HIKVISION

Ultra High Definition (UHD) Decoder

User Manual

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Preface

Applicable Models

This manual is applicable to the DS-690XUDI(C) UHD decoder.

Default Parameters

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

⚠ **Caution**

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

Symbol Conventions

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

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

Safety Instructions

⚠ Caution

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

📖 Note

- Provide a surge suppressor at the inlet opening of the device under special conditions such as the mountain top, iron tower, and forest.
- \+ identifies the positive terminals of the device which is used with, or generates direct current, and - identifies the negative terminals of the device which is used with, or generates direct current.
- The serial port of the device is used for debugging only.
- The interface varies with the models. Please refer to the product datasheet for details.
- The USB port of the device is used for connecting to a mouse, a keyboard, or a USB flash drive only. The current for the connected device shall be not more than 0.1 A.

TABLE OF CONTENTS

Chapter 1 Introduction

1.1 Overview

Developed on the basis of embedded hardware platform, the DS-690XUDI(C) ultra high definition (UHD) decoder (hereinafter referred as the device) is a new generation decoder for HD network cameras and can be widely used in various video security system projects. It uses the HDMI 1.4 port and BNC port for decoded data output, supports various decoding formats including H.265, H.264, MJPEG, Smart264, and Smart265, supports decoding the H.265 or H.264 video of no more than 32 MP, and supports 4K video output.

1.2 First-Time Configuration Process

```
┌─────────────────────┐
│  Activate the device │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│  Log in to the device│
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│   Set the device     │
│  network address     │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ Set the video wall scale │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ Bind outputs with the│
│     video wall       │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│  Bind signal sources │
│  with the video wall │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│  Operate the video   │
│        wall          │
└─────────────────────┘
     │        │        │
     ▼        ▼        ▼
┌──────────┐ ┌──────────┐ ┌──────────┐
│(Optional)│ │(Optional)│ │(Optional)│
│Configure │ │Configure │ │Maintain  │
│display   │ │other     │ │the system│
│effect    │ │device    │ │and       │
│          │ │parameters│ │security  │
└──────────┘ └──────────┘ └──────────┘
```
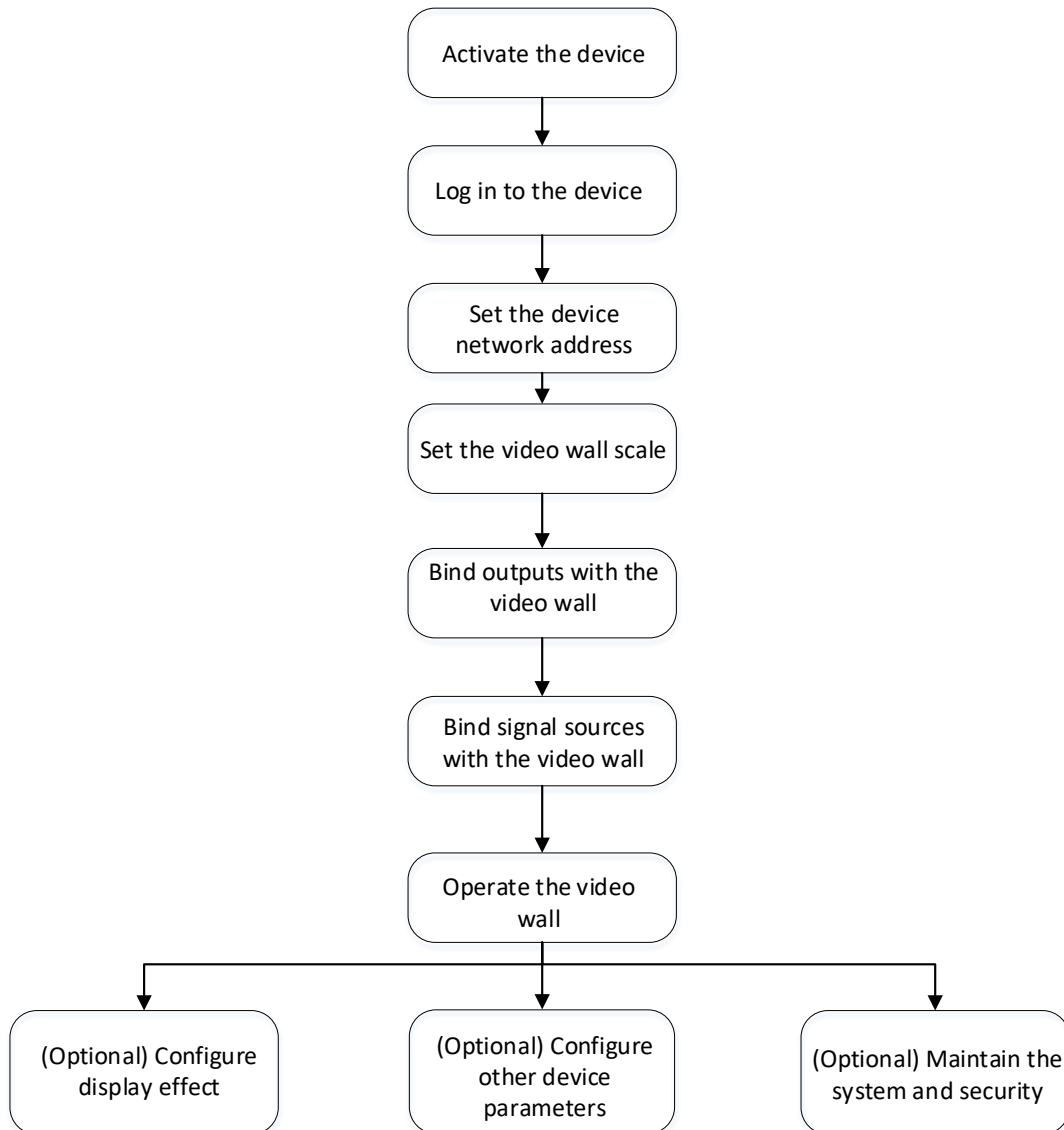
Figure 1-1 First-Time Configuration Process

Chapter 2 Device Activation

You should activate the device before using the device for the first time. When activating the device, obey the following requirements to set the password:

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

- Password should contain 8 to 16 characters and at least 2 of the following types: digits, lowercase letters, uppercase letters, and special characters.

- Password cannot contain user name, 123, admin, 4 or more continuously ascending or descending digits, or 4 or more consecutive repeated characters.

2.1 Activate the Device via SADP Client

Step 1 Connect the device and computer to the same LAN.

Step 2 Visit https://www.hikvision.com/en/support/tools/hitools/clea8b3e4ea7da90a9/ to download the SADP client from the Hikvision website and install the SADP client on the computer.

Step 3 Open the SADP client.

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

If the device cannot be found, you can restart the SADP client.
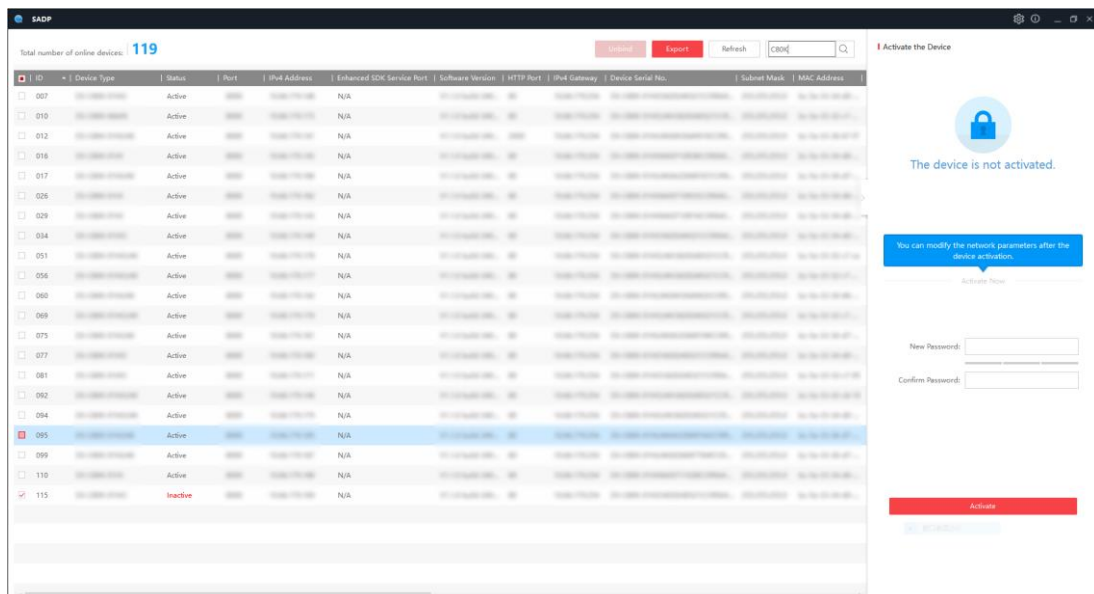
Figure 2-1 Activate the Device via SADP Client

2.2 Activate the Device via Web Browser

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

Step 2 Set an IP address for the computer.

> To ensure the normal communication between the computer and device, the IP address of the computer should be in the range of 192.0.0.2 to 192.0.0.253 (excluding 192.0.0.64). Because the default IP address of the device is 192.0.0.64.

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

Step 4 Set the activation password.

