



CUBE X1 Distribution System

USER MANUAL

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1 Product Introduction



The Kiloview CUBE X1 is a small embedded server dedicated to routing and distributing NDI network video streams. The CUBE X1 features an eight-core high-performance ARM64 processor, equipped with two 10 Gigabit fiber SFP Ethernet interfaces and one 1 Gigabit RJ45 Ethernet interface. Its powerful processor performance and network throughput capabilities enable it to handle up to 13 channels of NDI High-bandwidth or NDI|HX2 or NDI|HX3 1080P60 NDI stream inputs, while simultaneously providing no less than 26 channels of NDI network distribution output.

Built on the mature NDI CORE server system kernel from Kiloview, the CUBE X1, like NDI CORE, is based on a "copy-forward" mode for NDI stream distribution. This mode fully utilizes the processing power and high network throughput performance of the server system to achieve an "amplifier" effect for NDI streams, meeting the needs of a large number of concurrent NDI client connections and reducing the access pressure on NDI source devices. Of course, users can also configure the CUBE X1 to operate in the conventional NDI Routing mode, known as the "jump" mode.

The CUBE X1 is compact and powerful. When two CUBE X1 units are placed side by side, they conform to the standard 2RU size, and Kiloview provides an optional RC02 rack accessory for combining the two units into one. In the compact chassis structure, the CUBE X1 offers redundant dual power supplies, a 5.5-inch front-panel touch LCD screen, and front-panel quick-switch buttons. With low power consumption and well-designed heat dissipation, even under full load, the total power consumption of the unit does not exceed 20W. The compact structure, superior performance, low

power consumption, redundant power supply, and carefully designed heat dissipation system ensure stable and reliable operation 24/7 while being environmentally friendly.

Through future free software updates, the CUBE X1 will support more expanded functions, such as building clusters of multiple CUBE X1 units to achieve larger-scale NDI routing distribution.

1.1 Product Features

- **High-performance, all-capable NDI input-output forwarding**
 - ◆ Supports 16x NDI High-bandwidth, NDI|HX2, NDI|HX3 inputs.
 - ◆ Supports no less than 32x NDI forwarding outputs.
 - ◆ Forwarding delay is less than 16.67ms, with no conversion, loss, or damage to NDI media content.
 - ◆ Full protocol and format support for NDI; however, the total supported video channels depend on the bandwidth due to different video resolution formats. Typically, 1080p60 resolution NDI High-bandwidth or NDI|HX2/NDI|HX3 can support 16x inputs and 32x outputs, with the scale roughly halved for 4Kp60 resolution.
 - ◆ Supports NDI Tally status forwarding.
 - ◆ Supports NDI PTZ control signal forwarding.
 - ◆ Supports bidirectional forwarding of NDI Metadata.
 - ◆ Supports user-configurable traditional NDI Routing mode, i.e., "jump" mode.
- **Convenient operation, good interactive experience**
 - ◆ The 5.5-inch touch LCD screen on the front panel allows previewing all input NDI videos (in VU Meter mode).
 - ◆ NDI input-output switching operations can be executed through touchscreen selection and front-panel buttons.
 - ◆ Commonly used NDI output channels can be added to a favorites list for quick selection.
 - ◆ The front-panel LCD screen can display the host's operating status, system performance, and up/downlink bandwidth status.
 - ◆ Common system settings can be executed through the front-panel LCD screen.
 - ◆ Remote backend control can be achieved through the Web console.
- **Powerful Web console management and control functions**
 - ◆ Secure web access based on HTTPS.
 - ◆ Supports real-time preview of NDI input videos through the Web.
 - ◆ Provides various forms of input-output switching control interfaces, such as crosspoints and I/O panels.

- ◆ Customizable preset templates (i.e., saving all input-output corresponding states) can be freely saved and called with one click for quick operations.
- ◆ Supports custom cyclic switching function (single carousel function) where the sources, interval time, and order can be freely defined.
- ◆ Free selection of NDI inputs, free definition of NDI outputs.
- ◆ Supports NDI auto discovery, manual discovery, and Discovery Server.
- ◆ - User and permission management.
- **Compact, reliable, low-power embedded hardware server**
 - ◆ 8-core ARM64 high-performance processor.
 - ◆ Equipped with two 10GbE SFP+ Ethernet ports and one 1GbE RJ45 Ethernet port.
 - ◆ Redundant dual power supplies.
 - ◆ Half-width 2RU standard rack size; two CUBE X1 units can be horizontally combined to form a standard 2RU rack size, and Kiloview provides an optional assembly rack accessory RC02.
 - ◆ Equipped with a 5.5-inch touch display screen and 16 dual-color numeric keys.
 - ◆ Equipped with two USB 2.0 interfaces; a mouse, keyboard for input/output switching, or a USB flash drive for system upgrades can be inserted.
 - ◆ The total power consumption under full load is not higher than 20W, with intelligent active heat dissipation design.
 - ◆ Reinforced structure design for good shock and drop resistance.

2 Technical parameters

Product Model	CUBE X1
Function and Performance	
Video Resolution Support	Input Support: 3840*2160p 60/59.94/50/30/29.97/25/24/23.98fps 1920*1080p 60/59.94/50/30/29.97/25/24/23.98fps 1920*1080i 60/59.94/50fps 1280*720p 60/59.94/50/30/29.97/25/24/23.98fps Output Support: 3840*2160p 60/59.94/50/30/29.97/25/24/23.98fps 1920*1080p 60/59.94/50/30/29.97/25/24/23.98fps 1920*1080i 60/59.94/50fps 1280*720p 60/59.94/50/30/29.97/25/24/23.98fps
Processing Capacity	Input: Up to 16x NDI High-bandwidth or NDI HX2 or NDI HX3, with a total input bandwidth not exceeding 2.5Gbps; Output: Supports creating up to 32x NDI output channels with a maximum of 32 concurrent connections, and the total output bandwidth does not exceed 5Gbps. The actual input/output capacity is evaluated based on the above input/output capabilities. Typical scenarios: For NDI streams with a resolution of 3840x2160 (4K) and a bitrate of 340Mbps/channel: 5 inputs, 12 outputs For NDI streams with a resolution of 1920x1080 (1080p) and a bitrate of 180Mbps/channel: 13 inputs, 26 outputs
NDI Format Support	NDI High-bandwidth NDI HX2 NDI HX3
NDI Tally	Supported (forwarding)
NDI PTZ Control	Supported (forwarding)
NDI Metadata	Supported (forwarding)
General Parameters	
CPU	8-core ARM64 high-performance processor
Network Interfaces	2x 10GbE SPF+ fiber Ethernet interfaces; 1x 1GbE RJ45 Ethernet interface
HDMI Interface	1x HDMI 2.0 OUT
USB Interfaces	2x USB 2.0 (Type-A)
Audio Input/Output	1x 3.5mm LINE IN 1x 3.5mm LINE OUT
Buttons	1x Power On/Off button; 16x numeric buttons
Screen Type	5.5-inch LCD capacitive touchscreen display, with a display resolution of 1920x1080@50Hz
Power	2x AC 100~230V redundant hot backup power supplies

Management Method	Web
Dimensions	220.00 x 231.45 x 88.00mm
Working temperature	-10°C - 55°C / 14°F - 131°F
Storage temperature	-20°C - 65°C / -4°F - 149°F
Dimension	220.00 x 231.45 x 88.00mm
Weight	1.88kg


Note:

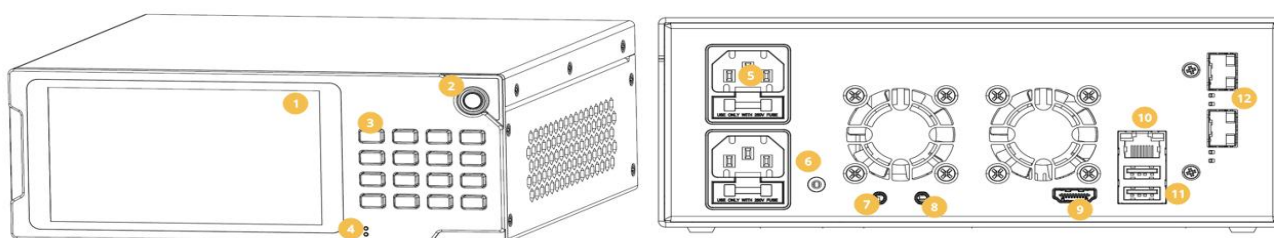
- When an NDI client connects to the output channel of CUBE X1, the output channel notifies the NDI client to reconnect to the NDI source.
- CUBE X1 can create up to 32x NDI output channels, with each channel capable of establishing one or multiple NDI connections. The specific number of connections depends on the total network bandwidth and the overall performance of CUBE X1.

3 Device List and Interface Description

3.1 Device List

Name	Unit	Quantity
Host (CUBE X1)	pcs	1
Power Cord	pcs	2
Certificate/Warranty Card	pcs	1
Quick Start Guide	pcs	1

3.2 Device Interface Description



1) Touch Screen	2) Power On/Off Button	3) Numeric Buttons	4) Power Indicator Light
5) 2*Power Interfaces	6) Grounding Interface	7) 3.5mm Line IN	8) 3.5mm Line Out
9) HDMI Interface	10) 1000M Ethernet Port	11) 2*USB Interface	12) 2*10G SFP+ Optical Ports



Note

- Numeric buttons correspond to the 16 signal sources input to CUBE X1. Select any NDI output channel on the touch screen, and then press any numeric button to switch the NDI output to the NDI input source corresponding to the numeric button.
- The HDMI interface is used to loop out the CUBE X1 small screen signal.

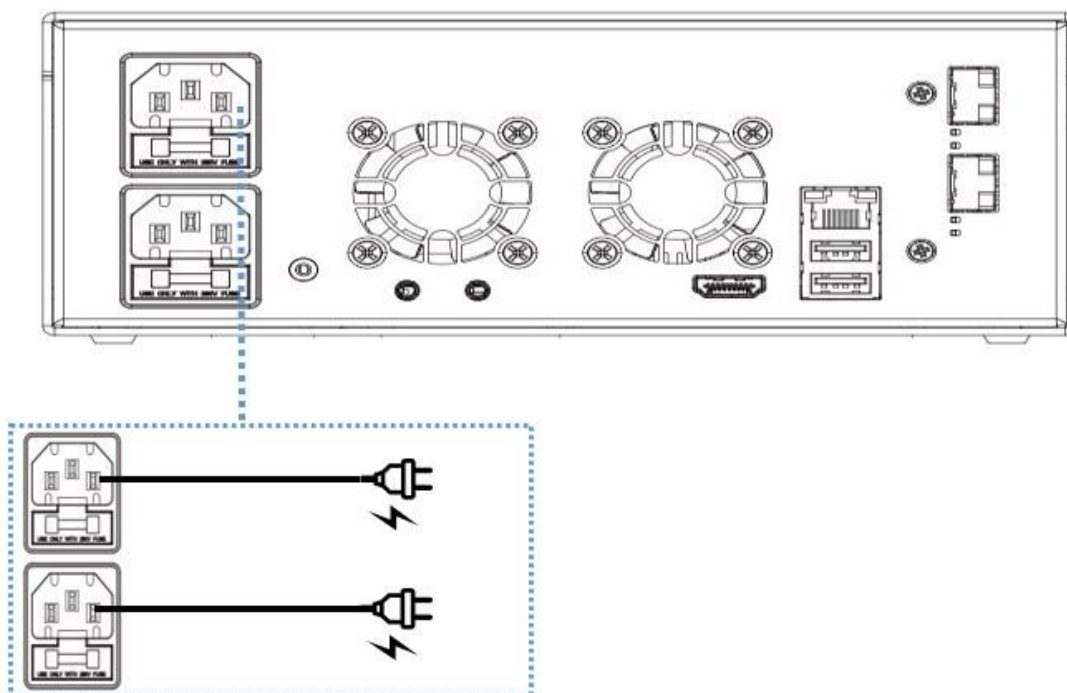
3.3 Device Indicators

	Name	Color	Status	Description
Power Indicator Light	PWX1	Red	Steady	The power is connected.
	PWR2		Off	The power is off or there is a fault.

4 Equipment Installation and Connection

4.1 Power Connection

Using the standard power adapter provided with the main unit, after turning on the power, switch on the power button. The device power indicator will light up, and the device will start up, a process that takes approximately 30 to 40 seconds.

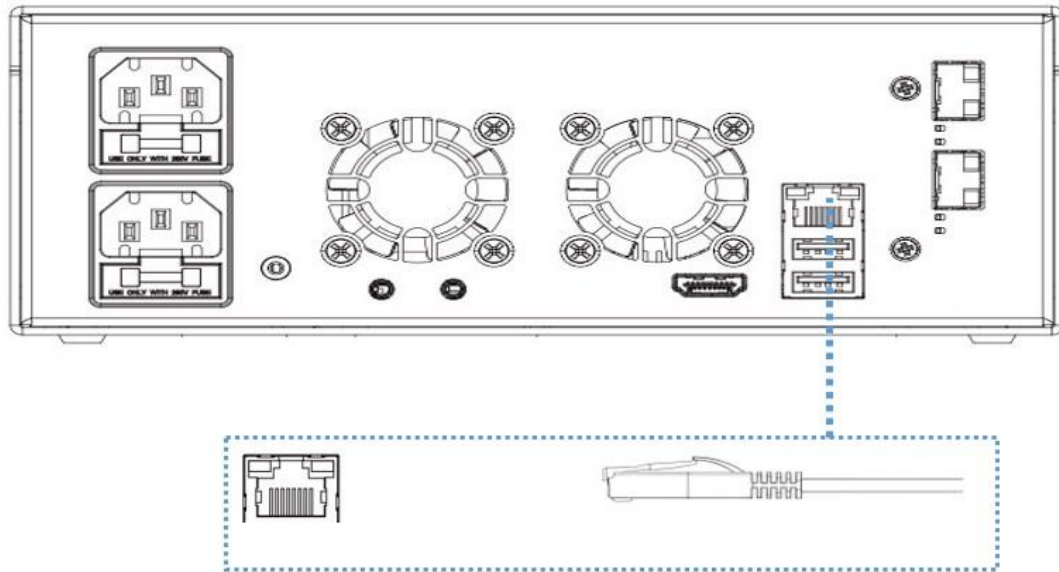


Note

- The CUBE X1 is equipped with dual power interfaces to improve the availability and reliability of the power system, reduce equipment downtime, and minimize the impact of power grid incidents on system stability. In the event of a power failure, switching to the other power source ensures that the equipment or system always has a backup.
- The rear of the device is equipped with a grounding interface. It is recommended that customers promptly use the grounding wire to ground the device to prevent power short-circuit accidents.

4.2 Network Cable Connection

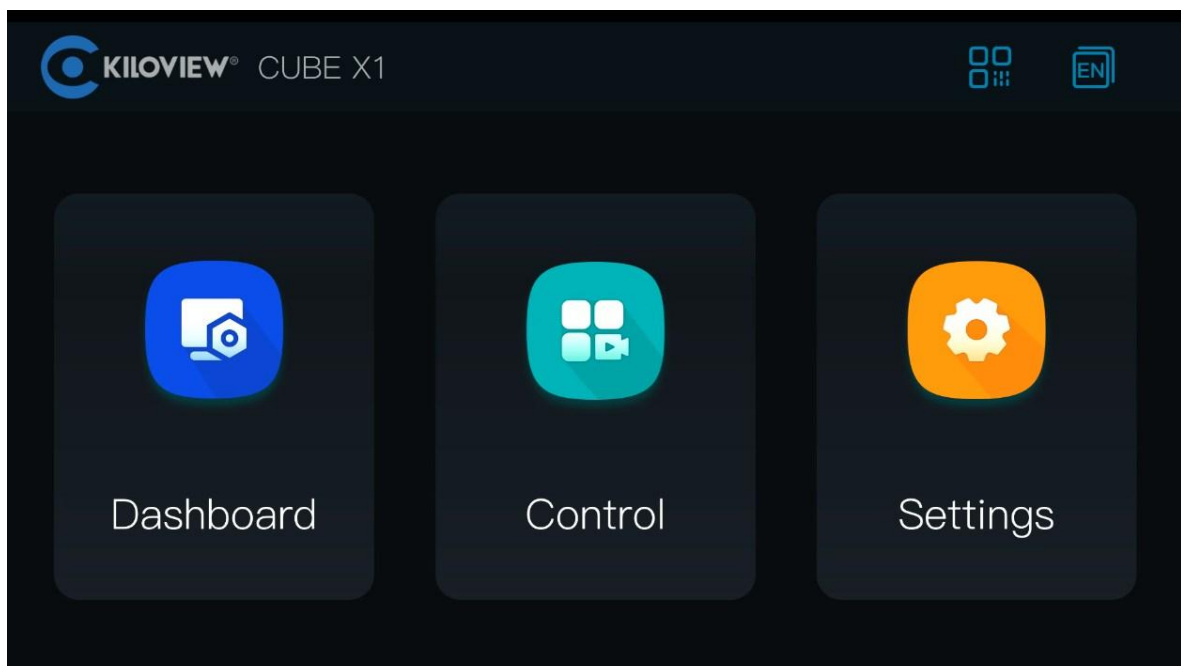
Connect one end of the network cable to the Ethernet port of the device, and connect the other end of the network cable to the switch, or directly to the computer's network port.



5 Touch Screen Settings

After pressing the power button on the right side of the CUBE X1 device, the device will enter the startup state, and the screen will display the KILOVIEW logo. Please wait patiently for the startup to complete.

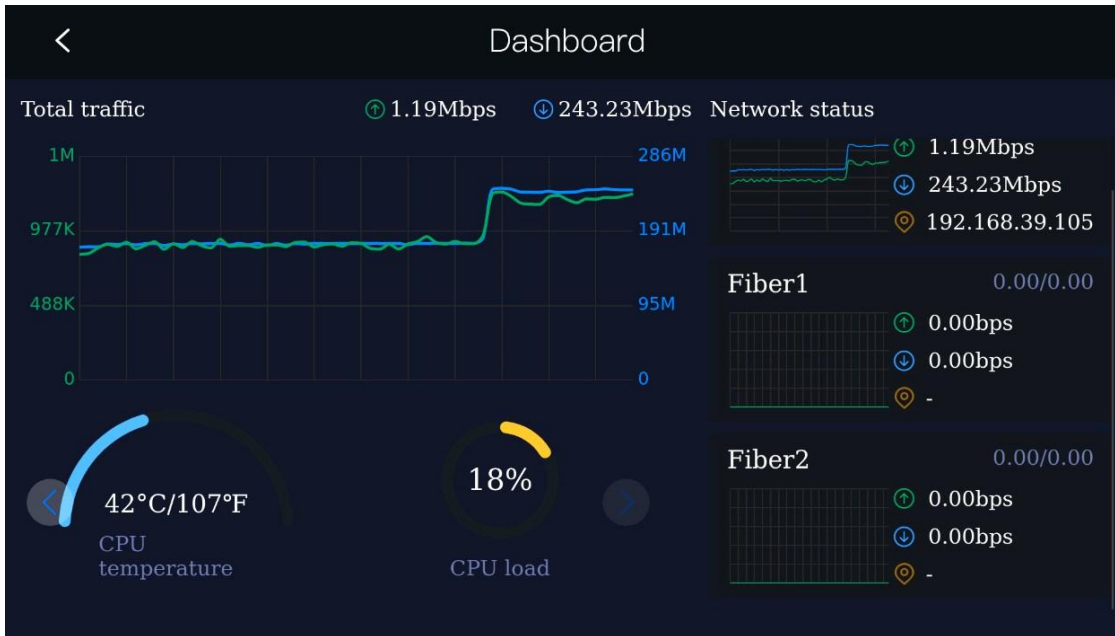
The home page will display three modules: Information Overview, Matrix Control, and System Settings. The "QR" QR code in the upper right corner is for backend control. Users can scan the "QR" QR code after connecting to the same network as the CUBE X1 to access backend management operations. The "Language" language switch button currently supports Chinese/English switching.



