Splicing Controller

User Manual



V1.1.0

Foreword

General

This manual introduces the installation, functions and operations of the splicing controller (hereinafter referred to as the "device"). Read carefully before using the device, and keep the manual safe for future reference.

Models

- DSCON8000-S13 (5U Case)
- DSCON8000-S24 (8U Case)

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/Functions

Items	Description
	Modify a configuration item.
/Delete	Delete a configuration item.
/Refresh	Refresh the page.
/	Switch between plain text and ciphertext display.
	Filter the list.
/	Enable or disable a function.
	Search for information by keyword.
/Clear	Clear configurations.
Default	Restore default configurations.

Revision History

Version	Revision Content	Release Time
V1.1.0	• Added a new model. • Added main page description, signal grouping, favorites, system backup, NV access service, preview, and file management. • Updated function features, main case, service cards, product dimensions, LCD screen operation, video wall, network settings, security center, and operation and maintenance center.	August 2026
V1.0.2	Added the contents of 2 function cards.	March 2026
V1.0.1	Added the contents of decoding extension card, network signal, and more.	January 2026
V1.0.0	First release.	August 2025

Privacy Protection Notice

As the device user, you might collect the personal data of individuals such as their names, email addresses, face images, audio and fingerprints. You shall be fully responsible for any activities associated with processing personal data. You commit to comply with your local privacy protection laws and regulations to protect the legitimate rights and interests of individuals, and shall implement measures which are required by applicable law, including but not limited to, providing clear and comprehensive information to individuals before processing their personal data, obtaining consent from individuals when necessary, informing individuals of the existence of the surveillance area, and providing required contact information.

Intelligent Product Usage Statement

Intelligent products utilize AI technology to effectively enhance security. The intelligent recognition and alarm functions of the product might be affected by factors such as environmental lighting, camera angles, object obstructions, and network delays, potentially leading to false alarms, missed alerts, or response delays. This intelligent product is solely intended to be used as a security assistance tool. The results from performing identification are for reference only and do not constitute absolute guarantee of personal or property safety. Users need to combine these products with necessary physical security measures to enhance overall protection. Except as otherwise provided by laws or in the event of intentional or gross negligence on the part of the company, the company shall not be liable for any losses caused by the aforementioned factors not attributable to the company.

About the Manual

- This manual is provided for general reference only. Discrepancies might exist between the product and this manual, including but not limited to printed, electronic, or any other editions.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. Specifications and documentation are subject to change without prior notice. For the latest versions, as well as legal notices, consult the printed manual, the product webpage, our official website, or scan the QR code to access the electronic edition.
- 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 Product Introduction

The series of DSCON splicing controllers is designed with a field-programmable gate array (FPGA) frame that boasts high performance and bandwidth. It features a minimal interaction design with flexible combinations of input and output boards. This device supports various large-screen control functions including image stitching, roaming, and scene tours, as well as image processing capabilities such as image acquisition, background image display, and dynamic subtitles.

This device is widely used in professional audio and video display fields such as command centers, exhibition halls, lecture rooms, meeting rooms, and more.

1.2 Features

Structure Features

- 19-inch standard rack design with advanced telecommunications computing architecture (ATCA).
- The 5U case supports 13 function card slots and the 8U case supports 24 function card slots.
- A plug-in modular design for easy customization based on market demands.
- Hot standby with dual main control boards allows for smooth switching of the control boards, ensuring uninterrupted display on the wall during switchover (single main control board included; dual main control board is optional).
- Offers dual power supply redundancy for machine rooms and other application scenarios (single power supply included; dual power supply optional).
- Uses an intelligent fan that automatically adjusts the temperature to ensure system stability and reliability.

Software Features

The embedded Linux operating system delivers secure and reliable performance, and is easy to develop and maintain.

- Signal acquisition
  - Supports common video signal inputs such as DP, HDMI, DVI, and more.
  - Maximum support for 4K@60 Hz signal acquisition.
  - The 5U case supports up to 56 channels of 1080p@60 Hz HD acquisition and 26 channels of 4K@60 Hz UHD acquisition.
  - The 8U case supports up to 80 channels of 1080p@60 Hz HD acquisition and 32 channels of 4K@60 Hz UHD acquisition.

- Signal output
  - Supports HDMI video signal output.
  - Maximum support for 4K@60 Hz signal output.
  - The 5U case supports up to 88 channels of 1080p@60 Hz HD output and 22 channels of 4K@60 Hz UHD output.
  - The 8U case supports up to 144 channels of 1080p@60 Hz HD output and 36 channels of 4K@60 Hz UHD output.
  - Supports 2-in-1 Ethernet port signal transmission.
  - The 5U case supports up to 5 20-port Ethernet sending cards, with a maximum load capacity of 13 million pixels per single card, and a total load capacity of 65 million pixels for the entire unit.
  - The 8U case supports up to 10 20-port Ethernet sending cards, with a maximum load capacity of 13 million pixels per single card, and a total load capacity of 130 million pixels for the entire unit.
- Network signal decoding
  - The system supports network signal decoding, with each card capable of processing 36 channels at 1080p@30 fps. By supporting 2 decoding extension cards, the device delivers a maximum decoding capacity of 72 channels at 1080p@30 fps.
  - Supports video decoding at 32 MP, 16 MP, 12 MP, 8 MP, 5 MP, 3 MP, UXGA, 1080p, 720p, D1, HD1, 2CIF, CIF, and QCIF (32 MP, 16 MP, and 12 MP supported only by H.265).
  - Supports decoding of video compression formats: H.265, H.264, MJPEG, MPEG4, SVAC, and MPEG2.
- Supports ultra-high resolution point-to-point display output.
- Supports full-link YUV444 lossless image quality acquisition and display.
- Supports local signal input and matrix output.
- Supports 128 predefined scenarios, enabling users to customize the video wall layout for each scenario.

Screen Splicing

- Supports splicing functions, including scaling, video integration, roaming, window opening, and layering.
- Supports 1, 4, 6, 8, 9, 16, 25, or 36-screen split display with custom layouts.
- Features subtitle overlay, enabling virtual character displays on single screens or spliced screens with adjustable font, color, character spacing, background color, and scrolling speed.

Other Features

- Supports control through web browsers, PC clients, mobile clients, network keyboards, and more.
- Designed with 2 gigabit RJ-45 ports and 2 gigabit optical ports.
- Supports network link aggregation mode.
- Includes an RS-232 serial port for matrix control, large-screen switching, and additional functionalities.
- Allows remote switching of local signals to video walls.
- Supports remote restart, remote upgrades, and restoration of default settings.
- Features user permission management and allowlist functionality.

1.3 Main Case

1.3.1 DSCON8000-S13 (5U Case)

The splicing controller DSCON8000-S13 is a 19-inch 5U rack-mounted main case, including service board slots, power ports, and intelligent temperature-controlled fans. The front panel indicators are used to display the device operating status.

Figure 1-1 Front panel



The rear panel includes the following components.

- Case air inlet.
- 6 intelligent temperature control fans with hot-swappable fan frame modules.
- Function card slots: A total of 13, sequentially numbered for the installation of function cards.

  ◇ Preview cards can be used in output slots.

  ◇ Decoding extension cards can be used in slots 1, 3, 5, 7, 9, and 11.

  ◇ The VI0401EHP UHD capture card and VI0801HH HD capture card have their performance halved when used in slot 13.

Table 1-1 Function card slot description

Slot Number	Function
Slots 1/3	Dedicated to capture cards and labeled **IN**.
Slots 5/7/9/11/13	Shared between capture cards and output cards, and labeled **IN/OUT**.
Slots 2/4/6/8/10	Dedicated to output cards and labeled **OUT**.
Slot 12	Shared between control cards and output cards and labeled **M/OUT**.

- 1 dedicated slot for the main control card, labeled **M**.
- 1 dedicated slot for the switching card, labeled **N**.
- Dual power supply module design, supporting redundancy with hot standby (single power supply included; dual power supply optional).

When disconnecting the power cord, for devices with a dual power supply, you must unplug 2 power cords.

Figure 1-2 Rear panel



1.3.2 DSCON8000-S24 (8U Case)

The splicing controller DSCON8000-S24 is a 19-inch 8U rack-mounted main case, including service board slots, power ports, and intelligent temperature-controlled fans. The front panel indicators are used to display the device operating status.

Figure 1-3 Front panel



The rear panel includes the following components.

- Case air inlet.
- 8 intelligent temperature control fans with hot-swappable fan frame modules.
- Function card slots: A total of 24, sequentially numbered for the installation of function cards.

  ◇ Preview cards can be used in output slots.

  ◇ Decoding extension cards can be used in slots 1, 3, 5, 13, 15, and 17.

  ◇ The VI0401EHP UHD capture card and VI0801HH HD capture card have their performance halved when used in shared input/output slots.

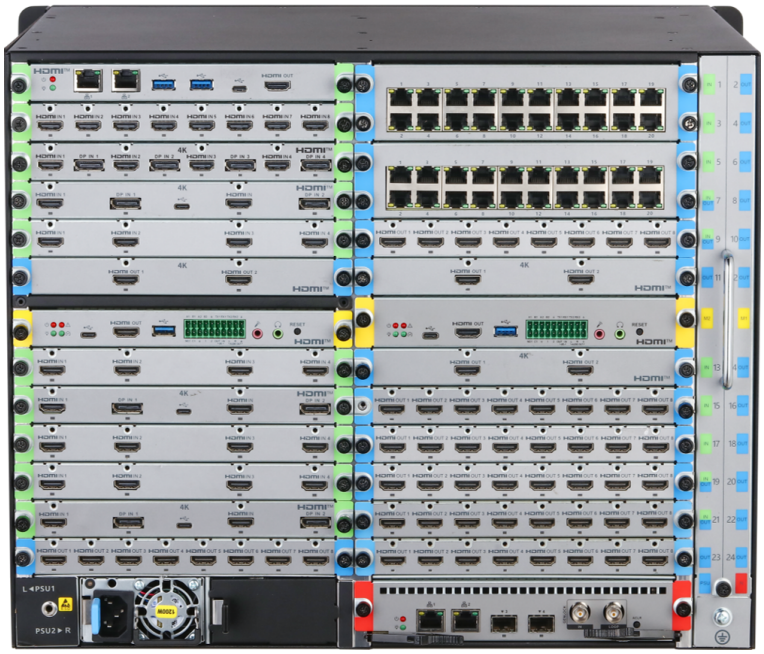
Table 1-2 Function card slot description

Slot Number	Function
Slots 1/3/5/13/15/17	Dedicated to input slots and labeled **IN**.
Slots 7/9/19/21	Shared between input slots and output slots, and labeled **IN/OUT**.
Slots 2/4/6/8/10/11/12/14/16/18/20/22/23/24	Dedicated to output slots and labeled **OUT**.

- 2 dedicated slots for control cards and labeled **M1, M2** , with **M1** as the factory default.
- 1 dedicated slot for the switching card, labeled **N**.
- Dual power supply module design, supporting redundancy with hot standby (single power supply included; dual power supply optional).

When disconnecting the power cord, for devices with a dual power supply, you need to unplug 2 power cords.

Figure 1-4 Rear panel



1.4 Function Card

All function boards adopt a blade-style modular design, performing signal acquisition, splicing and integration, scaled output and signal transmission.

1.4.1 VI0201EHP-DC8000 Splicing Controller UHD Capture Card

Figure 1-5 VI0201EHP-DC8000 splicing controller UHD capture card



- 2-channel HDMI 2.0 and 2-channel DP 1.2 ports. Each HDMI port and its corresponding DP port share one input channel. Only one port can be used at a time.
- 2-channel HDMI/DP with built-in audio.
- 1 Type-C port (reserved).

1.4.2 VI0401HH-DC8000 Splicing Controller HD Capture Card

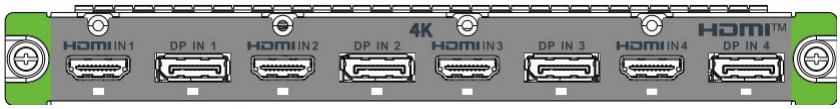
Figure 1-6 VI0401HH-DC8000 splicing controller HD capture card



- 4-channel HDMI 1.4 input port.
- 4-channel HDMI with built-in audio.

1.4.3 VI0401EHP-DC8000 Splicing Controller UHD Capture Card

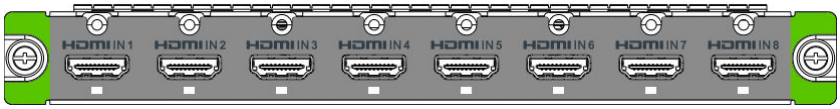
Figure 1-7 VI0401EHP-DC8000 splicing controller UHD capture card



- 4-channel HDMI 2.0 and 4-channel DP 1.2 ports. Each HDMI port and its corresponding DP port share one input channel. Only one port can be used at a time.
- 4-channel HDMI/DP with built-in audio.

1.4.4 VI0801HH-DC8000 Splicing Controller HD Capture Card

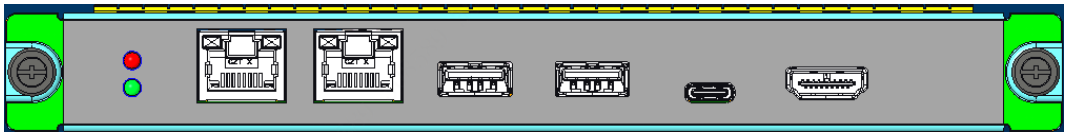
Figure 1-8 VI0801HH-DC8000 splicing controller HD capture card



- 8-channel HDMI 1.4 input port.
- 8-channel HDMI with built-in audio.

1.4.5 DEC-DC8000 Splicing Controller Decoding Resource Card

Figure 1-9 DEC-DC8000 splicing controller decoding resource card



- Supports 2 channels at 32 MP@25 fps, 10 channels at 8 MP@25 fps, 14 channels at 6 MP@25 fps, 18 channels at 5 MP@25 fps, 28 channels at 3 MP@25 fps, and 36

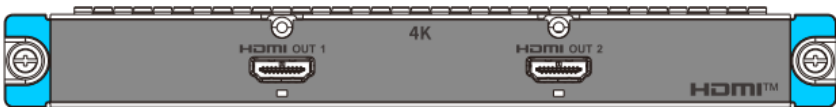
channels at 1080p@30 fps. It can decode a maximum of 36 channels, and 32 MP is supported with H.265.

- 1 HDMI port, 2 USB ports, 1 Type-C debugging port, and 2 RJ-45 reserved ports.

A case supports a maximum of 2 decoding extension cards. If more than 2 cards are installed, they will work in ascending order of slot numbers.

1.4.6 VO0201EH-DC8000 Splicing Controller UHD Output Card

Figure 1-10 VO0201EH-DC8000 splicing controller UHD output card



- 2-channel HDMI 2.0 ports, supporting 2-channel 4K@60 fps output display.
- 2-channel HDMI with built-in audio.

The 2-channel HDMI with built-in audio serves as a reserved feature.

1.4.7 VO0801HH-DC8000 Splicing Controller HD Output Card

Figure 1-11 VO0801HH-DC8000 splicing controller HD output card

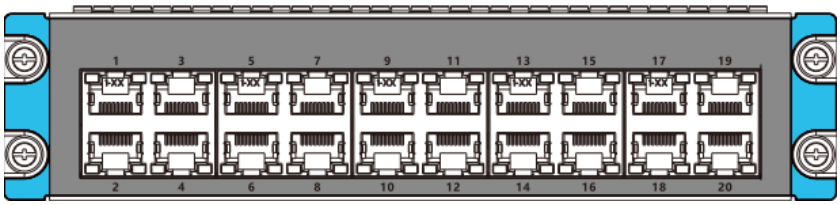


- 8-channel HDMI 1.3 port, supporting 8-channel 1920 × 1200@60 fps output display.
- 8-channel HDMI with built-in audio.

The 8-channel HDMI with built-in audio serves as a reserved feature.

1.4.8 VS20N-DC8000 Splicing Controller Ethernet Port Sending Card

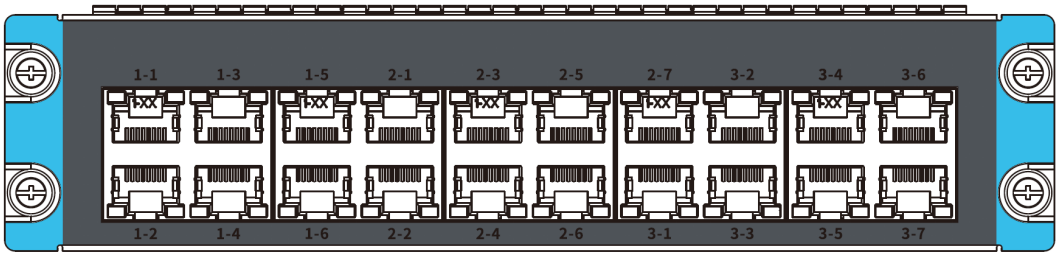
Figure 1-12 VS20N-DC8000 splicing controller Ethernet port sending card



- 20-channel RJ-45 ports, with a single Ethernet port supporting a maximum load capacity of 650,000 pixels.
- A single board card supports a maximum load capacity of 13 MP.

1.4.9 VS20N-DC8000NW Splicing Controller Ecosystem Sending Card

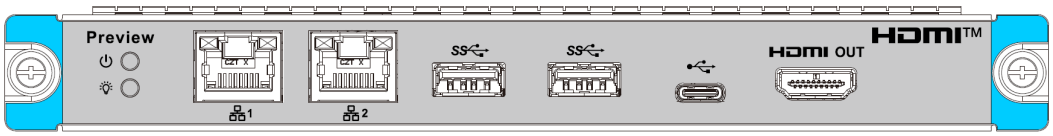
Figure 1-13 VS20N-DC8000NW splicing controller ecosystem sending card



- 20-channel RJ-45 ports, with a single Ethernet port supporting a maximum load capacity of 650,000 pixels.
- A single board card supports a maximum load capacity of 13 MP.

1.4.10 PRE-DC8000 Card for Live Video and Display of Splicing Controller

Figure 1-14 PRE-DC8000 card for live video and display of splicing controller



- Supports up to 32 acquisition channel previews (preview resolution D1@25 fps) or 4 video wall returns (return resolution 1080p@25 fps).
- 1 HDMI port, 2 USB ports, 1 Type-C debugging port, and 2 RJ-45 reserved ports.

A case supports a maximum of one preview card. If more than one card is installed, they will work in ascending order of slot numbers.

2 Device Appearance and Installation Connection

2.1 Unpacking Inspection

Upon receiving the device, check it according to the following steps.

Procedure

Step 1 Check whether there is any visible damage.

The protective material of the device package can resist most accidental collisions during transportation.

Step 2 Open the product packaging and check whether all included accessories are present. After confirmation, remove the protective film from the device.

Step 3 Open the case to check if the front-panel data cables, power cord, and the motherboard connections are secure. Additionally, ensure that the main control card, the control card, and the function card inside the case are properly inserted.

The label at the side of the case contains the device serial number and other information. The information is required when contacting after-sales service. Keep the label well and do not tear it off or discard it; otherwise, you might not be able to obtain after-sales service.

2.2 Product Dimensions

Figure 2-1 DSCON8000-S13 (mm [inch])

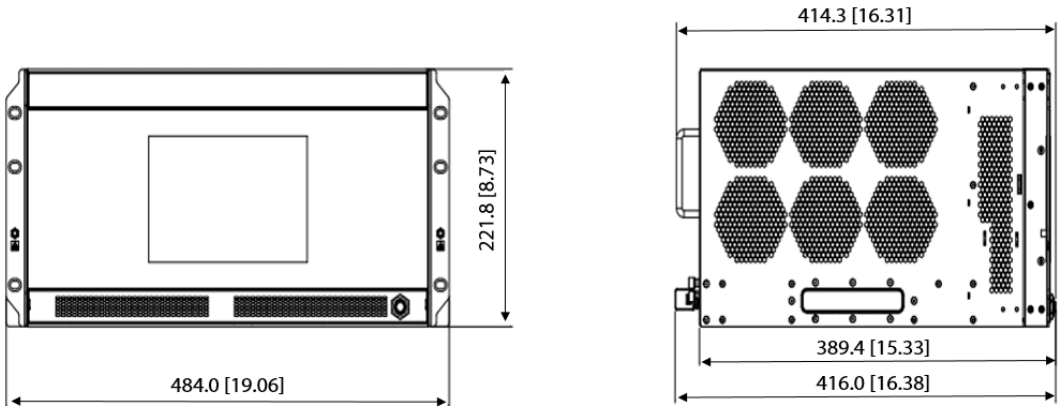
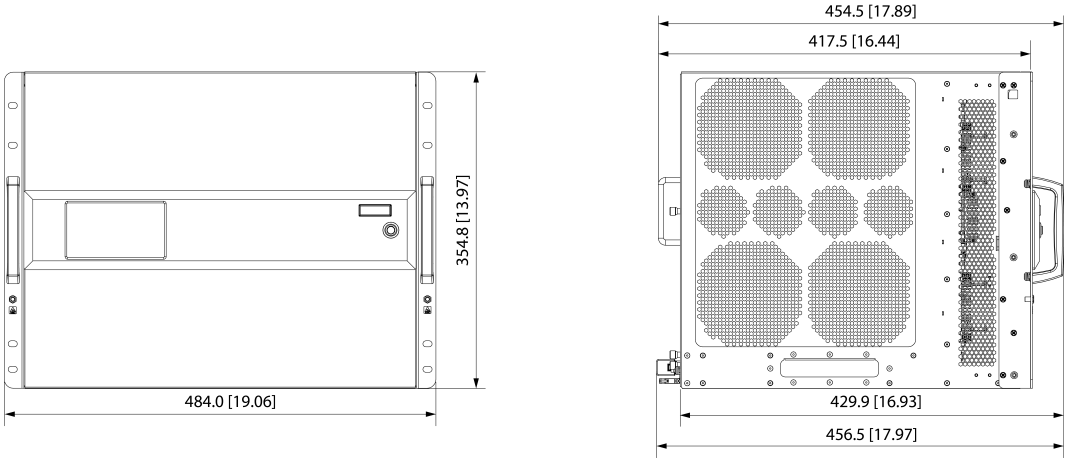


Figure 2-2 DSCON8000-S24 (mm [inch])



2.3 Device Installation

2.3.1 Installation Environment

The splicing controller is typically installed in the central machine room, and the selection of its installation site must comply with relevant national and regional standards for data center construction.

As the device is a standard rack-mount device fixed inside the cabinet, observe the following precautions during installation and operation:

- Ensure that the cabinet is sufficiently sturdy to support the weight of the splicing controller and its accessories, while avoiding uneven mechanical loads that might pose risks.
- Provide sufficient clearance for audiovisual cable routing, maintaining a minimum bend radius no less than 5 times the external diameter of the cable.
- Maintain proper ventilation with recommended ground clearance exceeding 50 cm beneath the device.

Power Supply Requirements

- The rated current of DSCON8000-S13 is 8 A and its rated power ≤ 550 W. Its rated voltage ranges from 100–240 VAC.
- The rated current of DSCON8000-S24 is 10 A/5 A and its rated power ≤ 1200 W. Its rated voltage ranges from 100–240 VAC.

Anti-Interference Requirements

- The on-site power supply system must implement effective measures to prevent grid interference.

- The working ground shall not be shared with the grounding devices of electrical equipment or lightning protection grounding systems, and should be kept as far apart as possible.
- Keep the device away from high-power wireless transmission stations, radar systems, and high-frequency and high-current devices.
- If necessary, use electromagnetic shielding methods for anti-interference purposes.

Environmental Requirements

Table 2-1 Environmental requirements description

Type	Normal Operating Specifications
Ambient temperature	• Operating: 5 °C to 35 °C (mainstream) • Computer room standard recommends 18 °C to 28 °C.
Relative humidity	8% to 90% RH, no condensation allowed.
Dust/cleanliness	The main computer room must meet the requirement of particle size ≥0.5 μm; dust <3.5×10^7 particles/m^3.

2.3.2 Installation Steps

The device is delivered with the main control card installed by default.

Procedure

Step 1 Insert the function card and blank panel as needed, and then tighten the screws.

Under full load conditions, inserting a blank panel is not required. However, in non-full load scenarios, blank panels must be inserted to avoid potential operational impact.

Step 2 Properly ground the grounding terminal of the splicing controller.

To ensure the safety of both personnel and the device, the splicing controller and any connected devices through cables (such as large screens, computers, and more) must be grounded. When most devices are directly grounded through power supplies, no additional grounding is required for the grounding terminal on the device.

Step 3 Connect necessary cables (such as Ethernet cable and HDMI cable) according to actual requirements.

Step 4 Power on the device to start it.

2.3.3 Startup and Shutdown

2.3.3.1 Startup

Plug in the power cord, and then the power indicator lights up. The startup page is displayed after the power switch is turned on.

Pay attention to the following matters when starting up.

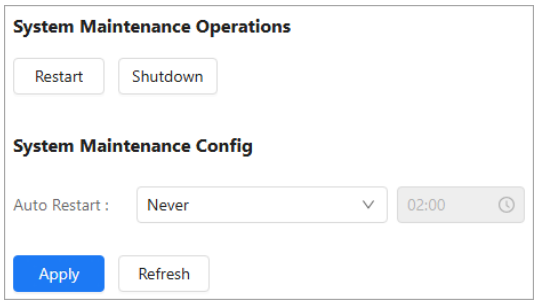
- Ensure that the input voltage of the power supply is within the range of 100 VAC to 240 VAC and 47 Hz to 63 Hz. Verify that the power cord is securely connected before turning on the power switch.
- We recommend providing a stable power input with minimal interference (as per national standards). This will help ensure the stable operation and prolonged lifespan of the device. Additionally, it will greatly benefit external devices, such as cameras. If possible, it would be best to use power from the uninterruptible power supply (UPS).

2.3.3.2 Shutdown

There are 2 methods for shutdown.

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

Figure 2-3 Shutdown



- Method 2: Press and hold the power button on the panel for 5 seconds until the indicator turns orange, meaning that the device is shutting down. When the device is completely shut down, the orange indicator remains solid on. Press the power button again to turn on the device, and then the indicator will change to green.



- For shutdown, we recommend using method 1 to prevent potential device damage caused by unexpected power off.
- Make sure that all device operations have completely stopped before unplugging the power cord.

2.3.3.2.1 Power Outage Recovery

When its power is suddenly interrupted or forcibly shut down during operation, the device will automatically save its state before power outage. Upon power restoration, it will smoothly resume operations of its previous working status without requiring manual intervention.

2.3.3.2.2 Replacing the Button Battery



- Before replacing the battery, export and save the configurations; otherwise, all settings might be lost.
- When replacing the device button battery, we recommend using a battery of the same model. Regularly check the system time and typically replace the battery once a year to ensure the accuracy of the system time.

3 Touchscreen Operations (DSCON8000-S13)

3.1 Device Initialization and Login

Procedure

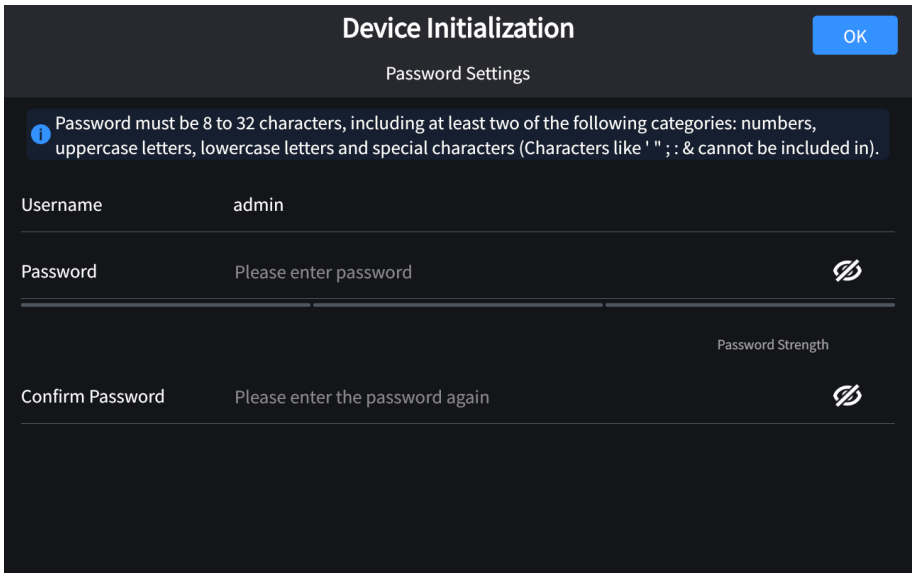
Step 1 Connect the power cord and wait for the device to start up.

Once the device powers on, it proceeds to the initialization page.

Step 2 Set and confirm the password, and then tap **OK**.

- Set a high-security password according to the password strength prompt.
- The password must be 8 to 32 non-blank characters, including at least 2 of the following categories: numbers, uppercase letters, lowercase letters, and special characters (excluding ', ", ;, :, &). The passwords must be the same.

Figure 3-1 Set password



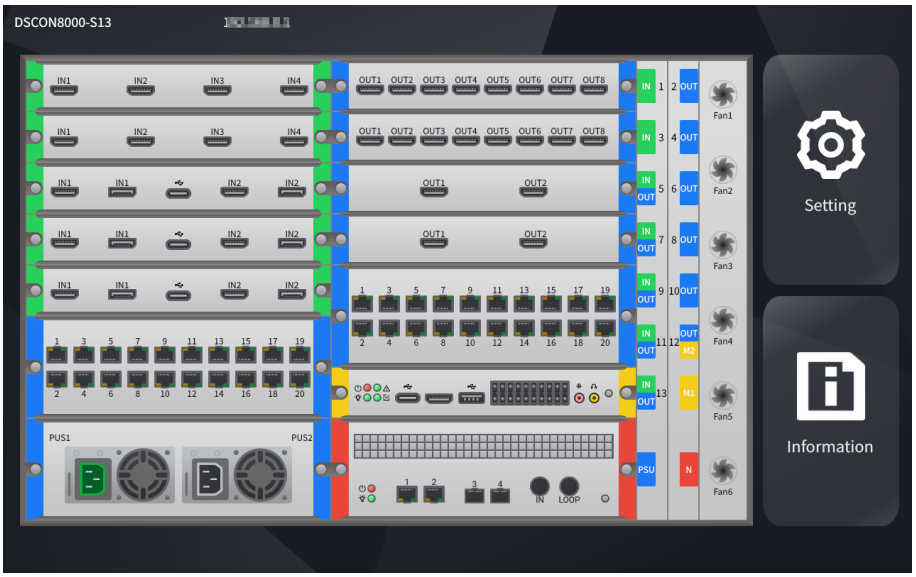
Step 3 On the login page, enter your username and password, and then tap **Login**.

