

# **Network Video Recorder**

## **Quick Start Guide**



V1.0.0

# Foreword

## General

This manual introduces the functions and operations of the Network Video Recorder (hereinafter referred to as the "Device"). Read carefully before using the device, and keep the manual safe for future reference.

## Symbols

The following symbols might appear in the manual.

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

## Revision History

| Version | Revision Content | Release Time |
|---------|------------------|--------------|
| V1.0.0  | First release.   | July 2026    |

## Privacy Protection Notice

As the device user, you might collect the personal data of individuals such as their names, email addresses, face images, audio and fingerprints. You shall be fully responsible for any activities associated with processing personal data. You commit to comply with your local privacy protection laws and regulations to protect the legitimate rights and interests of individuals, and shall implement measures which are required by applicable law, including but not limited to, providing clear and comprehensive information to individuals before processing their personal data, obtaining consent from individuals when necessary, informing individuals of the existence of the surveillance area, and providing required contact information.

## Intelligent Product Usage Statement

Intelligent products utilize AI technology to effectively enhance security. The intelligent recognition and alarm functions of the product might be affected by factors such as environmental lighting,

camera angles, object obstructions, and network delays, potentially leading to false alarms, missed alerts, or response delays. This intelligent product is solely intended to be used as a security assistance tool. The results from performing identification are for reference only and do not constitute absolute guarantee of personal or property safety. Users need to combine these products with necessary physical security measures to enhance overall protection. Except as otherwise provided by laws or in the event of intentional or gross negligence on the part of the company, the company shall not be liable for any losses caused by the aforementioned factors not attributable to the company.

## About the Manual

- This manual is provided for general reference only. Discrepancies might exist between the product and this manual, including but not limited to printed, electronic, or any other editions.
- The manual will be updated according to the latest laws and regulations of related jurisdictions. Specifications and documentation are subject to change without prior notice. For the latest versions, as well as legal notices, consult the printed manual, the product webpage, our official website, or scan the QR code to access the electronic edition.
- The manual will be updated as necessary to reflect product changes and applicable legal requirements. These updates will not diminish your statutory rights, nor will they remove or weaken the safety information or essential instructions provided at the time of purchase.
- Although we make every effort to ensure accuracy, errors or deviations in descriptions of functions, operations, or technical data might occur. If there is any uncertainty or controversy, we reserve the right of final explanation.
- All trademarks, registered trademarks and company names referenced in this manual are the property of their respective owners.

# 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



### 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.
- Use the power adapter and cables provided with the Device. We assume no responsibility for injuries or damage caused by using the incorrect power adapter and cables.



-  Reliably ground the grounding terminal of the Device to improve safety. The grounding terminal differs depending on the device, and some devices do not have grounding terminals. Process the situation according to the device model.

- The Device must be installed in a location that only professionals can access. Non-professionals are not allowed to enter the installation area.
- The Device must be reliably grounded by professionals. They must install the grounding conductor in the building floor and verify the grounding connection of the output receptacle.
- Do not place the Device in a place exposed to sunlight or near heat sources.
- Keep the Device away from dampness, dust, and soot.
- Install the Device on a stable surface to prevent it from falling.
- Put the Device in a well-ventilated place, and do not block its ventilation.
- 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 power cords that conform to your local requirements, and are rated specifications.
- Before connecting the power supply, make sure the input voltage matches the server power requirement.
- When installing the Device, make sure that the power plug can be easily reached to cut off the power.
- It is prohibited for non-professionals and unauthorized personnel to open the device casing.
- Affix the controller securely to the building before use.

## 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.



Place the Device in a location that children cannot easily access.



- This is a class 1 laser device. You can only insert modules that meet the requirements of class 1 lasers.

- 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.
- Put the Device in a well-ventilated place, and do not block its ventilation.
- Operate the Device within the rated range of power input and output.
- Do not disassemble the Device without professional instruction.
- Transport, use and store the Device under allowed humidity and temperature conditions.

## Maintenance Requirements



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.



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.

# Table of Contents

|                                                    |     |
|----------------------------------------------------|-----|
| Foreword.....                                      | I   |
| Important Safeguards and Warnings.....             | III |
| 1 Starting the Device.....                         | 1   |
| 1.1 Initialization.....                            | 1   |
| 1.1.1 Initializing the Device.....                 | 1   |
| 1.1.2 Startup Wizard.....                          | 5   |
| 1.1.3 Login.....                                   | 12  |
| 1.2 Configuring Video Recording Schedule.....      | 13  |
| 1.3 Configuring P2P Settings.....                  | 18  |
| 1.3.1 Enabling P2P Function.....                   | 18  |
| 1.3.2 Adding the Device to Smart Phone Client..... | 19  |
| 1.4 Smart Motion Detection.....                    | 20  |
| 1.5 Live View.....                                 | 22  |
| 1.6 Playback.....                                  | 26  |
| 2 Web Operation.....                               | 30  |
| 2.1 Network Connection.....                        | 30  |
| 2.2 Web Login.....                                 | 30  |
| Appendix 1 Security Recommendation.....            | 31  |

# 1 Starting the Device

## Background Information



- For device security, connect the Device to the power adapter first and then connect the device to the power socket.
- The rated input voltage matches the power adapter requirements. Make sure the power wire connection is secure. Then press the power button.
- Always use a stable current supply. If necessary, use a Uninterruptible Power Supply (UPS) as the preferred alternative.

## Procedure

Step 1 Connect the device to the monitor, and then connect a mouse.

Step 2 Connect power cable.

Step 3 Press the power button on the front panel or the power switch on the rear panel to start up the device.

After the device starts, the system is in multiple-channel display mode by default.



The Device will verify the license during startup. If the verification fails, the icon  is displayed on the screen. Contact the technical support.

## 1.1 Initialization

### 1.1.1 Initializing the Device

## Background Information

For first-time use, set a login password for the admin account (default user).



- For device security, keep your login password and change it regularly.
- The default IP address of the Device is 192.168.1.108.
- If a DHCP service exists in the network environment, use a tool to locate the device IP (device category: ARC).

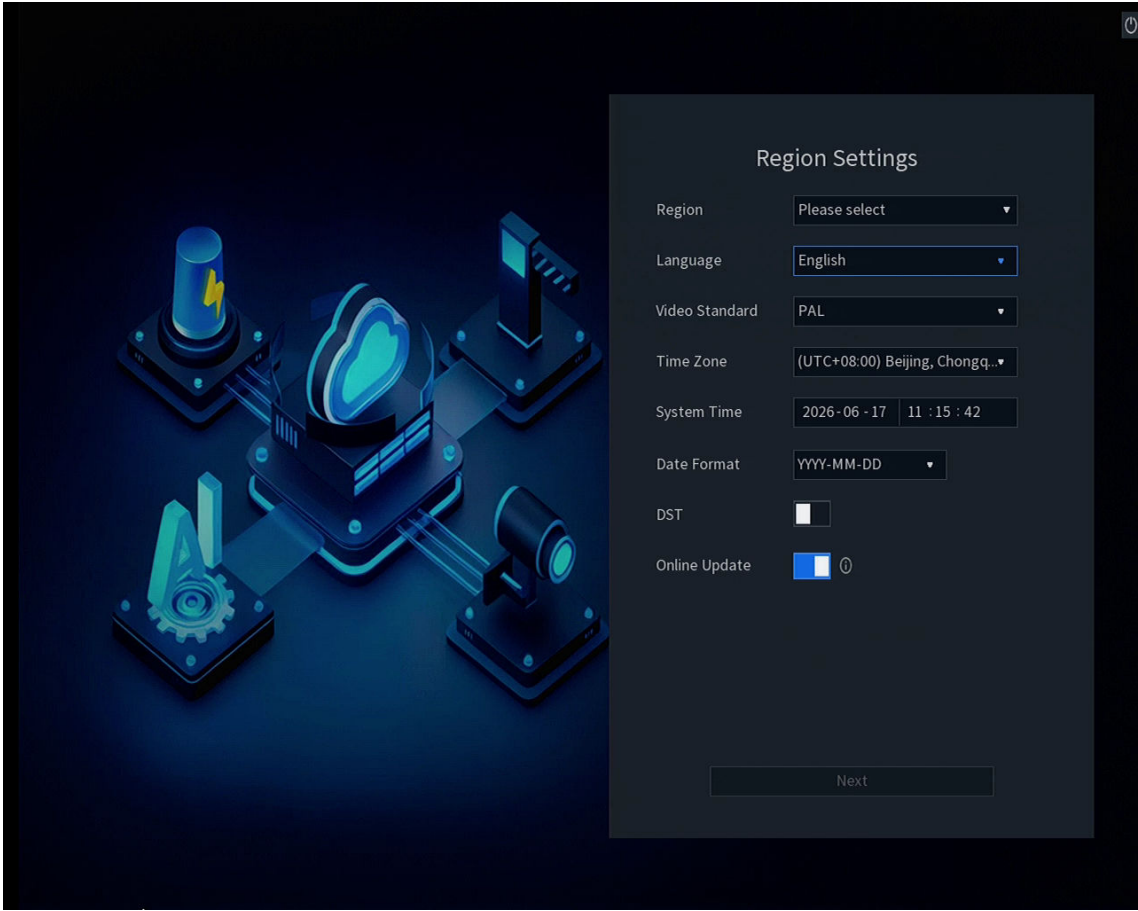
## Procedure

Step 1 Open the browser, enter IP address, and then press the Enter key.

Step 2 Set the basic information, and then click **Next**.



Figure 1-1 Set the basic information



Click  to power off the device.

