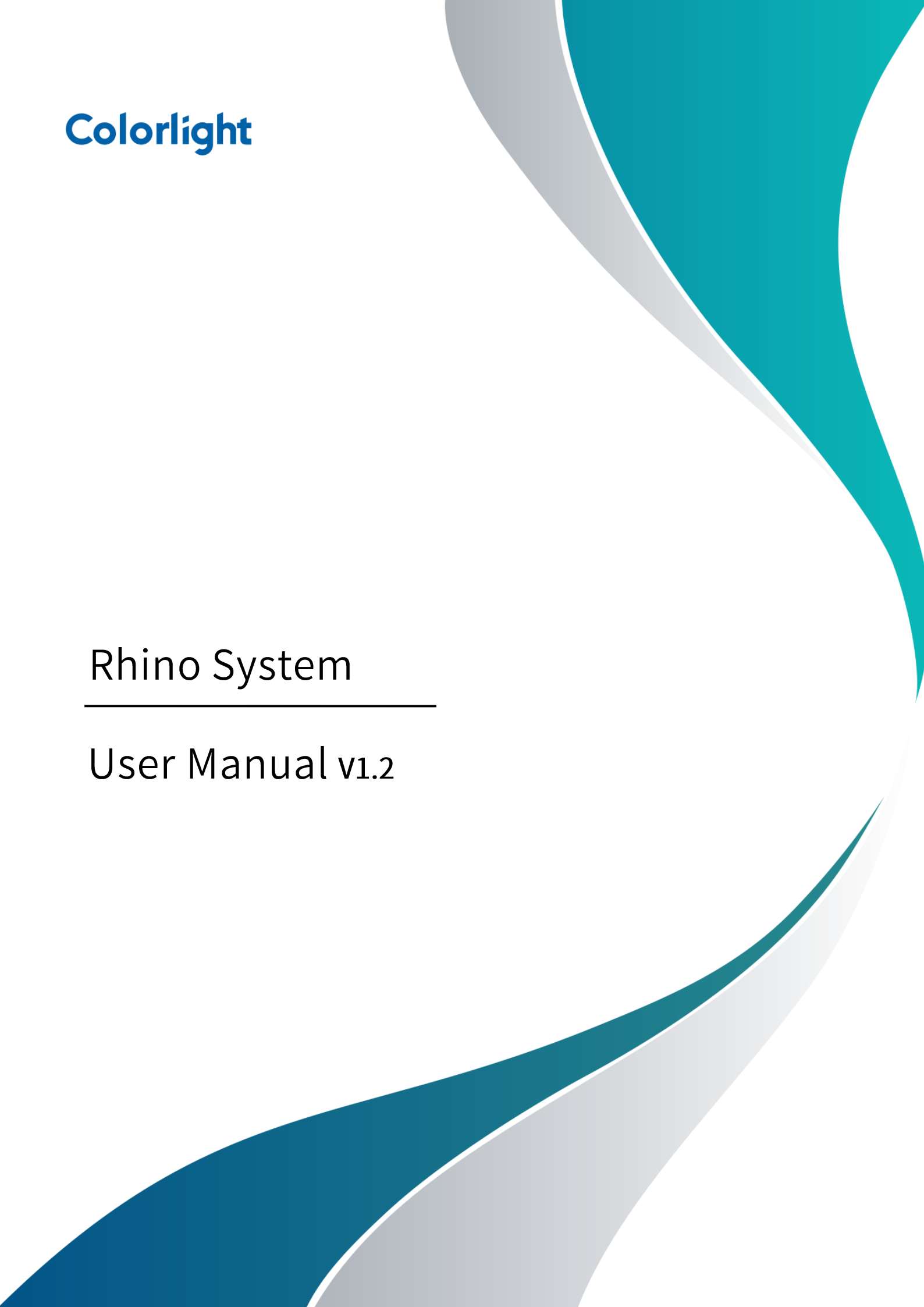




Colorlight

Rhino System

User Manual v1.2

Revision History

Document version	Date	Description
V1.0	2024-04-25	Initial release
V1.1	2024-10-17	1. Updated device nameplate and rendering 2. Added content related to DS20, DS410, and DS420
V1.2	2025-05-22	Updated content based on V1.2

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1 System Overview

The Rhino system is a comprehensive command and dispatch audiovisual management system. It integrates LED/LCD video wall display, KVM workstation management, video matrix management, featuring networked, node-based, and decentralized characteristics.

Without a central server, 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 DS20

2.1.1 Front Panel

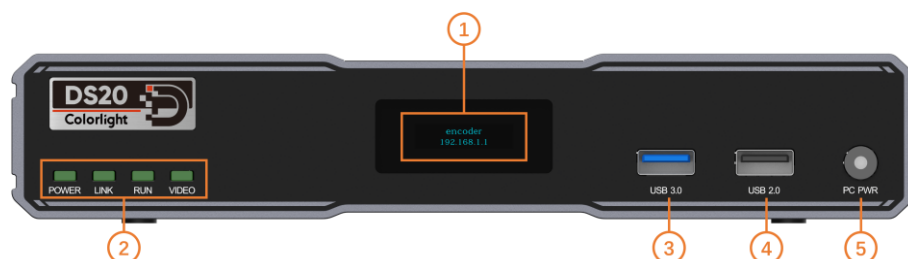


Fig 2-1 DS20 front panel

No.	Name	Description
1	LCD display	Shows the device name and IP address.
2	Indicators	POWER (Power status) - ON: Power supply is normal. - OFF: Device is not powered. RUN (Device running status) - ON: Device is operating normally. - OFF: Device is malfunctioning. LINK (Network connection status) - ON: Network connection is normal. - OFF: Network connection is lost. VIDEO (Video transmission status) - ON: Video stream is normal. - OFF: No video stream or stream error.
3	USB 3.0	- In Decoder-KVM mode: - Connects to a keyboard and mouse for control signal transmission - Connects to a USB drive for data transfer - Voltage/Current: 5V/0.9A - Transfer speed: 400 Mbps
4	USB 2.0	- In Decoder-KVM mode: - Connects to a keyboard and mouse for control signal transmission - Connects to a USB drive for data transfer - Voltage/Current: 5V/0.5A - Transfer speed: 160 Mbps

5	PC PWR	Power button: Powers on/off PC connected to PC CTRL port.
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Table 2-1 Description of DS20 front panel

2.1.2 Rear Panel



Fig 2-2 DS20 rear panel

No.	Name	Description
1	PC CTRL	4-pin phoenix connector: Connects to a 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 for connecting to a control device and transmitting control signals.
4	VIDEO	- HDMI 2.0 (19-pin female): - HDMI IN: Video signal input - HDMI LOOP: Loop output of the video input - HDMI OUT: Video stream output - Custom resolution: - Max. input/output: 4096x2160@30Hz, 1920x1080@60Hz - HDCP 2.3/1.4 compliant - Audio input supported
5	AUDIO	- Standard 3.5mm audio jacks: - IN: Audio signal input - LOOP: Loop output of the audio input - OUT: Audio stream output

6	USB	- Left USB 3.0 port: - In Encoder mode: Connects to host for control signal transmission - In Decoder-KVM mode: Connects to a keyboard and mouse for control signal transmission - Right USB 3.0 port: - In Decoder-KVM mode: Connects to a keyboard and mouse for control signal transmission or to a USB drive for data transfer - Voltage/Current: 5V/0.9A - Transfer speed: 400 Mbps
7	ETH	LAN(PoE): 1G LAN port (RJ45), 10/100/1000 Mbps auto-negotiation - PoE powered (12V/2A) FIBER: 1G FIBER port, compatible with 1G/2.5G/5G/10G optical modules - Fiber-LAN redundancy: When LAN and FIBER are both connected, FIBER serves as backup for LAN.
8	12V/2A	DC 12V 2A external power input

Table 2-2 Description of DS20 rear panel

2.2 DS30

2.2.1 Front Panel

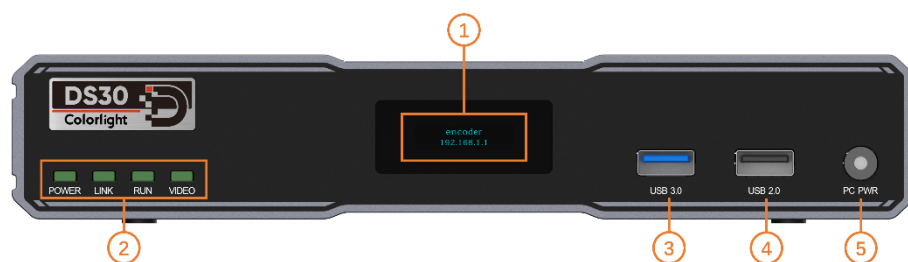


Fig 2-3 DS30 front panel

No.	Name	Description
1	LCD display	Shows the device name and IP address.
2	Indicators	POWER (Power status) - ON: Power supply is normal. - OFF: Device is not powered. RUN (Device running status) - ON: Device is operating normally. - OFF: Device is malfunctioning. LINK (Network connection status) - ON: Network connection is normal. - OFF: Network connection is lost. VIDEO (Video transmission status) - ON: Video stream is normal. - OFF: No video stream or stream error.
3	USB 3.0	- In Decoder-KVM mode: - Connects to a keyboard and mouse for control signal transmission - Connects to a USB drive for data transfer - Voltage/Current: 5V/0.9A - Transfer speed: 400 Mbps
4	USB 2.0	- In Decoder-KVM mode: - Connects to a keyboard and mouse for control signal transmission - Connects to a USB drive for data transfer - Voltage/Current: 5V/0.5A - Transfer speed: 160 Mbps
5	PC PWR	Power button: Powers on/off PC connected to PC CTRL port.

Table 2-3 Description of DS30 front panel

2.2.2 Rear Panel



Fig 2-4 DS30 rear panel

No.	Name	Description
1	PC CTRL	4-pin phoenix connector: Connects to a 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 for connecting to a control device and transmitting control signals.
4	VIDEO	- HDMI 2.0 (19-pin female): - HDMI IN: Video signal input - HDMI LOOP: Loop output of the video input - HDMI OUT: Video stream output - Custom resolution: - Max. input/output: 4096x2160@30Hz, 1920x1080@60Hz - HDCP 2.3/1.4 compliant - Audio input supported
5	AUDIO	- Standard 3.5mm audio jacks: - IN: Audio signal input - LOOP: Loop output of the audio input - OUT: Audio stream output
6	USB	- Left USB 3.0 port: - In Encoder mode: Connects to host for control signal transmission - In Decoder-KVM mode: Connects to a keyboard and mouse for control signal transmission - Right USB 3.0 port: - In Decoder-KVM mode: Connects to a keyboard and mouse for control signal transmission or to a USB drive for data transfer - Voltage/Current: 5V/0.9A - Transfer speed: 400 Mbps

7	ETH	• LAN(PoE): - 1G LAN port (RJ45), 10/100/1000 Mbps auto-negotiation - PoE powered (12V/2A) • FIBER: - 1G FIBER port, compatible with 1G/2.5G/5G/10G optical modules - Fiber-LAN redundancy: When LAN and FIBER are both connected, FIBER serves as backup for LAN.
8	12V/2A	DC 12V 2A external power input

Table 2-4 Description of DS30 rear panel

2.3 DS40

2.3.1 Front Panel

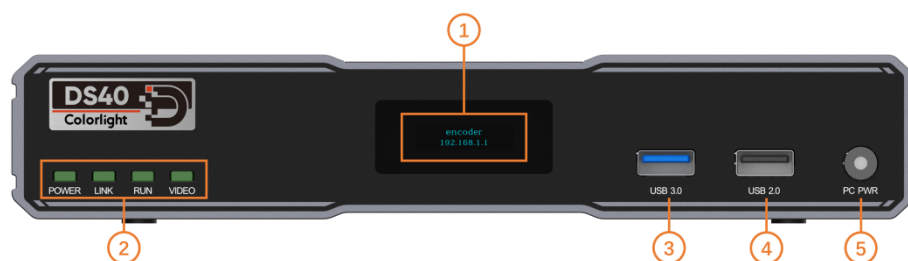


Fig 2-5 DS40 front panel

No.	Name	Description
1	LCD display	Shows the device name and IP address.
2	Indicators	• POWER (Power status) - ON: Power supply is normal. - OFF: Device is not powered. • RUN (Device running status) - ON: Device is operating normally. - OFF: Device is malfunctioning. • LINK (Network connection status) - ON: Network connection is normal. - OFF: Network connection is lost. • VIDEO (Video transmission status) - ON: Video stream is normal. - OFF: No video stream or stream error.

3	USB 3.0	- In Decoder-KVM mode: - Connects to a keyboard and mouse for control signal transmission - Connects to a USB drive for data transfer - Voltage/Current: 5V/0.9A - Transfer speed: 400 Mbps
4	USB 2.0	- In Decoder-KVM mode: - Connects to a keyboard and mouse for control signal transmission - Connects to a USB drive for data transfer - Voltage/Current: 5V/0.5A - Transfer speed: 160 Mbps
5	PC PWR	Power button: Powers on/off PC connected to PC CTRL port.

Table 2-5 Description of DS40 front panel

2.3.2 Rear Panel



Fig 2-6 DS40 rear panel

No.	Name	Description
1	PC CTRL	4-pin phoenix connector: Connects to a 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 for connecting to a control device and transmitting control signals.

4	VIDEO	- HDMI 2.0 (19-pin female): - HDMI IN: Video signal input - HDMI LOOP: Loop output of the video input - HDMI OUT: Video stream output - Custom resolution: - Max. input/output: 4096x2160@60Hz - Max. width: 8192 pixels (8192x1024@60Hz) - Max. height: 8192 pixels (1024x8192@60Hz) - HDCP 2.3/1.4 compliant - Audio input supported
5	AUDIO	- Standard 3.5mm audio jacks: - IN: Audio signal input - LOOP: Loop output of the audio input - OUT: Audio stream output
6	USB	- Left USB 3.0 port: - In Encoder mode: Connects to host for control signal transmission - In Decoder-KVM mode: Connects to a keyboard and mouse for control signal transmission - Right USB 3.0 port: - In Decoder-KVM mode: Connects to a keyboard and mouse for control signal transmission or to a USB drive for data transfer - Voltage/Current: 5V/0.9A - Transfer speed: 400 Mbps
7	ETH	LAN(PoE): 1G LAN port (RJ45), 10/100/1000 Mbps auto-negotiation - PoE powered (12V/2A) FIBER: 1G FIBER port, compatible with 1G/2.5G/5G/10G optical modules - Fiber-LAN redundancy: When LAN and FIBER are both connected, FIBER serves as backup for LAN.
8	12V/2A	DC 12V 2A external power input

Table 2-6 Description of DS40 rear panel

2.4 DS410

2.4.1 Front Panel



Fig 2-7 DS410 front panel

No.	Name	Description
1	2.0-inch LCD display	- Shows device name, IP address, and connection status (LAN/FIBER input and FIBER output). - Green: Normal connection - Gray: Abnormal or no connection
2	Knob	- Rotate the knob to navigate between the menu items. - Press the knob to confirm your selection.
3	ESC button	- Cancel the current input or operation - Return to the previous menu
4	Rocker switch	- Powers the device on/off: - I: ON - O: OFF

Table 2-7 Description of DS410 front panel

2.4.2 Rear Panel



Fig 2-8 DS410 rear panel

No.	Name	Description
1	Power connector	1x C14 inlet, 100~240V, 50/60Hz
2	Audio connector	- Standard 3.5mm audio jacks: - IN: Audio input - OUT: Audio output
3	4-pin phoenix connector	- IR TX: Infrared output, 5V/10mA - IR RX: Infrared input, 5V/10mA

4	5-pin phoenix connector	- RELAY: Relay control, supports DC 30V/1A or AC 125V/0.5A - IO: 2x GPIO, 1x GND
5	5-pin phoenix connector	- RS485: Half-duplex, 2-pin - RS232: Full-duplex, 3-pin
6	USB	2x USB 3.0 ports: For control signal transmission or device cascading
7	ETH	- LAN port: 1xRJ45, 1000Mbps, PoE not supported - FIBER port: 1G SFP port, compatible with 1G/2.5G/5G/10G optical modules
8	HDMI	- HDMI 2.0 ports: - IN: Video input (HDCP 2.3/1.4), with embedded audio support - LOOP: Loop output of the video input
9	Ethernet output	10x RJ45 output ports

Table 2-8 Description of DS410 rear panel

2.5 DS420

2.5.1 Front Panel



Fig 2-9 DS420 front panel

No.	Name	Description
1	2.0-inch LCD display	- Shows device name, IP address, and connection status (LAN/FIBER input and FIBER output). - Green: Normal connection - Gray: Abnormal or no connection
2	Knob	- Rotate the knob to navigate between the menu items. - Press the knob to confirm your selection.
3	ESC button	- Cancel the current input or operation - Return to the previous menu
4	Rocker switch	- Powers the device on/off: - I: ON - O: OFF

Table 2-9 Description of DS420 front panel

2.5.2 Rear Panel

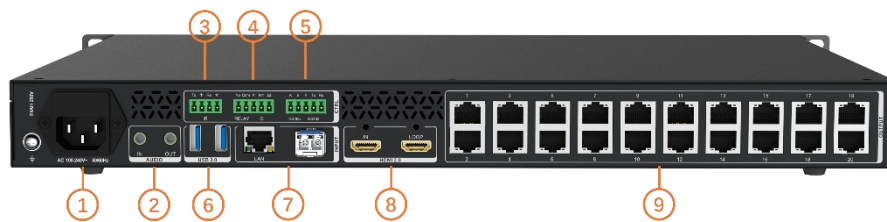


Fig 2-10 DS420 rear panel

No.	Name	Description
1	Power connector	1x C14 inlet, 100~240V, 50/60Hz
2	Audio connector	- Standard 3.5mm audio jacks: - IN: Audio input - OUT: Audio output
3	4-pin phoenix connector	- IR TX: Infrared output, 5V/10mA - IR RX: Infrared input, 5V/10mA
4	5-pin phoenix connector	- RELAY: Relay control, supports DC 30V/1A or AC 125V/0.5A - IO: 2x GPIO, 1x GND
5	5-pin phoenix connector	- RS485: Half-duplex, 2-pin - RS232: Full-duplex, 3-pin
6	USB	2x USB 3.0 ports: For control signal transmission or device cascading
7	ETH	- LAN port: 1xRJ45, 1000Mbps, PoE not supported - FIBER port: 1G SFP port, compatible with 1G/2.5G/5G/10G optical modules
8	HDMI	- HDMI 2.0 ports: - IN: Video input (HDCP 2.3/1.4), with embedded audio support - LOOP: Loop output of the video input
9	Ethernet output	20x RJ45 output ports

Table 2-10 Description of DS420 rear panel

3 Hardware Connection

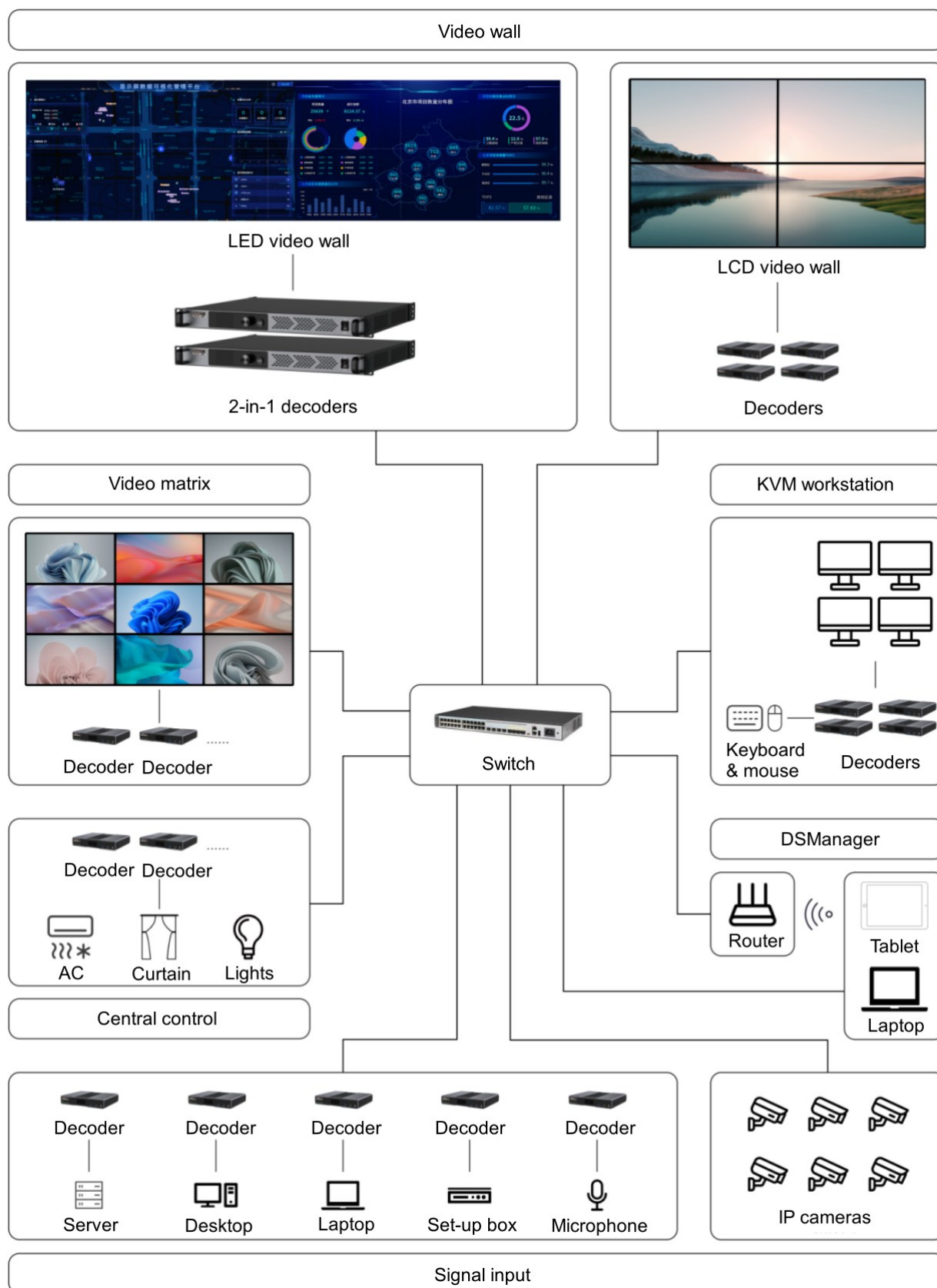


Fig 3-1 System typology

3.1 DS20/DS30/DS40

The hardware connection method of DS20, DS30, and DS40 is the same. Using DS40 as an example, the following demonstrates how to connect the device.

