

LED Controller

User Manual

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

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

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Chapter 1 Introduction

1.1 Overview

LED Tool client (hereinafter referred to as the client) is a powerful and user-friendly software. Through the client, you can easily add and manage multiple screen controlling devices (hereinafter referred to as the device, including LED controllers and video wall controllers installed with LED controller boards) and control the full-color LED display (hereinafter referred to as the display or screen). The client supports multiple functions and is suitable for meeting rooms, studios, gyms, airports, banks, advertising locations, family cinemas, and other scenarios.

Supported device types:

- LED controllers:
  - DS-DT90 series LED controllers (ultra 4K resolution): C/V/P models.
  - DS-DT60 series LED controllers (2K and 4K resolution): C/V/P models.
  - DS-DT30 series LED controllers (2K resolution): P model.
  - LED all-in-one display and LED poster display.
- Video wall controllers: Only specific models support installing LED controller boards.

1.2 First-Time Configuration Process

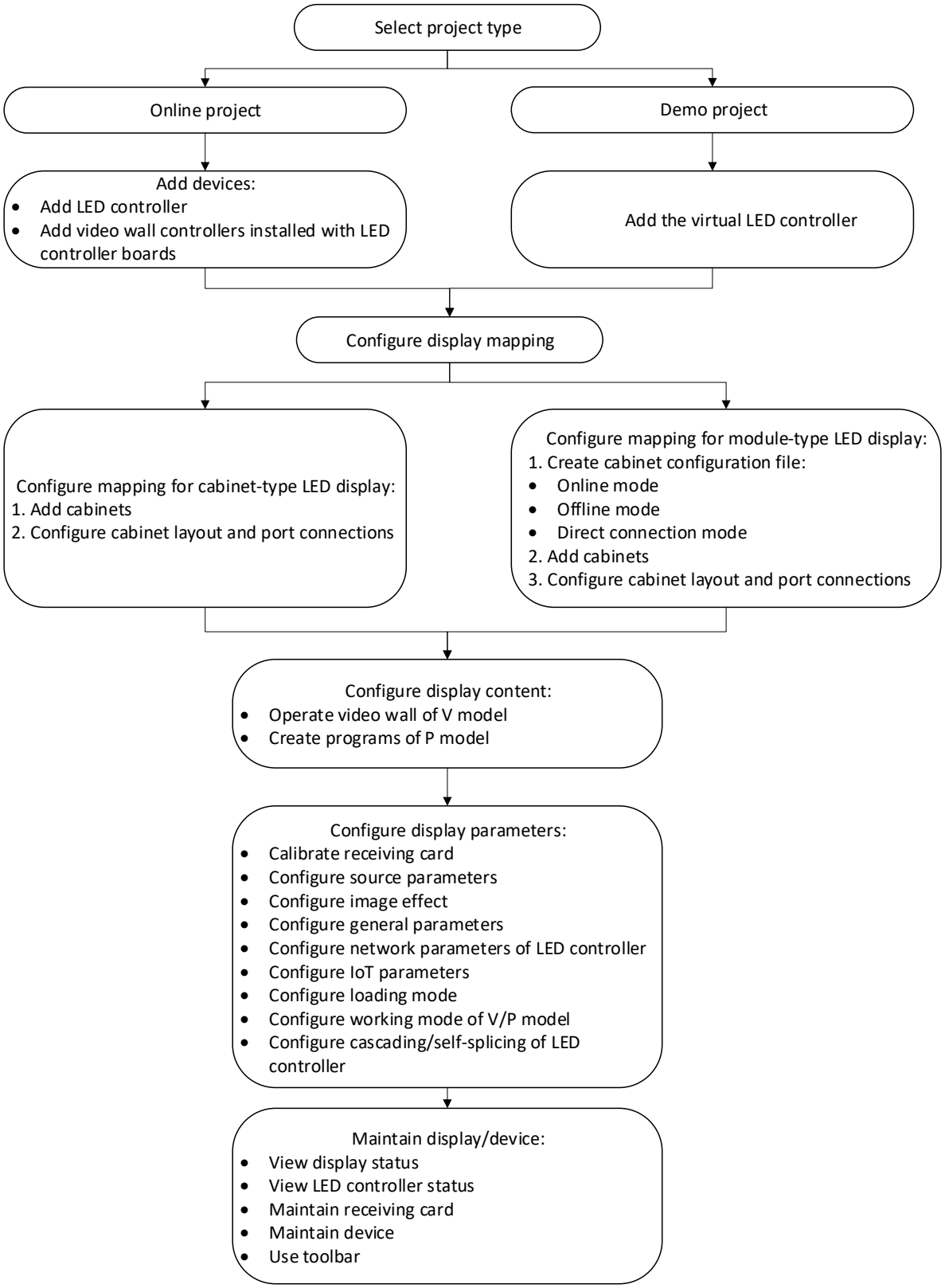


Figure 1-1 First-Time Configuration Process

1.3 Device Function Comparison

The supported functions vary by the device type.

DS-DT90 Series LED Controller

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

Functions on Client					DS-DT90 Series		
					C	V	P
Display Control	Display Mapping				√		
	Source Management				√		
	Display Effect				√		
	Calibration				√		
	Content Control					√	√
	Backup	Network Port Backup			√		
		Device Backup			√		
	Receiving Card Parameters				√		
Display Maintenance	Display Maintenance				√		
	Settings	System	System Info	Basic Info	√		
				Time Settings	√		
			Serial Port Configuration		√		
		Network	Network Configuration	Wi-Fi			√
				Bluetooth			√
				Hot Spot			√
				TCP/IP	√		
		Preference	Startup Image		√		
			No Signal Image		√		
			Font Settings			√	
		OSD Configuration			√		
		Schedule	Scheduled Display On/Off		√		
			Timed Brightness Adjustment		√		

Functions on Client				DS-DT90 Series		
				C	V	P
		Loading Mode		√		
		Storage Management				√
		IoT Configuration	Multi-Function Card Info	√		
			External Sensor	√		
			Sensor Settings	√		
			Power Distribution Cabinet	√		
			Dehumidification	√		
		Optical Port Configuration		√		
	Maintenance and Security	Restart		√		
		Backup and Reset		√		
		Log		√		
		Device Debugging		√		
		Permission Management		√		

DS-DT60 Series LED Controller

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

Functions on Client			DS-DT60 Series		
			C	V	P
Display Control	Display Mapping		√		
	Source Management		√		
	Display Effect		√		
	Calibration		√		
	Content Control			√	√
	Backup	Network Port Backup	√		
		Device Backup	√		
	Receiving Card Parameters		√		

Functions on Client					DS-DT60 Series		
					C	V	P
Display Maintenance	Display Maintenance				√		
	Settings	System	System Info	Basic Info	√		
				Time Settings	√		
			Serial Port Configuration		√		
		Network	Network Configuration	Wi-Fi		√	√
				Bluetooth		√	√
				Hot Spot		√	√
				TCP/IP	√		
		Preference	Startup Image		√		
			No Signal Image		√		
			Font Settings			√	
		OSD Configuration			√		
		Schedule	Scheduled Display On/Off		√		
			Timed Brightness Adjustment		√		
		Loading Mode			√		
		Storage Management					√
		Working Mode				√	√
		IoT Configuration	Multi-Function Card Info		√		
			External Sensor		√		
			Sensor Settings		√		
			Power Distribution Cabinet		√		
			Dehumidification		√		
		Cascading & Self-Splicing			√		
	Maintenance and Security	Restart			√		
		Backup and Reset			√		

Functions on Client			DS-DT60 Series		
			C	V	P
		Log	√		
		Device Debugging	√		
		Permission Management	√		

DS-DT30 Series LED Controller

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

Functions on Client					DS-DT30 Series
					P
Display Control	Display Mapping				√
	Source Management				√
	Display Effect				√
	Calibration				√
	Content Control				√
	Backup	Network Port Backup			√ *
		Device Backup			√
	Receiving Card Parameters				√
Display Maintenance	Display Maintenance				√
	Settings	System	System Info	Basic Info	√
				Time Settings	√
			Serial Port Configuration		√
		Network	Network Configuration	Wi-Fi	√
				Hot Spot	√
				TCP/IP	√
		Preference	Startup Image		√
			No Signal Image		√
		OSD Configuration			√

Functions on Client				DS-DT30 Series
				P
		Schedule	Scheduled Display On/Off	√
			Timed Brightness Adjustment	√
		Storage Management		√
		IoT Configuration	Multi-Function Card Info	√
			External Sensor	√
			Sensor Settings	√
			Power Distribution Cabinet	√
			Dehumidification	√
	Maintenance and Security	Restart		√
		Backup and Reset		√
		Log		√
		Device Debugging		√
		Permission Management		√

Note

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

Video Wall Controller

Table 1-4 Supported Functions of Video Wall Controller

Functions on Client			Video Wall Controller
Display Control	Display Mapping		√
	Source Management		√
	Display Effect		√
	Calibration		√
	Backup	Network Port Backup	√

<table>
<tr><th colspan="5">Functions on Client</th><th>Video Wall Controller</th></tr>
<tr><td></td><td colspan="4">Receiving Card Parameters</td><td>√</td></tr>
<tr><td rowspan="14">Display Maintenance</td><td colspan="4">Display Maintenance</td><td>√</td></tr>
<tr><td rowspan="12">Settings</td><td rowspan="2">System</td><td rowspan="2">System Info</td><td>Basic Info</td><td>√</td></tr>
<tr><td>Time Settings</td><td>√</td></tr>
<tr><td>Network</td><td>Network Configuration</td><td>TCP/IP</td><td>√</td></tr>
<tr><td>Preference</td><td colspan="2">No Signal Image</td><td>√</td></tr>
<tr><td colspan="3">OSD Configuration</td><td>√</td></tr>
<tr><td rowspan="2">Schedule</td><td colspan="2">Scheduled Display On/Off</td><td>√</td></tr>
<tr><td colspan="2">Timed Brightness Adjustment</td><td>√</td></tr>
<tr><td colspan="3">Loading Mode</td><td>√</td></tr>
<tr><td rowspan="5">IoT Configuration</td><td colspan="2">Multi-Function Card Info</td><td>√</td></tr>
<tr><td colspan="2">External Sensor</td><td>√</td></tr>
<tr><td colspan="2">Sensor Settings</td><td>√</td></tr>
<tr><td colspan="2">Power Distribution Cabinet</td><td>√</td></tr>
<tr><td colspan="2">Dehumidification</td><td>√</td></tr>
<tr><td rowspan="3">Maintenance and Security</td><td colspan="3">Restart</td><td>√</td></tr>
<tr><td colspan="3">Backup and Reset</td><td>√</td></tr>
<tr><td colspan="3">Log</td><td>√</td></tr>
</table>

Chapter 2 Display Mapping

2.1 Display Mapping Overview

Online Project

The online project is a core function that enables direct configuration of display parameters, cabinet layouts, and network connections by adding physical devices (e.g., LED controllers/video wall controllers). It supports real-time display mapping debugging and visual control, designed for on-site commissioning and batch deployment scenarios.

Step 1 Use the default online project or create a new online project.

Step 2 Use the default screen or create a new display.

Step 3 Add devices (see "2.2.1 Add Devices").

Step 4 (Optional) For long-distance transmission using two DS-DT90 series LED controllers, configure optical port mode based on the actual number of connected screens (see "2.2.2 (Optional) Configure Optical Port").

Step 5 Add cabinets (see "2.2.3 Add Cabinets").

Step 6 Configure cabinet layout and network port connections (see "2.2.4 Configure Cabinet Layout and Port Connections").

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

- Hover over an online project to edit its name, export it, or delete it.
- On other client-installed computers, click **Import Project** to migrate device parameters and display mapping configuration from other systems.

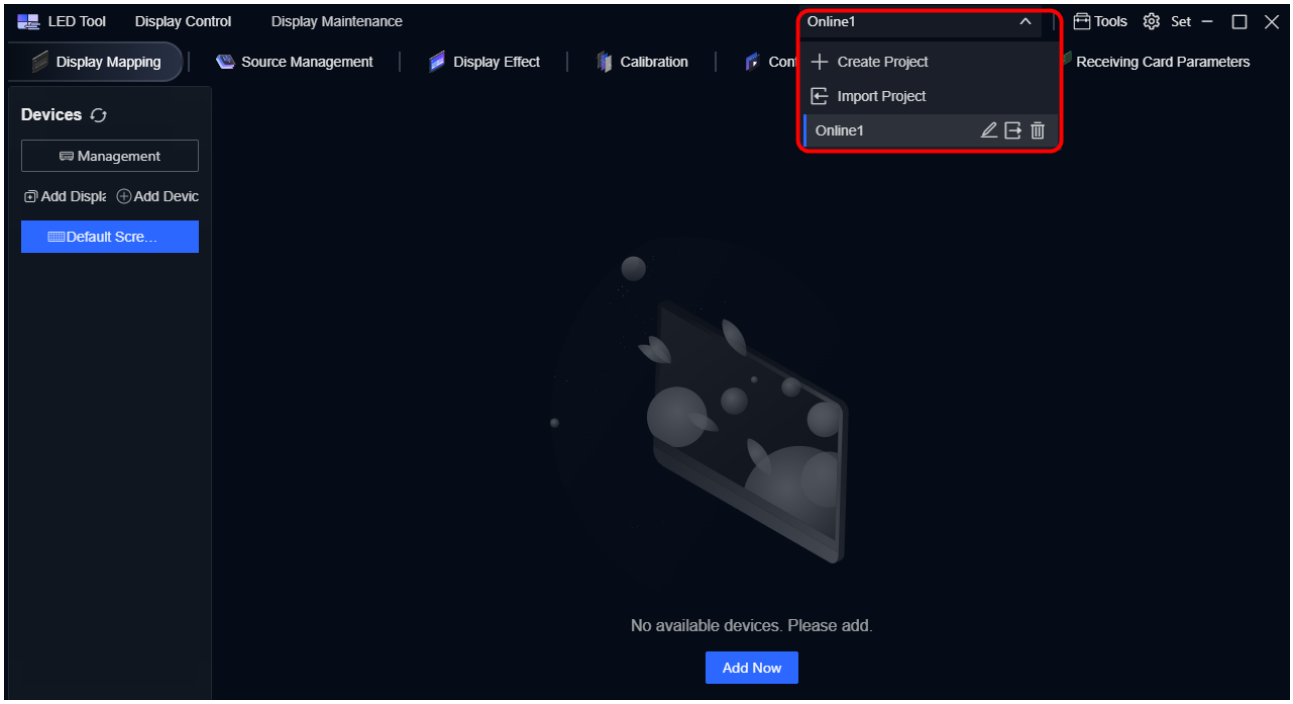


Figure 2-1 Online Project

Demo Project

The demo project provides a virtual debugging environment for display mapping configuration, enabling the addition of virtual devices to simulate setup processes. Physical devices can be bound at any time for actual deployment. This functionality is designed for demonstration purposes and training scenarios.

Step 1 Create a new demo project.

Step 2 Use the default screen or create a new display.

Step 3 Add the virtual LED controller.

Step 4 Add cabinets (see "2.3.1 Add Device and Cabinets").

Step 5 Configure cabinet layout and network port connections (see "2.3.2 Configure Cabinet Layout and Port Connections").

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

- Deploy virtual LED controller configurations to physical screens:

1) Click **Deploy**.
2) Click **Select Online Device**.
   - Add online devices.
   - Manually add devices.
3) Click **Deploy**.

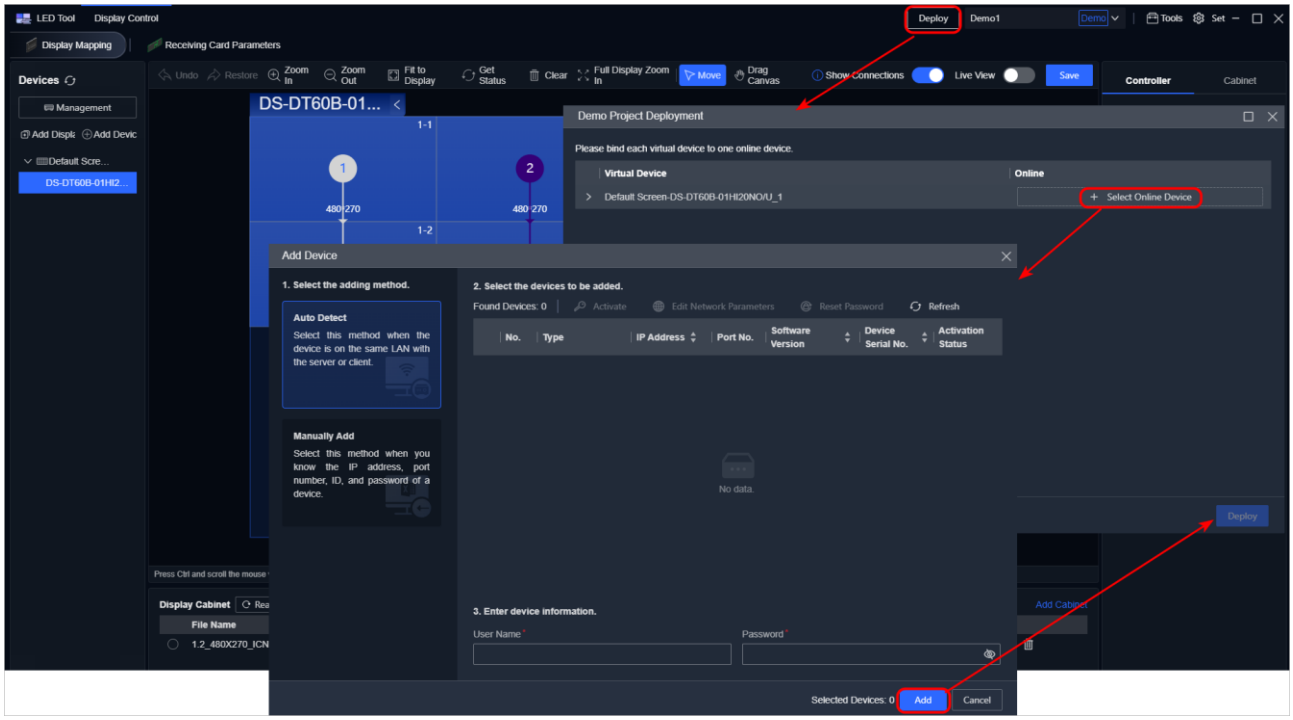


Figure 2-2 Deploy Display Mapping Configuration

- Hover over a demo project to edit its name, export it, or delete it.
- On other client-installed computers, click **Import Project** to migrate device parameters and display mapping configuration from other systems.

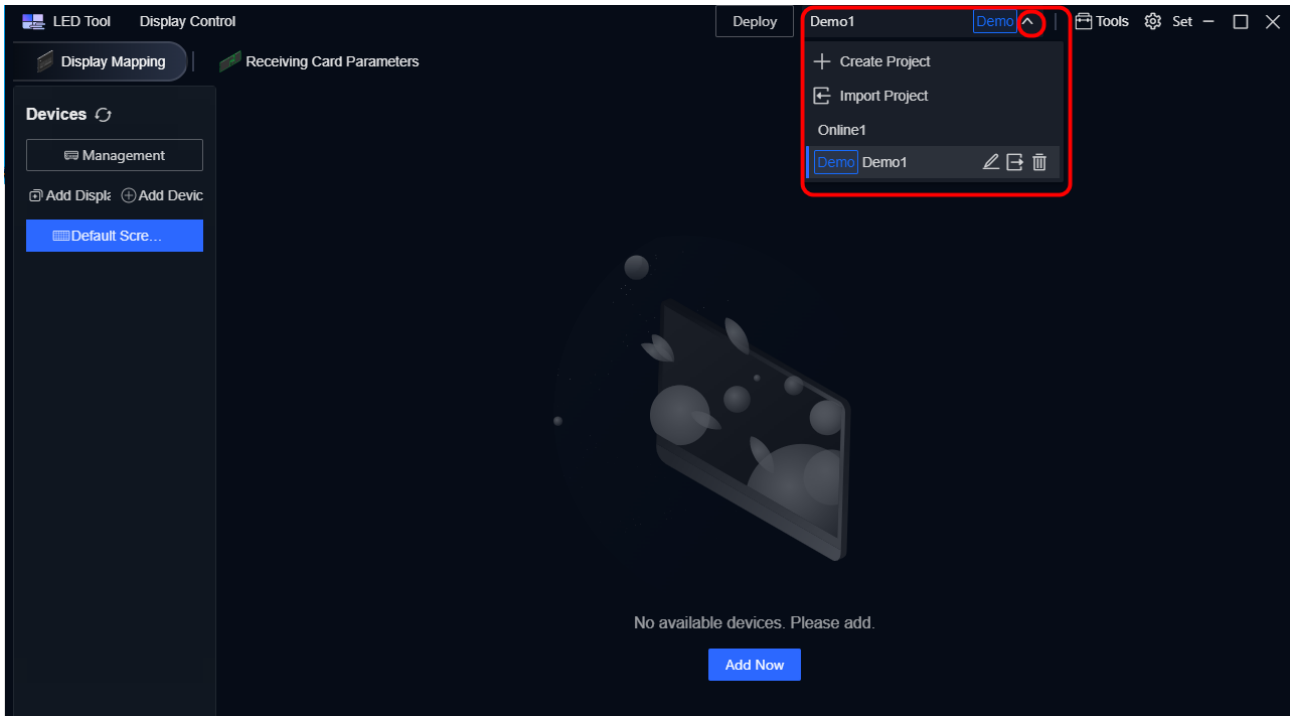


Figure 2-3 Demo Project

2.2 Display Mapping via Online Project

2.2.1 Add Devices

On the client, you can add LED controllers and video wall controller installed with LED controller boards.

Before You Start

- For an LED controller: Use Ethernet cables to connect multiple network ports of the LED controller to multiple cabinets, and then use an Ethernet cable or Wi-Fi to connect the LED controller to the client-installed computer.
- For a video wall controller installed with LED controller boards: Use Ethernet cables to connect multiple network ports of an LED controller board in the video wall controller to multiple cabinets, and then use an Ethernet cable to connect the video wall controller to the client-installed computer. Only some video wall controllers support the installation of LED controller boards.

Step 1 Select an online project:

- Use the default online project.
- Click **Create Project** to create a new online project.

Step 2 On the **Display Control** → **Display Mapping** page, select a display:

- Use the default screen.
- Click **Add Display** to add a new display.

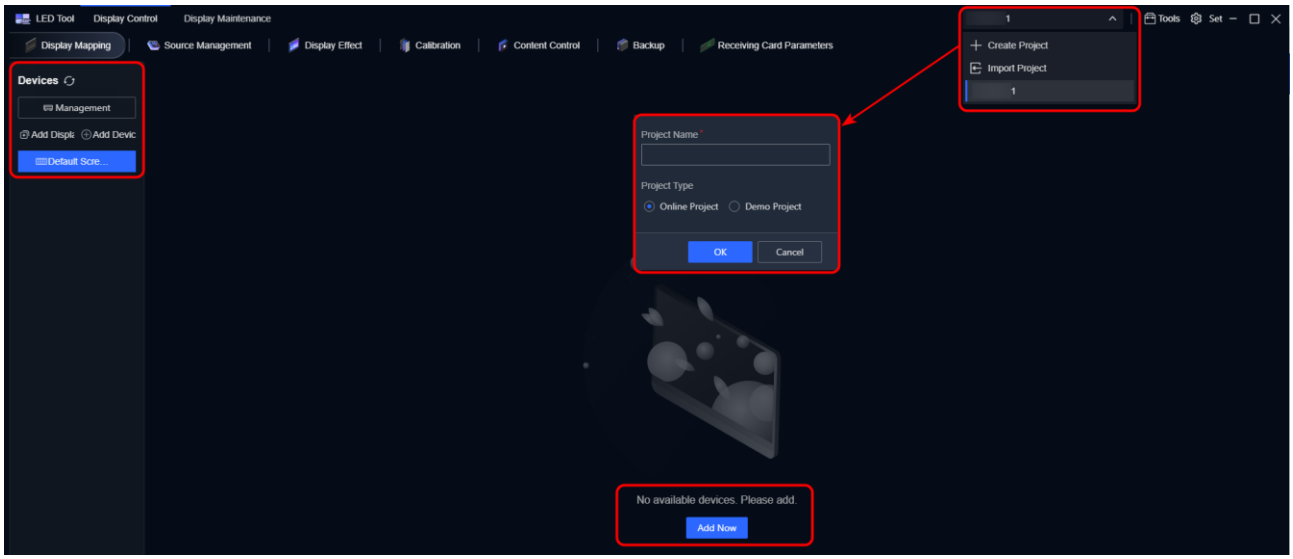


Figure 2-4 Display Mapping Page

Step 3 Use either of the following methods to open the **Add Device** window.

- Click **Add Now.**
- Click **Add Device**.

- Hover over the target display and click . Devices are added to the target display by default. If you need to specify another display, select the target display in the **Add to** parameter.
- Click **Management**, and click **Add Device**.

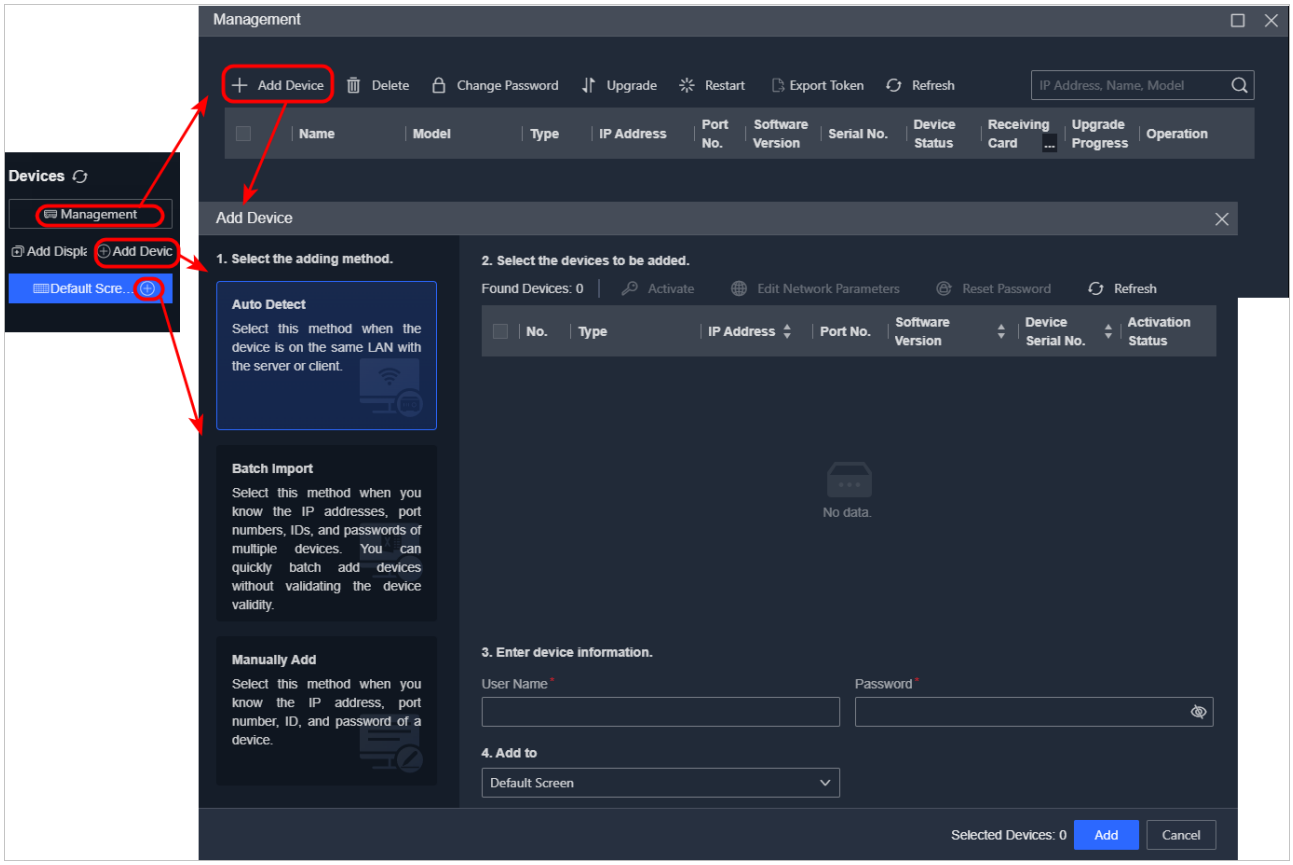


Figure 2-5 Open Add Device Window

Step 4 Use either of the following methods to add devices.

- Add Online Devices
- Batch Import Devices
- Manually Add Single Device
- .

Add Online Devices

Step 1 Click **Auto Detect**.

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

- Reset the password of a device:

1) Select a device, and click **Reset Password**.
2) Click **Export** to export the password file.
3) Send the exported password file to the technical support to obtain a new password file.

4) Click **Import** to import the new password file.
5) Enter the new password and confirm password.
6) Click **OK**.

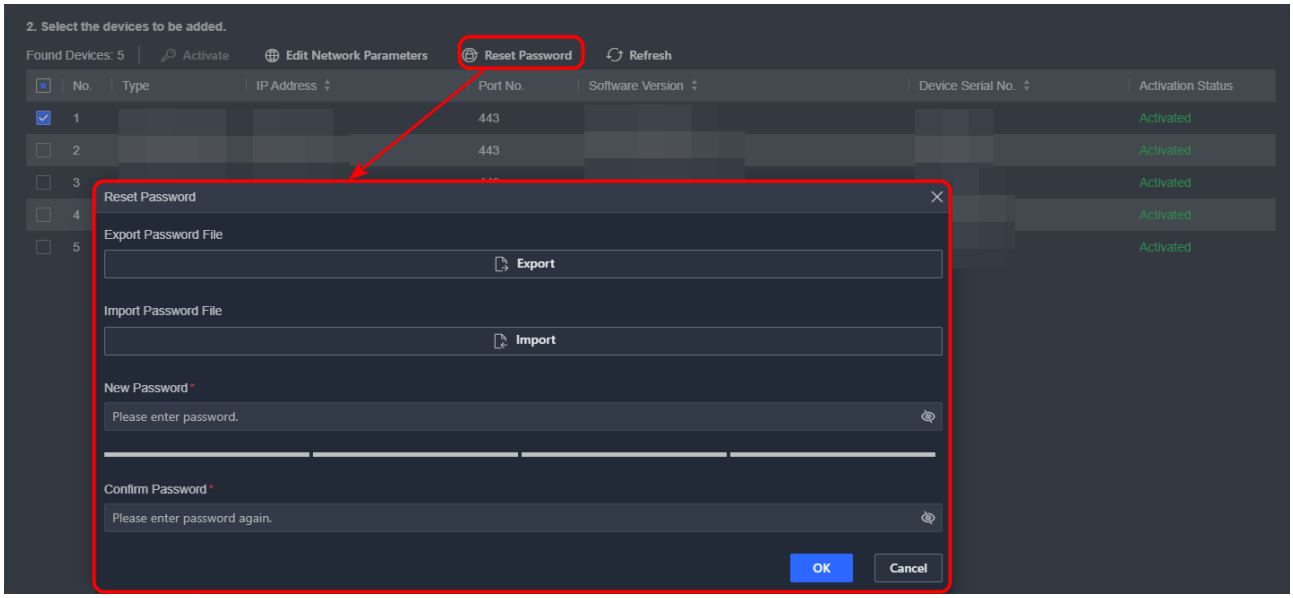


Figure 2-6 Reset Password

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

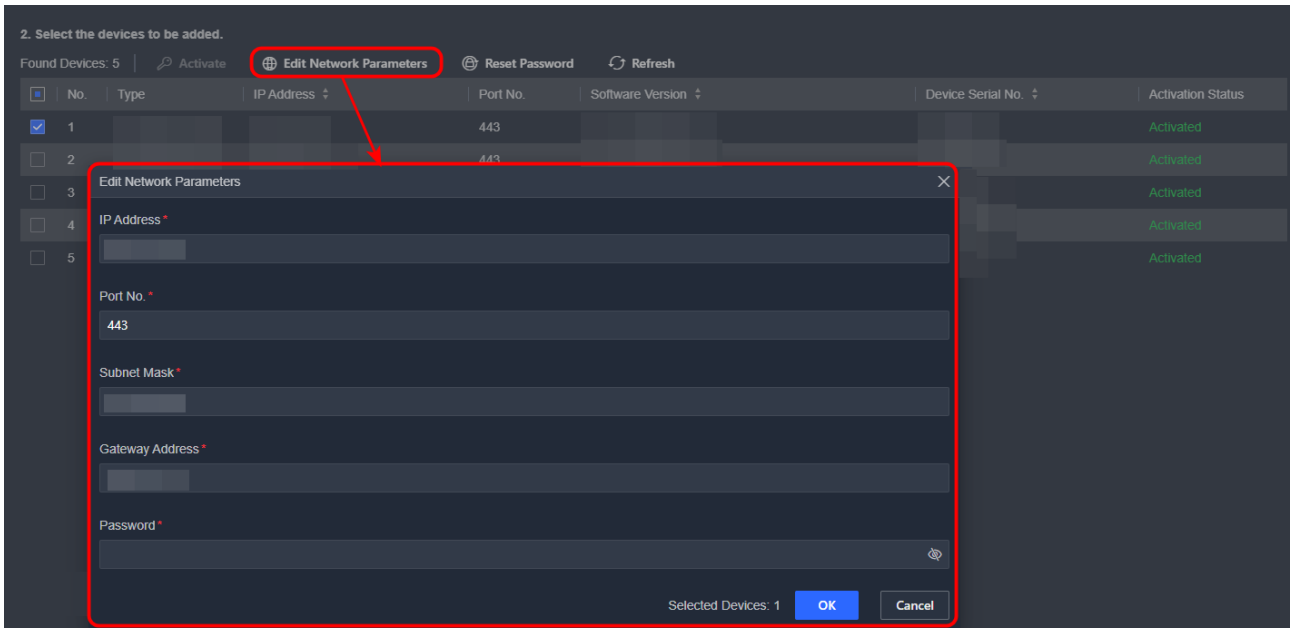


Figure 2-7 Edit Network Parameters

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

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

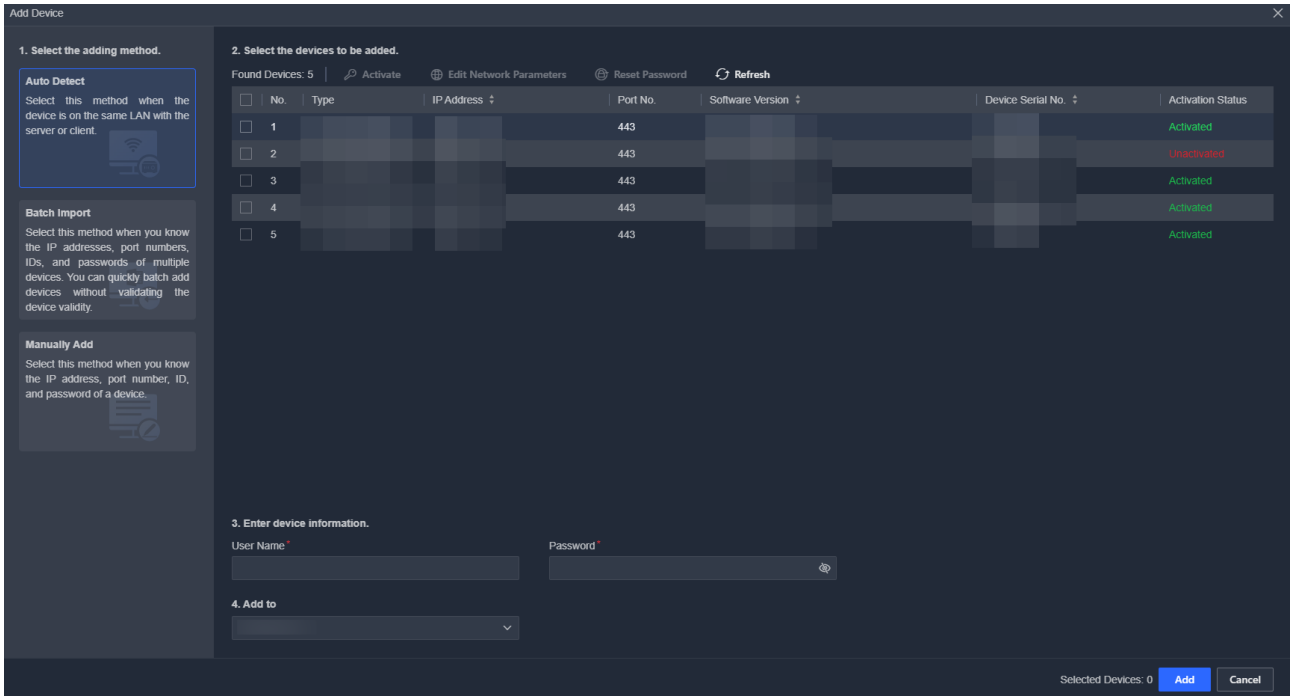


Figure 2-8 Add Online Devices

Note

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

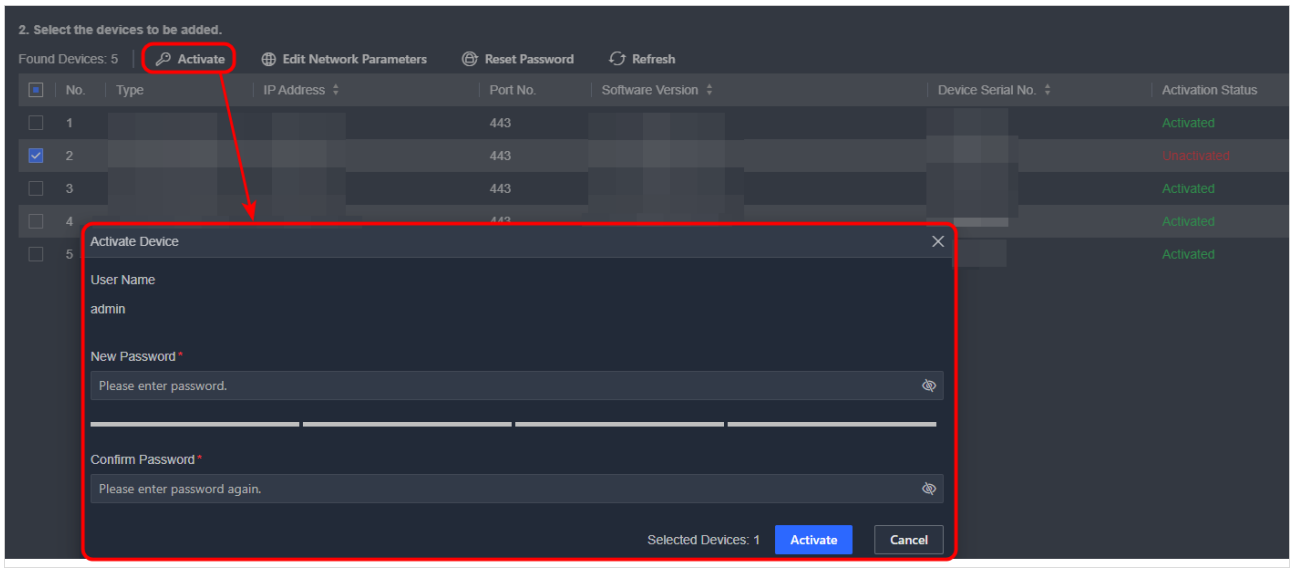


Figure 2-9 Activate Device

Batch Import Devices

Step 1 Click **Batch Import**.

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

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

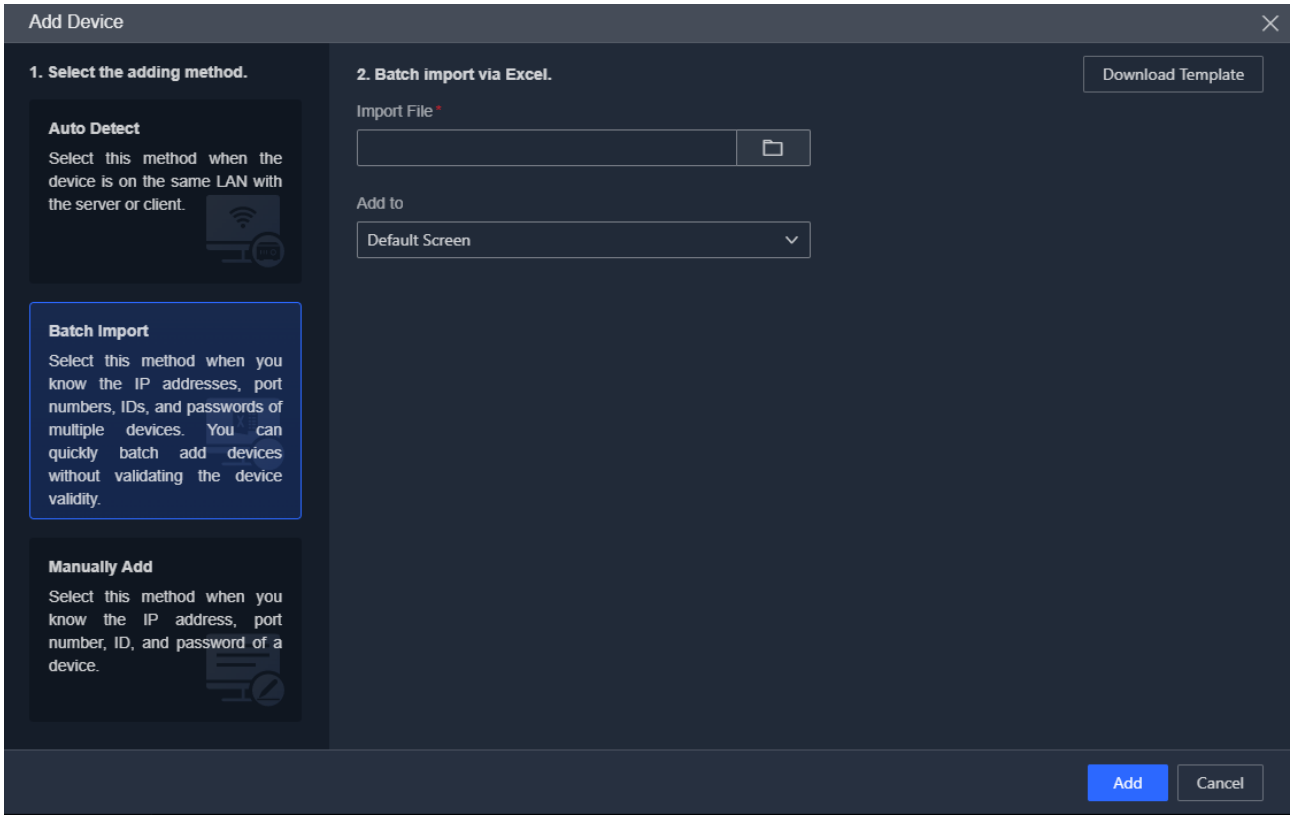


Figure 2-10 Batch Import Devices

Manually Add Single Device

Step 1 Click **Manually Add**.

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

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

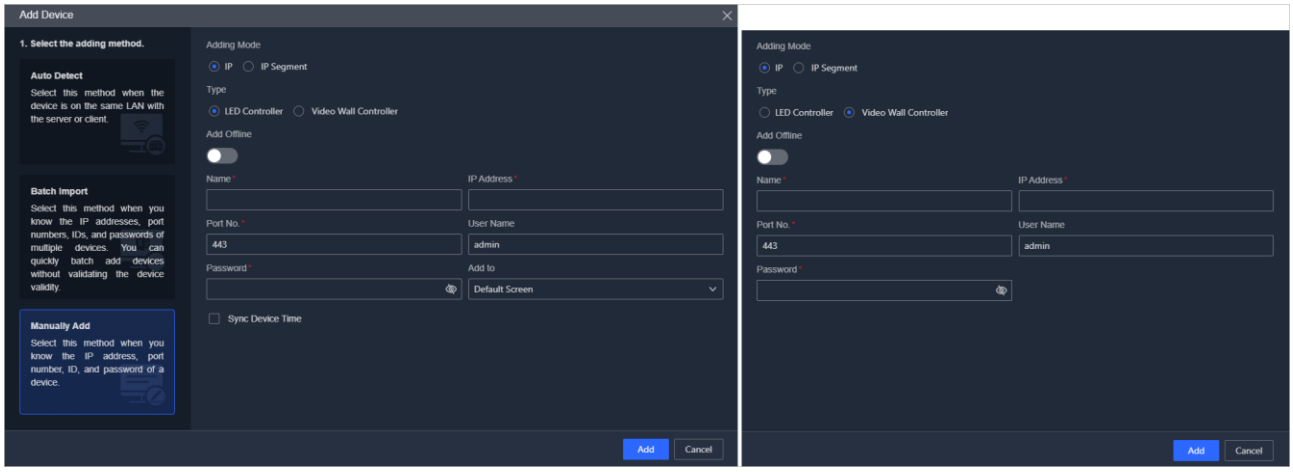


Figure 2-11 Manually Add Devices

Note

To add multiple devices, repeat the operation described above.

Manage Devices

- Reconnect the currently offline devices and retrieve the latest data from the added online devices:
  - Click  next to **Devices**.
  - Click **Refresh** in the **Management** window.
- Adjust the association between devices and displays: Drag a device directly to another display.
- Manage non-default displays:
  - Hover over a non-default display, right-click to open the menu, and select **Rename** or **Delete**.
  - When a non-default display contains an LED controller board, you can only rename the non-default display.
- Manage a single device: Hover over a device, right-click to open the menu, and select **Rename**, **Restart**, or **Delete**. Offline devices and LED controller boards support only renaming.
- Manage multiple devices in the **Management** window:
  - Select one or multiple devices, and click **Delete**.
  - Select one or multiple devices that use the same login password, and click **Change Password**.
  - Select one or multiple devices, and click **Restart**.
  - Select one or multiple devices, and click **Export Token**.
- Manage a single device in the **Management** window:
  - Click **Edit** to modify the device name, IP address, port number, username or password, or enable **Sync Device Time**. Device time synchronization is only supported on LED controllers.

- Click **Receiving Card Details** to check the receiving card configurations for all Ethernet ports on the current device. When using multiple receiving cards for one display, make sure all receiving cards have the same firmware version. If versions don't match, upgrade the receiving cards immediately.

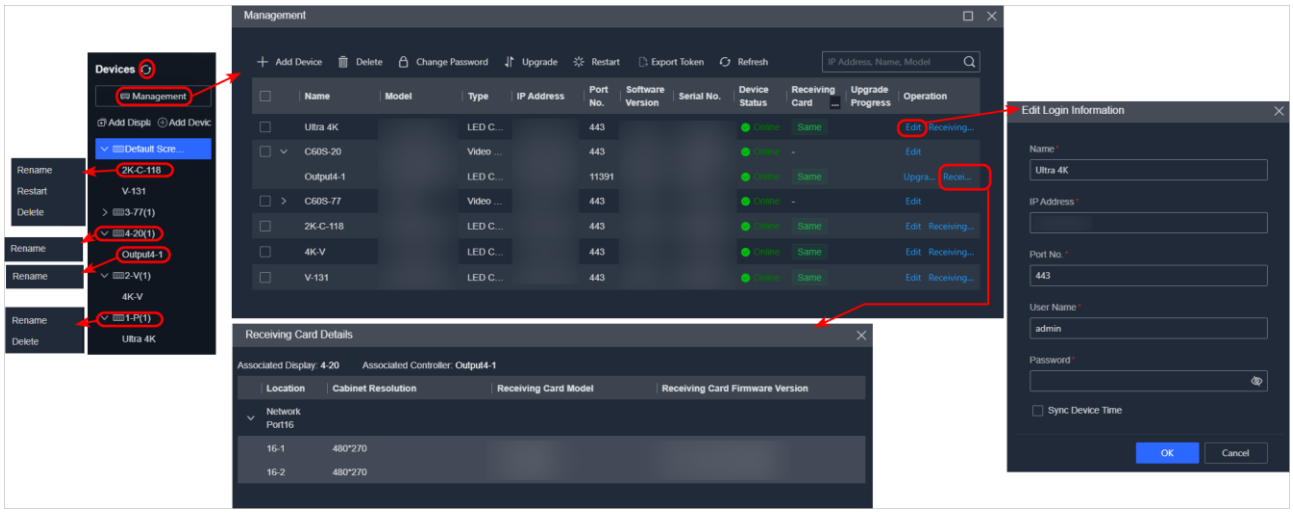


Figure 2-12 Manage Added Devices

- Upgrade devices in the **Management** window:
  - Select one or multiple LED controllers, click **Upgrade**, and select device type and upgrade mode.
  - Select one or multiple video wall controllers, click **Upgrade**, and use a locally saved upgrade file to upgrade the video wall controllers.

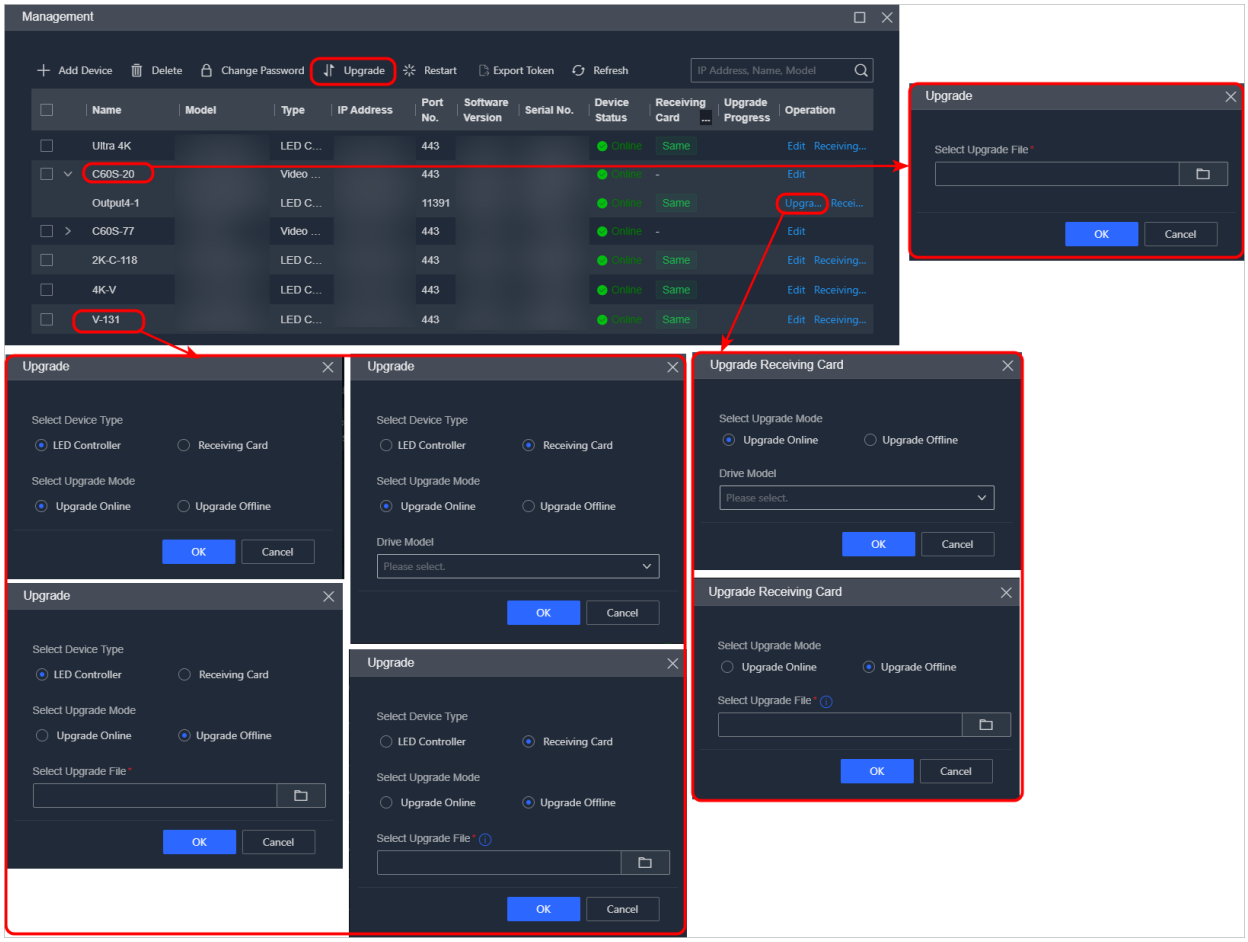


Figure 2-13 Upgrade Devices

- Click  of a video wall controller to show its LED controller boards. Click **Upgrade Receiving Card** of an LED controller board and select an upgrade mode to upgrade the receiving cards connected to the LED controller board.

- Access the device web interface: Click the device IP address to open the web management interface. After logging in with your username and password, you can remotely control the device through this interface.

2.2.2 (Optional) Configure Optical Port

Only DS-DT90 series LED controllers support optical port configuration. When using two DS-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.

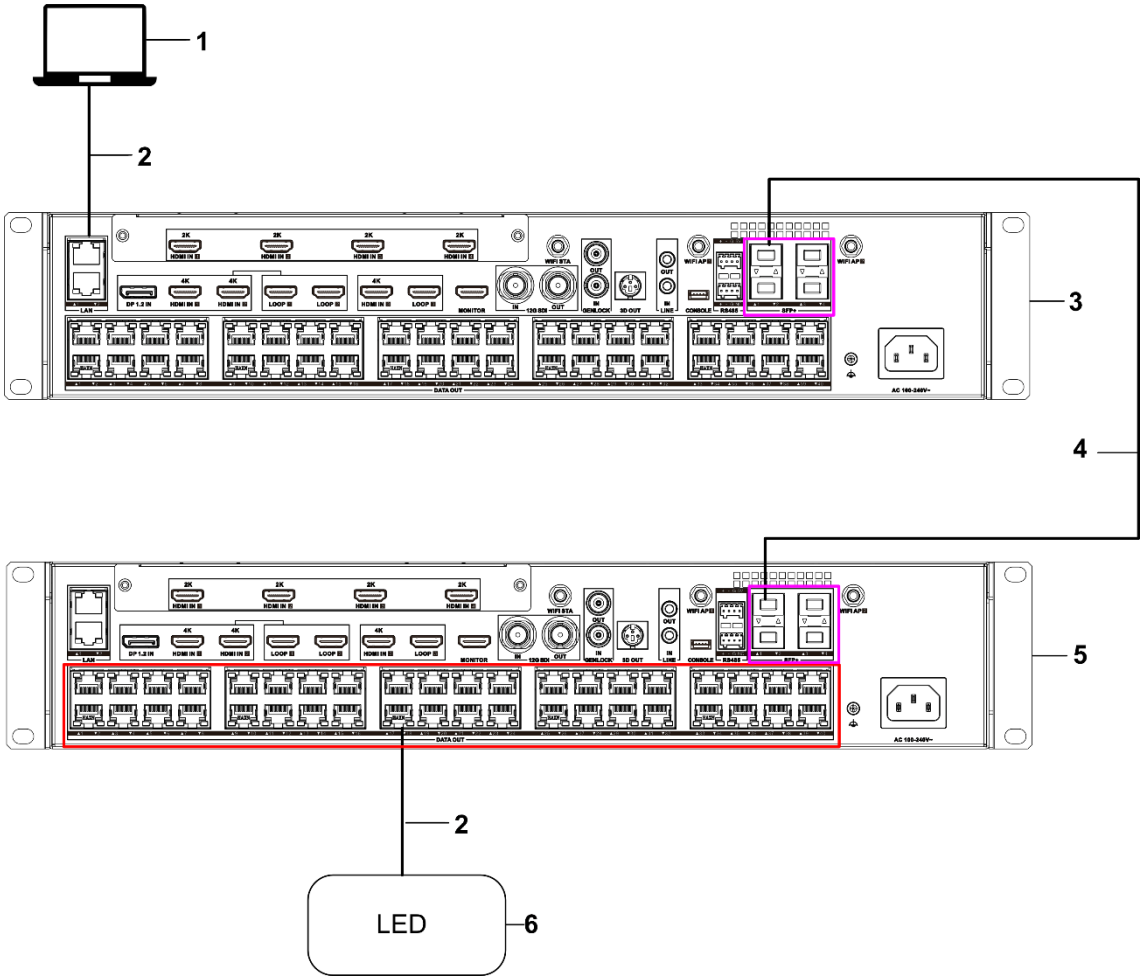


Figure 2-14 Single-Screen Connection Topology

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 **Display Maintenance** → **Settings** → **Optical Port Configuration**, and select **Optical Port Receive Mode**.