3.2 Setting

Network Settings

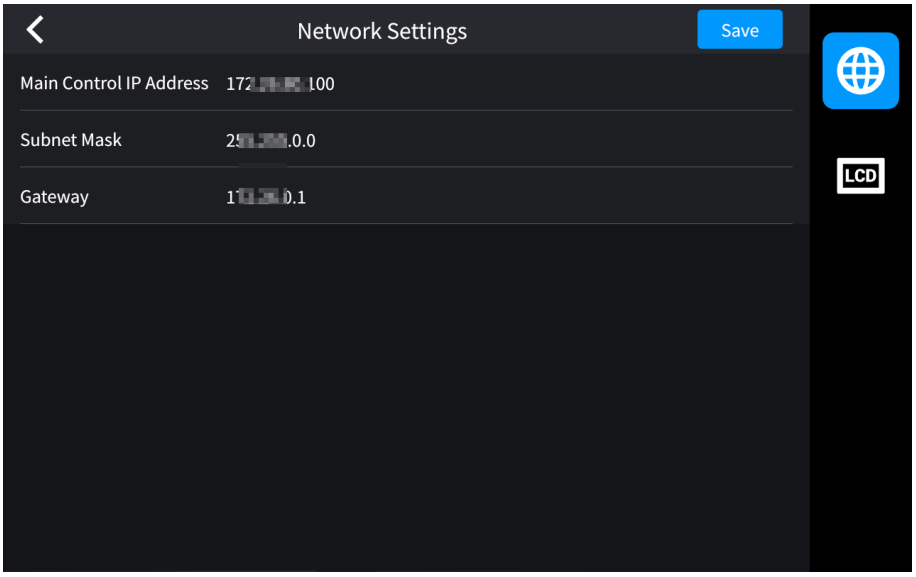
1. On the home page, tap **Setting**.

Figure 3-2 Home page



2. Configure the IP address, subnet mask and gateway, and then tap **Save**.

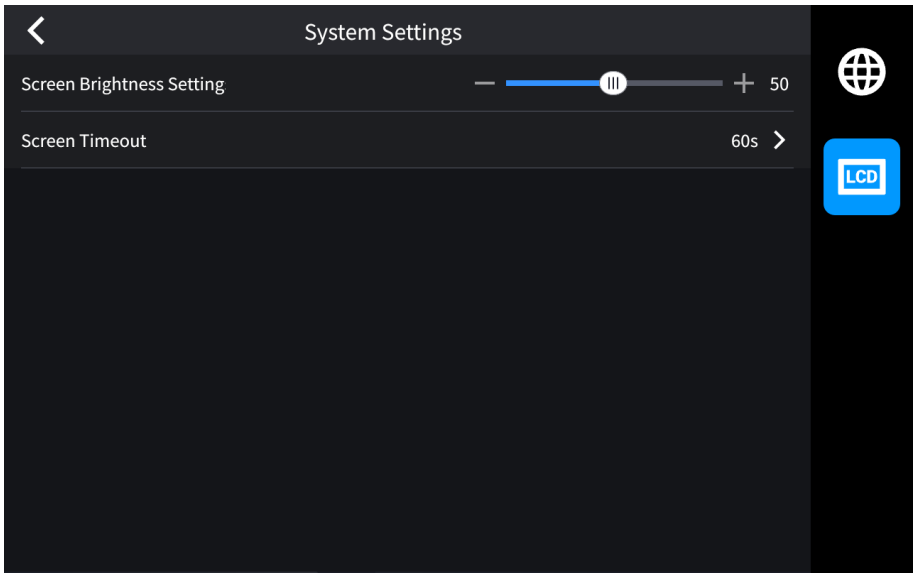
Figure 3-3 Network settings



LCD Settings

1. Tap **LCD**.
2. Adjust the screen brightness and set the screen timeout time.

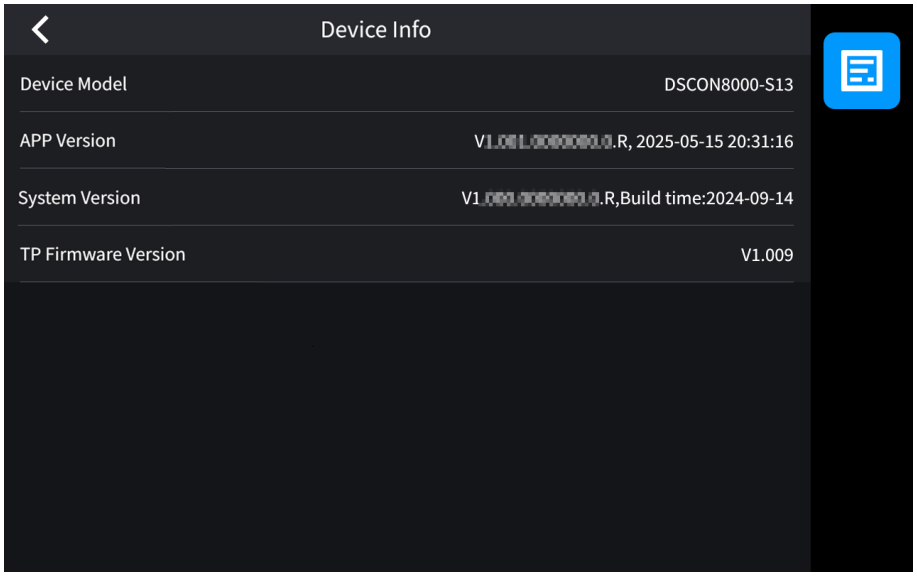
Figure 3-4 Configure LCD screen



3.3 Information

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

Figure 3-5 Device information



4 Touchscreen Operations (DSCON8000-S24)

The front panel LCD screen of the device supports viewing information such as device version and IP address.

Prerequisites

The device has been initialized through the webpage.

Procedure

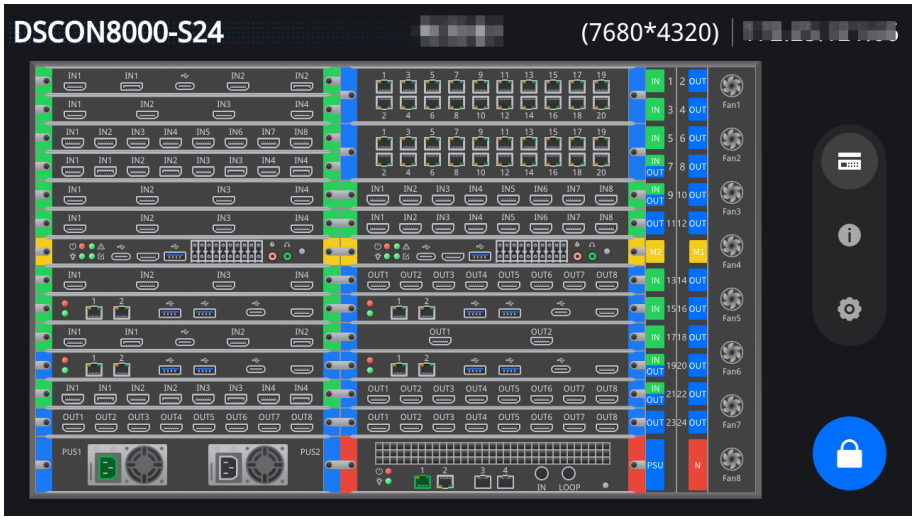
Step 1 Connect the power cord and wait for the device to start up.

After the device is powered on, the device enters the main page ( ), which displays the information of the device's rear panel.

Step 2 Tap to unlock the device.

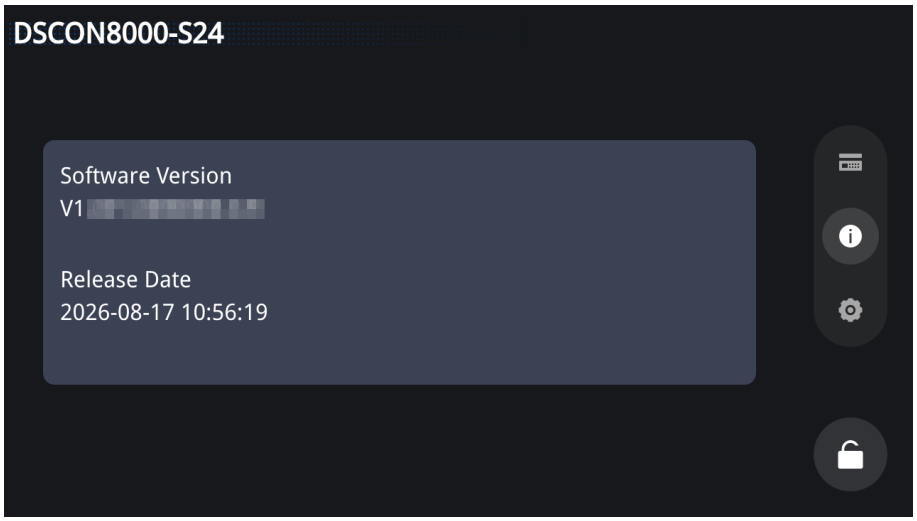
After unlocking, tap to lock the device.

Figure 4-1 Unlock



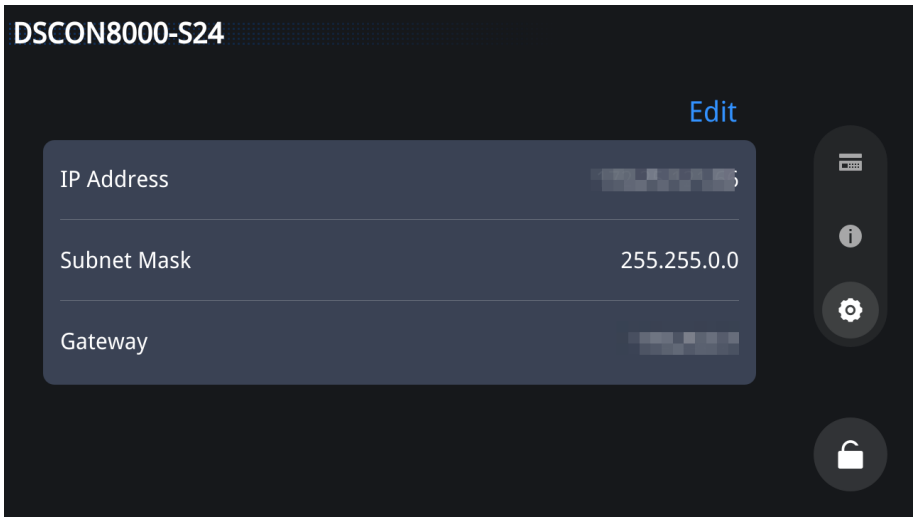
Step 3 Tap to view the software version information.

Figure 4-2 View the software version



Step 4 Tap  to view the device IP information.

Figure 4-3 View IP address



Step 5 Modify the device IP address.

1. Tap **Edit** on the IP address page.
2. Enter the username (admin) and password.
3. Modify the IP address, subnet mask, and gateway information.
4. Tap **OK**.

5 Web Operations

5.1 Network Connection

Procedure

Step 1 Make sure that both the device and the computer used for web operations are properly connected to the network.

Step 2 Configure the IP address, subnet mask and gateway of the device and the computer respectively.

- If there is no router on the network, assign IP addresses 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 controller) on your computer to check whether the connection is working normally.

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

The system supports Chrome 65 or later, Firefox 65 or later, and Edge 79 or later. Internet Explorer is not supported.

5.2 Initialization and Login

Procedure

Step 1 Enter the IP address of the device (for example, 192.168.1.108) in the address bar of the browser, and then press the Enter key.

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 2 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 password strength prompt.

Step 3 Click **OK**.

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

The video wall page is displayed by default.

5.3 Home Page

Figure 5-1 Home page

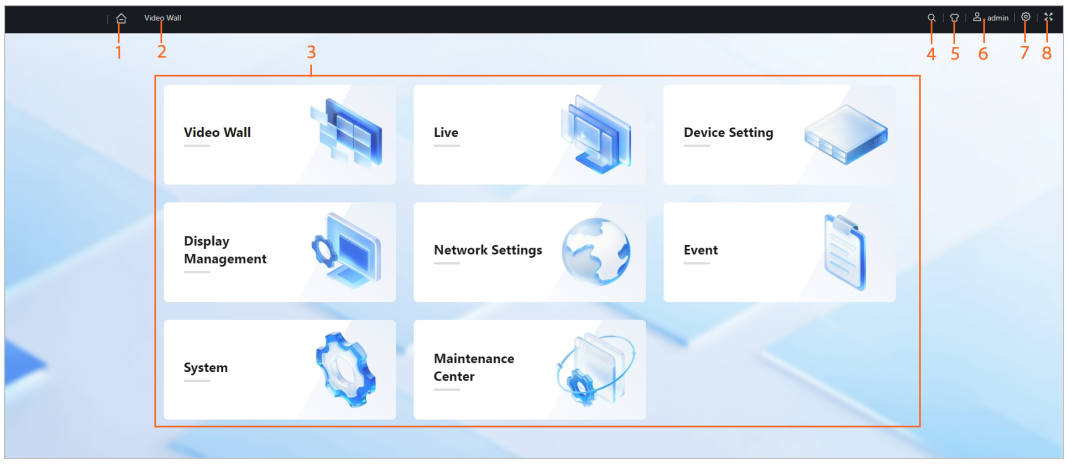


Table 5-1 Description of the homepage

No.	Name	Description
1	Home page	Click it to return to the home 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.

5.4 Device Setting

The system supports configuring local signals and network signals, performing operations such as signal grouping or adding signals to favorites.

5.4.1 Local Signal

Configure the channel name and control number for the local signal.

5.4.1.1 Signal Management

Procedure

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

Step 2 Click to edit capture configurations, and then click **OK**.

Only HDMI and only DP: Regardless of whether other ports are connected to a device, the system is required to use HDMI or DP as the only input source.

Only the 4K acquisition port supports HDMI or DP switching.

Figure 5-2 Signal management

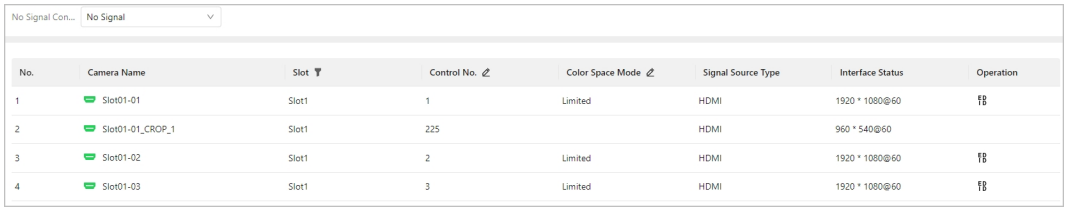
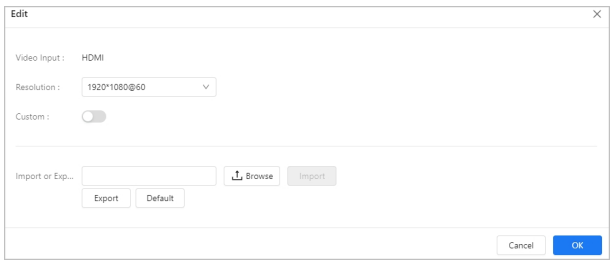
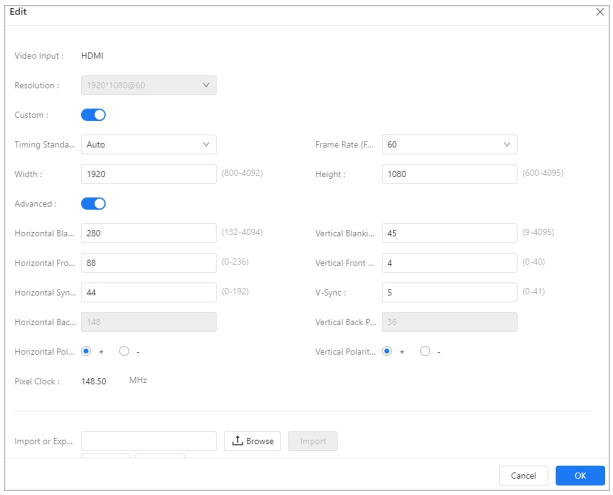
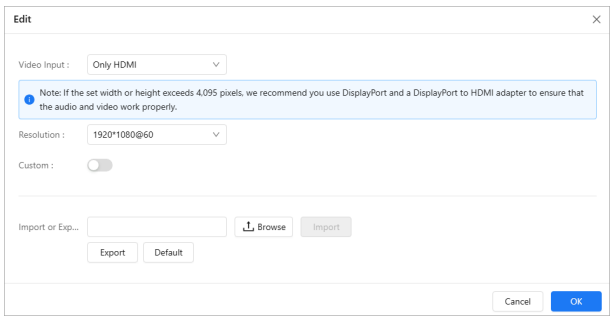
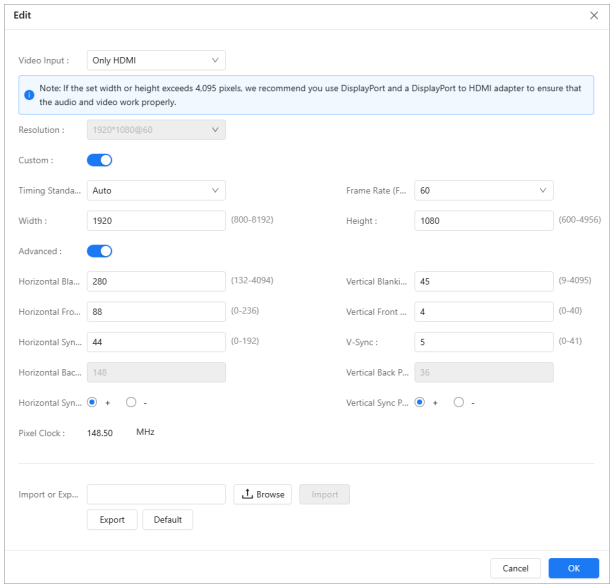


Table 5-2 Resolution support for different capture ports

Type	Resolution type	Description
HDMI 1.4 HD capture card	Fixed resolution	• By default, it supports YUV444 1920 × 1080@60 Hz capture. • Maximum support for YUV444 4096 × 2160@30 Hz capture. 

Type	Resolution type	Description
	Custom resolution	• Width range: 800–4094, height range: 600–4094. • Maximum width supported: 4094 × 1140@60 Hz; maximum height supported: 1024 × 4094@60 Hz. 
HDMI 2.0/DP 1.2 selectable ultra-high definition capture card	Fixed resolution	• By default, it supports YUV444 1920 × 1080@60 Hz capture. • Maximum support for YUV444 3840 × 2160@60 Hz capture. 

Type	Resolution type	Description
	Custom resolution	• Width range: 800–8192, height range: 600–8192. • Maximum width supported: 8192 × 1162@60 Hz; maximum height supported: 1024 × 8192@60 Hz. • Maximum support for YUV444 4096 × 2160@60 Hz custom capture. 

Step 3 Click **Apply**.

Related Operations

- Click a specific camera name, a control number or a color space mode 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** , **Auto** 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.

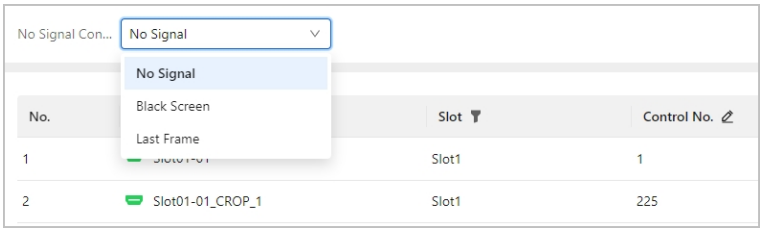
◇ Inconsistency might cause the image to appear washed out, dim, oversaturated, or have abnormal contrast. If the output settings of the signal source cannot be determined, you can switch this option and select the mode that provides the best color and contrast performance based on the actual image display.

5.4.1.2 No Signal Setting

The system can be configured to display the following for no-signal or abnormal signal states: **No Signal** , **Black Screen** and **Last Frame**.

On the home page, select **Device Setting** > **Local Signal** > **Signal Management**, choose the display mode from the drop-down list in the upper-left corner, and then click **Apply**.

Figure 5-3 No signal setting



5.4.2 Network Signal

By adding devices in the network, network signals can be displayed on the wall.

Prerequisites

After a decoding resource card is inserted into the device, it supports adding network signals.

5.4.2.1 Adding Signals in Batches

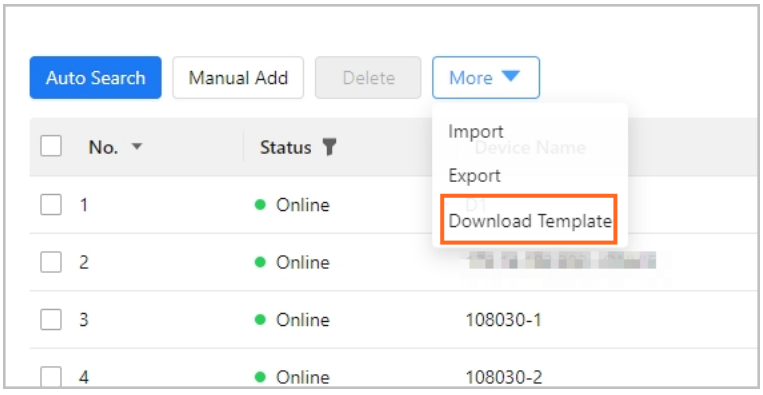
Enter the device information in the template and import the template to add devices. This method is recommended when devices are added in batches.

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 PC.

Figure 5-4 Download templates



Step 3 Enter the device information, and then save the template.

Step 4 Click **More** , and then select **Import** to import the template.

5.4.2.2 Adding Devices One by One

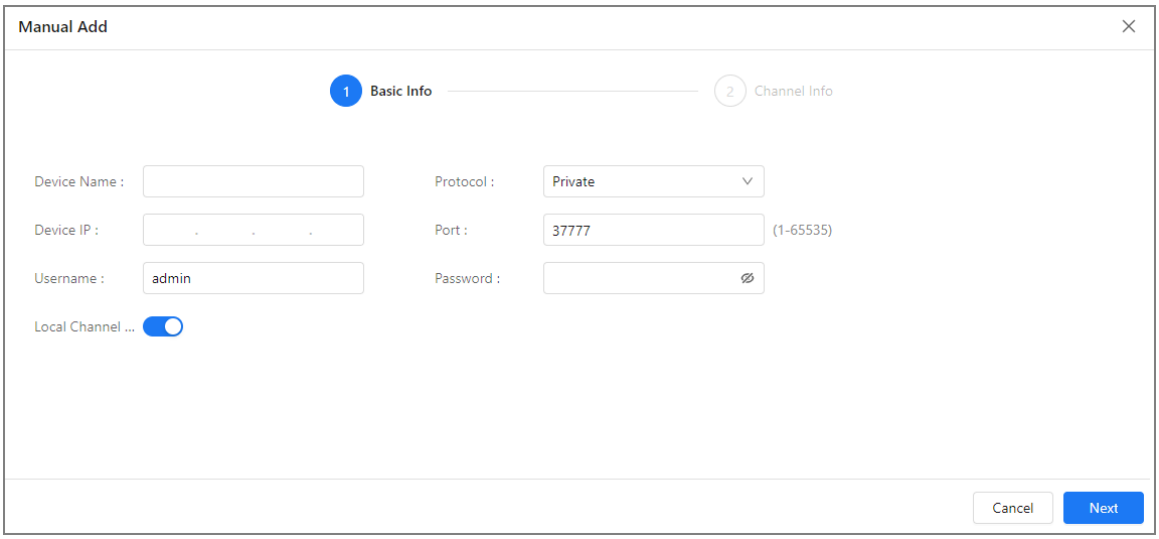
Configure the IP address, user name, and password of the device manually. This method is recommended when adding a small number of devices and the IP addresses, user names, and passwords of the devices are available.

Procedure

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

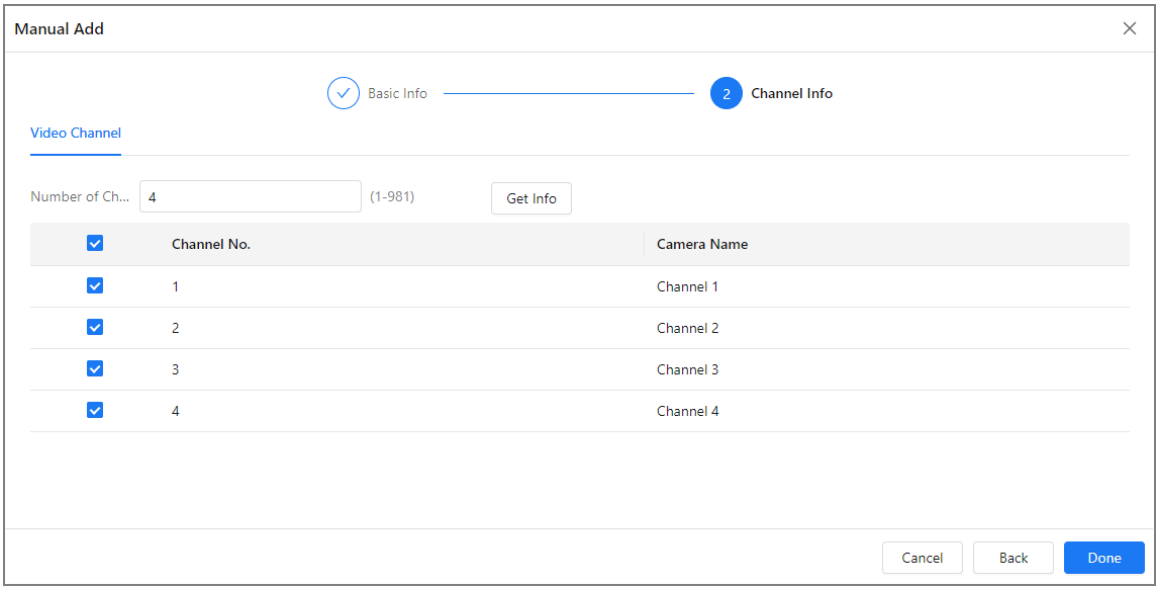
Step 2 Click **Manual Add**, and then configure the parameters.

Figure 5-5 Add the device manually



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

Figure 5-6 Configure the channels



Step 4 Click **Done**.

Related Operations

- Click to edit the device information.
- Click to delete the device.
- Select the devices, and then click **Delete** to delete the devices in batches.

5.4.2.3 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.

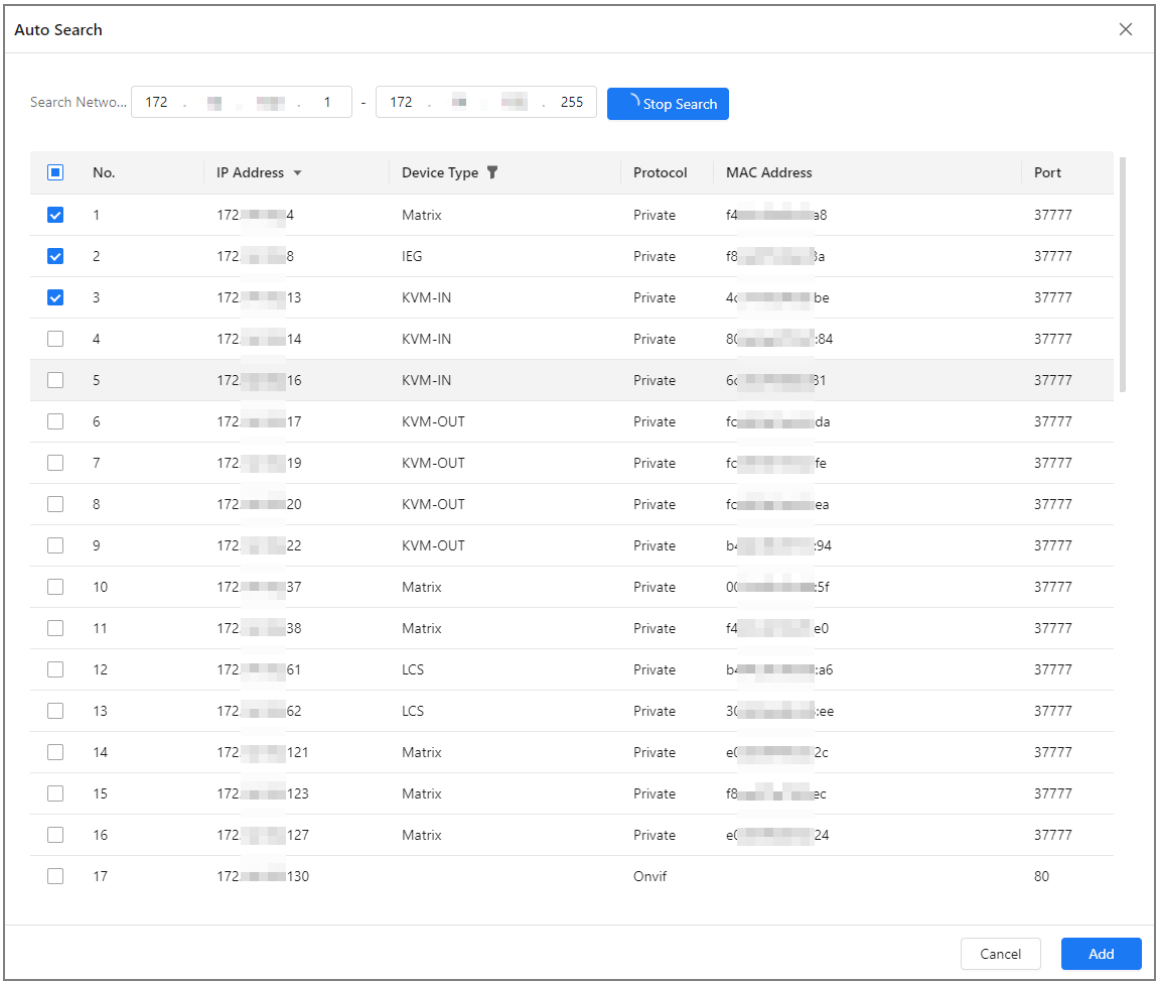
Procedure

Step 1 On the home page, select **Device Setting** > **Network Signal** > **Device** > **Auto Search**.

Step 2 Configure the IP segment, and then click **Start Search**.

Step 3 Select the devices you want to add, and then click **Add**.

Figure 5-7 Add the devices by search



Related Operations

- Click to edit the device information.
- Click to delete the device.

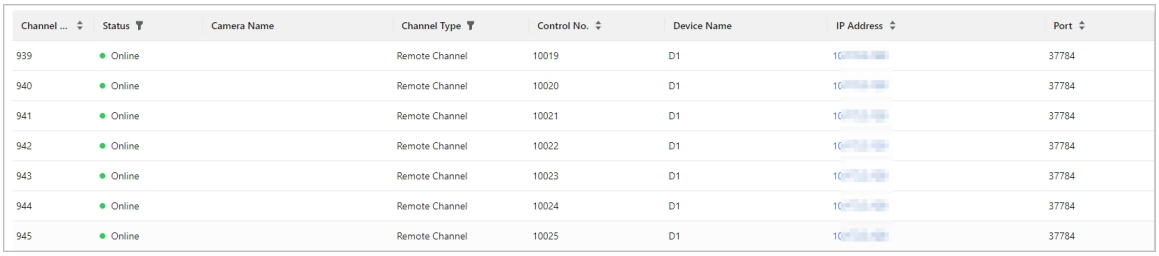
- Select the devices, and then click **Delete** to delete the devices in batches.

