Network Video Decoder

Quick Start Guide



V1.3.5

Foreword

General

This manual introduces the installation, functions and operations of the network video decoder (hereinafter referred to as the "Device" or "Decoder"). Read carefully before using the device, and keep the manual safe for future reference.

Safety Instructions

The following signal words might appear in the manual.

Signal Words	Meaning
DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, reductions in performance, or unpredictable results.
TIPS	Provides methods to help you solve a problem or save time.
NOTE	Provides additional information as a supplement to the text.

Revision History

Version	Revision Content	Release Time
V1.3.5	• Add chapters including quick operation panel and connecting to third-party central control devices. • Delete old models.	March 2025
V1.3.4	Add new series.	May 2024
V1.3.3	Update device images.	December 2023
V1.3.2	Add new series.	July 2023
V1.3.1	Update device image.	February 2023
V1.3.0	Add new series.	November 2022
V1.2.0	Add new series.	June 2022
V1.1.0	• Add new series. • Delete function about audio. • Update important safeguards and warnings.	September 2021
V1.0.0	First release.	June 2018

Privacy Protection Notice

As the device user or data controller, you might collect the personal data of others such as their face, audio, fingerprints, and license plate number. You need to be in compliance with your local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures which include but are not limited: Providing clear and visible identification to inform people of the existence of the surveillance area and provide required contact information.

About the Manual

- The manual is for reference only. Slight differences might be found between the manual and the product.
- We are not liable for losses incurred due to operating the product in ways that are not in compliance with the manual.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. For detailed information, see the paper user's manual, use our CD-ROM, scan the QR code or visit our official website. The manual is for reference only. Slight differences might be found between the electronic version and the paper version.
- All designs and software are subject to change without prior written notice. Product updates might result in some differences appearing between the actual product and the manual. Please contact customer service for the latest program and supplementary documentation.
- There might be errors in the print or deviations in the description of the functions, operations and technical data. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and company names in the manual are properties of their respective owners.
- Please visit our website, contact the supplier or customer service if any problems occur while using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

Important Safeguards and Warnings

This section introduces content covering the proper handling of the device, hazard prevention, and prevention of property damage. Read carefully before using the device, and comply with the guidelines when using it.

Transportation Requirements



Transport the device under allowed humidity and temperature conditions.

Storage Requirements



Store the device under allowed humidity and temperature conditions.

Installation Requirements



- Electrical Hazard

  Preventive measures: Make sure the power is off when you put your hand into the device.
- Stability Hazard

  Possible result: The rack might fall down and cause serious personal injury.

  Preventive measures (including but not limited to):

  - Before extending the rack to the installation position, read the installation instructions.
  - When the Device is installed on the slide rail, do not place any load on it.
  - Do not retract the slide rail while the Device is installed on it.



-  Rotating Fan Blades Hazard

  Avoid touching the fan blades, especially when they are moving.
-  Before installation, disconnect all the power cords.
- Do not connect the power adapter to the device while the adapter is powered on.
- Strictly comply with the local electric safety code and standards. Make sure the ambient voltage is stable and meets the power supply requirements of the device.
- Do not connect the device to two or more kinds of power supplies, to avoid damage to the device.
- Replace unwanted batteries with new batteries of the same type and model. Replace unwanted batteries with new batteries of the same type and model to avoid the risk of fire and explosion. Dispose of the old batteries as instructed.

- Do not expose the battery to extremely hot environments, such as direct sunlight and fire, to avoid the risk of fire and explosion.



- The device must be installed in a location that only professionals can access. Non-professionals are not allowed to enter the installation area.
- Personnel working at heights must take all necessary measures to ensure personal safety including wearing a helmet and safety belts.
- Do not place the device in a place exposed to sunlight or near heat sources.
- Keep the device away from dampness, dust, and soot.
- To ensure heat dissipation, the gap between the device and the surrounding area should not be less than 10 cm on the sides and 5 cm on top of the device.
- Install the device on a stable surface to prevent it from falling.
- Use an adapter or cabinet power supply provided by the manufacturer.
- Please follow the electrical requirements to power the device.
  - Following are the requirements for selecting a power adapter.
    - The power supply must conform to the requirements of IEC 60950-1 and IEC 62368-1 standards.
    - The voltage must meet the SELV (Safety Extra Low Voltage) requirements and not exceed ES-1 standards.
    - When the power of the device does not exceed 100 W, the power supply must meet LPS requirements and be no higher than PS2.
  - We recommend using the power adapter provided with the device.
  - When selecting the power adapter, the power supply requirements (such as rated voltage) are subject to the device label.
- The device is a class I electrical appliance. Make sure that the power supply of the device is connected to a power socket with protective earthing.
- Use the power cords that are recommended for the region and conform to the rated power specifications.
- When installing the device, make sure that the power plug and appliance coupler can be easily reached to cut off power.
- The appliance coupler is a disconnection device. Keep it at a convenient angle when using it.
- A safety circuit breaker is designed on the device panel to cut the power of the device. Make sure the breaker can be easily operated during installation.

Operation Requirements



-  The Device or remote control contains button batteries. Do not swallow the batteries due to the risk of chemical burns.

  Possible result: The swallowed button battery can cause serious internal burns and death within 2 hours.

  Preventive measures (including but not limited to):

  - Keep new and used batteries out of reach of children.
  - If the battery compartment is not securely closed, stop using the product immediately and keep out of reach of children.
  - Seek immediate medical attention if a battery is believed to be swallowed or inserted inside any part of the body.

- Battery Pack Precautions

  Preventive measures (including but not limited to):

  - ◇ Do not transport, store or use the batteries in high altitudes with low pressure and environments with extremely high and low temperatures.
  - ◇ Do not dispose the batteries in fire or a hot oven, or mechanically crush or cut the batteries to avoid an explosion.
  - ◇ Do not leave the batteries in environments with extremely high temperatures to avoid explosions and leakage of flammable liquid or gas.
  - ◇ Do not subject the batteries to extremely low air pressure to avoid explosions and the leakage of flammable liquid or gas.

WARNING

- Operating the device in a domestic environment may cause radio interference.
- Place the device in a location that children cannot easily access.
- High Current

  Preventative measure: Ground the screw of the device to protective ground before you power it on.
- Do not use multiple devices together to avoid generating high current.