3.1.1 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 Rhino system and provides power supply to the device.

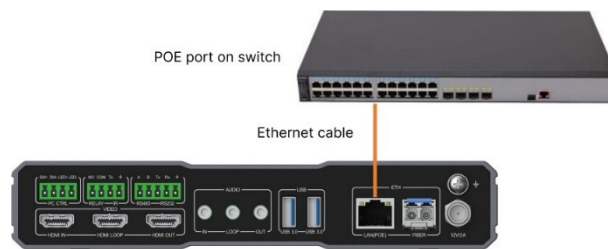


Fig 3-2 Connection method 1

- ✧ **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 Rhino system. Then connect a power adapter with the device's 12V/2A port for device power supply.

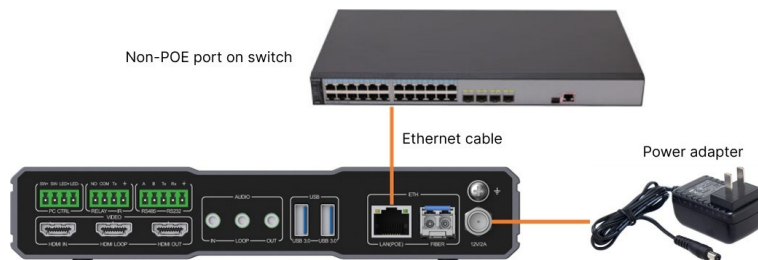


Fig 3-3 Connection method 2

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

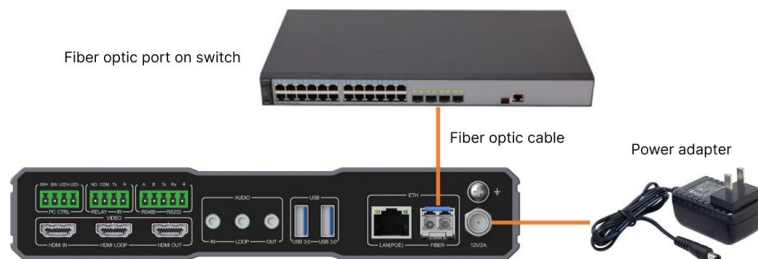


Fig 3-4 Connection method 3

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.

3.1.2 Encoder

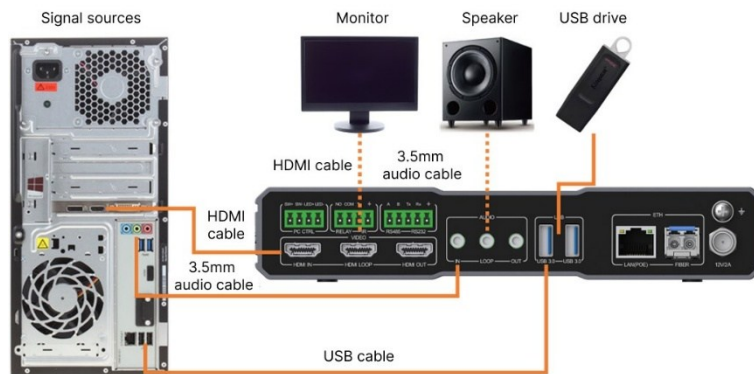


Fig 3-5 Encoder hardware connection

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 for control signal exchange. This connection is required to enable KVM control.
- 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.

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.

3.1.3 Decoder (Video Wall Mode)

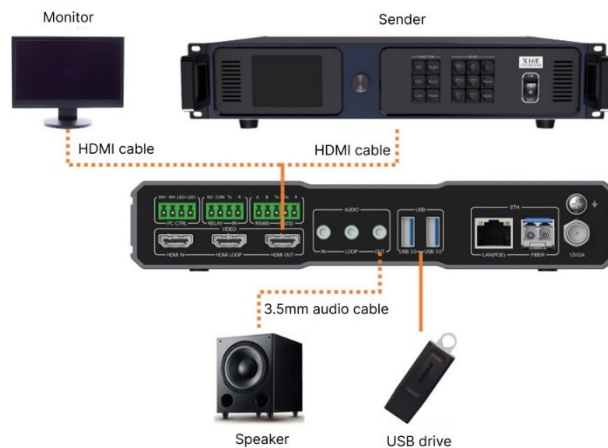


Fig 3-6 Decoder-video wall hardware connection

- 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.

3.1.4 Decoder (Video Matrix Mode)

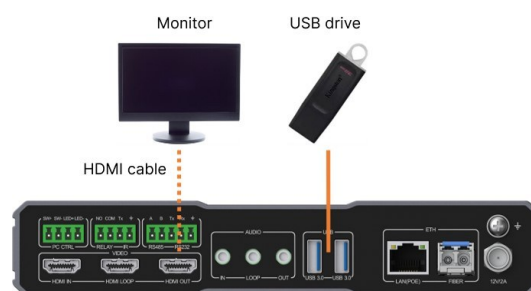


Fig 3-7 Decoder-matrix hardware connection

- 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.

3.1.5 Decoder (KVM Mode)



Fig 3-8 Decoder-KVM hardware connection

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 (Video wall/Video matrix/KVM mode): All USB ports support update via USB drives.

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.

3.2 DS410/DS420

The hardware connection method of DS410 and DS420 is the same. Using DS420 as an example, the following demonstrates how to connect the device.

3.2.1 Network and Power Supply

- The device supports the following two connection methods for network and power supply:
 - ✧ **Connection method 1:** Connect a network port on the switch to the INPUT LAN port on the device using an Ethernet cable, establishing network access for the Rhino system. Connect a power adapter with the power port for device power supply.

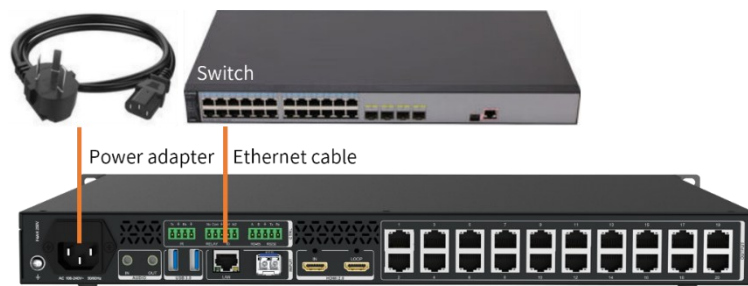


Fig 3-9 Connection method 1

- ✧ **Connection method 2:** Insert the optical modules into the switch's fiber optic port and the device's INPUT SFP port, and connect the two ports using a fiber optic cable, establishing network access for the Rhino system. Then connect a power adapter to the device's power port for device power supply.

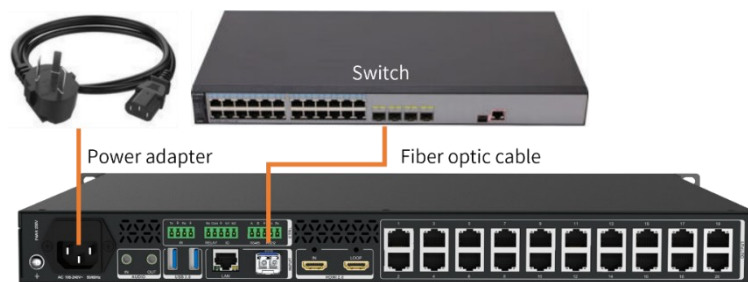


Fig 3-10 Connection method 2

3.2.2 Decoder (Video Wall Mode)

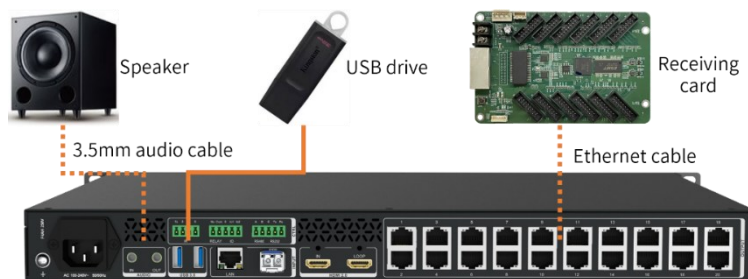


Fig 3-11 Decoder-video wall hardware connection

- OUTPUT**
Connect the OUTPUT LAN port on the decoder to a receiving card using an Ethernet port to enable video stream output.

- AUDIO

Connect the AUDIO OUT port on the decoder to a speaker or earphone using a 3.5mm audio cable to enable audio stream output.

- USB

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

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**.

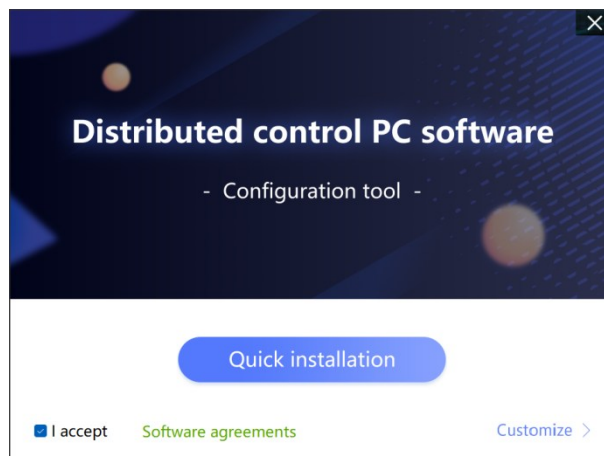


Fig 4-1 Installation wizard

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 display "Installation complete". You can click **Finish** to close the installation or click **Start now** to launch DSConfig.

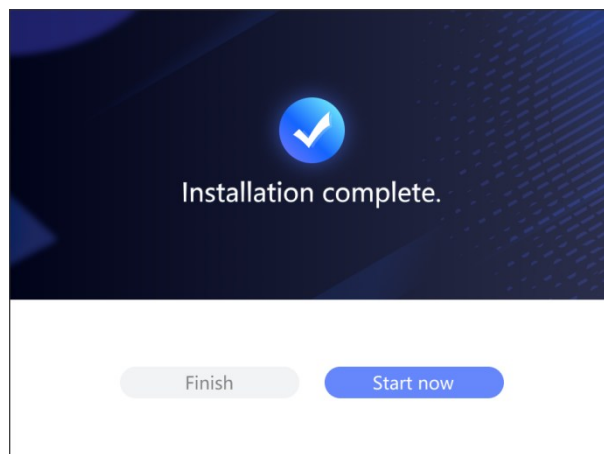


Fig 4-2 Installation complete

4.2.2 Uninstallation

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

名称	修改日期	类型	大小
libwinpthread-1.dll	2019/3/14 22:36	应用程序扩展	51 KB
msvcrt120.dll	2023/2/27 16:36	应用程序扩展	937 KB
opengl32sw.dll	2016/6/14 20:00	应用程序扩展	20,433 KB
Qt5Core.dll	2020/11/6 17:08	应用程序扩展	7,995 KB
Qt5Gui.dll	2020/11/6 17:08	应用程序扩展	9,437 KB
Qt5Network.dll	2020/11/6 17:08	应用程序扩展	2,636 KB
Qt5Svg.dll	2020/11/6 17:20	应用程序扩展	567 KB
Qt5Widgets.dll	2020/11/6 17:08	应用程序扩展	8,460 KB
uninst.exe	2024/1/30 11:20	应用程序	2,110 KB
vcruntime140.dll	2023/3/2 15:05	应用程序扩展	106 KB
zlib.dll	2023/11/23 15:12	应用程序扩展	47 KB

Fig 4-3 Uninstaller

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

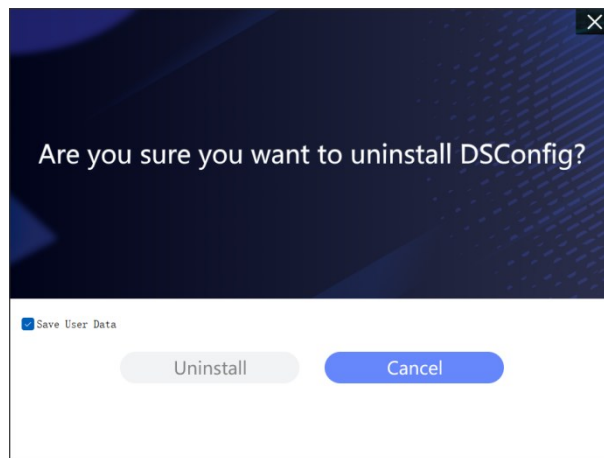


Fig 4-4 Uninstallation confirmation

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

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

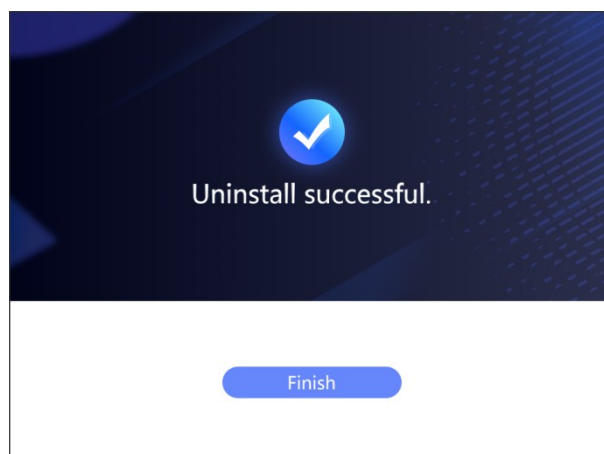


Fig 4-5 Uninstallation complete

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 devices, including encoders and decoders, connected in the Rhino 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.

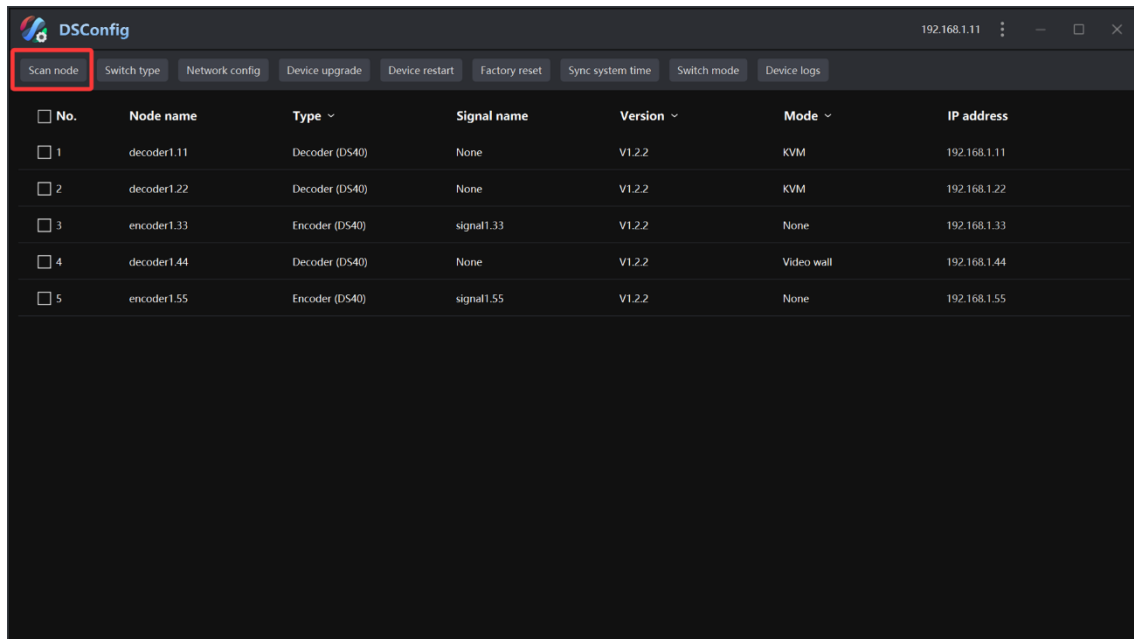


Fig 4-6 Scan node

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.

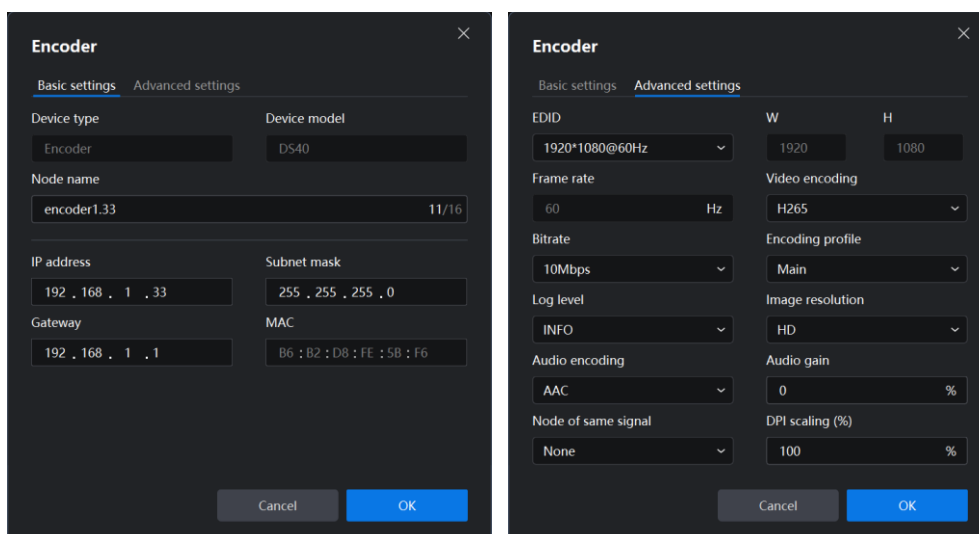


Fig 4-7 Encoder settings

Area	Name	Description
Basic settings	Device type	Displays the device type as Encoder or Decoder , cannot be modified.
	Device model	Displays the current device model, cannot be modified.
	Node name	Set the current node name for the device.
	IP address	Set the current IP address for the device.
	Subnet mask	Set the current subnet mask for the device.
	Gateway	Set the current gateway for the device.
	MAC	Displays the current physical address of the device, cannot be modified.
Advanced settings	EDID	Choose EDID for the current encoder, with options ranging from 1920*1080@30Hz to 4096*2160@60Hz. Alternatively, choose Custom to configure EDID as desired.
	W	Set the horizontal pixel count for the current encoder. Choose Custom for EDID to modify the width, ranging from 540 to 8192.
	H	Set the vertical pixel count for the current encoder. Choose Custom for EDID to modify the height, ranging from 540 to 8192.
	Frame rate	Set the encoding frame rate for the current encoder by choosing Custom for EDID, ranging from 24Hz to 60Hz.
	Video encoding	Set the video encoding format for the current encoder as H264 or H265 (default).
	Bitrate	Set the video bitrate for the current encoder. Minimum: 4Mbps; default: 10Mbps; maximum: 40Mbps.
	Encoding profile	Set the encoding profile for the current encoder: When the video encoding is H265, select Main (default) or Main10 . When the video encoding is H264, select Baseline (default), Main , or High .
	Log level	Set the log level for the current encoder as DEBUG (default), INFO , WARN , or ERROR .
	Image resolution	Select the image quality for the current encoder: HD (default) indicates YUV420; UHD indicates YUV444.
	Audio encoding	Set the audio encoding format for the current encoder as AAC (default) or G711A .
	Audio gain	Set the audio gain level for the current encoder, ranging from 0 (default) to 100.
	Node of same signal	In scenarios where KVM control is enabled via the same signal source, bind the node of same signal for the current encoder.

	DPI scaling (%)	In scenarios where KVM control is enabled via the same signal source, configure the current encoder's DPI to match that of the signal source.
--	-----------------	---

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.