5.4.2.4 Viewing Channel Information

On the home 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.

Figure 5-8 Channel information



Channel ...	Status	Camera Name	Channel Type	Control No.	Device Name	IP Address	Port
939	Online		Remote Channel	10019	D1	10	37784
940	Online		Remote Channel	10020	D1	10	37784
941	Online		Remote Channel	10021	D1	10	37784
942	Online		Remote Channel	10022	D1	10	37784
943	Online		Remote Channel	10023	D1	10	37784
944	Online		Remote Channel	10024	D1	10	37784
945	Online		Remote Channel	10025	D1	10	37784

5.4.3 Signal Groups

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

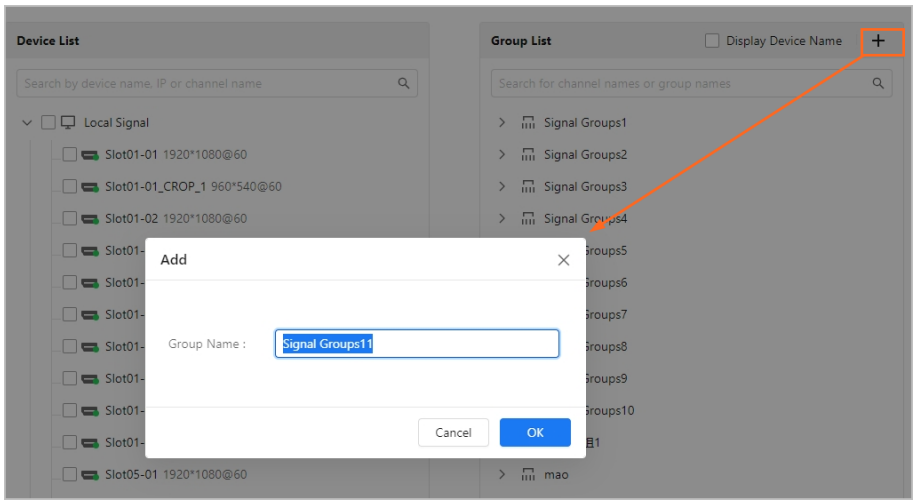
Procedure

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**.

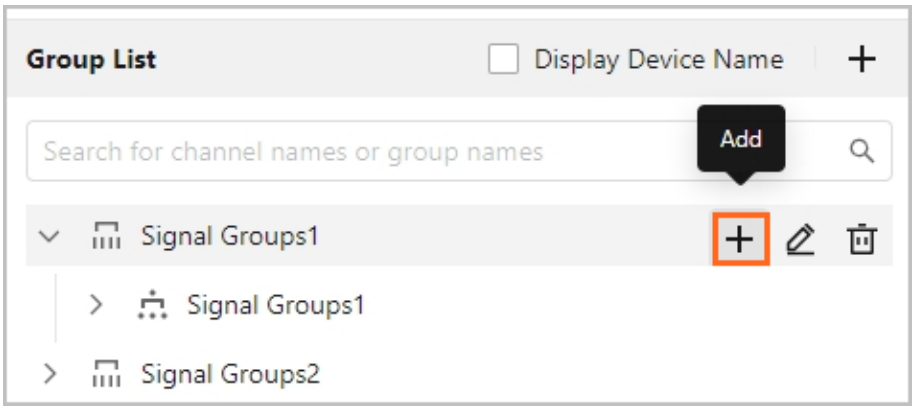
Figure 5-9 Add a first-level group



  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 5-10 Add a second-level group



Step 3 Add signals to the group.

1. Select a group in the **Group List**.
2. Select signals to be added to the group in the **Device List**.
3. Click > to add them to the group.

5.4.4 Favorites

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

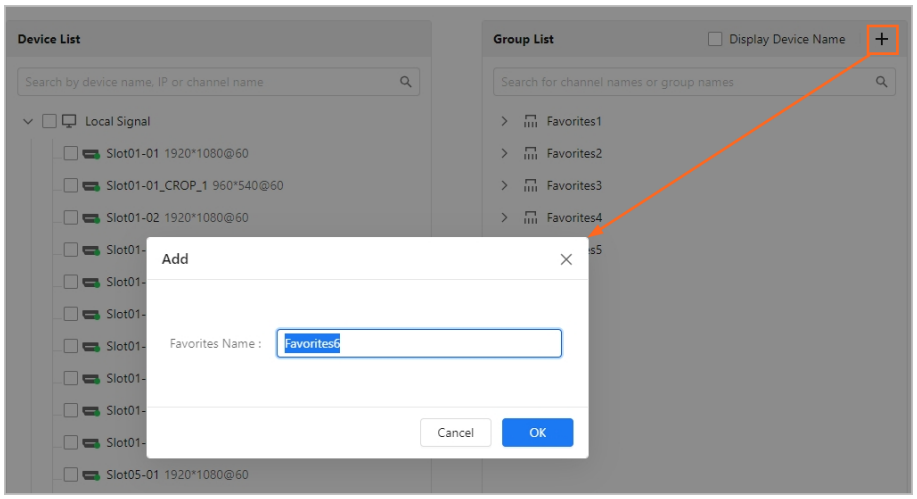
Procedure

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**.

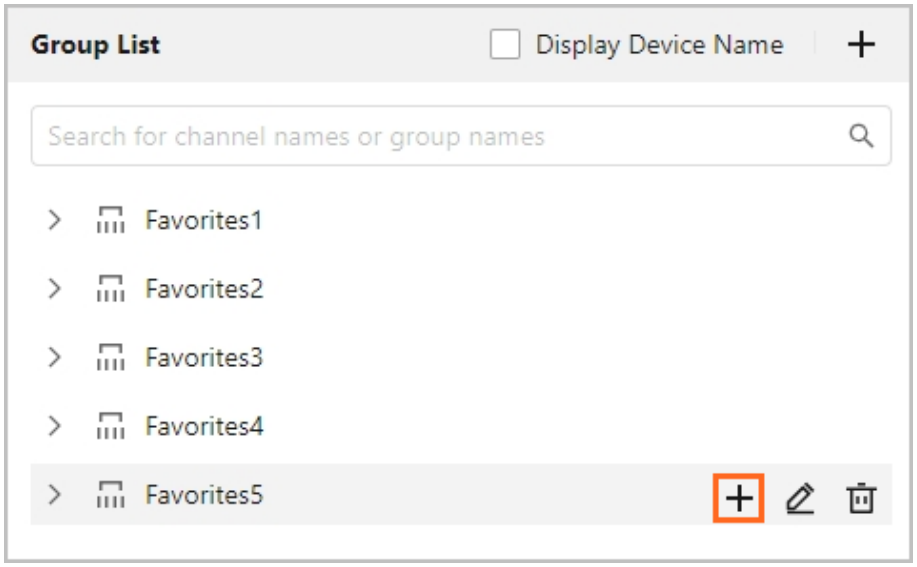
Figure 5-11 Add a first-level group



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 5-12 Add a second-level group



Step 3 Add signals to the favorites group.

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

5.5 Video Wall

5.5.1 Configuring Video Wall

Add a video wall to an output port or a sending port. Configure the layout for the video wall and bind channels.

Prerequisites

Before configuring the video wall for a sending port, you must first use the LED display configuration tool (LCS Tool) to select the corresponding sending card and its network port for connection configuration. And then deploy the configuration information to the sending card.

After correct configuration, you can log in to the device through a browser and see the corresponding display connection from **Video Wall** > **Video Wall Config** > **Output Port**.

Background Information

- **Output Port** refers to a physical port on the device used to connect LCD displays (for example, HDMI port). Signals from such ports can be directly recognized and displayed by the screen. You can bind the output port to the corresponding window directly on the **Video Wall Config** page to complete display mapping.
- **Sending Port** refers to a physical port on the device used to connect LED displays (for example, RJ-45 network port). Such ports do not directly output display signals. To complete display mapping, first use the configuration tool to combine the network ports into a virtual screen. Then, on the **Video Wall Config** page, bind the sending port to the corresponding window.

Procedure

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

Step 2 Click **Add**.

You can also create a video wall by dragging an output page to the central area, or by clicking **Click to Add** in the central area.

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

Step 3 Enter the video wall name, select a screen or enter the number of rows and columns, and then click **OK**.

- : Quickly lay out based on custom row and column values.
- : Screen auto-fit. After zooming in or out of the video wall operation area, use this button to return to the original page position (left-aligned) proportionally.
- : Maximize the window.
- : Clear selected screens.
- Click below or to the right of the screen to add a row or a column.

Figure 5-13 Add a video wall



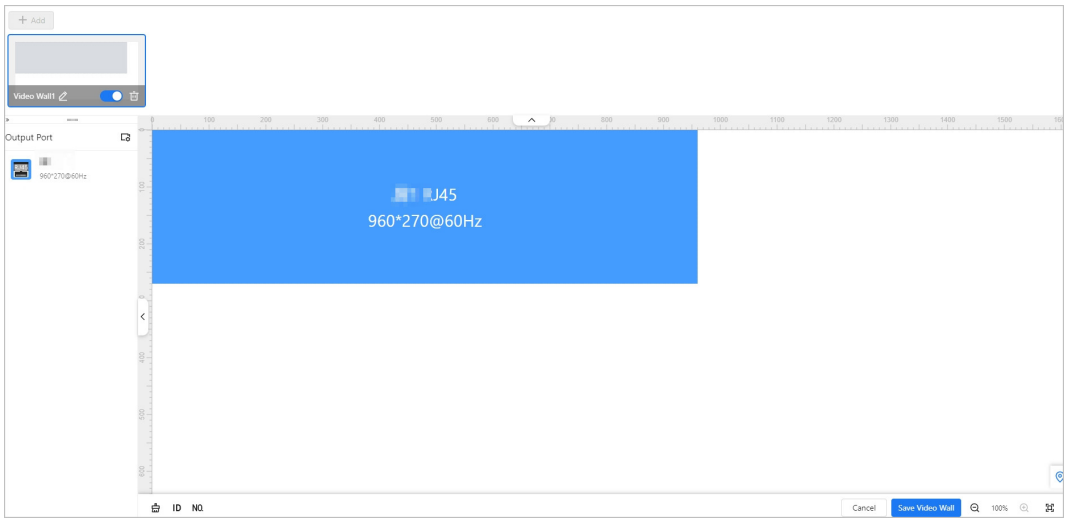
Step 4 Bind the output port or sending port channel to the video wall screen.

- Method 1: In the **Output Port** list, select the output port or the sending port to be bound, hold and drag it to the screen in the video wall on the right to complete the binding.
- Method 2: In the **Output Port** list, click ⇶/⇊ of the output port or the sending port to automatically bind horizontally or vertically.

A video wall does not support binding both a sending port and an output port simultaneously.

- The **Output Port** list displays port icons and names. You can know the port type by the icon.
  - ◇ HDMI indicates an output port.
  - ◇ RJ45 indicates a sending port.
- Select a screen, and then hold down the left mouse button to adjust its position.
- Move the mouse over the screen, and then click to delete the screen.
- Click to quickly go to the **Display Management** > **Output Config** > **Sending Port**.

Figure 5-14 Bind the output port channel



Step 5 Adjust the layout of the screen.

Table 5-3 Icon description

Icon	Description
27%	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.
	Clear all output ports on the current video wall.
ID	Shows or hides mapping.
NO.	Shows or hides control numbers.
	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  .

5.5.2 Video Wall Control

5.5.2.1 Window Configuration

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

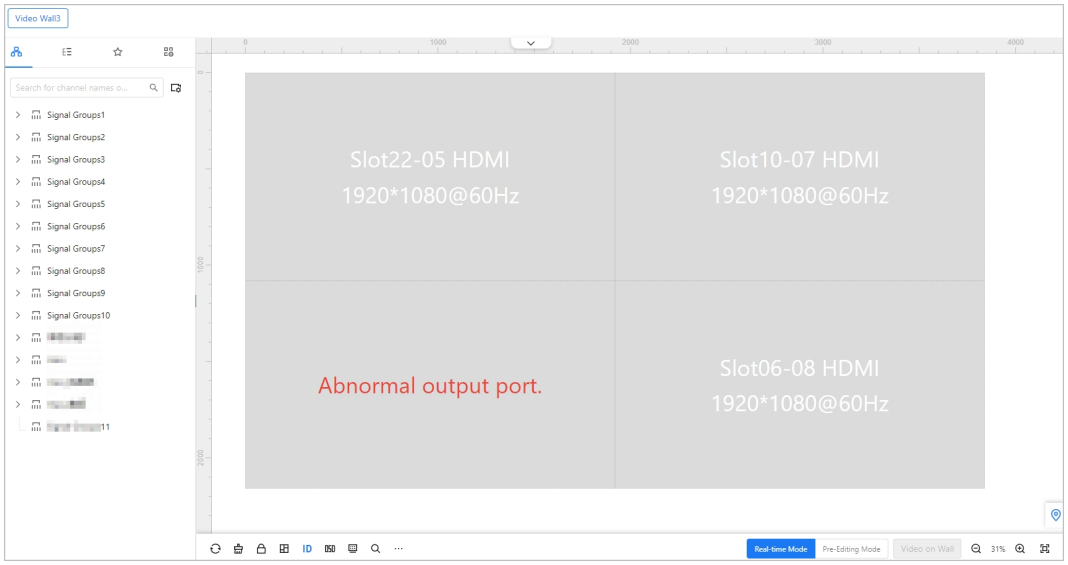
Procedure

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 5-15 Add windows



For detailed information about related operations at the bottom of the video wall, see "5.5.2.2 Video Wall Operation".

Figure 5-16 Video wall operation function



Step 3 Select a window and adjust its properties.

- Select a window, and then hold down 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 5-17 Adjust the window

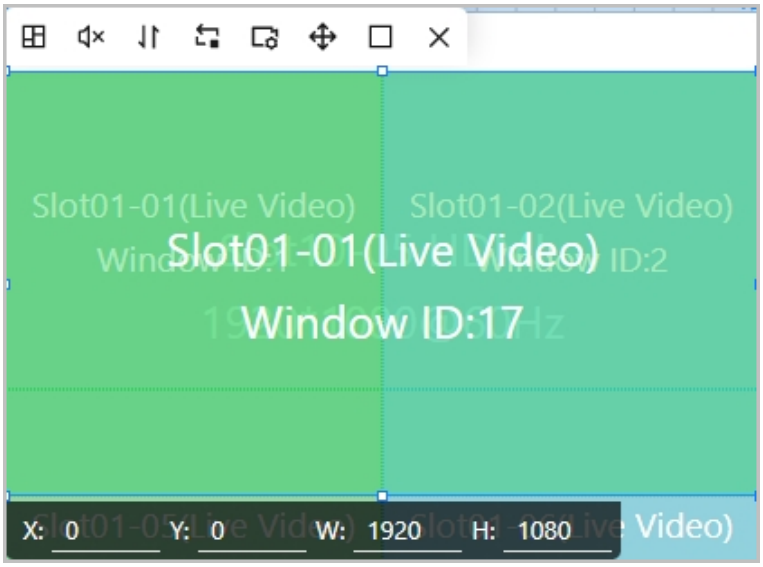
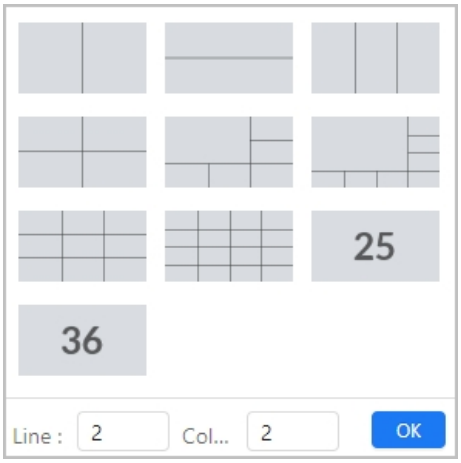
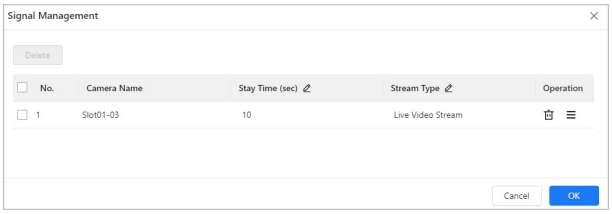


Table 5-4 Window adjustment function description

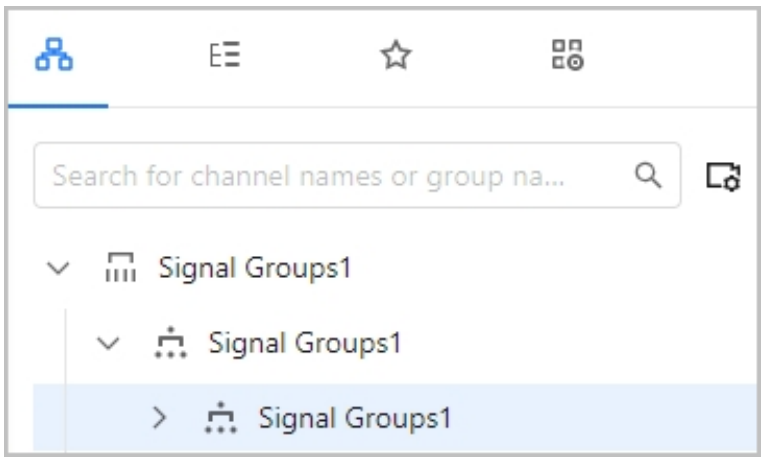
Icon	Description
	Click to choose the number of split windows, or enter a custom number manually. 
	Turn audio on or off.
	Click , and then select **Pin to Top**, **Up**, **Down**, or **Pin to Bottom** to pin the current window to the top, move it down one layer, move it up one layer, or pin it to the 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 and stream type 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.
	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 to bind it to the window.

and will only appear in the video wall control page after configuring groups or favorites in the **Device Setting** > **Signal Groups** or **Device Setting** > **Favorites** page.

- 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.

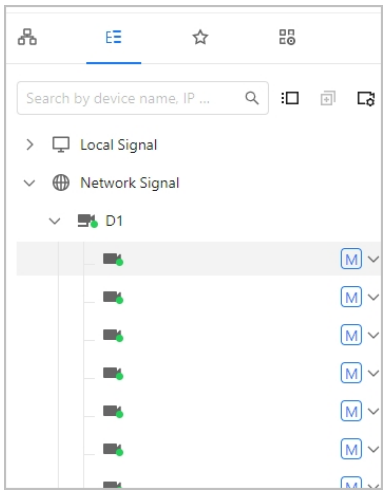
Figure 5-18 Signal groups



- supports the following operations.
  - Quickly search by channel name.
  - Click to select multiple signals in batch.
  - Click to add multiple signals in batch.
  - Click to quickly go to the **Device Setting** > **Local Signal** > **Signal Management** page.
  - Hover over any local signal and click to crop the image. For details, see "5.5.2.3 Image Cropping".

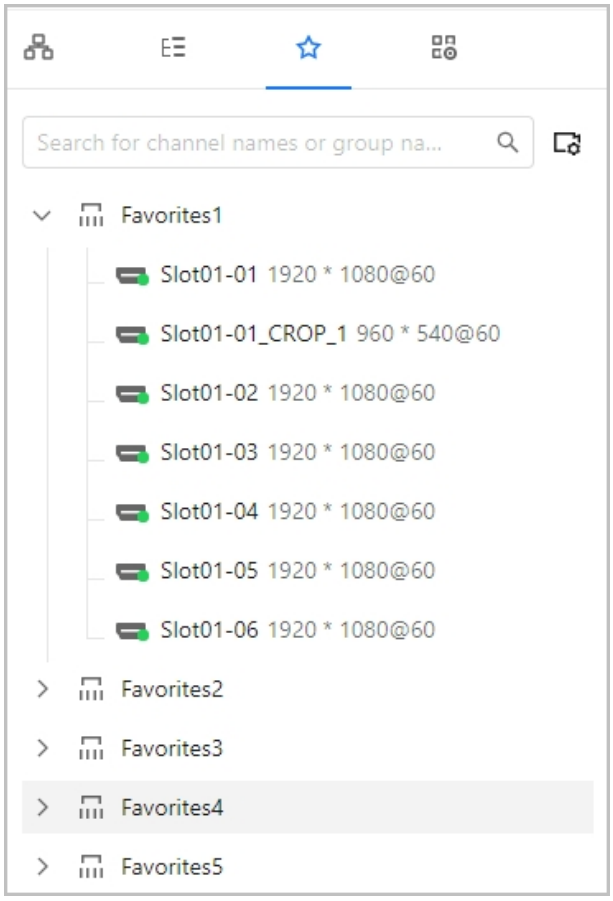
Click to switch between the main stream and sub stream.

Figure 5-19 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 5-20 Favorites



5.5.2.2 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.

The sending port and output port video walls support slightly different operations. Refer to the actual page.

Figure 5-21 Video wall operation

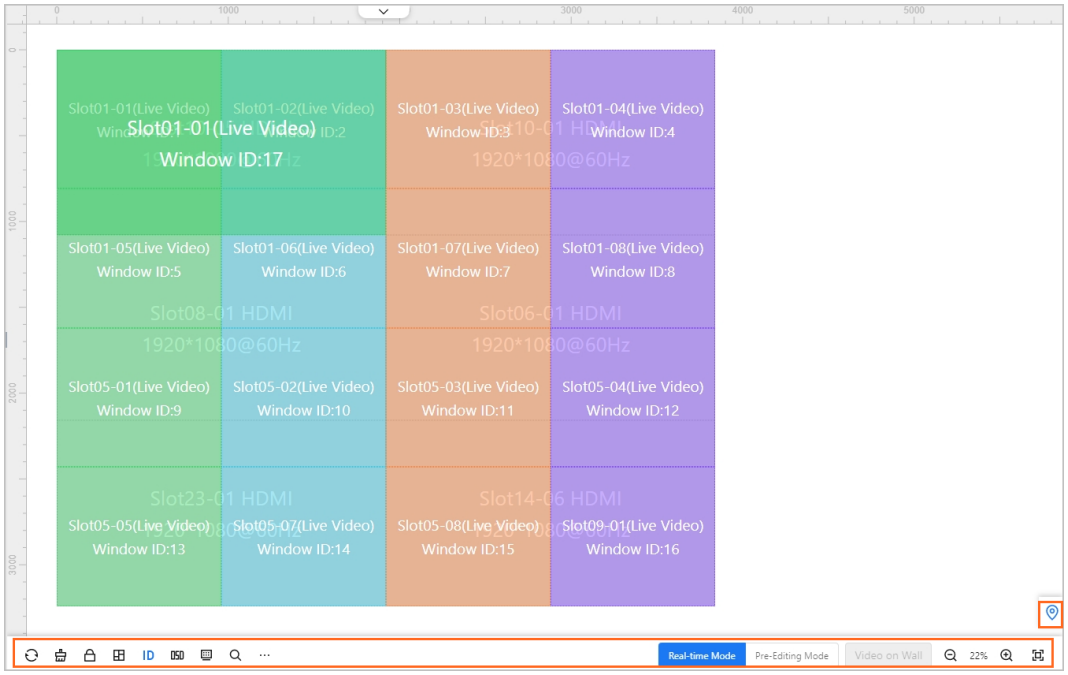
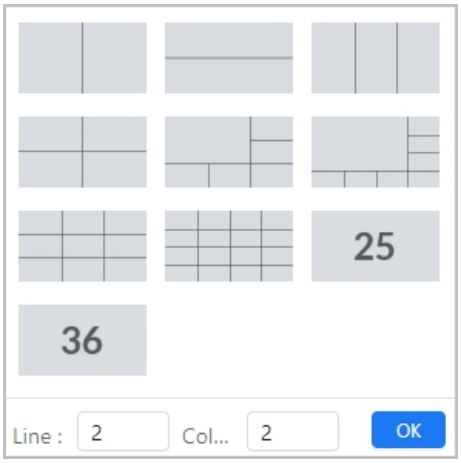
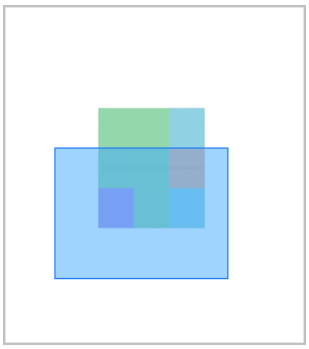


Table 5-5 Video wall operation description

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.

Items	Description
⊞	Click ⊞ to choose the number of split windows, or enter a custom number manually. 
ID	• If it is a sending port video wall, the function is used to show or hide Mapping. • If it is an output port video wall, the function is used to show or hide the screen number.
OSD	Configure subtitles displayed on the screen.
⌨	Enable preview to display the video of the selected signal source on the current video wall window. Multiple windows can be enabled for video preview at the same time. 📖 • The number of supported displays depends on the performance of the current device. • Only the output port video wall supports the preview function.
🔍	Quickly locate the corresponding window based on the window ID.
...	Includes background image (serves as the LED wall background) and screen management operations. • Background image: Click ⬭ to enable the function. Click **Upload**, and then select an image from the local device as the background image. For details, see "5.10.6.1 Background Image Management". • Screen management: Configure scheduled screen on/off and timed tasks. For details, see "5.5.2.2.1 Screen Management". • Video wall configuration: Click it, and then you can go to the **Video Wall Config** page.

Items	Description
Real-time Mode	• Real-time mode: Operations such as window creation and signal source binding are immediately displayed on the large screen. • Pre-Editing mode: Perform operations like window creation and signal source binding first; effects are only displayed on the large screen after clicking **Video on Wall**. • In Pre-editing mode, subtitle, background image, scene management, and screen management functions are not supported. • In Pre-Editing mode, if the webpage is refreshed or switched, preview information will be cleared.
Pre-Editing Mode	
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. 

5.5.2.2.1 Screen Management

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

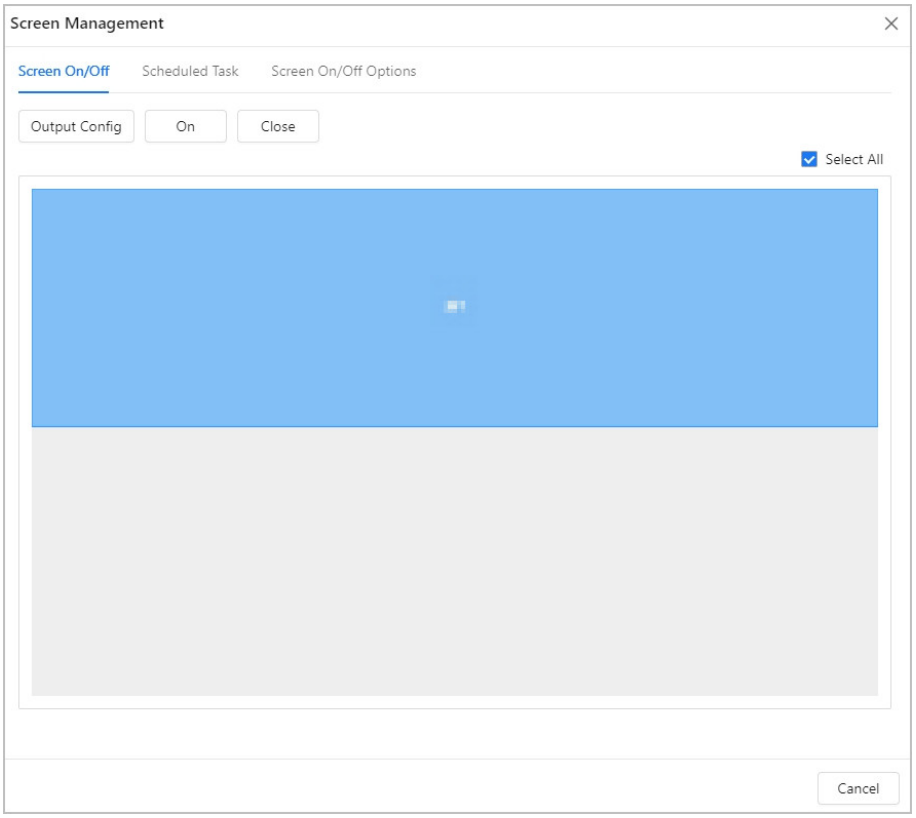
On the home page, select **Video Wall** > **Video Wall Control**. At the bottom of the video wall, click ⋯, and then select **Screen Management** to configure screen on/off, timed tasks, and screen switch options.

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** > **Output Port** page.

Figure 5-22 Screen on/off



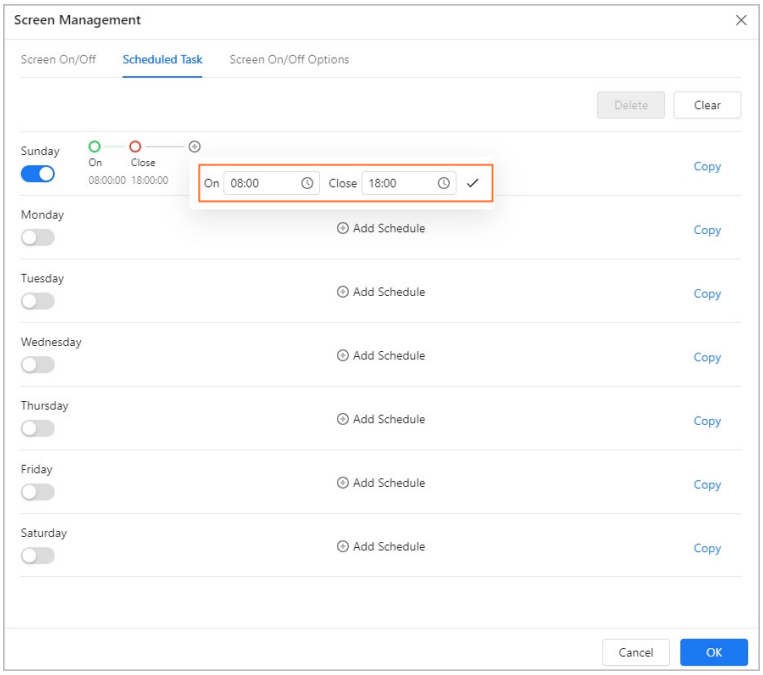
Scheduled Task

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, and 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 5-23 Scheduled task

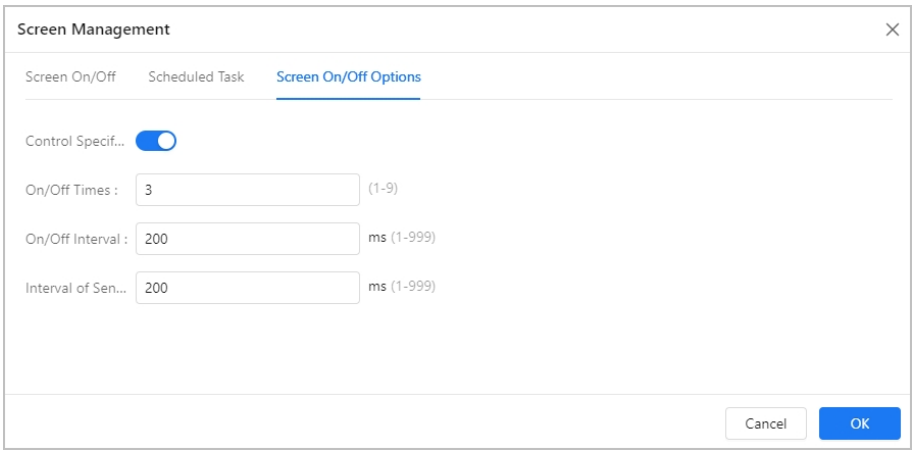


Screen On/Off Options

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

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

Figure 5-24 Options



5.5.2.2.2 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 OSD at the bottom of the video wall.
3. Click **Add**, and then configure the subtitle parameters.

