# LED Controller

User Manual

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# Preface

## Applicable Models

This manual is applicable to the LED controllers of C series, V series, and P series.

## Default Parameters

| Type | Default Parameter |
|---|---|
| LED Controller (C series, V series, and P series) | • Login user name: admin<br>• IP address: 192.0.0.64 |

**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.

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# Chapter 1 Introduction

## 1.1 Overview

The LED controller (hereinafter referred to as the device) is designed to control the full-color LED display (hereinafter referred to as the display). It is suitable for various scenarios such as meeting rooms, broadcasting studios, stadiums, airports, stations, banks, advertising locations, and home theaters. By connecting to the display, the device can efficiently manage and control the display and seamlessly splice the display cabinets.

The supported device series includes:

- DS-DT90 series (ultra 4K resolution): C/V/P models.
- DS-DT60 series (2K/4K resolution): C/V/P models.
- DS-DT30 series (2K resolution): P models.

**Note**

Different versions exist within each LED controller series, and the content presented in this document is based on the latest version as an example.

## 1.2 First-Time Configuration Process

All devices support web interface and OSD interface, while the P models additionally support the GUI interface. The functionality of the web interface varies by device series and model. This section uses the most comprehensive configuration process as an example for illustration.

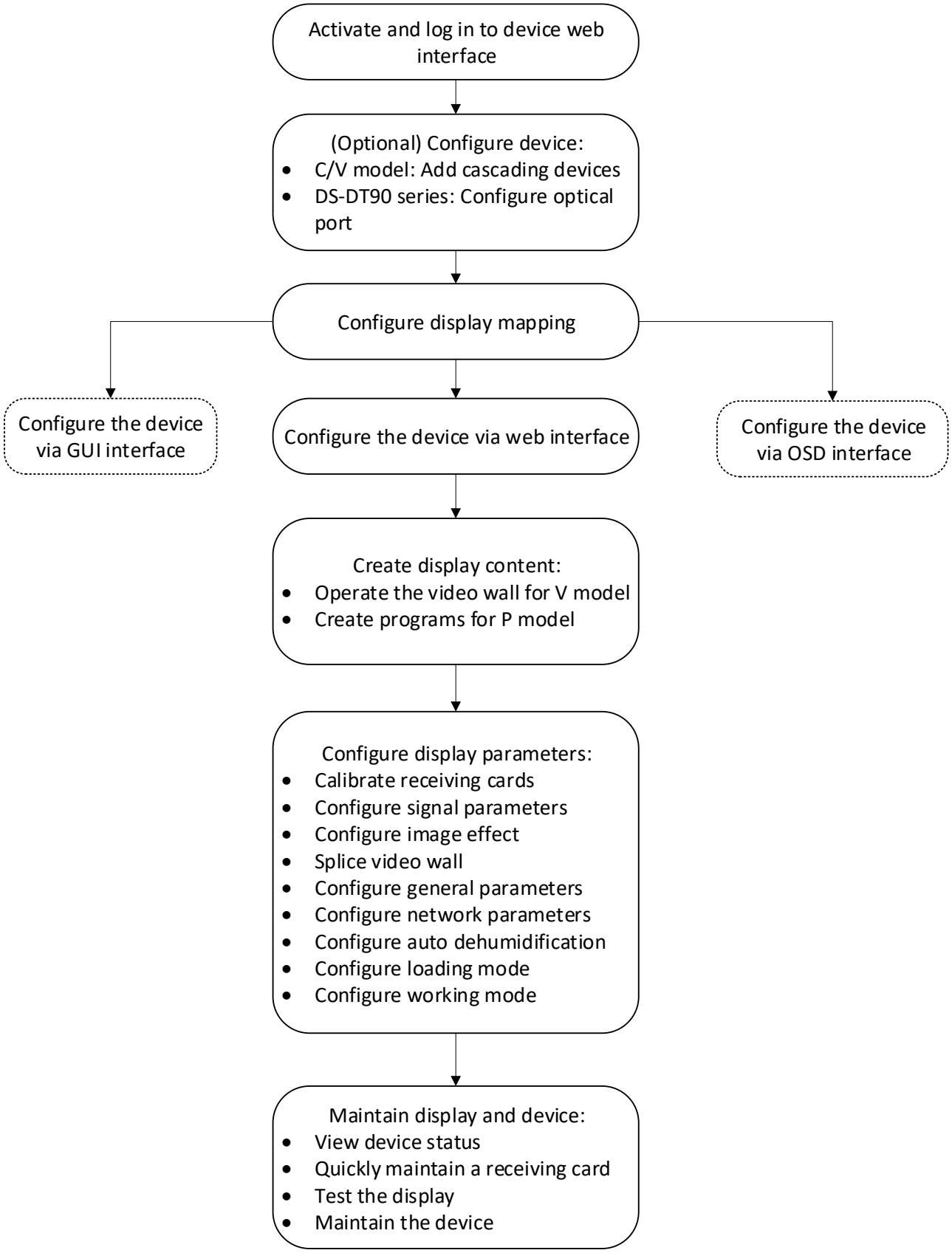



Figure 1-1 First-Time Configuration Process

## 1.3 Device Function Comparison (Web Interface)

The supported functions vary by the device type.

**DS-DT90 Series LED Controller**

Table 1-1 Supported Functions of DS-DT90 Series LED Controller

<table>
<tr><th colspan="4" rowspan="2">Function on Web Interface</th><th colspan="3">DT90 Series</th></tr>
<tr><th>C</th><th>V</th><th>P</th></tr>
<tr><td colspan="4">Overview</td><td colspan="3">√</td></tr>
<tr><td colspan="4">Device List</td><td>√</td><td>√</td><td></td></tr>
<tr><td colspan="4">Display Mapping</td><td colspan="3">√</td></tr>
<tr><td colspan="4">Video Wall Configuration</td><td>√</td><td></td><td></td></tr>
<tr><td colspan="4">Video Wall Operation</td><td></td><td>√</td><td></td></tr>
<tr><td colspan="4">Playback Control</td><td></td><td></td><td>√</td></tr>
<tr><td rowspan="3">Display Maintenance</td><td colspan="3">LED Controller Status</td><td colspan="3" rowspan="3">√</td></tr>
<tr><td colspan="3">Receiving Card Quick Maintenance</td></tr>
<tr><td colspan="3">Display Test</td></tr>
<tr><td rowspan="15">Configuration</td><td rowspan="3">System</td><td rowspan="2">System Configuration</td><td>Basic Info</td><td colspan="3" rowspan="3">√</td></tr>
<tr><td>Time Settings</td></tr>
<tr><td colspan="2">Serial Port Configuration</td></tr>
<tr><td rowspan="6">Network</td><td rowspan="4">Network Settings</td><td>Wi-Fi</td><td></td><td></td><td>√</td></tr>
<tr><td>Bluetooth</td><td></td><td></td><td>√</td></tr>
<tr><td>Hot Spot</td><td></td><td></td><td>√</td></tr>
<tr><td>TCP/IP</td><td colspan="3">√</td></tr>
<tr><td rowspan="2">Device Access</td><td>OTAP</td><td></td><td></td><td>√</td></tr>
<tr><td>Cloud Service</td><td></td><td></td><td>√</td></tr>
<tr><td colspan="3">Signal Configuration</td><td colspan="3">√</td></tr>
<tr><td colspan="3">Display Effect</td><td colspan="3">√</td></tr>
<tr><td rowspan="2">Customization</td><td colspan="2">Startup Image</td><td colspan="3">√</td></tr>
<tr><td colspan="2">No Signal Image</td><td colspan="3">√</td></tr>
</table>

| Function on Web Interface | | | DT90 Series | | |
|---|---|---|---|---|---|
| | | | C | V | P |
| | | Font Settings | | √ | |
| | Environment and Alarm | | √ | | |
| | Storage Management | | | | √ |
| | Hot Standby | LED Controller Hot Standby | √ | √ | |
| | | Data Port Backup | √ | | |
| | OSD Configuration | | √ | | |
| | Dehumidification | | √ | | |
| | Schedule | Scheduled Display On/Off | √ | | |
| | | Timed Brightness Adjustment | | | |
| | Receiving Card Calibration | | √ | | |
| | Loading Mode | | √ | | |
| | Optical Port Configuration | | √ | | |
| Maintenance and Security | Restart | | √ | | |
| | Upgrade | | | | |
| | Backup and Reset | | | | |
| | Log | | | | |
| | Device Debugging | | | | |
| | Permission Management | | | | |

**DS-DT60 Series LED Controller**

Table 1-2 Supported Functions of DS-DT60 Series LED Controller

| Function on Web Interface | DT60 Series | | |
|---|---|---|---|
| | C | V | P |
| Overview | √ | | |
| Device List | √ | √ | |
| Display Mapping | √ | | |

| Function on Web Interface | | | | DT60 Series | | |
|---|---|---|---|---|---|---|
| | | | | C | V | P |
| Video Wall Configuration | | | | √ | | |
| Video Wall Operation | | | | | √ | |
| Playback Control | | | | | | √ |
| Display Maintenance | LED Controller Status | | | √ | | |
| | Receiving Card Quick Maintenance | | | | | |
| | Display Test | | | | | |
| Configuration | System | System Configuration | Basic Info | √ | | |
| | | | Time Settings | √ | | |
| | | Serial Port Configuration | | √ | | |
| | Network | Network Settings | Wi-Fi | | | √ |
| | | | Bluetooth | | | √ |
| | | | Hot Spot | | | √ |
| | | | TCP/IP | √ | | |
| | | Device Access | OTAP | | | √ |
| | | | Cloud Service | | | √ |
| | Signal Configuration | | | √ | | |
| | Display Effect | | | √ | | |
| | Customization | Startup Image | | √ | | |
| | | No Signal Image | | √ | | |
| | | Font Settings | | | √ | |
| | Environment and Alarm | | | √ | | |
| | Storage Management | | | | | √ |
| | Hot Standby | LED Controller Hot Standby | | √ | √ | |
| | | Data Port Backup | | √ | | |
| | OSD Configuration | | | √ | | |

| Function on Web Interface | | | DT60 Series | | |
|---|---|---|---|---|---|
| | | | C | V | P |
| | Dehumidification | | √ | | |
| | Schedule | Scheduled Display On/Off | √ | | |
| | | Timed Brightness Adjustment | √ | | |
| | Splicing by LED Controller | | | √ | |
| | Receiving Card Calibration | | √ | | |
| | Loading Mode | | √ | | |
| | Working Mode | | | √ | √ |
| Maintenance and Security | Restart | | √ | | |
| | Upgrade | | | | |
| | Backup and Reset | | | | |
| | Log | | | | |
| | Device Debugging | | | | |
| | Permission Management | | | | |

**DS-DT30 Series LED Controller**

Table 1-3 Supported Functions of DS-DT30 Series LED Controller

| Function on Web Interface | | | | DT30 Series |
|---|---|---|---|---|
| | | | | P |
| Overview | | | | √ |
| Display Mapping | | | | √ |
| Playback Control | | | | √ |
| Display Maintenance | LED Controller Status | | | √ |
| | Receiving Card Quick Maintenance | | | √ |
| | Display Test | | | √ |
| Configuration | System | System Configuration | Basic Info | √ |
| | | | Time Settings | √ |

| Function on Web Interface | | | | DT30 Series |
|---|---|---|---|---|
| | | | | P |
| | | Serial Port Configuration | | √ |
| | Network | Network Settings | Wi-Fi | √ |
| | | | Hot Spot | √ |
| | | | TCP/IP | √ |
| | | Device Access | OTAP | √ |
| | | | Cloud Service | √ |
| | Signal Configuration | | | √ |
| | Display Effect | | | √ |
| | Customization | Startup Image | | √ |
| | | No Signal Image | | √ |
| | Environment and Alarm | | | √ |
| | Storage Management | | | √ |
| | Hot Standby | Data Port Backup | | √ * |
| | OSD Configuration | | | √ |
| | Dehumidification | | | √ |
| | Schedule | Scheduled Display On/Off | | √ |
| | | Timed Brightness Adjustment | | √ |
| | Receiving Card Calibration | | | √ |
| Maintenance and Security | Restart | | | √ |
| | Upgrade | | | √ |
| | Backup and Reset | | | √ |
| | Log | | | √ |
| | Device Debugging | | | √ |
| | Permission Management | | | √ |

**Note**

DS-DT30 series LED controllers include single-NIC (network interface) and dual-NIC versions. Data port backup is supported only on dual-NIC devices.

# Chapter 2 Prerequisite Configuration

## 2.1 Activate and Log In to the Device

You should activate the device before using the device for the first time. 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, 4 or more continuously ascending or descending digits, or 4 or more consecutive repeated characters.
- The password cannot be 1qaz2wsx, 1qaz@WSX, !@#$QWER, p@ssword, passw0rd, or p@ssw0rd.

**Activate the Device via SADP Client**

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.

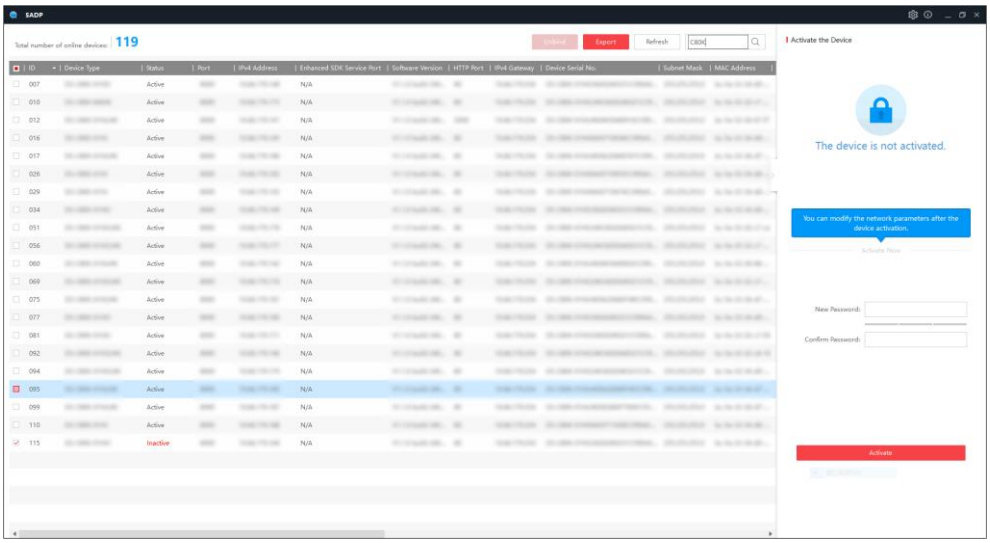



Figure 2-1 Activate the Device via SADP Client

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**.

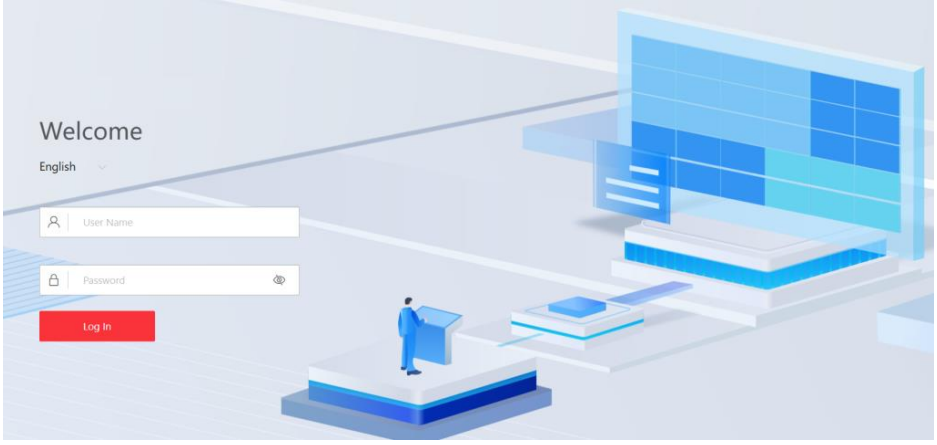



Figure 2-2 Login Page

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

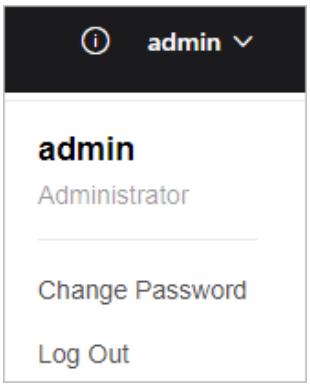



Figure 2-3 Change Password

**Activate the Device via Web Browser**

**Note**

- Supports only Chrome, Edge, Firefox, and Safari browsers. The Internet Explorer browser is not supported.
- Make sure the computer and device are in the same subnet.
- For the C or V devices, activate and log in to any one C or V device and then add other devices of the same series for activation and management through the logged in device.

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**.

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

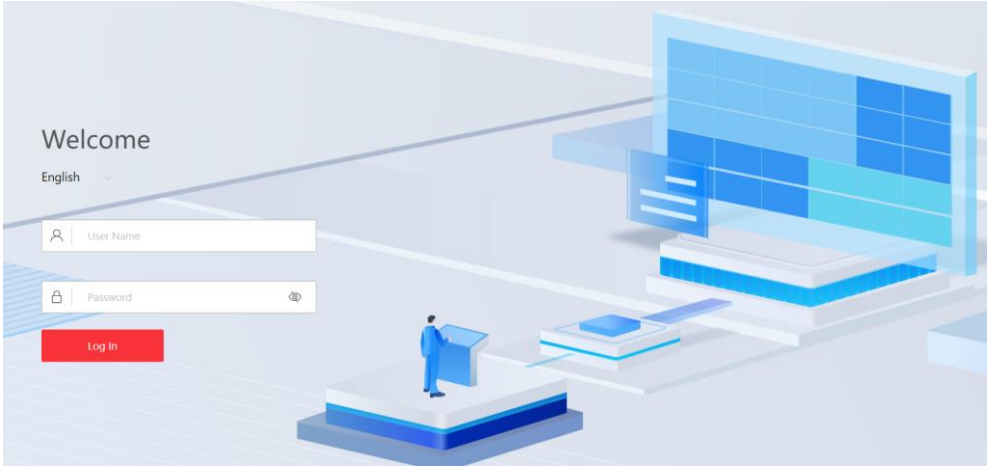



Figure 2-4 Login Page

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

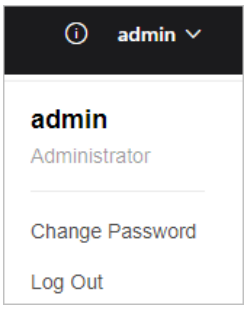



Figure 2-5 Change Password

Step 7 Remove the network cable that connects the device and computer, use the network cable to connect the device to the on-site network, and connect the computer to the on-site network through network cable or Wi-Fi.

After joining the on-site network, the device will be assigned with a new IP address automatically.

Step 8 Enter the new IP address of device in the web browser of the computer to log in to the web interface of the device.

## 2.2 Add Cascading Devices

**Note**

- Only C and V devices support cascading.
- DT30 series C and V devices do not support cascading.

Step 1 Use network cables to connect other devices of the same series to the same on-site network as the first device. Make sure those devices are in the same subnet.

Step 2 Navigate to **Device List**.

Step 3 Expand the searched device list and then activate the searched devices.

1) Select the unactivated devices, and then click **Activate**.
2) Enter the device login password and confirm password, and then click **Save**.

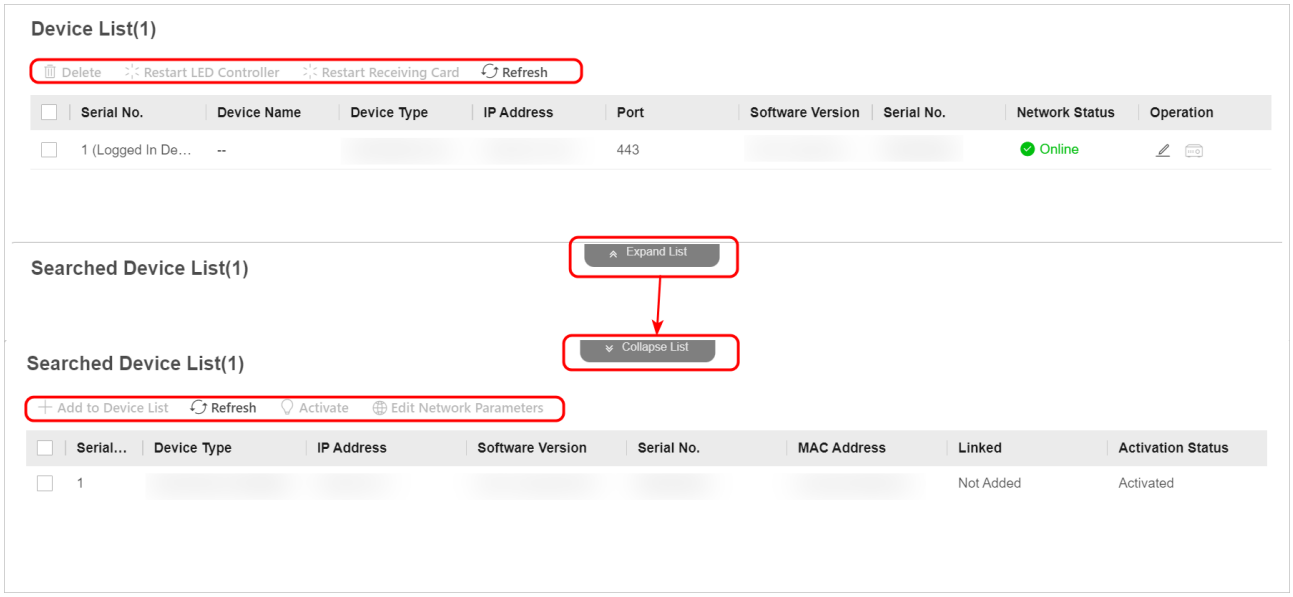



Figure 2-6 Device List Page

Step 4 Select one or multiple activated devices and then click **Add to Device List**. Then you can manage the newly added devices.

To batch add multiple activated devices, make sure the usernames and passwords of those devices are the same.

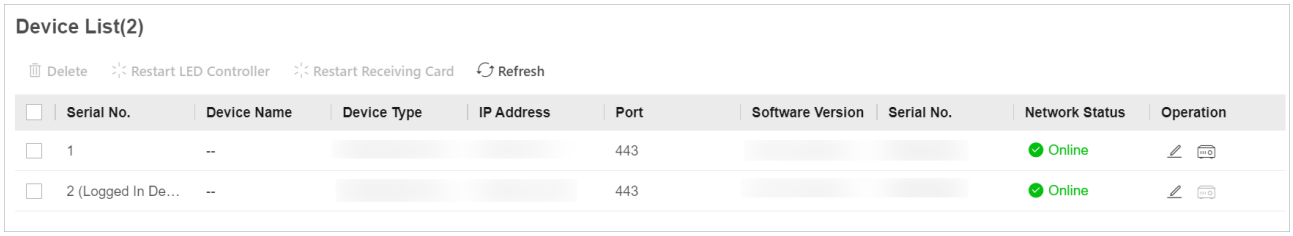



Figure 2-7 Manage Added Devices

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

- Select one or multiple activated devices and then click **Edit Network Parameters**.
- Click **Refresh** to refresh the device list or searched device list.
- Select one or multiple online devices and then click **Restart LED Controller**.
- Select one or multiple online devices and then click **Restart Receiving Card**.
- Click of an online device to edit its device parameters. If you enable **Sync Device Time**, the device time will be synchronized with the computer time.
- Click of an online device to access the web interface of this device.
- Select one or multiple added device and click **Delete**.

## 2.3 (Optional) Configure Optical Port

Only DT90 series LED controllers support optical port configuration. When using two DT90 series LED controllers for long-distance transmission, configure optical port mode based on the actual number of connected screens.

**Single-Screen Configuration**

Step 1 Connect the computer, two LED controllers and a single screen:

1) Use an Ethernet cable to connect the computer to the LAN port of LED controller A.
2) Use multiple Ethernet cables to connect the DATA OUT ports of LED controller B to the LED display.

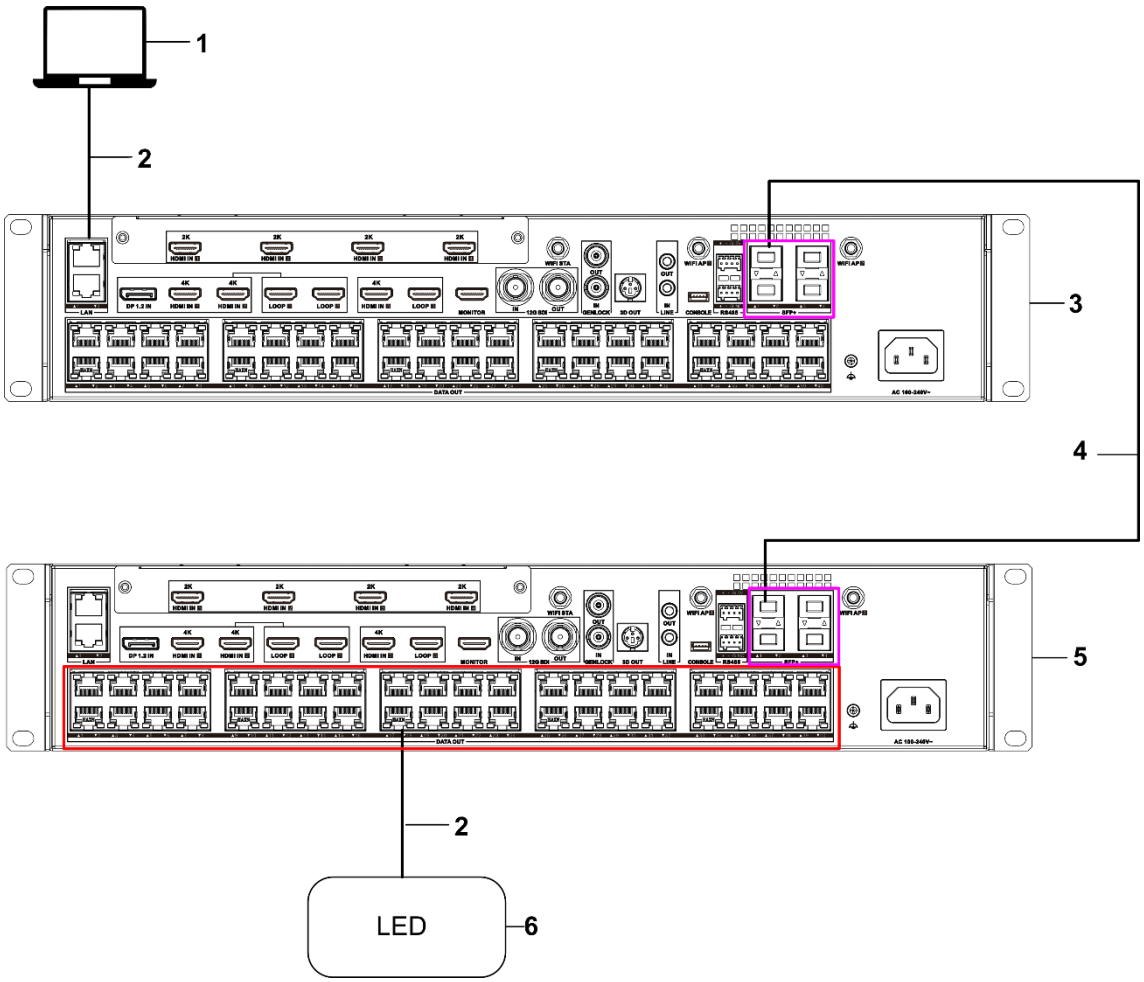



Figure 2-8 Single-Screen Connection Topology

| | | |
|---|---|---|
| 1. Computer | 2. Ethernet cable | 3. LED controller A |
| 4. Fiber optic cable | 5. LED controller B | 6 LED display |

Step 2 Determine the required quantity of fiber optic cables based on the mapping between cabinets and DATA OUT ports. When interconnecting two identical LED controllers via fiber, connect SFP+ ports with matching port numbers.

Table 2-1 SFP+ Port Mapping

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

Step 3 Add the LED controllers in the computer and configure the following parameters as required:

- LED controller A (computer-connected): It uses optical port transmit mode by default. No additional setup is required.
- LED controller B (display-connected): Navigate to **Configuration** → **Optical Port Configuration**, and select **Optical Port Receive Mode**.

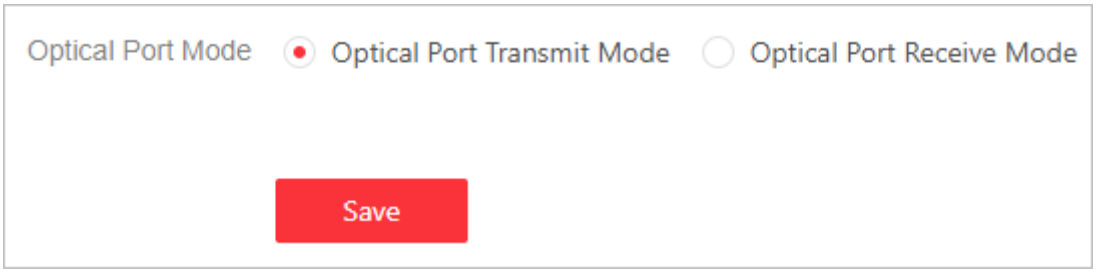



Figure 2-9 Configure Optical Port Mode

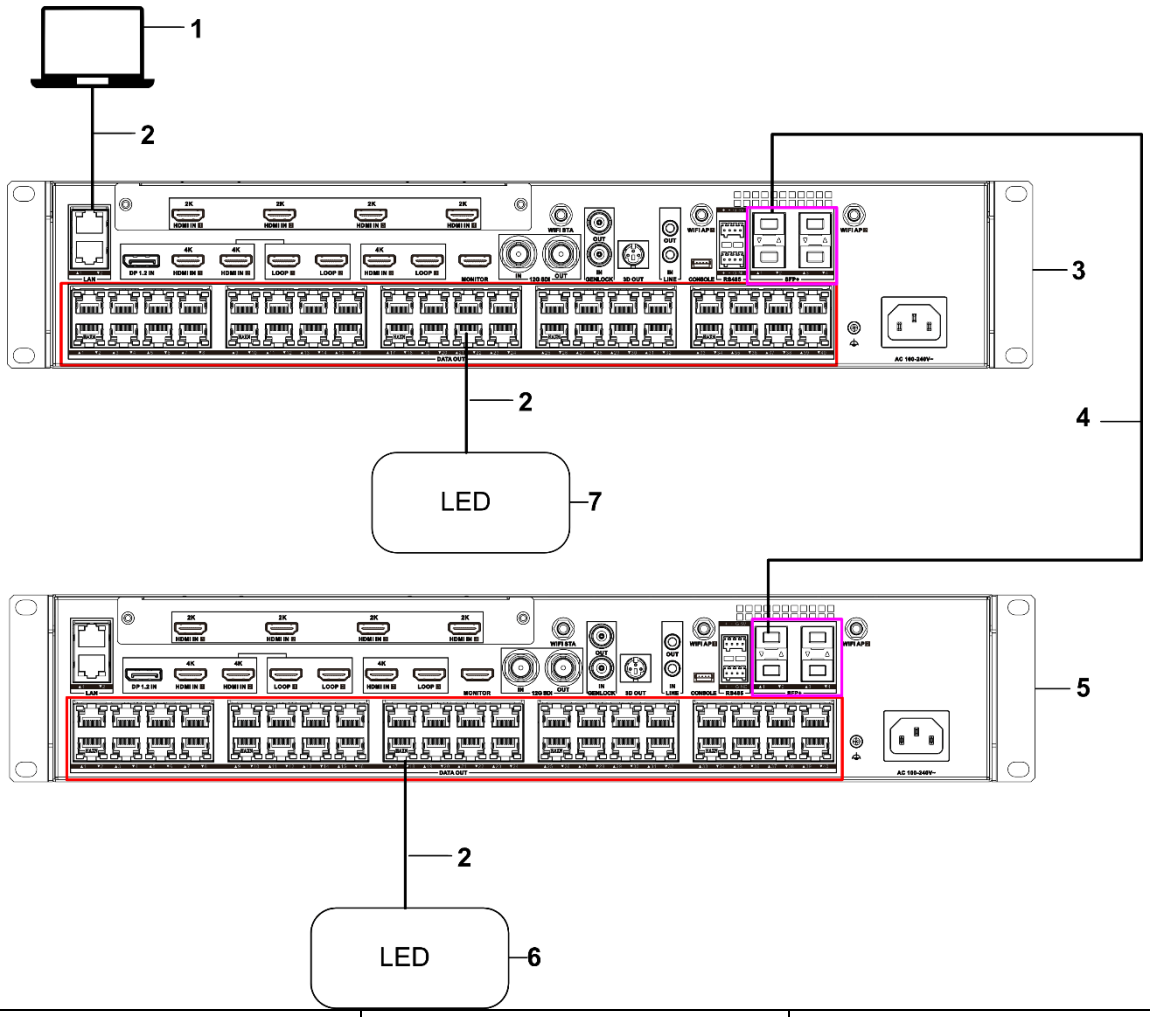
**Note**

After configuring the display mapping parameters, to display video on the LED screen, ensure the video cable is connected to the LED controller in optical port transmit mode.

**Dual-Screen Configuration**

Step 1 Connect the computer, two LED controllers and two screens:

1) Use an Ethernet cable to connect the computer to the LAN port of LED controller A.
2) Use multiple Ethernet cables to connect the DATA OUT ports of LED controller A to the LED display 1.
3) Use multiple Ethernet cables to connect the DATA OUT ports of LED controller B to the LED display 2.




| | | |
|---|---|---|
| 1. Computer | 2. Ethernet cable | 3. LED controller A |
| 4. Fiber optic cable | 5. LED controller B | 6 LED display 2 |
| 7. LED display 1 | | |

Step 2 Determine the required quantity of fiber optic cables based on the mapping between cabinets and DATA OUT ports. When interconnecting two identical LED controllers via fiber, connect SFP+ ports with matching port numbers.

Table 2-2 SFP+ Port Mapping

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

| SFP+ Port | DATA OUT Port Range | | |
|---|---|---|---|
| | 40-Port Device | 24-Port Device | 16-Port Device |
| SFP+ 4 | 31 to 40 | | |

Step 3 Add the LED controllers in the computer and configure the following parameters as required:

- LED controller A: Navigate to **Configuration** → **Optical Port Configuration**, and select a readback mode as required. The LED controller A uses optical port transmit mode by default.
  - To control the LED display 1, select **Local Display Readback**.
  - To control the LED display 2, select **Peer Display Readback**.
- LED controller B: Navigate to **Configuration** → **Optical Port Configuration**, and select **Optical Port Receive Mode**.

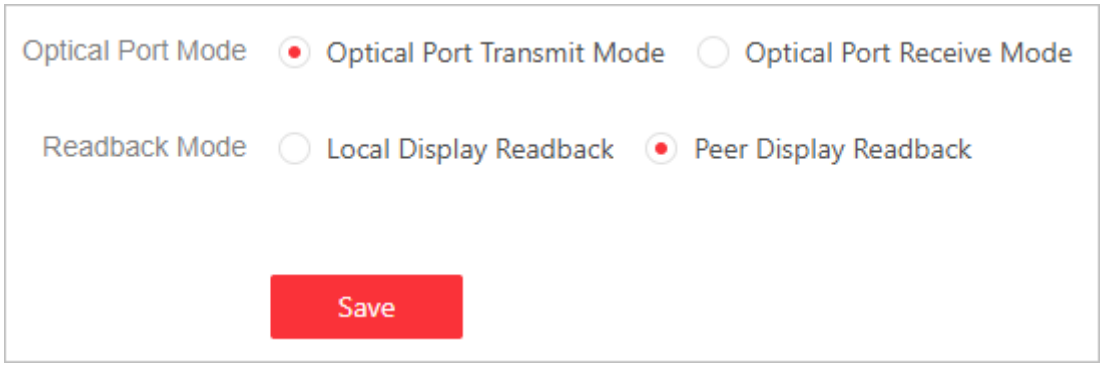



Figure 2-10 Configure Optical Port Mode

**Note**

After configuring the display mapping parameters, to display video on the LED screen, ensure the video cable is connected to the LED controller in optical port transmit mode.

## 2.4 Configure Display Mapping

- Configure display mapping via HUB receiving card:
  1) Import Cabinet Parameters
  2) Configure Display Mapping Parameters
- Configure display mapping via AXS receiving card:
  1) Import Cabinet Parameters
  2) Configure Display Mapping Parameters
  3) First Calibrate AXS Receiving Card

**Note**

- Display mapping can be configured via device's web interface, LED Tool client, or LED batch controller client. Web interface will require reconfiguration if mapping was previously configured through LED Tool client.
- Starting from V6.0, it is recommended to use the device's web interface or LED Tool client for operations.

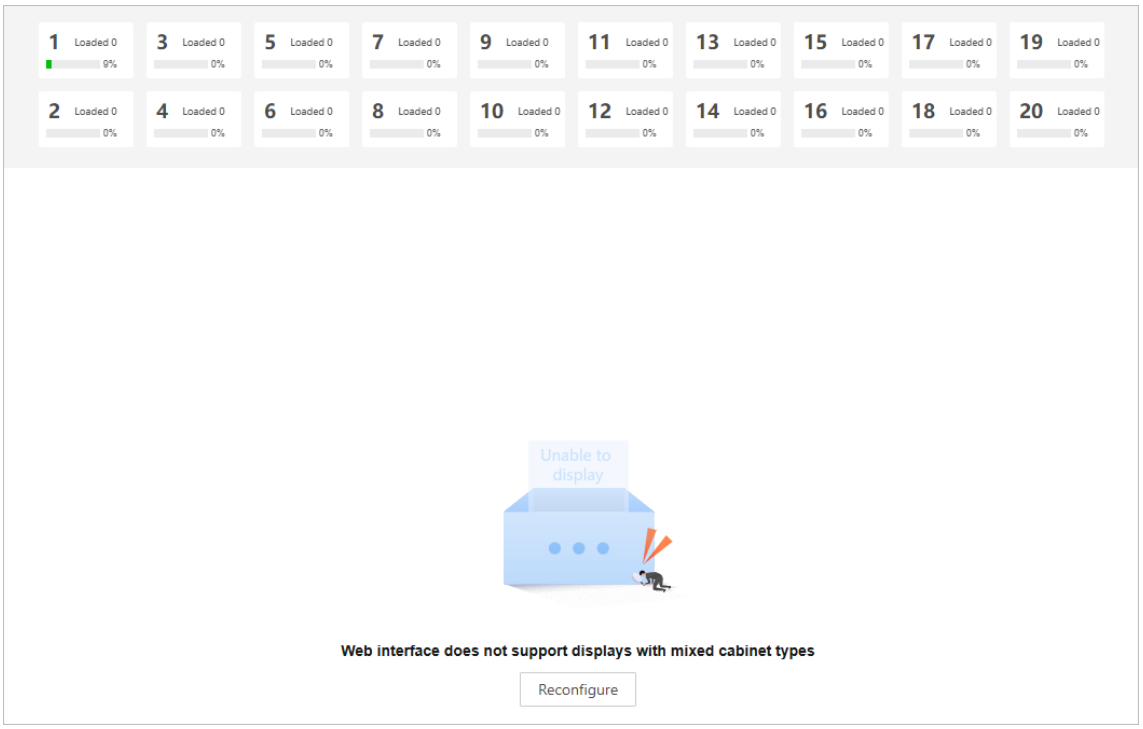



Figure 2-11 Reconfiguration Prompt on Display Mapping Page

## 2.4.1 Import Cabinet Parameters

Step 1 Navigate to **Display Mapping**.