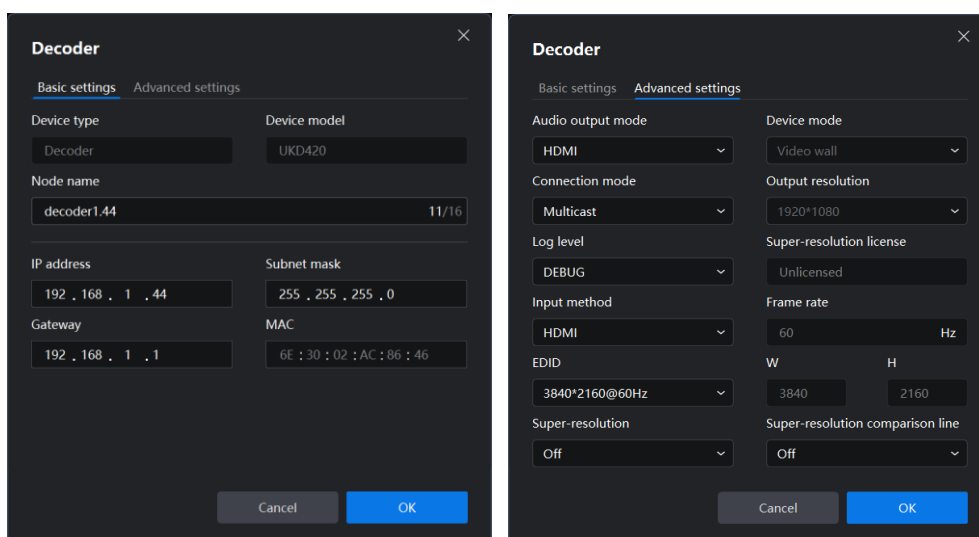


Fig 4-8 Decoder settings

Area	Name	Description
Basic settings	Device type	Displays the device type as Encoder or Decoder , cannot be modified.
	Device model	Displays the current device model, cannot be modified.
	Node name	Set the node name for the current device.
	IP address	Set the IP address for the current device.
	Subnet mask	Set the subnet mask for the current device.
	Gateway	Set the gateway for the current device.
	MAC	Displays the physical address of the current device, cannot be modified.
Advanced settings	Audio output mode	Set the audio output mode for the current decoder as HDMI (default) or 3.5mm .
	Device mode	Set the output mode of the current decoder as Video wall (default), Video matrix , or KVM .
	Connection mode	Set the connection mode for the current decoder as Multicast (default) or Unicast .

	Output resolution	Displays the output resolution of the current decoder. Editable when the device mode is set to Video matrix or KVM , ranging from 800*600 to 3840*2160.
	Log level	Set the log level for the current decoder as DEBUG (default), INFO , WARN , or ERROR .
	Super-resolution license	- Prerequisite: This field is available only for DS420's encoder. - Displays the super-resolution license status of the current decoder: Decoders with AI algorithm license display Licensed; otherwise, Unlicensed is displayed.
	Input method	- Select the signal input method for the current decoder: Network (default) or HDMI. - Select HDMI for input method: Passthrough is enabled. In the Advanced settings interface, fields including Frame rate, EDID, W, H, Super-resolution, Super-resolution comparison line are displayed.
	Frame rate	- Prerequisite: Configurable when the input method is HDMI. - Set the frame rate for the current decoder's signal during passthrough. Editable when EDID is Custom, ranging from 24Hz to 60Hz.
	EDID	- Prerequisite: Configurable when the input method is HDMI. - Configure EDID for the current decoder's signal during passthrough, ranging from 1920*1080@30Hz to 4096*2160@60Hz. Alternatively, configure EDID as desired after selecting Custom.
	W	- Prerequisite: Configurable when the input method is HDMI. - Set the horizontal pixel count for the current decoder's signal. Editable when EDID is Custom, ranging from 540 to 8192.
	H	- Prerequisite: Configurable when the input method is HDMI. - Set the vertical pixel count for the current decoder's signal. Editable when EDID is Custom, ranging from 540 to 8192.
	Super-resolution	- Prerequisites: - Configurable when the input method of DS420 decoder is HDMI. - Super-resolution settings take effect only when Super-resolution is Licensed. - Select the video super-resolution status: Off (default) or On.

	Super-resolution comparison line	- Prerequisites: - Configurable when the input method of DS420 decoder is HDMI. - Super-resolution comparison line settings take effect only when license status is Licensed. - Select the video super-resolution comparison line status: Off (default) or On.
--	----------------------------------	---

Table 4-2 Description of decoder settings

Notes on 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.

4.3.4 Switch Type

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

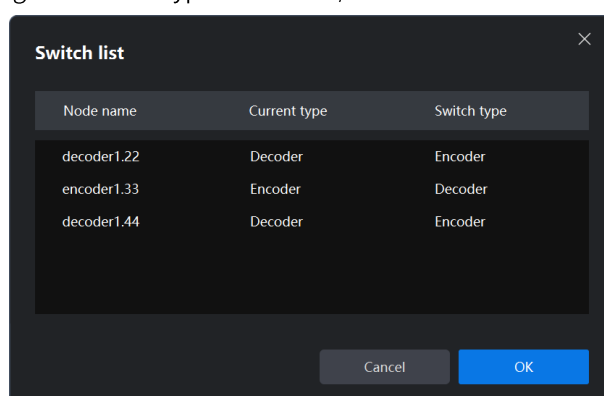


Fig 4-9 Switch type

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** as desired. 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.)

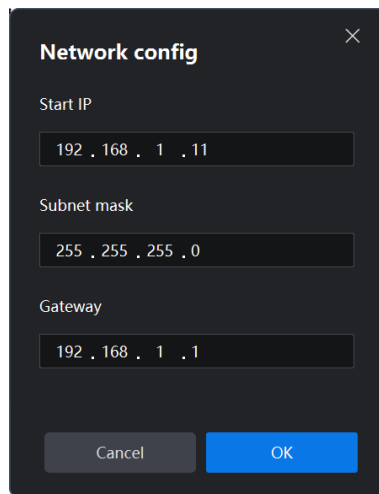


Fig 4-10 Network configuration

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.

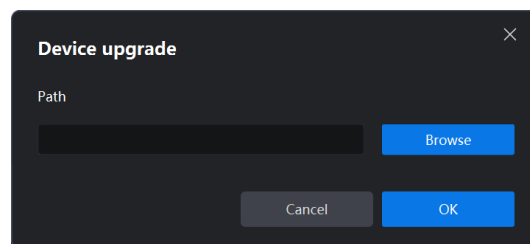


Fig 4-11 Path selection dialog

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

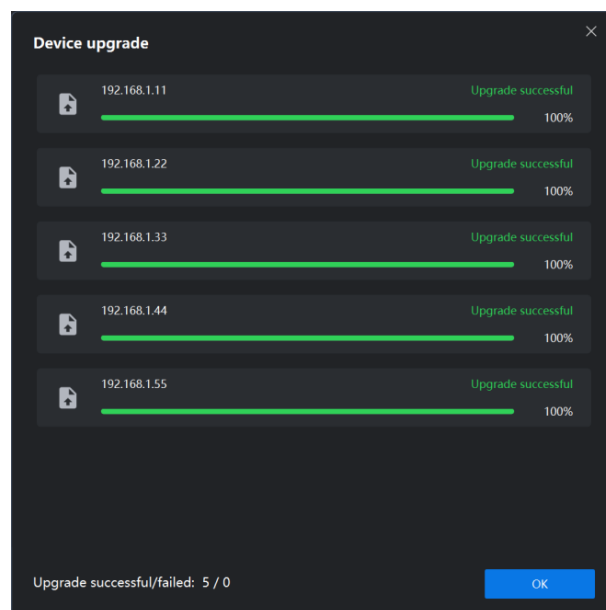


Fig 4-12 Upgrade progress

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.

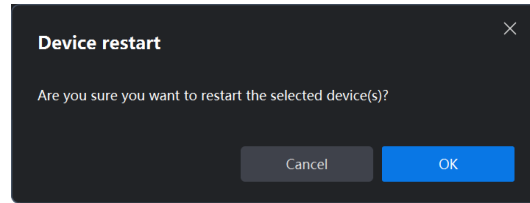


Fig 4-13 Confirmation dialog

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.

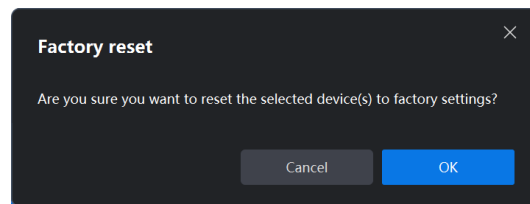


Fig 4-14 Confirmation dialog

Note

A factory reset only retains the device's network configuration (including IP address, subnet mask, and gateway), type (encoder/decoder), and mode (Video wall/Video matrix/KVM). Other internal configuration and corresponding database will be completely erased.

4.3.9 Sync System Time

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

Step 1 Device selection is not required. 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.

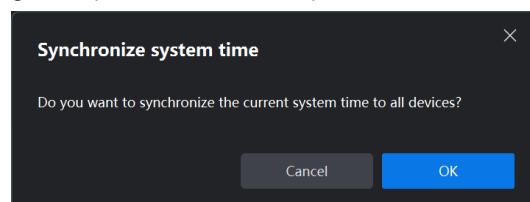


Fig 4-15 Confirmation dialog

4.3.10 Decoder Mode Switching

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

Step 1 Click **Switch mode** in DSConfig to access the **Switch decoder mode** interface.

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

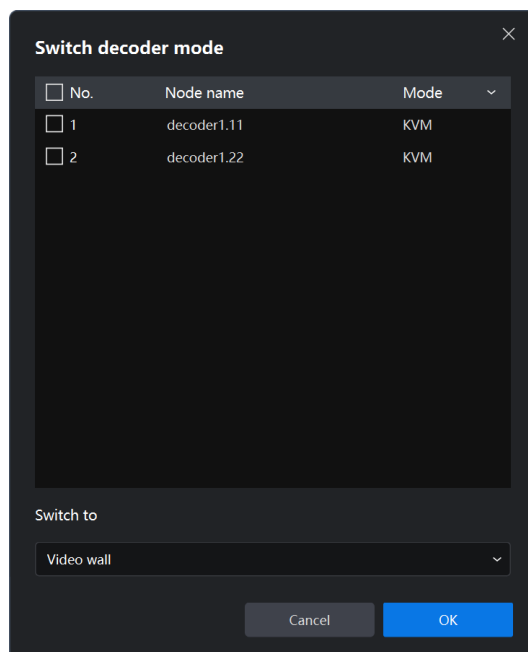


Fig 4-16 Decoder mode switching

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 4-17 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 **Video wall**, **KVM**, or **Video matrix**.

4.3.11 Device Log

- This feature allows you to view the IP addresses of the current and previous main proxy nodes, set the log level, and export the logs in **Device logs**.
- Device Log Level Settings**

Step 1 Select a device and click **Device logs** to access the Device logs dialog.

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.

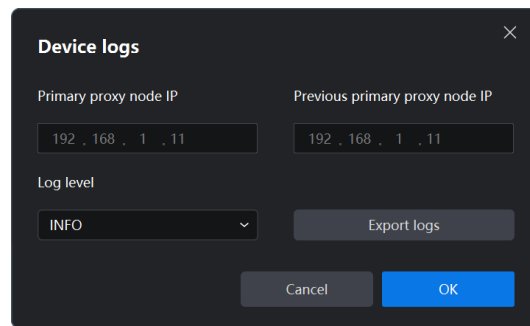


Fig 4-18 Device log level settings

- **Export Device Logs**

Step 1 Select a device and click **Device logs** to access the Device logs dialog.

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 selected device.

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

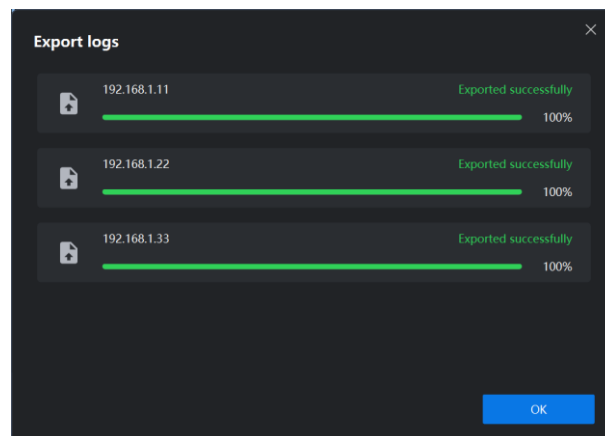


Fig 4-19 Export logs

Notes on 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.

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**.

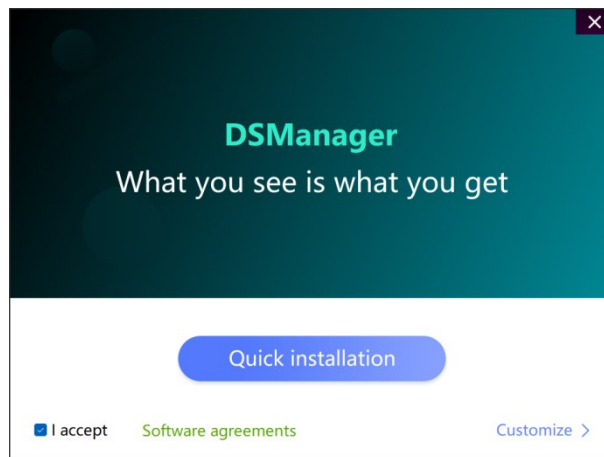


Fig 5-1 Installation wizard

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 display "Installation complete". You can click **Finish** to close the installation or click **Start now** to launch DSManager.

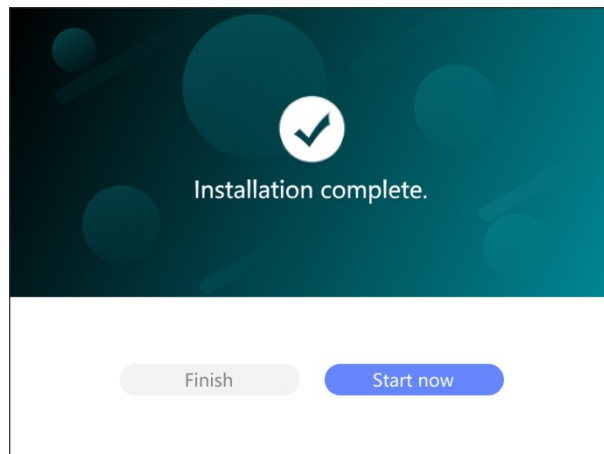


Fig 5-2 Installation complete

5.2.2 Uninstallation

Step 1 Right-click on the 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.

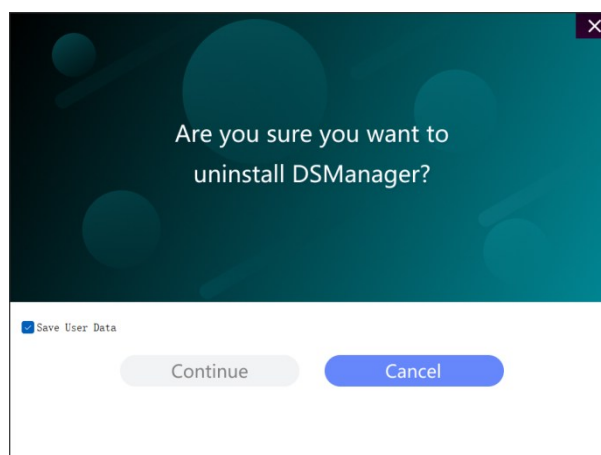


Fig 5-4 Uninstallation confirmation

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

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

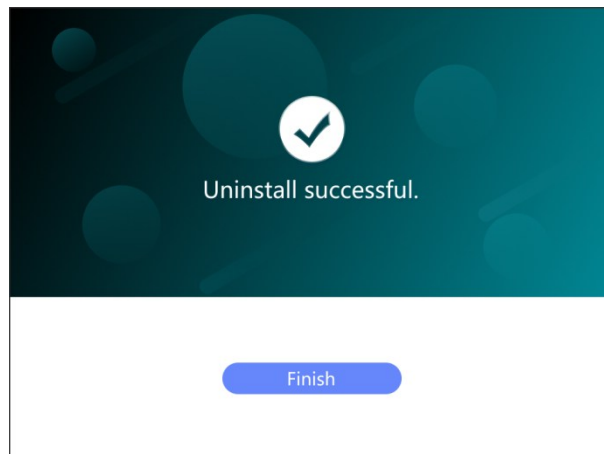


Fig 5-5 Uninstallation complete

5.3 Login

Prerequisite: The current device (control PC) is connected to the Rhino system and does not have any IP conflicts with other devices.

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 message 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.

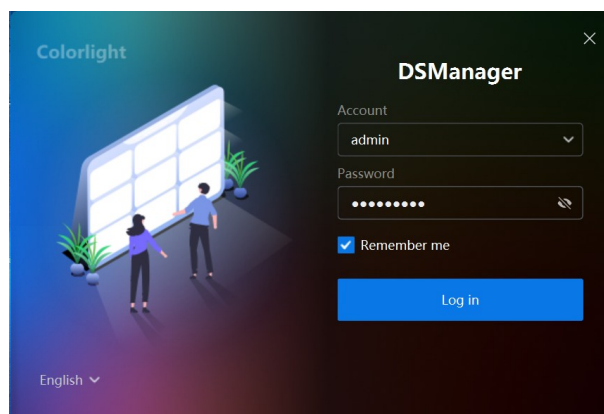


Fig 5-6 Login interface

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.

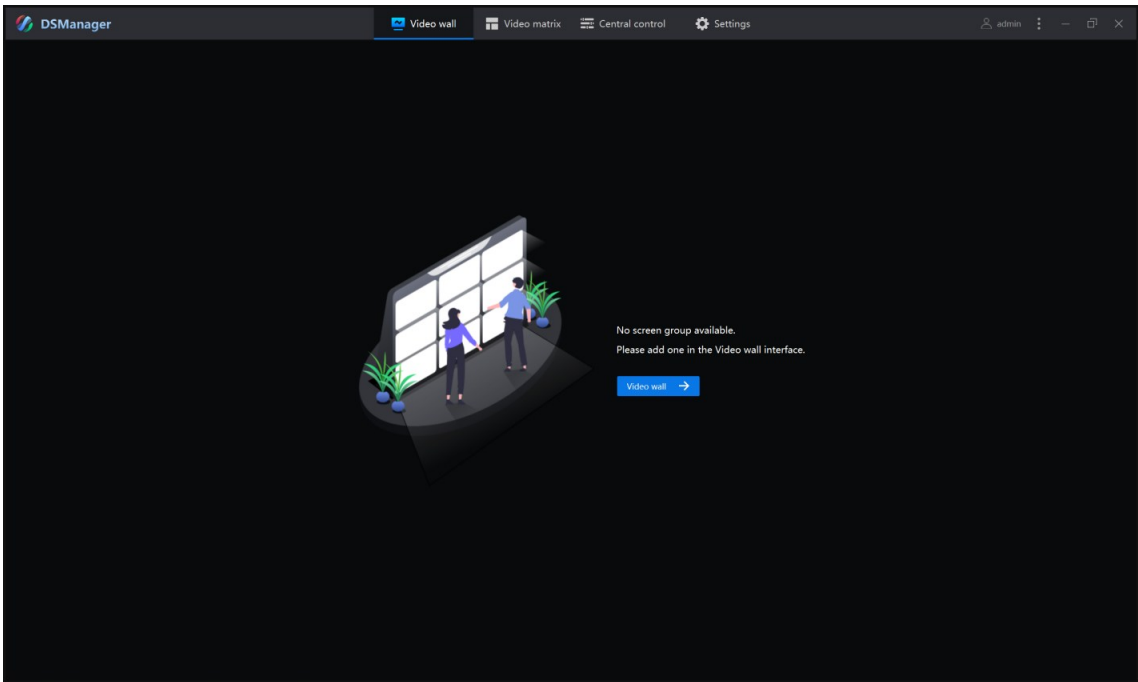


Fig 5-7 Main interface after initial login

5.4 Quick Start

5.4.1 Add User

Step 1 Go to **Settings > Permission** to access the **Permission** interface.

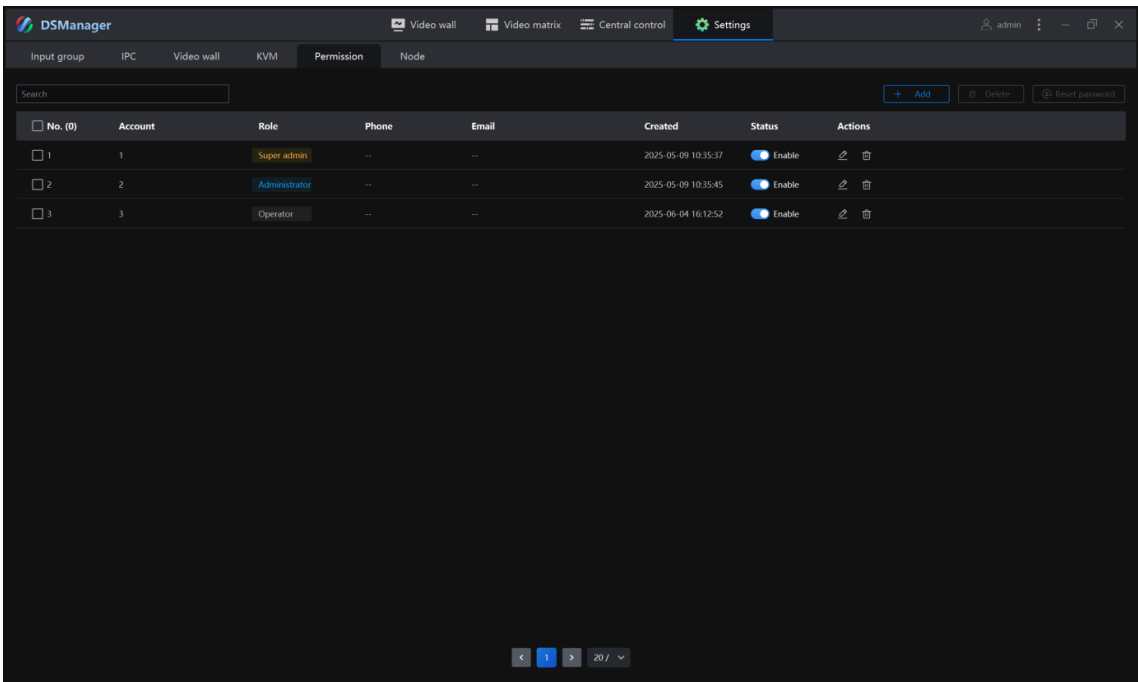


Fig 5-8 Permission

Step 2 Click **Add** to access the **Add user** dialog.

Fig 5-9 Add user

Step 3 Complete the user information configuration in the upper section of the dialog according to Table 5-1 Description of user information configuration.