Figure 5-25 Configure the subtitle parameters

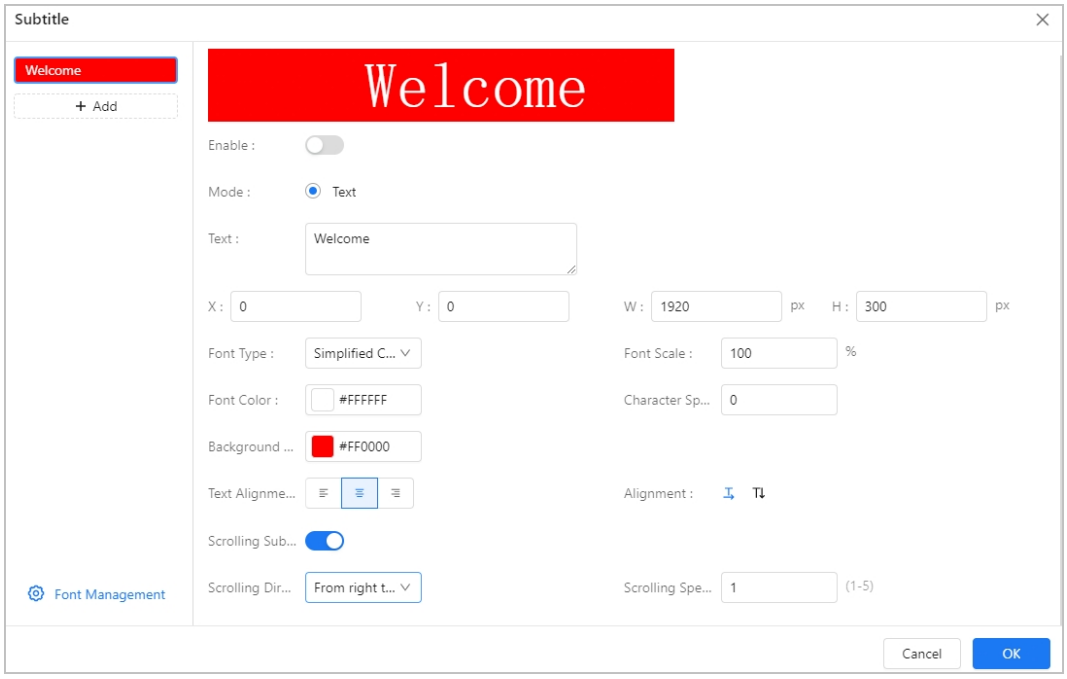


Table 5-6 Subtitle parameter descriptions

Parameter	Description
Enable	Click to enable the subtitle function.
Mode	Set the mode of the subtitles, including **Text** and **Time**.
Text	Configure the content of the subtitle that will be displayed on the video wall.
X/Y	Configure the starting coordinates of the subtitles.
W/H	Set the width and height of the subtitle background.
Font Type	Select the font type.
Font Scale	Set the font scale within a range of 1 to 100.
Font Color	Set the font color.
Character Spacing	Set the character spacing, ranging from 0 to 5.

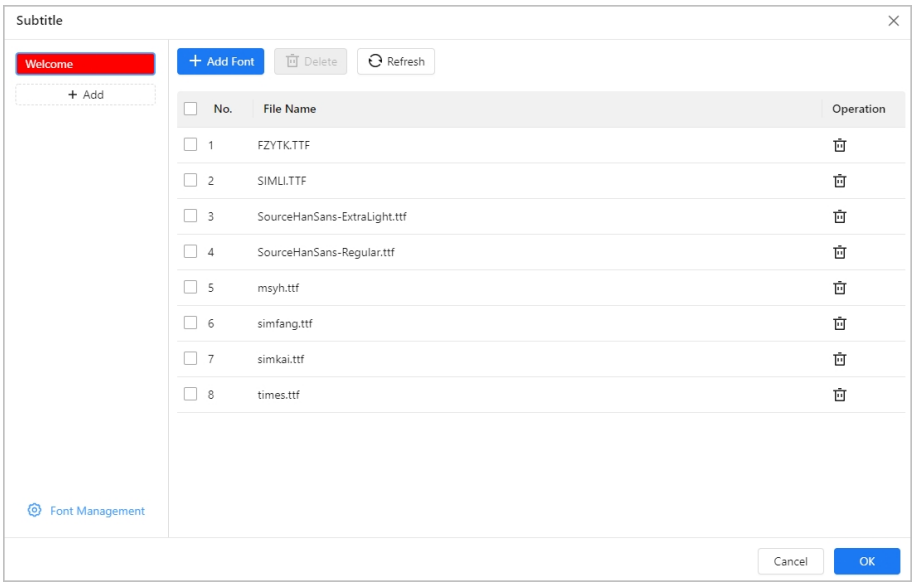
Parameter	Description
Background Color	Set the color of the background.
Text Alignment	Configure the alignment of the text, including left, center, and right.
Alignment	Configure the alignment of the subtitle, including **Horizontal** and **Vertical**.
Scrolling Speed	When the subtitles are longer, you can set the scrolling direction and scrolling speed. The larger the value, the faster the scrolling speed.
Scrolling Direction	

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 5-26 Import local fonts



5.5.2.3 Image Cropping

Supports image cropping for local signal channels. After cropping is completed, a new signal channel is generated. The new channel supports operations such as wall display, zooming, as well as configuration of channel names and control numbers for local signals.

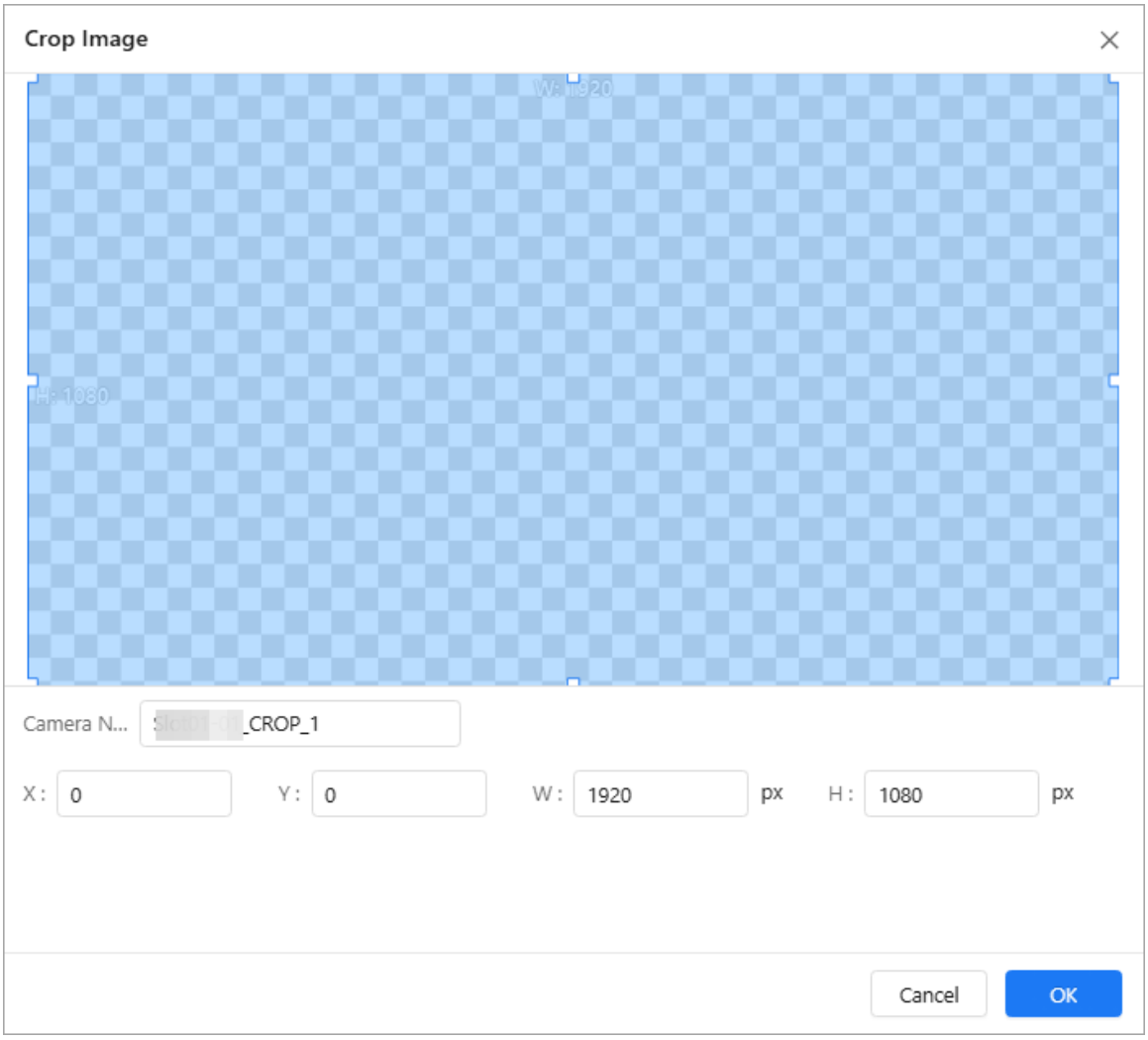
Procedure

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

Step 2 Move the mouse to a local signal, and then click .

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.

Figure 5-27 Crop the image

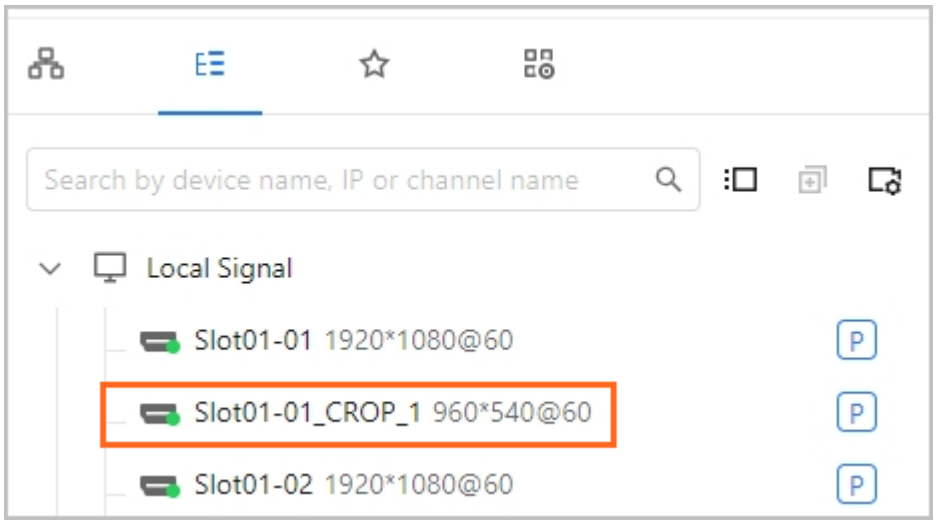


Step 4 Click **OK**.

After cropping is complete, the corresponding local signal will include the newly cropped signal, and the new cropping channel information will be synchronized to the **Device Setting** > **Local Signal** page.

- Each local signal supports up to 3 cropping channels.
- When the local signal source changes or the scaling mode changes, all cropped signals are proportionally recaptured as long as the constraints are met. The local signals and cropped signals in the signal list display resolution information in real time, and the images on the wall change synchronously.

Figure 5-28 Crop the signal



5.5.2.4 Scene Management

5.5.2.4.1 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

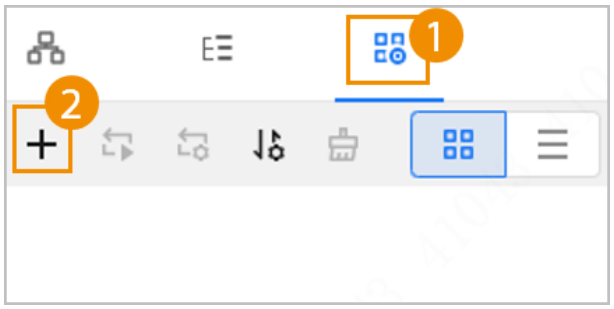
Video wall configuration and window configuration have been completed.

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 click **OK**.

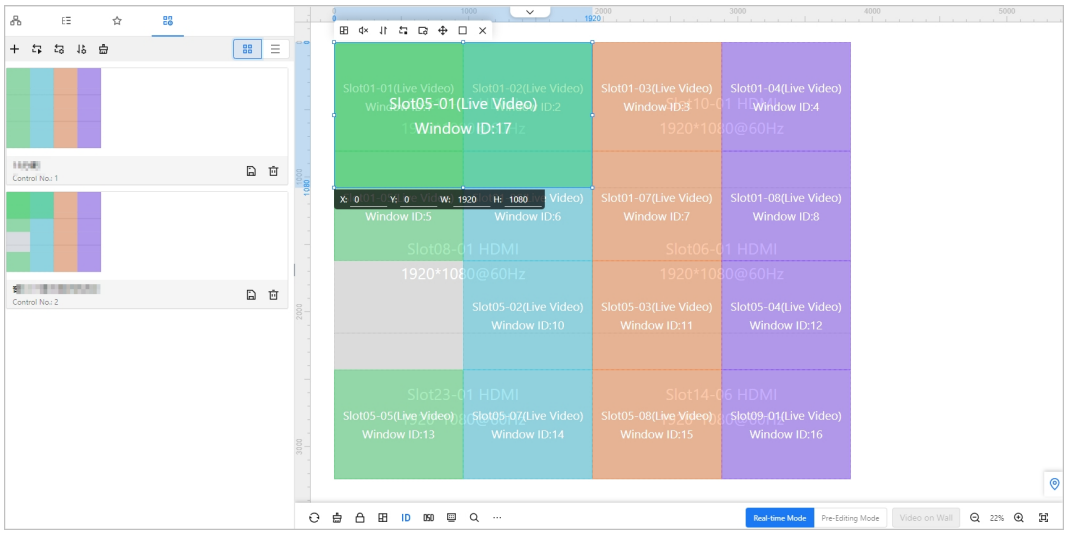
Figure 5-29 Add a scene



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

Click to switch the view mode.

Figure 5-30 Modify the scene

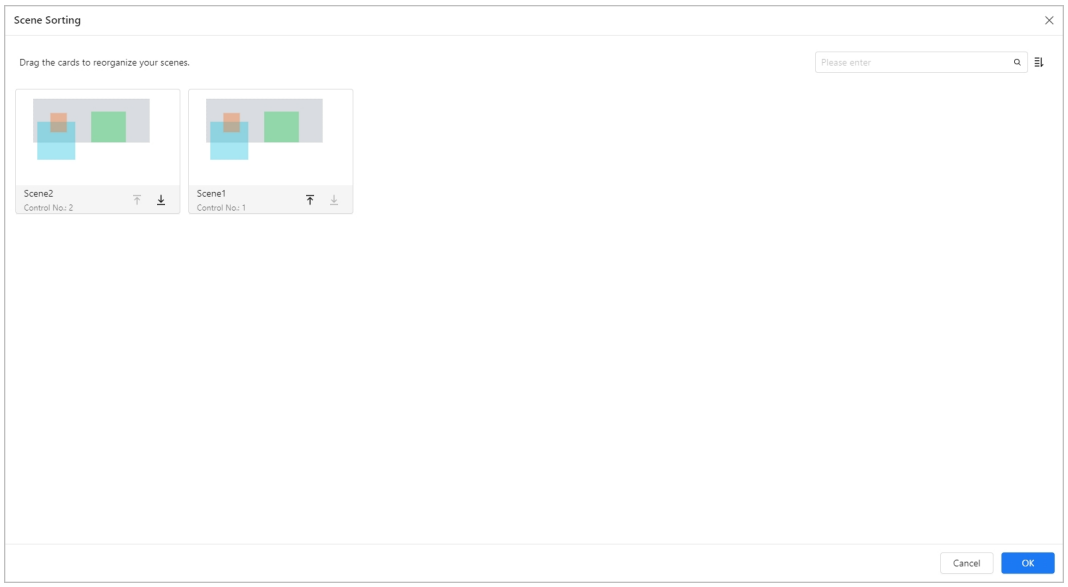


Related Operations

The system supports sorting scenes.

1. Click above the scene list.
2. Sort the scenes in the following ways.
   - Method 1: Long press a scene card and drag it forward or backward to adjust the order.
   - Method 2: Click on a scene card to move the scene to the top or bottom.
3. Click **OK**.

Figure 5-31 Sort the scenes



5.5.2.4.2 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 .

The system supports 2 modes: **Scene Tour** and **Scheduled Switch**.

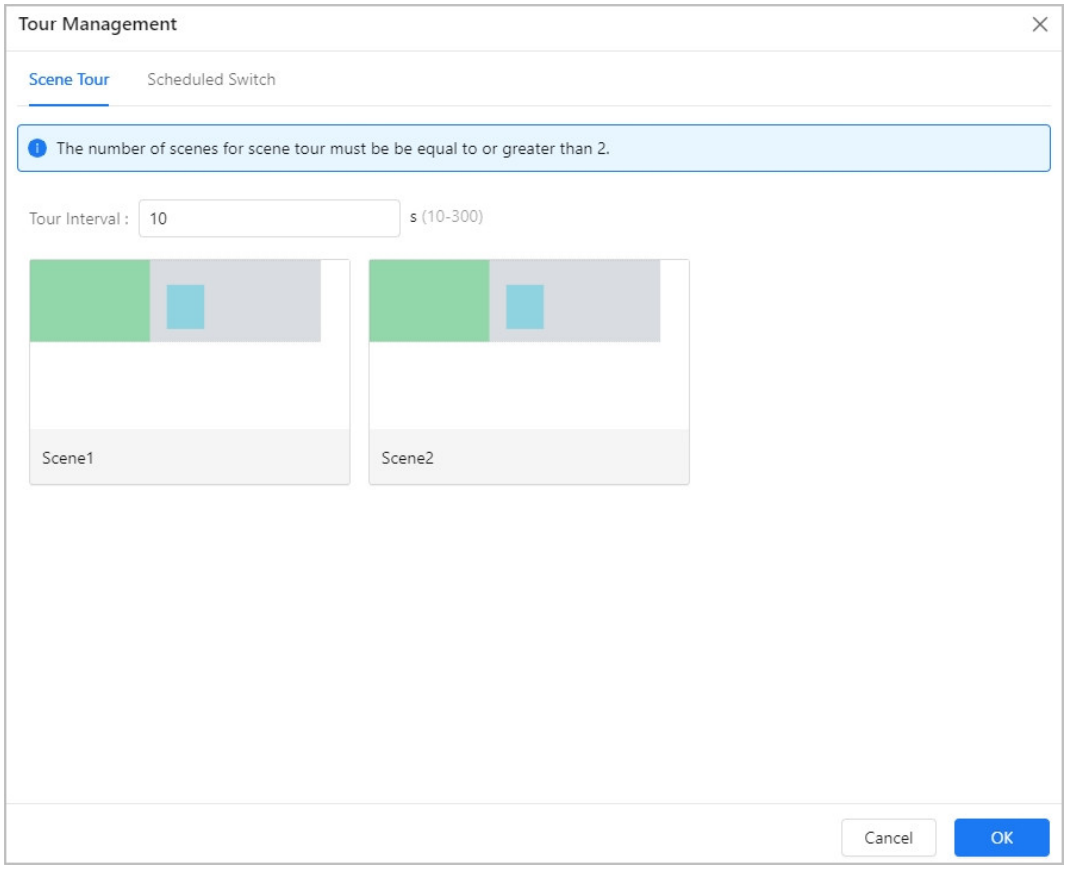
Scene Tour

Play scenes sequentially based on the set 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 5-32 Scene tour



3. Click .

   Click **Stop** to end scene tour.

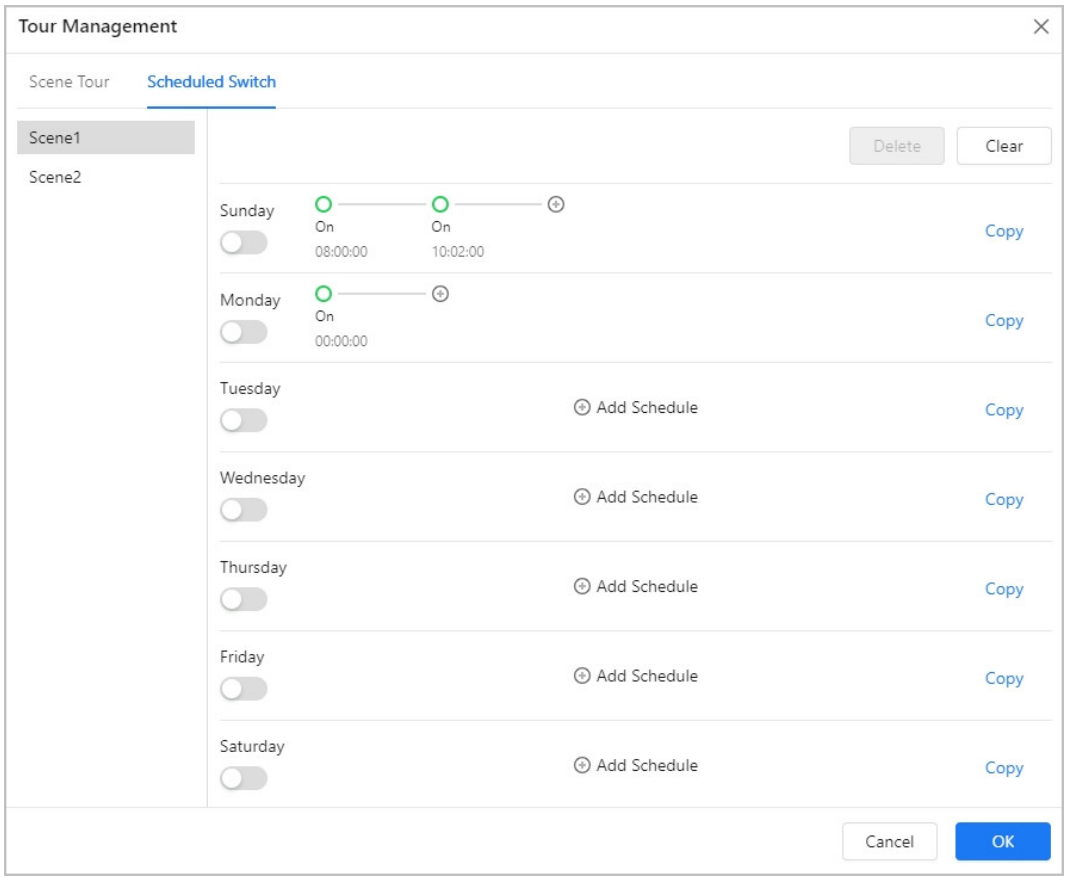
Scheduled Switch

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 5-33 Scheduled switch



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

5.5.3 Creating a Compatible Video Wall

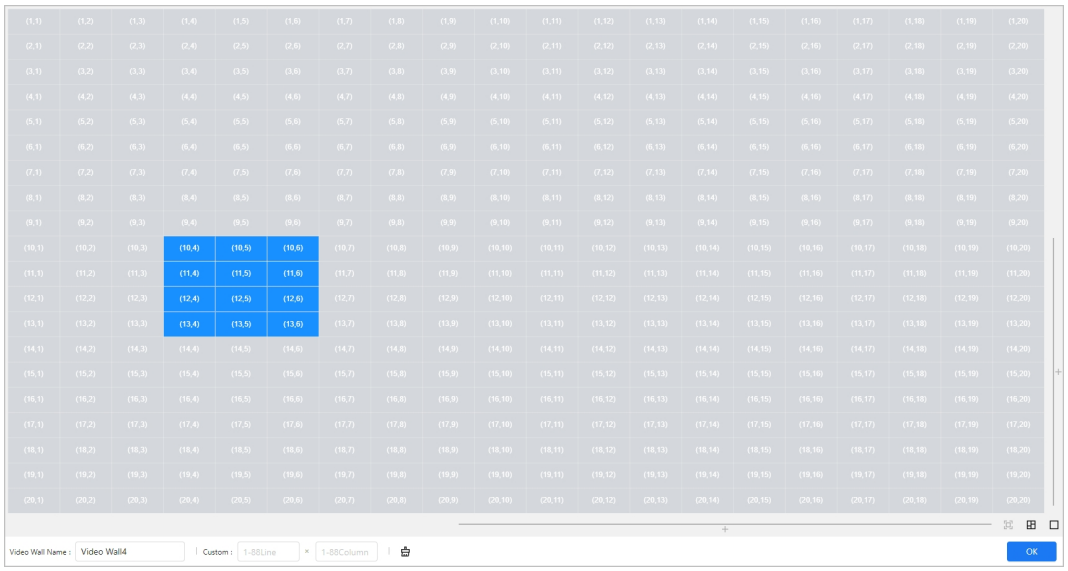
Create a video wall for use by other supporting clients except web.

Procedure

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

Step 2 Enter the video wall name, set the number of rows and columns for the video wall, and then click **OK**.

Figure 5-34 Create a compatible video wall



Step 3 In the **Output Port** list on the left, click or on an output port to horizontally or vertically bind slot channels and screens.

- All screens on the video wall must be bound to slot channels. Otherwise, when you click **Save Video Wall** , the system prompts **Some screens are not bound to output ports**.
- The **Output Port** list contains only output ports, not sending ports.

Step 4 Click **Save Video Wall** to go to the video wall control page.

For details on video wall operations, see "5.5.2 Video Wall Control".

5.6 Display Management

5.6.1 Configuring Output Port

5.6.1.1 Output Port

Configure the manufacturer, serial port, and serial port address to enable communication between the screen and the device. The serial port address must match the DIP switch address of the large screen.

Background Information

Output Port refers to the physical port on the device that is directly connected to the display, such as an HDMI or DP port. The signal from this type of port can be recognized and displayed by the screen.

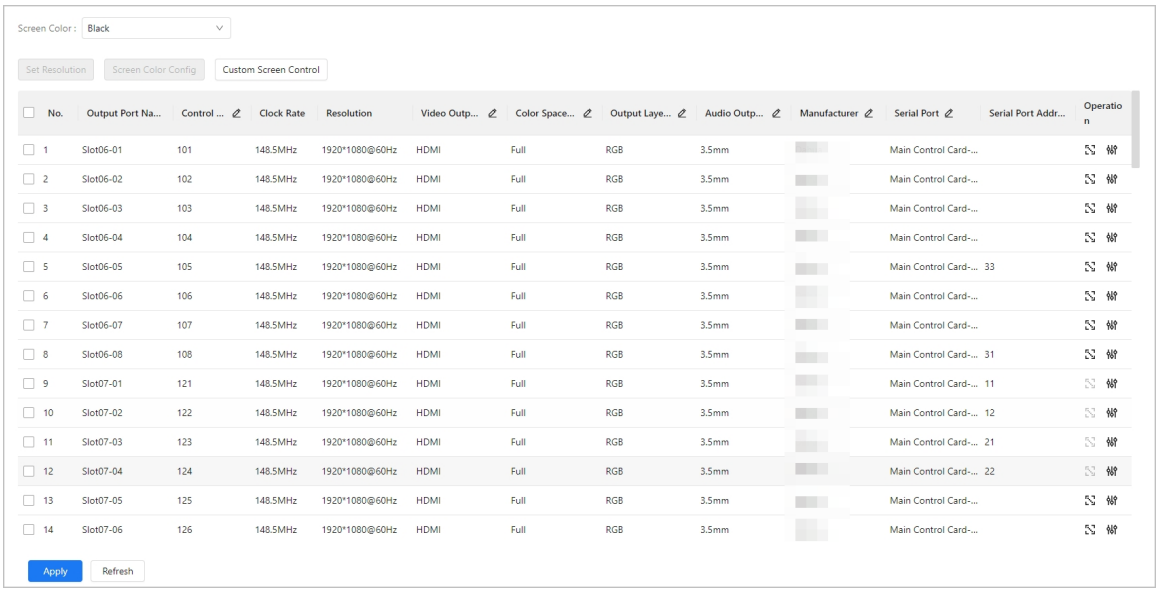
Procedure

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

Step 2 Select the screen color, which serves as the background color when no window is opened.

Options: **Black** or **Blue**.

Figure 5-35 Configure the output port



Step 3 Modify the output port name, control number, video output mode, color space mode, audio output mode, manufacturer, serial port, and serial port address as needed.

Click on the right of the parameter for the control number, color space mode, audio output mode, manufacturer, or serial port to modify the value. All values are supported for modification.

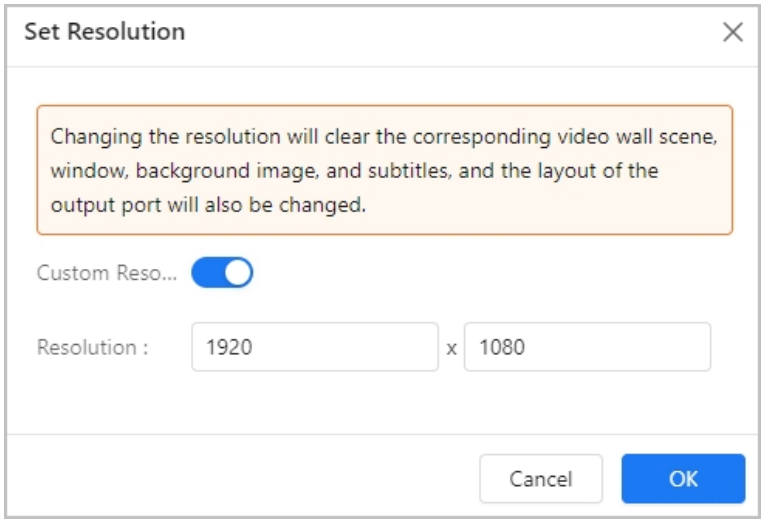
Step 4 Click in the **Operation** column, set the screen resolution, and then click **OK**.

The following 2 methods are supported.

- Method 1: Select a fixed system resolution from the drop-down list. The supported fixed resolutions are as follows:
  - YUV444 1920 × 1080 @ 60 Hz output is supported by default.
  - The HD output card supports up to YUV444 1920 × 1200 @ 60 Hz output.
  - The Ultra HD output card supports up to YUV444 4096 × 2160 @ 60 Hz output.
- Method 2: Click to set a custom resolution. The supported custom resolutions are as follows:
  - For the HD output card, the width range is 200–4096, and the height range is 200–4096.