Table 1-1 Description of basic parameters

| Parameter      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Region         | Select the region as needed.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Language       | Select the language as needed.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Video Standard | <div>Select a video standard.<ul style="list-style-type: none"><li>● PAL is mainly used in China, Middle East and Europe.</li><li>● NTSC is mainly used in Japan, United States, Canada and Mexico.</li></ul><div><p>As a technical standard of processing video and audio signals, PAL and NTSC mainly differ in the encoding and decoding modes and field scanning frequency.</p></div></div> |
| Time Zone      | Select the time zone as needed.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| System Time    | Set the system date and time.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Date Format    | Select a date format for the system.                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Parameter                | Description                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (Optional) DST           | <p>Enable the Daylight Saving Time function.</p> <p></p> <p>DST is a system to stipulate local time, in order to save energy. If the country or region where the Device is located follows DST, you can enable DST to ensure that system time is correct.</p> |
| (Optional) Online Update | Enable the system to automatically check the version and perform online updates.                                                                                                                                                                                                                                                               |

**Step 3** Set the initialization parameters.

Figure 1-2 Initialization settings

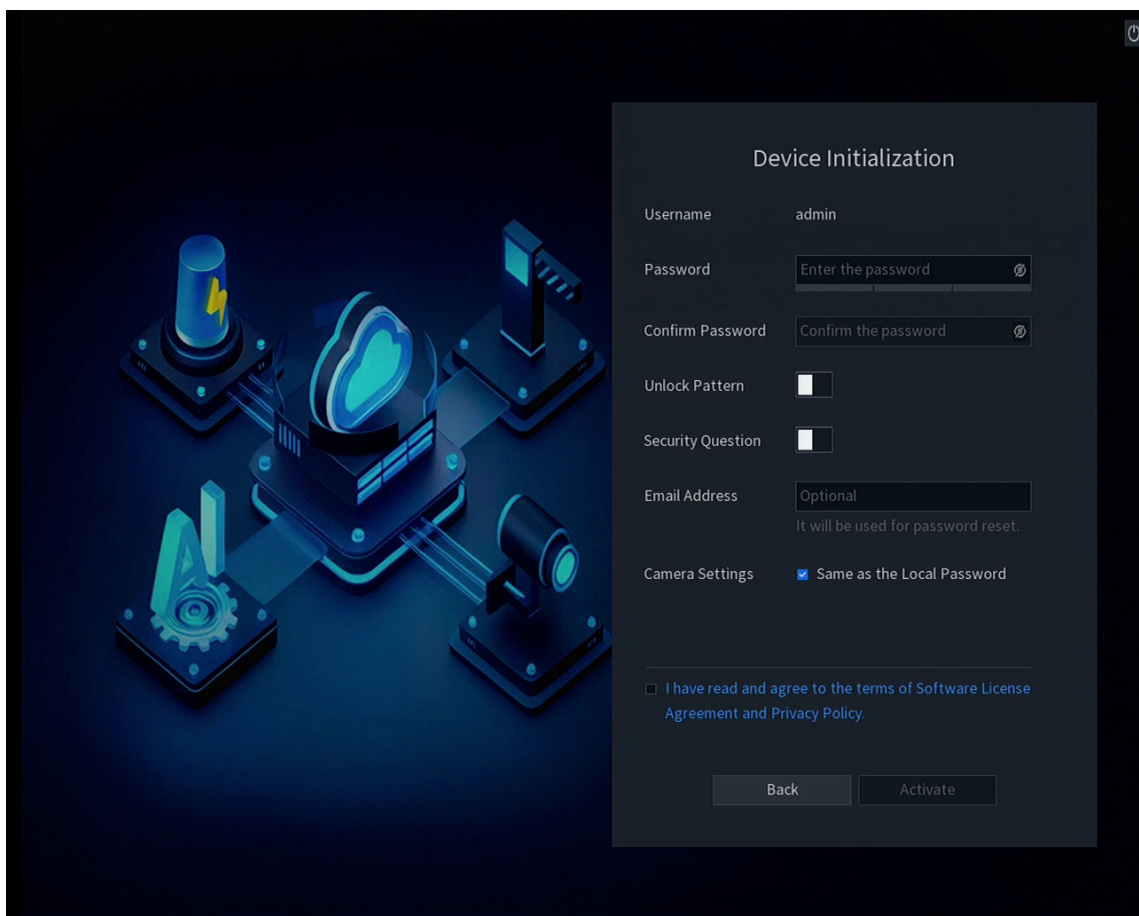


Table 1-2 Description of the initialization parameters

| Parameter | Description                             |
|-----------|-----------------------------------------|
| Username  | The default user name is <b>admin</b> . |

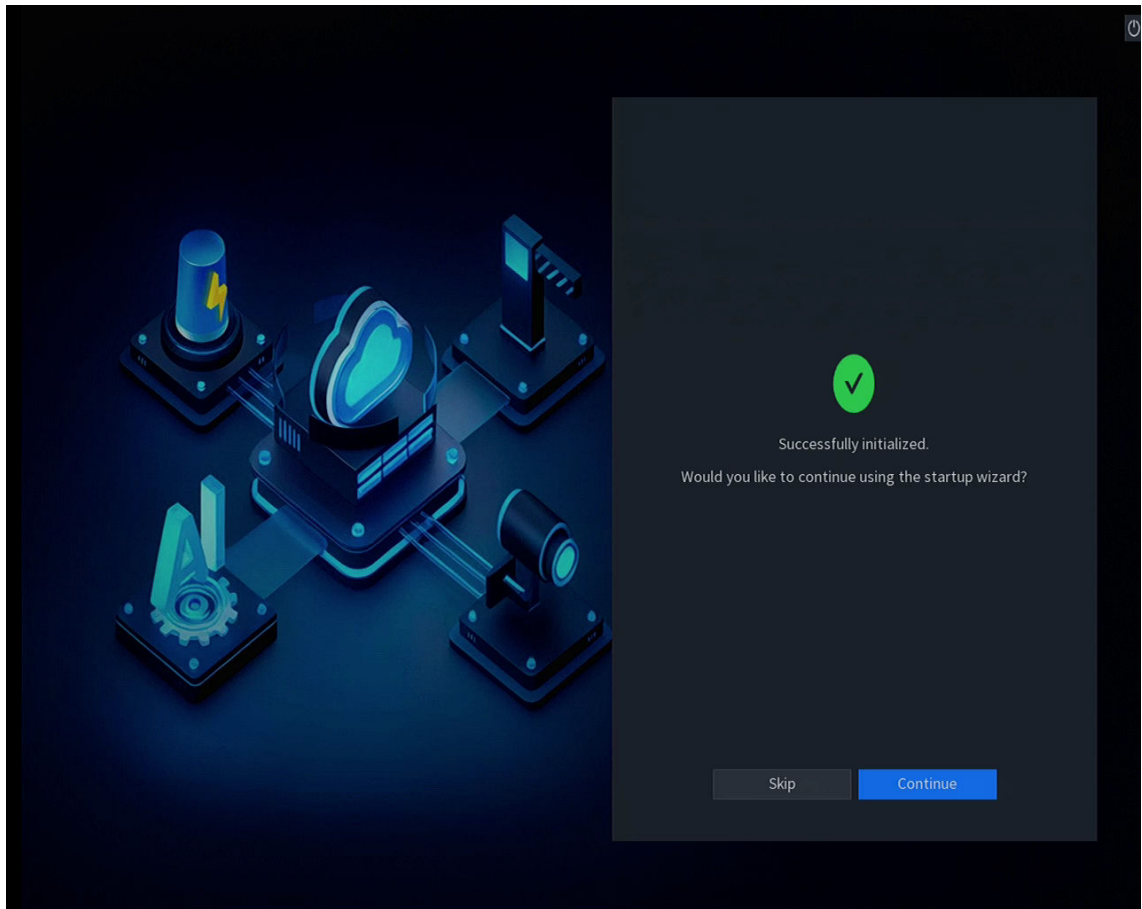
| Parameter                    | Description                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Password                     | Set the login password for the admin user and confirm the password.                                                                                                                                                                                                                                                                                                                                                      |
| Confirm Password             |  <ul style="list-style-type: none"> <li>The password must consist of 8–32 non-blank characters and contain at least two types of the following characters: Uppercase, lowercase, numbers, and special characters (excluding ' " ; &amp; ).</li> <li>For your device security, create a strong password.</li> </ul>                      |
| (Optional) Unlock Pattern    | <p>Enable the unlock pattern function, and then click <b>Draw</b> to draw the pattern.</p>  <ul style="list-style-type: none"> <li>This function is disabled by default.</li> <li>A pattern lock must connect at least 4 dots.</li> <li>After setting a pattern lock, the system will use this pattern for login by default.</li> </ul> |
| (Optional) Security Question | Enable this function, and then configure the security questions and answers for resetting the password.                                                                                                                                                                                                                                                                                                                  |
| (Optional) Email Address     | Enter the email address that is used to reset the password.                                                                                                                                                                                                                                                                                                                                                              |
| (Optional) Camera Settings   | Select the <b>Same as the Local Password</b> checkbox to disable the camera login password setting, and then the camera password uses the login password of the <b>admin</b> user.                                                                                                                                                                                                                                       |

Step 4 Click **Activate**.

The Device is initialized.

- Click **Continue** to continue using the startup wizard. For details, see "1.1.2 Startup Wizard".
- Click **Skip** if the startup wizard is not required.

Figure 1-3 Initialize success



## 1.1.2 Startup Wizard

After initialization, the system goes to **Startup Wizard**. You can quickly and easily complete functional settings such as Device network connection, cloud access configuration, remote device addition and HDD settings, ensuring the Device can be used rapidly.

### Background Information



**Startup Wizard** is displayed only when you log in to the Device for the first time or have restored the Device to factory settings.