5.1 Information Overview

The first module on the touch screen is "Information Overview," mainly used to display information such as network traffic, network status, video input, video output, and system status related to CUBE X1. Clicking on "Information Overview" will take you to the system information display page.

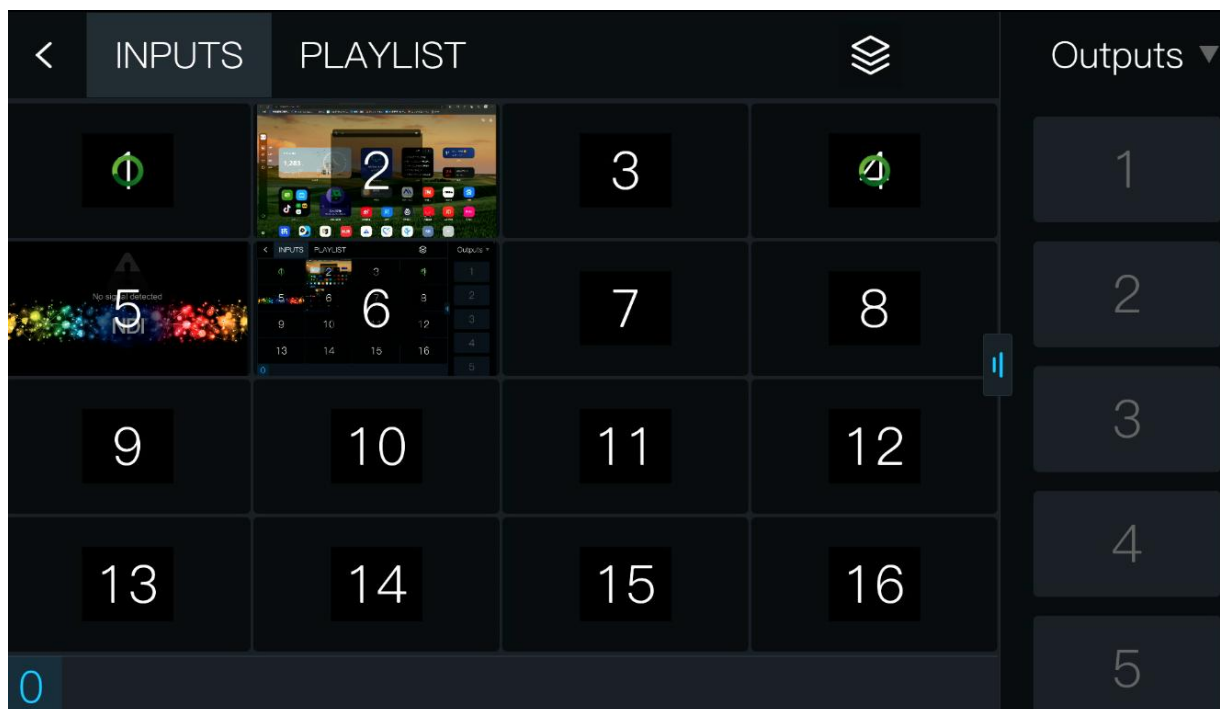
At the bottom of the page, the current NDI input and output sources of the CUBE X1 are displayed. By clicking the "■" button, you can view the current CPU temperature and load rate of the device.



5.2 Matrix Control

The second module on the touch screen is "Matrix Control," which allows real-time viewing of the video playback of the current NDI input sources, setting of playlist, calling of preset templates, and viewing and switching of NDI input/output relationships. Clicking on "Matrix Control" will take you to the matrix control page.

Each CUBE X1 supports up to 16 NDI input sources and 32 NDI output sources. You can configure input and output sources, set playlist rules, and save these configurations as preset templates in the web management backend. Then, you can perform quick switching operations on the touch screen.

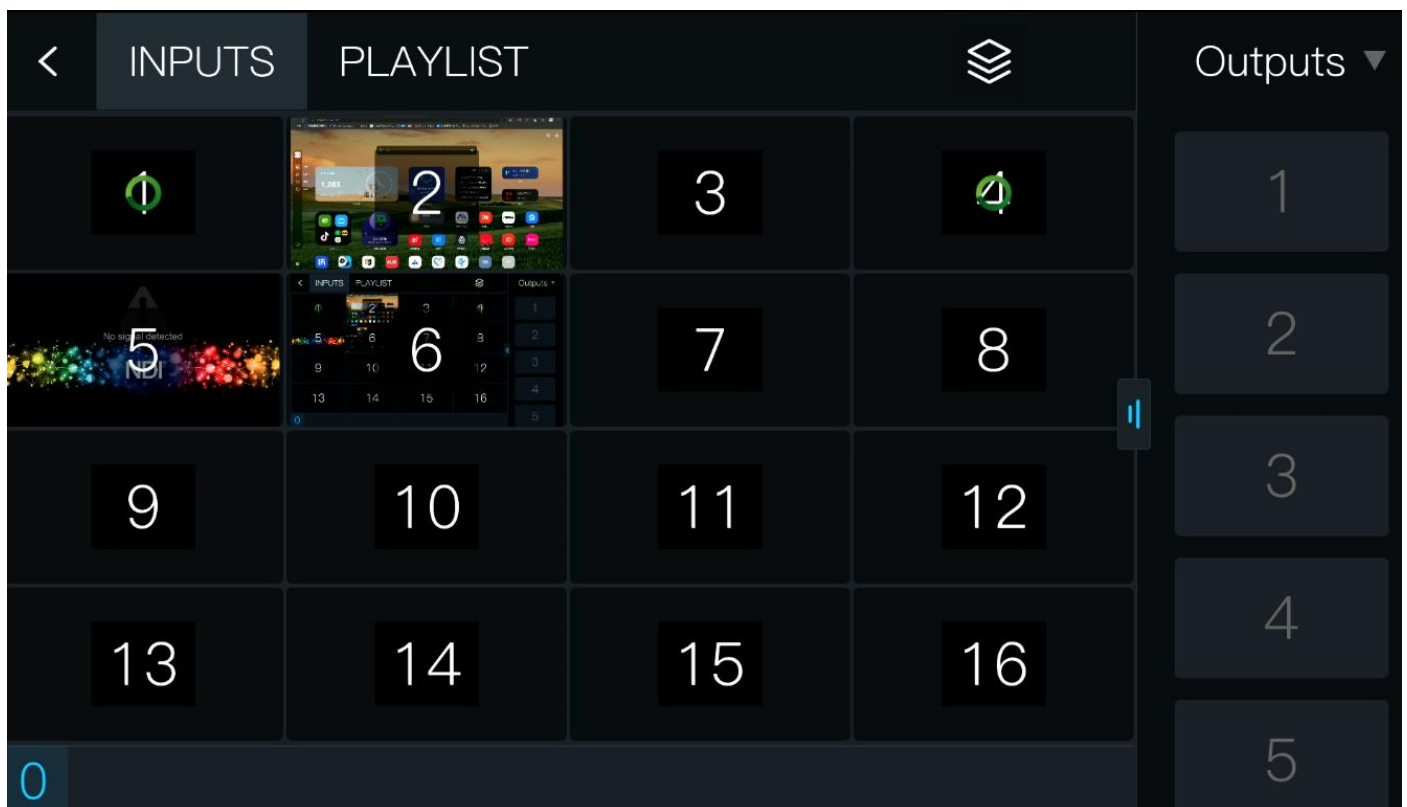


Note

- Configuration of CUBE X1: For details on the configuration of input sources, output sources, playlists, and templates of the CUBE X1, please refer to section 8, Panel Settings.

5.2.1 Matrix Switching

The matrix control page layout consists of two areas, left and right. On the left side, you can switch NDI input sources, slideshow playlists, and preset templates by clicking on the corresponding icons at the top, labeled "INPUTS", "PLAYLIST", and "📁" respectively. On the right side, there is the output source selection interface, which can be expanded or collapsed by clicking on the "||" icon. When the output interface is expanded, you can long-press on a specific output source on the screen for 3 seconds to bookmark or unbookmark it.



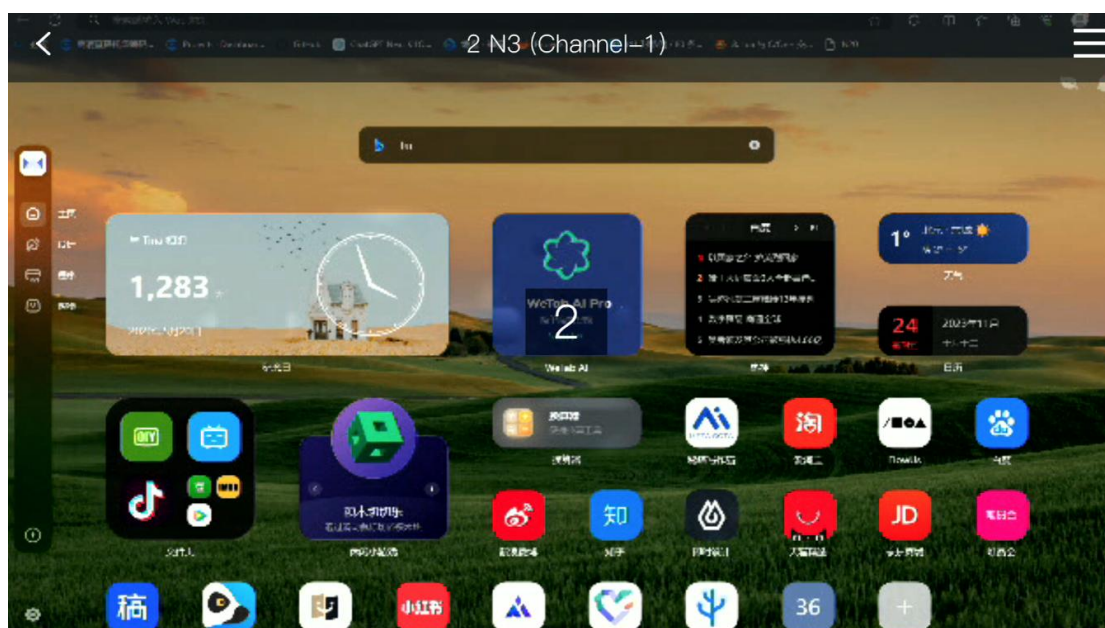
CUBE X1 supports viewing and switching the corresponding relationship between NDI inputs and outputs. The input video sources are arranged on the right side of the screen in the order of 1-16 for real-time preview by the user. When a user clicks on a specific input source, the corresponding output source will be highlighted in blue. If the user needs to modify the input video source through forwarding to an output video source, they simply need to select one output source on the left side of the screen and press the corresponding numeric key on the device entity that matches the input source number to complete the video input-output switching. Note: if an output source has the "📺" icon, it means that the output source is currently broadcasting a video slideshow.

5.2.2 Viewing Video Sources

By clicking on the preview of an NDI input video source, you can play the single-channel video source in full screen. By clicking on the "☰" icon in the top left corner of the screen, you can see which output

sources correspond to that input source. To return to the multi-input source preview interface, click on the

"" icon in the top right corner of the screen.



5.2.3 Playlist

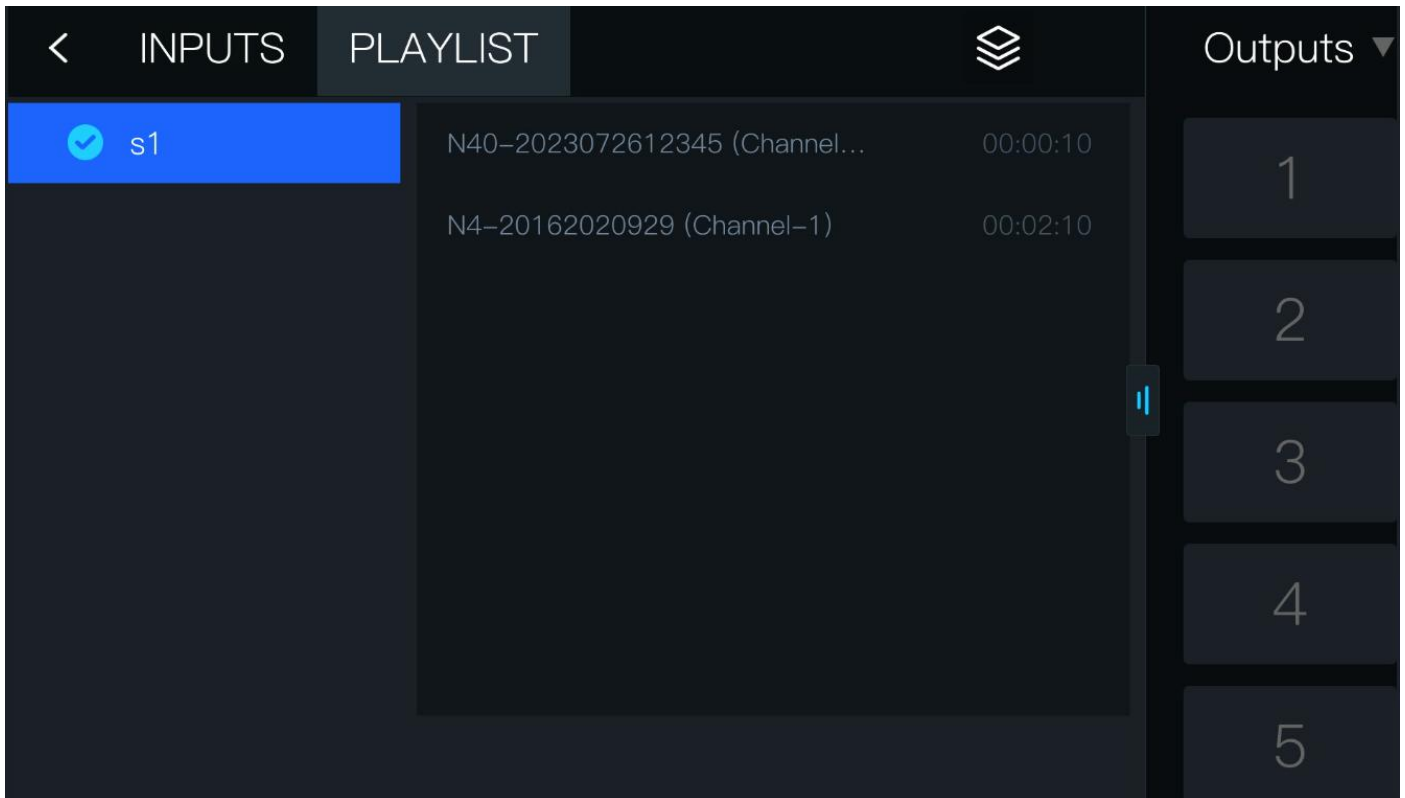
If a playlist has been created in the web management page beforehand, clicking the playlist button will display the playlist created in the web management page. The playlist supports up to 16 items, and the order of the playlist corresponds one-to-one with the physical digital buttons on the device. When a user clicks on a particular playlist, the output source associated with that playlist will be highlighted in blue. To modify which output video source the carousel list is played through, the user only needs to select one output source on the left side of the screen, then press the physical digital button corresponding to the

order of the playlist, to complete the video playlist setting. If there is an "" icon on an output source, it indicates that the output source is currently playing a video carousel. To cancel the carousel on that output source, simply select the output source and click the stop button at the bottom of the screen.



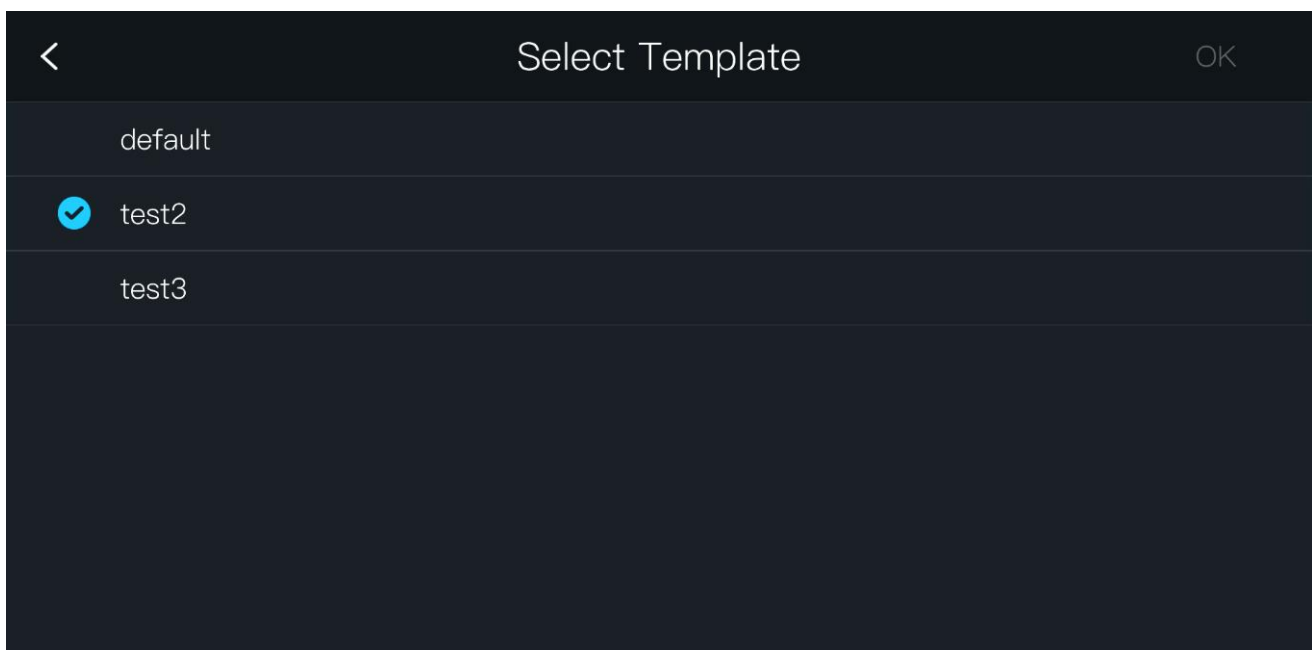
Note

- Adding and deleting carousel lists and other management functions need to be done in the web management page. The touch screen only provides quick control for display, switching, enabling, disabling, etc.