Step 2 (Optional) Select a single C or V device.

Step 3 Choose any of the following methods to import the cabinet parameters:

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

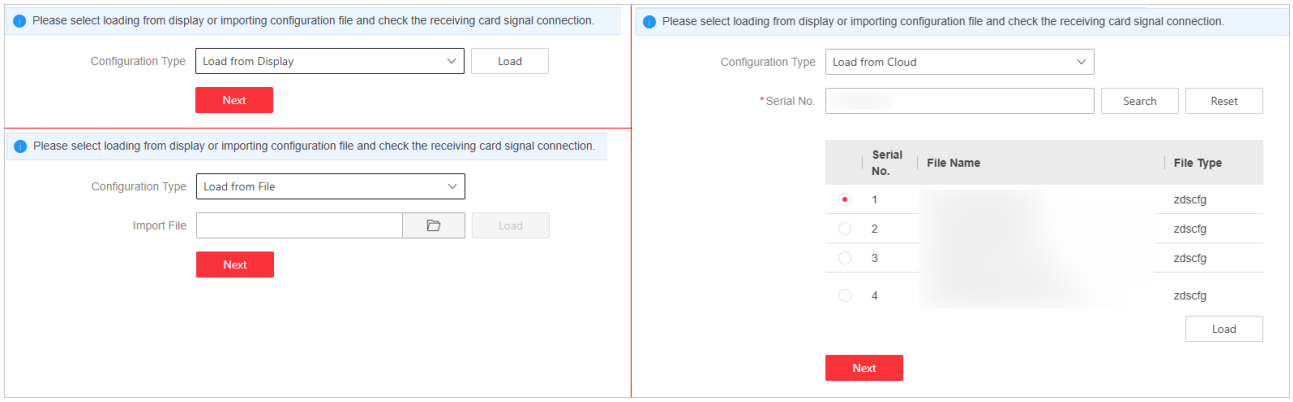



Figure 2-12 Import Cabinet Parameters

- Select **Copy from Other Displays**, select a source whose configuration meets the requirement, and then click **Load**. Only the C or V devices support copying from other displays, and the P devices do not support this function.

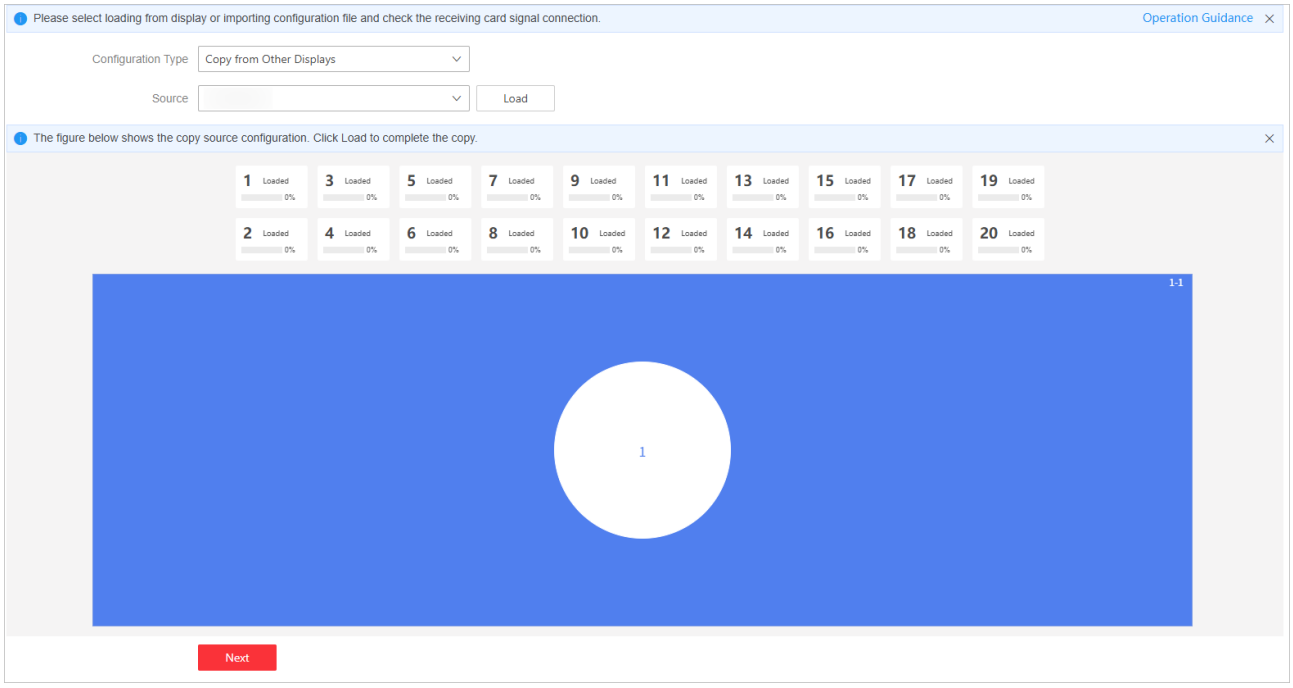



Figure 2-13 Copy Cabinet Parameters

Step 4 Click **Next**.

## 2.4.2 Configure Display Mapping Parameters

Step 1 Enable **Show Connections.**

Step 2 Click **Edit** to set the display size and resolution, and click **OK**.

- For a normal display:
  - Set the display size based on the receiving card quantity. Make sure that the product of the row value and column value is greater than or equal to the actual receiving card quantity. Each AXS cabinet contains one or two receiving cards.

  - Set the resolution according to the actual display resolution.
- For an ultra-wide/tall display:
  - Only P devices support configuring ultra-wide/tall displays.
  - Calculate the display size and resolution based on the actual display resolution, cabinet resolution, and device load limitations.

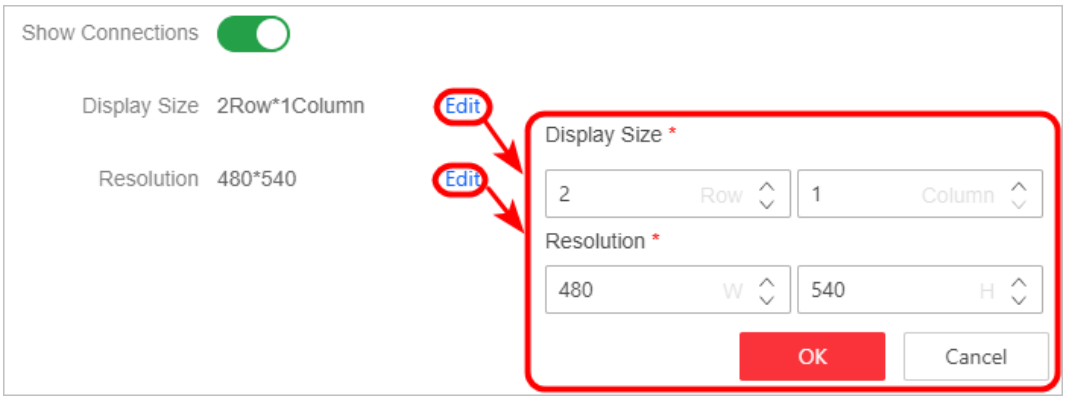



Figure 2-14 Edit Display Size and Resolution

- Resolution limits are as follows:
  - DT60 series 2K C-type devices: ≤5120 pixels
  - DT60 series 4K model C-type devices: ≤8192 pixels
  - DT60 series V/P-type devices: ≤32760 pixels
  - DT30 series devices: ≤2048 pixels
  - DT90 series C-type devices: ≤16384 pixels
  - DT90 series V/P-type devices: ≤32760 pixels
- Calculate the display size and resolution. Example: actual display resolution: 15360 (W) × 135 (H), cabinet resolution: 240 (W) × 135 (H)

1) Compare actual resolution versus device capacity: 15360 × 135 < 1920 × 1200, 2K device suffices.
   - Load capacity of P device: ≤ 1920 × 1200
   - Single-fold length limit for any P device: ≤ 4096 (Android system limit)
2) Fold count (round up) = maximum dimension value of the actual display resolution ÷ 4096 = 15360 ÷ 4096 = 3.75 ≈ 4
3) Cabinet units per row = actual display width ÷ cabinet width ÷ fold count (round up)= 15360 ÷ 240 ÷ 4 = 16
4) Display width on web page = cabinet units per row × cabinet width = 16 × 240 = 3840
5) Display height on web page = cabinet height × fold count (round up)= 135 × 4 = 540
6) Column count = display width on web page ÷ cabinet width = 3840 ÷ 240 = 16
7) Row count (for ultra-wide display) = fold count = 4
8) Final configuration: display size: 4 (rows) × 16 (columns), resolution: 3840 (W) × 540 (H)

Step 3 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 to select cabinets and connect them in the order of operation. The connection can cross different network ports of the device.
   - Click a cabinet to set as the start point of the connection and hold a cabinet to select the connection range. Batch connect cabinets in the order of operation. The connection can cross different network ports of the device. If the start point and end point are not on the same row or column, the connection will be S-shaped in the order of operation.
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 Current Sending Port Connection** to clear the signal connection of the current network port.
   - Click **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.

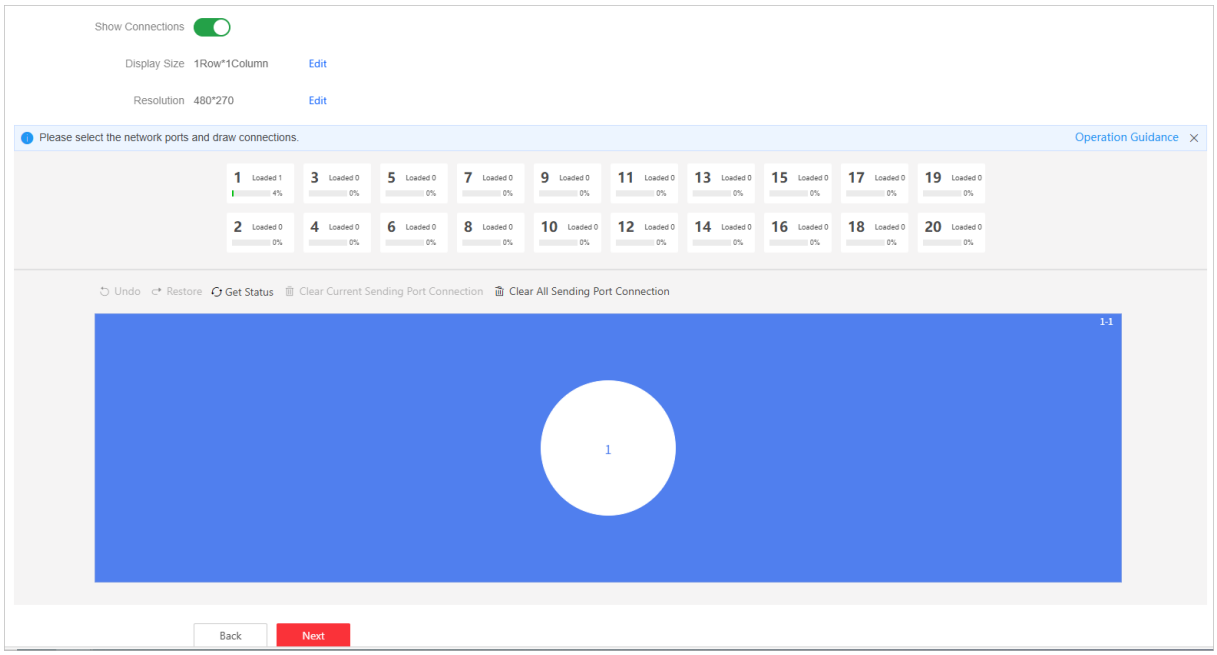



Figure 2-15 Configure Display Mapping Parameters

Step 4 Complete display mapping:

- For the HUB receiving cards, you have completed the display mapping configuration.
- For the AXS receiving cards, click **Next**.

## 2.4.3 First Calibrate AXS Receiving Cards

For the AXS receiving cards, enable calibration to load the LED module data to the AXS receiving cards.

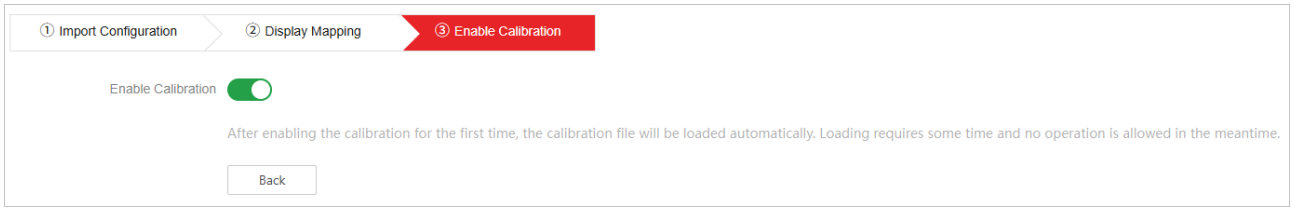



Figure 2-16 First Calibrate AXS Receiving Cards

# Chapter 3 Display Content Configuration

## 3.1 Operate the Video Wall

**Note**

- Only V devices support video wall operation (excluding the DT30 series).
- The subtitle and picture/text areas support only JPG and JPEG images.
- The subtitle area supports up to 5 text subtitles and 3 image subtitles.
- The picture/text area supports up to 5 text subtitles, 3 image subtitles, 1 digital clock, and 1 dial clock.

Step 1 Navigate to **Video Wall Operation**.

Step 2 Select a template, set the layout, and then click **Save**.

- To edit the template, click **Layout**, and then click **Edit Template**.
- Set the video area layout division, select the ratio of divided width and height, and set the subtitle area height and picture/text window width.

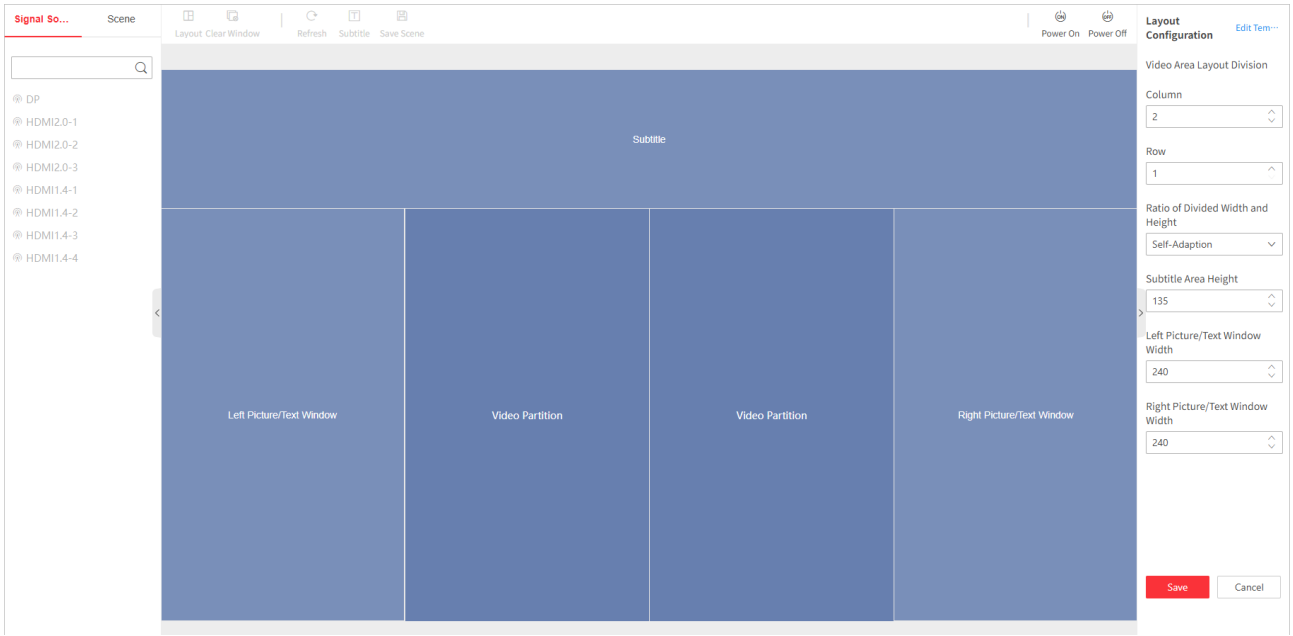



Figure 3-1 Select a Template

Step 3 Set the video area:

1) Drag signal sources to the video area:

   – DT60 series 2K devices: All inputs supports 1-to-3 distribution.

- DT60 series 4K devices: HDMI 1 input is limited to 1-to-1 distribution and other inputs support 1-to-3 distribution.
- DT90 series devices: 4K inputs (HDMI 2.0/SDI/DP) support 1-to-3 distribution and 2K inputs (HDMI 1.4/DVI) support 1-to-4 distribution.

2) Configure the signal source:
   - Directly move the window or enter the X and Y values to adjust the window location.
   - Click the corresponding icon to stick the window on top, stick the window at bottom, move up the window, move down the window, lock the window, and unlock the window.
   - Move the mouse to the window edge to adjust the window size or enter the W and H values.
   - Select a signal source to switch the signal source.
   - Set resolution or enable **Resolution Self-Adaption**.
   - Enable **Audio** of the current signal source. One video wall allows the output of only one audio. Make sure you have enabled audio output on the **Configuration** → **Signal Configuration** page.
   - Click **Delete** or to unbind the signal source from the video area.

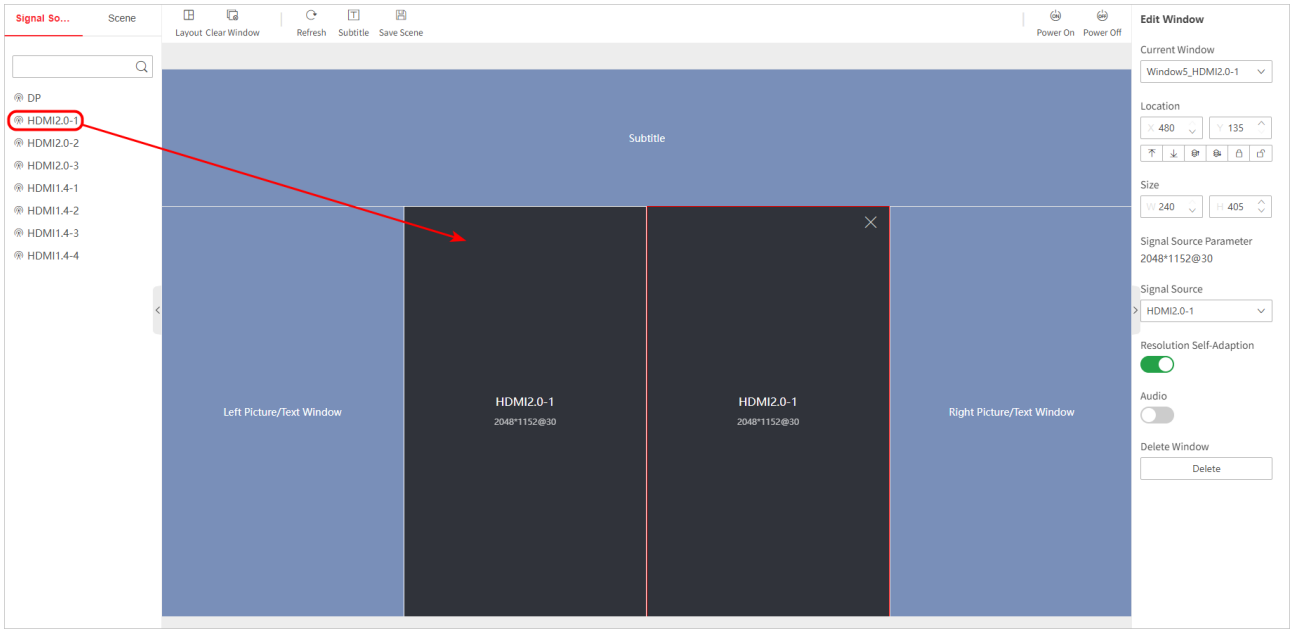



Figure 3-2 Configure Signal Source

Step 4 Configure the subtitle area.

1) Click the subtitle area to set the subtitle scrolling speed and direction.
2) Click **Subtitle** and select **Text** or **Image**.
3) Use either of the following methods to add the subtitle to the subtitle area:

– Click on the subtitle area where you want to add the subtitle.

– Drag the subtitle to the subtitle area and then draw the desired area.

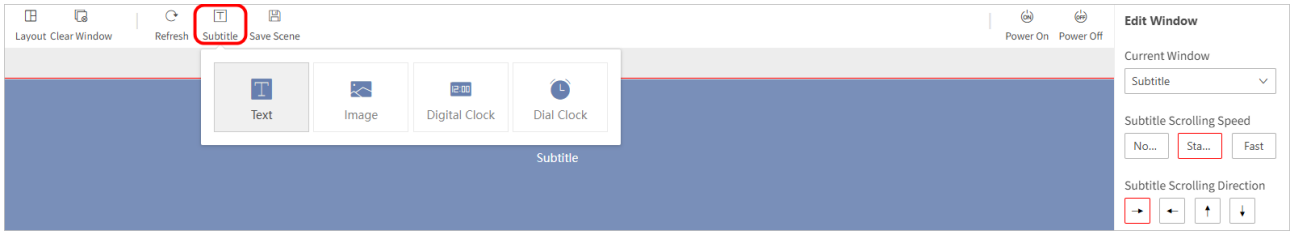



Figure 3-3 Select Subtitle Type

4) Edit the text subtitle or image subtitle.

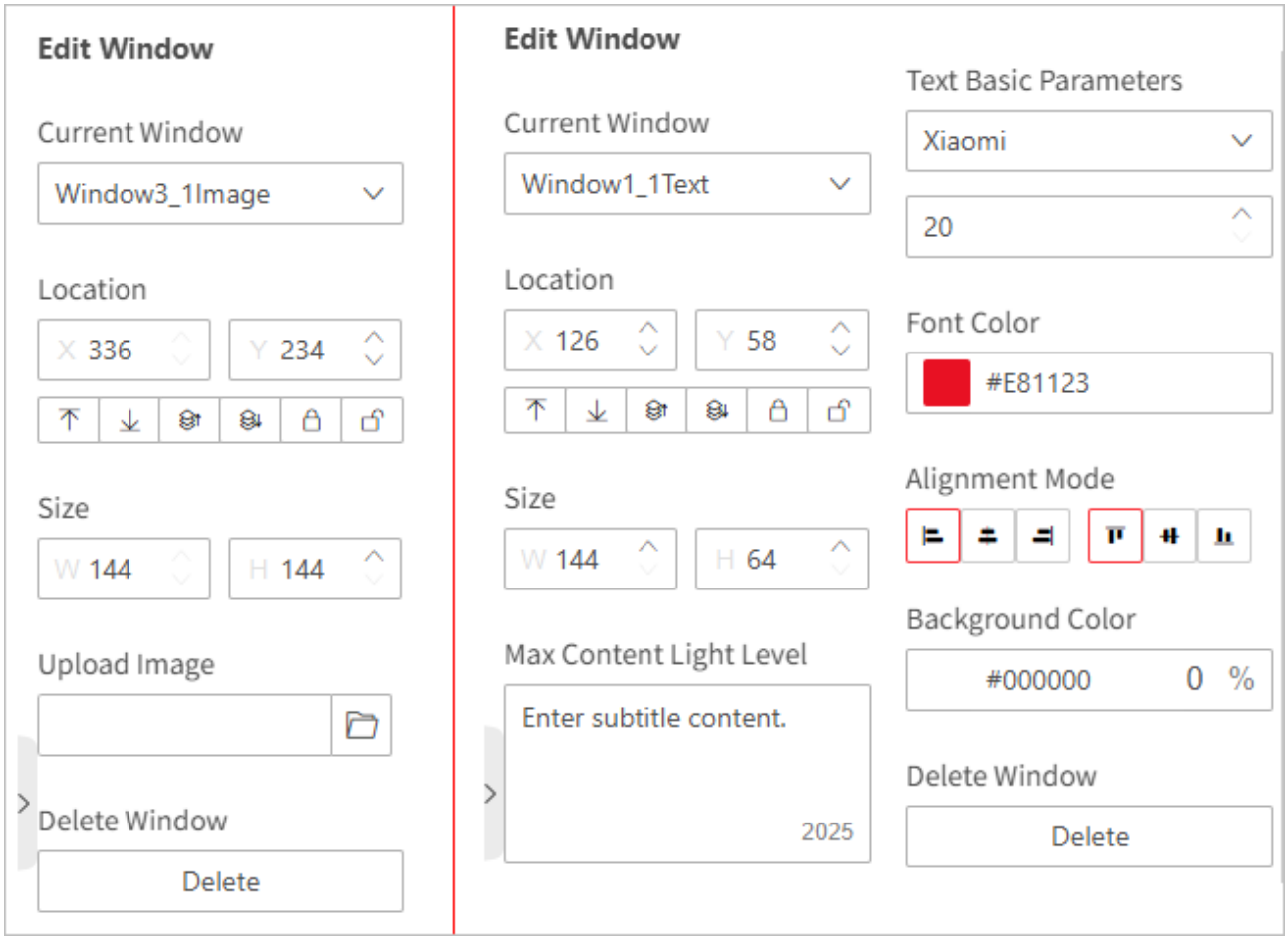



Figure 3-4 Edit Text or Image Subtitle

Step 5 Configure the picture/text area:

1) Click **Subtitle** and select **Text**, **Image**, **Digital Clock**, or **Dial Clock**.
2) Use either of the following methods to add the subtitle to the picture/text area:
   – Click on the picture/text area where you want to add the subtitle.
   – Drag the subtitle to the picture/text area and then draw the desired area.
3) Edit the subtitle window.

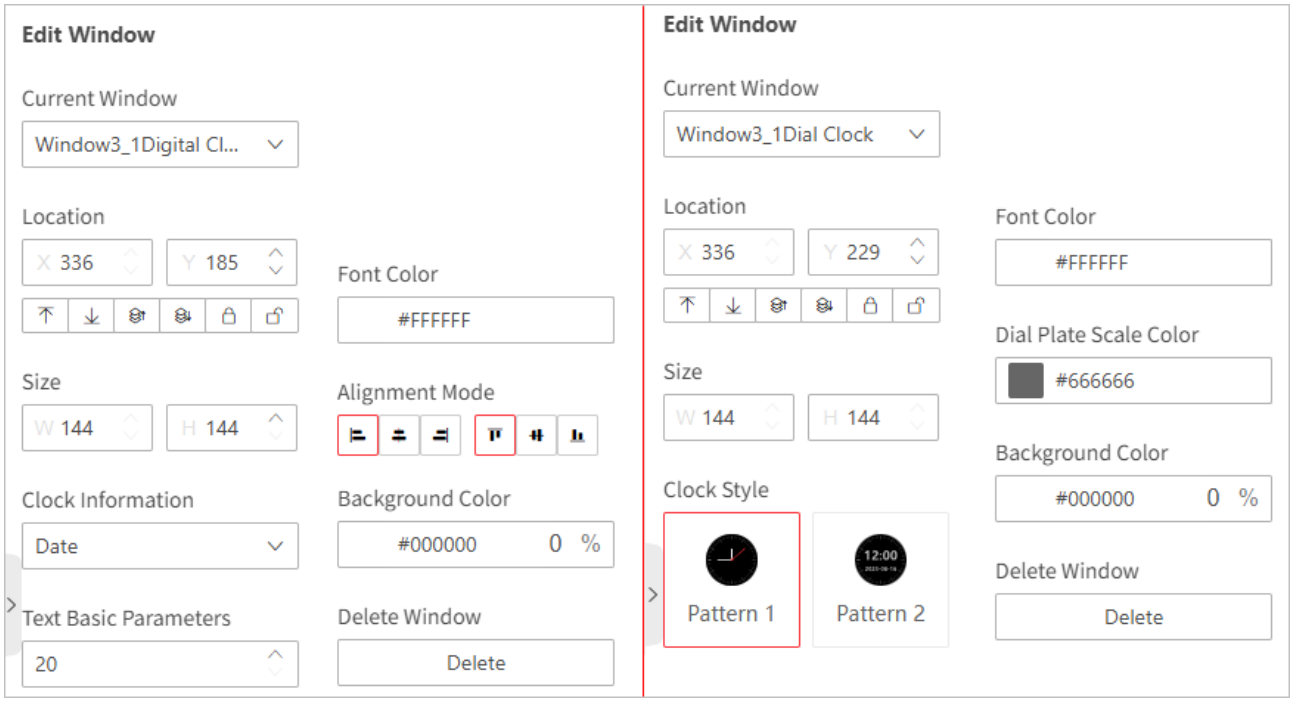



Figure 3-5 Edit Clock Subtitle

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

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

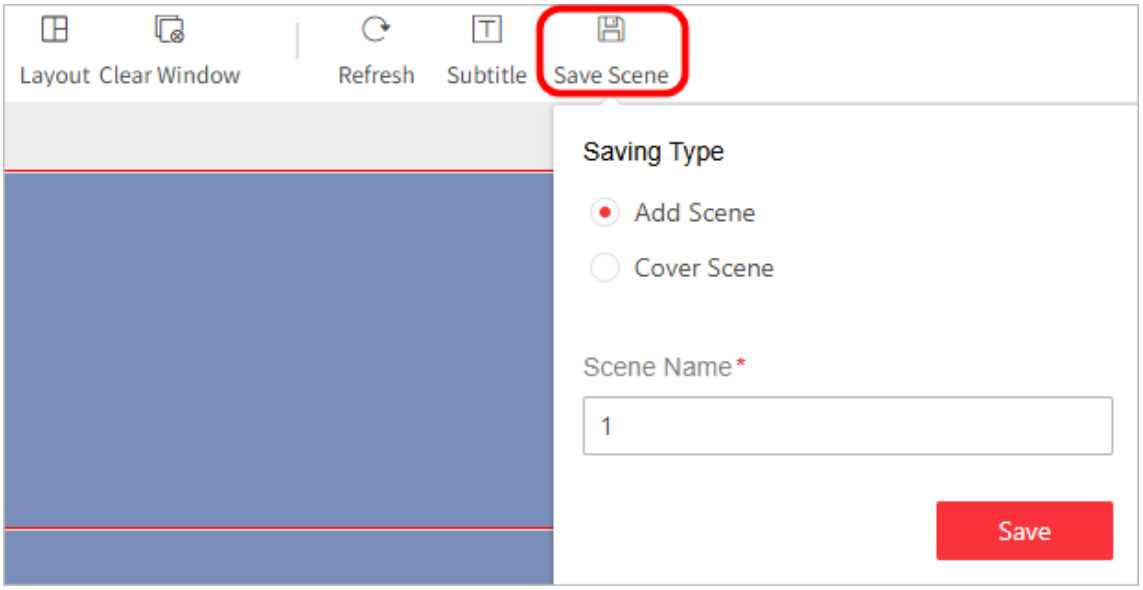



Figure 3-6 Save Scene

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

Figure 3-7 Manage Scenes

## 3.2 Create Programs

Program refers to the content displayed on the video wall, which is played according to configured template, materials, and schedule.

**Note**

- Only P devices support playback management. The supported material types vary across different P-series devices. This chapter uses the DT90P device as an example.
- Currently, only WonderCast application is supported.

### 3.2.1 Create and Play Programs

**Create and Play One Normal Program**

Step 1 Navigate to **Playback Control**.

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

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

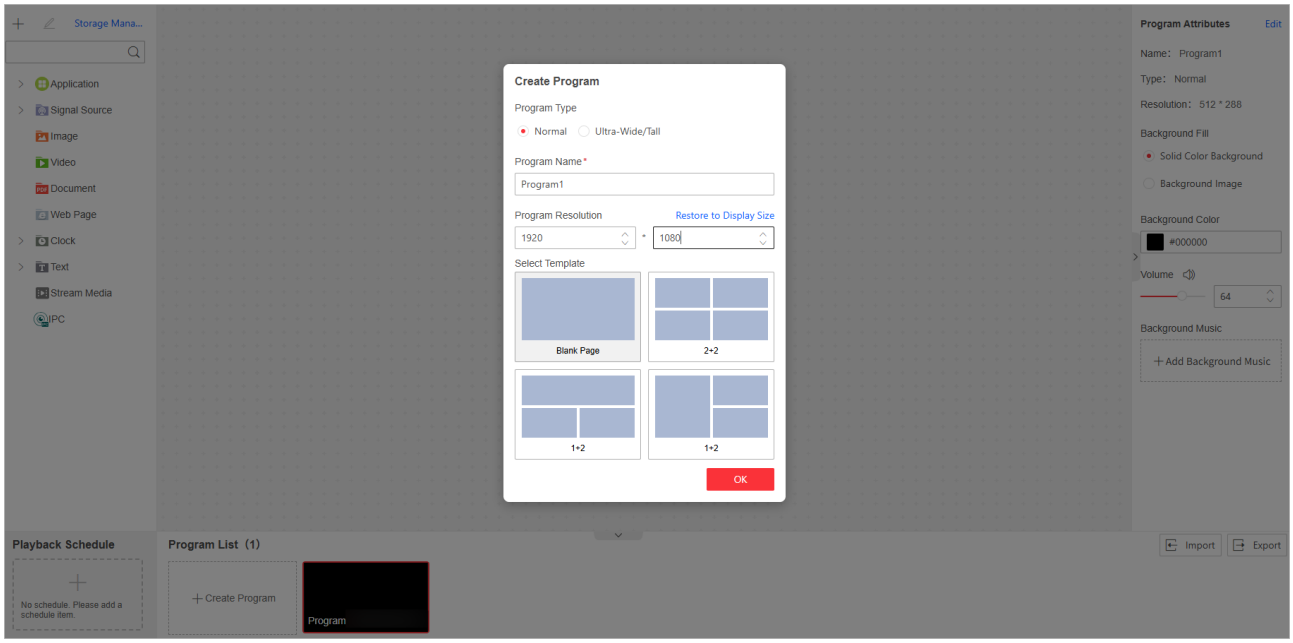



Figure 3-8 Create a Normal Program

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

- Standard programs support application, signal source, image, video, document, web page, clock, text, stream media, and network camera (IPC) materials. You need to click **Local Upload** to upload the locally saved images, videos, and documents. If you batch upload materials, make sure the total size of the uploaded materials does not exceed the remaining available storage space on the system.
- Supported material formats are as follows:
  - Images: BMP, JPG, PNG, GIF
  - Documents: PDF, PPT
  - Videos: ASF, AVI, MPG, 3GP, MOV, MKV, WMV, FLV, MP4, RM
  - Web pages: Prefixes http and https
  - Stream media: Prefix RTSP

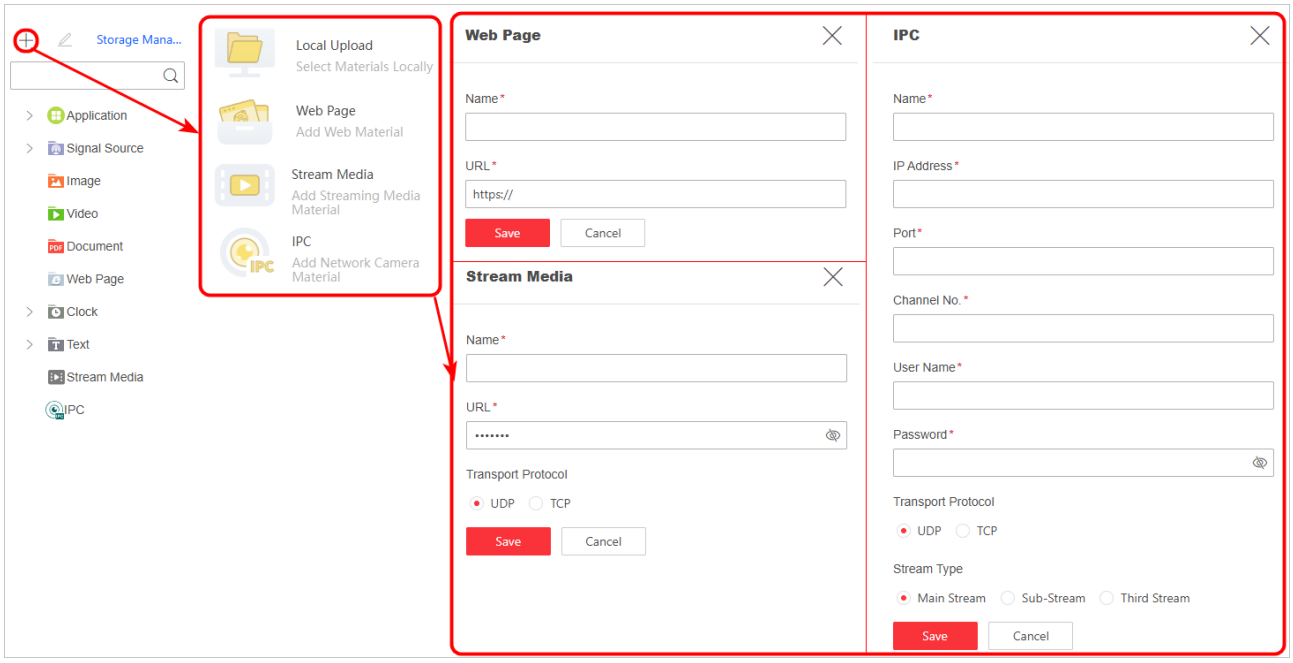



Figure 3-9 Add Materials for Normal Program

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

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

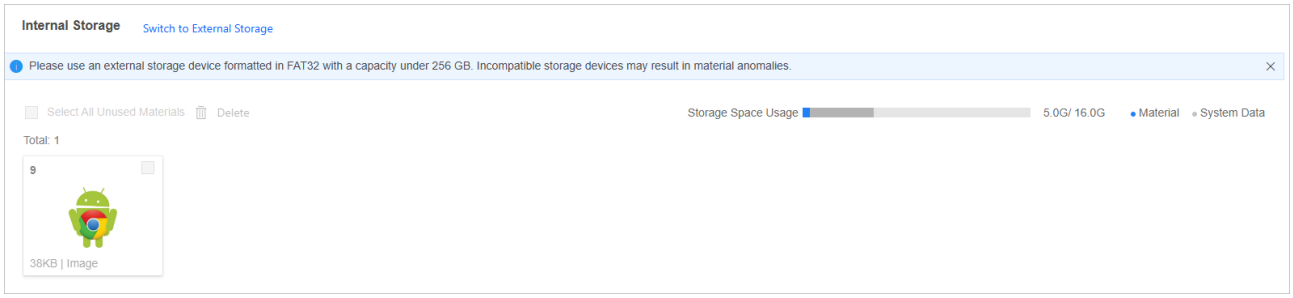



Figure 3-10 Switch to External Storage

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

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

- Clock: A program can only contain 1 clock.
- PPT file: Dragging a PPT file to the program window will clear all non-signal-source materials, and neither program background nor music can be configured.