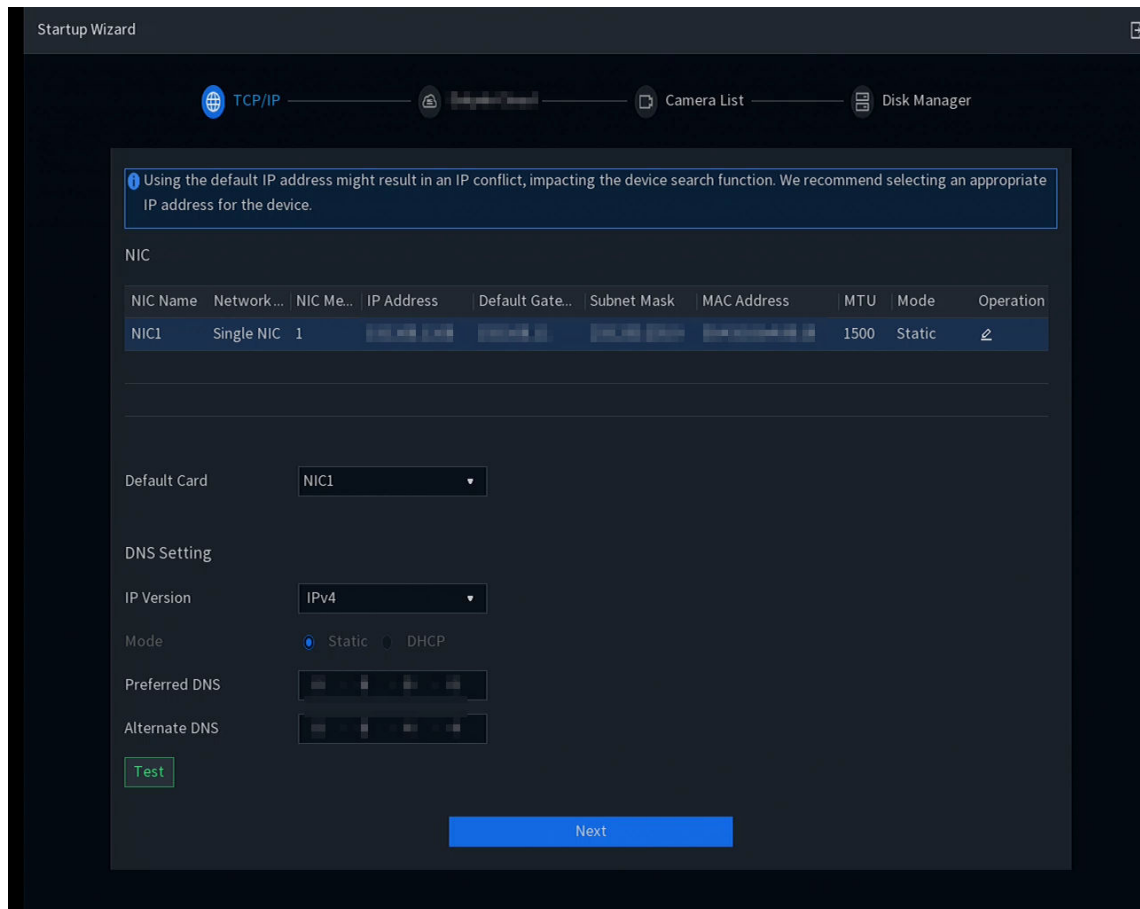
### Procedure

Step 1 Configure the network parameters, and then click **Next**.



**Network Mode** might vary with models. Configure the IP address of the network adapter according to the actual connection situation.

Figure 1-4 TCP/IP



1. Click  of the corresponding NIC.
2. Configure parameters, and then click **OK**.

Figure 1-5 Modify NIC parameters

The screenshot shows a 'Modify' window for network interface configuration. The parameters are as follows:

- NIC Name: NIC1
- Rate(Mbps): 1000 Mb/sec
- Network Mode: ☒ Single NIC
- IP Version: IPv4 (dropdown)
- Mode: ☒ Static, ☐ DHCP
- MAC Address: [Redacted]
- IP Address: [Redacted] (with a green 'Test' button)
- Subnet Mask: [Redacted]
- Default Gateway: [Redacted]
- MTU: 1500

Buttons at the bottom right: Cancel, OK.

Table 1-3 Description of the network parameters

| Parameter   | Description                                                                    |
|-------------|--------------------------------------------------------------------------------|
| NIC Name    | Displays the name of the currently edited network adapter.                     |
| Rate (Mbps) | Displays the maximum network transmission speed that the current NIC supports. |

| Parameter       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network Mode    | <p>Select the network mode of the Device.</p> <ul style="list-style-type: none"> <li>● <b>Single NIC</b> : The current NIC card works independently. If the current NIC card is disconnected, the Device becomes offline.</li> <li>● <b>Fault Tolerance</b> : 2 NIC cards share one IP address. Normally only one NIC card is working. When this card fails, the other NIC card will start working automatically to ensure the network connection. The Device is regarded as offline only when both NIC cards are disconnected.</li> </ul> <p>When you select <b>Fault Tolerance</b> , you need to select the other NIC in <b>NIC Member</b>.</p> <ul style="list-style-type: none"> <li>● <b>Load Balance</b> : 2 NIC cards share one IP address and work at the same time to share the network load averagely. When one NIC card fails, the other card continues to work normally. The Device is regarded as offline only when both NIC cards are disconnected.</li> </ul> <p>When you select <b>Load Balance</b> , you need to at least select 2 binding NICs in <b>NIC Member</b>.</p> <ul style="list-style-type: none"> <li>● <b>Link Aggregation</b> : Multiple network cards share a single IP address to increase bandwidth or achieve redundancy through aggregation. When one network card fails, the other can still function normally. During network monitoring, the device's network connection is only lost when both network cards are disconnected. In environments with poor network conditions, the bandwidth of the network cards is more stable under dynamic aggregation.</li> </ul> <p>When you select <b>Link Aggregation</b> , you need to at least select 2 NICs in <b>NIC Member</b>.</p> <p></p> <p>The Device with single Ethernet port does not support this function.</p> |
| IP Version      | Select <b>IPv4</b> or <b>IPv6</b> . Both versions are supported for access.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Mode            | <p>Select the method for obtaining the DNS (Domain name system) server address.</p> <ul style="list-style-type: none"> <li>● <b>Static</b> : Enter the <b>IP Address</b>, <b>Subnet Mask</b> and <b>Default Gateway</b> to set a static IP address for the Device.</li> <li>● <b>DHCP</b> : When there is a DHCP server on the network, you can enable DHCP. The system allocates a dynamic IP address to the Device. There is no need to set IP address manually.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| MAC Address     | Displays the MAC address of the Device.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| IP Address      | When <b>Mode</b> is select to <b>Static</b> , you must set the IP address, subnet mask, and default gateway.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Subnet Mask     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Default Gateway |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                 | <p>After configuration, click <b>Test</b> to check whether there is conflict in IP address.</p> <p></p> <p>IP address and default gateway must be on the same network segment.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Parameter | Description                                                                                                                                                                                                                                                                                                      |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MTU       | <p>Set the NIC MTU (Maximum transmission unit) value. The default setup is 1500 bytes.</p>  <p>Please be advised that changing MTU value might result in NIC restart, network offline and affect current running operation.</p> |



On the **TCP/IP** page, click  to unbind NIC. The unbinding will take effect after the Device restarts.

3. On the **Default Card** drop-down list, select the default NIC.
4. (Optional) Configure the DNS server.



This step is required if you want to use domain service.

You can get DNS server address or manually enter it.

- Automatically get the DNS server address: When there is a DHCP server in the network, you can enable **DHCP**, and then the Device gets a dynamic IP address.
- Enter the DNS server address: Select **IP Version**, and then configure the preferred DNS server and alternate DNS server.

5. Click **Next**

Step 2 (Optional) Enable **P2P**, and then click **Next**.

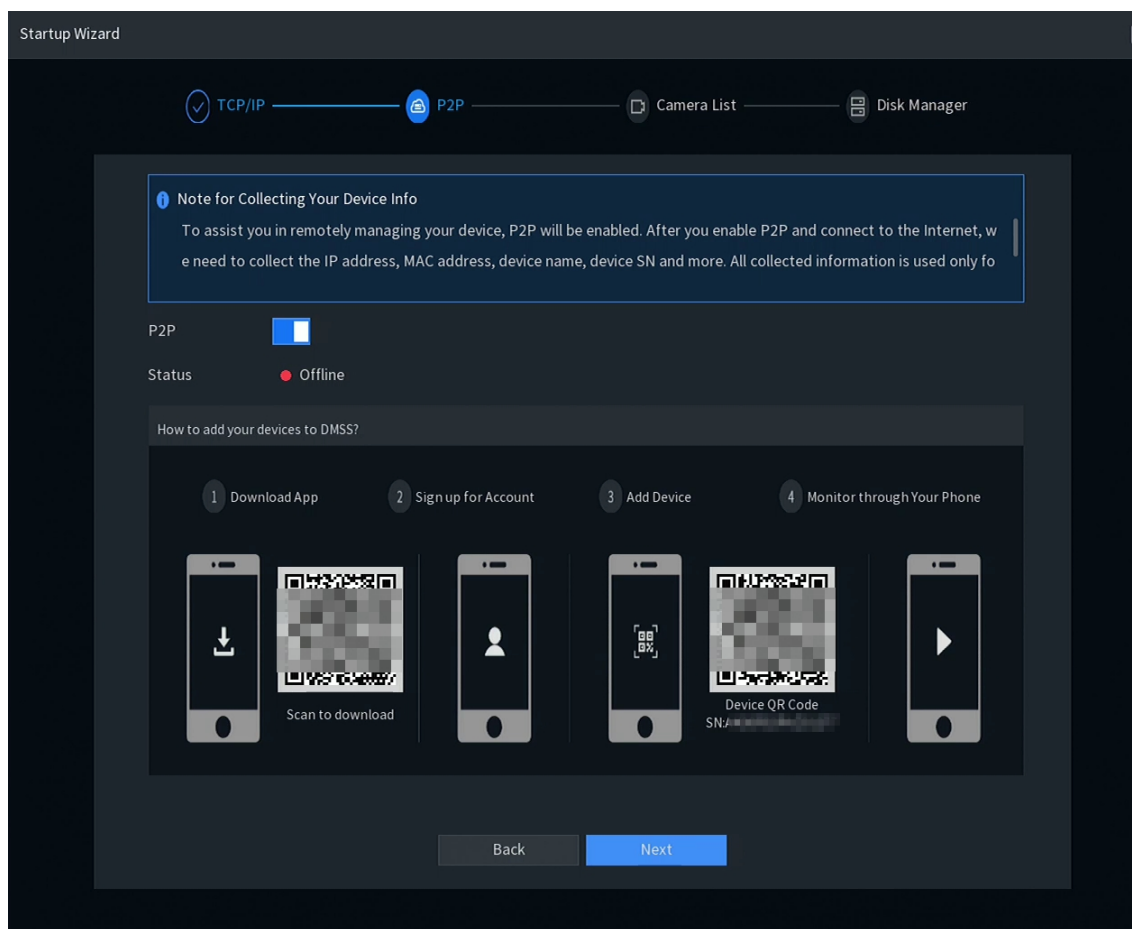
You can scan the QR code on the actual page to download the app. Register an account, and then you can add the Device to the app.



