Colorlight

Rhino System

User Manual

Revision History

Document version	Date	Description
V1.0	2024-04-24	Initial release

Contents

1 System Overview

The Rhino system is a comprehensive command and dispatch audiovisual management system. It integrates screen splicing, KVM workstation management, and video matrix management, featuring networked, node-based, and decentralized characteristics.

Adopting a serverless architecture, it converts audio and video signals into network streams using IP-based transmission, breaking down distance barriers. Operators control multiple hosts with one keyboard and mouse, effortlessly sharing screen images and permissions among KVM workstations, enabling information sharing and collaborative work.

Colorlight's phase synchronization technology ensures smooth and tearing-free playback on LED/LCD video walls, ideal for command centers, data centers, and control centers.

2 Appearance

2.1 Front Panel

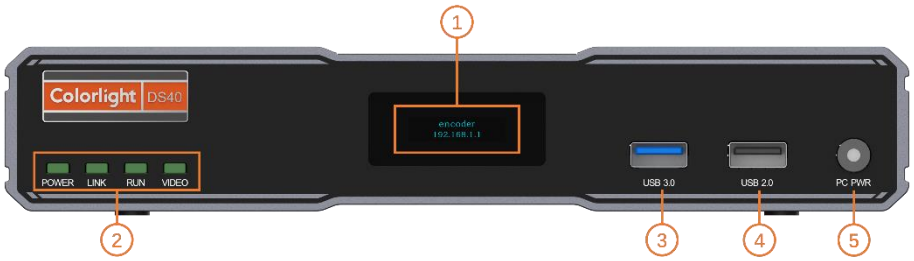

Fig 2-1 DS40 front panel

No.	Name	Description
1	LCD screen	Displays the device node name and IP address.
2	Indicators	• POWER: Displays the power status. - ON: The power supply is normal. - OFF: The power supply is abnormal. • RUN: Displays the device running status. - ON: The device is functioning normally. - OFF: The device is functioning abnormally. • LINK: Displays the network connection status. - ON: The network connection is normal. - OFF: The network connection is abnormal. • VIDEO: Displays the video transmission and processing status. - ON: The video stream processing is normal. - OFF: The video stream processing is abnormal or there is no video stream.

3	USB 3.0	• For **Decoder-KVM**: Connects to the keyboard and mouse for transmitting control signals or to a USB drive for data transfer. • Voltage/Current: 5V/0.9A. • Transfer speed: 2.4Gbps.
4	USB 2.0	• For **Decoder-KVM**: Connects to the keyboard and mouse for transmitting control signals or to a USB drive for data transfer. • Voltage/Current: 5V/0.5A. • Transfer speed: 240Mbps.
5	PC PWR	Power button, used to power the PC connected via PC CTRL port on/off.

Table 2-1 Description of DS40 front panel

2.2 Rear Panel

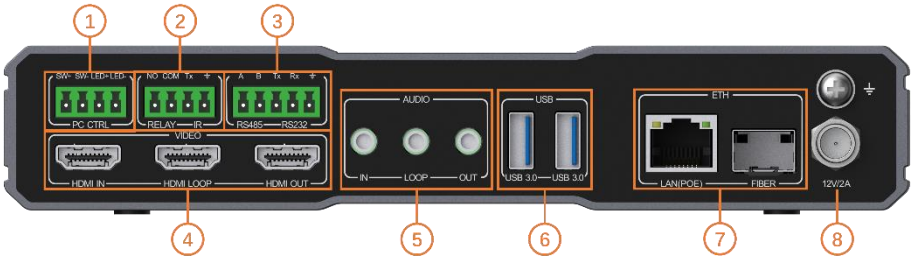

Fig 2-2 DS40 rear panel

No.	Name	Description
1	PC CTRL	4-pin phoenix connector: PC control port, connects to PC for transmitting power on/off control signals.
2	RELAY/IR	• 4-pin phoenix connector: Connects to a control device. - RELAY: Connects to a relay for transmitting level control signals. - IR: Connects to an IR device for transmitting IR control signals.
3	RS485/RS232	5-pin phoenix connector: Serial port, connects to a control device for transmitting control signals.
4	VIDEO	• HDMI 2.0: - HDMI IN: 19-pin female connector, for video signal input. - HDMI LOOP: 19-pin female connector, for video signal loop-out. - HDMI OUT: 19-pin female connector, for video stream output. • Supports custom resolution: - Maximum input resolution: 4096*2160@60Hz. - Maximum width: 8192 pixels (8192*1024@60Hz). - Maximum height: 8192 pixels (1024*8192@60Hz). • Supports HDCP 2.2/1.4 compliant. • Supports audio input.

5	AUDIO	• 3.5mm standard audio I/O port: - IN: For audio signal input. - LOOP: For audio signal loop-out. - OUT: For audio stream output.
6	USB	• USB 3.0 port (left): - For **Encoder**: Connects to the host for transmitting control signals. - For **Decoder-KVM**: Connects to the keyboard and mouse for transmitting control signals. • USB 3.0 port (right): - For **Decoder-KVM**: Connects to the keyboard and mouse for transmitting control signals or to a USB drive for data transfer. • Voltage/Current: 5V/0.9A. • Transfer speed: 2.4Gbps.
7	ETH	• LAN(POE): - 1G LAN port (RJ45 connector), 10/100/1000Mbps adaptive. - Supports POE power supply (12V/2A). • FIBER: - 1G fiber port, 1G/2.5G/5G/10G optical modules supported. - Supports Fiber-LAN backup: It can be used as a backup port for LAN(POE) when used together.
8	12V/2A	Connects to an external 12V/2A DC power supply.

Table 2-2 Description of DS40 rear panel

3 Hardware Connection

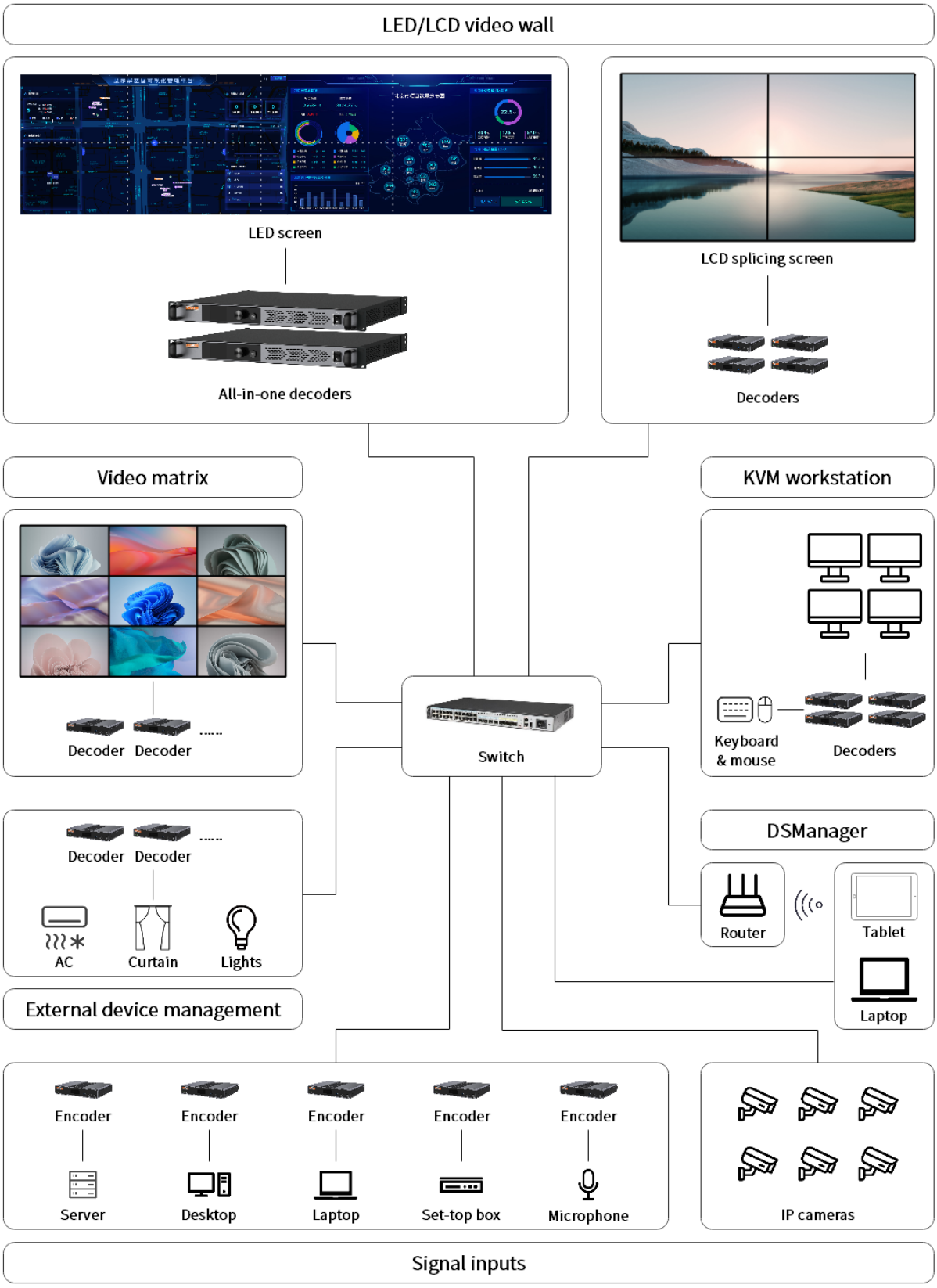

Fig 3-1 System typology

3.1 Network and Power Supply

- The device supports the following three connection methods for network and power supply:
  - ✧ **Connection method 1:** Connect a POE port on the switch to the LAN(POE) port on the device using an Ethernet cable. This establishes network access for the distributed system and provides power supply to the device.

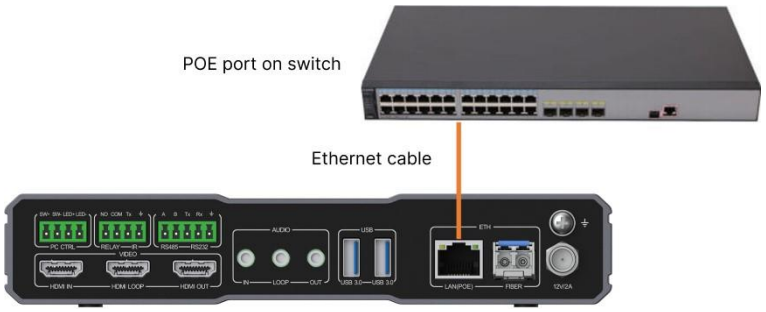

Fig 3-2 Connection method 1

  - ✧ **Connection method 2:** Connect a non-POE port on the switch to the LAN(POE) port on the device using an Ethernet cable, establishing network access for the distributed system. Then connect a power adapter with the device's 12V/2A port for device power supply.

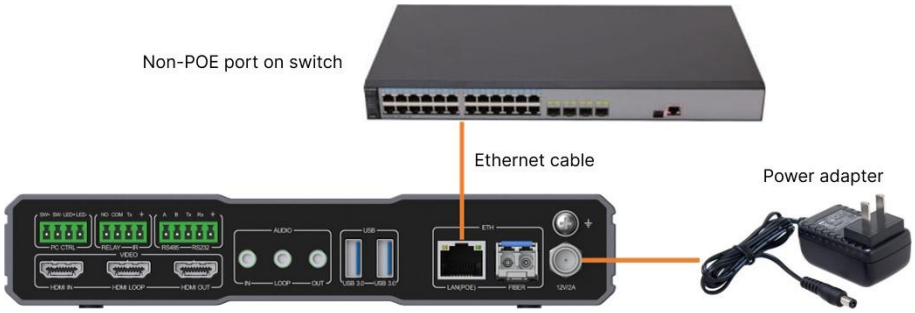

Fig 3-3 Connection method 2

  - ✧ **Connection method 3:** Insert the optical modules into the switch's fiber optic port and the device's FIBER port, and connect the two ports using a fiber optic cable, establishing network access for the distributed system. Then connect a power adapter to the device's 12V/2A port for device power supply.

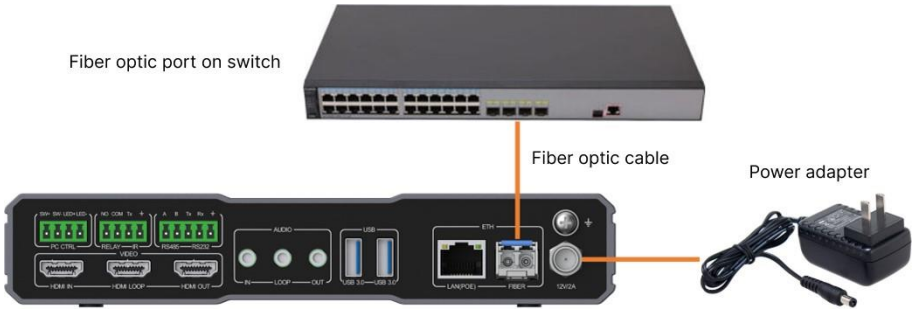

Fig 3-4 Connection method 3

Network backup instruction

The device's FIBER port does not support POE power supply. Therefore, when connecting both the LAN(POE) port and the FIBER port to the switch for network backup, it is important to ensure power supply by connecting a power adapter. This prevents the device from losing power in case of disconnection from the LAN(POE) port.

3.2 Encoder

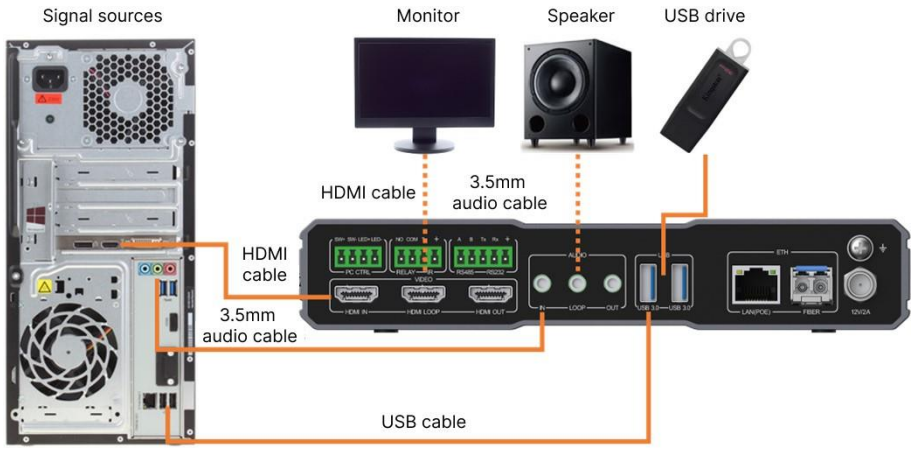

Fig 3-5 Encoder hardware connection

3.2.1 Input Connection

HDMI port

Connect the video signal to the encoder's HDMI IN port using an HDMI cable to enable video signal input.

AUDIO port

Connect the audio signal to the encoder's AUDIO IN port using a 3.5mm audio cable to enable audio signal input.

USB port

- When the video signal comes from a computer, the KVM operations are supported. Connect the video signal to the USB 3.0 port on the encoder using a USB cable to enable control signal interaction.
- Supports firmware update via a USB drive. Place the software package in the root directory of a USB drive, and connect the USB drive to the encoder's USB port to enable automatic software update.

Notes on encoder's USB ports

- Only the left USB 3.0 port on the rear panel can be connected to a computer. Control signals can then be exchanged to enable KVM operations.
- The right USB 3.0 port on the rear panel and the two USB ports on the front panel support firmware update via a USB drive.

3.2.2 Loop-out Connection

HDMI port

Connect the encoder's HDMI LOOP port to the monitor using an HDMI cable for video signal loop-out. This allows you to view the input video information on the monitor.

AUDIO port

Connect the encoder's AUDIO LOOP port to a speaker or headphone using a 3.5mm audio cable for audio signal loop-out. This allows you to check the input audio through the speaker or headphone.

3.3 Decoder (Screen Mode)

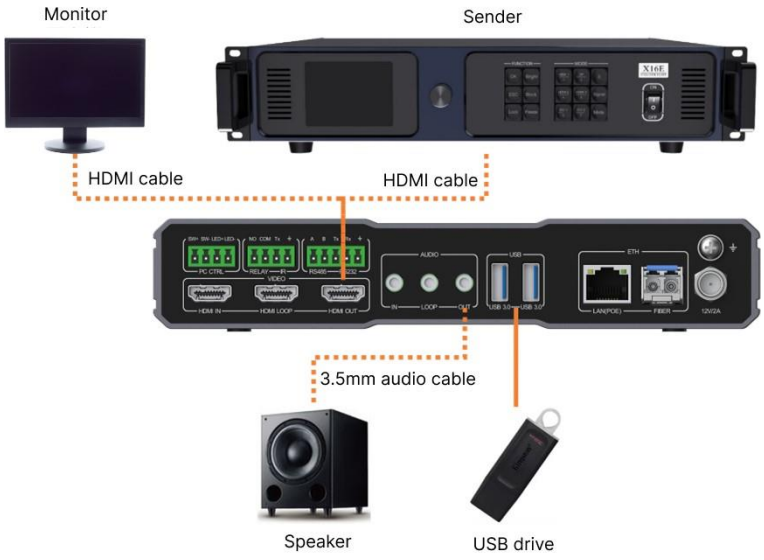

Fig 3-6 Decoder-Screen hardware connection

HDMI port

Connect the decoder's HDMI OUT port to the sender or an LCD screen using an HDMI cable to enable video stream output.

AUDIO port

Connect the decoder's AUDIO OUT port to the sender, speaker, or headphone using a 3.5mm audio cable to enable audio stream output.

USB port

Supports firmware update via a USB drive. Place the software package in the root directory of a USB drive, and connect the USB drive to the decoder's USB port to enable automatic software update.

3.4 Decoder (Matrix Mode)

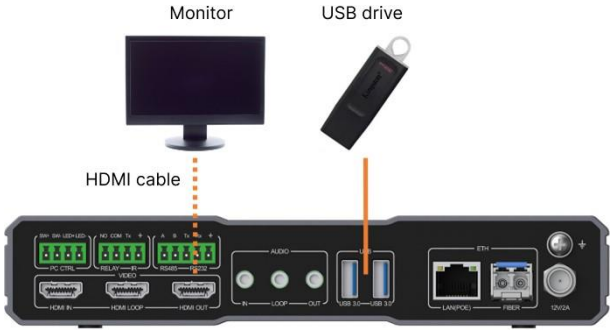

Fig 3-7 Decoder-Matrix hardware connection

HDMI port

Connect the decoder's HDMI OUT port to an LCD screen using an HDMI cable to enable video stream output.

USB port

Supports firmware update via a USB drive. Place the software package in the root directory of a USB drive, and connect the USB drive to the decoder's USB port to enable automatic software update.

3.5 Decoder (KVM Mode)

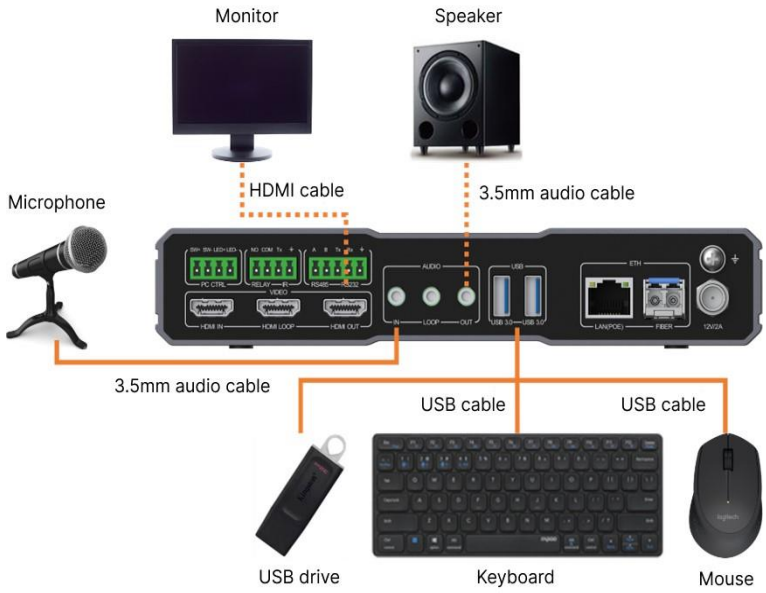

Fig 3-8 Decoder-KVM hardware connection

3.5.1 Input Connection

AUDIO port

Supports voice calls. Connect the microphone to the decoder's AUDIO IN port using a 3.5mm audio cable to enable audio stream input.

