bit Output Bit Depth)	Maximum Number (10-Bit Output Bit Depth)
HD input board	8 channels	8 channels
UHD input board	3 channels	3 channels
SDI input board	5 channels	5 channels

- Rule for multiple video walls: The total number of channels = sum of the configured channels for each video wall.

Meeting Mode

- Rule for a single video wall:
  - Primary display: Each signal source displayed occupies 1 channel.
  - Auxiliary displays (without window split): The first time a signal source is displayed, it occupies 1 channel. Repeated displays do not occupy additional channels.
  - Auxiliary displays in 4-way split: The first time a signal source is displayed, it occupies 1 channel. Repeated displays do not occupy additional channels. However, if the same signal source is displayed in different positions on different auxiliary displays or in different sub-windows of the same auxiliary display, additional channels will be occupied.

- The maximum number of signal sources that can be displayed on a single video wall is shown in the table below.

Table 4-2 Maximum Number of Signal Sources on a Video Wall

Input Board Type	Maximum Number (8-Bit Output Bit Depth)	Maximum Number (10-Bit Output Bit Depth)
HD Input Board	8 channels on primary display + 4 channels on auxiliary displays	8 channels on primary display + 4 channels on auxiliary displays
UHD Input Board	• 3 channels on primary display + 1 channel on auxiliary displays • 1 channel on primary display + 2 channels on auxiliary displays	Total 3 channels on primary display and auxiliary displays
SDI Input Board	Total 5 channels on primary display and auxiliary displays	Total 3 channels on primary display and auxiliary displays
	When the SDI input board is installed in slot 1 or 4 of the S6 chassis or slot 1 or 2 of the S12 chassis, the auxiliary displays can support one additional channel.	

- Rule for multiple video walls: The total number of channels = sum of the configured channels for each video wall.

4.6 Operate a Video Wall

4.6.1 Edit Signal Source Window

Control Window Position

- **Move a window**: Drag the window directly or enter X/Y values for precise positioning.
- **Quick actions**:
  - Set the window to the bottom: Click  .
  - Lock window: Click  in the upper-right corner of the signal source window. Only the video walls in normal and custom shape modes support the lock function.

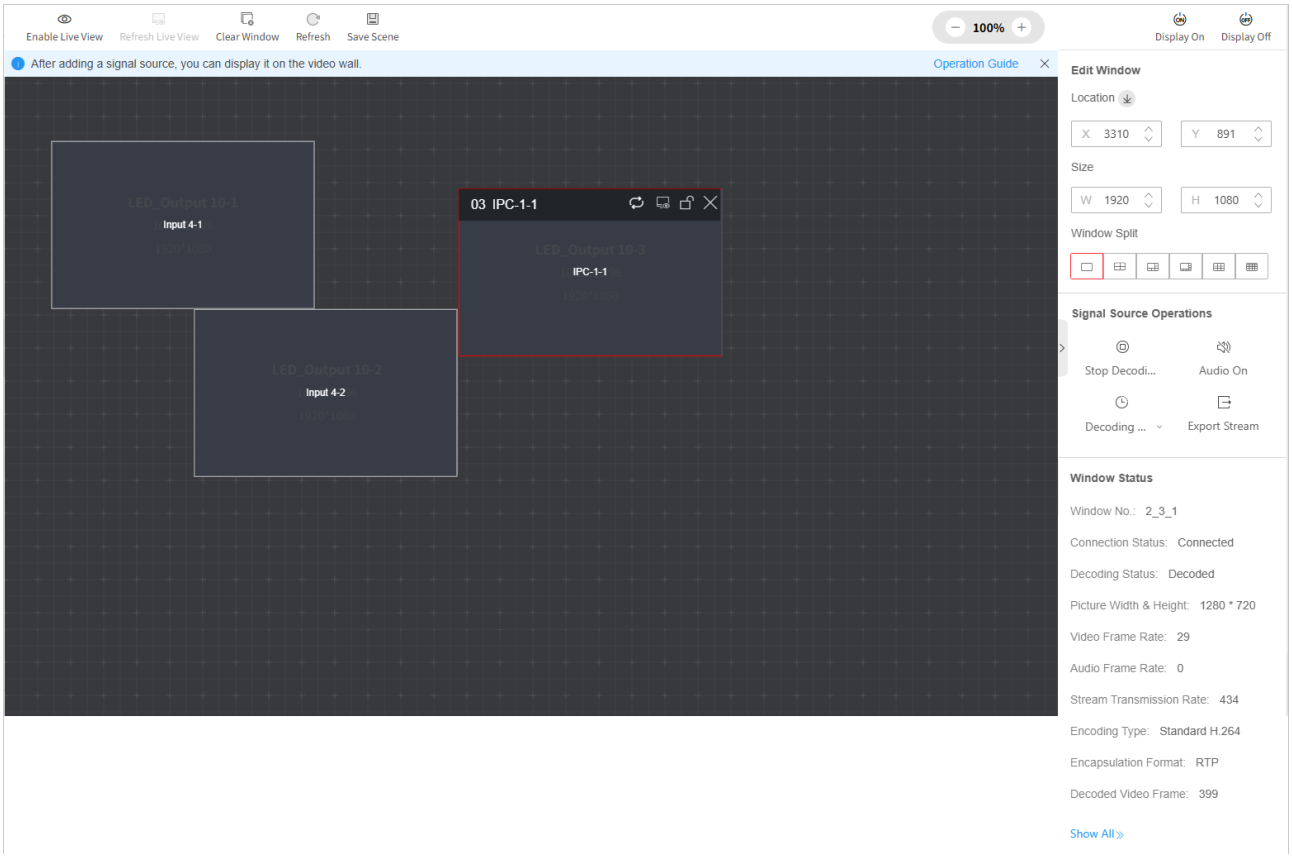

Figure 4-42 Edit Signal Source Window in Custom Shape Mode

Adjust Window Size

- General operations:
  - Drag the edges of the window to adjust its size.
  - Enter W/H values for precise settings.
- Normal mode-specific operations:
  - Full screen/restore button: Click to maximize the window to fill the output port. Click to restore.
  - Double-click to toggle: Double-click the window to make it fill the screen it occupies. Double-click again to restore the signal source window to its initial size.

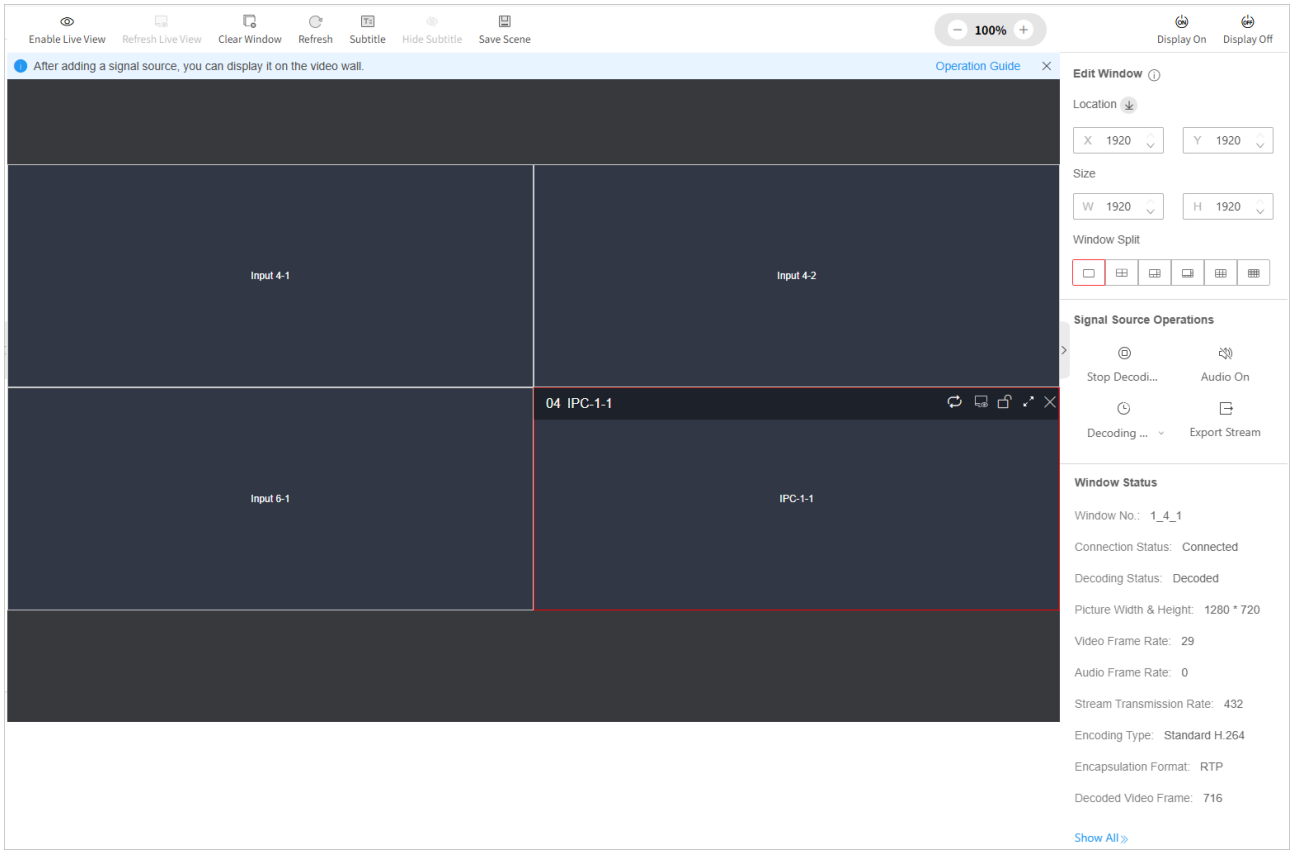

Figure 4-43 Edit Signal Source Window in Normal Mode

Enlarge Signal Source Window on Auxiliary Display

Hover over an auxiliary display and click  to enlarge its signal source window.

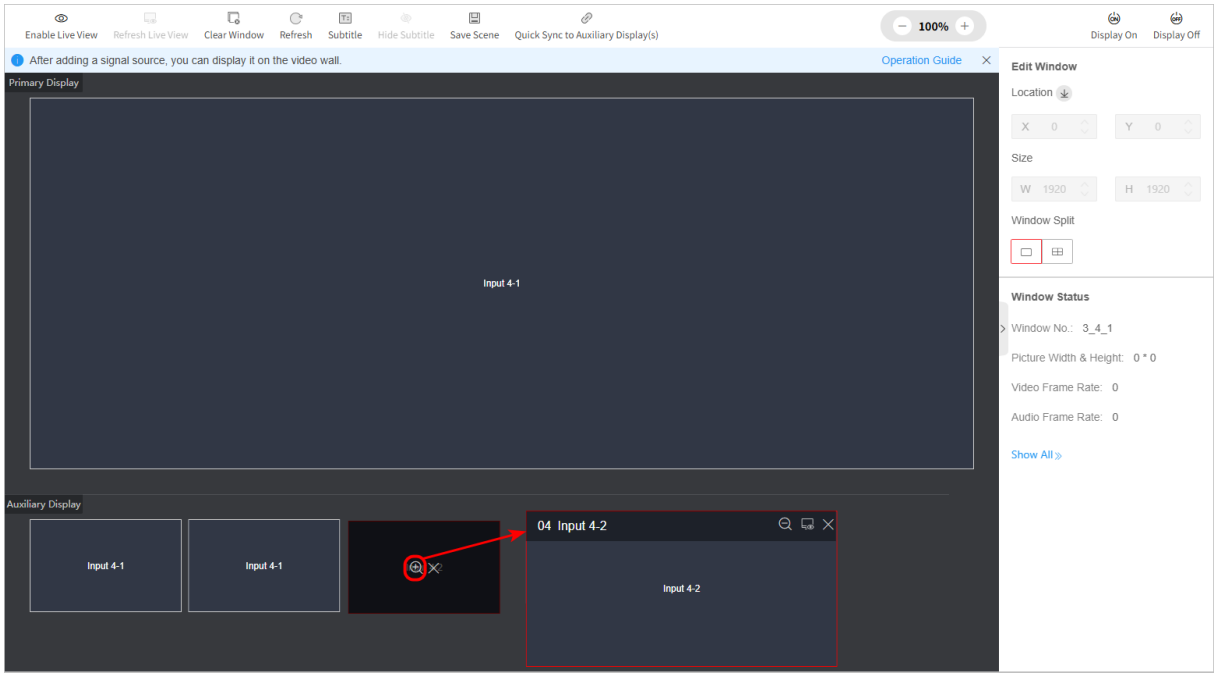

Figure 4-44 Edit Signal Source Window on Auxiliary Display

Set Window Split

Select a window split icon.

Window split is supported in normal, custom shape, and meeting modes. In meeting mode, the primary display and auxiliary displays use different window split icons.

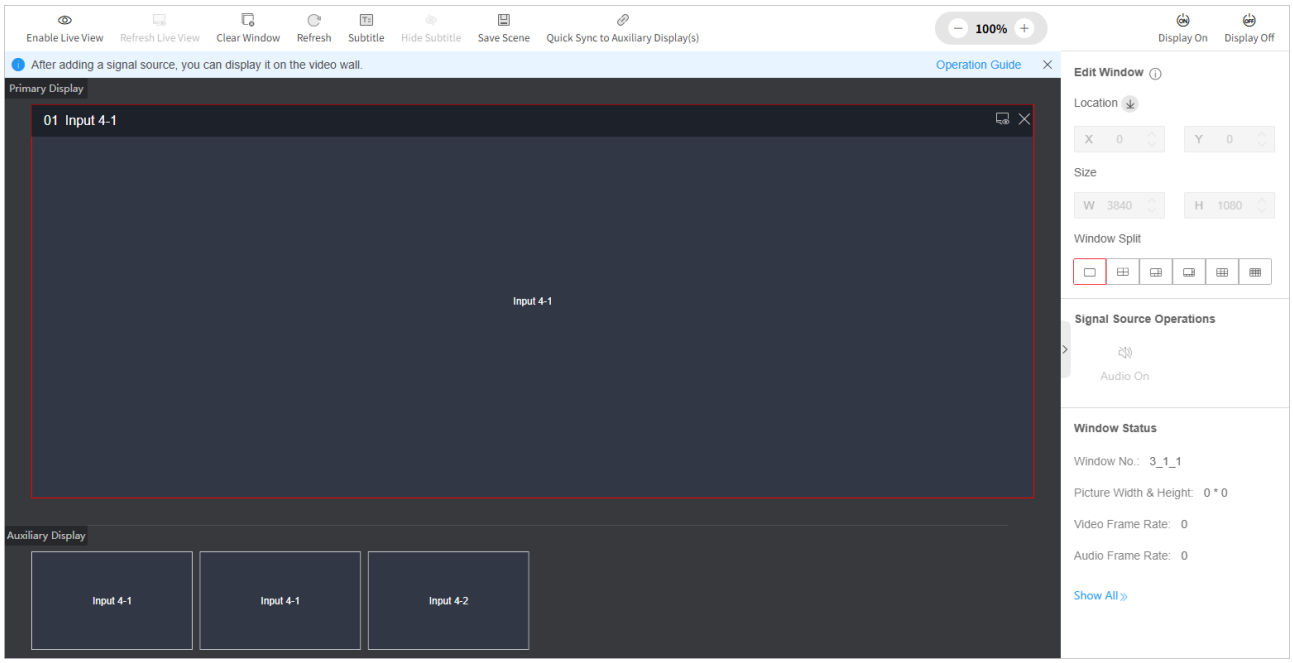

Figure 4-45 Edit Signal Source Window on Primary Display

Control Audio and Signals

- Enable audio output: Ensure the audio output port for the video wall has been configured on the **Video Wall Configuration** page. Click **Audio On**.
- Operate network signal sources: Supports stopping decoding, setting decoding delay levels, or exporting streams. To export a stream, first navigate to **Maintenance and Security → Security Management → Websocket** to enable websocket.

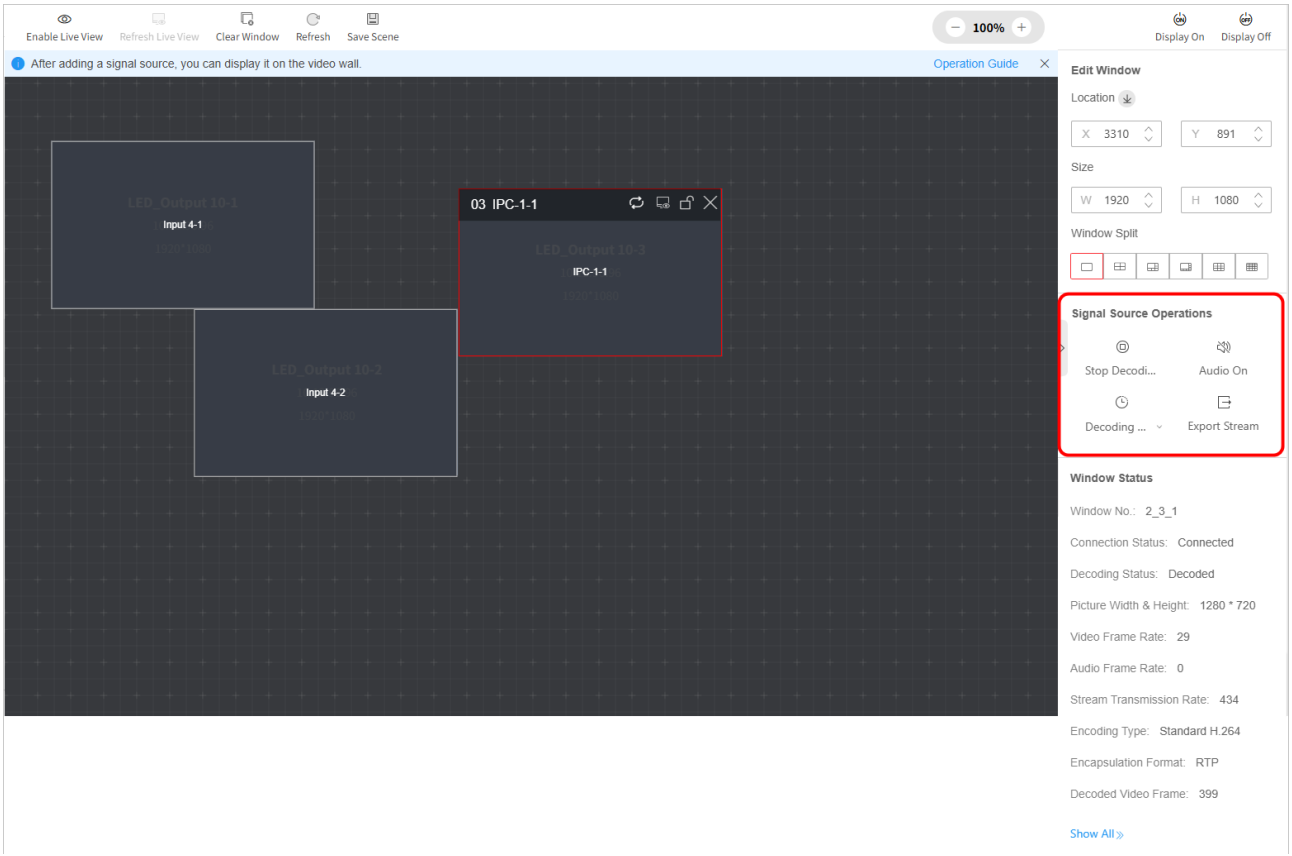

Figure 4-46 Operate Network Signal Source (Custom Shape Mode)

View/Preview Windows

- View window status: View basic window status information, or click **Show All** to enter decoding status list to view details
- 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.

Note

Before previewing a network signal source, make sure that the decoding board is in the device.

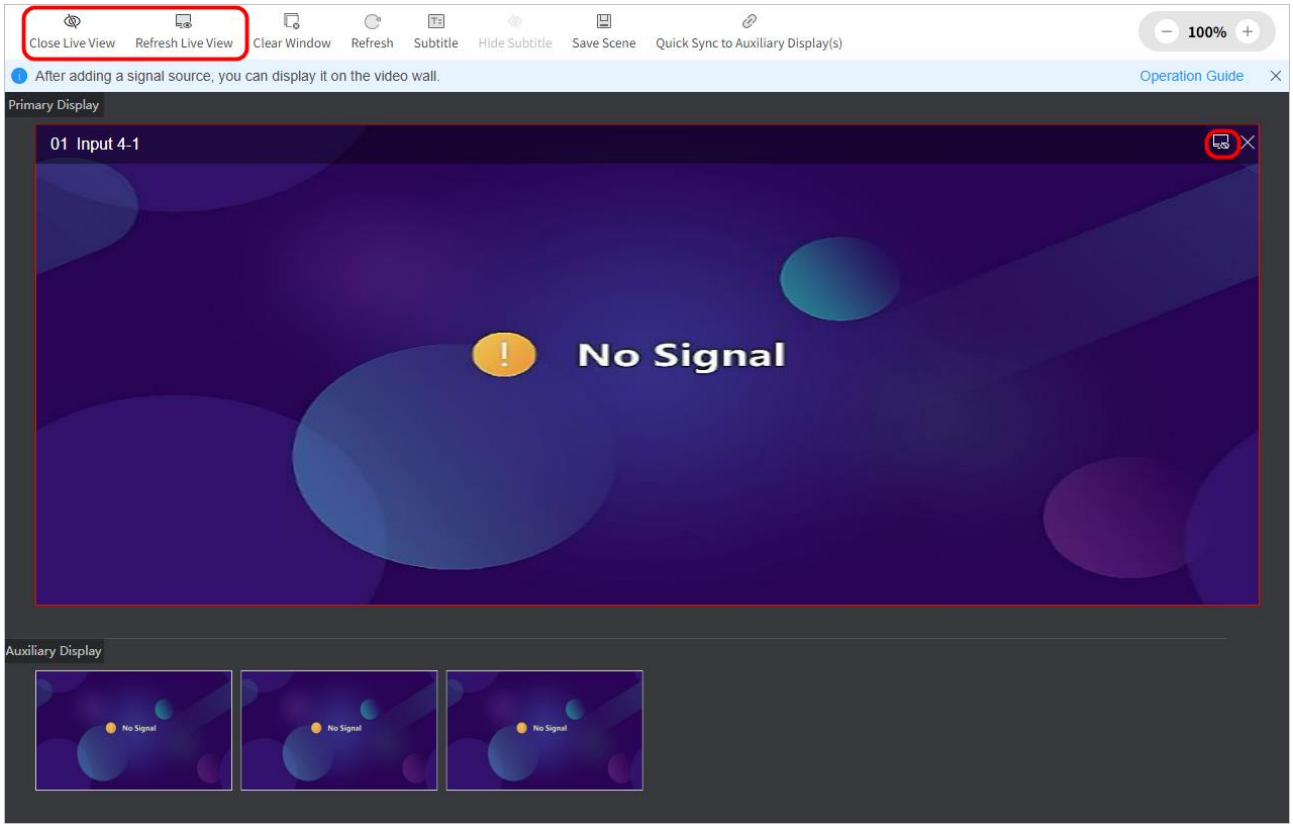

Figure 4-47 Preview Signal Sources (Meeting Mode)

Control Screens

- **LCD video wall**: Ensure serial port parameters are configured. For details, see "Control Screen via Serial Port".
  - Click **Display On** to power on all screens of the LCD video wall.
  - Click **Display Off** to power off all screens of the LCD video wall.
- LED video wall:
  - Click **Display On** to wake all screens of the LED video wall from sleep mode.
  - Click **Display Off** to put all screens of the LED video wall into sleep mode.

Manage Signal Sources

- Quick actions:
  - 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.
- 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**.

Note

Only the video walls in normal and custom shape modes support the source group auto-switch function.

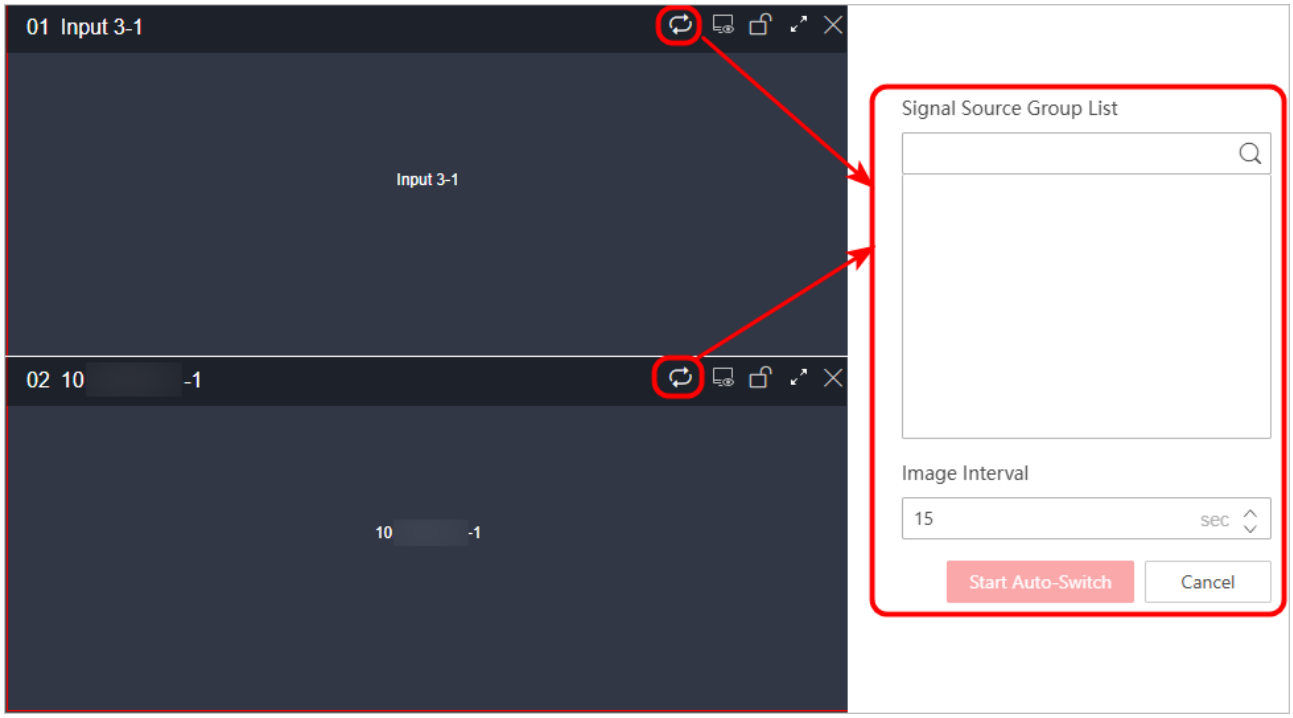

Figure 4-48 Set Source Group Auto-Switching

4.6.2 Configure Subtitles

Only the video walls in meeting and normal modes support adding subtitles. For video walls in meeting mode, only the primary display supports adding subtitles.