- Before using the P2P function, make sure that the NVR has connected to the WAN.
- The **Status** becomes **Online** after you successfully configure **P2P**.



Figure 1-6 P2P



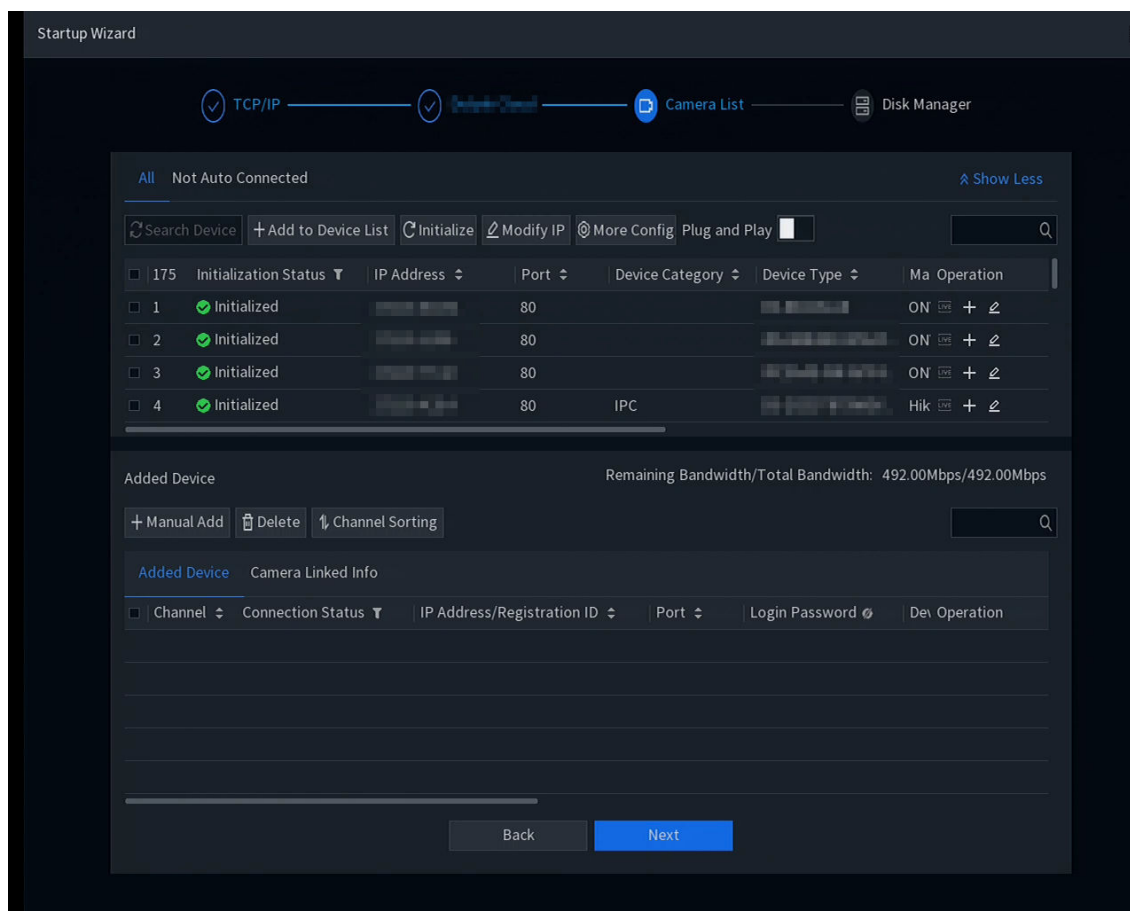
**Step 3** Add cameras according to the actual situation, and then click **Next**.

After adding cameras, you can view the video images transmitted from the cameras, and change camera configuration.



- The number of cameras that can be added to the NVR varies with models.
- The system supports adding camera through searching, manual add and batch add. This section uses adding by searching as an example.
- Initialize the camera before adding to the Device.

Figure 1-7 Camera list



- Click  next to **Plug and Play** to enable the **Plug and Play** function.
- Click **Search Device** to search the camera.

The devices found are displayed at the upper pane, excluding devices already added.



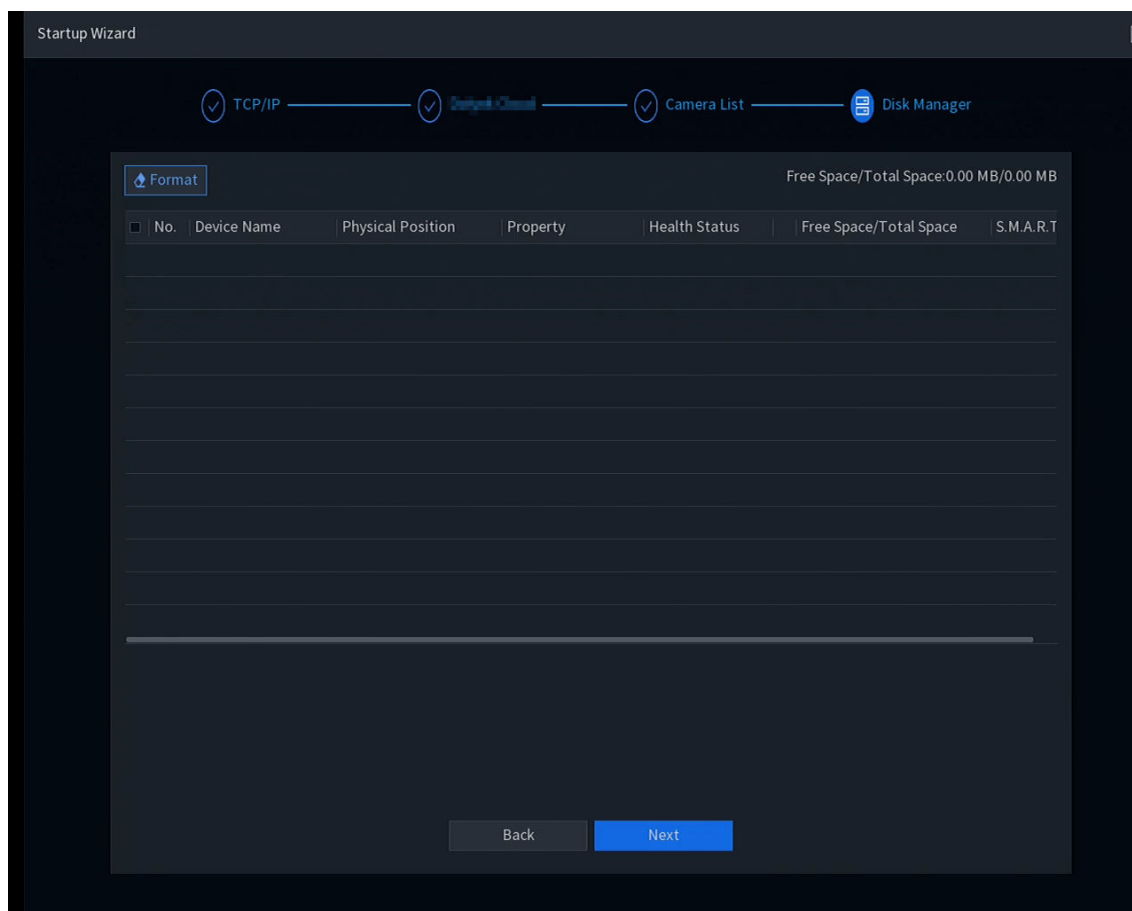
- To view the live image of a camera, click **LIVE**, and then enter the user name and password. You can only view live images of cameras accessed through private protocol.
- To filter the remote devices, select device name from the filter drop-down list.
- To view all remote devices added through plug and play, click the **Not Auto Connected** tab. You can remove devices added through plug and play, and they can be automatically added again after plug and play is enabled.

#### Step 4 Manage HDD.



- To configure read/write property, select an option from the **Property** drop-down list.
- To format an HDD, select the HDD, and then click **Format**.

Figure 1-8 Disk manager



Step 5 Click **Next**.

When the Device prompts whether to restart, click **OK**. The configurations through startup wizard take effect after the Device restarts.

### 1.1.3 Login

Log in to the Device to perform local operations.

## Procedure

**Step 1** Enter the IP address of the Device, and then press Enter.

**Step 2** Select the login type, including **Password Login** and **Pattern Login**.

### Step 3 Login the Device.

- Enter the user name and password, and then click **Login** to login the Device.
- Draw the pattern to login the Device.