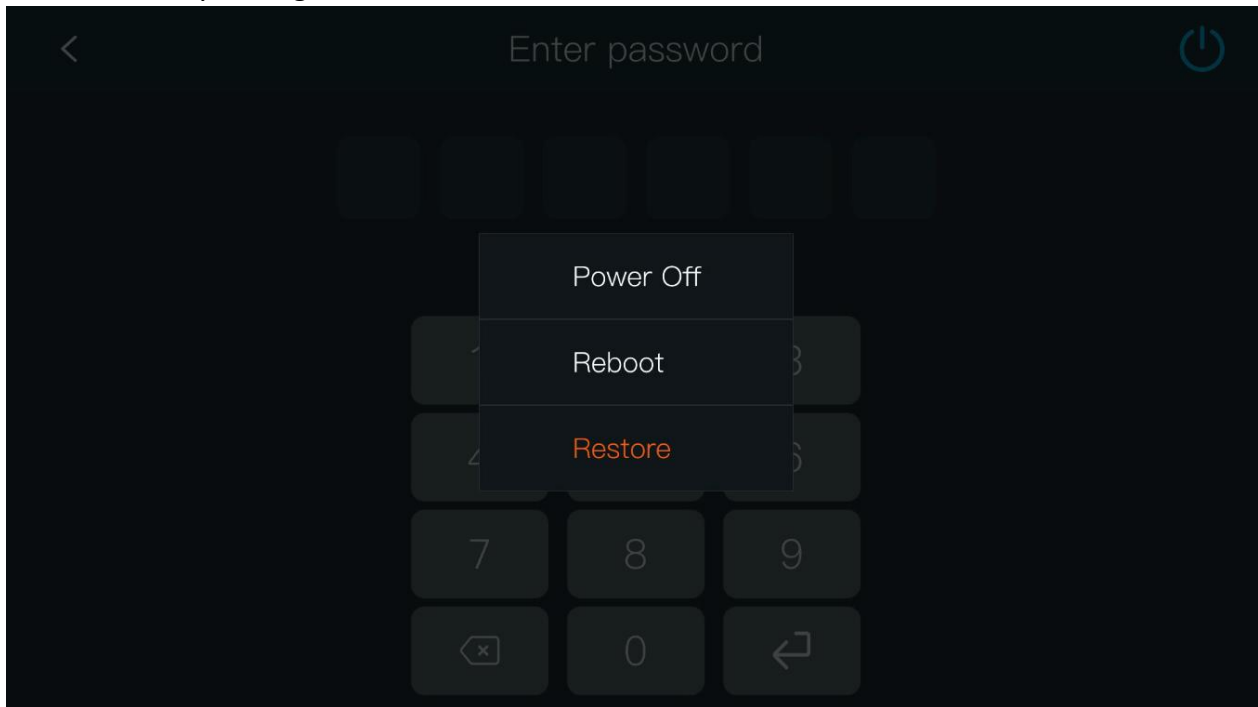
5.2.4 Preset Templates

Users can set and manage multiple matrix input-output schemes in advance through the web management page, and save them as multiple preset templates. Up to 16 preset templates can be created. Click the "📁" button on the matrix switching interface on the touch screen to enter the shortcut operation interface of the preset template. The user only needs to select the template they want to use and click the confirm button in the upper right corner of the screen to complete the preset template switch.



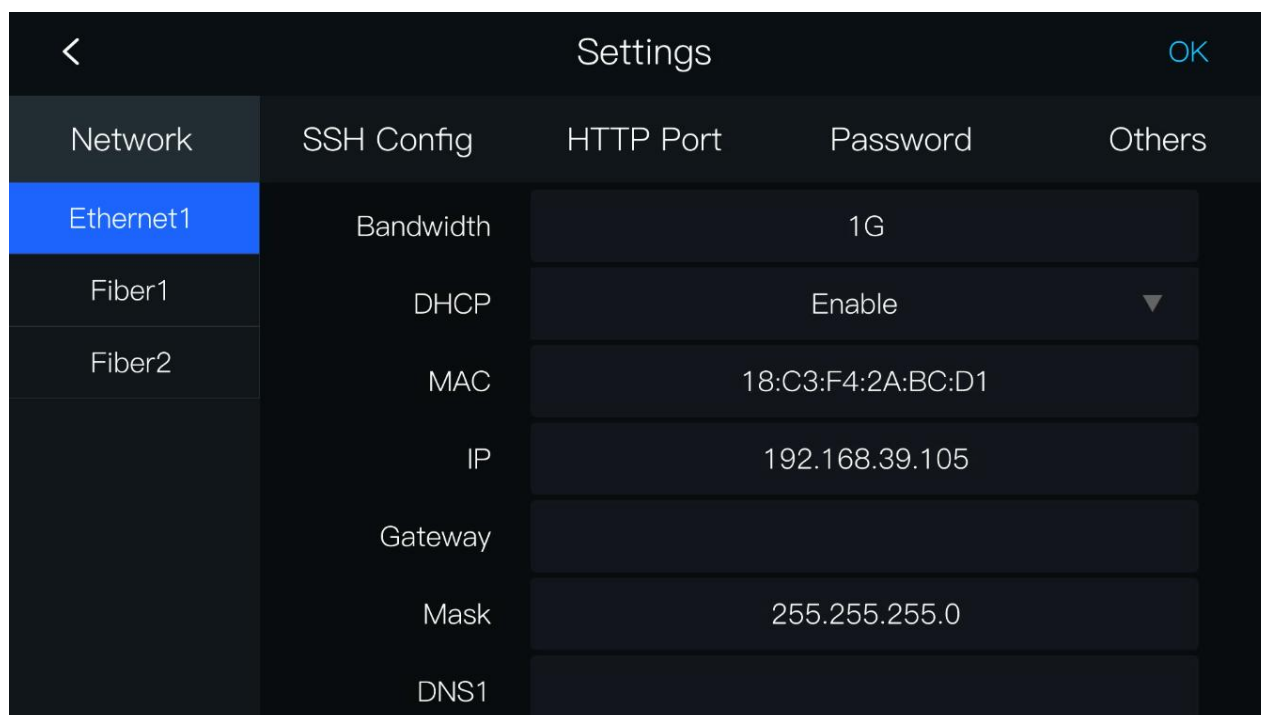
5.3 System Settings

The third module on the touch screen homepage is the "System Settings" function. Clicking "System Settings" will enter the corresponding setting interface. A password needs to be entered before entering the system settings module (the default password is: 123456) to enter the system configuration details page. In addition, clicking the "🔌" button in the upper right corner of this interface can shut down, restart, or restore the factory settings of the device.



5.3.1 Network Settings

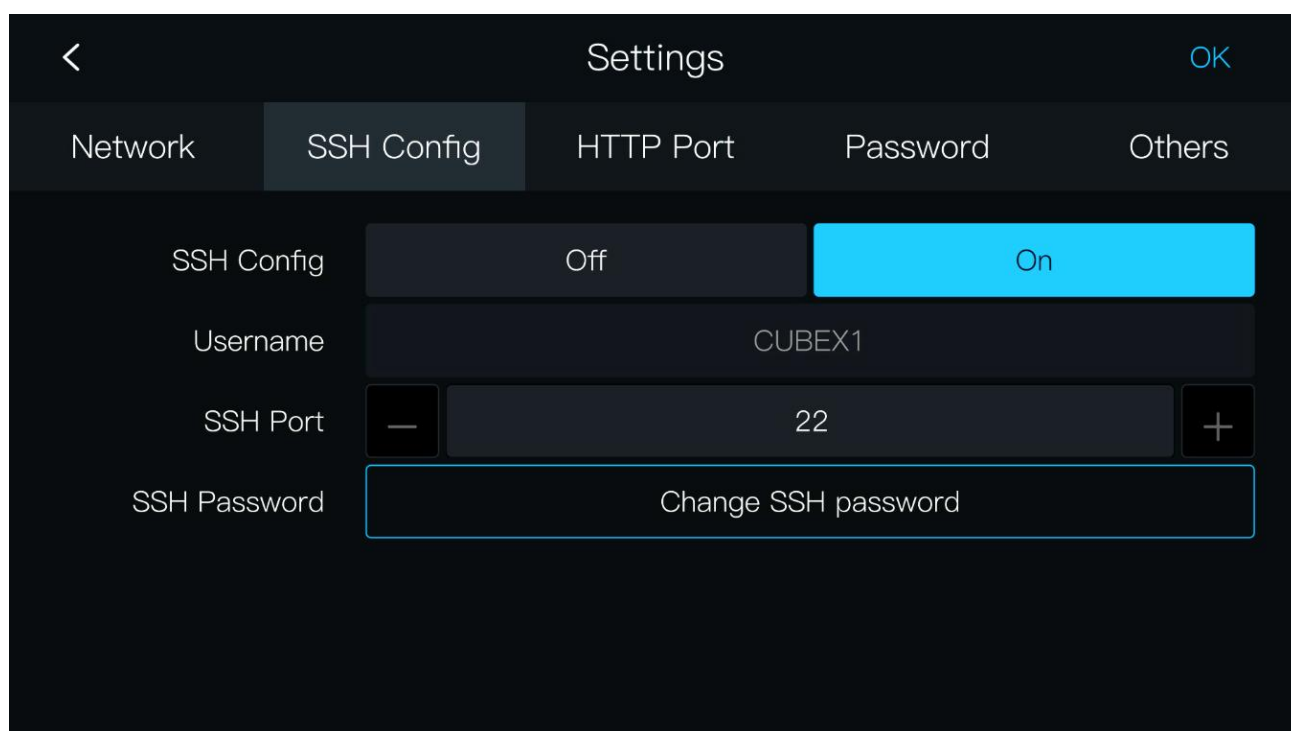
After entering the system settings page by entering the password on the touch screen, click the System Settings module and select Network. The current device network card list will be displayed on the left side of the interface, and the current connection speed and MAC address of the device will be displayed on the right side. DHCP automatic IP address acquisition can be enabled or manual IP address can be set. After modifying the IP address, click the "OK" button in the upper right corner to make the relevant modified settings take effect.



The screenshot shows the 'Settings' page with a dark theme. At the top, there is a back arrow on the left, the title 'Settings' in the center, and an 'OK' button on the right. Below the title bar, there are five tabs: 'Network', 'SSH Config', 'HTTP Port', 'Password', and 'Others'. The 'Network' tab is selected and highlighted. Under the 'Network' tab, there are three options: 'Ethernet1', 'Fiber1', and 'Fiber2'. 'Ethernet1' is selected and highlighted in blue. To the right of these options, there are several configuration fields: 'Bandwidth' (set to '1G'), 'DHCP' (set to 'Enable' with a dropdown arrow), 'MAC' (set to '18:C3:F4:2A:BC:D1'), 'IP' (set to '192.168.39.105'), 'Gateway' (empty), 'Mask' (set to '255.255.255.0'), and 'DNS1' (empty).

5.3.2 SSH Config

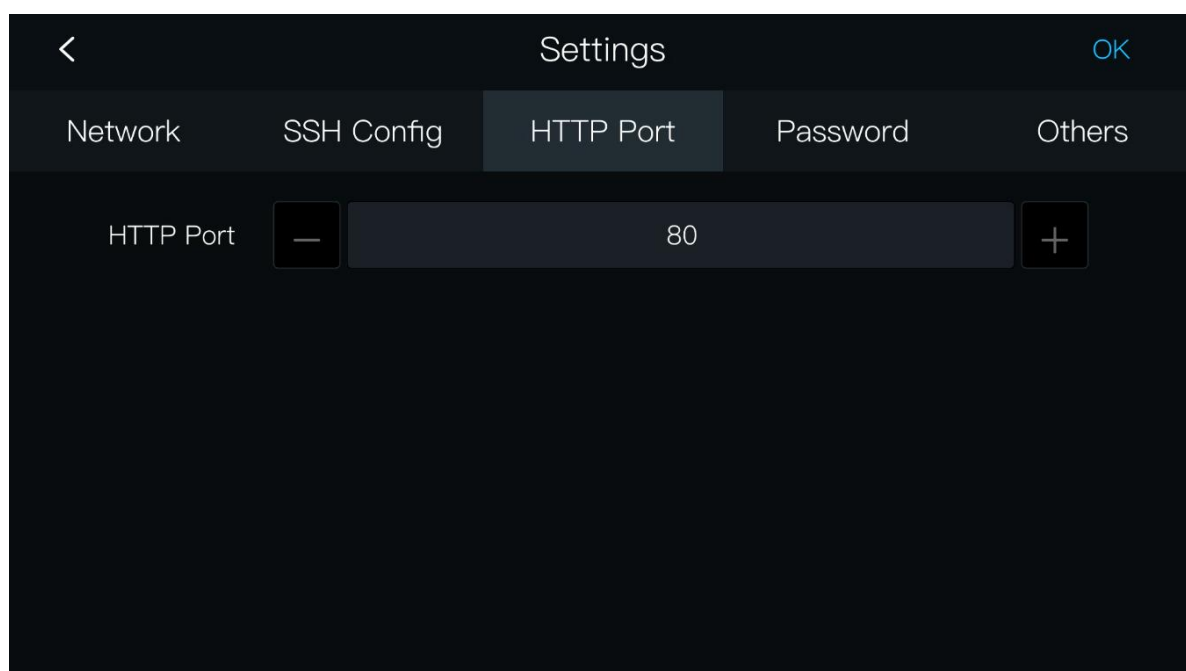
In the system settings page on the touch screen, select SSH Config to turn on or off SSH control. The default username is: CUBE X1; the default port is: 22; the default password is: Admin123. If you forget the password, click the reset SSH password button to modify it. After clicking the reset SSH password button, the reset password will be displayed below, and clicking the "OK" button in the upper right corner will make the relevant settings take effect.



The screenshot shows the 'Settings' page with the 'SSH Config' tab selected. The 'SSH Config' tab is highlighted. Below the tabs, there are four main settings: 'SSH Config' (with 'Off' and 'On' toggle buttons, 'On' is selected), 'Username' (set to 'CUBEX1'), 'SSH Port' (set to '22' with minus and plus buttons), and 'SSH Password' (with a 'Change SSH password' button).

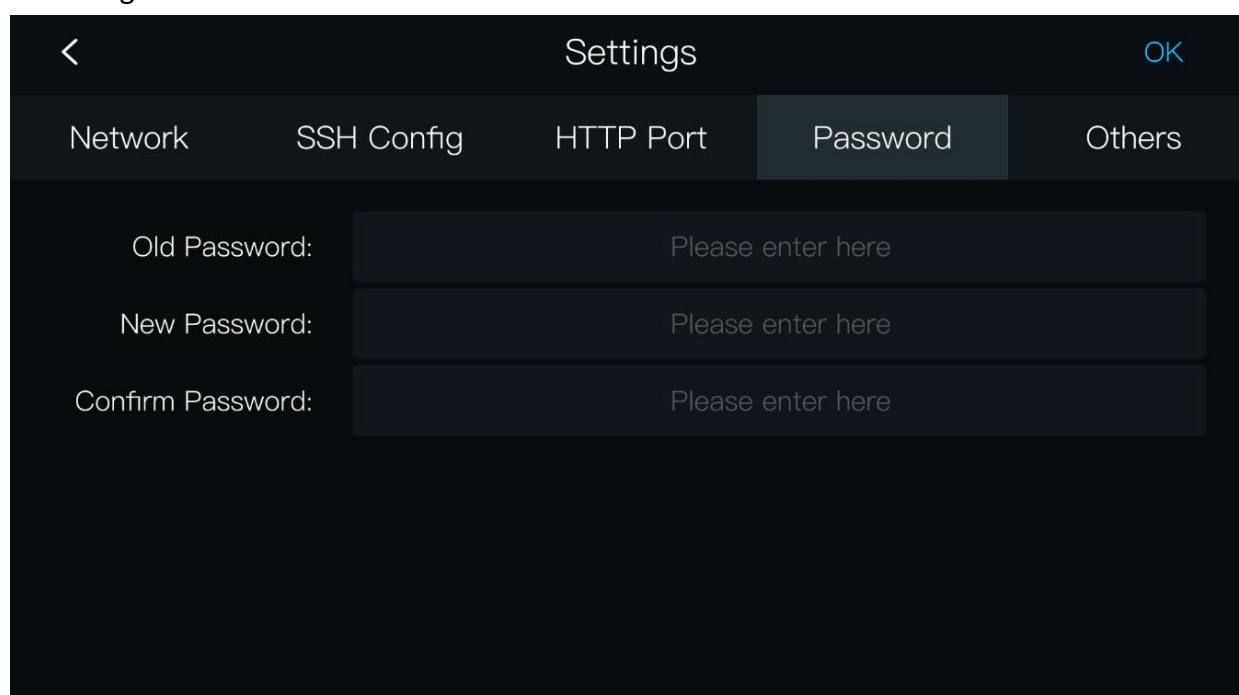
5.3.3 HTTP Port Control Settings

Click the System Settings module and select “HTTP Port” to modify the access address port. After modifying the port, click the "OK" button in the upper right corner to make the relevant settings take effect.



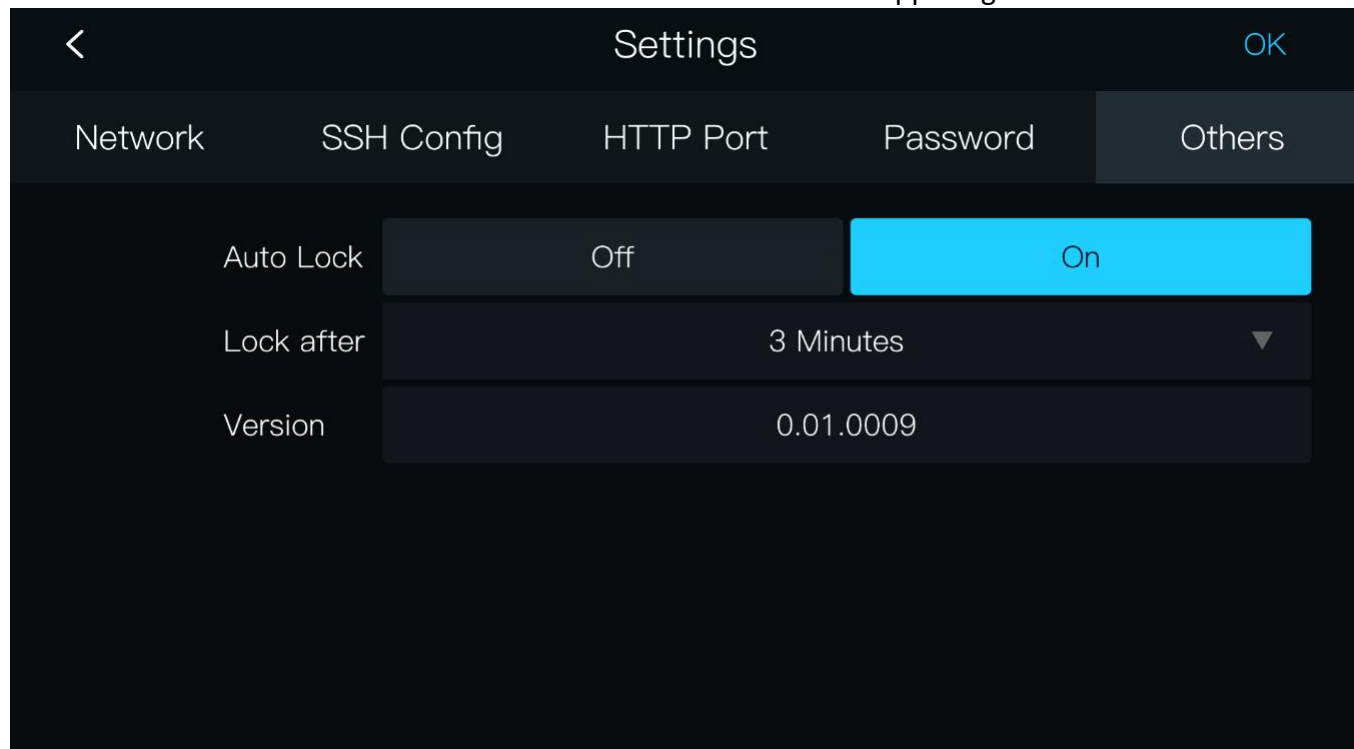
5.3.4 Password Settings

Click the System Settings module and select “Password” to modify the CUBE X1 device password. Follow the prompts to enter the password, and click the "OK" button in the upper right corner to make the relevant settings take effect.