Step 1 Navigate to **Video Wall Operation**, click **Subtitle**, press and hold the left mouse button to drag subtitles to the video wall.

To add multiple subtitles, you can drag the remaining subtitles.

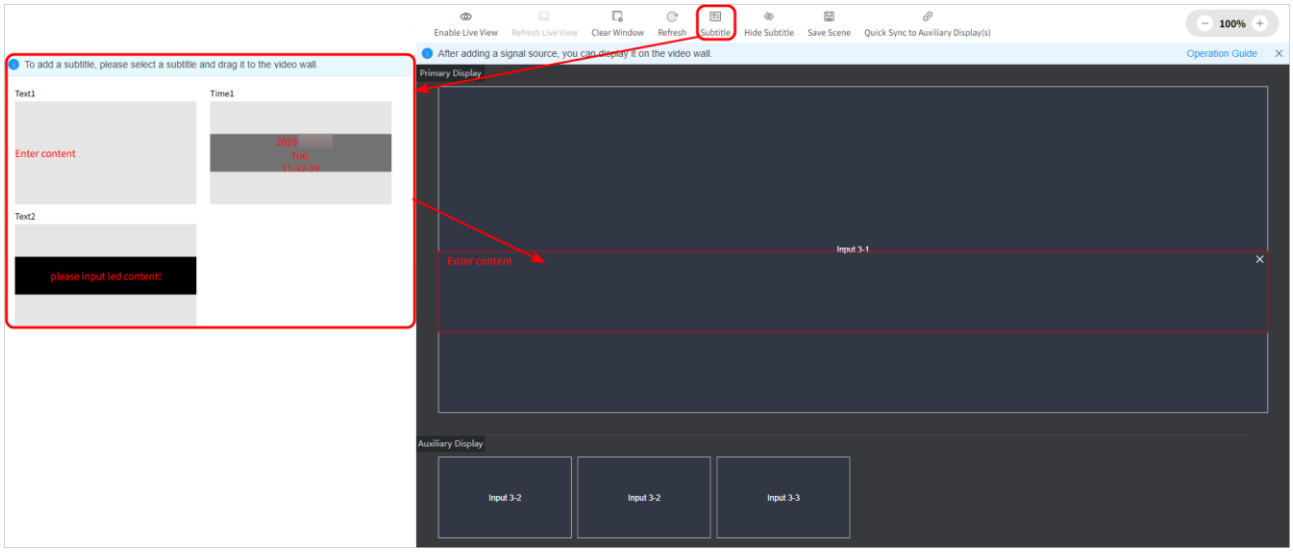

Figure 4-49 Add a Subtitle

Step 2 Edit a text subtitle:

1) Select **Text** for the subtitle type.
2) Enter the subtitle content, adjust the subtitle position and size, and set the text and background.
3) (Optional) Enable **Move** to set the direction and speed.

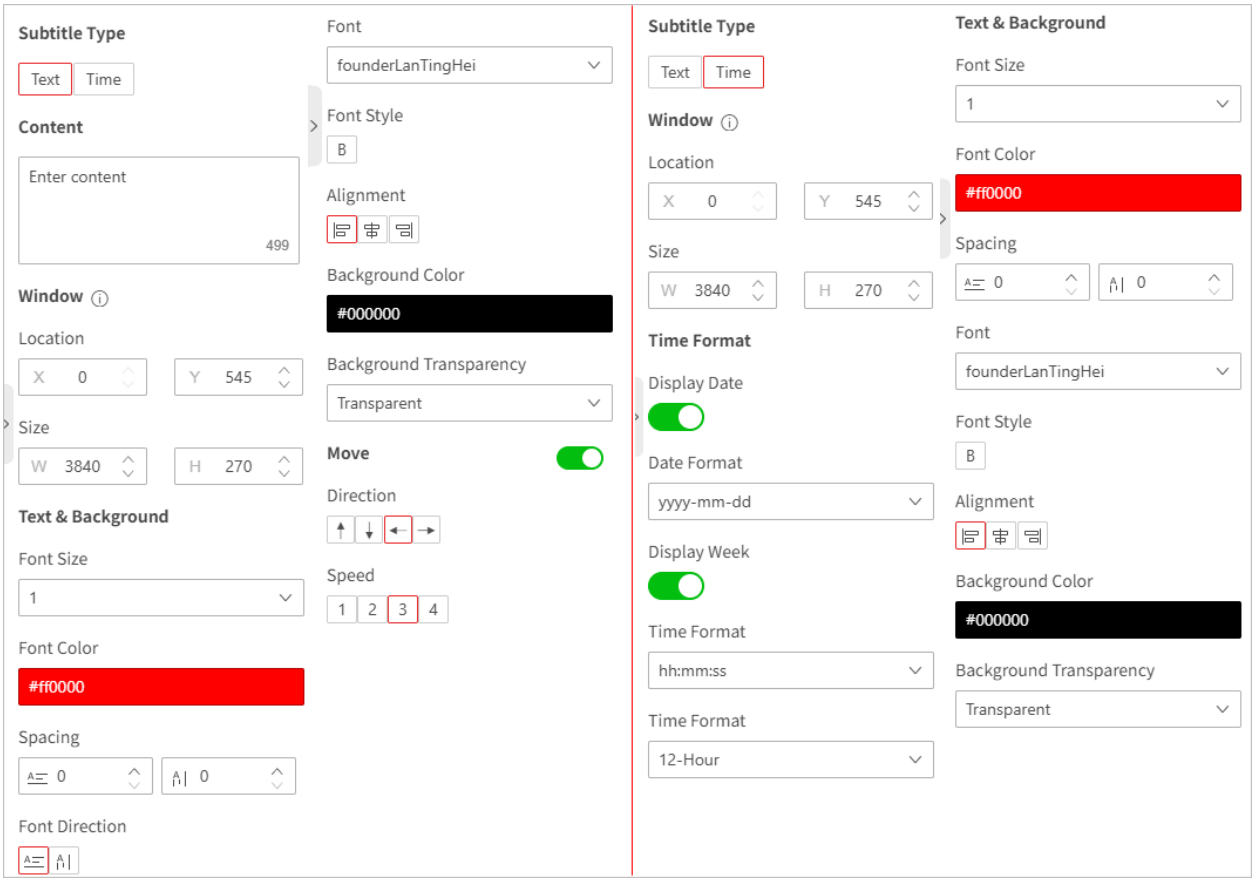

Figure 4-50 Add a Text/Time Subtitle

Step 3 Edit a time subtitle:

1) Select **Time** as the subtitle type.
2) Adjust the subtitle position and size, adjust the time format, and set the text and background.

Step 4 (Optional) You can click **Hide Subtitle** as required.

4.6.3 Manage Scenes

Up to 128 scenes are supported. Navigate to **Video Wall Operation** to manage scenes.

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

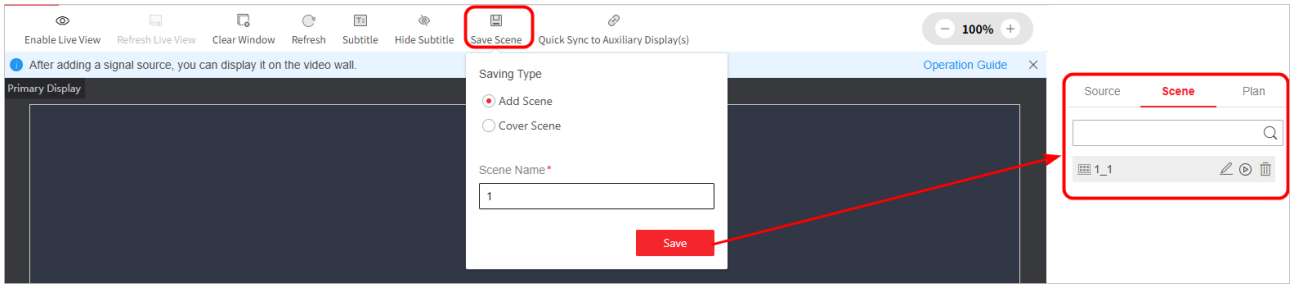

Figure 4-51 Manage a Scene

- Click **Scene** and hover over a scene name. Click the following icons as required:
  - Click to call the scene.
  - Click to edit the scene name.
  - Click to delete the scene.

4.6.4 Manage Plans

You can add multiple scenes and set the scene schedule in a plan. Navigate to **Video Wall Operation** and click **Plan** to manage plans.

- Click to add a plan:
  1) Set the plan name.
  2) Click **Add Task**, select the scene, and set the interval.
  3) (Optional) Enable **Execute Plan Automatically** and set the schedule.
  4) Click **Save**.

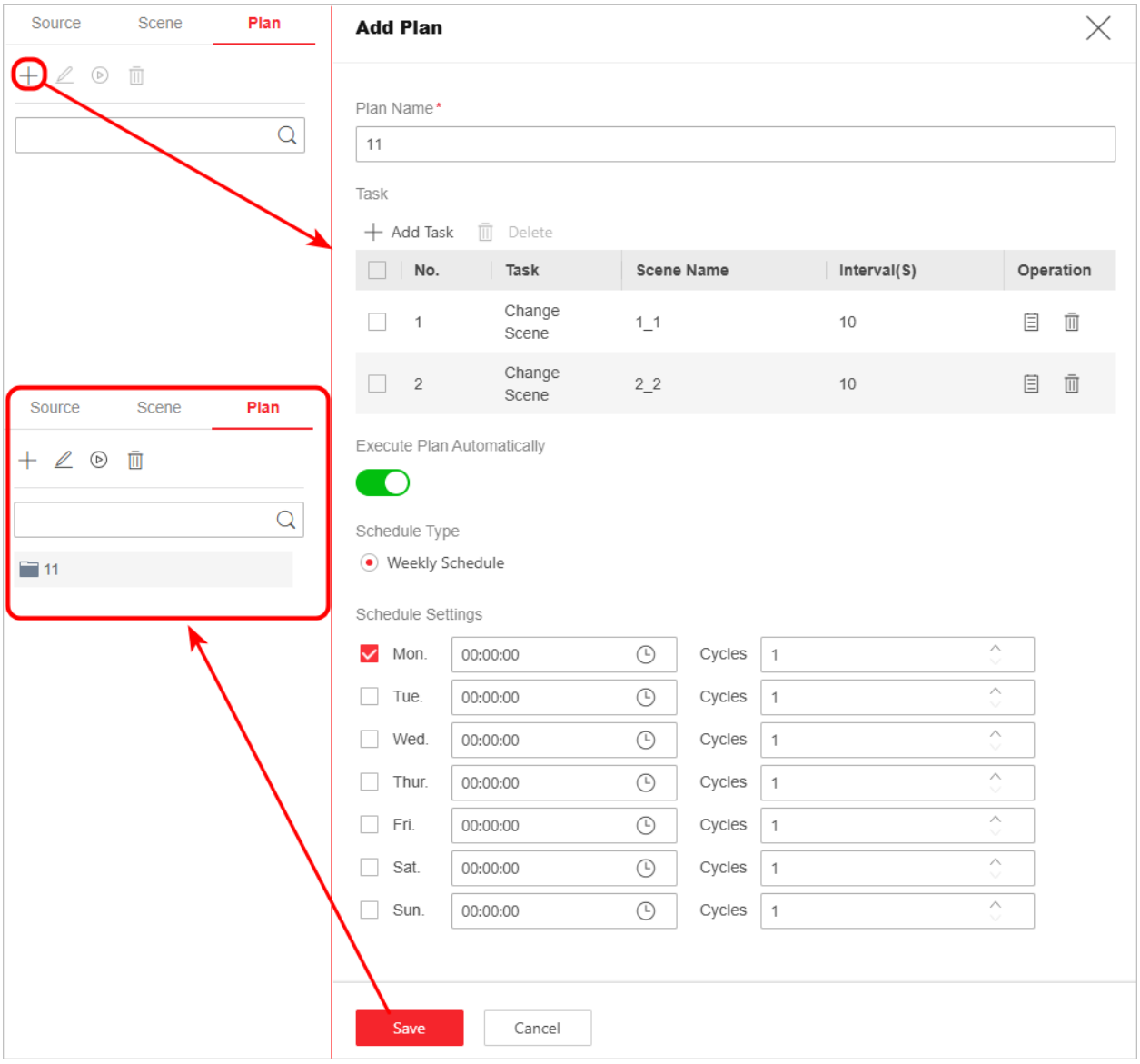

Figure 4-52 Manage a Plan

- Click a plan and then click to edit the plan.
- Click a plan and then click to call the plan.
- Click a plan and then click to delete the plan.

Chapter 5 LED Controller Board Advanced Configuration

5.1 Calibrate Receiving Cards

Step 1 Navigate to **Configuration** → **Receiving Card Calibration**.

Step 2 Select an LED controller board or click **Batch Calibration**.

Step 3 Turn on the **Enable Calibration** switch to automatically enable brightness/chroma calibration. Check low gray calibration on supported LED modules.

Step 4 (Optional) If you cannot locate the calibration area, enable **Show Connections**. The actual screens will show the receiving card connection number.

Step 5 Select the calibration area:

- Click  and select the area to be calibrated.
- Click  and enter the start coordinates and end coordinates of the calibration area.
- If you need to calibrate modules, check **Show LED Module**.

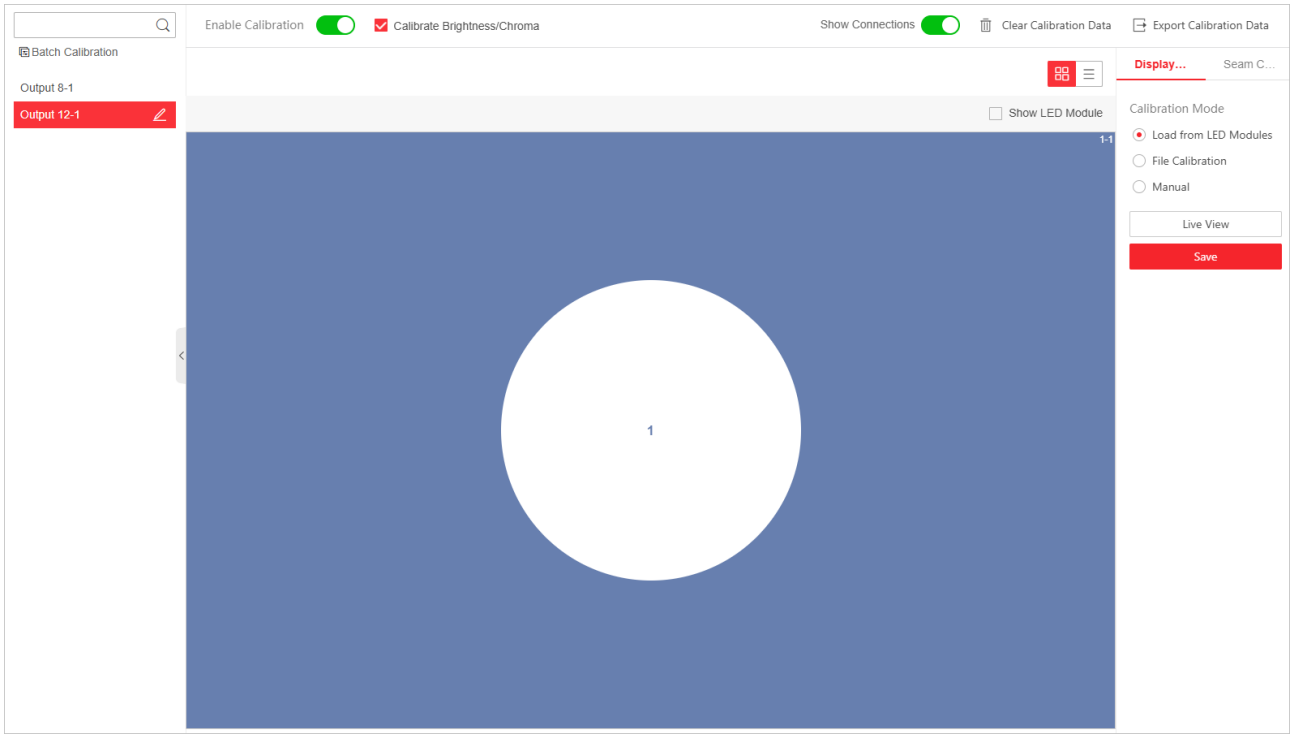

Figure 5-1 Select Calibration Area

Step 6 (Optional) For the AXS receiving cards, click **Load from LED Modules** and then click **Live View** to view the display effect after loading the factory calibration data from the LED modules.

Note

The HUB receiving cards do not support loading the factory calibration data from the LED modules.

Step 7 If the LED modules lack factory calibration data, select **File Calibration** to upload a locally saved calibration file.

Note

Please contact the product supplier to obtain the calibration file and save the calibration file locally.

Step 8 If the display effect is unsatisfactory, manually calibrate the display:

1) In the **Display Calibration** window, manually adjust the red/green/blue values (in ‰). To synchronize adjustments to the same value for all three colors, enable **Sync Adjustment**.
2) Click **Live View** to check the display effect after manual calibration.
3) If satisfied, click **Save**.

Step 9 If brightness/darkness seams exist, manually calibrate seams:

1) Click **Seam Calibration** and set the seam direction and width.
2) Adjust the red/green/blue values (in ‰). To synchronize adjustments to the same value for all three colors, enable **Sync Adjustment**.
3) Click **Live View** to verify the seam display effect.
4) If satisfied, click **Save**.

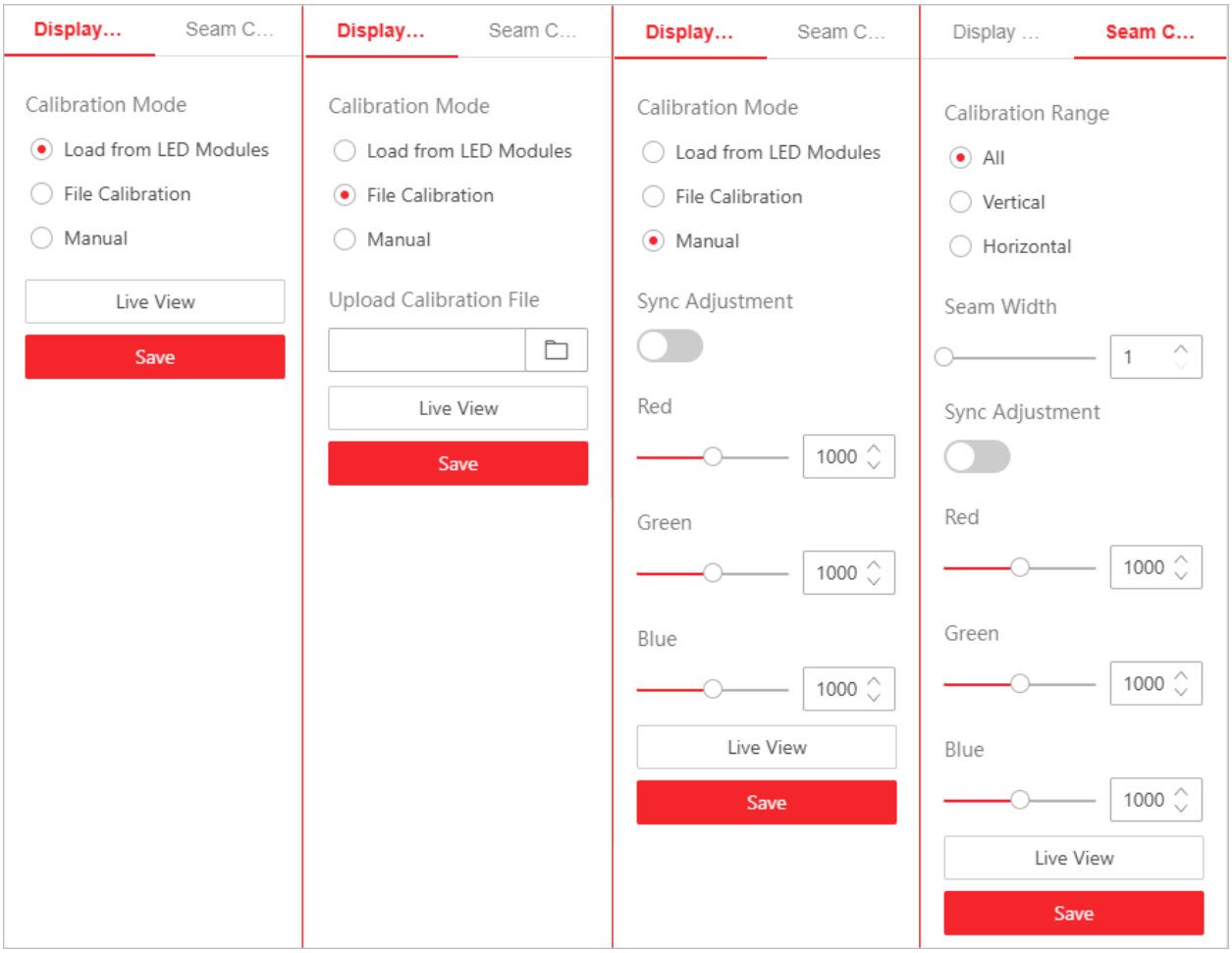

Figure 5-2 Calibrate AXS Receiving Cards

Step 10 (Optional) You can perform the following operations as required:

- If the calibration results are unsatisfactory, click **Clear Calibration Data** and select the target area(s) to reset.
- Click **Export Calibration Data** and select the target area(s) to export the calibration data.

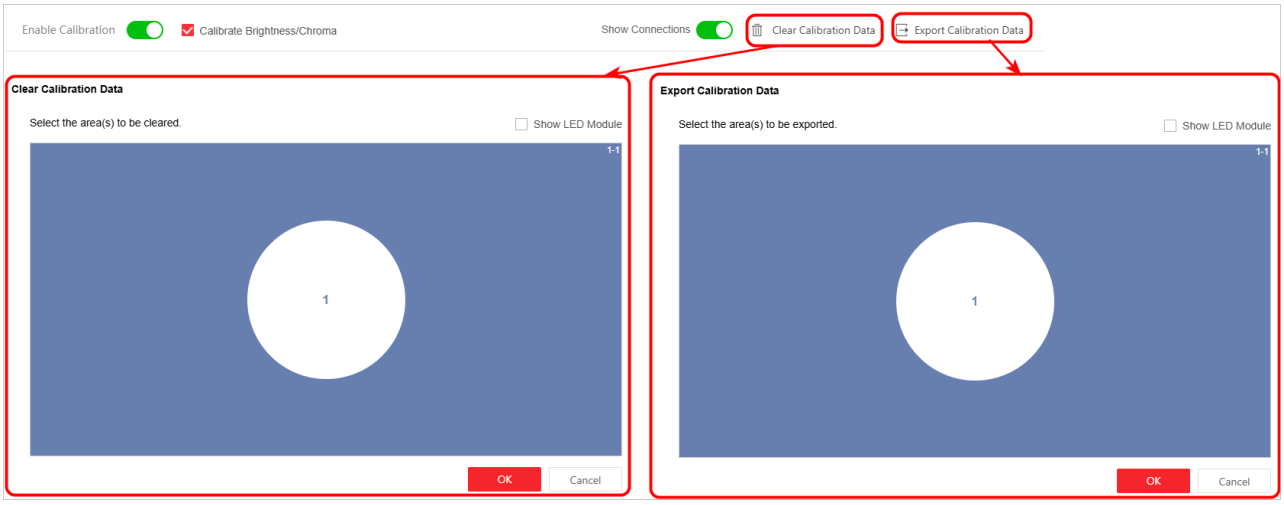

Figure 5-3 Clear/Export Calibration Data

5.2 Configure Display Effect

When the device is equipped with multiple LED controller boards whose output ports are bound to the same video wall, these LED controller boards must use the same display parameters.

Step 1 Navigate to **Configuration** → **Display Effect**.

Step 2 Select the output port of an LED controller board or enable **Configure All LED Controllers**.

Step 3 Select a preset mode.