- Application:
  - Only P devices support applications (currently limited to WonderCast application).
  - Dragging the WonderCast application to the program window will clear all non-signal-source materials, and neither program background nor music can be configured.
  - After deploying a program with WonderCast application, the home page of the WonderCast application will be displayed. Follow the on-screen instructions to proceed.
- Signal Source:
  - Only P devices support signal sources.
  - DT60 series 2K devices: The built-in Android source occupies one window layer by default. External signal sources support 1-to-2 distribution.
  - DT60 series 4K devices: The built-in Android source occupies one window layer by default. The external HDMI 1 signal source supports 1-to-1 distribution, while other external signal sources support 1-to-2 distribution.
  - DT30 series devices: The built-in Android source occupies one window layer by default. External signal sources support 1-to-1 distribution.
  - DT90 series devices: 4K inputs (HDMI 2.0/SDI/DP) support 1-to-3 distribution and 2K inputs (HDMI 1.4/DVI) support 1-to-4 distribution.

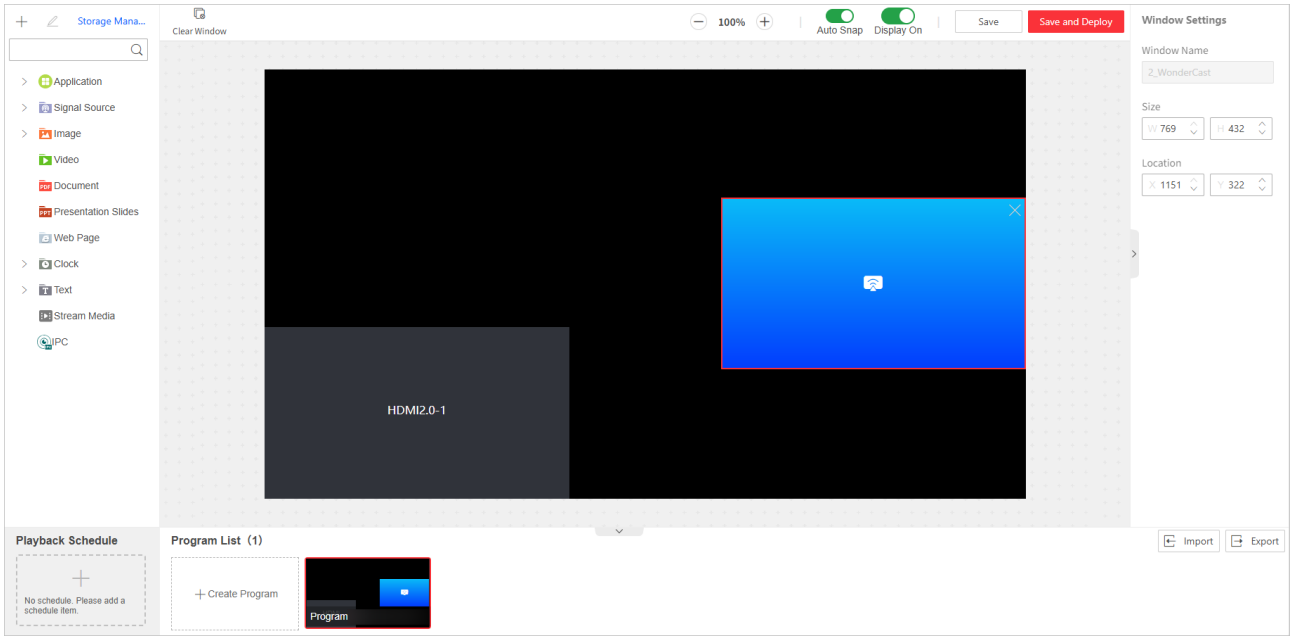



Figure 3-11 Bind Materials with Normal Program

**Note**

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

Step 6 Click **Save and Deploy**.

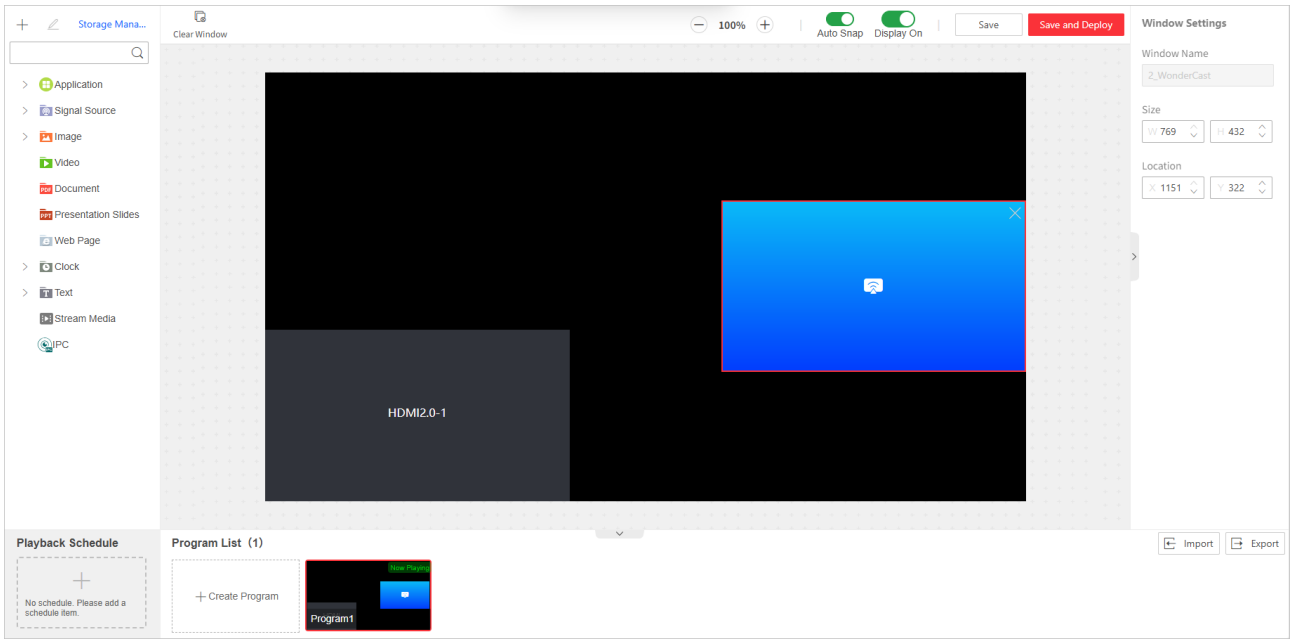



Figure 3-12 Deploy a Normal Program

### Create and Play One Ultra-Wide/Tall Program

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

Step 1 Navigate to **Playback Control**.

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

- The device automatically sets the number of folds based on the program resolution. The maximum number of folds cannot exceed 8.
- The total resolution loaded by a P device cannot exceed 1920 × 1200 pixels, and the length of a single fold cannot exceed 4096 pixels.

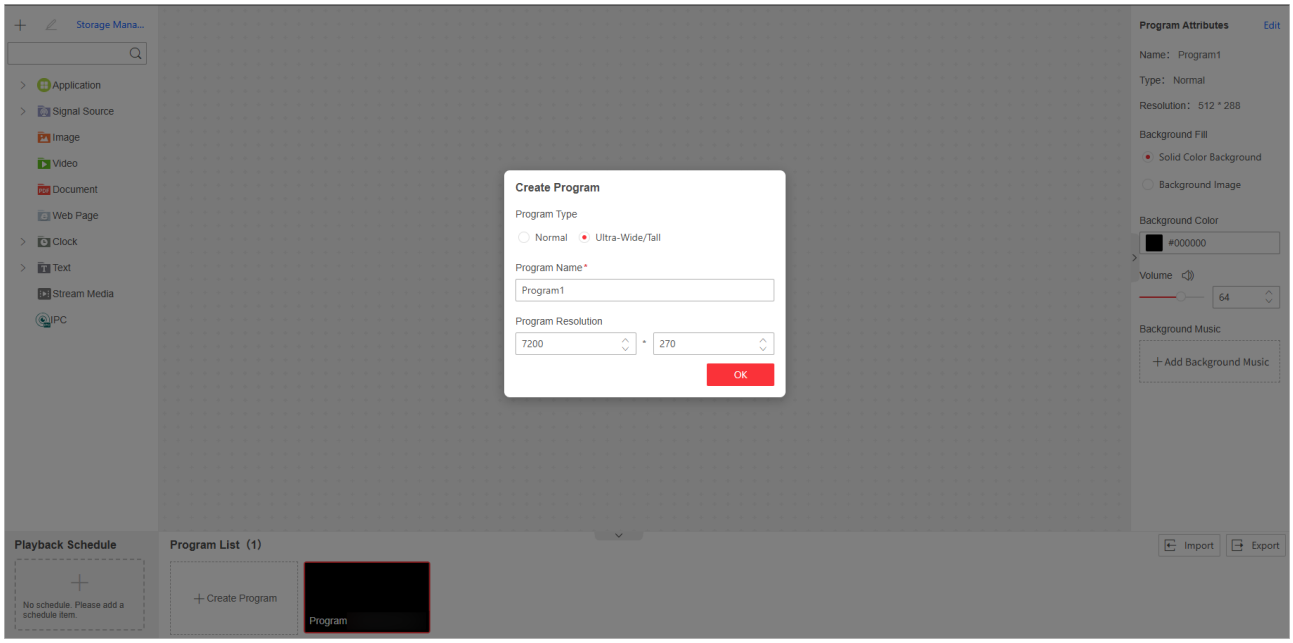



Figure 3-13 Create Ultra-Wide/Tall Program

Step 3 Click + to upload the locally saved images. Supported image formats include BMP, JPG, PNG, and GIF.

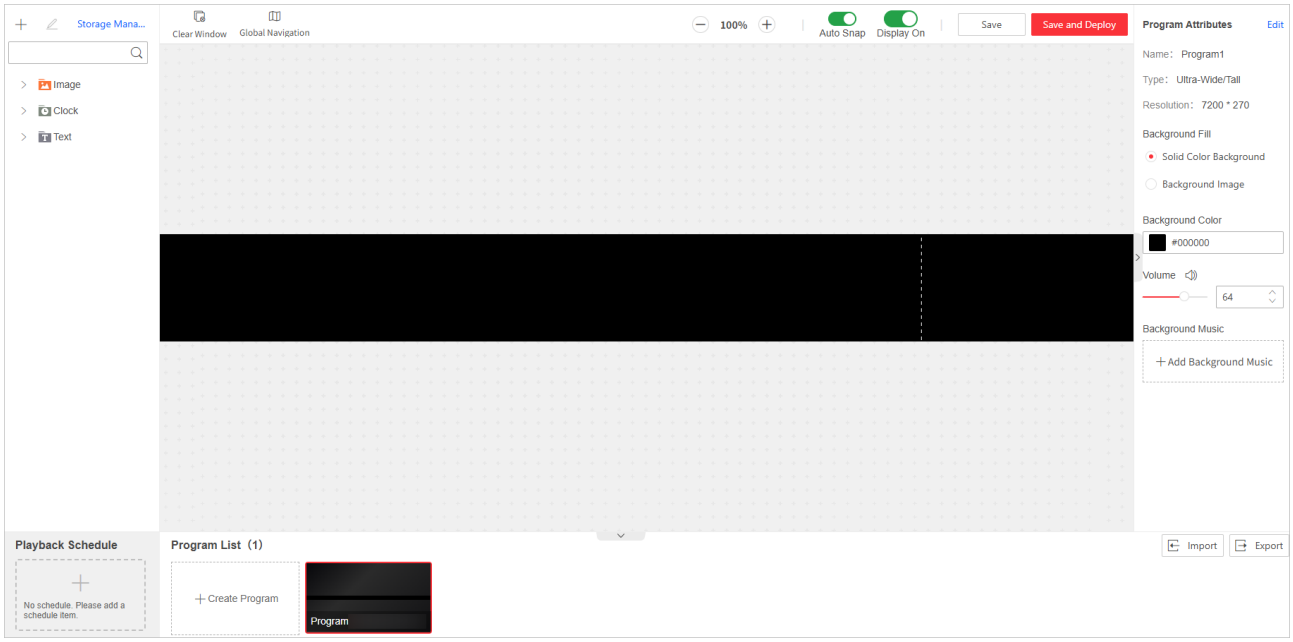



Figure 3-14 Add Materials for Ultra-Wide/Tall Program

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

1) Insert a FAT32-formatted USB drive into the device.
2) Use either of the following methods to access the **Storage Management** interface and click **Switch to External Storage**:
   – Navigate to **Configuration** → **Storage Management**.

– On the **Playback Control** page, click **Storage Management**.

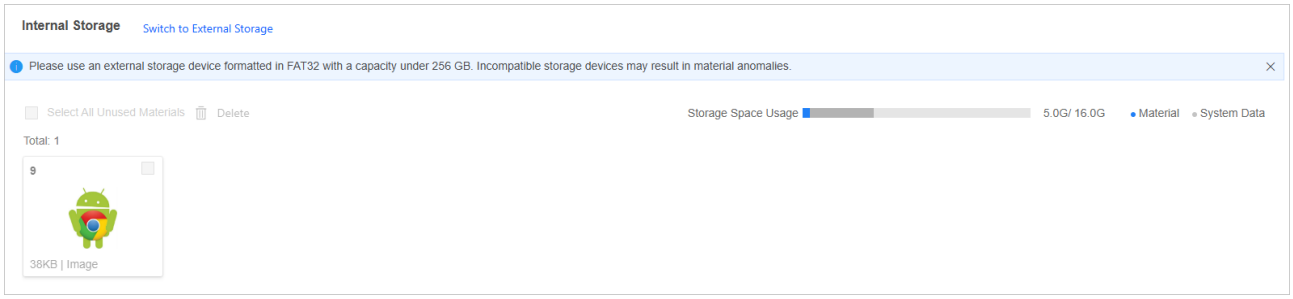



Figure 3-15 Switch to External Storage

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

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

- Each fold supports up to 8 materials.
- When a material crosses multiple folds, the maximum number of materials allowed in each fold decreases by 1.

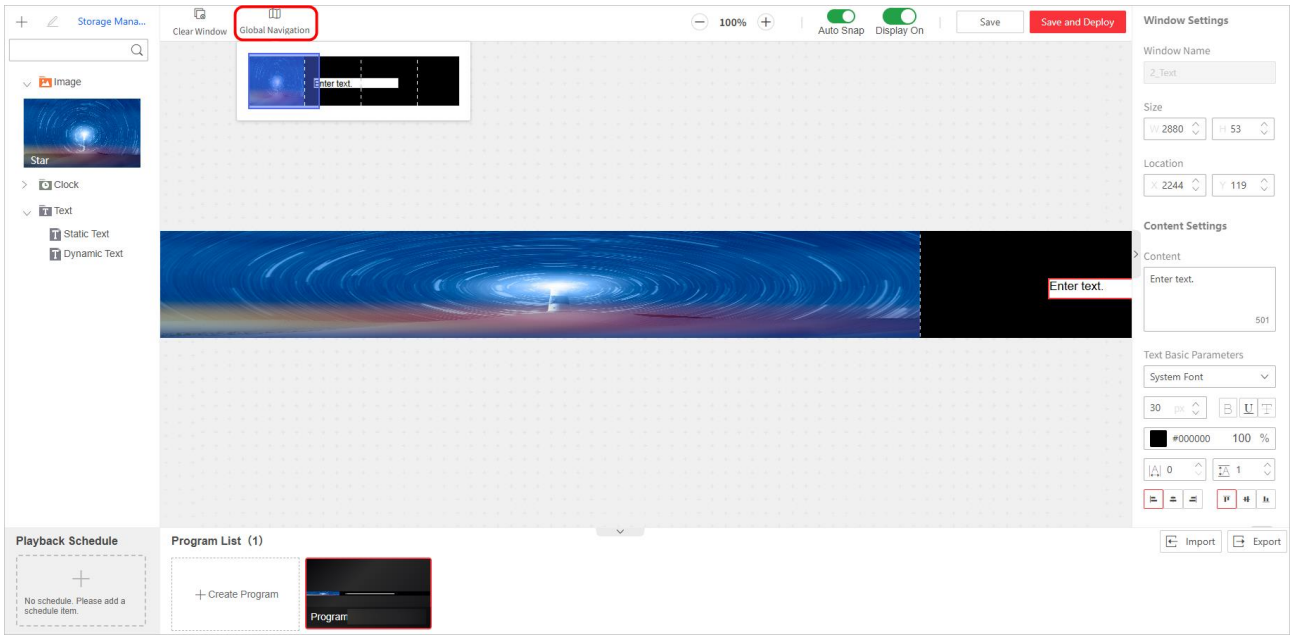



Figure 3-16 Bind Materials with Ultra-Wide/Tall Program

**Note**

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

Step 6 Click **Save and Deploy**.

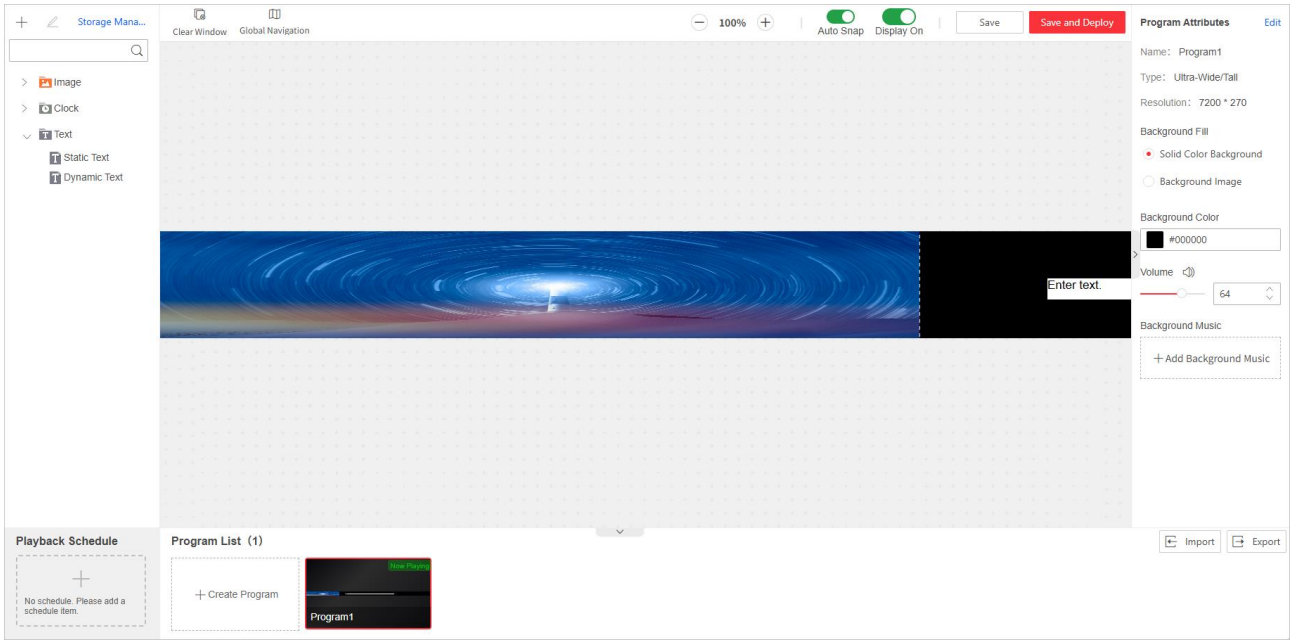



Figure 3-17 Deploy an Ultra-Wide/Tall Program

### Create and Play Multiple Programs

To play different programs at different times, create multiple programs and set the playback schedule. The method is identical for playing multiple normal programs or multiple ultra-wide/tall programs. The following example uses normal programs.

Step 1 Create one program and save it. For details, see “Create and Play One Normal Program” or “Create and Play One Ultra-Wide/Tall Program”.

Step 2 Click **Create Program** and set the program parameters.

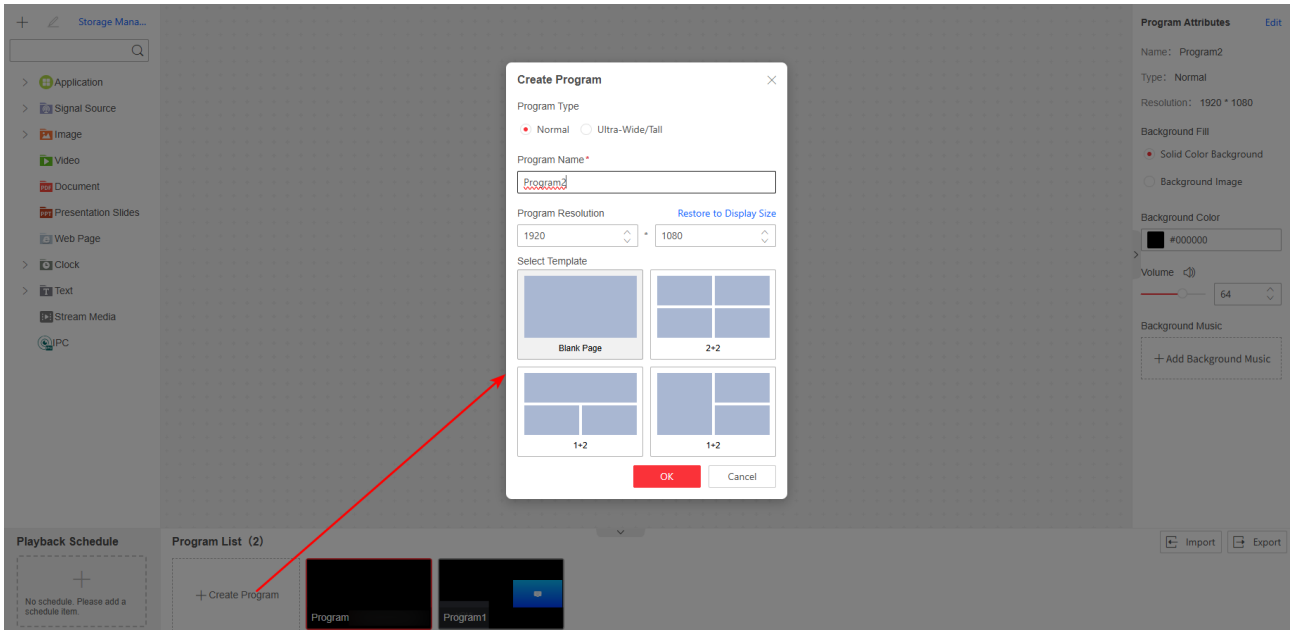



Figure 3-18 Create a New Normal Program

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

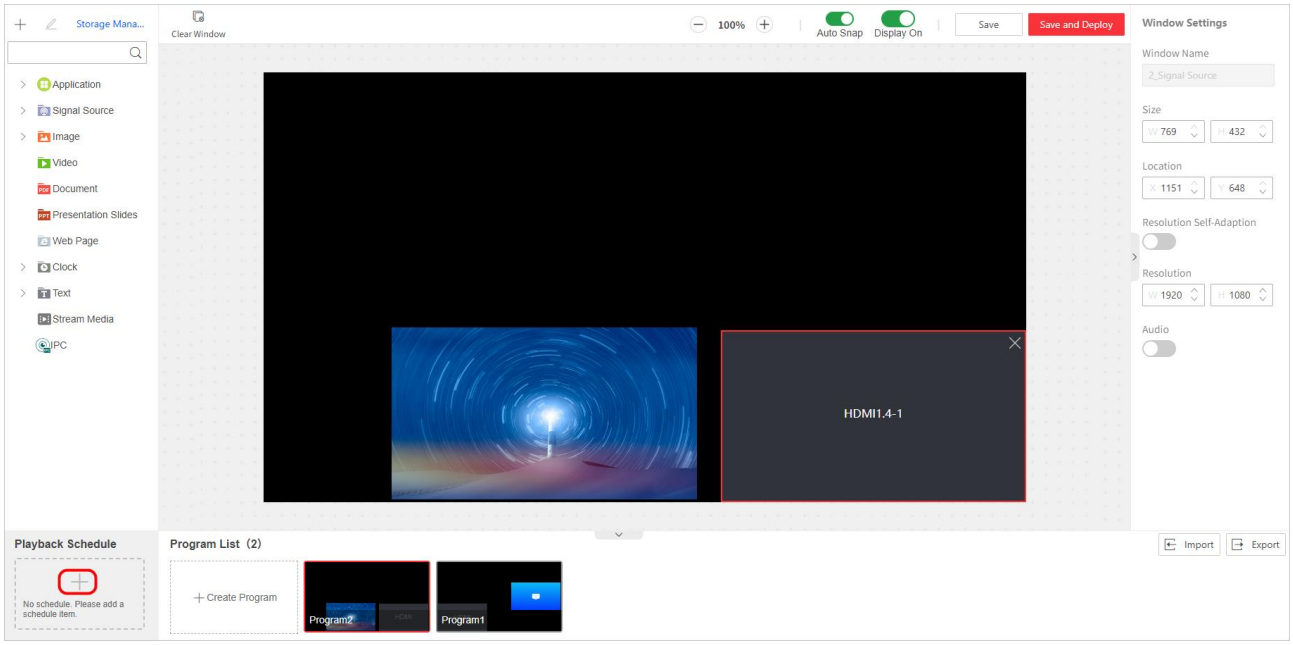



Figure 3-19 Create the Schedule

- Select **Auto-Switch**, drag programs to the playlist, and click **Save and Deploy**.
  - To clear the playlist, click **Clear**.
  - To save only the auto-switching schedule without deploying, click **Save**.

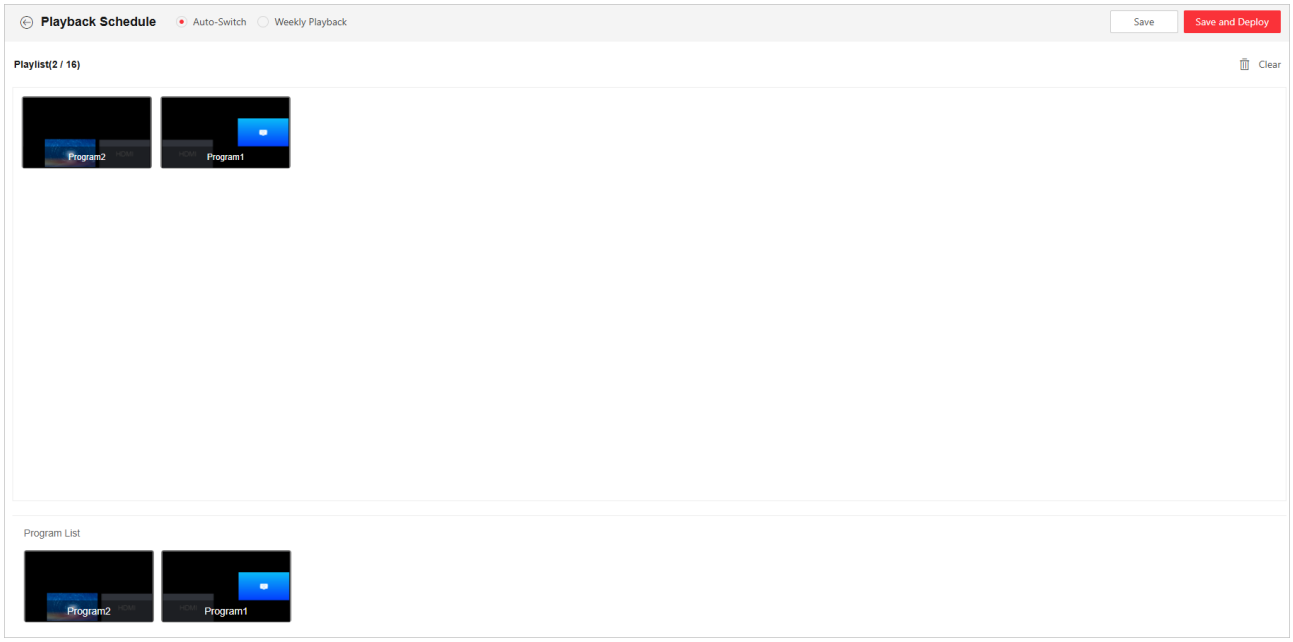



Figure 3-20 Set Auto-Switching Schedule

Figure 3-21 Auto Switch Normal Programs

- Select **Weekly Playback**, and set the programs and duration on the schedule.

1) On the schedule, left click the mouse to select the start time and hold the mouse to select the end time.
2) Select a program and click **OK**.

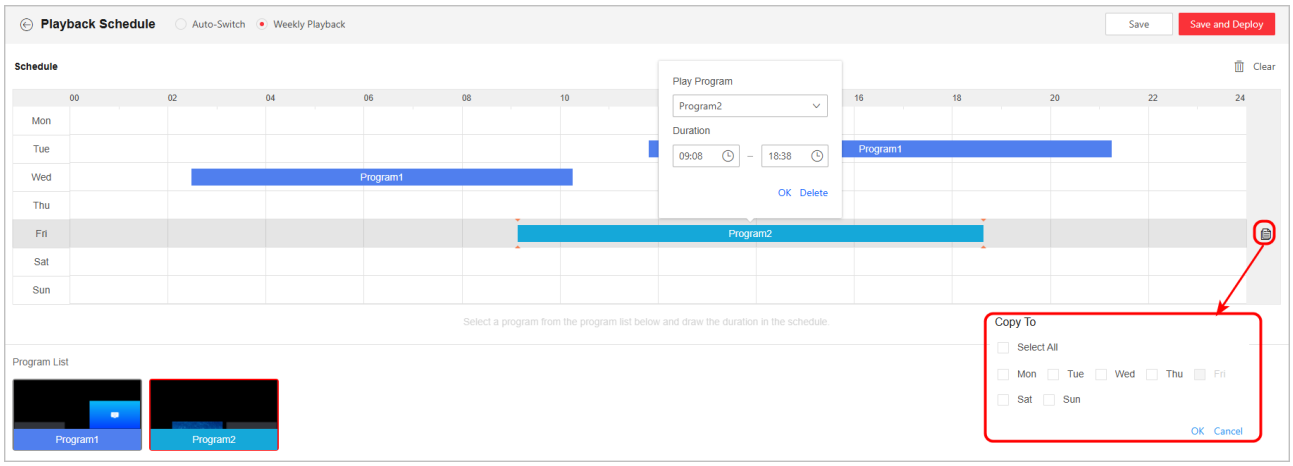



Figure 3-22 Configure the Schedule

3) Click **Save and Deploy**.
4) (Optional) You can perform the following operations as required:
   - Click **Delete** to delete the current schedule item.

– Click to copy the current schedule item settings to the selected weekdays and weekends.

– Click **Clear** to clear all schedule items.

– Click **Save** to save the schedule.

Figure 3-23 Weekly Playback of Normal Programs

**Set Other Program Parameters**

On the **Playback Control** page, you can perform the following operations as required:

- Click the program to add the background color, background image, or background music. The music must be in the MP3, WAV, or WMA format.

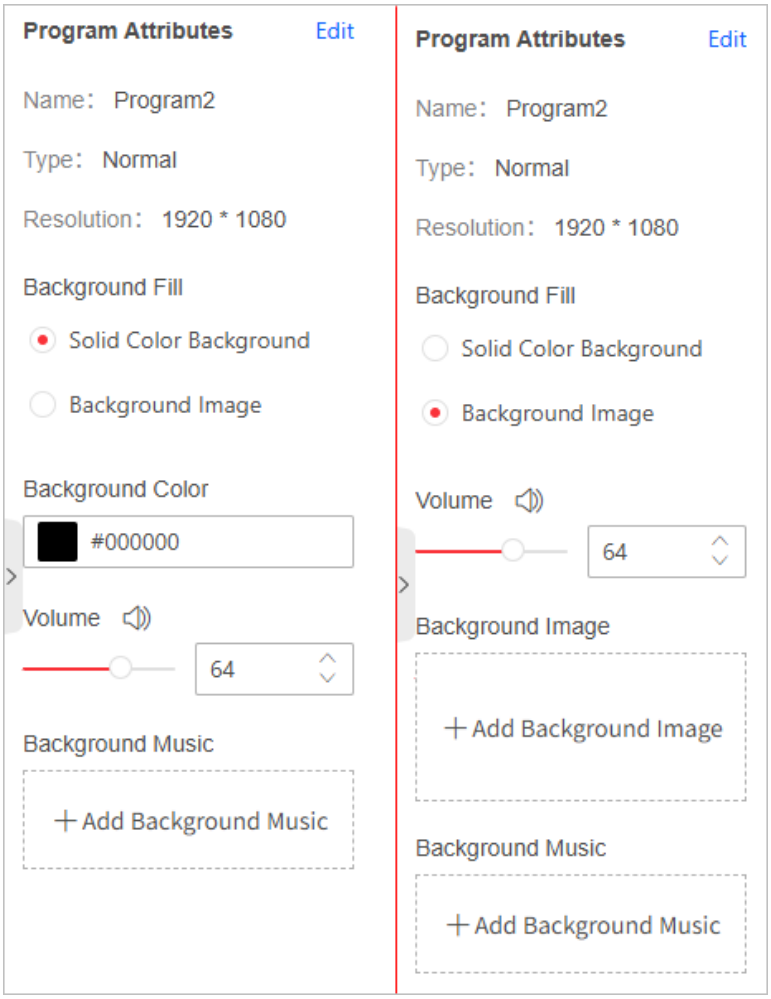



Figure 3-24 Add a Background

- Adjust the volume.

- Set the display status:
  - If you enable **Display On**, the display exits the sleep mode.
  - If you disable **Display On**, the display enters the sleep mode.
- Manage a program and schedule by hovering to reveal action icons:
  - Deploy: Click to deploy the program or schedule.
  - Edit: Click to edit the program or schedule.
  - Export: Select a non-editable program, and click to export the program, materials and schedule to the USB flash drive.
  - Delete: Click to delete the program.
  - Stop: Click to stop the program.
- Export/Import:
  - Insert a USB flash drive into the device and click **Import** to import all programs, materials and the schedule in the USB flash drive to the device.
  - Insert a USB flash drive into the device and click **Export** to export all programs, materials and the schedule.

Figure 3-25 Manage Program

## 3.2.2 Manage Materials

Standard programs support application, signal source, image, video, document, web page, clock, text, stream media, and IPC materials, while the ultra-wide/tall programs supports only image, text, and clock materials.

**Configure Material Parameters**

- For any type of material:
  - Adjust the window position: Select the media window, then drag with left mouse button or directly enter position coordinates.
  - Adjust the window size: Drag window edges, enter width/height values, or double-click to fill the program sub-window (double-click again to restore original size).
- For the signal source material:
  - Manually set the resolution or enable **Resolution Self-Adaption**.
  - Enable audio. One program allows the audio output of only one signal source.

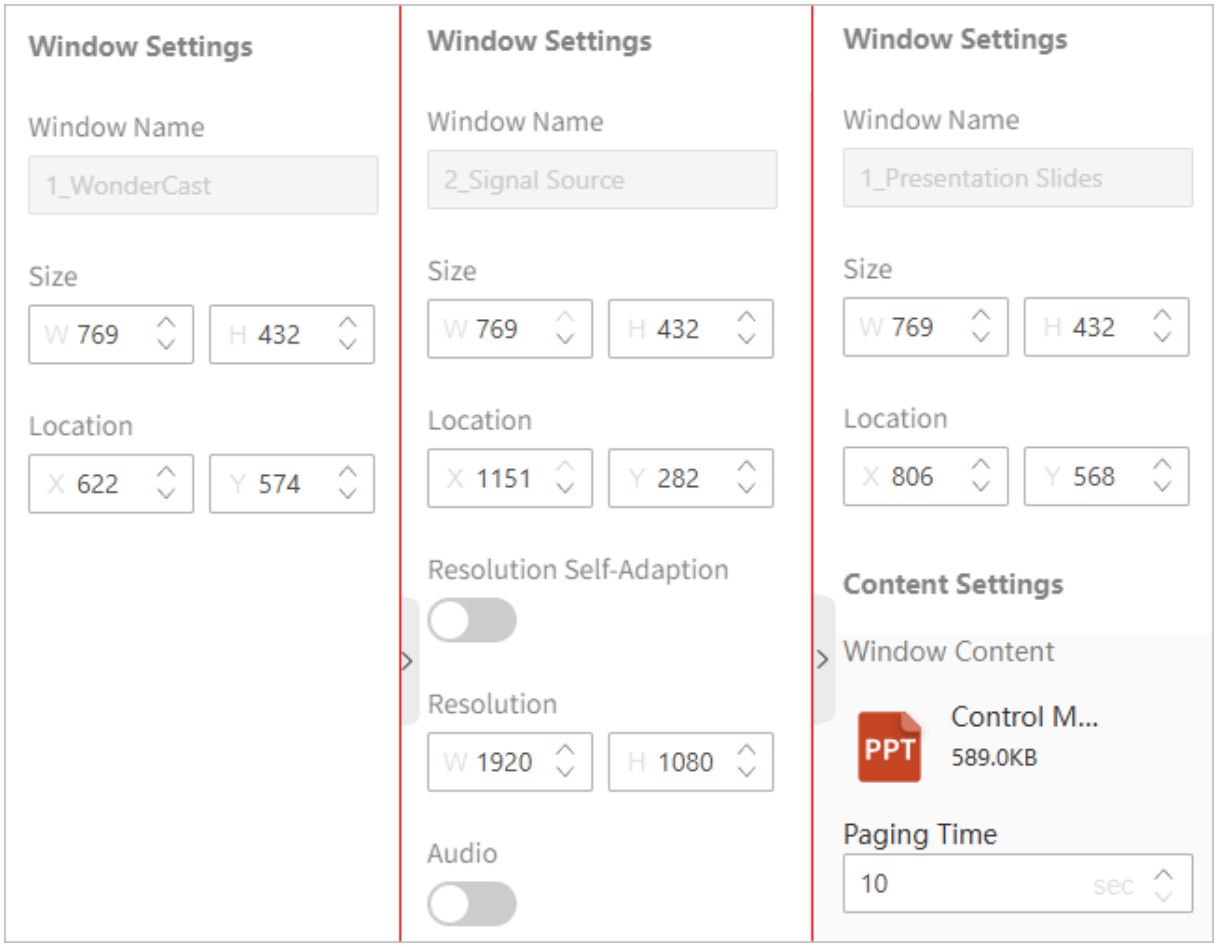



Figure 3-26 Configure Application/Signal Source/PPT File Material

- For the image or video material:
  - Click and hold ☰ to adjust the playing order of the image or video.
  - Click **Add More Materials** to upload the locally saved images or videos, or to select the images or videos from the material library.
  - Set an interval for each image. When multiple images are bound with the same program sub-window, the system automatically change the displayed image according to the set interval.
  - One program allows the audio tracks of only one video. The audio tracks of the first video bound with the program window is enabled by default. To use the audio tracks of another video, click the target video and enable **Use Audio Tracks**.
  - Adjust the corner radius of the image window.
- For the PPT document and PDF document material: Set a paging time.