- The HD output card supports a maximum width of 4096 × 480 @ 60 Hz and a maximum height of 480 × 4096 @ 60 Hz.
- For the Ultra HD output card, the width range is 200–8192, and the height range is 200–8192.
- The Ultra HD output card supports a maximum width of 8192 × 1000 @ 60 Hz and a maximum height of 1000 × 8192 @ 60 Hz.

Figure 5-36 Set the resolution



Step 5 Click in the **Operation** column to adjust the screen's brightness, hue, contrast, and saturation.

Figure 5-37 Configure the screen color



Table 5-7 Description of screen color configuration parameters

Parameter	Description
Hue	Adjust the hue of the image.

Parameter	Description
Brightness	Adjust the overall brightness of the image linearly. The higher the value, the brighter the image. If this value is set too high, the image might appear hazy.
Contrast	Adjust the image contrast. The higher the value, the higher the contrast; however, image details might be lost more easily.
Saturation	Adjust the color intensity. The higher the value, the more vivid the colors. This value does not affect the overall brightness of the image.

Step 6 Click **Apply**.

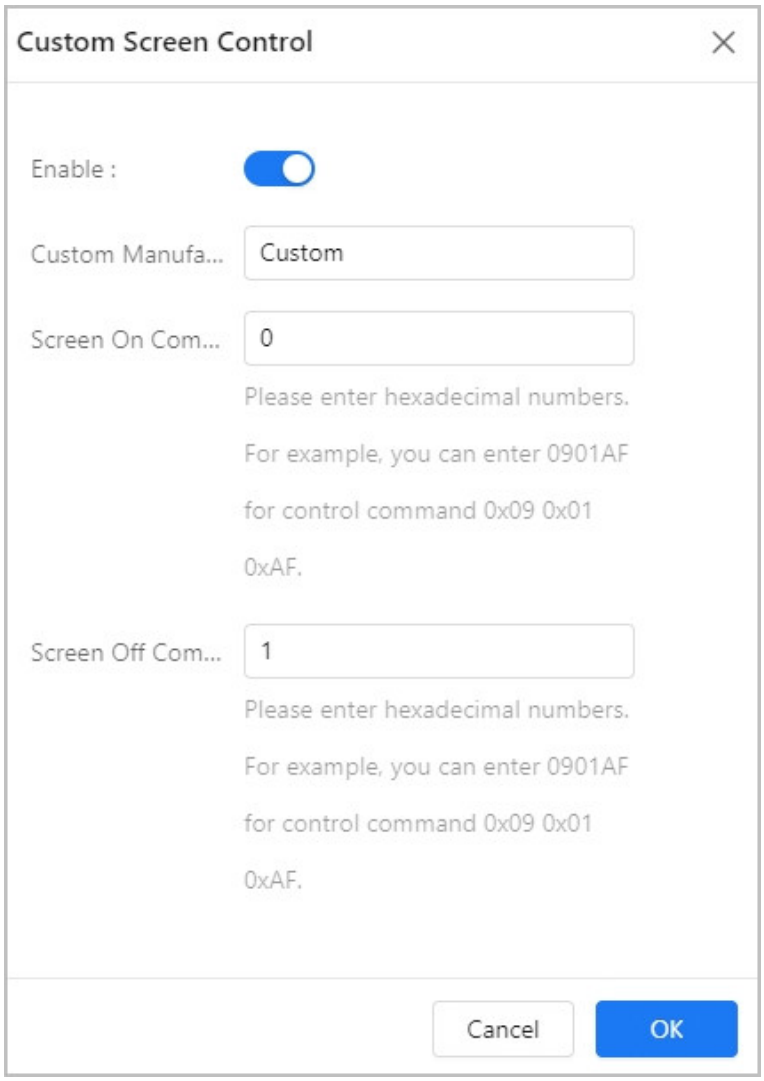
Related Operations

The output port page supports the following operations.

- Set resolution in batches: Select multiple output ports, and then click **Set Resolution** to configure the screen resolution. You can select a fixed resolution or specify a custom resolution.
- Set screen colors in batches: Select multiple output ports, and then click **Screen Color Config** to configure the hue, brightness, contrast, and saturation of the screens.
- The system supports custom commands for batch screen on/off operations.
  1. Select the screen, and then click **Custom Screen Control**.
  2. Enable custom control, and then select the manufacturer name.
  3. Set the screen on command and off command.

     This command can later be used to turn screens on or off in batches.
  4. Click **OK**.

Figure 5-38 Custom screen control



5.6.1.2 Sending Port

You can configure the manufacturer, serial port and serial port address for every output screen to realize communications between the screen and the device. The serial port address must match the DIP switch address of the large screen.

Prerequisites

- The device has a sending card inserted.
- A sending port video wall has been created.

Background Information

Sending Port refers to the network port (for example, RJ-45 port) on the device used to connect decoding devices. Such ports do not directly output display signals. You need to use the configuration tool to logically combine network ports into a virtual screen and create a sending port video wall on the **Video Wall Config** page.

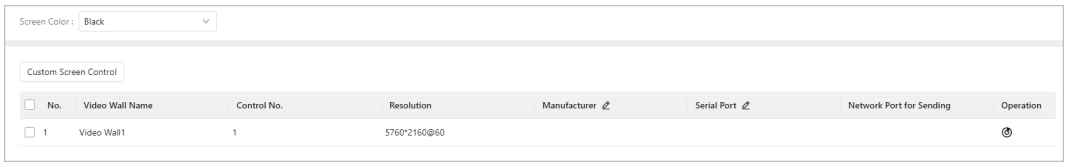
Procedure

Step 1 On the home page, select **Display Management** > **Output Config** > **Sending Port**.

Step 2 Select the screen color, which serves as the background color when no window is opened.

Options: **Black** or **Blue**.

Figure 5-39 Configure the sending port



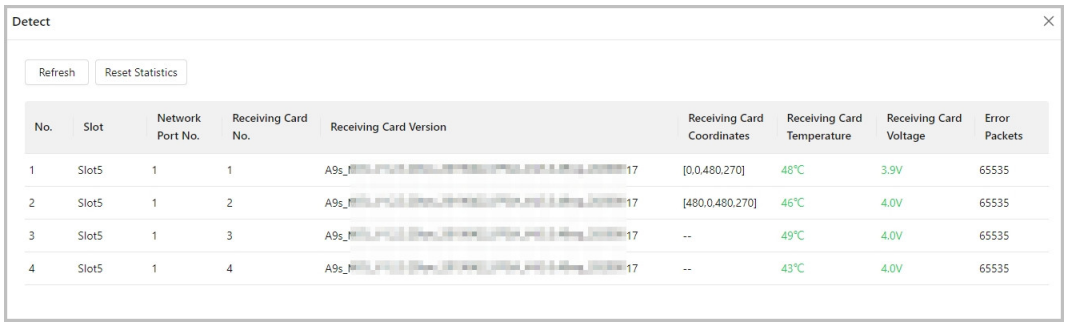
Step 3 (Optional) Configure the video wall name, manufacturer, serial port, or network port to modify information as needed.

Click next to the manufacturer or serial port to modify all settings in batches.

Step 4 Click to detect and display the receiving card information.

Click **Reset Statistics** to recount the error packet count.

Figure 5-40 Receiving card information



Step 5 Click **Apply**.

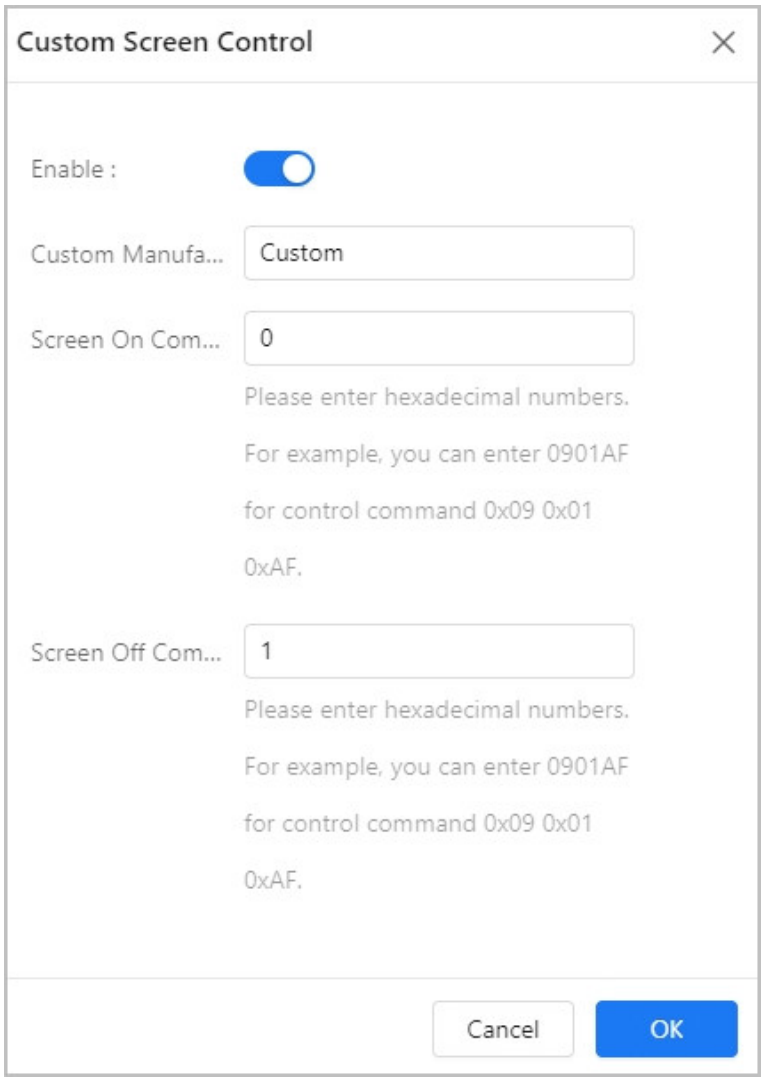
Related Operations

The system supports custom commands for batch screen on/off operations.

1. Select the screen, and then click **Custom Screen Control**.
2. Enable custom control, and then select the manufacturer name.
3. Set the screen on command and off command.

   This command can later be used to turn screens on or off in batches.
4. Click **OK**.

Figure 5-41 Custom screen control



5.6.2 Sleep Mode

With a corresponding camera for real-time monitoring, if no person is detected continuously within the defined time, the system will automatically enter a low-power screen-off energy-saving mode.

Prerequisites

The device has a sending card inserted and a sending port video wall has been created.

Procedure

Step 1 On the home page, select **Display Management** > **Sleep Mode**.

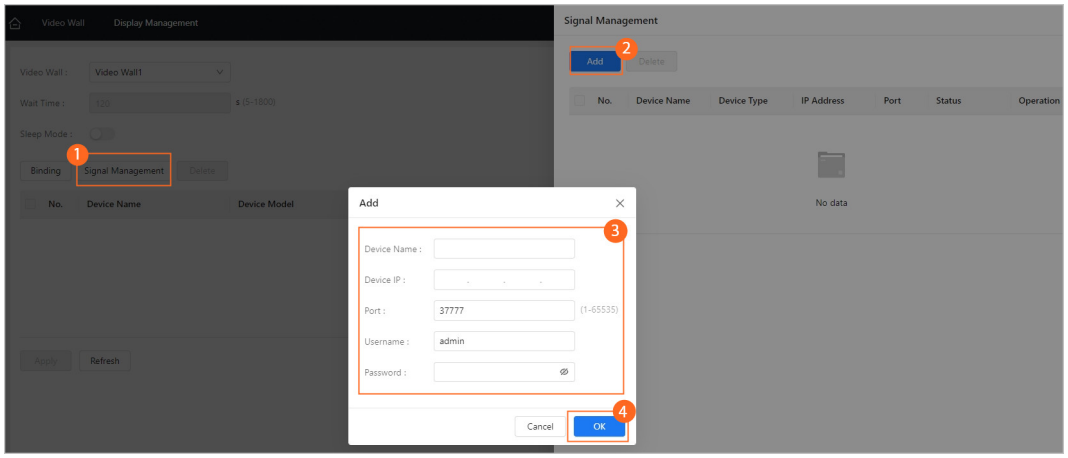
Step 2 Add a camera.

- If the device has a decoding resource card inserted, add cameras via **Device Setting** > **Network Signal** > **Device**.

- If the device does not have a decoding resource card, add cameras via **Display Management** > **Sleep Mode**.

1. Click **Signal Management**.
2. Click **Add**.
3. Enter a custom device name, and fill in the camera's IP address, port, username, and password.
4. Click **OK**.

Figure 5-42 Add a camera



Step 3 Enable **Sleep Mode**, and then set the waiting time for the no-person scenario.

Step 4 Select the video wall, click **Binding** , choose the camera to be bound, and then click **OK**.

- Each video wall supports binding up to 4 cameras.
- Ensure the added camera is online.
- The camera and controller must be on the same local area network (LAN).

Step 5 Click **Apply**.

5.6.3 Auto Dry

Auto dry prevents short-circuiting of small-pitch LED displays upon power-on caused by moisture buildup in the enclosure due to prolonged inactivity.

Prerequisites

The device has a sending card inserted and a sending port video wall has been created.

Procedure

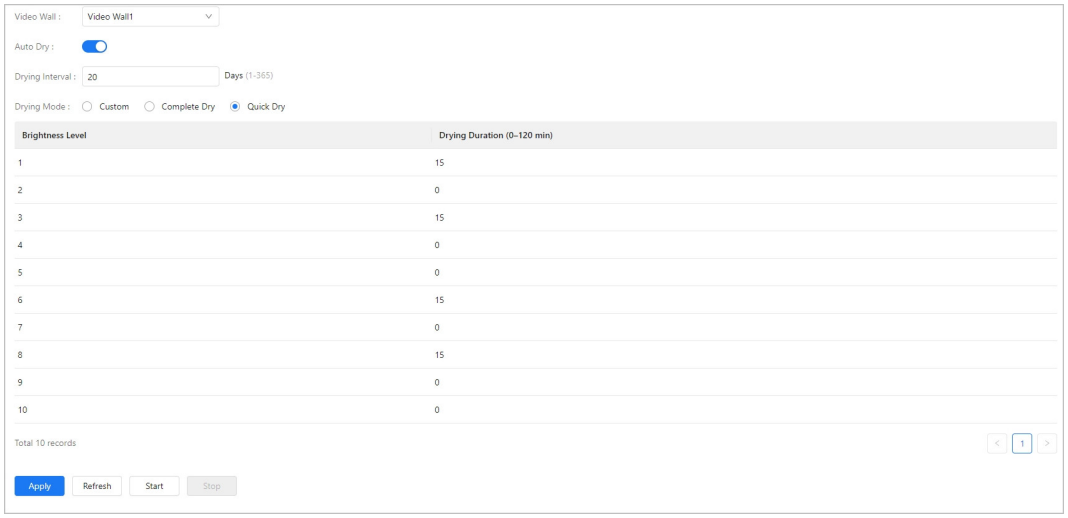
Step 1 On the home page, select **Display Management** > **Auto Dry**.

Step 2 Select the video wall, enable **Auto Dry**, set the drying interval, and then choose the drying mode.

- **Custom** : In this mode, you can click the **Drying Duration** column to set a custom duration.

- **Complete Dry** : Runs the drying function continuously when sufficient time is available; duration is fixed at 120 minutes.
- **Quick Dry** : Rapid drying within a short time; duration is fixed at 15 minutes.

Figure 5-43 Auto dry



Step 3 Click **Apply** to save the configuration.

Step 4 Click **Start** to begin immediately.

Click **Stop** to end the process.

5.6.4 Smart Flame Safety

Bind a thermal camera to cut off power supply to the screen when an overtemperature alarm occurs.

Prerequisites

The device has a sending card inserted and a sending port video wall has been created.

Procedure

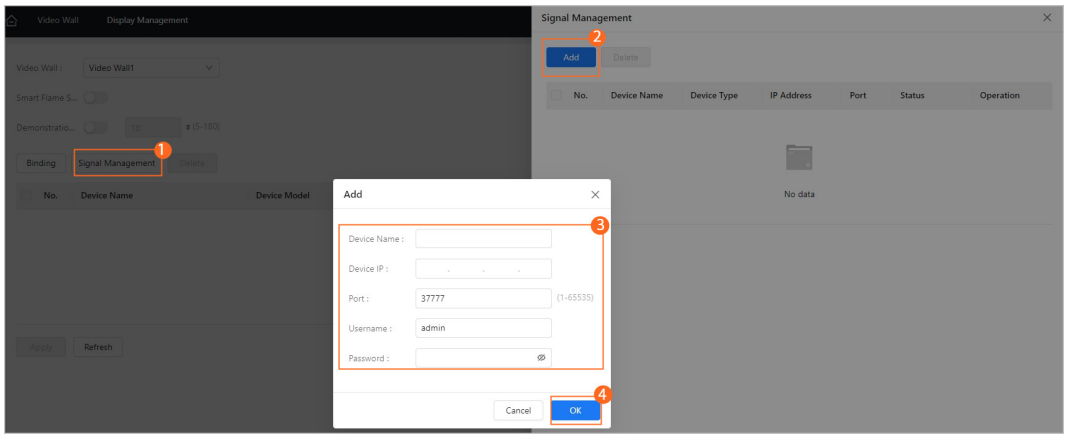
Step 1 On the home page, select **Display Management** > **Smart Flame Safety**.

Step 2 Add a thermal camera.

- If the device has a decoding resource card inserted, add cameras via **Device Setting** > **Network Signal** > **Device**.
- If the device does not have a decoding resource card, add cameras via **Display Management** > **Sleep Mode**.

1. Click **Signal Management**.
2. Click **Add**.
3. Enter a custom device name, and fill in the camera's IP address, port, username, and password.
4. Click **OK**.

Figure 5-44 Add a camera



Step 3 Enable **Smart Flame Safety**.

After enabling and setting a specific duration, the system will simulate a power-off state by sending a black-screen command; after the set time elapses, the large screen automatically restores to normal display.

The demo recovery time function is for demonstration only; do not enable it during actual use.

Step 4 Select the video wall, click **Binding** , choose the camera to be bound, and then click **OK**.

Step 5 Click **Apply**.

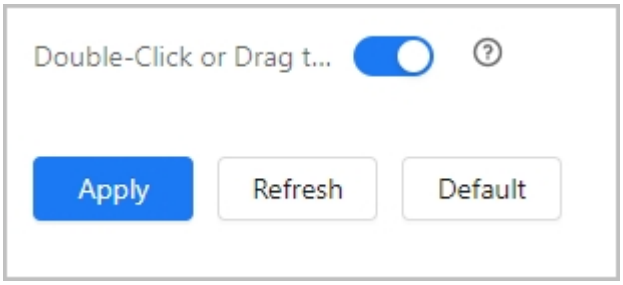
5.6.5 Configuring Video Wall

On the home page, select **Display Management** > **Video Wall Config** to configure operation settings, stream/display strategies, and performance strategies.

Operation Config

1. Click **Operation Config**.

Figure 5-45 Configure operation



2. Click to enable the function of adding signal sources by double-clicking or dragging.

When enabled, you can add another signal source to the existing window on top of the current signal source.

We recommend you enable this function during patrol editing.

3. Click **Apply**.

Stream and Display Strategies

After the device has a decoding resource card inserted, you can configure the stream/display strategies.

1. Click **Stream and Display Strategies**.
2. Enable the corresponding functions as needed.

Figure 5-46 Stream/display strategies

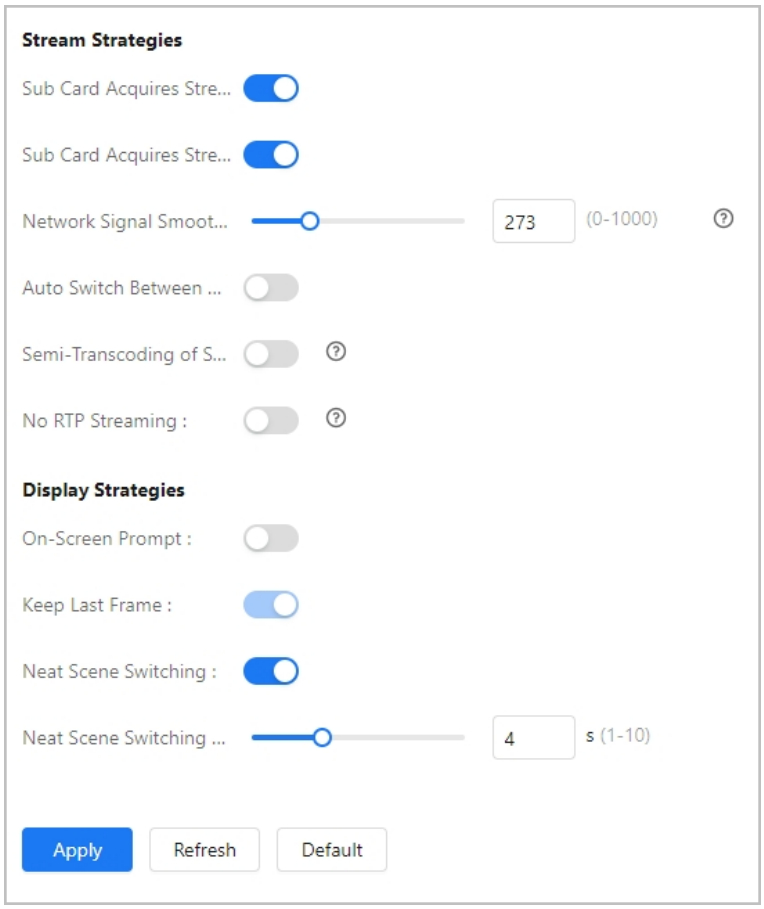


Table 5-8 Stream/display strategies parameter description

Parameter	Description
Sub Card Acquires Streams from Platform	Enable the sub-card stream pulling function.

Parameter	Description
Sub Card Acquires Streams from Front-End Devices	
Network Signal Smoothness	Drag the slider to adjust the network signal smoothness.
Auto Switch Between Main and Sub Stream	If the stream displayed on the video wall in the window is the main stream, when the window is reduced to below D1 resolution, the main stream automatically switches to the sub-stream.
Semi-Transcoding of Streaming Media Database	Select the checkbox, and the streaming media database will not encapsulate the stream and will directly transmit it to the device for decoding. It needs to be enabled when the SDP information of the stream in the stream pulling scenario is non-standard.
No RTP Streaming	When enabled, stream types without RTP header can also be decoded and displayed normally on the video wall. It needs to be enabled when the stream has no RTP header and cannot be used simultaneously with video/audio encryption.
On-Screen Prompt	Displays prompt information on the window.
Keep Last Frame	When switching scenes, keep the last frame image to avoid a black screen. Only applicable to fixed split or full-screen scene switching.
Neat Scene Switching	Synchronize and neatly switch scene streams to enhance the visual effect. Only supports fusion screens. For a better experience, enable **Keep Last Frame**.
Neat Scene Switching Timeout	

3. Click **Apply**.

Performance Strategies

1. Click **Performance Strategies**.

2. Enable the corresponding functions as needed.

Figure 5-47 Performance strategies

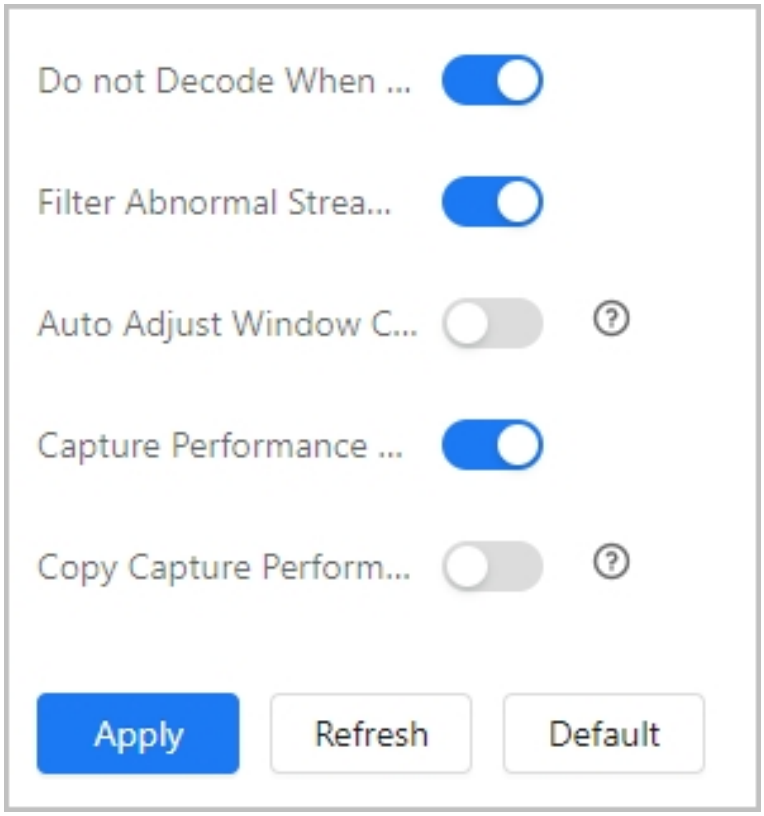


Table 5-9 Description of performance strategies

Parameter	Description
Do not Decode When Video is Overwritten	Pause decoding for windows that are completely covered by other windows.
Filter Abnormal Streams	The system checks for abnormal streams and filters them to prevent green-screen artifacts.
Auto Adjust Window Coordinates	Automatically adjust the coordinates of the window edges.

Parameter	Description
Capture Performance Mode	When enabled, the system reduces the size of each captured signal and generates an independent scaled-down source. The scaled-down source can be supplied to multiple layers simultaneously. • When the capture source resolution is greater than 1080p: Generate a scaled-down source with a resolution of 1080p (1920 × 1080). ◇ If the layer resolution is ≤ 1080p, output the scaled-down source. ◇ If the layer resolution is > 1080p, output the original source signal without scaling it down. • When the capture source resolution is ≤ 1080p: Generate a scaled-down source with a resolution of D1 (704 × 576). ◇ If the layer resolution is ≤ D1, output the scaled-down source. ◇ If the layer resolution is > D1, output the original source signal without scaling it down.
Copy Capture Performance Mode	When enabled, reduce the frame rate of each channel from 60 fps to 30 fps to provide greater signal-capture replication capability.

3. Click **Apply**.

5.6.6 Device Backup

Back up the device configuration to a standby device, so that the configuration can be quickly restored if a device abnormality occurs.

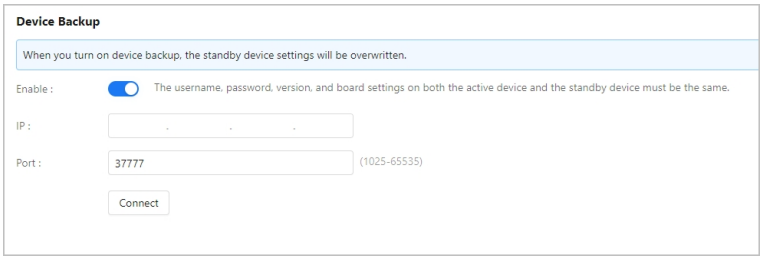
Procedure

Step 1 On the home page, select **Display Management** > **Video Wall Config** > **Device Backup**.

Step 2 Click to enable the backup function.

Step 3 Set the IP address and port number of the standby device.

Figure 5-48 Backup



Step 4 Click **Connect** to confirm the availability of the standby device.

If the connection is successful, the backup progress bar will begin to display. If the connection fails, follow the on-screen prompts for further processing.

- The host automatically backs up to the standby device each time it restarts or when the host configuration is modified.
- If the host restarts or the network is disconnected during the backup process, the backup will fail.

5.7 Network Configurations

5.7.1 TCP/IP

The device allows configuration of network parameters (including IP address, subnet mask, and gateway) to ensure connectivity with other devices in the network.

Procedure

Step 1 On the home page, select **Network Settings** > **TCP/IP**.

Step 2 Select a NIC, click ✎ to configure the TCP/IP parameters, and then click **OK**.

Figure 5-49 Configure the parameter

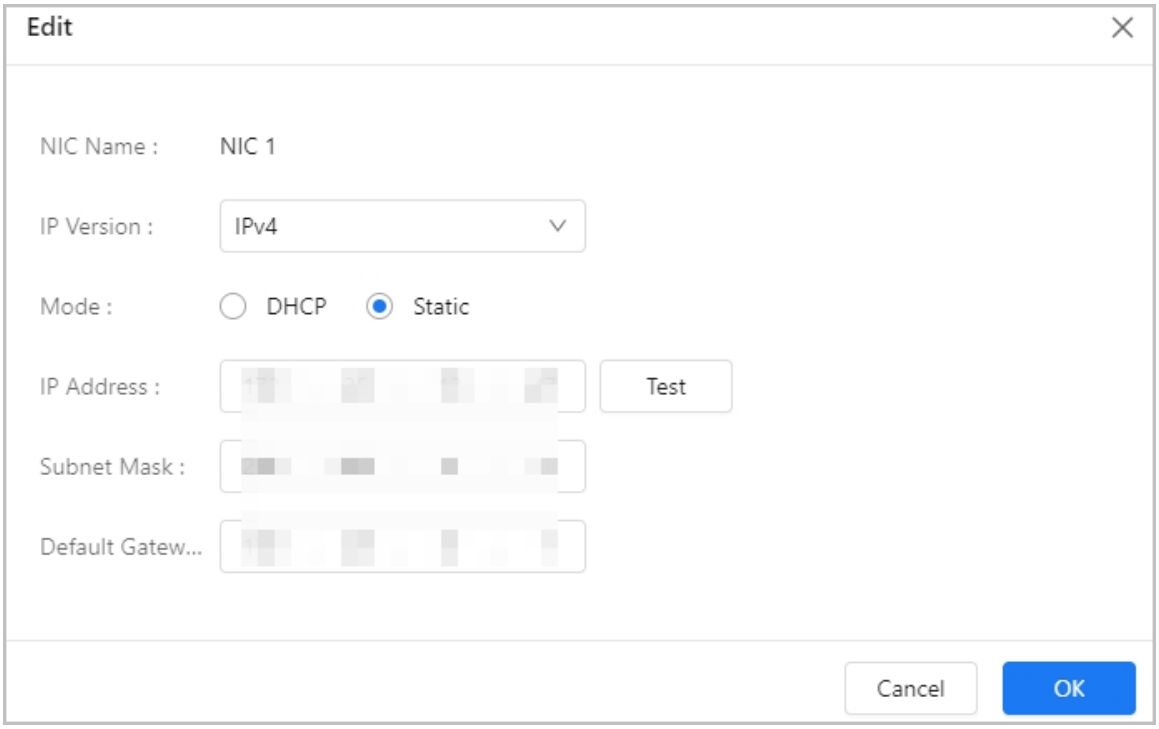


Table 5-10 Parameter description

Parameter	Description
IP Version	Supports IPv4 only.