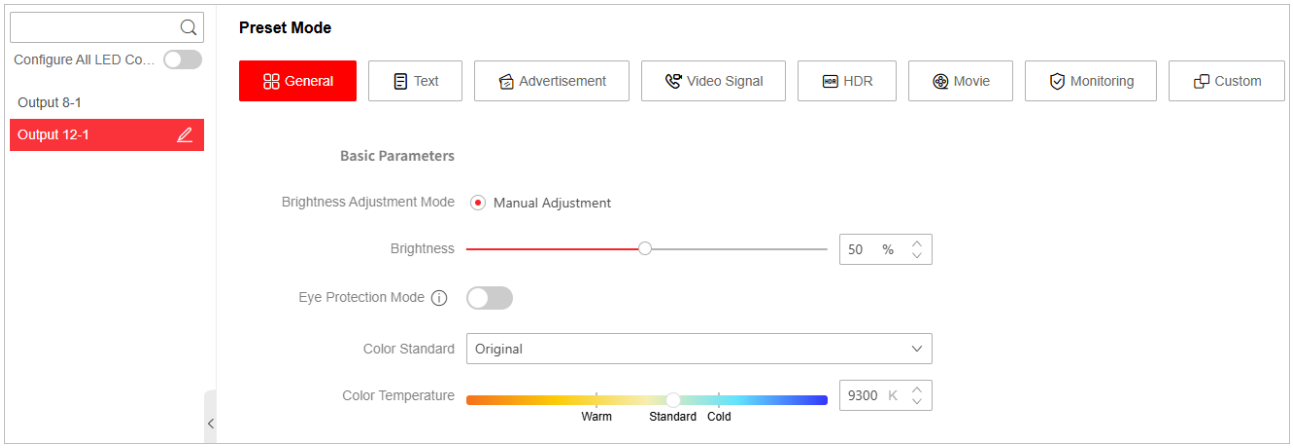

Figure 5-4 Select Preset Mode

Step 4 If the display effect does not meet the requirements, customize the parameters.

- Adjust brightness:
  - Manual adjustment: Set brightness directly.
  - Auto adjustment: Supports auto-brightness when the LED controller board is connected to a light sensor via the multi-function card and the light sensor is configured on the **IoT Configuration** page.
  - Enable **Eye Protection Mode** to reduce brightness and blue light output.
- Optimize color and grayscale:
  - Set the color standard, color temperature, and contrast mode.
  - Lower the Gamma coefficient to brighten dark areas or raise it to enhance contrast.
  - Set the appropriate ambient brightness: Increase the value in strong lighting conditions.
- Address low-gray anomalies:
  - Adjust the initial brightness level if low-gray flickering occurs.
  - Increase the initial brightness value if low-gray banding is uneven.
  - Enable **Gray Scale Optimization** for uneven grayscale (only supported by some receiving cards).

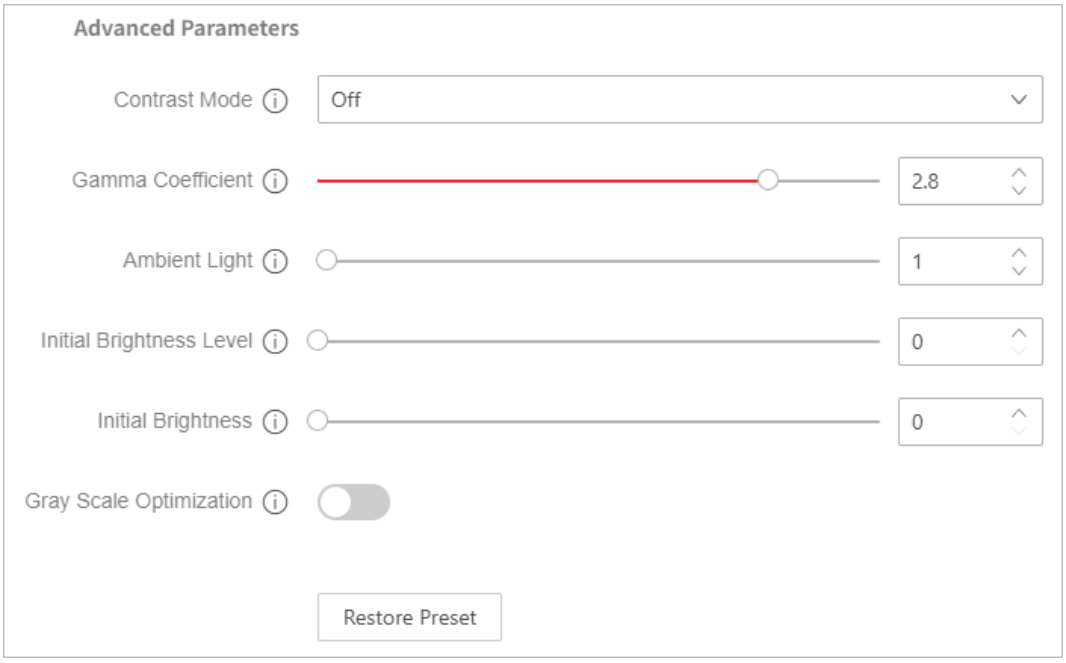

Figure 5-5 Set Advanced Image Parameters

Step 5 (Optional) Click **Restore Preset** to restore the default parameters of the selected preset mode.

5.3 Configure Loading Mode

Step 1 Navigate to **Configuration** → **Loading Mode**.

Step 2 Select the output port of an LED controller board or enable **Configure All LED Controllers**.

Step 3 Set a loading mode and click **Save**.

- **Self-Adaptive**: The LED controller board defaults to the self-adaptive loading mode. It automatically switches between standard loading and mini loading based on the load capacity of the network port.
- **Standard Loading**: Choose this mode when the total load of the LED controller board is ≤10.4MP and the load capacity of a single network port is between 0.65MP and 2.925MP. This mode allows image compression.
- **Mini Loading**: Choose this mode when the load capacity of a single network port on the LED controller board is ≤0.65MP. This mode does not compress images.

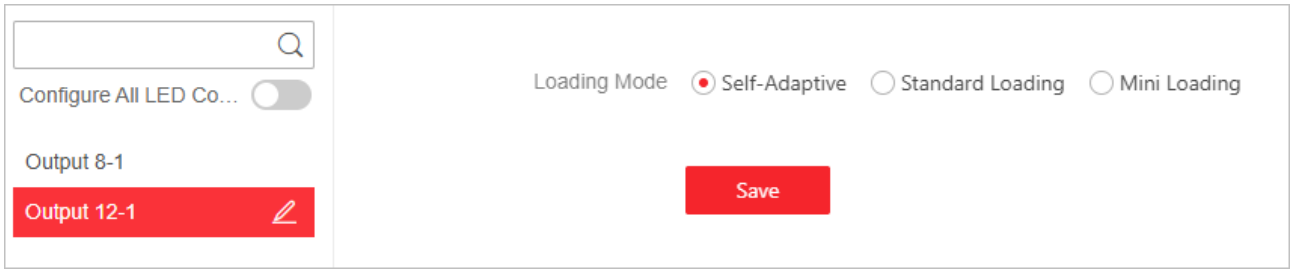

Figure 5-6 Configure Loading Mode

Note

- Loading mode does not support batch configuration and can only be configured for a single LED output board.
- To use the standard loading mode, ensure that both the LED controller board and the receiving card support standard loading mode.
- When multiple LED output boards are installed in the device, and their corresponding output ports are bound to the same video wall, these LED controller boards must use the same loading mode.

5.4 Configure Auto Dehumidification

When multiple LED output boards are installed in the device, and their corresponding output ports are bound to the same video wall, these LED controller boards must use the same dehumidification parameters.

Step 1 Navigate to **Configuration** → **IoT Configuration** → **Dehumidification** and select the output port of an LED controller board.

Step 2 Enable **Auto Dehumidification** and set the dehumidification parameters.

Step 3 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 board 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 board 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 4 Click **Save** or **Save and Start**.

Step 5 (Optional): Click **Stop Current Dehumidification Process** to stop the ongoing dehumidification process.

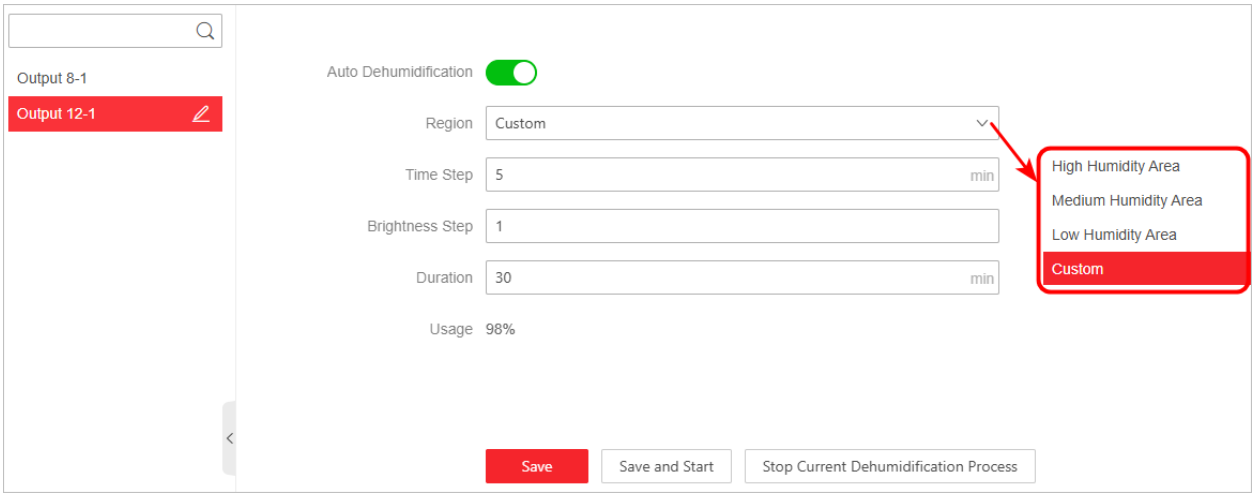

Figure 5-7 Configure Auto Dehumidification

5.5 Configure External Sensors

Navigate to **Configuration** → **IoT Configuration** → **Sensors** and select the output port of an LED controller board. You can monitor the following parameters and click **Save**. When a parameter reaches its threshold, the alarm will be triggered on the screens and the parameter value will be shown on the screens.

- Some receiving cards support detecting the cabinet voltage and cabinet temperature. Enable **Cabinet Voltage Detection** and **Cabinet Temperature Detection**, and set the thresholds.
- When the LED controller board is connected to the multi-function card, and the multi-function card is connected to the temperature and humidity sensor, you can monitor the environmental temperature and humidity.
    1) Select **Temperature and Humidity Sensor** for the corresponding channel and set the sensor quantity.
    2) Click to refresh the sensor settings.
    3) Enable **Ambient Temperature Detection** and **Ambient Humidity Detection**, and set the thresholds.
- When the LED controller board is connected to the multi-function card, and the multi-function card is connected to the human body sensor, you can set the auto sleep function.
    1) Select **Human Body Sensor** for the corresponding channel and set the sensor quantity.
    2) Click to refresh the sensor settings.
    3) Enable **Auto Sleep**.
    4) Set the time after which the screen brightness decreases, the OSD prompt appears, and the screens enter sleep mode.
- When the LED controller board is connected to the multi-function card, and the multi-function card is connected to the light sensor, you can set the auto adjustment.
    1) Select **Light Sensor** for the corresponding channel and set the sensor quantity.

2) Click to refresh the sensor settings.

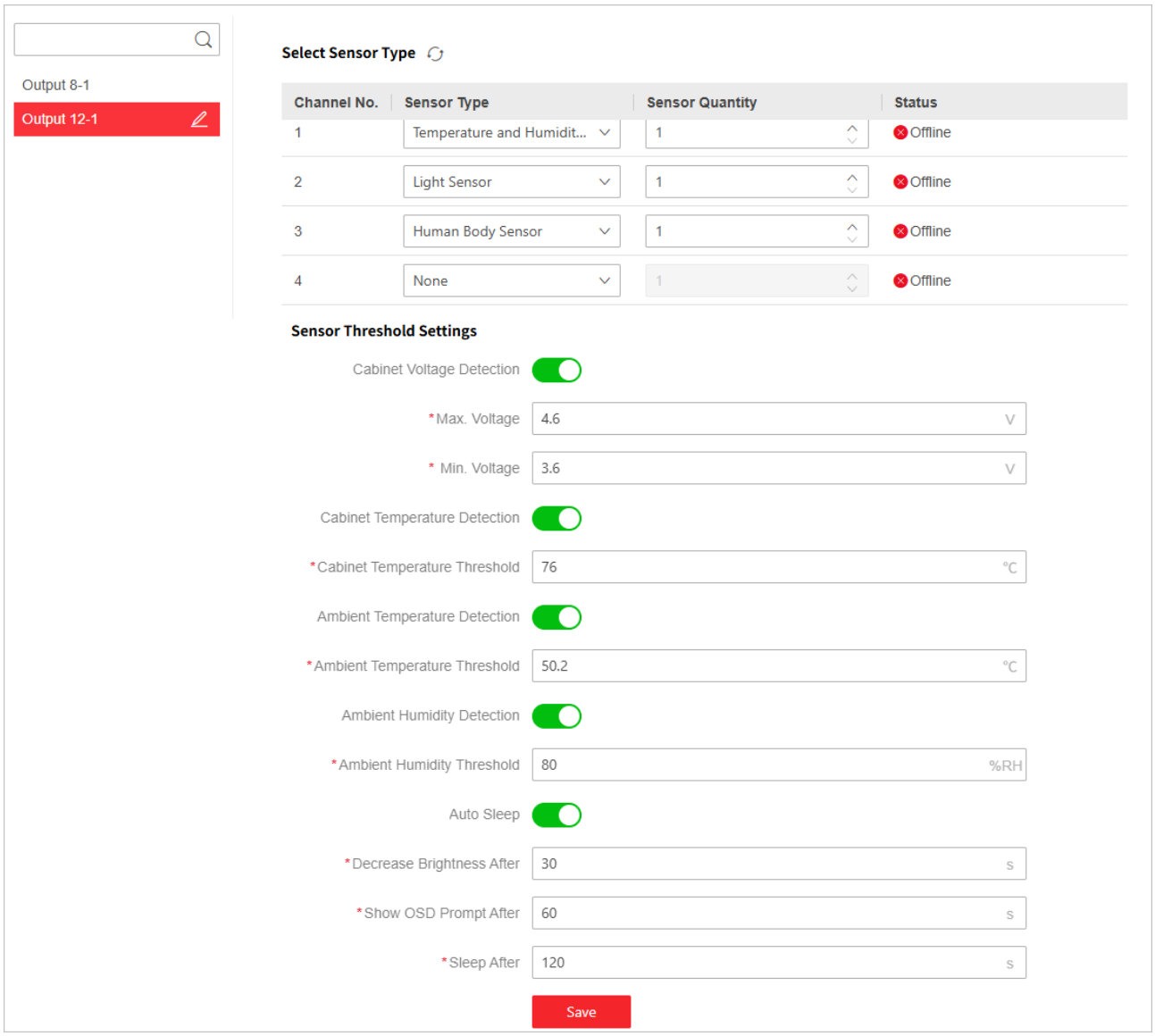

Figure 5-8 Configure Sensors

5.6 Configure Power Distribution Cabinets

When the LED controller board is connected to the multi-function card, and the multi-function card is connected to the distribution cabinet, you can control the status of the power distribution cabinet remotely.

Navigate to **Configuration** → **IoT Configuration** → **Power Distribution Cabinet** and select the output port of an LED controller board. You can use either of the following methods to remotely control the power distribution cabinet and click **Save**.

- Set immediate power on or power off:
  - Enable the circuit that is connected to the power distribution cabinet to power on the power distribution cabinet. Disable the circuit to power off the power distribution cabinet.
  - (Optional) When one multi-function card is connected to multiple power distribution cabinets, it is recommended to enter the device name.

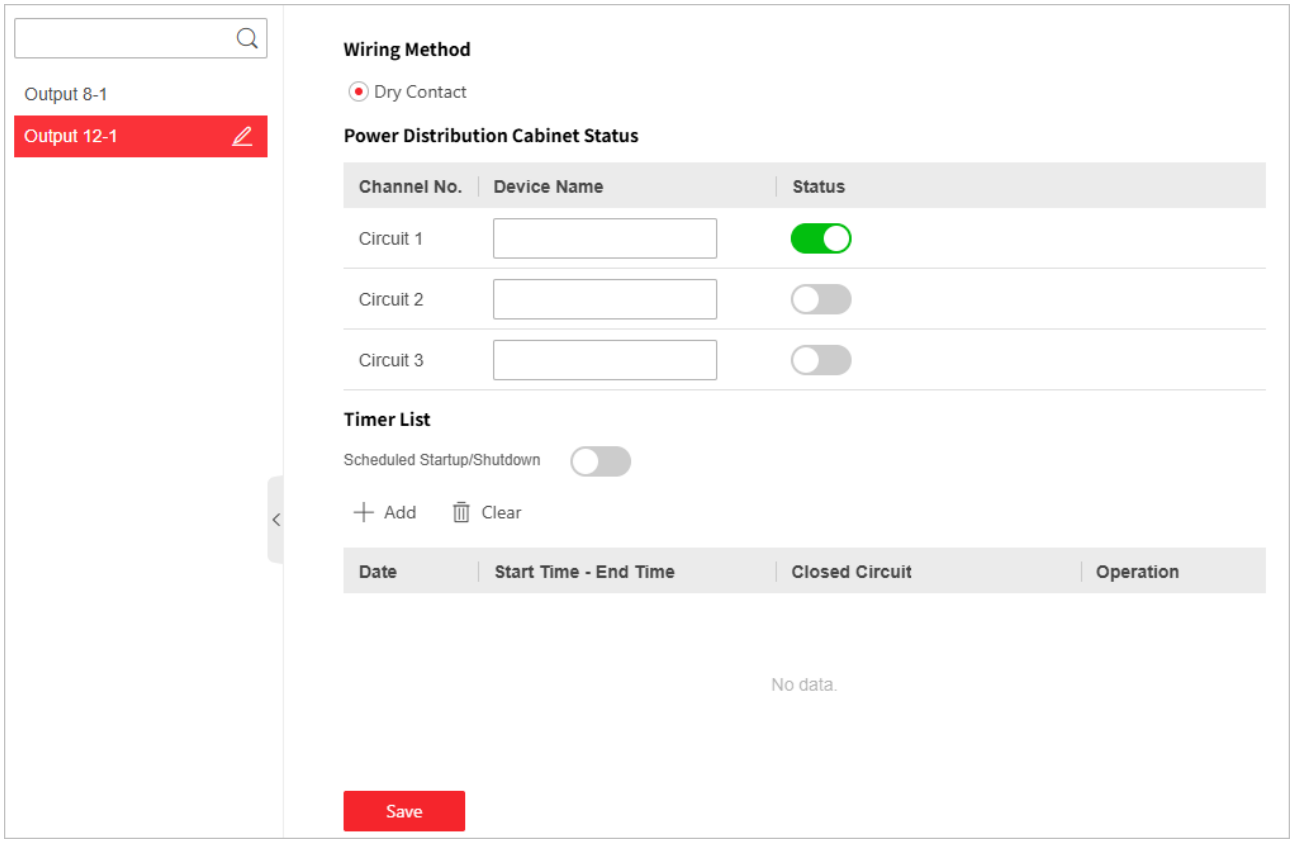

Figure 5-9 Set Immediate Power On/Off

- Set scheduled startup or shutdown:
  1) Click **Add** to add the timer and click **Save**.
  2) Enable **Scheduled Startup/Shutdown**.

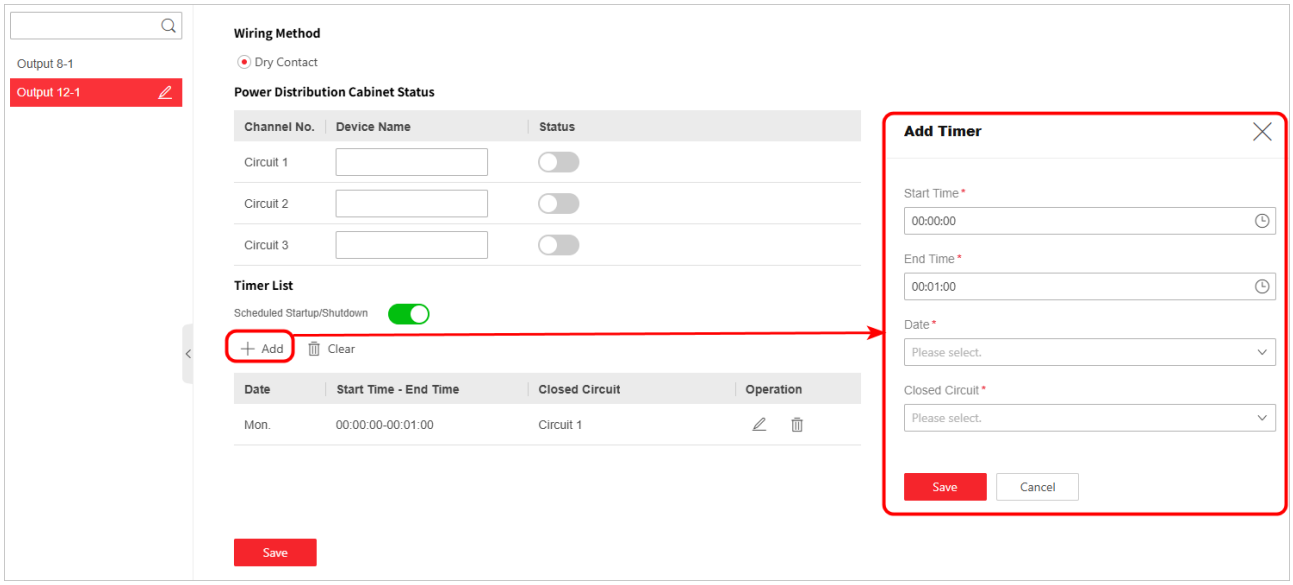

Figure 5-10 Set Scheduled Startup/Shutdown

5.7 Maintain an LED Controller Board

5.7.1 View Status of LED Controller Board

Navigate to **Display Maintenance** → **Target Video Wall** → **Receiving Card Status**, select the output port of an LED controller board, and view the following information:

- This page visually shows the basic information of the selected LED controller board and its network interface usage.
- A blue screen indicates that its receiving cards are online. You can hover over a screen to view the resolution of receiving cards.
- Hover over a network interface to view the network interface usage.
- Click **Receiving Card Status** to view the detailed information of the receiving cards. For HUB receiving cards, you can click to view its signal port connection.
- Click **Refresh** to obtain the latest status of the LED controller board.

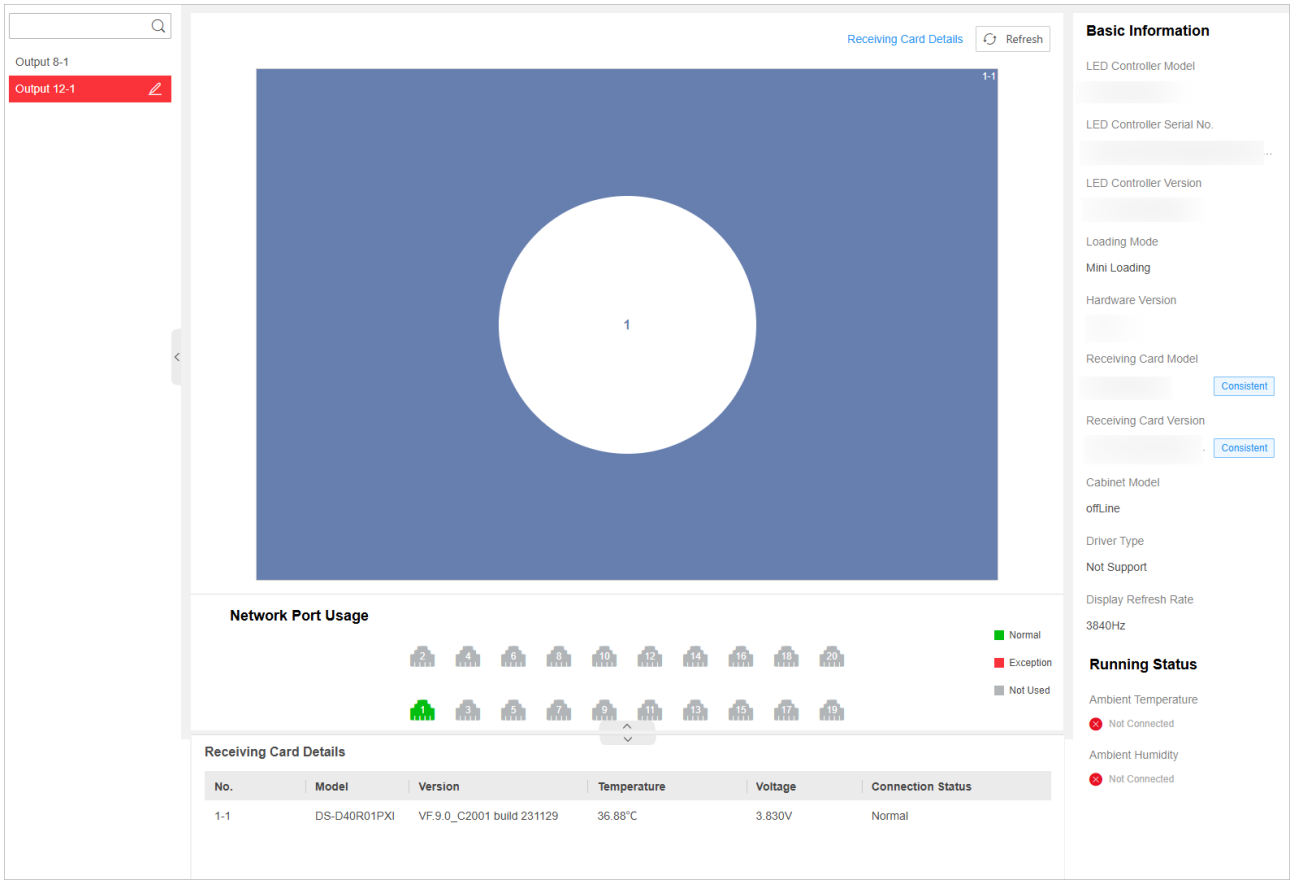

Figure 5-11 View Receiving Card Status

- After configuring display mapping via the LED Tool client, you will see a prompt to reconfigure the display mapping parameters on the **Receiving Card Status** page when you log in to the device web page. Please reconfigure the display mapping parameters on the web page.