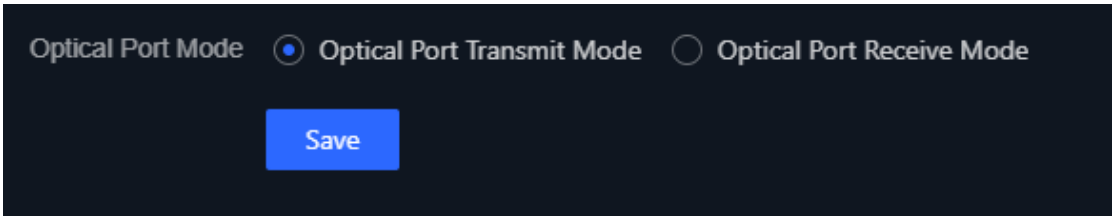
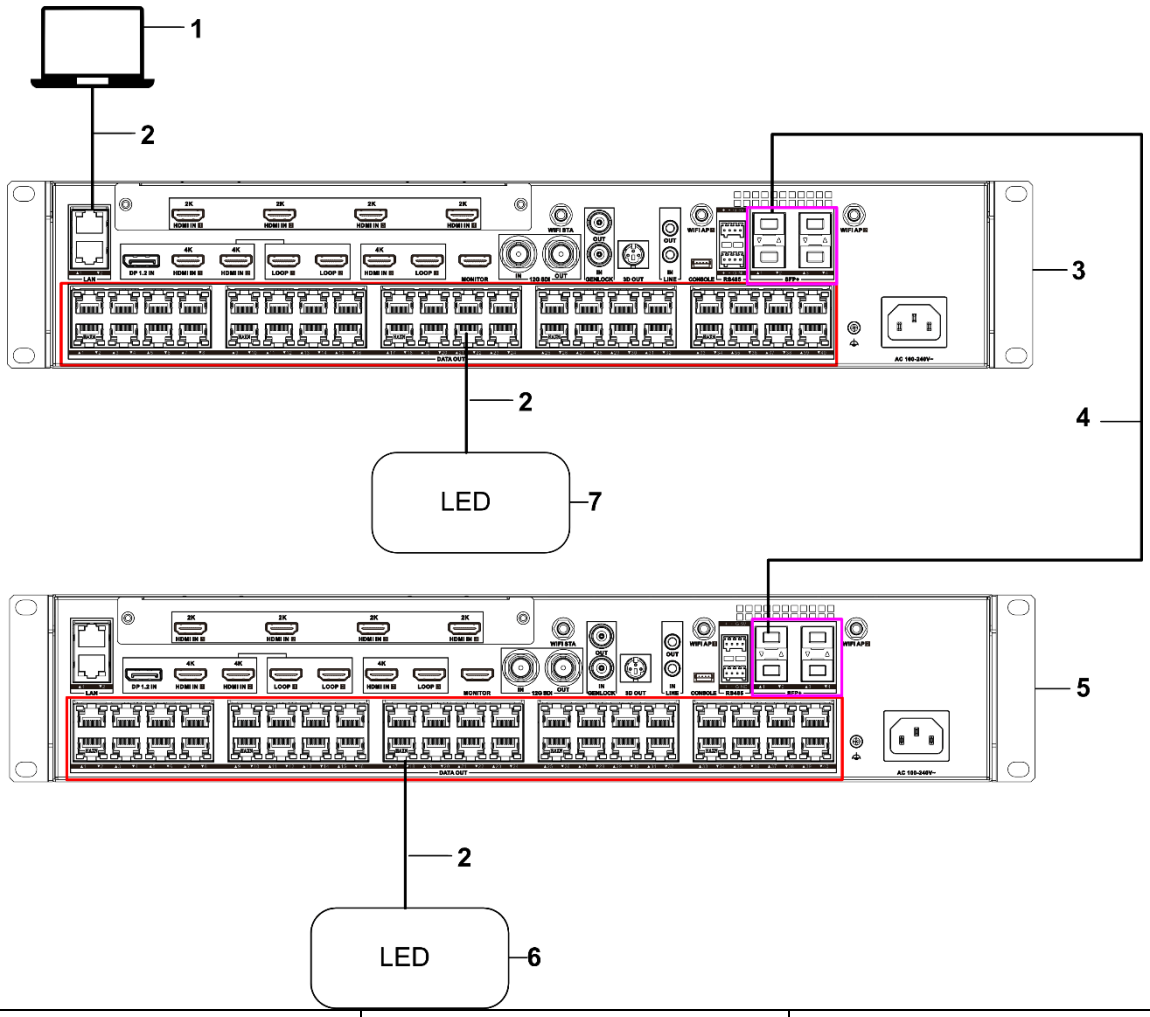


Figure 2-15 Configure Optical Port Mode

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 2.
3) Use multiple Ethernet cables to connect the DATA OUT ports of LED controller B to the LED display 1.



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

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+ 4	31 to 40		

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

- LED controller B: Navigate to **Display Maintenance** → **Settings** → **Optical Port Configuration**, and select **Optical Port Receive Mode**.
- LED controller A: Navigate to **Display Maintenance** → **Settings** → **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 2, select **Local Display Readback**.
  - To control the LED display 1, select **Peer Display Readback**.

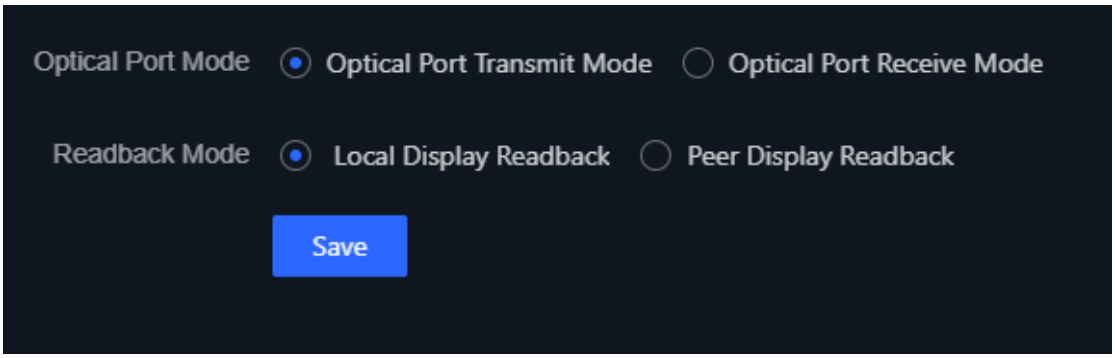


Figure 2-16 Configure Optical Port Mode

2.2.3 Add Cabinets

Step 1 On the **Display Control** → **Display Mapping** page, select a device.

- The loading status of each network port and the device output resolution will be shown on the right.
- On the canvas, click  of the device name to hide the device name or click  to show device name.

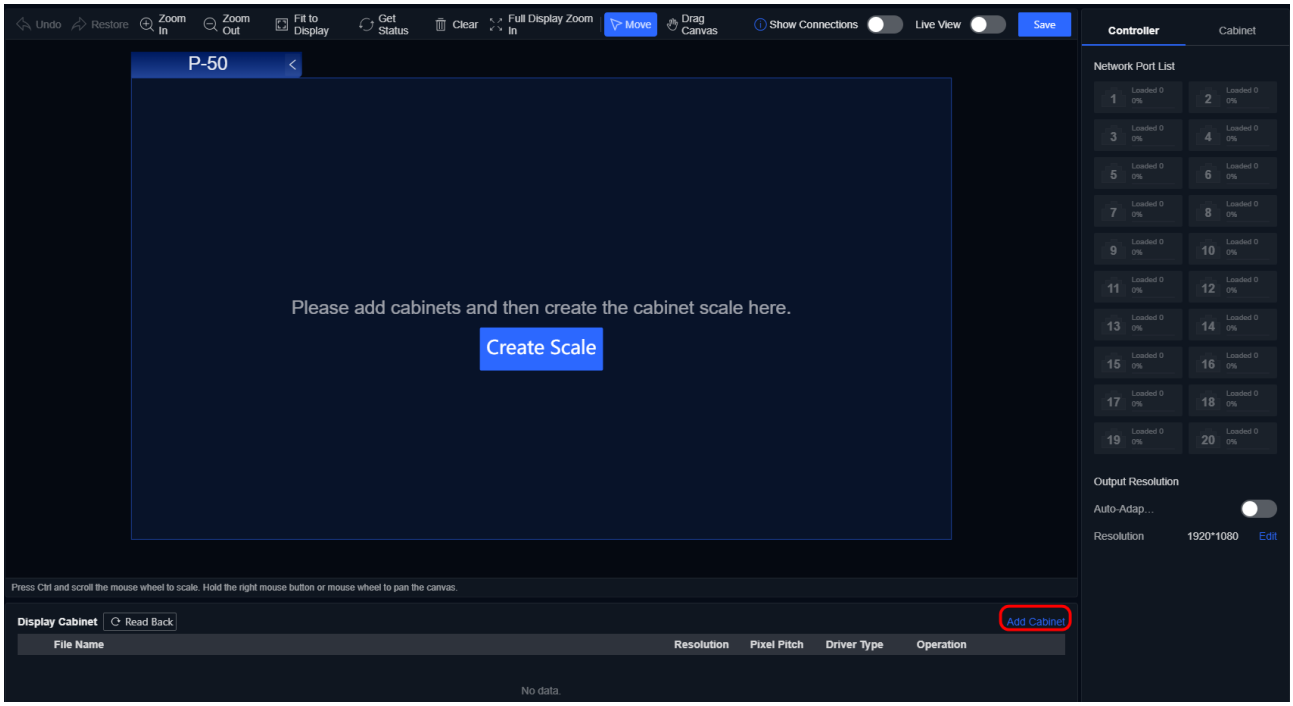


Figure 2-17 Add Cabinet

Step 2 Click **Add Cabinet** and use either of the following methods to add the cabinet configuration file:

- Select **Load from Display Area**, select a display area, and click **Add**. Only some cabinets support loading the configuration file from the display area.
- If there is a cabinet configuration file on the computer, select **Import from Local File**, click  to select one or multiple configuration files, and click **Add**.
  - Search the cabinet configuration from the cloud. For details, see ”6.5.1 Search for Cloud Files”.
  - Create the cabinet configuration files and save them on the computer. For details, see “3.1.2 Create Cabinet Configuration File (Online Mode)”, “3.1.3 Create Cabinet Configuration File (Offline Mode)”, and “3.1.4 Create Cabinet Configuration File (Direct Connection Mode)”.
  - Contact the product supplier to obtain the cabinet configuration files.
- If you know the LED module serial number or order number, select **Load from Cloud**. Enter the LED module serial number or order number, select the searched configuration files, and click **Add**.

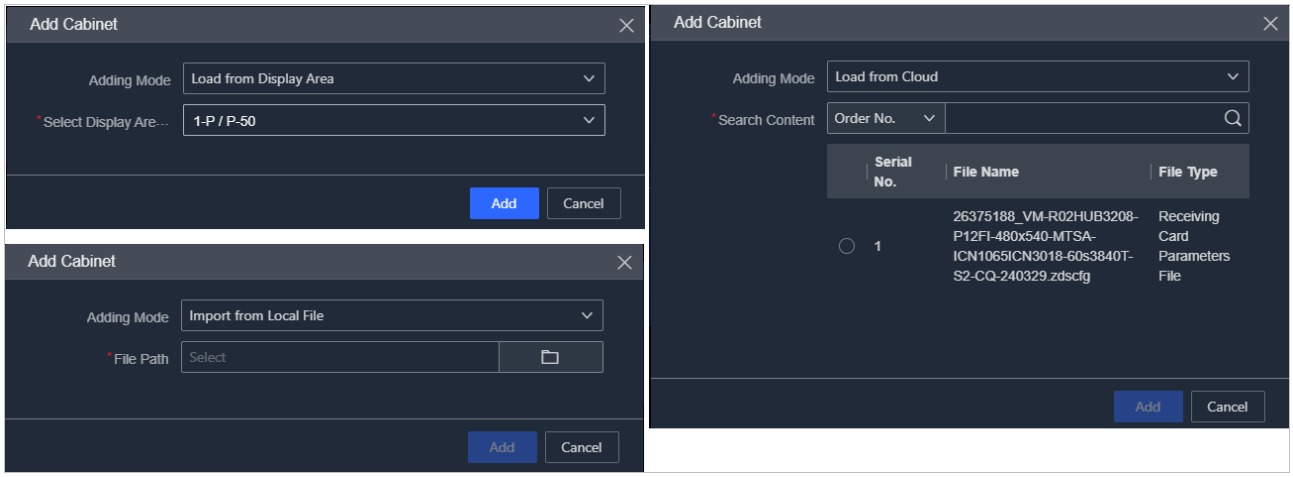


Figure 2-18 Add Cabinet Configuration File

Manage Cabinet Configuration File

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

- Rename: Click  to edit the file name.
- Deploy: Click  to deploy the cabinet configuration file to the device.
- Export: Click  to export the cabinet configuration file to the computer.
- Delete: Click  to delete the cabinet configuration file.
- Modify the file: If you find that the cabinet configuration file does not match the on-site display, click  to edit the cabinet configuration file.

1) Based on the actual receiving card model, edit the product model.
2) Edit the following parameters as required:
   – LED module switching and cascading is supported only on some HUB receiving cards. Open the LED module switching and cascading window to configure. For details, see “3.2.6 Configure Module and Cascading Parameters”.

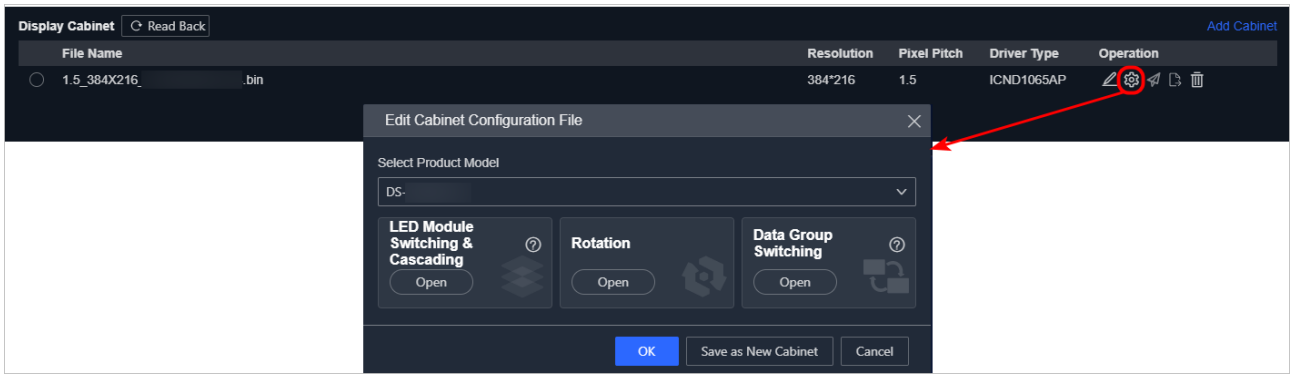


Figure 2-19 Edit Cabinet Configuration File

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

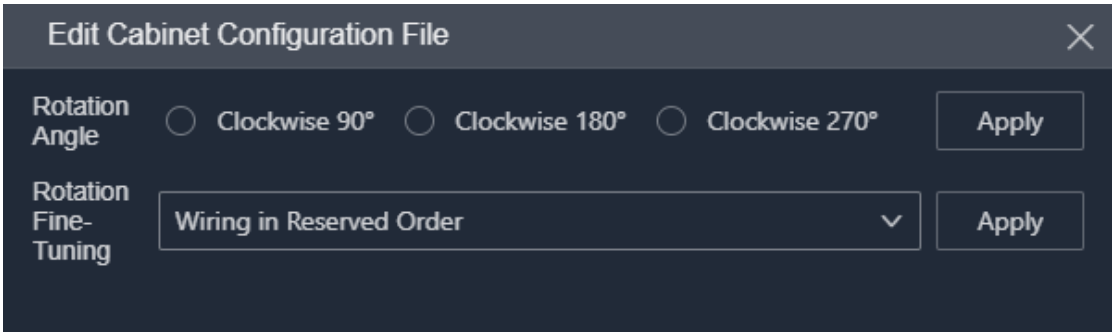


Figure 2-20 Rotate Cabinet

- Open the data group switching window to configure. For details, see “3.2.5 Configure Data Group Parameters”.

3) Click **OK** to save the edited parameters to the current cabinet configuration file.
4) (Optional) Click **Save as New Cabinet** to save the edited parameters as a new cabinet configuration file.

Note

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

2.2.4 Configure Cabinet Layout and Port Connections

Step 1 On the **Display Control** → **Display Mapping** page, select a device.

Step 2 Enable **Auto-Adaption** or set the output resolution manually.

Step 3 Add cabinets to the canvas to match the physical display layout:

- Select the target cabinet configuration file, and left-click on the canvas to add cabinets. Each left-click on canvas generates one cabinet.

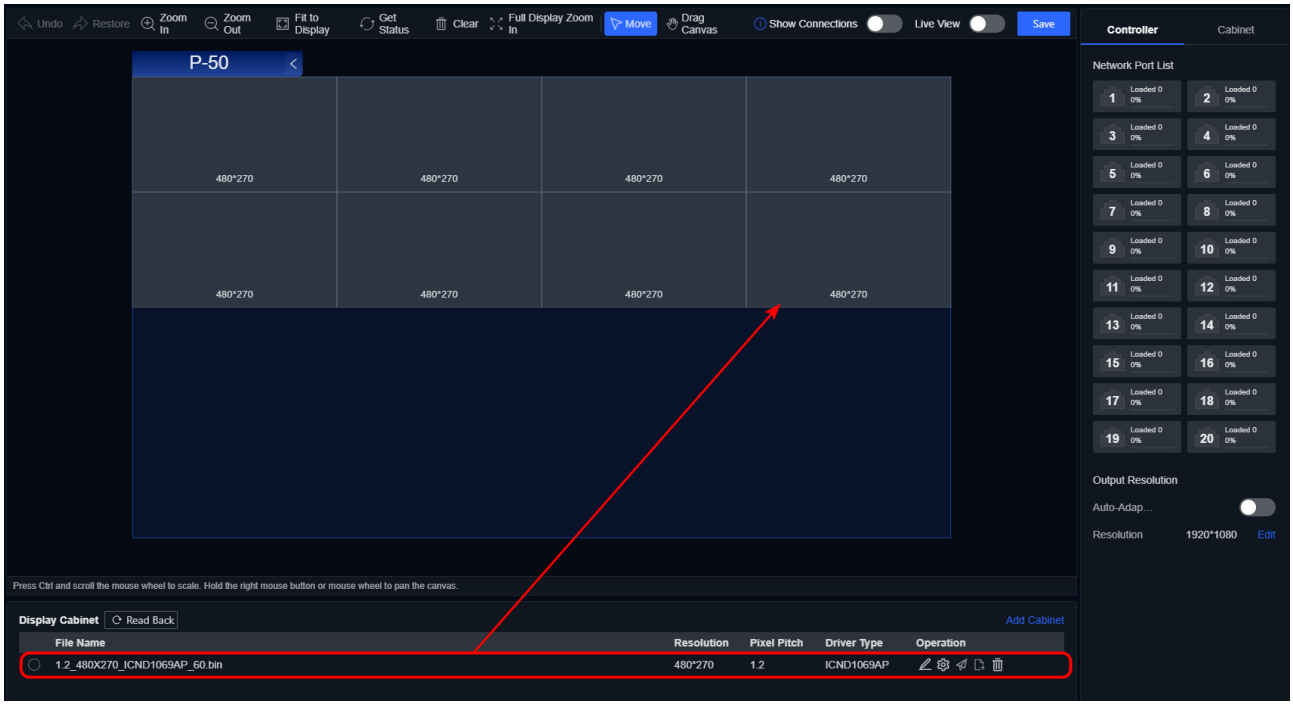


Figure 2-21 Drag Cabinet Configuration Files to Canvas

- Click **Create Scale**, select an added cabinet configuration file, set the rows and columns, and click **OK**.
  - To use other unadded cabinet configuration files, click **Add Cabinet**.
  - After creating the scale, the system will automatically deploy the cabinet configuration file to the device and enable **Show Connections**.

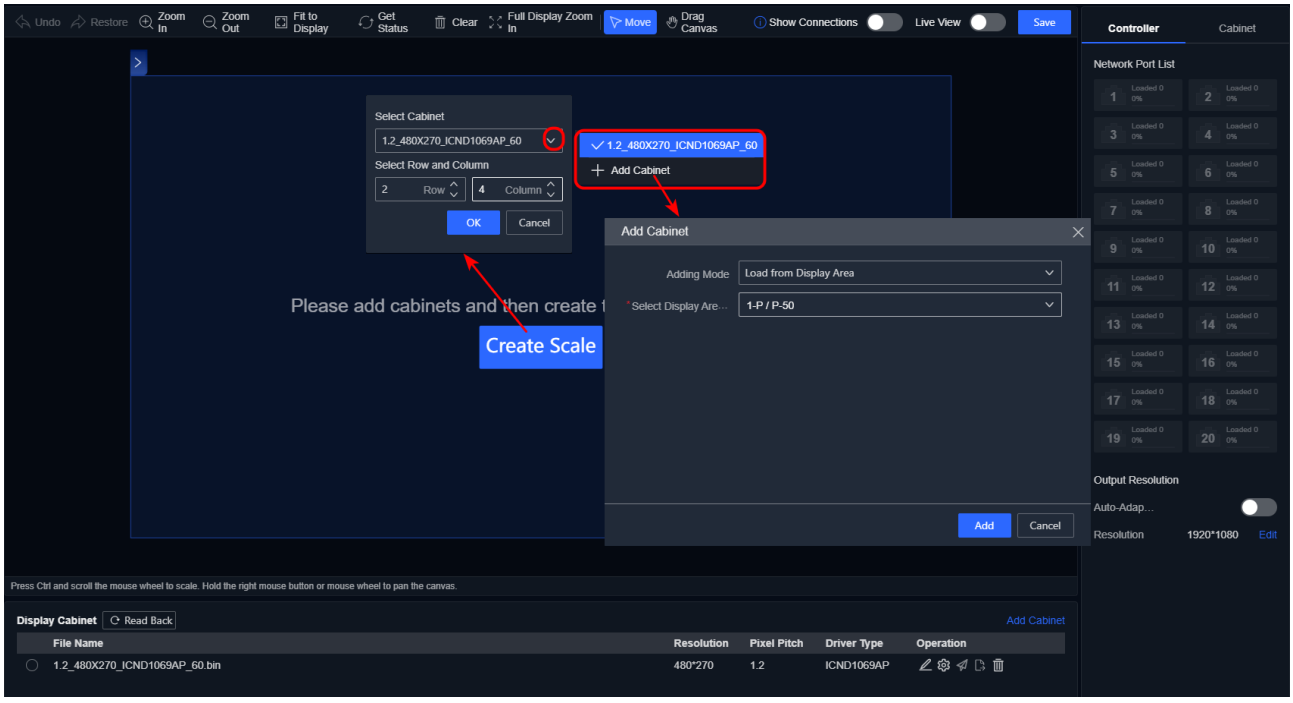


Figure 2-22 Create Display Scale

Step 4 In the **Controller** window, configure port connections according to the actual connections between the cabinets and network ports.

- The network port connection direction is configured according to the operation sequence and the selected connection direction icon.
  - Click multiple cabinets in sequence.
  - Click one cabinet and then press and hold the left mouse button to select other required cabinets.
  - Click the first cabinet, hold Shift, and click the last cabinet.
- To cancel a selected network port connection direction icon, click its icon.
- After configuring a standardized matrix display by clicking **Create Scale**, you can connect network ports on the canvas by matching the port numbers shown on the physical display.

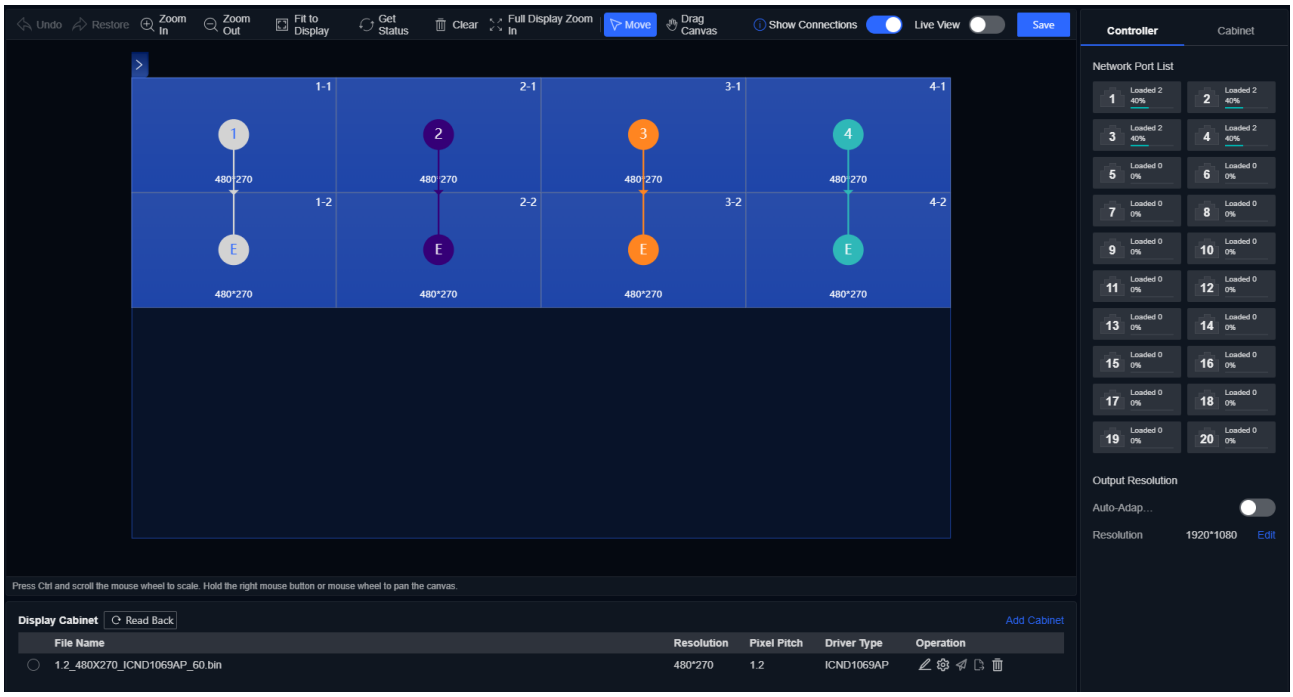


Figure 2-23 Set Display Mapping

Step 5 Click **Save**.

Step 6 (Optional) Configure cabinet parameters. For details, see “Configure Cabinet Parameters”.

Configure Cabinet Parameters

- Basic functions:
  - Preview display: Click **Live View**. This function is supported only by LED controllers, not video wall controllers.
  - Adjust size: Drag the top border of the display cabinet area to resize.

- View cabinet info: After configuring the correct display mapping, select a cabinet and click **Cabinet** on the right side of the **Display Mapping** page to check its coordinates and basic info.
- Perform receiving card test: After configuring the correct display mapping, select a cabinet and click **Cabinet** on the right side of the **Display Mapping** page, enable **Receiving Card Self-Test**, and choose a test pattern. This function is supported only on some receiving cards.

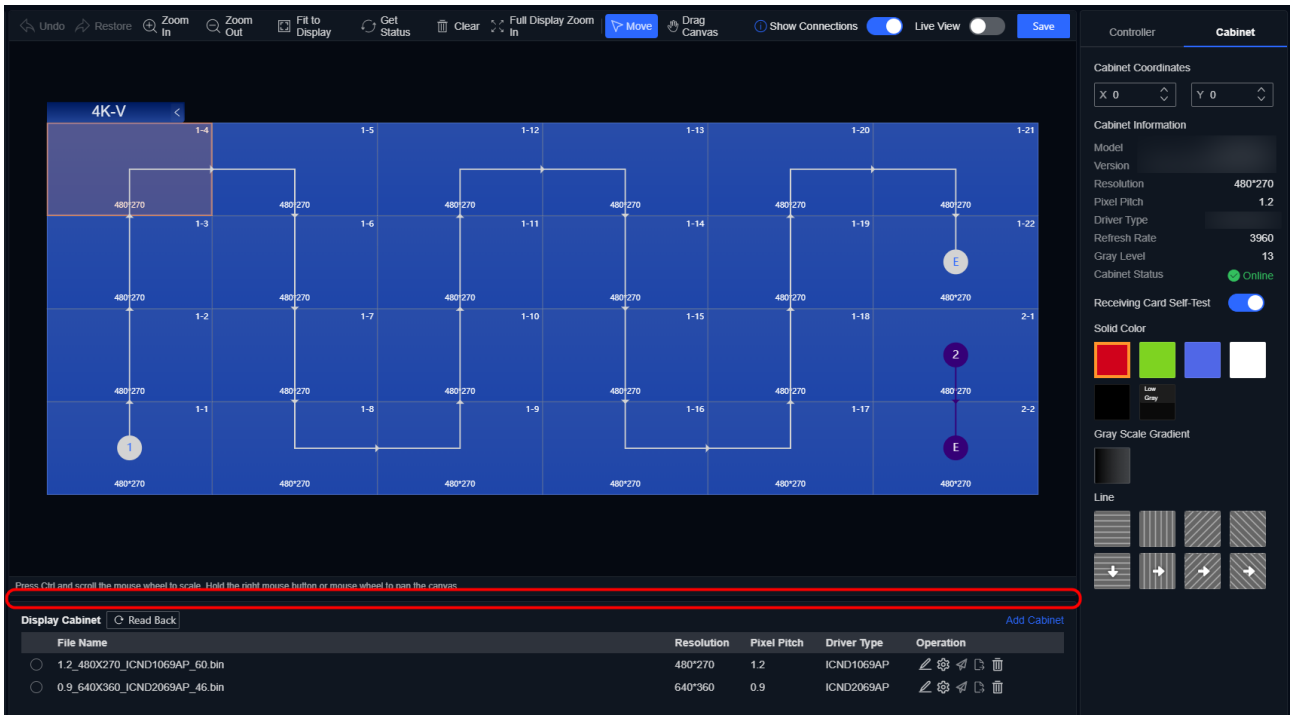


Figure 2-24 View Cabinet Information

- Manage a single cabinet:
  - Add cabinet: Right-click a cabinet, select **Expand**, set layout, and click **OK**.
  - Modify cabinet: Right-click a cabinet, select **Edit Cabinet**, and then choose another cabinet configuration file.
  - Delete port connections: Right-click a cabinet, and select **Delete Connection**.
  - Delete cabinet: Right-click a cabinet, and select **Delete Cabinet**.
- Manage multiple cabinets:
  - Clear port connections: Click **Clear**, select **Clear Network Port Connection**, select the network ports, and then click **OK**.
  - Clear all cabinets & connections: Click **Clear**, and then select **Clear Canvas**.
- Control the canvas:
  - Click **Read Back** to obtain the latest cabinet configuration.
  - Click **Get Status** to obtain the current display layout and port connections.
  - Click **Drag Canvas**, and then move the mouse to pan.

- Click **Fit to Display** to adjust the canvas size to the computer monitor.

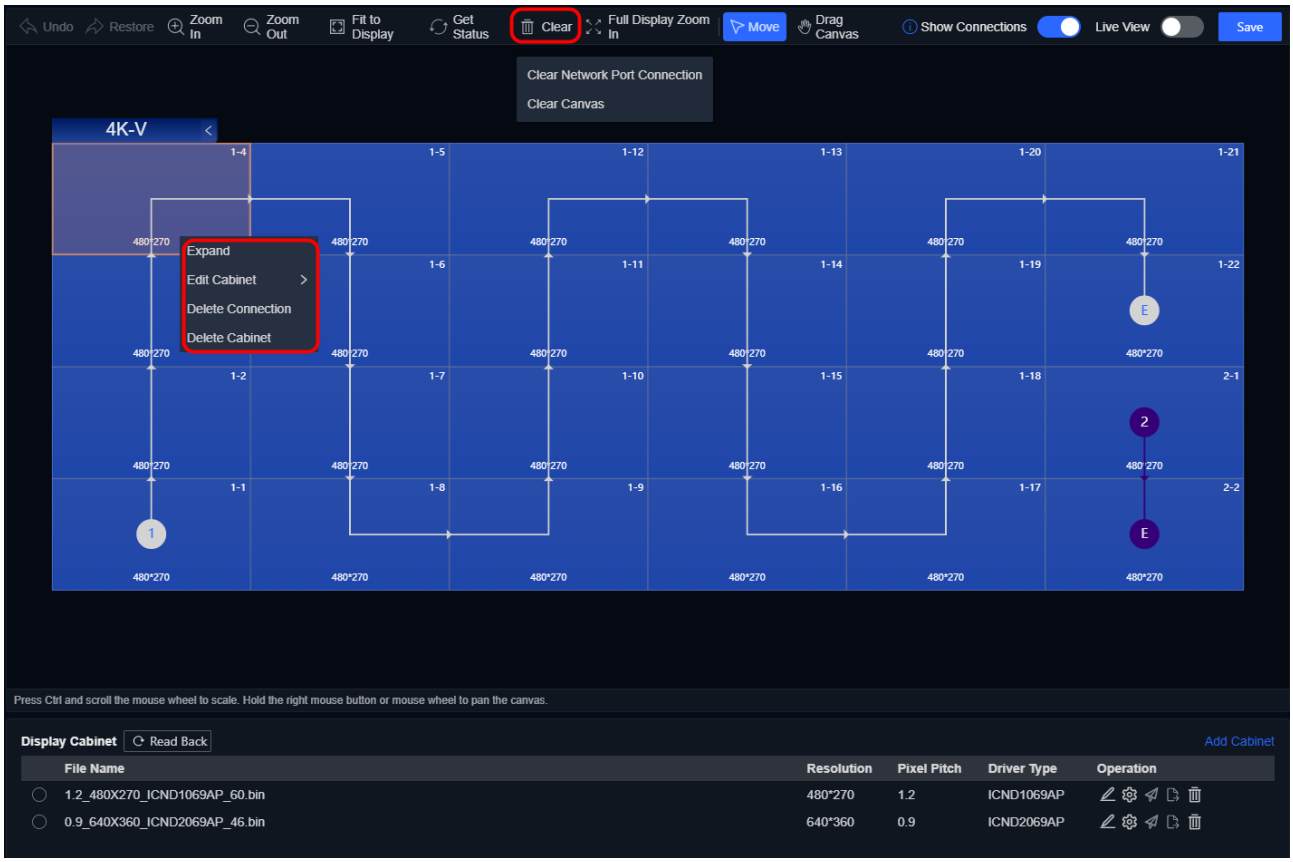


Figure 2-25 Configure Cabinet Parameters

- Control the display mapping page via shortcut keys: In addition to UI buttons, the system provides full shortcut key support (see table below).

Table 2-3 Shortcut Keys

Function		Shortcuts
Delete operation	Delete cabinets and network port connections	Select the cabinets, and press **Delete**.
Canvas panning	Move the canvas horizontally	Hold **Shift** and move the mouse wheel up or down.
	Move the canvas vertically	Move the mouse wheel up and down.
	Drag the canvas	• Hold the mouse wheel and move the mouse. • Hold the right mouse button and move the mouse.
Zoom controls	Zoom in	• Hold **Ctrl** and press **+**. • Hold **Ctrl** and move the mouse wheel up.
	Zoom out	• Hold **Ctrl** and press **–**.

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

2.3 Display Mapping via Demo Project

2.3.1 Add Device and Cabinets

Step 1 Click **Create Project** and select **Demo Project**.

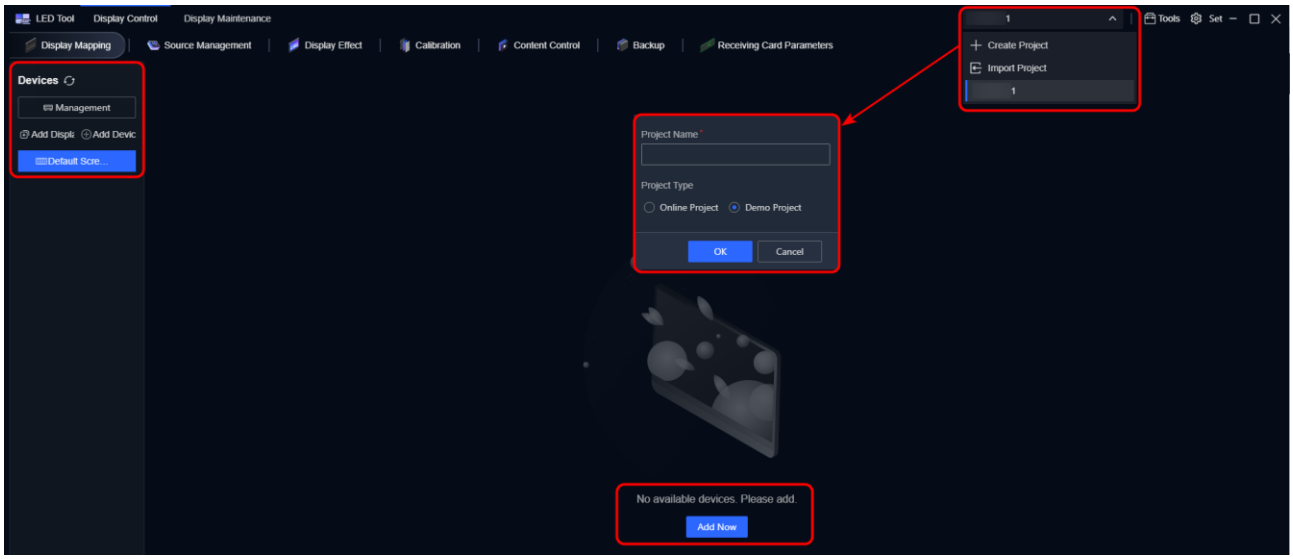


Figure 2-26 Create Demo Project

Step 2 On the **Display Control** → **Display Mapping** page, select a display:

- Use the default screen.
- Click **Add Display** to add a new display.

Step 3 Use either of the following methods to add the virtual LED controller.

- Click **Add Now.**
- Click **Add Device**.
- Hover over the target display and click . Devices are added to the target display by default. If you need to specify another display, select the target display in the **Add to** parameter.
- Click **Management**, and click **Add Device**.

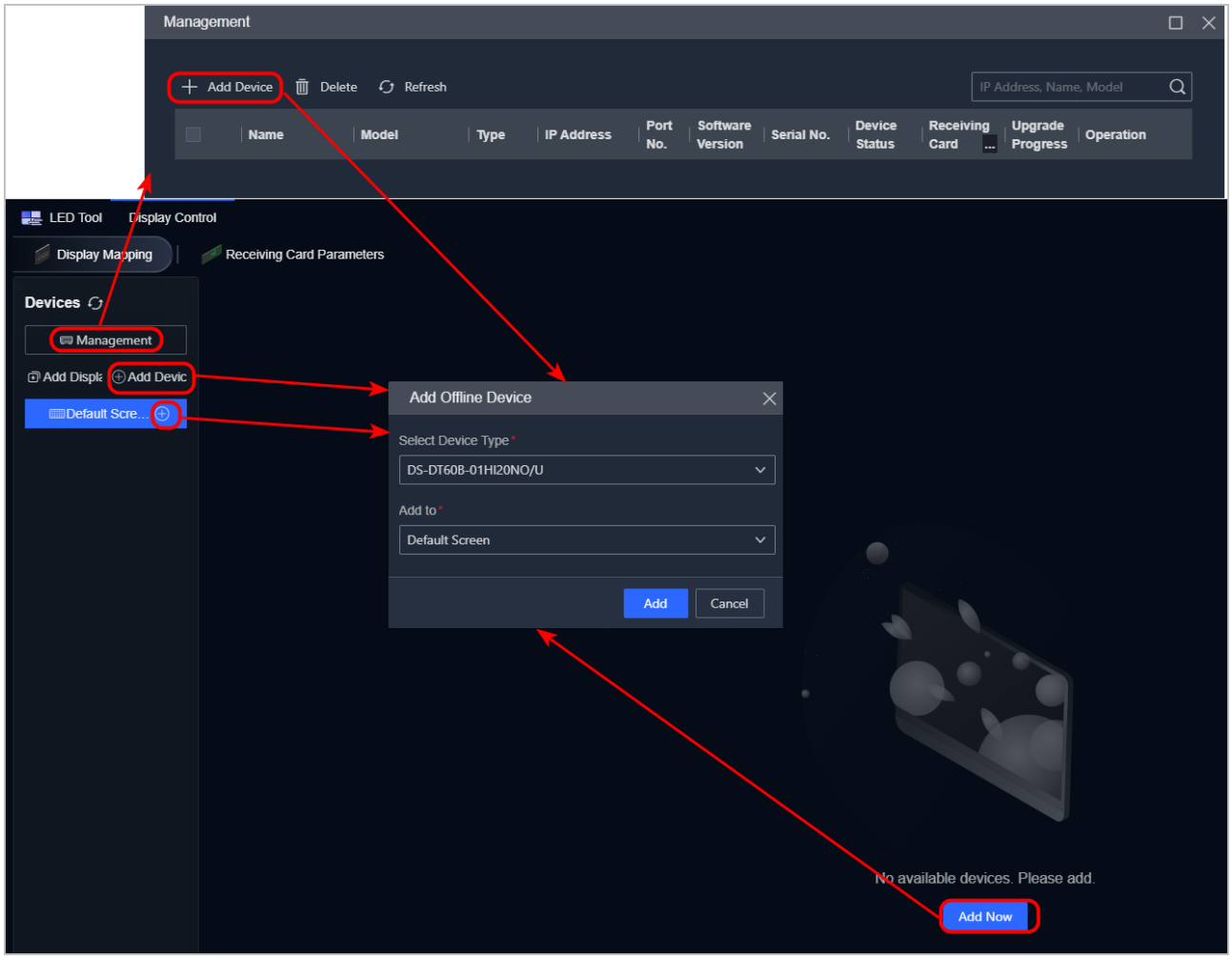


Figure 2-27 Add Virtual LED Controller

Step 4 Select the virtual LED controller and click **Add Cabinet**.

- The loading status of each network port and the device output resolution will be shown on the right.

- On the canvas, click  of the device name to hide the device name or click  to show device name.

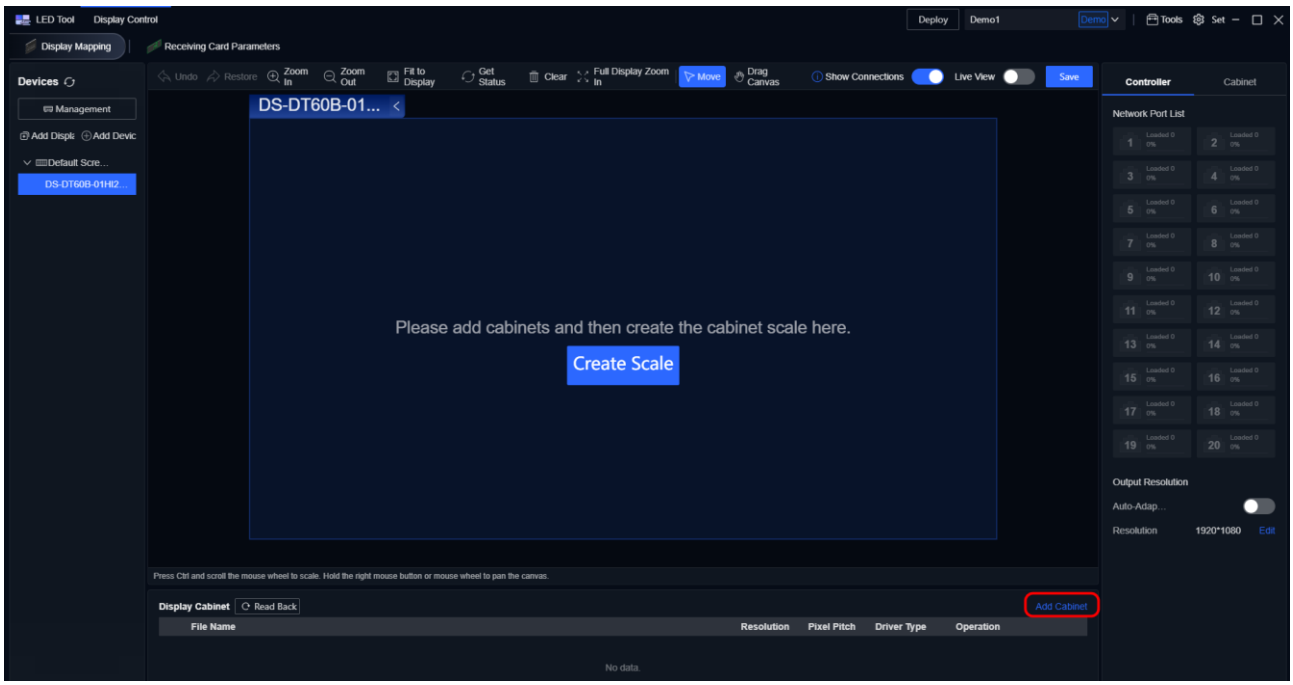


Figure 2-28 Select Virtual LED Controller

Step 5 Use either of the following methods to add the cabinet configuration file:

- Select **Load from Display Area**, select a display area, and click **Add**. Only some cabinets support loading the configuration file from the display area.
- If there is a cabinet configuration file on the computer, select **Import from Local File**, click  to select one or multiple configuration files, and click **Add**.
  - Search the cabinet configuration from the cloud. For details, see ”6.5.1 Search for Cloud Files”.
  - Create the cabinet configuration files and save them on the computer. For details, see “3.1.3 Create Cabinet Configuration File (Offline Mode)” and “3.1.4 Create Cabinet Configuration File (Direct Connection Mode)”.
  - Contact the product supplier to obtain the cabinet configuration files.
- If you know the LED module serial number or order number, select **Load from Cloud**. Enter the LED module serial number or order number, select the searched configuration files, and click **Add**.

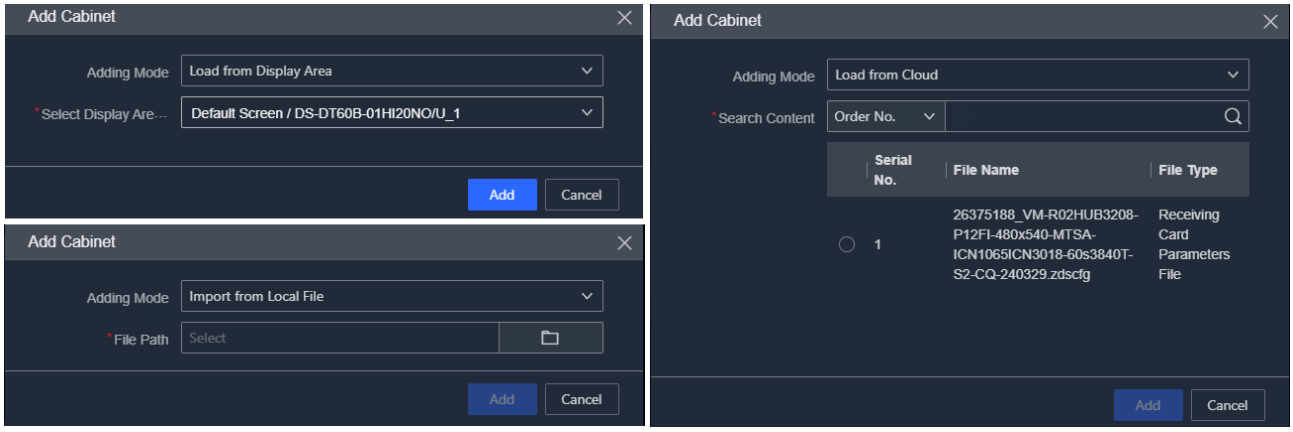


Figure 2-29 Add Cabinet Configuration File

Step 6 (Optional) You can manage the cabinet configuration file as required. For details, see “Configure Cabinet Parameters”.

2.3.2 Configure Cabinet Layout and Port Connections

Step 1 On the **Display Control** → **Display Mapping** page, select a device.

Step 2 Enable **Auto-Adaption** or set the output resolution manually.

Step 3 Add cabinets to the canvas to match the physical display layout:

- Select the target cabinet configuration file, and left-click on the canvas to add cabinets. Each left-click on canvas generates one cabinet.

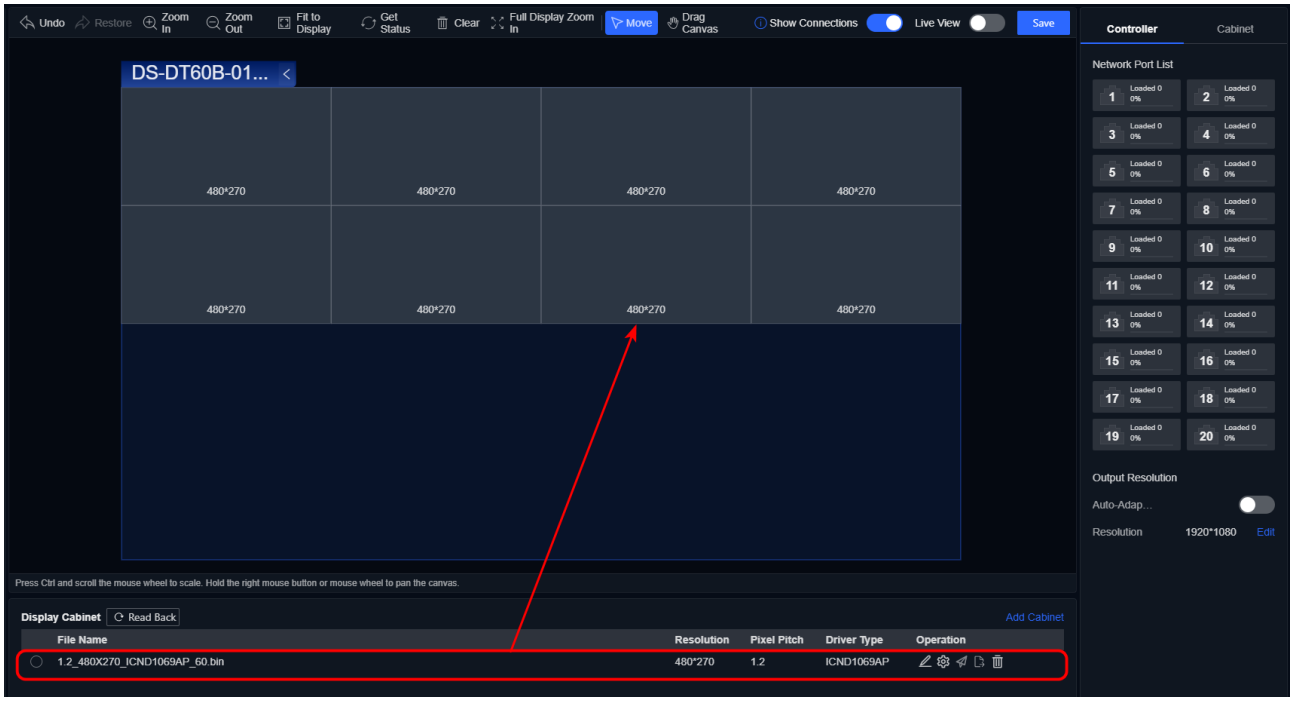


Figure 2-30 Drag Cabinet Configuration Files to Canvas

- Click **Create Scale**, select an added cabinet configuration file, set the rows and columns, and click **OK**.
  - To use other unadded cabinet configuration files, click **Add Cabinet**.
  - After creating the scale, the system will automatically deploy the cabinet configuration file to the device and enable **Show Connections**.

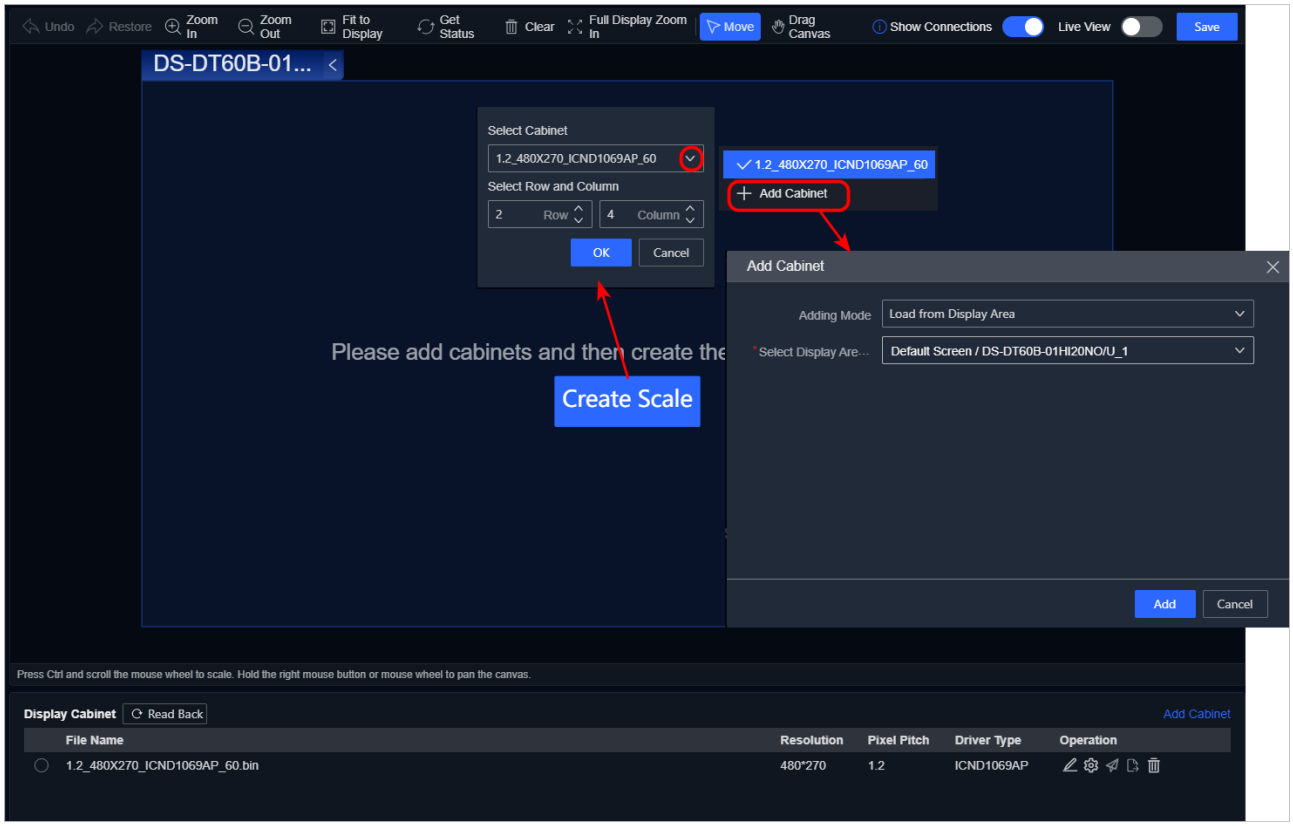


Figure 2-31 Create Screen Scale

Step 4 In the **Controller** window, configure port connections according to the actual connections between the cabinets and network ports.

- The network port connection direction is configured according to the operation sequence and the selected connection direction icon.
  - Click multiple cabinets in sequence.
  - Click one cabinet and then press and hold the left mouse button to select other required cabinets.
  - Click the first cabinet, hold Shift, and click the last cabinet.
- To cancel a selected network port connection direction icon, click its icon.
- After configuring a standardized matrix display by clicking **Create Scale**, you can connect network ports on the canvas by matching the port numbers shown on the physical display.