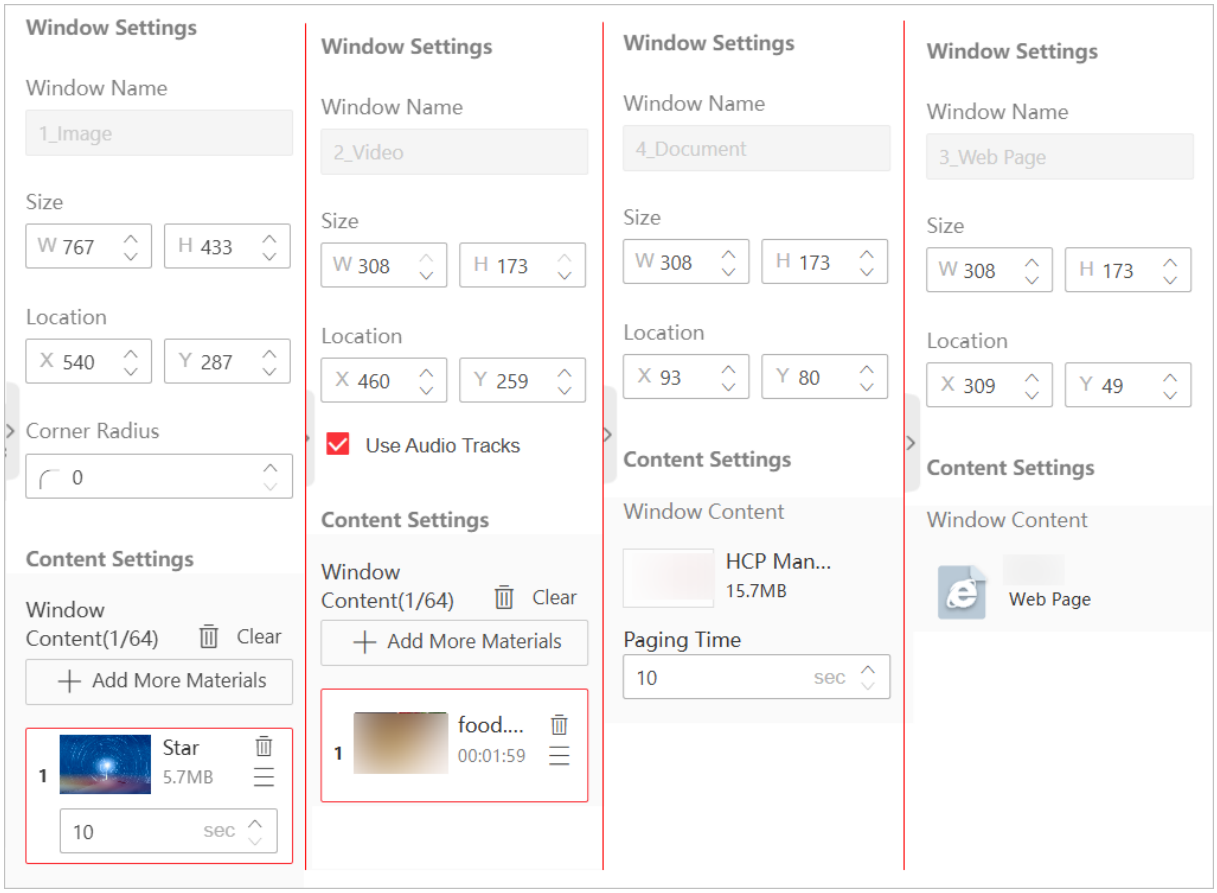



Figure 3-27 Configure Image/Video/PDF File/Web interface Material

- For the stream media or IPC material: One program allows the audio tracks of only one material. The audio tracks of the first video bound with the program window is enabled by default. To use the audio tracks of a stream media or IPC material, click the target material and enable **Use Audio Tracks**.

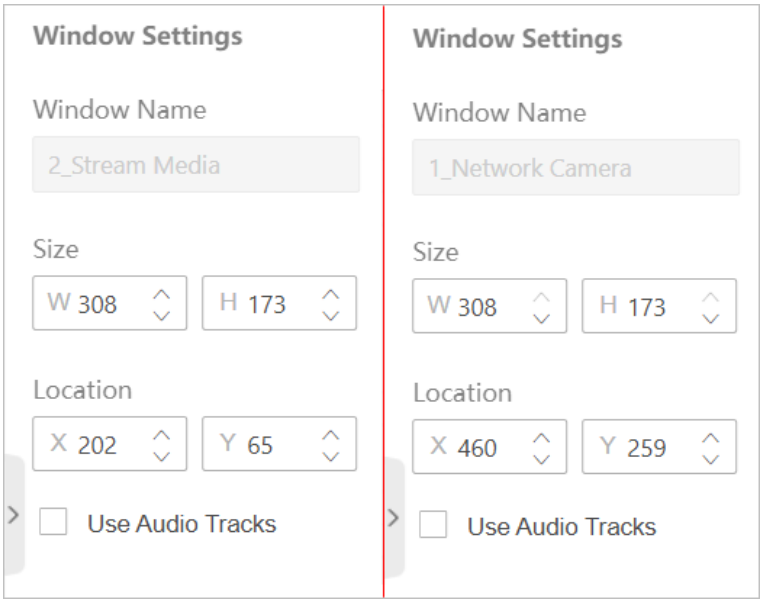



Figure 3-28 Configure Stream Media/Network Camera Material

- For the clock material:
  - Supports 7 types of clocks. One program allows only one clock.
  - The time are displayed by default. You can click to hide the time.
  - Select the clock template.
  - Edit the font size and color.
- For the text material:
  - Enter the content, and set the text basic parameters, text outline, text shadow, and text background.
  - For the dynamic text material, set the scrolling direction and speed.

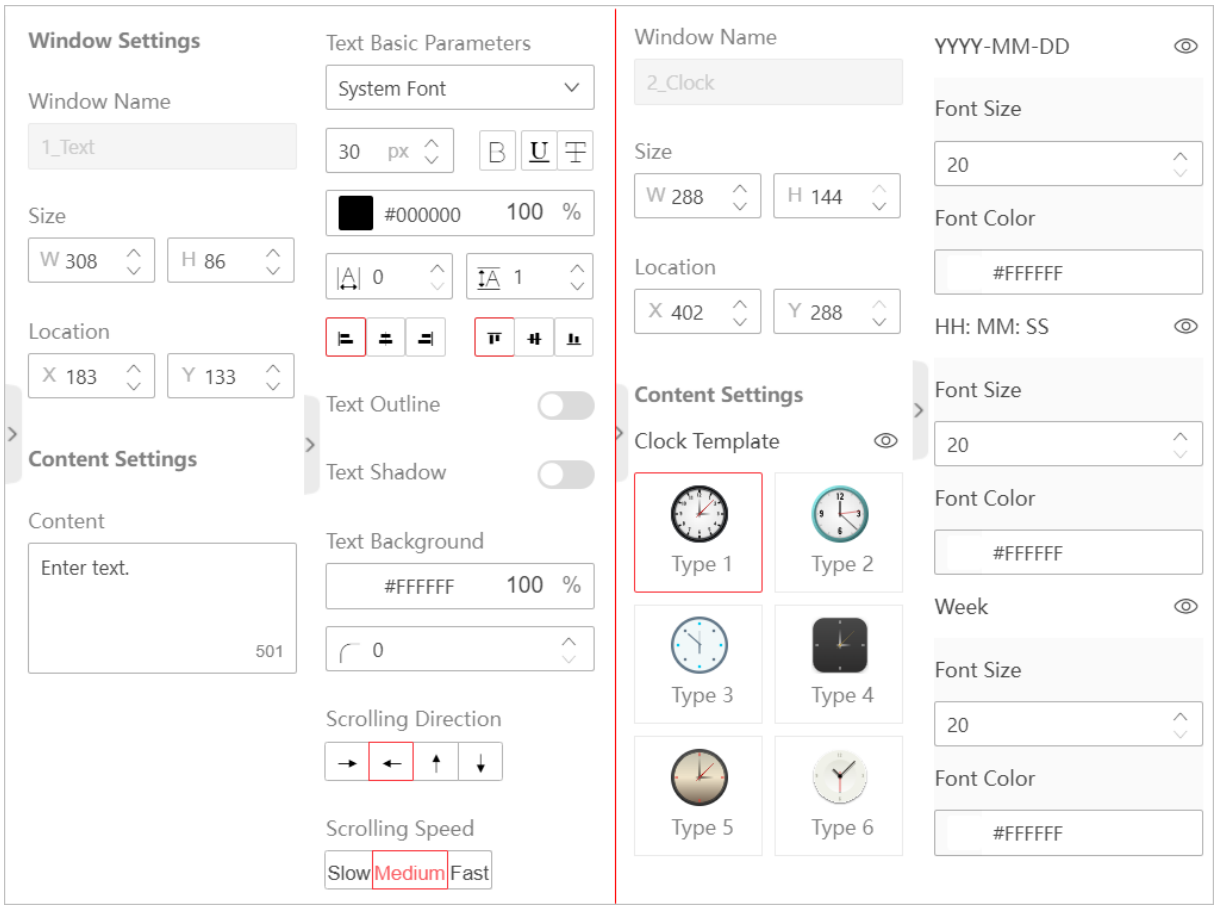



Figure 3-29 Configure Text/Clock

### Delete Materials

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

- Navigate to **Configuration** → **Storage Management**.
- On the **Playback Control** page, click **Storage Management**.

Step 2 Select **Internal Storage** or **External Storage**.

Step 3 Check the materials to delete or select all unused materials, and then click **Delete**.

Figure 3-30 Storage Management Page

# Chapter 4 Display Parameters Configuration

## 4.1 Calibrate Receiving Cards

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

Step 2 Enable calibration according to the device type.

- P device and single C/V device: Turn on the **Enable Calibration** switch to automatically enable brightness/chroma calibration. Check low gray calibration on supported LED modules.
- Cascaded C/V devices: Click **Batch Calibration** to automatically complete the following operations:
  - Enable brightness/chroma calibration. Check low gray calibration on supported LED modules.
  - Configuring all devices is enabled by default. Thus, the settings will automatically sync to all cascaded devices.

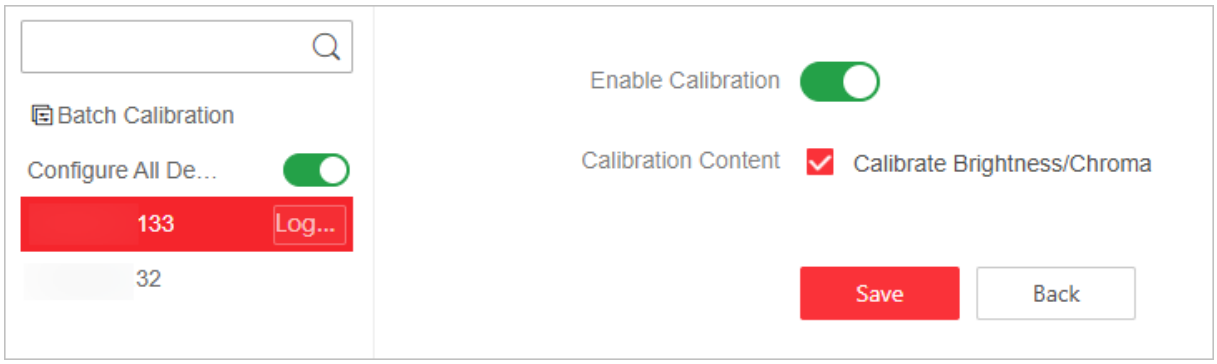



Figure 4-1 Select Calibration Content (Cascaded C/V Devices)

Step 3 (Optional) If you cannot locate the faulty display area easily, you can enable **Show Connections** to show the connection number of the receiving cards on the display.

Step 4 Set the calibration area.

- Click and select the calibration area.
- Click and enter the start coordinate and end coordinate.

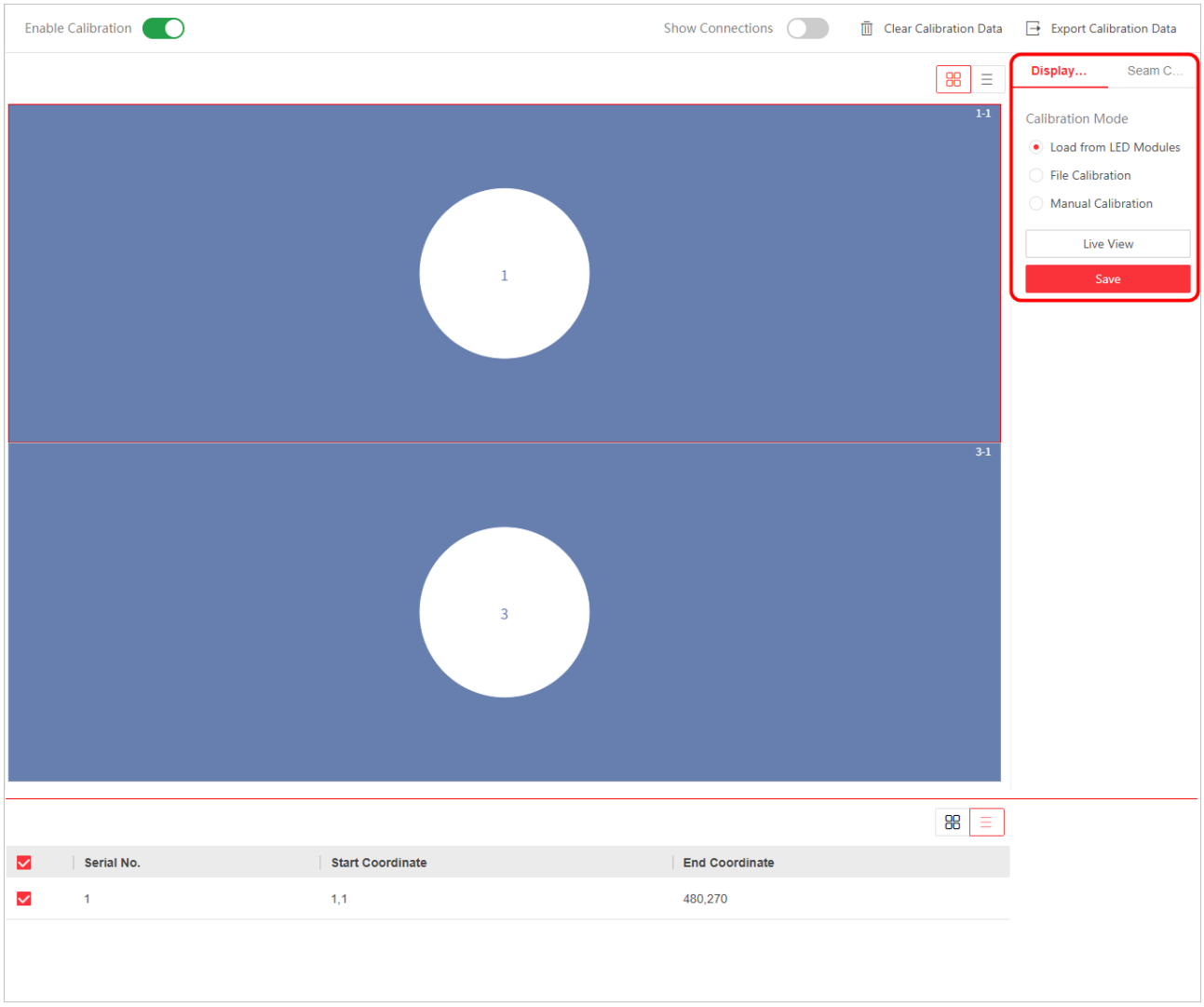



Figure 4-2 Set Calibration Areas

Step 5 Select a calibration method according to the receiving card type:

- Calibrate the AXS receiving cards. See “4.1.1 Calibrate AXS Receiving Cards”.
- Calibrate the HUB receiving cards. See “4.1.2 Calibrate HUB Receiving Cards”.

Step 6 (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.

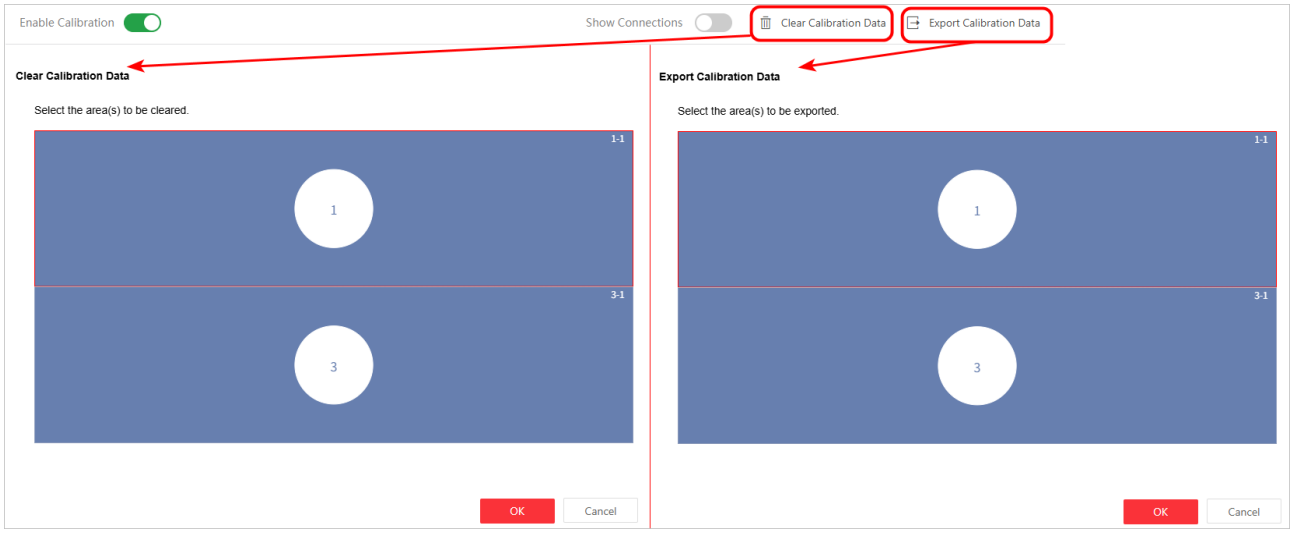



Figure 4-3 Clear/Export Calibration Data

## 4.1.1 Calibrate AXS Receiving Cards

Step 1 In the **Display Calibration** window, select **Load from LED Modules** to load the factory calibration data from the LED modules to the AXS receiving cards.

Step 2 Click **Live View** to check the display effect after loading the factory data.

Step 3 If the LED modules lack factory calibration data, select **File Calibration** to upload a locally saved calibration file.

Step 4 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 5 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**.

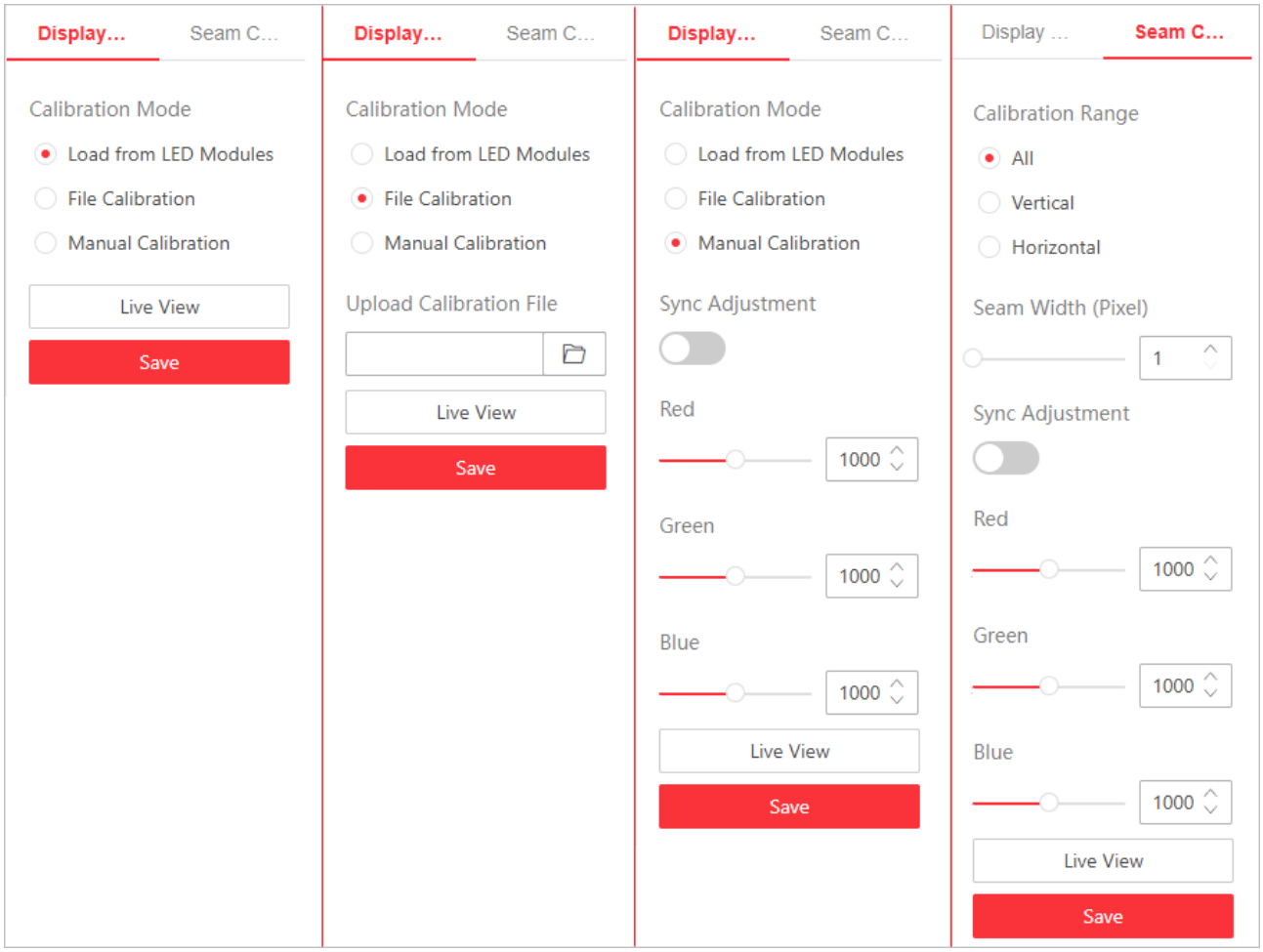



Figure 4-4 Calibrate AXS Receiving Cards

## 4.1.2 Calibrate HUB Receiving Cards

Step 1 In the **Display Calibration** window, select **File Calibration** to upload a locally saved calibration file.

Step 2 Click **Live View** to check the display effect after loading the calibration file.

Step 3 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 4 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**.

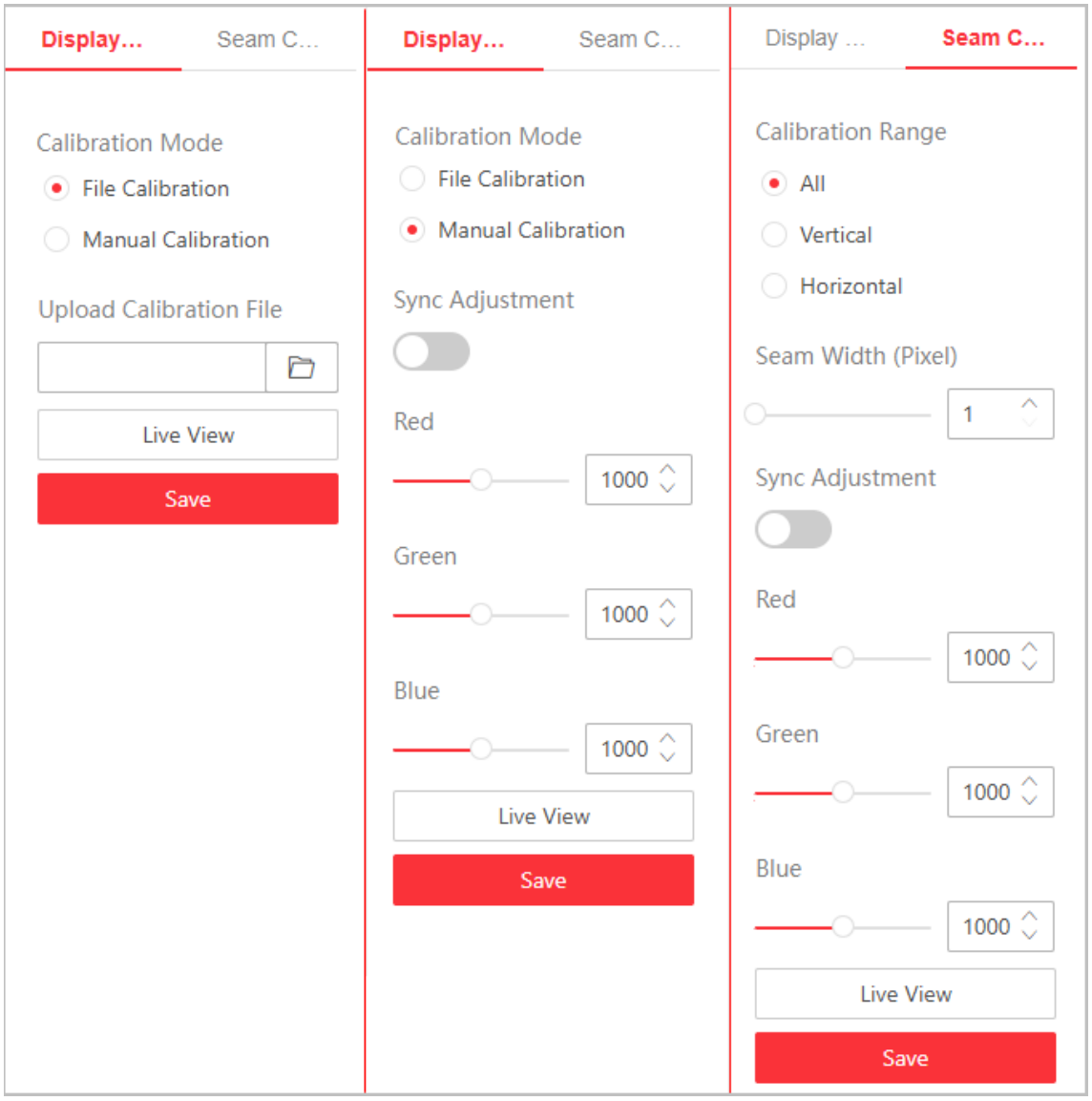



Figure 4-5 Calibrate HUB Receiving Cards

## 4.2 Configure Signal Parameters

**Configuration Steps**

Step 1 Navigate to **Configuration** → **Signal Configuration**.

Step 2 (Optional) Select a single C or V device. (Configuring all devices is enabled by default.)

Step 3 Set the input signal parameters.

Step 4 Set the output signal param3ters.

Step 5 Click **Save**.

**Basic Input Parameters**

- Signal source: Choose a specific source or AUTO mode (automatically switches to the latest connected source).
  - Supported models: All C-series models and DT60 series V/P models in sync mode. For sync mode, see "4.9 Configure Working Mode"
  - Only 2K C-models do not support AUTO mode.
- Resolution: Set the resolution or enable **Resolution Self-Adaption**.

  Supported models: DT60 series C models.
- 3D display: Enable **3D Display** and configure parameters when either of the following conditions is satisfied:
  - A 4K C-model LED controller is connected to a 3D sync signal transmitter via a multi-function card.
  - A DT90 series LED controller is connected to a 3D sync signal transmitter.

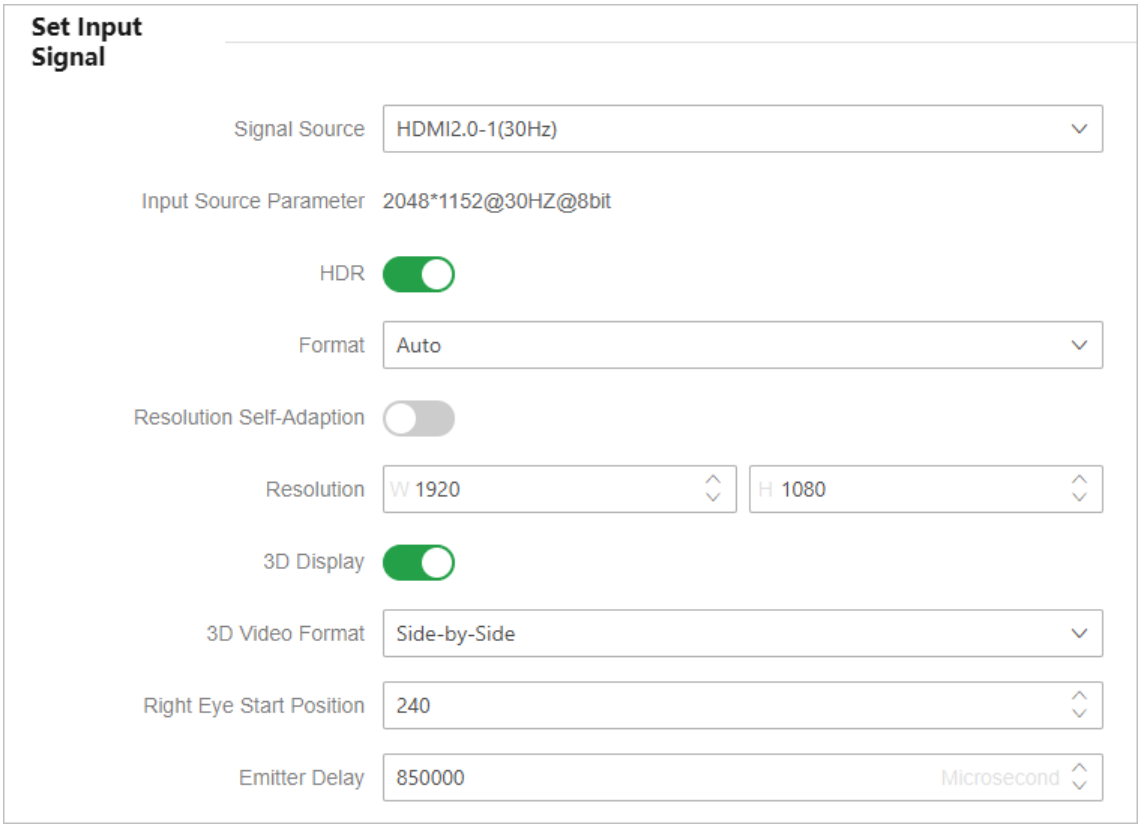



Figure 4-6 Configure Input Signals (DT90 Series C Model)

**HDR Functionality**

- Supported models: 4K sources (HDMI 2.0, SDI, and DP) of the DT90 series LED controllers.
- Configuration method:
  - C model: Enable HDR directly and configure the HDR parameters as required.
  - V/P model: Click **Configuration** of the target signal source, enable HDR, and configure the HDR parameters as required.

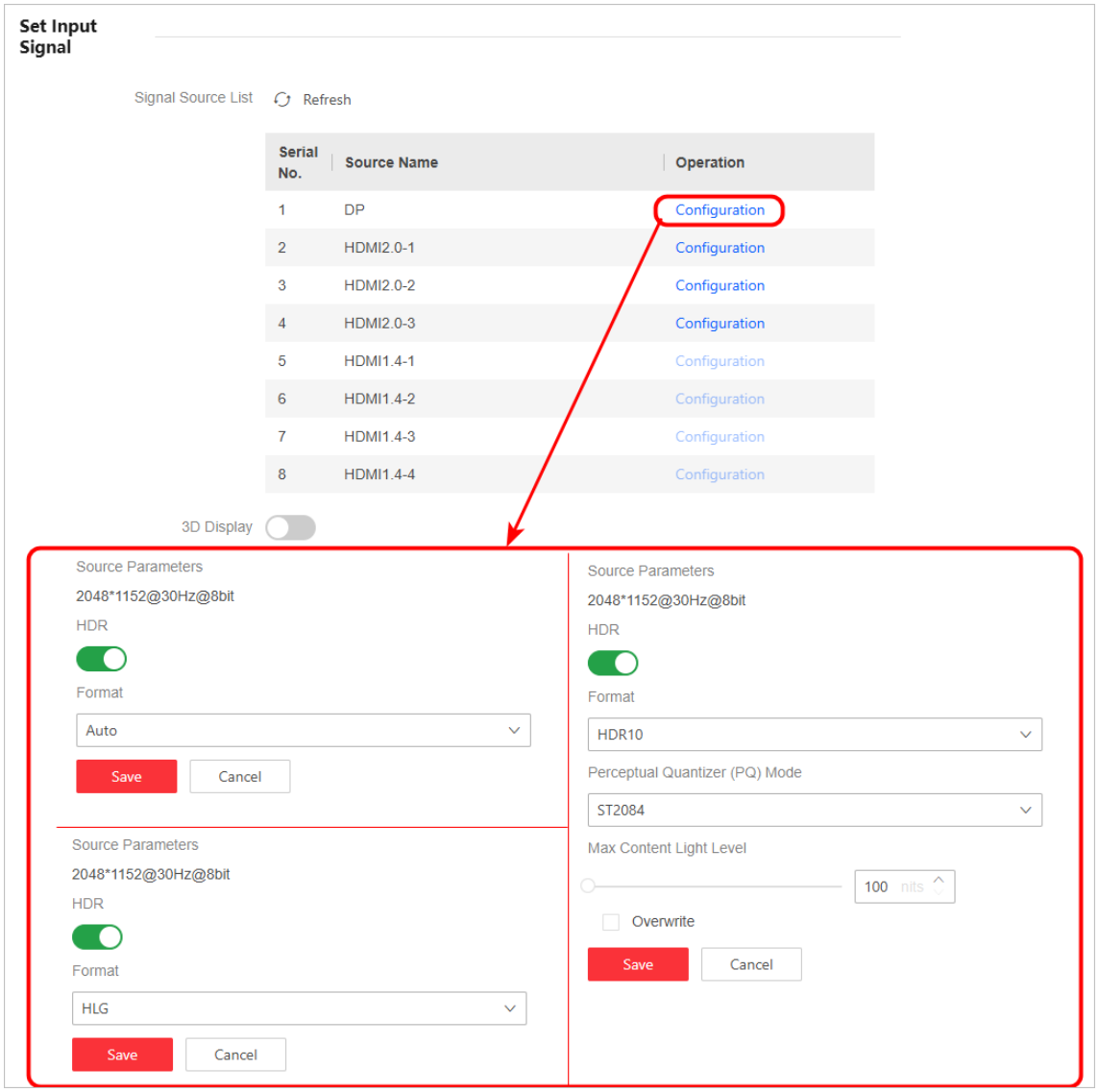



Figure 4-7 Configure HDR Functionality (DT90 Series V Model)

- HDR processing rules: The device will only activate HDR processing when the signal source conditions, output bit depth, and HDR format meet the requirements listed in the table below. Otherwise, the device will output SDR content.

Table 4-1 HDR Processing Rules

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

- After enabling HDR, ensure the display's receiving card supports HDR effects to view HDR content on the display.

**Basic Output Parameters**

- Scaling mode: Choose pixel-to-pixel mode or full-screen scaling mode as needed.

  Supported models: All C-series models and DT60 series V/P models in sync mode.
- Audio and volume: Control volume or disable audio output.
- Output bit depth: Select an output bit depth.

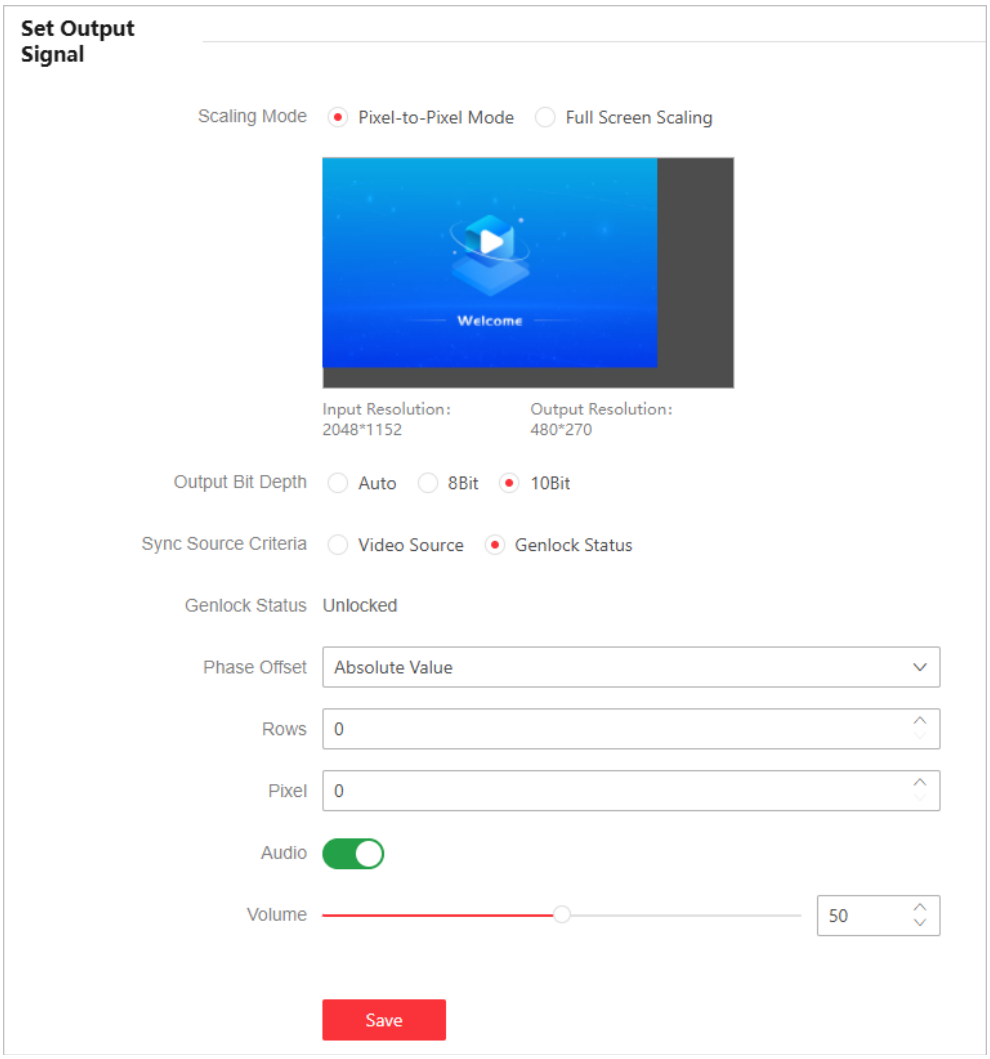



Figure 4-8 Configure Output Signal (DT90 Series C Model)

**Source Synchronization**

**Note**

Only DT90 series V/P-model LED controllers support the 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).