5.3.5 Screen Saver

Click the System Settings module and select "Others" to enable automatic screen-off and set the screen saver automatic screen-off time. Click the "OK" button in the upper right corner to make it effective.

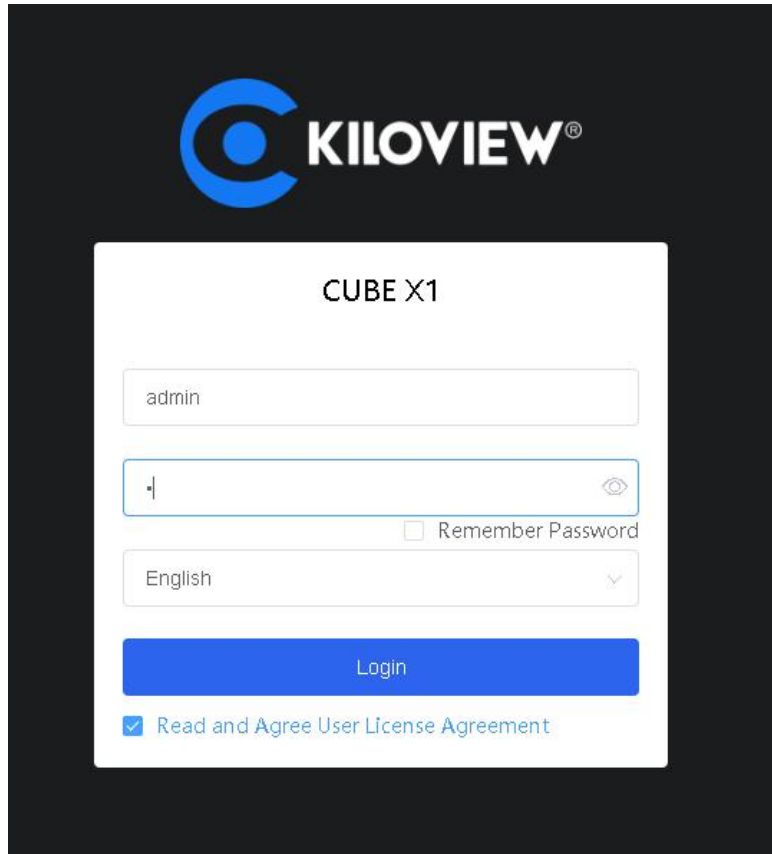


6 Login to the CUBE X1 Management Page

The backend management system of CUBEX1 allows for detailed configuration of the device. There are two ways to log in to the Web management page of CUBE X1:

Method 1: Access the page through a browser by entering the device's `http://IP:port` and accessing the Web management page.

Open in the browser: `http://serverIP:port`, and log in to the CUBE X1 management backend. The default username for login is "admin" and the password is "admin"; the default login port is 80.



Method 2: Click on the "QR" icon in the upper right corner of the device screen, scan the QR code displayed on the screen, and access the Web management page.



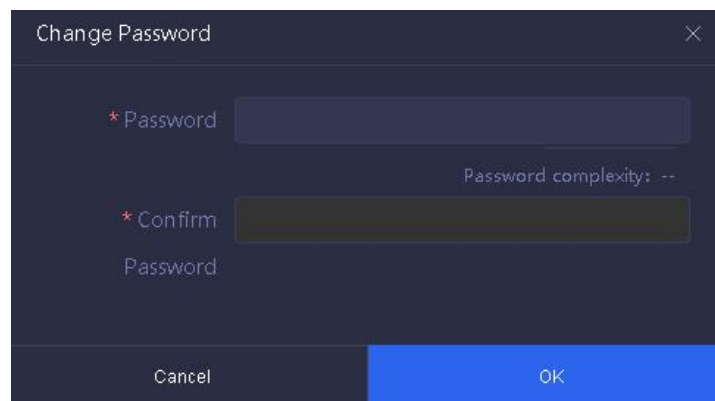
7 CUBE X1 Management - Dashboard

7.1 Information Overview

In the left navigation bar of the CUBE X1 management page, click on "Dashboard" to enter the system information display, which includes network status, system status, NDI resources, and operation logs.



Click the "admin" button in the upper right corner to change the password. Enter the password as prompted and click "OK" to take effect. Click the "中" button in the upper right corner to quickly switch languages. Currently, Chinese and English are supported.

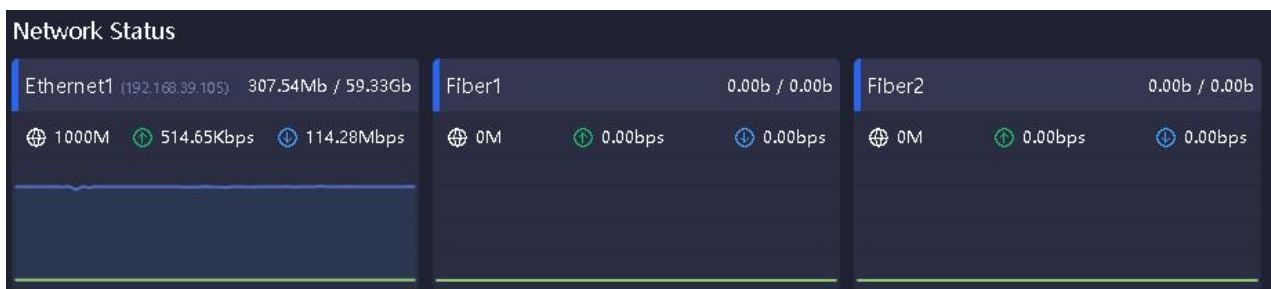


The Change Password dialog box contains the following fields and buttons:

- * Password:** A text input field for the new password.
- * Confirm:** A text input field for confirming the new password.
- Password complexity:** A label indicating the complexity of the password.
- Cancel:** A button to cancel the password change.
- OK:** A button to confirm the password change.

7.1.1 Network Status

The network status displays all network device information and current network traffic on the CUBE X1 device.



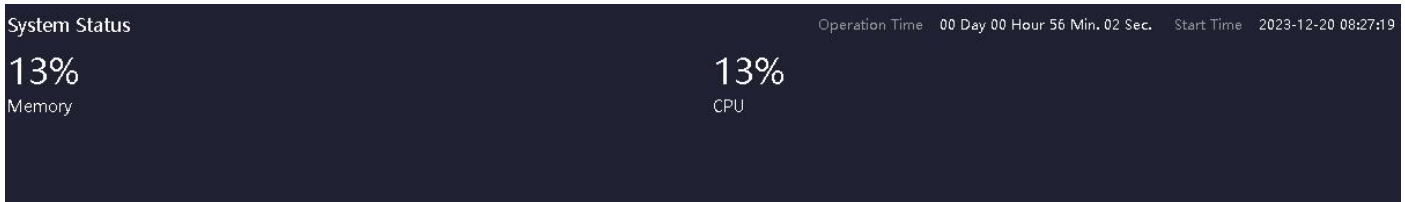
7.1.2 System Status

Displays the system uptime, device startup time, device memory usage, and CPU load:
Memory Usage: Current memory usage percentage;

CPU Load: Current CPU load percentage;

Uptime: Total running time since CUBE X1 system startup;

Startup Time: CUBE X1 matrix startup time.

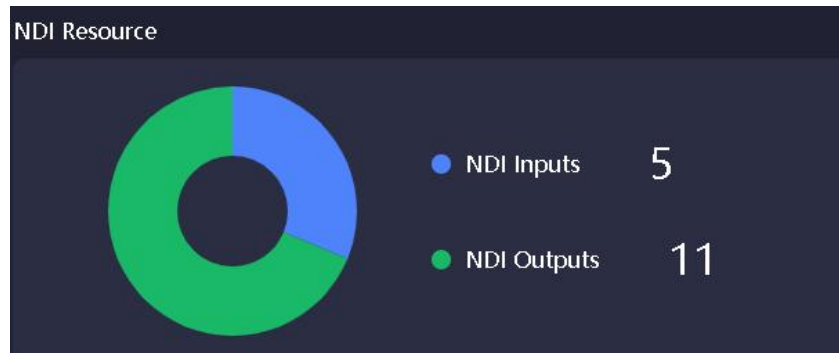


7.1.3 NDI Resources

Displays the number of input sources and output sources of the CUBE X1 device. The following parameters are introduced:

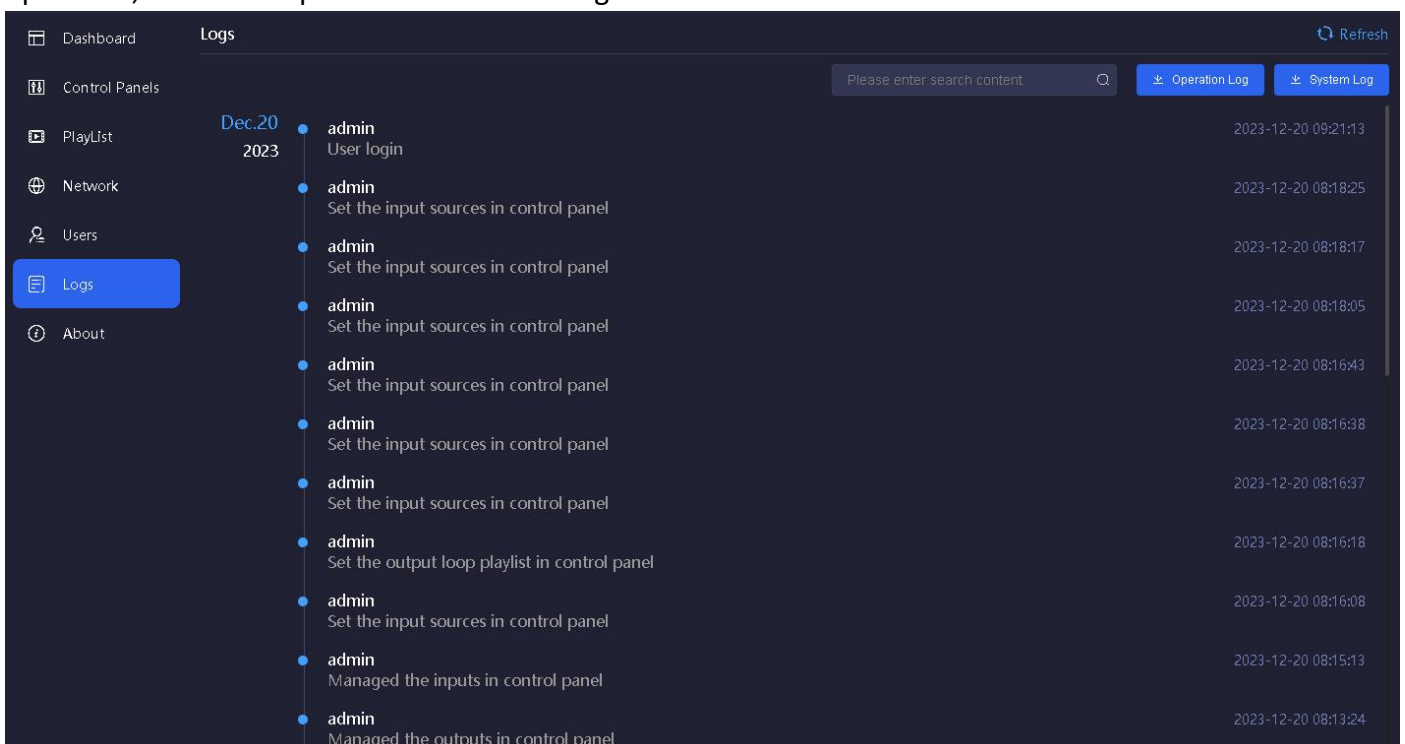
NDI Sources: Statistics of all added NDI video sources in the device (excluding discovered but not added NDI video sources).

NDI Outputs: Statistics of all NDI output sources created by users.



7.1.4 Operation Logs

Statistics of all operations performed on the NDI matrix system, including the time and account of the operation, which is helpful for troubleshooting issues.

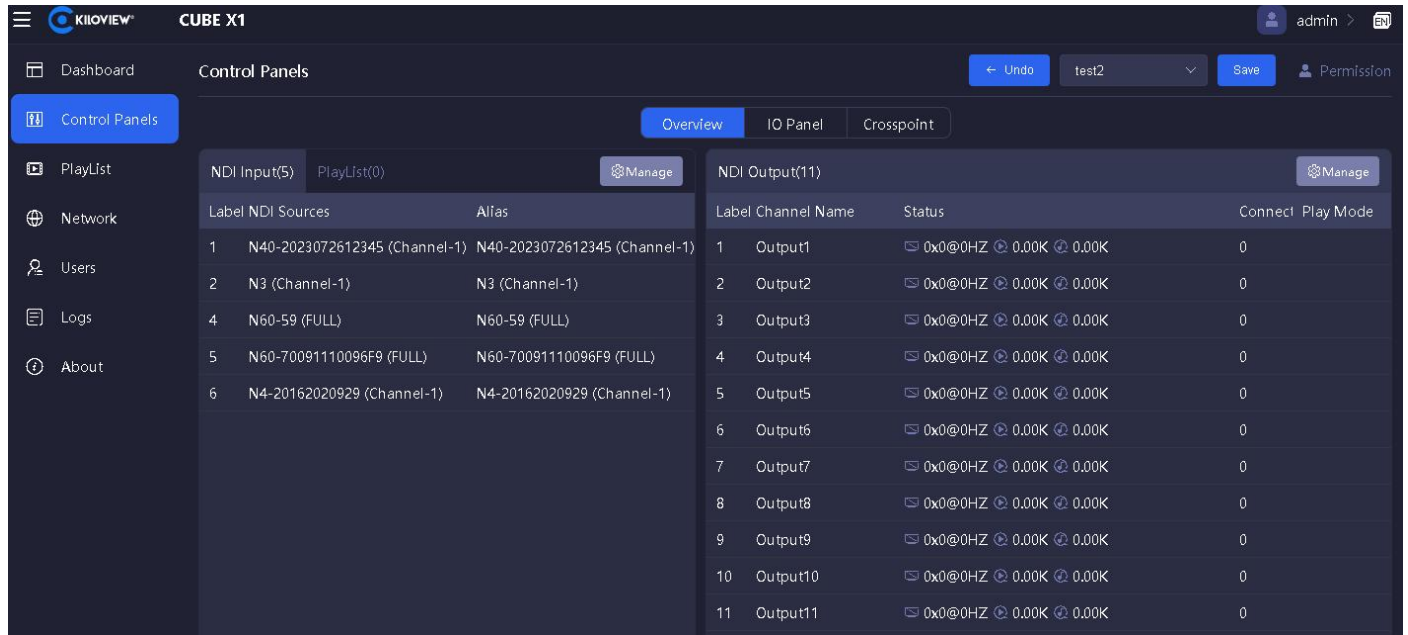


8 Panel Management Settings

CUBE X1 supports 16 NDI inputs, 32 NDI output copies, and switching. Panel management provides two switching methods: I/O panel and crosspoint panel, facilitating flexible usage for customers.

8.1 Panel

In the left navigation bar, click on "Control Panel" to enter the panel settings. Click on the overview interface, and through the "Manage" button corresponding to NDI input and NDI output, you can add or delete the NDI sources and NDI output channels required by the current panel.



NDI Input(5)			NDI Output(11)				
	Label	NDI Sources	Label	Channel Name	Status	Connect	Play Mode
1	N40-2023072612345 (Channel-1)	N40-2023072612345 (Channel-1)	1	Output1	0x0@0HZ 0.00K 0.00K	0	
2	N3 (Channel-1)	N3 (Channel-1)	2	Output2	0x0@0HZ 0.00K 0.00K	0	
4	N60-59 (FULL)	N60-59 (FULL)	3	Output3	0x0@0HZ 0.00K 0.00K	0	
5	N60-70091110096F9 (FULL)	N60-70091110096F9 (FULL)	4	Output4	0x0@0HZ 0.00K 0.00K	0	
6	N4-20162020929 (Channel-1)	N4-20162020929 (Channel-1)	5	Output5	0x0@0HZ 0.00K 0.00K	0	
			6	Output6	0x0@0HZ 0.00K 0.00K	0	
			7	Output7	0x0@0HZ 0.00K 0.00K	0	
			8	Output8	0x0@0HZ 0.00K 0.00K	0	
			9	Output9	0x0@0HZ 0.00K 0.00K	0	
			10	Output10	0x0@0HZ 0.00K 0.00K	0	
			11	Output11	0x0@0HZ 0.00K 0.00K	0	

8.1.1 NDI Input Management

8.1.1.1 Add NDI Input Source

In the panel overview interface, click the "Manage" button of NDI input management, and click "Add Input" to pop up the dialog box for adding NDI sources. NDI sources need to be added to the NDI input resources before they can be used in the matrix control panel.

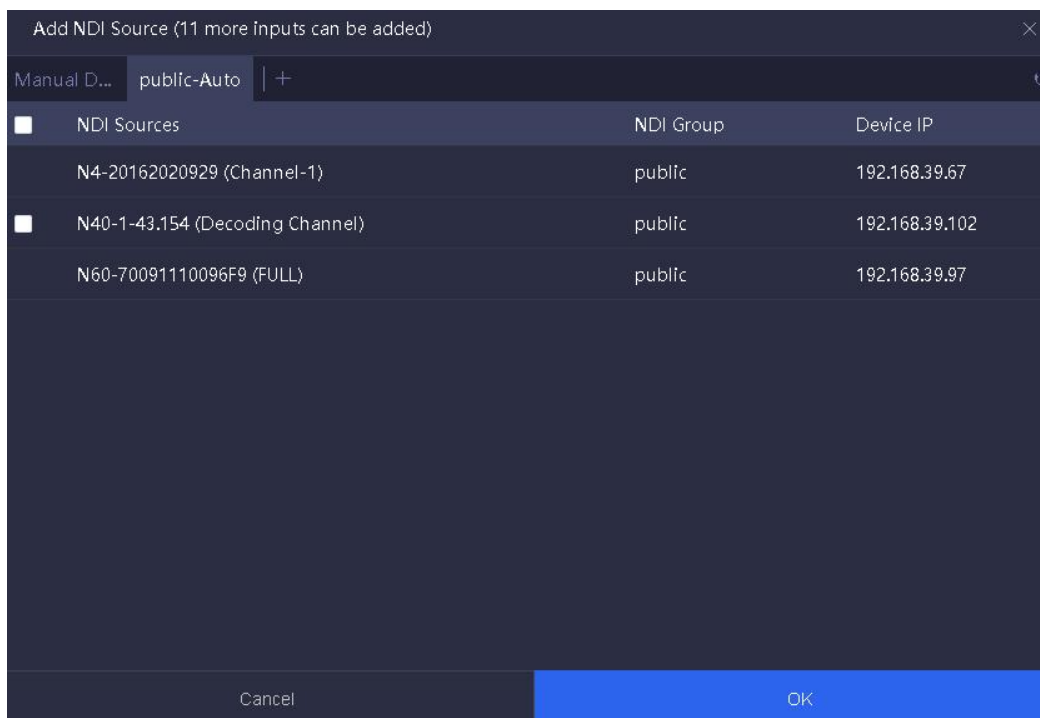
**Note:**

Not all discovered NDI sources are transmitted through the NDI matrix system. Only video sources added to NDI input through the control panel can be switched and copied output through the NDI matrix.

