

Video Matrix Platform

User Manual



V1.0.3

Foreword

General

This manual introduces the functions and operations of the video matrix platform (hereinafter referred to as the "Platform"). Read carefully before using the platform, and keep the manual safe for future reference.

Models

- M80-S12
- M80-S24

Symbols

The following symbols might appear in the manual.

Symbol	Description
 DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results.
 TIPS	Provides methods to help you solve a problem or save time.
 NOTE	Provides additional information as a supplement to the text.

Common Icons

Items	Description
	Modify configuration item.
 /Delete	Delete configuration item.
 /Refresh	Refresh the page.
	Toggle between plain text and cipher text display.
	Filter the list.
	Turn the feature on or off.
	Quickly query information based on keywords.
 /Clear	Clear configuration.
Restore	Restore default configuration.

Revision History

Version	Revision Content	Release Time
V1.0.3	- Added the new model. - Added main page description.	July 2026
V1.0.2	Added third-party device connection and connection of screen control adapter cable.	June 2025
V1.0.1	Updated web snapshots.	April 2025
V1.0.0	First release.	December 2024

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About the Manual

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- The manual will be updated as necessary to reflect product changes and applicable legal requirements. These updates will not diminish your statutory rights, nor will they remove or weaken the safety information or essential instructions provided at the time of purchase.
- Although we make every effort to ensure accuracy, errors or deviations in descriptions of functions, operations, or technical data might occur. If there is any uncertainty or controversy, we reserve the right of final explanation.
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1 Overview

1.1 Introduction

Based on Advanced Telecommunications Computing Architecture (ATCA), the video matrix platform is our company's self-developed next-generation telecommunications-grade video processing platform that features a modular design with a plug-in card structure, allowing for flexible configuration of various input and output cards according to user requirements.

It supports various functions such as multi-signal source acquisition, audio and video encoding, network signal access, decoding to video wall, matrix switching, video splicing, window roaming, video wall playback, signal pre-monitoring, and plan management. It can be widely applied in various scenarios such as command and dispatch centers, monitoring centers, conference rooms, and exhibitions.

1.2 Features

Structure

- 19-inch standard 5U (M80-S12)/8U (M80-S24) rack design with Advanced Telecommunications Computing Architecture (ATCA).
- Function card slot
 - ◇ M80-S12: 12.
 - ◇ M80-S24: 24.
- A plug-in modular design for easy customization based on market demands.
- Supports dual main control hot standby, enabling seamless switching to the main control without disrupting the video wall display.
- Offers redundant dual power supply, making it highly suitable for locations such as machine rooms.
- Smart fan with automatic temperature control ensures system stability and reliability.

Software

The embedded Linux operating system is secure, reliable, stable, efficient, and user-friendly for developers and maintenance personnel.

- Audio and video encoding input.
 - ◇ Adopts the H.265 video compression standard, offering support for dual stream technology and variable bit rates. It can encode both composite and video streams while ensuring audio and video synchronization during composite stream encoding.
 - ◇ Supports common video signal inputs such as DP, HDMI, DVI, and more.
 - ◇ Supports 4K signal acquisition.
 - ◇ Supports a maximum of 48-channel of 1080P HD encoding input (M80-S12) / 96-channel (M80-S24), and 24-channel of 4K@60 UHD encoding input (M80-S12) / 48-channel (M80-S24).
 - ◇ Supports full-link YUV444 lossless image quality acquisition and display.
 - ◇ Fully loaded with 48-channel of 4K HDMI signal output (M80-S12) / 96-channel (M80-S24), supporting a maximum of 48 screens (M80-S12) / 96 screens (M80-S24) for large screen splicing.

- ◇ H.264/H.265 decoding: Fully loaded supports 432 channels of 1080P@25 fps HD video decoding (M80-S12) / 864 channels (M80-S24).
- ◇ Simultaneously decodes audios and videos.
- ◇ Decodes videos in 32 MP, 16 MP, 12 MP, 8 MP, 5 MP, 3 MP, 1080p, 720p, and D1. Only H.265 can be used to decode videos in 32 MP, and 16 MP.
- ◇ Supports the standards: H.265, H.264, SVAC, MPEG4 and MJPEG.
- Features point-to-point output display in ultra-high resolution.
- Supports input and matrix output of local signals or network signals.
- Supports processing multiple copies of signals, utilizing a maximum of 32 output channels for each signal.
- Supports 128 scene presets. You can customize the video wall layout for each scene.

Large Screen Splicing

- Features splicing, scaling, video integration, roaming, windowing, and OSD. Splits to 1, 4, 6, 8, 9, 16, 25, and 36 windows. You can also customize the split windows.
- Supports point-to-point high-definition base map display.
- Supports subtitle overlay function, allowing virtual display of a character string on a single screen or spliced screen, with adjustable text font, color, character spacing, background color, and speed.

Other Features

- Supports control through web browser, PC client, mobile client, network keyboard and so on.
- Supports four 2.5G RJ-45 ports and two 10G optical ports.
- Supports network link aggregation mode.
- Includes an RS-232 serial port for matrix control, large-screen switching, and additional functions.
- Supports the protocols: TCP/IP, RTP, RTSP, RTCP, TCP, UDP and DHCP.
- Displays local and network videos on the video wall through remote control. The system can be restarted, updated or restored to its default settings remotely.
- Features user permission management and allowlist function.

1.3 Main Case

Video matrix platform with 19-inch 5U (M80-S12)/8U (M80-S24) structure host case includes function card slot, power port and intelligent temperature-controlled fan. The front panel indicators show the device operating status.

- Air inlet of the case.
- Intelligent temperature-controlled fan allows hot swap.
- Function card slots: A total of 12 (M80-S12)/ 24 (M80-S24), sequentially numbered for the installation of function cards.
- Main control card slot: 1 dedicated slot labeled **M1**.
- The main control and function card share a slot, with a total of 1, marked as **10/M2** (M80-S12)/ **12/M2** (M80-S24).
- One dedicated slot for the switching card, marked as **N**.
- Dual-power module supports redundant hot standby.



Two power cables must be unplugged simultaneously.

Figure 1-1 Front panel (M80-S12)



Figure 1-2 Rear panel (M80-S12)



Figure 1-3 Front panel (M80-S24)

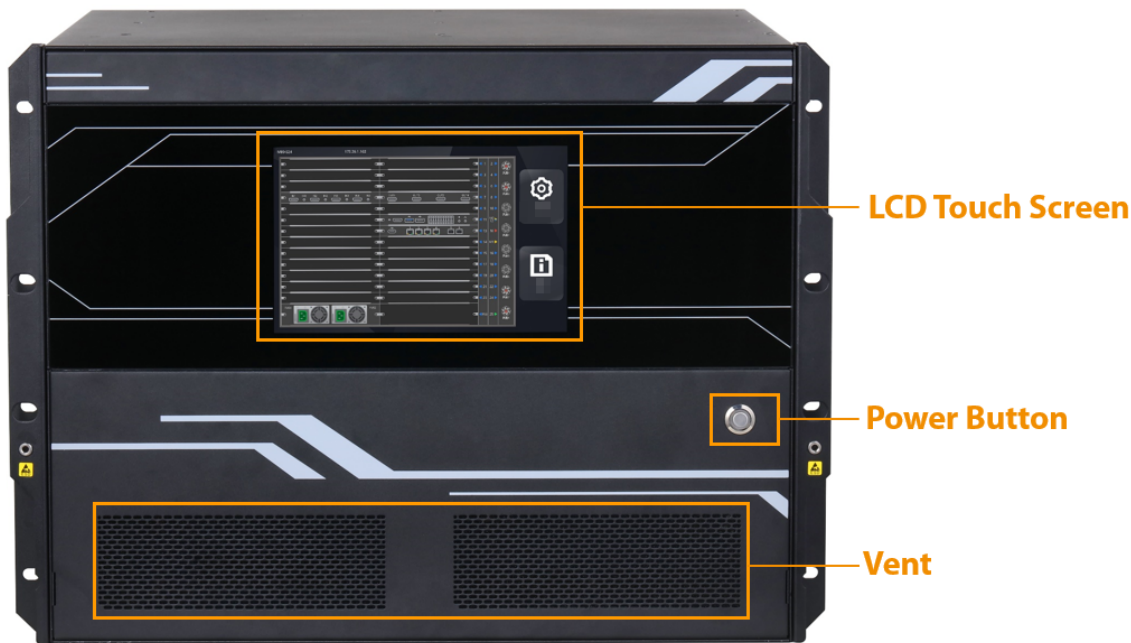
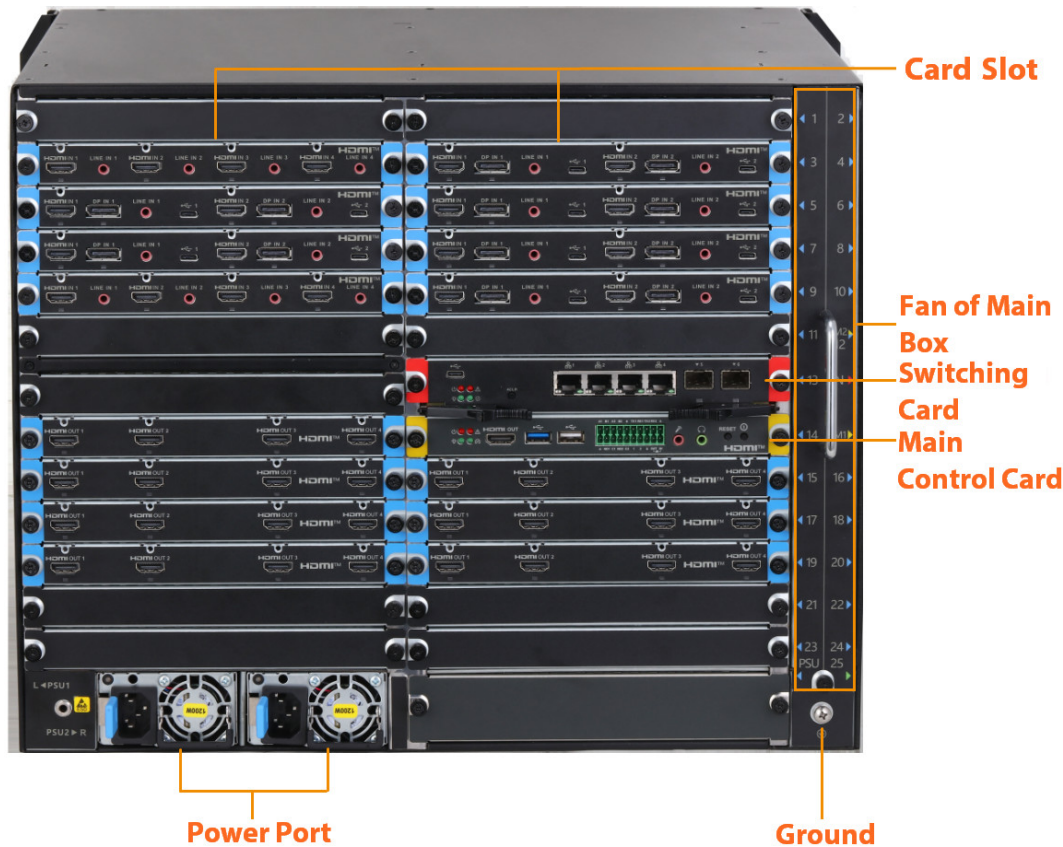


Figure 1-4 Rear panel (M80-S24)



1.4 Function Card

Function card with blade modular design is mainly used for audio and video signal acquisition and encoding, splicing and merging, decoding output, and more.

1.4.1 VEC0205EHP UHD Encoding Card

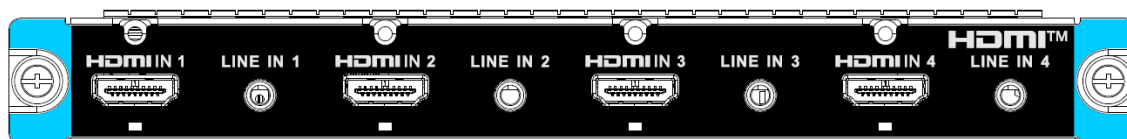
Figure 1-5 VEC0205EHP



- 2 HDMI 2.0 ports, and 2 DP 1.2 ports. Select either one group of the HDMI and DP ports.
- 2-channel HDMI/DP built-in audio input, and two 3.5 mm jack ports.
- 2 Type-C reserved ports.

1.4.2 VEC0405HH HD Encoding Card

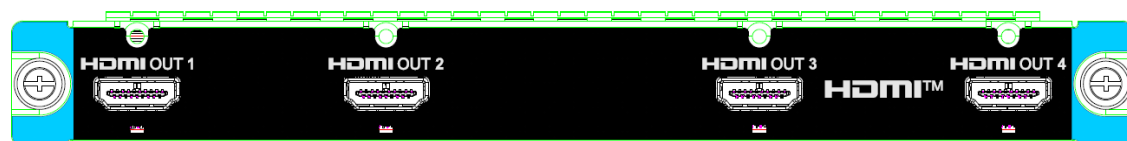
Figure 1-6 VEC0405HH



- 4 HDMI 1.3 input ports.
- 4-channel HDMI built-in audio input and four 3.5 mm jack ports.

1.4.3 VDC0405EH UHD Decoding Card

Figure 1-7 VDC0405EH



- 4 HDMI 2.0 ports, support 4-channel 4K@60 fps output display.
- 4-channel HDMI built-in audio output.



4-channel HDMI built-in audio output is a reserved function.

2 Installation

2.1 Inspection Steps

When you receive the device, check it according to the following steps.

Procedure

- Step 1 Inspect whether there are obvious damages on its appearance.
The material of product package should be able to protect the product from most impacts during transportation.
- Step 2 Open the external package, and check whether any part of accessories is missing. You may refer to accompanied accessory bag. After you have checked that all parts are included, you may remove protective film on the device.
- Step 3 Check whether main control panel, control panel and function card are inserted tightly.



One label at the side of the case displays serial number and other information of the device, which shall be provided when contacting after-sales support. This label needs to be protected well, and must not be torn or discarded; otherwise, we might not be able to provide effective service.

2.2 Product Dimensions

Figure 2-1 M80-S12 (mm [inch])

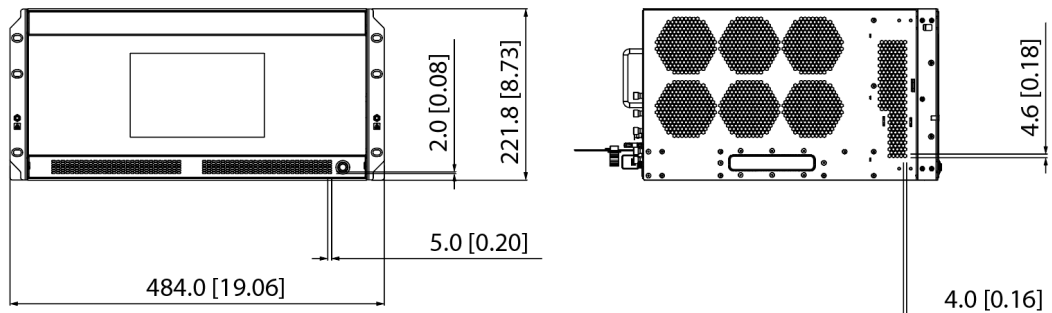
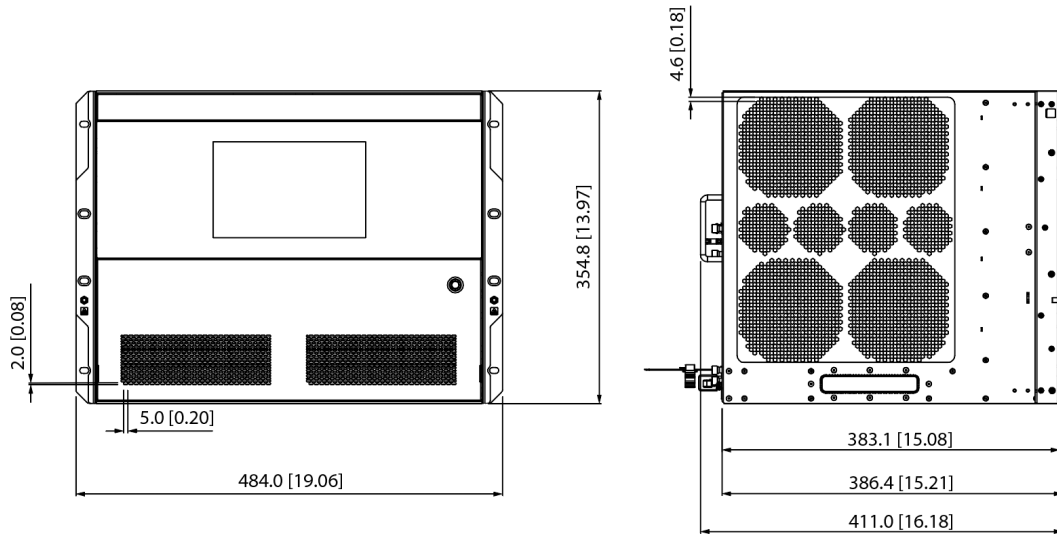


Figure 2-2 M80-S24 (mm [inch])



2.3 Device Installation

2.3.1 Installation Environment

As a system-level monitoring device, video matrix platform is usually used in central machine room of monitoring system. Its installation site shall meet national and local machine room construction standards.

Video matrix platform is a standard rack-mounted device fixed in a cabinet. Pay attention to the following points during installation and use:

- Ensure that the cabinet is sufficiently firm to support Video Matrix Platform and accessories. During installation, avoid dangers resulting from uneven mechanical load.
- Ensure that A/V cable owns sufficient installation space. Bending radius of cables must not be less than 5 times their outer diameter.
- Ensure well ventilation. It is suggested that its installation position shall be more than 50 cm above the ground.

Power Supply Requirements

The device has a rated current of 10 A or 5 A and a rated power of ≤ 1200 W. Its rated voltage ranges from 100 VAC to 240 VAC.

Anti-interference Requirements

- On-site power supply system shall take effective anti-interference measures.
- Working ground shall not be shared with ground wire or lightning protection device of electrical device, and shall keep away from them as far as possible.
- Keep away from high-power radio transmitting stations, radars and high-frequency heavy-current devices.
- When necessary, adopt electromagnetic shielding methods to resist interference.

Environmental Requirements

- Ensure that temperature in the cabinet is 0 °C–50 °C.
- Ensure that humidity in the machine room is 10% RH–90% RH.
- Ensure air ventilation required by safe operation of the device.

2.3.2 Installation Steps

Prerequisites

The main control card has been installed when the device is delivered.

Procedure

Step 1 Insert function cards or blank panel according to actual needs.



In a fully loaded condition, the blank panel does not need to be inserted; however, in a non-fully loaded condition, the blank panel must be inserted, otherwise it might affect usage.

Step 2 The ground terminal of the video matrix platform must be securely grounded.



To guarantee personal safety and device safety, video matrix platform and those devices (such as video walls and computers) that are connected to the platform with cables must be grounded.

Step 3 Connect network cable, HDMI cable and other cables.

Step 4 Plug in the power cable to boot the device.

2.3.3 Booting and Shutdown

2.3.3.1 Booting

Plug in the power cable, and then press the power switch on the front panel. The power indicator light turns on and the device boots up.

Pay attention to the following points during booting:

- Make sure that the supplied voltage is within 100–240 VAC 47–63 Hz. Check power cable connection before you turn on the device.
- We recommend you use power supply with stable voltage and little interference (refer to international standards), which helps the device to work stably and prolong service life. This will also benefit external devices such as camera. UPS is the best choice if possible.

2.3.3.2 Shutdown

There are 2 shutdown methods.

- Method 1: Select **Maintenance Center** > **Maintenance Management** > **Maintenance**, click **Shutdown**, and then click **Apply**.

Figure 2-3 Shutdown

The screenshot shows a web interface for system maintenance. It has two main sections: 'System Maintenance Operations' and 'System Maintenance Config'. The first section contains 'Restart' and 'Shutdown' buttons. The second section has an 'Auto Restart' label, a dropdown menu currently showing 'Tuesday', a time field set to '02:00' with a clock icon, and 'Apply' and 'Refresh' buttons at the bottom.

- Method 2: Press and hold the power button on the panel for 5 seconds until the indicator light turns orange; the device will begin to shut down. Once the device is fully powered off, the indicator light will remain steadily orange. Press the power button again to turn the device on, and the indicator light will turn green.



- Method 1 is recommended to protect the device from damage due to unexpected outage.
- Stop all operations of the device, before you unplug the device from power supply.

2.3.3.2.1 Power Outage Recovery

In case of power loss or forced shutdown during operation, after reconnecting the power supply, the device will automatically save and resume the previous operating status.

2.3.3.2.2 Replacing the Button Battery

We recommend that the same type of battery should be used. Inspect system time regularly. Generally speaking, battery shall be replaced once a year, to guarantee system time accuracy.



Before replacement, export and save configurations; otherwise, all configurations will be lost.

3 LCD Screen Operations

3.1 Initialization and Login

Procedure

- Step 1 Connect the power cable and wait for the device to start up.
After the device starts up, it enters the initialization page.
- Step 2 Configure your own password, confirm the password, and then tap **OK**.
After the initialization is complete, the device enters the login page.

Figure 3-1 Configure password

Device Initialization

OK

Password Settings

ⓘ Password must be 8 to 32 characters, including at least two of the following categories: numbers, uppercase letters, lowercase letters and special characters (Characters like ' ' ; & cannot be included in).

Username admin

Password Please enter password

Confirm Password Please enter the password again

Password Strength



- The password must consist of 8–32 non-blank characters and contain at least two types of the following characters: uppercase, lowercase, numbers, and special characters (excluding ' ' ; &). The new password and confirmation password must match.
- Set a password with high strength according to the on-screen instructions.