USB port

- Supports control via keyboard and mouse. Connect the keyboard and mouse to the decoder's USB port using a USB cable to enable control signal interaction.
- Supports data pass-through when the video signal comes from a computer. Connect a USB drive to the decoder's USB port to enable data interaction between the USB drive connected to the decoder and the computer connected to the encoder.
- Supports firmware update via a USB drive. Place the software package in the root directory of a USB drive, and connect the USB drive to the decoder's USB port to enable automatic software update.

> 🕮 Notes on decoder's USB ports
>
> - Decoder (KVM mode): The right USB 3.0 port on the rear panel and the two USB ports on the front panel support data pass-through.
> - Decoder (KVM mode): All USB ports support control via keyboard and mouse, allowing for both wireless keyboard and mouse control as well as mixed port connections.
> - Decoder (Screen/Matrix/KVM mode): All USB ports support update via USB drives.

3.5.2 Output Connection

HDMI port

Connect the decoder's HDMI OUT port to the monitor using an HDMI cable to enable video stream output.

AUDIO port

Connect the decoder's AUDIO OUT port to the speaker or headphone using a 3.5mm audio cable to enable audio stream output.

4 DSConfig

4.1 System Requirements

- **Operating system**: Windows 10 (64-bit) or later
- **CPU**: 2.0GHz or faster
- **RAM**: 8GB or higher
- **Graphics memory**: 512MB or higher

4.2 Installation and Uninstallation

4.2.1 Installation

Step 1 Double-click the DSConfig installer (.exe) to start the installation wizard. After reading **Software agreements**, click **I accept**.

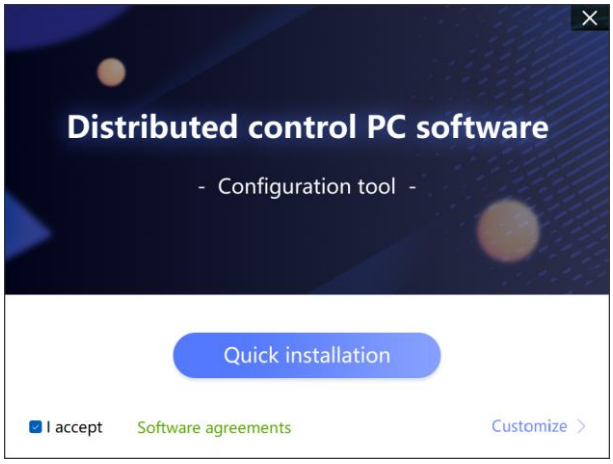

Fig 4-1 Installation wizard

Step 2 Click **Quick installation** to directly install DSConfig (default path: C:\Program Files (x86)\DSConfig), or click **Customize** to select a custom installation path.

Step 3 Upon completion, a window will prompt "Installation complete". You can click **Finish** to close the installation or click **Start now** to launch DSConfig.

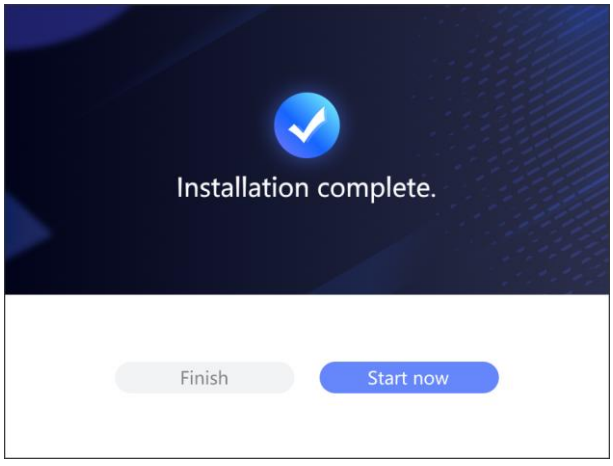

Fig 4-2 Installation complete

4.2.2 Uninstallation

Step 1 Right-click on DSConfig shortcut and select **Open file location** to open the DSConfig folder.

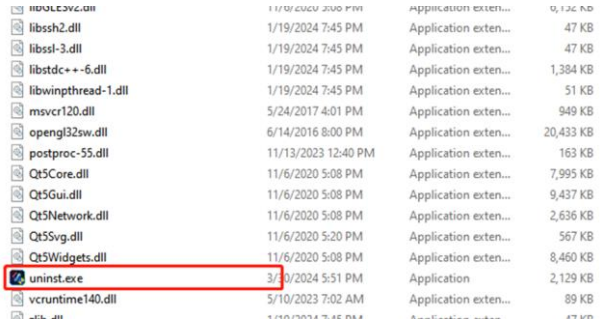

Fig 4-3 Uninstaller

Step 2 Double-click on "uninst.exe" to launch the uninstaller.

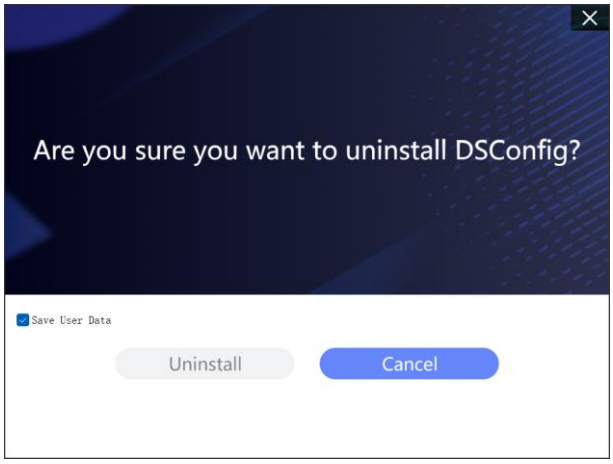

Fig 4-4 Uninstallation confirmation

Step 3 Deselect the checkbox for **Save User Data** and click **Uninstall**.

Step 4 Upon completion, a window will prompt "Uninstall successful". Click **Finish** to close the uninstaller. DSConfig has been successfully uninstalled.

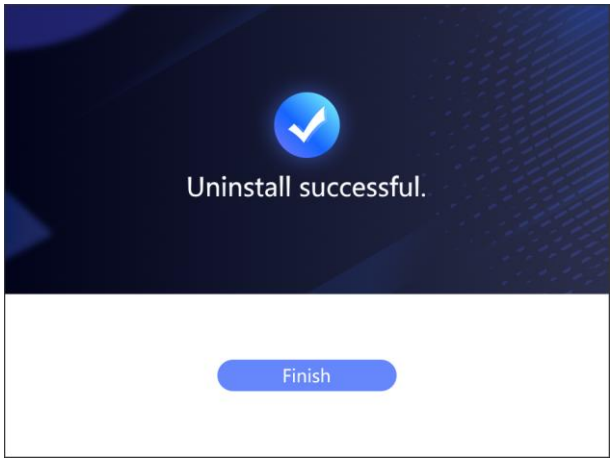

Fig 4-5 Uninstallation complete

4.3 Features

4.3.1 Scan Node

This feature allows you to discover devices in DSConfig.

- Click **Scan node**. Once the "Loading" prompt disappears, the list below will display all DS40 devices, including encoders and decoders, connected in the distributed system network.
- The device list is sorted based on IP addresses and provides information such as node name, device type, signal name (for encoders), version, mode (for decoders), and IP address.

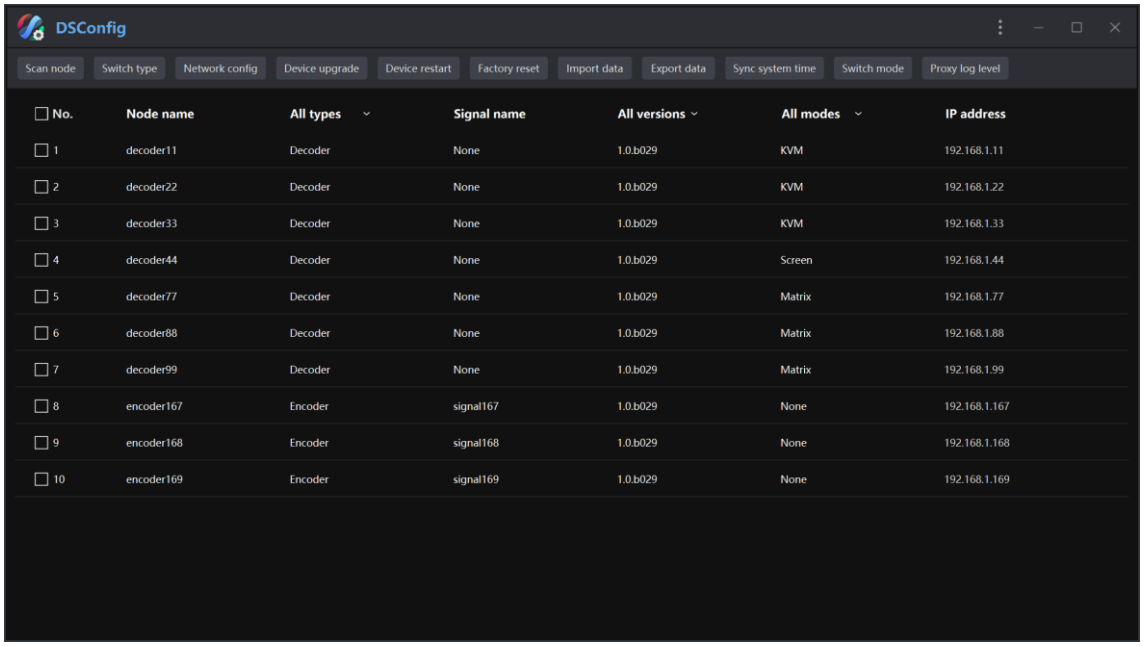

Fig 4-6 Scan node

4.3.2 Encoder Settings

In DSConfig, double-click an encoder to open the settings window. You can then configure the encoder according to Table 4-1 Description of encoder settings.

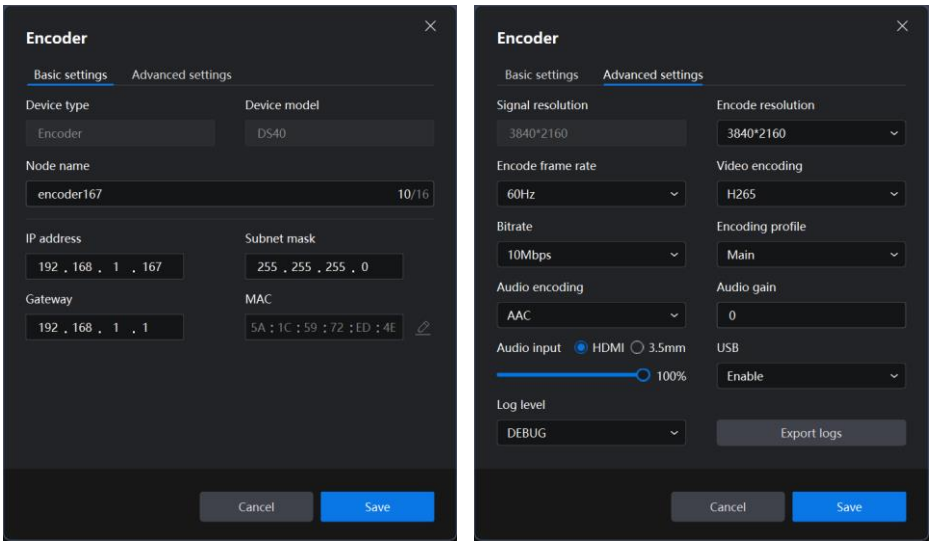

Fig 4-7 Encoder settings

Area	Name	Description
Basic settings	Device type	Display the device type as **Encoder** or **Decoder**, cannot be modified.
	Device model	Display the current device model, cannot be modified.
	Node name	Set the node name for the device.
	IP address	Set the IP address for the device.
	Subnet mask	Set the subnet mask for the device.
	Gateway	Set the gateway for the device.
	MAC	Display the physical address of the device. Custom modification supported.
Advanced settings	Signal resolution	Display the resolution of the signal connected to the current device. It is automatically detected and cannot be modified via DS40.
	Encode resolution	Set the encoding resolution for the encoder, with a maximum of 4096*2160.
	Encode frame rate	Set the encoding frame rate for the encoder, with a maximum of 60Hz.
	Video encoding	Set the video encoding format for the encoder as **H264** or **H265**.
	Bitrate	Set the video bitrate for the encoder.
	Encoding profile	Set the encoding profile for the encoder as **Main** or **Main10**.
	Audio encoding	Set the audio encoding format for the encoder as **AAC** or **G711A**.
	Audio gain	Set the audio gain level for the encoder.
	Audio input	Select the audio input method of the encoder.
	Volume	Set the volume of the audio input.
	USB	Enable/Disable USB function on encoders.
	Log level	Set the log level for the encoder as **DEBUG**, **INFO**, **WARN**, or **ERROR**.
	Export logs	Export the logs of the encoder locally.

Table 4-1 Description of encoder settings

4.3.3 Decoder Settings

In DSConfig, double-click a decoder to open the settings window. You can then configure the decoder according to Table 4-2 Description of decoder settings.

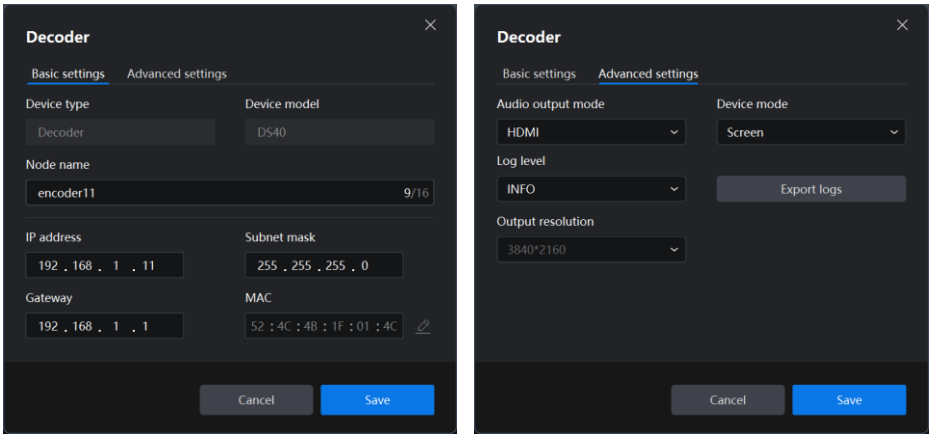

Fig 4-8 Decoder settings

Area	Name	Description
Basic settings	Device type	Display the device type as **Encoder** or **Decoder**, cannot be modified.
	Device model	Display the current device model, cannot be modified.
	Node name	Set the node name for the device.
	IP address	Set the IP address for the device.
	Subnet mask	Set the subnet mask for the device.
	Gateway	Set the gateway for the device.
	MAC	Display the physical address of the device. Custom modification supported.
Advanced settings	Audio output mode	Set the audio output mode for the decoder as **HDMI** or **3.5mm**.
	Device mode	Set the decoder mode as **Screen**, **Matrix**, or **KVM**.
	Log level	Set the log level for the decoder as **DEBUG**, **INFO**, **WARN**, or **ERROR**.
	Export logs	Export the logs of the decoder locally.
	Output resolution	Set the output resolution for the decoder.

Table 4-2 Description of decoder settings

🕮 Notes on encoder/decoder settings

- Log level:
  - DEBUG: Records DEBUG, INFO, WARN, and ERROR logs.
  - INFO: Records INFO, WARN, and ERROR logs.
  - WARN: Records WARN and ERROR logs.
  - ERROR: Records ERROR logs.
- Export logs: The logs of the current node will be exported, including encoding log (log_enc.txt), decoding log (log_dec.txt), KVM log (log_osd.txt), proxy log (log_proxy.txt), and upgrade log (log_dsupgrade.txt).

4.3.4 Switch Type

This feature allows you to change the device type to encoder/decoder in batch.

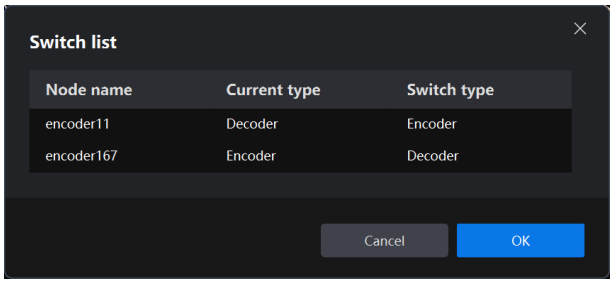

Fig 4-9 Switch type

Step 1 Select the devices for which you want to change types and click **Switch type** to open the dialog box.

Step 2 Select the types to be switched as required. Then, click **OK** to apply the changes.

🕮 Note

By default, this feature switches decoders to encoders or vice versa.

4.3.5 Network Configuration

This feature allows you to configure the IP addresses for selected devices in batch.

Step 1 Select the devices for which you want to configure IP addresses in batch and click **Network config** to open the dialog box.

Step 2 Input valid values for **Start IP**, **Subnet mask**, and **Gateway**. Click **OK** to configure the IP addresses in batch. (Within the network range, the **Start IP** will be assigned as the IP address for the first selected device, and the IP addresses for the subsequent selected devices will increment by 1.)

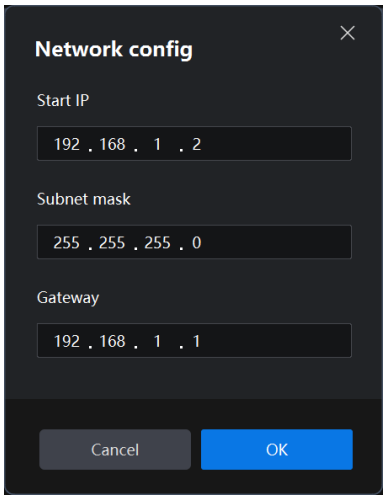

Fig 4-10 Network configuration

4.3.6 Device Upgrade

This feature allows you to upgrade the firmware packages of selected devices.

Step 1 Select the devices you want to upgrade and click **Device upgrade** to open the dialog box. Click **Browse** to access the path selection interface.

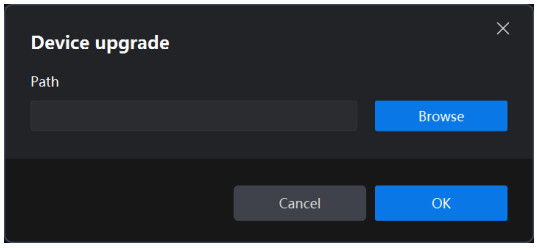

Fig 4-11 Path selection dialog

Step 2 Choose an IMG file (.img) for upgrade, and click **OK** to access the upgrade progress interface and start upgrading.

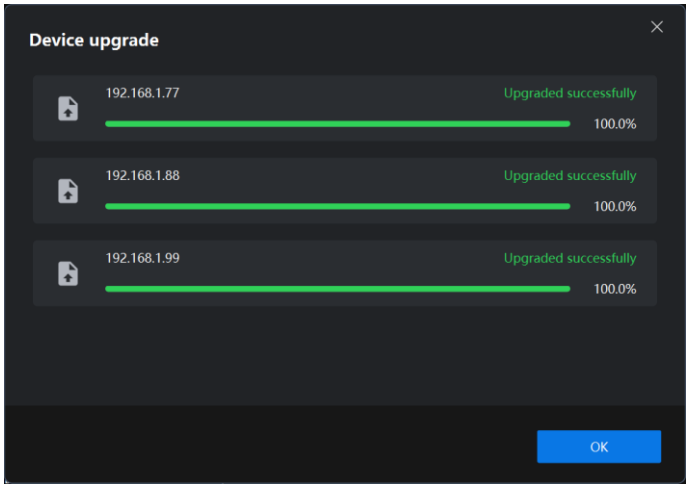

Fig 4-12 Upgrade progress

Step 3 Upon completion, check the results for each device. Click **OK** to close the dialog and complete the upgrade process.

4.3.7 Device Restart

This feature allows you to restart the selected device(s).

Step 1 Select the device(s) you want to restart and click **Device restart** to access the confirmation dialog.