Here are four different methods for adding NDI sources:

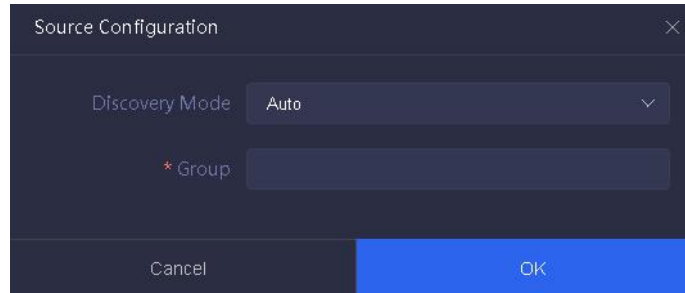
① public-Auto Discovery:

All NDI sources discovered through "Public - Auto Discovery" in the same network segment of the LAN that are in the public group can be directly selected and added as NDI video sources.



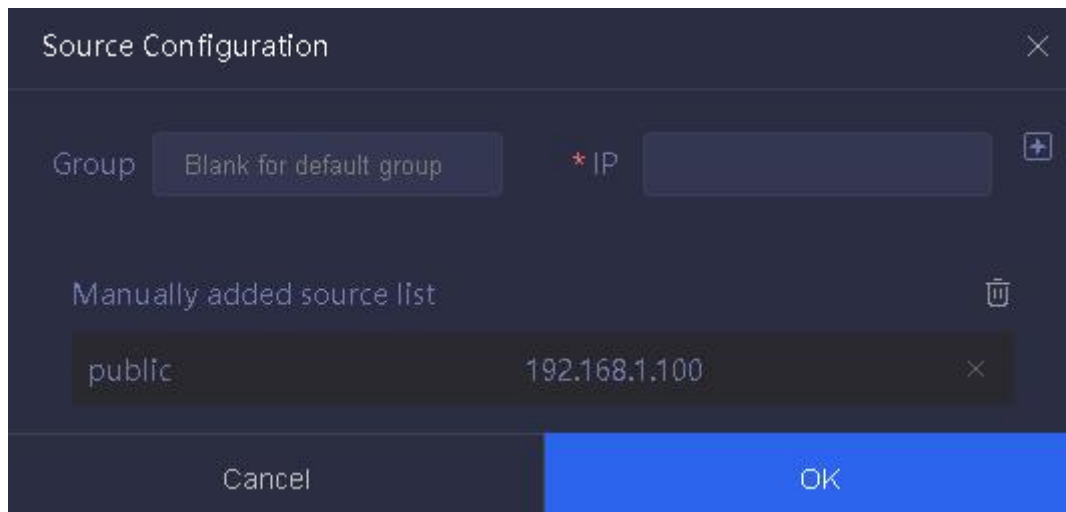
② Auto Discovery in Different Groups:

When NDI sources are in different NDI groups within the same network segment, you can enter the source configuration by clicking the "+" button, select "Auto Discovery" as the discovery method, and enter the video source group name to automatically discover all NDI sources in the current group.



③ Manual Discovery:

If NDI sources are in the same LAN but across different network segments, you can add the NDI sources manually by entering the IP address. Click on manual discovery, click the button, enter the group name and IP address (leave the group name blank for the public group by default), click the button to add it to the address list, and click "OK" to complete the addition.



Note



- **Group** : The group name where the NDI video source is located, defaulting to the public group.
- **IP**: Enter the IP address of the NDI source, and use the Enter key or the  button on the right side to add the IP address to the list below.

④ Discovery Server:

When NDI sources are registered with a discovery server and automatic discovery is replaced, adding sources also requires registration with the discovery server. When configuring the source, select "Discovery Server" as the discovery method, and fill in the same discovery server address and group as the NDI source to add the input source.

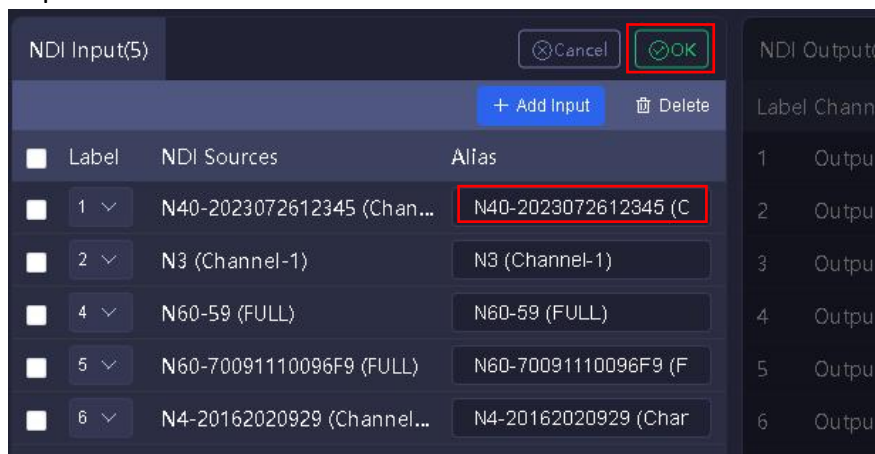


Note



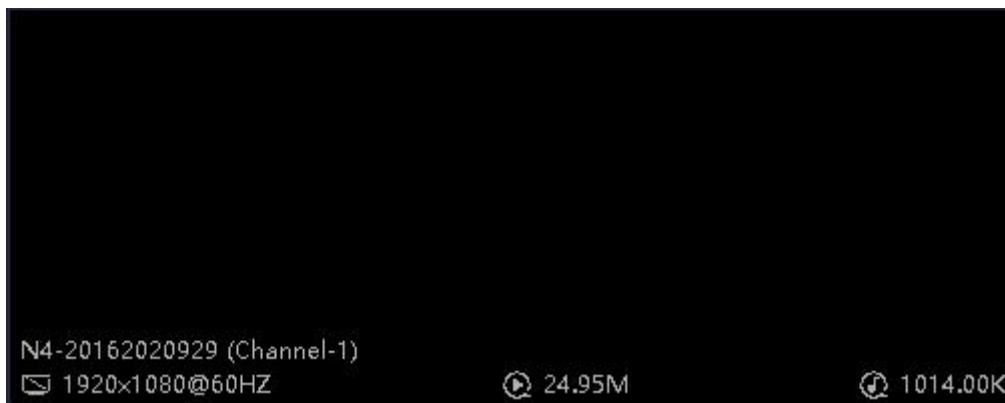
- **IP**: The IP address of the NDI registered discovery server.
- **Group**: The group name where the NDI video source is located, defaulting to the public group.

After adding the NDI input source, you can view the added NDI sources in the NDI input resource pool. Click the manage button to set aliases for the added NDI input sources. After setting, click the "OK" button to complete.



8.1.1.2 NDI Input Source Status

Select an NDI source to display its information status at the bottom.

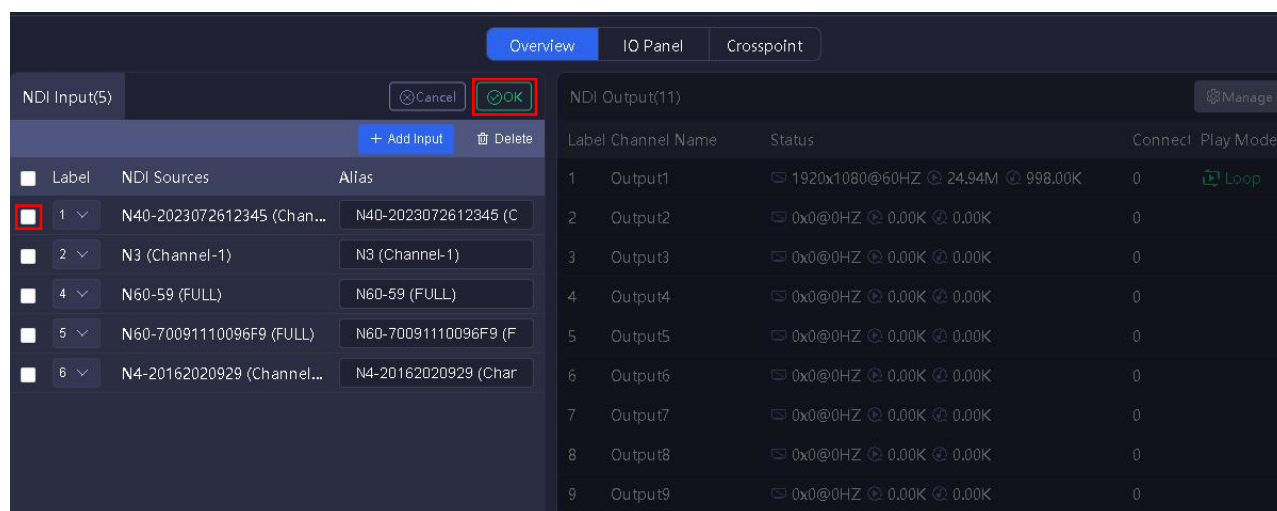


Explanation

-  • : Displays the resolution and frame rate of the NDI video source.
-  • : Real-time bitrate of the video encoding for the input source.
-  • : Real-time bitrate of the audio encoding for the input source.

8.1.1.3 Deleting NDI Input Sources

Click on the panel to enter the overview page, then click on the “ Manage ” button. Check the NDI sources that need to be deleted and click the delete button. Click "OK" to delete the NDI input sources.

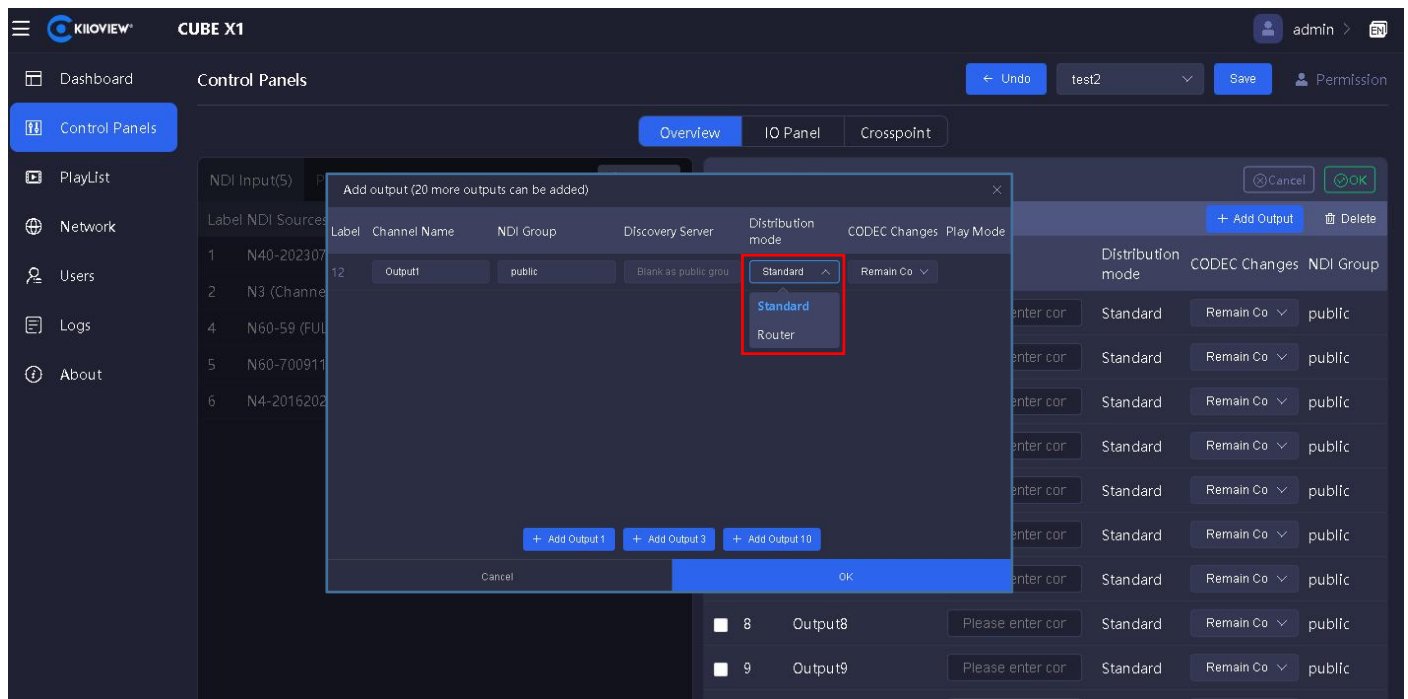


8.2.1 NDI Output Channel Management

8.2.1.1 Adding NDI Output Channels

Create NDI virtual outputs to output different NDI video sources through controlling NDI input sources or playlist. Multiple NDI output channels can be selected for a single NDI input source.

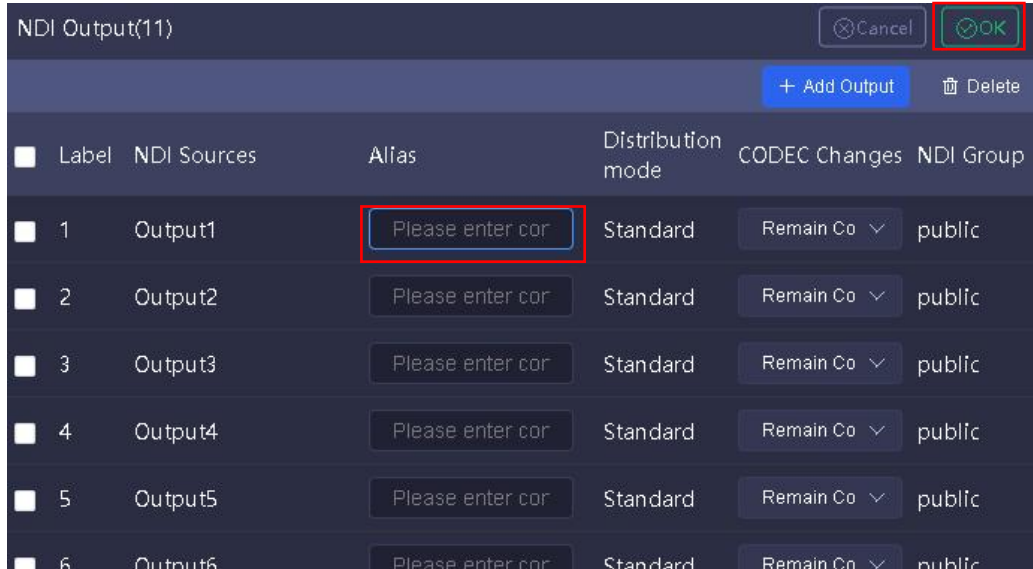
Click the "Manage" button on the right side of the panel for NDI Output Channels to enter the NDI Output Management page. Click "Add Output" on the right side of the management page to create NDI output channels. When creating an output, different distribution modes can be selected, including normal distribution and Router distribution.



Note

- Channel Name: The name of the NDI output channel, which can include a combination of text, numbers, and symbols.
- NDI Group: Assign the NDI output to a specific group name, with the default being the public group. The group name can include a combination of letters, numbers, and special symbols. Multiple groups can be selected by separating them with commas.
- Smooth Transition: Ensure a smoother output stream when switching between different sources by setting a certain transition delay. If the resolution and frame rate between the switched NDI video sources remain consistent, the transition will be even smoother.
- CUBE X1 supports a maximum of 16 NDI source inputs and 32 NDI source outputs.
- Normal Distribution: The distribution of NDI streams in CUBE X1 is based on the "Copy-Forward" mode. This mode fully utilizes the processing capacity and high network throughput performance of the server system to achieve an "amplifier" effect for NDI streams, meeting the needs of concurrent connections from numerous NDI clients and reducing the access pressure on NDI source devices.
- Router Distribution: Based on the conventional NDI Routing mode, NDI clients connect to NDI source encoders through CUBE X1 for routing.

After adding NDI output channels, you can view the added NDI output channels in the NDI Output Channel Resource Pool. Click the “Manage” button to set aliases for the added NDI output channels. After setting them up, click the “OK” button.



8.2.1.2 NDI Output Channel Status

When a device at the backend is pulling a stream from a specific output, the output status displays the decoded resolution, frame rate, video bitrate, audio bitrate, and number of connections.

NDI Input(5)			NDI Output(11)		
PlayList(0)					
Label	NDI Sources	Alias	Label	Channel Name	Status
1	N40-2023072612345 (Channel-1)	N40-2023072612345 (Channel-1)	1	Output1	1920x1080@60HZ 25.09M 1014.00K
2	N3 (Channel-1)	N3 (Channel-1)	2	Output2	0x0@0HZ 0.00K 0.00K
4	N60-59 (FULL)	N60-59 (FULL)	3	Output3	0x0@0HZ 0.00K 0.00K
5	N60-70091110096F9 (FULL)	N60-70091110096F9 (FULL)	4	Output4	0x0@0HZ 0.00K 0.00K
6	N4-20162020929 (Channel-1)	N4-20162020929 (Channel-1)	5	Output5	0x0@0HZ 0.00K 0.00K
			6	Output6	0x0@0HZ 0.00K 0.00K
			7	Output7	0x0@0HZ 0.00K 0.00K
			8	Output8	0x0@0HZ 0.00K 0.00K
			9	Output9	0x0@0HZ 0.00K 0.00K
			10	Output10	0x0@0HZ 0.00K 0.00K
			11	Output11	0x0@0HZ 0.00K 0.00K



Note



: Resolution: Displays the resolution and frame rate of the NDI video source.



: Video Bitrate: Displays the real-time decoding bitrate of the output video source.



: Audio Bitrate: Displays the real-time decoding bitrate of the output audio source.