Figure 1-9 Login (password)

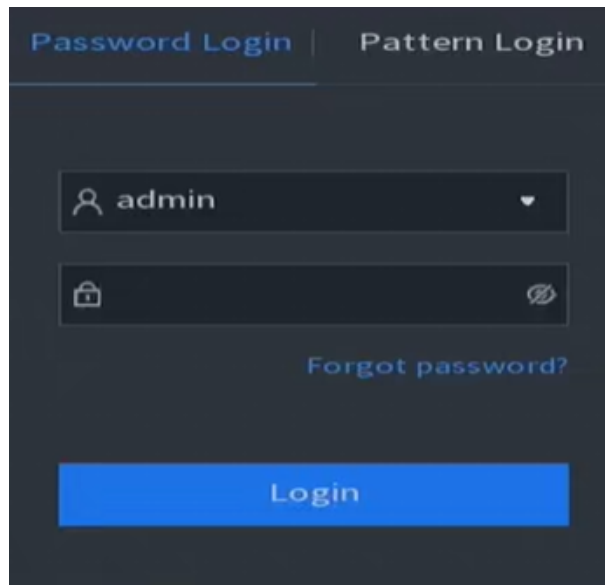
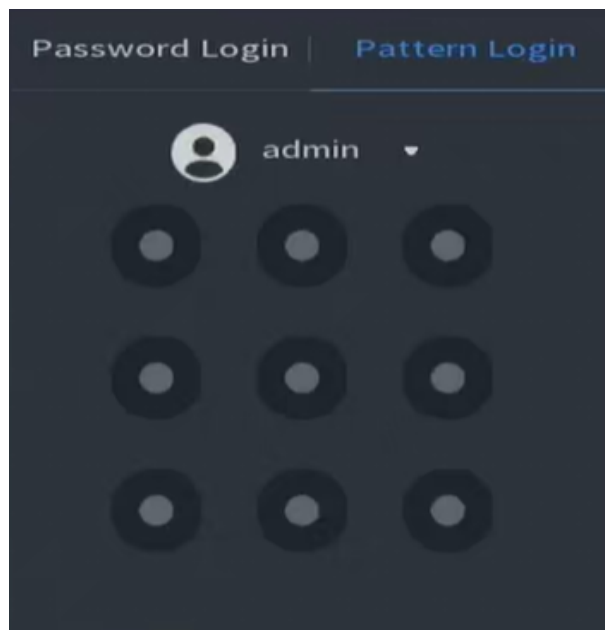
The image shows a login interface with a dark background. At the top, there are two tabs: "Password Login" (selected) and "Pattern Login". Below the tabs, there is a user selection dropdown menu showing "admin" with a person icon and a downward arrow. Below that is a password input field with a lock icon on the left and an eye icon on the right. A link "Forgot password?" is positioned below the password field. At the bottom, there is a large blue button labeled "Login".

Figure 1-10 Login (pattern)

The image shows a login interface with a dark background. At the top, there are two tabs: "Password Login" and "Pattern Login" (selected). Below the tabs, there is a user selection dropdown menu showing "admin" with a person icon and a downward arrow. Below that is a 3x3 grid of circular dots for drawing a pattern. The dots are arranged in three rows and three columns.

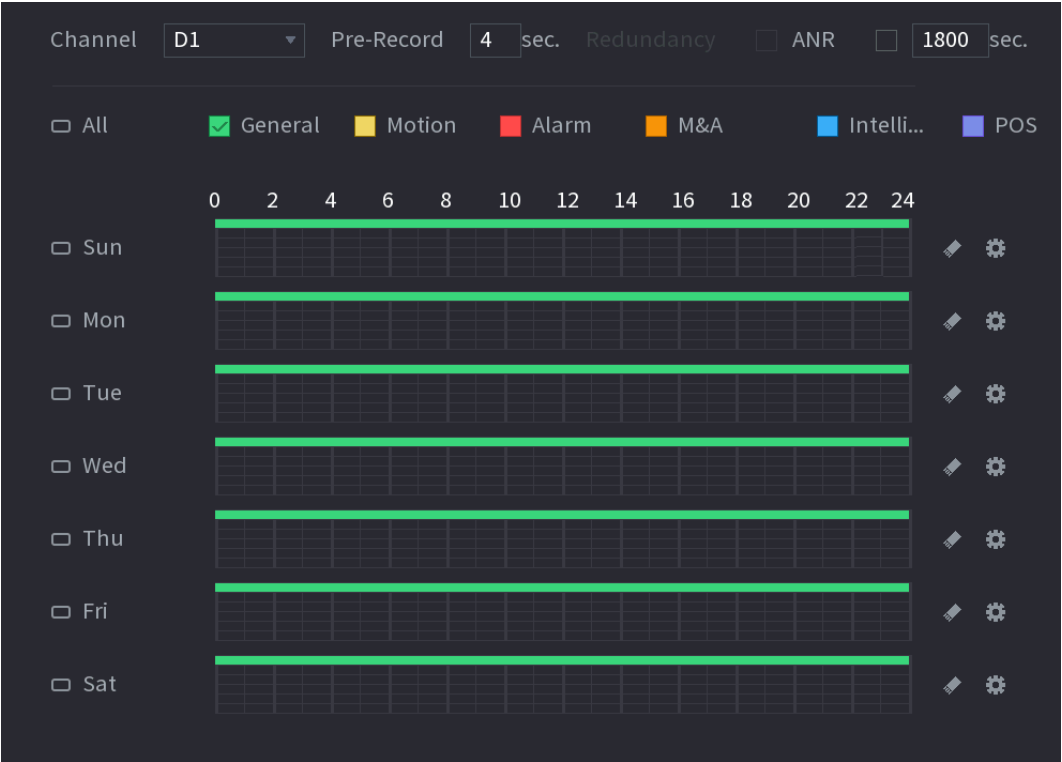
## 1.2 Configuring Video Recording Schedule

After you set the schedule for videos, the device will record videos according to the period you set. For example, if the alarm recording period is from 6:00–18:00 on Monday, the device will make a recording on Mondays from 6:00-18:00.

### Procedure

- Step 1 Right-click the live view, and then select **Main Menu** > **SETTINGS** > **STORAGE** > **Schedule** > **Record**.

Figure 1-11 Video schedule



Step 2    Configure the parameters.

Table 1-4 Description of video schedule parameters

| Parameter  | Description                                                                                                    |
|------------|----------------------------------------------------------------------------------------------------------------|
| Channel    | Select a channel to record a video.                                                                            |
| Pre-record | Enter the amount of time that you want the pre-recording to last. A recording will be made prior to the event. |

| Parameter  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Redundancy | <p>If there are several HDDs installed to the Device, you can set one of the HDDs as the redundant HDD to save the recorded files into different HDDs. If one of the HDDs becomes damaged, you can find the backup on the other HDD.</p> <ul style="list-style-type: none"> <li>• Select <b>Main Menu</b> &gt; <b>STORAGE</b> &gt; <b>Disk Manager</b>, and then set a HDD as redundant HDD.</li> <li>• Select <b>Main Menu</b> &gt; <b>STORAGE</b> &gt; <b>Schedule</b> &gt; <b>Record</b>, and then select the <b>Redundancy</b> checkbox. <ul style="list-style-type: none"> <li>◇ If the selected channel is not recording, the redundancy function will take effect the next time that you record, whether or not you select the checkbox.</li> <li>◇ If the selected channel is recording, the current recorded files will be packed, and then start recording according to the new schedule.</li> </ul> </li> </ul> <p></p> <ul style="list-style-type: none"> <li>• This function is for some models only.</li> <li>• The redundant HDD only backs up the recorded videos but not snapshots.</li> </ul> |
| ANR        | <p>You can set the ANR (auto network resume) function.</p> <ul style="list-style-type: none"> <li>• The IPC continues recording once the NVR and IPC connection fails. After the network becomes normal, the NVR can download recording files while it is disconnected from the IPC. This is to help protect against data loss from the current IPD channel that is connected.</li> <li>• Set the maximum recording upload period. If the offline period is longer than the period you set, IPC will only upload the recording file during the specified period.</li> </ul> <p></p> <p>Make sure that SD card is installed and the recording function is enabled on the IPC.</p>                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Period     | <p>Set a period during which the configured recording setting is active.</p> <p></p> <p>The system only activates the alarm in the defined period.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Copy to    | Click <b>Copy to</b> to copy the settings to other channels.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Figure 1-12 Period

**Step 3** Set one or more recording types from **General** , **Motion** (motion detection), **Alarm**, **M&A** (motion detection and alarm), **Intelligent** and **POS**.

Figure 1-13 Recording type

**Step 4** Set recording period.



If you have added a holiday, you can set the recording period for the holiday.

Figure 1-14 Set record period

- Define the period by drawing.
  1. Select a corresponding date to set.
    - ◇ Define for the whole week: Click ☐ next to **All**. All the icon switch to ☒. You can define the period for all the days simultaneously.

- ◇ Define for several days of a week: Click  before each day one by one. The icon switches to . You can define the period for the selected days simultaneously.
- 2. On the timeline, drag to define a period.
  - ◇ Once the time period overlaps, the recording priority is: **M&A** > **Alarm** > **POS** > **Intelligent** > **Motion** > **General**.
  - ◇ Select a recording type, and then click the  of the corresponding date to clear the corresponding period.

Figure 1-15 Set period by drawing



The MD record and alarm record function are both null if you enabled the function of MD&Alarm.

- Define the period by editing.
  1. Select a date, and then click .



Figure 1-16 Set period by editing

2. Set the recording type for each period.
  - ◇ There are six periods for you to set for each day.
  - ◇ Under **Copy to**, select **All** to apply the settings to all the days of the week, or select specific days that you want to apply the settings to.
3. Click **Apply**.

Step 5 Click **Apply** to complete the settings.

## 1.3 Configuring P2P Settings

You can use the QR code to connect a smart phone to the NVR for management.



Make sure that the NVR has been connected to the Internet, and if yes, in the **Status** box of the P2P interface, it shows **Online**.

### 1.3.1 Enabling P2P Function

P2P is a kind of convenient private network penetration technology. Instead of applying for dynamic domain name, mapping ports or deploying transit server, you can add devices to the app for remote management.

#### Background Information



This function will consume the device traffic when the device is online.

#### Procedure

- Step 1 Select **Main Menu** > **SETTINGS** > **NETWORK** > **P2P**.
- Step 2 Enable the P2P function.



After you enable the P2P function and connect to the Internet, the system will collect the information such as email address and MAC address for remote access.