Step 2 Click **OK** to close the dialog, and the selected device(s) will be restarted.

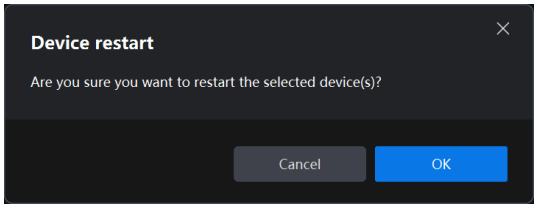

Fig 4-13 Confirmation dialog

4.3.8 Factory Reset

This feature allows you to reset the selected device(s) to factory settings.

Step 1 Select the device(s) you want to reset to factory settings and click **Factory reset** to access the confirmation dialog.

Step 2 Click **OK** to close the dialog, and the selected device(s) will be reset to factory settings.

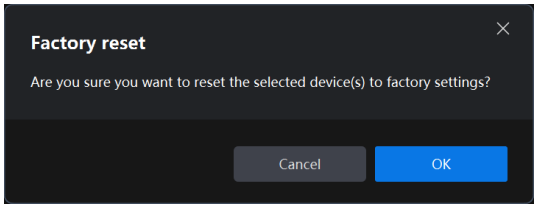

Fig 4-14 Confirmation dialog

Note

A factory reset will restore the device's IP address to 192.168.1.2 (unless the same IP address already exists in the system, in which case a random yet unique IP address will be assigned). It will also reset the subnet mask to 255.255.255.0 and the gateway to 192.168.1.1. Furthermore, the device's internal database will be completely erased.

4.3.9 Import and Export Data

DSConfig allows you to export the configuration data of the selected devices. You can then import the pre-configured data to reconfigure other devices.

- **Export data**:

Step 1 Select the devices from which you want to export data and click **Export data** to access the path selection interface.

Step 2 Click **Select Folder** to select a destination folder for saving the exported data. This will initiate the export process.

Step 3 Upon completion, check the export result for each device. Click **OK** to close the dialog. The device data has been successfully exported.

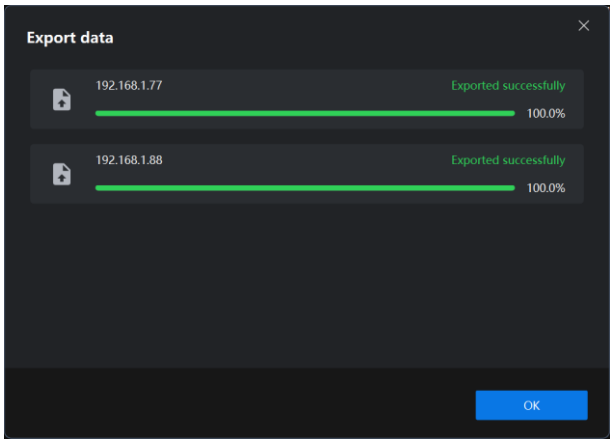

Fig 4-15 Data export

- **Import data:**

Step 1 Click **Import data** to open the file dialog.

Step 2 Select the file you want to import and click **Open** to access the data import interface. This will initiate the import process.

Step 3 Upon completion, check the import result for each device. Click **OK** to close the dialog. The device data has been successfully imported.

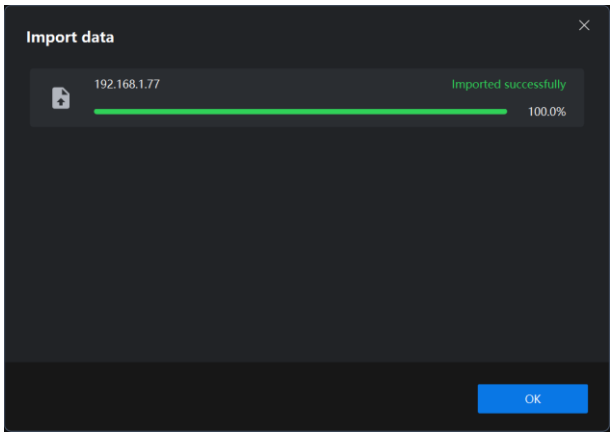

Fig 4-16 Data import

4.3.10 Sync System time

This feature allows you to synchronize the current system time of the control PC with all connected devices.

Step 1 Click **Sync system time** to open a confirmation dialog.

Step 2 Click **OK** to close the dialog. The system time will be synchronized across all devices.

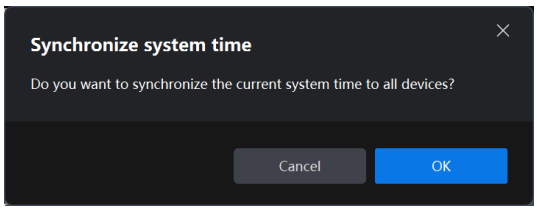

Fig 4-17 Confirmation dialog

4.3.11 Decoder Mode Switching

This feature allows you to switch the mode of decoders in batch.

Step 1 Click Switch mode to access the Decoder mode switching interface.

Step 2 Select the decoders for which you want to switch modes. From the **Modes for switching** drop-down menu, choose the desired mode for batch switching. Click **OK** to close the dialog and initiate the mode switching process.

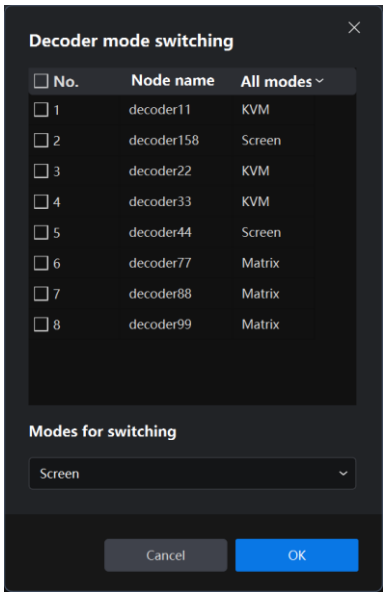

Fig 4-18 Decoder mode switching

Step 3 Upon completion, a success dialog will automatically pop up. Click **OK** to close the dialog. The decoder mode has been successfully switched.

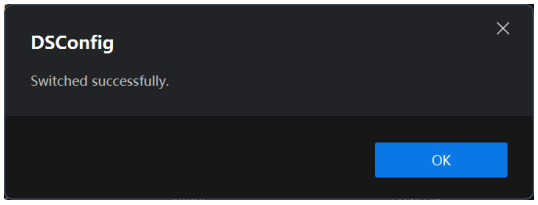

Fig 4-19 Switching success dialog

Note

Decoder mode switching allows you to batch switch the mode of multiple selected decoders simultaneously, irrespective of their current mode, to a chosen specific mode such as **Screen**, **KVM**, or **Matrix**.

4.3.12 Proxy Log Level

This feature allows you to set the log level of the current proxy node and export the logs.

- **Proxy log level settings:**

Step 1 Click Proxy log level to access the Proxy log level settings interface.

Step 2 From the **Log level** drop-down menu, select the desired log level for the current proxy node. Click **OK** to close the dialog and apply the proxy log level settings.

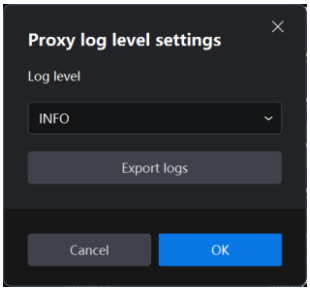

Fig 4-20 Proxy log level settings

- **Export proxy logs:**

Step 1 Click Proxy log level to access the Proxy log level settings interface.

Step 2 Click **Export logs** to access the path selection interface.

Step 3 Select a destination folder to save the exported log files. Click **Select Folder** to open the log export dialog and start exporting the log for the current decoder.

Step 4 Upon completion, check the export result for the current node. Click **OK** to close the dialog. The proxy log has been successfully exported.

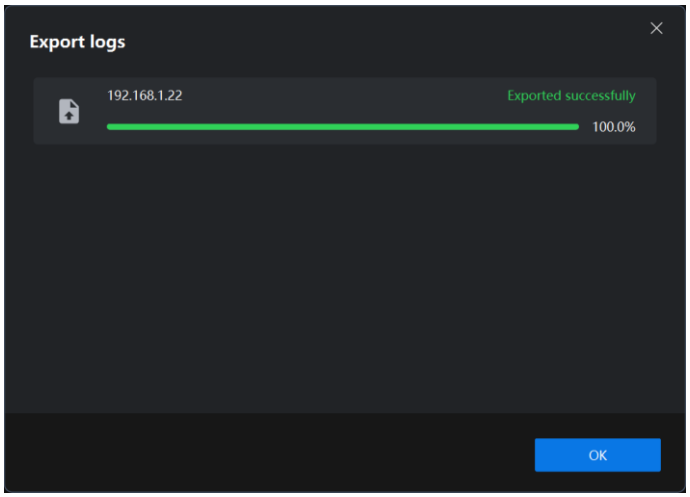

Fig 4-21 Export logs

Note:

- Log level:
  - DEBUG: Records DEBUG, INFO, WARN, and ERROR logs.
  - INFO: Records INFO, WARN, and ERROR logs.
  - WARN: Records WARN and ERROR logs.
  - ERROR: Records ERROR logs.
- Export logs: Export the log file (log_proxy.txt) of the current proxy node.

5 DSManager

5.1 Introduction

5.1.1 Overview

DSManager serves as the management and configuration software for the Rhino system. It boasts a user-friendly interface and straightforward operation, ensuring an intuitive and convenient configuration process with functions such as LED/LCD video wall display, KVM workstation management, video matrix management, hierarchical management over user permissions, integration of IP cameras, and visual OSD.

5.1.2 System Requirements

- **Operating system**: Windows 10 (64-bit) or later
- **CPU**: 2.0GHz or faster
- **RAM**: 8GB or higher
- **Graphics memory**: 512MB or higher

5.2 Installation and Uninstallation

5.2.1 Installation

Step 1 Double-click the DSManager installer (.exe) to start the installation wizard. After reading **Software agreements**, click **I accept**.

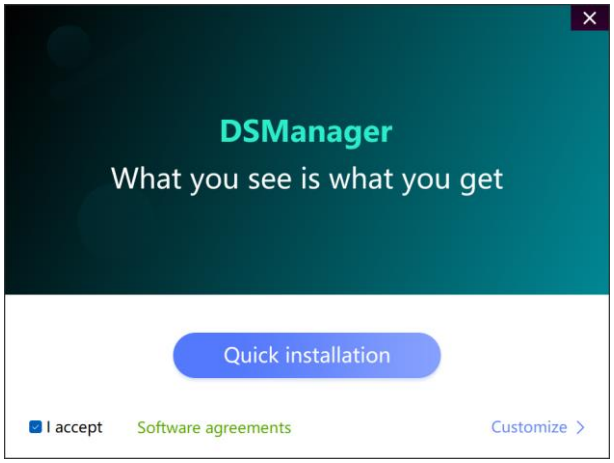

Fig 5-1 Installation wizard

Step 2 Click **Quick installation** to directly install DSManager (default path: C:\Program Files (x86)\DSManager), or click **Customize** to choose a custom installation path.

Step 3 Upon completion, a window will prompt "Installation complete". You can click **Finish** to close the installation or click **Start now** to launch DSManager.

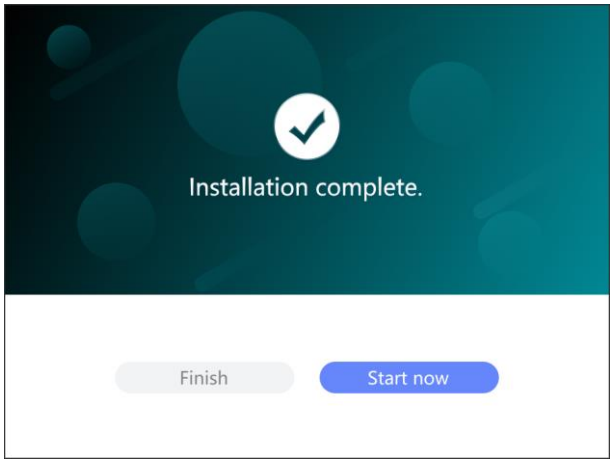

Fig 5-2 Installation complete

5.2.2 Uninstallation

Step 1 Right-click on DSManager shortcut and select **Open file location** to open the DSManager folder.

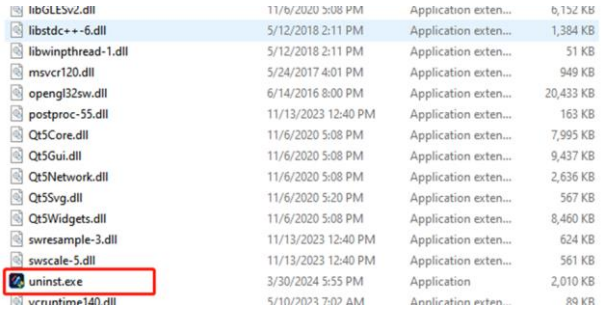

Fig 5-3 Uninstaller

Step 2 Double-click on "uninst.exe" to launch the uninstaller.

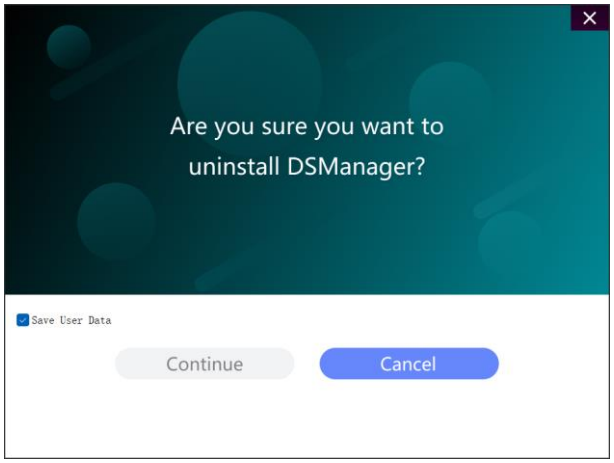

Fig 5-4 Uninstallation confirmation

Step 3 Deselect the checkbox for **Save User Data** and click **Continue**.

Step 4 Upon completion, a window will prompt "Uninstall successful". Click **Finish** to close the uninstaller. DSManager has been successfully uninstalled.

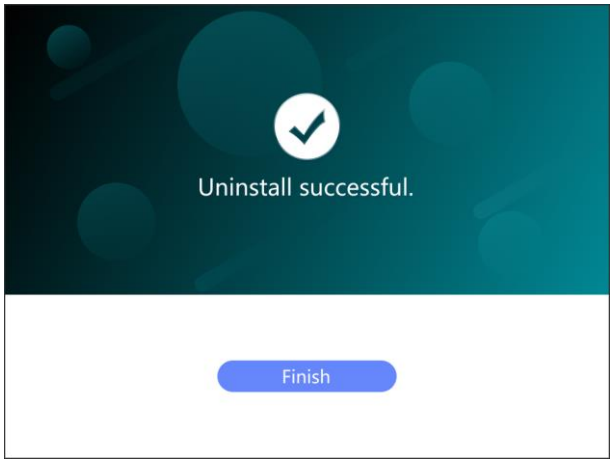

Fig 5-5 Uninstallation complete

5.3 Login

- **Prerequisites:**
  - ✧ The current device (control PC) is connected to the Rhino system and does not have any IP conflicts with other devices.
  - ✧ Administrator account
    - Username: admin
    - Password: clt123456

🕮 Notes on IP configuration for control PC

- To ensure network communication, the control PC must be manually configured with a static IP address within the same network segment as the devices.
- When configuring a static IP address, it is important to choose an IP address that is not assigned to any other device to avoid IP conflicts.
- In the event of an IP conflict between the static IP address of the control PC and other devices on the network, corresponding prompts will appear when attempting to log into DSConfig and DSManager on the control PC.

- **Procedures:**

Step 1 Double-click the DSManager program (.exe) to access the login interface.

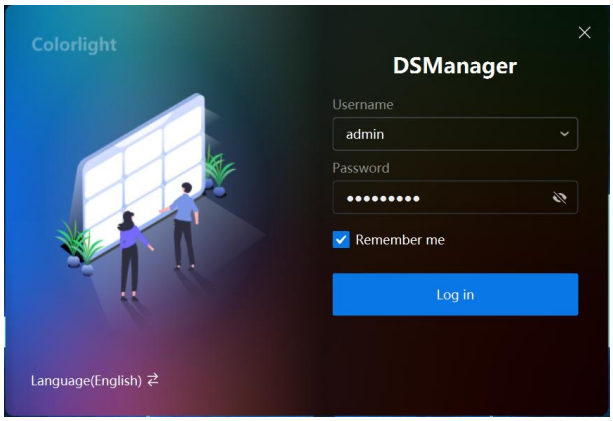

Fig 5-6 Login interface

Step 2 Enter the username and password for the administrator account, then click **Log in**. Upon successful login, you will be redirected to the **Video wall** interface.

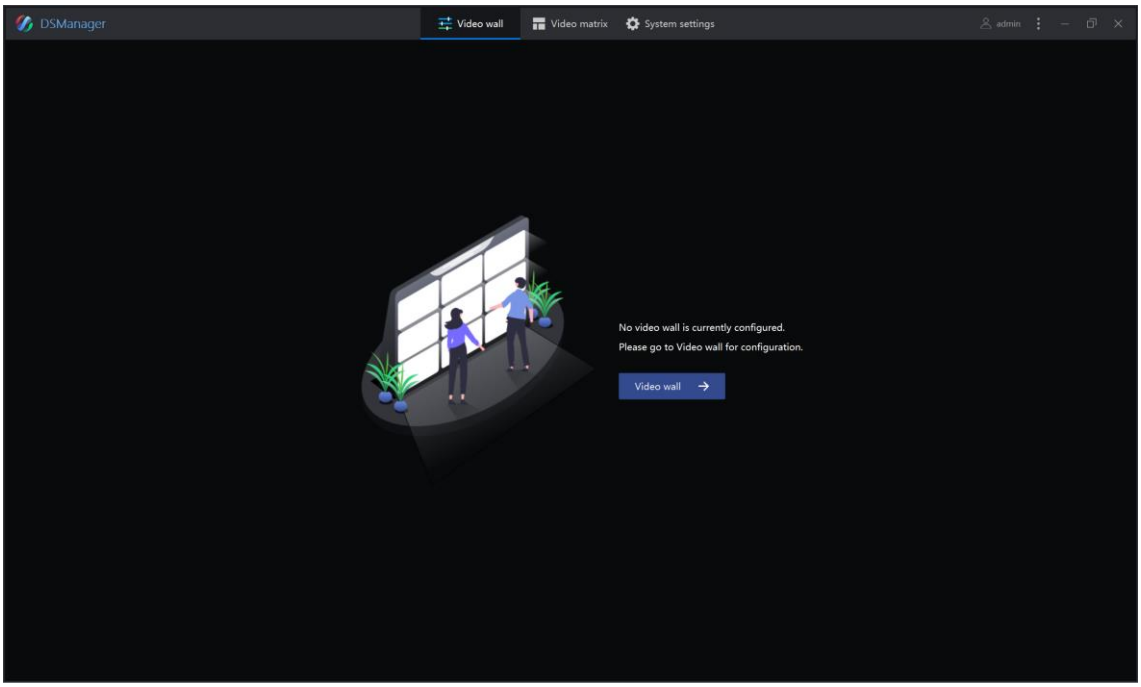

Fig 5-7 Main interface after initial login

5.4 Quick Start

5.4.1 Create Account

Step 1 Go to **System settings** > **Permission** to access the **Permission** interface.