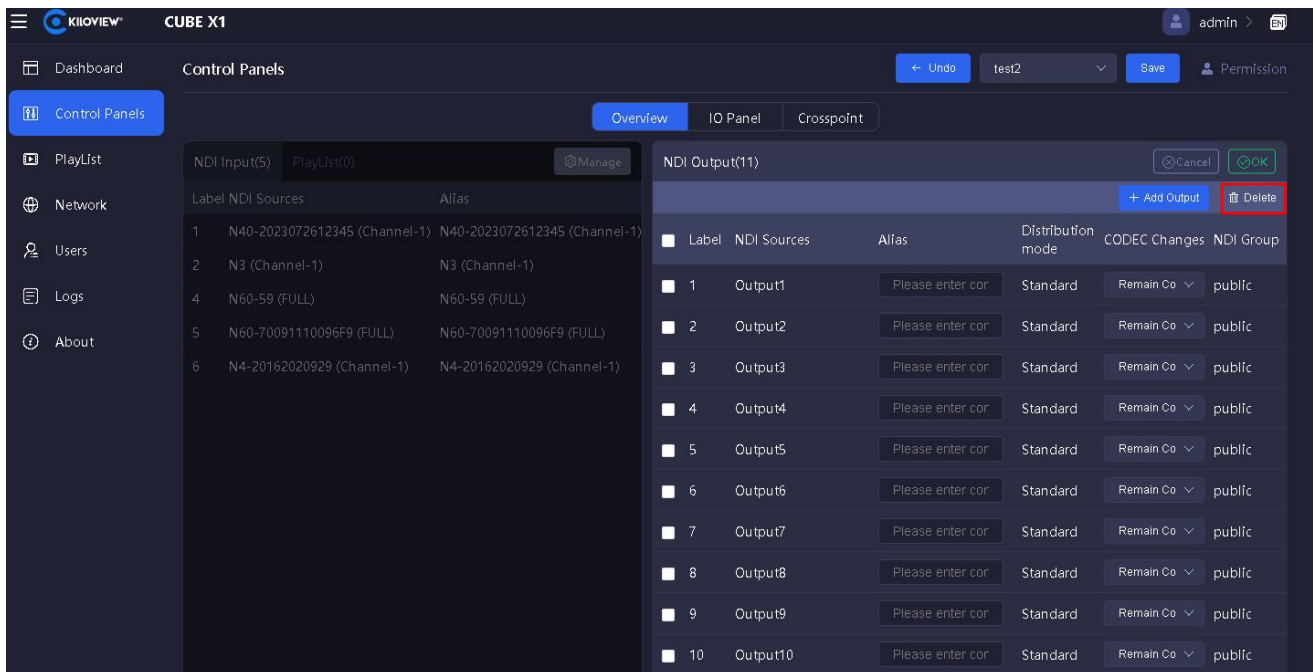
Connections : Displays the number of backend devices pulling streams and decoding from the current NDI output channel.

Playlist : Clicking the down button allows you to select a playlist. When changing the playlist, the ongoing playlist needs to be stopped first. The creation of playlists refers to the content in the "8.10 Playlist" section.

Operation : Set the playlist to loop or play once. After playing once, it will continue to loop the last NDI source by default; after looping through all NDI sources, it will start again from the first NDI source.

8.2.1.3 Deleting NDI Output Channels

Click the panel to enter the overview page, then click the NDI Output Management button. Check the NDI output channels that need to be deleted, and click the delete button. Click finish to delete the NDI output channels.

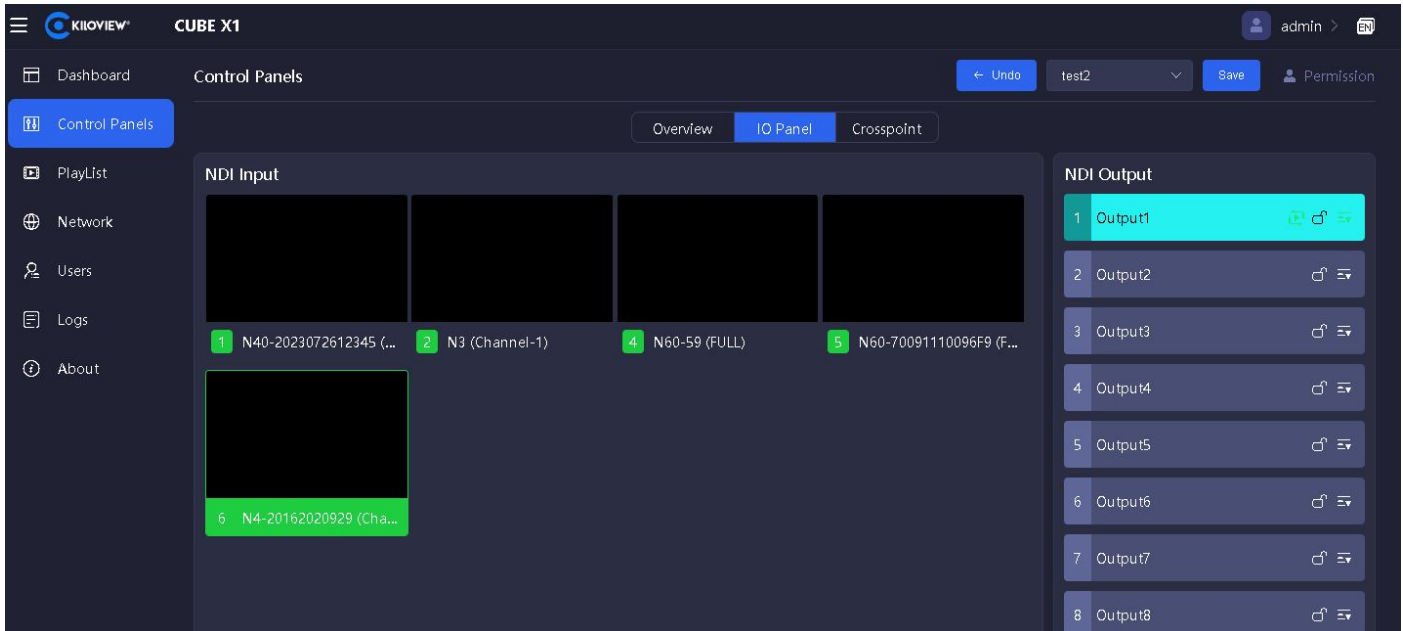


The screenshot shows the KILOVIEW CUBE X1 interface. The sidebar on the left contains navigation links: Dashboard, Control Panels, Playlist, Network, Users, Logs, and About. The 'Control Panels' section is active, showing 'Overview', 'IO Panel', and 'Crosspoint' tabs. The 'NDI Output(11)' section is expanded, displaying a table of output channels. The table has columns: Label, NDI Sources, Alias, Distribution mode, CODEC Changes, and NDI Group. The 'Delete' button is highlighted with a red box in the top right corner of the 'NDI Output(11)' section.

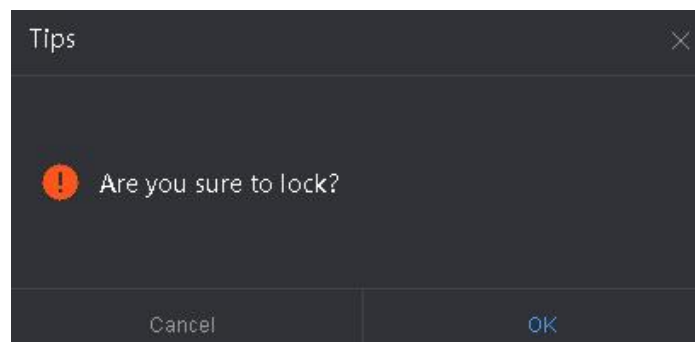
Label	NDI Sources	Alias	Distribution mode	CODEC Changes	NDI Group
1	Output1	Please enter cor	Standard	Remain Co	public
2	Output2	Please enter cor	Standard	Remain Co	public
3	Output3	Please enter cor	Standard	Remain Co	public
4	Output4	Please enter cor	Standard	Remain Co	public
5	Output5	Please enter cor	Standard	Remain Co	public
6	Output6	Please enter cor	Standard	Remain Co	public
7	Output7	Please enter cor	Standard	Remain Co	public
8	Output8	Please enter cor	Standard	Remain Co	public
9	Output9	Please enter cor	Standard	Remain Co	public
10	Output10	Please enter cor	Standard	Remain Co	public

8.3 IO Panel

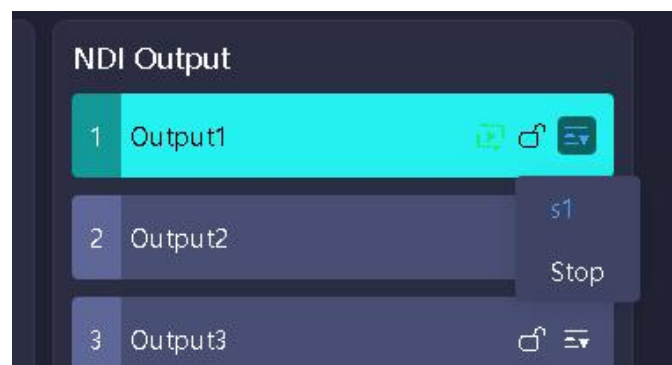
The IO panel allows for the configuration of NDI input and output associations. It displays all NDI inputs. Click Output1 Output Channel, and the first NDI source will be highlighted in green, indicating that the NDI video source is being output from Output1. Click the second video source, and when it becomes highlighted in green, it will seamlessly switch to the second video source and output from Output1.



After selecting the association, click the "🔒" button to lock the NDI output. A lock prompt will appear, click the confirm button.



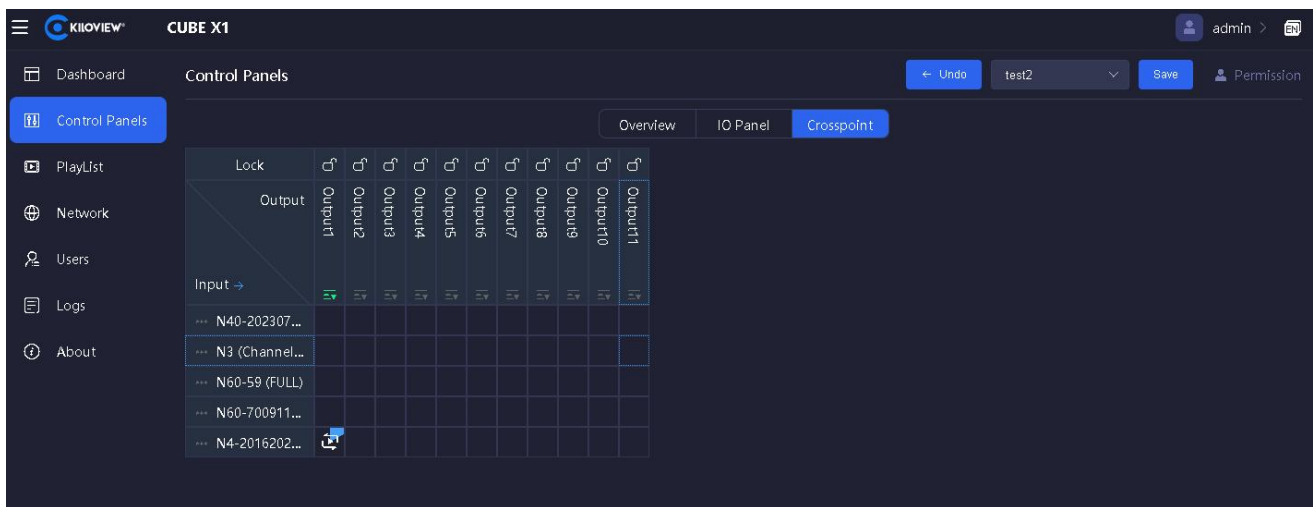
At this point, it is not possible to switch video sources. To unlock, you can only click the "🔒" button again. The "⌵" button on the right is the playlist option. After configuring the playlist, click the desired playlist to select it for playback.



8.4 Crosspoint

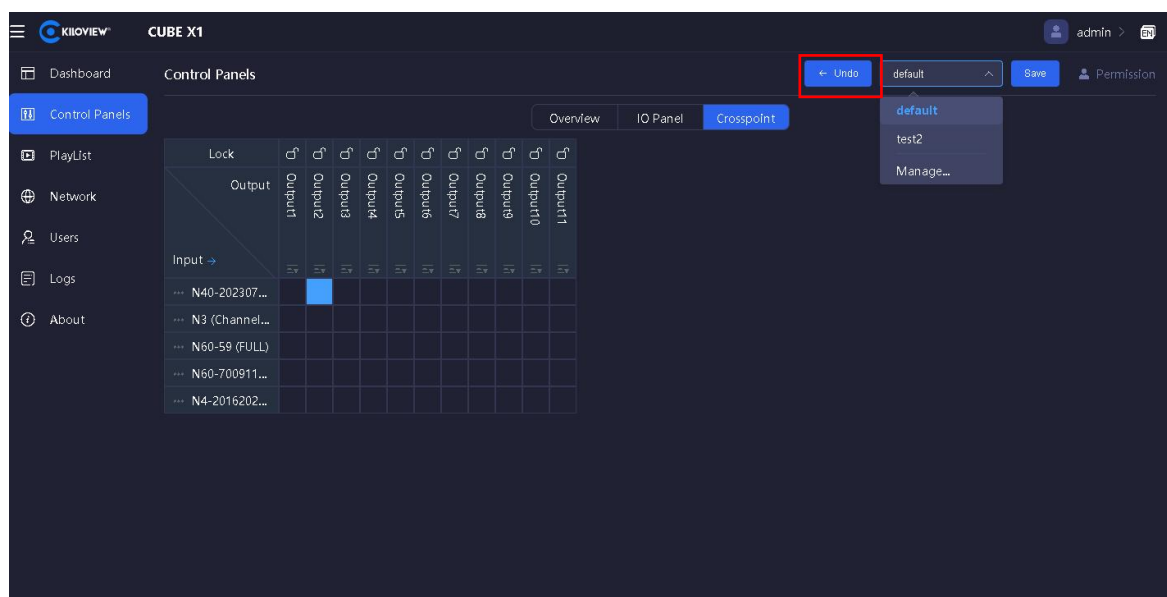
The "Crosspoint" panel allows for the configuration of associations between NDI inputs and outputs. The NDI output channels are located at the top of the panel, and the NDI input sources are on the left side. The blue boxes indicate that the corresponding NDI inputs are output from the corresponding crosspoint NDI output channels. You can select the input and output associations as needed. Once the association is selected, click the "🔒" button to lock the input corresponding to the output channel. Click the "← Undo" button in the upper right corner to undo the previous operation.

The "🔍" button is the playlist option. After configuring the playlist, select the playlist for looping playback. At this time, the blue box corresponding to the NDI output channel and NDI input will display the loop playback icon.



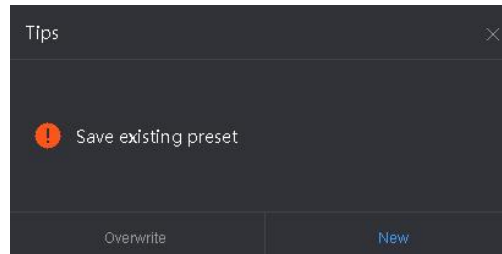
8.5 Undo Operation

When performing operations on the IO panel or crosspoint, click the "← Undo" button in the upper right corner to undo the previous operation. Multiple consecutive operations can be undone.

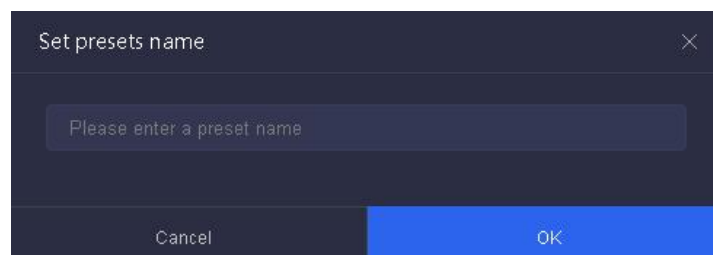


8.6 Save Panel

When the NDI input and output configurations are completed and successfully associated, click the "Save" button in the upper right corner. In the prompt box, choose whether to overwrite the preset or save a new preset as needed.

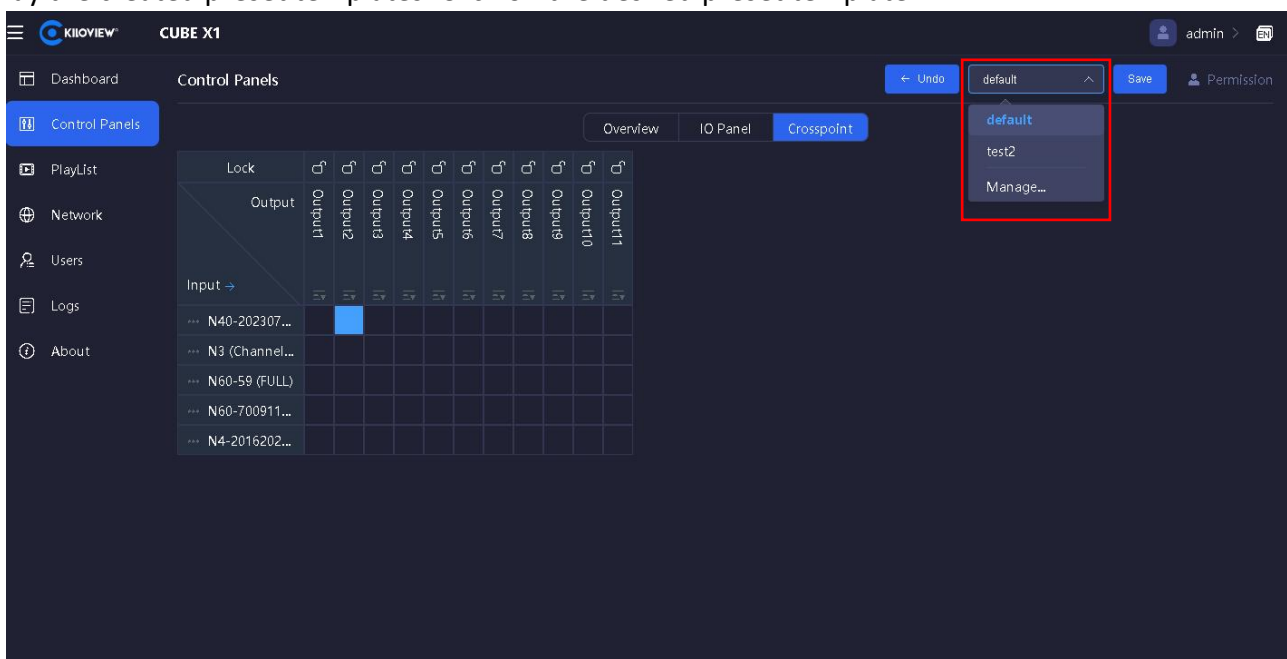


Click "New", enter the preset name in the prompt box, and click OK to save the new preset.

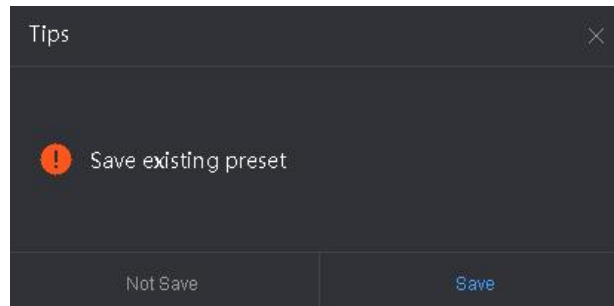


8.7 Switch Panel

Click on the panel interface, select the preset template "10" button, and a pop-up window will display the created preset templates. Click on the desired preset template.



A prompt box will appear, choose whether to save the preset as needed, and then switch to the preset template.



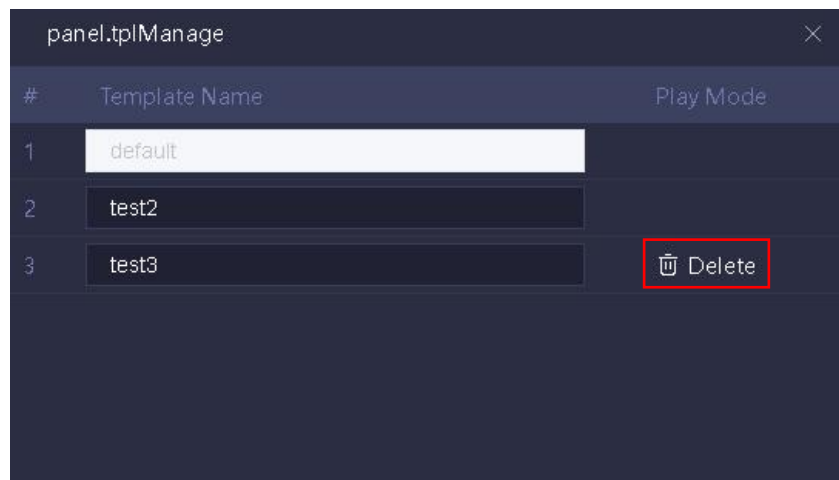
8.8 Change Panel Name

Click on the panel interface, select the preset template "10" button, click the "Manage..." button, enter the desired name, and close the preset management page to take effect.