Name	Description
Account	Required. Username defaults to USERxxx , with a maximum length of 16 characters.
Role	Select between Super admin , Administrator , and Operator for user level.
Status	Select between Enable (default) and Disable for user status. Cannot log in with a disabled user.
Phone	Optional. Enter a valid phone number.
Email	Optional. Enter a valid email address.
Password	Required. Click the edit button and complete password configuration in the Password dialog.
Note	Optional. The note length cannot exceed 200 characters.

Table 5-1 Description of user information configuration

Step 4 Complete user permission configuration in the lower section of the dialog according to Table 5-2 Description of user permission assignment.

Permission Types		Description
Software permissions	DSManager	- Log in: Select between Enable (default) and Disable. Cannot log in with disabled user. - Others: Assign user permissions for different sections of DSManager. Select between Hide, View, and Control (default).
	DSKvm	Configure user permissions for different function modules of DSKvm. Select between Enable (default) and Disable .
Device permissions	Signal source	Configure the permissions of the selected account for each signal source connected to the Rhino system. Select between Hide , View , and Control (default).
	Screen group	Configure user permissions for different screen groups of DSManager. Select between Hide , View , and Control (default).
	KVM workstation	Configure user permissions for each KVM workstation created on DSManager. Select between Log in (default) and Disable login .

Table 5-2 Description of user permission assignment

Step 5 Upon completion, click **Save** to save the changes.

5.4.2 New Screen Group

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

Step 1 Go to **Settings > Video wall** to access the screen group management interface.

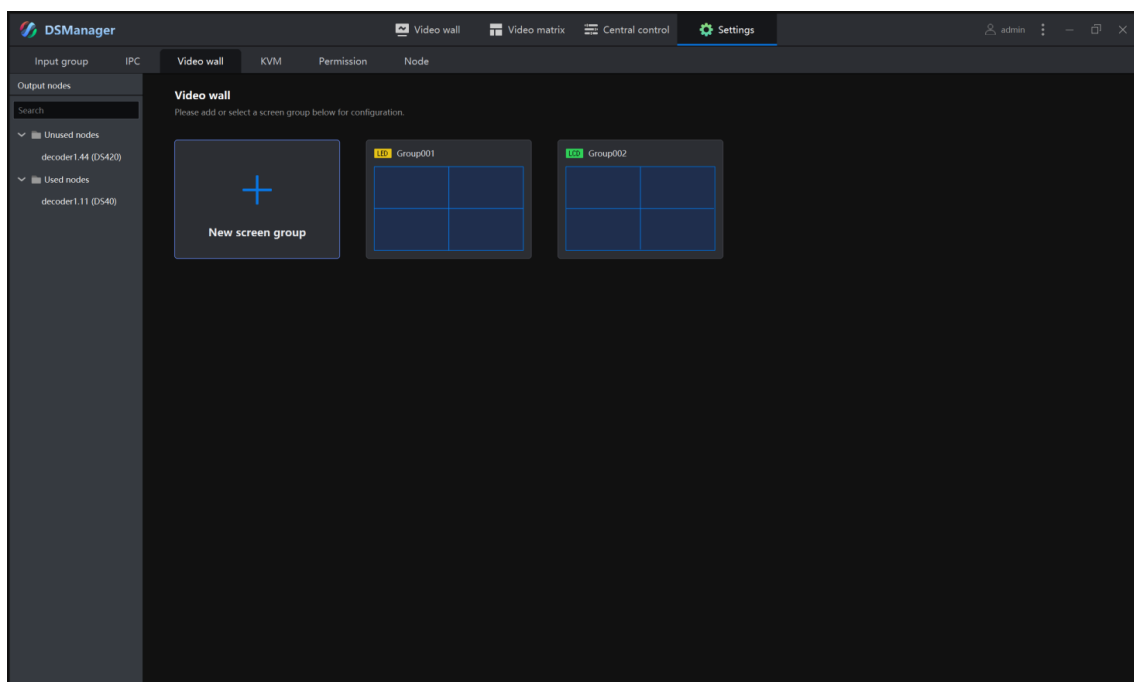


Fig 5-10 Video wall

Step 2 Click the collapse ("V") or expand ("> ") button to the left of **Unused nodes** and **Used nodes** to hide or show the corresponding list.

- ✧ **Output nodes:** Displays decoders-video wall only.
- ✧ **Unused nodes:** Displays decoders-video wall not assigned to any screen group.
- ✧ **Used nodes:** Displays decoders-video wall assigned to a specific screen group.

Step 3 Click **New screen group** to access the **Screen group type** interface.

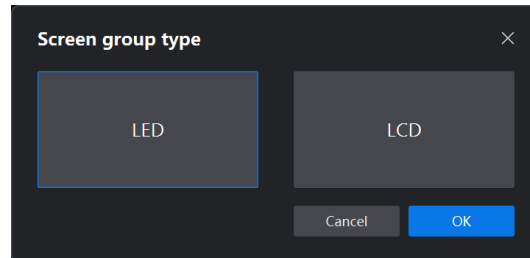


Fig 5-11 Screen group type

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

Step 5 Drag an unused node from the left **Output nodes** to the **Not set** channel in the middle. Then, complete the corresponding screen group configuration according to Table 5-3 Description of LED screen group settings or Table 5-4 Description of LCD screen group settings, and click **Save** to finish creating the screen group.

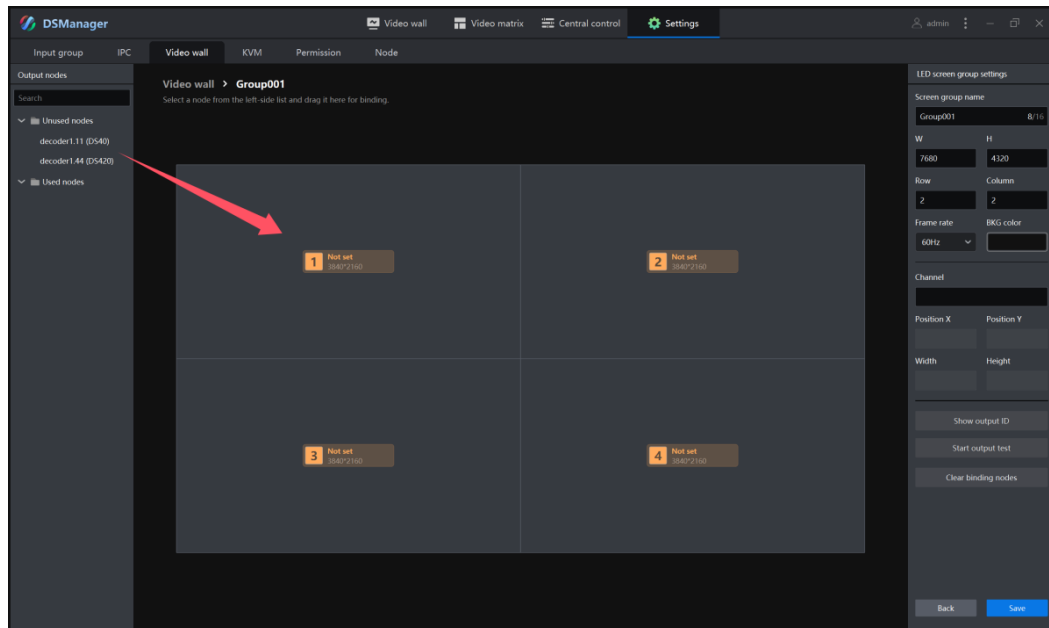


Fig 5-12 Screen group settings

Name	Description
Screen group name	Required. Defaults to Groupxxx , with a maximum length of 16 characters.
W	Set the width for the current screen group.
H	Set the height for the current screen group.
Row	Set the number of node splicing rows for the current screen group.

Column	Set the number of node splicing columns for the current screen group.
Frame rate	Select the frame rate for the current screen group.
BKG color	Set the background color for the current screen group.
Channel	Set the number of the selected channel in the current screen group.
Position X	Set the start X coordinate of the selected channel in the current screen group.
Position Y	Set the start Y coordinate of the selected channel in the current screen group.
Width	Set the width of the node bound to the selected channel.
Height	Set the height of the node bound to the selected channel.
Clear binding nodes	Clear all binding nodes in the current screen group.

Table 5-3 Description of LED screen group settings

Name	Description
Screen group name	Required. Defaults to Groupxxx , with a maximum length of 16 characters.
Output resolution	Modify the resolution of all channels in the current screen group in batch.
Row	Set the number of node splicing rows for the current screen group.
Column	Set the number of node splicing columns for the current screen group.
Frame rate	Select the frame rate for the current screen group.
BKG color	Set the background color for the current screen group.
Clear binding nodes	Clear all binding nodes in the current screen group.

Table 5-4 Description of LCD screen group settings

5.5 Video Wall

- **Prerequisite:** A screen group has been created in **Settings > Video wall**.
- Click **Video wall** to access the screen group management interface.

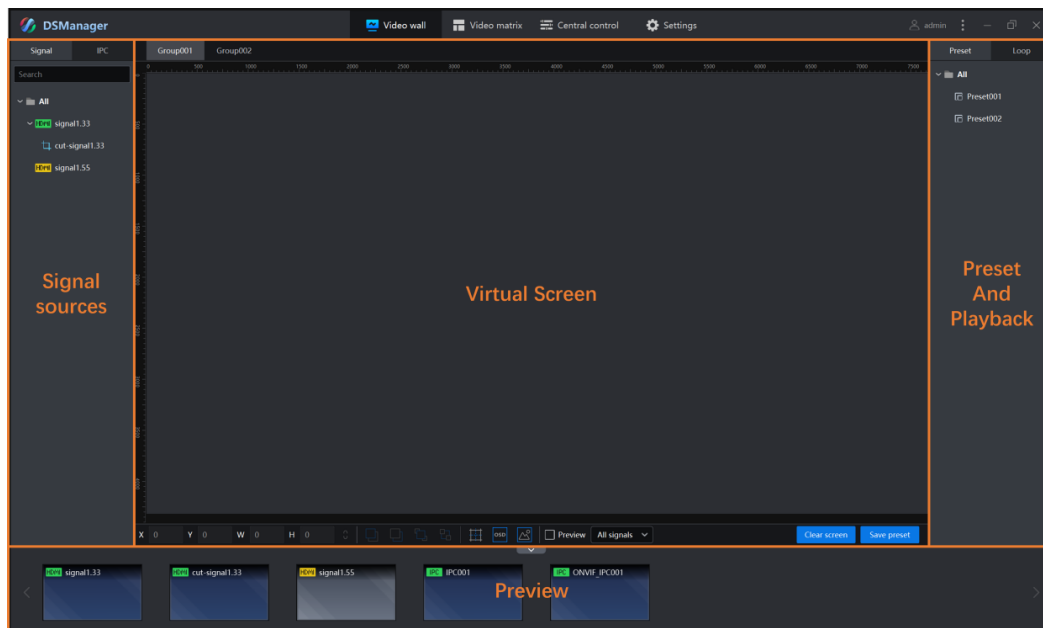


Fig 5-13 Screen group management

Note

- Window settings, guideline settings, OSD settings, basemap settings, preset, and playback are all based on screen group configuration, and screen groups are independent of each other.
- The image uploaded in **Basemap settings** is shared among all screen groups and is not stored individually on a specific one.

5.5.1 Signal Sources

Signal Source Tab

- By default, the left side of the **Video wall** interface displays the **Signal** tab with all encoders, and indicates their connection status through status icon colors.

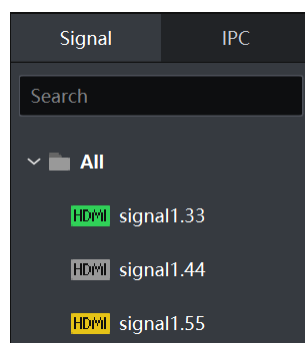


Fig 5-14 Signal source list

- ✧ **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, AV-over-IP 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:

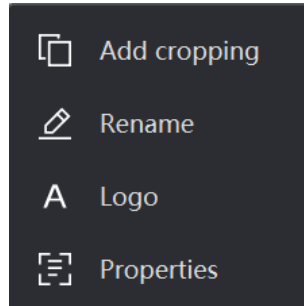


Fig 5-15 Context menu of signal source

- ✧ **Add cropping:** Copy a cropped signal source from the selected one, with support for individual adjustment of its actual display area. Each signal source can be cropped only once.

- Step 1** Click **Add cropping** on the signal source context menu to see a pop-up dialog.
- Step 2** Rename the signal source to be cropped, with a maximum length of 16 characters.
- Step 3** Based on the input size and the right-side illustration, drag the points on the illustration or edit the X, Y, W, and H fields on the left to adjust the position and size of the cropping box.
- Step 4** Click **OK** in the lower-right corner to complete the operation.

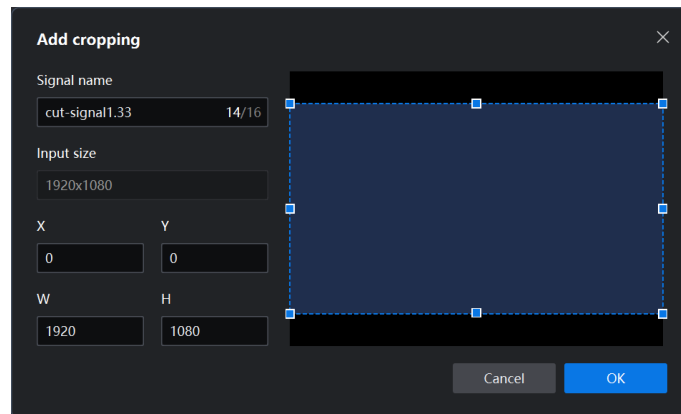


Fig 5-16 Add cropping

- ✧ **Rename:** Modify the name of the selected signal source, with a maximum length of 16 characters.

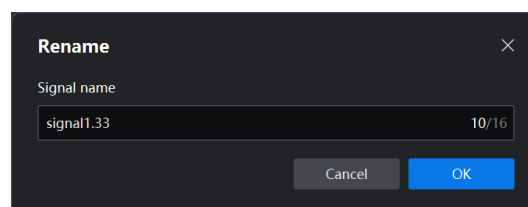


Fig 5-17 Rename

- ✧ **Logo:** Overlay a logo on the selected signal source image.

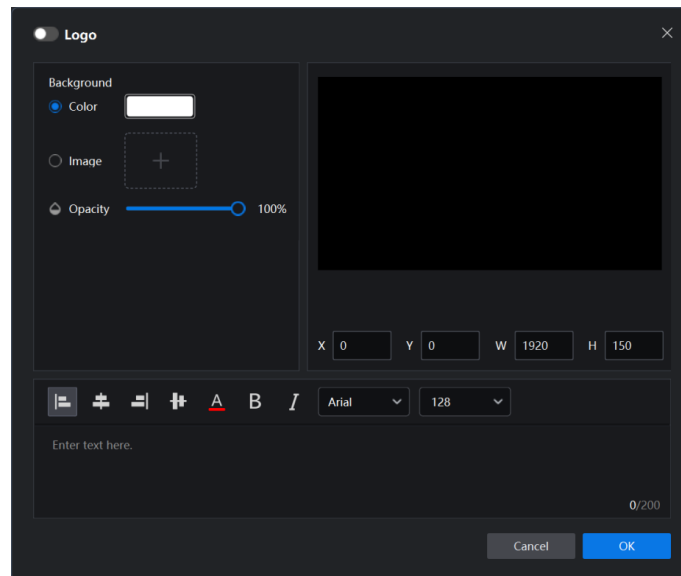


Fig 5-18 Logo overlaying

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

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

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

Table 5-5 Description of logo settings

- ✧ **Properties:** Change the properties of the signal source.

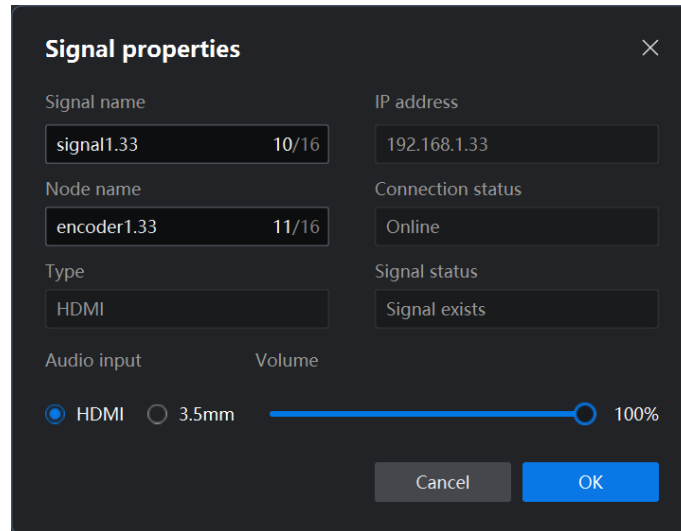


Fig 5-18 Signal properties

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

Step 2 Change the signal source properties according to Table 5-6 Description of signal properties configuration, and click **OK**.

Name	Description
Signal name	Change the signal source name of the current encoder, cannot exceed 16 characters.
IP address	Displays the IP address of the current encoder, cannot be modified.
Node name	Change the name of the current encoder, cannot exceed 16 characters.
Connection status	Displays the connection status of the current encoder, cannot be modified.
Type	Displays the type of the current encoder, cannot be modified.
Signal status	Displays the signal status of the current encoder, cannot be modified.
Audio input	Select the audio input method of the current encoder. Defaults to HDMI. 3.5mm is optional.
Volume	Set the volume of the audio input, ranging from 0% to 100%. Defaults to 100%.

Table 5-6 Description of signal properties configuration

IPC Tab

- The IPC list displays all IPCs added in **DSManager > Settings > IPC**.

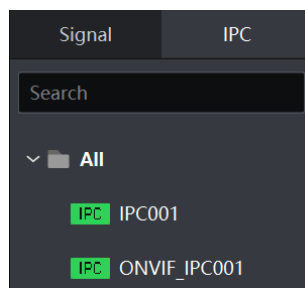


Fig 5-19 IPC list

- ✧ **Connection method:** The status icon's tooltip displays **IPC**, indicating that the signal source is from an IPC.
- ✧ **Connection status:** IPC status icon is always green as real-time monitoring of IPC status is currently not supported.
- Right-clicking an IPC does not bring up a context menu, so it cannot be configured like an HDMI-connected signal source.

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.

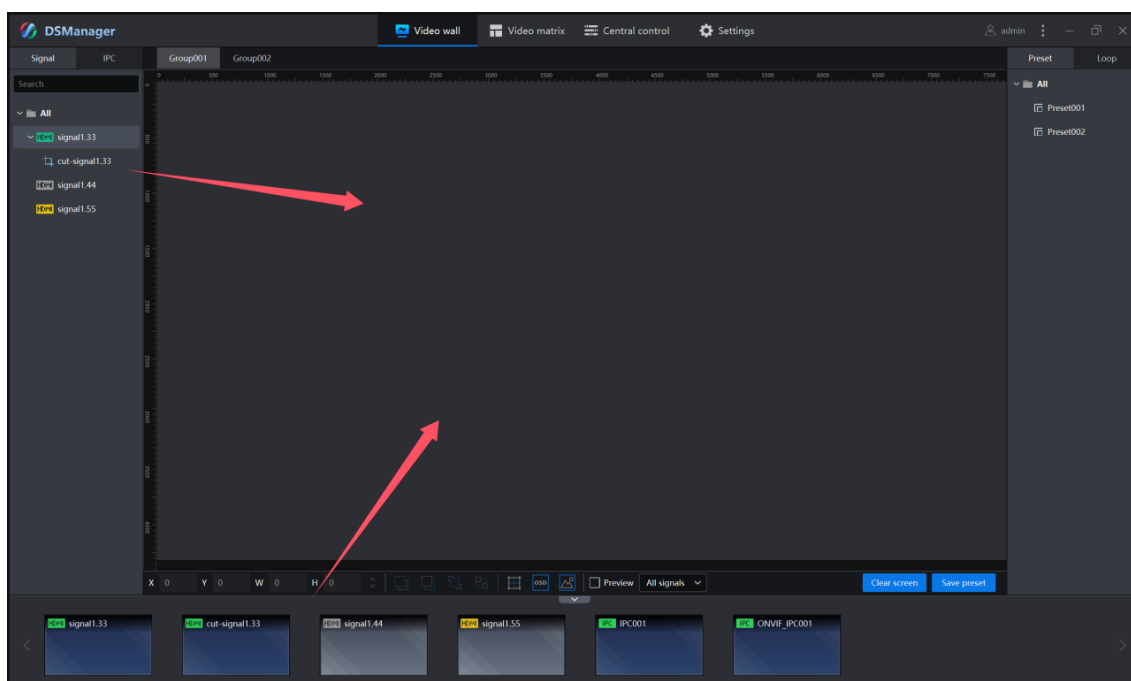


Fig 5-20 Windowing

- **Replace:** Drag the signal source from the **Signal** list on the left or the preview list at the bottom to an open window on the central virtual screen. Hold down the left mouse button for more than 1 second and the **Replace** prompt appears. Then release the mouse button to replace the current window's signal source with the selected one.