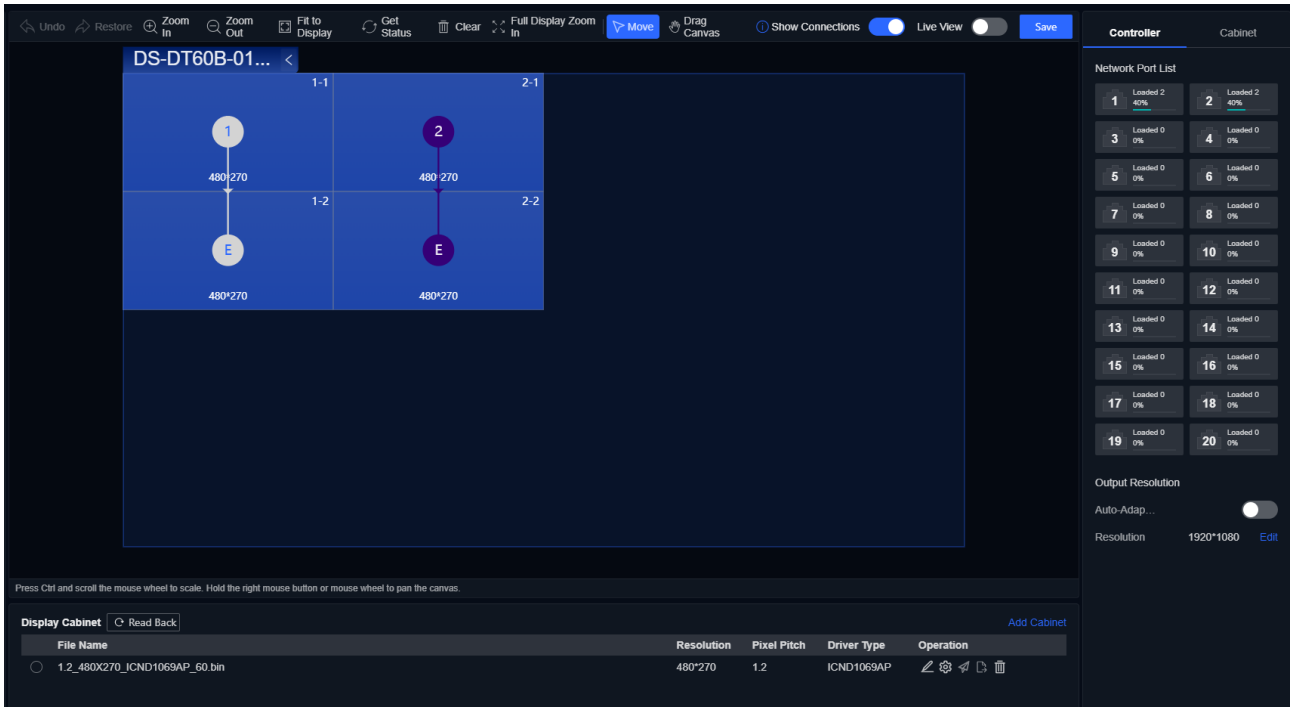


Figure 2-32 Set Display Mapping

Step 5 Click **Save**.

Step 6 (Optional) Configure cabinet parameters. For details, see “Configure Cabinet Parameters”.

Chapter 3 Receiving Card Configuration

3.1 Configuration Overview

3.1.1 Select Mode

On the **Display Control** → **Receiving Card Parameters** page, select a mode based on actual requirements:

- Online project:
  - Default mode (no configuration required): Used to create cabinet configuration files via the computer for added LED controllers or video wall controllers.
  - Direct connection mode: Used when the computer is directly connected to a receiving card.
  - Offline mode: Used to create cabinet files for unconnected LED controllers or video wall controllers.

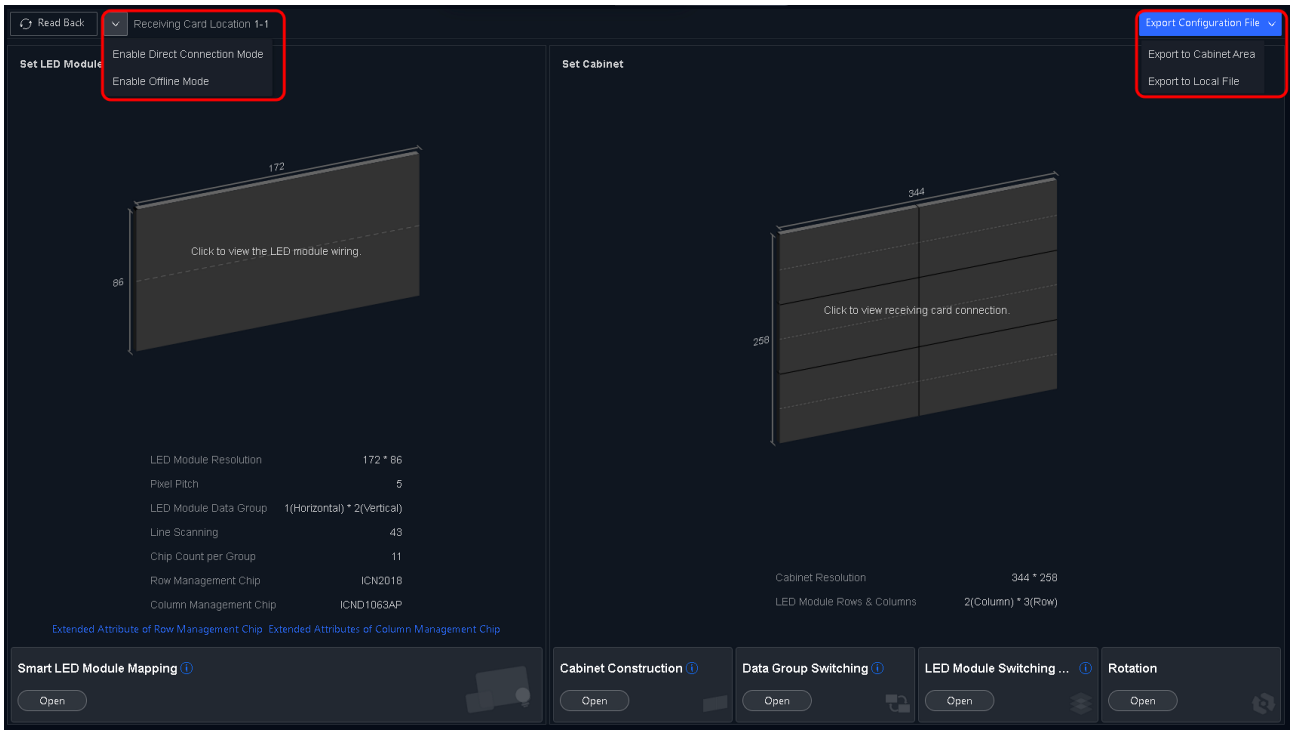


Figure 3-1 Select Mode for Online Project

- Demo project:
  - Offline mode (default): Used to create cabinet configuration files for the virtual LED controller via the computer.

- Direct connection mode: Used when the computer is directly connected to a receiving card.

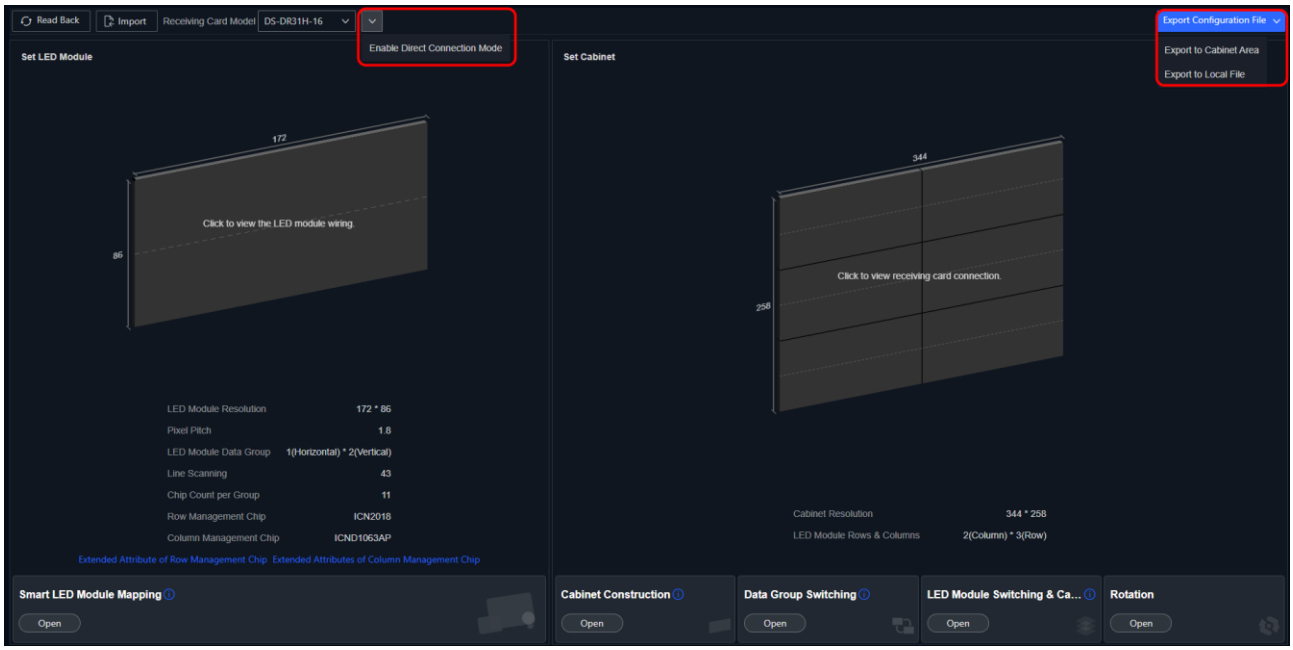


Figure 3-2 Select Mode (Demo Project)

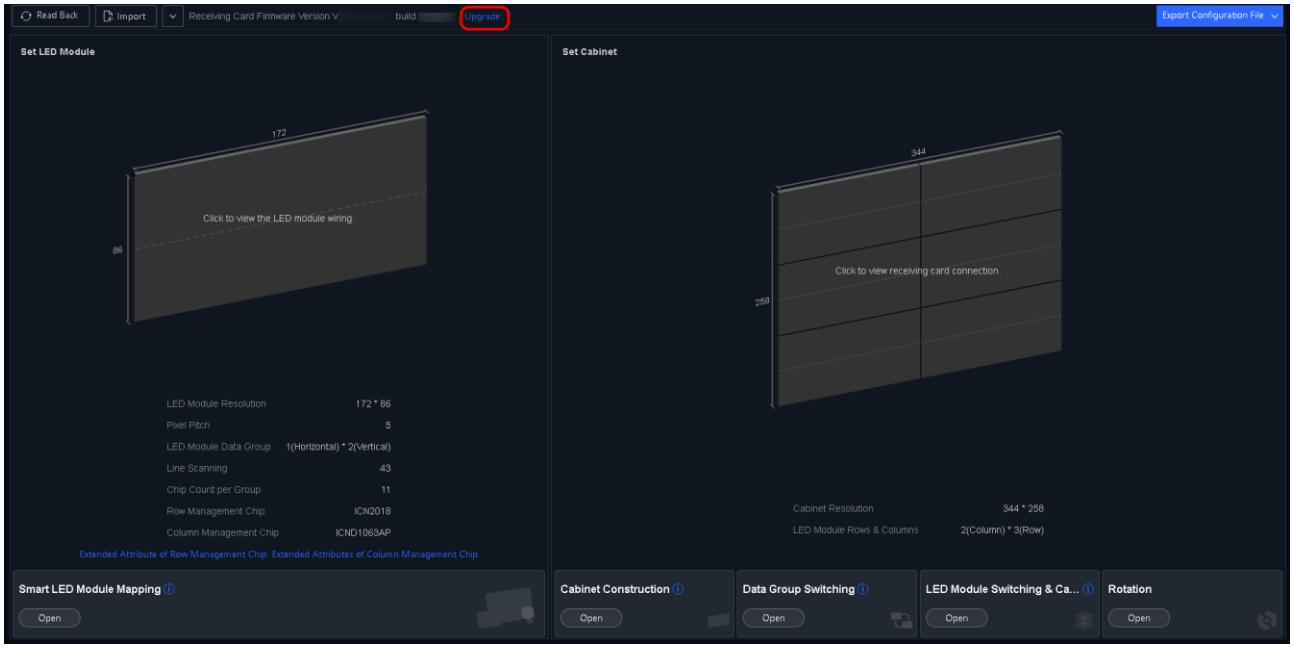


Figure 3-3 Upgrade Direct Connected Receiving Card

Note

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

3.1.2 Create Cabinet Configuration File (Online Mode)

Step 1 Navigate to **Display Control** → **Receiving Card Parameters**, select a device.

Step 2 When one device controls multiple receiving cards, select a specific receiving card.

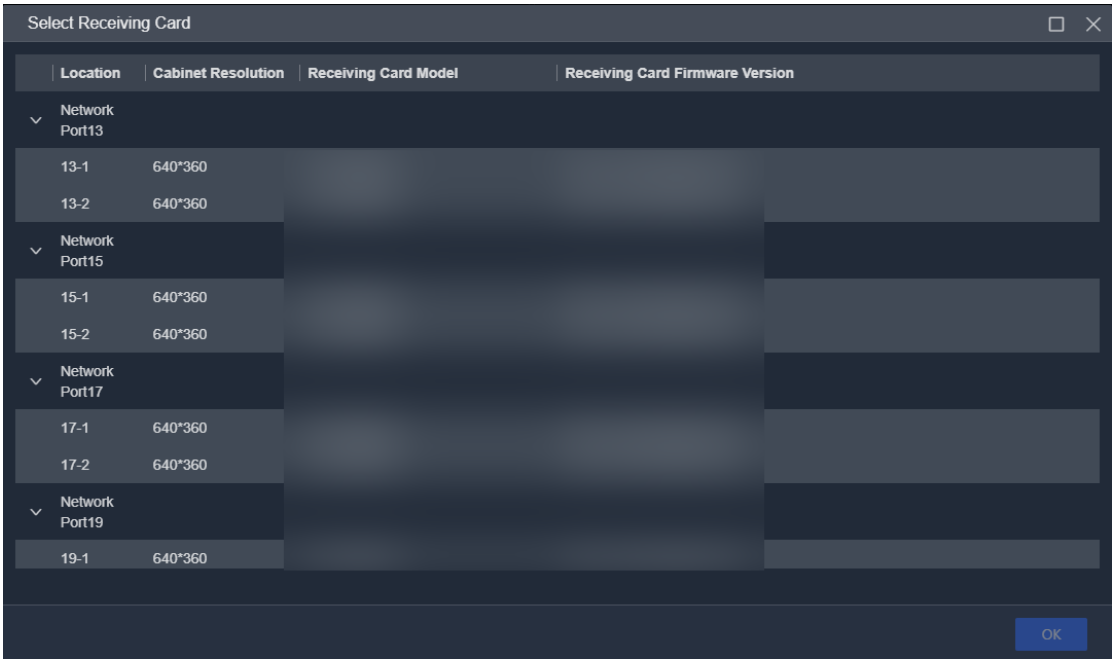


Figure 3-4 Select Receiving Card

Step 3 Deploy the display mapping environment (see “3.2.1 Deploy LED Module Mapping Environment”).

Step 4 Open the smart LED module mapping window, create the LED module configuration file (see “3.2.2 Configure Smart LED Module Mapping Parameters”).

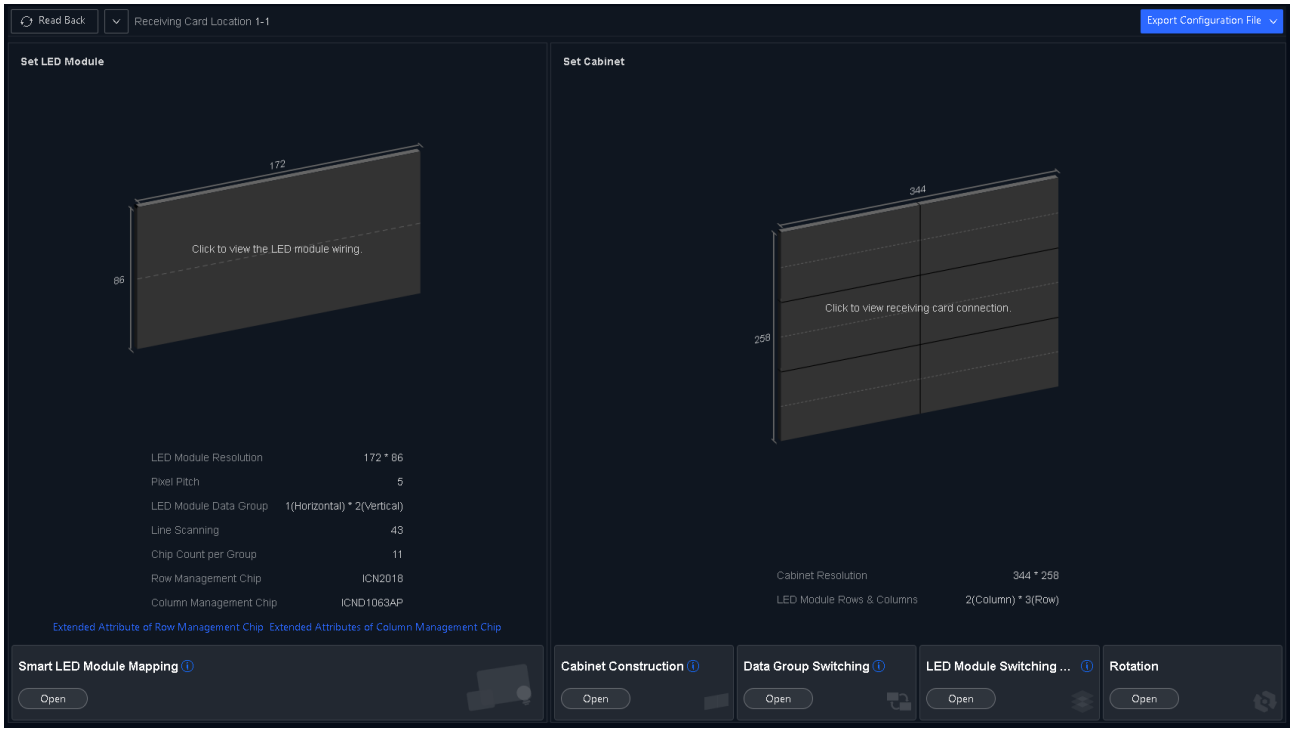


Figure 3-5 Receiving Card Parameters Page (Default Mode)

Step 5 Verify LED module illumination and take corresponding actions:

- If the LED module lights up with suboptimal display, you can configure the following parameters:
  - Adjust the extended attributes of row/column management chip (see “3.2.3 Configure LED Module Extended Attributes”).
  - Click **Vision Chip Tools** to configure the vision chip LED module.

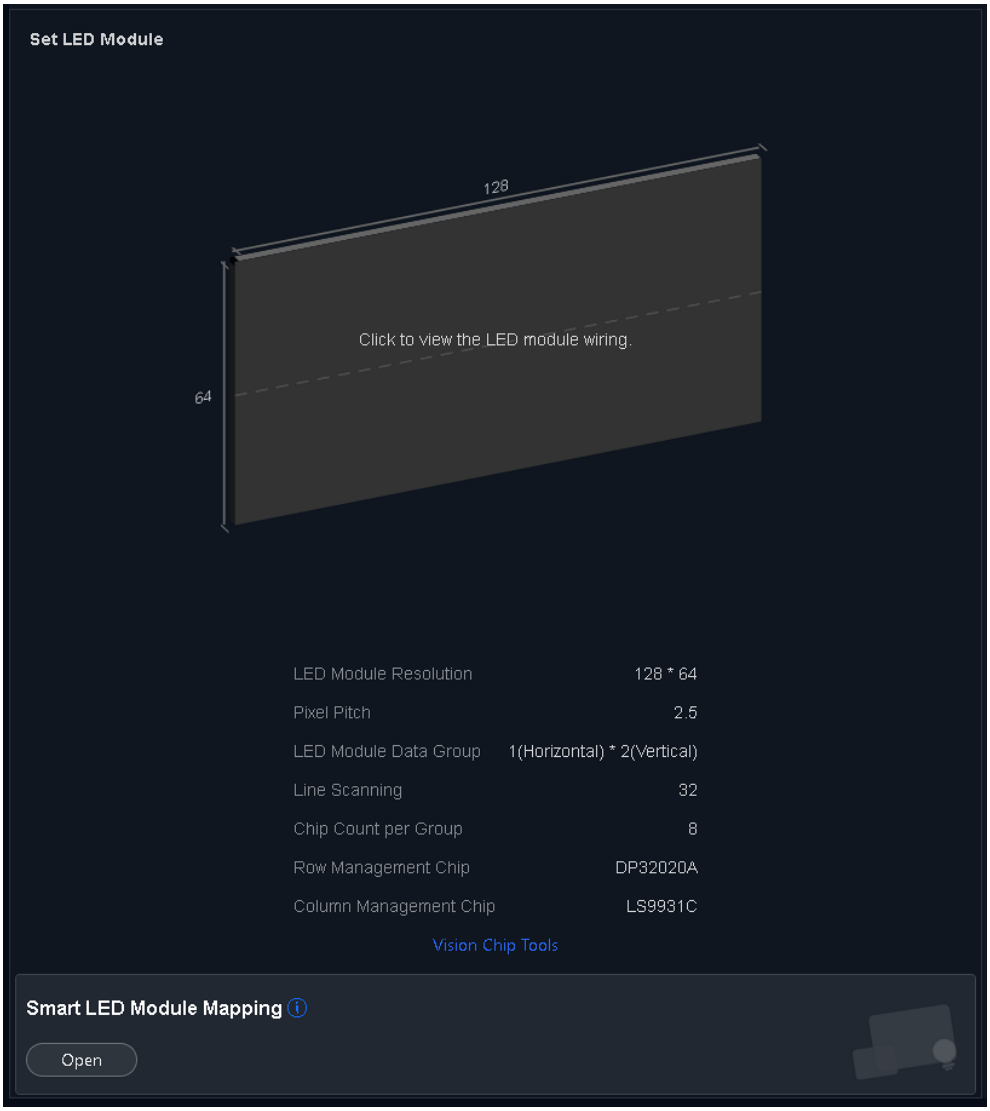


Figure 3-6 Use Vision Chip Tools

- If the LED module fails to illuminate, open the smart LED module mapping window and recreate the LED module configuration file.
- If the LED module lights up with color deviation, click to view the LED module wiring and edit the parameters to match the computer settings.

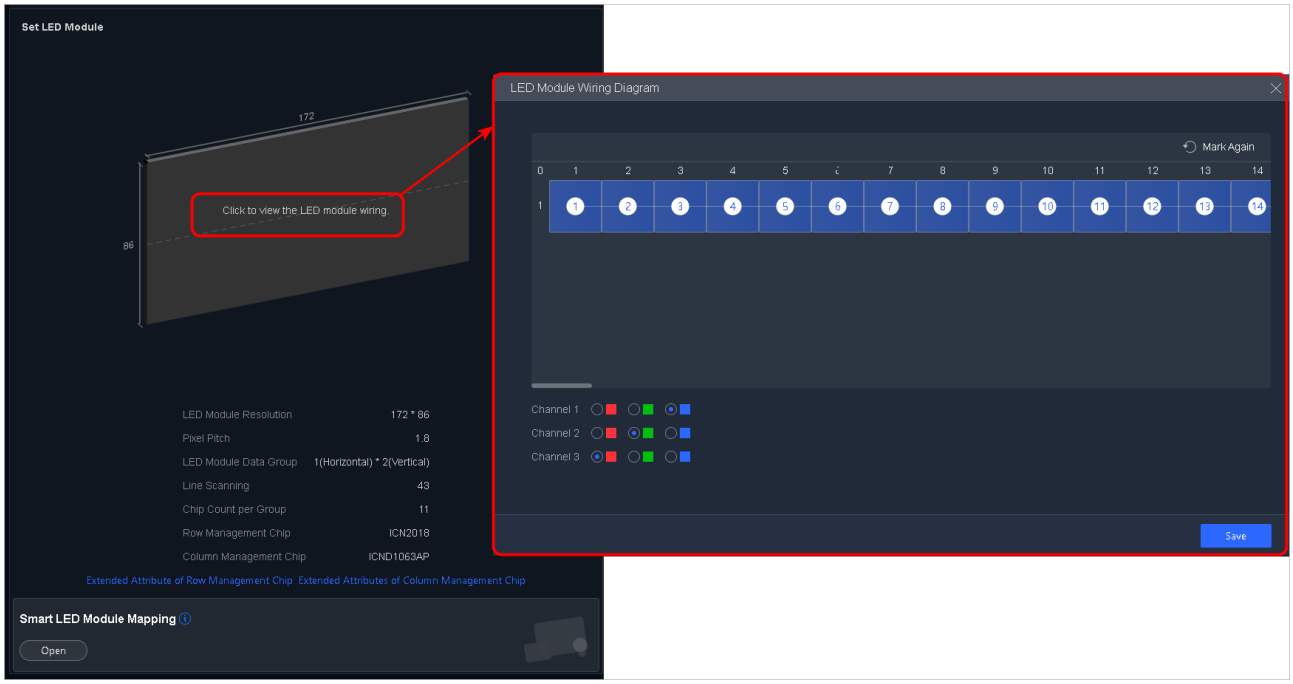


Figure 3-7 Adjust LED Module Wiring

- If the LED module lights up with satisfactory performance, continue to create the cabinet configuration file.

Step 6 Create the cabinet configuration file based on the receiving card type.

- For HUB receiving cards, configure the data groups (see “3.2.5 Configure Data Group Parameters”) and then configure the LED modules and cascading (see “3.2.6 Configure Module and Cascading Parameters”).
- For AXS receiving cards, construct the cabinet (see “3.2.4 Construct Cabinet”). If the data group image on the display is scrambled, configure the data groups (see “3.2.5 Configure Data Group Parameters”).
- According to the actual cabinet installation method, configure the cabinet rotation (see “3.2.7 Rotate Cabinets”).
- Click to view the receiving card connection to check whether the cabinet parameters are correct.



Figure 3-8 View Receiving Card Connection

Step 7 Click **Read Back** to check whether the LED module parameters and cabinet parameters are correct.

Step 8 When the parameters are correct, click **Export Configuration File** to save the configuration file to the cabinet area or computer.

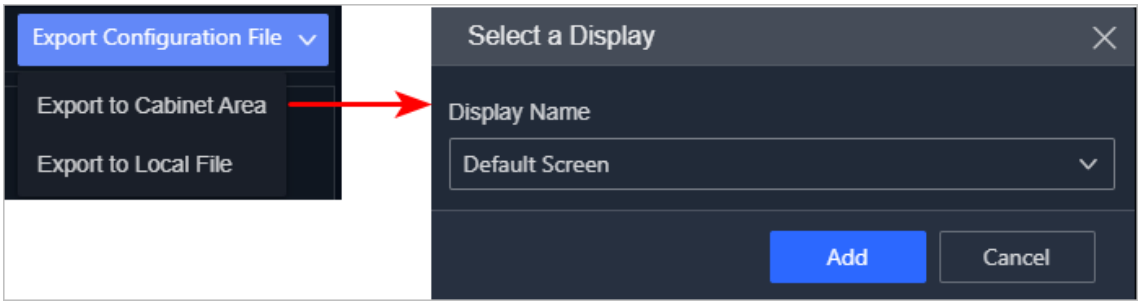


Figure 3-9 Export Configuration File

3.1.3 Create Cabinet Configuration File (Offline Mode)

Step 1 Navigate to **Display Control** → **Receiving Card Parameters**, click  to enable offline mode.

Step 2 Select the corresponding receiving card model for the site and click **OK**.

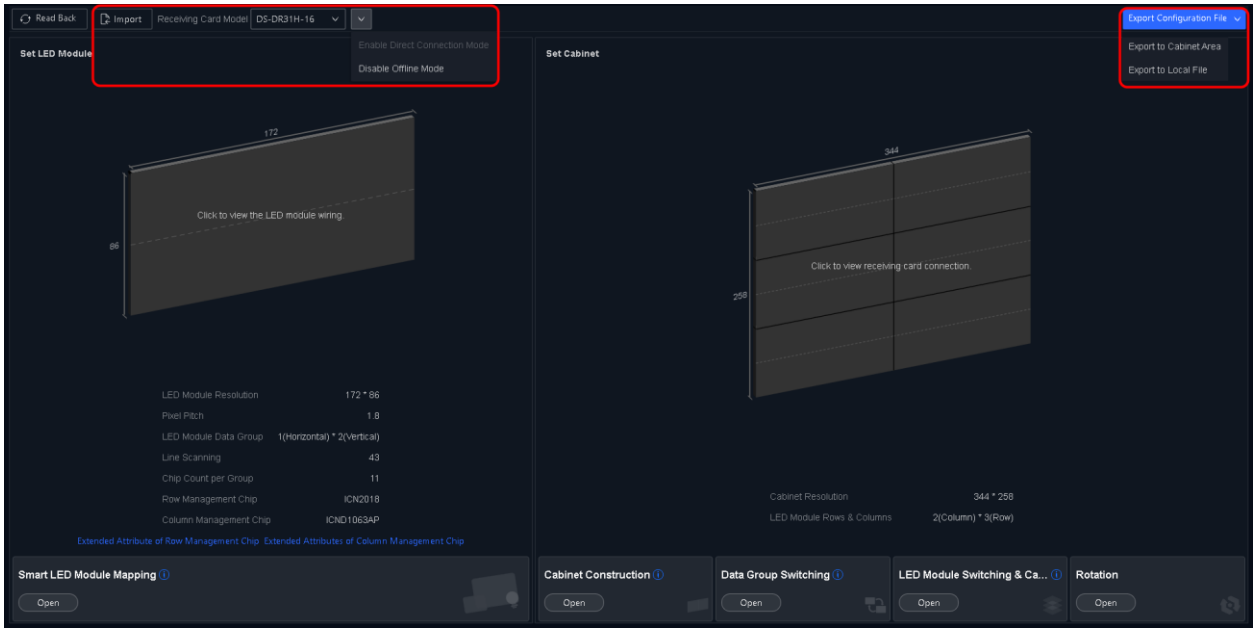


Figure 3-10 Enable Offline Mode

Step 3 Use either of the following methods to create the LED module configuration file:

- If the computer has a saved LED module configuration file or cabinet configuration file, click **Import** to load the file.
- If no configuration file exists, open the smart LED module mapping window, create the LED module configuration file (see “3.2.2 Configure Smart LED Module Mapping Parameters”).

Step 4 Click to view the LED module wiring to check whether the LED module parameters are correct.

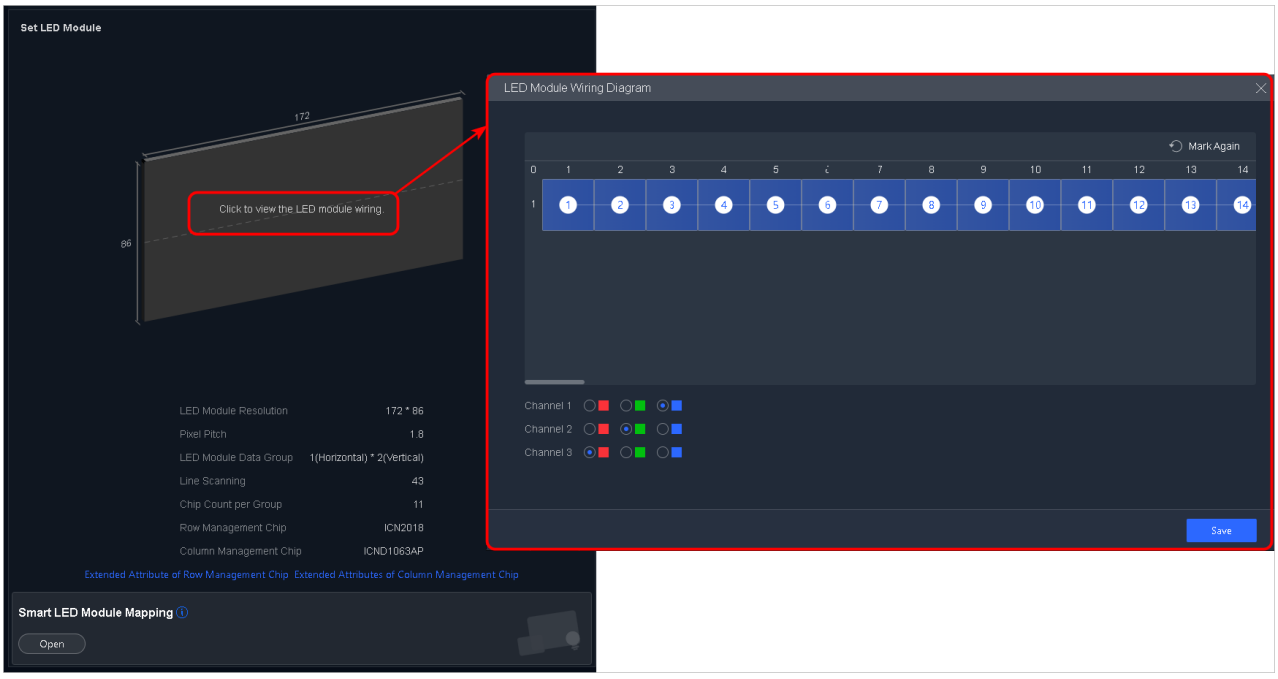


Figure 3-11 Adjust LED Module Wiring

Step 5 Create the cabinet configuration file based on the receiving card type.

- For HUB receiving cards, configure the data groups (see “3.2.5 Configure Data Group Parameters”) and then configure the LED modules and cascading (see “3.2.6 Configure Module and Cascading Parameters”).
- For AXS receiving cards, use either of the following method to create the cabinet configuration file according to the actual demand:
  - Construct the cabinet (see “3.2.4 Construct Cabinet”).
  - Construct the cabinet (see “3.2.4 Construct Cabinet”) and configure the data groups (see “3.2.5 Configure Data Group Parameters”).
- According to the actual cabinet installation method, configure the cabinet rotation (see “3.2.7 Rotate Cabinets”).
- Click to view the receiving card connection to check whether the cabinet parameters are correct.



Figure 3-12 View Receiving Card Connection

Step 6 Click **Read Back** to check whether the LED module parameters and cabinet parameters are correct.

Step 7 When the parameters are correct, click **Export Configuration File** to save the configuration file to the cabinet area or computer.

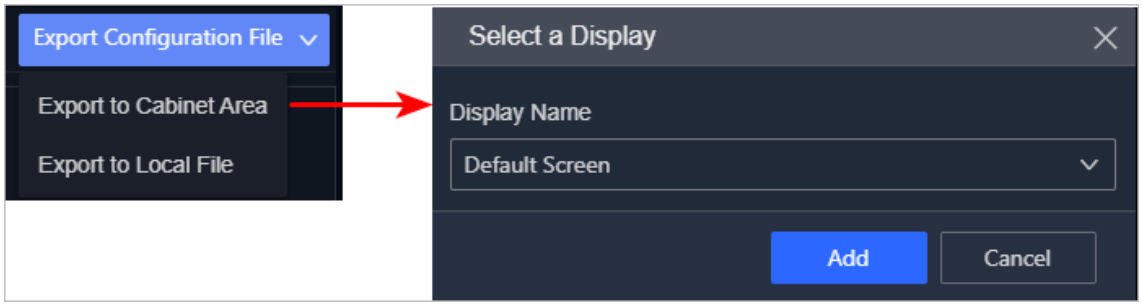


Figure 3-13 Export Configuration File

3.1.4 Create Cabinet Configuration File (Direct Connection Mode)

Step 1 Navigate to **Display Control** → **Receiving Card Parameters**, click  to enable direct connection mode.

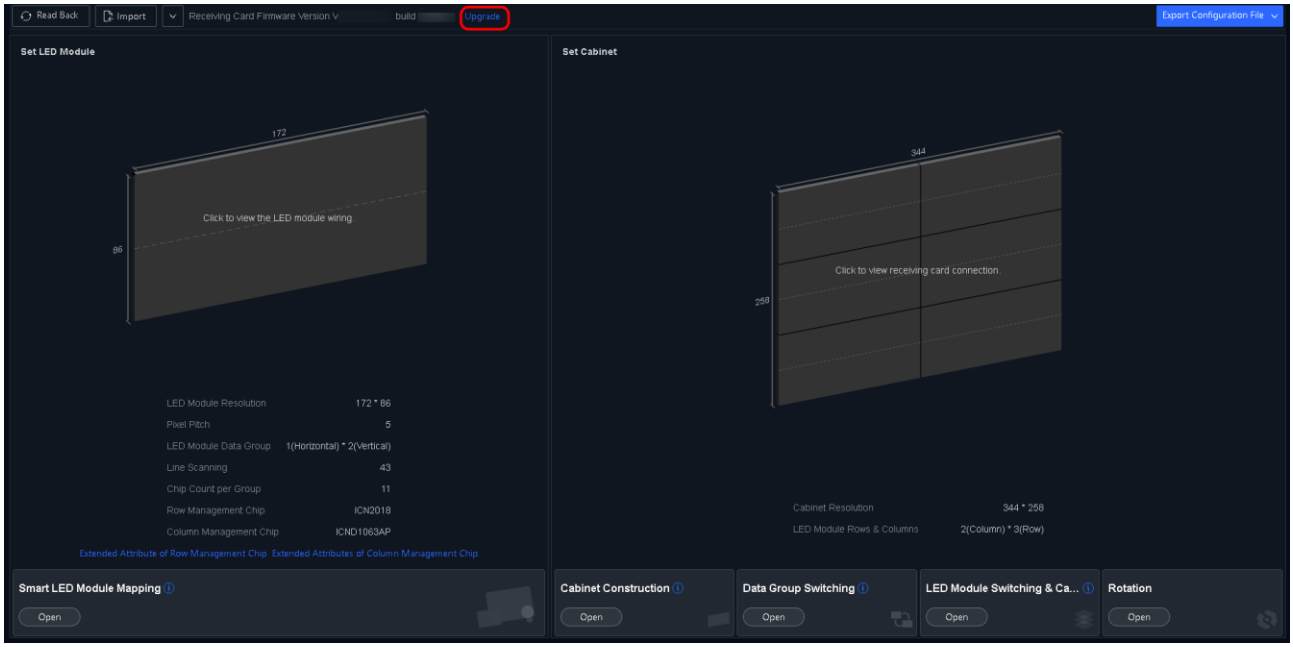


Figure 3-14 Enable Direct Connection Mode

Step 2 Deploy the display mapping environment (see “3.2.1 Deploy LED Module Mapping Environment”).

Step 3 Open the smart LED module mapping window, create the LED module configuration file (see “3.2.2 Configure Smart LED Module Mapping Parameters”).

Step 4 Verify LED module illumination and take corresponding actions:

- If the LED module lights up with suboptimal display, you can configure the following parameters:
  - Adjust the extended attributes of row/column management chip (see “3.2.3 Configure LED Module Extended Attributes”).
  - Click **Vision Chip Tools** to configure the vision chip LED module.

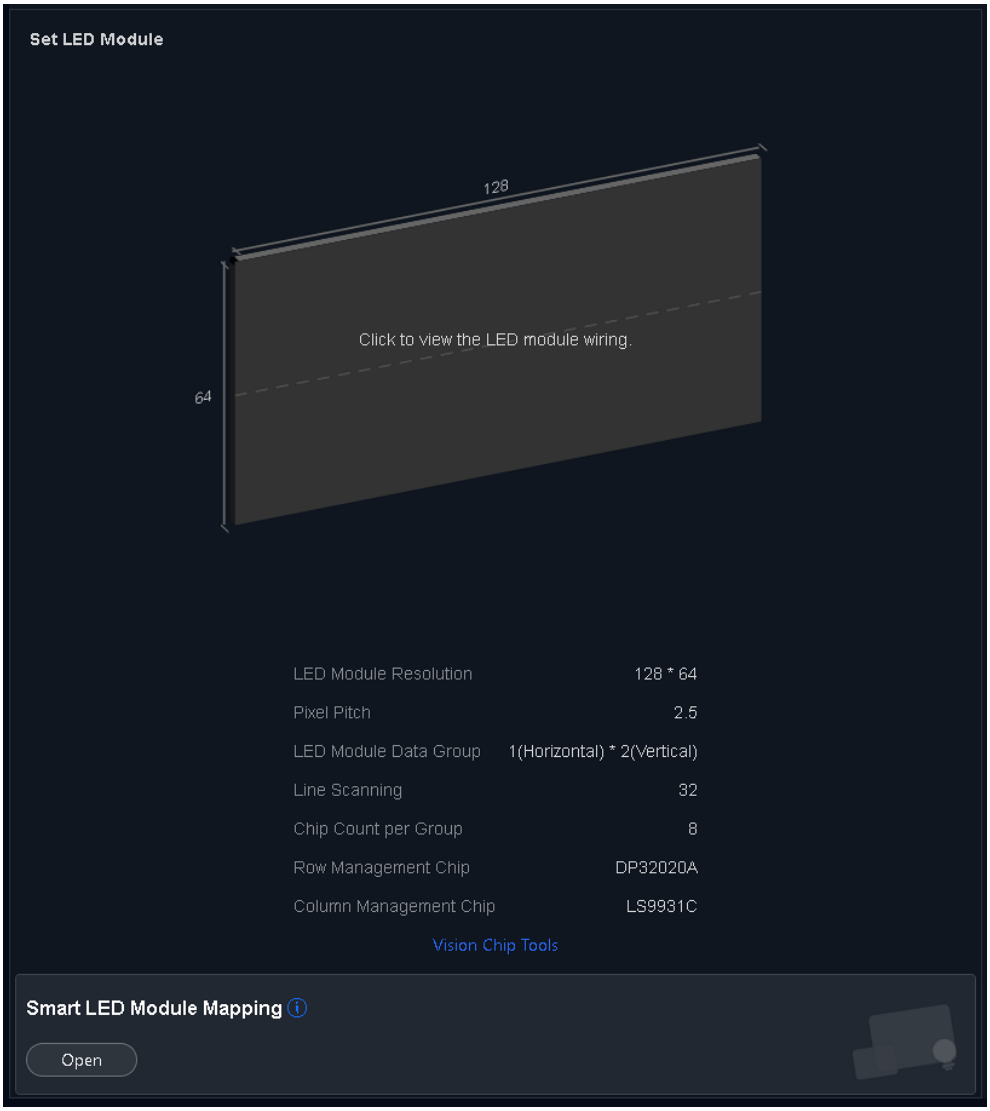


Figure 3-15 Use Vision Chip Tools

- If the LED module fails to illuminate, open the smart LED module mapping window and recreate the LED module configuration file.
- If the LED module lights up with color deviation, click to view the LED module wiring and edit the parameters to match the computer settings.

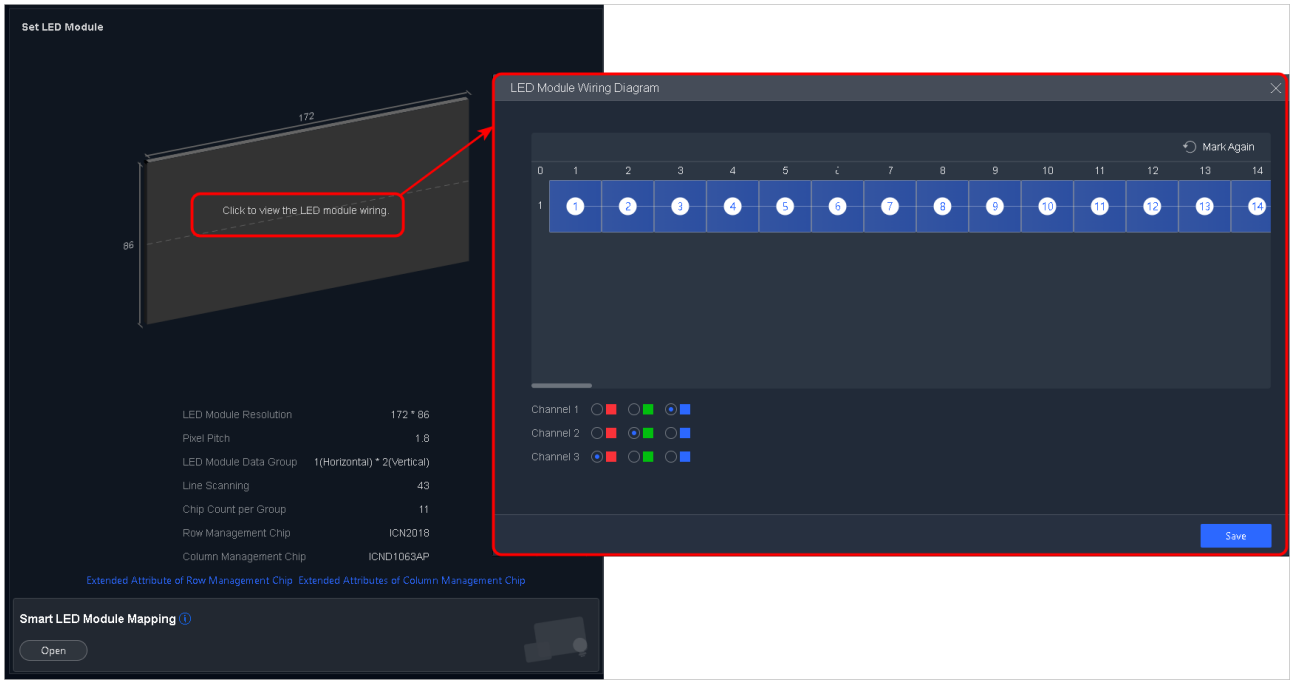


Figure 3-16 Adjust LED Module Wiring

- If the LED module lights up with satisfactory performance, continue to create the cabinet configuration file.

Step 5 Create the cabinet configuration file based on the receiving card type.

- For HUB receiving cards, configure the data groups (see “3.2.5 Configure Data Group Parameters”) and then configure the LED modules and cascading (see “3.2.6 Configure Module and Cascading Parameters”).
- For AXS receiving cards, construct the cabinet (see “3.2.4 Construct Cabinet”). If the data group image on the display is scrambled, configure the data groups (see “3.2.5 Configure Data Group Parameters”).
- According to the actual cabinet installation method, configure the cabinet rotation (see “3.2.7 Rotate Cabinets”).
- Click to view the receiving card connection to check whether the cabinet parameters are correct.



Figure 3-17 View Receiving Card Connection

Step 6 Click **Read Back** to check whether the LED module parameters and cabinet parameters are correct.

Step 7 When the parameters are correct, click **Export Configuration File** to save the configuration file to the cabinet area or computer.

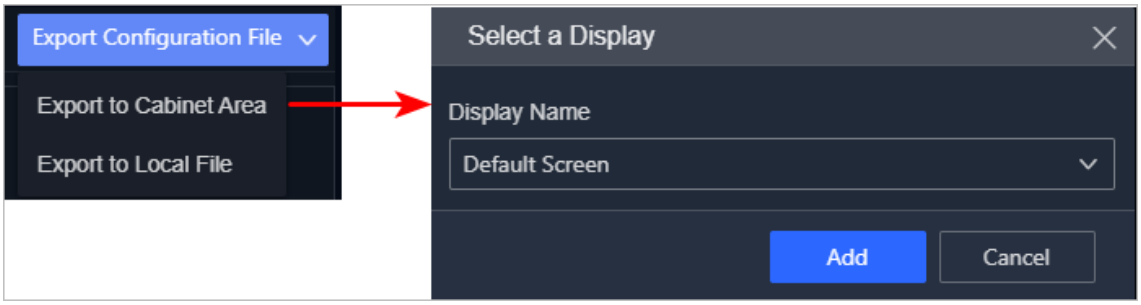


Figure 3-18 Export Configuration File

3.2 Configuration Wizard

3.2.1 Deploy LED Module Mapping Environment

Deploy Environment Automatically

Step 1 Navigate to **Display Control** → **Receiving Card Parameters**, open the smart LED module mapping window.

Step 2 Click **OK** in the pop-up window.

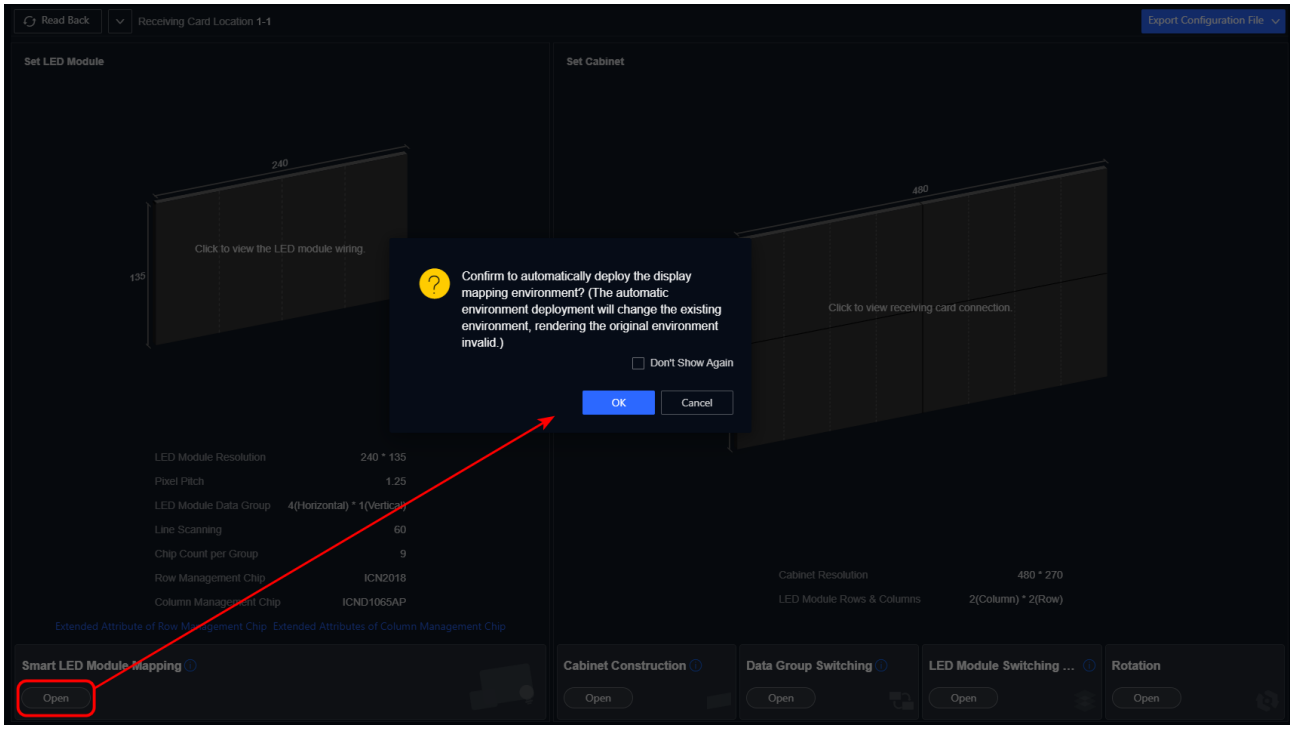


Figure 3-19 Enable Auto Environment Deployment

Step 3 Verify LED module mapping environment parameters:

- The system will auto-configure parameters. If any parameters fail, manually supplement the configuration.
- Some devices require additional manual adjustment of display scaling to 100%.

Step 4 Complete the deployment:

- After confirming all parameters are successfully configured, click **OK**.
- Adjust the display scaling as follows:

1) After confirming all parameters are successfully configured, click **Next**.
2) Click **Go to Configure** and manually set the display scaling to 100%.
3) Click **OK**.

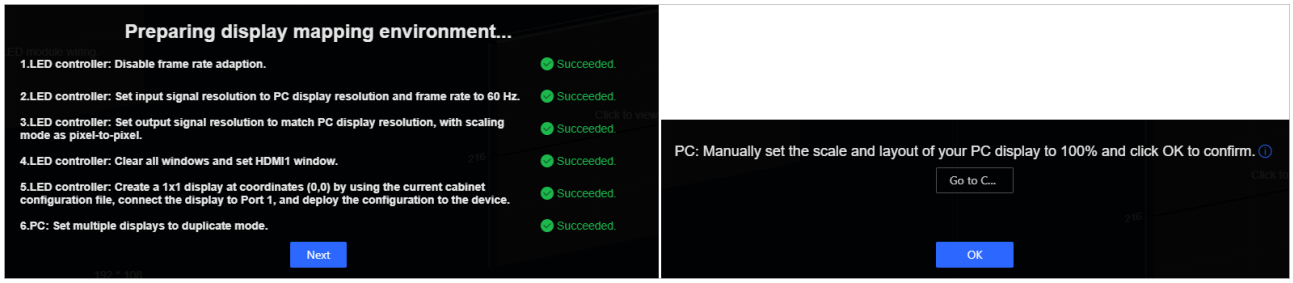


Figure 3-20 View Auto Deployment Progress

Configure LED Controller and Computer Manually

Different types of LED controllers provide different numbers of screen connection ports and different types and numbers of signal connection ports. A typical configuration example: LAN 1 port connects to the computer, HDMI 1 port is for signal input (1920 × 1080 resolution), and DATA OUT port connects to the LED display.

Step 1 Connect the LED controller, LED display, and the client-installed computer.

- Use an Ethernet cable to connect the LAN 1 port of the LED controller to the computer.
- Use an Ethernet cable to connect the DATA OUT port of the LED controller to the LED display.
- DS-DT90/DS-DT60/DS-DT20/DS-T series: Use an HDMI cable to connect the HDMI 1 port of the LED controller to the computer.
- DS-DT30 series: No HDMI connection is required.

Step 2 Ensure the LED controller is added in the client. Refer to"2.2.1 Add Devices".

Step 3 Select the LED controller and configure the signal source:

- C models: Navigate to **Display Control** → **Source Management**, select HDMI1, click **Edit** to set EDID resolution to 1920 × 1080, and ensure the frame rate is 60 Hz.

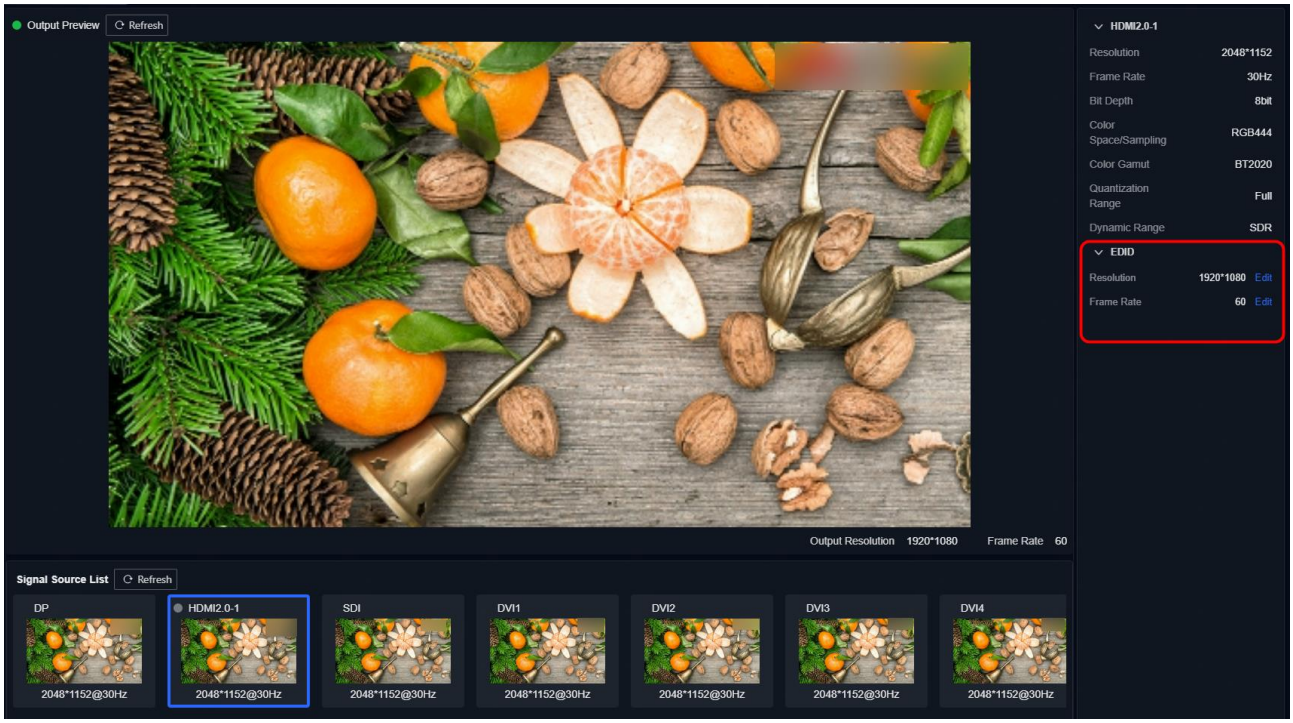


Figure 3-21 Configure Signal Source Parameters (C Models)

- V/P/U models: Navigate to **Display Control** → **Content Control**, create an HDMI1 signal source window, and set both the window size and resolution to 1920 × 1080.