  Preventative measure: Ground the device to protective ground before you power it on.

- Check whether the power supply is correct before use.
- Do not unplug the power cord on the side of the device while the adapter is powered on.
- Operate the device within the rated range of power input and output.
- Use the device under allowed humidity and temperature conditions.
- Do not drop or splash liquid onto the device, and make sure that there is no object filled with liquid on the device to prevent liquid from flowing into it.
- Do not place an open flame on the device, such as a lit candle.
- Do not disassemble the device without professional instruction.

Maintenance Requirements

DANGER

Replacing unwanted batteries with the wrong type of new batteries might result in explosion.

Preventive measures (including but not limited to):

- Replace unwanted batteries with new batteries of the same type and model to avoid the risk of fire and explosion.
- Dispose of the old batteries as instructed.

- It is prohibited for non-professionals and unauthorized personnel to open the device casing.
- The appliance coupler is a disconnection device. Keep it at a convenient angle when using it. Before repairing or performing maintenance on the device, first disconnect the appliance coupler.

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1 Checking the Device and Wiring

- For information on the installation requirements on the decoder, refer to the specifications of engineering and construction, and national standards.
- The quality and length of the HDMI cable affect video quality. The video might be blurry, have noise or black edges. The video quality might vary when the same video is output through different cables.

1.1 Unpacking the Box

When you receive the Decoder, check whether there is any visible damage or not. The protective material of the device package can resist most accidental collisions during transportation.

The label at the bottom of the box contains device serial number and other information. Keep the label well and show it to the after-sales service personnel when you need after-sales assistance.

1.2 Device Installation and Operation

1.2.1 Front Panel

1.2.1.1 1-channel 4K High Definition Series and 4-channel 8K Ultrahigh Definition (with 2 input ports) Series and 6-channel ultrahigh definition series (with 2 input ports) and 9-channel ultrahigh definition series (with 4 input ports)

Figure 1-1 Front panel



Table 1-1 Description of front panel

Name	Icon	Function
Power button		Power button. ● Press it 3 times within 1 second to restore the default password. ● Press it 5 times within 1 second to restore the factory default settings.
Power indicator		The indicator glows after the system starts.
Network indicator		The network indicator glows blue when an abnormal network event occurs, such as offline and IP conflict.

Name	Icon	Function
USB port		External devices can be connected such as a mouse, keyboard and flash drive.
Alarm indicator		The alarm indicator turns on when there is an alarm.
HDD indicator		Function reserved.
IR receiver	IR	Function reserved.
Output indicator	1 2 3 4	Indicates the working status of output port. Only the first indicator is active.

1.2.1.2 12-channel 8K Ultrahigh Definition Series with 4 Input Ports and 8/12-channel 8K Ultrahigh Definition Series with 2 Input Ports and 16/20-channel 8K High Definition Series with 2 Input Ports and 16/20-channel 8K High Definition Series with 4 Input Ports and 20-channel 8K High Definition with 8 Input Ports

Figure 1-2 Front panel

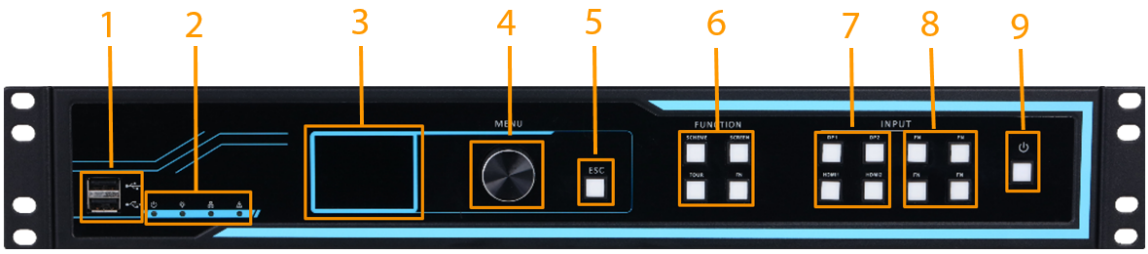


Table 1-2 Front panel description

No.	Name	Description
1	USB2.0 port	2 USB2.0 ports for connecting the mouse and the keyboard.
2	Indicator light	Indicator lights from left to right are: power indicator, breathing indicator, network indicator, and alarm indicator. If the indicator is green, the status is normal; if the indicator is red, an exception occurs.
3	Screen	Displays device IP address, and more.
4	Knob	Designed for volume control, device basic configuration, and more. When adjusting the volume on the main screen, rotate clockwise to increase the volume, and counterclockwise to decrease the volume.
5	Exit button	Back to the last operation.
6	Function buttons	Clockwise from left to right: scheme switch, video wall control, reserved function, and scheme tour.

No.	Name	Description
7	DP/HDMI information collection buttons	Collects information, and displays on video wall. ● The indicator is solid on when information was successfully collected and displayed on video wall. ● The indicator flashes when no information was collected.
8	FN	Button for reserved function.
9	Power button	Press it, the indicator is on, and the device starts (it takes about 3 minutes).

1.2.2 Rear Panel

1.2.2.1 1-channel 4K High Definition Series

Figure 1-3 Rear panel

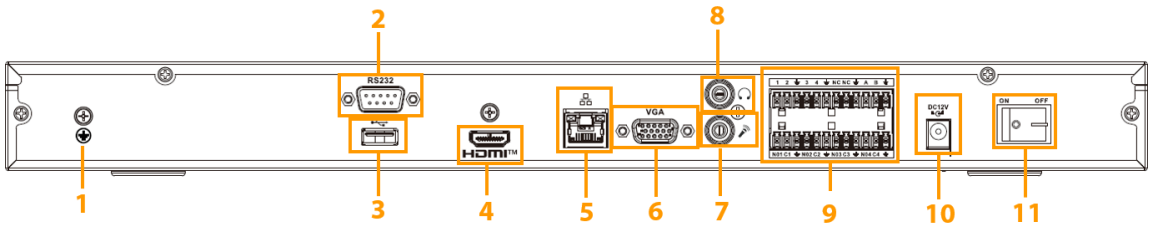


Table 1-3 Description of rear panel

No.	Name	No.	Name	No.	Name
1	Ground	2	RS–232 port	3	USB port
4	HDMI port	5	Network port (10/100/1000 Mbps Ethernet port)	6	VGA port
7	Earphone port (reserved)	8	Microphone port (reserved)	9	4-channel alarm input, 4-channel alarm output, RS–485 port.
10	Power port	11	Power button	—	