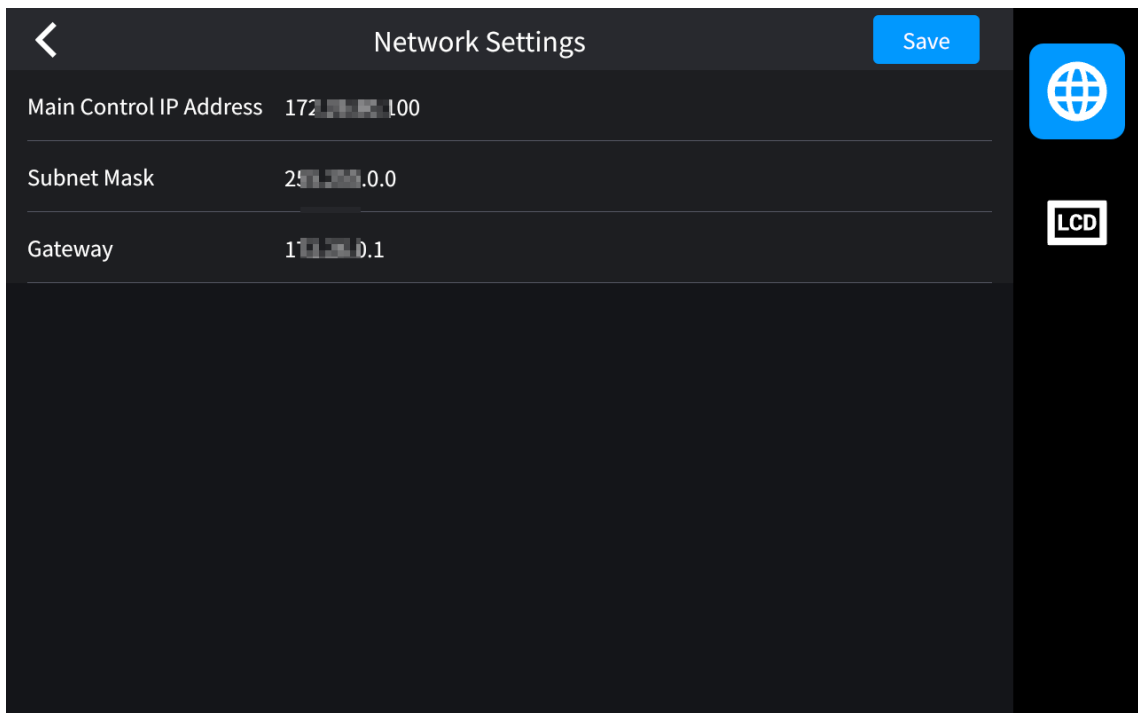
- Step 3 On the login page, enter user name and password, and then tap **OK**.

3.2 Settings

Network Settings

1. On the main page, tap **Setting**.
2. Configure the IP address, subnet mask and gateway, and then tap **Save**.

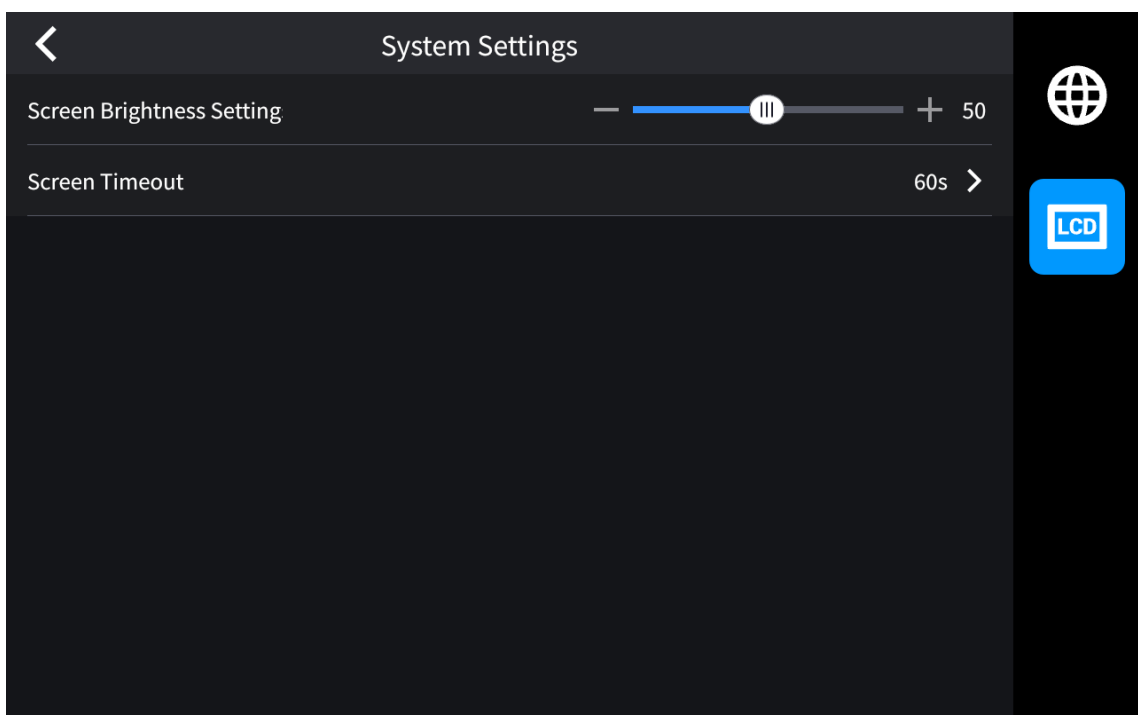
Figure 3-2 Network settings



LCD Settings

1. On the main page, tap **Setting**.
2. Tap **LCD**, and then adjust the screen brightness and set the screen timeout time.

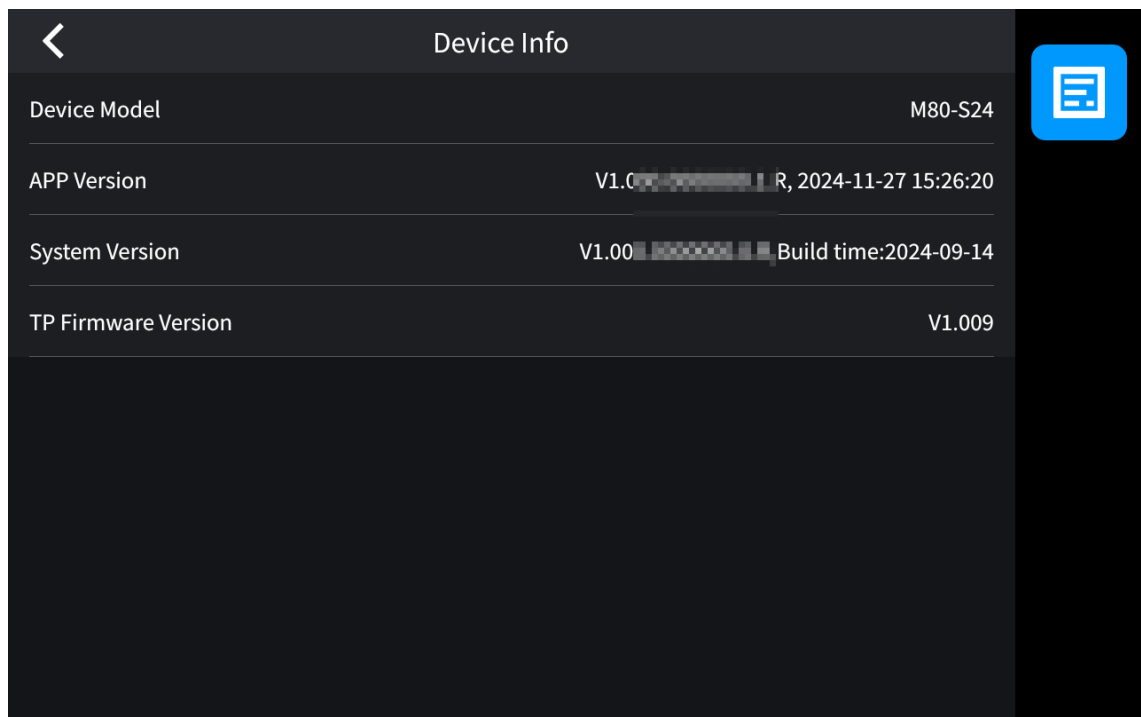
Figure 3-3 Configure LCD screen



3.3 Information

On the main page, tap **Information** to view the device information.

Figure 3-4 Device information



4 Web Operations

4.1 Network Connection

Procedure

Step 1 Connect the platform to a computer through network.

Step 2 Configure the IP address, subnet mask, and gateway of the platform and computer, respectively, for the video matrix platform network setup.



- If there is no router on the network, distribute IP address on the same network segment.
- If there is a router on the network, configure the corresponding gateway and subnet mask.

Step 3 Ping `***.***.***.***`(IP address of the platform) to check whether connection is available.

Step 4 Open Google Chrome, enter the IP address, and then press the Enter key.



Supports Chrome 65 or later, Firefox 65 or later, and Edge 79 or later. Internet Explorer is not supported.

4.2 Initialization and Login

Procedure

Step 1 Enter IP address of the platform in the address bar of the browser, and then press Enter.

Step 2 Enter and confirm the new admin password.



- You need to configure your own password for the first-time login.
- The password must consist of 8–32 non-blank characters and contain at least two types of the following characters: uppercase, lowercase, numbers, and special characters (excluding ' " ; : &). The new password and confirmation password must match.
- Set a high security password according to the prompt of password strength.

Step 3 Click **OK**.

Step 4 Enter username and password, and then click **Login**.

4.3 Home Page

Figure 4-1 Home page

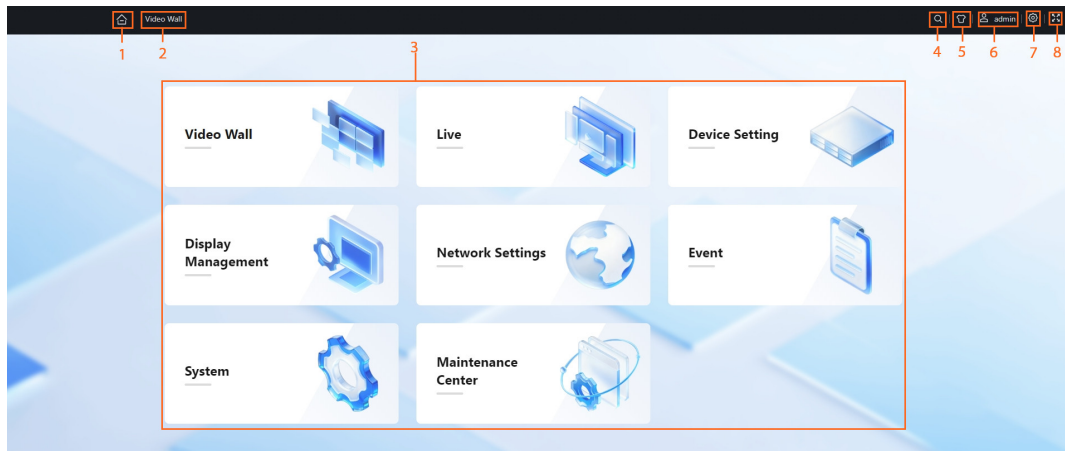
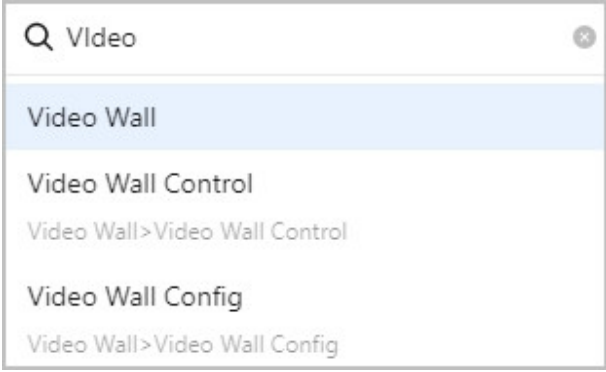


Table 4-1 Description of the homepage

No.	Name	Description
1	Main page	Click it to return to the main page menu.
2	Function tabs	Click it to enter the corresponding function configuration page. Click  to close the corresponding tab.
3	Application functions	Click each application function to enter the corresponding configuration page.
4	Search	Enter a function name keyword to search and quickly navigate to the corresponding configuration page. 
5	Theme	Switch between dark and light themes. The default is light.  Screenshots in this document use the light theme.
6	Log out	Click it, and then select Logout to return to the login page.
7	System configuration	Click it to select the function menu to configure the system.
8	Full screen	Click it to display the page in full screen. Click again to exit full screen.

4.4 Device Settings

4.4.1 Local Signal

4.4.1.1 Signal Management

Set the input source of the local signal, audio/video encoding, channel name, control number and so on.

Procedure

Step 1 On the home page, select **Device Setting** > **Local Signal** > **Signal Management**.

Figure 4-2 Signal management

No Signal Con... No Signal							
No.	Camera Name	Slot ▾	Control No. ⌵	Color Space Mode ⌵	Signal Source Type	Interface Status	Operation
1	Slot03-01	Slot3	9	Limited	HDMI	0 * 0	⌵ TB
2	Slot03-02	Slot3	10	Limited	HDMI	0 * 0	⌵ TB
3	Slot03-03	Slot3	11	Limited	HDMI	0 * 0	⌵ TB
4	Slot03-04	Slot3	12	Limited	HDMI	0 * 0	⌵ TB

Step 2 Click  to edit capture configuration.

- Click **Compression** , modify the parameters, and then click **OK**.

Figure 4-3 Compression

Compression

Audio Encoding

Main Stream

Encoding Mo...

H.265

Image Encodi...

YUV420

Resolution :

0 * 0

Frame Rate (F...

60

Bit Rate Type :

CBR

Sub Stream ☒

Encoding Mo...

H.265

Image Encodi...

YUV420

Resolution :

CIF

Frame Rate (F...

60

Bit Rate Type :

CBR

OK

Cancel

Table 4-2 Parameter description

Parameter	Description
Encoding Mode	The default encoding mode is H.265.
Image Encoding Format	The default format for compressing and storing image data is YUV420.
Resolution	It includes a variety of resolution types. Each type corresponds to different recommended stream values.

Parameter	Description
Frame Rate	Configure video frame per second. The higher frame rate is, the more natural and smooth the video will be, but more bandwidth will be required.
Bit Rate Type	◇ CBR : The bit stream changes slightly around the defined bit stream value. We recommend selecting the CBR when the monitoring scene changes slightly. ◇ VBR : The bit stream adjusts according to the scene complexity. We recommend selecting VBR when the monitoring scene changes greatly. ◇ Fixed Quality : A lower image quality parameter value results in better image quality.  Image quality can be set only in VBR mode.

- Click **Audio Encoding** , modify the parameters, and then click **OK**.

Figure 4-4 Audio encoding

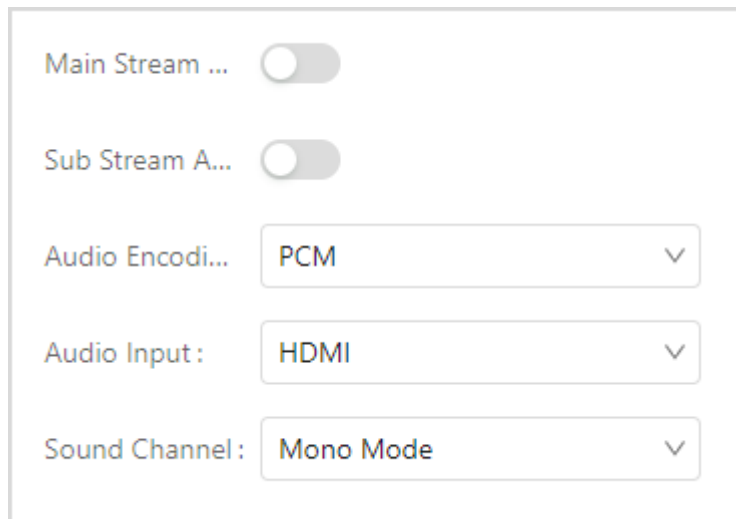


Table 4-3 Audio encoding description

Parameter	Description
Main Stream Audio	Click  to enable main stream audio capture.
Sub Stream Audio	Click  to enable sub stream audio capture.
Audio Encoding	Select the audio encoding format. The default format is PCM.
Audio Input	Select HDMI or 3.5 mm audio input.
Sound Channel	You can select Mono Mode or Stereo Mode .

Step 3 Click  to edit video input, and then click **OK**.

Figure 4-5 Set the fixed resolution

Figure 4-6 Custom the resolution

Table 4-4 Custom resolution parameter description

Parameter	Description
Timing Standard	Select the timing of the video input source.
Frame Rate	Select the frame rate of the video input source.
Width	Enter the width of the video input source within the specified range.
Height	Enter the height of the video input source within the specified range.

Step 4 Click **Apply**.

Related Operations

- Click a specific channel name or a control number to modify it.
- Click  on the right side of the control number, set the number, and then click **OK**. The system will renumber the channels sequentially (increasing by 1 each time) starting from that number.
- Click  on the right side of the color space mode, select **Limited** or **Full**, and then click **OK** to modify the mode for all channels in batches.



- ◇ The color space mode is used to match the color standard of the input video signal, ensuring accurate color display. It must be consistent with the output settings of the signal source.
- ◇ Inconsistency might cause the image to appear washed out, dim, oversaturated, or have abnormal contrast. If the output settings of the signal source cannot be determined, you can switch this option and select the mode that provides the best color and contrast performance based on the actual image display.

4.4.1.2 Multi-Port Synchronous Collection

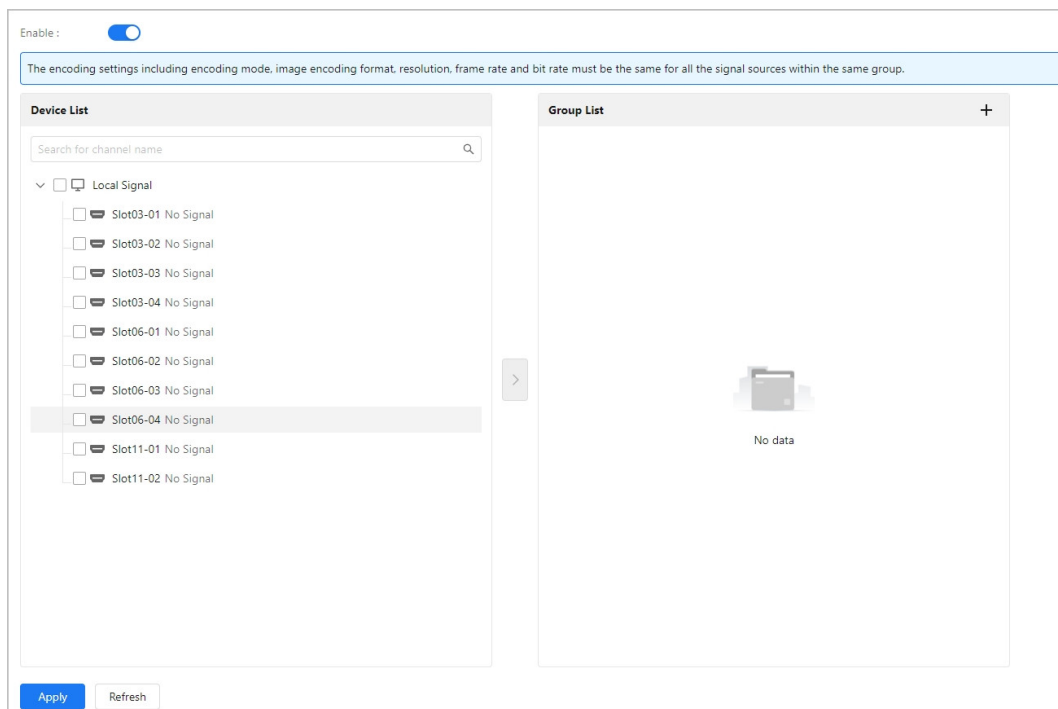
Multiple channels can be bound into one group. Channels in the group can be spliced, and then multiple videos can be displayed synchronously.

Procedure

Step 1 On the main page, select **Device Setting** > **Local Signal** > **Multi-Port Synchronous Collection**.

Step 2 Click  to enable the function.

Figure 4-7 Multi-port synchronous collection



Step 3 Select a specific group from the group list, choose multiple signals from the device list on

the left, and then click  to configure multiple signals into the same group.



Click **+** to add a new group.

Step 4 Click **Apply**.

4.4.1.3 Setting Input Channel

Procedure

Step 1 On the main page, select **Device Setting > Local Signal > Input Mode Config.**

Figure 4-8 Configure the input mode



No.	Slot	Mode	Operation
1	11	Mode1	

Total 1 records

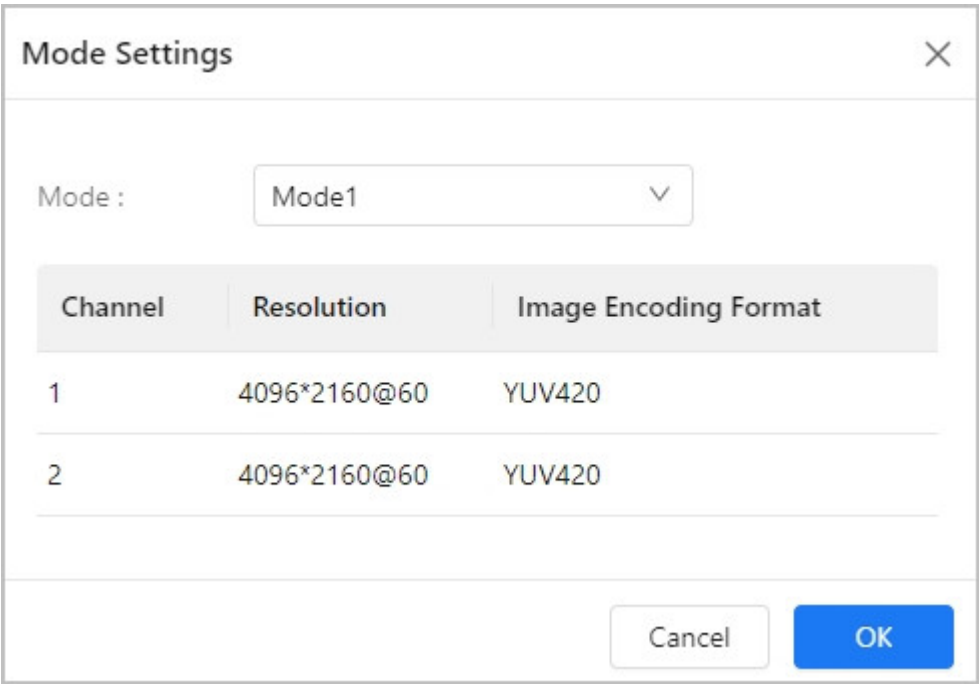
Refresh

Step 2 Click to set the input channel mode.



- Mode 1: Supports up to 2 channels of YUV420 4096 × 2160@60 Hz.
- Mode 2: Supports up to 2 channels of YUV444/YUV420 4096 × 2160@30 Hz.