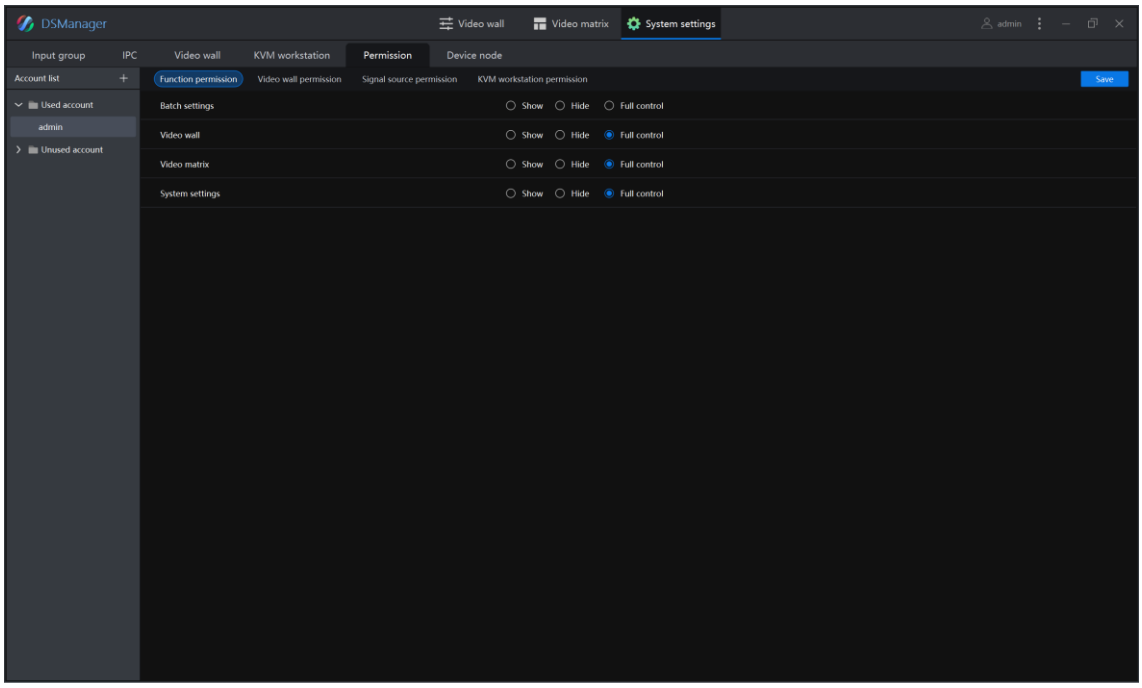

Fig 5-8 Permission

Step 2 Click the collapse ("∨") or expand ("〉") button to the left of **Used account** and **Unused account** to hide or show the corresponding list.

Step 3 Click the plus button ("+") to the right of **Account list** to access the **New account** interface.

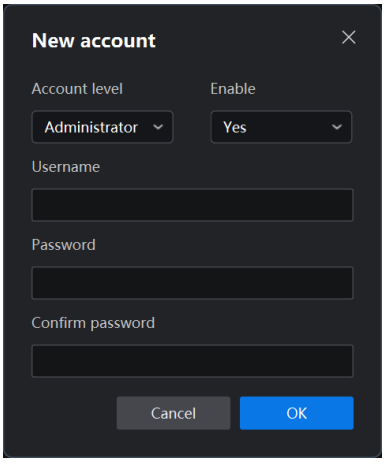

Fig 5-9 New account dialog

Name	Description
Account level	Set the account level as **Administrator** or **User**.
Enable	Select whether to enable the account or not. It helps the system determine whether the account is allowed for login.
Username	Enter the username, with a maximum length of 16 characters.
Password	Enter the password, with a maximum length of 16 characters.
Confirm password	Re-enter the password for confirmation, ensuring that it matches the one entered in the **Password** field.

Table 5-1 Description of new account

Step 4 Make appropriate selections and data entries according to Table 5-1 Description of new account. Then click **OK** to save the changes.

Step 5 Select the newly created account from the list on the left. Then configure its permissions on the right, including **Function permission**, **Video wall permission**, **Signal source permission**, and **KVM workstation permission**.

Permission Types	Description
Function permission	Configure the permissions of the selected account in the **Video wall**, **Video matrix**, and **System settings** tabs, respectively.
Video wall permission	Configure the permissions of the selected account for each video wall.
Signal source permission	Configure the permissions of the selected account for each signal source.
KVM workstation permission	Configure permissions of the selected account for each KVM workstation.

Table 5-2 Description of account permissions

Step 6 Upon completion, click **Save** to save the changes.

5.4.2 New Video Wall

- **Prerequisite**: In DSConfig, there should be decoders configured as **Screen** mode.
- **Procedures**:

Step 1 Go to System settings > Video wall to access the Video wall interface.

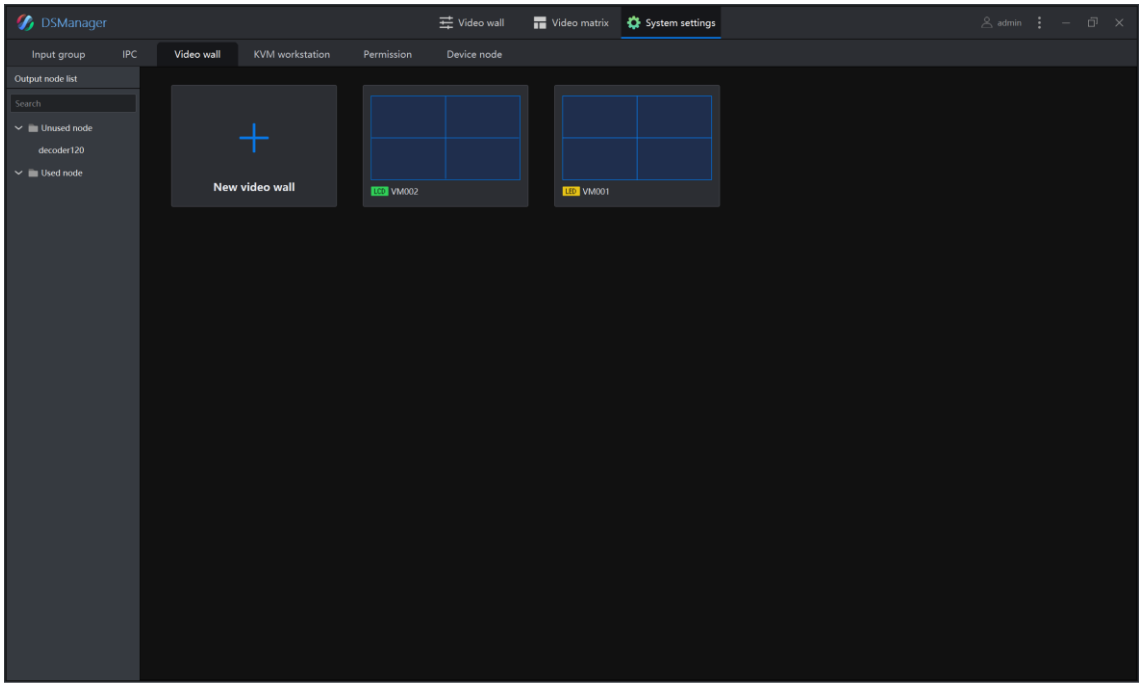

Fig 5-10 Video wall

Step 2 Click the collapse ("∨") or expand ("〉") button to the left of **Unused node** and **Used node** to hide or show the corresponding list.

- ✧ **Output node list**: Displays decoders-**Screen** only.
- ✧ **Unused node**: Displays decoders-**Screen** not assigned to any video wall.
- ✧ **Used node**: Displays decoders-**Screen** assigned to a specific video wall.

Step 3 Click **New video wall** to access the **Video wall type** interface.

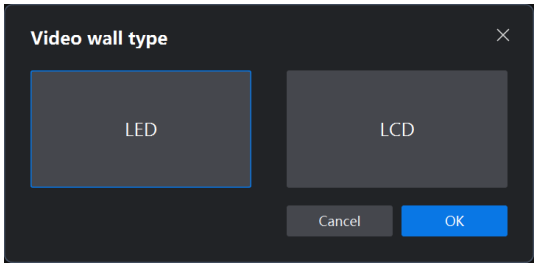

Fig 5-11 Video wall type

Step 4 Select the video wall type as **LED** or **LCD** as required. Click **OK** to access the corresponding video wall settings interface.

Step 5 Drag an unused node from the left **Output node list** to the **Not set** channel in the middle. Then, complete the selection and input according to Table 5-3 Description of LED video wall settings and click **Create** to finish creating the video wall.

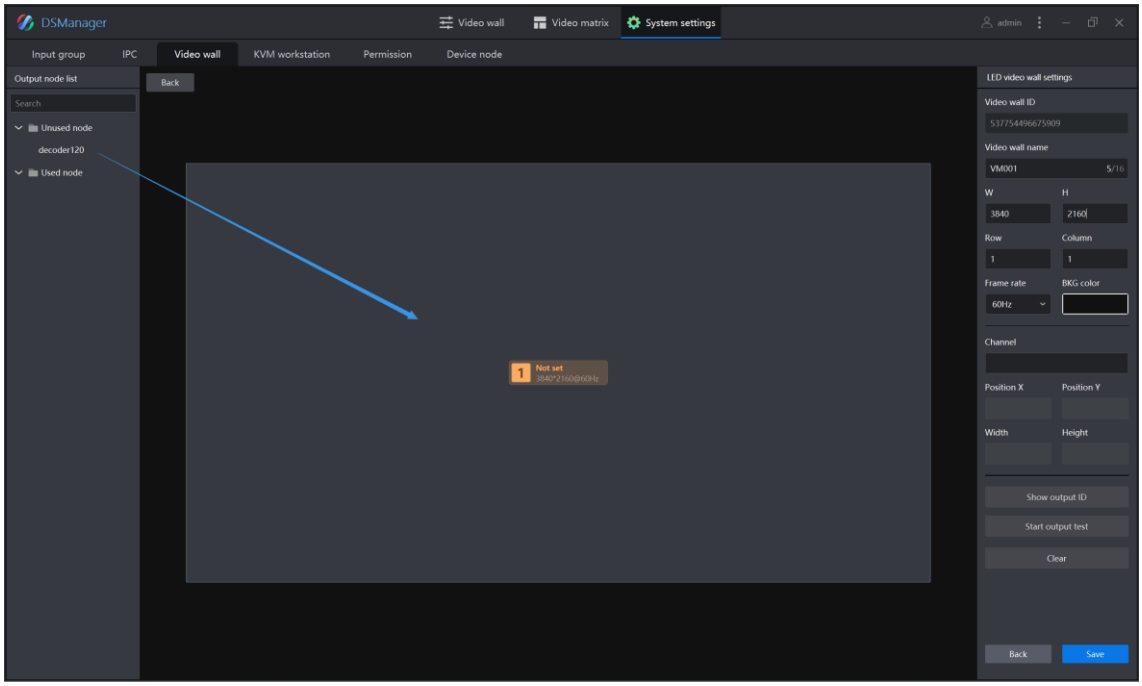

Fig 5-12 Video wall settings

Name	Description
Video wall ID	Display a unique identifier automatically generated by the system, cannot be modified.
Video wall name	Set the video wall name, with a maximum length of 16 characters.
Video wall resolution	• Set the resolution for the video wall. • The load capacity of a single node cannot exceed 4096*2160.
Row/Column	Set the number of rows and columns for the video wall.
Frame rate	Select the frame rate for the video wall.
BKG color	Set the background color for the video wall.
Channel	Set the number of the selected channel in the video wall.
Position X	Set the start X coordinate of the selected channel in the video wall.
Position Y	Set the start Y coordinate of the selected channel in the video wall.
Width	Set the width of the selected channel in the video wall.
Height	Set the height of the selected channel in the video wall.
Show output ID	Display the node name and IP address of the associated node in the center of each channel.
Start output test	Display the selected output test color (red/green/blue) on the video wall.

Table 5-3 Description of LED video wall settings

5.5 Video Wall

- **Prerequisite:** A video wall has been created on the **Video wall** interface.
- **Procedures:** Click **Video wall** to access the video wall management interface.

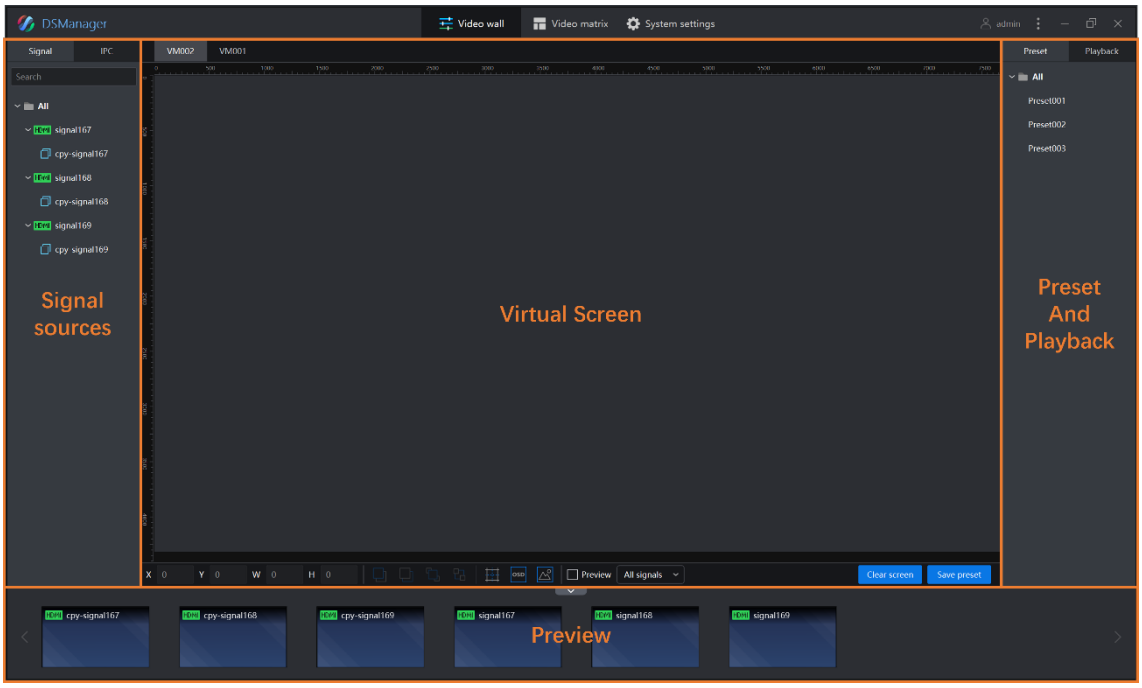

Fig 5-13 Video wall

Note

- Guide line settings, OSD settings, basemap settings, preset, and playback are all based on video wall configuration, and video walls are independent of each other.
- The image used as the basemap is shared among all video walls and is not stored on a specific video wall.

5.5.1 Signal Sources

- The left side of the **Video wall** interface displays the list of current encoders, indicating their connection status through status icons.

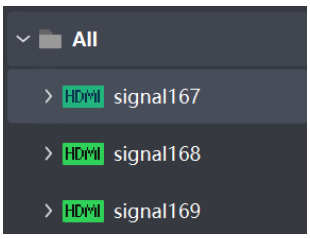

Fig 5-14 Signal status icon

- **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, DS40 devices only support this type of connection.

- ✧ **Connection status:** The connection status of the encoder is represented by the color of the status icon.
  - Green: The encoder is connected normally and has a normal connection to the signal source.
  - Yellow: The encoder is connected normally, but there is an abnormal connection to the signal source.
  - Gray: The encoder has an abnormal connection.

- Right-clicking on the signal source brings up the context menu:

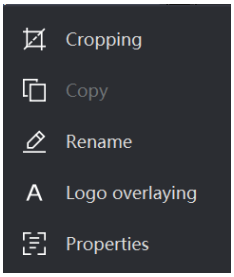

Fig 5-15 Context menu of signal source

- ✧ **Cropping**: Crop the signal source image.
- ✧ **Copy**: Copy the signal source and work with **Cropping** and **Logo overlaying**.
- ✧ **Rename**: Change the signal source name.
- ✧ **Logo overlaying**: Overlay logo on the signal source image.
- ✧ **Properties**: Change the properties of the signal source.

Cropping

Step 1 Select **Cropping** in the context menu to see a pop-up dialog.

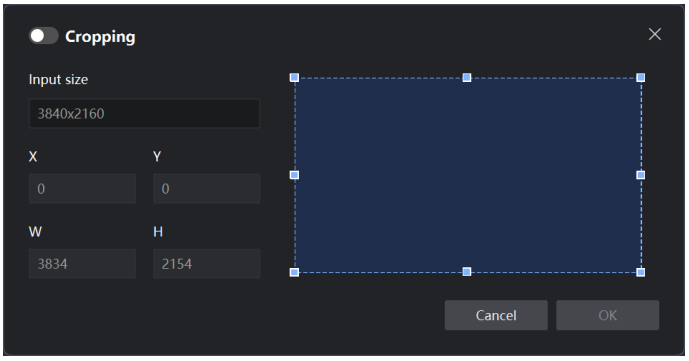

Fig 5-16 Cropping

Step 2 Based on **Input size** and right-hand preview area, edit the **X**, **Y**, **W**, **H** fields to adjust the position and size of the cropbox.

Step 3 Click the toggle in the upper-left corner to enable **Cropping**, and click **OK** in the lower-right corner.

Copy

Step 1 Select **Copy** in the context menu to copy the selected signal source.

Step 2 The copied signal source is displayed in the sub-list of the original signal source.

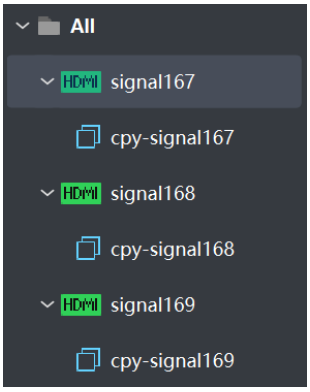

Fig 5-17 Copy signal source

Note

- Each signal source can be copied only once.
- Name the copied signal source: The name of the copied signal is the combination of the prefix "cpy-" and the original signal source name.

Logo overlaying

Step 1 Click **Logo overlaying** in the context menu to see a pop-up dialog.

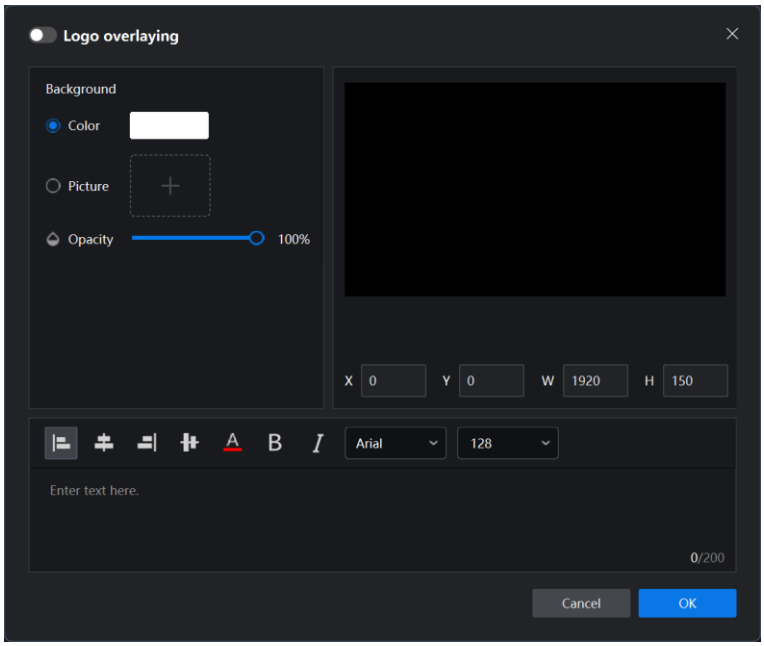

Fig 5-18 Logo overlaying

Step 2 Complete settings according to Table 5-4 Description of logo overlaying. Click the toggle in the upper-left corner to enable **Logo overlaying**, and click **OK** in the lower-right corner.

Area	Name	Description
Background	Color	Select a color as the background.
	Picture	Add a local image as the background, cannot exceed 2MB.
	Opacity	The opacity ranges from 0% (totally transparent) to 100% (totally opaque).
Content	Text	The text cannot exceed 200 characters.
	Alignment	Include **Align left**, **Align center**, **Align right**, and **Align middle**.
	Font	Include **Color**, **Bold**, **Italic**, font, and size.
Position and size	X, Y	Set the start (x, y).
	W, H	Set the width and height.

Table 5-4 Description of logo overlaying

Properties

Step 1 Click **Properties** in the context menu to see a pop-up dialog.