1.2.2.2 4-channel 8K Ultrahigh Definition Series

Figure 1-4 Rear panel

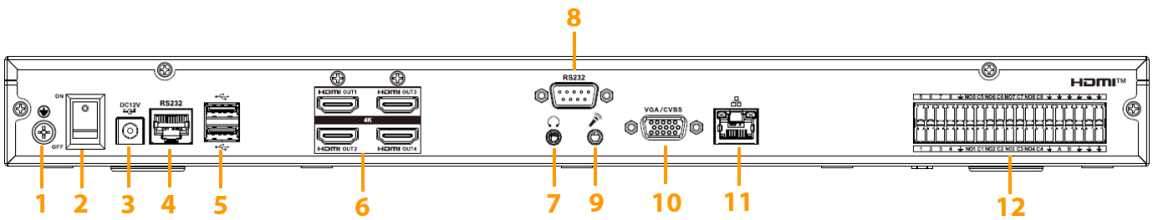


Table 1-4 Description of rear panel

No.	Name	No.	Name	No.	Name
1	Ground	2	Power button	3	Power port
4	RS–232 port of screen control	5	USB port	6	HDMI output port
7	Earphone port (reserved)	8	RS–232 port	9	Microphone port (reserved)
10	VGA (reserved)	11	Network port (10/100/1000 Mbps Ethernet port)	12	Alarm input, alarm output, standard RS–485 port

1.2.2.3 4-channel 8K Ultrahigh Definition Series with 2 Input Ports

Figure 1-5 Rear panel

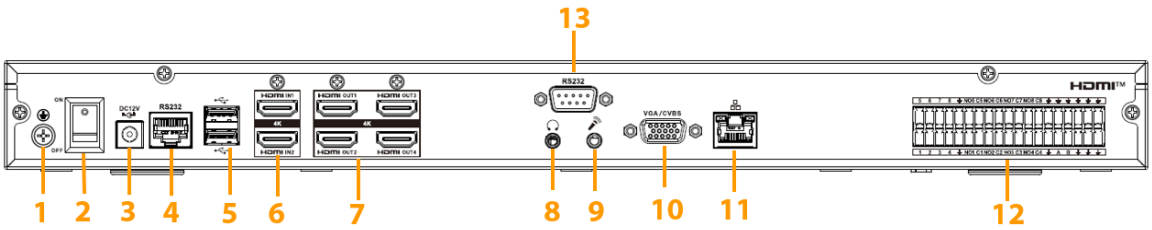


Table 1-5 Description of rear panel

No.	Name	No.	Name	No.	Name
1	Ground	2	Power button	3	Power port
4	RS–232 port of screen control	5	USB port	6	HDMI input port
7	HDMI output port	8	3.5 mm earphone port	9	Microphone port (reserved)
10	VGA (reserved)	11	Network port (10/100/1000 Mbps Ethernet port)	12	Alarm input, alarm output, standard RS–485 port
13	RS–232 port	—			

1.2.2.4 6-channel Ultrahigh Definition Series

Figure 1-6 Rear panel

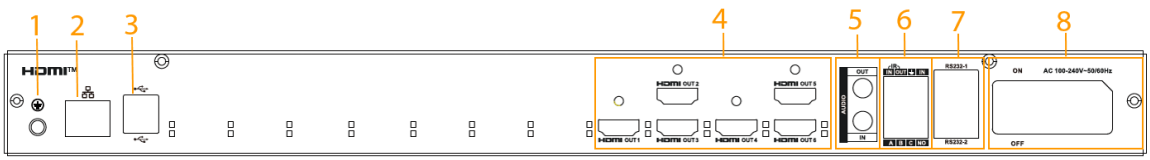


Table 1-6 Description of rear panel

No.	Description
1	Ground
2	Network port (10/100/1000 Mbps Ethernet port)
3	USB 3.0 port
4	HDMI output port
5	Audio out and audio in port
6	Alarm input, alarm output, standard RS–485 port
7	RS–232 port of screen control
8	Power button

1.2.2.5 6-channel Ultrahigh Definition Series (with 2 Input Ports)

Figure 1-7 Rear panel

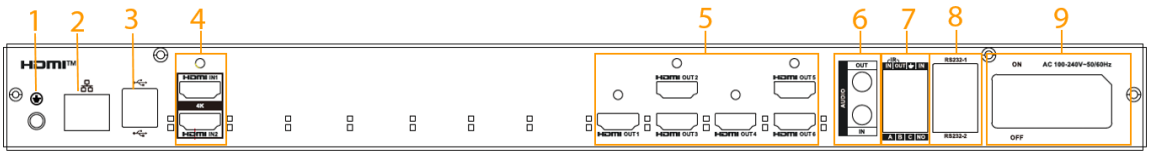


Table 1-7 Description of rear panel

No.	Description
1	Ground
2	Network port (10/100/1000 Mbps Ethernet port)
3	USB 3.0 port
4	HDMI input port
5	HDMI output port
6	Audio out and audio in port
7	Alarm input, alarm output, standard RS–485 port
8	RS–232 port of screen control
9	Power button

1.2.2.6 9-channel Ultrahigh Definition Series

Figure 1-8 Rear panel

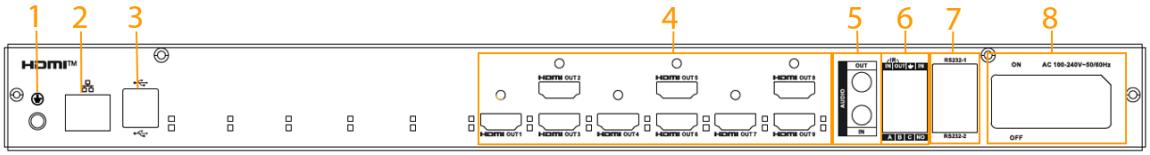


Table 1-8 Description of rear panel

No.	Description
1	Ground
2	Network port (10/100/1000 Mbps Ethernet port)
3	USB 3.0 port
4	HDMI output port
5	Audio out and audio in port
6	Alarm input, alarm output, standard RS–485 port
7	RS–232 port of screen control
8	Power button