Step 1 Select the synchronization reference source:

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

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

Step 2 Set the phase offset:

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

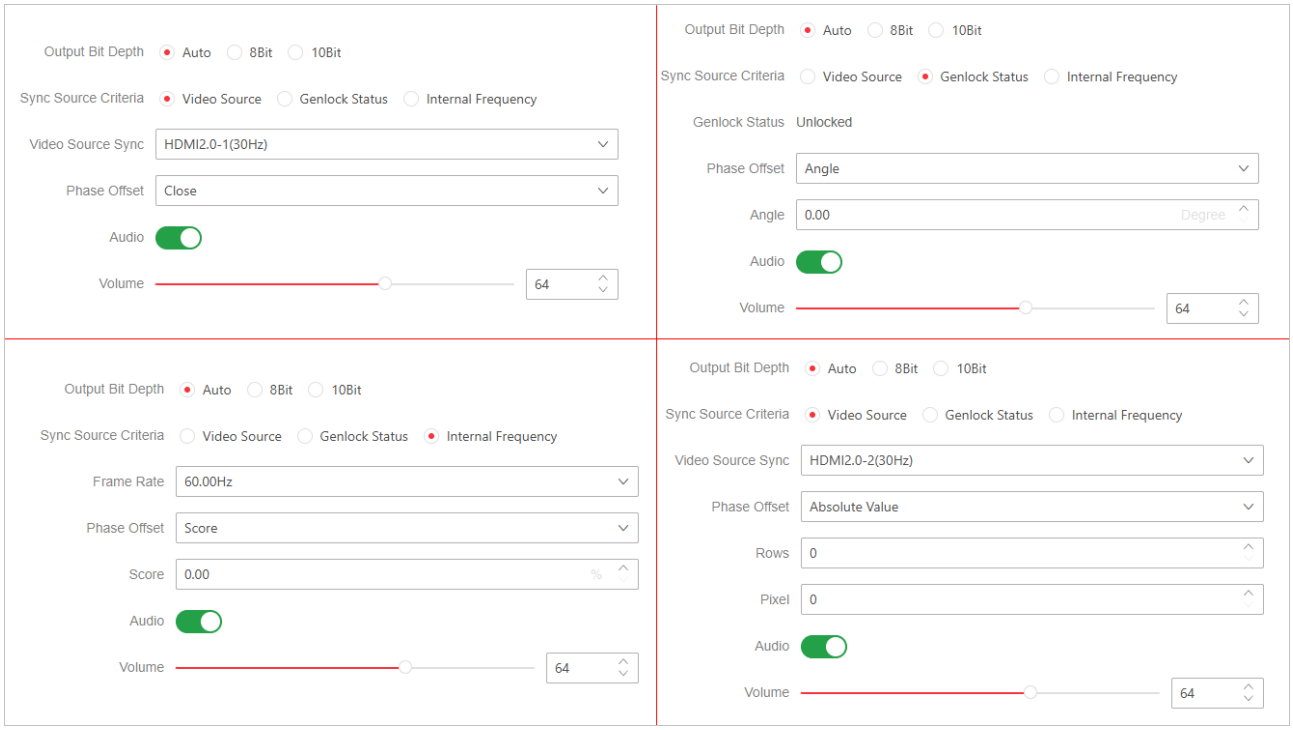



Figure 4-9 Configure Output Parameters (DT90 Series P Model)

# 4.3 Configure Image Effect

### Configure Display Effect

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

Step 2 (Optional) Select a single C or V device. (Configuring all devices is enabled by default.)

Step 3 Select a preset mode.

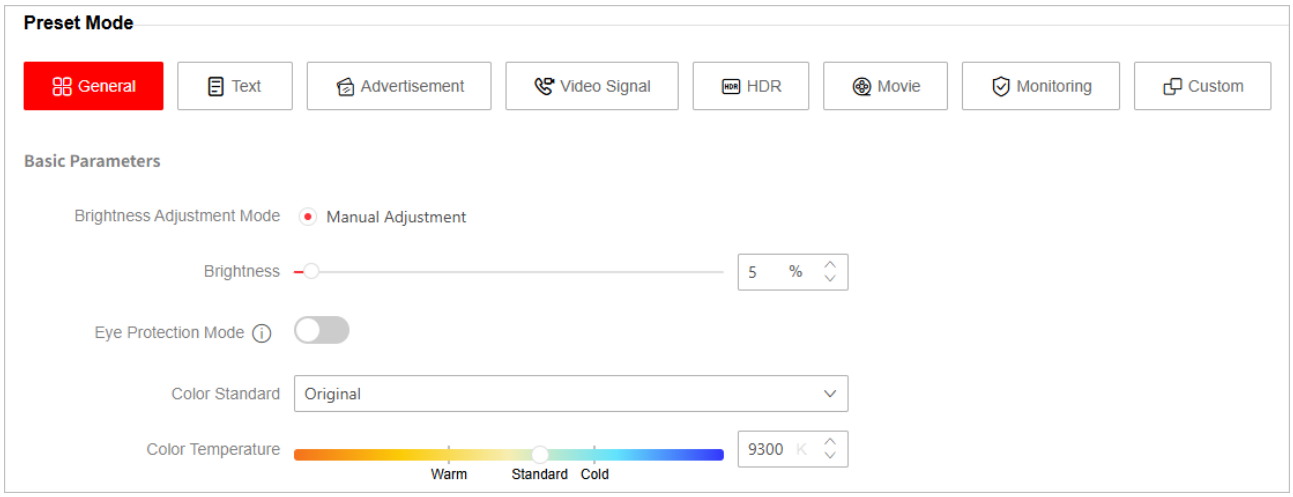



Figure 4-10 Select a Preset Mode

Step 4 If the current preset mode parameters do not meet the requirements, customize the parameters.

- Adjust brightness:
  - Manual adjustment: Set brightness directly.
  - Auto adjustment: Supports auto-brightness when the device is connected to a light sensor and the sensor is configured in the LED Tool client.
- Set energy-saving parameters:
  - Enable **Eye Protection Mode** to reduce brightness and blue light output.
  - Enable **Dynamic Energy Saving** and set the strength coefficient (only supported by some receiving cards).
- 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 **Frame Rate Adaptation** for low-gray flickering (only supported by C devices).
  - Enable **Gray Scale Optimization** or **Ultra-Low Gray Control** for uneven grayscale (only supported by some receiving cards).

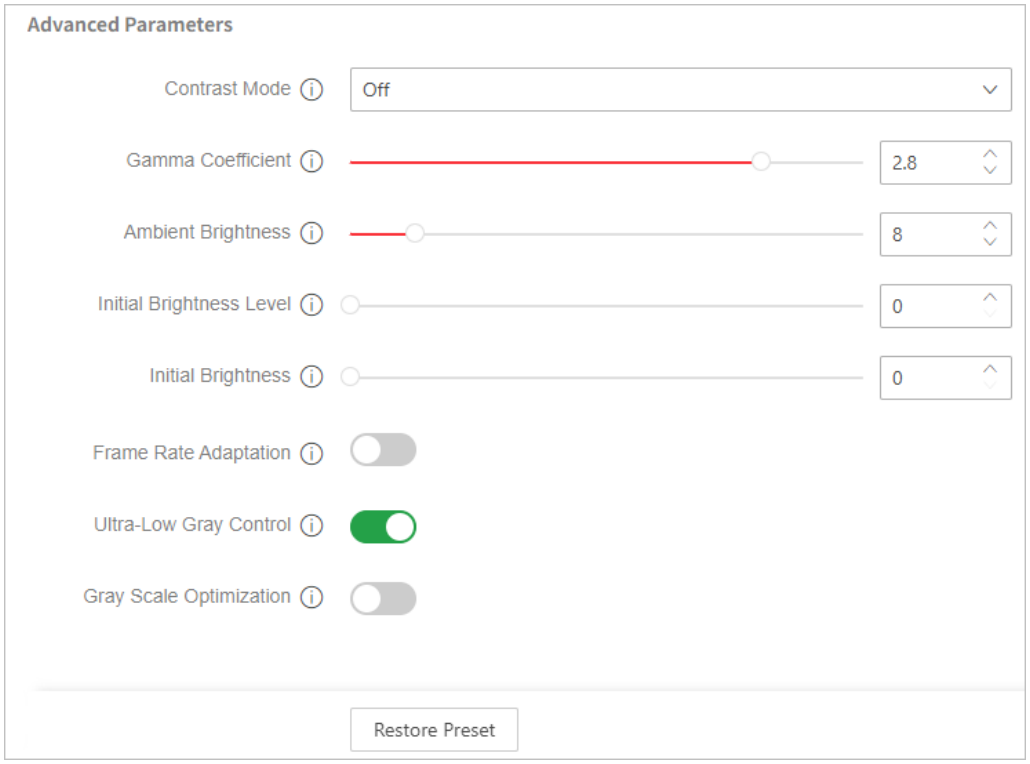



Figure 4-11 Configure Advanced Parameters of Display Effect

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

**Configure Startup Image**

**Note**

Only C and V devices support startup image configuration.

Step 1 Navigate to **Configuration** → **Customization** → **Startup Image**.

Step 2 (Optional) Select a single C or V device. (Configuring all devices is enabled by default.)

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

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

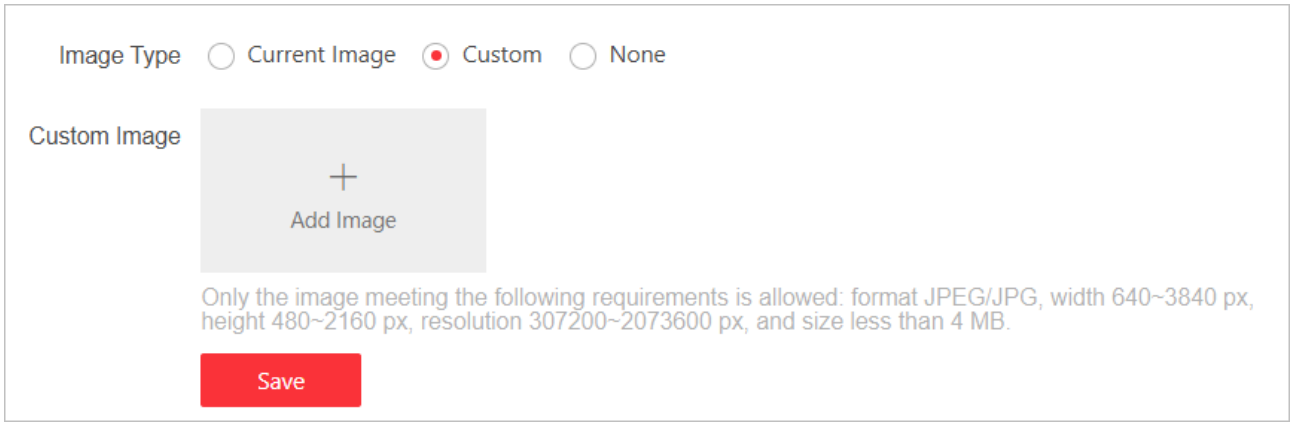



Figure 4-12 Configure Startup Image

**Configure No Signal Images**

No signal images vary with the device type. This chapter uses the C device as an example.

Step 1 Navigate to **Configuration** → **Customization** → **No Signal Image**.

Step 2 (Optional) For the C or V devices, select a device.

Configuring all devices is enabled by default. Thus, the parameter of the current device will synchronize to other online devices.

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

- Last Frame: The last frame image will be displayed when the signal interruption occurs.
- Aging Mode: The display enters random solid color mode and flashes regularly when the signal interruption occurs.
- Custom Picture: Click + to upload an image to display when the signal interruption occurs.

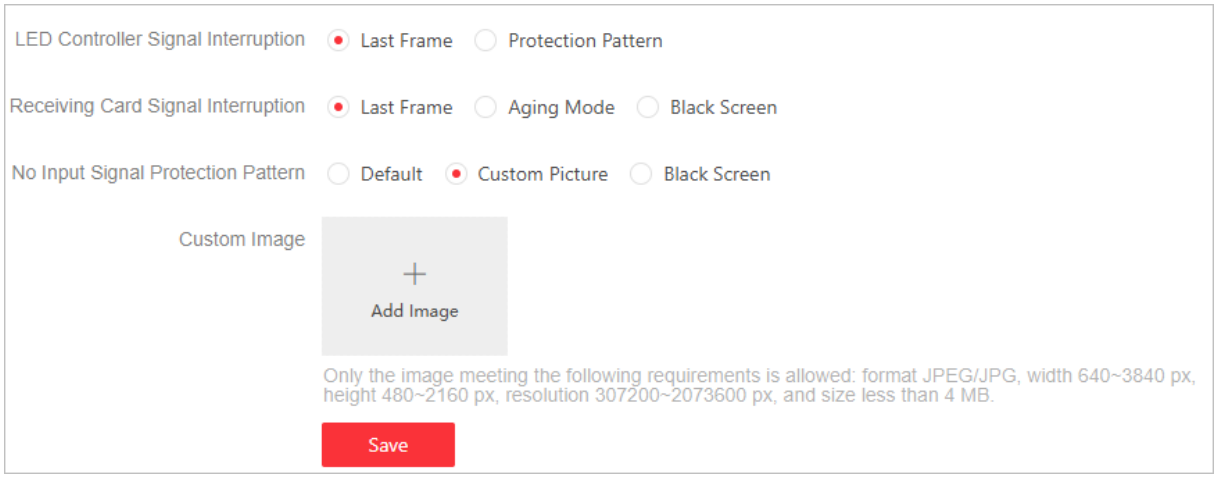



Figure 4-13 Configure No Signal Images of C Devices

## 4.4 Splice Video Wall

Only V devices (excluding the DT90 series) support video wall splicing. When the driving capacity of a single V device is smaller than the driving capacity required by the display, you need to use multiple V devices and configure splicing.

**Before You Start**

Use either of the following methods to connect multiple V devices:

- Connect the signal source to the first device, use an HDMI cable to connect the HDMI LOOP port of the first device with the HDMI IN port of the next device, and use the same method to connect the remaining devices.
- Connect the signal source to a video wall controller that has multiple HDMI OUT ports. Use HDMI cables to connect the HDMI IN port of each V device to the HDMI OUT ports of the video wall controller.

**Steps**

Step 1 Navigate to **Configuration** → **Splicing by LED Controller**.

Step 2 Select a device.

Step 3 According to the actual cabinet quantity, set the row and column values.

Step 4 (Optional) If you use the V devices to splice the video wall, enable **Splicing by LED Controller**. If you use a video wall controller to splice the video wall, disable **Splicing by LED Controller**.

Only when a V device has 12 or 20 network ports, it has the HDMI LOOP ports. Thus, it can be used to splice the video wall.

Step 5 Click **Show ID on Display**.

Step 6 According to the IDs on the display, drag one online device from the device list to the video wall window. Repeat this operation to ensure all video wall windows are bound with devices.

Step 7 Click **Save**.

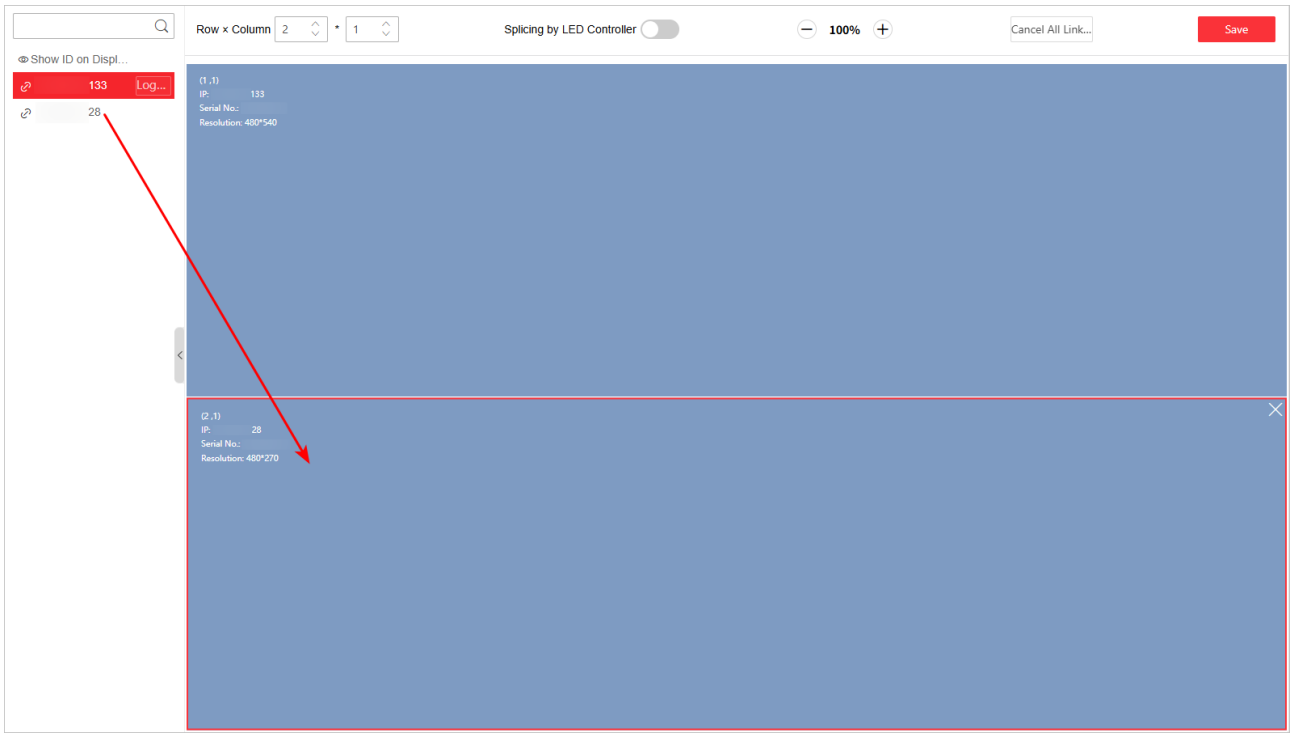



Figure 4-14 Splice the Video Wall

Step 8 (Optional) Click **Unbind All Linkage** to unbind all devices from the video wall.

## 4.5 Configure General Parameters

### Configure Time for C/V Devices

Step 1 Navigate to **Configuration** → **System** → **System Configuration** → **Time Settings**.

Step 2 (Optional) Select a single C or V device. (Configuring all devices is enabled by default.)

Step 3 Select a time zone.

Step 4 Set the time manually, or click **Sync with Computer Time** to make the device time consistent with the computer time.

Step 5 Enable **DST** and set the related parameters.

Step 6 Click **Save**.

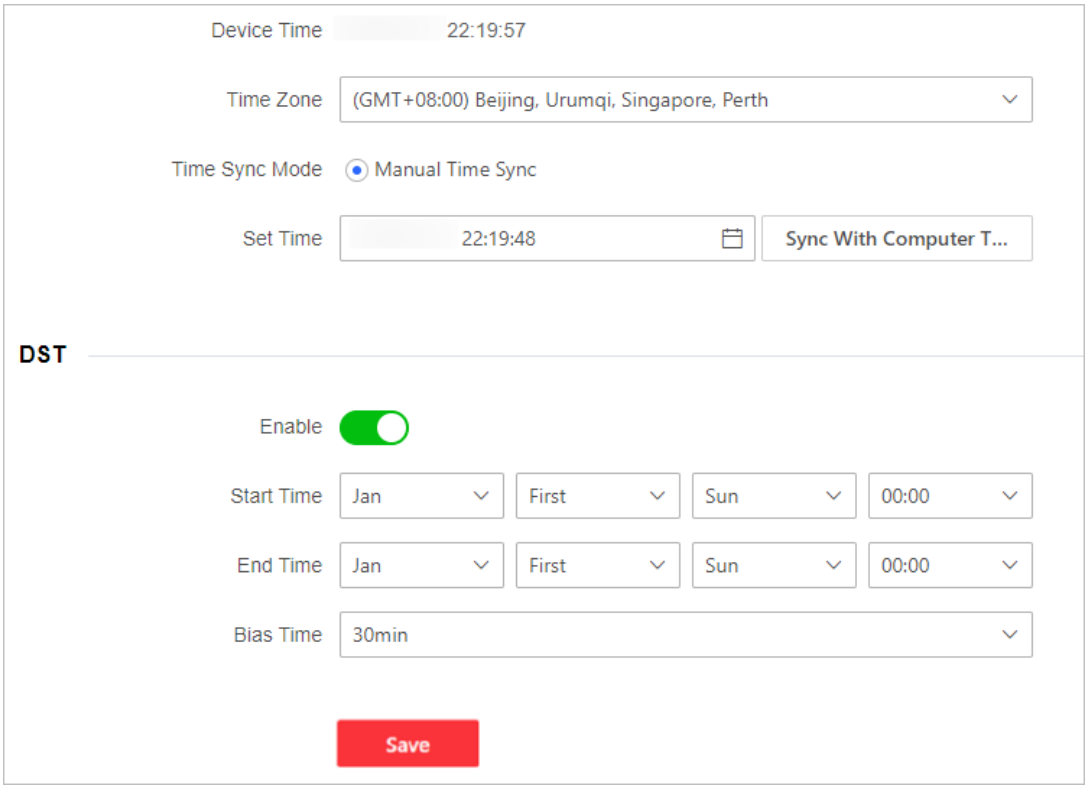



Figure 4-15 Configure Time for C/V Devices

### Configure Time for P Devices

Navigate to **Configuration** → **System** → **System Configuration** → **Time Settings** to configure the time parameters for P devices:

- Select **NTP Sync**, enter the NTP server address, NTP port number, and interval.
- Select **Manual Time Sync**, and then set the time manually or click **Sync with Computer Time**.

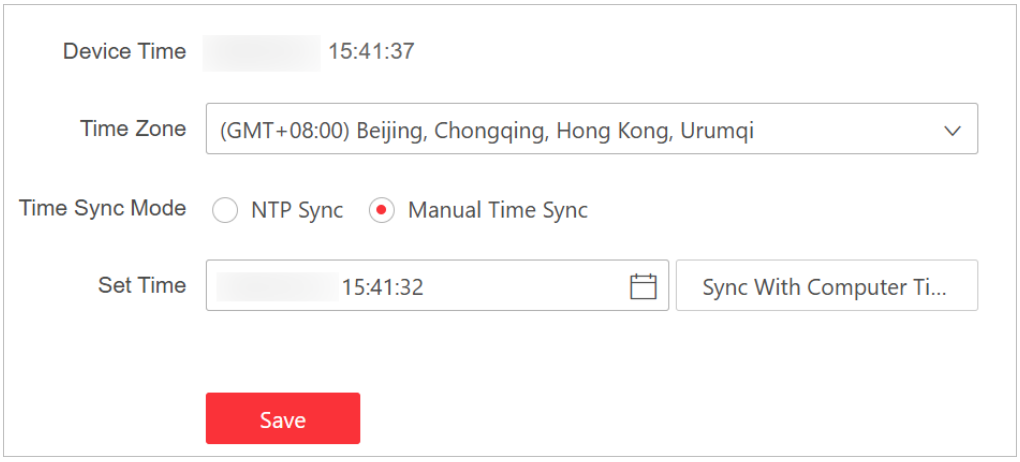



Figure 4-16 Configure Time for P Devices

### Configure Serial Port Parameters

To connect a central control device or third-party device, navigate to **Configuration** → **System** → **Serial Port Configuration** to configure serial port parameters matching the target device.

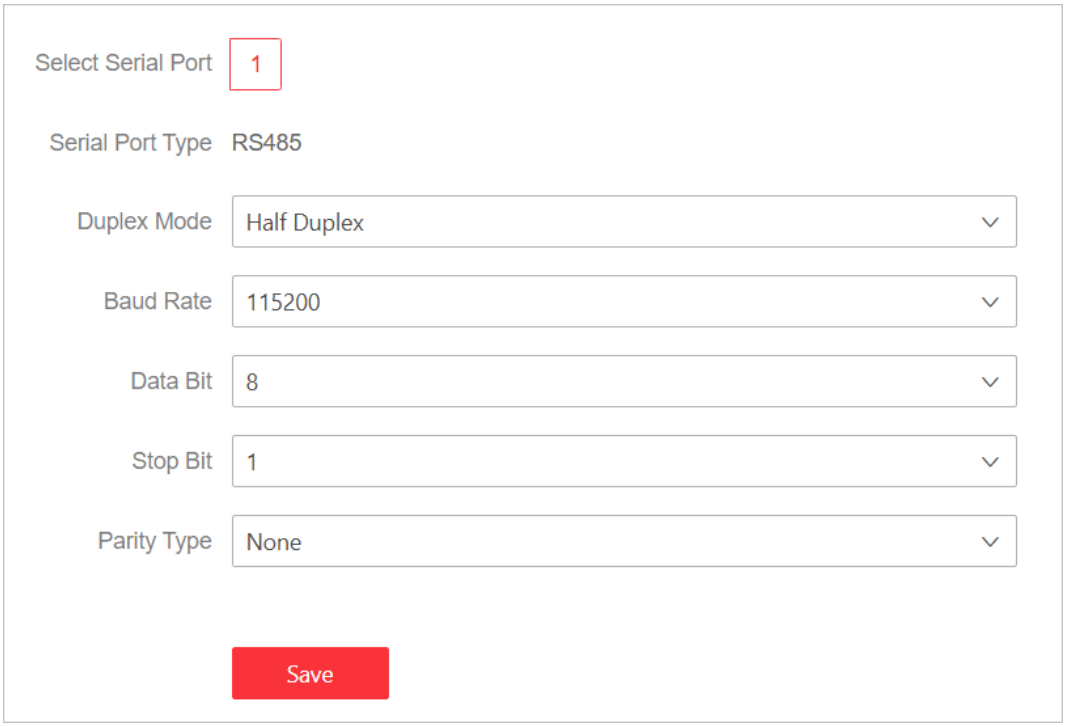



Figure 4-17 Configure Serial Port Parameters

**Configure Font for V Device**

Step 1 Navigate to **Configuration** → **Customization** → **Font Settings**.

Step 2 Select a device.

Configuring all devices is enabled by default. Thus, the parameter of the current device will synchronize to other online devices.

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

Figure 4-18 Configure Font

**Configure Hot Standby for C/V Device**

The DT30 series devices do not support web-based configuration for LED controller hot standby. To configure this feature, please use the LED Tool client.

Step 1 Navigate to **Configuration** → **Hot Standby** → **LED Controller Hot Standby**.

Step 2 When the device supports hot standby, select a device and drag it to the **Add Standby Card** area.

Step 3 (Optional) Click to switch the active card and standby card.

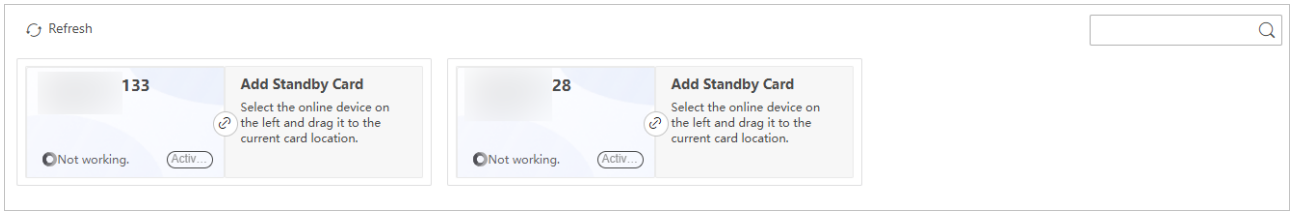



Figure 4-19 Configure LED Controller Hot Standby

### Configure Data Port Backup

Step 1 Navigate to **Configuration** → **Hot Standby** → **Data Port Backup**.

Step 2 Enable **Data Port Backup**.

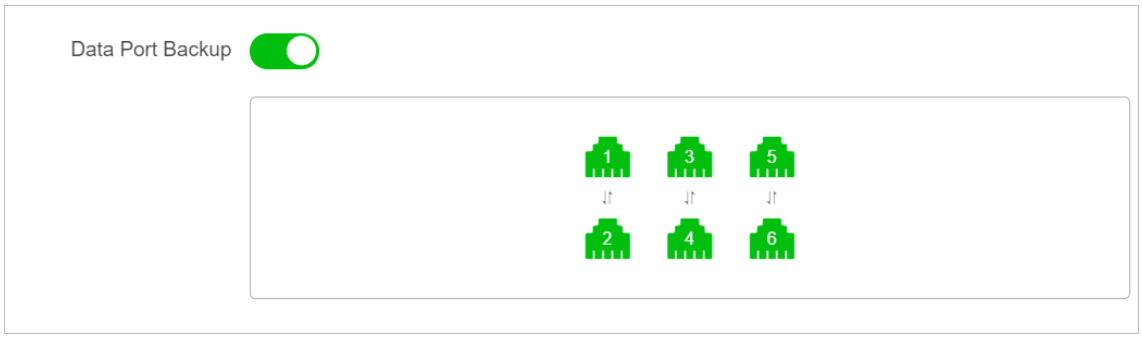



Figure 4-20 Configure Data Port Backup

### Configure Alarms

Navigate to **Configuration** → **Environment and Alarm**, monitor the following items as required and set the thresholds:

- When the threshold is exceeded, the alarm information and current value of the monitored item will be shown on the display and the device web interface.
- After the receiving card connects to a temperature and humidity sensor, you can monitor the environmental temperature and humidity.

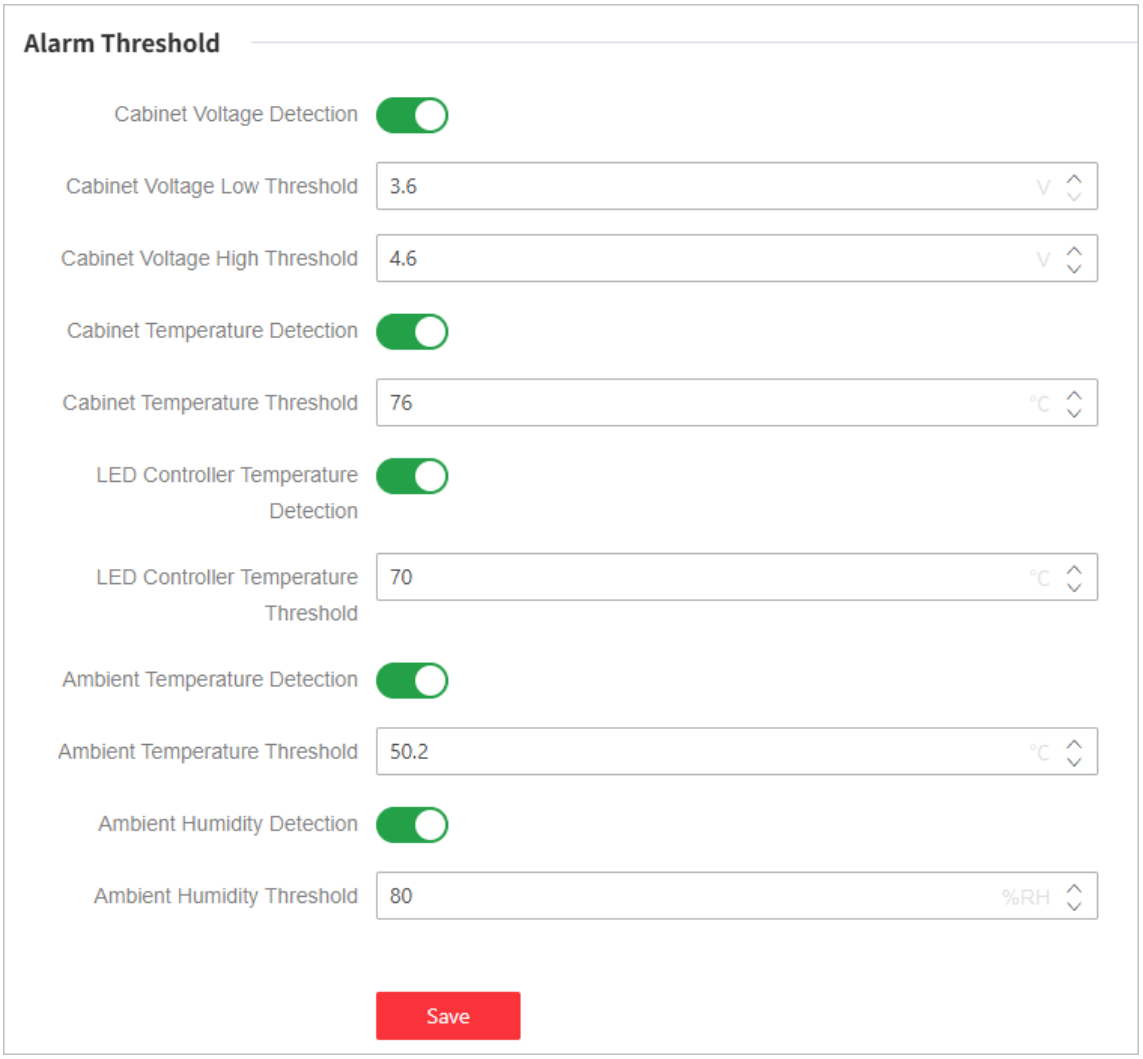



Figure 4-21 Configure Alarms

**Configure Schedule**

Step 1 Navigate to **Configuration** → **System** → **Schedule**.

Step 2 (Optional) Select a single C or V device. (Configuring all devices is enabled by default.)

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

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

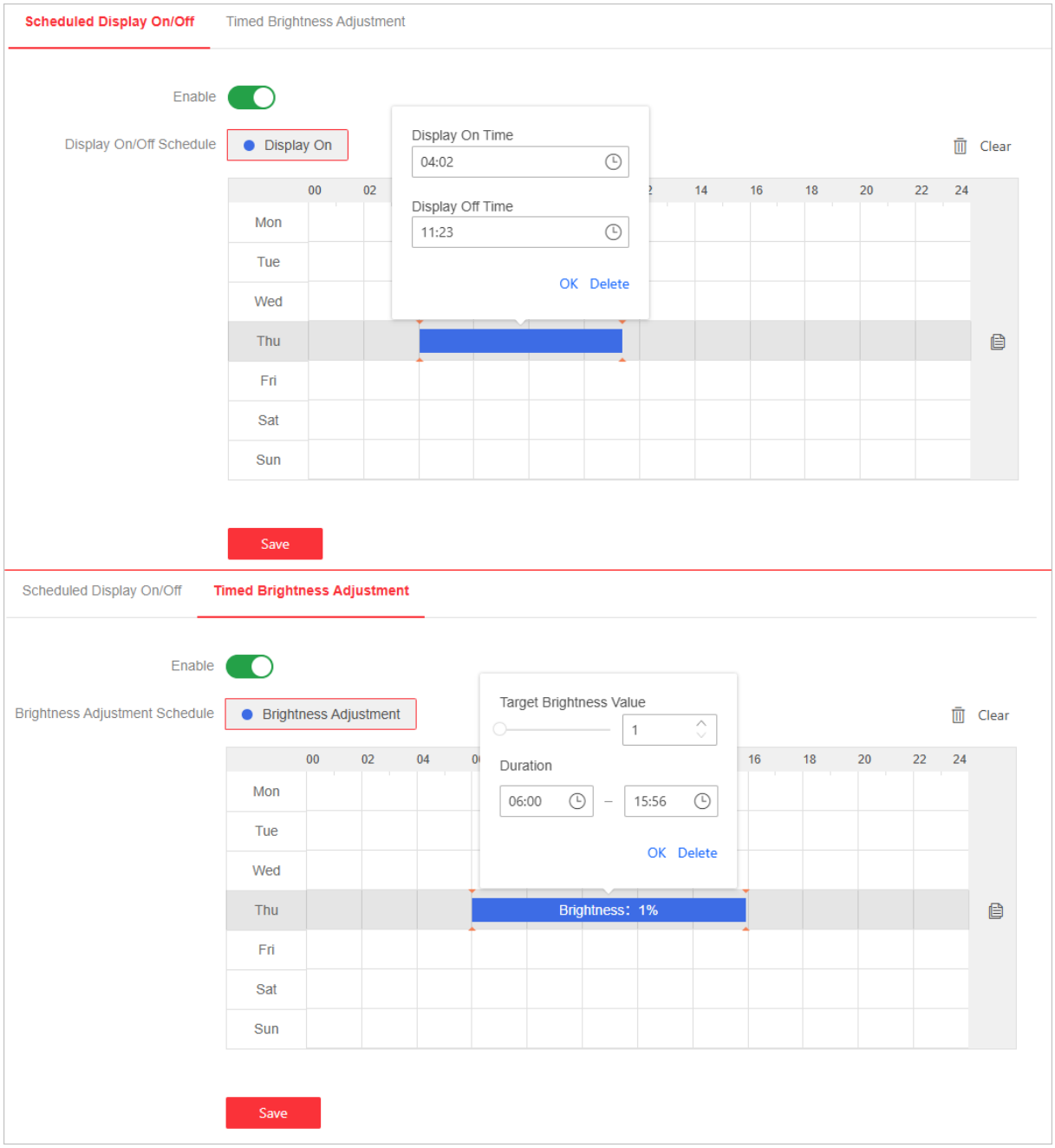



Figure 4-22 Configure Schedule

## Configure OSD

Navigate to **Configuration** → **OSD Configuration** to customize OSD text color and OSD background color. OSD is enabled by default. You can disable OSD or restore the default OSD parameters as required.

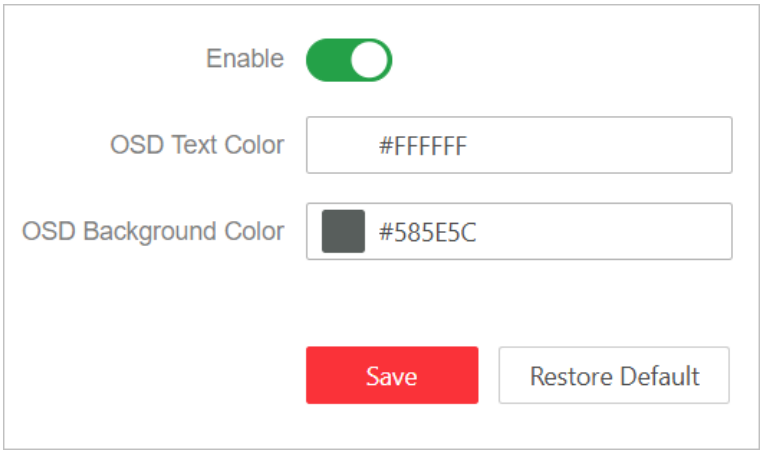



Figure 4-23 Configure OSD

## 4.6 Configure Network Parameters

C and V devices only support wired network address configuration, while P devices also support wireless network address configuration, Bluetooth, hotspot, OTAP service, and cloud service.

**Configure Wired Network Address**

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

Step 2 Enable **Static IP Address**.