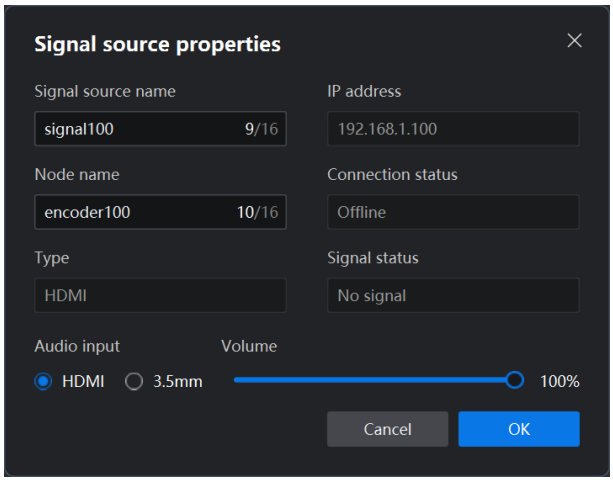

Fig 5-19 Signal source properties

Step 2 Change the signal source properties according to Table 5-5 Signal source properties, and click **OK**.

Name	Description
Signal source name	Change the signal source name of the current node, cannot exceed 16 characters.
IP address	Display the IP address of the current node, cannot be modified.
Node name	Change the name of the current node, cannot exceed 16 characters.
Connection status	Display the connection status of the current node, cannot be modified.
Type	Display the type of the current node, cannot be modified.
Signal status	Display the signal status of the current node, cannot be modified.
Audio input	Select the audio input method of the current node.
Volume	Set the volume of the audio input.

Table 5-5 Description of signal source properties

5.5.2 Virtual Screen

Windowing

- **Windowing**: Drag the signal source from the **Signal** list on the left or the preview list at the bottom to the virtual screen in the middle, creating a display window. This allows you to project the image of the selected signal source onto the screen for display.

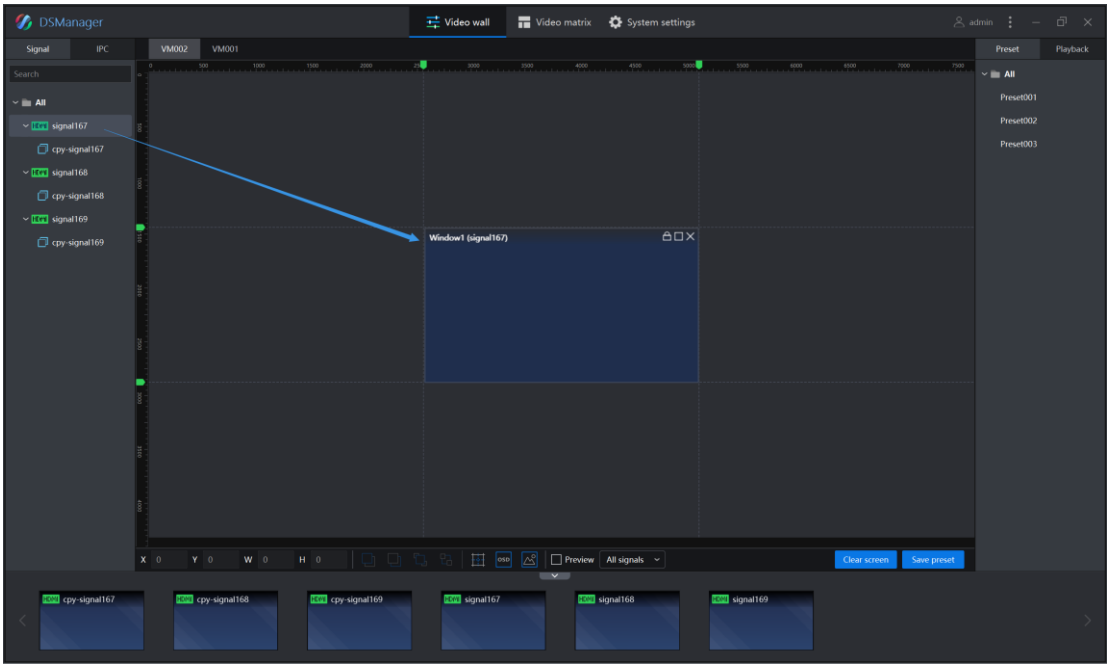

Fig 5-20 Windowing

- **Replace:** Drag the signal source from the left **Signal** list or the bottom preview list to the virtual screen in the middle. Hold down the left mouse button for more than 1 second, showing the **Replace** prompt and the name of the selected signal source. Then release the mouse button, and the window will be switched to the selected signal source.

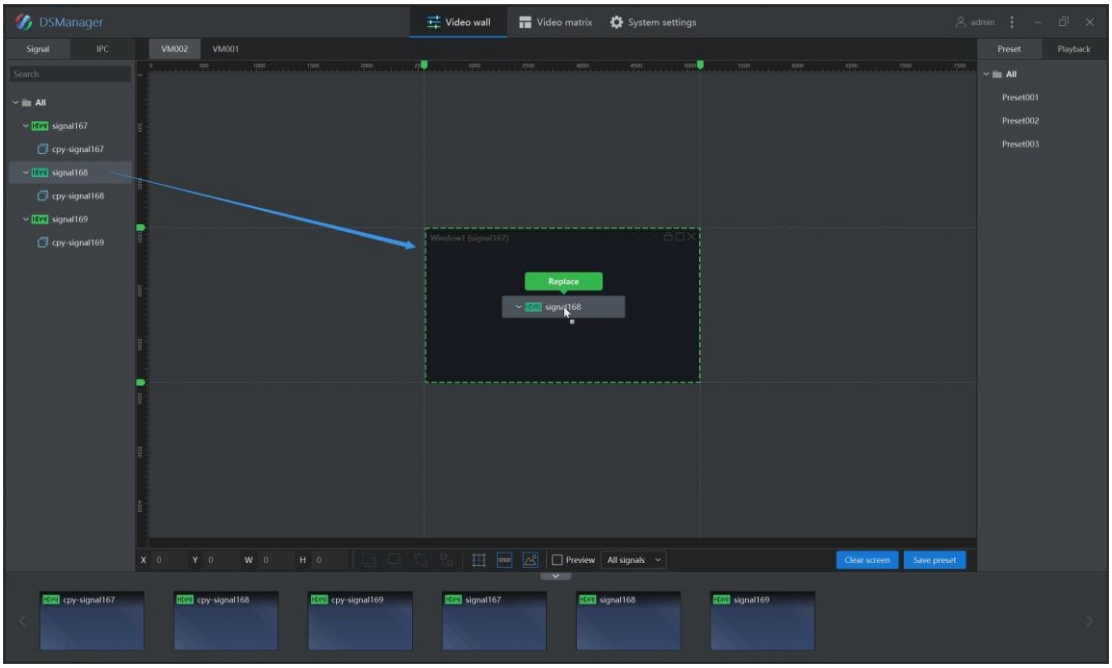

Fig 5-21 Replace

Window operation

Right-clicking on the window brings up the context menu:

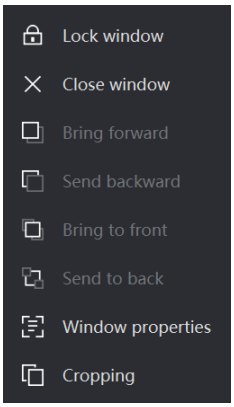

Fig 5-22 Context menu of window

- **Lock window:** Lock the selected window. Once locked, the priority, position, and size of the window are not adjustable, and the window cannot be closed.

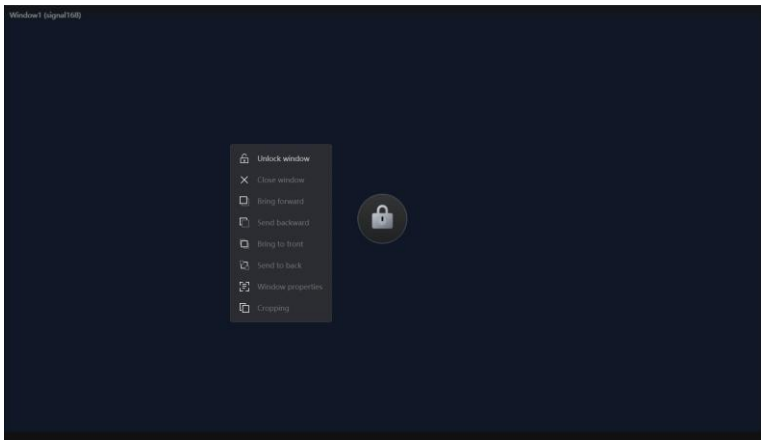

Fig 5-23 Lock window

- **Close window:** Delete the selected window from the virtual screen.
- **Bring forward, Send backward, Bring to front, Send to back:** Adjust the order of layers for the selected window.
- **Window properties:** Select **Window properties** to see a pop-up dialog, where you can change the position and size of the window in the virtual screen.

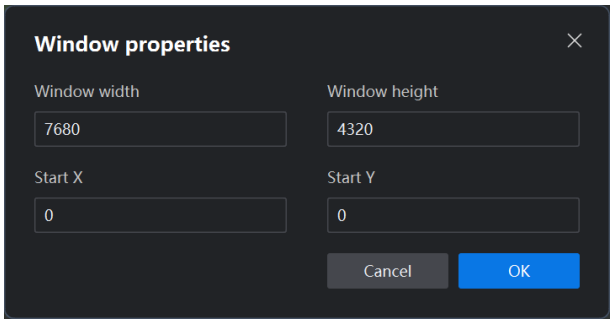

Fig 5-24 Window properties

Action bar

The area below the virtual screen is the action bar:

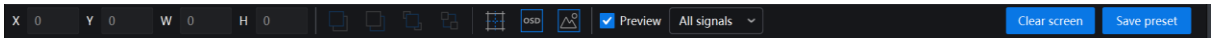

Fig 5-25 Action bar

Name	Description
X, Y, W, H	Set the position and size of the window in the virtual screen.
Bring forward, Send backward, Bring to front, Send to back	Adjust the order of layers for the selected window.
Guide line settings	Click to see the pop-up guide line template dialog for quick setting and window adjustment.
OSD settings	Overlay the OSD on the screen.
Basemap settings	Set the background image for the **Video wall**, with a display priority higher than the BKG color in **System settings** > **Video wall**.
Preview	Enable/Disable the preview mode.
Clear screen	Close all windows of the video wall.
Save preset	Record the current windowing status of the video wall, as well as the priority, position, and size of each window.

Table 5-6 Description of action bar

OSD settings

Step 1 Click **OSD settings** in the action bar to see a pop-up dialog.

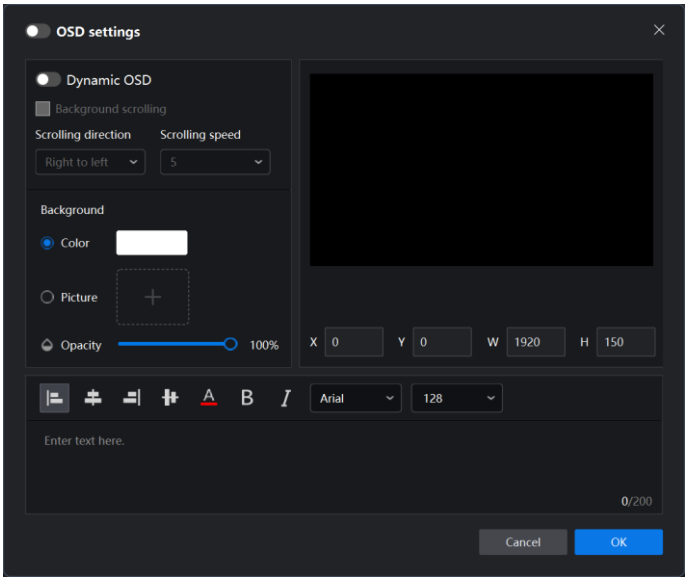

Fig 5-26 OSD settings

Step 2 Change OSD settings according to Table 5-7 Description of OSD settings. Click the toggle in the upper-left corner to enable **OSD settings**, and click **OK** in the lower-right corner.

Area	Name	Description
Dynamic OSD	Dynamic OSD	Set the display style of the OSD: Scrolling or static.
	Background scrolling	Set the display style of the background: Scrolling or static.
	Scrolling direction	Set the scrolling direction of the dynamic OSD.
	Scrolling speed	Set the scrolling speed of the dynamic OSD.
Background	Color	Select a color as the background.
	Picture	Add a local image as the background, cannot exceed 2MB.
	Opacity	The opacity ranges from 0% (totally transparent) to 100% (totally opaque).
Content	Text	The text cannot exceed 200 characters.
	Alignment	Include **Align left**, **Align center**, **Align right**, and **Align middle**.
	Font	Include **Color**, **Bold**, **Italic**, font, and size.
Position and size	X, Y	Set the start (x, y).
	W, H	Set the width and height.

Table 5-7 Description of OSD settings

Basemap settings

Step 1 Click **Basemap settings** in the action bar to see a pop-up dialog.

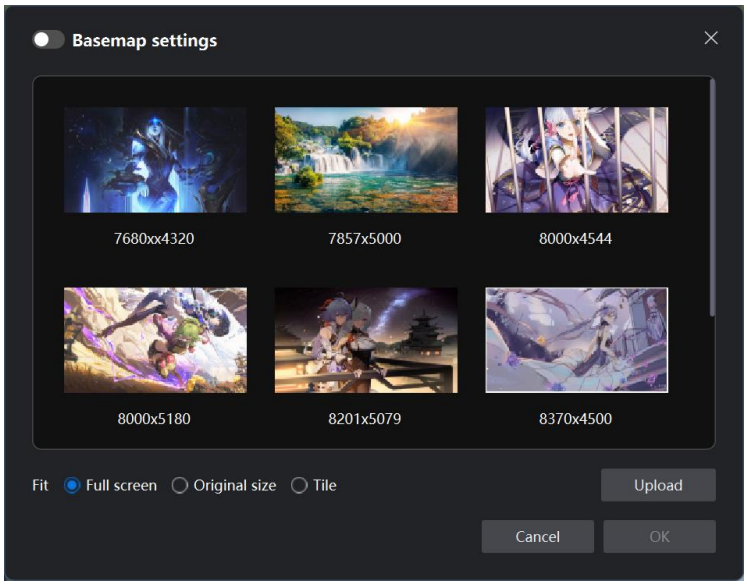

Fig 5-27 Basemap settings

Step 2 Click **Upload** and select a local image for uploading.

Step 3 Choose an image and set **Fit**. Click the toggle in the upper-left corner to enable **Basemap settings**, and click **OK** in the lower-right corner.

Note

- Support adding up to 10 images, with each one within 20MB;
- Notes on **Fit**:
  - **Full screen**: Adjust and stretch the image to fit the video wall size.
  - **Original size**: Display the image centered in the video wall at its original size. If the image cannot fill the video wall, no further adjustments are made.
  - **Tile**: Display the image at its original size starting from the top left corner of the video wall. If the image cannot fill the video wall, it continues to use the image to supplement the display.

5.5.3 Preset and Playback

Preset

- **Save preset:** Record the current windowing status of the video wall, including the position and size settings for each window.

Step 1 Complete the window configuration of the current video wall and click **Save preset** to see a pop-up dialog.

Step 2 Rename the preset and select an option under **Preset group**, then click **OK** to save the preset.

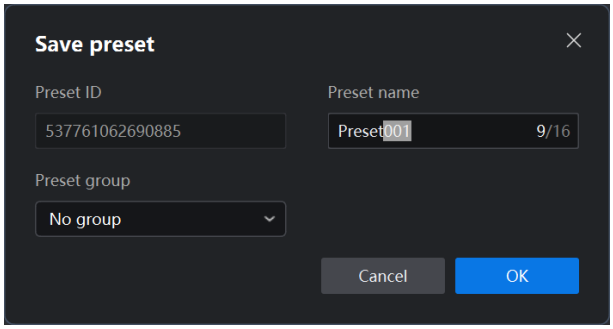

Fig 5-28 Save preset

- **Preset group:** Create a new preset group and group the saved presets for quick loading as desired.

Step 1 Right-click **All** in the **Preset** list and click **New group** to see a pop-up dialog.

Step 2 Rename the group and click **OK**.

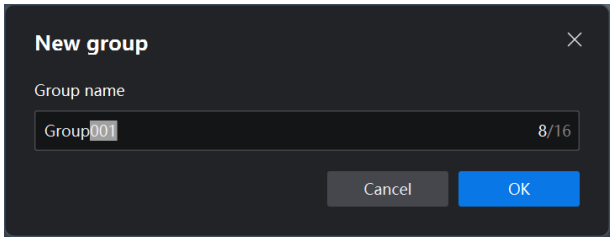

Fig 5-29 New group

- **Preset operations:** Right-click on a saved preset in the **Preset** list to see a context menu.

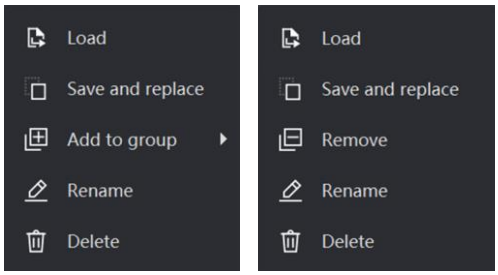

Fig 5-30 Preset operations

- ✧ **Load:** Project the selected preset on the screen.
- ✧ **Save and replace:** Save the windowing, as well as the priority, position, and size of each window to the selected preset and replace the previous configuration.
- ✧ **Add to group/Remove:** Group the selected preset for quick loading as desired.
- ✧ **Rename:** Change the name of the selected preset.
- ✧ **Delete:** Delete the selected preset.

Playback

- **Playback settings:** Create a new playback and configure the presets it contains, as well as their sequence.

Step 1 Select **Playback settings** in **Playlist** to see a pop-up dialog.

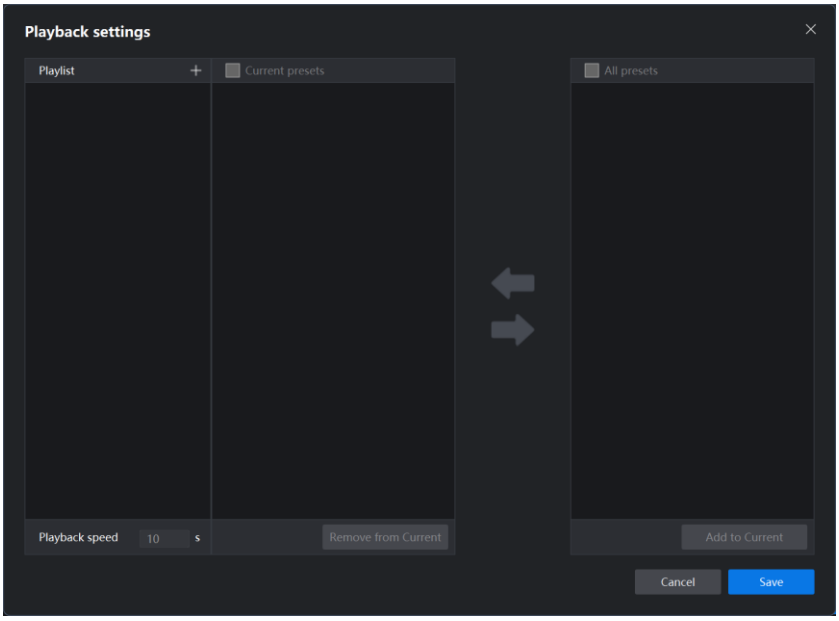

Fig 5-31 Playback settings

Step 2 Click + to the left of **Playlist** to create a new playback.

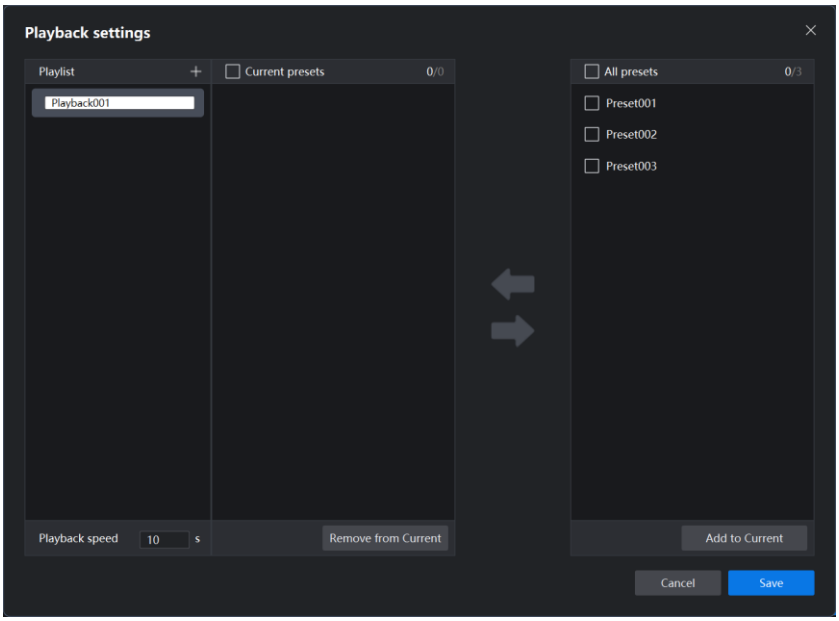

Fig 5-32 New playback

Step 3 Select the desired preset from **All presets** on the right, and click ← to add it to **Current presets** in the middle for playback.