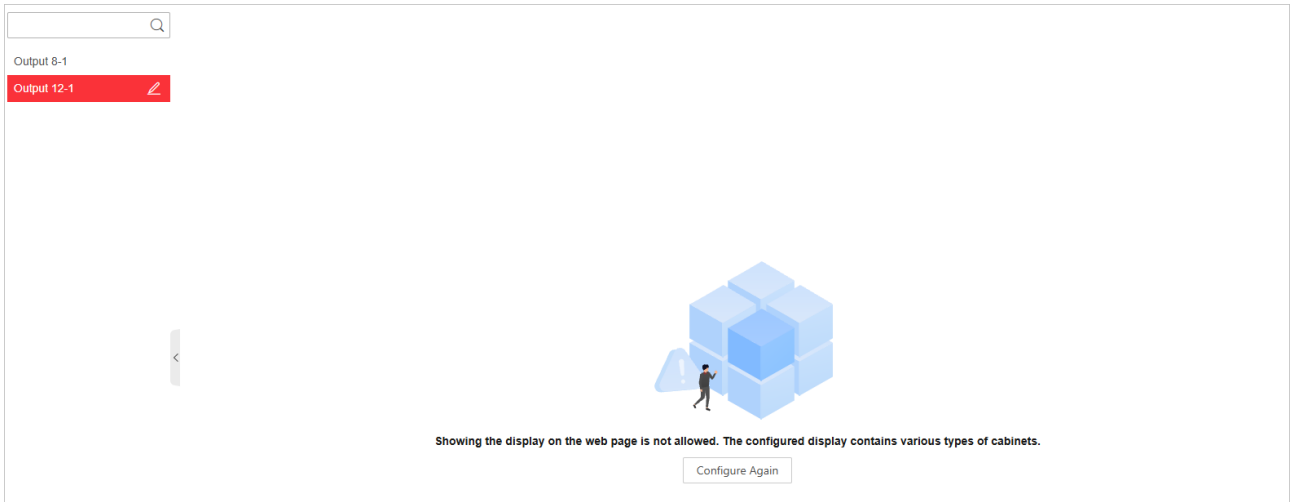

Figure 5-12 Reconfiguration Prompt (Receiving Card Status Page)

5.7.2 Test Condition of Directly Connected LED Display

Step 1 Navigate to **Display Maintenance** → **Target Video Wall** → **Display Test**.

Step 2 Enable the display test.

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

If the existing color does not meet the requirements, add a new color. You can edit the newly added color.

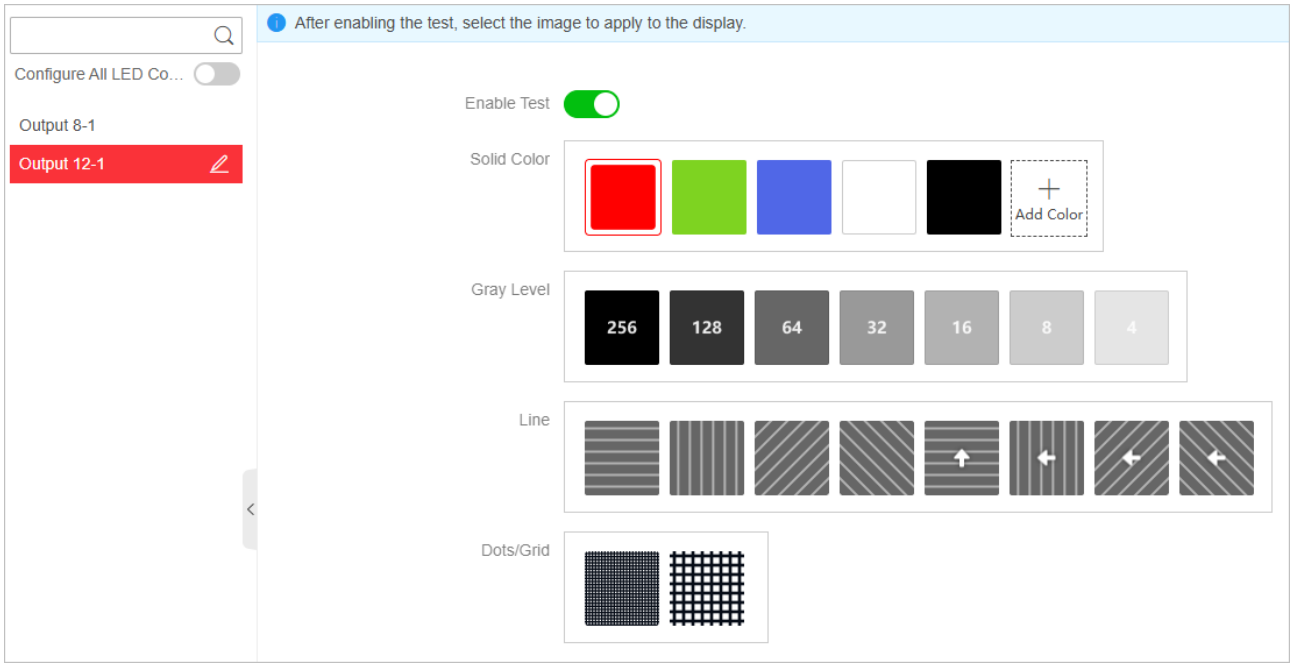

Figure 5-13 Test Display Condition

5.7.3 Quickly Maintain a Receiving Card

If the display is installed with a new receiving card, you can use this function to copy the configuration of the reference receiving card to the new receiving card. Make sure the newly installed receiving card is connected with the LED controller.

Step 1 Navigate to **Display Maintenance** → **Target Video Wall** → **Receiving Card Quick Maintenance**.

Step 2 Select a receiving card and click **Set as Reference Card**. The configuration of the reference receiving card can be copied to the new receiving card.

Step 3 Select a receiving card and click **Set as New Card**.

Step 4 Click **Copy** to copy the configuration file of the reference card to the new card.

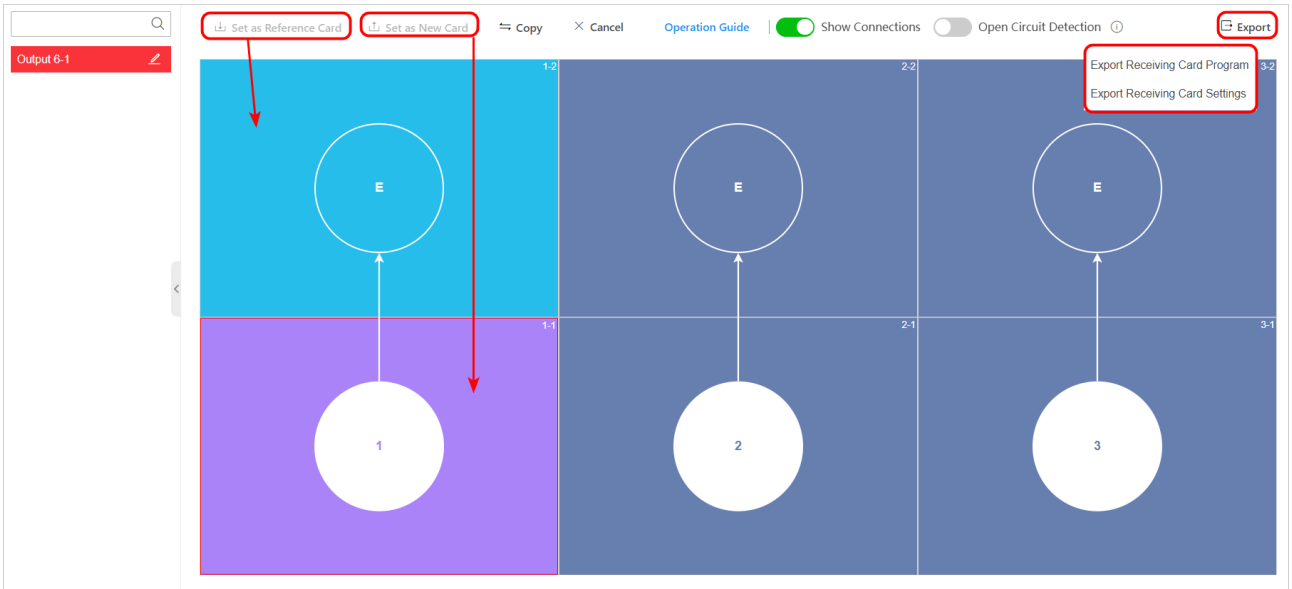

Figure 5-14 Quickly Maintain Receiving Cards

Step 5 (Optional) You can perform the following operations as required:

- Click **Export** to export the receiving card program file or receiving card configuration file.
- Click **Show Connections** to view the signal connection of the LED controller.
- Enable **Open Circuit Detection** to repair the cross phenomenon caused by damaged lamp beads. Before repairing the damaged lamp beads, disable open circuit detection.
- Click **Cancel** to cancel the copy operation.

Chapter 6 Matrix Configuration

When a single device is connected to multiple LCD screens and requires different input images on each screen, the matrix function can be configured to enable flexible binding of input sources to screens. This allows different signal sources to be independently assigned to specified screens.

6.1 Select Matrix Mode

Navigate to **Configuration** → **Other Settings** → **Device Mode Switching**, select the matrix mode, and click **Save**.

Note

After switching to the matrix mode, the device will automatically restart.

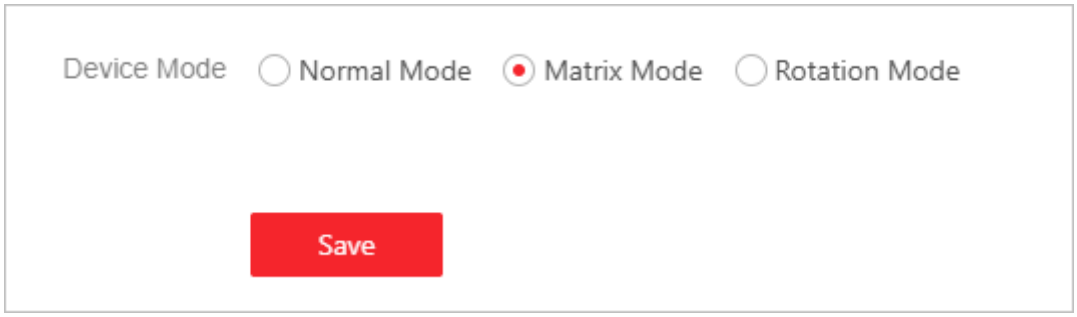

Figure 6-1 Select Matrix Mode

6.2 Configure Local Signal Sources

Navigate to **Configuration** → **Signal Source Settings** → **Image Settings** to configure the following parameters as required:

- On the **Video Param** page, select a signal source and color mode, and adjust the brightness.

  If you select custom color mode, the video parameters will restore to the default settings after you click **Restore Default** on the **Backup and Reset** page.

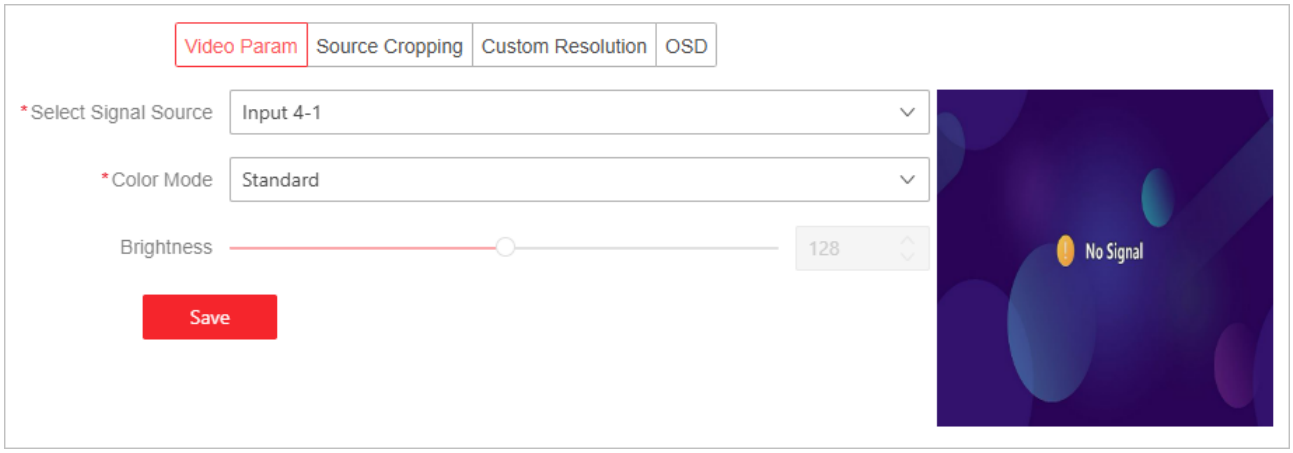

Figure 6-2 Set Video Parameters (Matrix Mode)

- Click **Source Cropping**, select a signal source, and set the cropping value at top, bottom, left, and right edges.

  The clipping value ranges from 0 to 200. The clipping value at the top and bottom edges should be a multiple of 2, and the clipping value at the left and right edges should be a multiple of 4.

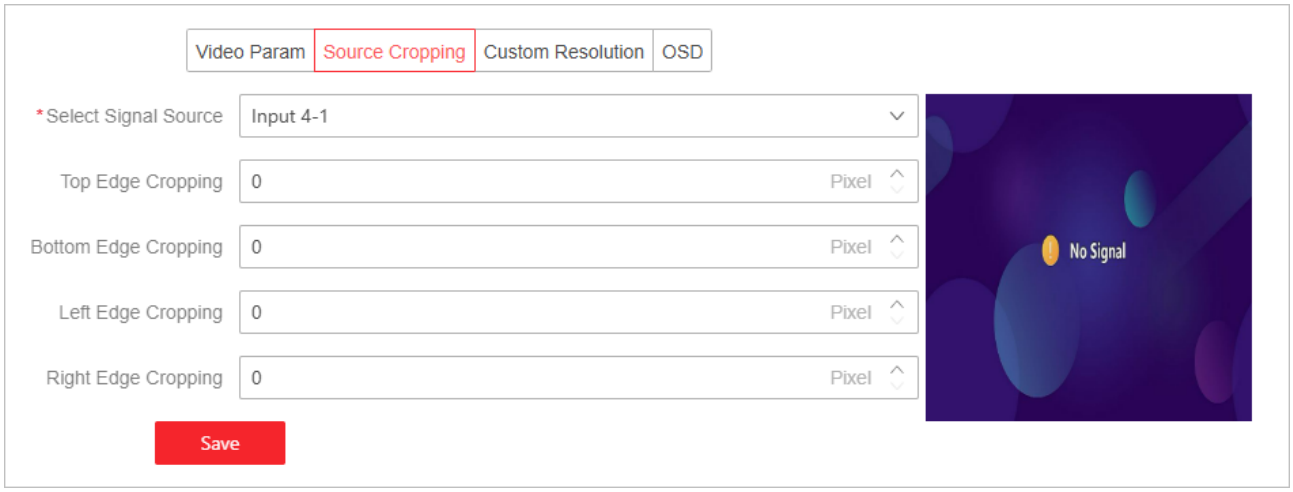

Figure 6-3 Crop a Signal Source (Matrix Mode)

- If the resolution of a signal source does not match the resolution of the screen, you can customize the signal source resolution.

  1) Click **Custom Resolution**.
  2) Select a signal source and enable custom resolution.
  3) Set the refresh rate and resolution. The width should be a multiple of 4 and the height should be a multiple of 2.
  4) (Optional) Click **Copy To** to copy the resolution configuration of the current signal source to other signal sources.
  5) Click **Save**.

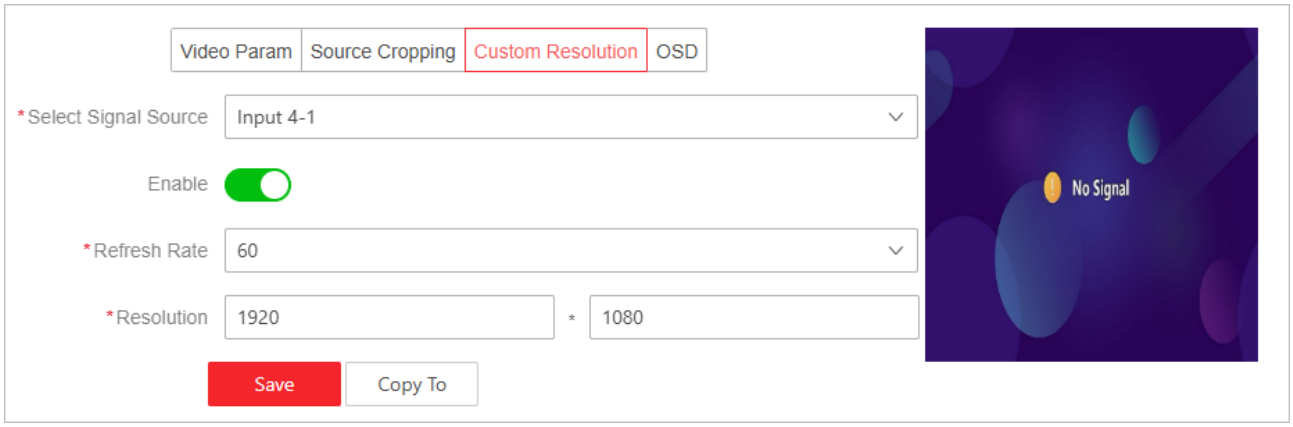

Figure 6-4 Customize Resolution (Matrix Mode)

- Click **OSD**, select a signal source, and then you can add multiple OSDs (On-Screen Displays) to the selected signal image.
  - Overlay the character 1 to the input signal image. Set the content, font size, and font color, and adjust the character position. You can enter the position values or directly drag the character to adjust the position.
  - Overlay the character 2 to the input signal image. Set the content, font size, and font color, and adjust the character position. You can enter the position values or directly drag the character to adjust the position.
  - Click **Copy To** to copy the OSD configuration of the current signal source to other signal sources.

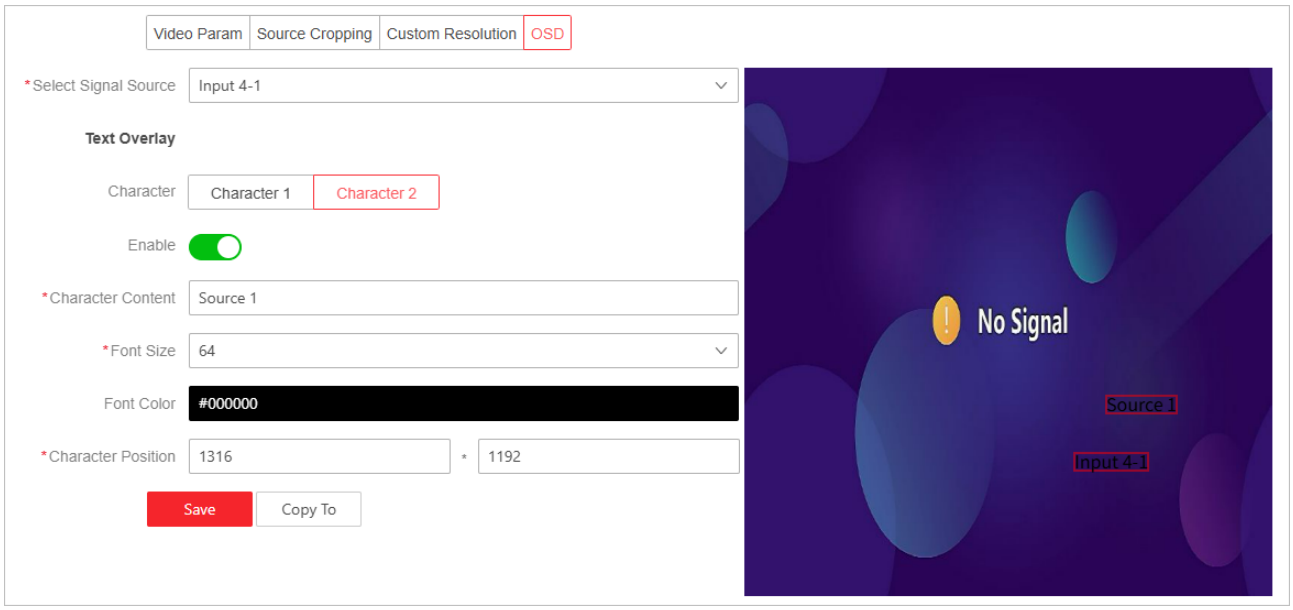

Figure 6-5 Add OSDs (Matrix Mode)

6.3 Configure Matrix Parameters

A single input port can be associated with multiple output ports simultaneously, while a single output port can only be associated with one input port at a time.

Step 1 Navigate to **Matrix Configuration** to associate input and output ports:

- Select the desired matrix input and output, then double-click to associate. Double-click again to disassociate.
- Hover over an input port and click  to associate that input port to all output ports.

Step 2 Click **Output Resolution**, select the desired output resolution, and click **Save**.

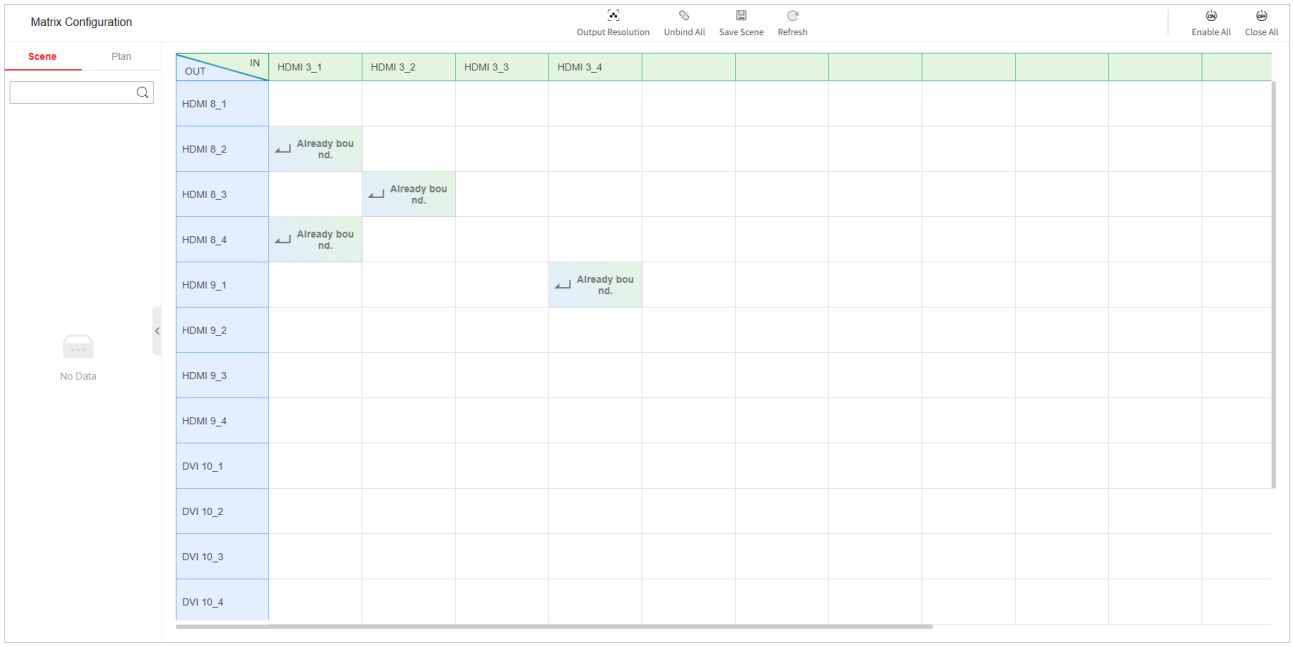

Figure 6-6 Configure Matrix Parameters

Step 3 Configure scenes:

1) Click **Save Scene** to save the current matrix configuration as a new scene or overwrite an existing one.

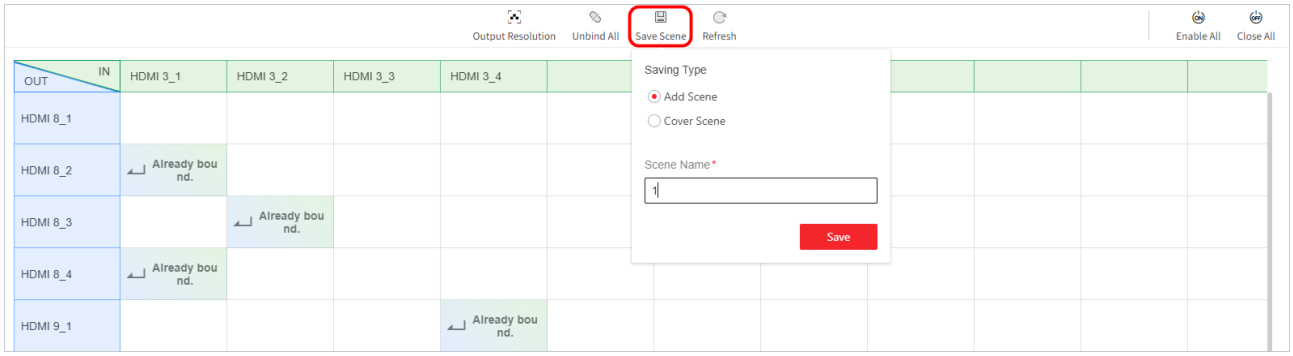

Figure 6-7 Save a Scene

2) Click **Scene**, hover over the target scene, and perform the following operations:
   - Click  to call the scene.
   - Click  to edit the scene name.
   - Click  to delete the scene.