Figure 4-9 Mode settings



Mode Settings

Mode : Mode1

Channel	Resolution	Image Encoding Format
1	4096*2160@60	YUV420
2	4096*2160@60	YUV420

Cancel OK

Step 3 Click **OK**.

Related Operations

Select multiple channels, and then click **Mode settings** to set channel mode in batches.

4.4.2 Network Signal

You can add devices in the network and display network signals on the video wall.

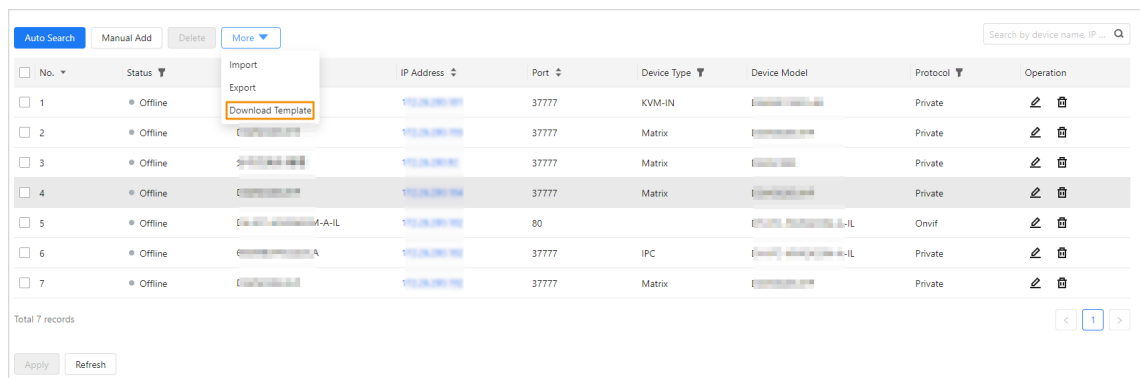
4.4.2.1 Adding Signals in Batches

Enter the device information in the template and import the template to add devices. This method is recommended when devices are added in batches.

Procedure

- Step 1** On the home page, select **Device Setting > Network Signal > Device**.
- Step 2** Click **More**, and then click **Download Template** to download the template to your local computer.

Figure 4-10 Download templates



- Step 3** Enter the device information, and then save the template.
- Step 4** Click **More > Import**, click **Browse**, enter the template, and then click **OK**.

Figure 4-11 Import the device



4.4.2.2 Adding by Search

Search for devices on the same network. This method is recommended when the IP address of the device to be added is uncertain.

Procedure

- Step 1** On the main page, select **Device Setting > Network Signal > Device > Auto Search**.
- Step 2** Select the devices that you want to add, and then click **Add**.

4.4.2.3 Adding Devices One by One

Configure the IP address, username, and password of the device manually. This mode is recommended when a small number of devices are added and the IP addresses, usernames, and passwords of the devices are known.

Procedure

- Step 1 On the home page, select **Device Setting** > **Network Signal** > **Device**.
- Step 2 Click **Manual Add**, and then configure the parameters.

Figure 4-12 Manual add

The screenshot shows a 'Manual Add' window with a close button (X) in the top right corner. It features two tabs: '1 Basic Info' (selected) and '2 Channel Info'. The 'Basic Info' tab contains the following fields:

- Device Name: A text input field.
- Device IP: A text input field with a small icon to its left.
- Username: A text input field containing the text 'admin'.
- Protocol: A dropdown menu showing 'Private'.
- Port: A text input field containing '37777', with '(1-65535)' displayed to its right.
- Password: A text input field with a small icon to its right.
- Local Channel: A toggle switch that is currently turned on.

At the bottom right of the window are 'Cancel' and 'Next' buttons.

- Step 3 Click **Next**, and then configure the number of channels.
- Step 4 Click **OK**.

4.4.2.4 Viewing Channel Information

On the main page, select **Device Setting** > **Network Signal** > **Channel** to view the channel status, channel name, channel type, and more.

You can search for channels by device name, IP address, and channel name.

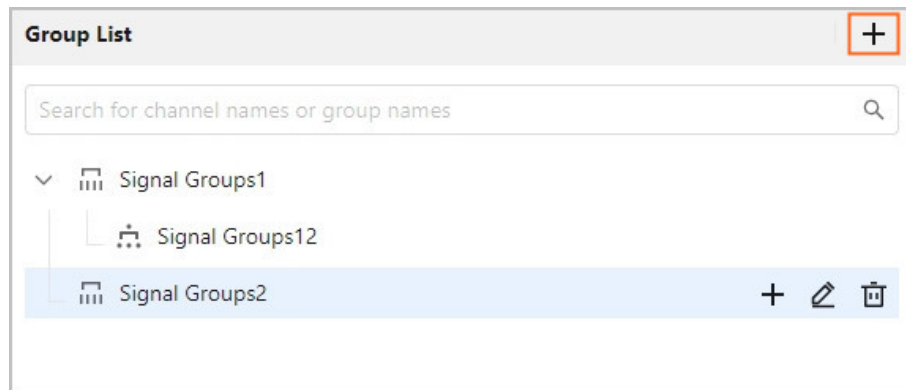
4.4.3 Signal Groups

Customize groups for media files. Signal groups can be used for wall display by group and for cyclic playback of signals within the group.

Procedure

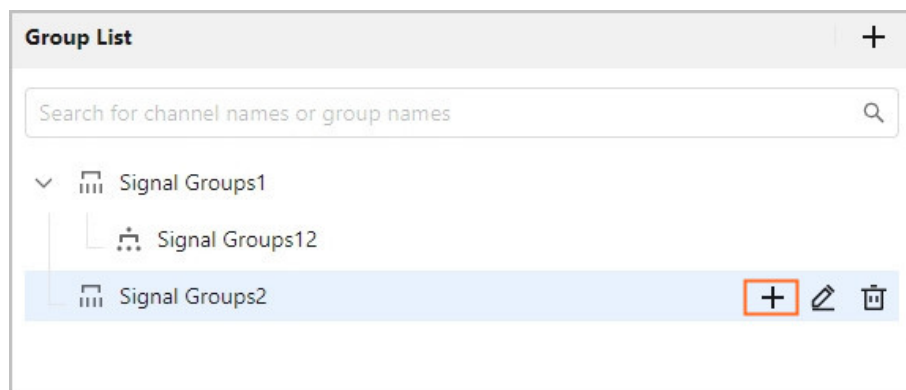
- Step 1 On the home page, select **Device Setting** > **Signal Groups**.
- Step 2 Add a new group.
- Add a first-level group.
 1. Click **+** on the right side of the **Group List**.

Figure 4-13 Add a first-level group



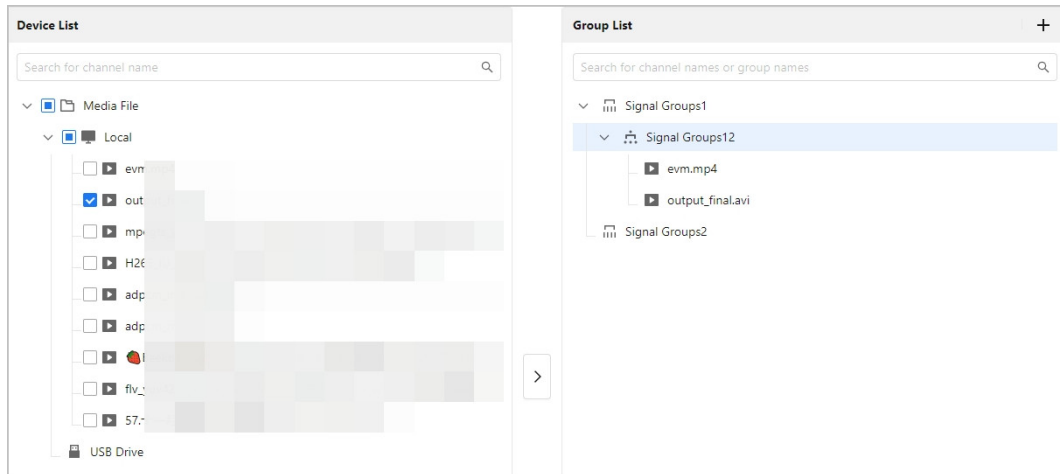
2. Name the new group in the pop-up page.
3. Click **OK**.
- Add second-level to fifth-level groups.
 1. Hover the mouse over the name of a first-level to fourth-level group to display the operation icon.
 2. Click **+**, and then name the new group in the pop-up page.
 3. Click **OK**.

Figure 4-14 Add a second-level group



- Step 3 Add media files to the group.
1. Select a group in the **Group List**.
 2. Select the media files to be added to the group in the **Device List**.
 3. Click  to add them to the group.

Figure 4-15 Add media files to the group



4.4.4 Favorites

Add media files to the favorites for quick selection from the favorites when configuring windows later.

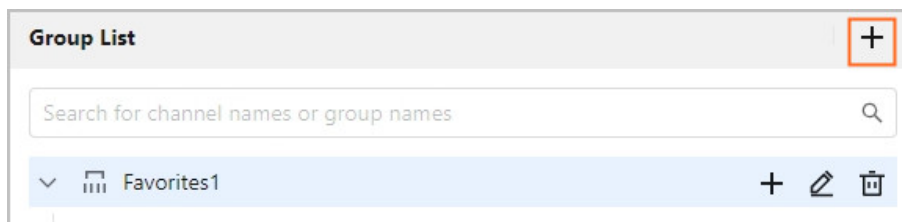
Procedure

Step 1 On the home page, select **Device Setting** > **Favorites**.

Step 2 Add a new favorites group.

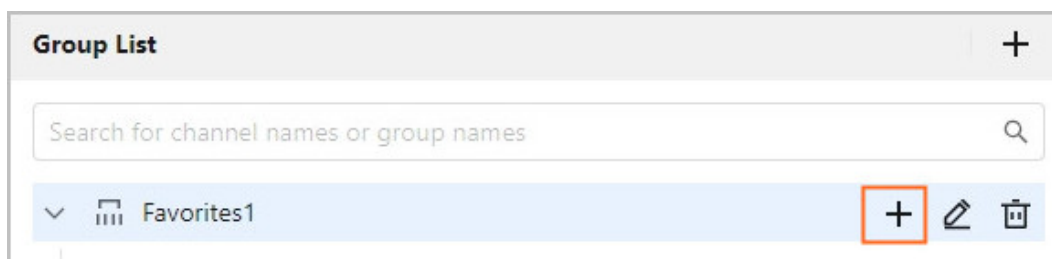
- Add a first-level group.
 1. Click **+** on the right side of the **Group List**.

Figure 4-16 Add a first-level group.



2. Name the new group in the pop-up page.
 3. Click **OK**.
- Add a second-level group.
 1. Hover the mouse over the name of a first-level group to display the operation icon.
 2. Click **+**, and then name the new group on the pop-up page.
 3. Click **OK**.

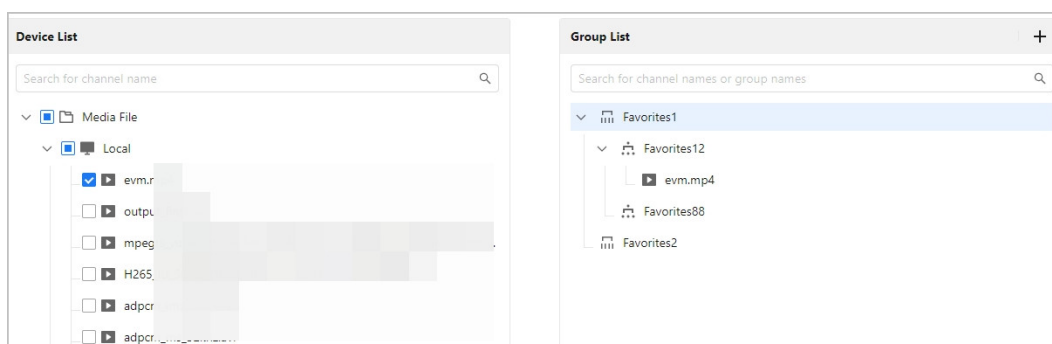
Figure 4-17 Add a second-level group



Step 3 Add media files to the favorites group.

1. Select a favorites group in the **Group List**.
2. Select the media files to be added to the favorites group in the **Device List**.
3. Click  to add them to the favorites group.

Figure 4-18 Add media files to the favorites group



4.5 Video Wall

4.5.1 Configuring Video Wall

Procedure

- Step 1** On the main page, click **Video Wall** > **Video Wall Config**.
- Step 2** Click **Add**, and then configure the layout and the video wall name.

Figure 4-19 Add a video wall



Step 3 Click **OK**.



Press and hold the left mouse button to drag the screen.

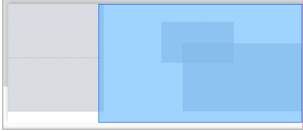
Step 4 Bind the output channel and the screen.

1. Select the output slot and screen.
2. Click  or  to automatically bind the slot with single screen horizontally or vertically.

Step 5 Adjust the layout of the video wall.

Table 4-5 Description of the layout icon

Icon	Description
	Zoom in and zoom out of the screen.  You can adjust the screen with the mouse wheel.
	Screen self-adaptive. After zooming in or out of the video wall operation area, use this button to return to the original page position (left-aligned) proportionally.
	Clear all screens on the video wall.
ID	Every splicing screen will show a name or ID.
NQ.	Displays the screen control ID that you can use the network keyboard to control the video wall.

Icon	Description
	Eagle eye map. After clicking the icon, move the blue frame in the pop-up thumbnail to jump the video wall view to the corresponding area in real time. 

Step 6 Click **Save Video Wall**.



The new video wall is turned on by default. To turn it off, click .

4.5.2 Video Wall Control

4.5.2.1 Window Configuration

Define one or multiple windows on the video wall. Each window is used to display one signal source or multiple media files.

Procedure

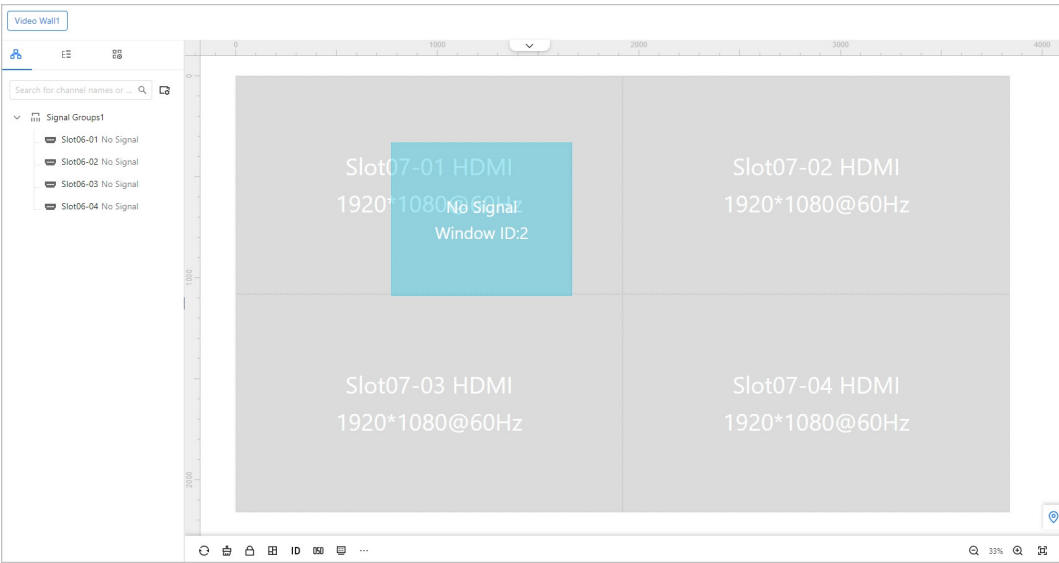
Step 1 On the home page, click **Video Wall**, and then select **Video Wall Control**.

Step 2 Select the video wall, press and hold the left mouse button, and then drag to create one or more windows.



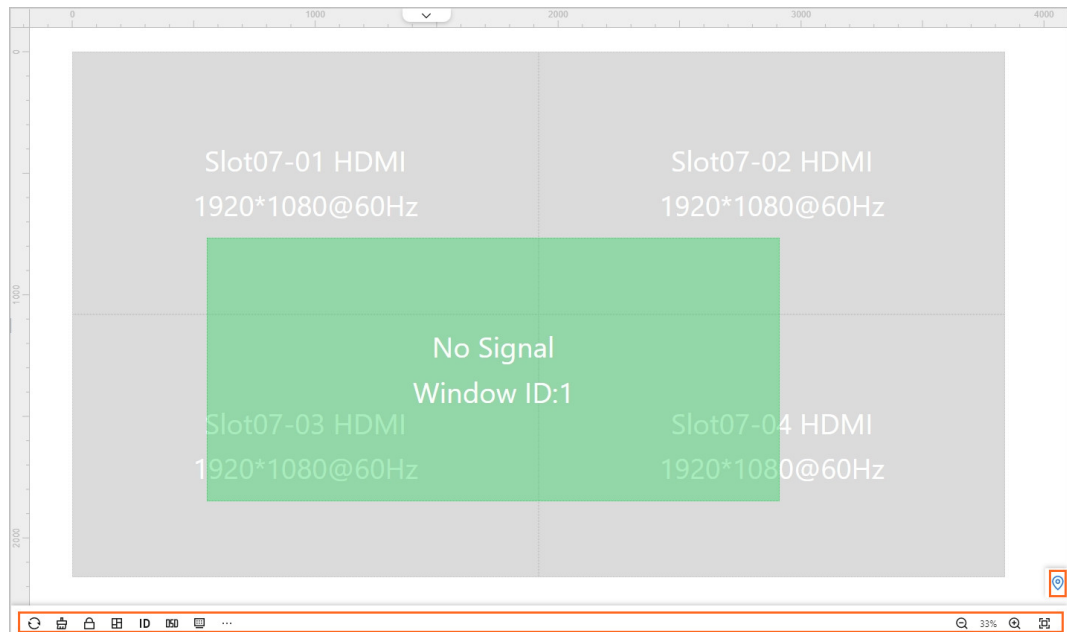
Click  or  to expand or collapse the video wall list above.

Figure 4-20 Add windows



For detailed information about related operations at the bottom of the video wall, see "4.5.2.2 Video Wall Operation".

Figure 4-21 Video wall operation function



Step 3 Select a window and adjust its properties.



- Select a window, and then press and hold the left mouse button and move to adjust its position.
- Select a window, and then drag the control points on the window border to adjust its size.
- The X/Y/W/H values below the window display the current position and size of the window.

Figure 4-22 Adjust the window

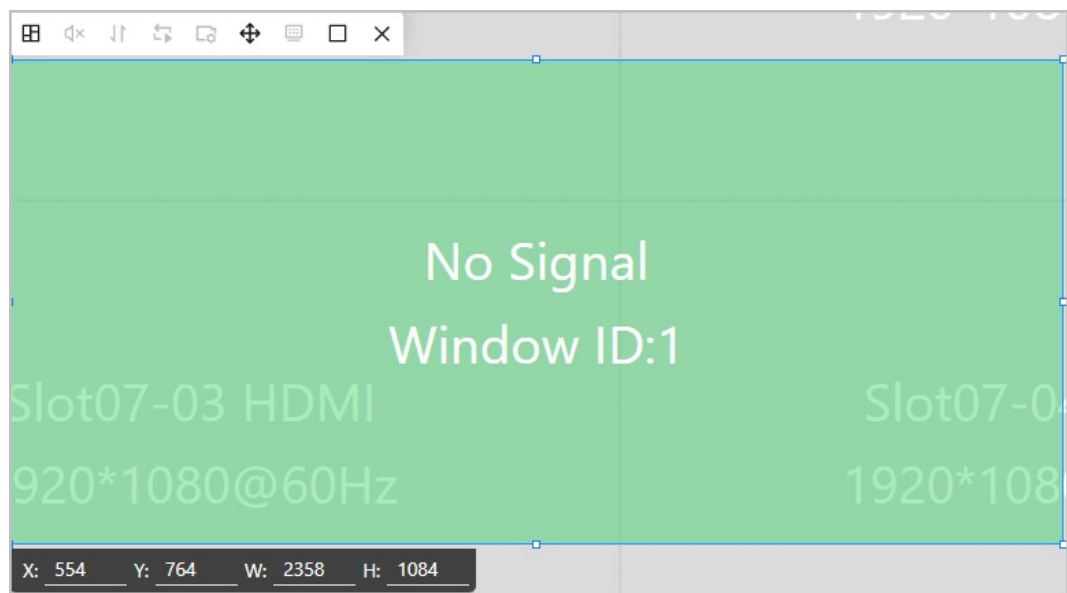
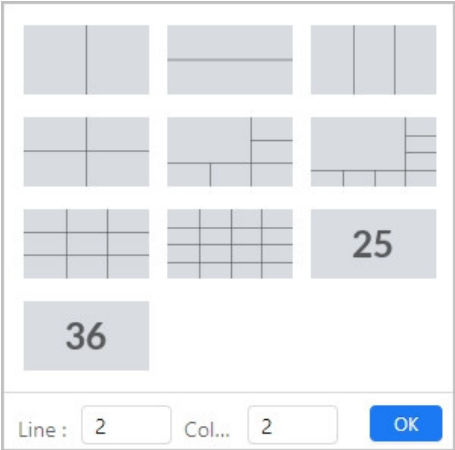
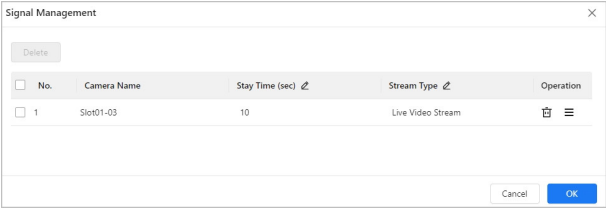


Table 4-6 Window adjustment function description

Icon	Description
	Click  to choose the number of split windows, or enter a custom number manually. 
	Turn audio on or off.
	Click  , and then select Pin to Top , Up , Down , or Pin to Bottom to pin the current window to the top, move it down one layer, move it up one layer, or pin it to the bottom.
	Click  , when it turns to  , the signal tour starts. Click  to stop signal tour.
	Supports the following operations. - Click  to edit the stay time for a signal source. - Click  to adjust the sequence of signal sources. 
	Click  , when it turns to  , the window is locked and cannot be split or maximized. Click  to unlock the window.
	Displays the video image of the selected source in the current video wall window.  If the device performance does not meet the requirements, the video will not be displayed.