Parameter	Description
Mode	Supports DHCP and static modes. • DHCP: Automatically obtains network parameters such as IP address, subnet mask, and gateway from a DHCP server. • Static: Manually assigns a fixed IP address to the device.
IP Address	When the mode is set to **Static**, you must configure the corresponding IP address, subnet mask, and default gateway. Click **Test** to test if the IP address can be used to avoid IP conflict.
Subnet Mask	
Default Gateway	

Step 3 Click **Apply**.

5.7.2 Port

You can configure the maximum number of connections and ports to access the device through the clients (including the web client and the computer client).

Procedure

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

Step 2 Configure the port parameters.

Figure 5-50 Port

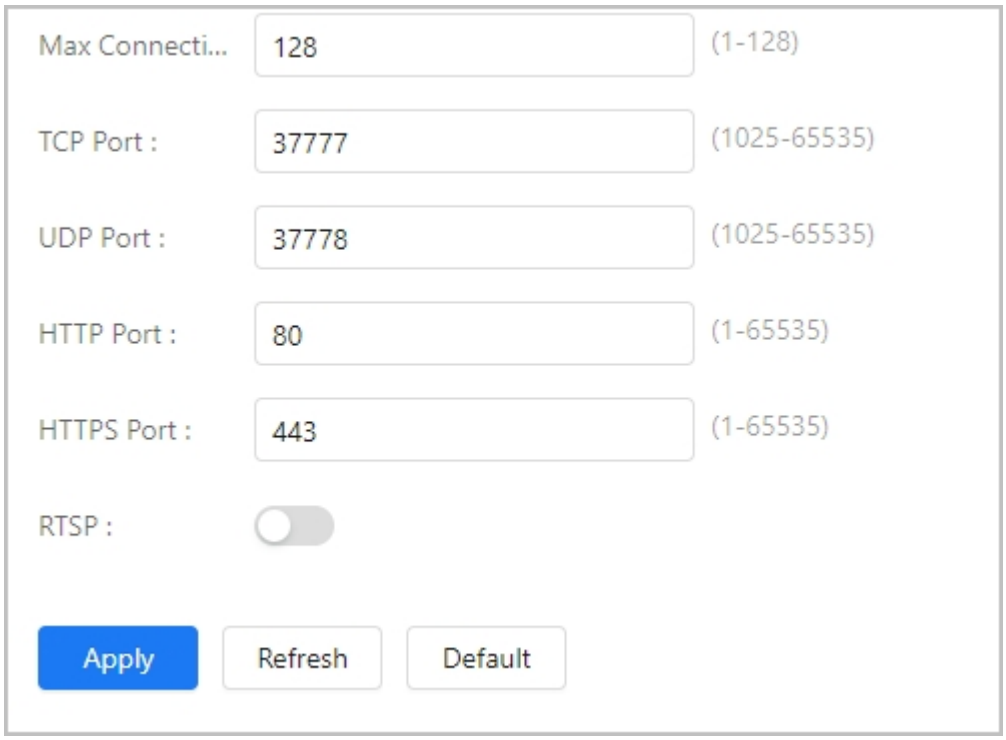


Table 5-11 Parameter description

Parameter	Description
Max Connection	The allowable maximum number of clients accessing the device at the same time, such as web client, platform, and mobile phone. The default value is 128.
TCP Port	TCP service port. The default value is 37777. You can configure this parameter as needed.
UDP Port	User Datagram Protocol port. The default value is 37778. You can configure this parameter as needed.
HTTP Port	Hyper Text Transfer Protocol port. The default value is 80. You can enter the value according to the actual situation, and in this case, add the modified port number after the address when you log in to the device in the browser.
HTTPS Port	Enables computers to log in normally through HTTPS, ensuring secure data transmission. It uses reliable and stable technical measures for user information and device security, with port 443 enabled by default.

Parameter	Description
RTSP	Click to enable RTSP.  This port is only available when the device has an encoding card or an ultra-high-definition/high-definition encoding card inserted. The default RTSP port number is 554. If it is the default value, it can be left blank. When you use Apple's QuickTime or VLC to play live videos, they can use the following format. For the live monitoring stream URL format, when requesting the live monitoring stream RTSP streaming service, the requested channel number and stream type must be specified in the URL. • If authentication information is required, provide the username and password. The URL format is as follows. rtsp://*username*:*password*@*IP address*:*port*/cam/realmonitor?channel=*1*&subtype=*0* • If authentication is not required, the username and password do not need to be specified, and the URL uses the following format. rtsp://admin:admin@192.168.1.1:554/cam/realmonitor?channel=2&subtype=1 **Field Description** • username: Username, for example, admin. • password: Password, for example, admin. • IP address: Device IP, for example, 192.168.1.1. • port: Port number, default is 554. If it is the default value, it can be left blank. • channel: Channel number, starting from 1. For example, for channel 2, it is channel=2. • subtype: Stream type. The main stream is represented by 0, and the sub-stream is represented by 1. For example, to request the sub-stream of channel 2 on a device, use the following URL: rtsp://*username*:*password*@*IPaddress*:*port*/cam/realmonitor?channel=*2*&subtype=*1*

Step 3 Click **Apply**.

5.8 Live

- If the preview card is not inserted, only network signals can be previewed.
- If the preview card is inserted, local signals can be previewed.
- If neither the decoding resource card nor the preview card is inserted, the preview page will not be displayed.

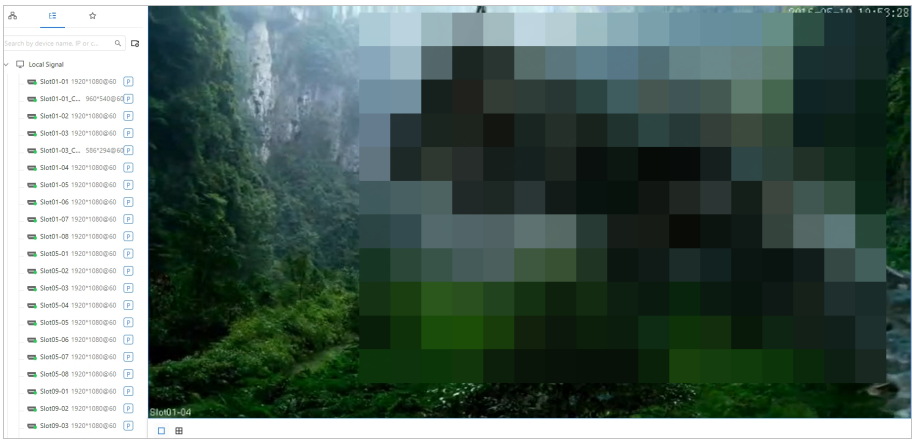
Click **Live** on the home page to view the images of local signals or network signals.

- In the signal tree on the left, click , , or , and double-click a signal source to project its image to the preview window on the right. You can also hold down the left mouse button and drag the signal source to the window on the right for previewing.

  Below the preview window, screen splitting operations are supported, including single window and 4 windows.

- Click the function icon in the upper-right corner of the window to perform operations such as recording, capturing images, and enabling audio for the real-time image.

Figure 5-51 Live



5.9 Event

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

Procedure

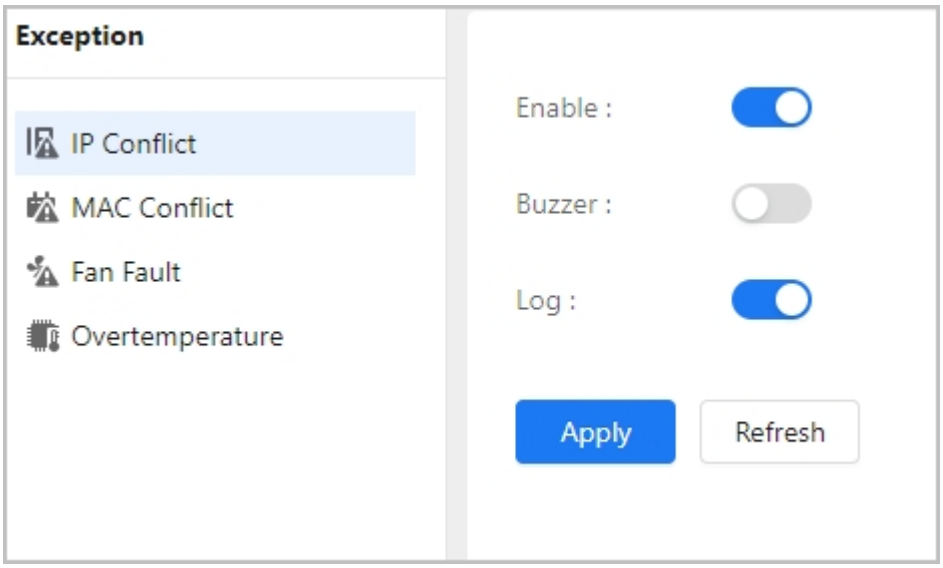
Step 1 On the home page, select **Event** > **Exception**.

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 5-52 Event



Step 4 Click **Buzzer** or **Log** to enable alarm linkage.

- Buzzer: When an alarm occurs, a buzzer sound will be emitted as a prompt.
- Log: When an alarm occurs, the alarm information will be recorded in the log.

Step 5 Click **Apply**.

5.10 System Management

Set the device name, the system language, date and time, and so on.

5.10.1 General Config

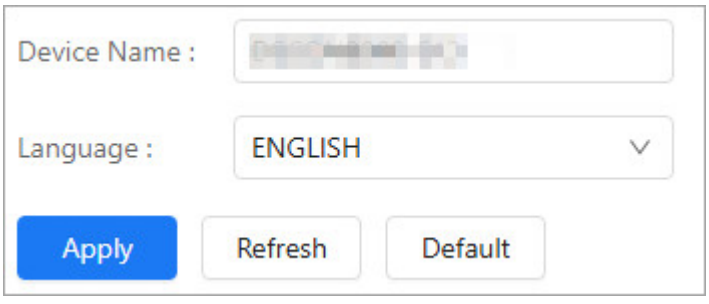
5.10.1.1 Basic Settings

Procedure

Step 1 On the home page, select **System** > **General Config** > **Basic Settings**.

Step 2 Configure the parameters as needed.

Figure 5-53 Basic settings



- Device name: Customize the device name to differentiate it from others.
- Language: The system language is determined by and corresponds to the program package.

Step 3 Click **Apply**.

5.10.1.2 Date and Time

Procedure

Step 1 On the home page, select **System** > **General Config** > **Date & Time**.

Step 2 Configure the parameters according to actual needs.

Figure 5-54 Configure the parameters

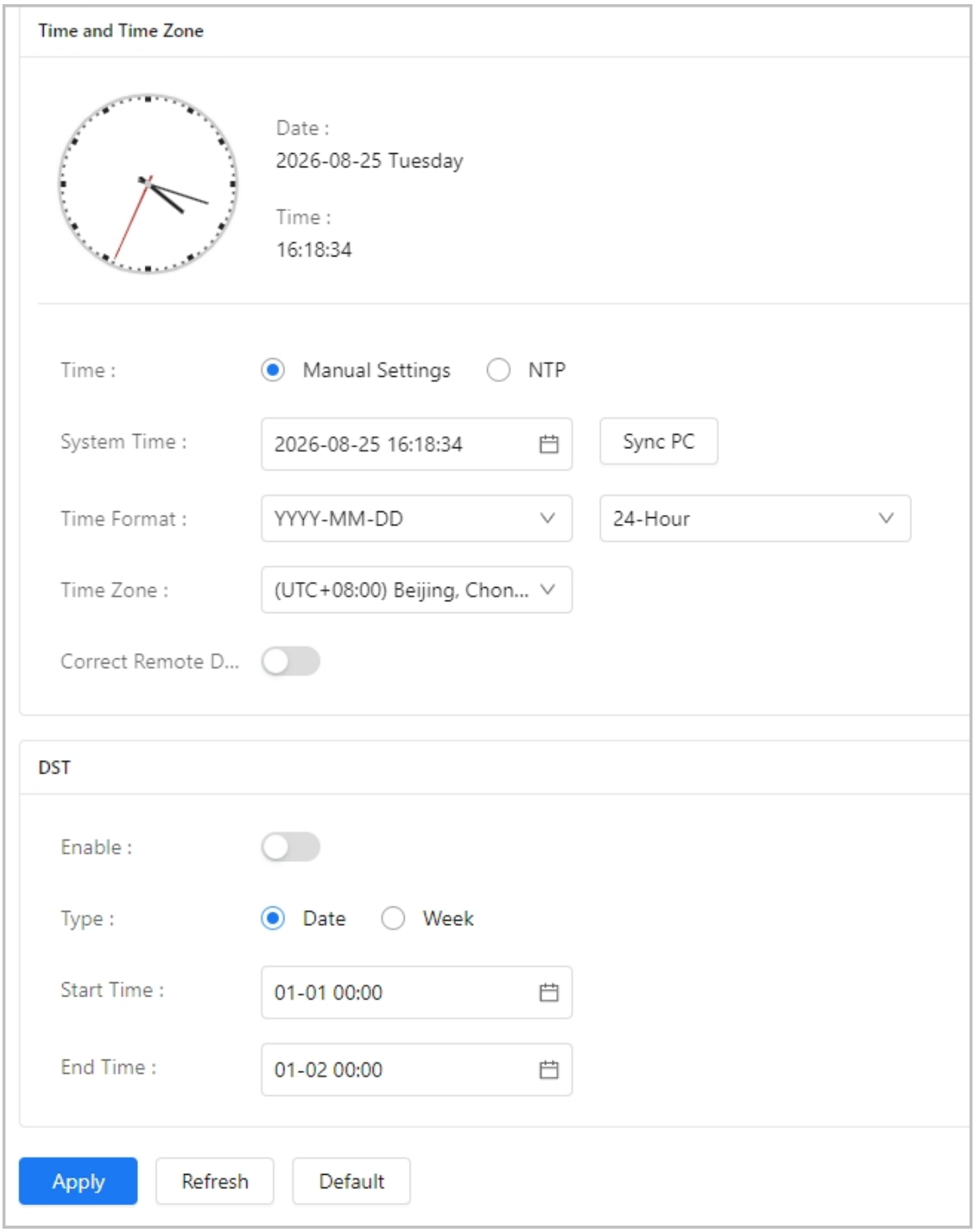


Table 5-12 Parameter description

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.

Parameter	Description
System Time	Configure the system time. Click **Sync PC** to synchronize with current computer time.
Time Format	Select the date display format such as **YYYY-MM-DD** and time display format such as **24-Hour** or **12-Hour**.
Time Zone	Select the time zone.
Correct Remote Device Time	Click to calibrate the time of the remote device.
Server	Set the NTP server IP address or domain name, port number, and update cycle. The system periodically calibrates the time according to the NTP server.
Port	
Interval	

Step 3 (Optional) When DST (daylight saving time) is enabled, the system supports configuring start and end dates by specific date or week.

Step 4 Click **Apply**.

5.10.1.3 Startup Config

Configure the startup screen output when the high-definition or ultra-high-definition output card starts. The initial boot screen is enabled by default.

Prerequisites

The device must be equipped with a high-definition or ultra-high-definition output card.

Procedure

Step 1 On the home page, select **System** > **General Config** > **Startup Config**.

Step 2 Click **Browse** , select the startup screen image to upload, and then click **Open**.

The image supports a resolution of 640×480, with color formats including RGB888, RGB888P, BGR888, YUV420P, YUV420SP_NV12, YUV420SP_NV21, YUV422P, and YUV444P. Supported image formats include JPG, BMP, and PNG.

Step 3 Select the desired startup screen.

Step 4 Click **Apply**.

The next time the device restarts, the output card will output the selected startup screen to the display.

5.10.1.4 Time Sync Allowlist

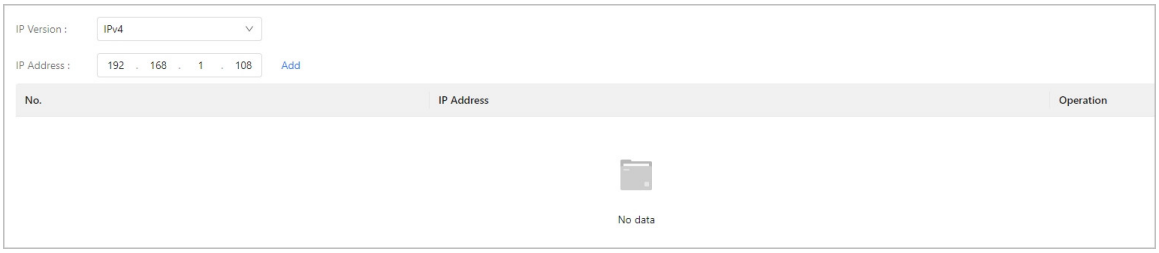
Procedure

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 5-55 Add time sync allowlist



Step 3 Click **Apply**.

5.10.2 Account

Background Information

User management operations can only be performed when the user has user management permissions.

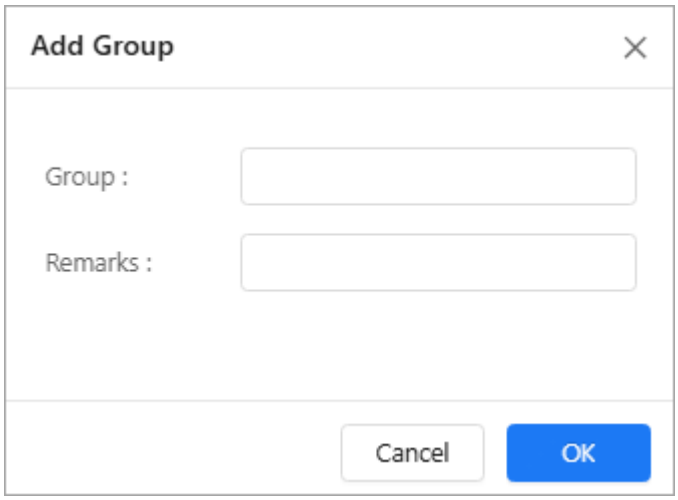
- User management adopts 2-level management mode: User and user group. Both group name and user name must be unique. One user can only belong to one group.
- The system initially contains one default user: admin. The admin user is a high-permission user by default.
- The maximum number of users and groups is determined by the actual page.
- The currently logged-in user cannot modify their own permissions.

Procedure

Step 1 Add user groups.

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

Figure 5-56 Add a group

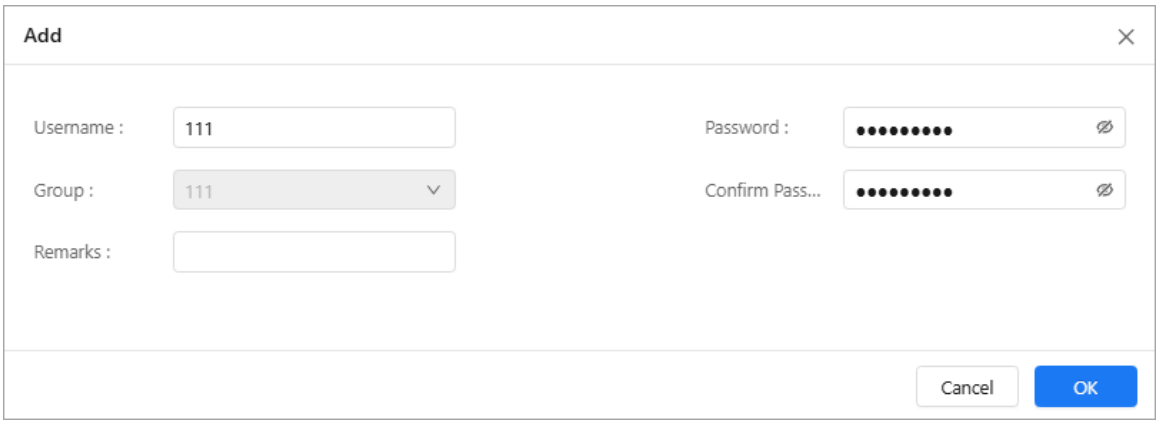


3. Enter the user group name, and then click **OK**.

Step 2 Add users.

1. Select a user group, and then click **Add**.

Figure 5-57 Add users



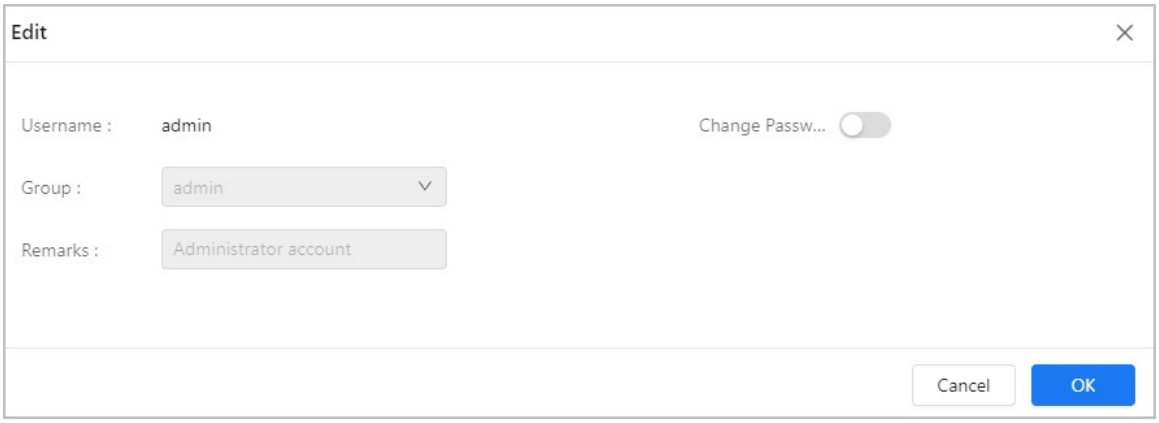
2. Configure the username and password, confirm the password, and then click **OK**.

- 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 uppercase letters, lowercase letters, numbers, and special characters (excluding ', ", ;, :, &). Users with permissions can change not only their own passwords, but also change the password of other users.

Related Operations

- Click to change the password.

Figure 5-58 Change the password



- Click to delete the user.

5.10.3 Fan Control

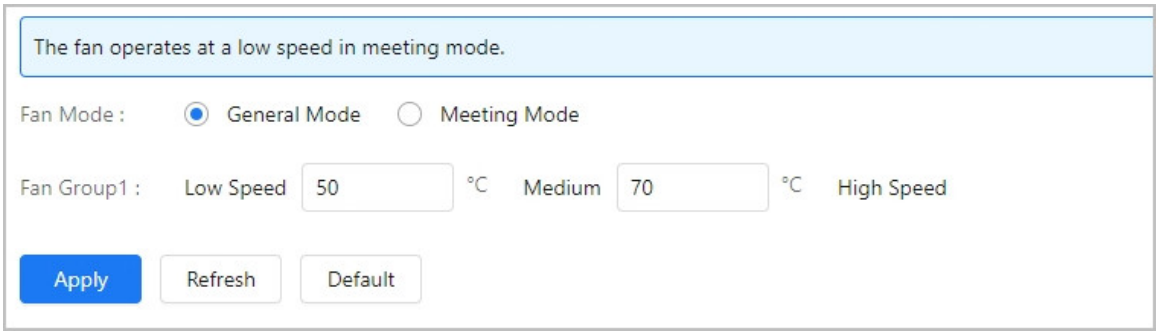
Procedure

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

Step 2 Select the fan mode as needed.

- **General Mode** : Set the low temperature value (left side) and the high temperature value (right side). The low temperature value must be lower than the high temperature value.
  - ◇ When the actual temperature of the device is lower than the low temperature value, the fan runs at low speed.
  - ◇ When the actual temperature of the device is between the low temperature value and the high temperature value, the fan runs at medium speed.
  - ◇ When the actual temperature of the device is higher than the high temperature value, the fan runs at high speed.
- **Meeting Mode** : In meeting mode, the fan operates at low speed to enhance device quietness while maintaining performance.

Figure 5-59 Fan control



Step 3 Click **Apply**.

5.10.4 Buzzer Config

Set the duration of the buzzer alarm. When an alarm occurs, the system will continuously emit a buzzer sound for the set duration as a prompt.

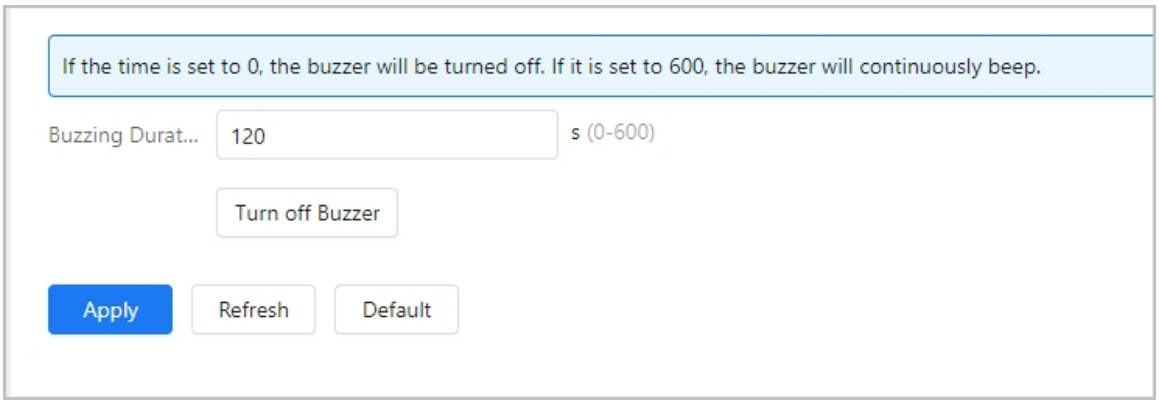
Procedure

Step 1 On the home page, select **System** > **Buzzer Config**.

Step 2 Set the duration of the buzzer alarm.

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

Figure 5-60 Buzzer settings



Step 3 Click **Apply**.

5.10.5 Serial Port

The data bits, baud rate, address, and other parameters of the serial port must be configured to match those of the connected device in order to establish communication.

Procedure

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

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

Figure 5-61 Serial port

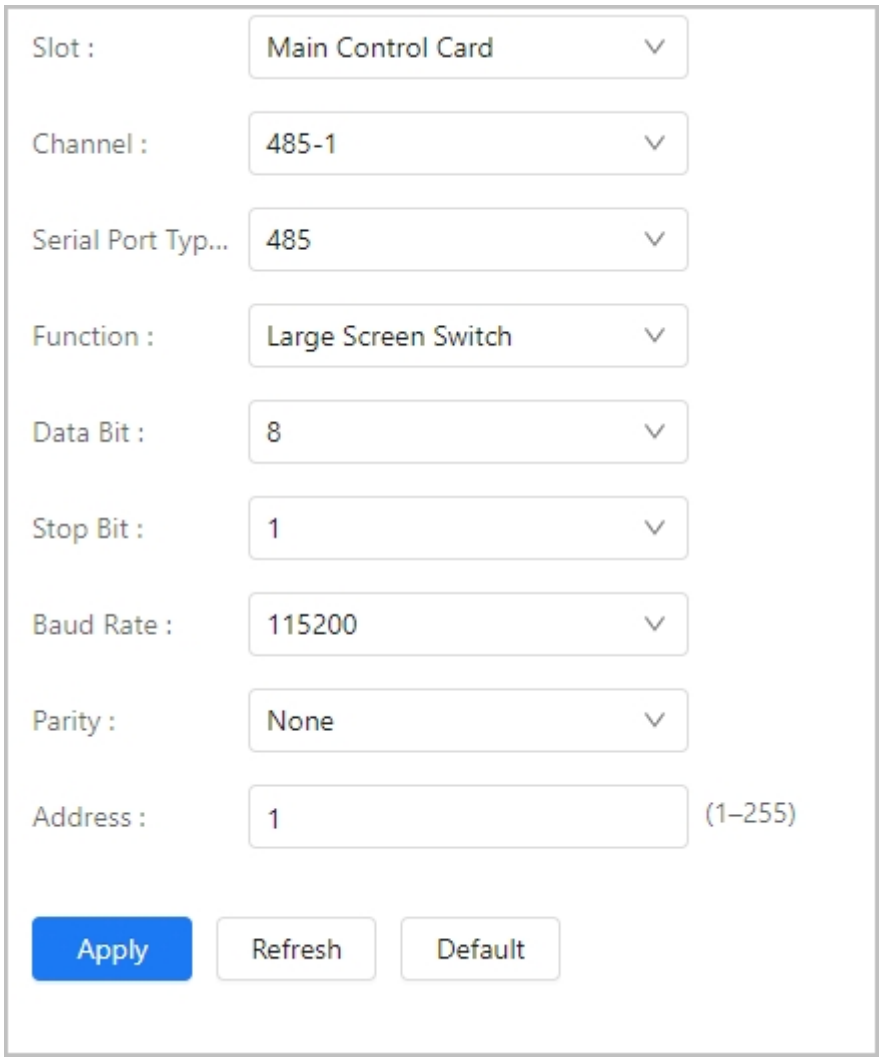


Table 5-13 Parameter description

Parameter	Description
Slot	This device only supports the main control card.
Channel	Select the channel that you want to configure.
Serial Port Type	The system automatically identifies and displays the corresponding serial port type (including **485** and **232**) based on the selected channel, eliminating the need for manual selection by the user.
Function	Select the purpose of this serial port according to the actual application scenario. • **Large Screen Switch** : Used to control the power on/off of the display device. • **Matrix Control** : Used to interface with a central control device, enabling the central control device to switch and control the functions of this device.

Parameter	Description
Data Bit	Set the number of valid data bits transmitted in each data frame of the serial port, with a default setting of 8. The value range is 5 to 8, and must be consistent with the connected device.
Stop Bit	Indicates the number of signal bits at the end of a serial port data frame, with a default setting of 1. You can select 1 or 2. It is used for receiver synchronization, and must be consistent with the connected device.
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	Set the data check method of the serial port, used to detect whether there are transmission errors, and must be consistent with the connected device. • **None** : No check bit is added. • **Odd** /**Even**: Determine data integrity through parity. • **Mark** /**Space**: Used only for special protocols.
Address	Set the unique identifier of the current device in the communication network to avoid response confusion caused by address conflicts. The value range is 0 to 255.

5.10.6 File Management

5.10.6.1 Background Image Management

Background Information

The DSCON8000-S24 supports the background image management by default. If the DSCON8000-S13 requires this feature, contact technical support to obtain it.