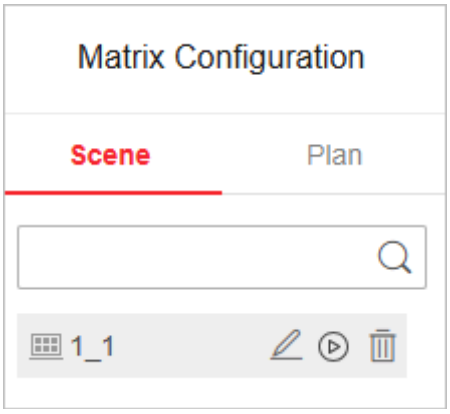

Figure 6-8 Manage a Scene

Note

The device supports up to 128 scenes.

Step 4 Configure plans:

- Click **Plan** and click to add a plan:

1) Set the plan name.
2) Click **Add Task**, select the scene, and set the interval.
3) (Optional) Enable **Execute Plan Automatically** and set the schedule.
4) Click **Save**.

- Click a plan and then click to edit the plan.
- Click a plan and then click to call the plan.
- Click a plan and then click to delete the plan.

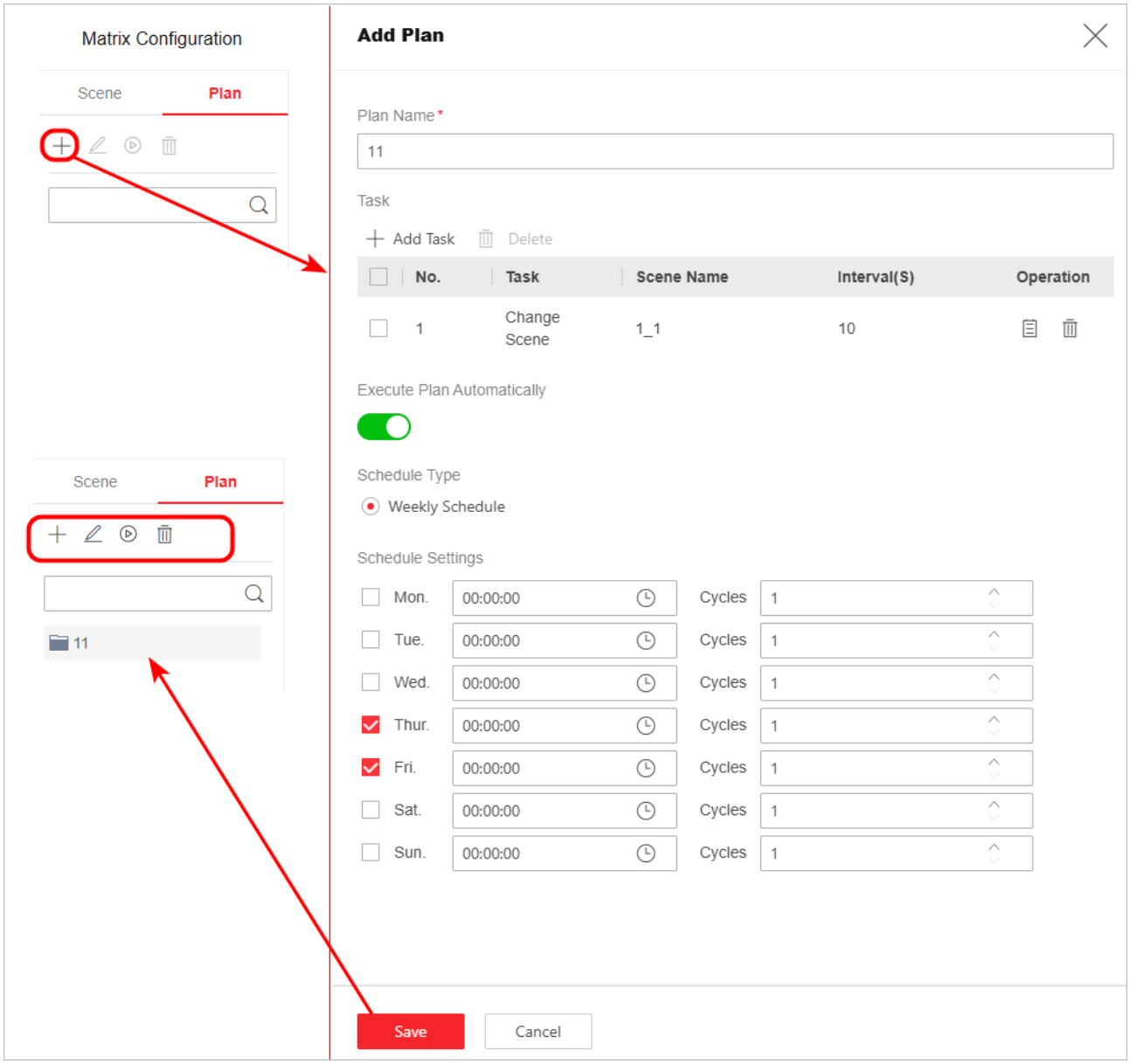

Figure 6-9 Manage a Plan

Step 5 (Optional) You can perform the following operations as required:

- Hover over a target input/output port and click  to modify the port name.
- Click **Unbind All** to clear all associations.
- Click **Refresh** to reload the matrix parameters.
- By default, the device outputs the configured input source. LCD screens will automatically display the input source after startup. If the screen does not display the input source properly, first ensure the screen is powered on, and then click **Enable All**. To stop the output, click **Close All**.

Chapter 7 General Configuration

7.1 Configure System Parameters

Navigate to **Configuration** → **System** to configure the following parameters:

- Navigate to **System Settings** → **Basic Information** to view the device information and edit the device name as required. You can click **Upgrade** to navigate to the **Upgrade** page.

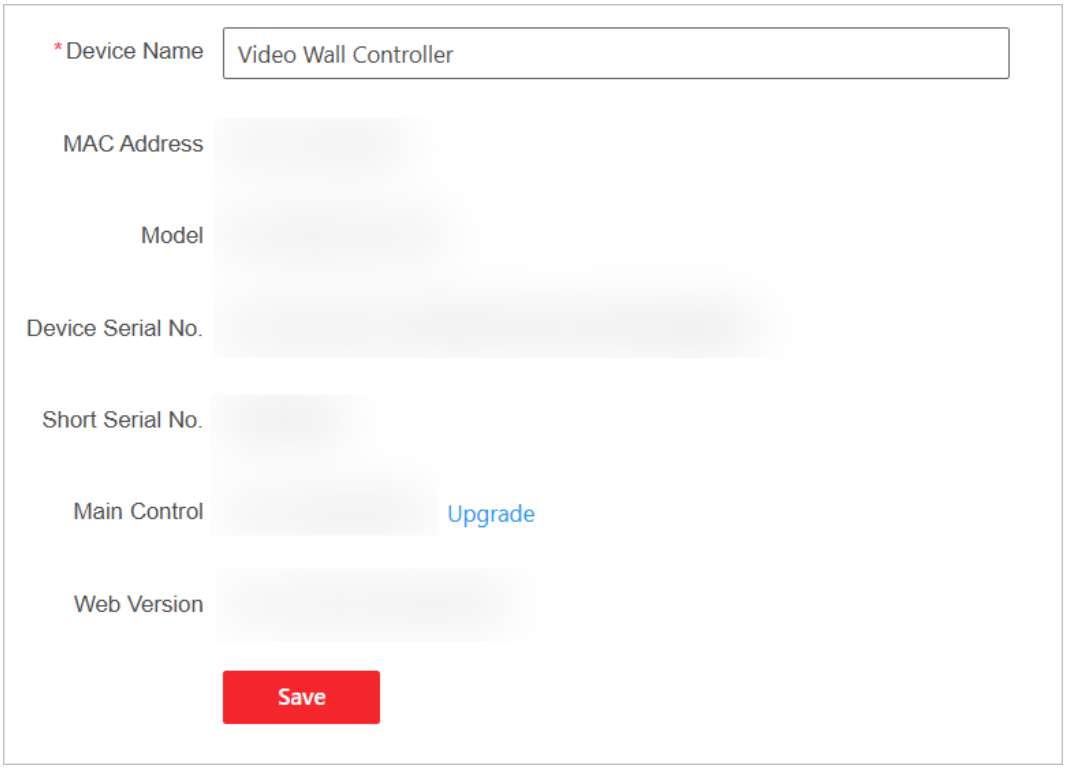

Figure 7-1 View Basic Information

- Navigate to **System Settings** → **Time Settings**, and set the time sync mode and DST.
  - If you select **NTP Sync**, enter the NTP server address, NTP port number, and interval.

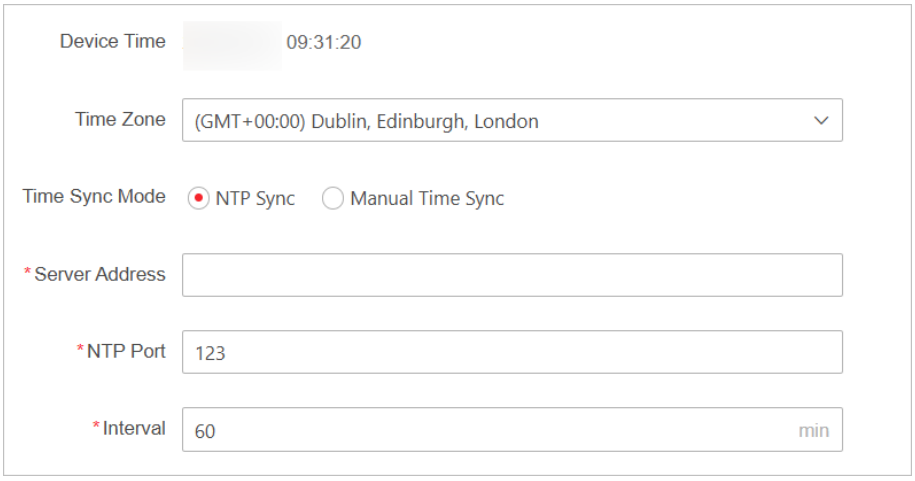

Figure 7-2 Select NTP Sync

- If you select **Manual Time Sync**, you can enter the time or click **Sync with Computer**.

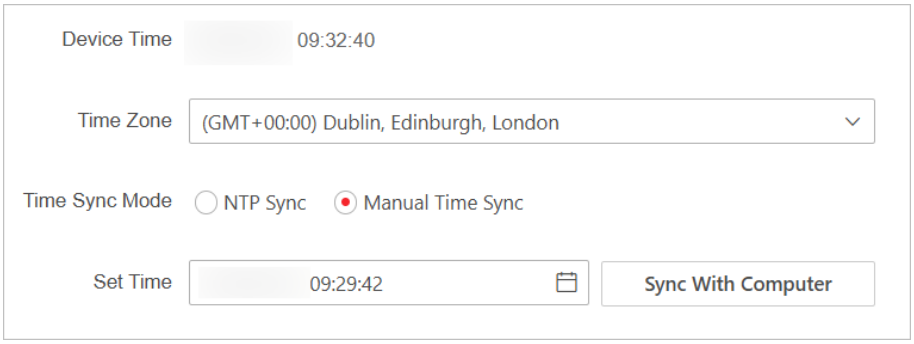

Figure 7-3 Select Manual Time Sync

- If you enable DST (Daylight Saving Time), enter the start time, end time, and bias time.

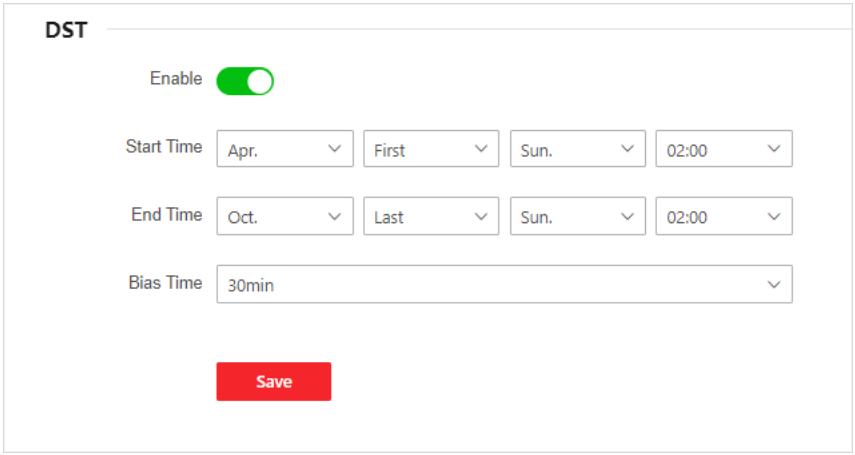

Figure 7-4 Enable DST

- Navigate to **System Settings** → **Font Settings** to set the font of OSDs and subtitles.
  - Use the default font.
  - Click **Add** to import a new font and enable the new font.

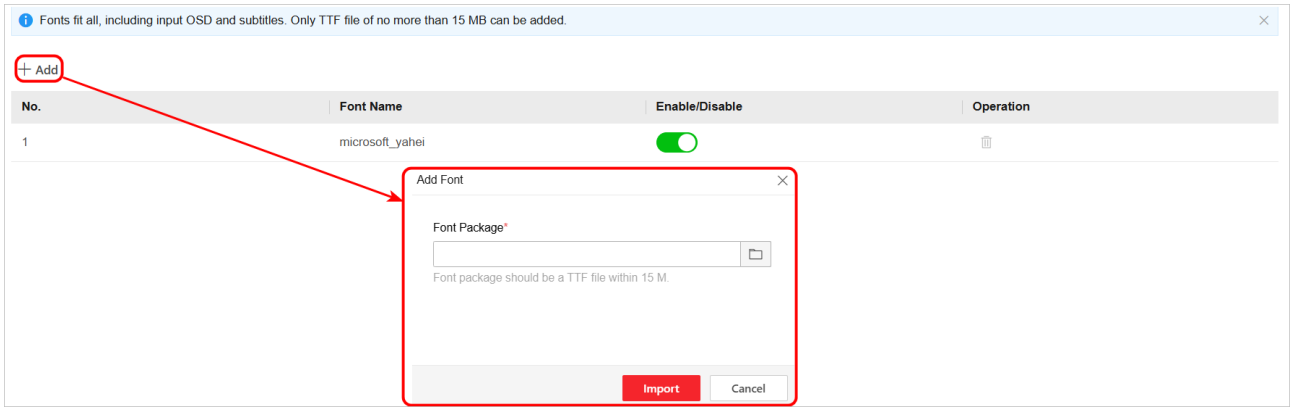

Figure 7-5 Set Font

- Navigate to **User Management** → **User Managemen**t to add, edit, or delete the users.

  You can only edit the password of the admin user and you cannot edit its user name or delete it.

  - To add a new user, click **Add**, and enter user name, admin password, password, and confirm password.
  - To edit the name or password of a user, click of the user.
  - To delete a user, click of a user, click **OK**, and enter the password of the admin user.

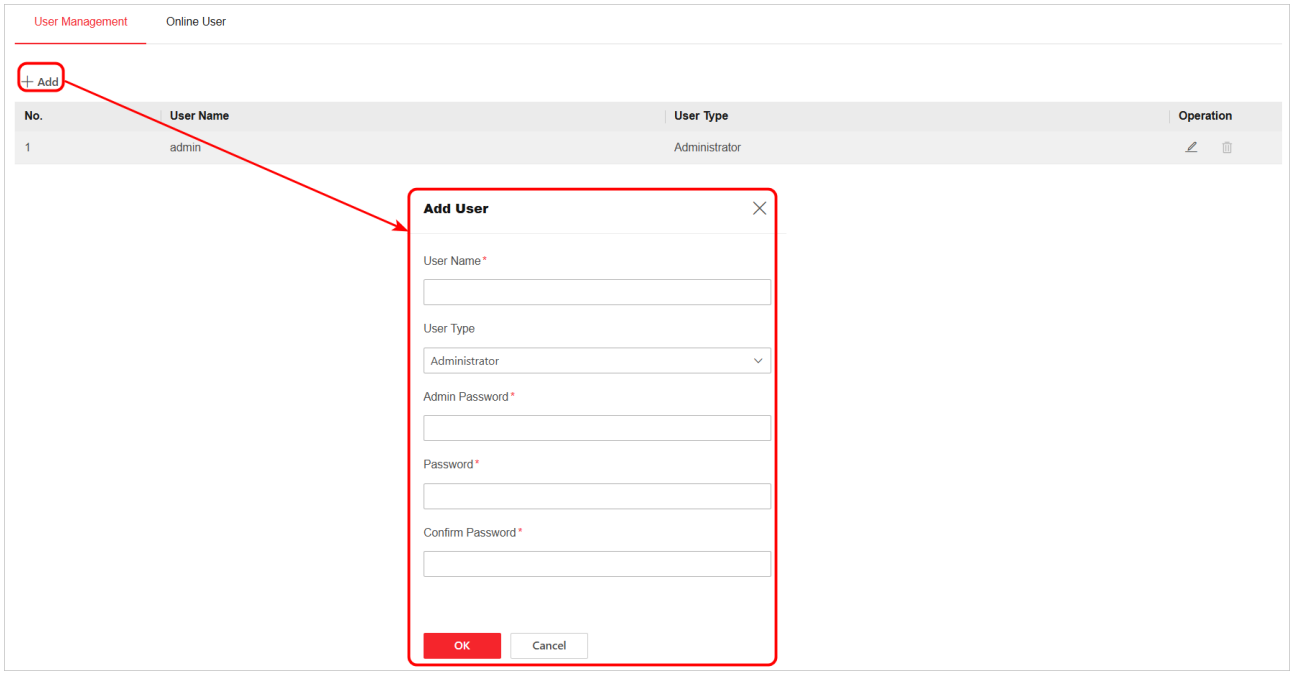

Figure 7-6 Manage Users

- Navigate to **User Management** → **Online User** to view the information of online users. To refresh the information, click **Refresh**.

Figure 7-7 View Online Users

7.2 Configure Network Parameters

Configure HTTP(S) Parameters

Step 1 Navigate to **Configuration** → **Network** → **Network Service** → **HTTP(S)**.

Step 2 Set the HTTP port number.

The port number can be either 80 or any value from 2000 to 65535. After editing the HTTP port, you need to enter HTTP://Device IP Address: Port in the browser to access the device.

Step 3 Enable HTTPS and then set the HTTPS port.

The default port number is 443. After editing the HTTPS port, you need to enter HTTPS://Device IP Address: Port in the browser to access the device.

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

- Enable auto HTTPS redirection to access the device via HTTPS by default.
- Select a digest algorithm type.

Note

Only the admin user can select a digest algorithm type.

Step 5 Click **Save**.

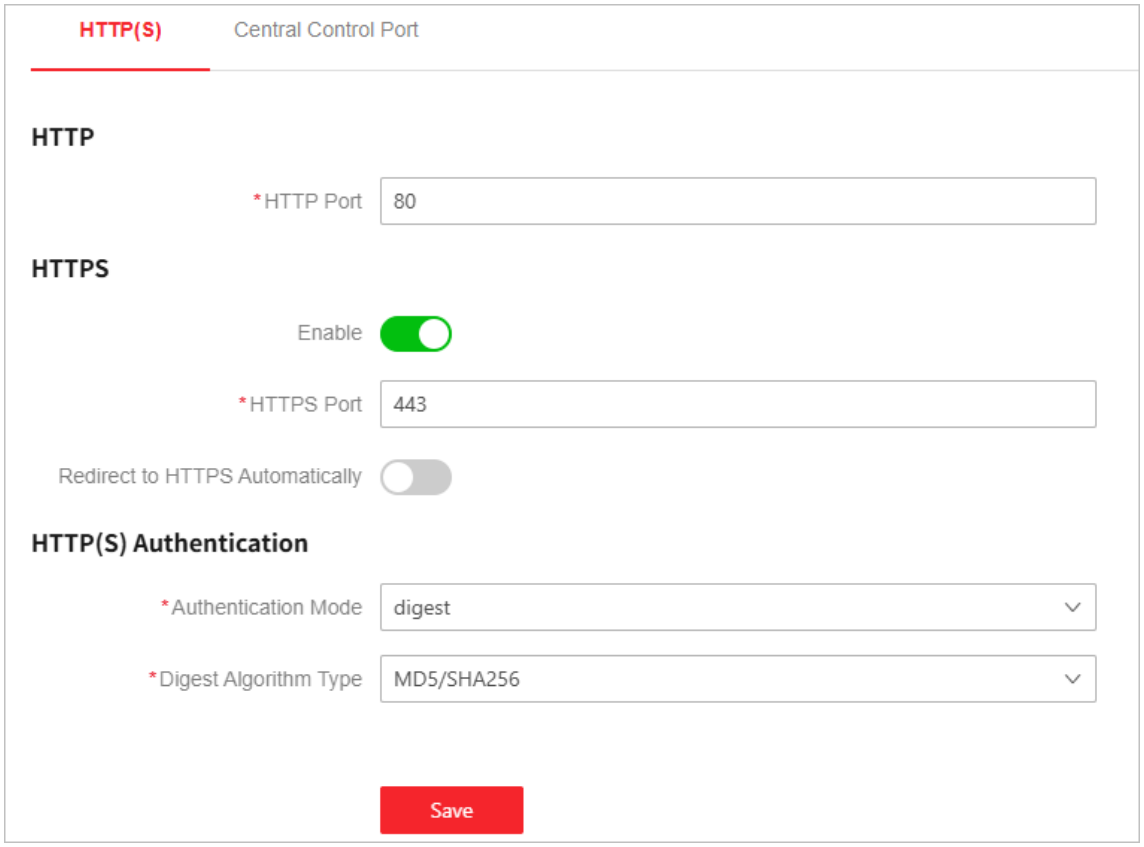

Figure 7-8 Configure HTTP (S) Parameters

Configure Central Control Port

When the LAN port on the main control board is connected to the central control device, the central control port function needs to be configured.

Step 1 Navigate to **Configuration** → **Network** → **Network Service** → **Central Control Port**.

Step 2 Enable the central control port, set the port number, and click **Save**.

Step 3 Use the configured port to send the specified protocol content to control the central control device.

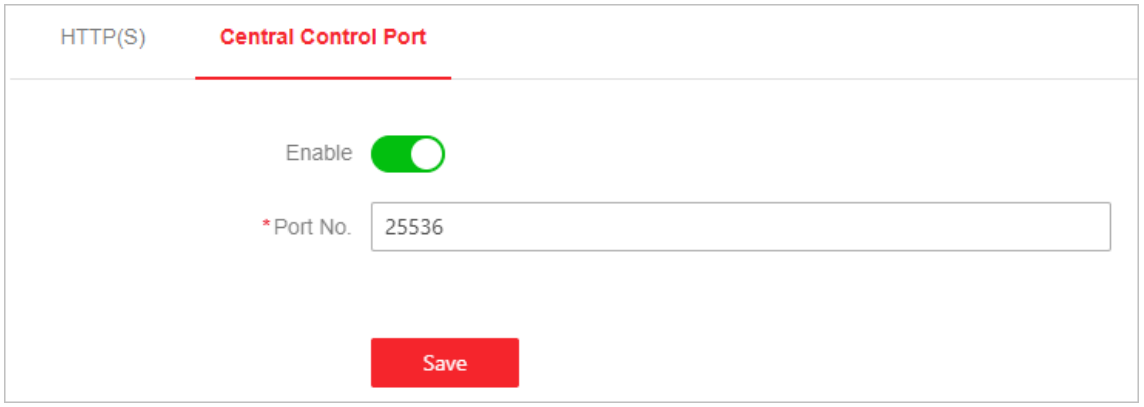

Figure 7-9 Configure Central Control Port

7.3 Configure Events

Navigate to **Configuration** → **Event** to configure the audible warning and alarm reporting to the platform when the following exceptional events occur:

- The IP address of the device is the same as that of other devices in the network.
- Incorrect user name or password.
- Network is disconnected.
- The device temperature is too high or too low.
- The fan status is abnormal.

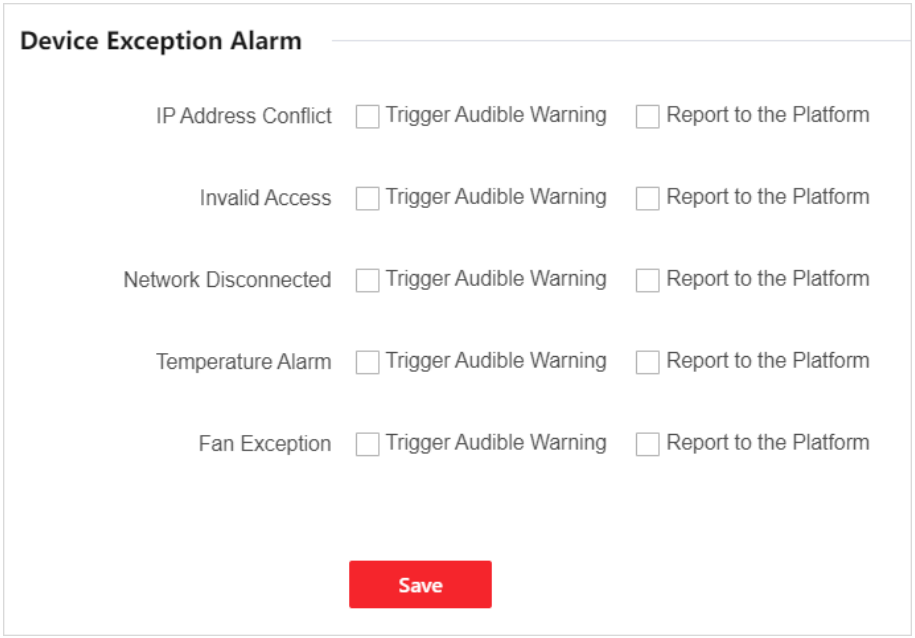

Figure 7-10 Set Device Exception Alarm

7.4 Set End-to-End Hot Standby

After enabling the end-to-end hot standby function, the primary and secondary devices will synchronize all signals and video wall configurations in real time. Under normal circumstances, the primary device handles service processing, while the secondary device serves as a permanent backup, and the primary-secondary roles cannot be changed. If the primary device fails, the secondary device will automatically take over the services to ensure uninterrupted display. Once the primary device returns to normal, the system will automatically switch back to the primary device to continue service execution.