Step 5 Click **Activate**.
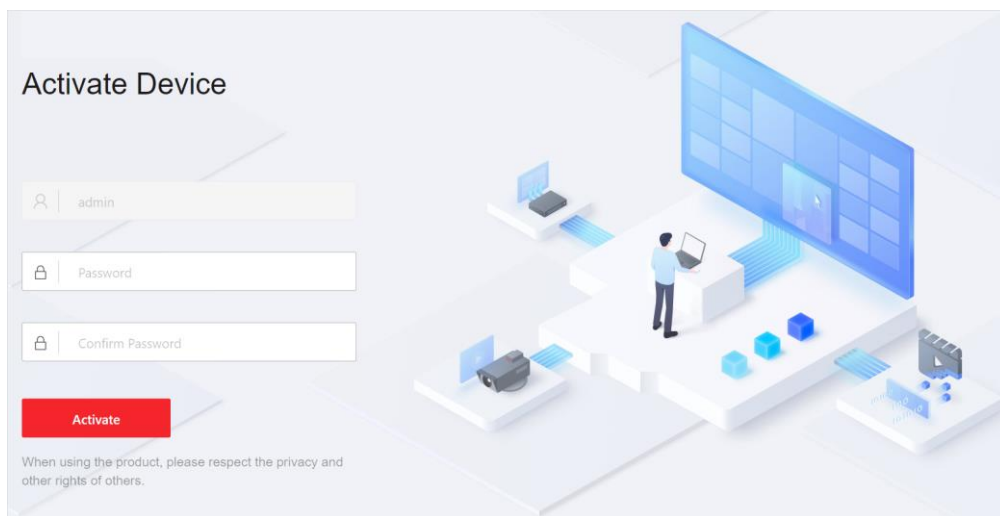
Figure 2-2 Activate the Device via Browser

Chapter 3 Device Configuration

On the web page, you can configure video walls, operate video walls, configure the device parameters, and maintain system and device security.

3.1 Log In to the Device via Web Browser

Step 1 Enter the device factory IP address in the web browser of the computer.

Step 2 Enter the user name and the set activation password.
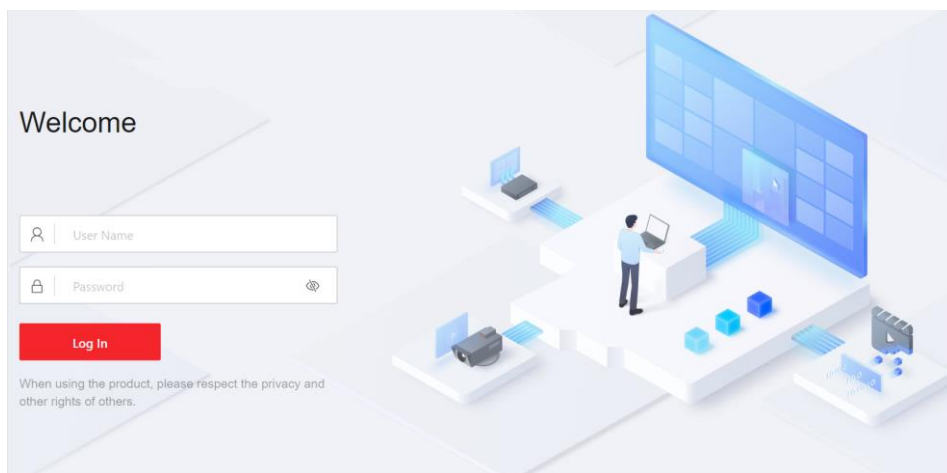
Figure 3-1 Login Page

Step 3 Click **Log In**.

3.2 Configure the Network Address

3.3 Configure TCP/IP Address

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

Figure 3-2 Configure the Device IPv4 Address

Step 2 Select the NIC type.

Step 3 Set the IPv4 address, IPv4 subnet mask, and IPv4 gateway.

Step 4 If you use the domain name to access the device, set the preferred and alternative DNS server.

Step 5 Click **Save**.

Step 6 Remove the network cable that connects the device and computer, and use the network cable to connect the device to the same network as the computer.

Make sure that the computer and device in the same network segment.

Step 7 Enter the configured device IP address in the web browser of the computer to log in to the web page of the device.

3.4 Configure the Video Wall

3.4.1 Configure the Video Wall Scale

Step 1 Go to **Video Wall Configuration**, and then click **Edit Video Wall Scale**.
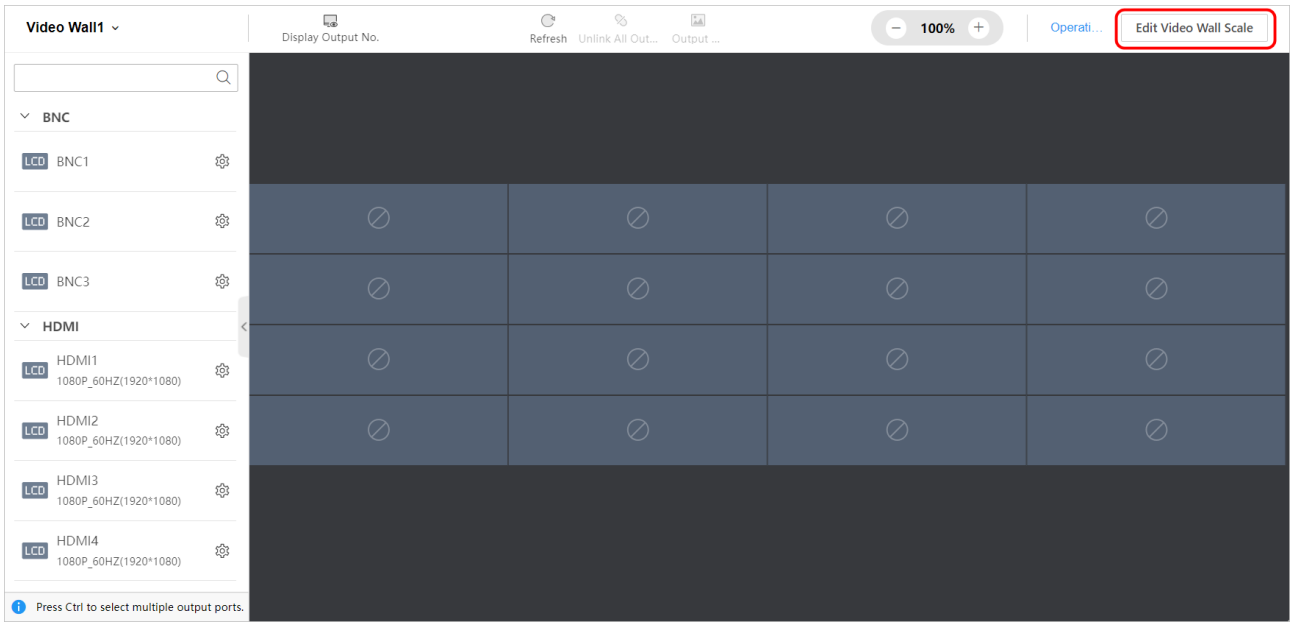
Figure 3-3 Video Wall Configuration Page

Step 2 According to the actual screen quantity, set the video wall scale and click **Save**.

You can also drag the mouse with the left button held to scale the video wall.
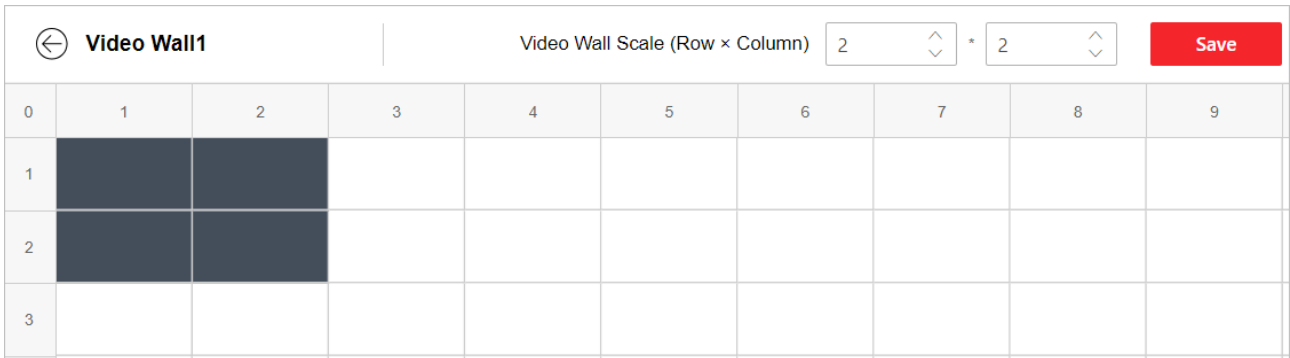
Figure 3-4 Set the Video Wall Scale

3.4.2 Bind Output Ports with the Video Wall

A video wall can contain one screen or multiple screens. At a time, one screen can join only one video wall, and one output port can be bound with only one screen.

Step 1 On the **Video Wall Configuration** page, drag output ports rightward to the screens.

- If all screens of the video wall are bound with output ports, click ⊗ in the upper right corner of a screen and then bind another output port with the screen.

- You can press Ctrl to select multiple output ports and then batch bind output ports with the video wall.
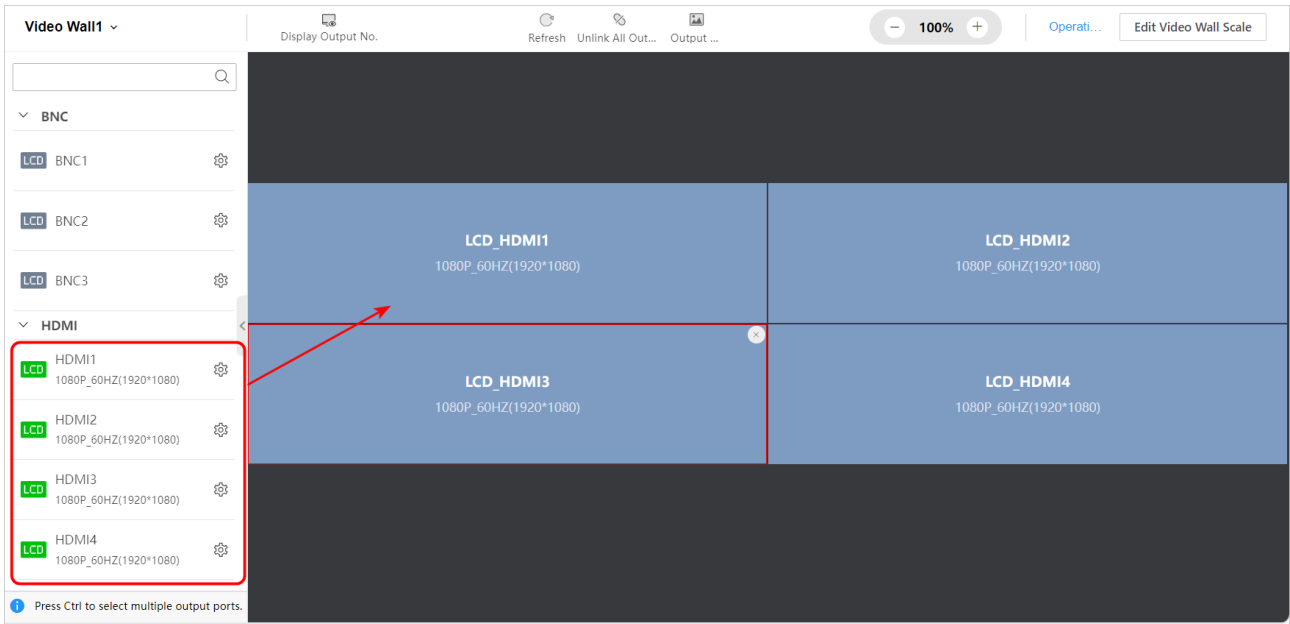
Figure 3-5 Bind Output Ports with Video Wall