Step 3 Set the static wired IP address:

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

Step 4 Click **Save**.

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

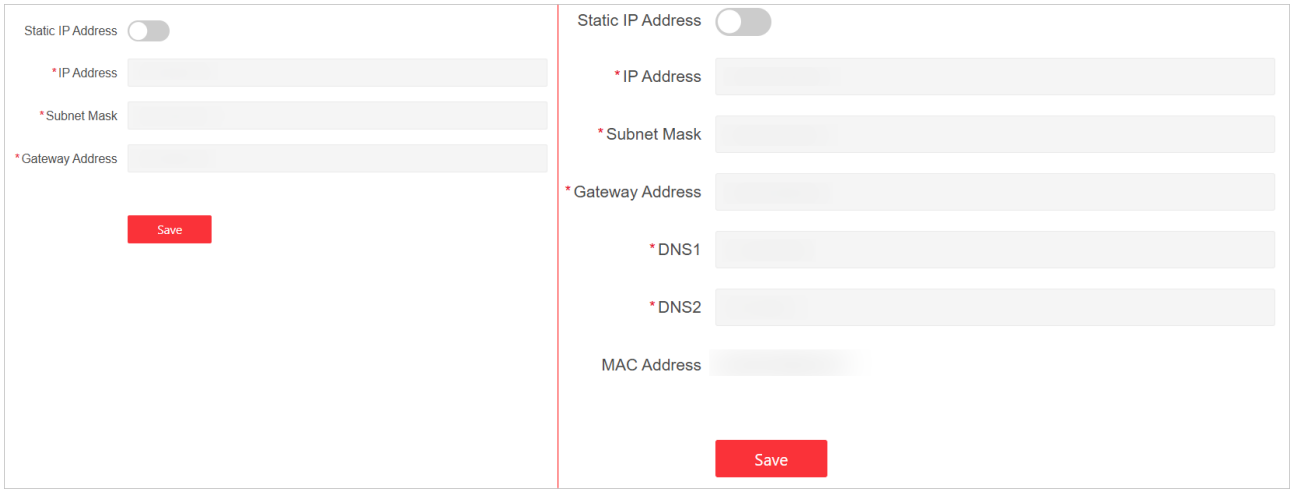



Figure 4-24 Configure Wired Network Address ( Left: C/V Devices, Right: P devices)

**Configure Wireless Network Address for P Devices**

For initial device activation and login authentication, use an Ethernet cable to connect the device to the network. The device will automatically use the wired connection when both wired and wireless networks are available.

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

Step 2 Navigate to **Configuration** → **Network** → **Network Settings** → **Wi-Fi** and enable Wi-Fi.

Step 3 Select an available Wi-Fi network and click **Connect**.

Step 4 Click **Network Status** to view the IP address automatically obtained by the device after the device connects to the wireless network.

Step 5 Enable **Static IP Address**.

Step 6 Set the static wireless IP address:

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

Step 7 Click **Save**.

Step 8 When the wired network is unavailable or the Ethernet cable is removed, enter the configured wireless IP address of the device in the browser of the computer to log in to the device web interface.

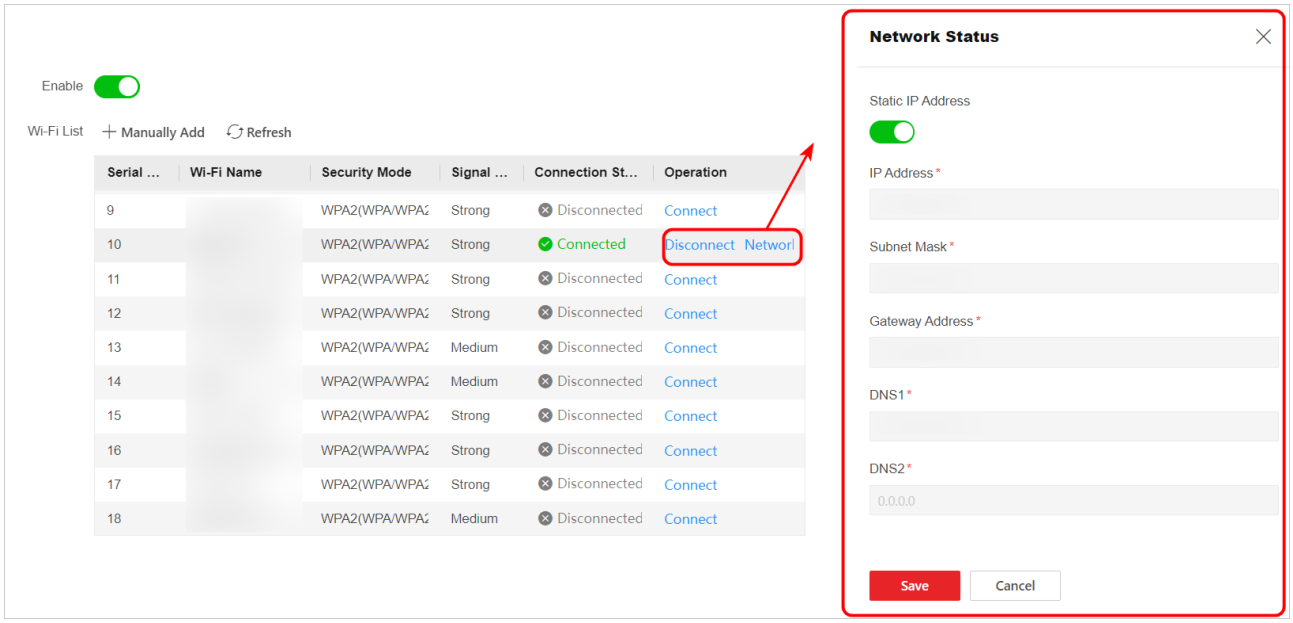



Figure 4-25 Configure Wireless Network Address

### Configure Bluetooth for P Devices

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

Step 2 Navigate to **Configuration** → **Network** → **Network Settings** → **Bluetooth** and enable Bluetooth.

Step 3 Use Bluetooth to connect the device to other devices:

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

Step 4 Click **Save**.

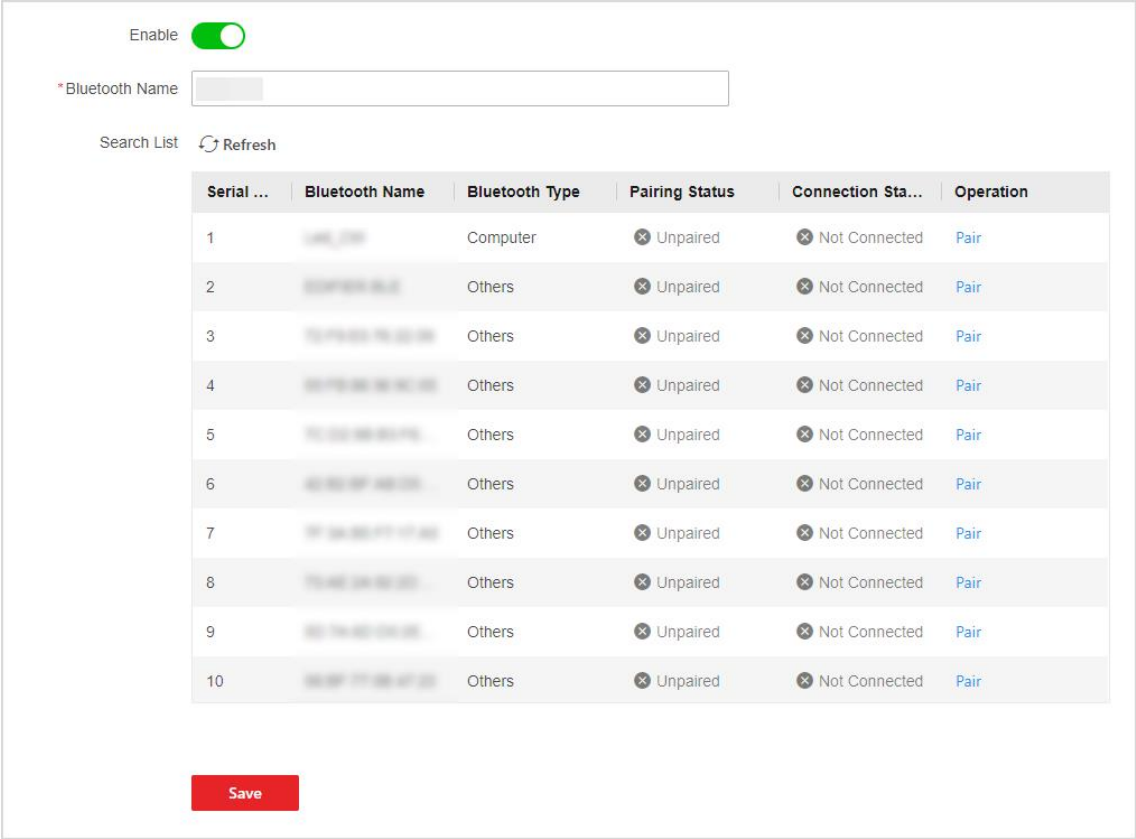



Figure 4-26 Enable Bluetooth

**Configure Hot Spot for P Devices**

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

Step 2 Navigate to **Configuration** → **Network** → **Network Settings** → **Hot Spot** and enable hot spot.

Step 3 (Optional) Configure hot spot parameters as required:

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

Step 4 Click **Save**.

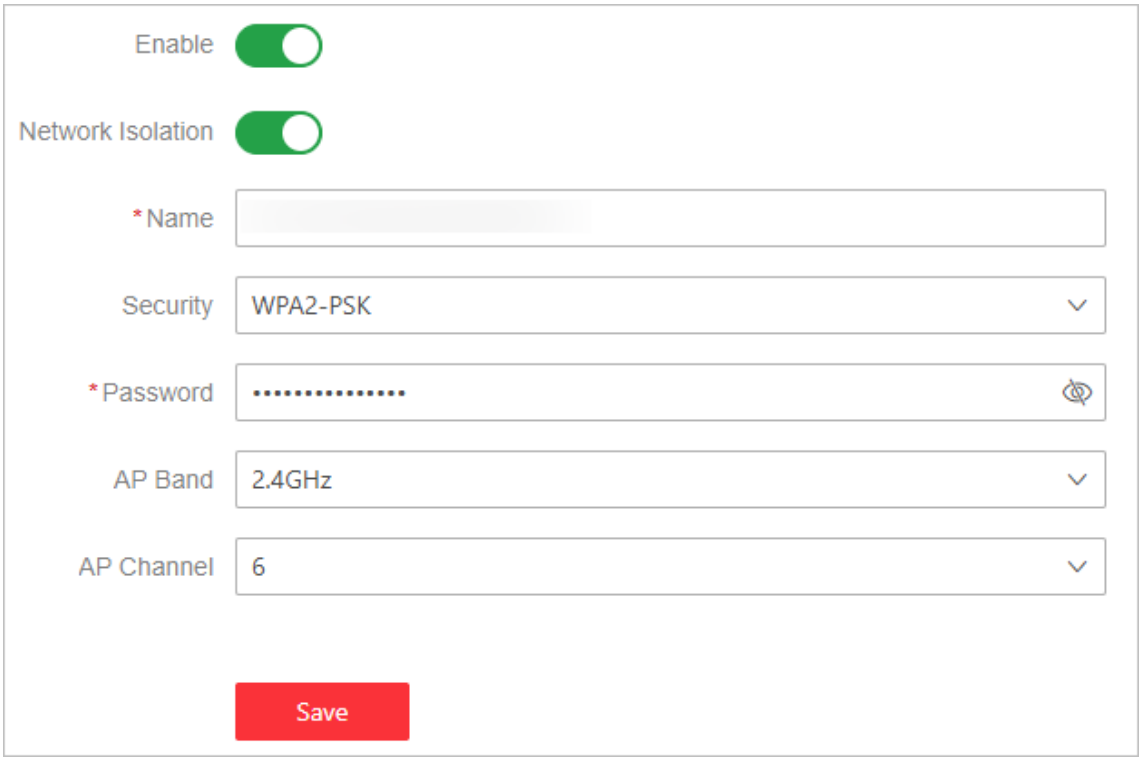



Figure 4-27 Configure Hot Spot

**Configure OTAP Service for P Devices**

Step 1 Navigate to **Configuration** → **Network** → **Device Access** → **OTAP** and enable the OTAP service.

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

Step 3 Click **Save**.

Step 4 Add the device to the platform:

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

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

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

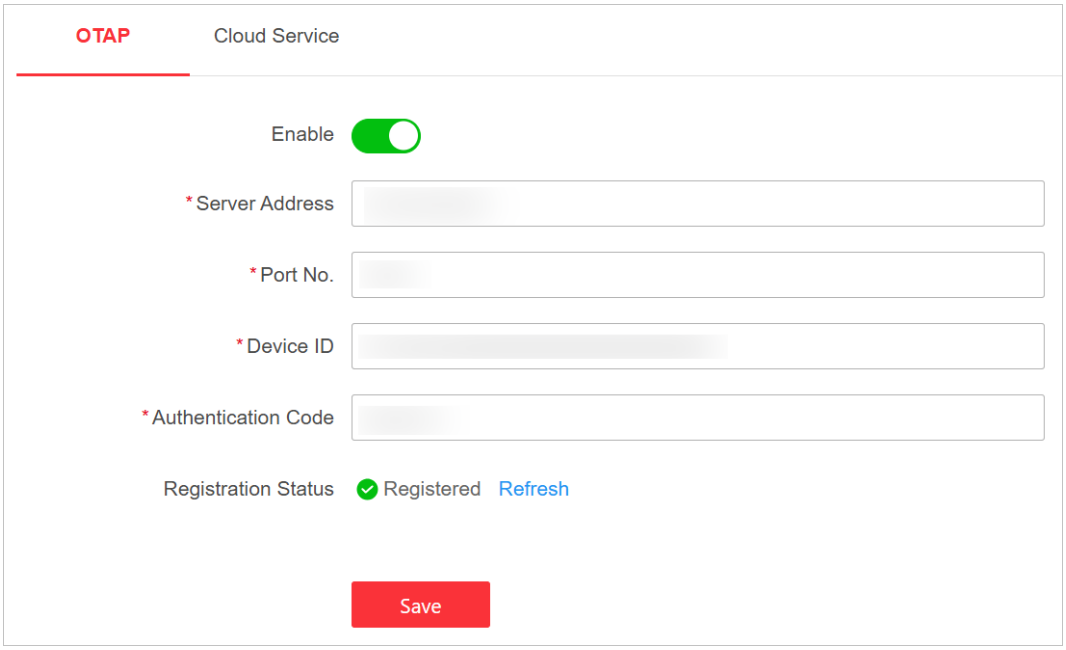



Figure 4-28 Configure OTAP Service

**Configure Cloud Service for P Devices**

Step 1 Navigate to **Configuration** → **Network** → **Device Access** → **Cloud Service** and enable cloud service.

- After enabling, the device will register to the default server. When successfully registered, the device status shows **Online**.
- If registration fails, the device status shows **Offline**.
  - Click **Refresh** to renew the network connection status.
  - Click **Detect** to test the network connection status.

Step 2 Add the device to the platform via any of the following methods:

- Open the mobile client of the corresponding platform and scan the QR code in the **Account Binding** section.
- Open the web client of the corresponding platform and enter the verification code in the **Account Binding** section.

**Note**

- When the device has been successfully added to the platform, its status will be **Cloud Account Bound**.
- After the device is successfully added to the platform, you can remotely configure the device, maintain the device, manage display content, and monitor the device status through the platform.

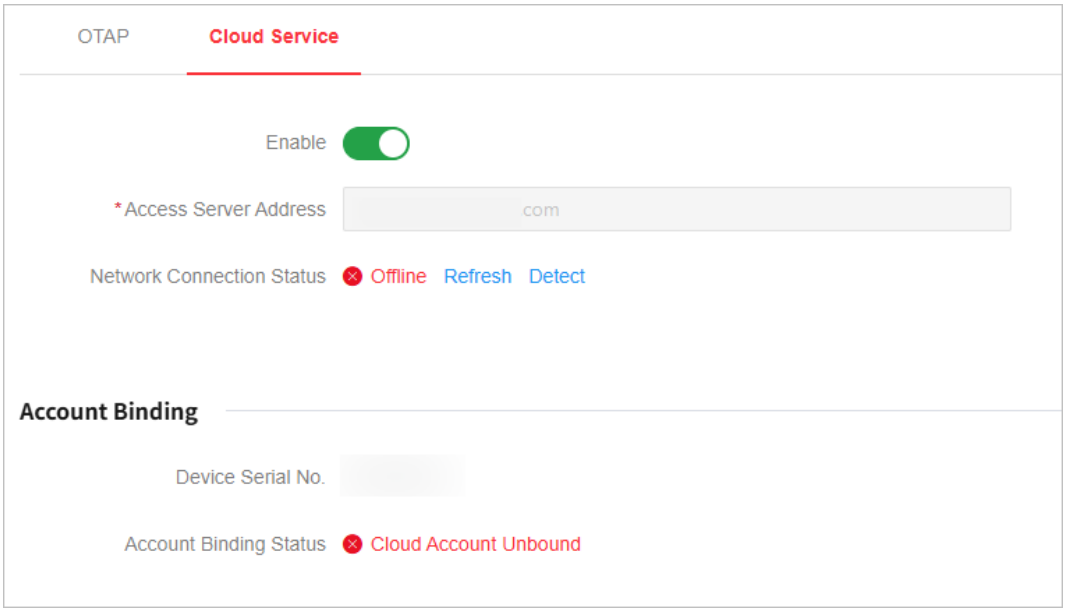



Figure 4-29 Configure Cloud Service

## 4.7 Configure Auto Dehumidification

Step 1 Navigate to **Configuration** → **Dehumidification**.

Step 2 (Optional) Select a single C or V device. (Configuring all devices is enabled by default.)

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

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

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

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

Step 6 (Optional): Click **Stop Current Dehumidification Process** to stop the ongoing dehumidification process.

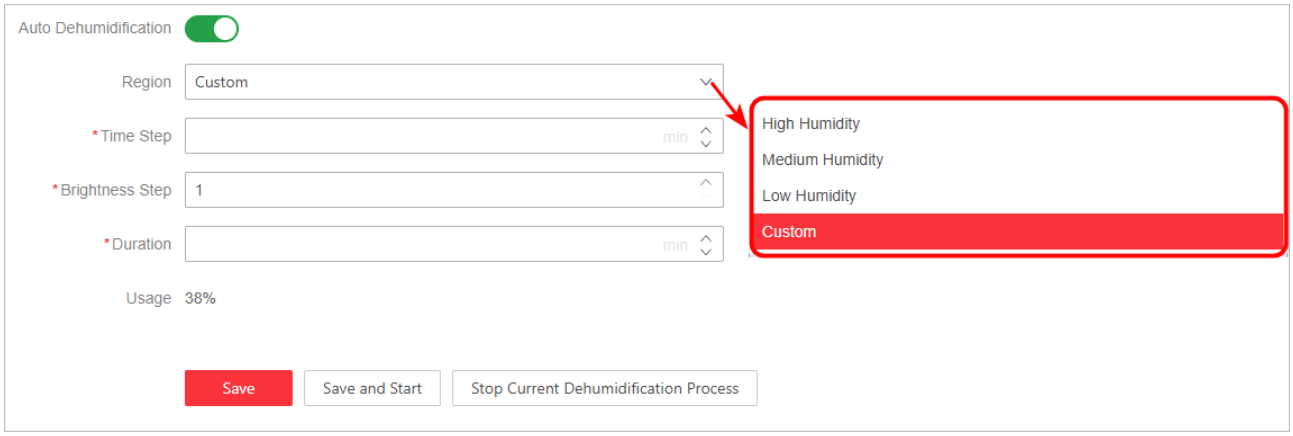



Figure 4-30 Configure Auto Dehumidification

## 4.8 Configure Loading Mode

Navigate to **Configuration** → **Loading Mode** to select a mode:

- **Self-Adaption**: If you select this mode, the device automatically switches between standard loading and mini loading based on the network port driving capacity.
- **Standard Loading**: Select this mode when the device's single network port load exceeds 0.65 MP but does not exceed 2.925 MP. If you select this mode, the device will compress the images.
- **Mini Loading**: Select this mode when the device's single network port load does not exceed 0.65 MP. If you select this mode, the device will not compress the images.

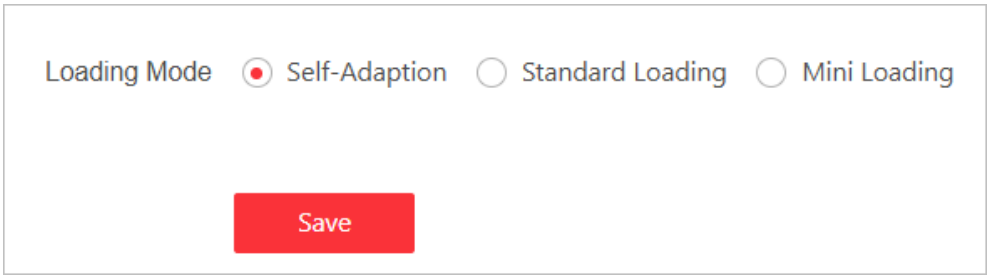



Figure 4-31 Configure Loading Mode

Table 4-2 Supported Loading Mode

| Device Series | Device Model | Loading Mode | | |
|---|---|---|---|---|
| | | Self-adaption | Standard Loading | Mini Loading |
| DT30 | All models | Loading mode is not supported. | | |
| DT60 | 2K C-type devices | | √<br>Supported on any DATA OUT port. Total load must be ≤2.925MP. | √ |
| | 2K V/P-type devices | | √<br>Supported only on DATA OUT ports 1 | √ |

| Device Series | Device Model | Loading Mode | | |
|---|---|---|---|---|
| | | Self-adaption | Standard Loading | Mini Loading |
| | | | and 2. Total load must be ≤2.925MP. | |
| | 4K C/V/P-type devices | √ | √<br>Supported on any DATA OUT port. Total load must be ≤13MP. | √ |
| DT90 | All models | | √<br>Supported on any DATA OUT port. Total load must be ≤26MP. | √ |

**Note**

- Among the DT60 series 4K V/P-type devices, only some devices support loading mode.
- Loading mode does not support batch configuration and must be configured individually for each device.
- Before using the standard loading mode, ensure that both the devices and receiving cards support this mode.
- DT60 series 2K devices and DT90 series devices will automatically restart after switching to standard loading mode or mini loading mode.

## 4.9 Configure Working Mode

Only V and P devices (excluding DT90 and DT30 series) support working mode configuration. Navigate to **Configuration** → **Working Mode**, select a working mode, and click **Save**. The device will restart to make the selected working mode effective. By default, the V and P devices use video processing mode.

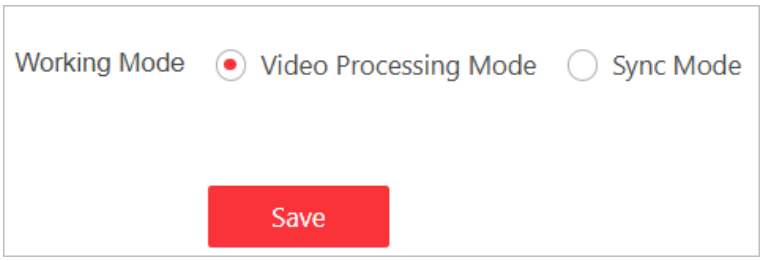



Figure 4-32 Configure Working Mode

# Chapter 5 Display/Device Maintenance

## 5.1 View Device Status

Navigate to **Overview** or navigate to **Display Maintenance** → **LED Controller Status** to view the following information:

- After you use multiple cascaded C or V devices to splice the video wall, you can view the basic information and status of the display. Click **Details** of a display to view the LED controller details, network port usage, and LED controller basic information.

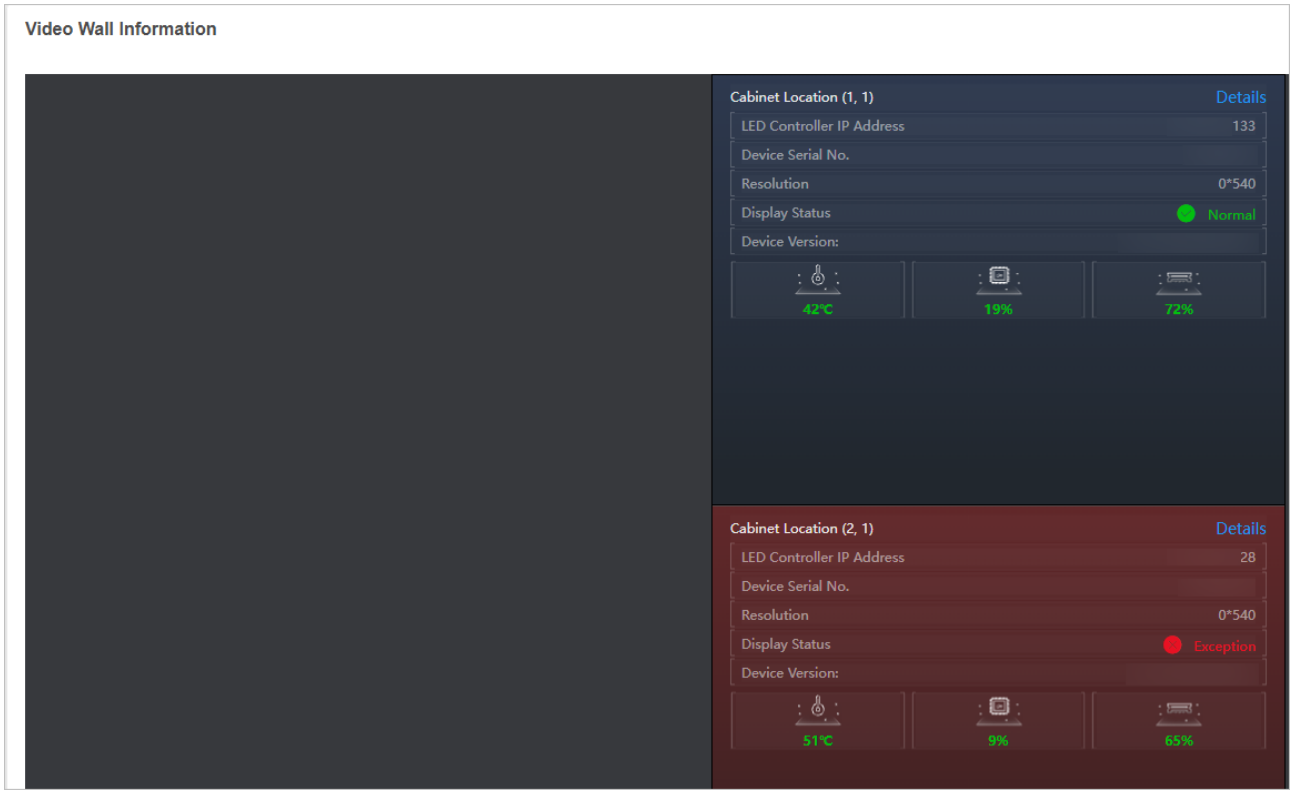



Figure 5-1 View Spliced C/V Device Status

- When you control a single C or V device or when you do not use multiple cascaded C or V devices to splice the video wall, you can click a device to view its details, network port usage, and basic information.
  - You can identify the online and offline status of a receiving card: yellow indicates the offline status, and blue indicates the online status. Hover over a cabinet to view the resolution of an online receiving card.
  - Hover over a network port to view the network port usage.

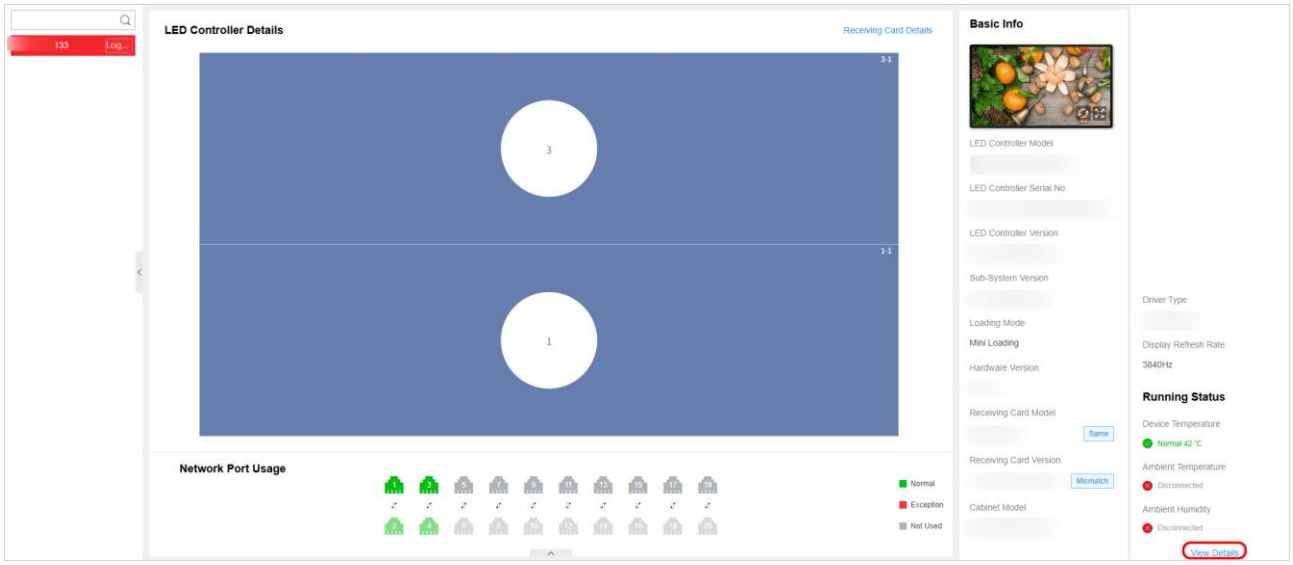



Figure 5-2 View Status of Single C/V Device

- When you control a P device, you can view its details, network port usage, and basic information.
  - You can identify the online and offline status of a receiving card: yellow indicates the offline status, and blue indicates the online status. Hover over a cabinet to view the resolution of an online receiving card.
  - Hover over a network port to view the network port usage.

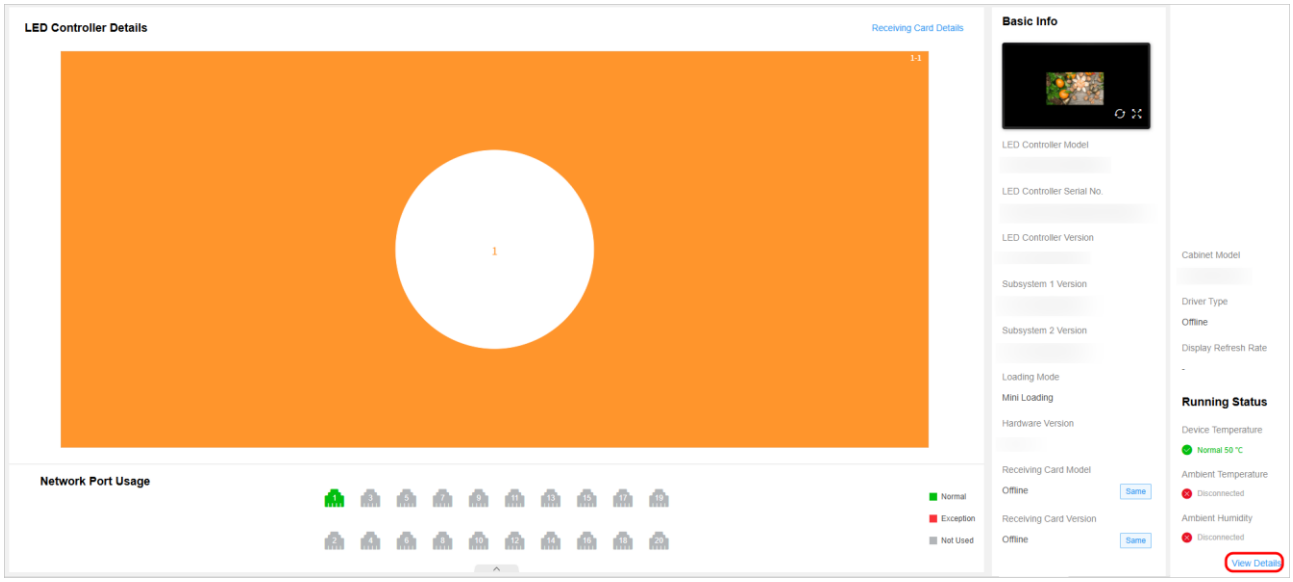



Figure 5-3 View P Device Status

- For any device in the C, V, or P series, you can click **Receiving Card Details** to view the receiving card details. For a HUB receiving cards, you can click to view the signal port connection.

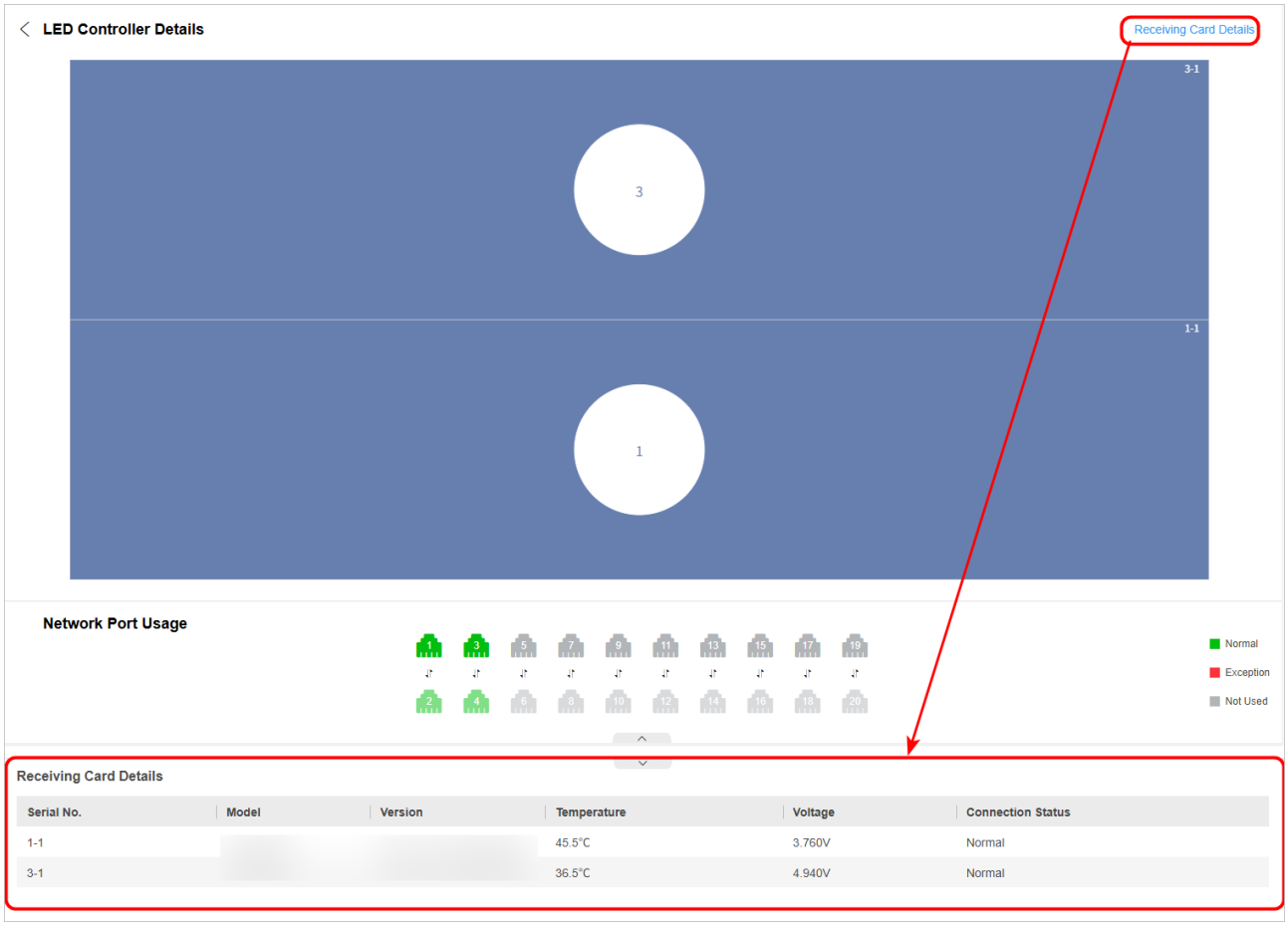



Figure 5-4 View Receiving Card Details

- For any device in the C, V, or P series, you can click **View Details** to navigate to **Configuration → System → Basic Information**.

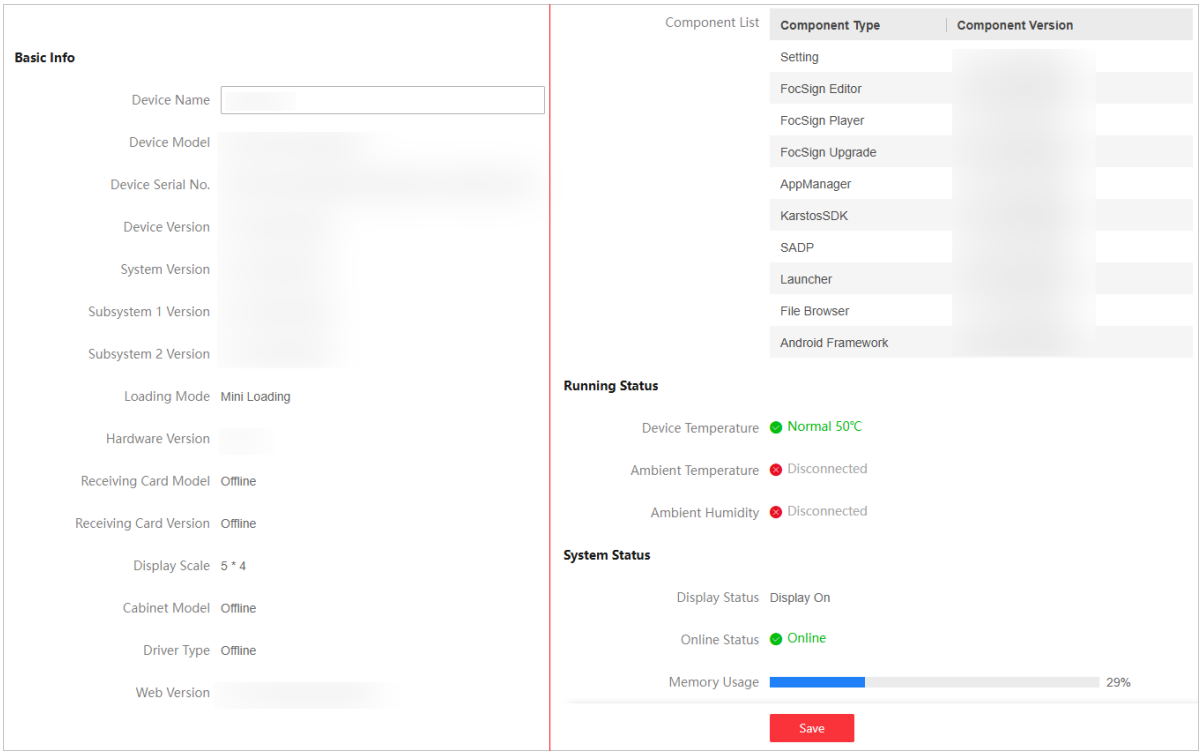



Figure 5-5 Basic Information Page of P Device

- After configuring display mapping via the LED Tool client, you will see a prompt to reconfigure the display mapping parameters on the **Overview** page when you log in to the web interface of a C, V, or P device. Please reconfigure the display mapping parameters on the web interface.