7.4.1 Build Hot Standby Environment

Use LED Controller Boards

Step 1 Prepare C66S devices and connect signal sources.

1) Prepare two devices of the same model with an identical hardware configuration (including board quantity and slot layout).
2) Use a video cable to connect the signal source device (1) to an input board of the primary device (2).
3) Use a video cable to connect the signal source device (5) to an input board of the secondary device (6).

Step 2 Connect C66S devices to the LED display.

1) Use Ethernet cables to connect the LED controller board network ports on the primary device to the primary receiving card of the LED display (3).
2) Use Ethernet cables to connect the LED controller board network ports on the secondary device to the secondary receiving card of the LED display (3).

Step 3 Connect C66S devices to the Gigabit switch.

1) Use an Ethernet cable to connect the LAN port of the primary device to the Gigabit switch (4).
2) Use an Ethernet cable to connect the LAN port of the secondary device to the Gigabit switch (4).

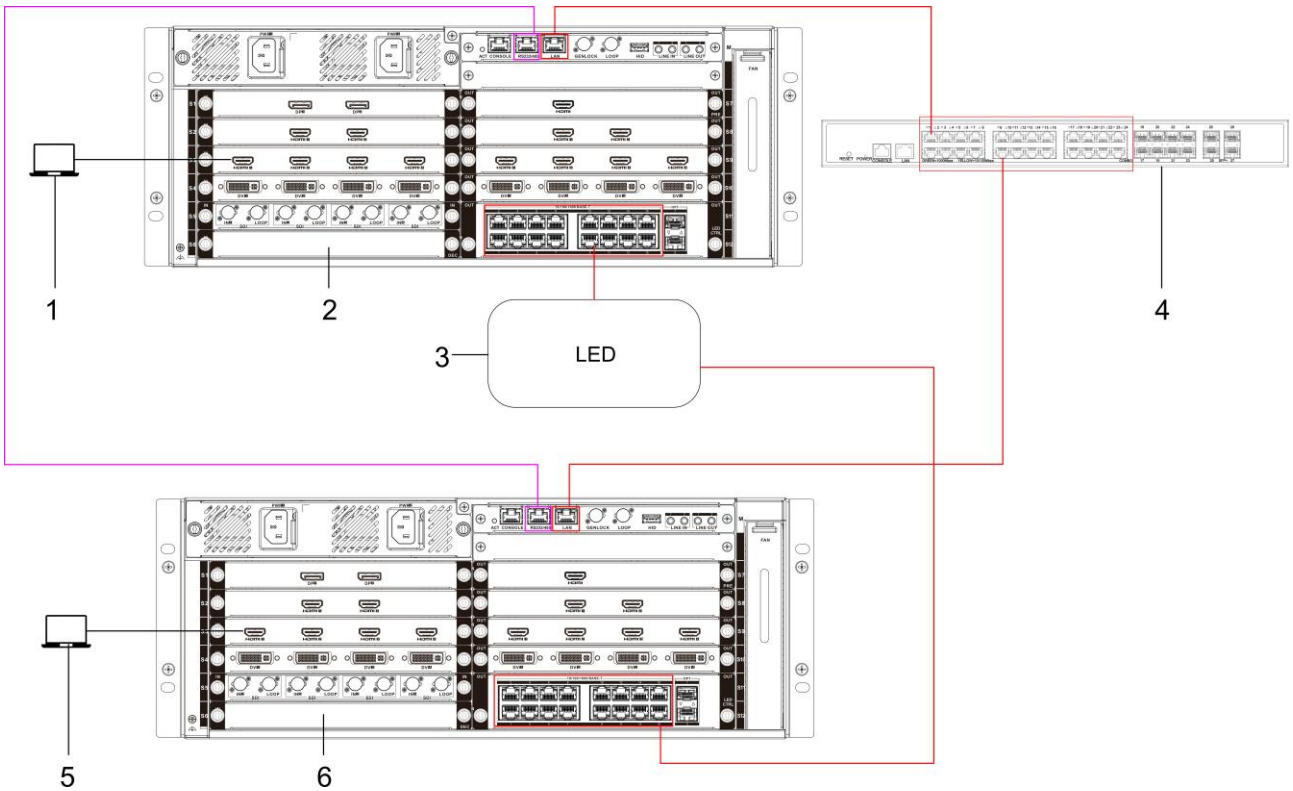

Figure 7-11 Use LED Controller Boards

Note

This diagram is for illustrative purposes only.

Step 4 Create an RJ-45 serial cable.

1) Strip the insulation from the No. 1 (orange-white) and No. 8 (brown) wires to expose the internal conductors.
2) Cross-connect the two conductors of the No. 1 wire with the two conductors of the No. 8 wire.
3) Cut and insulate the remaining five wires (No. 2 orange, No. 3 green-white, No. 4 blue, No. 5 blue-white, and No. 6 green).
4) Connection definitions:
   - Orange-white wire serves as the transmit end (TX) of the RS-232 line.
   - Brown wire serves as the receive end (RX) of the RS-232 line.
   - No. 7 (brown-white) wire serves as the ground line (GND).

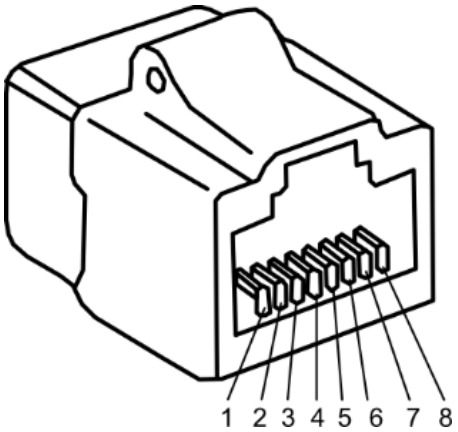

Figure 7-12 RJ-45 Serial Cable

Step 5 Use the created RJ-45 serial cable to connect the RS-232/RS-485 ports of the primary and secondary devices.

Step 6 Power on and start all devices.

Step 7 Log in to both C66S devices separately and complete the video wall configuration, ensuring the following settings are identical:

- Video wall specifications are the same.
- The binding relationship between the video wall and output ports is consistent.

Use LED Controllers

Step 1 Prepare C66S devices and connect signal sources.

1) Prepare two devices of the same model with an identical hardware configuration (including board quantity and slot layout).
2) Use a video cable to connect the signal source device (1) to an input board of the primary device (2).
3) Use a video cable to connect the signal source device (6) to an input board of the secondary device (7).

Step 2 Connect C66S devices to the LED display.

1) Use a video cable to connect an output board of the primary device to a signal input port of the LED controller (4).
2) Use a video cable to connect an output board of the secondary device to a signal input port of the LED controller (8).
3) Use Ethernet cables to connect the network ports of the LED controller (4) to the primary receiving card of the LED display (5).
4) Use Ethernet cables to connect the network ports of the LED controller (4) to the secondary receiving card of the LED display (5).

Step 3 Connect C66S devices to the Gigabit switch.

1) Use an Ethernet cable to connect the LAN port of the primary device to the Gigabit switch (3).
2) Use an Ethernet cable to connect the LAN port of the secondary device to the Gigabit switch (3).

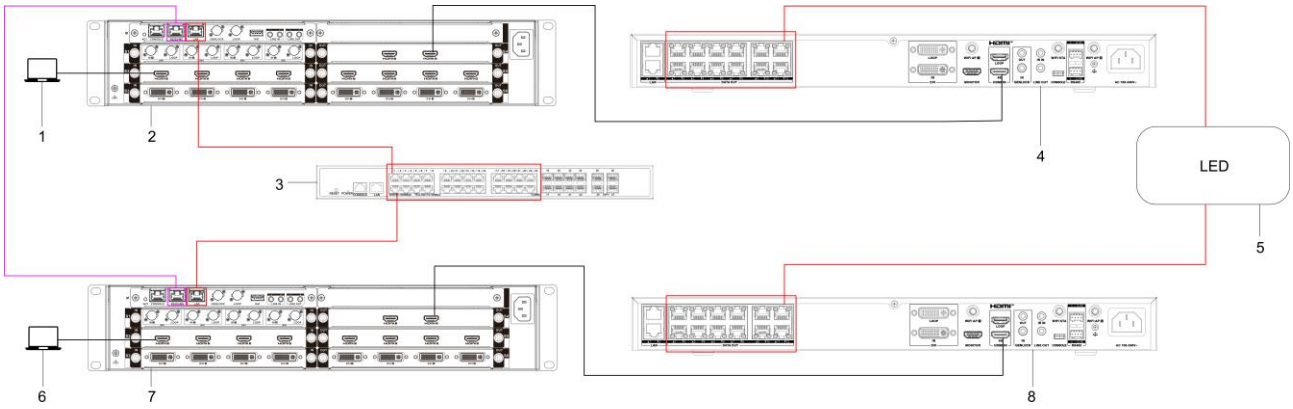

Figure 7-13 Use LED Controllers

Note

This diagram is for illustrative purposes only.

Step 4 Create an RJ-45 serial cable.

1) Strip the insulation from the No. 1 (orange-white) and No. 8 (brown) wires to expose the internal conductors.
2) Cross-connect the two conductors of the No. 1 wire with the two conductors of the No. 8 wire.
3) Cut and insulate the remaining five wires (No. 2 orange, No. 3 green-white, No. 4 blue, No. 5 blue-white, and No. 6 green).
4) Connection definitions:
   - Orange-white wire serves as the transmit end (TX) of the RS-232 line.
   - Brown wire serves as the receive end (RX) of the RS-232 line.
   - No. 7 (brown-white) wire serves as the ground line (GND).

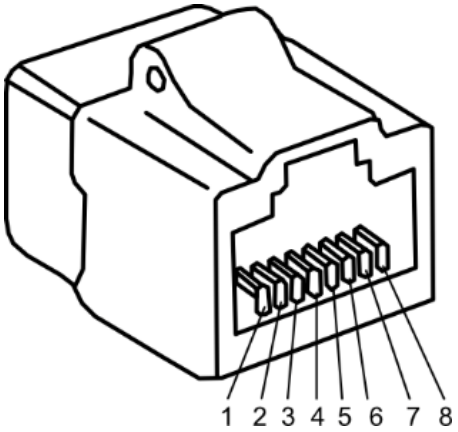

Figure 7-14 RJ-45 Serial Cable

Step 5 Use the created RJ-45 serial cable to connect the RS-232/RS-485 ports of the primary and secondary devices.

Step 6 Power on and start all devices.

Step 7 Log in to both C66S devices separately and complete the video wall configuration, ensuring the following settings are identical:

- Video wall specifications are the same.
- The binding relationship between the video wall and output ports is consistent.

7.4.2 Configure Hot Standby Parameters

Step 1 Log in to the web interface of the primary device, navigate to **Configuration** → **End-to-End Hot Standby** → **Hot Standby Configuration**, and set the parameters for the current device:

1) Keep the default role (**Primary Role**).
2) Enable and fill in the shared operational IP address.
3) Enter the IP address, username, and password of the secondary device.
4) Enable hot standby and click **Save**.

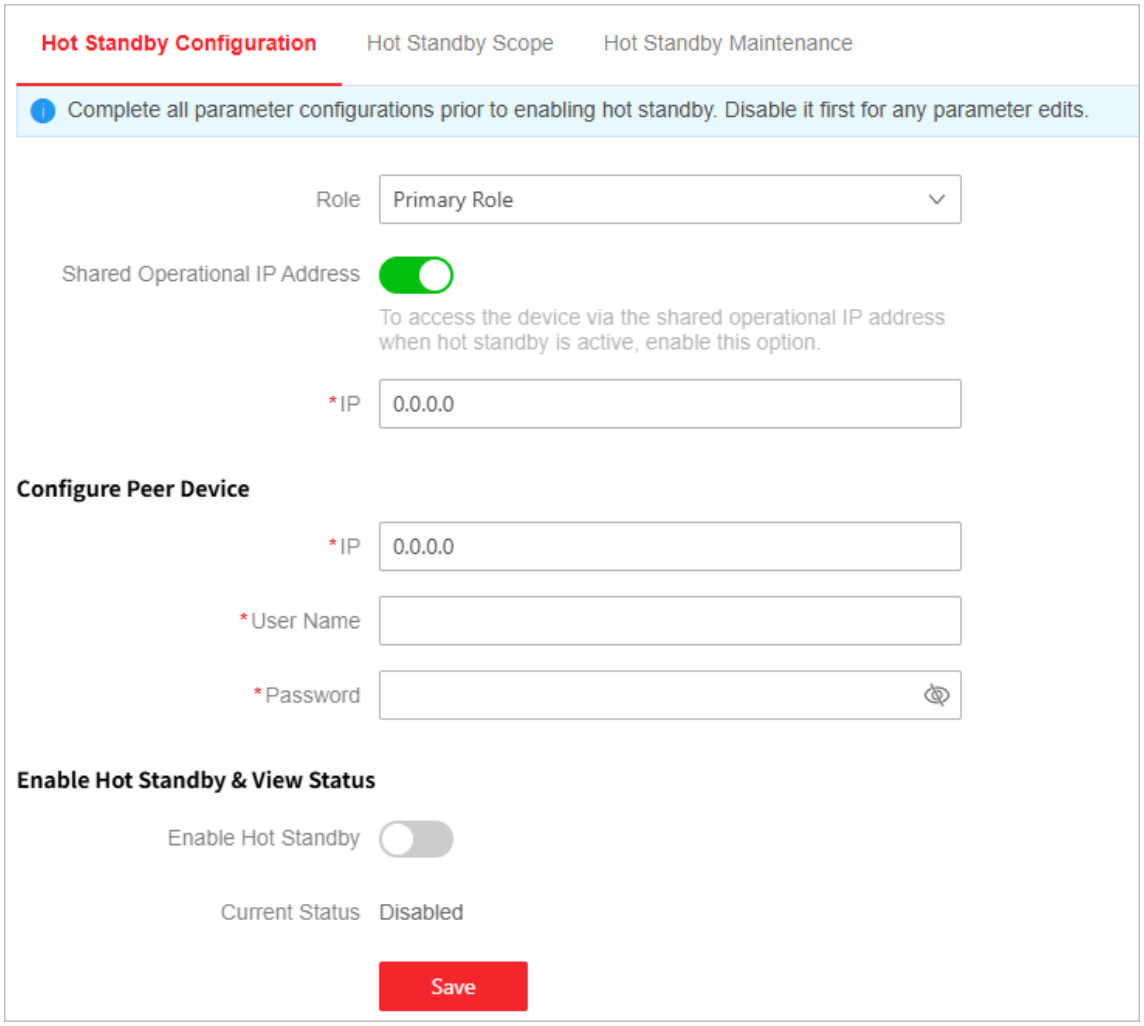

Figure 7-15 Configure Primary Device

Step 2 Log in to the web interface of the secondary device, navigate to **Configuration** → **End-to-End Hot Standby** → **Hot Standby Configuration**, and set the parameters for the current device:

1) Select the secondary role.
2) Enable and fill in the shared operational IP address.
3) Enter the IP address, username, and password of the primary device.
4) Enable hot standby and click **Save**.

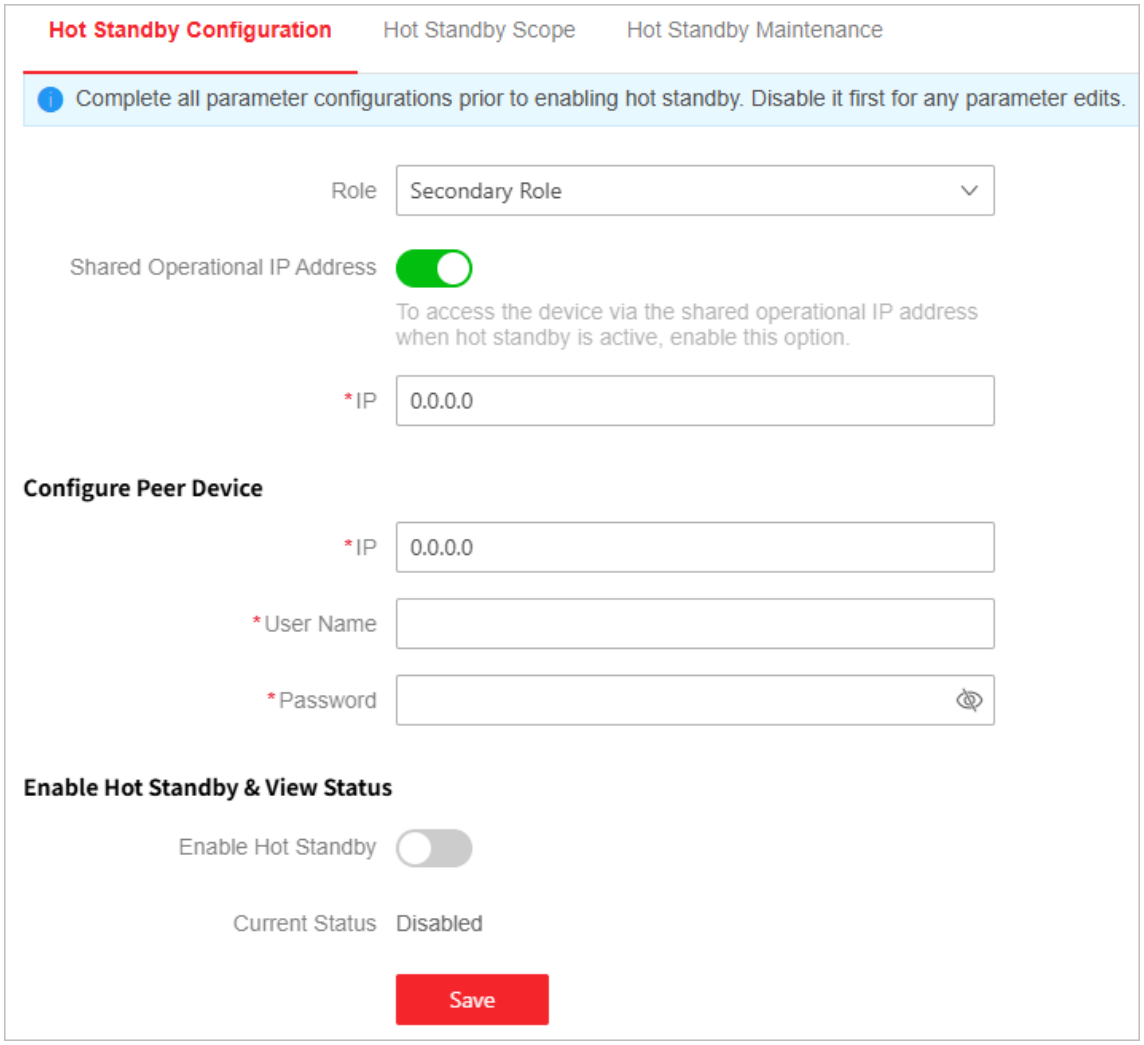

Figure 7-16 Configure Secondary Device

Step 3 (Optional) After enabling the hot standby function, the system backs up all sub-boards by default. To customize the hot standby scope, follow these steps:

1) Click **Hot Standby Scope** and enable **Custom Scope**.
2) For the target sub-board, enable hot standby.
3) Click **Save**.

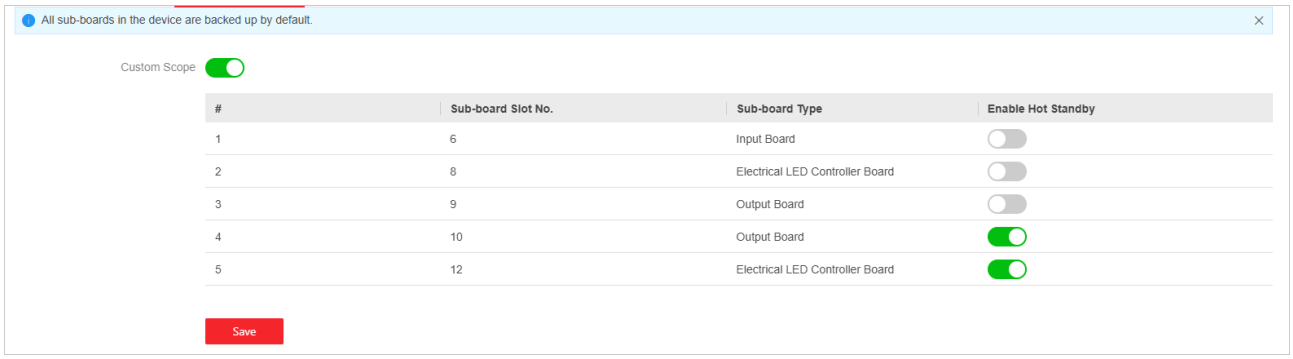

Figure 7-17 Customize Hot Standby Scope

7.4.3 Maintain Hot Standby Function

Configuration → **End-to-End Hot Standby** → **Hot Standby Maintenance** and configure the following functions as needed:

- Self-check: Click **Start** to view the configuration status of the primary and secondary devices.
- Automatic switchover: Anomaly detection is enabled by default. When enabled, the secondary device automatically takes over services if the primary device fails.
- Manual switchover: Disable anomaly detection and click **Switch**.
- Synchronize peer video wall parameters: Click **Sync**.

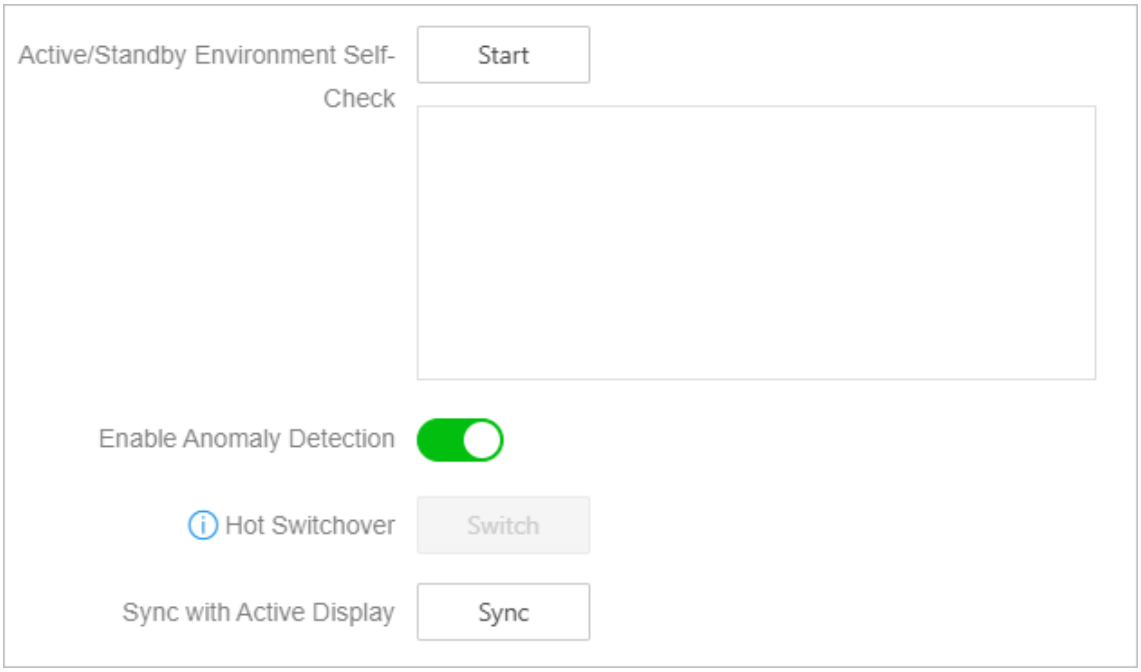

Figure 7-18 Hot Standby Maintenance Page

7.5 Set Other Parameters of Device

Note

When the device is in matrix mode, only no-signal configuration and device mode switching are supported.

Navigate to **Configuration** → **Other Settings** to set the following parameters:

- Click **Sub-Stream Auto-Switch**, check **Enable**, and set the window split threshold. When window split reaches this threshold, the device will automatically use sub-stream to get the images.