Note

If you use the screens that support the linkage protocol to configure the video wall, click **Edit Wall Scale** and select **Auto Configure**. Thus, the screens will be automatically bound with the output ports of the corresponding video wall according to the serial number set on the remote control.
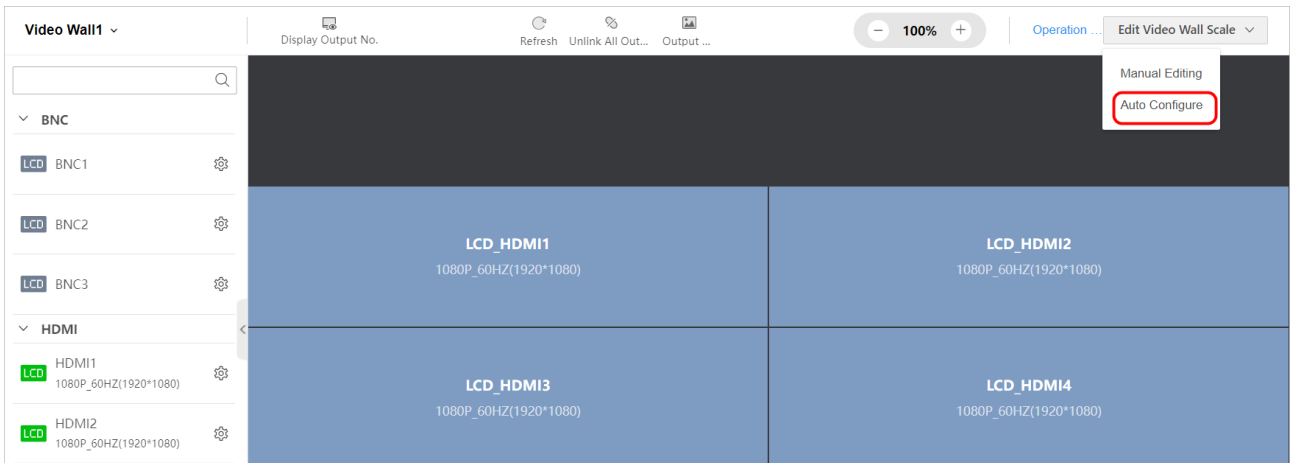
Figure 3-6 Auto Bind Output Ports with Video Wall

Step 2 Click ⚙ of an output port on the left to configure the following items:

- If you configure a BNC port, you can select a video standard.
- If you configure an HDMI port, you can set the output mode, output method, resolution, and audio sampling rate.
  - Set the output mode for the device according to the actual connection between the device and screen. The DVI mode has better compatibility and the HDMI mode supports embedded audio output.

- If you select LCD output method, select the LCD screen resolution as required.
- If you select LED output method and loading mode, enter the width and height of the LED screen. Make sure that the configured resolution (width × height) is smaller than 2.3 MP.
- If you select LED output method and clipping mode, enter the width and height of the LED screen. Make sure that the configured resolution is smaller than the reference resolution that is shown when you select the LCD output method.
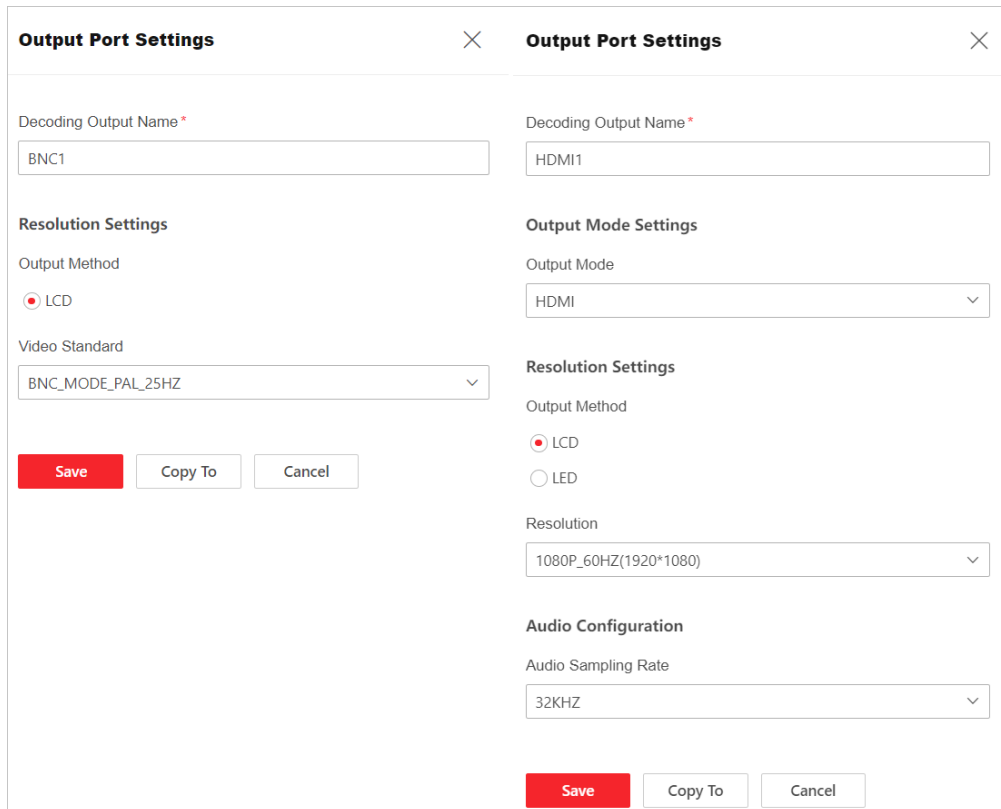
Figure 3-7 Configure An Output Port

Step 3 (Optional) Click **Copy To** to copy the current output configuration to other selected output ports.

Step 4 Click **Save**.

Step 5 (Optional) At the top of the **Video Wall Configuration** page, you can perform the following operations as required:

● Click **Output Background** to edit the background color.
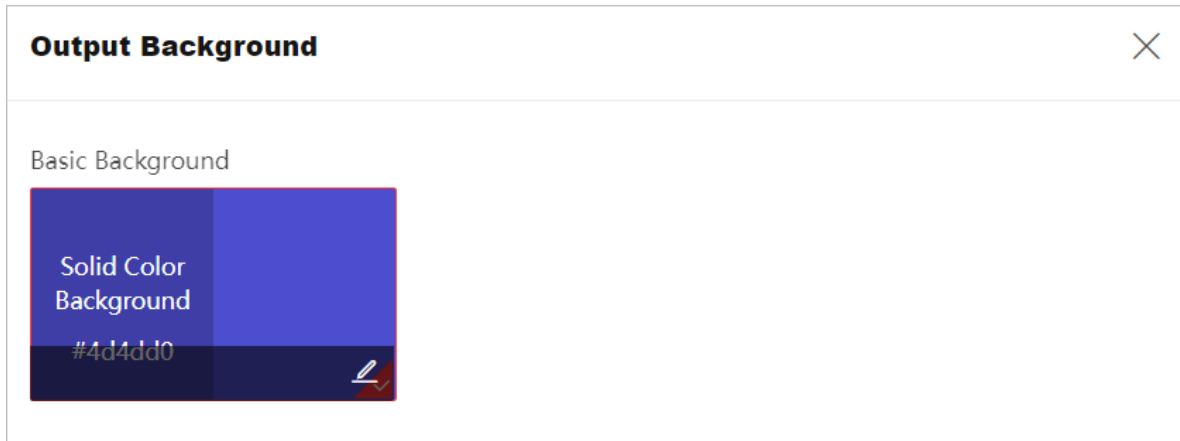
Figure 3-8 Edit Output Background

- Click **Display Output No.** to display the output port number on the screen.

3.4.3 Add a Network Signal Source

Add a Network Signal Source via IP Address

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

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

- Select an added group or click **Add Group** to create a new group.
- Click **More** to select the transmission protocol, stream type, encrypted stream, device manufacturer, and streaming media information.

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

Figure 3-9 Add a Network Signal Source via IP Address

Step 3 Click **Save**.

Add a Network Signal Source via DDNS

Step 1 Go to **Video Wall Operation → Source**, click ╋, and select **DDNS**.

> Before adding network signal sources via DDNS, you should configure DNS servers on the **TCP/IP** page.

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

- Select an added group or click **Add Group** to create a new group.
- Click **More** to select the transmission protocol, stream type, encrypted stream, device manufacturer, and streaming media information.

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

Figure 3-10 Add a Network Signal Source via DDNS

Step 3 Click **Save**.

Add a Network Signal Source via URL Address

Step 1 Go to **Video Wall Operation → Source**, click [+], and select **URL**.

Step 2 Enter the signal source information.

- Enter the URL address of the signal source. The format of URL address can be any of the foolwing format:

  – rtsp://stream media IP address:554/network camera IP address: port number:HIKDS8000HC: channel number: main steam: username: password/av_stream?linkmode=tcp?smversion=2

  – rtsp://stream media IP address:554/hikvision://network camera IP address: port number: channel number: main stream?username=user name?password=password?linkmode=tcp?smversion=4

- rtsp://network camera IP address:554/ch01/main/av_stream

- rtsp://username: username password@front-end device IP address:554/ch01

● (Optional) Enable encrypted stream and enter secret key.

● Select an added group or click **Add Group** to create a new group.

Figure 3-11 Add a Network Signal Source via URL Address

Step 3 Click **Save**.

3.5 Bind Signal Sources with the Video Wall

Step 1 Go to **Video Wall Operation** and then select a video wall.