**Step 3** Click **Apply**.

The P2P function is enabled. You can use your phone to scan the QR code under **Mobile Client** to download and install the mobile client. After that, you can use the mobile client to scan the QR code under **Device SN** to add the Device for remote management. For more information about the app operation, see the user manual of the app.

## 1.3.2 Adding the Device to Smart Phone Client

You can add devices by manually entering the device SN, scanning the QR code, entering the IP of the device, or by searching on LAN. This topic takes adding the device by scanning the QR code to the smart phone client as an example for smart phone management. For more information about the app operation, see the user manual of the app.

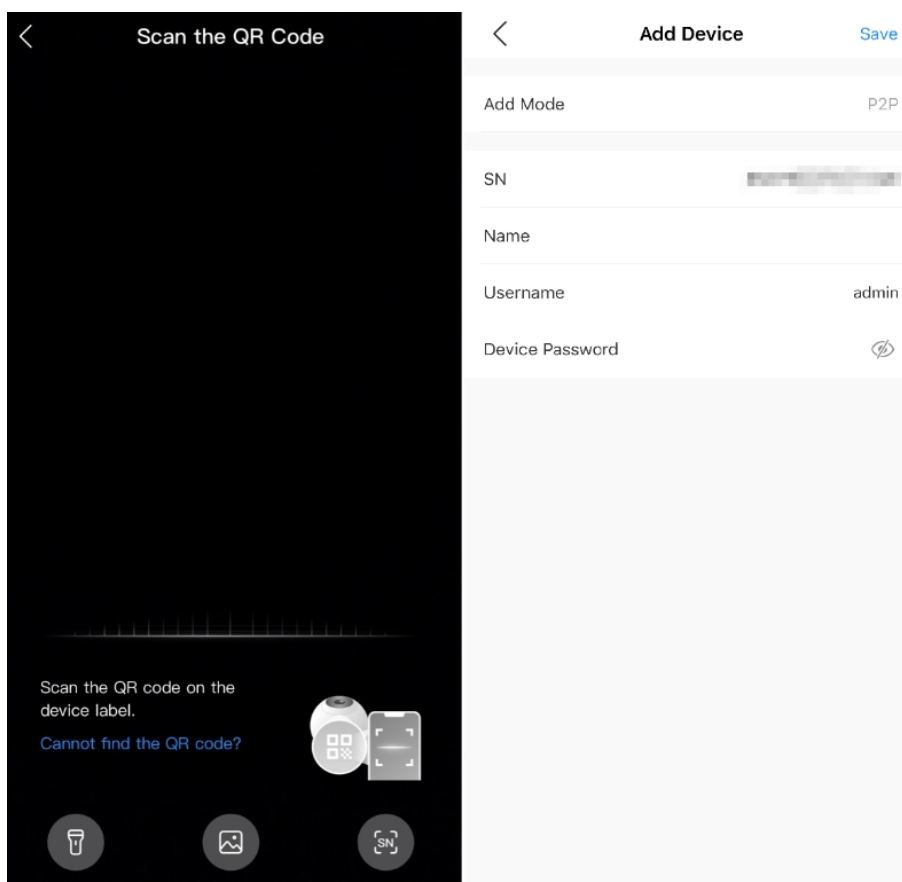
### Procedure

**Step 1** On the **Home** screen, tap , and then select **Scan the QR Code**.

**Step 2** Add a device.

- Scan the device QR code directly, or tap  and import the QR code picture to add a device.
- Tap , and then enter the device SN to manually add a device.

Figure 1-17 Add by SN/QR code



Step 3 Select the device type.

Step 4 On the **Add Device** screen, customize the device name, enter the user name and the device password, and then tap **Save**.

## 1.4 Smart Motion Detection

This topic shows how to configure Smart Motion Detection (SMD).

### Background Information

The Smart Motion Detection (SMD) is an ideal monitoring feature for low populated areas where you want an alert for human or vehicles anywhere in the scene without having to set rules and draw lines.

### Procedure

Step 1 Select **Main Menu** > **AI** > **Parameter** > **SMD**.

Figure 1-18 SMD

The screenshot displays the SMD configuration interface. At the top, there are settings for 'Channel' (set to D1), 'Enable' (a toggle switch), and 'Sensitivity' (set to Medium). Below these are checkboxes for 'Effective Target' for 'Human' and 'Motor Vehicle'. A horizontal line separates these from the 'Schedule' section, which includes a 'Setting' button and 'Anti-Dither' (0 sec). Below the line are 'Alarm-out Port' (Setting button), 'Post-Alarm' (0 sec), and three checkboxes: 'Show Message', 'Report Alarm', and 'Send Email'. Further down are 'Record Channel' (Setting button), 'PTZ Linkage' (Setting button), 'Post-Record' (10 sec), 'Tour' (Setting button), 'Picture Storage' (checkbox), 'Buzzer' (checkbox), 'Log' (checkbox), and 'Alarm Tone' (set to None). At the bottom, a note states: 'SMD linkage configuration synchronizes with MD linkage configuration.'

Step 2 Select and enable a channel, and then configure parameters.

Table 1-5 Description of SMD parameters

| Parameter   | Description                                                                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Sensitivity | The higher the value is, the easier it is to trigger an alarm. But at the same time, the false alarm may occur. The default value is recommended. |

| Parameter        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Effective Target | Choose human or motor vehicle or both.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Schedule         | Configure the period and in the set time range, and the corresponding configuration item will be linked to start the alarm.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Anti-Dither      | Indicates the time taken from the end of motion detection to the end of alarm linkage action. The range is 0 seconds to 600 seconds.                                                                                                                                                                                                                                                                                                                                                                                                          |
| Alarm-out Port   | The alarm device (such as lights, sirens, etc.) is connected to the alarm output port. When an alarm occurs, the NVR device transmits the alarm information to the alarm device.                                                                                                                                                                                                                                                                                                                                                              |
| Post-Alarm       | When the alarm ends, the alarm extended for a period of time. The time range is from 0 seconds to 300 seconds.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Show Message     | Check box to enable a pop-up message in your local host PC.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Report Alarm     | <p>Select the check box. When an alarm occurs, the NVR device uploads an alarm signal to the network (including the alarm center).</p>  <ul style="list-style-type: none"> <li>• This function is available on select models.</li> <li>• You need to set the alarm center first.</li> </ul>                                                                                                                                                                  |
| Send Email       | <p>Select the check box. When an alarm occurs, the NVR device sends an email to the set mailbox to notify the user.</p>  <p>You need to set the email first.</p>                                                                                                                                                                                                                                                                                           |
| Record Channel   | <p>Select the check box and select the needed recording channel (support multiple choices). When an alarm occurs, the NVR device activates the channel for recording.</p>  <p>You need to enable intelligent recording and auto recording first.</p>                                                                                                                                                                                                       |
| Post-Record      | At the end of the alarm, the recording extends for a period of time. The time range is from 10 seconds to 300 seconds.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| PTZ Linkage      | <p>Select the check box and click <b>Setting</b> to select the channel and PTZ action. When an alarm occurs, the NVR device associates the channel to perform the corresponding PTZ action. For example, activate the PTZ in channel one to turn to the preset point X.</p>  <ul style="list-style-type: none"> <li>• Tripwire alarm supports activating PTZ preset point only.</li> <li>• You need to set the corresponding PTZ actions first.</li> </ul> |

| Parameter       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tour            | <p>Select the check box and select the channel for tour. When an alarm occurs, the local interface of the NVR device displays the selected channel screen.</p>  <ul style="list-style-type: none"> <li>• You need to set the time interval and mode for tour first.</li> <li>• After the tour is over, the preview interface is restored to the screen split mode before the tour.</li> </ul> |
| Picture Storage | <p>Select the Snapshot check box to take a snapshot of the selected channel.</p>  <p>To use this function, select <b>Main Menu</b> &gt; <b>CAMERA</b> &gt; <b>Encode</b> &gt; <b>Snapshot</b>, select <b>Event</b> in <b>Type</b> list.</p>                                                                                                                                                   |
| Buzzer          | Select the check box to activate the buzzer when an alarm occurs.                                                                                                                                                                                                                                                                                                                                                                                                              |
| Alarm Tone      | <p>Check the box and then select the corresponding audio file from the drop-down list. System plays the audio file when the alarm occurs.</p>  <p>You need to add audio file first.</p>                                                                                                                                                                                                      |

Step 3 Click **Apply**.

## 1.5 Live View

Click **LIVE** on the main menu, and you can view the live video of each channel and configure the channel layout, display settings, and PTZ settings. For more information about the live view page of the device, see the user manual of the device.