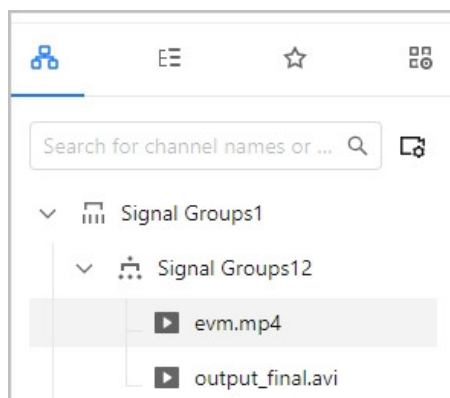
Icon	Description
	Click  , when it turns to  , the window is maximized. Click  to restore the window size.
	Close the window.

Step 4 Select a window, click ,  or  on the left side. Double-click a signal source or media file to bind it to the window.



-  and  only contain media files.
-  and  will only appear on the video wall control page after configuring groups or favorites from **Device Setting > Signal Groups** or **Device Setting > Favorites**.
-  supports the following operations.
 - ◇ Quickly search by channel name or group name.
 - ◇ Drag a signal group into a window for quick wall display and automatic rotation.
 - ◇ Click  to quickly navigate to the **Device Setting > Signal Groups** page.

Figure 4-23 Signal groups



-  supports the following operations.
 - ◇ Quickly search by channel name.
 - ◇ Click  to select multiple signals in batch.
 - ◇ Click  to upload multiple signals in batch.
 - ◇ Click  to quickly navigate to **Device Setting > Local Signal > Signal Management**.
 - ◇ Hover over any local signal and click  to crop the image.



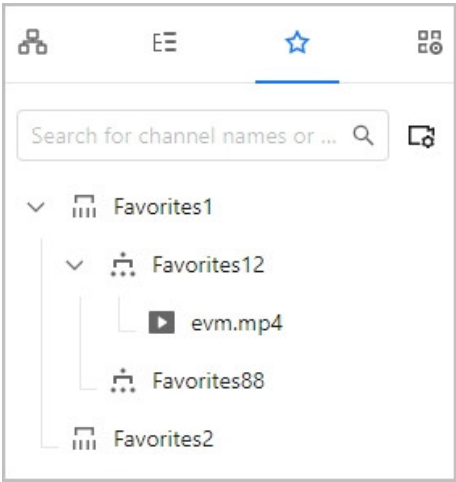
Click  to switch between main and sub streams.

Figure 4-24 Signal source



- ☆ supports the following operations.
 - ◇ Quickly search by channel name or group name.
 - ◇ Drag a favorites group into a window for quick wall display and automatic rotation.
 - ◇ Click 🖼️ to quickly navigate to the **Device Setting > Favorites** page.

Figure 4-25 Favorites



4.5.2.2 Video Wall Operation

On the home page, select **Video Wall > Video Wall Control**.

Various operations are supported at the bottom of the video wall. For details, refer to the table below.

Figure 4-26 Video wall operation

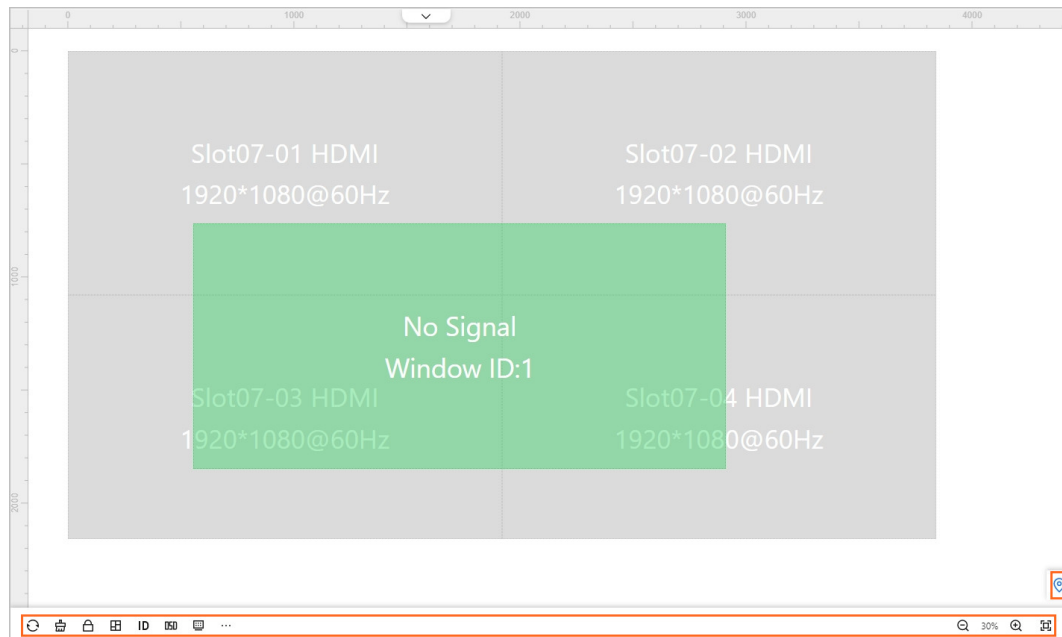
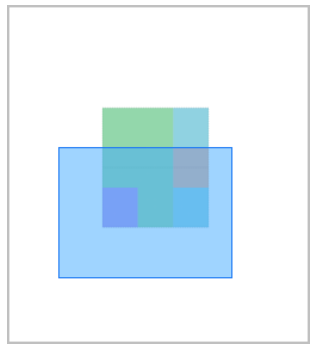


Table 4-7 Video wall operation description

Items	Description
	Refresh the page.
	Clear all windows and subtitles.
	Lock the video wall. Once locked, editing and dragging of the video wall are disabled. Click Unlock to release the lock.
	Click  to choose the number of split windows, or enter a custom number manually.
ID	Shows or hides mapping.
	Configure subtitles displayed on the screen.
	Displays the video image of the selected source in the current video wall window.  If the device performance does not meet the requirements, the video will not be displayed.

Items	Description
...	Includes background image (serves as the LED wall background) and screen management operations. ● Background Image : Click Browse to select and upload an image from the local device. Enable the function, select the uploaded image, and then click OK.  ◇ The supported image formats are jpg and bmp. ◇ The image size must not exceed 32 MB. ● Screen Management : Configure scheduled screen on/off and timed tasks. ● Video Wall Config : Click it to go to the Video Wall Config page.
 29%	Zoom in or zoom out the screen.  You can also zoom in or zoom out the screen by scrolling the mouse wheel.
	Screen auto-fit.
	Eagle eye map. After clicking the icon, move the blue frame in the pop-up thumbnail to jump the video wall view to the corresponding area in real time. 

4.5.2.2.1 Subtitle Management

Add subtitles to the video wall to display text on the screen.

Adding Subtitles

1. On the home page, select **Video Wall** > **Video Wall Control**.
2. Click  at the bottom of the video wall.
3. Click **Add**, and then configure the subtitle parameters.

Figure 4-27 Configure the subtitle parameters

Table 4-8 Subtitle parameter descriptions

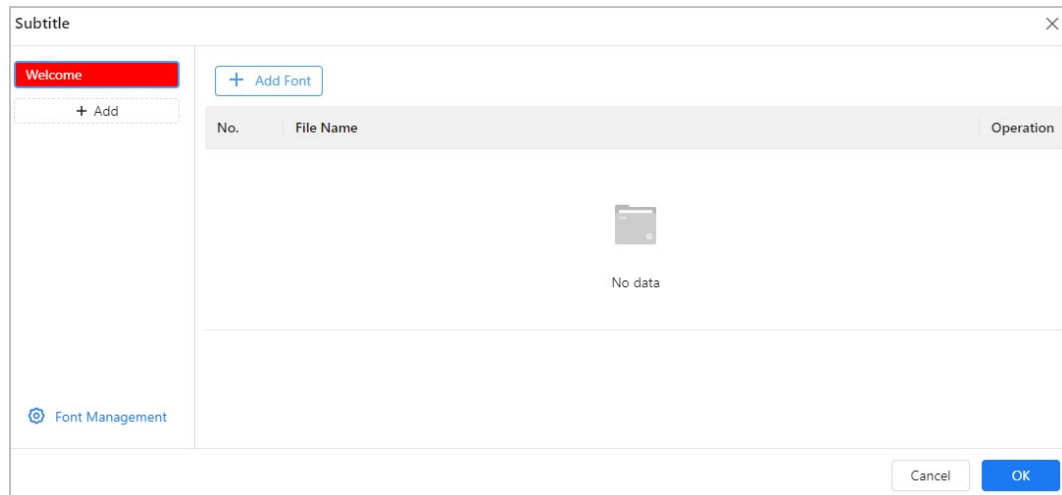
Parameter	Description
Enable	Click ☐ to enable the subtitle function.
Mode	Set the mode of the subtitles. Currently, only Text is supported.
Text	Configure the content of the subtitle that will be displayed on the video wall.
Font Type	Select the font type.
Font Scale	Set the font scale within a range of 1 to 100.
Character Spacing	Set the character spacing, ranging from 0 to 5.
Font Color	Set the font color.
Background Color	Enter a 6-digit RGB value, or click the color area to select the background color of the subtitles.
Text Alignment	Configure the alignment of the text, including left, center, and right.
Alignment	Configure the alignment of the subtitle, including Horizontal and Vertical .
Scrolling Speed	When the subtitles are longer, you can set the scrolling direction and scrolling speed. The larger the value, the faster the scrolling speed.
Scrolling Direction	
X/Y	Configure the starting coordinates of the subtitles.
W/H	Set the width and height of the subtitle background.

4. Click **OK**.

Font Management

1. On the subtitle page, select **Font Management**.
2. Click **Add Font**, and then select a font package from the local device.
3. Click **OK**.

Figure 4-28 Import local fonts



4.5.2.2.2 Screen Management

Properly connect the device to the serial port cable of the screen to control its powering on and off. Once the screen is turned off, it will display a black screen.

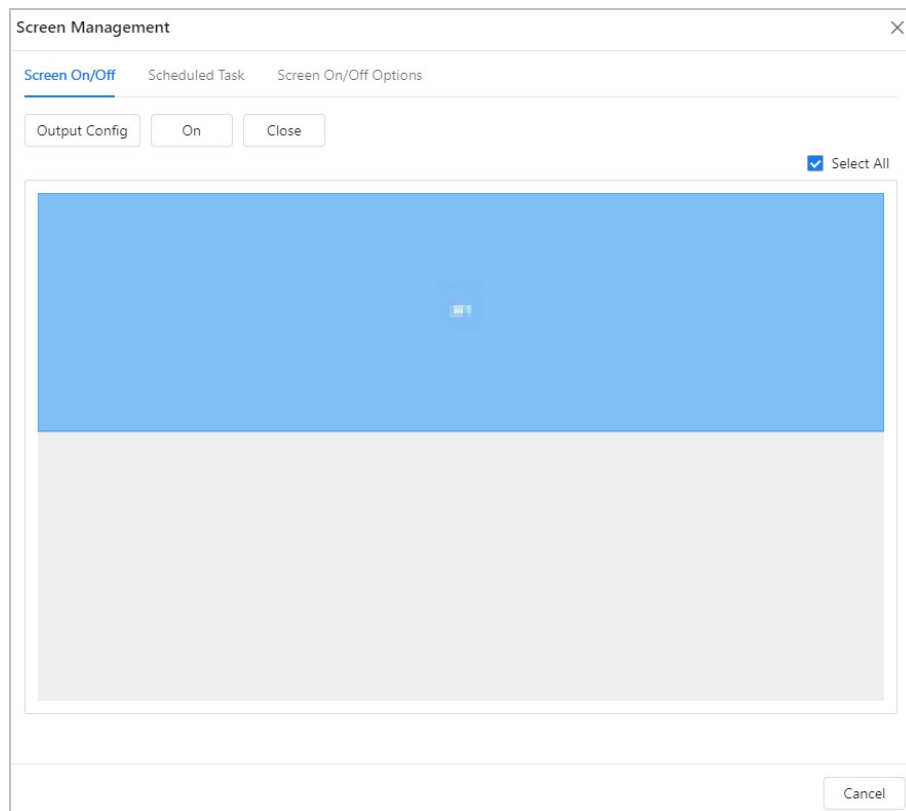
On the home page, select **Video Wall > Video Wall Control**. At the bottom of the video wall, click *******, and then select **Screen Management** to configure screen on/off, timed tasks, and screen switch options.

Screen On/Off

1. Select **Screen On/Off**.
2. Select a screen, and then click **On** to turn it on.

Click **Output Config** to quickly navigate to **Display Management > Output Config > Sending Port**.

Figure 4-29 Screen on/off



Scheduled Task

Configure scheduled on or off times for each screen. During the preset time periods, the screens will power on or off according to their scheduled settings.

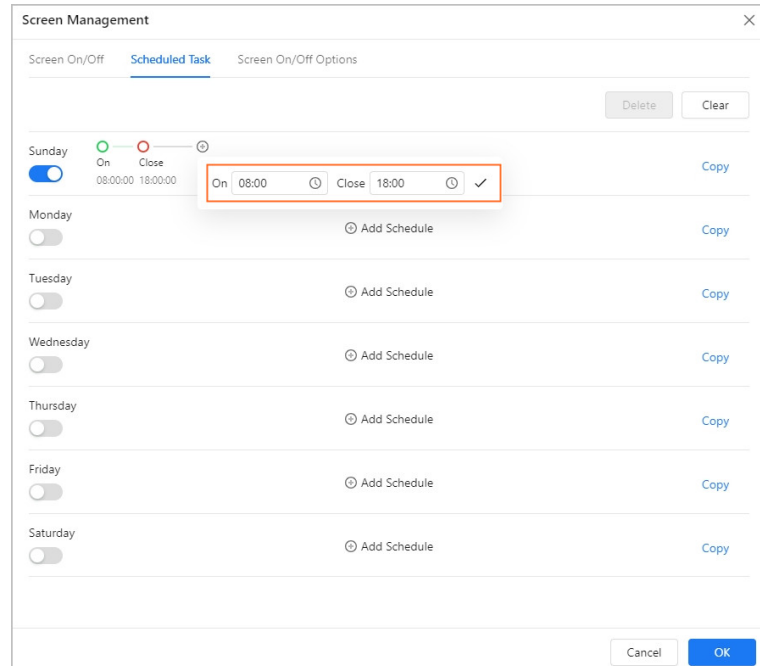
1. Click **Scheduled Task**.
2. Click , set the start and end times, then click .



- After adding a time period, click  on the same day to add additional periods.
- Click **Copy**, and then select specific weekdays in the dialog to copy the current time settings to other days.

3. Click **OK**.

Figure 4-30 Scheduled task

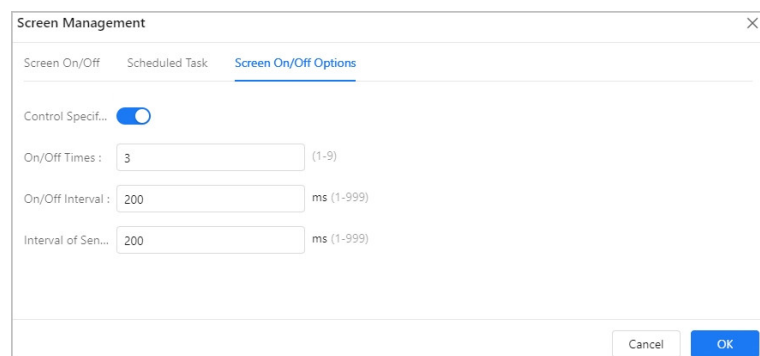


Screen On/Off Options

The device continuously sends on/off commands to all screens at defined intervals and for a defined number of cycles to ensure each screen receives and executes the commands.

1. Select **Screen On/Off Options**.
2. Enable **Control Specified Screens**.
3. Set the number of switch cycles and the interval between switches.
4. Click **OK**.

Figure 4-31 Options



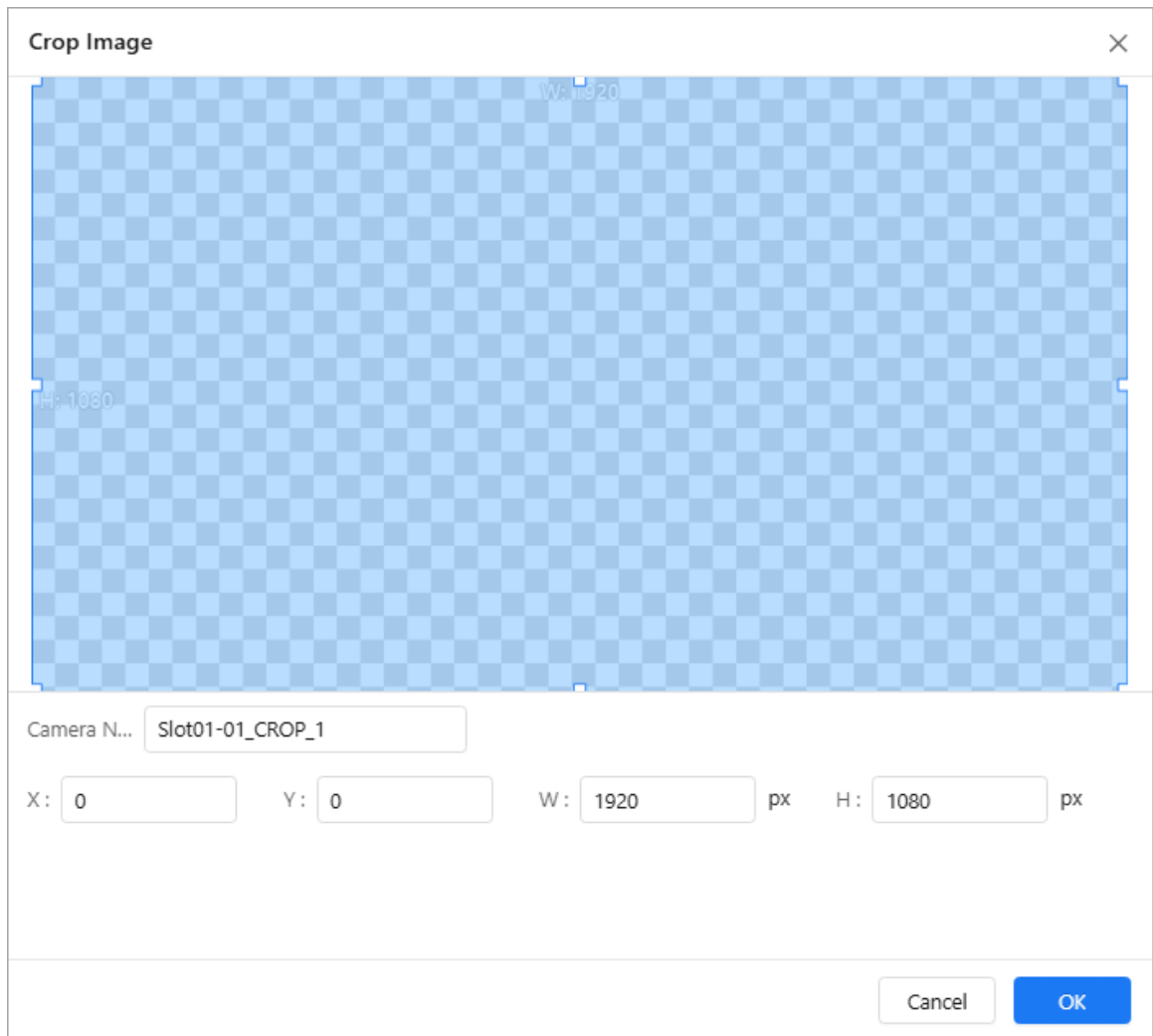
4.5.2.3 Image Cropping

Supports image cropping for local signal channels.

Procedure

- Step 1 On the home page, select **Video Wall** > **Video Wall Control**.
- Step 2 Move the mouse to a local signal, and then click .

Figure 4-32 Crop image



Step 3 On the image cropping page, drag the rectangular cropping frame with the mouse or manually enter values in the X, Y, W, H input boxes below to set the cropping area.

Step 4 Click **OK**.

4.5.2.4 Scene Management

4.5.2.4.1 Adding a Scene

Save the video wall layout and windows as a scene for quick one-click layout switching based on different scenarios later.

Prerequisites

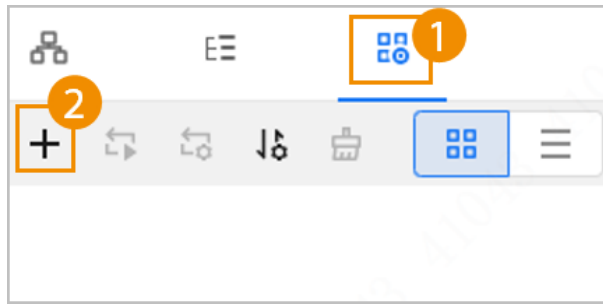
Video wall configuration and window configuration have been completed.

Procedure

Step 1 On the home page, select **Video Wall > Video Wall Control**.

Step 2 Select , click , enter a custom scene name in the pop-up page, and then click **OK**.

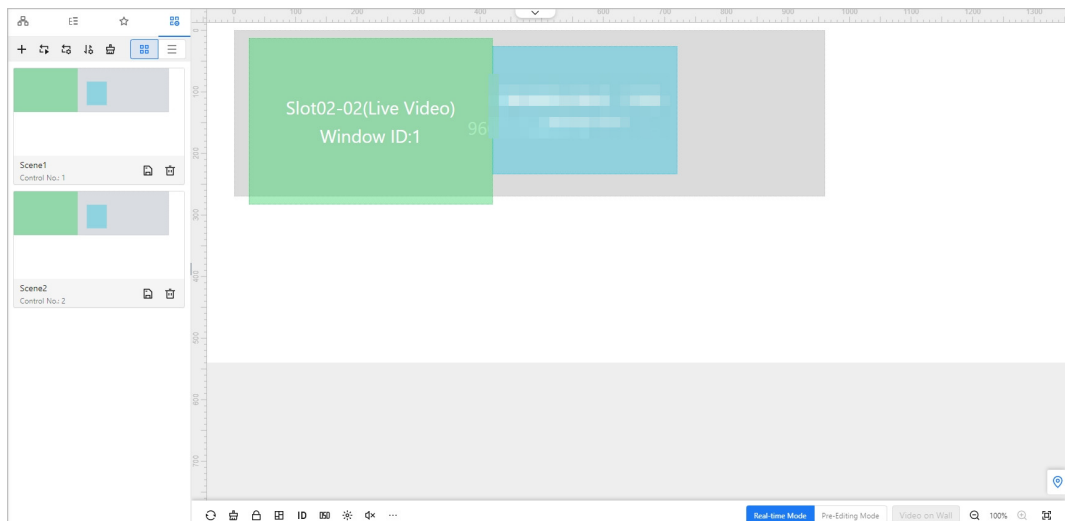
Figure 4-33 Add a scene



Step 3 (Optional) Adjust the layout on the right-side video wall, and then click  to save the current on-wall information to this scene.