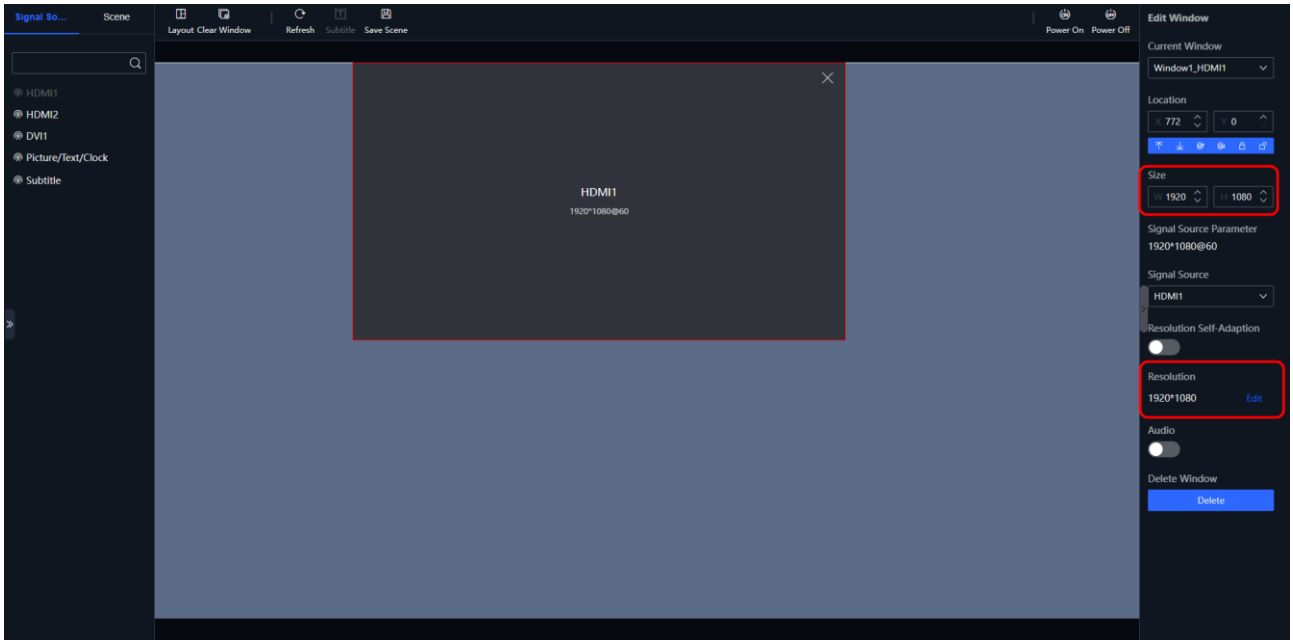


Figure 3-22 Configure Signal Source Parameters (V Models)

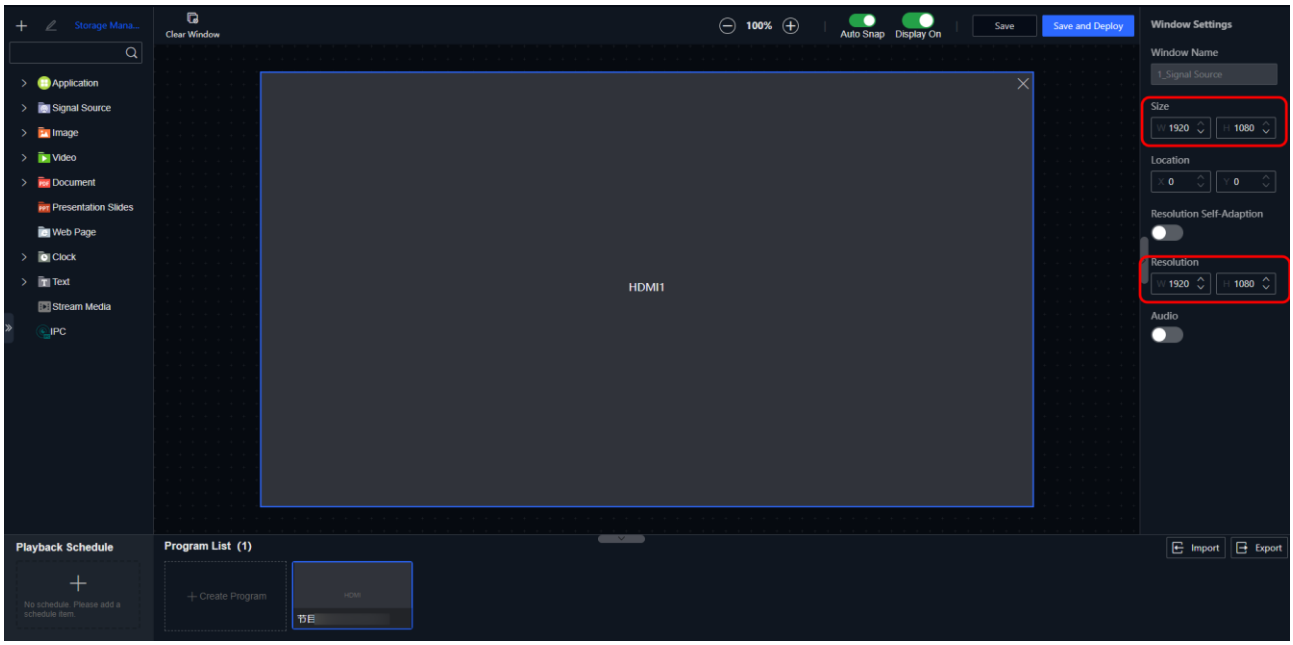


Figure 3-23 Configure Signal Source Parameters (P/U Models)

Step 4 Navigate to **Display Control** → **Source Management**, select HDMI1 as the output source, output resolution to 1920 × 1080, and select **Pixel-to-Pixel Mode**.

Some devices do not require output source or scaling mode selection.

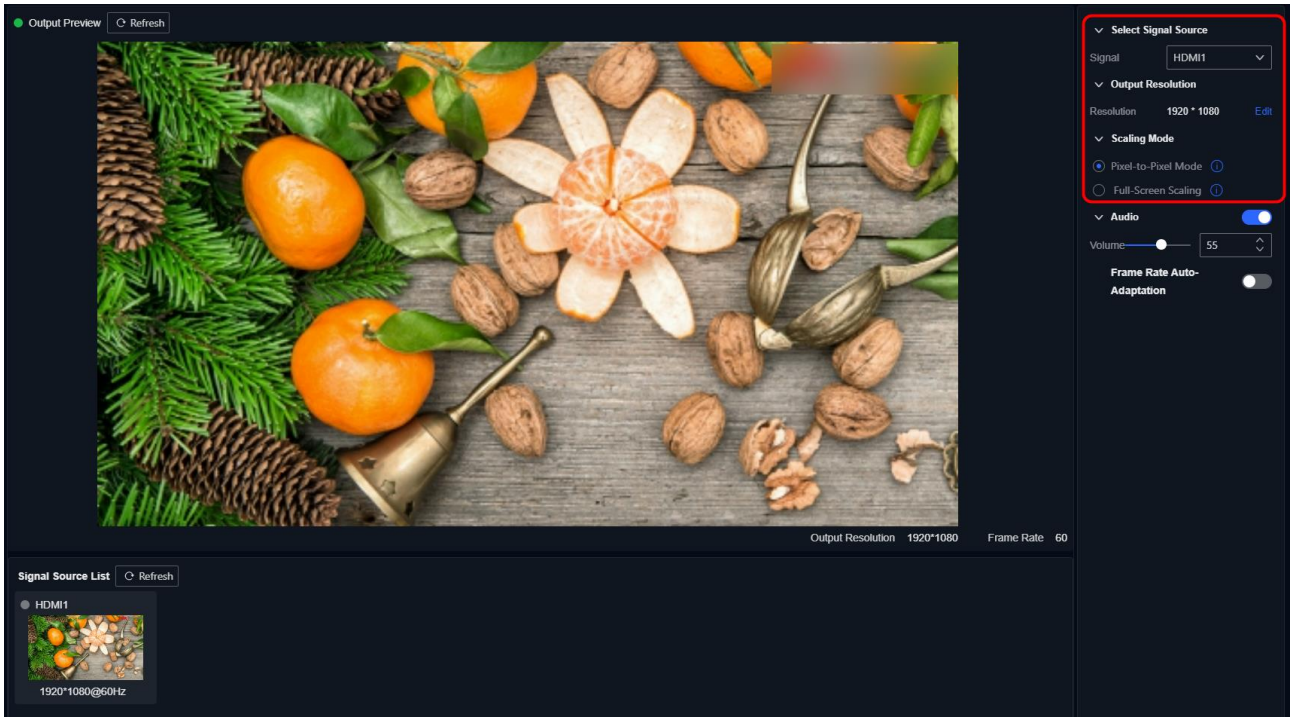


Figure 3-24 Configure Output Parameters of LED Controller

Step 5 Set the scale and layout of the computer to 100%, computer resolution to 1920 × 1080, and select the duplicate mode for multiple displays.

Different operating systems may have different paths to access the display settings page. The following uses Windows 10 as an example.

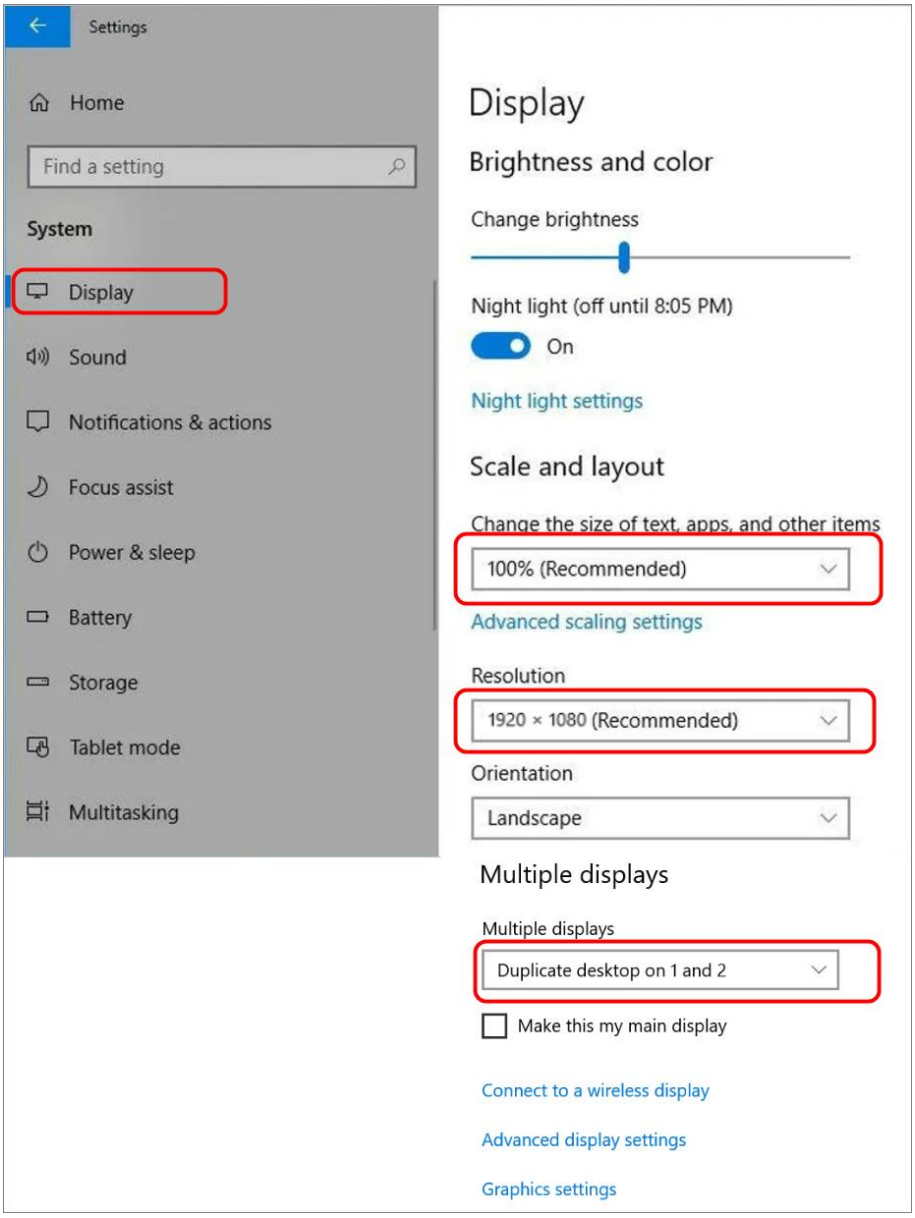


Figure 3-25 Configure Computer

Step 6 Configure the display mapping as follows:

1) Click the LED controller and navigate to **Display Control** → **Display Mapping**.
2) Drag the default cabinet configuration file to the canvas.
3) Connect network port 1 to the cabinet and click **Save**.

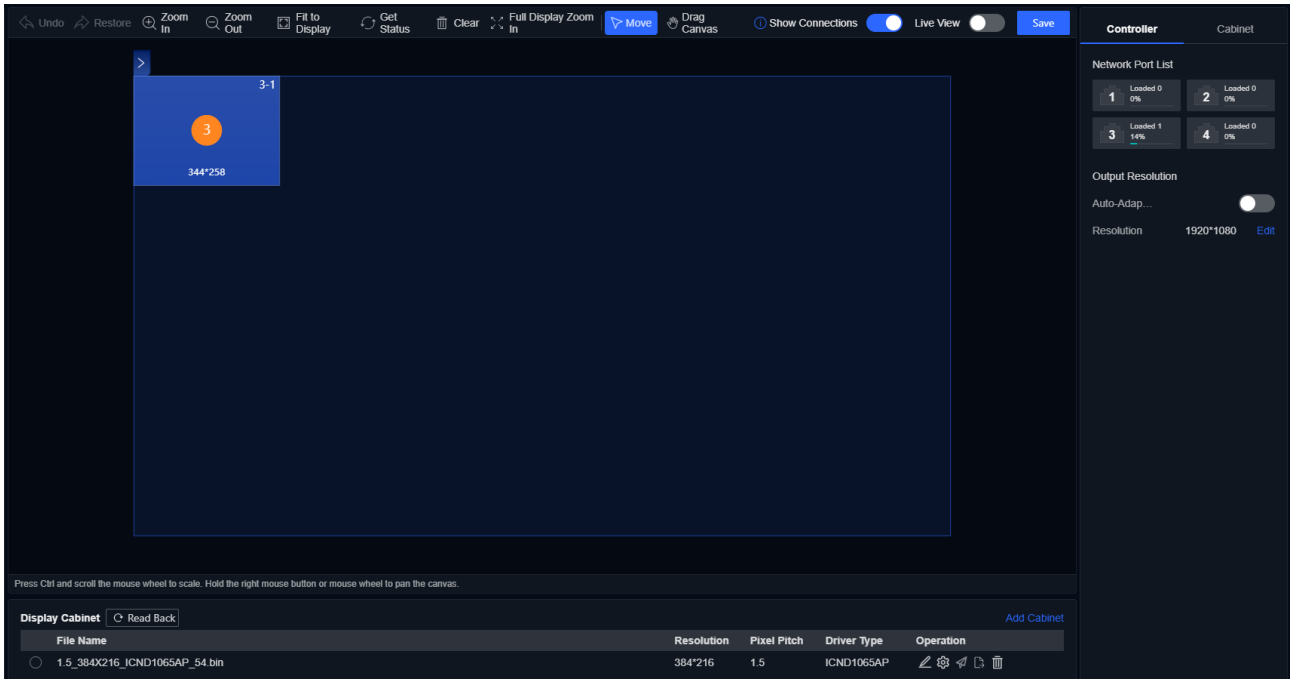


Figure 3-26 Configure Display Mapping

Configure Video Wall Controller and Computer Manually

Different types of video wall controllers provide different numbers of screen connection ports and different types and numbers of signal connection ports. A typical configuration example: LAN port of the main control board connects to the computer, HDMI 1 port of an HDMI input board is for signal input (1920 × 1080 resolution), and network port of an LED controller board connects to the LED display.

Step 1 Connect the video wall controller, LED display, and the client-installed computer.

- Use an Ethernet cable to connect the LAN port of the main control board to the computer.
- Use an Ethernet cable to connect the network port of an LED controller board to the LED display.
- Use an HDMI cable to connect the HDMI 1 port of an HDMI input board to the computer.

Step 2 Ensure the video wall controller is added in the client. Refer to"2.2.1 Add Devices".

Step 3 Log in to the web interface of the video wall controller, and perform the following operations on the **Wall Configuration** page:

- Create an LED video wall and set its resolution to 1920 × 1080.
- Bind the LED controller board to the LED video wall.

Step 4 Select the video wall controller and navigate to **Display Control** → **Source Management** to verify the output resolution and frame rate.

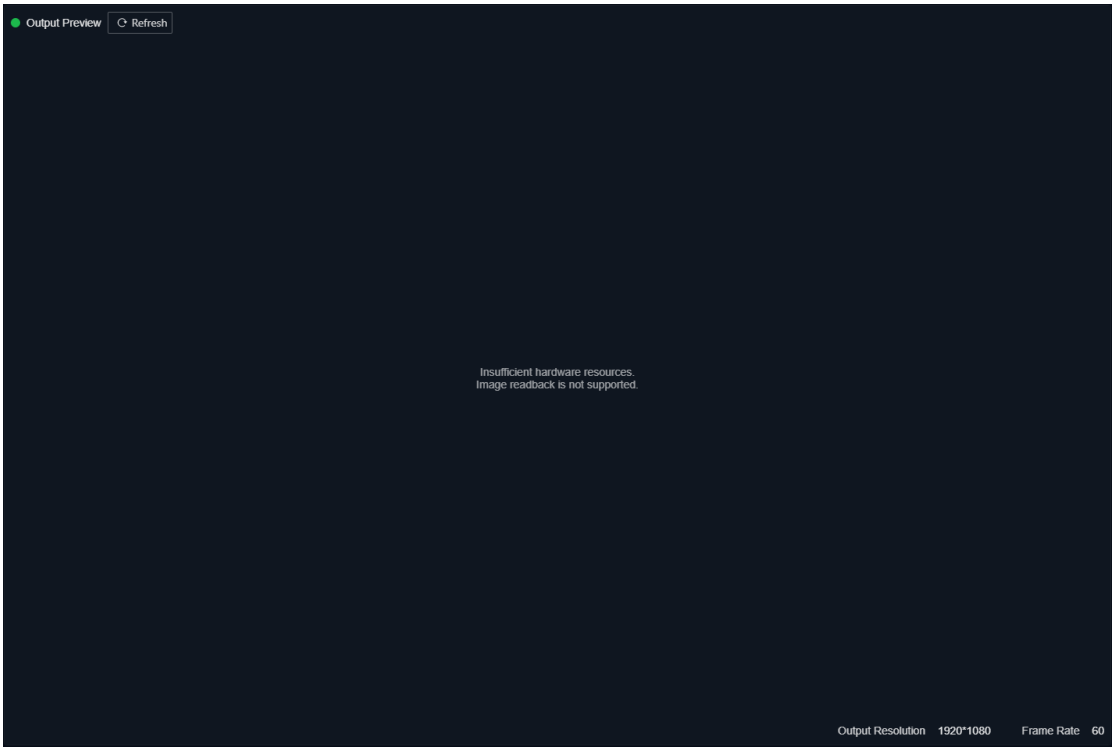


Figure 3-27 Configure Output Parameters of Video Wall Controller

Note

The LED controller boards do not support image preview.

Step 5 Set the scale and layout of the computer to 100%, computer resolution to 1920 × 1080, and select the duplicate mode for multiple displays.

Different operating systems may have different paths to access the display settings page. The following uses Windows 10 as an example.

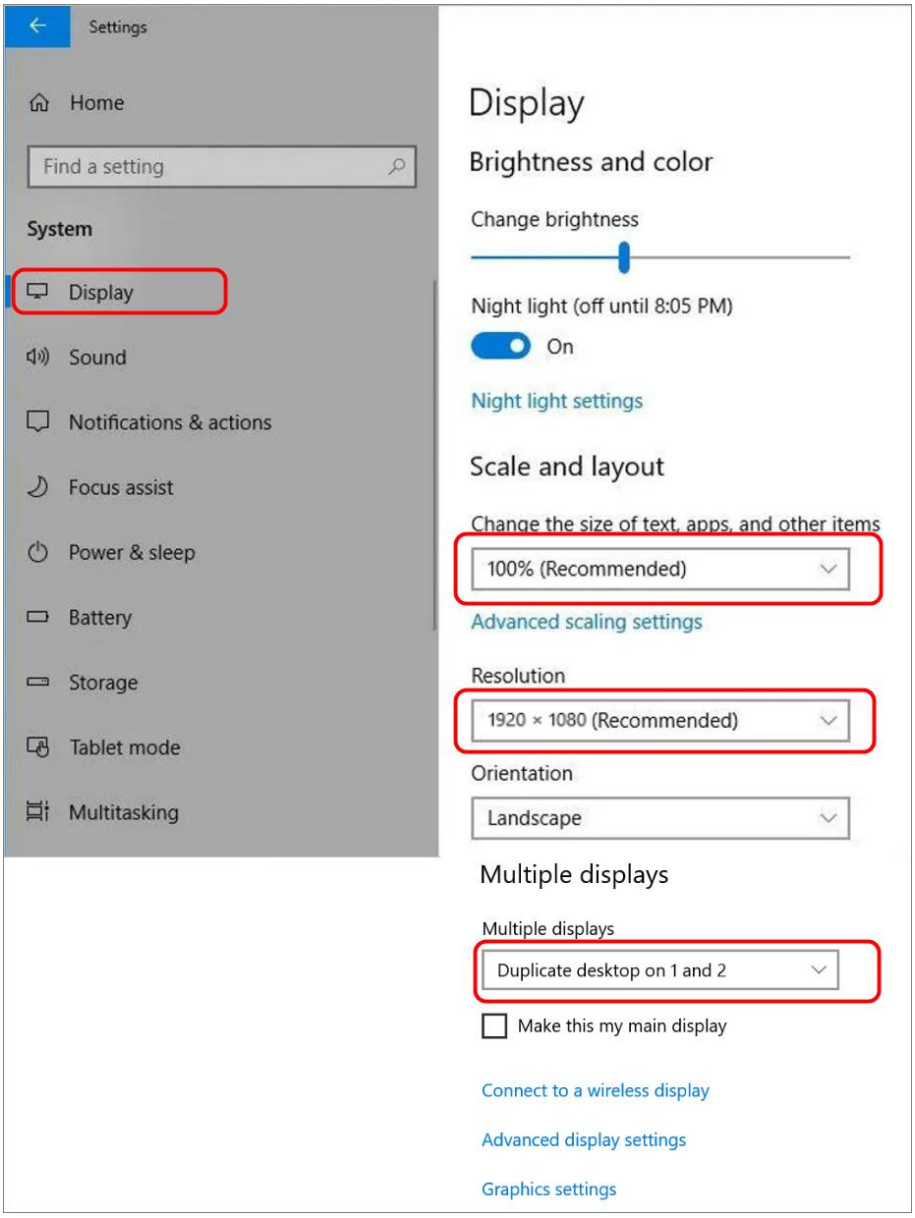


Figure 3-28 Configure Computer

Step 6 Configure the display mapping as follows:

1) Click the LED controller and navigate to **Display Control** → **Display Mapping**.
2) Drag the default cabinet configuration file to the canvas.
3) Connect network port 1 to the cabinet and click **Save**.

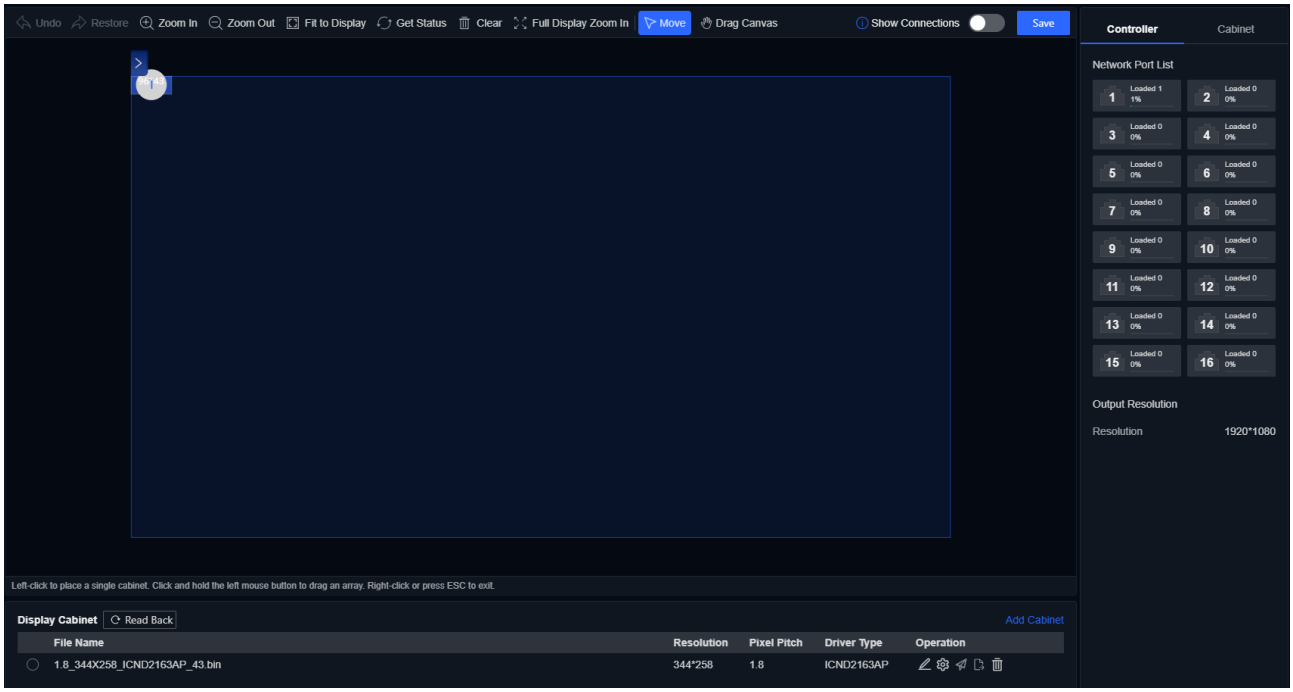


Figure 3-29 Configure Display Mapping

3.2.2 Configure Smart LED Module Mapping Parameters

Step 1 On the **Display Control** → **Receiving Card Parameters** page, open the smart screen lightening window.

Step 2 Based on actual LED module parameters, set the parameters and then click **Next**.

- For vision chip LED modules, enable **Data Group Settings** and set the parameters.
- If the left and right data group sizes of the LED module are inconsistent, enable **Custom-Shaped LED Module Settings**.

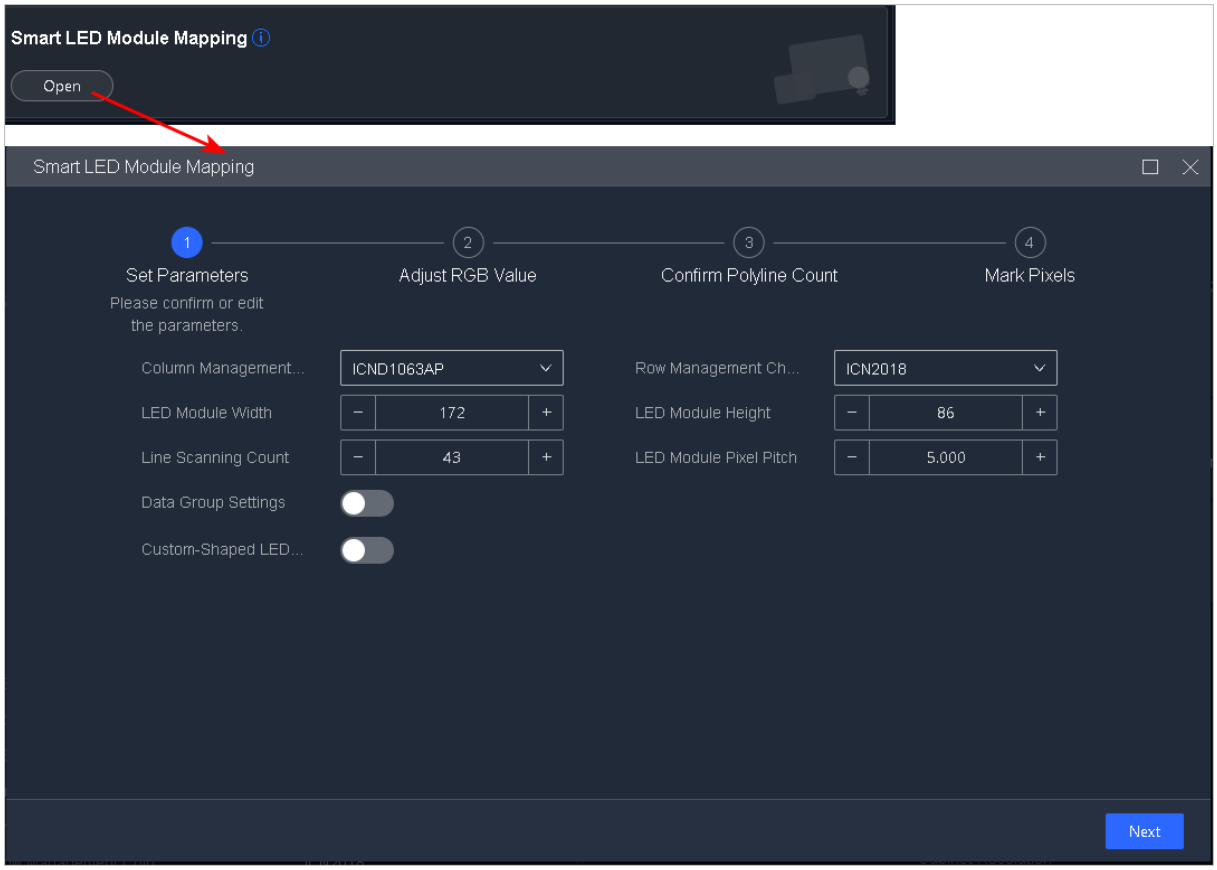


Figure 3-30 Set Parameters

Step 3 Execute the tests in sequence, select the corresponding color for each test according to the color displayed on the screen, and click **Next**.

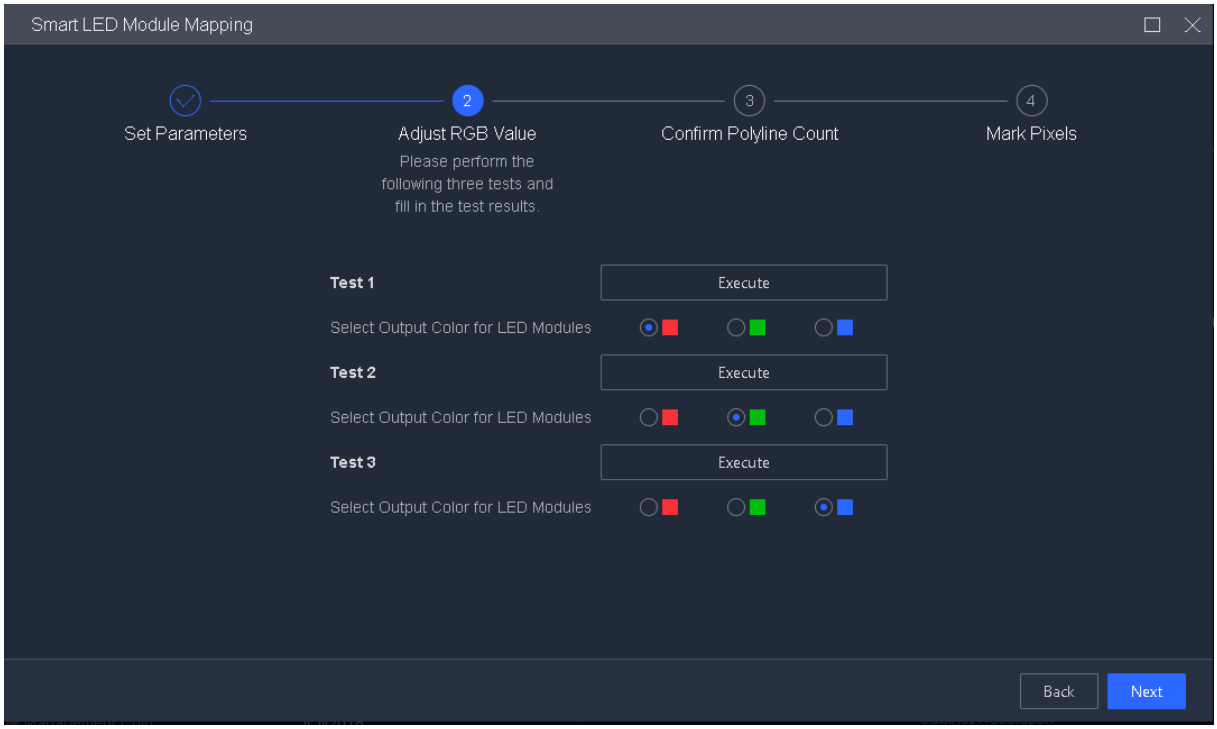


Figure 3-31 Adjust RGB

Step 4 Based on the illumination position and quantity of the LED modules, select the straight line position and set the straight line count, and then click **Next**.

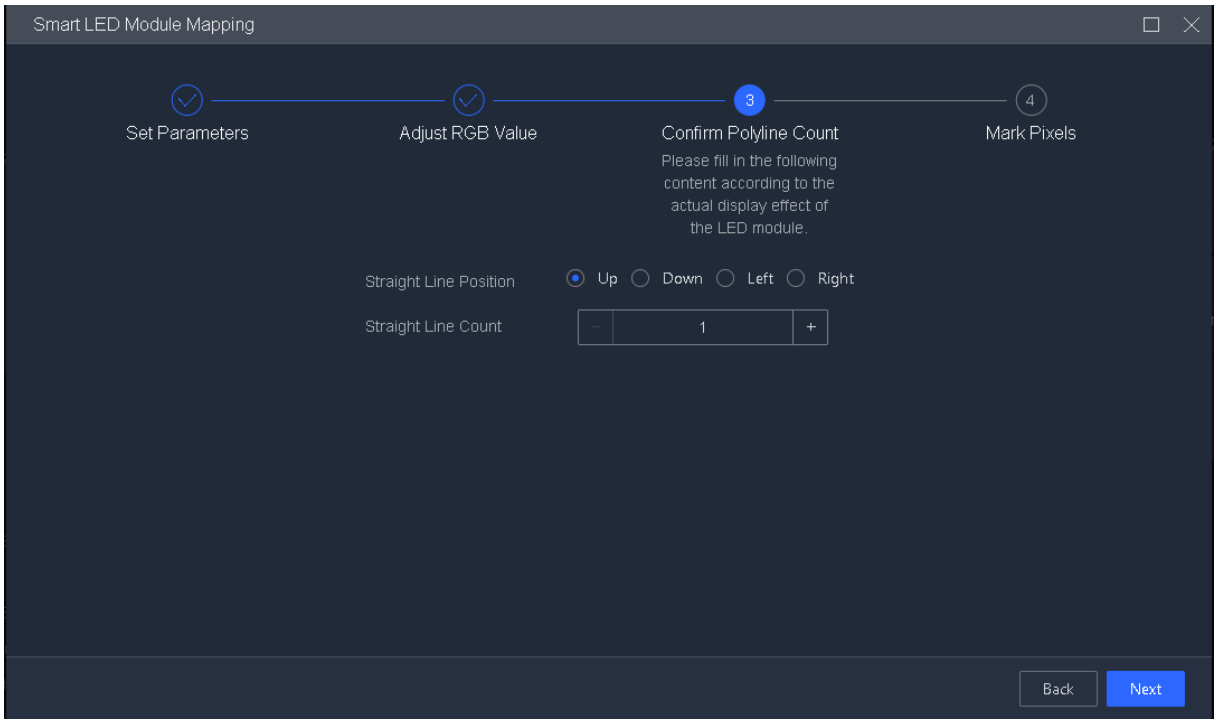


Figure 3-32 Confirm Polyline Count

Step 5 Mark the pixels based on the pixel blinking status of the LED module:

- When the LED module is blinking, mark the current point as the normal pixel.
- When the LED module is not blinking, mark the current point as an empty point.
- Left click the mouse to mark a point as a normal pixel and right click the mouse to mark it as an empty point.
- Press the keyboard arrow keys (up/down/left/right) to mark the points as normal pixels and press the spacebar to mark it as an empty point.
- When marking an empty point, check if any LED beads have detached. Detached LED beads may affect the smart LED module mapping operation.

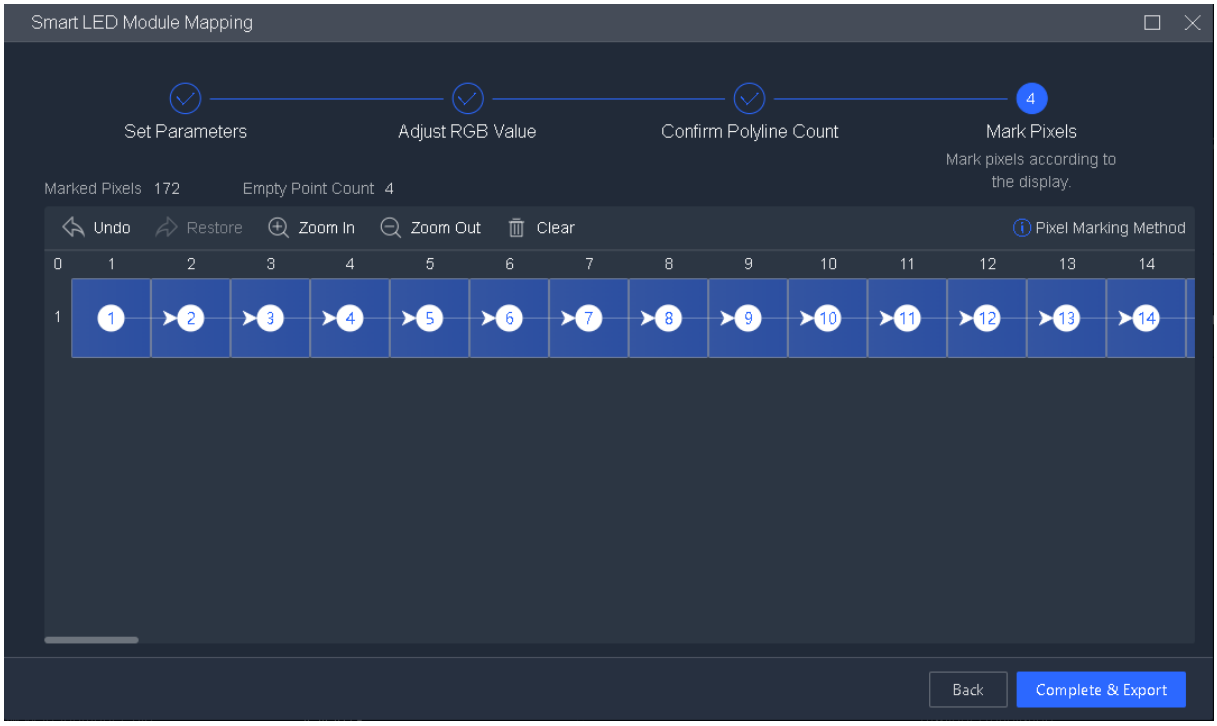


Figure 3-33 Mark Pixels

Step 6 Click **Complete & Export** to export the LED module configuration file.

3.2.3 Configure LED Module Extended Attributes

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

- Edit the extended attributes of row management chip:
  1) On the **Display Control** → **Receiving Card Parameters** page, click **Extended Attributes of Row Management Chip**.
  2) Click **Get** to obtain the current configuration.
  3) Enable **Shallow Enhancement** as required or change the shallow potential level.
  4) Click **Set**.
- Click **Extended Attributes of Column Management Chip** to configure the following parameters:
  - Edit the timing parameters: On the **Timing Parameters** page, click **Get** to load the current settings, modify parameters, and click **Save**.
  - Edit the effect parameters in normal mode: On the **Effect Parameters** page, either use the default parameters or click **Get** to load settings, modify parameters, and click **Save**.
  - Edit the effect parameters in advanced mode: On the **Effect Parameters** page, click **Advanced Mode**, click **Get Advanced Parameters**, double click a parameter to edit its value, and click **Save**.

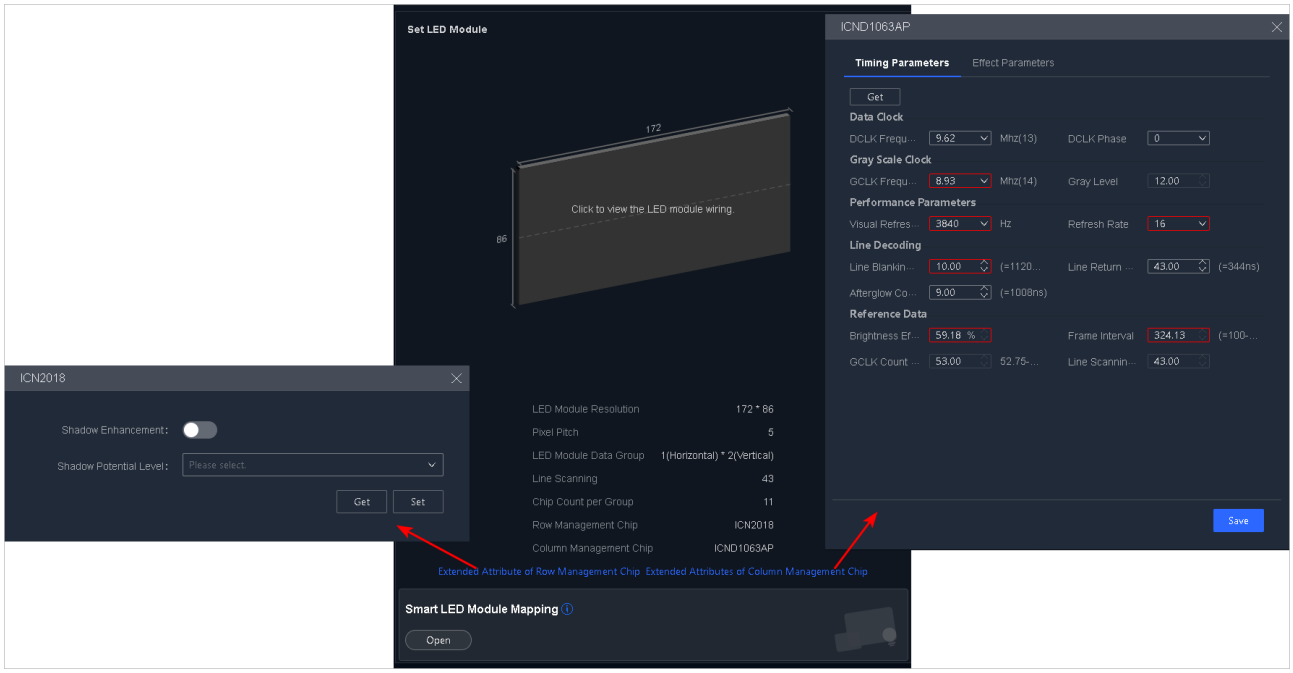


Figure 3-34 Configure LED Module Extended Attributes

3.2.4 Construct Cabinet

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

Step 2 Based on the actual LED module quantity, edit the row number and column number of the LED modules.

Step 3 Mark corresponding data group locations in this window according to the physical layout of LED modules.

- For cascaded LED modules, select a data group number, and then click areas matching the actual cascade count.
- Open LED module row extraction and add the data groups when:
  - Non-transposed modules: Height/row scan ratio is non-integer.
  - Transposed modules: Width/row scan ratio is non-integer.

Step 4 Click **Save**.

Step 5 (Optional) Click **Read Back** to refresh the parameters shown in this window.

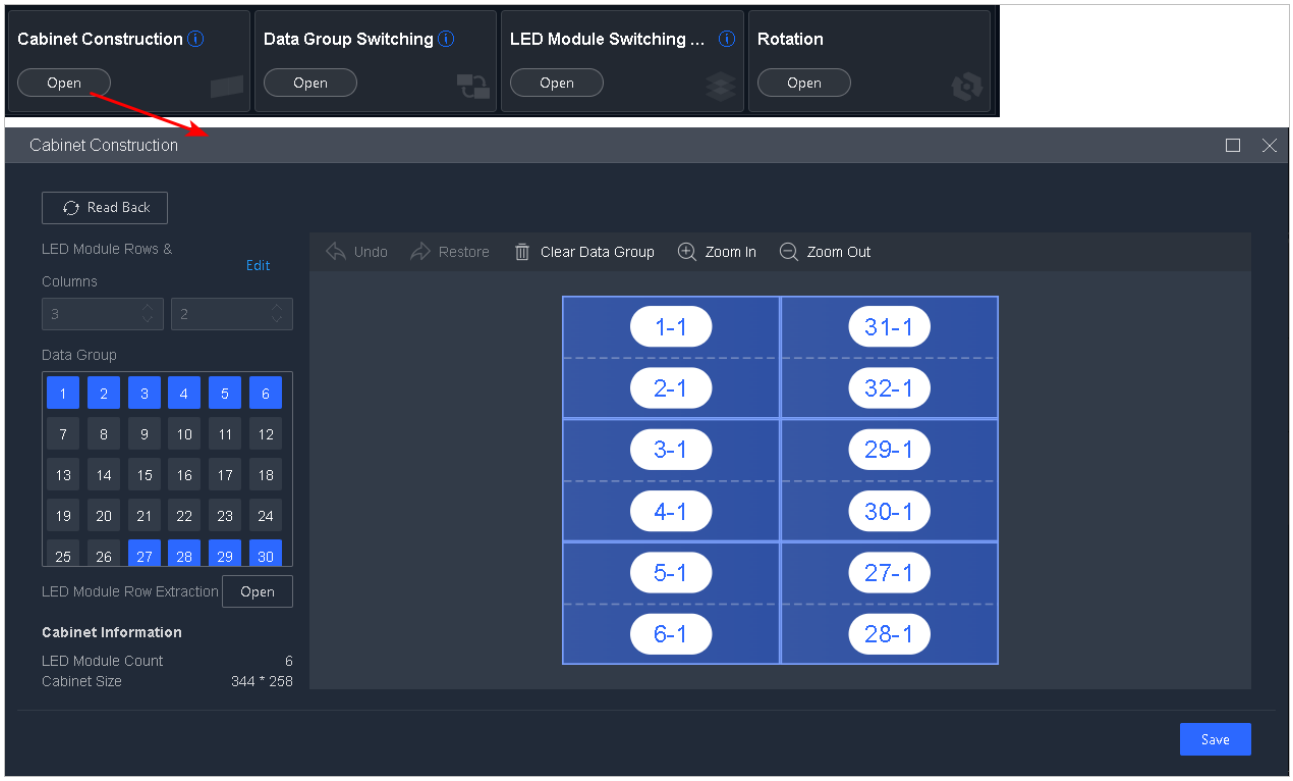


Figure 3-35 Construct Cabinet

3.2.5 Configure Data Group Parameters

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

Step 2 According to the actual position of the blinking data group on the display, click the corresponding position on this page until the configured data group position matches the data group position shown on the display.

Step 3 Click **Save**.

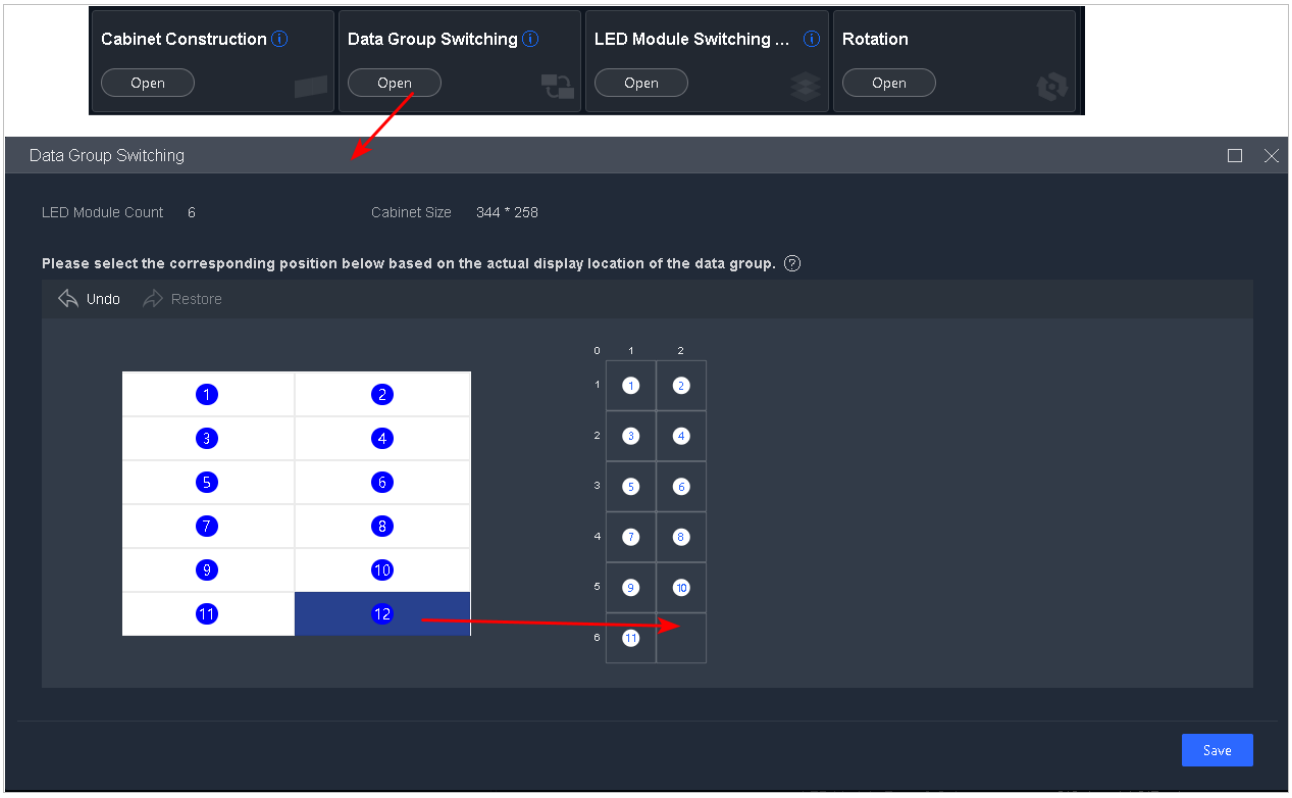


Figure 3-36 Configure Data Group Parameters

3.2.6 Configure Module and Cascading Parameters

Note

Only some HUB receiving cards support module and cascading configuration.

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

Step 2 Set LED module parameters and connect receiving card signal ports to modules:

- Default mode (only this mode supports JH port display.):

1) Click **Show JH Port**.
2) Set module quantity according to IDs displayed on modules.
3) Connect receiving card signal ports to modules matching the displayed IDs.

Note

Only the first module displays ID in cascaded systems.

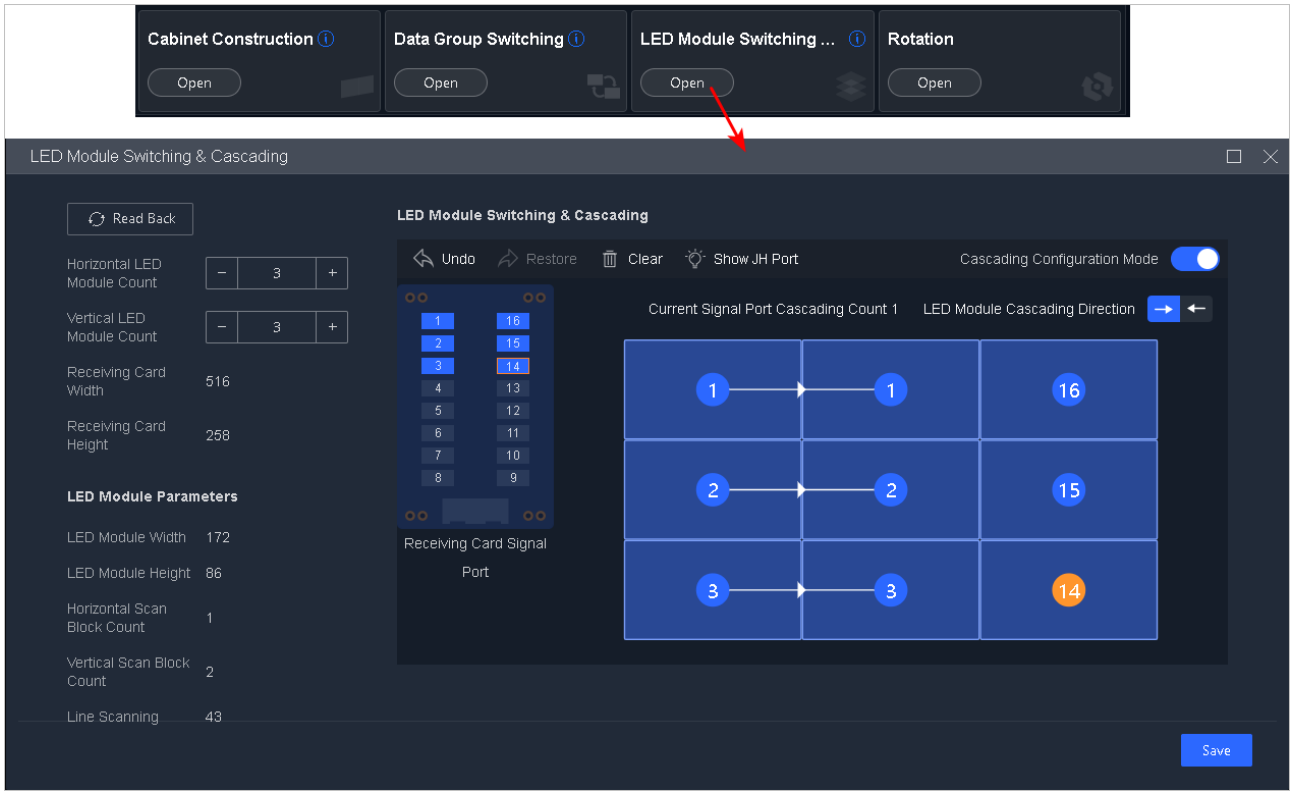


Figure 3-37 Configure Module and Cascading Parameters (Default Mode)

- Direct connection mode/offline mode:

1) Configure module parameters based on physical module quantity.
2) Connect receiving card signal ports to modules according to actual physical connections.

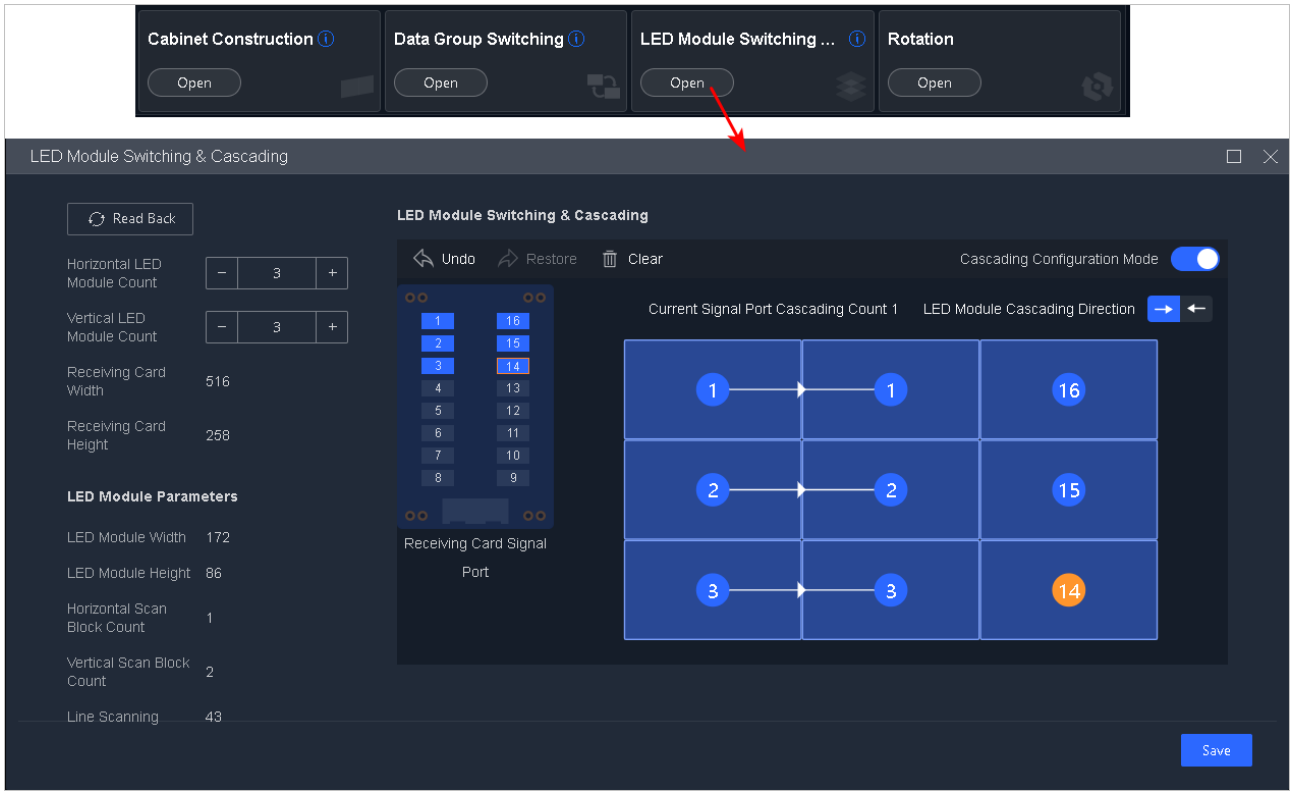


Figure 3-38 Configure Module and Cascading Parameters (Direct Connection/Offline Mode)

- Cascade configuration:

1) Enable **Cascading Configuration Mode**.
2) Select a module cascade direction.
3) Click a signal port, and then click multiple module areas on the right.