1.2.2.7 9-channel Ultrahigh Definition Series (with 4 Input Ports)

Figure 1-9 Rear panel

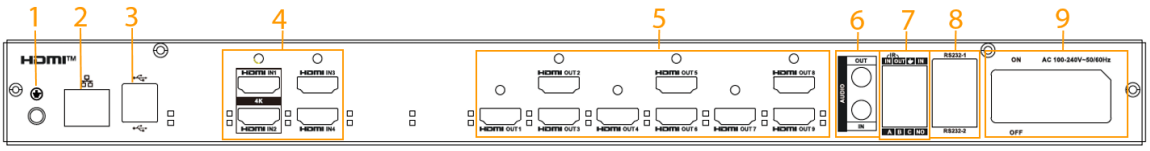


Table 1-9 Description of rear panel

No.	Description
1	Ground
2	Network port (10/100/1000 Mbps Ethernet port)
3	USB 3.0 port
4	HDMI input port
5	HDMI output port
6	Audio out and audio in port
7	Alarm input, alarm output, standard RS–485 port
8	RS–232 port of screen control
9	Power button

1.2.2.8 12-channel 8K Ultrahigh Definition Series with 4 Input Ports and 8/12-channel 8K Ultrahigh Definition Series with 2 Input Ports and 16/20-channel 8K High Definition Series with 2 Input Ports and 16/20-channel 8K High

Definition Series with 4 Input Ports and 20-channel 8K High Definition with 8 Input Ports

Figure 1-10 NVD1205DU-4I-8K rear panel

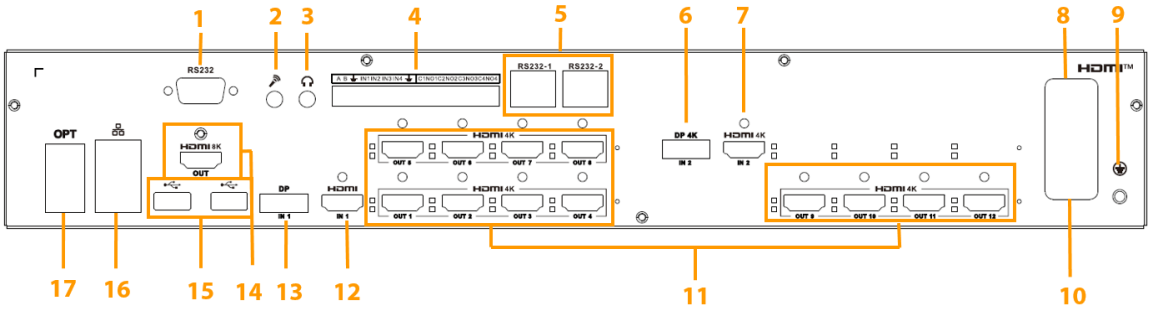


Table 1-10 Description of rear panel

No.	Description	No.	Description
1	RS-232 port	2	Audio in
3	Audio out	4	Alarm in, alarm out, standard RS-485 port
5	RS-232 port for screen control	6	DP port (supports 4K acquisition)
7	HDMI port (supports 4K acquisition)	8	Power switch
9	Ground	10	Power header port
11	HDMI output	12	HDMI input
13	DP signal input	14	HDMI output (supports 8K output)
15	2 USB3.0 ports	16	2 network ports (10/100/1000 Mbps Ethernet port)
17	2 gigabit optical ports	—	