Step 2 Take either of the following methods to bind signal sources with the video wall:

● Drag a signal source to a screen of the video wall. Repeat the operation to bind multiple signal sources to the video wall.
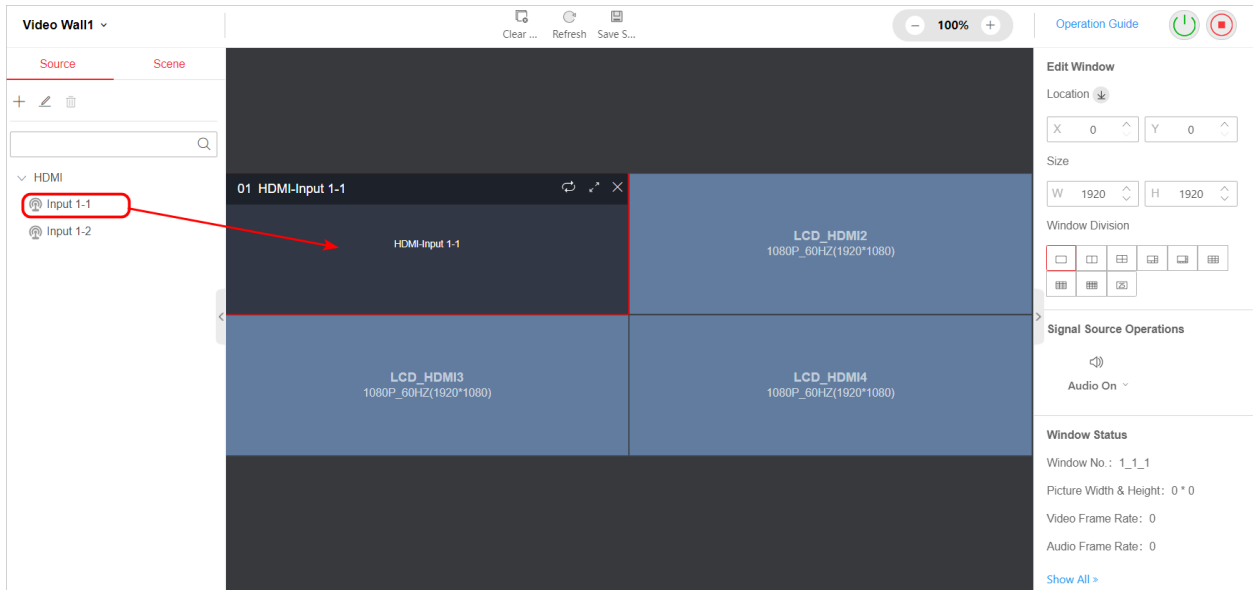
Figure 3-12 Drag Signal Sources to Video Wall

- Drag a signal source folder to the video wall rightward to batch bind multiple signal sources with the video wall.
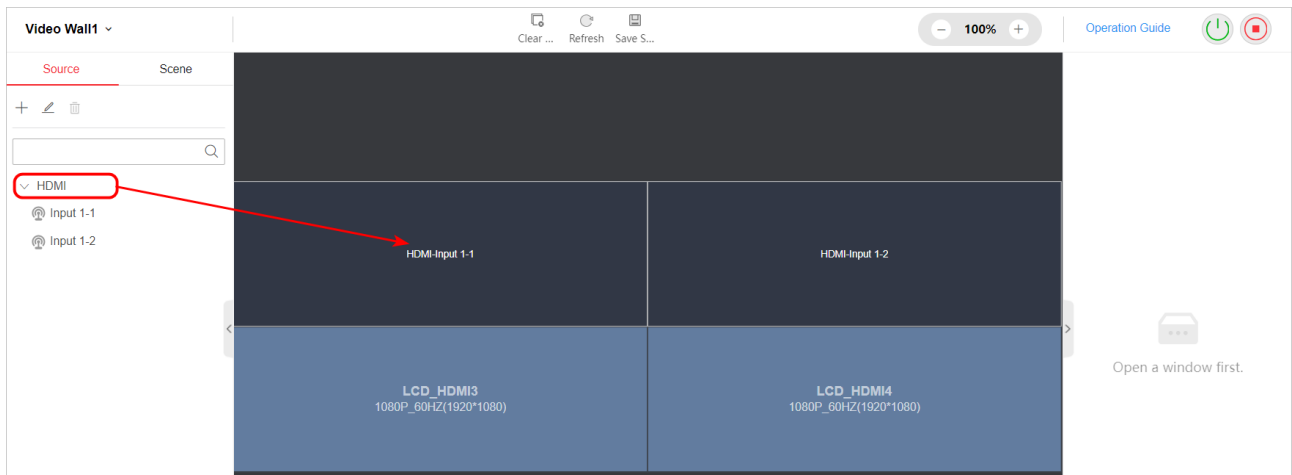
Figure 3-13 Drag a Signal Source Folder to Video Wall

3.6 Operate the Video Wall

3.6.1 Edit a Signal Source Window

Go to **Video Wall Operation** and perform the following operations as required:

- Click ⏻ to power on the screen or click ⏹ to power off the screen.
- Adjust the position of a signal source window:
    - Select a signal source window to move directly.

− Select a signal source window, and enter the specific X and Y values in the pop-up window.
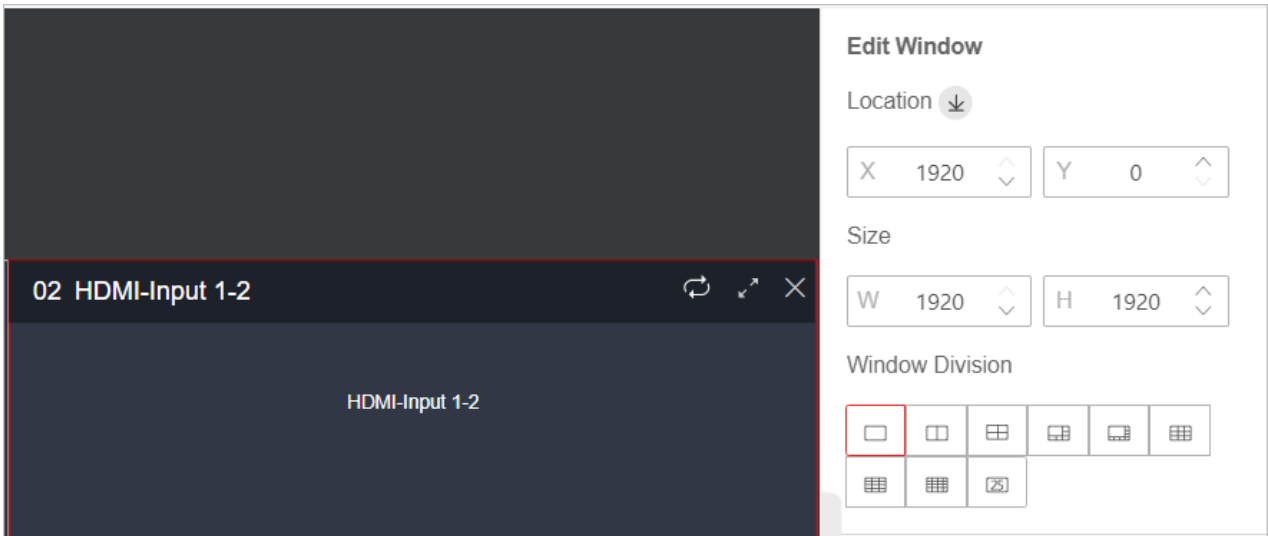
Figure 3-14 Adjust Position of a Signal Source Window

- Divide a signal source window: Select a signal source window, and click the window division icon.
- Adjust the size of a signal source window:
    − Drag the edge of a signal source window to adjust its size.
    − Select a signal source window and enter W and H values in the pop-up window.
    − Click ⬈ at the upper right corner of a signal source window to make it fully cover the occupied output ports and click ⬊ to restore the original size.
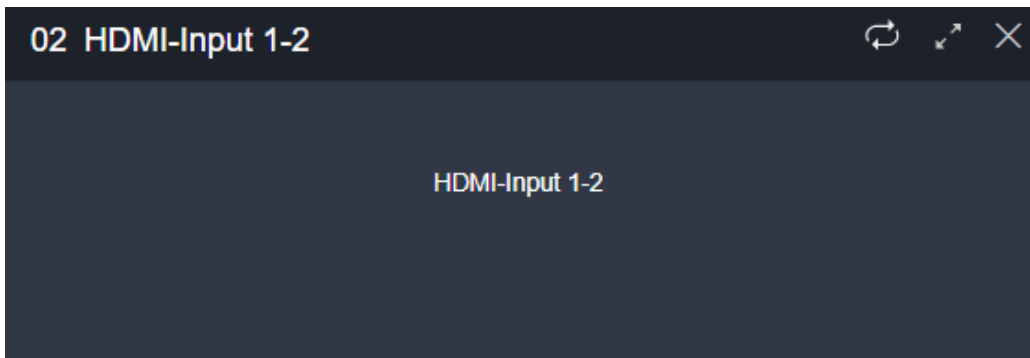
Figure 3-15 Roaming Window

- Select a signal source window, and click ⬇ to set the signal source window to the bottom.
- Enable audio for a signal source window.
    − Select a local signal source, click **Audio On** and select an audio output port to enable the audio for the local signal source.
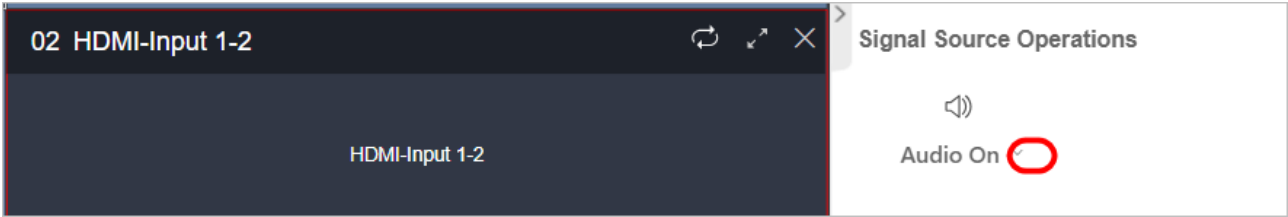
Figure 3-16 Configure Audio for Local Signal Source