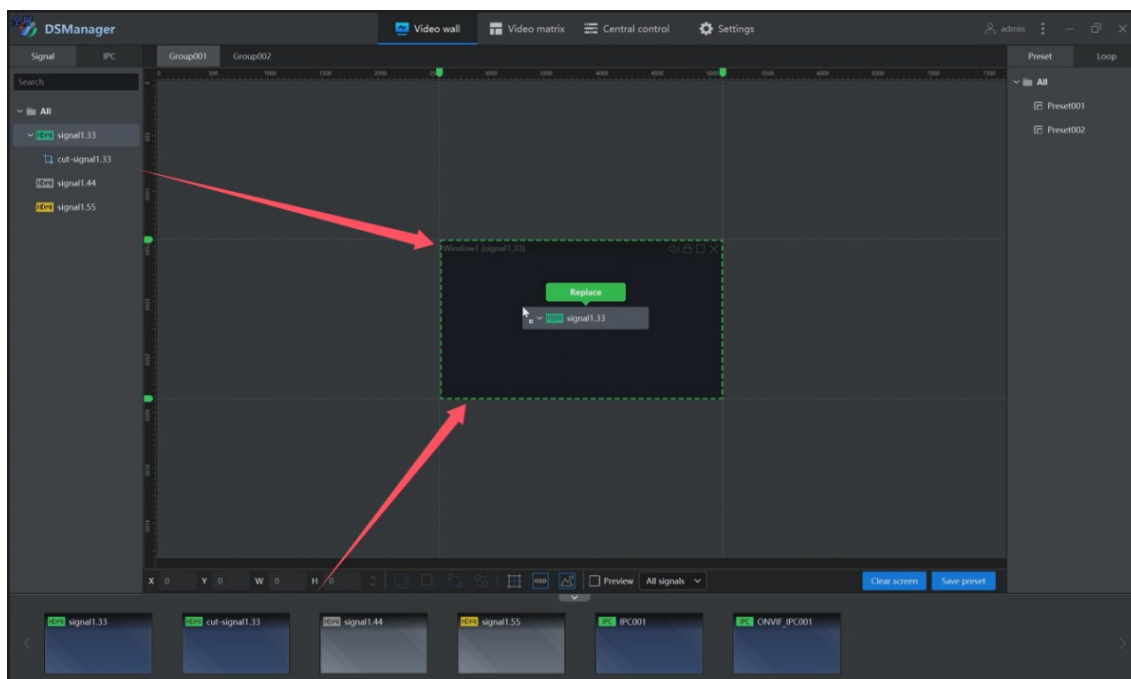


Fig 5-21 Replace

Window Operations

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

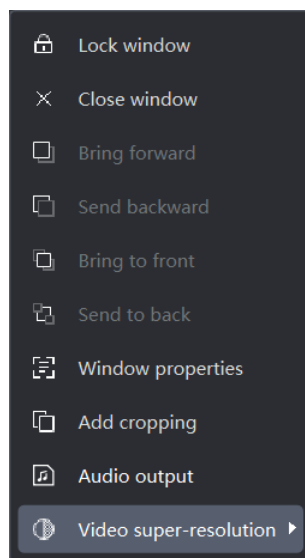


Fig 5-22 Context menu of window

- **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.

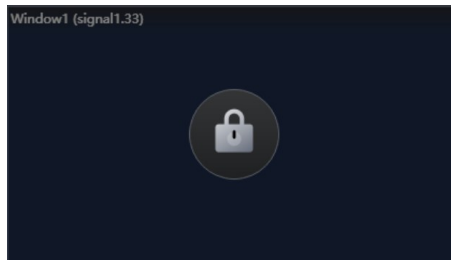


Fig 5-23 Lock window

- **Close window:** Delete the selected window from the 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 width, height, start x coordinate, and start y coordinate of the window in the screen.

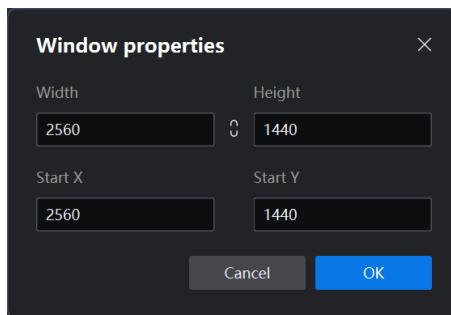


Fig 5-24 Window properties

- **Add cropping:** Copy a cropped signal source from the selected one, with support for individual adjustment of its actual display area. Each signal source can be cropped only once.
- **Audio output:** By default, all windows are muted. Enable audio output by selecting **Audio output** for a specific window. Only one window per screen group can be designated for audio output.
- **Video super-resolution:** Video super-resolution is supported by DS420 by default. Make sure the target device is licensed before enabling this function..

Action Bar

The area below the virtual screen is the action bar:

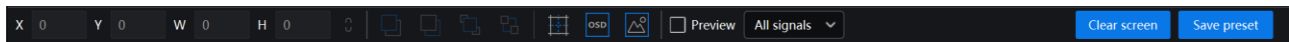


Fig 5-25 Action bar

Name	Description
X, Y	Set the start x coordinate and start y coordinate of the selected window in the screen.
W, H	Set the width and height of the selected window.
Aspect ratio	When enabled, the selected window can only be resized proportionally.
Bring forward, Send backward, Bring to front, Send to back	Adjust the order of layers for the selected window in the screen.
Templates	Click to see the pop-up guide line template dialog for quick setting of window position and size.
OSD settings	Overlay an OSD on the screen.
Basemap settings	Set the background image for the video wall, with a display priority higher than the BKG color in Settings > Video wall .
Preview	Enable/Disable the preview mode. Once selected, view the real-time image of the signal source in DSManager.
Clear screen	Close all windows of the screen group.
Save preset	Record the current windowing status of the screen group, as well as the priority, position, and size of each window.

Table 5-7 Description of action bar

OSD Settings

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

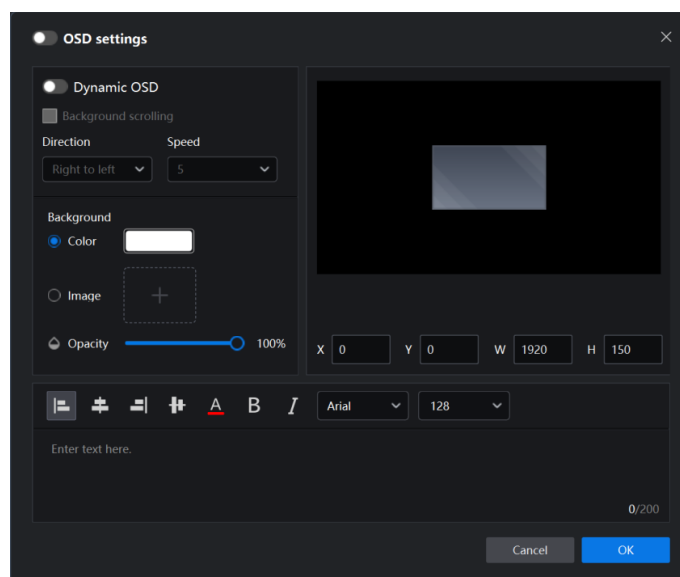


Fig 5-26 OSD settings

Step 2 Change OSD configuration according to Table 5-8 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 (enabled) or static (disabled).
	Background scrolling	Set the display style of the background: Scrolling (enabled) or static (disabled).
	Direction	Set the scrolling direction of the dynamic OSD.
	Speed	Set the scrolling speed of the dynamic OSD.
Background	Color	Specify a color as the background.
	Image	Add a local image as the background, cannot exceed 2MB. Picture format includes PNG, JPG, and BMP.
	Opacity	The OSD opacity ranges from 0% (totally transparent) to 100% (totally opaque).
Content	Text	The text cannot exceed 200 characters.
	Alignment	Text alignment, includes Align left , Align center , Align right , and Align middle .
	Font	Text style, includes Color , Bold , Italic , font, and font size.
Position and size	X, Y	Set the start (x, y).
	W, H	Set the OSD width and height.

Table 5-8 Description of OSD settings

Basemap Settings

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

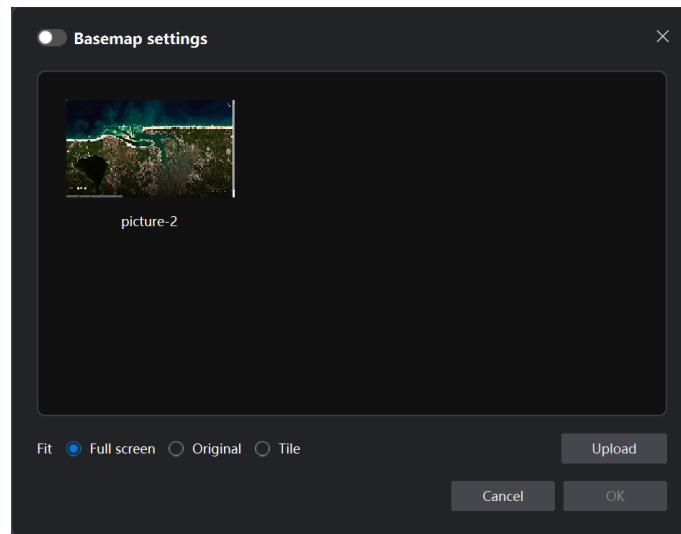


Fig 5-27 Basemap settings

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

Step 3 Choose an uploaded 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

- In the **Basemap settings** dialog, up to 10 images can be added, with each one within 20MB.
- **Fit:**
 - **Full screen:** Adjusts and stretches the image to fit the video wall size.
 - **Original:** Displays the image centered in the video wall at its original size. If the image cannot fill the video wall, no supplement is applied. If it exceeds the video wall, no scale-down is performed.
 - **Tile:** Displays 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. If it exceeds the video wall, no scale-down is performed.

5.5.3 Preset and Playback

Preset

- **Save preset:** Used to recording the current windowing status of the screen group and the configuration information of each window (including the priority, position, and size).

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

Step 2 Rename the preset as desired, then click **OK** to save the preset.

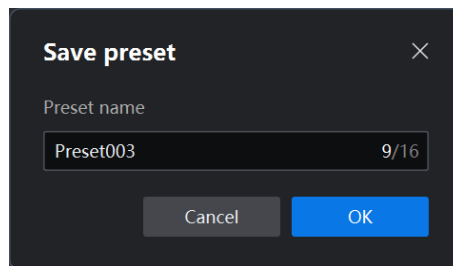


Fig 5-28 Save preset

- **Preset group:** 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 as desired and click **OK**.

Step 3 Right-click **Preset group** to see a pop-up context menu, where you can rename or delete the group.

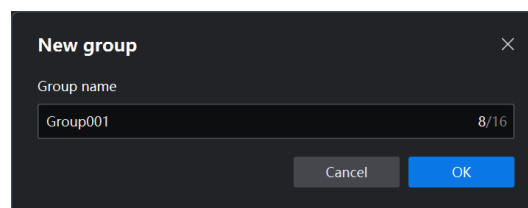


Fig 5-29 New group

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

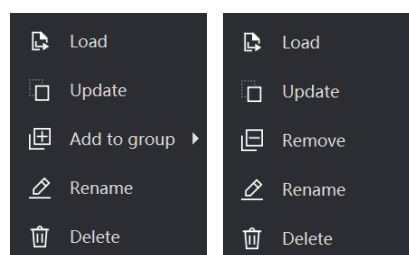


Fig 5-30 Preset operations

- ✧ **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.

Loop

- **Loop settings:** Create a loop for the saved presets and adjust their playback sequence.

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

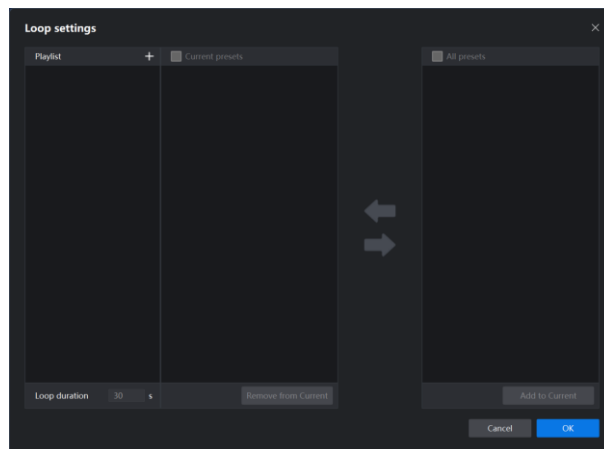


Fig 5-31 Playback settings

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

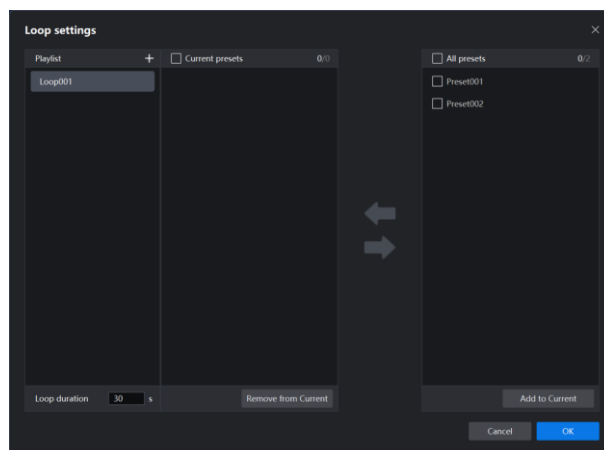


Fig 5-32 New loop

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

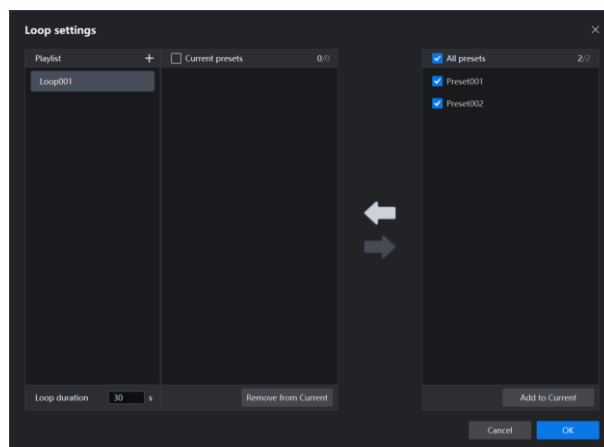


Fig 5-33 Select preset for loop

Step 4 Drag presets under **Current presets** in the middle to adjust their playback sequence.

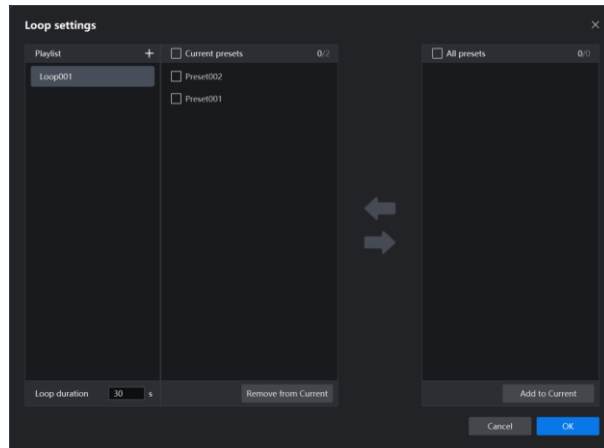


Fig 5-34 Adjust preset sequence

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

Preset	Loop
Loop001	
Loop002	

Fig 5-35 Playlist

- **Preset loop:** Displays the presets on the screen group based on the configured sequence and loop duration.

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.

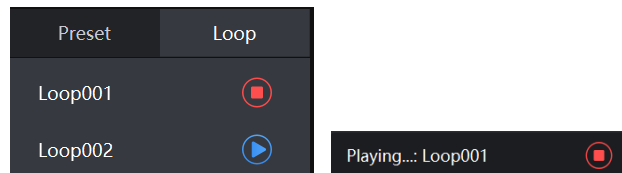


Fig 5-36 Preset loop

Note

During preset loop, all operations on the current screen group 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, AV-over-IP 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**.

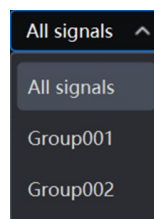


Fig 5-38 Drop-down menu of preview group

- **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

The **Preview** switch is synchronized across the **Video wall** and **Video matrix** interfaces; independent configuration is not supported.

5.6 Video Matrix

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

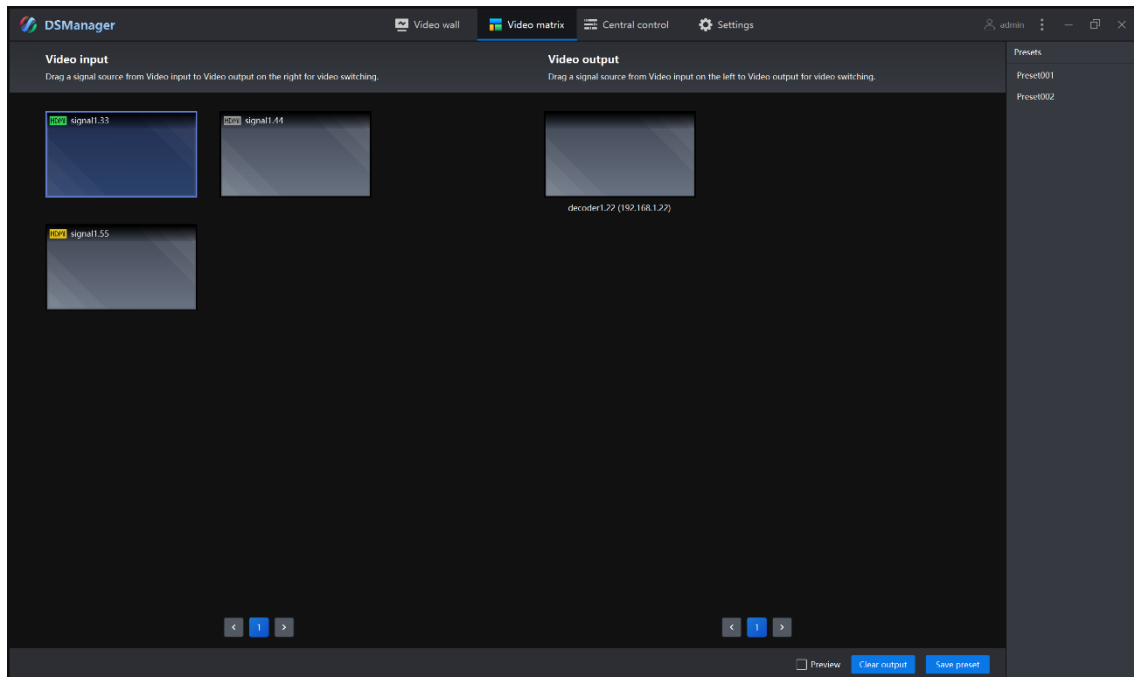


Fig 5-39 Video matrix

Video Input

This panel displays all current encoders, with status icons indicating their connection status.

- **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, AV-over-IP 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

This panel displays decoders configured in **Video matrix** mode.

- **Binding video input to output**
 - ✧ **Prerequisite:** In DSConfig, there must be decoders configured in **Video matrix** mode.
 - ✧ **Procedure:** Drag the desired signal source from **Video input** to a decoder under **Video output**. The signal will then be displayed on that decoder-matrix.

Presets

- **Save preset:** Saves the current video input-output configuration.
- **Preset operations:** Right-click a saved preset in the preset list to access the context menu. You can then rename or delete a preset. To load a preset quickly, double-click it.

Preview

- **Preview** is disabled by default.
- When enabled, both the **Video input** and **Video output** panels display real-time previews of their corresponding signals.

Note

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

5.7 Central Control

5.7.1 Central Control

Go to **Central control > Central control** to access the interface.

Command Group

- Command groups are listed on the left side of the **Central control** interface.

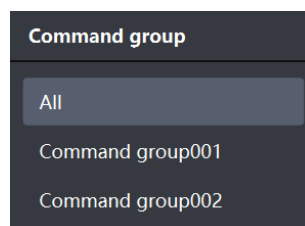


Fig 5-40 Command group

- ✧ **All**: Displays all added commands, including those assigned to other groups.
- ✧ **Command group**: When creating or editing a command, you can assign it to a custom group for easier access and application.

- **Create a New Command Group**

Step 1 Right-click **All** and select **New group** from the context menu.

Step 2 In the **New command group** dialog, enter a group name as needed.

Step 3 Click **OK** to create the new group.

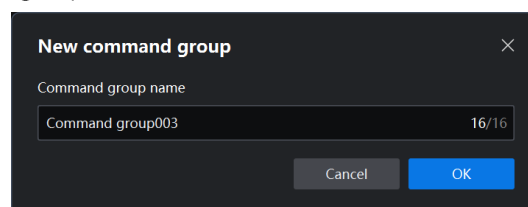


Fig 5-41 New command group dialog

- **Group operations**: Right-click any newly created command group to access the context menu.
 - ✧ **Rename**: Edits the name of the selected command group.
 - ✧ **Delete group**: Removes the selected command group. This action does not delete any commands; the commands will remain available under **All**.

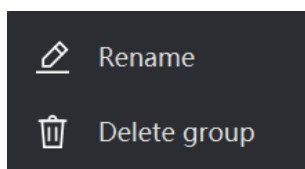


Fig 5-42 Command group context menu

Command List

- The **Central control** interface displays command details such as the command name, node name, node IP address, target device, connection method, and group.