Click   to switch the view mode.

Figure 4-34 Modify the scene



Related Operations

Scenes can be sorted as follows.

1. Click  on the top of the scene list.
2. Sort the scenes in the following ways.
 - Method 1: Press and hold the scene card and drag it up or down to adjust the order.
 - Method 2: Click   on the icon on the scene card to move the scene to the top or bottom.
3. Click **OK**.

4.5.2.4.2 Tour Management

Set switching times for the configured scenes and enable loop playback on the video wall.

On the home page, select **Video Wall** > **Video Wall Control**, select , and then select .

Supports 2 modes: **Scene Tour** and **Scheduled Switch**.

Scene Tour

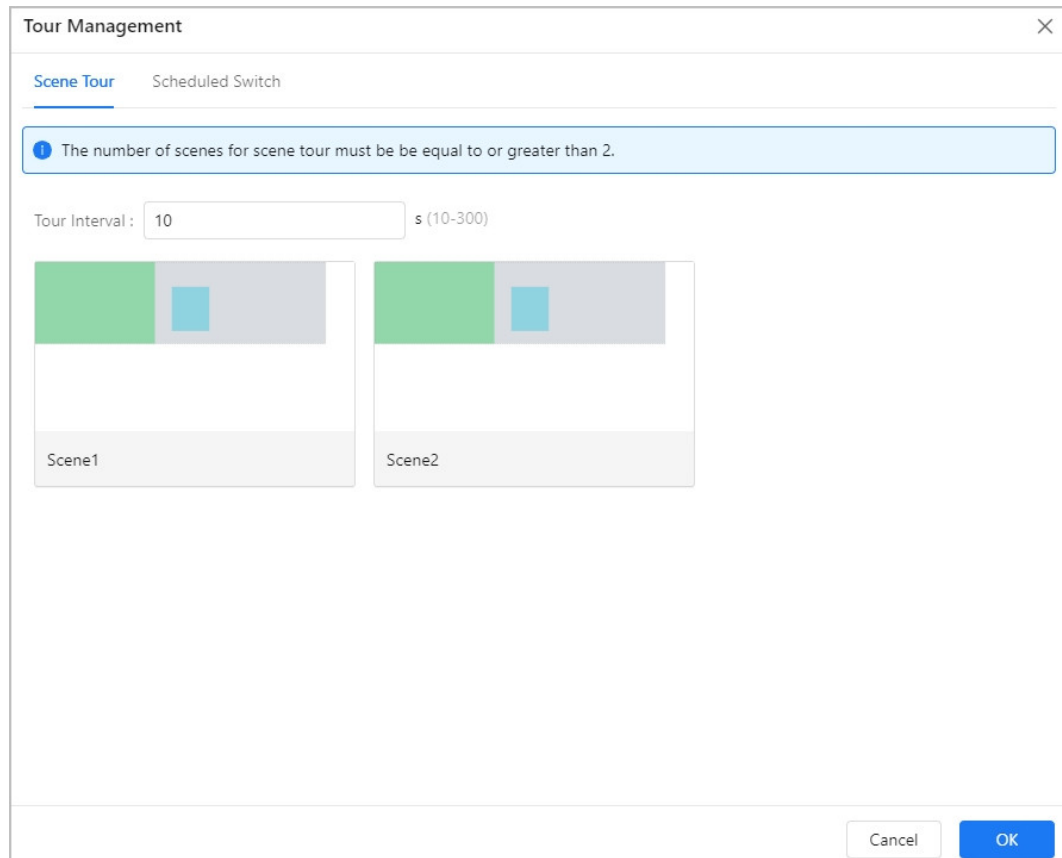
Play scenes sequentially based on the defined rotation interval and selected scene order.

1. Select **Scene Tour**.
2. Set the tour interval, select the scenes, and then click **OK**.



The system arranges the playback order according to the selected sequence.

Figure 4-35 Scene tour



3. Click .

Click **Stop** to end scene tour.

Scheduled Switch

After setting the switch time for a specific scene, the system will switch to that scene at the designated time.

1. Select **Scheduled Switch**.
2. Select a scene from the left list, click , set the start time, and then click .



- After adding a time, click  on the same day to add additional start times for that day.
- Click **Copy**, and then select specific weekdays in the dialog to copy the current time settings to other days.

Figure 4-36 Scheduled switch

Tour Management [X]

Scene Tour Scheduled Switch

Scene1 [Delete] [Clear]

Scene2

Sunday	☒ On 08:00:00 — ☒ On 10:02:00	[+]	[Copy]
Monday	☒ On 00:00:00	[+]	[Copy]
Tuesday	☐	[+] Add Schedule	[Copy]
Wednesday	☐	[+] Add Schedule	[Copy]
Thursday	☐	[+] Add Schedule	[Copy]
Friday	☐	[+] Add Schedule	[Copy]
Saturday	☐	[+] Add Schedule	[Copy]

[Cancel] [OK]

3. Click ☐ to enable the time configuration.
4. Click **OK**.

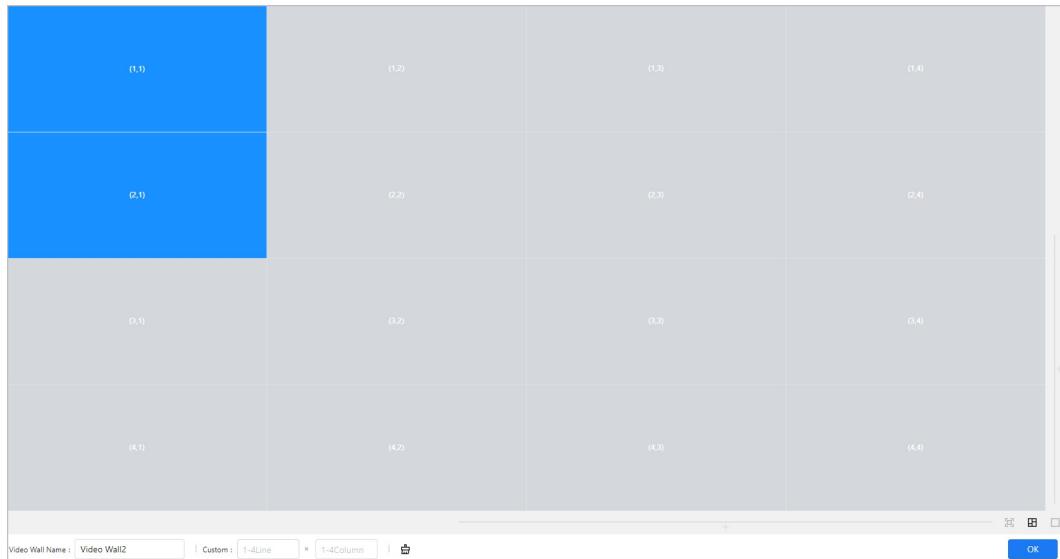
4.5.3 Creating Compatible Video Wall

Create a video wall for use with client applications other than the web.

Procedure

- Step 1 On the home page, select **Video Wall > Create Compatible Video Wall**.
- Step 2 Configure the video wall name, set the number of rows and columns for the video wall, and then click **OK**.

Figure 4-37 Configure the video wall



Step 3 Click  or  to bind slot channels and screens horizontally or vertically.



All screens on the video wall must be bound to the slot channel. Otherwise, when saving video wall, the system prompts that some screens are not bound to output ports.

Step 4 Click **Save Video Wall**, and then the system skips to **Video Wall Config**. For details, see "4.5.2 Video Wall Control".

4.6 Display Management

4.6.1 Screen Settings

You can configure manufacturer, serial port and serial port address for every output screen, in order to realize communications between screen and Device. The serial port address must be the same as the DIP address of the connected screen.

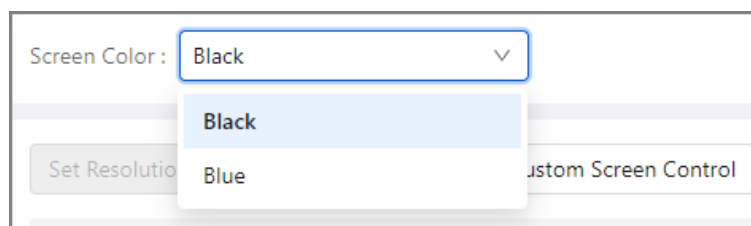
Procedure

Step 1 On the main page, select **Display Management** > **Output Port**.

Step 2 Configure the screen color and window color.

Select color from the drop-down list.

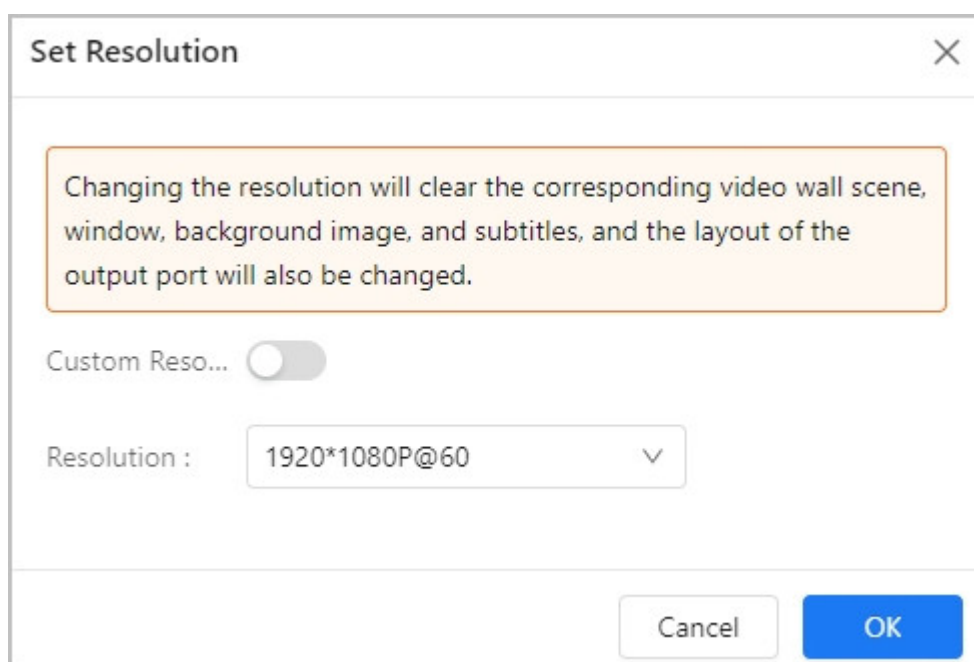
Figure 4-38 Configure the screen color/window color



Step 3 Configure the control number, color space mode, manufacturer, and serial port according to your actual needs.

Step 4 Click  to configure the resolution.

Figure 4-39 Resolution



Step 5 Click  to configure screen color.

Figure 4-40 Configure screen color



Table 4-9 Parameter description

Parameter	Description
Hue	Drag the slider to adjust the image hue.
Brightness	Drag the slider to adjust the image brightness through linear adjustment. The bigger the value is, the brighter the image will become.
Contrast	Configure the contrast of the image.
Saturation	Drag the slider to adjust the color shades. The bigger the value is, the darker the color will become. And vice versa. This value does not affect the overall brightness of image.

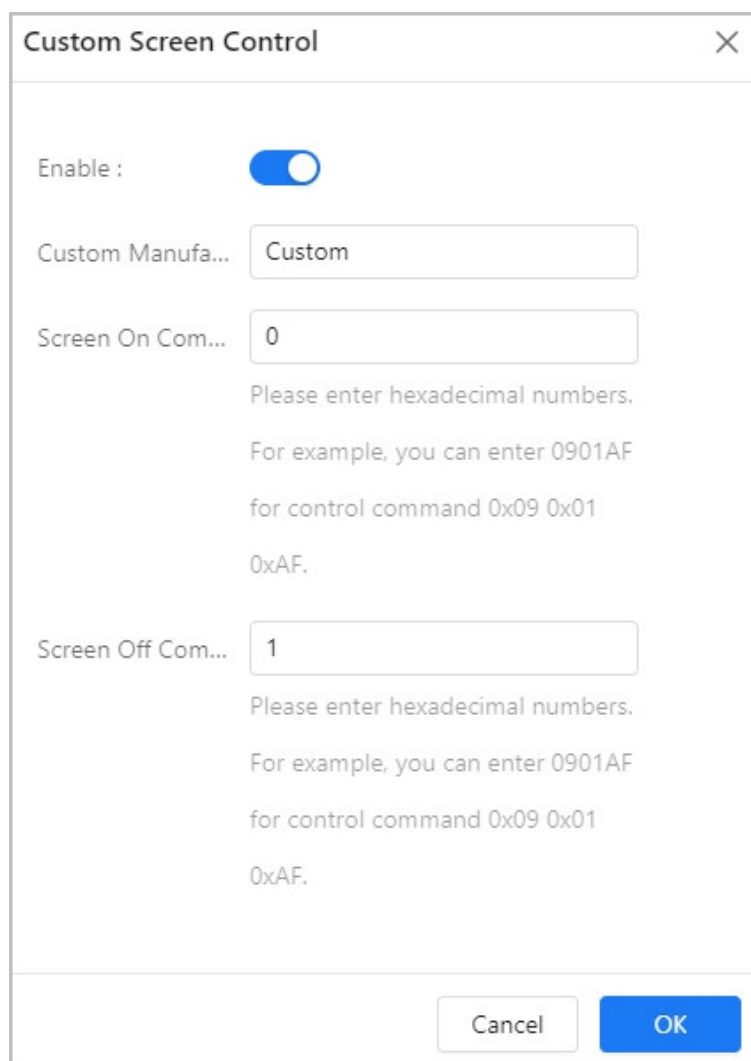
Step 6 Click **Apply**.

Related Operations

The output port page supports the following operations.

- **Add Fixed Resolution** : Click **Add Fixed Resolution**, customize the resolution in the pop-up window, and then click **Add**.
- **Set Resolution** : Select multiple output ports, and then click **Set Resolution** to configure the screen resolutions in batches. Both fixed and custom resolutions are supported.
- **Screen Color Config** : Select multiple output ports, and then click **Screen Color Config** to batch-configure the screen's chromaticity, brightness, contrast, and saturation.
- Batch set custom screen on/off commands. The operations are as follows.
 1. Select the output ports, and then click **Screen Custom Control**.
 2. Enable custom control and select the manufacturer's name.
 3. Configure the power-on and power-off commands for the screen. These commands will be used to batch-enable or disable the screens in the future.
 4. Click **OK**.

Figure 4-41 Custom screen control



The screenshot shows a dialog box titled "Custom Screen Control" with a close button (X) in the top right corner. The dialog contains the following elements:

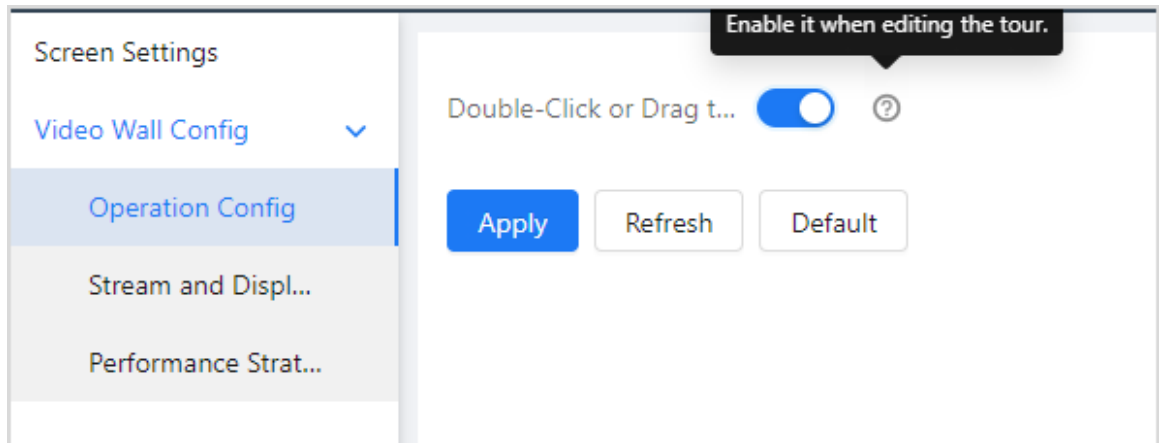
- Enable :** A toggle switch that is currently turned on (blue).
- Custom Manufa...**: A text input field containing the word "Custom".
- Screen On Com...**: A text input field containing the number "0". Below this field, there is instructional text: "Please enter hexadecimal numbers. For example, you can enter 0901AF for control command 0x09 0x01 0xAF."
- Screen Off Com...**: A text input field containing the number "1". Below this field, there is instructional text: "Please enter hexadecimal numbers. For example, you can enter 0901AF for control command 0x09 0x01 0xAF."
- At the bottom right, there are two buttons: "Cancel" and "OK".

4.6.2 Video Wall Configuration

Operation Configuration

1. On the main page, select **Display Management > Video Wall Config > Operation Config**.

Figure 4-42 Operation configuration



2. Click ☐ to enable **Double-Click or Drag to Add Signal Source**.



- After enabling this function, you can add another signal source to a window that already has a signal.
- Enable this function when editing the tour.

3. Click **Apply**.

Stream and Display Strategies

1. On the main page, select **Display Management > Video Wall Config > Stream and Display Strategies**.
2. Click ☐ to enable the corresponding functions according to actual needs.

Figure 4-43 Stream and display strategies

Stream Strategies

Sub Card Acquires Stre... ☒

Sub Card Acquires Stre... ☐

Network Signal Smoot... 240 (40-1000) ?

Auto Switch Between ... ☐

Semi-Transcoding of S... ☐ ?

No RTP Streaming : ☐ ?

Display Strategies

On-Screen Prompt : ☐

Keep Last Frame When... ☒

Neat Scene Switching : ☐ ?

Table 4-10 Parameter description

Parameter	Description
Sub Card Acquires Streams from Platform	Click ☐ to enable this function, and then the sub board will acquire stream from the platform.
Sub Card Acquires Streams from Front-End Devices	Click ☐ to enable this function, and then the sub board will acquire stream from the front-end devices.
Network Signal Smoothness	Drag the slider to adjust the smoothness of the network signal.
Auto Switch Between Main and Sub Stream	If main stream is displayed on the window, when the resolution is lower than D1, main stream will automatically switch to sub stream.
Semi-Transcoding of Streaming Media Database	The stream media library does not encapsulate streams but pass streams to devices for decoding.  Enable it when the stream SDP information of the streaming scene is not standard.
No RTP Streaming	After you enable this function, streams without RTP head can be decoded and displayed on the wall.  ● Enable it when the stream does not have an RTP header. ● This function cannot be used together with audio/video encryption.

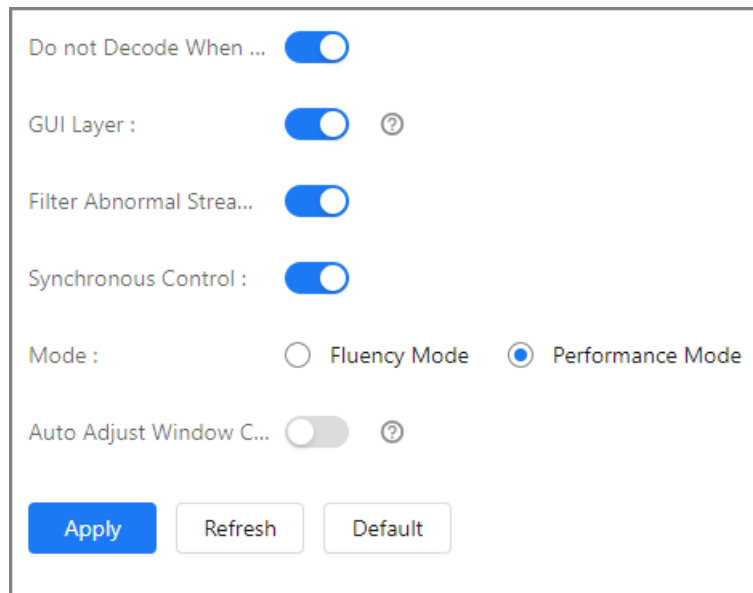
Parameter	Description
On-Screen Prompt	Prompt information will be displayed on the window.
Keep Last Frame When Switch Scene	Keep the last frame when switching schemes to avoid black screen.  Only suitable for fixed split or full-screen scene switching.
Neat Scene Switching	Scene stream will be switched synchronously and neatly, to enhance the visual effect.  The function is only supported by splicing screen. For a better experience, please enable Keep Last Frame function.

3. Click **Apply**.

Performance Strategies

1. On the main page, select **Display Management > Video Wall Config > Performance Strategies**.
2. Click  to enable the corresponding functions according to actual needs.

Figure 4-44 Performance strategies



Do not Decode When ... ☒

GUI Layer : ☒ ?

Filter Abnormal Strea... ☒

Synchronous Control : ☒

Mode : ☐ Fluency Mode ☒ Performance Mode

Auto Adjust Window C... ☐ ?

Apply Refresh Default

Table 4-11 Parameter description

Parameter	Description
Do not Decode When Video is Overwritten	The covered window will pause decoding.