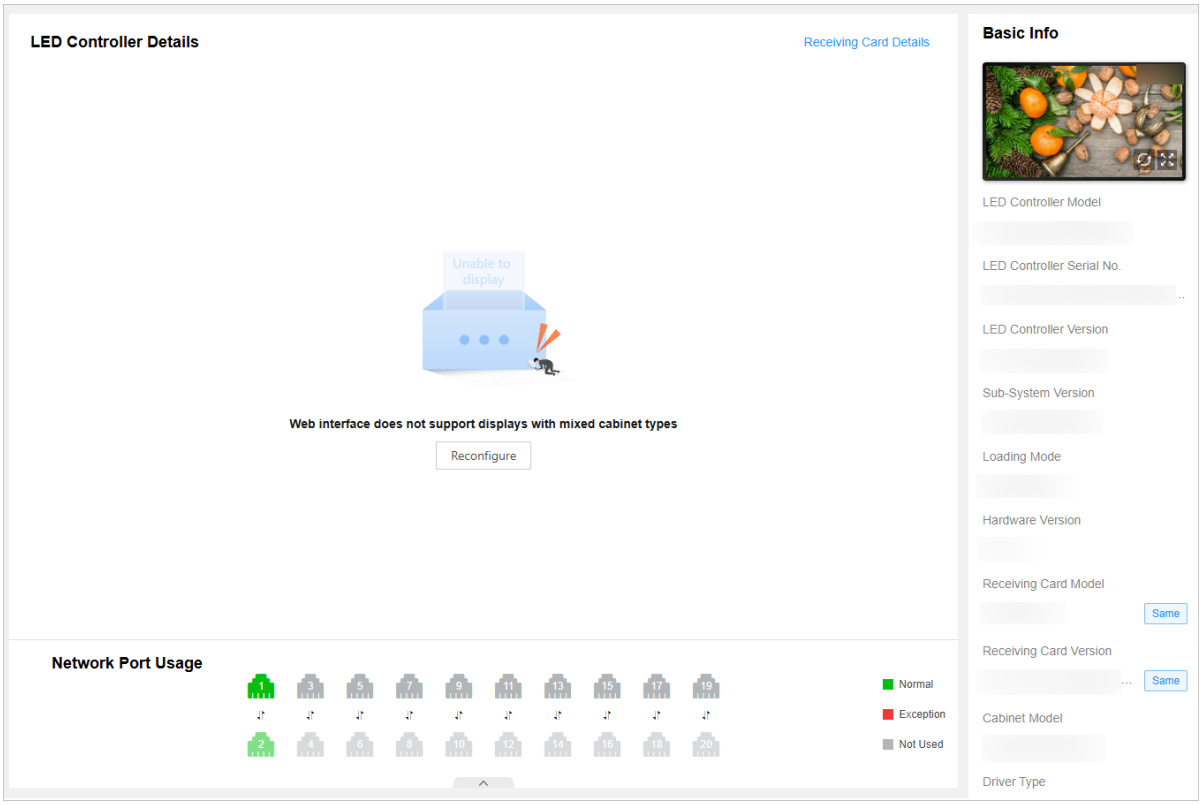



Figure 5-6 Reconfiguration Prompt on Overview Page

# 5.2 View Video Wall

### View V-Controller Video Wall

When multiple V devices are cascaded to form a video wall, you can navigate to **Overview** or **Display Maintenance** → **LED Controller Status** to view basic display information and status. Click **Details** of a display to check LED controller configuration, network port usage, and other detailed parameters.

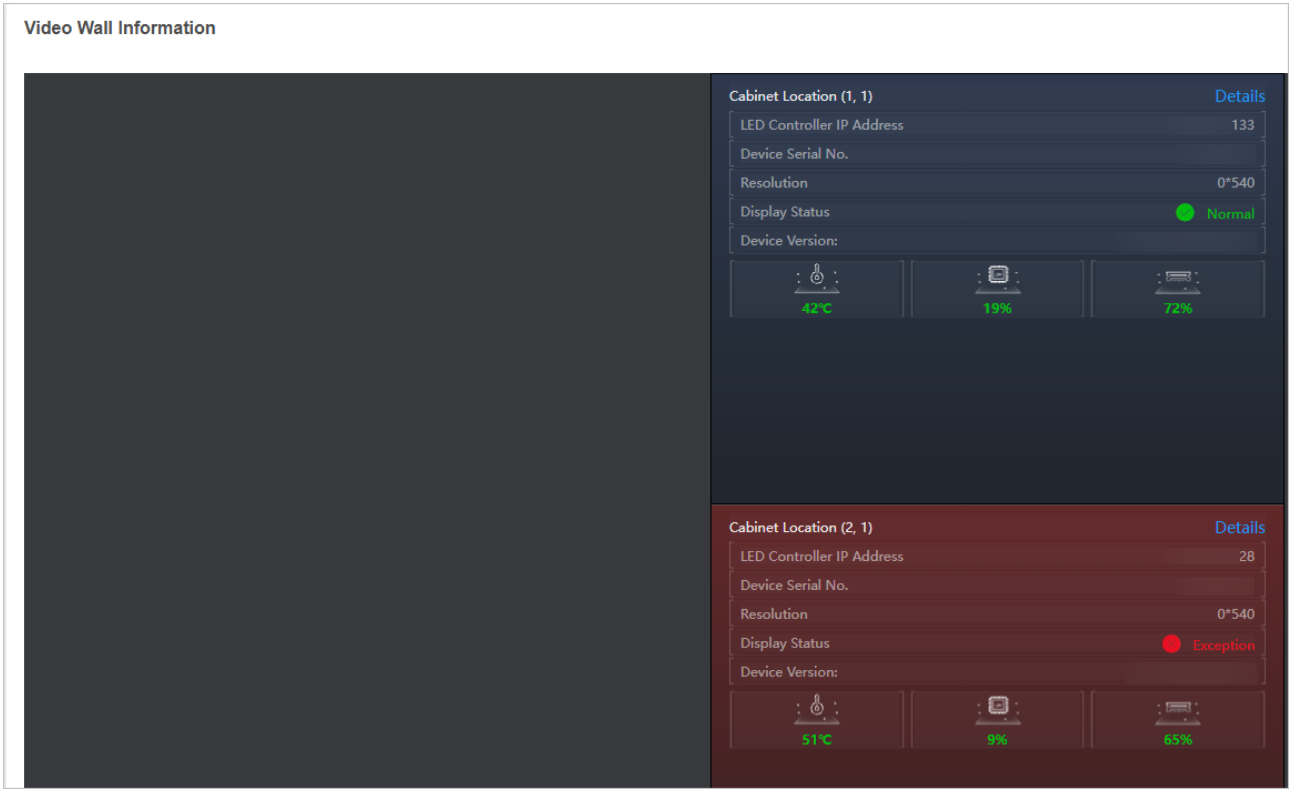



Figure 5-7 View V-Controller Video Wall

### View C-Controller Video Wall

Step 1 When the display's driving capacity exceeds a single C device's limit, deploy multiple C devices with a video wall controller to splice a video wall. (C devices do not support splicing.)

Step 2 Log in to the video wall controller's web interface or open the HCP client, create a video wall, and bind the HDMI output ports that are connected with the C devices to the video wall.

Step 3 On the C device's web interface, synchronize the settings according to the video wall controller's configuration.

1) Navigate to **Video Wall Configuration** and select the C devices to be configured.
2) Enter the video wall name, row value, and column value.
3) Click **Show ID on Display**.
4) According to the IDs on the display, drag online C devices from the left device list to the corresponding windows on the right. Repeat until all video wall windows are associated with devices.

5) Click **Save**.

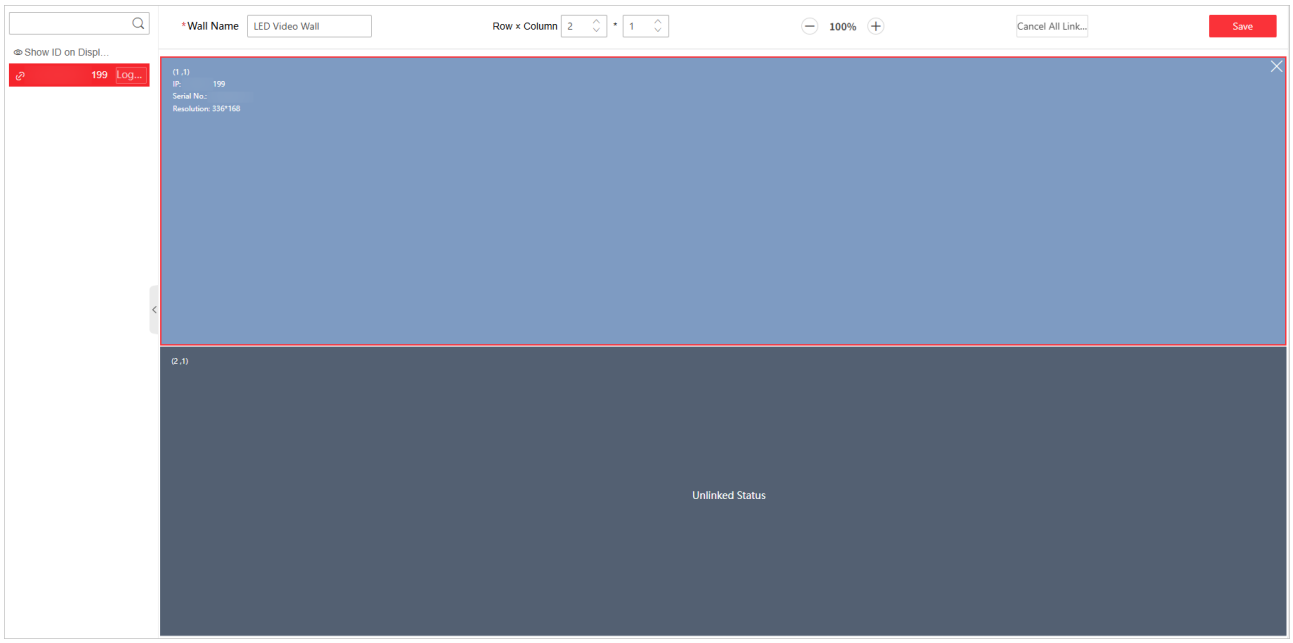



Figure 5-8 Splice the Video Wall

Step 4 Navigate to **Overview** or **Display Maintenance** → **LED Controller Status** to view basic display information and status. Click **Details** of a display to check LED controller configuration, network port usage, and other detailed parameters.

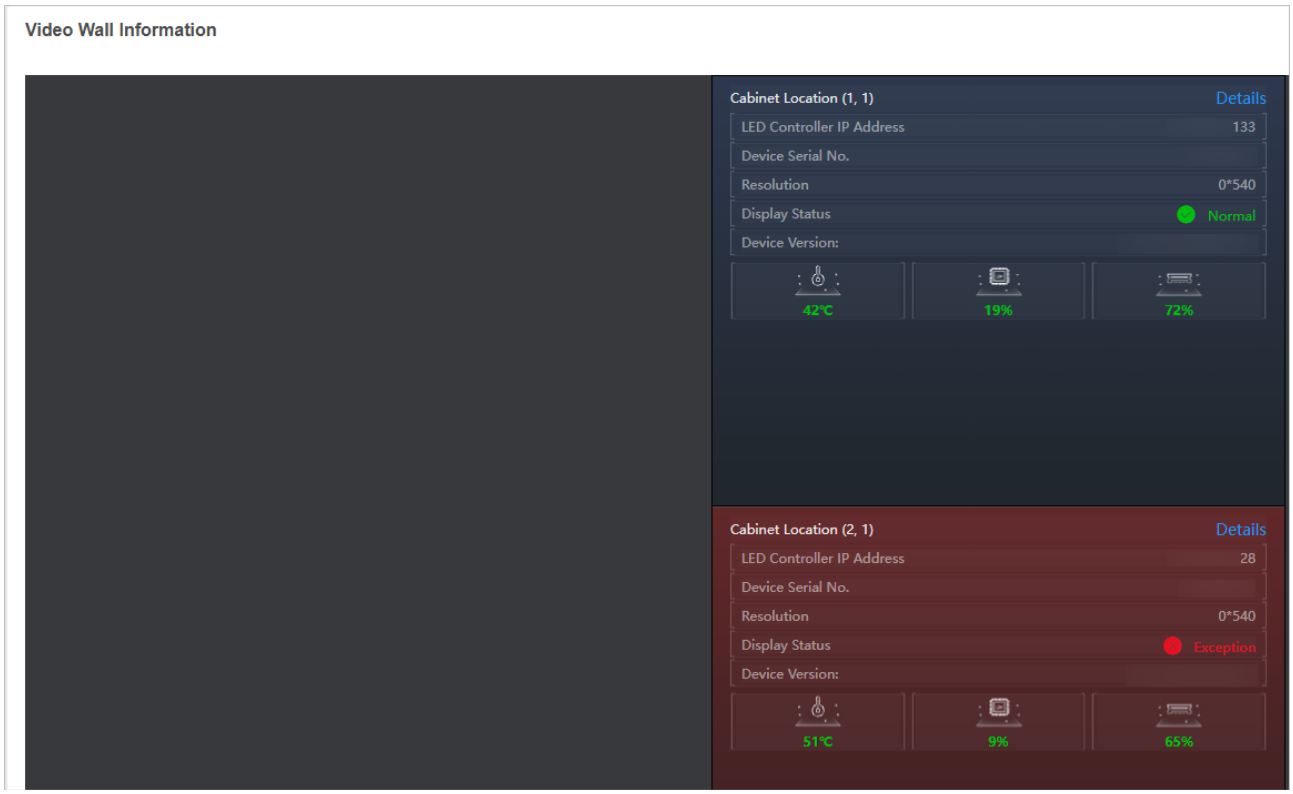



Figure 5-9 View C-Controller Video Wall

## 5.3 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** → **Receiving Card Quick Maintenance**.

Step 2 (Optional) Select a single C or V device.

Step 3 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 4 Select a receiving card and click **Set as New Card**.

Step 5 Click **Copy** to copy the configuration file of the reference card to the new card.

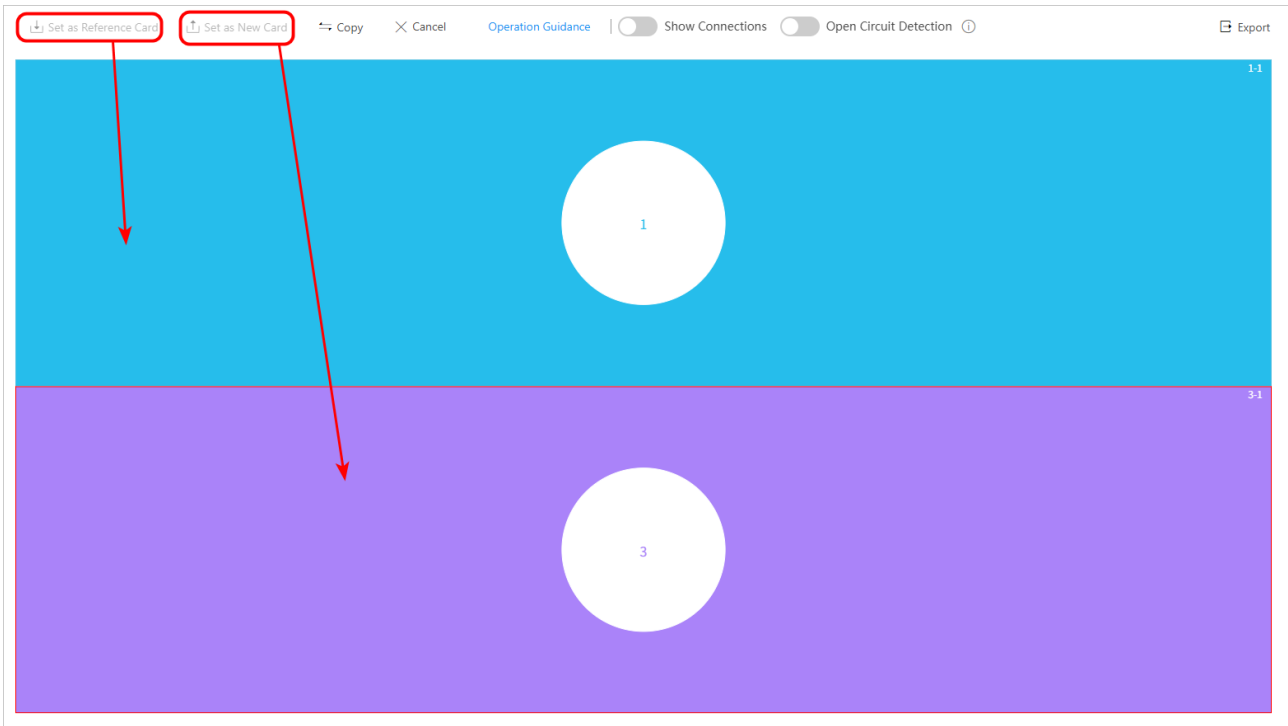



Figure 5-10 Quickly Maintain Receiving Cards

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

- Click **Export** to export the receiving card program file or receiving card configuration file.

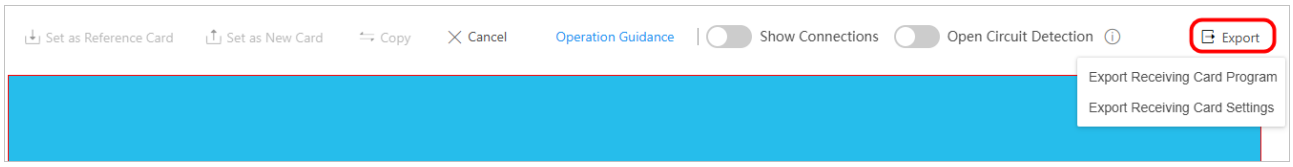



Figure 5-11 Export Receiving Card Parameters

- 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.

## 5.4 Test Display Condition

Use the color bars and waves to check whether the display color is normal or whether the dead pixels exist.

Step 1 Navigate to **Display Maintenance** → **Display Test**.

Step 2 (Optional) Select a single C or V device. (Configuring all devices is enabled by default.)

Step 3 Enable the display test.

Step 4 Select a pure color, gray scale, line, 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.

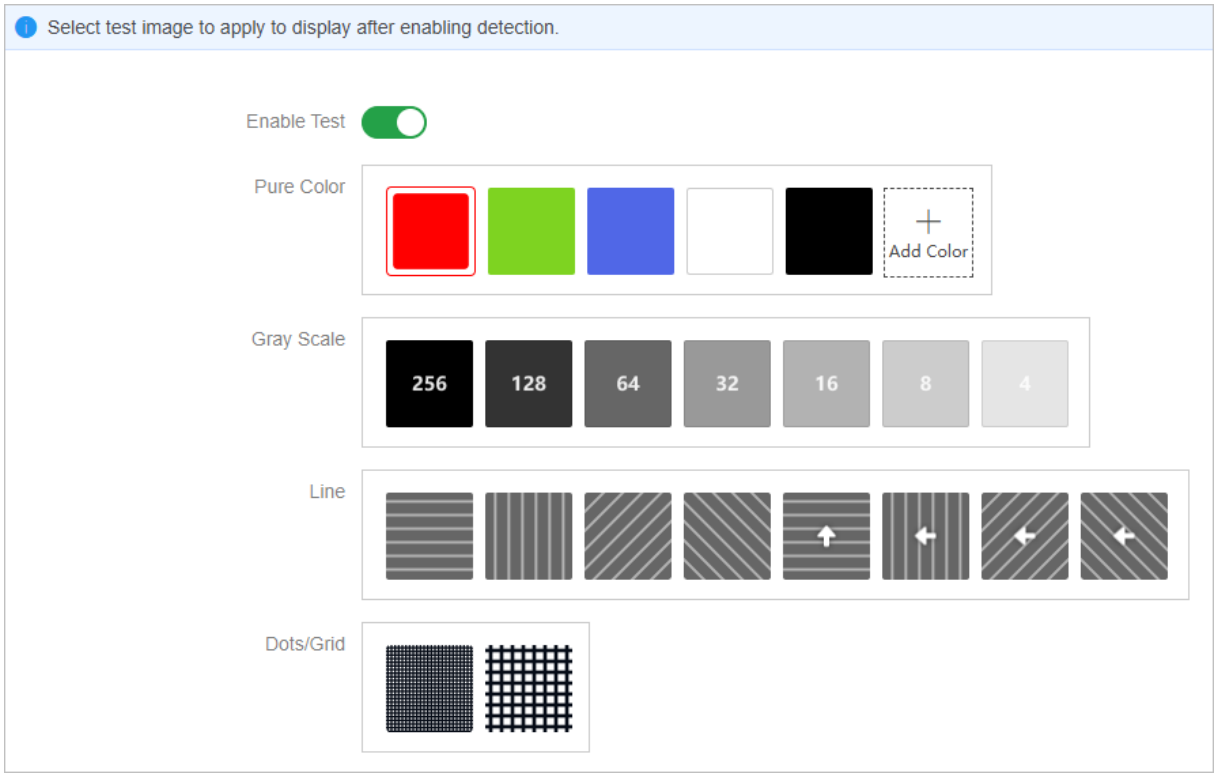



Figure 5-12 Test Display Condition

## 5.5 Maintain the System

Navigate to **Maintenance and Security** to perform the following operations as required:

- On the **Restart** page, restart the LED controller or receiving card.

- On the **Upgrade** page, click 🗀 to select a locally saved upgrade package and click **Upgrade**.
  - Do not power off the device during the upgrade process.
  - If the device cannot run normally due to the upgrade failure, contact the supplier timely.
  - After the upgrade process is complete, the device restarts automatically.
- On the **Backup and Reset** page, export the configuration file of the LED controller or receiving card.
- On the **Backup and Reset** page, reset the device:
  - Click **Restore Default** to restore the display effect and receiving card parameters to the factory settings. Please use this function with caution.
  - Click **Restore Factory** to restore all functions and parameters to the factory settings. Please use this function with caution.
  - Click 🗀 to select a locally saved configuration file and click **Upload**.

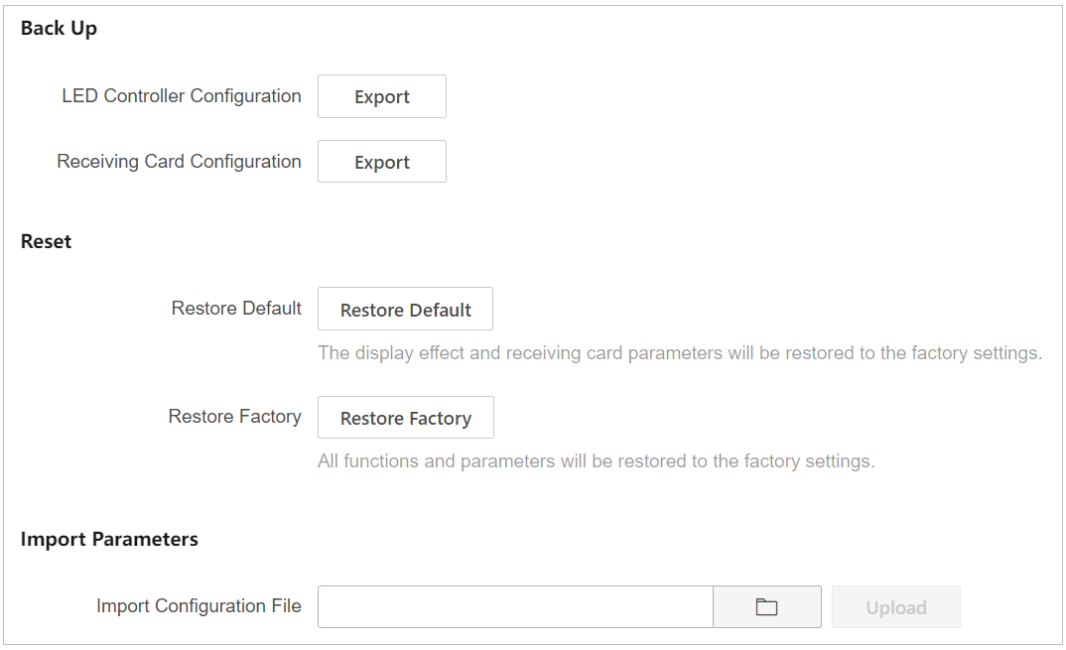



Figure 5-13 Back Up and Reset Device

- On the **Log** page, set the search condition and click **Search**. You can view the searched logs in the list below. You can click **Export** to export the logs.

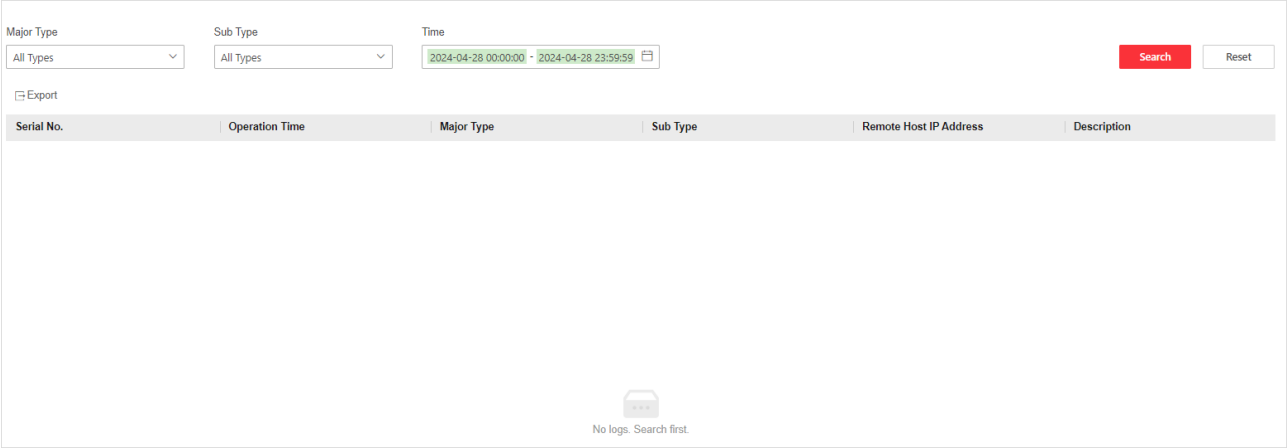



Figure 5-14 Search Logs

- On the **Device Debugging** page of the C or V device, enable the following functions as required:
  - Enable SSH (Secure Shell) as required. With SSH enabled, you can use a computer installed with the SSH client to access the device. If SSH is not needed, it is recommended to disable SSH to ensure network security.
  - If the device supporting dual power supply is installed with two power supplies, you can enable **Dual Power Supply**. When one power supply fails, you can view the relevant prompt on the device web interface.

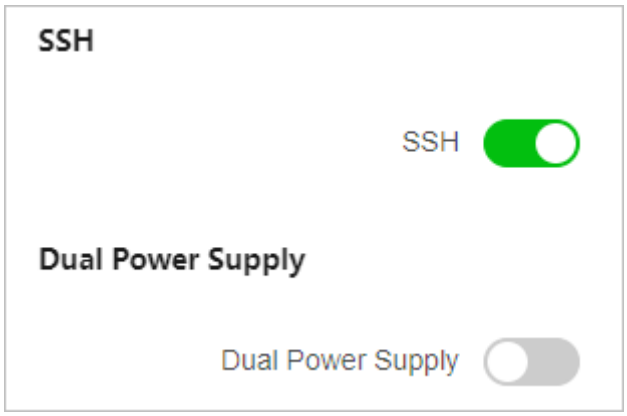



Figure 5-15 Debug C/V Device

- On the **Device Debugging** page of the P device, enable the following functions as required:
  - If the device supporting dual power supply is installed with two power supplies, you can enable **Dual Power Supply**. When one power supply fails, you can view the relevant prompt on the device web interface.
  - Enable **Log Records** to record the maintenance logs of the Android system.
  - Click **Export** to export the ZIP file of the Android system maintenance logs.
  - Enable **ADB Debugging**, and then use the Android Debug Bridge (ADB) tool and the device activation password to maintain the device Android system.

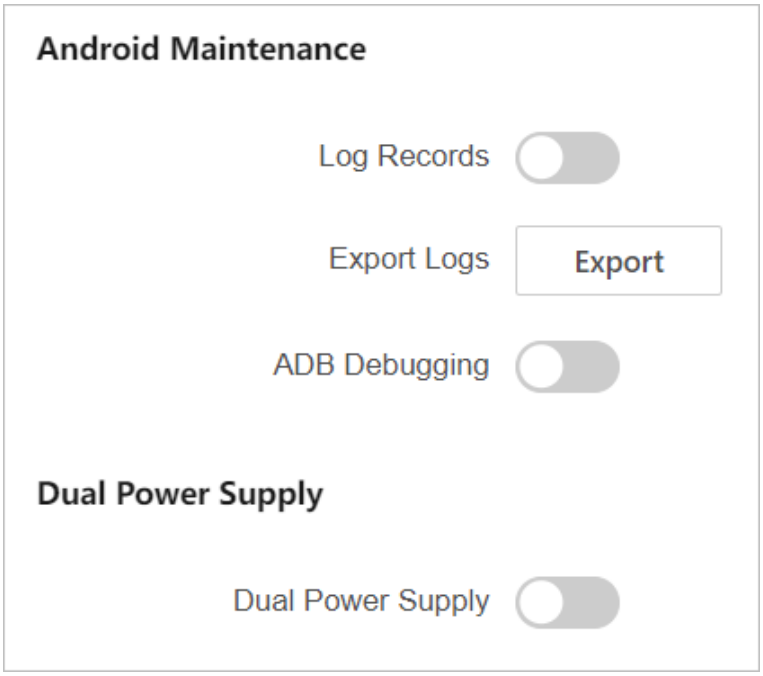



Figure 5-16 Debugging P Device

- On the **Permission Management** page, turn on or off the display controlled by the device:
  1) Enable **Display-Off**.
  2) Select a display-off method.
  3) Set the display-on code. When the display is turned off, you can navigate to the **Permission Management** page and enter the display-on code to turn on the display.

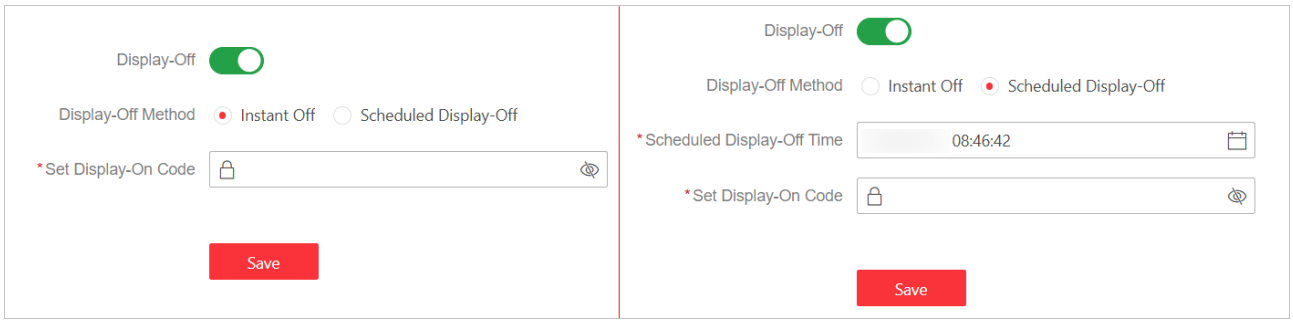



Figure 5-17 Permission Management Page

# Chapter 6 Display Configuration (Other Interfaces)

## 6.1 Use the OSD Interface

**Before You Start**

Make sure that you have configured display mapping . For details, see “2.4 Configure Display Mapping”.

**Steps**

Step 1 Select a remote control and connect the selected remote control to the device.

- Insert the USB plug of RF remote control into the USB port of the device. The valid distance between RF remote control and device is about 15 m within 45° angle in the left and right.
- Insert the 3.5 mm plug of IR remote control into the IR IN port of the device. The valid distance between IR remote control and device is about 10 m within 45° angle in the left and right.

Step 2 Use the remote control to operate the OSD page of the device.

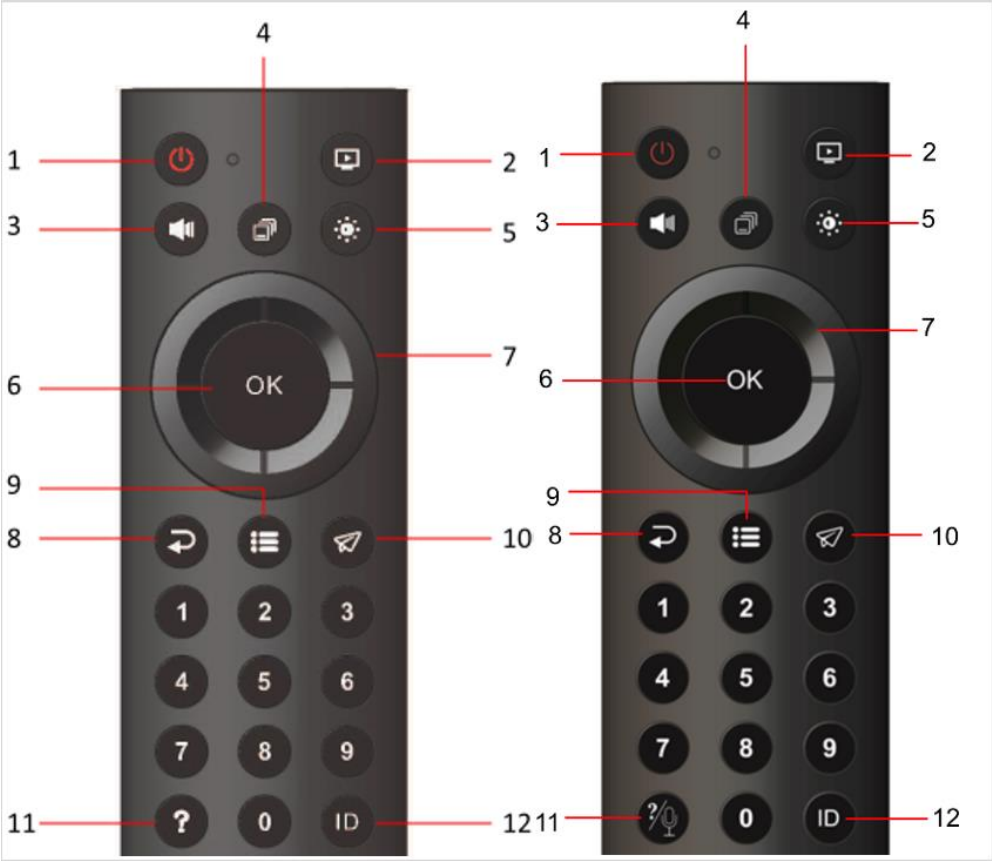



Figure 6-1 IR Remote Control (Left) and RF Remote Control (Right)

Table 6-1 Remote Control Button Description

| No. | Name | Description |
|---|---|---|
| 1 | Power | ● If the display is on, pressing the button will make the display enter sleep mode.<br>● If the display is in sleep mode, pressing the button will wake up the display. |
| 2 | Signal source switchover | Press the button to call out the signal source channel page. Use the left and right direction buttons to switch the signal source channel, and press OK to confirm the channel selection. |
| 3 | Volume | Press the button to call out the volume adjustment page. Use the left and right buttons to adjust the volume. |
| 4 | Shortcut menu | Press the button to enter the shortcut menu page.<br>● After selecting **System Info**, you can view the LED controller information, receiving card information, and system monitoring information.<br>● After selecting **Source Info**, you can press the button to call out the signal source information page to view the detailed signal source information. |

| No. | Name | Description |
|---|---|---|
| | | ● After selecting **Choose Scene**, you can press the button to call out the scene switching page. Use the up and down direction buttons to switch scenes, and press OK to confirm the scene selection.<br>● After selecting **Open Dehum**, you can enter the dehumidification page. Use the left and right direction buttons to enable or disable the immediate dehumidification function.<br>● After selecting **Best EDID**, you can press OK to enable BEST EDID, and press OK again to disable it. |
| 5 | Brightness adjustment | Press the button to call out the brightness adjustment page. Use the left and right direction buttons to adjust the brightness. |
| 6 | OK | Confirm the current configuration. |
| 7 | Direction | Control the upper, lower, left and right directions. |
| 8 | Exit | Exit the current page. |
| 9 | Menu | Enter the main menu page.<br>On the main menu page, you can configure input, output, display, and color parameters. |
| 10 | Back | Return to the main menu page. |
| 11 | Help | Press the button to call out the remote control help instruction.<br>**Note**<br>Voice control is not supported. |
| 12 | ID | ● Press the button to show the device ID.<br>● Press the button to show the device ID and enter the ID of the device you want to control. Ensure that you have enabled **Sending Card Network Cascade** on the **LED Settings** → **System Configuration** →**Sending Card Network Cascade** page of the LED batch controller client. |

# 6.2 Use GUI Interface (P Device)

## 6.2.1 GUI Interface Overview

Only P devices support the GUI interface.

Step 1 Connect the mouse and keyboard to the USB ports of the device, and connect the device to the display.

Step 2 Configure mapping for display connected to a P device. For details, see “2.4 Configure Display Mapping”.

Step 3 The FocSign Player page shows on the display.