Step 3 Click **Save**.

Step 4 Click **Read Back** to refresh the parameters shown in this window.

3.2.7 Rotate Cabinets

Step 1 On the **Display Control** → **Receiving Card Parameters** page, open the **Rotation** window.

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

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

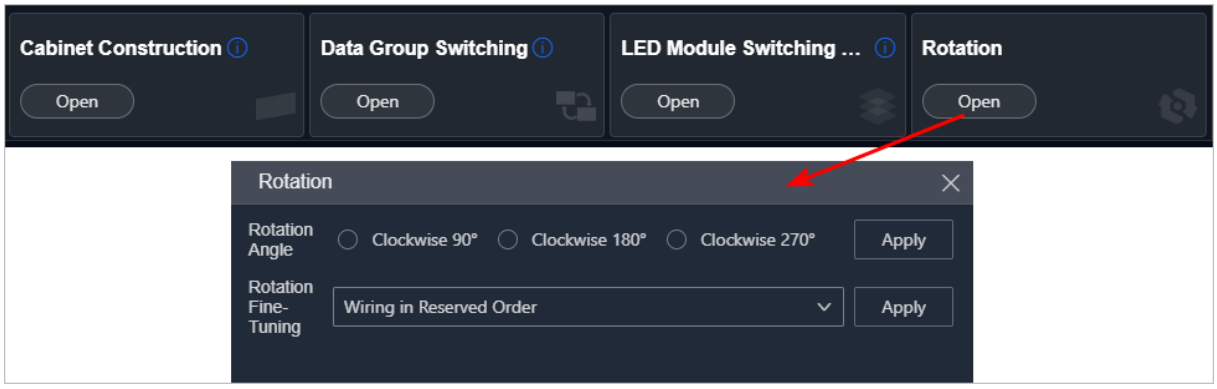


Figure 3-39 Rotate Cabinets

3.2.8 Debug Receiving Card

Note

This function is for qualified technicians only.

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

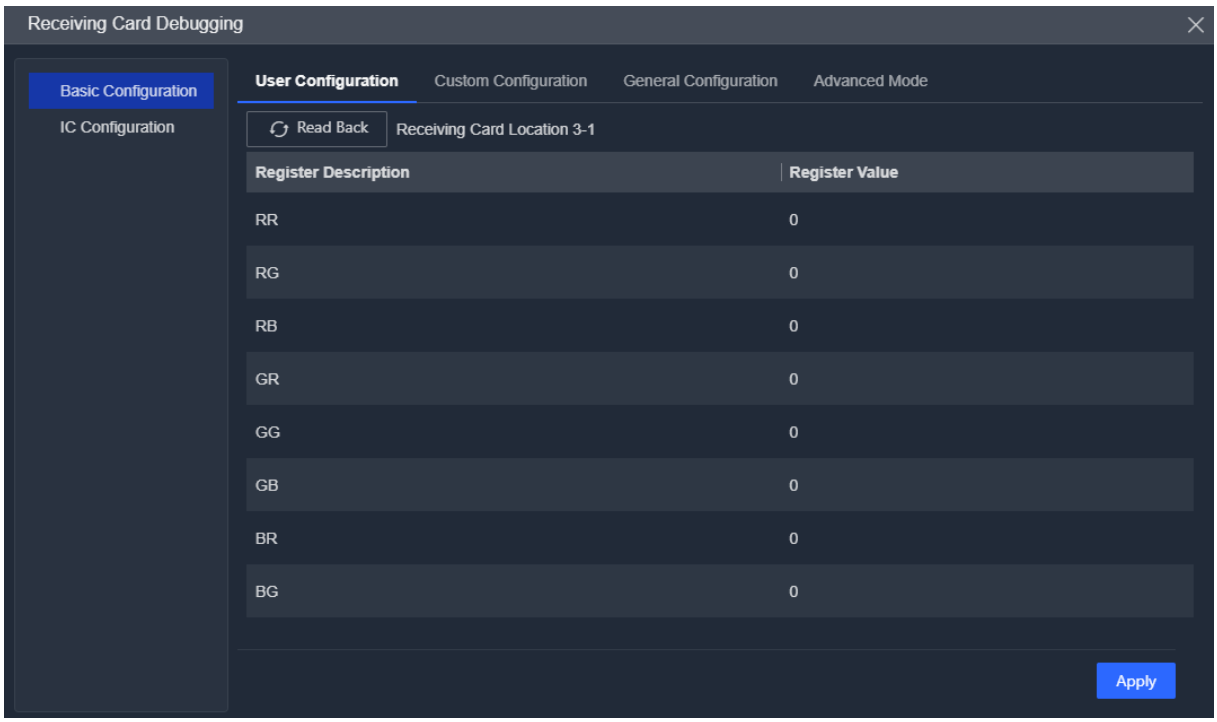


Figure 3-40 Debug Receiving Card

Chapter 4 Display Content Configuration

Only V/P-model LED controllers support content control.

4.1 Operate Video Wall of V Model

Note

- The subtitle area and picture/text area 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 Select a V-model LED controller, and navigate to **Display Control** → **Content Control**.

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

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

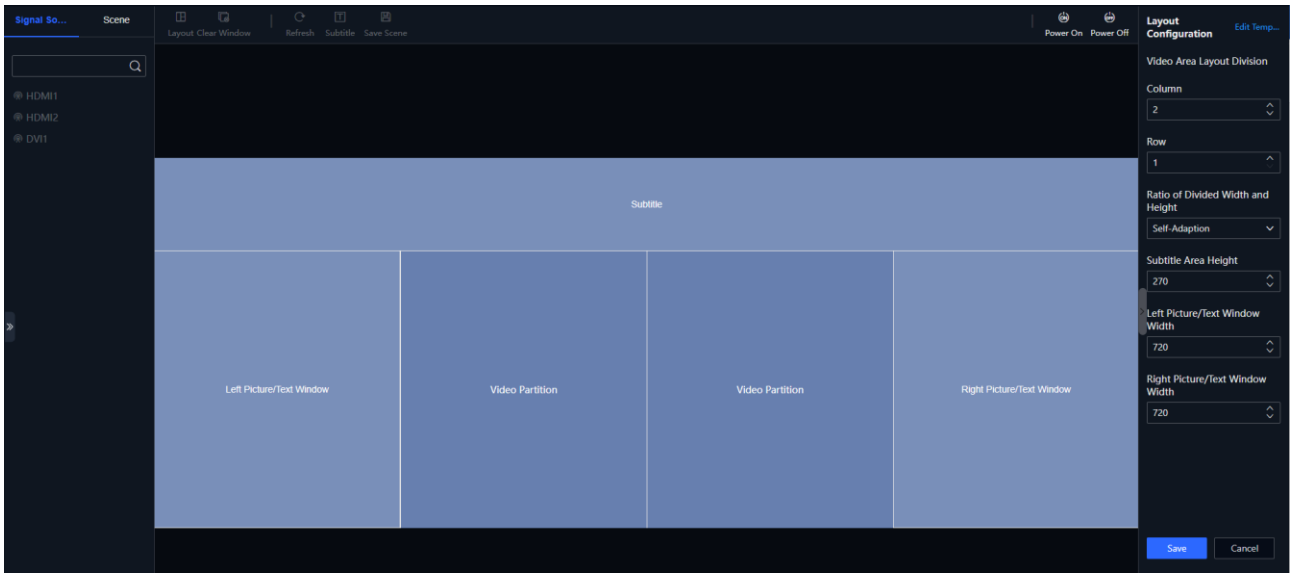


Figure 4-1 Select Template

Step 3 Configure the video area.

1) Drag signal sources to the video area:
   - 2K LED controller: All inputs supports 1-to-3 distribution.

- 4K LED controller: HDMI 1 input is limited to 1-to-1 distribution and other inputs support 1-to-3 distribution.
- DS-DT90 series LED controller: 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 window.
   - 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 **Display Control** → **Source Management** page.
   - Click **Delete** or  to unbind the signal source from the video area.

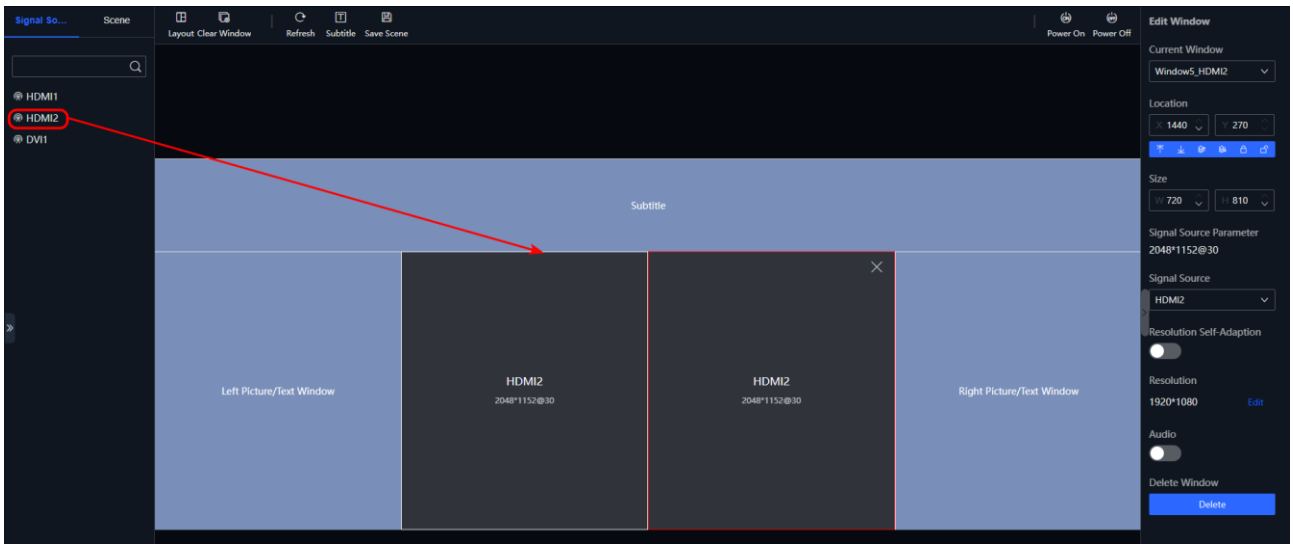


Figure 4-2 Configure Signal Source

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.

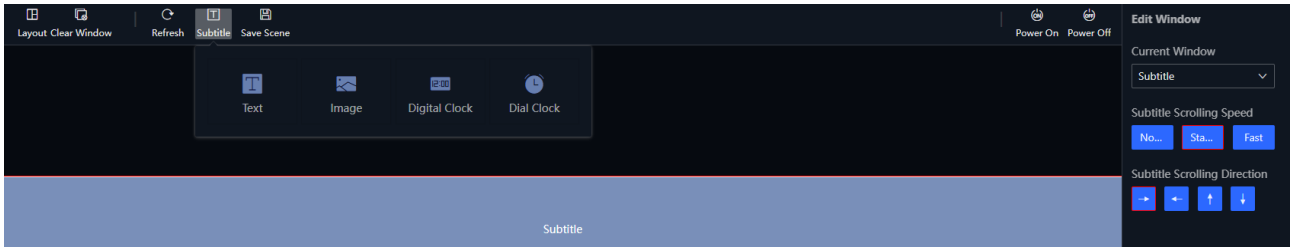


Figure 4-3 Select Subtitle Type

4) Edit the text subtitle or image subtitle.

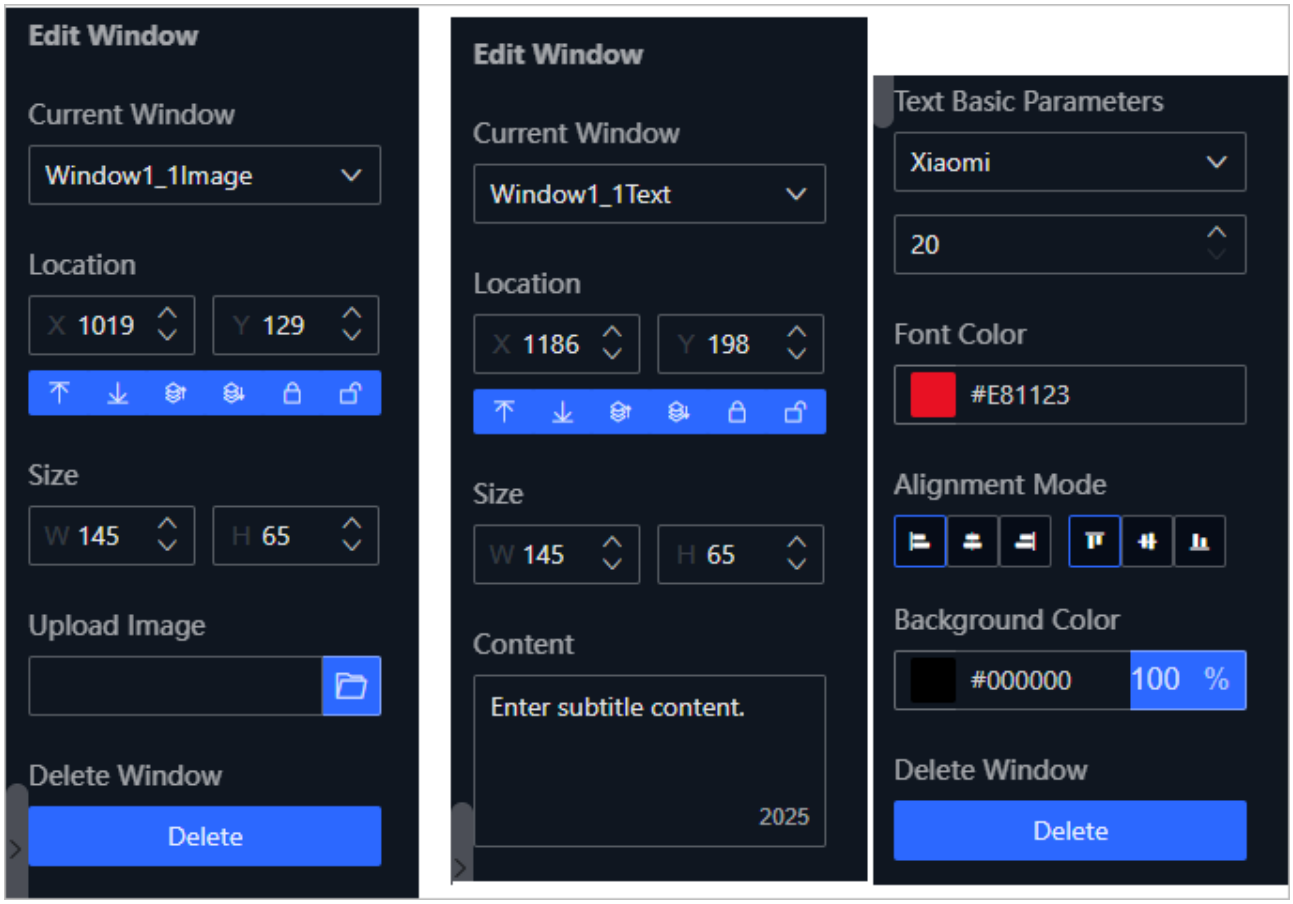


Figure 4-4 Edit Text or Image Subtitle

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.

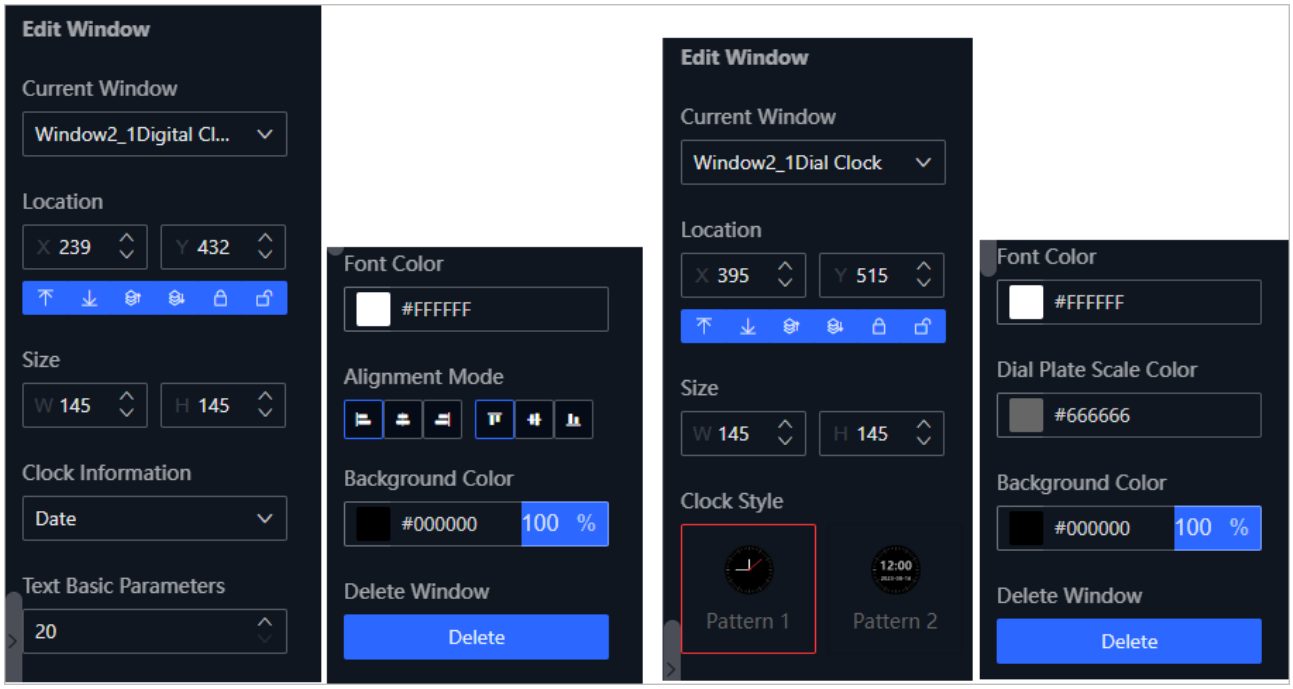


Figure 4-5 Edit Digital/Dial Clock Window

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

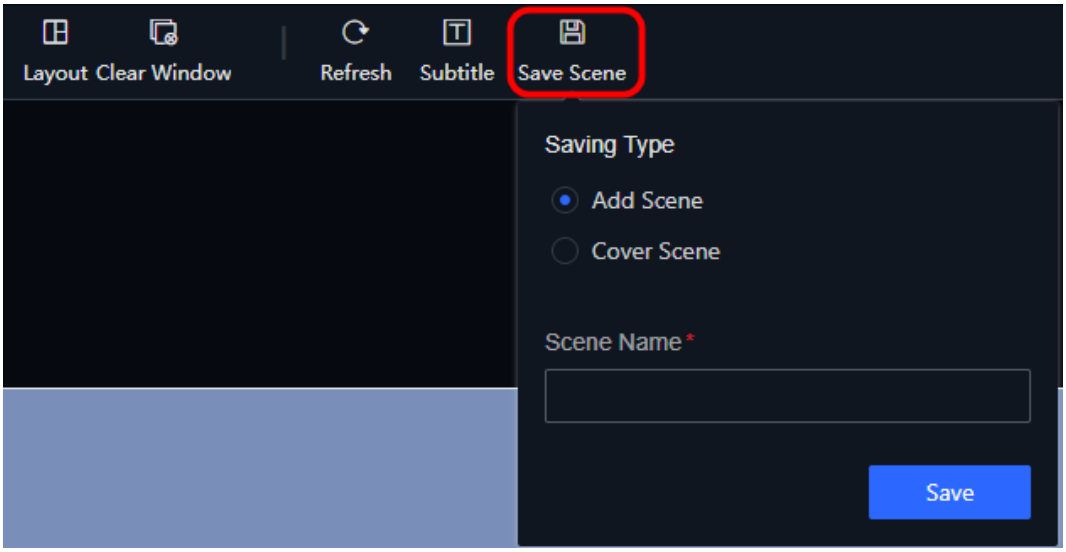


Figure 4-6 Save Scene

- Click **Scene**. Hover over a scene and click the corresponding icon to edit, call, or delete the scene.

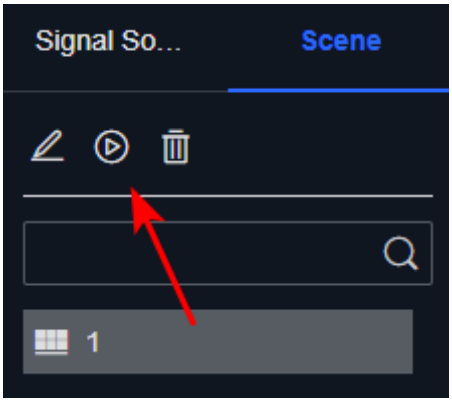


Figure 4-7 Manage Scene

4.2 Create Programs of P Model

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

Note

Currently, only WonderCast application is supported.

4.2.1 Create and Play Programs

Create and Play One Normal Program

Step 1 Select a P series LED controller and navigate to **Display Control** → **Content Control**.

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

- 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**.

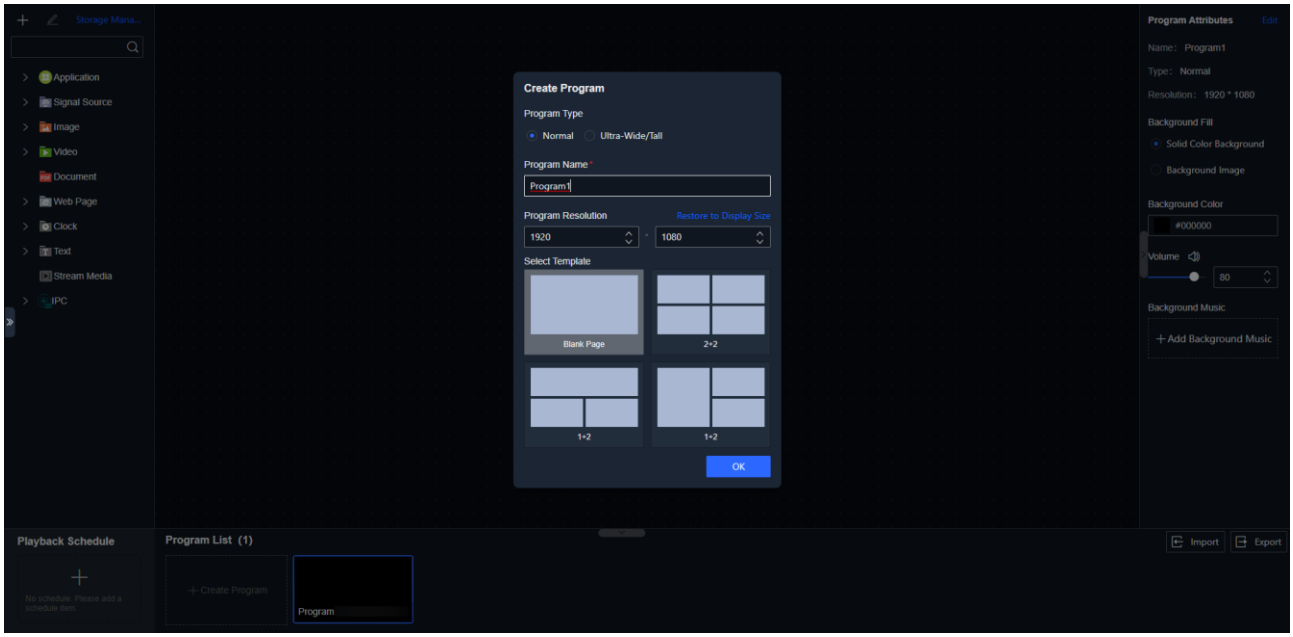


Figure 4-8 Create a Normal Program

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

- Standard programs support application, signal source, image, video, document, web page, clock, text, stream media, and 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 image formats: BMP, JPG, PNG, and GIF.
  - Supported video formats: ASF, AVI, MPG, 3GP, MOV, MKV, WMV, FLV, MP4, and RM.
  - Supported document formats: PDF and PPT.
- You need to add the web interfaces, stream media, and IPC material.
  - The supported web interfaces must use HTTP or HTTPS as the prefix.
  - The supported stream media must use RTSP as the prefix.

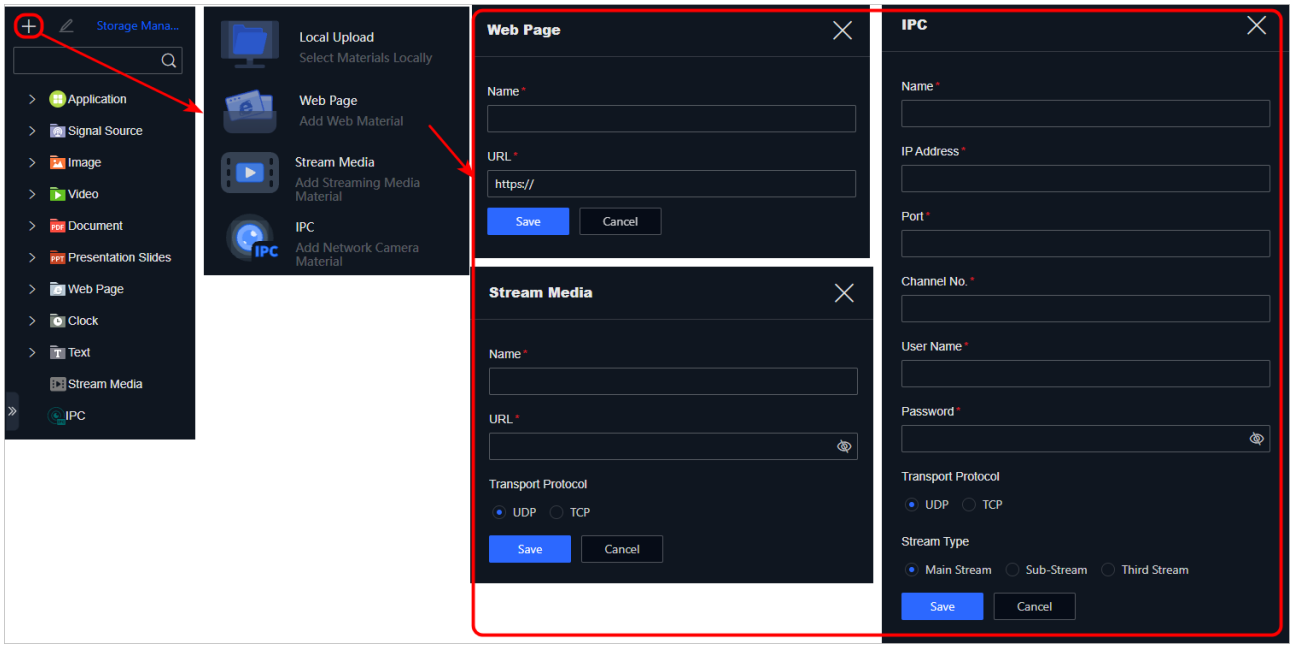


Figure 4-9 Add Materials for Normal Program

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**:
   - Go to **Display Maintenance** → **Settings** → **Storage Management**.
   - On the **Content Control** page, click **Storage Management**.

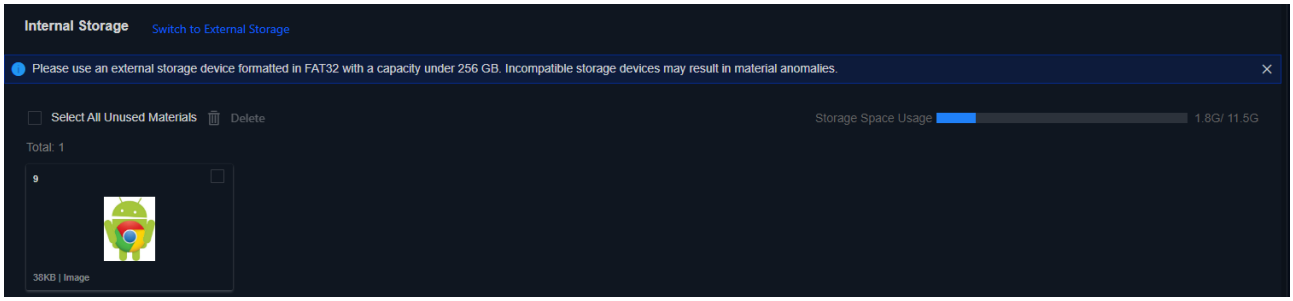


Figure 4-10 Switch to External Storage

3) On the **Content 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.
  - 2K LED controller: All inputs supports 1-to-3 distribution.
  - 4K LED controller: HDMI 1 input is limited to 1-to-1 distribution and other inputs support 1-to-3 distribution.
  - DS-DT90 series LED controller: 4K inputs (HDMI 2.0/SDI/DP) support 1-to-3 distribution and 2K inputs (HDMI 1.4/DVI) support 1-to-4 distribution.

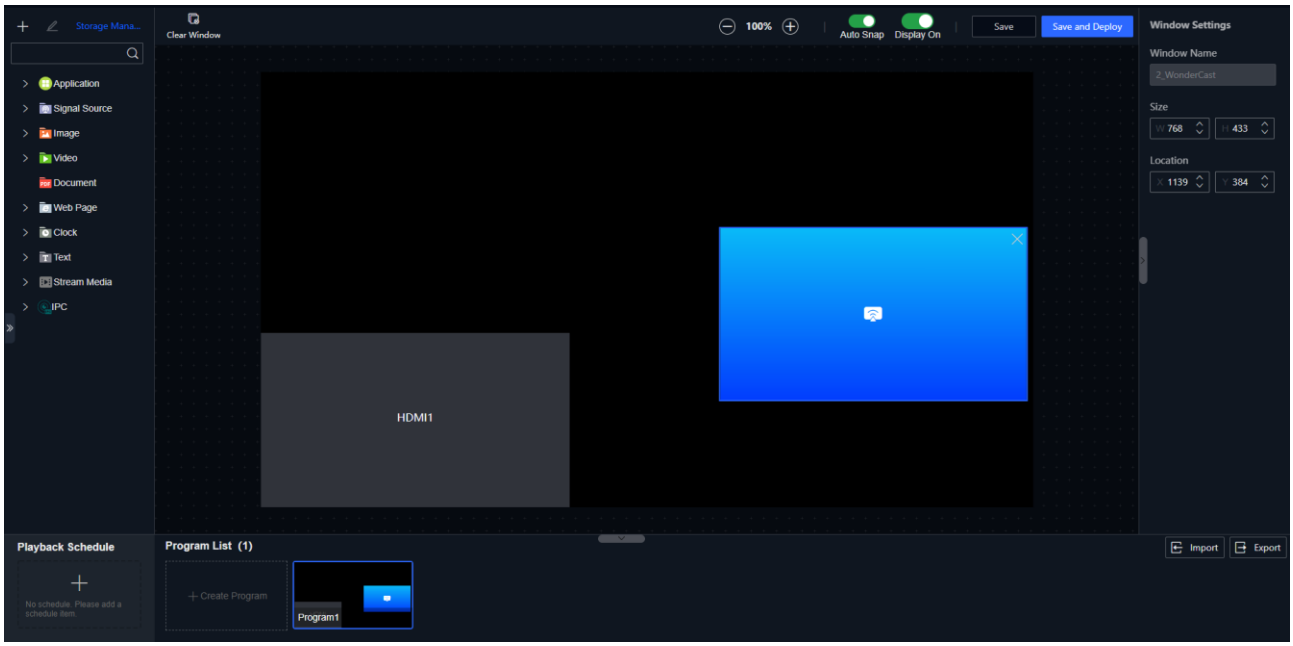


Figure 4-11 Bind Materials with Normal Program

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**.

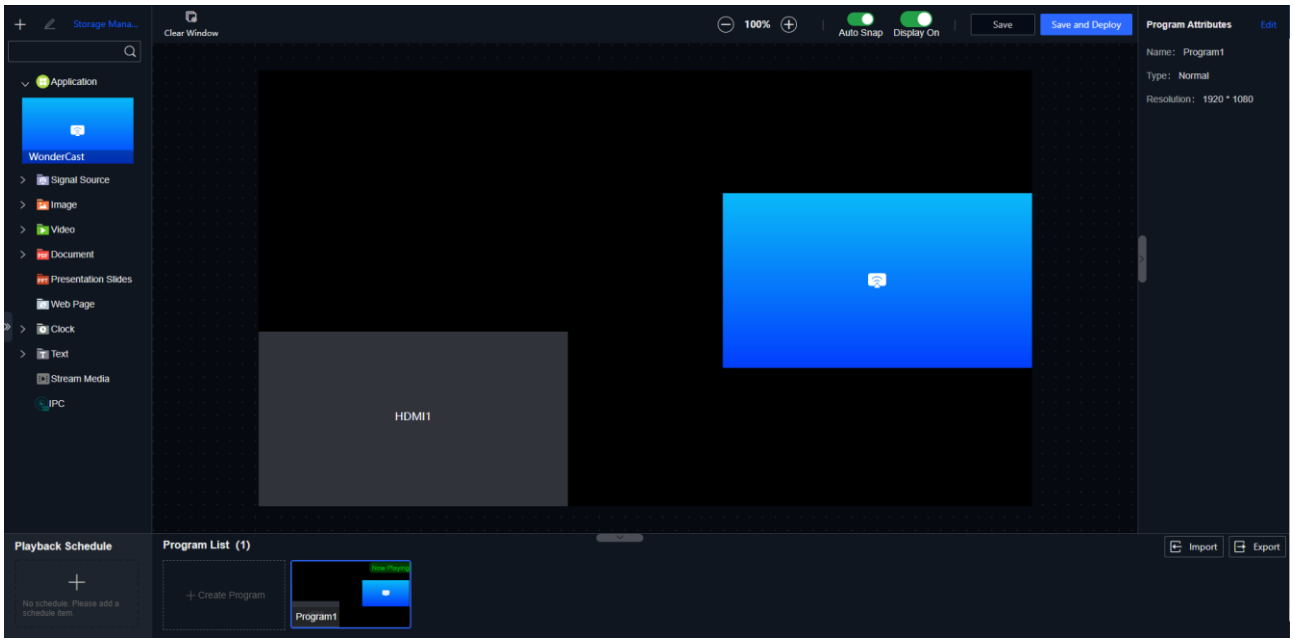


Figure 4-12 Deploy a Normal Program

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 Select a P series LED controller and navigate to **Display Control** → **Content Control**.

Step 2 Click  to collapse the device list.

Step 3 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.

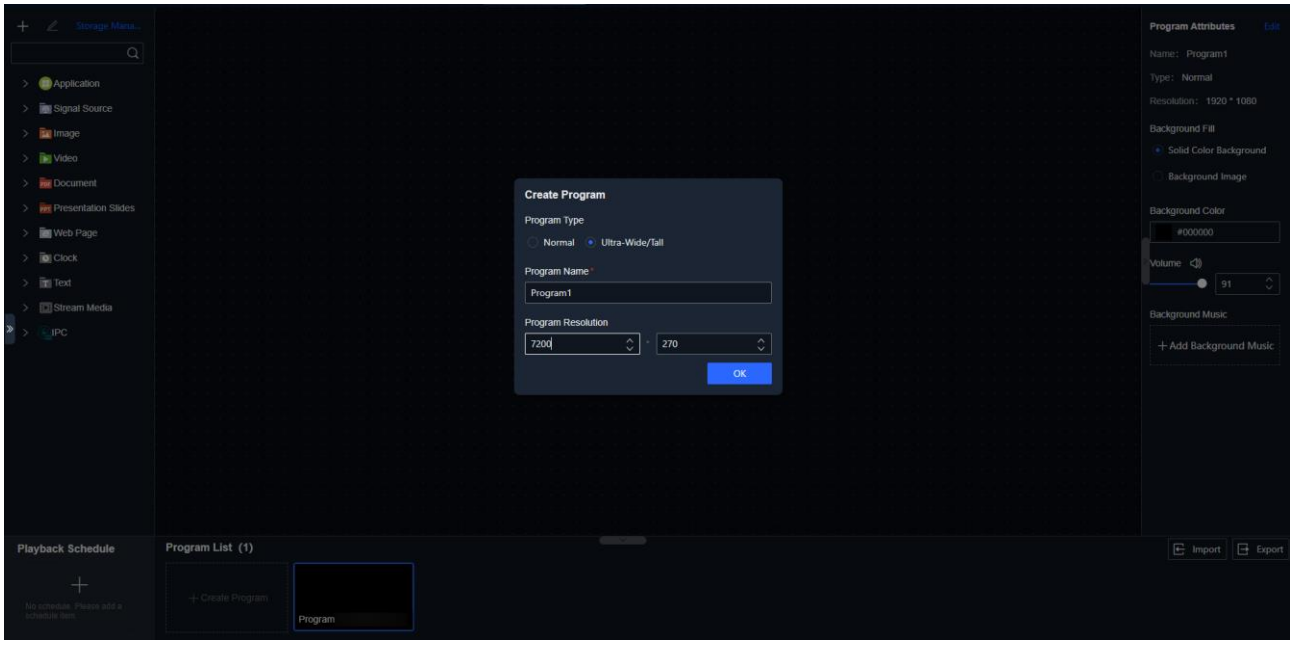


Figure 4-13 Create Ultra-Wide/Tall Program

Step 4 Click  to upload the locally saved images. Supported image formats include BMP, JPG, PNG, and GIF.

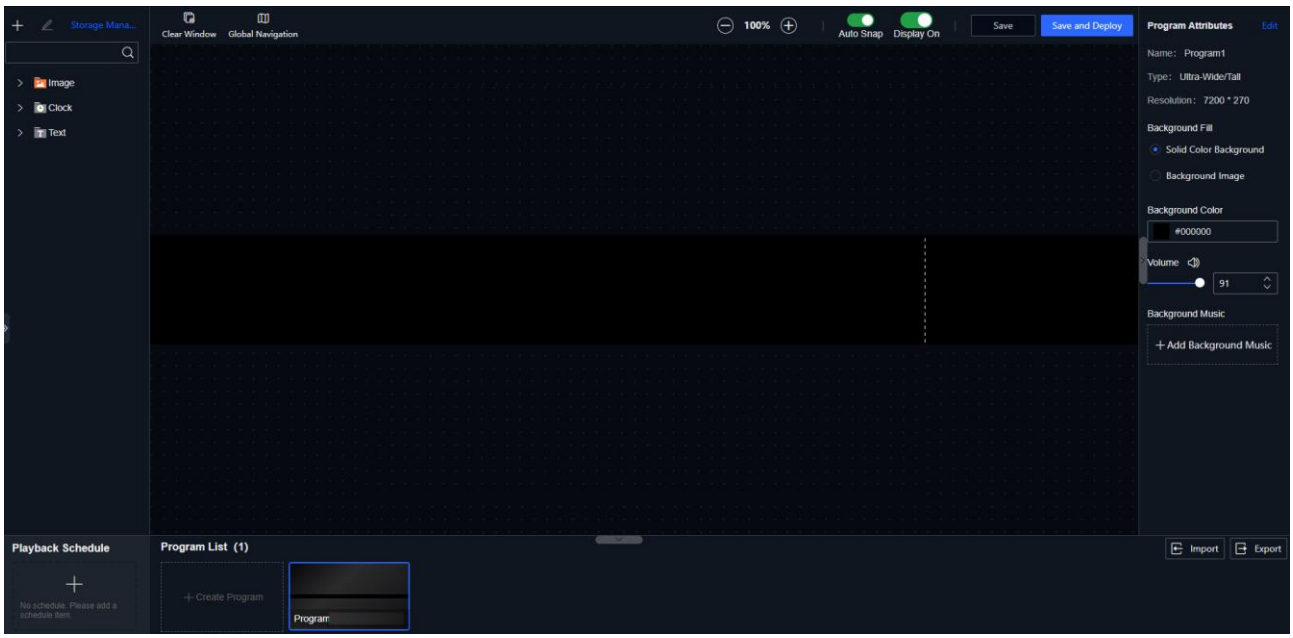


Figure 4-14 Add Materials for Ultra-Wide/Tall Program

Step 5 (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**:
   - Go to **Display Maintenance** → **Settings** → **Storage Management**.

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

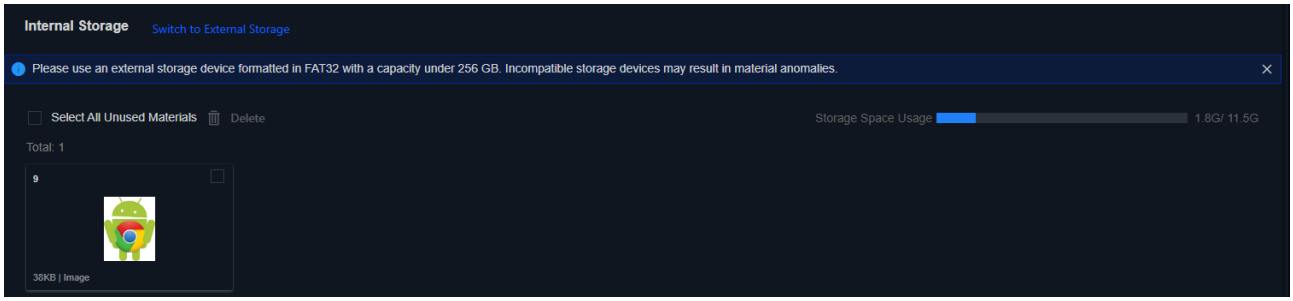


Figure 4-15 Switch to External Storage

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

Step 6 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.

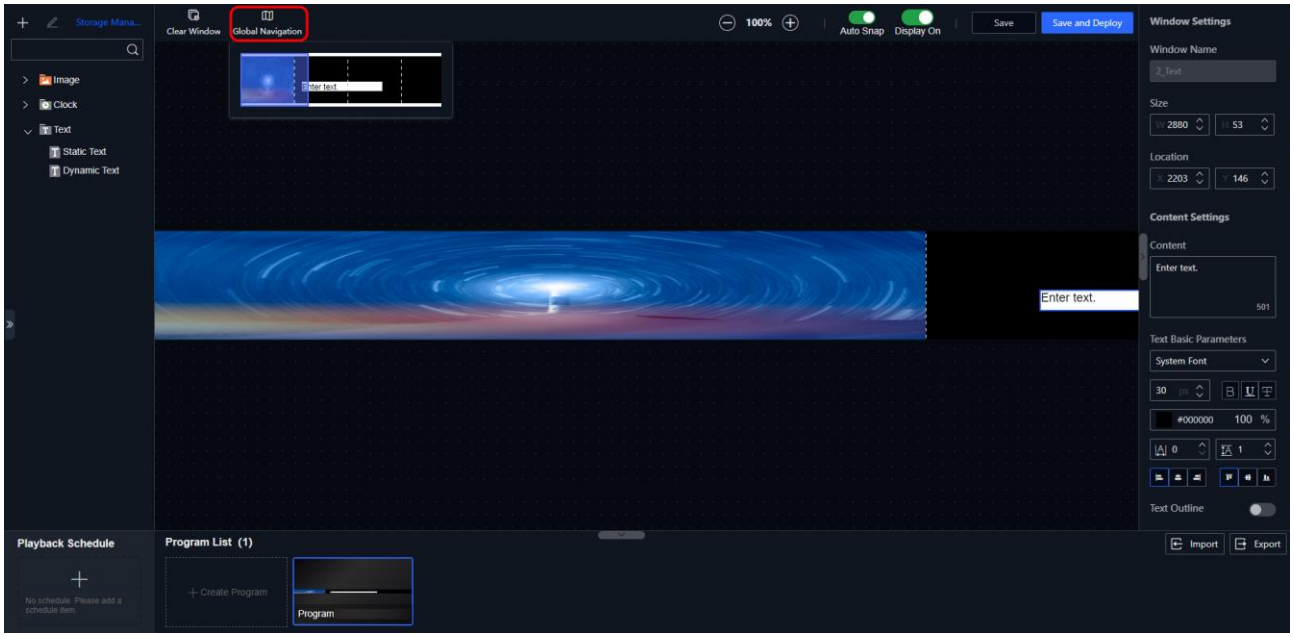


Figure 4-16 Bind Materials with Ultra-Wide/Tall Program

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 7 Click **Save and Deploy**.

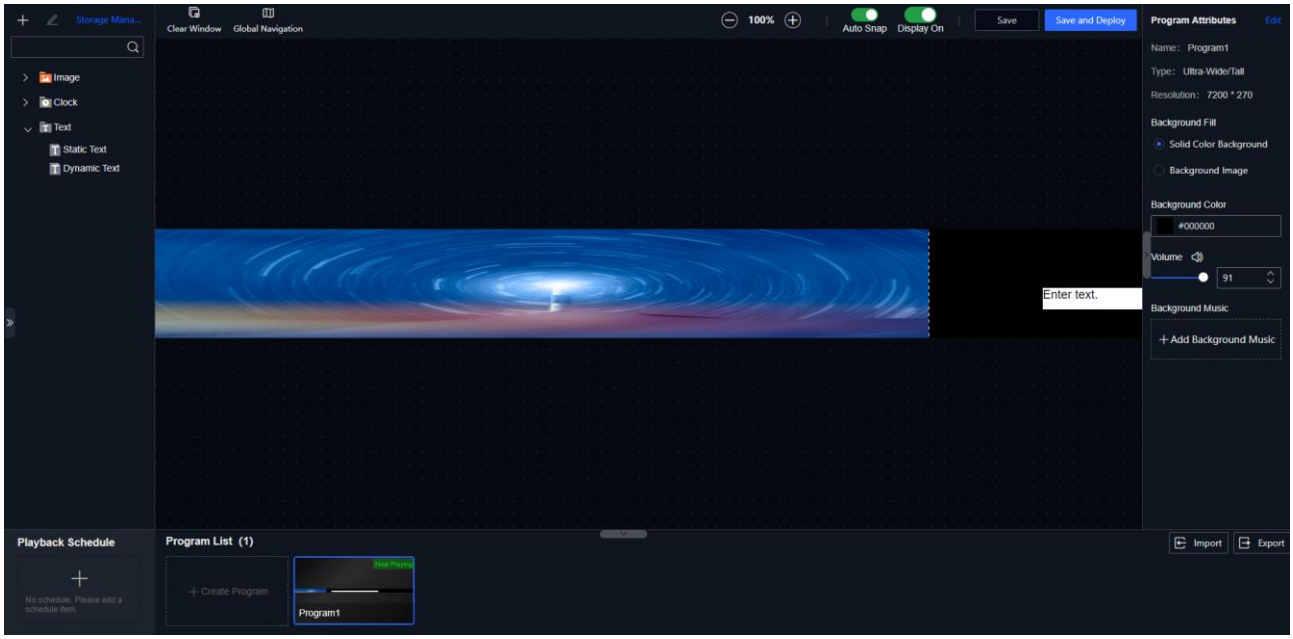


Figure 4-17 Deploy an Ultra-Wide/Tall Program

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.

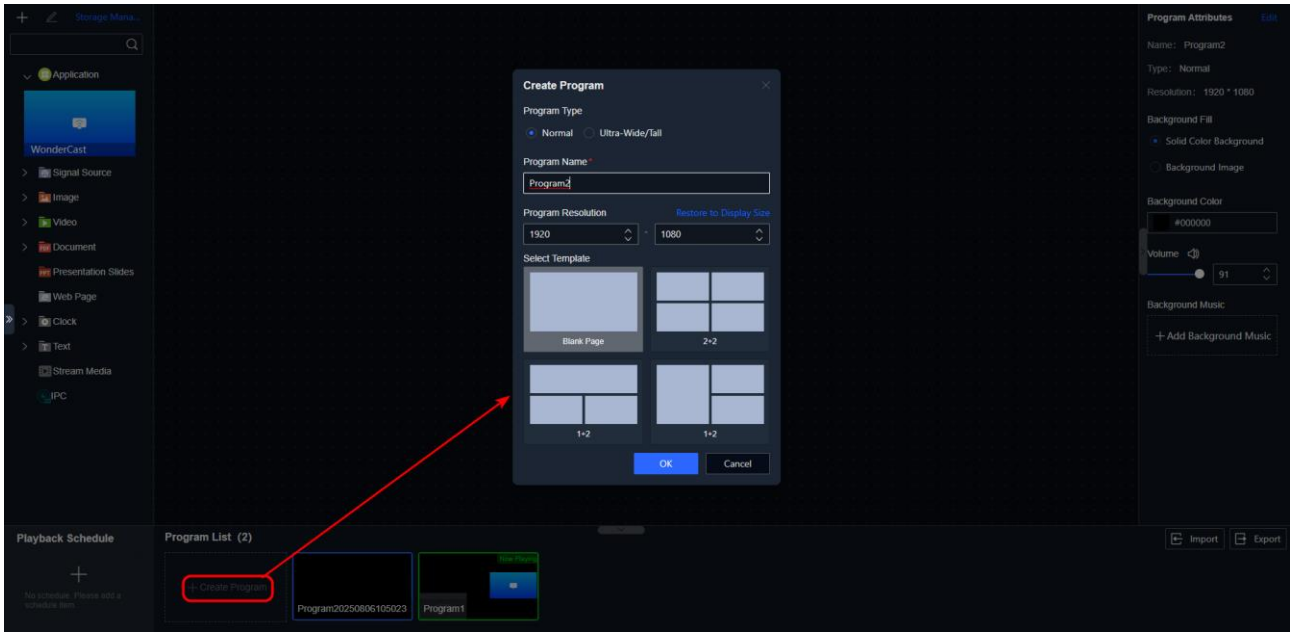


Figure 4-18 Create a New Normal Program

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

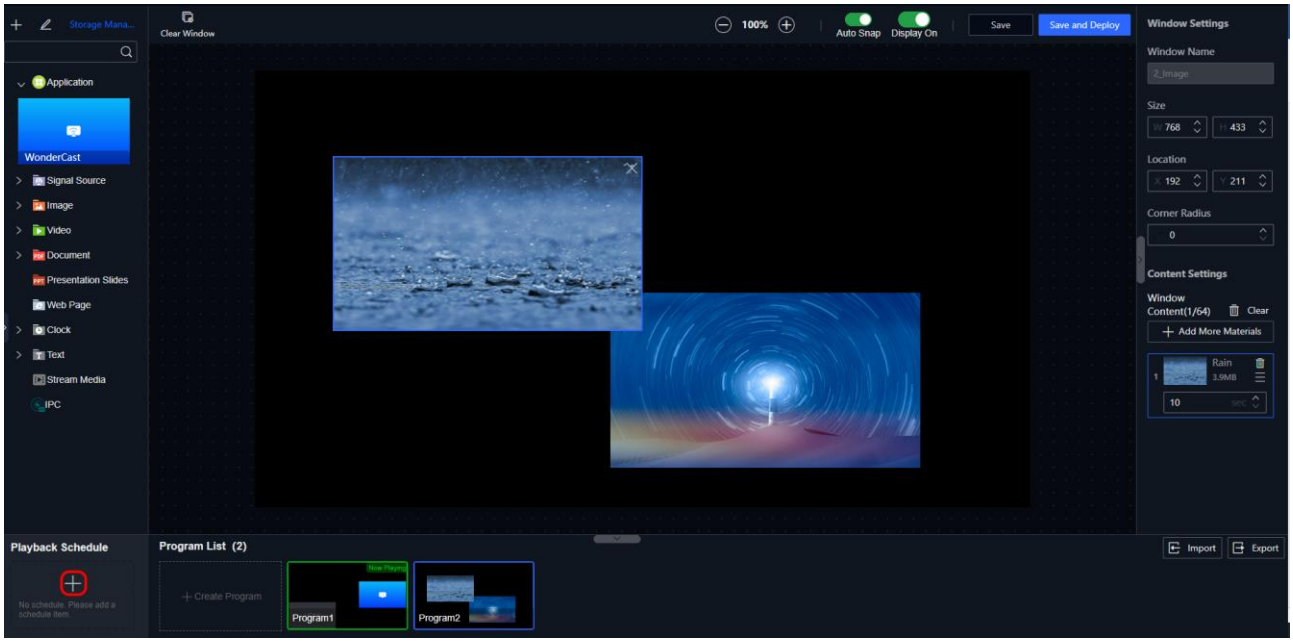


Figure 4-19 Create the Schedule

- 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**.

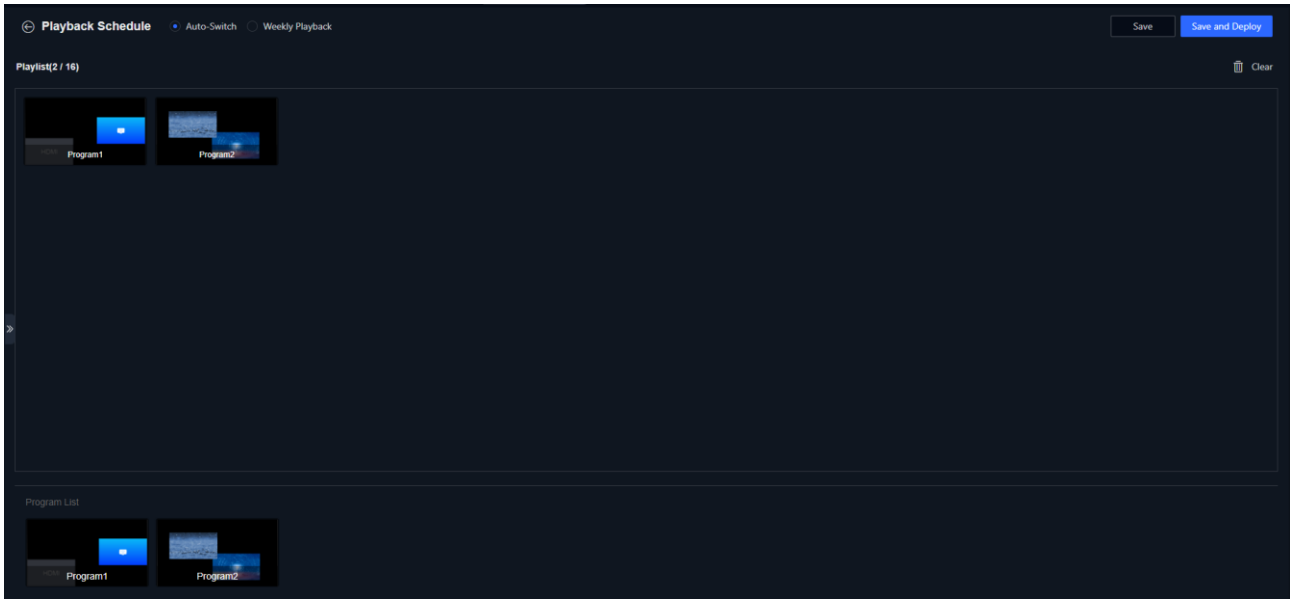


Figure 4-20 Set Auto-Switching Schedule



Figure 4-21 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**.