Figure 1-19 Live view page

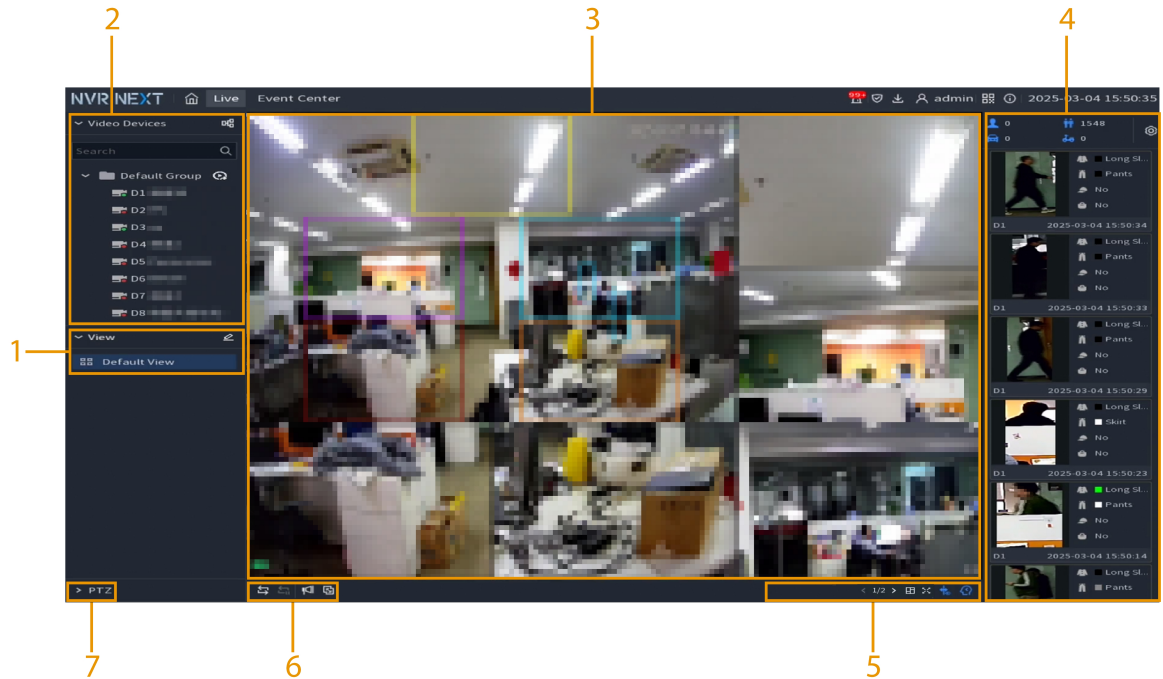


Table 1-6 Page description

| No. | Module                     | Description                                                                                                                                                                                                                                                                                                                   |
|-----|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | View layout                | Edit the layout of the channel live view section, supporting the pre-configuration of view layouts.                                                                                                                                                                                                                           |
| 2   | Video devices              | Configure the grouping of video devices.                                                                                                                                                                                                                                                                                      |
| 3   | Live view of channels      | Modify the channel layout and display or interact with the channels using the function buttons for channel display, channel switching, and the broadcast section.                                                                                                                                                             |
| 4   | AI live page               | Enable the AcuPick function to analyze the characteristics of targets, including faces, human bodies, motor vehicles, and non-motor vehicles.                                                                                                                                                                                 |
| 5   | Channel display and layout | <ul style="list-style-type: none"> <li> is used to switch the channel display.</li> <li> is used to modify the content shown in the display.</li> </ul> |

| No. | Module                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6   | Channel switching and broadcasting | <ul style="list-style-type: none"> <li>Click  to start tour and click  to pause or proceed with tour.</li> <li>Click  to enable the voice broadcast function.</li> </ul> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p></p> <ul style="list-style-type: none"> <li>◇ You can select <b>Video Device</b> or <b>IP Speaker</b> for the function.</li> <li>◇ For the talking function, reuse the device (for example, IPC) talk button; if the device is associated with an IP speaker, talk with the speaker; if not associated, talk with the device.</li> </ul> </div> <ul style="list-style-type: none"> <li>Click  to switch channels to display on the main or secondary screen.</li> </ul> |
| 7   | PTZ settings                       | Adjust the PTZ settings of devices.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## View

1. Click  to edit the view layout.
2. Click  to add the custom layout and change the layout.

Long-press the left mouse button on a channel and drag it to the live view.

In the adding view page, you can click  to configure advertisement resources in binding settings.

Figure 1-20 Binding settings

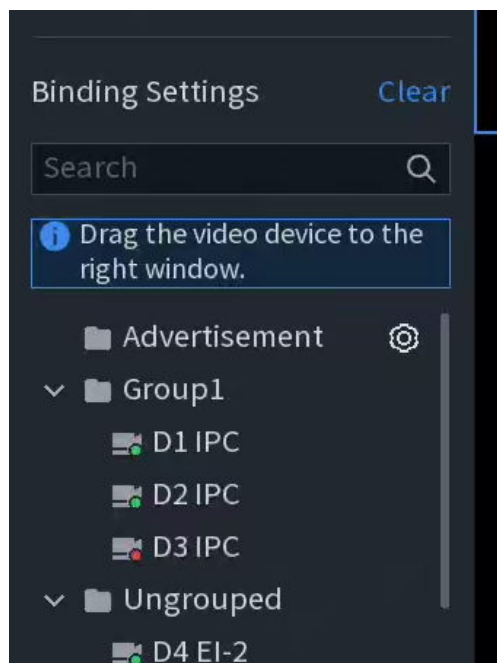
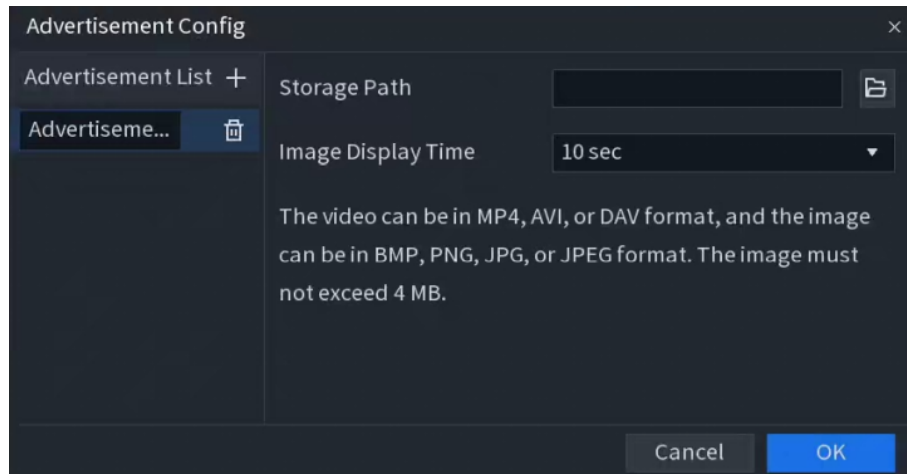


Figure 1-21 Advertisement configurations



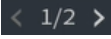
Select the layout, drag an advertisement from the left list and drop it onto a pane in the right view layout to bind it. Click **Save** to save the view.



Advertisement playback is supported in both layout editing and live view modes. Manual pause and volume adjustment for video advertisements are also supported.

3. Click  to delete the view layout.

## Channel Display and Layout

- : Go to or go back to the layout page.
- : Switch the default view layout scheme, supporting 1, 4, 8, 9, 16, 25 and 36 splits.
- : Display the live view of channels in full screen. Right-click to select **Exit Full Screen** to exit the full screen.
- : Enable **AI Display**, including **AI Rule** and **AI Area**.
- : Enable **AI Live**, and the AI live results are displayed on the right side of the live page.

Click  to modify the channel, panel style and attribute settings.



Figure 1-22 AI live view

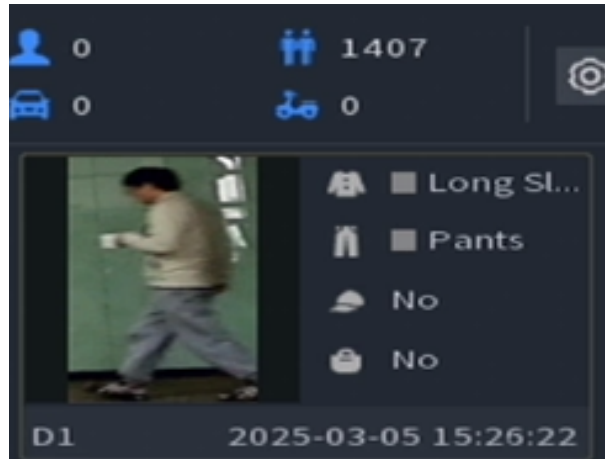
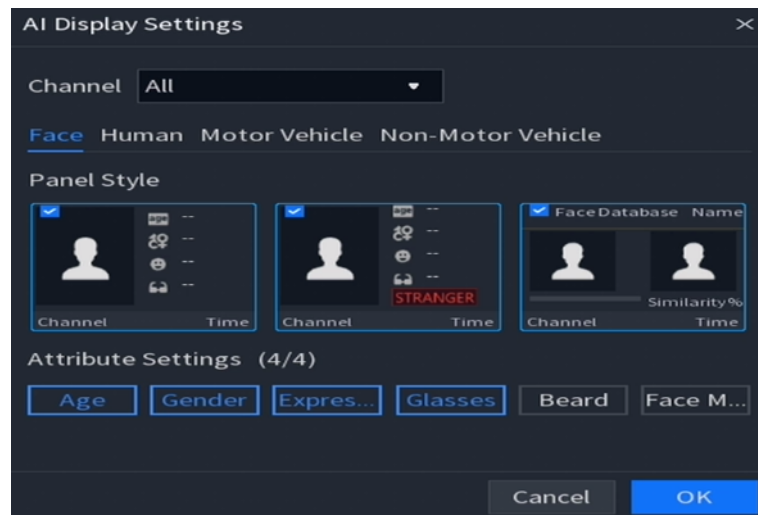


Figure 1-23 AI display settings



## 1.6 Playback

Log in to the main menu, select **PLAYBACK** or right-click the mouse in the live view page to select **Playback**, and then click  to enter the playback page of general video. For more information about the playback page of the device, see the user manual of the device.