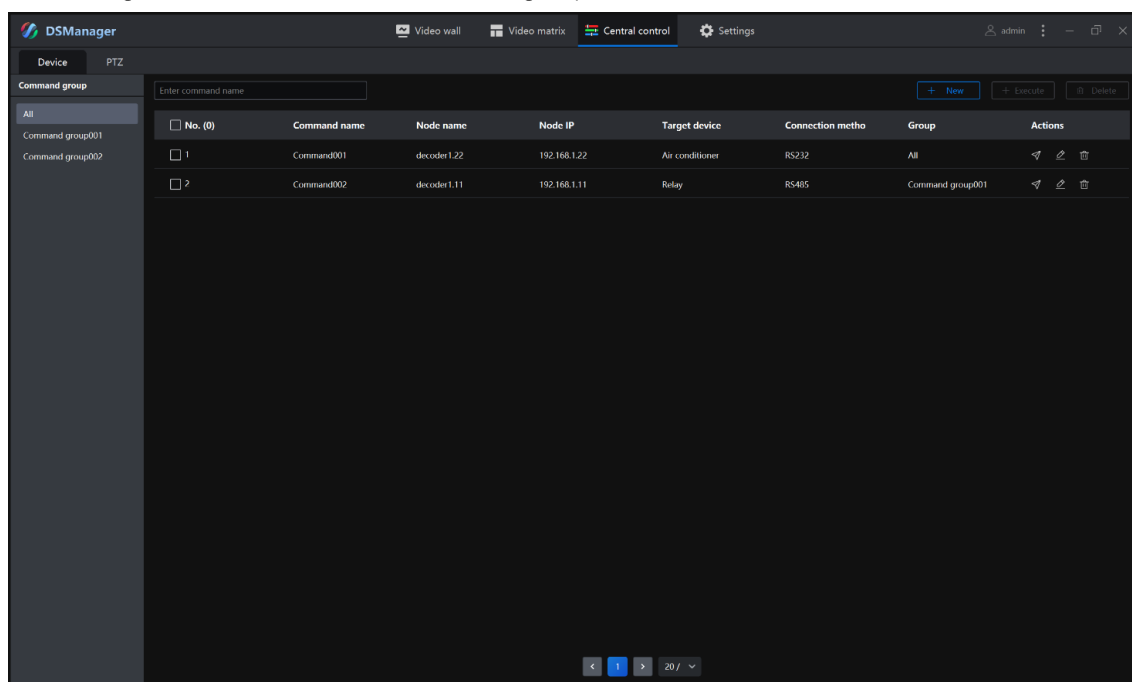


Fig5-43 Command list

- New command:** Click **New** in the top right corner to open the **New command** dialog. Refer to Table 5-9 Description of new command dialog for configuration details.

 A 'New command' dialog box with a close button (X) in the top right. It contains several configuration fields:

- Command name:** Text input with 'Command003' and a character count '10/16'.
- Connection method:** Dropdown menu with 'RS232' selected.
- Node name:** Dropdown menu with 'decoder1.22' selected.
- Baud rate:** Dropdown menu with '9600' selected.
- Node IP:** Text input with '192.168.1.22'.
- Data bits:** Dropdown menu with '8' selected.
- Target device:** Dropdown menu with 'Air conditioner' selected.
- Parity bits:** Dropdown menu with 'No parity' selected.
- Command group:** Dropdown menu with 'All' selected.
- Stop bits:** Dropdown menu with '1' selected.
- Command:** Text input with placeholder 'Enter command code'.

 At the bottom are 'Cancel' and 'OK' buttons.

Fig 5-44 New command dialog

Field	Description
Command name	- Configurable by default. - Sets the name of the command (up to 16 characters).
Connection method	- Configurable by default. - Specifies the protocol type for the command, including RS232, RS485, LAN, RELAY, IR, or PC POWER.
Node name	- Not configurable when the connection method is LAN. - Specifies the target node for the command. The dropdown lists all nodes currently connected to the Rhino system.
Baud rate	- Configurable only when the connection method is RS232 or RS485. - Select a baud rate between 1200 and 406800.
Node IP	- Not configurable when the connection method is LAN. - Auto-filled and grayed out after a node is selected.
Data bits	- Configurable only when the connection method is RS232 or RS485. - Select a value from 5 to 8.
Target device	- Configurable by default. - Select the type of device being controlled (e.g., air conditioner, multi-function card, relay, PC, or other).
Parity bits	- Configurable only when the connection method is RS232 or RS485. - Choose from No parity, Odd parity, or Even parity.
Command group	- Configurable by default. - Select a predefined command group to associate with this command.
Stop bits	- Configurable only when the connection method is RS232 or RS485. - Select 1 or 2 stop bits.
Protocol	- Configurable only when the connection method is LAN. - Select the protocol type: TCP or UDP.
Target IP	- Configurable only when the connection method is LAN. - Enter the IP address of the target device.
Port	Configurable only when the connection method is LAN.

	Enter the port number of the target device.
User code	- Configurable only when the connection method is IR. - Enter the user code used by the IR protocol.
Data code	- Configurable only when the connection method is IR. - Enter the data code used by the IR protocol.
Command (Input field)	- Configurable when the connection method is RS232, RS485, or LAN. - Enter the central control code corresponding to the selected protocol.
Command (dropdown option)	- Configurable when the connection method is RELAY or PC POWER. - Select the ON or OFF action that this command will trigger.

Table 5-9 Description of new command dialog

- Command Actions** (next to each command)

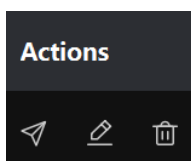


Fig 5-45 Command actions

- ✧ **Load:** Executes the command immediately.
- ✧ **Edit:** Opens the **Edit command** dialog to modify the command.
- ✧ **Delete:** Removes the command.

- Batch Operations** (bottom-right corner)



Fig 5-46 Batch operation button

- ✧ **Execute:** Runs all selected commands simultaneously.
- ✧ **Delete:** Remove all selected commands at once.

Note: The batch operation button is disabled by default until at least one command is selected.

5.7.2 IPC PTZ Control

The Rhino system supports PTZ (Pan-Tilt-Zoom) control for IP cameras using the ONVIF protocol on the PTZ control interface.

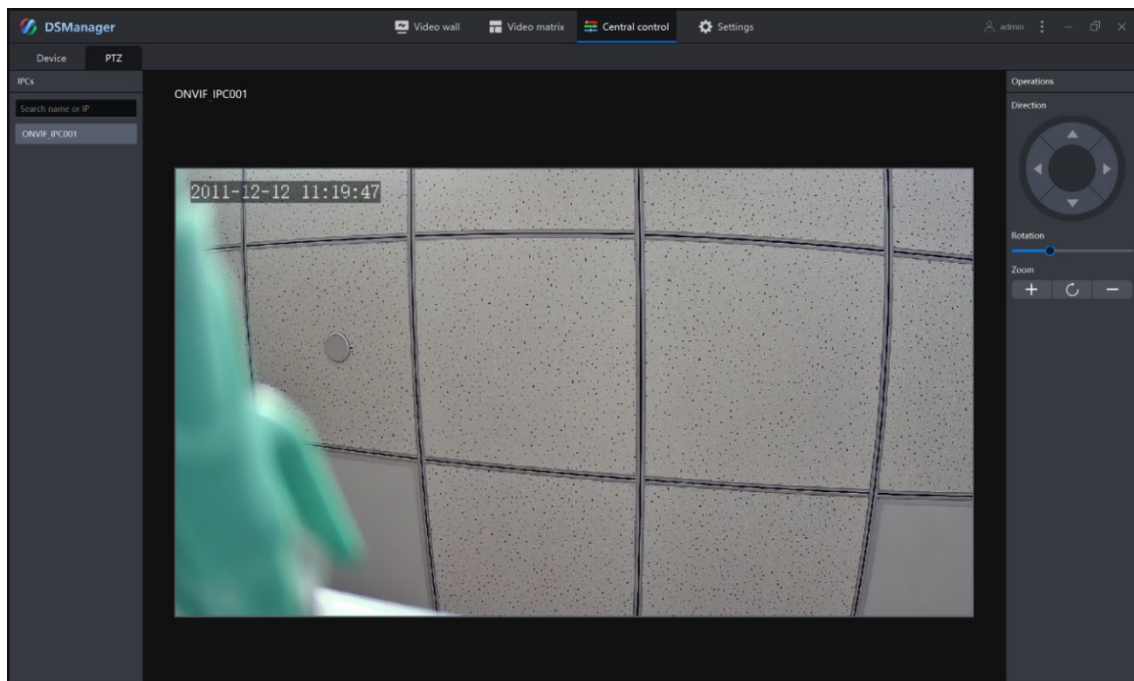


Fig 5-47 IPC PTZ control

- **Prerequisite:** ONVIF-compatible IPCs must be added in **Settings > IPC**.
- **IPCs:** The list on the left shows all added ONVIF-compatible IPCs. Click an IPC to select it — the preview area (center) and the **Operations** panel (right) will update accordingly.
- **Operations:** Lists all available IPC controls.
 - ✧ **Direction:** Click or press and hold the directional buttons ("^", "v", "<", ">") to pan or tilt the camera up, down, left, or right.
 - ✧ **Rotation:** Drag the slider to set the degree of camera movement per button press. Default is 30%.
 - ✧ **Zoom:** Click or press and hold the "+" and "-" buttons to zoom in or out. Click the reset button to restore the zoom level to 100%.

5.8 Settings

5.8.1 Input Group

- The signal list on the left side of the **Input group** interface displays all current encoders, with status icons indicating their connection status.
 - ✧ **Connection method:** The status icon label "HDMI" indicates that the current encoder is connected to the signal source via an HDMI cable. Currently, AV-over-IP 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 **Settings > Input group** to access the **Input group** interface.

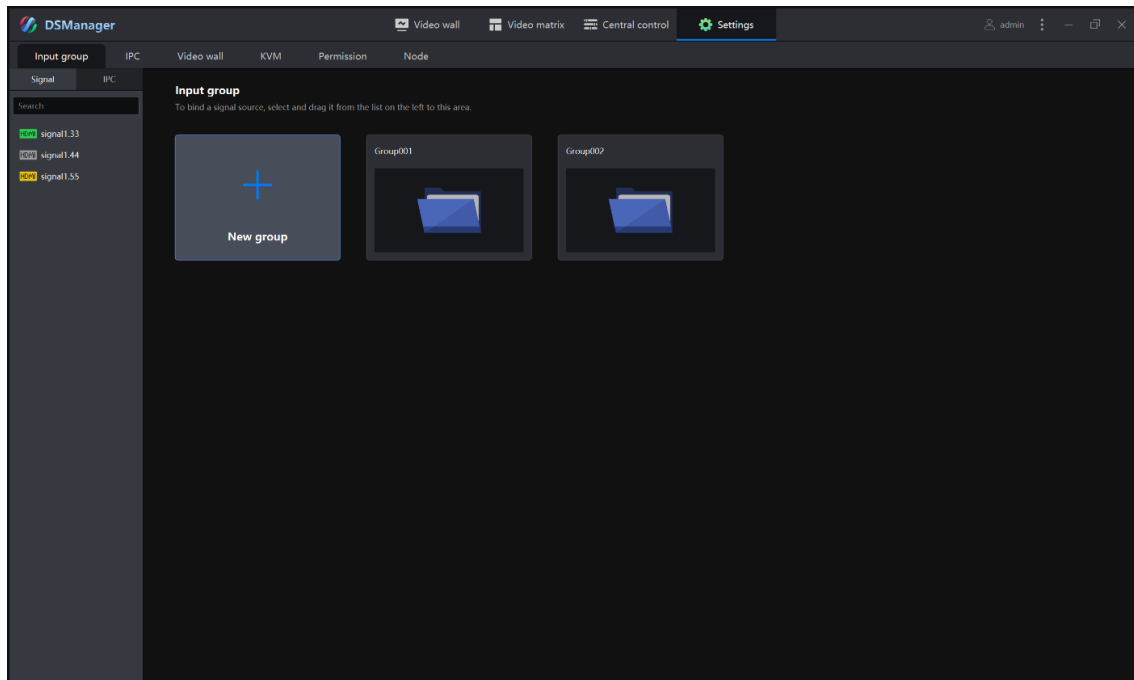


Fig 5-48 Input group

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

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

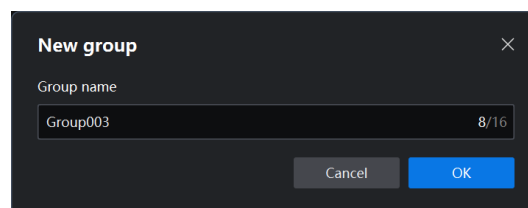


Fig 5-49 New group

- **Group operations:** Right-click any newly created input group to access the context menu.

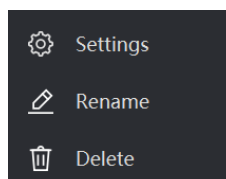


Fig 5-50 Group context menu

- ✧ **Settings:** Sets signal source bindings for the selected group.

- ✧ **Rename:** Edits the group name.

- ✧ **Delete:** Removes the group.

- **Binding signal sources to groups:** Grouping simplifies signal organization and access.

- ✧ **Quick binding:** Drag signal sources directly from left-side signal list to the target group.

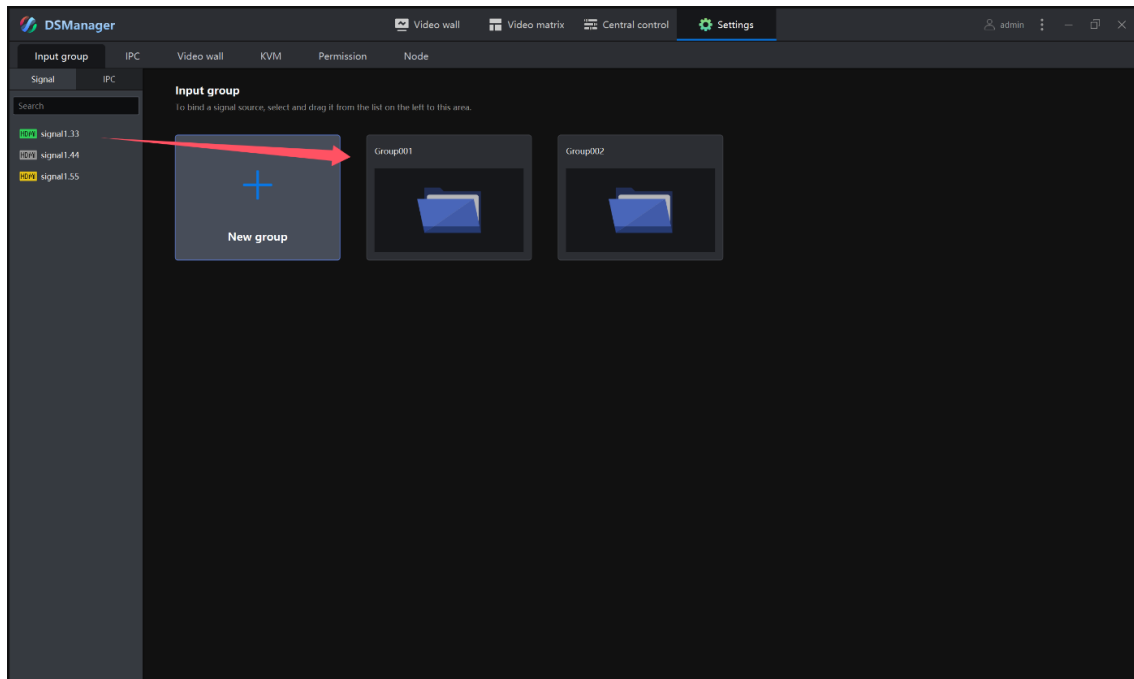


Fig 5-51 Quick binding

- ✧ Manual binding: Double-click the target group or right-click it and select **Settings** to open the binding interface. Then, drag a signal source from the left-side list to the center area. Click **Save group** to complete the operation.

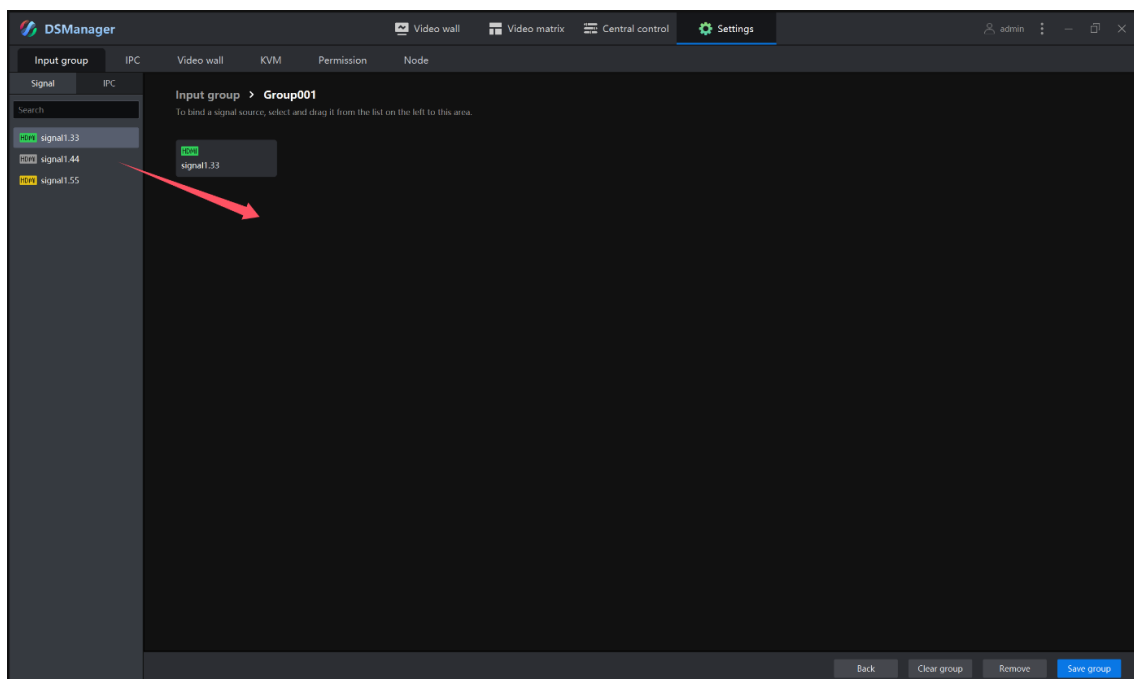


Fig 5-52 Binding interface

Note

- New input groups with bound signal sources can be found in both **DSManager > Video wall** and **DSKvm > Video wall**.
- Signal sources and IPCs can be included in the same group, but each signal source or IPC can only belong to one group.

5.8.2 IPC

- Go to **Settings > IPC** to open the IPC management interface.

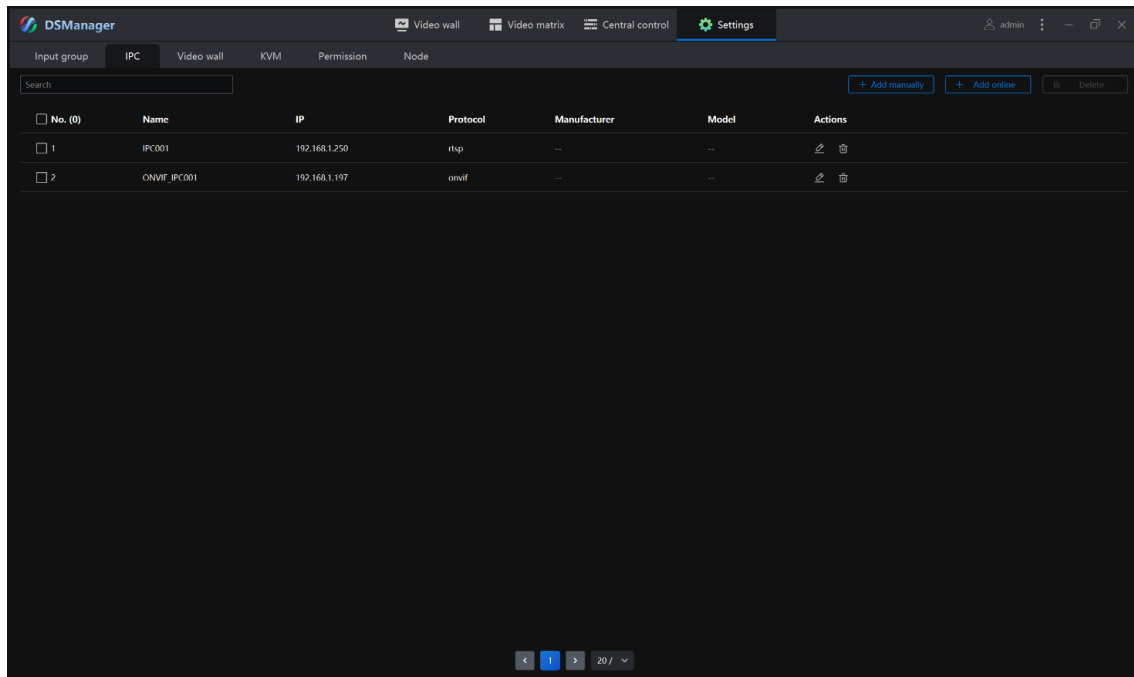
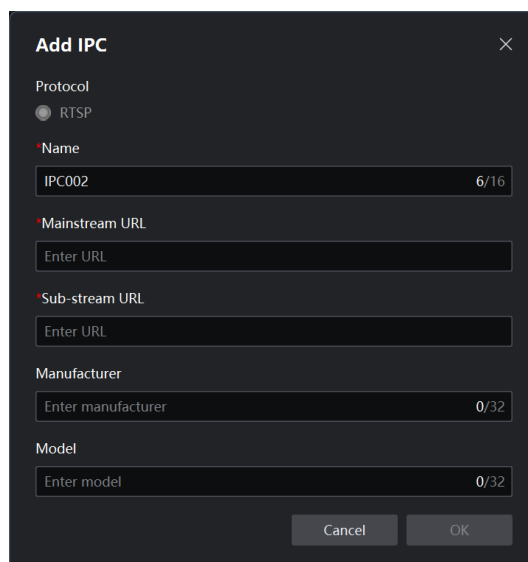


Fig 5-53 IPC management

- ✧ This interface lists all added IPCs, sorted by IP address. Each entry shows details such as name, IP address, protocol, manufacturer, and model.
- ✧ **Actions**
 - **Edit:** Opens the IPC properties dialog, where you can modify the IPC name, mainstream URL, sub-stream URL, manufacturer, model, and other details. Click **OK** to save your changes.
 - **Delete:** Removes the selected IPC. To delete multiple IPCs, select them and click the **Delete** button in the top-right corner.
- **Add IPC:** To configure and display video feeds, ensure that the IPCs are on the same LAN as the Rhino system and then added to the system.
 - ✧ **Add manually:** Currently, IPCs using the RTSP protocol can only be added manually.
 - **Prerequisite:** RTSP-based IPCs must already be connected to the Rhino system.
 - **Procedures:** Click **Add manually** to open the dialog. Enter the IPC name, manufacturer, and model, and provide valid mainstream and sub-stream URLs based on the IPC's configuration. Then, click **OK** to save the changes.