Figure 1-11 NVD1205DU-2I-8K rear panel

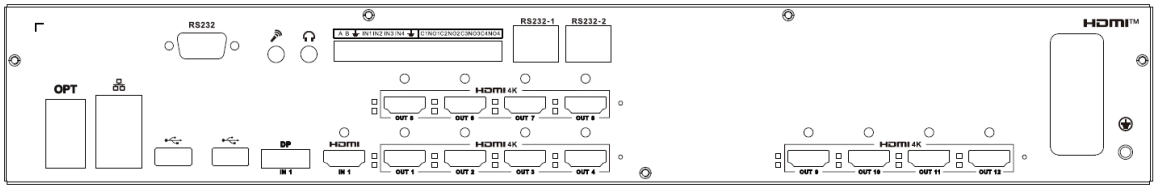


Figure 1-12 NVD0805DU-2I-8K rear panel

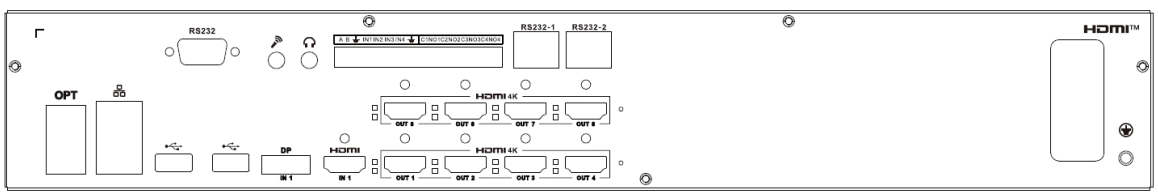


Figure 1-13 NVD1605DU-2I-8K-2H rear panel

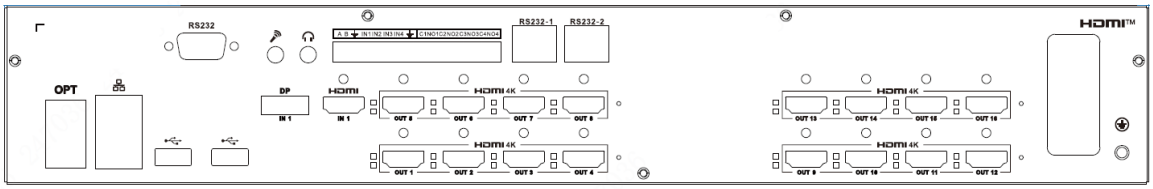


Figure 1-14 NVD1605DU-4I-8K-2U2H rear panel

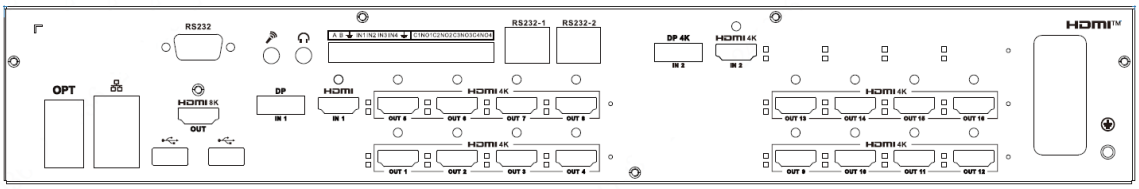


Figure 1-15 NVD2005DU-2I-8K-2H rear panel

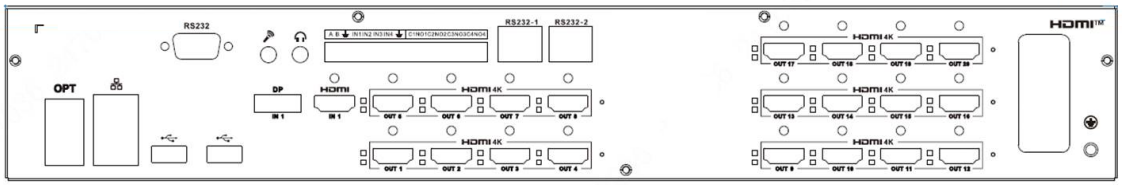


Figure 1-16 NVD2005DU-4I-8K-4H rear panel

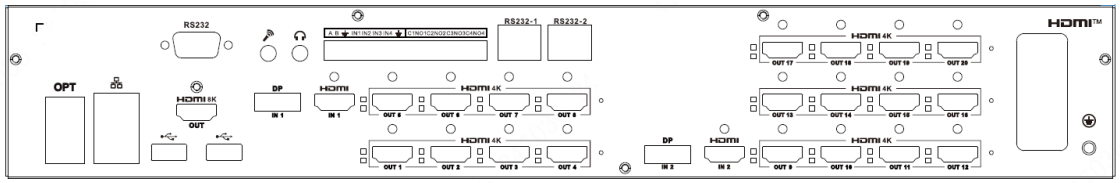
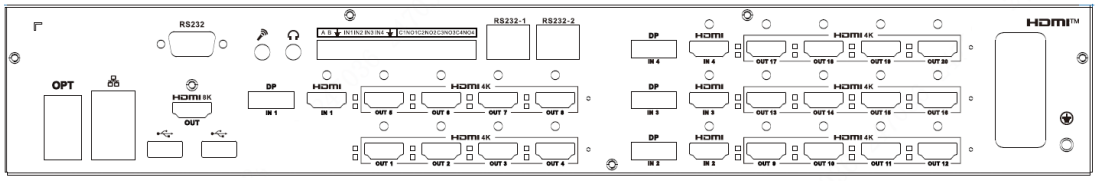


Figure 1-17 NVD2005DU-8I-8K-8H rear panel



2 Start/Shutdown

2.1 Start

Connect the Decoder to the power, and then press the power switch on the rear panel. The power indicator light turns on and the device starts.

2.2 Shutdown

Press and hold the power button on the front panel for 3 second to shut down the Decoder.



If the power is cut off or the Decoder is forcibly shutdown while the Decoder is working, after the power connection becomes normal, the system will automatically connect to the video devices, and restore to its previous work status.

3 Web Operations

The webpages in this chapter are for reference only and might differ depending on the model of the device.

3.1 Connecting to Network

Procedure

Step 1 Connect the network port of the Decoder to the network port of your computer with the network cable.

Step 2 Set the computer and the Decoder to the same IP segment.

The default IP address of the Decoder is 192.168.1.108.

Step 3 Ping ***.***.***.***(IP address of the Decoder) on your computer to check whether connection is working normally. Usually the returned TTL value should be less than or equal to 64.

Step 4 Open the browser, enter the IP address of the Decoder in the address bar, and then press Enter.

Web controls can be recognized and downloaded automatically. The system can download the latest Web controls and remove the old one.

Step 5 After you log in to the webpage, change the IP address of the decoder according to the actual situation.

Step 6 Connect the Decoder to the network.

3.2 Changing IP Addresses

Background Information

The operation applies to the following models:

- 8-channel 8K high definition (with 2 input ports) has 8 groups of output ports respectively. Each series has 8 HDMI output ports.
- 12-channel 8K high definition (with 2 and 4 input ports) has 12 groups of output ports respectively. Each series has 12 HDMI output ports.
- 16-channel 8K high definition (with 2 and 4 input ports) has 16 groups of output ports respectively. Each series has 16 HDMI output ports.
- 20-channel 8K high definition (with 2, 4 and 8 input ports) has 20 groups of output ports respectively. Each series has 20 HDMI output ports.

Procedure

Step 1 After powering on the Device, rotate the menu knob to select **Network Settings**, and then press the menu knob to confirm.

Step 2 Rotate the menu knob to select **IP Address**. After pressing the menu knob, rotate the knob to change the IP address. Once you have made the changes, press the menu knob again to confirm.

Step 3 Repeat Step 2 to change the gateway.

Step 4 Press the **ESC** button to return to the previous menu.

3.3 Restoring to Default Settings

Background Information

The operation applies to the following models:

- 8-channel 8K high definition (with 2 input ports) has 8 groups of output ports respectively. Each series has 8 HDMI output ports.
- 12-channel 8K high definition (with 2 and 4 input ports) has 12 groups of output ports respectively. Each series has 12 HDMI output ports.
- 16-channel 8K high definition (with 2 and 4 input ports) has 16 groups of output ports respectively. Each series has 16 HDMI output ports.
- 20-channel 8K high definition (with 2, 4 and 8 input ports) has 20 groups of output ports respectively. Each series has 20 HDMI output ports.

Procedure

Step 1 After powering on the Device, press and hold the **ESC** button for 5 seconds. The Device will restart automatically.