- Select a network signal source to configure the decoding status, audio status, decoding delay, smart decoding, and stream export. With smart decoding enabled, the device can decode the network camera information. To export stream, make sure you have enable Websocket.
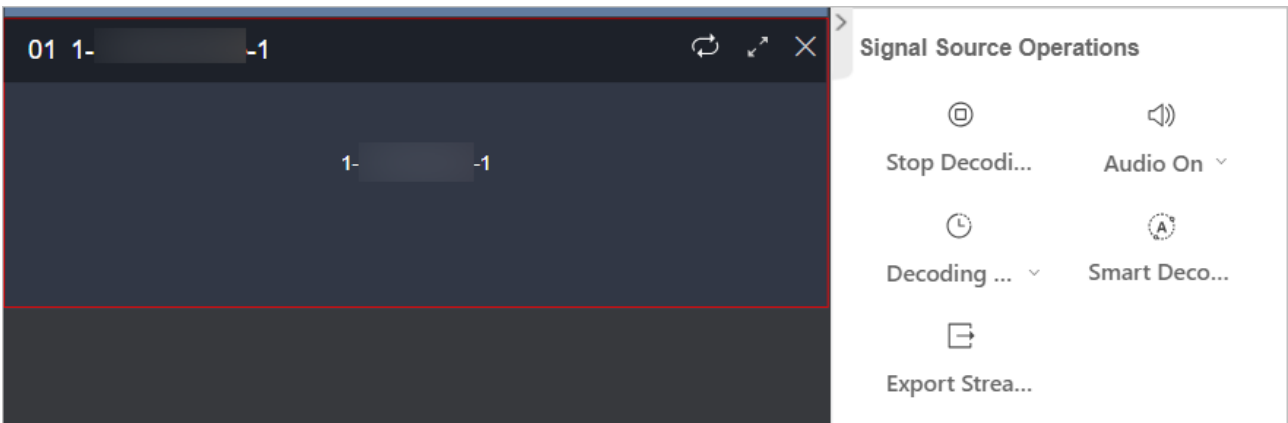
Figure 3-17 Configure Audio for Network Signal Source

● View the window status. You can click **Show All** to enter decoding status list to view details.
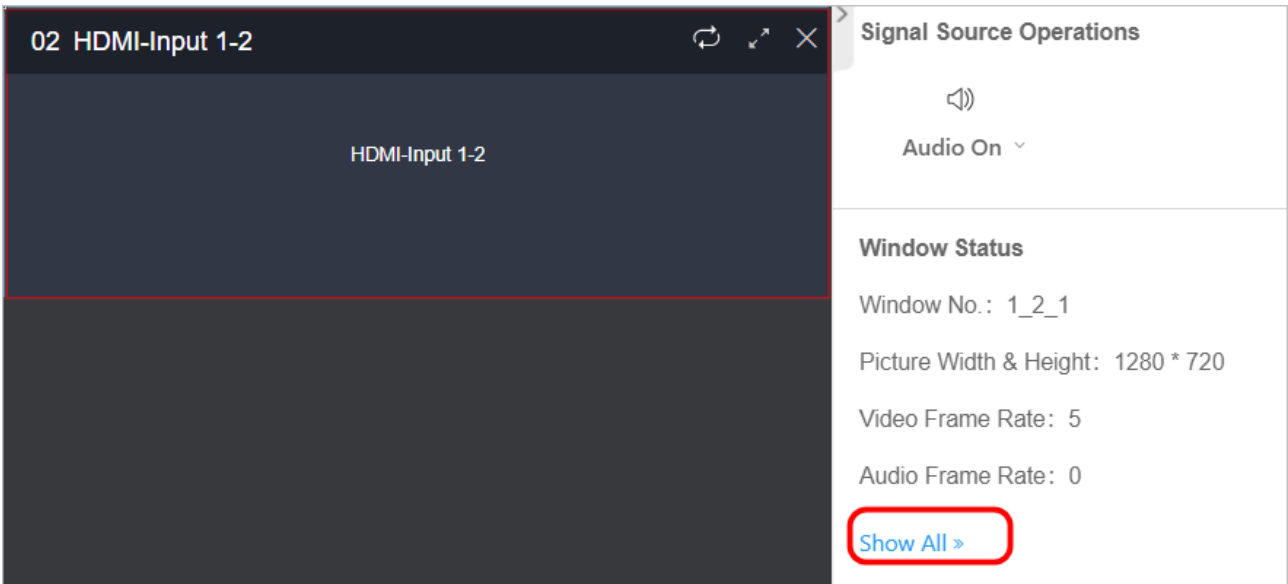
Figure 3-18 View Window Status

● Click at the upper right corner of a signal source window to set auto-switch for signal sources.
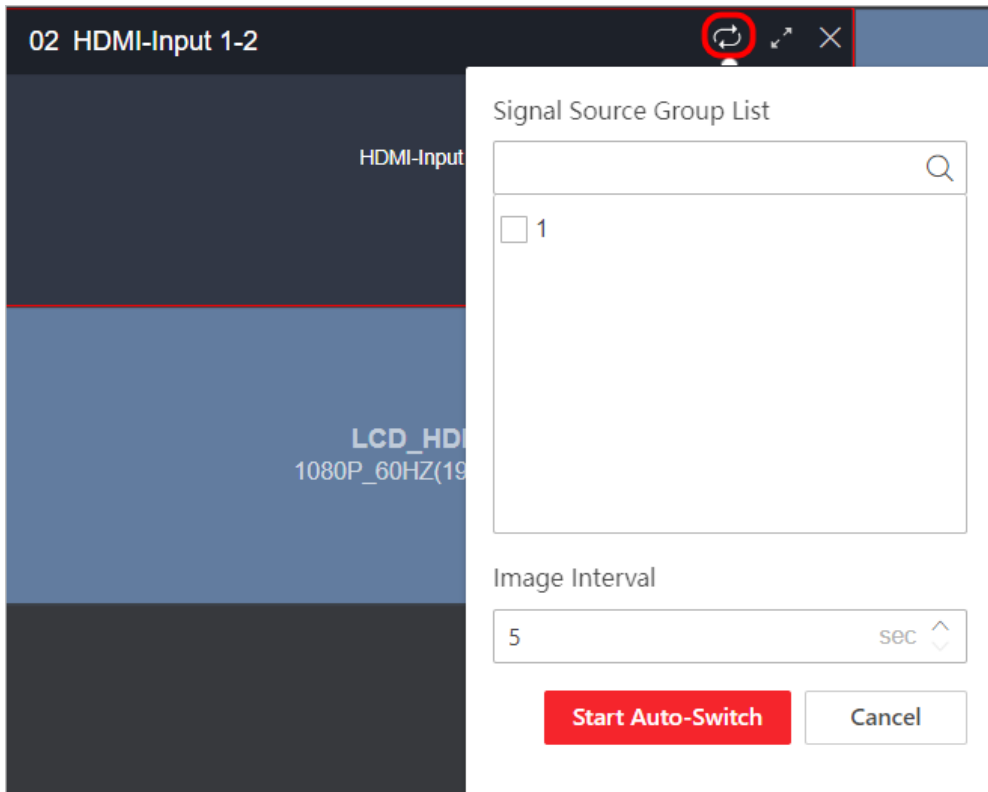
Figure 3-19 Set Auto-Switch

● Click **Clear Window** at the top of the **Video Wall Operation** page to clear all bound signal source windows.

3.6.2 Manage Scenes

Up to 64 scenes are supported. Go to **Video Wall Operation** to manage scenes.

● Click **Save Scene** to save the current video wall configuration as a new scene or overwrite the existing scene.
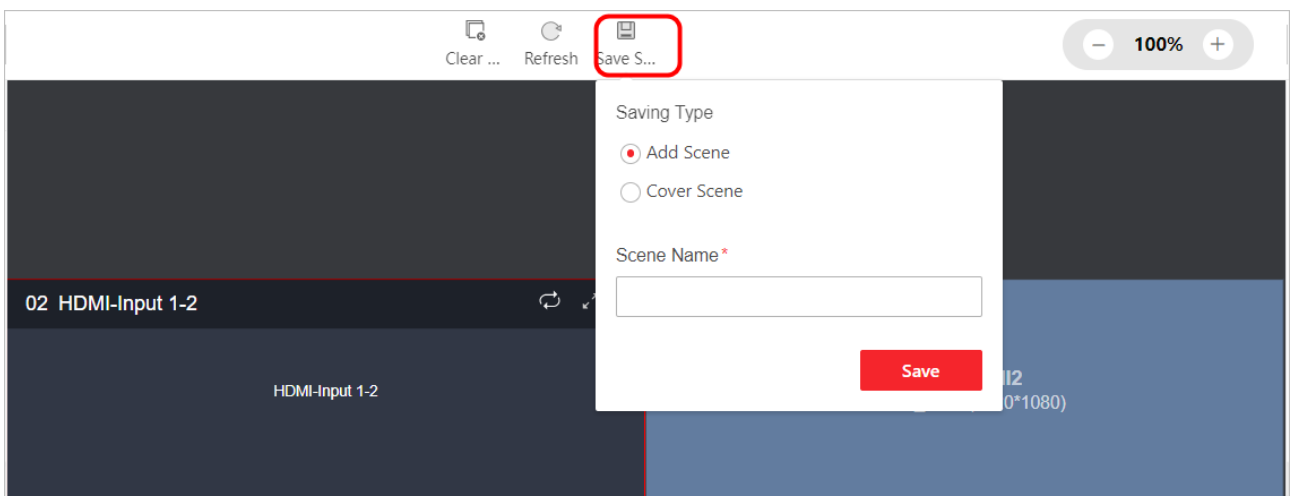
Figure 3-20 Save Scene

● Click **Scene**. Click a scene and then click ⊙ to call the scene.

● Click **Scene**. Click a scene and then click ✎ to edit the scene name.