Add IPC

Protocol
☒ RTSP

Name
 IPC002 6/16

Mainstream URL
 Enter URL

Sub-stream URL
 Enter URL

Manufacturer
 Enter manufacturer 0/32

Model
 Enter model 0/32

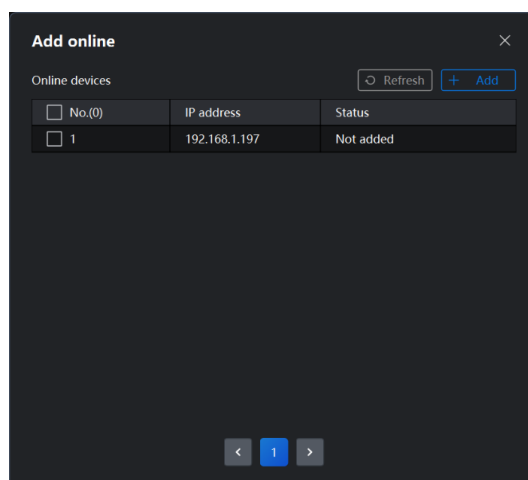
Cancel OK

Fig 5-54 Add manually

- ✧ **Add online:** Currently, IPCs using the ONVIF protocol can only be added online.
 - **Prerequisite:** ONVIF-based IPCs must already be connected to the Rhino system.
 - **Procedures**

Step 1 Click **Add online** to open the dialog. The system automatically scans and lists ONVIF-compatible IPCs.

Step 2 Select the desired IPC(s), then click **Add**. Once the username and password are verified, the IPC(s) will be added to the system.



Add online

Online devices Refresh + Add

No.(0)	IP address	Status
☐ 1	192.168.1.197	Not added

< 1 >

Fig 5-55 Add online

Note

- Newly added IPCs can be found in **DManager > Video wall**, **DManager > Input group**, and **DSKvm > Video wall**.
- Signal sources use status icons to indicate the encoder connection status. However, the status icons of IPC will always appear green.

5.8.3 Video Wall

Refer to Section 5.4.2 **New Screen Group**.

5.8.4 KVM

Create KVM Workstation

Step 1 Go to **Settings > KVM** to open the KVM workstation management interface.

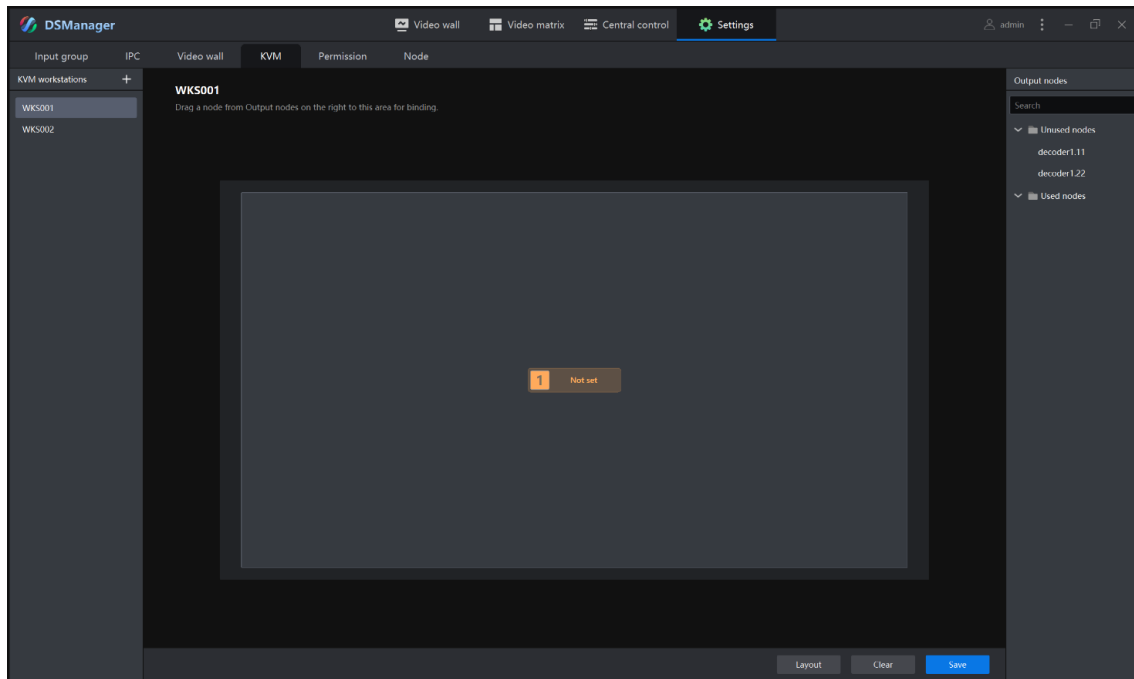


Fig 5-56 KVM workstation management

Step 2 Click the collapse ("V") or expand ("> ") button next to **Unused nodes** or **Used nodes** to show or hide the respective lists.

- ✧ **Output nodes:** Displays all decoders-KVM.
- ✧ **Unused nodes:** Displays decoders-KVM not assigned to any KVM workstation.
- ✧ **Used nodes:** Displays decoders-KVM assigned to specific KVM workstations.

Step 3 Click + next to KVM workstations to open the **New KVM workstation** dialog.

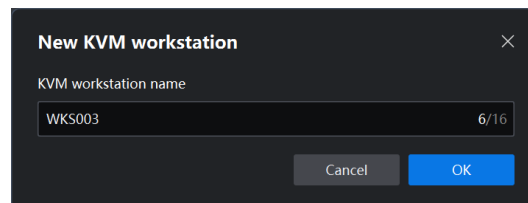


Fig 5-57 New KVM workstation

Step 4 Rename the new workstation as needed, then click **OK** to save the changes.

KVM Workstation Management

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

Step 1 Select a KVM workstation under **KVM workstations**. Its current configuration appears in the center area.

Step 2 Click **Layout** at the bottom to layout template dialog.

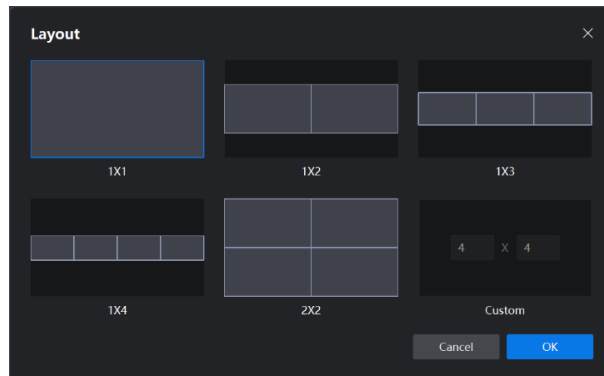


Fig 5-58 Layout

Step 3 Choose a predefined template or click **Custom** to create a personalized layout, then click **OK**.

Step 4 Drag the desired unused node from **Output nodes** on the right to a **Not set** channel in the center area, then click **Save**.

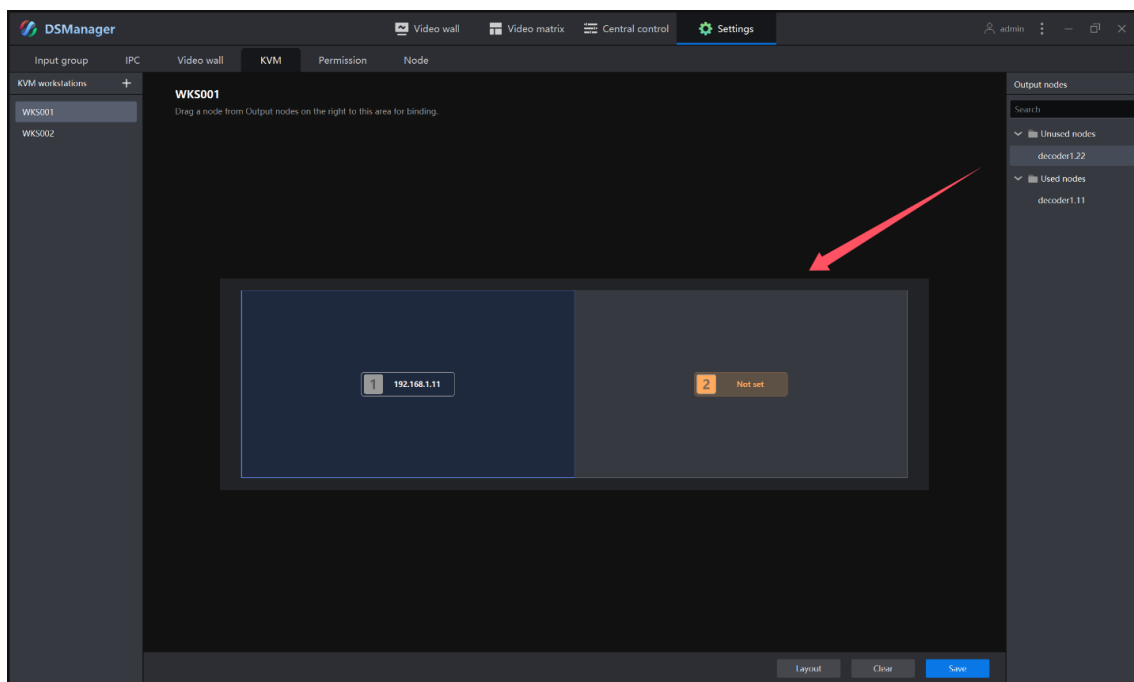


Fig 5-59 KVM workstation configuration

Note

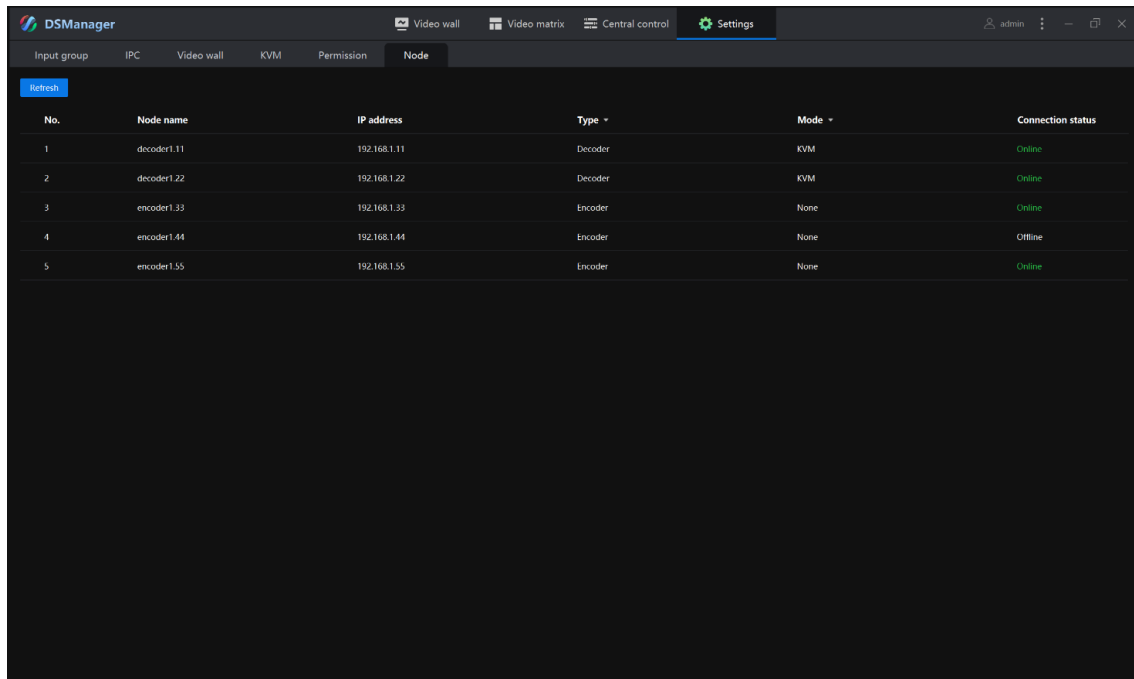
Ensure decoder-KVMs are assigned to KVM workstations and fully configured before login.

5.8.5 Permission

Refer to Section 5.4.1 **Add User**.

5.8.6 Node

- The node list displays all devices connected to the Rhino system, including both encoders and decoders.
- Nodes are sorted by IP address and include details such as name, IP address, device type, decoder mode, and connection status.
- Click the **Refresh** button at the top left to update the node list in real time.



No.	Node name	IP address	Type	Mode	Connection status
1	decoder1.11	192.168.1.11	Decoder	KVM	Online
2	decoder1.22	192.168.1.22	Decoder	KVM	Online
3	encoder1.33	192.168.1.33	Encoder	None	Online
4	encoder1.44	192.168.1.44	Encoder	None	Offline
5	encoder1.55	192.168.1.55	Encoder	None	Online

Fig 5-60 Node list

6 DSKvm

6.1 Overview

DSKvm is a KVM management application integrated into AV-over-IP devices. It offers a wide range of features including operator collaboration, LED/LCD video wall control and display, multi-screen and multi-window management, preset application and loop playback, and USB passthrough. DSKvm provides comprehensive and reliable software support for KVM operations.

6.2 Features

6.2.1 Login

- **Prerequisites**
 - ✧ Decoders-KVM must be configured in DSConfig.
 - ✧ KVM workstation configurations must be completed in DSManager using decoders-KVM.
- **Procedures**

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

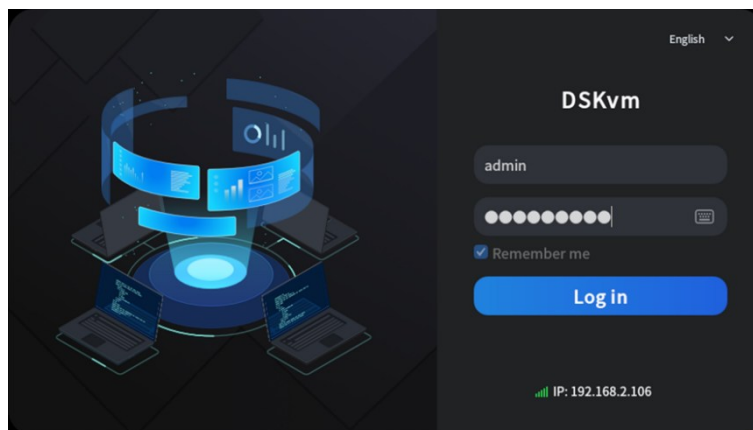


Fig 6-1 Login

Step 2 Click the keyboard icon next to the password field to open the on-screen keyboard at the bottom of the login interface.

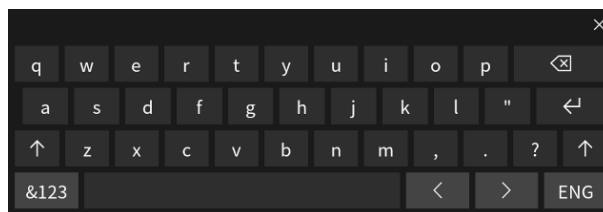


Fig 6-2 On-screen keyboard

Step 3 Use either the on-screen keyboard or a physical keyboard connected to the decoder to enter your username and password. Click **Log in** to access DSKvm.

Note

Accounts are configured in **DSManager > Settings > Permission**.

6.2.2 Floating Menu

- The floating menu appears by default in the upper-right corner of DSKvm. You can click and drag it to any position on the screen.

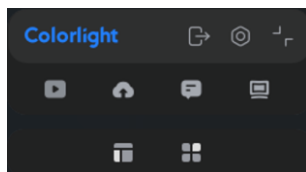


Fig 6-3 Floating menu

Menu button		Description
Row 1	Log out	After confirmation, logs out the current account and returns to the login interface.
	Settings	Opens the settings window to view or modify settings for the current account.
	Hide	Hides the floating menu and displays the floating button.
Row 2	Signal	Opens the signal source window to view available signals.
	Push	Opens the signal push window to send available signal sources to other KVM workstations.
	Team	Opens the teamwork window to view messages.
	VW	Opens the video wall window and displays the management panel on the left.
Row 3	KVM layout	Opens the KVM layout window to select a layout.
	Preset	Opens the preset window to configure or load presets for nodes or KVMs.

Table 6-1 Description of floating menu buttons

- Floating Button**
 - ✧ Show: Click **Hide** in the floating menu to close it and display the floating button.
 - ✧ Move: Click, hold, and drag the floating button to any position on the screen.
 - ✧ Hide: Double-click the floating button to hide it and display the floating menu.

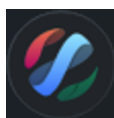


Fig 6-4 Floating button

6.2.3 Signal

Click **Signal** in the floating menu to open the signal source window, which displays a list of available signal sources.

Signal Source List

- **All tab (default):** Displays all current encoders, with status icon colors indicating connection status.
 - ✧ Green: The encoder is connected normally and has a normal connection to the signal source.
 - ✧ Yellow with "No signal" label: The encoder is connected normally, but there is an abnormal connection to the signal source.
 - ✧ Gray with "Offline" label: The encoder has an abnormal connection.

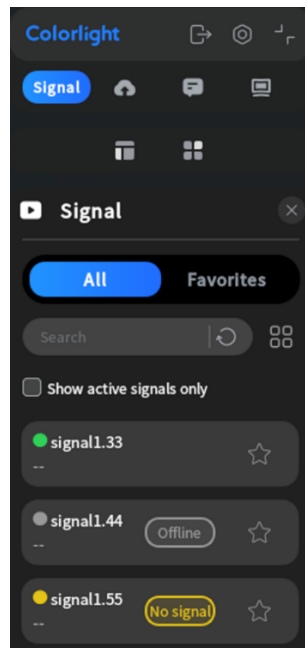


Fig 6-5 All signal sources

- **Favorites tab:** Shows all signal source you've marked as favorites by clicking the star icon next to each signal source.

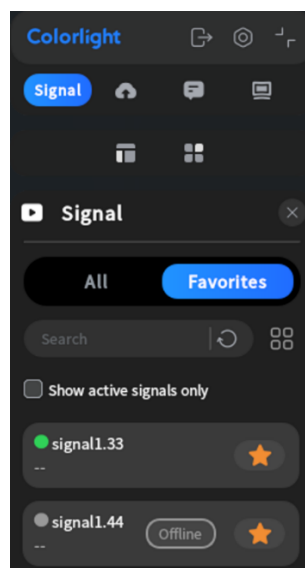


Fig 6-6 Favorite signal sources

- **Show active signals only:** Filters the list to display signal sources with green or yellow status icons, hiding those marked gray.

Display Modes

- **Text list (default):** Displays encoder status, signal source name, controlled KVM workstation, and star icon. Click an encoder to view a pop-up with its IP address and EDID configuration.
- **Preview list:** Click the toggle button in the top-right corner to switch views. This mode displays the same details as the text list, plus a live preview of each signal source.

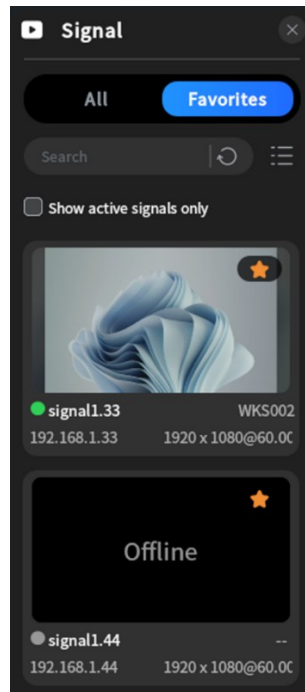


Fig 6-7 Preview list mode

Signal Source Operations

Right-click a signal source to open a context menu with the following options:

- **Control:** Sends the signal source to the KVM workstation window and grants you control.
- **Shut down:** Remotely powers off the signal source (requires a connection to the encoder via central control).
- **Restart:** Remotely restarts the signal source (requires a connection to the encoder via central control).

Notes on control permissions

If the signal source is already under control by another account:

- **Same-level account:** A request is sent to the current controller. You'll gain control once they approve it.
- **Higher-level account:** You may forcibly take control after confirmation.
- **Lower-level account:** A message will appear indicating insufficient permission.

Signal Source Window

- **Adding Windows**
 - ✧ **To display a signal source in a window:**
Drag a signal source from the right-side list onto a KVM workstation window at the bottom. The video feed will appear in the window immediately.

✧ **To replace a signal source:**

Drag a new signal source onto an existing KVM workstation window to replace the current feed.

- **Window control toolbar:** Appears at the bottom-left corner of active windows.



Fig 6-8 Window control toolbar

Field	Description
Signal name	Displays the name of the signal source currently shown in the window.
IP address	Displays the IP address of the signal source currently shown in the window.
Volume	• Available only when controlling the signal source. • Opens the volume adjustment panel to modify the input volume of the signal source.
USB drive	• Available only when controlling the signal source. • Opens a list of available USB drives. Click Connect next to a USB drive to connect it remotely to the signal source under your control.
Control	Takes control of the signal source currently shown in the window.
Close	Closes the current window. If you are controlling the signal source: • If it is only associated to this window, control will be released. • If it is associated with multiple windows, control will be retained.
Hide	• Click Hide to collapse the toolbar to the left edge of the window. • Hover over the edge to reveal the Show button. • Drag vertically along the left edge to reposition the toolbar.