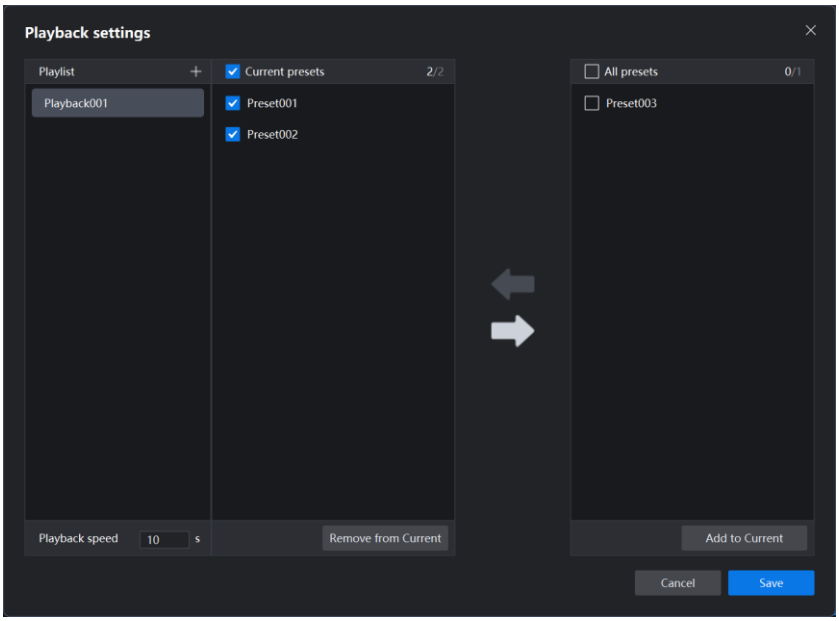

Fig 5-33 Select preset for playback

Step 4 Drag presets under **Current presets** to adjust playback sequence.

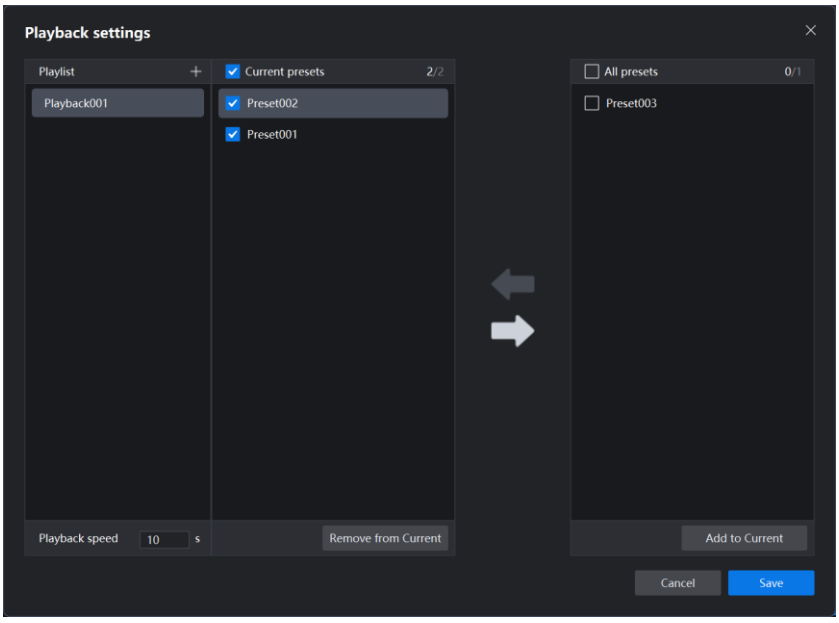

Fig 5-34 Adjust preset sequence

Step 5 Set **Playback speed** to control the duration of each preset, then click **Save** to complete playback settings. The results are reflected in **Playlist**.

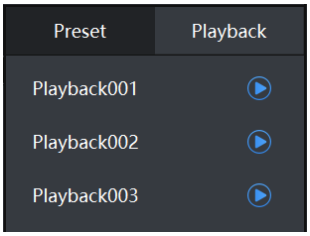

Fig 5-35 Playlist

- **Preset playback:** Configure playback based on selected presets, their sequence, and playback speed, which will be displayed on the screen for playback.

Step 1 Select the desired playback from **Playlist**, then click the blue button to start preset playback.

Step 2 To stop preset playback, click the red button next to the selected playback or in the lower-right corner of the virtual screen.

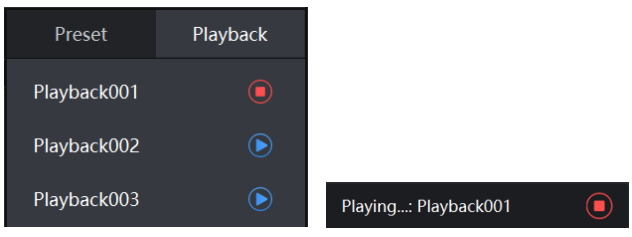

Fig 5-36 Preset playback

Note

During preset playback, all operations on the current video wall will be disabled, including windowing, window operations, OSD settings, basemap settings, and preset operations.

5.5.4 Preview

- **Preview list:** The preview list at the bottom of the **Video wall** interface displays all current encoders, indicating their connection status through status icons.
  - ✧ **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, DS40 devices only support this type of connection.
  - ✧ **Connection status:** The connection status of the encoder is represented by the color of the status icon.
    - Green: The encoder is connected normally and has a normal connection to the signal source.
    - Yellow: The encoder is connected normally, but there is an abnormal connection to the signal source.
    - Gray: The encoder has an abnormal connection.

Fig 5-37 Preview list

- **Preview group:** At the bottom of the virtual screen, select the desired input source group (Default is **All signals**) from the drop-down list next to **Preview**.

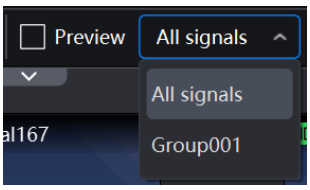

Fig 5-38 Drop-down menu of preview group

- **Preview:**
  - ✧ Preview is disabled by default.
  - ✧ Enabling **Preview** allows real-time preview of the corresponding signal source images in both the encoder windows of the preview list and the windows of the virtual screen.

> 🕮 Note
>
> Changes to **Preview** apply to both the **Video Wall** and **Video Matrix** interfaces simultaneously; independent configuration is not supported.

5.6 Video Matrix

Click **Video Matrix** to access the corresponding interface.

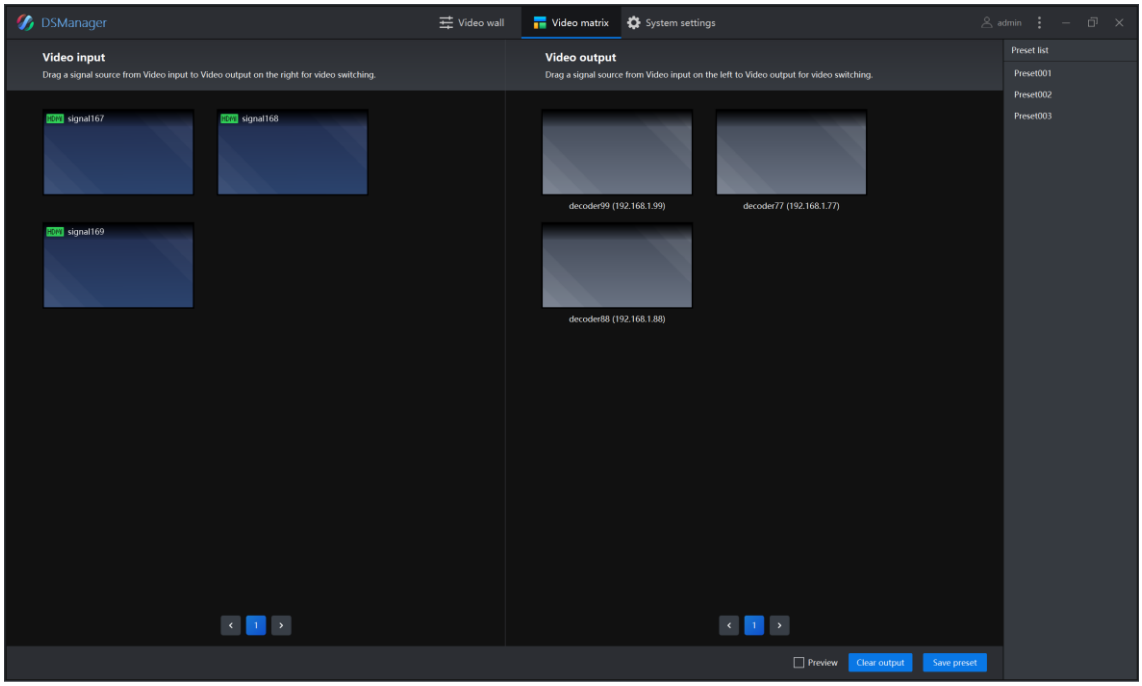

Fig 5-39 Video matrix

Video input

The **Video Input** module on the left side of the **Video matrix** interface displays all current encoders, indicating their connection status through status icons.

- **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, DS40 devices only support this type of connection.
- **Connection status:** The connection status of the encoder is represented by the color of the status icon.
  - ✧ Green: The encoder is connected normally and has a normal connection to the signal source.
  - ✧ Yellow: The encoder is connected normally, but there is an abnormal connection to the signal source.
  - ✧ Gray: The encoder has an abnormal connection.

Video output

On the right side of the **Video matrix**, the **Video output** module only displays decoders-**Matrix**.

- **Prerequisite:** In DSConfig, there should be decoders configured as **Matrix** mode.
- **Procedure:** Drag the desired signal source from **Video input** to a decoder in **Video Output**, and the signal source will be displayed on the corresponding decoder-**Matrix**.

Playlist

- **Save preset:** Record the current input-output relationships.

Step 1 Configure the input-output relationships, and click **Save** in the bottom right corner to see a pop-up dialog.

Step 2 Rename the preset, and click **OK** to save the changes.

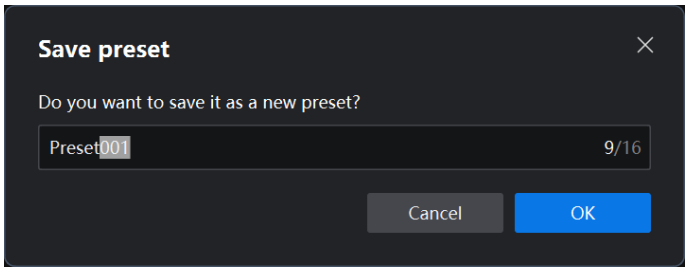

Fig 5-40 Save preset

- **Preset operations:** Right-click on a saved preset in **Playlist** to see a context menu. Supports **Rename** and **Delete**.

Preview

- Preview is disabled by default.
- Enabling **Preview** allows real-time preview of the corresponding signal source images in both the video input window and video output window.

> **Note**
>
> Changes to **Preview** apply to the **Video wall** and **Video matrix** interfaces simultaneously; independent configuration is not supported.

5.7 Input Group

- The signal list in the left side of the **Input group** interface displays all current encoders, indicating their connection status through status icons.
  - ✧ **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, DS40 devices only support this type of connection.
  - ✧ **Connection status:** The connection status of the encoder is represented by the color of the status icon.
    - Green: The encoder is connected normally and has a normal connection to the signal source.
    - Yellow: The encoder is connected normally, but there is an abnormal connection to the signal source.
    - Gray: The encoder has an abnormal connection.
- **New group**:

Step 1 Go to **System settings** > **Input group** to access the corresponding interface.

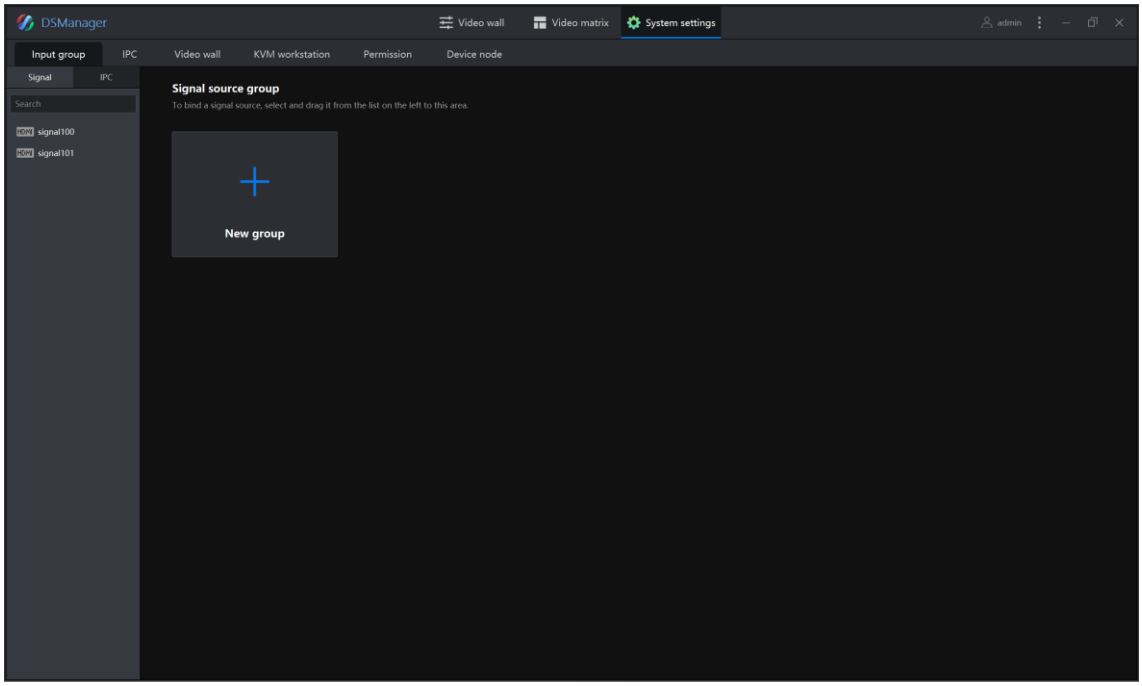

Fig 5-41 Input group

Step 2 Select **New group** to see a pop-up dialog.

Step 3 Rename the group and click **OK** to save the changes.

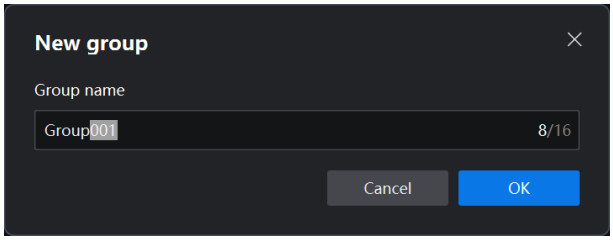

Fig 5-42 New group

- **Group settings:** Group the signals for quick configuration when required.

Step 1 Double-click the desired input group to access the group settings interface.

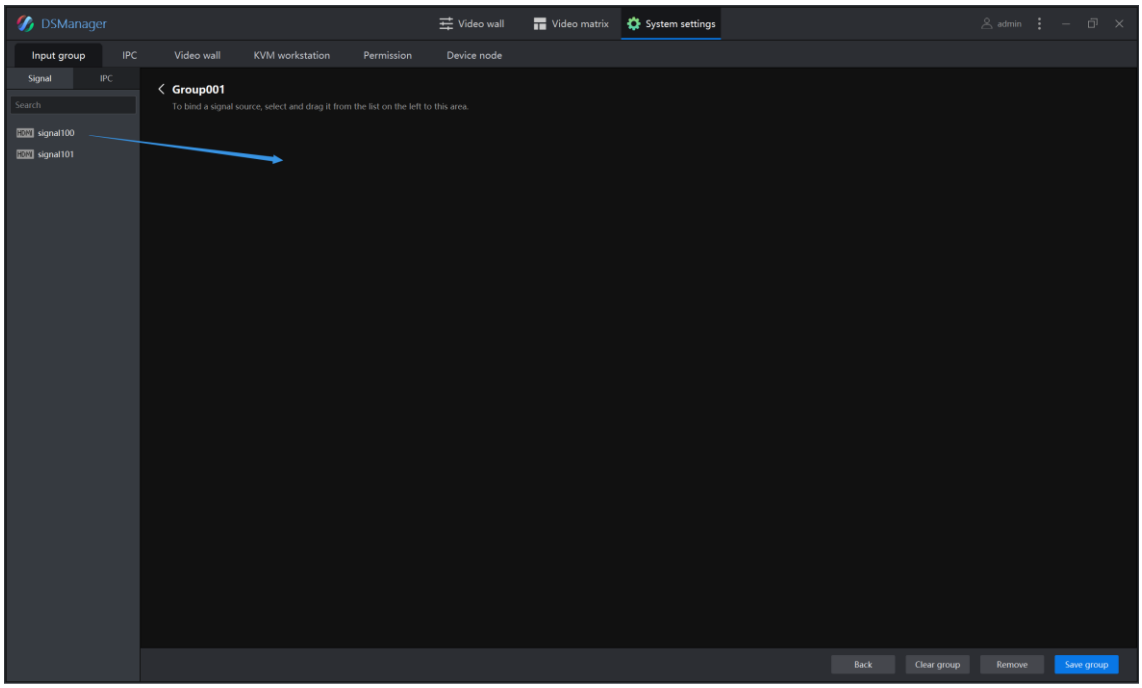

Fig 5-43 Group settings

Step 2 Drag the desired signal source from the left signal source list to the group settings interface in the middle, and click **Save**.

Note

- New groups and their associated signal sources will be displayed in **DSManager** > **Video wall** and **DSKvm** > **Video wall**.
- Signal sources and IPCs can be added to the same group, but they will still be displayed independently in their respective lists.

5.8 IPC

- **Prerequisite:** There should IPCs connected to the distributed system network.
- **New IPC:** Create a new IPC and display the IPC as a signal.

Step 1 Go to **System settings**> **IPC** to access the IPC settings interface.

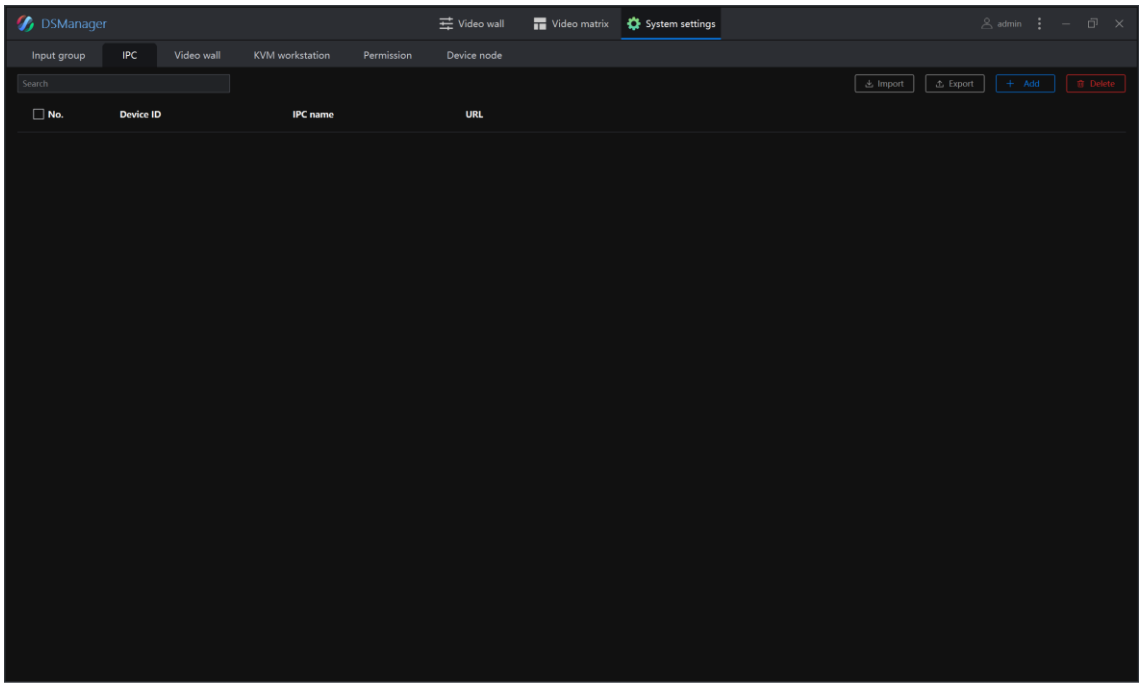

Fig 5-44 IPC settings

Step 2 Click **Add** to see a pop-up dialog.