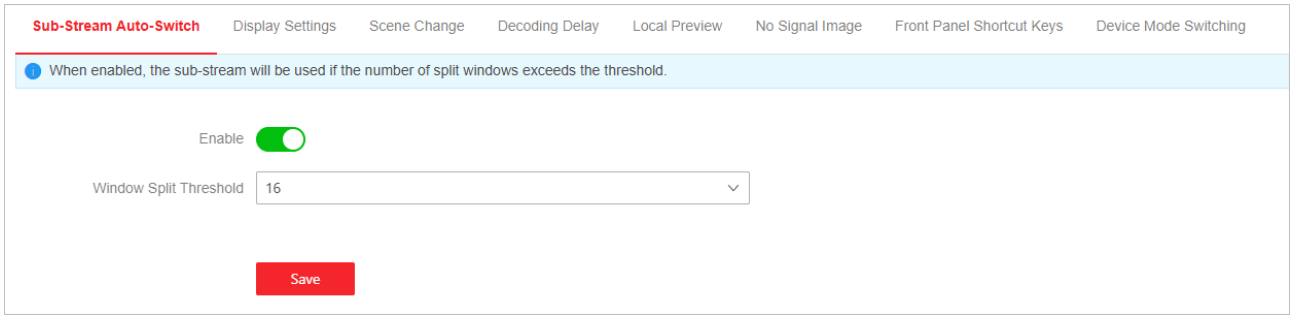

Figure 7-19 Set Sub-Stream Auto-Switch

- Click **Display Settings** to configure the content displayed when streaming fails. If **Connection Exception** is selected, the specific reason for the failure will be shown on the display.

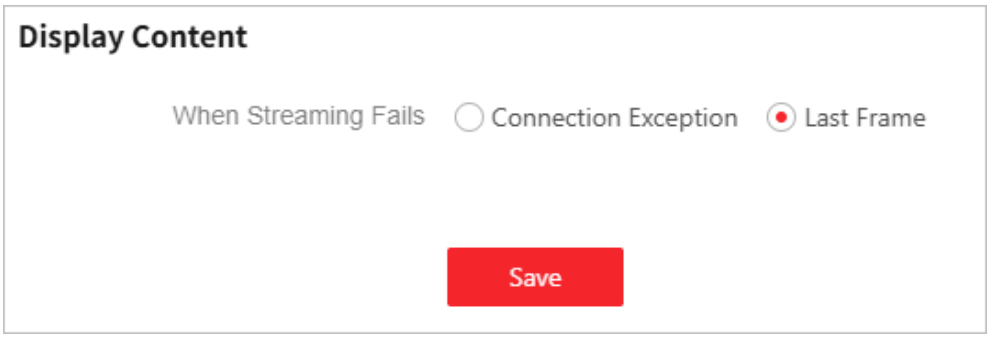

Figure 7-20 Set Display Content

- Click **Scene Change** to enable subtitle switching with scenes.
- Click **Decoding Delay** to configure the default decoding delay level.
- After inserting a preview board into the device, the entire video wall display can be shown on the screen connected to the device. Click **Local Preview**, select the video wall to be previewed, and enable the local preview function.

Note

The local preview function is not supported when the video wall is bound with an LED controller board.

Figure 7-21 Configure Local Preview Function

- Click **No Signal Image** to use the default image or upload a new image.

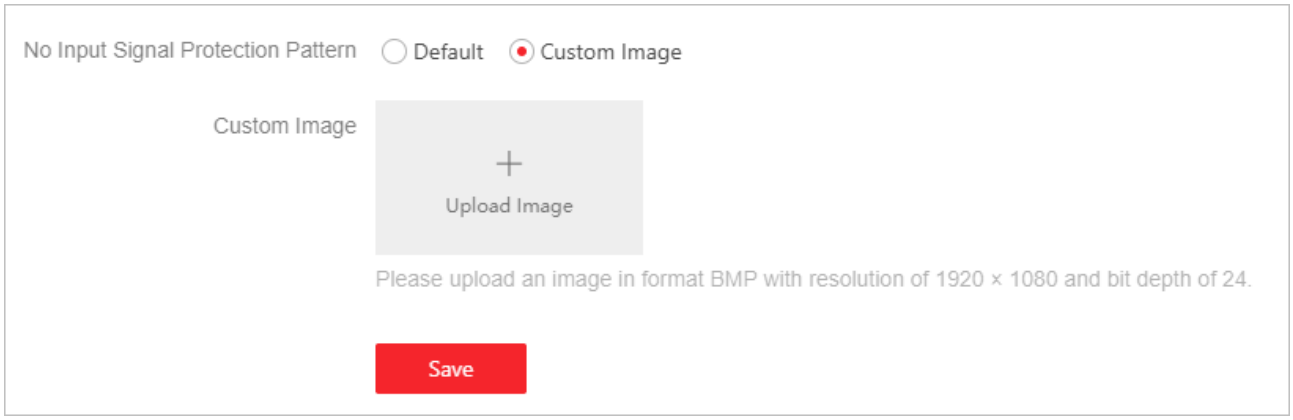

Figure 7-22 Configure No Signal Image

- Click **Front Panel Shortcut Keys** to customize the functions of the FN1/FN2 keys and click **Save**. To reset the configuration, click **Clear**.

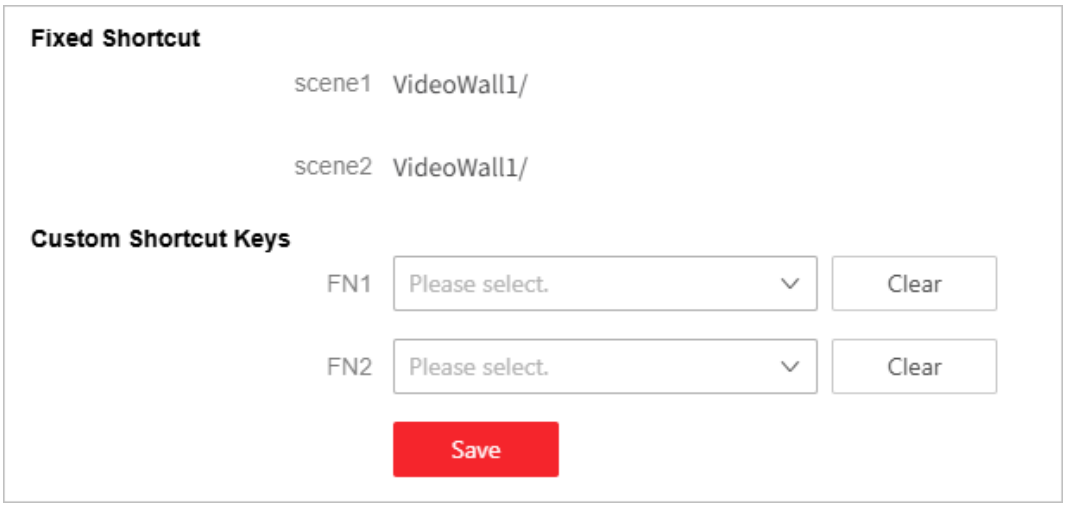

Figure 7-23 Configure Front Panel Shortcut Keys

Chapter 8 Device Maintenance

8.1 Device Maintenance via Web Interface

8.1.1 View Device Status

Navigate to **Overview** to view the device status. You can click a board to view its basic information and its usage.

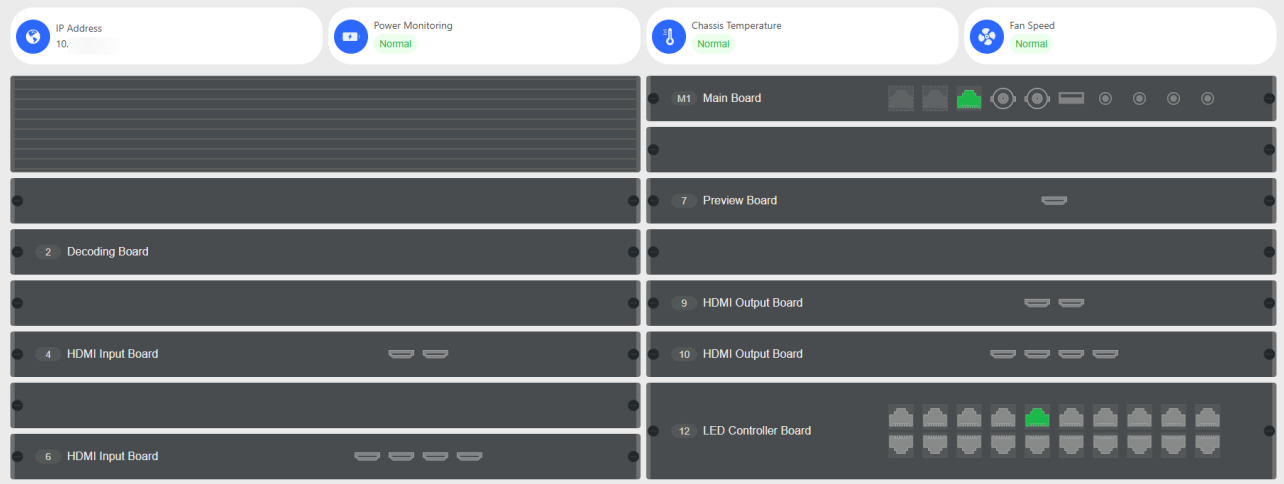

Figure 8-1 View Device Status

8.1.2 Maintain Screens

Control Screen via Serial Port

When the RS-232/485 serial port on the main control board is connected to a screen, the screen can be controlled through the RS-232/485 serial port.

Step 1 Navigate to **Configuration** → **System** → **Serial Port Settings** → **Main Node Serial Port**, select **Display Control** as the working mode, set the baud rate of the device same as the baud rate of the screen, and set other serial port parameters.

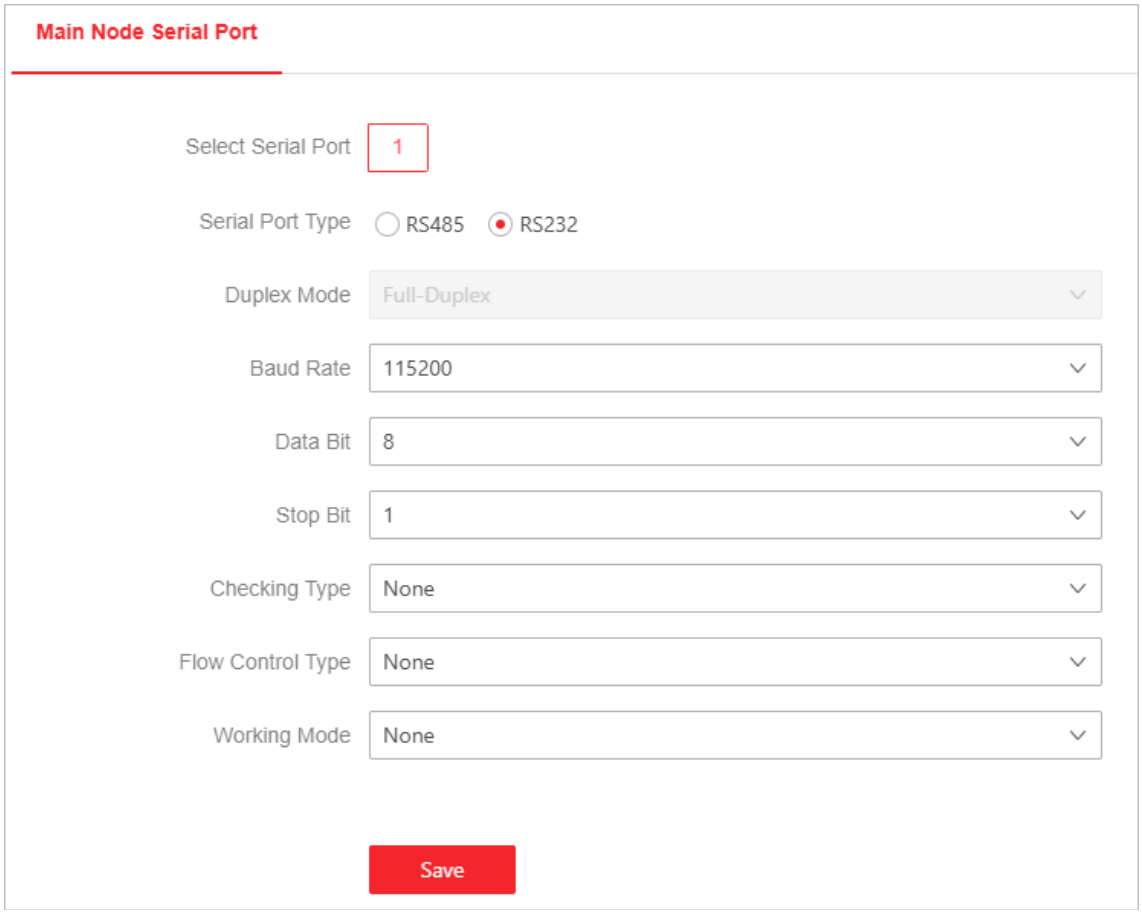

Figure 8-2 Configure Serial Port

Note

- If you select **Keyboard Control** working mode, connect the keyboard to the device and set the baud rate of the device same as the baud rate of the keyboard.
- If you use a serial keyboard, click **Get/Refresh Signal Source** to obtain the local signal sources, and click **Add Signal Source** to add network signal sources. After you change the input board of the device, you need to click **Get/Refresh Signal Source** to refresh the local signal sources.

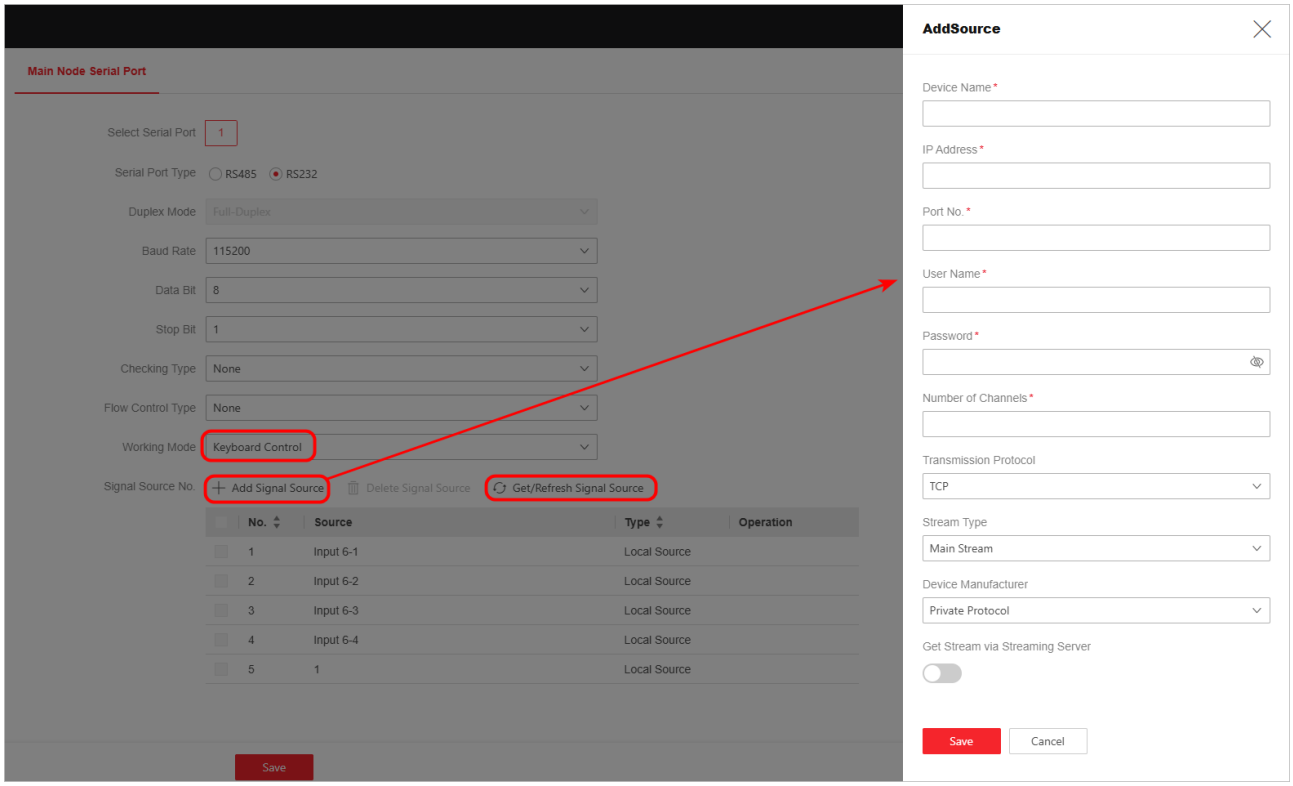

Figure 8-3 Control Serial Keyboard

Step 2 Use a serial port cable to connect a screen and the device's RS-485/RS-232 port.

Step 3 Navigate to **Display Maintenance** → **Target Video Wall** and select the screen that is connected with the serial port cable.

Step 4 Select an input source type.

Step 5 Adjust the image position.

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

- Click **Display On** to power on the connected LCD screen.
- Click **Display Off** to power off the connected LCD screen.

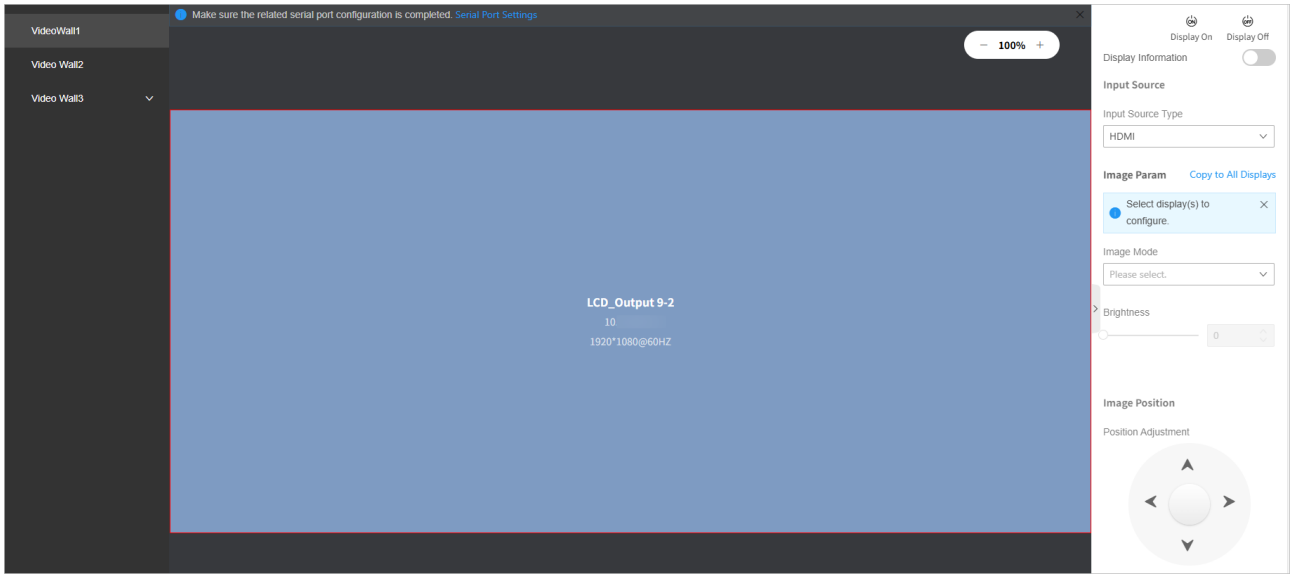

Figure 8-4 Control LCD Screen via Serial Port

Control Screens via HDMI Ports

Step 1 Use multiple HDMI cables to connect the multiple screens to the device. Make sure all connected screens support and are enabled with the control linkage function.

Step 2 Navigate to **Display Maintenance** → **Target Video Wall** and select a screen.

Step 3 Select an image mode and adjust the backlight.

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

- Enable display information to show the software version, work duration and device temperature on all screens.
- Power on the connected screens through the HDMI cables:
  - The LCD screens are powered on after you click **Display On**.
  - The LED screens exit the sleep mode after you click **Display On**.
- Power off the connected screens through the HDMI cables:
  - The LCD screens are powered off after you click **Display Off**.
  - The LED screens enter the sleep mode after you click **Display Off**.
- Click **Copy to All Displays** to copy the image parameters of the current screen to all screens.

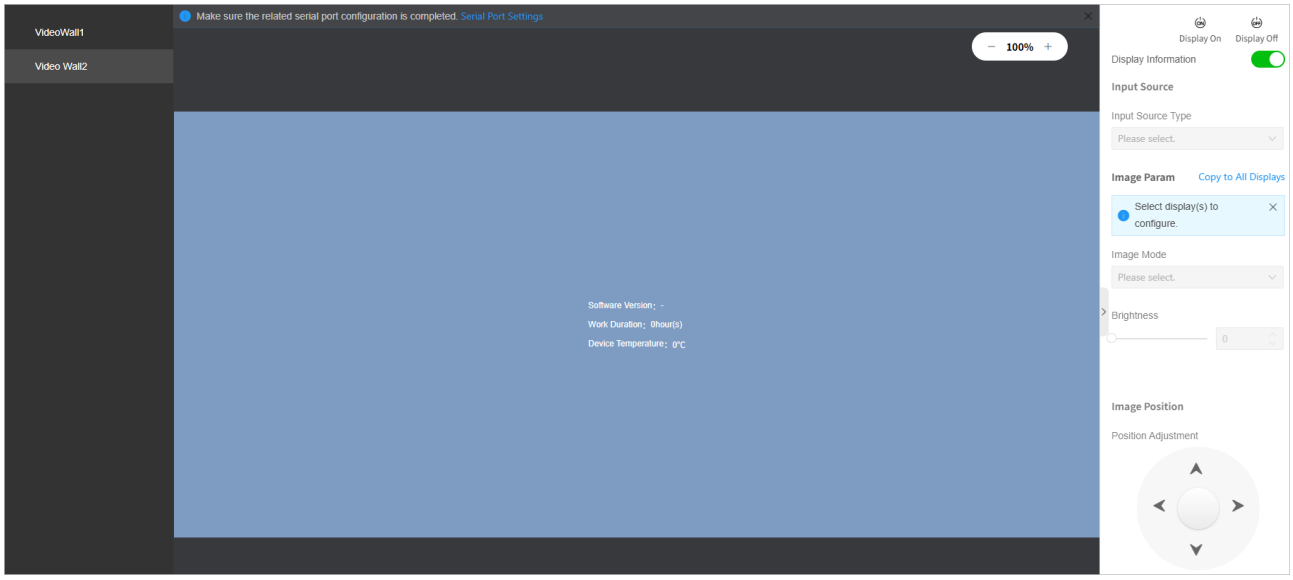

Figure 8-5 Show Screen Information

8.1.3 Maintain the System

- Navigate to **Maintenance and Security** → **System Maintenance** → **Restart**, and restart the following devices as required:
  - Click **Restart** to restart the device.
  - Select an LED controller board and click **Restart** to restart the receiving cards that are controlled by the selected LED controller board.

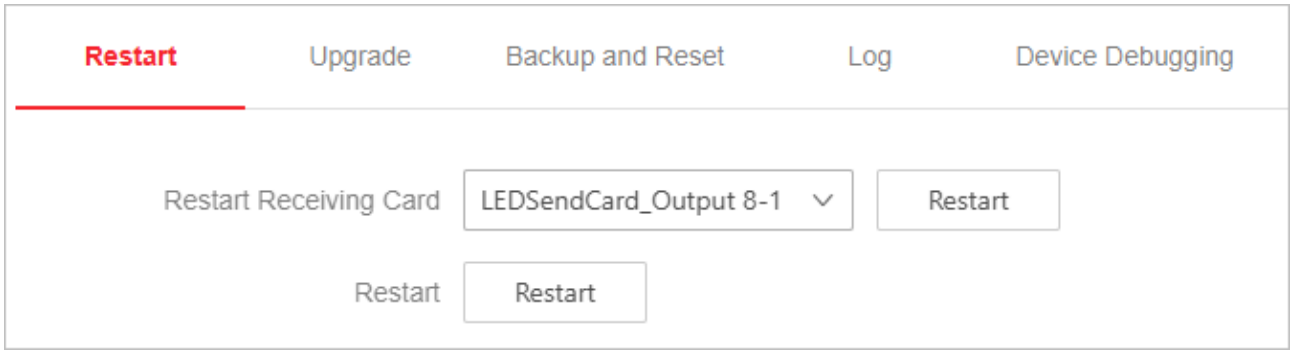

Figure 8-6 Restart Page

- Navigate to **Maintenance and Security** → **System Maintenance** → **Upgrade**, and upgrade the following devices as required:
  - Upgrade the device: Click to select an upgrade file of the device, and click **Upgrade**.
  - Upgrade all LED controller boards in the device: In the **Upgrade Device** area, click to select an upgrade file of the LED controller board, and click **Upgrade**.
  - Upgrade a receiving card: Select an LED controller board, click to select an upgrade file of the receiving card, and click **Upgrade**.

Note

You need to get the upgrade file in advance and save it locally.