Procedure

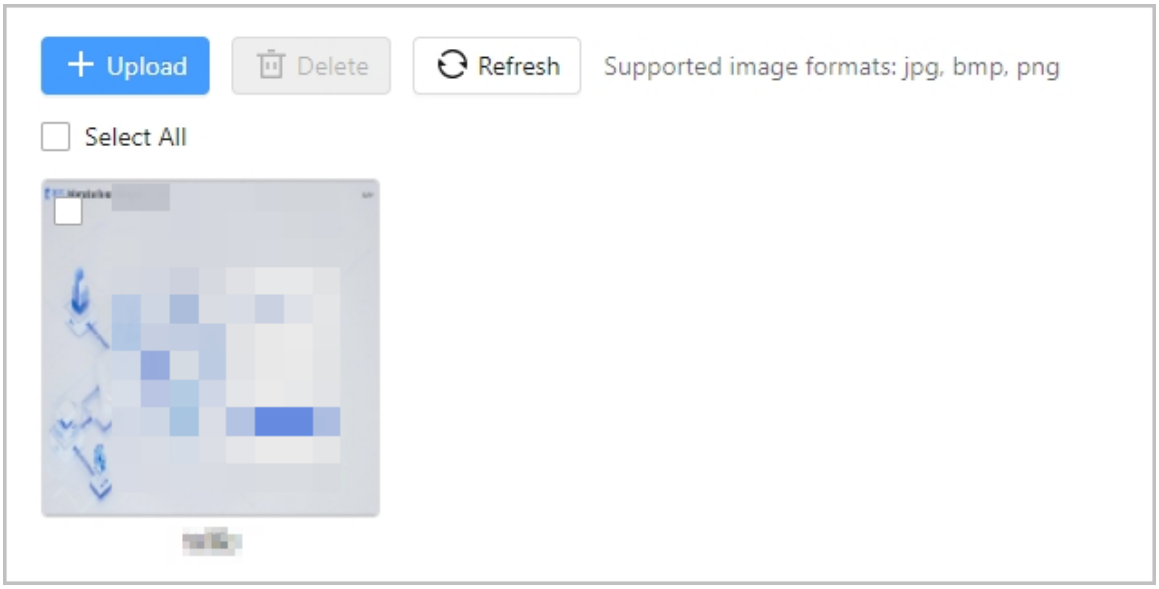
Step 1 On the home page, select **System** > **File Management** > **Background Image Management**.

Step 2 Click **Upload** , select an image locally, and then click **Open**.

If the upload fails, select an image that meets the requirements according to the prompts.

- Supported image formats: jpg, png, and bmp.
- Image size must not exceed 32 MB.

Figure 5-62 Background image management



5.10.6.2 Font Management

On the home page, select **System** > **File Management** > **Font Management** to import the local font package. For details, see "5.5.2.2.2 Subtitle Management".

5.10.7 Security

5.10.7.1 System Service

5.10.7.1.1 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 5-63 Basic services

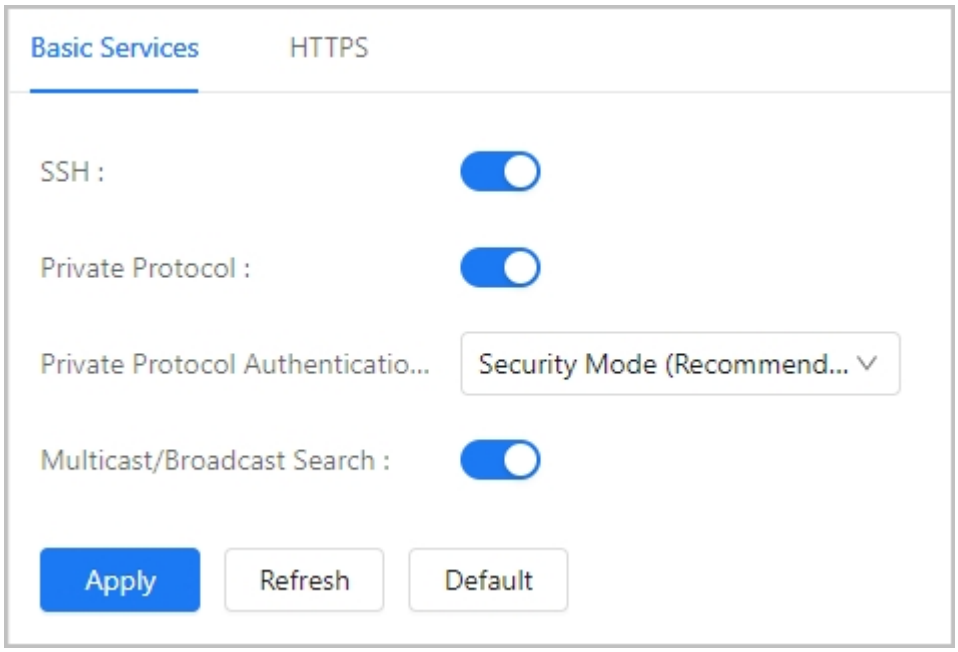


Table 5-14 Service description

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

Step 3 Click **Apply**.

5.10.7.1.2 HTTPS

By creating a server certificate or downloading a root certificate on the HTTPS page, you can log in to the device via HTTPS to ensure the security of communication data and protect user information and device security with stable technical measures.

Prerequisites

To use HTTPS, you must first install a certificate. For details, see "5.10.7.3 Managing CA Certificates"

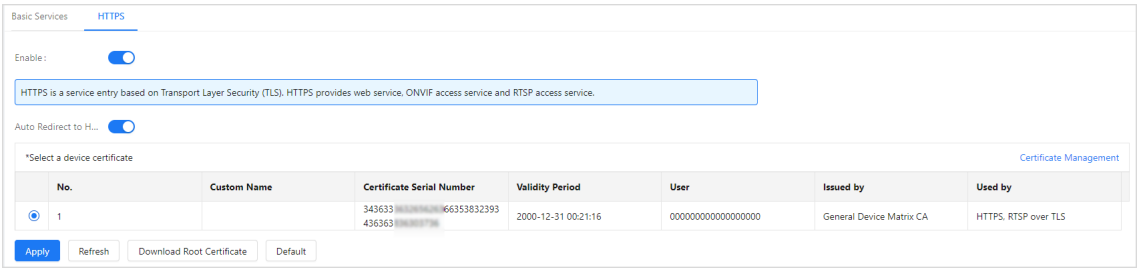
Procedure

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

Step 2 Click to enable HTTPS.

When HTTPS is enabled, accessing the device via HTTP is not supported.

Figure 5-64 HTTPS



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

After it is enabled, if you access the device via HTTP, the system will automatically redirect to HTTPS.

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

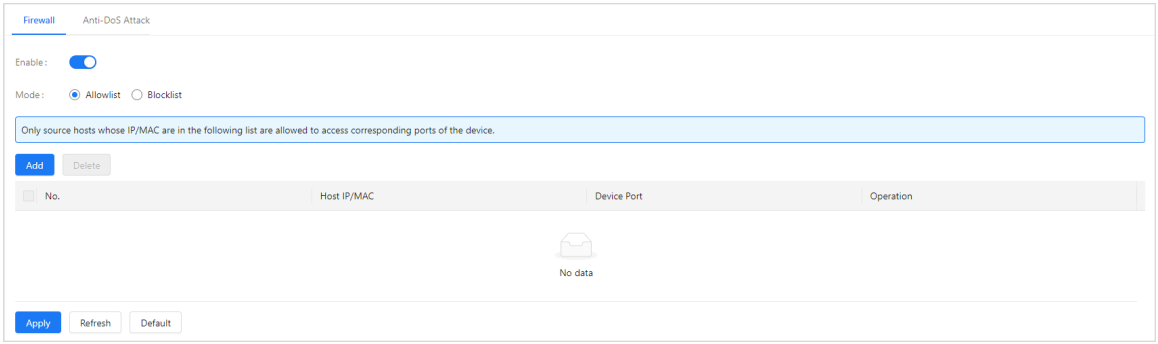
5.10.7.2 Attack Defense

Configure the firewall and DoS (Denial of Service) defense to enhance security management.

Firewall

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

Figure 5-65 Firewall



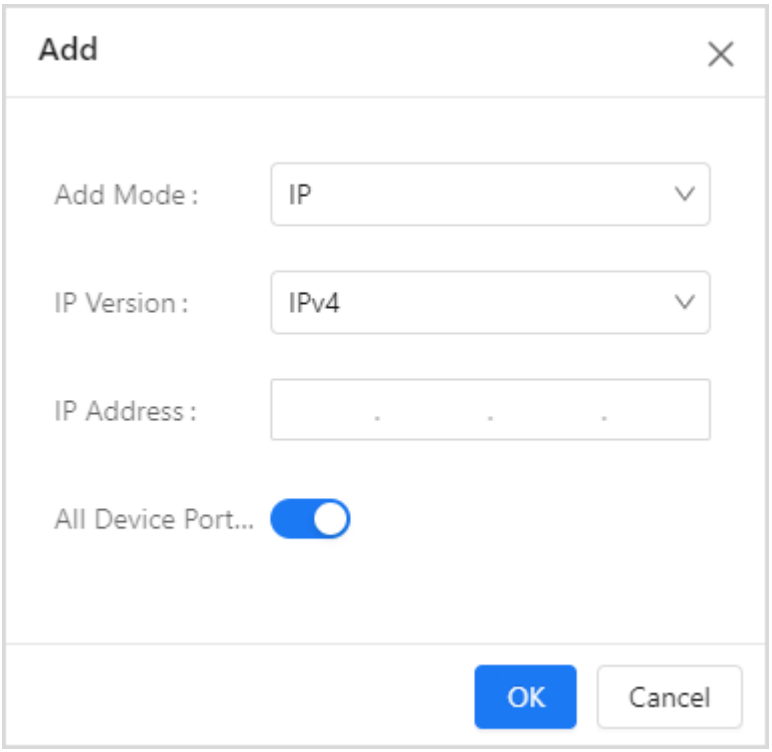
2. Click to enable the firewall, and then select the mode.
   - **Blocklist** : Hosts added to the blocklist cannot access the device.
   - **Allowlist** : Only hosts added to the allowlist can access the device.

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

3. Click **Add**.
4. Set the parameters (IP or MAC address) for the host to be added to the list, and then click **OK**.

When the addition method is set to **IP** or **IP Segment**, you can enable all device ports or customize the port range.

Figure 5-66 Add allowlist

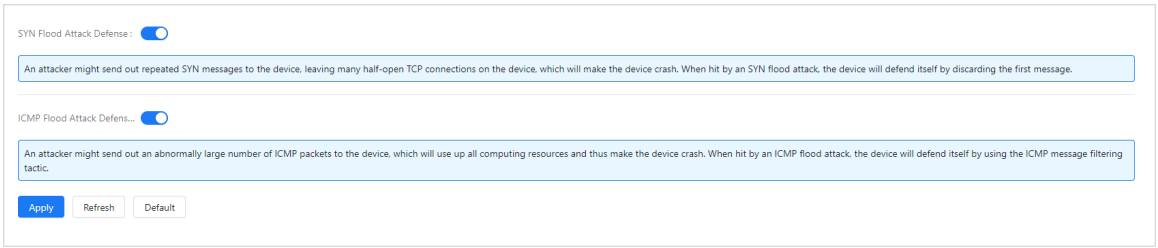


5. Click **Apply**.

Anti-Dos Attack

1. On the home page, select **System** > **Security** > **Attack Defense** > **Anti-Dos Attack**.

Figure 5-67 Anti-DoS attack



2. Click to enable **SYN Flood Attack Defense** or **ICMP Flood Attack Defense** according to the actual need.
   - **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**.

5.10.7.3 Managing CA Certificates

A device certificate is used to prove the device's legal identity. For example, when a browser accesses the device via HTTPS, it needs to verify the device certificate.

5.10.7.3.1 Creating Certificate

Create a device certificate on the local device.

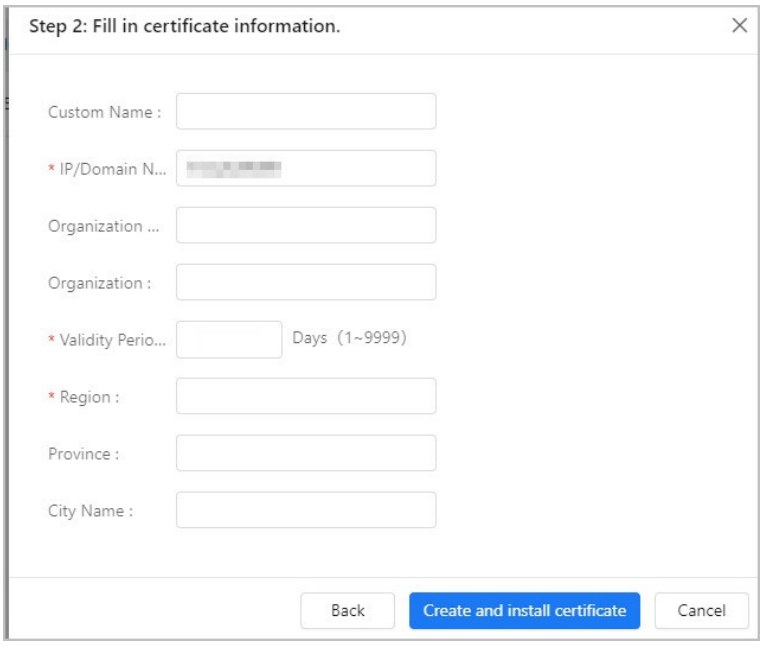
Procedure

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 5-68 Create a certificate



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

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

5.10.7.3.2 Applying for CA Certificate and Import

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

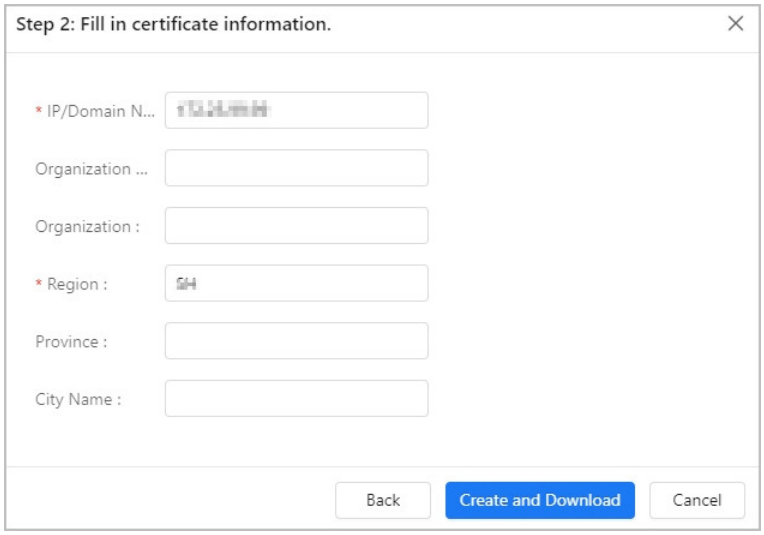
Procedure

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 5-69 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**.

5.10.7.3.3 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 requested at the same time.

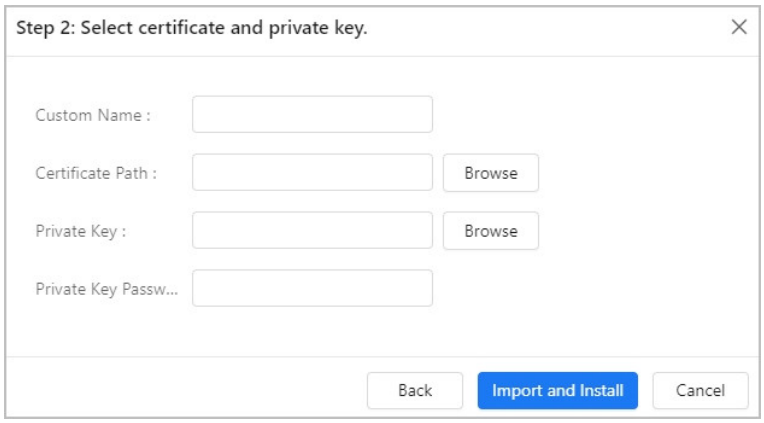
Procedure

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 5-70 Install existing certificate



Step 4 Click **Import and Install**.

5.10.7.3.4 Trusted CA Certificates

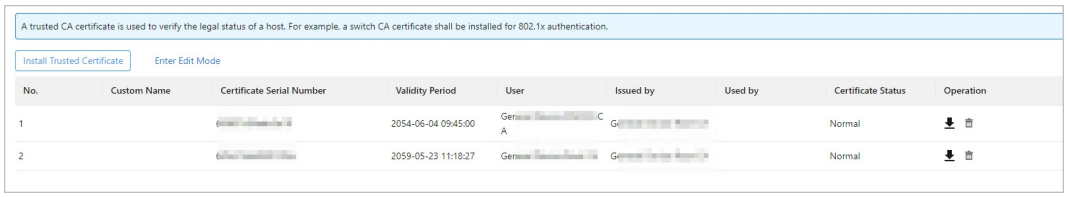
A CA certificate is used to verify the legal identity of a device. For example, when a device accesses a LAN through 802.1X authentication, the CA certificate needs to be verified.

Procedure

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

Step 2 Click **Install Trusted Certificate**.

Figure 5-71 Trusted CA certificates



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.

5.10.7.4 A/V Encryption

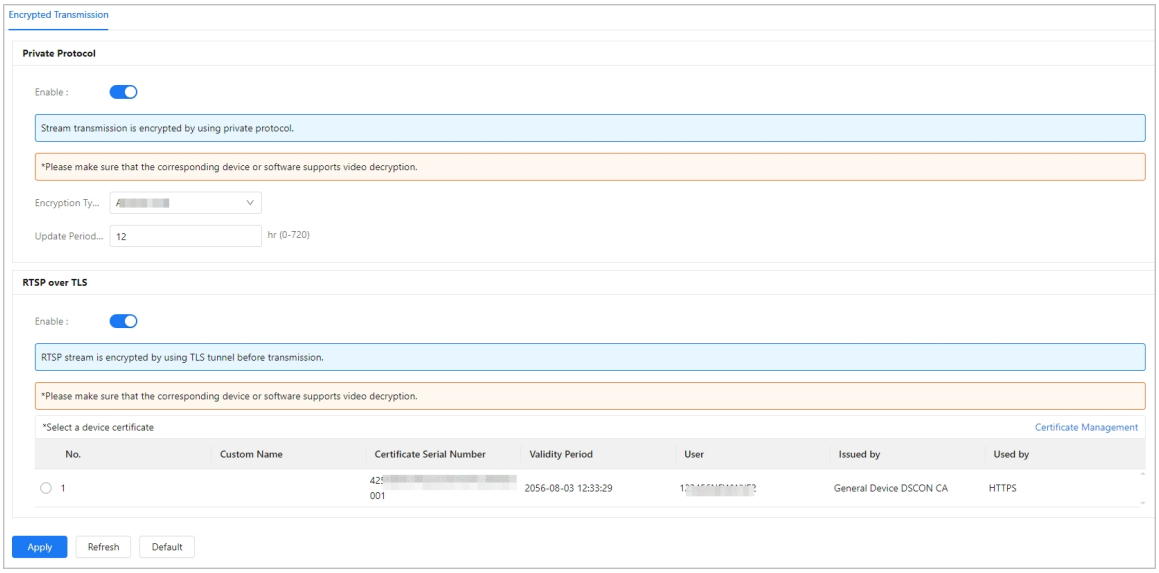
Supports encryption during audio and video transmission.

On the home page, select **System** > **Security** > **A/V Encryption** > **Encryption Transmission**, enable the private protocol or RTSP over TLS as needed, and then click **Apply**.

- **Private Protocol** : Uses a private protocol to encrypt audio and video transmission. The encryption method and key update period need to be set.

- **RTSP over TLS** : Performs encryption processing before requesting video services from the video server.

Figure 5-72 Encryption transmission



5.10.7.5 Security Warning

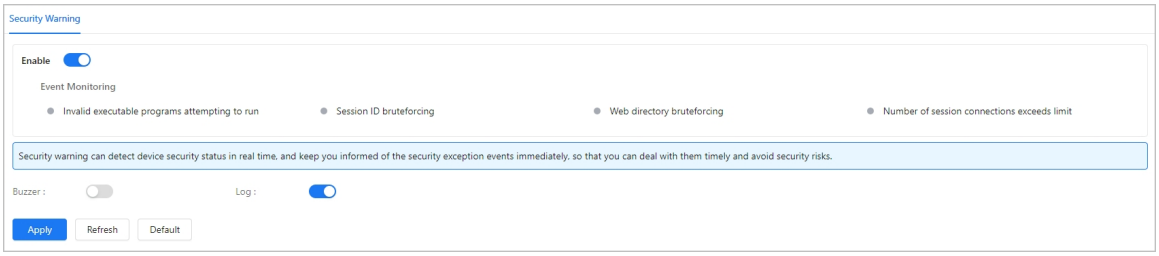
Provides early warnings for potential security incidents, such as attempts to run unauthorized executable programs and brute-force attacks on session IDs.

Procedure

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

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

Figure 5-73 Security warning



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

Step 4 Click **Apply**.

5.10.7.6 Security Authentication

Authenticating user identity and ensuring secure algorithms for authentication information.

Procedure

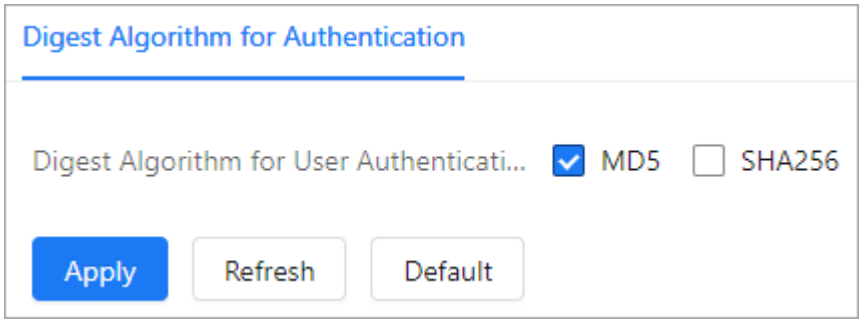
Step 1 On the home page, select **System** > **Security** > **Security Authentication**.

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 5-74 Authentication



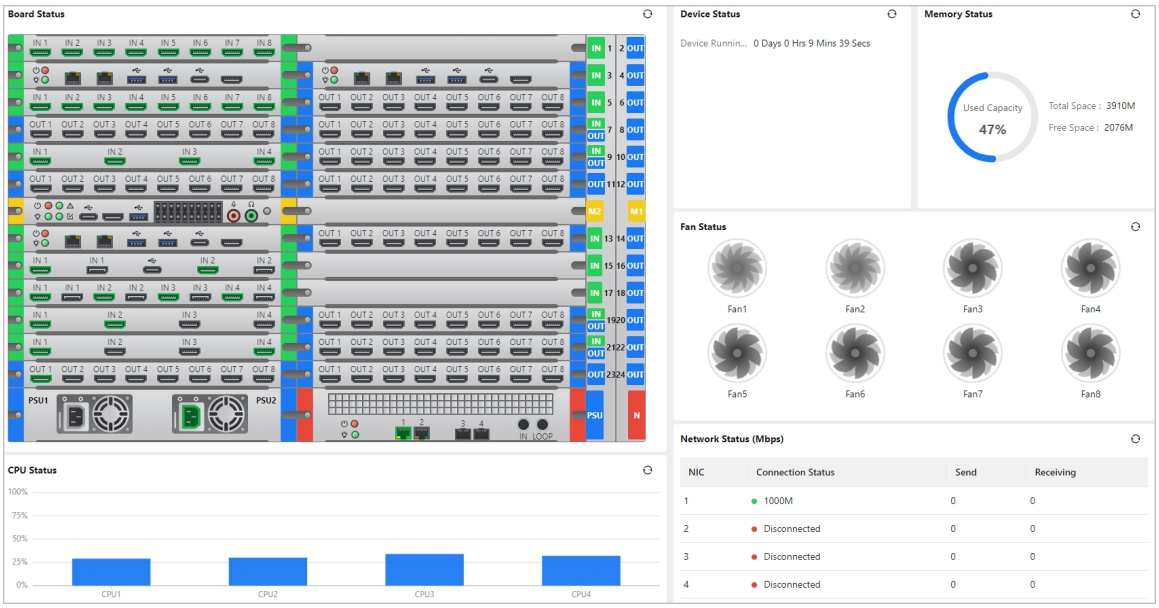
5.11 Maintenance Center

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

5.11.1 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 5-75 Overview



Click to refresh the page.

5.11.2 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, and other information.

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.

5.11.3 Update

Prerequisites

The device program file has been obtained from the official website or by contacting technical support.

Before upgrading the device program, you can save the device configuration information in advance through **Maintenance Center** > **Maintenance Management** > **Config Backup**.

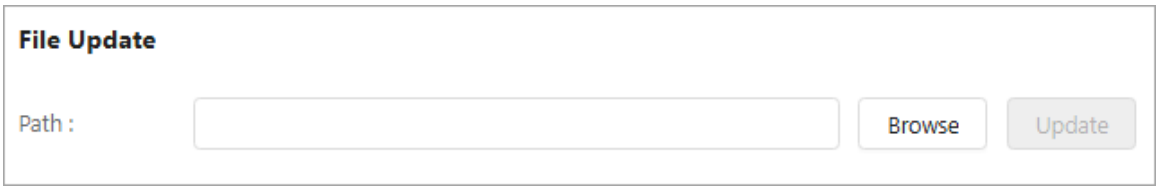
Procedure

Step 1 Select **Maintenance Center** > **Update**.

Step 2 Click **Browse** to select the upgrade file from your local device.

Step 3 Click **Update**.

Figure 5-76 Update



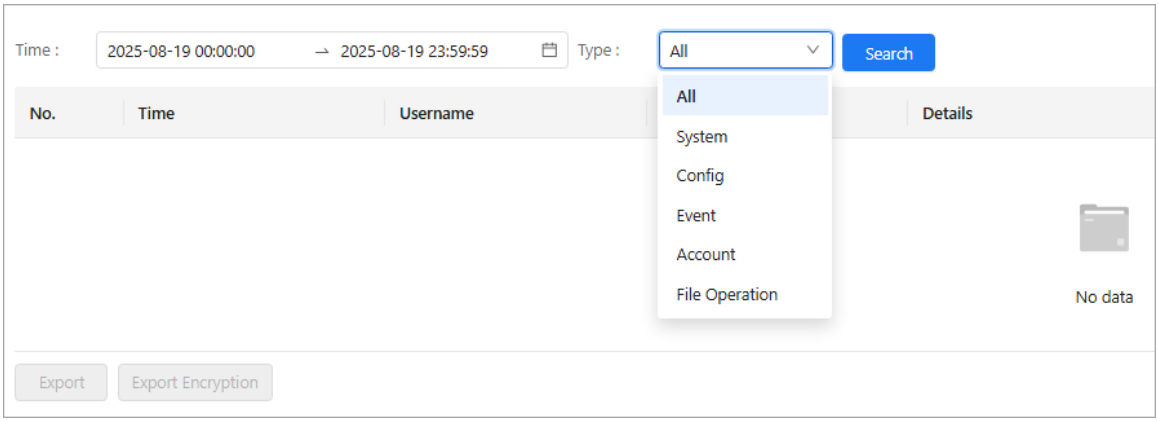
5.11.4 Log

Procedure

Step 1 Select **Maintenance Center** > **Log**.

Step 2 Configure the search time and type, and then click **Search** to search logs.

Figure 5-77 Log



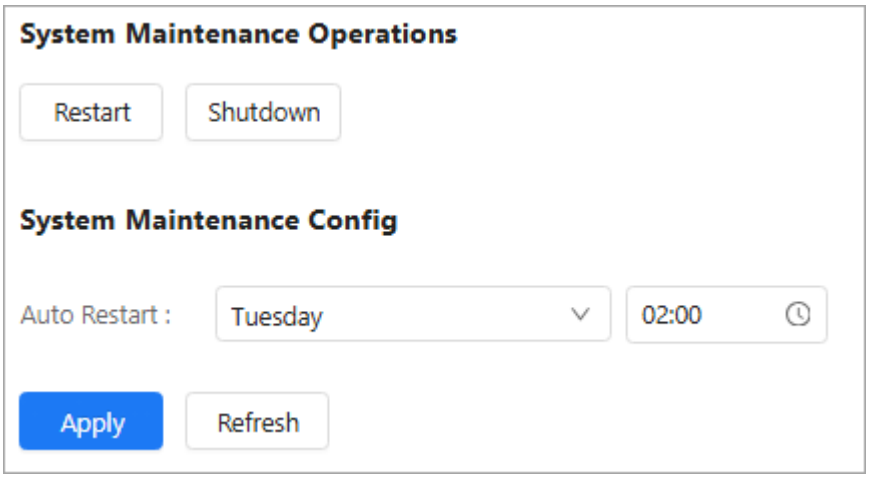
- Export: Click **Export** to save logs to local storage.
- Export Encryption: Click **Export Encryption** , set an encryption password, and then click **OK** to securely export logs to local storage.

5.11.5 Maintenance Management

Maintenance

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

Figure 5-78 Maintenance



Configuring Backup

Select **Maintenance Center** > **Maintenance Management** > **Config Backup**, and then export the configuration file of the device to the local computer. If an 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 file: Click **Config Export**, select the storage path to back up the configuration file.

Figure 5-79 Backup configuration

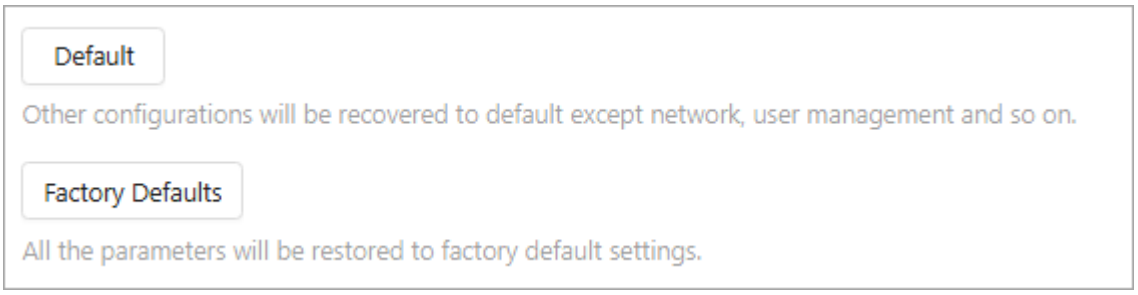


Default

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

- Click **Default**, and then other configurations will be restored 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 5-80 Default



5.11.6 Advanced Maintenance

5.11.6.1 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 Click **Decoding Diagnosis** , select the video wall and window, and then click **Diagnosis**. After that, you can click to download the diagnosis file for viewing issues.

Figure 5-81 Decoding diagnosis



Step 3 Click **System Diagnosis** , select the board type, and then click **Diagnosis**. After that, you can click to download the diagnosis file for viewing issues.

Figure 5-82 System diagnosis



5.11.6.2 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 5-83 Configure packet capture parameters



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.