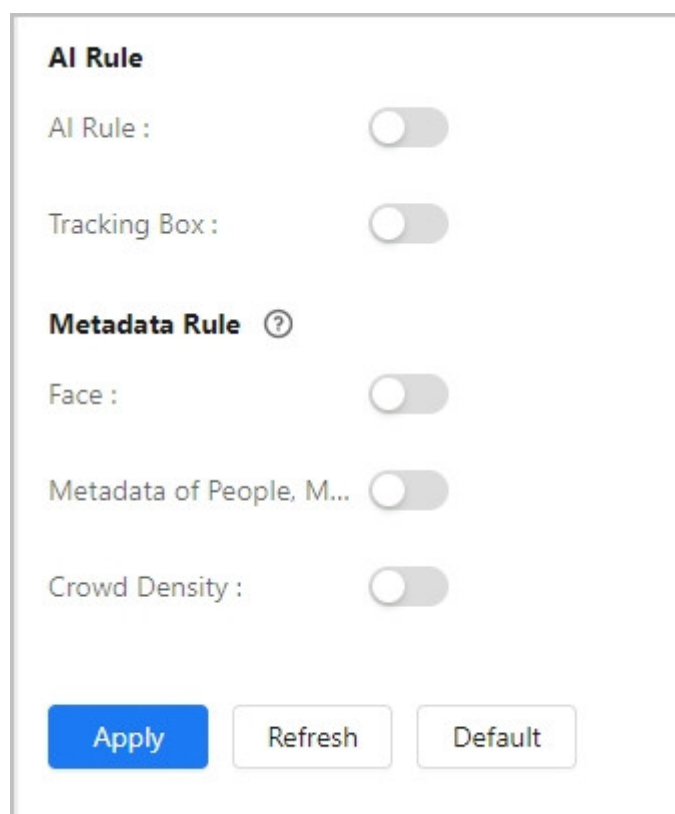
Parameter	Description
GUI Layer	When this function is not enabled, only video images can be displayed on the output screen. The screen number and virtual LED functions cannot be used. If you need to decode 8K videos and have 4K display output simultaneously, please disable the GUI function.  Disable this function when using 4K display output. After disabling this function, certain functions such as screen ID and subtitles cannot be used.
Filter Abnormal Streams	The system checks and filters abnormal stream, in order to prevent green screen.
Synchronous Control	Enable this function, and then you can configure the Fluency Mode and Performance Mode. ● Fluency mode: There might be an issue with the image not being synchronized when dragging it across the screen. Therefore, selecting fluency mode will increase the frame rate to ensure that the image is synchronized. ● Performance mode: When streaming across screens, there might be issues with picture synchronization. After selecting performance mode, the frame rate will be lowered to ensure the images are synchronized.
Auto Adjust Window Coordinates	Automatically adjust the edge coordinates of the window.

3. Click **Apply**.

AI Display

1. On the main page, select **Display Management > Video Wall Config > AI Display**.
2. Click ☐ to enable the corresponding functions according to actual needs.

Figure 4-45 AI Display



The image shows a configuration window titled "AI Display". It contains two main sections: "AI Rule" and "Metadata Rule". Each section has three toggle switches. At the bottom, there are three buttons: "Apply" (blue), "Refresh", and "Default".

Section	Option	Toggle State
AI Rule	AI Rule :	Off
	Tracking Box :	Off
Metadata Rule ?	Face :	Off
	Metadata of People, M...	Off
	Crowd Density :	Off

Buttons: Apply, Refresh, Default

3. Click **Apply**.

4.7 Network Configurations

4.7.1 TCP/IP

You can bind the IP and MAC address of the Device to reduce the risk of ARP (Address Resolution Protocol) deception.

Procedure

- Step 1 On the main page, select **Network Settings** > **TCP/IP**.
- Step 2 Select a NIC card, and then click  to configure the network parameter, and then click **OK**.

Figure 4-46 Network parameter

Edit
✕

NIC Name : Link Aggregation (NIC 1+2)

Binding Mode : ☒ Link Aggregation

IP Version : IPv4 ▼

Mode : ☐ DHCP ☒ Static

IP Address : . . . Test

Subnet Mask : . . .

Default Gatew... . . .

NIC Name	MAC Address	Speed
● NIC 1	aa:aa:aa:aa:aa:aa	2500M
● NIC 2	aa:aa:aa:aa:aa:aa	2500M

Cancel
OK

Table 4-12 Parameter description

Parameter	Description
Binding Mode	Link Aggregation: When the NIC is bound for communication with the outside world, the bound NICs participate in the workload and share the network load. Based on the user-configured port load balancing policy, packets are sent from a member port to the peer switch. If a link on one member port becomes faulty, the system stops sending packets through that port and recalculates the port for sending packets based on the load balancing policy using the remaining links. Once the faulty port recovers, the system recalculates the port for sending packets again.
IP Version	It is IPv4 by default.

Parameter	Description
Mode	Select the DHCP check box, the system automatically obtains an IP address. • Static: You need to configure the IP address, subnet mask, and gateway manually. • DHCP: The IP address, gateway, and subnet mask cannot be set manually. ◇ If DHCP is effective, the obtained information will be displayed in the IP Address box, Subnet Mask box and Gateway box. If DHCP is not effective, they all display 0. ◇ To view manually set IP when DHCP is not effective, you must disable DHCP first, and then the device will display IP information that is not obtained through DHCP. Disable DHCP to manually configure a static IP address. Static IP information will restore default settings. You need to configure IP again.
IP Address	Enter numbers to change the IP address, and then configure its Subnet Mask and Gateway.  Click Test to test if the IP address can be used in order to avoid IP conflict.
Subnet Mask	
Default Gateway	

Step 3 Click **Apply**.

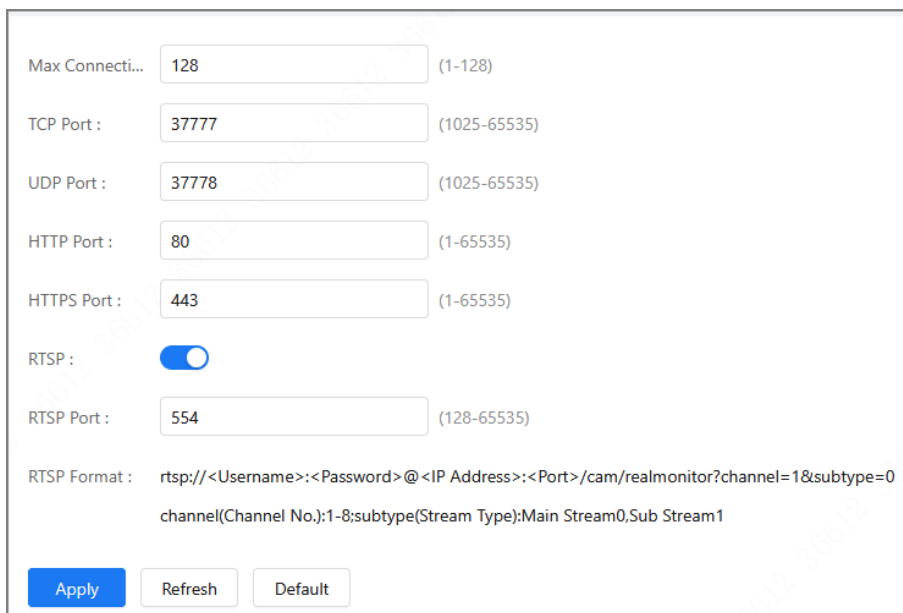
4.7.2 Port

You can configure the maximum connections and port to access the platform through the clients (including web client and computer client).

Procedure

Step 1 On the main page, select **Network Settings** > **Port**.

Figure 4-47 Port



Max Connecti... 128 (1-128)

TCP Port : 37777 (1025-65535)

UDP Port : 37778 (1025-65535)

HTTP Port : 80 (1-65535)

HTTPS Port : 443 (1-65535)

RTSP : ☒

RTSP Port : 554 (128-65535)

RTSP Format : rtsp://<Username>:<Password>@<IP Address>:<Port>/cam/realmonitor?channel=1&subtype=0
channel(Channel No.):1-8;subtype(Stream Type):Main Stream0,Sub Stream1

Apply Refresh Default

Table 4-13 Parameter description

Parameter	Description
Max Connection	The allowable maximum number of clients accessing the Device at the same time, such as web, platform, and mobile phone. The default value is 128.
TCP Port	TCP service port. The default setting is 37777. You can configure this parameter.
UDP Port	User Datagram Protocol port. The default value setting is 37778. You can enter the value.
HTTP Port	Hyper Text Transfer Protocol port. The default setting is 80. You can enter the value according to actual situation, and in this case, add the modified port number after the address when you log in to the Device on the browser.
HTTPS Port	The default value is 443. It enables the computer to authenticate via HTTPS seamlessly, ensuring secure communication and safeguarding user information and device integrity through robust and reliable technical methods.
RTSP Port	Click  to enable RTSP.  RTSP port can be enabled only when the Device is equipped with encoding cards including HD and UHD encoding cards. ● Real Time Streaming Protocol port. Keep the default value 554 if it is displayed. If you play live view through Apple's QuickTime or VLC, the following format is available. ● Username: username, for example admin. ● Password: password, for example admin. ● IP: The Device IP. ● Port: It is 554 by default. Keep it as default. ● Channel: channel number, starting from one. In case of channel 2, channel=2. ● Subtype: stream type. The main stream is zero (subtype=0), the sub stream is one (subtype=1). For example, if you acquire the sub stream of channel two from a certain device, then the URL should be: <pre>rtsp://admin:admin@192.168.1.1/cam/realmonitor?channel=2&subtype=1</pre> If authentication is not required, you do not need to specify the username and password. Use the following format: <pre>rtsp://ip:port/cam/realmonitor?channel=1&subtype=0</pre>

Step 2 Configure the port parameters, and then click **Apply**.

4.8 Live

Click **Live** on the home page to view the local signals or network signals.

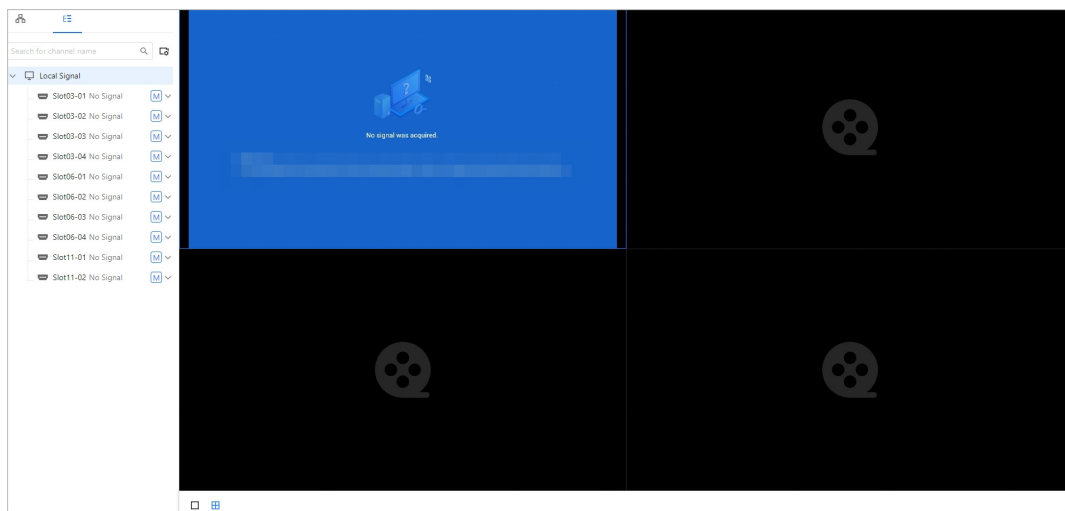
- Click ,  or  on the left signal tree, and then double-click a specific signal source to display the footage in the preview window on the right. You can also click and hold the left mouse button to drag the signal source to the right window for previewing.



The preview window supports screen splitting operations, including single window and 4-window views.

- Click the function icon in the upper-right corner of the window to enable operations such as recording the live footage, capturing images, and turning on audio.

Figure 4-48 Live



4.9 Event

Manages abnormal events by configuring alarm methods. When an abnormal event occurs during device operation, the system triggers alarm linkage actions.

Procedure

- Step 1 On the home page, select **Event > Exception**.
- Step 2 Select the exception types as needed, including **IP Conflict**, **MAC Conflict**, **Fan Fault**, and **Overtemperature**.

The following uses IP conflict as an example for explanation.

- Step 3 Click  to enable abnormal event alarms.

Figure 4-49 Event

- Step 4** Click  on the right of **Buzzer** or **Log** to enable alarm linkage.
- **Buzzer** : Emits a beep sound to alert in case of an alarm.
 - **Log** : Records alarm information in the log when an alarm occurs.
- Step 5** Click **Apply**.

4.10 System Management

Configure device name, system language, date, time, and more.

4.10.1 Basic Settings

On the main page, select **System** > **General Config** > **Basic Settings**. Configure the parameters, and then click **Apply**.

Figure 4-50 Basic settings

- **Device Name**: Customize the device name to differentiate it from others.
- **Language**: The system language is determined by program package, and cannot be configured here.

4.10.2 Date and Time

Procedure

- Step 1
- On the main page, select **System > General Config > Data & Time**.
- Step 2
- Configure the parameters according to actual needs.

Figure 4-51 Configure the parameters

Time and Time Zone



Date :

2000-01-03 Monday

Time :

19:58:31

Time :

☒ Manual Settings

☐ NTP

System Time :

2000-01-03 19:58:31



Sync PC

Time Format :

YYYY-MM-DD



24-Hour



Time Zone :

(UTC+08:00) Beijing, Chon...



Correct Remote D...

☐

DST

Enable :

☐

Type :

☒ Date

☐ Week

Start Time :

01-01 00:00



End Time :

01-02 00:00



Apply

Refresh

Default

Table 4-14 Parameter description

Parameter	Description
Time	● Manual Settings : Set the system time manually. ● NTP : Enable NTP time server to ensure that system time, network devices, and computer time are kept accurate and synchronized.
System Time	Configure the system time. Click Sync PC to synchronize with current computer time.
Time Format	Select time display format.
Time Zone	Select time zone.
Correct Remote Device Time	Click ☐ to correct the time of remote devices.

Parameter	Description
Server	Set the NTP server IP address or domain name, port number, and update interval. The system regularly calibrates the time according to the NTP server.
Port	
Interval	

Step 3 (Optional) When DST is enabled, you can configure the start and end dates by specific date or week.

Step 4 Click **Apply**.

4.10.3 Time Sync Allowlist

Procedure

Step 1 On the home page, select **System** > **General Config** > **Time Sync Allowlist**.

Step 2 Set the IP address, and then click **Add**.

Only IPv4 is supported for the IP version.

Figure 4-52 Add the time sync allowlist

The screenshot shows the 'Time Sync Allowlist' configuration page. At the top, there is a form with two fields: 'IP Version' (a dropdown menu set to 'IPv4') and 'IP Address' (a text input field containing '192.168.1.108' with a blue 'Add' button next to it). Below the form is a table with three columns: 'No.', 'IP Address', and 'Operation'. The table is currently empty, and a 'No data' message is displayed in the center of the table area.

4.10.4 Account

Only those with user management authority can operate user management.

Background Information

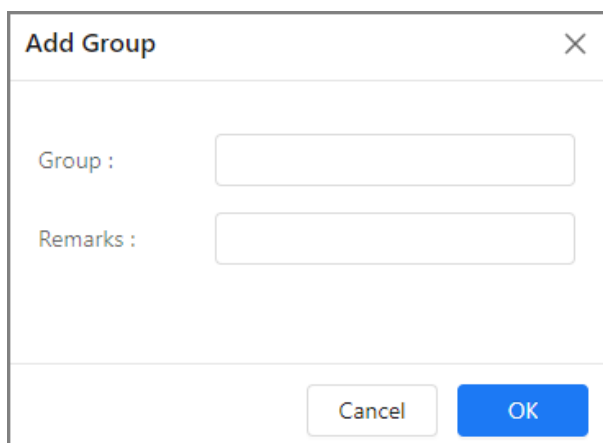
- User management adopts 2-level management mode: User and user group. Both group name and user name must be unique. One user can only belong to one group.
- The maximum number of users and groups is determined by the actual page.
- During initialization, there is 1 default user—admin. Admin is defined as high-authority user when leaving factory.
- Current user cannot modify his/her own authority.

Procedure

Step 1 Add user groups.

1. On the main page, select **System** > **Account**.
2. Click **+** to add a user group.

Figure 4-53 Add a group

A dialog box titled "Add Group" with a close button (X) in the top right corner. It contains two text input fields: "Group :" and "Remarks :". At the bottom right, there are two buttons: "Cancel" and "OK".

3. Enter the user group name, and then click **OK**.

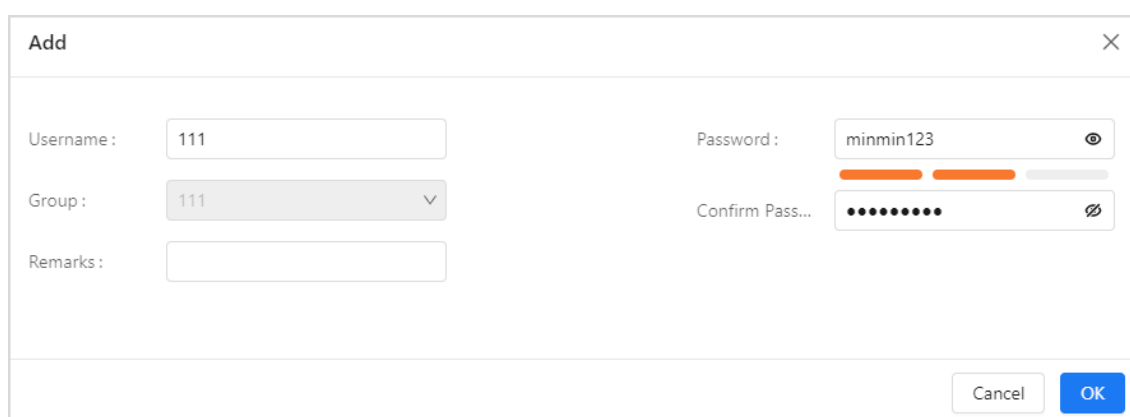
Step 2 Add users.

1. Select a user group, and then click **Add**.
2. Configure the username, password and confirm the password, and then click **OK**.



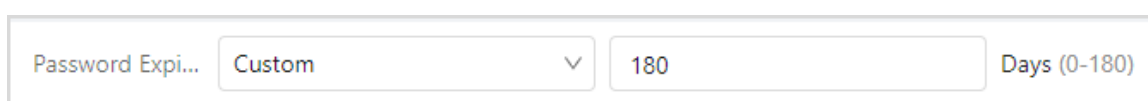
- User name and group name support up to 6 characters, and can only consist of letters, numbers, and underlines.
- The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ' , " , ; , : , &).
- Users with permissions can change not only their own passwords, but also change the password of other users.

Figure 4-54 Add users

A dialog box titled "Add" with a close button (X) in the top right corner. It contains four input fields: "Username :" with the value "111", "Group :" with a dropdown menu showing "111", "Password :" with the value "minmin123" and a visibility toggle (eye icon), and "Confirm Pass..." with a masked password (dots) and a visibility toggle (eye icon). There is also a "Remarks :" text input field. At the bottom right, there are two buttons: "Cancel" and "OK".

- Step 3 (Optional) Select a password expiration time from **Never** , **30** , **60** , **90** , **180** , or **Custom**. If you select **Custom**, configure the expiration time.

Figure 4-55 Expiration time

A configuration row for password expiration. It includes a label "Password Expi...", a dropdown menu set to "Custom", a text input field containing "180", and a label "Days (0-180)".

- Step 4 Click **Apply**.

Related Operations

Click  to change password.

4.10.5 Fan Control

Background Information

You can configure fan temperature control and fan speed.

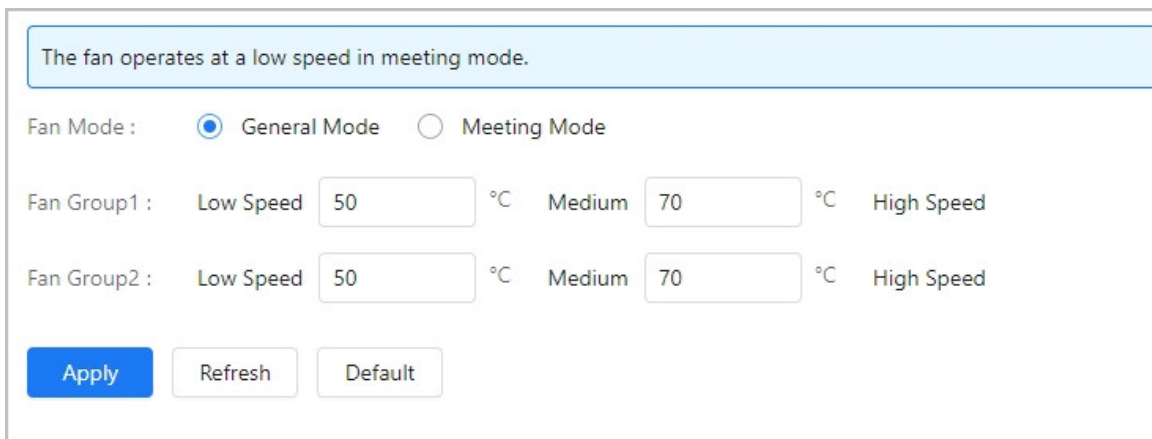
Procedure

Step 1 On the home page, select **System** > **Fan Control**.

Step 2 Select the fan mode as needed, and then click **Apply**.

- **General Mode** : There are 3 levels: low speed, medium speed, and high speed. Different temperature ranges corresponding to different speeds. The system will trigger different fan speed levels according to the different temperature ranges. The higher the temperature, the faster the fan speed.
- **Meeting Mode** : In meeting mode, the fan operates at low speed to enhance device quietness while maintaining performance.

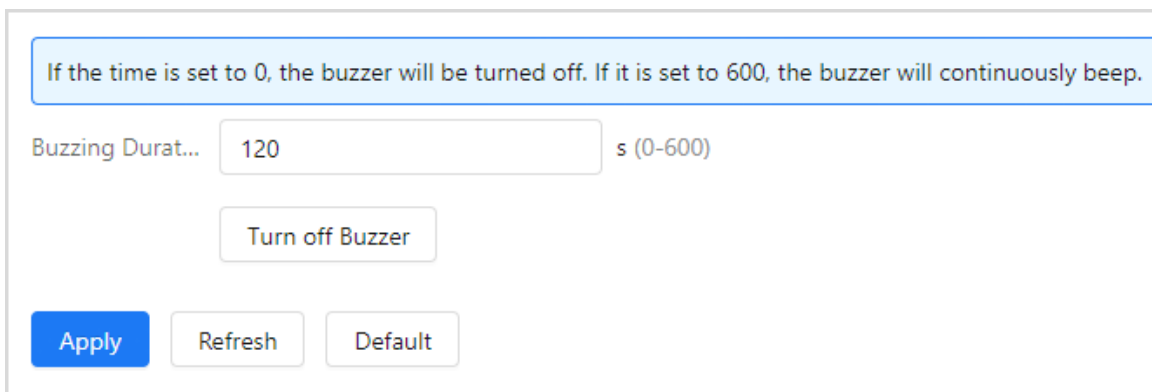
Figure 4-56 Fan control



4.10.6 Buzzer Configuration

Select **System** > **Buzzer Config**, configure the buzzing duration, and then click **Apply**.