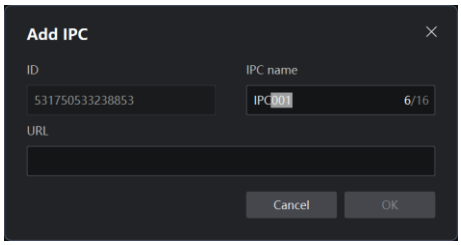

Fig 5-45 New IPC

Step 3 Rename the IPC, configure its URL, then click **OK**.

Note

- New IPC is available in **DSManager** > **Video wall**, **DSManager** > **Input group**, and **DSKvm** > **Video wall**.
- Signal sources indicate the connection status of the current encoders through status icons. However, this logic does not apply to IPCs.

5.9 KVM Workstation Management

New KVM workstation

Step 1 Go to **System settings** > **KVM workstation** to access the corresponding interface.

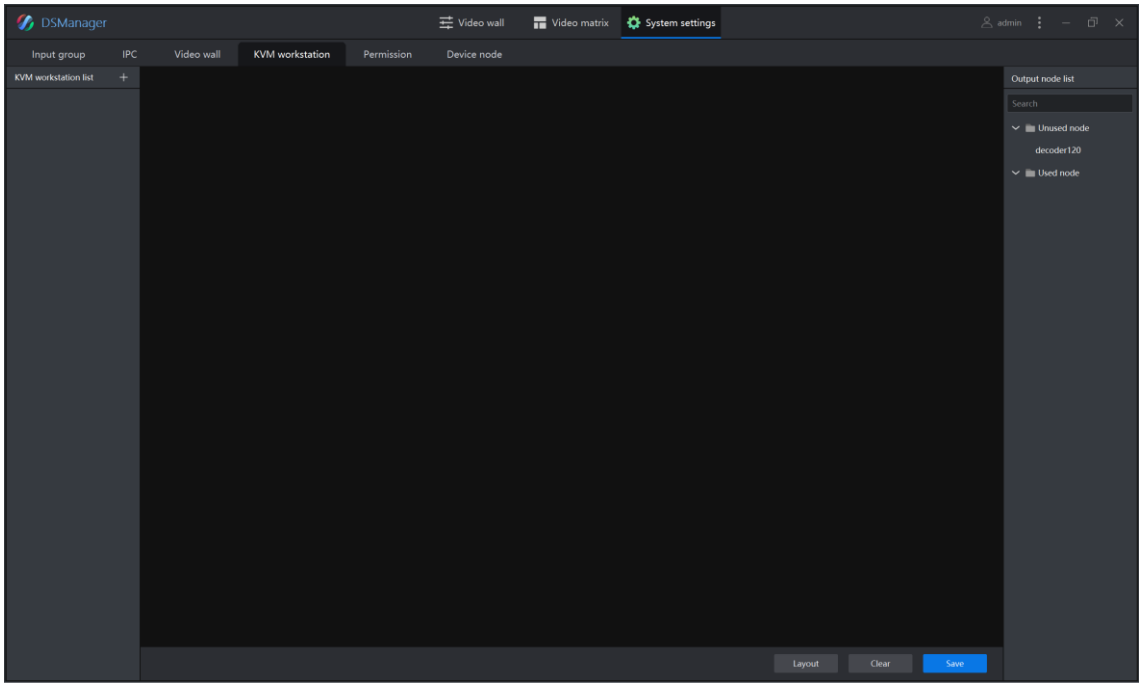

Fig 5-46 KVM workstation management

Step 2 Click the collapse ("∨") or expand ("〉") button to the left of **Unused node** and **Used node** to show or hide the corresponding list.

- **Output node list:** Display decoders-**KVM** only.
- **Unused node:** Displays decoders-**KVM** not assigned to any KVM workstation.
- **Used node:** Displays decoders-**KVM** assigned to a specific KVM workstation.

Step 3 Click + next to **KVM workstation list** to see a pop-up dialog.

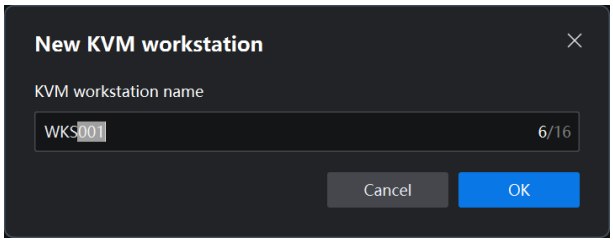

Fig 5-47 New KVM workstation

Step 4 Rename the KVM workstation, then click **OK** to save the changes.

KVM workstation management

- **Prerequisite:** In DSConfig, there should be decoders configured as **KVM** mode.
- **Procedures:**

Step 1 Select the desired KVM workstation from the left **KVM workstation list**, and its current settings will be displayed in the **KVM workstation** interface.

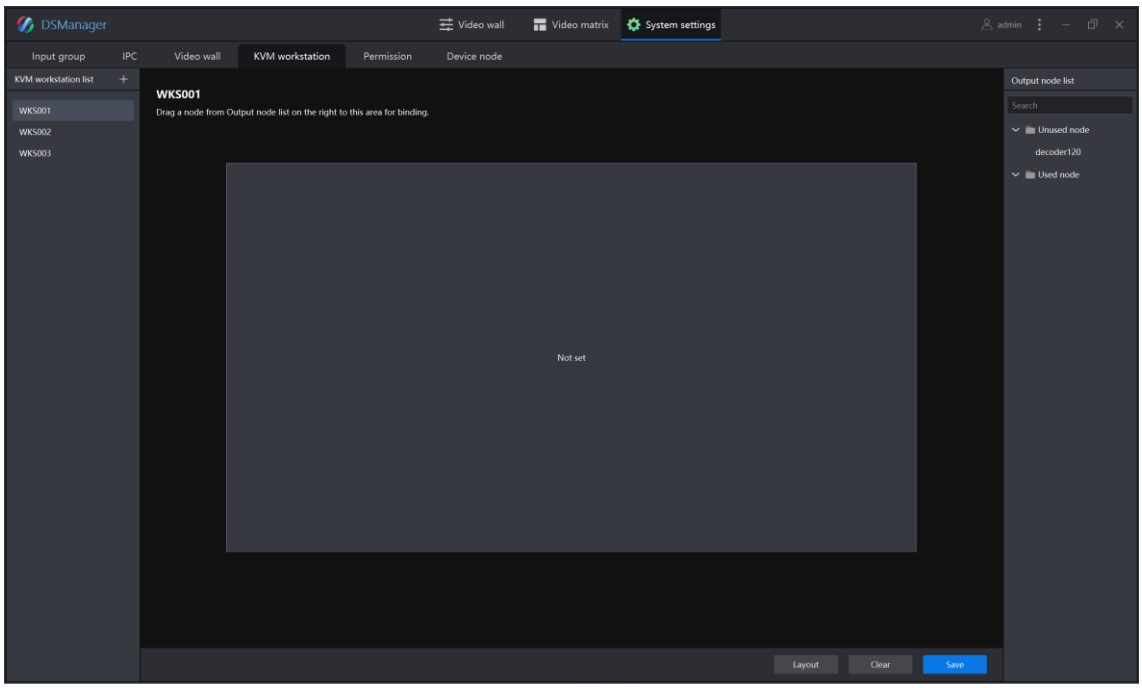

Fig 5-48 KVM workstation management

Step 2 Click **Layout** at the bottom to see a pop-up dialog.

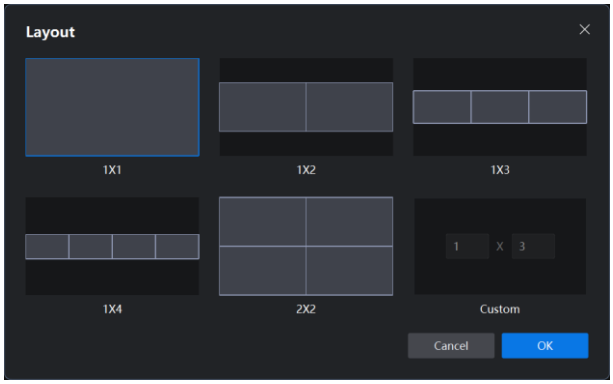

Fig 5-49 Layout

Step 3 Choose the desired template or click **Custom** for configuration, then click **OK**.

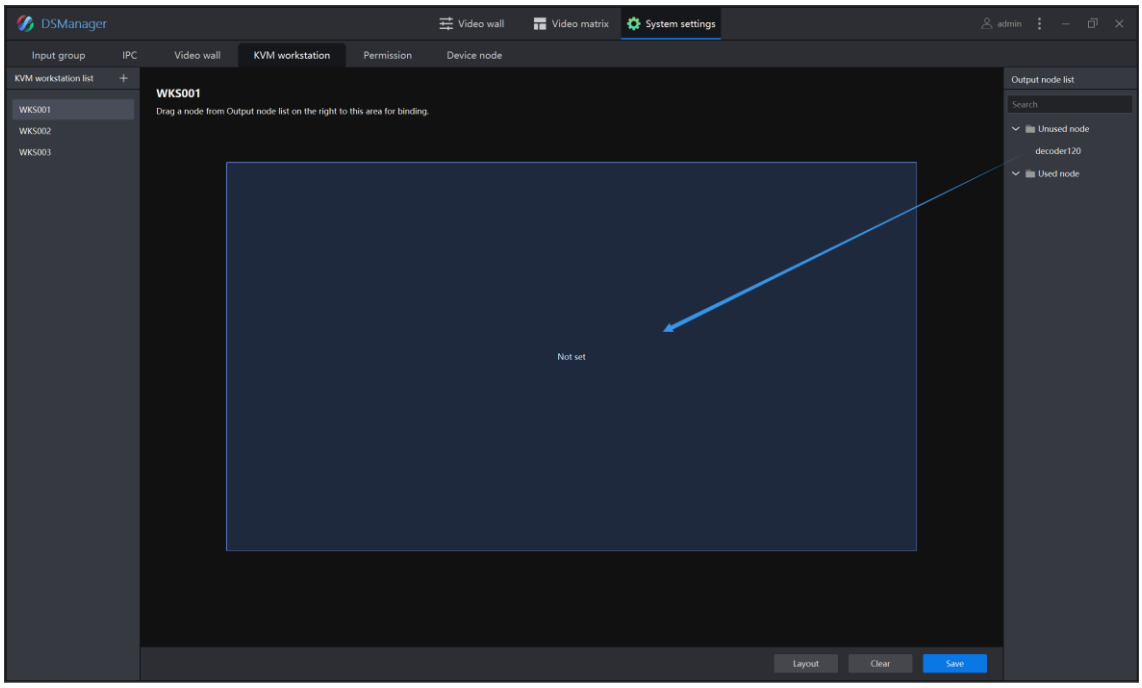

Fig 5-50 KVM workstation management

Step 4 Drag the desired unused node from **Output node list** on the right to the **Not set** channel in the middle, then click **Save**.

6 DSKvm

6.1 Overview

DSKvm is a built-in KVM management software within DS40, offering features like KVM operator collaboration, LED/LCD video wall display and control, multi-screen and multi-window management, preset playback and loading, shortcuts settings, and USB pass-through settings. It provides comprehensive and reliable software support for KVM operations.

6.2 Features

6.2.1 Login

- **Prerequisites:**
  - ✧ In DSConfig, there should be decoders-**KVM**.
  - ✧ In DSManager, KVM workstation settings have been completed using decoders-**KVM**.
- **Procedures:**

Step 1 Connect the decoder-KVM to a monitor and access the login interface.

Step 2 Enter the correct username and password. Click **Log in** to access the signal source interface.

Fig 6-1 Login

Note

The account used to log in to DSKvm is configured under **DSManager** > **System settings** > **Permission**.

6.2.2 Floating Menu

- The floating menu is displayed by default when launching DSKvm.
- Go to **Settings** > **Floating menu** to adjust its position and options. Note that **Settings** cannot be removed from the floating menu.

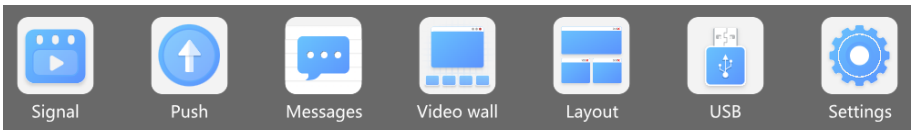

Fig 6-2 Floating menu

6.2.3 Signal

On the floating menu, click **Signal** to access the signal source interface, which by default displays all signal sources.

- The signal source list displays all current encoders, with status icon colors indicating their connection status.
  - ✧ Green: The encoder is connected normally and has a normal connection to the signal source.
  - ✧ Yellow: The encoder is connected normally, but there is an abnormal connection to the signal source.
  - ✧ Gray: The encoder has an abnormal connection.
- The signal source list displays information such as **Signal name**, **Network**, **User**, and **Status**. It also includes actions like **Favorite** and **Operation** (**View only** and **Remote access**).

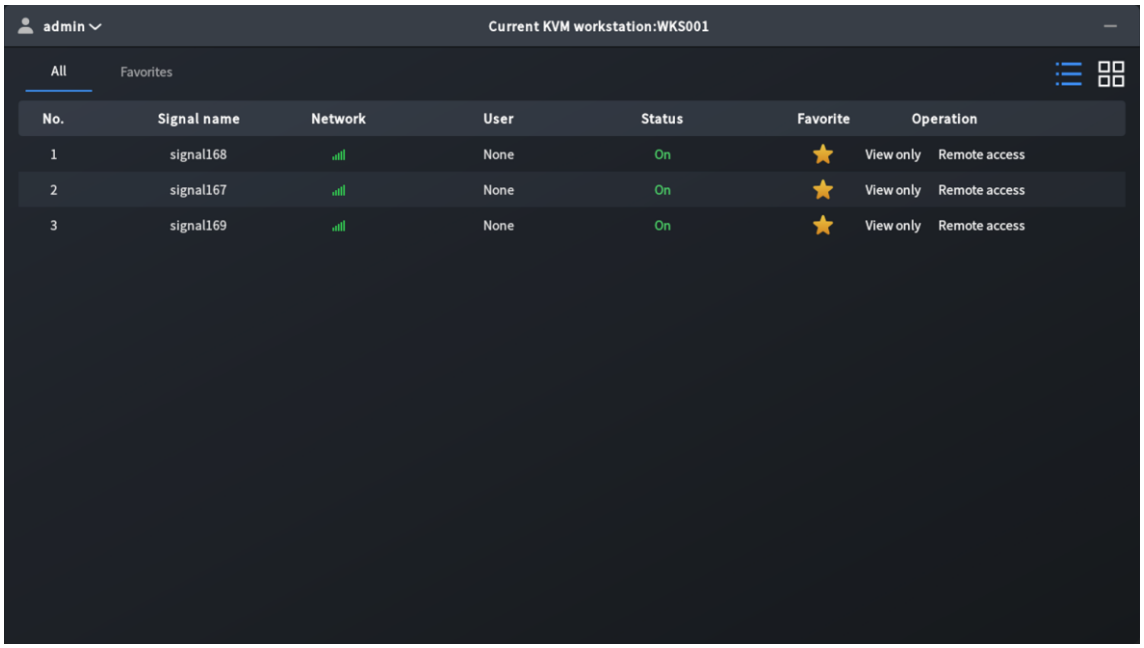

Fig 6-3 Signal source interface

Name	Description
Signal name	Display the signal source name of the encoder.
Network	Display the connection status of the encoder.
User	Display the KVM workstation with control permission for this signal source.
Status	Display the power on/off status of the signal source.
Favorite	Favorite a signal for quick view.
Operation	View the signal or obtain its control permission.
List view	Display the signal source list in list view.
Grid view	Display the signal list in grid view.

Table 6-1 Signal source list

6.2.4 KVM Workstation Push

On the floating menu, click **Push** to access the KVM workstation push interface. Here, you can view the signal source of the current KVM workstation, push control permissions to other KVM workstations, or initiate a voice call among KVM workstations.

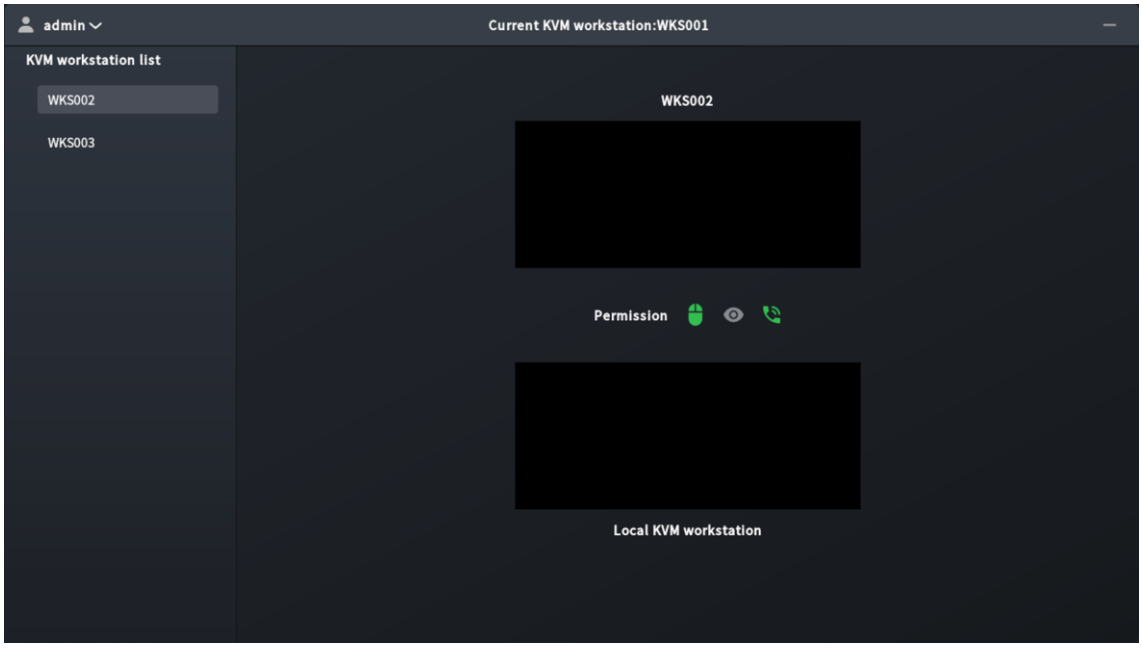

Fig 6-4 KVM workstation push

- **Prerequisites:**
  - ✧ In DSManager, multiple KVM workstation settings have been completed using decoders-**KVM**.
  - ✧ Using KVM Workstations 1 and 2 (WKS001 and WKS002) as examples, the following demonstrates how to push Signal 1 from WKS001 to WKS002.

- **Procedures:**

Step 1 Access the signal source interface of WKS001 to obtain control permission for Signal 1.

Step 2 In the **Push** interface, select KVM002 from the left **KVM workstation list** as the target workstation. Once selected, the image of WKS002 will be displayed in the upper-right area.

Step 3 Select Signal 1 in the lower-right **Local KVM workstation**. Choose **View only**, **Remote access**, or **Voice call** from the middle permissions panel. Then click on the image of WKS002 in the upper-right area. A pop-up dialog will appear in the lower-right corner indicating successful push.