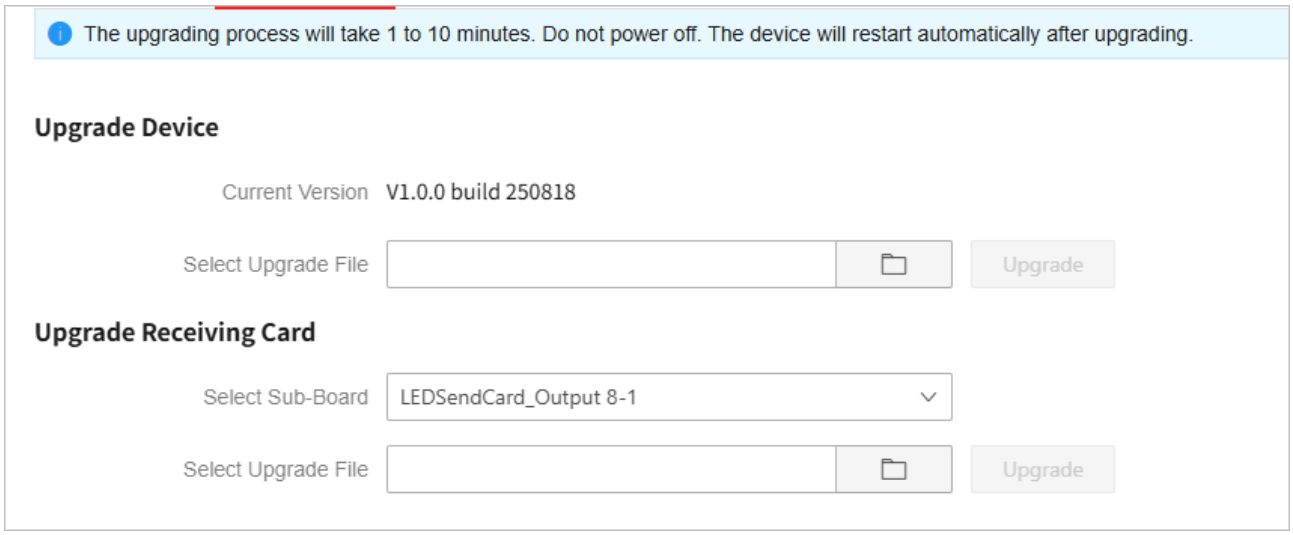

Figure 8-7 Upgrade Page

- Navigate to **Maintenance and Security** → **System Maintenance** → **Backup and Reset**, and back up the following parameters:
  - Select an LED controller board and click **Export** to export the debug file of the receiving cards that are controlled by the selected LED controller board.
  - Select an LED controller board and click **Export** to export the configuration file of the receiving cards that are controlled by the selected LED controller board.
  - Select an LED controller board and click **Export** to export the configuration file of the selected LED controller board.
  - Click **Export** to export the device parameters.
  - Click **Export** to export the scene parameters.
- On the **Backup and Reset** page, import the following parameters:
  - Select an LED controller board, click to select a configuration file of the LED controller board, and click **Import**.
  - Click to select a device parameter file, and click **Import**.
  - Click to select a scene parameter file, and click **Import**.
- On the **Backup and Reset** page, reset the device:
  - Click **Restore Default** to restore the parameters except for user information and network parameters to the default settings. Please use this function with caution.
  - Click **Restore Factory** to restore all functions and parameters of the device to the factory settings. Please use this function with caution.

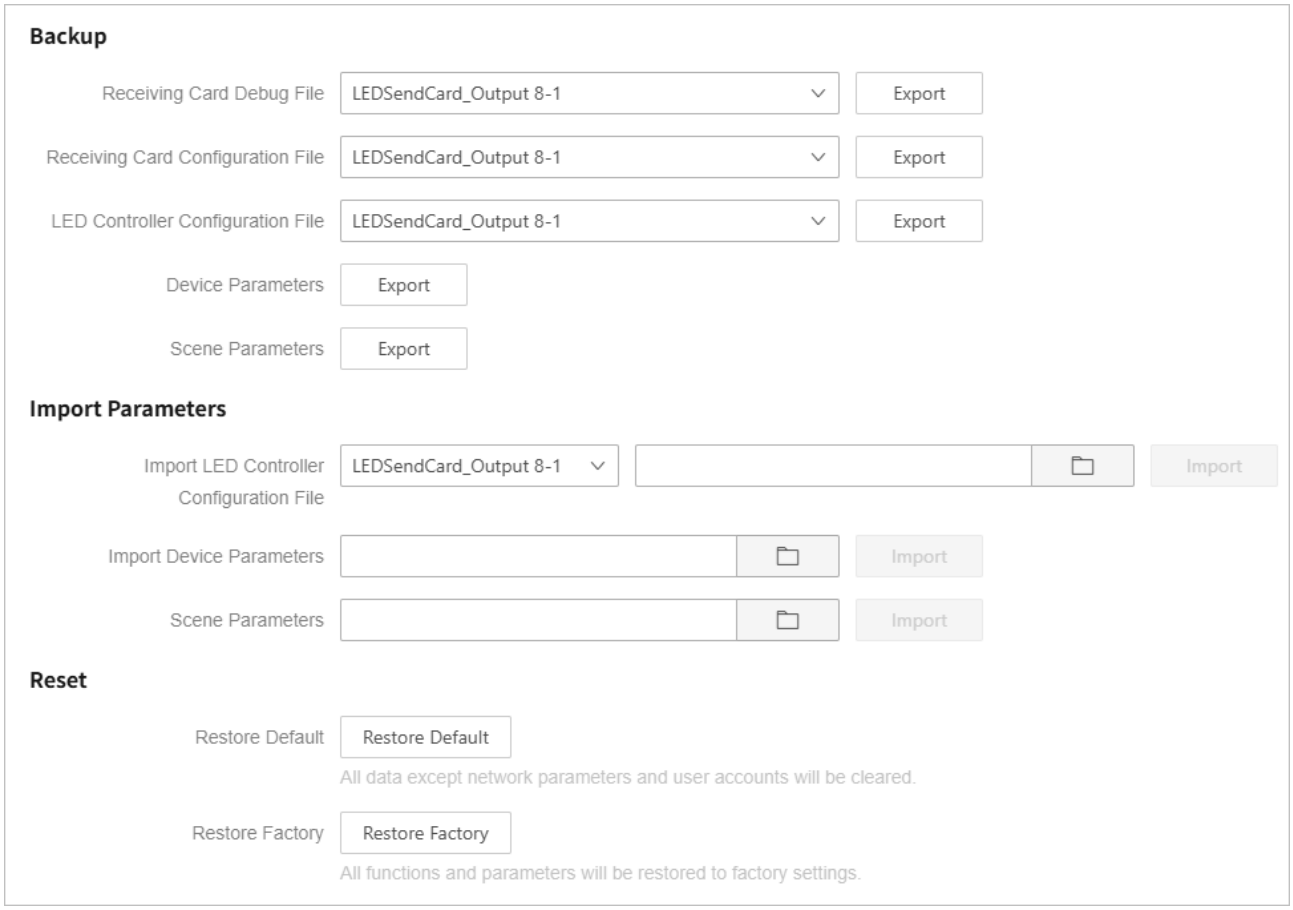

Figure 8-8 Backup and Reset Page

- Navigate to **Maintenance and Security** → **System Maintenance** → **Log**, set the search condition and click **Search**. You can view the searched logs in the list below and export the logs as required.

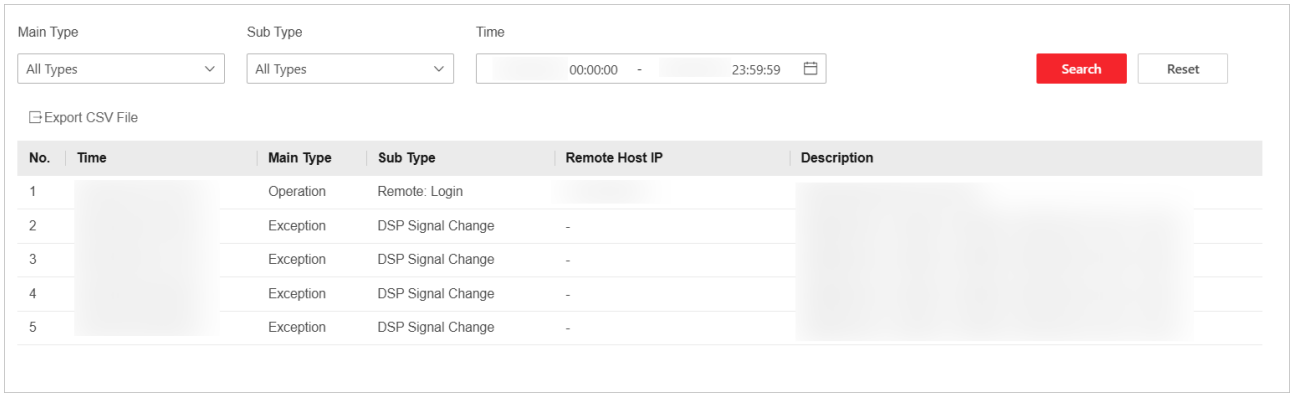

Figure 8-9 Search Logs

- Navigate to **Maintenance and Security** → **System Maintenance** → **Device Debugging**, and configure the following parameters as required:
  - Enable SSH (Secure Shell), enter the port number and click **Save**. With SSH enabled, you can use a computer installed with the SSH client to access the device.
  - Click **Export** to export the device information.

- Click **Start** to start the device self-check.
- Select the subsystem and initiate network packet capture. Once the capture is complete, the packet file can be downloaded.
- Open the terminal and enter the specific Shell commands.

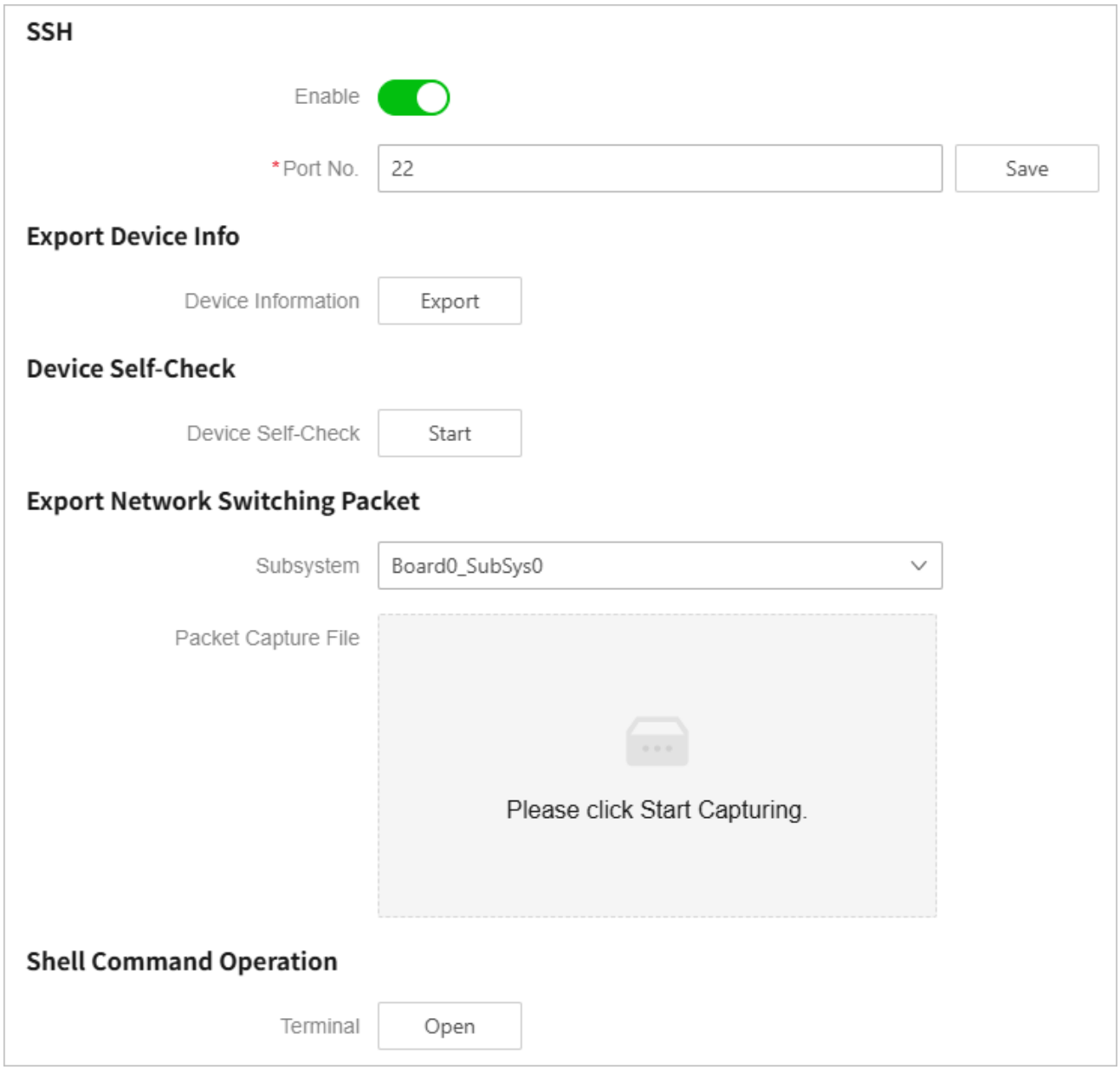

Figure 8-10 Debug the Device

8.1.4 Maintain the Device Security

Navigate to **Maintenance and Security** → **Security Management** to configure the following parameters:

- On the **IP Address Filter** page, configure the IP addresses that are allowed to or forbidden to access the device.

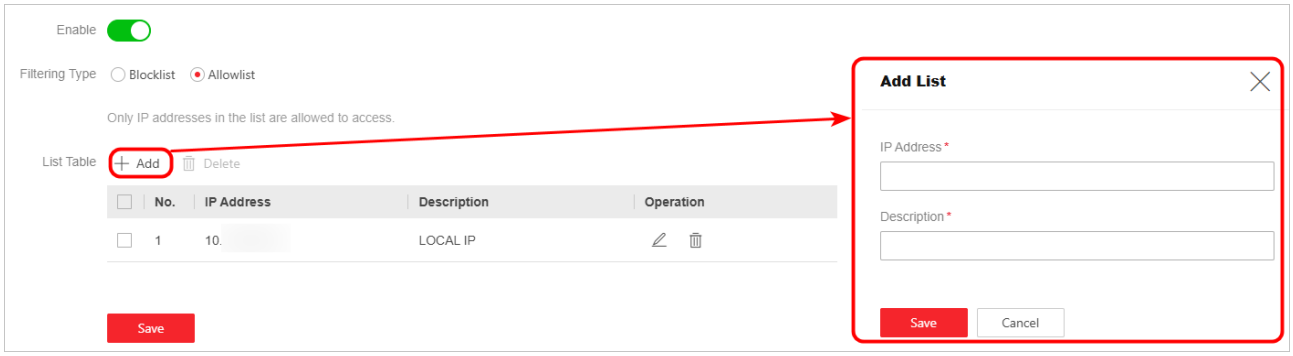

Figure 8-11 Configure IP Address Filter

- On the **HTTPS Certificate** page, import the locally saved HTTPS certificate and secret key.

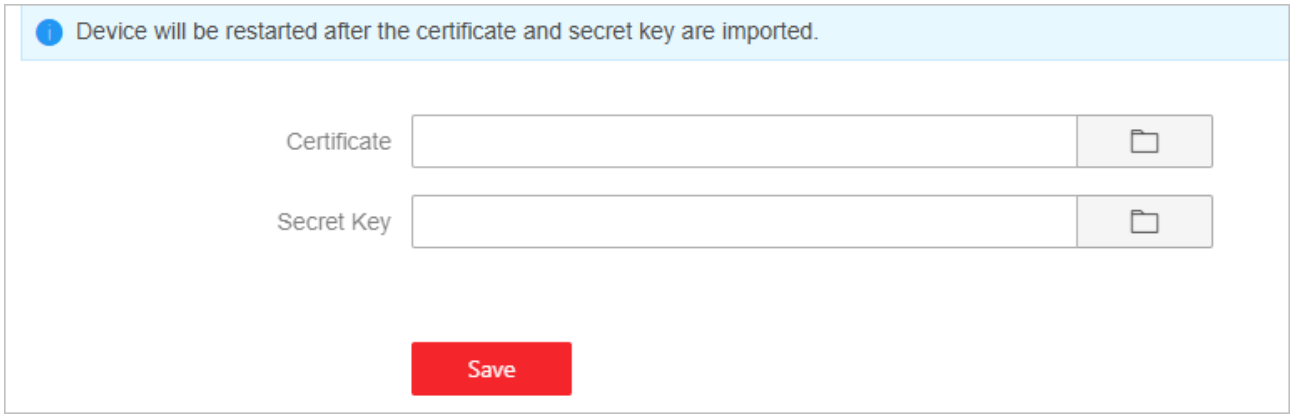

Figure 8-12 Import HTTPS Certificate and Secret Key

- On the **SADP** page, enable SADP as required. With SADP enabled, you can use the SADP software to search the online device that is in the same network segment with the computer.
- On the **Syslog** page, enable Syslog as required. With Syslog enabled, the device logs can be uploaded to the Syslog server.

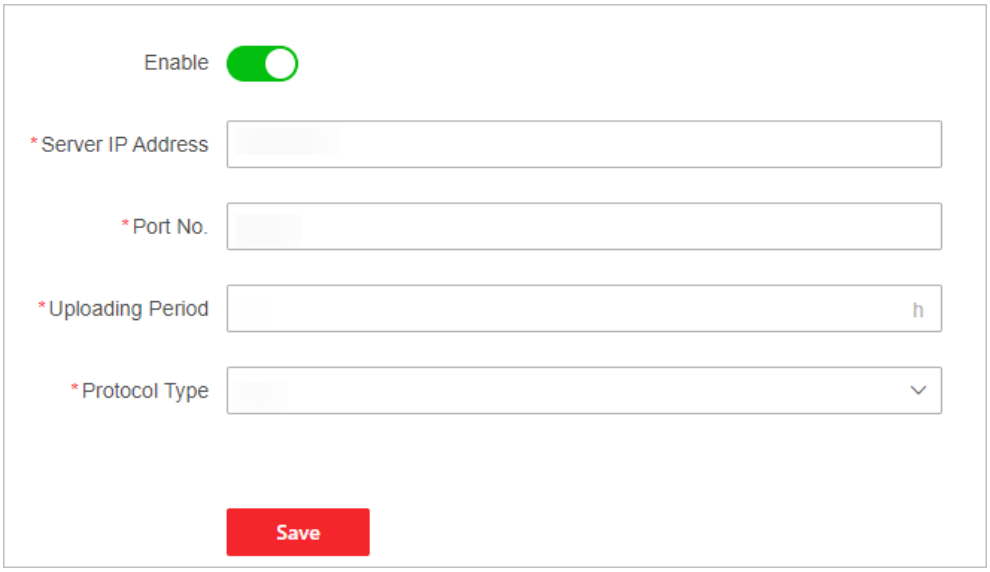

Figure 8-13 Enable Syslog

- On the **Websocket** page, enable Websocket as required. With Websocket enabled, you can export stream.

8.2 Device Maintenance via Front Panel

View Status

After completing the web configuration, you can check the overall device status and board status in real-time via the front panel.

- Click on specific components or boards to view detailed information.
- Click ⇆ to view specific parameter values.

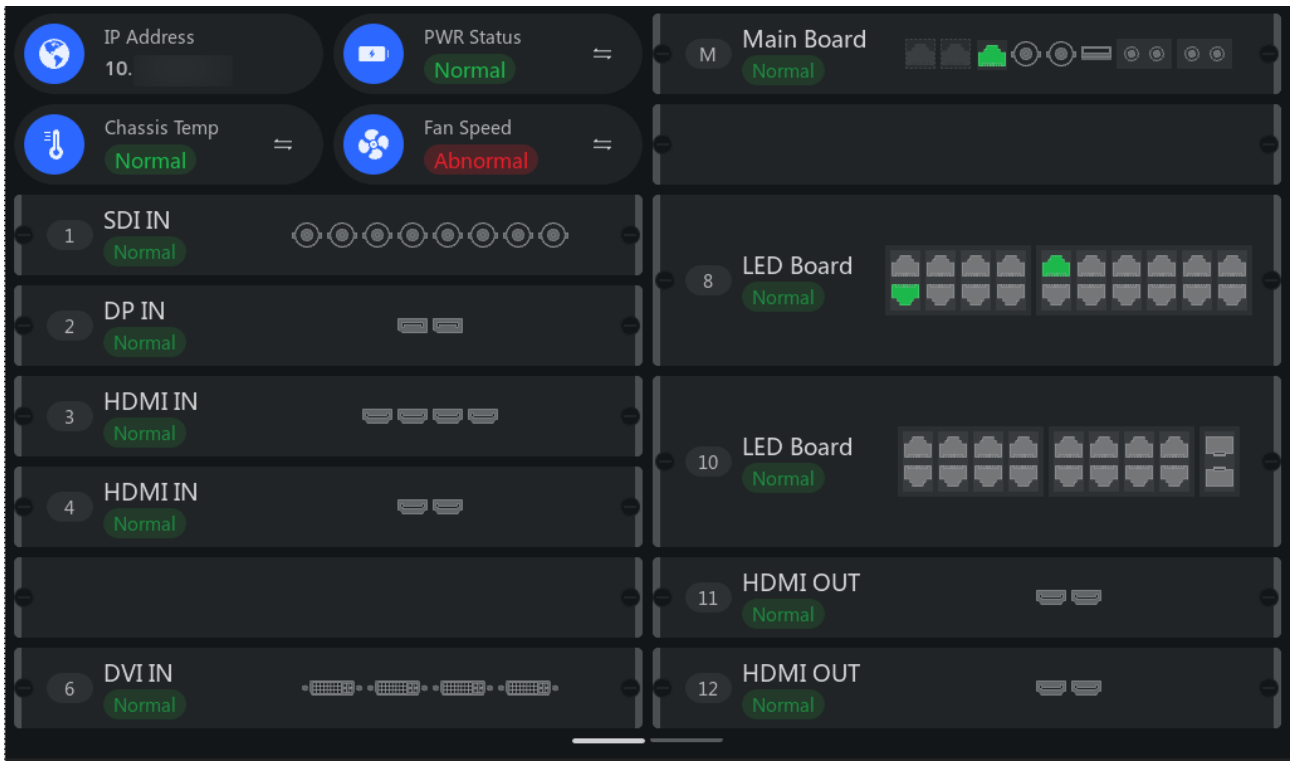

Figure 8-14 Front Panel Page 1

Switch Scenes

Step 1 Swipe left on the front panel to switch to the function page.

Step 2 After creating scenes on the web page, click the specific scene name on the front panel.

The display will show the selected scene.

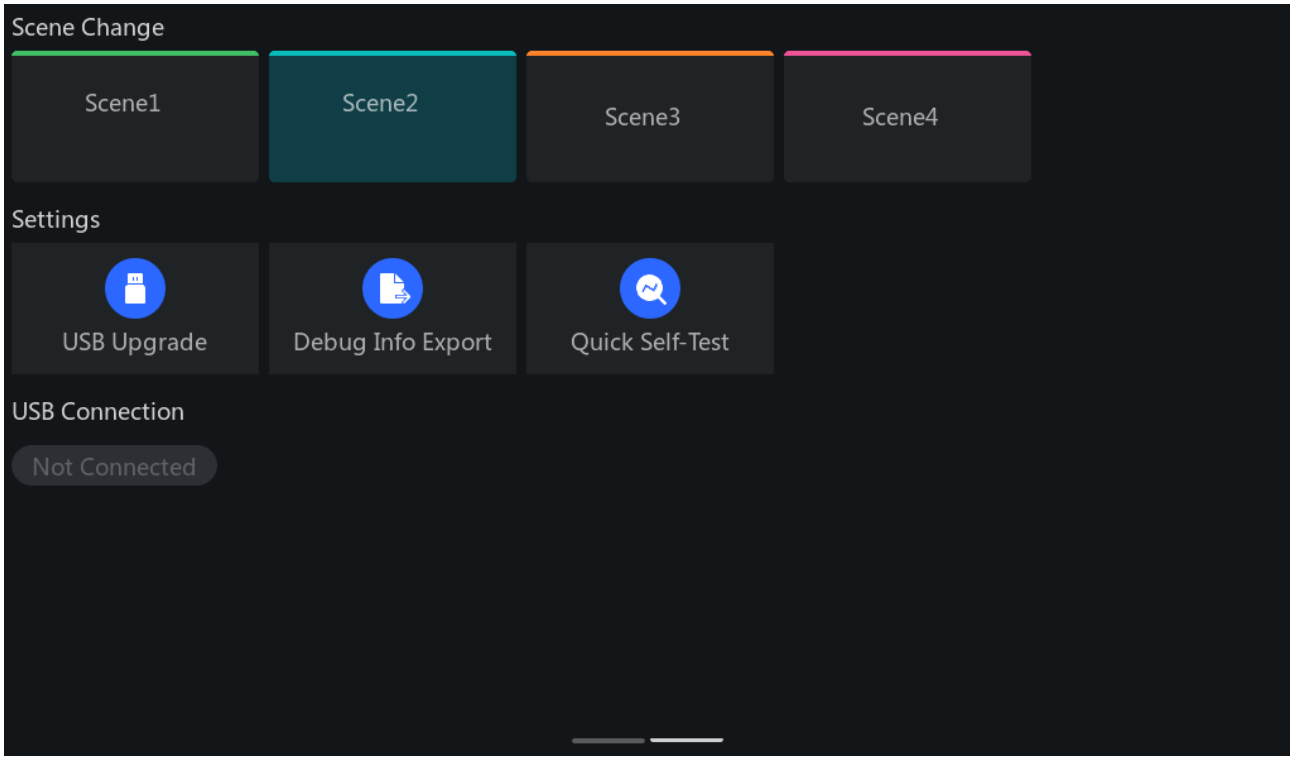

Figure 8-15 Front Panel Page 2

Operate USB Drive

- Upgrade the device using a USB drive: Insert the USB drive into the USB port on the front panel and click **USB Upgrade**.
- Export debugging information to a USB drive: Insert the USB drive into the USB port on the front panel and click **Debug Info Export**.
- Quick self-test: Insert the USB drive into the USB port on the front panel and click **Quick Self-test**. The device will automatically detect faults and generate a report, which will be saved to the USB drive.

Security Lock

If the front panel is inactive for a long time, the system will automatically lock. Manually click the unlock button on the front panel to unlock.

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