Step 2 After the restart, the Device will restore to the default settings.

3.4 Logging in to the Webpage

Procedure

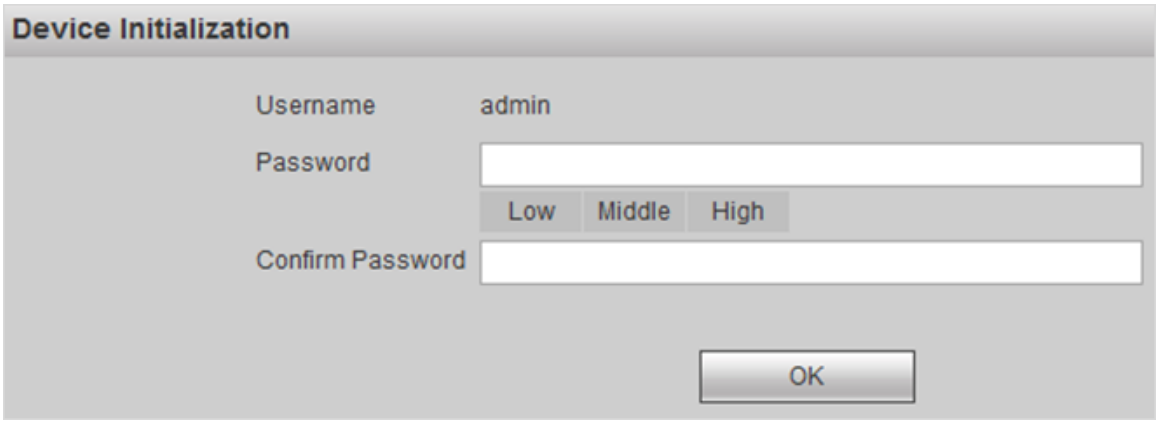
Step 1 Enter the IP address of the Decoder in the browser address bar.

Step 2 Set the password for the admin user.

- The password must consist of 8–32 non-blank characters and contain at least two types of the following characters: Uppercase and lowercase letters, numbers, and special characters (excluding ' " ; : &).
- Set a high security password according to the password strength prompt.

Step 3 Click **OK**.

Figure 3-1 Device initialization



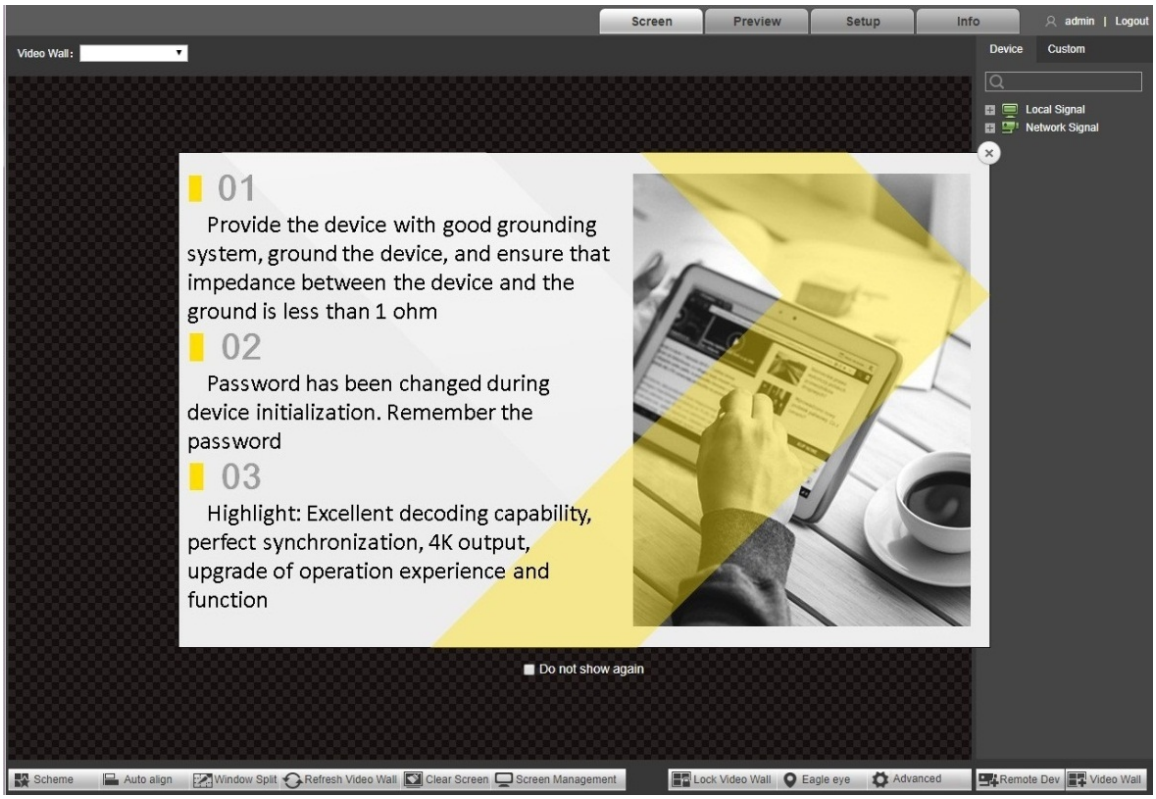
Step 4 Enter the username and the password, and then click **Login**.

Figure 3-2 Login



Step 5 View important points to be noted and highlights on this page.

Figure 3-3 Operation page



- Follow the important points noted on the page.
- Click to close the page.
- Select the **Do not show again** checkbox, and this window will not be displayed when you log in to the page the next time.

Step 6 Install or load controls as prompted by the system.

3.5 Screen

Click the **Screen** tab.

1-channel 4K high definition series and 4-channel 8K ultra high definition series do not support local signals.