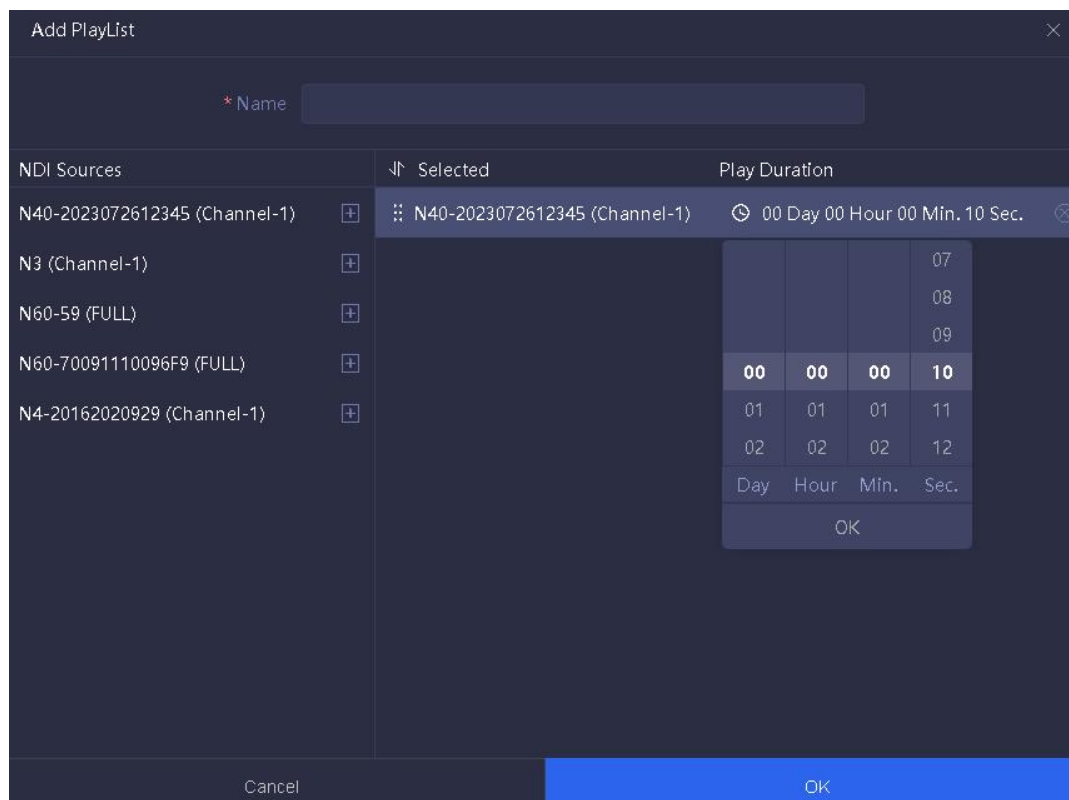
8.9 Delete Panel

Click on the panel interface, select the preset template "10" button, click the "Manage..." button, and then click the "Delete" button after selecting the preset template to be deleted. Close the preset management page to take effect.



8.10 Playlist

Click on the left navigation bar of the webpage, click on "Playlist" > "Add Playlist", enter the playlist name. On the left side are NDI input sources. Click the "+" button of the desired NDI source, select the playback duration, and choose parameters such as days, hours, minutes, seconds, etc. The maximum number of days is 99. Click "OK" to activate the playlist strategy.



Note

- Playlists are used to establish an automatic switching relationship between inputs and outputs. Based on the set time, the output channels automatically switch between different NDI sources.
- A playlist consists of multiple ordered NDI sources and play durations.
- NDI sources can be added repeatedly, and the minimum play duration is in seconds.

9 CUBE X1 Output Playback

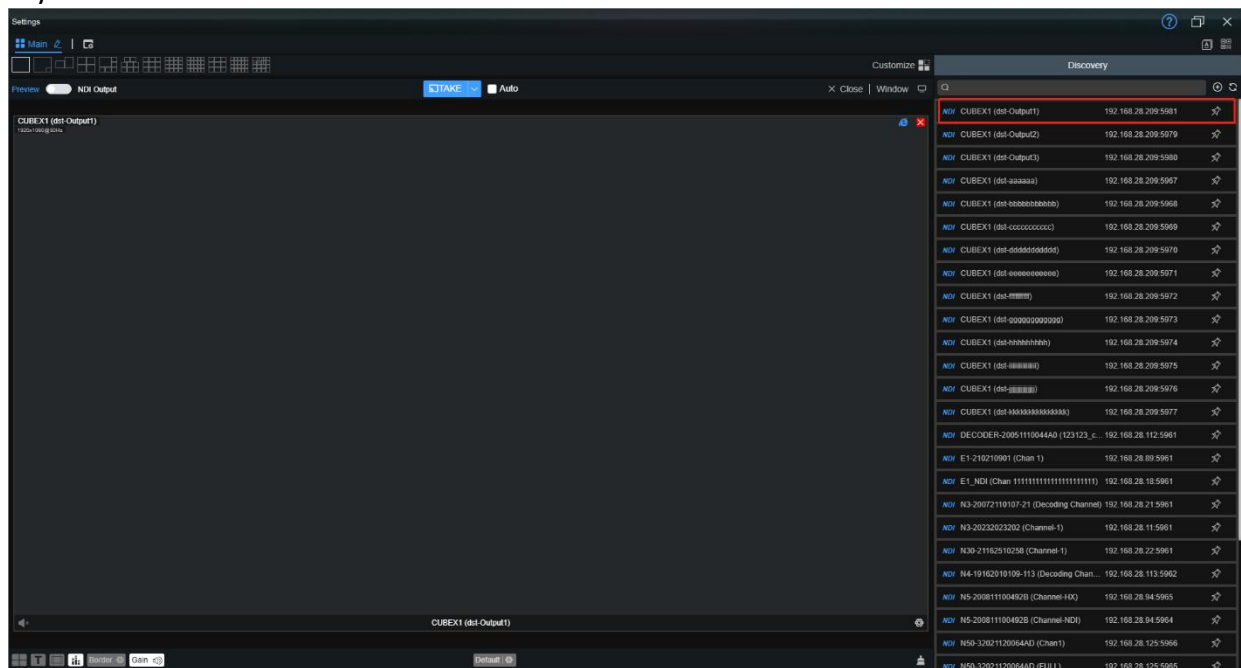


Download Kiloview Multiview Free Tool

Visit the website <https://www.kiloview.com/en/ndi/multiview> and click the "Apply for Free Trial" button to get Multiview. Follow the prompts to install the software step by step.

Kiloview Multiview is a highly acclaimed, free tool software for NDI video discovery, management, and multi-screen monitoring.

Open the Multiview settings interface and find the NDI output channel of CUBE X1 in the device discovery list.

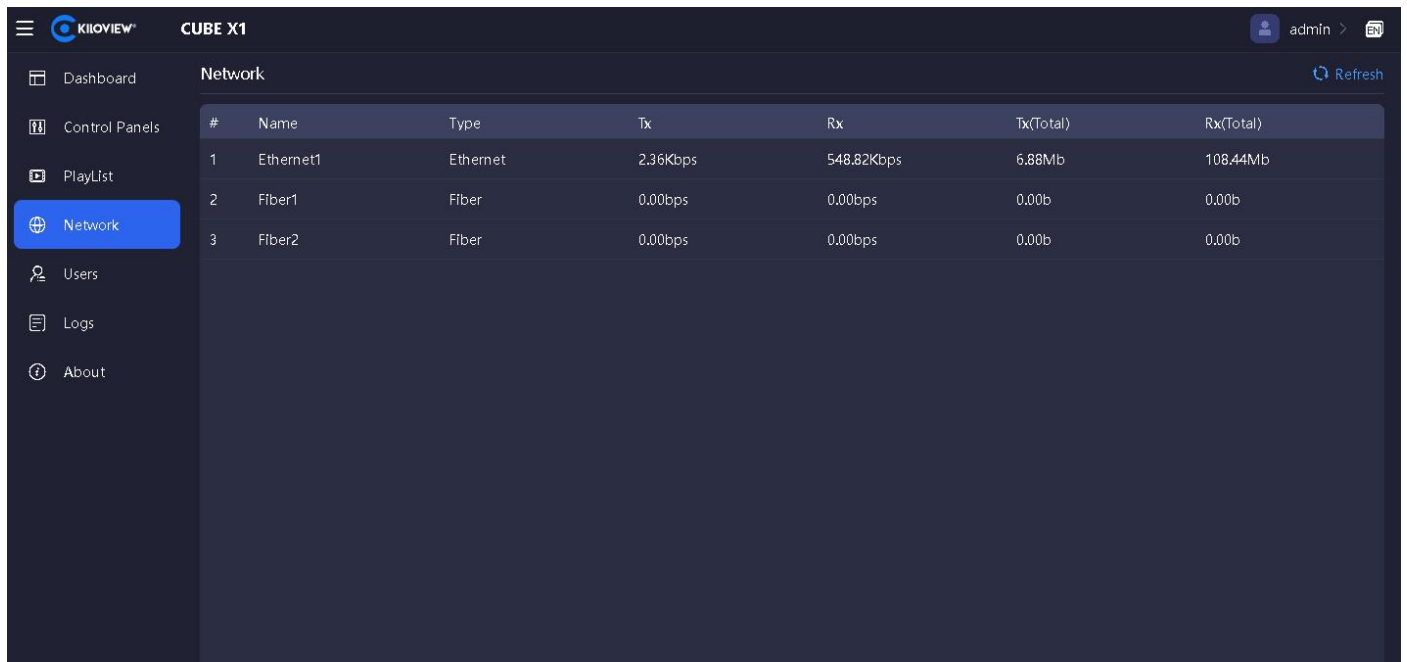


Note

The NDI stream name rule for CUBE X1 output is "CUBE X1 (dst-channel name)", where the channel name is the NDI channel name for "Create NDI Output".

10 Network Status

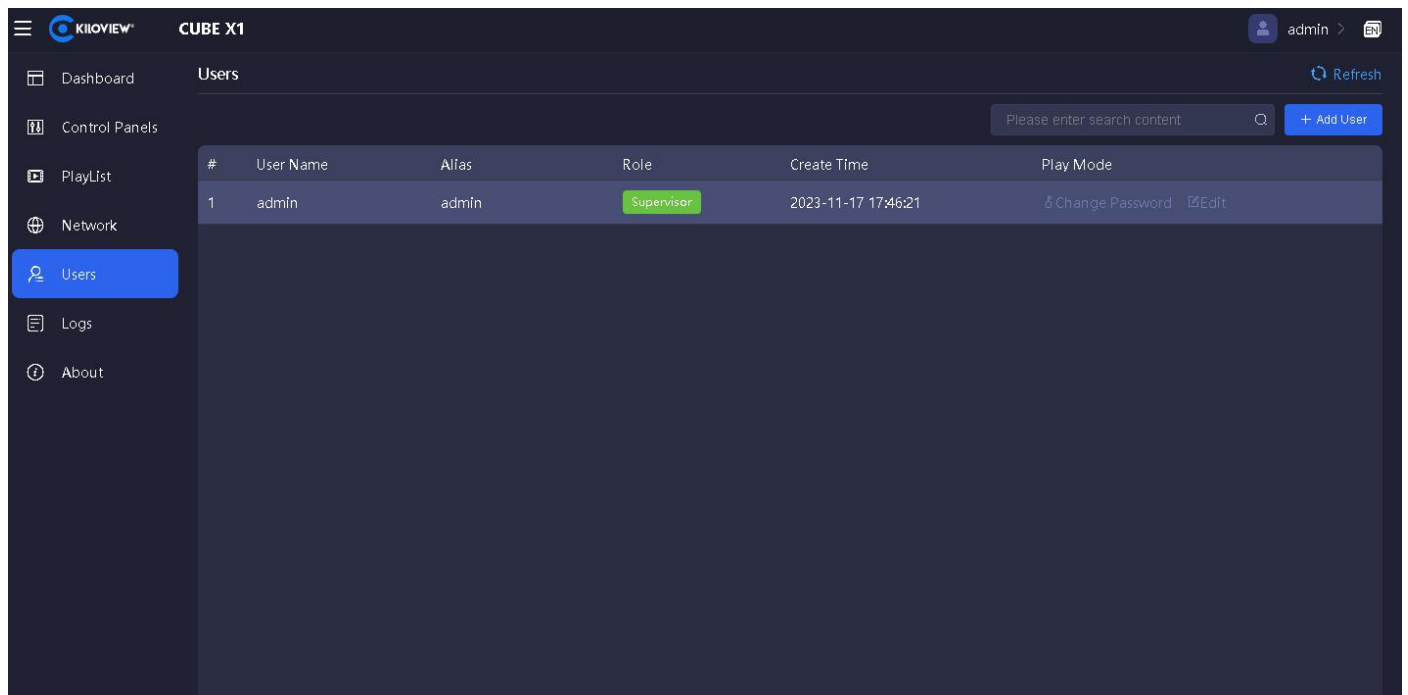
Click on the Network Status in the left navigation bar to view the input traffic, output traffic, total input traffic, and total output traffic of each network card device of CUBE X1.



#	Name	Type	Tx	Rx	Tx(Total)	Rx(Total)
1	Ethernet1	Ethernet	2.36Kbps	548.82Kbps	6.88Mb	108.44Mb
2	Fiber1	Fiber	0.00bps	0.00bps	0.00b	0.00b
3	Fiber2	Fiber	0.00bps	0.00bps	0.00b	0.00b

11 User Management

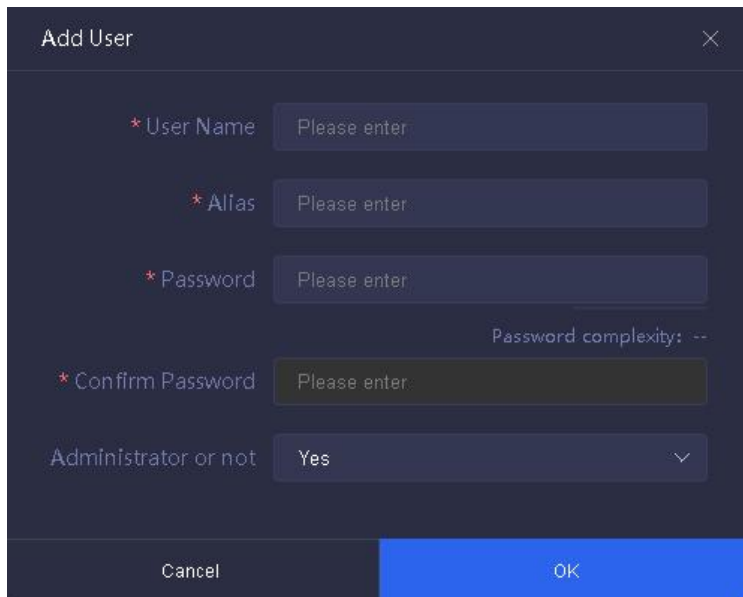
Click on User in the left navigation bar to add users, delete users, change passwords, and edit nicknames.



#	User Name	Alias	Role	Create Time	Play Mode
1	admin	admin	Supervisor	2023-11-17 17:46:21	Change Password Edit

11.1 Add User

On the User Management page, click the "Add User" button. In the pop-up window, enter the information as prompted and click OK.



The "Add User" dialog box is a dark-themed window with a title bar containing the text "Add User" and a close button (X). It contains several input fields and a dropdown menu. The fields are labeled with red asterisks: "User Name", "Alias", "Password", and "Confirm Password". Each of these fields has a placeholder text "Please enter". Below the "Password" field, there is a label "Password complexity: --". At the bottom, there is a dropdown menu labeled "Administrator or not" with the value "Yes" selected. At the very bottom, there are two buttons: "Cancel" and "OK".

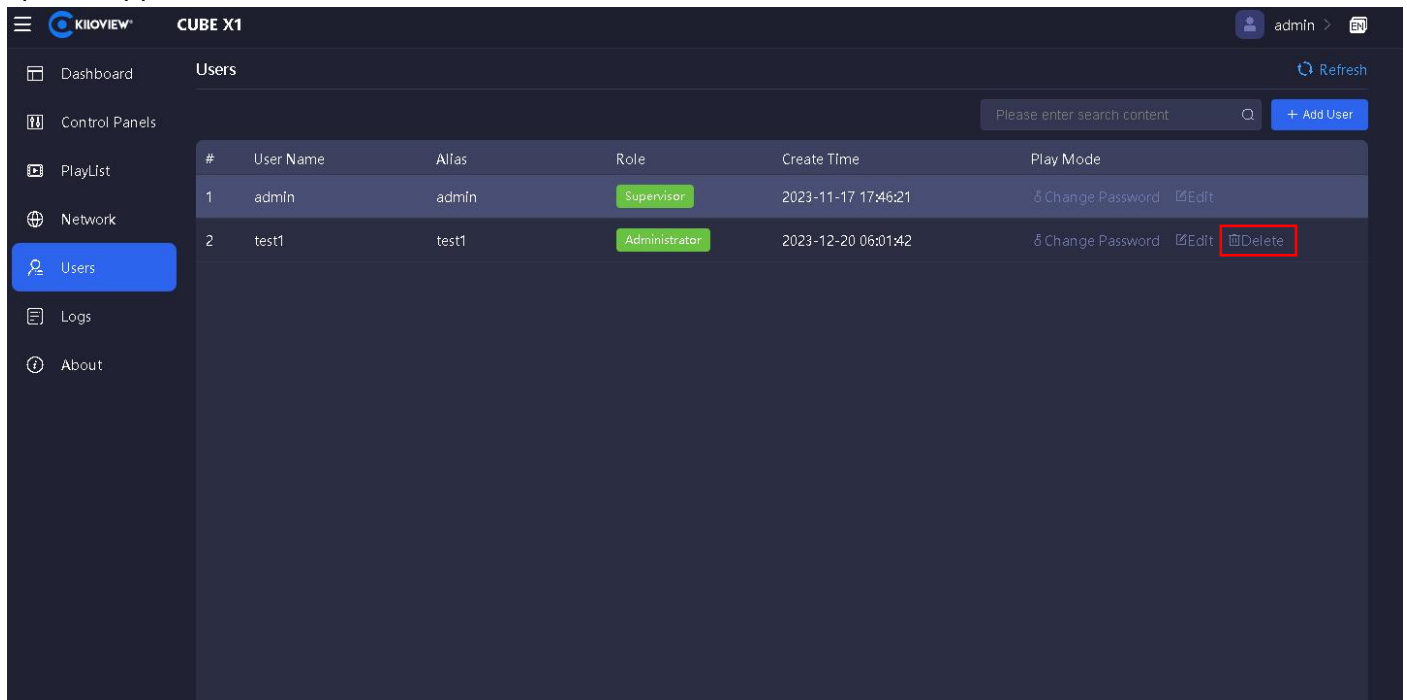


Note

- **Supervisor:** The admin account is used to manage all accounts and can modify and delete them.
- **Visitor:** Regular users can only operate on their own password and configurations.
- **Administrator:** If set to "Yes", they will be a secondary system administrator with control over all panels and resources.