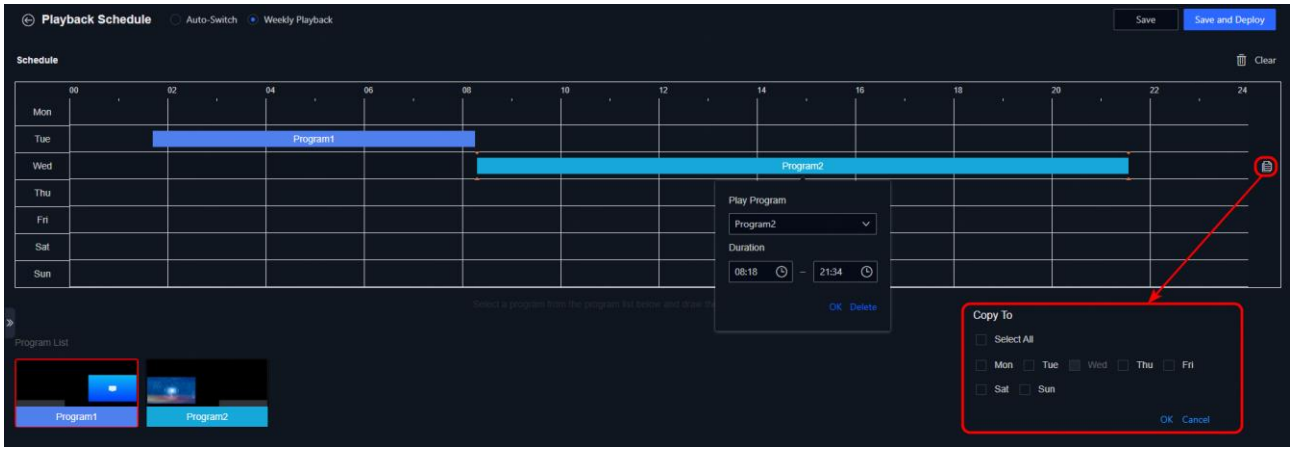


Figure 4-22 Configure the Schedule

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 4-23 Weekly Playback of Normal Programs

Set Other Program Parameters

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

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

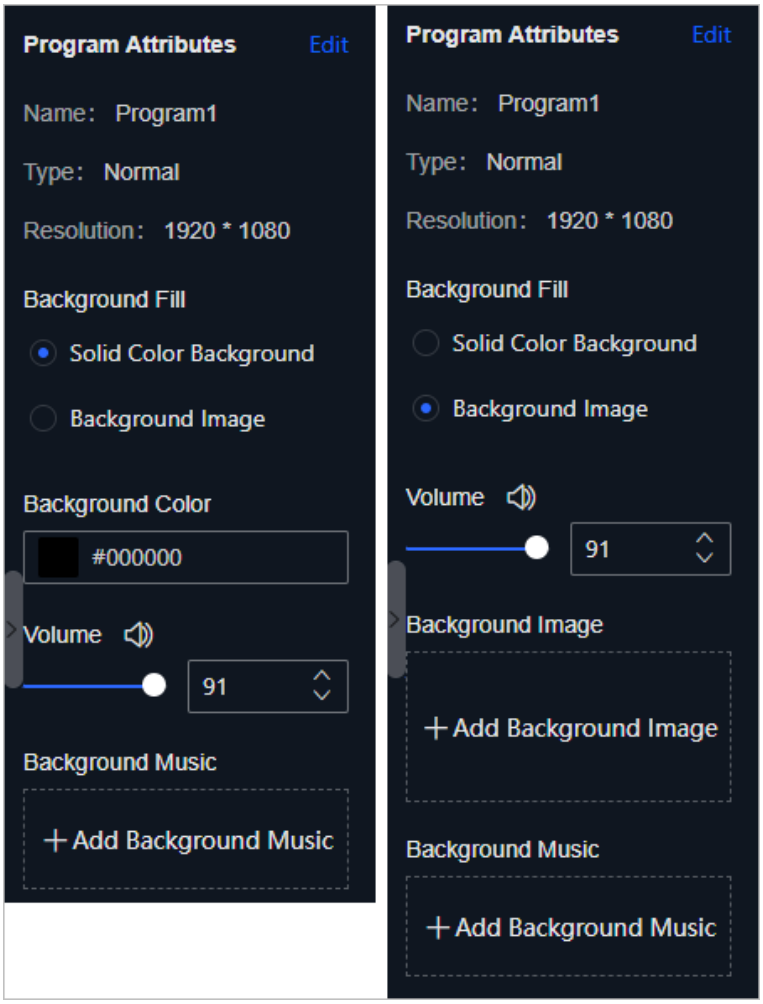


Figure 4-24 Add a Background

- 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 4-25 Manage Program

4.2.2 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.

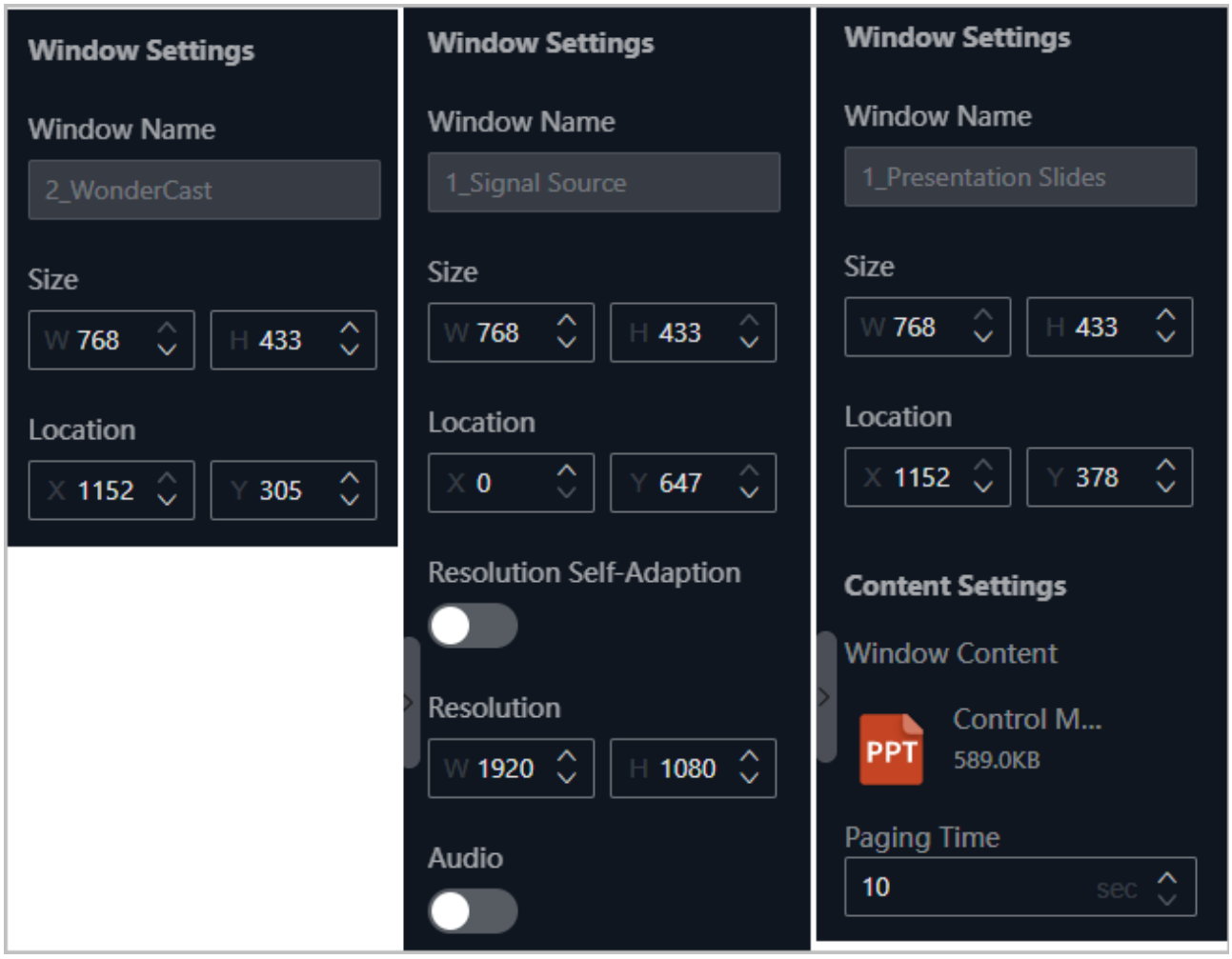


Figure 4-26 Configure Application/Signal Source/PPT File Material

- 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.

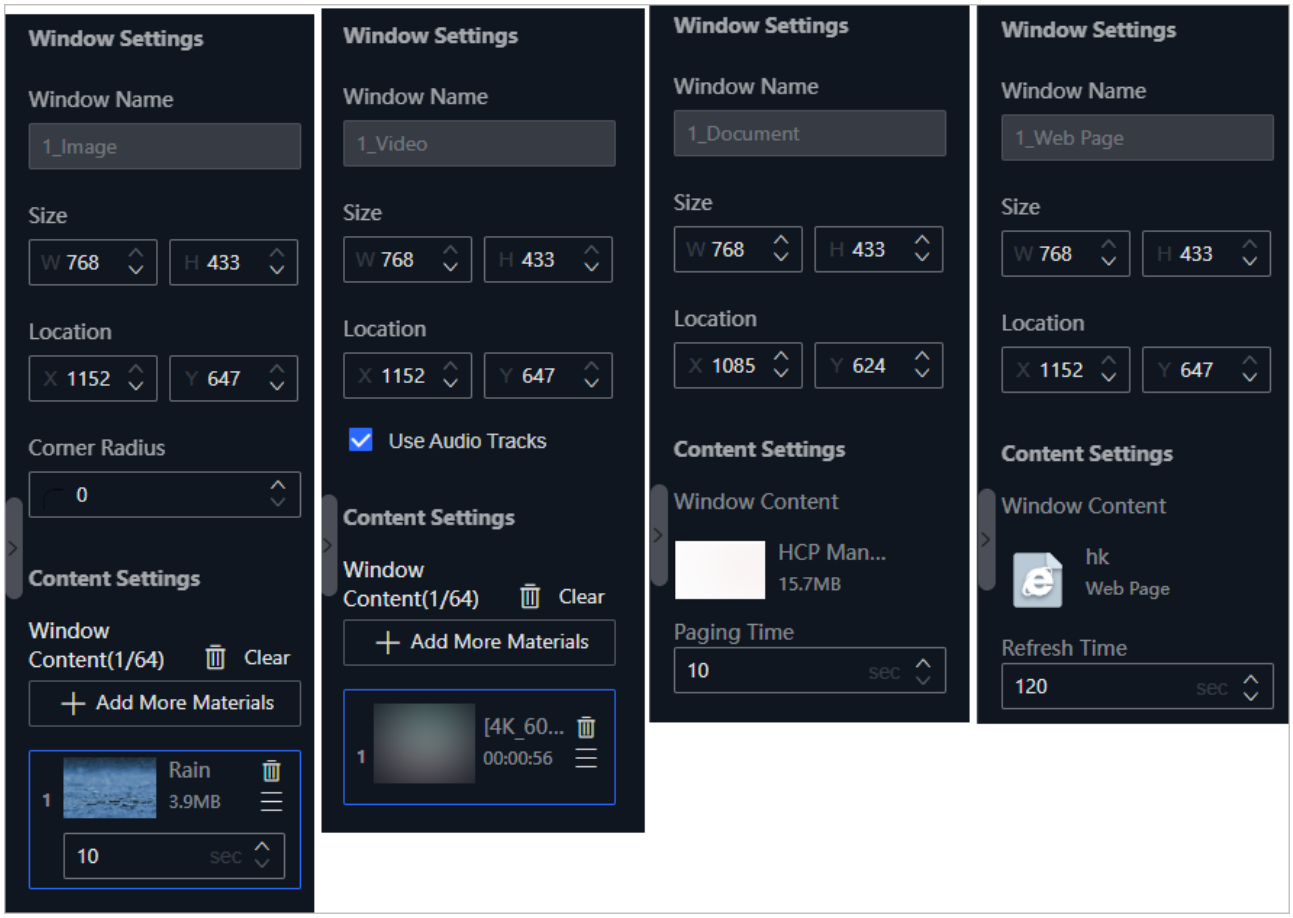


Figure 4-27 Configure Image/Video/PDF File/Web interface Material

- 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**.

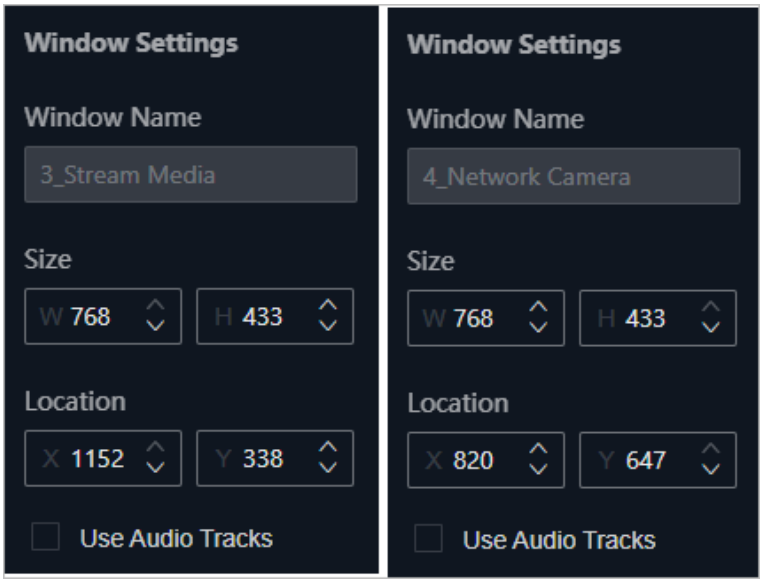


Figure 4-28 Configure Stream Media/Network Camera Material

- 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.

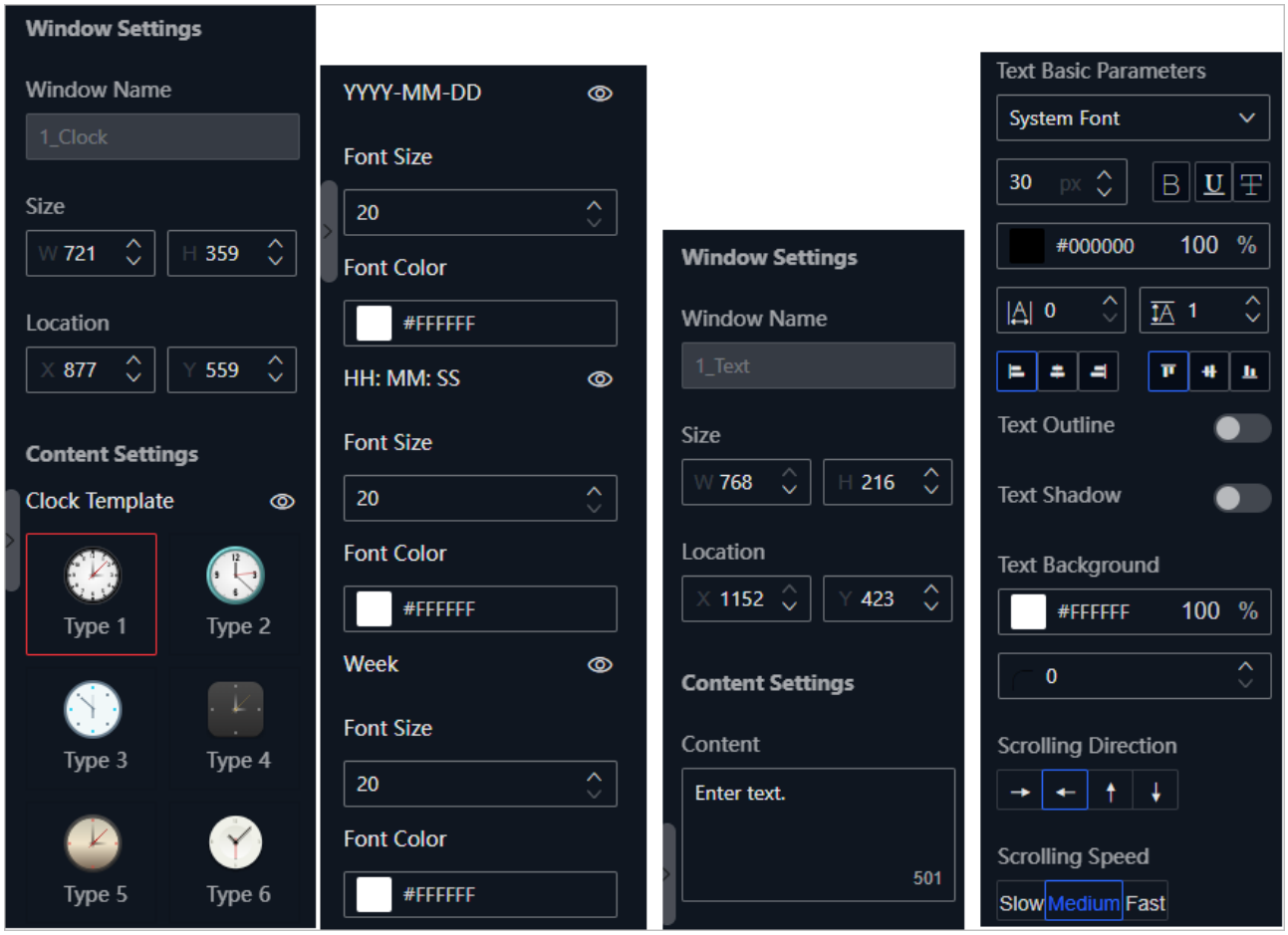


Figure 4-29 Configure Clock/Text

Delete Materials

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

- Go to **Display Maintenance** → **Settings** → **Storage Management**.
- On the **Content 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**.

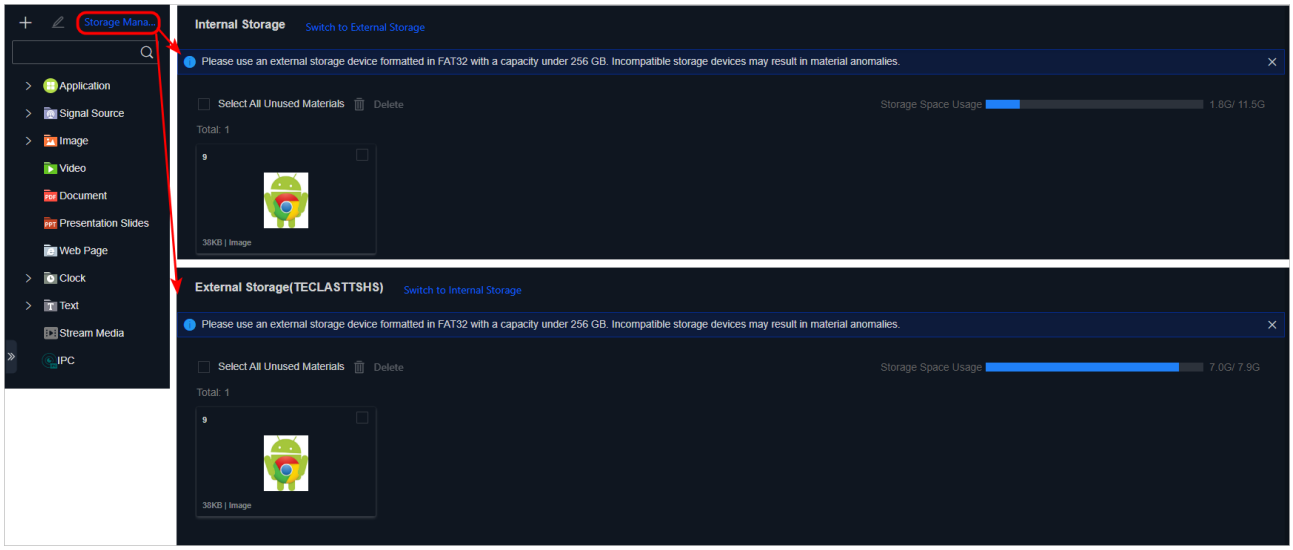


Figure 4-30 Storage Management Page

Chapter 5 Display Parameters Configuration

5.1 Calibrate Receiving Card

Step 1 Select a device or display, and navigate to **Display Control** → **Calibration**.

Step 2 Enable all supported calibration functions based on LED module capabilities:

- All LED modules support brightness/chroma calibration.
- Only some LED modules support low gray calibration and multi-grayscale calibration.

Step 3 Check whether the display effect meets the requirements and calibrate the display when the display effect is unsatisfactory:

1) In the **Test/Location** window, enable **Display Test**.
2) 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 solid color does not meet the requirements, click  to add a new color. You can edit and delete the newly added color.

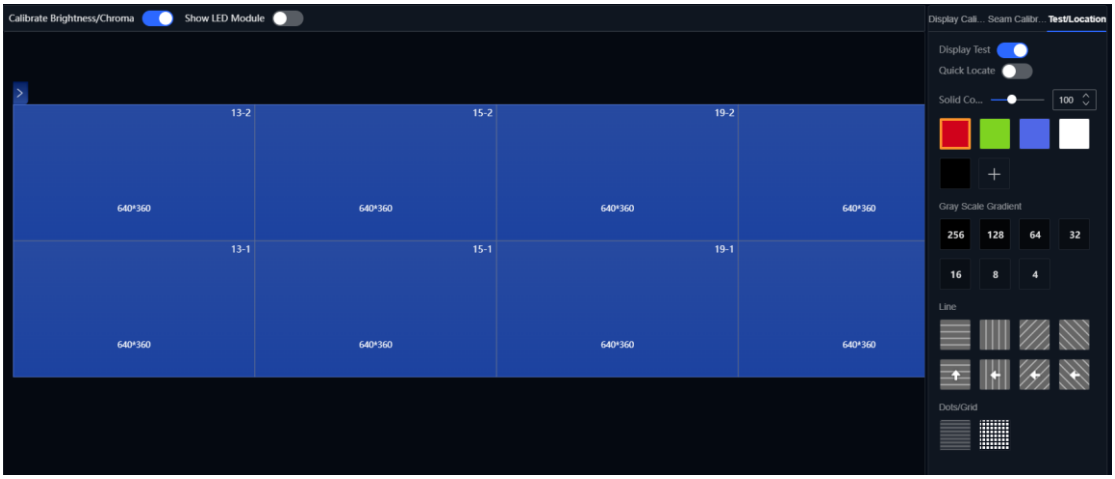


Figure 5-1 Test/Locate Screen

Step 4 If the calibration is needed but the calibration area is unclear, you can enable **Quick Locate** in the **Test/Location** window.

Step 5 Select the calibration area:

- You can select a single or multiple cabinets.
- You can enable **Show LED Module** and select a single or multiple LED modules.

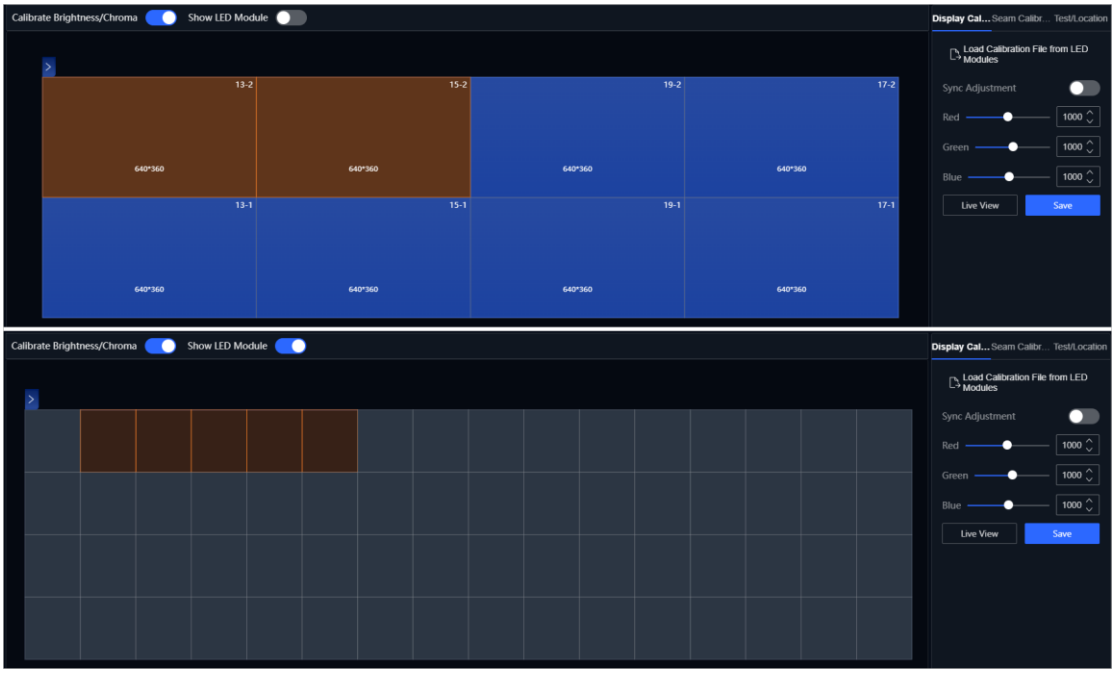


Figure 5-2 Select Calibration Area

Step 6 Select an appropriate method according to the receiving card type:

- Calibrate AXS receiving card (see “Calibrate AXS Receiving Card”).
- Calibrate HUB receiving card (see “Calibrate HUB Receiving Card”).

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

- If the calibration effect is unsatisfactory, select the calibration areas and click **Clear Data**.
- Select the calibration areas and click **Export Data** to export the calibration data of the selected areas.

Calibrate AXS Receiving Card

Step 1 Load the factory calibration data of the LED modules:

1) Use either of the following method to load the factory calibration data of the LED modules:
   - Select cabinets or LED modules and then click **Load Calibration File from LED Modules** in the **Display Calibration** window.
   - Select cabinets or LED modules and then click **Load Calibration File from LED Modules** in the right-click context menu.
2) Click **Live View** to preview the display effect.
3) If the display effect is satisfactory, click **Save**.

Step 2 If factory calibration data is missing, load cloud calibration file:

- Select cabinets or LED modules, and then click **Load Calibration File from Cloud** in the right-click context menu.

- If you fail to load the calibration file from cloud, you can manually import the cloud calibration file :

1) Enable **Show LED Module**.
2) Select a single or multiple LED modules, and then click **View & Copy LED Module SN** in the right-click context menu.
3) Open **Cloud File Search** to obtain the factory calibration file and save it locally.
4) Select multiple LED modules, click **Import/Export Calibration Data** in the right-click context menu, and click **Import** to import the local factory calibration file.

Step 3 If the display effect is unsatisfactory, manually correct the display:

1) In the **Display Calibration** window, adjust RGB values in permille. (Enable **Sync Adjustment** for uniform RGB changes as required.)
2) Click **Live View** to preview the display effect.
3) If the display effect is satisfactory, click **Save**.

Step 4 If bright or dark seams exist, manually calibrate seams:

1) Click **Seam Calibration**.
2) Set the seam direction and width, and adjust the RGB values. (Enable **Sync Adjustment** for uniform RGB changes as required.)
3) Click **Live View** to preview the display effect.
4) If the display effect is satisfactory, click **Save**.

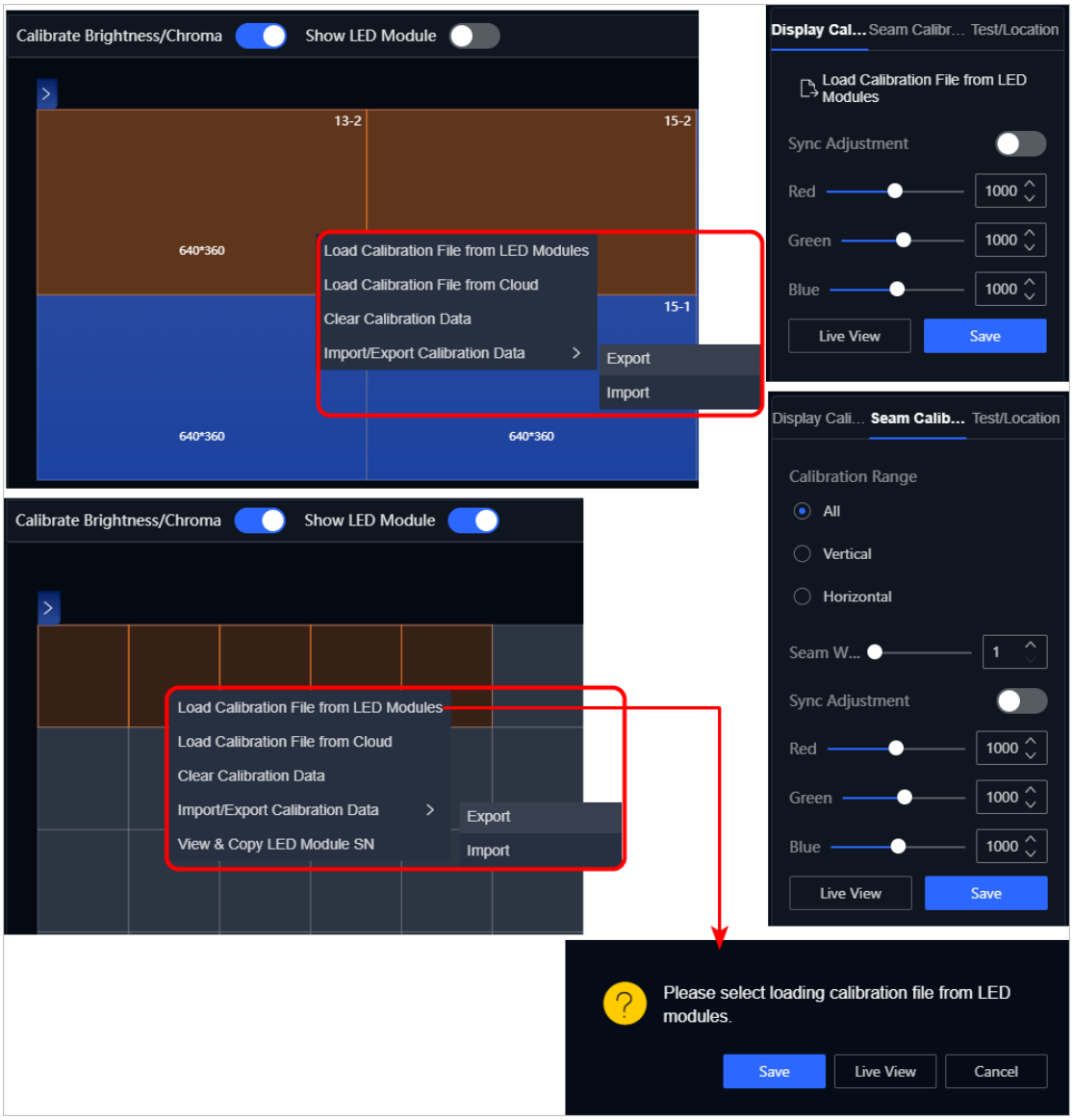


Figure 5-3 Calibrate AXS Receiving Card

Step 5 If the display effect is unsatisfactory, load the local calibration file:

1) Contact the product supplier to obtain the calibration file and save it locally.
2) Select cabinets or LED modules, click **Import/Export Calibration Data** in the right-click context menu, and click **Import** to import the local factory calibration file.
3) When the desired display effect is reached, click **Save** in the **Display Calibration** window.

Calibrate HUB Receiving Card

Step 1 Load cloud calibration file:

- Select cabinets or LED modules, and then click **Load Calibration File from Cloud** in the right-click context menu.
- If you fail to load the calibration file from cloud, you can manually import the cloud calibration file :

1) Enable **Show LED Module**.
2) Select a single or multiple LED modules, and then click **View & Copy LED Module SN** in the right-click context menu.
3) Open **Cloud File Search** to obtain the factory calibration file and save it locally.
4) Select multiple LED modules, click **Import/Export Calibration Data** in the right-click context menu, and click **Import** to import the local factory calibration file.

Step 2 If the display effect is unsatisfactory, manually correct the display:

1) In the **Display Calibration** window, adjust RGB values in permille. (Enable **Sync Adjustment** for uniform RGB changes as required.)
2) Click **Live View** to preview the display effect.
3) If the display effect is satisfactory, click **Save**.

Step 3 If bright or dark seams exist, manually calibrate seams:

1) Click **Seam Calibration**.
2) Set the seam direction and width, and adjust the RGB values. (Enable **Sync Adjustment** for uniform RGB changes as required.)
3) Click **Live View** to preview the display effect.
4) If the display effect is satisfactory, click **Save**.

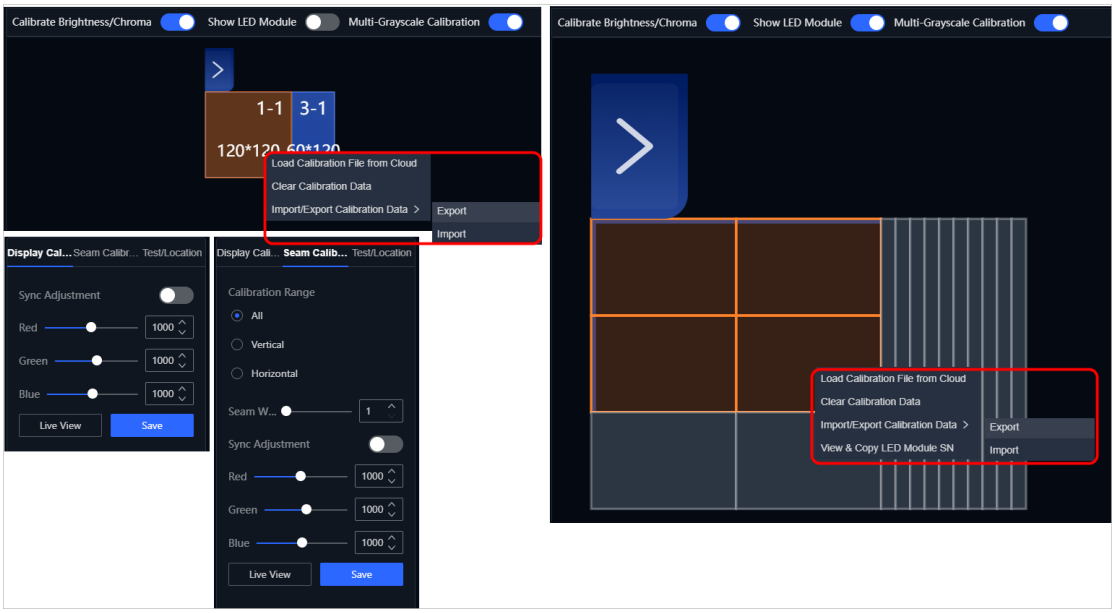


Figure 5-4 Calibrate HUB Receiving Card

Step 4 If the display effect is unsatisfactory, load the local calibration file:

1) Contact the product supplier to obtain the calibration file and save it locally.
2) Select cabinets or LED modules, click **Import/Export Calibration Data** in the right-click context menu, and click **Import** to import the local factory calibration file.
3) When the desired display effect is reached, click **Save** in the **Display Calibration** window.

5.2 Configure Source Parameters

The LED controllers support source configuration, while the LED controller boards only allow viewing of output resolution and frame rate.

5.2.1 Configure Signal Source Parameters

Step 1 Select an LED controller, and navigate to **Display Control** → **Source Management**.

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

- EDID parameters: Supported by all LED controllers.
- HDR parameters: Exclusive to 4K signal sources (HDMI2.0, SDI and DP) of DS-DT90 series LED controllers. See “Configure HDR Functionality”.
- The C-model LED controllers only show the connected signal sources and V/P-model LED controllers show all signal sources.

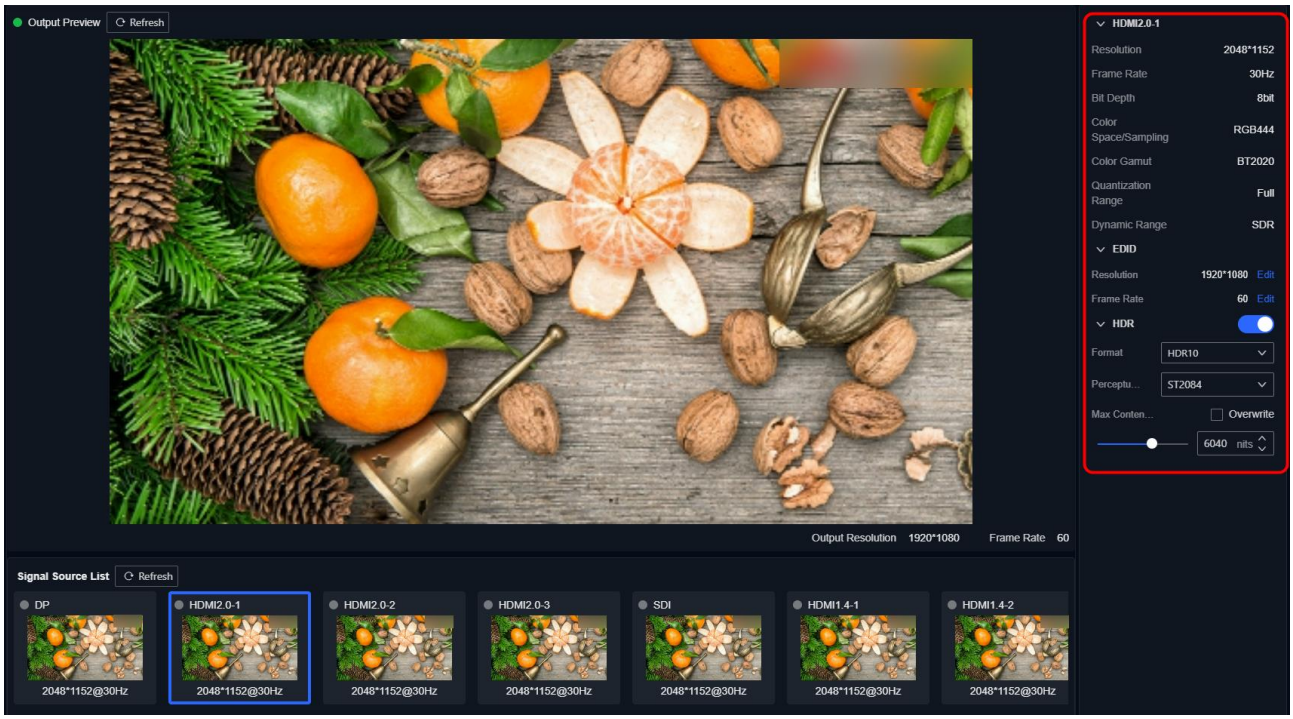


Figure 5-5 Configure Signal Source Parameters

Configure HDR Functionality

- Only the 4K sources (HDMI 2.0, SDI, and DP) of the DS-DT90 series LED controllers support HDR configuration.
- After enabling HDR, ensure the display's receiving card supports HDR effects to view HDR content on the display.
- The device will only activate HDR processing when the signal source conditions, output bit depth, and HDR format meet the requirements listed in the table below. Otherwise, the device will output SDR content.

Table 5-1 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

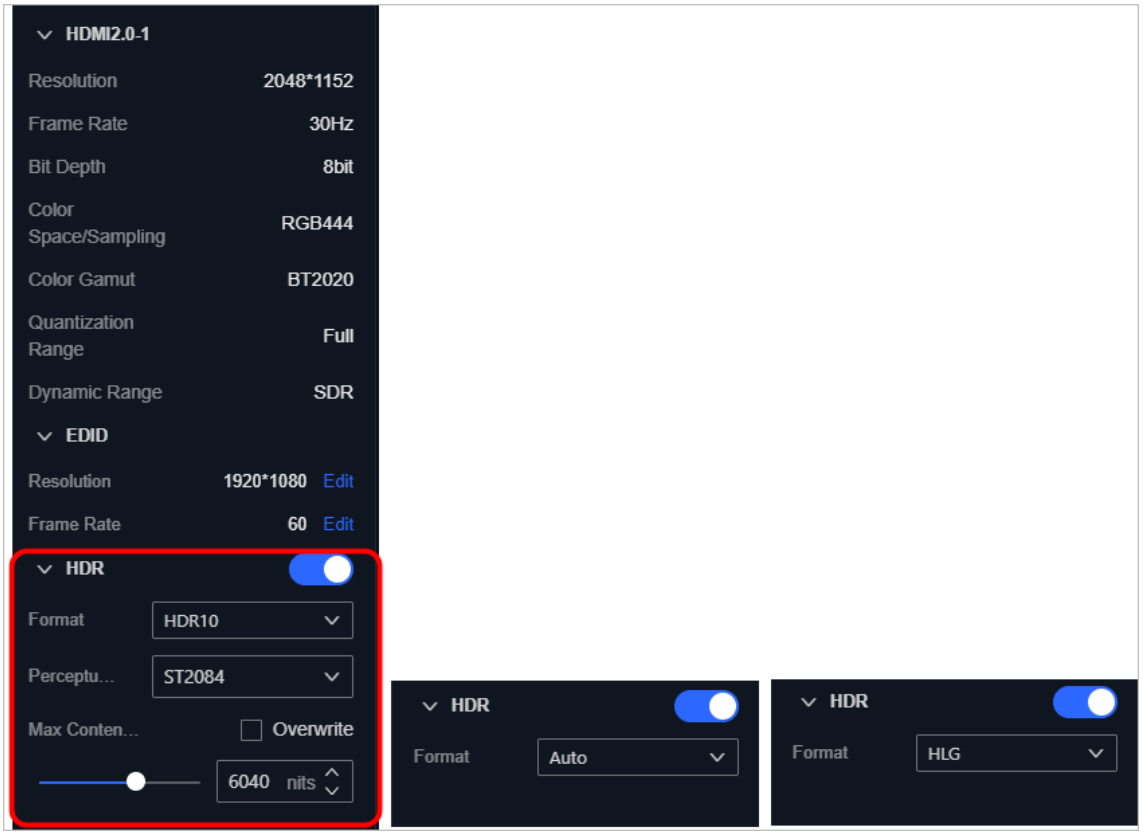


Figure 5-6 Configure HDR

5.2.2 Configure Output Parameters

Select an LED controller and navigate to **Display Control** → **Source Management** to set the output parameters.

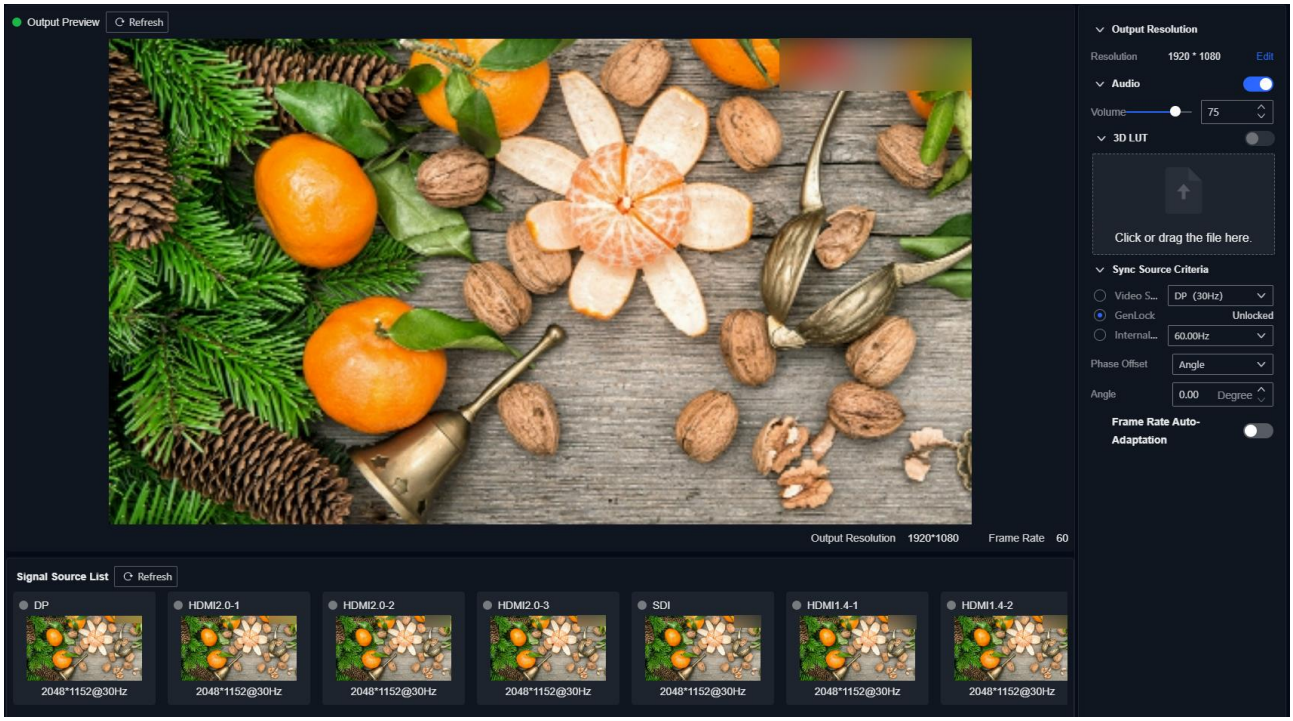


Figure 5-7 Source Management Page

Note

The output preview image auto-refreshes at 5 seconds.

Basic Output Functions

- Select a signal source:
  - Supported only by C models and V/P models in sync mode.
  - For multiple inputs: Choose a specific source or AUTO mode (automatically switches to the latest connected source). Only 2K C-models do not support AUTO mode.
- Set the resolution: Click **Edit** to manually adjust the output resolution.
- Select a scaling mode:
  - Supported only by C models and V/P models in sync mode.
  - Choose pixel-to-pixel mode or full-screen scaling mode as needed.
- Adjust the audio: Control volume or disable audio output.
- 3D LUT: If the receiving card supports 3D LUT, import the 3D LUT file to the client and enable **3D LUT** to enable color filter effects.
- Enable **Frame Rate Auto-Adaptation**.

3D Display Function

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 DS-DT90 series LED controller is connected to a 3D sync signal transmitter.

Source Synchronization Function

Note

Only DS-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.

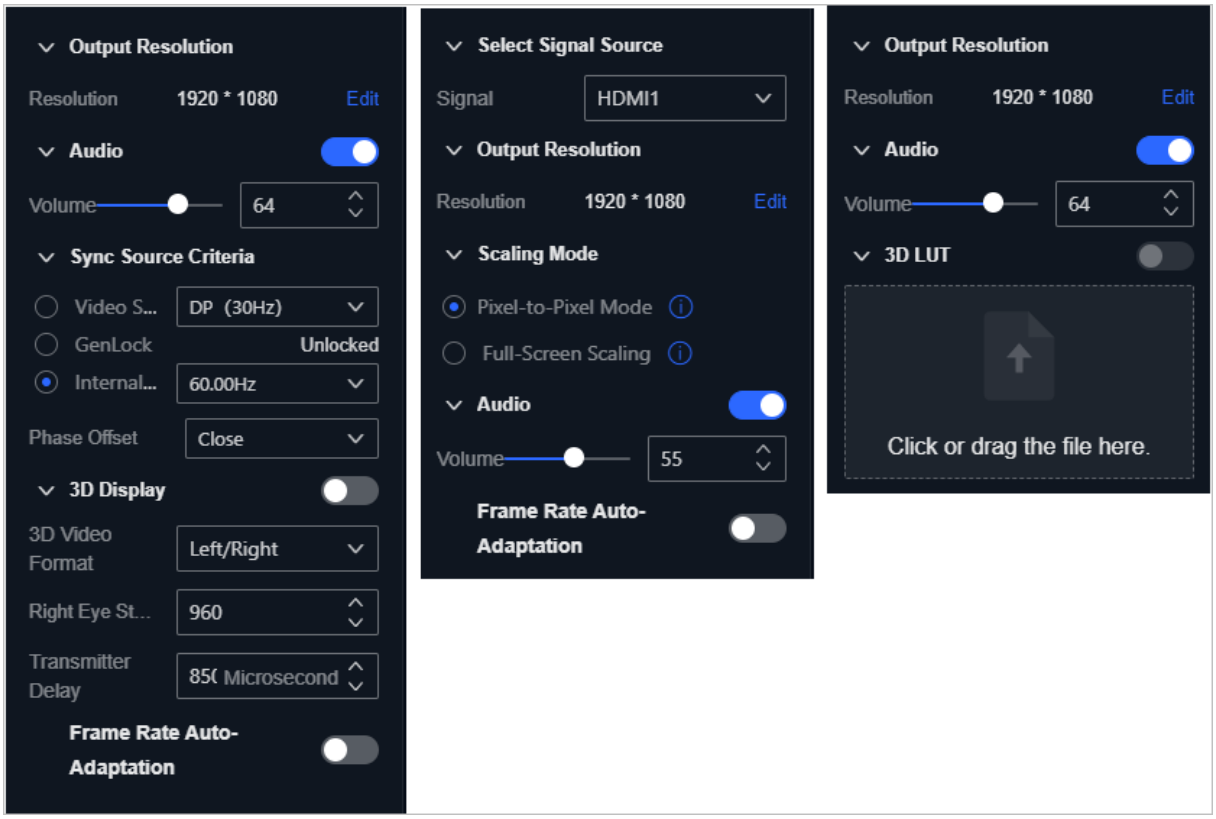


Figure 5-8 Configure Output Parameters

5.3 Configure Image Effect

Configure Display Effect

Step 1 Select a device or display, and navigate to **Display Control** → **Display Effect**.

Step 2 Check for color accuracy and dead pixels. If issues are detected:

1) Click **Display Test** and enable test.
2) Select the test pattern:
   - Supports solid color, gray scale, line, dots or grid.
   - Click  to add a new color. You can edit or delete the newly added color.

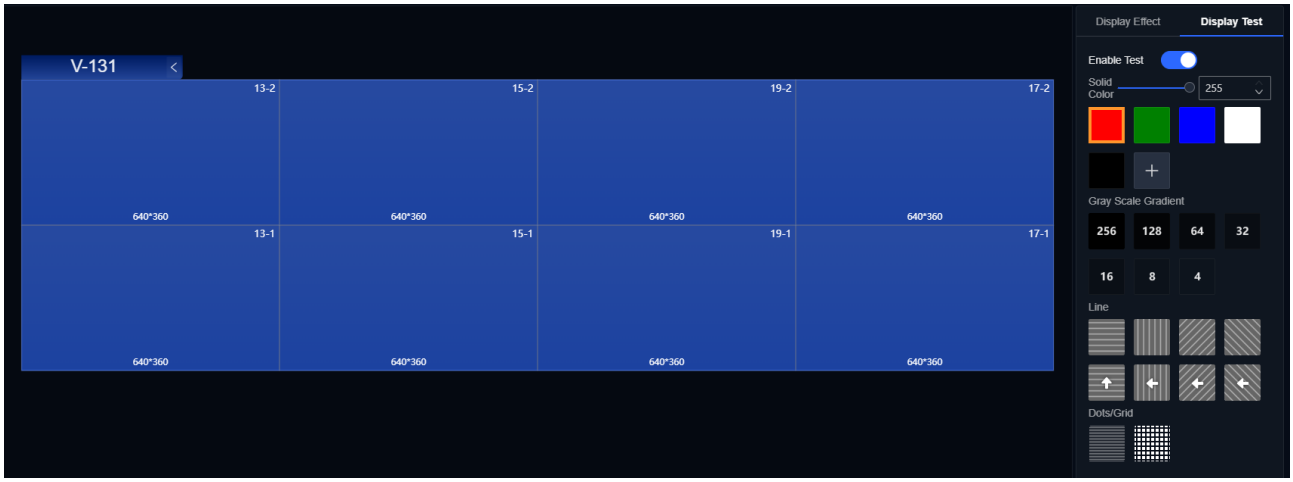


Figure 5-9 Test Display

Step 3 Select a preset mode.

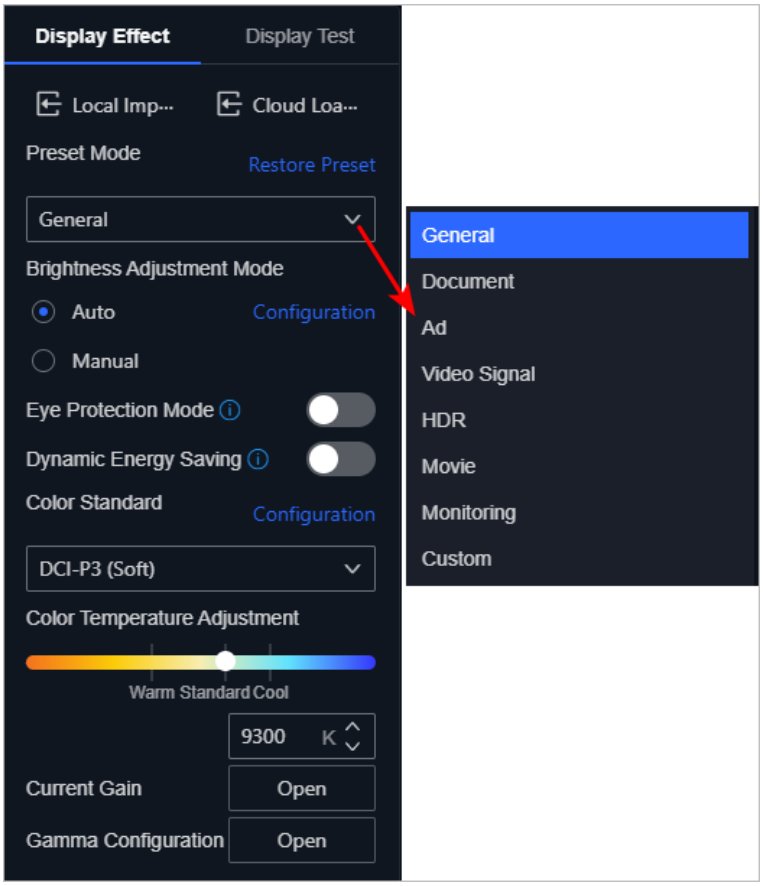


Figure 5-10 Select Preset Mode

Step 4 If the display effect does not meet the requirements, edit the following parameters as required:

- Adjust the brightness value:
  - By default, manual mode is supported.

- After the device is connected to a light sensor, and the light sensor parameters are configured in the IoT configuration page, auto mode is supported. Click Configuration to enter the Sensor Settings page for auto-brightness configuration.

- Set energy saving parameters:
  - Enable **Eye Protection Mode** to reduce brightness and power consumption.
  - Enable **Dynamic Energy Saving** and set the strength coefficient. Only some receiving cards support this function.
- Set thermal compensation: Enable **Thermal Compensation** and set the ratio for temperature-induced anomalies. Only DS-DT90 series LED controllers and some receiving cards support this function.
- Optimize color and grayscale:
  - Select a color standard. If you want to select **Custom**, click **Configuration** and set the color standard.

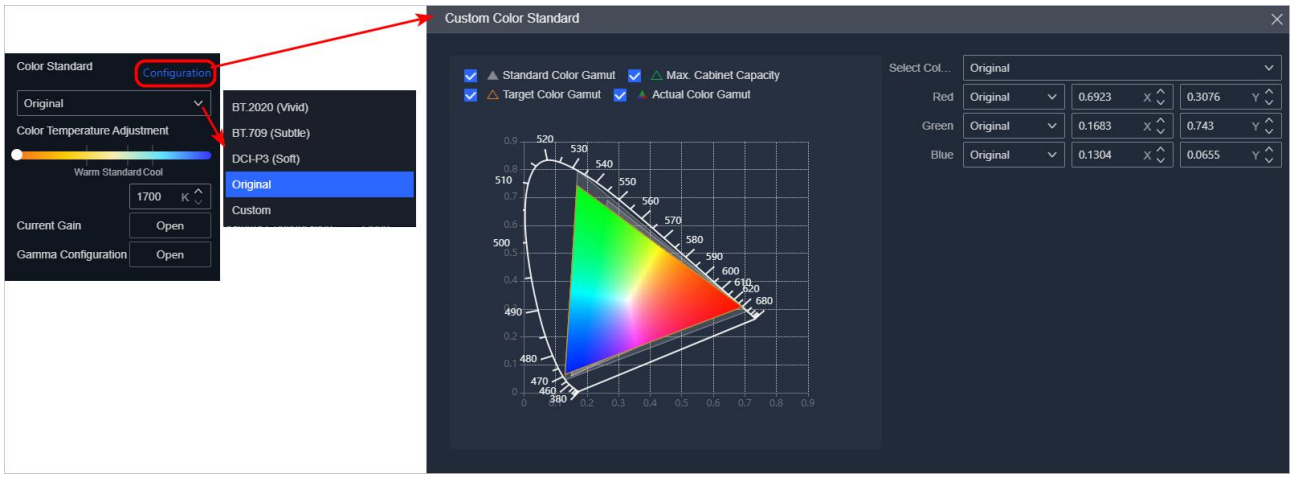


Figure 5-11 Select Color Standard

- Set the color temperature.
- For regional RGB tuning, open **Current Gain**, select the areas, and adjust the RGB values.