Figure 3-4 Screen

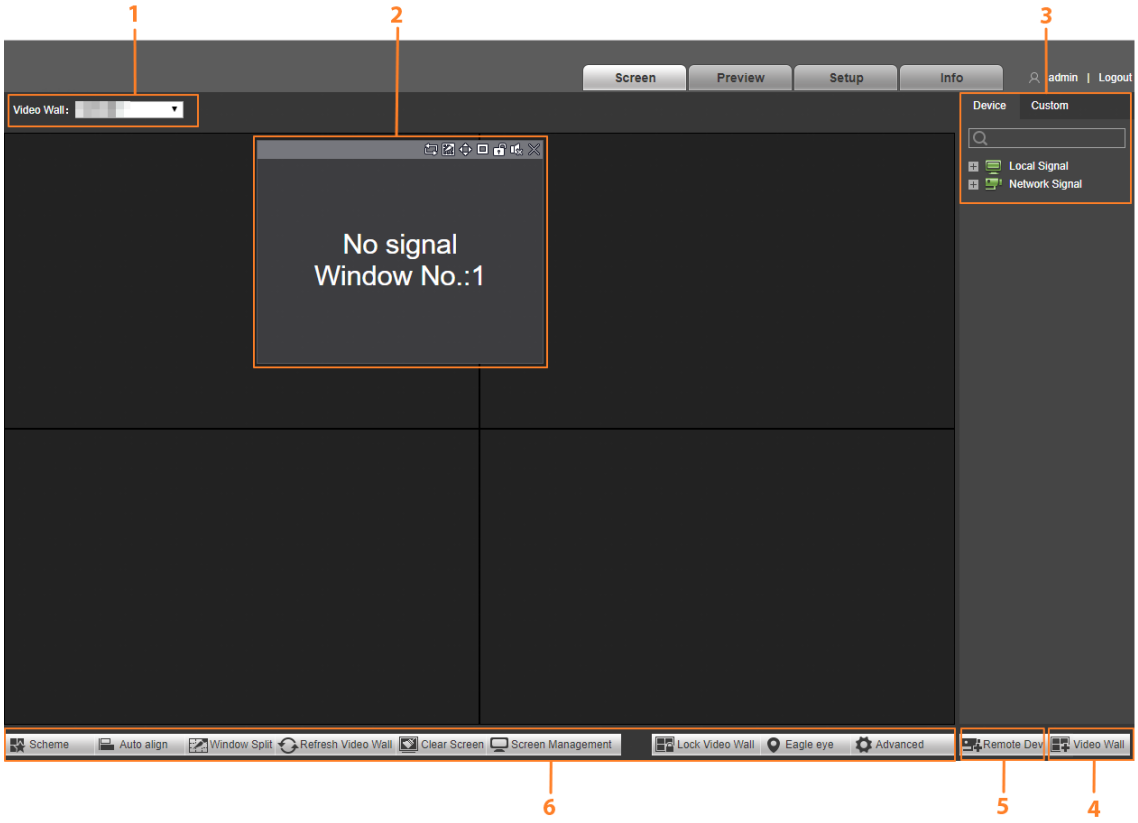


Table 3-1 Screen functions description

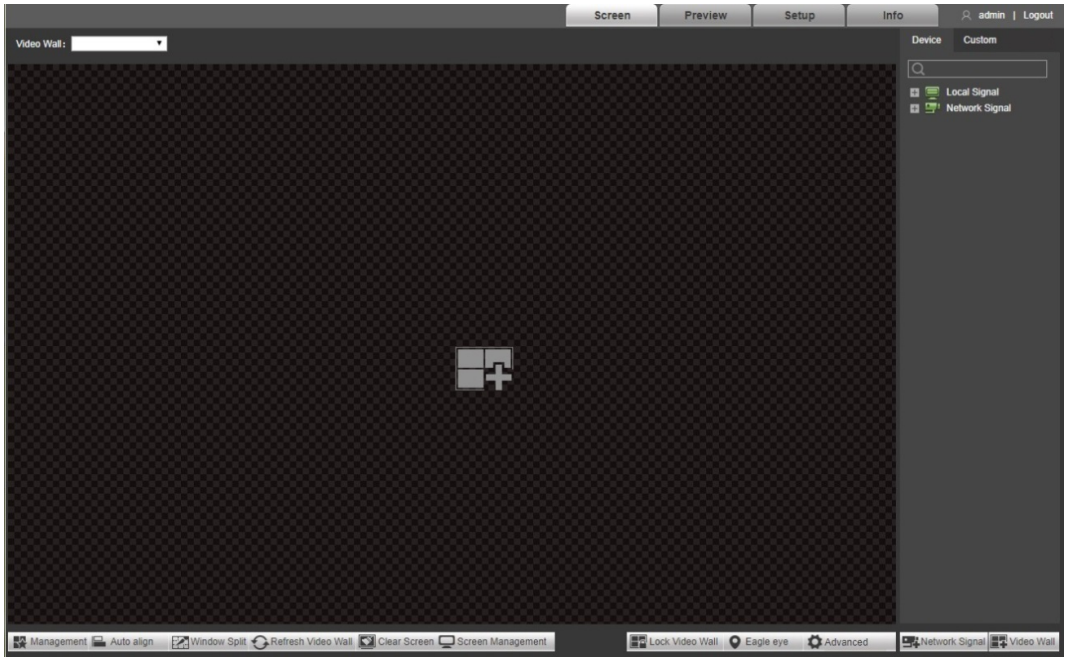
No.	Name	Description
1	Video wall selection area	After you add a video wall, you can select the video wall from the drop-down list of **Video Wall**.
2	Window configuration	You can turn off signals and add, adjust and put windows down at the bottom.
3	Signal management	Select different tabs to operate. • Click the **Device** tab. You can view local signals, channel information and preview and display the signals on the video wall. • Click the **Custom** tab. You can view information on signal groups and configure signal tour on the video wall.
4	Video wall	Click **Video Wall** to go to the **Video Wall Setup** page where you can add, modify, and delete video walls.
5	Remote device	Click **Remote Dev** to go to the **Network Signal** page where you can add, modify, and delete devices.

No.	Name	Description
6	Video wall management	You can perform management and auto-align, split windows, refresh the video wall, clear the screen, access screen management, and lock and unlock the video wall.

3.5.1 Adding Video Walls

After you log in to the webpage for the first time, click to go to the **Video Wall Setup** page to add video walls.