● Click **Scene**. Click a scene and then click 🗑 to delete the scene.
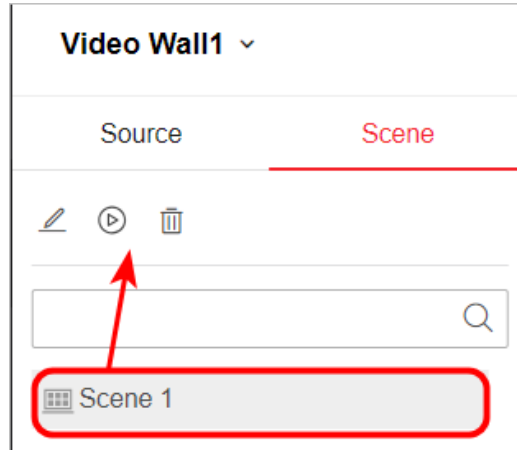
Figure 3-21 Manage Scene

3.6.3 Maintain Screens

Control Screen via Serial Port

Step 1 Go to **Configuration → System → Serial Port Settings → Main Node Serial Port**, select serial port 2, select **Screen Control** as the working mode, set the baud rate of the device same as the baud rate of the screen, and set other serial port parameters.
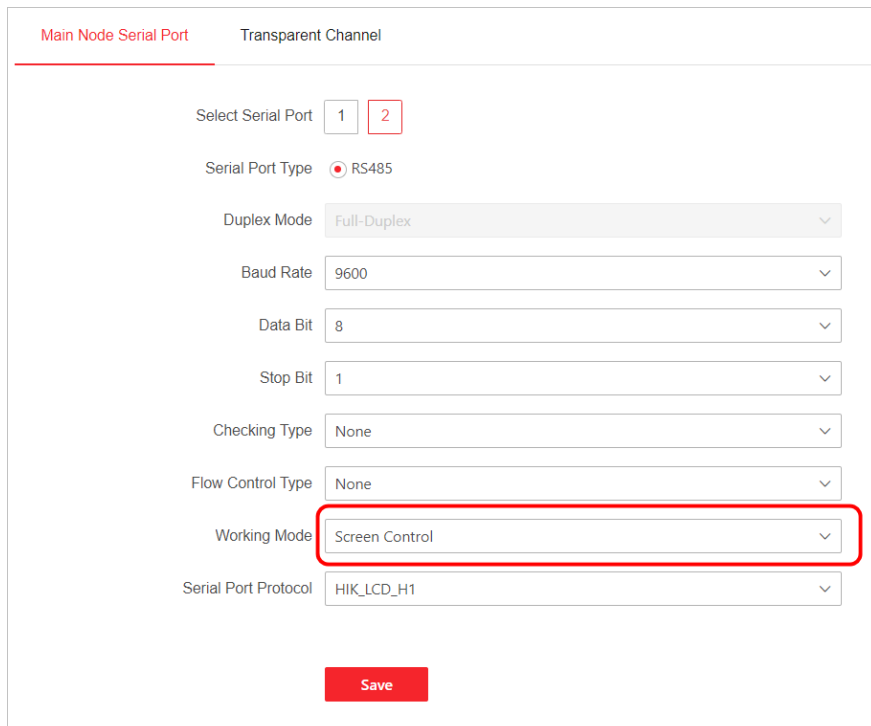
Figure 3-22 Configure Serial Port

Step 2 Use a serial port cable to connect the screen and device.

Step 3 Go to **Screen Maintenance** and select an output port.

Step 4 Select an image mode and adjust the backlight.

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

- Click ⏻ to power on the screen or click ⏹ to power off the screen. You can also power on or power off the screen via the serial port.
- Click **Copy to All Screens** to copy the configuration of the current screen to all screens.
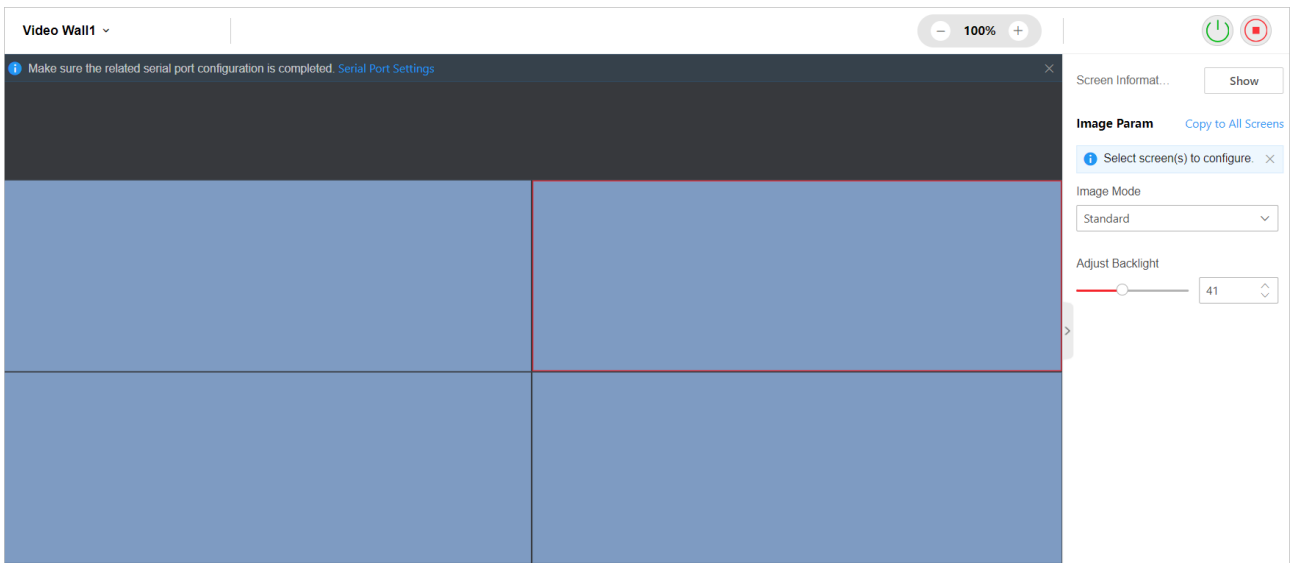
Figure 3-23 Control Screen via Serial Port

Control Screen via Linkage Protocol

Step 1 Use an HDMI cable to connect the device and the screens that support the linkage protocol.

Step 2 Go to **Screen Maintenance** and select an output port.

Step 3 Set the image mode and adjust the backlight.

Step 4 Click **Show** to show the serial number, software version, work duration and device temperature on the screen.

Step 5 (Optional) Click **Copy to All Screens** to copy the current screen parameters to all screens.

Step 6 (Optional) Click ⏻ to power on the screen or click ⏹ to power off the screen.
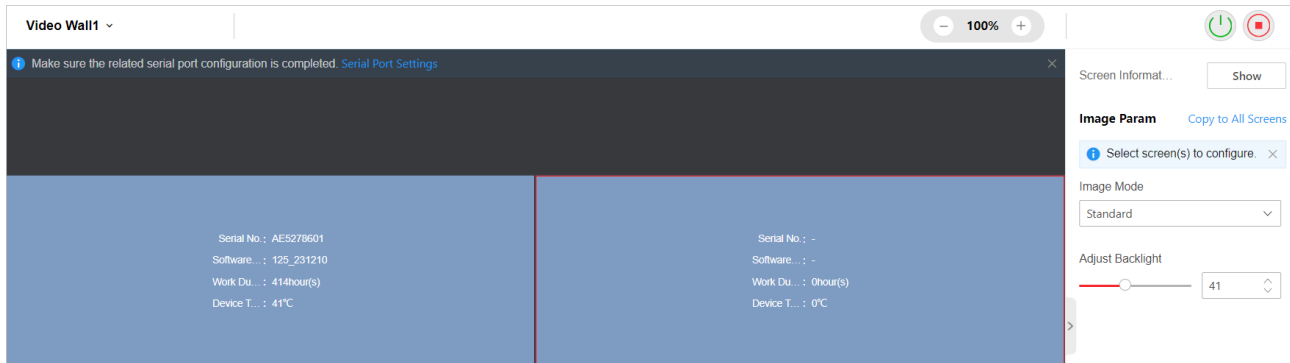
Figure 3-24 Control Screen via Linkage Protocol

3.7 Configure Display Effect

3.7.1 Configure Encoding Parameters

Step 1 Go to **Configuration** → **Signal Source Settings** → **Encoding Settings**.

Step 2 Select a signal source.

Step 3 Set the video encoding parameters.

- Set the bit rate type and maximum bit rate.

  − If you select **Constant Bit Rate**, the device uses the average bit rate for transmission and uses fast compression speed. The video mosaic might occur.

  − If you select **Variable Bit Rate**, the device automatically adjusts the bit rate for transmission as long as the bit rate is within the limit and uses slow compression speed to ensure the image definition in complex scenarios.

- If you select **Variable Bit Rate**, you should select a video quality. The higher video quality, the higher the bandwidth requirement.

- Enter an I-frame interval. The larger the I-frame interval, the smaller the stream fluctuation, and the lower the image quality.

- Select a resolution. The higher resolution, the higher the bandwidth requirement.

- Select an encoding type and video type.

Step 4 Select an audio encoding type and an input audio mode.

Step 5 Click **Save**.

Figure 3-25 Configure Encoding Parameters

3.7.2 Set Other Parameters

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

● Enable **Sub-Stream Auto-Switch** and set the window division threshold.

If the window division reaches the window division threshold, the device will automatically use sub-stream to get the images. In low bandwidth networks, you can use sub-stream to get relatively smooth images with a small bandwidth footprint.

Figure 3-26 Set Sub-Stream Auto-Switch

- Click **Display Settings** to configure the content displayed when decoding ends, when streaming fails, and when the decoding resource is insufficient.

  If you select **Connection Exception**, the specific streaming failure reason will be displayed on the screen.

Figure 3-27 Set Display Content

- Click **Decoding Delay** and select a default decoding delay level.

Figure 3-28 Set Decoding Delay

3.8 Configure the Device

3.8.1 Configure System Parameters

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

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

Figure 3-29 View Basic Information

● Go to **System Settings → Time Settings**, if you select **NTP Sync**, the device clock synchronizes with the clock of the NTP server at the specified interval.

  − Set the address and port number of the NTP server.

  − Set the synchronization interval.

Figure 3-30 Select NTP Sync

● On the **Time Settings** page, if you select **Manual Time Sync**, you can click **Sync with Computer** to make the device time same as the computer time.