Table 6-2 Description of window control toolbar

6.2.4 Push

- **Prerequisites**

- ✧ KVM workstations must be configured in decoders-KVM mode in DSManager.
- ✧ KVM workstations must be logged into DSKvm.

- **Procedures:** The following example demonstrates how to push the signal source "signal1.55" from WKS002 to WKS001:

Step 1 Log in to WKS002. In the floating menu, click **Signal** to open the signal source window. Locate "**signal1.55**" in the list and display it in a window.

Step 2 In the floating menu, click **Push** to open the push interface. Available KVM workstations are displayed by default.

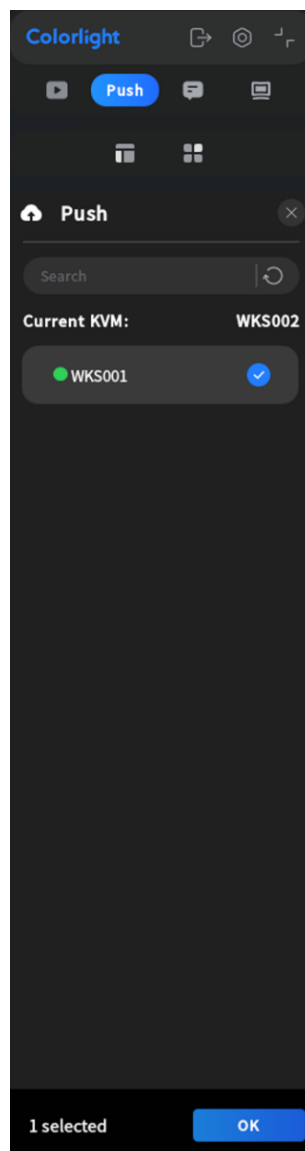


Fig 6-9 KVM workstation selection

Step 3 Select **WKS001** and click **OK** to proceed to the signal source selection interface.

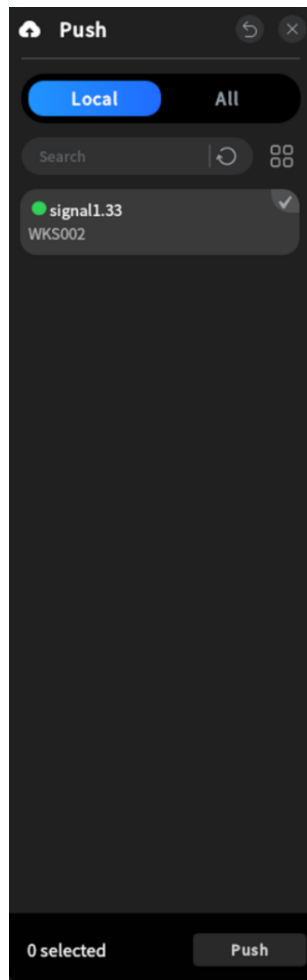


Fig 6-10 Signal source selection

Step 4 Select "signal1.55" and click **Push**. A permission message will be sent from WKS002 to WKS001, granting viewing access to "signal1.55". A toast message will appear in the bottom-right corner, indicating that the permission push is in progress.

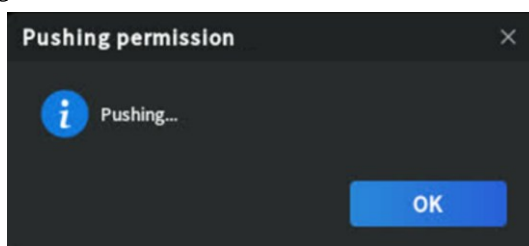


Fig 6-11 Permission push in progress

Step 5 The push operation is now complete. WKS001 must confirm the push request in the **Team** tab. For details, see 6.2.5 **Teamwork**.

Note

- KWM workstation selection
 - Only workstations with a green status icon (logged in) can be selected.
 - Workstations with a gray status icon (not logged in) cannot be selected.
- Signal source selection
 - **Local** tab: Lists signal sources currently displayed on your workstation.
 - **All** tab: Lists all signal sources accessible to your account.
 - Only signal sources with a green (active) or yellow (no signal) status icon can be selected.
 - Signal sources with a gray (offline) status icon cannot be selected.
- Push permissions
 - Only viewing permission can be pushed.
 - Control permissions must be requested separately and cannot be pushed.

6.2.5 Teamwork

To view collaboration messages, click **Team** in the floating menu. This opens the push message list.

Push Message List

- Messages are listed in reverse chronological order (newest first) and include the pushed signal source name, push time, permission type, signal source IP address, and the sender KVM workstation name.
- Message status:
 - ✧ **Pending:** No action has been taken. **Reject** and **Accept** buttons are displayed.
 - ✧ **Accepted:** The message was accepted. Marked as **Accepted**.
 - ✧ **Rejected:** The message was rejected. Marked as **Rejected**.
 - ✧ **Expired:** No action has been taken, and the sender workstation logged out. Marked as **Expired**.

- **Show pending only:** Filters the list to display only **Pending** messages, hiding those marked as **Accepted**, **Rejected**, or **Expired**.

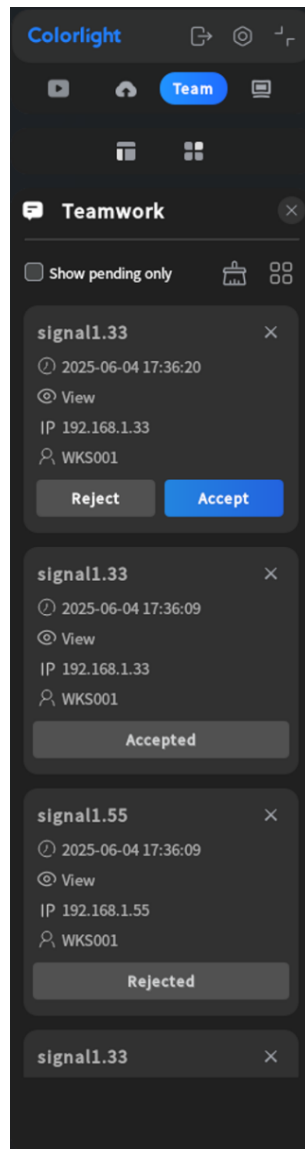


Fig 6-12 Push message list

Display Modes

- **Text list mode (default):** Messages are shown in a text list. Pending messages display **Reject/Accept** buttons directly below each entry.
- **Preview list mode:** Click the mode switch button in the top-right corner to show preview thumbnails of signal sources. Right-click a pending message to access the **Reject/Accept** buttons.

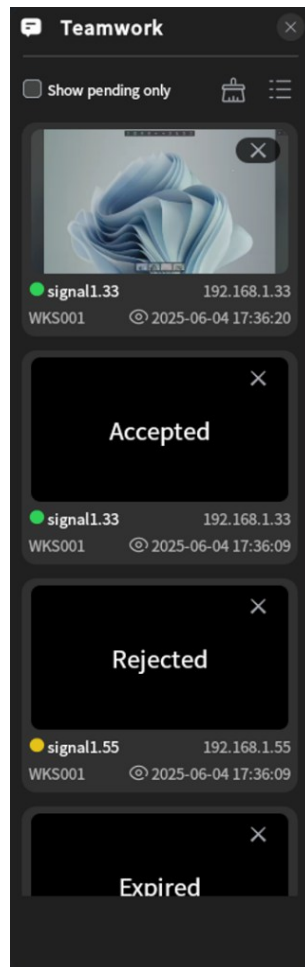


Fig 6-13 Preview list mode

Push Message Operations

- **For pending messages:**
 - ✧ Click **Accept** to display the pushed signal source on your workstation.
 - ✧ Click **Reject** to decline the push.
- **To delete a message:**
 - ✧ Click **X** in the top-right corner of the message.
 - ✧ If the message is **Pending**, a confirmation prompt will appear.
- **To clear all messages:**
 - ✧ Click **Clear** in the top-right corner of the list.
 - ✧ If any messages are **Pending**, confirmation is required.

Note

- When a new push message arrives or these are **Pending** messages upon login, a collaboration alert will appear in the bottom-right corner. Click **Resolve now** to open the teamwork interface.
- If **Pending** messages exist and the teamwork interface is closed, a red badge showing the number of pending messages appears on the **Team** button in the floating menu.

6.2.6 Video Wall

Click **VW** in the floating menu to open the video wall window. This also opens the video wall management panel on the left side of the screen.

Compared to DSManager, DSConfig provides a simplified video wall feature, as described below.

Signal Source List

- **Signal** tab (default): Displays all encoders, with status icon colors indicating connection status.
 - ✧ Green: The encoder is connected normally and has a normal connection to the signal source.
 - ✧ Yellow with "No signal" label: The encoder is connected normally, but there is an abnormal connection to the signal source.
 - ✧ Gray with "Offline" label: The encoder has an abnormal connection.

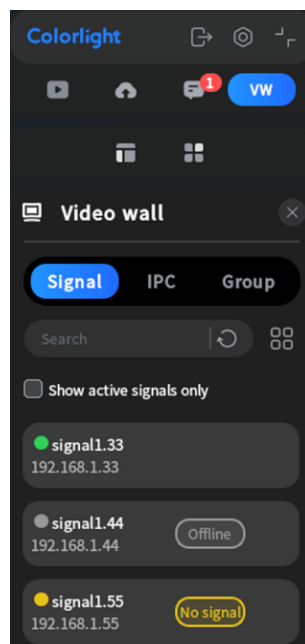


Fig 6-14 Signal source list

- **IPC tab:** Displays IPCs added via **DSManager > Settings > IPC**. Real-time IPC status monitoring is unsupported; all IPC entries display a green status icon.

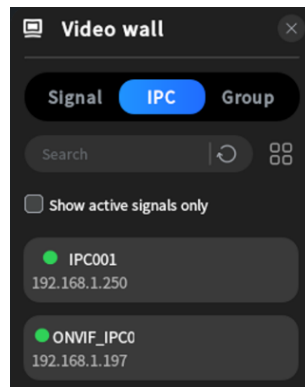


Fig 6-15 IPC list

- **Group tab:** Displays input groups configured under **DSManager > Settings > Input group**.

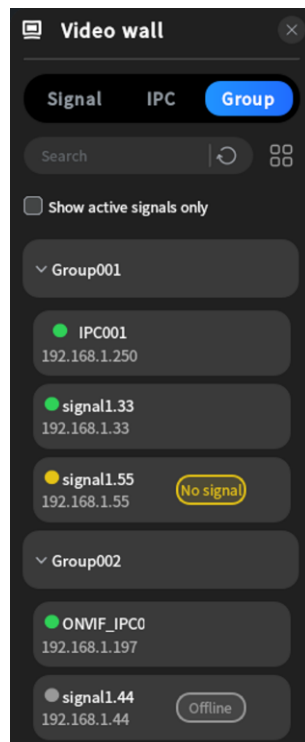


Fig 6-16 Group list

- **Show active signals only:** Filters the list to display only signal sources with green or yellow status icons, hiding those marked as gray.

Display Modes

- **Text list mode** (default)
 - ✧ Signal: Displays encoder status, signal source name, and IP address.
 - ✧ IPC: Displays IPC name and IP address.
- **Preview list mode** (toggle via the top-right button)
 - ✧ Signal: Displays encoder status, signal source name, controlled KVM workstation, IP address, EDID configuration, and live signal preview.
 - ✧ IPC: Displays IPC name, IP address, and live signal preview.



Fig 6-17 Preview list mode

Virtual Video Wall

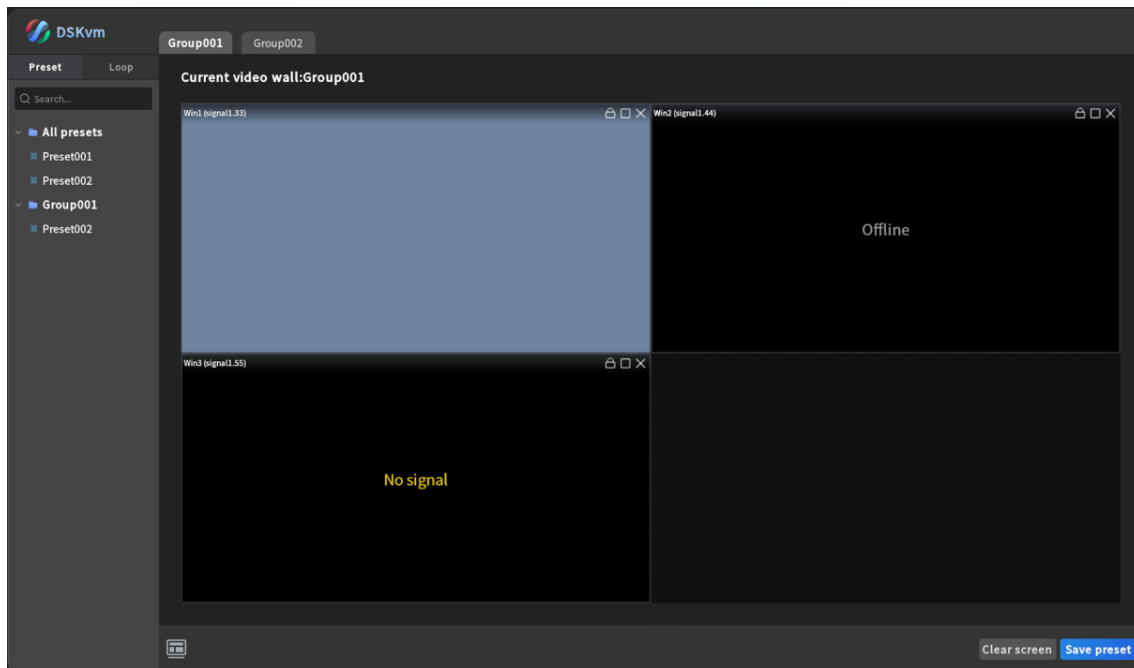


Fig 6-18 Video wall management

- **Adding Windows**
 - ✧ **To display a signal source in a window:**

Drag a signal source from the right-side list onto the virtual video wall display area. A new window will automatically display the signal source.
 - ✧ **To replace a signal source:**

Drag a new signal source onto an existing window. Hold it for over 1 second until the **Replace** prompt appears, then release it to complete the replacement.
- **Window Operations**
 - ✧ Right-click menus are not supported. Features like layer ordering, property configuration, cropping, and audio output assignment are unavailable.
 - ✧ Supported operations include locking/unlocking windows, maximizing/restoring, closing windows, and rough window positioning and resizing.
- **Operation Bar**
 - ✧ Not available. Functions such as precise window positioning and resizing, layer ordering, OSD settings, and basemap settings are not supported.
 - ✧ **Templates** (bottom left): Provides reference guides to help position and resize windows quickly.

Presets

- **Save preset:** Saves the current window layout of the screen group, including window position, size, and layer order.

Step 1 Configure windows as needed, then click **Save preset** in the bottom-right corner to open the **Save preset** dialog.

Step 2 Edit the preset name as needed and click **OK**.

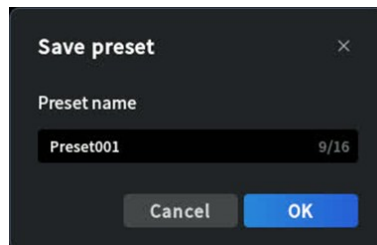


Fig 6-19 Save preset

- **Preset group:** Organizes presets into groups for easy access and application.

Step 1 Right-click **All presets** in the preset list and select **New group** to open the **New group** dialog.

Step 2 Edit the group name as needed and click **OK**.

Step 3 Right-click the group to open the context menu, where you can rename or delete the group as needed.

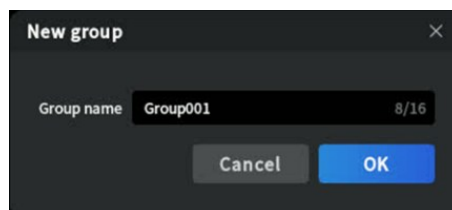


Fig 6-20 New group

- **Preset operations:** Right-click a saved preset to access the following options:
 - ✧ **Load:** Applies the preset to the video wall.
 - ✧ **Update:** Overwrites the preset with the current screen group configuration, including window layout, position, size, and layer order.
 - ✧ **Add to group/Remove:** Adds or removes the preset from a group.
 - ✧ **Rename:** Edits the preset name.
 - ✧ **Delete:** Removes the preset.

Loop

- Loops are managed in **DSManager > Video wall**. DSConfig supports playback control only.
- Loop playback: Plays selected presets in a predefined order and duration on the video wall.
 - ✧ **Start loop:** Select a loop from the playlist and click the blue play button.
 - ✧ **Stop loop:** Click the red stop button next to the selected loop.

Note

During loop playback, all operations on the current screen group are disabled—including creating or managing windows and managing presets.

6.2.7 KVM Layout

Click **KVM layout** in the floating menu to open the layout selection window.

- **1×1**: Full-screen mode. Displays a single window.
- **2×2**: Quad-screen mode. Displays four windows simultaneously.

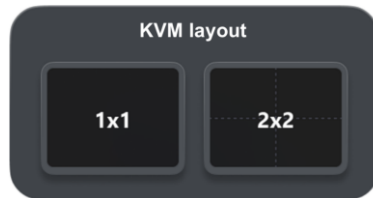


Fig 6-21 KVM layout

6.2.8 Preset

Click **Preset** in the floating menu to open the preset window. The **Node preset** list is displayed by default.

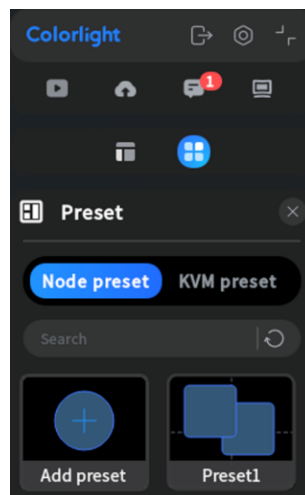


Fig 6-22 Preset window

Preset List

- **Node preset**: Lists all node presets saved under the current account.
 - ✧ **Node preset**: Saves window layouts for decoders-KVM under the current node.
 - ✧ Click **Add preset** to open the **New node preset** dialog. You can rename the preset as needed, then click **OK** to save the window layout for the decoder-KVM as a new node preset.
- **KVM preset**: Lists all KVM presets saved under the current account.

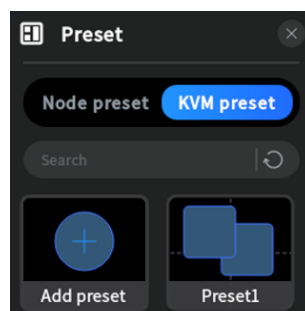


Fig 6-23 KVM preset list

- ✧ **KVM preset:** Saves window layouts of decoders-KVM for the current KVM workstation.
- ✧ **Create a KVM preset:** Click **Add preset**. In the New KVM preset dialog that appears, edit the preset name as needed. Then click **OK** to save the current window layout.

Preset Operations

Right-click a preset to access the following options:

- **Load:** Applies the preset to your KVM workstation.
- **Update:** Overwrites the preset with the current window layout.
- **Rename:** Edits the preset name.
- **Delete:** Removes the preset.

6.2.9 Settings

Click **Settings** in the floating menu to open the **Settings** window, where you can view and modify configurations for your KVM workstation.

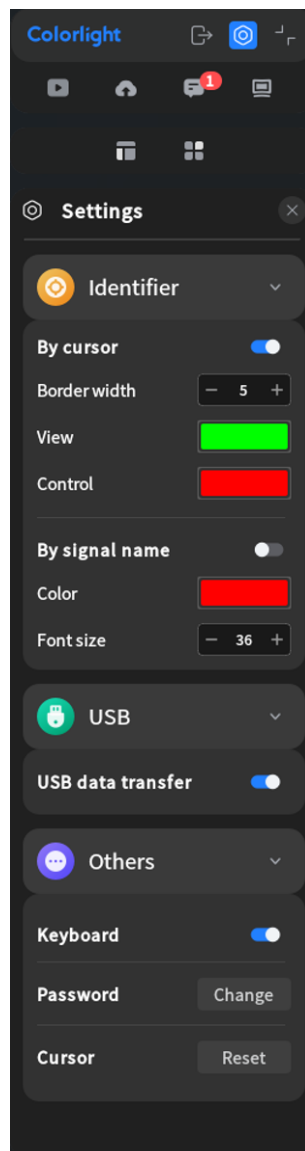


Fig 6-24 Settings window

Category	Setting	Description
Identifier	By cursor	When enabled, a colored border appears around the signal source window where the cursor is located.
	Border width	Sets the width of the cursor border (unit: pixels).
	View (color)	Sets the cursor border color when the current KVM workstation is viewing a signal.
	Control (color)	Sets the cursor border color when the current KVM workstation is controlling a signal.
	By signal name	- Prerequisite: This setting takes effect only when the KVM layout is configured as 2×2. - When enabled, the signal name is displayed in the top-left corner of each window.
	Color	Sets the text color for the signal name identifier.
	Font size	Sets the font size for the signal name identifier (unit: pixels).
USB	USB data transfer	Enables remote connection between USB-connected decoders-KVM and controlled signal sources for cross-device data transfer.
Others	Keyword	- Shows the on-screen keyboard when clicking any input field in DSKvm. - Does not affect the login screen keyboard.
	Password (Change)	Change account password after verifying the current one.
	Cursor (Reset)	- Prerequisite: Same-source signal bindings must be configured in DSConfig and controlled via DSKvm. - Click Reset to cursor re-center the cursor on screen to correct misalignment when controlling same-source signals.

Table 6-3 Description of the settings window

7 Statement

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