Figure 4-57 Buzzer configuration





Click **Turn off Buzzer** to turn off the current beep.

4.10.7 Serial Port

After serial port parameters are set, the video matrix platform can connect to other devices through com ports, for the purpose of debugging and operation.

Procedure

Step 1 On the home page, select **System** > **Serial Port**.

Step 2 Configure the parameters, and then click **Apply**.

Figure 4-58 Serial port

Slot : Main Control Card

Channel : 485-1

Serial Port Typ... 485

Function : Large Screen Switch

Data Bit : 8

Stop Bit : 1

Baud Rate : 115200

Parity : None

Address : 1 (1-255)

Apply Refresh Default

Table 4-15 Parameter description

Parameter	Description
Slot	Select the slot that you want to configure. This device only supports the main control card.
Channel	Select the channel that you want to configure.
Serial Port Type	It is 485 by default.

Parameter	Description
Function	Configure the serial port function, including Large Screen Switch , Matrix Control and so on.
Data Bit	Select a data bit. The options include 5, 6, 7 and 8, with a default setting of 8.
Stop Bit	Select the stop bit of the serial port including 1 and 2, with a default setting of 1.
Baud Rate	Configure the baud rate of the serial port. It must be consistent with the device that will be connected, with a default value of 115200.
Parity	Select a parity mode from None , Odd , Even , Mark and Space .
Address	Configure the serial port address, which ranges from 1 to 255.

4.10.8 Security

4.10.8.1 System Service

4.10.8.1.1 Basic Services

Procedure

- Step 1 On the home page, select **System** > **Security** > **System Service** > **Basic Services**.
- Step 2 Enable the services according to actual needs.

Figure 4-59 Basic services

Table 4-16 Service description

Parameter	Description
SSH	The remote debugging function can be enabled for technical personnel.
Private Protocol	Enable the private protocol.

Parameter	Description
Private Protocol Authentication Mode	Select the authentication mode. • Security Mode (Recommended) : For platforms and clients supporting Digest authentication. • Compatibility Mode : For platforms and clients using CGI mode or lacking Digest authentication support.
Multicast/Broadcast Search	After enabling, you can search for multicast or broadcast devices.

Step 3 Click **Apply**.

4.10.8.1.2 HTTPS

Through creating server certificate or downloading root certificate on the HTTPS page, you can log in to the PC by HTTPS, to ensure the security of communication data, and guard the user information and device security through stable technical measures.

Prerequisites

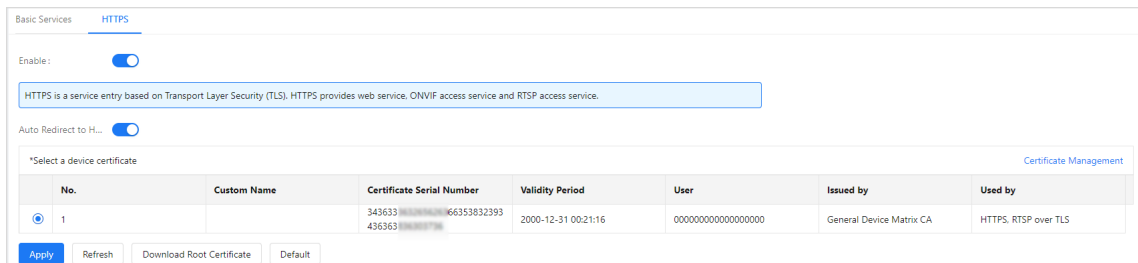
To use HTTPS, you must first install a certificate. For details, see "4.10.8.3 Managing CA Certificates".

Procedure

Step 1 On the home page, select **System** > **Security** > **System Service** > **HTTPS**.

Step 2 Click  to enable HTTPS.

Figure 4-60 HTTPS



Step 3 (Optional) Click  to enable redirect to HTTPS automatically.



When HTTPS is enabled, HTTP access to the device will be disabled. Any HTTP connection attempts will be forcibly redirected to HTTPS.

Step 4 Select the device certificate, and then click **Apply**.

4.10.8.2 Attack Defense

Configure the firewall and Anti-DoS attack to enhance security management.

Firewall

1. On the main page, select **Security** > **Attack Defense** > **Firewall**.

Figure 4-61 Firewall

Firewall Anti-DoS Attack

Enable: ☒

Mode: ☒ Allowlist ☐ Blocklist

Only source hosts whose IP/MAC are in the following list are allowed to access corresponding ports of the device.

No.	Host IP/MAC	Device Port	Operation
No data			

2. Click ☐ to enable firewall.
3. Select **Blocklist** or **Allowlist** to configure the blocklist or allowlist.

The configuration of blocklist is similar to allowlist. We use allowlist configuration as an example.

4. Select the mode as **Allowlist**.
5. Click **Add**, and then configure the parameters.

Figure 4-62 Add allowlist

Add

Add Mode: IP

IP Version: IPv4

IP Address: . . .

All Device Port... ☒

- Add mode: Supports IP, IP segment, MAC address and all IP.
 - IP Version: It is IPv4 by default.
 - All Device Port: After enabling the function, there is no need to enter the start port and end port. After disabling it, you will need to enter the start port and end port.
6. Click **OK**.
 7. Select the allowlist, and then click **Apply**.

Anti-Dos Attack

1. On the main page, select **Security** > **Attack Defense** > **Anti-DoS Attack**.

Figure 4-63 Anti-DoS Attack

SYN Flood Attack Defense : ☒

An attacker might send out repeated SYN messages to the device, leaving many half-open TCP connections on the device, which will make the device crash. When hit by an SYN flood attack, the device will defend itself by discarding the first message.

ICMP Flood Attack Defense... : ☒

An attacker might send out an abnormally large number of ICMP packets to the device, which will use up all computing resources and thus make the device crash. When hit by an ICMP flood attack, the device will defend itself by using the ICMP message filtering tactic.

2. Click ☐ to enable **SYN Flood Attack Defense** or **ICMP Flood Attack Defense**.
 - **SYN Flood Attack Defense** : An attacker might send out repeated SYN messages to the device, leaving many half-open TCP connections on the device, which will make the device crash. When hit by a SYN flood attack, the device will defend itself by discarding the first message.
 - **ICMP Flood Attack Defense** : An attacker might send out an abnormally large number of ICMP packets to the device, which will use up all computing resources and thus make the device crash. When hit by an ICMP flood attack, the device will defend itself by using the ICMP message filtering tactic.
3. Click **Apply**.

4.10.8.3 Managing CA Certificates

Create a certificate or upload an authenticated certificate, and then you can log in through HTTPS with your PC.

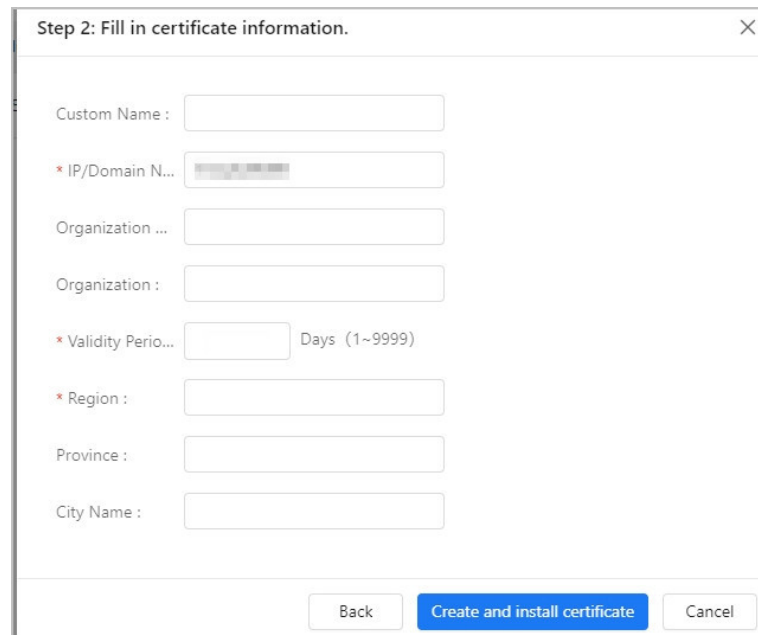
4.10.8.3.1 Creating Certificate

Create a device certificate on the local device.

Procedure

- Step 1 On the home page, select **System** > **Security** > **CA Certificate** > **Device Certificate**.
- Step 2 Click **Install Device Certificate**, select **Create Certificate**, and then click **Next**.
- Step 3 Fill in the certificate information according to the actual situation.

Figure 4-64 Create a certificate



Step 4 Click **Create and install certificate**.

After creation, the generated certificate can be viewed in the **Device Certificate** page.

4.10.8.3.2 Applying for CA Certificate and Import

Import a certificate issued by a third-party CA into the device.

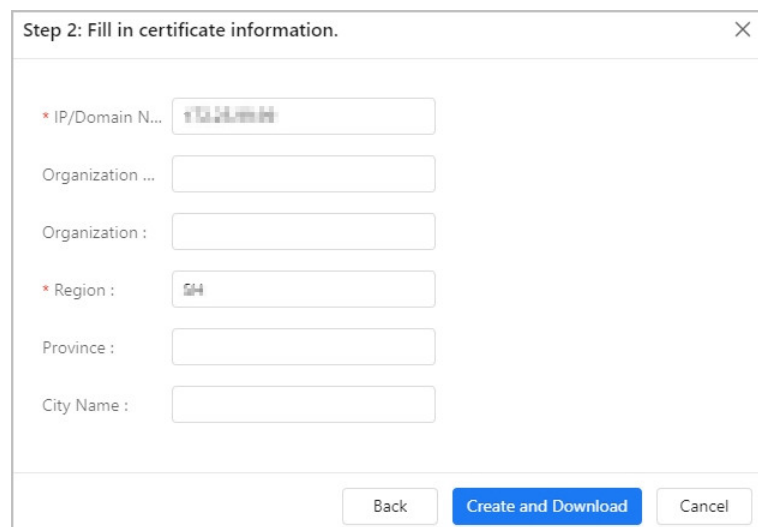
Procedure

Step 1 On the home page, select **System** > **Security** > **CA Certificate** > **Device Certificate**.

Step 2 Click **Install Device Certificate**, select **Apply for CA Certificate and Import (Recommended)**, and then click **Next**.

Step 3 Fill in the certificate information, and then click **Create and Download**.

Figure 4-65 Apply for CA certificate and import



Step 4 Use the certificate request file to apply for a CA certificate from a third-party CA.

Step 5 Click **Browse**, select the certificate, and then click **Import and Install**.

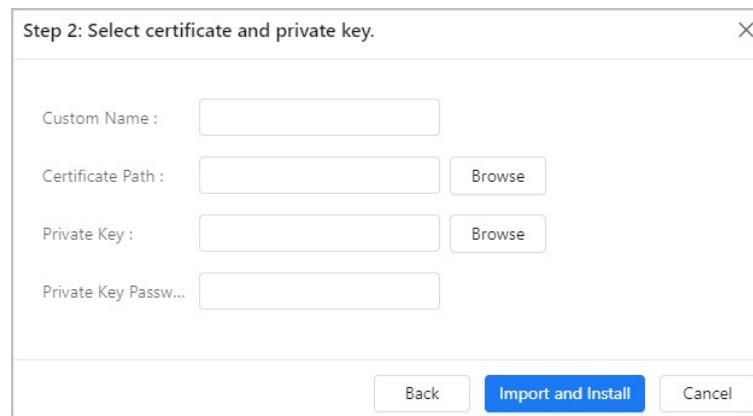
4.10.8.3.3 Installing Existing Certificates

Import an obtained third-party certificate into the device. When applying for a third-party certificate, a private key file and a private key password must be uploaded at the same time.

Procedure

- Step 1 On the home page, select **System** > **Security** > **CA Certificate** > **Device Certificate**.
- Step 2 Click **Install Device Certificate**, select **Install Existing Certificate**, and then click **Next**.
- Step 3 Select the third-party certificate and private key file, and then enter the private key password.

Figure 4-66 Install existing certificate



- Step 4 Click **Import and Install**.

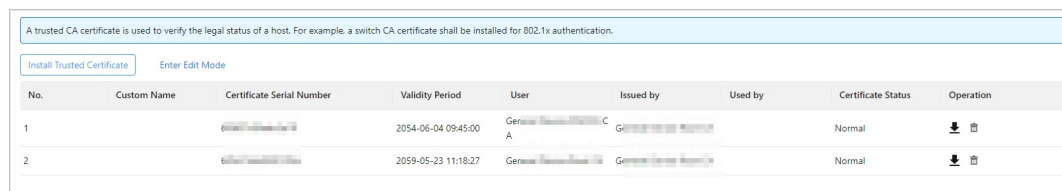
4.10.8.3.4 Trusted CA Certificates

A CA certificate is used to verify the legal identity of a device. For example, when a device accesses a LAN through 802.1x authentication, the CA certificate needs to be verified.

Procedure

- Step 1 On the home page, select **System** > **Security** > **CA Certificate** > **Trusted CA Certificates**.
- Step 2 Click **Install Trusted Certificate**.

Figure 4-67 Trusted CA certificates



No.	Custom Name	Certificate Serial Number	Validity Period	User	Issued by	Used by	Certificate Status	Operation
1			2054-06-04 09:45:00	General Manager	General Manager	General Manager	Normal	 
2			2059-05-23 11:18:27	General Manager	General Manager	General Manager	Normal	 

- Step 3 In the pop-up dialog box, click **Browse**, select the certificate file, and then click **OK** to import the trusted CA certificate.
- Step 4 Click **Enter Edit Mode** to modify the information in the **Custom Name** column.
Click  to download the certificate to the local device.

4.10.8.4 A/V Encryption

The device supports encrypting data during audio and video transmission.



We recommend enabling the A/V Encryption function. Otherwise, there might be safety risks.

Procedure

- Step 1** On the home page, select **Security > A/V Encryption**.
- Step 2** Configure the parameters.

Figure 4-68 A/V encryption

Table 4-17 Parameter description

Area	Parameter	Description
Private Protocol	Enable	Enables stream frame encryption by using private protocol. There might be safety risk if this service is not enabled.
	Encryption Type	Use the default setting.
	Update Period of Secret Key	Secret key update period. Value range: 0–720 hours. 0 means never update the secret key. Default value: 12.
RTSP over TLS	Enable	Enables RTSP stream encryption by using TLS. There might be safety risk if this service is not enabled.
	Select a device certificate	Select a device certificate for RTSP over TLS.

Area	Parameter	Description
	Certificate Management	For details about certificate management, see "4.10.8.3 Managing CA Certificates".

Step 3 Click **Apply**.

4.10.8.5 Security Warning

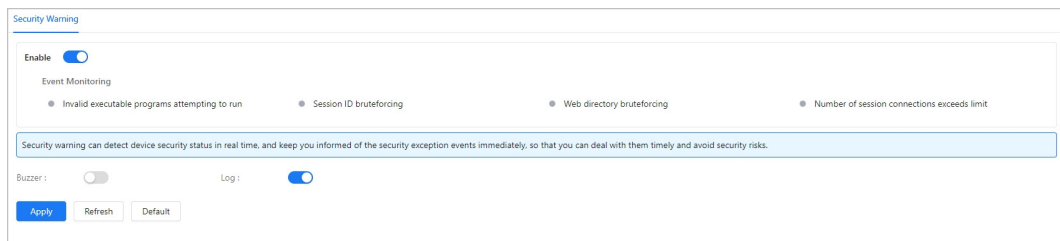
The device monitors exceptions and triggers a warning when one occurs.

Procedure

Step 1 On the home page, select **System** > **Security** > **Security Warning**.

Step 2 Click  to enable the function to provide early warnings for potential security incidents.

Figure 4-69 Security warning



Step 3 Click  on the right of **Buzzer** or **Log** to enable the log linkage function.

When an illegal event is detected, the event will be recorded in the log.

Step 4 Click **Apply**.

4.10.8.6 Security Authentication

This topic explains how to authenticate user identity to secure algorithms for authentication information.

Procedure

Step 1 On the home page, select **System** > **Security** > **Security Authentication**.

Step 2 Select a digest algorithm.

Step 3 Click **Apply**.



MD5 or SHA256 uses the password provided by the user and other values to generate a digest, thereby increasing the difficulty of cracking the digest and protecting information security.

Figure 4-70 Authentication

Digest Algorithm for Authentication

Digest Algorithm for User Authenticati... ☒ MD5 ☐ SHA256

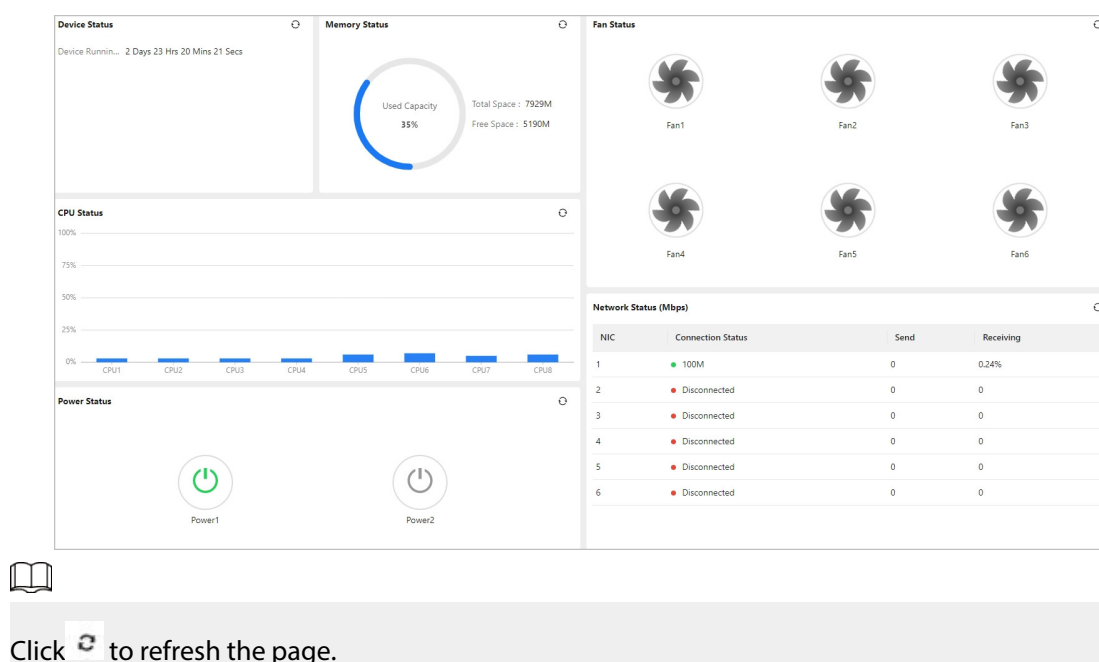
4.11 Maintenance Center

View system information, perform system upgrades, check log data, conduct device maintenance and more.

4.11.1 Overview

On the home page, select **Maintenance Center** > **Overview** to view the device status, memory status, CPU status, power status, fan status, and network status.

Figure 4-71 Overview



4.11.2 System Information

Device Information

Select **Maintenance Center** > **System Info** > **Device Info** to view the device information such as device type.

Board Information

Select **Maintenance Center** > **System Info** > **Board Info** to view the board status, temperature, port type, and more.

Online User

Select **Maintenance Center** > **System Info** > **Online User** to view the online users.

Legal Information

Select **Maintenance Center** > **System Info** > **Legal Info** to view various protocol files.

4.11.3 Update

Procedure

- Step 1 On the home page, select **Maintenance Center** > **Update**.
- Step 2 Click **Browse** to select the upgrade file from your local device.
- Step 3 Click **Update**.

Figure 4-72 Update



File Update

Path :



- Before upgrading the device program, properly back up the device configuration.
- The program file can be obtained from the official website or by contacting technical support.

4.11.4 Log

Procedure

- Step 1 On the home page, select **Maintenance Center** > **Log**.
- Step 2 Configure the search time and type, and then click **Search** to search logs.

Figure 4-73 Log

The screenshot shows a web interface for viewing logs. At the top, there is a search bar with a date range from 2025-08-19 00:00:00 to 2025-08-19 23:59:59 and a 'Type' dropdown menu currently set to 'All'. Below the search bar is a table with columns 'No.', 'Time', 'Username', and 'Details'. The table is currently empty, and a 'No data' message is displayed on the right. A dropdown menu is open, showing options: 'All', 'System', 'Config', 'Event', 'Account', and 'File Operation'. At the bottom, there are two buttons: 'Export' and 'Export Encryption'.

- Export: Click **Export** to save logs to local storage.
- Export encryption: Click **Export Encryption**, set an encryption password, and then click **OK** to securely export logs to local storage.

4.11.5 Maintenance Management

Maintenance

Select **Maintenance Center** > **Maintenance Management** > **Maintenance** to restart or shutdown the device. You can configure the reboot time, and then click **Apply**. The system will automatically reboot when reaching the scheduled time.

Figure 4-74 Maintenance

The screenshot shows the 'System Maintenance Operations' and 'System Maintenance Config' interface. Under 'System Maintenance Operations', there are two buttons: 'Restart' and 'Shutdown'. Under 'System Maintenance Config', there is a section for 'Auto Restart' with a dropdown menu set to 'Tuesday' and a time field set to '02:00'. At the bottom, there are two buttons: 'Apply' and 'Refresh'.

Configuring Backup

Select **Maintenance Center** > **Maintenance Management** > **Config Backup**, and then export the configuration file of the device to the local computer. When the exception occurs, import the configuration file to restore the device.

- Import configuration files: Click **Browse**, select the configuration file, and then click **Config Import**.



Configuration import will overwrite existing settings. Please be advised.

- Export configuration files: Click **Config Export**, select the storage path to back up the configuration file.

Figure 4-75 Backup configuration

The screenshot shows a web interface with two main sections. The top section is titled 'Import Configuration Files' and contains a text input field labeled 'Import Config...', a 'Browse' button, and a 'Config Import' button. Below the input field is a warning message: 'Imported configuration will overwrite previous configuration.' The bottom section is titled 'Export Configuration File' and contains a single blue button labeled 'Config Export'.

Default

Select **Maintenance Center** > **Maintenance Management** > **Default** to restore default or factory defaults.

- Click **Default**, and then other configurations will be recovered to default except network, user management and so on.
- Click **Factory Defaults**, and then all the parameters will be restored to factory default settings.

Figure 4-76 Default

The screenshot shows two buttons: 'Default' and 'Factory Defaults'. Below the 'Default' button is a description: 'Other configurations will be recovered to default except network, user management and so on.' Below the 'Factory Defaults' button is a description: 'All the parameters will be restored to factory default settings.'