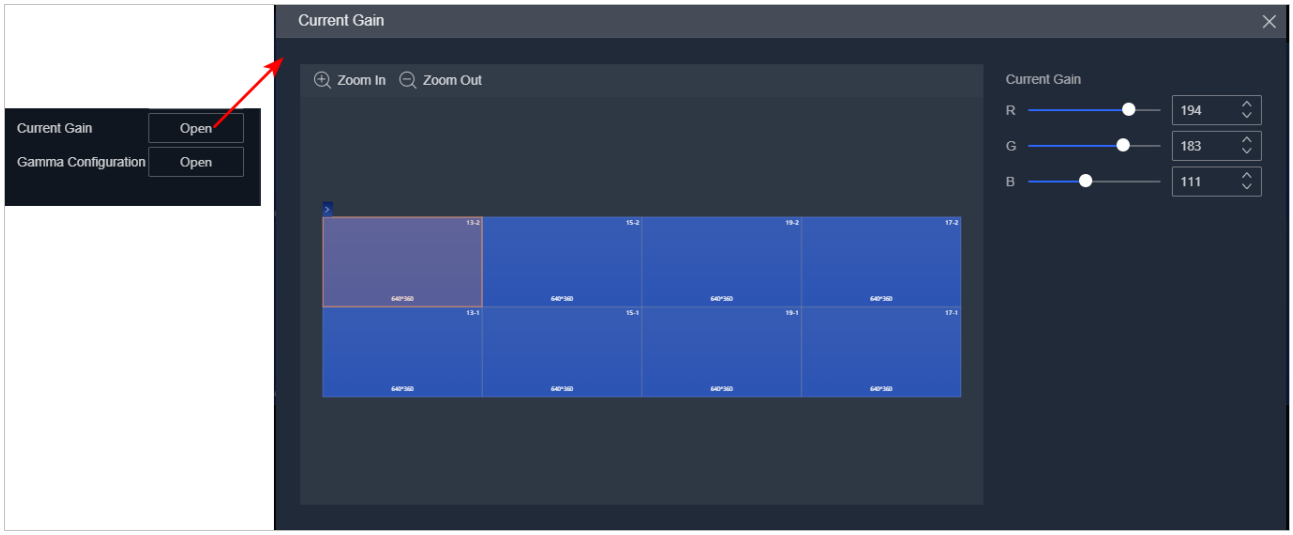


Figure 5-12 Current Gain Window

- Open **Gamma Configuration** to set the contrast.
- Open **Gamma Configuration** to adjust the Gamma coefficient. Lower Gamma coefficient values brighten shadow details while higher values enhance overall contrast.
- Open **Gamma Configuration** to adjust the environment brightness. Increase the environment brightness value in strong lighting environment.

- Address the low-gray anomalies:
  - Adjust the initial brightness level when flickering occurs.
  - Increase the initial brightness value for uneven gradation.
  - Enable **Frame Rate Adaptation** for strobing effects. Only C-model LED controllers support this function.
  - Enable **Gray Scale Optimization** or **Ultra-Low Gray Control** for non-uniform grayscale. Only some receiving cards support this function.

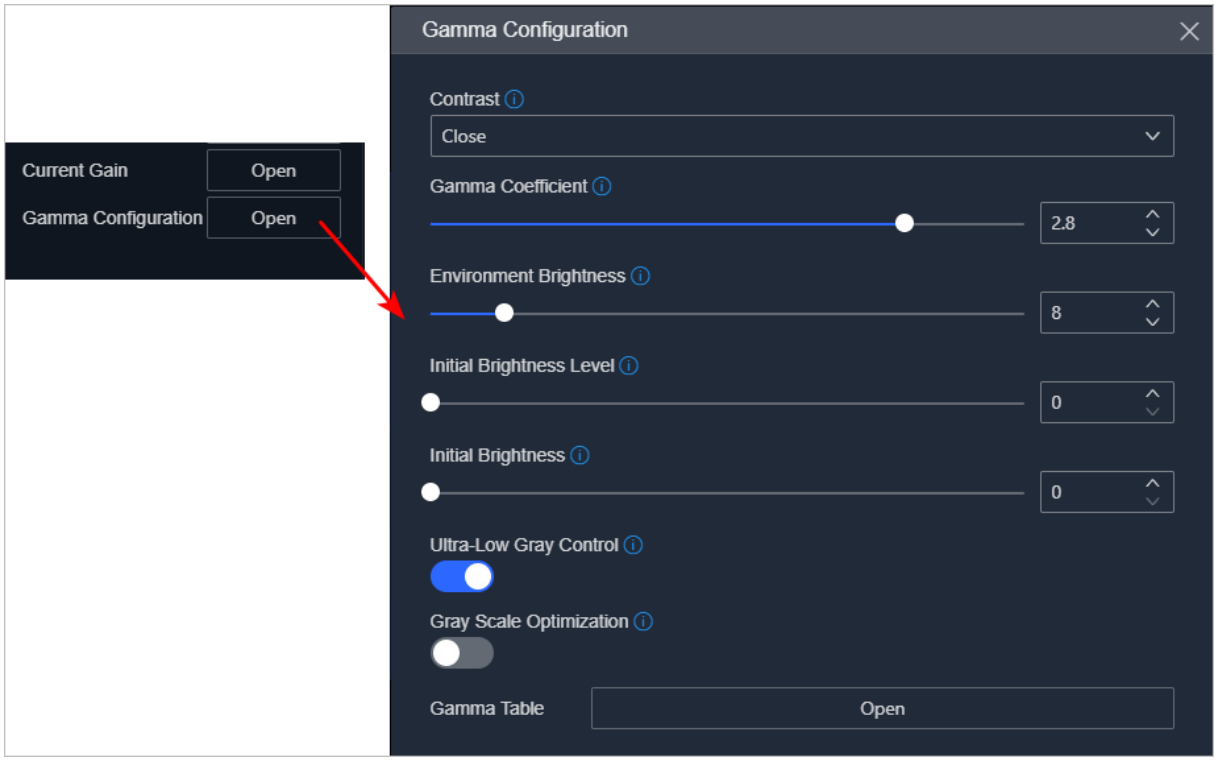


Figure 5-13 Gamma Configuration Window

Step 5 When a display is controlled by multiple devices, you can take the following steps to set the display effect parameters of different devices to be consistent:

1) Select each device individually, open the Gamma table, and check if the images of the Gamma table for different devices remain consistent.
2) If inconsistent, select the device that meets the display effect, open the Gamma table of the device, and export the color file of the device.

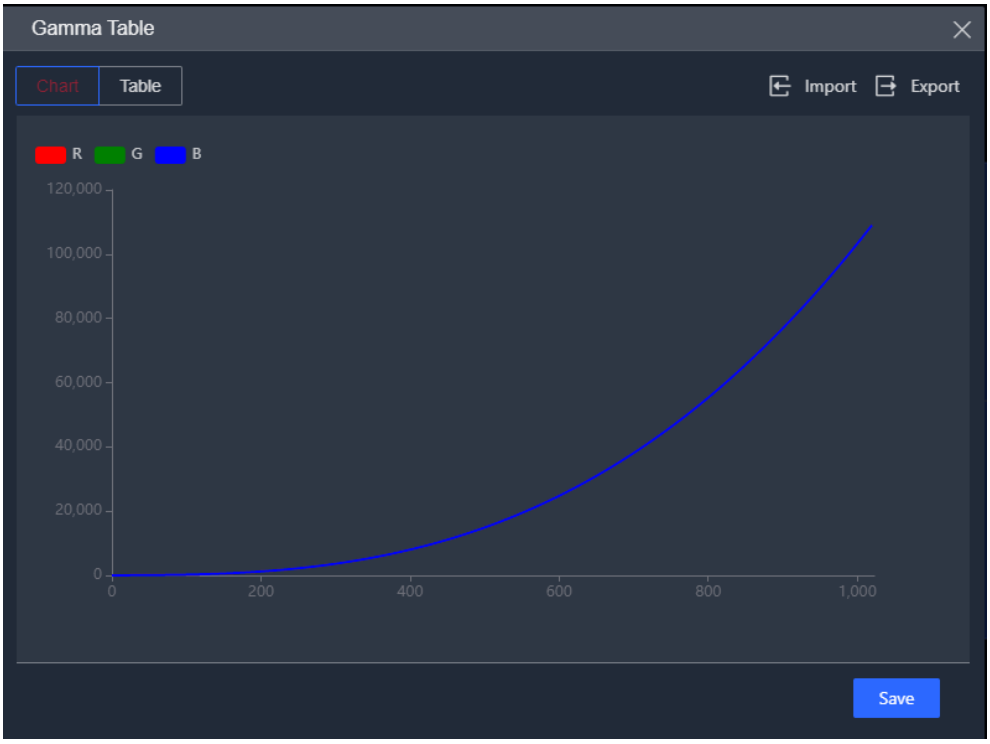


Figure 5-14 View Gamma Table

3) Select the display, open the Gamma table, and click **Import** to import the correct color file into all devices of the display.

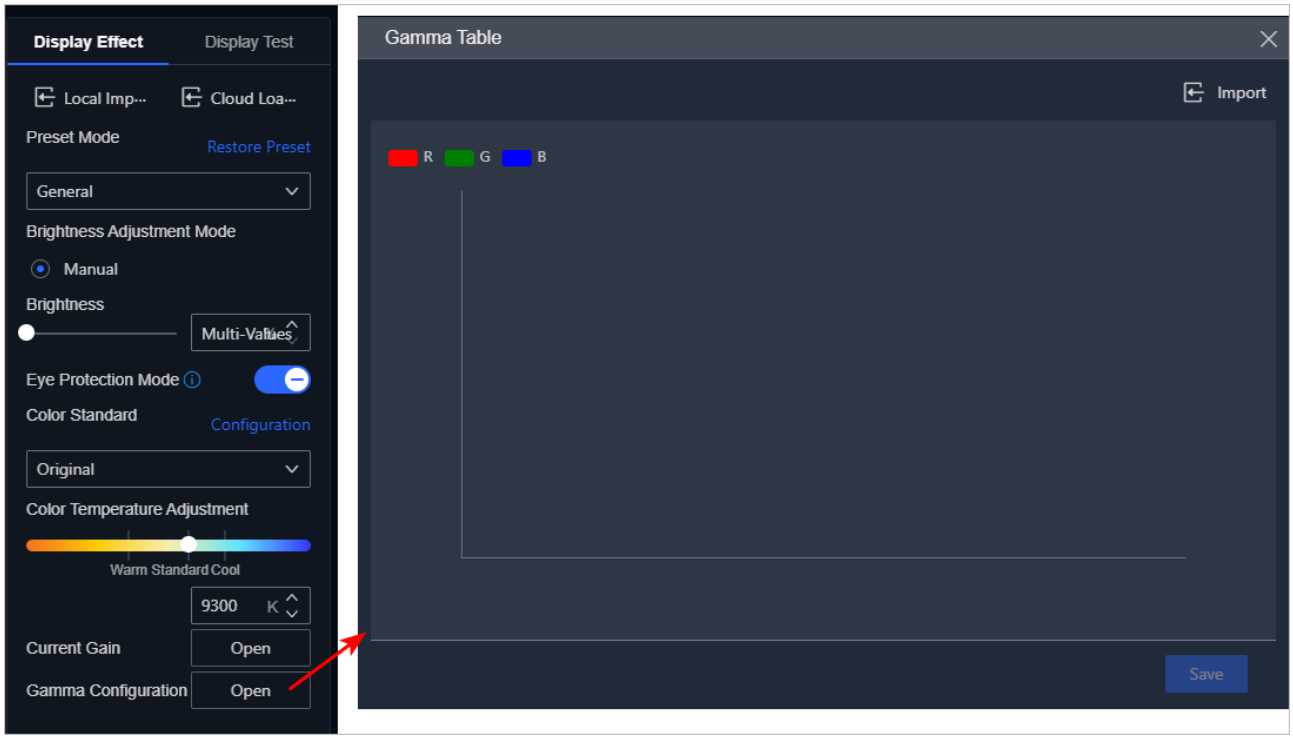


Figure 5-15 Configure Display Effect of Multiple Devices

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

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

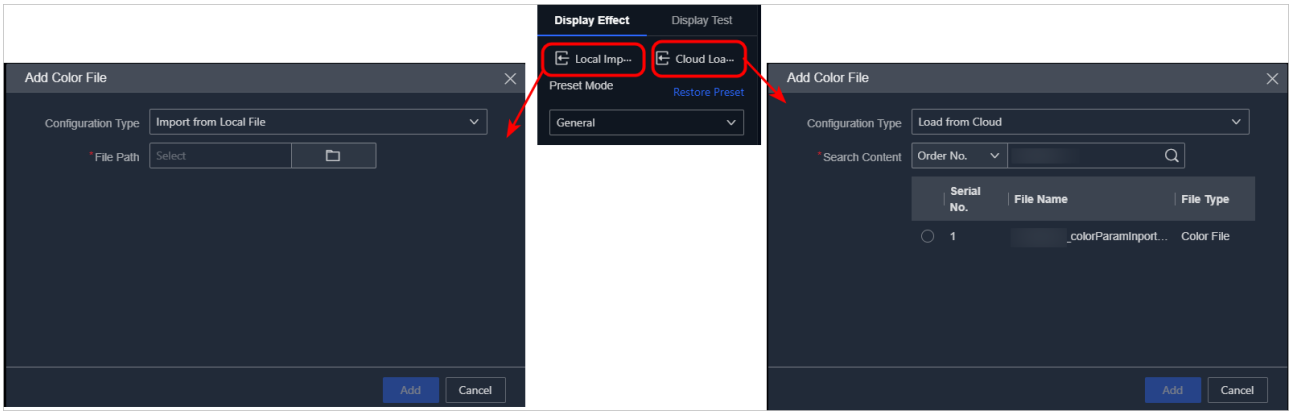


Figure 5-16 Add Color File

Configure Startup Image of LED Controller

Only the LED controllers support the startup image configuration, while the video wall controllers do not support the startup image configuration.

Step 1 Select an LED controller.

Step 2 Navigate to **Display Maintenance** → **Settings** → **Preference** → **Startup Image**.

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

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

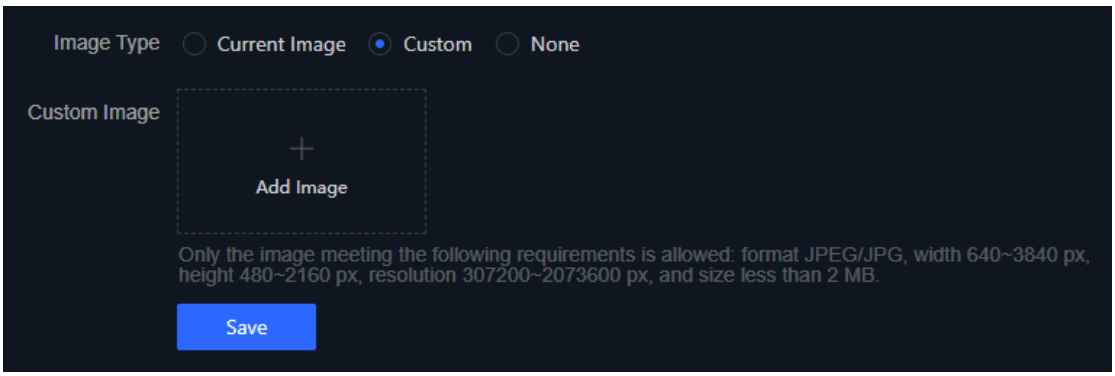


Figure 5-17 Configure Startup Image of LED Controller

Configure No-Signal Images

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

Step 1 Select a device.

Step 2 Navigate to **Display Maintenance** → **Settings** → **Preference** → **No Signal Image**.

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

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

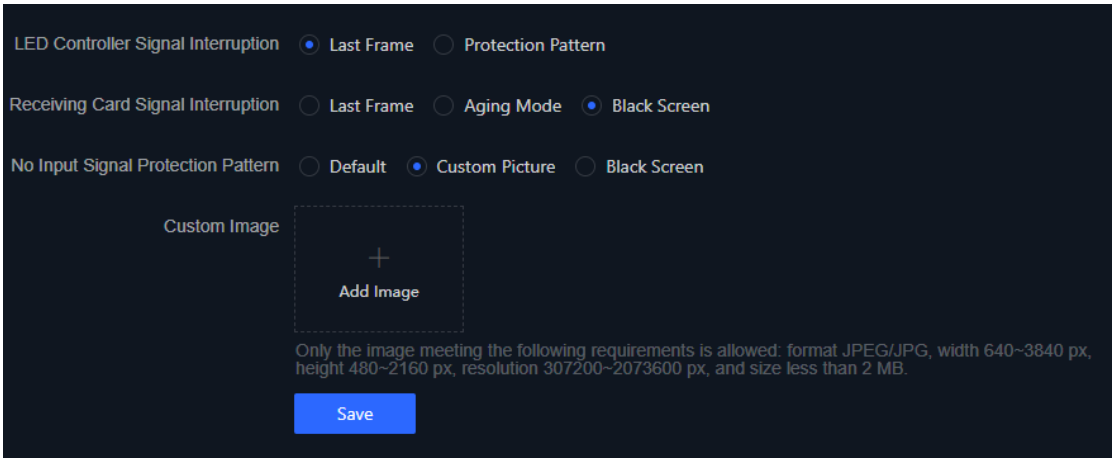


Figure 5-18 Configure No Signal Images of C-Model LED Controller

5.4 Configure General Parameters

Configure Time of LED Controller

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

Step 1 Select an LED controller, and navigate to **Display Maintenance** → **Settings** → **System** → **Time Settings**.

Step 2 Select a time zone.

Step 3 Set the time parameters:

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

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

Step 5 Click **Save**.

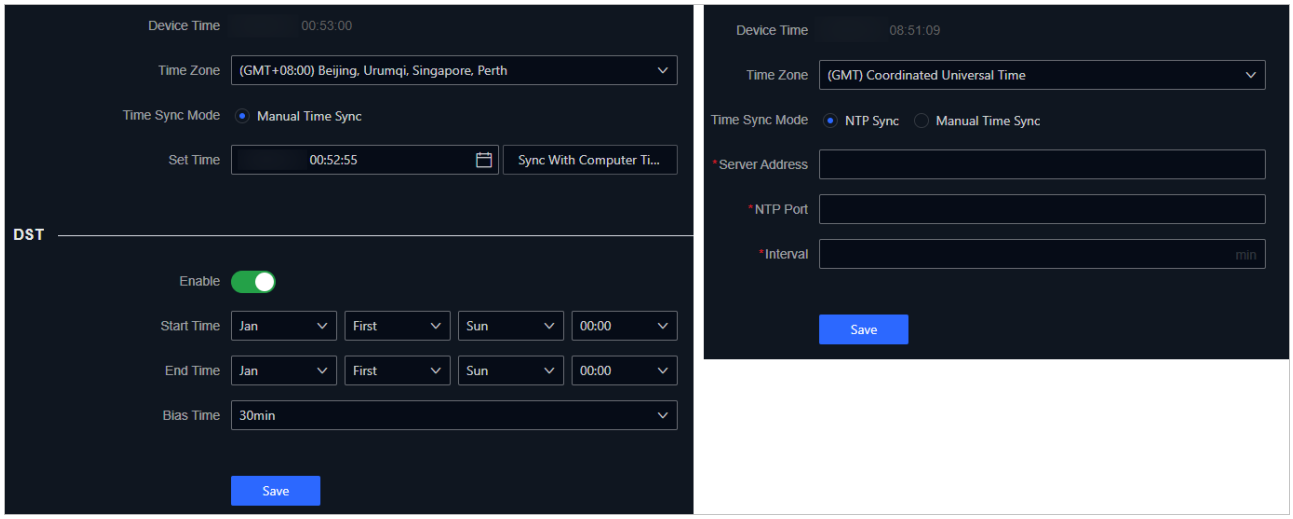


Figure 5-19 Configure Time (Left: C/V Model, Right: P Model)

Configure Serial Port Parameters

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

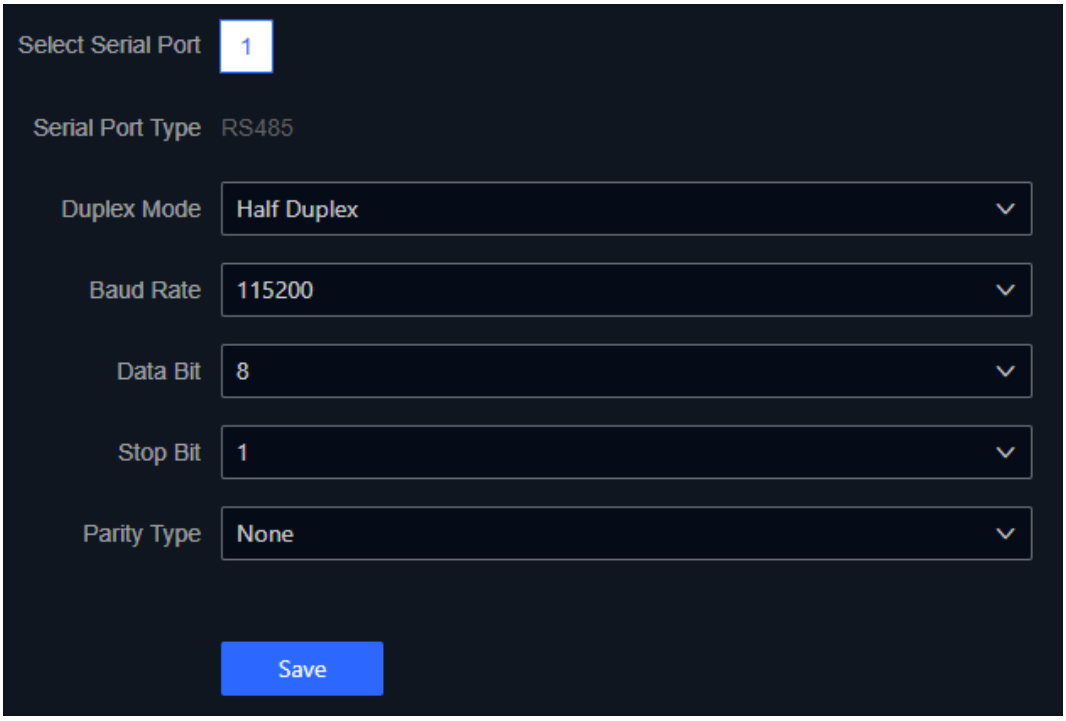


Figure 5-20 Configure Serial Port Parameters

Configure Font for V-Model LED Controller

DS-DT30 series V-model LED controllers do not support font configuration, while other V-model LED controllers support this function.

Step 1 Select a V device.

Step 2 Navigate to **Display Maintenance** → **Settings** → **Preference** → **Font Settings**.

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

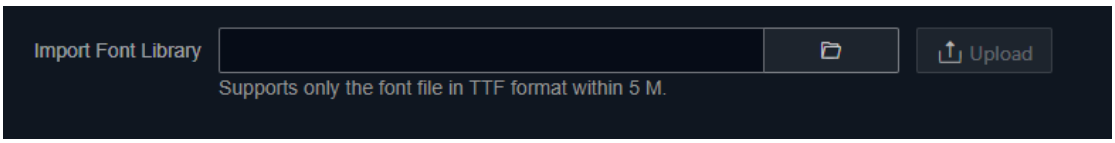


Figure 5-21 Configure Font

Configure Timed Parameters

Step 1 Select a device.

Step 2 Navigate to **Display Maintenance** → **Settings** → **Schedule**.

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

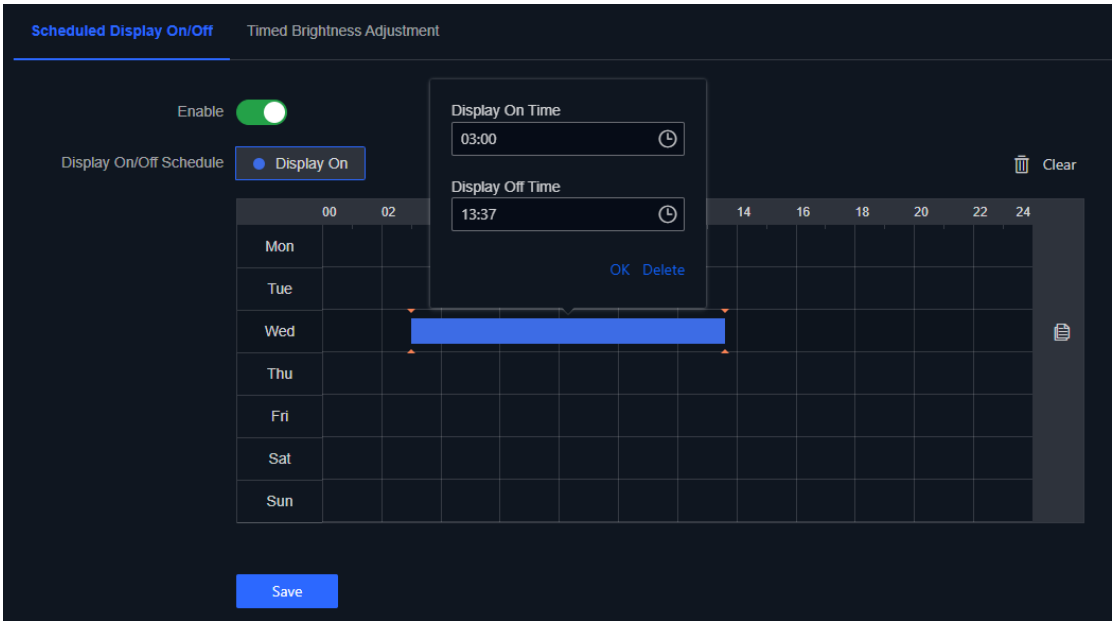


Figure 5-22 Configure Scheduled Display On/Off

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

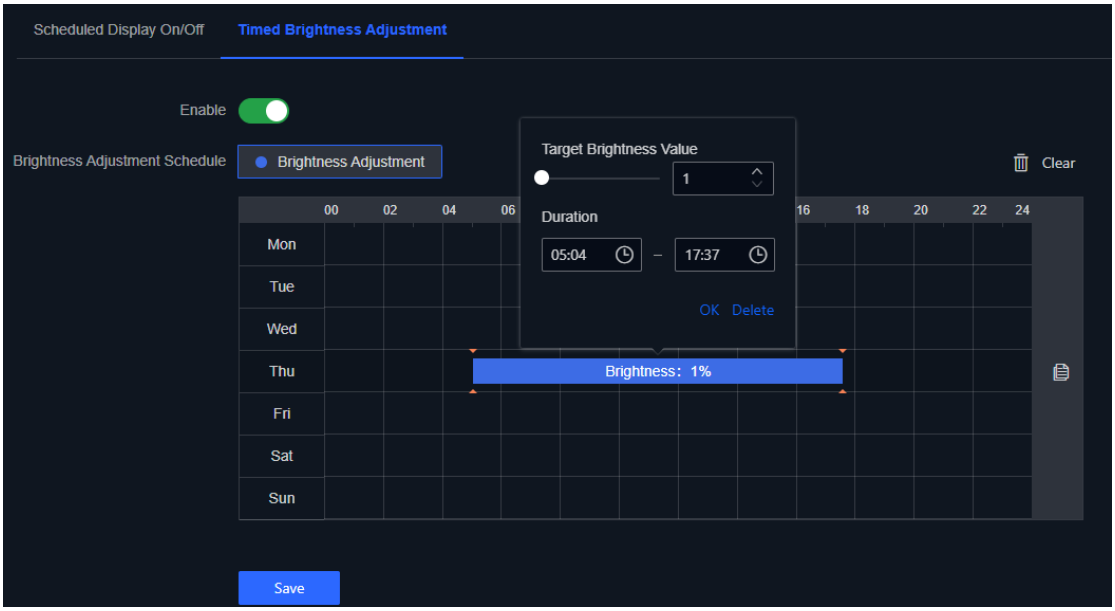


Figure 5-23 Configure Timed Brightness Adjustment

Configure OSD

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

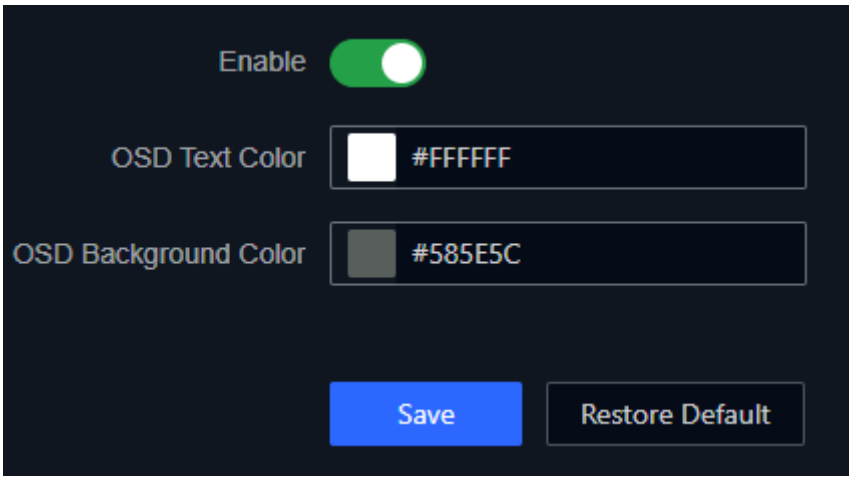


Figure 5-24 Configure OSD

Configure Network Port Backup

Step 1 Select a device.

Step 2 Navigate to **Display Control** → **Backup** → **Network Port Backup**.

Step 3 Enable backup.

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

Step 5 Click **Save**.



Figure 5-25 Configure Network Port Backup

Configure Device Backup of LED Controller

Step 1 Select an LED controller.

Step 2 Navigate to **Display Control** → **Back Up** → **Device Backup**.

Step 3 Select a backup device.

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

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

Step 5 Click **Save**.

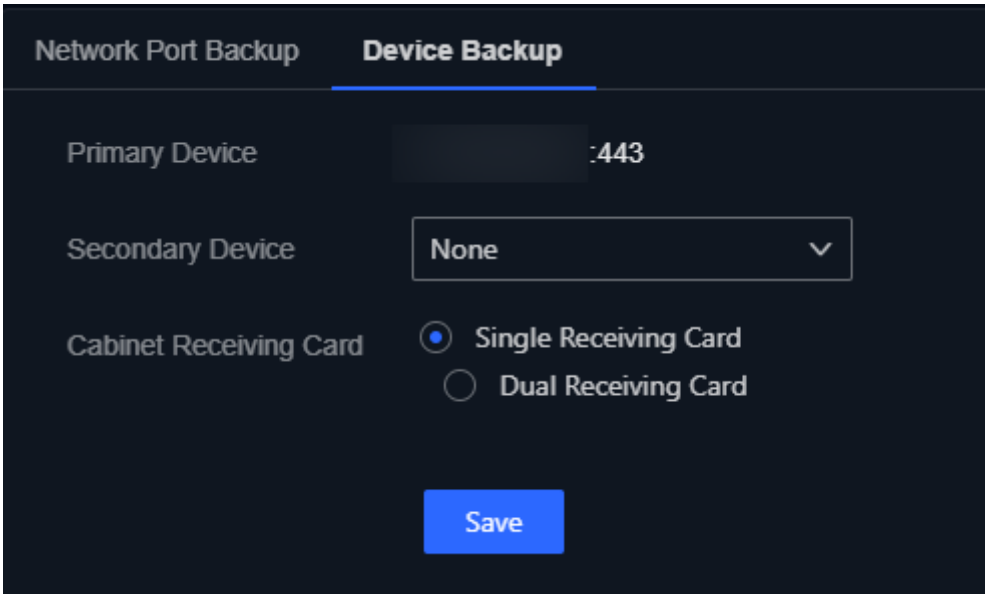


Figure 5-26 Configure Device Backup of LED Controller

5.5 Configure Network Parameters of LED Controller

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

Configure Wired Network Address

Step 1 Select a device.

Step 2 Navigate to **Display Maintenance** → **Settings** → **Network** → **Network Configuration** → **TCP/IP**.

Step 3 Enable **Static IP Address**.

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

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

Step 5 Click **Save**.

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

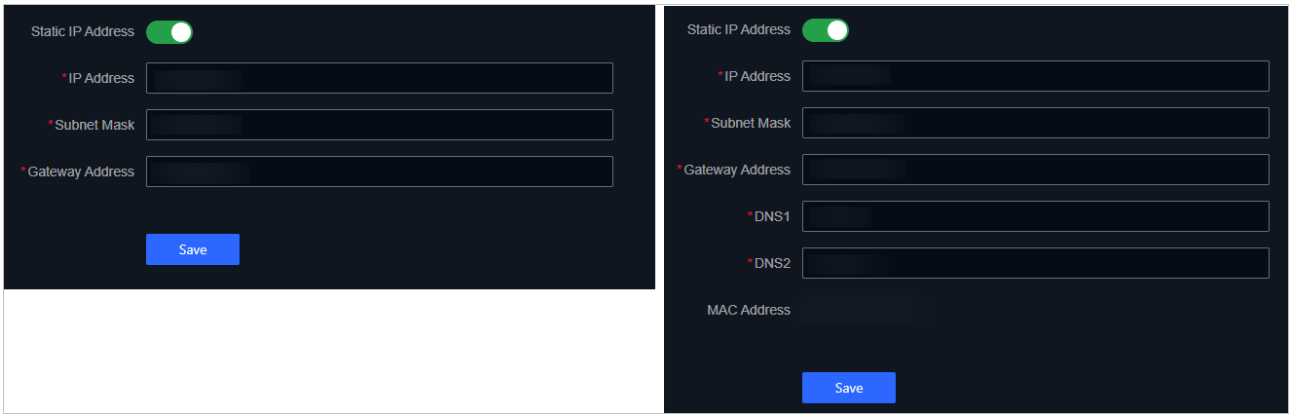


Figure 5-27 Configure Wired Network Address (Left: C/V Model, Right: P Model)

Configure Wireless Network Address of P Model

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

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

Step 2 Select a P device.

Step 3 Navigate to **Display Maintenance** → **Settings** → **Network** → **Network Configuration** → **Wi-Fi** and enable Wi-Fi.

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

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

Step 6 Enable **Static IP Address**.

Step 7 Set the static wireless IP address:

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

Step 8 Click **Save**.

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

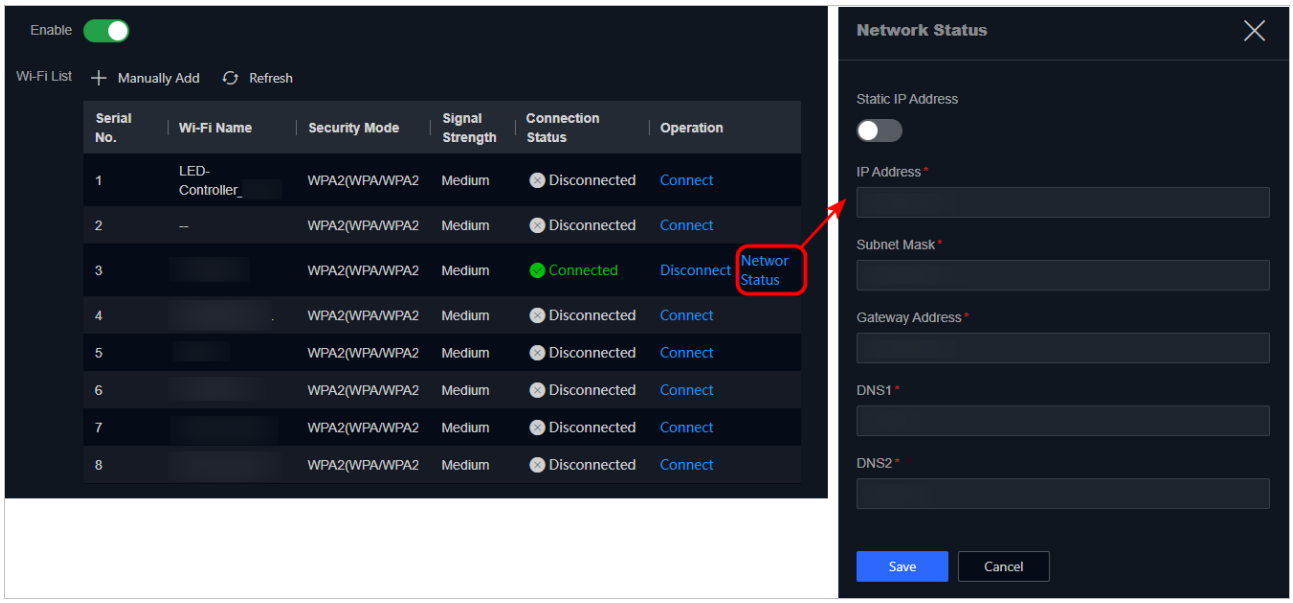


Figure 5-28 Configure Wireless Network Address

Configure Bluetooth of P Model

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

Step 2 Select a P device.

Step 3 Navigate to **Display Maintenance** → **Settings** → **Network** → **Network Configuration** → **Bluetooth** and enable Bluetooth.

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

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

Step 5 Click **Save**.

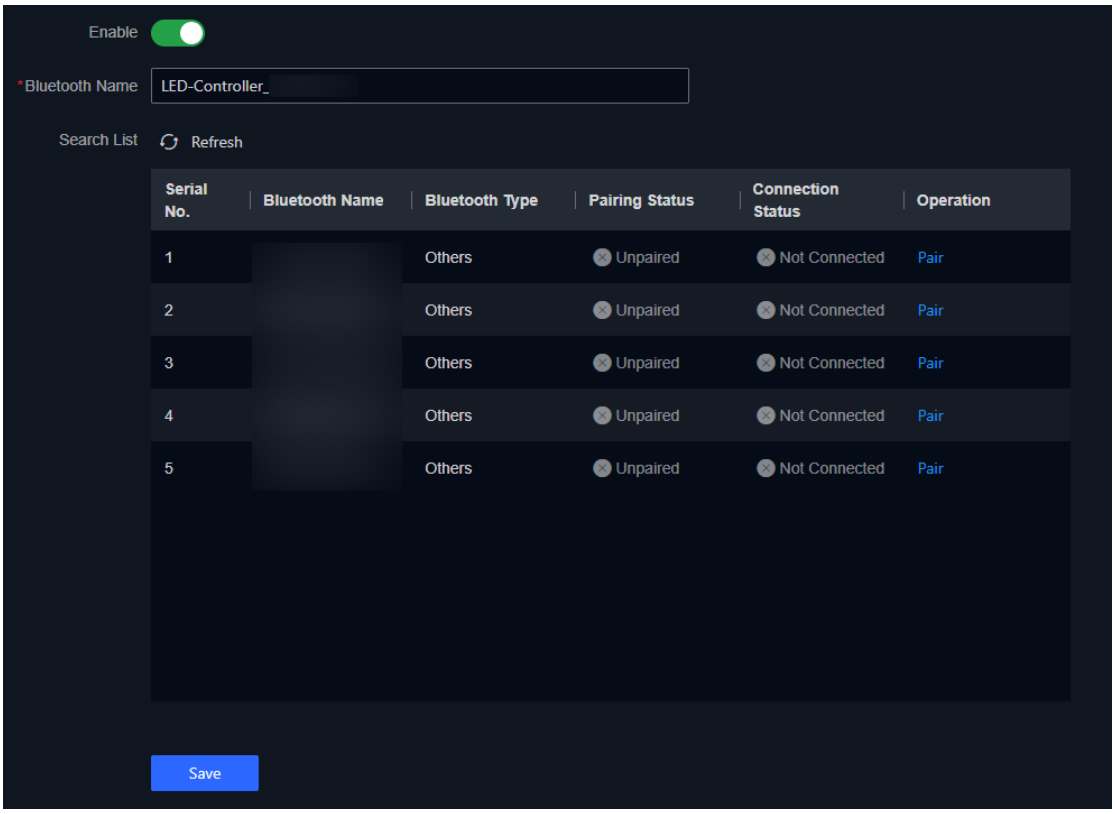


Figure 5-29 Enable Bluetooth

Enable Hot Spot of P Model

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

Step 2 Select a P device.

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

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

- After hot spot is enabled, the default name and password are used. You can edit the hot spot name and password.
- Edit the security, AP band, or AP channel.

Step 5 Click **Save**.

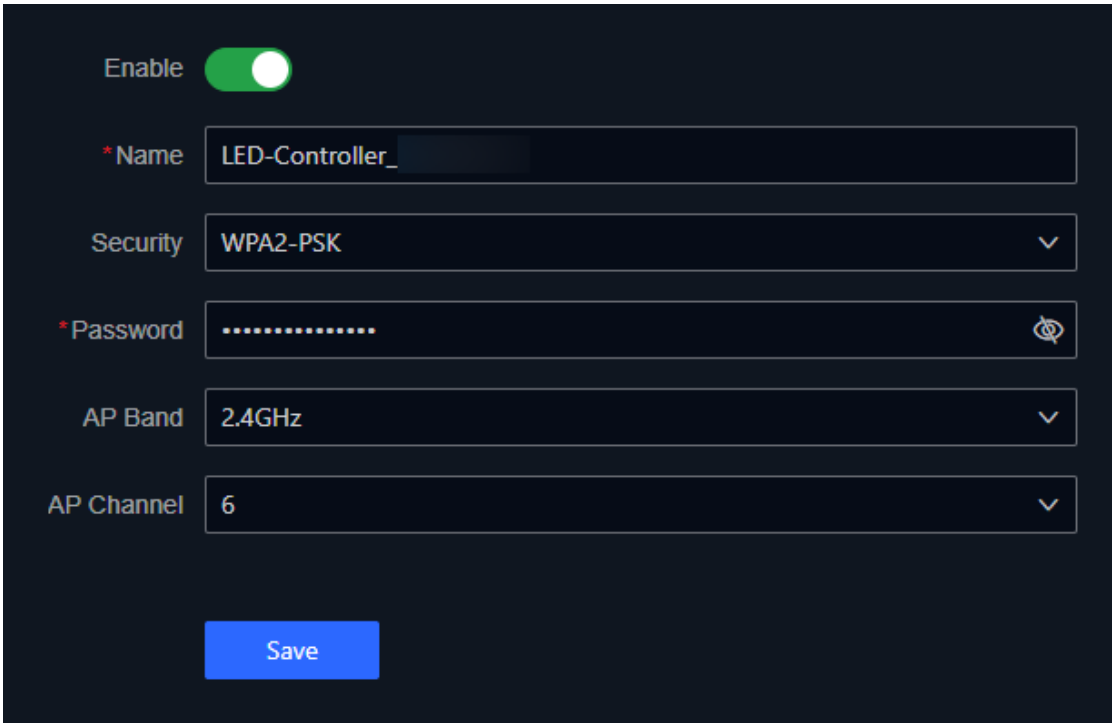


Figure 5-30 Configure Hot Spot

5.6 Configure IoT Parameters

View Multi-Function Card Information

Step 1 Select a device.

Step 2 Navigate to **Display Maintenance** → **Settings** → **IoT Configuration** → **Multi-Function Card Info**.

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

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

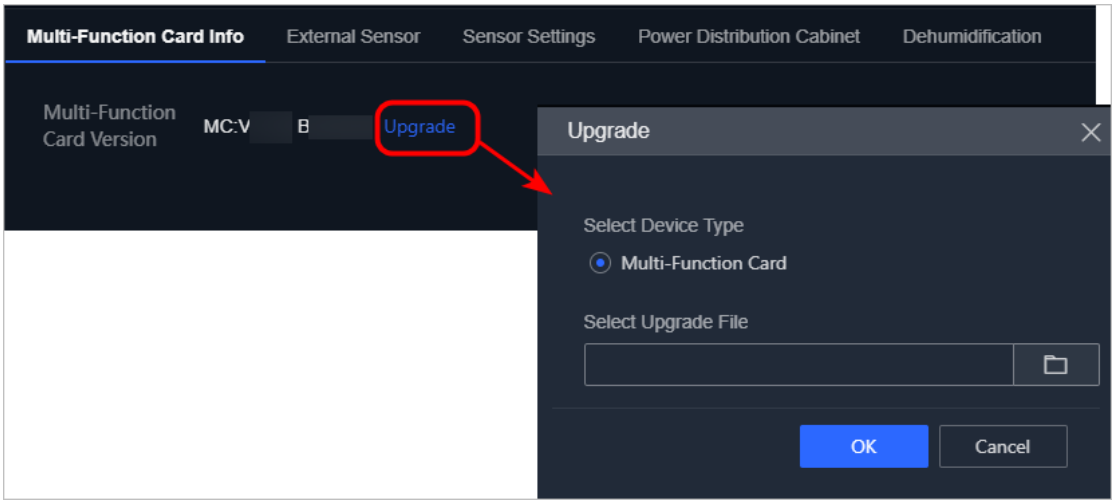


Figure 5-31 View Multi-Function Card Info

Configure External Sensors

Step 1 Select a device.

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

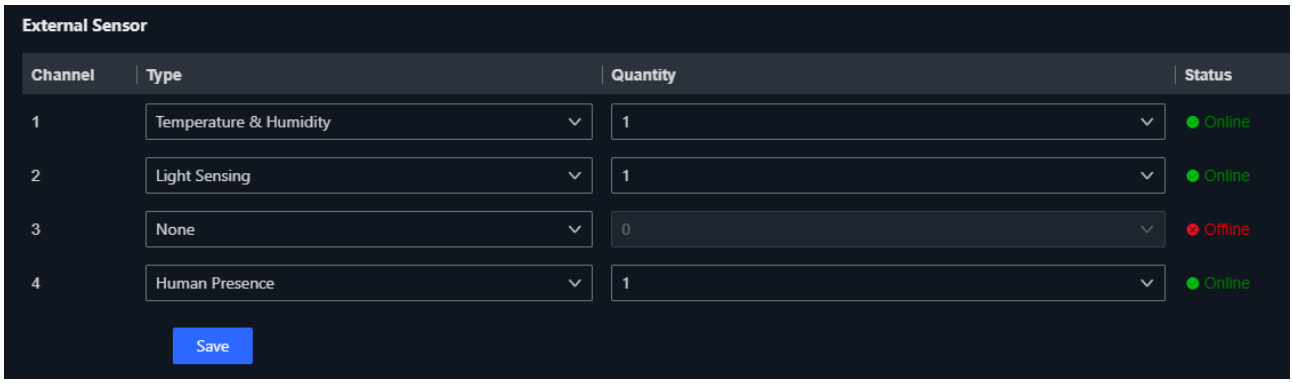


Figure 5-32 Configure External Sensors

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

- When thresholds are exceeded, alarm messages and real-time values will display on the display and client.
- Some receiving cards support detecting cabinet voltage and temperature.
- When the LED controller/LED controller board connects to a multi-function card with a temperature/humidity sensor, environmental temperature/humidity can be monitored:

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

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

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

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

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

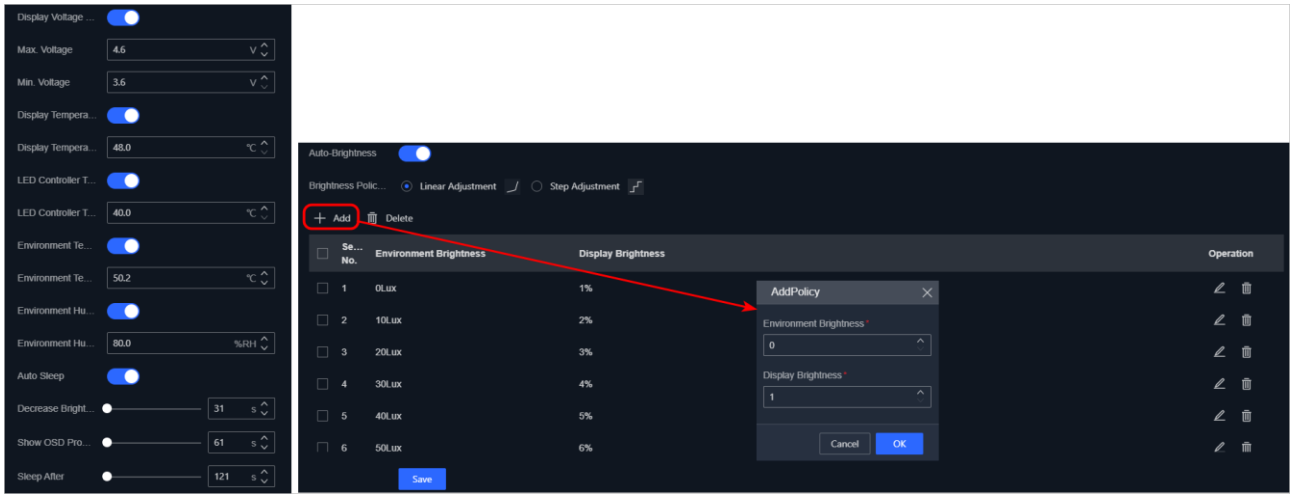


Figure 5-33 Set Alarm Thresholds

Control Power Distribution Cabinet via Multi-Function Card

Step 1 Select a device.

Step 2 Navigate to **Display Maintenance** → **Settings** → **IoT Configuration** → **Power Distribution Cabinet**.

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

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

- Immediate on/off control:

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

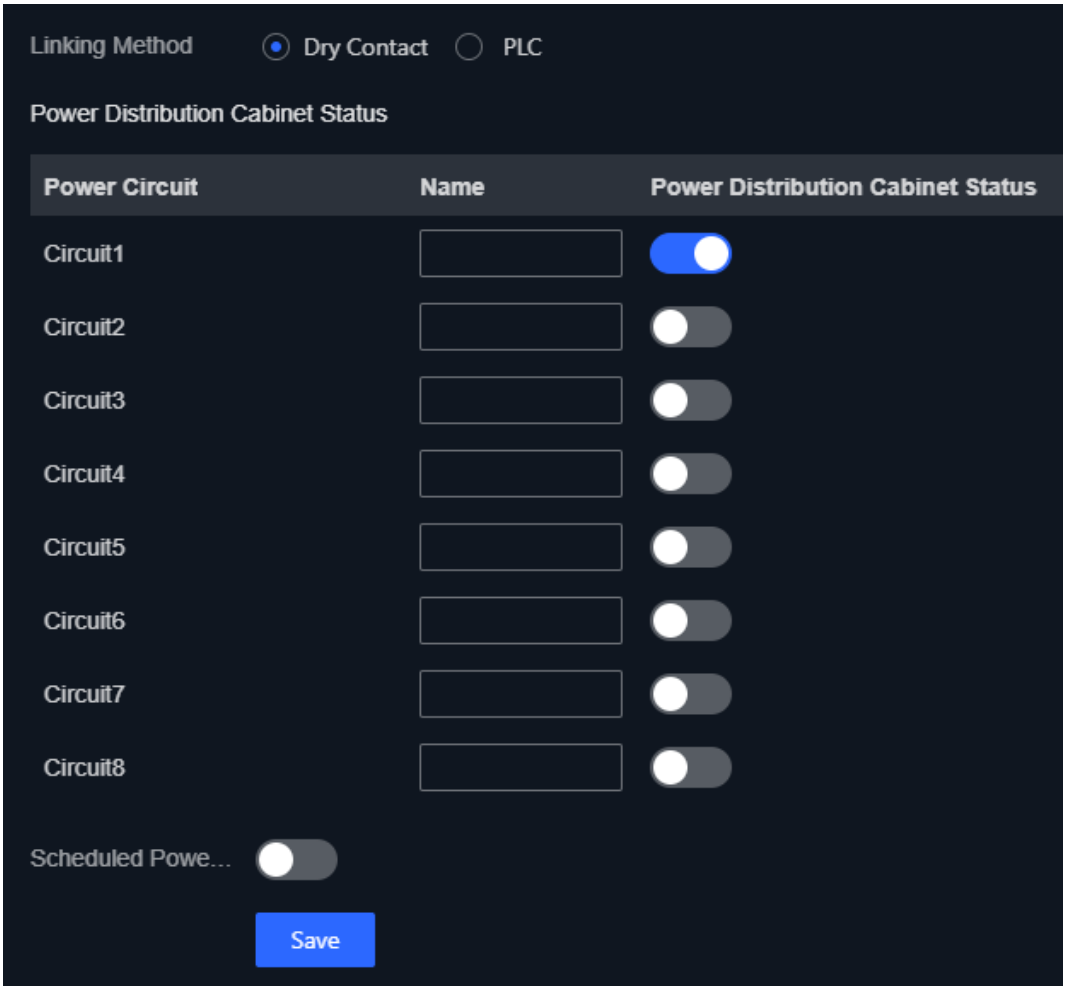


Figure 5-34 Immediate On/Off Settings

- Scheduled on/off control:

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

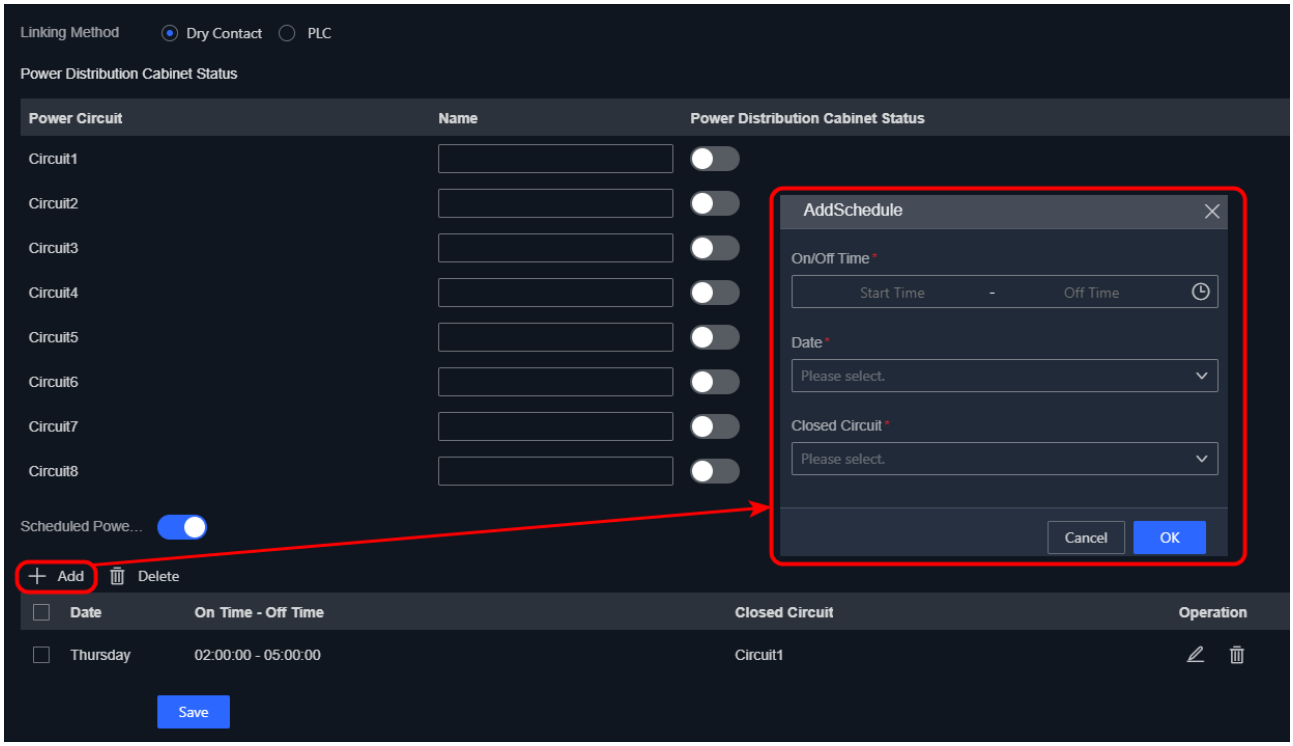


Figure 5-35 Scheduled On/Off Settings

Control Power Distribution Cabinet via Network

Step 1 Select a device.

Step 2 Navigate to **Display Maintenance** → **Settings** → **IoT Configuration** → **Power Distribution Cabinet**.

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

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

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

Step 6 Click **Save**.

Step 7 Power on the power distribution cabinet.