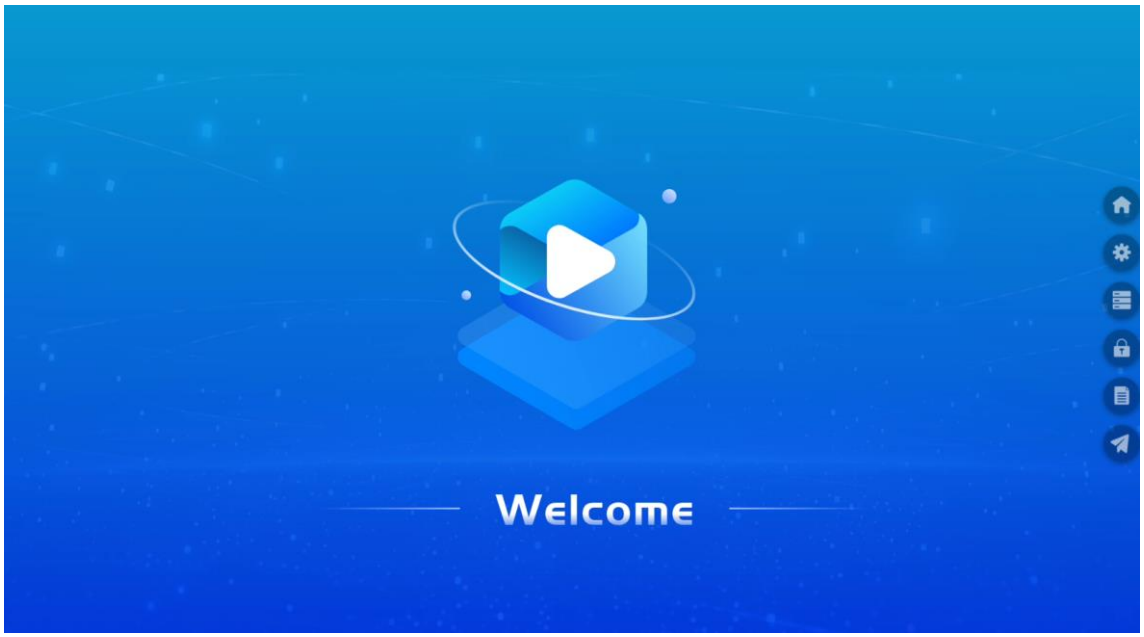



Figure 6-2 FocSign Player Page

- Click to enter the main page.
  - Click **Settings** or click in the lower right corner of the main page to enter the **Settings** page.
  - Click FocSign Player to enter the FocSign Player page.
  - Click to view the notifications.
  - Right click the mouse to exit the current application or current page.

Figure 6-3 GUI Main Page

- Click to open the **System Settings** window. You can set the terminal information and display lock.

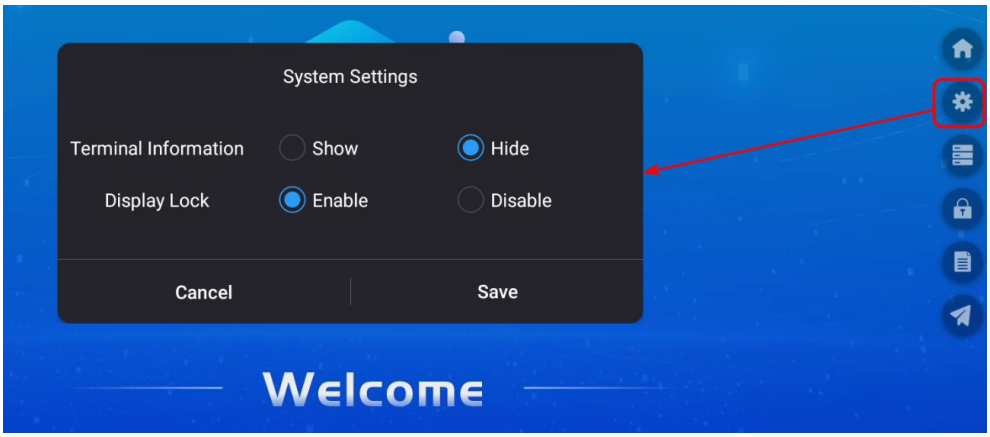



Figure 6-4 System Settings Window

- Click to open the **Server Settings** Page. Select a server registration method and enter the related parameters.

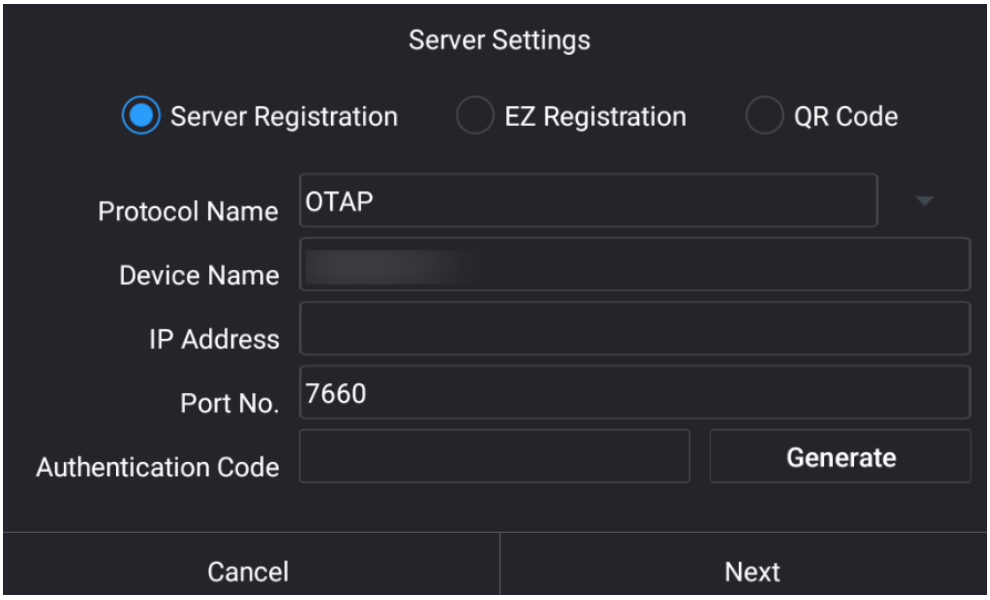



Figure 6-5 Server Settings Window

- Click to enable display lock and click to lock the display. After the display is locked, you need to enter the device activation password to unlock the display.
- Click to open the **Basic Information** page to view the basic information of the device.
- Click to enter the **Playback Schedule** page.

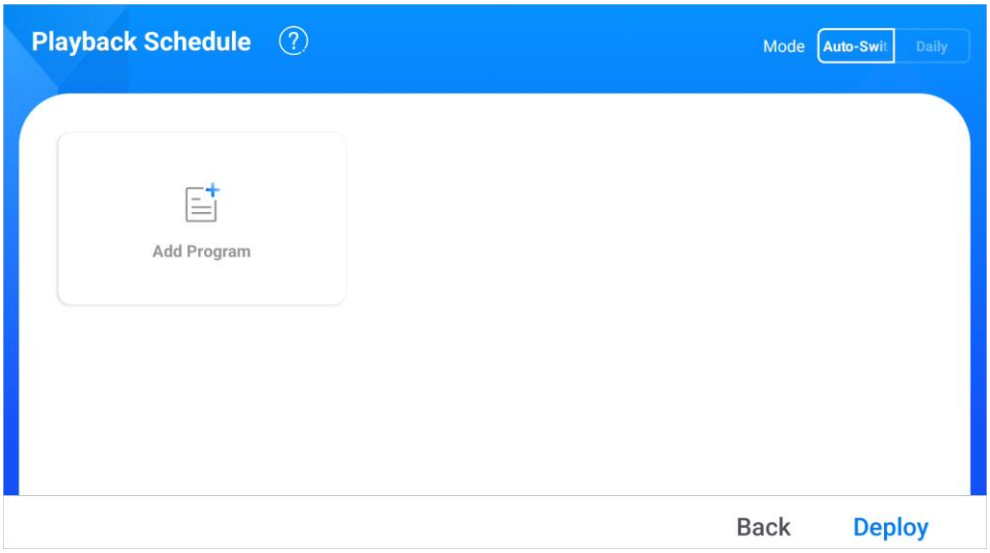



Figure 6-6 Playback Schedule Page

## 6.2.2 Set Playback Schedule

Step 1 On the FocSign Player page, click to enter the **Playback Schedule** page.

Step 2 Select a mode:

- If you select **Auto-Switch**, click **Add Program**, and select a template.
- If you select **Dayily**, click **Add Time Slot Program**, and select a time period and a template.

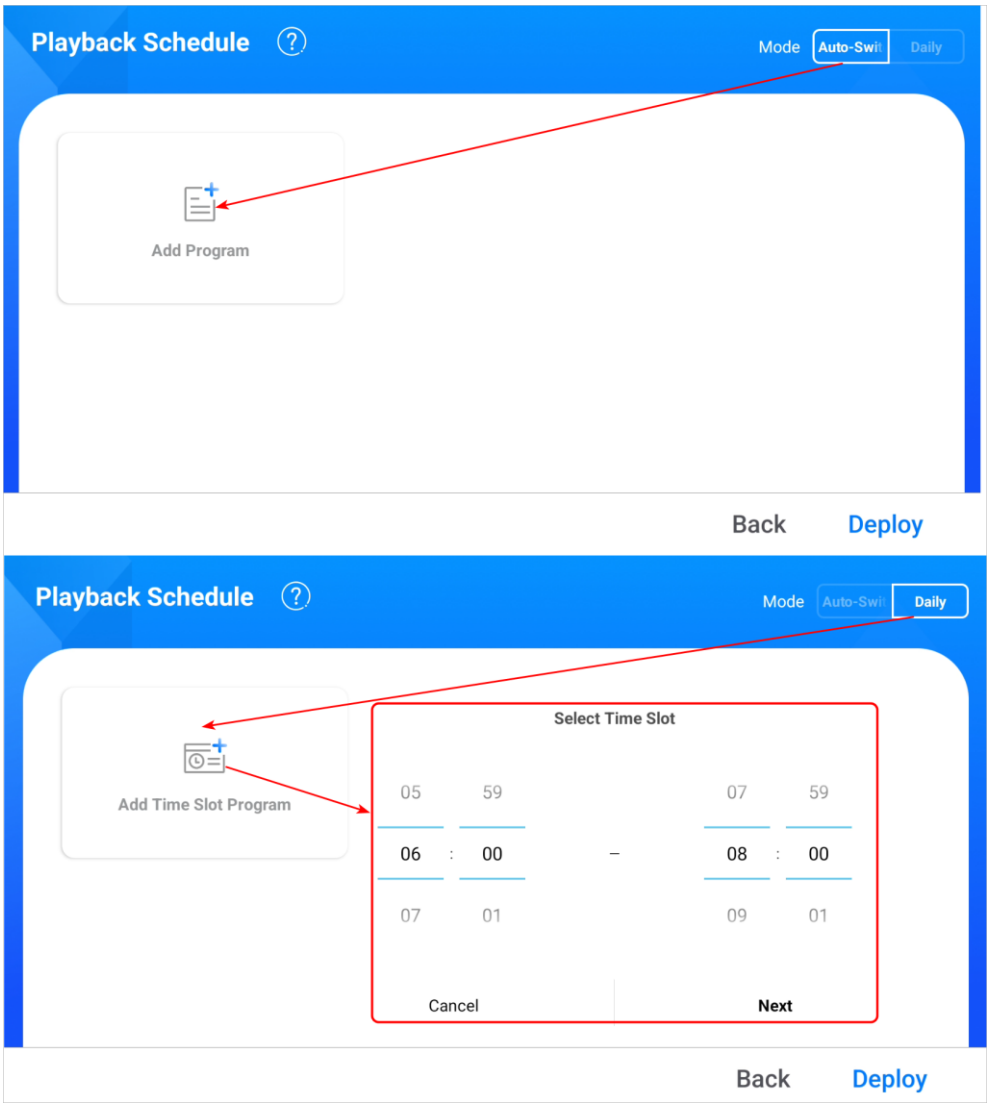



Figure 6-7 Select a Mode

Step 3 Add materials:

1) Click **Add Material**, and then select video or picture.

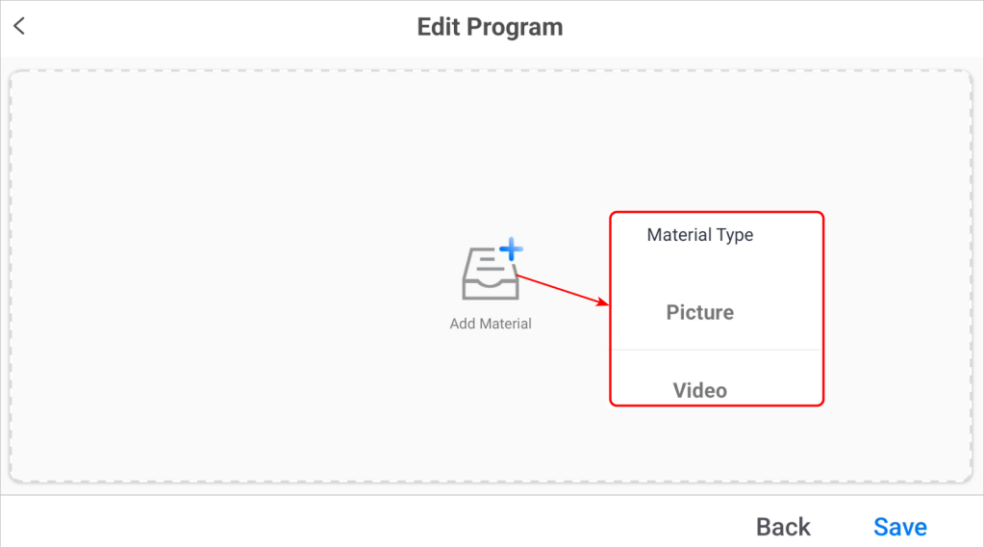



Figure 6-8 Select Material Type

2) Select materials from the storage, set the duration of each material, and set the switching effect, click **OK**.

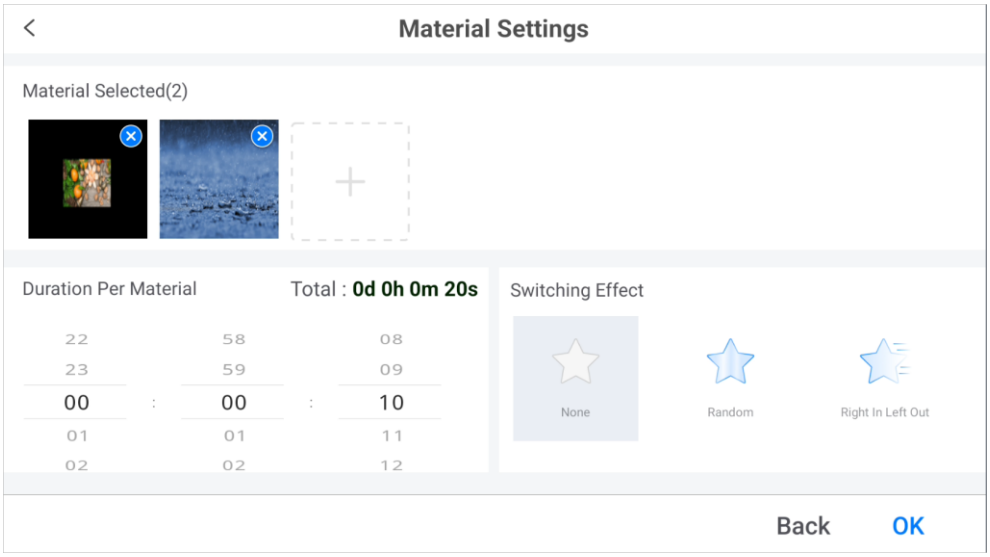



Figure 6-9 Add Materials

Step 4 Click **Save**.

Figure 6-10 Save Program Configuration

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

- Repeat the above steps to create multiple programs.
- Click in the upper right corner of a program to delete the program.
- Click a program to edit its material, duration or switching effect.
- For a daily playback program, you can click to edit the time period for the program.

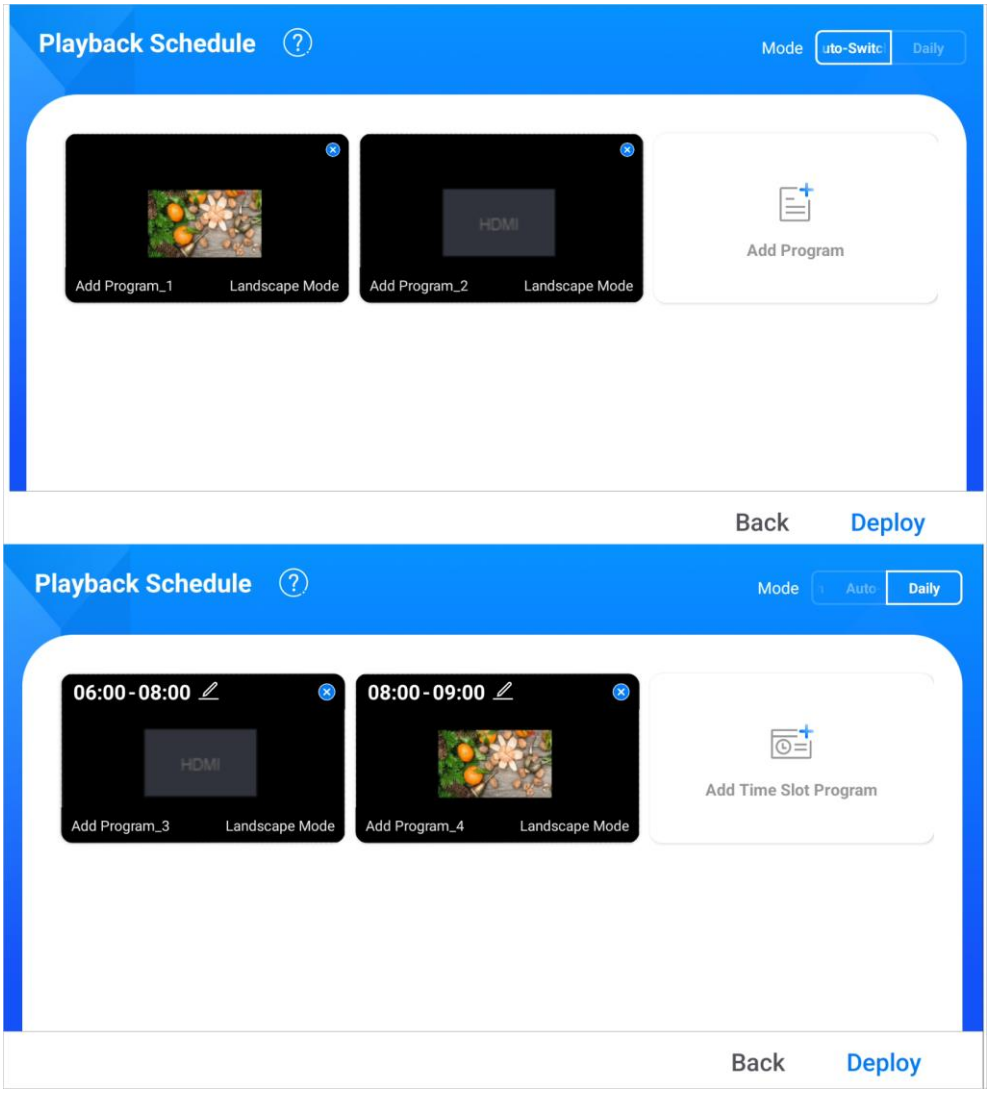



Figure 6-11 Manage Programs

Step 6 Click **Deploy**.

## 6.2.3 Edit Device Parameters

**Note**

- Click > to enter the parameter setting page.
- Right click the mouse to exit the current application or current page.

Click on the FocSign Player page to enter the main page, and then click **Settings** or click in the lower right corner of the main page to enter the **Settings** page. You can set the following device parameters as required:

- On the **Network** page, set the wired network, WLAN, hotspot, or Bluetooth. If the device is connected to both a wired and wireless network simultaneously, it will prioritize the wired network.

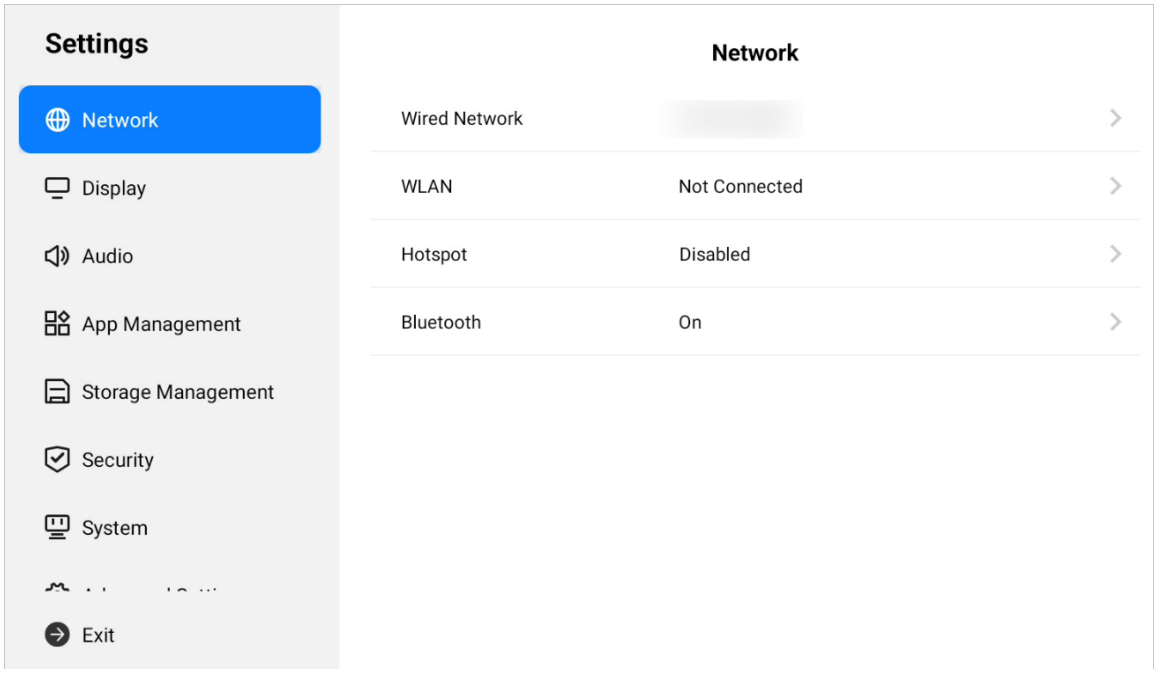



Figure 6-12 Set Network Parameters

– Click > of the wired network, enable static IP as required, and set the automatically obtained IP address or an unused IP address from the local network as the wired network address of the device.

– Click > of the WLAN, and enable WLAN. Click a wireless network, and enter the connection password to join the wireless network. Click ⓘ to view the wireless network address of the device. Click ⓘ and click **Clear Network** to disconnect the device from the wireless network.

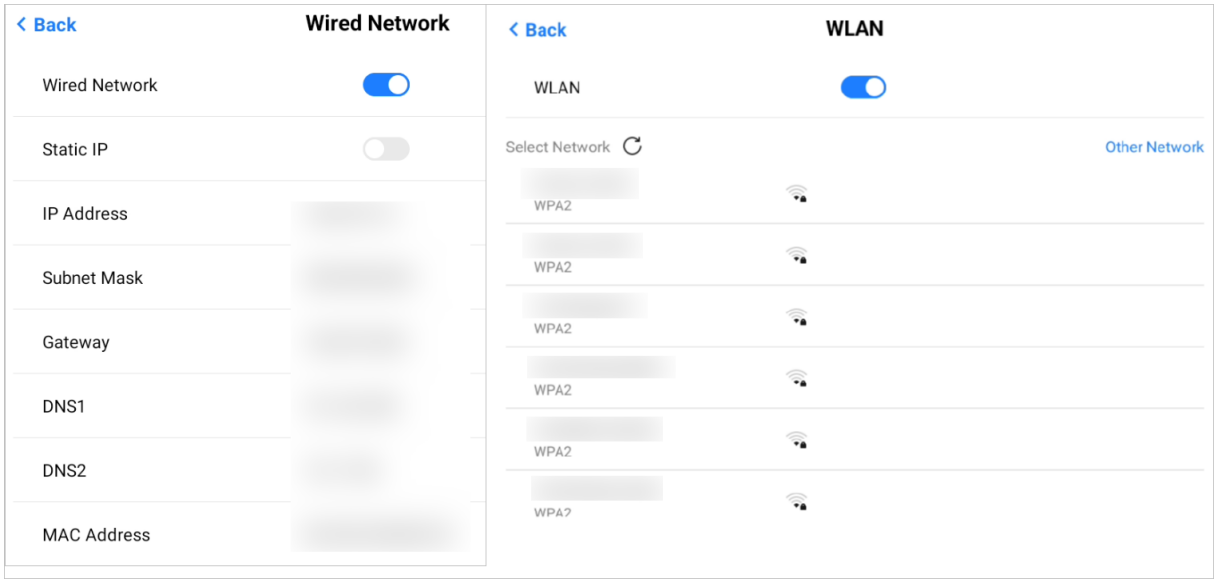



Figure 6-13 Set Wired and Wireless Network

- On the **Display** page, set HDMI output, display rotation, font size, notification bar, navigation bar, or wallpaper.

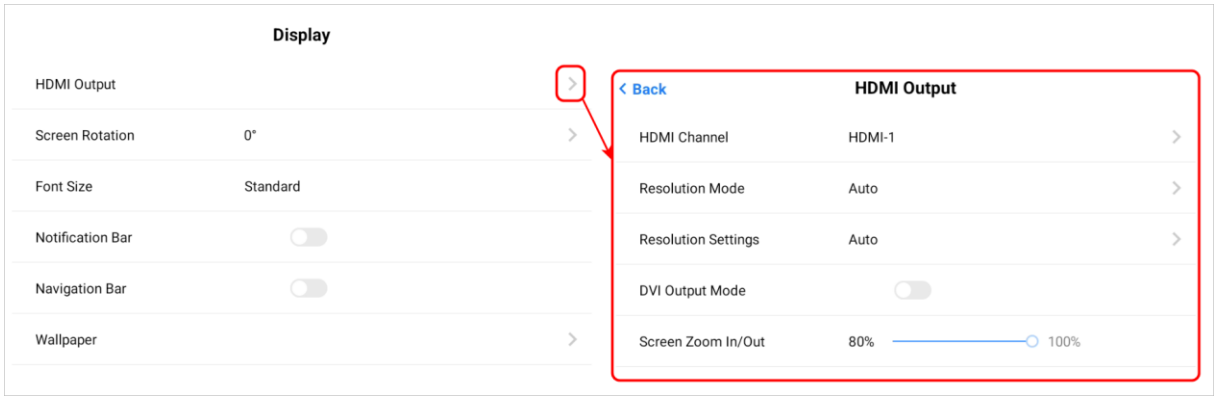



Figure 6-14 Set Display Parameters

– Click > of the HDMI output to set the HDMI channel, resolution mode, resolution settings, DVI output mode, or display zoom in/out.

– After enabling navigation bar, you can click ◀ to go back to previous menu, click ○ to return to the homepage application page, and click □ to show the opened applications. You can click 🗑 to close the opened applications.

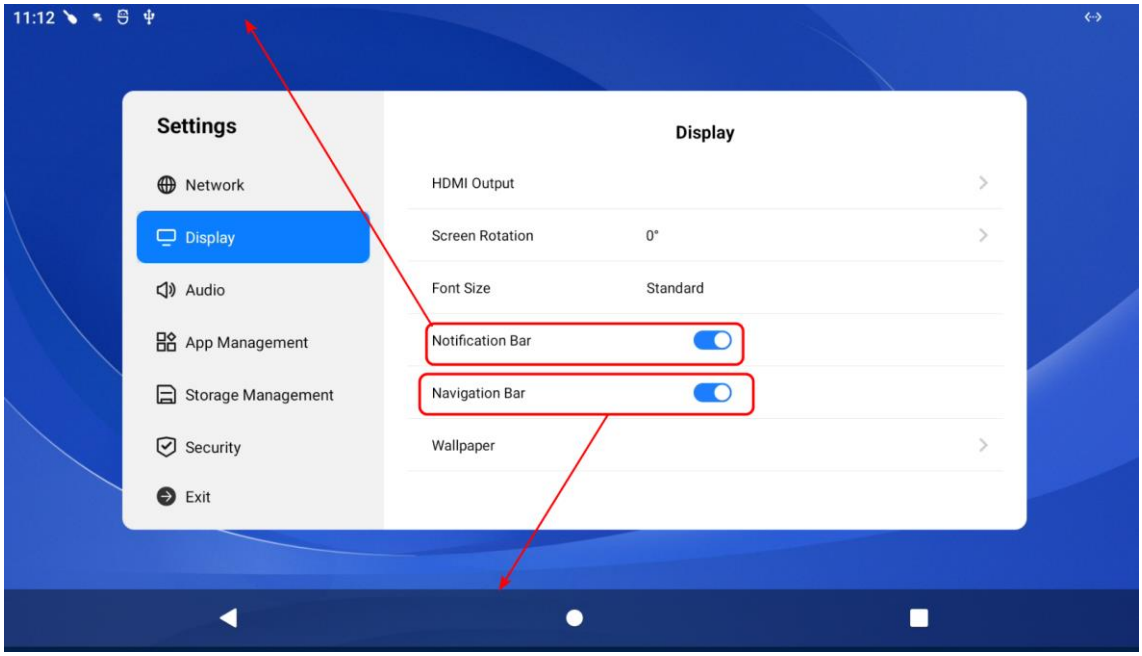



Figure 6-15 Set Notification Bar and Navigation Bar

- On the **Audio** page, set the volume.
- On the **App Management** page, enable run at startup, set default app, and show applications or system process.

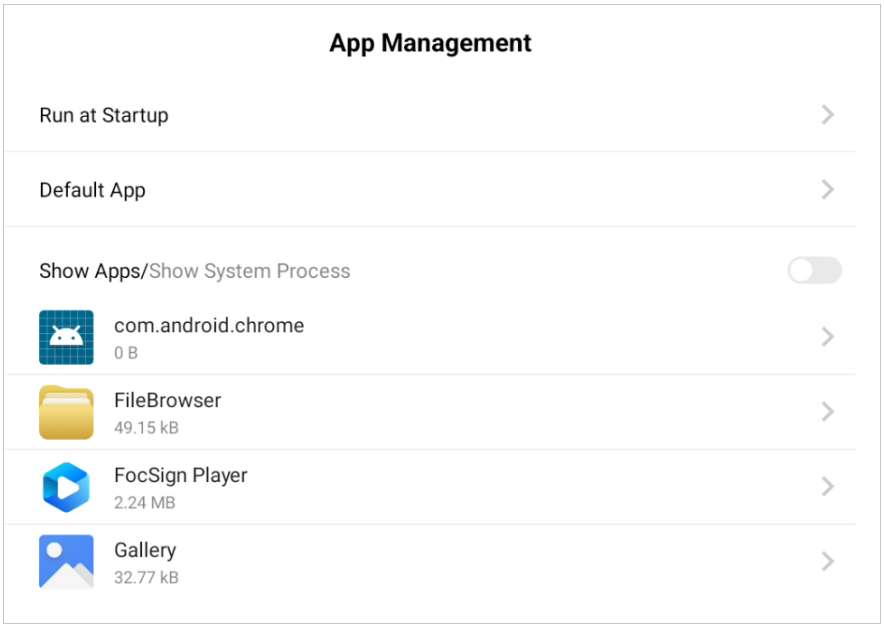



Figure 6-16 Manage Applications

- On the **Storage Management** page, view the internal shared storage, memory usage, and real-time memory usage. You can click **Free Up Space**.

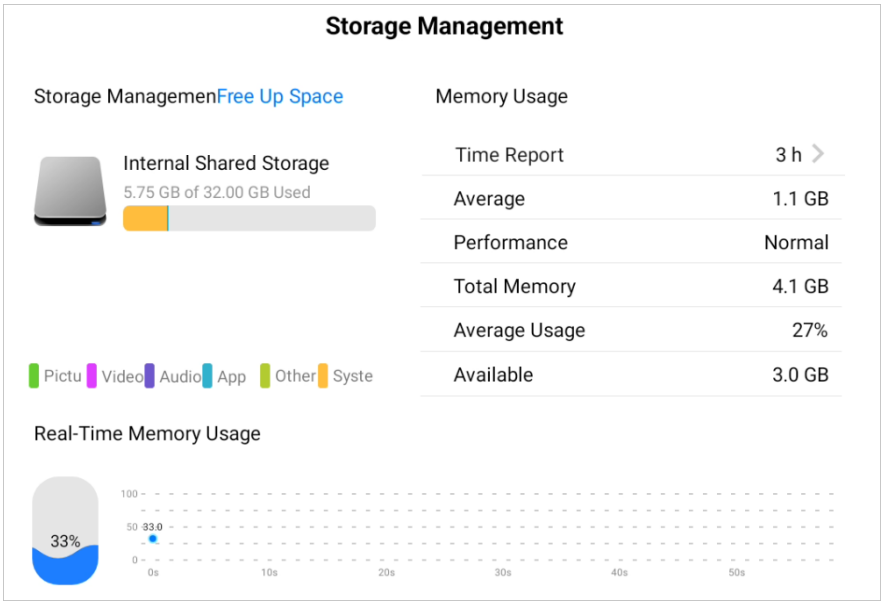



Figure 6-17 Manage Storage

- On the **Security** page, enable SADP and change the device activation status.

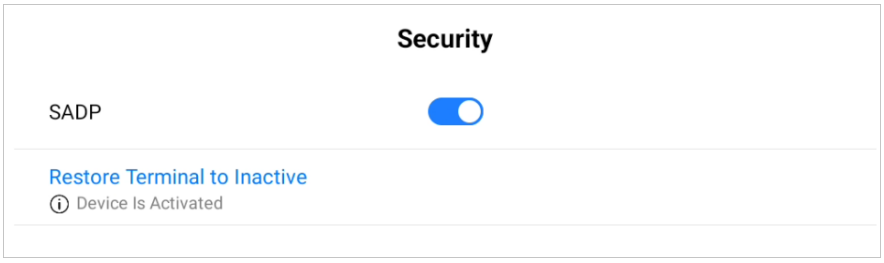



Figure 6-18 Set Security Parameters

- On the **System** page, view the basic system information, enable system debug, enable system log, restore the device to factory settings, or restart the device.

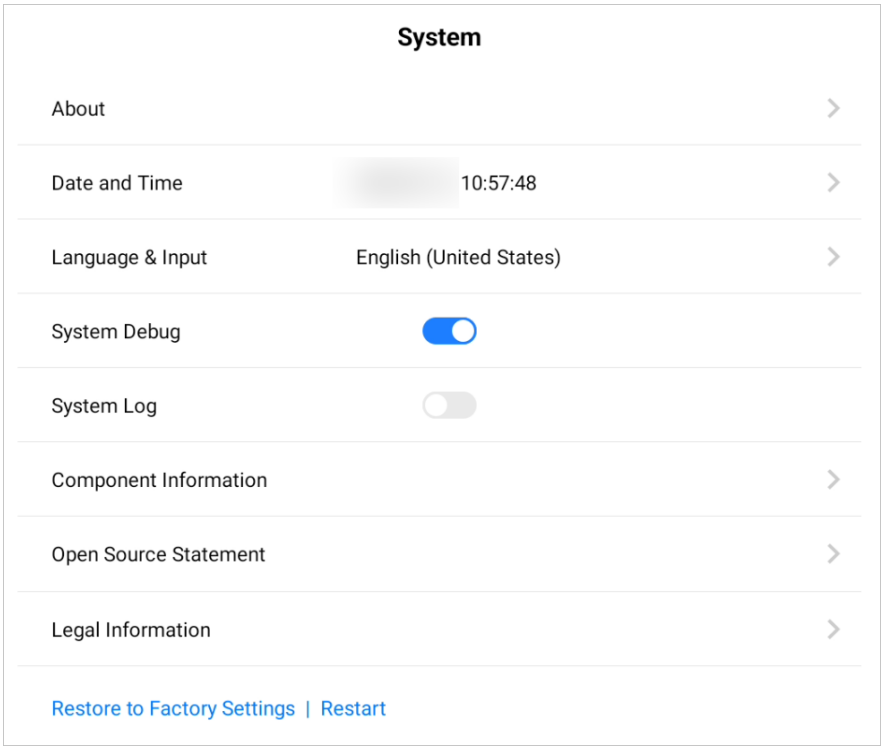



Figure 6-19 View System Parameters

- On the **Advanced Settings** page, set the scheduled startup.
  1) Enable scheduled power on/off.
  2) Click > of the on/off settings.
  3) Set the power-on time, power-off time, and weekly recurrence schedule, and click **OK**.
  4) Enable the scheduled power on/off entry.

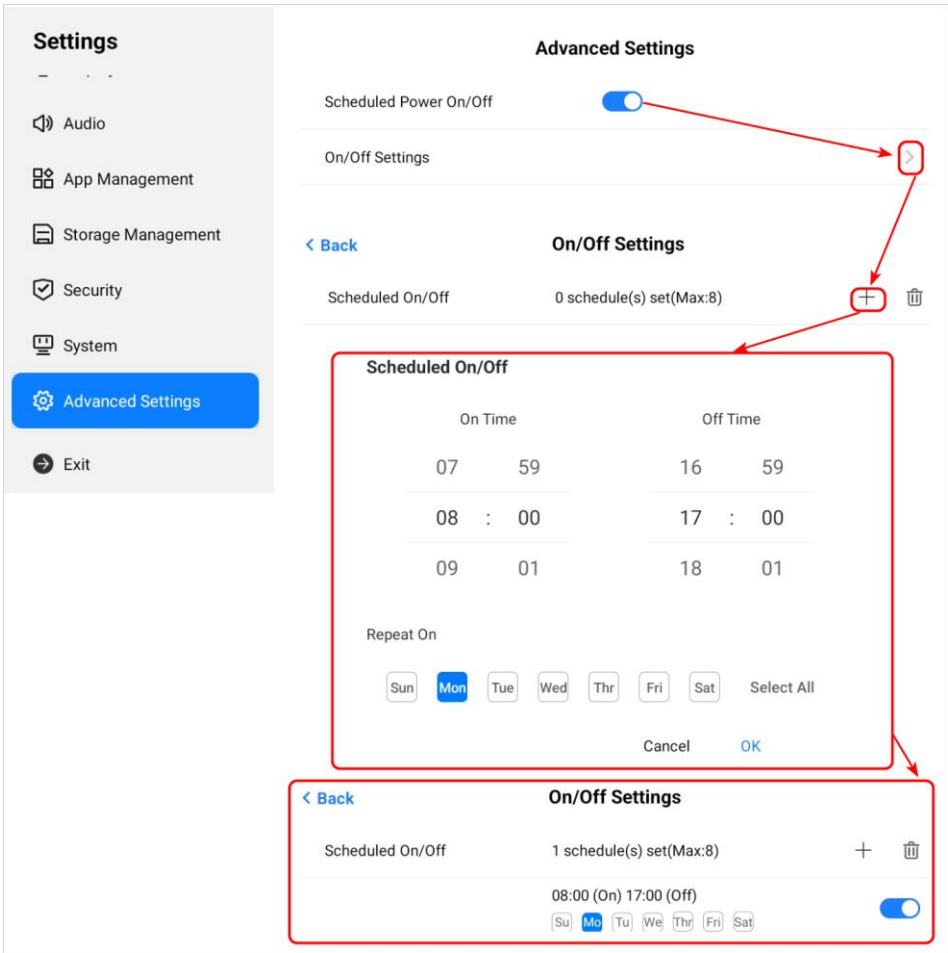



Figure 6-20 Set Scheduled Startup

See Far, Go Further

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