5.11.6.3 Ping

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

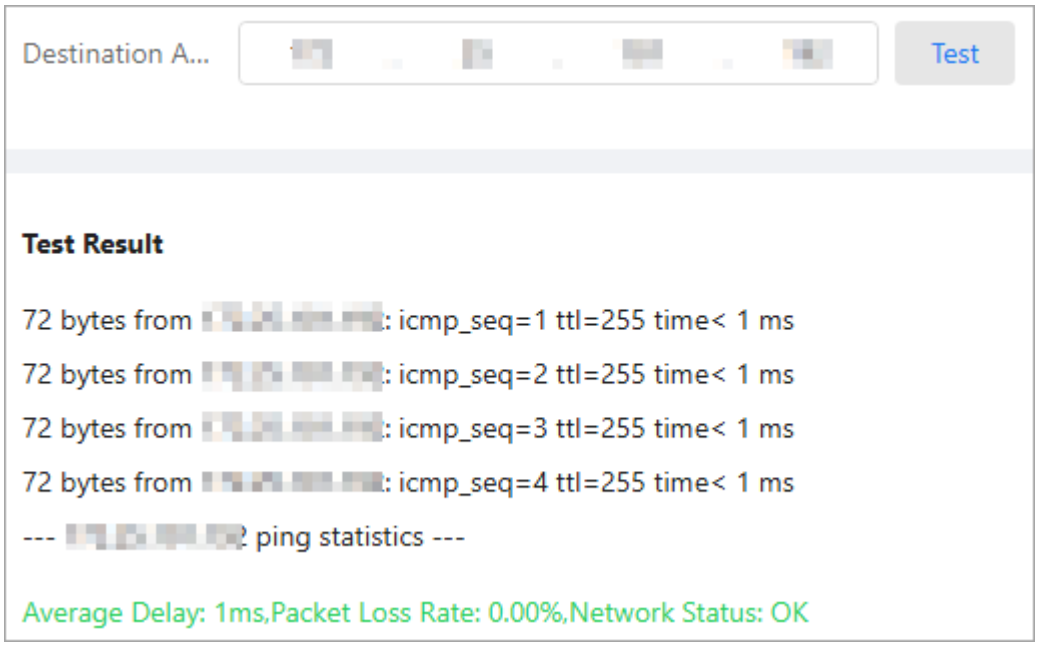
Procedure

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 5-84 Test result



5.11.6.4 Running Logs

View log information related to system operations.

Procedure

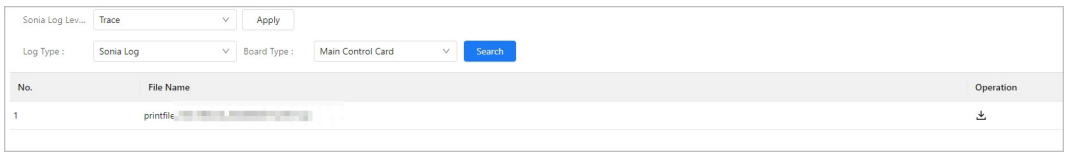
Step 1 On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Running Logs**.

Step 2 Configure the search conditions.

Step 3 Click **Search** to view the system operation logs.

- Set Sonia log level: Select the log level, and then click **Apply**.
- Click to download the log files.

Figure 5-85 Search logs



5.11.6.5 Signaling Interaction

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

Procedure

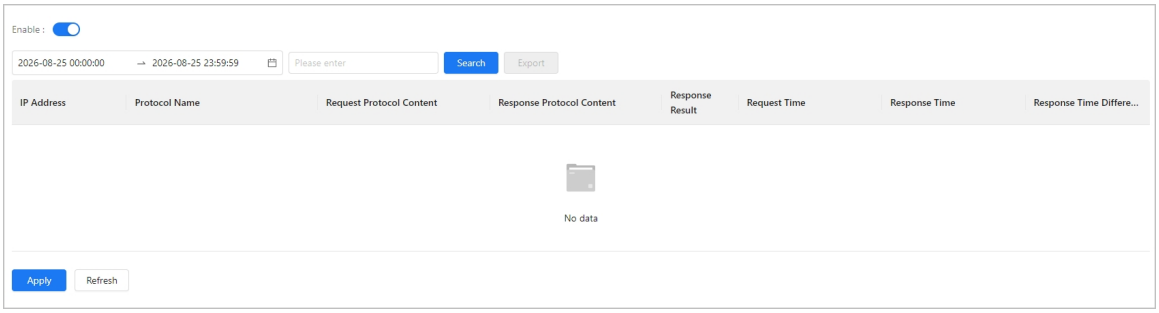
Step 1 On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Signaling Interaction**.

Step 2 Click **Real-Time Signaling**, and then view real-time signaling.

1. Click to enable signaling interaction, and then click **Apply**.
   After enabling, the system will start recording logs.
2. Set the query time or keywords.
3. Click **Search** to query the signaling records sent by the device.

Click **Export** to export the signaling records to the local device.

Figure 5-86 Real-time signaling



Step 3 Click **History Signaling**, then click  in the operation column to download historical signaling records to the local device.

Figure 5-87 History signaling



5.11.6.6 Collected Info

Select **Maintenance Center** > **Advanced Maintenance** > **Collected Info** to view the capture information to determine whether the video signal capture parameters are correct.

5.11.6.7 Decoding Info

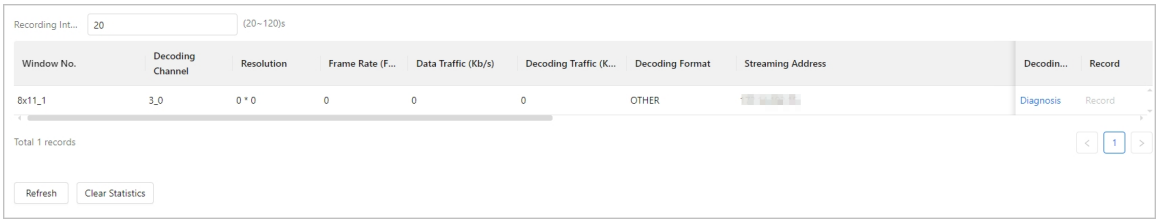
Procedure

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

Step 2 Click **Decoding Info** to view the resolution, frame rate, data traffic, and other information of the decoding channels.

- Click **Clear Statistics** to clear the collected statistics and start a new measurement.
- Click **Diagnosis** to go to the **Decoding Diagnosis** page.

Figure 5-88 Decoding information



Step 3 Enter a duration in the **Recording Interval** field, and then click **Record** in the operation column.

The system records the selected channel.

Disable **Sub Card Acquires Streams From Front-End Devices** on the **Display Management** > **Video Wall Config** > **Stream and Display Strategies** page to enable recording.

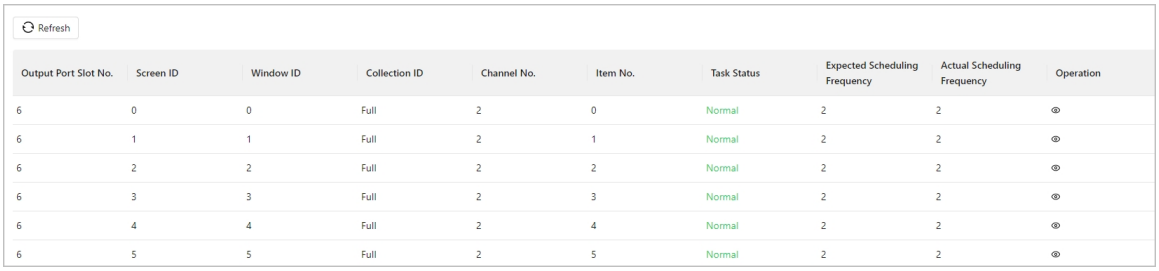
Step 4 Click **Video Management** . In the pop-up window, enter the device password, and then click **OK**.

On this page, you can view the list of recorded videos, modify the names of recording files, or download recordings to the local computer.

5.11.6.8 Task Scaling Schedule

On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Task Scaling Schedule** to view the scheduling status, including the output port slot number and task status. Click in the **Operation** column to view detailed information.

Figure 5-89 Task scaling schedule



5.11.6.9 Communication Info

On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Communication Info** to view the link connection status of each board.

5.11.6.10 Bandwidth Info

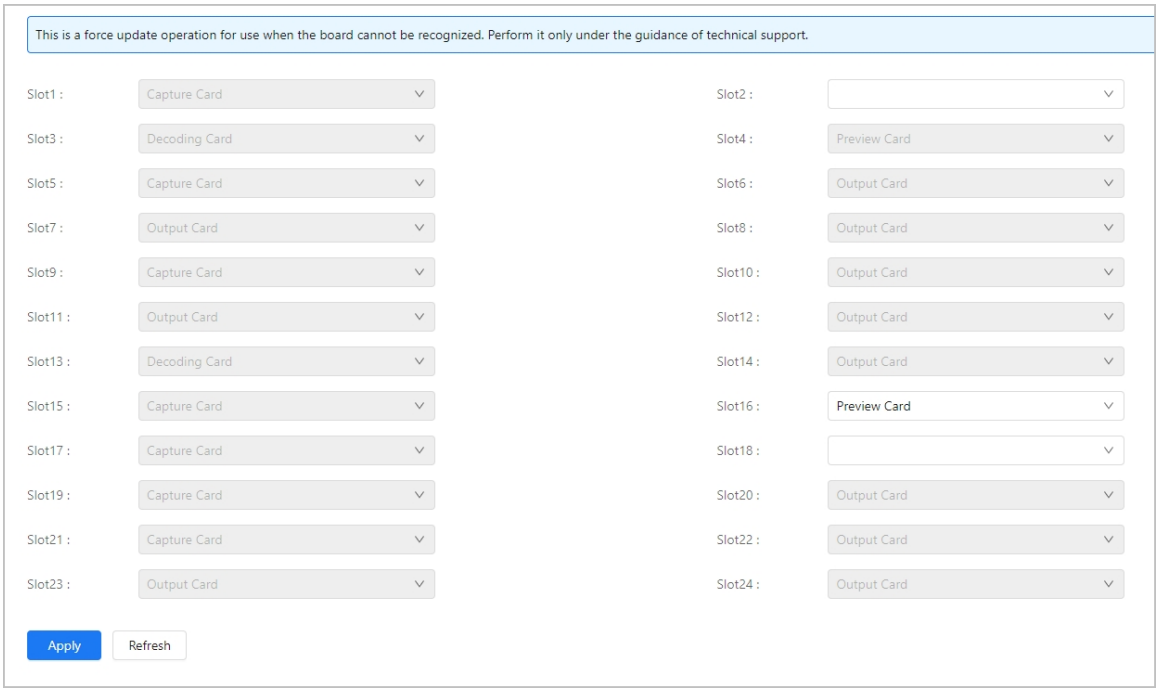
On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Bandwidth Info** to view the DDR bandwidth utilization of each board.

5.11.6.11 Manual Recognition

If the system cannot identify a board, you can force an upgrade by manually identifying the board. Perform this operation only under the guidance of a technical professional.

On the home page, select **Maintenance Center** > **Advanced Maintenance** > **Manual Recognition**, select the board, and then click **Apply**.

Figure 5-90 Manual recognition



5.12 Third-Party Device Connection

5.12.1 Configuring Serial Port

Procedure

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

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

Keep the remaining parameters consistent with those of the connected central control device. For details, see "5.10.5 Serial Port".

Step 3 Click **Apply**.

5.12.2 Signal on Wall

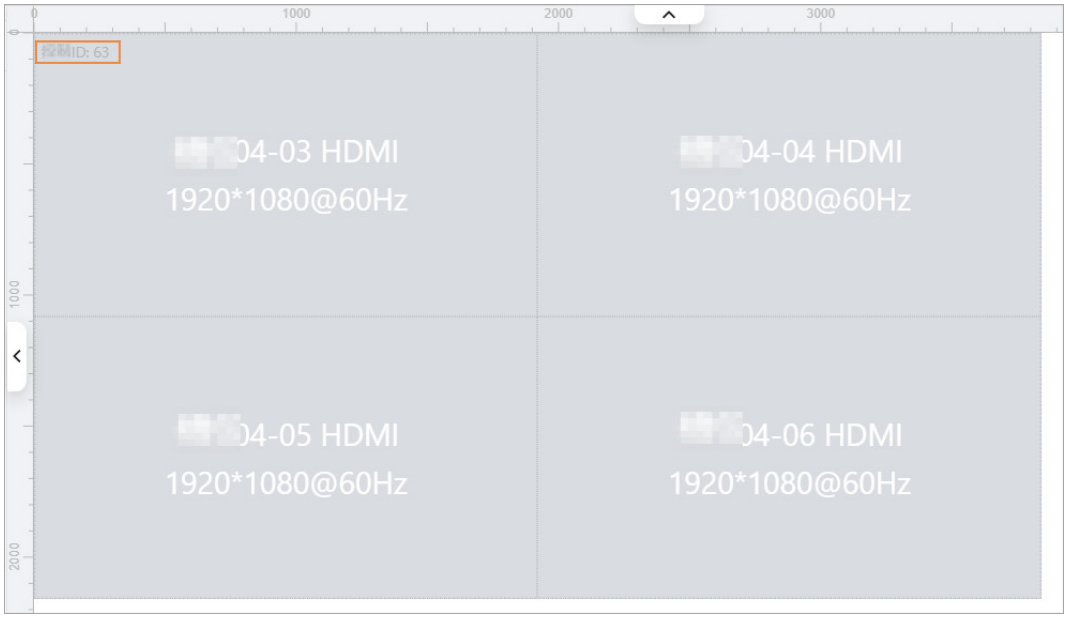
Displays signal on the wall by sending control commands on the controlled device.

Procedure

Step 1 View the screen control number.

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

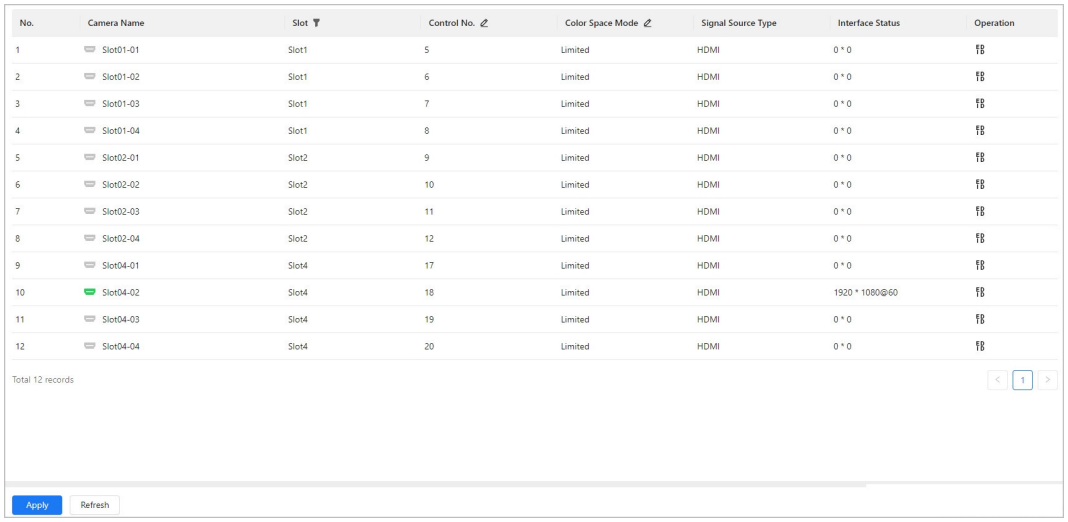
Figure 5-91 View the screen control number



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.

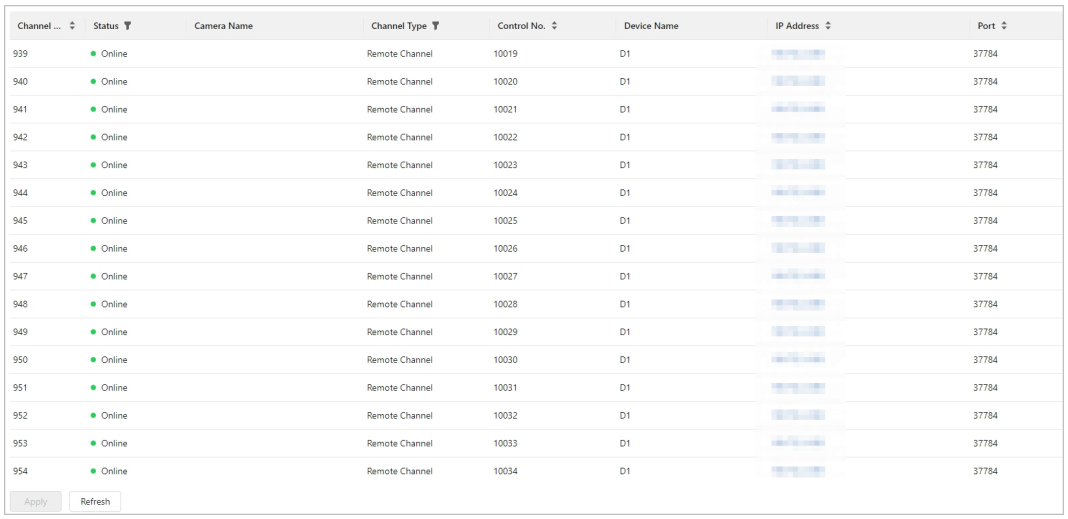
Figure 5-92 View local signal source control number



Step 3 View the control number of the network signal source.

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

Figure 5-93 View network signal source control number



Channel ...	Status	Camera Name	Channel Type	Control No.	Device Name	IP Address	Port
939	Online		Remote Channel	10019	D1		37784
940	Online		Remote Channel	10020	D1		37784
941	Online		Remote Channel	10021	D1		37784
942	Online		Remote Channel	10022	D1		37784
943	Online		Remote Channel	10023	D1		37784
944	Online		Remote Channel	10024	D1		37784
945	Online		Remote Channel	10025	D1		37784
946	Online		Remote Channel	10026	D1		37784
947	Online		Remote Channel	10027	D1		37784
948	Online		Remote Channel	10028	D1		37784
949	Online		Remote Channel	10029	D1		37784
950	Online		Remote Channel	10030	D1		37784
951	Online		Remote Channel	10031	D1		37784
952	Online		Remote Channel	10032	D1		37784
953	Online		Remote Channel	10033	D1		37784
954	Online		Remote Channel	10034	D1		37784

Apply Refresh

Step 4 Enter the commands on the controlled device, such as "63Ma1Xa49#a5Ea", which means switching the input source with the control number of 49 to window 1 of the screen with the control number of 63.

Appendix 1 Making the Serial Cable

The pin definitions of the registered jack are as follows: PIN 2 (orange) is RX, PIN 5 (white-blue) is GND, and PIN 6 (green) is TX.

Appendix 1.1 RS-232 Screen Control Wiring

Prerequisites

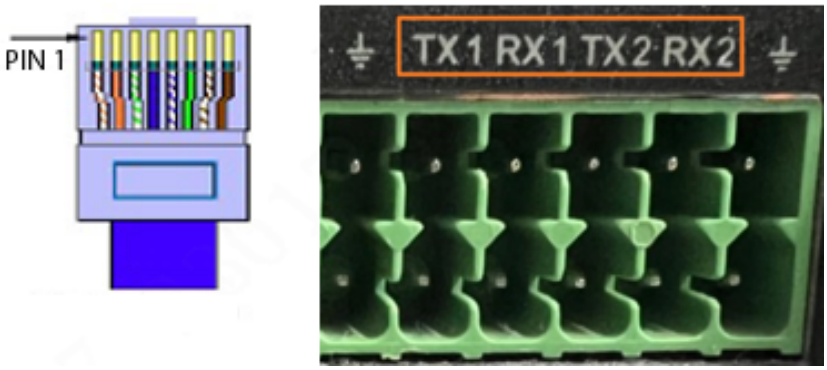
Prepare a network cable and a green female terminal block. The green female terminal block is included in the accessory box.

Procedure

Step 1 Hold the registered jack with its metal contacts facing you. The pins are numbered from left to right as 1 to 8: white-orange, orange, white-green, blue, white-blue, green, white-brown, and brown.

Step 2 Connect PIN 2 of the network cable to TX1 or TX2 on the green terminal block, connect PIN 6 to RX1 or RX2, and connect PIN 5 to GND on the green terminal block.

Appendix Figure 1-1 Network cable pinoOrientation and terminal pinout



Appendix 1.2 RS-485 Screen Control Wiring

Prepare a network cable, an RS-232-to-RS-485 converter, and a green female terminal block. The green female terminal block is included in the accessory box. The RS-232-to-RS-485 converter is shown in the following figure.

Connect the RS-485 port of the main control unit to the RS-232-to-RS-485 converter. The RS-485 side uses a green terminal adapter, and the RS-232 side uses a DB9 female connector.

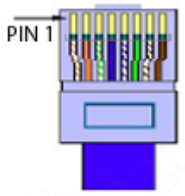
Appendix Figure 1-2 **RS-232-to-RS-485 converter**



- RS-232-side wiring: The pin definitions of the converter's DB9 female connector are shown in the following figure. PIN 2 is TX, PIN 3 is RX, and PIN 5 is GND.

  To make the cable, hold the registered jack with its metal contacts facing you. The pins are numbered from left to right as 1 to 8: white-orange, orange, white-green, blue, white-blue, green, white-brown, and brown. Connect PIN 2 of the network cable to PIN 2 (TX) of the DB9 connector, PIN 6 to PIN 3 (RX), and PIN 5 to PIN 5 (GND).

Appendix Figure 1-3 Network cable pin orientation



Appendix Table 1-1RS-232C pin assignment

DB9 Female Connector (Pin)	RS-232C Port Signal
2	Transmit data SOUT (TXD)
3	Receive data SIN (RXD)
5	Signal ground (GND)

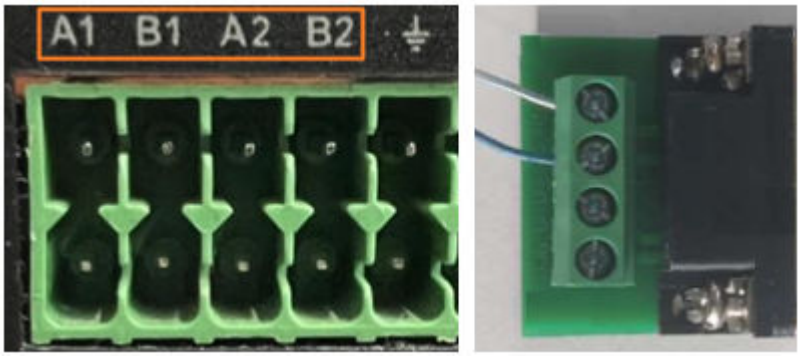
- RS-485-side wiring: The pin definitions of the converter are listed in the following table. Only 2 wires are required for the connection, and the wires do not need to be distinguished by polarity.

Appendix Table 1-2RS-485 output signals and terminal pin assignment

DB9 Male Connector (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 auxiliary power input

- Connect the green terminal block of the main control unit to A1 and B1 or A2 and B2. Wire the green terminal block of the converter as shown in the following figure. Do not connect the power supply.

Appendix Figure 1-4 RS-485-side wiring—green terminal block of the main control unit and converter

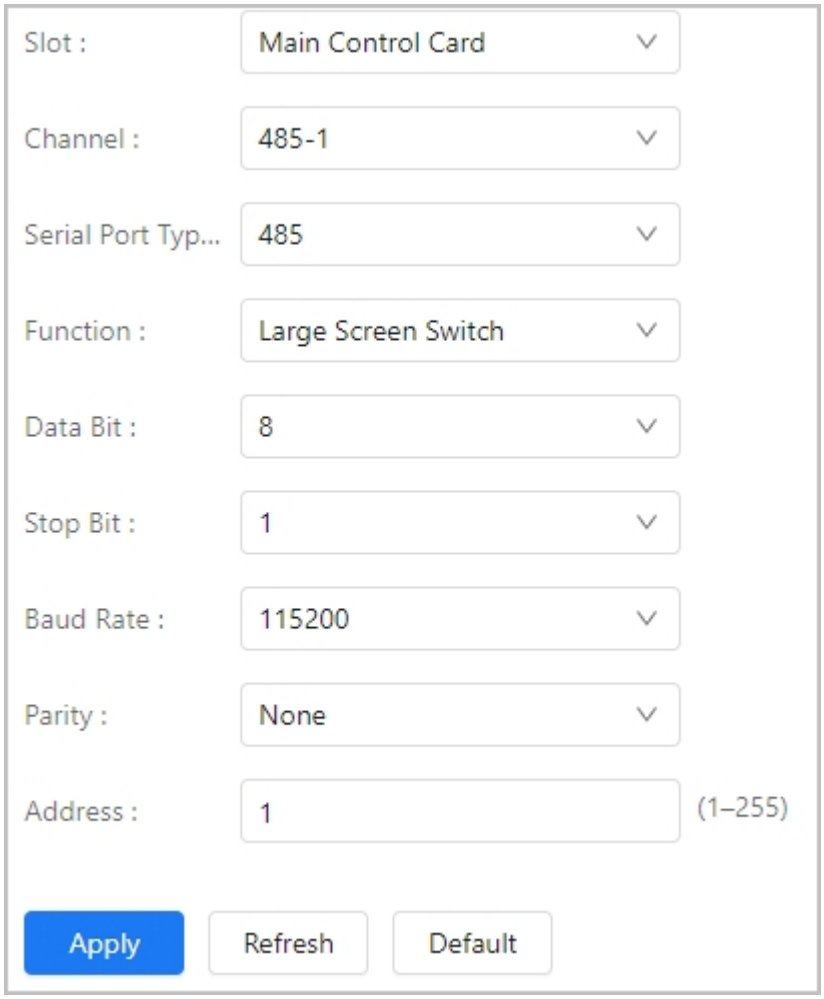


Appendix 1.3 Port Mapping

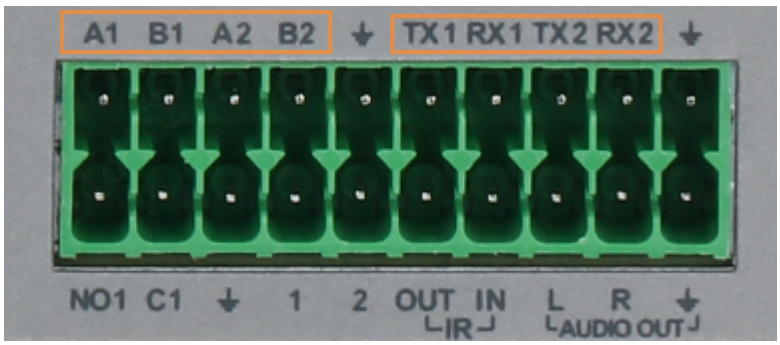
The channels under **System** > **Serial Port** correspond to the following terminals:

- A1 and B1
- A2 and B2
- TX1 and RX1
- TX2 and RX2

Appendix Figure 1-5 Channels in serial port settings



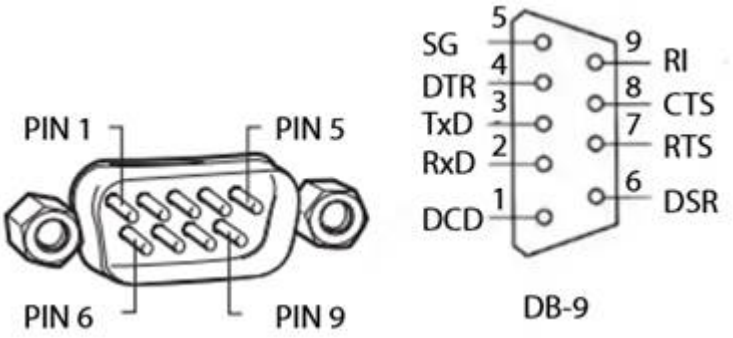
Appendix Figure 1-6 Terminal-to-port mapping



Appendix 1.4 Making Matrix Control Serial Cable

If the serial port of the connected device is a standard RS-232 serial port with a 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 the RS-232 cable and the serial port connections shown in the following figure.

Appendix Figure 1-7 Pin definition of RS-232 cable



Appendix Table 1-3RS-232 serial port connection

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

Appendix 2 Matrix Serial Port Control Protocol

Appendix Table 2-1Description 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.
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.
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.

Appendix Table 2-2Serial port control protocol examples

Example	Code
Display camera 2 in window 1 of screen 1	1Ma1Xa2#a5Ea
Display camera 99 in screen 7	7Ma99#a5Ea
Use scheme 10	10Pa
Turn all screens on	Ka
Turn off screen 5	5Ga

Appendix 3 Security Recommendation

Account Management

1. **Use complex passwords**

   Please refer to the following suggestions to set passwords:

   - The length should not be less than 8 characters;
   - Include at least two types of characters: 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 repeating characters, such as 111, aaa, etc.

2. **Change passwords periodically**

   It is recommended to periodically change the device password to reduce the risk of being guessed or cracked.

3. **Allocate accounts and permissions appropriately**

   Appropriately add users based on service and management requirements and assign minimum permission sets to users.

4. **Enable account lockout function**

   The account lockout function is enabled by default. You are advised to keep it enabled to protect account security. After multiple failed password attempts, the corresponding account and source IP address will be locked.

5. **Set and update password reset information in a timely manner**

   The device supports password reset function. To reduce the risk of this function being used by threat actors, if there is any change in the information, please modify it in time. When setting security questions, it is recommended not to use easily guessed answers.

Service Configuration

1. **Enable HTTPS**

   It is recommended that you enable HTTPS to access web services through secure channels.

2. **Encrypted transmission of audio and video**

   If your audio and video data contents are very important or sensitive, it is recommended to use encrypted transmission function in order to reduce the risk of your audio and video data being eavesdropped during transmission.

3. **Turn off non-essential services and use safe mode**

   If not needed, it is recommended to turn off some services such as SSH, SNMP, SMTP, UPnP, AP hotspot etc., to reduce the attack surfaces.

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

- SNMP: Choose SNMP v3, and set up strong encryption and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up complex passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up complex passwords.

4. **Change HTTP and other default service ports**

   It is recommended that you change the default port of HTTP and other services to any port between 1024 and 65535 to reduce the risk of being guessed by threat actors.

Network Configuration

1. **Enable Allowlist**

   It is recommended that you turn on the allowlist function, and only allow IP in the allowlist to access the device. Therefore, please be sure to add your computer IP address and supporting device IP address to the allowlist.

2. **MAC address binding**

   It is recommended that you bind the IP address of the gateway to the MAC address on the device to reduce the risk of ARP spoofing.

3. **Build a secure network environment**

   In order to better ensure the security of devices and reduce potential cyber risks, the following are recommended:

   - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network;
   - According to the actual network needs, partition the network: if there is no communication demand between the two subnets, it is recommended to use VLAN, gateway and other methods to partition the network to achieve network isolation;
   - Establish 802.1x access authentication system to reduce the risk of illegal terminal access to the private network.

Security Auditing

1. **Check online users**

   It is recommended to check online users regularly to identify illegal users.

2. **Check device log**

   By viewing logs, you can learn about the IP addresses that attempt to log in to the device and key operations of the logged users.

3. **Configure network log**

Due to the limited storage capacity of devices, the stored log is limited. If you need to save the log for a long time, it is recommended to enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

Software Security

1. **Update firmware in time**

   According to the industry standard operating specifications, the firmware of devices needs to be updated to the latest version in time in order to ensure that the device has the latest functions and security. If the device is connected to the public network, it is recommended to enable the online upgrade automatic detection function, so as to obtain the firmware update information released by the manufacturer in a timely manner.

2. **Update client software in time**

   It is recommended to download and use the latest client software.

Physical Protection

It is recommended that you carry out physical protection for devices (especially storage devices), such as placing the device in a dedicated machine room and cabinet, and having access control and key management in place to prevent unauthorized personnel from damaging hardware and other peripheral equipment (e.g. USB flash disk, serial port).