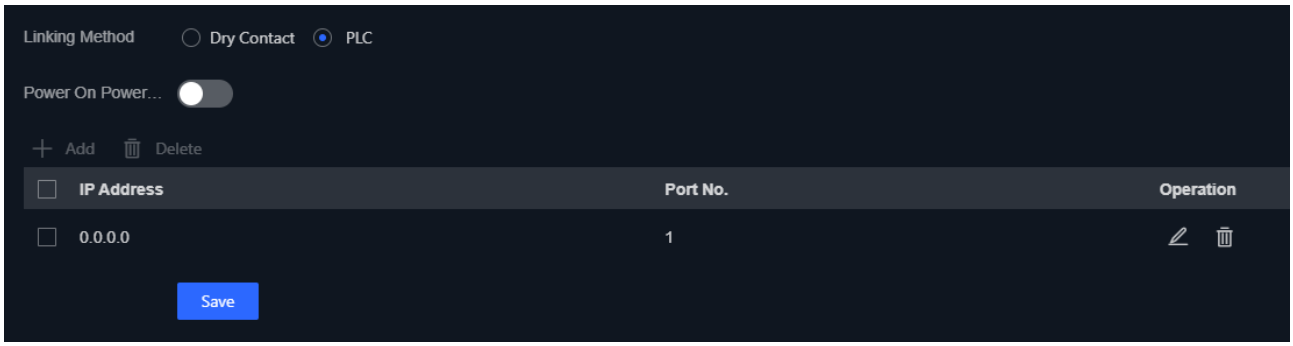


Figure 5-36 Control Power Distribution Cabinet via Network

Configure Auto Dehumidification

Step 1 Select a device.

Step 2 Navigate to **Display Maintenance** → **Settings** → **IoT Configuration** →**Dehumidification**.

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

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

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

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

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

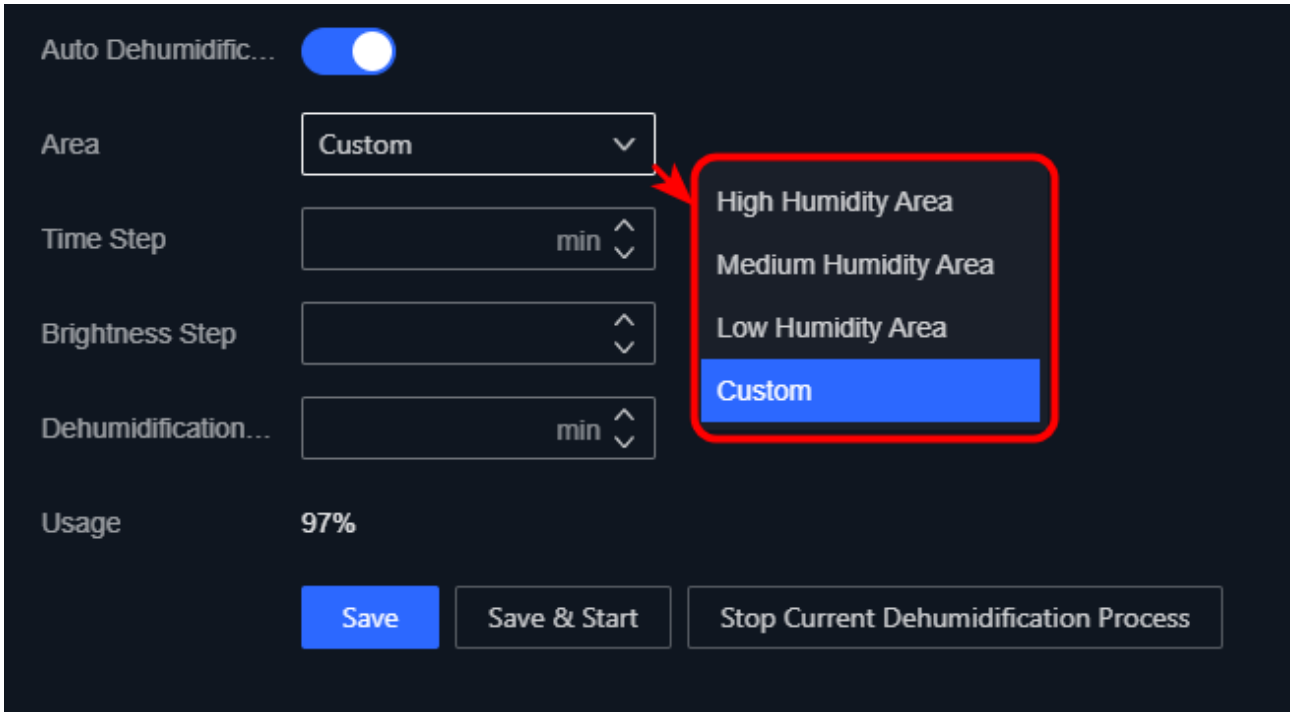


Figure 5-37 Configure Auto Dehumidification

5.7 Configure Loading Mode

Select a device and navigate to **Display Maintenance** → **Settings** → **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 loading 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 5-38 Configure Loading Mode

Table 5-2 Supported Loading Mode

Device Type	Self-Adaption Mode	Standard Loading Mode	Mini Loading Mode
2K C model		√ Any DATA OUT port of the device supports this mode. If you select this mode, make sure the total load of the device must be smaller than or equal to 2.925 MP.	√
2K V/P model		√ Only DATA OUT ports 1 and 2 of the device support this mode. If you select this mode, make sure the total load of the device must be smaller than or equal to 2.925 MP.	√
4K C/V/P model	√	√ Any DATA OUT port of the device supports this mode. If you select this mode, make sure the total load of the device must be smaller than or equal to 13 MP.	√

Note

- Only 2K models, 4K C models, and some 4K V/P models support configuring loading mode.
- Loading mode does not support batch configuration.
- To use the standard loading mode, ensure that both the devices and the receiving cards support standard loading mode.
- Switching a 2K device to standard loading mode or mini loading mode will cause it to restart.

5.8 Configure Working Mode of V/P Model

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

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

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

- By default, the V and P models use video processing mode.
- When a V model needs to work as a C model, select **Sync Mode**.
- When a P model needs to work as a B model, select **Sync Mode**.

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

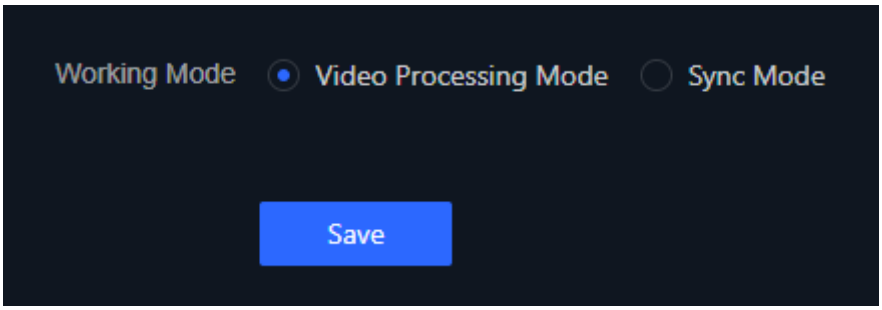


Figure 5-39 Configure Working Mode

5.9 Configure Cascading/Self-Splicing of LED Controller

Step 1 Select an LED controller.

Only DS-DT90 series LED controllers do not support cascading/self-splicing configuration.

Step 2 Navigate to **Display Maintenance** → **Settings** → **Cascading & Self-Splicing**.

Step 3 Enable display cascading when multiple C/V-model LED controllers are cascaded.

With display cascading enabled, you can view the cascading status of each device.

Step 4 Configure self-splicing:

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

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

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

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

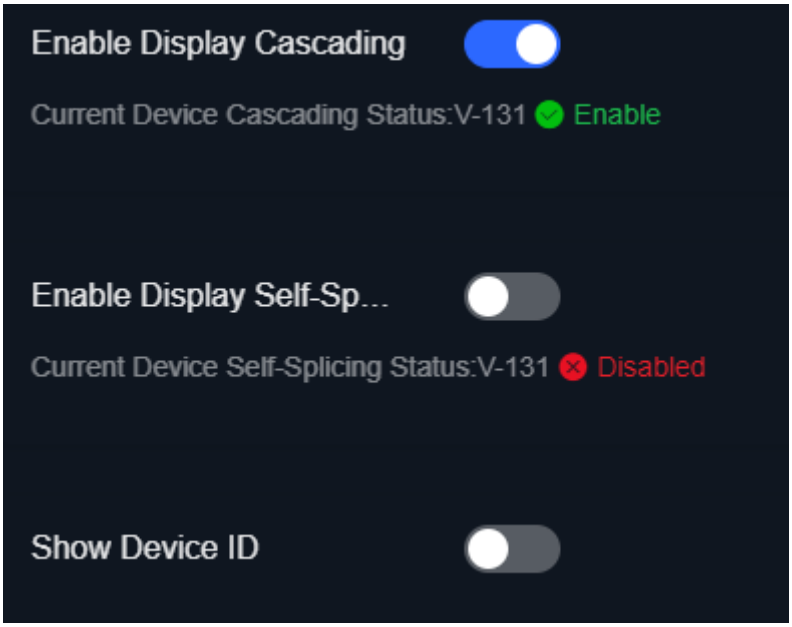


Figure 5-40 Configure Cascading/Self-Splicing Parameters

Chapter 6 Display/Device Maintenance

6.1 View Display Status

Step 1 Select a device or screen.

Step 2 Navigate to **Display Maintenance** → **Display Maintenance**.

Step 3 Check if the display status is normal:

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

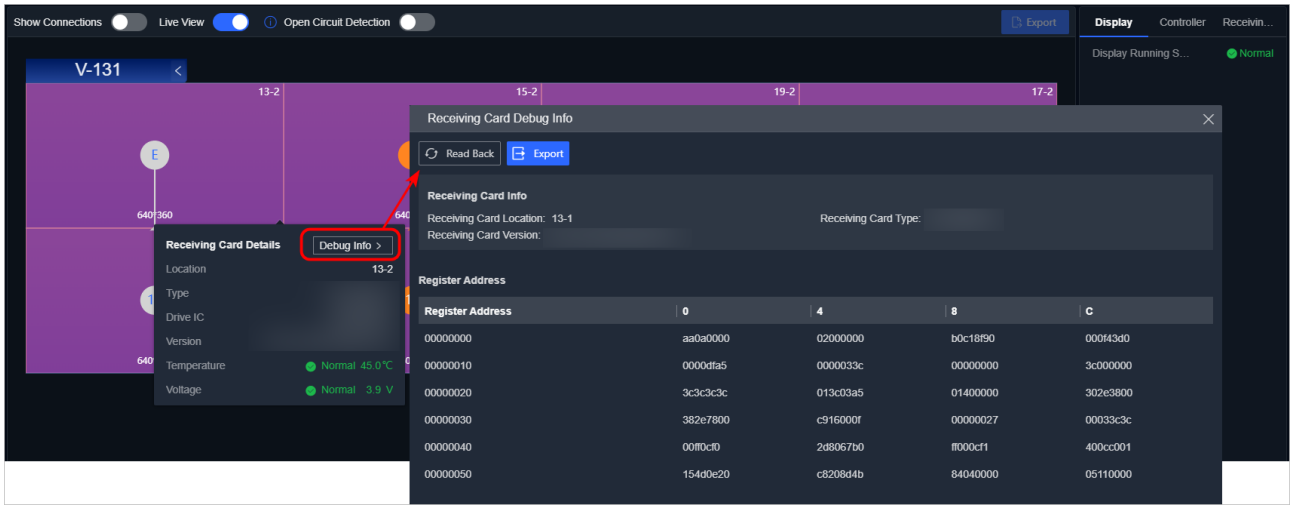


Figure 6-1 View Receiving Card Details

- Click the **Display** window on the right side of the page to view the display running status. If the display runs abnormally, it will show the faulty devices and abnormal type.

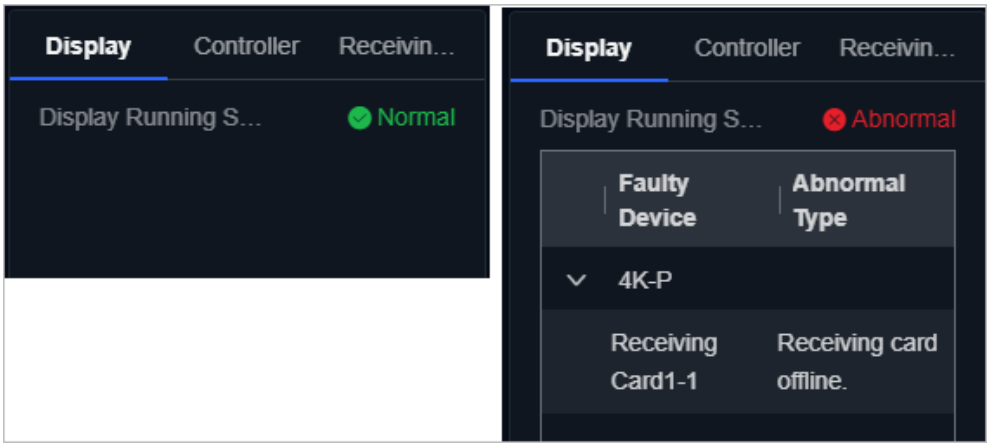


Figure 6-2 View Display Running Status

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

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



Figure 6-3 Export Receiving Card File

6.2 View LED Controller Status

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

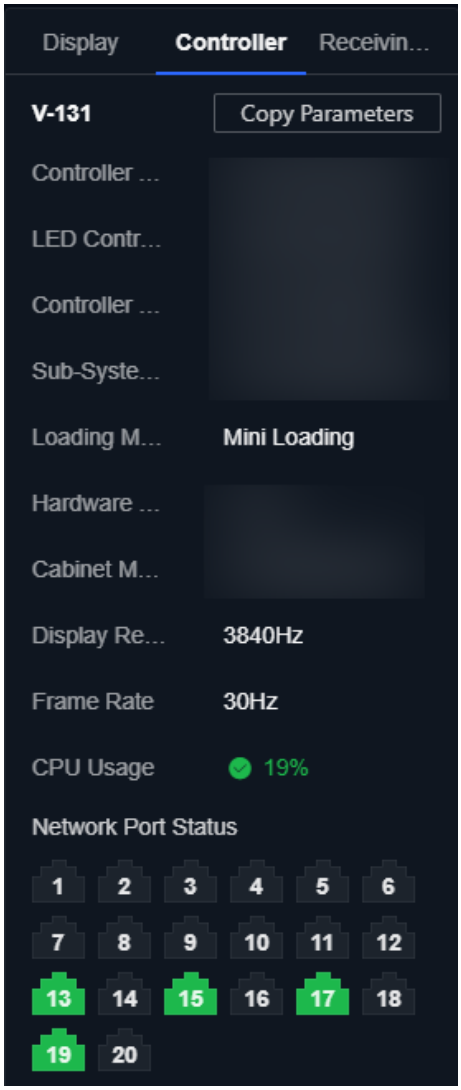


Figure 6-4 View LED Controller Information (Display Maintenance Page)

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

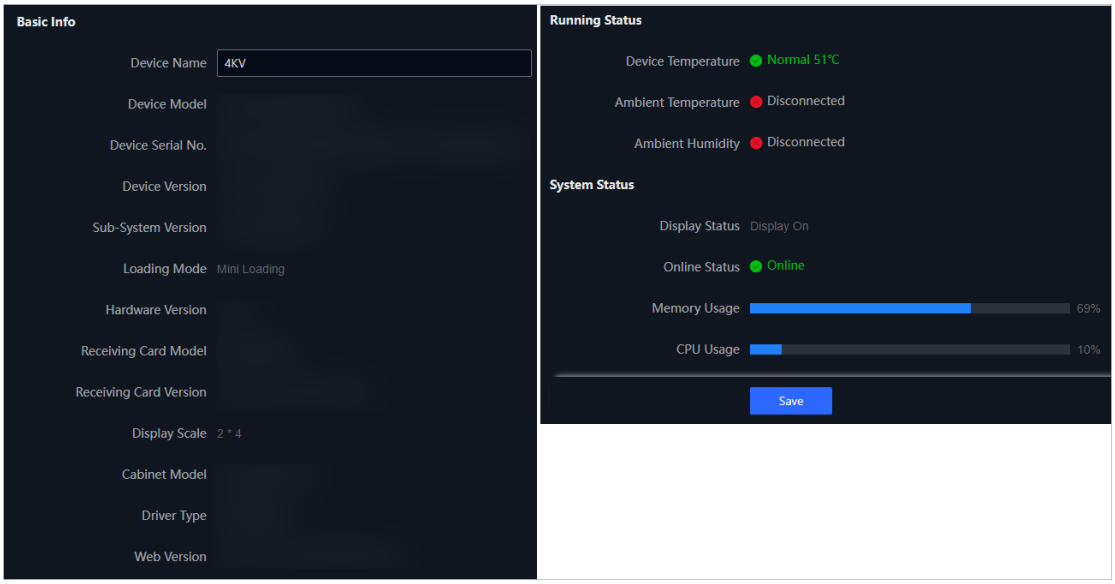


Figure 6-5 View LED Controller Information (Basic Info Page)

6.3 Maintain Receiving Card

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

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

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

Configure Quick Card Change

Before You Start

Make sure the newly installed receiving card is connected with the LED controller.

Steps

Step 1 Open **Quick Card Change** in the **Receiving Card** window.

Step 2 Right-click on a normal receiving card and click **Copy**.

Step 3 Right-click on a new receiving card and click **Paste**.

Step 4 Click **OK**.

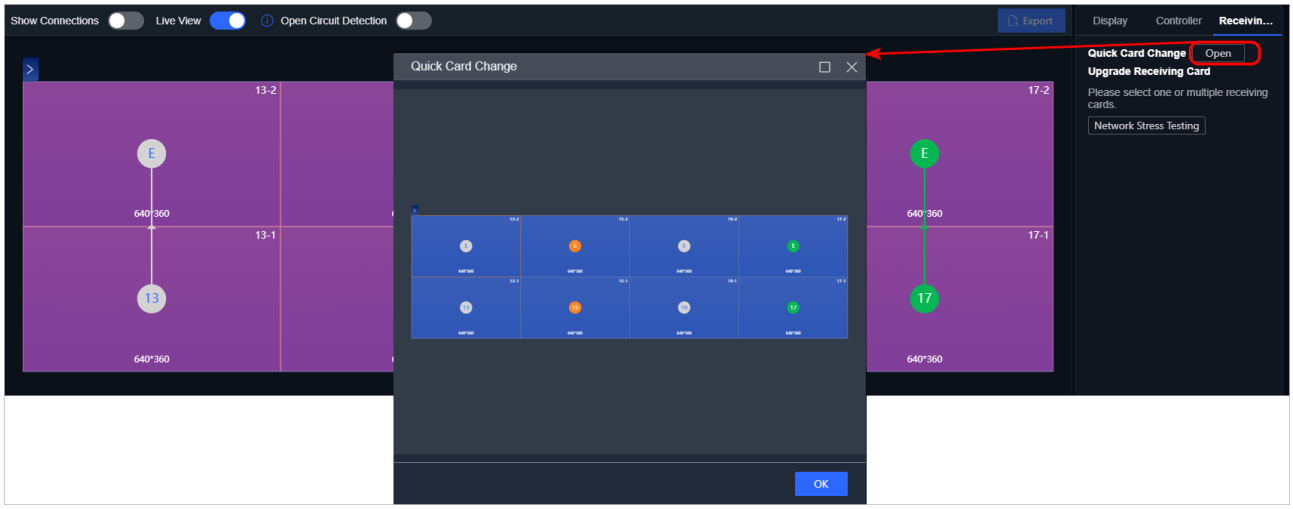


Figure 6-6 Configure Quick Card Change

Upgrade Receiving Card

Step 1 Select a single or multiple receiving cards.

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

Step 3 Click **Upgrade**.

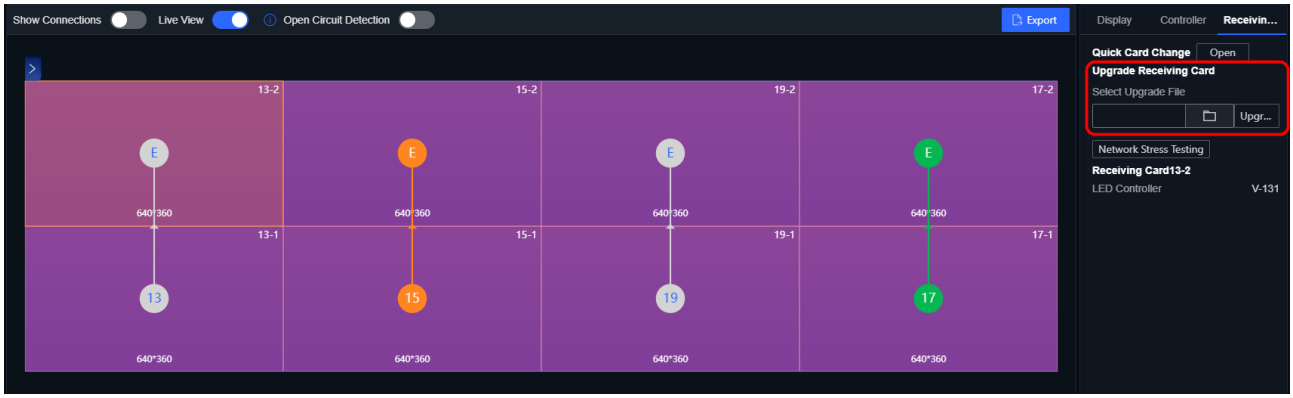


Figure 6-7 Upgrade Receiving Card

Test Receiving Card Condition

Only some receiving cards support receiving card self-test.

Step 1 Select a single or multiple receiving cards.

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

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

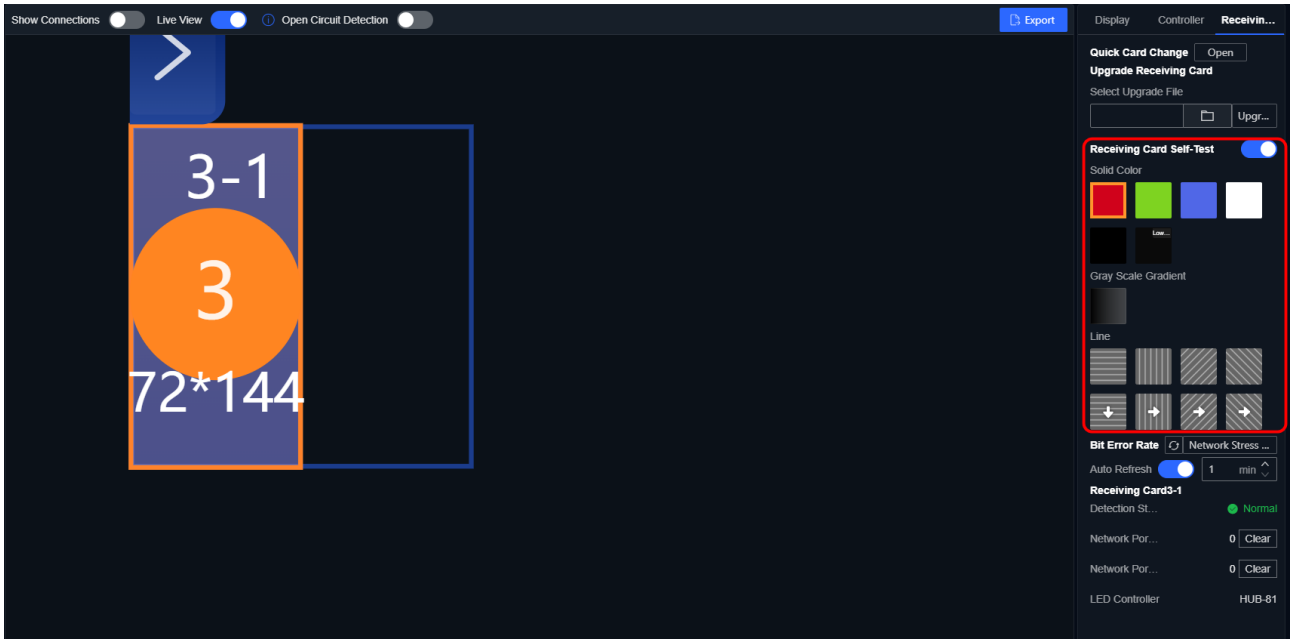


Figure 6-8 Test Receiving Card Condition

Detect Bit Error Rate (BER)

Only some receiving cards support BER detection.

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

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

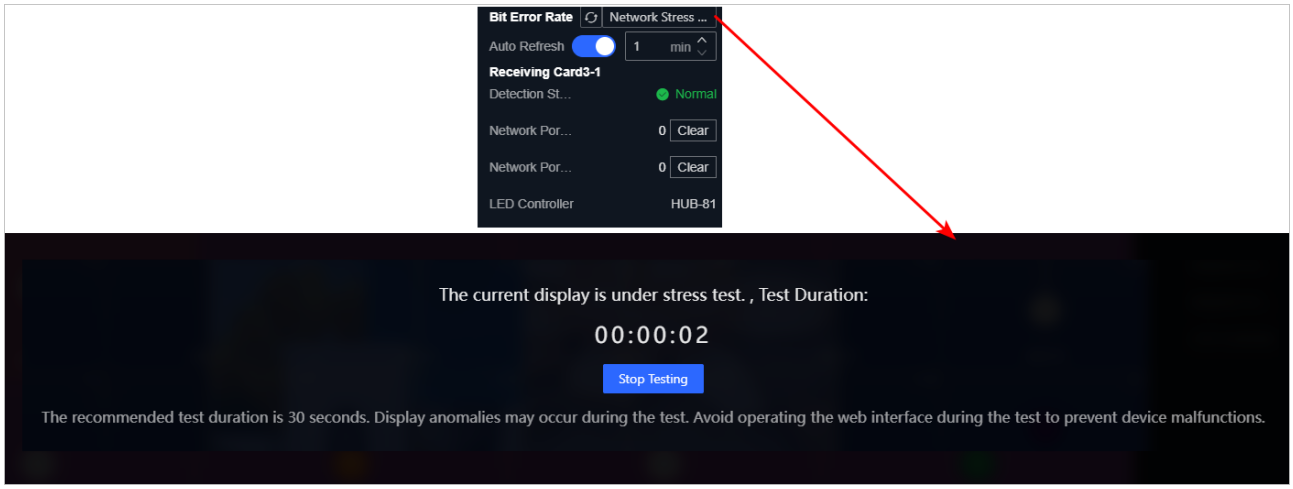


Figure 6-9 View BER Values

6.4 Maintain Device

Select a device and navigate to **Display Maintenance** → **Maintenance and Security** to perform the following operations as required:

- On the **Restart** page, you can restart the following devices:
  - An LED controller supports restarting both the LED controller itself and the connected receiving cards.
  - A video wall controller only supports restarting the receiving cards that are connected to the LED controller boards in the video wall controller.
- 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**.

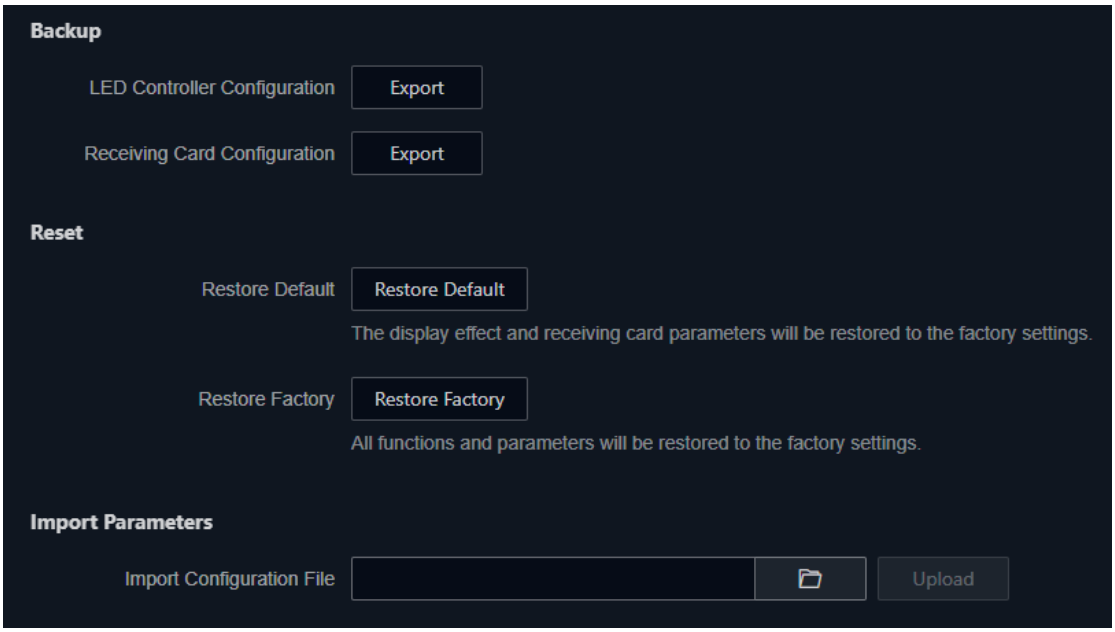


Figure 6-10 Back Up and Reset Device

- 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.

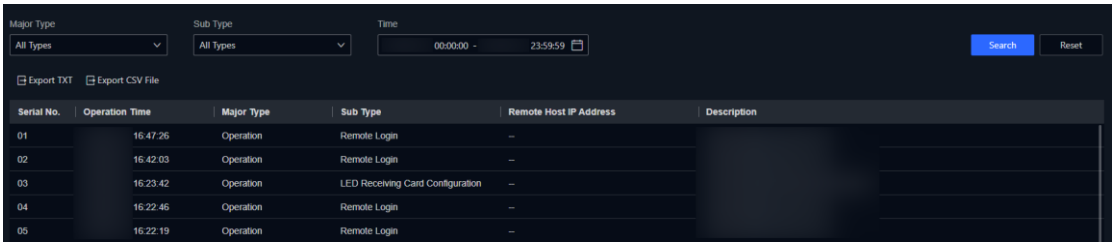


Figure 6-11 Search Logs

- On the **Device Debugging** page of a C/V-model LED controllers or video wall controller, 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 LED display controlled by the device uses dual power supplies, you can enable **Dual Power Supply**. When one power supply fails, the client interface will show a relevant alert under **Display Maintenance** → **Display Maintenance**.

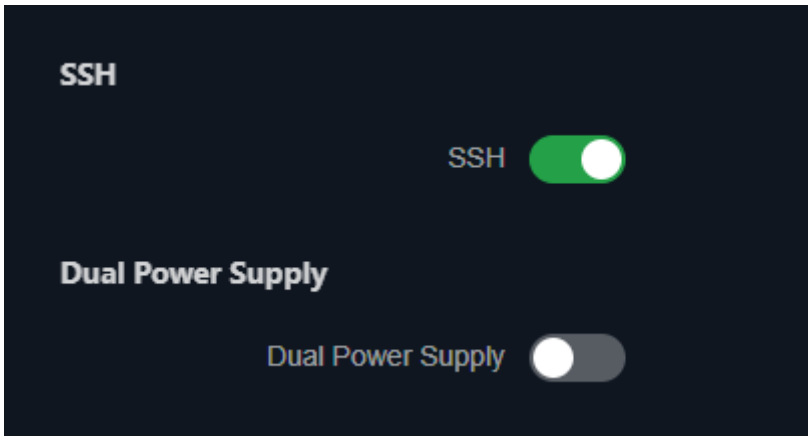


Figure 6-12 Debug C/V-Model LED Controller or Video Wall Controller

- On the **Device Debugging** page of a P-model LED controller, enable the following functions as required:
  - If the LED display controlled by the device uses dual power supplies, you can enable **Dual Power Supply**. When one power supply fails, the client interface will show a relevant alert under **Display Maintenance** → **Display Maintenance**.
  - Enable **Log Records** to record the maintenance logs of the Android system.
  - Click **Export** to export the ZIP file of the Android system maintenance logs.
  - Enable **ADB Debugging**, and then use the Android Debug Bridge (ADB) tool and the device activation password to maintain the device Android system.

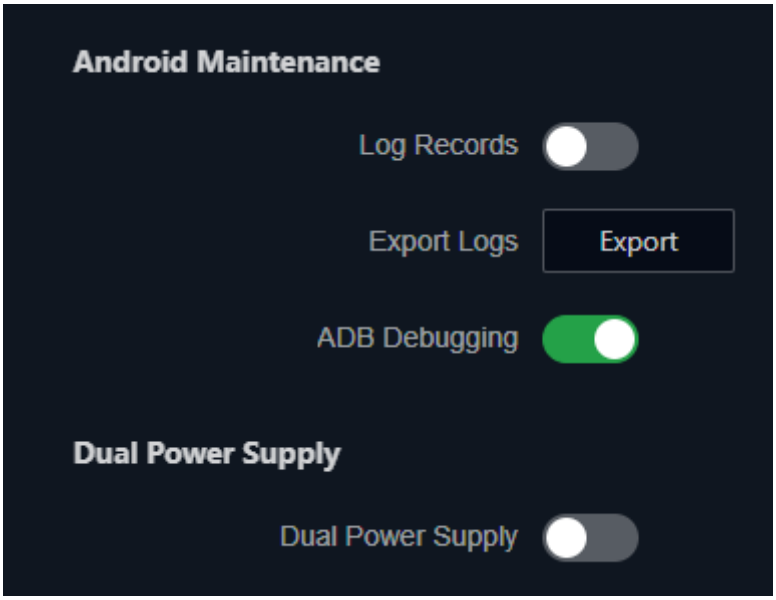


Figure 6-13 Debugging P-Model LED Controller

- On the **Permission Management** page of an LED controller, turn on or off the screens 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.

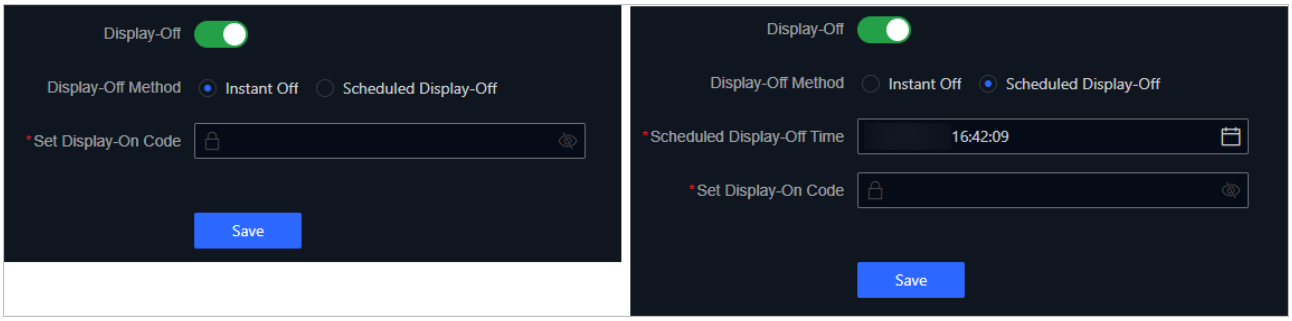


Figure 6-14 Permission Management Page

6.5 Use Toolbar

6.5.1 Search for Cloud Files

The client supports downloading receiving card configuration files, calibration files, color files, and receiving card upgrade packages from the cloud.

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

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

- For receiving card configuration files, calibration files, and color files, see "Search for LED Module Configuration Files".
- For receiving card upgrade packages, see "Search for Receiving Card Upgrade Packages".
- For third-party LED module configuration files (including receiving card configuration files, calibration files, color files, and upgrade packages), see "Search for Third-Party LED Module Configuration Files".

Step 3 Click  to download files locally for offline configuration.

Search for LED Module Configuration Files

Step 1 On the **LED module Configuration File** page, enter either of the following criteria:

- LED module serial number.
- LED module order number.
- Cabinet serial number.
- File name (Up to 6 space-separated keywords. Each keyword must contain at least 3 case-sensitive characters).

Step 2 Click **Search** to search for the LED module configuration files (including receiving card configuration files, calibration files, and color files).

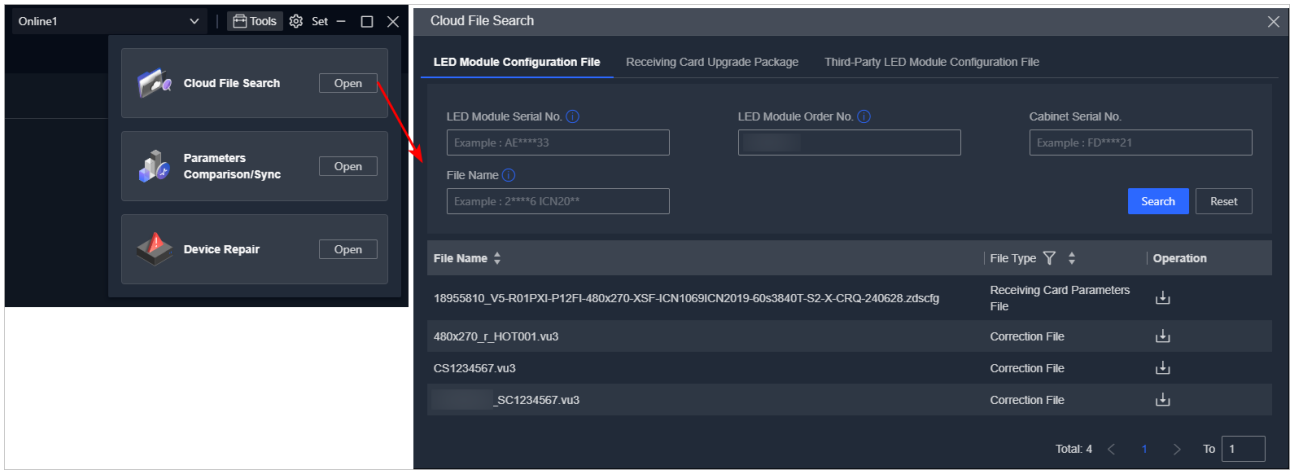


Figure 6-15 Search for LED Module Configuration File

Search for Receiving Card Upgrade Packages

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

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

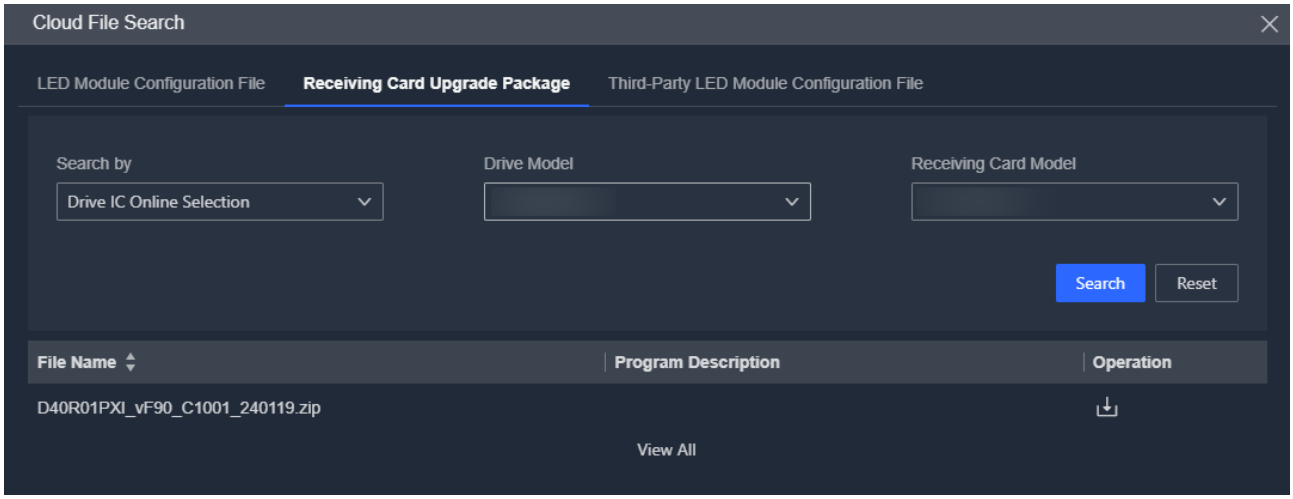


Figure 6-16 Select Drive Model

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

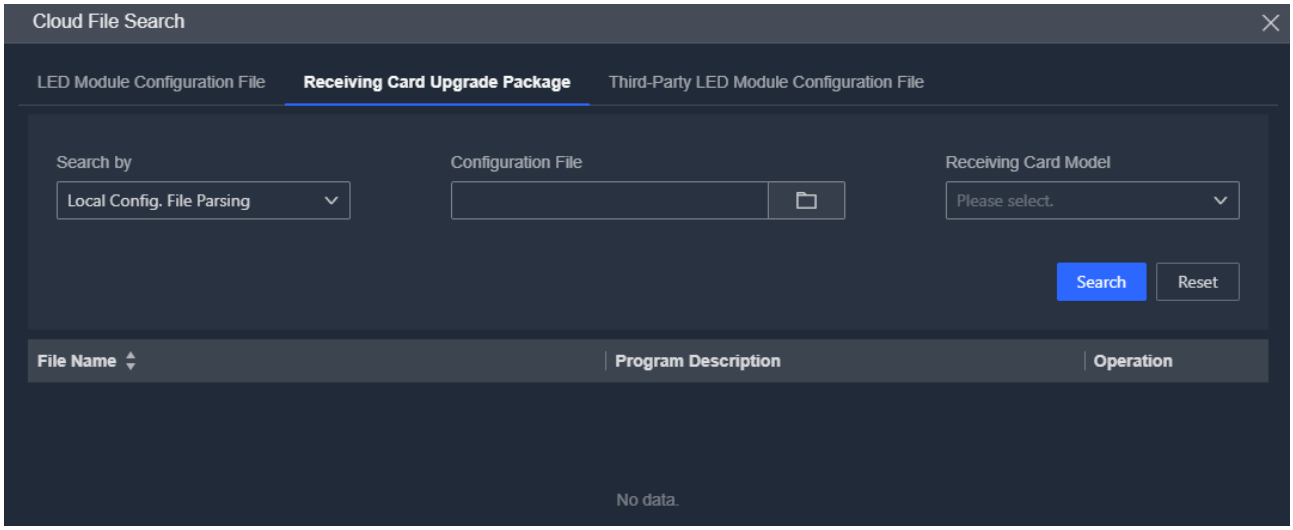


Figure 6-17 Parse Local Configuration File

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

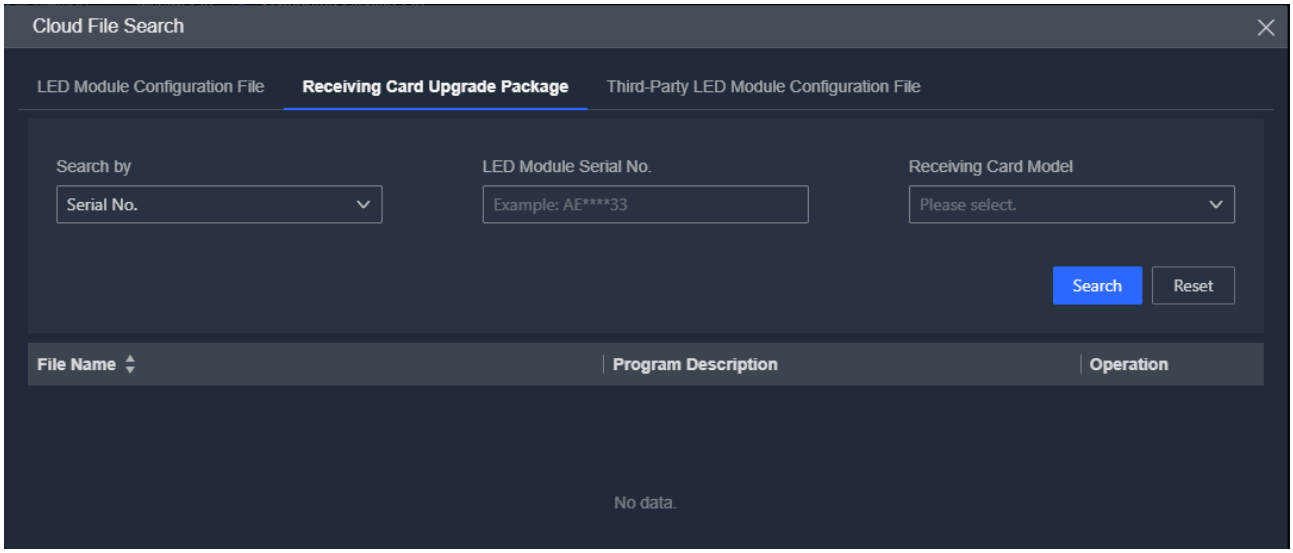


Figure 6-18 Enter Serial Number

Search for Third-Party LED Module Configuration Files

On the **Third-Party LED Module Configuration File** page, select a manufacturer, LED module type, pixel pitch, and file name, and click **Search**.

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

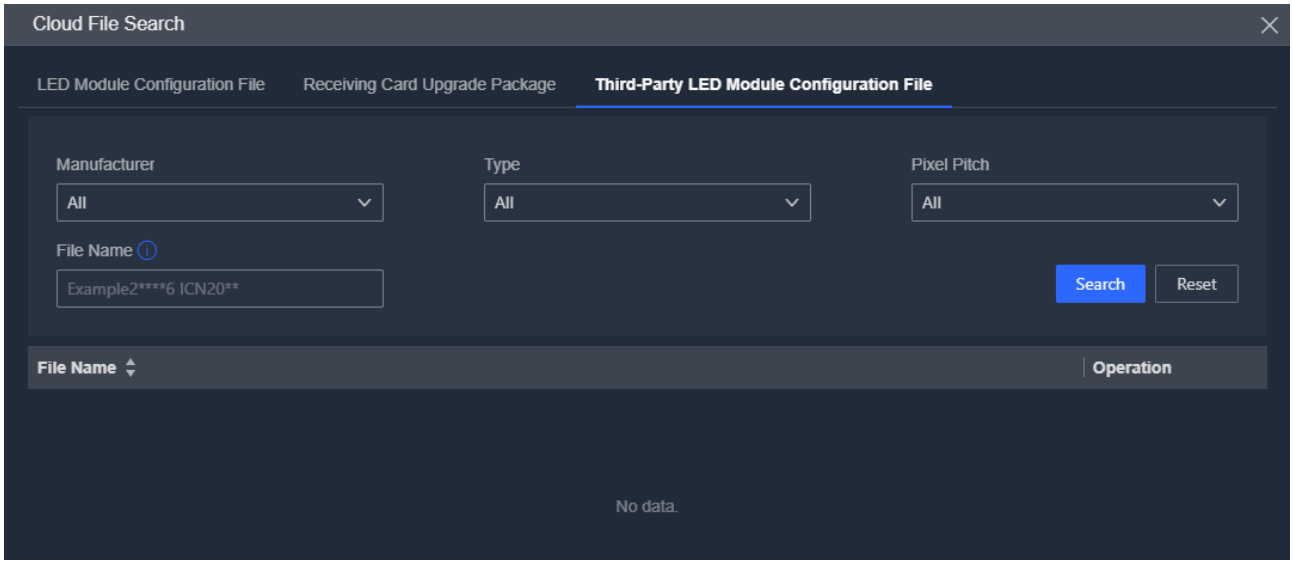


Figure 6-19 Search for Third-Party LED Module Configuration Files

6.5.2 Compare/Sync Parameters

Only online projects support parameter comparison and synchronization.

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

Step 2 Select multiple devices and select the comparison content.

Step 3 To synchronize the parameters of multiple devices, you can click **Sync**, select one LED controller as the standard LED controller, check the other LED controllers that need to copy the parameters, and then click **OK**.

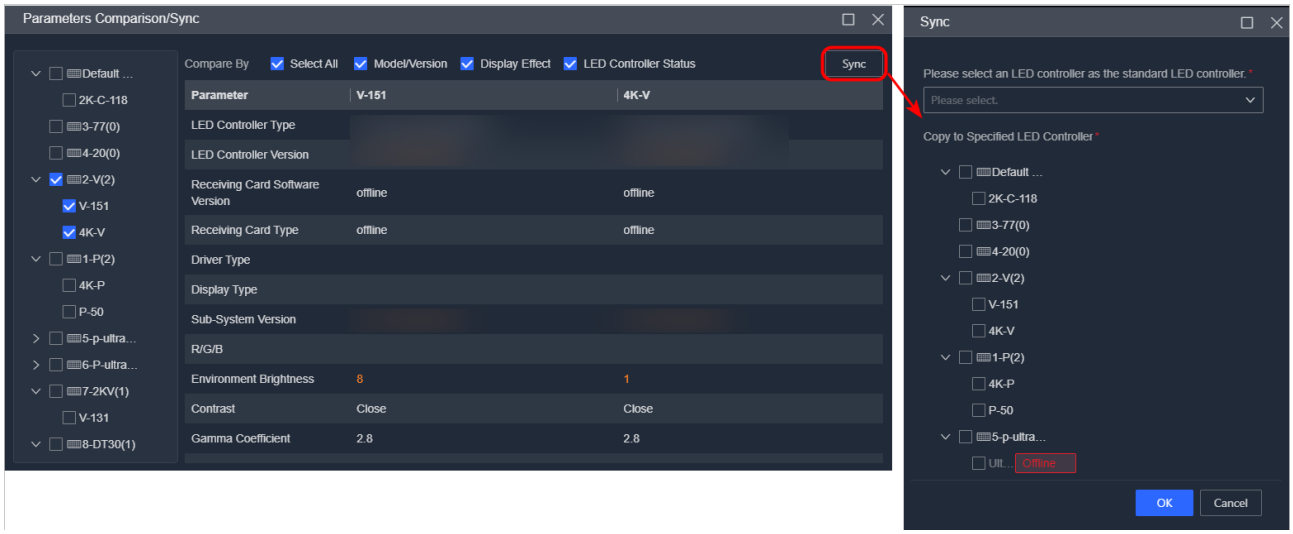


Figure 6-20 Compare/Sync Parameters

6.5.3 Repair LED Controller

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

Only online projects support LED controller rapair.

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

Step 2 Select a single LED controller and click **Repair by Upgrade File**.

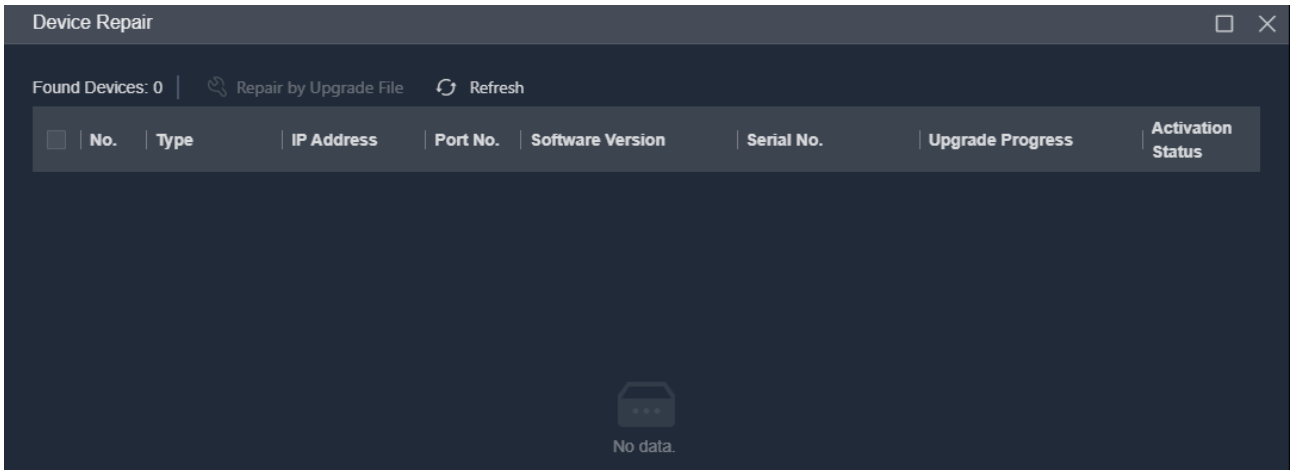


Figure 6-21 Repair LED Controller

6.5.4 Set the Client

- Set downloading paths for online upgrade and software logs: Click **Set** in the upper right corner of the client, and click **Set** → **System Settings** to select the paths.

- Set system language and UI theme: Click **Set** in the upper right corner of the client, and click **Set** → **System Settings** to set the system language and UI theme.

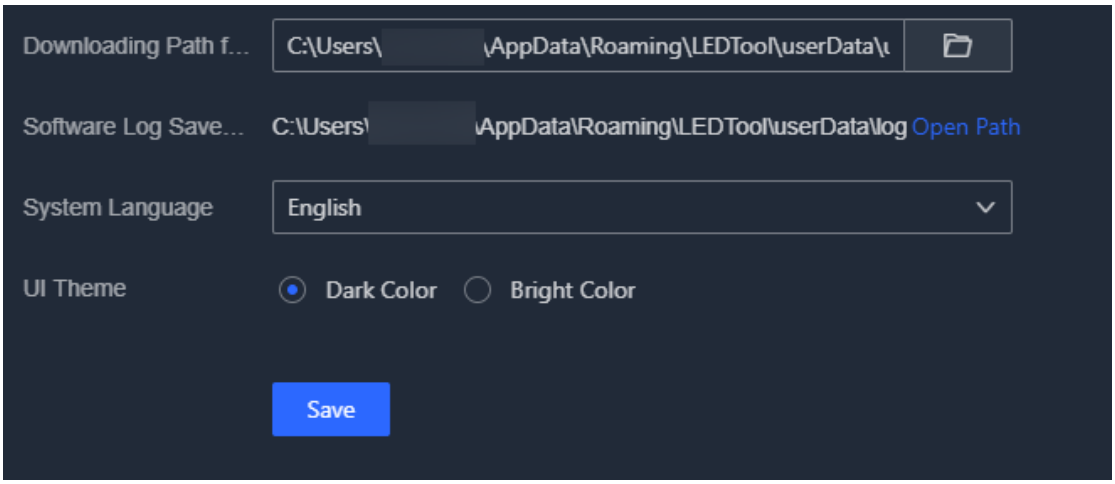


Figure 6-22 System Settings Window

- Upgrade chip library: Click **Set** in the upper right corner of the client, and click **Set** → **Component Management** → **Chip Library** to view the chip library version. If you cannot find the required chip for the LED module, you can click **Local Import** or **Online Upgrade** to upgrade the chip library. After the chip library is upgraded, the client will restart automatically.

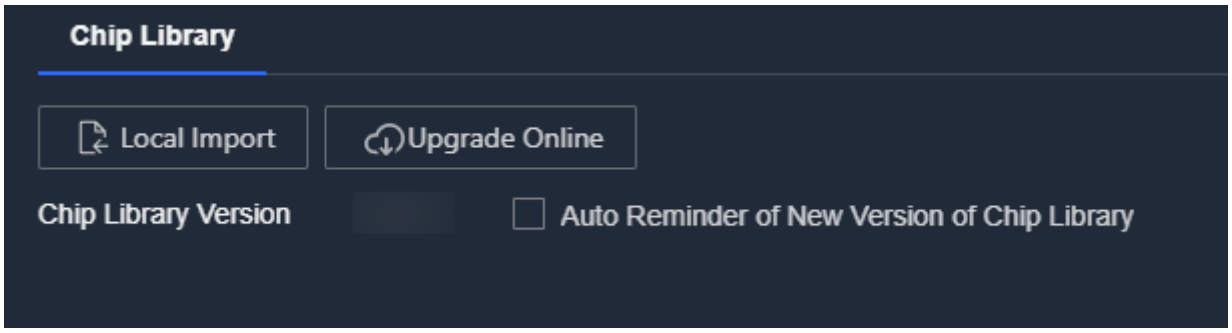


Figure 6-23 View Chip Library

- Manage client version: Click **Set** in the upper right corner of the client, and click **Set** → **About** to view the current software version and set the auto reminder of detected new version.

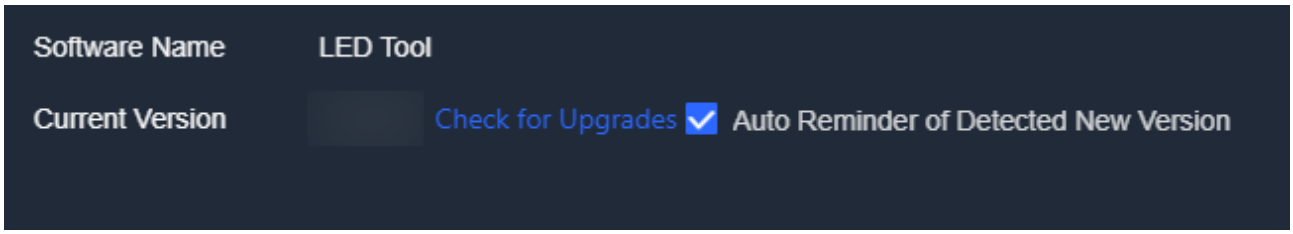


Figure 6-24 View Software Version

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


See Far, Go Further