Figure 3-31 Select Manual Time Sync

● On the **Time Settings** page, if you enable DST (Daylight Saving Time), the device clock is set forward a specified time during the summer months.

– Set the start time and end time.

– Set the bias time.

Figure 3-32 Enable DST

● Go to **User Management → User Managemen**t to add users, edit the user name or password, or delete the users. When the user type is administrator, you cannot edit or delete it.

Figure 3-33 Manage Users

3.8.2 Control the Device via Serial Keyboard

Step 1 Go to **Configuration → System → Serial Port Settings → Main Node Serial Port**, select serial port 2, select **Keyboard Control** as the working mode, set the baud rate of the device same as the baud rate of the serial keyboard, and set other serial port parameters.

Step 2 Use a serial port cable to connect the serial keyboard and device.

Step 3 Use the serial keyboard to control the device.

Figure 3-34 Control the Device via Serial Keyboard

3.8.3 Control the Signal Source Device via Serial Keyboard
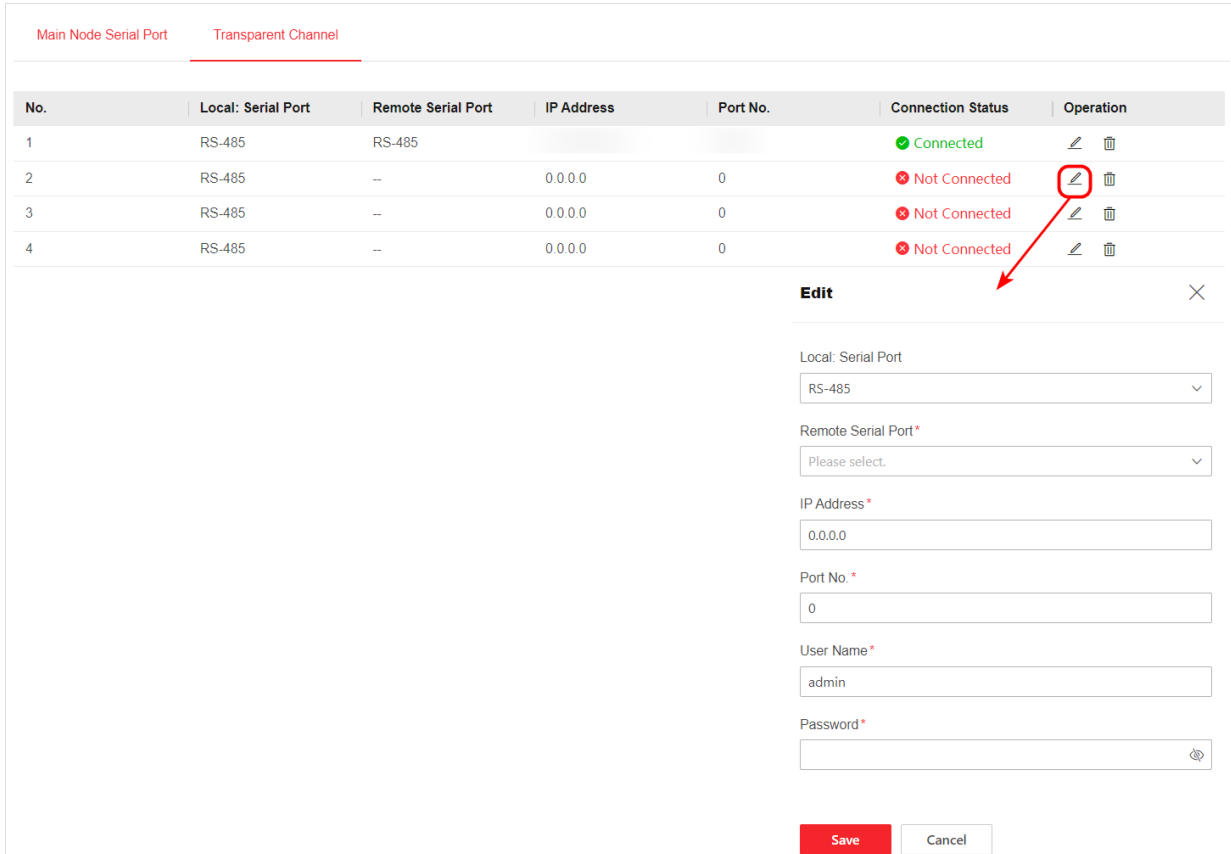
Step 1 Go to **Configuration** → **System** → **Serial Port Settings** → **Main Node Serial Port**, select serial port 2, select **Keyboard Control** as the working mode, set the baud rate of the device same as the baud rate of the serial keyboard, and set other serial port parameters.

Figure 3-35 Control the Device via Serial Keyboard

Step 2 Click **Transparent Channel** and then click [pencil icon] to set a signal source device.

The control protocol of the signal source device will be transparently transmitted by the device.

No.	Local: Serial Port	Remote Serial Port	IP Address	Port No.	Connection Status	Operation
1	RS-485	RS-485			✓ Connected	✎ 🗑
2	RS-485	--	0.0.0.0	0	✗ Not Connected	✎ 🗑
3	RS-485	--	0.0.0.0	0	✗ Not Connected	✎ 🗑
4	RS-485	--	0.0.0.0	0	✗ Not Connected	✎ 🗑

Edit ✕

Local: Serial Port
RS-485 ⌄

Remote Serial Port*
Please select. ⌄

IP Address*
0.0.0.0

Port No.*
0

User Name*
admin

Password*
👁

Save   Cancel

Figure 3-36 Set a Signal Source Device

Step 3 Use a serial port cable to connect the serial keyboard and device.

Thus, the serial keyboard can control the signal source device.

3.8.4 Configure HTTP(S) Parameters

Step 1 Go to **Configuration → Network → Network Service → HTTP(S)**.
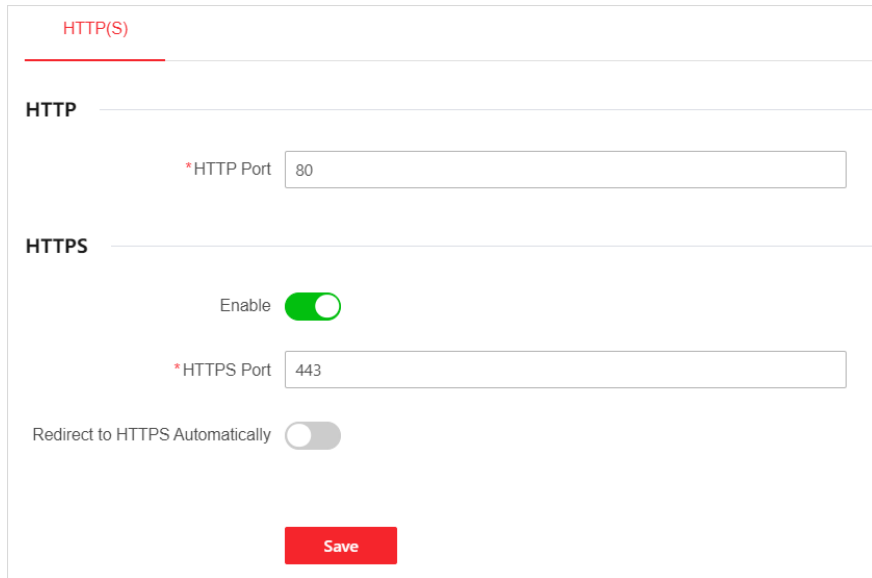
Step 2 Set the HTTP port number.

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

Step 3 Enable HTTPS and then set the HTTPS port.

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

Step 4 (Optional) Enable redirect to HTTPS automatically. Thus, the device access via HTTPS is used by default.

25

Step 5 Click **Save**.

Figure 3-37 Configure HTTP (S) Parameters

3.8.5 Configure Event

Step 1 Go to **Configuration → Event**.

Step 2 Set the highest temperature and lowest temperature thresholds for the device.

Step 3 Configure the audible warning and alarm reporting to the platform when the following exceptional events occur:

● The IP address of the device is the same as that of other devices in the network.

● Incorrect user name or password.

● Network is disconnected.

● The device temperature is too high or too low.

● The fan status is abnormal.

● The video loss occurs.

● The decoding signal source is abnormal.

Step 4 Click **Save**.

Figure 3-38 Set Device Exception Alarm

3.9 Maintain the System

Go to **Maintenance and Security → System Maintenance** to configure the following parameters:

● Click **Restart** to restart the device.

● Click ⬜ to select an upgrade file, and click **Upgrade**. You need to get the upgrade file in advance and save it locally.

Figure 3-39 Upgrade the System

● Backup the device parameters.

● Backup the scene parameters.

● Reset the device:

  − Click **Restore Default** to restore the parameters except for user information and network parameters to the default settings. Please use this function with caution.

- Click **Restore Factory** to restore all functions and parameters of the device to the factory settings. Please use this function with caution.
- Click ☐ to select a device parameter file saved locally, and click **Import** to import device parameters.
- Click ☐ to select a scene parameter file saved locally, and click **Import** to import scene parameters.

| Restart | Upgrade | Backup and Reset | Log | Device Debugging |

Backup

Device Parameters   [Export]

Scene Parameters   [Export]

Reset

Restore Default   [Restore Default]

All data except network parameters and user accounts will be cleared.

Restore Factory   [Restore Factory]

All functions and parameters will be restored to factory settings.