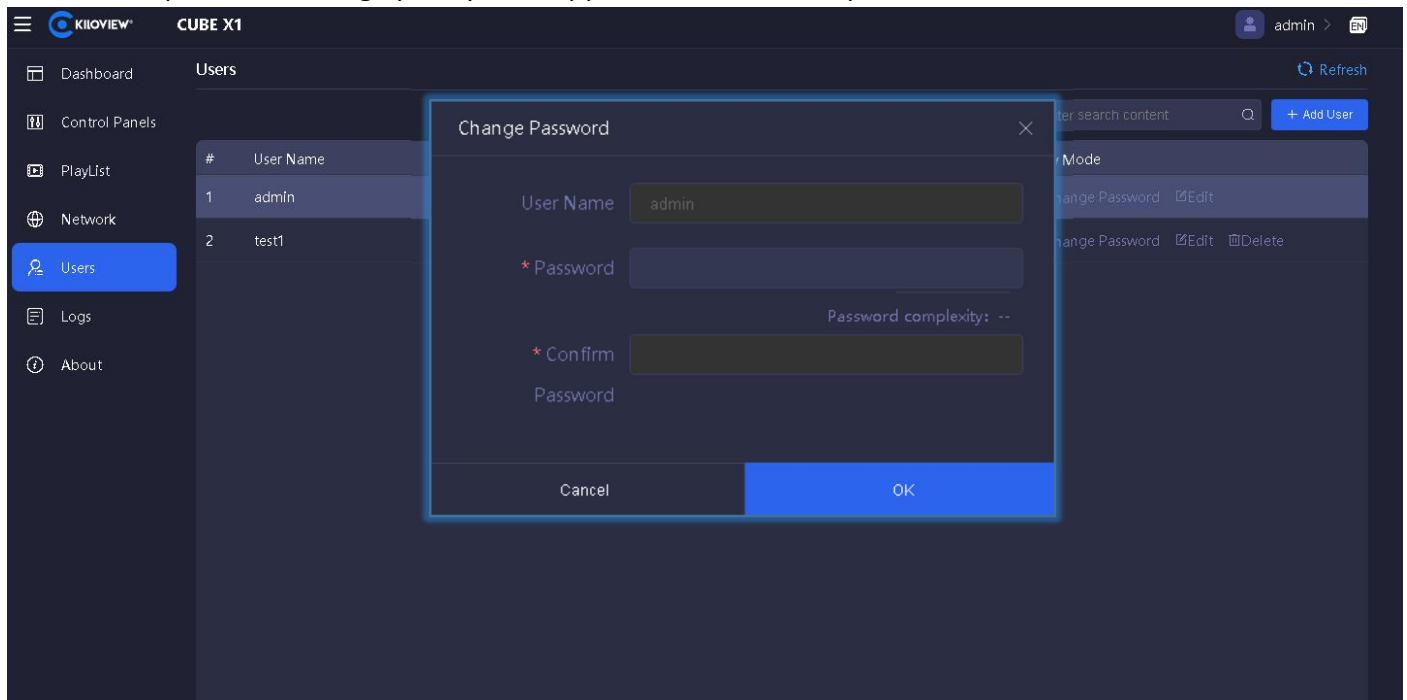
11.2 Delete User

On the User Management page, click the "Delete" button next to the username to be deleted. A prompt will appear, click OK to confirm.



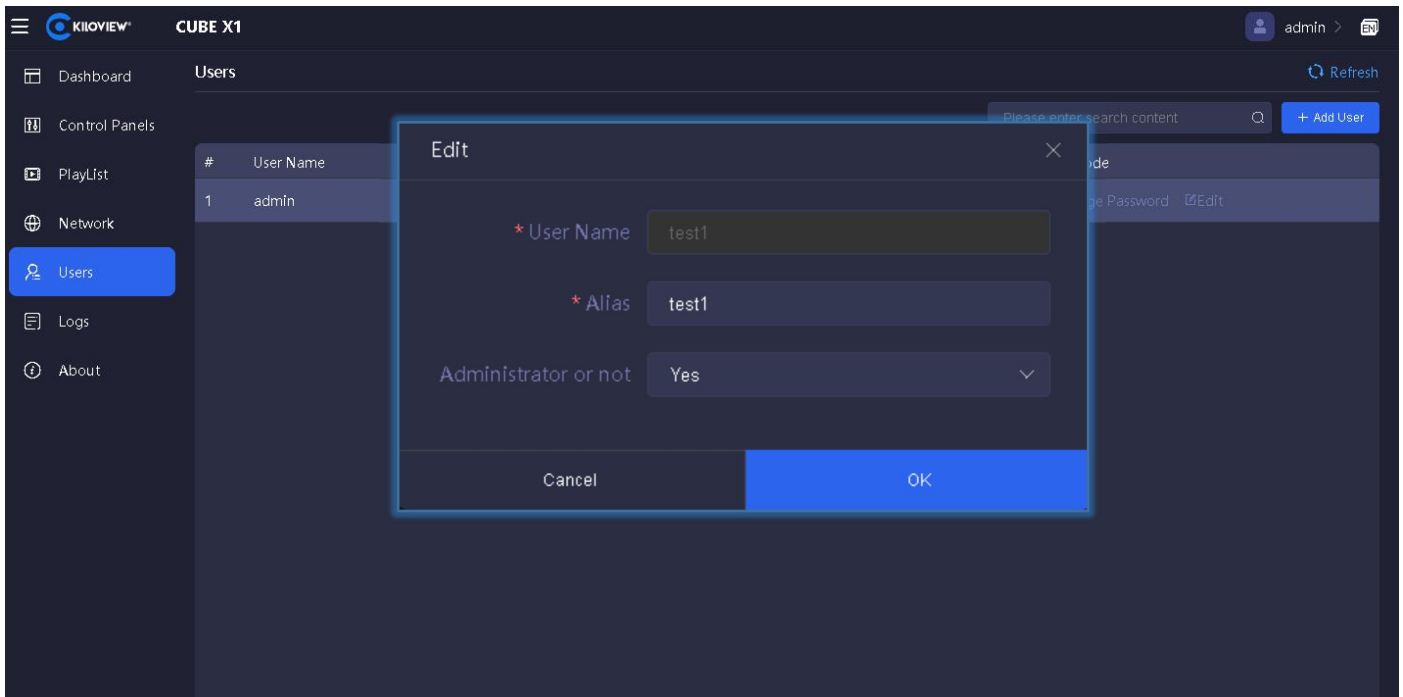
11.3 Change Password

On the User Management page, click the "Change Password" button next to the username to be modified. A password change prompt will appear. Enter the new password and click OK.



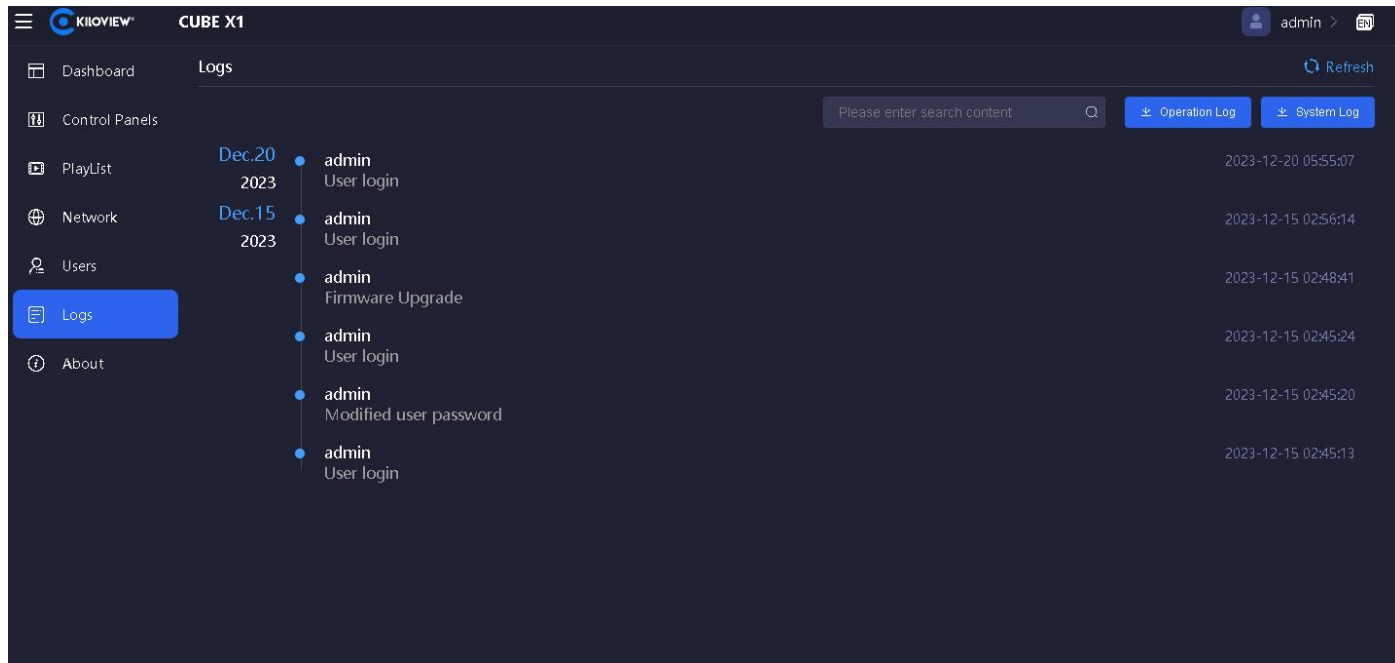
11.4 Alias and Permission Settings

CUBE X1 can set alias system management permissions for users. On the User page, click the "Edit" button next to the username to be modified. An edit prompt will appear. Enter the alias and choose whether to be a system administrator as needed. Click "OK" to confirm.



12 Operation Log

Click on the Log in the left navigation bar to view information about all operations performed on the NDI matrix system, including the time of operation and the account performing the operation. This is helpful for troubleshooting issues. The operation log and system log can be downloaded by clicking on the desired log, and the browser will automatically download it.



The screenshot shows the KILOVIEW CUBE X1 interface. The left sidebar contains navigation items: Dashboard, Control Panels, PlayList, Network, Users, Logs (highlighted), and About. The main content area is titled 'Logs' and features a search bar with the placeholder text 'Please enter search content'. Below the search bar are two buttons: 'Operation Log' and 'System Log'. The log entries are displayed in a table format with columns for date, user, action, and timestamp.

Date	User	Action	Timestamp
Dec.20 2023	admin	User login	2023-12-20 05:55:07
Dec.15 2023	admin	User login	2023-12-15 02:56:14
	admin	Firmware Upgrade	2023-12-15 02:48:41
	admin	User login	2023-12-15 02:45:24
	admin	Modified user password	2023-12-15 02:45:20
	admin	User login	2023-12-15 02:45:13

13 Firmware Upgrade

13.1 Download Firmware Upgrade



Kiloview will continuously provide firmware updates and bug fixes for CUBE X1. Visit:

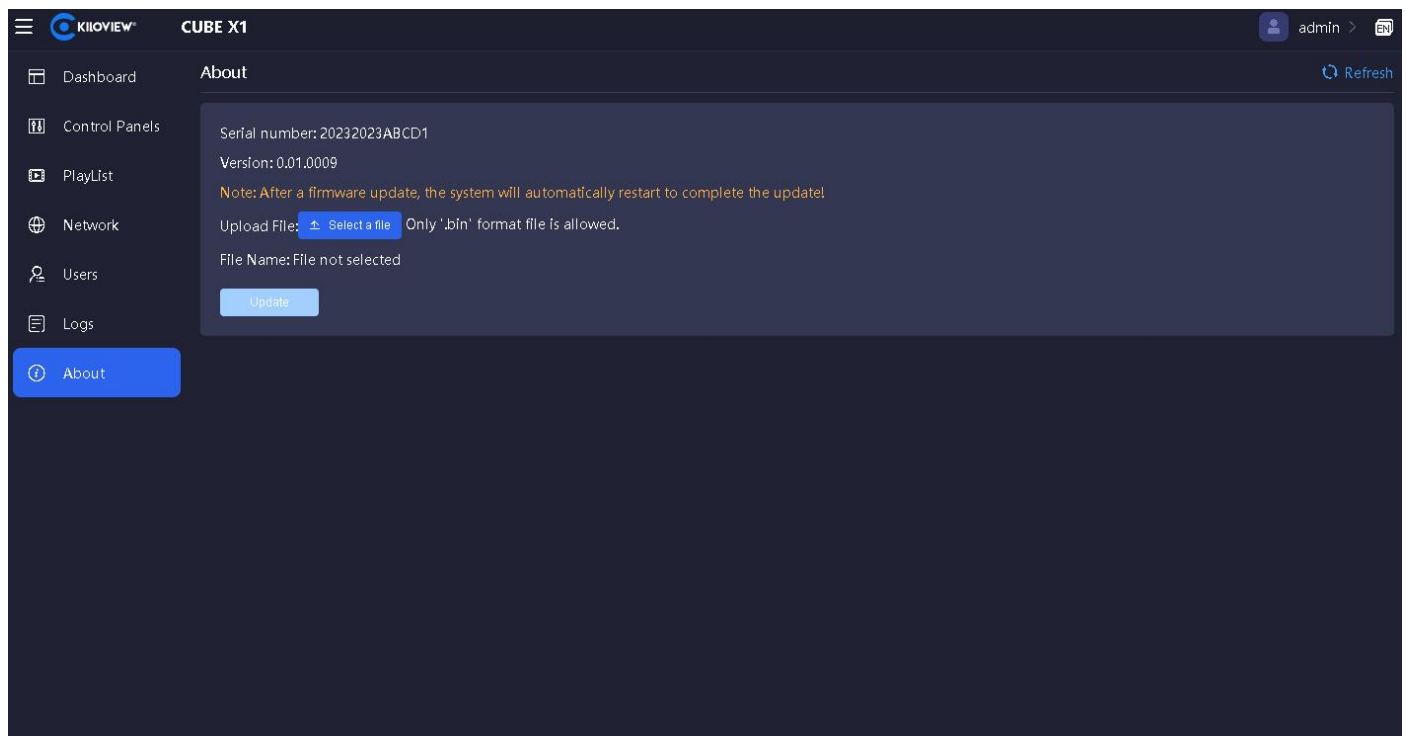
<https://www.kiloview.com/en/support/download/>

In the filter list, select NDI > CUBE X1 and find the latest firmware for download under the "Firmware" tab

13.2 Upgrade Device Firmware

Log in to the CUBE X1 management system, click on "About" > "Select a file" > "Upgrade" to access the firmware upgrade page. Upload the firmware file downloaded from the official website, then click "Upgrade".

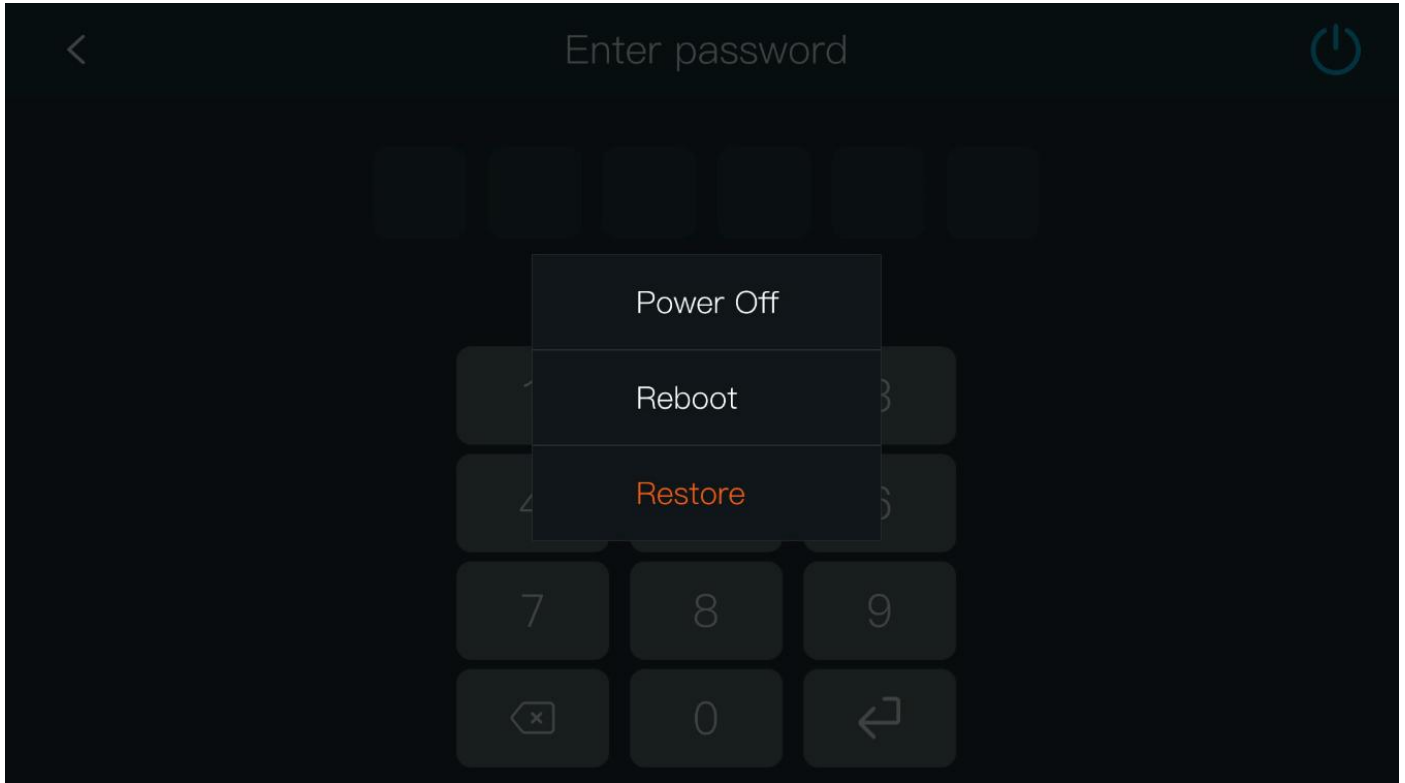
After successfully uploading the firmware, the system will prompt you to restart. If confirmation is required, click OK. If it restarts automatically, please wait patiently.



14 Factory Reset

If the device is not working properly due to improper parameter configuration, you can try restoring the device to factory settings.

On the touch screen display panel of CUBE X1, go to System Settings > Restore to restore the device to its factory settings.

**Note:**

After performing a factory reset, the following parameters will be changed to their default values:

- The password for the admin login user will be reset to "admin".
- Your device will revert to using DHCP to obtain an IP address, which may result in IP address changes.
- All system settings will be restored to their factory default values.

15 Other

If the device is not in use for a long period of time, please unplug the power to extend its lifespan. Properly store the device.

Thank you for reading!

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Address: B4-106/109, Jiahua Intelligence Valley Industrial Park, 877 Huijin Road, Yuhua District,
Changsha, China