Figure 1-24 General video

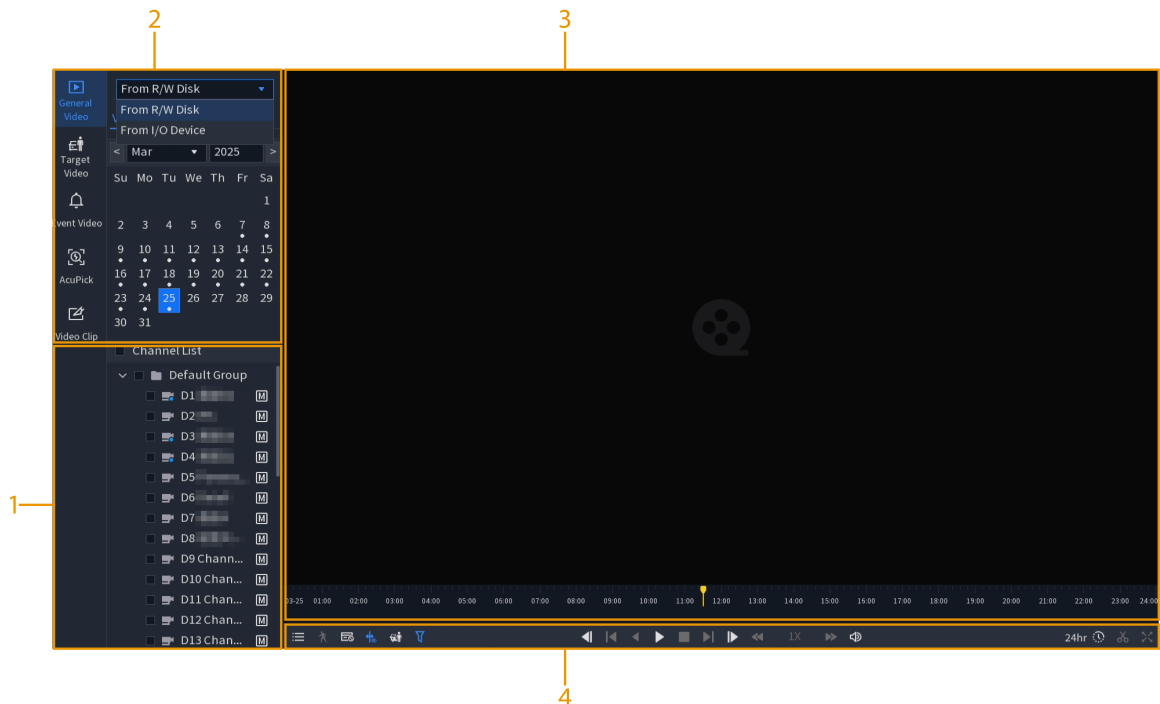


Table 1-7 Description of the general video page

| No. | Name                     | Description                                                                                                                                                                                                                                                                               |
|-----|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Channel list             | Displays device tree groups based on device grouping, and shows the playback according to the selected devices when viewing playback.<br><br>The maximum number of playback channels is limited to 16. |
| 2   | Playback source and date | Select the playback source and date, supporting the selection of <b>From R/W Disk</b> and <b>From I/O Device</b> .                                                                                                                                                                        |
| 3   | Display window           | Channel playback shows the type of video or image and the corresponding time period under the current conditions.                                                                                                                                                                         |
| 4   | Playback control bar     | Use the function buttons to filter, control, and edit the playback videos.                                                                                                                                                                                                                |

## Display Window

- Click  to zoom in on a specific area of the screen to view the details of that region.

The system supports dragging in any direction to view the enlarged image of other areas on the screen. When in the zoomed-in state, right-click to cancel the zoom effect and restore the original image.

- Click  to manually capture 1 to 5 images, and the captured images will be stored on the external storage device.

In the main menu page, select **SETTINGS** > **REMOTE DEVICE** > **Camera Settings** > **Encode** > **Snapshot** to set the number of images to capture in a single manual snapshot.

- Click  to add tags for playback.
- Click  to configure the EPTZ.
- Click  to set the fisheye dewarping.
- Click anywhere on the colored area of the timeline to start playback from that point in time.
- When you change the playback mode or select the recording channel, the timeline will update synchronously.
- Scrolling the mouse will zoom in on the timeline within the nearest range of the current playback time.
- Some device models support automatic jumping to the next recorded timestamp for playback when clicking on a blank area of the timeline.
- On the playback timeline, holding down the left mouse button allows you to drag the timeline, changing the mouse cursor to a hand grab icon, and the playback interface will display frames corresponding to the timeline.
- Thumbnail display: When playing a single channel normally, moving the mouse over the timeline will show a thumbnail of the clicked moment along with the four previous and next frames.
- It supports dragging the vertical line on the timeline (I-frame hover); during playback, holding down the (orange) vertical line on the timeline allows for quick browsing of playback (fast jumping playback according to I-frames).

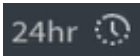
## Playback Control

Figure 1-25 Playback control



Table 1-8 Playback control description

| Icon                                                                                | Function                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | You can view the file list to display the queried recording files, and perform locking or unlocking operations on the files.                                                                                                                                                                                        |
|  | Smart search.                                                                                                                                                                                                                                                                                                       |
|  | Display and hide POS information.<br>In 1-channel playback mode, you can click it to display/hide POS information on the video.                                                                                                                                                                                     |
|  | In 1-channel playback mode, click it to enable or disable display IVS rule information on the video.<br><br>This function is for some series only.                                                                               |
|  | Smart motion detection. You can click the icon to select a human, motor vehicle or animal, and the system plays detected videos of the person or motor vehicle.<br><br>Human and motor vehicle can be selected at the same time. |

| Icon                                                                                | Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Select the recording type. Supports filtering by normal, alarm, motion detection, smart, and POS.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|    | Play/Pause<br>In slow play mode, click it to switch between play/pause.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|    | Stop<br>When playing back, click to stop current playback process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|    | Rewind<br>In normal play mode, left-click the button, the file begins to rewind. Click it again to pause it.<br><br>While it is rewinding, click  or  to restore normal play.                                                                                                                                                                                                             |
|    | Displays previous frame/next frame.<br><br>When you pause the normal playback file, click  or  to play back frame by frame.<br><br>In frame by frame playback mode, click  or  to resume normal playback mode. |
|  | Slow play<br>In playback mode, click it to use various slow play modes such as slow play 1, slow play 2, and more.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|  | Fast forward<br>In playback mode, click to realize various fast play modes such as fast play 1, fast play 2 and more.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | Adjust the volume of the playback.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|  | View playback by time range, with options for 24 hours, 2 hours, 1 hour, 30 minutes, and 5 minutes.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Configure the video clip and save it.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|  | View the videos in full screen.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## 2 Web Operation

### 2.1 Network Connection

#### Background Information



- The factory default IP of the Device is 192.168.1.108.
- The device supports monitoring on different browsers such as Safari, Firefox, Google to perform the functions such as multi-channel monitoring, PTZ control, and device parameters configurations.

#### Procedure

- Step 1 Check to make sure the device has connected to the network.
- Step 2 Configure the IP address, subnet mask and gateway for the computer and the device. For more information about the network configuration of the device, see the user manual of the device.
- Step 3 On your computer, check the network connection of the device by using "ping \*\*\*.\*\*\*.\*\*\*.\*\*\*". Usually the return value of TTL is 255.

### 2.2 Web Login

#### Procedure

- Step 1 Open the browser, enter the IP address of the Device, and then press Enter.
- Step 2 Enter the user name and password, select a login type.



- The default administrator account is **admin**. The password is the one that was configured during initial settings. To ensure your account security, we recommend you keep the password properly and change it regularly.
- Click  to display the password.

- Step 3 Click **Login**.

#### Related Operations

Click the language box on the upper-right corner of the page, select the corresponding language, and then the page will go to the corresponding language.

# Appendix 1 Security Recommendation

## Account Management

### 1. Use complex 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: 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 repeating characters, such as 111, aaa, etc.

### 2. Change passwords periodically

It is recommended to periodically change the device password to reduce the risk of being guessed or cracked.

### 3. Allocate accounts and permissions appropriately

Appropriately add users based on service and management requirements and assign minimum permission sets to users.

### 4. Enable account lockout function

The account lockout function is enabled by default. You are advised to keep it enabled to protect account security. After multiple failed password attempts, the corresponding account and source IP address will be locked.

### 5. Set and update password reset information in a timely manner

The device supports password reset function. To reduce the risk of this function being used by threat actors, if there is any change in the information, please modify it in time. When setting security questions, it is recommended not to use easily guessed answers.

## Service Configuration

### 1. Enable HTTPS

It is recommended that you enable HTTPS to access web services through secure channels.

### 2. Encrypted transmission of audio and video

If your audio and video data contents are very important or sensitive, it is recommended to use encrypted transmission function in order to reduce the risk of your audio and video data being eavesdropped during transmission.

### 3. Turn off non-essential services and use safe mode

If not needed, it is recommended to turn off some services such as SSH, SNMP, SMTP, UPnP, AP hotspot etc., to reduce the attack surfaces.

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

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

### 4. Change HTTP and other default service ports

It is recommended that you change the default port of HTTP and other services to any port between 1024 and 65535 to reduce the risk of being guessed by threat actors.

## Network Configuration

### 1. **Enable Allowlist**

It is recommended that you turn on the allowlist function, and only allow IP in the allowlist to access the device. Therefore, please be sure to add your computer IP address and supporting device IP address to the allowlist.

### 2. **MAC address binding**

It is recommended that you bind the IP address of the gateway to the MAC address on the device to reduce the risk of ARP spoofing.

### 3. **Build a secure network environment**

In order to better ensure the security of devices and reduce potential cyber risks, the following are recommended:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network;
- According to the actual network needs, partition the network: if there is no communication demand between the two subnets, it is recommended to use VLAN, gateway and other methods to partition the network to achieve network isolation;
- Establish 802.1x access authentication system to reduce the risk of illegal terminal access to the private network.

## Security Auditing

### 1. **Check online users**

It is recommended to check online users regularly to identify illegal users.

### 2. **Check device log**

By viewing logs, you can learn about the IP addresses that attempt to log in to the device and key operations of the logged users.

### 3. **Configure network log**

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

## Software Security

### 1. **Update firmware in time**

According to the industry standard operating specifications, the firmware of devices needs to be updated to the latest version in time in order to ensure that the device has the latest functions and security. If the device is connected to the public network, it is recommended to enable the online upgrade automatic detection function, so as to obtain the firmware update information released by the manufacturer in a timely manner.

### 2. **Update client software in time**

It is recommended to download and use the latest client software.

## Physical Protection

It is recommended that you carry out physical protection for devices (especially storage devices), such as placing the device in a dedicated machine room and cabinet, and having access control

and key management in place to prevent unauthorized personnel from damaging hardware and other peripheral equipment (e.g. USB flash disk, serial port).