Step 4 Check KVM002; a pop-up dialog appears in the lower-right corner. Click **Accept** to obtain the corresponding permissions for Signal 1 pushed from WKS001.

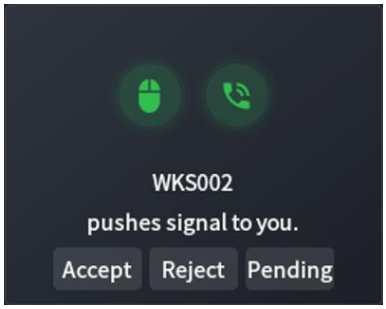

Fig 6-5 Pop-up dialog

Note

- You can only choose either **View only** or **Remote control**. To push control permissions, the current KVM workstaion must have control permissions for the signal source being pushed.
- When you choose **Voice call** along with **View only** or **Remote access**, it means that the permission of **View only** or **Remote access** is pushed during the call. Pushing automatically stops after the call ends, and the permission of **View only** or **Remote access** is restored.

6.2.5 Messages

On the floating menu, click **Messages** to access the messages list interface.

- When other KVM workstations initiate a push to the current KVM workstation, selecting **Pending** in the pop-up dialog will record the push message in the message list.
- The message list is organized chronologically based on time and displays information such as the event, permission, and time. It also provides control operations (**Reject**, **Accept**, and **Delete**).
- Rejecting, accepting, or deleting the push message will immediately remove this message from the message list to avoid duplicate operations.

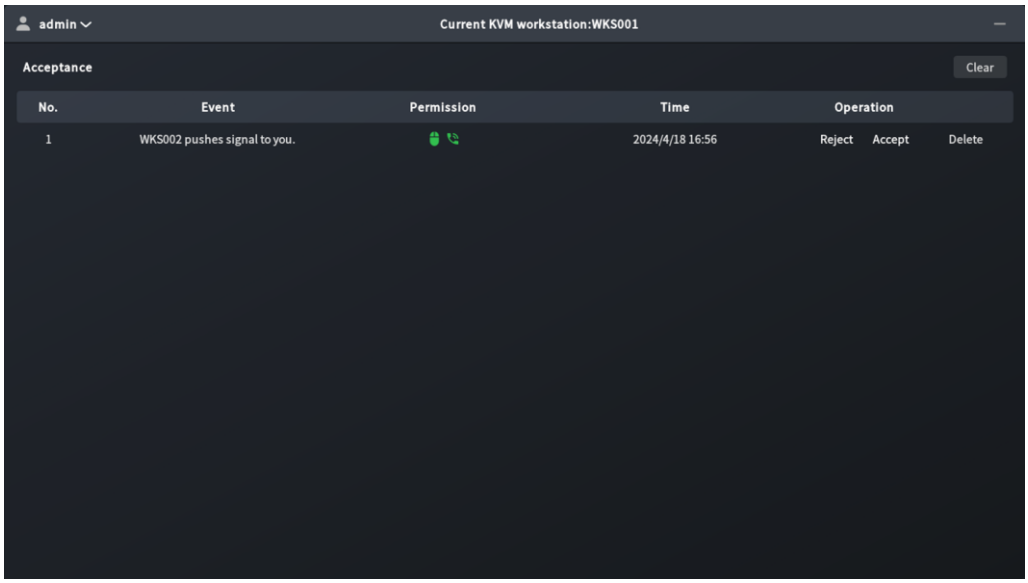

Fig 6-6 Message list

6.2.6 Video Wall

On the floating menu, click **Video wall** to access the corresponding interface.

- Go to **DSKvm** > **Video wall** to control the video wall display.
- **DSKvm** > **Video wall** offers simplified functions compared to **DSManager** > **Video wall**. See this chapter for more details.

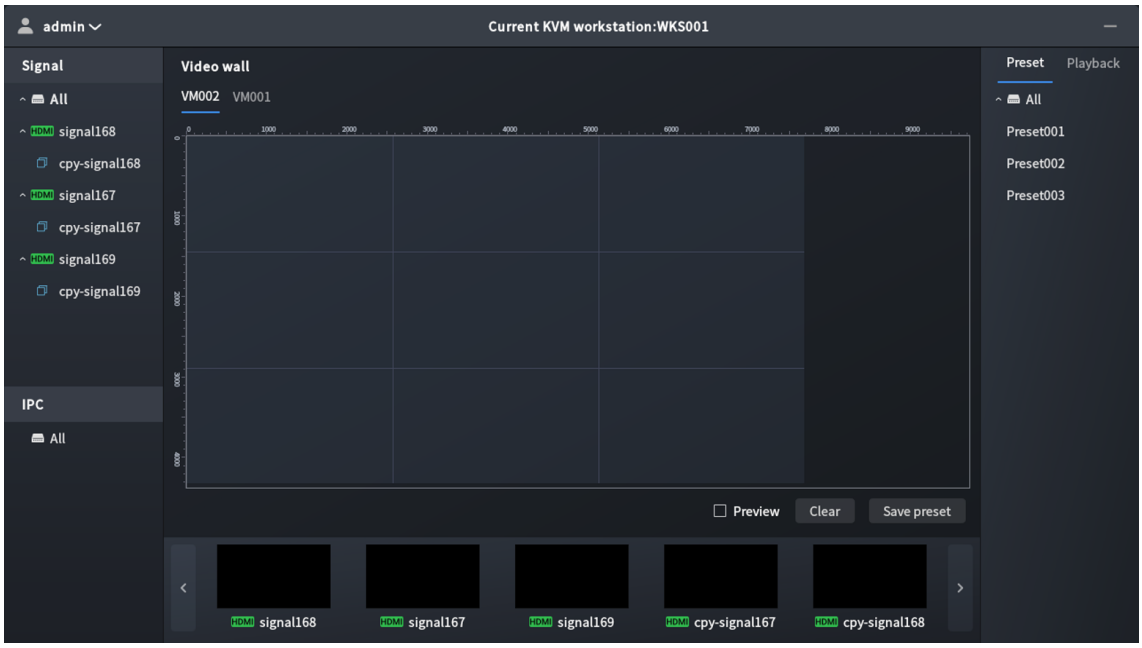

Fig 6-7 Video wall

Signal source list

The signal source list in the left side of the **Video wall** interface displays all current encoders, indicating their connection status through status icons.

- **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, DS40 devices only support this type of connection.
- **Connection status:** The connection status of the encoder is represented by the color of the status icon.
  - ✧ Green: The encoder is connected normally and has a normal connection to the signal source.
  - ✧ Yellow: The encoder is connected normally, but there is an abnormal connection to the signal source.
  - ✧ Gray: The encoder has an abnormal connection..

Virtual screen

- **Windowing:** Drag the signal source from the **Signal** list on the left or the preview list at the bottom to the virtual screen in the middle, creating a display window. This allows you to project the image of the selected signal source onto the screen for display.
- **Window operations:** Support closing, maximizing/restoring, and adjusting the position and size of windows..

Preset and Playback

- **Save preset:** Record the current windowing status of the video wall, including the position and size settings for each window.

Step 1 Complete the window configuration of the current video wall, then click **Save preset** in the action bar to see a pop-up dialog.

Step 2 Rename the preset and click **OK** to save the changes.

- **Preset operations:** Right-click on a saved preset under **Preset** to see a context menu.
- **Preset playback:** Configure playback based on selected presets, their sequence, and playback speed, which will be displayed on the screen for playback.

Step 1 Select the desired playback from **Playlist**, then click the blue button to start preset playback.

Step 2 To stop preset playback, click the red button next to the selected playback.

Preview

- **Preview list:** The preview list at the bottom of the **Video wall** interface displays all current encoders, indicating their connection status through status icons.
  - ✧ **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, DS40 devices only support this type of connection.
  - ✧ **Connection status:** The connection status of the encoder is represented by the color of the status icon.
    - Green: The encoder is connected normally and has a normal connection to the signal source.
    - Yellow: The encoder is connected normally, but there is an abnormal connection to the signal source.
    - Gray: The encoder has an abnormal connection.

- **Preview:**
  - ✧ Preview is disabled by default.
  - ✧ Enabling **Preview** allows real-time preview of the corresponding signal source images in both the encoder windows of the preview list and the windows of the virtual screen.

> 🕮 Note
>
> Changes to **Preview** apply to both the **Video Wall** and **Layout** interfaces simultaneously; independent configuration is not supported.

6.2.7 Layout

On the floating menu, click **Layout** to access the corresponding interface.

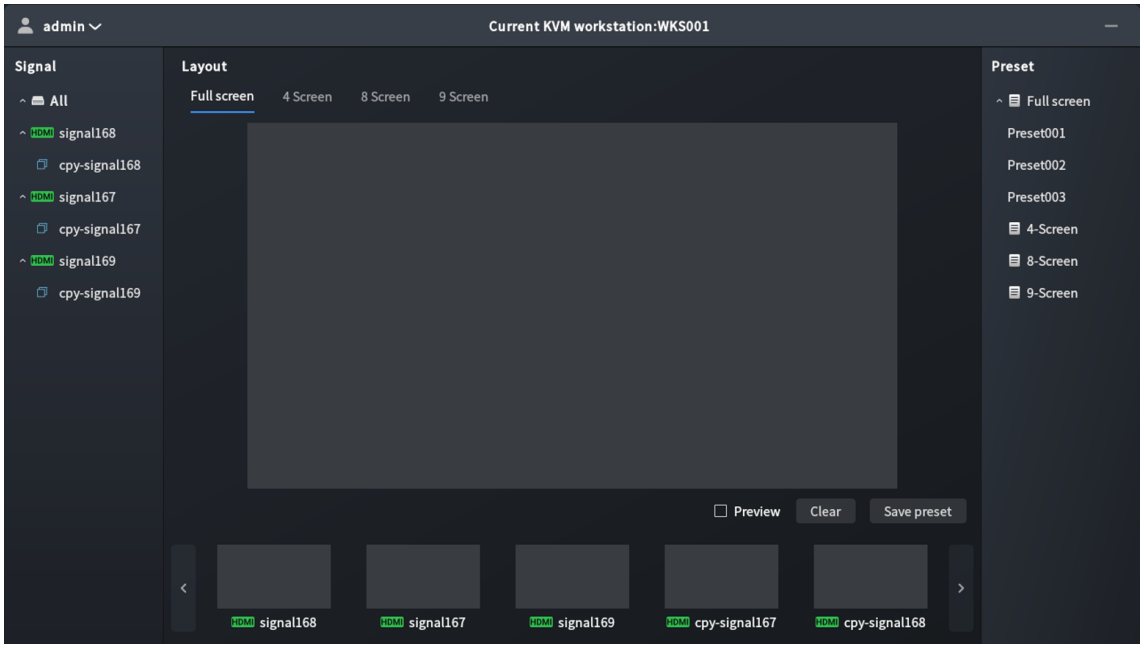

Fig 6-8 Layout

Signal source list

The signal source list in the left side of the **Layout** interface displays all current encoders, indicating their connection status through status icons.

- **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, DS40 devices only support this type of connection.
- **Connection status:** The connection status of the encoder is represented by the color of the status icon.
  - ✧ Green: The encoder is connected normally and has a normal connection to the signal source.
  - ✧ Yellow: The encoder is connected normally, but there is an abnormal connection to the signal source.
  - ✧ Gray: The encoder has an abnormal connection.

Virtual screen

- **Windowing:** Drag the signal source from the **Signal** list on the left or the preview list at the bottom to the virtual screen in the middle, creating a display window. This allows you to project the image of the selected signal source onto the screen for display.
- **Layout:** Supports only 4 layout options: **Full screen**, **4-screen**, **8-screen**, and **9-screen**. When adding a new window, signal sources can only be placed in the designated channels of the selected layout. The size and position of the window cannot be adjusted.
- **Window operations:** Only window closing operations are supported.

Preset list

- **Save preset:** Record the current layout and windowing status.

Step 1 Complete the window configuration of the current layout and click **Save preset** in the action bar to open a pop-up dialog.

Step 2 Rename the preset and click **OK** to save the changes.

- **Preset operations:** Right-click on a saved preset under **Preset** to see a context menu. Supports deletion only.

Preview

- **Preview list:** The preview list at the bottom of the **Layout** interface displays all current encoders, indicating their connection status through status icons.
  - **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, DS40 devices only support this type of connection.
  - **Connection status:** The connection status of the encoder is represented by the color of the status icon.
    - Green: The encoder is connected normally and has a normal connection to the signal source.
    - Yellow: The encoder is connected normally, but there is an abnormal connection to the signal source.
    - Gray: The encoder has an abnormal connection.
- **Preview:**
  - Preview is disabled by default.
  - Enabling **Preview** allows real-time preview of the corresponding signal source images in both the encoder windows of the preview list and the windows of the virtual screen.

> 🕮 Note
>
> Changes to **Preview** apply to both the **Video Wall** and **Layout** interfaces simultaneously; independent configuration is not supported.

6.2.8 USB

On the floating menu, click **USB** to access the USB settings interface. You can connect the specified signal source to the USB of the current KVM workstation for data pass-through.

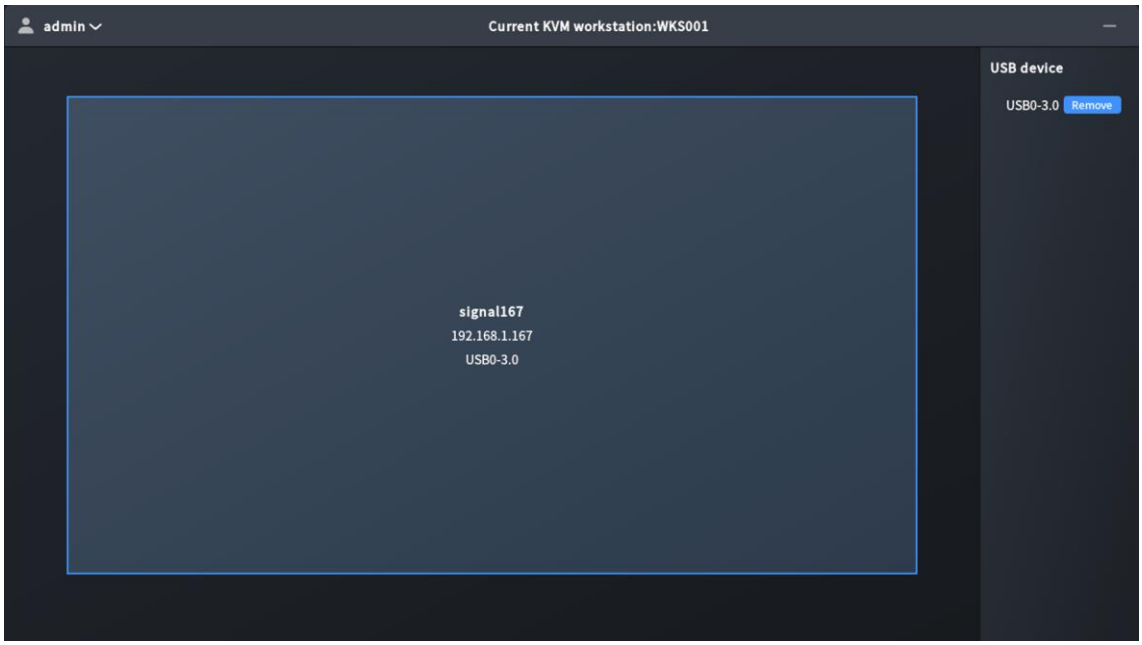

Fig 6-9 USB

Step 1 Connect a USB device to any decoder of the current KVM workstation (Note that connections are supported only to the USB 3.0 port and USB 2.0 port on the front panel, and the right-side USB 3.0 port on the rear panel).

Step 2 On the floating menu, click **Settings** to access the settings interface. Enable **Front USB port** in **USB**.

Step 3 Go to the **Signal interface** to perform operations such as **View only** and **Remote access** on the target signal source. Alternatively, go to the **Layout** interface to specify a signal source for windowing operations, allowing the current decoder to display the image of the specified signal source.

Step 4 On the floating menu, click **USB** to access the USB settings interface. Select the specified signal source from the **Signal** list on the left. Choose the desired USB from the **USB** list on the right, hover over it, and click **Connect** to establish a connection for data pass-through.

6.2.9 Settings

On the floating menu, click **Settings** to access the settings interface, where you can view and modify the settings for the current account's KVM workstations.

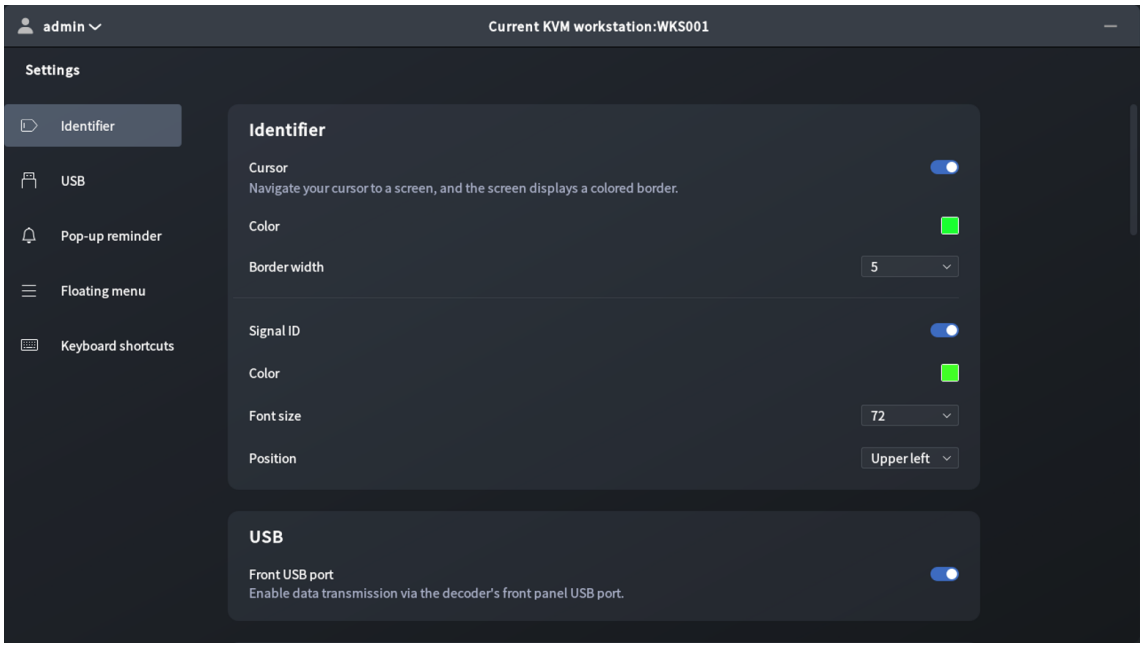

Fig 6-10 Settings

Area	Name	Description
Identifier	Cursor	When the cursor moves to a screen, the corresponding screen displays a colored border.
	Color	Set the color of the cursor identifier.
	Border width	Set the width of the cursor identifier (Unit: pixel).
	Signal ID	Each window displays the corresponding signal source name.
	Color	Set the color of the signal ID.
	Font size	Set the font size of the signal ID (Unit: pixel).
	Position	Set the position where the signal ID is displayed.
USB	Front USB port	Enable data transmission via the decoder's front USB port.
Pop-up reminder	Push	When enabled, a notification pop-up alert will appear in the lower-right corner upon performing a KVM workstation push operation.
	Accept	When enabled, a notification pop-up alert will appear in the lower-right corner upon receiving a KVM workstation push message.
	Duration	Set the display duration of the notification pop-up alert.
	Default	Set the default action(**Accept**, **Reject**, or **Pending**) when the display duration of the notification pop-up alert is reached.

Floating menu	Position	Set the position where the floating menu is displayed.
	Features	Choose which modules are displayed in the floating menu. **Settings** is displayed by default and cannot be deselected.
Keyboard shortcuts	Description	• Customize shortcuts for quick access to different modules in the floating menu. • The shortcuts for **Show/Hide interface** cannot be modified.
	Signal capture	Customize shortcuts for capturing a specific signal source, enabling quick switching to the specified signal source.
	Capture video wall window	Customize shortcuts for capturing video wall windows, enabling quick switching to the signal sources of the specified video wall.
	Push video wall window	Customize shortcuts for pushing video wall windows, enabling quick display of the local KVM workstation image on the video wall window.

Table 6-2 Settings

Legal Statement

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