Import Parameters

Device Parameters   [   ] ☐ [Import]

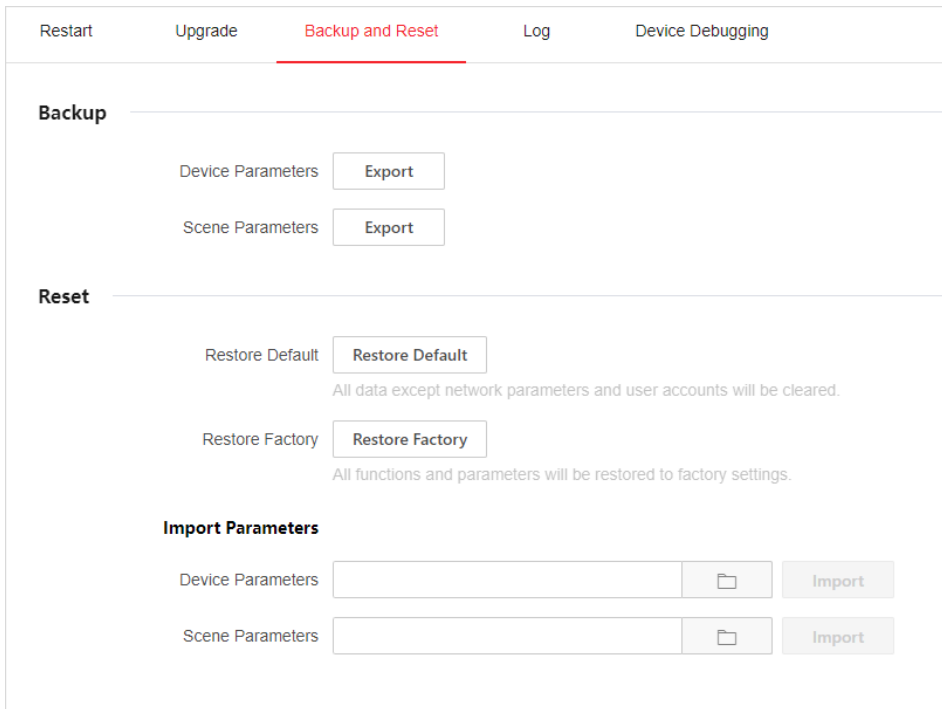Scene Parameters   [   ] ☐ [Import]

Figure 3-40 Backup and Reset Device Parameters

- Search logs: Click **Log** to set the search condition and click **Search**. You can view the searched logs in the list below. You can click **Export CSV File** to export the searched logs.
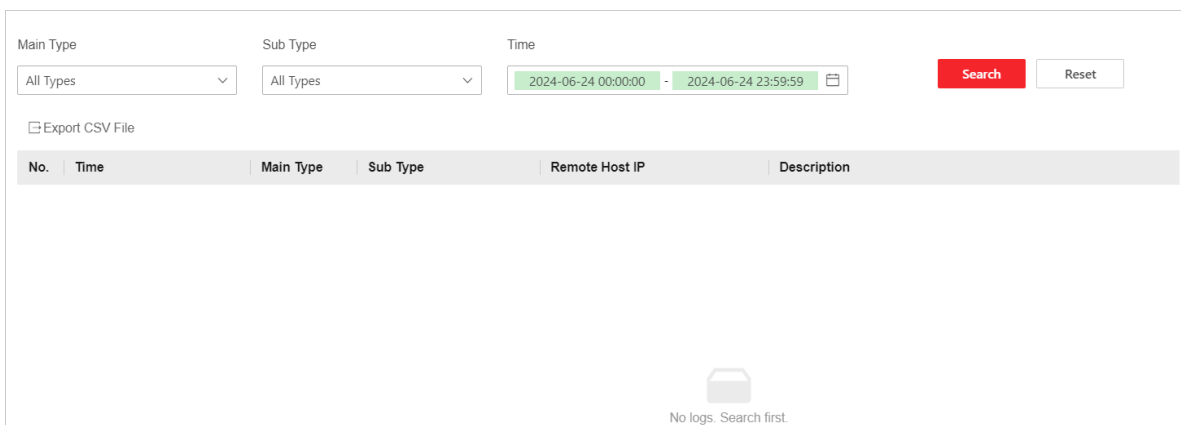
Main Type [All Types ∨]   Sub Type [All Types ∨]   Time [2024-06-24 00:00:00] - [2024-06-24 23:59:59] 📅   [Search] [Reset]

⊟ Export CSV File

| No. | Time | Main Type | Sub Type | Remote Host IP | Description |

No logs. Search first.

Figure 3-41 Search Logs

- Click **Device Debugging** to configure the following parameters:

28

- Enable SSH (Secure Shell) as required. With SSH enabled, you can use a computer installed with the SSH client to access the device.

- Format the USB flash drive before inserting it into the device. Only the USB flash drives in FAT32 format are supported. Insert a USB flash drive into the device, and click **Start Exporting** to export the logs to the USB flash drive.

- Select a sub-system, click **Start Capturing** and then you can download the obtained packet capture file.

- Send a shell command and then check the response message.

Figure 3-42 Debug the Device

3.10 Maintain the Device Security

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

● Enable IP filtering control and configure the IP addresses that are allowed to or forbidden to access the device.
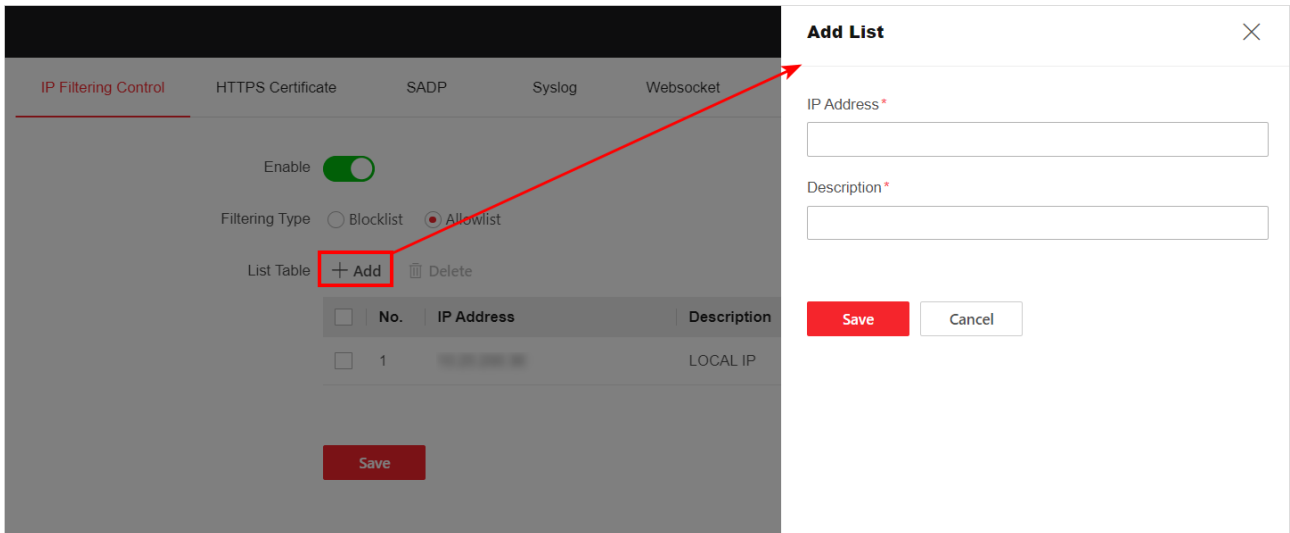

Figure 3-43 Configure IP Address Filter

● Import the locally saved HTTPS certificate and secret key.
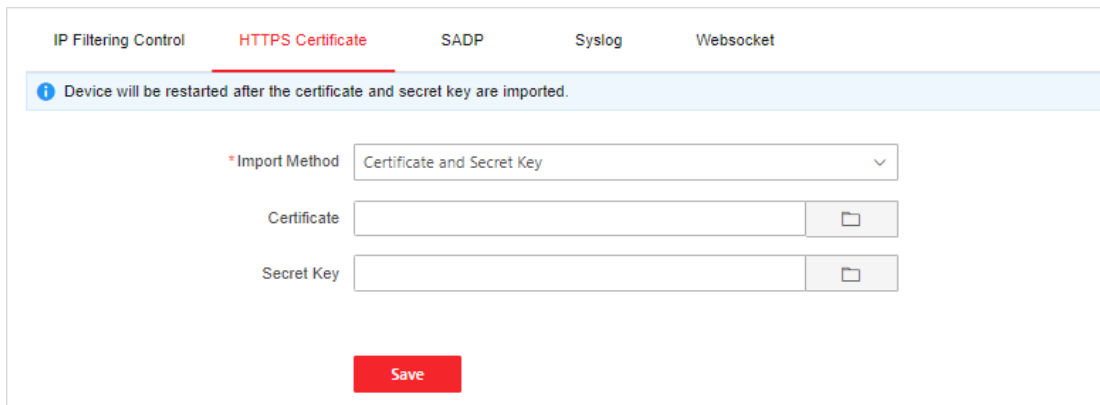

Figure 3-44 Import HTTPS Certificate and Secret Key

● Enable SADP as required. With SADP enabled, you can use the SADP software to search the device when it is in the same network segment with the computer.

● Enable Syslog as required. With Syslog enabled, the device logs can be uploaded to the Syslog server.

Figure 3-45 Enable Syslog

● Enable Websocket as required. With Websocket enabled, you can export the stream of network signal sources.

3.11 View Device Status

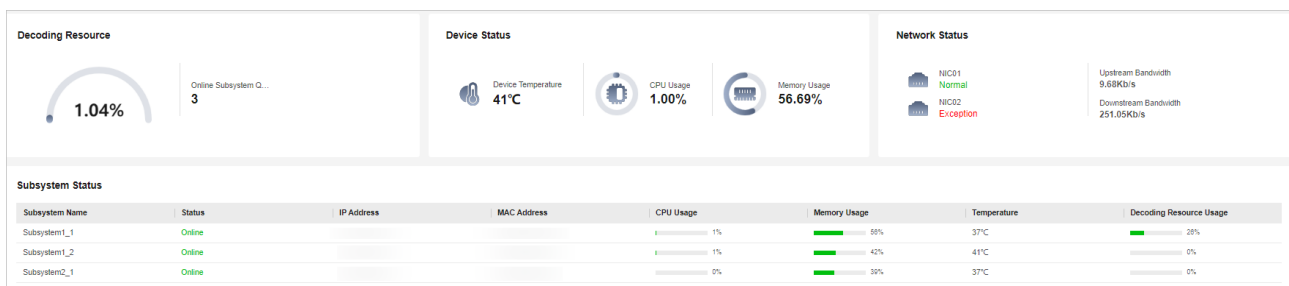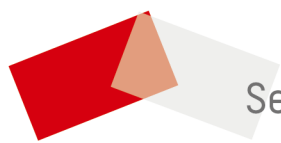Click **Overview** to view the decoding resource status, network status, device status, and subsystem status.

Figure 3-46 View Device Status

See Far, Go Further