4.11.6 Advanced Maintenance

4.11.6.1 One-Click Diagnosis

For troubleshooting and quickly identifying related issues.

Procedure

- Step 1 On the home page, select **Maintenance Center** > **Advanced Maintenance** > **One-click Diagnosis**.
- Step 2 Select **Decoding Diagnosis**, choose the video wall and window, then click **Diagnose**.

After the diagnosis is complete, click  to download the file and view the issues.

Figure 4-77 Decoding diagnosis

Video Wall : Video Wall1
Window : Window 1
Diagnose Stop

No.	File Name	Operation
1	Decode_Video 100% .p	

Step 3 Select **System Diagnosis** choose the board type, and then click **Diagnose**.

After the diagnosis is complete, click to download the file and view the issues.

Figure 4-78 System diagnosis

Board Type : Board 3
Diagnose

No.	File Name	Operation
1	System_180.180.3.0_202108111111.zip	

4.11.6.2 Packet Capture

Packet capture refers to intercepting, storing, editing, and retransmitting data packets during network transmission for security inspection.

Procedure

Step 1 On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Packet Capture**.

Step 2 (Optional) Enter the IP address and serial port as required.

Figure 4-79 Configure packet capture parameters

NIC List

NIC	Device Address	IP 1: Port 1	IP 2: Port 2	Packet Capture Data Size	Packet Capture Backup		
Load Balancing (NIC 1+2)	172.18.1.1	Optional	Optional	Optional	Optional	0.00MB	

Sub Card List

No.	Slot	Type	IP 1: Port 1	IP 2: Port 2	Packet Capture Data Size	Packet Capture Backup		
1	Slot3	4-Channel HD Encoding Card	Optional	Optional	Optional	Optional	0.00MB	
2	Slot6	4-Channel HD Encoding Card	Optional	Optional	Optional	Optional	0.00MB	

Step 3 Click to start packet capture.



The system does not support starting multiple packet capture operations simultaneously.

Step 4 Click to stop packet capture.

The system automatically downloads the .pcap format packet data to your local device.



The packet capture data size column displays the current capture size in real time.

4.11.6.3 Ping

Use the ping command to check whether the front-end device or network device is properly connected.

Procedure

- Step 1** On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Ping**.
- Step 2** Configure the IP address.
- Step 3** Click **Test**, and then view the test result.

Figure 4-80 Test result

Destination A...

Test

Test Result

72 bytes from 192.168.1.1: icmp_seq=1 ttl=255 time< 1 ms
72 bytes from 192.168.1.1: icmp_seq=2 ttl=255 time< 1 ms
72 bytes from 192.168.1.1: icmp_seq=3 ttl=255 time< 1 ms
72 bytes from 192.168.1.1: icmp_seq=4 ttl=255 time< 1 ms
--- 192.168.1.1? ping statistics ---
Average Delay: 1ms,Packet Loss Rate: 0.00%,Network Status: OK

4.11.6.4 Running Logs

View user operation logs.

Procedure

- Step 1 On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Running Logs**.
- Step 2 Configure the search conditions to search for the system running logs, and then click **Search**.
- Set log level: Select a log level, and then click **Apply**.
 - Download the logs: Click  to download the log files.

Figure 4-81 Search logs

Sonia Log Lev... Trace Apply

Log Type : Sonia Log Board Type : Main Control Card Search

No.	File Name	Operation
1	printfile_2024-05-20_10:00:00.log	

4.11.6.5 Logs for Long-Running Operations

Applicable for scenarios such as power outages or network disconnections that might trigger log refreshes, used to preserve log data generated during the long-term operation of the device.

Prerequisites

Insert a USB flash drive into the device before exporting the logs.

Procedure

- Step 1 On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Logs for Long-Running Operations**.
- Step 2 Click  to enable **Logs for Long-Running Operations**, and then click **Apply**.
- Step 3 Click  in the **Operation** column, and then download the log file to the USB drive.

4.11.6.6 Signaling Interaction

Displays key signaling records sent by the device, including time, node IP, feature, method, type, content, and more.

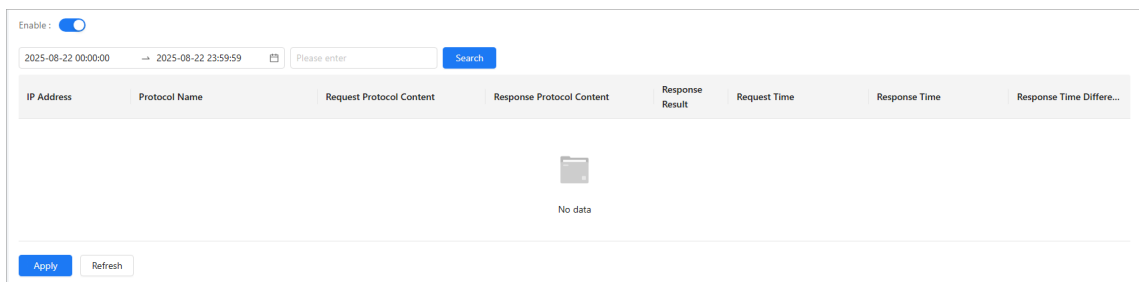
Procedure

- Step 1 On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Signaling Interaction**.
- Step 2 Select **Real-Time Signaling** to view the real-time signaling.
1. Click  to enable signaling interaction, and then click **Apply**.
 2. Configure search time or keywords to search for signaling records sent by the device.
 3. Click **Search** to search for signaling records sent from the device.



Click **Export** to export the signaling records to your local computer.

Figure 4-82 Signaling interaction



- Step 3 Click **History Signaling**, then click  in the **Operation** column to download the history signaling records to your local computer.

4.11.6.7 Collected Info

Select **Maintenance Center** > **Advanced Maintenance** > **Collected Info** to view the decoding information of each channel.

4.11.6.8 Decoding Info

Procedure

Step 1 On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Decoding Info**.

Step 2 View the decoding information for each channel.



- Click **Clear Statistics** to clear the accumulated data and restart the statistics.
- Click **Diagnose** to go to the **Decoding Diagnostics** page.

4.11.6.9 Screenshot through Output Port

The system supports screen capturing of the output display. Users can view the echoed image directly on the page or download the corresponding YUV format data.

Procedure

Step 1 On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Screenshot through Output Port**.

Step 2 Select the output port, layer type, and encoding format, and then click **Take Screenshot**.

The captured screen image will be displayed below.



- Once the capture data is generated, click **Export** to export the same frame in YUV format.
- When you open the YUV file using the 7YUV tool, the corresponding encoding parameters must be set manually for correct display:
 - ◇ If exported in **XRGB8888** format, select **BGRA8888** in the encoding format.
 - ◇ If exported in **YUV422** format, select **YUV422** in the encoding format.

4.12 Third-Party Device Connection

4.12.1 Configuring Serial Port

Procedure

Step 1 On the home page, select **System** > **Serial Port**.

Step 2 Select slot and channel, set the serial port type to **232** or **485** (keep it the same as the controlled device), set the function to **Matrix Control**, and then set other parameters the same as the controlled device.

Step 3 Click **Apply**.

4.12.2 Signal on Wall

Displays signal on the wall by sending control commands on the controlled device.

Procedure

Step 1 View the screen control number.

Select **Video Wall > Video Wall Config**, click NO at the lower section, and then you can view the part, and the screen control number of the corresponding channel on the video wall.

Figure 4-83 View the screen control number



Step 2 View the control number of the local signal source.

Select **Device Setting > Local Signal**, and then you can view the control number of the local signal source.

Figure 4-84 View local signal source control number

No.	Camera Name	Slot ▾	Control No. ↗	Color Space Mode ↗	Signal Source Type	Interface Status	Operation
1	Slot01-01	Slot1	5	Limited	HDMI	0 * 0	FB
2	Slot01-02	Slot1	6	Limited	HDMI	0 * 0	FB
3	Slot01-03	Slot1	7	Limited	HDMI	0 * 0	FB
4	Slot01-04	Slot1	8	Limited	HDMI	0 * 0	FB
5	Slot02-01	Slot2	9	Limited	HDMI	0 * 0	FB
6	Slot02-02	Slot2	10	Limited	HDMI	0 * 0	FB
7	Slot02-03	Slot2	11	Limited	HDMI	0 * 0	FB
8	Slot02-04	Slot2	12	Limited	HDMI	0 * 0	FB
9	Slot04-01	Slot4	17	Limited	HDMI	0 * 0	FB
10	Slot04-02	Slot4	18	Limited	HDMI	1920 * 1080@60	FB
11	Slot04-03	Slot4	19	Limited	HDMI	0 * 0	FB
12	Slot04-04	Slot4	20	Limited	HDMI	0 * 0	FB
Total 12 records							< 1 >
Apply Refresh							

Step 3 Enter the commands on the controlled device, such as “63Ma1Xa49#a5Ea”, which means to switch the input source with the control number of 49 to window 1 of the screen with the control number of 63.

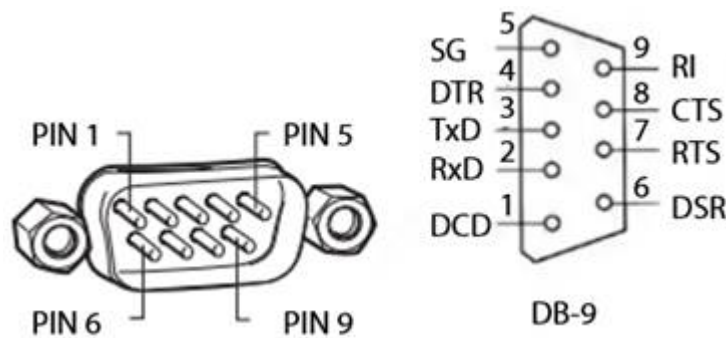
Appendix 1 Connection of Screen Control Adapter Cable

Pay attention that for the network RJ-45 connector, PIN2 (orange) is RX, PIN5 (white-green) is GND, and PIN6 (green) is TX.

Appendix 1.1 Making Matrix Control Serial Cable

If the serial port of the connected device is a standard serial port of RS-232 with DB9 pin, then you need to prepare the RS-232 serial port cable and the green female terminal. Connect wires according to the pin definition of RS-232 cable, and the corresponding relationship of serial port in the following figure.

Appendix Figure 1-1 Pin definition of RS-232 cable



Appendix Table 1-1 RS-232 serial port connection

Green Terminal	RS-232 Serial Port Cable	Connected Device
RX1	3	TXD
GND	5	GND
TX1	2	RXD

Appendix 1.2 Screen Control through 232

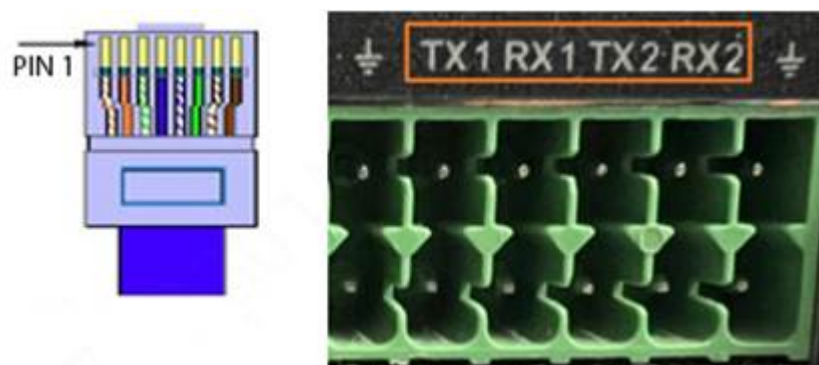
Prerequisites

Prepare the network cable and the green terminal female, which is in the accessory box.

Procedure

- Step 1 Face the RJ-45 connector metal to yourself, and it is 1 to 8 from left to right (white orange, orange, white green, blue, white blue, green, white brown, and brown).
- Step 2 Connect PIN2 of the network cable to TX1 or TX2 of the green terminal, PIN6 of the network cable to RX1 or RX2 of the green terminal, and PIN5 of the network cable to GND of the green terminal.

Appendix Figure 1-2 Network cable pin and terminal pin

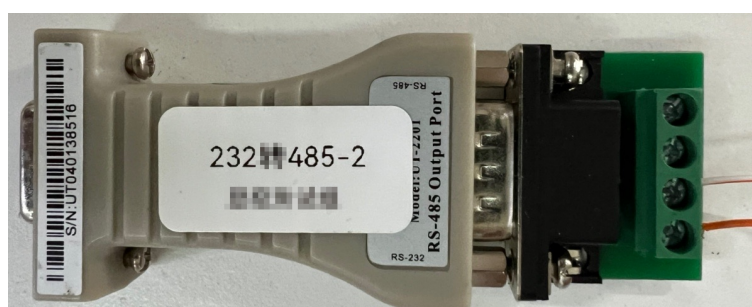


Appendix 1.3 Screen Control through 485

You need to prepare the network cable, 232 to 485 tool, and the green female terminal, which is in the accessory box. The 232 to 485 tool is shown as the following figure.

Connect the 485 interface of the main control to the tool, to convert it to 232. The 485 end is the green terminal adapter, and the 232 end is the DB9 female.

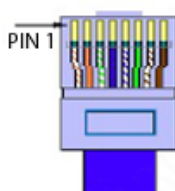
Appendix Figure 1-3 232 to 485 tool



- Connection of the 232 end: The meaning of DB9 female is shown in the following figure. PIN2 is TX, PIN3 is RX, and PIN5 is GND.

Face the RJ-45 connector metal to yourself, and it is 1 to 8 from left to right (white orange, orange, white green, blue, white blue, green, white brown, and brown). Connect PIN2 of the network cable to PIN2 (TX) of DB9, PIN6 of the network cable to PIN3 (RX) of DB9, and PIN5 of the network cable to PIN5 (GND) of DB9.

Appendix Figure 1-4 Network cable pin



Appendix Table 1-2 Pin of RS-232C

DB9 Female (Pin)	RS-232C Interface Signal
2	Send data SOUT (TXD)

DB9 Female (Pin)	RS-232C Interface Signal
3	Receive data SIN (RXD)
5	Signal ground (GND)

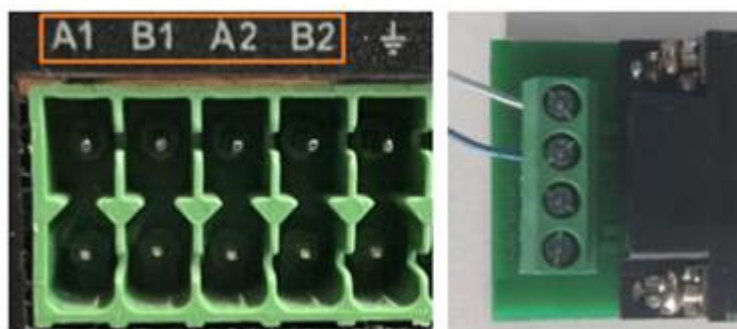
- Connection of the 485 end: 485 of the tool is defined as shown in the following table. 2 wires are required for connection, and the wires do not need to distinguish between positive and negative.

Appendix Table 1-3RS-485 output signal and terminal pin

DB9 Male (Pin)	Output Signal	RS-485 Half-Duplex Wiring
1	T/R+	RS-485 (A+)
2	T/R-	RS-485 (B-)
5	GND	Ground
6	VCC	+5 V standby power input

- Connect the green terminal of the main control to A and B. The green terminal connection of the tool is shown as the following figure. The power supply does not need to be connected.

Appendix Figure 1-5 Connection of the 485 end



Appendix 1.4 Serial Port Channel and Terminal Pin

Channels 1, 2, 3, and 4 from **System** > **Serial Port** correspond to A1 and B1, A2 and B2, TX1 and RX1, and TX2 and RX2 of the terminal.

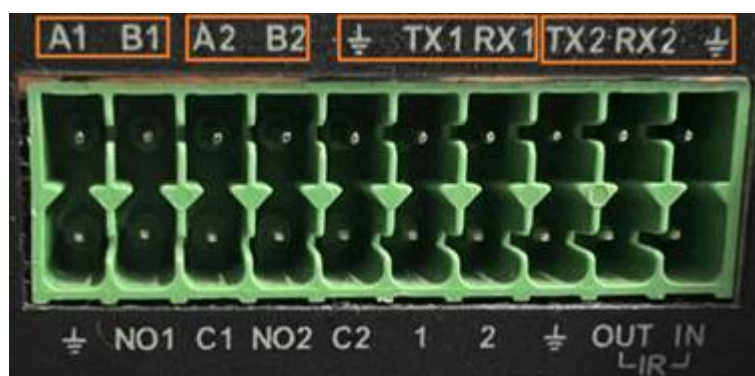
Appendix Figure 1-6 Serial port

The screenshot shows a web-based configuration interface for a device. On the left is a sidebar menu with the following items: 'General Config' (selected), 'Basic Settings', 'Date & Time', 'Account', 'Fan Control', 'Buzzer Config', and 'Serial Port' (highlighted in blue). The main area displays the 'Serial Port' configuration settings. The 'Slot' is set to 'Main Control Card'. The 'Channel' is set to '1', and a dropdown menu is open showing options '1', '2', '3', and '4'. The 'Serial Port Type...' is set to '1'. The 'Function' is set to '1'. The 'Data Bit' is set to '4'. The 'Stop Bit' is set to '1'. The 'Baud Rate' is set to '115200'. The 'Parity' is set to 'None'. The 'Address' is set to '1' with a range of '(1-255)' indicated. At the bottom are three buttons: 'Apply' (blue), 'Refresh', and 'Default'.

Slot :	Main Control Card
Channel :	1
Serial Port Typ...	1
Function :	1
Data Bit :	4
Stop Bit :	1
Baud Rate :	115200
Parity :	None
Address :	1 (1-255)

Buttons: Apply, Refresh, Default

Appendix Figure 1-7 Terminal pin



Appendix 2 Matrix Serial Port Control Protocol

Appendix Table 2-1 Description of matrix serial port control protocol

Serial Port Control	Code	Description
Select screen number	1Ma	1 refers to the switched screen number. The value ranges from 1 to 999.
Specify window number	1Xa	1 refers to the window number on a screen.
Select the camera number	1#a	1 refers to the switched camera or local channel number. The value ranges from 1 to 99,999,999.
Camera preset	1^a: Set 1\ a: Use	1 refers to the defined or used preset value. The value ranges from 1 to 999.
Control the PTZ camera up	0-6Ua	0-6 refers to the speed level. 6 refers to the maximum speed. Send codes continuously.
Control the PTZ camera down	0-6Da	0-6 refers to the speed level. 6 refers to the maximum speed. Send codes continuously.
Control the PTZ camera left	0-6La	0-6 refers to the speed level. 6 refers to the maximum speed. Send codes continuously.
Control the PTZ camera right	0-6Ra	0-6 refers to the speed level. 6 refers to the maximum speed. Send codes continuously.
Control PTZ camera iris +	Wa	Send codes continuously.
Control PTZ camera iris -	Ta	Send codes continuously.
Control PTZ camera focus +	Na	Send codes continuously.
Control PTZ camera focus -	Fa	Send codes continuously.
Turn off PTZ camera	Ca	Send codes continuously.
Turn on PTZ camera	Oa	Send codes continuously.
User scheme	1Pa	1 refers to the scheme number. The value ranges from 1 to 999.
Turn on screen	Ka	Send codes continuously.
Turn off screen	Ga	Send codes continuously.
Turn on specified screen	1Ka	1 refers to the switched screen number. The value ranges from 1 to 999.
Turn off specified screen	1Ga	1 refers to the switched screen number. The value ranges from 1 to 999.
Stream type	Ea	5 refers to bare data (only for local signals), 0 refers to the main stream (default), and 1 refers to the sub stream.

Appendix Table 2-2Serial port control protocol examples

Example	Code
Display camera 99 in screen 7	7Ma99#a
Use scheme 10	10Pa
Control PTZ camera 47 to display in screen 8, and control the PTZ camera right	8Ma47#a5Ra
Control PTZ camera 47 to display in screen 8, and control the PTZ camera focus +	8Ma47#aWa
Control the selected PTZ camera in screen 8 to turn right	8Ma5Ra
Turn all screens on	Ka
Turn off screen 5	5Ga
Display camera 2 in window 1 of screen 1	1Ma1Xa2#a

Appendix 3 Security Recommendation

1. Account Management

a. Use Strong Passwords

- The length should not be less than 8 characters.
- Include at least two types of characters; character types include upper and lower case letters, numbers and symbols.
- Do not contain the account name or the account name in reverse order.
- Do not use continuous characters, such as 123, abc, etc.
- Do not use overlapped characters, such as 111, aaa, etc.

b. Change Password Regularly

It is suggested to change passwords regularly to reduce the risk of being guessed or cracked.

c. Assign Accounts and Permissions Reasonably

According to business and management needs, reasonably add new users, and reasonably allocate a minimum set of permissions for them.

d. Enable Account Lock

The account lock feature is enabled by default, and it is recommended to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

e. Set and Update Passwords Reset Information Timely

The platform supports password reset function. To reduce the risk of being attacked, please set up related information for password reset in time. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

f. Enable Account Binding IP/MAC

It is recommended to enable the account binding IP/MAC mechanism to further improve access security.

2. Service Configuration

a. Enable HTTPS

It is suggested to enable HTTPS, so that you visit web service through a secure communication channel.

b. Disable Unnecessary Services and Choose Secure Modes

If not needed, it is recommended to turn off some services such as SNMP, SMTP, etc., to reduce risks.

If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up strong passwords.

3. Network Configuration

a. Enable Firewall Allowlist

It is suggested to enable allowlist function to prevent everyone, except those with specified IP addresses, from accessing the system. Therefore, please be sure to add your computer's IP address and the accompanying equipment's IP address to the allowlist.

b. Network Isolation

The network should be isolated by partitioning the video monitoring network and the office network on the switch and router to different VLANs. This prevents attackers from using the office network to launch Pivoting attacks on the video monitoring network.

4. **Security Auditing**

a. **Check Online Users**

It is recommended to check online users irregularly to identify whether there are illegal users logging in.

b. **View the Platform Log**

By viewing the log, you can get the IP information of the attempt to log in to the platform and the key operation information of the logged-in user.

5. **Physical Protection**

It is suggested to perform physical protection to the device that has installed the platform. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware.

6. **Perimeter Security**

It is suggested to deploy perimeter security products and take necessary measures such as authorized access, access control, and intrusion prevention to protect the software platform security.