Figure 3-5 Add a video wall

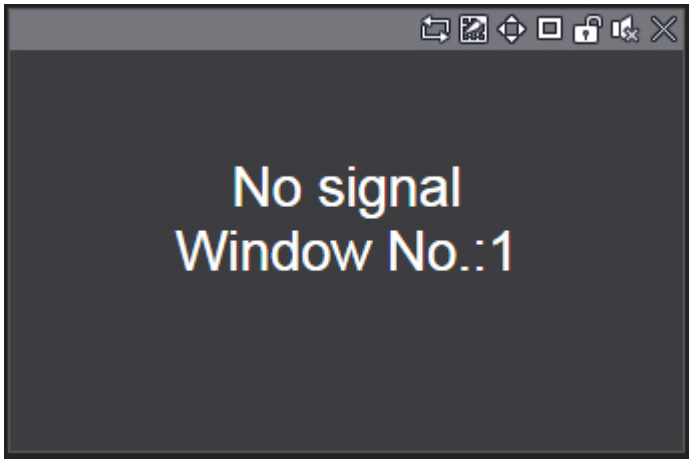


3.5.2 Window Configuration

3.5.2.1 Adding a Window

Click the video wall display area and move the pointer to add a window.

Figure 3-6 Adding a Window



- Select a window, press and move the left mouse button. The selected window will be moved to the required position.
- Select a window, drag the control point in any direction to change the dimensions of the selected window.
- Select a window, right-click and select **Bottom**. The selected window will appear the bottom of other windows.
- Select a window that is displaying a signal, right-click and then select **Signal Off**. The signal will turn off.

3.5.2.2 Adjusting the Window

Click icons in the upper-right corner of the window to adjust the window.

Table 3-2 Description of window adjustment icons

Icon	Name	Description
	Start/stop signal tour	Click it to start signal tour, and the icon becomes . Click to stop signal tour.
	Split	You can split the window across 2 windows (horizontal/vertical), and also across 4, 9, 16, 25, and 36 windows. When the window is maximized or pasted to the screen, the icon becomes . Click the icon to drag the window anywhere.
	Paste screen	Click it to paste the window to the screen. For this, the dimensions of the window cannot be adjusted.
	Paste window	Click it, and then the window will be maximized without covering other windows.
	Lock	Click it to lock the window, and then the position and size of the window cannot be adjusted. Click to unlock the window.

Icon	Name	Description
	Audio	Turn on or off audio. This function is reserved.
	Close	Close the window.

3.5.3 Signal Configuration

Select signals, or enter the name of the signal in the search box to search for signals.

3.5.3.1 Device Tree

The device tree displays all local signals and network signals that were added.

1-channel 4K high definition series and 1-channel 4K ultrahigh definition series do not support local signals.

- **Local Signal** : Displays local signal sources.
- **Network Signal** : Displays the sources of signals that were added.

3.5.3.2 Custom

The **Custom** tab displays groups that were added and the signal sources in groups. After you drag a signal group to a window, signals in the signal group are played in a loop.

3.5.3.3 Signal on Wall

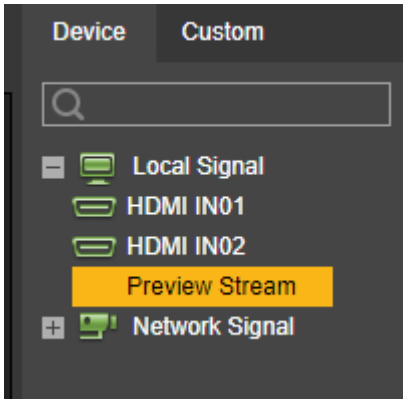
After you output a signal to a window on the video wall, you can view videos related to the signal on the video wall.

Step 1 Log in to the webpage, and then click the **Screen** tab.

Step 2 Select a window on the video wall, or press and hold the left mouse button to create a window on the video wall.

Step 3 Select a signal source from the **Device** or **Custom** tab. The following figure uses **Device** as an example.

Figure 3-7 Select a signal source



Step 4 Display the signal on the video wall.

- Press and hold the left mouse button to drag the signal to the designated window, and the signal will be output to the window.
- Select a window, double-click channel preview or main/sub stream, and the signal will be output to the window.

Appendix 1 Cybersecurity Recommendations

Mandatory actions to be taken for basic device network security:

1. **Use Strong Passwords**

   Please refer to the following suggestions to set passwords:

   - The length should not be less than 8 characters.
   - Include at least two types of characters; character types include upper and lower case letters, numbers and symbols.
   - Do not contain the account name or the account name in reverse order.
   - Do not use continuous characters, such as 123, abc, etc.
   - Do not use overlapped characters, such as 111, aaa, etc.

2. **Update Firmware and Client Software in Time**

   - According to the standard procedure in Tech-industry, we recommend to keep your device (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the device is connected to the public network, it is recommended to enable the “auto-check for updates” function to obtain timely information of firmware updates released by the manufacturer.
   - We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your device network security:

1. **Physical Protection**

   We suggest that you perform physical protection to device, especially storage devices. For example, place the device in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable device (such as USB flash disk, serial port), etc.

2. **Change Passwords Regularly**

   We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. **Set and Update Passwords Reset Information Timely**

   The device supports password reset function. Please set up related information for password reset in time, including the end user’s mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. **Enable Account Lock**

   The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. **Change Default HTTP and Other Service Ports**

   We suggest you to change default HTTP and other service ports into any set of numbers between 1024–65535, reducing the risk of outsiders being able to guess which ports you are using.

6. **Enable HTTPS**

   We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. **MAC Address Binding**

   We recommend you to bind the IP and MAC address of the gateway to the device, thus reducing the risk of ARP spoofing.

8. **Assign Accounts and Privileges Reasonably**

According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

9. **Disable Unnecessary Services and Choose Secure Modes**

   If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

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

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

10. **Audio and Video Encrypted Transmission**

    If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

    Reminder: encrypted transmission will cause some loss in transmission efficiency.

11. **Secure Auditing**

    - Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
    - Check device log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

12. **Network Log**

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

13. **Construct a Safe Network Environment**

    In order to better ensure the safety of device and reduce potential cyber risks, we recommend:

    - Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
    - The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
    - Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.
    - Enable IP/MAC address filtering function to limit the range of hosts allowed to access the device.